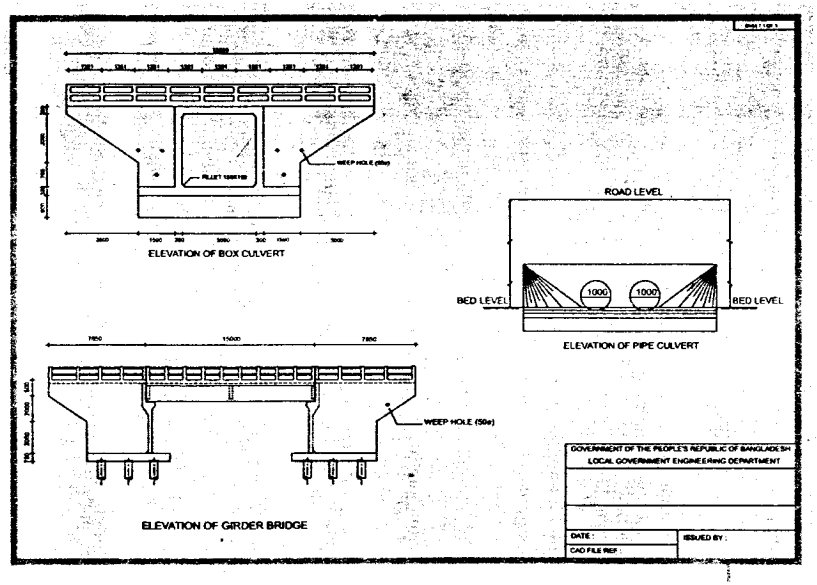
Web Copy

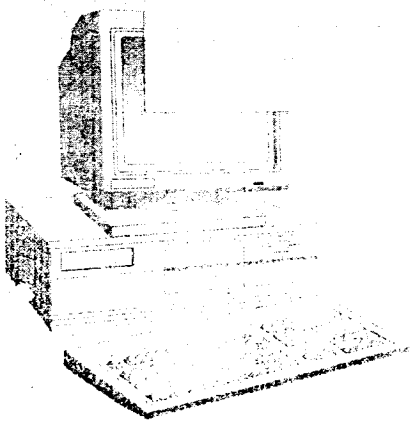
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF LOCAL GOVERNMENT, RURAL DEVELOPMENT & COOPERATIVES

LOCAL GOVERNMENT ENGINEERING DEPARTMENT

ROAD STRUCTURES MANUAL

PART B: STANDARD DESIGNS





VOLUME - 1

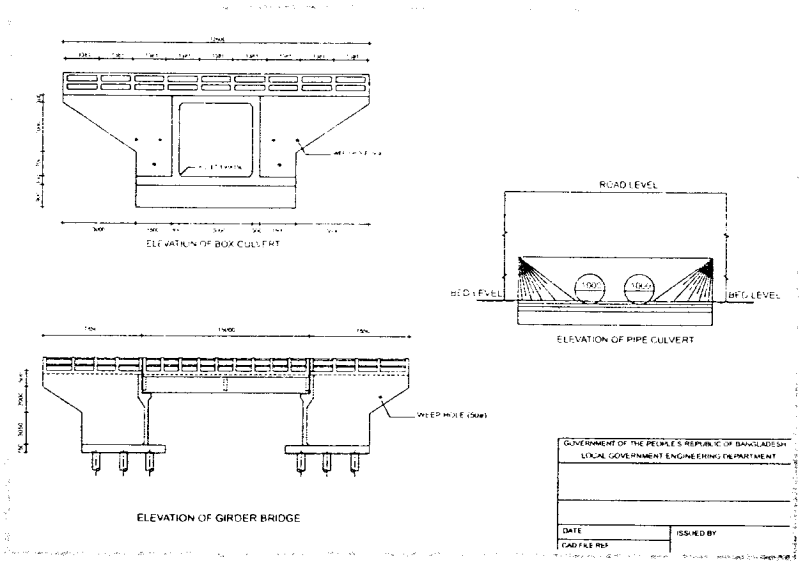
BOX CULVERT
PIPE CULVERT
U - DRAIN

FUNDED BY
USAID

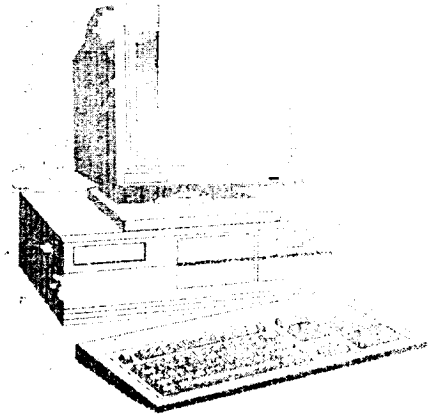
EXECUTING AGENCY
LOCAL GOVT. ENGINEERING DEPARTMENT
CARE BANGLADESH

PREPARED BY
DEVELOPMENT DESIGN CONSULTANTS LTD.

Web Copy



BOX CULVERT



Web Copy

SELECTION OF STANDARD DESIGN

BOX CULVERTS :

Introduction

Standard design of box culverts of box sizes starting for 1m x 1m to 4.3m x 4.3m with 0.3m increment both vertical and horizontal having three types of live loading AASHTO H10, H15, and H20 are presented in the Manual. The carriageway widths have been considered as 2.44m and 3.66m and the number of vents ranges from single to triple vents for each and every types of loading. A total of 231 standard designs have been provided. Each structure has been assigned a reference code based on the box size, type of loading and number of vents.

Procedure of Selection

Selection of a box culvert along with its size, number of vents etc. will be determined by following the flow chart given in Chapters 13 and 14 of Part A of the Manual. For FRB 3.66m carriageway width (cw) and H20 loading, for RRI & RR2 3.66m (cw) and H15 loading and for RR3 2.44m (cw) and H10 loading will be followed. Standard designs with detailed drawings of the required structures along with bar schedule are available in this section.

Selection of a suitable structure may also be done with the assistance of Structure WORKS, a computer software. See Part C of the Road Structure Manual for more information.

Quantity Estimate

The estimates of quantities involving different items of works are presented in the form of a Table in the following pages. Estimate for a particular design can be obtained from these tables.

The items of works whose quantities depend on the particular site conditions are included in the table, but their quantities are kept blank. Those are to be determined after actual field measurements.

In preparing the bill of quantities the full description of the related items should be taken from Chapter 16-Bill of Quantities. List of all box culverts are summarized below :

Structural list of Box Culverts

Sl. No.	Reference Code	Structure Description	Page No.
1	CULV/B1110101	Box Culvert; Single Vent; Load H10; S1.0m x H 1.0m;	BC-1
2	CULV/B1113101	Box Culvert; Single Vent; Load H10; S1.3m x H 1.0m;	BC-2
3	CULV/B1113131	Box Culvert; Single Vent; Load H10; S1.3m x H 1.3m;	BC-3
4	CULV/B1116131	Box Culvert; Single Vent; Load H10; S1.6m x H 1.3m;	BC-4
5	CULV/B1116161	Box Culvert; Single Vent; Load H10; S1.6m x H 1.6m;	BC-5
6	CULV/B1120161	Box Culvert; Single Vent; Load H10; S2.0m x H 1.6m;	BC-6
7	CULV/B1123161	Box Culvert; Single Vent; Load H10; S2.3m x H 1.6m;	BC-7
8	CULV/B1120201	Box Culvert; Single Vent; Load H10; S2.0m x H 2.0m;	BC-8
9	CULV/B1123201	Box Culvert; Single Vent; Load H10; S2.3m x H 2.0m;	BC-9
10	CULV/B1126201	Box Culvert; Single Vent; Load H10; S2.6m x H 2.0m;	BC-10
11	CULV/B1130201	Box Culvert; Single Vent; Load H10; S2.0m x H 2.0m;	BC-11
12	CULV/B1123231	Box Culvert; Single Vent; Load H10; S2.3m x H 2.3m;	BC-12
13	CULV/B1126231	Box Culvert; Single Vent; Load H10; S2.6m x H 2.3m;	BC-13
14	CULV/B1130231	Box Culvert; Single Vent; Load H10; S3.0m x H 2.3m;	BC-14
15	CULV/B1133231	Box Culvert; Single Vent; Load H10; S3.3m x H 2.3m;	BC-15
16	CULV/B1126261	Box Culvert; Single Vent; Load H10; S2.6m x H 2.6m;	BC-16
17	CULV/B1130261	Box Culvert; Single Vent; Load H10; S3.0m x H 2.6m;	BC-18
18	CULV/B1133261	Box Culvert; Single Vent; Load H10; S3.3m x H 2.6m;	BC-20
19	CULV/B1136261	Box Culvert; Single Vent; Load H10; S3.6m x H 2.6m;	BC-22
20	CULV/B1130301	Box Culvert; Single Vent; Load H10; S3.0m x H 3.0m;	BC-24
21	CULV/B1133301	Box Culvert; Single Vent; Load H10; S3.3m x H 3.0m;	BC-26
22	CULV/B1133301	Box Culvert; Single Vent; Load H10; S3.3m x H 3.0m;	BC-28
23	CULV/B1140301	Box Culvert; Single Vent; Load H10; S4.0m x H 3.0m;	BC-30
24	CULV/B1143301	Box Culvert; Single Vent; Load H10; S4.3m x H 3.0m;	BC-32
25	CULV/B1133331	Box Culvert; Single Vent; Load H10; S3.3m x H 3.3m;	BC-34
26	CULV/B1136331	Box Culvert; Single Vent; Load H10; S3.6m x H 3.3m;	BC-36
27	CULV/B1140331	Box Culvert; Single Vent; Load H10; S4.0m x H 3.3m;	BC-38
28	CULV/B1143331	Box Culvert; Single Vent; Load H10; S4.3m x H 3.3m;	BC-40
29	CULV/B1136361	Box Culvert; Single Vent; Load H10; S3.6m x H 3.6m;	BC-42
30	CULV/B1140361	Box Culvert; Single Vent; Load H10; S4.0m x H 3.6m;	BC-44
31	CULV/B1143361	Box Culvert; Single Vent; Load H10; S4.3m x H 3.6m;	BC-46
32	CULV/B1140401	Box Culvert; Single Vent; Load H10; S4.0m x H 4.0m;	BC-48
33	CULV/B1143401	Box Culvert; Single Vent; Load H10; S4.3m x H 4.0m;	BC-50
34	CULV/B1143431	Box Culvert; Single Vent; Load H10; S4.3m x H 4.3m;	BC-52
35	CULV/B1210101	Box Culvert; Single Vent; Load H15; S1.0m x H 1.0m;	BC-54
36	CULV/B1213101	Box Culvert; Single Vent; Load H15; S1.3m x H 1.0m;	BC-55
37	CULV/B1213131	Box Culvert; Single Vent; Load H15; S1.3m x H 1.3m;	BC-56
38	CULV/B1216131	Box Culvert; Single Vent; Load H15; S1.6m x H 1.3m;	BC-57
39	CULV/B1216161	Box Culvert; Single Vent; Load H15; S1.6m x H 1.6m;	BC-58
40	CULV/B1220161	Box Culvert; Single Vent; Load H15; S2.0m x H 1.6m;	BC-59
41	CULV/B1223161	Box Culvert; Single Vent; Load H15; S2.3m x H 1.6m;	BC-60
42	CULV/B1220201	Box Culvert; Single Vent; Load H15; S2.0m x H 2.0m;	BC-61
43	CULV/B1223201	Box Culvert; Single Vent; Load H15; S2.3m x H 2.0m;	BC-62
44	CULV/B1226201	Box Culvert; Single Vent; Load H15; S2.6m x H 2.0m;	BC-63
45	CULV/B1230201	Box Culvert; Single Vent; Load H15; S3.0m x H 2.0m;	BC-64
46	CULV/B1223231	Box Culvert; Single Vent; Load H15; S2.3m x H 2.3m;	BC-65

Web Copy

Sl. No.	Reference Code	Structure Description	Page No.
47	CULV/B1226231	Box Culvert; Single Vent; Load H15; S2.6m x H 2.3m;	BC-66
48	CULV/B1230231	Box Culvert; Single Vent; Load H15; S3.0m x H 2.3m;	BC-67
49	CULV/B1233231	Box Culvert; Single Vent; Load H15; S3.3m x H 2.3m;	BC-68
50	CULV/B1226261	Box Culvert; Single Vent; Load H15; S2.6m x H 2.6m;	BC-69
51	CULV/B1230261	Box Culvert; Single Vent; Load H15; S3.0m x H 2.6m;	BC-71
52	CULV/B1233261	Box Culvert; Single Vent; Load H15; S3.3m x H 2.6m;	BC-73
53	CULV/B1236261	Box Culvert; Single Vent; Load H15; S3.6m x H 2.6m;	BC-75
54	CULV/B1230301	Box Culvert; Single Vent; Load H15; S3.0m x H 3.0m;	BC-77
55	CULV/B1233301	Box Culvert; Single Vent; Load H15; S3.3m x H 3.0m;	BC-79
56	CULV/B1236301	Box Culvert; Single Vent; Load H15; S3.6m x H 3.0m;	BC-81
57	CULV/B1240301	Box Culvert; Single Vent; Load H15; S4.0m x H 3.0m;	BC-83
58	CULV/B1243301	Box Culvert; Single Vent; Load H15; S4.3m x H 3.0m;	BC-85
59	CULV/B1233331	Box Culvert; Single Vent; Load H15; S3.3m x H 3.3m;	BC-87
60	CULV/B1236331	Box Culvert; Single Vent; Load H15; S3.6m x H 3.3m;	BC-89
61	CULV/B1240331	Box Culvert; Single Vent; Load H15; S4.0m x H 3.3m;	BC-91
62	CULV/B1243331	Box Culvert; Single Vent; Load H15; S4.3m x H 3.3m;	BC-93
63	CULV/B1236361	Box Culvert; Single Vent; Load H15; S3.6m x H 3.0m;	BC-95
64	CULV/B1240361	Box Culvert; Single Vent; Load H15; S4.0m x H 3.6m;	BC-97
65	CULV/B1243361	Box Culvert; Single Vent; Load H15; S4.4m x H 3.6m;	BC-99
66	CULV/B1240401	Box Culvert; Single Vent; Load H15; S4.0m x H 4.0m;	BC-101
67	CULV/B1243401	Box Culvert; Single Vent; Load H15; S4.3m x H 4.0m;	BC-103
68	CULV/B1243431	Box Culvert; Single Vent; Load H15; S4.3m x H 4.3m;	BC-105
69	CULV/B1310101	Box Culvert; Single Vent; Load H20; S1.0m x H 1.0m;	BC-107
70	CULV/B1313101	Box Culvert; Single Vent; Load H20; S1.3m x H 1.0m;	BC-108
71	CULV/B1313131	Box Culvert; Single Vent; Load H20; S1.3m x H 1.3m;	BC-109
72	CULV/B1316131	Box Culvert; Single Vent; Load H20; S1.6m x H 1.3m;	BC-110
73	CULV/B1316161	Box Culvert; Single Vent; Load H20; S1.6m x H 1.6m;	BC-111
74	CULV/B1326161	Box Culvert; Single Vent; Load H20; S2.0m x H 1.6m;	BC-112
75	CULV/B1323161	Box Culvert; Single Vent; Load H20; S2.3m x H 1.6m;	BC-113
76	CULV/B1320201	Box Culvert; Single Vent; Load H20; S2.0m x H 2.0m;	BC-114
77	CULV/B1323201	Box Culvert; Single Vent; Load H20; S2.3m x H 2.0m;	BC-115
78	CULV/B1326201	Box Culvert; Single Vent; Load H20; S2.6m x H 2.0m;	BC-116
79	CULV/B1330201	Box Culvert; Single Vent; Load H20; S3.0m x H 2.0m;	BC-117
80	CULV/B1323231	Box Culvert; Single Vent; Load H20; S2.3m x H 2.3m;	BC-118
81	CULV/B1326231	Box Culvert; Single Vent; Load H20; S2.6m x H 2.3m;	BC-119
82	CULV/B1330231	Box Culvert; Single Vent; Load H20; S3.0m x H 2.3m;	BC-120
83	CULV/B1333231	Box Culvert; Single Vent; Load H20; S3.3m x H 2.3m;	BC-121
84	CULV/B1326261	Box Culvert; Single Vent; Load H20; S2.6m x H 2.6m;	BC-122
85	CULV/B1330261	Box Culvert; Single Vent; Load H20; S3.0m x H 2.6m;	BC-124
86	CULV/B1333261	Box Culvert; Single Vent; Load H20; S3.3m x H 2.6m;	BC-126
87	CULV/B1336261	Box Culvert; Single Vent; Load H20; S3.6m x H 2.6m;	BC-128
88	CULV/B1330301	Box Culvert; Single Vent; Load H20; S3.0m x H 3.0m;	BC-130
89	CULV/B1333301	Box Culvert; Single Vent; Load H20; S3.3m x H 3.0m;	BC-132
90	CULV/B1336301	Box Culvert; Single Vent; Load H20; S3.6m x H 3.0m;	BC-134
91	CULV/B1340301	Box Culvert; Single Vent; Load H20; S4.0m x H 3.0m;	BC-136
92	CULV/B1343301	Box Culvert; Single Vent; Load H20; S4.3m x H 3.0m;	BC-138
93	CULV/B1333331	Box Culvert; Single Vent; Load H20; S3.3m x H 3.3m;	BC-140
94	CULV/B1336331	Box Culvert; Single Vent; Load H20; S3.6m x H 3.3m;	BC-142
95	CULV/B1340331	Box Culvert; Single Vent; Load H20; S4.0m x H 3.3m;	BC-144
96	CULV/B1343331	Box Culvert; Single Vent; Load H20; S4.3m x H 3.3m;	BC-146
97	CULV/B1336361	Box Culvert; Single Vent; Load H20; S3.6m x H 3.6m;	BC-148
98	CULV/B1340361	Box Culvert; Single Vent; Load H20; S4.0m x H 3.6m;	BC-150
99	CULV/B1343361	Box Culvert; Single Vent; Load H20; S4.3m x H 3.6m;	BC-152
100	CULV/B1340401	Box Culvert; Single Vent; Load H20; S4.0m x H 4.0m;	BC-154
101	CULV/B1343401	Box Culvert; Single Vent; Load H20; S4.3m x H 4.0m;	BC-156
102	CULV/B1343431	Box Culvert; Single Vent; Load H20; S4.3m x H 4.3m;	BC-158
103	CULV/B2123161	Box Culvert; Double Vent; Load H10; S2.3m x H 1.6m;	BC-160
104	CULV/B2123201	Box Culvert; Double Vent; Load H10; S2.3m x H 2.0m;	BC-162
105	CULV/B2126201	Box Culvert; Double Vent; Load H10; S2.6m x H 2.0m;	BC-164
106	CULV/B2130201	Box Culvert; Double Vent; Load H10; S3.0m x H 2.0m;	BC-166
107	CULV/B2123231	Box Culvert; Double Vent; Load H10; S2.3m x H 2.3m;	BC-168
108	CULV/B2126231	Box Culvert; Double Vent; Load H10; S2.6m x H 2.3m;	BC-170
109	CULV/B2130231	Box Culvert; Double Vent; Load H10; S3.0m x H 2.3m;	BC-172
110	CULV/B2133231	Box Culvert; Double Vent; Load H10; S3.3m x H 2.3m;	BC-174
111	CULV/B2126261	Box Culvert; Double Vent; Load H10; S2.6m x H 2.6m;	BC-176
112	CULV/B2130261	Box Culvert; Double Vent; Load H10; S3.0m x H 2.6m;	BC-178
113	CULV/B2133261	Box Culvert; Double Vent; Load H10; S3.3m x H 2.6m;	BC-180
114	CULV/B2136261	Box Culvert; Double Vent; Load H10; S3.6m x H 2.6m;	BC-182
115	CULV/B2130301	Box Culvert; Double Vent; Load H10; S3.0m x H 3.0m;	BC-184
116	CULV/B2133301	Box Culvert; Double Vent; Load H10; S3.3m x H 3.0m;	BC-186
117	CULV/B2136301	Box Culvert; Double Vent; Load H10; S3.6m x H 3.0m;	BC-188
118	CULV/B2140301	Box Culvert; Double Vent; Load H10; S4.0m x H 3.0m;	BC-190
119	CULV/B2143301	Box Culvert; Double Vent; Load H10; S4.3m x H 3.0m;	BC-192
120	CULV/B2133331	Box Culvert; Double Vent; Load H10; S3.3m x H 3.3m;	BC-194
121	CULV/B2136331	Box Culvert; Double Vent; Load H10; S3.6m x H 3.3m;	BC-196
122	CULV/B2140331	Box Culvert; Double Vent; Load H10; S4.0m x H 3.3m;	BC-198
123	CULV/B2143331	Box Culvert; Double Vent; Load H10; S4.3m x H 3.3m;	BC-200
124	CULV/B2136361	Box Culvert; Double Vent; Load H10; S3.6m x H 3.6m;	BC-202
125	CULV/B2140361	Box Culvert; Double Vent; Load H10; S4.0m x H 3.6m;	BC-204
126	CULV/B2143361	Box Culvert; Double Vent; Load H10; S4.3m x H 3.6m;	BC-206
127	CULV/B2140401	Box Culvert; Double Vent; Load H10; S4.0m x H 4.0m;	BC-208
128	CULV/B2143401	Box Culvert; Double Vent; Load H10; S4.3m x H 4.0m;	BC-210
129	CULV/B2143431	Box Culvert; Double Vent; Load H10; S4.3m x H 4.3m;	BC-212
130	CULV/B2223161	Box Culvert; Double Vent; Load H15; S2.3m x H 1.6m;	BC-214

Web Copy

Sl. No.	Reference Code	Structure Description	Page No.
131	CULV/B2223201	Box Culvert; Double Vent; Load H15; S2.3m x H 2.0m;	BC-216
132	CULV/B2226201	Box Culvert; Double Vent; Load H15; S2.6m x H 2.0m;	BC-218
133	CULV/B2230201	Box Culvert; Double Vent; Load H15; S3.0m x H 2.0m;	BC-220
134	CULV/B2223231	Box Culvert; Double Vent; Load H15; S2.3m x H 2.3m;	BC-222
135	CULV/B2226231	Box Culvert; Double Vent; Load H15; S2.6m x H 2.3m;	BC-224
136	CULV/B2230231	Box Culvert; Double Vent; Load H15; S3.0m x H 2.3m;	BC-226
137	CULV/B2233231	Box Culvert; Double Vent; Load H15; S3.3m x H 2.3m;	BC-228
138	CULV/B2226261	Box Culvert; Double Vent; Load H15; S2.6m x H 2.6m;	BC-230
139	CULV/B2230261	Box Culvert; Double Vent; Load H15; S3.0m x H 2.6m;	BC-232
140	CULV/B2233261	Box Culvert; Double Vent; Load H15; S3.3m x H 2.6m;	BC-234
141	CULV/B2236261	Box Culvert; Double Vent; Load H15; S3.6m x H 2.6m;	BC-236
142	CULV/B2230301	Box Culvert; Double Vent; Load H15; S3.0m x H 3.0m;	BC-238
143	CULV/B2233301	Box Culvert; Double Vent; Load H15; S3.3m x H 3.0m;	BC-240
144	CULV/B2236301	Box Culvert; Double Vent; Load H15; S3.6m x H 3.0m;	BC-242
145	CULV/B2240301	Box Culvert; Double Vent; Load H15; S4.0m x H 3.0m;	BC-244
146	CULV/B2243301	Box Culvert; Double Vent; Load H15; S4.3m x H 3.0m;	BC-246
147	CULV/B2233331	Box Culvert; Double Vent; Load H15; S3.3m x H 3.3m;	BC-248
148	CULV/B2236331	Box Culvert; Double Vent; Load H15; S3.6m x H 3.3m;	BC-250
149	CULV/B2240331	Box Culvert; Double Vent; Load H15; S4.0m x H 3.3m;	BC-252
150	CULV/B2243331	Box Culvert; Double Vent; Load H15; S4.3m x H 3.3m;	BC-254
151	CULV/B2236361	Box Culvert; Double Vent; Load H15; S3.6m x H 3.6m;	BC-256
152	CULV/B2240361	Box Culvert; Double Vent; Load H15; S4.0m x H 3.6m;	BC-258
153	CULV/B2243361	Box Culvert; Double Vent; Load H15; S4.3m x H 3.6m;	BC-260
154	CULV/B2240401	Box Culvert; Double Vent; Load H15; S4.0m x H 4.0m;	BC-262
155	CULV/B2243401	Box Culvert; Double Vent; Load H15; S4.3m x H 4.0m;	BC-264
156	CULV/B2243431	Box Culvert; Double Vent; Load H15; S4.3m x H 4.3m;	BC-266
157	CULV/B2323161	Box Culvert; Double Vent; Load H20; S2.3m x H 1.6m;	BC-268
158	CULV/B2323201	Box Culvert; Double Vent; Load H20; S2.3m x H 2.0m;	BC-270
159	CULV/B2326201	Box Culvert; Double Vent; Load H20; S2.6m x H 2.0m;	BC-272
160	CULV/B2330201	Box Culvert; Double Vent; Load H20; S3.0m x H 2.0m;	BC-274
161	CULV/B2323231	Box Culvert; Double Vent; Load H20; S2.3m x H 2.3m;	BC-276
162	CULV/B2326231	Box Culvert; Double Vent; Load H20; S2.6m x H 2.3m;	BC-278
163	CULV/B2330231	Box Culvert; Double Vent; Load H20; S3.0m x H 2.3m;	BC-280
164	CULV/B2333231	Box Culvert; Double Vent; Load H20; S3.3m x H 2.3m;	BC-282
165	CULV/B2326261	Box Culvert; Double Vent; Load H20; S2.6m x H 2.6m;	BC-284
166	CULV/B2330261	Box Culvert; Double Vent; Load H20; S3.0m x H 2.6m;	BC-286
167	CULV/B2333261	Box Culvert; Double Vent; Load H20; S3.3m x H 2.6m;	BC-288
168	CULV/B2336261	Box Culvert; Double Vent; Load H20; S3.6m x H 2.6m;	BC-290
169	CULV/B2330301	Box Culvert; Double Vent; Load H20; S3.0m x H 3.0m;	BC-292
170	CULV/B2333301	Box Culvert; Double Vent; Load H20; S3.3m x H 3.0m;	BC-294
171	CULV/B2336301	Box Culvert; Double Vent; Load H20; S3.6m x H 3.0m;	BC-296
172	CULV/B2340301	Box Culvert; Double Vent; Load H20; S4.0m x H 3.0m;	BC-298
173	CULV/B2343301	Box Culvert; Double Vent; Load H20; S4.3m x H 3.0m;	BC-300
174	CULV/B2333331	Box Culvert; Double Vent; Load H20; S3.3m x H 3.3m;	BC-302
175	CULV/B2336331	Box Culvert; Double Vent; Load H20; S3.6m x H 3.3m;	BC-304
176	CULV/B2340331	Box Culvert; Double Vent; Load H20; S4.0m x H 3.3m;	BC-306
177	CULV/B2343331	Box Culvert; Double Vent; Load H20; S4.3m x H 3.3m;	BC-308
178	CULV/B2336361	Box Culvert; Double Vent; Load H20; S3.6m x H 3.6m;	BC-310
179	CULV/B2340361	Box Culvert; Double Vent; Load H20; S4.0m x H 3.6m;	BC-312
180	CULV/B2343361	Box Culvert; Double Vent; Load H20; S4.3m x H 3.6m;	BC-314
181	CULV/B2340401	Box Culvert; Double Vent; Load H20; S4.0m x H 4.0m;	BC-316
182	CULV/B2343401	Box Culvert; Double Vent; Load H20; S4.3m x H 4.0m;	BC-318
183	CULV/B2343431	Box Culvert; Double Vent; Load H20; S4.3m x H 4.3m;	BC-320
184	CULV/B3130201	Box Culvert; Triple Vent; Load H10; S3.0m x H 2.0m;	BC-322
185	CULV/B3130231	Box Culvert; Triple Vent; Load H10; S3.0m x H 2.3m;	BC-324
186	CULV/B3133231	Box Culvert; Triple Vent; Load H10; S3.3m x H 2.3m;	BC-326
187	CULV/B3130261	Box Culvert; Triple Vent; Load H10; S3.0m x H 2.6m;	BC-328
188	CULV/B3133261	Box Culvert; Triple Vent; Load H10; S3.3m x H 2.6m;	BC-330
189	CULV/B3136261	Box Culvert; Triple Vent; Load H10; S3.6m x H 2.6m;	BC-332
190	CULV/B3130301	Box Culvert; Triple Vent; Load H10; S3.0m x H 3.0m;	BC-334
191	CULV/B3133301	Box Culvert; Triple Vent; Load H10; S3.3m x H 3.0m;	BC-336
192	CULV/B3136301	Box Culvert; Triple Vent; Load H10; S3.6m x H 3.0m;	BC-338
193	CULV/B3140301	Box Culvert; Triple Vent; Load H10; S4.0m x H 3.0m;	BC-340
194	CULV/B3133331	Box Culvert; Triple Vent; Load H10; S3.3m x H 3.3m;	BC-342
195	CULV/B3136331	Box Culvert; Triple Vent; Load H10; S3.6m x H 3.3m;	BC-344
196	CULV/B3140331	Box Culvert; Triple Vent; Load H10; S4.0m x H 3.3m;	BC-346
197	CULV/B3136361	Box Culvert; Triple Vent; Load H10; S3.6m x H 3.6m;	BC-348
198	CULV/B3140361	Box Culvert; Triple Vent; Load H10; S4.0m x H 3.6m;	BC-350
199	CULV/B3140401	Box Culvert; Triple Vent; Load H10; S4.0m x H 4.0m;	BC-352
200	CULV/B3230201	Box Culvert; Triple Vent; Load H15; S3.0m x H 2.0m;	BC-354
201	CULV/B3230231	Box Culvert; Triple Vent; Load H15; S3.0m x H 2.3m;	BC-356
202	CULV/B3233231	Box Culvert; Triple Vent; Load H15; S3.3m x H 2.3m;	BC-358
203	CULV/B3230261	Box Culvert; Triple Vent; Load H15; S3.0m x H 2.6m;	BC-360
204	CULV/B3233261	Box Culvert; Triple Vent; Load H15; S3.3m x H 2.6m;	BC-362
205	CULV/B3236261	Box Culvert; Triple Vent; Load H15; S3.6m x H 2.6m;	BC-364
206	CULV/B3230301	Box Culvert; Triple Vent; Load H15; S3.0m x H 3.0m;	BC-366
207	CULV/B3233301	Box Culvert; Triple Vent; Load H15; S3.3m x H 3.0m;	BC-368
208	CULV/B3236301	Box Culvert; Triple Vent; Load H15; S3.6m x H 3.0m;	BC-370
209	CULV/B3240301	Box Culvert; Triple Vent; Load H15; S4.0m x H 3.0m;	BC-372
210	CULV/B3233331	Box Culvert; Triple Vent; Load H15; S3.3m x H 3.3m;	BC-374
211	CULV/B3236331	Box Culvert; Triple Vent; Load H15; S3.6m x H 3.3m;	BC-376
212	CULV/B3240331	Box Culvert; Triple Vent; Load H15; S4.0m x H 3.3m;	BC-378
213	CULV/B3236361	Box Culvert; Triple Vent; Load H15; S3.6m x H 3.6m;	BC-380
214	CULV/B3240361	Box Culvert; Triple Vent; Load H15; S4.0m x H 3.6m;	BC-382

Web Copy

Sl. No.	Reference Code	Structure Description	Page No.
215	CULV/B3240401	Box Culvert; Triple Vent; Load H15; S4.0m x H 4.0m;	BC-384
216	CULV/B3330201	Box Culvert; Triple Vent; Load H20; S3.0m x H 2.0m;	BC-386
217	CULV/B3330231	Box Culvert; Triple Vent; Load H20; S3.0m x H 2.3m;	BC-388
218	CULV/B3333231	Box Culvert; Triple Vent; Load H20; S3.3m x H 2.3m;	BC-390
219	CULV/B3330261	Box Culvert; Triple Vent; Load H20; S3.0m x H 2.6m;	BC-392
220	CULV/B3333261	Box Culvert; Triple Vent; Load H20; S3.3m x H 2.6m;	BC-394
221	CULV/B3336261	Box Culvert; Triple Vent; Load H20; S3.6m x H 2.6m;	BC-396
222	CULV/B3330301	Box Culvert; Triple Vent; Load H20; S3.0m x H 3.0m;	BC-398
223	CULV/B3333301	Box Culvert; Triple Vent; Load H20; S3.3m x H 3.0m;	BC-400
224	CULV/B3336301	Box Culvert; Triple Vent; Load H20; S3.6m x H 3.0m;	BC-402
225	CULV/B3340301	Box Culvert; Triple Vent; Load H20; S4.0m x H 3.0m;	BC-404
226	CULV/B3333331	Box Culvert; Triple Vent; Load H20; S3.3m x H 3.3m;	BC-406
227	CULV/B3336331	Box Culvert; Triple Vent; Load H20; S3.6m x H 3.3m;	BC-408
228	CULV/B3340331	Box Culvert; Triple Vent; Load H20; S4.0m x H 3.3m;	BC-410
229	CULV/B3336361	Box Culvert; Triple Vent; Load H20; S3.6m x H 3.6m;	BC-412
230	CULV/B3340361	Box Culvert; Triple Vent; Load H20; S4.0m x H 3.6m;	BC-414
231	CULV/B3340401	Box Culvert; Triple Vent; Load H20; S4.0m x H 4.0m;	BC-416

Web Copy

BOX CULVERT

Quantity Estimate The estimates of quantities of the various item of work required for construction of **single, double and triple** vent box culverts including wing wall are presented below in E.Q. (Estimate of Quantities) Table No. 1a, 1b & 1c. respectively.The estimates for a particular Design Loading can be obtained from these tables by choosing the appropriate column corresponding to respective Design Loading. The estimates of work whose quantities depends on the particular site conditions are included in the tables, but their quantities are left blank. These quantities are to be determine after actual field measurments. E.Q.Table No. 1a, 1b and 1c contain only a brief description of the items intended for ready reference. In preparing the actual bill of quantities the full description of the items should be copied from Road Structure Manual, Part-A (Chapter 16, table No.16.1) for the corresponding item numbers.

Estimate Of Quantities For Single Vent Box Culvert

E. Q. Table No. 1a

Opening of Culvert (m)				1.0 X 1.0			1.3 X 1.0			1.3 x 1.3			1.6 X 1.3			1.6 X 1.6			2.0 X 1.6			2.3 X 1.6			2.0 X 2.0			2.3 X 2.0		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																											
1.	1.	Mobilization	L.S																											
2.	2.	Engineer's office	L.S																											
3.	3/46/47	Diversion	Cu.m/L-m/L-m																											
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																											
5.	6.	Earth work in excavation	Cu-m																											
6.	8.	Sand filling	Cu-m																											
7.	10.	Brick on edge pavement	Sq-m																											
8.	11.	Cement concrete (1:3:6)	Cu-m	0.70	0.70	0.55	0.81	0.81	0.66	1.00	1.00	0.85	1.16	1.16	0.97	1.43	1.40	1.22	1.67	1.64	1.42	1.84	1.81	1.56	1.85	1.85	1.62	2.06	2.07	1.82
9.	15.	a) Reinforcement	Kg	761	733	625	857	840	701	1002	955	825	1158	1030	897	1378	1321	1143	1634	1478	1265	1745	1640	1364	1936	1825	1615	2071	1932	1701
10.	24.	R.C.C works (1:2:4)																												
		b) Bottom slab	Cu-m	1.35	1.35	0.96	1.63	1.63	1.17	1.63	1.63	1.17	1.92	1.92	1.37	1.97	1.92	1.37	2.35	2.31	1.65	2.64	2.59	1.85	2.61	2.61	1.87	2.93	2.93	2.09
		c) Apron of culvert	Cu-m	0.95	0.95	0.95	1.09	1.09	1.09	1.72	1.72	1.72	1.92	1.92	1.92	2.80	2.72	2.72	3.16	3.07	3.07	3.42	3.34	3.34	4.18	4.18	4.18	4.62	4.65	4.65
		d) Vertical member	Cu-m	1.90	1.90	1.35	1.90	1.90	1.36	2.41	2.41	1.72	2.41	2.41	1.72	3.26	2.92	2.09	3.26	2.92	2.09	3.26	2.92	2.09	4.03	4.03	2.88	4.03	4.03	2.88
		e) Drop wall	Cu-m	1.65	1.65	1.65	1.78	1.78	1.78	2.02	2.02	2.02	2.15	2.15	2.15	2.41	2.39	2.39	2.59	2.57	2.57	2.72	2.70	2.70	2.94	2.94	2.94	3.08	3.10	3.10
		f) Top slab	Cu-m	1.20	1.20	0.86	1.45	1.45	1.04	1.63	1.63	1.04	1.92	1.92	1.22	1.97	1.92	1.22	2.35	2.31	1.46	2.64	2.59	1.85	2.35	2.35	1.68	2.93	2.93	1.89
		g) Curb/Side walk	Cu-m	0.18	0.18	0.18	0.22	0.22	0.22	0.22	0.22	0.22	0.25	0.25	0.25	0.26	0.25	0.25	0.31	0.30	0.30	0.35	0.34	0.34	0.31	0.31	0.31	0.35	0.35	0.35
		h) Wing wall	Cu-m	1.15	1.15	1.15	1.15	1.15	1.15	1.70	1.70	1.70	1.70	1.70	1.70	2.37	2.36	2.34	2.37	2.36	2.34	2.37	2.36	2.36	4.00	4.00	4.00	4.08	4.10	4.08
		m) Railing & post	Cu-m	0.18	0.18	0.18	0.23	0.23	0.23	0.23	0.23	0.23	0.26	0.26	0.26	0.26	0.26	0.26	0.30	0.29	0.29	0.32	0.32	0.29	0.30	0.30	0.30	0.32	0.32	0.32
11.	26	Wearing course (1:1.5:3.0)	Cu-m	0.25	0.25	0.17	0.30	0.30	0.20	0.30	0.30	0.20	0.35	0.35	0.24	0.36	0.35	0.24	0.43	0.42	0.28	0.48	0.47	0.32	0.43	0.43	0.29	0.48	0.48	0.32
12.	27	a) Providing weep holes	L-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.	30	Back filling of abutment	Cu-m																											
14.	31.	Earth work in approaches	Cu-m																											
15.	36.	Turfing on embankment	Sq-m																											
16.	37.	Hanging of sign board	L.S																											
17.	38.	Name plate	Each																											
18.	42.	Marking the post & rail	Sq-m																											
19.	48.	Demobilization.	L.S																											
20.	51.	Filter material behind the weep holes	Each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Opening of Culvert (m)				2.6 X 2.0			3.0 X 2.0			2.3 X 2.3			2.6 X 2.3			3.0 X 2.3			3.3 X 2.3			2.6 X 2.6			3.0 X 2.6			3.3 X 2.6		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																											
1.	1.	Mobilization	L.S																											
2.	2.	Engineer's office	L.S																											
3.	3/46/47	Diversion	Cu.m/L-m/L-m																											
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																											
5.	6.	Earth work in excavation	Cu-m																											
6.	8.	Sand filling	Cu-m																											
7.	10.	Brick on edge pavement	Sq-m																											
8.	11.	Cement concrete (1:3:6)	Cu-m	2.29	2.29	1.94	2.55	2.55	2.16	2.46	2.46	2.14	2.67	2.67	2.31	2.95	2.95	2.55	3.16	3.16	2.75	1.94	1.94	1.44	2.09	2.09	1.55	2.20	2.20	1.63
9.	15.	a) Reinforcement	Kg	2210	2077	1768	2529	2311	1886	2375	2312	1975	2528	2390	2088	2856	2681	2265	2990	2825	2399	3357	3147	2777	3582	3515	2909	3790	3704	2994
10.	24.	R.C.C works (1:2:4)																												
		b) Bottom slab	Cu-m	3.31	3.31	2.32	3.73	3.73	2.63	2.99	2.99	2.09	3.31	3.31	2.32	3.73	3.73	2.63	4.05	4.05	2.85	7.10	7.10	5.41	8.41	8.41	6.42	8.86	8.86	6.77
		c) Apron of culvert	Cu-m	5.11	5.11	4.86	5.58	5.58	5.31	6.04	6.04	5.77	6.46	6.46	6.18	7.02	7.02	6.72	7.43	7.43	7.16	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	4.46	4.46	2.88	4.46	4.46	2.88	5.10	5.10	3.29	5.10	5.10	3.29	5.10	5.10	3.29	5.10	5.10	3.29	5.94	5.94	4.30	6.50	6.50	4.70	7.05	7.05	5.09
		e) Drop wall	Cu-m	3.26	3.26	3.21	3.44	3.44	3.39	3.36	3.36	3.31	3.50	3.50	3.45	3.68	3.68	3.63	3.81	3.81	3.79	2.34	2.34	2.30	2.52	2.52	2.48	2.66	2.66	2.61
		f) Top slab	Cu-m	3.31	3.31	2.09	3.73	3.73	2.36	2.99	2.99	1.89	3.31	3.31	2.09	3.73	3.73	2.36	4.05	4.05	2.57	3.31	3.31	2.13	4.16	4.16	2.43	4.57	4.57	2.67
		g) Curb/Side walk	Cu-m	0.39	0.39	0.38	0.44	0.44	0.43	0.35	0.35	0.35	0.39	0.39	0.38	0.44	0.44	0.43	0.48	0.48	0.47	1.41	1.41	1.40	1.46	1.46	1.45	1.50	1.50	1.48
		h) Wing wall	Cu-m	4.12	4.12	4.00	4.12	4.12	4.00	5.21	5.21	5.08	5.21	5.21	5.08	5.21	5.21	5.08	5.21	5.21	5.10	6.90	6.90	6.73	6.85	6.85	6.66	6.78	6.78	6.59
		m) Railing & post	Cu-m	0.36	0.36	0.35	0.42	0.42	0.41	0.33	0.33	0.32	0.36	0.36	0.35	0.42	0.42	0.41	0.44	0.44	0.44	1.22	1.22	1.21	1.26	1.26	1.25	1.28	1.28	1.27
11.	26	Wearing course (1:1.5:3.0)	Cu-m	0.54	0.54	0.36	0.61	0.61	0.40	0.49	0.49	0.32	0.54	0.54	0.36	0.61	0.61	0.40	0.67	0.67	0.44	0.54	0.54	0.36	0.62	0.62	0.42	0.68	0.68	0.46
12.	27	a) Providing weep holes	L-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.60	6.60	5.40	7.00	7.00	5.70	7.30	7.30	5.90
13.	30	Back filling of abutment	Cu-m																											
14.	31.	Earth work in approaches	Cu-m																											
15.	36.	Turfing on embankment	Sq-m																											
16.	37.	Hanging of sign board	L.S																											
17.	38.	Name plate	Each																											
18.	42.	Marking the post & rail	Sq-m																											
19.	48.	Demobilization.	L.S																											
20.	51.	Filter material behind the weep holes	Each	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	7	9	9	7	9	9	7

Web Copy

BOX CULVERT

Estimate Of Quantities For Single Vent Box Culvert

E. Q. Table No. 1a

		Opening of Culvert (m)		3.6 X 2.6			3.0 X 3.0			3.3 X 3.0			3.6 X 3.0			4.0 X 3.0			4.3 X 3.0			3.3 X 3.3			3.6 X 3.3		
		Carriageway Width (m)		3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
		Type of Loading		H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																								
1.	1.	Mobilization	L.S																								
2.	2.	Engineer's office	L.S																								
3.	3/46/47	Diversion	Cu.m/L-m/L-m																								
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																								
5.	6.	Earth work in excavation	Cu-m																								
6.	8.	Sand filling	Cu-m																								
7.	10.	Brick on edge pavement	Sq-m																								
8.	11.	Cement concrete (1:3:6)	Cu-m	2.31	2.31	1.72	2.53	2.53	1.88	2.68	2.68	1.97	2.79	2.79	2.05	2.98	2.98	2.19	3.09	3.09	2.28	2.98	2.98	2.25	3.13	3.13	2.33
9.	15.	a) Reinforcement	Kg	3965	3869	3064	4732	4657	3659	4720	4644	4102	4989	4903	3989	5272	5174	4308	5695	5581	4400	6090	6005	4828	6035	5939	4999
10.	24.	R.C.C works (1:2:4)																									
		b) Bottom slab	Cu-m	9.31	9.31	7.12	10.22	10.22	7.82	11.80	11.80	8.17	13.31	13.31	8.52	15.30	15.30	10.75	15.87	15.87	11.17	15.29	15.29	9.33	16.06	16.06	10.56
		c) Apron of culvert	Cu-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	7.05	7.05	5.09	9.38	9.38	6.31	9.38	9.38	5.85	9.38	9.38	5.85	10.02	10.02	6.31	10.02	10.02	6.31	10.30	10.30	6.42	11.00	11.00	6.42
		e) Drop wall	Cu-m	2.79	2.79	2.75	3.06	3.06	3.02	3.24	3.24	3.15	3.38	3.38	3.29	3.60	3.60	3.51	3.74	3.74	3.65	3.60	3.60	3.60	3.78	3.78	3.74
		f) Top slab	Cu-m	4.93	4.93	2.88	4.34	4.34	2.50	5.12	5.12	2.67	5.50	5.50	2.88	6.58	6.58	3.89	7.00	7.00	4.14	4.69	4.69	2.97	5.56	5.56	3.20
		g) Curb/Side walk	Cu-m	1.53	1.53	1.52	1.61	1.61	1.60	1.66	1.66	1.64	1.70	1.70	1.67	1.76	1.76	1.74	1.80	1.80	1.77	1.76	1.76	1.76	1.81	1.81	1.80
		h) Wing wall	Cu-m	6.78	6.78	6.59	8.98	8.98	8.82	10.10	10.10	9.79	10.10	10.10	9.79	10.24	10.24	9.97	10.24	10.24	9.97	12.16	12.16	12.30	12.31	12.31	12.30
		m) Railing & post	Cu-m	1.34	1.34	1.33	1.40	1.40	1.38	1.42	1.42	1.41	1.45	1.45	1.41	1.52	1.52	1.50	1.55	1.55	1.53	1.52	1.52	1.52	1.56	1.56	1.55
11.	26	Wearing course (1:1.5:3.0)	Cu-m	0.74	0.74	0.49	0.65	0.65	0.43	0.70	0.70	0.46	0.75	0.75	0.49	0.83	0.83	0.54	0.88	0.88	0.58	0.70	0.70	0.46	0.76	0.76	0.49
12.	27	a) Providing weep hole	L-m	7.30	7.30	5.90	9.20	9.20	6.20	9.50	8.20	6.10	9.50	8.20	6.10	8.60	8.60	6.40	8.60	8.60	6.40	13.20	13.20	10.10	18.90	13.70	11.40
13.	30	Back filling of abutment	Cu-m																								
14.	31.	Earth work in approaches	Cu-m																								
15.	36.	Turfing on embankment	Sq-m																								
16.	37.	Hanging of sign board	L.S																								
17.	38.	Name plate	Each																								
18.	42.	Marking the post & rail	Sq-m																								
19.	48.	Demobilization.	L.S																								
20.	51.	Filter material behind the weep holes	Each	9	9	7	10	10	7	10	9	7	10	9	7	9	9	7	9	9	7	14	14	11	18	14	12

		Opening of Culvert (m)		4.0 X 3.3			4.3 X 3.3			3.6 X 3.6			4.0 X 3.6			4.3 X 3.6			4.0 X 4.0			4.3 X 4.0			4.3 X 4.3		
		Carriageway Width (m)		3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
		Type of Loading		H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																								
1.	1.	Mobilization	L.S																								
2.	2.	Engineer's office	L.S																								
3.	3/46/47	Diversion	Cu.m/L-m/L-m																								
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																								
5.	6.	Earth work in excavation	Cu-m																								
6.	8.	Sand filling	Cu-m																								
7.	10.	Brick on edge pavement	Sq-m																								
8.	11.	Cement concrete (1:3:6)	Cu-m	3.32	3.32	2.45	3.43	3.43	2.53	3.46	3.46	2.59	3.65	3.65	2.70	3.76	3.76	2.78	4.10	4.10	3.09	4.25	4.25	3.12	4.58	4.58	3.37
9.	15.	a) Reinforcement	Kg	6312	6208	5135	6660	6545	5351	6789	6701	5744	7662	7566	5902	7410	7418	6030	8873	8968	7646	9137	9218	9659	11309	10958	9562
10.	24.	R.C.C works (1:2:4)																									
		b) Bottom slab	Cu-m	18.23	18.23	12.00	20.10	20.10	12.41	19.05	19.05	11.71	20.07	20.07	13.23	22.06	22.06	14.70	25.53	25.53	17.50	26.46	26.46	17.65	30.23	30.23	21.63
		c) Apron of culvert	Cu-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	11.71	11.71	6.93	11.71	11.71	6.93	11.99	11.99	7.00	11.99	11.99	7.54	12.75	12.75	7.54	14.15	14.15	10.19	15.85	15.85	10.19	17.03	17.03	10.94
		e) Drop wall	Cu-m	4.01	4.01	3.92	4.14	4.14	4.05	4.19	4.19	4.14	4.41	4.41	4.32	4.55	4.55	4.46	4.95	4.95	4.95	5.13	5.13	5.00	5.54	5.54	5.40
		f) Top slab	Cu-m	6.65	6.65	3.54	7.07	7.07	3.77	5.56	5.56	3.20	6.58	6.58	3.54	7.07	7.07	3.77	6.65	6.65	4.75	7.76	7.76	4.27	7.76	7.76	4.27
		g) Curb/Side walk	Cu-m	1.87	1.87	1.85	1.91	1.91	1.89	1.93	1.93	1.91	1.99	1.99	1.96	2.02	2.02	2.00	2.14	2.14	2.14	2.19	2.19	2.15	2.30	2.30	2.26
		h) Wing wall	Cu-m	12.47	12.47	12.20	12.47	12.47	12.20	16.27	16.27	16.23	16.58	16.58	16.12	16.46	16.46	16.12	20.77	20.77	20.77	20.87	20.87	20.07	24.49	24.49	23.63
		m) Railing & post	Cu-m	1.60	1.60	1.58	1.65	1.65	1.61	1.66	1.66	1.65	1.70	1.70	1.69	1.73	1.73	1.71	1.83	1.83	1.83	1.87	1.87	1.84	1.97	1.97	1.95
11.	26	Wearing course (1:1.5:3.0)	Cu-m	0.84	0.84	0.54	0.89	0.89	0.58	0.76	0.76	0.49	0.83	0.83	0.54	0.89	0.89	0.58	0.84	0.84	0.56	0.91	0.91	0.60	0.91	0.91	0.60
12.	27	a) Providing weep hole	L-m	14.20	14.20	10.50	14.20	14.20	10.50	16.90	16.90	13.30	16.90	16.90	13.70	17.40	17.40	16.10	18.80	18.80	16.10	19.80	19.80	16.10	30.80	30.80	25.80
13.	30	Back filling of abutment	Cu-m																								
14.	31.	Earth work in approaches	Cu-m																								
15.	36.	Turfing on embankment	Sq-m																								
16.	37.	Hanging of sign board	L.S																								
17.	38.	Name plate	Each																								
18.	42.	Marking the post & rail	Sq-m																								
19.	48.	Demobilization.	L.S																								
20.	51.	Filter material behind the weep holes	Each	14	14	11	14	14	11	16	16	13	16	16	13	16	16	13	17	17	14	17	17	14	26	26	22

Web Copy

BOX CULVERT

Estimate of Quantities for Double Vent Box Culvert

E.Q. Table No. 1.b

Opening of Culvert (m)				2.3 x 1.6			2.3 x 2.0			2.6 x 2.0			3.0 x 2.0			2.3 x 2.3			2.6 x 2.3			3.0 x 2.3			3.3 x 2.3			2.6 x 2.6		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																											
1.	1.	Mobilization	L.S																											
2.	2.	Engineer's office	L.S																											
3.	3/46/47	Diversion	Cu.m/L-m/L-m																											
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																											
5.	6.	Earth work in excavation	Cu-m																											
6.	8.	Sand filling	Cu-m																											
7.	10.	Brick on edge pavement	Sq-m																											
8.	11.	Cement concrete (1:3:6)	Cu-m	2.14	2.14	1.61	2.27	2.27	1.69	2.50	2.50	1.86	2.80	2.80	2.08	2.42	2.42	1.80	2.65	2.65	1.97	2.94	2.94	2.19	3.17	3.17	2.33	3.00	3.00	2.23
9.	15.	a) Reinforcement	Kg	2682	2468	2027	3170	3008	2487	3430	3280	2721	3902	3620	2987	3601	3391	2845	3940	3688	3037	4357	4091	3398	4681	4349	3586	4592	4492	3502
10.	24.	R.C.C works (1:2:4)																												
		b) Bottom slab	Cu-m	7.04	7.04	5.47	8.33	8.33	5.73	9.15	9.15	6.30	10.24	10.24	7.06	8.88	8.88	6.11	9.70	9.70	6.68	10.80	10.80	7.45	11.61	11.61	8.80	10.96	10.96	8.41
		c) Apron of culvert	Cu-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	4.95	4.95	3.57	6.09	6.09	4.39	6.09	6.09	4.39	6.09	6.09	4.39	6.94	6.94	5.01	6.94	6.94	5.01	6.94	6.94	5.01	6.94	6.94	5.01	8.63	8.63	6.22
		e) Drop wall	Cu-m	2.58	2.58	2.58	2.75	2.75	2.70	3.02	3.02	2.97	3.38	3.38	3.33	2.93	2.93	2.88	3.20	3.20	3.15	3.56	3.56	3.51	3.83	3.83	3.74	3.62	3.62	3.57
		f) Top slab	Cu-m	5.03	5.03	3.59	5.60	5.60	3.59	6.23	6.23	4.00	7.08	7.08	4.55	5.59	5.03	3.59	6.23	6.23	4.00	7.08	7.08	4.55	7.72	7.72	5.51	6.31	6.31	4.05
		g) Curb/Side walk	Cu-m	1.29	1.29	1.29	1.46	1.46	1.44	1.53	1.53	1.52	1.63	1.63	1.62	1.57	1.57	1.56	1.64	1.64	1.63	1.74	1.74	1.73	1.82	1.82	1.79	1.76	1.76	1.75
		h) Wing wall	Cu-m	2.58	2.58	2.58	3.88	3.88	3.77	3.88	3.88	3.77	3.88	3.88	3.77	4.95	4.94	4.82	4.95	4.95	4.82	4.95	4.95	4.82	4.95	4.95	4.72	6.90	6.90	6.73
		m) Railing & post	Cu-m	1.11	1.11	1.11	1.25	1.25	1.24	1.33	1.33	1.30	1.40	1.40	1.39	1.36	1.36	1.35	1.41	1.41	1.40	1.51	1.51	1.50	1.56	1.56	1.56	1.52	1.52	1.51
11.	26	Wearing course (1:1.5:3.0)	Cu-m	0.95	0.95	0.65	0.95	0.95	0.65	1.05	1.05	0.68	1.16	1.16	0.78	0.95	0.95	0.65	1.05	1.05	0.68	1.16	1.16	0.78	1.27	1.27	0.85	1.04	1.04	0.69
12.	27	a) Providing weep holes	L-m	2.20	2.2	1.65	2.2	1.7	1.65	2.2	2.2	1.64	2.2	2.2	1.64	2.2	2.2	1.65	2.2	2.2	1.65	2.2	2.2	1.65	2.2	2.2	4.95	6.6	6.6	1.8
		b) Provide spout	L-m	2.00	2.00	2.00	2.20	2.20	2.00	2.20	2.20	2.00	2.20	2.20	2.00	2.20	2.20	2.00	2.20	2.20	2.00	2.20	2.20	2.00	2.20	2.20	2.20	2.20	2.20	2.00
13.	30	Back filling of abutment	Cu-m																											
14.	31.	Earth work in approaches	Cu-m																											
15.	36.	Turfing on embankment	Sq-m																											
16.	37.	Hanging of sign board	L.S																											
17.	38.	Name plate	Each																											
18.	42.	Marking the post & rail	Sq-m																											
19.	48.	Demobilization.	L.S																											
20	51	Filter material behind the weep holes	Each	4	4	3	4	3	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4	7	9	9	3

Opening of Culvert (m)				3.0 x 2.6			3.3 x 2.6			3.6 x 2.6			3.0 x 3.0			3.3 x 3.0			3.6 x 3.0			4.0 x 3.0			4.3 x 3.0			3.3 x 3.3		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																											
1.	1.	Mobilization	L.S																											
2.	2.	Engineer's office	L.S																											
3.	3/46/47	Diversion	Cu.m/L-m/L-m																											
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																											
5.	6.	Earth work in excavation	Cu-m																											
6.	8.	Sand filling	Cu-m																											
7.	10.	Brick on edge pavement	Sq-m																											
8.	11.	Cement concrete (1:3:6)	Cu-m	3.29	3.29	2.48	3.51	3.51	2.65	3.73	3.73	2.82	3.73	3.73	2.82	4.00	4.00	2.99	4.22	4.22	3.18	4.50	4.50	3.41	4.75	4.75	3.57	4.29	4.29	3.24
9.	15.	a) Reinforcement	Kg	4845	4588	3761	5292	5018	4004	5671	5290	4340	6040	5794	4733	6598	6188	4926	6760	6456	5104	7450	7058	5470	7793	7500	5721	7476	7267	5759
10.	24.	R.C.C works (1:2:4)																												
		b) Bottom slab	Cu-m	13.26	13.26	10.29	14.16	14.16	10.99	15.06	15.06	11.69	16.43	16.43	12.76	17.57	17.57	13.52	20.10	20.10	15.61	21.43	21.43	16.71	22.59	22.59	17.54	20.46	20.46	15.89
		c) Apron of culvert	Cu-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	9.18	9.18	6.61	9.18	9.18	6.61	9.18	9.18	6.61	11.81	11.81	8.50	11.81	11.81	8.50	11.81	11.81	8.50	11.81	11.81	8.50	12.45	12.45	8.95	12.95	12.95	9.32
		e) Drop wall	Cu-m	3.98	3.98	3.98	4.25	4.25	4.25	4.52	4.52	4.52	4.52	4.52	4.52	4.83	4.83	4.79	5.10	5.10	5.10	5.44	5.44	5.46	5.73	5.73	5.73	5.19	5.19	5.19
		f) Top slab	Cu-m	7.94	7.94	5.15	8.64	8.64	5.61	9.34	9.34	6.67	8.05	8.05	5.23	9.55	9.55	5.68	10.32	10.32	7.36	11.34	11.34	8.09	12.17	12.17	8.69	8.76	8.76	6.25
		g) Curb/Side walk	Cu-m	1.86	1.86	1.86	1.93	1.93	1.93	2.01	2.01	2.01	2.01	2.01	2.01	2.10	2.10	2.09	2.17	2.17	2.17	2.26	2.26	2.27	2.35	2.35	2.35	2.20	2.20	2.20
		h) Wing wall	Cu-m	6.85	6.85	6.83	6.85	6.85	6.83	6.85	6.85	6.85	9.06	9.06	9.02	10.19	10.19	9.02	10.19	10.19	10.19	10.10	10.10	10.19	10.10	10.10	10.10	12.26	12.26	12.26
		m) Railing & post	Cu-m	1.59	1.59	1.59	1.67	1.67	1.67	1.72	1.72	1.72	1.72	1.72	1.72	1.81	1.81	1.72	1.86	1.86	1.86	1.92	1.92	1.93	2.01	2.01	2.01	1.88	1.88	1.88
11.	26	Wearing course (1:1.5:3.0)	Cu-m	1.18	1.18	0.79	1.29	1.29	0.86	1.39	1.39	0.93	1.20	1.20	0.80	1.30	1.30	0.87	1.41	1.41	0.94	1.55	1.55	1.03	1.66	1.66	1.11	1.30	1.30	0.87
12.	27	a) Providing weep holes	L-m	7	7	5.65	7	7	5.64	7	7	5.65	7.7	7.7	7.65	7.9	7.9	7.35	7.9	7.9	7.65	7.9	7.9	7.35	8.2	8.2	7.9	14.8	13.35	11.75
		b) Provide spout	L-m	2.40	2.40	2.20	2.40	2.40	2.20	2.40	2.40	2.40	2.40	2.40	2.20	2.60	2.60	2.20	2.60	2.60	2.60	2.60	2.60	3.40	2.60	2.60	3.40	2.40	2.40	3.20
13.	30	Back filling of abutment	Cu-m																											
14.	31.	Earth work in approaches	Cu-m																											
15.	36.	Turfing on embankment	Sq-m																											
16.	37.	Hanging of sign board	L.S																											
17.	38.	Name plate	Each																											
18.	42.	Marking the post & rail	Sq-m																											
19.	48.	Demobilization.	L.S																											
20	51	Filter material behind the weep holes	Each	9	9	7	9	9	7	9	9	7	9	9	8	9	9	8	9	9	8	9	9	7	9	9	8	16	14	12

Web Copy

BOX CULVERT

Estimate of Quantities For Double Vent Box Culvert

E.Q. Table No. 1.b

Opening of Culvert (m)				3.6 X 3.3			4.0 x 3.3			4.3 x 3.3			3.6 X 3.6			4.0 X 3.6			4.3 X 3.6			4.0 x 4.0			4.3 x 4.0			4.3 x 4.3		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																											
1.	1.	Mobilization	L.S																											
2.	2.	Engineer's office	L.S																											
3.	3/46/47	Diversion	Cu.m/L-m/L-m																											
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																											
5.	6.	Earth work in excavation	Cu-m																											
6.	8.	Sand filling	Cu-m																											
7.	10.	Brick on edge pavement	Sq-m																											
8.	11.	Cement concrete (1:3:6)	Cu-m	4.55	4.55	3.43	4.85	4.85	3.66	5.07	5.07	3.83	4.88	4.88	3.67	5.19	5.19	3.92	5.42	5.42	4.09	6.31	6.31	4.25	5.86	5.86	4.42	6.20	6.20	4.68
9.	15.	a) Reinforcement	Kg	7919	7626	6067	8581	8237	6506	8973	8467	6800	8827	8599	6907	9367	9140	7195	9847	9587	7487	11345	10951	8954	11862	11151	9251	13306	13005	11204
10.	24.	R.C.C works (1:2:4)																												
		b) Bottom slab	Cu-m	21.70	21.70	16.85	23.12	23.12	17.95	26.04	26.04	20.22	23.25	23.25	12.99	26.66	26.66	20.71	27.81	27.81	21.60	32.40	32.40	22.49	30.10	30.10	23.38	34.10	34.10	24.71
		c) Apron of culvert	Cu-m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		d) Vertical member	Cu-m	13.66	13.66	9.82	13.66	13.66	9.82	13.66	13.66	9.82	14.48	14.48	10.42	15.25	15.25	10.96	15.25	15.25	10.96	16.90	16.90	12.45	16.90	16.90	12.15	19.05	19.05	13.04
		e) Drop wall	Cu-m	5.51	5.51	5.51	5.87	5.87	5.87	6.14	6.14	6.14	5.90	5.90	5.88	6.28	6.28	6.28	6.55	6.55	6.55	7.63	7.63	6.82	7.09	7.09	7.09	7.50	7.50	7.50
		f) Top slab	Cu-m	10.38	10.38	7.41	11.41	11.41	8.14	12.17	12.17	8.69	10.35	10.35	6.77	11.44	11.44	8.16	12.20	12.20	8.71	11.44	11.44	8.16	12.20	12.20	8.71	12.27	12.27	8.71
		g) Curb/Side walk	Cu-m	2.29	2.29	2.29	2.38	2.38	2.38	2.46	2.46	2.46	2.40	2.40	2.39	2.50	2.50	2.50	2.58	2.58	2.58	2.88	2.88	2.65	2.73	2.73	2.73	2.84	2.84	2.84
		h) Wing wall	Cu-m	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	16.38	16.38	16.19	16.38	16.38	16.38	16.38	16.38	16.38	25.32	25.32	20.68	20.68	20.68	20.68	24.14	24.14	24.28
		m) Railing & post	Cu-m	1.96	1.96	1.96	2.03	2.03	2.03	2.09	2.09	2.09	2.04	2.04	2.04	2.14	2.14	2.14	2.19	2.19	2.19	2.46	2.46	2.25	2.32	2.32	2.32	2.40	2.40	2.40
11.	26	Wearing course (1:1.5:3.0)	Cu-m	1.42	1.42	0.95	1.56	1.56	1.04	1.66	1.66	1.11	1.41	1.41	0.94	1.56	1.56	1.04	1.67	1.67	1.11	1.56	1.56	1.04	1.67	1.67	1.11	1.67	1.67	1.11
12.	27	a) Providing weep holes	L-m	15.3	13.7	12.1	12.1	12.1	12.1	15.3	15.3	7.9	16.7	16.7	13.65	17.2	17.2	14	17.2	17.2	14	22.8	22.8	16.8	18.6	17.2	16.8	28.7	28.7	24.8
		b) Provide spout	L-m	2.60	2.60	3.40	2.60	2.60	3.40	2.60	2.60	3.40	2.60	2.60	3.20	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
13.	30	Back filling of abutment	Cu-m																											
14.	31.	Earth work in approaches	Cu-m																											
15.	36.	Turfing on embankment	Sq-m																											
16.	37.	Hanging of sign board	L.S																											
17.	38.	Name plate	Each																											
18.	42.	Marking the post & rail	Sq-m																											
19.	48.	Demobilization.	L.S																											
20	51	Filter material behind the weep holes	Each	16	14	12	12	12	12	17	16	11	16	17	13	17	17	13	17	17	13	21	21	15	18	17	15	26	26	22

Web Copy

BOX CULVERT

Estimate Of Quantities For Triple Vent Box Culvert

E.Q.Table No. 1.c

Opening of Culvert (m)				3.0 x 2.0			3.0 x 2.3			3.0 x 2.6			3.0 x 3.0			3.3 x 2.3			3.3 x 2.6		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																		
1.	1	Mobilization	L.S																		
2.	2	Engineer's office	L.S																		
3.	3/46/47	Diversion	Cu.m/L-m/L-m																		
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																		
5.	6	Earth work in excavation	Cu-m																		
6.	8	Sand filling	Cu-m																		
7.	10	Brick on edge pavement	Cu-m																		
8.	11	Cement Concrete (1: 3: 6)	Cu-m	4.00	4.00	3.02	4.13	4.13	3.12	4.50	4.50	3.40	4.93	4.93	3.44	4.47	4.47	3.37	4.82	4.82	3.64
9.	15	a) Reinforcement	Kg	5200	4833	3802	5599	5165	4122	5980	5736	4572	7389	7030	5472	6042	5548	4491	6235	6153	4968
10.	24	R.C.C. works (1:2:4)																			
		b) Bottom slab	Cu-m	14.61	14.61	11.35	15.16	15.16	11.77	18.10	18.10	14.06	21.71	21.71	15.59	16.38	16.38	12.72	19.45	19.45	15.10
		d) Vertical member	Cu-m	7.98	7.98	5.74	9.09	9.09	6.54	11.86	11.86	8.53	14.88	14.88	10.69	9.09	9.09	6.54	11.86	11.86	8.53
		e) Drop wall	Cu-m	4.82	4.82	4.82	5.00	5.00	5.00	5.43	5.43	5.43	5.97	5.97	5.52	5.40	5.40	5.40	5.83	5.83	5.83
		f) Top slab	Cu-m	10.50	10.50	7.50	10.50	10.50	7.50	11.72	11.72	7.60	10.76	10.76	7.68	11.45	11.45	8.17	12.77	12.77	9.11
		g) Curb/Sidewalk	Cu-m	2.03	2.03	2.03	2.14	2.14	2.14	2.26	2.26	2.26	2.41	2.41	2.28	2.25	2.25	2.25	2.37	2.37	2.37
		h) Wing wall	Cu-m	3.88	3.88	3.88	4.95	4.95	4.95	6.85	6.85	6.83	9.02	9.02	7.40	4.95	4.95	4.95	6.85	6.85	6.85
		m) Railing & post	Cu-m	1.73	1.73	1.73	1.84	1.84	1.84	1.92	1.92	1.92	2.05	2.05	2.05	1.92	1.92	1.92	2.03	2.03	2.03
11.	26	Wearing course (1:1.5:3.0)	Cu-m	1.72	1.72	1.15	1.72	1.72	1.15	1.74	1.74	1.16	1.76	1.76	1.18	1.87	1.87	1.25	1.90	1.90	1.27
12.	27	a) Providing weep holes	L-m	2.20	2.20	1.70	2.20	2.20	1.70	7.00	7.00	5.70	7.70	7.70	6.20	2.20	2.20	1.70	7.00	7.00	5.70
		b) Provide spout	L-m	2.20	2.20	2.20	2.20	2.20	2.20	4.00	4.00	4.00	3.60	3.60	3.60	3.60	3.60	3.60	4.00	4.00	4.00
13.	30	Back filling of abutment	Cu-m																		
14.	31	Earth work in approaches	Cu-m																		
15.	36	Turfing on embankment	Sq-m																		
16.	37	Hanging of sign board	L.S.																		
17.	38	Name Plate	Each																		
18.	42	Marking the rail and post	Sq-m																		
19.	48	Demobilization	L.S.																		
20.	51.	Filter material behind the weep holes	Each	4	4	3	4	4	3	9	9	7	9	9	7	4	4	3	9	9	7

Opening of Culvert (m)				3.6 x 2.6			3.3 x 3.0			3.6 x 3.0			4.0 x 3.0			3.3 x 3.3			3.6 x 3.3		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit																		
1.	1	Mobilization	L.S																		
2.	2	Engineer's office	L.S																		
3.	3/46/47	Diversion	Cu.m/L-m/L-m																		
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m																		
5.	6	Earth work in excavation	Cu-m																		
6.	8	Sand filling	Cu-m																		
7.	10	Brick on edge pavement	Cu-m																		
8.	11	Cement Concrete (1: 3: 6)	Cu-m	5.16	5.16	3.89	5.27	5.27	3.97	5.64	5.64	4.23	6.09	6.09	4.56	5.60	5.60	4.23	5.98	5.98	4.48
9.	15	a) Reinforcement	Kg	7092	6567	5216	7643	7292	5700	8001	7723	5990	8932	8546	6517	8910	8393	6736	9329	8849	7024
10.	24	R.C.C. works (1:2:4)																			
		b) Bottom slab	Cu-m	20.80	20.80	16.15	23.18	23.18	18.00	26.90	26.89	20.74	29.02	29.02	22.40	26.71	26.71	19.15	28.50	28.50	21.98
		d) Vertical member	Cu-m	11.86	11.86	8.53	14.88	14.88	10.69	14.88	14.88	10.69	14.88	14.88	10.69	16.31	16.31	11.71	17.01	17.01	12.22
		e) Drop wall	Cu-m	6.24	6.24	6.25	6.37	6.37	6.37	6.82	6.82	6.78	7.36	7.36	7.32	6.78	6.78	6.78	7.23	7.23	7.18
		f) Top slab	Cu-m	13.82	13.82	9.86	12.89	12.89	9.20	15.21	15.21	9.95	16.74	16.74	10.95	12.89	12.89	8.36	15.27	15.27	10.00
		g) Curb/Sidewalk	Cu-m	2.48	2.48	2.48	2.52	2.52	2.52	2.65	2.65	2.63	2.79	2.79	2.78	2.64	2.64	2.64	2.76	2.76	2.75
		h) Wing wall	Cu-m	6.85	6.85	6.85	9.97	9.97	9.97	10.19	10.19	9.97	10.19	10.19	9.97	12.26	12.26	12.20	12.41	12.41	12.16
		m) Railing &post	Cu-m	2.13	2.13	2.13	2.16	2.16	2.16	2.25	2.25	2.24	2.38	2.38	2.37	2.24	2.24	2.24	2.35	2.35	2.50
11.	26	Wearing course (1:1.5:3.0)	Cu-m	2.06	2.06	1.37	1.92	1.92	1.28	2.07	2.07	1.38	2.28	2.28	1.52	1.92	1.92	1.28	2.08	2.08	1.39
12.	27	a) Providing weep holes	L-m	7.00	7.00	5.70	7.90	7.90	6.40	7.90	7.90	6.40	7.90	7.90	6.40	9.20	9.20	7.70	9.50	9.50	7.90
		b) Provide spout	L-m	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50	4.00	4.50	4.50	4.00	4.00	4.00	4.00	4.50	4.50	4.00
13.	30	Back filling of abutment	Cu-m																		
14.	31	Earth work in approaches	Cu-m																		
15.	36	Turfing on embankment	Sq-m																		
16.	37	Hanging of sign board	L.S.																		
17.	38	Name Plate	Each																		
18.	42	Marking the rail and post	Sq-m																		
19.	48	Demobilization	L.S.																		
20.	51.	Filter material behind the weep holes	Each	9	9	7	9	9	7	9	9	7	9	9	7	10	10	8	10	10	8

Web Copy

BOX CULVERT
Estimate Of Quantities For Triple Vent Box Culvert
E.Q.Table No. 1.c

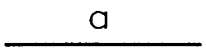
Opening of Culvert (m)				4.0 x 3.3			3.6 x 3.6			4.0 x 3.6			4.0 x 4.0		
Carriageway Width (m)				3.66		2.44	3.66		2.44	3.66		2.44	3.66		2.44
Type of Loading				H20	H15	H10	H20	H15	H10	H20	H15	H10	H20	H15	H10
Sl. No.	Item No.	Brief Description	Unit												
1.	1	Mobilization	L.S												
2.	2	Engineer's office	L.S												
3.	3/46/47	Diversion	Cu.m/L-m/L-m												
4.	4/43/44/45	Dismantling	L.S/Cu-m/ton/Cu-m												
5.	6	Earth work in excavation	Cu-m												
6.	8	Sand filling	Cu-m												
7.	10	Brick on edge pavement	Cu-m												
8.	11	Cement Concrete (1: 3: 6)	Cu-m	6.42	6.42	4.82	6.33	6.33	4.75	6.78	6.78	5.11	7.22	7.22	5.45
9.	15	a) Reinforcement	Kg	10097	9531	7503	10080	9793	8029	10904	10203	8432	12674	12232	10415
10.	24	R.C.C. works (1:2:4)													
		b) Bottom slab	Cu-m	30.62	30.62	23.64	30.17	30.17	23.29	34.79	34.79	27.05	37.08	37.08	28.80
		d) Vertical member	Cu-m	12.22	12.22	12.22	18.50	18.50	13.29	19.27	19.27	13.84	21.35	21.35	15.33
		e) Drop wall	Cu-m	7.77	7.77	7.72	7.65	7.65	7.61	8.20	8.20	8.20	8.75	8.75	8.75
		f) Top slab	Cu-m	12.00	12.00	11.00	15.27	15.27	10.00	16.87	16.87	12.04	16.87	16.87	12.04
		g) Curb/Sidewalk	Cu-m	2.91	2.91	2.89	2.88	2.88	2.87	3.03	3.03	3.03	3.18	3.18	3.18
		h) Wing wall	Cu-m	12.41	12.41	12.16	16.50	16.50	16.19	16.38	16.38	16.38	20.68	20.68	20.68
		m) Railing &post	Cu-m	2.48	2.48	2.47	2.46	2.46	2.45	2.59	2.59	2.59	2.70	2.70	2.70
11.	26	Wearing course (1:1.5:3.0)	Cu-m	1.53	1.53	1.53	2.08	2.08	1.40	2.30	2.30	1.53	2.30	2.30	1.53
12.	27	a) Providing weep holes	L-m	9.50	9.80	7.90	17.20	16.70	14.40	18.60	17.20	14.80	18.60	18.60	16.20
		b) Provide spout	L-m	4.50	4.50	4.00	4.50	4.50	4.00	4.50	4.50	4.50	4.50	4.50	4.50
13.	30	Back filling of abutment	Cu-m												
14.	31	Earth work in approaches	Cu-m												
15.	36	Turfing on embankment	Sq-m												
16.	37	Hanging of sign board	L.S.												
17.	38	Name Plate	Each												
18.	42	Marking the rail and post	Sq-m												
19.	48	Demobilization	L.S.												
20.	51.	Filter material behind the weep holes	Each	10	10	8	17	17	14	17	17	14	18	18	15

Web Copy

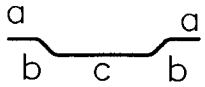
BC-XI

SHEET 1 OF 1

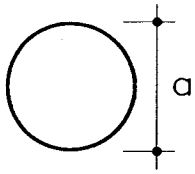
ST



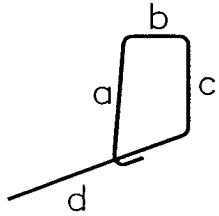
CR



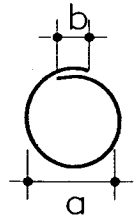
SP



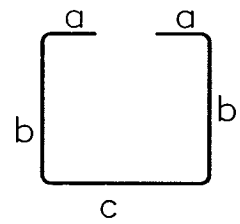
EL



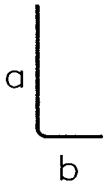
TI



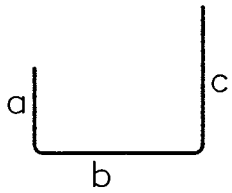
CC



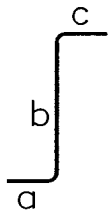
L



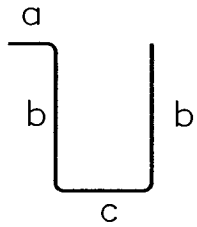
U



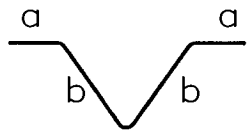
S



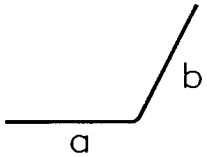
UT



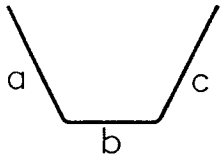
VT



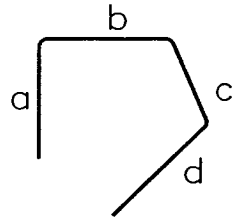
V



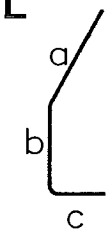
W



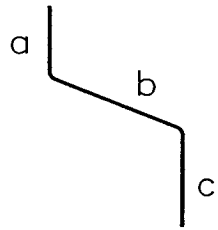
LV



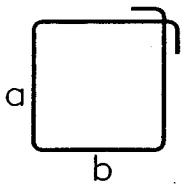
AL



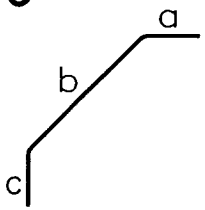
Z



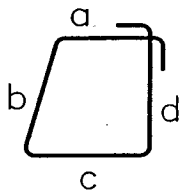
T



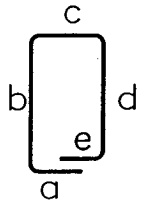
C



VL



CU



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

STANDARD BAR SHAPE & SHAPE CODE

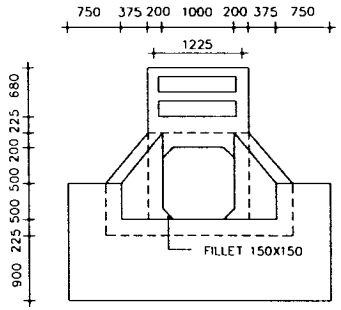
DATE :

ISSUED BY :

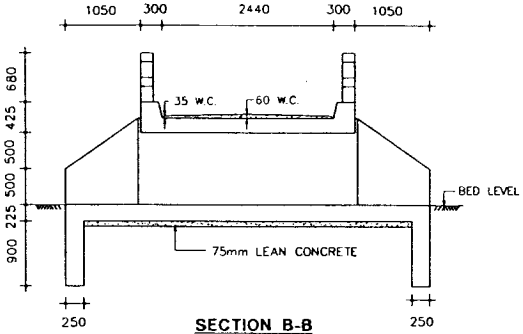
CAD FILE REF : CULV\S0000001

Web Copy

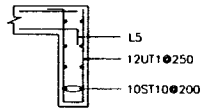
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 1.0m
CLEAR HEIGHT : 1.0m



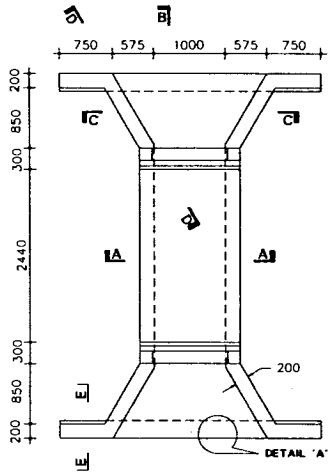
GENERAL ELEVATION



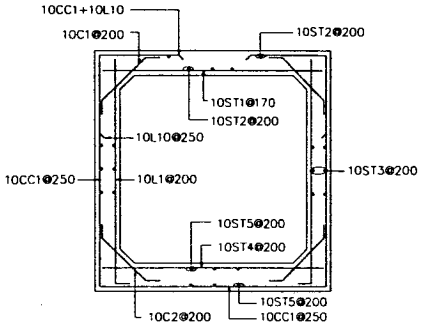
SECTION B-B



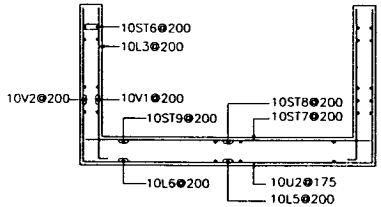
REINF. DETAIL OF 'A'



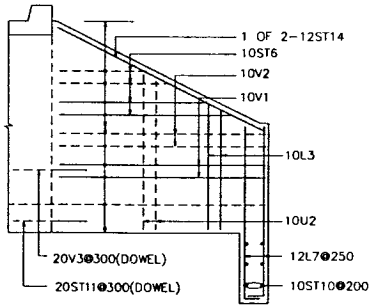
PLAN



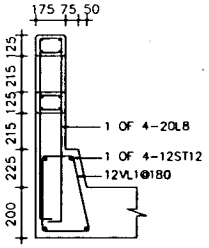
SECTION A-A (REINF. DETAIL)



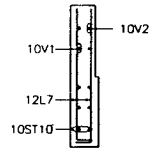
SECTION C-C (REINF. DETAIL)



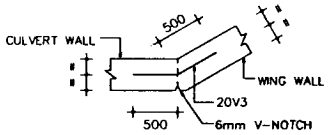
SECTION D-D (REINF. DETAIL)



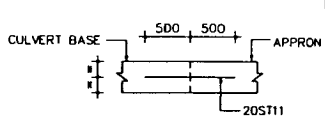
RAILING ON CULVERT (REINF. DETAIL)



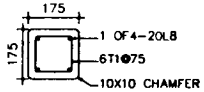
SECTION E-E



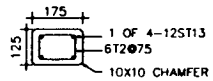
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	10	ST1	19	1300				1300
	10	ST2	8 + 8	2940				2940
B	10	L10	2 X 12	493	483			976
	10	CC1	13	2 X 493	2 X 1335	1300		4956
	10	ST3	4X 5	2940				2940
	10	ST4	16	1300				1300
O	10	ST5	2X 8	2940				2940
	10	L1	2X 16	1315	120			1435
	10	C1	2X 16	120	493	120		733
X	10	C2	2X 16	120	515	120		755
	20	ST11	2X 5	1000				1000
	20	V3	4X 4	500	500			1000
	10	L3	4X 7	Var. 1305 To 605 @ 116	120			Ver.1425 To 725
W I N G	0	L4	4x 7	Ver. 1325 To 625 @ 116	Ver. 710 To 115 @ 99			Ver.2035 To 740
G	10	ST6	8X 4	Var. 1062 To 283 @ 259				Ver.1062 To 283
A	10	V1	4X 2	1073	665			1738
P	10	V2	4X 2	981	619			1600
P R O N	10	ST7	2X 5	Var. 1342 To 2150 @ 202				Var.1342 To 2150
	10	ST8	2X 6	925				925
	10	ST9	4X 3	Var. 874 To 171 @ 351				Var.874 To 171
&	10	U2	2X 5	Ver. 1305 To 605 @ 175	Ver. 1342 To 2150 @ 202	Same As 'a'		Var.3952 To 3360
C U T O F F	10	L5	2X 6	925	120			1045
	10	L6	4X 3	Var. 852 To 149 @ 351	120			Ver.972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4000				5100
	12	UT1	2X 8	144	2X 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB	12	ST12	2X 4	1360				1360
	12	VL1	2X 8	204	368	284	360	11316
AND	20	L8	4X 4	1021	120			1141
	12	ST13	4X 4	1360				1360
RAILING	6	T1	4X 6	2 x 135	2 x 135			540
	6	T2	4X 14	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

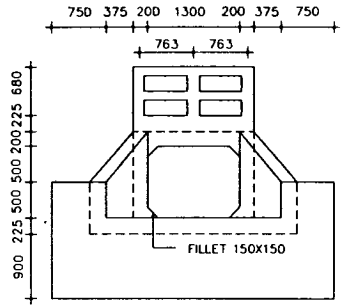
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 1.0m x 1.0m ROADWAY 2.44m

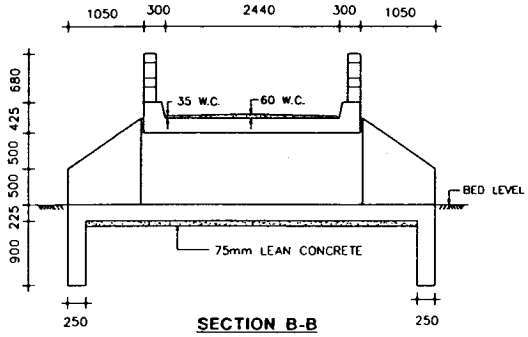
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1110101	

Web Copy

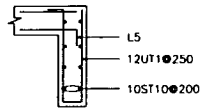
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 1.3m
CLEAR HEIGHT : 1.0m



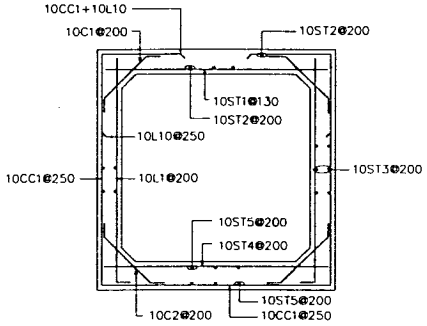
GENERAL ELEVATION



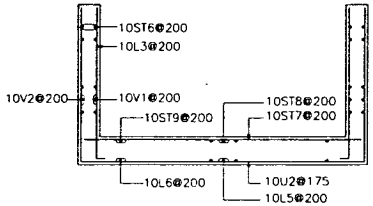
SECTION B-B



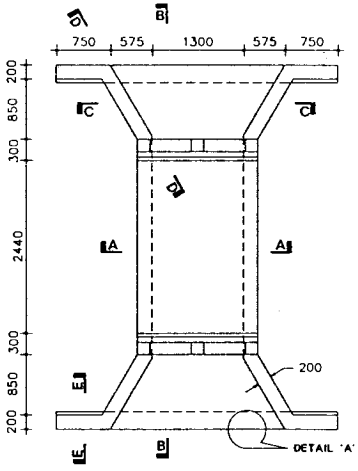
REINF. DETAIL OF 'A'



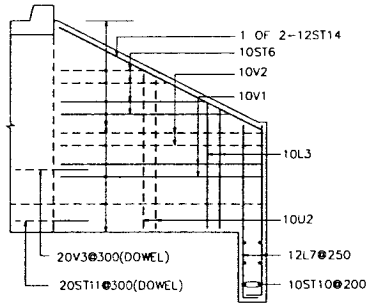
SECTION A-A (REINF. DETAIL)



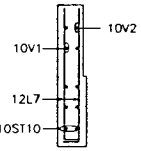
SECTION C-C (REINF. DETAIL)



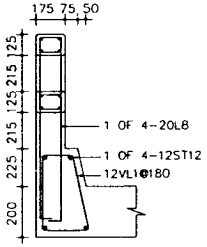
PLAN



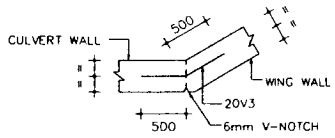
SECTION D-D (REINF. DETAIL)



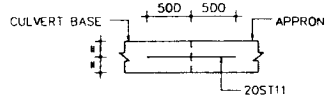
SECTION E-E



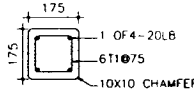
RAILING ON CULVERT (REINF. DETAIL)



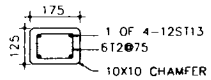
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	10	ST1	24	1600				1600
	10	ST2	8 + 9	2940				2940
	10	L10	2 X 12	493	583			1076
	10	CC1	13	593	2X 1335	1600		5456
	10	ST3	4X 5	2940				2940
	10	ST4	16	1600				1600
O	10	ST5	2X 9	2940				2940
	10	L1	2X 16	1315	120			1435
	10	C1	2X 16	120	493	120		733
X	10	C2	2X 16	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4X 4	500	500			1000
W I N G A P P R O N & C U T O F F	10	L3	4X 7	Var. 1305 To 605 @ 116	120			Ver.1425 To 725
	0	L4	4x 7	Ver. 1325 To 625 @ 116	Ver. 830 To 115 @ 119			Ver.2155 To 740
	10	ST6	8X 4	Ver. 1062 To 283 @ 259				Ver.1062 To 283
	10	V1	4X 2	1073	665			1738
	10	V2	4X 2	981	619			1600
	10	ST7	2X 5	Var. 1642 To 2450 @ 202				Var.1642 To 2450
	10	ST8	2X 7	925				925
	10	ST9	4X 3	Var. 874 To 171 @ 351				Var.874 To 171
	10	U2	2X 5	Ver. 1305 To 605 @ 175	Ver. 1642 To 2450 @ 202	Same As 'a'		Var.4252 To 3660
	10	L5	2X 8	925	120			1045
	10	L6	4X 3	Var. 852 To 149 @ 351	120			Ver.972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4300				5400
	12	UT1	2X 8	144	2X 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB AND RAILING	12	ST12	2X 4	1660				1660
	12	VL1	2X 10	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1660				1660
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 16	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot) 50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be ≥ 29 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.3m x 1.0m ROADWAY 2.44m

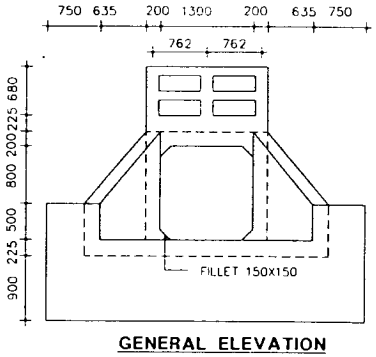
DATE :

ISSUED BY :

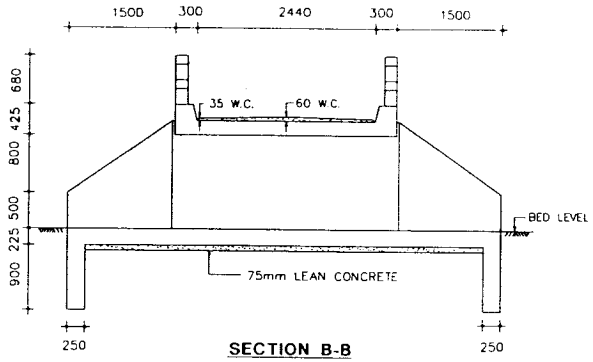
CAD FILE REF : CULV\B1113101

Web Copy

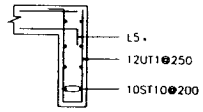
SHEET 1 OF 1	
LIVE LOAD : AASHTO H10	
CLEAR SPAN : 1.3m	
CLEAR HEIGHT : 1.3m	



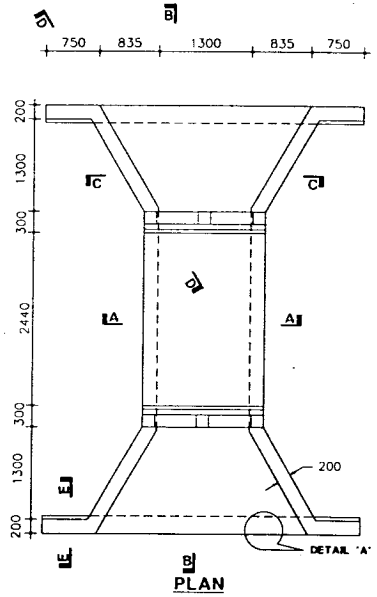
GENERAL ELEVATION



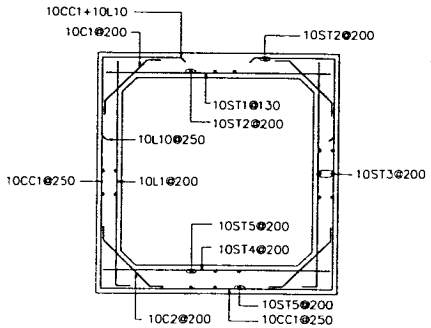
SECTION B-B



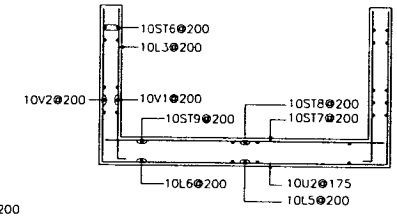
REINF. DETAIL OF 'A'



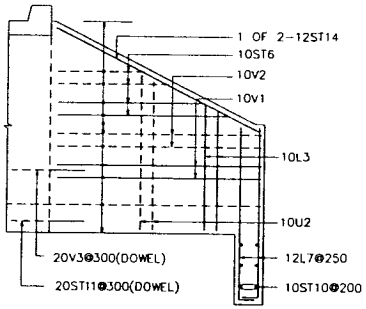
PLAN



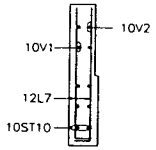
SECTION A-A (REINF. DETAIL)



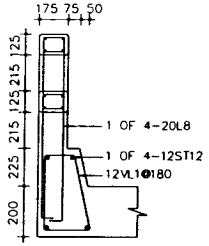
SECTION C-C (REINF. DETAIL)



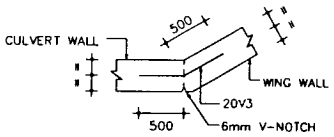
SECTION D-D (REINF. DETAIL)



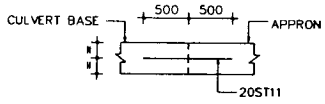
SECTION E-E



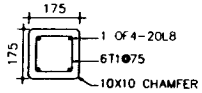
RAILING ON CULVERT (REINF. DETAIL)



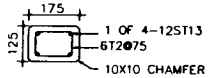
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	10	ST1	24	1600				1600
	10	ST2	8 + 9	2940				2940
	10	L10	2 X 12	593	583			1176
	10	CC1	13	2 X 593	2 X 1635	1600		6056
O	10	ST3	4X 6	2940				2940
	10	ST4	16	1600				1600
	10	ST5	2X 9	2940				2940
	10	L1	2X 16	1615	120			1735
X	10	C1	2X 16	120	493	120		733
	10	C2	2X 16	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4X 5	500	500			1000
W	10	L3	4X 9	Var. 1605 To 605 @ 125	120			Ver.1725 To 725
I	0	L4	4x 7	Ver. 1625 To 625 @ 125	Ver. 830 To 115 @ 89			Ver.2455 To 740
N G	10	ST6	8X 5	Ver. 1582 To 283 @ 324				Ver.1582 To 283
A	10	V1	4X 2	1593	665			2258
P	10	V2	4X 2	1501	619			2120
P R O N &	10	ST7	2X 7	Var. 1642 To 2970 @ 221				Var.1642 To 2970
	10	ST8	2X 7	1375				1375
	10	ST9	4X 4	Var. 1324 To 171 @ 384				Var.1324 To 171
	10	U2	2X 8	Ver. 1605 To 605 @ 142	Ver. 1642 To 2970 @ 189	Same As 'a'		Var.4852 To 4180
C U T O F F	10	L5	2X 8	1375	120			1495
	10	L6	4X 4	Var. 1302 To 149 @ 384	120			Ver.1422 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4820				5920
	12	UT1	2X 11	144	2X 1000	100		2244
	12	ST14	4X 2	1884				1884
CURB AND RAILING	12	ST12	2X 4	1660				1660
	12	VL1	2X 10	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1660				1660
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 16	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 30 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 1.3m x 1.3m ROADWAY 2.44m

DATE :

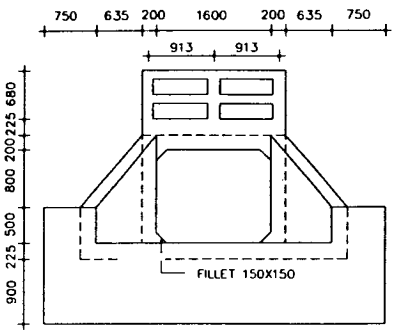
ISSUED BY :

CAD FILE REF : CULV\B1113131

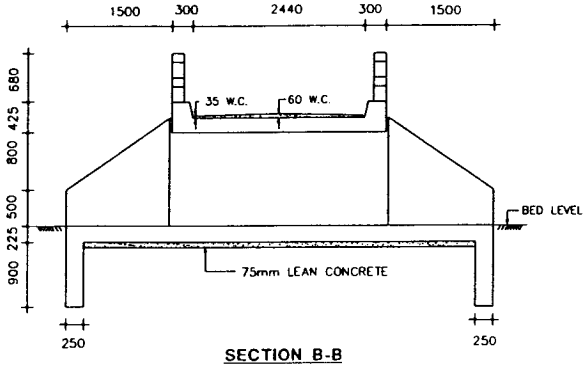
Web Copy

BC-4

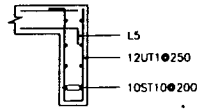
SHEET 1 OF 1	
LIVE LOAD : AASHTO H10	
CLEAR SPAN : 1.6m	
CLEAR HEIGHT : 1.3m	



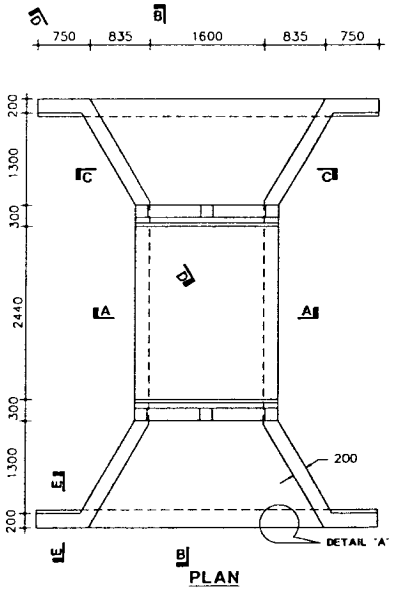
GENERAL ELEVATION



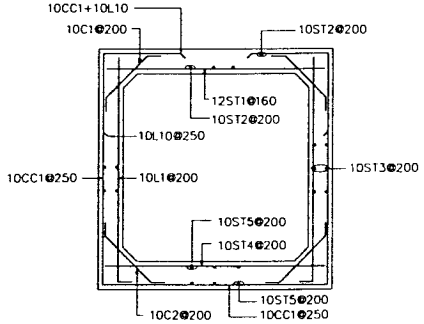
SECTION B-B



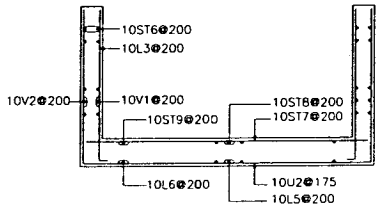
REINF. DETAIL OF 'A'



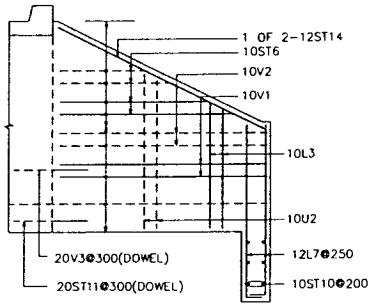
PLAN



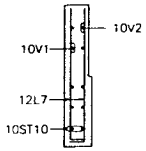
SECTION A-A (REINF. DETAIL)



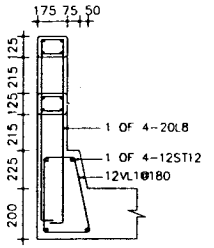
SECTION C-C (REINF. DETAIL)



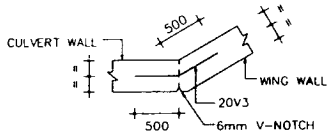
SECTION D-D (REINF. DETAIL)



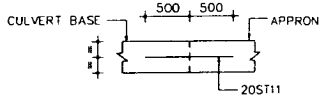
SECTION E-E



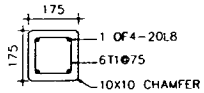
RAILING ON CULVERT (REINF. DETAIL)



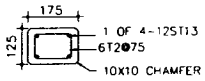
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	19	1900				1900
	10	ST2	10+11	2940				2940
B	10	L10	2 X 12	593	683			1276
	10	CC1	13	2 X 693	2 X 1635	1900		6556
	10	ST3	4X 6	2940				2940
	10	ST4	16	1900				1900
O	10	ST5	2X 11	2940				2940
	10	L1	2X 16	1615	120			1735
	10	C1	2X 16	120	493	120		733
X	10	C2	2X 16	120	515	120		755
	20	ST11	2X 8	1000				1000
	20	V3	4X 5	500	500			1000
	10	L3	4X 9	Var. 1605 To 605 @ 125	120			Ver.1725 To 725
W I N G	0	L4	4x 9	Ver. 1625 To 625 @ 125	Ver. 950 To 115 @ 104			Ver.2575 To 740
	10	ST6	8X 5	Ver. 1582 To 283 @ 324				Ver.1582 To 283
A	10	V1	4X 2	1593	665			2258
P	10	V2	4X 2	1501	619			2120
P	10	ST7	2X 7	Var. 1942 To 3270 @ 221				Var.1942 To 3270
R O N	10	ST8	2X 9	1375				1375
	10	ST9	4X 4	Var. 1324 To 171 @ 384				Var.1324 To 171
&	10	U2	2X 8	Ver. 1605 To 605 @ 142	Ver. 1942 To 3270 @ 189	Same As 'o'		Var.5152 To 4480
C	10	L5	2X 9	1375	120			1495
U	10	L6	4X 4	Var. 1302 To 149 @ 384	120			Ver.1422 To 269
T O F F	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	5120				6220
	12	UT1	2X 11	144	2X 1000	100		2244
	12	ST14	4X 2	1884				1884
CURB	12	ST12	2X 4	1960				1960
	12	VL1	2X 12	204	368	284	360	1316
AND	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1960				1960
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 20	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 28 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.6m x 1.3m ROADWAY 2.44m

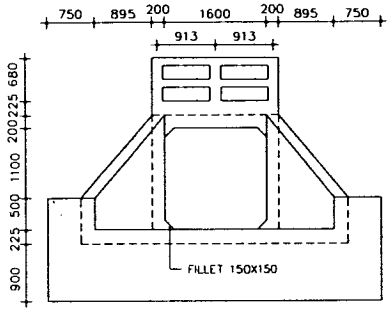
DATE :

ISSUED BY :

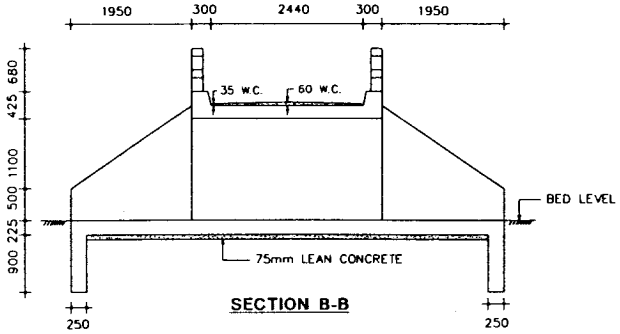
CAD FILE REF : CULB\B1116131

Web Copy

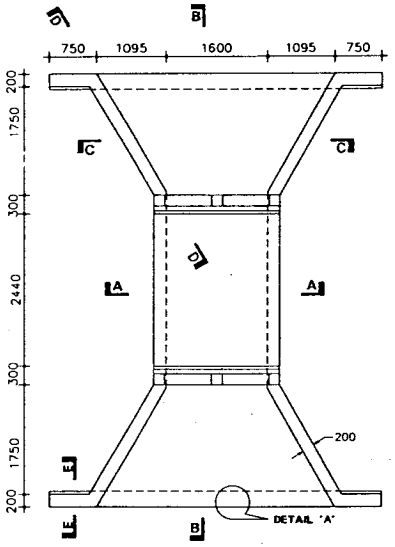
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 1.6m
CLEAR HEIGHT : 1.6m



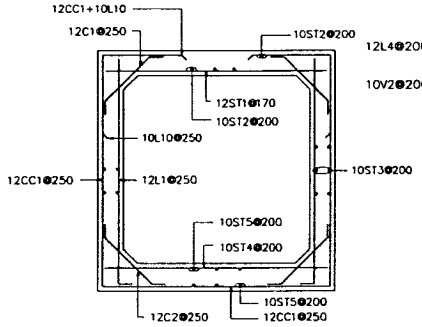
GENERAL ELEVATION



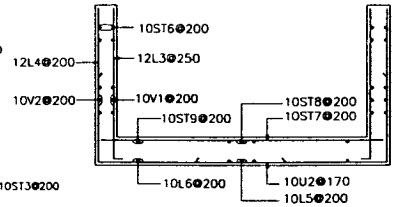
SECTION B-B



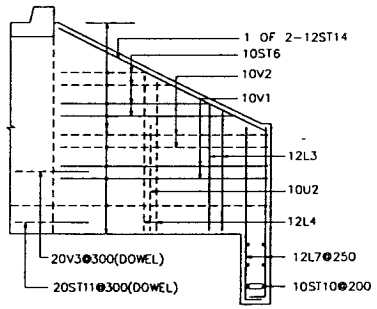
PLAN



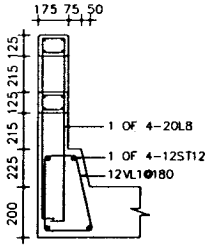
SECTION A-A (REINF. DETAIL)



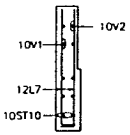
SECTION C-C (REINF. DETAIL)



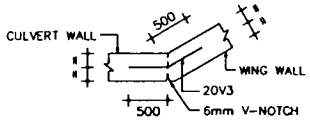
SECTION D-D (REINF. DETAIL)



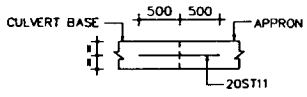
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

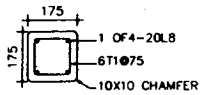
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	18	1900				1900
	10	ST2	10+11	2940				2940
	10	L10	2 X 12	693	683			1376
	12	CC1	13	2 X 693	2 X 1935	1900		7156
O	10	ST3	4X 8	2940				2940
	10	ST4	16	1900				1900
	10	ST5	2X 11	2940				2940
	12	L1	2X 13	1913	144			2057
X	12	C1	2X 13	144	488	144		776
	12	C2	2X 13	144	509	144		797
	20	ST11	2X 7	1000				1000
	20	V3	4X 6	500	500			1000
WINGS	12	L3	4X 10	Var. 1905 To 605 @ 144	144			Ver.2049 To 749
	12	L4	4x 12	Ver. 1925 To 625 @ 118	Ver. 950 To 144 @ 73			Ver.2875 To 769
	10	ST6	8X 7	Ver. 2101 To 283 @ 303				Ver.2101 To 283
APPROACH SLAB	10	V1	4X 2	2113	665			2778
	10	V2	4X 2	2020	619			2639
	10	ST7	2X 9	Var. 1942 To 3789 @ 230				Var.1942 To 3789
	10	ST8	2X 9	1825				1825
	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
&	10	U2	2X 9	Ver. 925 To 475 @ 50	Ver. 1942 To 3789 @ 205	Some As 'a'		Var.3792 To 4739
CUTOFF WALL	10	L5	2X 9	1825	120			1945
	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	5639				6739
	12	UT1	2X 14	144	2X 1000	100		2244
	12	ST14	4X 2	2484				2484
CURB AND RAILING	12	ST12	2X 4	1960				1960
	12	VL1	2X 12	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1960				1960
	6	T1	6X 6	2 x 135	149			540
	6	T2	4X 20	2 x 85	2 x 135			440

LEGEND

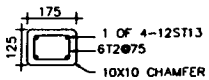
W.C. = Wearing Course

NOTES

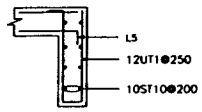
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 29 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.6m x 1.6m ROADWAY 2.44m

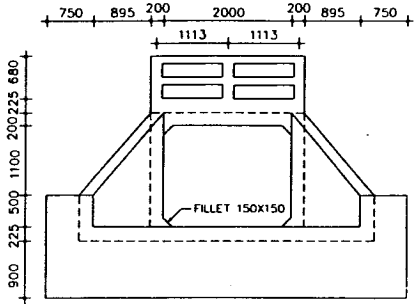
DATE :

ISSUED BY :

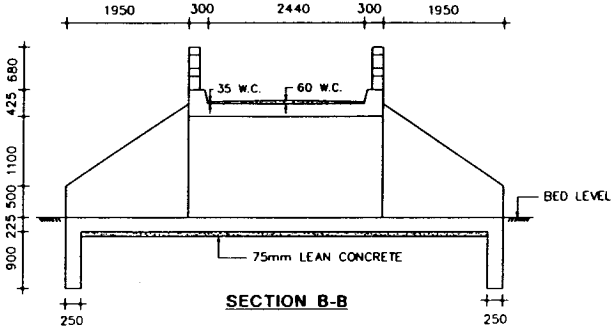
CAD FILE REF : CULV\B1116161

Web Copy

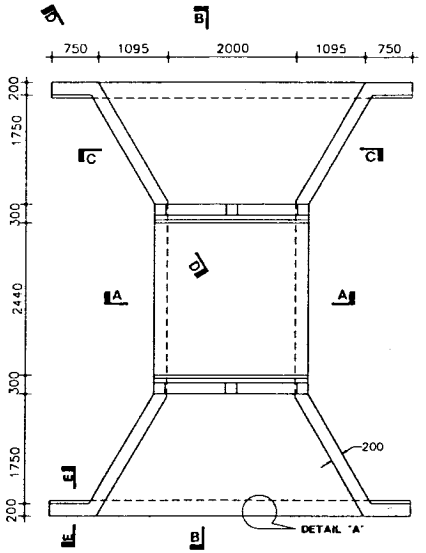
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 1.6m



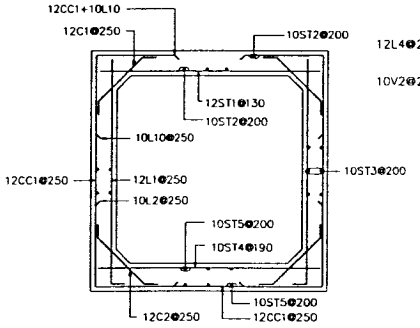
GENERAL ELEVATION



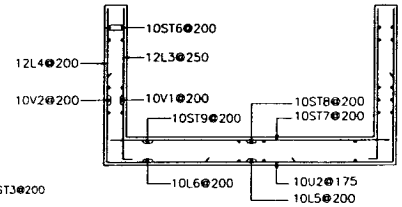
SECTION B-B



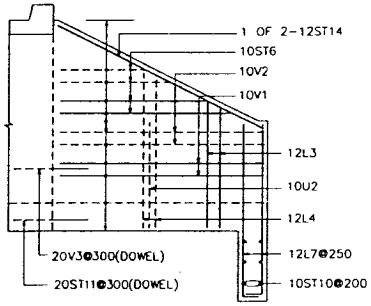
PLAN



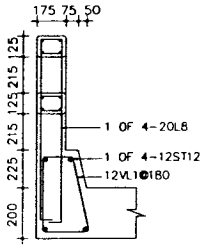
SECTION A-A (REINF. DETAIL)



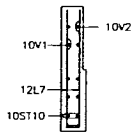
SECTION C-C (REINF. DETAIL)



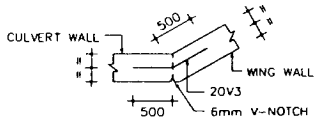
SECTION D-D (REINF. DETAIL)



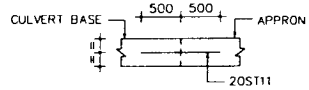
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

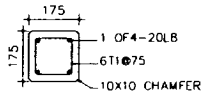
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	24	2300				2300
	10	ST2	12+13	2940				2940
	10	L10	2 X 12	693	816			1509
	12	CC1	13	2 X 826	2 X 1935	2300		7822
O	10	ST3	4X 8	2940				2940
	10	ST4	16	2300				2300
	10	ST5	2X 13	2940				2940
	12	L1	2X 13	1913	144			2057
	10	L2	2X 13	708	816			1524
X	12	C1	2X 13	144	488	144		776
	12	C2	2X 13	144	509	144		797
	20	ST11	2X 8	1000				1000
	20	V3	4X 6	500	500			1000
W	12	L3	4X 10	Var. 1905 To 605 @ 144	144			Ver.2049 To 749
I N G	12	L4	4x 12	Ver. 1925 To 625 @ 118	Ver.1110 To 144 @ 87			Ver.3035 To 769
C	10	ST6	8X 7	Ver. 2101 To 283 @ 303				Ver.2101 To 283
A	10	V1	4X 2	2113	665			2778
P	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 2342 To 4189 @ 230				Var.2342 To 4189
R O N	10	ST8	2X 11	1825				1825
	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
&	10	U2	2X 9	Ver. 925 To 475 @ 50	Ver. 2342 To 4189 @ 205	Same As 'a'		Var.4192 To 5139
C	10	L5	2X 11	1825	120			1945
U T	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
O F F	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	6039				7139
	12	UT1	2X 14	144	2X 1000	100		2244
	12	ST14	4X 2	2484				2484
CURB AND RAILING	12	ST12	2X 4	2360				2360
	12	VL1	2X 14	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	2360				2360
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 26	2 x 85	2 x 135			440

LEGEND

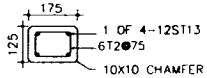
W.C. = Wearing Course

NOTES

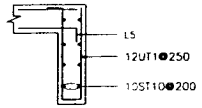
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 28 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.0m x 1.6m ROADWAY 2.44m

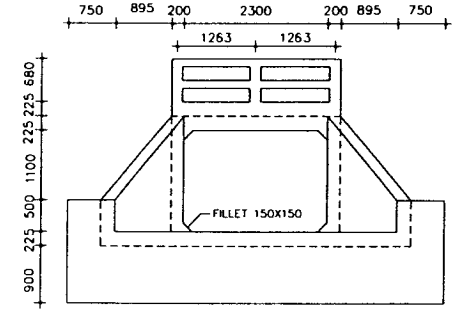
DATE :

ISSUED BY :

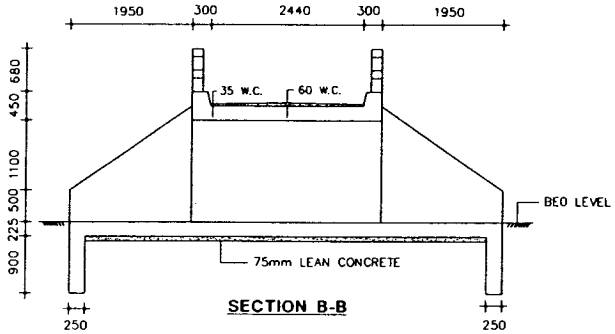
CAD FILE REF : CULV\B1120161

Web Copy

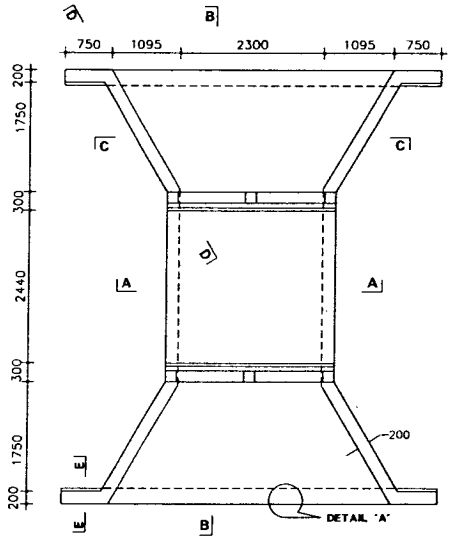
SHEET 1 OF 1	
LIVE LOAD : AASHTO H10	
CLEAR SPAN : 2.3m	
CLEAR HEIGHT : 1.6m	



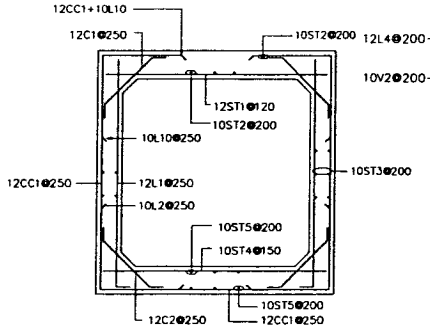
GENERAL ELEVATION



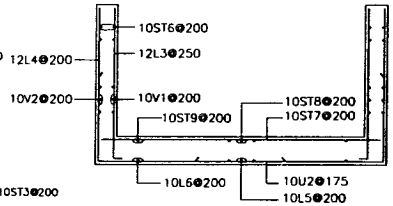
SECTION B-B



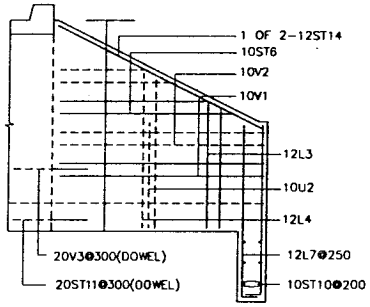
PLAN



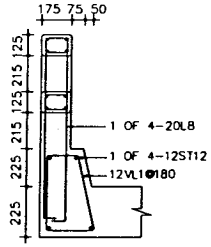
SECTION A-A (REINF. DETAIL)



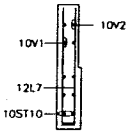
SECTION C-C (REINF. DETAIL)



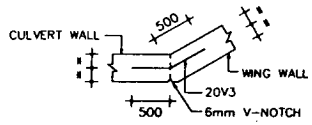
SECTION D-D (REINF. DETAIL)



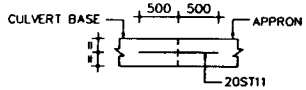
RAILING ON CULVERT (REINF. DETAIL)



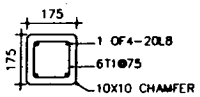
SECTION E-E



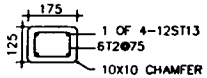
DETAIL OF DOWEL AT WALL



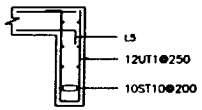
DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B O X	12	ST1	26	2600				2600
	10	ST2	12+14	2940				2940
	10	L10	2 X 12	718	916			1634
	12	CC1	13	2 X 926	2 X 1960	2600		8372
	10	ST3	4X 8	2940				2940
	10	ST4	21	2600				2600
	10	ST5	2X 14	2940				2940
	12	L1	2X 13	1938	144			2082
	10	L2	2X 12	708	916			1624
	12	C1	2X 13	144	509	144		797
	12	C2	2X 13	144	523	144		811
	20	ST11	2X 9	1000				1000
	20	V3	4X 6	500	500			1000
WINGS	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Ver.2074 To 749
	12	L4	4x 12	Ver. 1950 To 625 @ 120	Ver. 1230 To 147 @ 98			Ver.3180 To 772
	10	ST6	8X 7	Ver. 2103 To 276 @ 304				Ver.2103 To 276
APPROPRIATE	10	V1	4X 2	2113	665			2778
	10	V2	4X 2	2020	619			2639
	10	ST7	2X 9	Var. 2642 To 4489 @ 230				Var.2642 To 4489
	10	ST8	2X 12	1825				1825
	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
&	10	U2	2X 9	Ver. 925 To 475 @ 50	Ver. 2642 To 4489 @ 205	Same As 'a'		Var.4492 To 5439
CUT OFF	10	L5	2X 13	1825	120			1945
	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	6339				7439
	12	UT1	2X 14	144	2X 1000	100		2244
	12	ST14	4X 2	2496				2496
CURB AND RAILING	12	ST12	2X 4	2660				2660
	12	VL1	2X 15	204	394	298	385	1372
	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2660				2660
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be ≥ 25 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

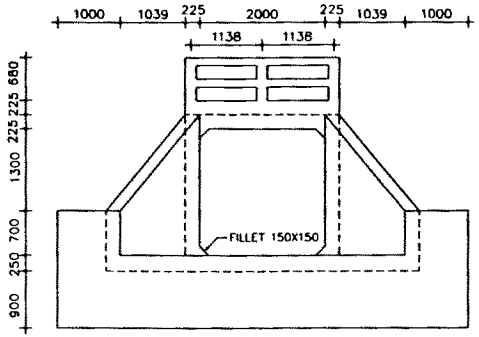
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 1.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1123161	

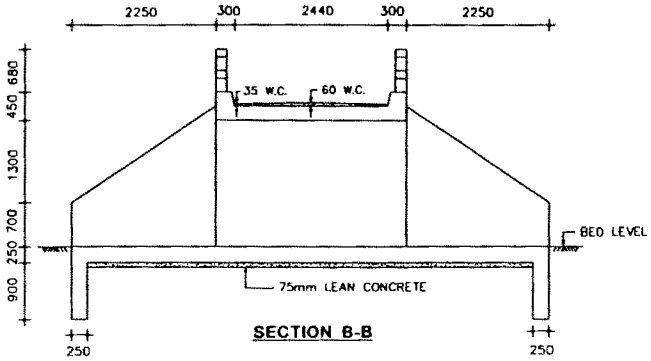
Web Copy

BC-8

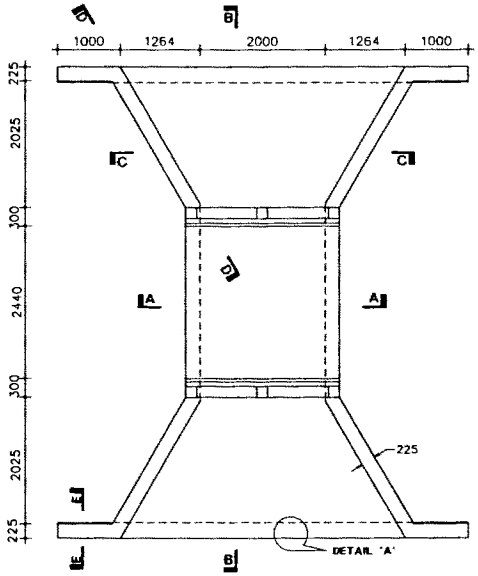
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 2.0m



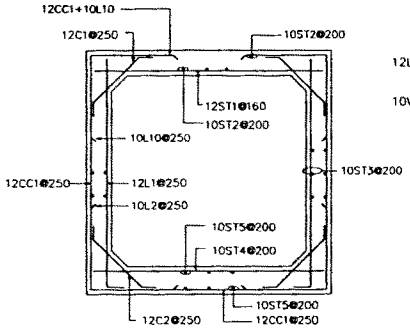
GENERAL ELEVATION



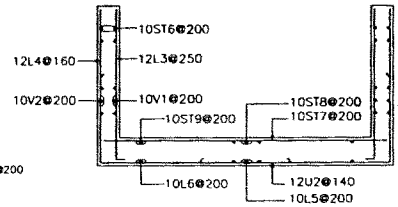
SECTION B-B



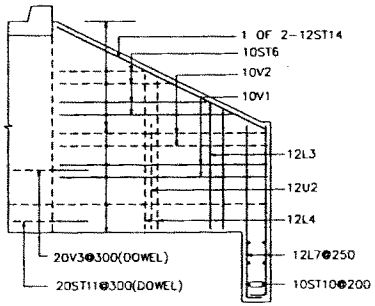
PLAN



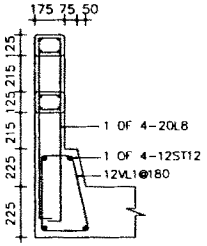
SECTION A-A (REINF. DETAIL)



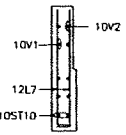
SECTION C-C (REINF. DETAIL)



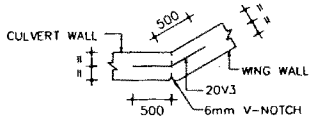
SECTION D-D (REINF. DETAIL)



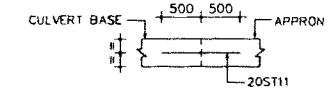
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

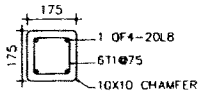
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	19	2350				2350
	10	ST2	12+13	2940				2940
	10	L10	2 X 12	851	841			1692
	12	CC1	13	2 X 851	2 X 2385	2350		8822
O	10	ST3	4X 10	2940				2940
	10	ST4	16	2350				2350
	10	ST5	2X 13	2940				2940
	12	L1	2X 13	2363	144			2507
	10	L2	2X 13	866	841			1707
X	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	582	144		870
	20	ST11	2X 8	1000				1000
	20	V3	4X 7	500	500			1000
WING A PPRON & CUTOFF	12	L3	4X 11	Var. 2353 To 828 @ 152	144			Ver.2497 To 972
	12	L4	4x 17	Var. 2375 To 850 @ 95	Var. 1155 To 146 @ 63			Ver.3530 To 996
	10	ST6	8X 8	Var. 2449 To 277 @ 310				Ver.2449 To 277
	10	V1	4X 3	2459	915			3374
	10	V2	4X 3	2338	854			3192
	10	ST7	2X 11	Var. 2392 To 4586 @ 219				Var.2392 To 4586
	10	ST8	2X 11	2125				2125
	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var.2074 To 171
	12	U2	2X 14	Var. 1200 To 500 @ 50	Var. 2392 To 4586 @ 156	Same As 'a'		Var.4792 To 5586
	10	L5	2X 11	2125	120			2245
	10	L6	4X 7	Var. 2052 To 149 @ 317	120			Ver.2172 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	6378				7503
	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2896				2896
RAILING AND CURB	12	ST12	2X 4	2410				2410
	12	VL1	2X 14	204	394	289	385	1372
	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2410				2410
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 26	2 x 85	2 x 135			440

LEGEND

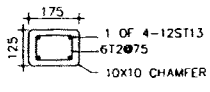
W.C. = Wearing Course

NOTES

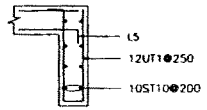
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 30 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.0m x 2.0m ROADWAY 2.44m

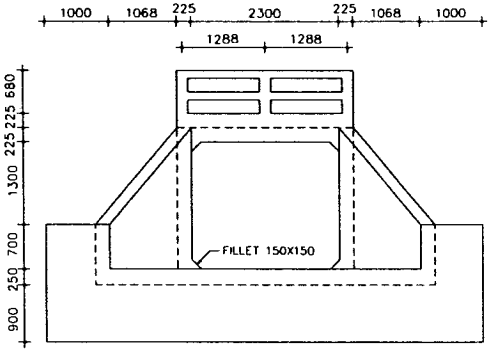
DATE :

ISSUED BY :

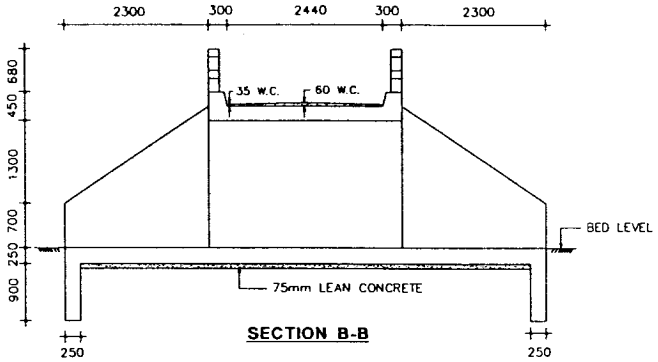
CAD FILE REF : CULV\B1120201

Web Copy

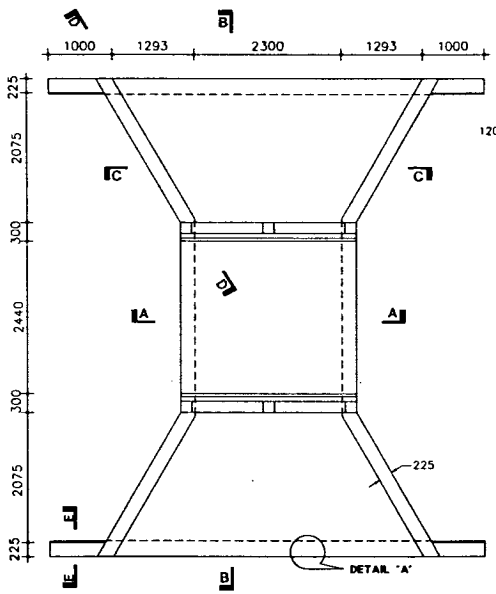
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.3m
CLEAR HEIGHT : 2.0m



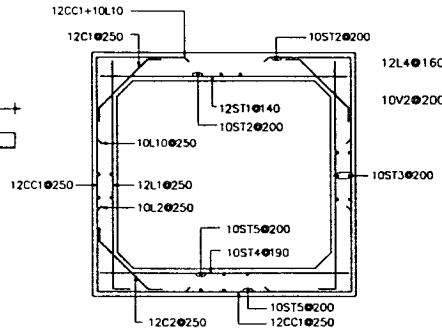
GENERAL ELEVATION



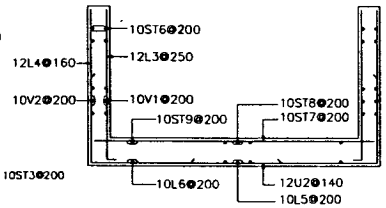
SECTION B-B



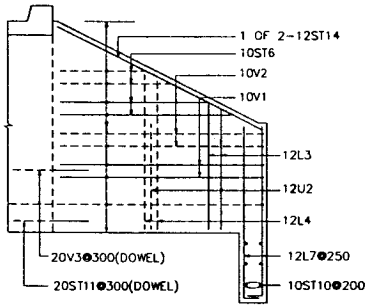
PLAN



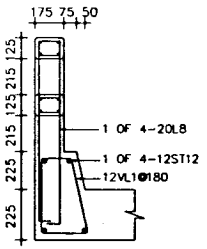
SECTION A-A (REINF. DETAIL)



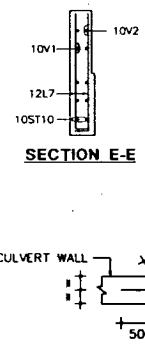
SECTION C-C (REINF. DETAIL)



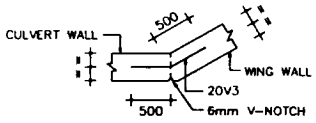
SECTION D-D (REINF. DETAIL)



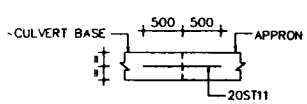
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

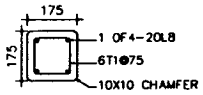
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	22	2650				2650
	10	ST2	12+15	2940				2940
	10	L10	2 X 12	851	941			1792
	12	CC1	13	2 X 951	2 X 2385	2650		9322
O	10	ST3	4X 10	2940				2940
	10	ST4	16	2650				2650
	10	ST5	2X 14	2940				2940
	12	L1	2X 13	2363	144			2507
	10	L2	2X 12	866	941			1807
	12	C1	2X 13	144	550	144		838
X	12	C2	2X 13	144	582	144		870
	20	ST11	2X 9	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2353 To 828 @ 152	144			Ver.2497 To 972
I	12	L4	4x 17	Ver. 2375 To 850 @ 95	Ver. 1275 To 146 @ 70			Ver.3650 To 996
N	10	ST6	8X 8	Ver. 2449 To 277 @ 310				Ver.2449 To 277
G	10	V1	4X 3	2459	915			3374
A	10	V2	4X 3	2338	854			3192
P	10	ST7	2X 11	Var. 2692 To 4886 @ 219				Var.2692 To 4886
P	10	ST8	2X 12	2125				2125
R	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var.2074 To 171
O	12	U2	2X 14	Ver. 1260 To 500 @ 54	Ver. 2692 To 4886 @ 156	Same As 'a'		Var.5212 To 5886
N	10	L5	2X 13	2125	120			2245
&	10	L6	4X 7	Var. 2052 To 149 @ 317	120			Ver.2172 To 269
C	12	L7	8X 4	1725	144			1869
U	10	ST10	4X 5	6678				7803
T	12	UT1	2X 17	144	2X 1025	100		2294
O	12	ST14	4X 2	2896				2896
F	12	ST12	2X 4	2710				2710
F	12	VL1	2X 16	204	394	289	385	1372
CURB	20	L8	6X 4	1046	120			1166
AND	12	ST13	4X 4	2710				2710
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

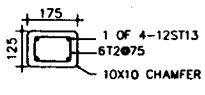
W.C. = Wearing Course

NOTES

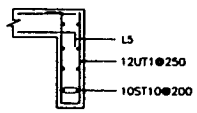
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be ≥ 28 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

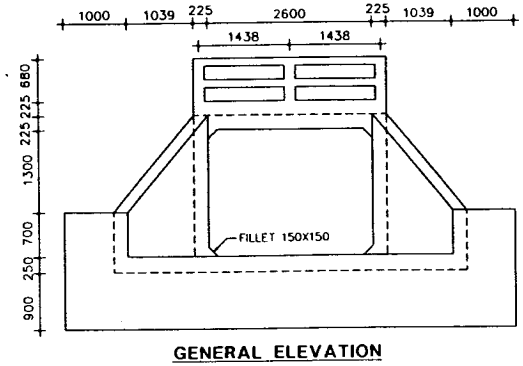
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1123201	

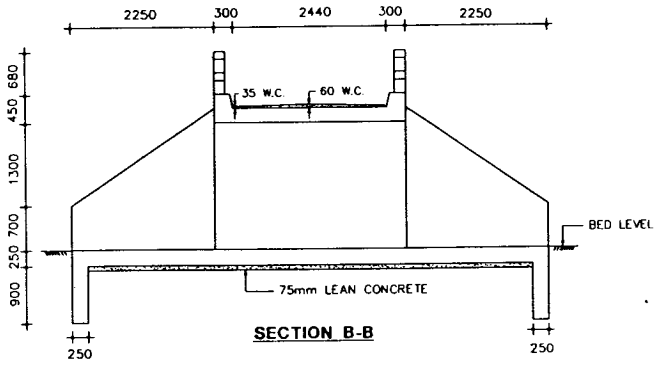
Web Copy

BC-10

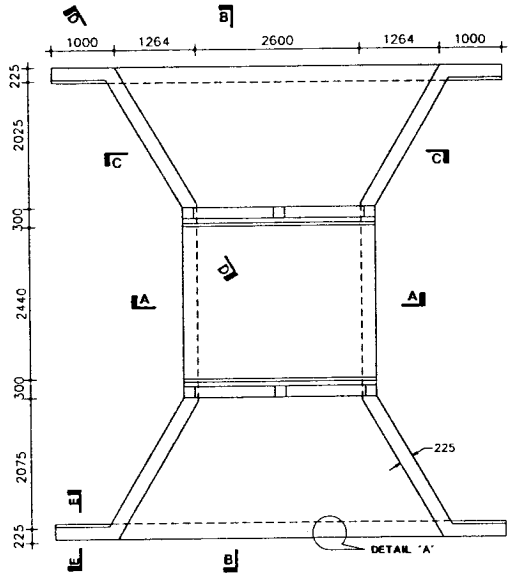
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.0m



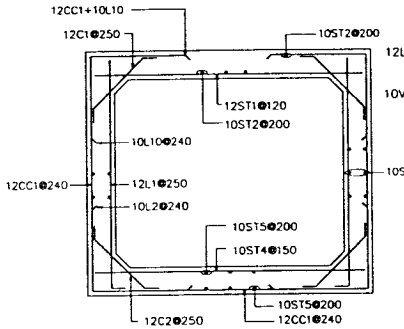
GENERAL ELEVATION



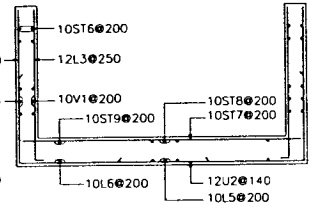
SECTION B-B



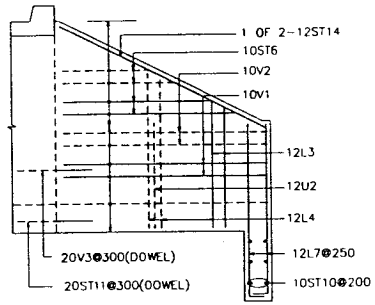
PLAN



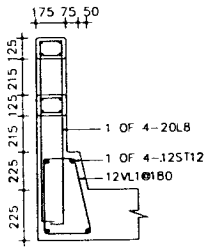
SECTION A-A (REINF. DETAIL)



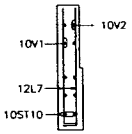
SECTION C-C (REINF. DETAIL)



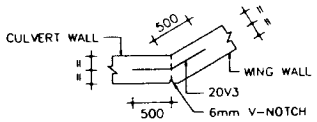
SECTION D-D (REINF. DETAIL)



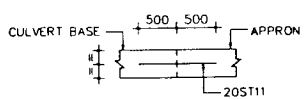
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

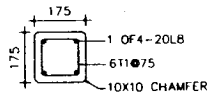
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B O X	12	ST1	26	2950				2950
	10	ST2	14+16	2940				2940
	10	L10	2 X 13	851	1041			1892
	12	CC1	13	2 X 1051	2 X 2385	2950		9822
	10	ST3	4X 10	2940				2940
	10	ST4	21	2950				2950
	10	ST5	2X 16	2940				2940
	12	L1	2X 13	2363	144			2507
	10	L2	2X 12	866	1041			1907
	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	582	144		870
	20	ST11	2X 10	1000				1000
	20	V3	4X 7	500	500			1000
WINGAPPRON & CUTOFF	12	L3	4X 11	Var. 2353 To 828 @ 152	144			Ver.2497 To 972
	12	L4	4x 17	Var. 2375 To 850 @ 95	Var. 1395 To 146 @ 78			Ver.3770 To 996
	10	ST6	8X 8	Var. 2449 To 277 @ 310				Ver.2449 To 277
	10	V1	4X 3	2459	915			3374
	10	V2	4X 3	2338	854			3192
	10	ST7	2X 11	Var. 2992 To 5186 @ 219				Var.2992 To 5186
	10	ST8	2X 14	2125				2125
	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var.2074 To 171
	12	U2	2X 14	Var. 1260 To 500 @ 54	Var. 2992 To 5186 @ 156	Same As 'a'		Var.5512 To 6186
	10	L5	2X 14	2125	120			2245
	10	L6	4X 7	Var. 2052 To 149 @ 317	120			Ver.2172 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	6978				8103
	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2896				2896
CURB AND RAILING	12	ST12	2X 4	3010				3010
	12	VL1	2X 18	204	394	289	385	1372
	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	3010				3010
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 34	2 x 85	2 x 135			440

LEGEND

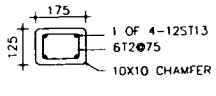
W.C. = Wearing Course

NOTES

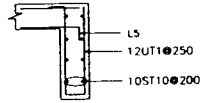
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be ≥ 27 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.0m ROADWAY 2.44m

DATE :

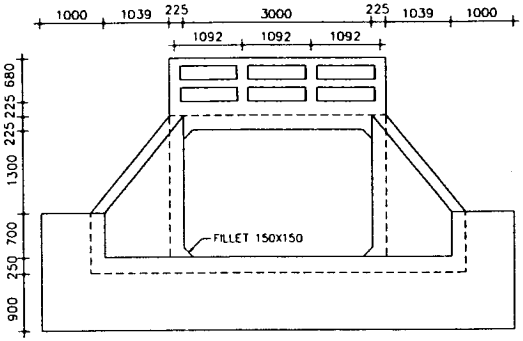
ISSUED BY :

CAD FILE REF : CULV\B1126201

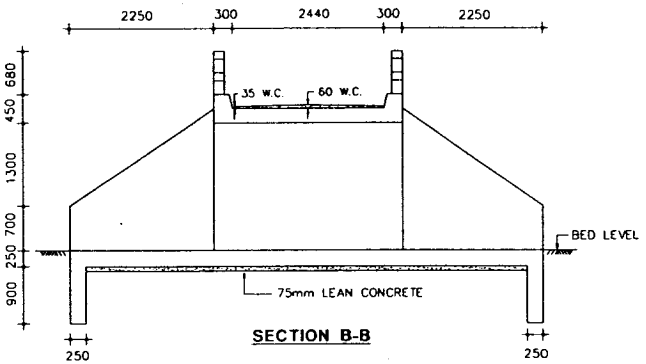
Web Copy

BC-11

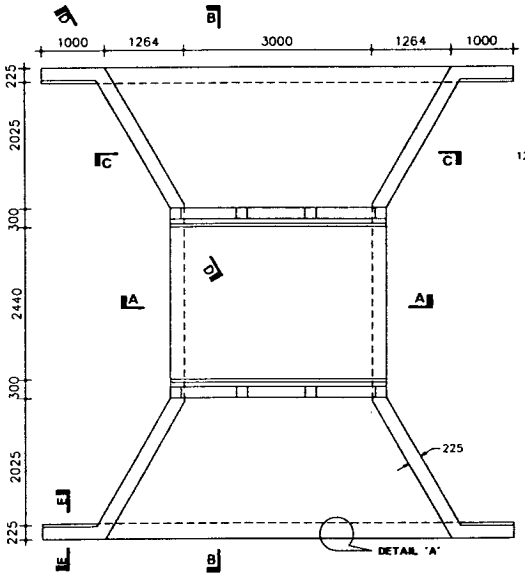
SHEET 1 OF 1	
LIVE LOAD : AASHTO H10	
CLEAR SPAN : 3.0m	
CLEAR HEIGHT : 2.0m	



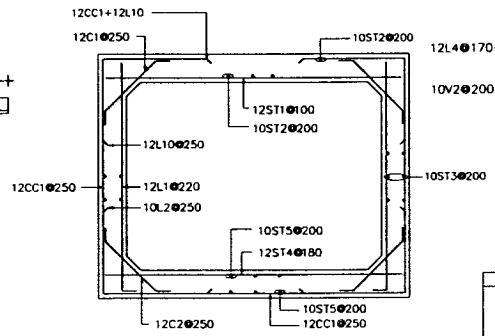
GENERAL ELEVATION



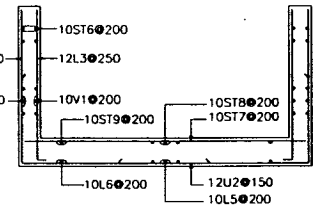
SECTION B-B



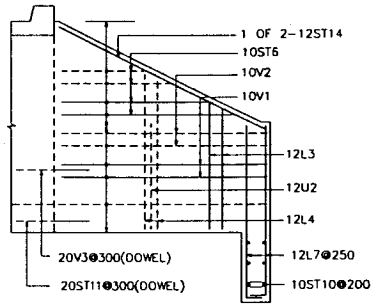
PLAN



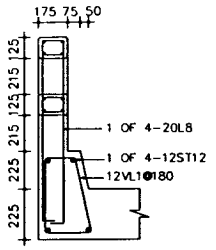
SECTION A-A (REINF. DETAIL)



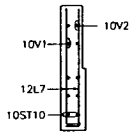
SECTION C-C (REINF. DETAIL)



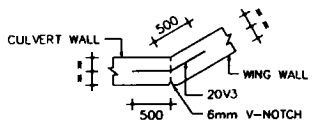
SECTION D-D (REINF. DETAIL)



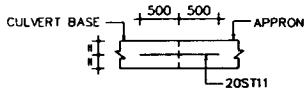
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

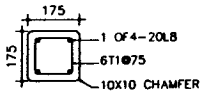
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	31	3350				3350
	10	ST2	14+18	2940				2940
	12	L10	2 X 15	851	1175			2026
	12	CC1	13	2 X 1185	2 X 2385	3350		10490
O	10	ST3	4X 10	2940				2940
	12	ST4	17	3350				3350
	10	ST5	2X 18	2940				2940
	12	L1	2X 14	2363	144			2507
	10	L2	2X 12	866	1175			2041
X	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	580	144		868
	20	ST11	2X 12	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2353 To 828 @ 152	144			Ver.2497 To 972
I	12	L4	4x 16	Ver. 2375 To 850 @ 101	Ver. 1555 To 146 @ 93			Ver.3930 To 996
N G	10	ST6	8X 8	Ver. 2449 To 277 @ 310				Ver.2449 To 277
A	10	V1	4X 3	2459	915			3374
P	10	V2	4X 3	2338	854			3192
P R	10	ST7	2X 11	Var. 3392 To 5586 @ 219				Var.3392 To 5586
O	10	ST8	2X 16	2125				2125
N	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var.2074 To 171
&	12	U2	2X 13	Ver. 1200 To 500 @ 53	Ver. 3392 To 5586 @ 168	Same As 'a'		Var.5792 To 6586
C	10	L5	2X 16	2125	120			2245
U	10	L6	4X 7	Var. 2052 To 149 @ 317	120			Ver.2172 To 269
T O	12	L7	8X 4	1725	144			1869
F	10	ST10	4X 5	7378				8503
F	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2896				2496
CURB	12	ST12	2X 4	3410				3410
	12	VL1	2X 20	204	394	289	385	1372
AND	20	L8	8X 4	1046	120			1166
	12	ST13	4X 4	3410				3410
RAILING	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 37	2 x 85	2 x 135			440

LEGEND

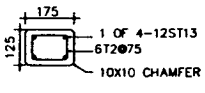
W.C. = Wearing Course

NOTES

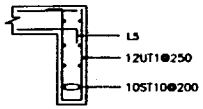
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be ≥ 25 KN/m²
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.0m ROADWAY 2.44m

DATE :

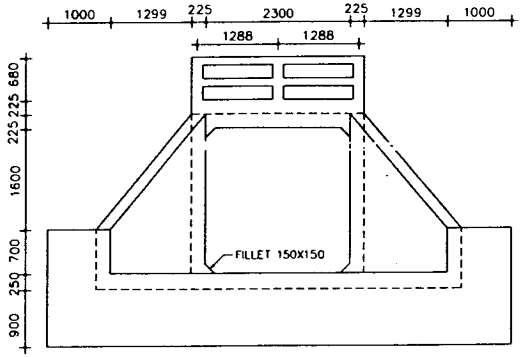
ISSUED BY :

CAD FILE REF : CULV\B1130201

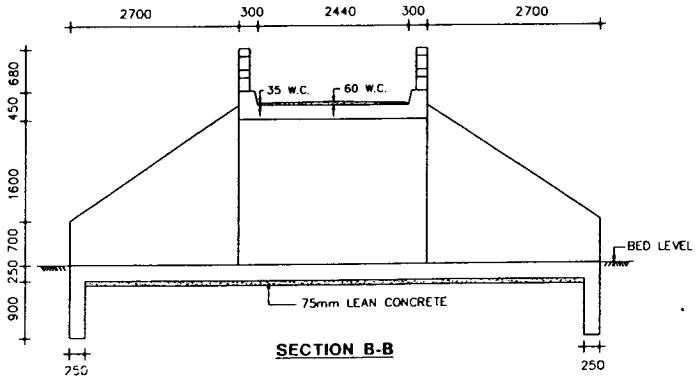
Web Copy

BC-12

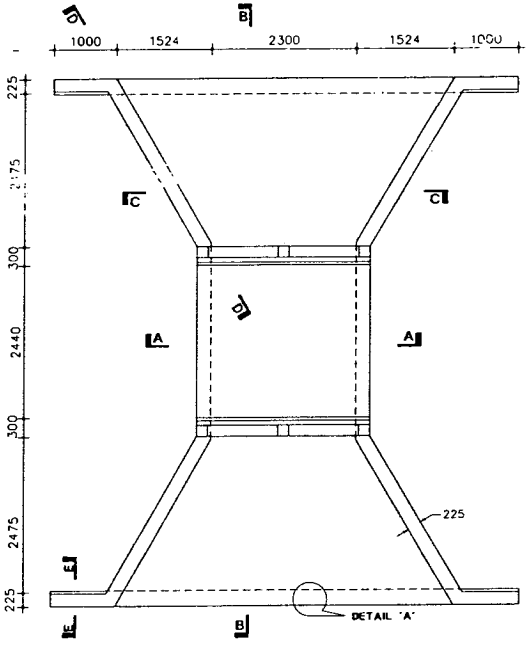
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.3m
CLEAR HEIGHT : 2.3m



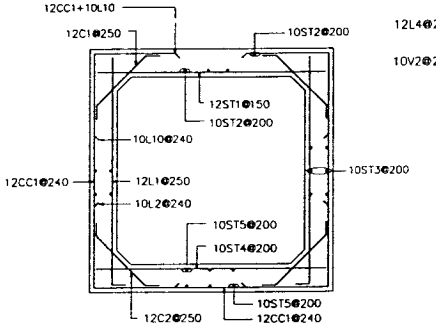
GENERAL ELEVATION



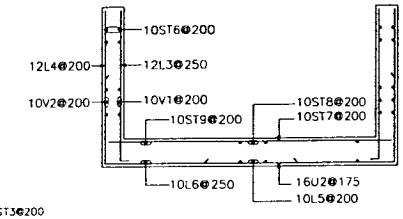
SECTION B-B



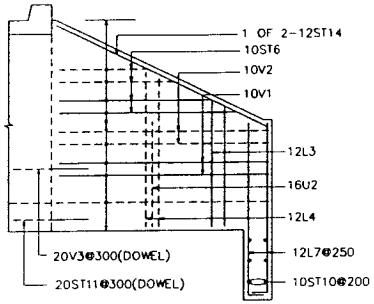
PLAN



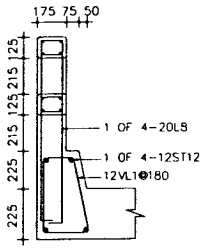
SECTION A-A (REINF. DETAIL)



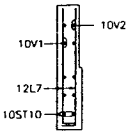
SECTION C-C (REINF. DETAIL)



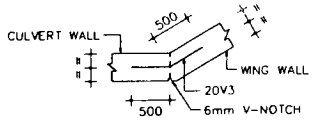
SECTION D-D (REINF. DETAIL)



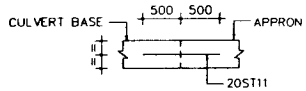
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

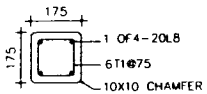
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	21	2650				2650
	10	ST2	12+15	2940				2940
	10	L10	2 X 13	951	941			1892
	12	CC1	13	2 X 951	2 X 2685	2650		9922
O	10	ST3	4X 11	2940				2940
	10	ST4	16	2650				2650
	10	ST5	2X 14	2940				2940
	12	L1	2X 13	2663	144			2807
	10	L2	2X 12	966	941			1907
X	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	582	144		870
	20	ST11	2X 9	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2649 To 824 @ 152	144			Ver.2793 To 968
I	12	L4	4x 16	Ver. 2675 To 850 @ 121	Ver. 1275 To 146 @ 75			Ver.3950 To 996
N	10	ST6	8X 9	Ver. 2968 To 278 @ 336				Ver.2968 To 278
A	10	V1	4X 3	2979	915			3894
P	10	V2	4X 3	2857	854			3711
P	10	ST7	2X 10	Var. 2692 To 5405 @ 301				Var.2692 To 5405
R	10	ST8	2X 10	2575				2575
O	10	ST9	4X 6	Var. 2524 To 258 @ 453				Var.2524 To 258
N	16	U2	2X 13	Ver. 1500 To 500 @ 76	Ver. 2692 To 5405 @ 208	Same As 'c'		Var.5692 To 6405
&	10	L5	2X 13	2575	120			2695
C	10	L6	4X 6	Var. 2052 To 236 @ 453	120			Ver.2622 To 356
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 5	7198				8323
O	12	UT1	2X 20	144	2X 1025	100		2294
F	12	ST14	4X 2	3496				3496
F	12	ST12	2X 4	2710				2710
CURB	12	VL1	2X 16	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2710				2710
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

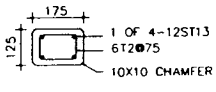
W.C. = Wearing Course

NOTES

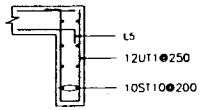
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 29 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.3m ROADWAY 2.44m

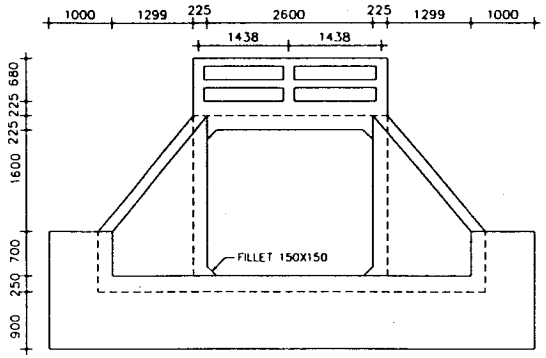
DATE :

ISSUED BY :

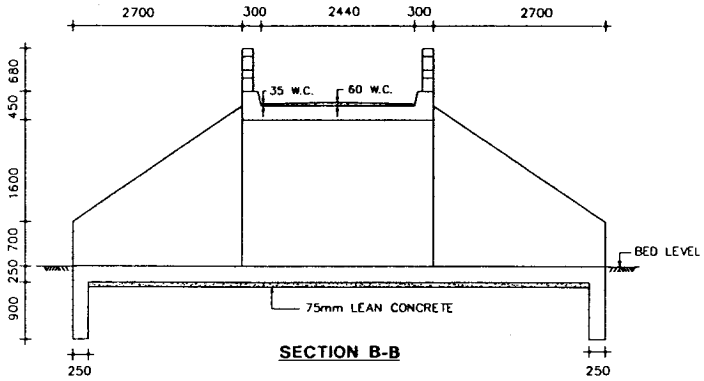
CAD FILE REF : CULV\B1123231

Web Copy

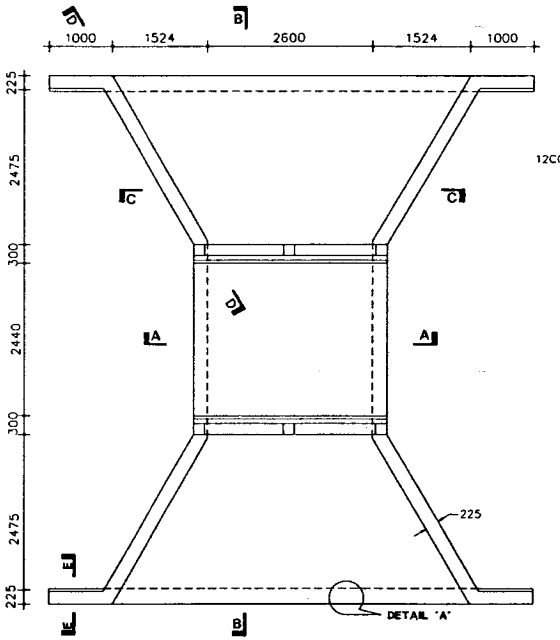
SHEET 1 OF 1	
LIVE LOAD : AASHTO H10	
CLEAR SPAN : 2.6m	
CLEAR HEIGHT : 2.3m	



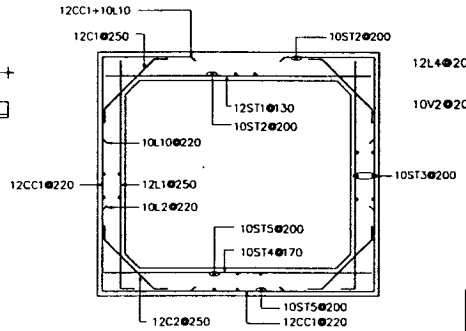
GENERAL ELEVATION



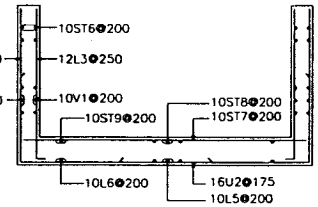
SECTION B-B



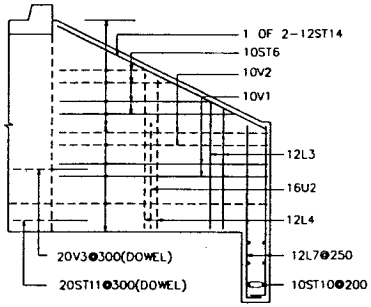
PLAN



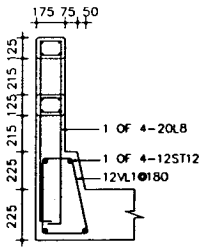
SECTION A-A (REINF. DETAIL)



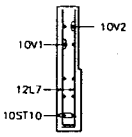
SECTION C-C (REINF. DETAIL)



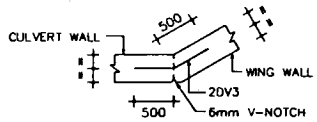
SECTION D-D (REINF. DETAIL)



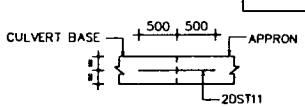
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

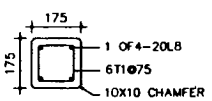
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	24	2950				2950
	10	ST2	14+16	2940				2940
	10	L10	2 X 14	951	1041			1992
	12	CC1	13	2 X 1051	2 X 2685	2950		10422
O	10	ST3	4X 11	2940				2940
	10	ST4	18	2950				2950
	10	ST5	2X 16	2940				2940
	12	L1	2X 13	2663	144			2807
	10	L2	2X 13	966	1041			2007
X	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	582	144		870
	20	ST11	2X 10	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2649 To 824 @ 152	144			Ver.2793 To 968
I	12	L4	4x 16	Ver. 2675 To 850 @ 121	Ver. 1395 To 146 @ 83			Ver.4070 To 996
N	10	ST6	8X 9	Ver. 2968 To 278 @ 336				Ver.2968 To 278
A	10	V1	4X 3	2979	915			3894
P	10	V2	4X 3	2857	854			3711
P	10	ST7	2X 13	Var. 2992 To 5705 @ 226				Var.2992 To 5705
R	10	ST8	2X 14	2575				2575
O	10	ST9	4X 8	Var. 2524 To 171 @ 336				Var.2524 To 171
N	16	U2	2X 13	Ver. 1600 To 500 @ 84	Ver. 2992 To 5705 @ 208	Same As 'a'		Var.6192 To 6705
&	10	L5	2X 14	2575	120			2695
C	10	L6	4X 8	Var. 2502 To 149 @ 336	120			Ver.2622 To 269
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 5	7498				8623
O	12	UT1	2X 20	144	2X 1025	100		2294
F	12	ST14	4X 2	3496				3496
F	12	ST12	2X 4	3010				3010
CURB	12	VL1	2X 17	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	3010				3010
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 34	2 x 85	2 x 135			440

LEGEND

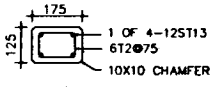
W.C. = Wearing Course

NOTES

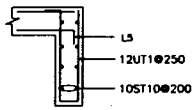
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 50 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

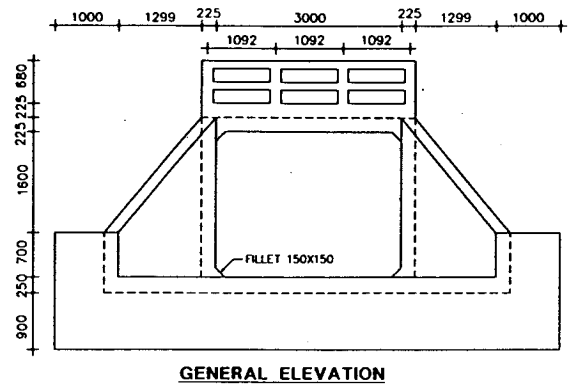
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 2.6m x 2.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1126231	

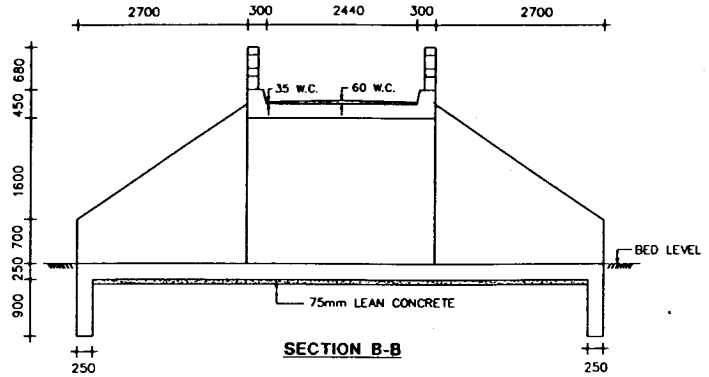
Web Copy

BC-14

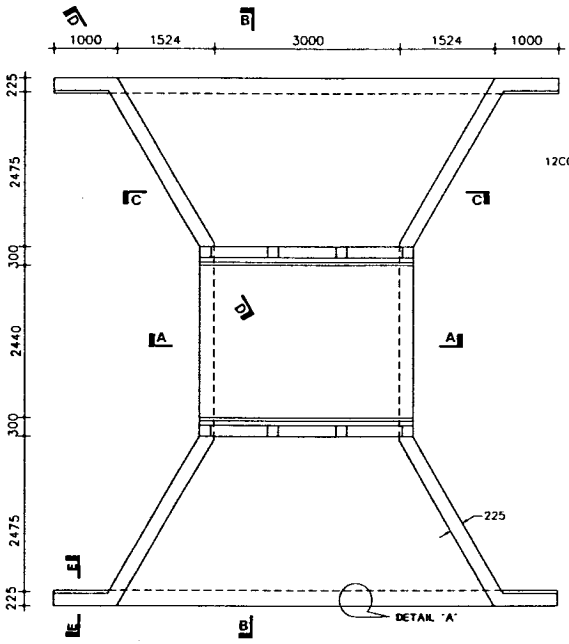
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.3m



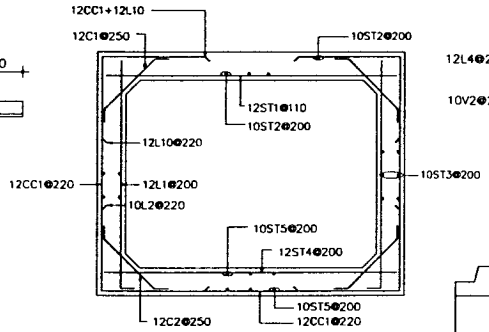
GENERAL ELEVATION



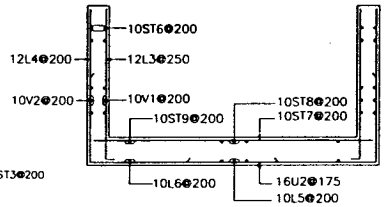
SECTION B-B



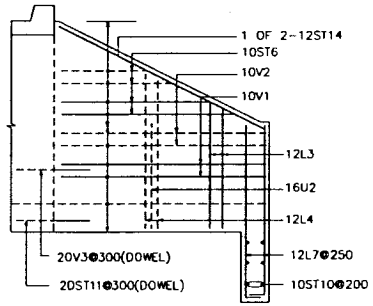
PLAN



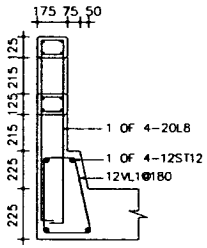
SECTION A-A (REINF. DETAIL)



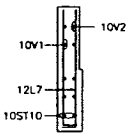
SECTION C-C (REINF. DETAIL)



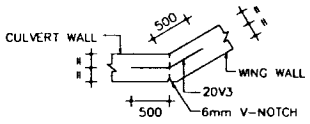
SECTION D-D (REINF. DETAIL)



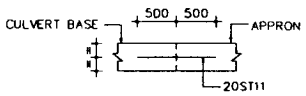
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

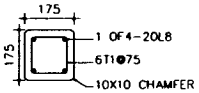
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	28	3350				3350
	10	ST2	14+18	2940				2940
	12	L10	2 X 14	951	1175			2126
	12	CC1	14	2 X 1185	2 X 2685	3350		11090
O	10	ST3	4X 11	2940				2940
	12	ST4	16	3350				3350
	10	ST5	2X 18	2940				2940
	12	L1	2X 16	2663	144			2807
	10	L2	2X 12	966	1175			2141
	12	C1	2X 16	120	558	120		798
X	12	C2	2X 16	120	580	120		820
	20	ST11	2X 12	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2649 To 824 @ 152	144			Ver.2793 To 968
I	12	L4	4x 17	Ver. 2675 To 850 @ 121	Ver. 1555 To 146 @ 93			Ver.4230 To 996
N	10	ST6	8X 9	Ver. 2968 To 278 @ 336				Ver.2968 To 278
A	10	V1	4X 3	2979	915			3894
P	10	V2	4X 3	2857	854			3711
P	10	ST7	2X 13	Var. 3392 To 6105 @ 226				Var.3392 To 6105
R	10	ST8	2X 16	2575				2575
O	10	ST9	4X 8	Var. 2524 To 171 @ 336				Var.2524 To 171
N	16	U2	2X 13	Ver. 1600 To 500 @ 84	Ver. 3392 To 6105 @ 208	Same As 'a'		Var.6592 To 7105
&	10	L5	2X 16	2575	120			2695
C	10	L6	4X 8	Var. 2502 To 149 @ 336	120			Ver.2622 To 269
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 5	7898				9023
O	12	UT1	2X 20	144	2X 1025	100		2294
F	12	ST14	4X 2	3496				3496
F	12	ST12	2X 4	3410				3410
CURB	12	VL1	2X 20	204	394	289	385	1372
AND	20	L8	8X 4	1046	120			1166
	12	ST13	4X 4	3410				3410
RAILING	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 39	2 x 85	2 x 135			440

LEGEND

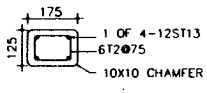
W.C. = Wearing Course

NOTES

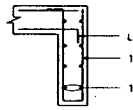
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 50 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.3m ROADWAY 2.44m

DATE :

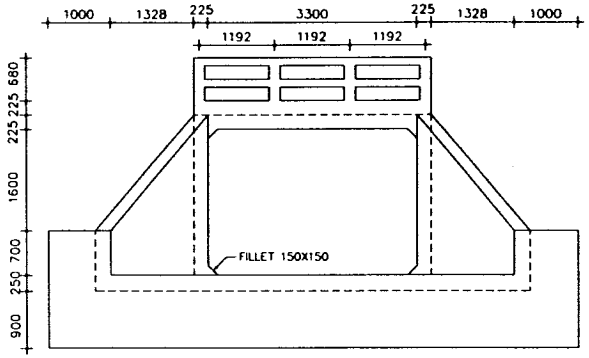
ISSUED BY :

CAD FILE REF : CULV\B1130231

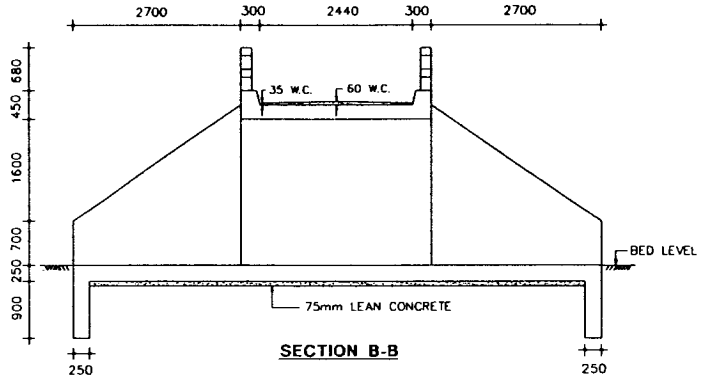
Web Copy

BC-15

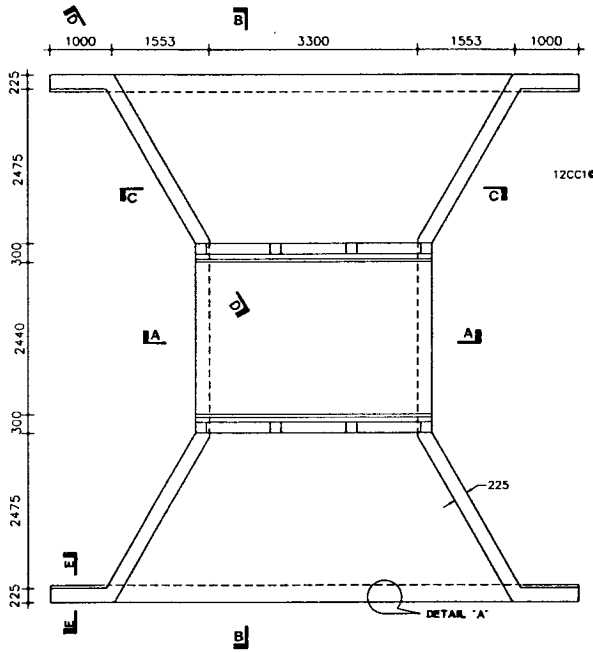
SHEET 1 OF 1
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.3m



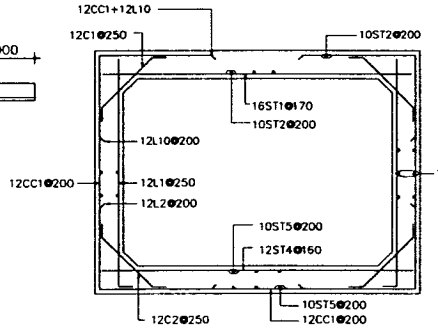
GENERAL ELEVATION



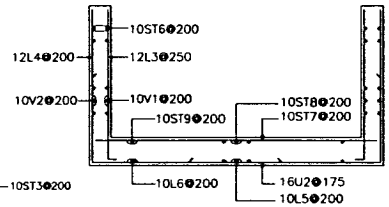
SECTION B-B



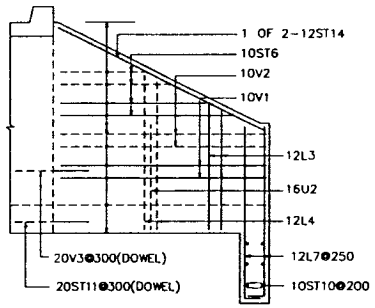
PLAN



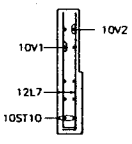
SECTION A-A (REINF. DETAIL)



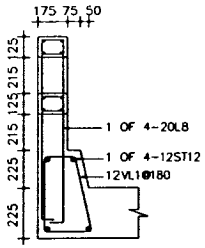
SECTION C-C (REINF. DETAIL)



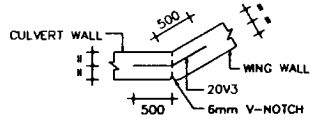
SECTION D-D (REINF. DETAIL)



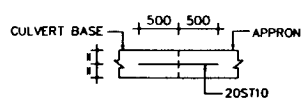
SECTION E-E



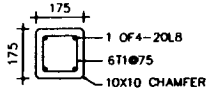
RAILING ON CULVERT (REINF. DETAIL)



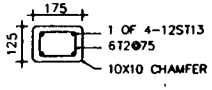
DETAIL OF DOWEL AT WALL



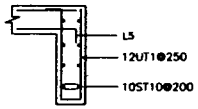
DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	18	3650				3650
	10	ST2	16+20	2940				2940
	12	L10	2 X 15	951	1275			2226
	12	CC1	16	2 X 1285	2 X 2685	3650		11590
O	10	ST3	4X 11	2940				2940
	12	ST4	19	3650				3650
	10	ST5	2X 19	2940				2940
	12	L1	2X 13	2663	144			2807
	12	L2	2X 15	966	1275			2241
X	12	C1	2X 13	144	558	144		846
	12	C2	2X 13	144	580	144		868
	20	ST11	2X 13	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2649 To 824 @ 152	144			Ver.2793 To 968
I	12	L4	4x 16	Ver. 2675 To 850 @ 121	Ver. 1675 To 146 @ 101			Ver.4350 To 996
N	10	ST6	8X 9	Ver. 2968 To 278 @ 336				Ver.2968 To 278
G	10	V1	4X 3	2979	915			3894
A	10	V2	4X 3	2857	854			3711
P	10	ST7	2X 13	Var. 3692 To 6405 @ 226				Var.3692 To 6405
P	10	ST8	2X 17	2575				2575
R	10	ST9	4X 8	Var. 2524 To 171 @ 336				Var.2524 To 171
O	16	U2	2X 14	Ver. 1600 To 500 @ 84	Ver. 3692 To 6405 @ 208	Same As 'a'		Var.6892 To 7405
N	10	L5	2X 18	2575	120			2695
&	10	L6	4X 8	Var. 2502 To 149 @ 336	120			Ver.2622 To 269
C	12	L7	8X 4	1725	144			1869
U	10	ST10	4X 5	8198				9323
T	12	UT1	2X 20	144	2X 1025	100		2294
O	12	ST14	4X 2	3496				3496
F	12	ST12	2X 4	3710				3710
F	12	VL1	2X 21	204	394	289	385	1372
CURB	20	L8	8X 4	1046	120			1166
AND	12	ST13	4X 4	3710				3710
RAILING	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 42	2 x 85	2 x 135			400

LEGEND
W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 80 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

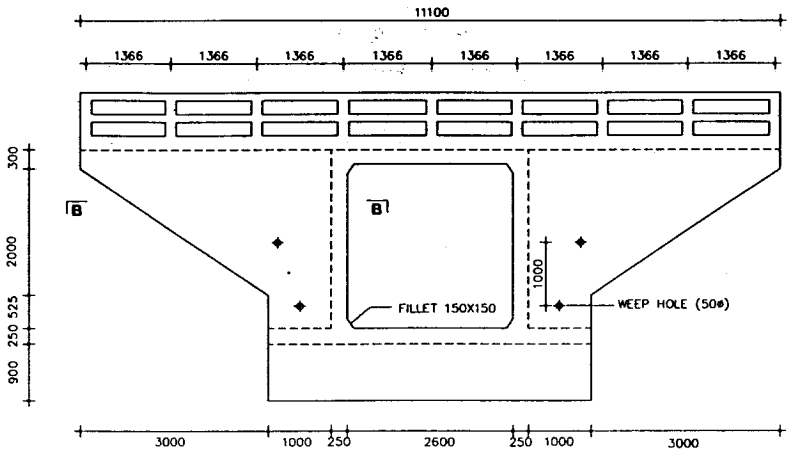
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 2.3m ROADWAY 2.44m

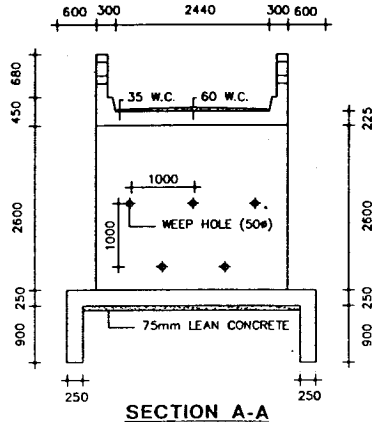
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1133231

Web Copy

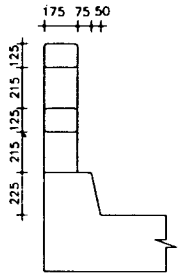
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



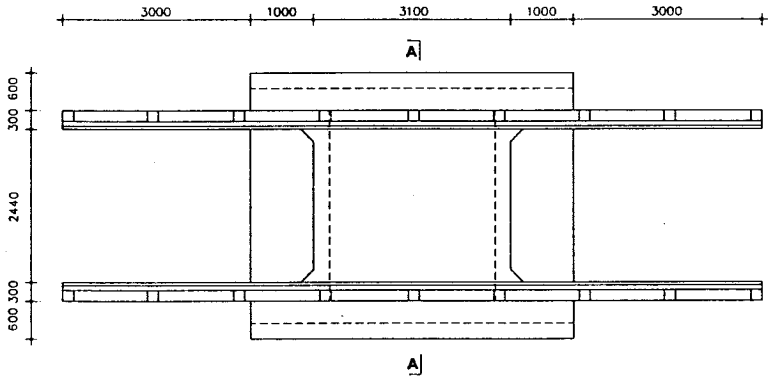
GENERAL ELEVATION



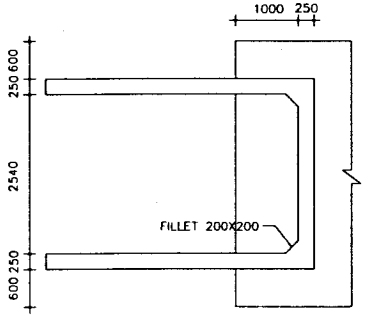
SECTION A-A



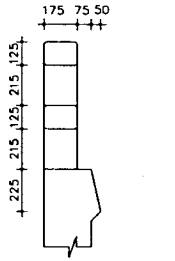
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

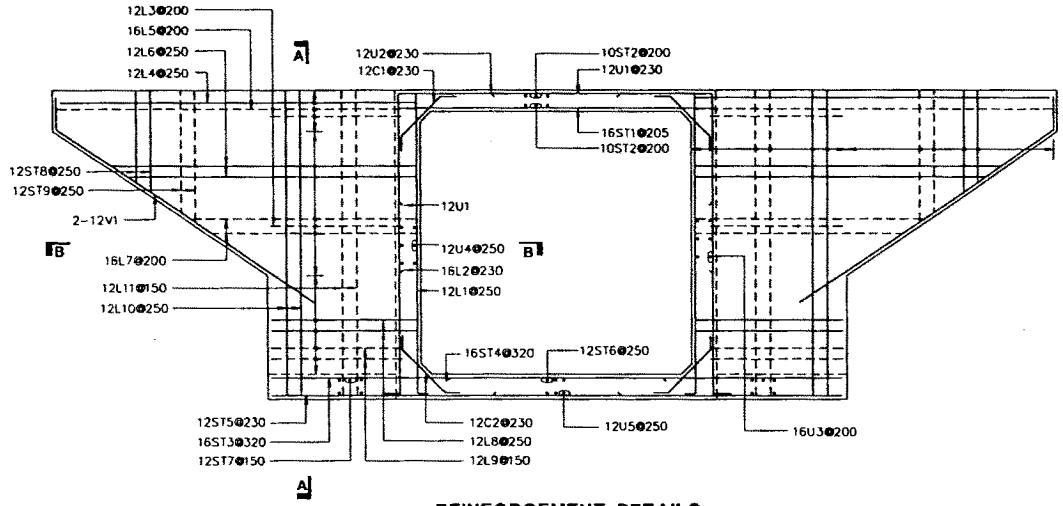
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.6m ROADWAY 2.44m

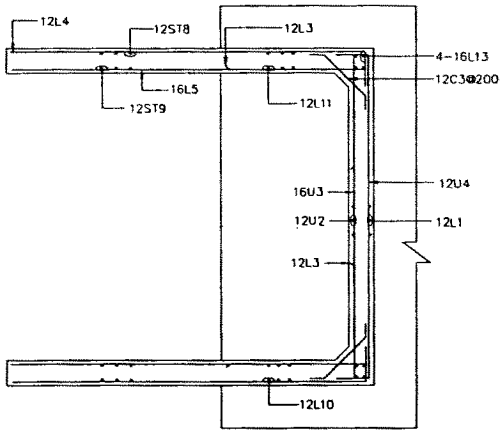
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1126261

Web Copy

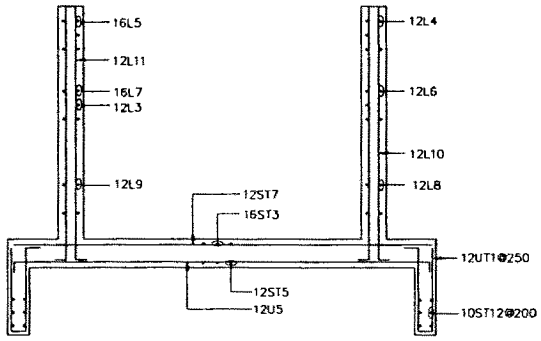
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



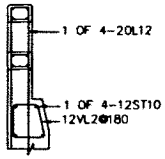
REINFORCEMENT DETAILS



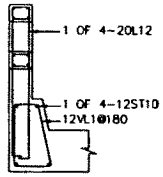
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



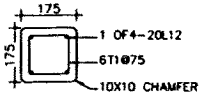
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

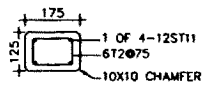
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	16	3000				3000
O	10	ST2	2 X 16	2940				2940
X	16	ST3	14	5000				5000
	16	ST4	13	1560				1560
A	12	ST5	19	5000				5000
P	12	ST6	14	4140				4140
P	12	ST7	2 X 7	4140				4140
R	12	C1	2 X14	144	585	144		873
O	12	C2	2 X 14	144	598	144		886
N	12	L1	2 X 10	2961	250			3211
	16	L2	2 X 12	1054	250			1304
&	16	L13	4 X 4	2961	250			3211
	12	U1	14	1051	3000	1051		5102
C	12	U2	2 X 14	1066	2985	1066		5117
U	16	U3	2 X 12	250	2940	250		3440
T	12	U4	2 X 10	394	2940	394		3728
O	12	U5	21	250	4070	250		4570
F	10	ST12	4 X 5	4950				4950
F	12	UT1	2 X 22	144	2 X 1025	100		2294
	12	L3	4 X 13	1188	813			2001
	12	L4	4 X 1	4138	394			4532
	16	L5	4 X 2	4138	250			4388
W	12	L6	4 X 9	Var. 4109 To 1138 @ 371	394			Var. 4503 To 1532
	16	L7	4 X 11	Var. 4109 To 1138 @ 297	250			Var. 4359 To 1388
I	12	L8	4 X 3	1138	394			1532
	12	L9	4 X 4	1138	813			1951
	12	L10	4 X 4	3013	250			3263
N	12	L11	4 X 7	3013	250			3263
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	680	144		968
CURB	12	ST10	2 X 4	11050				11050
	12	VL1	2 X 19	204	394	289	385	1372
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1046	120			1166
	12	ST11	4 X 4	11060				11060
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 43 kN/m^2.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

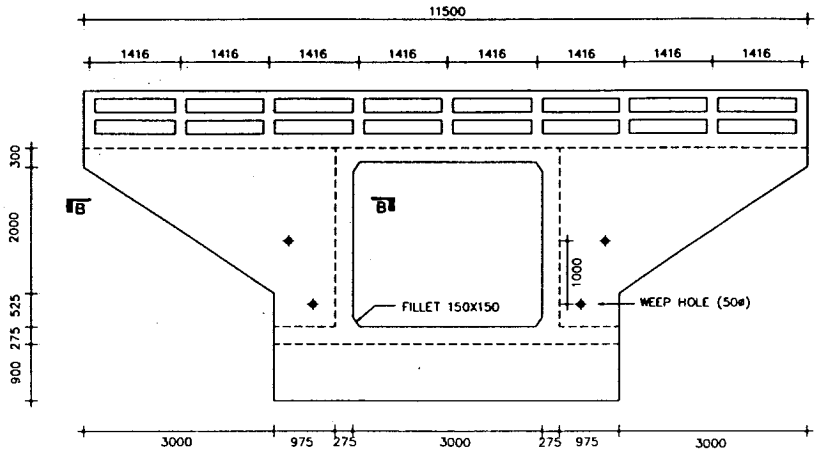
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 2.6m x 2.6m ROADWAY 2.44m

DATE : 27/03/1997	ISSUED BY :
CAD FILE REF : CULV\B1126262	

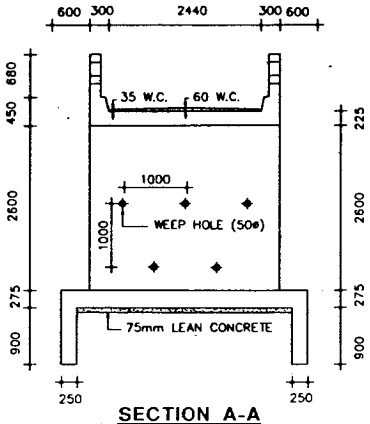
Web Copy

BC-18

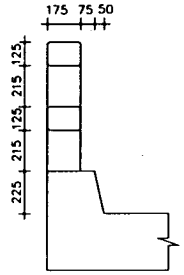
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



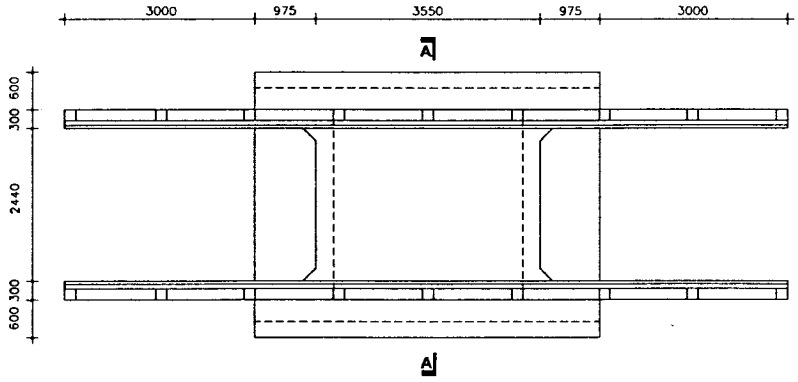
GENERAL ELEVATION



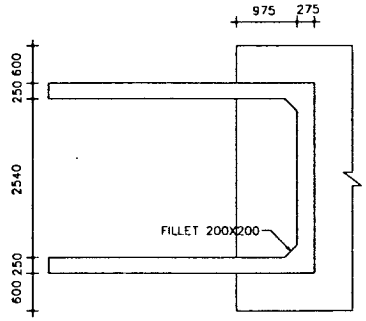
SECTION A-A



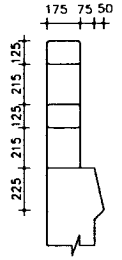
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

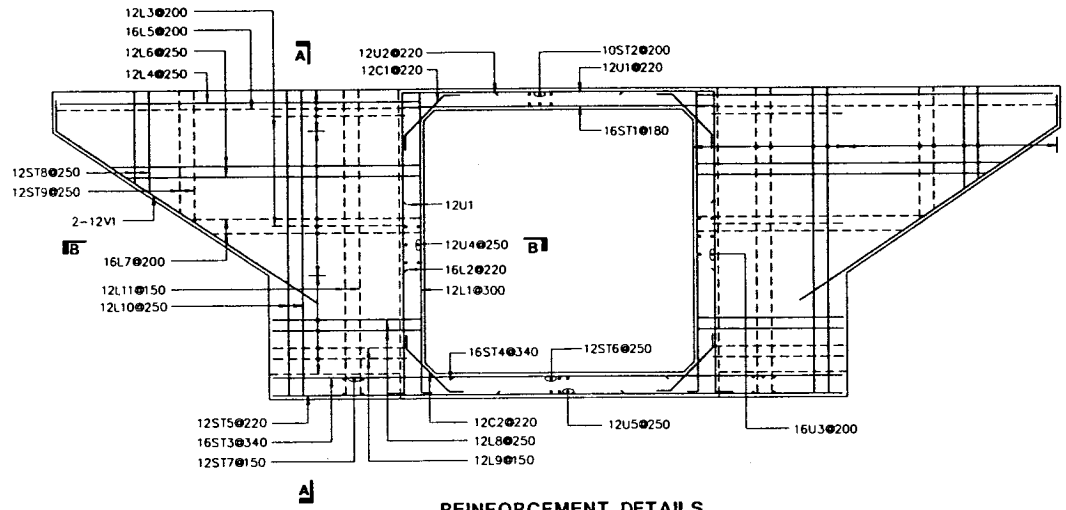
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

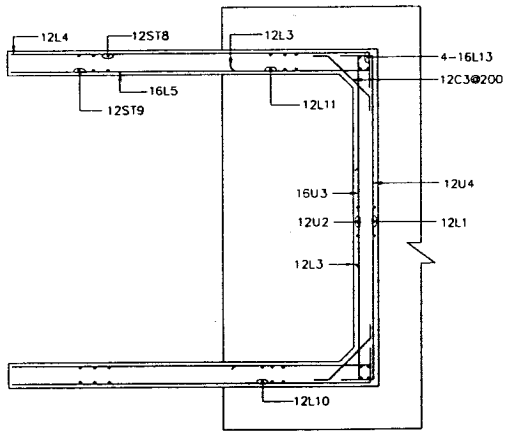
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.0m x 2.6m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1130261

Web Copy

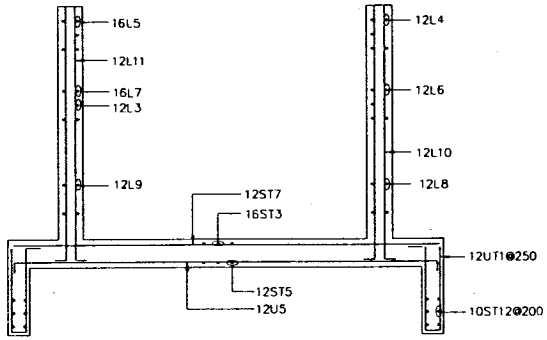
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



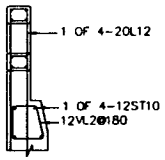
REINFORCEMENT DETAILS



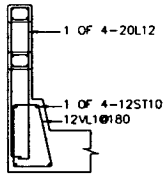
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



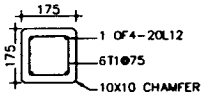
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

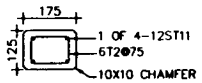
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	18	3450				3450
O	10	ST2	2 X 19	2940				2940
X	16	ST3	14	5400				5400
	16	ST4	13	1800				1800
A	12	ST5	20	5400				5400
P	12	ST6	16	4140				4140
P	12	ST7	2 X 7	4140				4140
R	12	C1	2 X 15	144	621	144		909
O	12	C2	2 X 15	144	669	144		957
N	12	L1	2 X 8	2986	250			3236
	16	L2	2 X 13	1079	250			1329
&	16	L13	4 X 4	2986	250			3236
	12	U1	15	1051	3450	1051		5552
C	12	U2	2 X 15	1225	3010	1225		5460
U	16	U3	2 X 12	250	2940	250		3440
T	12	U4	2 X 10	419	2940	419		3778
O	12	U5	23	250	4070	250		4570
F	10	ST12	4 X 5	5350				5350
F	12	UT1	2 X 23	144	2 X 1050	100		2344
	12	L3	4 X 13	1188	813			2001
	12	L4	4 X 1	4138	394			4532
	16	L5	4 X 2	4138	250			4388
W	12	L6	4 X 9	Var. 4109 To 1138 @ 371	394			Var. 4503 To 1532
	16	L7	4 X 11	Var. 4109 To 1138 @ 297	250			Var. 4389 To 1388
I	12	L8	4 X 3	1138	394			1532
	12	L9	4 X 4	1138	813			1951
	12	L10	4 X 4	3038	250			3288
N	12	L11	4 X 7	3038	250			3288
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	715	144		1003
	12	ST10	2 X 4	11450				11550
CURB	12	VL1	2 X 21	204	394	289	385	1372
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1046	120			1166
	12	ST11	4 X 4	11460				1146D
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

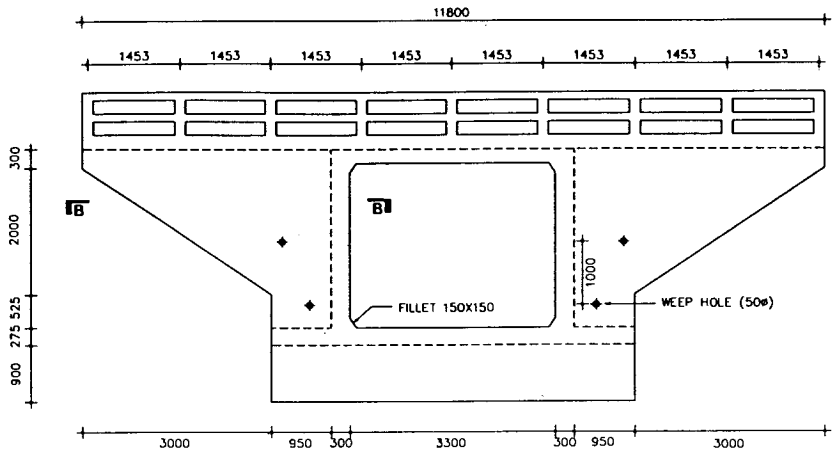
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 2.6m ROADWAY 2.44m

DATE : 27/03/1997 | ISSUED BY :
CAD FILE REF : CULV\B1130262

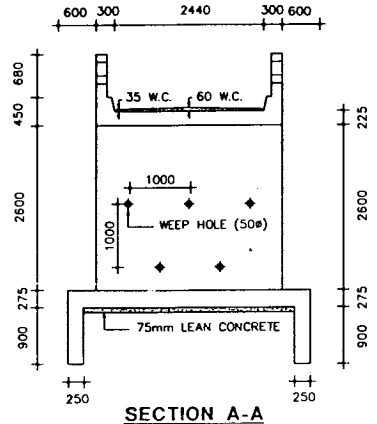
Web Copy

BC–20

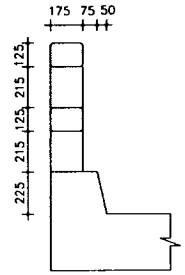
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



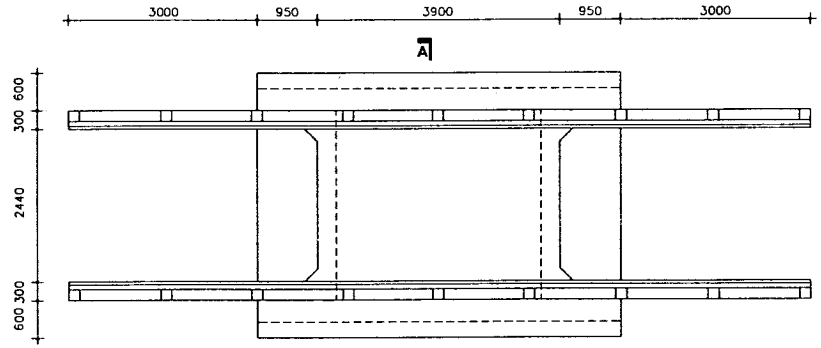
GENERAL ELEVATION



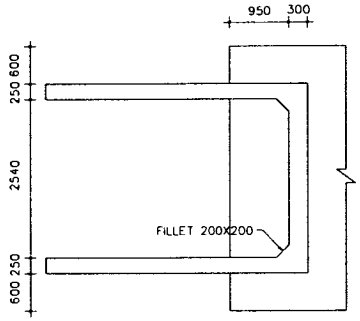
SECTION A-A



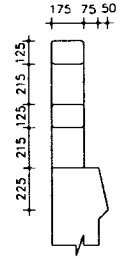
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

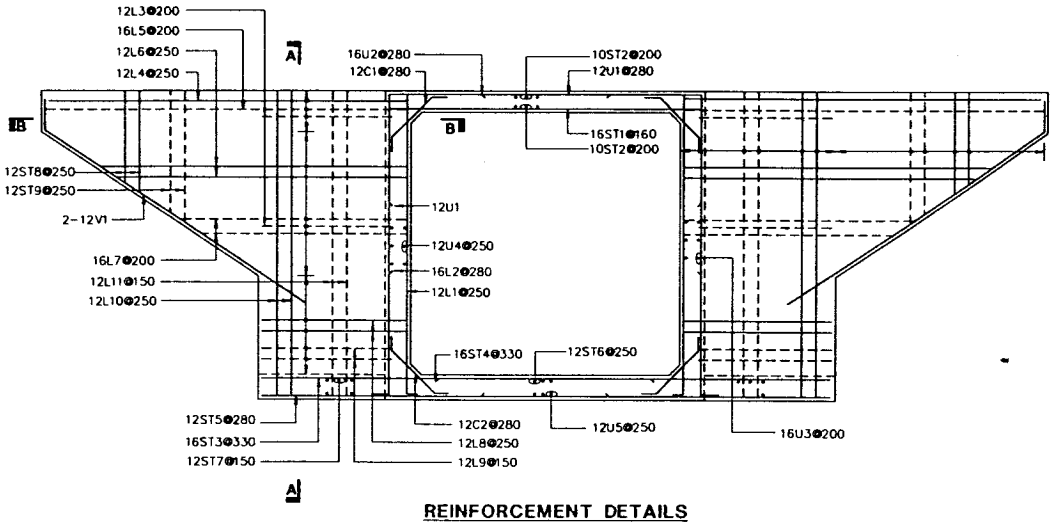
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

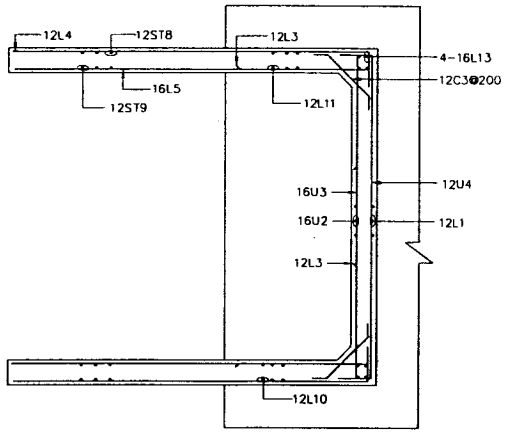
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.3m x 2.6m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\81133261

Web Copy

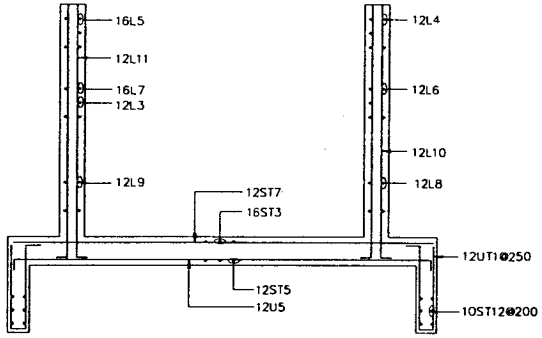
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



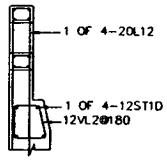
REINFORCEMENT DETAILS



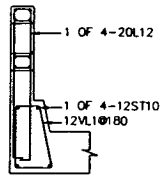
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



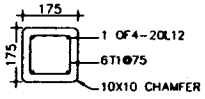
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

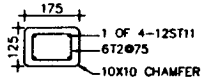
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	20	3800				3800
0	10	ST2	2 X 20	2940				2940
X	16	ST3	14	5700				5700
.	16	ST4	13	1980				1980
A	12	ST5	16	5700				5700
P	12	ST6	17	4140				4140
P	12	ST7	2 X 6	4140				4140
R	12	C1	2 X 12	144	645	144		933
0	12	C2	2 X 12	144	704	144		992
N	12	L1	2 X 10	2986	250			3236
	16	L2	2 X 10	1079	250			1329
&	16	L13	4 X 4	2986	250			3236
	12	U1	12	1051	3800	1051		5902
C	16	U2	2 X 12	1350	3010	1350		5710
U	16	U3	2 X 12	250	2940	250		3440
T	12	U4	2 X 10	444	2940	444		3828
O	12	U5	24	250	4070	250		4570
F	10	ST12	4 X 5	5650				5650
F	12	UT1	2 X 24	144	2 X 1050	100		2344
	12	L3	4 X 13	1188	813			2001
	12	L4	4 X 1	4138	394			4532
	16	L5	4 X 2	4138	250			4388
W	12	L6	4 X 9	Var. 4109 To 1138 @ 371	394			Var. 4503 To 1532
	16	L7	4 X 11	Var. 4109 To 1138 @ 297	250			Var. 4359 To 1388
I	12	L8	4 X 3	1138	394			1532
	12	L9	4 X 4	1138	813			1951
	12	L10	4 X 4	3038	250			3288
N	12	L11	4 X 6	3038	250			3288
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	751	144		1039
	12	ST10	2 X 4	11750				11750
CURB	12	VL1	2 X 23	204	394	294	385	1372
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1046	120			1166
	12	ST11	4 X 4	11760				11760
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 128	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

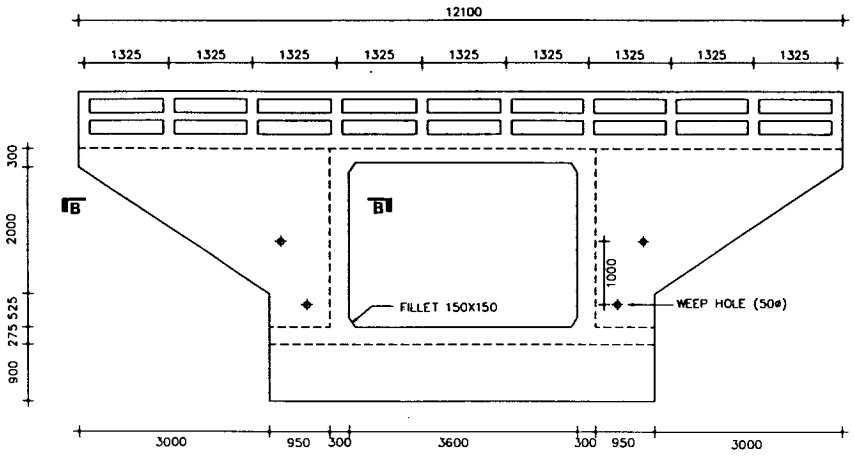
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 2.6m ROADWAY 2.44m

DATE : 27/03/1997 | ISSUED BY :

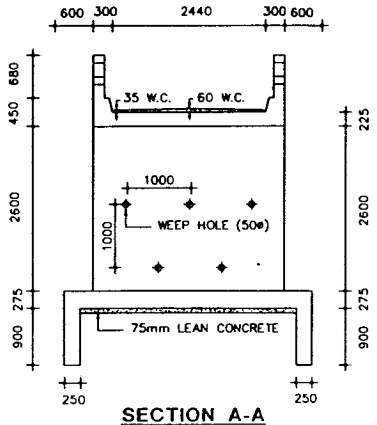
CAD FILE REF : CULV\81133262

Web Copy

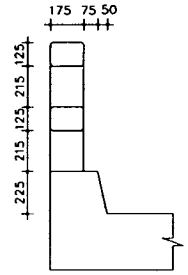
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



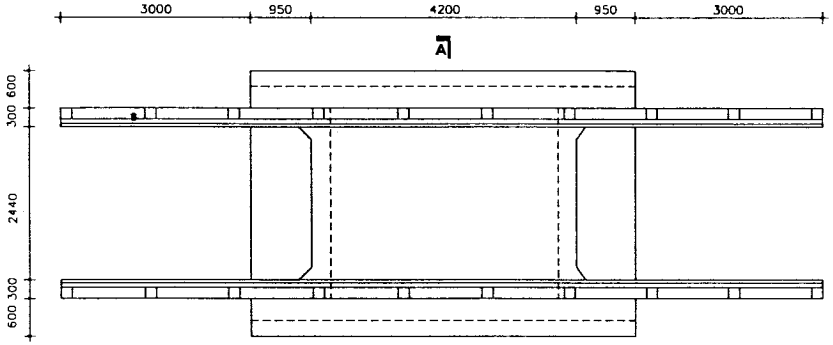
GENERAL ELEVATION



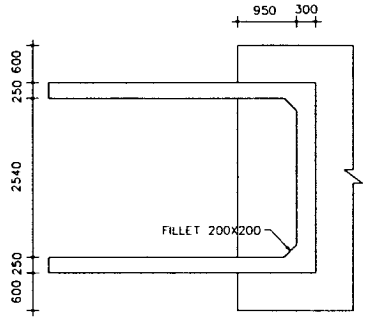
SECTION A-A



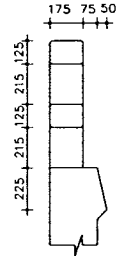
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

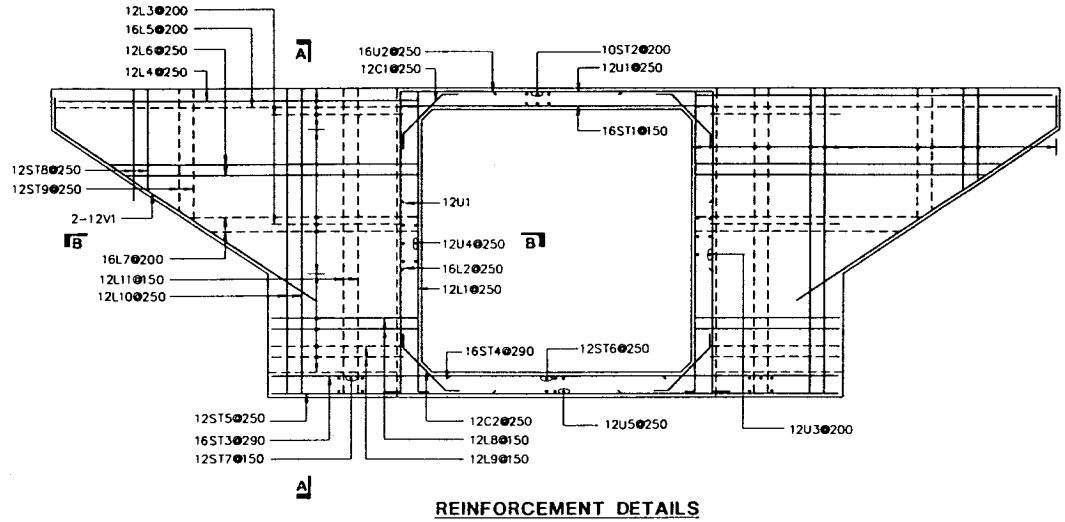
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 2.6m ROADWAY 2.44m

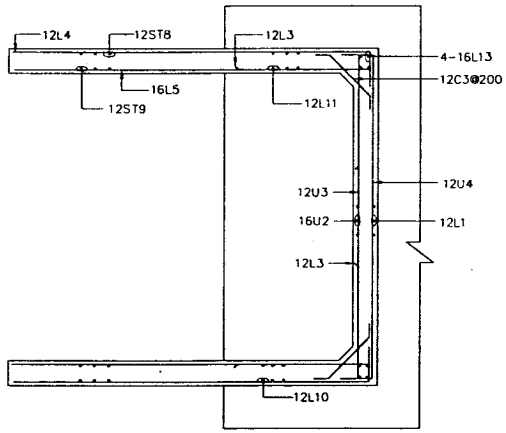
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1136261	

Web Copy

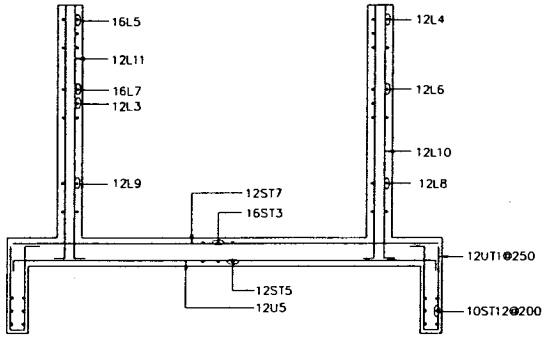
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



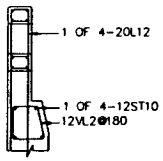
REINFORCEMENT DETAILS



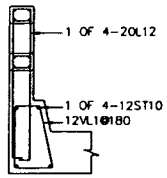
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



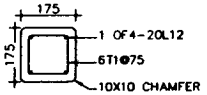
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

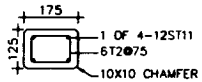
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	21	4100				4100
0	10	ST2	2 X 22	2940				2940
X	16	ST3	16	6000				6000
	16	ST4	15	2160				2160
A	12	ST5	18	6000				6000
P	12	ST6	18	4140				4140
P	12	ST7	2 X 4	4140				4140
R	12	C1	2 X 13	144	650	144		938
0	12	C2	2 X 13	144	710	144		998
N	12	L1	2 X 10	2986	250			3236
	16	L2	2 X 11	1079	250			1329
&	16	L13	4 X 4	2986	250			3236
	12	U1	13	1051	4100	1051		6202
C	16	U2	2 X 13	1450	3010	1450		5910
U	12	U3	2 X 12	250	2940	250		3440
T	12	U4	2 X 10	444	2940	444		3828
0	12	U5	25	250	4070	250		4570
F	10	ST12	4 X 5	5950				5950
F	12	UT1	2 X 26	144	2 X 1050	100		2344
	12	L3	4 X 13	1188	813			2001
	12	L4	4 X 1	4138	394			4532
	16	L5	4 X 2	4138	250			4438
W	12	L6	4 X 9	Var. 4109 To 1138 @ 371	394			Var. 4503 To 1532
	16	L7	4 X 11	Var. 4109 To 1138 @ 297	250			Var. 4359 To 1388
I	12	L8	4 X 3	1138	394			1532
	12	L9	4 X 4	1138	813			1951
	12	L10	4 X 4	3038	250			3288
N	12	L11	4 X 6	3038	250			3288
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	751	144		1039
	12	ST10	2 X 4	12050				12050
CURB	12	VL1	2 X 25	204	394	289	385	1372
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1046	120			1166
	12	ST11	4 X 4	12060				12060
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 128	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ⩾ 30 kN/m.^{2}
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 2.6m ROADWAY 2.44m

DATE :

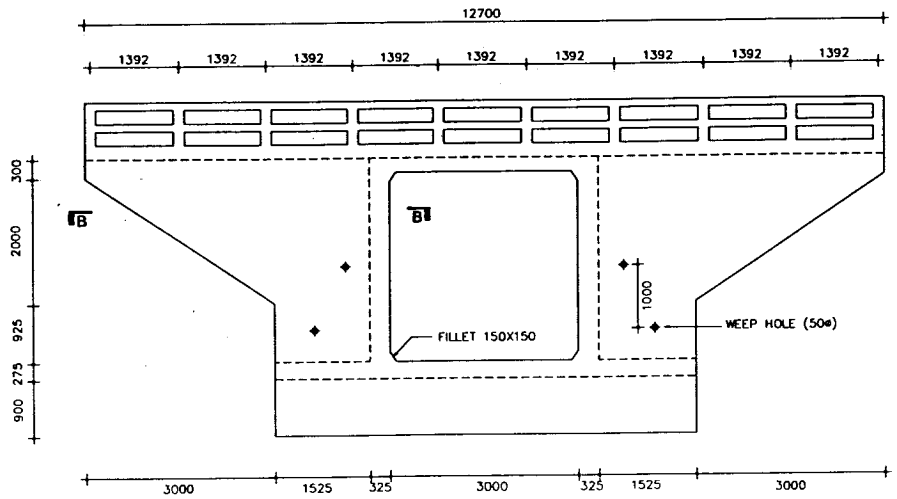
ISSUED BY :

CAD FILE REF : CULV\B1136262

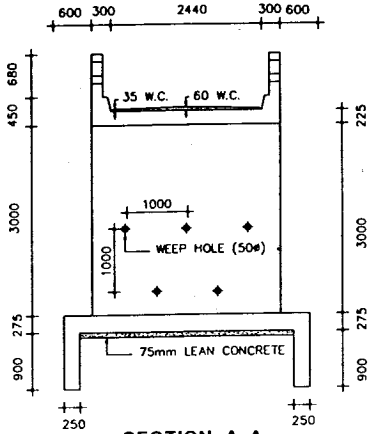
Web Copy

BC-24

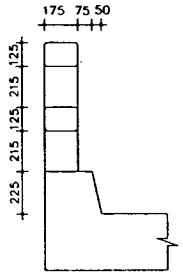
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



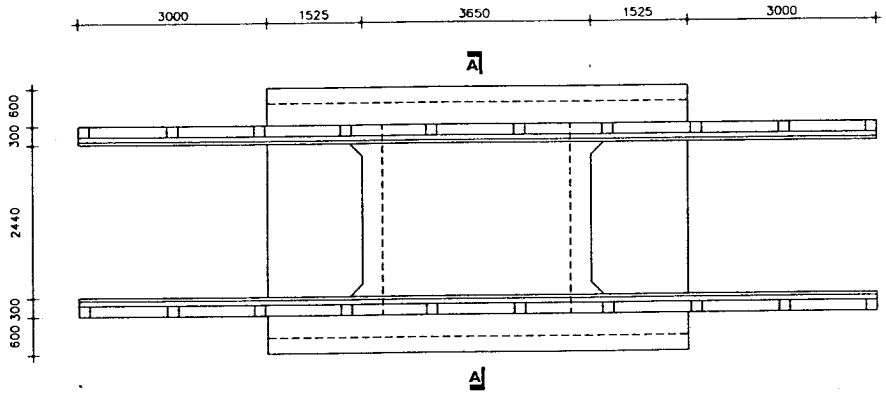
GENERAL ELEVATION



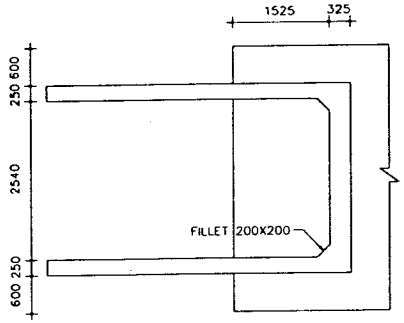
SECTION A-A



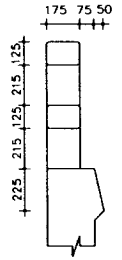
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter materiol shall be provided as per specification.

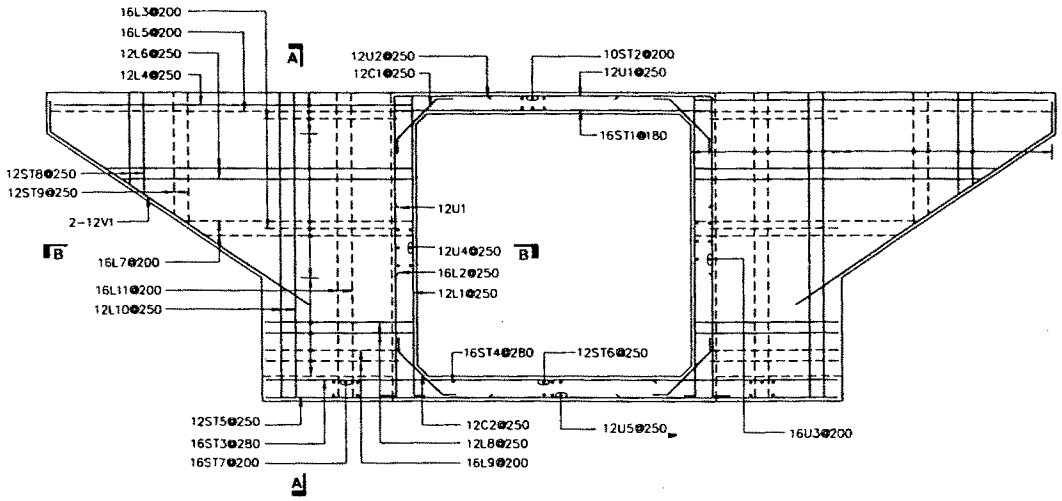
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 2.44m

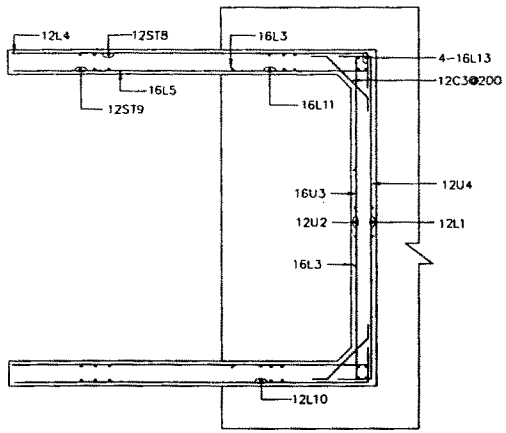
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1130301	

Web Copy

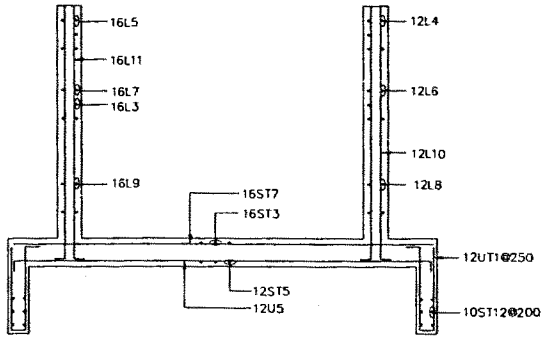
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



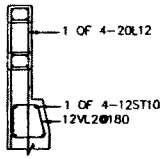
REINFORCEMENT DETAILS



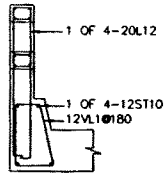
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



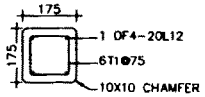
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

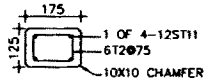
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	18	3550				3550
O	10	ST2	2 X 19	2940				2940
X	16	ST3	16	6600				6600
	16	ST4	15	1800				1800
A	12	ST5	18	6600				6600
P	12	ST6	16	4140				4140
P	16	ST7	2 X 8	4140				4140
R	12	C1	2 X 13	144	691	144		979
O	12	C2	2 X 13	144	739	144		1027
N	12	L1	2 X 10	3386	250			3636
	16	L2	2 X 11	1213	250			1463
&	16	L13	4 X 4	3386	250			3636
	12	U1	13	1185	3550	1185		5920
C	12	U2	2 X 13	1275	3410	1275		5960
U	16	U3	2 X 14	250	2940	250		3440
T	12	U4	2 X 11	469	2940	469		3878
O	12	U5	28	250	4070	250		4570
F	10	ST12	4 X 5	6550				6650
F	12	UT1	2 X 28	144	2 X 1050	100		2344
	16	L3	4 X 13	1788	813			2601
	12	L4	4 X 1	4738	394			5132
	16	L5	4 X 2	4738	250			4988
W	12	L6	4 X 9	Var. 4709 To 1738 @ 371	394			Var. 5103 To 2132
	16	L7	4 X 11	Var. 4709 To 1738 @ 297	250			Var. 4959 To 1988
I	12	L8	4 X 4	1738	394			2132
	16	L9	4 X 5	1738	813			2551
	12	L10	4 X 6	3438	250			3688
N	16	L11	4 X 8	3438	250			3688
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 17	144	786	144		1074
	12	ST10	2 X 4	12650				12650
CURB	12	VL1	2 X 22	204	394	289	385	1372
	12	VL2	4 X 25	204	204	248	200	956
AND	20	L12	20 X 4	1046	120			1166
	12	ST11	4 X 4	12660				12660
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 47 kN/m.^{2}



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 2.44m

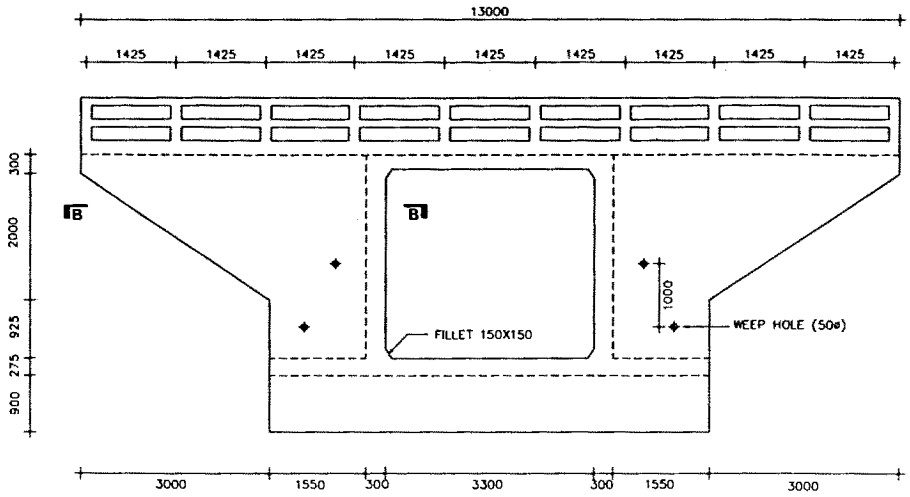
DATE : 27/03/1997 | ISSUED BY :

CAD FILE REF : CULV\81130302

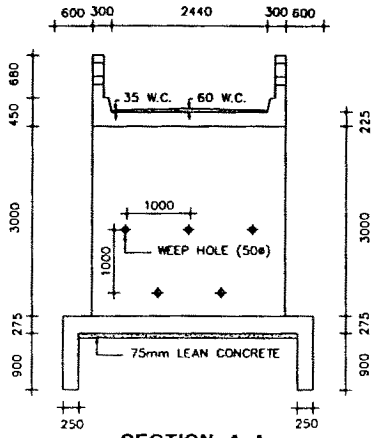
Web Copy

BC-26

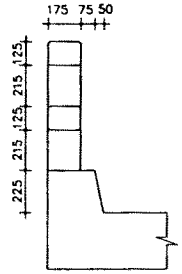
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



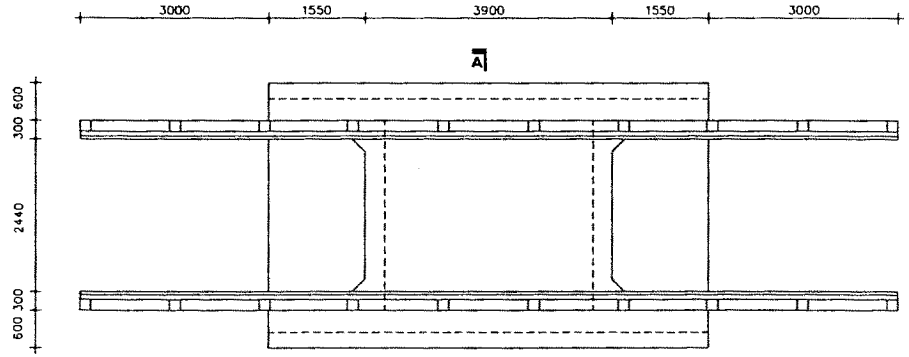
GENERAL ELEVATION



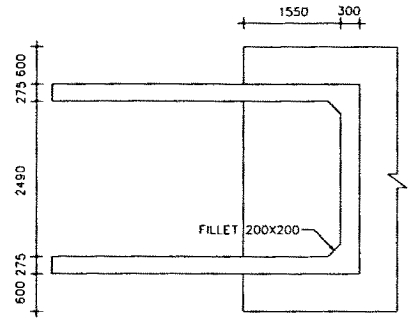
SECTION A-A



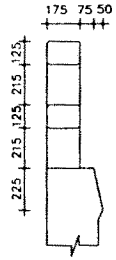
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

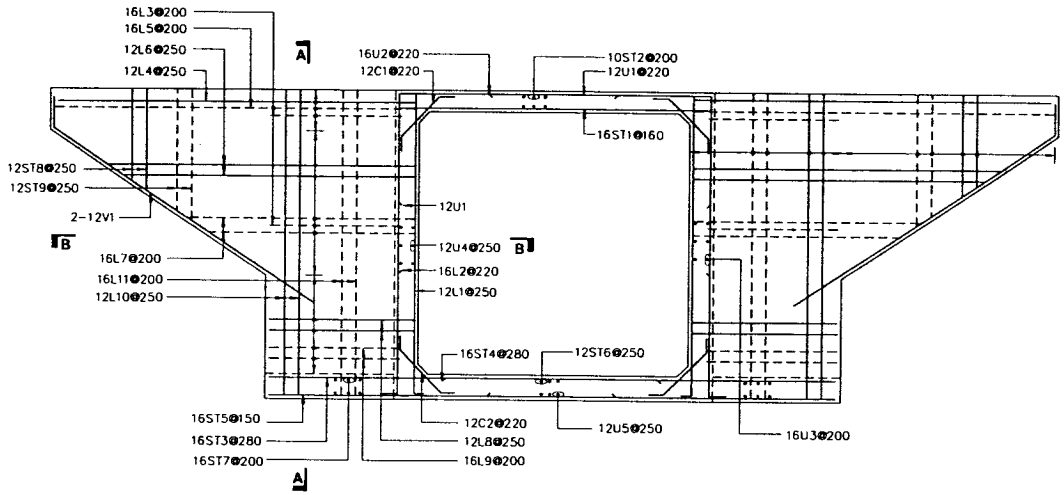
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 3.0m ROADWAY 2.44m

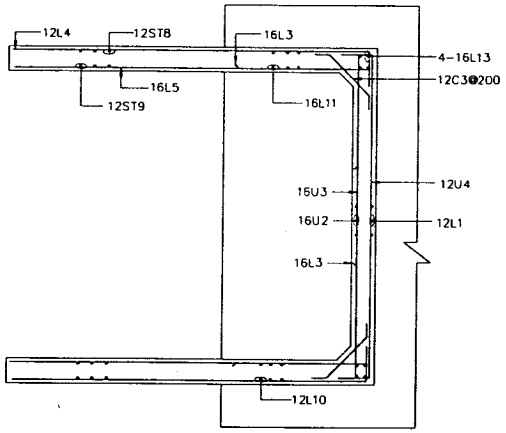
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1133301	

Web Copy

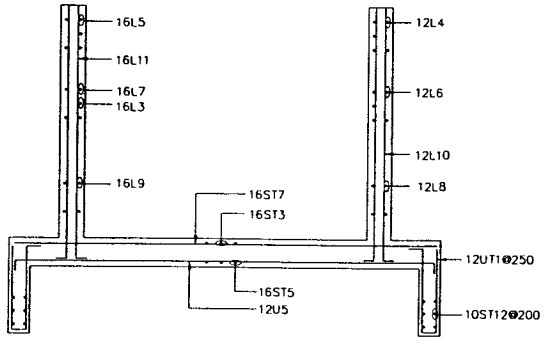
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



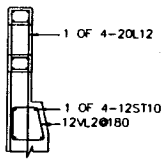
REINFORCEMENT DETAILS



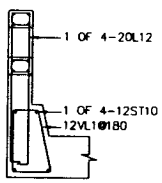
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



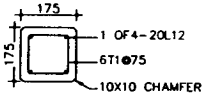
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

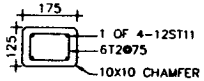
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	20	3800				3800
O	10	ST2	2 X 20	2940				2940
X	16	ST3	16	6900				6900
	16	ST4	15	1980				1980
A	16	ST5	29	6900				6900
P	12	ST6	17	4140				4140
P	16	ST7	2 X 8	4140				4140
R	12	C1	2 X 15	144	645	144		933
O	12	C2	2 X 15	144	698	144		986
N	12	L1	2 X 9	3382	250			3632
	16	L2	2 X 13	1213	250			1463
&	16	L13	4 X 4	3382	250			3632
	12	U1	15	1185	3800	1185		6170
C	16	U2	2 X 15	1350	3410	1350		6110
U	16	U3	2 X 14	250	2940	250		3440
T	12	U4	2 X 11	444	2940	444		3828
O	12	U5	29	250	4070	250		4570
F	10	ST12	4 X 5	6850				6850
F	12	UT1	2 X 29	144	2 X1075	100		2344
	16	L3	4 X 13	1788	813			2601
	12	L4	4 X 1	4738	419			5157
	16	L5	4 X 2	4738	250			4988
W	12	L6	4 X 9	Var. 4709 To 1738 @ 371	419			Var.5128 To 2157
	16	L7	4 X 11	Var.4709To 1738 @ 297	250			Var. 4959 To 1988
I	12	L8	4 X 4	1738	419			2157
	16	L9	4 X 5	1738	813			2551
	12	L10	4 X 6	3434	250			3684
N	16	L11	4 X 8	3434	250			3684
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	144	786	192		1170
	16	ST10	2 X 4	12950				12950
CURB	12	VL1	2 X 23	204	394	289	385	1372
	12	VL2	4 X25	204	204	248	200	956
AND	20	L12	20X 4	1046	120			1166
	12	ST11	4 X 4	12960				12960
RAILING	6	T1	20X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 48 kN/m^2.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

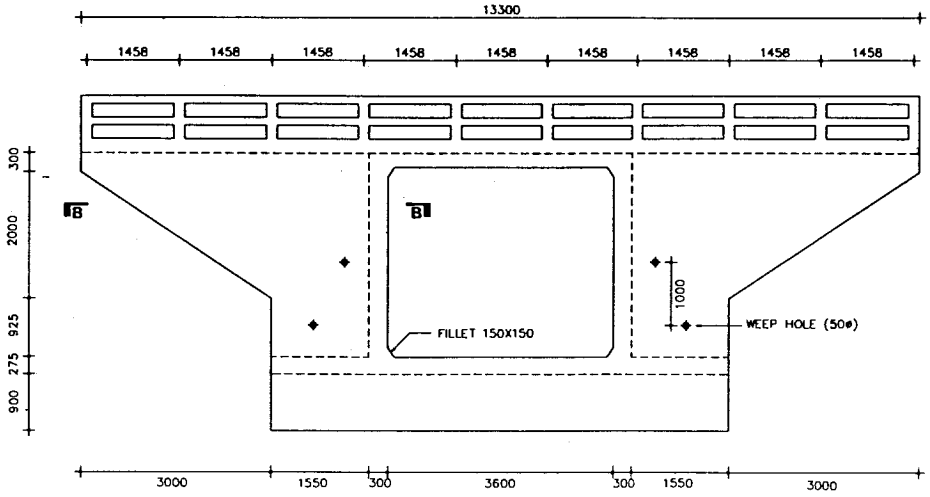
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.0m ROADWAY 2.44m

DATE : 27/03/1997
ISSUED BY :
CAD FILE REF : CULV\B1133302

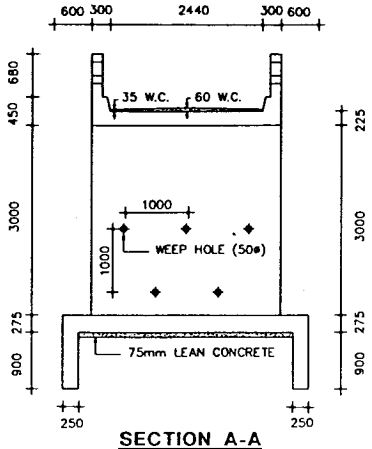
Web Copy

BC-28

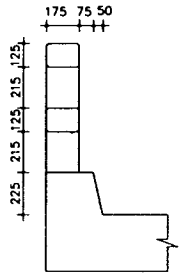
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



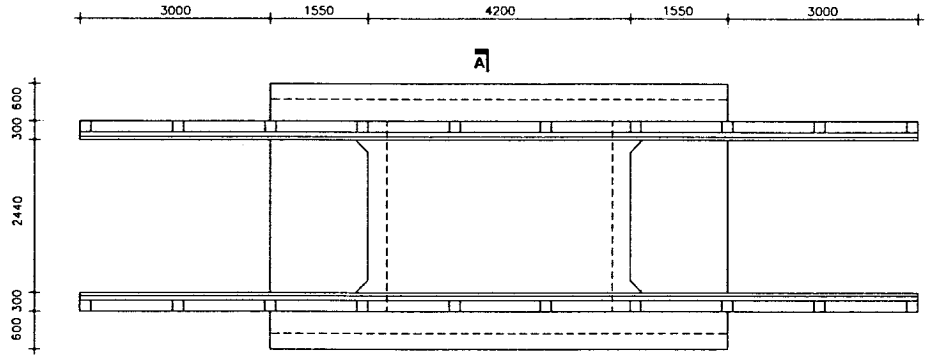
GENERAL ELEVATION



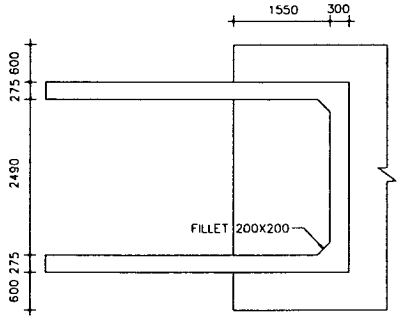
SECTION A-A



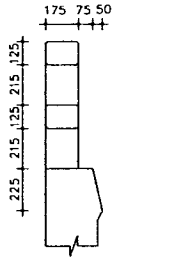
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

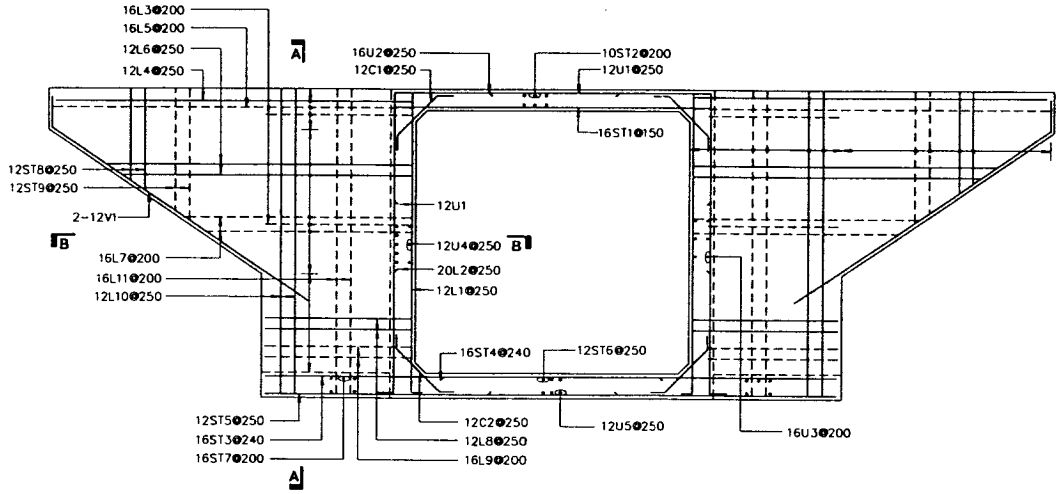
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

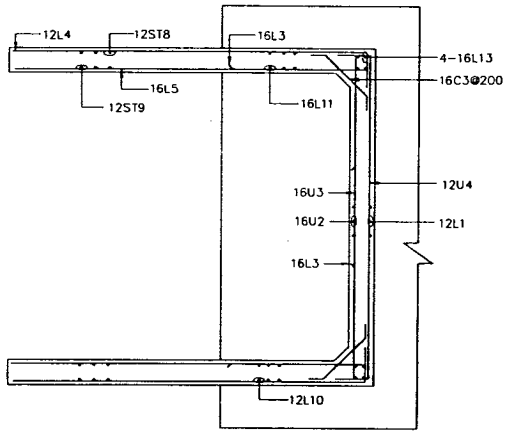
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.6m x 3.0m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1136301

Web Copy

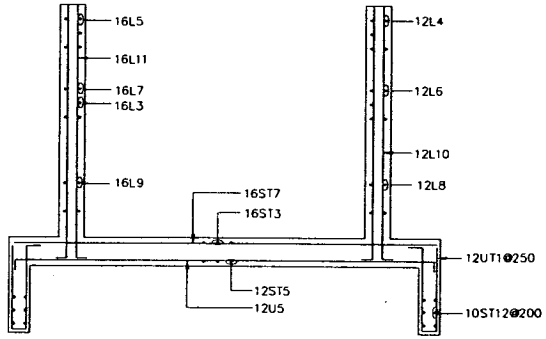
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



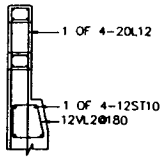
REINFORCEMENT DETAILS



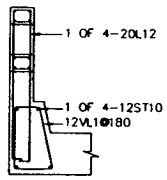
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



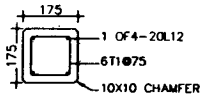
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

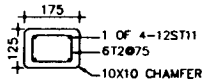
MEM.	BAR DIA.	SHAPE CODE	SPACING (mm)	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	150	21	4100				4100
O	10	ST2	200	2 X 22	2940				2940
X	16	ST3	240	19	7200				7200
	16	ST4	240	18	2160				2160
A	12	ST5	250	18	7200				7200
P	12	ST6	250	18	4140				4140
P	16	ST7	200	2 X 8	4140				4140
R	12	C1	250	2 X 13	144	645	144		933
O	12	C2	250	2 X 13	144	698	144		986
N	12	L1	250	2 X 9	3386	250			3636
	20	L2	250	2 X 11	1213	250			1463
&	16	L13		4 X 4	3386	250			3636
	12	U1	250	13	1185	4100	1185		6470
C	16	U2	250	2 X13	1450	3410	1450		6310
U	16	U3	200	2 X 14	250	2940	250		3440
T	12	U4	250	2 X 11	444	2940	444		3828
O	12	U5	250	30	250	4070	250		4570
F	10	ST12	200	4 X 5	7150				7150
F	12	UT1	250	2 X 30	144	2X 1050	100		2344
	16	L3	200	4 X 13	1778	813			2601
	12	L4	250	4 X 1	4738	419			5157
	16	L5	200	4 X 2	4738	250			4988
W	12	L6	250	4 X 9	Var. 4709 To 1838 @ 371	419			Var.5128 To 2157
	16	L7	200	4 X 11	Var. 4709 To 1738 @ 297	250			Var.4959 To 1988
	12	L8	250	4 X 4	1738	419			2157
I	16	L9	200	4 X 5	1738	813			2551
	12	L10	250	4 X 6	3438	250			3688
	16	L11	200	4 X 8	3438	250			3688
N	12	ST8	250	4 X 12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	250	4 X 12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	V1		4 X 2	4305	200			4505
	16	C3	200	4 X 17	192	786	192		1170
CURB	12	ST10		2 X 4	13250				13250
	12	VL1	180	2 X 25	204	394	289	385	1372
AND	12	VL2	180	4 X 25	204	204	248	200	956
	20	L12		20 X 4	1046	120			1166
RAILING	12	ST11		4 X 4	13260				13260
	6	T1	75	20 X 6	2 X135	2 X 135			540
	6	T2	75	4 X162	2 X85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roil-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 45 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

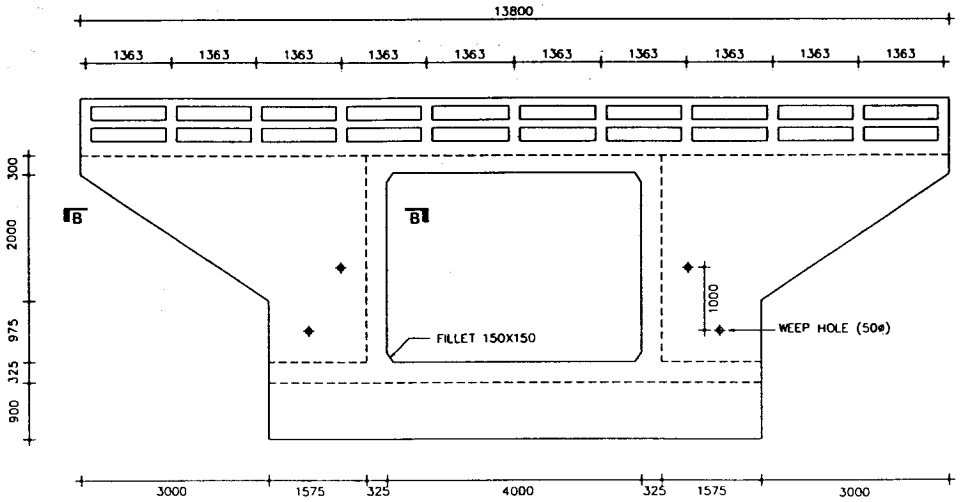
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.0m ROADWAY 2.44m

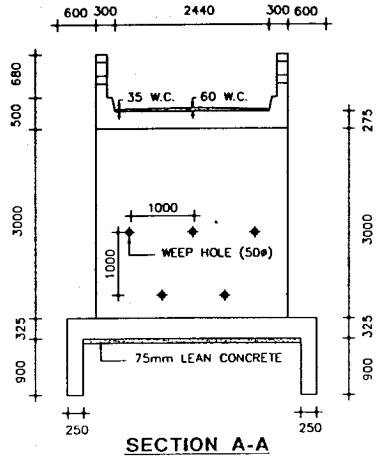
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1136302

Web Copy

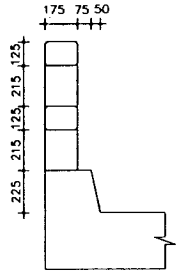
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



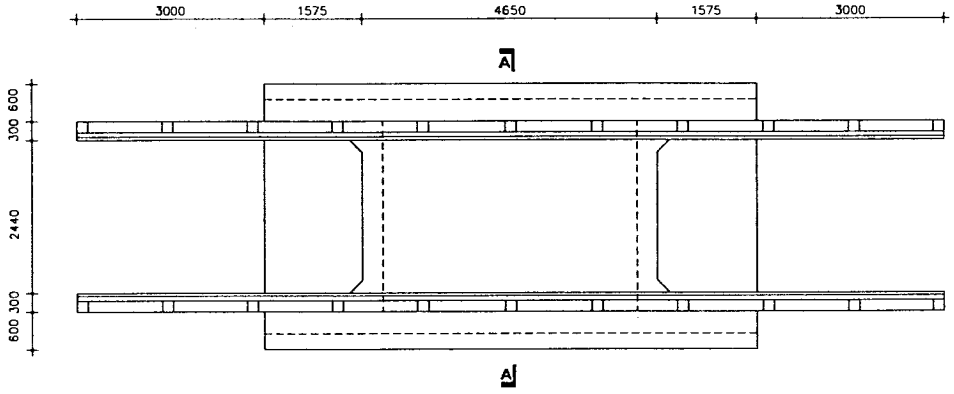
GENERAL ELEVATION



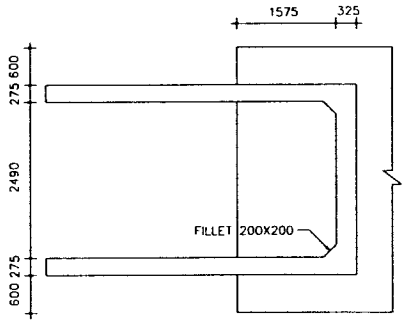
SECTION A-A



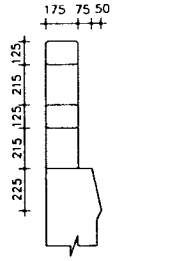
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

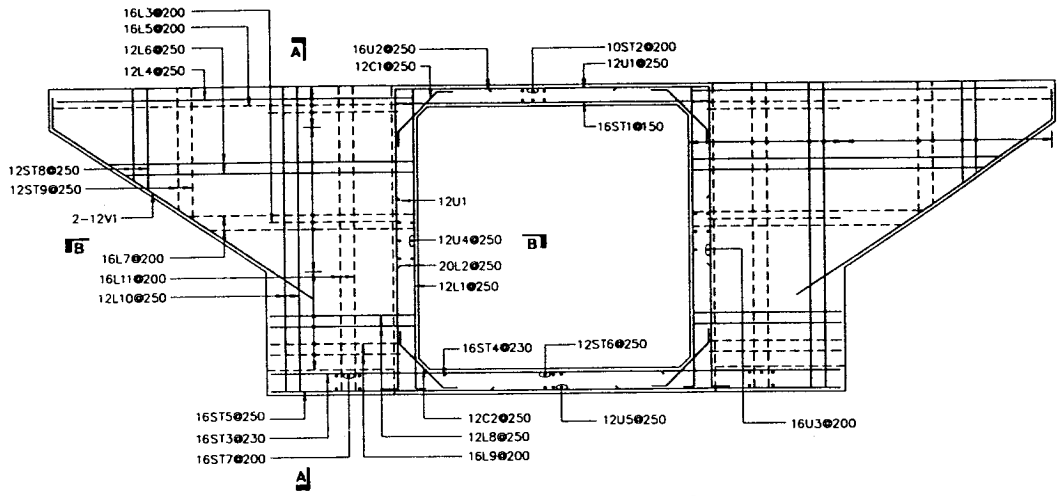
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 2.44m

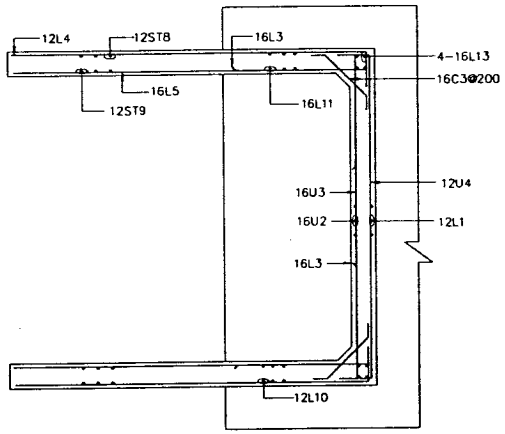
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1140301	

Web Copy

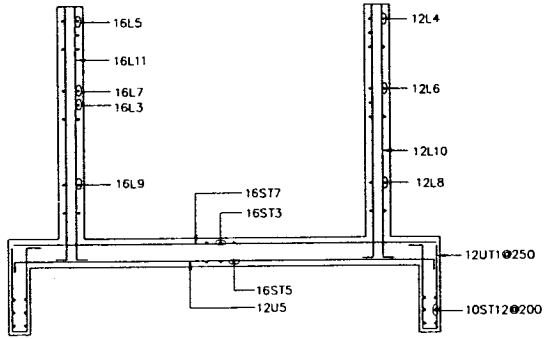
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



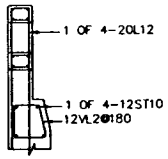
REINFORCEMENT DETAILS



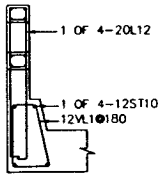
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



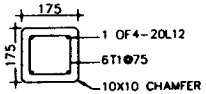
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

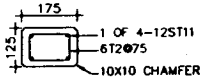
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	21	4550				4550
	10	ST2	2x24	2940				2940
	16	ST3	19	7700				7700
	16	ST4	18	2400				2400
	16	ST5	18	7700				7700
	12	ST6	20	4140				4140
	16	ST7	2x8	4140				4140
	12	C1	2x13	144	751	144		1039
	12	C2	2x13	144	804	144		1092
	12	L1	2X 9	3486	250			3736
	20	L2	2x11	1263	250			1513
	16	L13	4x4	3486	250			3736
	12	U1	13	1235	4550	1235		7020
	16	U2	2x13	1608	3510	1608		6726
	16	U3	2x14	250	2940	250		3440
	12	U4	2x11	469	2940	469		3878
	12	U5	32	250	4070	250		4570
	10	ST12	4X5	7650				7650
	12	UT1	2x32	144	2X1100	100		2444
WING	16	L3	4X13	1838	813			2651
	12	L4	4X1	4788	419			5207
	16	L5	4X2	4788	250			5038
	12	L6	4X9	Var 4759 TO 1788 @ 371	419			Var.5178 To 2207
	16	L7	4X11	Var. 4759 To 2788 @ 297	250			Var.5009 To 2038
	12	L8	4x4	1788	419			2207
	16	L9	4X5	1788	813			2601
	12	L10	4X7	3538	250			3788
	16	L11	4x8	3538	250			3788
	12	ST8	4X12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4X12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4X2	4305	200			4505
	16	C3	4X18	192	821	192		1205
CURB AND RAILING	12	ST10	2X4	13750				13750
	12	VL1	2X27	204	445	300	435	1484
	12	VL2	4X26	204	204	248	200	956
	20	L12	22X4	1096	120			1216
	12	ST11	4X4	13760				13760
	6	T1	22X6	2X135	2X135			540
	6	T2	4X160	2X85	2X135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 2.44m

DATE :

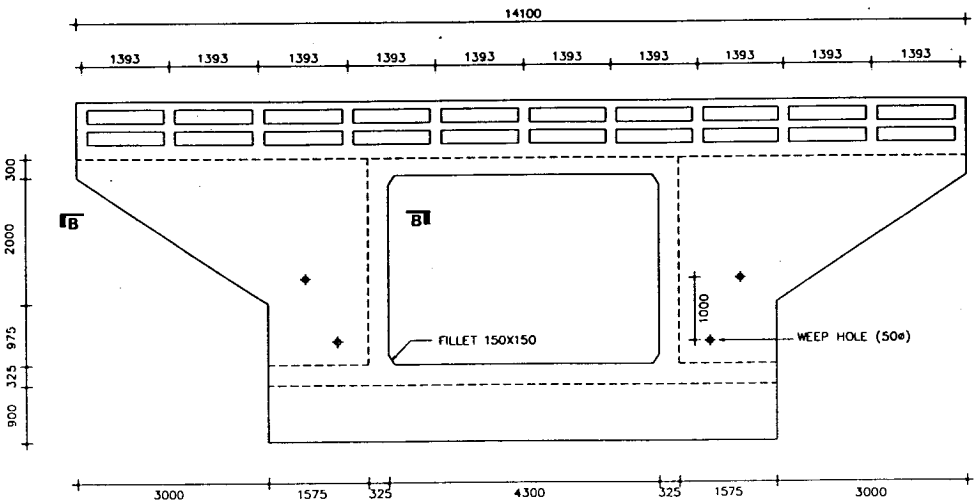
ISSUED BY :

CAD FILE REF : CULV\B1140302

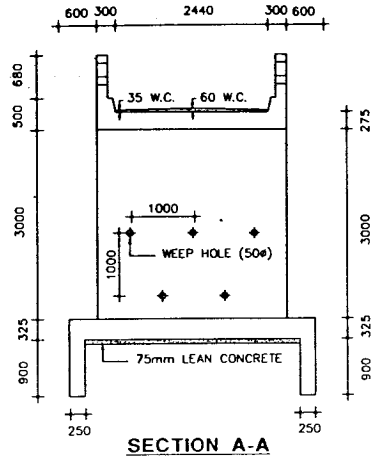
Web Copy

BC-32

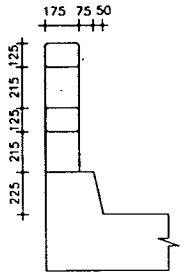
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



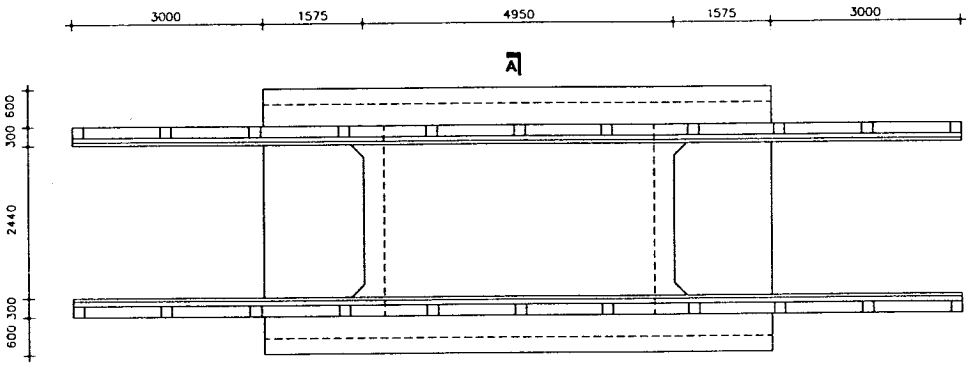
GENERAL ELEVATION



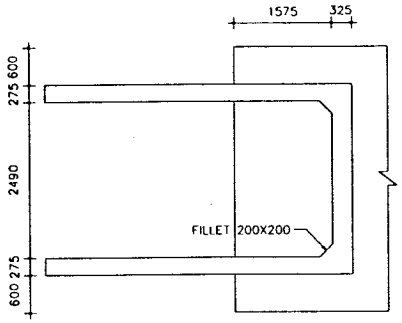
SECTION A-A



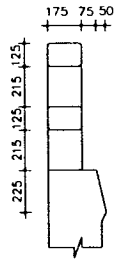
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

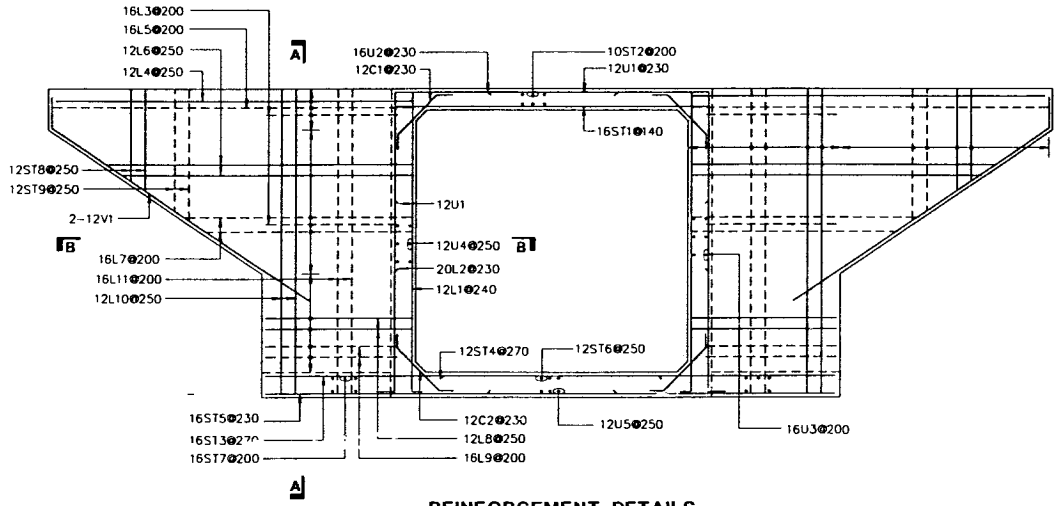
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

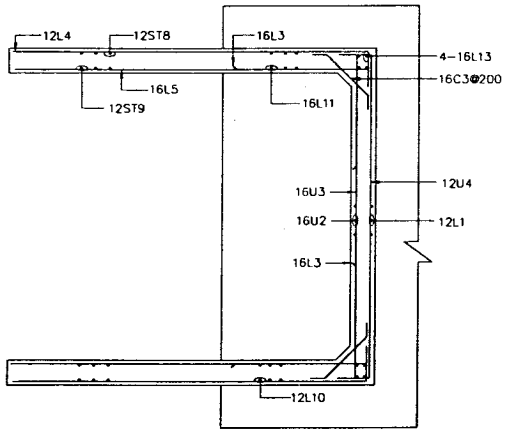
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 4.3m x 3.0m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1143301

Web Copy

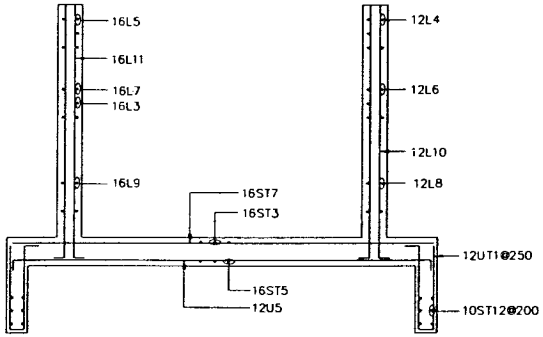
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



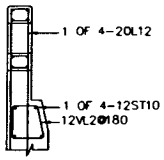
REINFORCEMENT DETAILS



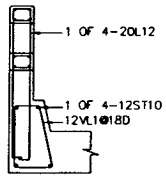
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



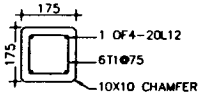
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

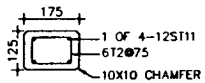
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	22	4850				4850
O	10	ST2	2 X 26	2940				2940
X	16	ST3	17	8000				8000
	12	ST4	16	2580				2580
A	16	ST5	19	8000				8000
P	12	ST6	21	4140				4140
P	16	ST7	2 X 8	4140				4140
R	12	C1	2 X14	144	751	144		1039
O	12	C2	2 X 14	144	799	144		1087
N	12	L1	2 X 10	3482	250			3732
	20	L2	2 X 12	1263	250			1513
&	16	L13	4 X 4	3482	250			3732
	12	U1	14	1235	4850	1235		7320
C	16	U2	2 X14	1708	3510	1708		6926
U	16	U3	2 X 14	250	2940	250		3440
T	12	U4	2 X 11	469	2940	469		3878
O	12	U5	33	250	4070	250		4570
F	10	ST12	4 X 5	7950				7950
F	12	UT1	2 X 34	144	2 X 1100	100		2444
	16	L3	4 X 13	1838	813			2651
	12	L4	4 X 1	4788	419			5207
	16	L5	4 X 2	4788	250			5038
W	12	L6	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5178 To 2207
	16	L7	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
I	12	L8	4 X 4	1788	419			2207
	16	L9	4 X 5	1788	813			2601
	12	L10	4 X 7	3534	250			3784
N	16	L11	4 X 8	3534	250			3784
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
	12	ST10	2 X 4	14050				14050
CURB	12	VL1	2 X 29	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	22 X 4	1096	120			1216
	12	ST11	4 X 4	14060				14060
RAILING	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 45 kN/m^2
8) This drawing is to be read in conjunction with Shope Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

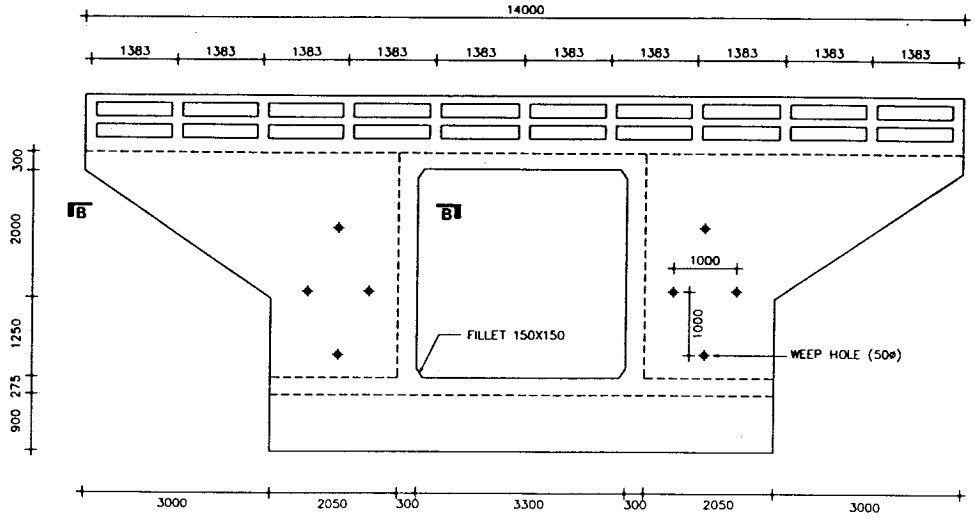
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1143302	

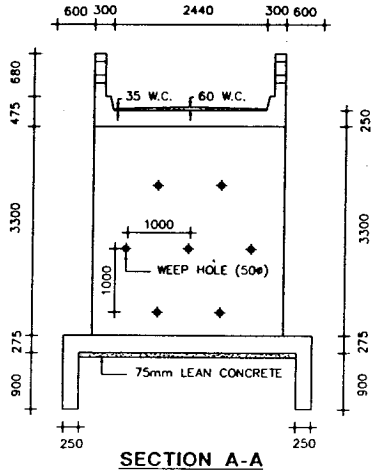
Web Copy

BC-34

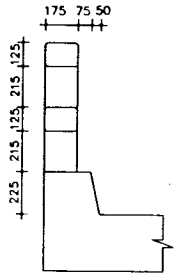
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



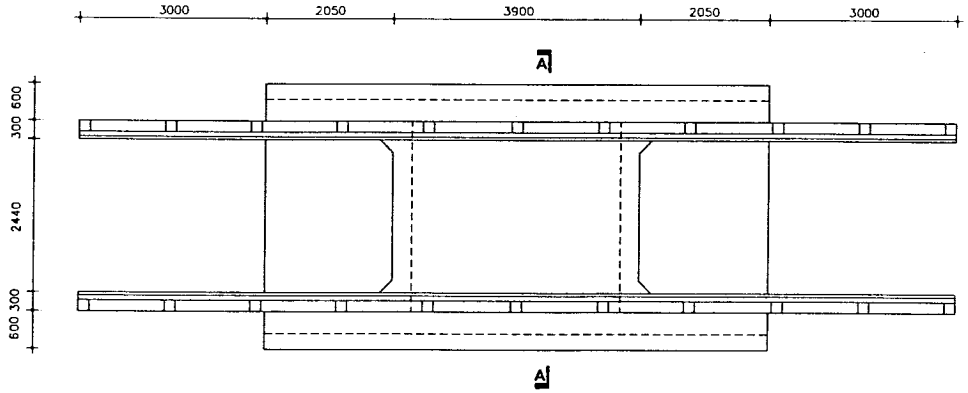
GENERAL ELEVATION



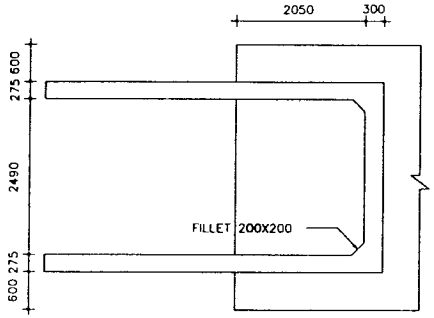
SECTION A-A



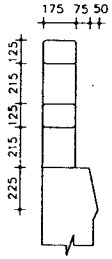
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

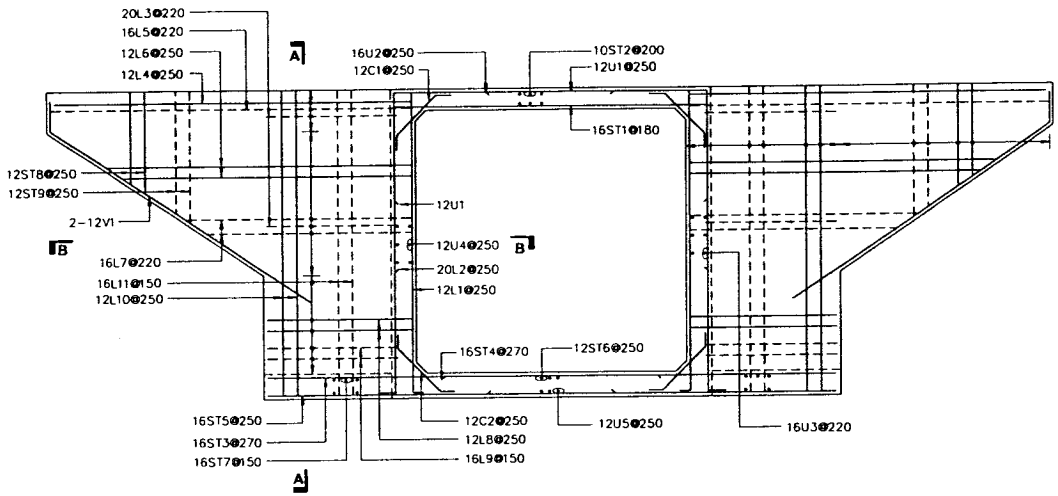
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 2.44m

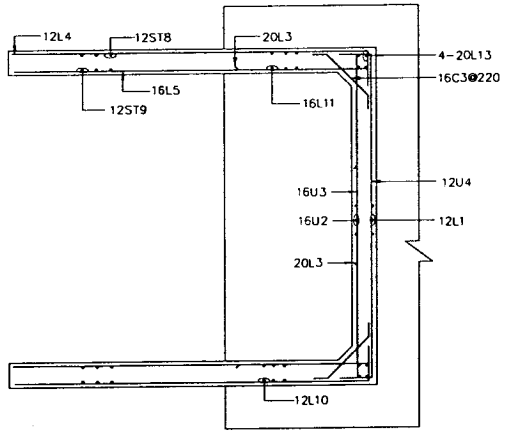
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1133331	

Web Copy

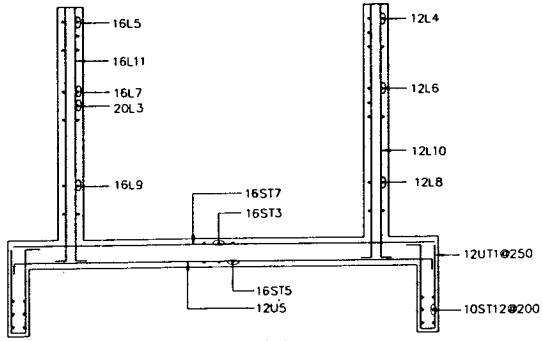
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



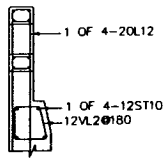
REINFORCEMENT DETAILS



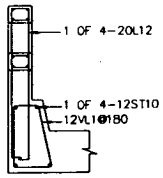
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



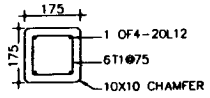
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

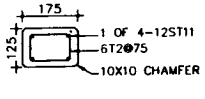
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	18	3800				3800
	10	ST2	2x20	2940				2940
	16	ST3	17	7900				7900
	16	ST4	16	1980				1980
	16	ST5	18	7900				7900
	12	ST6	17	4140				4140
	16	ST7	2x14	4140				4140
	12	C1	2x13	144	680	144		968
	12	C2	2x13	144	693	144		981
	12	L1	2x9	3707	250			3957
	20	L2	2x11	1313	250			1563
	20	L13	4x4	3707	250			3957
	12	U1	13	1310	3800	1310		6420
	16	U2	2x13	1350	3735	1350		6435
	16	U3	2x14	250	2940	250		3440
	12	U4	2x13	444	2940	444		3828
	12	U5	33	250	4070	250		4570
	10	ST12	4X5	7850				7850
	12	UT1	2X33	144	2X1050	100		2344
WING	20	L3	4X12	2288	813			3101
	12	L4	4X1	5238	419			5657
	16	L5	4X2	5238	250			5488
	12	L6	4X9	Var 5209 TO 2238 @ 371	419			Var.5628 To 2657
	16	L7	4X11	Var. 5259 To 2288 @ 297	250			Var.5459 To 2488
	12	L8	4x5	2238	419			2657
	16	L9	4X9	2238	813			3051
	12	L10	4X8	3759	250			4009
	16	L11	4X14	3759	250			4009
	12	ST8	4X12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4X12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4X2	4305	200			4505
	16	C3	4X17	144	786	192		1170
CURB AND RAILING	12	ST10	2X4	13950				13950
	12	VL1	2X23	204	419	295	410	1428
	12	VL2	4X28	204	204	248	200	956
	20	L12	22X4	1071	120			1191
	12	ST11	4X4	13960				13960
	6	T1	22X6	2X135	2X135			540
	6	T2	4X170	2X85	2X135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 51 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

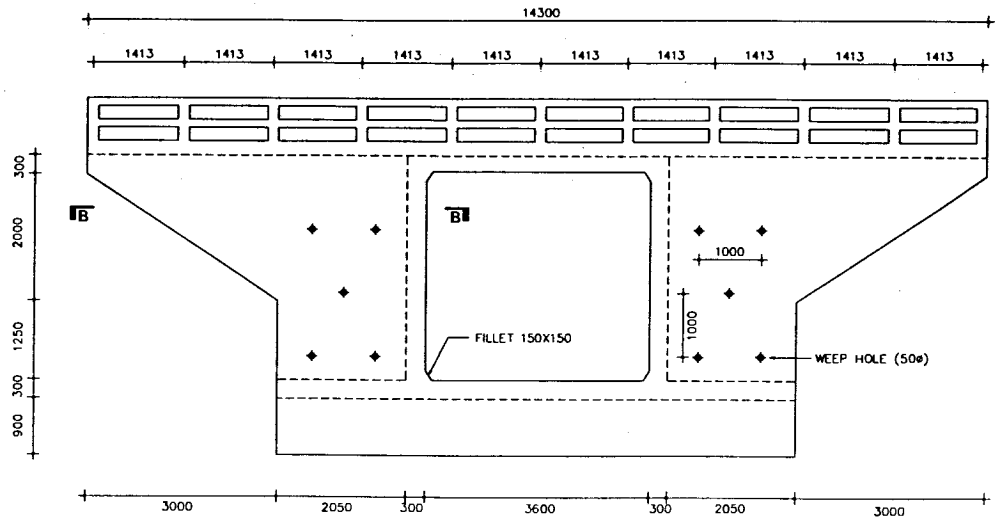
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 2.44m

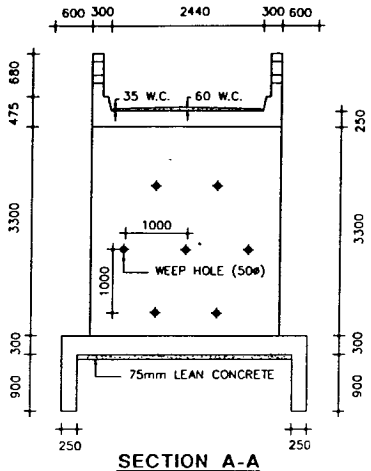
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1133332	

Web Copy

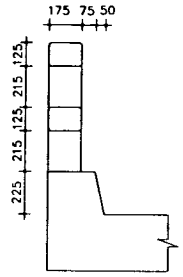
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



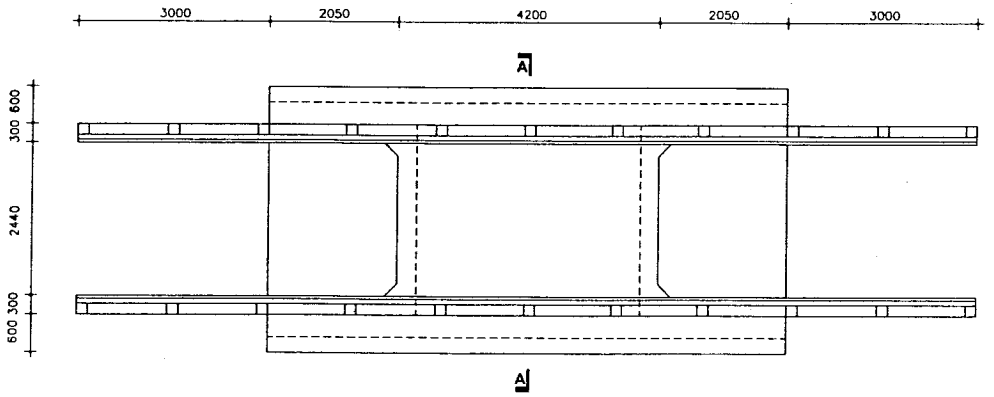
GENERAL ELEVATION



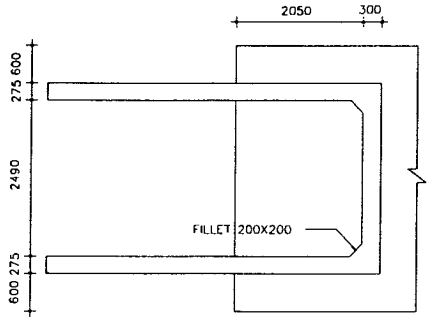
SECTION A-A



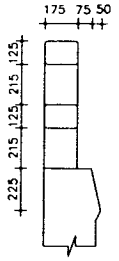
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

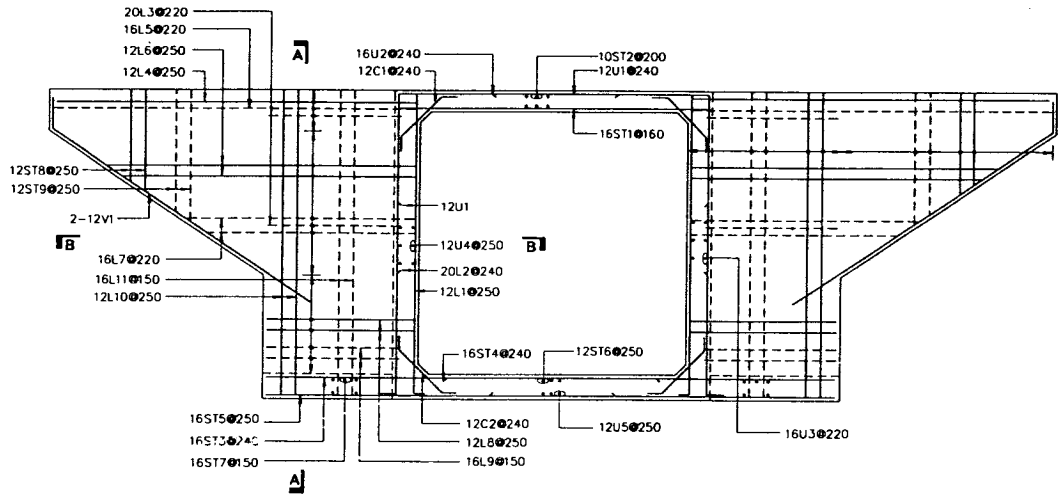
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 2.44m

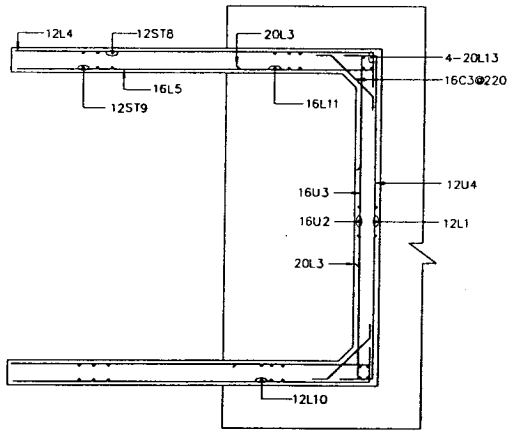
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1136331	

Web Copy

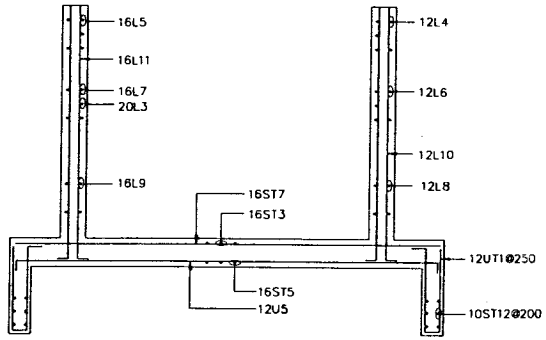
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



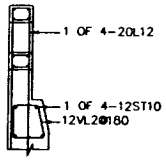
REINFORCEMENT DETAILS



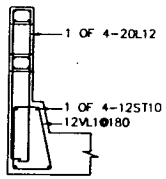
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



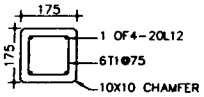
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

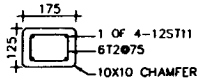
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	20	4100				4100
O	10	ST2	2x22	2940				2940
X	16	ST3	19	8200				8200
A	16	ST4	18	2160				2160
P	16	ST5	18	8200				8200
P	12	ST6	18	4140				4140
R	16	ST7	2X 14	4140				4140
O	12	C1	2X 14	144	680	144		968
N	12	C2	2X 14	144	728	144		1016
	12	L1	2X 9	3732	250			3982
&	20	L2	2X 12	1338	250			1588
	20	L13	4x4	3732	250			3982
C	12	U1	14	1310	4100	1310		6720
U	16	U2	2x14	1450	3760	1450		6660
T	16	U3	2x14	250	2940	250		3440
O	12	U4	2x13	444	2940	444		3828
F	12	U5	34	250	4070	250		4570
F	10	ST12	4X5	8150				8150
	12	UT1	2X34	144	2X1075	100		2394
	20	L3	4X12	2288	813			3101
	12	L4	4X1	5238	419			5657
	16	L5	4X2	5238	250			5538
W	12	L6	4X9	Var 5209 TO 2238 @ 371	419			Var.5628 To 2657
	16	L7	4X11	Var. 5209 To 2238 @ 297	250			Var.5459 To 2488
I	12	L8	4x5	2238	419			2657
	16	L9	4X9	2238	813			3051
	12	L10	4X8	3784	250			4034
N	16	L11	4X14	3784	250			4034
	12	ST8	4X12	Var. 2239 To 376 @ 169				Var.2239 To 376
G	12	ST9	4X12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4X2	4305	200			4505
	16	C3	4X17	192	786	192		1170
	12	ST10	2X4	14250				14250
CURB	12	VL1	2X25	204	419	295	410	1428
AND	12	VL2	4X28	204	204	248	200	956
RAILING	20	L12	22X4	1071	120			1191
	12	ST11	4X4	14260				14260
	6	T1	22X6	2X135	2X135			540
	6	T2	4X170	2X85	2X135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 50 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

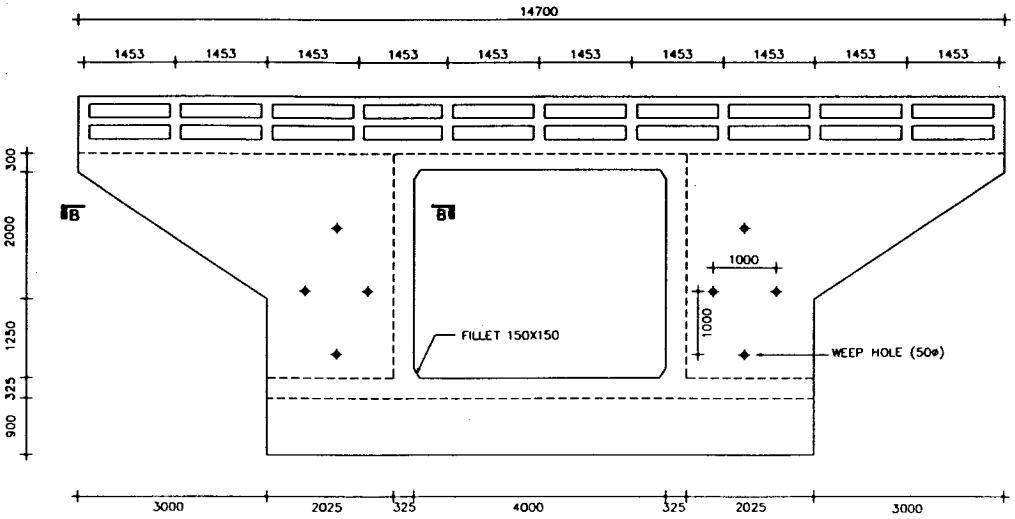
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1136332

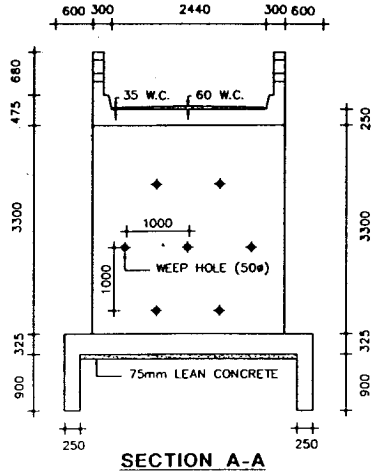
Web Copy

BC-38

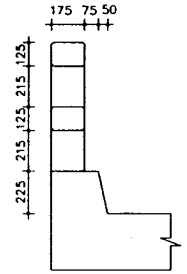
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



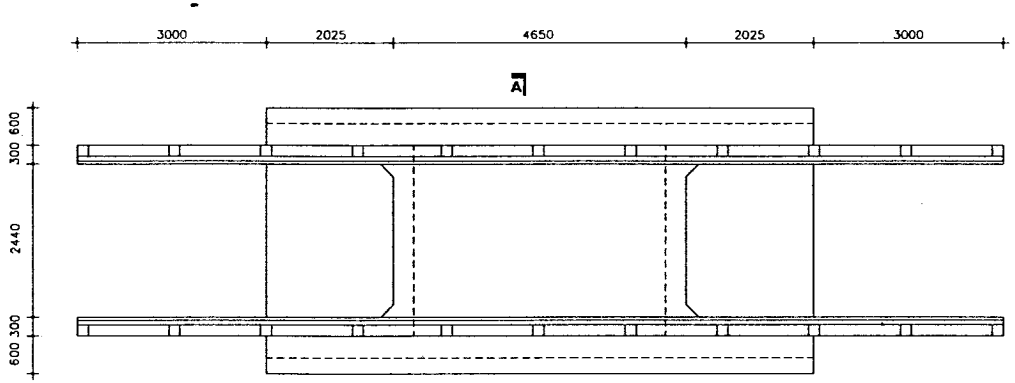
GENERAL ELEVATION



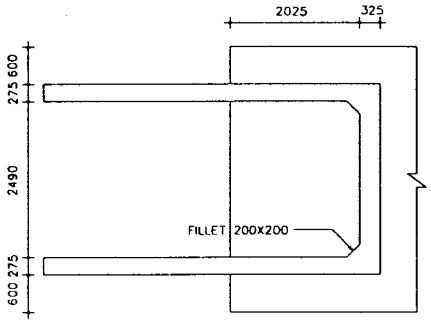
SECTION A-A



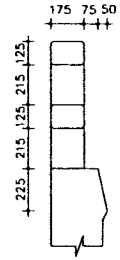
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

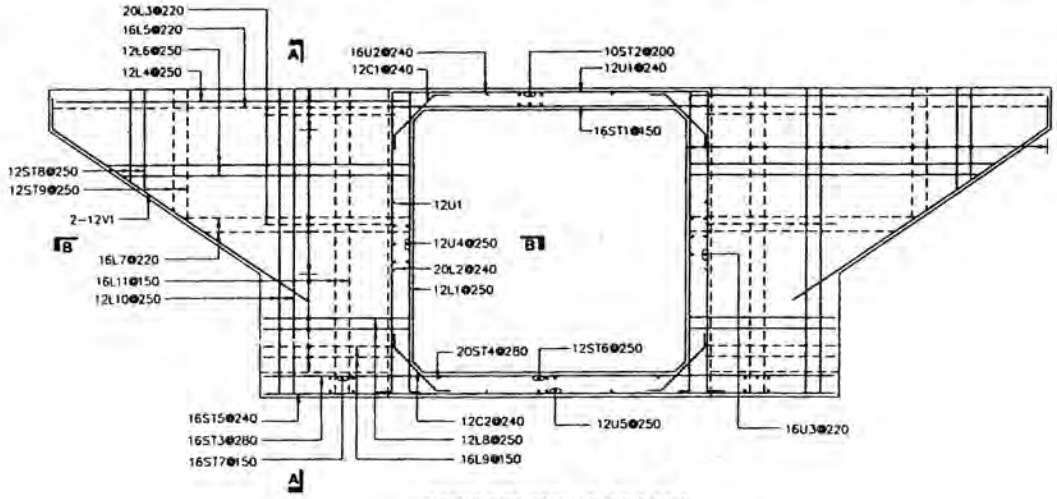
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 2.44m

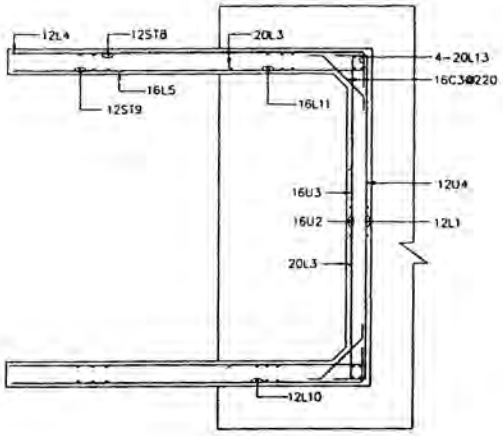
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1140331	

Web Copy

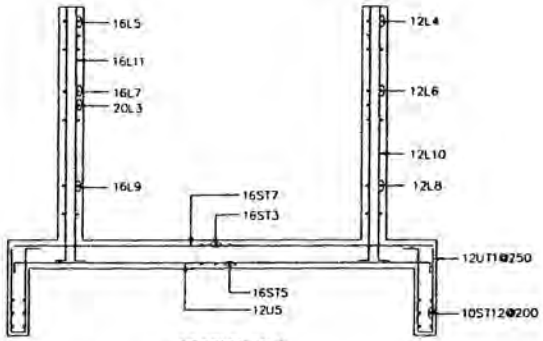
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



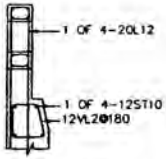
REINFORCEMENT DETAILS



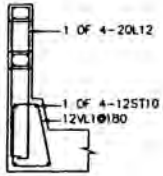
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



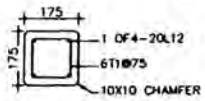
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

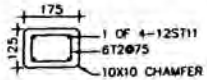
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CULVERT	16	ST1	21	4550				4550
	10	ST2	2x24	2940				2940
	16	ST3	16	8600				8600
	20	ST4	15	2400				2400
	16	ST5	19	8600				8600
	12	ST6	20	4140				4140
	16	ST7	2x14	4140				4140
	12	C1	2x14	144	715	144		1003
	12	C2	2x14	144	799	144		1087
	12	L1	2x9	3757	250			4007
	20	L2	2x12	1363	250			1613
	20	L13	4x4	3757	250			4007
	12	U1	14	1310	4550	1310		7170
	16	U2	2x14	1608	3785	1608		7001
	16	U3	2x14	250	2940	250		3440
	12	U4	2x13	469	2940	469		3878
	12	U5	36	250	4070	250		4570
	10	ST12	4X5	8550				8550
	12	UT1	2X36	144	2X1100	100		2444
WING	20	L3	4X12	2288	813			3101
	12	L4	4X1	5238	419			5657
	16	L5	4X2	5238	250			5488
	12	L6	4X9	Var 5209 TO 2238 @ 371	419			Var.5628 To 2657
	16	L7	4X11	Var. 5209 To 2238 @ 297	250			Var.5459 To 2488
	12	L8	4x5	2238	419			2657
	16	L9	4X9	2238	813			3051
	12	L10	4X8	3809	250			4059
	16	L11	4X14	3809	250			4059
	12	ST8	4X12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4X12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4X2	4305	200			4505
	16	C3	4X17	192	821	192		1205
CURB AND RAILING	12	ST10	2X4	14650				14650
	12	VL1	2X27	204	419	295	410	1428
	12	VL2	4X28	204	204	248	200	956
	20	L12	22X4	1071	120			1191
	12	ST11	4X4	14660				14660
	6	T1	22X6	2X135	2X135			540
	6	T2	4X180	2X85	2X135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 80 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

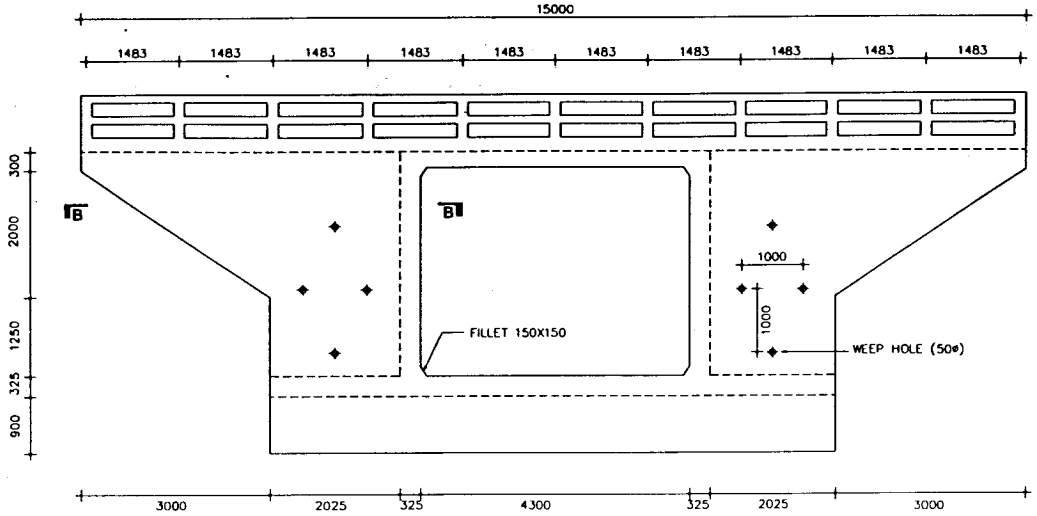
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1140332	

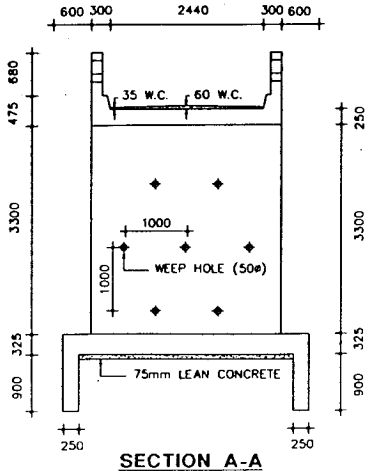
Web Copy

BC-40

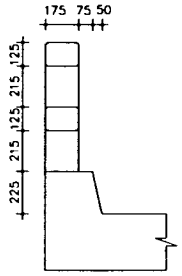
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



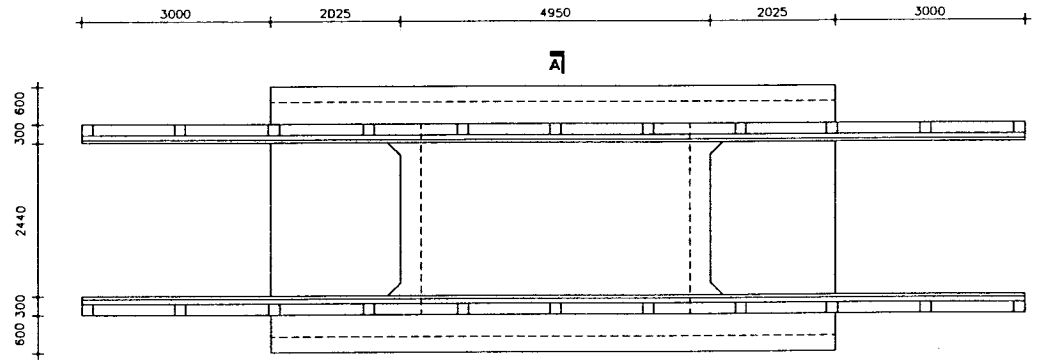
GENERAL ELEVATION



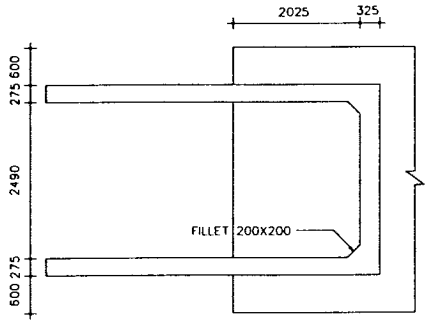
SECTION A-A



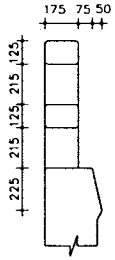
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

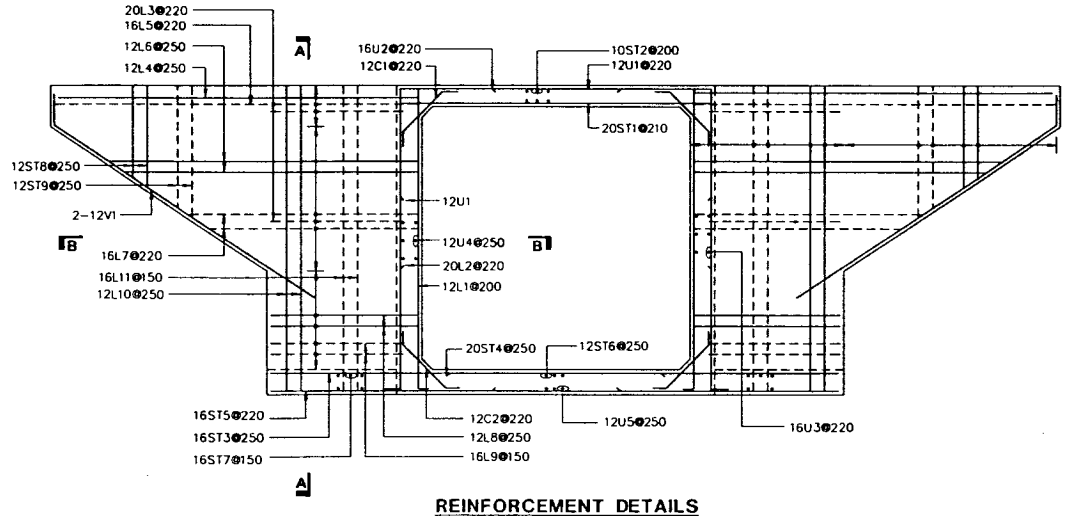
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 2.44m

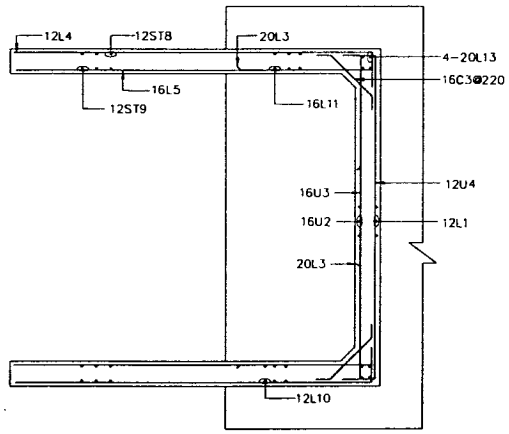
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1143331	

Web Copy

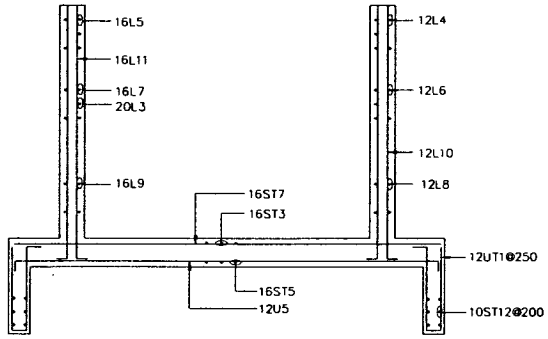
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



REINFORCEMENT DETAILS



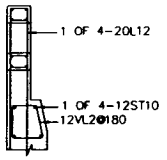
SECTION B-B



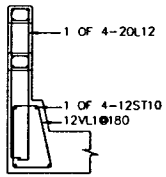
SECTION A-A

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	15	4850				4850
O	10	ST2	2 X 26	2940				2940
X	16	ST3	18	8900				8900
	20	ST4	17	2580				2580
A	16	ST5	20	8900				8900
P	12	ST6	21	4140				4140
P	16	ST7	2 X 14	4140				4140
R	12	C1	2 X 15	144	715	144		1003
O	12	C2	2 X 15	144	799	144		1087
N	12	L1	2 X 12	3757	250			4007
	20	L2	2 X 13	1363	250			1613
&	20	L13	4 X 4	3757	250			4007
	12	U1	15	1310	4850	1310		7470
C	16	U2	2 X 15	1708	3785	1708		7201
U	16	U3	2 X 14	250	2940	250		3440
T	12	U4	2 X 13	469	2940	469		3878
O	12	U5	37	250	4070	250		4570
F	10	ST12	4 X 5	8850				8850
F	12	UT1	2 X 37	144	2 X 1100	100		2444
	20	L3	4 X 12	2288	813			3101
	12	L4	4 X 1	5238	419			5657
	16	L5	4 X 2	5238	250			5488
W	12	L6	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L7	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To 2488
I	12	L8	4 X 5	2288	419			2657
	16	L9	4 X 9	2238	813			3051
	12	L10	4 X 8	3809	250			4059
N	16	L11	4 X 14	3809	250			5059
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	144	821	144		1109
	12	ST10	2 X 4	14950				14950
CURB	12	VL1	2 X 29	204	419	295	410	1428
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22 X 4	1071	120			1191
	12	ST11	4 X 4	14960				14960
RAILING	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 160	2 X 85	2 X 135			440



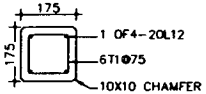
RAILING ON WING WALL (REINF. DETAIL)



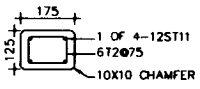
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 2.44m

DATE :

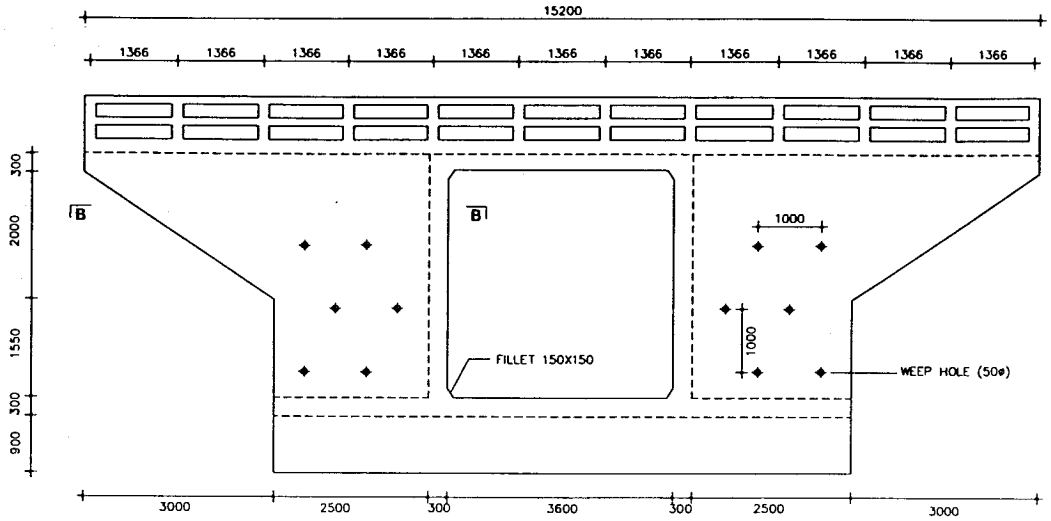
ISSUED BY :

CAD FILE REF : CULV\B1143332

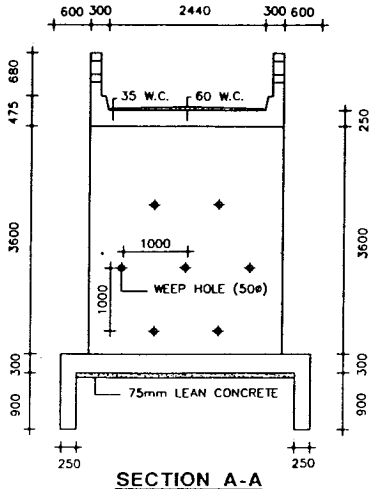
Web Copy

BC-42

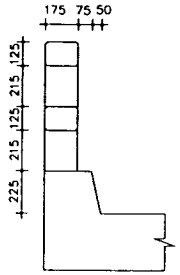
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



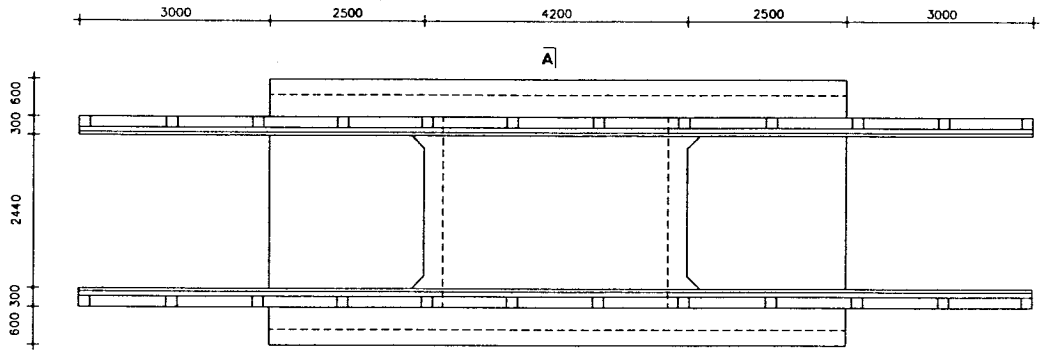
GENERAL ELEVATION



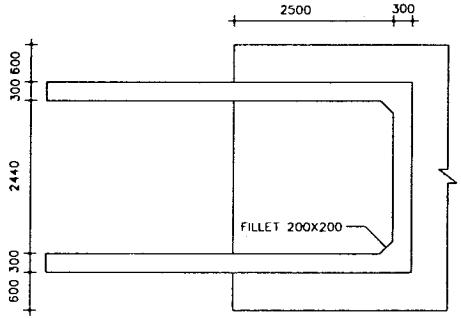
SECTION A-A



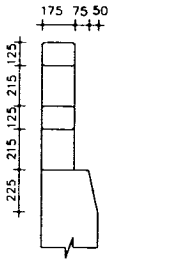
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter materiol shall be provided as per specification.

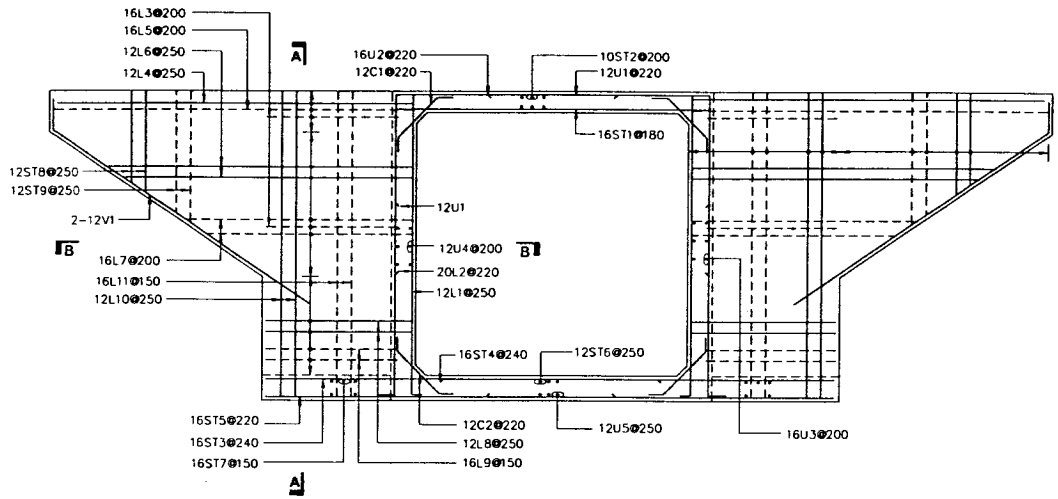
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 2.44m

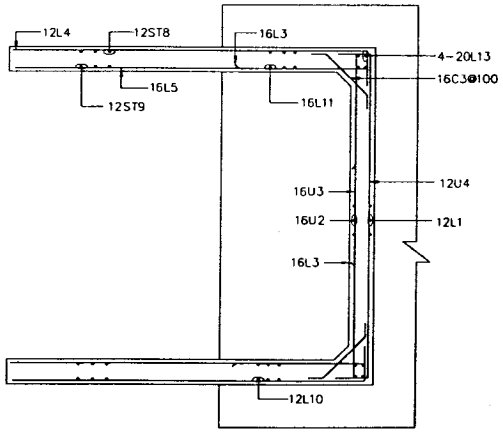
DATE :	ISSUED BY :
CAO FILE REF : CULV\B1136361	

Web Copy

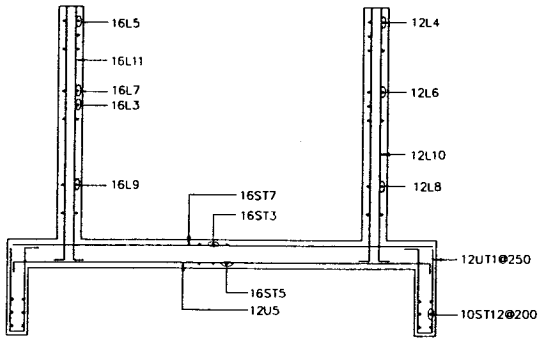
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



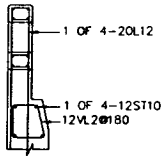
REINFORCEMENT DETAILS



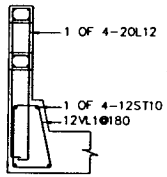
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



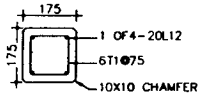
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

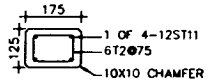
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A PPR ON & CUTOFF	16	ST1	18	4100				4100
	10	ST2	2 X 22	2940				2940
	16	ST3	19	9100				9100
	16	ST4	18	2160				2160
	16	ST5	20	9100				9100
	12	ST6	18	4140				4140
	16	ST7	2 X 17	4140				4140
	12	C1	2 X 15	144	680	144		968
	12	C2	2 X 15	144	728	144		1016
	12	L1	2 X 9	4032	250			4282
	20	L2	2 X 13	1438	250			1688
	20	L13	4 X 4	4032	250			4282
	12	U1	15	1410	4100	1410		6920
	16	U2	2 X 15	1450	4060	1450		6960
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 17	444	2940	444		3828
	12	U5	38	250	4070	250		4570
	10	ST12	4 X 5	9050				9050
	12	UT1	2 X 38	144	2x1075	100		2394
WING N G	16	L3	4 X 13	2738	813			3551
	12	L4	4 X 1	5688	444			6132
	16	L5	4 X 2	5688	250			5938
	12	L6	4 X 9	Ver. 5659 To 2688 @ 371	444			Var.6103 To 3132
	16	L7	4 X 11	Ver. 5659 To 2688 @ 297	250			Var.5909 To 2938
	12	L8	4 X 7	2688	444			3132
	16	L9	4 X 11	2688	813			3501
	12	L10	4 X 10	4084	250			4334
	16	L11	4 X 17	4084	250			4334
	12	ST8	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 39	192	821	192		1205
CURB AND RAILING	12	ST10	2 X 4	15150				15150
	12	VL1	2 X 25	204	419	295	410	1428
	12	VL2	4 X 31	204	204	248	200	956
	20	L12	24 X 4	1071	120			1191
	12	ST11	4 X 4	15160				15160
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 176	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 55 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 2.44m

DATE :

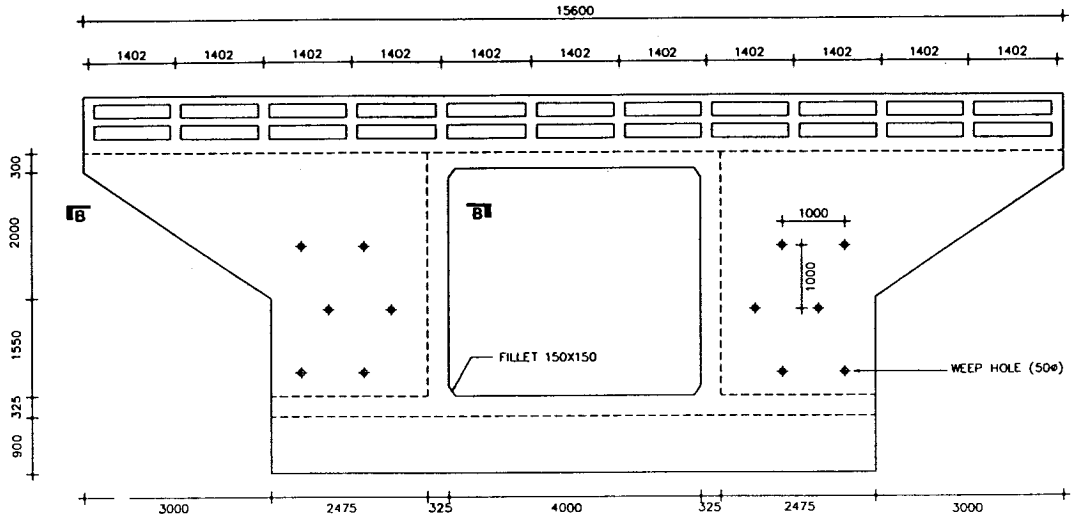
ISSUED BY :

CAD FILE REF : CULV\B1136362

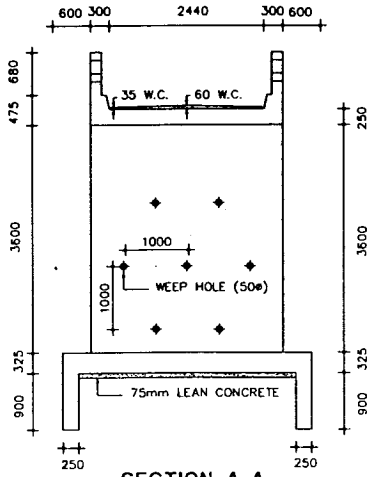
Web Copy

BC-44

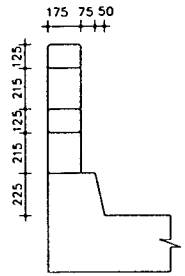
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



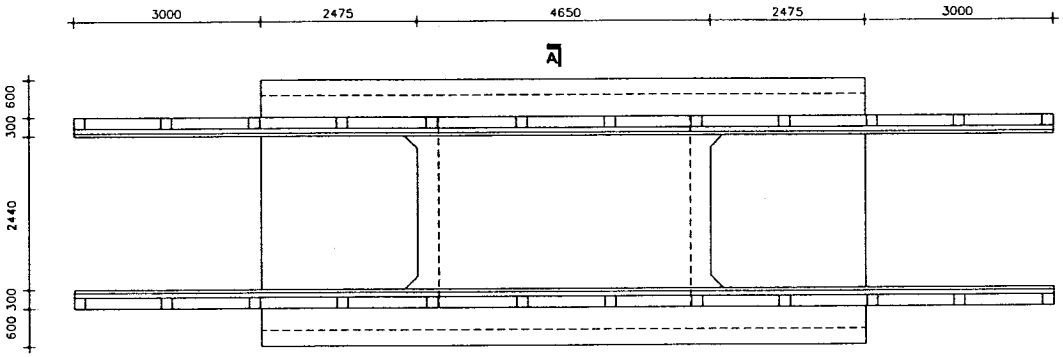
GENERAL ELEVATION



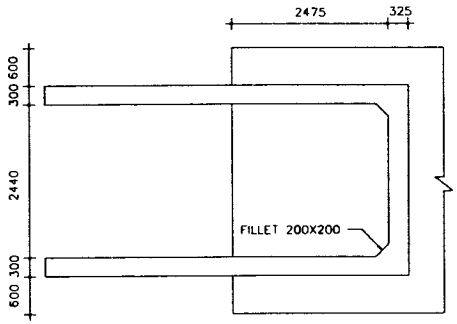
SECTION A-A



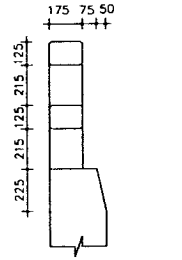
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

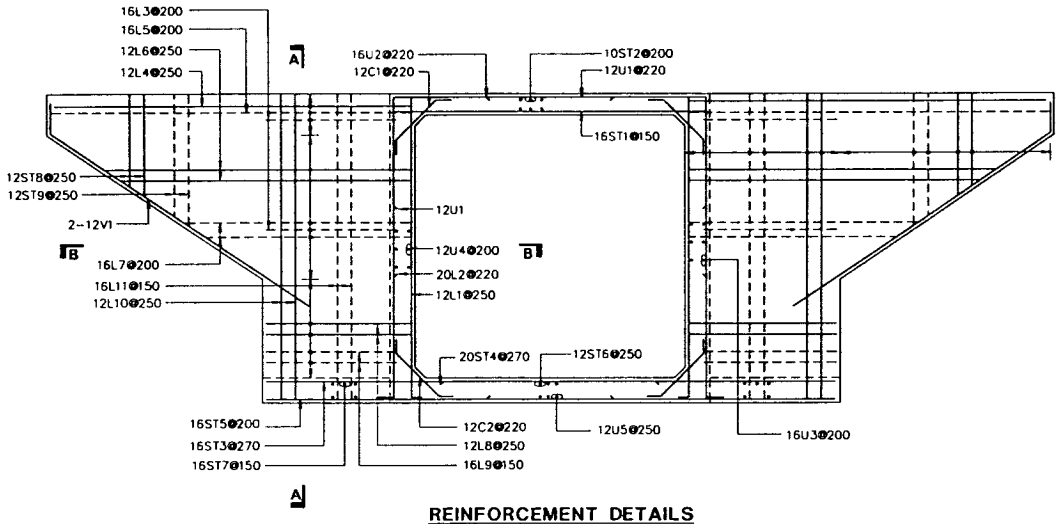
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 2.44m

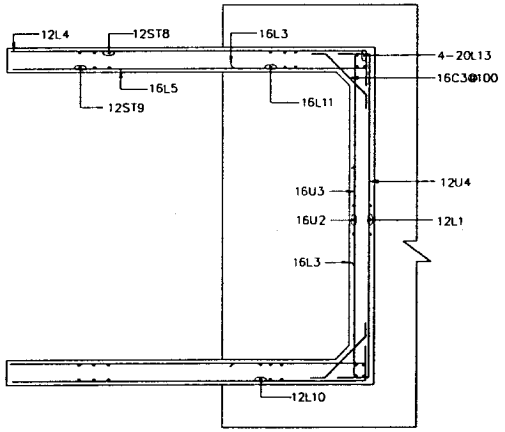
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1140361

Web Copy

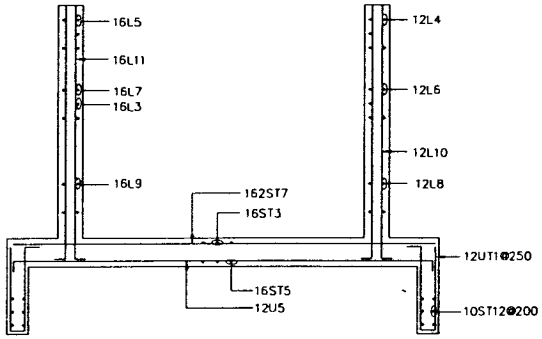
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



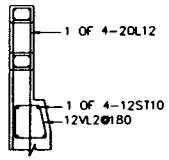
REINFORCEMENT DETAILS



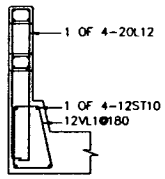
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



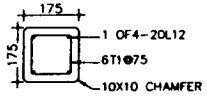
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

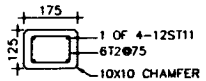
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX ANDPPER CUTOFF	16	ST1	21	4550				4550
	10	ST2	2 X 24	2940				2940
	16	ST3	17	9500				9500
	20	ST4	16	2400				2400
	16	ST5	20	9500				9500
	12	ST6	20	4140				4140
	16	ST7	2 X 17	4140				4140
	12	C1	2 X 15	144	715	144		1003
	12	C2	2 X 15	144	799	144		1087
	12	L1	2 X 9	4057	250			4307
	20	L2	2 X 13	1463	250			1713
	20	L13	4 X 4	4057	250			4307
	12	U1	15	1410	4550	1410		7374
	16	U2	2 X 15	1608	4085	1608		7301
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 17	469	2940	469		3878
	12	U5	39	250	4070	250		4570
	10	ST12	4 X 5	9450				9450
	12	UT1	2 X 40	144	2 X 1100	100		2444
WINGN	16	L3	4 X 13	2738	813			3551
	12	L4	4 X 1	5688	444			6132
	16	L5	4 X 2	5688	250			5938
	12	L6	4 X 9	Ver. 5659 To 2688 @ 371	444			Var.6103 To 3132
	16	L7	4 X 11	Ver. 5659 To 2688 @ 297	250			Var.5909 To 2938
	12	L8	4 X 7	2688	444			3132
	16	L9	4 X 11	2688	813			3501
	12	L10	4 X 10	4109	250			4359
	16	L11	4 X 17	4109	250			4359
	12	ST8	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 39	192	857	192		1241
CURB AND RAILING	12	ST10	2 X 4	15550				15550
	12	VL1	2 X 27	204	419	295	410	1428
	12	VL2	4 X 31	204	204	248	200	956
	20	L12	24 X 4	1071	120			1191
	12	ST11	4 X 4	15560				15560
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 54 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

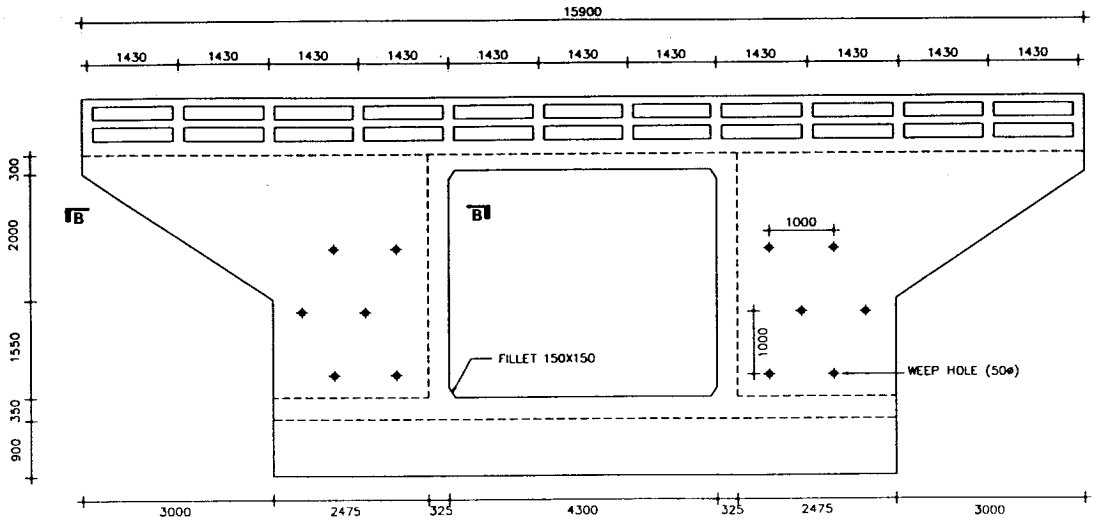
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1140362	

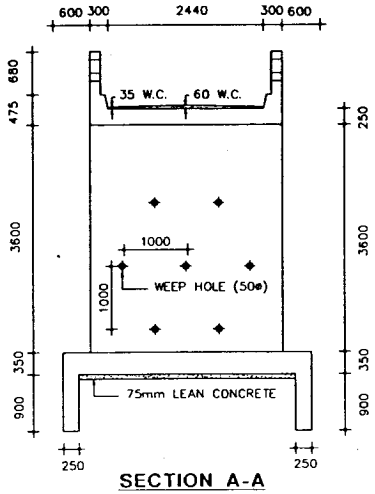
Web Copy

BC-46

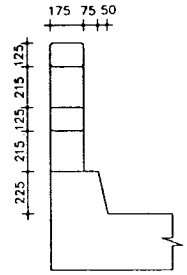
BC-46
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



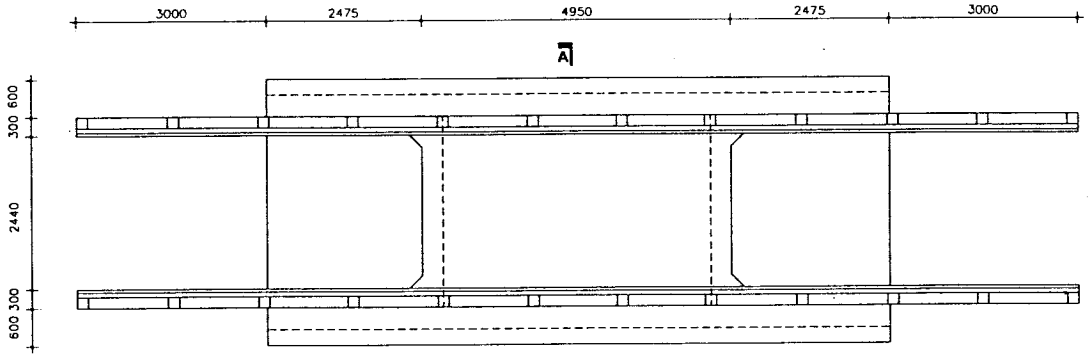
GENERAL ELEVATION



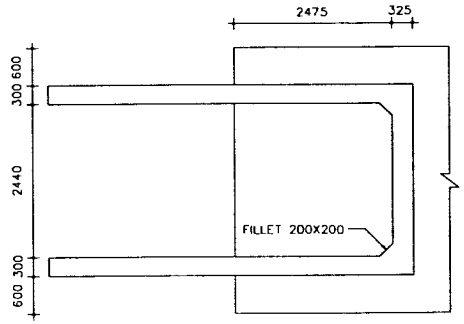
SECTION A-A



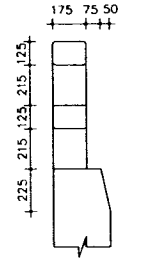
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

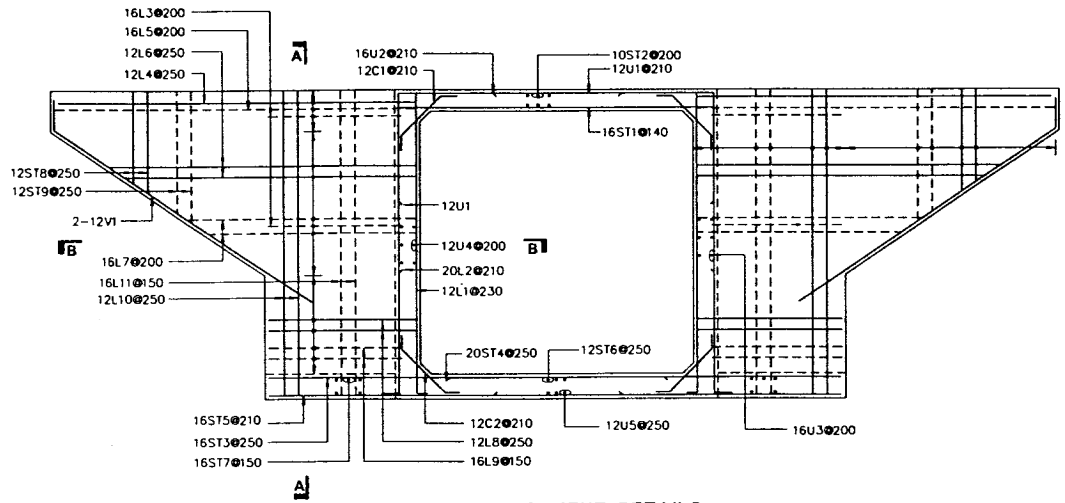
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 2.44m

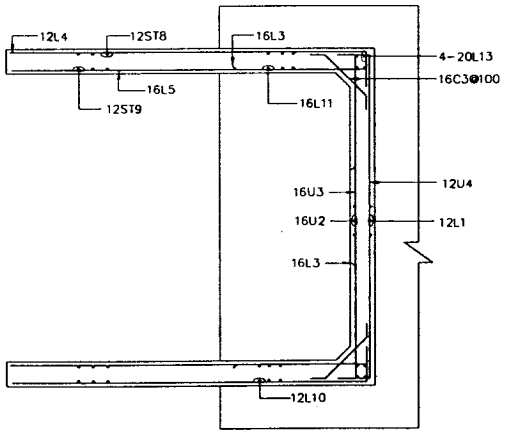
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1143361	

Web Copy

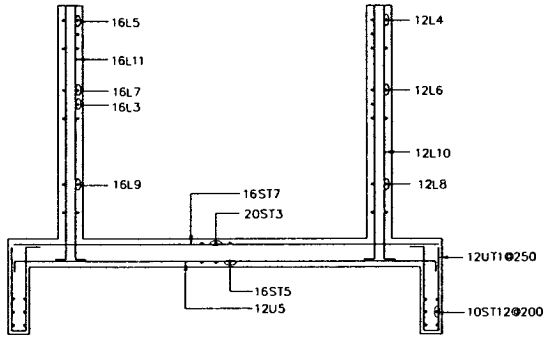
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



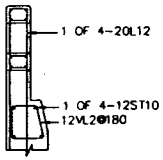
REINFORCEMENT DETAILS



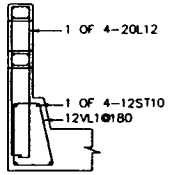
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



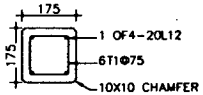
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

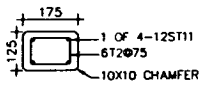
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A P P R O N & C U T O F F	16	ST1	22	4850				4850
	10	ST2	2 X 26	2940				2940
	16	ST3	18	9800				9800
	20	ST4	17	2580				2580
	16	ST5	21	9800				9800
	12	ST6	21	4140				4140
	16	ST7	2 X 17	4140				4140
	12	C1	2 X 15	144	715	144		1003
	12	C2	2 X 15	144	840	144		1128
	12	L1	2 X 10	4086	250			4336
	20	L2	2 X 13	1488	250			1738
	20	L13	4 X 4	4086	250			4336
	12	U1	15	1410	4850	1410		7670
	16	U2	2 X 15	1708	4110	1708		7526
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 17	469	2940	469		3878
	12	U5	41	250	4070	250		4570
	10	ST12	4 X 5	9750				9750
	12	UT1	2 X 41	144	2 X 1125	100		2494
WING N G	16	L3	4 X 13	2738	813			3551
	12	L4	4 X 1	5688	444			6132
	16	L5	4 X 2	5688	250			5938
	12	L6	4 X 9	Ver. 5659 To 2688 @ 371	444			Var.6103 To 3132
	16	L7	4 X 11	Ver. 5659 To 2688 @ 297	250			Var.5909 To 2938
	12	L8	4 X 7	2688	444			3132
	16	L9	4 X 11	2688	813			3501
	12	L10	4 X 10	4138	250			4388
	16	L11	4 X 17	4138	250			4388
	12	ST8	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 39	192	857	192		1241
CURB AND RAILING	12	ST10	2 X 4	15850				15850
	12	VL1	2 X 29	204	419	295	410	1428
	12	VL2	2 X 31	204	204	248	200	956
	20	L12	24 X 4	1071	120			1191
	12	ST11	4 X 4	15860				15860
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 54 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

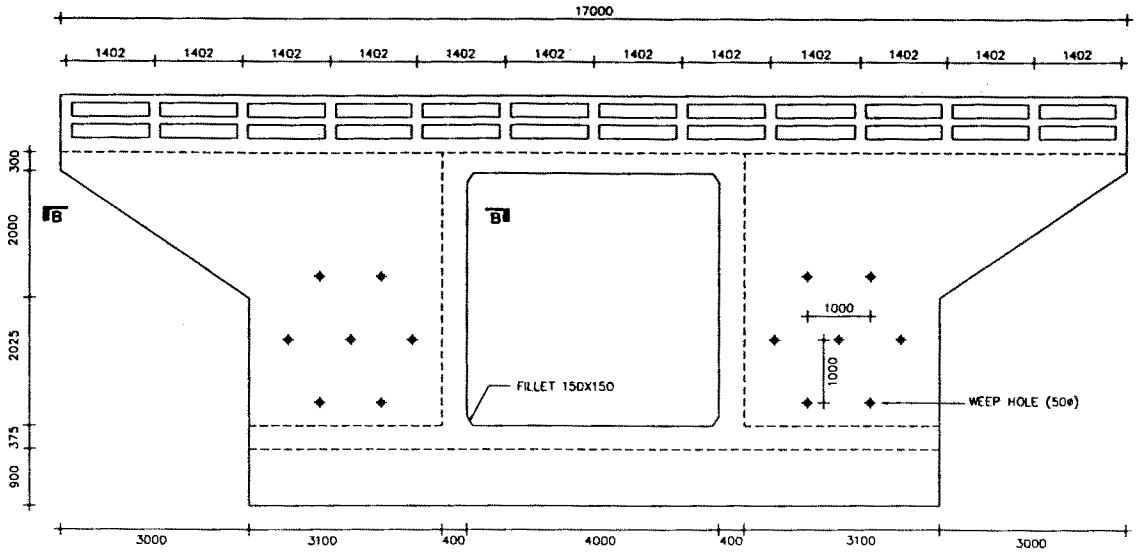
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1143362

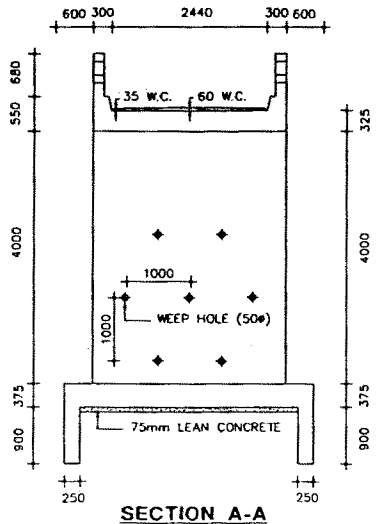
Web Copy

BC-48

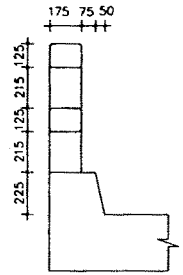
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



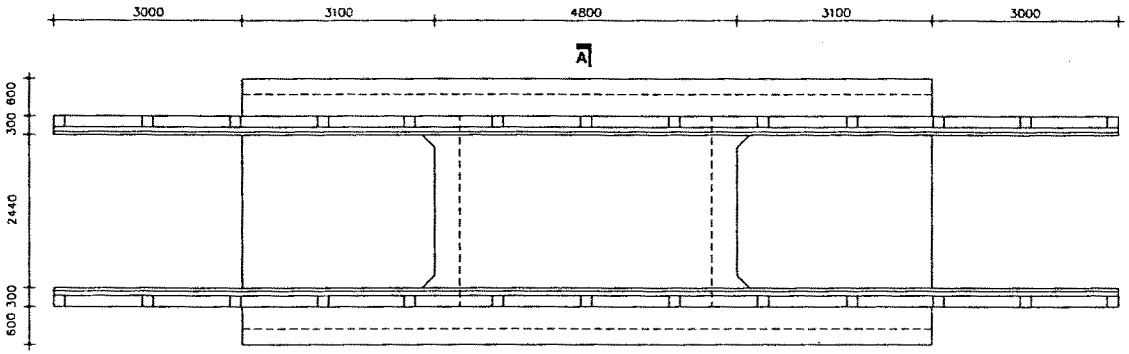
GENERAL ELEVATION



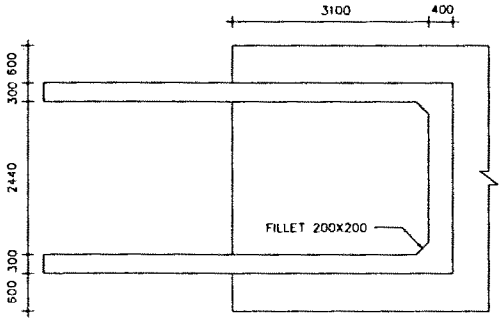
SECTION A-A



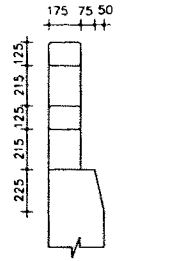
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

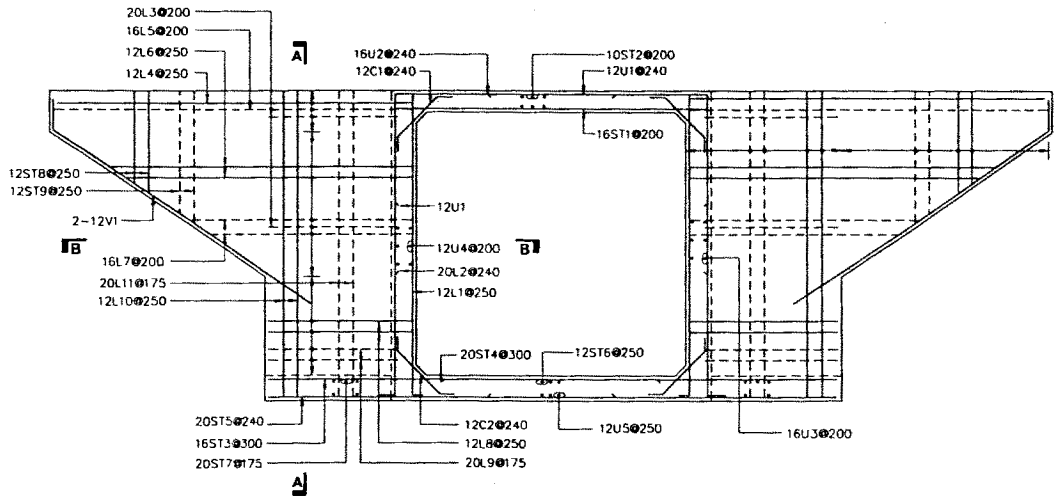
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 4.0m ROADWAY 2.44m

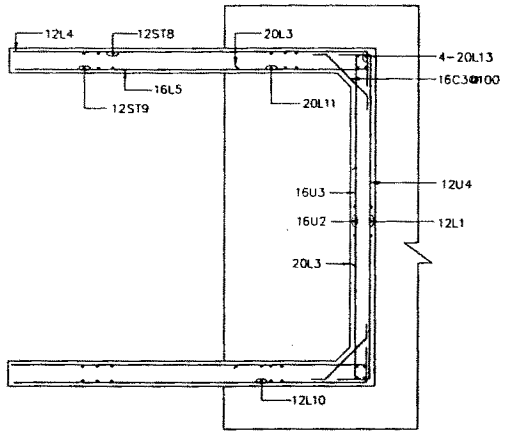
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1140401	

Web Copy

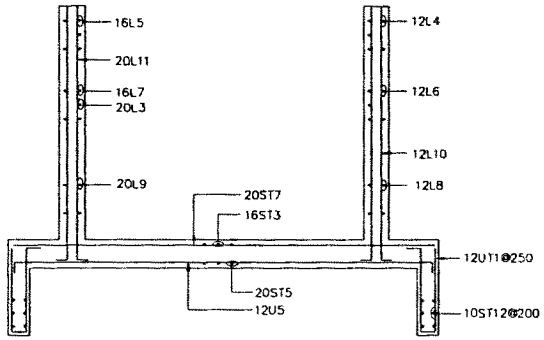
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



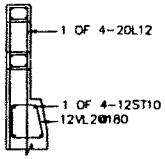
REINFORCEMENT DETAILS



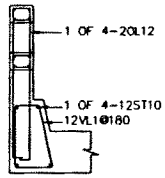
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



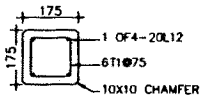
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

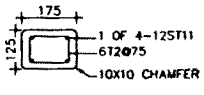
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	16	4700				4700
O	10	ST2	2 X 25	2940				2940
X	16	ST3	15	10900				10900
	20	ST4	14	2400				2400
A	20	ST5	19	10900				10900
P	12	ST6	21	4140				4140
P	20	ST7	4 X 18	4140				4140
R	12	C1	2 X 14	144	922	144		1210
O	12	C2	2 X 14	144	964	144		1258
N	12	L1	2 X 9	4578	250			4828
	20	L2	2 X 12	1646	250			1896
&	20	L13	4 X 4	4578	250			4828
	12	U1	14	1618	4700	1618		7936
C	16	U2	2 X 14	1683	4610	1683		7976
U	16	U3	2 X 19	250	2940	250		3440
T	12	U4	2 X 19	544	2940	544		4028
O	12	U5	45	250	4070	250		4570
F	10	ST12	4 X 5	10850				10850
F	12	UT1	2 X 45	144	2 X 1150	100		2544
	20	L3	4 X 13	3438	813			4251
	12	L4	4 X 1	6388	469			6857
	16	L5	4 X 2	6388	250			6638
W	12	L6	4 X 9	Var. 6359 To 3388 @ 371	444			Var. 6803 To 3832
	16	L7	4 X 11	Var. 6359 To 3388 @ 297	250			Var. 6609 To 3638
I	12	L8	4 X 9	3388	469			3857
	20	L9	4 X 12	3388	813			4201
	12	L10	4 X 13	4630	250			4880
N	20	L11	4 X 18	4580	250			4830
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	963	144		1251
	12	ST10	2 X 4	16950				16950
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 34	204	204	248	200	956
AND	20	L12	26 X 4	1146	120			1266
	12	ST11	4 X 4	16960				16960
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 83 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

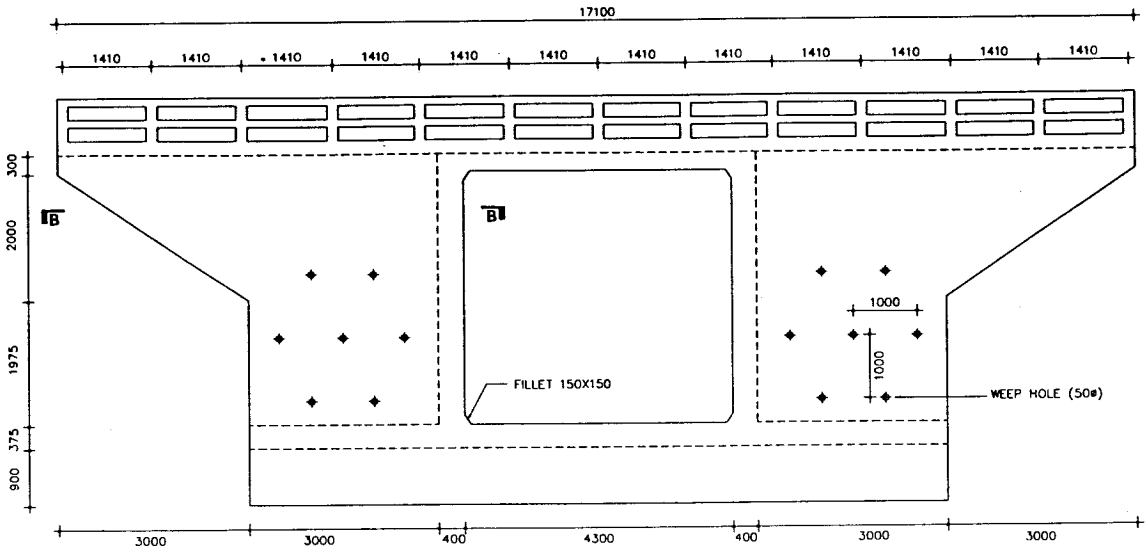
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 4.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1140402

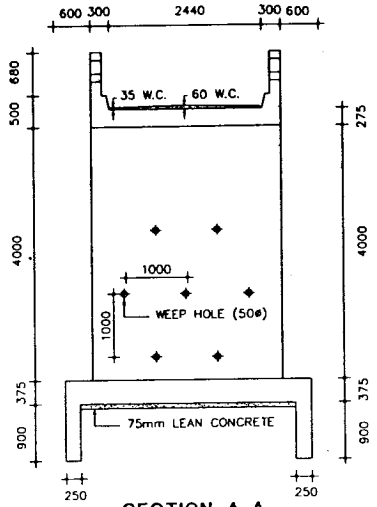
Web Copy

BC-50

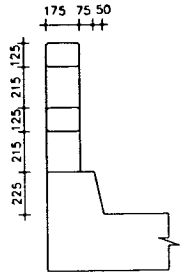
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.0m



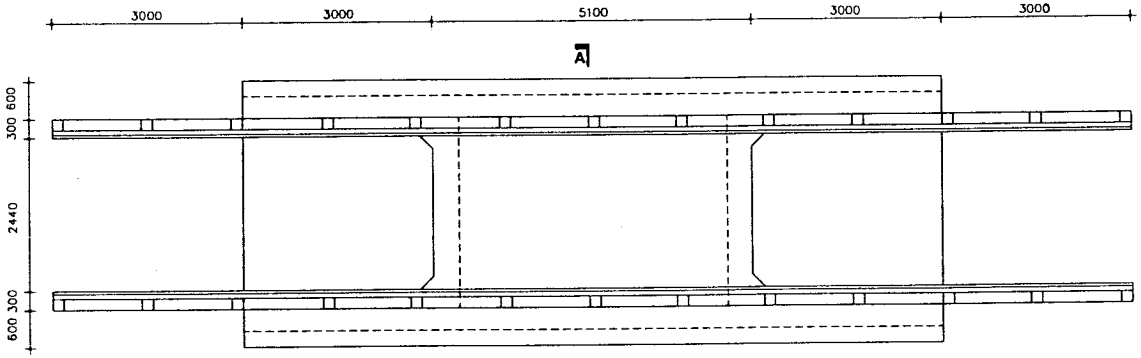
GENERAL ELEVATION



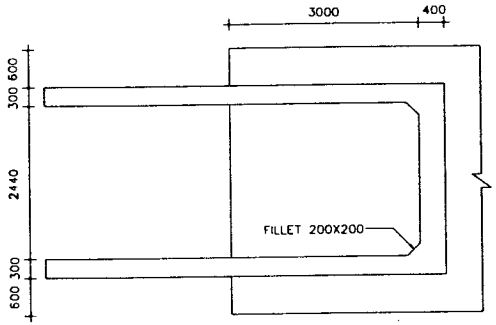
SECTION A-A



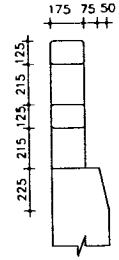
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

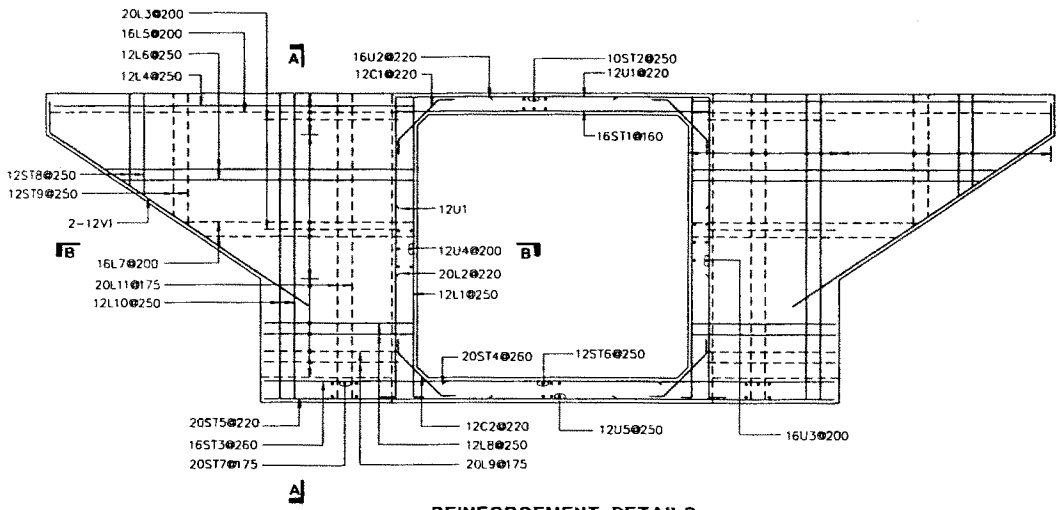
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 2.44m

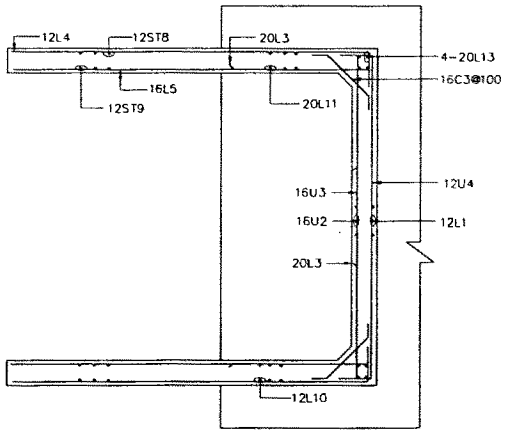
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1143401	

Web Copy

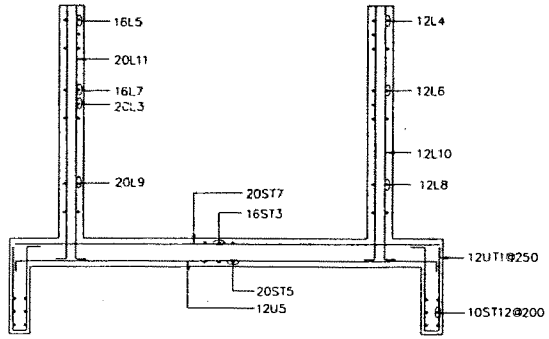
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.0m



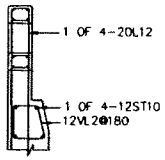
REINFORCEMENT DETAILS



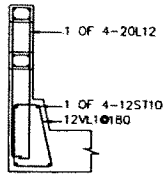
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



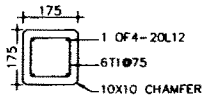
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

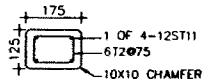
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A PPROACH & CUTOFF WALL	16	ST1	20	5000				5000
	10	ST2	2 X 21	2940				2940
	16	ST3	17	11000				11000
	20	ST4	16	2580				2580
	20	ST5	20	11000				11000
	12	ST6	22	4140				4140
	20	ST7	2 X 17	4140				4140
	12	C1	2 X 15	144	857	144		1145
	12	C2	2 X 15	144	970	144		1258
	12	L1	2 X 9	4528	250			4778
	20	L2	2 X 13	1646	250			1896
	20	L13	4 X 4	4528	250			4778
	12	U1	15	1568	5000	1568		8136
	16	U2	2 X 15	1783	4560	1783		8126
	16	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 19	544	2940	544		4028
	12	U5	45	250	4070	250		4570
	10	ST12	4 X 6	10950				10950
	12	UT1	2 X 46	144	2 X 1150	100		2544
WING N	20	L3	4 X 13	3338	813			4151
	12	L4	4 X 1	6288	444			6732
	16	L5	4 X 2	6288	250			6538
	12	L6	4 X 9	Ver. 6259 To 3288 @ 371	444			Var.6703 To 3732
	16	L7	4 X 11	Ver. 6259 To 3288 @ 297	250			Var.6509 To 3538
	12	L8	4 X 8	3288	444			3732
	20	L9	4 X 12	3288	813			4101
	12	L10	4 X 12	4580	250			4830
	20	L11	4 X 17	4530	250			4780
	12	ST8	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4 X 12	Ver. 2189 To 326 @ 169				Var.2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	192	963	192		1347
CURB AND RAILING	12	ST10	2 X 4	17050				17050
	12	VL1	2 X 30	204	445	300	435	1484
	12	VL2	4 X 34	204	204	248	200	956
	20	L12	26 X 4	1096	120			1216
	12	ST11	4 X 4	17060				17060
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 80 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

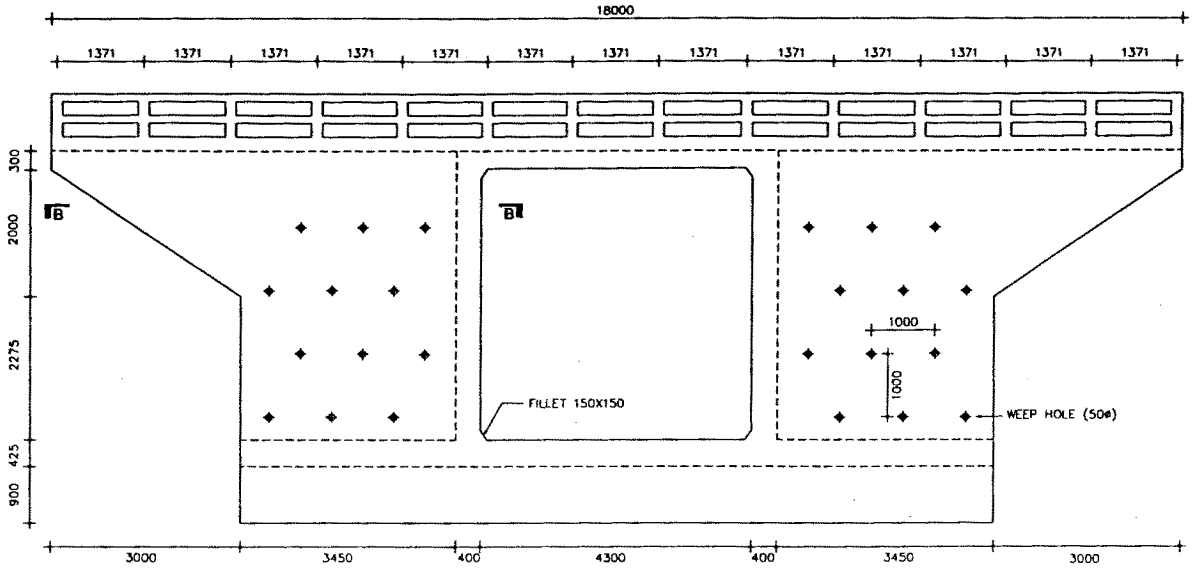
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1143402

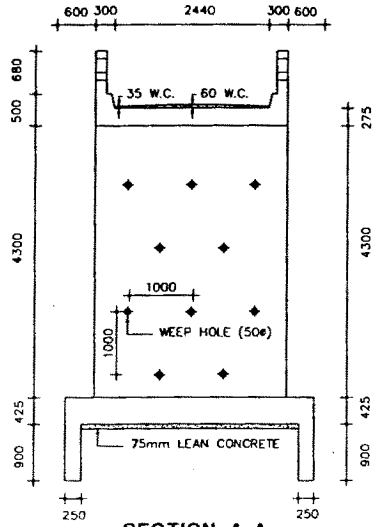
Web Copy

BC-52

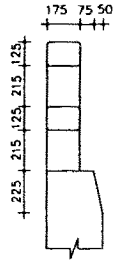
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



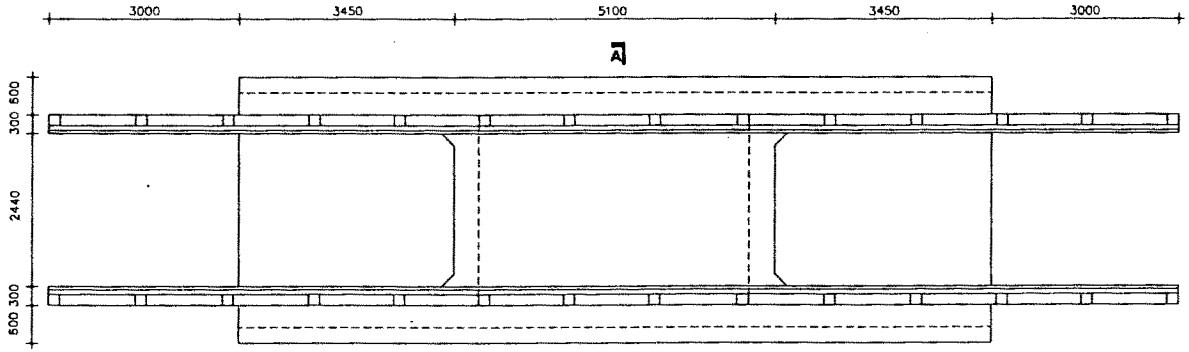
GENERAL ELEVATION



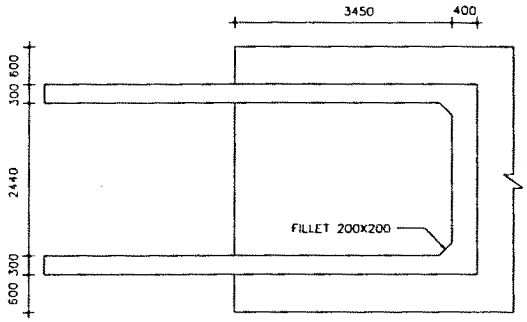
SECTION A-A



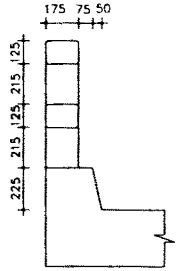
GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT

LEGEND

W.C. = Wearing Course

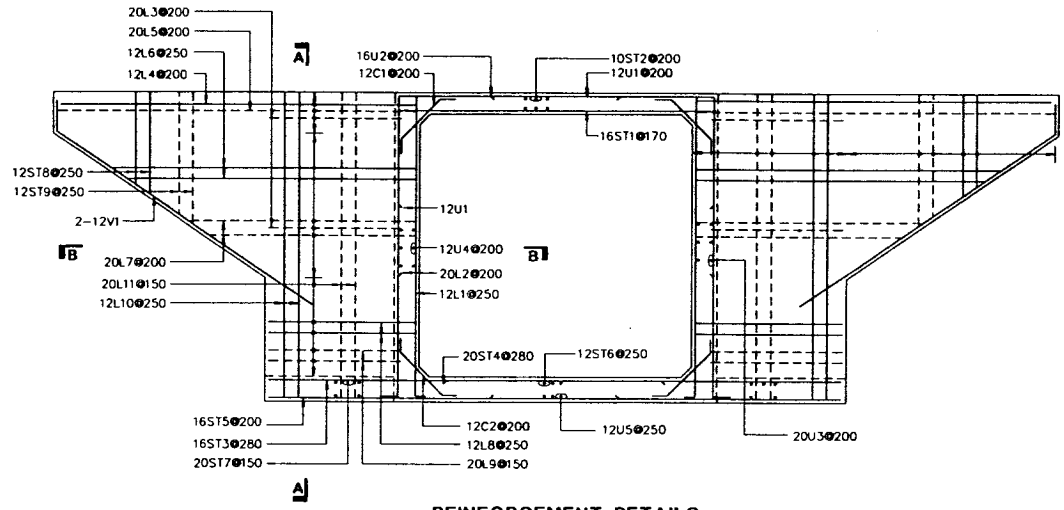
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

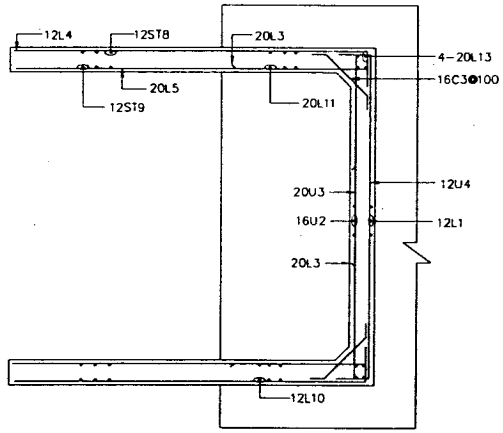
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 4.3m x 4.3m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1143431

Web Copy

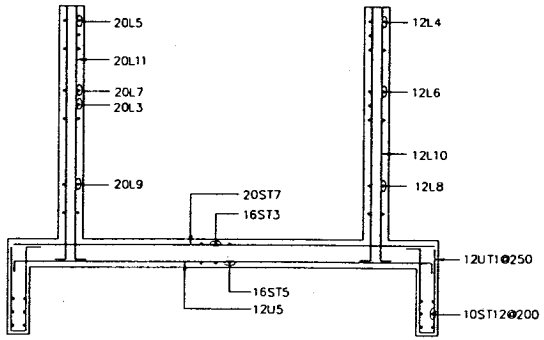
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



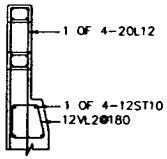
REINFORCEMENT DETAILS



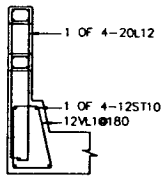
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



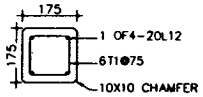
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

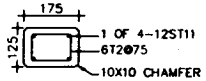
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A PPPRON & CUTOFF	16	ST1	19	5000				5000
	10	ST2	2 X 26	2940				2940
	16	ST3	16	11900				11900
	20	ST4	15	2580				2580
	16	ST5	22	11900				11900
	12	ST6	22	4140				4140
	20	ST7	2 X 23	4140				4140
	12	C1	2 X 16	144	851	144		1139
	12	C2	2 X 16	144	1041	144		1329
	12	L1	2 X 9	4882	250			5132
	20	L2	2 X 14	1796	250			2046
	20	L13	4 X 4	4882	250			5132
	12	U1	16	1668	5000	1668		8363
	16	U2	2 X 16	1783	4910	1783		8476
	20	U3	2 X 21	250	2940	250		3440
	12	U4	2 X 21	544	2940	544		4028
	12	U5	49	250	4070	250		4570
	10	ST12	4 X 5	11850				11850
	12	UT1	2 X 49	144	2 X 1200	100		2644
WING	20	L3	4 X 13	3788	813			4601
	12	L4	4 X 1	6738	444			7182
	20	L5	4 X 2	6738	250			6988
	12	L6	4 X 9	Ver. 6709 To 3738 @ 371	444			Var.7153 To 4182
	20	L7	4 X 11	Ver. 6709 To 3738 @ 297	250			Var.6959 To 3988
	12	L8	4 X 10	3738	444			4182
	20	L9	4 X 16	3738	813			4551
	12	L10	4 X 14	4934	250			5184
	20	L11	4 X 23	4884	250			5134
	12	ST8	4 X 12	Ver. 2239 To 376 @ 169				Var.2239 To 376
	12	ST9	4 X 12	Ver. 2189 To 326 @ 169				Var.2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 47	192	963	192		1347
CURB AND RAILING	12	ST10	2 X 4	17950				17950
	12	VL1	2 X 30	204	445	300	435	1484
	12	VL2	4 X 36	204	204	248	200	956
	20	L12	28 X 4	1096	120			1216
	12	ST11	4 X 4	17960				17960
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 208	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 86 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

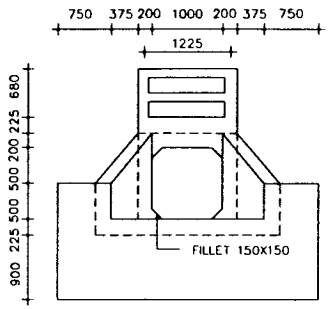
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1143432

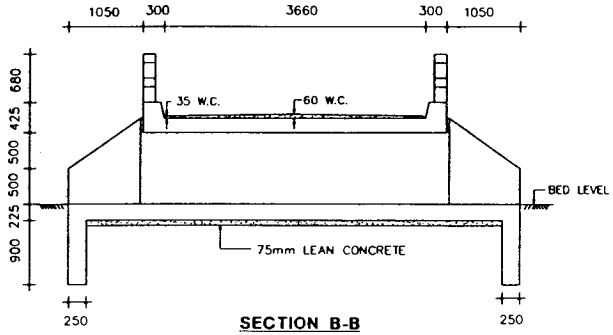
Web Copy

BC-54

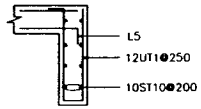
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 1.0m
CLEAR HEIGHT : 1.0m



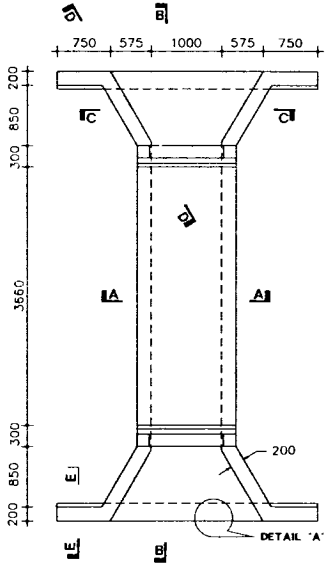
GENERAL ELEVATION



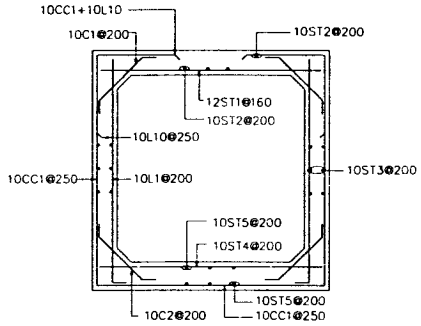
SECTION B-B



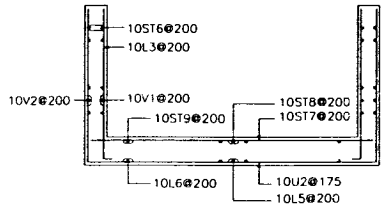
REINF. DETAIL OF 'A'



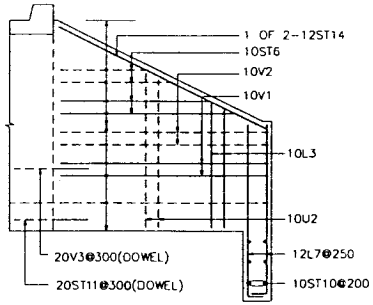
PLAN



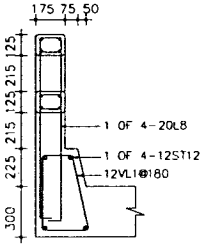
SECTION A-A (REINF. DETAIL)



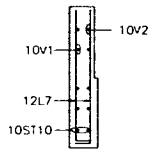
SECTION C-C (REINF. DETAIL)



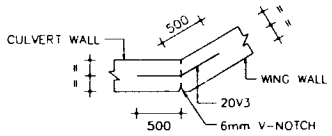
SECTION D-D (REINF. DETAIL)



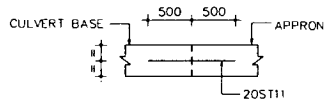
RAILING ON CULVERT (REINF. DETAIL)



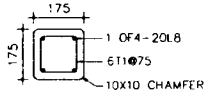
SECTION E-E



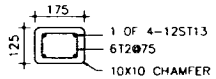
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	27	1300				1300
	10	ST2	8 + 8	4160				4160
	10	L10	2 X 17	493	483			976
B	10	CC1	18	2 X 493	2 X 1335	1300		4956
	10	ST3	4X 5	4160				4160
O	10	ST4	22	1300				1300
	10	ST5	2X 8	4160				4160
X	10	L1	2X 22	1315	120			1435
	10	C1	2X 22	120	493	120		733
	10	C2	2X 22	120	515	120		755
	20	ST11	2X 5	1000				1000
	20	V3	4X 4	500	500			1000
W	10	L3	4X 7	1305 605 @ 116	120			Var. 1425 To 725
I N G	10	ST6	8X 4	Var 1062 To 283 @ 259				Var. 1062 To 283
A	10	V1	4X 2	1073	665			1738
P	10	V2	4X 2	981	619			1600
P	10	ST7	2X 5	Var 1342 To 2150 @ 202				Var. 1342 To 2150
R	10	ST8	2X 6	925				925
O N	10	ST9	4X 3	Var 874 To 171 @ 351				Var. 874 To 171
&	10	U2	2X 5	Var 1305 To 605 @ 175	Var 1342 To 2150 @ 202	Same As'o'		Var. 3952 To 3360
	10	L5	2X 6	925	120			1045
C U T O F F	10	L6	4X 3	Var 852 To 149 @ 351	120			Var. 972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4000				5100
	12	UT1	2X 8	144	2x 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB	12	ST12	2X 4	1360				1360
	12	VL1	2X 8	204	368	284	360	1316
AND	20	L8	4X 4	1021	120			1141
	12	ST13	4X 4	1360				1360
	6	T1	4X 6	2 x 135	2 x 135			540
RAILING	6	T2	4X 14	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 38 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.0m x 1.0m ROADWAY 3.66m

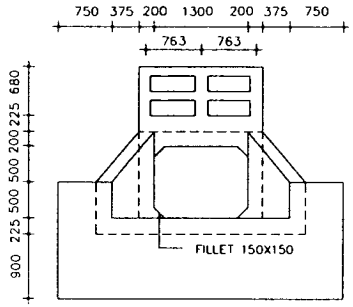
DATE :

ISSUED BY :

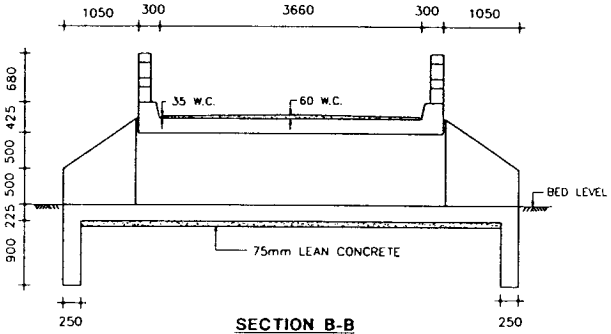
CAD FILE REF : CULV\B1210101

Web Copy

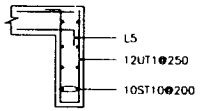
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 1.3m	
CLEAR HEIGHT : 1.0m	



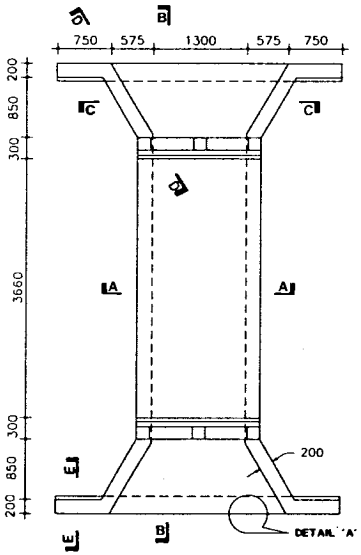
GENERAL ELEVATION



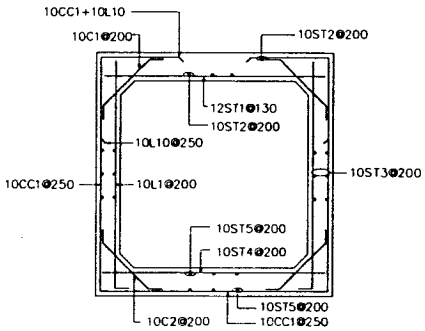
SECTION B-B



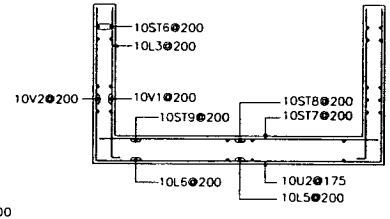
REINF. DETAIL OF 'A'



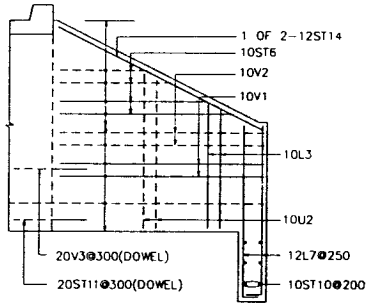
PLAN



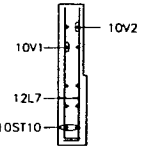
SECTION A-A (REINF. DETAIL)



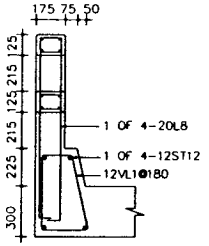
SECTION C-C (REINF. DETAIL)



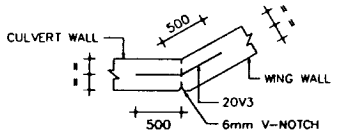
SECTION D-D (REINF. DETAIL)



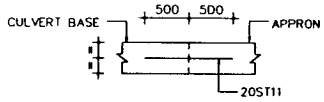
SECTION E-E



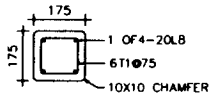
RAILING ON CULVERT (REINF. DETAIL)



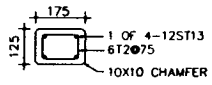
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	12	ST1	33	1600				1600
	10	ST2	8 + 9	4160				4160
	10	L10	2 X 17	493	583			1076
	10	CC1	18	2 X 593	2 X 1335	1600		5456
	10	ST3	4X 5	4160				4160
	10	ST4	22	1600				1600
	10	ST5	2X 9	4160				4160
	10	L1	2X 22	1315	120			1435
	10	C1	2X 22	120	515	120		755
	10	C2	2X 22	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4x 4	500	500			1000
WING APPRON & CUTOFF	10	L3	4X 7	1305 605 @ 116	120			Var. 1425 To 725
	10	ST6	8X 4	Var 1062 To 283 @ 259				Var. 1062 To 283
	10	V1	4X 2	1073	665			1738
	10	V2	4X 2	981	619			1600
	10	ST7	2X 5	Var 1642 To 2450 @ 202				Var. 1642 To 2450
	10	ST8	2X 7	925				925
	10	ST9	4X 3	Var 874 To 171 @ 351				Var. 874 To 171
	10	U2	2X 5	Var 1305 To 605 @ 175	Var 1642 To 2450 @ 202	Same As'a'		Var. 4252 To 3660
	10	L5	2X 8	925	120			1045
	10	L6	4X 3	Var 852 To 149 @ 351	120			Var. 972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4300				5300
	12	UT1	2X 8	144	2x 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB AND RAILING	12	ST12	2X 4	1660				1660
	12	VL1	2X 10	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1660				1660
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 16	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 34 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

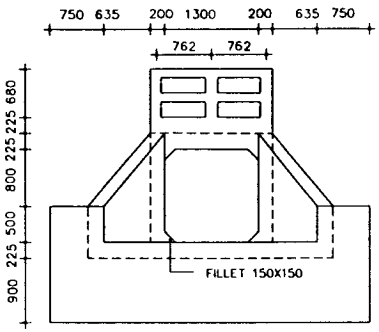
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.3m x 1.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1213101	

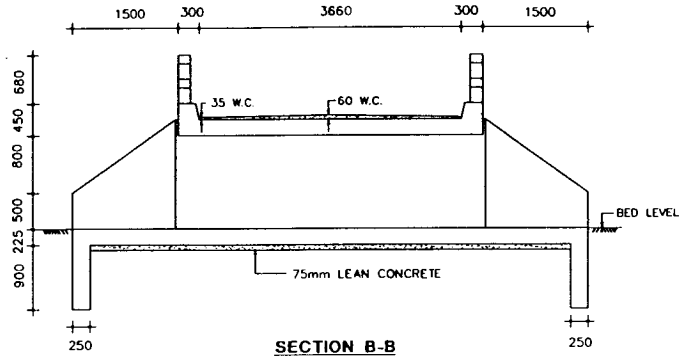
Web Copy

BC-56

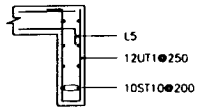
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 1.3m
CLEAR HEIGHT : 1.3m



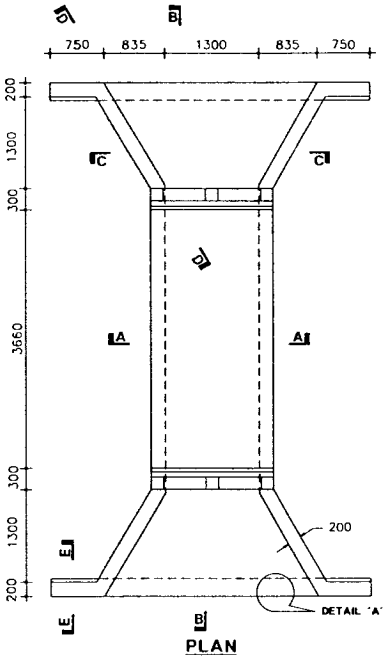
GENERAL ELEVATION



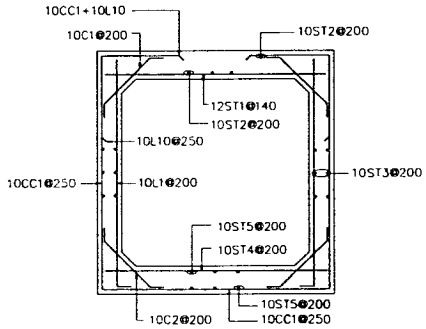
SECTION B-B



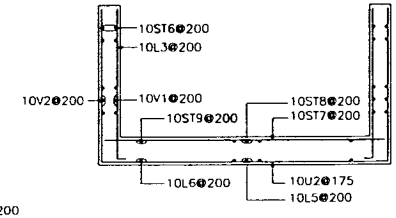
REINF. DETAIL OF 'A'



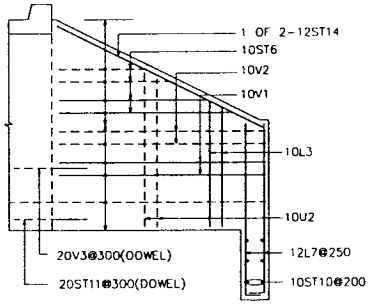
PLAN



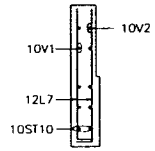
SECTION A-A (REINF. DETAIL)



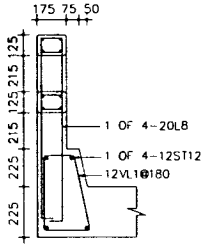
SECTION C-C (REINF. DETAIL)



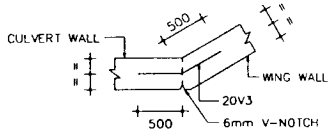
SECTION D-D (REINF. DETAIL)



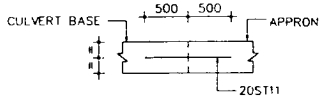
SECTION E-E



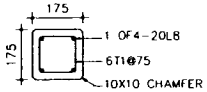
RAILING ON CULVERT (REINF. DETAIL)



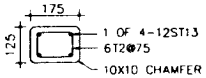
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	31	1600				1600
	10	ST2	8 + 9	4160				4160
	10	L10	2 X 17	618	583			1201
B	10	CC1	18	2 X 593	2 X 1660	1600		6106
	10	ST3	4X 6	4160				4160
O	10	ST4	22	1600				1600
	10	ST5	2X 9	4160				4160
X	10	L1	2X 22	1640	120			1760
	10	C1	2X 22	120	529	120		769
	10	C2	2X 22	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4x 5	500	500			1000
W	10	L3	4X 9	Var. 1630 To 605 @ 128	120			Var. 1750 To 725
I	10	ST6	8X 5	Var 1583 To 274 @ 327				Var. 1583 To 274
N	10	V1	4X 2	1593	665			2258
G	10	V2	4X 2	1501	619			2120
A	10	ST7	2X 7	Var 1642 To 2970 @ 221				Var. 1642 To 2970
P	10	ST8	2X 7	1375				1375
P	10	ST9	4X 4	Var 1324 To 171 @ 384				Var. 1324 To 171
R	10	U2	2X 8	Var 1630 To 605 @ 146	Var 1642 To 2970 @ 189	Same As'o'		Var. 4902 To 4180
O	10	L5	2X 8	1375	120			1495
N	10	L6	4X 4	Var 1302 To 149 @ 384	120			Var. 1422 To 269
&	12	L7	8X 3	1500	144			2244
C	10	ST10	4X 5	4820				5920
U	12	UT1	2X 11	144	2x 1000	100		2244
T	12	ST14	4X 2	1896				1896
O	12	ST12	2X 4	1660				1660
F	12	VL1	2X 10	204	394	289	385	1372
F	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	1660				1660
CURB AND RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 16	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 36 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.3m x 1.3m ROADWAY 3.66m

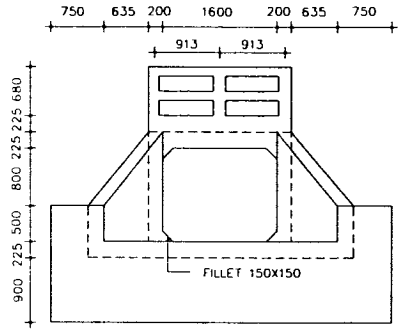
DATE :

ISSUED BY :

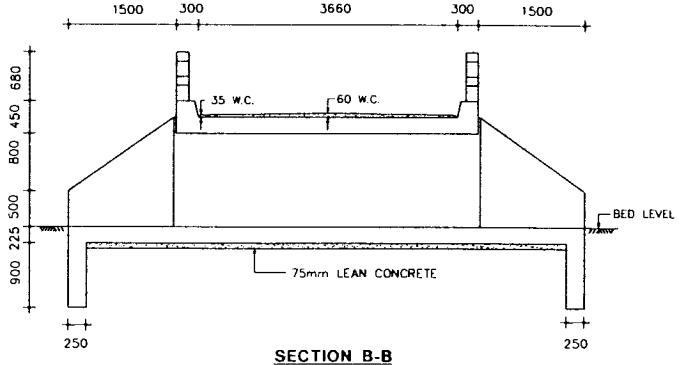
CAD FILE REF : CULV\B1213131

Web Copy

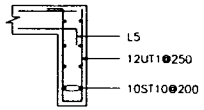
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 1.6m	
CLEAR HEIGHT : 1.3m	



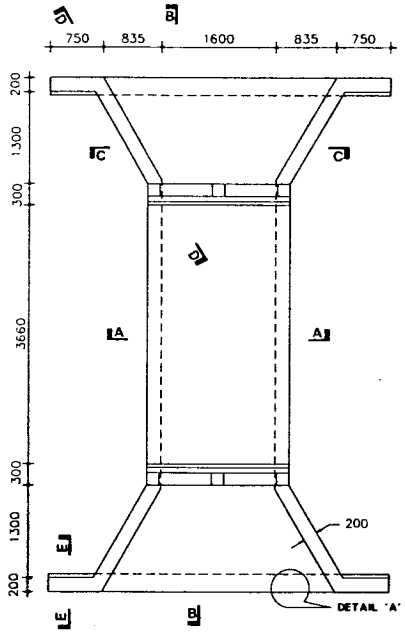
GENERAL ELEVATION



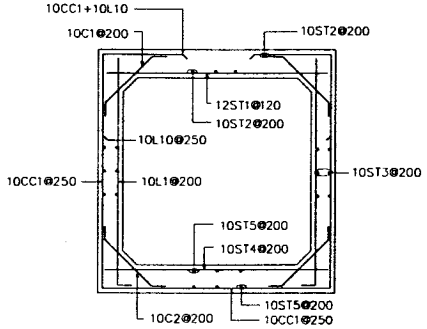
SECTION B-B



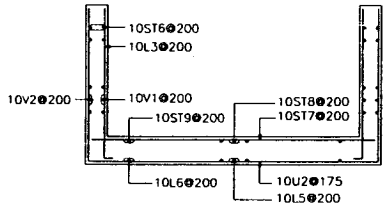
REINF. DETAIL OF 'A'



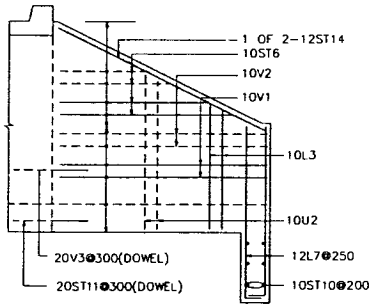
PLAN



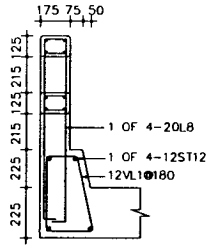
SECTION A-A (REINF. DETAIL)



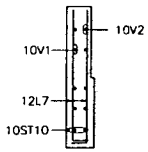
SECTION C-C (REINF. DETAIL)



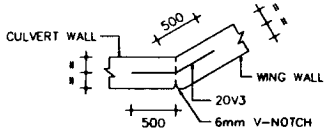
SECTION D-D (REINF. DETAIL)



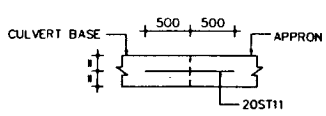
RAILING ON CULVERT (REINF. DETAIL)



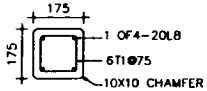
SECTION E-E



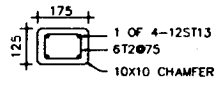
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	36	1900				1900
	10	ST2	10+11	4160				4160
	10	L10	2 X 17	618	683			1301
B	10	CC1	18	2 X 693	2 X 1660	1900		6606
	10	ST3	4X 6	4160				4160
O	10	ST4	22	1900				1900
	10	ST5	2X 11	4160				4160
X	10	L1	2X 22	1640	120			1760
	10	C1	2X 22	120	529	120		769
	10	C2	2X 22	120	515	120		755
	20	ST11	2X 7	1000				1000
	20	V3	4X 5	500	500			1000
W	10	L3	4X 9	Var. 1630 To 605 @ 128	120			Var. 1750 To 725
I N G	10	ST6	8X 5	Var 1583 To 274 @ 327				Var. 1583 To 274
	10	V1	4X 2	1593	665			2258
A	10	V2	4X 2	1501	619			2120
P P	10	ST7	2X 7	Var 1942 To 3270 @ 221				Var. 1942 To 3270
R	10	ST8	2X 9	1375				1375
O N	10	ST9	4X 4	Var 1324 To 171 @ 384				Var. 1324 To 171
&	10	U2	2X 8	Var 1630 To 605 @ 146	Var 1942 To 3270 @ 189	Same As'a'		Var. 5202 To 4480
	10	L5	2X 9	1375	120			1495
C	10	L6	4X 4	Var 1302 To 149 @ 384	120			Var. 1422 To 269
U	12	L7	8X 3	1500	144			1644
T	10	ST10	4X 5	5120				6220
O	12	UT1	2X 11	144	2x 1000	100		2244
F F	12	ST14	4X 2	1896				1896
CURB	12	ST12	2X 4	1960				1960
	12	VL1	2X 12	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	1960				1960
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 20	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

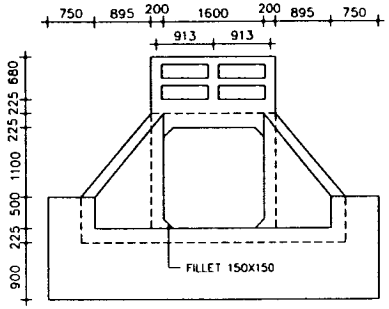
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 1.6m x 1.3m ROADWAY 3.66m

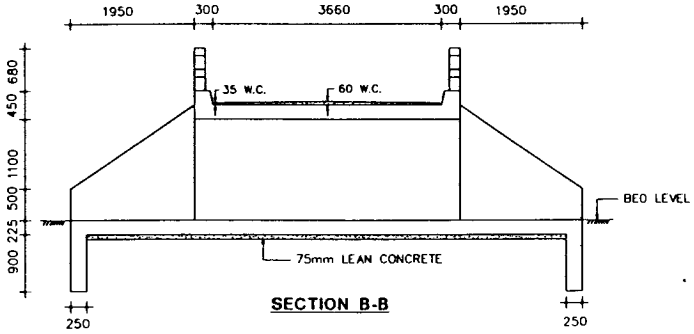
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1216131	

Web Copy

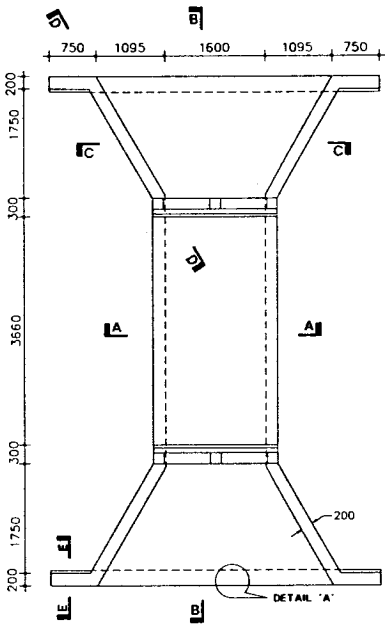
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 1.6m
CLEAR HEIGHT : 1.6m



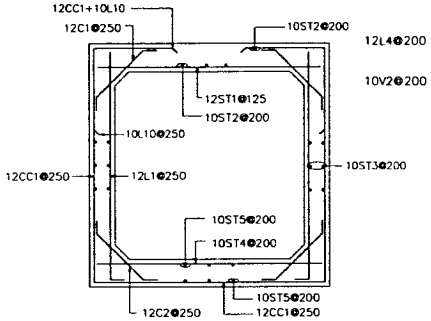
GENERAL ELEVATION



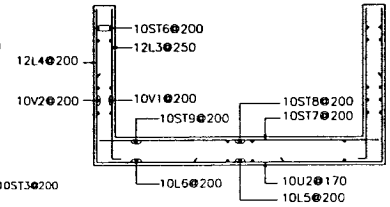
SECTION B-B



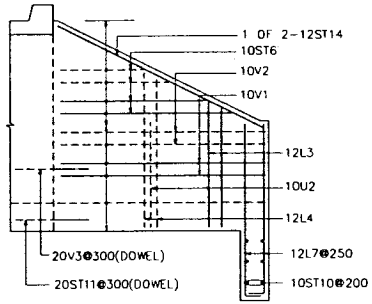
PLAN



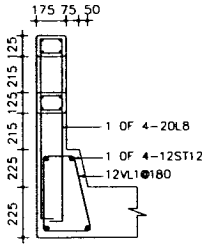
SECTION A-A (REINF. DETAIL)



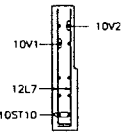
SECTION C-C (REINF. DETAIL)



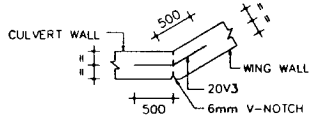
SECTION D-D (REINF. DETAIL)



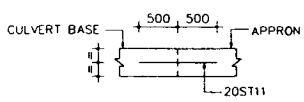
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

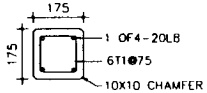
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	34	1900				1900
	10	ST2	10+11	4160				4160
	10	L10	2 X 17	718	683			1401
B	12	CC1	18	2 X 693	2 X 1960	1900		7206
	10	ST3	4X 8	4160				4160
O	10	ST4	22	1900				1900
	10	ST5	2X 11	4160				4160
X	12	L1	2X 18	1938	144			2082
	12	C1	2X 18	144	509	144		797
	12	C2	2X 18	144	512	144		800
	20	ST11	2X 7	1000				1000
	20	V3	4X 6	500	500			1000
	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Var.2074 To 749
W I N G	12	L4	4X 12	Var. 1950 To 625 @ 120	Ver. 950 To 147 @ 73			Var.2900 To 772
	10	ST6	8X 7	Var. 2103 To 276 @ 304				Var.2103 To 276
A	10	V1	4X 2	2113	665			2778
P	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 1942 To 3789 @ 230				Var.1942 To 3789
R O N & C U T O F F	10	ST8	2X 9	1825				1825
	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
	10	U2	2X 9	Var. 925 To 475 @ 50	Ver. 1942 To 3789 @ 205	Same As'a'		Var.3792 4739
	10	L5	2X 9	1825	120			1945
	10	L6	4X 6	Var 1752 To 149 @ 320	120			Var.1872 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	5639				6739
	12	UT1	2X 14	144	2X 1000	100		2244
	12	ST14	4X 2	2496				2496
CURB	12	ST12	2X 4	1960				1960
AND	12	VL1	2X 12	204	394	289	385	1372
	20	L8	6X 4	821	120			941
	12	ST13	4X 4	1960				1960
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 20	2 x 85	2 x 135			440

LEGEND

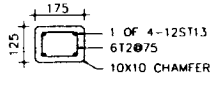
W.C. = Wearing Course

NOTES

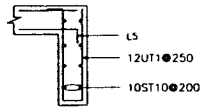
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 34 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File. CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.6m x 1.6m ROADWAY 3.66m

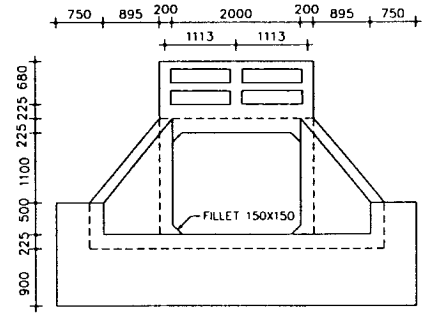
DATE :

ISSUED BY :

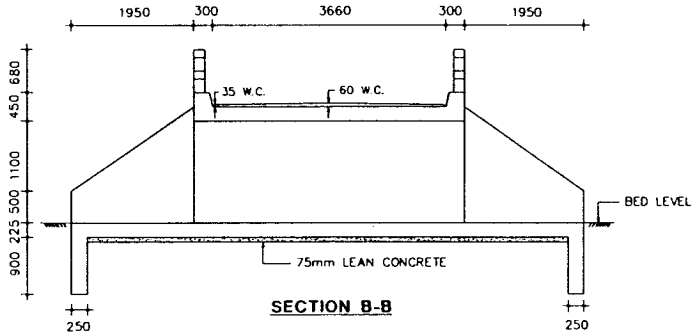
CAD FILE REF : CULV\B1216161

Web Copy

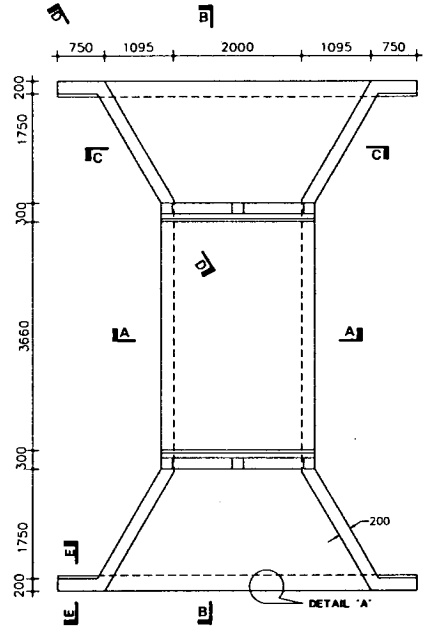
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 1.6m



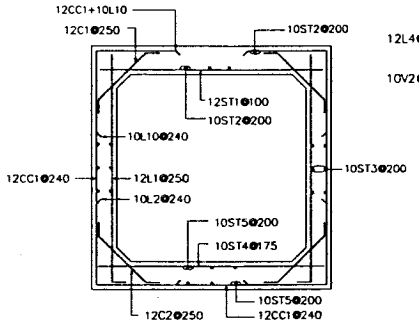
GENERAL ELEVATION



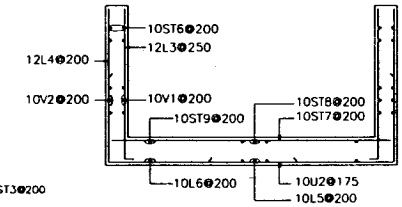
SECTION B-B



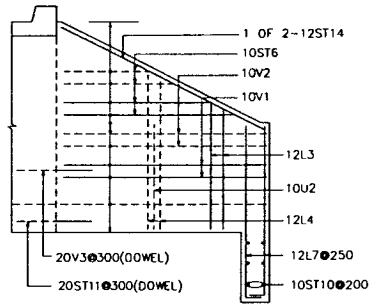
PLAN



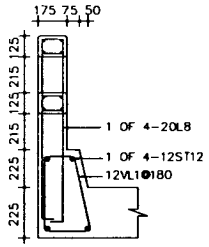
SECTION A-A (REINF. DETAIL)



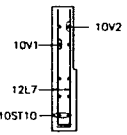
SECTION C-C (REINF. DETAIL)



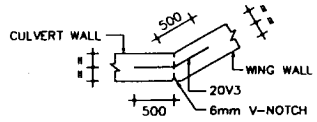
SECTION D-D (REINF. DETAIL)



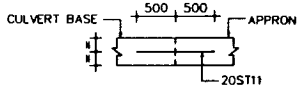
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

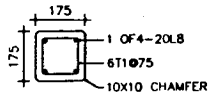
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	43	2300				2300
	10	ST2	12+13	4160				4160
	10	L10	2 X 18	718	816			1534
B	12	CC1	18	2 X 826	2 X 1960	2300		7872
	10	ST3	4X 8	4160				4160
O	10	ST4	25	2300				2300
	10	ST5	2X 13	4160				4160
X	12	L1	2X 18	1938	144			2082
	10	L2	2X 18	708	816			1524
	12	C1	2X 18	144	523	144		811
	12	C2	2X 18	144	509	144		797
	20	ST11	2X 8	1000				1000
	20	V3	4X 6	500	500			1000
W	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Var.2074 To 749
I	12	L4	4X 12	Var. 1950 To 625 @ 120	Var. 1110 To 147 @ 87			Var.3060 To 772
N	10	ST6	8X 7	Var. 2103 To 276 @ 304				Var.2103 To 276
G	10	V1	4X 2	2113	665			2778
A	10	V2	4X 2	2020	619			3639
P	10	ST7	2X 9	Var. 2342 To 4189 @ 230				Var.2342 To 4189
P	10	ST8	2X 11	1825				1825
R	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
O	10	U2	2X 9	Var. 925 To 475 @ 50	Var. 2342 To 4189 @ 205	Same As 'a'		Var.4192 To 5139
N	10	L5	2X 11	1825	120			1945
&	10	L6	4X 6	Var 1752 To 149 @ 320	120			Var.1872 To 269
C	12	L7	8X 3	1500	144			1644
U	10	ST10	4X 5	6039				7139
T	12	UT1	2X 14	144	2X 1000	100		2244
O	12	ST14	4X 2	2496				2496
F	12	ST12	2X 4	2360				2360
F	12	VL1	2X 14	204	394	289	385	1372
CURB	20	L8	6X 4	1046	120			1166
AND	12	ST13	4X 4	2360				2360
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 26	2 x 85	2 x 135			440

LEGEND

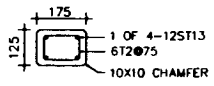
W.C. = Wearing Course

NOTES

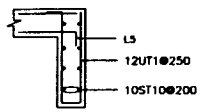
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 30 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

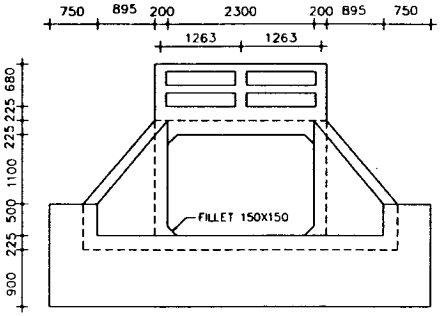
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.0m x 1.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1220161	

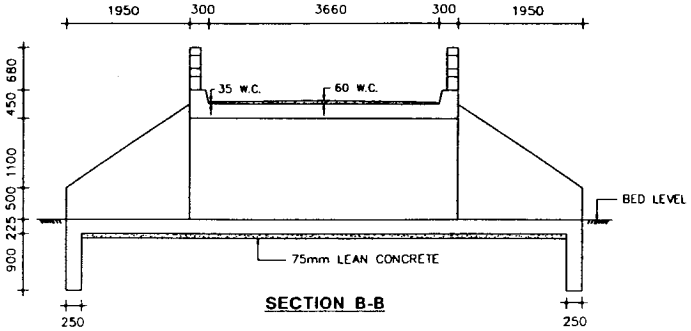
Web Copy

BC-60

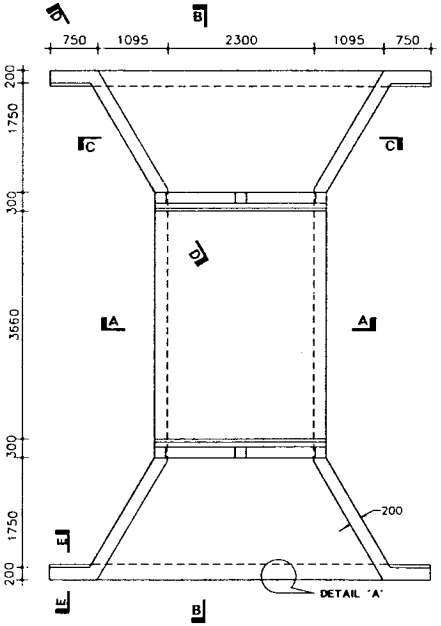
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.3m
CLEAR HEIGHT : 1.6m



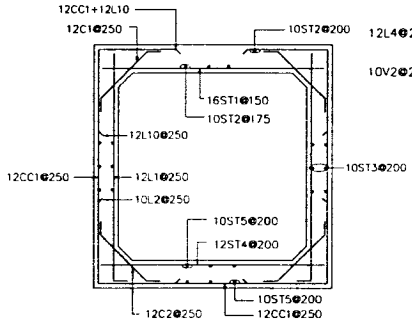
GENERAL ELEVATION



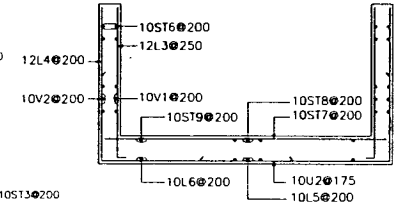
SECTION B-B



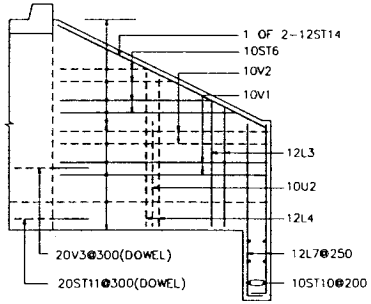
PLAN



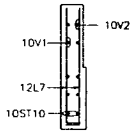
SECTION A-A (REINF. DETAIL)



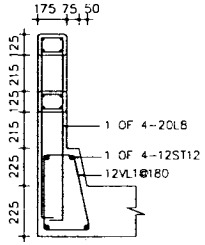
SECTION C-C (REINF. DETAIL)



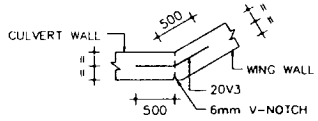
SECTION D-D (REINF. DETAIL)



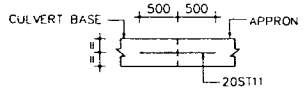
SECTION E-E



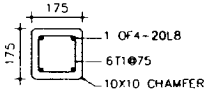
RAILING ON CULVERT (REINF. DETAIL)



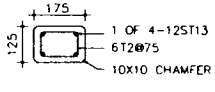
DETAIL OF DOWEL AT WALL



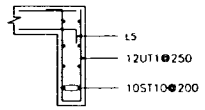
DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	29	2600				2600
	10	ST2	14+16	4160				4160
	12	L10	2 X 17	718	916			1634
B	12	CC1	18	2 X 926	2 X 1960	2600		8372
	10	ST3	4X 8	4160				4160
O	12	ST4	22	2600				2600
	10	ST5	2X 14	4160				4160
X	12	L1	2X 18	1938	144			2082
	10	L2	2X 17	708	916			1624
	12	C1	2X 18	144	523	144		811
	12	C2	2X 18	144	509	144		797
	20	ST11	2X 9	1000				1000
	20	V3	4X 6	500	500			1000
W	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Var.2074 To 749
I	12	L4	4X 12	Var. 1950 To 625 @ 120	Var. 1230 To 147 @ 98			Var.3180 To 772
N								
G	10	ST6	8X 7	Var. 2103 To 276 @ 304				Var.2103 To 276
A	10	V1	4X 2	2113	665			2778
P	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 2642 To 4489 @ 230				Ver.2642 To 4489
R								
O	10	ST8	2X 12	1825				1825
N	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
&	10	U2	2X 9	Var. 925 To 475 @ 50	Var. 2642 To 4489 @ 205	Same As'a'		Var.4492 To 5439
C	10	L5	2X 13	1825	120			1945
U	10	L6	4X 6	Var 1752 To 149 @ 320	120			Var.1872 To 269
T								
O	12	L7	8X 3	1500	144			1644
F	10	ST10	4X 5	6339				7439
F	12	UT1	2X 14	144	2X 1000	100		2244
	12	ST14	4X 2	2496				2496
CURB	12	ST12	2X 4	2660				2660
	12	VL1	2X 15	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2660				2660
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 28 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 1.6m ROADWAY 3.66m

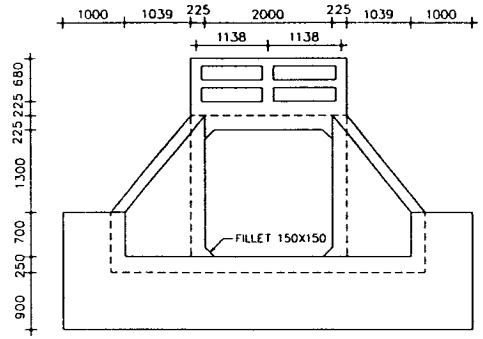
DATE :

ISSUED BY :

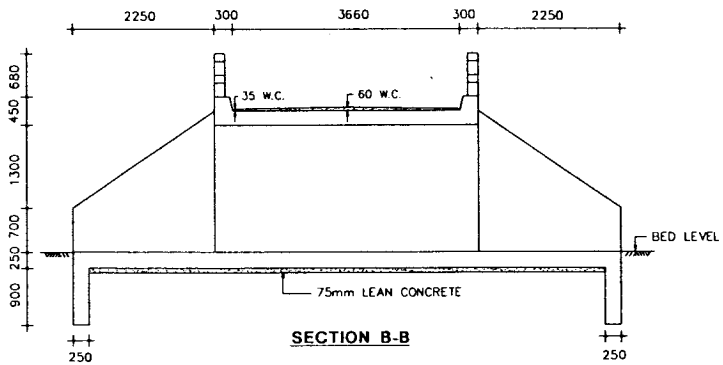
CAD FILE REF : CULV\B1223161

Web Copy

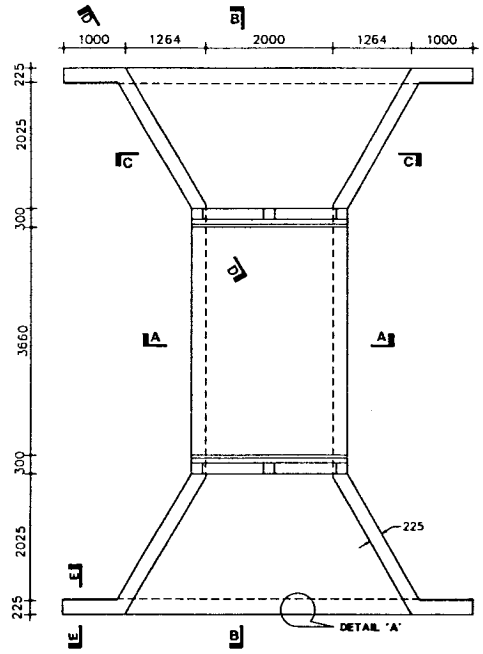
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 2.0m



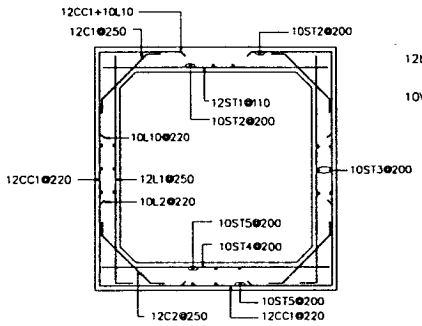
GENERAL ELEVATION



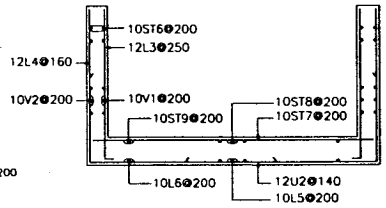
SECTION B-B



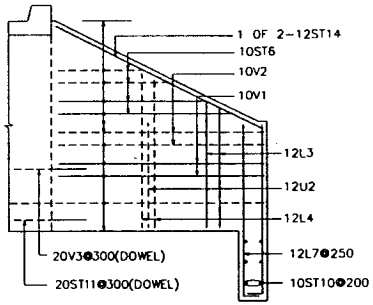
PLAN



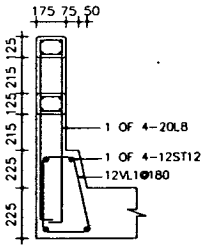
SECTION A-A (REINF. DETAIL)



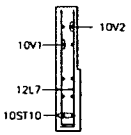
SECTION C-C (REINF. DETAIL)



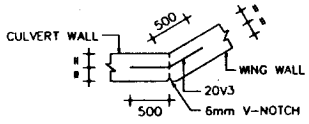
SECTION D-D (REINF. DETAIL)



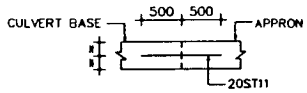
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

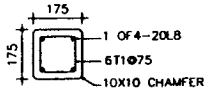
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	39	2350				2350
	10	ST2	12+13	4160				4160
	10	L10	2 X 19	851	841			1692
B	12	CC1	20	851	2X 2385	2350		8822
	10	ST3	4X 10	4160				4160
O	10	ST4	22	2350				2350
	10	ST5	2X 13	4160				4160
X	12	L1	2X 18	2363	144			2507
	10	L2	2X 19	866	841			1707
	12	C1	2X 18	144	558	144		846
	12	C2	2X 18	144	580	144		868
	20	ST11	2X 8	1000				1000
	20	V3	4X 7	500	500			1000
	12	L3	4X 11	2353 828 @ 152	144			Var.2497 To 972
W I	12	L4	4X 17	Var. 2375 To 850 @ 95	Var. 1155 To 146 @ 63			Var.3530 To 996
N G	10	ST6	8X 8	Var. 2449 To 277 @ 310				Var.2449 227
A	10	V1	4X 3	2459	915			3374
P	10	V2	4X 3	2338	854			3192
P R	10	ST7	2X 11	Var. 2392 To 4586 @ 219				Var.2392 To 4586
O	10	ST8	2X 11	2125				2125
N	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var.2074 To 171
&	12	U2	2X 14	Var. 1200 To 500 @ 50	Var. 2392 To 4586 @ 156	Same As'a'		Var.4792 To 4486
C	10	L5	2X 11	2125	120			2245
U T	10	L6	4X 7	Var 2052 To 149 @ 317	120			Var.2172 To 269
O	12	L7	8X 4	1725	144			1869
F	10	ST10	4X 5	6378				7503
F	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2896				2896
CURB	12	ST12	2X 4	2410				2410
	12	VL1	2X 14	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2410				2410
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 26	2 x 85	2 x 135			440

LEGEND

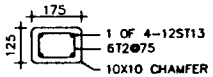
W.C. = Wearing Course

NOTES

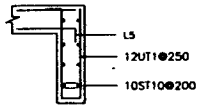
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 33 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 2.0m x 2.0m ROADWAY 3.66m

DATE :

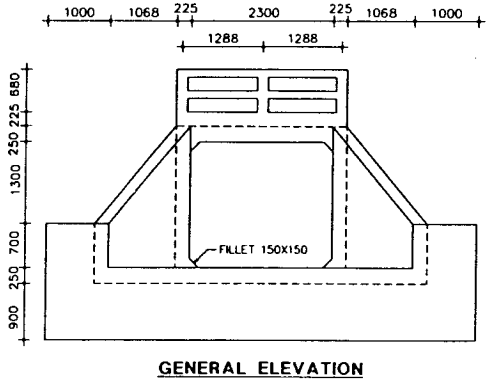
ISSUED BY :

CAD FILE REF : CULV\B1220201

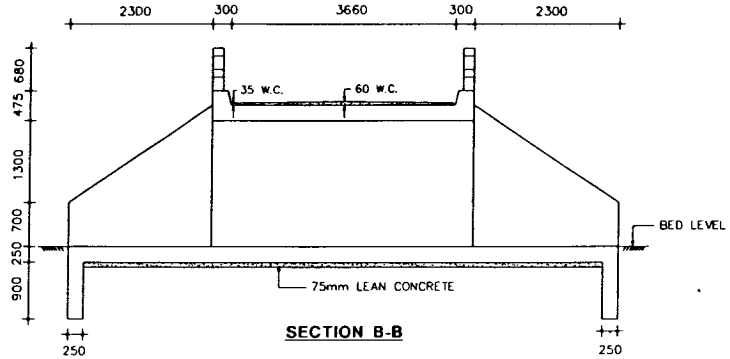
Web Copy

BC-62

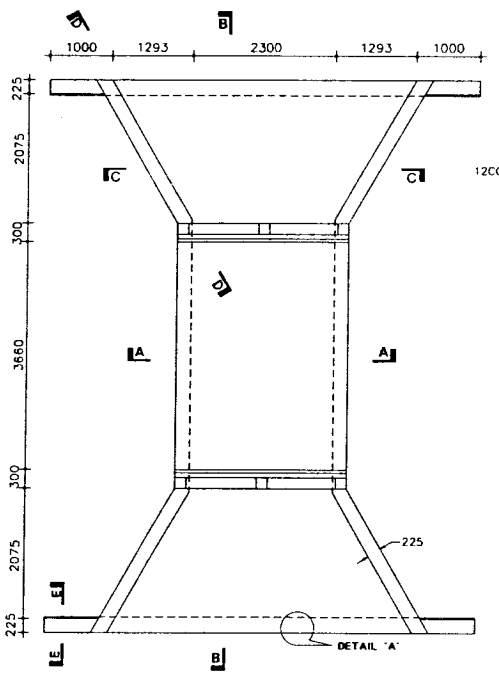
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.3m
CLEAR HEIGHT : 2.0m



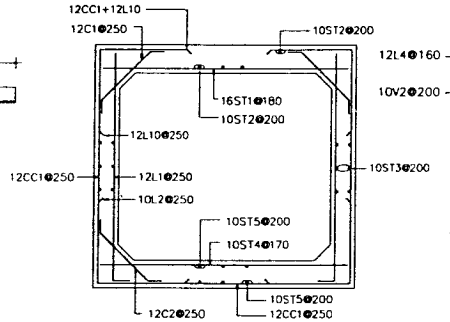
GENERAL ELEVATION



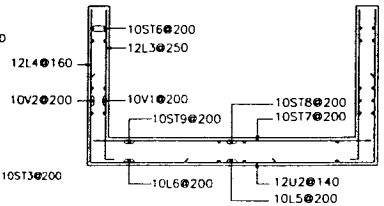
SECTION B-B



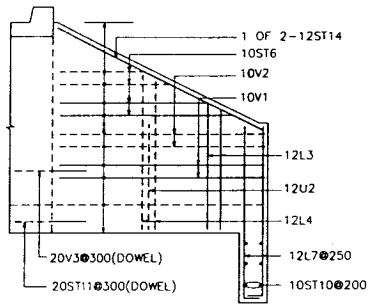
PLAN



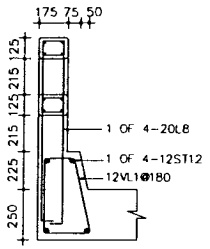
SECTION A-A (REINF. DETAIL)



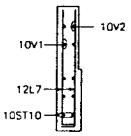
SECTION C-C (REINF. DETAIL)



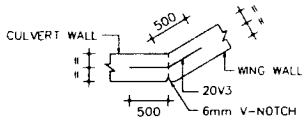
SECTION D-D (REINF. DETAIL)



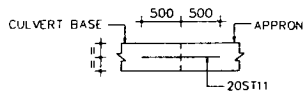
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

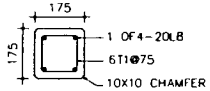
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	24	2650			X	2650
	10	ST2	12+15	4160				4160
	12	L10	2 X 17	876	941			1817
B	12	CC1	18	2 X 951	2 X 2410	2650		9372
	10	ST3	4X 10	4160				4160
O	10	ST4	25	2650				2650
	10	ST5	2X 14	4160				4160
X	12	L1	2X 18	2388	144			2532
	10	L2	2X 17	866	941			1807
	12	C1	2X 18	144	594	144		882
	12	C2	2X 18	144	580	144		868
	20	ST11	2X 10	1000				1000
	20	V3	4X 7	500	500			1000
	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Var.2522 To 972
W I N G	12	L4	4X 17	Var. 2400 To 850 @ 96	Var. 1275 To 145 @ 70			Var.3675 To 995
	10	ST6	8X 8	Var. 2506 To 279 @ 318				Var.2506 To 279
A	10	V1	4X 3	2517	915			3432
P	10	V2	4X 3	2396	854			3250
P	10	ST7	2X 11	Ver. 2692 To 4943 @ 225				Var.2692 To 4943
R O N & C U T O F F	10	ST8	2X 12	2175				2175
	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
	12	U2	2X 14	Var. 1200 To 500 @ 50	Var. 2692 To 4943 @ 160	Same As'a'		Var.5092 To 5943
	10	L5	2X 13	2175	120			2295
	10	L6	4X 7	Var 2102 To 149 @ 325	120			Var.2222 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	6736				7861
	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2959				2959
CURB AND RAILING	12	ST12	2X 4	2710				2710
	12	VL1	2X 16	204	419	295	410	1428
	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	2710				2710
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

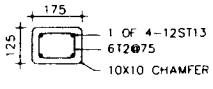
W.C. = Wearing Course

NOTES

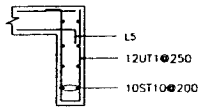
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File. CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :

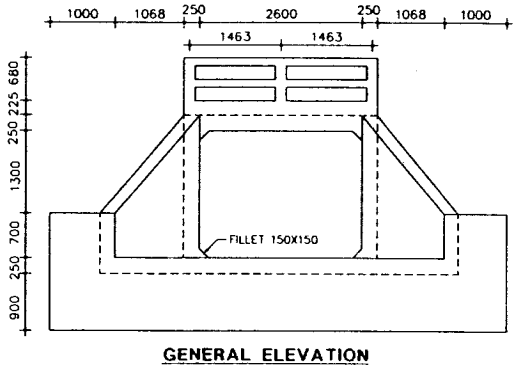
ISSUED BY :

CAD FILE REF : CULV\B1223201

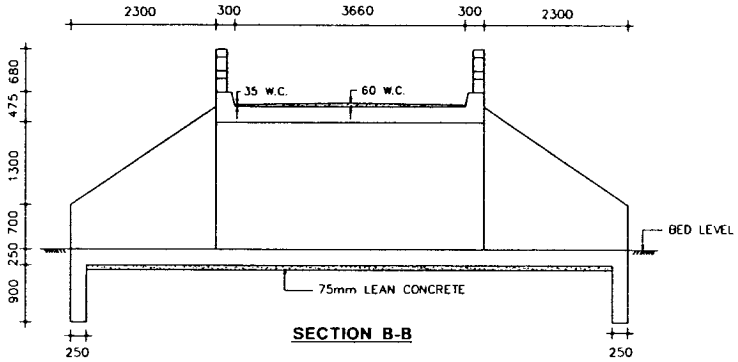
Web Copy

BC-63

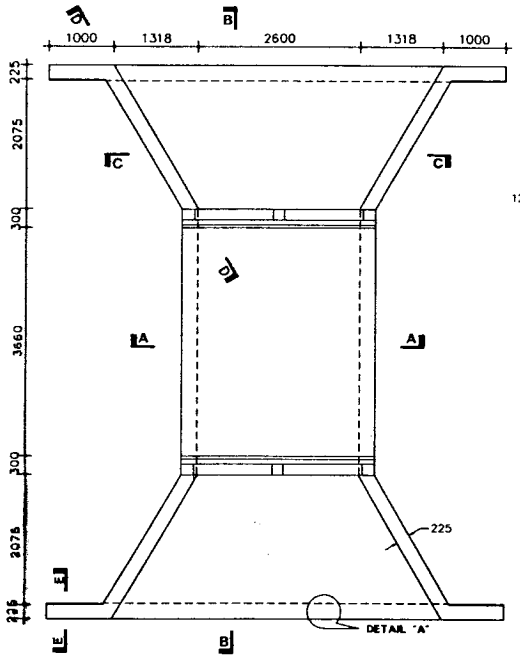
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.0m



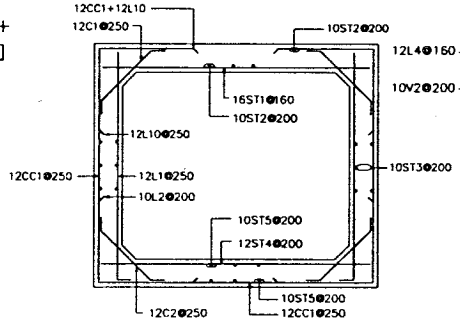
GENERAL ELEVATION



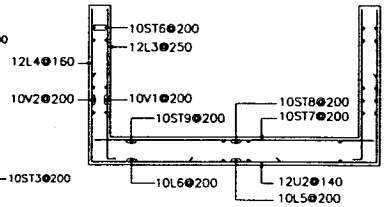
SECTION B-B



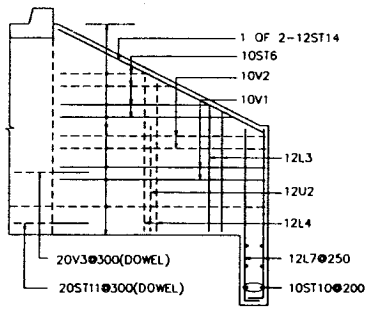
PLAN



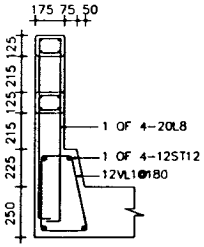
SECTION A-A (REINF. DETAIL)



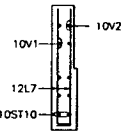
SECTION C-C (REINF. DETAIL)



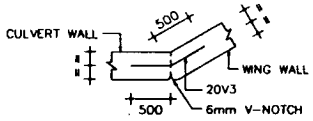
SECTION D-D (REINF. DETAIL)



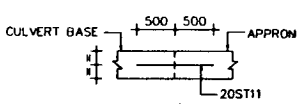
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

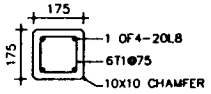
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	27	3000				3000
	10	ST2	14+16	4160				4160
	12	L10	2 X 17	876	1066			1942
B	12	CC1	18	2 X 1076	2 X 2410	3000		9972
	10	ST3	4X 10	4160				4160
O	12	ST4	22	3000				3000
	10	ST5	2X 16	4160				4160
X	12	L1	2X 18	2388	144			2532
	10	L2	2X 21	866	1066			1932
	12	C1	2X 18	144	629	144		917
	12	C2	2X 18	144	615	144		903
	20	ST11	2X 11	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Var.2522 To 972
I	12	L4	4X 17	Var. 2400 To 850 @ 96	Var. 1440 To 145 @ 80			Var.3840 To 995
N	10	ST6	8X 8	Var. 2506 To 279 @ 318				Var.2506 To 279
G	10	V1	4X 3	2517	915			3432
A	10	V2	4X 3	2396	854			3250
P	10	ST7	2X 11	Var. 3042 To 5293 @ 225				Var.3042 To 5293
P	10	ST8	2X 14	2175				2175
R	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
O	12	U2	2X 14	Var. 1200 To 500 @ 50	Var. 3042 To 5293 @ 160	Same As 'a'		Var.5442 To 6293
N	10	L5	2X 15	2175	120			2295
&	10	L6	4X 7	Var 2102 To 149 @ 325	120			Var.2222 To 269
C	12	L7	8X 4	1725	144			1869
U	10	ST10	4X 5	7086				8211
T	12	UT1	2X 18	144	2X 1025	100		2294
O	12	ST14	4X 2	2959				2959
F	12	ST12	2X 4	3060				3060
F	12	VL1	2X 18	204	419	295	410	1428
CURB	20	L8	6X 4	1071	120			1191
AND	12	ST13	4X 4	3060				3060
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 34	2 x 85	2 x 135			440

LEGEND

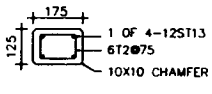
W.C. = Wearing Course

NOTES

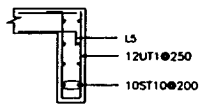
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 30 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.0m ROADWAY 3.66m

DATE :

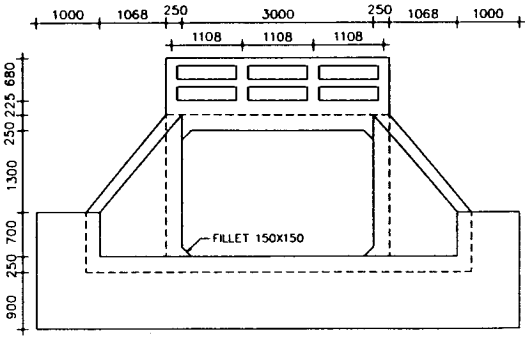
ISSUED BY :

CAD FILE REF : CULV\B1226201

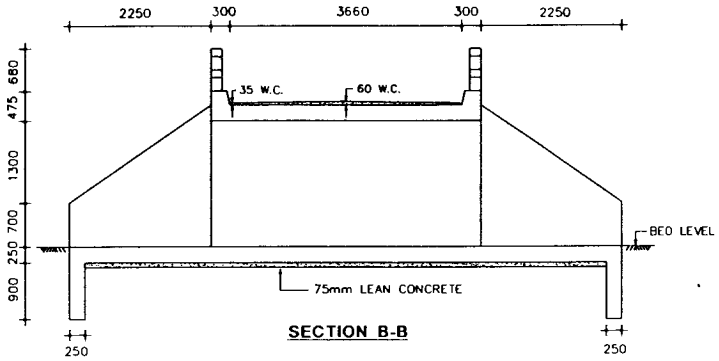
Web Copy

BC-64

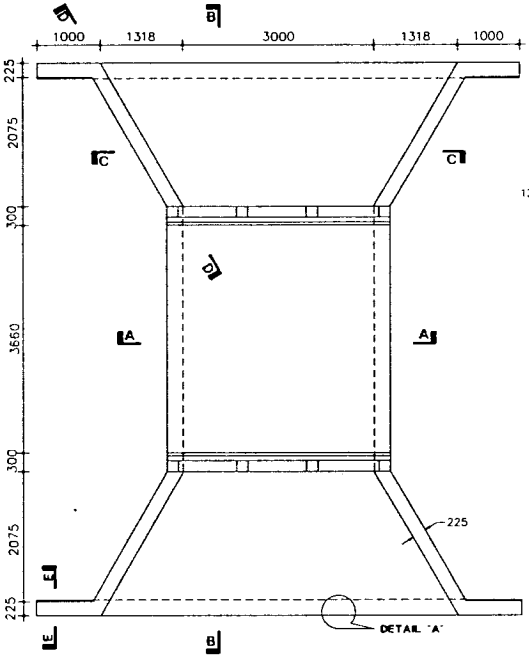
SHEET 1 OF 1
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.0m



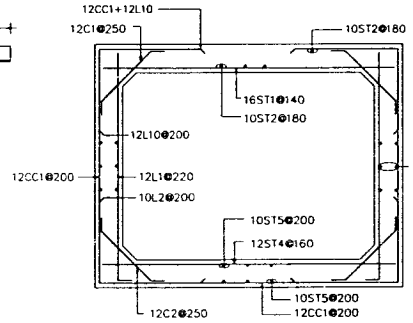
GENERAL ELEVATION



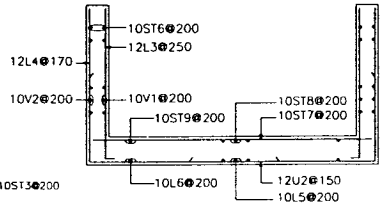
SECTION B-B



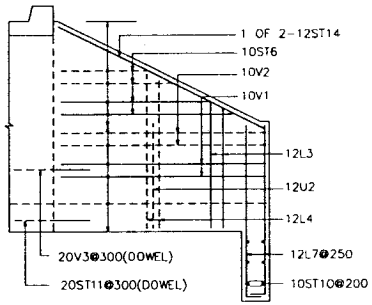
PLAN



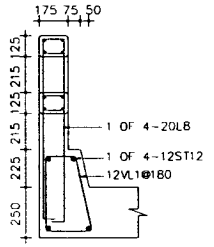
SECTION A-A (REINF. DETAIL)



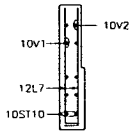
SECTION C-C (REINF. DETAIL)



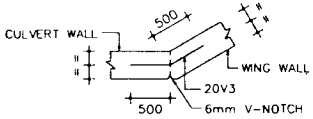
SECTION D-D (REINF. DETAIL)



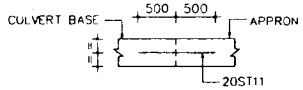
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

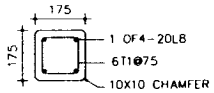
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	31	3400			X	3400
	10	ST2	16+20	4160				4160
	12	L10	2 X 21	876	1200			2076
B	12	CC1	22	2 X 1210	2 X 2410	3400		10640
O	10	ST3	4X 10	4160				4160
	12	ST4	27	3400				3400
X	10	ST5	2X 18	4160				4160
	12	L1	2X 20	2388	144			2532
	10	L2	2X 21	866	1200			2066
	12	C1	2X 20	144	615	144		903
	12	C2	2X 20	144	615	144		903
	20	ST11	2X 12	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Var.2522 To 972
I	12	L4	4X 16	Var. 2400 To 850 @ 103	Var. 1600 To 145 @ 97			Ver.4000 To 995
N	10	ST6	8X 8	Var. 2506 To 279 @ 318				Var.2506 To 279
G	10	V1	4X 3	2517	915			3432
A	10	V2	4X 3	2396	854			3250
P	10	ST7	2X 11	Var. 3442 To 5693 @ 225	"		"	Var.3442 To 5693
P	10	ST8	2X 16	2175				2175
O	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
N	12	U2	2X 13	Var. 1200 To 500 @ 53	Var. 3442 To 5693 @ 173	Same As 'a'		Var.5842 To 6693
&	10	L5	2X 17	2175	120			2295
C	10	L6	4X 7	Var 2102 To 149 @ 325	120			Var.2222 To 269
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 6	7486				8611
O	12	UT1	2X 18	144	2X 1025	100		2294
F	12	ST14	4X 2	2959				2959
F	12	ST12	2X 4	3460				3460
CURB	12	VL1	2X 20	204	419	295	410	1428
AND	20	L8	8X 4	846	120			966
	12	ST13	4X 4	3460				3460
CURB	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 36	2 x 85	2 x 135			440

LEGEND

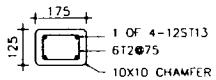
W.C. = Wearing Course

NOTES

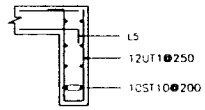
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for . a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 20 KN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :

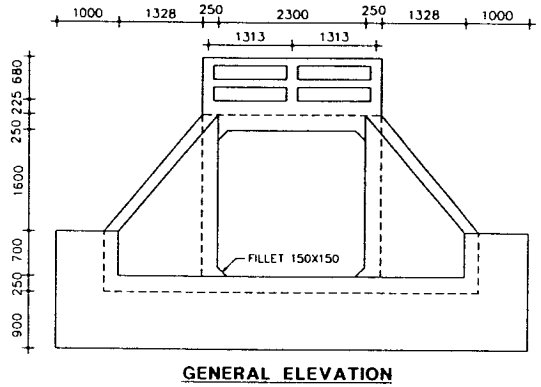
ISSUED BY :

CAD FILE REF : CULV\B1230201

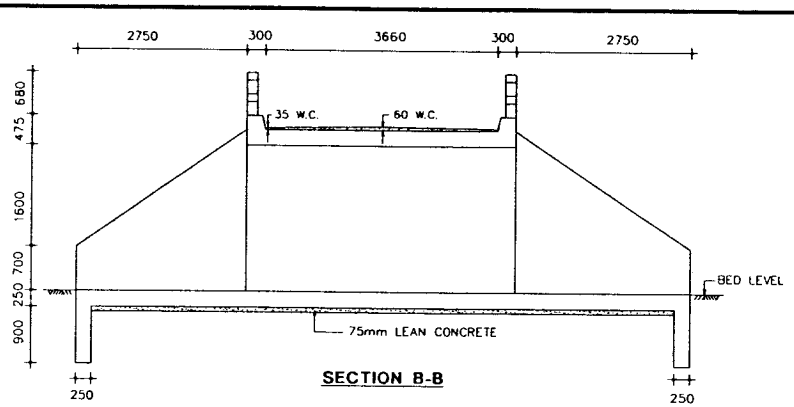
Web Copy

BC-65

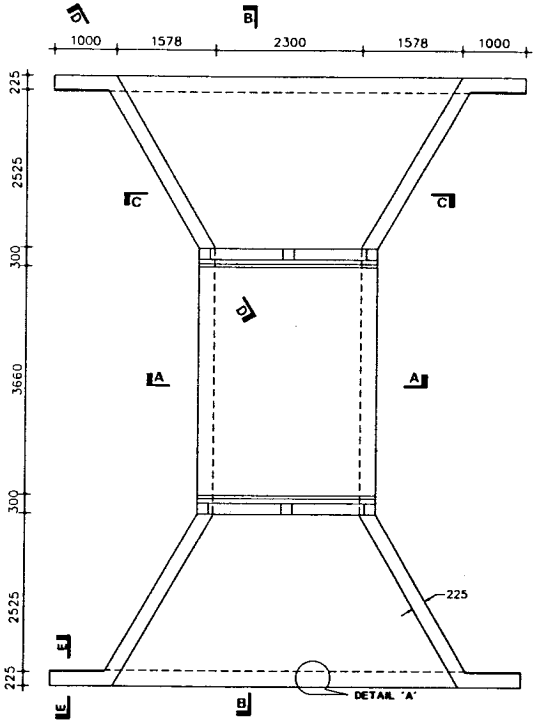
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 2.3m	
CLEAR HEIGHT : 2.3m	



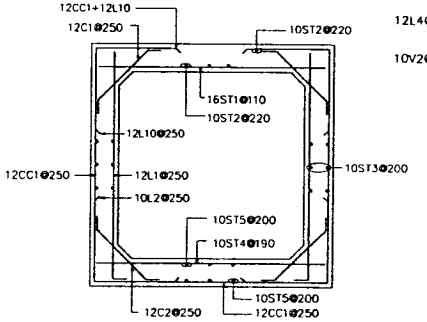
GENERAL ELEVATION



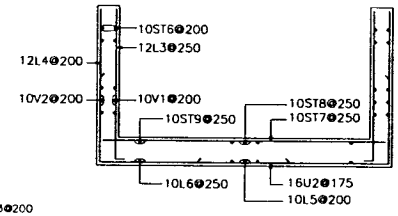
SECTION B-B



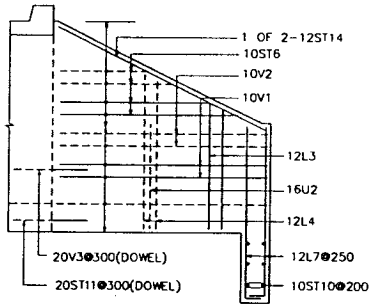
PLAN



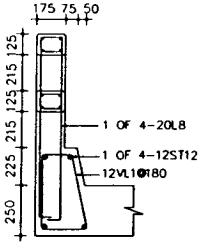
SECTION A-A (REINF. DETAIL)



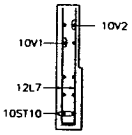
SECTION C-C (REINF. DETAIL)



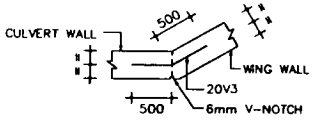
SECTION D-D (REINF. DETAIL)



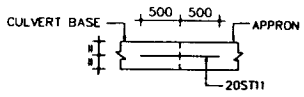
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

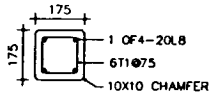
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	39	2700			X	2700
	10	ST2	12+14	4160				4160
	12	L10	2 X 17	976	966			1942
B	12	CC1	18	2 X 976	2 X 2710	2700		10072
	10	ST3	4X 11	4160				4160
O	10	ST4	23	2700				2700
	10	ST5	2X 15	4160				4160
X	12	L1	2X 18	2688	144			2832
	10	L2	2X 17	966	966			1932
	12	C1	2X 18	144	629	144		917
	12	C2	2X 18	144	615	144		903
	20	ST11	2X 10	1000				1000
	20	V3	4X 8	500	500			1000
	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Var.2818 To 968
W I N G	12	L4	4X 16	Var. 2700 To 850 @ 123	Var. 1320 To 145 @ 78			Var.4020 To 995
	10	ST6	8X 9	Var. 3026 To 279 @ 343				Var.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P	10	ST7	2X 13	Var. 2742 To 5513 @ 230				Var.3742 To 5513
O	10	ST8	2X 13	2625				2625
N	10	ST9	4X 9	Var. 2574 To 171 @ 343				Var.2574 To 171
&	16	U2	2X 14	Var. 1600 To 500 @ 78	Var. 2742 To 5513 @ 197	Same As 'a'		Var.5942 To 6513
C	10	L5	2X 13	2625	120			2745
U	10	L6	4X 8	Var 2552 To 149 @ 343	120			Var.2672 To 269
T O F F	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	7305				8430
	12	UT1	2X 21	144	2X 1025	100		2294
	12	ST14	4X 2	3559				3559
CURB	12	ST12	2X 4	2760				2760
	12	VL1	2X 16	204	419	295	410	1428
AND	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	2760				2760
RAILING	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 30	2 x 85	2 x 135			440

LEGEND

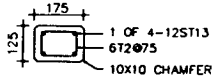
W.C. = Wearing Course

NOTES

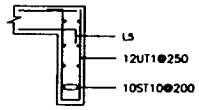
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 33 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.3m ROADWAY 3.66m

DATE :

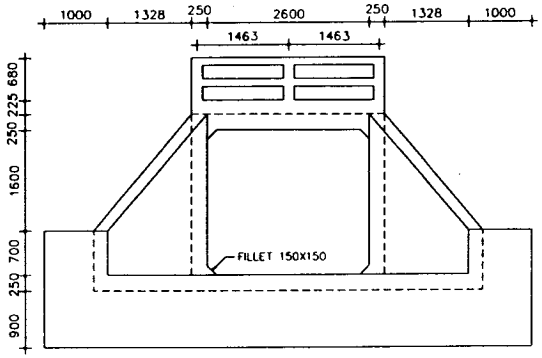
ISSUED BY :

CAD FILE REF : CULV\B1223231

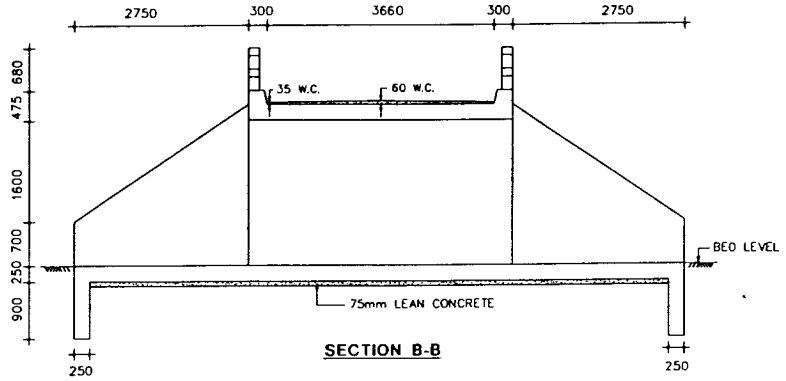
Web Copy

BC-66

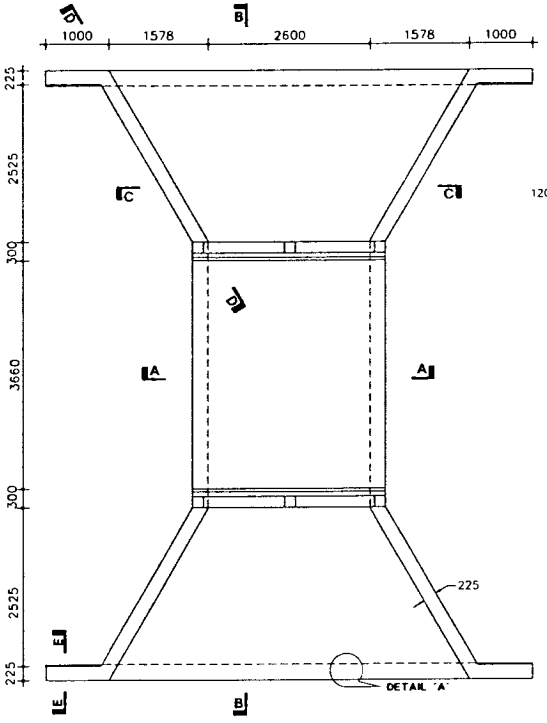
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 2.6m	
CLEAR HEIGHT : 2.3m	



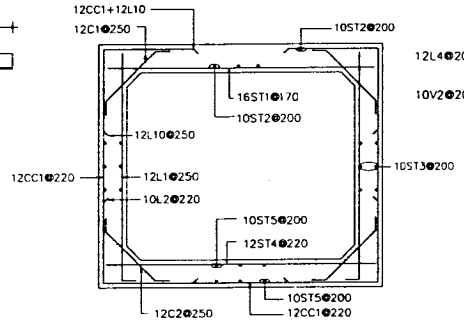
GENERAL ELEVATION



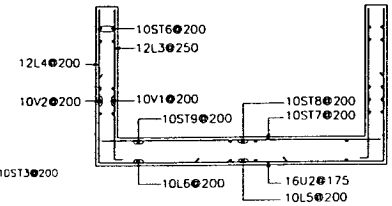
SECTION B-B



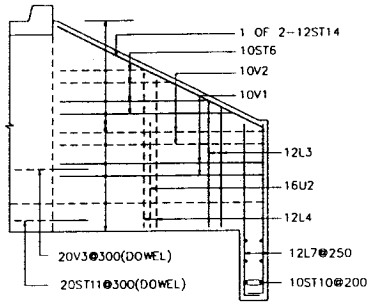
PLAN



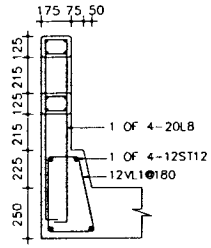
SECTION A-A (REINF. DETAIL)



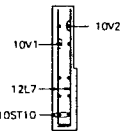
SECTION C-C (REINF. DETAIL)



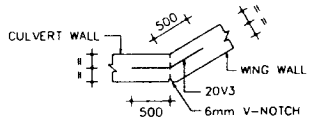
SECTION D-D (REINF. DETAIL)



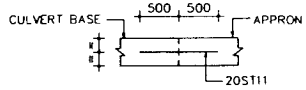
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

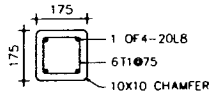
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	25	3000				3000
	10	ST2	144+16	4160				4160
	12	L10	2 X 19	976	1066			2042
B	12	CC1	20	2 X 1076	2 X 2710	3000		10572
	10	ST3	4X 11	4160				4160
O	12	ST4	20	3000				3000
	10	ST5	2X 16	4160				4160
X	12	L1	2X 18	2688	144			2832
	10	L2	2X 19	966	1066			2032
	12	C1	2X 18	144	629	144		917
	12	C2	2X 18	144	615	144		903
	20	ST11	2X 11	1000				1000
	20	V3	4X 9	500	500			1000
	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Var.2818 To 968
W I N G	12	L4	4X 16	Var. 2700 To 850 @ 123	Var. 1440 To 145 @ 86			Var.4140 To 995
	10	ST6	8X 9	Var. 3026 To 279 @ 343				Var.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P	10	ST7	2X 13	Var. 3042 To 5813 @ 230				Var.3042 To 5813
R O N & C U T O F F	10	ST8	2X 14	2625				2625
	10	ST9	4X 9	Var. 2574 To 171 @ 343				Var.2574 To 171
	16	U2	2X 14	Var. 1600 To 500 @ 78	Var. 3042 To 5813 @ 197	Same As'a'		Var.6242 To 6813
	10	L5	2X 15	2625	120			2745
	10	L6	4X 9	Var 2552 To 149 @ 343	120			Var.2672 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	7605				8730
	12	UT1	2X 21	144	2X 1025	100		2294
	12	ST14	4X 2	3559				3559
CURB AND RAILING	12	ST12	2X 4	3060				3060
	12	VL1	2X 18	204	419	295	410	1428
	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	3060				3060
	6	T1	6X 6	2 x 135	2 x 135			540
	6	T2	4X 34	2 x 85	2 x 135			440

LEGEND

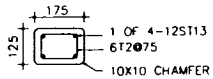
W.C. = Wearing Course

NOTES

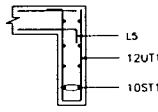
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :

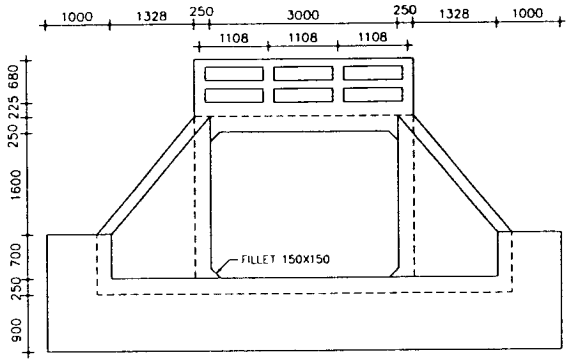
ISSUED BY :

CAD FILE REF : CULV\B1226231

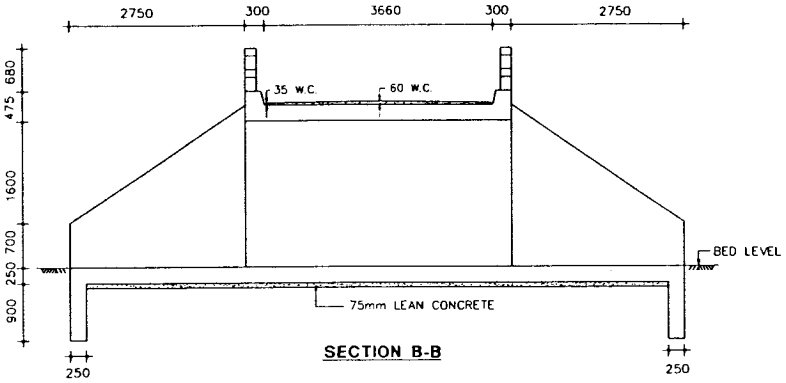
Web Copy

BC-67

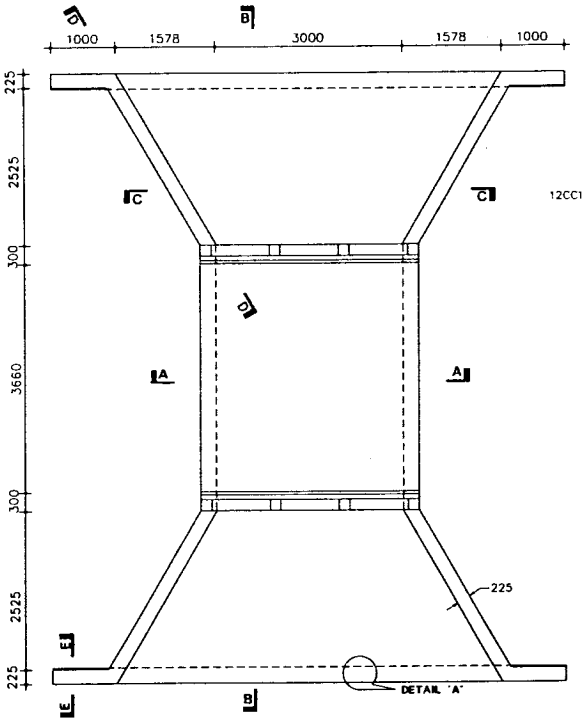
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 3.0m	
CLEAR HEIGHT : 2.3m	



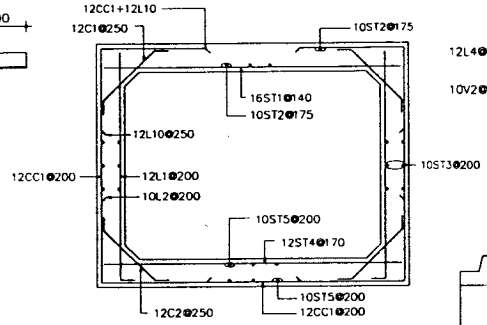
GENERAL ELEVATION



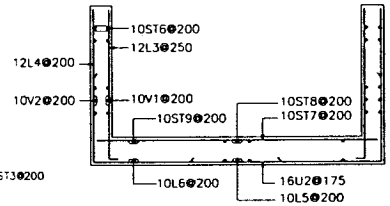
SECTION B-B



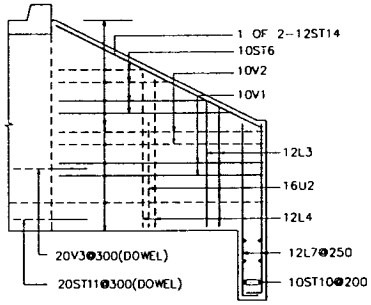
PLAN



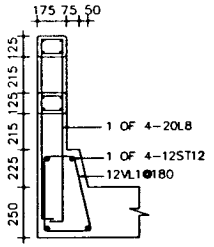
SECTION A-A (REINF. DETAIL)



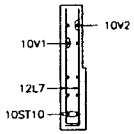
SECTION C-C (REINF. DETAIL)



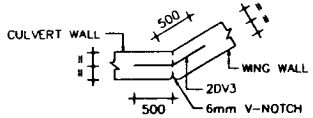
SECTION D-D (REINF. DETAIL)



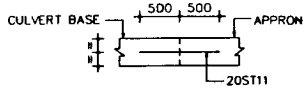
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



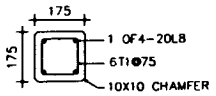
DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

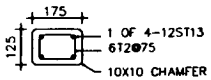
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	31	3400				3400
	10	ST2	16+21	4160				4160
	12	L10	2 X 21	976	1200			2176
B	12	CC1	22	2 X 1210	2 X 2710	3400		11240
	10	ST3	4X 11	4160				4160
O	12	ST4	25	3400				3400
	10	ST5	2X 18	4160				4160
X	12	L1	2X 22	2688	144			2832
	10	L2	2X 21	966	1200			2166
	12	C1	2X 22	144	629	144		917
	12	C2	2X 22	144	615	144		903
	20	ST11	2X 12	1000				1000
	20	V3	4X 9	500	500			1000
	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Var.2818 To 968
W I N G	12	L4	4X 16	Var. 2700 To 850 @ 123	Ver. 1600 To 145 @ 97			Var.4300 To 995
	10	ST6	8X 9	Var. 3026 To 279 @ 343				Var.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P R O N &	10	ST7	2X 13	Var. 3442 To 6213 @ 230				Var.3442 To 6213
	10	ST8	2X 16	2625				2625
	10	ST9	4X 9	Var. 2574 To 171 @ 343				Var.2574 To 171
	16	U2	2X 14	Var. 1600 To 500 @ 78	Var. 3442 To 6213 @ 197	Same As'a'		Var.6642 To 7213
C	10	L5	2X 17	2625	120			2745
U	10	L6	4X 8	Var 2552 To 149 @ 343	120			Var.2672 To 269
T	12	L7	8X 4	1725	144			1869
O	10	ST10	4X 5	8005				9130
F	12	UT1	2X 21	144	2X 1025	100		2294
F	12	ST14	4X 2	3559				3559
CURB	12	ST12	2X 4	3460				3460
	12	VL1	2X 20	204	419	295	410	1428
AND	20	L8	8X 4	1071	120			1191
	12	ST13	4X 4	3460				3460
RAILING	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 36	2 x 85	2 x 135			440

LEGEND
W.C. = Wearing Course

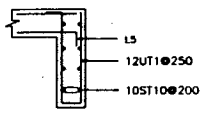
NOTES
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 30 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

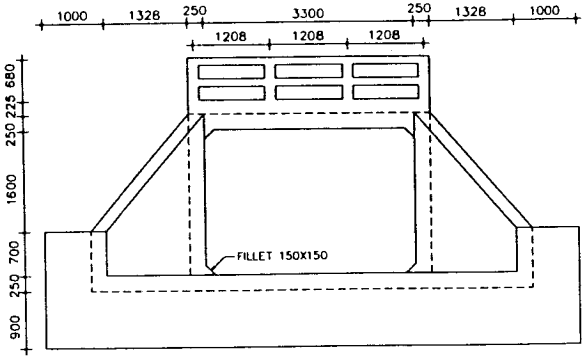
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1230231	

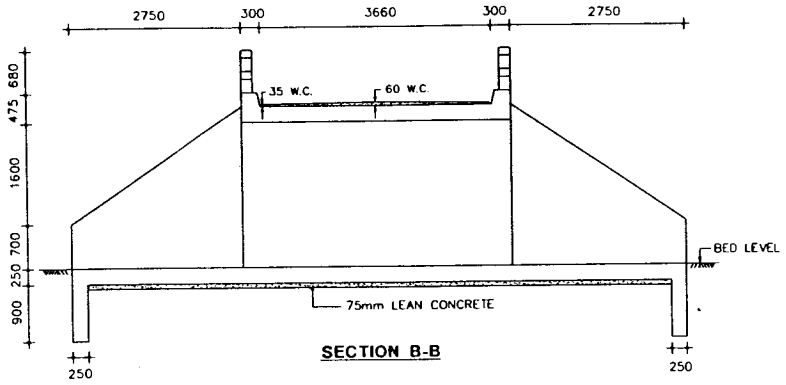
Web Copy

BC-68

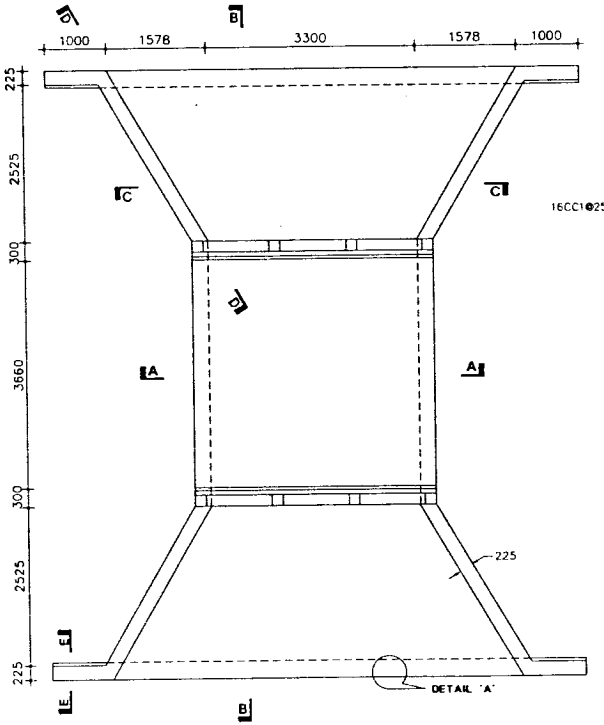
SHEET 1 OF 1	
LIVE LOAD : AASHTO H15	
CLEAR SPAN : 3.3m	
CLEAR HEIGHT : 2.3m	



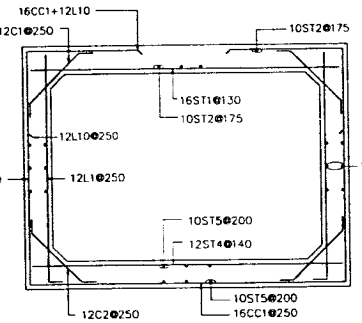
GENERAL ELEVATION



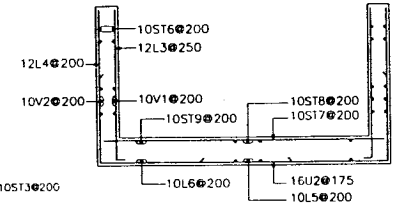
SECTION B-B



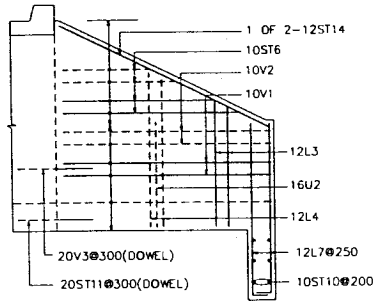
PLAN



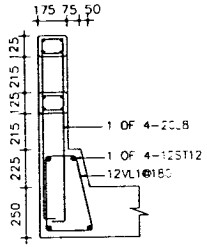
SECTION A-A (REINF. DETAIL)



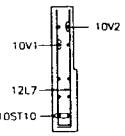
SECTION C-C (REINF. DETAIL)



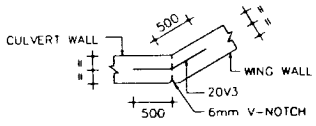
SECTION D-D (REINF. DETAIL)



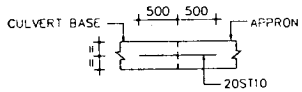
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

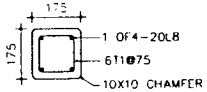
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	33	3700			x	3700
	10	ST2	18+23	4160				4160
	12	L10	2 X 17	976	1300			2276
B	16	CC1	18	2 X 1310	2 X 2710	3700		11740
	10	ST3	4X 11	4160				4160
0	12	ST4	31	3700				3700
	10	ST5	2X 20	4160				4160
X	12	L1	2X 18	2684	144			2828
	12	C1	2X 18	144	618	144		906
	12	C2	2X 18	144	604	144		892
	20	ST11	2X 13	1000				1000
	20	V3	4X 9	500	500			1000
W	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Var.2818 To 968
I	12	L4	4X 16	Var. 2700 To 850 @ 123	Var. 1720 To 145 @ 105			Var.4420 To 995
N G	10	ST6	8X 10	Var. 3026 To 279 @ 343				Var.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P R	10	ST7	2X 13	Var. 3742 To 6513 @ 230				Var.3742 To 6513
0	10	ST8	2X 18	2625				2625
N	10	ST9	4X 9	Var. 2574 To 171 @ 343				Var.2574 To 171
&	16	U2	2X 14	Var. 1600 To 500 @ 78	Var. 3742 To 6513 @ 197	Same As'a'		Var.6942 To 7513
C	10	L5	2X 18	2625	120			2745
U	10	L6	4X 9	Var 2552 To 149 @ 343	120 X			Var.2672 To 269
T 0	12	L7	8X 4	1725	144			1869
F	10	ST10	4X 5	8305				9430
F	12	UT1	2X 21	144	2X 1025	100		2294
	12	ST14	4X 2	3559				3559
CURB	12	ST12	2X 4	3760				3760
	12	VL1	2X 22	204	419	295	410	1428
AND	20	L8	8X 4	1071	120			1191
	12	ST13	4X 4	3760				3760
RAILING	6	T1	8X 6	2 x 135	2 x 135			540
	6	T2	4X 42	2 x 85	2 x 135			440

LEGEND

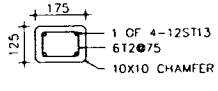
W.C. = Wearing Course

NOTES

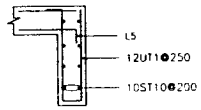
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Raft-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 28 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

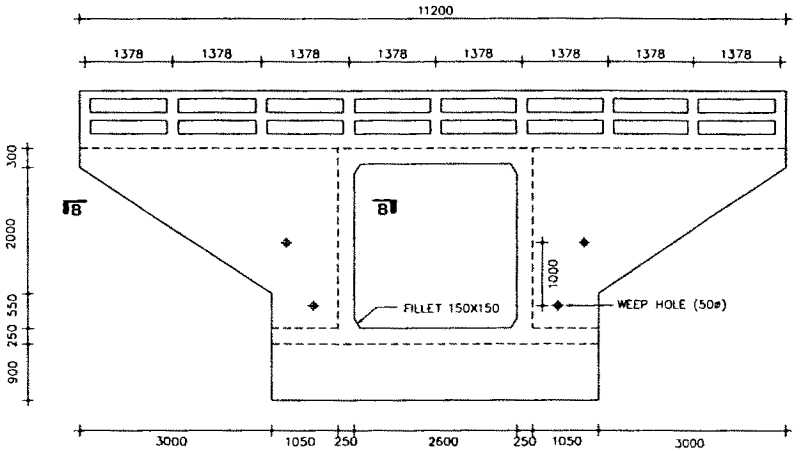
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m. x 2.3m ROADWAY 3.66m

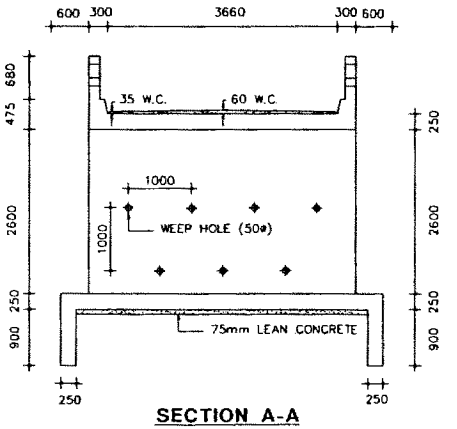
DATE :	ISSUED BY
CAD FILE REF : CULV\B12S3231	

Web Copy

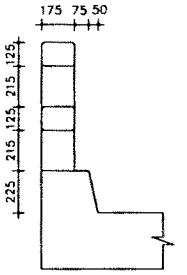
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



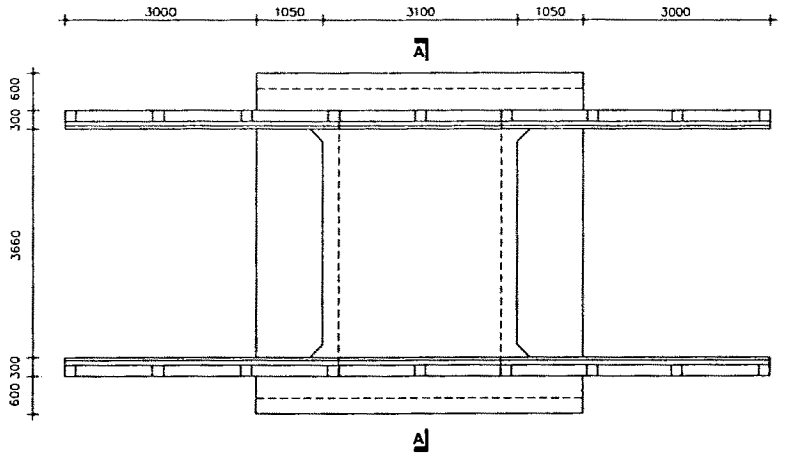
GENERAL ELEVATION



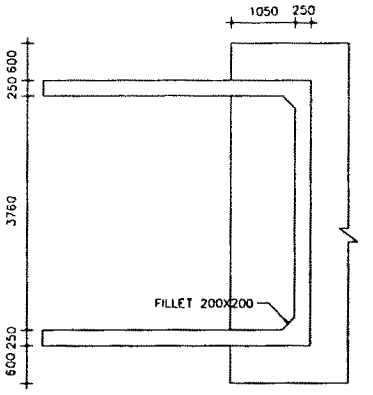
SECTION A-A



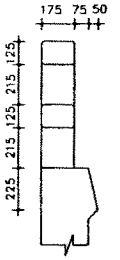
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

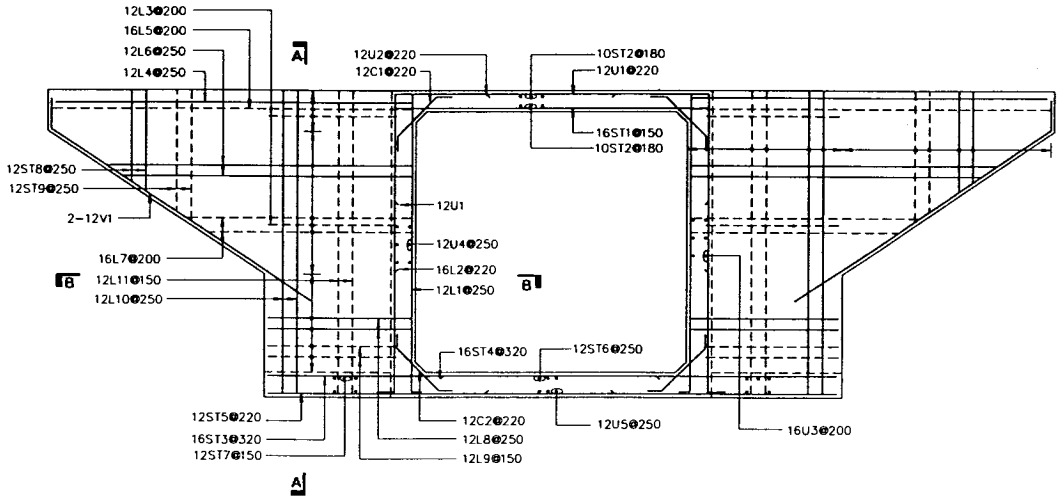
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.6m ROADWAY 3.66m

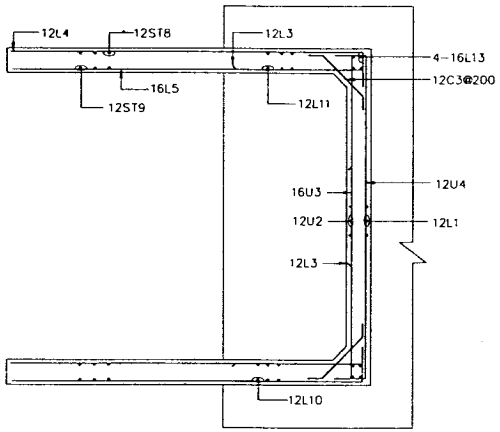
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1226261	

Web Copy

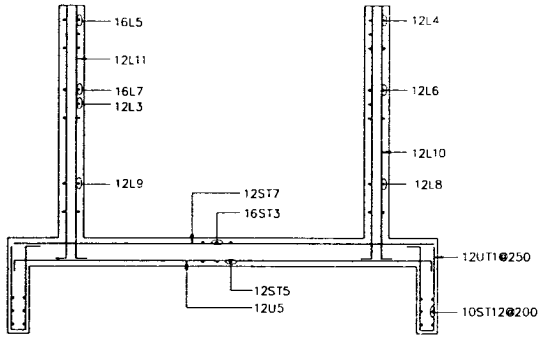
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



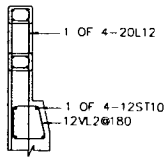
REINFORCEMENT DETAILS



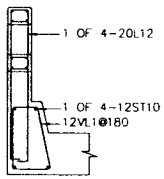
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



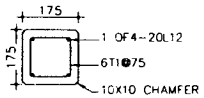
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

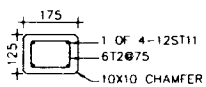
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	29	3000				3000
0	10	ST2	2 X 18	4160				4160
X	16	ST3	18	5100				5100
	16	ST4	17	1560				1560
A	12	ST5	26	5100				5100
P	12	ST6	14	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 20	144	621	144		909
O	12	C2	2 X 20	144	598	144		886
N	12	L1	2 X 15	2986	250			3236
	16	L2	2 X 18	1054	250			1304
&	16	L13	4 X 4	2986	250			3236
	12	U1	20	1076	3000	1076		5152
C	12	U2	2 X 20	1066	3010	1066		5142
U	16	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	394	4160	394		4948
O	12	U5	22	250	5290	250		5790
F	10	ST12	4 X 5	5050				5050
F	12	UT1	2 X 22	144	2 X 1025	100		2294
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1436
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3038	250			3288
N	12	L11	4 X 7	3038	250			3288
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	680	144		968
	12	ST10	2 X 4	11150				11150
CURB	12	VL1	2 X 19	204	419	295	410	1428
	12	VL2	4 X 23	204	204	248	200	956
AND	20	L12	18 X 4	1071	120			1191
	12	ST11	4 X 4	11160				11160
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21** MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276** MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ **43** kN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT SINGLE VENT 2.6m x 2.6m ROADWAY 3.66m

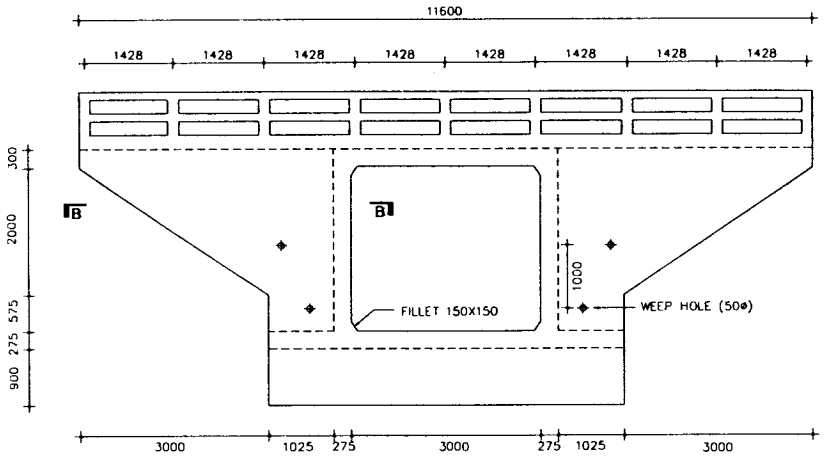
DATE :

ISSUED BY :

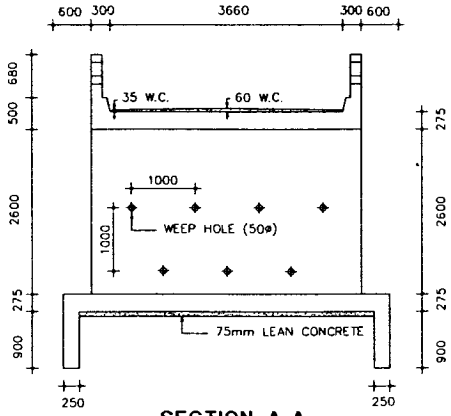
CAD FILE REF : CULV\B1226262

Web Copy

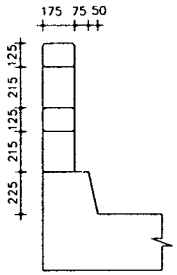
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



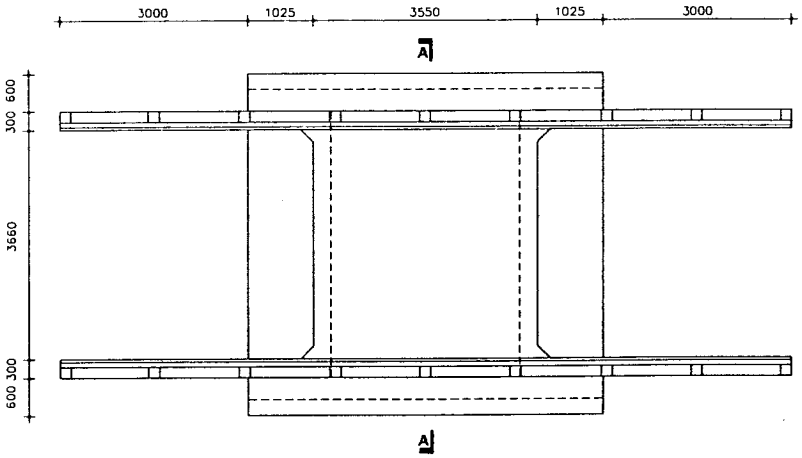
GENERAL ELEVATION



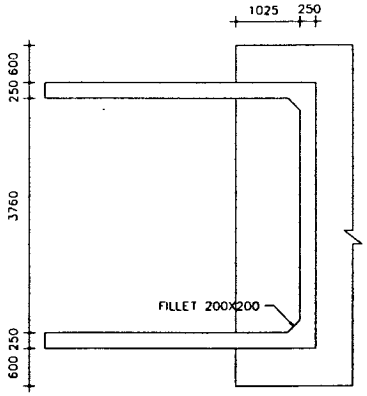
SECTION A-A



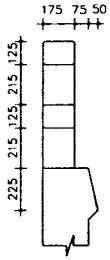
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

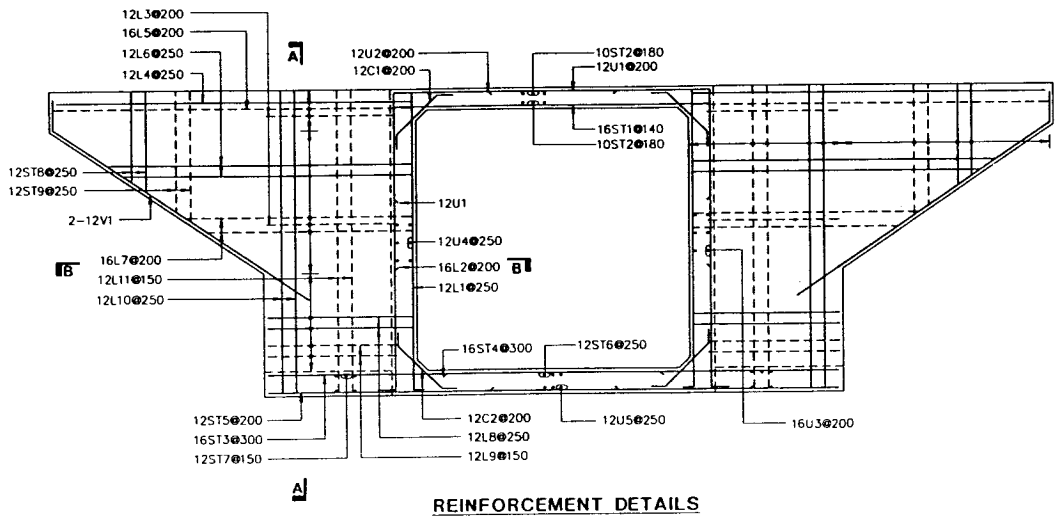
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

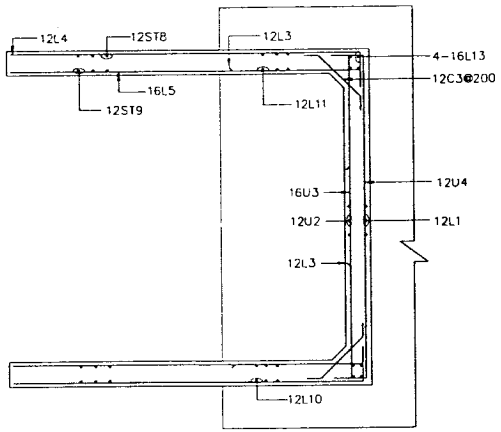
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.0m x 2.6m ROADWAY 3.66m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1230261

Web Copy

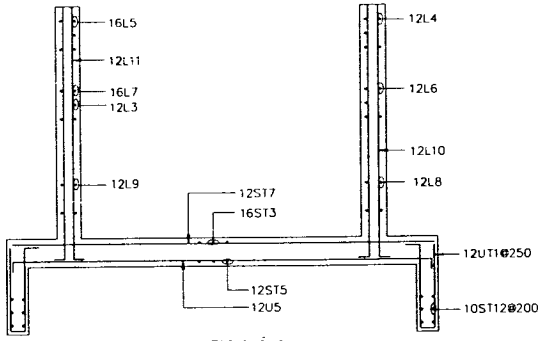
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



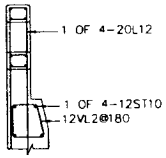
REINFORCEMENT DETAILS



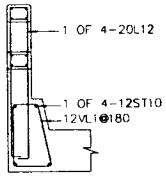
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



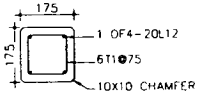
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

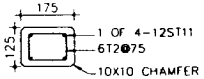
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	3450				3450
O	10	ST2	2 X 21	4160				4160
X	16	ST3	19	5500				5500
	16	ST4	18	1800				1800
A	12	ST5	28	5500				5500
P	12	ST6	16	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 22	144	691	144		979
O	12	C2	2 X 22	144	669	144		957
N	12	L1	2 X 15	3036	250			3286
	16	L2	2 X 20	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	22	1101	3450	1101		5652
C	12	U2	2 X 22	1225	3060	1225		5510
U	16	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	419	4160	419		4998
O	12	U5	23	250	5290	250		5790
F	10	ST12	4 X 5	5450				5450
F	12	UT1	2 X 24	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	715	144		1003
	12	ST10	2 X 4	11550				11550
CURB	12	VL1	2 X 21	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
AND	20	L12	18 X 4	1096	120			1116
	12	ST11	4 X 4	11560				11560
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 44 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

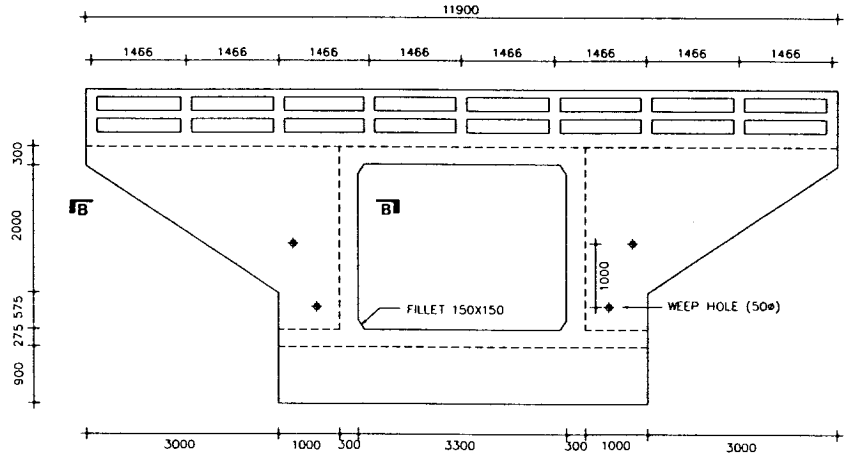
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 2.6m ROADWAY 3.66m

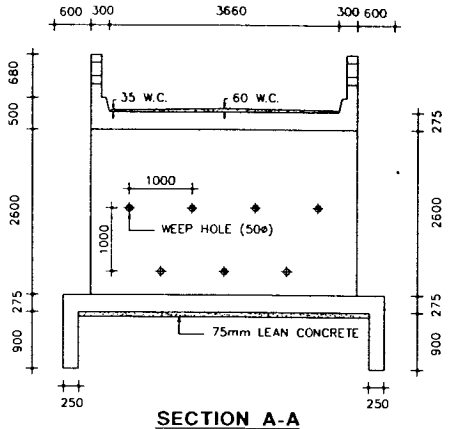
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1230262

Web Copy

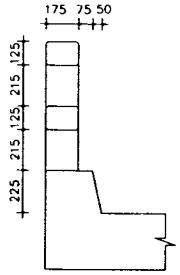
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



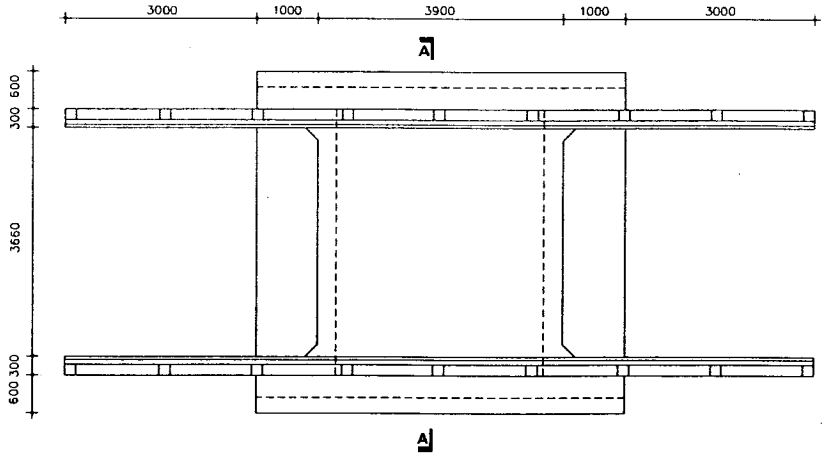
GENERAL ELEVATION



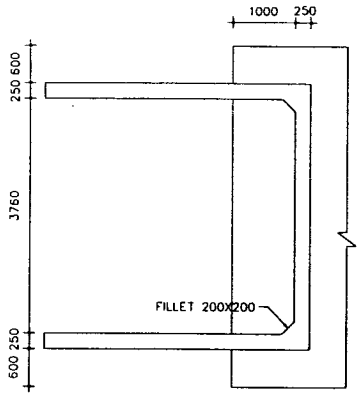
SECTION A-A



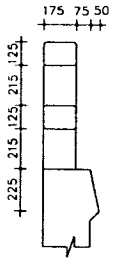
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

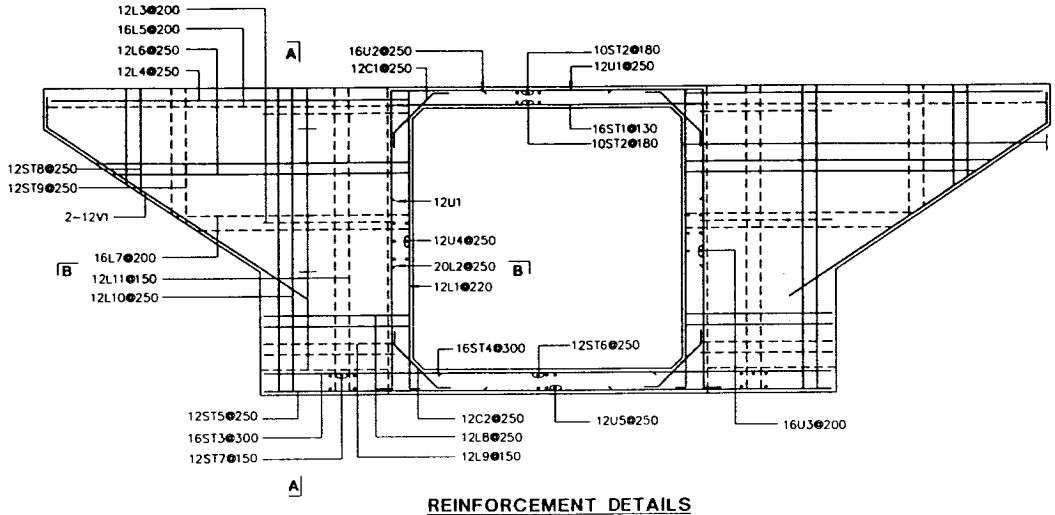
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 2.6m ROADWAY 3.66m

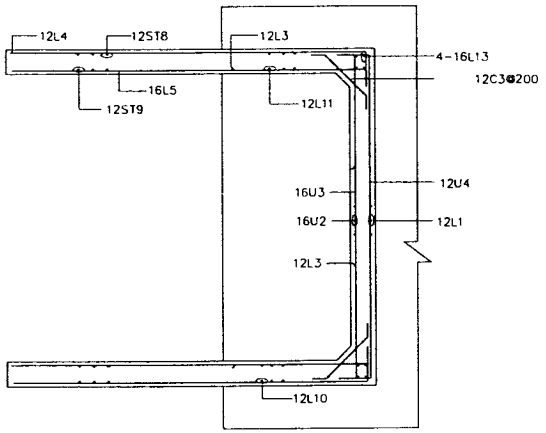
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1233261	

Web Copy

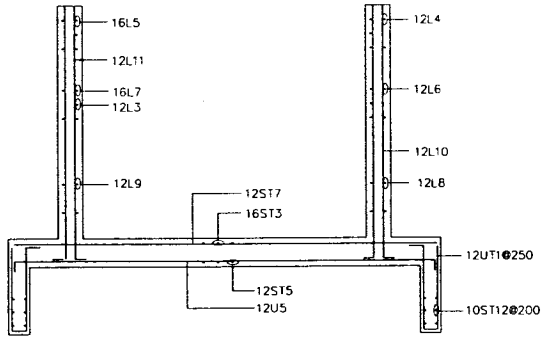
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



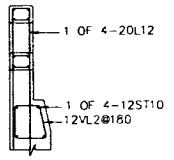
REINFORCEMENT DETAILS



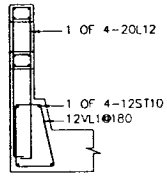
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



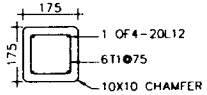
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

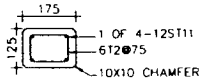
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	3800				3800
O	10	ST2	2 X 23	4160				4160
X	16	ST3	19	5800				5800
	16	ST4	18	1980				1980
A	12	ST5	23	5800				5800
P	12	ST6	17	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 18	144	715	144		1003
O	12	C2	2 X 18	144	698	144		986
N	12	L1	2 X 17	3036	250			3286
	20	L2	2 X 16	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	18	1101	3800	1101		6002
C	16	U2	2 X 18	1350	3060	1350		5760
U	16	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	444	4160	444		5048
O	12	U5	25	250	5290	250		5790
F	10	ST12	4 X 5	5750				5750
F	12	UT1	2 X 25	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	751	144		1039
	12	ST10	2 X 4	11850				11850
CURB	12	VL1	2 X 23	204	445	300	435	1484
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1096	120			1116
	12	ST11	4 X 4	11860				11860
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21**MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276**MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ **42** kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

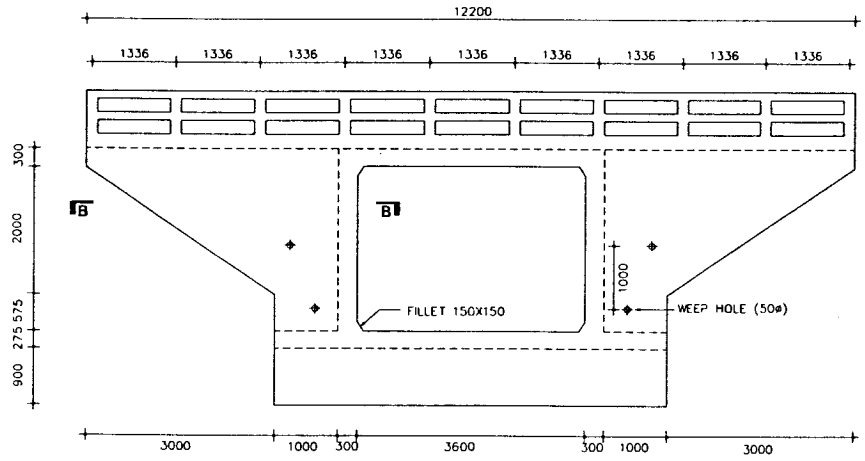
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1233262

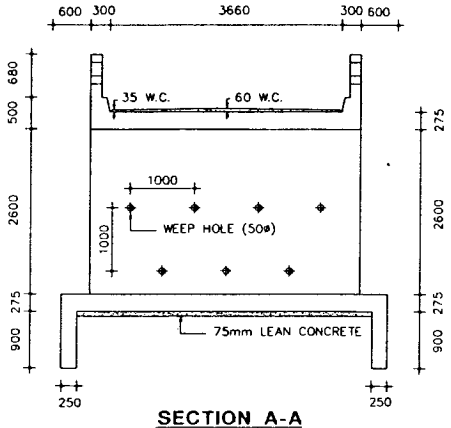
Web Copy

BC-75

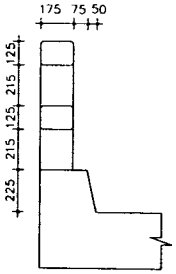
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



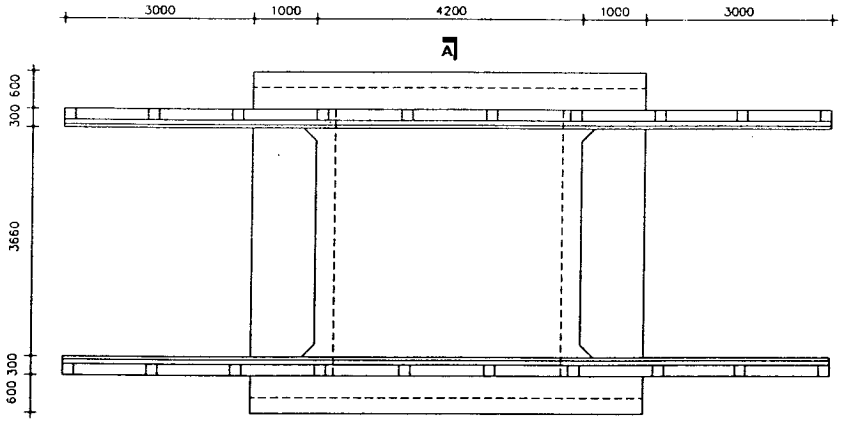
GENERAL ELEVATION



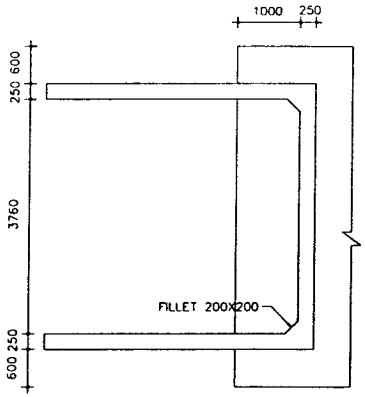
SECTION A-A



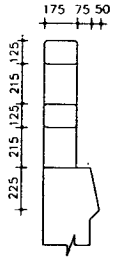
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

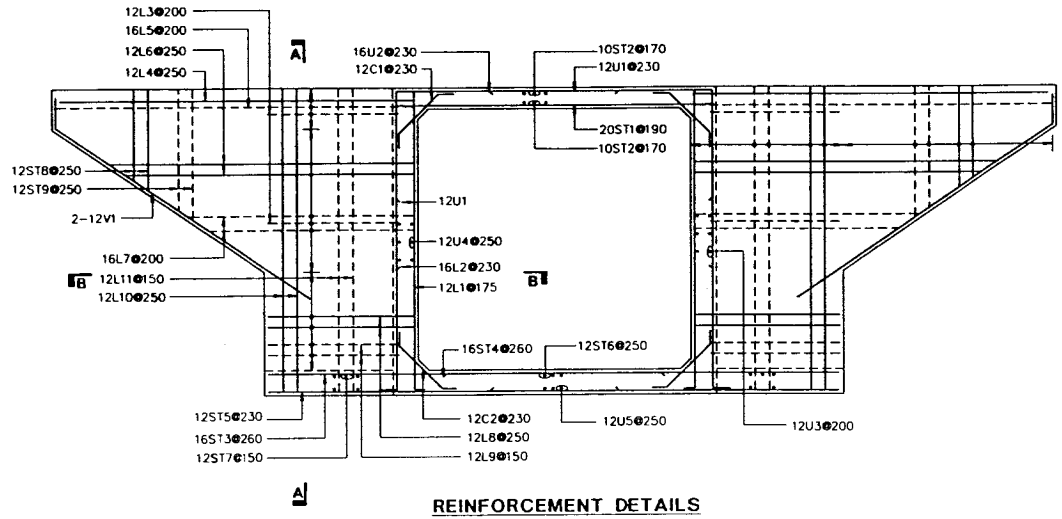
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and verticolly as shown in drawing; filter material shall be provided as per specification.

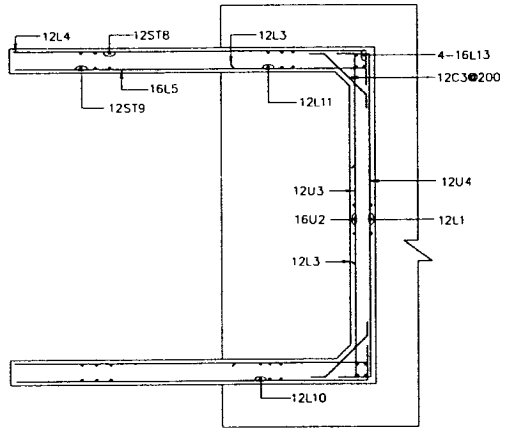
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.6m x 2.6m ROADWAY 3.66m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1236261

Web Copy

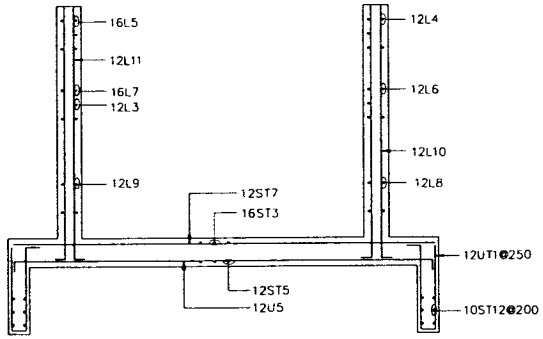
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



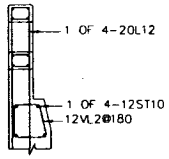
REINFORCEMENT DETAILS



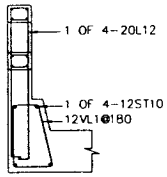
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



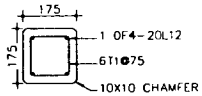
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

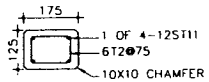
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	23	4100				4100
0	10	ST2	2 X 26	4160				4160
X	16	ST3	22	6100				6100
	16	ST4	21	2160				2160
A	12	ST5	25	6100				6100
P	12	ST6	18	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 20	144	721	144		1009
O	12	C2	2 X 20	144	710	144		998
N	12	L1	2 X 21	3036	250			3286
	16	L2	2 X 18	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	4100	1101		6302
C	16	U2	2 X 20	1450	3060	1450		5960
U	12	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	444	4160	444		5048
O	12	U5	26	250	5290	250		5790
F	10	ST12	4 X 5	6050				6050
F	12	UT1	2 X 26	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	751	144		1039
	12	ST10	2 X 4	12150				12150
CURB	12	VL1	2 X 25	204	445	300	435	1484
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	20 X 4	1096	120			1216
	12	ST11	4 X 4	12160				12160
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 41 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

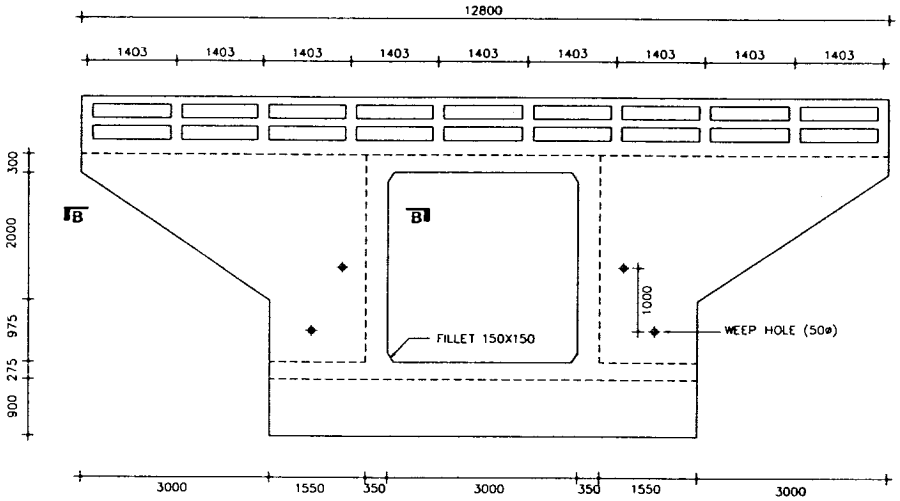
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1236262

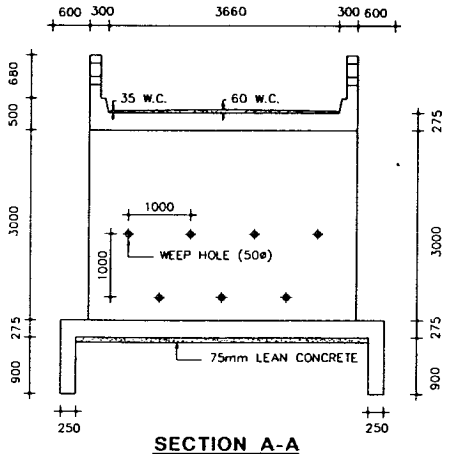
Web Copy

BC-77

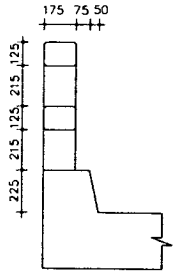
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



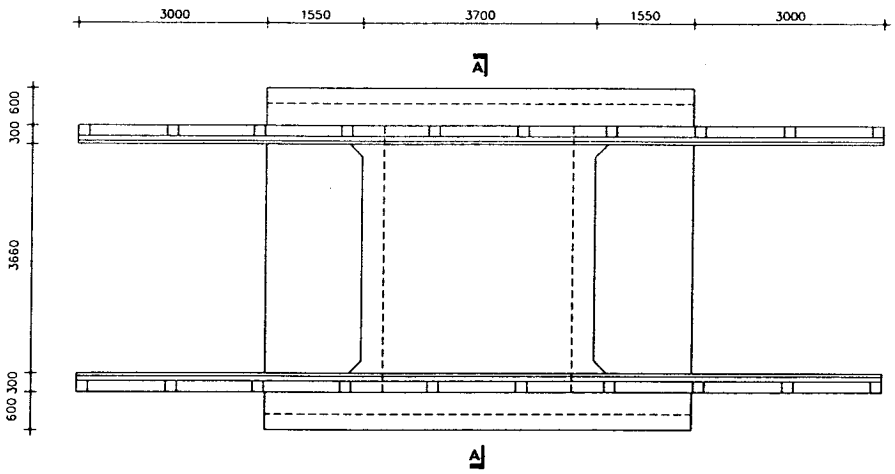
GENERAL ELEVATION



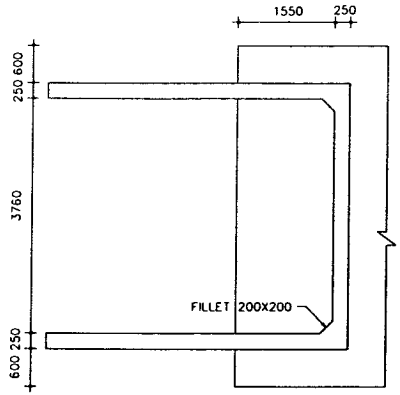
SECTION A-A



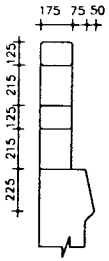
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

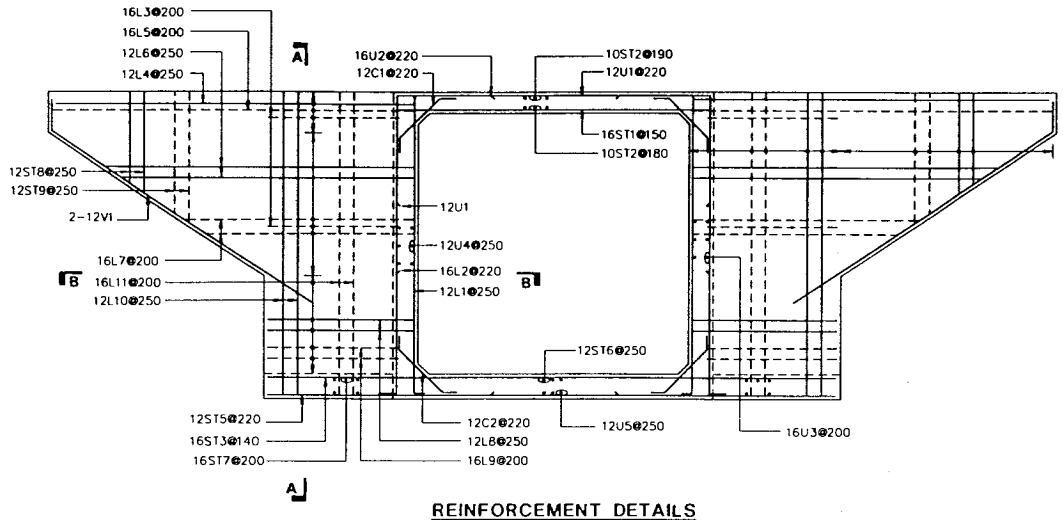
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 3.66m

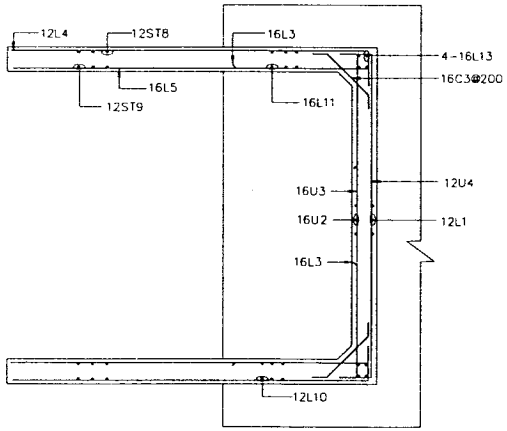
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1230301	

Web Copy

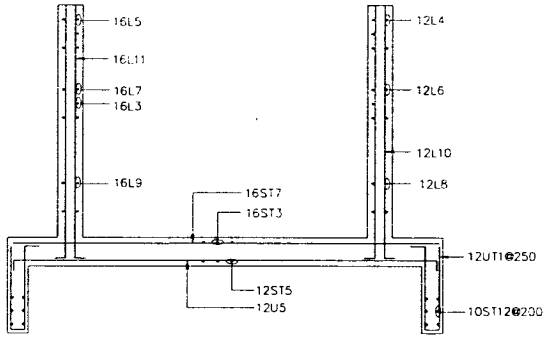
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



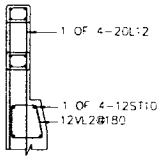
REINFORCEMENT DETAILS



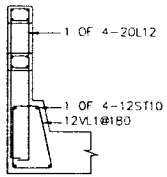
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



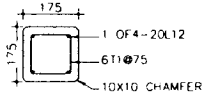
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

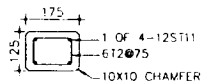
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	29	3600				3600
0	10	ST2	2 X 21	4160				4160
X	16	ST3	40	6700				6700
A	12	ST5	26	6700				6700
P	12	ST6	16	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 20	144	786	144		1074
0	12	C2	2 X 20	144	775	144		1063
N	12	L1	2 X 15	3436	250			3686
	16	L2	2 X 18	1213	250			1463
&	16	L13	4 X 4	3436	250			3686
	12	U1	20	1235	3600	1235		6070
C	16	U2	2 X 20	1300	3460	1300		6060
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
0	12	U5	28	250	5290	250		5790
F	10	ST12	4 X 5	6650				6650
F	12	UT1	2 X 28	144	2 X 1025	100		2344
	16	L3	4 X 13	1838	1220			3058
	12	L4	4 X 1	4788	394			5182
	16	L5	4 X 2	4788	250			5038
W	12	L6	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L7	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
I	12	L8	4 X 4	1788	394			2182
	16	L9	4 X 5	1788	1220			3008
	12	L10	4 X 6	3488	250			3738
N	16	L11	4 X 8	3488	250			3738
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
	12	ST10	2 X 4	12750				12750
CURB	12	VL1	2 X 22	204	445	300	435	1484
	12	VL2	4 X 25	204	204	248	200	956
AND	20	L12	20 X 4	1096	120			1116
	12	ST11	4 X 4	12760				12760
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21**MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276**MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ **50** kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

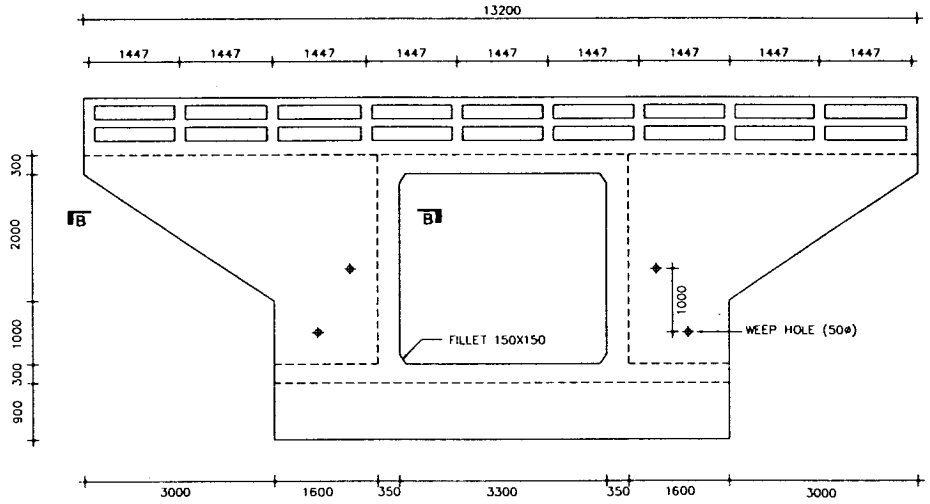
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 3.66m

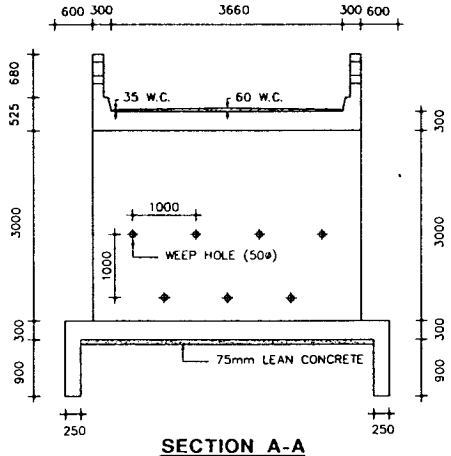
DATE :
ISSUED BY :
CAD FILE REF : CULV\B1230302

Web Copy

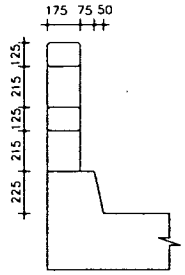
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



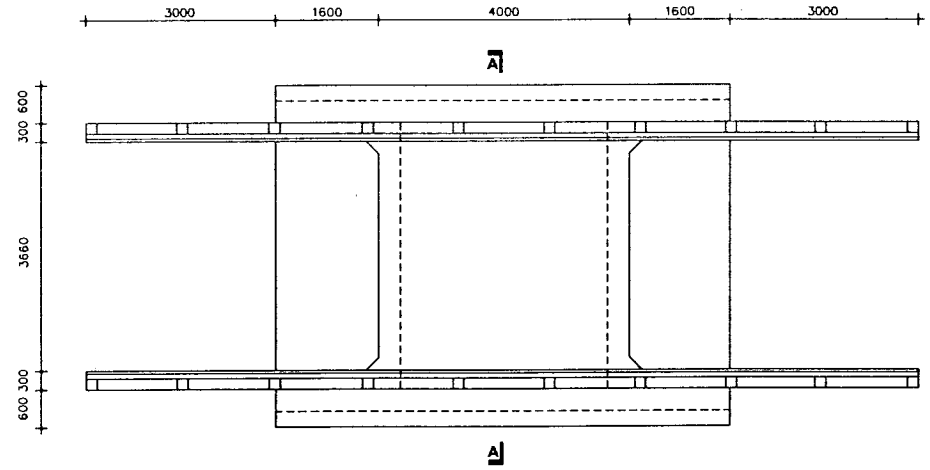
GENERAL ELEVATION



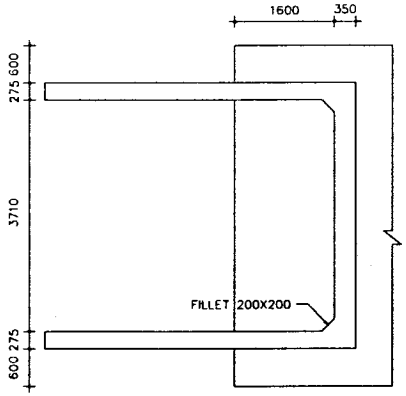
SECTION A-A



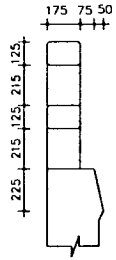
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

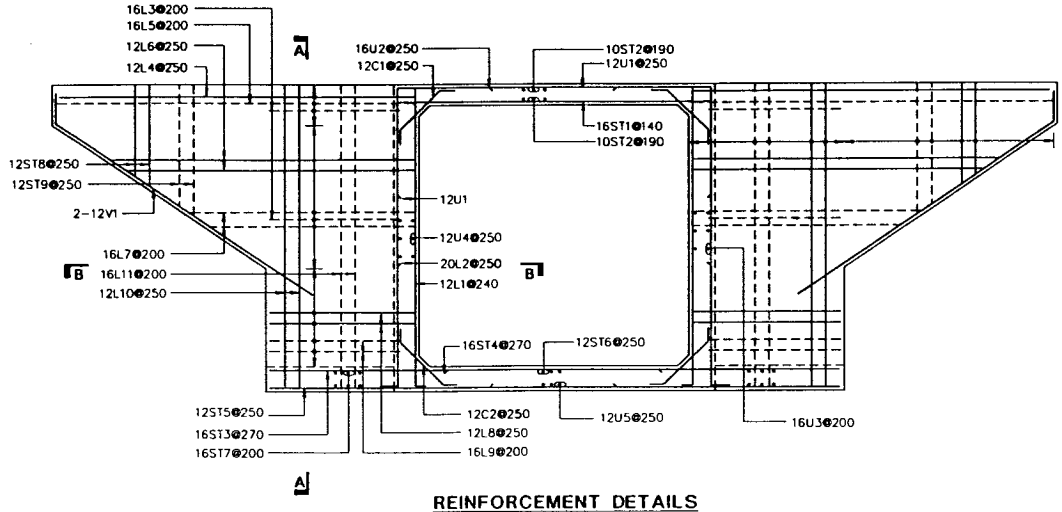
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

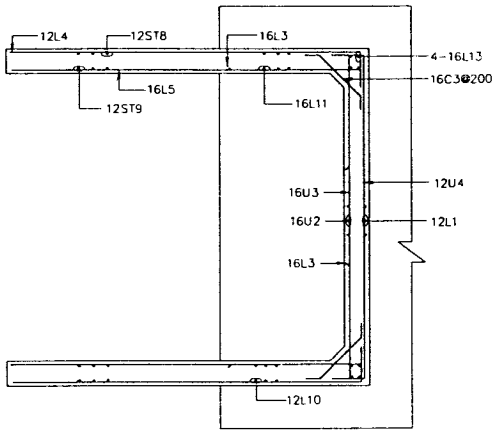
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 3.3m x 3.0m ROADWAY 3.66m
DATE : ISSUED BY :
CAD FILE REF : CULV\B1233301

Web Copy

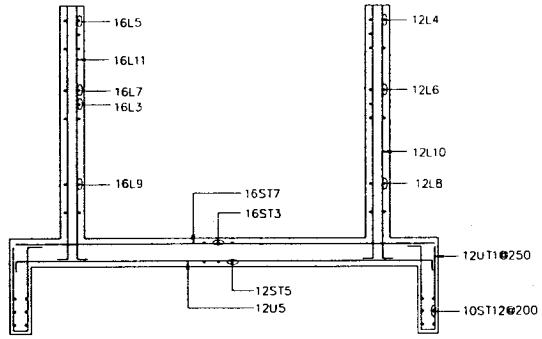
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



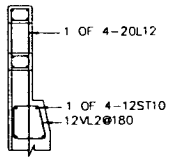
REINFORCEMENT DETAILS



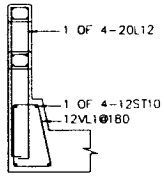
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



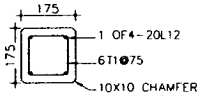
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

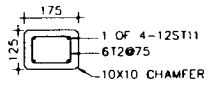
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	3900				3900
O	10	ST2	2 X 22	4160				4160
X	16	ST3	21	7100				7100
	16	ST4	20	1980				1980
A	12	ST5	23	7100				7100
P	12	ST6	17	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 18	144	821	144		1109
O	12	C2	2 X 18	144	804	144		1092
N	12	L1	2 X 15	3486	250			3736
	20	L2	2 X 16	1238	250			1488
&	16	L13	4 X 4	3486	250			3736
	12	U1	18	1260	3900	1260		6420
C	16	U2	2 X 18	1400	3510	1400		6310
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
O	12	U5	30	250	5290	250		5790
F	10	ST12	4 X 5	7050				7050
F	12	UT1	2 X 30	144	2 X1075	100		2394
	16	L3	4 X 13	1888	1220			3108
	12	L4	4 X 1	4836	419			5257
	16	L5	4 X 2	4838	250			5088
W	12	L6	4 X 9	Var. 4809 To 1838 @ 371	419			Var.5228 To 2257
	16	L7	4 X 11	Var.4809To 1838 @ 297	250			Var. 5059 To 2088
I	12	L8	4 X 4	1838	419			2257
	16	L9	4 X 5	1838	1220			3058
	12	L10	4 X 7	3538	250			3788
N	16	L11	4 X 8	3538	250			3788
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13150				13150
CURB	12	VL1	2 X 24	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	20X 4	1121	120			1241
	12	ST11	4 X 4	13160				13160
RAILING	6	T1	20X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

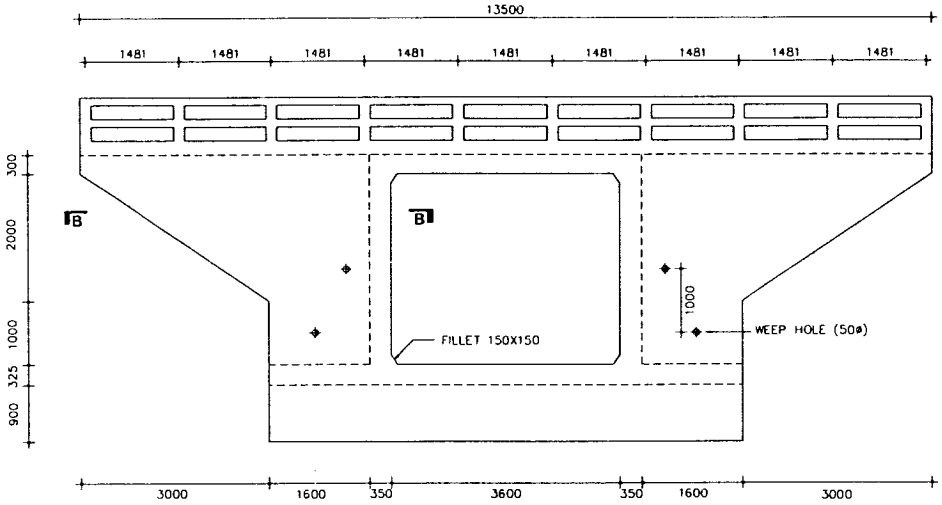
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1233302

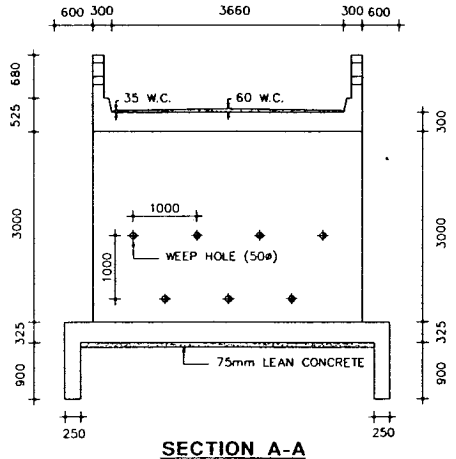
Web Copy

BC-81

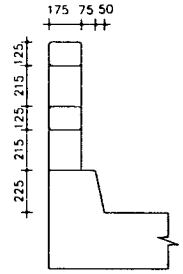
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



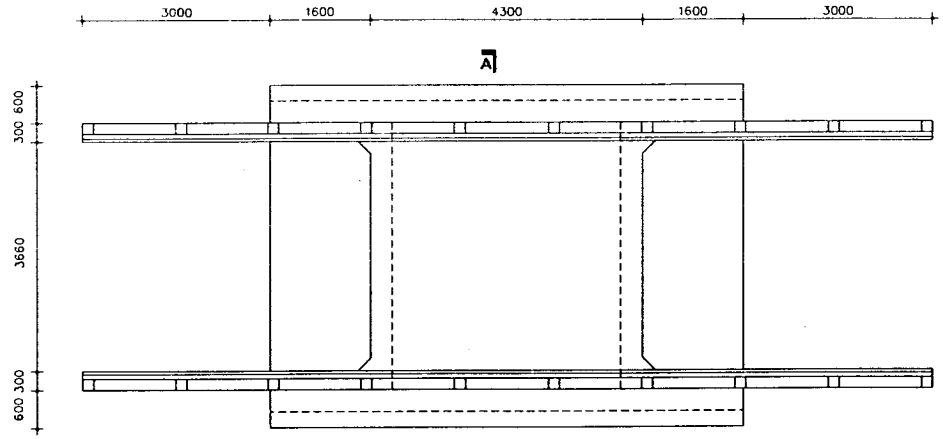
GENERAL ELEVATION



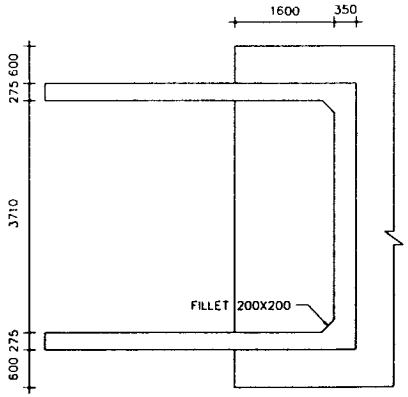
SECTION A-A



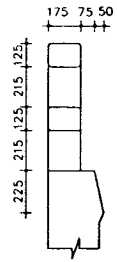
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

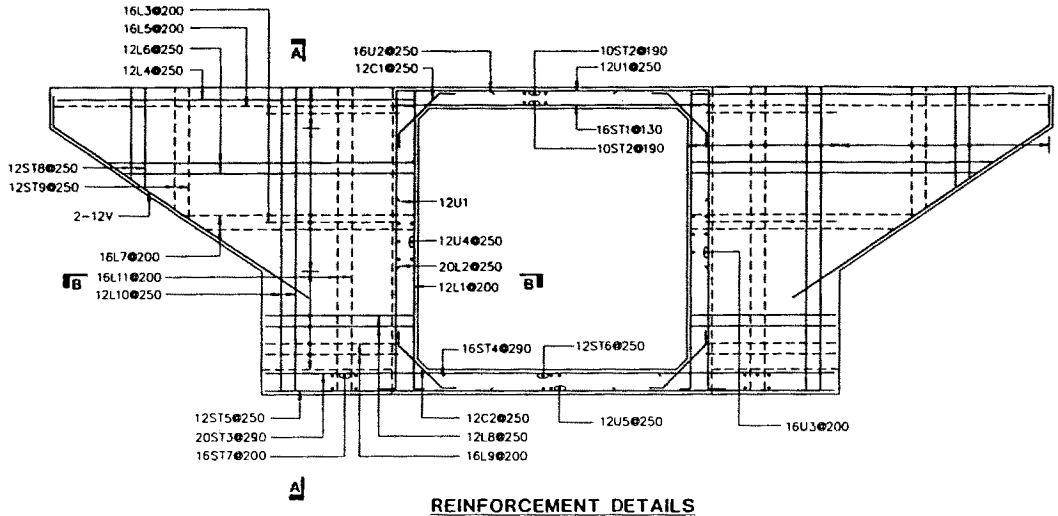
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1236301	

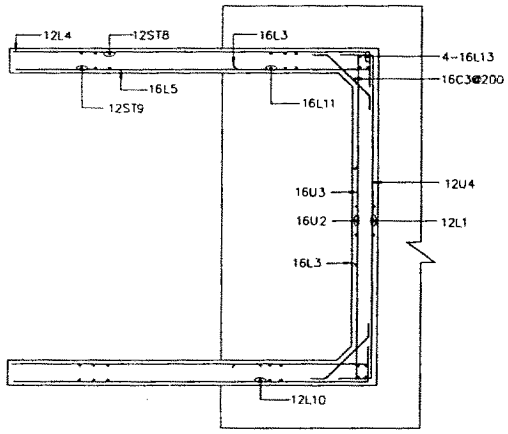
Web Copy

BC-82

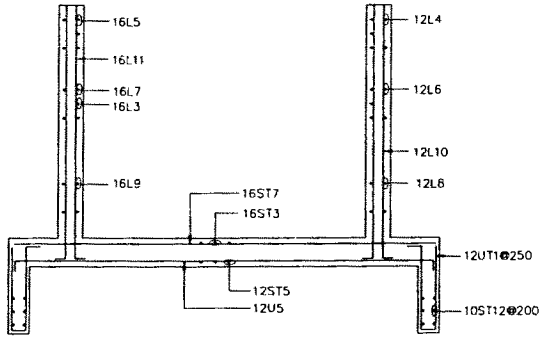
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



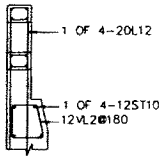
REINFORCEMENT DETAILS



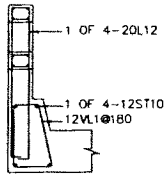
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



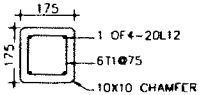
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

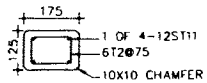
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	4200				4200
O	10	ST2	2 X 24	4160				4160
X	20	ST3	20	7400				7400
	16	ST4	19	2160				2160
A	12	ST5	23	7400				7400
P	12	ST6	19	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 18	144	821	144		1109
O	12	C2	2 X 18	144	840	144		1128
N	12	L1	2 X 18	3511	250			3761
	20	L2	2 X 16	1263	250			1513
&	16	L13	4 X 4	3511	250			3761
	12	U1	18	1260	4200	1260		6720
C	16	U2	2 X 18	1500	3535	1500		6535
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
O	12	U5	31	250	5290	250		5790
F	10	ST12	4 X 5	7350				7350
F	12	UT1	2 X 31	144	2 X 1100	100		2444
	16	L3	4 X 13	1888	1220			3108
	12	L4	4 X 1	4838	419			5257
	16	L5	4 X 2	4838	250			5088
W	12	L6	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L7	4 X 11	Var. 4809 To 1838 @ 297	250			Var.5059 To 2088
I	12	L8	4 X 4	1838	419			2257
	16	L9	4 X 5	1838	1220			3058
	12	L10	4 X 7	3563	250			3813
N	16	L11	4 X 8	3563	250			3813
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13450				13450
CURB	12	VL1	2 X 25	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	20X 4	1121	120			1241
	12	ST11	4 X 4	13460				13460
RAILING	6	T1	20X 6	2 X 135	2 X 135			540
	6	T2	4X 162	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 50 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

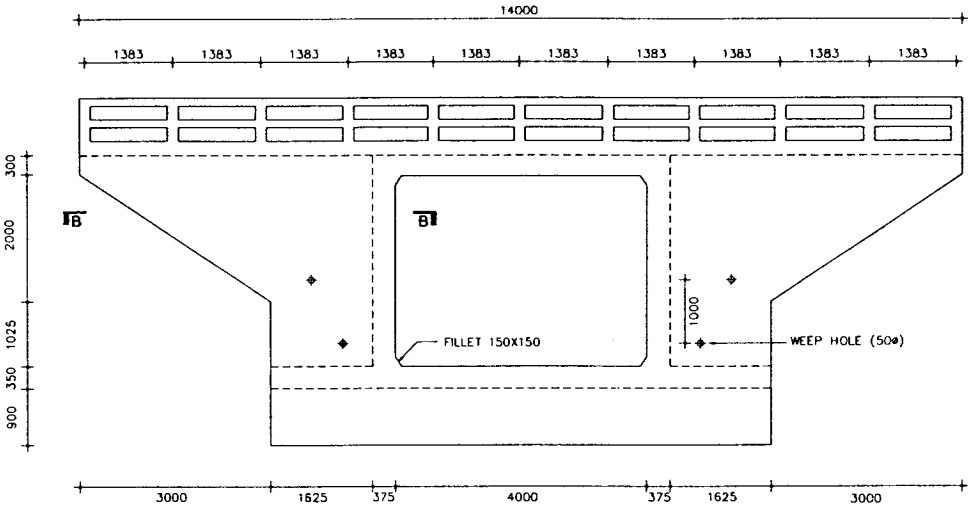
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1236302

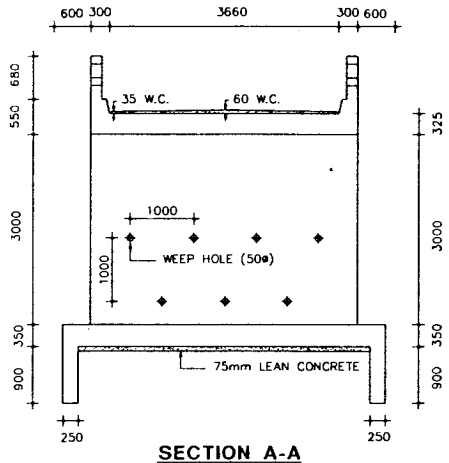
Web Copy

BC-83

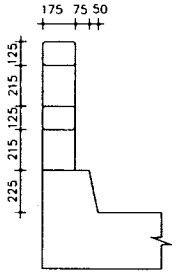
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



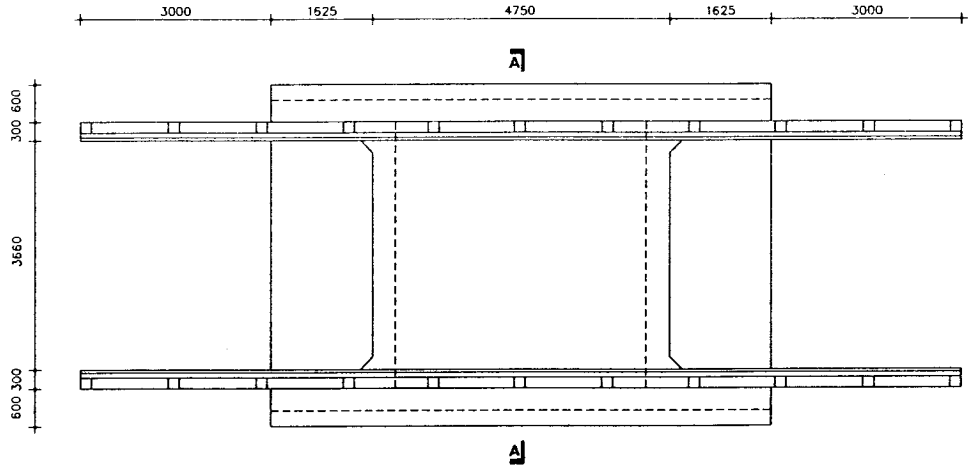
GENERAL ELEVATION



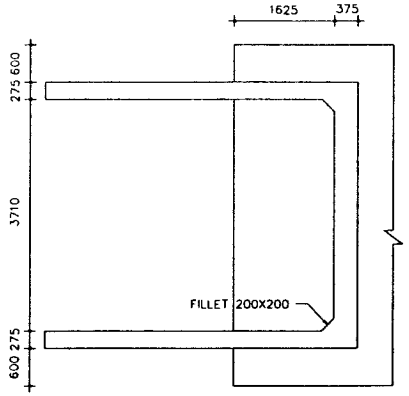
SECTION A-A



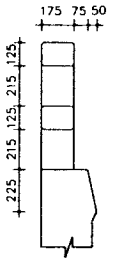
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

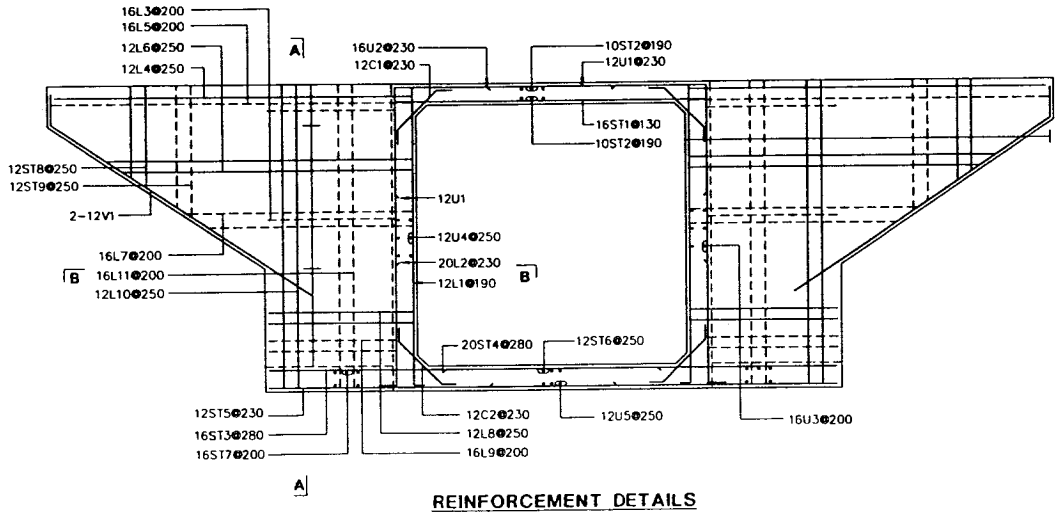
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1240301	

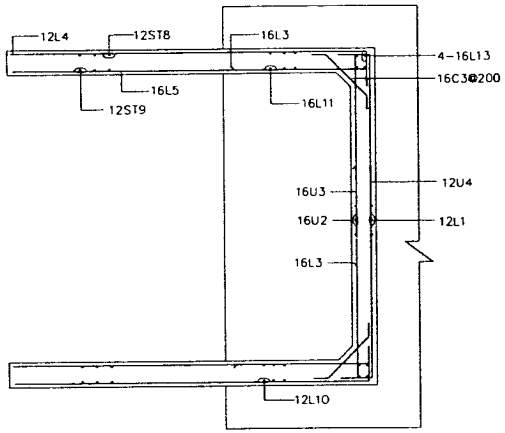
Web Copy

BC-84

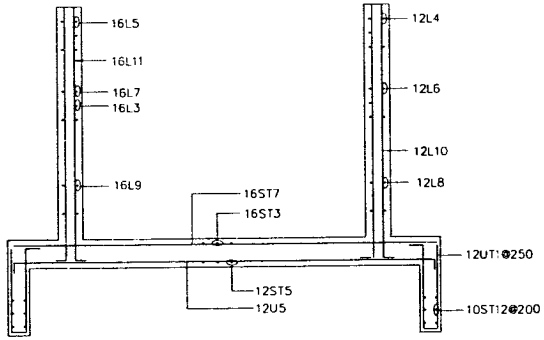
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



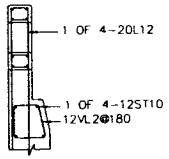
REINFORCEMENT DETAILS



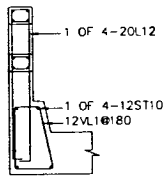
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



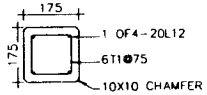
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

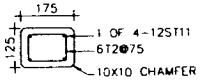
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	4650				4650
O	10	ST2	2 X 26	4160				4160
X	16	ST3	21	7900				7900
	20	ST4	20	2400				2400
A	12	ST5	25	7900				7900
P	12	ST6	20	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 20	144	892	144		1180
O	12	C2	2 X 20	144	911	144		1199
N	12	L1	2 X 19	3561	250			3811
	20	L2	2 X 18	1288	250			1538
&	16	L13	4 X 4	3561	250			3811
	12	U1	20	1285	4650	1285		7220
C	16	U2	2 X 20	1658	3585	1658		6901
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	519	4160	519		5198
O	12	U5	33	250	5290	250		5790
F	10	ST12	4 X 5	7850				7850
F	12	UT1	2 X 33	144	2 X1125	100		2494
	16	L3	4 X 13	1938	1220			3158
	12	L4	4 X 1	4888	419			5307
	16	L5	4 X 2	4888	250			5138
W	12	L6	4 X 9	Var. 4859 To 1888 @ 371	419			Var.5278 To 2307
	16	L7	4 X 11	Var. 4859To 1888 @ 297	250			Var. 5109 To 2138
I	12	L8	4 X 5	1888	419			2307
	16	L9	4 X 6	1888	1220			3108
	12	L10	4 X 7	3613	250			3863
N	16	L11	4 X 8	3613	250			3863
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	892	144		1180
	12	ST10	2 X 4	13950				13950
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	22X 4	1146	120			1266
	12	ST11	4 X 4	13960				13960
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 49 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

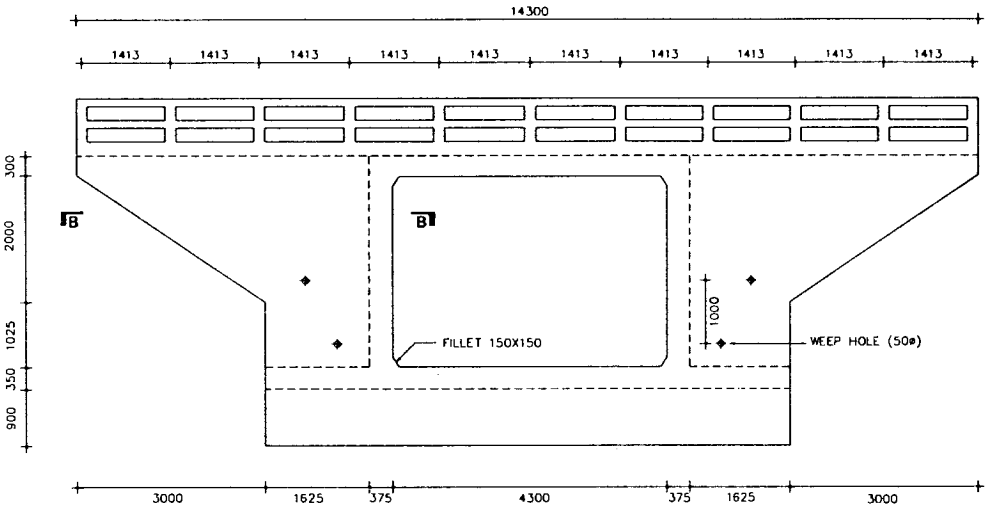
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1240302

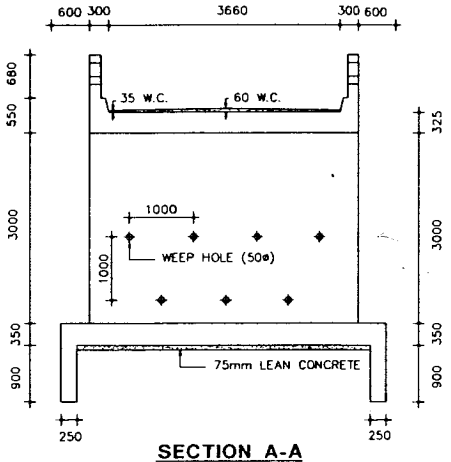
Web Copy

BC-85

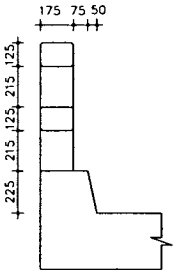
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



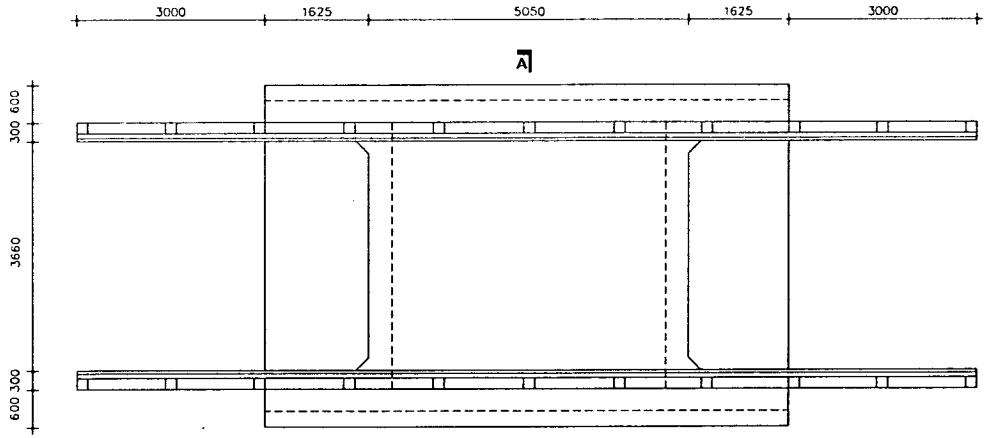
GENERAL ELEVATION



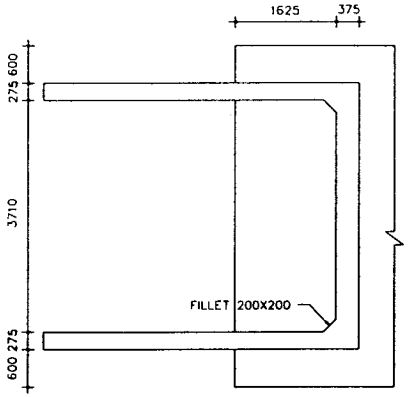
SECTION A-A



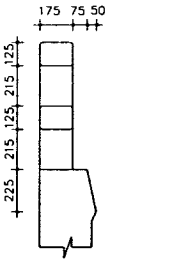
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

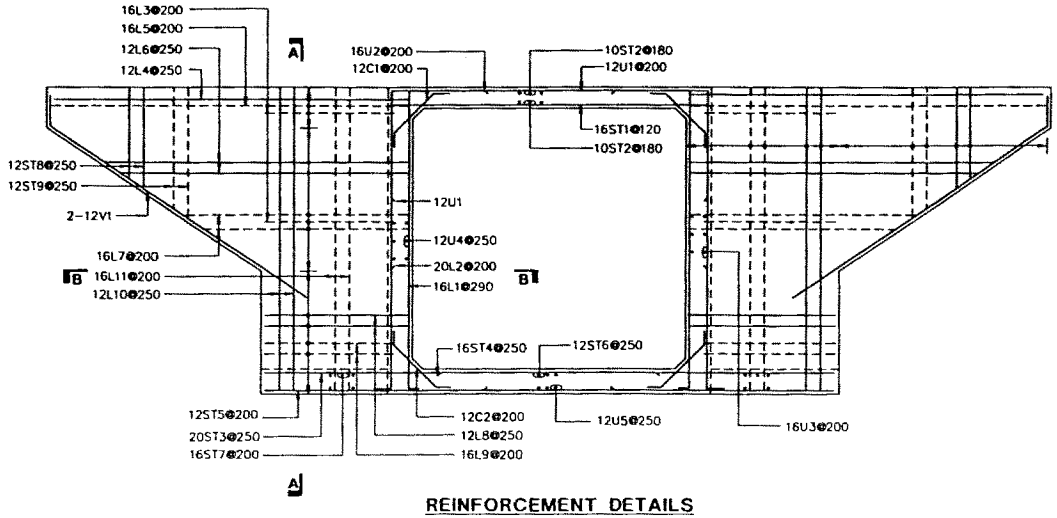
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.0m ROADWAY 3.66m

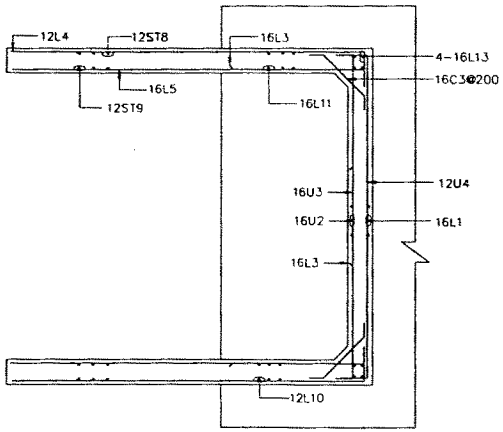
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243301	

Web Copy

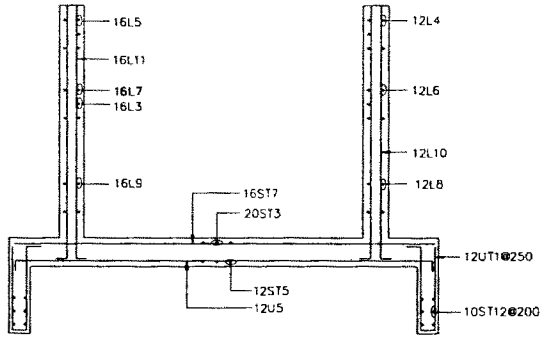
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



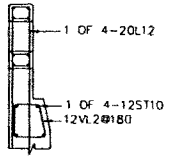
REINFORCEMENT DETAILS



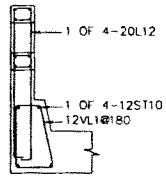
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



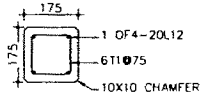
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

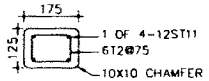
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	36	4950				4950
O	10	ST2	2 X 29	4160				4160
X	20	ST3	23	8200				8200
	16	ST4	22	2580				2580
A	12	ST5	28	8200				8200
P	12	ST6	22	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 22	144	892	144		1180
O	12	C2	2 X 22	144	911	144		1199
N	16	L1	2 X 12	3561	250			3811
	20	L2	2 X 20	1288	250			1538
&	16	L13	4 X 4	3561	250			3811
	12	U1	22	1285	4950	1285		7520
C	16	U2	2 X 22	1758	3585	1758		7101
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	519	4160	519		5198
O	12	U5	34	250	5290	250		5790
F	10	ST12	4 X 5	8150				8150
F	12	UT1	2 X 34	144	2 X 1125	100		2494
	16	L3	4 X 13	1934	1220			3154
	12	L4	4 X 1	4884	419			5303
	16	L5	4 X 2	4884	250			5134
W	12	L6	4 X 9	Var. 4859 To 1884 @ 371	419			Var. 5278 To 2303
	16	L7	4 X 11	Var. 4859 To 1884 @ 297	250			Var. 5109 To 2134
I	12	L8	4 X 5	1884	419			2303
	16	L9	4 X 6	1884	1220			3104
	12	L10	4 X 7	3613	250			3863
N	16	L11	4 X 8	3613	250			3863
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	887	144		1175
	12	ST10	2 X 4	14250				14250
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	22 X 4	1146	120			1266
	12	ST11	4 X 4	14260				14260
RAILING	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

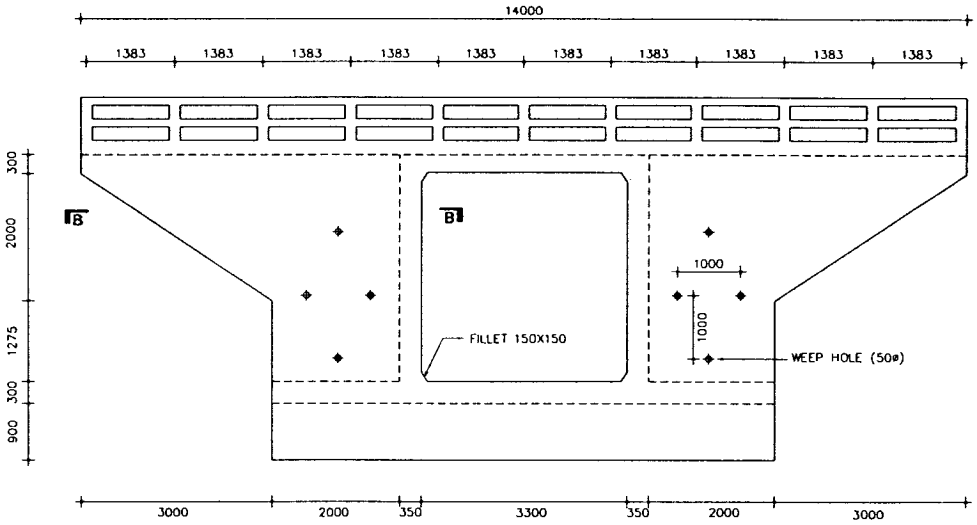
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.0m ROADWAY 3.66m

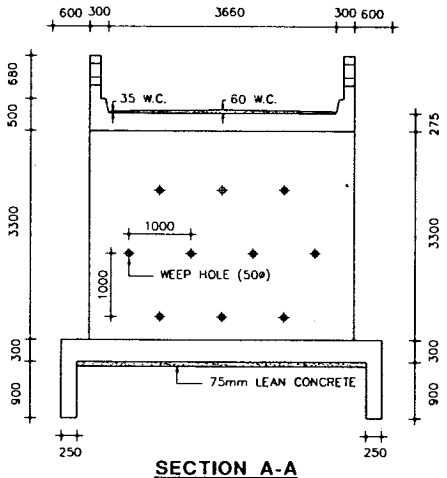
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243302	

Web Copy

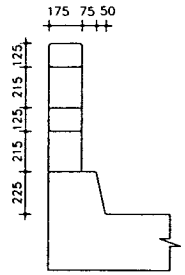
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



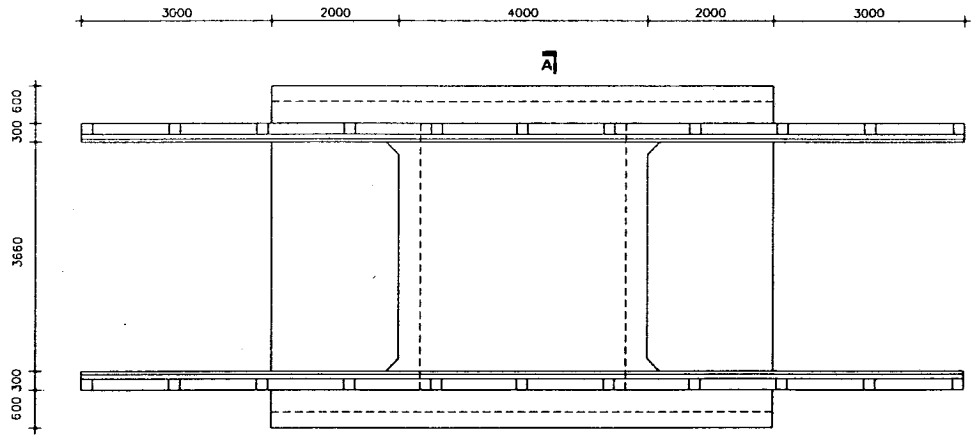
GENERAL ELEVATION



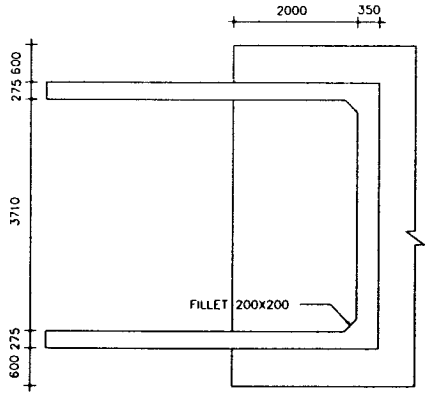
SECTION A-A



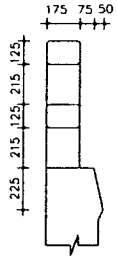
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

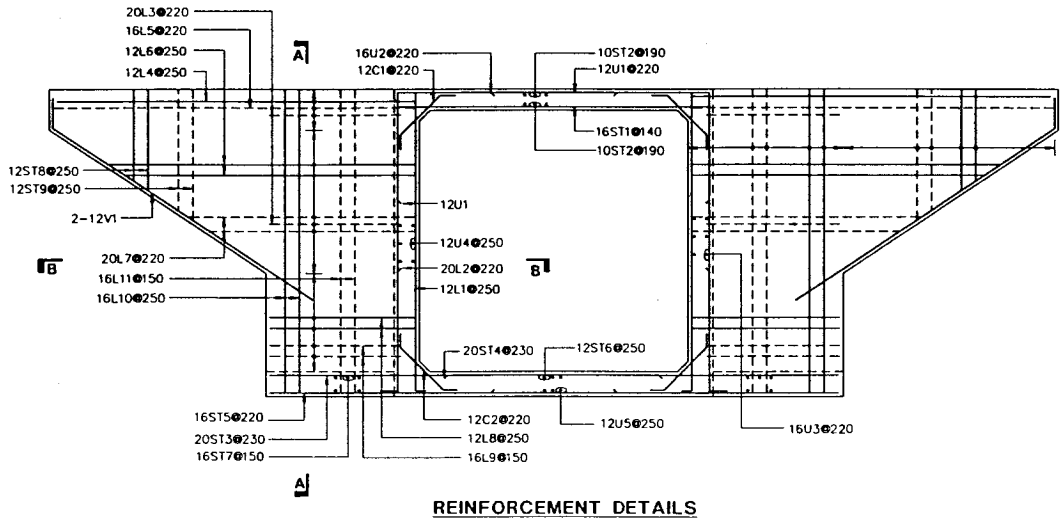
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1233331	

Web Copy

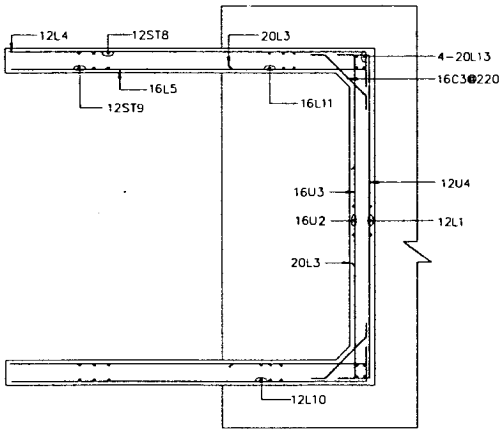
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



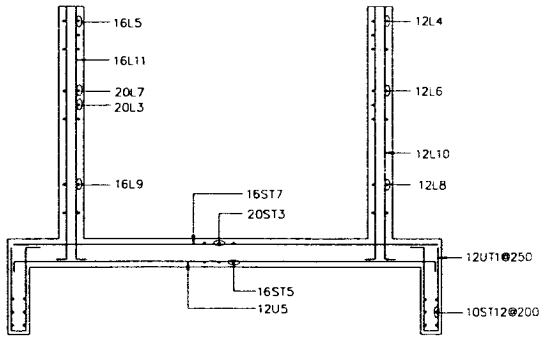
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

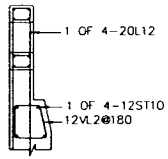
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	3900				3900
O	10	ST2	2 X 22	4160				4160
X	20	ST3	25	7900				7900
	20	ST4	24	1980				1980
A	16	ST5	26	7900				7900
P	12	ST6	17	5360				5360
P	16	ST7	2 X 13	5360				5360
R	12	C1	2 X 20	144	786	144		1074
O	12	C2	2 X 20	144	799	144		1087
N	12	L1	2 X 14	3757	250			4007
	20	L2	2 X 18	1338	250			1588
&	20	L13	4 X 4	3757	250			4007
	12	U1	20	1335	3900	1335		6570
C	16	U2	2 X 20	1400	3785	1400		6585
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X13	494	4160	494		5148
O	12	U5	33	250	5290	250		5790
F	10	ST12	4 X 5	7850				7850
F	12	UT1	2 X 33	144	2 X1075	100		2394
	20	L3	4 X 12	2288	1220			3508
	12	L4	4 X 1	5238	419			5657
	16	L5	4 X 2	5238	250			5488
W	12	L6	4 X 9	Var. 5209 To 2238@ 371	419			Var.5626 To 2657
	20	L7	4 X 11	Var.5209To 2238 @ 297	250			Var. 5459 To 2488
I	12	L8	4 X 6	2238	419			2657
	16	L9	4 X 9	2238	1220			3458
	12	L10	4 X8	3809	250			4059
N	16	L11	4 X 13	3809	250			4059
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13950				13950
CURB	12	VL1	2 X 24	204	445	300	435	1484
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22X 4	1096	120			1216
	12	ST11	4 X 4	13960				13960
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440



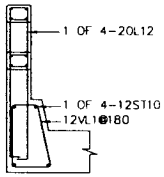
SECTION B-B



SECTION A-A



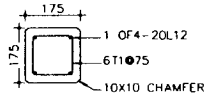
RAILING ON WING WALL
(REINF. DETAIL)



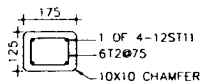
RAILING ON CULVERT
(REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 54 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

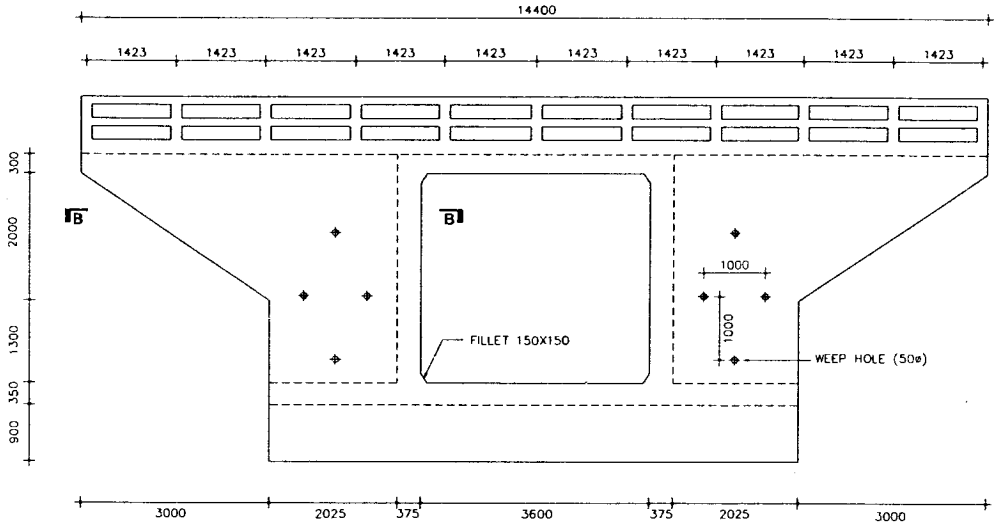
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1233332

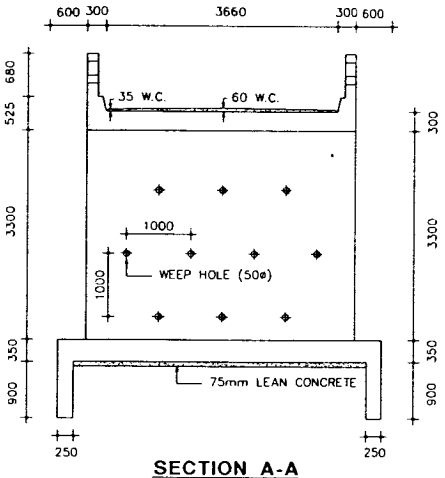
Web Copy

BC-89

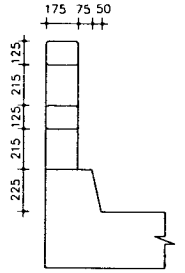
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



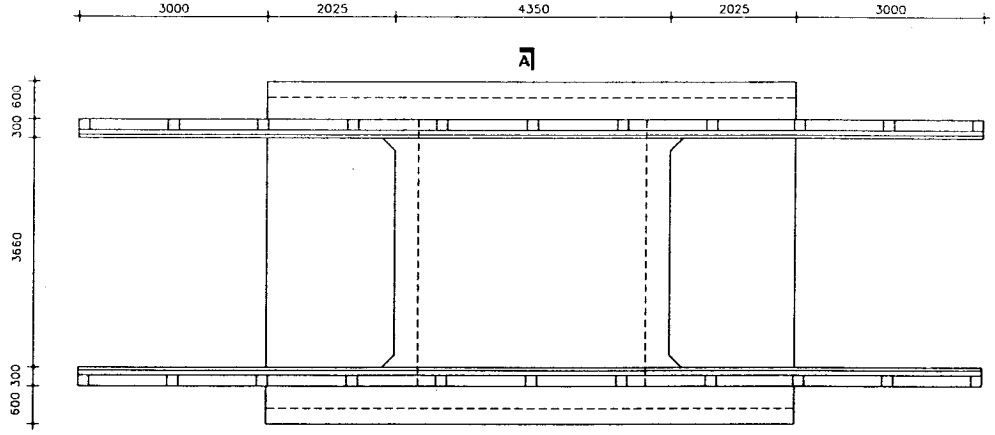
GENERAL ELEVATION



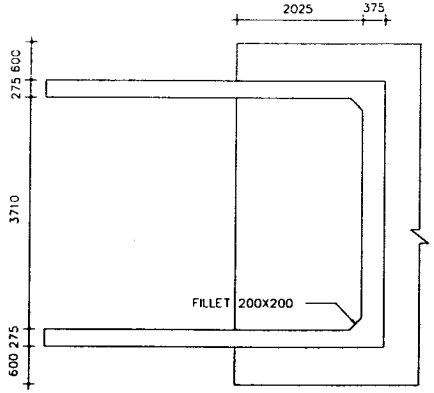
SECTION A-A



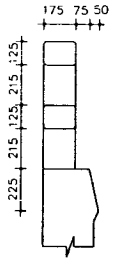
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

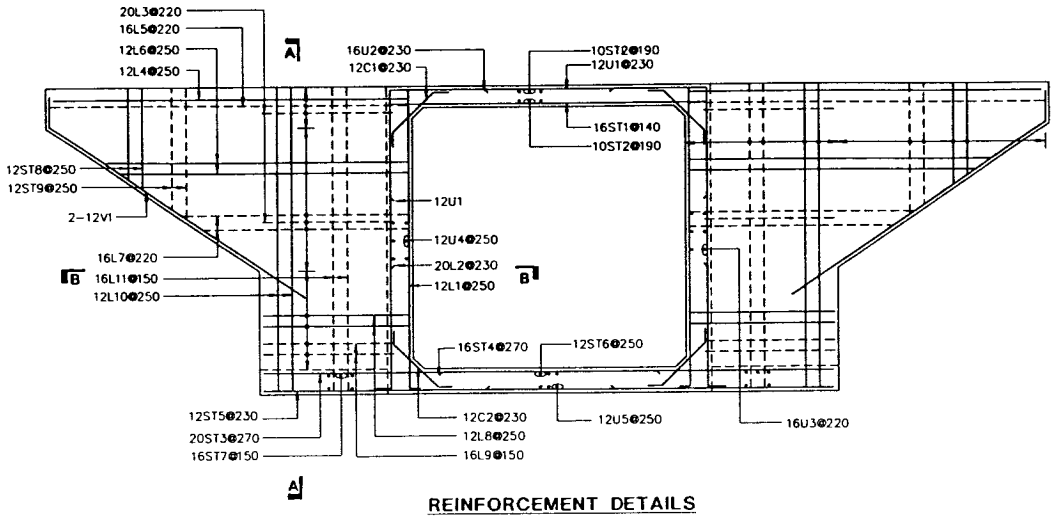
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 3.66m

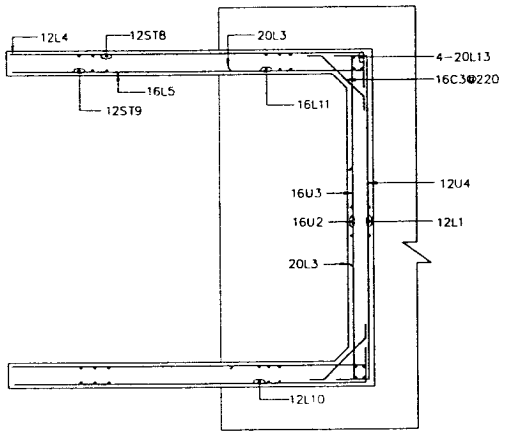
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1236331	

Web Copy

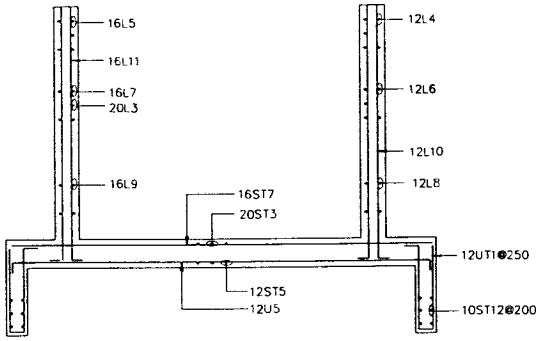
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



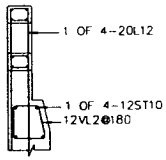
REINFORCEMENT DETAILS



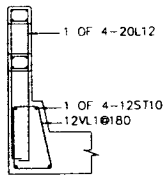
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



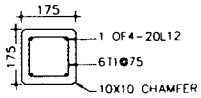
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

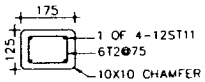
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	4250				4250
O	10	ST2	2 X 24	4160				4160
X	20	ST3	21	8300				8300
	16	ST4	20	2160				2160
A	12	ST5	25	8300				8300
P	12	ST6	19	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 20	144	857	144		1145
O	12	C2	2 X 20	144	911	144		1199
N	12	L1	2 X 14	3836	250			4086
	20	L2	2 X 18	1388	250			1638
&	20	L13	4 X 4	3836	250			4086
	12	U1	20	1360	4250	1360		6970
C	16	U2	2 X 20	1525	3860	1525		6910
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	519	4160	519		5198
O	12	U5	35	250	5290	250		5790
F	10	ST12	4 X 5	8250				8250
F	12	UT1	2 X 35	144	2 X 1125	100		2494
	20	L3	4 X 12	2338	1220			3558
	12	L4	4 X 1	5288	419			5707
	16	L5	4 X 2	5288	250			5538
W	12	L6	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L7	4 X 11	Var. 5259To 2288 @ 297	250			Var. 5509 To 2538
I	12	L8	4 X 6	2288	419			2707
	16	L9	4 X 9	2288	1220			3508
	12	L10	4 X 8	3888	250			4138
N	16	L11	4 X 14	3888	250			4138
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	892	144		1180
	12	ST10	2 X 4	14350				14350
CURB	12	VL1	2 X 26	204	471	306	460	1541
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22X 4	1121	120			1241
	12	ST11	4 X 4	14360				14360
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view
3) Coorse oggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 55 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

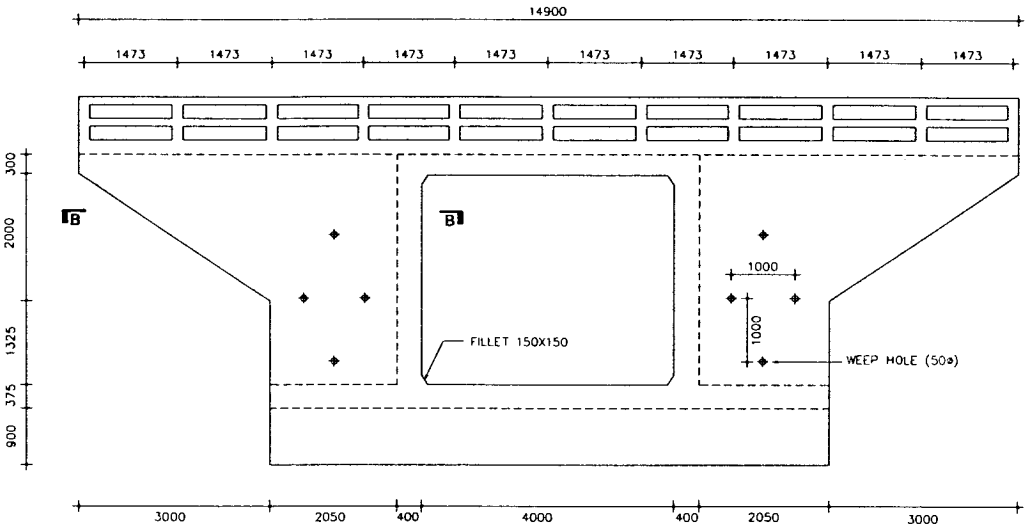
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1236332

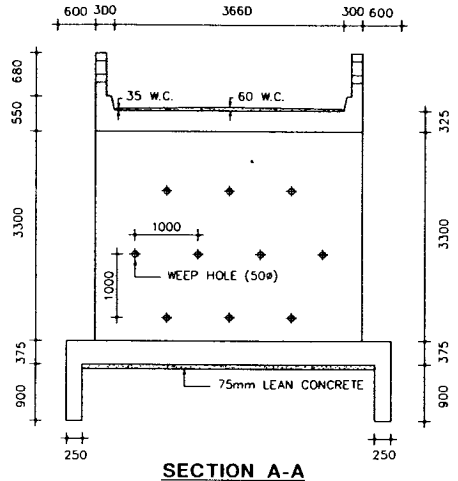
Web Copy

BC-91

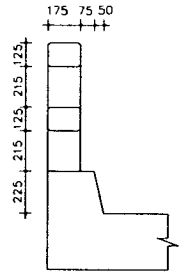
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



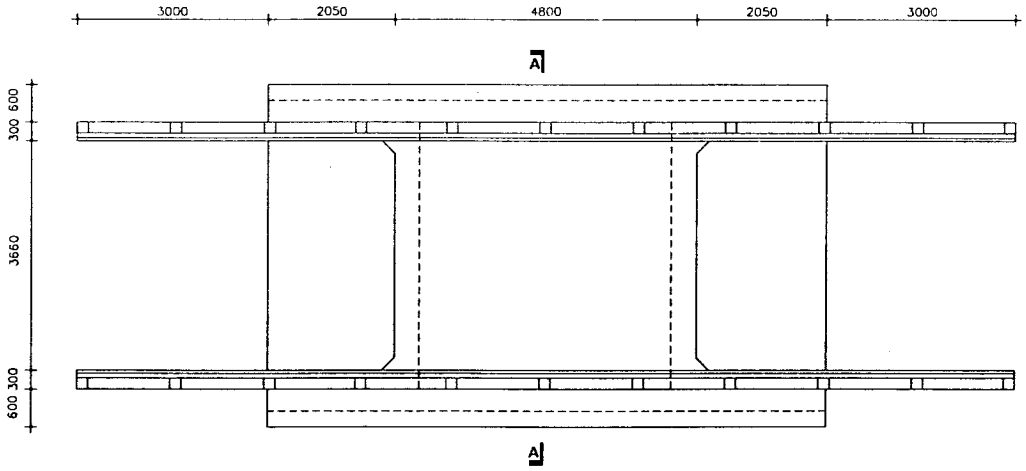
GENERAL ELEVATION



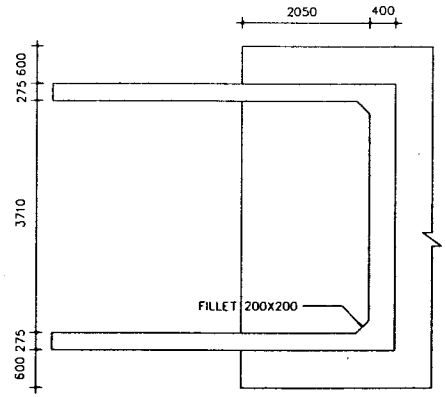
SECTION A-A



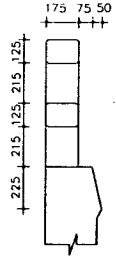
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

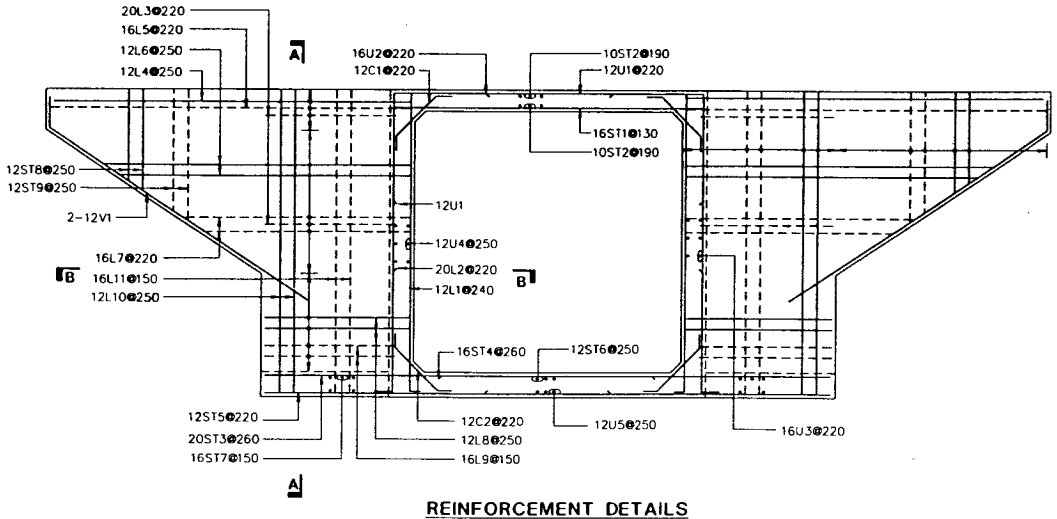
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 3.66m

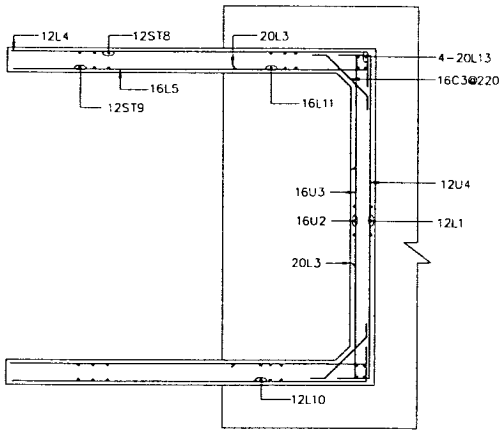
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1240331	

Web Copy

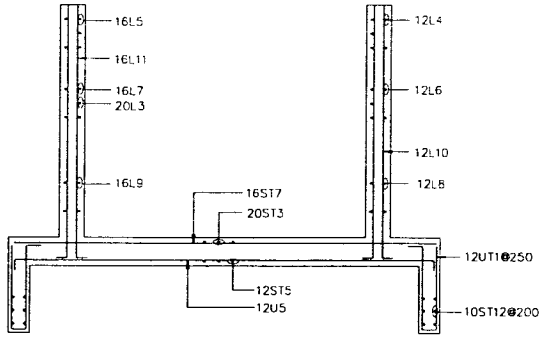
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



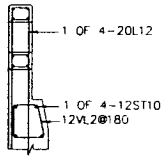
REINFORCEMENT DETAILS



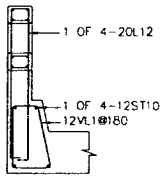
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



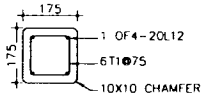
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

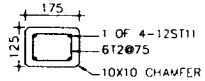
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	4700				4700
O	10	ST2	2 X 26	4160				4160
X	20	ST3	22	8800				8800
	16	ST4	21	2400				2400
A	12	ST5	26	8800				8800
P	12	ST6	21	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 20	144	928	144		1216
O	12	C2	2 X 20	144	981	144		1269
N	12	L1	2 X 15	3886	250			4136
	20	L2	2 X 18	1413	250			1663
&	20	L13	4 X 4	3886	250			4136
	12	U1	20	1385	4700	1385		7470
C	16	U2	2 X 20	1683	3910	1683		7276
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	544	4160	544		5248
O	12	U5	37	250	5290	250		5790
F	10	ST12	4 X 5	8750				8750
F	12	UT1	2 X 37	144	2 X1150	100		2544
	20	L3	4 X 12	2338	1220			3608
	12	L4	4 X 1	5338	419			5757
	16	L5	4 X 2	5338	250			5588
W	12	L6	4 X 9	Var. 5309 To 2338 @ 371	419			Var.5728 To 2757
	16	L7	4 X 11	Var.5309To 2338 @ 297	250			Var. 5559 To 2588
I	12	L8	4 X 6	2338	419			2757
	16	L9	4 X 9	2338	1220			3558
	12	L10	4 X 8	3938	250			4188
N	16	L11	4 X 14	3938	250			4188
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	928	144		1216
	12	ST10	2 X 4	14850				14850
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22X 4	1141	120			1266
	12	ST11	4 X 4	14860				14860
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 180	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21**MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276**MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ **55** kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

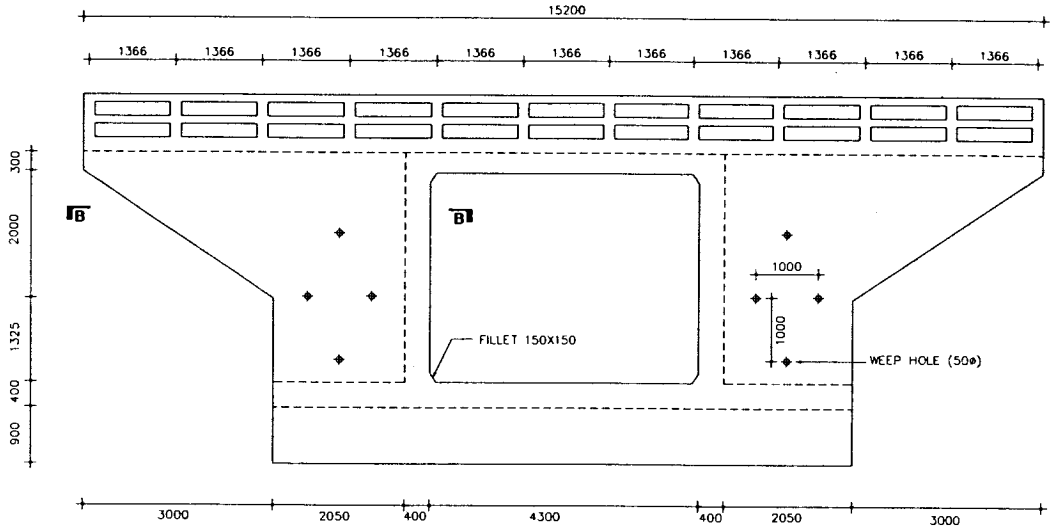
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1240332

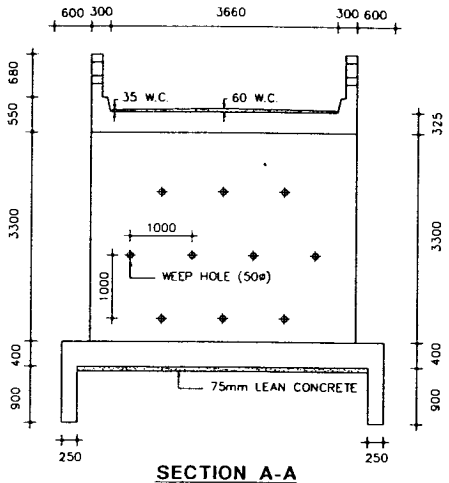
Web Copy

BC-93

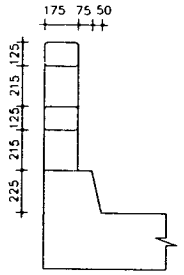
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



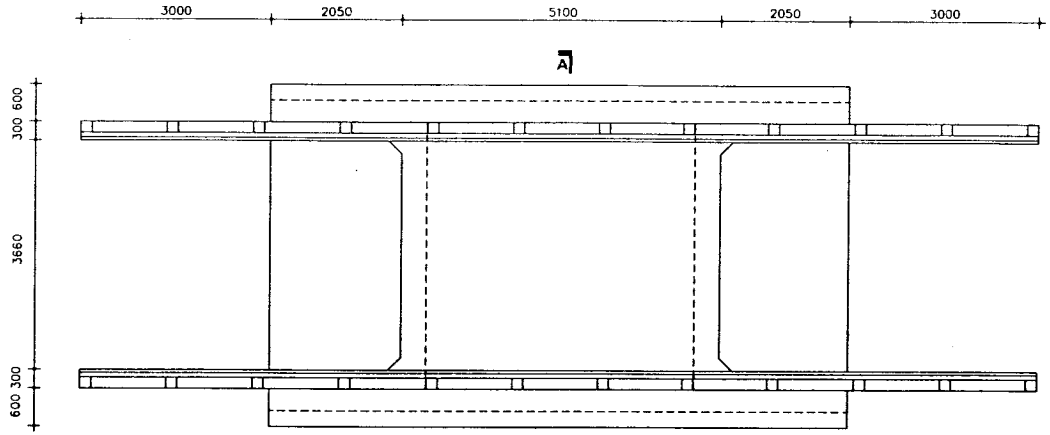
GENERAL ELEVATION



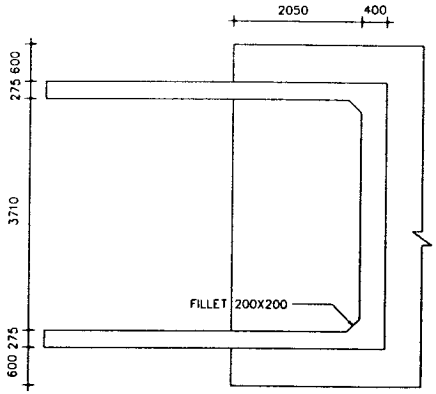
SECTION A-A



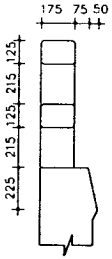
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

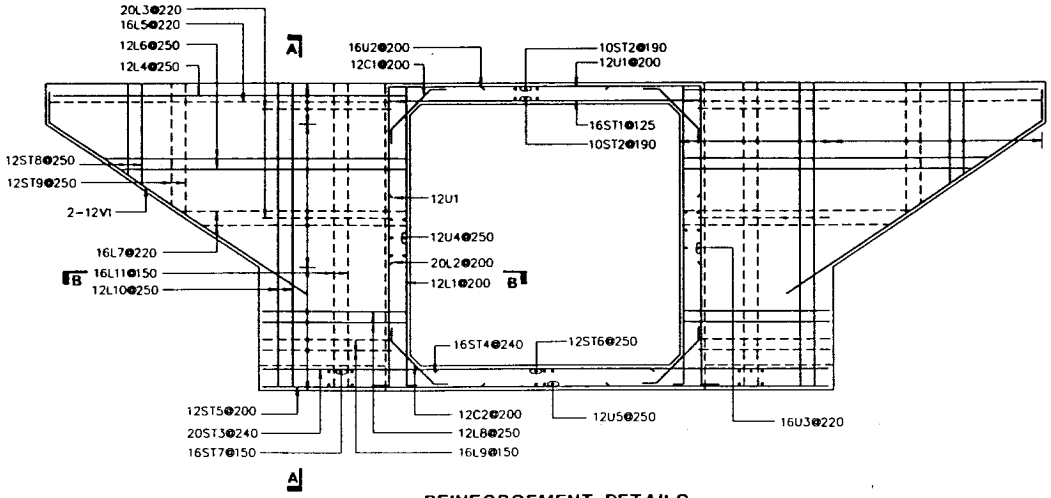
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 3.66m

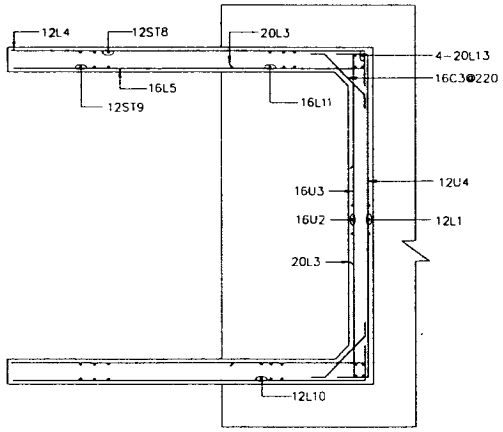
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243331	

Web Copy

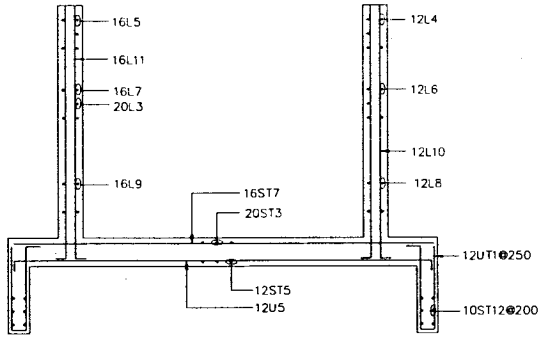
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



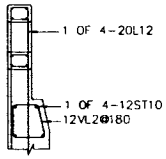
REINFORCEMENT DETAILS



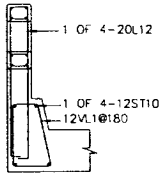
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



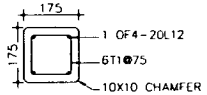
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

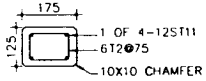
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	35	5000				5000
O	10	ST2	2 X 28	4160				4160
X	20	ST3	24	9100				9100
	16	ST4	23	2580				2580
A	12	ST5	28	9100				9100
P	12	ST6	22	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 22	144	928	144		1216
O	12	C2	2 X 22	144	1017	144		1305
N	12	L1	2 X 18	3911	250			4161
	20	L2	2 X 20	1438	250			1688
&	20	L13	4 X 4	3911	250			4161
	12	U1	22	1385	5000	1385		7770
C	16	U2	2 X 22	1783	3935	1783		7501
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	544	4160	544		5248
O	12	U5	38	250	5290	250		5790
F	10	ST12	4 X 5	9050				9050
F	12	UT1	2 X 38	144	2 X 1175	100		2594
	20	L3	4 X 12	2388	1220			3608
	12	L4	4 X 1	5338	419			5757
	16	L5	4 X 2	5338	250			5588
W	12	L6	4 X 9	Var. 5309 To 2338 @ 371	419			Var. 5728 To 2757
	16	L7	4 X 11	Var. 5309 To 2338 @ 297	250			Var. 5559 To 2588
I	12	L8	4 X 6	2338	419			2757
	16	L9	4 X 9	2338	1220			3558
	12	L10	4 X 8	3963	250			4213
N	16	L11	4 X 14	3963	250			4213
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	928	144		1216
	12	ST10	2 X 4	15150				15150
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	24 X 4	1146	120			1266
	12	ST11	4 X 4	15160				15160
RAILING	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 176	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in ony view
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 54 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

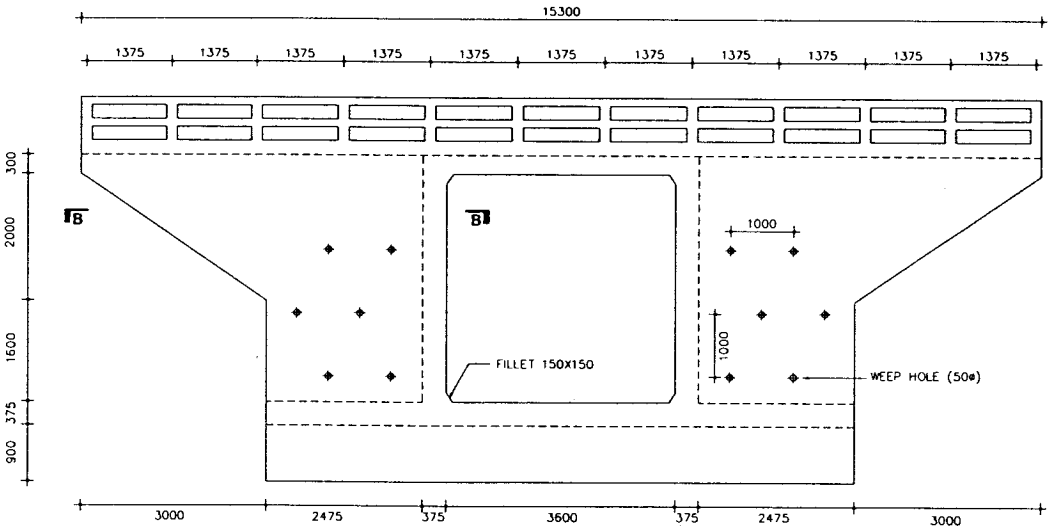
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1243332

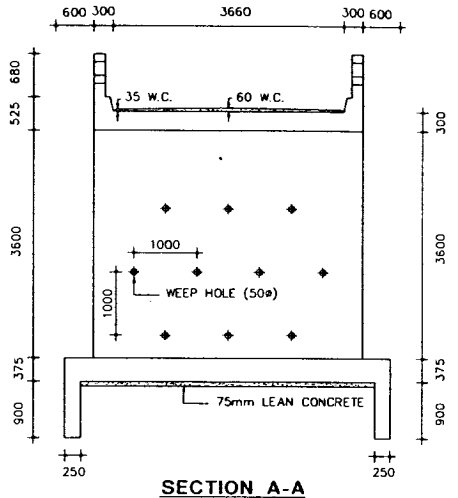
Web Copy

BC-95

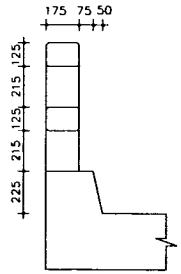
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



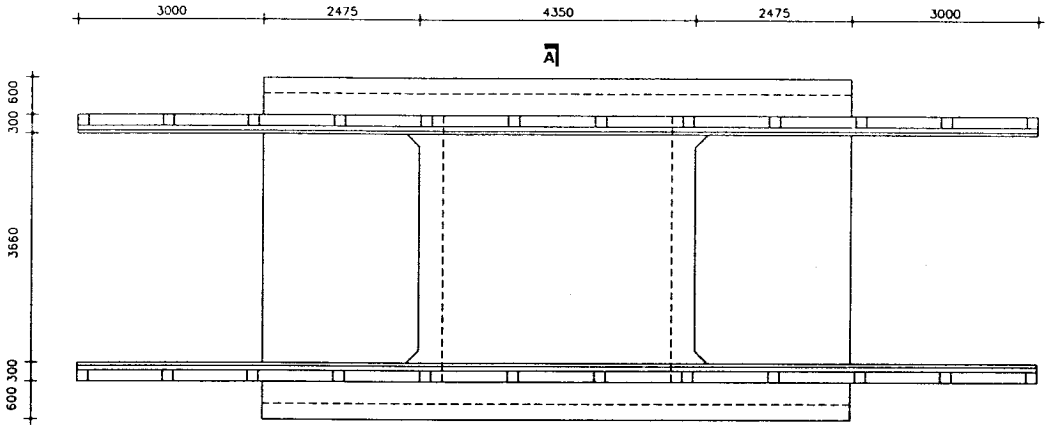
GENERAL ELEVATION



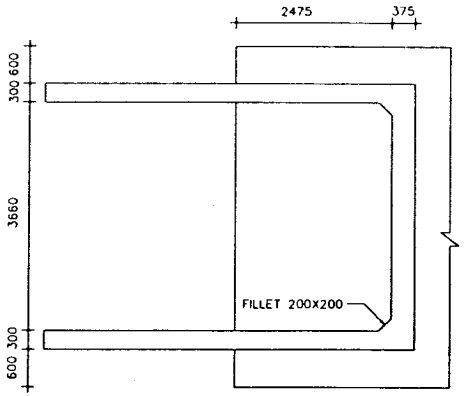
SECTION A-A



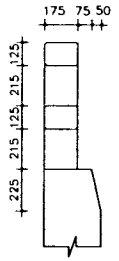
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

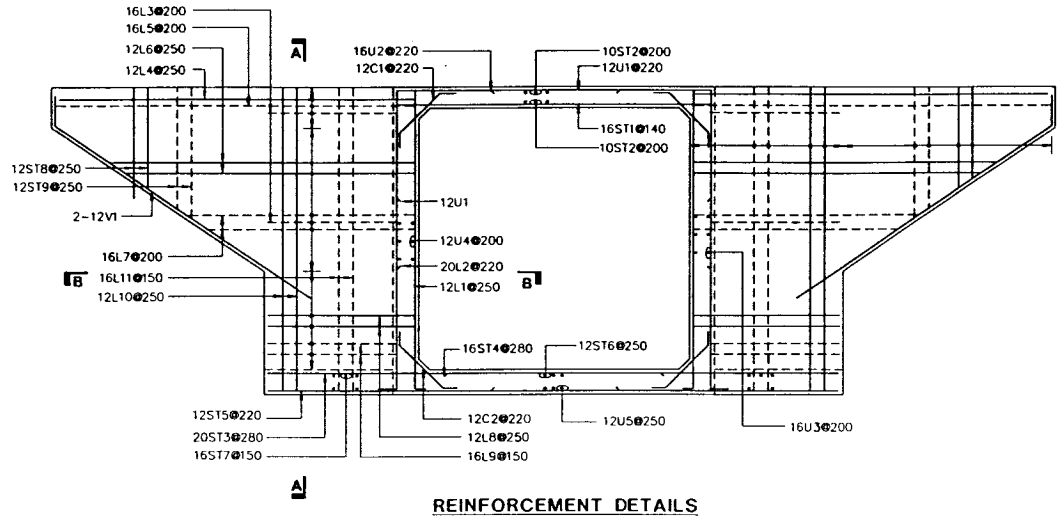
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 3.66m

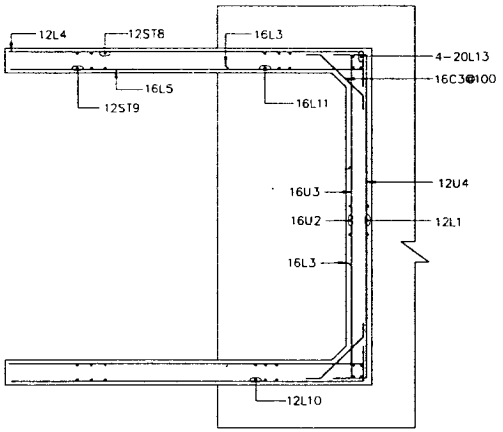
DATE :	ISSUED BY :
CAD FILE REF : CULV\81236361	

Web Copy

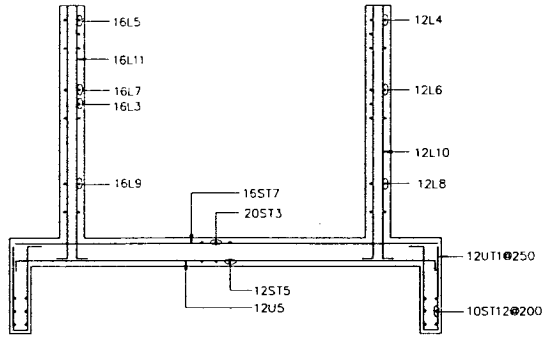
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



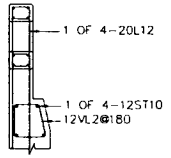
REINFORCEMENT DETAILS



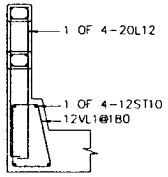
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



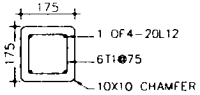
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

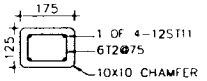
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	4250				4250
O	10	ST2	2 X 23	4160				4160
X	20	ST3	21	9200				9200
	16	ST4	20	2160				2160
A	12	ST5	26	9200				9200
P	12	ST6	19	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 20	144	857	144		1145
O	12	C2	2 X 20	144	946	144		1234
N	12	L1	2 X 14	4161	250			4411
	20	L2	2 X 18	1513	250			1763
&	20	L13	4 X 4	4161	250			4411
	12	U1	20	1460	4250	1460		7170
C	16	U2	2 X 20	1525	4185	1525		7235
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	519	4160	519		5198
O	12	U5	38	250	5290	250		5790
F	10	ST12	4 X 5	9150				9150
F	12	UT1	2 X 38	144	2 X 1150	100		2544
	16	L3	4 X 13	2788	1220			4008
	12	L4	4 X 1	5738	444			6182
	16	L5	4 X 2	5738	250			5988
W	12	L6	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L7	4 X 11	Var. 5709To 2738 @ 297	250			Var. 5959 To 2988
I	12	L8	4 X 7	2738	444			3182
	16	L9	4 X 11	2738	1220			3958
	12	L10	4 X 10	4213	250			4463
N	16	L11	4 X 17	4213	250			4463
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	928	144		1216
	12	ST10	2 X 4	15250				15250
CURB	12	VL1	2 X 26	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
AND	20	L12	24X 4	1121	120			1241
	12	ST11	4 X 4	15260				15260
RAILING	6	T1	24X 6	2 X 135	2 X 135			540
	6	T2	4X 176	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 81 kN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

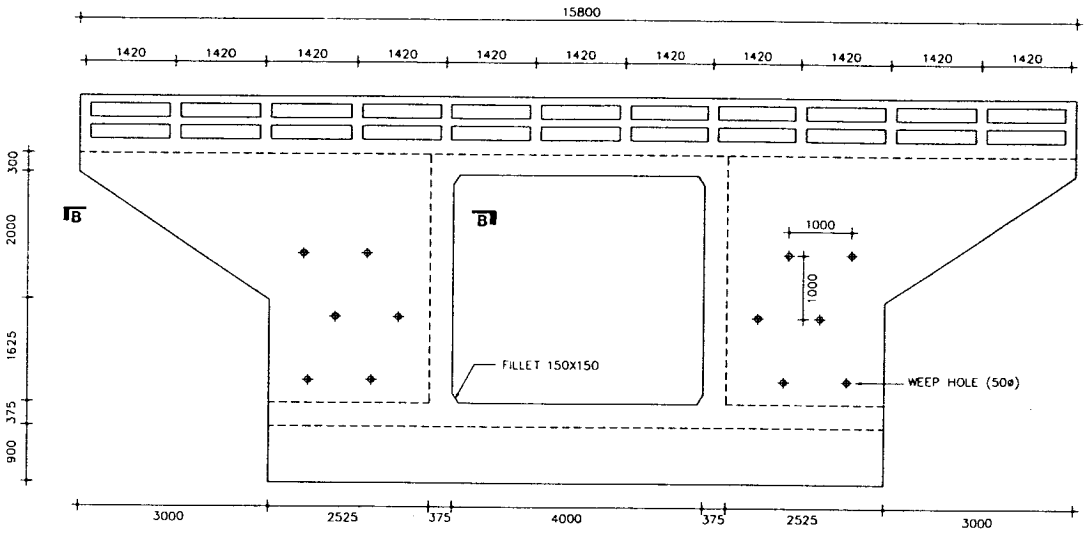
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1236362

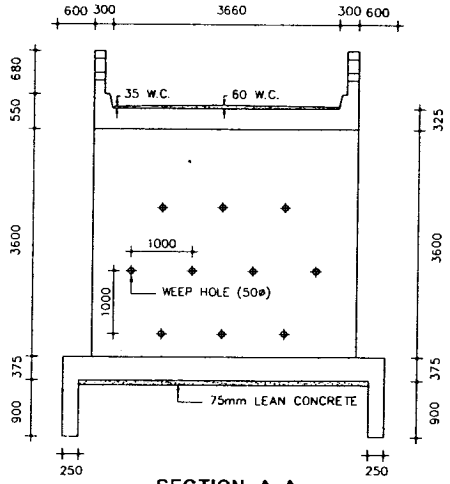
Web Copy

BC-97

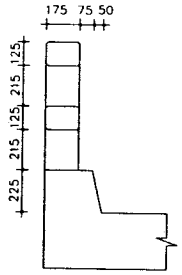
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



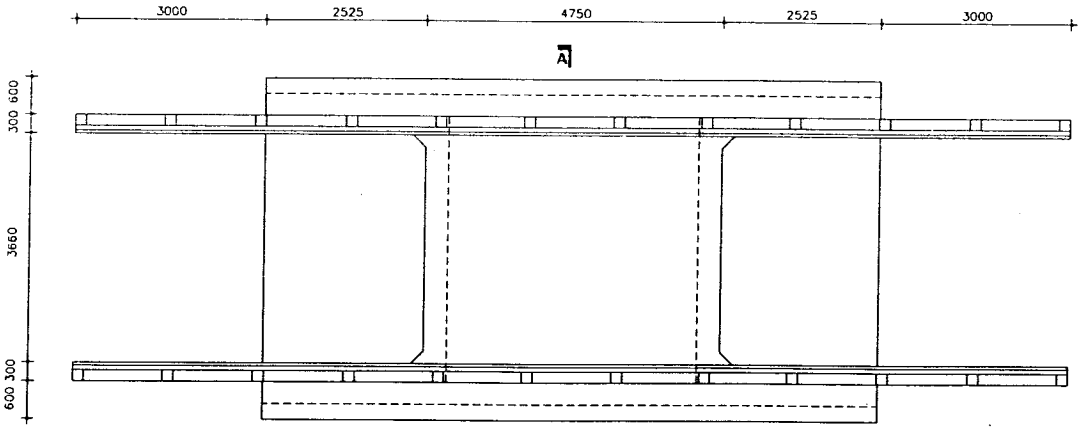
GENERAL ELEVATION



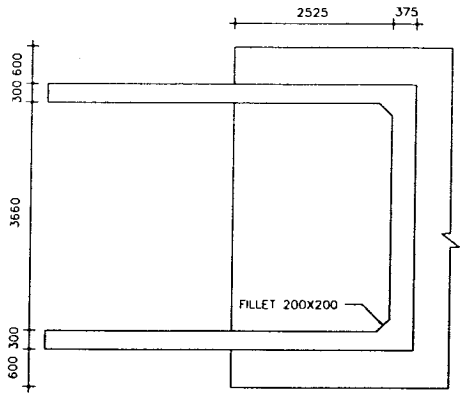
SECTION A-A



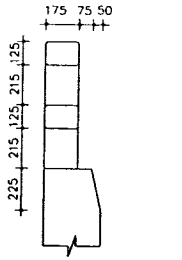
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

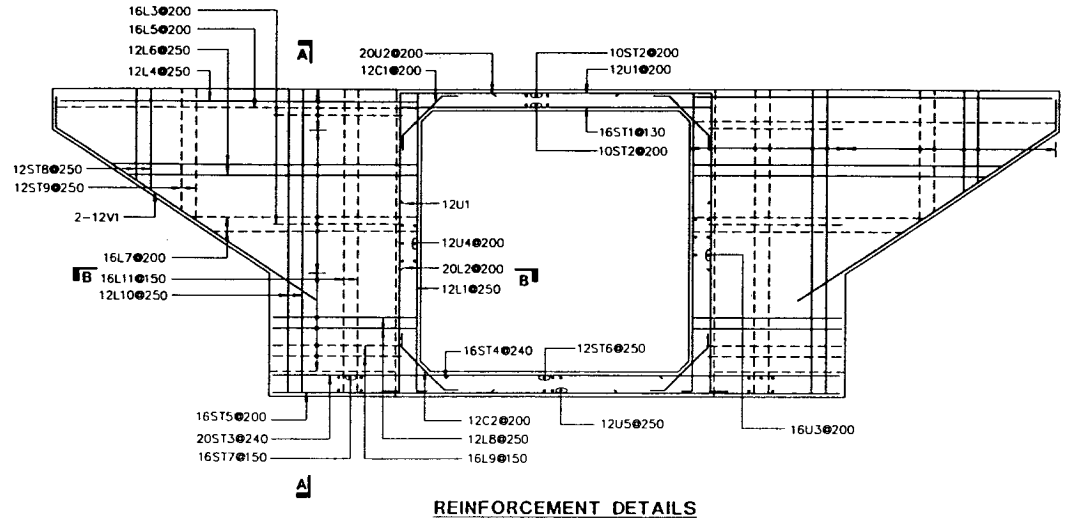
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 3.66m

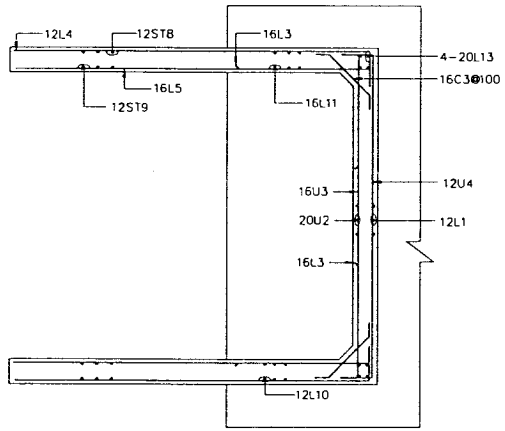
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1240361	

Web Copy

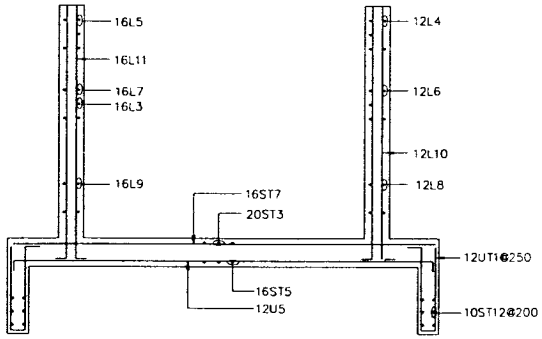
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



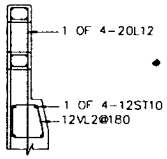
REINFORCEMENT DETAILS



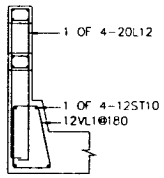
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



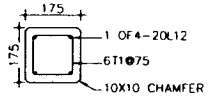
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

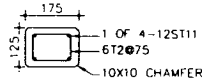
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	4650				4650
O	10	ST2	2 X 25	4160				4160
X	20	ST3	24	9700				9700
	16	ST4	23	2400				2400
A	16	ST5	28	9700				9700
P	12	ST6	20	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 22	144	881	144		1169
O	12	C2	2 X 22	144	940	144		1228
N	12	L1	2 X 14	4182	250			4432
	20	L2	2 X 20	1513	250			1763
&	20	L13	4 X 4	4182	250			4432
	12	U1	22	1485	4650	1485		7620
C	20	U2	2 X 22	1658	4210	1658		7526
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	519	4160	519		5198
O	12	U5	40	250	5290	250		5790
F	10	ST12	4 X 5	9650				9650
F	12	UT1	2 X 40	144	2 X1150	100		2544
	16	L3	4 X 13	2838	1220			4058
	12	L4	4 X 1	5788	444			6232
	16	L5	4 X 2	5788	250			6038
W	12	L6	4 X 9	Var. 5759 To 2788 @ 371	444			Var.6203 To 3232
	16	L7	4 X 11	Var.5759To 2788 @ 297	250			Var. 6009 To 3038
I	12	L8	4 X 7	2788	444			3232
	16	L9	4 X 11	2788	1220			4008
	12	L10	4 X 10	4234	250			4484
N	16	L11	4 X 17	4234	250			4484
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	928	144		1216
	12	ST10	2 X 4	15750				15750
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 31	204	204	248	200	956
AND	20	L12	24X 4	1146	120			1266
	12	ST11	4 X 4	15760				15760
RAILING	6	T1	24X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 50 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

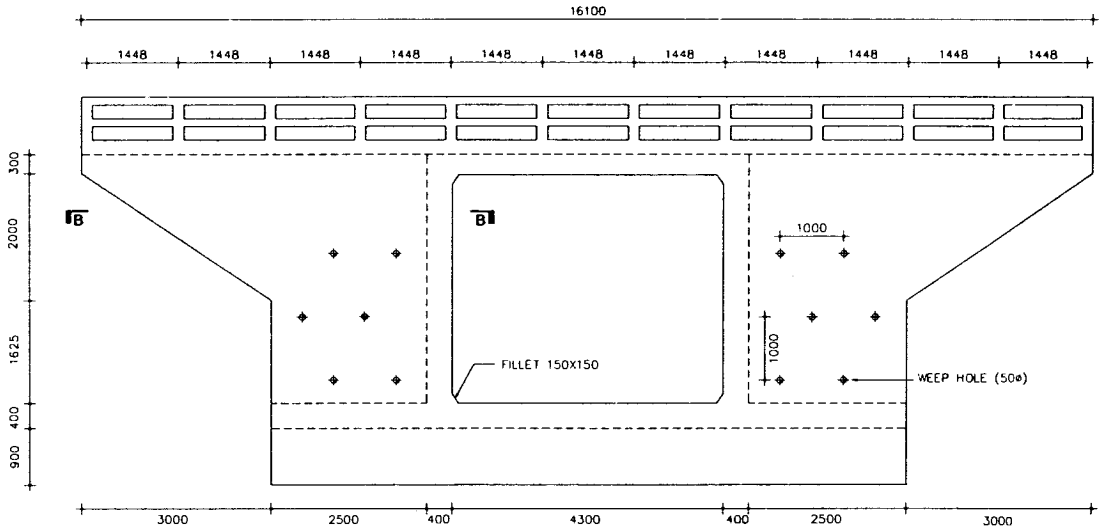
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1240362

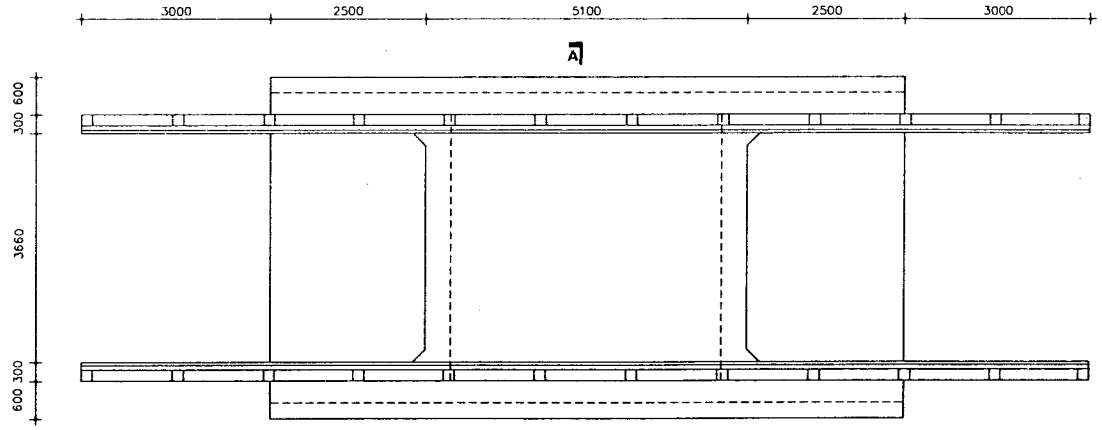
Web Copy

BC-99

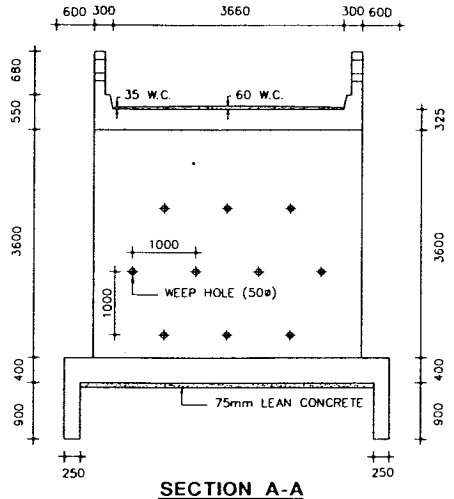
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



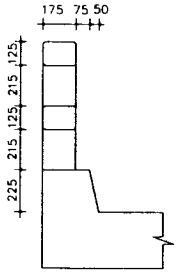
GENERAL ELEVATION



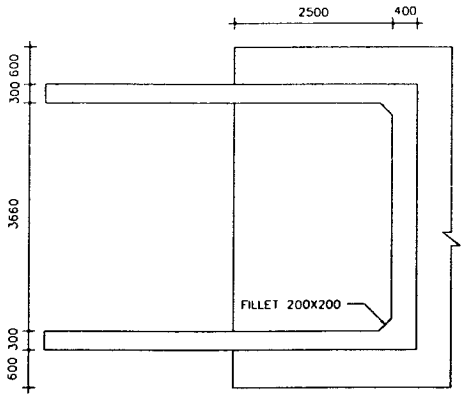
PLAN



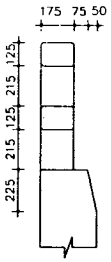
SECTION A-A



GENERAL ARRANGEMENT OF RAILING ON CULVERT



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

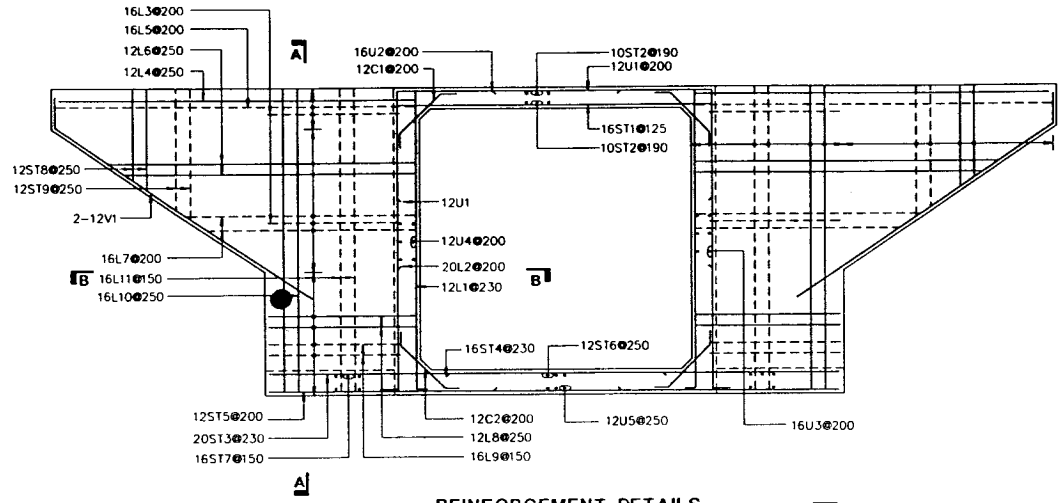
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 3.66m

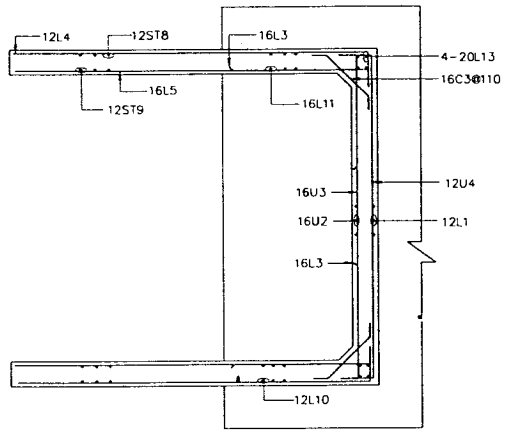
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243361	

Web Copy

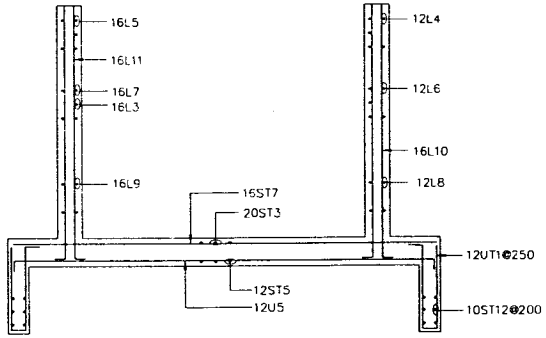
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



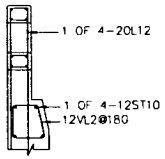
REINFORCEMENT DETAILS



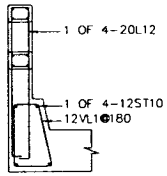
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



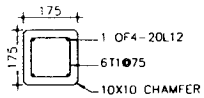
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

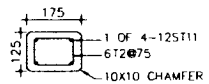
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	35	5000				5000
O	10	ST2	2 X 28	4160				4160
X	20	ST3	25	10000				10000
	16	ST4	24	2580				2580
A	12	ST5	28	10000				10000
P	12	ST6	22	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 22	144	928	144		1216
O	12	C2	2 X 22	144	1017	144		1305
N	12	L1	2 X 15	4211	250			4461
	20	L2	2 X 20	1538	250			1788
&	20	L13	4 X 4	4211	250			4461
	12	U1	22	1485	5000	1485		7970
C	16	U2	2 X 22	1783	4235	1783		7801
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	544	4160	544		5248
O	12	U5	41	250	5290	250		5790
F	10	ST12	4 X 5	9950				9950
F	12	UT1	2 X 42	144	2 X 1175	100		2594
	16	L3	4 X 13	2838	1220			4058
	12	L4	4 X 1	5788	444			6232
	16	L5	4 X 2	5788	250			6038
W	12	L6	4 X 9	Var. 5759 To 2788 @ 371	444			Var. 6203 To 3232
	16	L7	4 X 11	Var. 5759 To 2788 @ 297	250			Var. 6009 To 3038
I	12	L8	4 X 7	2788	444			3232
	16	L9	4 X 11	2788	1220			4008
	16	L10	4 X 10	4263	250			4513
N	16	L11	4 X 17	4263	250			4513
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	963	144		1251
	12	ST10	2 X 4	16050				16050
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 31	204	204	248	200	956
AND	20	L12	24 X 4	1146	120			1266
	12	ST11	4 X 4	16060				16060
RAILING	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 59 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000D01.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

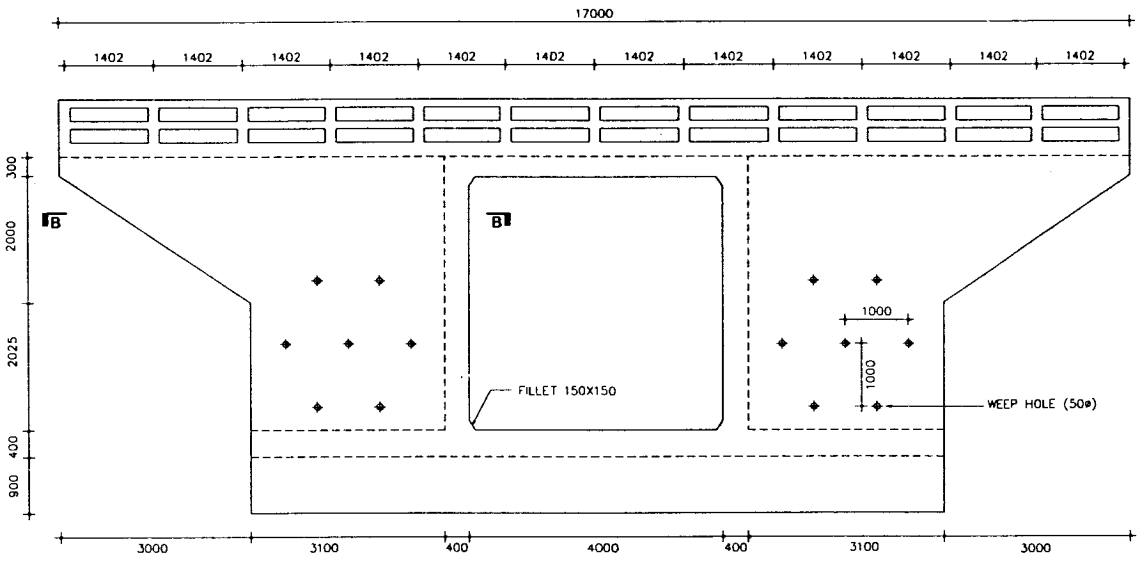
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1243362

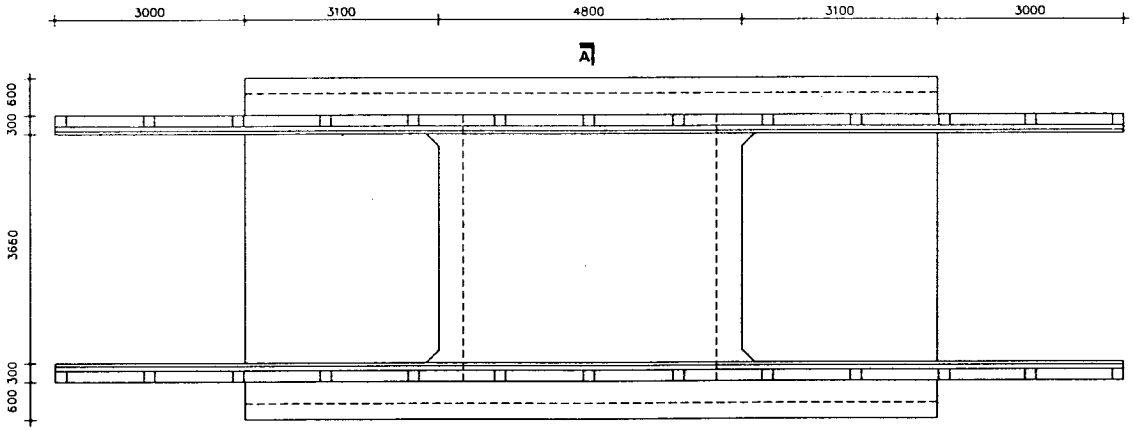
Web Copy

BC-101

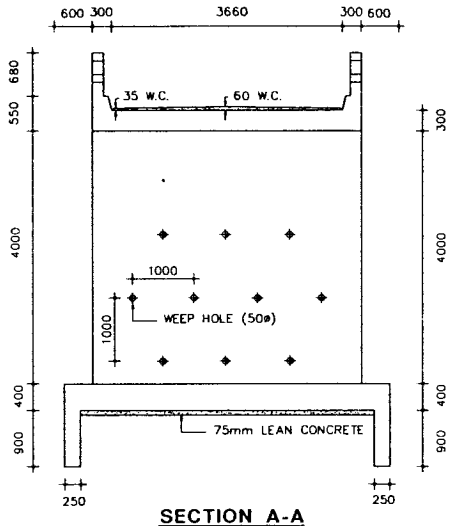
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



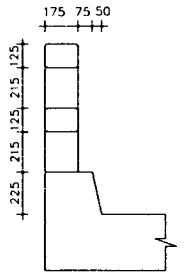
GENERAL ELEVATION



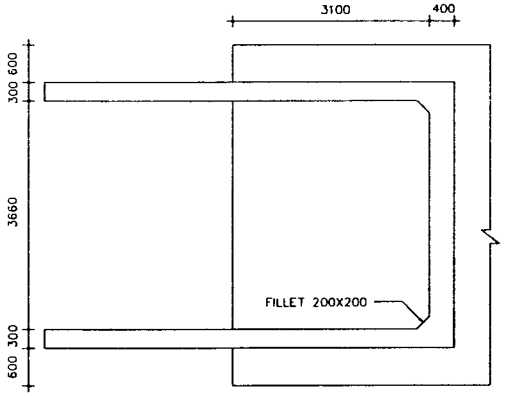
PLAN



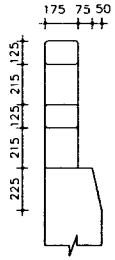
SECTION A-A



GENERAL ARRANGEMENT OF RAILING ON CULVERT



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

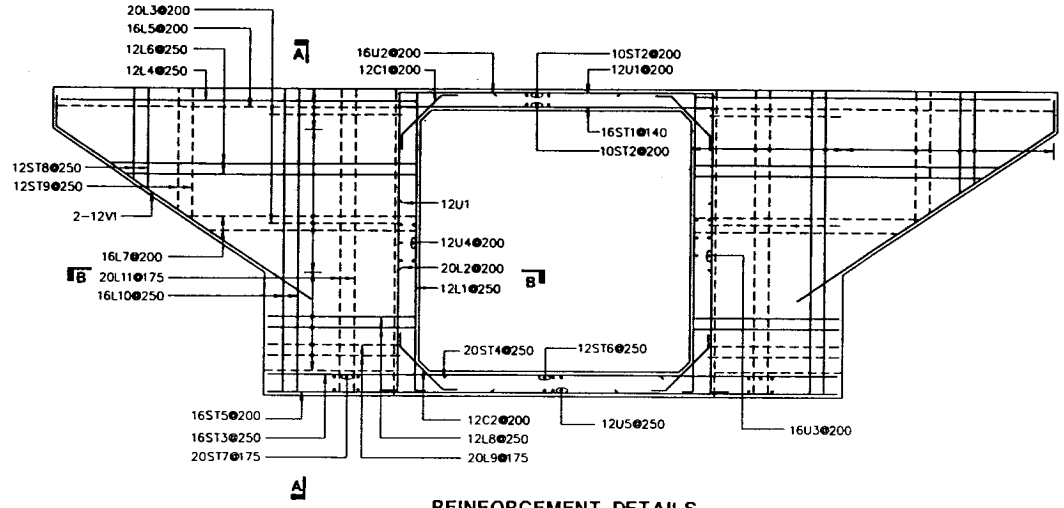
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 4.0m ROADWAY 3.66m

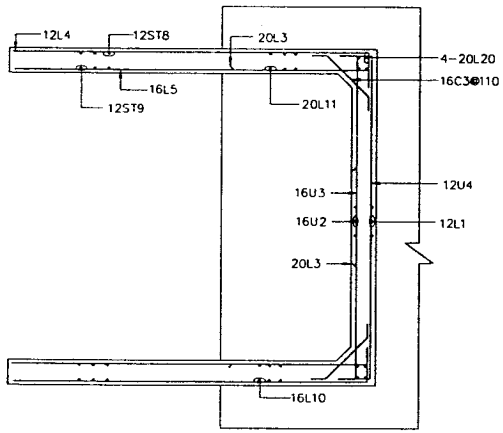
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1240401	

Web Copy

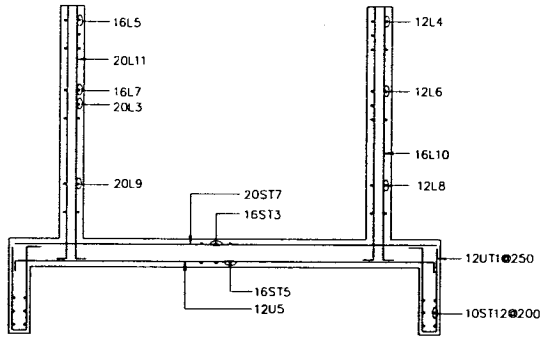
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



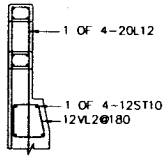
REINFORCEMENT DETAILS



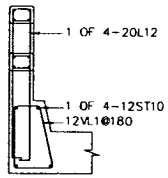
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



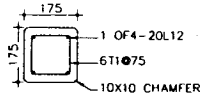
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

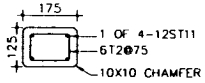
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	4700				4700
O	10	ST2	2 X 25	4160				4160
X	16	ST3	23	10800				10800
	20	ST4	22	2400				2400
A	16	ST5	28	10800				10800
P	12	ST6	21	5360				5360
P	20	ST7	2 X 18	5360				5360
R	12	C1	2 X 22	144	892	144		1180
O	12	C2	2 X 22	144	1011	144		1299
N	12	L1	2 X 14	4582	250			4832
	20	L2	2 X 20	1671	250			1921
&	20	L13	4 X 4	4582	250			4832
	12	U1	22	1593	4700	1593		7886
C	16	U2	2 X 22	1683	4610	1683		7976
U	16	U3	2 X 19	250	4160	250		4660
T	12	U4	2 X 19	544	4160	544		5248
O	12	U5	45	250	5290	250		5790
F	10	ST12	4 X 5	10750				10750
F	12	UT1	2 X 45	144	2 X 1175	100		2594
	20	L3	4 X 13	3388	1220			4608
	12	L4	4 X 1	6338	469			6782
	16	L5	4 X 2	6338	250			6588
W	12	L6	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L7	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
I	12	L8	4 X 8	3338	469			3782
	20	L9	4 X 12	3338	1220			4558
	16	L10	4 X 13	4634	250			4884
N	20	L11	4 X 18	4584	250			4834
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	192	963	192		1347
	12	ST10	2 X 4	16850				16850
CURB	12	VL1	2 X 28	204	471	306	460	1541
	12	VL2	4 X 34	204	204	248	200	956
AND	20	L12	26 X 4	1121	120			1241
	12	ST11	4 X 4	16860				16860
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 96 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

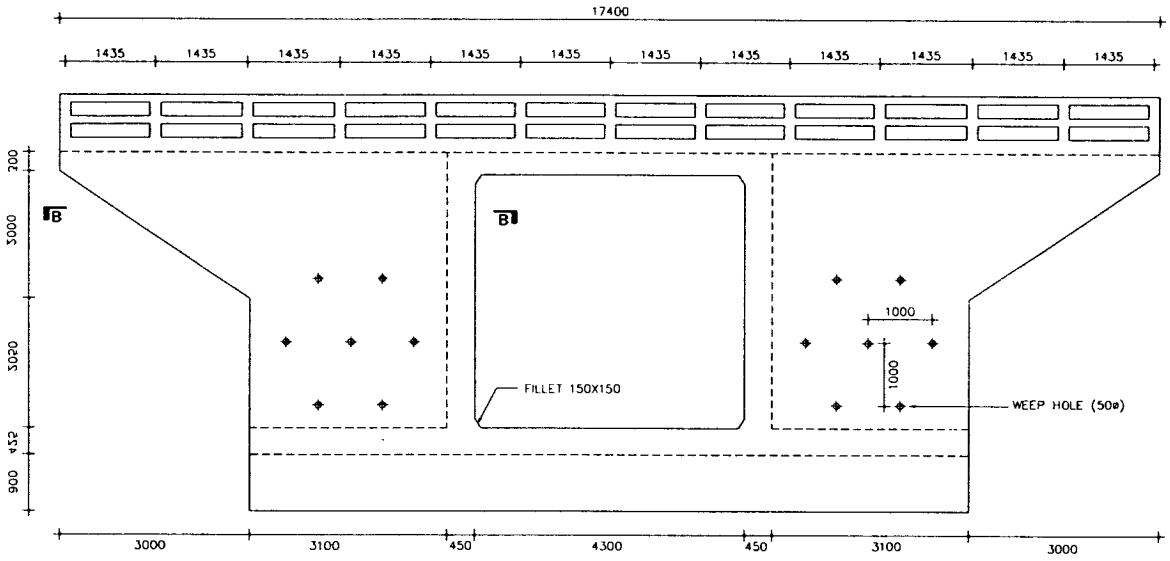
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT, 4.0m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1240402

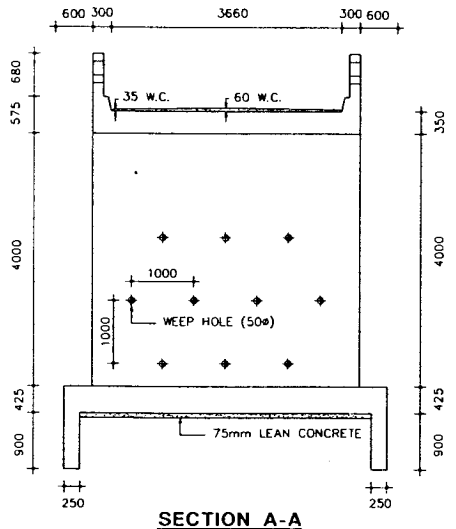
Web Copy

BC-103

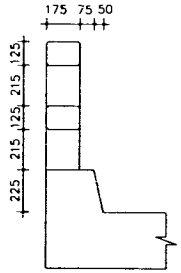
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.0m



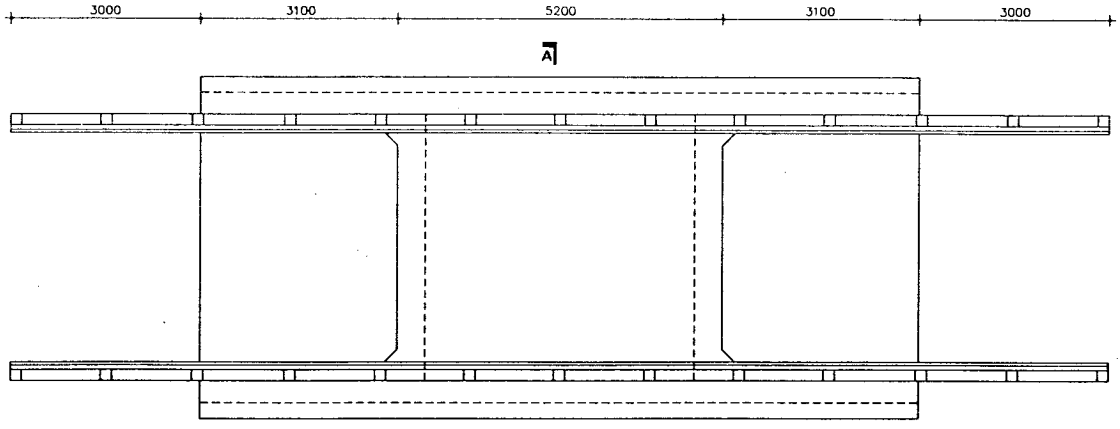
GENERAL ELEVATION



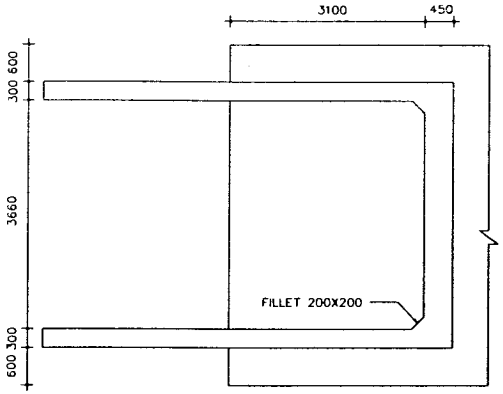
SECTION A-A



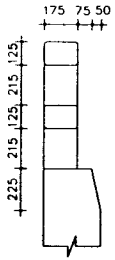
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

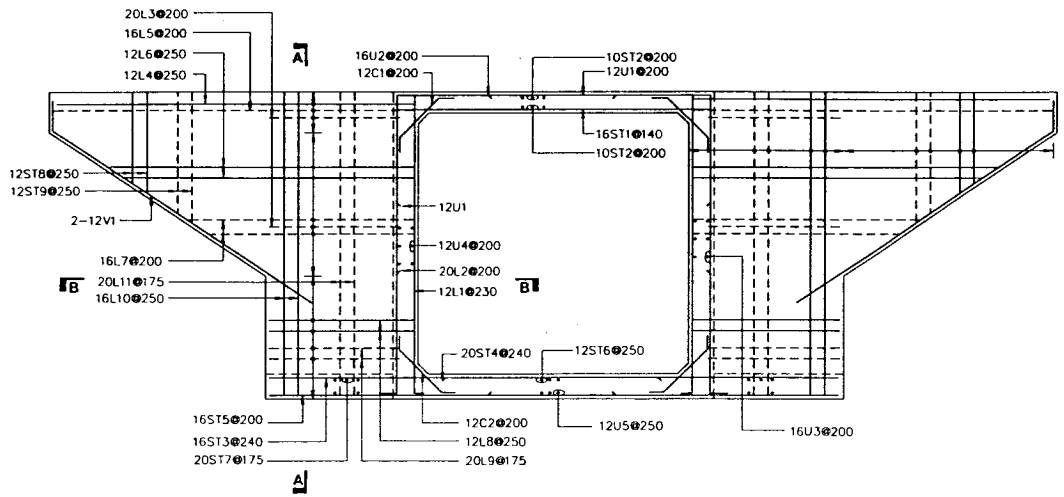
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 3.66m

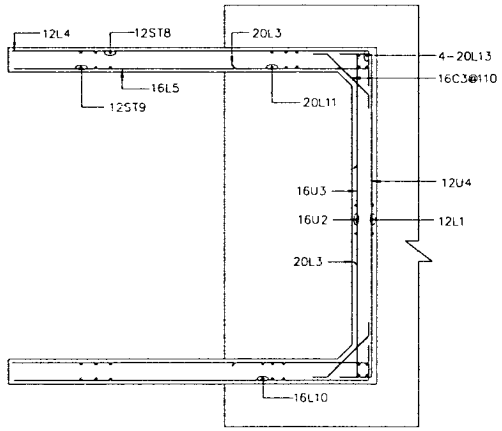
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243401	

Web Copy

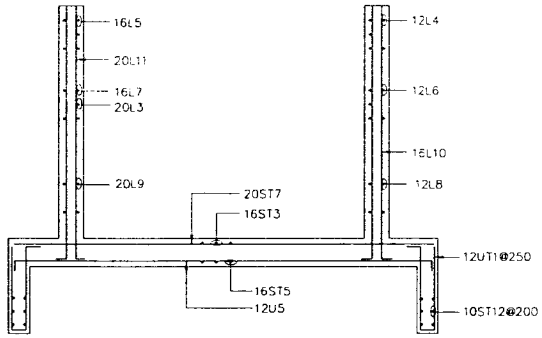
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.0m



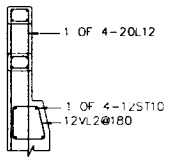
REINFORCEMENT DETAILS



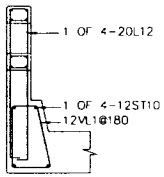
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



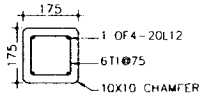
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

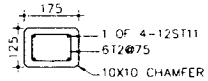
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	5100				5100
O	10	ST2	2 X 27	4160				4160
X	16	ST3	24	11300				11300
	20	ST4	23	2580				2580
A	16	ST5	28	11300				11300
P	12	ST6	22	5360				5360
P	20	ST7	2 X 18	5360				5360
R	12	C1	2 X 22	144	1034	144		1322
O	12	C2	2 X 22	144	1117	144		1405
N	12	L1	2 X 15	4657	250			4907
	20	L2	2 X 20	1696	250			1946
&	20	L13	4 X 4	4657	250			4907
	12	U1	22	1643	5100	1643		8386
C	16	U2	2 X 22	1833	4685	1833		8351
U	16	U3	2 X 19	250	4160	250		4660
T	12	U4	2 X 19	594	4160	594		5348
O	12	U5	47	250	5290	250		5790
F	10	ST12	4 X 5	11250				11250
F	12	UT1	2 X 47	144	2 X 1200	100		2644
	20	L3	4 X 13	3488	1220			4708
	12	L4	4 X 1	6438	469			6907
	16	L5	4 X 2	6438	250			6688
W	12	L6	4 X 9	Var. 6409 To 3438 @ 371	444			Var. 6853 To 3882
	16	L7	4 X 11	Var. 6409 To 3438 @ 297	250			Var. 6659 To 3688
I	12	L8	4 X 9	3438	469			3907
	20	L9	4 X 12	3438	1220			4658
	16	L10	4 X 13	4709	250			4959
N	20	L11	4 X 18	4659	250			4909
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	1034	144		1322
	12	ST10	2 X 4	17350				17350
CURB	12	VL1	2 X 30	204	522	317	510	1653
	12	VL2	4 X 34	204	204	248	200	956
AND	20	L12	26 X 4	1171	120			1291
	12	ST11	4 X 4	17360				17360
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 86 kN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

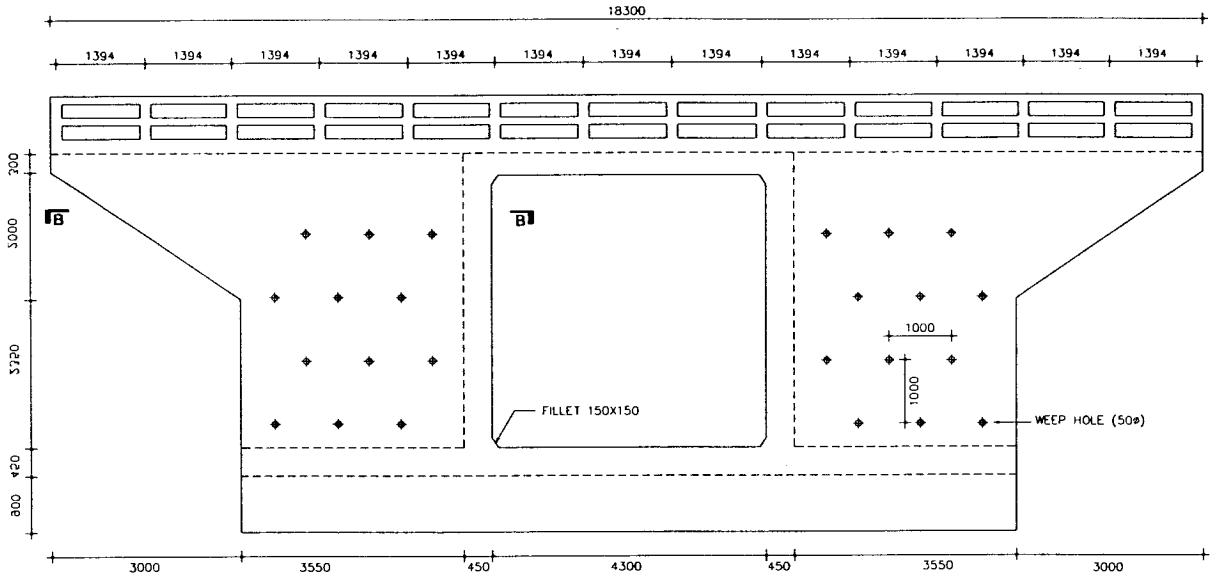
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1243402

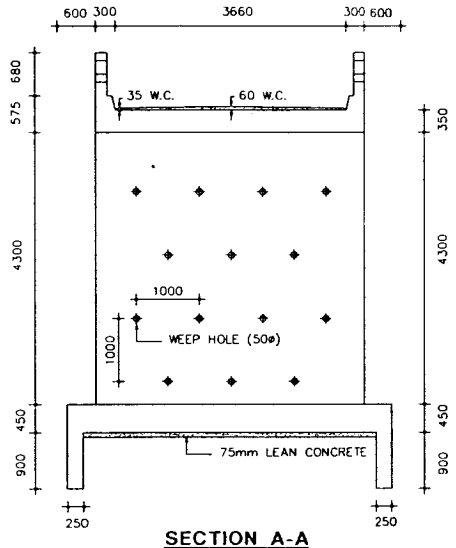
Web Copy

BC-105

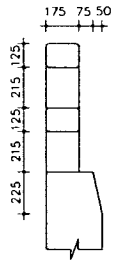
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



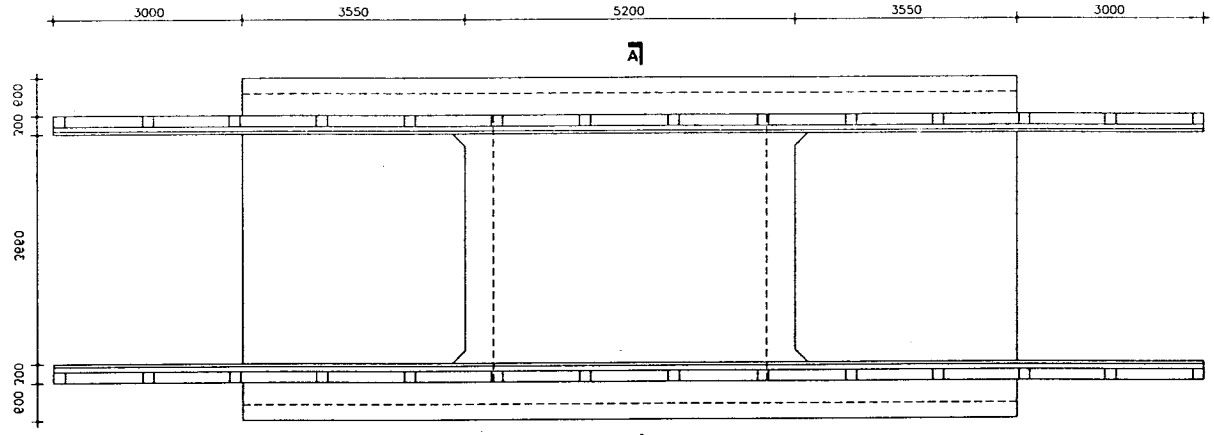
GENERAL ELEVATION



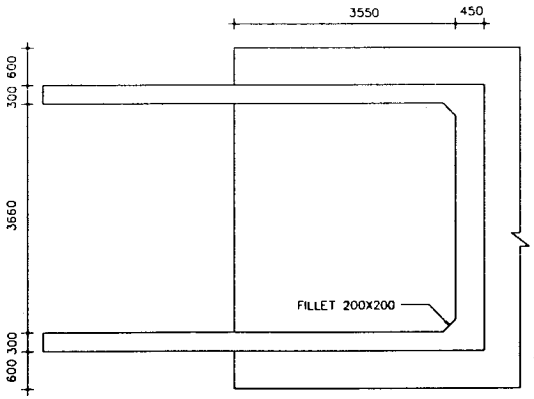
SECTION A-A



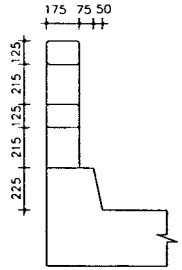
GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

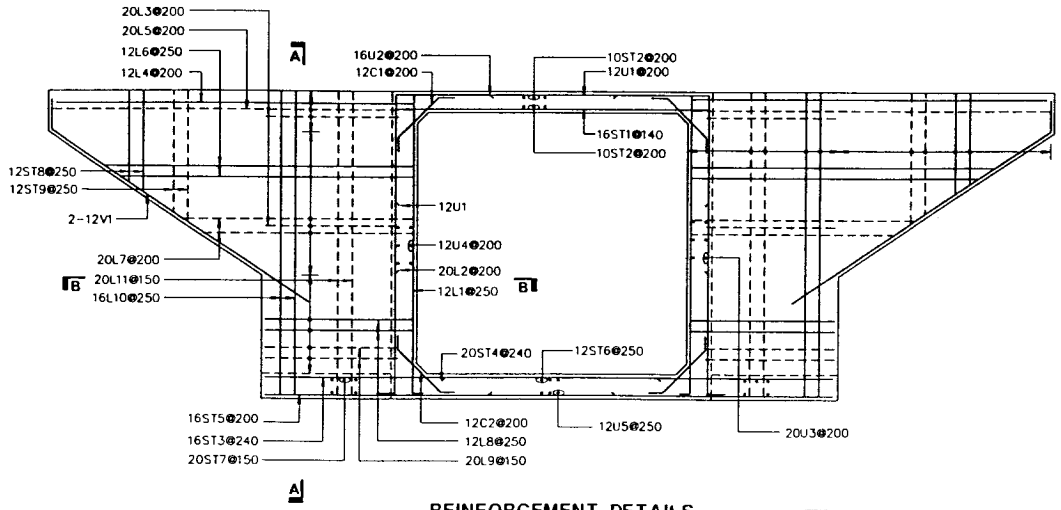
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 4.3m ROADWAY 3.66m

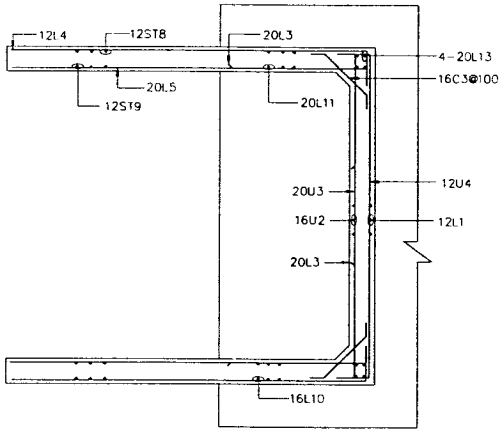
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1243431	

Web Copy

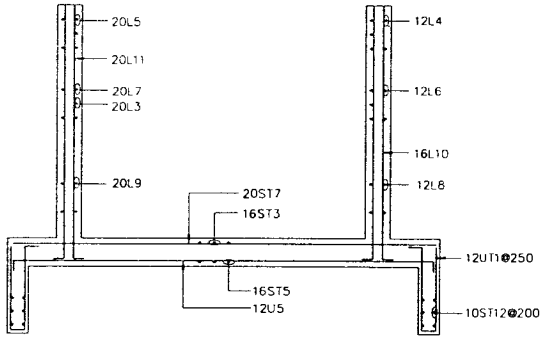
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



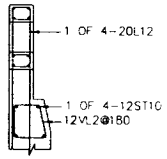
REINFORCEMENT DETAILS



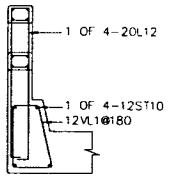
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



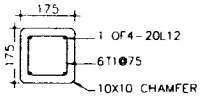
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

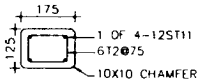
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	5100				5100
O	10	ST2	2 X 27	4160				4160
X	16	ST3	24	12200				12200
	20	ST4	23	2580				2580
A	16	ST5	28	12200				12200
P	12	ST6	22	5360				5360
P	20	ST7	2 X 24	5360				5360
R	12	C1	2 X 22	144	1028	144		1316
O	12	C2	2 X 22	144	1147	144		1435
N	12	L1	2 X 14	4982	250			5232
	20	L2	2 X 20	1821	250			2071
&	20	L13	4 X 4	4982	250			5232
	12	U1	22	1743	5100	1743		8586
C	16	U2	2 X 22	1833	5010	1833		8676
U	20	U3	2 X 21	250	4160	250		4660
T	12	U4	2 X 21	594	4160	594		5348
O	12	U5	50	250	5290	250		5790
F	10	ST12	4 X 5	12150				12150
F	12	UT1	2 X 50	144	2 X 1225	100		2694
	20	L3	4 X 13	3938	1220			5158
	12	L4	4 X 1	6888	441			7332
	20	L5	4 X 2	6888	250			7138
W	12	L6	4 X 9	Var. 6859 To 3888 @ 371	444			Var 7303 To 4332
	20	L7	4 X 11	Var. 6859 To 3888 @ 247	250			Var. 7109 To 4138
I	12	L8	4 X 10	3888	441			4332
	20	L9	4 X 16	3888	1220			5108
	16	L10	4 X 14	5034	250			5284
N	20	L11	4 X 24	4984	250			5234
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @ 169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 46	192	1034	192		1418
	12	ST10	2 X 4	18250				18250
CURB	12	VL1	2 X 30	204	522	317	510	1653
	12	VL2	4 X 37	204	204	248	200	956
AND	20	L12	28 X 4	1183	120			1303
	12	ST11	4 X 4	18260				18260
RAILING	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21**MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276**MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ **72** kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

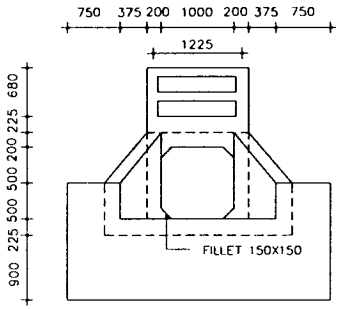
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1243432

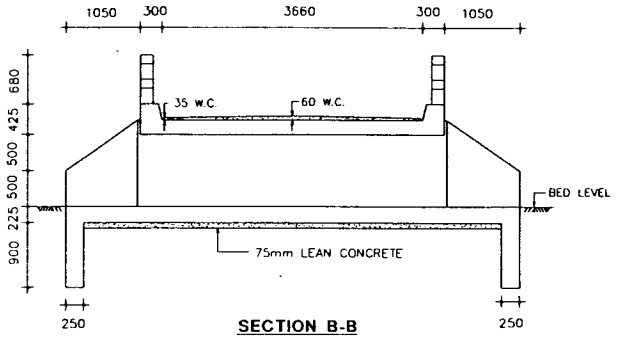
Web Copy

BC-107

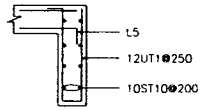
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 1.0m
CLEAR HEIGHT : 1.0m



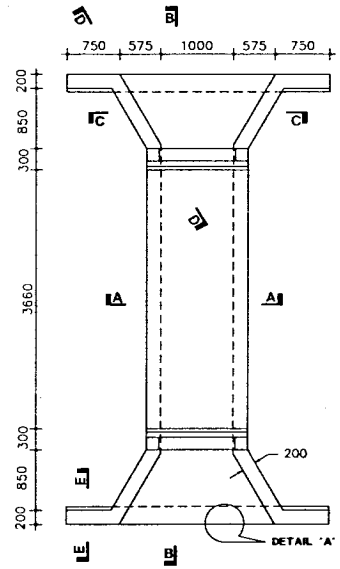
GENERAL ELEVATION



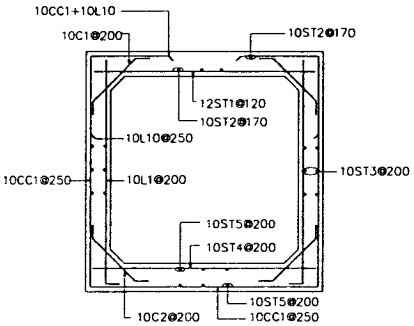
SECTION B-B



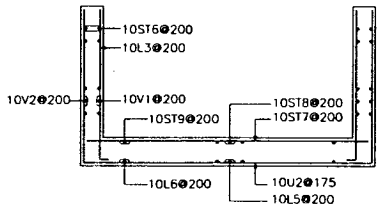
REINF. DETAIL OF 'A'



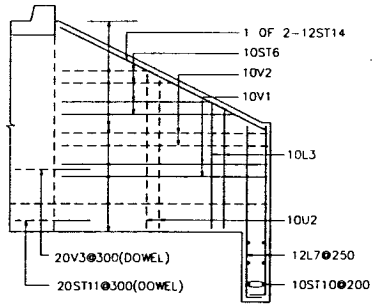
PLAN



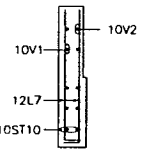
SECTION A-A (REINF. DETAIL)



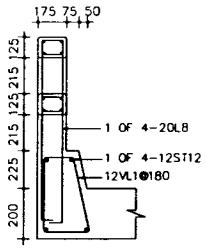
SECTION C-C (REINF. DETAIL)



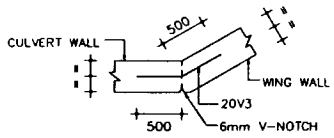
SECTION D-D (REINF. DETAIL)



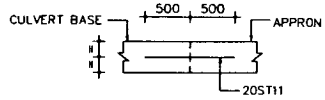
SECTION E-E



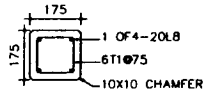
RAILING ON CULVERT (REINF. DETAIL)



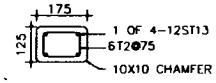
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	36	1300				1300
	10	ST2	8 + 9	4160				4160
B	10	L10	2 X 17	493	483			976
	10	CC1	18	2 X 493	2 X 1335	1300		4956
	10	ST3	4X 5	4160				4160
	10	ST4	22	1300				1300
O	10	ST5	2X 8	4160				4160
	10	L1	2X 22	1315	120			1435
	10	C1	2X 22	120	493	120		733
X	10	C2	2X 22	120	515	120		755
	20	ST11	2X 5	1000				1000
	20	V3	4X 4	500	500			1000
	10	L3	4X 7	Var. 1305 To 605 @ 116	120			Ver.1425 To 725
W I N G	10	ST6	8X 4	Ver. 1062 To 283 @ 259				Ver.1062 To 283
	10	V1	4X 2	1073	665			1738
	10	V2	4X 2	981	619			1600
A P P R O N	10	ST7	2X 5	Var. 1342 To 2150 @ 202				Var.1342 To 2150
	10	ST8	2X 6	925				925
	10	ST9	4X 3	Var. 874 To 171 @ 351				Var. 874 To 171
&	10	U2	2X 5	Ver. 1305 To 605 @ 175	Ver. 1342 To 2150 @ 202	Same As 'a'		Var.3952 To 3360
	10	L5	2X 6	925	120			1045
C U T O F F	10	L6	4X 3	Var. 852 To 149 @ 351	120			Ver. 972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	4X 5	4000				5100
	12	UT1	2X 8	144	2X 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB	12	ST12	2X 4	1360				1360
	12	VL1	2X 8	204	368	284	360	1316
AND	20	L8	4X 4	1021	120			1141
	12	ST13	4X 4	1360				1360
RAILING	6	T1	4X 6	2 X 135	2 X 135			540
	6	T2	4X 14	2 X 85	2 X 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 44 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S000D001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

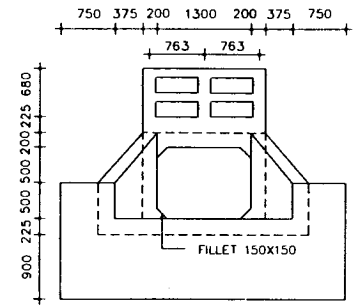
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.0m x 1.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\81310101	

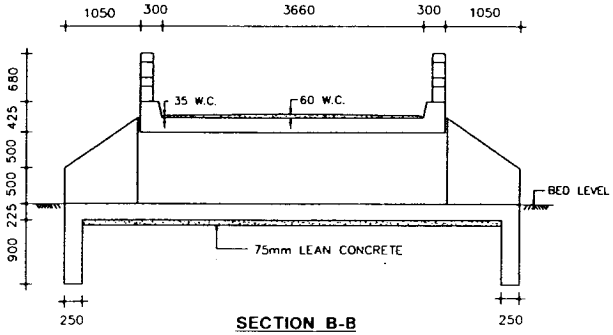
Web Copy

BC-108

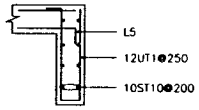
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 1.3m
CLEAR HEIGHT : 1.0m



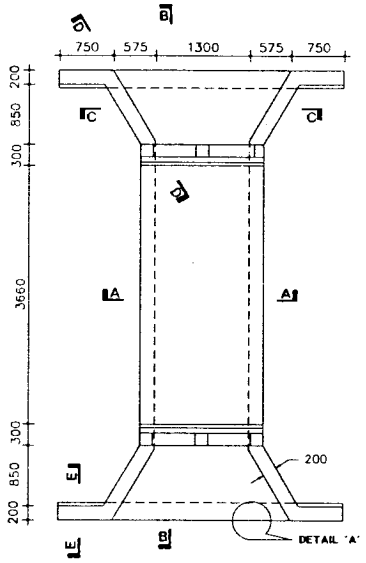
GENERAL ELEVATION



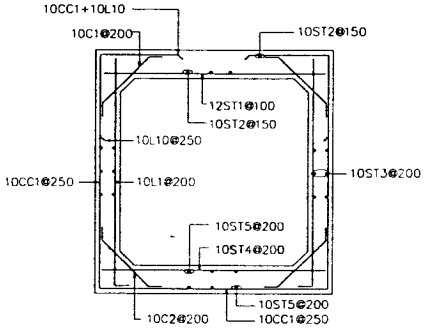
SECTION B-B



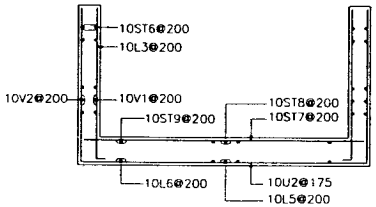
REINF. DETAIL OF 'A'



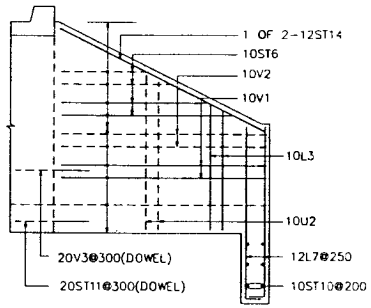
PLAN



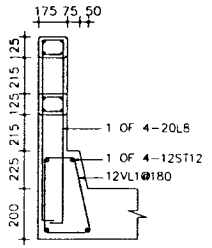
SECTION A-A (REINF. DETAIL)



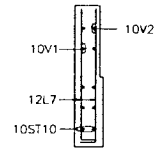
SECTION C-C (REINF. DETAIL)



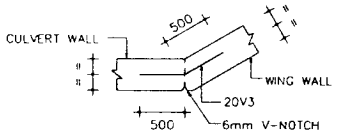
SECTION D-D (REINF. DETAIL)



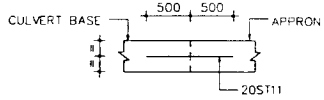
RAILING ON CULVERT (REINF. DETAIL)



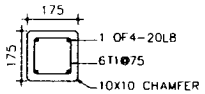
SECTION E-E



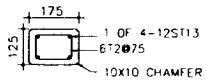
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	43	1600				1600
	10	ST2	10+12	4160				4160
	10	L10	2 X 17	493	583			1076
	10	CC1	18	2 X 593	2 X 1335	1600		5456
O	10	ST3	4X 5	4160				4160
	10	ST4	22	1600				1600
	10	ST5	2X 9	4160				4160
	10	L1	2X 22	1315	120			1435
	10	C1	2X 22	120	493	120		733
X	10	C2	2X 22	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4X 4	500	500			1000
WING APPRON & CUT OFF	10	L3	4X 7	Var. 1305 To 605 @ 116	120			Ver.1425 To 725
	10	ST6	8X 4	Ver. 1062 To 283 @ 259				Ver.1062 To 283
	10	V1	4X 2	1073	665			1738
	10	V2	4X 2	981	619			1600
	10	ST7	2X 5	Var. 1642 To 2450 @ 202				Var.1642 To 2450
	10	ST8	2X 7	925				925
	10	ST9	4X 3	Var. 874 To 171 @ 351				Var. 874 To 171
	10	U2	4X 5	Ver. 1305 To 605 @ 175	Ver. 1642 To 2450 @ 202	Same As 'a'		Var.4252 To 3660
	10	L5	2X 8	925	120			1045
	10	L6	4X 3	Var. 852 To 149 @ 351	120			Ver. 972 To 269
	12	L7	8X 3	1500	144			1644
	10	ST10	8X 5	4300				5400
	12	UT1	2X 8	144	2X 1000	100		2244
	12	ST14	4X 2	1284				1284
CURB AND RAILING	12	ST12	2X 4	1660				1660
	12	VL1	2X 10	204	368	284	360	1316
	20	L8	6X 4	1021	120			1141
	12	ST13	4X 4	1660				1660
	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 16	2 X 185	2 X 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm
7) Bearing capacity of soil should be $\geq$ 39 KN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 1.3m x 1.0m ROADWAY 3.66m

DATE :

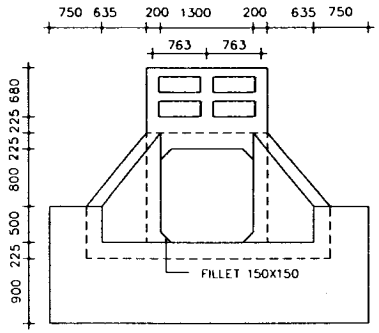
ISSUED BY :

CAD FILE REF : CULV\B1313101

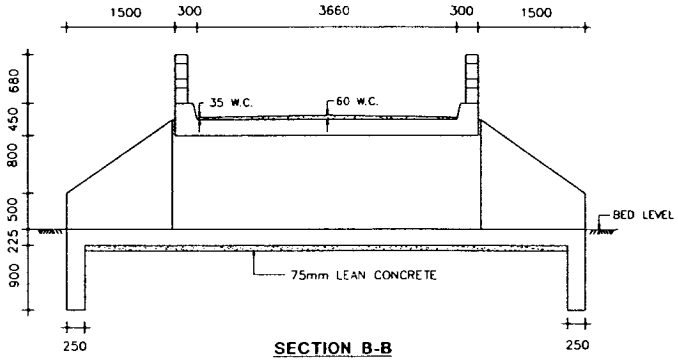
Web Copy

BC-109

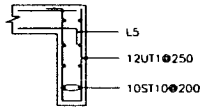
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 1.3m
CLEAR HEIGHT : 1.3m



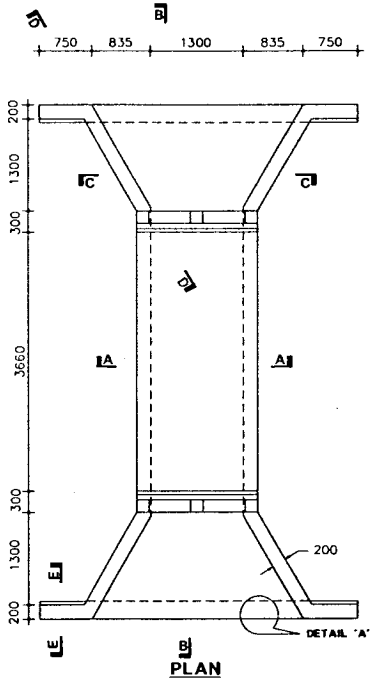
GENERAL ELEVATION



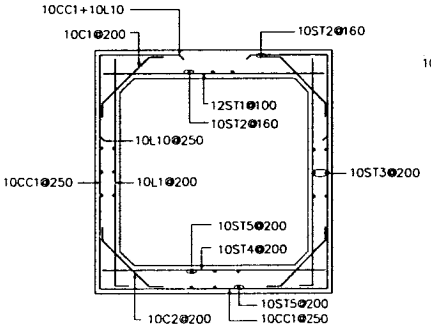
SECTION B-B



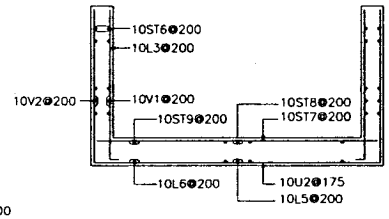
REINF. DETAIL OF 'A'



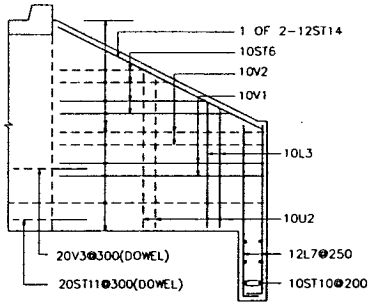
PLAN



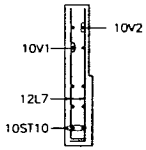
SECTION A-A (REINF. DETAIL)



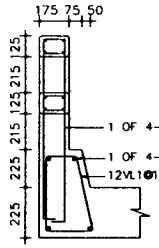
SECTION C-C (REINF. DETAIL)



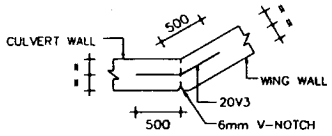
SECTION D-D (REINF. DETAIL)



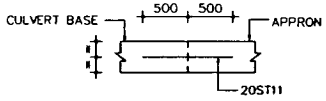
SECTION E-E



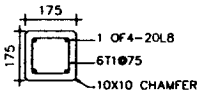
RAILING ON CULVERT (REINF. DETAIL)



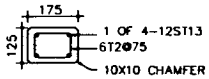
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	12	ST1	43	1600				1600
	10	ST2	10+11	4160				4160
	10	L10	2 X 17	618	583			1201
	10	CC1	18	2 X 593	2 X 1660	1600		6106
	10	ST3	4X 6	4160				4160
	10	ST4	22	1600				1600
O	10	ST5	2X 9	4160				4160
	10	L1	2X 22	1640	120			1760
	10	C1	2X 22	120	529	120		769
X	10	C2	2X 22	120	515	120		755
	20	ST11	2X 6	1000				1000
	20	V3	4X 5	500	500			1000
W	10	L3	4X 9	Var. 1630 To 605 @ 128	120			Ver.1750 To 725
I N C	10	ST6	8X 5	Ver. 1583 To 274 @ 327				Ver.1583 To 274
A	10	V1	4X 2	1593	665			2258
	10	V2	4X 2	1501	619			2120
P P	10	ST7	2X 7	Var. 1642 To 2970 @ 221				Var.1642 To 2970
R	10	ST8	2X 7	1375				1375
O	10	ST9	4X 4	Var. 1324 To 171 @ 384				Var.1324 To 171
N &	10	U2	2X 8	Var. 1630 To 605 @ 146	Var. 1642 To 2970 @ 189	Same As 'a'		Var.4902 To 4180
C	10	L5	2X 8	1375	120			1495
U	10	L6	4X 4	Var. 1302 To 149 @ 384	120			Var.1422 To 269
T	12	L7	8X 3	1500	144			1644
O	10	ST10	4X 5	4820				5920
F	12	UT1	2X 11	144	2X 1000	100		2244
F	12	ST14	4X 2	1896				1896
CURB	12	ST12	2X 4	1660				1660
	12	VL1	2X 10	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	1660				1660
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 16	2 X 85	2 X 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 41 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.3m x 1.3m ROADWAY 3.66m

DATE :

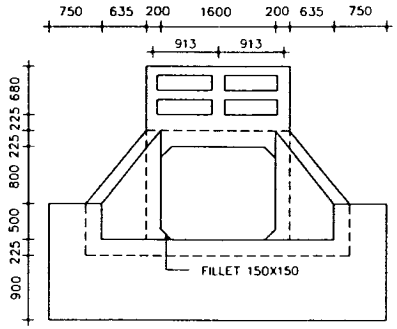
ISSUED BY :

CAD FILE REF : CULV\B1313131

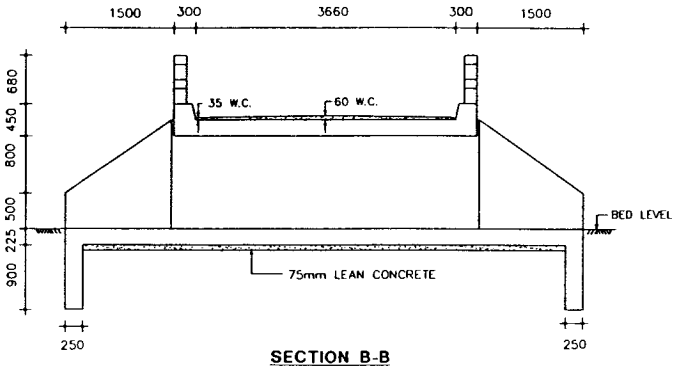
Web Copy

BC-110

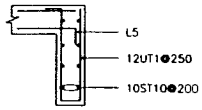
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 1.6m
CLEAR HEIGHT : 1.3m



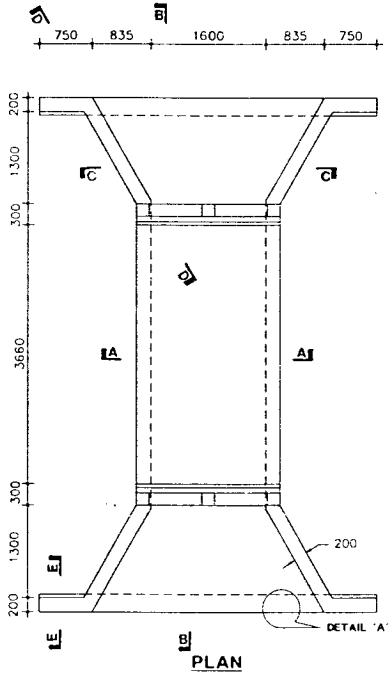
GENERAL ELEVATION



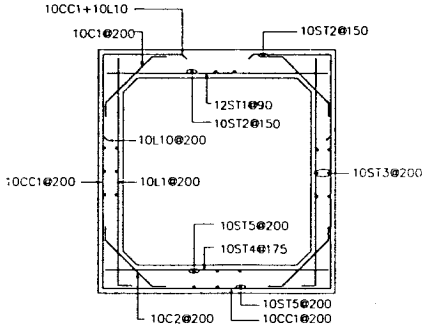
SECTION B-B



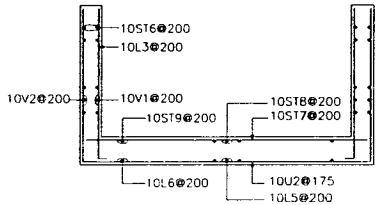
REINF. DETAIL OF 'A'



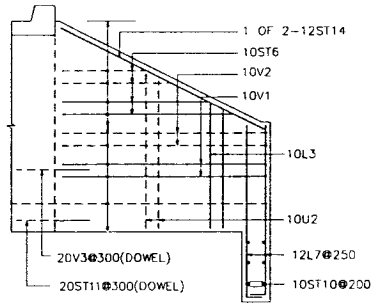
PLAN



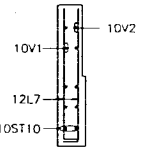
SECTION A-A (REINF. DETAIL)



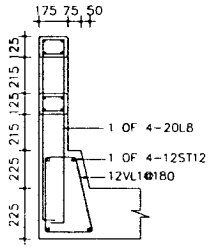
SECTION C-C (REINF. DETAIL)



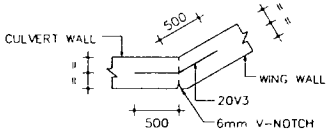
SECTION D-D (REINF. DETAIL)



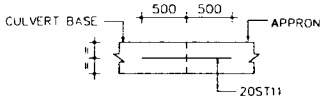
SECTION E-E



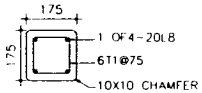
RAILING ON CULVERT (REINF. DETAIL)



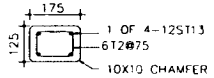
DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	12	ST1	47	1900				1900
	10	ST2	12+14	4160				4160
B	10	L10	2 X 21	618	683			1301
	10	CC1	22	2 X 693	2 X 1660	1900		6606
	10	ST3	4X 6	4160				4160
	10	ST4	25	1900				1900
O	10	ST5	2X 11	4160				4160
	10	L1	2X 22	1640	120			1760
	10	C1	2X 22	120	529	120		769
X	10	C2	2X 22	120	515	120		755
	20	ST11	2X 7	1000				1000
	20	V3	4X 5	500	500			1000
W	10	L3	4X 9	Var. 1630 To	120			Ver.1750
I				605 @ 128				To 725
N	10	ST6	8X 5	Ver. 1583 To				Ver.1583
G				274 @ 327				To 274
	10	V1	4X 2	1593	665			2258
A	10	V2	4X 2	1501	619			2120
P	10	ST7	2X 7	Var. 1942 To				Var.1942
P				3270 @ 221				To 3270
R	10	ST8	2X 9	1375				1375
O	10	ST9	4X 4	Var 1324 To				Var.1324
N				171 @ 384				To 171
	10	U2	2X 8	Ver. 1630 To	Ver. 1942 To	Same		Var 5202
&				605 @ 146	3270 @ 189	As 'a'		To 4480
	10	L5	2X 9	1375	120			1495
C	10	L6	4X 4	Var. 1302 To	120			Ver.1422
U				149 @ 384				To 269
T	12	L7	8X 3	1500	144			1644
O	10	ST10	4X 5	5120				6220
F	12	UT1	2X 11	144	2X 1000	100		2244
F	12	ST14	4X 2	1896				1896
CURB	12	ST12	2X 4	1960				1960
	12	VL1	2X 12	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	1960				1960
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 20	2 X 85	2 X 135			440

LEGEND

W.C. = Wearing Course

NOTES

1) All dimensions are in millimetre unless otherwise specified
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be **21** MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of **276** MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm
7) Bearing capacity of soil should be ≥ **37** KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.6m x 1.3m ROADWAY 3.66m

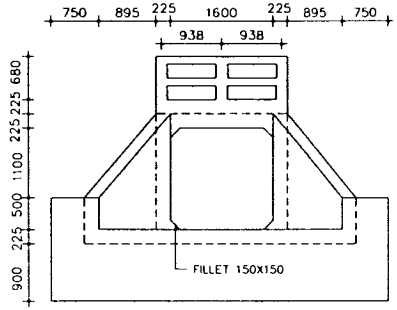
DATE :

ISSUED BY :

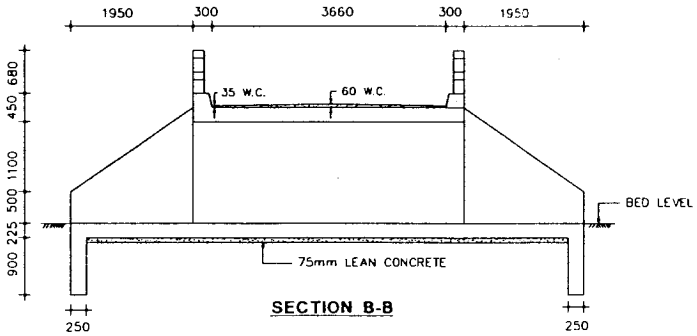
CAD FILE REF : CULV\B1316131

Web Copy

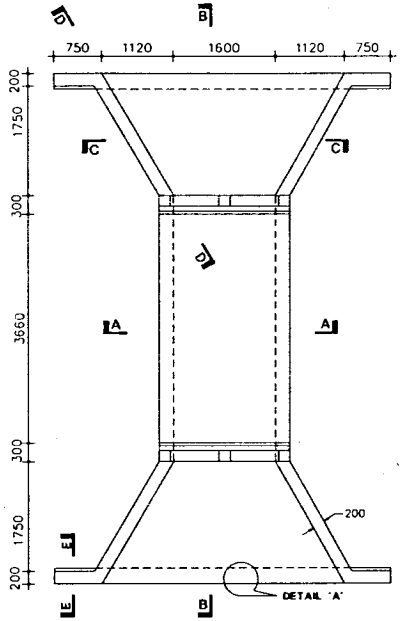
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 1.6m	
CLEAR HEIGHT : 1.6m	



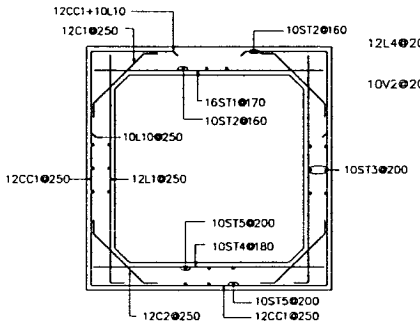
GENERAL ELEVATION



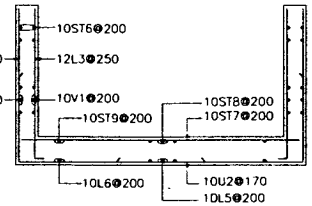
SECTION B-B



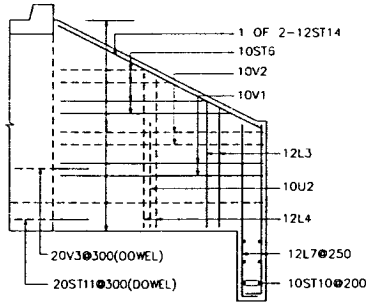
PLAN



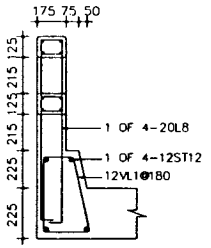
SECTION A-A (REINF. DETAIL)



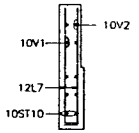
SECTION C-C (REINF. DETAIL)



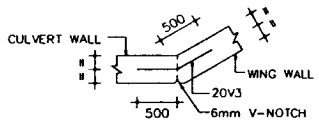
SECTION D-D (REINF. DETAIL)



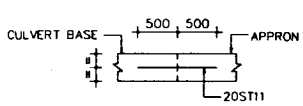
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

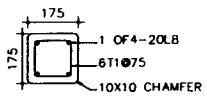
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	25	1950				1950
	10	ST2	12+14	4160				4160
B	10	L10	2 X 17	718	708			1426
	12	CC1	18	2 X 718	2 X 1960	1950		7306
	10	ST3	4X 8	4160				4160
	10	ST4	24	1950				1950
O	10	ST5	2X 11	4160				4160
	12	L1	2X 18	1938	144			2082
	12	C1	2X 18	144	558	144		846
X	12	C2	2X 18	144	544	144		832
	20	ST11	2X 7	1000				1000
	20	V3	4X 6	500	500			1000
	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Ver.2074 To 749
W I N G	12	L4	4x 12	Ver. 1950 To 625 @ 120	Ver. 995 To 147 @ 77			Ver.2945 To 772
	10	ST6	8X 7	Ver. 2103 To 276 @ 304				Ver.2103 To 276
A	10	V1	4X 2	2113	665			2778
P	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 1992 To 3839 @ 230				Var.1992 To 3839
R	10	ST8	2X 9	1825				1825
O	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
&	10	U2	2X 9	Ver. 925 To 475 @ 50	Ver. 1992 To 3839 @ 205	Same As 'a'		Var.3842 To 4789
C	10	L5	2X 9	1825	120			1945
U	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
T	12	L7	8X 3	1500	144			1644
O	10	ST10	4X 5	5689				6789
F	12	UT1	2X 14	144	2X 1000	100		2244
F	12	ST14	4X 2	2496				2496
CURB	12	ST12	2X 4	2010				2010
	12	VL1	2X 12	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2010				2010
RAILING	6	T1	6X 6	2 X 135	2 X135			540
	6	T2	4X 20	2 X 85	2 X 135			440

LEGEND

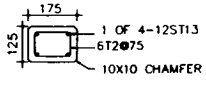
W.C. = Wearing Course

NOTES

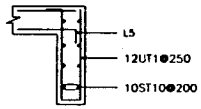
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 38 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

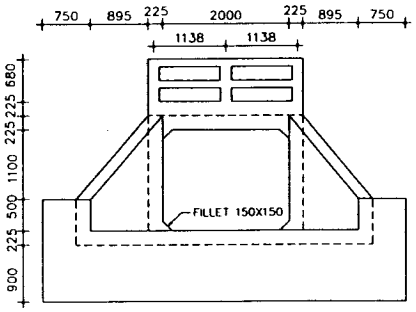
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 1.6m x 1.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1316161	

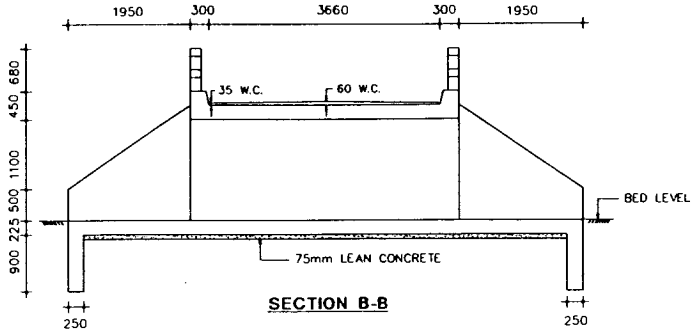
Web Copy

BC-112

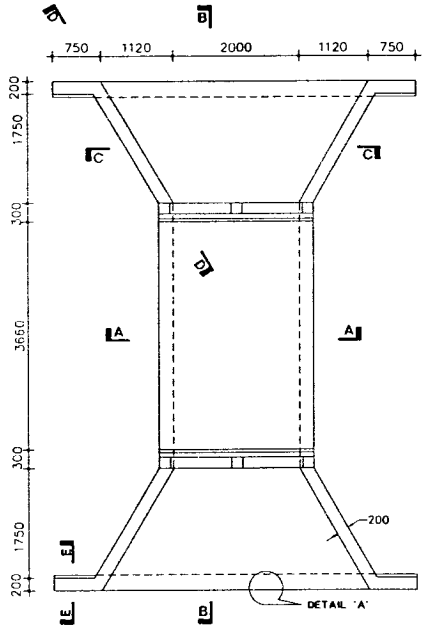
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 1.6m



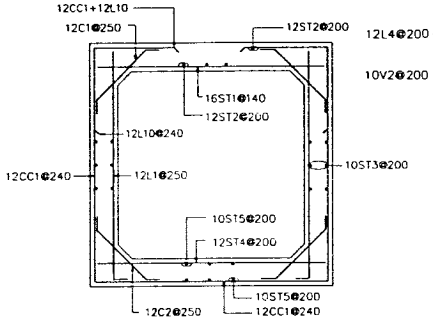
GENERAL ELEVATION



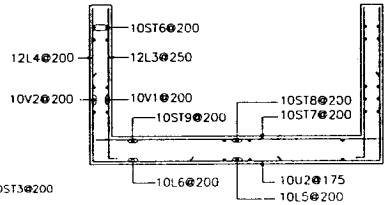
SECTION B-B



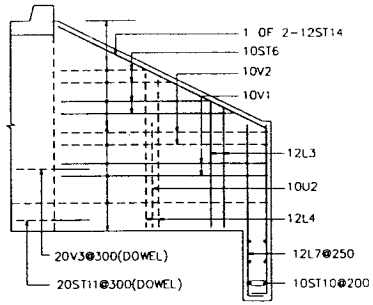
PLAN



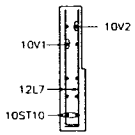
SECTION A-A (REINF. DETAIL)



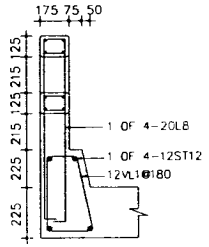
SECTION C-C (REINF. DETAIL)



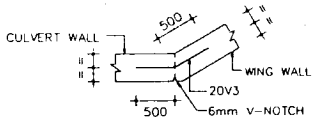
SECTION D-D (REINF. DETAIL)



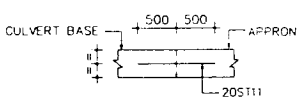
SECTION E-E



RAILING ON CULVERT (REINF. DETAIL)



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

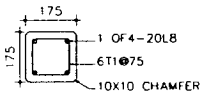
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	2350				2350
	12	ST2	12+13	4160				4160
	12	L10	2 X 18	718	841			1559
	12	CC1	18	2 X 851	2 X 1960	2350		7972
O	10	ST3	4X 8	4160				4160
	12	ST4	22	2350				2350
	10	ST5	2X 13	4160				4160
	12	L1	2X 18	1938	144			2082
X	12	C1	2X 18	144	556	144		844
	12	C2	2X 18	144	544	144		832
	20	ST11	2X 8	1000				1000
	20	V3	4X 6	500	500			1000
W	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Ver.2074 To 749
I	12	L4	4x 12	Ver. 1950 To 625 @ 120	Ver. 1155 To 147 @ 91			Ver.3105 To 772
N	10	ST6	8X 7	Ver. 2103 To 276 @ 304				Ver.2103 To 276
G	10	V1	4X 2	2113	665			2778
A	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 2392 To 4239 @ 230				Var.2392 To 4239
P	10	ST8	2X 11	1825				1825
R	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
O	10	U2	2X 9	Var. 925 To 475 @ 50	Var. 2392 To 4239 @ 205	Same As 'a'		Var.4242 To 5189
N	10	L5	2X 11	1825	120			1945
&	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
C	12	L7	8X 3	1500	144			1644
U	10	ST10	4X 5	6089				7189
T	12	UT1	2X 14	144	2X 1000	100		2244
O	12	ST14	4X 2	2496				2496
F	12	ST12	2X 4	2410				2410
F	12	VL1	2X 14	204	394	289	385	1372
CURB	20	L8	6X 4	1046	120			1166
AND	12	ST13	4X 4	2410				2410
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 26	2 X 85	2 X 135			440

LEGEND

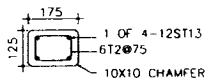
W.C. = Wearing Course

NOTES

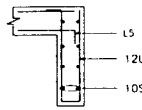
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm
7) Bearing capacity of soil should be $\geq$ 34 KN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File. CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 2.0m x 1.6m ROADWAY 3.66m

DATE :

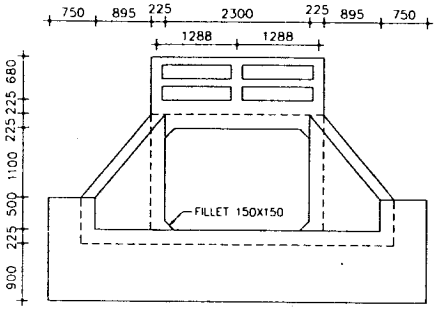
ISSUED BY :

CAD FILE REF : CULV\B1320161

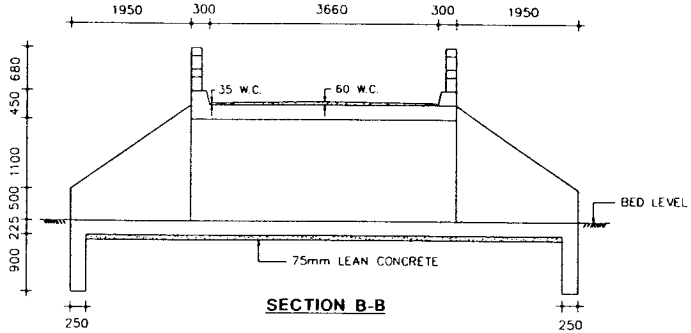
Web Copy

BC-113

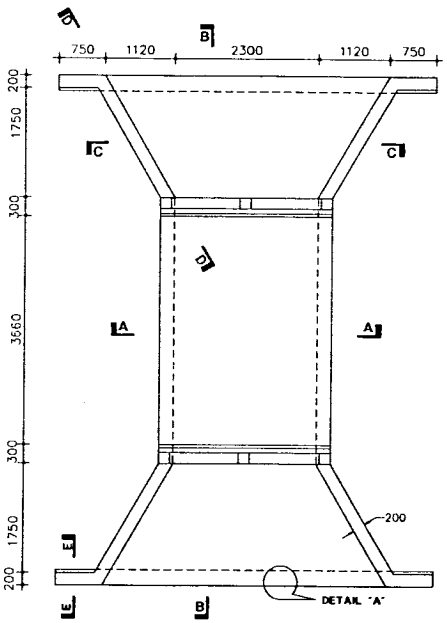
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 2.3m	
CLEAR HEIGHT : 1.6m	



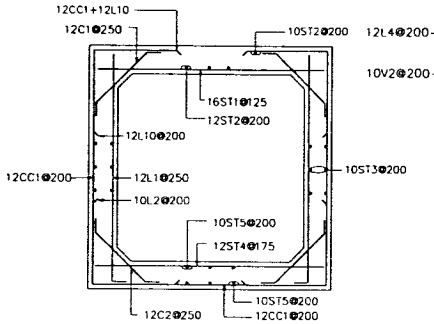
GENERAL ELEVATION



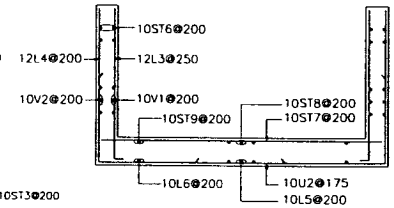
SECTION B-B



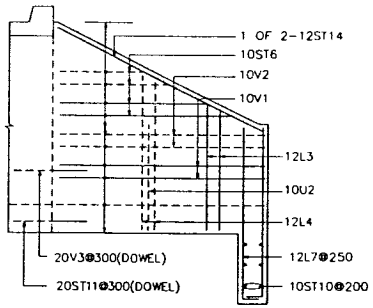
PLAN



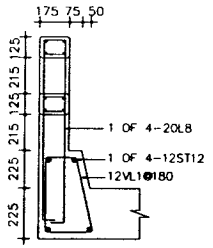
SECTION A-A (REINF. DETAIL)



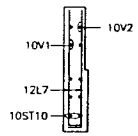
SECTION C-C (REINF. DETAIL)



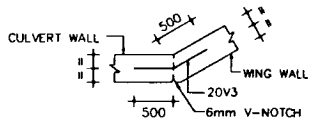
SECTION D-D (REINF. DETAIL)



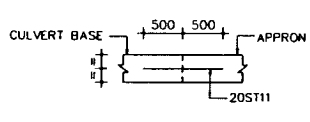
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

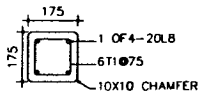
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	34	2650				2650
	12	ST2	12+15	4160				4160
	12	L10	2 X 21	718	941			1659
	12	CC1	22	2 X 951	2 X 1960	2650		8472
O	10	ST3	4X 8	4160				4160
	12	ST4	25	2650				2650
	10	ST5	2X 14	4160				4160
	12	L1	2X 18	1938	144			2082
	10	L2	2X 21	708	941			1649
	12	C1	2X 18	144	556	144		844
X	12	C2	2X 18	144	544	144		832
	20	ST11	2X 9	1000				1000
	20	V3	4X 6	500	500			1000
W	12	L3	4X 10	Var. 1930 To 605 @ 147	144			Ver.2074 To 749
I	12	L4	4x 12	Ver. 1950 To 625 @ 120	Ver. 1275 To 147 @ 102			Ver.3225 To 772
N	10	ST6	8X 7	Ver. 2103 To 276 @ 304				Ver.2103 To 276
G	10	V1	4X 2	2113	665			2778
A	10	V2	4X 2	2020	619			2639
P	10	ST7	2X 9	Var. 2692 To 4539 @ 230				Var.2692 To 4539
P	10	ST8	2X 12	1825				1825
R	10	ST9	4X 6	Var. 1774 To 171 @ 320				Var.1774 To 171
O	10	U2	2X 9	Ver. 925 To 475 @ 50	Ver. 2692 To 4539 @ 205	Same As 'a'		Var.4542 To 5489
N	10	L5	2X 13	1825	120			1945
&	10	L6	4X 6	Var. 1752 To 149 @ 320	120			Ver.1872 To 269
C	12	L7	8X 3	1500	144			1644
U	10	ST10	4X 5	6389				7489
T	12	UT1	2X 14	144	2X 1000	100		2244
O	12	ST14	4X 2	2496				2496
F	12	ST12	2X 4	2710				2710
F	12	VL1	2X 16	204	394	289	385	1372
CURB	20	L8	6X 4	1046	120			1166
AND	12	ST13	4X 4	2710				2710
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 30	2 X 85	2 X 135			440

LEGEND

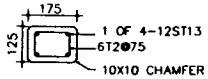
W.C. = Wearing Course

NOTES

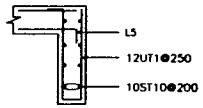
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT SINGLE VENT 2.3m x 1.6m ROADWAY 3.66m

DATE :

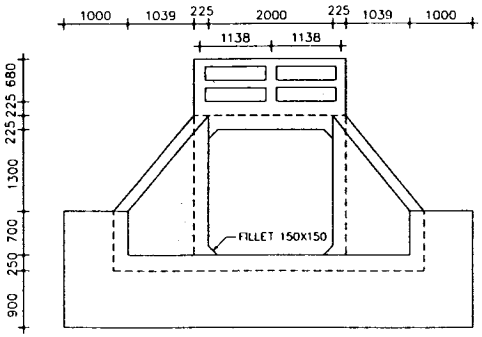
ISSUED BY :

CAD FILE REF : CULV\B1323161

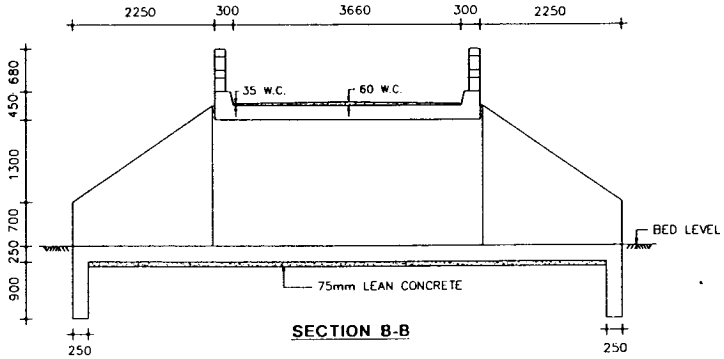
Web Copy

BC-114

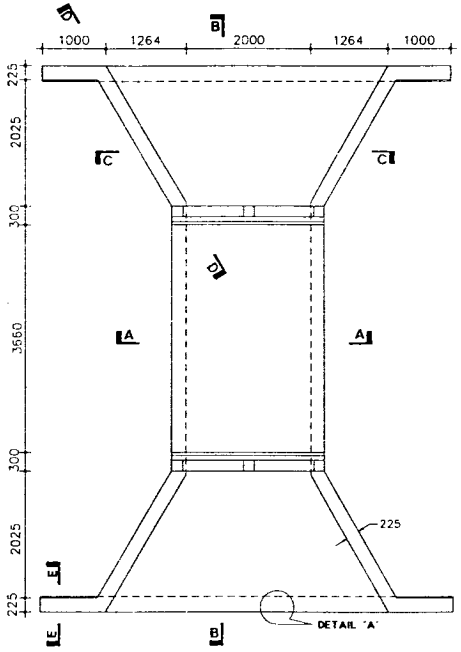
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2.0m
CLEAR HEIGHT : 2.0m



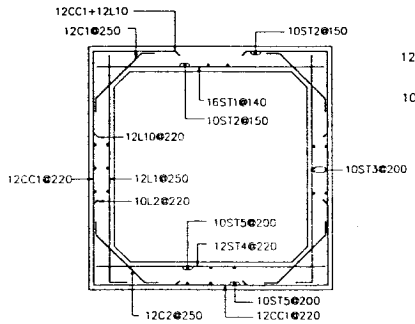
GENERAL ELEVATION



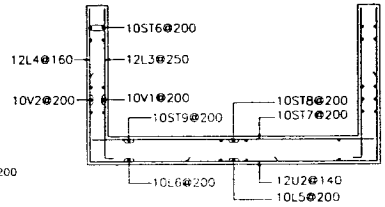
SECTION B-B



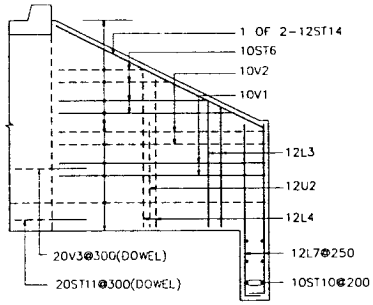
PLAN



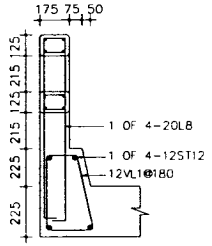
SECTION A-A (REINF. DETAIL)



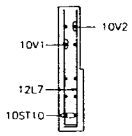
SECTION C-C (REINF. DETAIL)



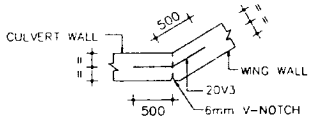
SECTION D-D (REINF. DETAIL)



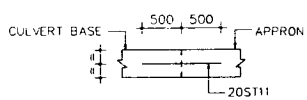
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

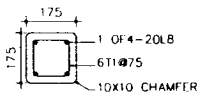
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	2350				2350
	10	ST2	14+17	4160				4160
	12	L10	2 X 19	851	841			1692
	12	CC1	20	2 X 851	2 X 2385	2350		8822
O	10	ST3	4X 10	4160				4160
	12	ST4	20-	2350				2350
	10	ST5	2X 13	4160				4160
	12	L1	2X 18	2363	144			2507
	10	L2	2X 19	866	841			1707
X	12	C1	2X 18	144	558	144		846
	12	C2	2X 18	144	580	144		868
	20	ST11	2X 8	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2353 To 828 @ 152	144			Ver.2497 To 972
I	12	L4	4x 17	Ver. 2375 To 850 @ 95	Ver. 1155 To 146 @ 63			Ver.3530 To 996
N	10	ST6	8X 8	Ver. 2449 To 277 @ 310				Ver.2449 To 277
A	10	V1	4X 3	2459	915			3374
P	10	V2	4X 3	2338	854			3192
P	10	ST7	2X 11	Var. 2392 To 4586 @ 219				Var 2392 To 4586
R	10	ST8	2X 11	2125				2125
O	10	ST9	4X 7	Var. 2074 To 171 @ 317				Var 2074 To 171
N	12	U2	2X 14	Ver. 1200 To 500 @ 50	Ver. 2392 To 4586 @ 156	Same As 'a'		Var.4792 To 5586
&	10	L5	2X 11	2125	120			2245
C	10	L6	4X 7	Var. 2052 To 149 @ 317	120			Ver.2172 To 269
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 5	6378				7503
O	12	UT1	2X 17	144	2X 1025	100		2294
F	12	ST14	4X 2	2896				2896
CURB	12	ST12	2X 4	2410				2410
	12	VL1	2X 14	204	394	289	385	1372
AND	20	L8	6X 4	1046	120			1166
	12	ST13	4X 4	2410				2410
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 26	2 X 85	2 X 135			440

LEGEND

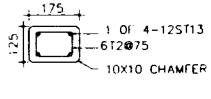
W.C. = Wearing Course

NOTES

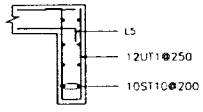
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)- 40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 37 KN/m^2
8) This drawing is to be read in conjunction with Shape Code, Cad File CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.0m x 2.0m ROADWAY 3.66m

DATE :

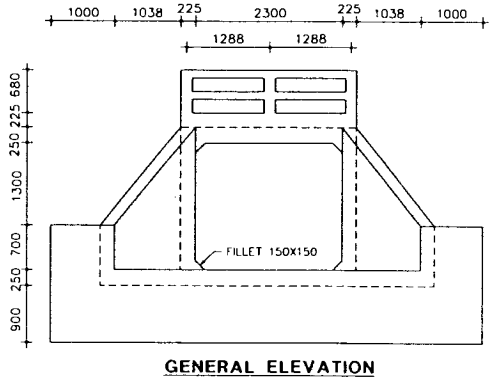
ISSUED BY :

CAD FILE REF : CULV\B1320201

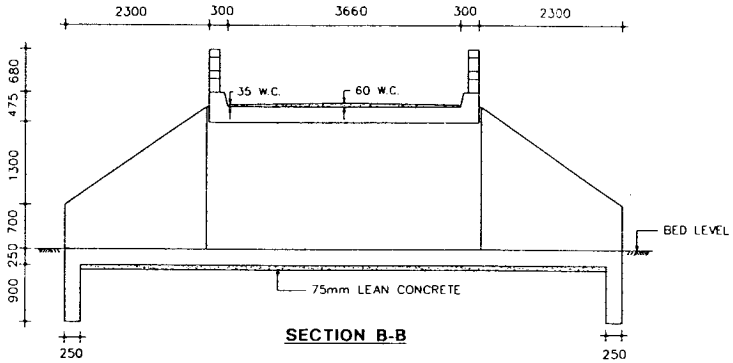
Web Copy

BC-115

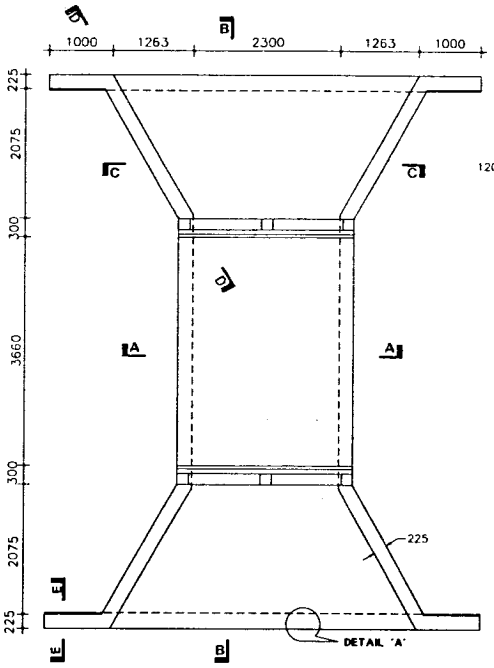
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 2.3m	
CLEAR HEIGHT : 2.0m	



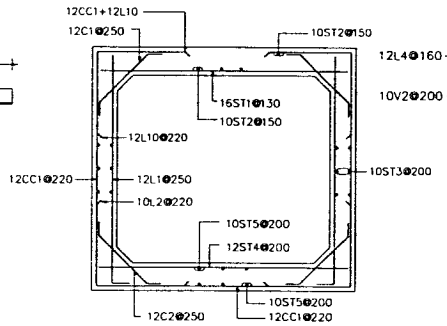
GENERAL ELEVATION



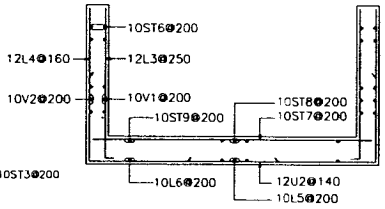
SECTION B-B



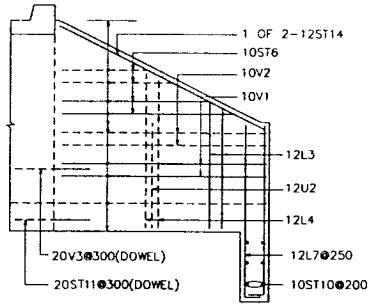
PLAN



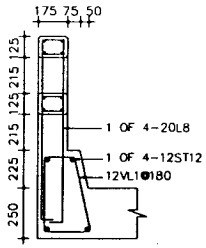
SECTION A-A (REINF. DETAIL)



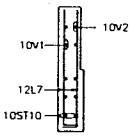
SECTION C-C (REINF. DETAIL)



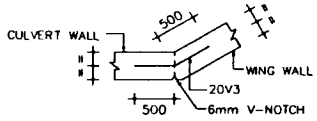
SECTION D-D (REINF. DETAIL)



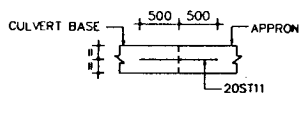
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

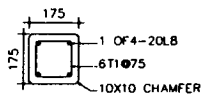
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	33	2650				2650
	10	ST2	16+19	4160				4160
	12	L10	2 X 19	876	941			1817
	12	CC1	20	2 X 951	2 X 2410	2650		9372
O	10	ST3	4X 10	4160				4160
	12	ST4	22	2650				2650
	10	ST5	2X 14	4160				4160
X	12	L1	2X 18	2388	144			2532
	10	L2	2X 19	866	941			1807
	12	C1	2X 18	144	594	144		882
	12	C2	2X 18	144	580	144		868
	20	ST11	2X 10	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Ver.2522 To 972
I	12	L4	4x 17	Ver. 2400 To 850 @ 96	Ver. 1275 To 145 @ 70			Ver.3675 To 995
N G	10	ST6	8X 8	Ver. 2506 To 279 @ 318				Ver.2506 To 279
A	10	V1	4X 3	2517	915			3432
P	10	V2	4X 3	2396	854			3250
P R	10	ST7	2X 11	Var. 2692 To 4943 @ 225				Var.2692 To 4943
O	10	ST8	2X 12	2175				2175
N & C U T O F F	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
	12	U2	2X 14	Ver. 1200 To 500 @ 50	Ver. 2692 To 4943 @ 160	Same As 'a'		Var.5092 To 5943
	10	L5	2X 13	2175	120			2295
	10	L6	4X 7	Var. 2102 To 149 @ 325	120			Ver.2222 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	6736				7861
	12	UT1	2X 17	144	2X 1025	100		2294
	12	ST14	4X 2	2959				2959
CURB AND RAILING	12	ST12	2X 4	2710				2710
	12	VL1	2X 16	204	419	295	410	1428
	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	2710				2710
	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 30	2 X 85	2 X 135			440

LEGEND

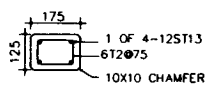
W.C. = Wearing Course

NOTES

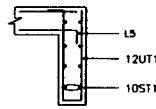
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 35 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :

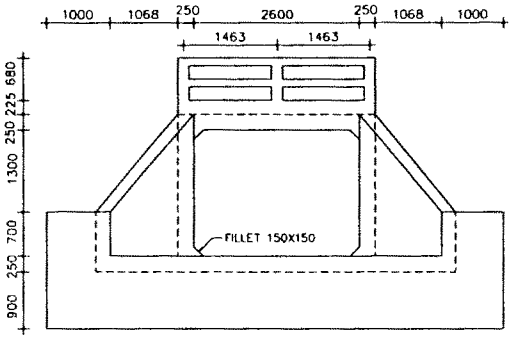
ISSUED BY :

CAD FILE REF : CULV\B1323201

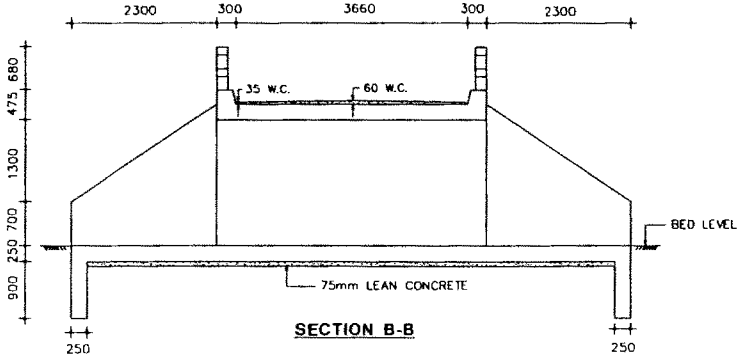
Web Copy

BC-116

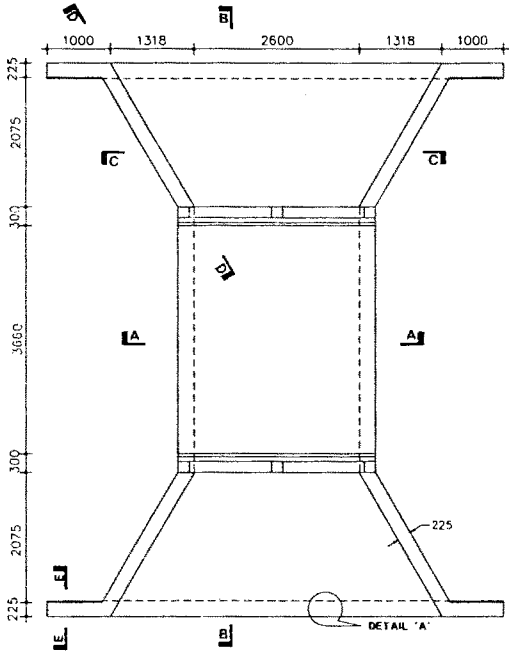
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.0m



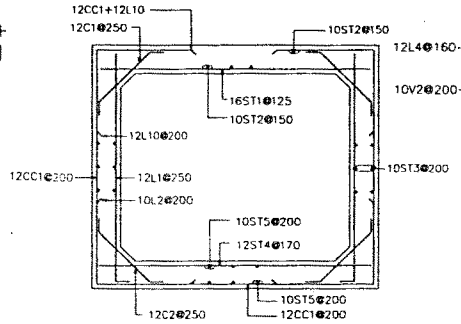
GENERAL ELEVATION



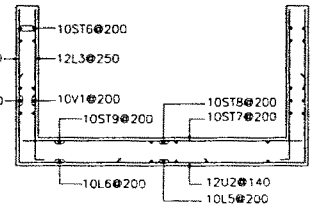
SECTION B-B



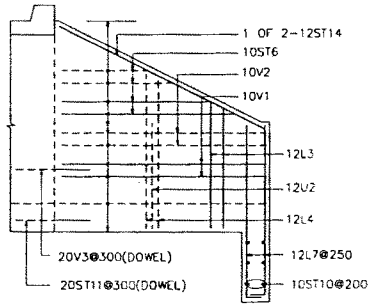
PLAN



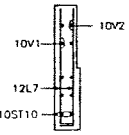
SECTION A-A (REINF. DETAIL)



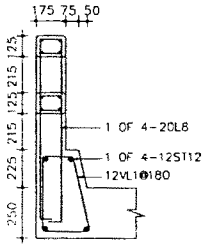
SECTION C-C (REINF. DETAIL)



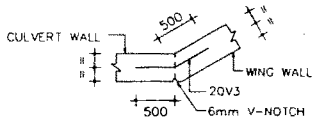
SECTION D-D (REINF. DETAIL)



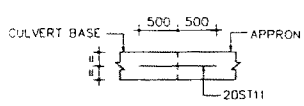
SECTION E-E



RAILING ON CULVERT (REINF. DETAIL)



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

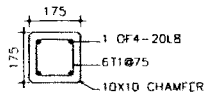
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	34	3000				3000
	10	ST2	18+21	4160				4160
	12	L10	2 X 21	876	1066			1942
	12	CC1	22	2 X 1076	2 X 2410	3000		9972
O	10	ST3	4X 10	4160				4160
	12	ST4	25	3000				3000
	10	ST5	2X 16	4160				4160
	12	L1	2X 18	2388	144			2532
	10	L2	2X 21	866	1066			1932
	12	C1	2X 18	144	629	144		917
X	12	C2	2X 18	144	615	144		903
	20	ST11	2X 11	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Ver.2522 To 972
I	12	L4	4x 17	Ver. 2400 To 850 @ 96	Ver. 1440 To 145 @ 80			Ver.3840 To 995
N G	10	ST6	8X 8	Ver. 2506 To 279 @ 318				Ver.2506 To 279
A	10	V1	4X 3	2517	915			3432
P	10	V2	4X 3	2396	854			3250
P R	10	ST7	2X 11	Var. 3042 To 5293 @ 225				Var.3042 To 5293
O	10	ST8	2X 14	2175				2175
N	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
&	12	U2	2X 14	Ver. 1200 To 500 @ 50	Ver. 3042 To 5293 @ 160	Same As 'a'		Var.5442 To 6293
C	10	L5	2X 15	2175	120			2295
U	10	L6	4X 7	Var. 2102 To 149 @ 325	120			Ver.2222 To 269
T	12	L7	8X 4	1725	144			1869
O	10	ST10	4X 5	7086				8211
F F	12	UT1	2X 18	144	2X 1025	100		2294
	12	ST14	4X 2	2959				2959
CURB	12	ST12	2X 4	3060				3060
	12	VL1	2X 18	204	419	295	410	1428
AND	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	3060				3060
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 34	2 X 85	2 X 135			440

LEGEND

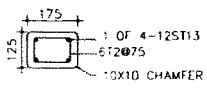
W.C. = Wearing Course

NOTES

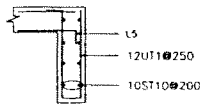
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm
7) Bearing capacity of soil should be ≥ 33 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.0m ROADWAY 3.66m

DATE :

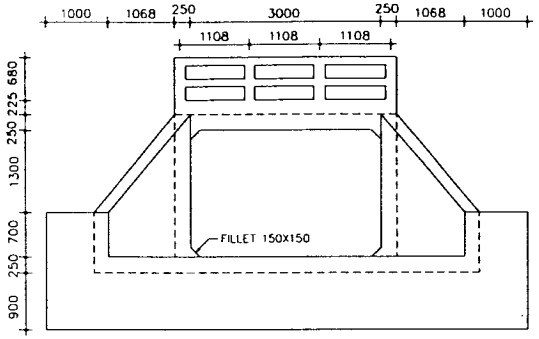
ISSUED BY :

CAD FILE REF : CULV\B1326201

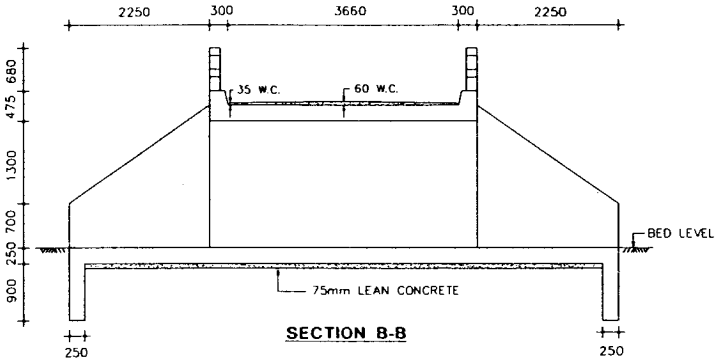
Web Copy

BC-117

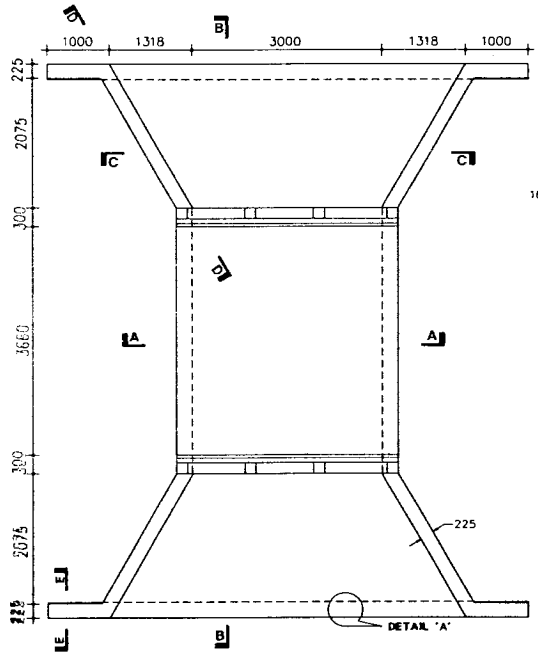
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 3.0m	
CLEAR HEIGHT : 2.0m	



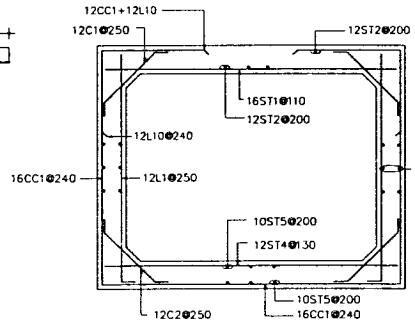
GENERAL ELEVATION



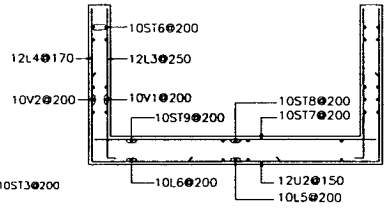
SECTION B-B



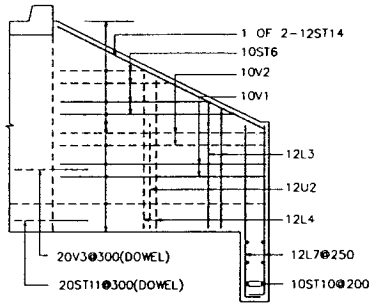
PLAN



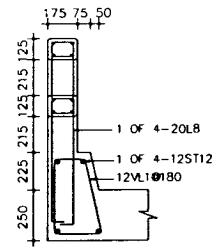
SECTION A-A (REINF. DETAIL)



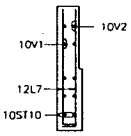
SECTION C-C (REINF. DETAIL)



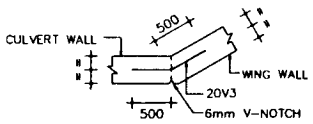
SECTION D-D (REINF. DETAIL)



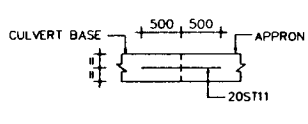
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

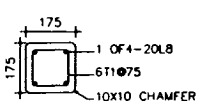
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	39	3400				3400
	12	ST2	14+18	4160				4160
	12	L10	2 X 18	876	1200			2076
	16	CC1	18	2 X 1210	2 X 2410	3400		10640
O	10	ST3	4X 10	4160				4160
	12	ST4	33	3400				3400
	10	ST5	2X 18	4160				4160
	12	L1	2X 18	2384	144			2528
X	12	C1	2X 18	144	604	144		892
	12	C2	2X 18	144	615	144		903
	20	ST11	2X 12	1000				1000
	20	V3	4X 7	500	500			1000
W	12	L3	4X 11	Var. 2378 To 828 @ 155	144			Ver.2522 To 972
I	12	L4	4x 16	Ver. 2400 To 850 @ 103	Ver. 1600 To 145 @ 97			Ver.4000 To 995
N	10	ST6	8X 8	Ver. 2506 To 279 @ 318				Ver.2506 To 279
A	10	V1	4X 3	2517	915			3432
P	10	V2	4X 3	2396	854			3250
P	10	ST7	2X 11	Var. 3442 To 5693 @ 225				Var.3442 To 5693
R	10	ST8	2X 16	2175				2175
O	10	ST9	4X 7	Var. 2124 To 171 @ 325				Var.2124 To 171
N &	12	U2	2X 13	Ver. 1200 To 500 @ 53	Ver. 3442 To 5693 @ 173	Same As 'a'		Var.5842 To 6693
C	10	L5	2X 17	2175	120			2295
U	10	L6	4X 7	Var. 2102 To 149 @ 325	120			Ver.2222 To 269
T	12	L7	8X 4	1725	144			1869
O	10	ST10	4X 5	7486				8611
F	12	UT1	2X 18	144	2X 1025	100		2294
F	12	ST14	4X 2	2959				2959
CURB	12	ST12	2X 4	3460				3460
	12	VL1	2X 20	204	419	295	410	1428
AND	20	L8	8X 4	1071	120			1191
	12	ST13	4X 4	3460				3460
RAILING	6	T1	8X 6	2 X 135	2 X 135			540
	6	T2	4X 36	2 X 85	2 X 135			440

LEGEND

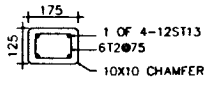
W.C. = Wearing Course

NOTES

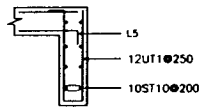
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 31 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :

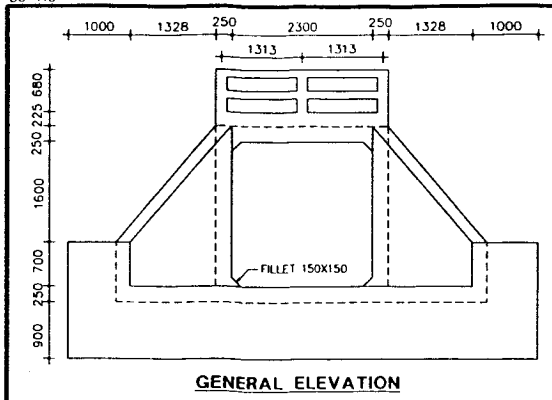
ISSUED BY :

CAD FILE REF : CULV\B1330201

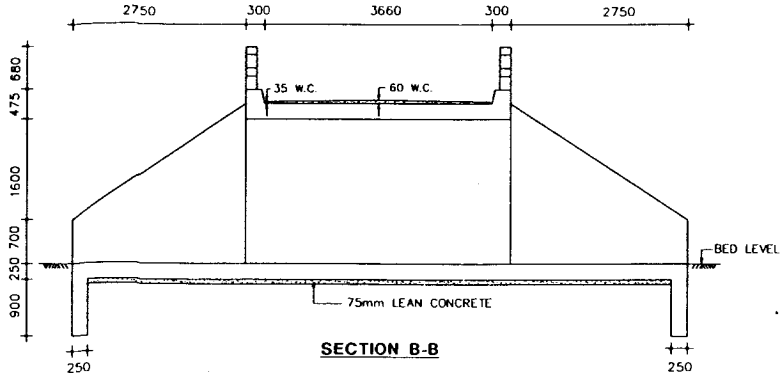
Web Copy

BC-118

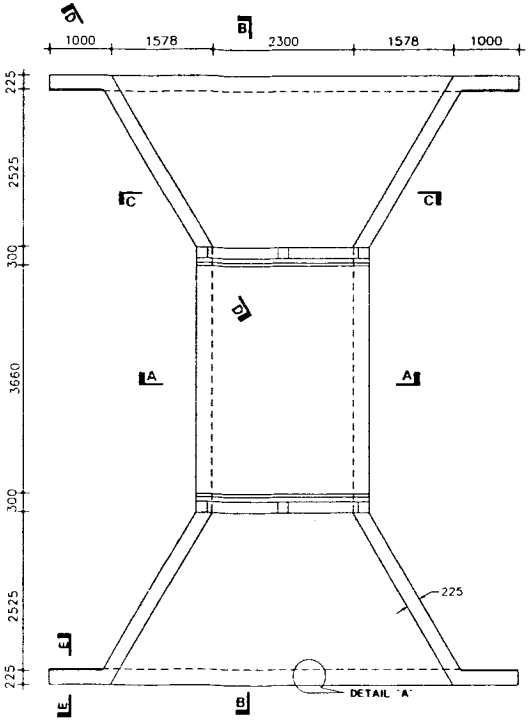
SHEET 1 OF 1
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2.3m
CLEAR HEIGHT : 2.3m



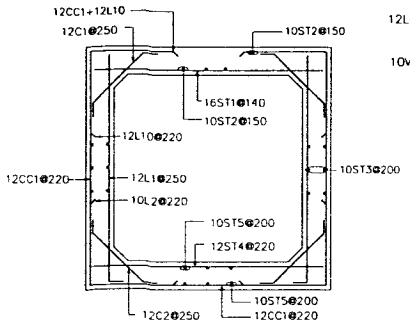
GENERAL ELEVATION



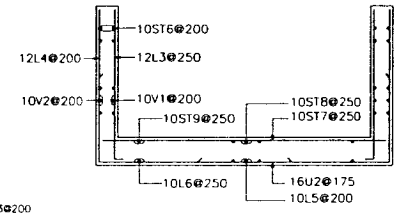
SECTION B-B



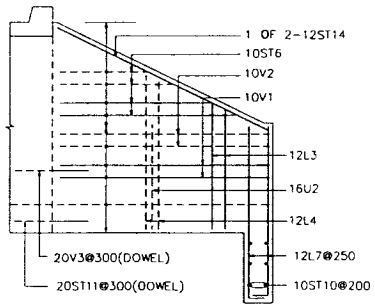
PLAN



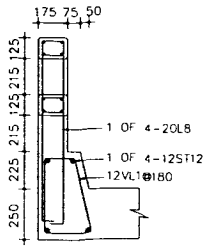
SECTION A-A (REINF. DETAIL)



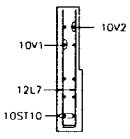
SECTION C-C (REINF. DETAIL)



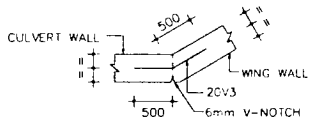
SECTION D-D (REINF. DETAIL)



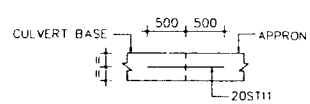
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

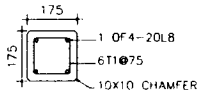
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	31	2700				2700
	10	ST2	16+19	4160				4160
	12	L10	2 X 19	976	966			1942
	12	CC1	20	2 X 976	2 X 2710	2700		10114
O	10	ST3	4X 11	4160				4160
	12	ST4	20	2700				2700
	10	ST5	2X 15	4160				4160
	12	L1	2X 18	2688	144			2832
	10	L2	2X 19	966	966			1932
X	12	C1	2X 18	144	629	144		917
	12	C2	2X 18	144	615	144		903
	20	ST11	2X 10	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Ver.2818 To 968
I N G	12	L4	4x 16	Ver. 2700 To 850 @ 123	Ver. 1320 To 145 @ 78			Ver.4020 To 995
	10	ST6	8X 9	Ver. 3026 To 279 @ 343				Ver.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P	10	ST7	2X 13	Var. 2742 To 5513 @ 230				Var.2742 To 5513
R O N	10	ST8	2X 13	2625				2625
	10	ST9	4X 8	Var. 2574 To 171 @ 343				Var.2574 To 171
&	16	U2	2X 14	Var. 1600 To 500 @ 78	Var. 2742 To 5513 @ 197	Some As 'a'		Var.5942 To 6513
C	10	L5	2X 13	2625	120			2745
U	10	L6	4X 8	Var. 2552 To 149 @ 343	120			Ver.2672 To 269
T O F F	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	7305				8430
	12	UT1	2X 21	144	2X 1025	100		2294
	12	ST14	4X 2	3559				3559
CURB AND RAILING	12	ST12	2X 4	2760				2760
	12	VL1	2X 16	204	419	295	410	1428
	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	2760				2760
	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 30	2 X 85	2 X 135			440

LEGEND

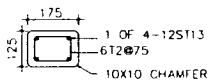
W.C. = Wearing Course

NOTES

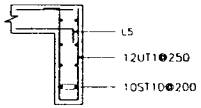
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 36 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.3m x 2.3m ROADWAY 3.66m

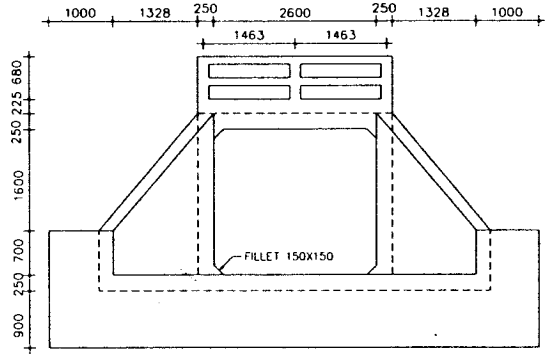
DATE :

ISSUED BY :

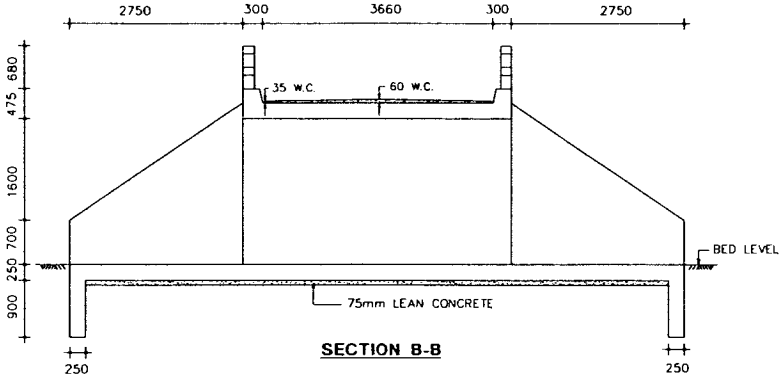
CAD FILE REF : CULV\B1323231

Web Copy

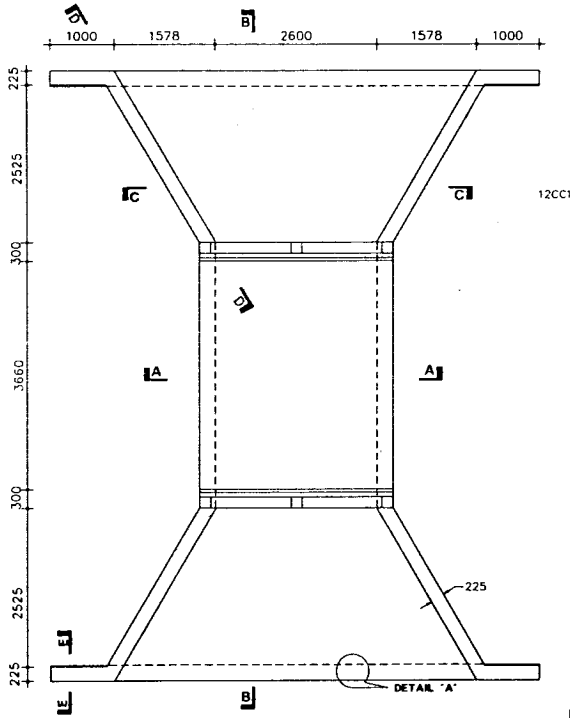
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 2.6m	
CLEAR HEIGHT : 2.3m	



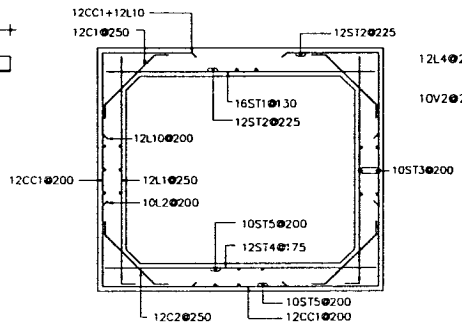
GENERAL ELEVATION



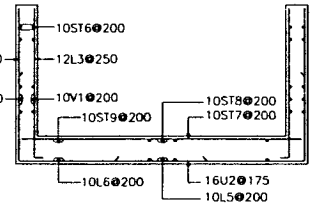
SECTION B-B



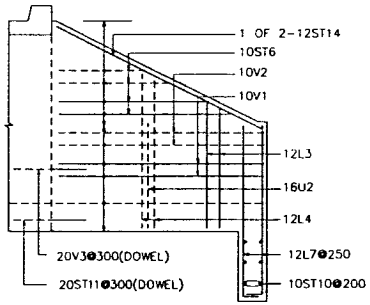
PLAN



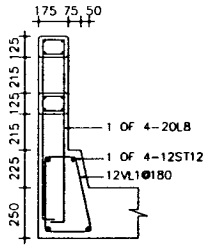
SECTION A-A (REINF. DETAIL)



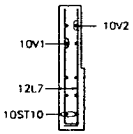
SECTION C-C (REINF. DETAIL)



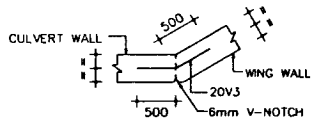
SECTION D-D (REINF. DETAIL)



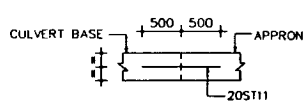
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

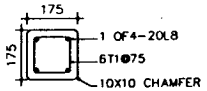
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	33	3000				3000
	12	ST2	12+15	4160				4160
B	12	L10	2 X 21	976	1066			2042
	12	CC1	22	2 X 1076	2 X 2710	3000		10572
	10	ST3	4X 11	4160				4160
	12	ST4	25	3000				3000
O	10	ST5	2X 16	4160				4160
	12	L1	2X 18	2688	144			2832
	10	L2	2X 21	966	1066			2032
	12	C1	2X 18	144	626	144		914
X	12	C2	2X 18	144	615	144		903
	20	ST11	2X 11	1000				1000
	20	V3	4X 8	500	500			1000
	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Ver.2818 To 968
W I N G	12	L4	4x 16	Ver. 2700 To 850 @ 123	Ver. 1440 To 145 @ 86			Ver.4140 To 995
	10	ST6	8X 9	Ver. 3026 To 279 @ 343				Ver.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P	10	ST7	2X 13	Var. 3042 To 5813 @ 230				Var.3042 To 5813
R	10	ST8	2X 14	2625				2625
O	10	ST9	4X 8	Var. 2574 To 171 @ 345				Var.2574 To 171
N &	16	U2	2X 14	Var. 1600 To 500 @ 78	Ver. 3042 To 5813 @ 197	Same As 'a'		Var.6242 To 6813
C	10	L5	2X 15	2625	120			2745
U	10	L6	4X 8	Var. 2552 To 149 @ 343	120			Ver.2672 To 269
T	12	L7	8X 4	1725	144			1869
O	10	ST10	4X 5	7605				8730
F	12	UT1	2X 21	144	2X 1025	100		2294
F	12	ST14	4X 2	3559				3559
CURB	12	ST12	2X 4	3060				3060
	12	VL1	2X 18	204	419	295	410	1428
AND	20	L8	6X 4	1071	120			1191
	12	ST13	4X 4	3060				3060
RAILING	6	T1	6X 6	2 X 135	2 X 135			540
	6	T2	4X 34	2 X85	2 X 135			440

LEGEND

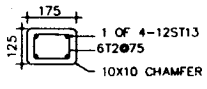
W.C. = Wearing Course

NOTES

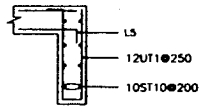
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 34 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

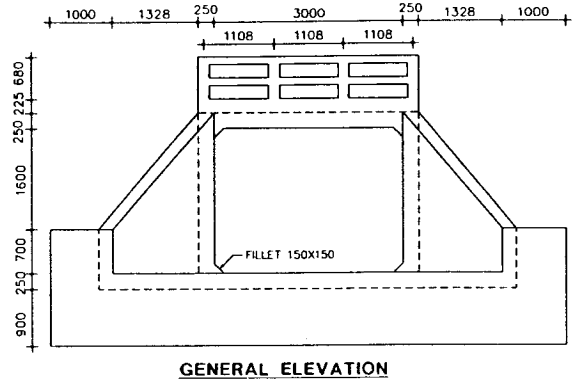
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1326231	

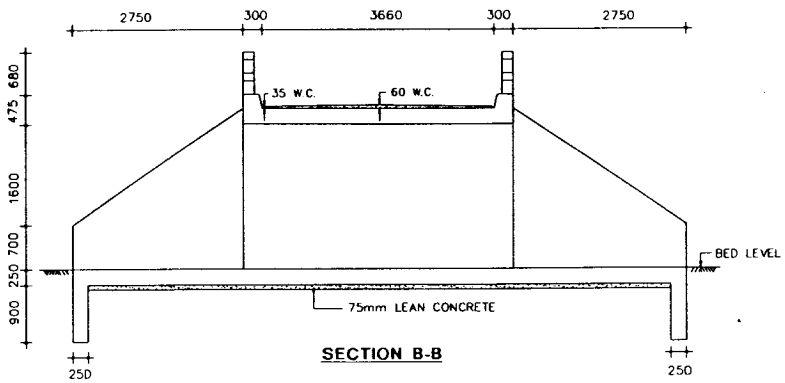
Web Copy

BC-120

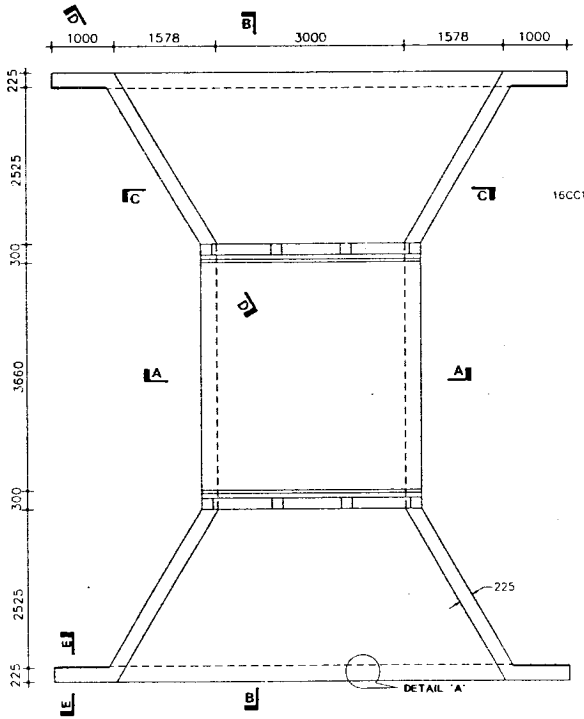
SHEET	1 OF 1
LIVE LOAD	AASHTO H20
CLEAR SPAN	3.0m
CLEAR HEIGHT	2.3m



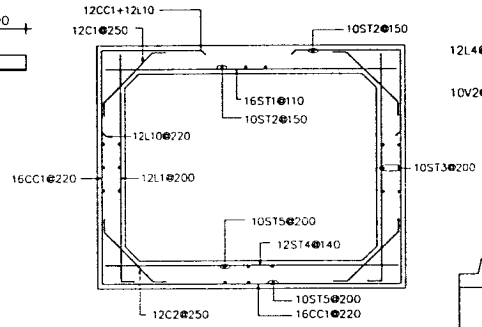
GENERAL ELEVATION



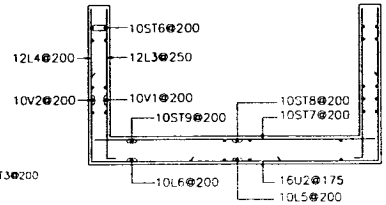
SECTION B-B



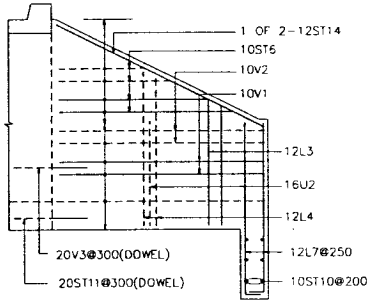
PLAN



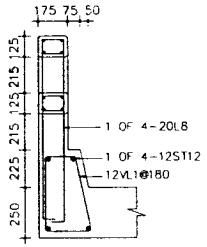
SECTION A-A (REINF. DETAIL)



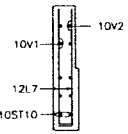
SECTION C-C (REINF. DETAIL)



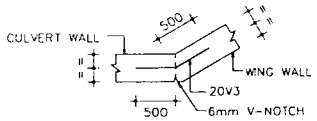
SECTION D-D (REINF. DETAIL)



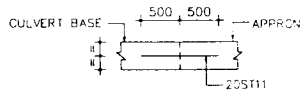
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

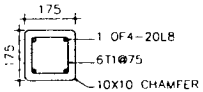
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	39	3400				3400
	10	ST2	18+24	4160				4160
	12	L10	2 X 19	976	1200			2176
	16	CC1	20	2X 1210	2X 2710	3400		32840
O	10	ST3	4X 11	4160				4160
	12	ST4	31	3400				3400
	10	ST5	2X 18	4160				4160
	12	L1	2X 22	2684	144			2828
	12	C1	2X 22	144	618	144		906
X	12	C2	2X 22	144	604	144		892
	20	ST11	2X 12	1000				1000
	20	V3	4X 8	500	500			1000
WINGS & CUTOFF	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Ver.2818 To 968
	12	L4	4x 16	Ver. 2700 To 850 @ 123	Ver. 1600 To 145 @ 97			Ver.4300 To 995
	10	ST6	8X 9	Ver. 3026 To 279 @ 343				Ver.3026 To 279
	10	V1	4X 3	3036	915			3951
	10	V2	4X 3	2915	854			3769
	10	ST7	2X 13	Var. 3442 To 6213 @ 230				Var.3442 To 6213
	10	ST8	2X 16	2625				2625
	10	ST9	4X 8	Var. 2574 To 171 @ 343				Var.2574 To 171
	16	U2	2X 14	Ver. 1600 To 500 @ 78	Ver. 3442 To 6213 @ 197	Same As 'a'		Ver.6642 To 7213
	10	L5	2X 17	2625	120			2745
	10	L6	4X 8	Var. 2552 To 149 @ 343	120			Ver.2672 To 269
	12	L7	8X 4	1725	144			1869
	10	ST10	4X 5	8005				9130
	12	UT1	2X 21	144	2X 1025	100		2294
	12	ST14	4X 2	3559				3559
CURB AND RAILING	12	ST12	2X 4	3460				3460
	12	VL1	2X 20	204	419	295	410	1428
	20	L8	8X 4	1071	120			1191
	12	ST13	4X 4	3460				3460
	6	T1	8X 6	2 X 135	2 X 135			540
	6	T2	4X 36	2 X 85	2 X 135			440

LEGEND

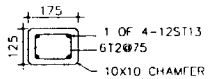
W.C. = Wearing Course

NOTES

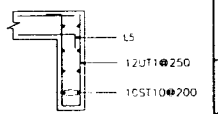
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 32 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :

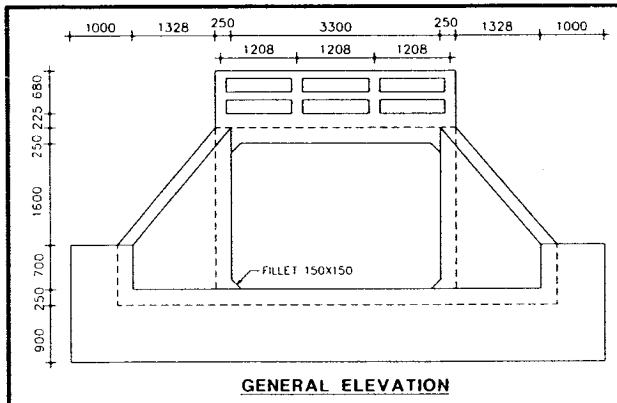
ISSUED BY :

CAD FILE REF : CULV\B1330731

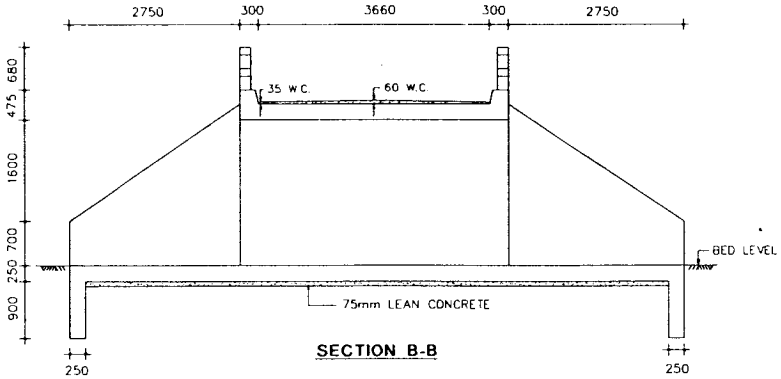
Web Copy

BC-121

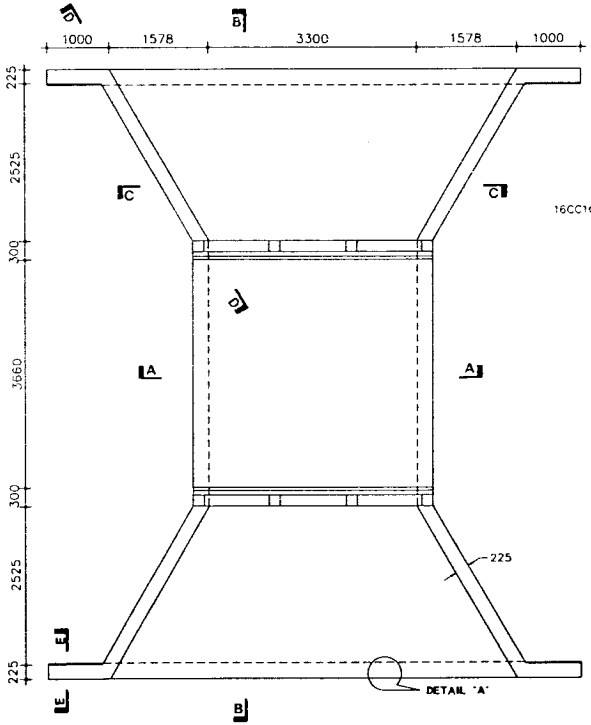
SHEET 1 OF 1	
LIVE LOAD : AASHTO H20	
CLEAR SPAN : 3.3m	
CLEAR HEIGHT : 2.3m	



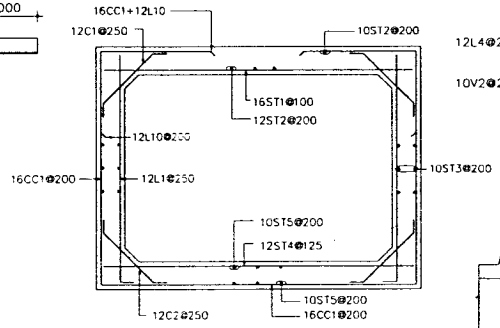
GENERAL ELEVATION



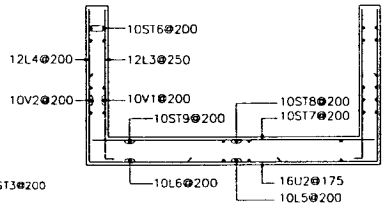
SECTION B-B



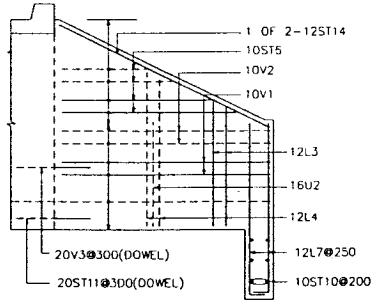
PLAN



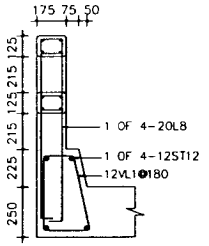
SECTION A-A (REINF. DETAIL)



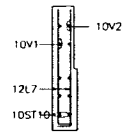
SECTION C-C (REINF. DETAIL)



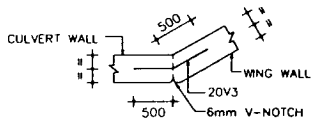
SECTION D-D (REINF. DETAIL)



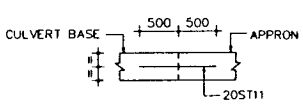
RAILING ON CULVERT (REINF. DETAIL)



SECTION E-E



DETAIL OF DOWEL AT WALL



DETAIL OF DOWEL AT BASE

BAR BENDING SCHEDULE

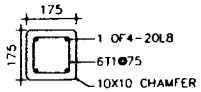
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	43	3700				3700
	12	ST2	16+20	4160				4160
	12	L10	2 X 21	976	1300			2276
	16	CC1	22	2 X 1310	2 X 2710	3700		11740
O	10	ST3	4X 11	4160				4160
	12	ST4	34	3700				3700
	10	ST5	2X 20	4160				4160
	12	L1	2X 18	2684	144			2828
X	12	C1	2X 18	144	615	144		903
	12	C2	2X 18	144	604	144		892
	20	ST11	2X 13	1000				1000
	20	V3	4X 8	500	500			1000
W	12	L3	4X 13	Var. 2674 To 824 @ 154	144			Ver.2818 To 968
I	12	L4	4x 16	Ver. 2700 To 850 @ 123	Ver. 1720 To 145 @ 105			Ver.4420 To 995
N	10	ST6	8X 9	Ver. 3026 To 279 @ 343				Ver.3026 To 279
A	10	V1	4X 3	3036	915			3951
P	10	V2	4X 3	2915	854			3769
P	10	ST7	2X 13	Var. 3742 To 6513 @ 230				Var.3742 To 6513
R	10	ST8	2X 18	2625				2625
O	10	ST9	4X 8	Var. 2574 To 171 @ 343				Var.2574 To 171
N	16	U2	2X 14	Ver. 1600 To 500 @ 78	Ver. 3742 To 6513 @ 197	Same As 'a'		Var.6942 To 7513
&	10	L5	2X 18	2625	120			2745
C	10	L6	4X 8	Var. 2552 To 149 @ 343	120			Ver.2672 To 269
U	12	L7	8X 4	1725	144			1869
T	10	ST10	4X 5	8305				9430
O	12	UT1	2X 21	144	2X 1025	100		2294
F	12	ST14	4X 2	3559				3559
F	12	ST12	2X 4	2760				3760
CURB	12	VL1	2X 22	204	419	295	410	1428
AND	20	L8	8X 4	1071	120			1191
	12	ST13	4X 4	3760				3760
RAILING	6	T1	8X 6	2 X 135	2 X 135			540
	6	T2	4X 42	2 X 85	2 X 135			440

LEGEND

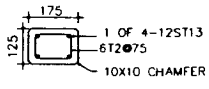
W.C. = Wearing Course

NOTES

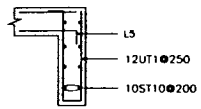
1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21 MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm.
7) Bearing capacity of soil should be $\geq$ 31 KN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAIL



REINF. DETAIL OF 'A'

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :

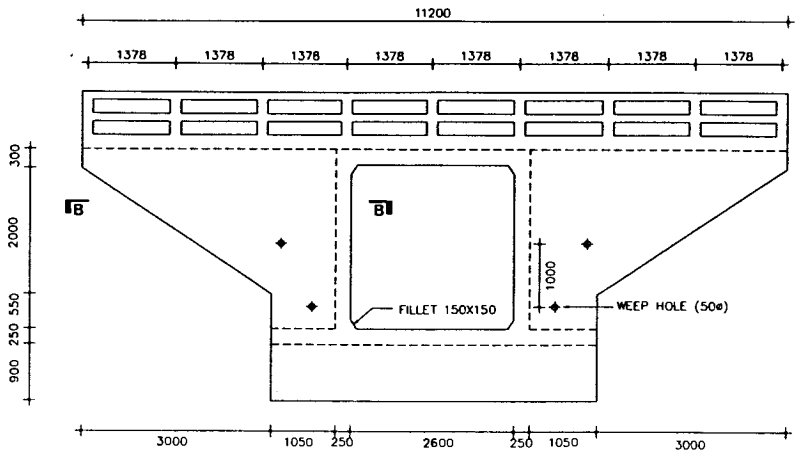
ISSUED BY :

CAD FILE REF : CULV\B1333231

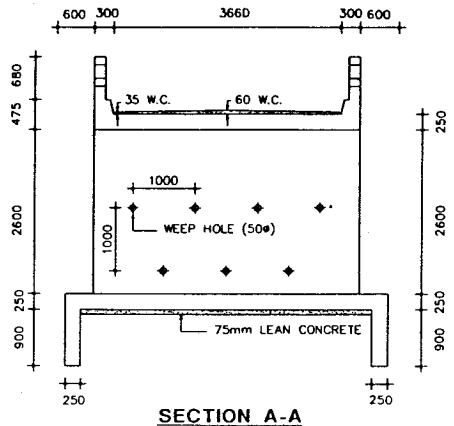
Web Copy

BC-122

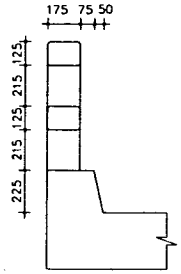
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



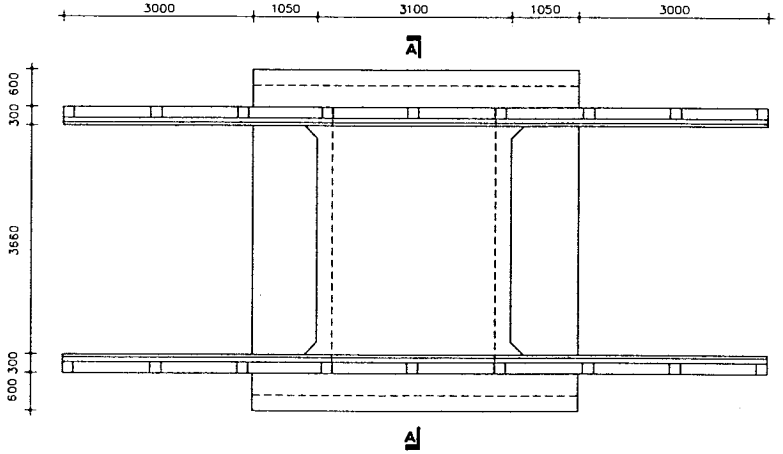
GENERAL ELEVATION



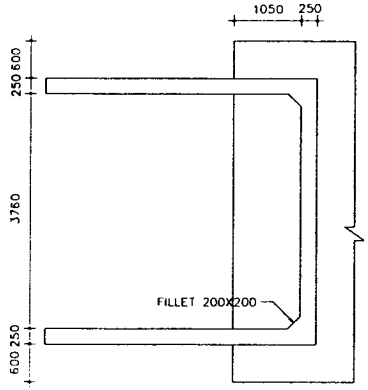
SECTION A-A



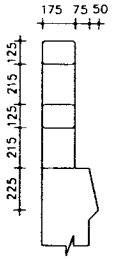
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

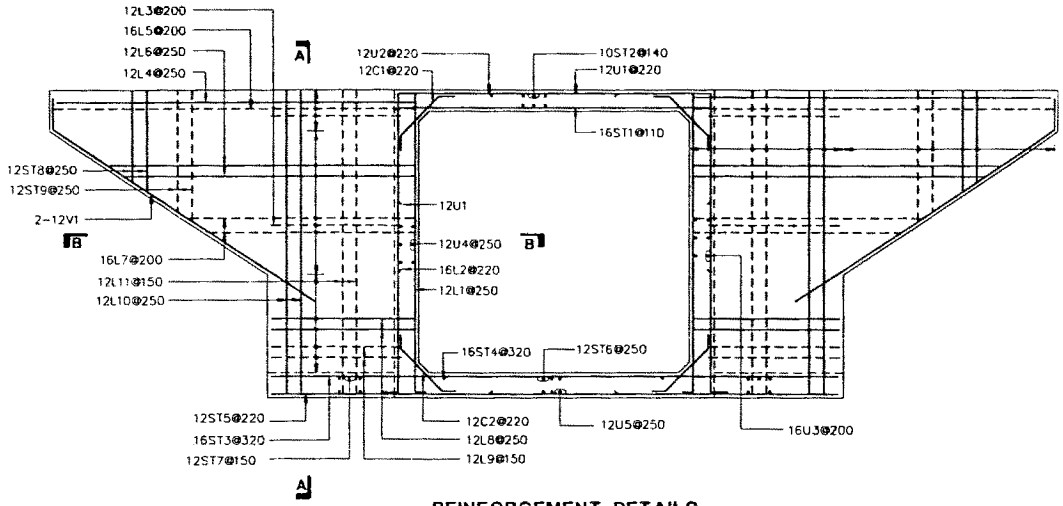
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 2.6m x 2.6m ROADWAY 3.66m

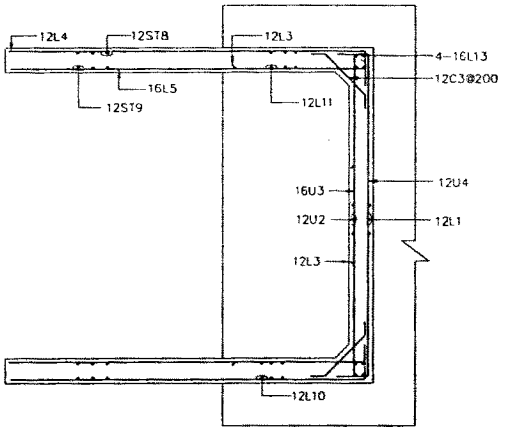
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1326261	

Web Copy

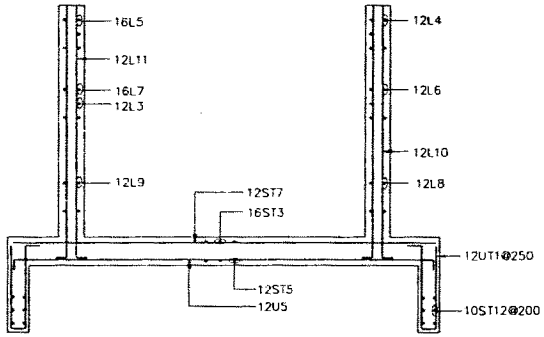
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2.6m
CLEAR HEIGHT : 2.6m



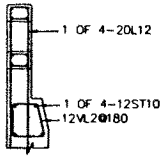
REINFORCEMENT DETAILS



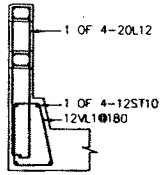
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



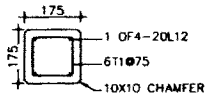
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

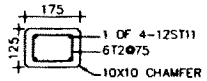
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	39	3000				3000
O	10	ST2	2 X 23	4160				4160
X	16	ST3	18	5100				5100
	16	ST4	17	1560				1560
A	12	ST5	26	5100				5100
P	12	ST6	14	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 20	144	521	144		909
O	12	C2	2 X 20	144	598	144		886
N	12	L1	2 X 15	2986	250			3236
	16	L2	2 X 18	1054	250			1304
&	16	L13	4 X 4	2986	250			3236
	12	U1	20	1076	3000	1076		5152
C	12	U2	2 X 20	1066	3010	1066		5142
U	16	U3	2 X 10	250	4160	250		4660
T	12	U4	2 X 10	394	4160	394		4948
O	12	U5	22	250	5290	250		5790
F	10	ST12	4 X 5	5050				5050
F	12	UT1	2 X 22	144	2 X 1025	100		2294
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 7	3038	250			3288
N	12	L11	4 X 7	3038	250			3288
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 375
C	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	680	144		968
	12	ST10	2 X 4	11150				11150
CURB	12	VL1	2 X 19	204	419	295	410	1428
	12	VL2	4 X 23	204	204	248	200	956
AND	20	L12	18 X 4	1071	120			1191
	12	ST11	4 X 4	11160				11160
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

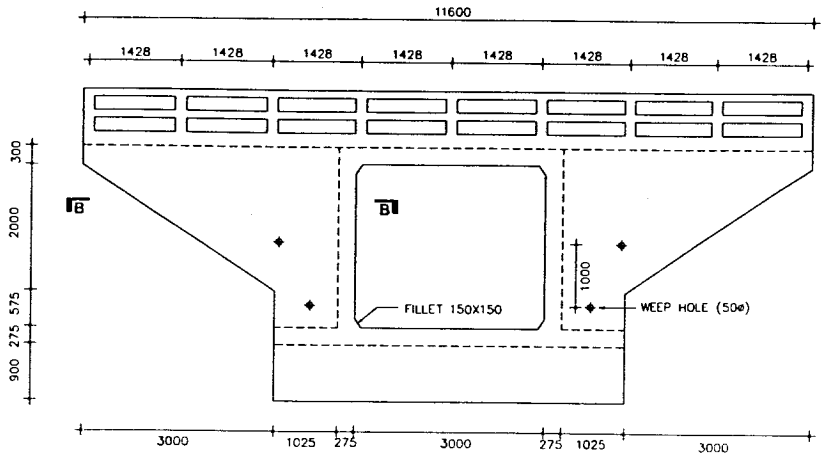
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 2.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1326262

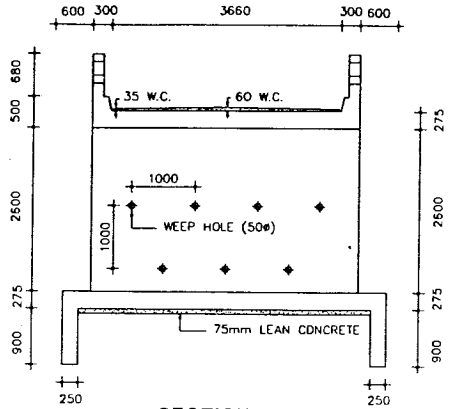
Web Copy

BC-124

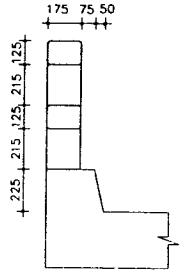
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



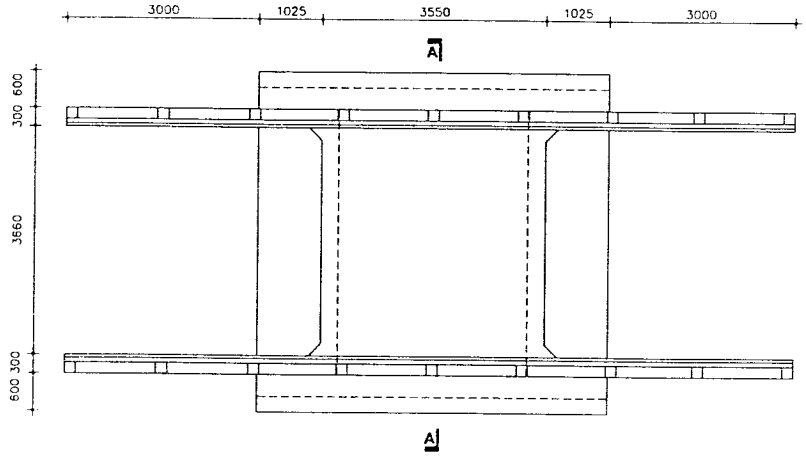
GENERAL ELEVATION



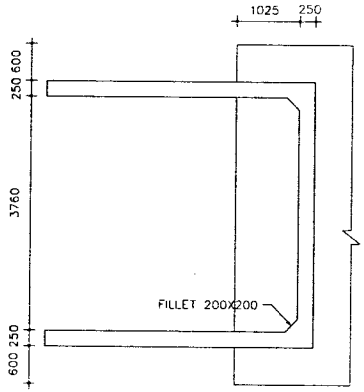
SECTION A-A



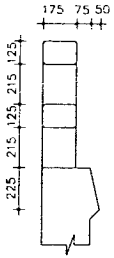
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

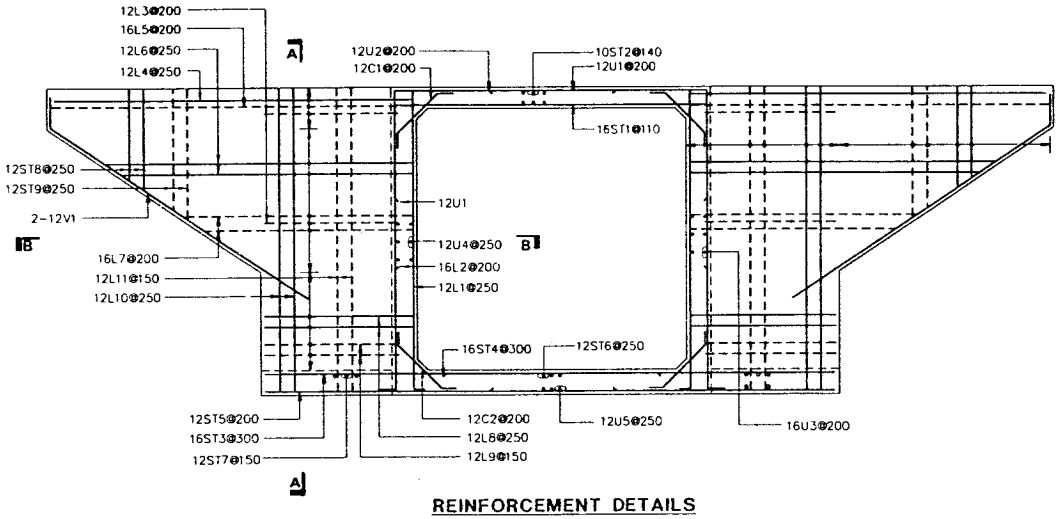
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 2.6m ROADWAY 3.66m

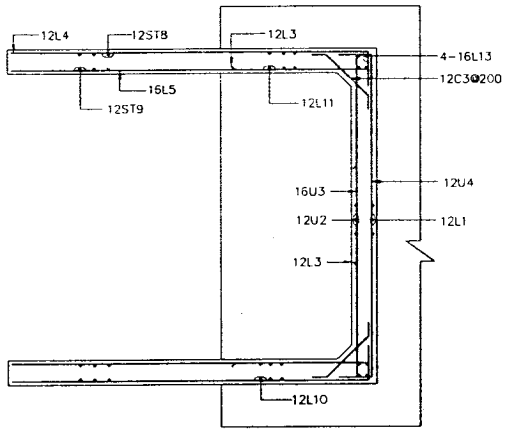
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1330261	

Web Copy

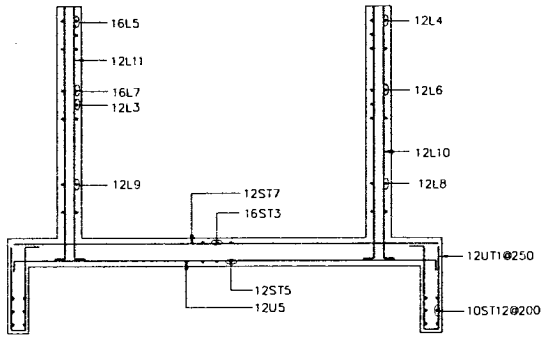
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 2.6m



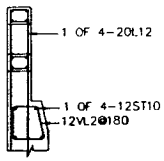
REINFORCEMENT DETAILS



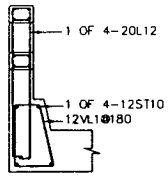
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



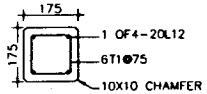
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

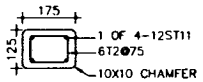
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	39	3450				3450
0	10	ST2	2 X 26	4160				4160
X	16	ST3	19	5500				5500
	16	ST4	18	1800				1800
A	12	ST5	28	5500				5500
P	12	ST6	16	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 22	144	691	144		979
O	12	C2	2 X 22	144	669	144		957
N	12	L1	2 X 15	3036	250			3286
	16	L2	2 X 20	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	22	1101	3450	1101		5652
C	12	U2	2 X 22	1225	3060	1225		5510
U	16	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	419	4160	419		4998
O	12	U5	23	250	5290	250		5790
F	10	ST12	4 X 5	5450				5450
F	12	UT1	2 X 24	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	715	144		1003
	12	ST10	2 X 4	11550				11550
CURB	12	VL1	2 X 21	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
AND	20	L12	18 X 4	1096	120			1216
	12	ST11	4 X 4	11560				11560
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 45 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

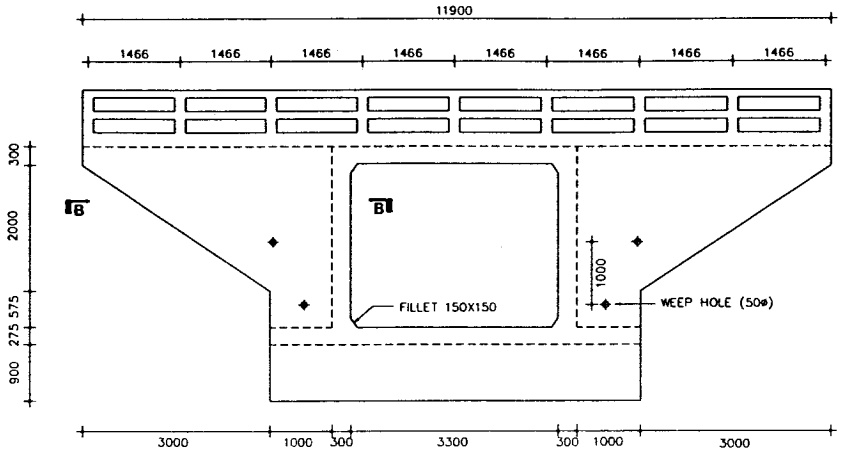
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1330262	

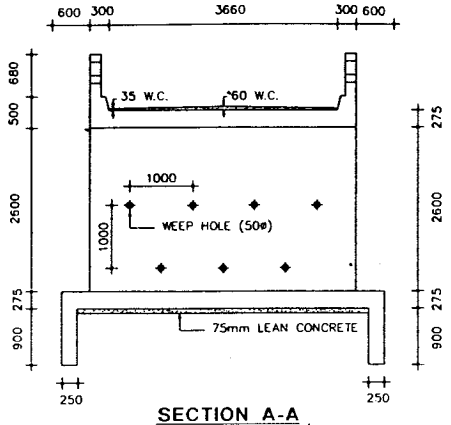
Web Copy

BC-126

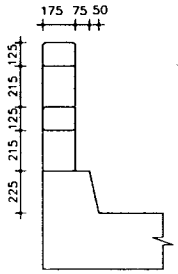
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



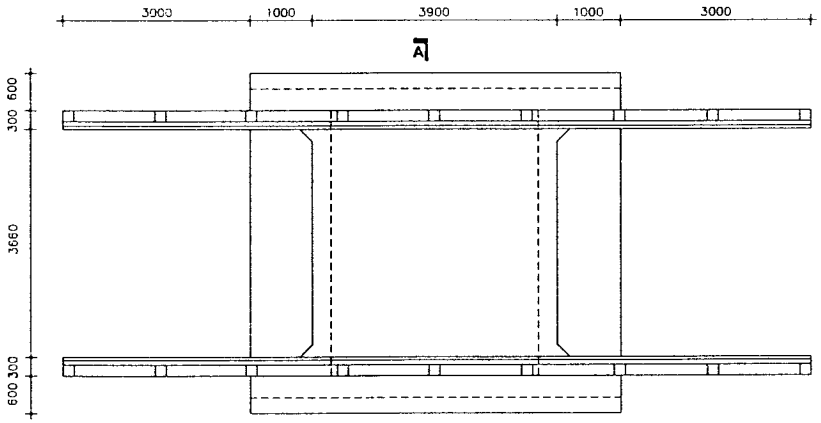
GENERAL ELEVATION



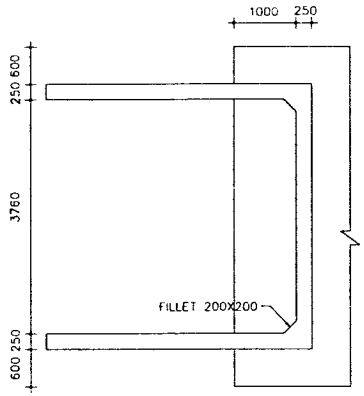
SECTION A-A



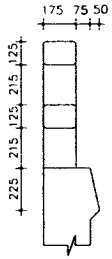
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

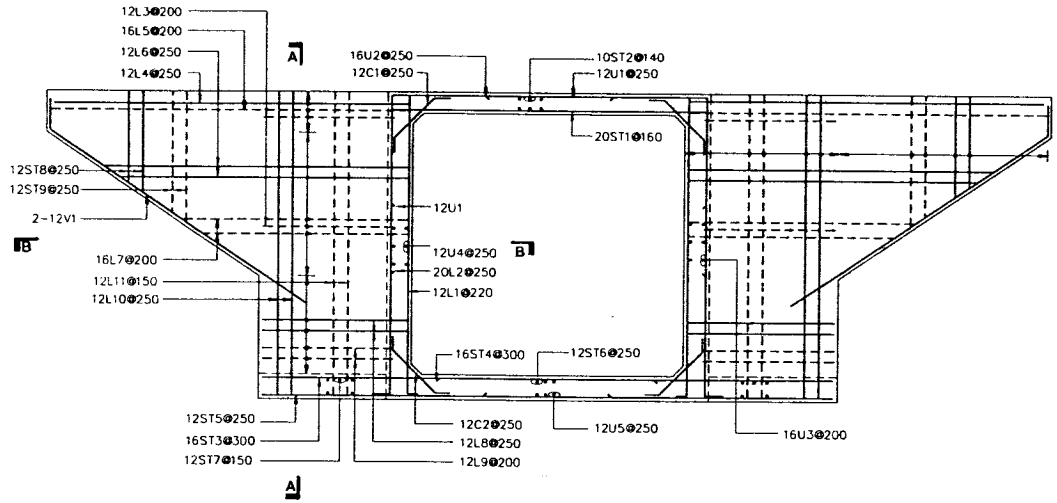
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1333261	

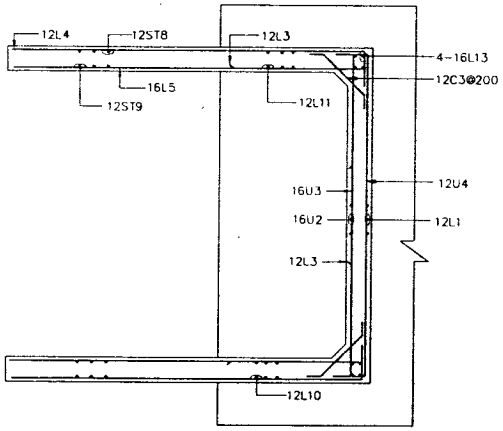
Web Copy

BC-127

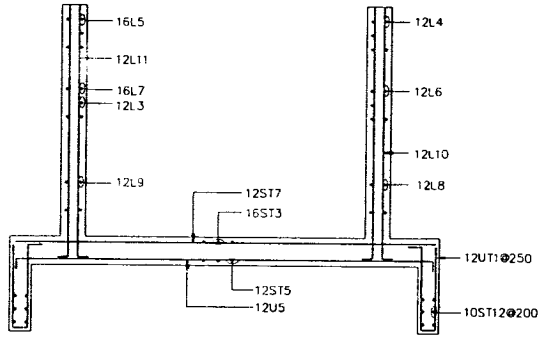
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 2.6m



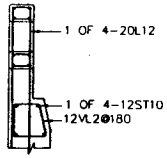
REINFORCEMENT DETAILS



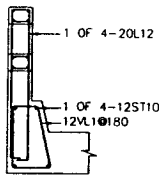
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



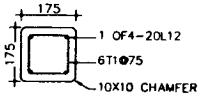
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

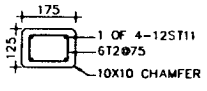
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	27	3800				3800
O	10	ST2	2 X 29	4160				4160
X	16	ST3	19	5800				5800
	16	ST4	18	1980				1980
A	12	ST5	23	5800				5800
P	12	ST6	17	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 18	144	715	144		1003
O	12	C2	2 X 18	144	698	144		986
N	12	L1	2 X 17	3036	250			3286
	20	L2	2 X 16	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	18	1101	3800	1101		6002
C	16	U2	2 X 18	1350	3060	1350		5760
U	16	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	444	4160	444		5048
O	12	U5	25	250	5290	250		5790
F	10	ST12	4 X 5	5750				5750
F	12	UT1	2 X 25	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	751	144		1039
	12	ST10	2 X 4	11850				11850
CURB	12	VL1	2 X 23	204	445	300	435	1484
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	18 X 4	1096	120			1216
	12	ST11	4 X 4	11860				11860
RAILING	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 43 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

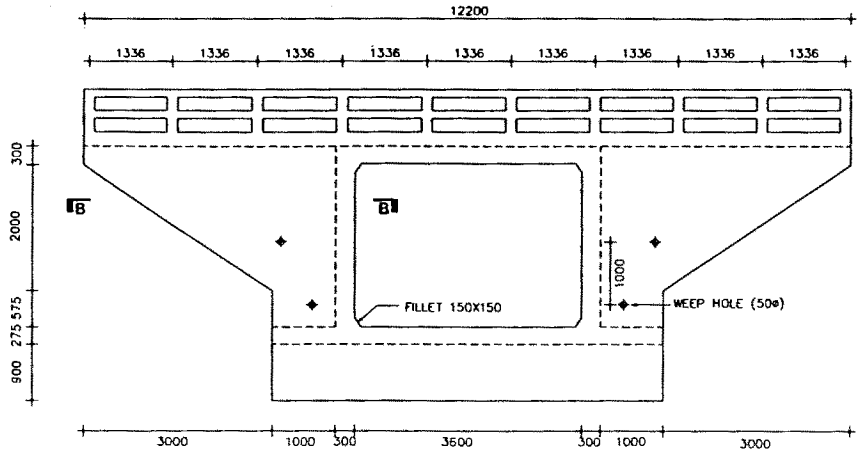
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1333262

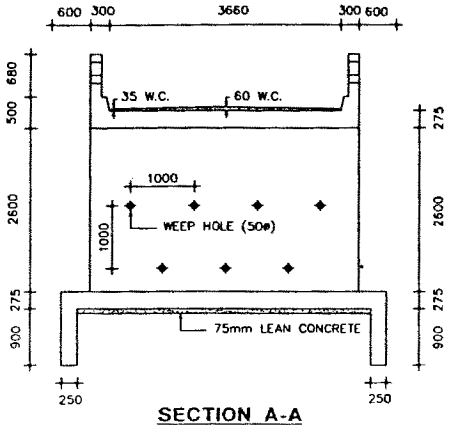
Web Copy

BC-128

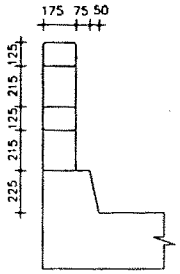
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



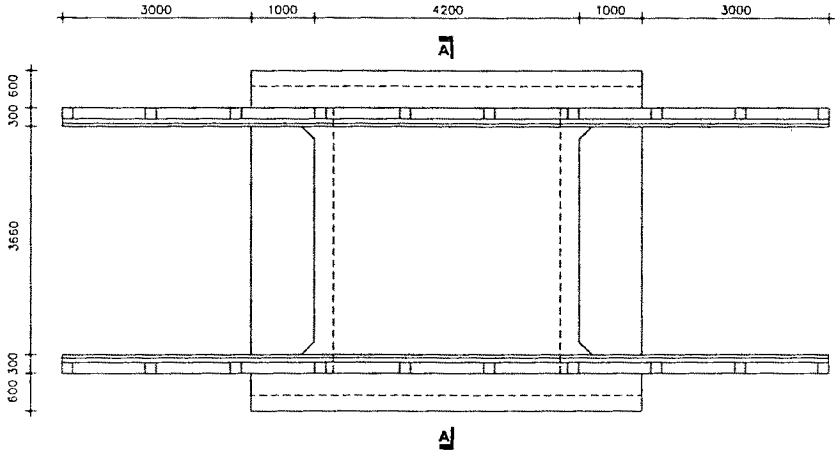
GENERAL ELEVATION



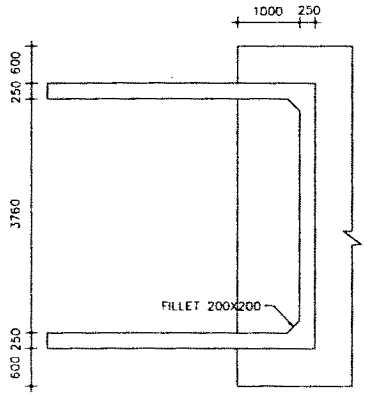
SECTION A-A



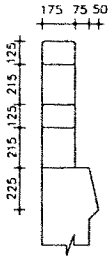
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter materiol shall be provided as per specification.

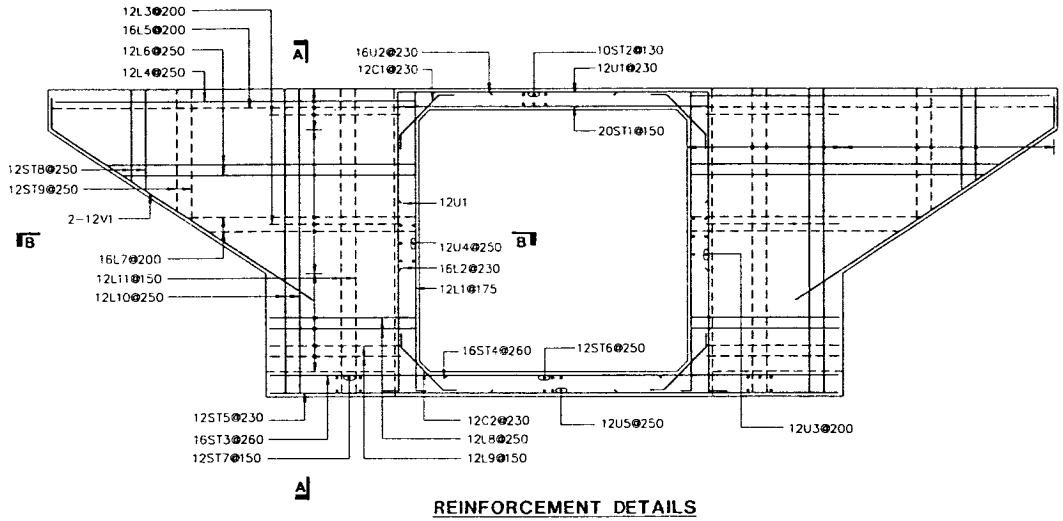
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 2.6m ROADWAY 3.66m

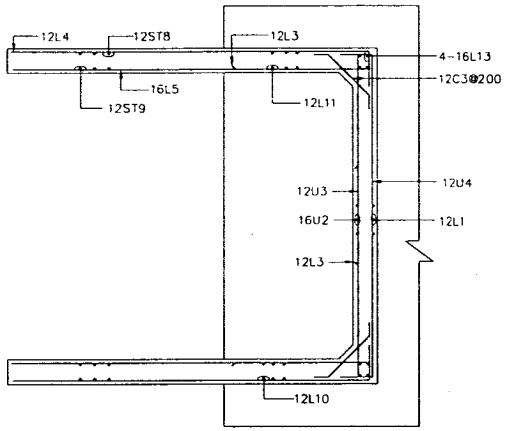
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1336261	

Web Copy

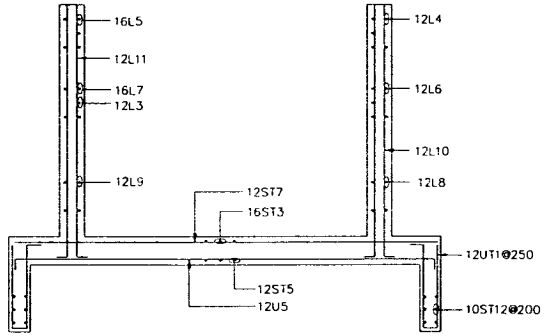
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 2.6m



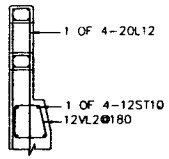
REINFORCEMENT DETAILS



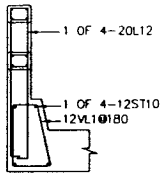
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



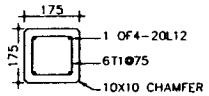
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

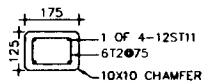
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	29	4100				4100
O	10	ST2	2 X 33	4160				4160
X	16	ST3	22	6100				6100
	16	ST4	21	2160				2160
A	12	ST5	25	6100				6100
P	12	ST6	18	5360				5360
P	12	ST7	2 X 7	5360				5360
R	12	C1	2 X 20	144	721	144		1009
O	12	C2	2 X 20	144	710	144		998
N	12	L1	2 X 21	3036	250			3286
	16	L2	2 X 18	1079	250			1329
&	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	4100	1101		6302
C	16	U2	2 X 20	1450	3060	1450		5960
U	12	U3	2 X 12	250	4160	250		4660
T	12	U4	2 X 10	444	4160	444		5048
O	12	U5	26	250	5290	250		5790
F	10	ST12	4 X 5	6050				6050
F	12	UT1	2 X 26	144	2 X 1050	100		2344
	12	L3	4 X 13	1238	1220			2458
	12	L4	4 X 1	4188	394			4582
	16	L5	4 X 2	4188	250			4438
W	12	L6	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L7	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
I	12	L8	4 X 3	1188	394			1582
	12	L9	4 X 4	1188	1220			2408
	12	L10	4 X 4	3088	250			3338
N	12	L11	4 X 7	3088	250			3338
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	751	144		1039
	12	ST10	2 X 4	12150				12150
CURB	12	VL1	2 X 25	204	445	300	435	1484
	12	VL2	4 X 22	204	204	248	200	956
AND	20	L12	20 X 4	1096	120			1216
	12	ST11	4 X 4	12160				12160
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :

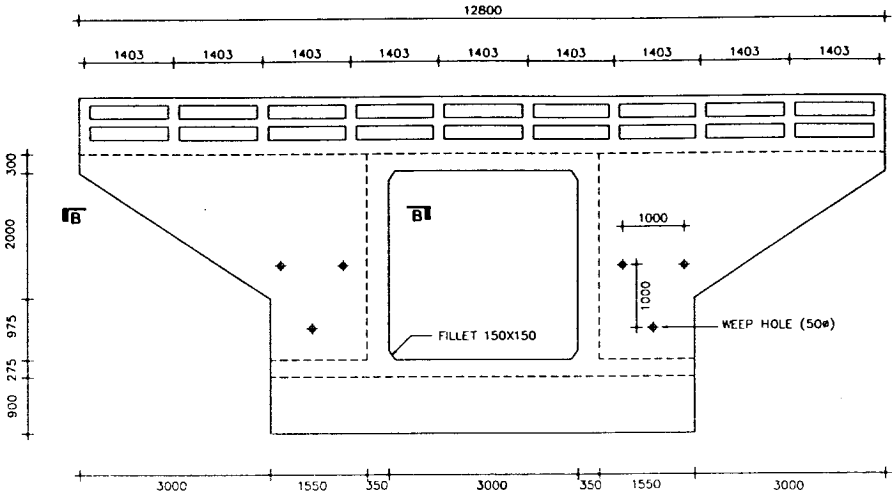
ISSUED BY :

CAD FILE REF : CULV\B1336262

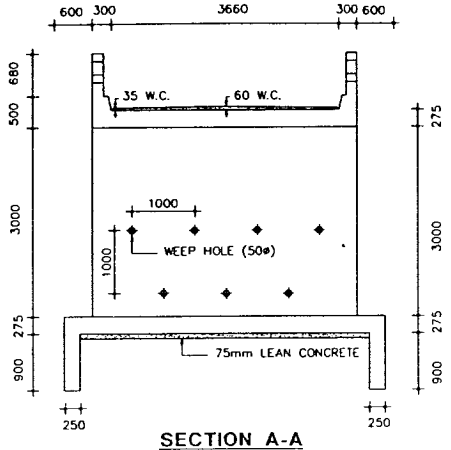
Web Copy

BC-130

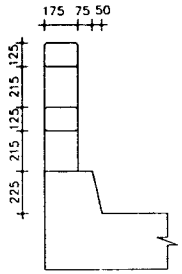
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



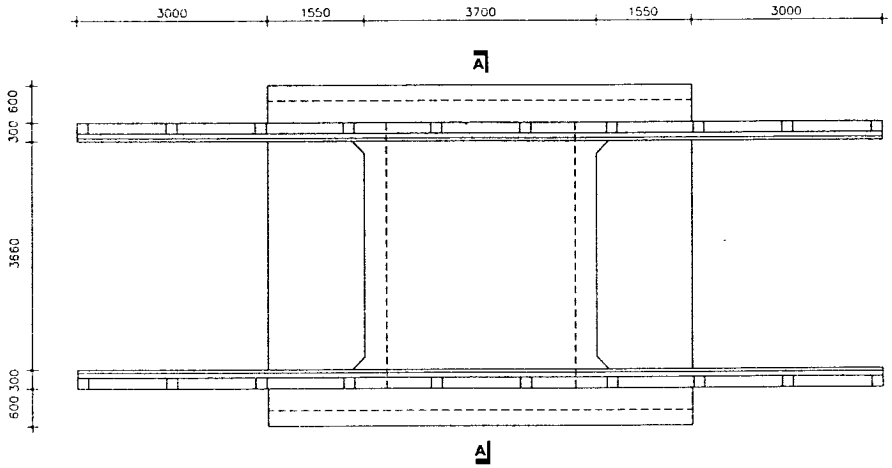
GENERAL ELEVATION



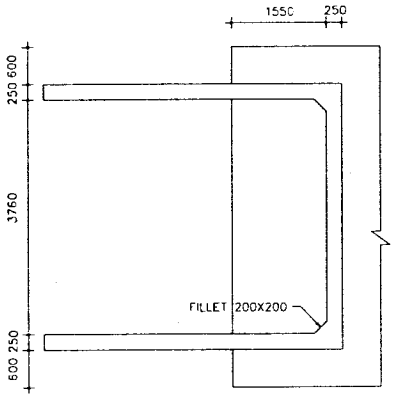
SECTION A-A



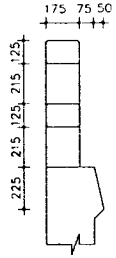
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

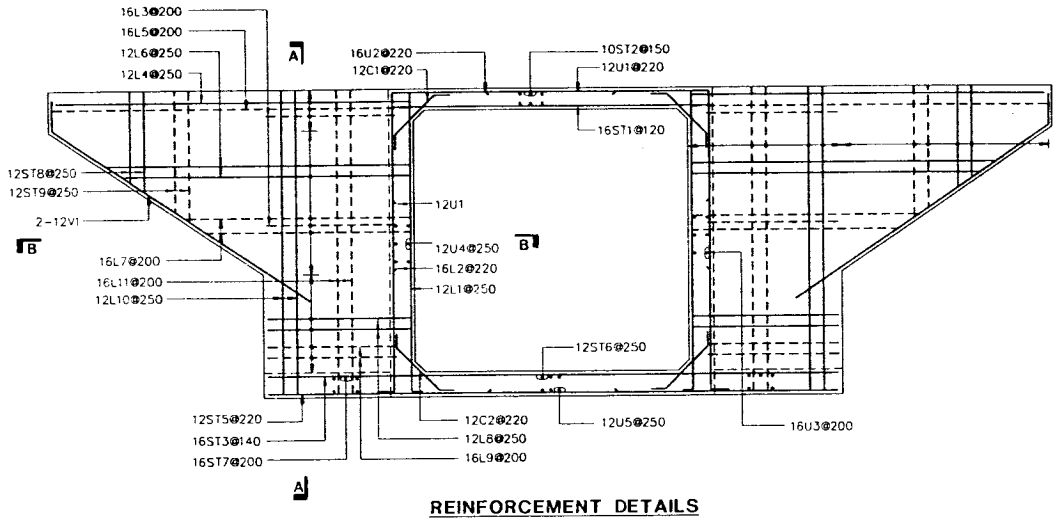
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 3.66m

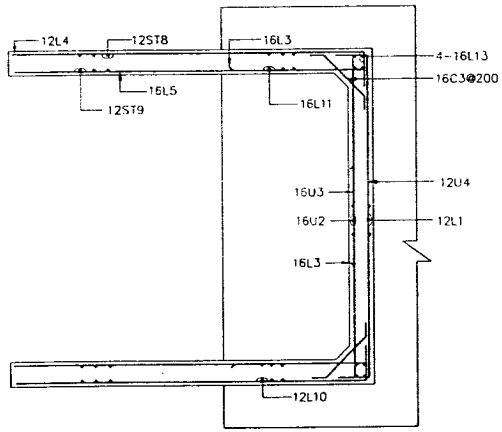
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1330301	

Web Copy

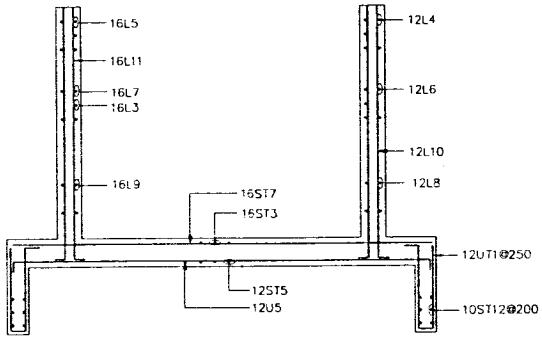
SHEET 2 OF 2
LIVE LOAD : ASHTO H20
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



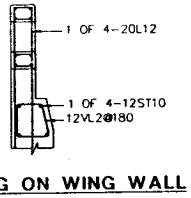
REINFORCEMENT DETAILS



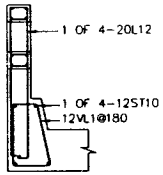
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



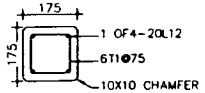
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

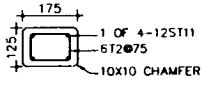
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	16	ST1	36	3600				3600
O	10	ST2	2 X 25	4160				4160
X	16	ST3	40	6700				6700
A	12	ST5	26	6700				6700
P	12	ST6	16	5360				5360
P	12	ST7	2 X 8	5360				5360
R	12	C1	2 X 20	144	786	144		1074
O	12	C2	2 X 20	144	775	144		1063
N	12	L1	2 X 15	3436	250			3686
	16	L2	2 X 18	1213	250			1463
&	16	L13	4 X 4	3436	250			3686
	12	U1	20	1235	3600	1235		6070
C	16	U2	2 X 20	1300	3460	1300		6060
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
O	12	U5	28	250	5290	250		5790
F	10	ST12	4 X 5	6650				6650
F	12	UT1	2 X 28	144	2 X 1025	100		2344
	16	L3	4 X 13	1838	1220			3058
	12	L4	4 X 1	4788	394			5182
	16	L5	4 X 2	4788	250			5038
W	12	L6	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L7	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
I	12	L8	4 X 4	1788	394			2182
	16	L9	4 X 5	1788	1220			3008
	12	L10	4 X 6	3488	250			3738
N	16	L11	4 X 8	3488	250			3738
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
	12	ST10	2 X 4	12750				12750
CURB	12	VL1	2 X 22	204	445	300	435	1484
	12	VL2	4 X 25	204	204	248	200	956
AND	20	L12	20 X 4	1096	120			1216
	12	ST11	4 X 4	12760				12760
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 81 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

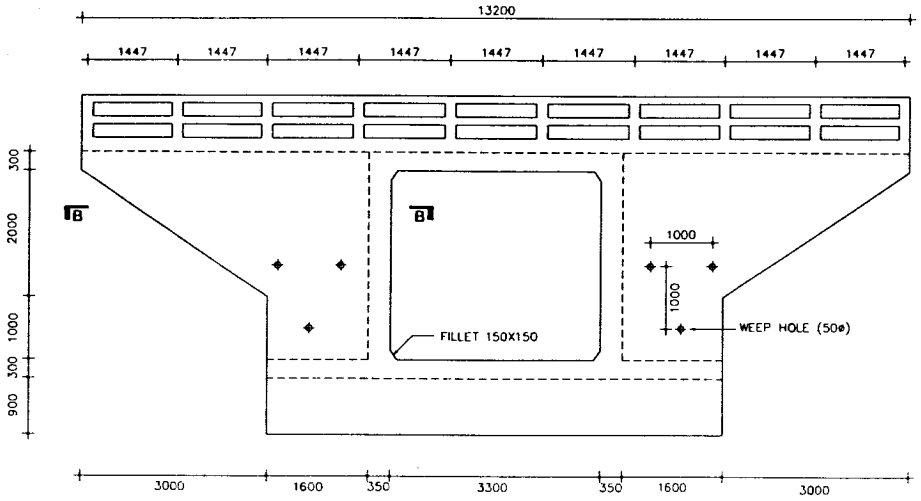
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.0m x 3.0m ROADWAY 3.66m

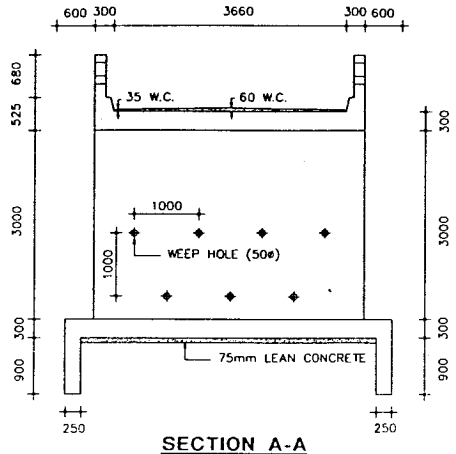
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1330302	

Web Copy

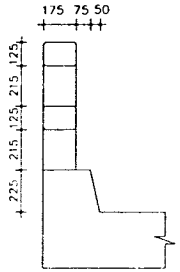
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



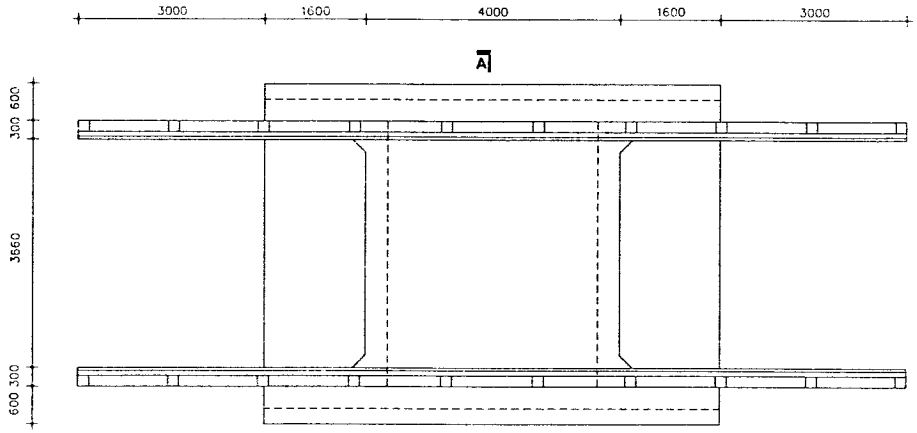
GENERAL ELEVATION



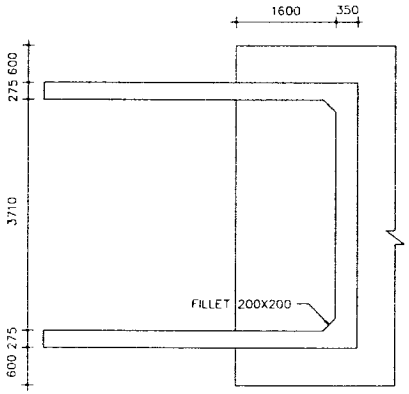
SECTION A-A



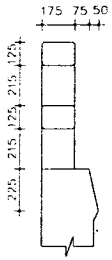
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

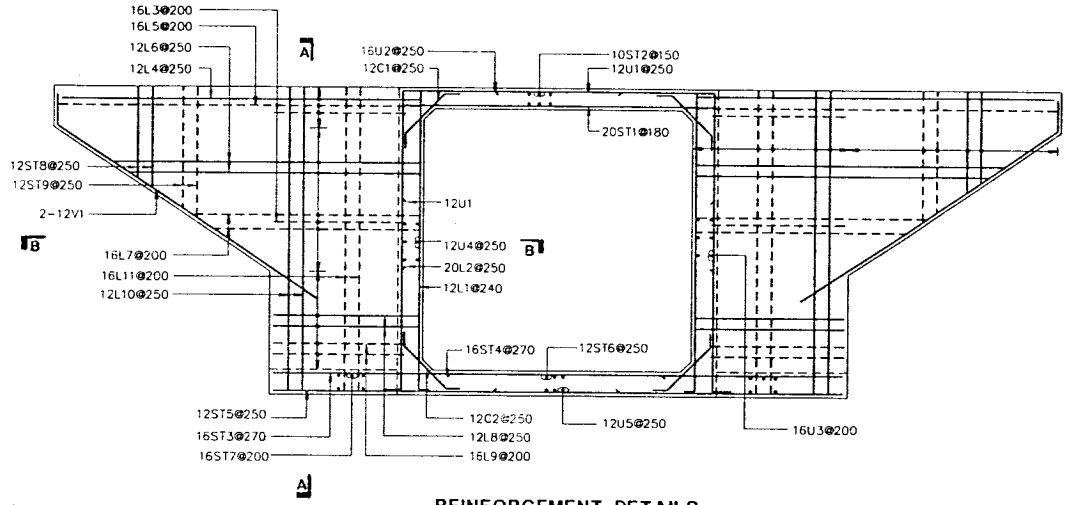
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 3.0m ROADWAY 3.66m

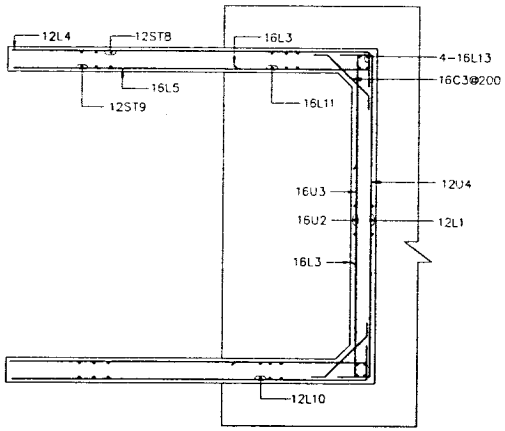
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1333301	

Web Copy

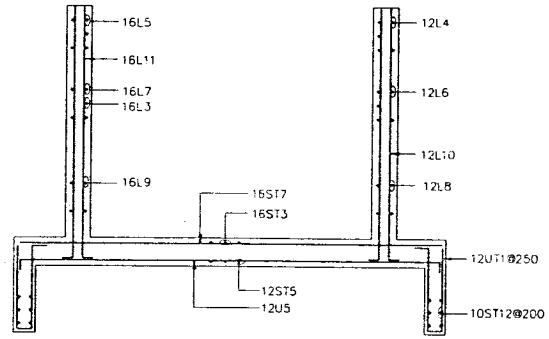
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.0m



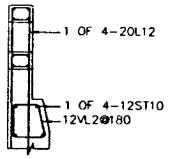
REINFORCEMENT DETAILS



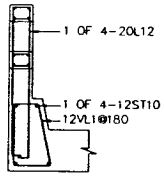
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



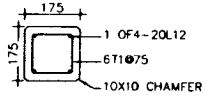
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

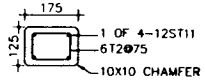
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	25	3900				3900
O	10	ST2	2 X 27	4160				4160
X	16	ST3	21	7100				7100
	16	ST4	20	1980				1980
A	12	ST5	23	7100				7100
P	12	ST6	17	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 18	144	821	144		1109
O	12	C2	2 X 18	144	804	144		1092
N	12	L1	2 X 15	3486	250			3736
	20	L2	2 X 16	1238	250			1488
&	16	L13	4 X 4	3486	250			3736
	12	U1	18	1260	3900	1260		6420
C	16	U2	2 X 18	1400	3510	1400		6310
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
O	12	U5	30	250	5290	250		5790
F	10	ST12	4 X 5	7050				7050
F	12	UT1	2 X 30	144	2 X1075	100		2394
	16	L3	4 X 13	1888	1220			3108
	12	L4	4 X 1	4838	419			5257
	16	L5	4 X 2	4838	250			5088
W	12	L6	4 X 9	Var. 4809 To 1838 @ 371	419			Var.5228 To 2257
	16	L7	4 X 11	Var.4809To 1838 @ 297	250			Var. 5059 To 2088
I	12	L8	4 X 4	1838	419			2257
	16	L9	4 X 5	1838	1220			3058
	12	L10	4 X 7	3538	250			3788
N	16	L11	4 X 8	3538	250			3788
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13150				13150
CURB	12	VL1	2 X 24	204	471	306	460	1541
	12	VL2	4 X26	204	204	248	200	956
AND	20	L12	20X 4	1121	120			1241
	12	ST11	4 X 4	13160				13160
RAILING	6	T1	20X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 51 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

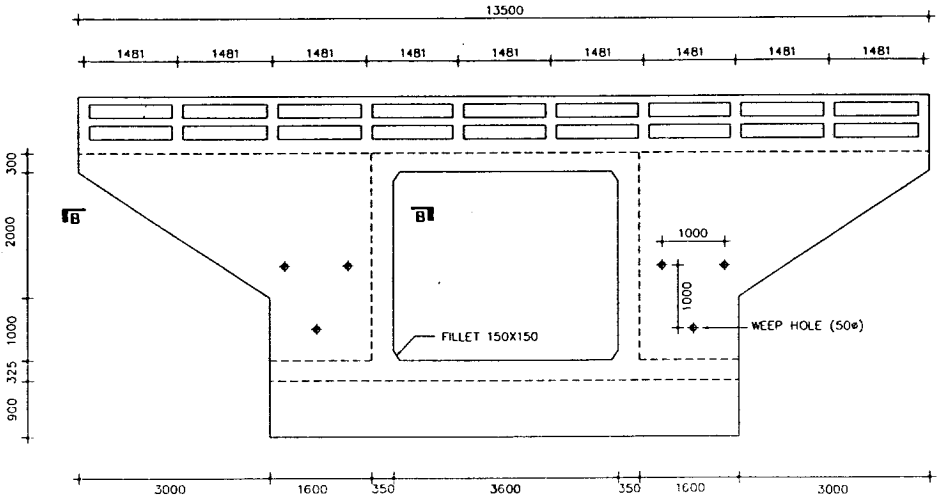
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1333302

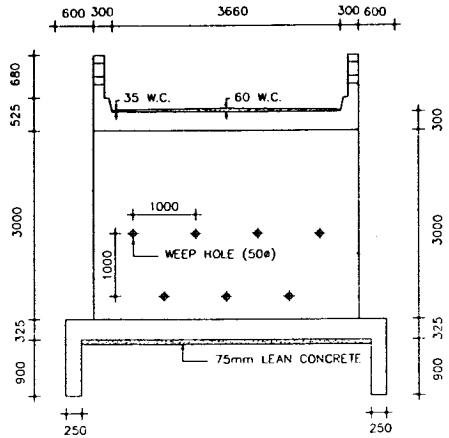
Web Copy

BC-134

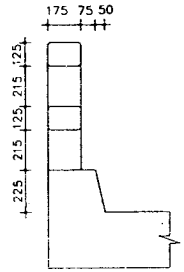
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



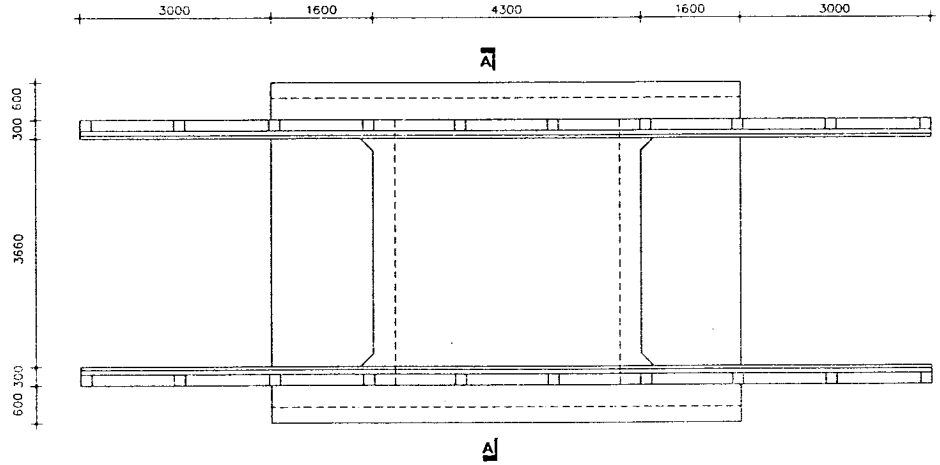
GENERAL ELEVATION



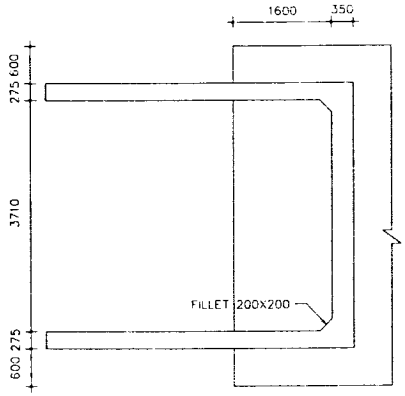
SECTION A-A



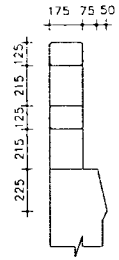
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

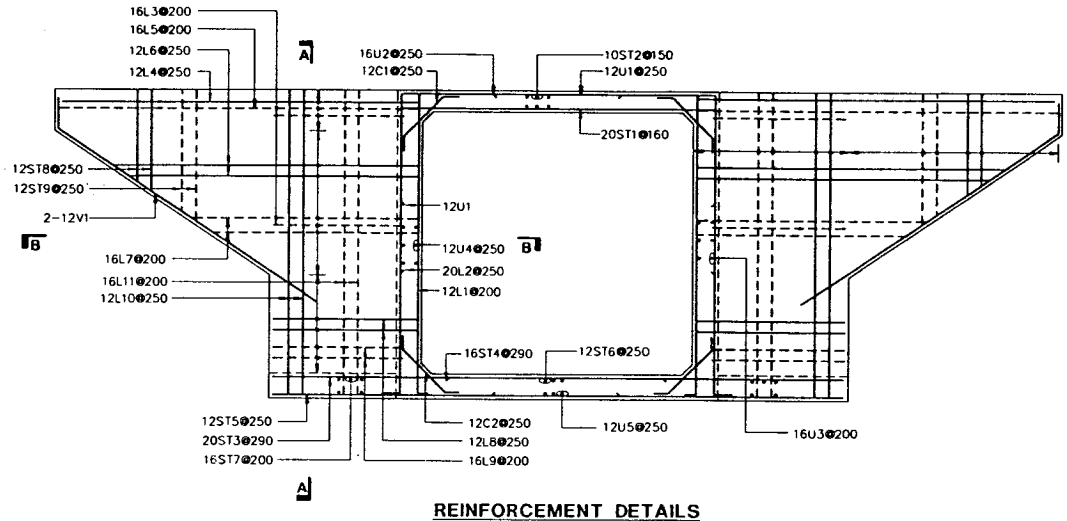
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1336301	

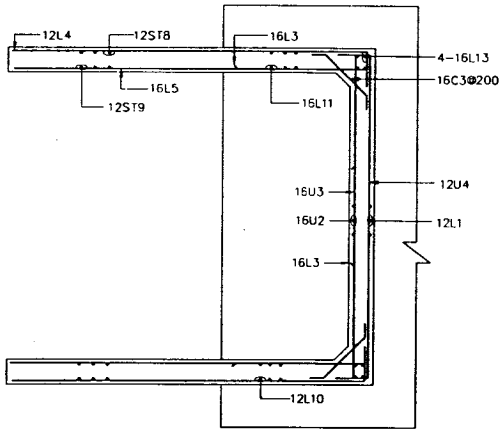
Web Copy

BC-135

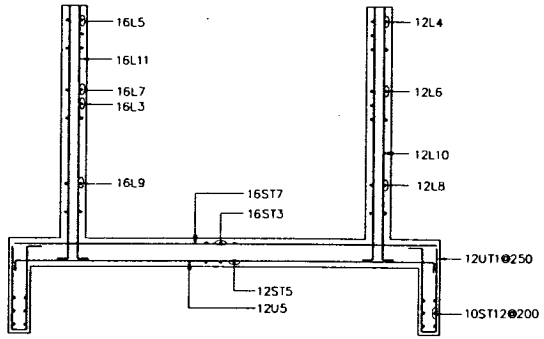
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.0m



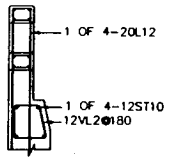
REINFORCEMENT DETAILS



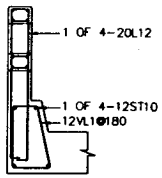
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



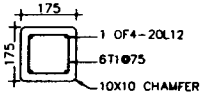
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

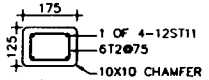
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	27	4200				4200
0	10	ST2	2 X 29	4160				4160
X	20	ST3	20	7400				7400
	16	ST4	19	2160				2160
A	12	ST5	23	7400				7400
P	12	ST6	19	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 18	144	821	144		1109
O	12	C2	2 X 18	144	840	144		1128
N	12	L1	2 X 18	3511	250			3761
	20	L2	2 X 16	1263	250			1513
&	16	L13	4 X 4	3511	250			3761
	12	U1	18	1260	4200	1260		6720
C	16	U2	2 X 18	1500	3535	1500		6535
U	16	U3	2 X 11	250	4160	250		4660
T	12	U4	2 X 11	494	4160	494		5148
O	12	U5	31	250	5290	250		5790
F	10	ST12	4 X 5	7350				7350
F	12	UT1	2 X 31	144	2 X 1100	100		2444
	16	L3	4 X 13	1888	1220			3108
	12	L4	4 X 1	4838	419			5257
	16	L5	4 X 2	4838	250			5088
W	12	L6	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L7	4 X 11	Var. 4809 To 1838 @ 297	250			Var.5059 To 2088
I	12	L8	4 X 4	1838	419			2257
	16	L9	4 X 5	1838	1220			3058
	12	L10	4 X 7	3563	250			3813
N	16	L11	4 X 8	3563	250			3813
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13450				13450
CURB	12	VL1	2 X 25	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	20X 4	1121	120			1241
	12	ST11	4 X 4	13460				13460
RAILING	6	T1	20X 6	2 X 135	2 X 135			540
	6	T2	4X 162	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276 MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 91 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :

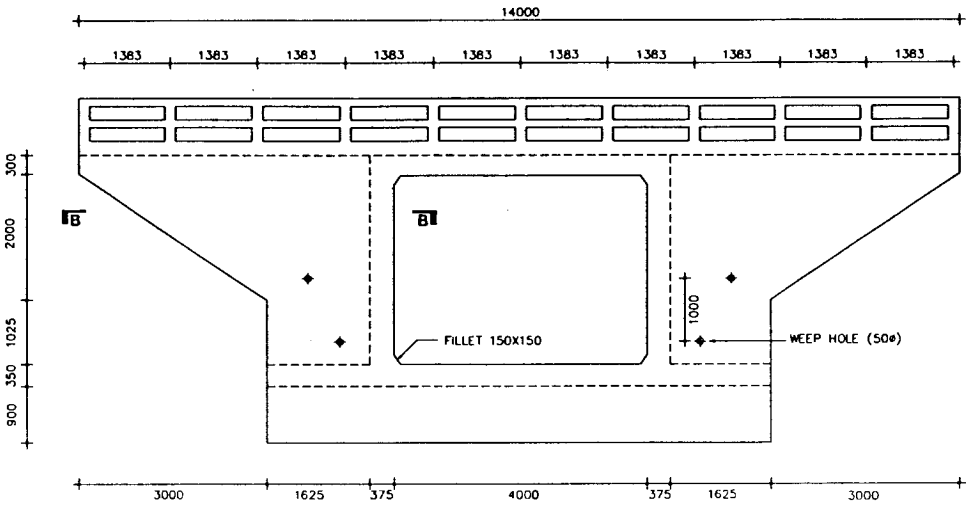
ISSUED BY :

CAD FILE REF : CULV\B1336302

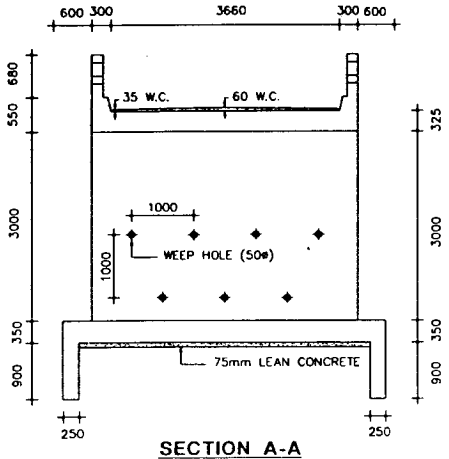
Web Copy

BC-136

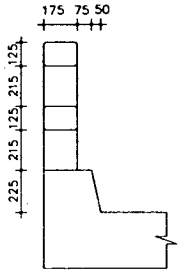
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



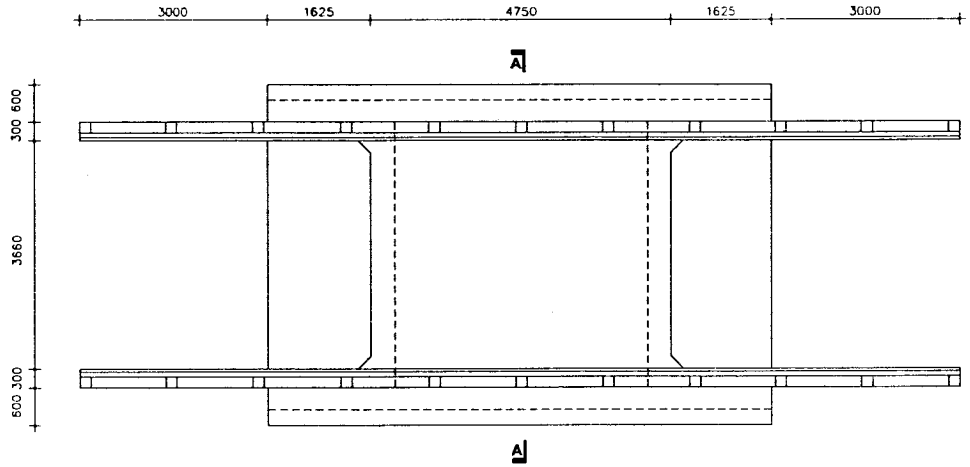
GENERAL ELEVATION



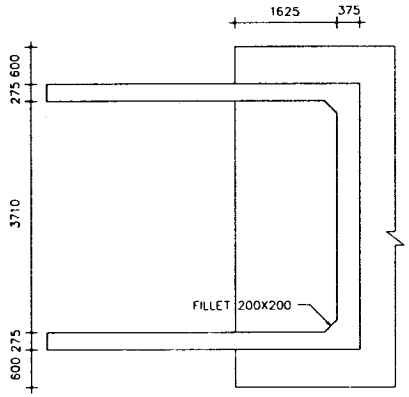
SECTION A-A



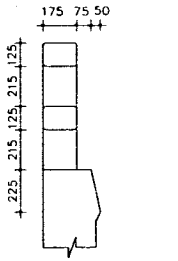
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

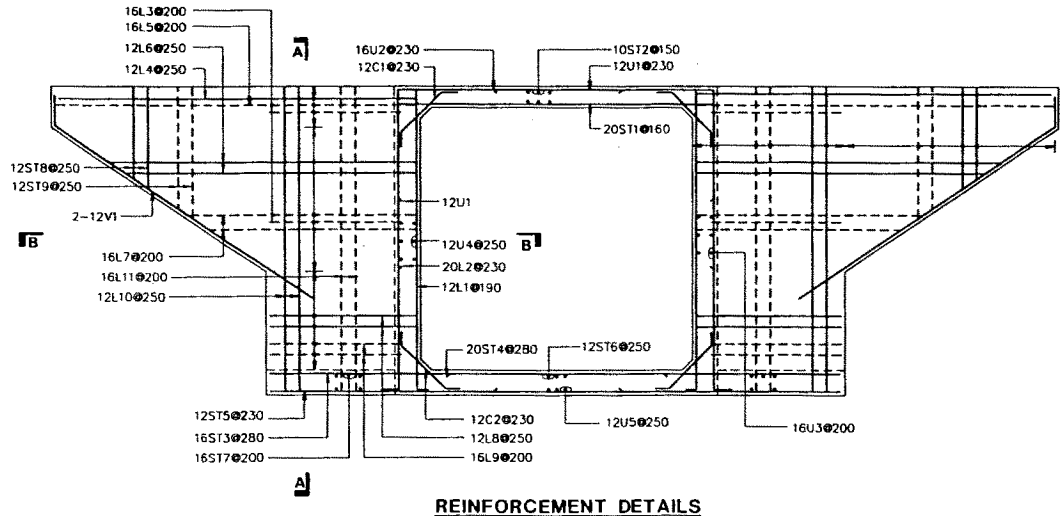
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 3.66m

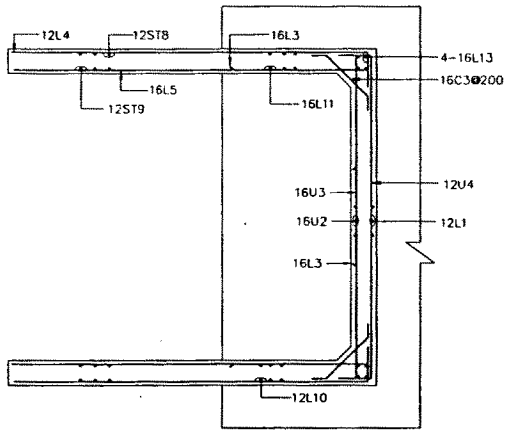
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1340301	

Web Copy

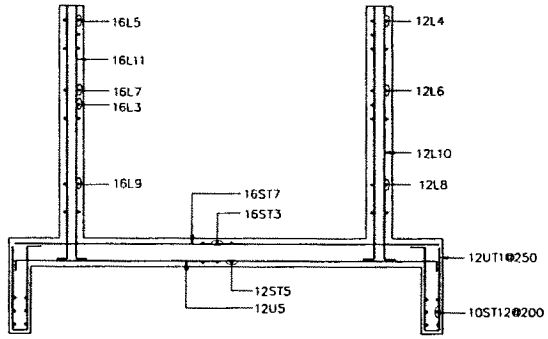
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.0m



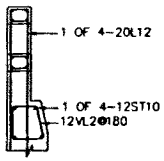
REINFORCEMENT DETAILS



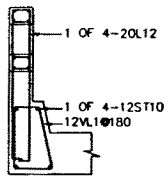
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



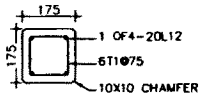
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

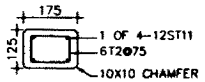
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	27	4650				4650
0	10	ST2	2 X 32	4160				4160
X	16	ST3	21	7900				7900
	20	ST4	20	2400				2400
A	12	ST5	25	7900				7900
P	12	ST6	20	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 20	144	892	144		1180
O	12	C2	2 X 20	144	911	144		1199
N	12	L1	2 X 19	3561	250			3811
	20	L2	2 X 18	1288	250			1538
&	16	L13	4 X 4	3561	250			3811
	12	U1	20	1285	4650	1285		7220
C	16	U2	2 X 20	1658	3585	1658		6901
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	519	4160	519		5198
O	12	U5	33	250	5290	250		5790
F	10	ST12	4 X 5	7850				7850
F	12	UT1	2 X 33	144	2 X1125	100		2494
	16	L3	4 X 13	1938	1220			3158
	12	L4	4 X 1	4888	419			5307
	16	L5	4 X 2	4888	250			5138
W	12	L6	4 X 9	Var. 4859 To 1888 @ 371	419			Var.5278 To 2307
	16	L7	4 X 11	Var. 4859To 1888 @ 297	250			Var. 5109 To 2138
I	12	L8	4 X 5	1888	419			2307
	16	L9	4 X 6	1888	1220			3108
	12	L10	4 X 7	3613	250			3863
N	16	L11	4 X 8	3613	250			3863
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	892	144		1180
	12	ST10	2 X 4	13950				13950
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	22X 4	1046	120			1166
	12	ST11	4 X 4	13960				13960
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ⩾ 50 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :

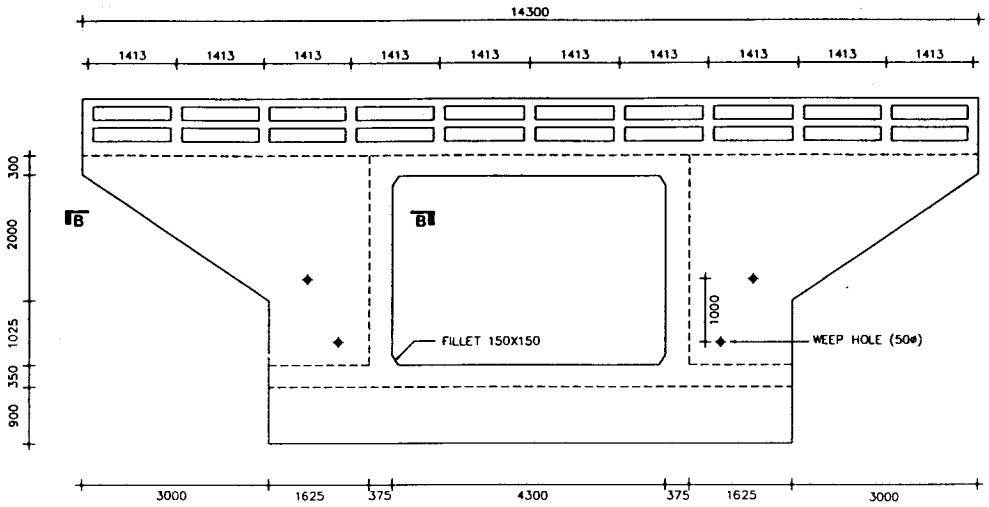
ISSUED BY :

CAD FILE REF : CULV\B1340302

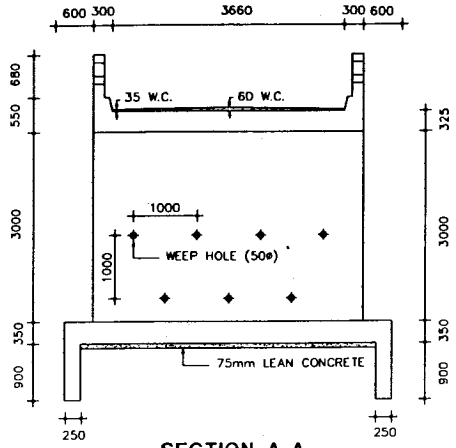
Web Copy

BC-138

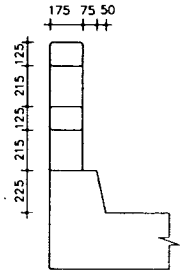
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



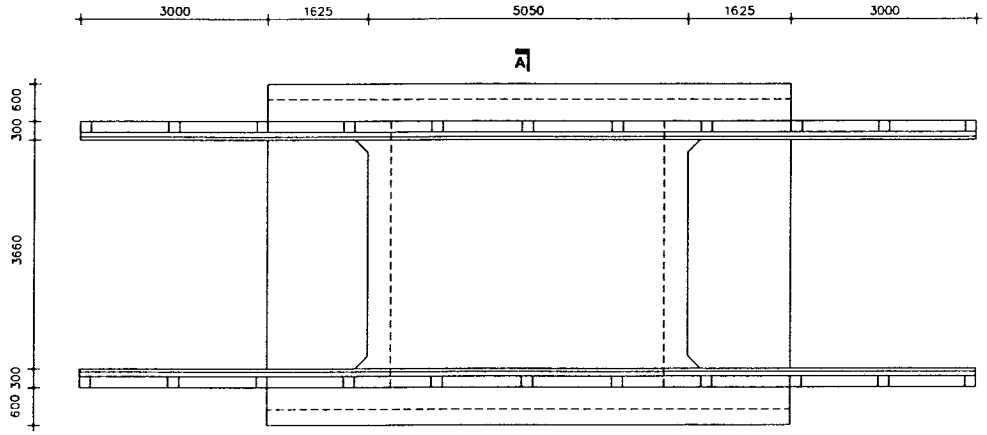
GENERAL ELEVATION



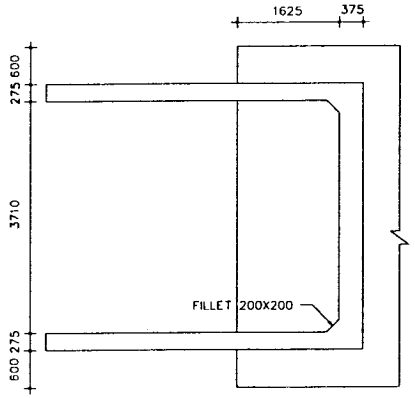
SECTION A-A



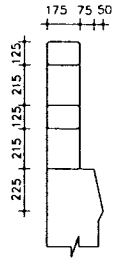
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

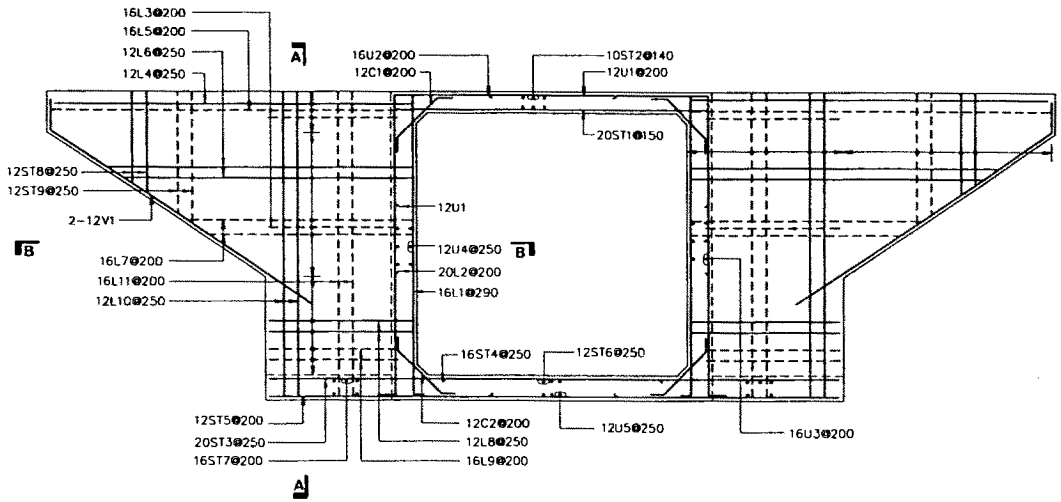
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1343301	

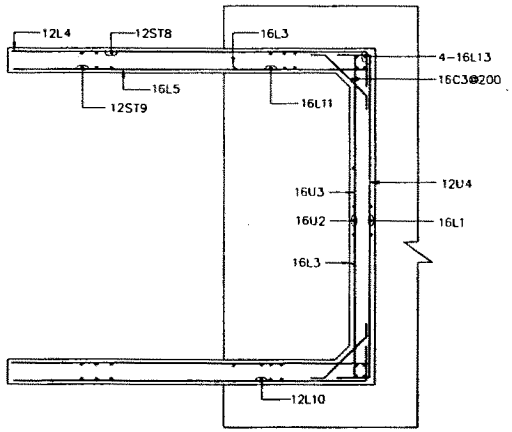
Web Copy

BC-139

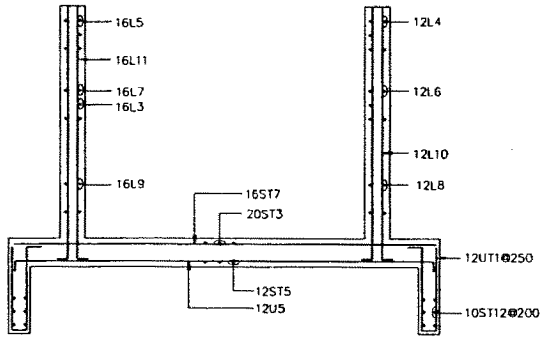
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.0m



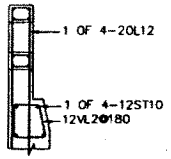
REINFORCEMENT DETAILS



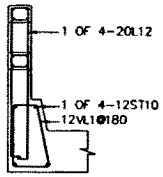
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



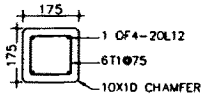
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

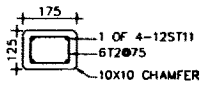
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	29	4950				4950
O	10	ST2	2 X 37	4160				4160
X	20	ST3	23	8200				8200
	16	ST4	22	2580				2580
A	12	ST5	28	8200				8200
P	12	ST6	22	5360				5360
P	16	ST7	2 X 8	5360				5360
R	12	C1	2 X 22	144	892	144		1180
O	12	C2	2 X 22	144	911	144		1199
N	16	L1	2 X 12	3561	250			3811
	20	L2	2 X 20	1288	250			1538
&	16	L13	4 X 4	3561	250			3811
	12	U1	22	1285	4950	1285		7520
C	16	U2	2 X 22	1758	3585	1758		7101
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 11	519	4160	519		5198
O	12	U5	34	250	5290	250		5790
F	10	ST12	4 X 6	8150				8150
F	12	UT1	2 X 34	144	2 X 1125	100		2494
	16	L3	4 X 13	1934	1220			3154
	12	L4	4 X 1	4884	419			5303
	16	L5	4 X 2	4884	250			5134
W	12	L6	4 X 9	Var. 4859 To 1884 @ 371	419			Var. 5278 To 2303
	16	L7	4 X 11	Var. 4859 To 1884 @ 297	250			Var. 5109 To 2134
I	12	L8	4 X 5	1884	419			2303
	16	L9	4 X 6	1884	1220			3104
	12	L10	4 X 7	3613	250			3863
N	16	L11	4 X 8	3613	250			3863
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	887	144		1175
	12	ST10	2 X 4	14250				14250
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 26	204	204	248	200	956
AND	20	L12	22 X 4	1046	120			1166
	12	ST11	4 X 4	14260				14260
RAILING	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 48 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

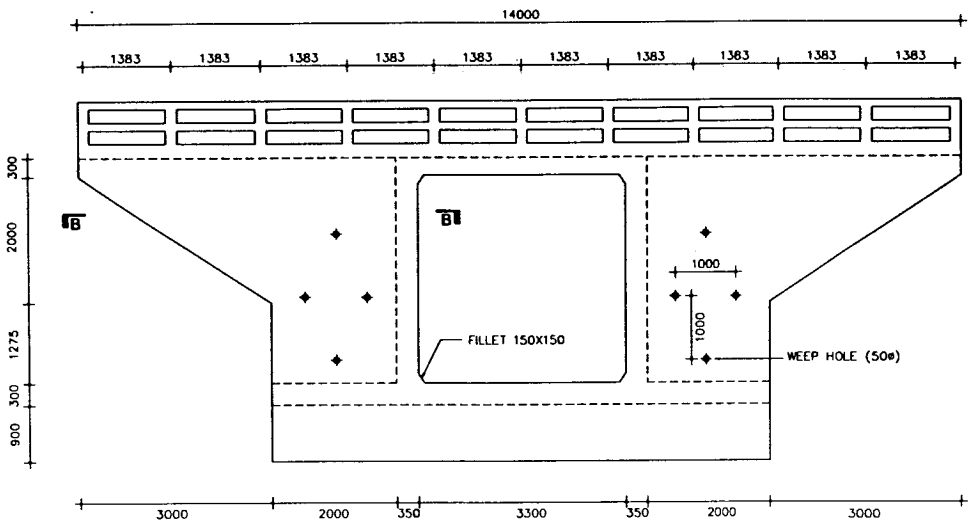
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1343302

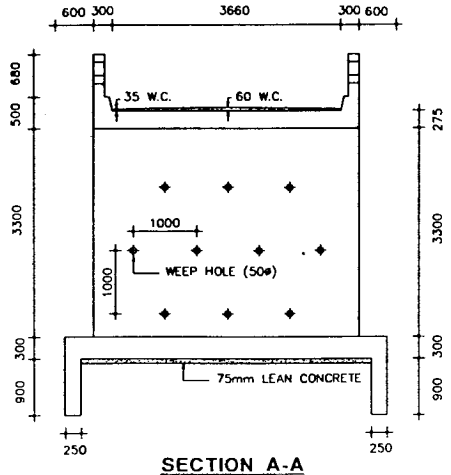
Web Copy

BC-140

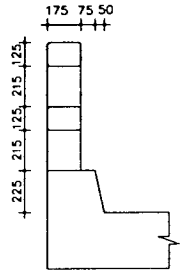
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



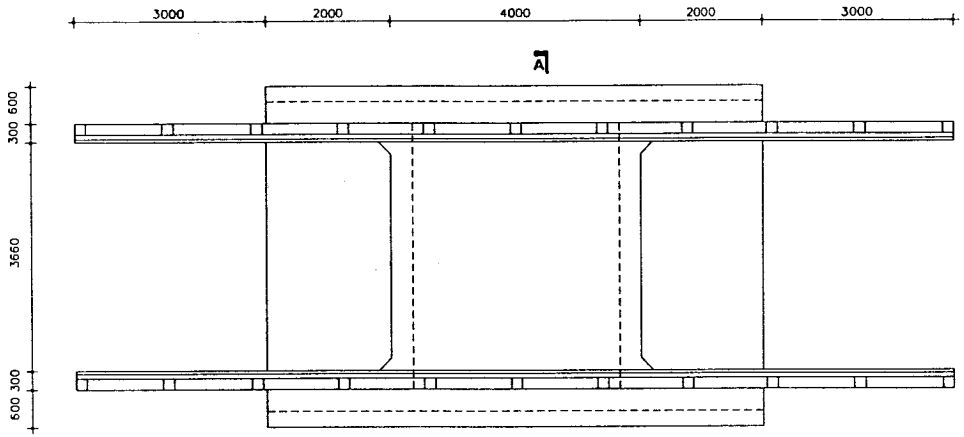
GENERAL ELEVATION



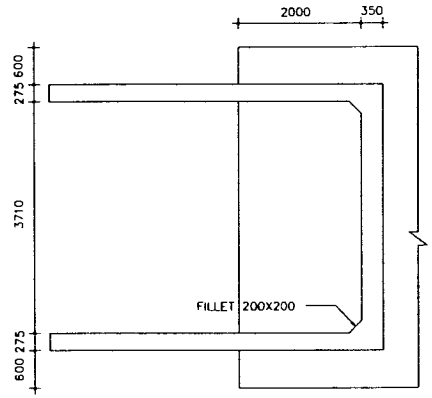
SECTION A-A



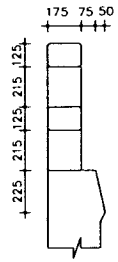
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

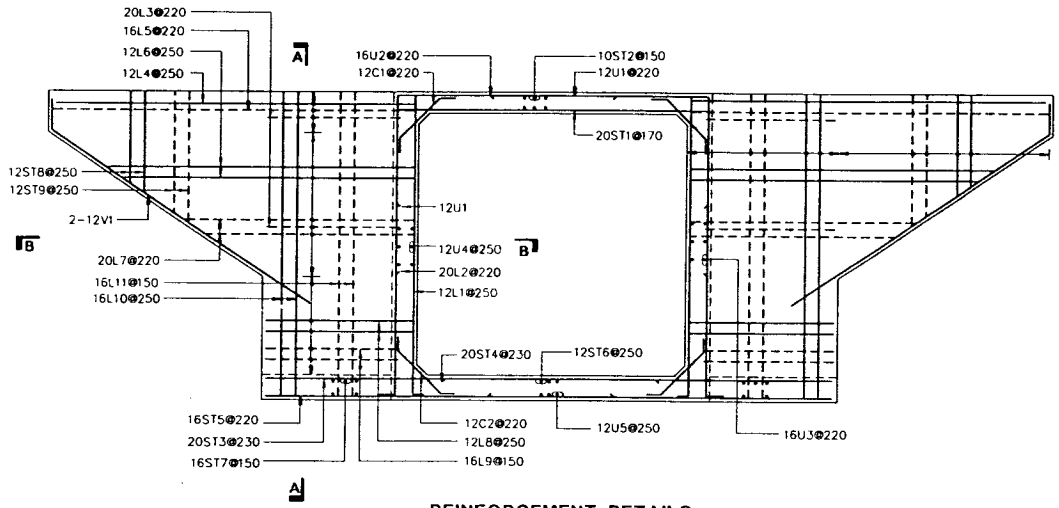
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 3.66m

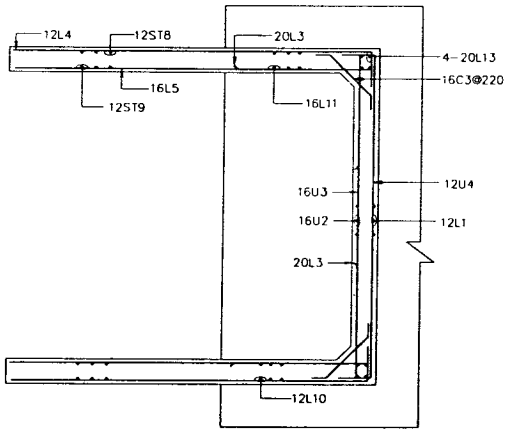
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1333331	

Web Copy

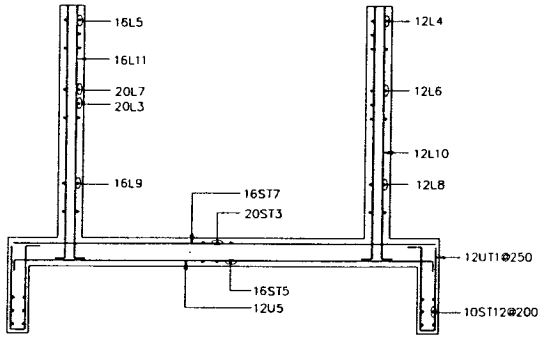
SHEET 2 OF 2
LIVE LOAD: ASH10 H20
CLEAR SPAN : 3.3m
CLEAR HEIGHT : 3.3m



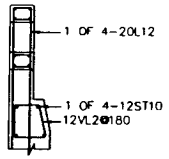
REINFORCEMENT DETAILS



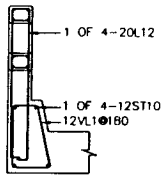
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



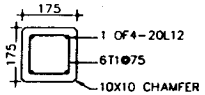
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

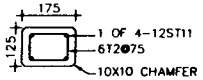
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	26	3900				3900
0	10	ST2	2 X 27	4160				4160
X	20	ST3	25	7900				7900
	20	ST4	24	1980				1980
A	16	ST5	26	7900				7900
P	12	ST6	17	5360				5360
P	16	ST7	2 X 13	5360				5360
R	12	C1	2 X 20	144	786	144		1074
O	12	C2	2 X 20	144	799	144		1087
N	12	L1	2 X 14	3757	250			4007
	20	L2	2 X 18	1338	250			1588
&	20	L13	4 X 4	3757	250			4007
	12	U1	20	1335	3900	1335		6570
C	16	U2	2 X 20	1400	3785	1400		6585
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X13	494	4160	494		5148
0	12	U5	33	250	5290	250		5790
F	10	ST12	4 X 5	7850				7850
F	12	UT1	2 X 33	144	2 X1075	100		2394
	20	L3	4 X 12	2288	1220			3508
	12	L4	4 X 1	5238	419			5657
	16	L5	4 X 2	5238	250			5488
W	12	L6	4 X 9	Var. 5209 To 2238@ 371	419			Var.5628 To 2657
	20	L7	4 X 11	Var.5209To 2238 @ 297	250			Var. 5459 To 2488
I	12	L8	4 X6	2238	419			2657
	16	L9	4 X 9	2238	1220			3458
	16	L10	4 X8	3809	250			4059
N	16	L11	4 X 13	3809	250			4059
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST10	2 X 4	13950				13950
CURB	12	VL1	2 X 24	204	445	300	435	1484
	12	VL2	4 X28	204	204	248	200	956
AND	20	L12	22X 4	1096	120			1216
	12	ST11	4 X 4	13960				13960
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 55 kN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001..



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

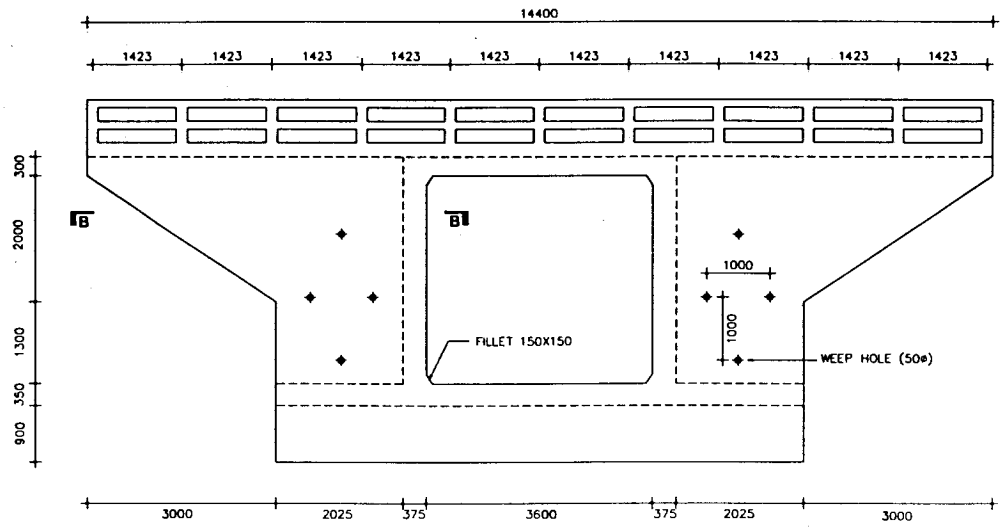
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1333332

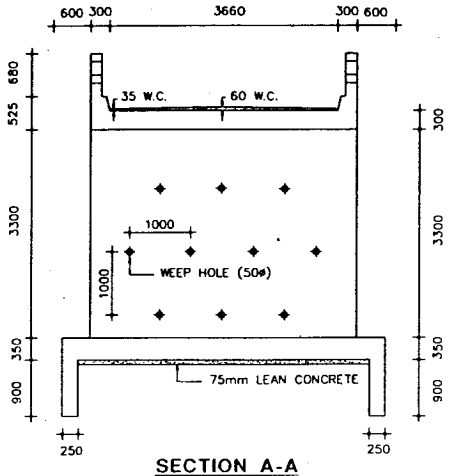
Web Copy

BC-142

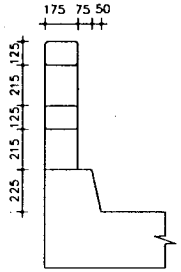
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



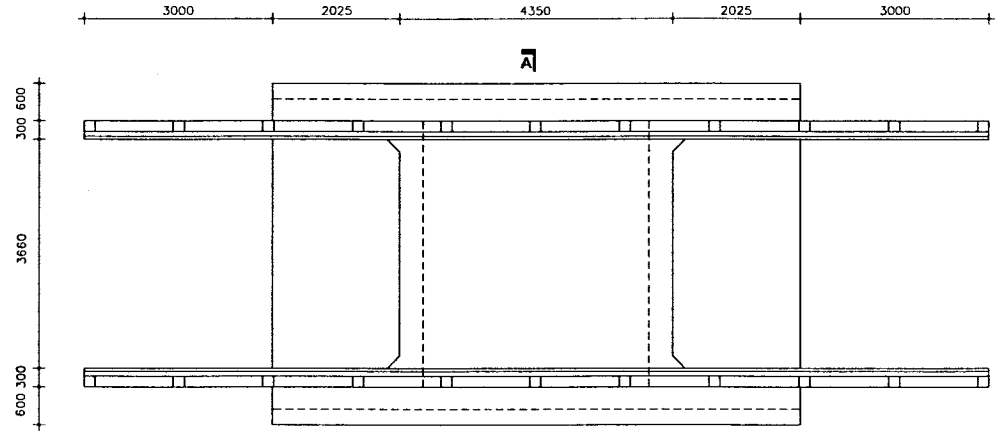
GENERAL ELEVATION



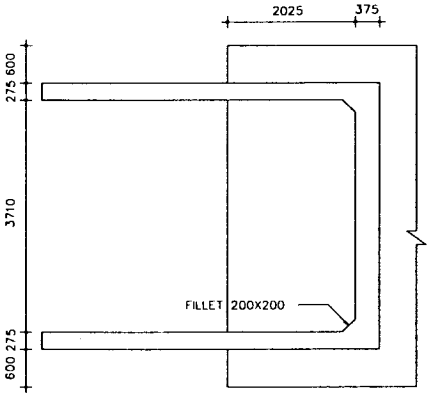
SECTION A-A



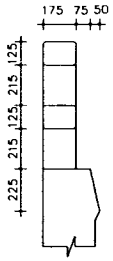
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontaliy and verticolly as shown in drawing; filter material shall be provided as per specification.

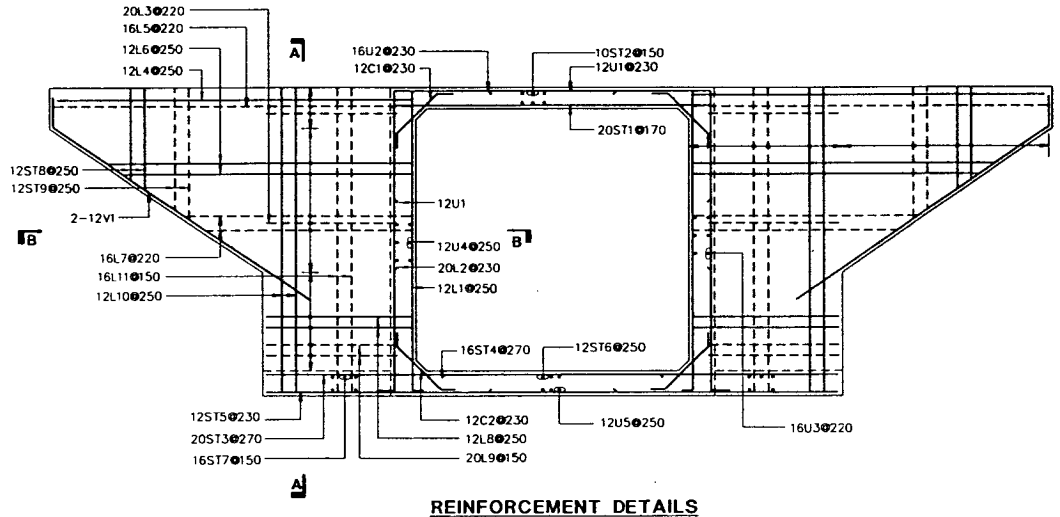
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 3.66m

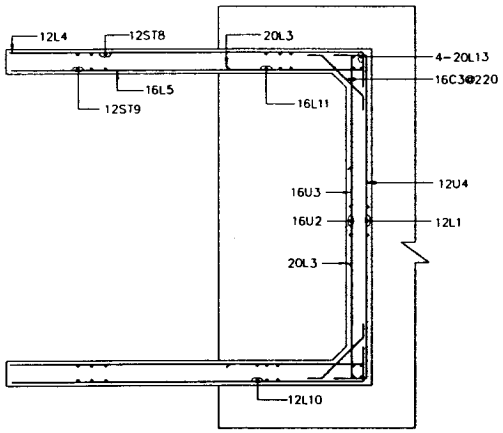
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1336331	

Web Copy

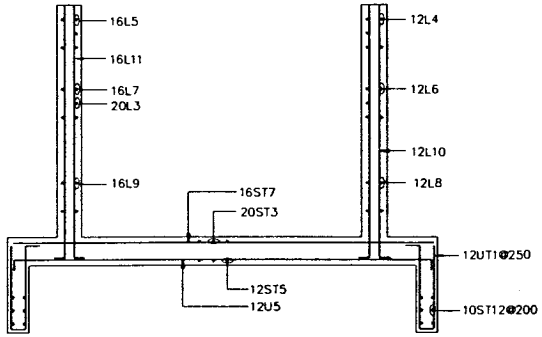
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.3m



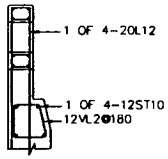
REINFORCEMENT DETAILS



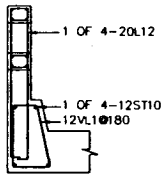
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



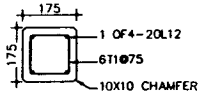
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

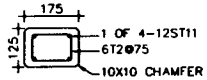
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	26	4250				4250
O	10	ST2	2 X 30	4160				4160
X	20	ST3	21	8300				8300
	16	ST4	20	2160				2160
A	12	ST5	25	8300				8300
P	12	ST6	19	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 20	144	857	144		1145
O	12	C2	2 X 20	144	911	144		1199
N	12	L1	2 X 14	3836	250			4086
	20	L2	2 X 18	1388	250			1638
&	20	L13	4 X 4	3836	250			4086
	12	U1	20	1360	4250	1360		6970
C	16	U2	2 X 20	1525	3860	1525		6910
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	519	4160	519		5198
O	12	U5	35	250	5290	250		5790
F	10	ST12	4 X 5	8250				8250
F	12	UT1	2 X 35	144	2 X 1125	100		2494
	20	L3	4 X 12	2338	1220			3558
	12	L4	4 X 1	5288	419			5707
	16	L5	4 X 2	5288	250			5538
W	12	L6	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L7	4 X 11	Var. 5259To 2288 @ 330	250			Var. 5509 To 2538
I	12	L8	4 X 6	2288	419			2707
	20	L9	4 X 9	2288	1220			3508
	12	L10	4 X 8	3888	250			4138
N	16	L11	4 X 14	3888	250			4138
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	892	144		1180
	12	ST10	2 X 4	14350				14350
CURB	12	VL1	2 X 26	204	471	306	460	1541
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22X 4	1121	120			1241
	12	ST11	4 X 4	14360				14360
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 58 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :

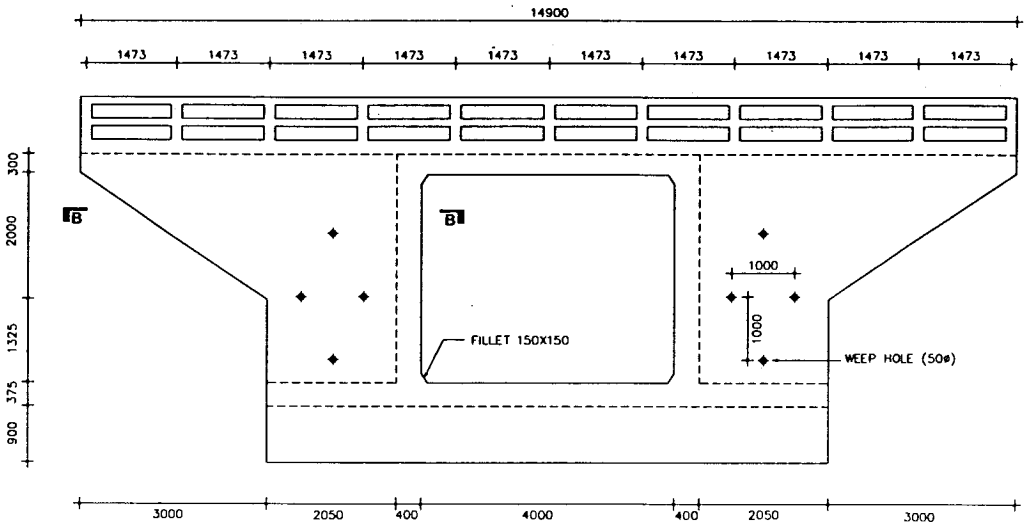
ISSUED BY :

CAD FILE REF : CULV\B1336332

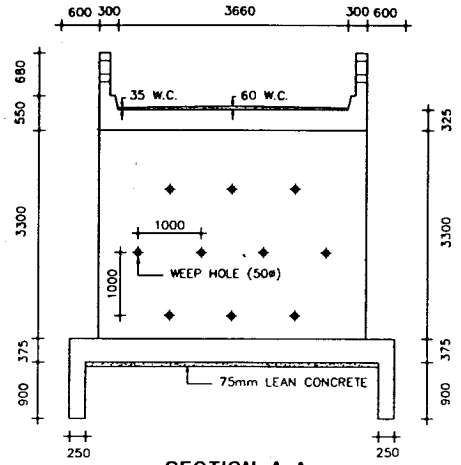
Web Copy

BC-144

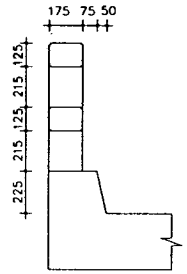
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



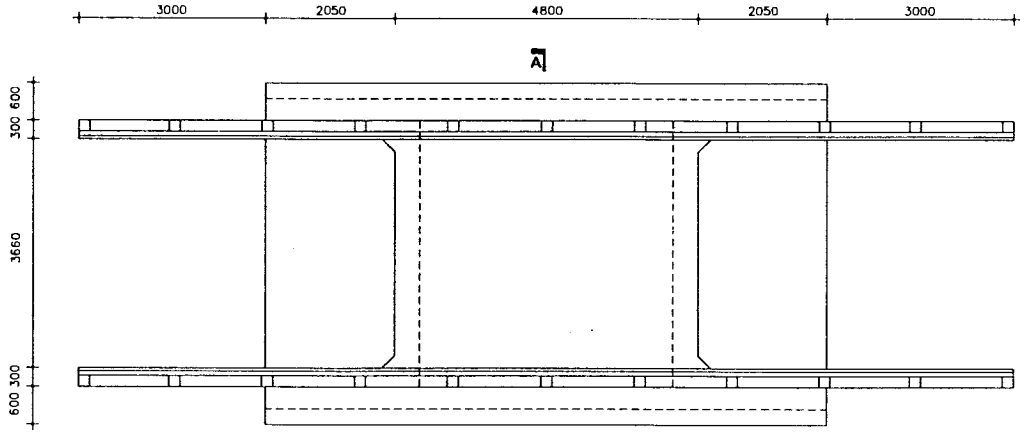
GENERAL ELEVATION



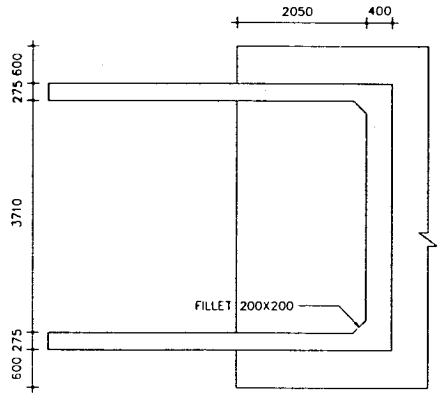
SECTION A-A



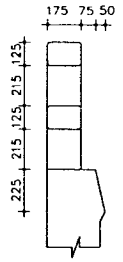
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

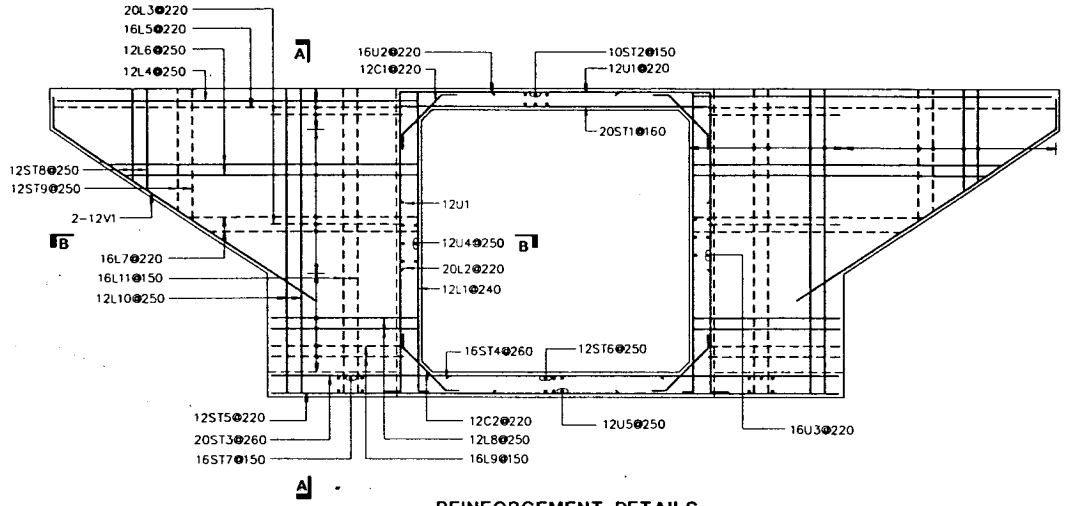
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 3.66m

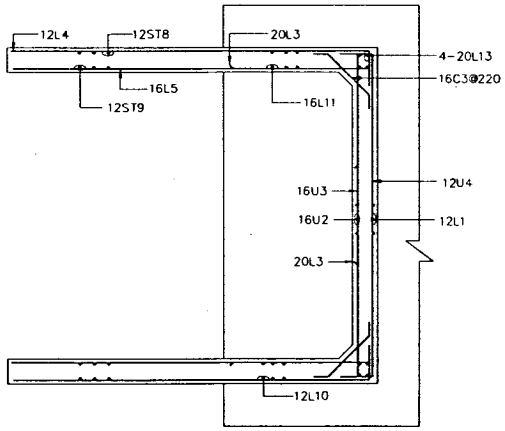
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1340331	

Web Copy

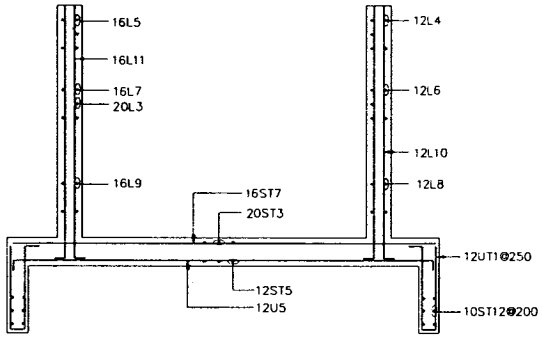
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.3m



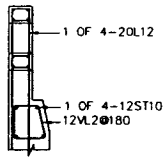
REINFORCEMENT DETAILS



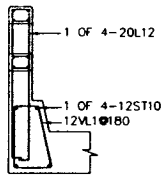
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



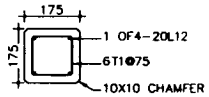
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

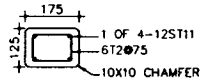
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	27	4700				4700
O	10	ST2	2 X 33	4160				4160
X	20	ST3	22	8800				8800
	16	ST4	21	2400				2400
A	12	ST5	26	8800				8800
P	12	ST6	21	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 20	144	928	144		1216
O	12	C2	2 X 20	144	981	144		1269
N	12	L1	2 X 15	3886	250			4136
	20	L2	2 X 18	1413	250			1663
&	20	L13	4 X 4	3886	250			4136
	12	U1	20	1385	4700	1385		7470
C	16	U2	2 X 20	1683	3910	1683		7276
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	544	4160	544		5248
O	12	U5	37	250	5290	250		5790
F	10	ST12	4 X 5	8750				8750
F	12	UT1	2 X 37	144	2 X1150	100		2544
	20	L3	4 X 12	2338	1220			3608
	12	L4	4 X 1	5338	419			5757
	16	L5	4 X 2	5338	250			5588
W	12	L6	4 X 9	Var. 5309 To 2338 @ 371	419			Var.5728 To 2757
	16	L7	4 X 11	Var.5309To 2338 @ 297	250			Var. 5559 To 2588
I	12	L8	4 X 6	2338	419			2757
	16	L9	4 X 9	2338	1220			3558
	12	L10	4 X 8	3938	250			4188
N	16	L11	4 X 14	3938	250			4188
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	928	144		1216
	12	ST10	2 X 4	14850				14850
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	22X 4	1146	120			1266
	12	ST11	4 X 4	14860				14860
RAILING	6	T1	22X 6	2 X 135	2 X 135			540
	6	T2	4X 180	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 55 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

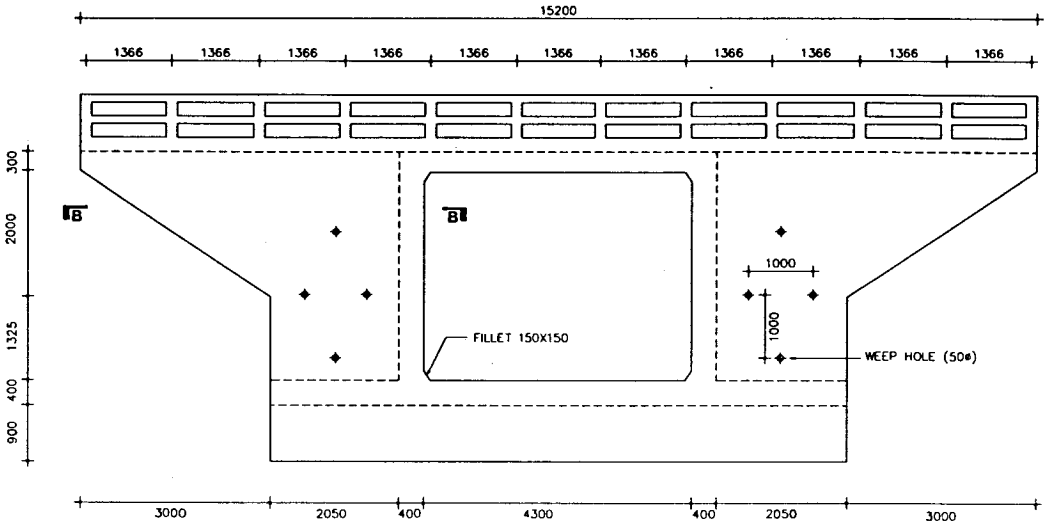
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1340332

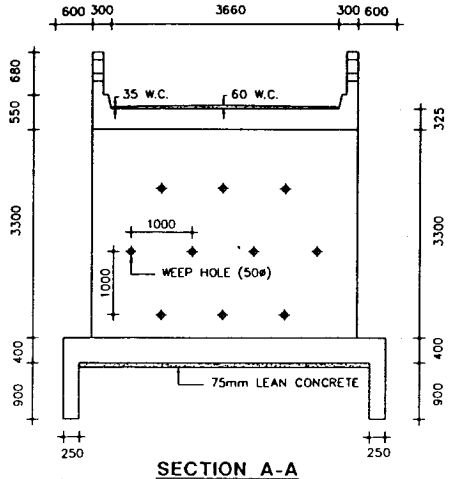
Web Copy

BC-146

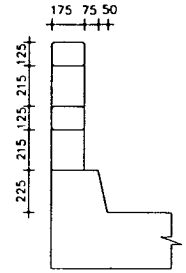
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



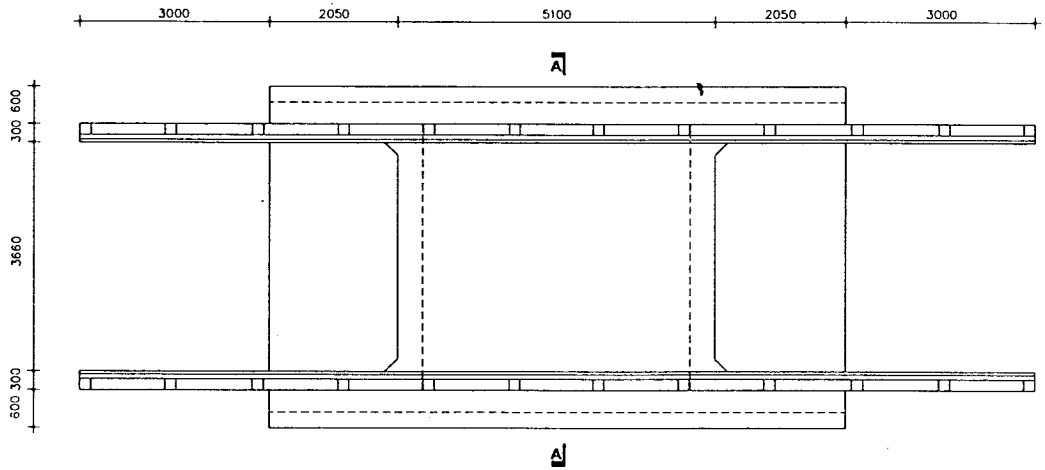
GENERAL ELEVATION



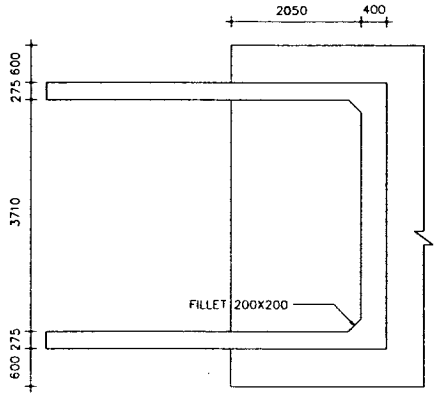
SECTION A-A



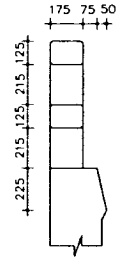
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

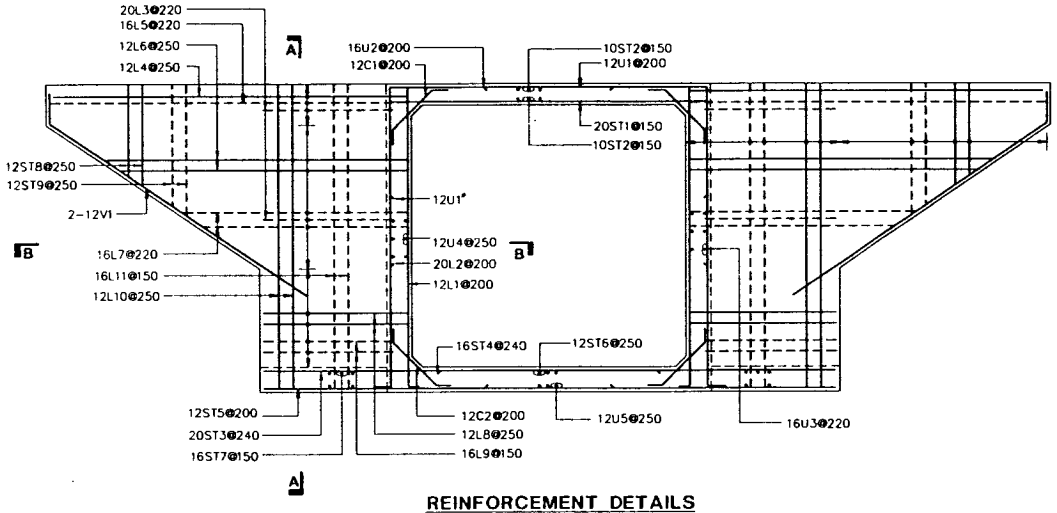
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1343331	

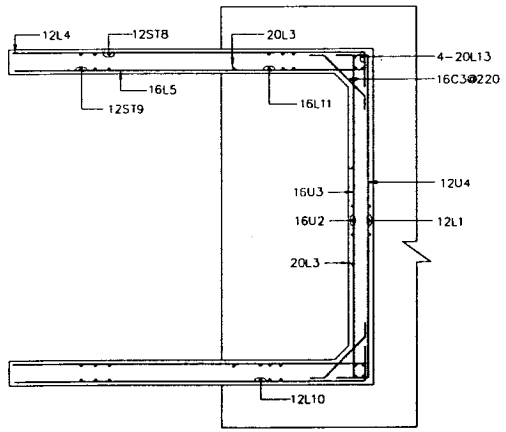
Web Copy

BC-147

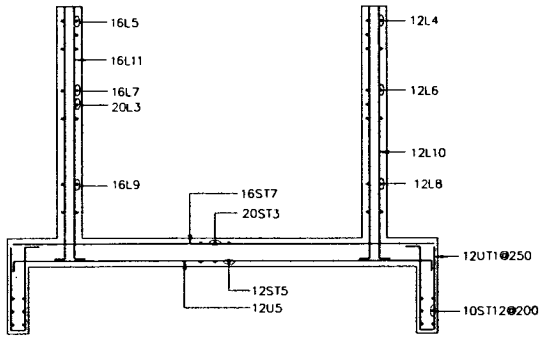
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.3m



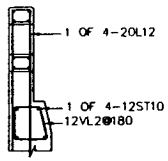
REINFORCEMENT DETAILS



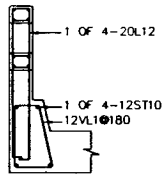
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



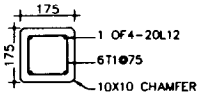
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

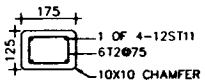
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	29	5000				5000
O	10	ST2	2 X 35	4160				4160
X	20	ST3	24	9100				9100
	16	ST4	23	2580				2580
A	12	ST5	28	9100				9100
P	12	ST6	22	5360				5360
P	16	ST7	2 X 14	5360				5360
R	12	C1	2 X 22	144	928	144		1216
O	12	C2	2 X 22	144	1017	144		1305
N	12	L1	2 X 18	3911	250			4161
	20	L2	2 X 20	1438	250			1688
&	20	L13	4 X 4	3911	250			4161
	12	U1	22	1385	5000	1385		7770
C	16	U2	2 X 22	1783	3935	1783		7501
U	16	U3	2 X 14	250	4160	250		4660
T	12	U4	2 X 13	544	4160	544		5248
O	12	U5	38	250	5290	250		5790
F	10	ST12	4 X 5	9050				9050
F	12	UT1	2 X 38	144	2 X 1175	100		2594
	20	L3	4 X 12	2388	1220			3608
	12	L4	4 X 1	5338	419			5757
	16	L5	4 X 2	5338	250			5588
W	12	L6	4 X 9	Var. 5309 To 2338 @ 371	419			Var. 5728 To 2757
	16	L7	4 X 11	Var. 5309 To 2338 @ 330	250			Var. 5559 To 2588
I	12	L8	4 X 6	2338	419			2757
	16	L9	4 X 9	2338	1220			3558
	12	L10	4 X 8	3963	250			4213
N	16	L11	4 X 14	3963	250			4213
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	928	144		1216
	12	ST10	2 X 4	15150				15150
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 28	204	204	248	200	956
AND	20	L12	24 X 4	1146	120			1266
	12	ST11	4 X 4	15160		•		15160
RAILING	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 176	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 58 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

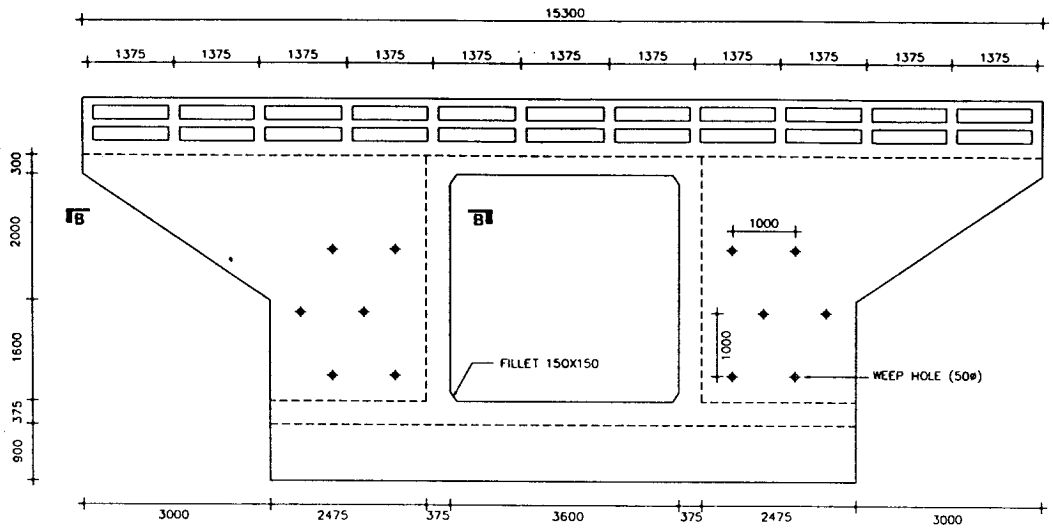
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1343332

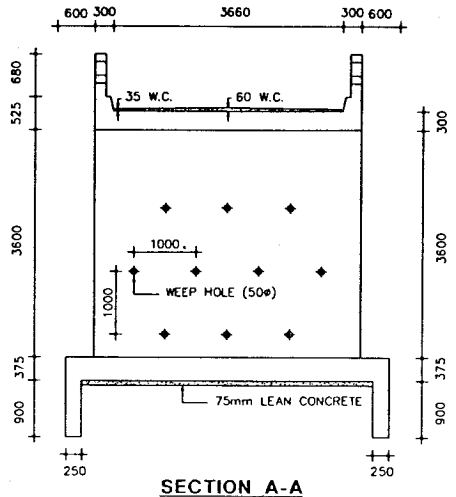
Web Copy

BC-148

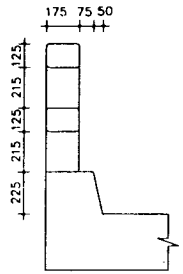
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



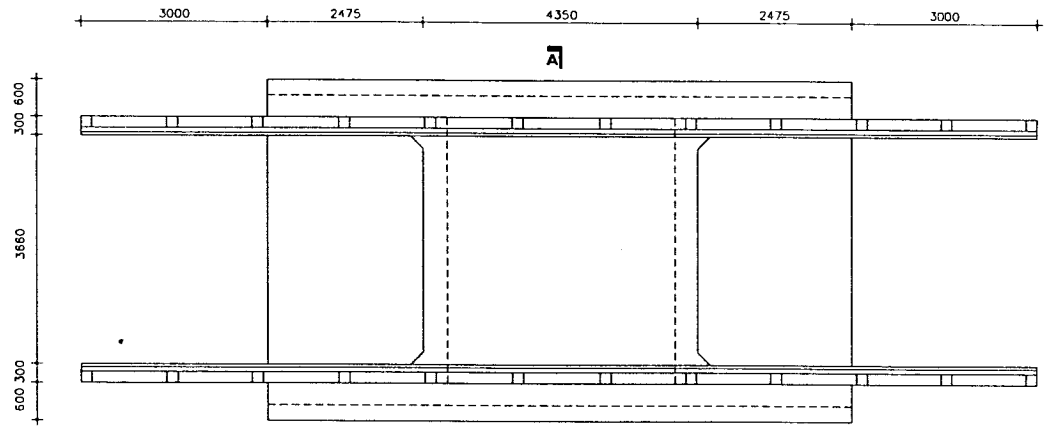
GENERAL ELEVATION



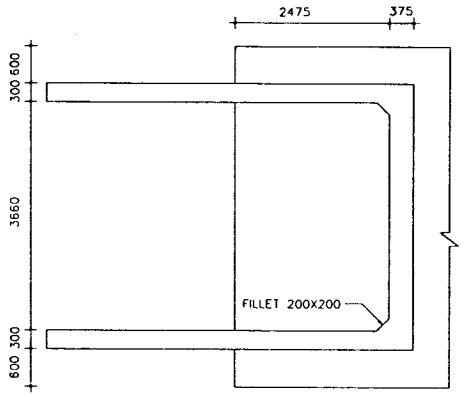
SECTION A-A



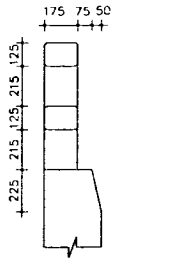
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

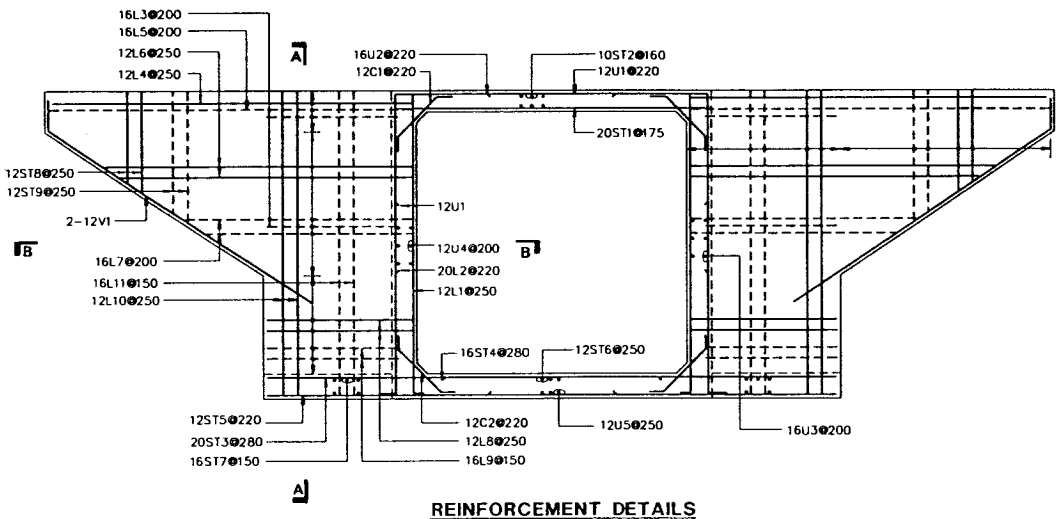
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 3.66m

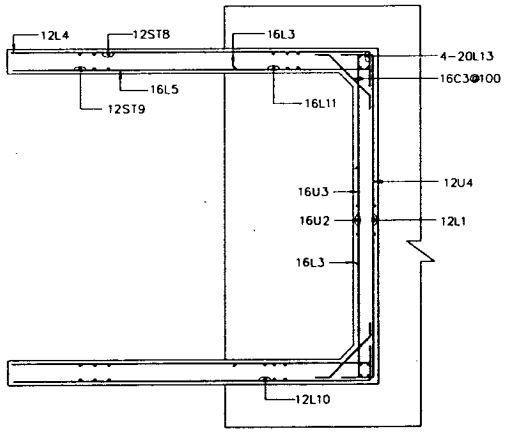
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1336361	

Web Copy

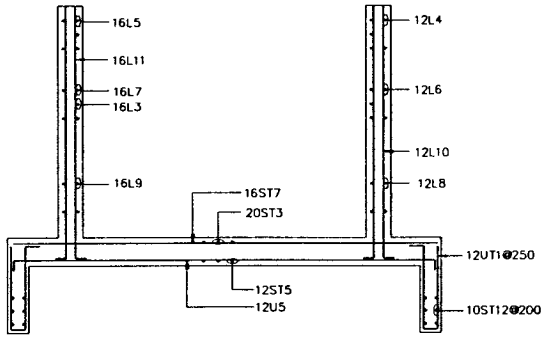
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3.6m
CLEAR HEIGHT : 3.6m



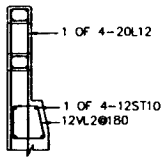
REINFORCEMENT DETAILS



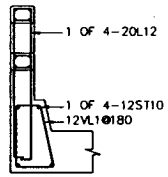
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



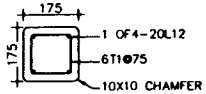
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

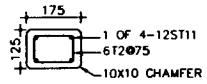
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	26	4250				4250
O	10	ST2	2 X 28	4160				4160
X	20	ST3	21	9200				9200
	16	ST4	20	2160				2160
A	12	ST5	26	9200				9200
P	12	ST6	19	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 20	144	857	144		1145
O	12	C2	2 X 20	144	946	144		1234
N	12	L1	2 X 14	4161	250			4411
	20	L2	2 X 18	1513	250			1763
&	20	L13	4 X 4	4161	250			4411
	12	U1	20	1460	4250	1460		7170
C	16	U2	2 X 20	1525	4185	1525		7235
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	519	4160	519		5198
0	12	U5	38	250	5290	250		5790
F	10	ST12	4 X 5	9150				9150
F	12	UT1	2 X 38	144	2 X 1150	100		2544
	16	L3	4 X 13	2788	1220			4008
	12	L4	4 X 1	5738	444			6182
	16	L5	4 X 2	5738	250			5988
W	12	L6	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L7	4 X 11	Var. 5709To 2738 @ 297	250			Var. 5959 To 2988
I	12	L8	4 X 7	2738	444			3182
	16	L9	4 X 11	2738	1220			3958
	12	L10	4 X 10	4213	250			4463
N	16	L11	4 X 17	4213	250			4463
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	928	144		1216
	12	ST10	2 X 4	15250				15250
CURB	12	VL1	2 X 26	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
ANO	20	L12	24X 4	1121	120			1241
	12	ST11	4 X 4	15260				15260
RAILING	6	T1	24X 6	2 X 135	2 X 135			540
	6	T2	4X 176	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 81 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :

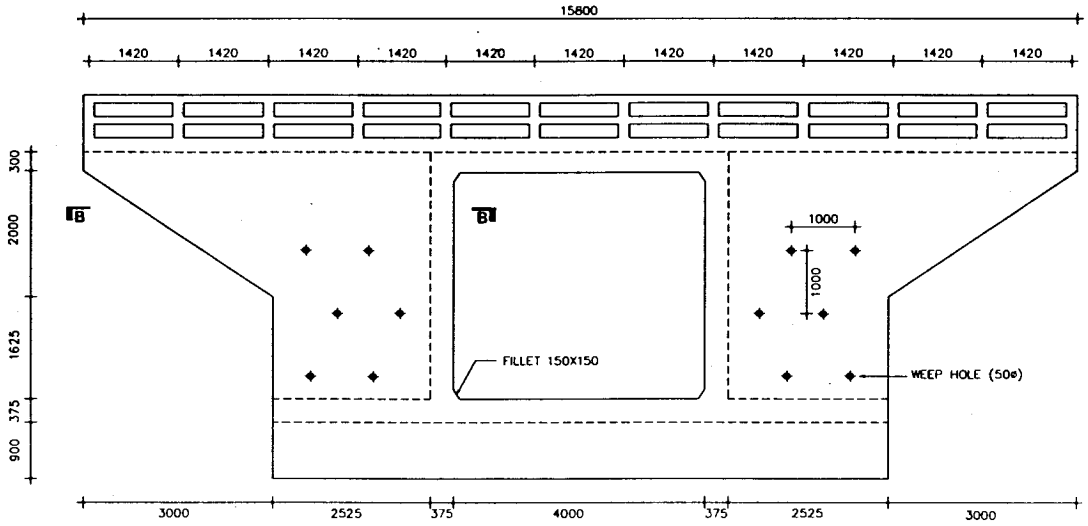
ISSUED BY :

CAD FILE REF : CULV\B1336362

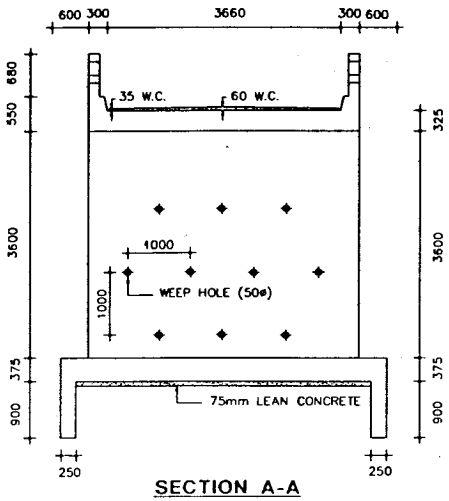
Web Copy

BC-150

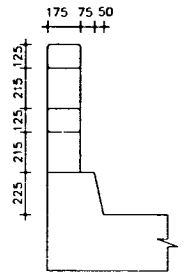
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



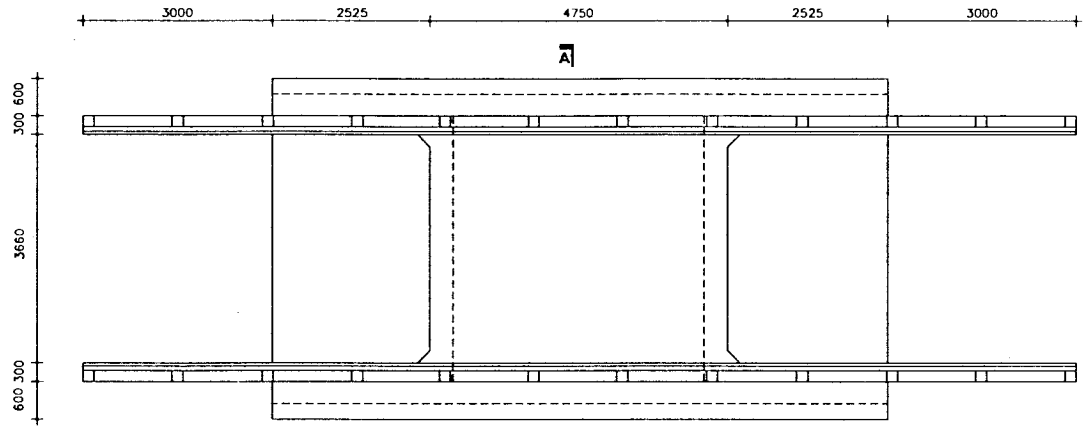
GENERAL ELEVATION



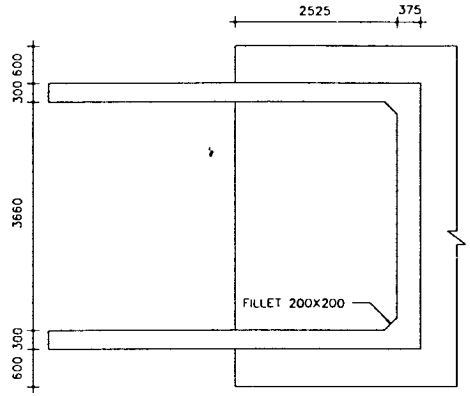
SECTION A-A



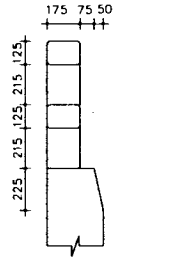
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

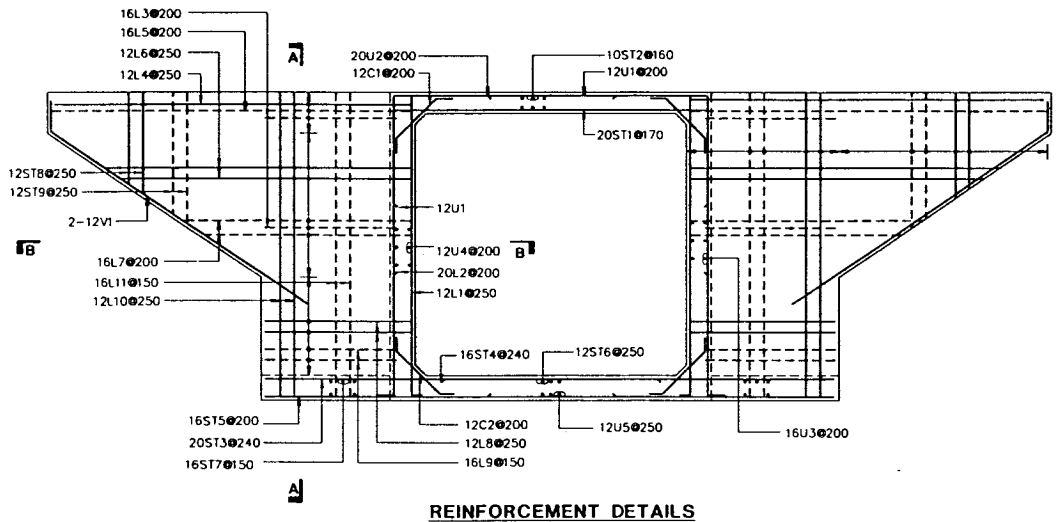
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 3.66m

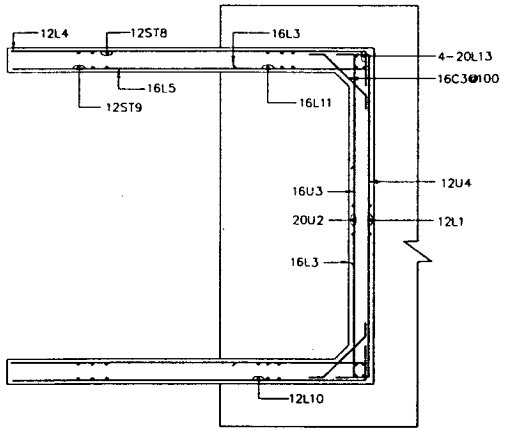
DATE :	ISSUED BY :
CAD FILE REF : CULV\B1340361	

Web Copy

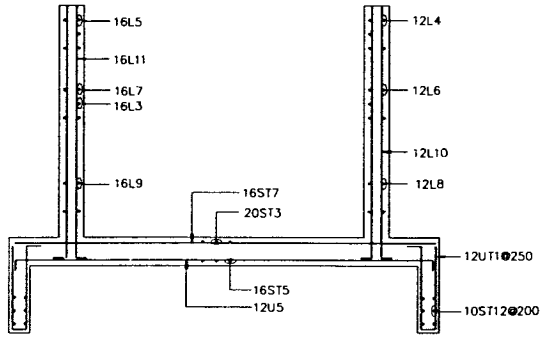
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 3.6m



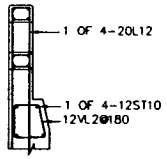
REINFORCEMENT DETAILS



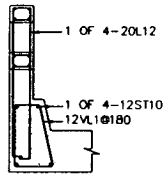
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



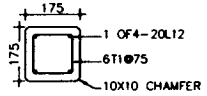
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

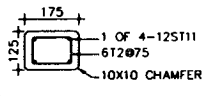
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	27	4650				4650
O	10	ST2	2 X 31	4160				4160
X	20	ST3	24	9700				9700
	16	ST4	23	2400				2400
A	16	ST5	28	9700				9700
P	12	ST6	20	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 22	144	881	144		1169
O	12	C2	2 X 22	144	940	144		1228
N	12	L1	2 X 14	4182	250			4432
	20	L2	2 X 20	1513	250			1763
&	20	L13	4 X 4	4182	250			4432
	12	U1	22	1485	4650	1485		7620
C	20	U2	2 X 22	1658	4210	1658		7526
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	519	4160	519		5198
D	12	U5	40	250	5290	250		5790
F	10	ST12	4 X 5	9650				9650
F	12	UT1	2 X 40	144	2 X1150	100		2544
	16	L3	4 X 13	2838	1220			4058
	12	L4	4 X 1	5788	444			6232
	16	L5	4 X 2	5788	250			6038
W	12	L6	4 X 9	Var. 5759 To 2788 @ 371	444			Var.6203 To 3232
	16	L7	4 X 11	Var.5759To 2788 @ 297	250			Var. 6009 To 3038
I	12	L8	4 X 7	2788	444			3232
	16	L9	4 X 11	2788	1220			4008
	12	L10	4 X 10	4234	250			4484
N	16	L11	4 X 17	4234	250			4484
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	928	144		1216
	12	ST10	2 X 4	15750				15750
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 31	204	204	248	200	956
AND	20	L12	24X 4	1146	120			1266
	12	ST11	4 X 4	15760				15760
RAILING	6	T1	24X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 80 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

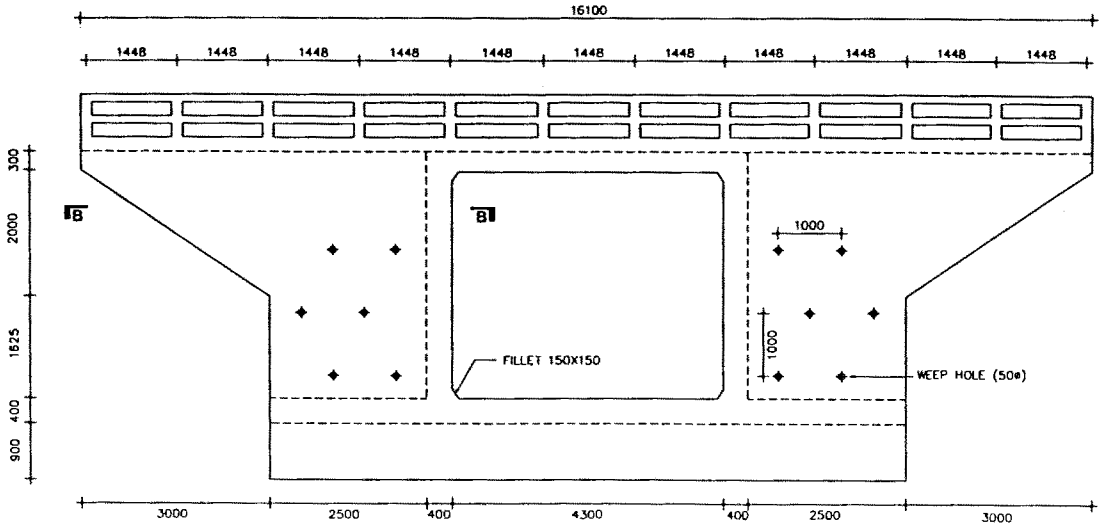
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1340362

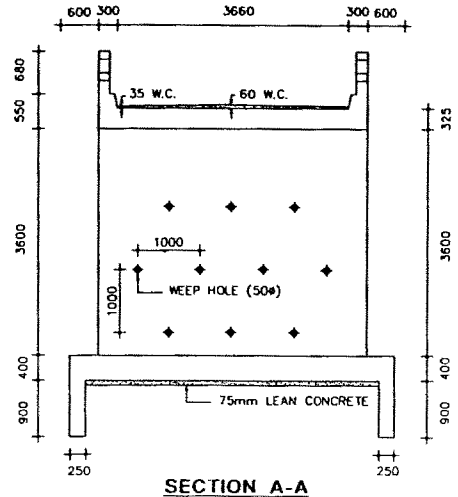
Web Copy

BC-152

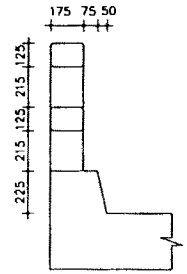
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



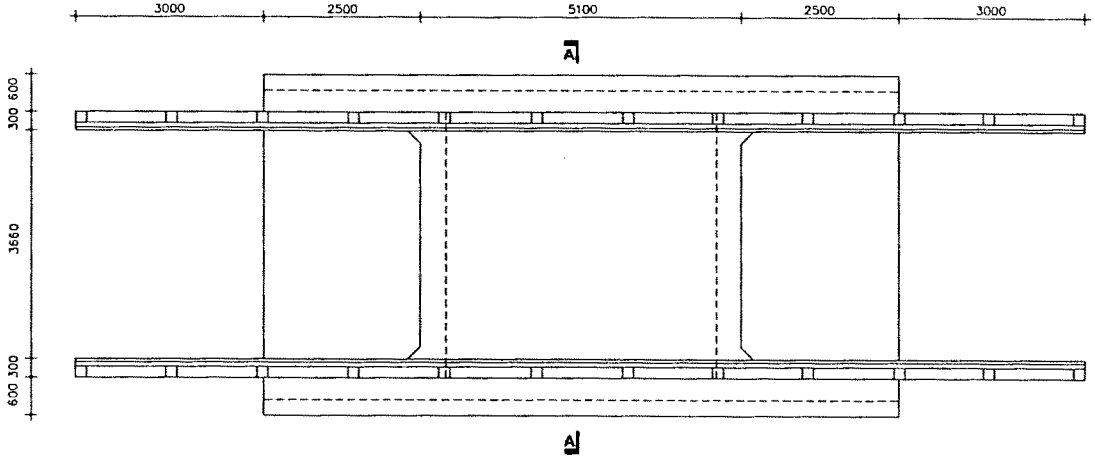
GENERAL ELEVATION



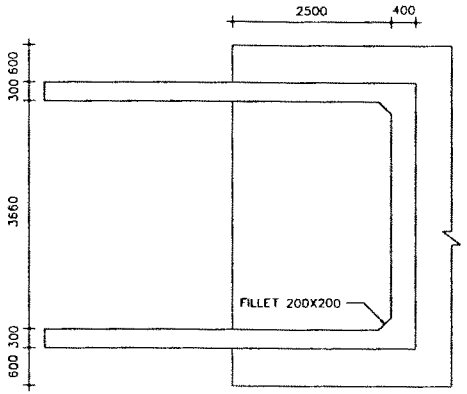
SECTION A-A



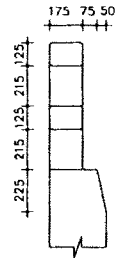
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

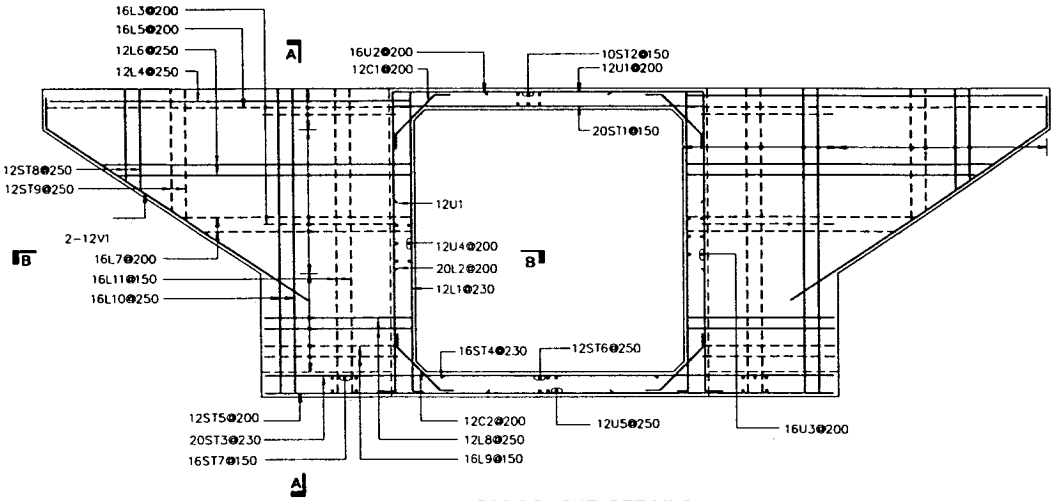
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1343361	

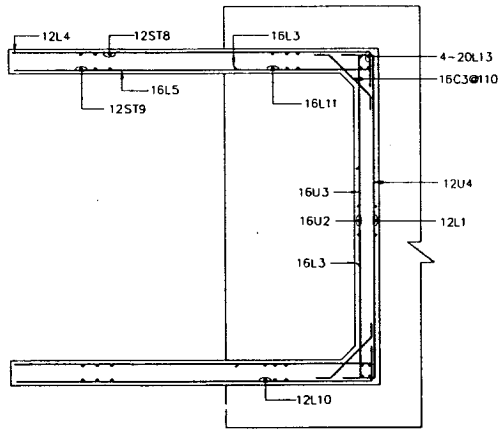
Web Copy

BC-153

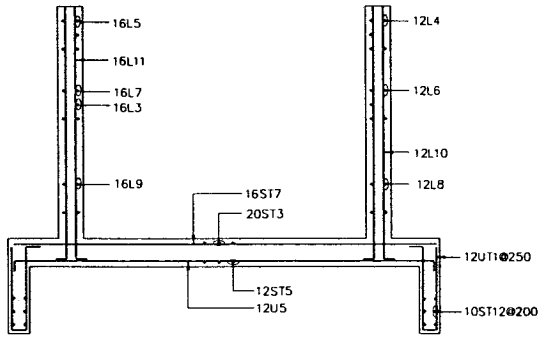
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 3.6m



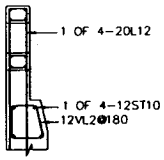
REINFORCEMENT DETAILS



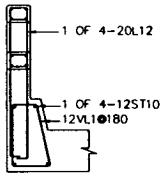
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



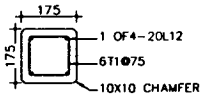
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

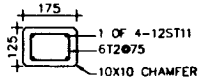
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	29	5000				5000
O	10	ST2	2 X 35	4160				4160
X	20	ST3	25	10000				10000
	16	ST4	24	2580				2580
A	12	ST5	22	10000				10000
P	12	ST6	41	5360				5360
P	16	ST7	2 X 17	5360				5360
R	12	C1	2 X 22	144	928	144		1216
O	12	C2	2 X 22	144	1017	144		1305
N	12	L1	2 X 15	4211	250			4461
	20	L2	2 X 20	1538	250			1788
&	20	L13	4 X 4	4211	250			4461
	12	U1	22	1485	5000	1485		7970
C	16	U2	2 X 22	1783	4235	1783		7801
U	16	U3	2 X 17	250	4160	250		4660
T	12	U4	2 X 17	544	4160	544		5248
O	12	U5	41	250	5290	250		5790
F	10	ST12	4 X 5	9950				9950
F	12	UT1	2 X 42	144	2 X 1175	100		2594
	16	L3	4 X 13	2838	1220			4058
	12	L4	4 X 1	5788	444			6232
	16	L5	4 X 2	5788	250			6038
W	12	L6	4 X 9	Var. 5759 To 2788 @ 371	444			Var. 6203 To 3232
	16	L7	4 X 11	Var. 5759 To 2788 @ 297	250			Var. 6009 To 3038
I	12	L8	4 X 7	2788	444			3232
	16	L9	4 X 11	2788	1220			4008
	16	L10	4 X 10	4263	250			4513
N	16	L11	4 X17	4263	250			4513
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
C	12	ST9	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	963	144		1251
	12	ST10	2 X 4	16050				16050
CURB	12	VL1	2 X 30	204	496	311	485	1596
	12	VL2	4 X 31	204	204	248	200	956
AND	20	L12	24 X 4	1146	120			1266
	12	ST11	4 X 4	16060				16060
RAILING	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 80 kN/m.^{2}
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

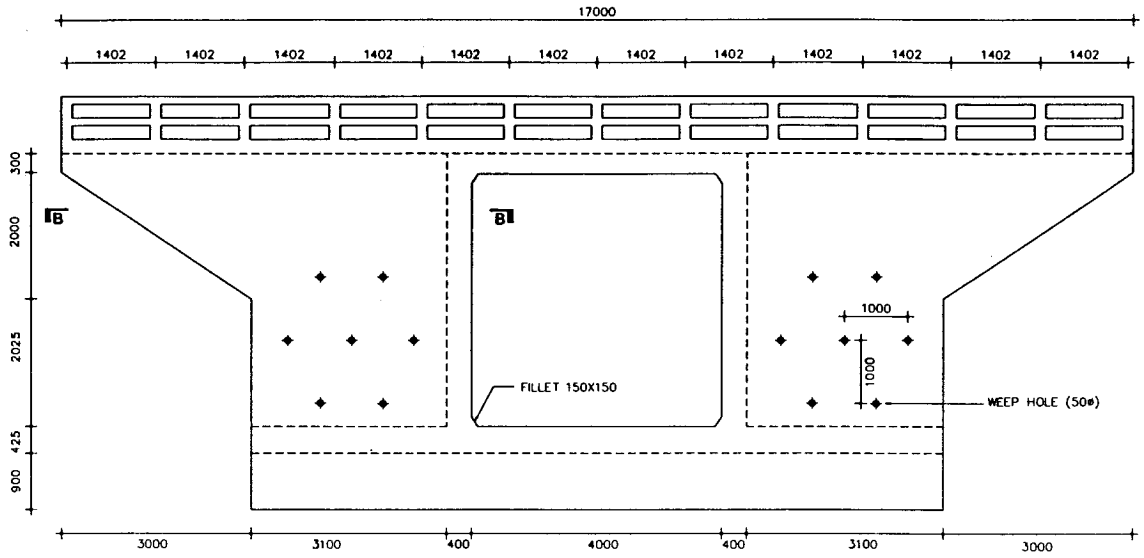
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1343362

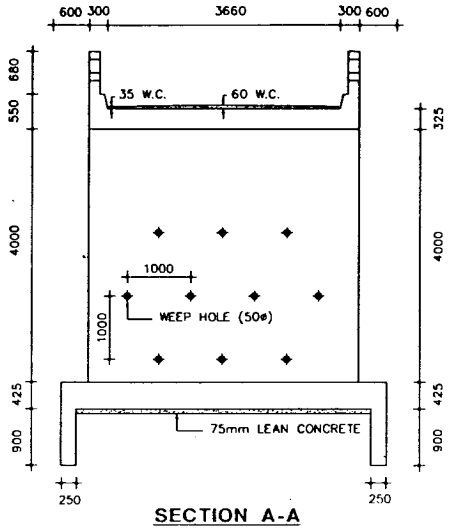
Web Copy

BC-154

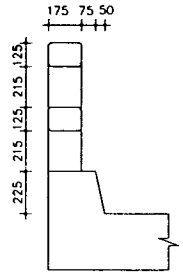
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



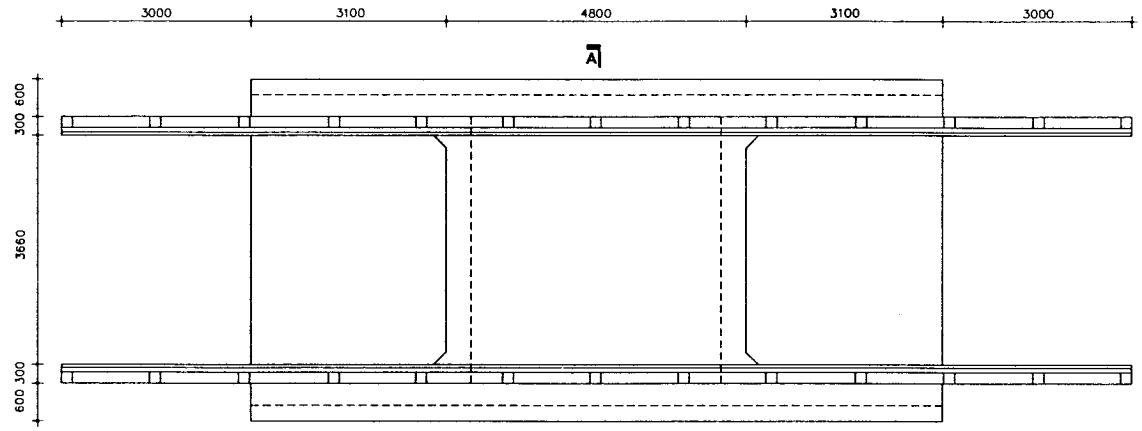
GENERAL ELEVATION



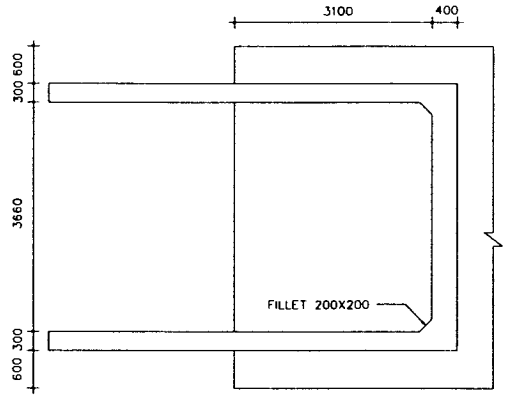
SECTION A-A



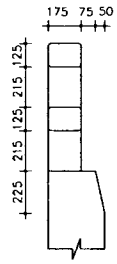
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

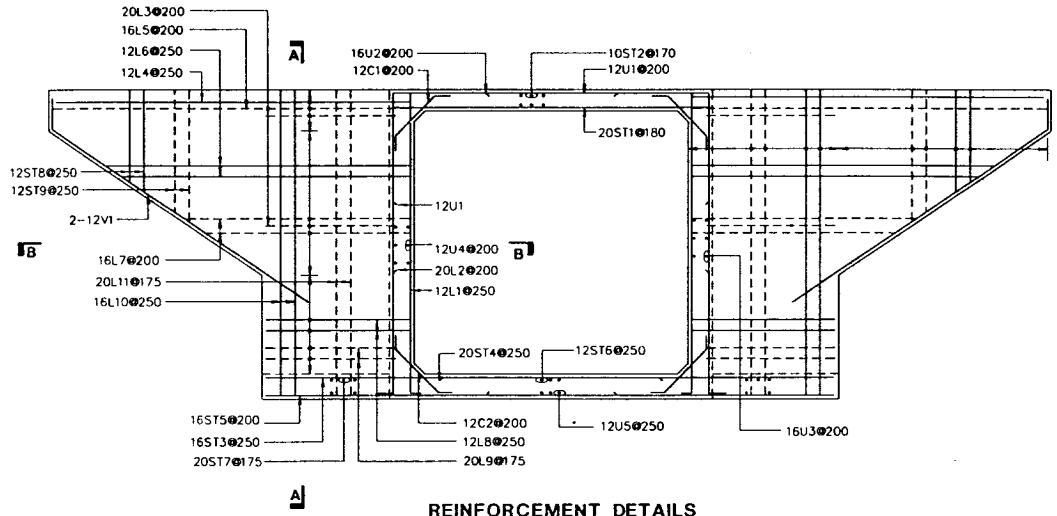
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1340401	

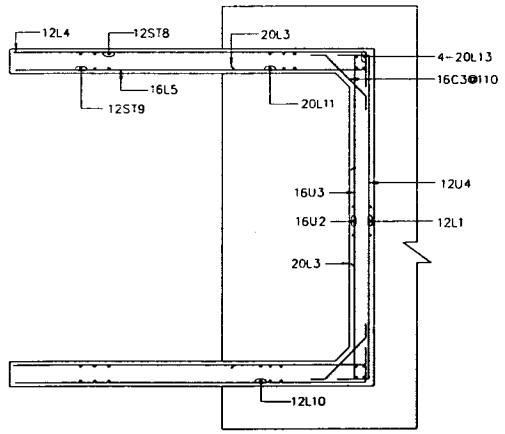
Web Copy

BC-155

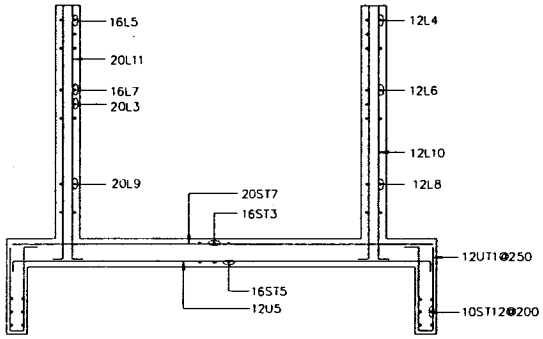
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.0m
CLEAR HEIGHT : 4.0m



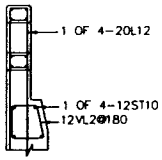
REINFORCEMENT DETAILS



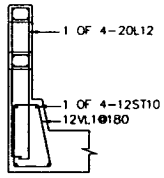
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



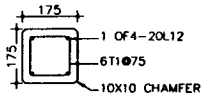
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

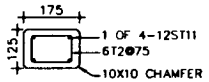
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	25	4700				4700
O	10	ST2	2 X 29	4160				4160
X	16	ST3	23	10900				10900
	20	ST4	22	2400				2400
A	16	ST5	28	10900				10900
P	12	ST6	21	5360				5360
P	20	ST7	2 X 18	5360				5360
R	12	C1	2 X 22	144	916	144		1204
O	12	C2	2 X 22	144	1046	144		1334
N	12	L1	2 X 14	4632	250			4882
	20	L2	2 X 20	1696	250			1946
&	20	L13	4 X 4	4632	250			4882
	12	U1	22	1618	4700	1618		7936
C	16	U2	2 X 22	1683	4660	1683		8026
U	16	U3	2 X 19	250	4160	250		4660
T	12	U4	2 X 19	544	4160	544		5248
O	12	U5	45	250	5290	250		5790
F	10	ST12	4 X 5	10850				10850
F	12	UT1	2 X 45	144	2 X 1200	100		2644
	20	L3	4 X 13	3438	1220			4658
	12	L4	4 X 1	6388	469			6857
	16	L5	4 X 2	6388	250			6638
W	12	L6	4 X 9	Var. 6359 To 3388 @ 371	444			Var.6803 To 3832
	16	L7	4 X 11	Var. 6359 To 3388 @ 297	250			Var. 6609 To 3638
I	12	L8	4 X 9	3388	469			3857
	20	L9	4 X 12	3388	1220			4608
	16	L10	4 X 13	4684	250			4934
N	20	L11	4 X18	4634	250			4884
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	192	963	192		1347
	12	ST10	2 X 4	16950				16950
CURB	12	VL1	2 X 28	204	496	311	485	1596
	12	VL2	4 X 34	204	204	248	200	956
AND	20	L12	26 X 4	1146	120			1266
	12	ST11	4 X 4	16960				16960
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 88 kN/m.^{2}
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

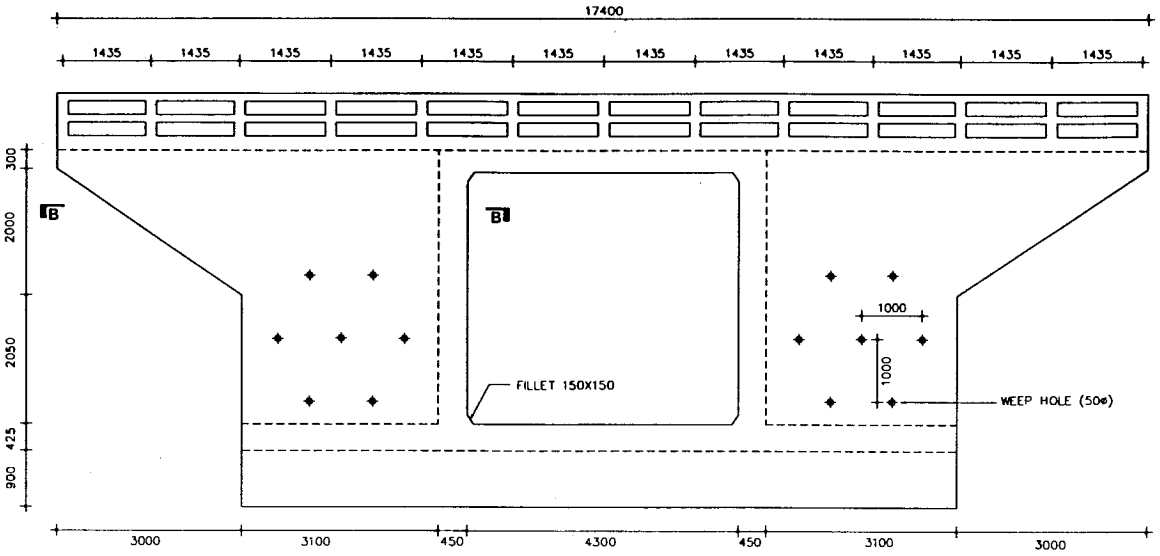
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1340402

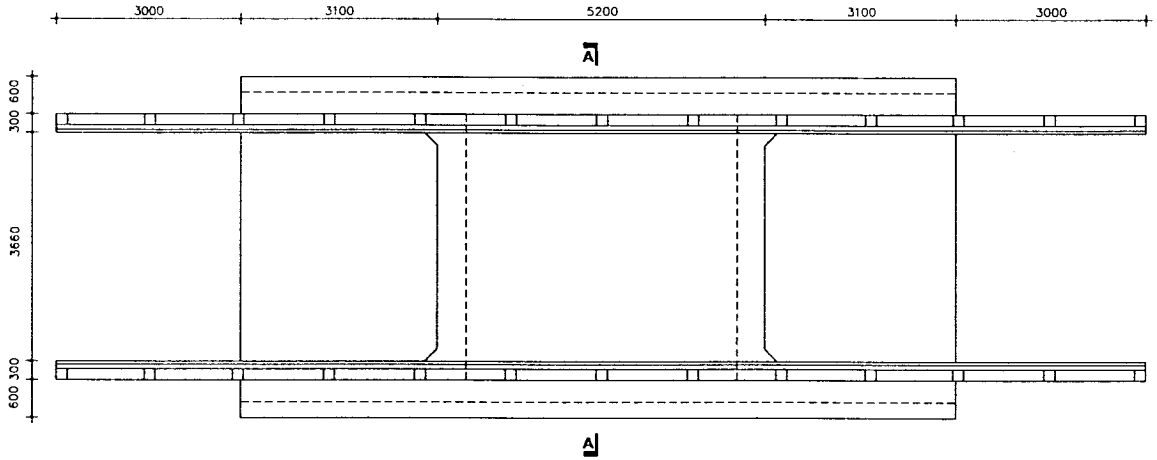
Web Copy

BC-156

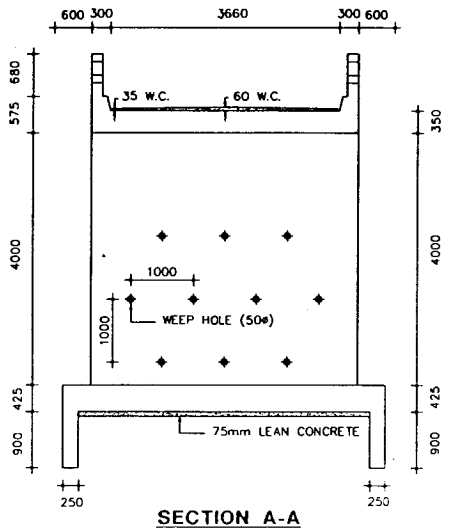
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN :. 4.3m
CLEAR HEIGHT : 4.0m



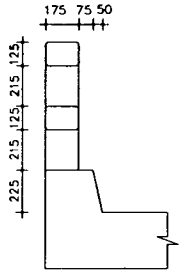
GENERAL ELEVATION



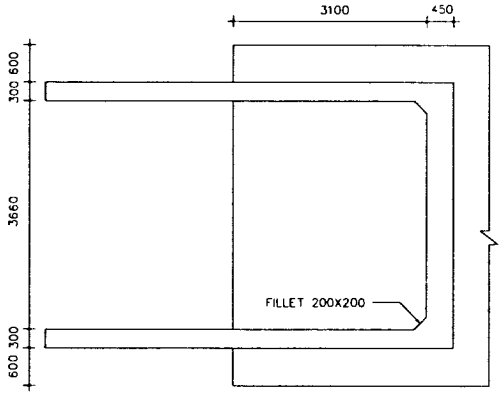
PLAN



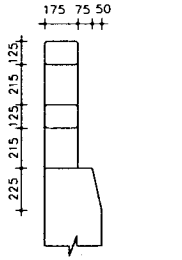
SECTION A-A



GENERAL ARRANGEMENT OF RAILING ON CULVERT



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

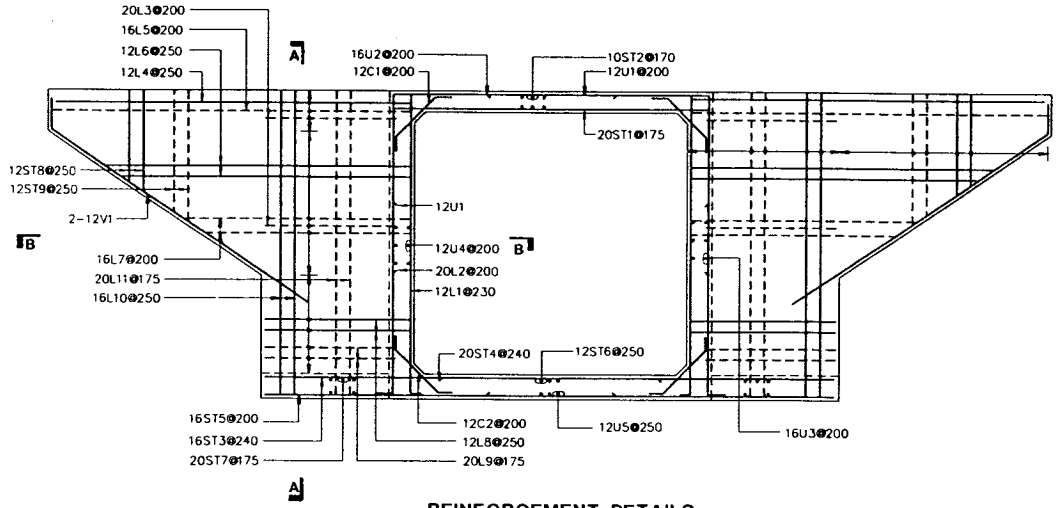
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1343401	

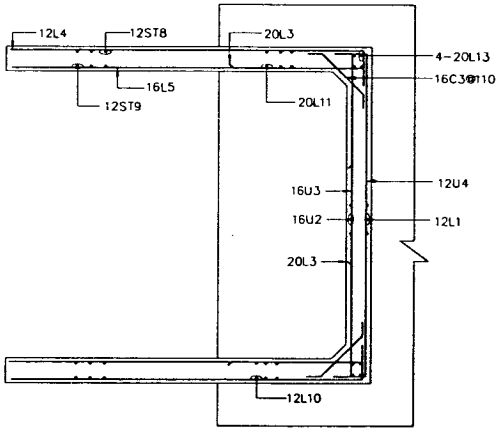
Web Copy

BC-157

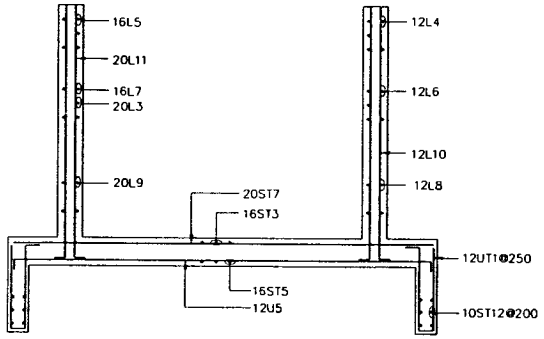
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.0m



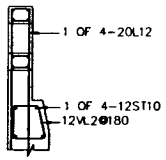
REINFORCEMENT DETAILS



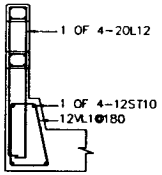
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



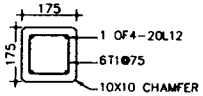
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

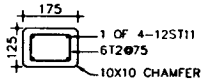
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	25	5100				5100
O	10	ST2	2 X 31	4160				4160
X	16	ST3	24	11300				11300
	20	ST4	23	2580				2580
A	16	ST5	28	11300				11300
P	12	ST6	22	5360				5360
P	20	ST7	2 X 18	5360				5360
R	12	C1	2 X 22	144	1034	144		1322
O	12	C2	2 X 22	144	1117	144		1405
N	12	L1	2 X 15	4657	250			4907
	20	L2	2 X 20	1696	250			1946
&	20	L13	4 X 4	4657	250			4907
	12	U1	22	1643	5100	1643		8386
C	16	U2	2 X 22	1833	4685	1833		8351
U	16	U3	2 X 19	250	4160	250		4660
T	12	U4	2 X 19	594	4160	594		5348
O	12	U5	47	250	5290	250		5790
F	10	ST12	4 X 5	11250				11250
F	12	UT1	2 X 47	144	2 X 1200	100		2644
	20	L3	4 X 13	3488	1220			4708
	12	L4	4 X 1	6438	469			6907
	16	L5	4 X 2	6438	250			6688
W	12	L6	4 X 9	Var. 6409 To 3438 @ 371	444			Var. 6853 To 3882
	16	L7	4 X 11	Var. 6409 To 3438 @ 297	250			Var. 6659 To 3688
I	12	L8	4 X 9	3438	469			3907
	20	L9	4 X 12	3438	1220			4658
	16	L10	4 X 13	4709	250			4959
N	20	L11	4 X18	4659	250			4909
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	1034	144		1322
	12	ST10	2 X 4	17350				17350
CURB	12	VL1	2 X 30	204	522	317	510	1653
	12	VL2	4 X 34	204	204	248	200	956
AND	20	L12	26 X 4	1171	120			1291
	12	ST11	4 X 4	17360				17360
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bat.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 67 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

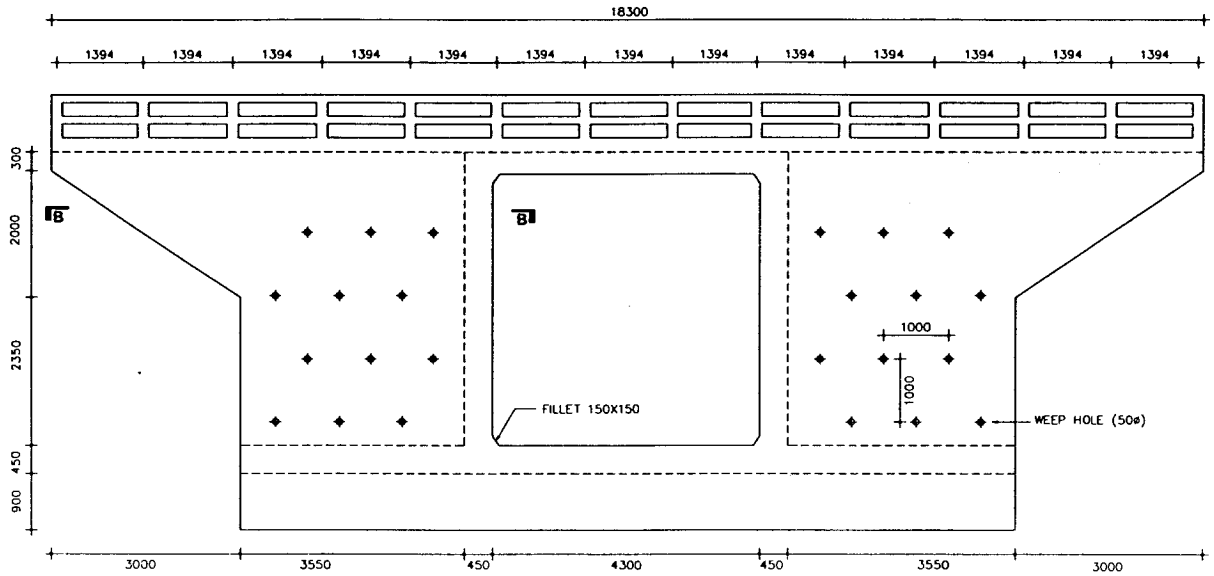
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1343402

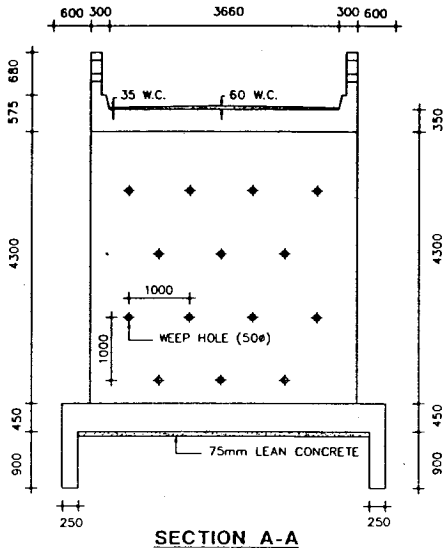
Web Copy

BC-158

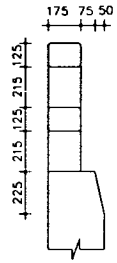
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



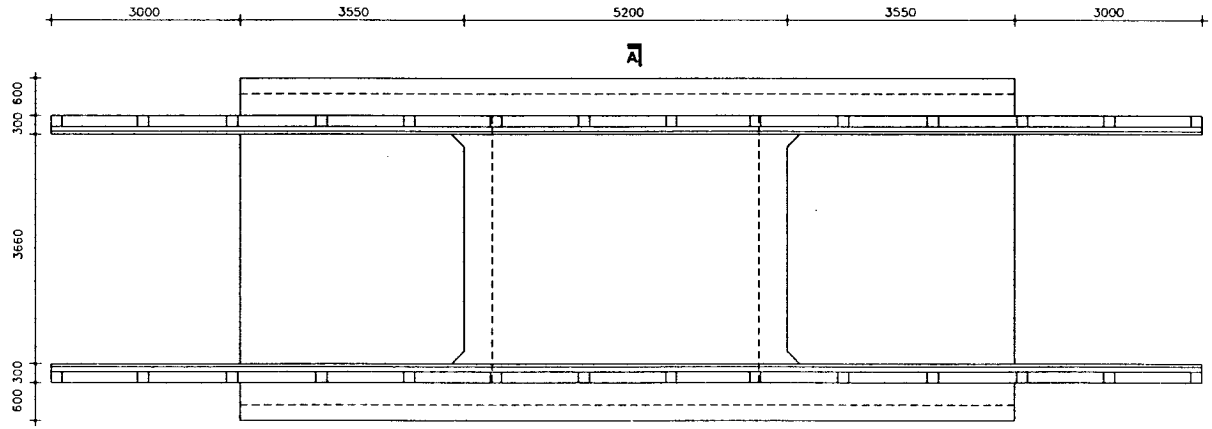
GENERAL ELEVATION



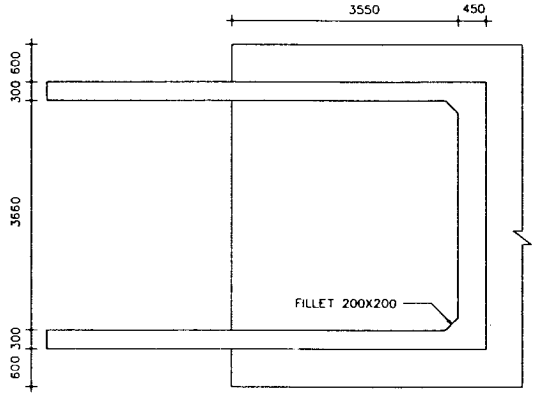
SECTION A-A



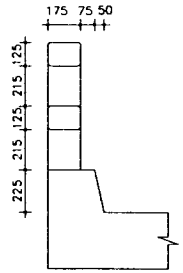
GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

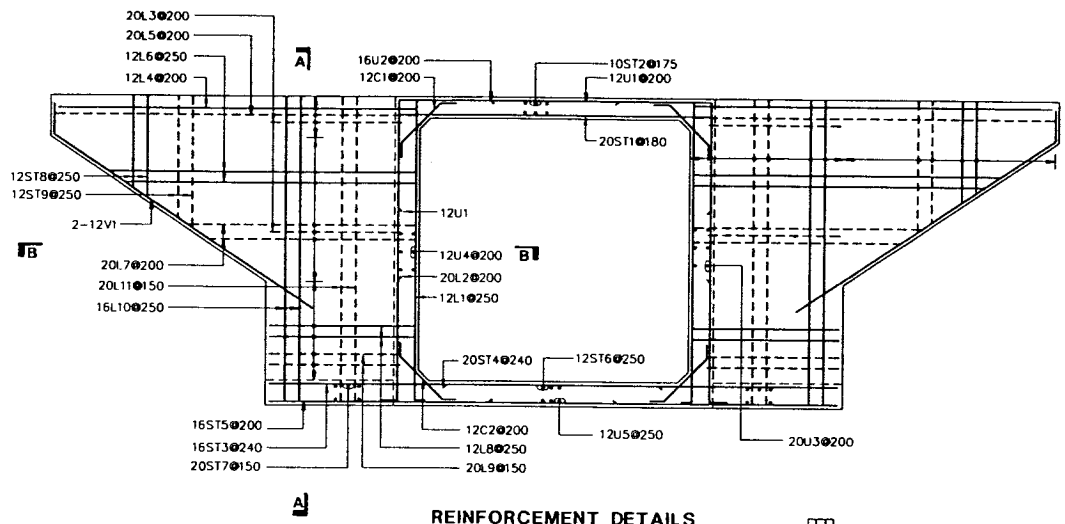
GENERAL ARRANGEMENT OF BOX CULVERT
SINGLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B1343431	

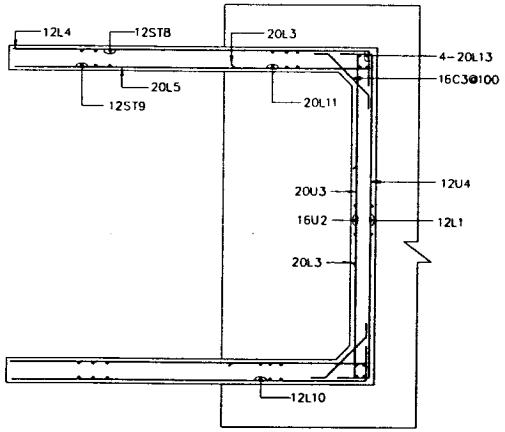
Web Copy

BC-159

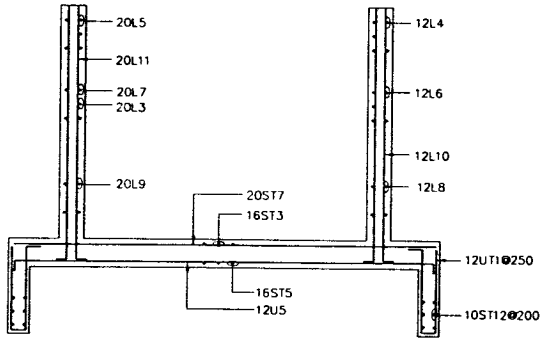
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 4.3m
CLEAR HEIGHT : 4.3m



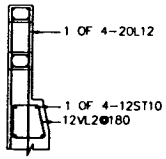
REINFORCEMENT DETAILS



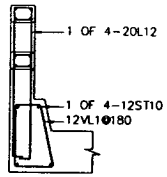
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



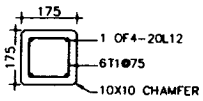
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

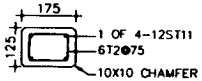
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
B	20	ST1	25	5100				5100
O	10	ST2	2 X 31	4160				4160
X	16	ST3	24	12200				12200
	20	ST4	23	2580				2580
A	16	ST5	28	12200				12200
P	12	ST6	22	5360				5360
P	20	ST7	2 X 24	5360				5360
R	12	C1	2 X 22	144	1034	144		1322
O	12	C2	2 X 22	144	1152	144		1440
N	12	L1	2 X 14	4982	250			5232
	20	L2	2 X 20	1821	250			2071
&	20	L13	4 X 4	4982	250			5232
	12	U1	22	1743	5100	1743		5586
C	16	U2	2 X 22	1833	5010	1833		6676
U	20	U3	2 X 21	250	4160	250		4660
T	12	U4	2 X 21	594	4160	594		5348
O	12	U5	50	250	5290	250		5790
F	10	ST12	4 X 5	12150				12150
F	12	UT1	2 X 50	144	2 X 1225	100		2694
	20	L3	4 X 13	3938	1220			5158
	12	L4	4 X 2	6888	494			7382
	20	L5	4 X 2	6888	250			7138
W	12	L6	4 X 9	Var. 6859 To 3888 @ 297	444			Var. 7303 To 4332
	20	L7	4 X 11	Var. 6859 To 3888 @ 297	250			Var. 7109 To 4138
I	12	L8	4 X 10	3888	494			4382
	20	L9	4 X 16	3888	1220			5108
	12	L10	4 X 18	5034	250			5284
N	20	L11	4 X 24	4984	250			5234
	12	ST8	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
G	12	ST9	4 X 12	Var. 2189 To 326 @ 169				Var. 2189 To 326
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 46	144	1034	144		1322
	12	ST10	2 X 4	18250				18250
CURB	12	VL1	2 X 30	204	522	317	510	1653
	12	VL2	4 X 37	204	204	248	200	956
AND	20	L12	28 X 4	1171	120			1291
	12	ST11	4 X 4	18260				18260
RAILING	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 72 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

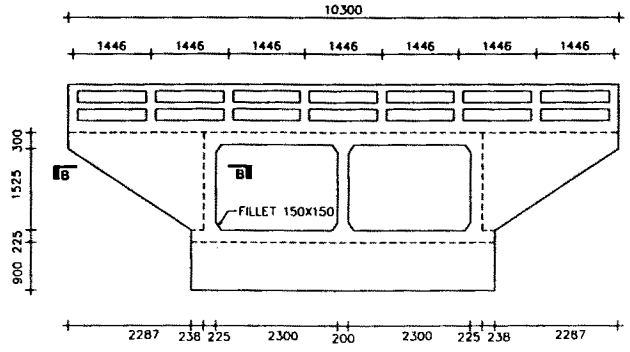
REINFORCEMENT DETAILS OF BOX CULVERT
SINGLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B1343432

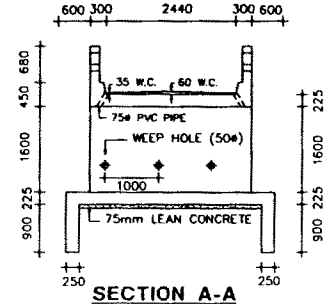
Web Copy

BC-160

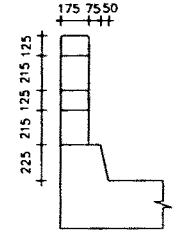
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



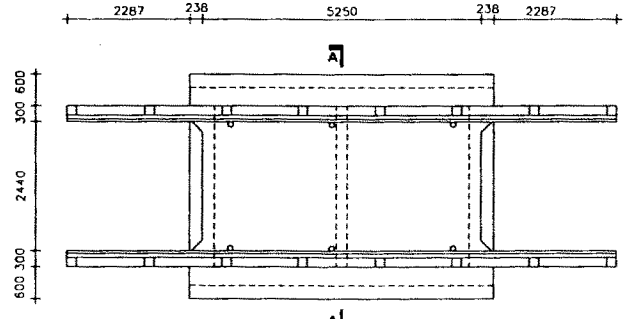
GENERAL ELEVATION



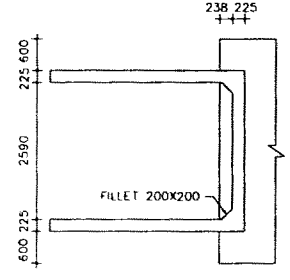
SECTION A-A



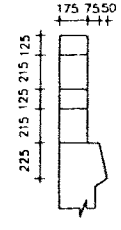
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

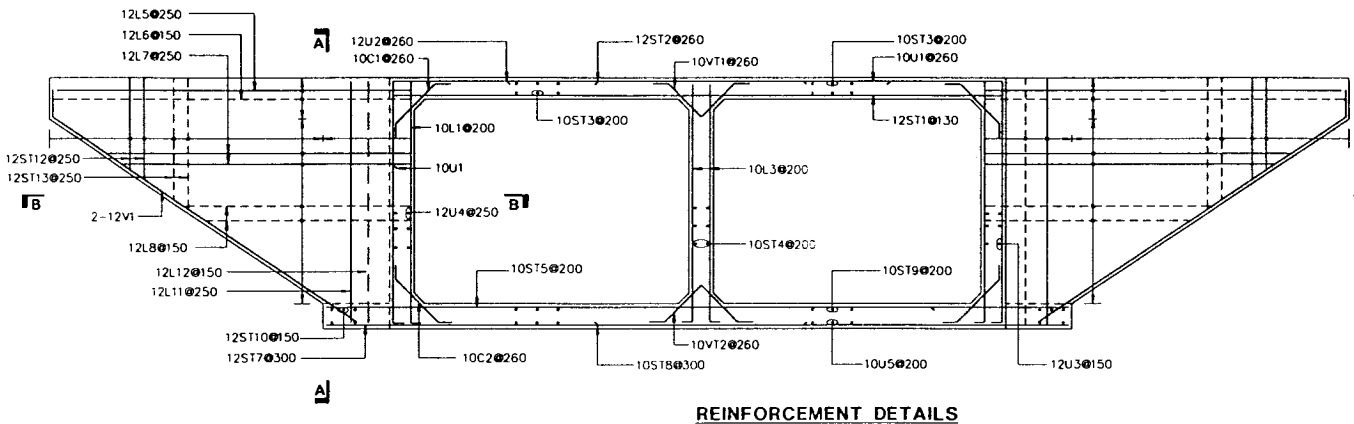
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 2.44m

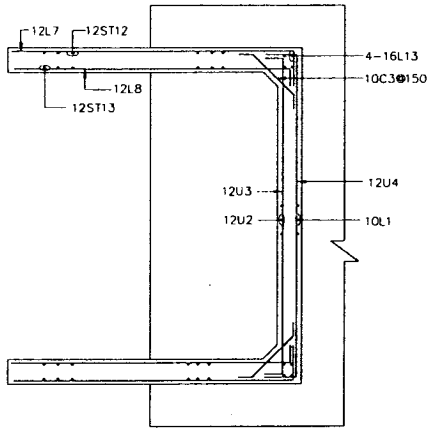
DATE :	ISSUED BY :
CAD FILE REF : CULV\BZ123161	

Web Copy

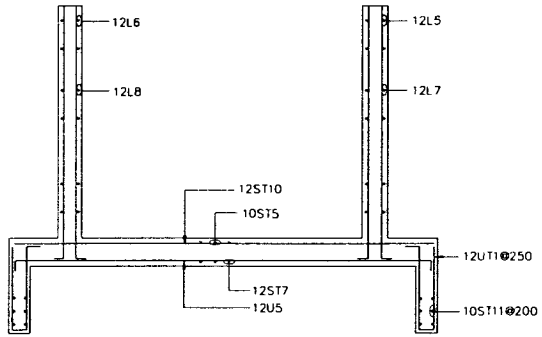
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



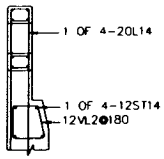
REINFORCEMENT DETAILS



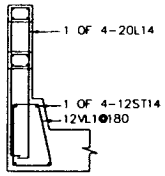
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



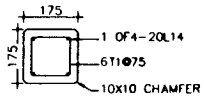
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

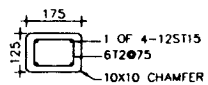
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	12	ST1	24	5150				5150
	12	ST2	19	1733				1733
	10	ST3	2 X 27	2940				2940
	10	ST4	2 X 8	2940				2940
	10	ST5	22	5626				5626
	12	ST7	15	5626				5626
	10	ST8	14	1733				1733
	10	ST9	28	4140				4140
	12	ST10	2 X 2	4140				4140
	10	C1	2 X 13	120	556	120		796
	10	C2	2 X 13	120	558	120		798
	10	VT1	13	2 X 150	2 X 484			1268
	10	VT2	13	2 X 150	2 X 484			1268
	10	L1	2 X 12	1938	250			2188
	10	L3	2 X 16	1938	250			2188
	16	L13	4 X 4	1938	250			2188
	10	U1	13	718	5150	718		6586
	12	U2	2 X 13	941	1960	250		3151
	12	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 6	369	2940	369		3678
	10	U5	30	250	4070	250		4570
	10	ST11	4 X 5	5576				5576
	12	UT1	2 X 24	144	2 X 1000	100		2244
WING WALL	12	L5	4 X 1	2402	369			2771
	12	L6	4 X 2	2402	250			2652
	12	L7	4 X 7	Var. 2371 To 353 @ 336	369			Var. 2740 To 722
	12	L8	4 X 11	Var. 2371 To 353 @ 201	250			Var. 2621 To 603
	12	L11	4 X 1	1988	250			2238
	12	L12	4 X 2	1988	250			2238
	12	ST12	4 X 8	Var. 1605 To 376 @ 175				Var. 1605 TO 376
	12	ST13	4 X 8	Var. 1605 To 376 @ 175				VER. 1605 TO 376
	12	V1	4 X 2	2712	200			2912
	10	C3	4 X 13	120	612	120		852
CURB AND RAILING	12	ST14	2 X 4	9774				9774
	12	VL1	2 X 31	204	394	289	385	1372
	12	VL2	4 X 13	204	204	248	200	956
	20	L14	16 X 4	1046	120			1166
	12	ST15	4 X 4	9784				9784
	6	T1	16 X 6	2 X 135	2 X 135			540
	6	T2	4X 119	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 23 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

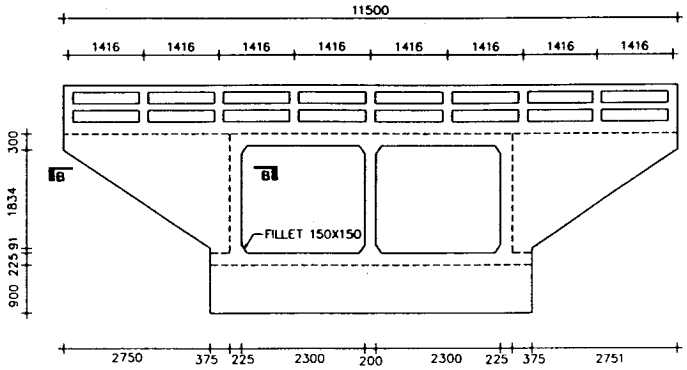
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2123162	

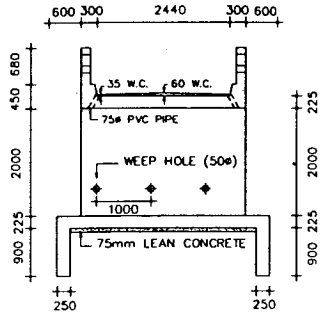
Web Copy

BC-162

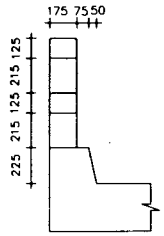
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



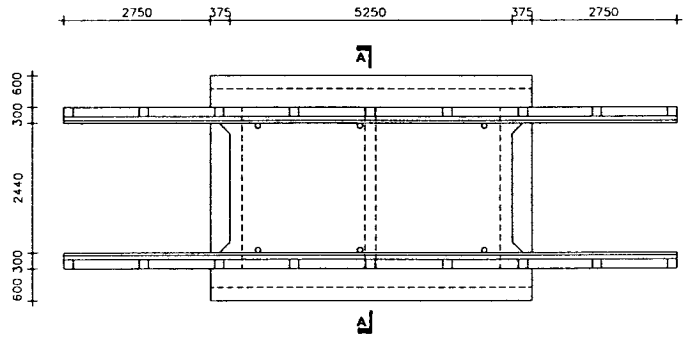
GENERAL ELEVATION



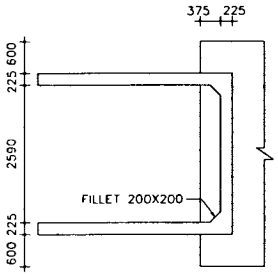
SECTION A-A



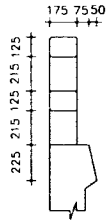
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

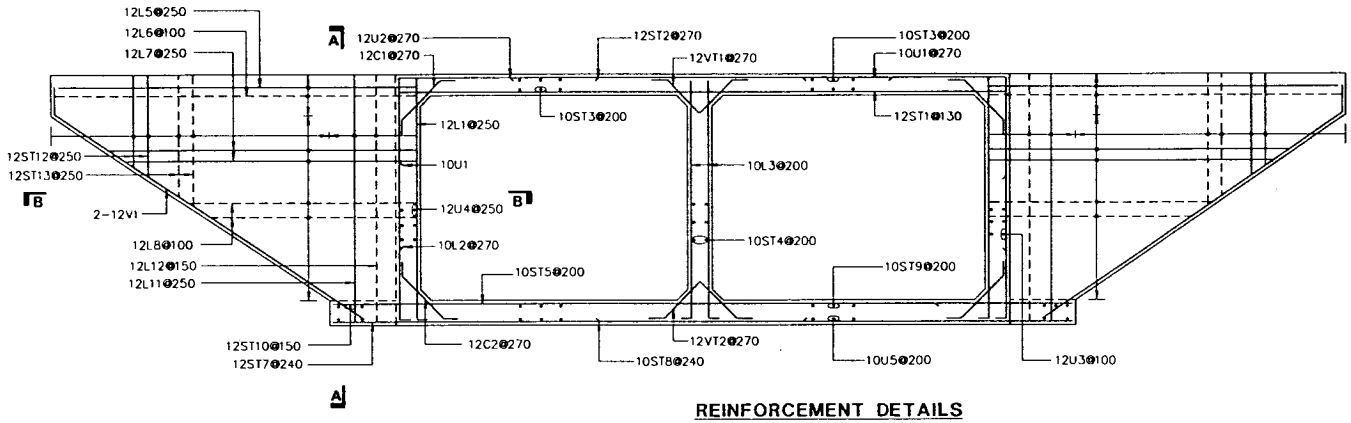
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 2.44m

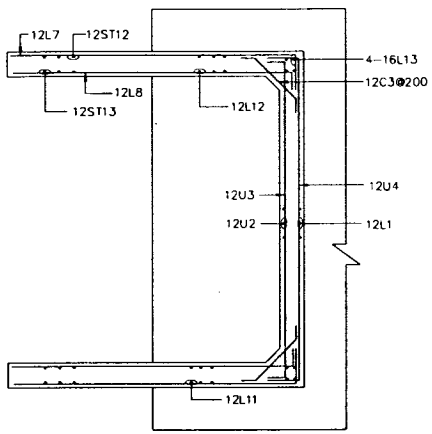
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2123201	

Web Copy

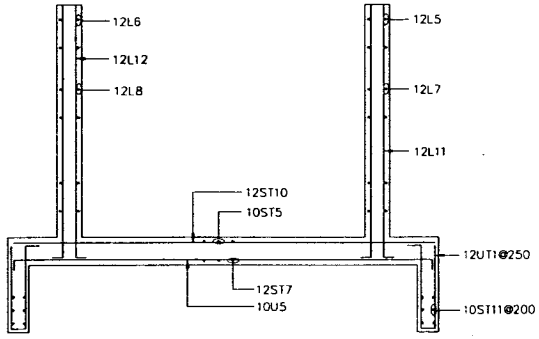
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



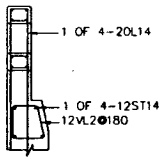
REINFORCEMENT DETAILS



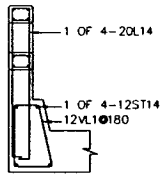
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



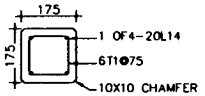
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

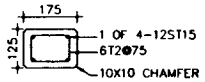
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	24	5150				5150
	12	ST2	11	1733				1733
	10	ST3	2 X 27	2940				2940
	10	ST4	2 X 10	2940				2940
	10	ST5	22	5900				5900
	12	ST7	19	5900				5900
	10	ST8	18	1733				1733
	10	ST9	28	4140				4140
	12	ST10	2 X 3	4140				4140
	12	C1	2 X 12	144	556	144		844
	12	C2	2 X 12	144	544	144		832
	12	VT1	12	2 X 150	2 X 484			1268
	12	VT2	12	2 X 150	2 X 484			1268
	12	L1	2 X 10	2338	250			2588
	10	L2	2 X 10	831	250			1081
	10	L3	2 X 16	2338	250			2588
	16	L13	4 X 4	2338	250			2588
	10	U1	12	851	5150	851		6852
	12	U2	2 X 12	941	2360	250		3551
	12	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 7	369	2940	369		3678
	10	U5	31	250	4070	250		4570
	10	ST11	4 X 5	5850				5850
	12	UT1	2 X 25	144	2 X 1000	100		2244
WING WALL	12	L5	4 X 1	3238	369			3607
	12	L6	4 X 3	3238	250			3488
	12	L7	4 X 9	Var. 3209 To 488 @ 340	369			Var. 3578 To 857
	12	L8	4 X 20	Var. 3209 To 488 @ 143	250			Var. 3459 To 738
	12	L11	4 X 2	2388	250			2638
	12	L12	4 X 3	2388	250			2638
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	11450				11450
	12	VL1	2 X 31	204	394	289	385	1372
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	18 X 4	1046	120			1166
	12	ST15	4 X 4	11460				11460
	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

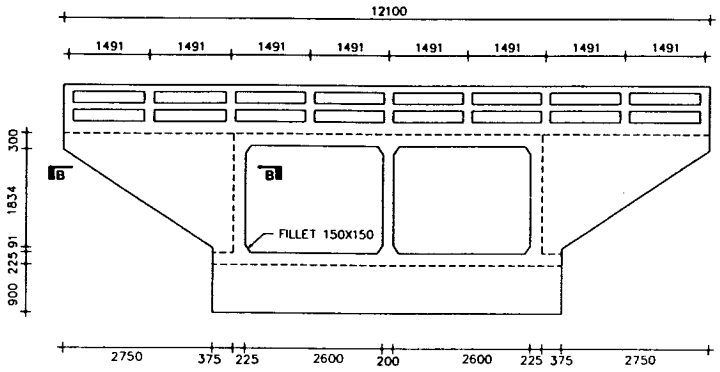
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2123202

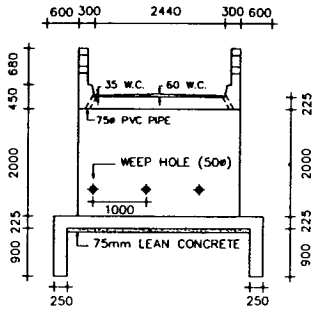
Web Copy

BC-164

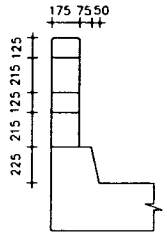
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.0m



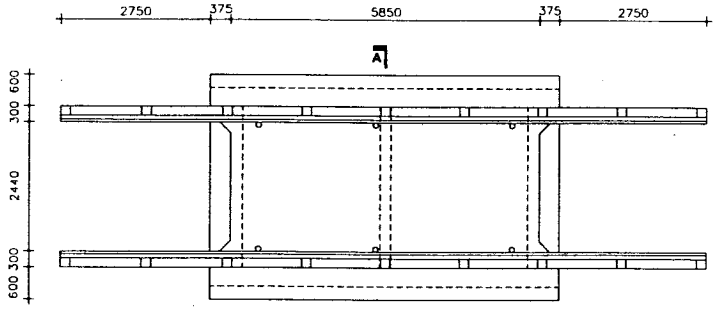
GENERAL ELEVATION



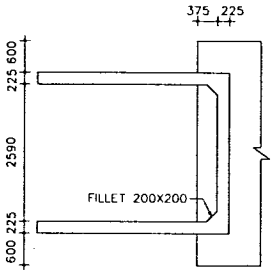
SECTION A-A



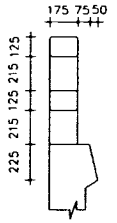
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

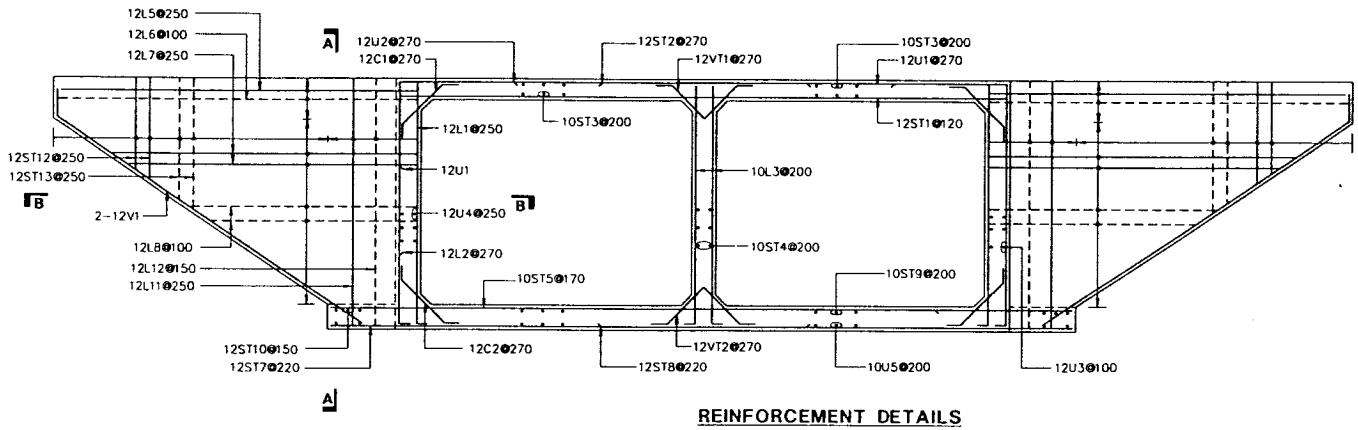
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 2.44m

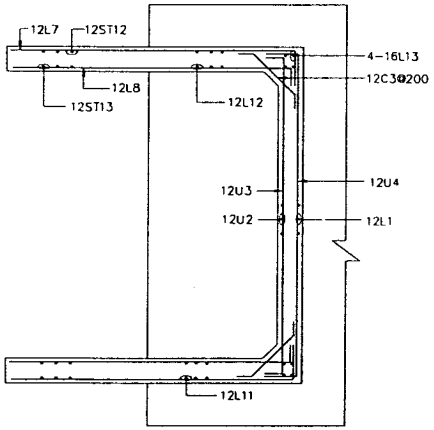
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2126201	

Web Copy

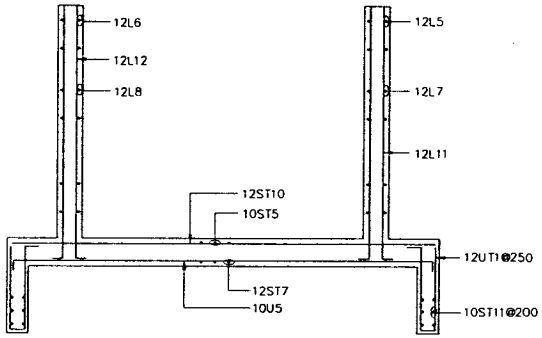
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.0m



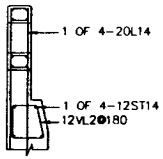
REINFORCEMENT DETAILS



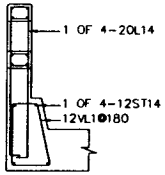
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



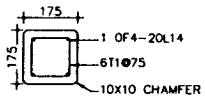
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

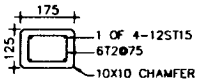
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX & APPROON & CUTOFF WINGS & WALL	12	ST1	26	5750				5750
	12	ST2	11	1933				1933
	10	ST3	2 X 30	2940				2940
	10	ST4	2 X 10	2940				2940
	10	ST5	26	6500				6500
	12	ST7	20	6500				6500
	12	ST8	19	1933				1933
	10	ST9	31	4140				4140
	12	ST10	2 X 3	4140				4140
	12	C1	2 X 12	144	556	144		844
	12	C2	2 X 12	144	541	144		829
	12	VT1	12	2 X 150	2 X 484			1268
	12	VT2	12	2 X 150	2 X 484			1268
	12	L1	2 X 10	2338	250			2588
	12	L2	2 X 10	831	250			1081
	10	L3	2 X 16	2338	250			2588
	16	L13	4 X 4	2338	250			2588
	12	U1	12	851	5750	851		7452
	12	U2	2 X 12	1041	2360	250		3651
	12	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 7	369	2940	369		3678
	10	U5	34	250	4070	250		4570
	10	ST11	4 X 5	6450				6450
	12	UT1	2 X 28	144	2 X 1000	100		2244
WING WALL	12	L5	4 X 1	3238	369			3607
	12	L6	4 X 3	3238	250			3488
	12	L7	4 X 9	Var. 3209 To 488 @ 340	369			Var. 3578 To 857
	12	L8	4 X 20	Var. 3209 To 488 @ 143	250			Var. 3459 To 738
	12	L11	4 X 2	2388	250			2638
	12	L12	4 X 3	2388	250			2638
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12050				12050
	12	VL1	2 X 34	204	394	289	385	1372
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	18 X 4	1046	120			1166
	12	ST15	4 X 4	12060				12060
	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 28 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 3.66m

DATE :

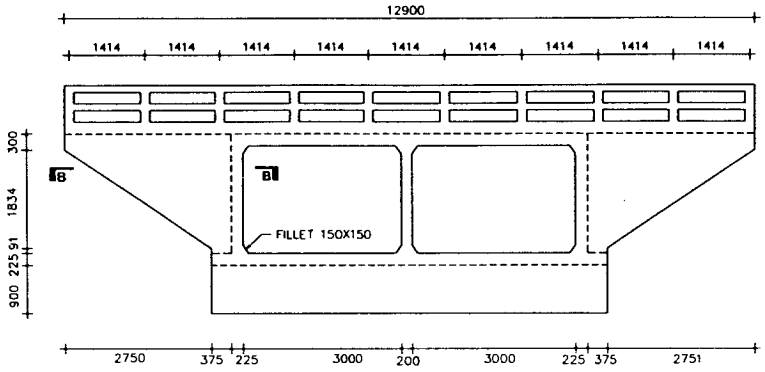
ISSUED BY :

CAD FILE REF : CULV\B2126202

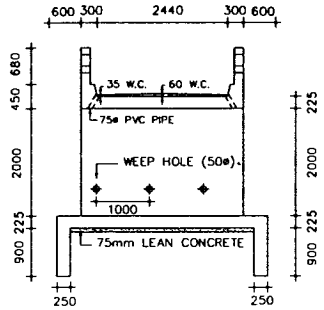
Web Copy

BC-166

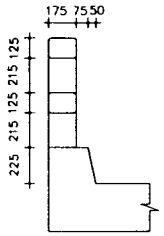
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



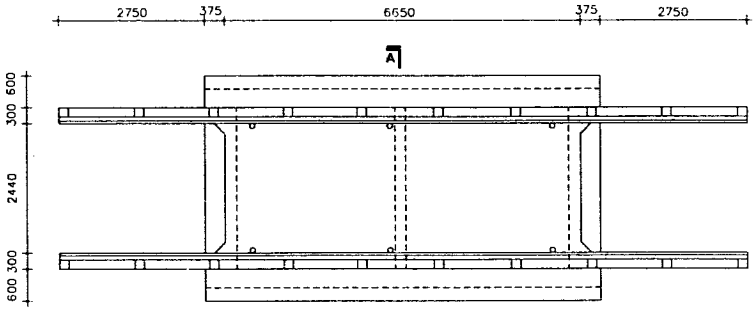
GENERAL ELEVATION



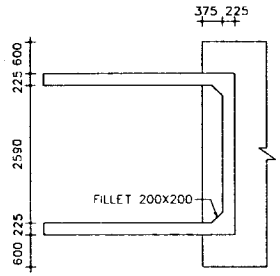
SECTION A-A



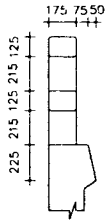
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

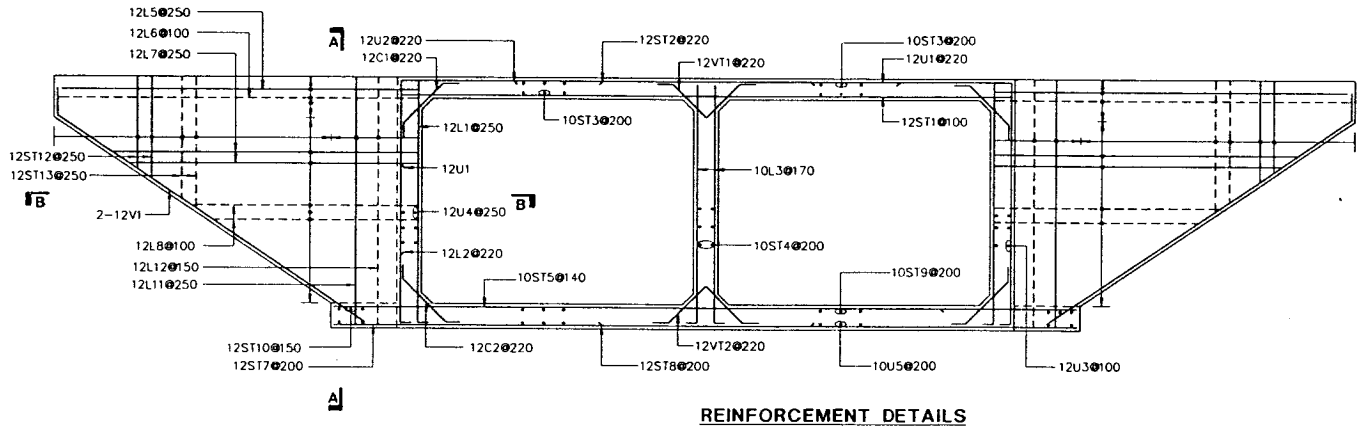
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 2.44m

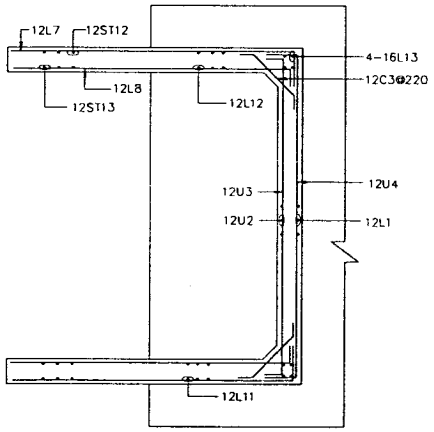
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2130201	

Web Copy

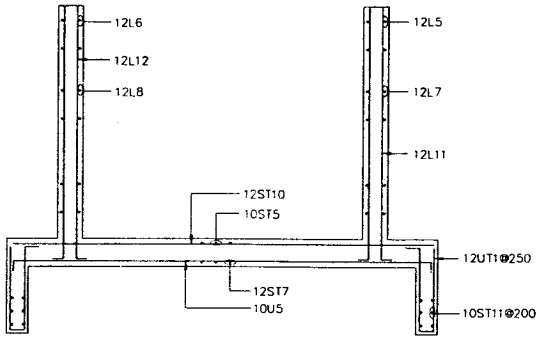
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



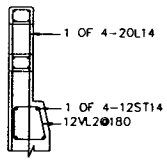
REINFORCEMENT DETAILS



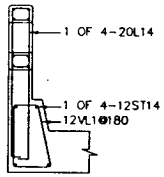
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



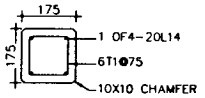
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

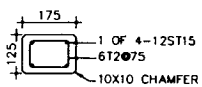
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	6550				6550
	12	ST2	14	2200				2200
	10	ST3	2 X 34	2940				2940
	10	ST4	2 X 10	2940				2940
	10	ST5	31	7300				7300
	12	ST7	20	7300				7300
	12	ST8	21	2200				2200
	10	ST9	35	4140				4140
	12	ST10	2 X 3	4140				4140
	12	C1	2 X 15	144	573	144		861
	12	C2	2 X 15	144	558	144		846
	12	VT1	15	2 X 150	2 X 484			1268
	12	VT2	15	2 X 150	2 X 484			1268
	12	L1	2 X 10	2338	250			2588
	12	L2	2 X 13	831	250			1081
	10	L3	2 X 19	2338	250			2588
	16	L13	4 X 4	2338	250			2588
	12	U1	15	851	6550	851		8252
	12	U2	2 X 15	1175	2360	250		3785
	12	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 7	369	2940	369		3678
	10	U5	38	250	4070	250		4570
	10	ST11	4 X 5	7250				7250
	12	UT1	2 X 31	144	2 X 1000	100		2244
WING WALL	12	L5	4 X 1	3288	369			3607
	12	L6	4 X 3	3288	250			3488
	12	L7	4 X 9	Var. 3209 To 488 @ 340	369			Var. 3578 To 857
	12	L8	4 X 20	Var. 3209 To 488 @ 143	250			Var. 3459 To 738
	12	L11	4 X 2	2388	250			2638
	12	L12	4 X 3	2388	250			2638
	12	ST12	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @ 169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
	12	ST14	2 X 4	12850				12850
CURB AND RAILING	12	VL1	2 X 38	204	394	289	385	1372
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	20 X 4	1046	120			1166
	12	ST15	4 X 4	12860				12860
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 24 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

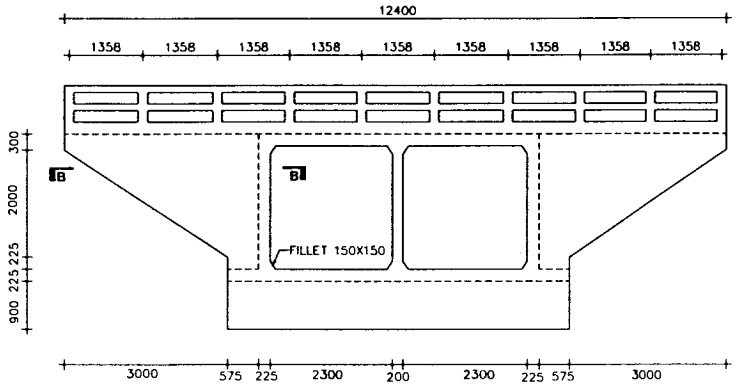
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2130202

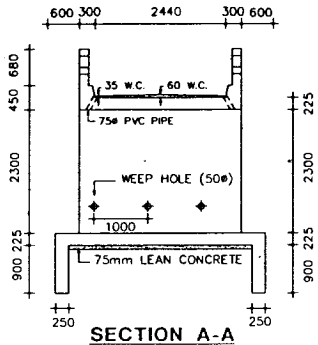
Web Copy

BC-168

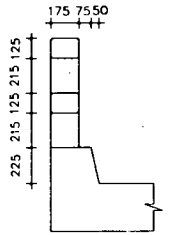
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



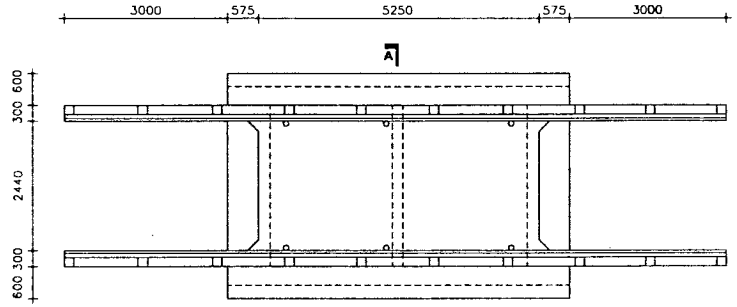
GENERAL ELEVATION



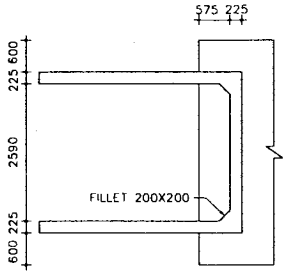
SECTION A-A



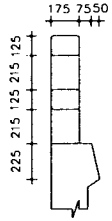
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

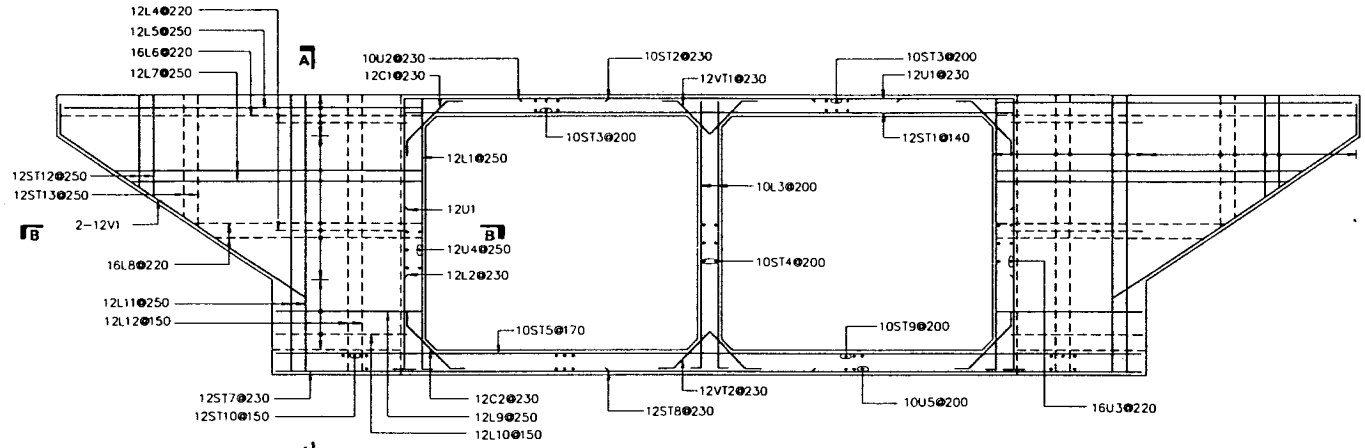
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 2.44m

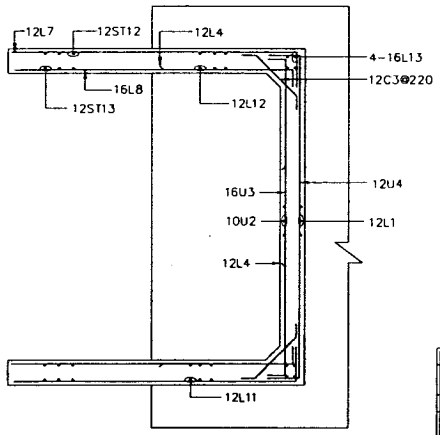
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2123231	

Web Copy

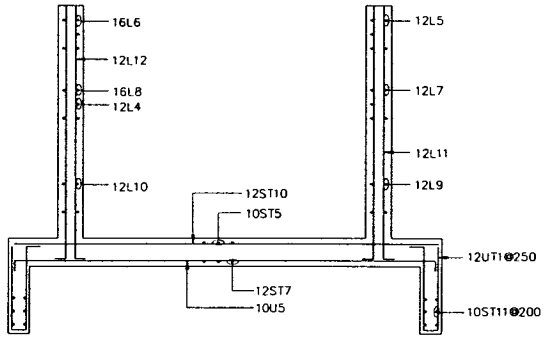
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



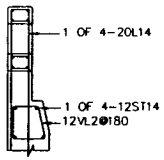
REINFORCEMENT DETAILS



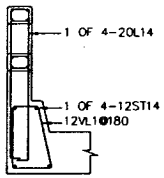
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



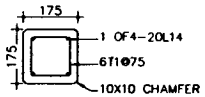
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

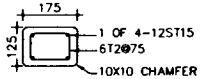
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF WALL	12	ST1	22	5150				5150
	10	ST2	13	1733				1733
	10	ST3	2 X 27	2940				2940
	10	ST4	2 X 11	2940				2940
	10	ST5	26	6300				6300
	12	ST7	19	6300				6300
	12	ST8	18	1733				1733
	10	ST9	28	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 14	144	556	144		844
	12	C2	2 X 14	144	539	144		827
	12	VT1	14	2 X 150	2 X 486			1272
	12	VT2	14	2 X 150	2 X 484			1268
	12	L1	2 X 10	2638	250			2888
	12	L2	2 X 12	931	250			1181
	10	L3	2 X 16	2638	250			2888
	16	L13	4 X 4	2638	250			2888
	12	U1	14	951	5150	951		7052
	10	U2	2 X 14	941	2660	250		3851
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	10	U5	33	250	4070	250		4570
	10	ST11	4 X 5	6250				6250
	12	UT1	2 X 27	144	2 X 1000	100		2244
WING WALL	12	L4	4 X 12	738	813			1551
	12	L5	4 X 1	3688	369			4057
	16	L6	4 X 2	3688	250			3938
	12	L7	4 X 9	Var. 3659 To 688 @ 371	369			Var. 4028 To 1057
	16	L8	4 X 11	Var. 3659 To 688 @ 297	250			Var. 3909 To 938
	12	L9	4 X 1	688	225			913
	12	L10	4 X 2	688	813			1501
	12	L11	4 X 3	2688	250			2938
	12	L12	4 X 4	2688	250			2938
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
CURB AND RAILING	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
	12	ST14	2 X 4	12350				12350
	12	VL1	2 X 31	204	394	289	385	1372
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1046	120			1166
	12	ST15	4 X 4	12360				12360
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Past-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 30 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

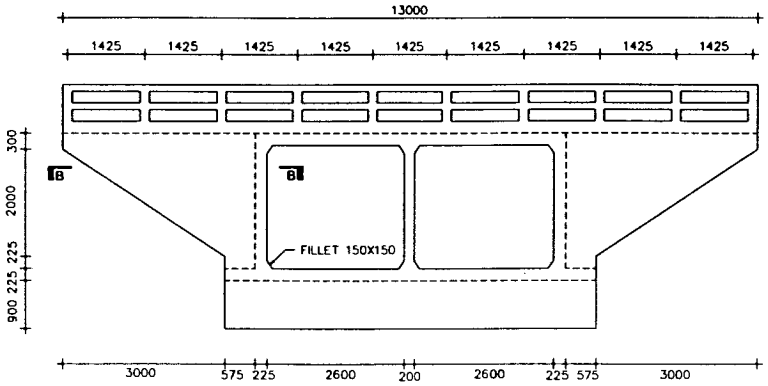
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2123232

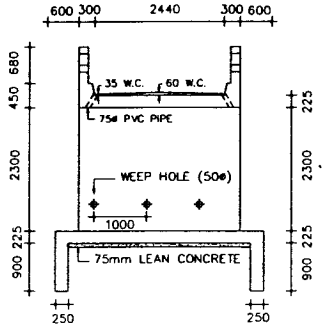
Web Copy

BC-170

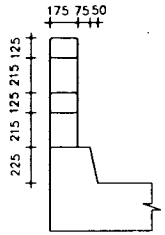
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.3m



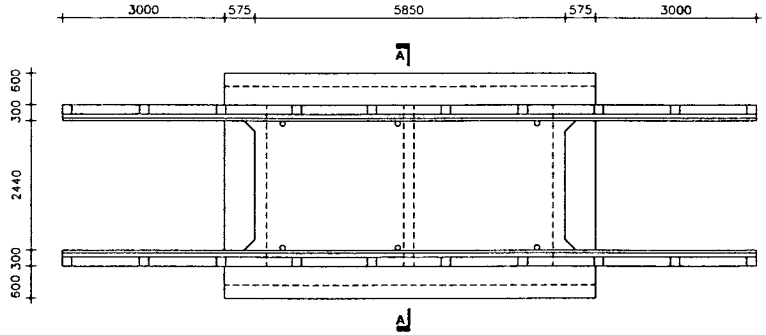
GENERAL ELEVATION



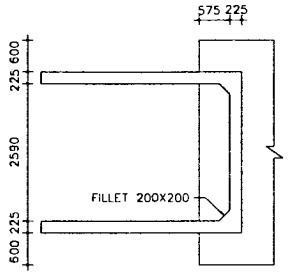
SECTION A-A



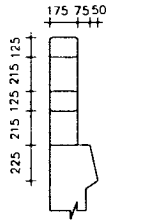
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

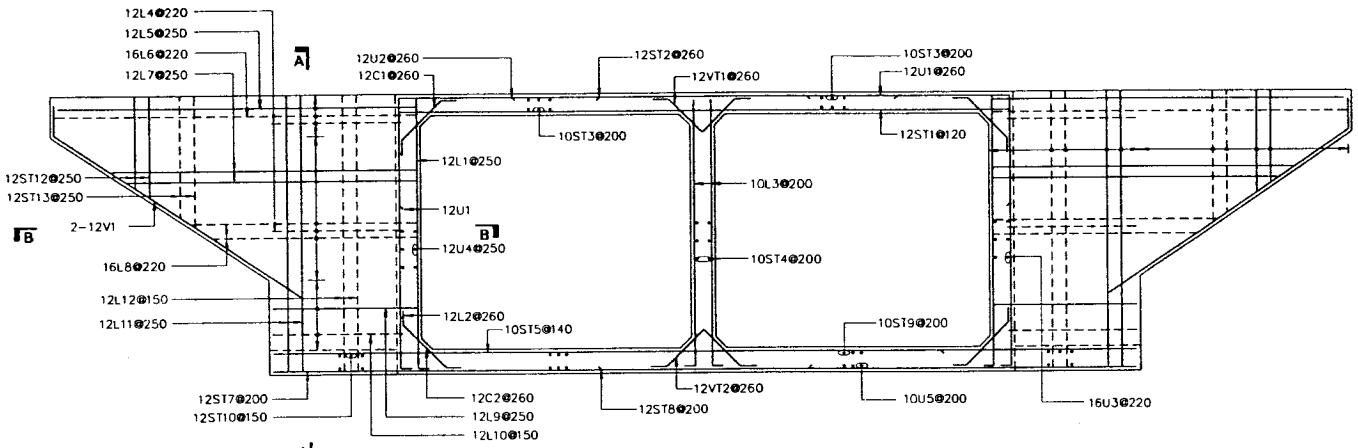
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2126231	

Web Copy

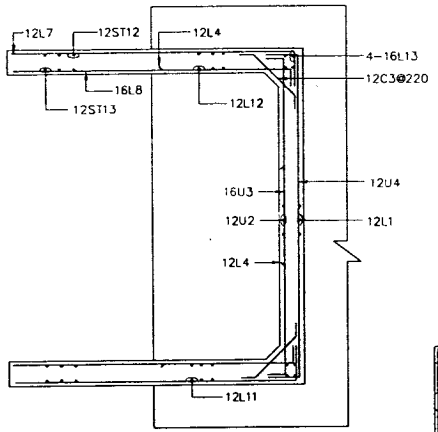
SHEET 2 OF 2	
LIVE LOAD: ASHTO H10	
CLEAR SPAN : 2X2.6m	
CLEAR HEIGHT : 2.3m	



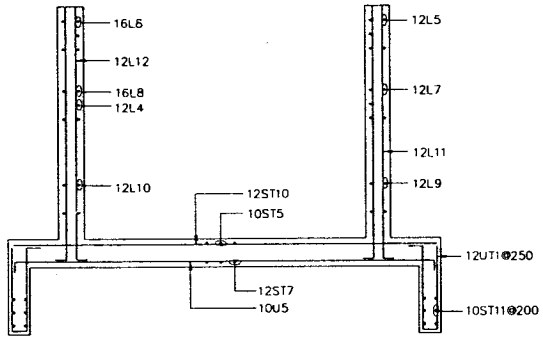
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

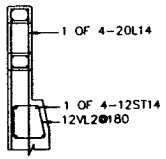
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	5750				5750
	12	ST2	12	1933				1933
	10	ST3	2 X 30	2940				2940
	10	ST4	2 X 11	2940				2940
	10	ST5	31	6900				6900
	12	ST7	22	6900				6900
	12	ST8	21	1933				1933
	10	ST9	31	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 13	144	550	144		838
	12	C2	2 X 13	144	536	144		824
	12	VT1	13	2 X 150	2 X 484			1268
	12	VT2	13	2 X 150	2 X 484			1268
	12	L1	2 X 10	2638	250			2888
	12	L2	2 X 11	931	250			1181
	10	L3	2 X 16	2638	250			2888
	16	L13	4 X 4	2638	250			2888
	12	U1	13	951	5750	951		7652
	12	U2	2 X 13	1041	2660	250		3951
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	10	U5	36	250	4070	250		4570
	10	ST11	4 X 5	6850				6850
	12	UT1	2 X 29	144	2 X 1000	100		2244
WING WALL	12	L4	4 X 12	738	813			1551
	12	L5	4 X 1	3688	369			4057
	16	L6	4 X 2	3688	250			3938
	12	L7	4 X 9	Var. 3659 To 688 @ 371	369			Var. 4028 To 1057
	16	L8	4 X 11	Var. 3659 To 688 @ 297	250			Var. 3909 To 938
	12	L9	4 X 1	688	225			913
	12	L10	4 X 2	688	813			1501
	12	L11	4 X 3	2688	250			2938
	12	L12	4 X 4	2688	250			2938
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
CURB AND RAILING	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
	12	ST14	2 X 4	12950				12950
	12	VL1	2 X 34	204	394	289	385	1372
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1046	120			1166
	12	ST15	4 X 4	12960				12960
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440



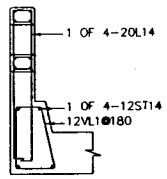
SECTION B-B



SECTION A-A



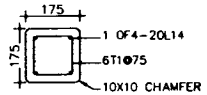
RAILING ON WING WALL (REINF. DETAIL)



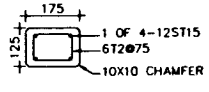
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 20 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :

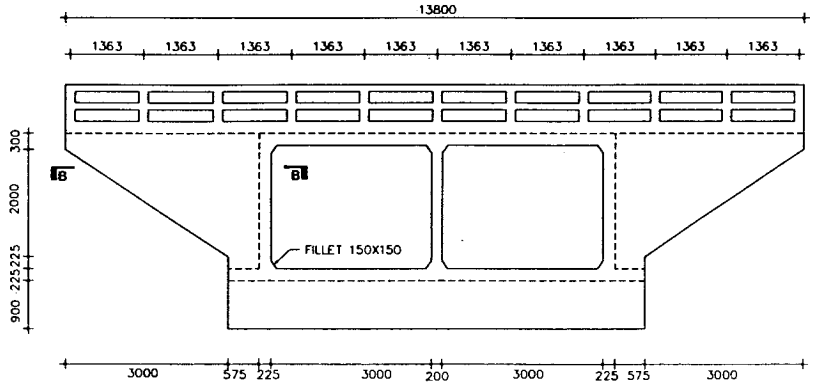
ISSUED BY :

CAD FILE REF : CULV\B2126232

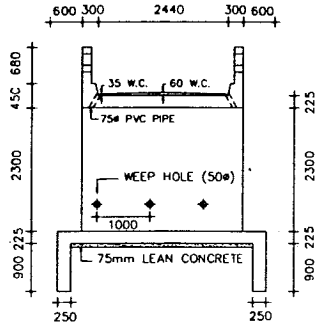
Web Copy

BC-172

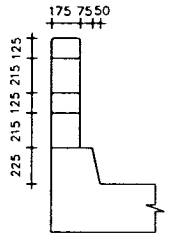
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



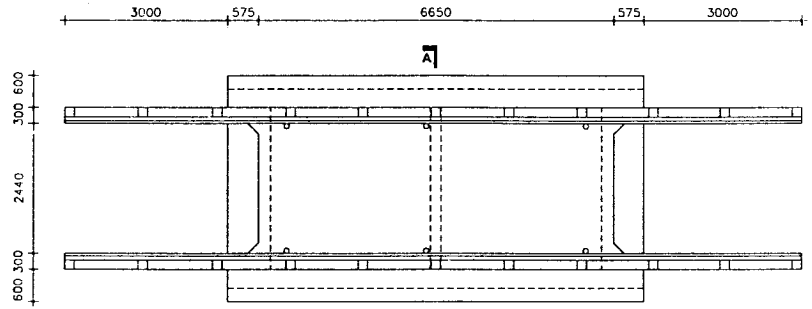
GENERAL ELEVATION



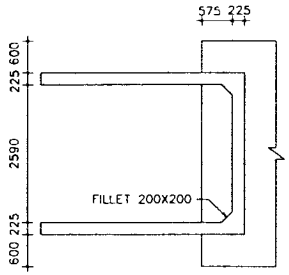
SECTION A-A



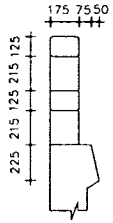
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

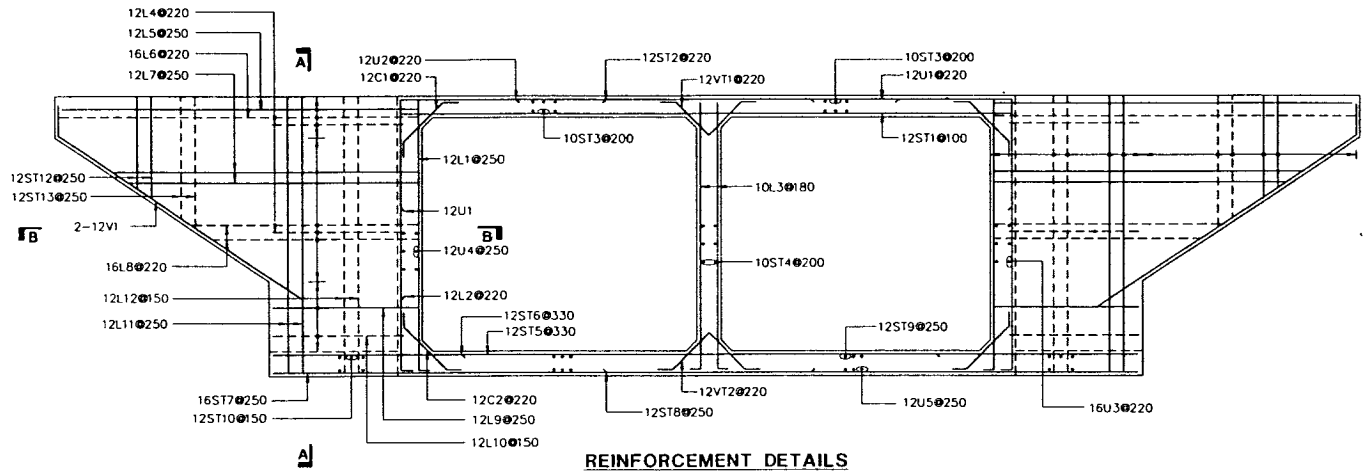
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 2.44m

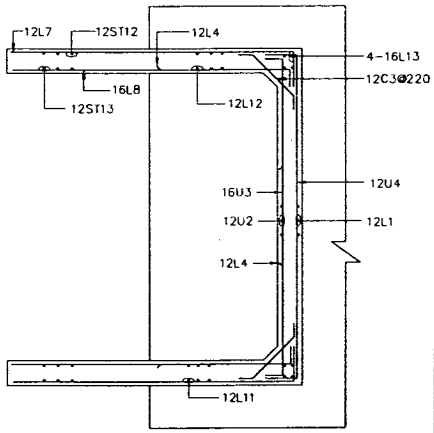
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2130231	

Web Copy

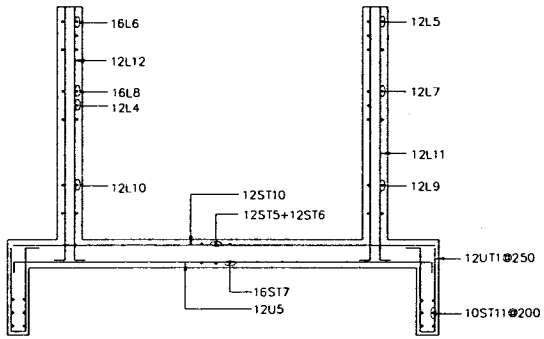
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



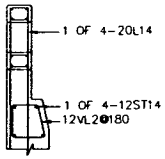
REINFORCEMENT DETAILS



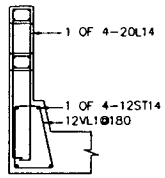
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



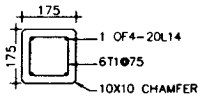
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

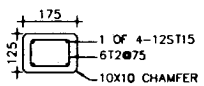
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CUTOFF	12	ST1	31	6550				6550
	12	ST2	14	2200				2200
	10	ST3	2 X 34	2940				2940
	10	ST4	2 X 11	2940				2940
	12	ST5	14	7700				7700
	12	ST6	13	4700				4700
	16	ST7	18	7700				7700
	12	ST8	17	2200				2200
	12	ST9	28	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 15	144	550	144		838
	12	C2	2 X 15	144	527	144		815
	12	VT1	15	2 X 150	2 X 484			1268
	12	VT2	15	2 X 150	2 X 461			1222
	12	L1	2 X 10	2632	250			2882
	12	L2	2 X 13	929	250			1179
	10	L3	2 X 18	2632	250			2882
	16	L13	4 X 4	2632	250			2882
	12	U1	15	951	6550	951		8452
	12	U2	2 X 15	1175	2660	250		4085
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	12	U5	32	250	4070	250		4570
	10	ST11	4 X 5	7650				7650
	12	UT1	2 X 32	144	2 X 1000	100		2244
WING	12	L4	4 X 12	738	813			1551
	12	L5	4 X 1	3688	369			4057
	16	L6	4 X 2	3688	250			3938
	12	L7	4 X 9	Var. 3659 To 688 @ 371	369			Var. 4028 1057
	16	L8	4 X 11	Var. 3659 To 688 @ 297	250			Var. 3909 To 938
	12	L9	4 X 1	688	225			913
	12	L10	4 X 2	688	813			1501
	12	L11	4 X 3	2684	250			2934
	12	L12	4 X 4	2684	250			2934
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
CURB AND RAILING	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
	12	ST14	2 X 4	13750				13750
	12	VL1	2 X 38	204	394	289	385	1372
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1046	120			1166
	12	ST15	4 X 4	13760				13760
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 160	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bat.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

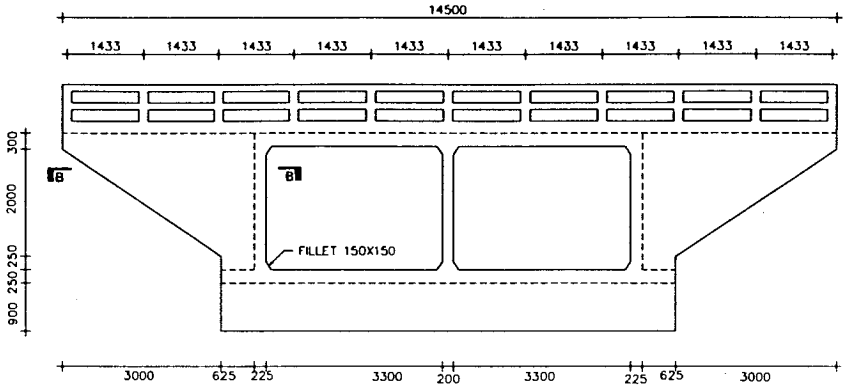
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : FILEREF	

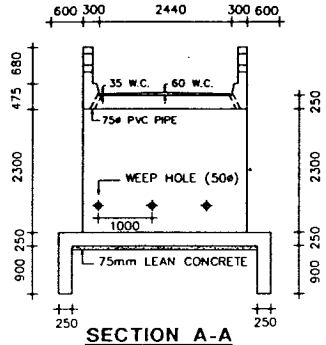
Web Copy

BC-174

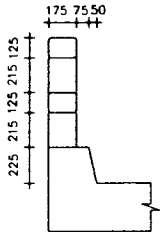
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



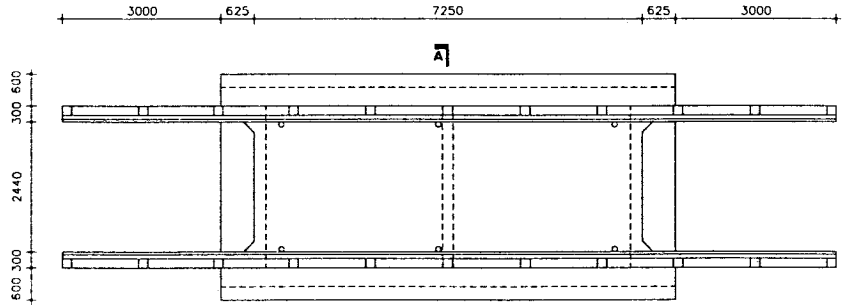
GENERAL ELEVATION



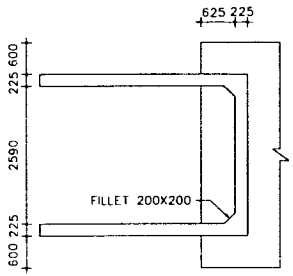
SECTION A-A



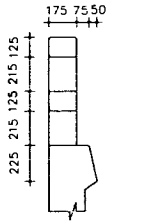
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

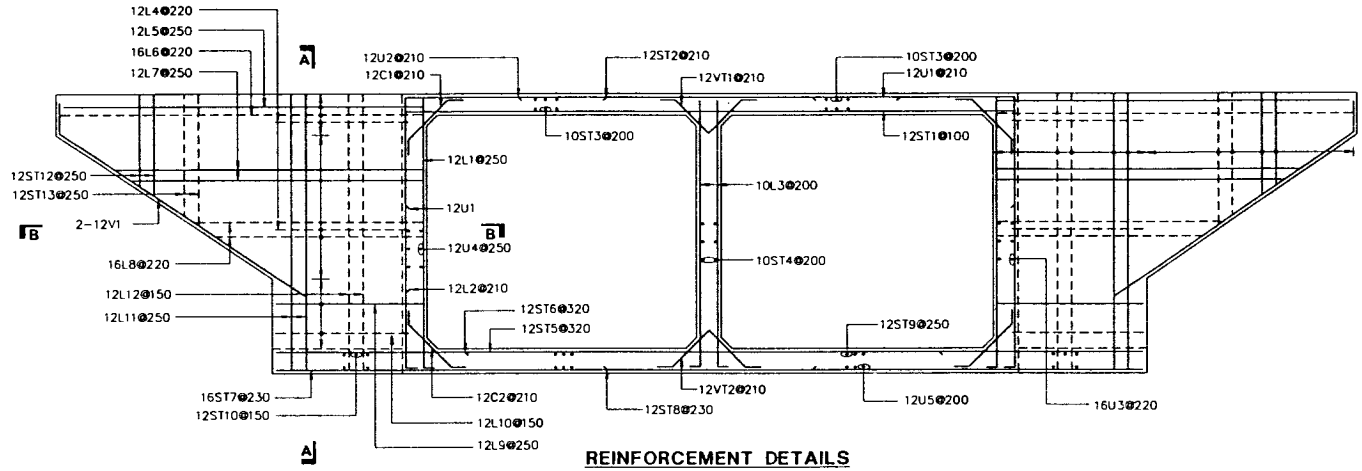
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 2.44m

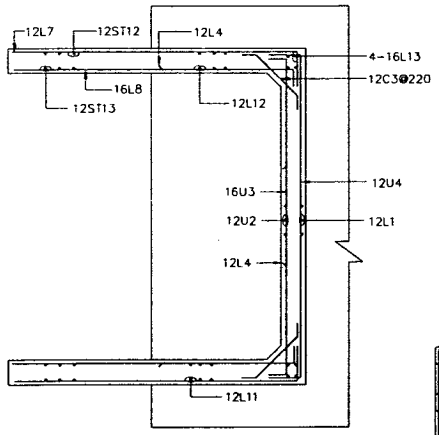
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2133231	

Web Copy

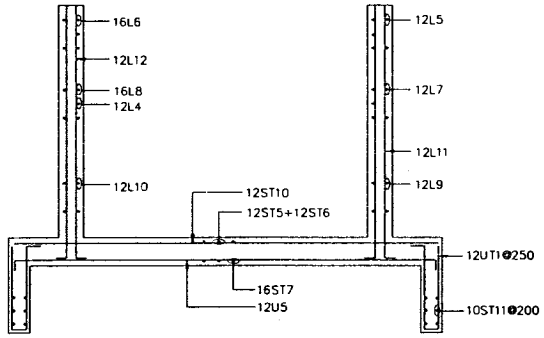
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



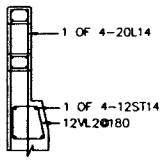
REINFORCEMENT DETAILS



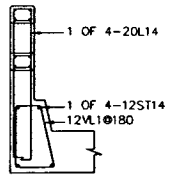
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



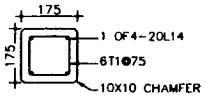
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

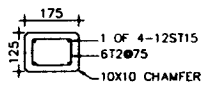
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	7150				7150
	12	ST2	14	2400				2400
	10	ST3	2 X 37	2940				2940
	10	ST4	2 X 11	2940				2940
	12	ST5	14	8400				8400
	12	ST6	13	5150				5150
	16	ST7	19	8400				8400
	12	ST8	18	2400				2400
	12	ST9	30	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 15	144	585	144		873
	12	C2	2 X 15	144	566	144		854
	12	VT1	15	2 X 150	2 X 519			1338
	12	VT2	15	2 X 150	2 X 496			1292
	12	L1	2 X 10	2684	250			2934
	12	L2	2 X 13	956	250			1206
	10	L3	2 X 16	2684	250			2934
	16	L13	4 X 4	2684	250			2934
	12	U1	15	976	7150	976		9102
	12	U2	2 X 15	1275	2710	250		4235
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	12	U5	35	250	4070	250		4570
	10	ST11	4 X 5	8350				8350
	12	UT1	2 X 35	144	2 X 1025	100		2294
WING	12	L4	4 X 12	788	813			1601
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	813			1551
	12	L11	4 X 3	2734	250			2984
	12	L12	4 X 4	2734	250			2984
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
CURB AND RAILING	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
	12	ST14	2 X 4	14450				14450
	12	VL1	2 X 42	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	14460				14460
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

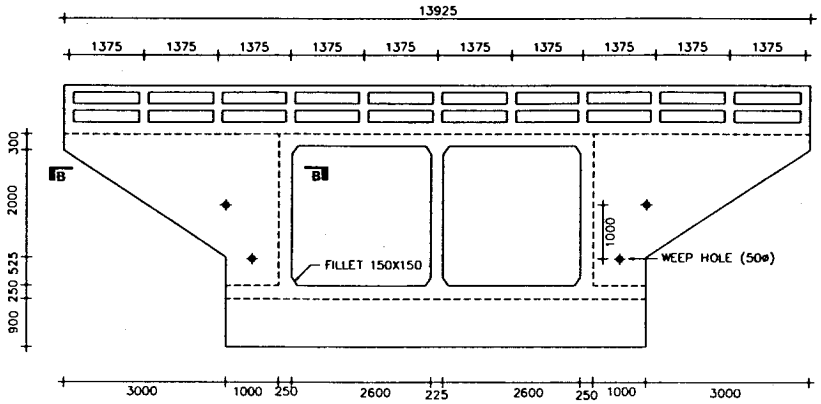
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2133232

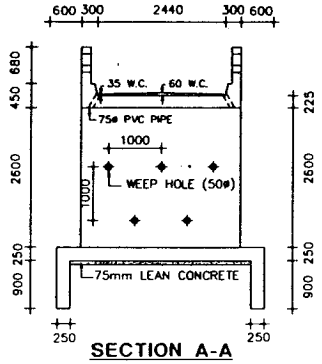
Web Copy

BC-176

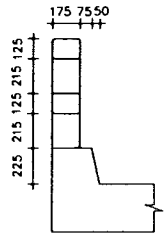
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.6m



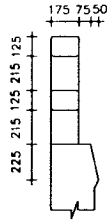
GENERAL ELEVATION



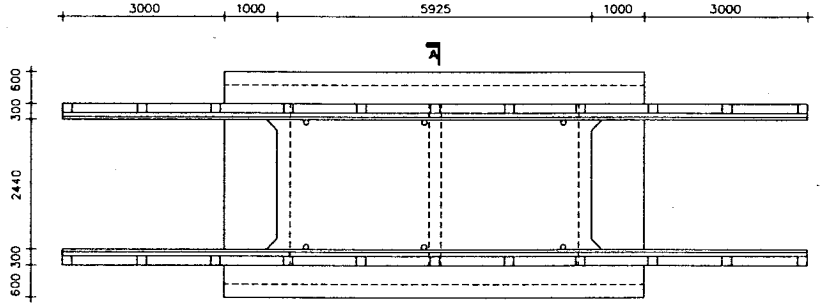
SECTION A-A



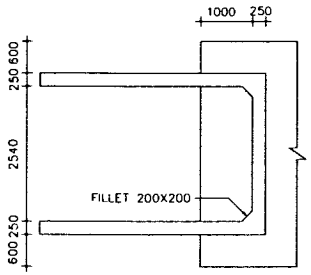
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

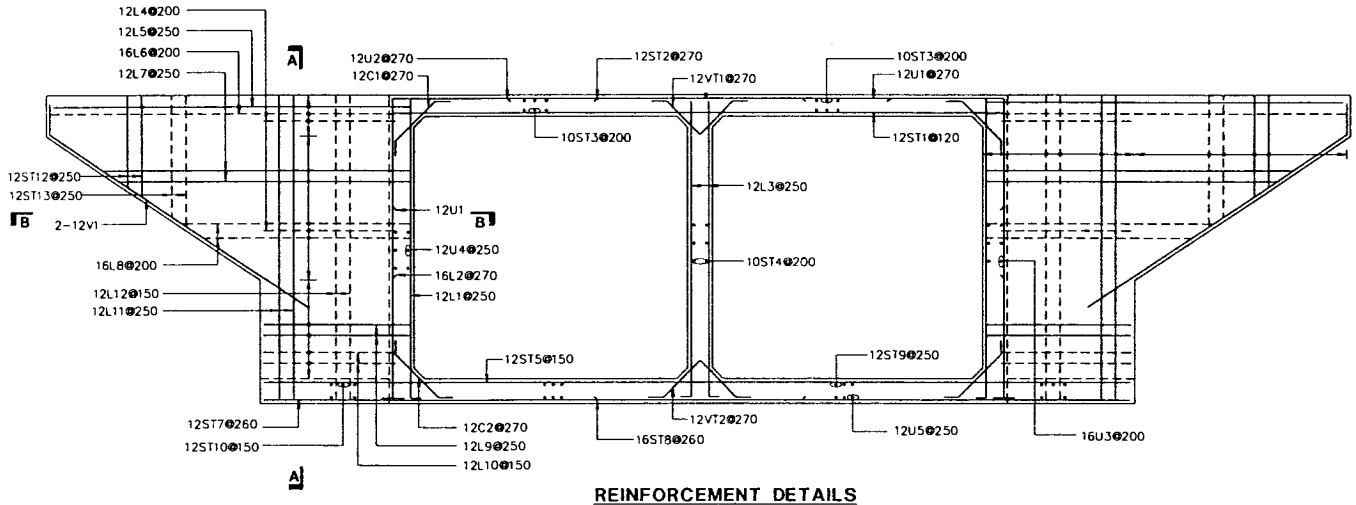
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 2.44m

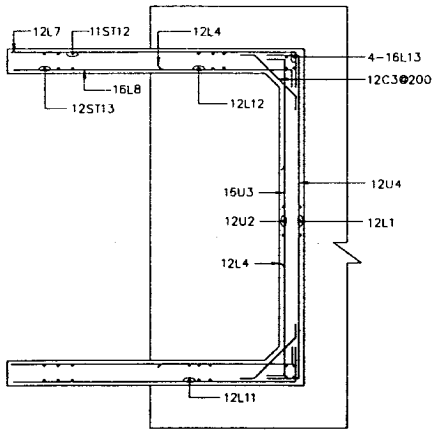
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2126261	

Web Copy

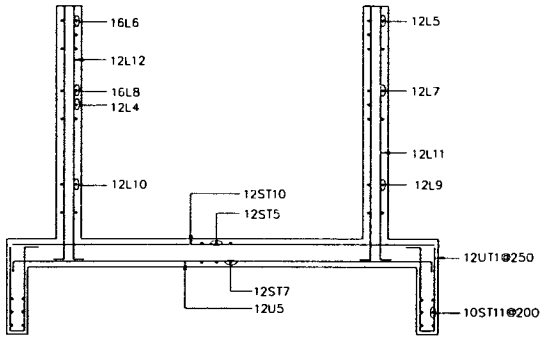
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x2.6m
CLEAR HEIGHT : 2.6m



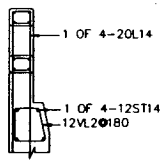
REINFORCEMENT DETAILS



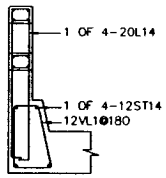
SECTION B-B



SECTION A-A



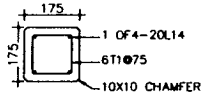
RAILING ON WING WALL
(REINF. DETAIL)



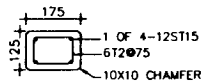
RAILING ON CULVERT
(REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	5825				5825
	12	ST2	11	1958				1958
	10	ST3	2 X 31	2940				2940
	10	ST4	2 X 13	2940				2940
	12	ST5	29	7825				7825
	12	ST7	17	7825				7825
	16	ST8	16	1958				1958
	12	ST9	25	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 12	144	585	144		873
	12	C2	2 X 12	144	598	144		886
	12	VT1	12	2 X 150	2 X 501			1302
	12	VT2	12	2 X 150	2 X 537			1374
	12	L1	2 X 10	2961	250			3211
	16	L2	2 X 10	1054	250			1304
	12	L3	2 X 13	2961	250			3211
	16	L13	4 X 4	2961	250			3211
	12	U1	12	1051	5825	1051		7927
	12	U2	2 X 12	1066	2985	250		5117
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	394	2940	394		3728
	12	U5	33	250	4070	250		4570
	10	ST11	4 X 5	7775				7775
	12	UT1	2 X 33	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 13	1188	813			2001
	12	L5	4 X 1	4138	394			4532
	16	L6	4 X 2	4138	250			4388
	12	L7	4 X 9	Var. 4109 To 1138 @ 371	394			Var. 4503 To 2038
	16	L8	4 X 11	Var. 4109 To 1138 @ 297	250			Var. 4359 To 1388
	12	L9	4 X 3	1138	394			1532
	12	L10	4 x 4	1138	813			1951
	12	L11	4 X 4	3013	250			3263
	12	L12	4 X 7	3013	250			3263
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	680	144		968
CURB AND RAILING	12	ST14	2 X 4	13875				13875
	12	VL1	2 X 34	204	394	289	285	1272
	12	VL2	4 X 22	204	204	248	200	856
	20	L14	22 X 4	1046	120			1166
	12	ST15	4 X 4	13885				13885
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 160	2 X 85	2 X 135			440

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

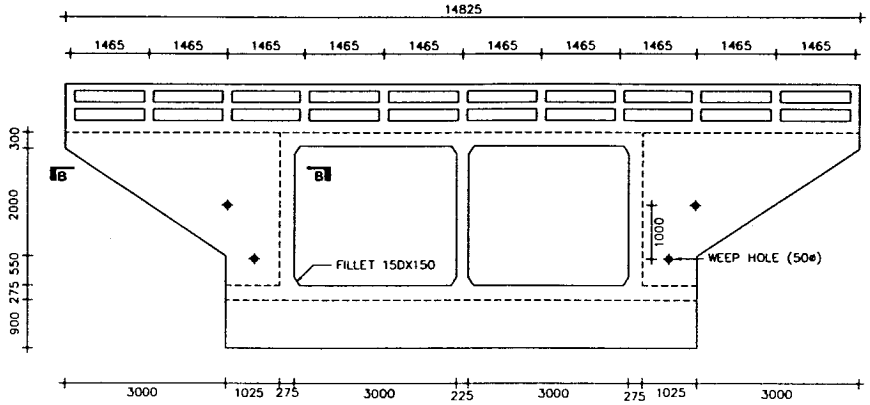
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2126262

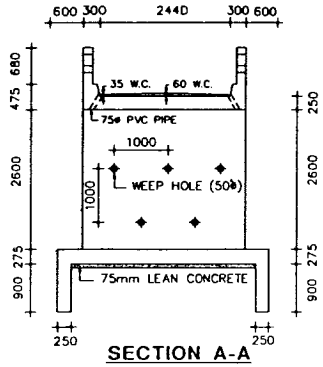
Web Copy

BC-178

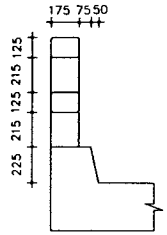
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.6m



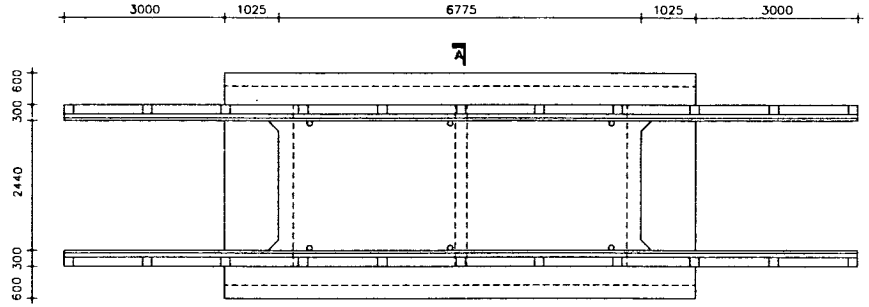
GENERAL ELEVATION



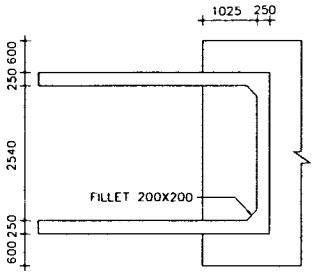
SECTION A-A



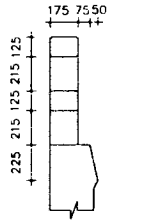
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

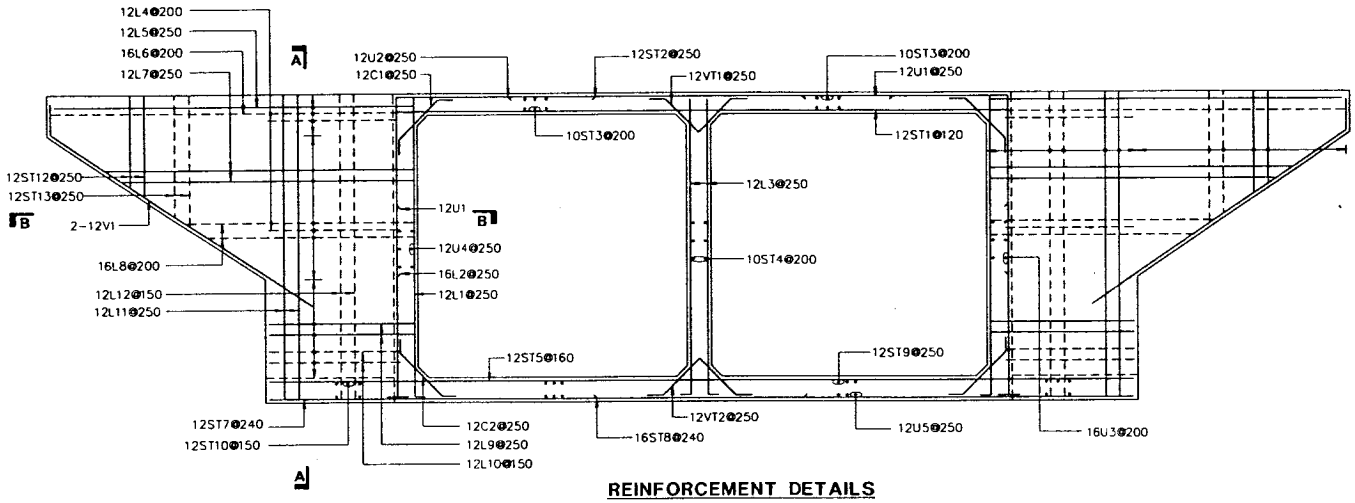
NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT DOUBLE VENT 3.0m x 2.6m ROADWAY 2.44m
DATE : ISSUED BY :
CAD FILE REF : CULV\B2130261

Web Copy

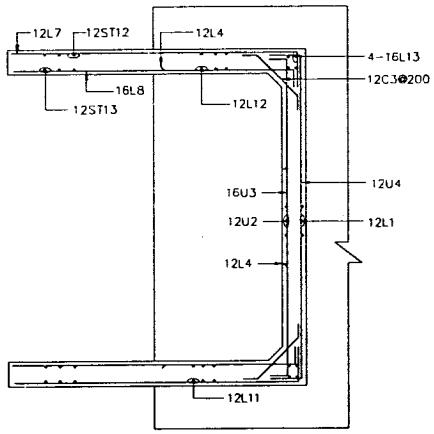
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.0m
CLEAR HEIGHT : 2.6m



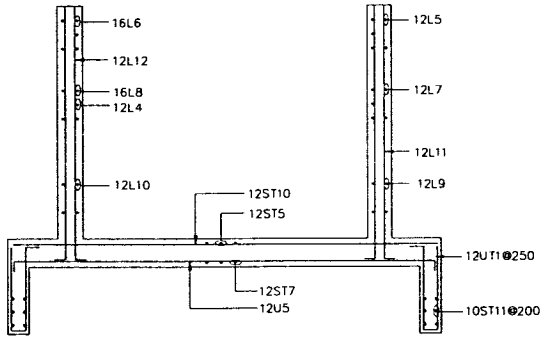
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

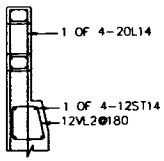
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	6675				6675
	12	ST2	12	2225				2225
	10	ST3	2 X 35	2940				2940
	10	ST4	2 X 13	2940				2940
	12	ST5	27	8725				8725
	12	ST7	19	8725				8725
	16	ST8	18	2225				2225
	12	ST9	29	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 13	144	656	144		944
	12	C2	2 X 13	144	669	144		957
	12	VT1	13	2 X 150	2 X 537			1374
	12	VT2	13	2 X 150	2 X 572			1444
	12	L1	2 X 10	3011	250			3261
	16	L2	2 X 11	1079	250			1329
	12	L3	2 X 13	3011	250			3261
	16	L13	4 X 4	3011	250			3261
	12	U1	13	1076	6675	1076		8827
	12	U2	2 X 13	1225	3035	250		5485
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	36	250	4070	250		4570
	10	ST11	4 X 5	8675				8675
	12	UT1	2 X 36	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3063	250			3313
	12	L12	4 X 7	3063	250			3313
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	14775				14775
	12	VL1	2 X 39	204	419	295	410	1328
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	14785				14785
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 180	2 X 85	2 X 135			440



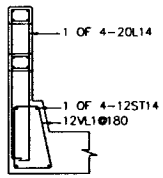
SECTION B-B



SECTION A-A



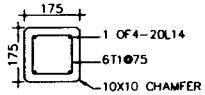
RAILING ON WING WALL (REINF. DETAIL)



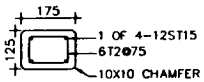
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

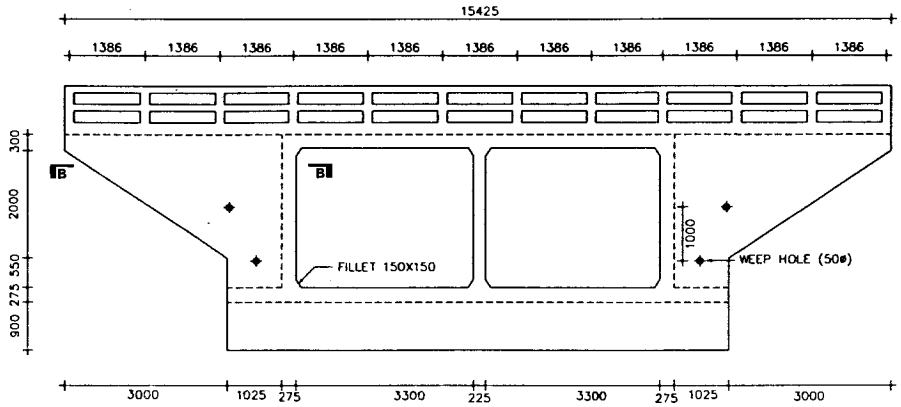
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2130262

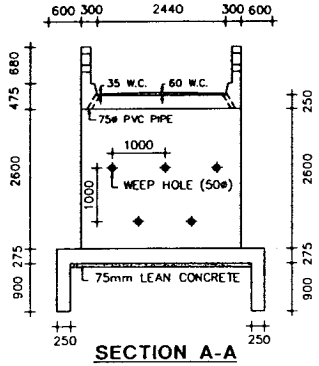
Web Copy

BC-180

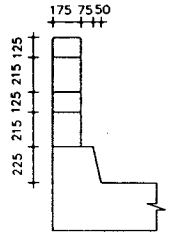
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.6m



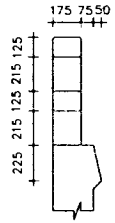
GENERAL ELEVATION



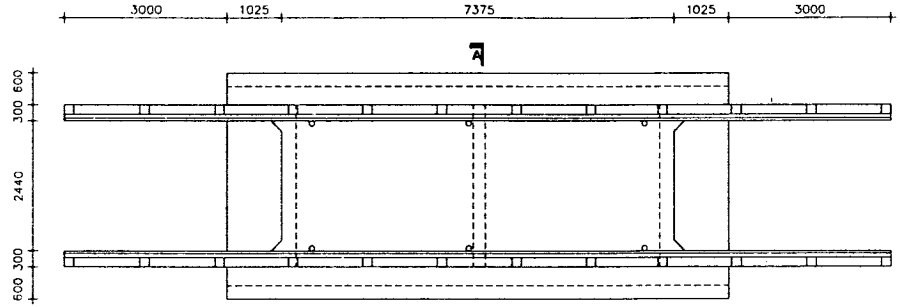
SECTION A-A



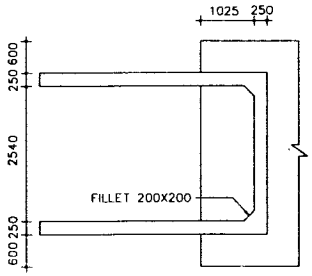
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

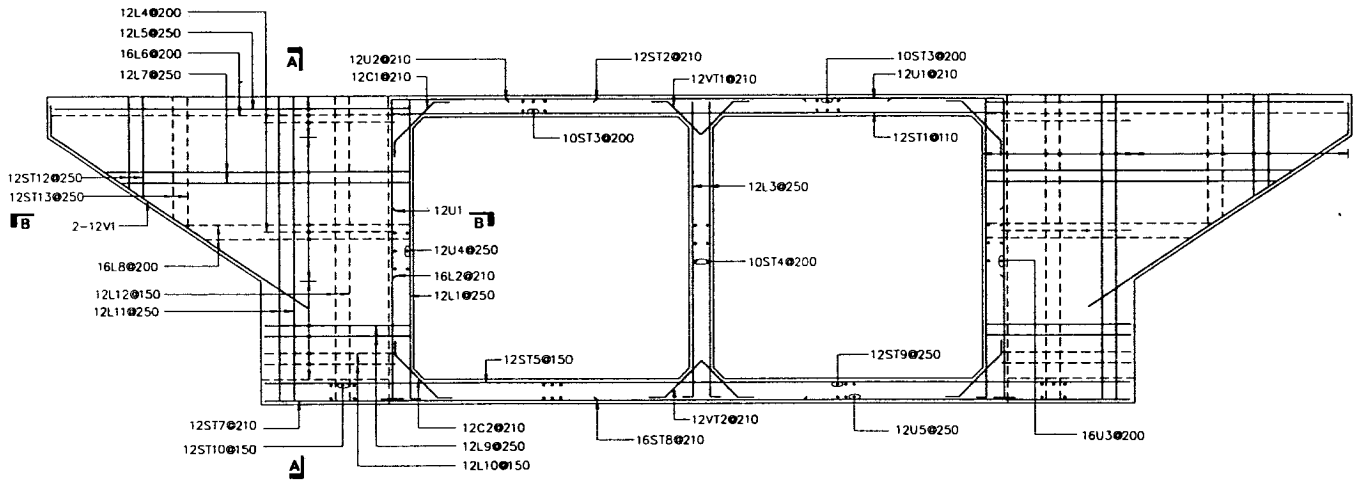
GENERAL ARRANGEMENT OF BOX CULVERT DOUBLE VENT 3.3m x 2.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2133261	

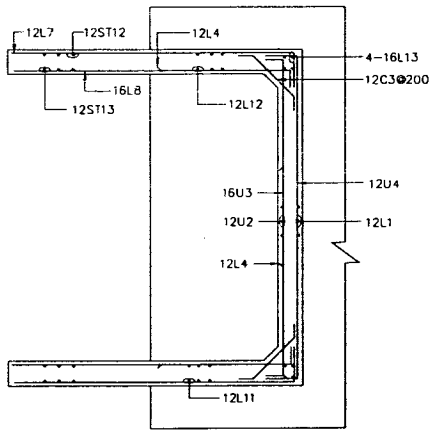
Web Copy

BC-181

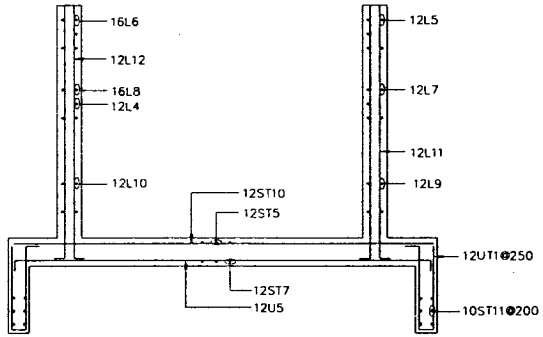
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 2.6m



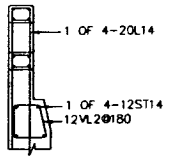
REINFORCEMENT DETAILS



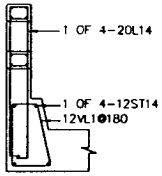
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



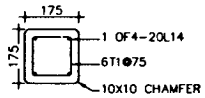
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

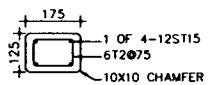
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	7275				7275
	12	ST2	14	2425				2425
	10	ST3	2 X 38	2940				2940
	10	ST4	2 X 13	2940				2940
	12	ST5	29	9325				9325
	12	ST7	21	9325				9325
	16	ST8	20	2425				2425
	12	ST9	31	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 15	144	656	144		944
	12	C2	2 X 15	144	669	144		957
	12	VT1	15	2 X 150	2 X 537			1374
	12	VT2	15	2 X 150	2 X 572			1444
	12	L1	2 X 10	3011	250			3261
	16	L2	2 X 13	1079	250			1329
	12	L3	2 X 13	3011	250			3261
	16	L13	4 X 4	3011	250			3261
	12	U1	15	1076	7275	1076		9427
	12	U2	2 X 15	1325	3035	250		5685
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	39	250	4070	250		4570
	10	ST11	4 X 5	9275				9275
	12	UT1	2 X 39	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3063	250			3313
	12	L12	4 X 7	3063	250			3313
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15375				15375
	12	VL1	2 X 42	204	419	295	410	1328
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1071	120			1191
	12	ST15	4 X 4	15385				15385
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 31 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

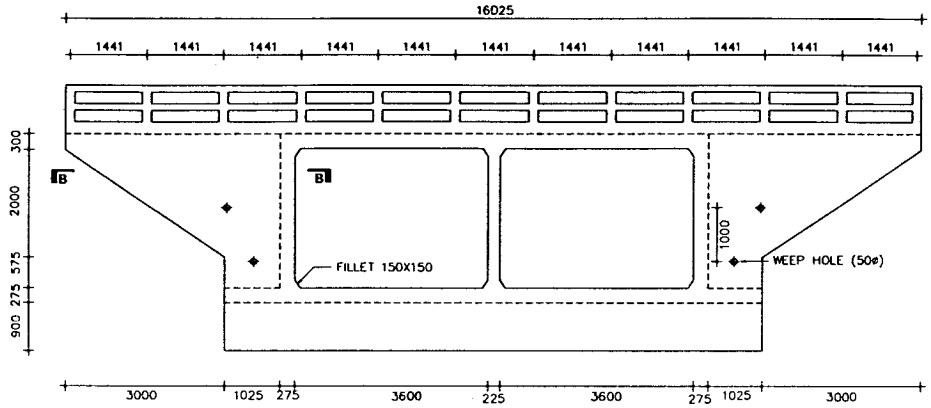
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2133262

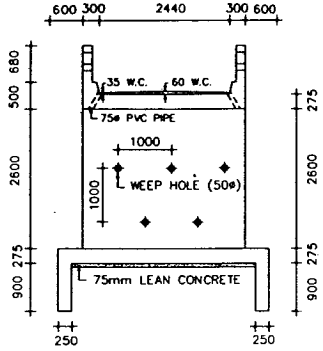
Web Copy

BC-182

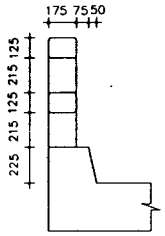
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 2.6m



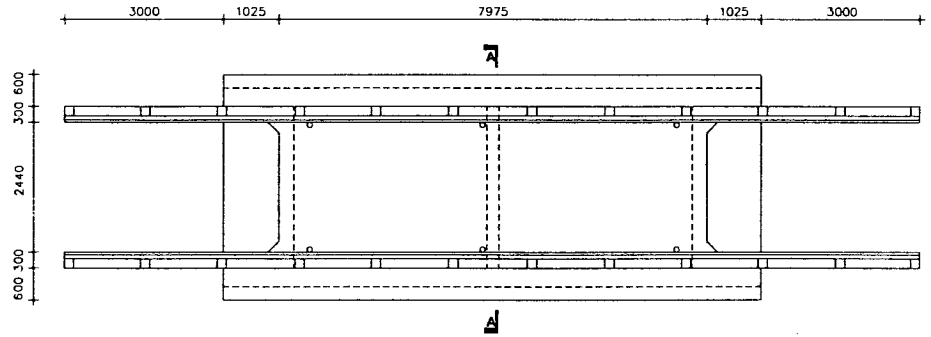
GENERAL ELEVATION



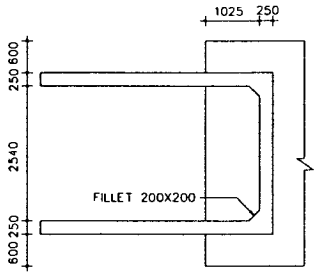
SECTION A-A



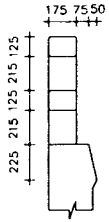
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

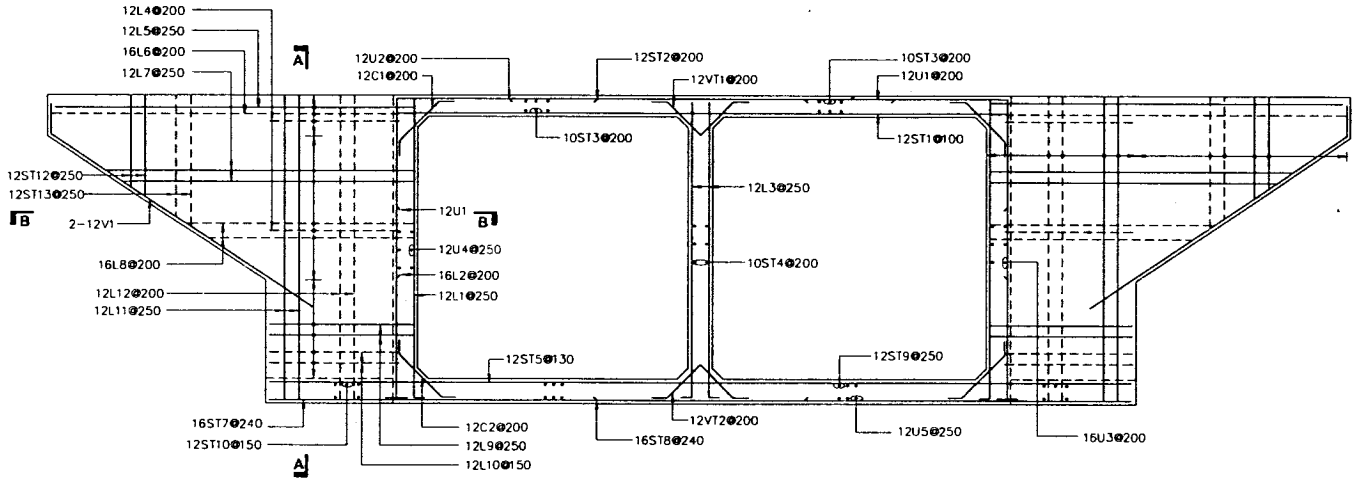
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2136261	

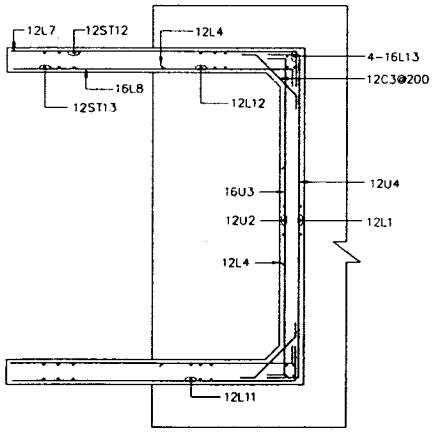
Web Copy

BC-183

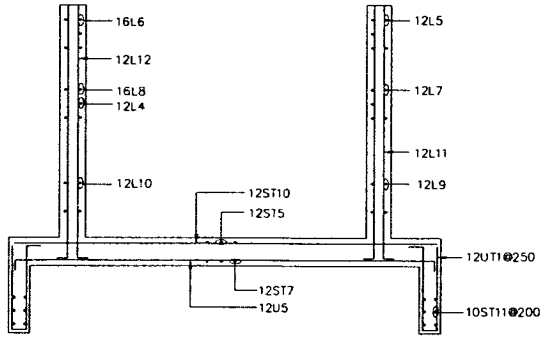
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 2.6m



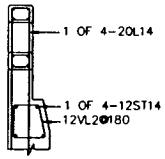
REINFORCEMENT DETAILS



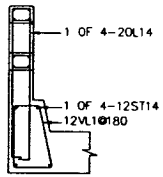
SECTION B-B



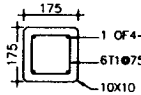
SECTION A-A



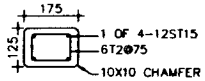
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	7875				7875
	12	ST2	15	2625				2625
	10	ST3	2 X 41	2940				2940
	10	ST4	2 X 13	2940				2940
	12	ST5	33	9925				9925
	16	ST7	19	9925				9925
	16	ST8	18	2625				2625
	12	ST9	33	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 16	144	691	144		979
	12	C2	2 X 16	144	663	144		951
	12	VT1	16	2 X 150	2 X 572			1444
	12	VT2	16	2 X 150	2 X 566			1432
	12	L1	2 X 10	3032	250			3282
	16	L2	2 X 14	1079	250			1329
	12	L3	2 X 14	3032	250			3282
	16	L13	4 X 4	3032	250			3282
	12	U1	16	1101	7875	1101		10077
	12	U2	2 X 16	1425	3060	250		5910
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	41	250	4070	250		4570
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1050	100		2344
WING	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3084	250			3334
	12	L12	4 X 7	3084	250			3334
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X 46	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15985				15985
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 31 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

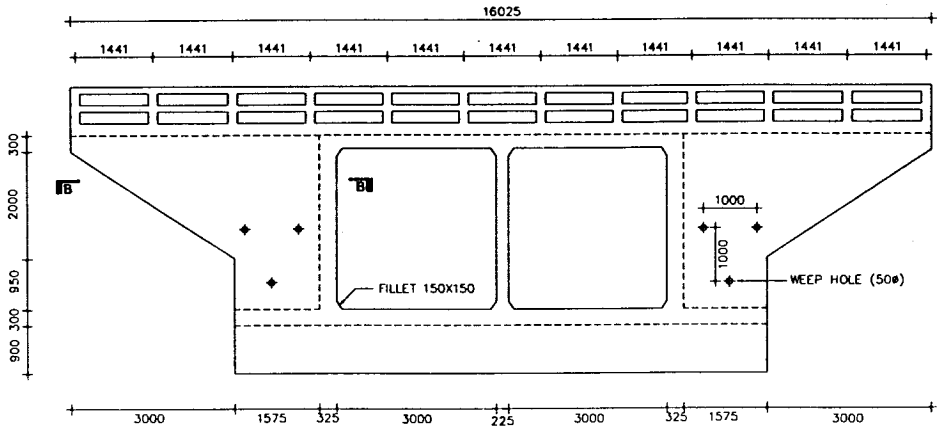
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2136262

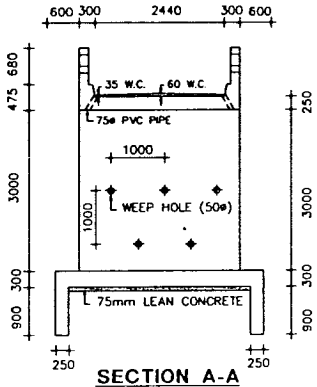
Web Copy

BC-184

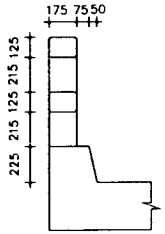
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 3.0m



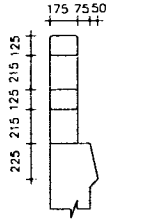
GENERAL ELEVATION



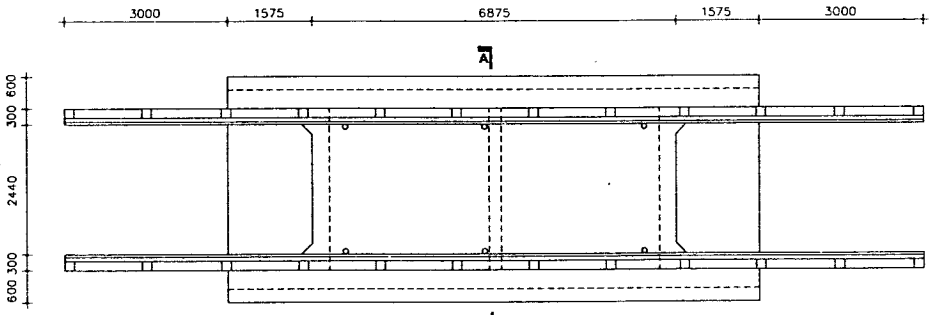
SECTION A-A



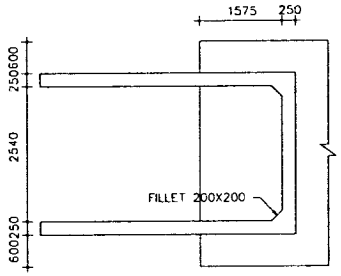
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

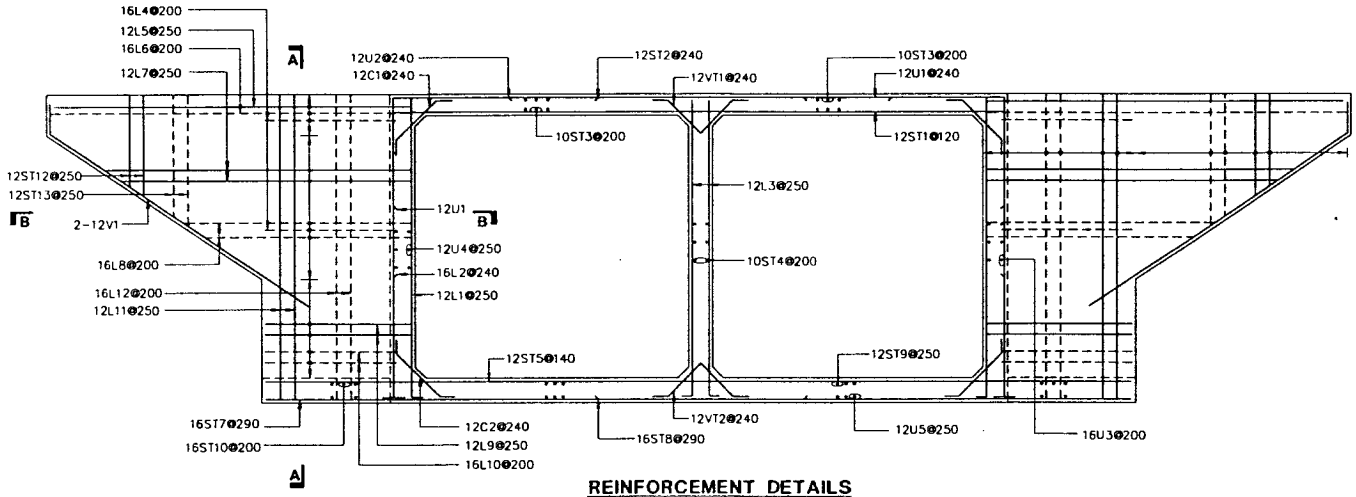
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 2.44m

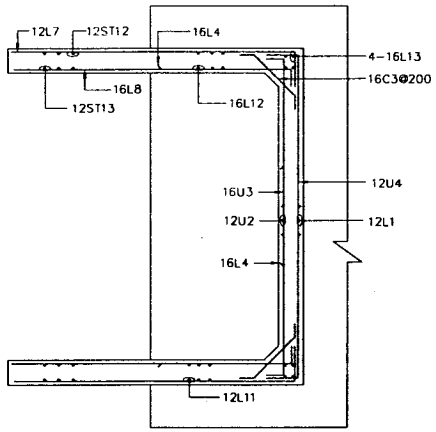
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2130301	

Web Copy

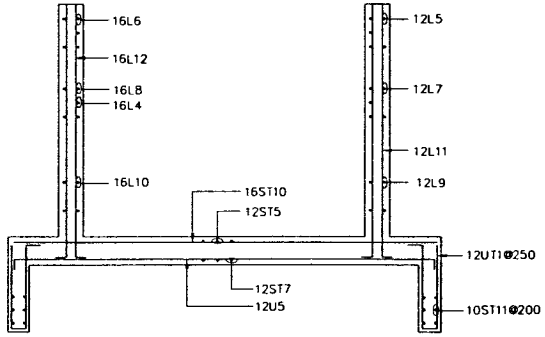
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3.0m
CLEAR HEIGHT : 3.0m



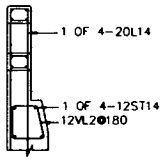
REINFORCEMENT DETAILS



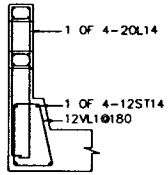
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



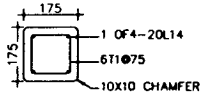
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

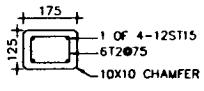
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	6775				6775
	12	ST2	13	2225				2225
	10	ST3	2 X 35	2940				2940
	10	ST4	2 X 15	2940				2940
	12	ST5	31	9925				9925
	16	ST7	16	9925				9925
	16	ST8	15	2225				2225
	12	ST9	29	4140				4140
	16	ST10	2 X 7	4140				4140
	12	C1	2 X 14	144	727	144		1015
	12	C2	2 X 14	144	769	144		1057
	12	VT1	14	2 X 150	2 X 537			1374
	12	VT2	14	2 X 150	2 X 602			1504
	12	L1	2 X 10	3432	250			3682
	16	L2	2 X 12	1238	250			1488
	12	L3	2 X 13	3432	250			3682
	16	L13	4 X 4	3432	250			3682
	12	U1	14	1210	6775	1210		9195
	12	U2	2 X 14	1275	3460	250		6010
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	41	250	4070	250		4570
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 13	1838	813			2651
	12	L5	4 X 1	4788	394			5182
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	394			2182
	16	L10	4 X 8	1788	813			2601
	12	L11	4 X 7	3484	250			3734
	16	L12	4 X 11	3484	250			3734
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	144	786	144		1074
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X 40	204	419	295	410	1328
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	24 X 4	1071	120			1191
	12	ST15	4 X 4	15985				15985
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ⩾ 30 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

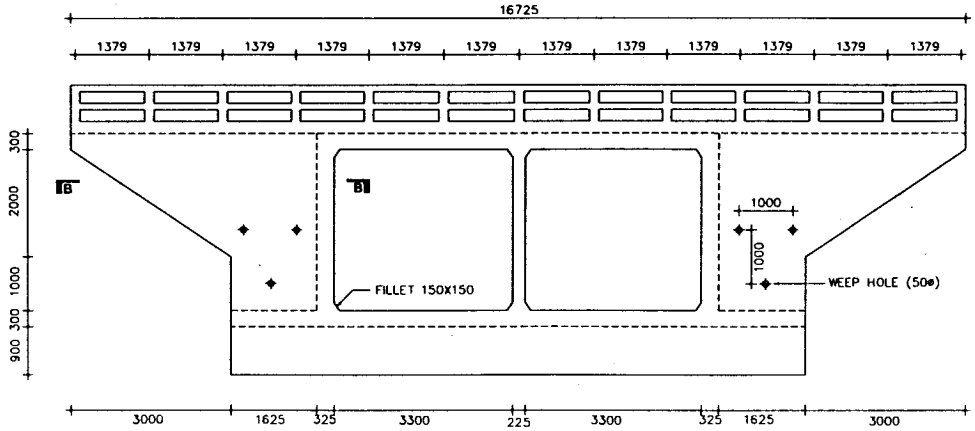
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2130302

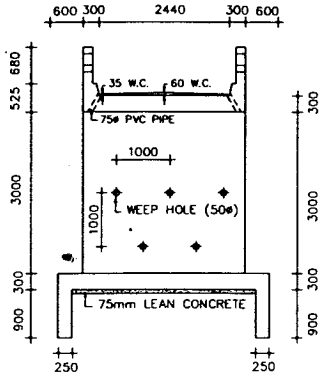
Web Copy

BC-186

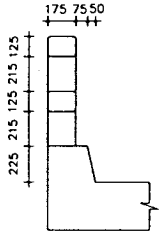
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.0m



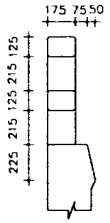
GENERAL ELEVATION



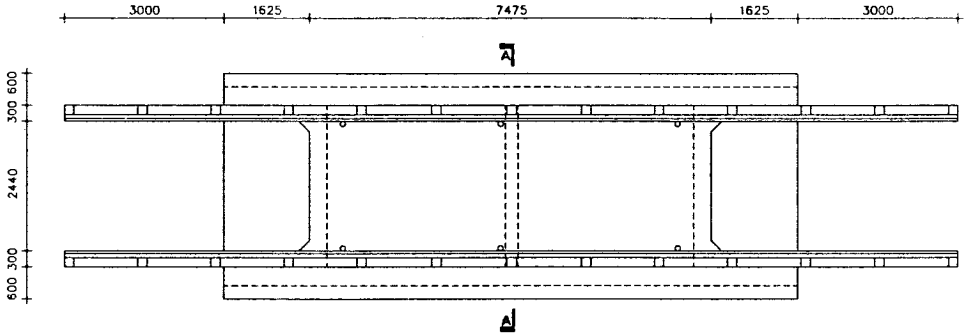
SECTION A-A



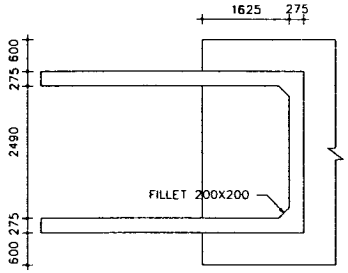
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

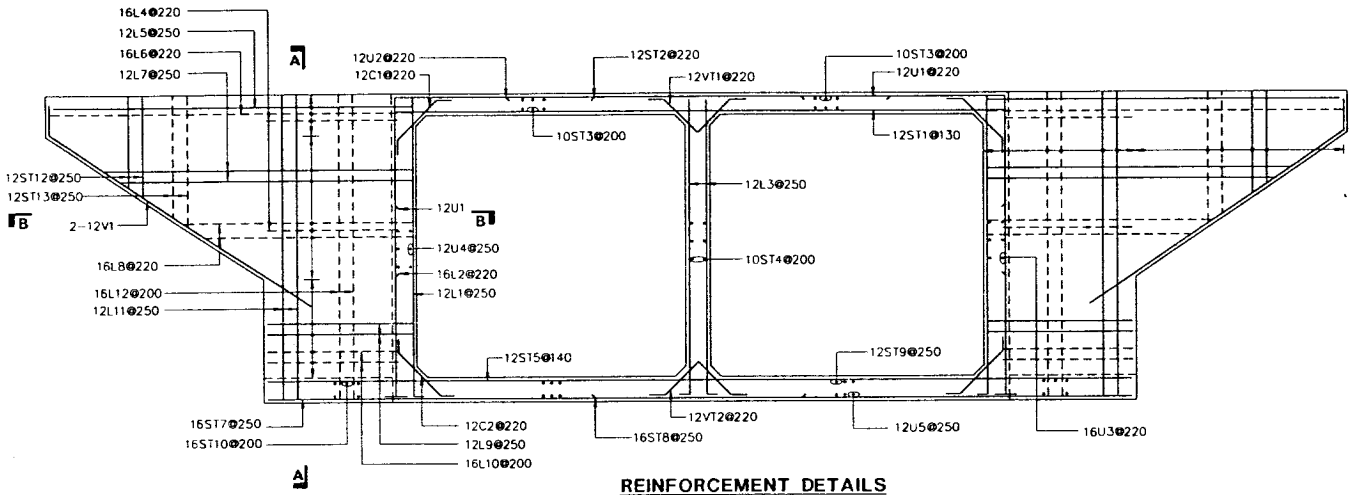
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 2.44m

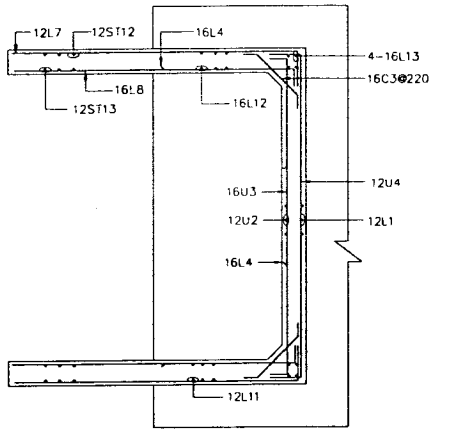
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2133301	

Web Copy

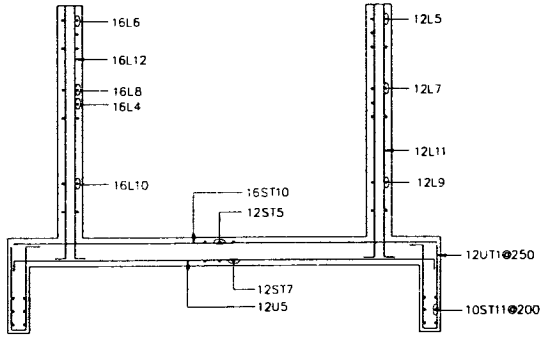
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 3.0m



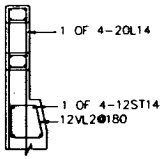
REINFORCEMENT DETAILS



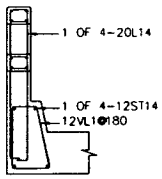
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



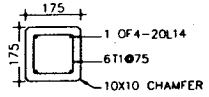
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

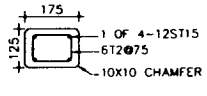
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	24	7375				7375
	12	ST2	14	2425				2425
	10	ST3	2 X 38	2940				2940
	10	ST4	2 X 15	2940				2940
	12	ST5	31	10625				10625
	16	ST7	18	10625				10625
	16	ST8	17	2425				2425
	12	ST9	31	4140				4140
	16	ST10	2 X 7	4140				4140
	12	C1	2 X 15	144	797	144		1085
	12	C2	2 X 15	144	769	144		1057
	12	VT1	15	2 X 150	2 X 607			1514
	12	VT2	15	2 X 150	2 X 602			1504
	12	L1	2 X 9	3482	250			3732
	16	L2	2 X 13	1238	250			1488
	12	L3	2 X 13	3482	250			3732
	16	L13	4 X 4	3482	250			3732
	12	U1	15	1260	7375	1260		9895
	12	U2	2 X 15	1375	3510	250		6260
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	44	250	4070	250		4570
	10	ST11	4 X 5	10575				10575
	12	UT1	2 X 44	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 12	1888	813			2701
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	813			2651
	12	L11	4 X 7	3534	250			3784
	16	L12	4 X 11	3534	250			3784
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	16675				16675
	12	VL1	2 X 43	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	16685				16685
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

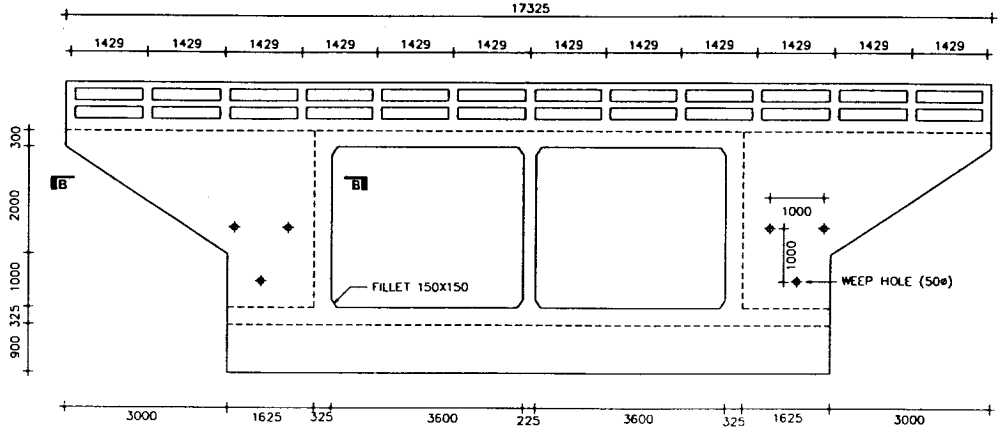
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2133302

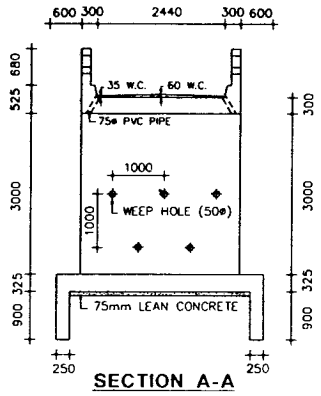
Web Copy

BC-188

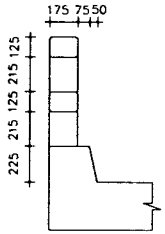
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.0m



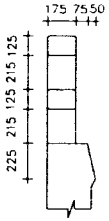
GENERAL ELEVATION



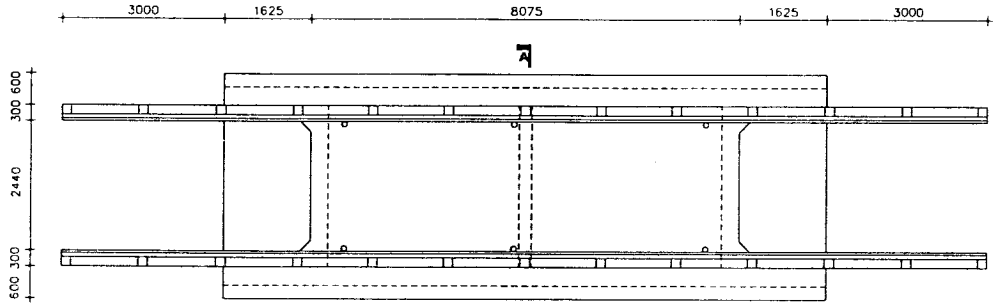
SECTION A-A



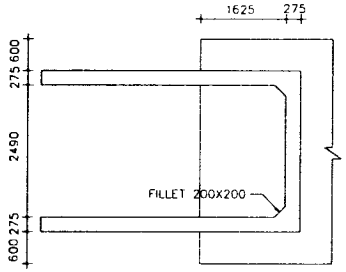
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

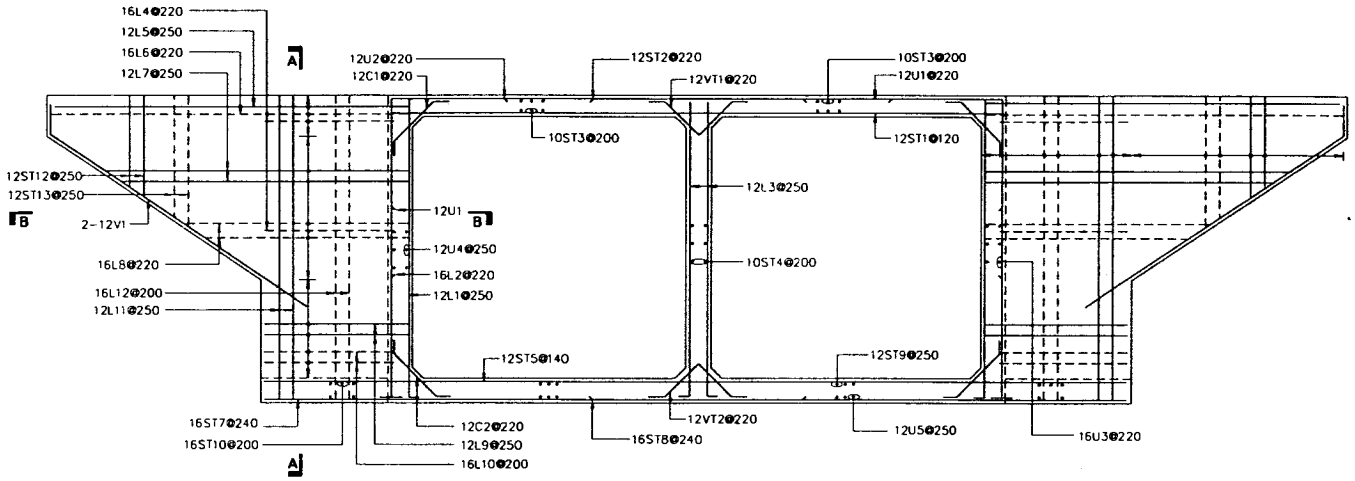
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2136301	

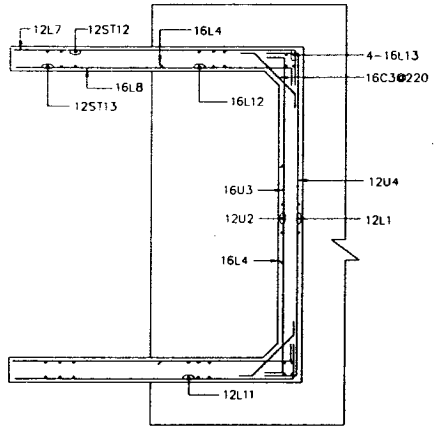
Web Copy

BC-189

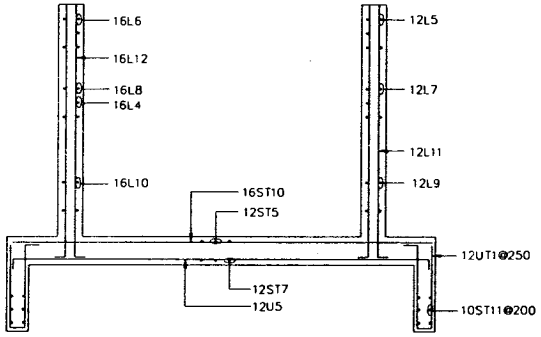
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.0m



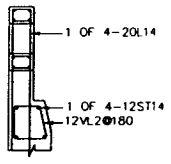
REINFORCEMENT DETAILS



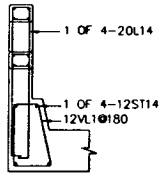
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



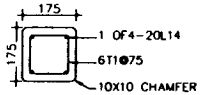
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

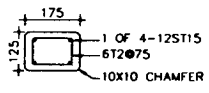
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	7975				7975
	12	ST2	14	2625				2625
	10	ST3	2 X 41	2940				2940
	10	ST4	2 X 15	2940				2940
	12	ST5	31	11225				11225
	16	ST7	19	11225				11225
	16	ST8	18	2625				2625
	12	ST9	34	4140				4140
	16	ST10	2 X 7	4140				4140
	12	C1	2 X 15	144	797	144		1085
	12	C2	2 X 15	144	804	144		1092
	12	VT1	15	2 X 150	2 X 607			1514
	12	VT2	15	2 X 150	2 X 637			1574
	12	L1	2 X 9	3507	250			3757
	16	L2	2 X 13	1263	250			1513
	12	L3	2 X 13	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	12	U1	15	1260	7975	1260		10495
	12	U2	2 X 15	1475	3535	250		6485
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	46	250	4070	250		4570
	10	ST11	4 X 5	11175				11175
	12	UT1	2 X 46	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	813			2701
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	813			2651
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17275				17275
	12	VL1	2 X 46	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	17285				17285
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

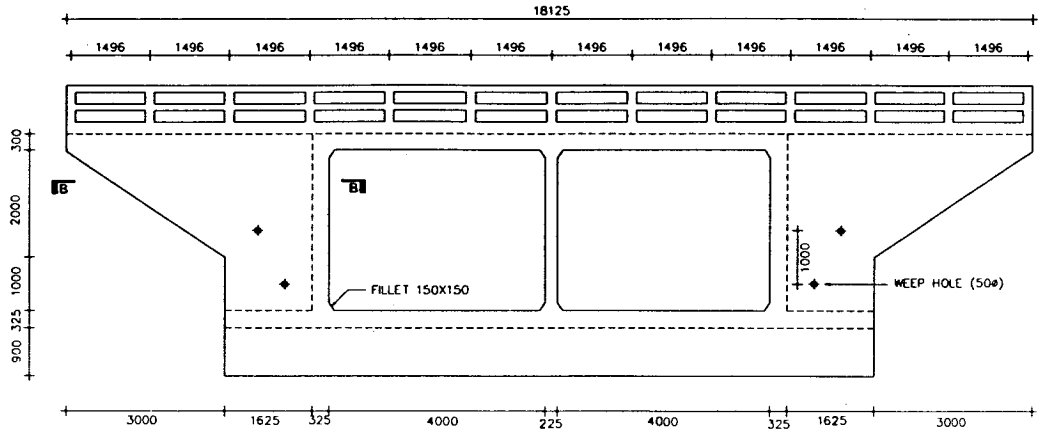
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2136302	

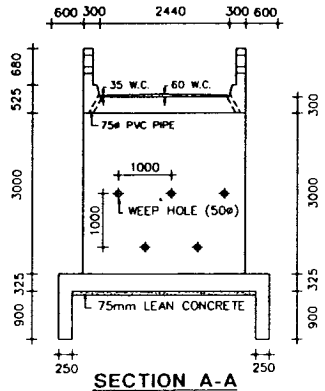
Web Copy

BC-190

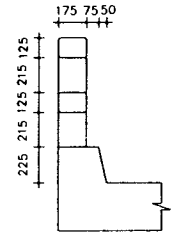
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.0m



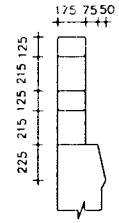
GENERAL ELEVATION



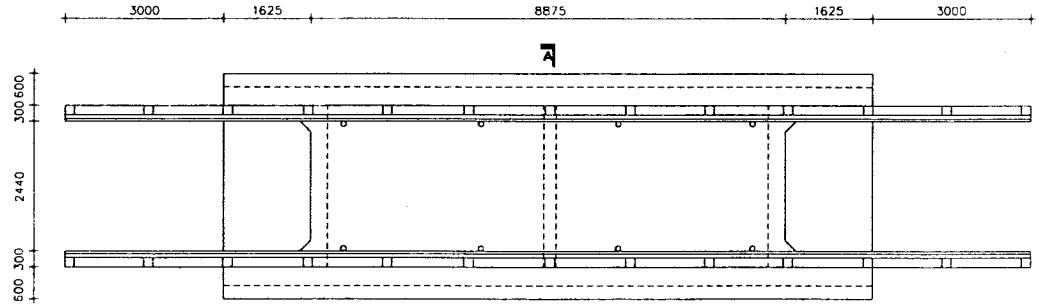
SECTION A-A



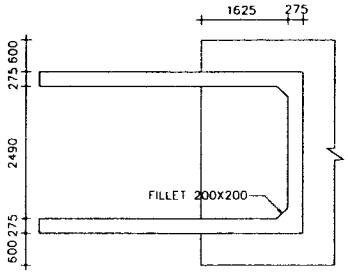
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 2.44m

DATE :

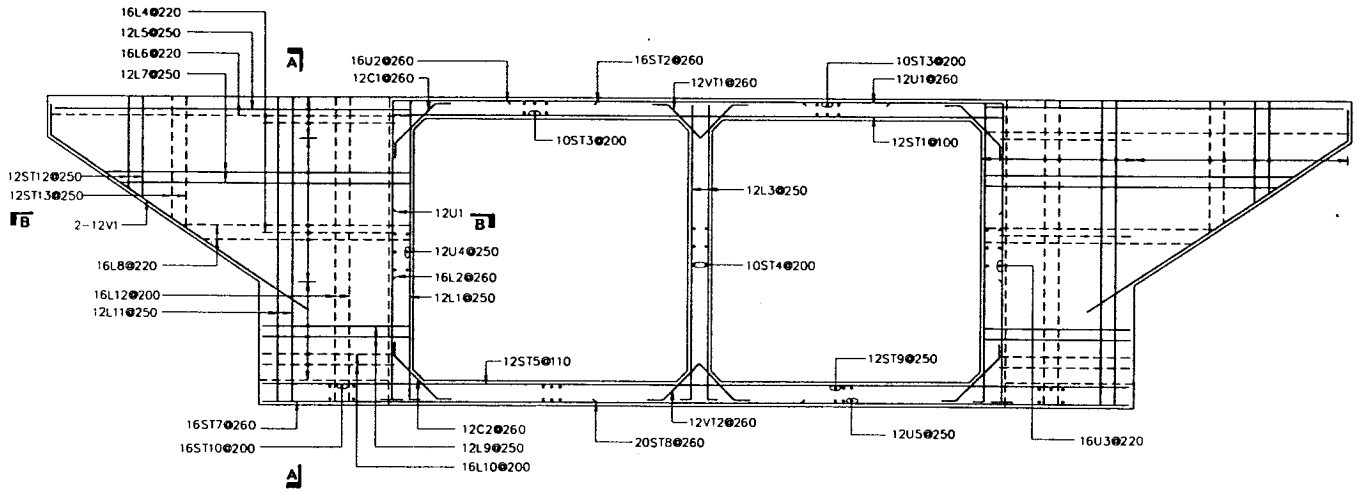
ISSUED BY :

CAD FILE REF : CULV\B2140301

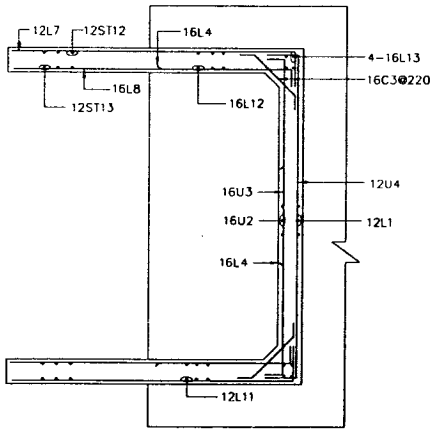
Web Copy

BC-191

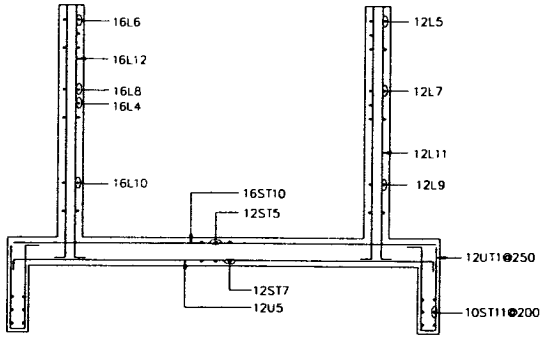
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.0m



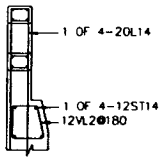
REINFORCEMENT DETAILS



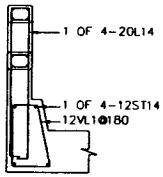
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



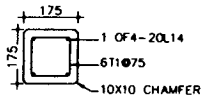
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

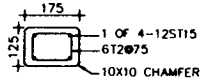
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	12	ST1	31	8775				8775
	16	ST2	12	2891				2891
	10	ST3	2 X 45	2940				2940
	10	ST4	2 X 15	2940				2940
	12	ST5	39	12025				12025
	16	ST7	17	12025				12025
	20	ST8	16	2891				2891
	12	ST9	37	4140				4140
	16	ST10	2 X 7	4140				4140
	12	C1	2 X 13	144	786	144		1074
	12	C2	2 X 13	144	804	144		1092
	12	VT1	13	2 X 150	2 X 602			1504
	12	VT2	13	2 X 150	2 X 637			1574
	12	L1	2 X 9	3507	250			3757
	16	L2	2 X 11	1263	250			1513
	12	L3	2 X 13	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	12	U1	13	1260	8775	1260		11295
	16	U2	2 X 13	1608	3535	250		6751
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	50	250	4070	250		4570
	10	ST11	4 X 5	11975				11975
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	813			2701
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	813			2651
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	18075				18075
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	18085				18085
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 36 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

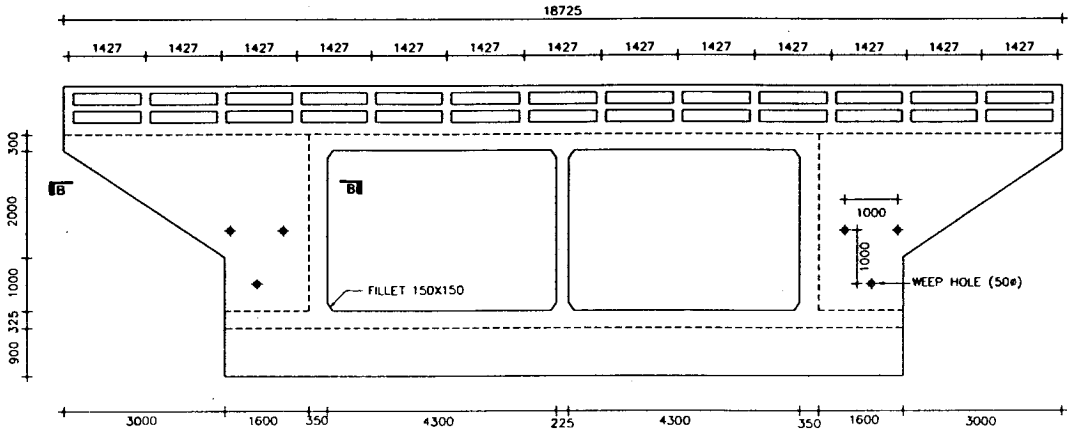
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2140302

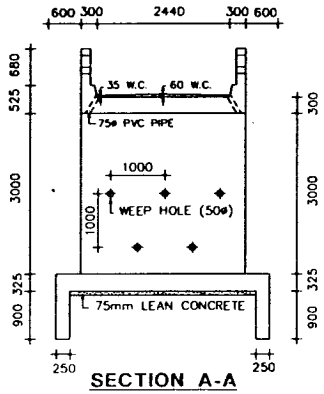
Web Copy

BC-192

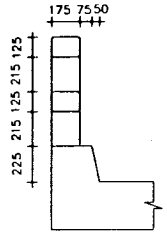
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.0m



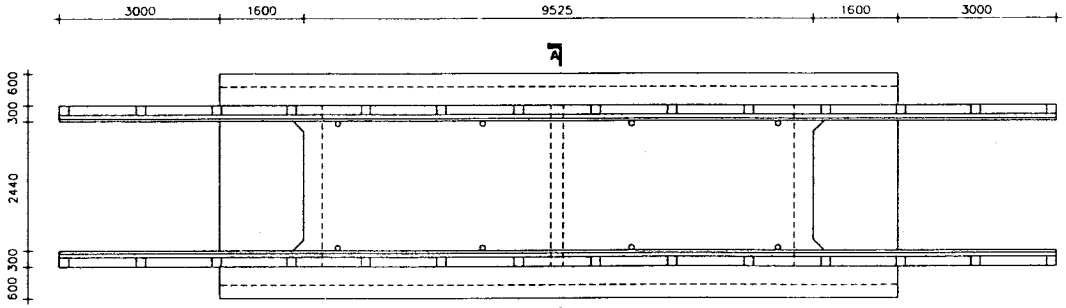
GENERAL ELEVATION



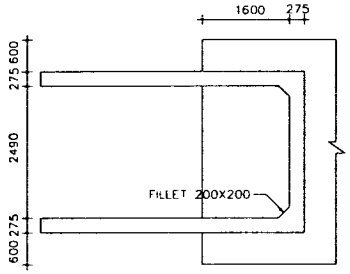
SECTION A-A



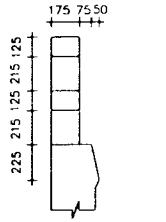
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

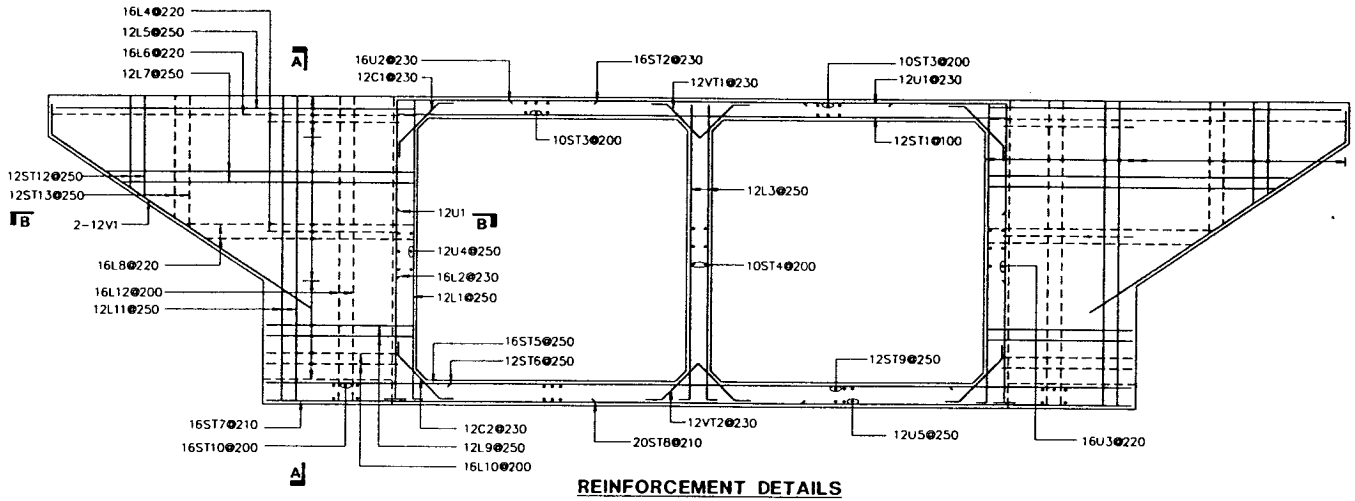
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2143301	

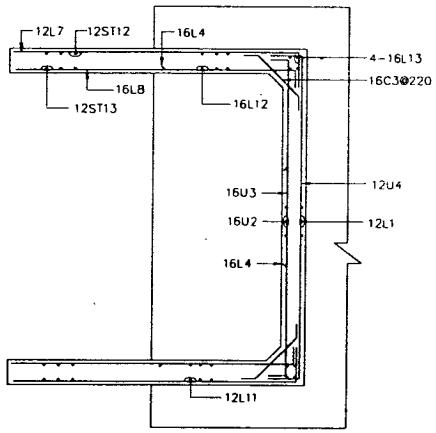
Web Copy

BC-193

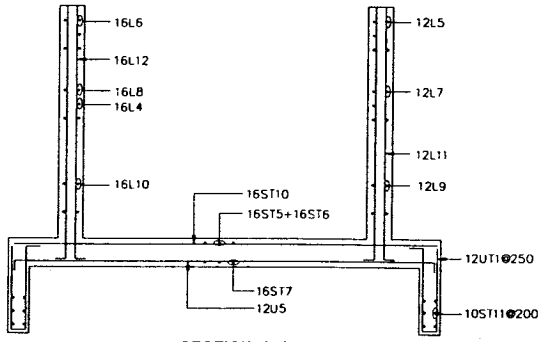
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.0m



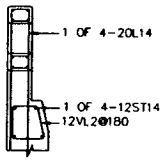
REINFORCEMENT DETAILS



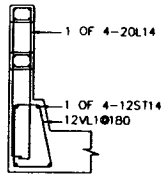
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



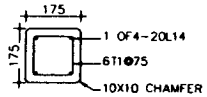
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

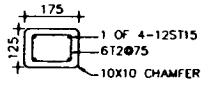
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	18	9425				9425
	16	ST2	13	3091				3091
	10	ST3	2 X 49	2940				2940
	10	ST4	2 X 15	2940				2940
	16	ST5	18	12625				12625
	12	ST6	17	6675				6675
	16	ST7	21	12625				12625
	20	ST8	20	3091				3091
	12	ST9	40	4140				4140
	16	ST10	2 X 7	4140				4140
	12	C1	2 X 14	144	821	144		1109
	12	C2	2 X 14	144	840	144		1128
	12	VT1	14	2 X 150	2 X 602			1504
	12	VT2	14	2 X 150	2 X 620			1540
	12	L1	2 X 9	3507	250			3757
	16	L2	2 X 12	1263	250			1513
	12	L3	2 X 13	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	12	U1	14	1260	9425	1260		11945
	16	U2	2 X 14	1733	3535	250		7001
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	494	2940	494		3928
	12	U5	52	250	4070	250		4570
	10	ST11	4 X 5	12575				12575
	12	UT1	2 X 52	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	813			2701
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	813			2651
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18675				18675
	12	VL1	2 X 54	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18685				18685
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

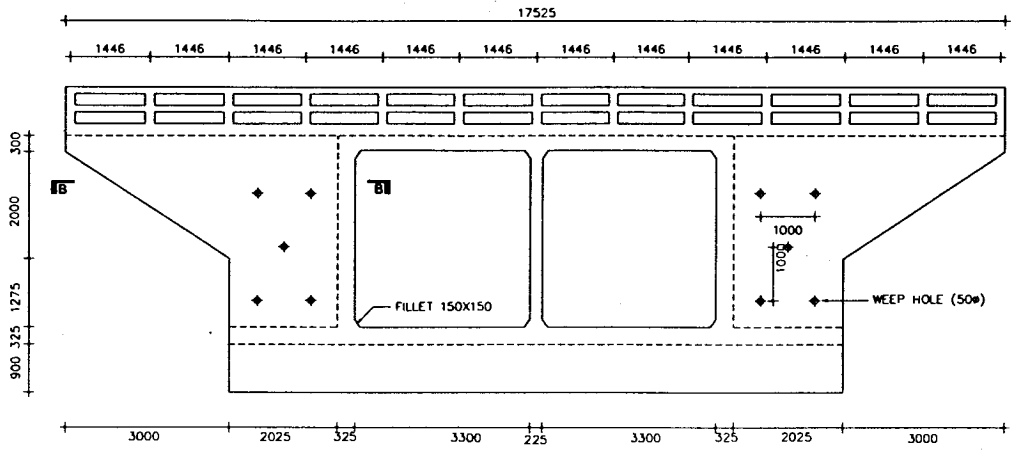
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2143302	

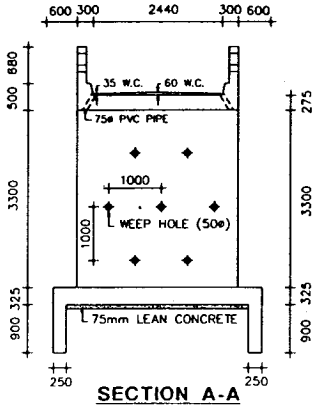
Web Copy

BC-194

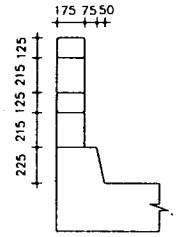
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.3m



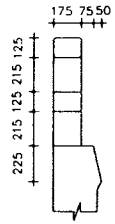
GENERAL ELEVATION



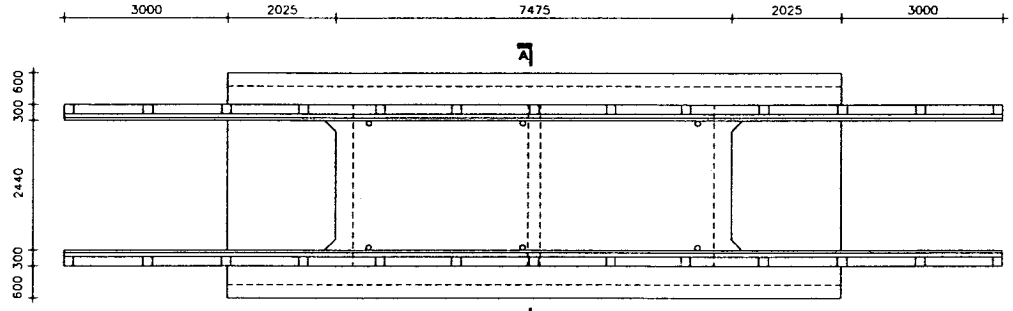
SECTION A-A



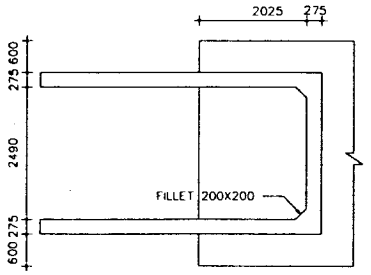
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

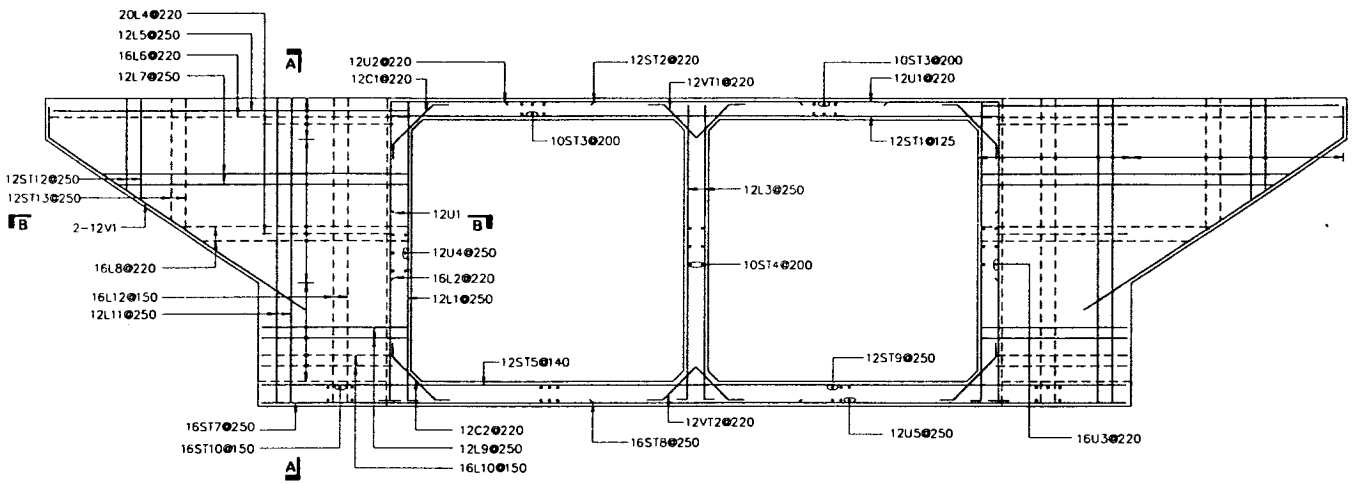
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 3.3m ROADWAY 2.44m

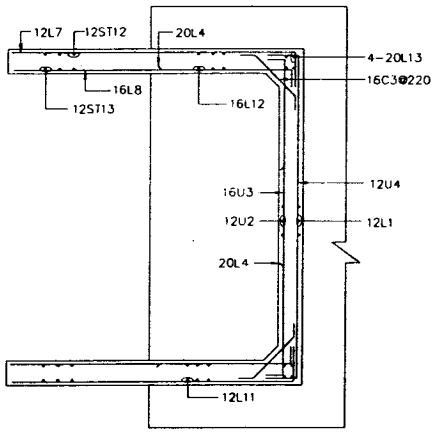
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2133331	

Web Copy

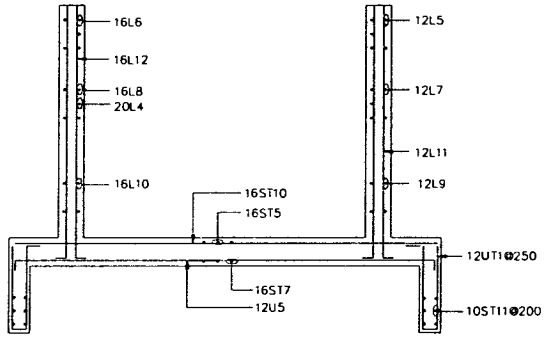
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 3.3m



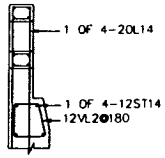
REINFORCEMENT DETAILS



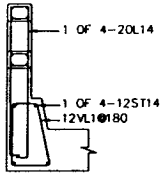
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



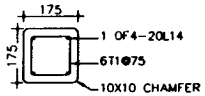
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

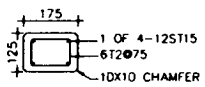
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	25	7375				7375
	12	ST2	14	2425				2425
	10	ST3	2 X 38	2940				2940
	10	ST4	2 X 16	2940				2940
	12	ST5	31	11425				11425
	16	ST7	18	11425				11425
	16	ST8	17	2425				2425
	12	ST9	31	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 15	144	762	144		1050
	12	C2	2 X 15	144	804	144		1092
	12	VT1	15	2 X 150	2 X 572			1444
	12	VT2	15	2 X 150	2 X 637			1574
	12	L1	2 X 9	3782	250			4032
	16	L2	2 X 13	1363	250			1613
	12	L3	2 X 13	3782	250			4032
	20	L13	4 X 4	3782	250			4032
	12	U1	15	1335	7375	1335		10045
	12	U2	2 X 15	1375	3810	250		6560
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	469	2940	469		3878
	12	U5	47	250	4070	250		4570
	10	ST11	4 X 5	11375				11375
	12	UT1	2 X 47	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2288	813			3101
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5029 To 2238 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	813			3051
	12	L11	4 X 8	3834	250			4084
	16	L12	4 X 14	3834	250			4084
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17475				17475
	12	VL1	2 X 43	204	445	300	435	1384
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	26 X 4	1096	120			1216
	12	ST15	4 X 4	17485				17485
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 43 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\SD000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

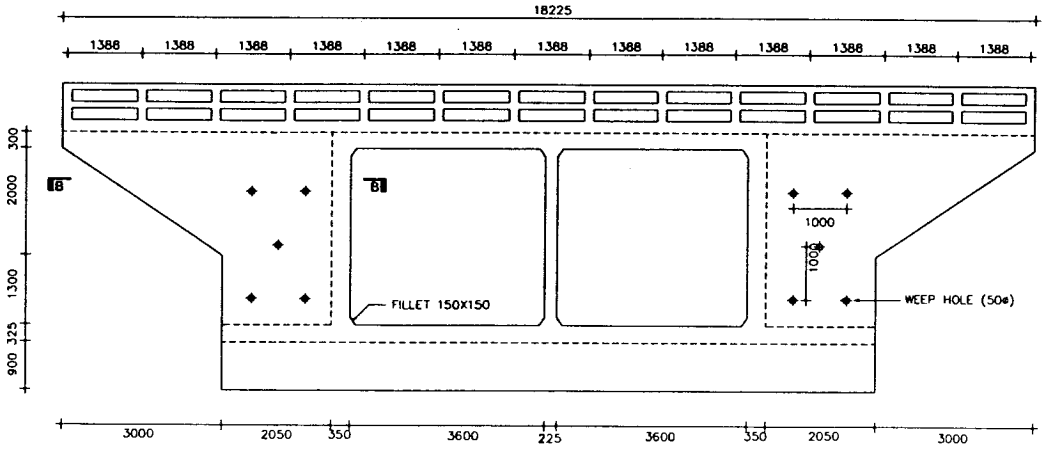
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2133332

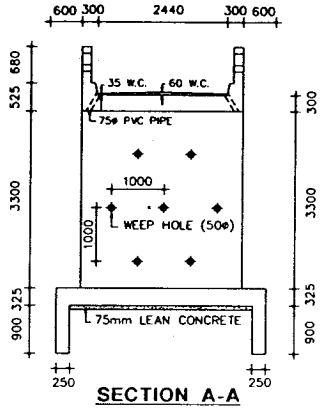
Web Copy

BC-196

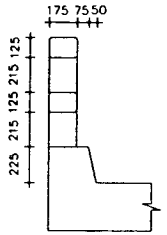
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.3m



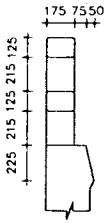
GENERAL ELEVATION



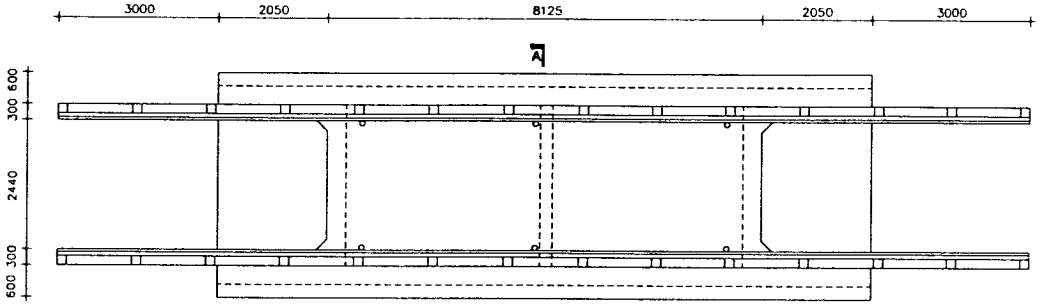
SECTION A-A



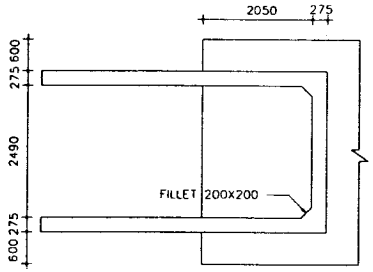
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

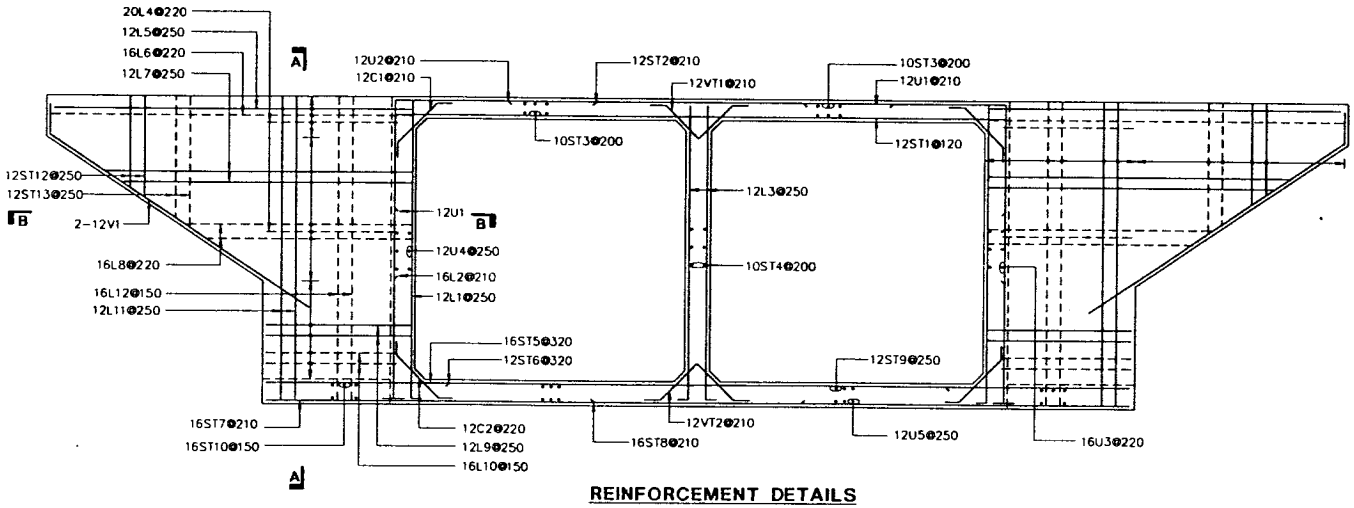
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 2.44m

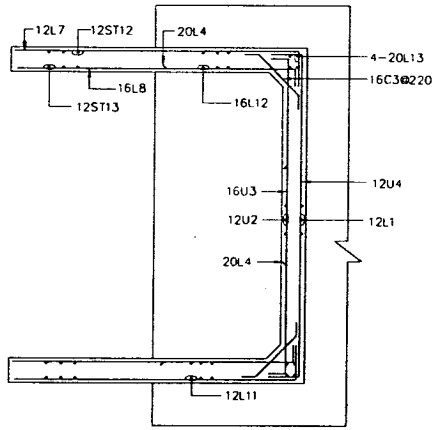
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2136331	

Web Copy

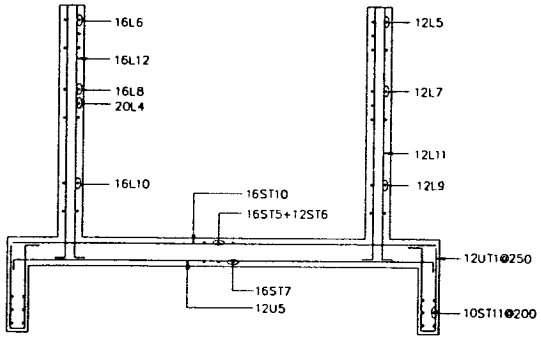
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.3m



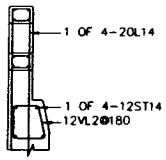
REINFORCEMENT DETAILS



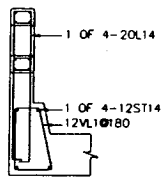
SECTION B-B



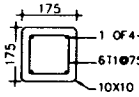
SECTION A-A



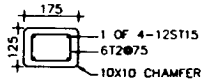
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	12	ST1	26	8025				8025
	12	ST2	14	2625				2625
	10	ST3	2 X 42	2940				2940
	10	ST4	2 X 16	2940				2940
	16	ST5	14	12125				12125
	12	ST6	13	5625				5625
	16	ST7	21	12125				12125
	16	ST8	20	2625				2625
APPRON	12	ST9	34	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 15	144	833	144		1121
	12	C2	2 X 15	144	840	144		1128
&	12	VT1	15	2 X 150	2 X 607			1514
	12	VT2	15	2 X 150	2 X 620			1540
	12	L1	2 X 9	3807	250			4057
	16	L2	2 X 13	1363	250			1613
	12	L3	2 X 13	3807	250			4057
	20	L13	4 X 4	3807	250			4057
CUTOFF	12	U1	15	1360	8025	1360		10745
	12	U2	2 X 15	1500	3835	250		6835
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	50	250	4070	250		4570
	10	ST11	4 X 5	12075				12075
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING	20	L4	4 X 12	2338	813			3151
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	813			3101
	12	L11	4 X 8	3859	250			4109
WALL	16	L12	4 X 14	3859	250			4109
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18175				18175
	12	VL1	2 X 47	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18185				18185
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

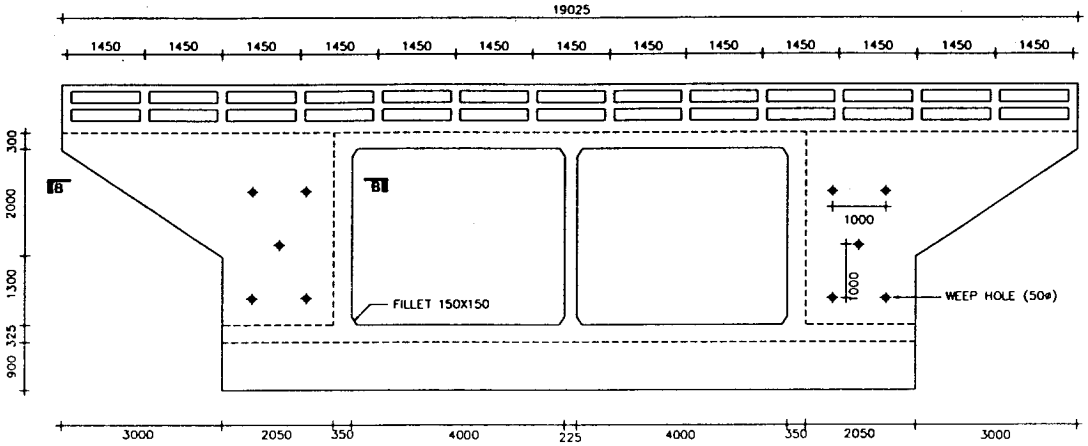
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2136332

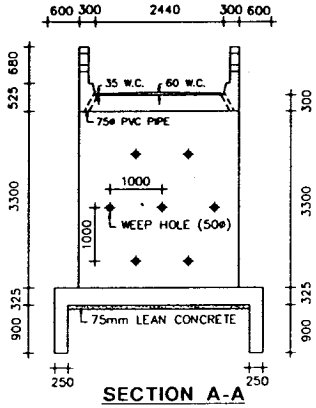
Web Copy

BC-198

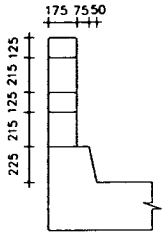
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.3m



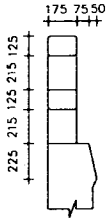
GENERAL ELEVATION



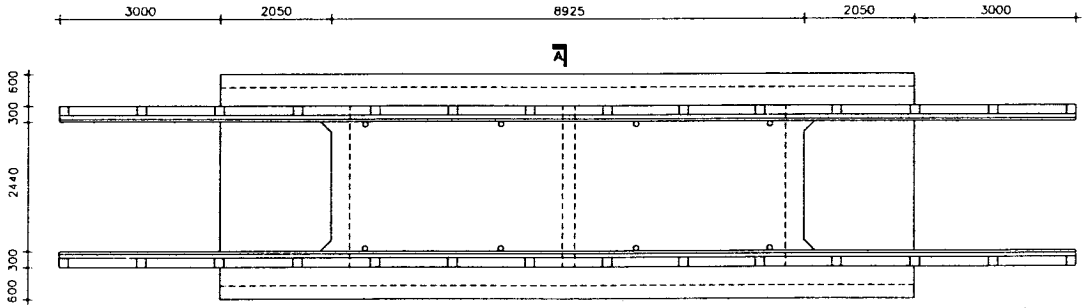
SECTION A-A



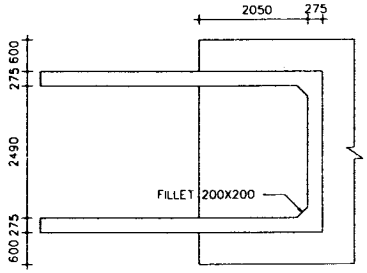
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

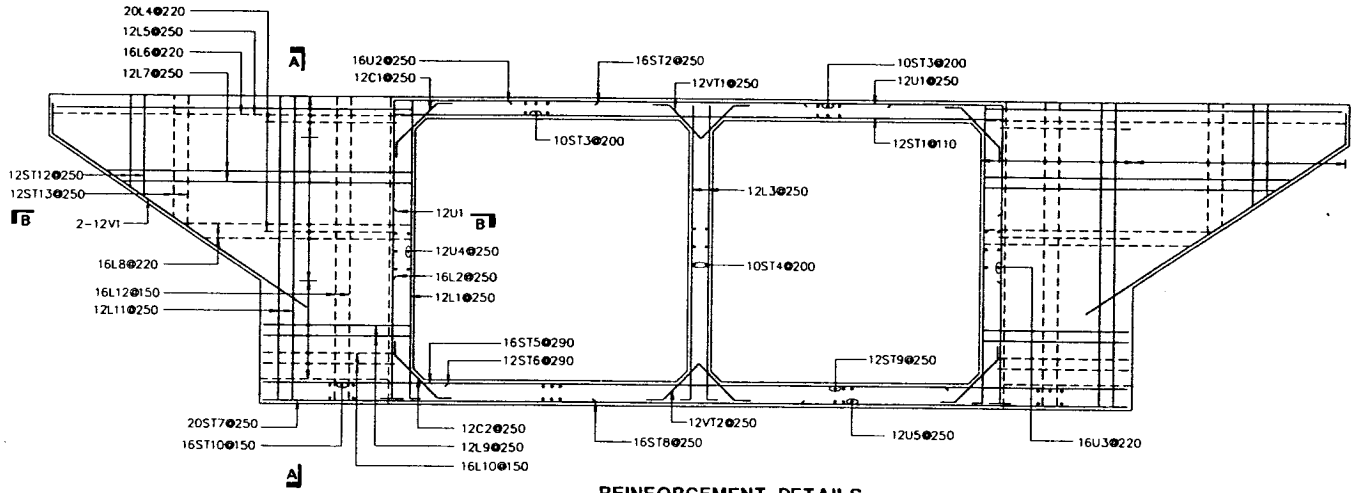
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2140331	

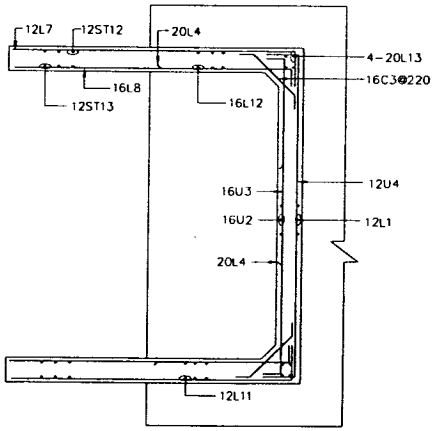
Web Copy

BC-199

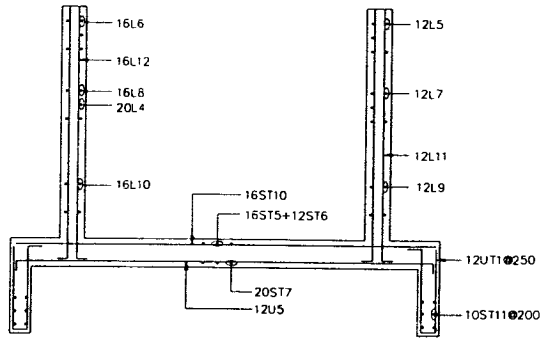
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.3m



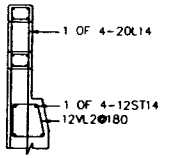
REINFORCEMENT DETAILS



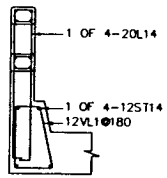
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



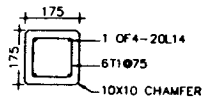
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

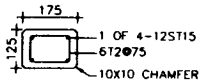
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	8825				8825
	16	ST2	12	2891				2891
	10	ST3	2 X 46	2940				2940
	10	ST4	2 X 16	2940				2940
	16	ST5	16	12925				12925
	12	ST6	15	6225				6225
	20	ST7	18	12925				12925
	16	ST8	17	2891				2891
	12	ST9	37	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 13	144	821	144		1109
	12	C2	2 X 13	144	834	144		1122
	12	VT1	13	2 X 150	2 X 620			1504
	12	VT2	13	2 X 150	2 X 614			1528
	12	L1	2 X 9	3803	250			4053
	16	L2	2 X 11	1363	250			1613
	12	L3	2 X 13	3803	250			4053
	20	L13	4 X 4	3803	250			4053
	12	U1	13	1360	8825	1360		11545
	16	U2	2 X 13	1633	3835	250		7101
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	53	250	4070	250		4570
	10	ST11	4 X 5	12875				12875
	12	UT1	2 X 53	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2338	813			3151
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	813			3101
	12	L11	4 X 8	3855	250			4105
	16	L12	4 X 14	3855	250			4105
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST14	2 X 4	18975				18975
CURB AND RAILING	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18985				18985
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shope Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 2.44m

DATE :

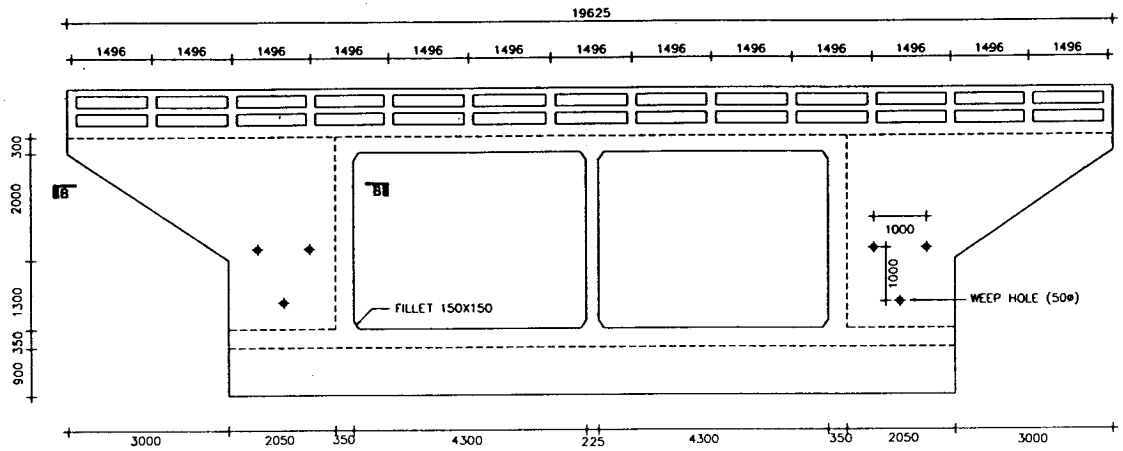
ISSUED BY :

CAD FILE REF : CULV\B2140332

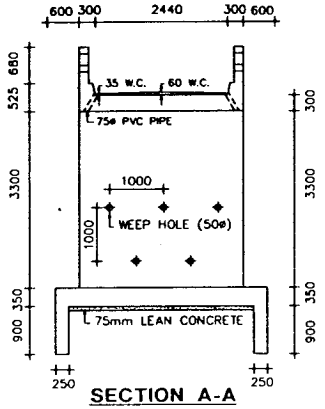
Web Copy

BC-200

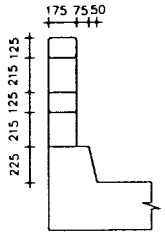
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.3m



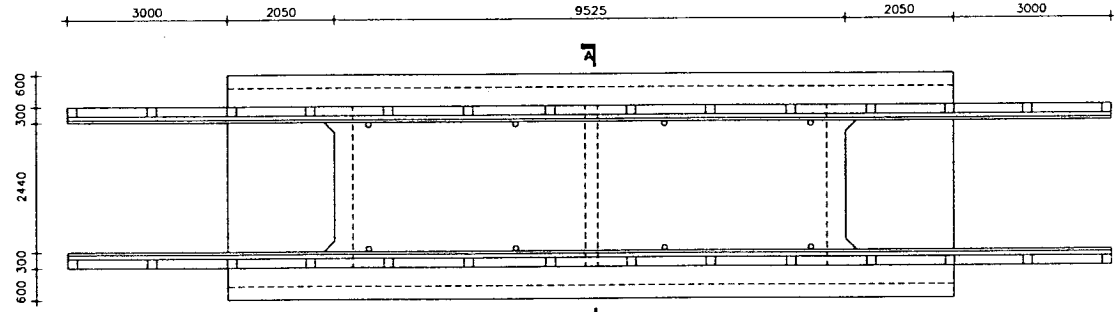
GENERAL ELEVATION



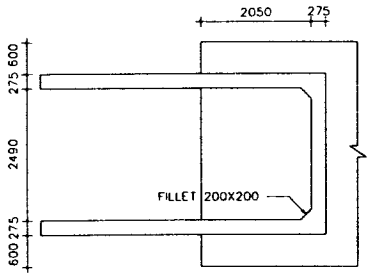
SECTION A-A



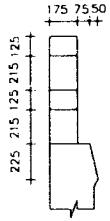
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

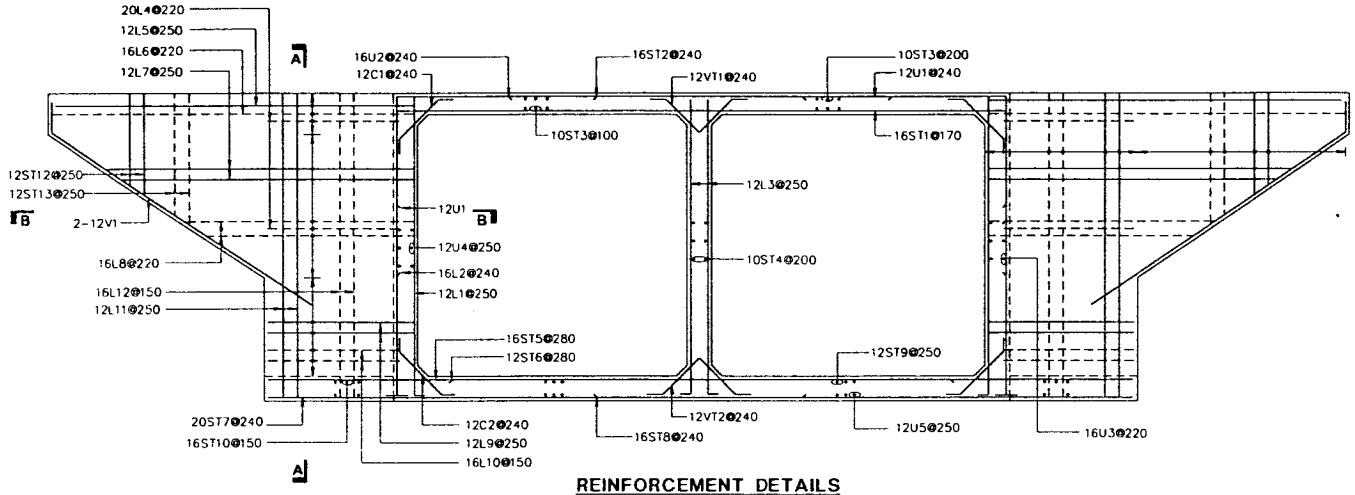
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 2.44m

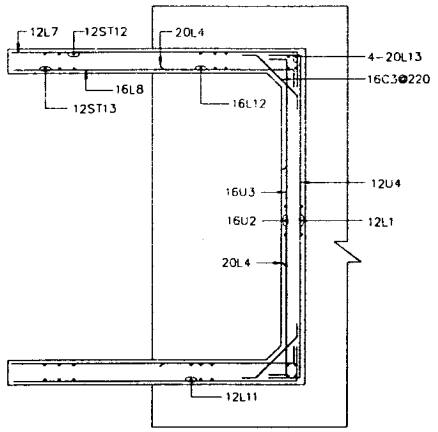
DATE :	ISSUED BY :
CAD FILE REF : CULV\82143331	

Web Copy

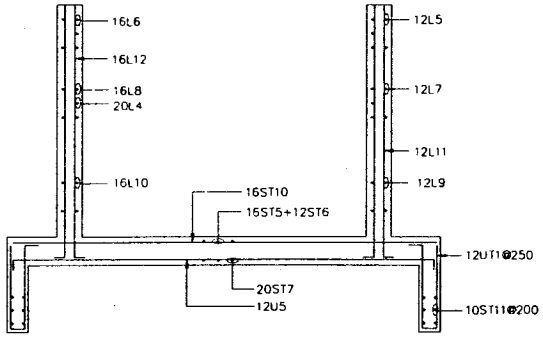
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.3m



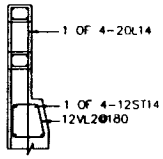
REINFORCEMENT DETAILS



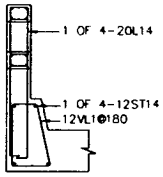
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



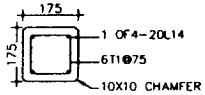
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

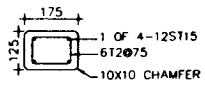
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	18	9425				9425
	16	ST2	13	3091				3091
	10	ST3	2 X 49	2940				2940
	10	ST4	2 X 16	2940				2940
	16	ST5	16	13525				13525
	12	ST6	15	6675				6675
	20	ST7	19	13525				13525
	16	ST8	18	3091				3091
APPRON & CUTOFF	12	ST9	40	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 14	144	821	144		1109
	12	C2	2 X 14	144	870	144		1158
	12	VT1	14	2 X 150	2 X 602			1504
	12	VT2	14	2 X 150	2 X 650			1600
	12	L1	2 X 9	3828	250			4078
	16	L2	2 X 12	1388	250			1638
	12	L3	2 X 13	3828	250			4078
	20	L13	4 X 4	3828	250			4078
	12	U1	14	1360	9425	1360		12145
	16	U2	2 X 14	1733	3860	250		7326
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	56	250	4070	250		4570
	10	ST11	4 X 5	13475				13475
	12	UT1	2 X 56	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 12	2338	813			3151
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 3678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	813			3101
	12	L11	4 X 8	3880	250			4130
	16	L12	4 X 14	3880	250			4130
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19575				19575
	12	VL1	2 X 54	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	19585				19585
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

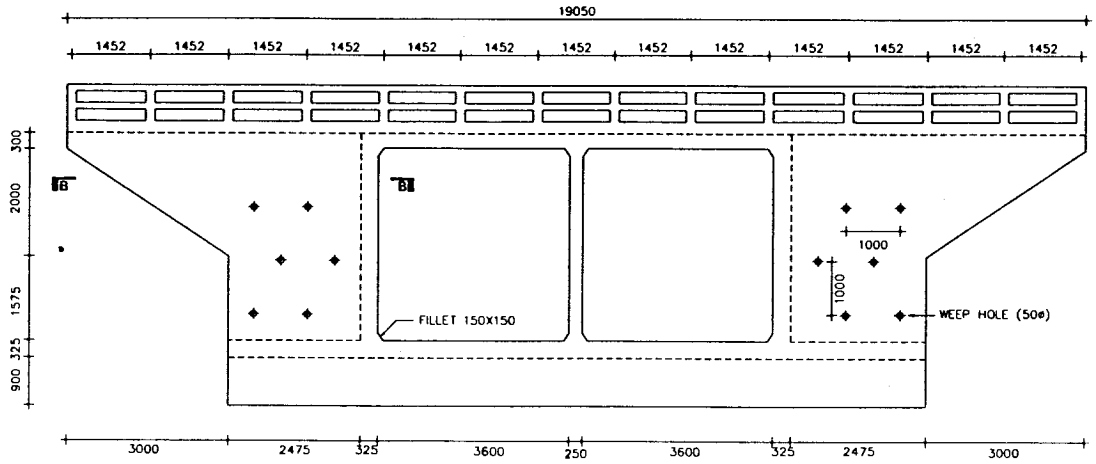
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2143332

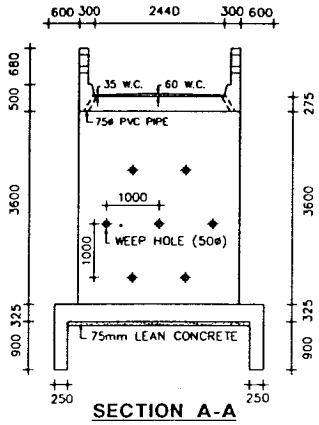
Web Copy

BC–202

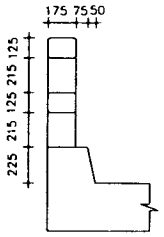
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.6m



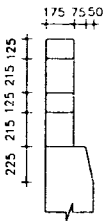
GENERAL ELEVATION



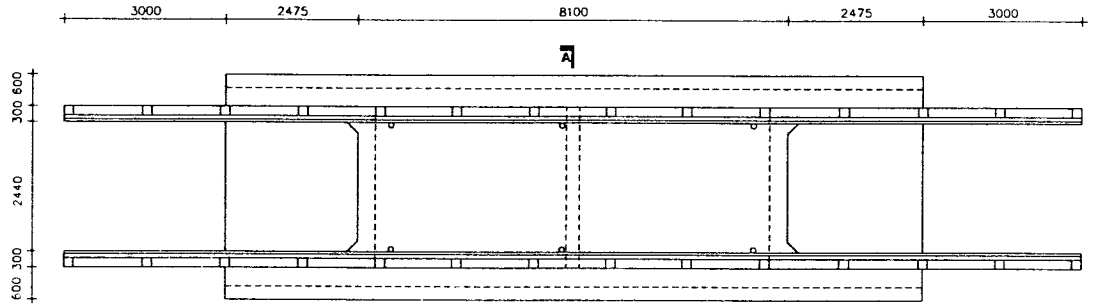
SECTION A-A



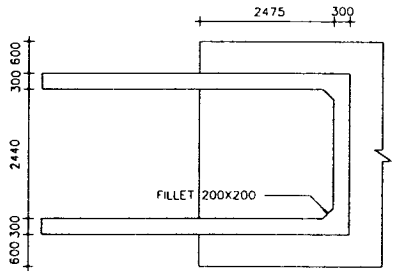
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

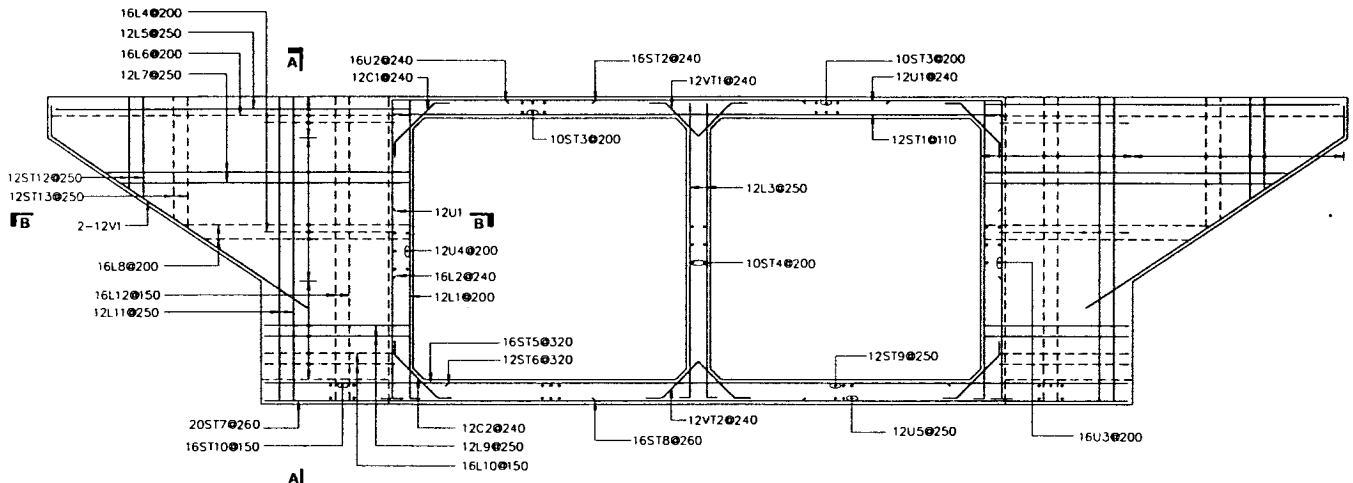
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 2.44m

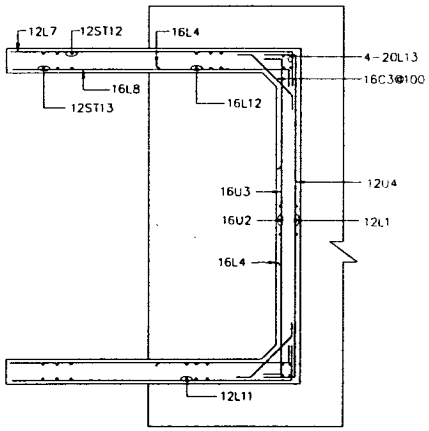
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2136361	

Web Copy

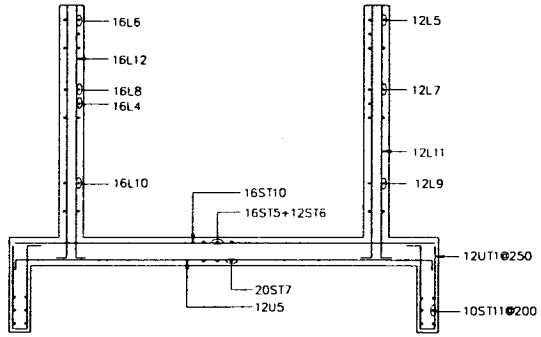
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.6m



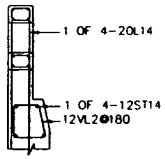
REINFORCEMENT DETAILS



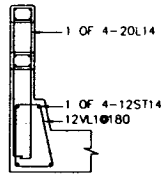
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



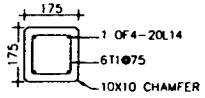
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

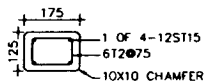
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	8000				8000
	16	ST2	13	2650				2650
	10	ST3	2 X 41	2940				2940
	10	ST4	2 X 18	2940				2940
	16	ST5	14	12950				12950
	12	ST6	13	5650				5650
	20	ST7	17	12950				12950
	16	ST8	16	2650				2650
	12	ST9	34	4140				4140
	16	ST10	2 X 10	4140				4140
	12	C1	2 X 14	144	751	144		1039
	12	C2	2 X 14	144	799	144		1087
	12	VT1	14	2 X 150	2 X 584			1468
	12	VT2	14	2 X 150	2 X 632			1564
	12	L1	2 X 12	4078	250			4328
	16	L2	2 X 12	1463	250			1713
	12	L3	2 X 13	4078	250			4328
	20	L13	4 X 4	4078	250			4328
	12	U1	14	1435	8000	1435		10870
	16	U2	2 X 14	1475	4110	250		7060
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 14	469	2940	469		3878
	12	U5	53	250	4070	250		4570
	10	ST11	4 X 5	12900				12900
	12	UT1	2 X 53	144	2 X 1100	100		2444
WING	16	L4	4 X 13	2738	813			3551
	12	L5	4 X 1	5688	444			6132
	16	L6	4 X 2	5688	250			5938
	12	L7	4 X 9	Var. 5659 To 2688 @ 371	444			Var. 6103 To 3132
	16	L8	4 X 11	Var. 5659 To 2688 @ 297	250			Var. 5909 To 2938
	12	L9	4 X 7	2688	444			3132
	16	L10	4 X 13	2688	813			3501
	12	L11	4 X 10	4130	250			4380
	16	L12	4 X 17	4130	250			4380
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19000				19000
	12	VL1	2 X 46	204	445	300	435	1384
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	19010				19010
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall- 75mm.
7) Bearing capacity of soil Should be $\geq$ 45 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

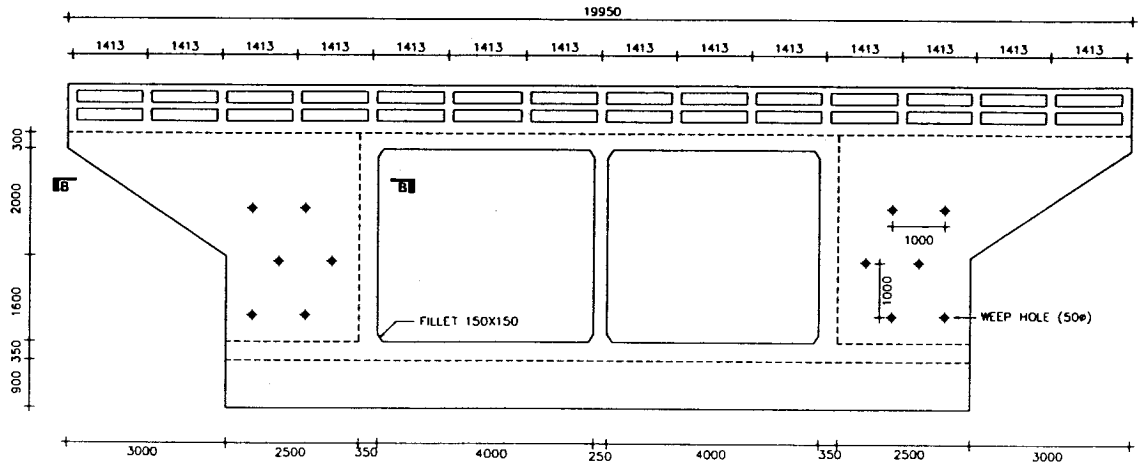
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2136362

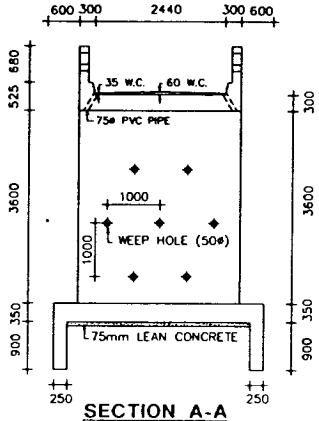
Web Copy

BC-204

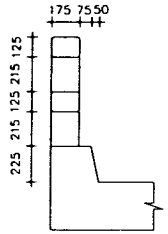
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.6m



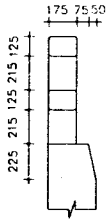
GENERAL ELEVATION



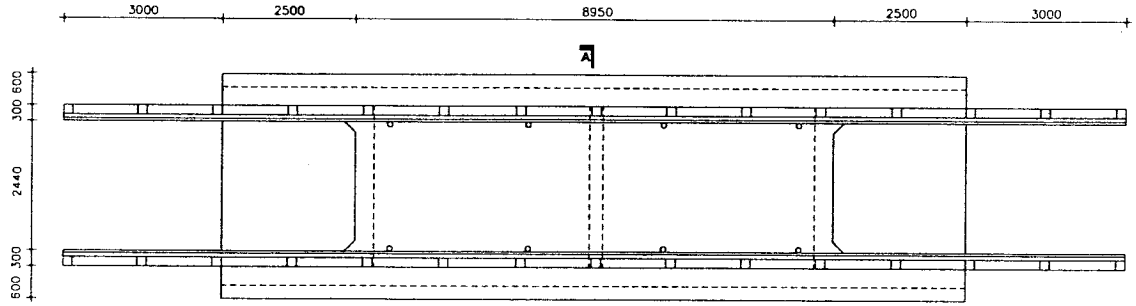
SECTION A-A



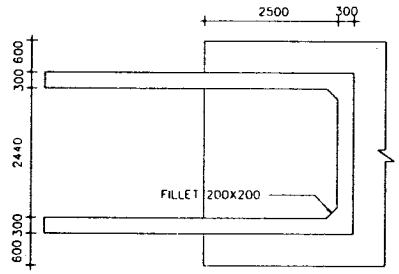
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

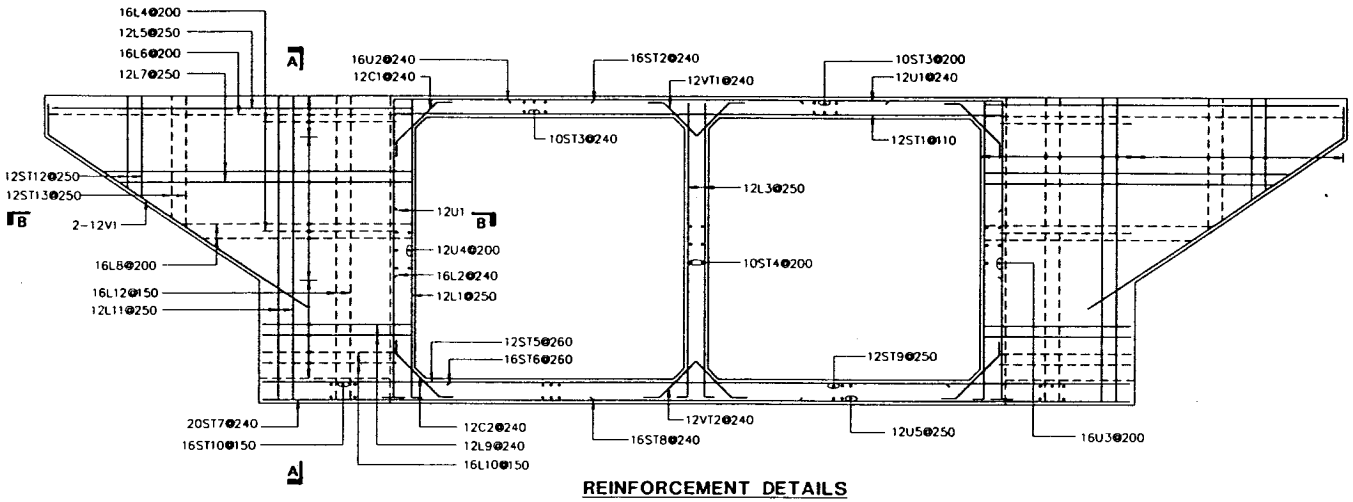
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.6m ROADWAY 2.44m

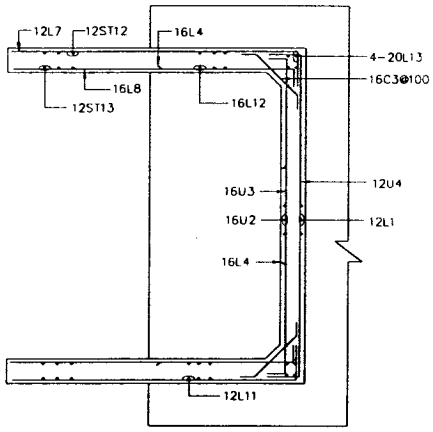
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2140361	

Web Copy

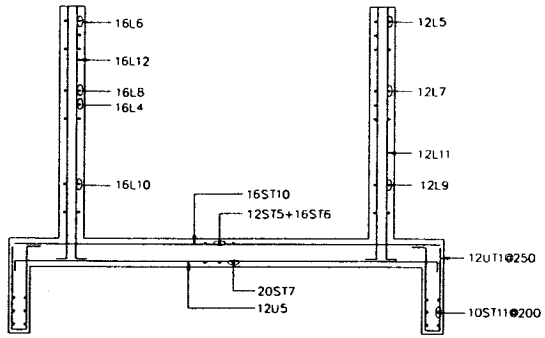
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.6m



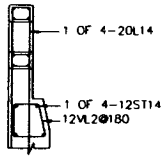
REINFORCEMENT DETAILS



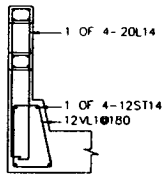
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



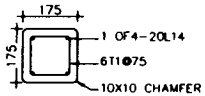
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

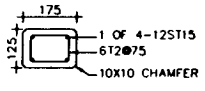
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	8850				8850
	16	ST2	13	2916				2916
	10	ST3	2 X 46	2940				2940
	10	ST4	2 X 18	2940				2940
	12	ST5	14	13850				13850
	16	ST6	13	6250				6250
	20	ST7	19	13850				13850
	16	ST8	18	2916				2916
	12	ST9	37	4140				4140
	16	ST10	2 X 10	4140				4140
	12	C1	2 X 14	144	821	144		1109
	12	C2	2 X 14	144	870	144		1158
	12	VT1	14	2 X 150	2 X 619			1538
	12	VT2	14	2 X 150	2 X 662			1624
	12	L1	2 X 9	4128	250			4378
	16	L2	2 X 12	1488	250			1738
	12	L3	2 X 13	4128	250			4378
	20	L13	4 X 4	4128	250			4378
	12	U1	14	1460	8850	1460		11770
	16	U2	2 X 14	1633	4160	250		7426
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 14	494	2940	494		3928
	12	U5	57	250	4070	250		4570
	10	ST11	4 X 5	13800				13800
	12	UT1	2 X 57	144	2 X 1125	100		2494
WING WALL	16	L4	4 X 13	2788	813			3601
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	813			3551
	12	L11	4 X 10	4180	250			4430
	16	L12	4 X 17	4180	250			4430
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	VT	4 X 2	4305	200			4505
	16	C3	4 X 40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	19900				19900
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	19910				19910
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.6m ROADWAY 2.44m

DATE :

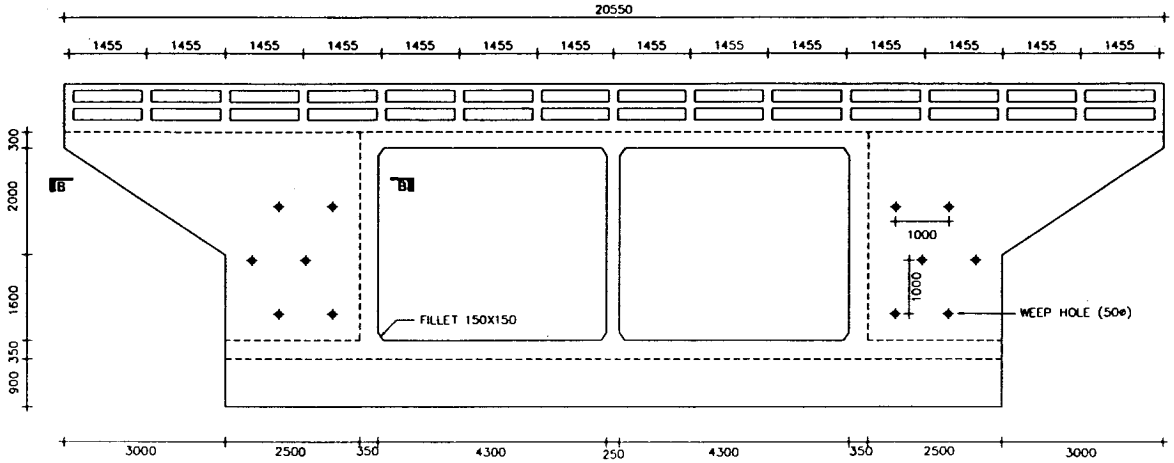
ISSUED BY :

CAD FILE REF : CULV\B2140362

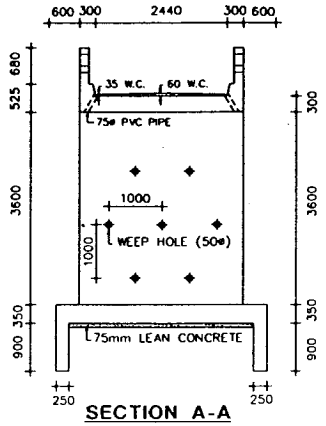
Web Copy

BC-206

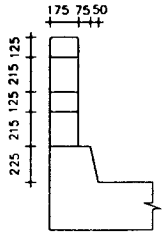
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.6m



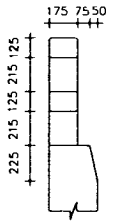
GENERAL ELEVATION



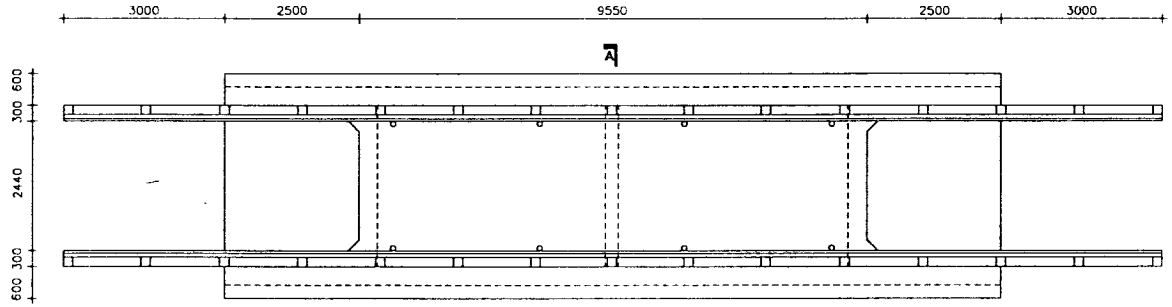
SECTION A-A



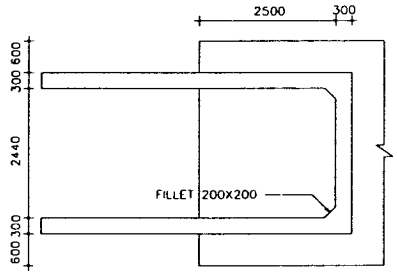
GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL



PLAN



SECTION B-B

LEGEND

WC = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

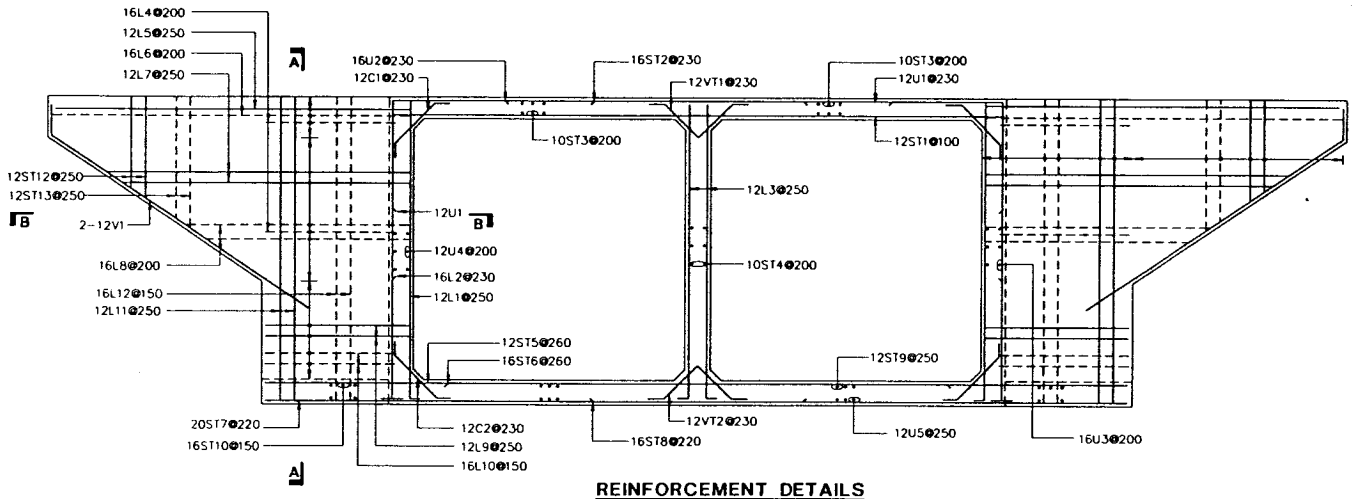
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 2.44m

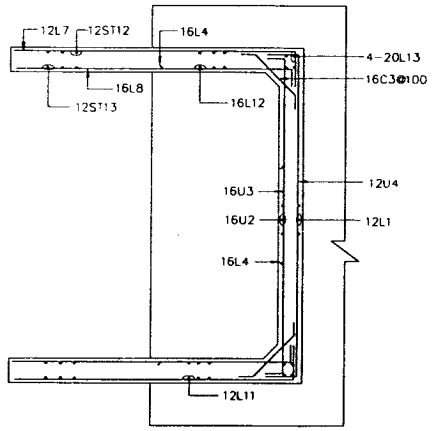
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2143361	

Web Copy

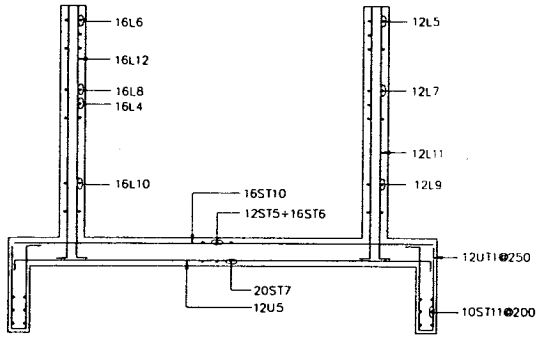
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.6m



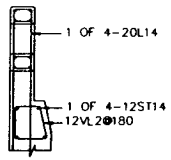
REINFORCEMENT DETAILS



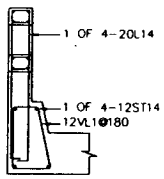
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



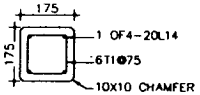
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

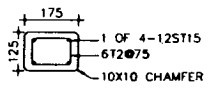
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	9450				9450
	16	ST2	13	3116				3116
	10	ST3	2 X 49	2940				2940
	10	ST4	2 X 18	2940				2940
	12	ST5	17	14450				14450
	16	ST6	16	6700				6700
	20	ST7	20	14450				14450
	16	ST8	19	3116				3116
	12	ST9	40	4140				4140
	16	ST10	2 X 10	4140				4140
	12	C1	2 X 14	144	821	144		1109
	12	C2	2 X 14	144	870	144		1158
	12	VT1	14	2 X 150	2 X 619			1538
	12	VT2	14	2 X 150	2 X 662			1624
	12	L1	2 X 9	4128	250			4378
	16	L2	2 X 12	1488	250			1738
	12	L3	2 X 13	4128	250			4378
	20	L13	4 X 4	4128	250			4378
	12	U1	14	1460	9450	1460		12370
	16	U2	2 X 14	1733	4160	250		7626
	16	U3	2 X 17	250	2940	250		3440
	12	U4	2 X 14	494	2940	494		3928
	12	U5	59	250	4070	250		4570
	10	ST11	4 X 5	14400				14400
	12	UT1	2 X 59	144	2 X 1125	100		2494
WING WALL	16	L4	4 X 13	2788	813			3601
	12	L5	4 X 1	5738	444			5182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	813			3551
	12	L11	4 X 10	4180	250			4430
	16	L12	4 X 17	4180	250			4430
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	20500				20500
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	20510				20510
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 44 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

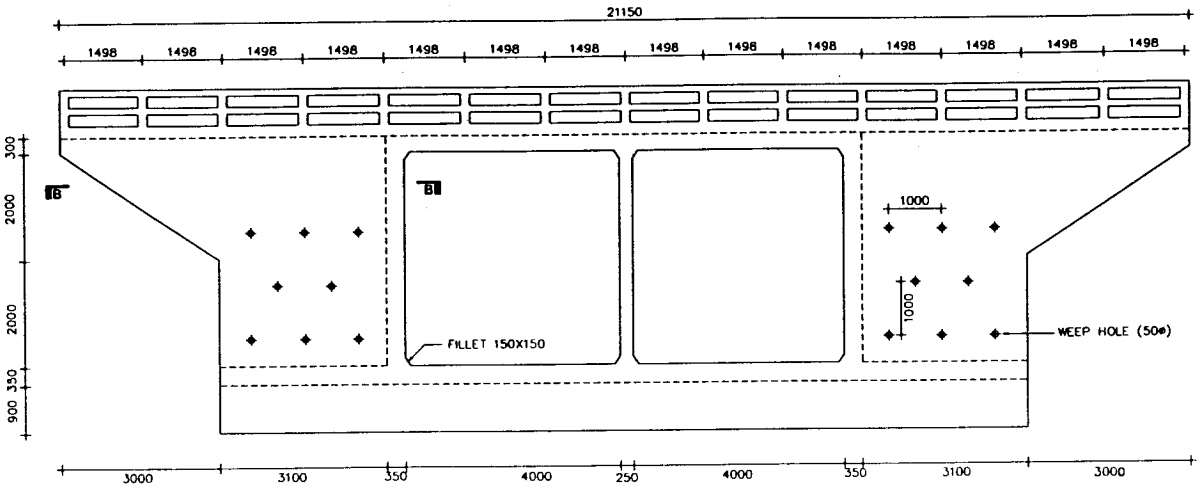
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2143362	

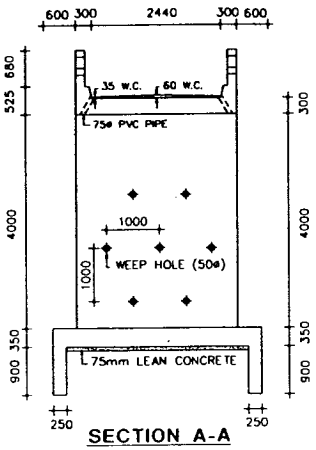
Web Copy

BC-208

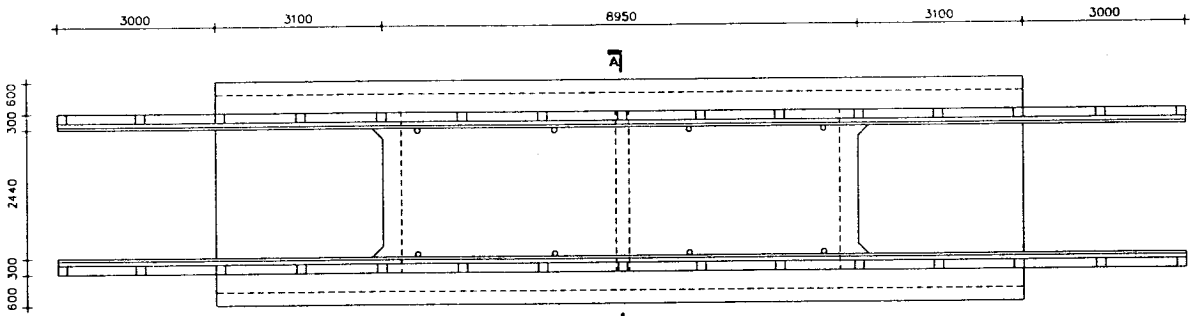
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 4.0m



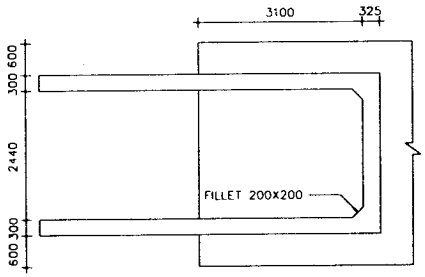
GENERAL ELEVATION



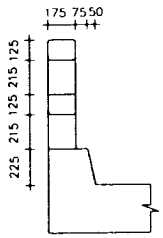
SECTION A-A



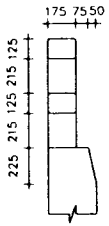
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

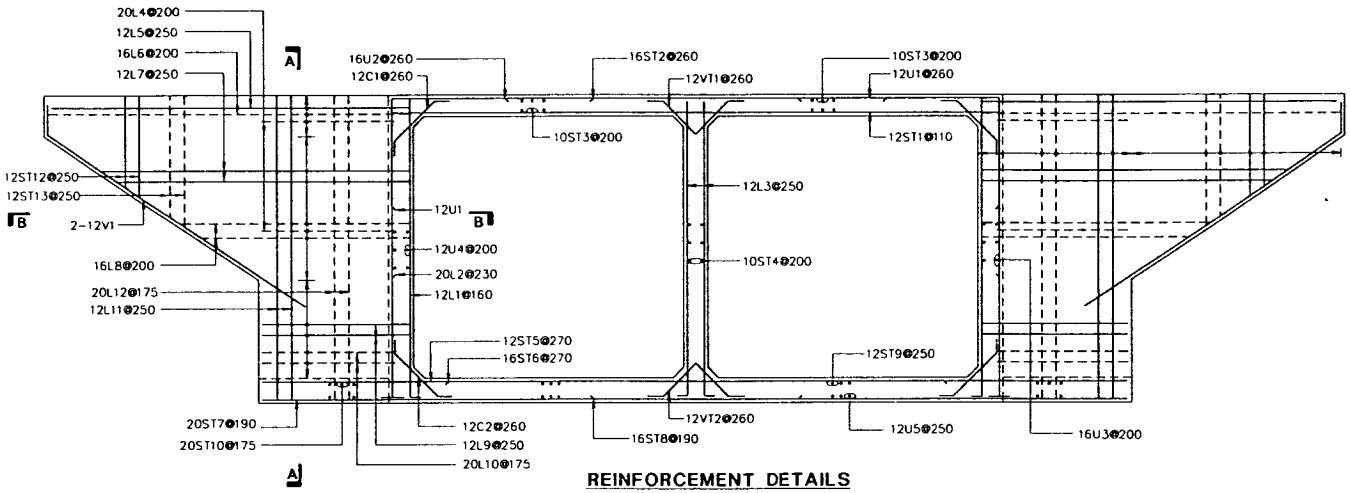
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 2.44m

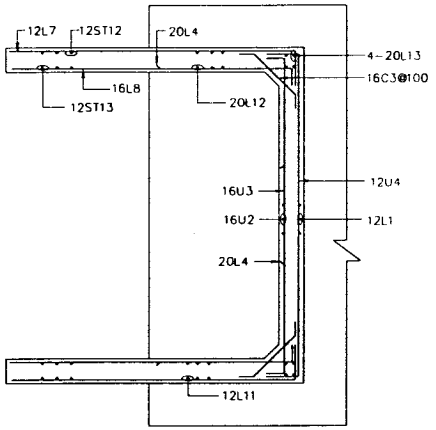
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2140401	

Web Copy

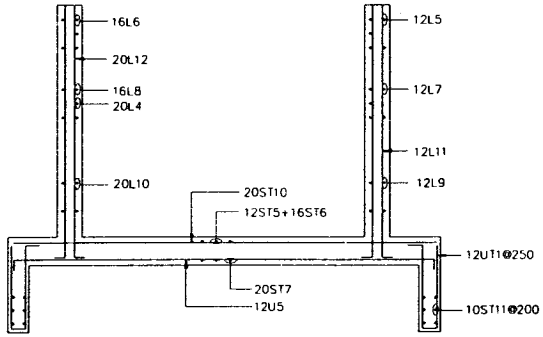
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 4.0m



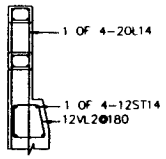
REINFORCEMENT DETAILS



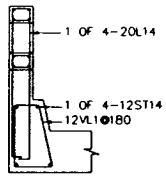
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



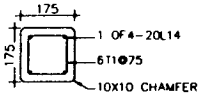
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

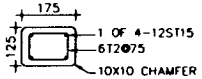
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	12	ST1	28	8850				8850
	16	ST2	12	2916				2916
	10	ST3	2 X 46	2940				2940
	10	ST4	2 X 20	2940				2940
	12	ST5	17	15050				15050
	16	ST6	16	6250				6250
	20	ST7	23	15050				15050
	16	ST8	22	2916				2916
	12	ST9	37	4140				4140
	20	ST10	2 X 18	4140				4140
APPRON & CUTOFF	12	C1	2 X 13	144	816	144		1104
	12	C2	2 X 13	144	858	144		1146
	12	VT1	13	2 X 150	2 X 619			1538
	12	VT2	13	2 X 150	2 X 662			1624
	12	L1	2 X 14	4528	250			4778
	20	L2	2 X 11	1621	250			1871
	12	L3	2 X 13	4528	250			4778
	20	L13	4 X 4	4528	250			4778
	12	U1	13	1593	8850	1593		12036
	16	U2	2 X 13	1633	4560	250		7826
	16	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 15	494	2940	494		3928
	12	U5	62	250	4070	250		4570
	10	ST11	4 X 5	15000				15000
	12	UT1	2 X 62	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 13	3388	813			4201
	12	L5	4 X 1	6338	469			6807
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	813			4151
	12	L11	4 X 13	4580	250			4830
	20	L12	4 X 18	4580	250			4830
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
	12	ST14	2 X 4	21100				21100
CURB AND RAILING	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	21110				21110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 50 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

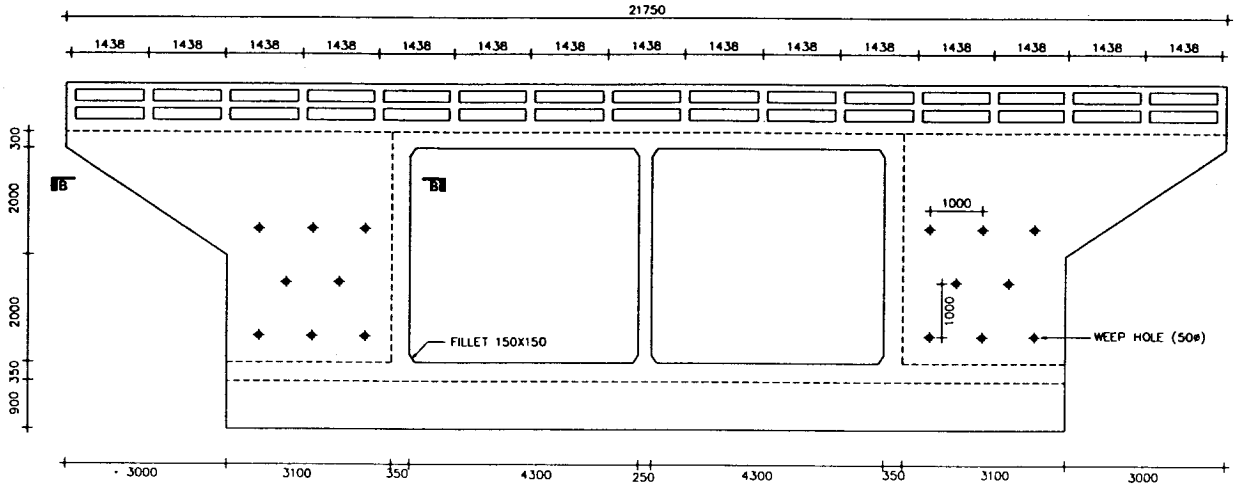
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2140402

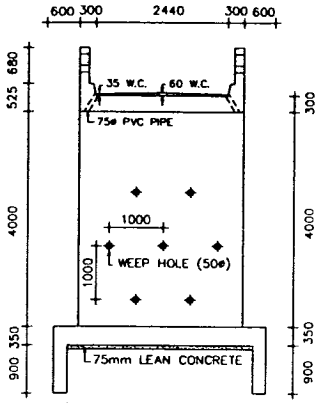
Web Copy

BC-210

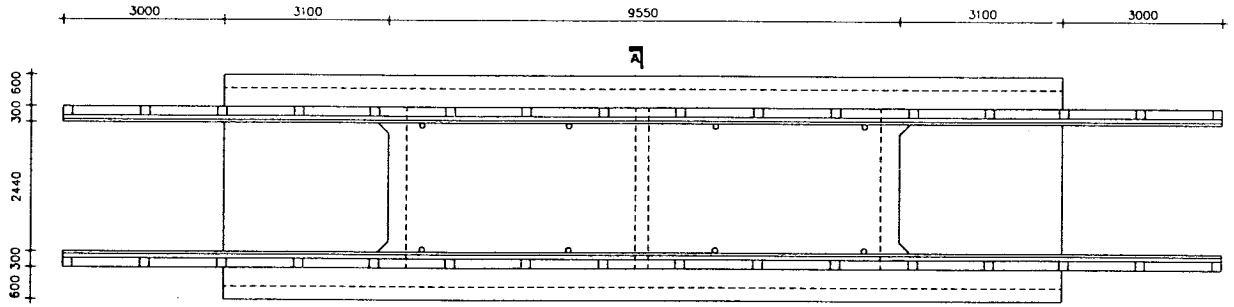
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.0m



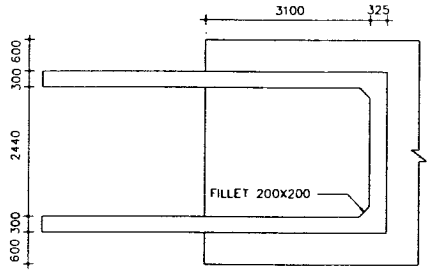
GENERAL ELEVATION



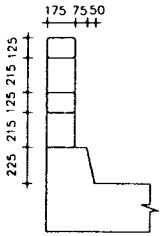
SECTION A-A



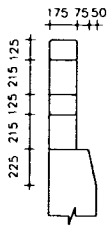
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

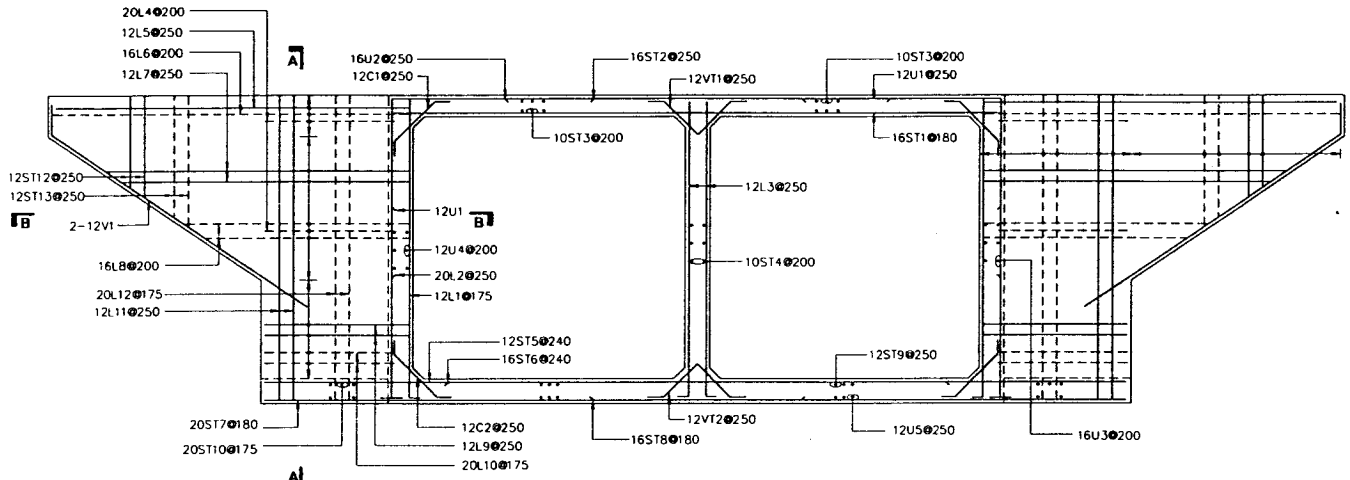
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 2.44m

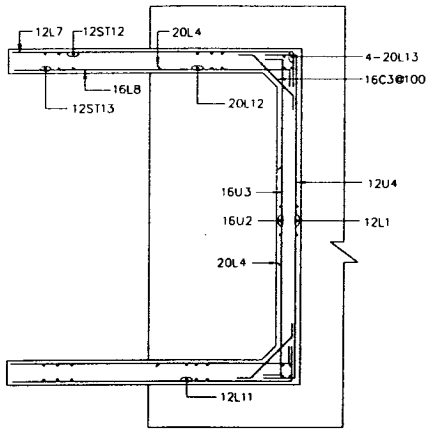
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2143401	

Web Copy

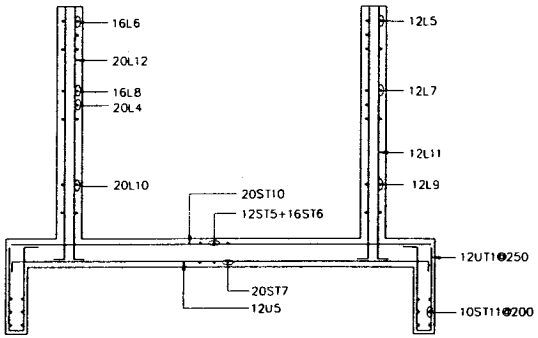
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.0m



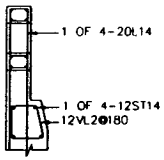
REINFORCEMENT DETAILS



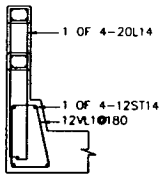
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



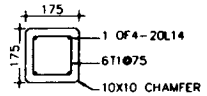
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

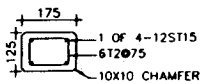
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	18	9450				9450
B	16	ST2	12	3116				3116
O	10	ST3	2 X 49	2940				2940
X	10	ST4	2 X 20	2940				2940
	12	ST5	19	15650				15650
	16	ST6	18	6700				6700
	20	ST7	24	15650				15650
	16	ST8	23	3116				3116
A	12	ST9	40	4140				4140
P	20	ST10	2 X 18	4140				4140
P	12	C1	2 X 13	144	816	144		1104
R	12	C2	2 X 13	144	858	144		1146
O	12	VT1	13	2 X 150	2 X 619			1538
N	12	VT2	13	2 X 150	2 X 662			1624
	12	L1	2 X 13	4528	250			4778
&	20	L2	2 X 11	1621	250			1871
	12	L3	2 X 13	4528	250			4778
	20	L13	4 X 4	4528	250			4778
C	12	U1	13	1593	9450	1593		12636
U	16	U2	2 X 13	1733	4560	250		8026
T	16	U3	2 X 19	250	2940	250		3440
O	12	U4	2 X 15	494	2940	494		3928
F	12	U5	64	250	4070	250		4570
F	10	ST11	4 X 5	15600				15600
	12	UT1	2 X 64	144	2 X 1125	100		2494
	20	L4	4 X 13	3388	813			4201
W	12	L5	4 X 1	6338	469			6807
	16	L6	4 X 2	6338	250			6588
I	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
N	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
G	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	813			4151
	12	L11	4 X 13	4580	250			4830
W	20	L12	4 X 18	4580	250			4830
A	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
L	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
L	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
	12	ST14	2 X 4	21700				21700
CURB	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
AND	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	21710				21710
RAILING	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 255	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

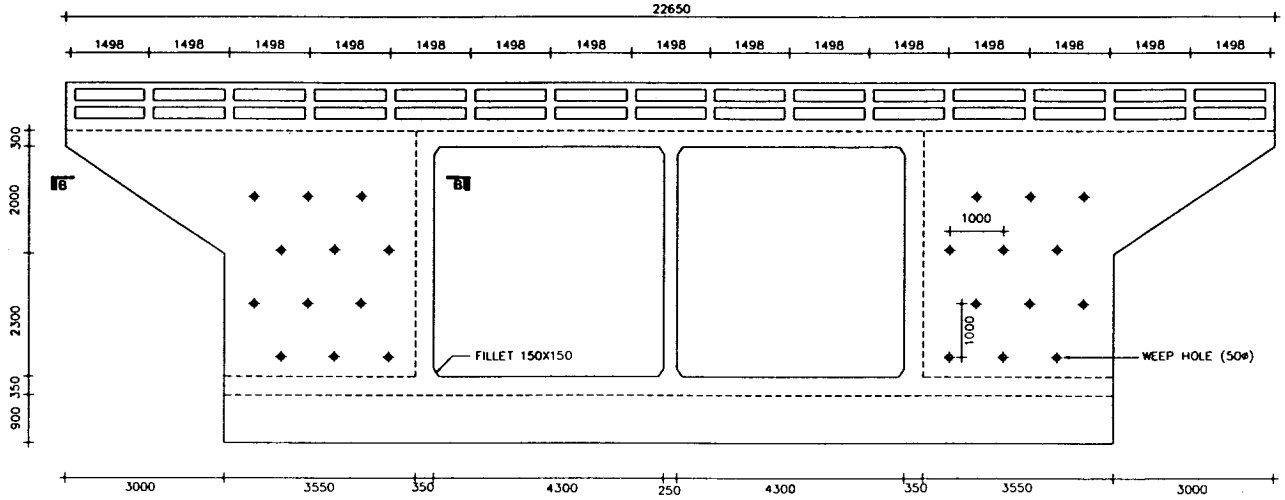
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2143402

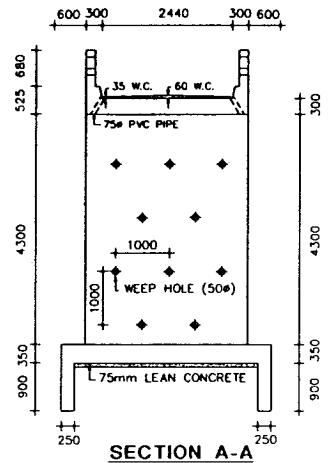
Web Copy

BC-212

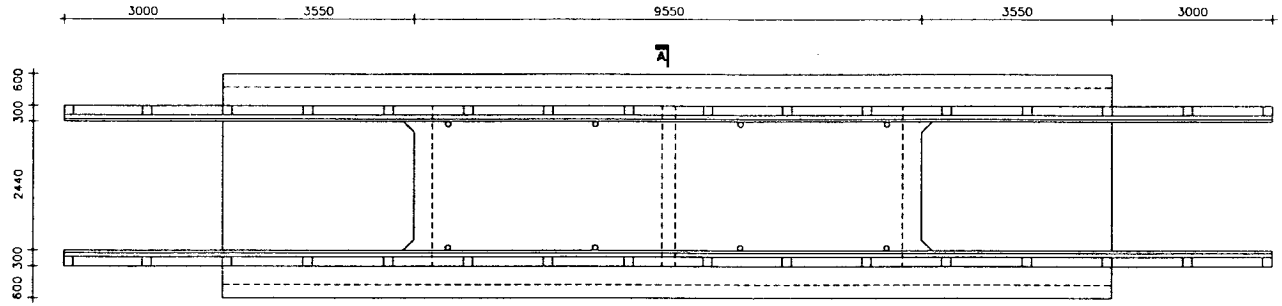
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.3m



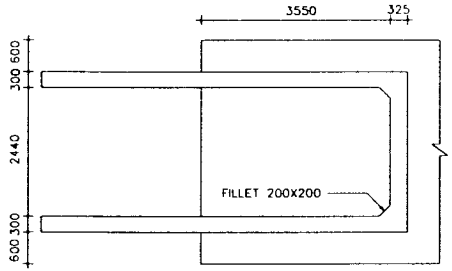
GENERAL ELEVATION



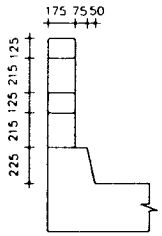
SECTION A-A



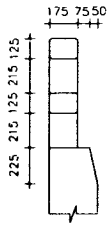
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 2.44m

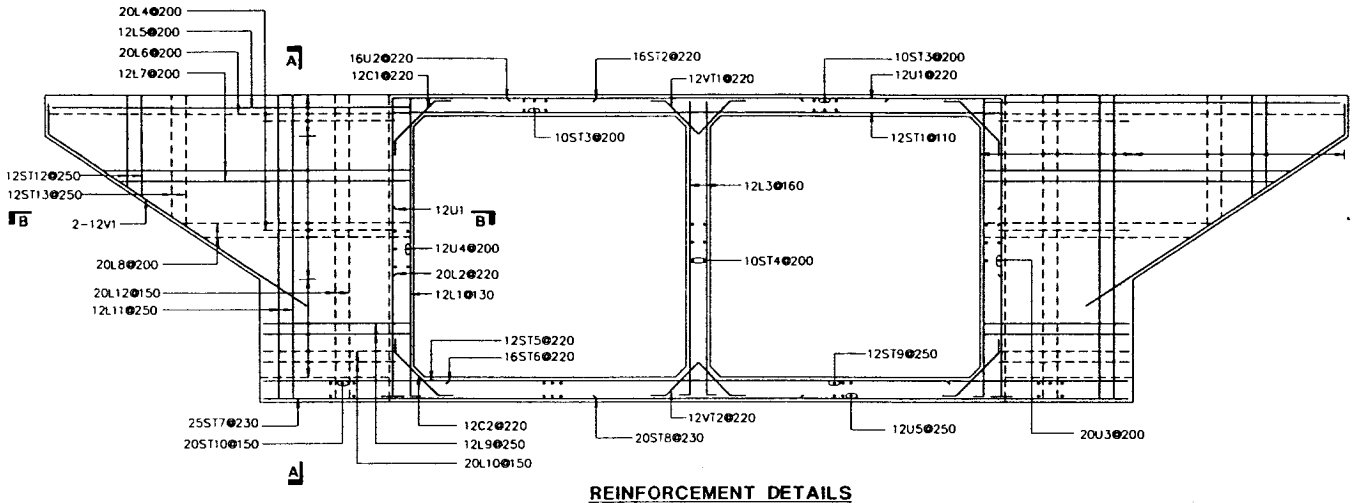
DATE :

ISSUED BY :

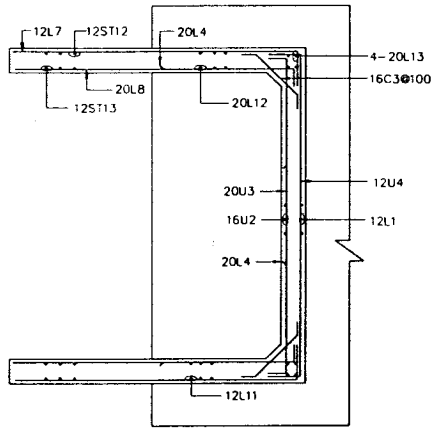
CAD FILE REF : CULV\B2143431

Web Copy

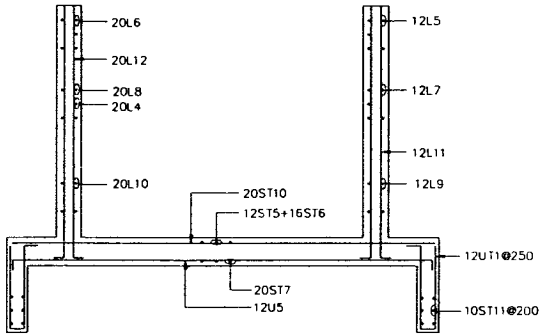
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.3m



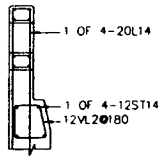
REINFORCEMENT DETAILS



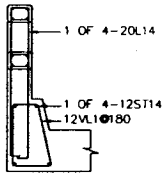
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



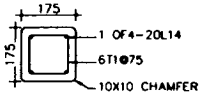
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

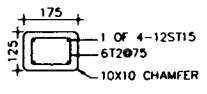
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	9450				9450
	16	ST2	14	3116				3116
	10	ST3	2 X 49	2940				2940
	10	ST4	2 X 21	2940				2940
	12	ST5	20	16550				16550
	16	ST6	19	6700				6700
	25	ST7	19	16550				16550
	20	ST8	18	3116				3116
	12	ST9	40	4140				4140
	20	ST10	2 X 24	4140				4140
	12	C1	2 X 15	144	816	144		1104
	12	C2	2 X 15	144	851	144		1139
	12	VT1	15	2 X 150	2 X 619			1538
	12	VT2	15	2 X 150	2 X 655			1610
	12	L1	2 X 18	4823	250			5073
	20	L2	2 X 13	1721	250			1971
	12	L3	2 X 13	4823	250			5073
	20	L13	4 X 4	4823	250			5073
	12	U1	15	1693	9450	1693		12836
	16	U2	2 X 15	1733	4860	250		8326
	20	U3	2 X 21	250	2940	250		3440
	12	U4	2 X 17	494	2940	494		3928
	12	U5	68	250	4070	250		4570
	10	ST11	4 X 5	16500				16500
	12	UT1	2 X 68	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 13	3838	813			4651
	12	L5	4 X 1	6788	469			7257
	20	L6	4 X 2	6788	250			7038
	12	L7	4 X 9	Var. 6759 To 3788 @ 371	444			Var. 7203 To 4232
	20	L8	4 X 11	Var. 6759 To 3788 @ 297	250			Var. 7009 To 4038
	12	L9	4 X 10	3788	469			4257
	20	L10	4 X 16	3788	813			4601
	12	L11	4 X 14	4875	250			5125
	20	L12	4 X 24	4875	250			5125
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 46	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	22600				22600
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 37	204	204	248	200	856
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22610				22610
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 53 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

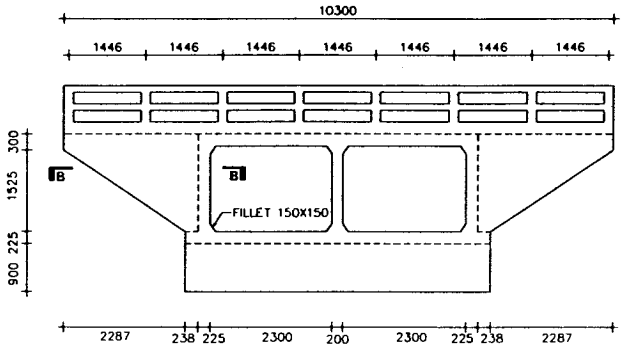
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2143432

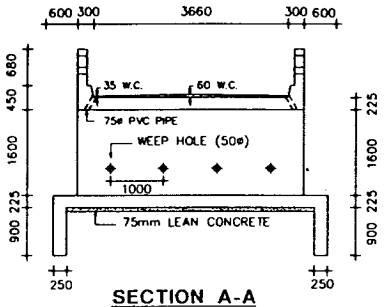
Web Copy

BC-214

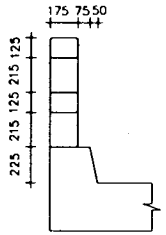
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



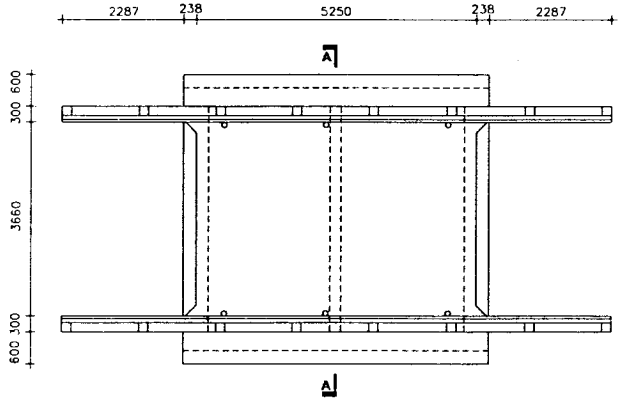
GENERAL ELEVATION



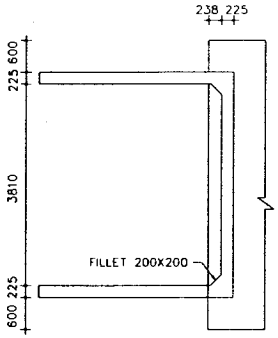
SECTION A-A



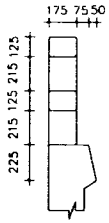
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

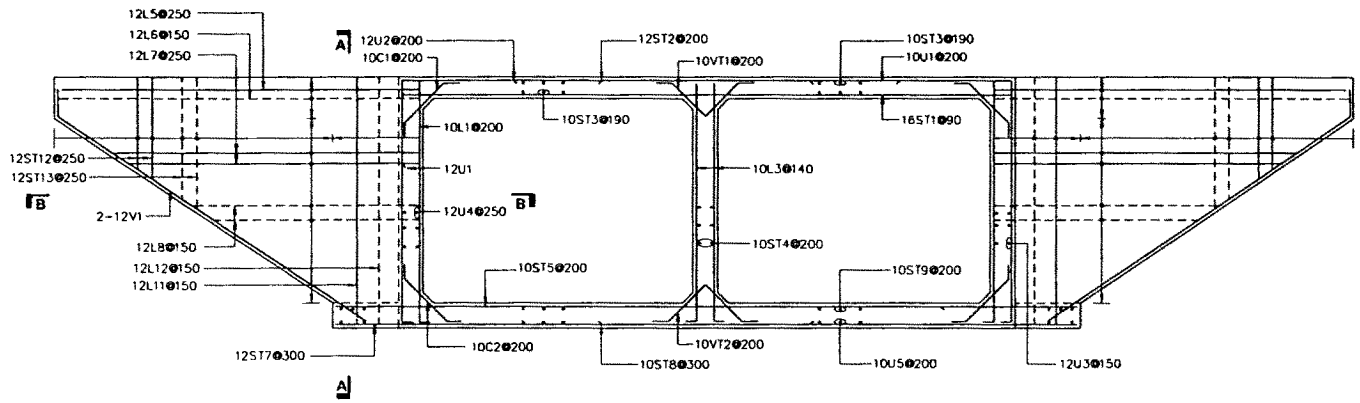
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 3.66m

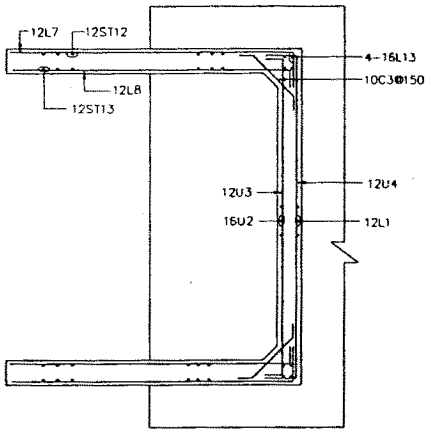
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2223161	

Web Copy

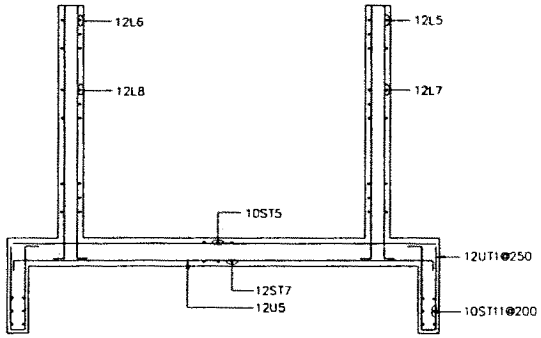
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



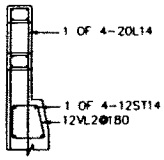
REINFORCEMENT DETAILS



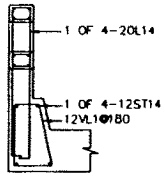
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



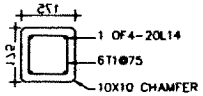
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

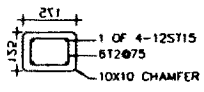
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APRON & CUTOFF	16	ST1	48	5150				5150
	12	ST2	21	1733				1733
	10	ST3	2 X 29	4160				4160
	10	ST4	2 X 8	4160				4160
	10	ST5	28	5626				5626
	12	ST7	19	5626				5626
	10	ST8	18	1733				1733
	10	ST9	28	5360				5360
	10	C1	2 X 22	120	556	120		796
	10	C2	2 X 22	120	558	120		796
	10	VT1	22	2 X 150	2 X 484			1268
	10	VT2	22	2 X 150	2 X 484			1268
	10	L1	2 X 19	1938	250			2188
	10	L3	2 X 31	1938	250			2188
	16	L13	4 X 4	1938	250			2188
	12	U1	22	718	5150	718		6586
	12	U2	2 X 22	941	1960	250		3151
	12	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 6	369	4160	369		4898
	10	U5	30	250	5290	250		5790
	10	ST11	4 X 5	5576				5576
	12	UT1	2 X 24	144	2 X 1000	100		2244
WING WALL	12	L5	4 X 1	2402	369			2771
	12	L6	4 X 2	2402	250			2652
	12	L7	4 X 7	Var. 2371 To 535 @ 336	369			Var. 2740 To 722
	12	L8	4 X 11	Var. 2371 To 353 @ 201	250			Var. 2621 To 603
	12	L11	4 X 1	1988	250			2238
	12	L12	4 X 2	1988	250			2238
	12	ST12	4 X 8	Var. 1605 To 376 @169				Var. 1605 TO 376
	12	ST13	4 X 8	Var. 1605 To 376 @169				VER. 1605 TO 376
	12	V1	4 X 2	2712	200			2912
	10	C3	4 X 13	120	612	144		852
CURB AND RAILING	12	ST14	2 X 4	9774				9774
	12	VL1	2 X 31	204	394	289	385	1372
	12	VL2	4 X 13	204	204	248	200	956
	20	L14	18 X 4	1046	120			1166
	12	ST15	4 X 4	9784				9784
	6	T1	16 X 6	2 X 135	2 X 135			540
	6	T2	4X 119	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

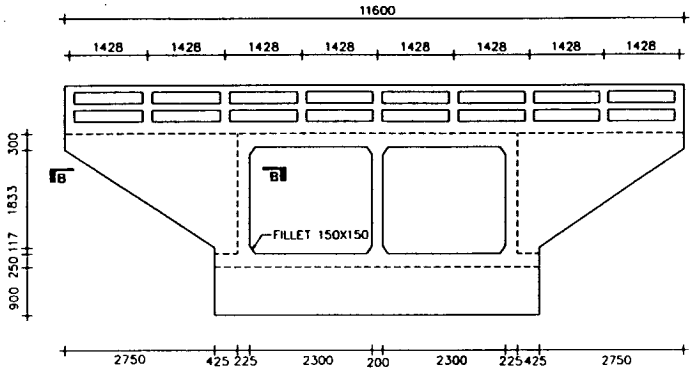
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2223162

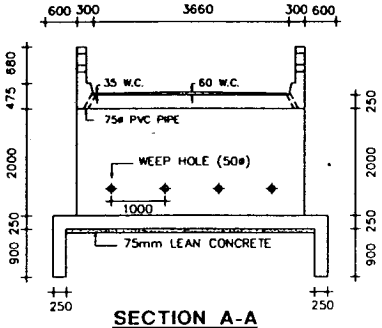
Web Copy

BC-216

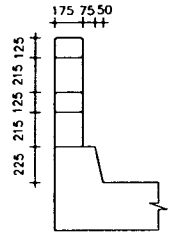
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



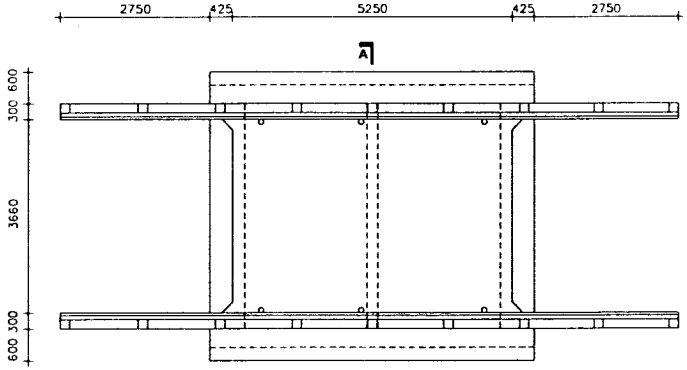
GENERAL ELEVATION



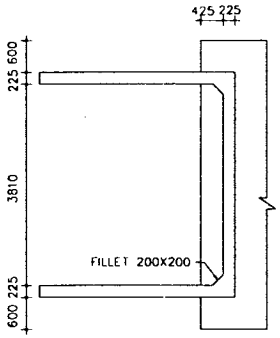
SECTION A-A



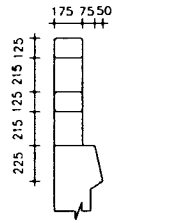
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

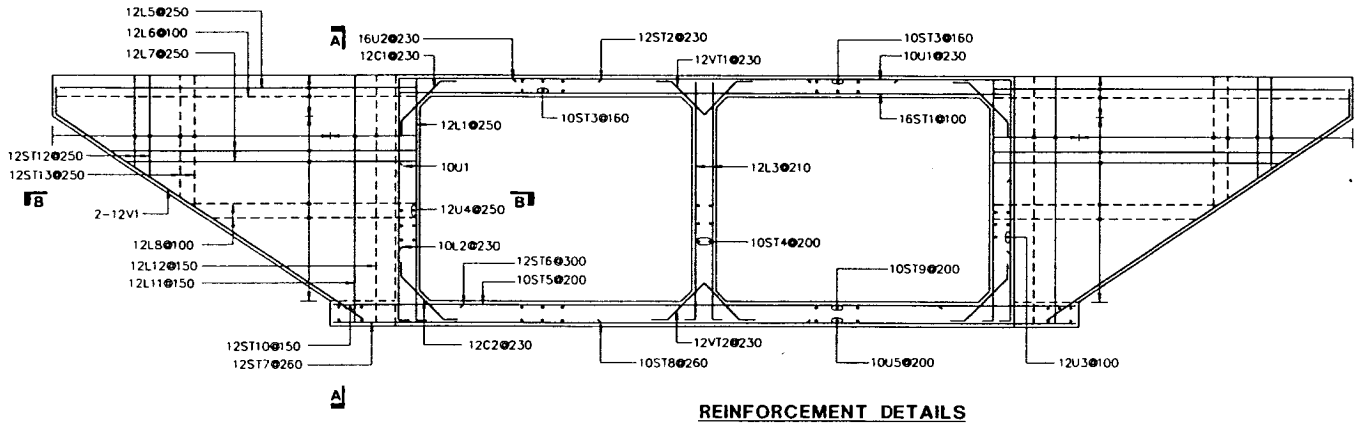
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2223201	

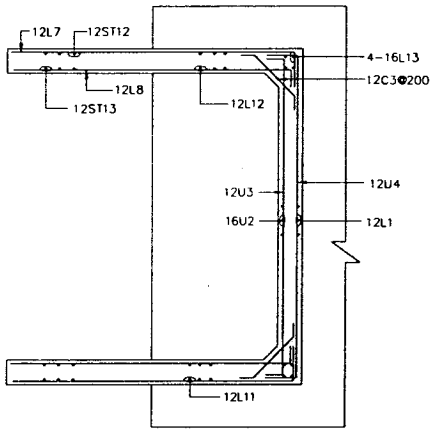
Web Copy

BC-217

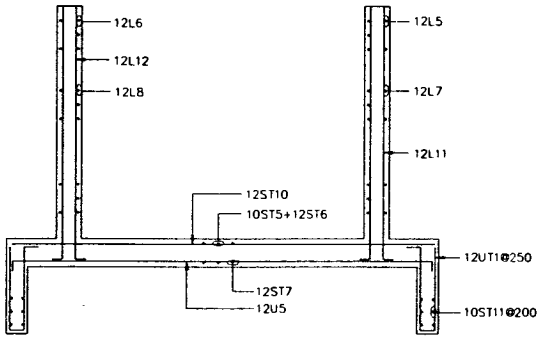
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



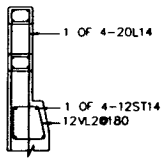
REINFORCEMENT DETAILS



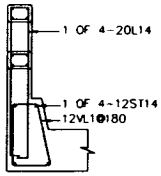
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



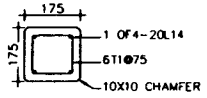
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

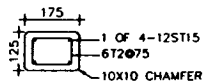
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	5150				5150
	12	ST2	19	1733				1733
	10	ST3	2 X 27	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	28	6000				6000
	12	ST7	22	6000				6000
	10	ST8	21	1733				1733
	10	ST9	28	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 20	144	591	144		879
	12	C2	2 X 20	144	580	144		868
	12	VT1	20	2 X 150	2 X 519			1338
	12	VT2	20	2 X 150	2 X 519			1338
	12	L1	2 X 15	2388	250			2638
	10	L2	2 X 18	856	250			1106
	12	L3	2 X 18	2388	250			2638
	16	L13	4 X 4	2388	250			2638
	10	U1	20	876	5150	876		6902
	16	U2	2 X 20	941	2410	250		3601
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	31	250	5290	250		5790
	10	ST11	4 X 5	5950				5950
	12	UT1	2 X 26	144	2 X 1025	100		2294
WING & CUTOFF WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	11550				11550
	12	VL1	2 X 31	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	18 X 4	1071	120			1191
	12	ST15	4 X 4	11560				11560
	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

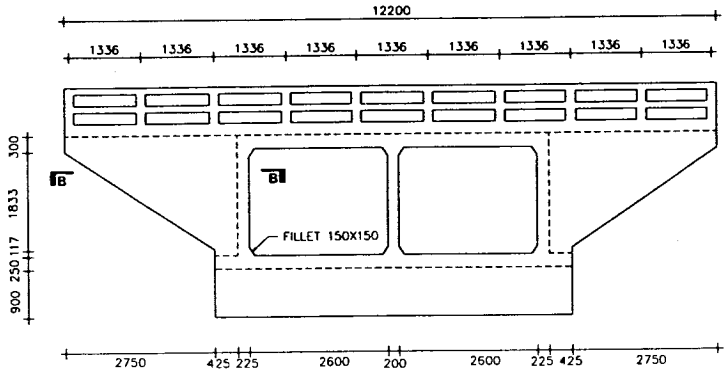
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2223202

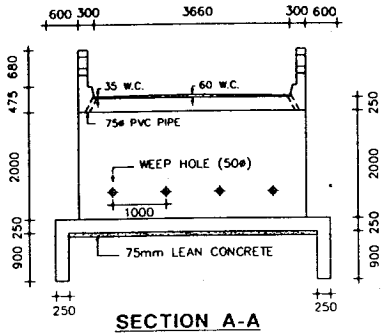
Web Copy

BC-218

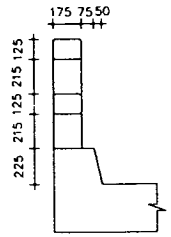
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.0m



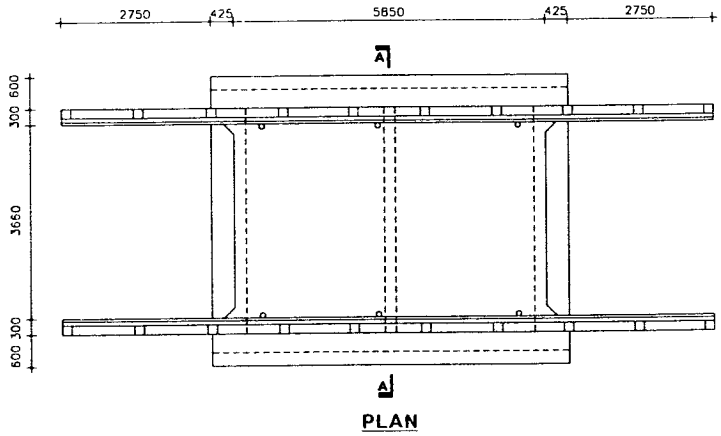
GENERAL ELEVATION



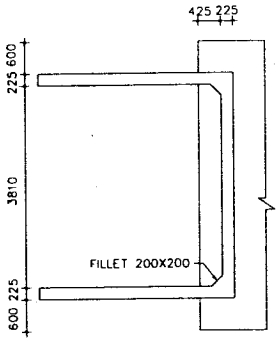
SECTION A-A



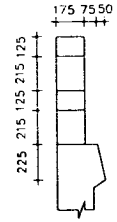
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

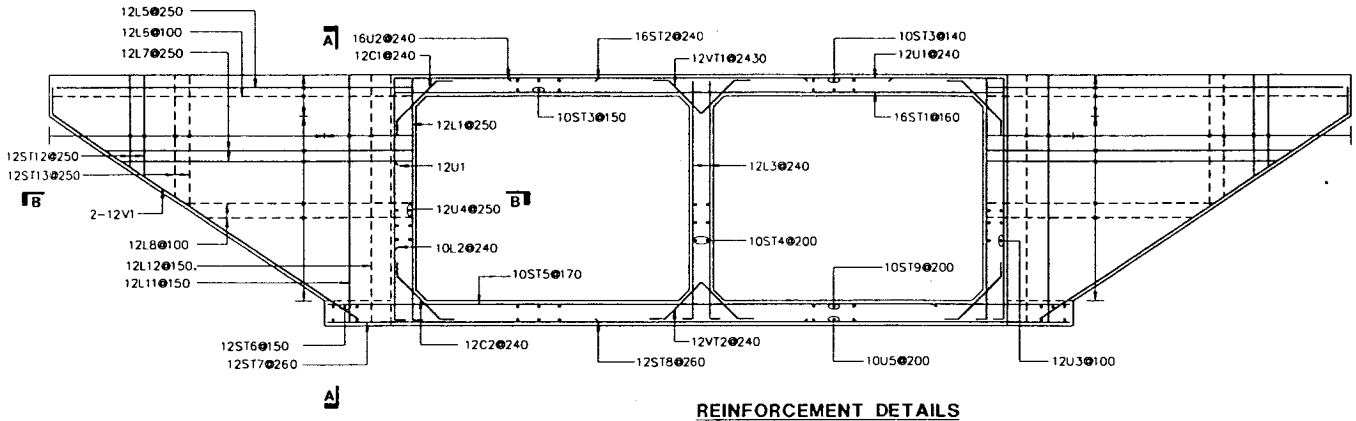
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2226201	

Web Copy

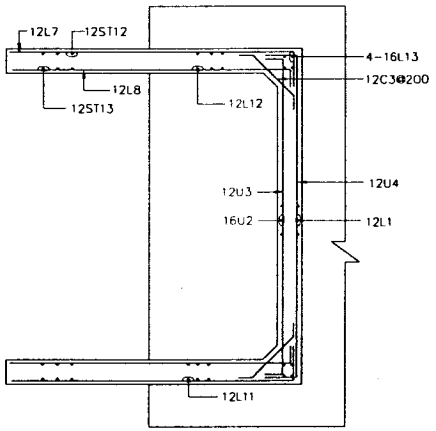
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.0m



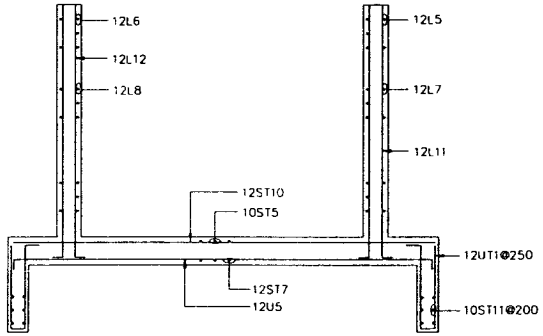
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

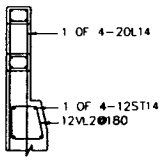
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	27	5750				5750
	16	ST2	18	1933				1933
BOX	10	ST3	2 X 30	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	33	6600				6600
	12	ST7	22	6600				6600
	12	ST8	21	1933				1933
APPROACH	10	ST9	31	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 19	144	591	144		879
	12	C2	2 X 19	144	580	144		868
	12	VT1	19	2 X 150	2 X 519			1338
&	12	VT2	19	2 X 150	2 X 519			1338
	12	L1	2 X 15	2388	250			2638
	10	L2	2 X 17	856	250			1106
	12	L3	2 X 19	2300	250			2638
	16	L13	4 X 4	2300	250			2638
	12	U1	19	876	5750	876		7502
	16	U2	2 X 19	1041	2410	250		3701
CUTOFF	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	34	250	5290	250		5790
	10	ST11	4 X 5	6550				6550
	12	UT1	2 X 28	144	2 X 1025	100		2294
	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
WING	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3059 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
WALL	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	639	144		897
	12	ST14	2 X 4	12150				12150
CURB	12	VL1	2 X 34	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
AND	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12160				12160
RAILING	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440



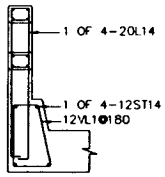
SECTION B-B



SECTION A-A



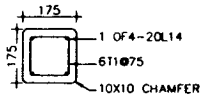
RAILING ON WING WALL
(REINF. DETAIL)



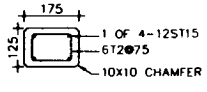
RAILING ON CULVERT
(REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

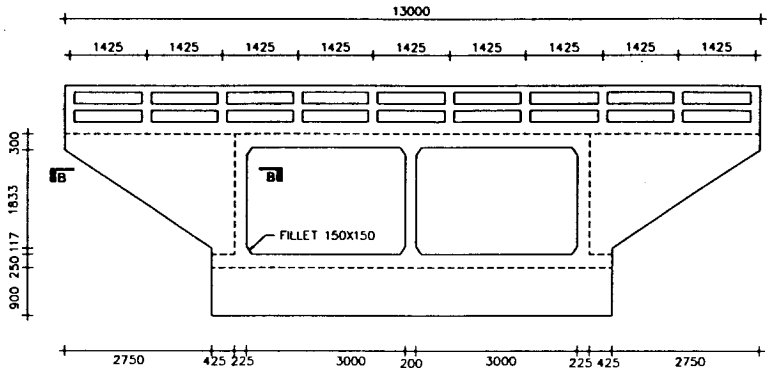
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2226202

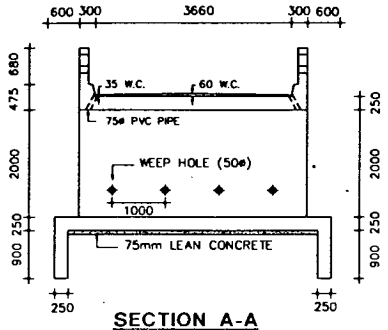
Web Copy

BC-220

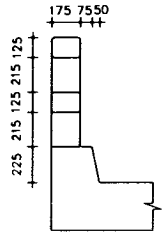
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



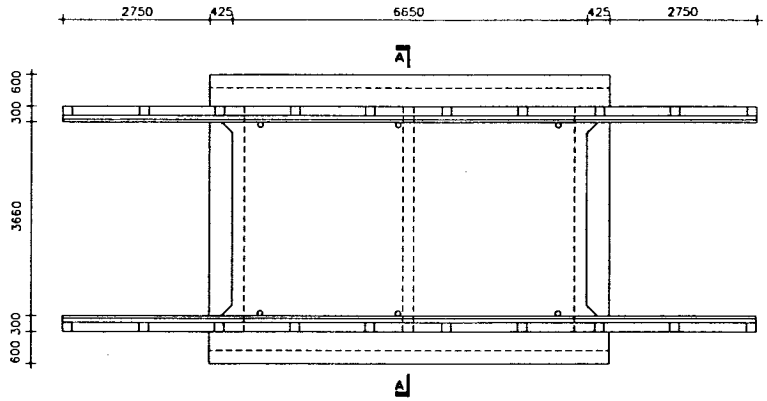
GENERAL ELEVATION



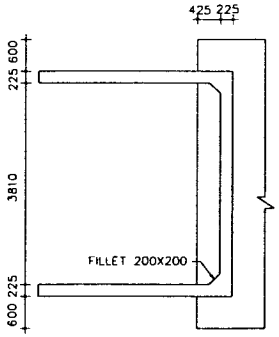
SECTION A-A



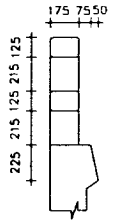
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

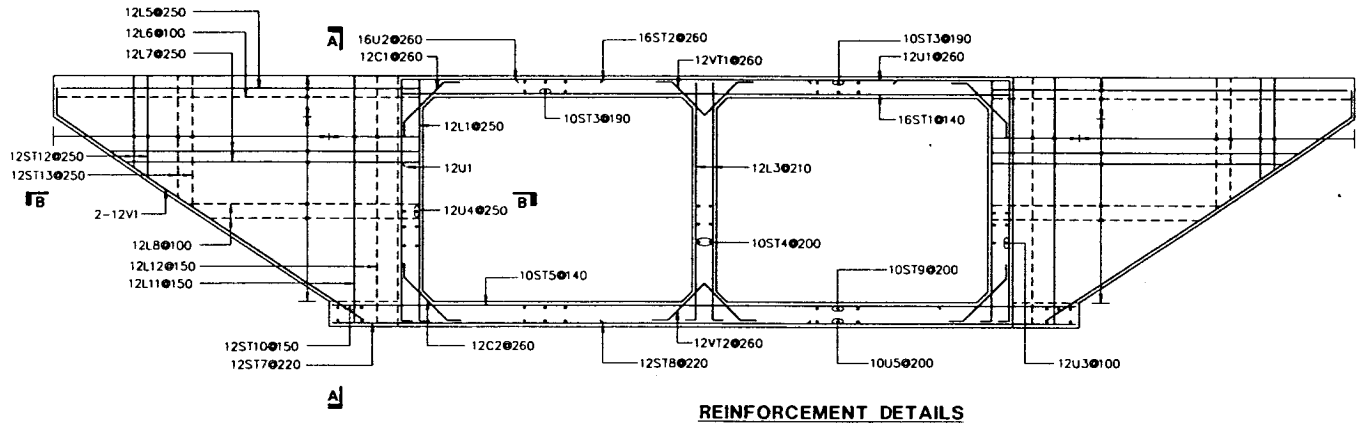
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2230201	

Web Copy

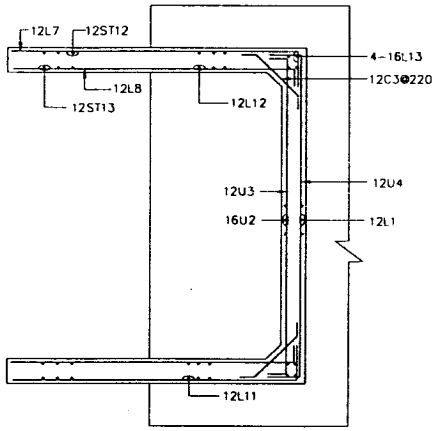
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



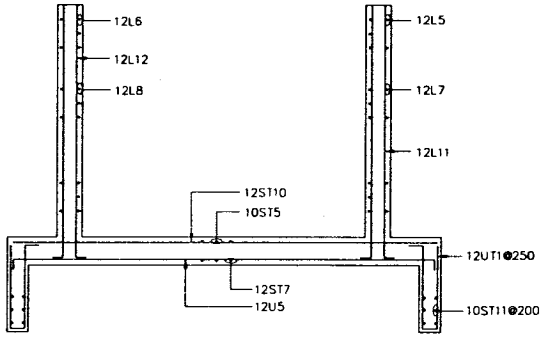
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

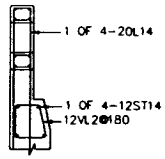
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	6550				6550
	16	ST2	16	2200				2200
	10	ST3	2 X 36	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	40	7400				7400
	12	ST7	26	7400				7400
	12	ST8	25	2200				2200
	10	ST9	35	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 17	144	580	144		868
	12	C2	2 X 17	144	594	144		882
	12	VT1	17	2 X 150	2 X 513			1326
	12	VT2	17	2 X 150	2 X 519			1338
	12	L1	2 X 15	2388	250			2638
	12	L3	2 X 21	2388	250			2636
	16	L13	4 X 4	2388	250			2639
	12	U1	17	876	5660	876		8302
	16	U2	2 X 17	1175	2410	250		3835
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	38	250	5290	250		5790
	10	ST11	4 X 5	7350				7350
	12	UT1	2 X 31	144	2 X 1025	100		2294
WING WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12950				12950
	12	VL1	2 X 38	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12960				12960
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440



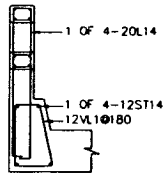
SECTION B-B



SECTION A-A



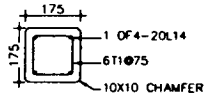
RAILING ON WING WALL (REINF. DETAIL)



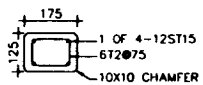
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :

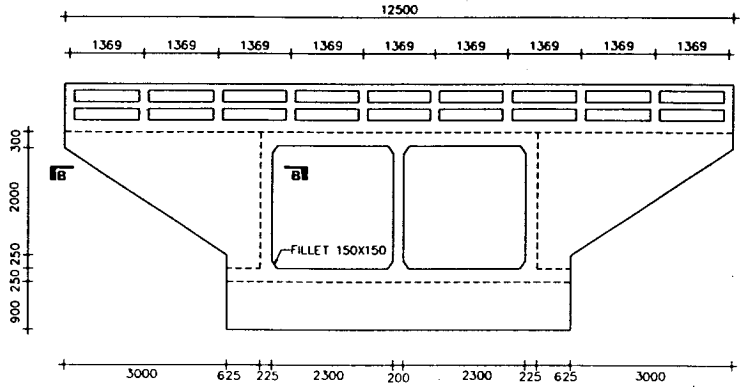
ISSUED BY :

CAD FILE REF : CULV\B2230202

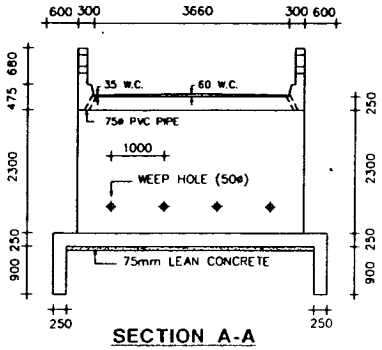
Web Copy

BC-222

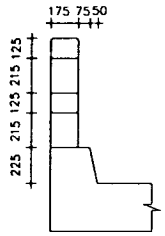
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



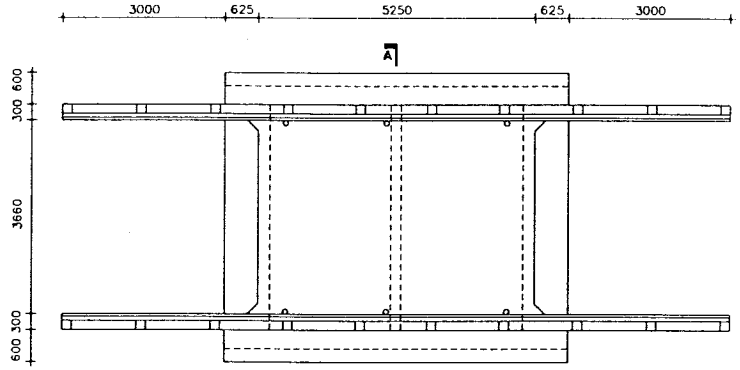
GENERAL ELEVATION



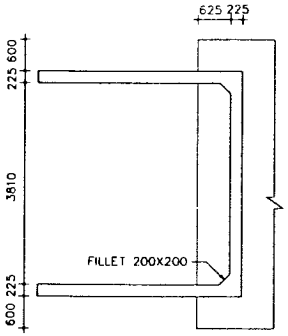
SECTION A-A



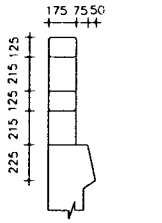
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

WC = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

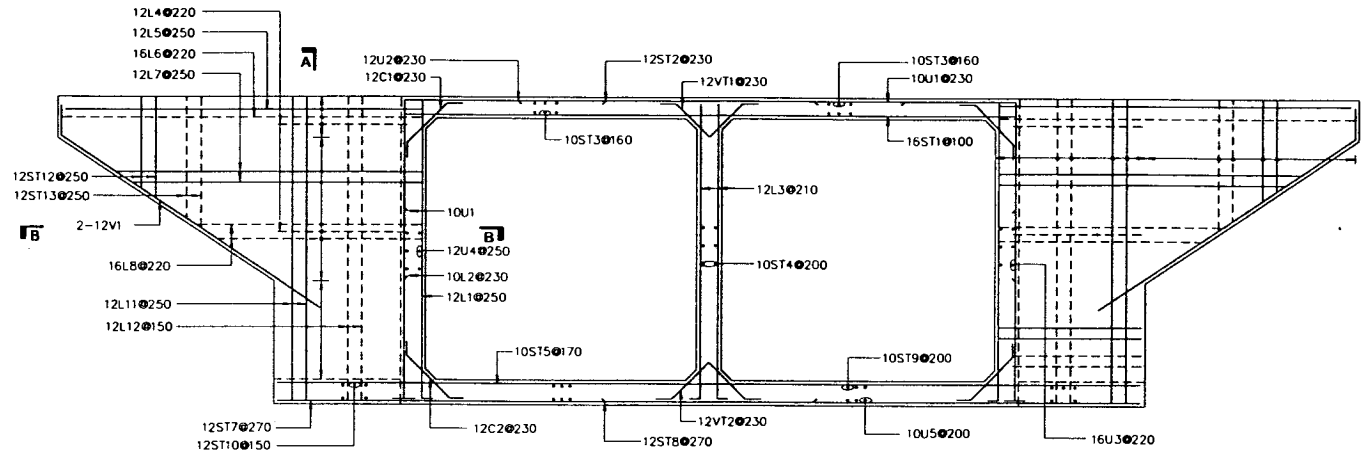
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 3.66m

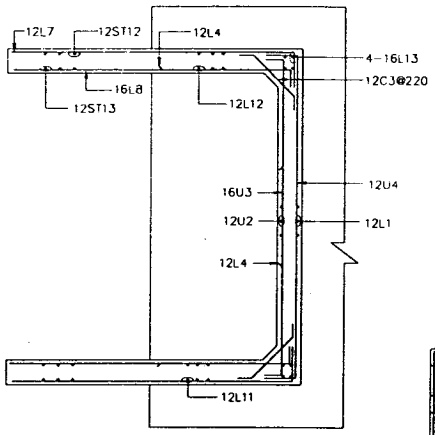
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2223231	

Web Copy

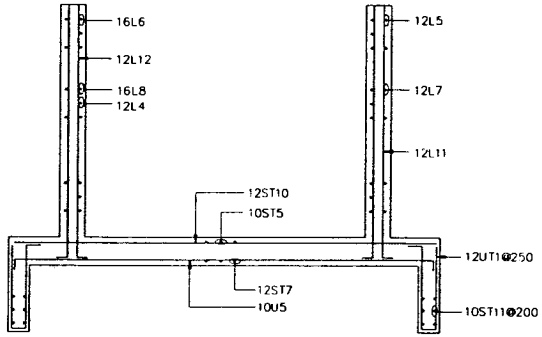
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



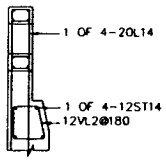
REINFORCEMENT DETAILS



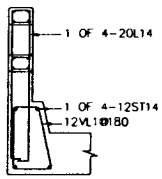
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



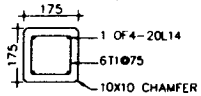
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

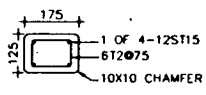
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A PPR ON & CUTOFF	16	ST1	43	5150				5150
	12	ST2	19	1733				1733
	10	ST3	2 X 27	4160				4160
	10	ST4	2 X 11	4160				4160
	10	ST5	33	6400				6400
	12	ST7	21	6400				6400
	12	ST8	20	1733				1733
	10	ST9	28	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 20	144	585	144		873
	12	C2	2 X 20	144	574	144		862
	12	VT1	20	2 X 150	2 X 519			1338
	12	VT2	20	2 X 150	2 X 519			1338
	12	L1	2 X 15	2688	250			2938
	10	L2	2 X 18	956	250			1206
	12	L3	2 X 21	2688	250			2938
	16	L13	4 X 4	2688	250			2938
	10	U1	20	976	5150	976		7102
	12	U2	2 X 20	941	2710	250		3901
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	10	U5	33	250	5290	250		5790
	10	ST11	4 X 5	6350				6350
	12	UT1	2 X 27	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12450				12450
	12	VL1	2 X 31	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12460				12460
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Roil-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 30 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 3.66m

DATE :

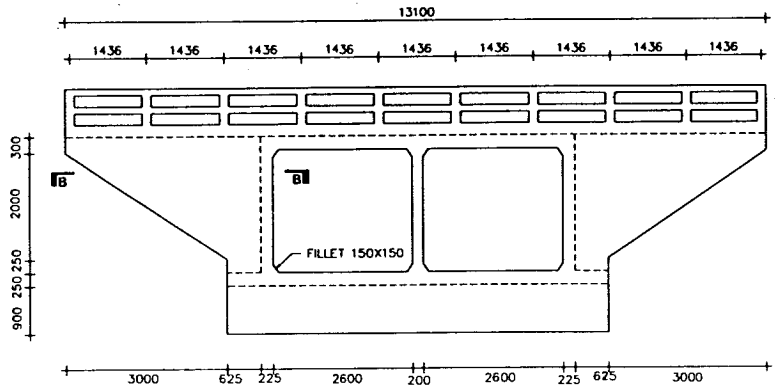
ISSUED BY :

CAD FILE REF : CULV\B2223232

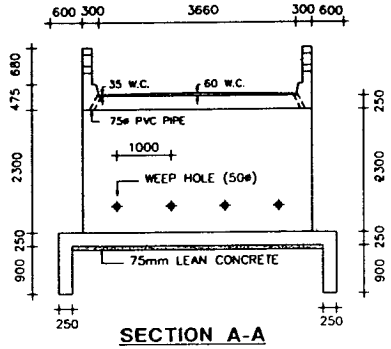
Web Copy

BC-224

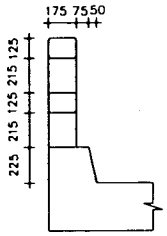
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2x2.6m
CLEAR HEIGHT : 2.3m



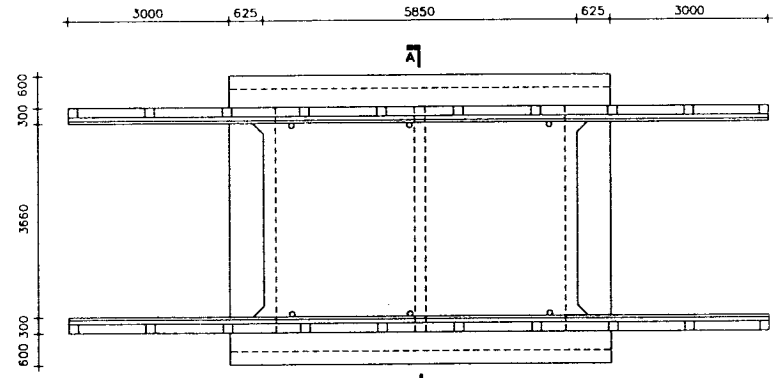
GENERAL ELEVATION



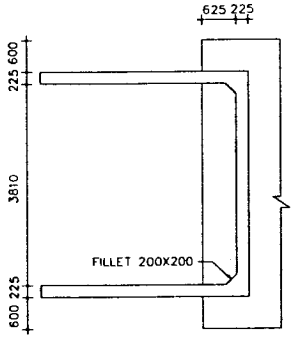
SECTION A-A



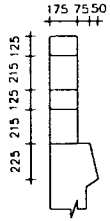
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing. filter material shall be provided as per specification.

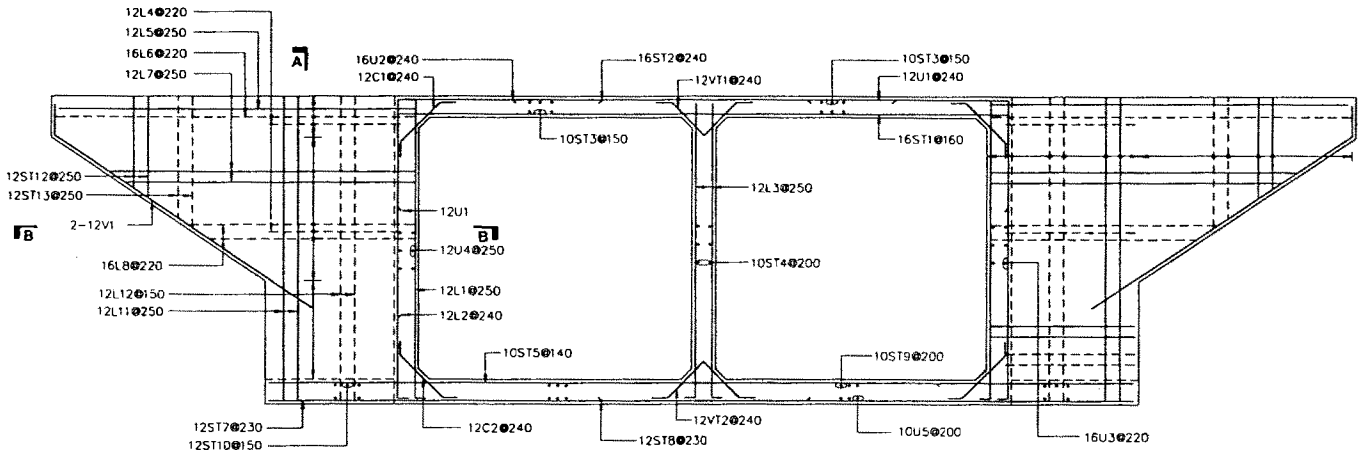
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2226231	

Web Copy

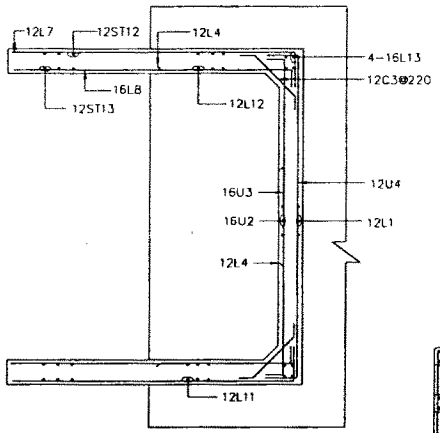
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x2.6m
CLEAR HEIGHT : 2.3m



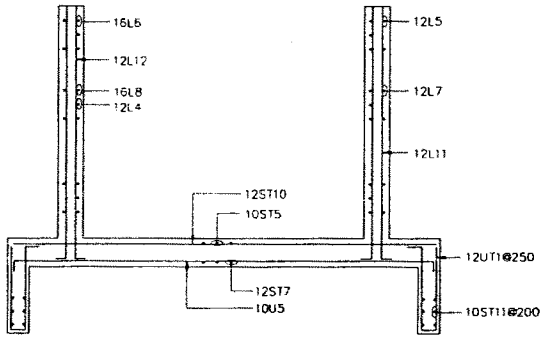
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

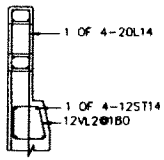
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	27	5750				5750
	16	ST2	18	1933				1933
	10	ST3	2 X 40	4160				4160
	10	ST4	2 X 11	4160				4160
	10	ST5	40	7000				7000
	12	ST7	25	7000				7000
	12	ST8	24	1933				1933
	10	ST9	31	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 19	144	585	144		873
	12	C2	2 X 19	144	571	144		859
	12	VT1	19	2 X 150	2 X 519			1338
	12	VT2	19	2 X 150	2 X 519			1338
	12	L1	2 X 15	2688	250			2938
	12	L2	2 X 17	956	250			1206
	12	L3	2 X 18	2688	250			2938
	16	L13	4 X 4	2688	250			2938
	12	U1	19	976	5750	976		7702
	16	U2	2 X 19	1041	2710	250		4001
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	10	U5	36	250	5290	250		5790
	10	ST11	4 X 5	6950				6950
	12	UT1	2 X 30	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	13050				13050
	12	VL1	2 X 34	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	13606				13060
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440



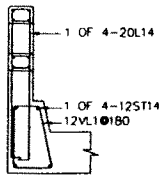
SECTION B-B



SECTION A-A



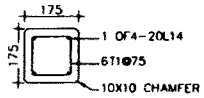
RAILING ON WING WALL (REINF. DETAIL)



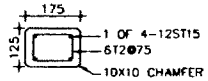
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

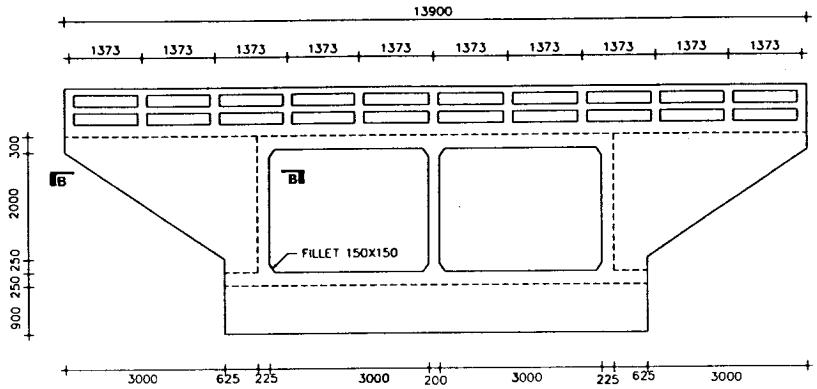
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2226232

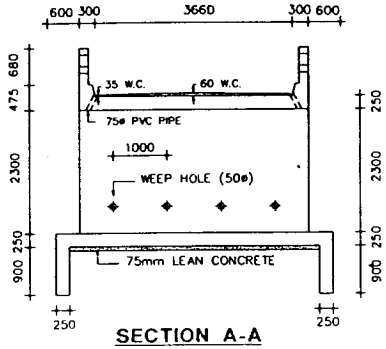
Web Copy

BC-226

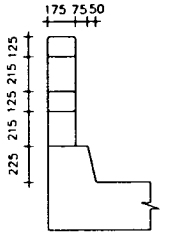
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



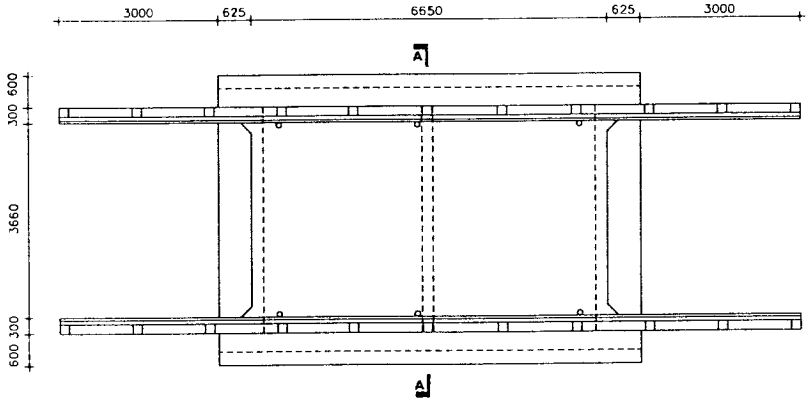
GENERAL ELEVATION



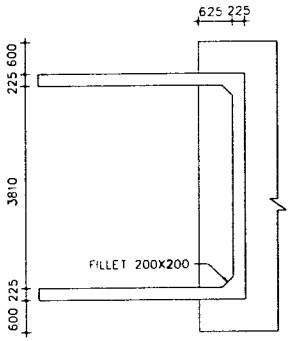
SECTION A-A



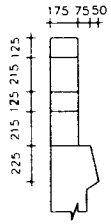
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

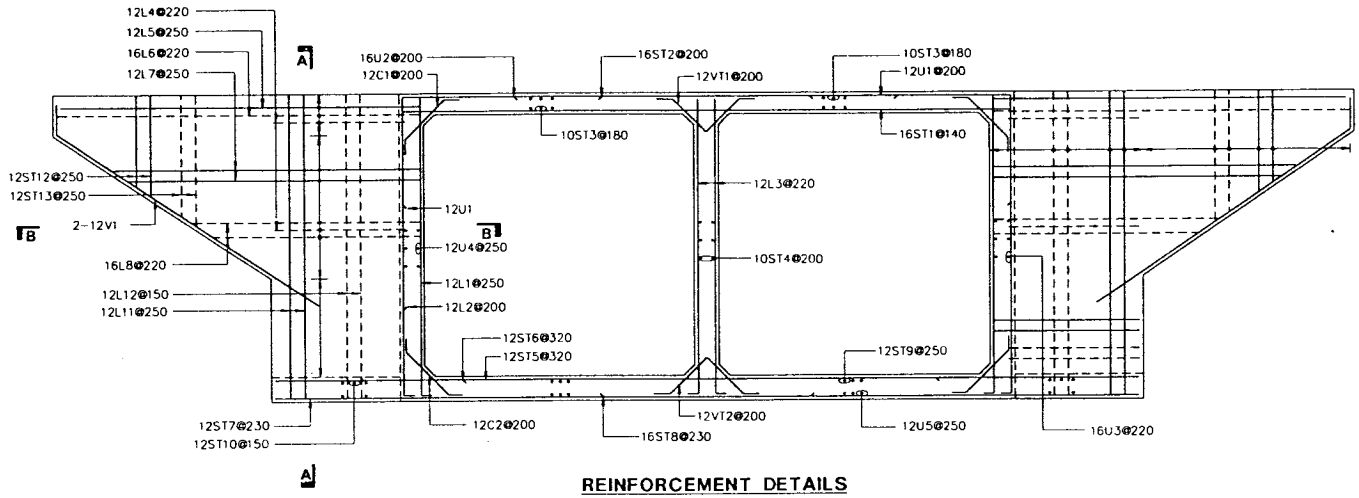
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 3.66m

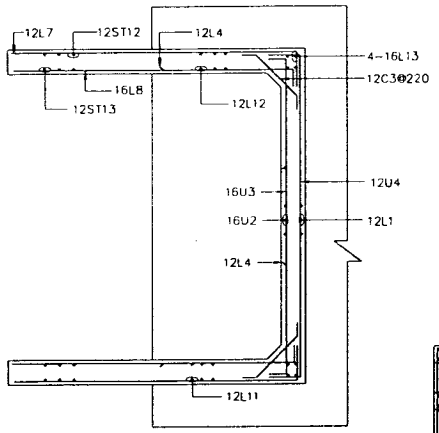
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2230231	

Web Copy

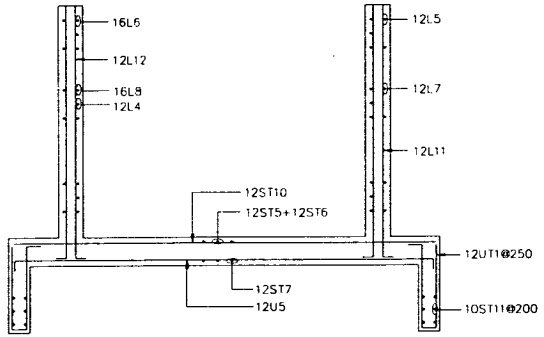
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



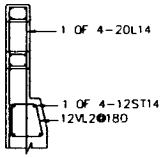
REINFORCEMENT DETAILS



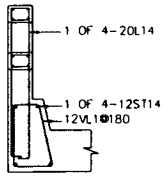
SECTION B-B



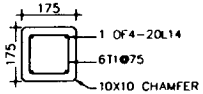
SECTION A-A



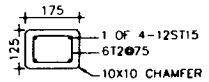
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	6550				6550
	16	ST2	21	2200				2200
	10	ST3	2 X 38	4160				4160
	10	ST4	2 X 11	4160				4160
	12	ST5	18	7800				7800
	12	ST6	17	4700				4700
	12	ST7	25	7800				7800
	16	ST8	24	2200				2200
	12	ST9	28	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 22	144	585	144		873
	12	C2	2 X 22	144	568	144		856
	12	VT1	22	2 X 150	2 X 519			1338
	12	VT2	22	2 X 150	2 X 502			1304
	12	L1	2 X 15	2686	250			2936
	12	L2	2 X 20	954	250			1204
	12	L3	2 X 20	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	22	976	6550	976		8502
	16	U2	2 X 22	1175	2710	250		4135
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	33	250	5290	250		5790
	10	ST11	4 X 5	7750				7750
	12	UT1	2 X 33	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	13850				13850
	12	VL1	2 X 38	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	13860				13860
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 30 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

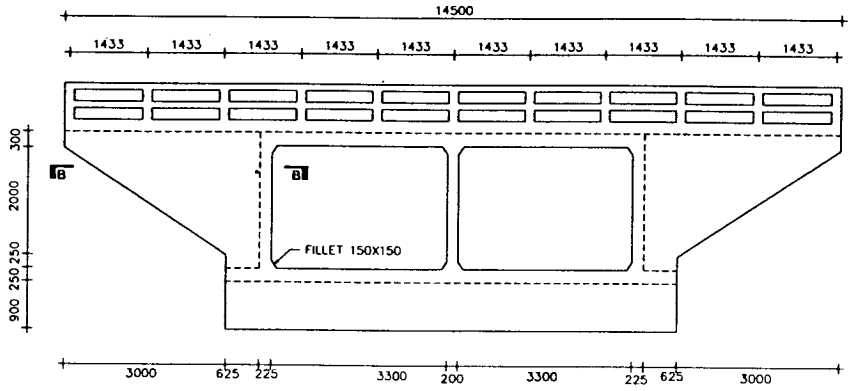
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2230232

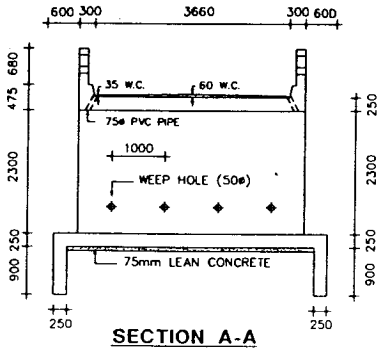
Web Copy

BC-228

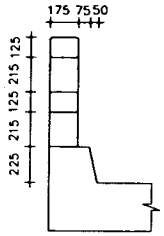
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



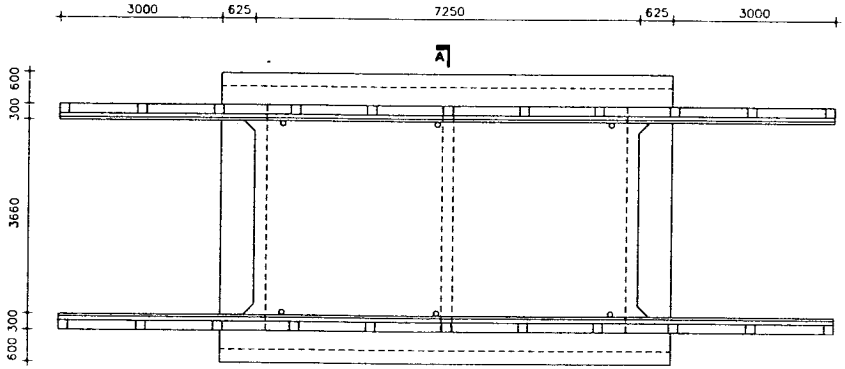
GENERAL ELEVATION



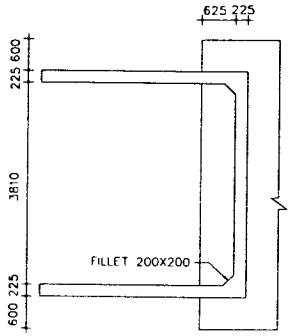
SECTION A-A



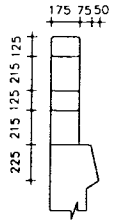
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

WC = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

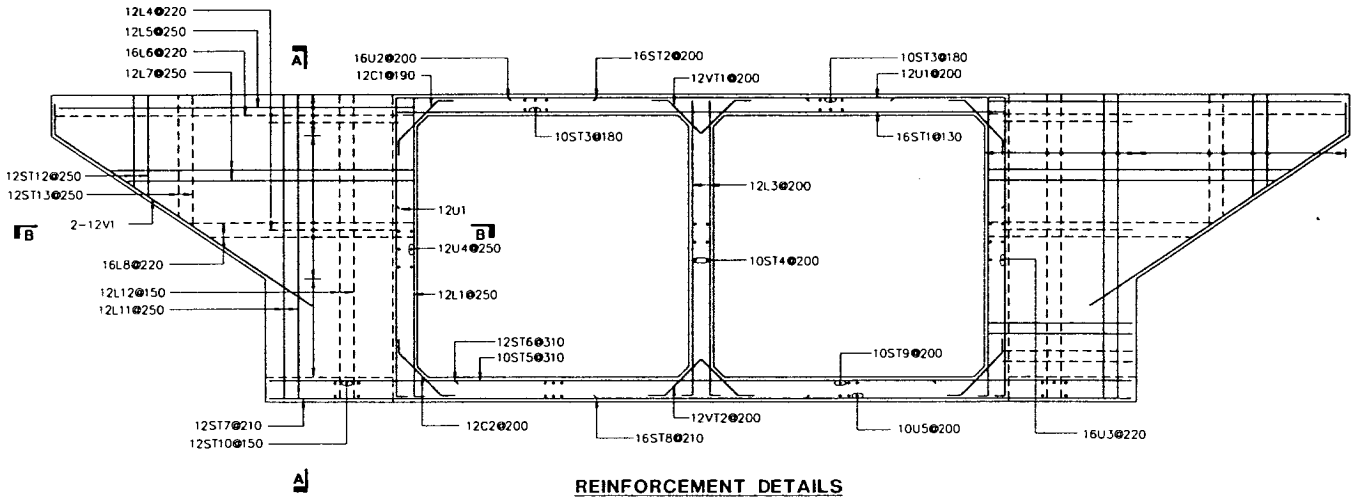
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 3.66m

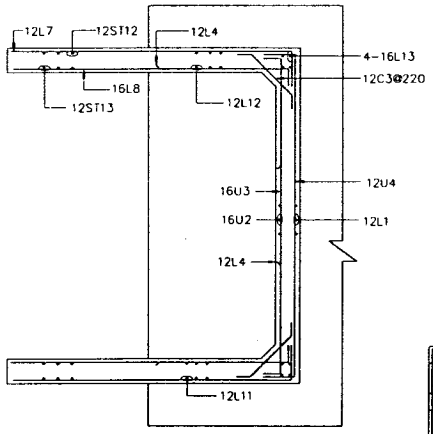
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2233231	

Web Copy

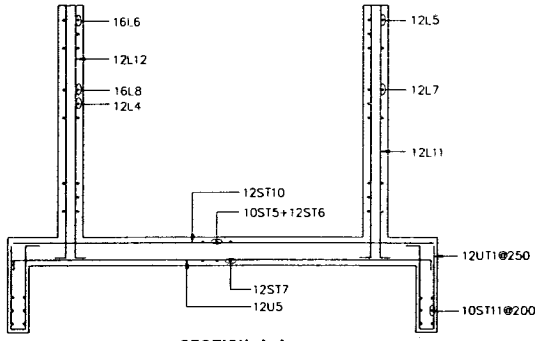
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



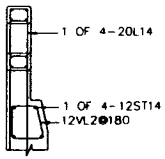
REINFORCEMENT DETAILS



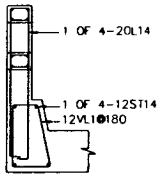
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



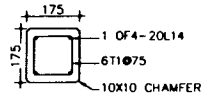
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

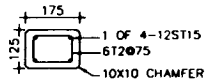
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	7150				7150
	16	ST2	21	2400				2400
	10	ST3	2 X 41	4160				4160
	10	ST4	2 X 11	4160				4160
	12	ST5	19	8400				8400
	12	ST6	18	5150				5150
	12	ST7	27	8400				8400
	16	ST8	26	2400				2400
	10	ST9	30	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 22	144	574	144		862
	12	C2	2 X 22	144	588	144		876
	12	VT1	22	2 X 150	2 X 513			1326
	12	VT2	22	2 X 150	2 X 502			1304
	12	L1	2 X 15	2688	250			2938
	12	L3	2 X 22	2688	250			2938
	16	L13	4 X 4	2688	250			2938
	12	U1	22	976	7150	976		9102
	16	U2	2 X 22	1275	2710	250		4235
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	10	U5	35	250	5290	250		5790
	10	ST11	4 X 5	8350				8350
	12	UT1	2 X 35	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	394			4132
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	394			Var. 4103 To 1132
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	645	144		933
CURB AND RAILING	12	ST14	2 X 4	14450				14450
	12	VL1	2 X 42	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	14460				14460
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 30 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

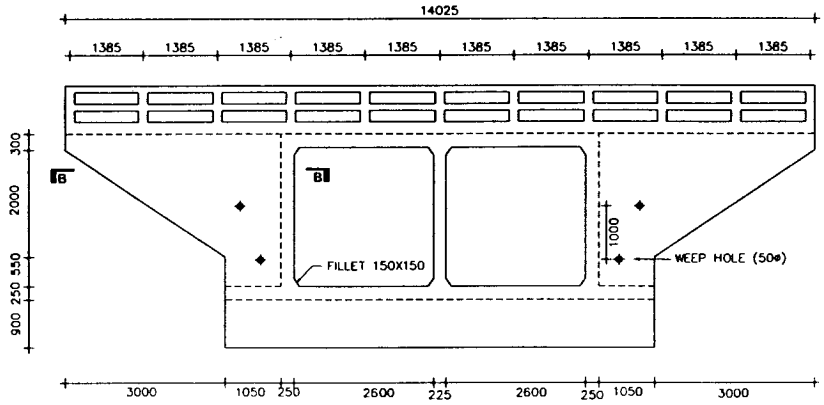
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2233232	

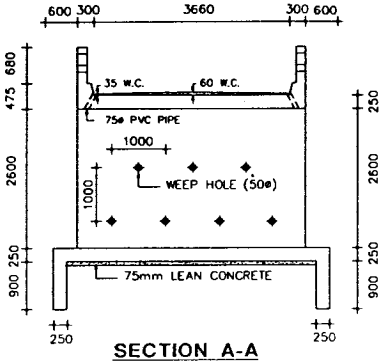
Web Copy

BC-230

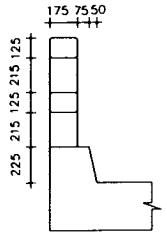
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.6m



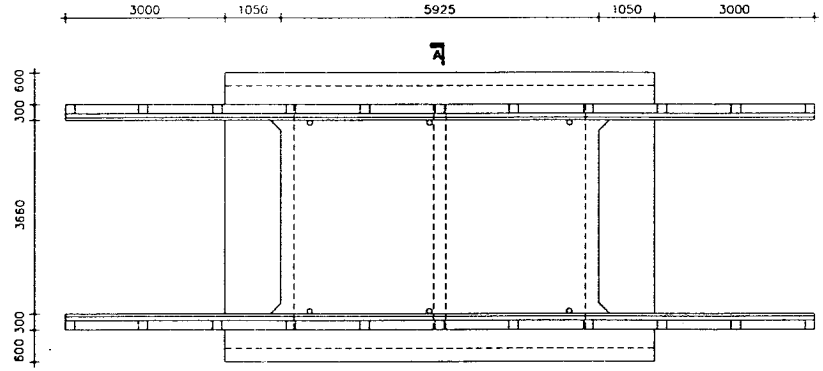
GENERAL ELEVATION



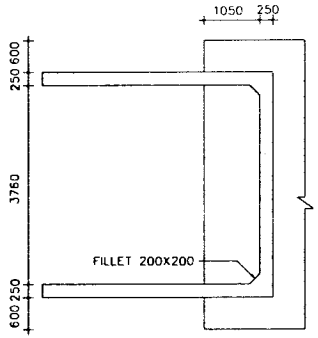
SECTION A-A



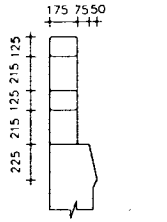
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

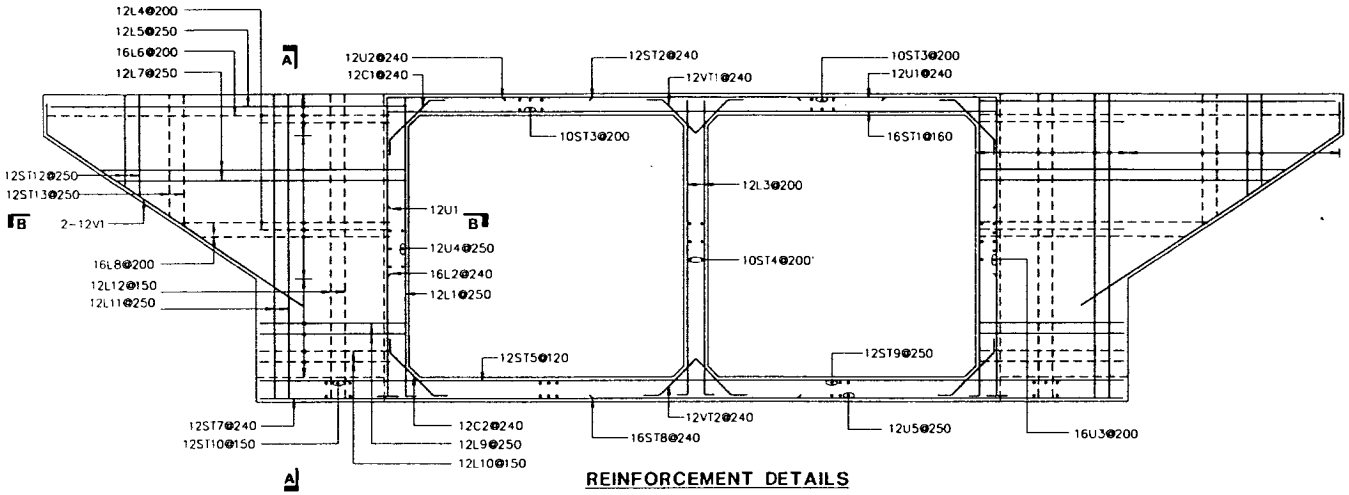
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 3.66m

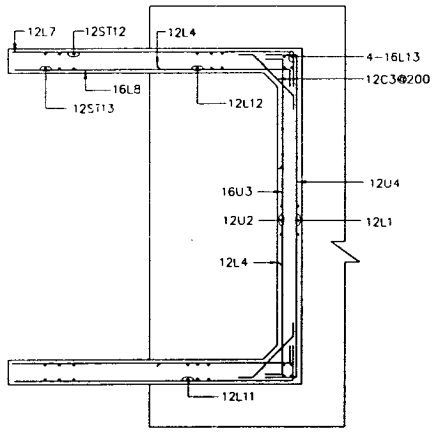
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2226261	

Web Copy

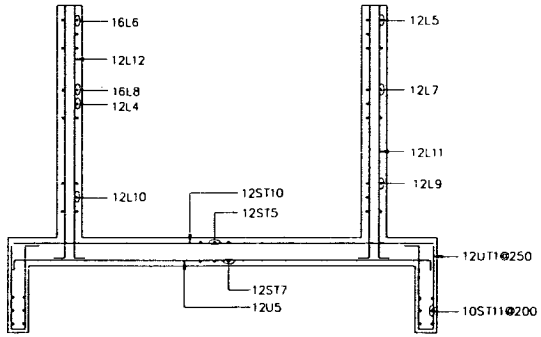
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.6m



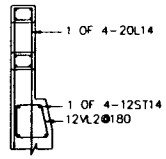
REINFORCEMENT DETAILS



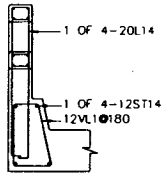
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



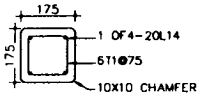
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

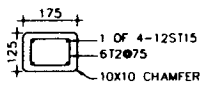
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF WALL	16	ST1	27	5825				5825
	12	ST2	18	1958				1958
	10	ST3	2 X 31	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	46	7925				7925
	12	ST6	45	4125				4125
	12	ST7	24	7925				7925
	16	ST8	23	1958				1958
	12	ST9	25	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 19	144	621	144		909
	12	C2	2 X 19	144	598	144		886
	12	VT1	19	2 X 150	2 X 537			1374
	12	VT2	19	2 X 150	2 X 537			1374
	12	L1	2 X 15	2986	250			3236
	16	L2	2 X 17	1054	250			1304
	12	L3	2 X 22	2986	250			3236
	16	L13	4 X 4	2986	250			3236
	12	U1	19	1076	5825	1076		7977
	12	U2	2 X 19	1066	3010	250		4326
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	394	4160	394		4948
	12	U5	33	250	5290	250		5790
	10	ST11	4 X 5	7875				7875
	12	UT1	2 X 33	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var.4159To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3038	250			3288
	12	L12	4 X 7	3038	250			3288
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X15	144	680	144		968
CURB AND RAILING	12	ST14	2 X 4	13975				13975
	12	VL1	2 X34	204	419	295	410	1328
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	13985				13985
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 35 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 3.66m

DATE :

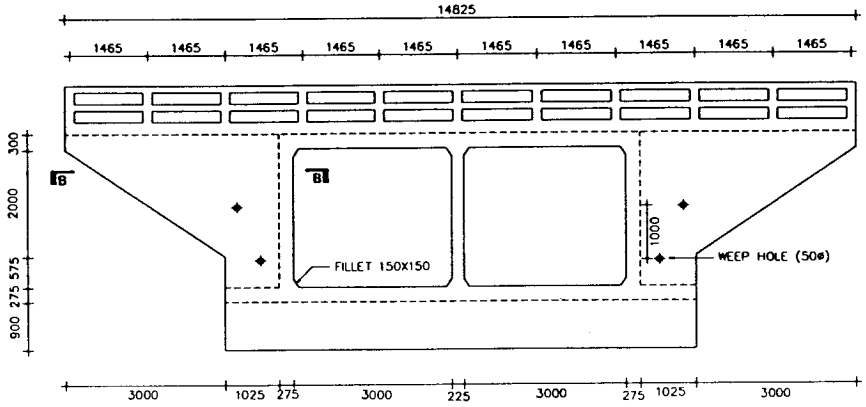
ISSUED BY :

CAD FILE REF : CULV\B2226262

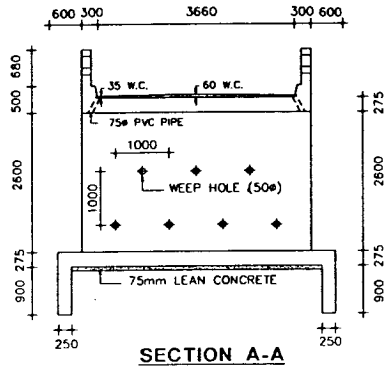
Web Copy

BC-232

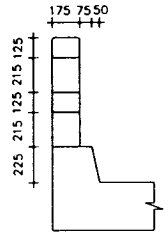
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.6m



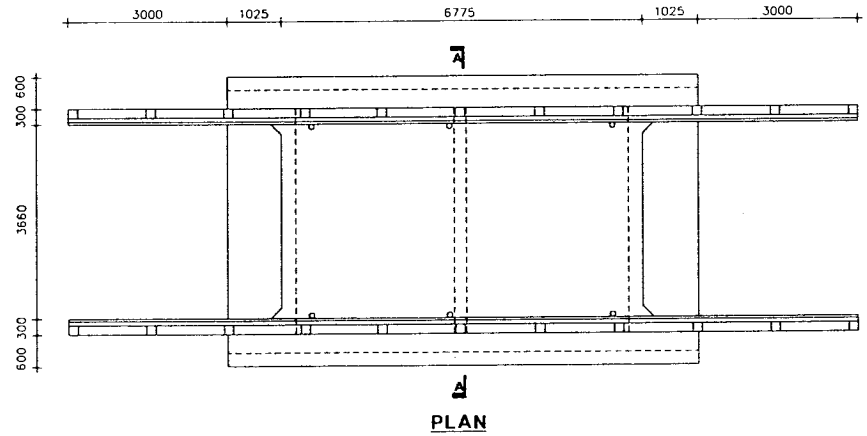
GENERAL ELEVATION



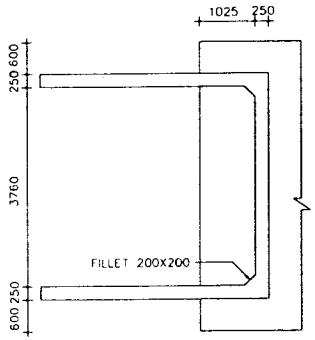
SECTION A-A



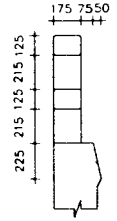
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

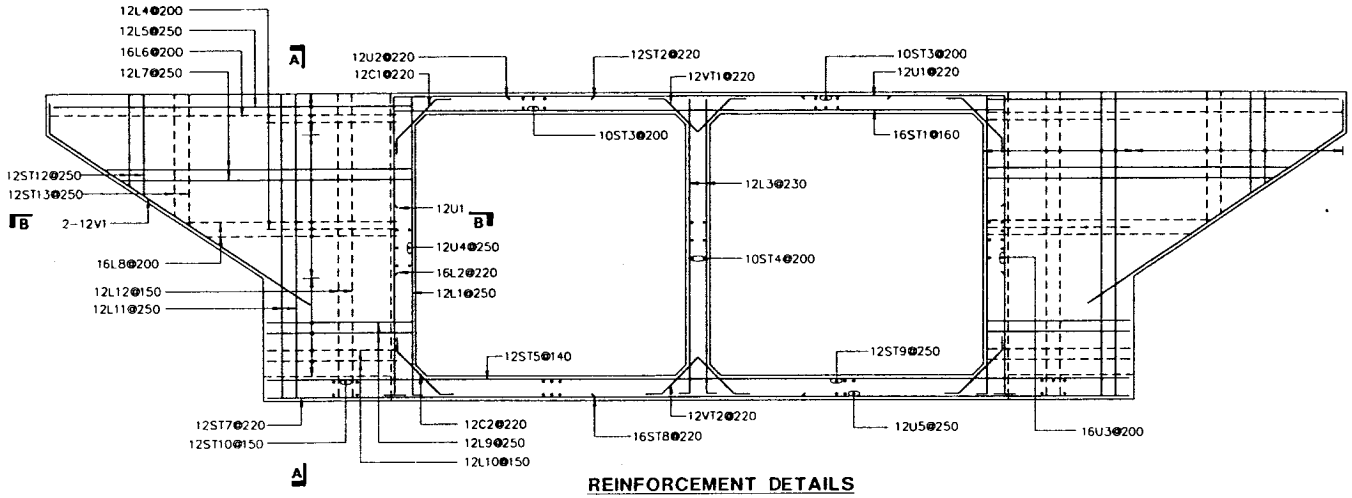
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.6m ROADWAY 3.66m

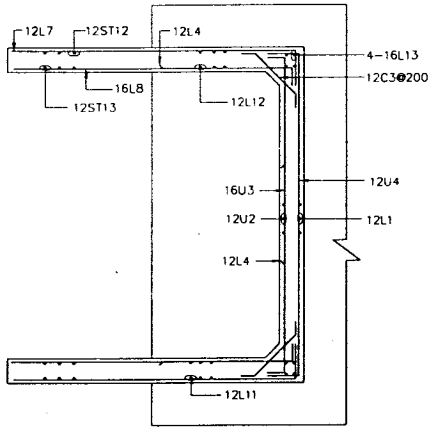
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2230261	

Web Copy

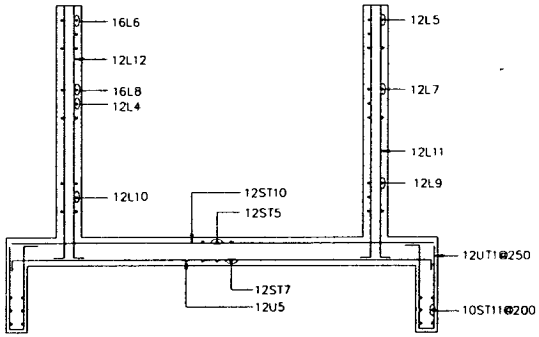
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.6m



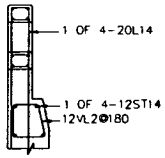
REINFORCEMENT DETAILS



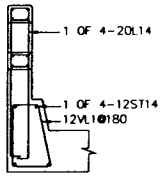
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



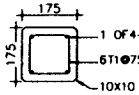
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

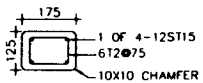
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APRON & CUTOFF	16	ST1	27	6675				6675
	12	ST2	19	2225				2225
	10	ST3	2 X 35	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	40	8725				8725
	0	ST6	39	4725				4725
	12	ST7	26	8725				8725
	16	ST8	25	2225				2225
	12	ST9	29	5360				5360
	12	ST10	2 X 4	5360				2020
	12	C1	2 X 20	144	691	144		979
	12	C2	2 X 20	144	669	144		957
	12	VT1	20	2 X 150	2 X 572			1444
	12	VT2	20	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	16	L2	2 X 18	1079	250			1329
	12	L3	2 X 20	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	6675	1101		8877
	12	U2	2 X 20	1225	3060	250		5510
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	36	250	5290	250		5790
	10	ST11	4 X 5	8675				8675
	12	UT1	2 X 36	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	14775				14775
	12	VL1	2 X39	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	22 X 4	1096	120			1216
	12	ST15	4 X 4	14785				14785
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 180	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

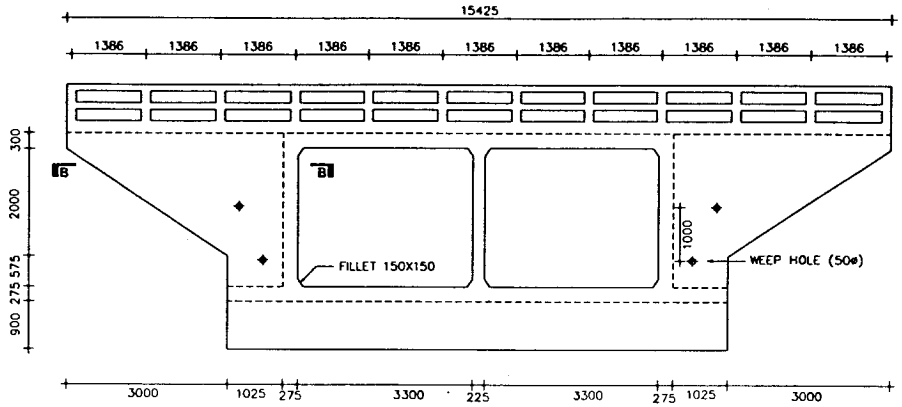
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2230262

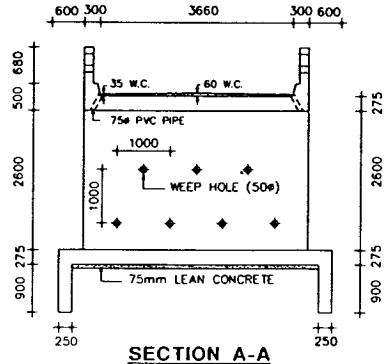
Web Copy

BC-234

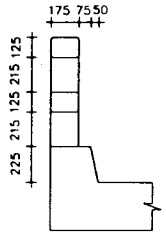
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.6m



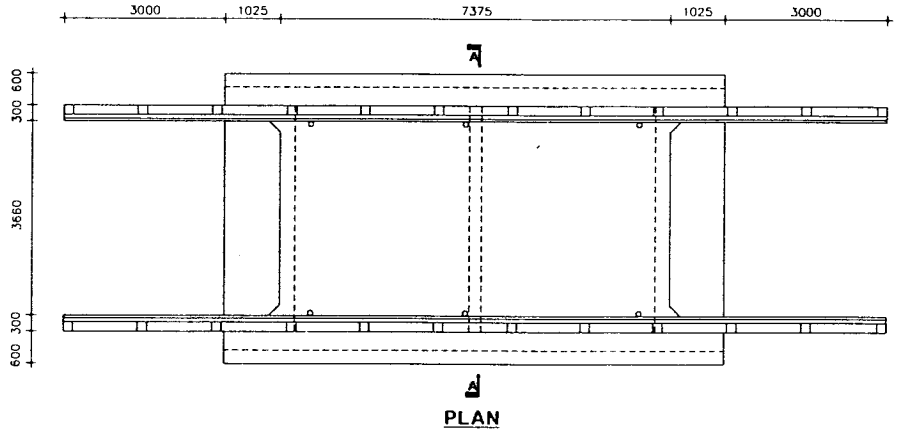
GENERAL ELEVATION



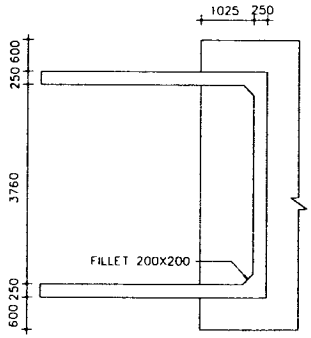
SECTION A-A



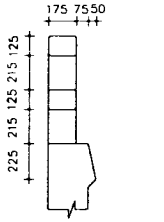
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

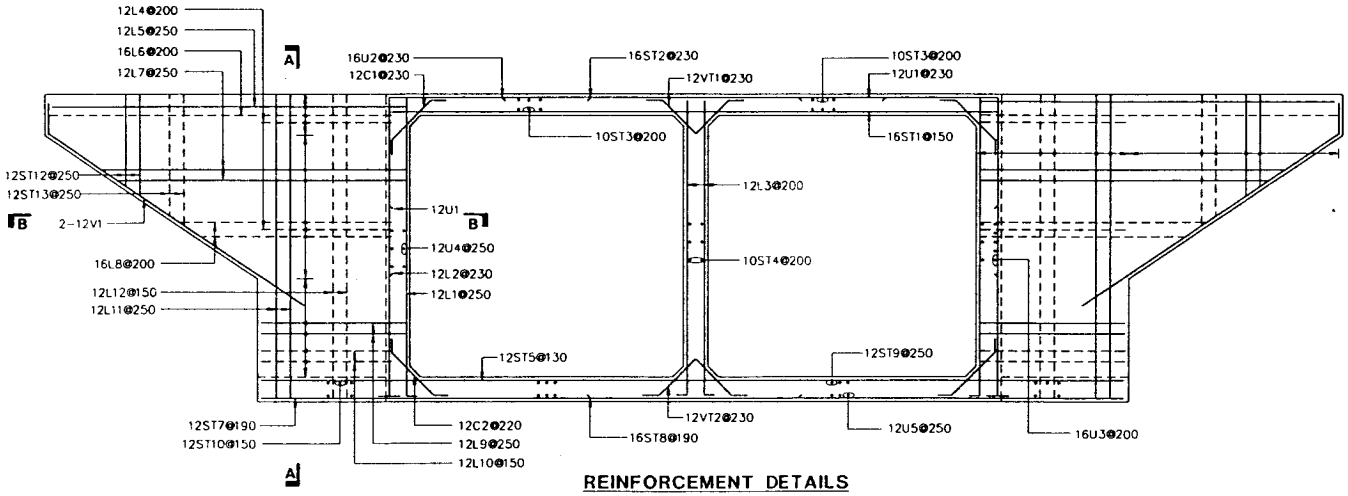
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2233261	

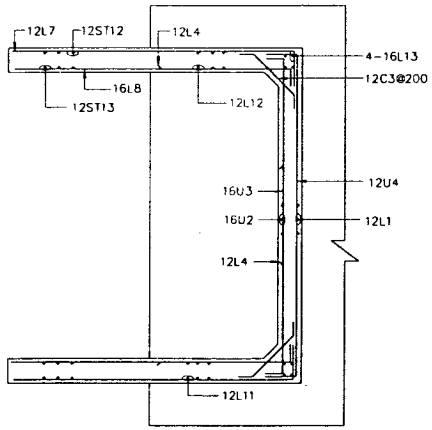
Web Copy

BC-235

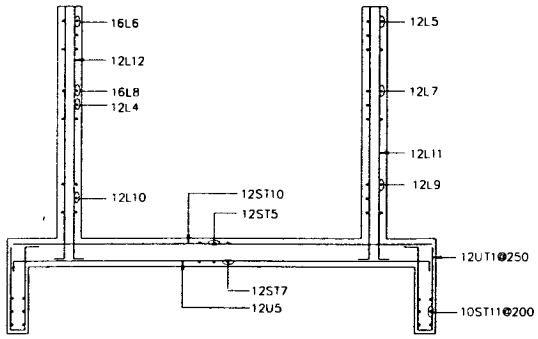
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 2.6m



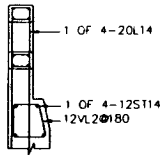
REINFORCEMENT DETAILS



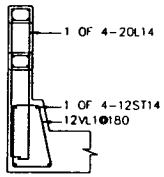
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



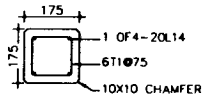
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

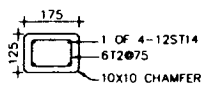
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX A PPRON & CUTOFF WALL	16	ST1	29	7275				7275
	16	ST2	19	2425				2425
	10	ST3	2 X 38	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	43	9325				9325
	0	ST6	42	5175				5175
	12	ST7	30	9325				9325
	16	ST8	29	2425				2425
	12	ST9	31	5360				5360
	12	ST10	2 X 4	5360				2020
	12	C1	2 X 20	144	680	144		968
	12	C2	2 X 20	144	674	144		962
	12	VT1	20	2 X 150	2 X 566			1432
	12	VT2	20	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	2 X 22	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	7275	1101		9477
	16	U2	2 X 20	1325	3060	250		5710
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	39	250	5290	250		5790
	10	ST11	4 X 5	9275				9275
	12	UT1	2 X 39	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var.4159To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15375				15375
	12	VL1	2 X42	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15385				15385
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

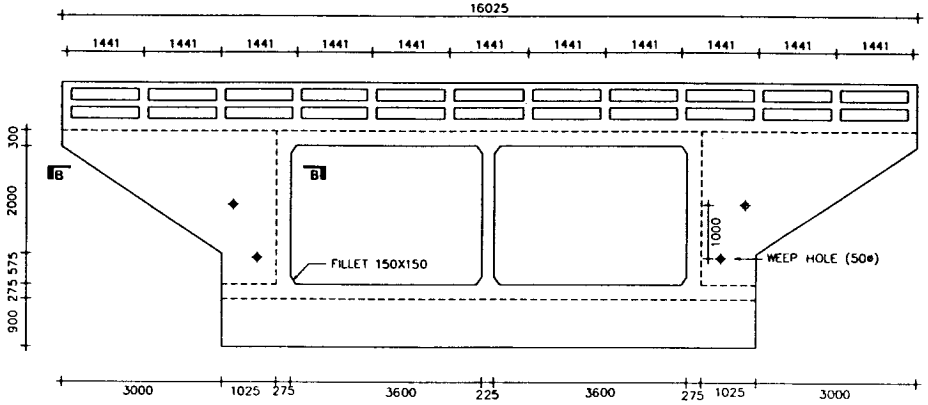
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2233262

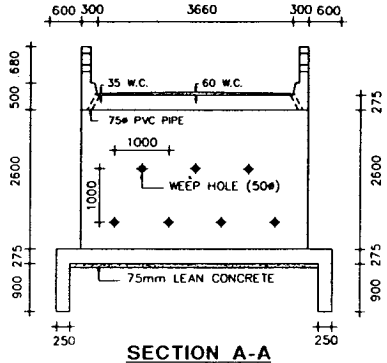
Web Copy

BC-236

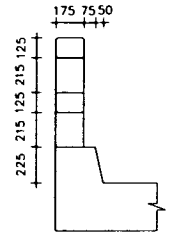
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 2.6m



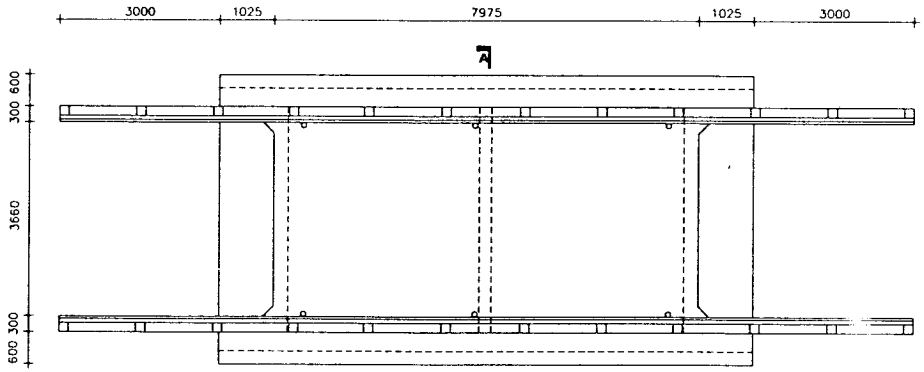
GENERAL ELEVATION



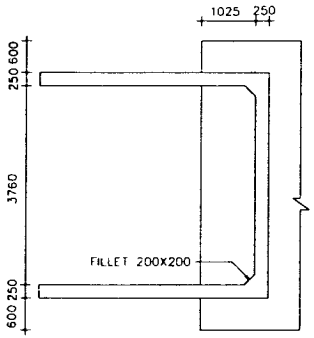
SECTION A-A



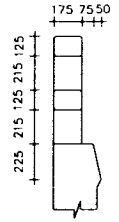
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

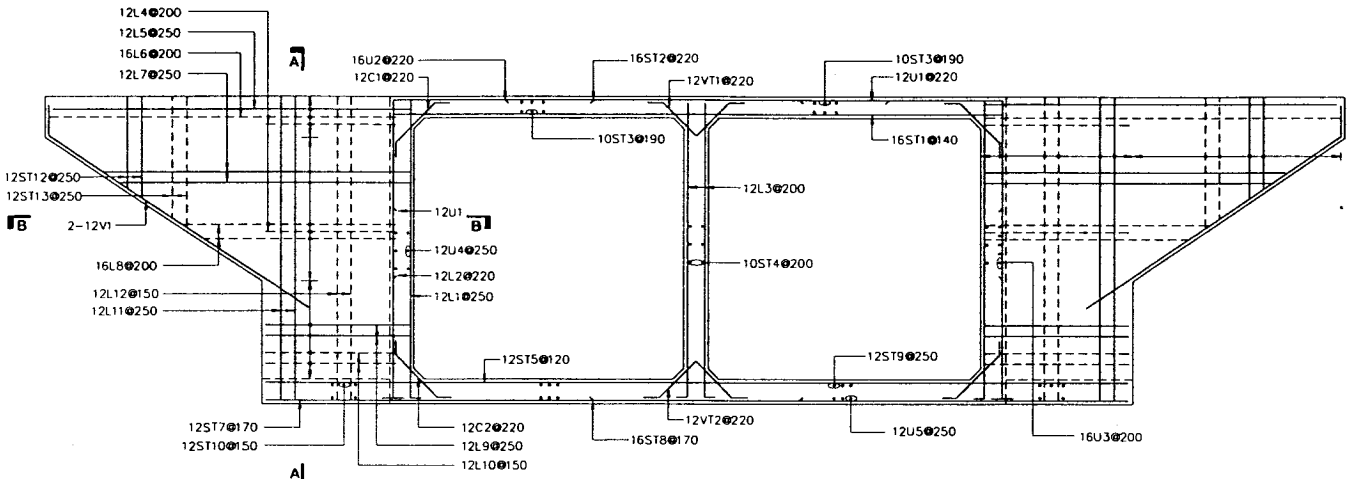
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 3.66m

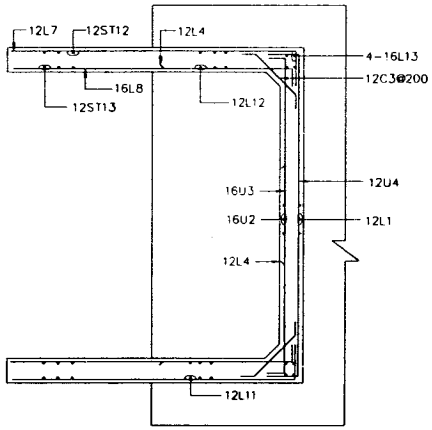
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2236261	

Web Copy

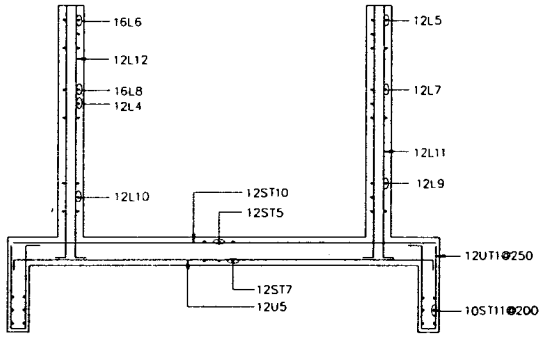
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 2.6m



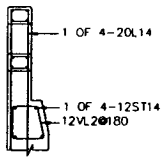
REINFORCEMENT DETAILS



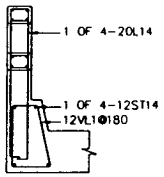
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



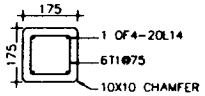
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

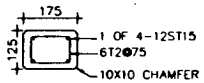
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	7875				7875
	16	ST2	19	2625				2625
	10	ST3	2 X 43	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	46	9925				9925
	0	ST6	45	5625				5625
	12	ST7	33	9925				9925
	16	ST8	32	2625				2625
	12	ST9	33	5360				5360
	12	ST10	2 X 4	5360				2020
	12	C1	2 X 20	144	680	144		968
	12	C2	2 X 20	144	674	144		962
	12	VT1	20	2 X 150	2 X 566			1432
	12	VT2	20	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	2 X 22	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	7875	1101		10077
	16	U2	2 X 20	1425	3060	250		5910
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	41	250	5290	250		5790
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var.4159To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X46	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15985				15985
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 31 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

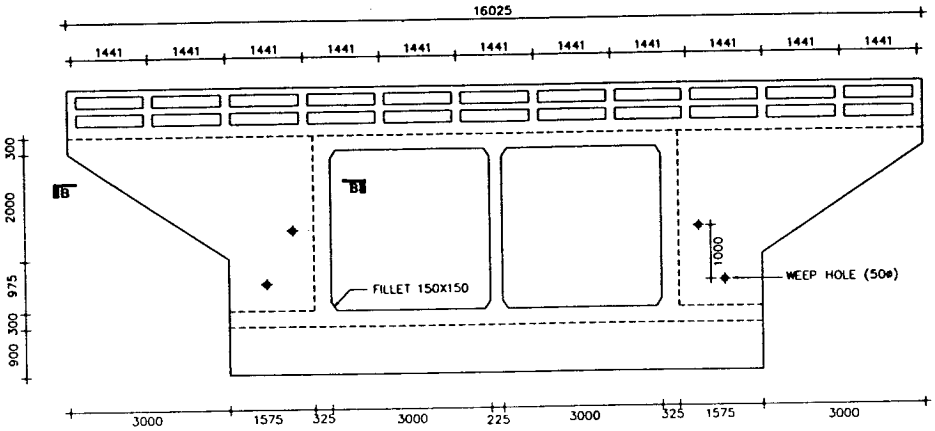
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2236262

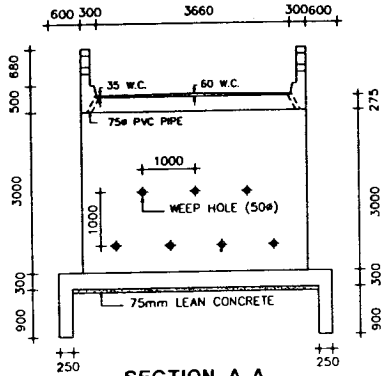
Web Copy

BC-238

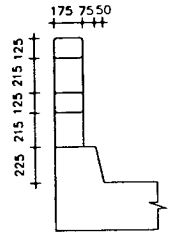
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 3.0m



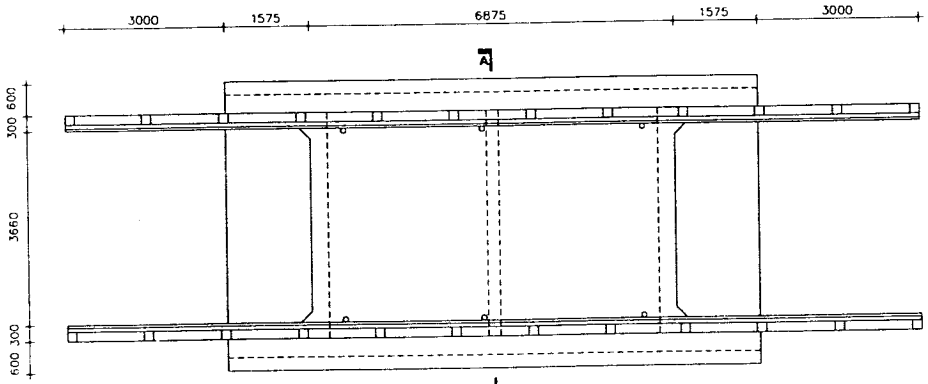
GENERAL ELEVATION



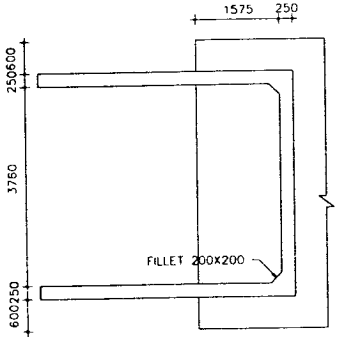
SECTION A-A



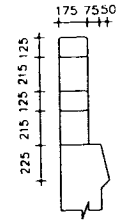
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

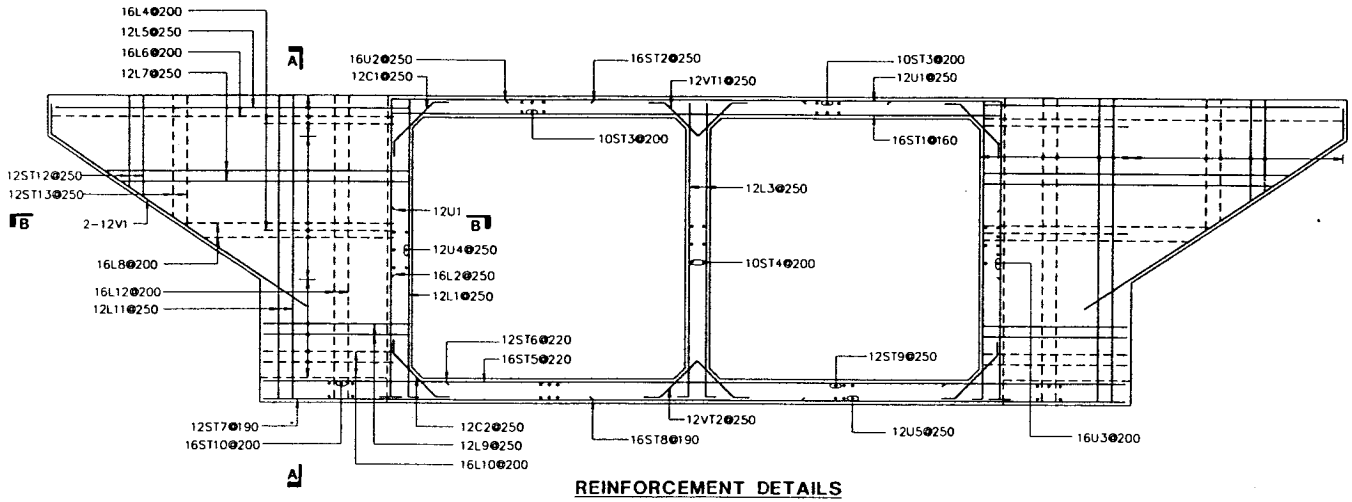
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 3.66m

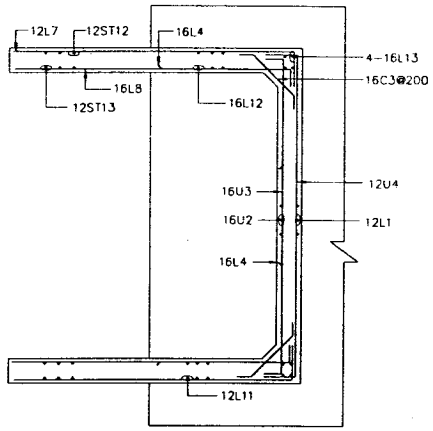
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2230301	

Web Copy

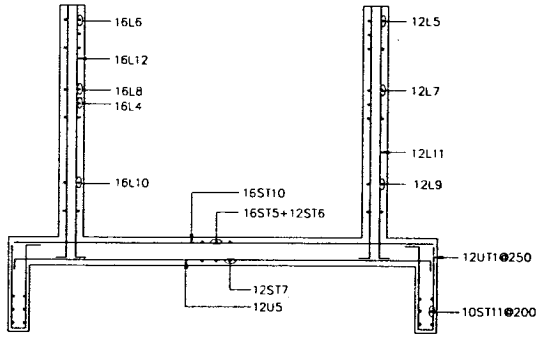
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.0m
CLEAR HEIGHT : 3.0m



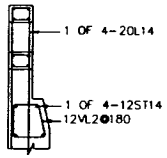
REINFORCEMENT DETAILS



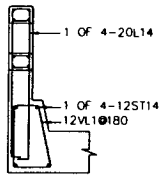
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



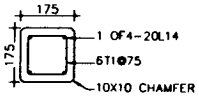
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

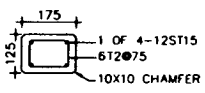
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	27	6775				6775
	16	ST2	17	2225				2225
	10	ST3	2 X 35	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	26	9925				9925
	12	ST6	2 X 25	2500				2500
	12	ST7	30	9925				9925
	16	ST8	29	2225				2225
	12	ST9	29	5360				5360
	16	ST10	2 X 7	5360				2020
	12	C1	2 X 18	144	751	144		1039
	12	C2	2 X 18	144	775	144		1063
	12	VT1	18	2 X 150	2 X 566			1432
	12	VT2	18	2 X 150	2 X 590			1480
	12	L1	2 X 15	3461	250			3711
	16	L2	2 X 16	1238	250			1488
	12	L3	2 X 18	3461	250			3711
	16	L13	4 X 4	3461	250			3711
	12	U1	18	1235	6775	1235		9245
	16	U2	2 X 18	1275	3485	250		6035
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	41	250	5290	250		5790
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 13	1838	1220			3058
	12	L5	4 X 1	4788	394			5182
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X4	1788	394			2182
	16	L10	4 X 8	1788	1220			3008
	12	L11	4 X 7	3513	250			3763
	16	L12	4 X 11	3513	250			3763
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X18	144	786	144		1074
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X40	204	445	300	435	1384
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15985				15985
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

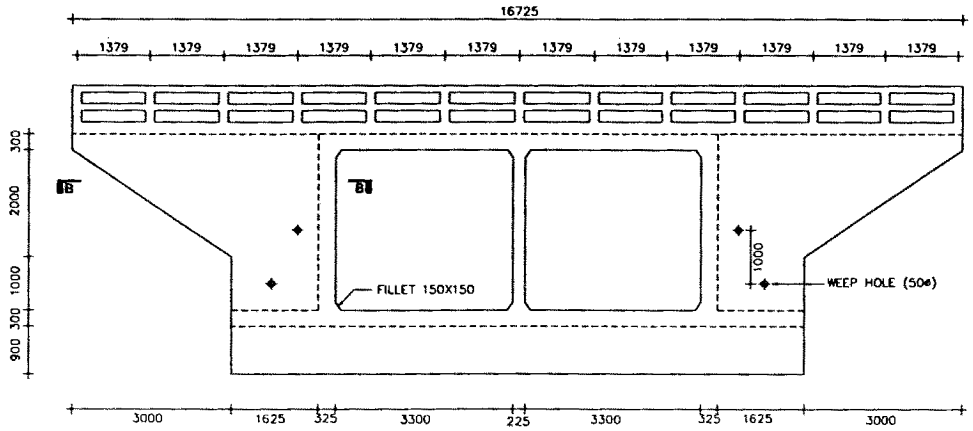
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2230302

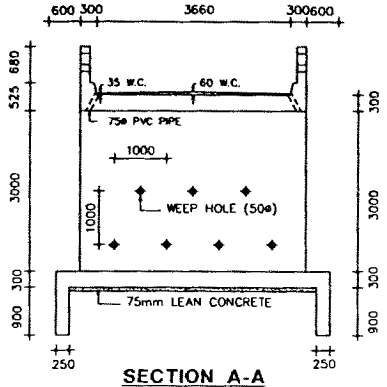
Web Copy

BC-240

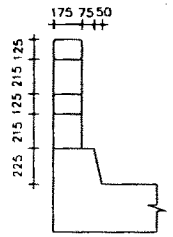
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.0m



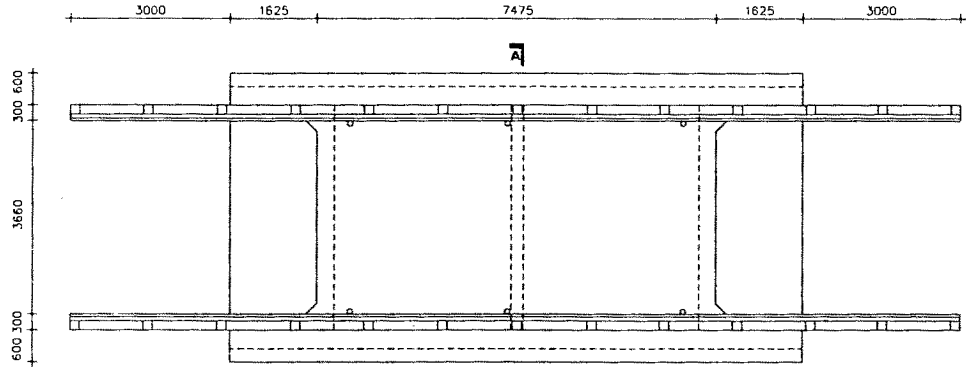
GENERAL ELEVATION



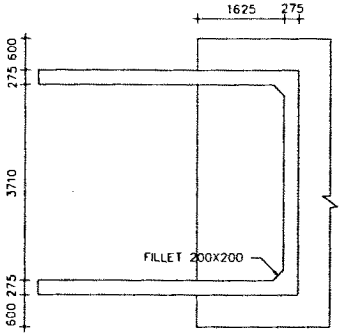
SECTION A-A



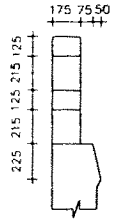
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

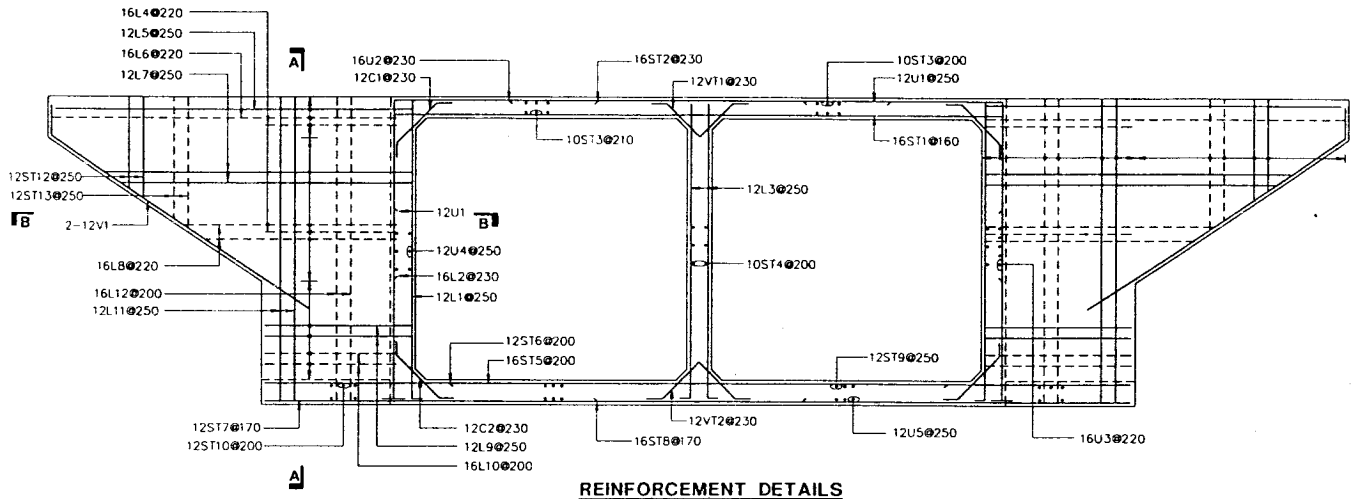
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2233301	

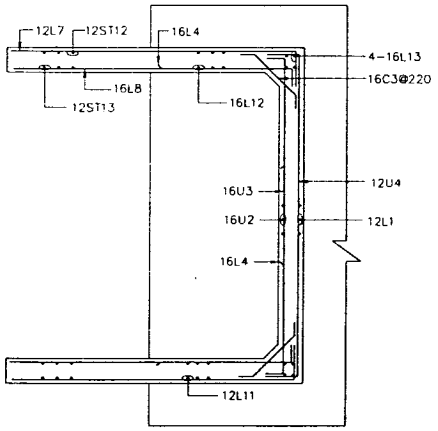
Web Copy

BC-241

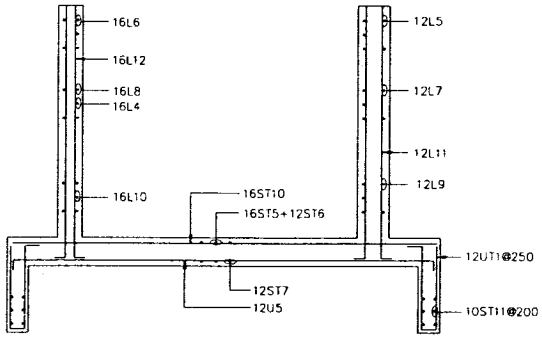
SHEET 2 OF 2
LIVE LOAD. ASHTO H15
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 3.0m



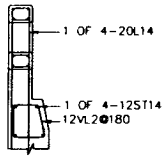
REINFORCEMENT DETAILS



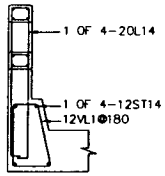
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



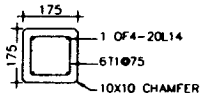
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

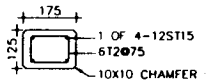
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	27	7375				7375
	16	ST2	19	2425				2425
	10	ST3	2 X 38	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	28	10625				10625
	12	ST6	2 x 27	2610				2610
	12	ST7	33	10625				10625
	16	ST8	32	2425				2425
APPRON & CUTOFF	12	ST9	44	5360				5360
	12	ST10	4 X 7	2045				2045
	12	C1	2 X 20	144	786	144		1074
	12	C2	2 X 20	144	775	144		1063
	12	VT1	20	2 X 150	2 X 602			1504
	12	VT2	20	2 X 150	2 X 590			1480
	12	L1	2 X 14	3486	250			3736
	16	L2	2 X 18	1238	250			1488
	12	L3	2 X 22	3486	250			3736
	16	L13	4 X 4	3486	250			3736
	12	U1	20	1260	7375	1260		9895
	16	U2	2 X 20	1375	3510	1375		6260
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	44	250	5290	250		5790
	10	ST11	4 X 5	10575				10575
	12	UT1	2 X 44	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3538	250			3788
	16	L12	4 X 11	3538	250			3788
WALL	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	16675				16675
	12	VL1	2 X 43	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	16685				16685
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

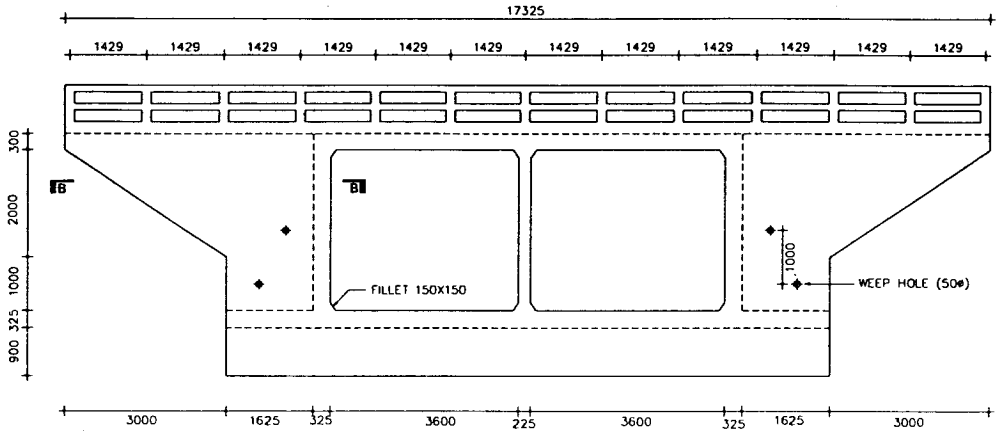
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2233302

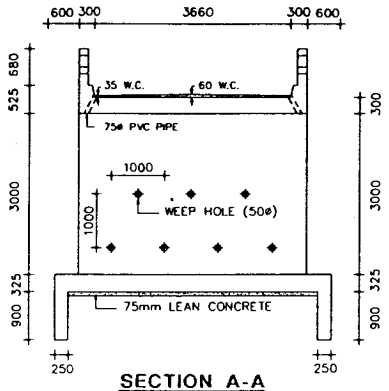
Web Copy

BC-242

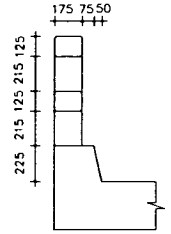
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.0m



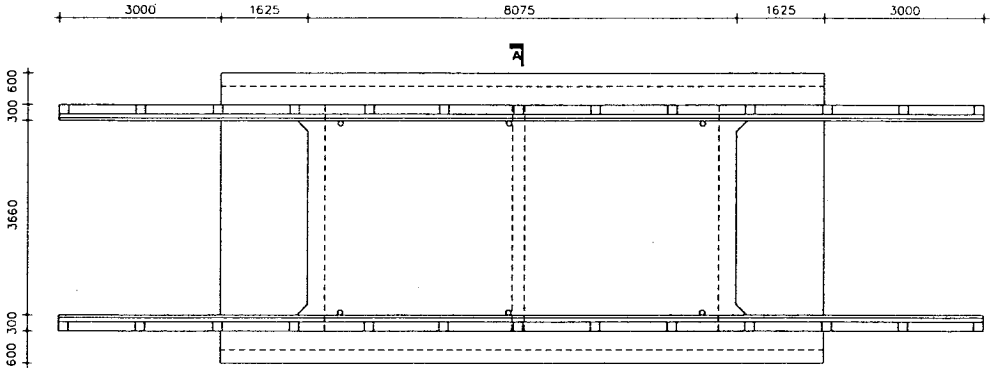
GENERAL ELEVATION



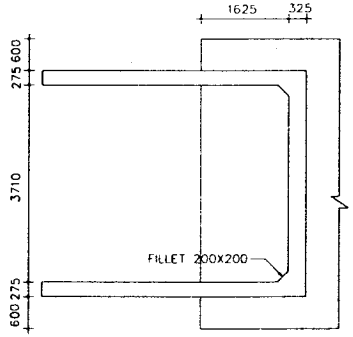
SECTION A-A



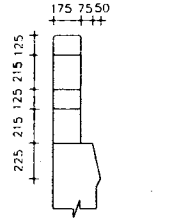
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

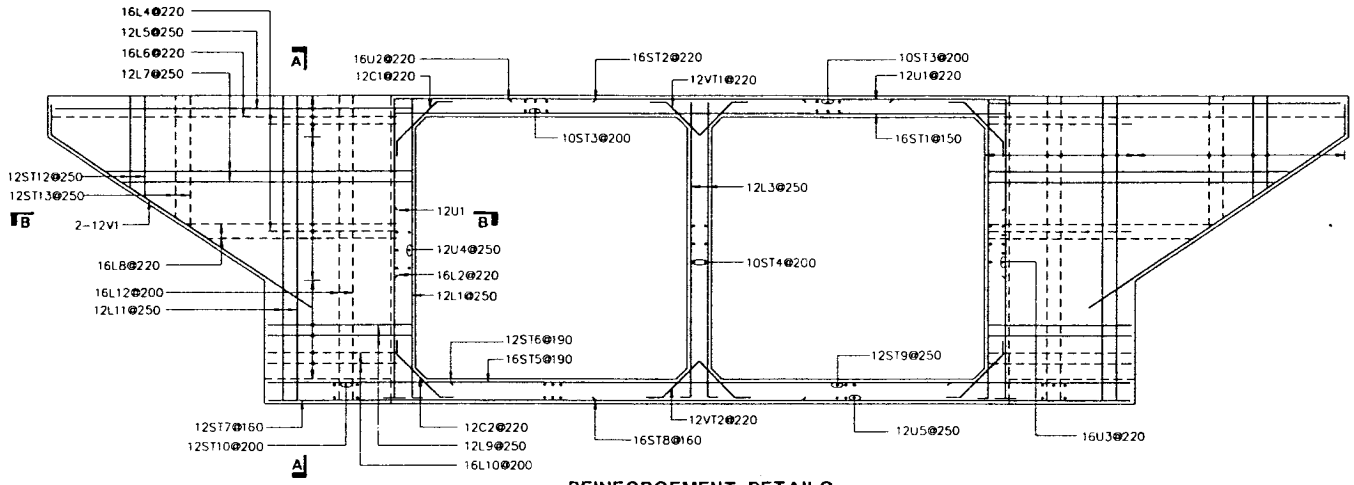
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.0m ROADWAY 3.66m

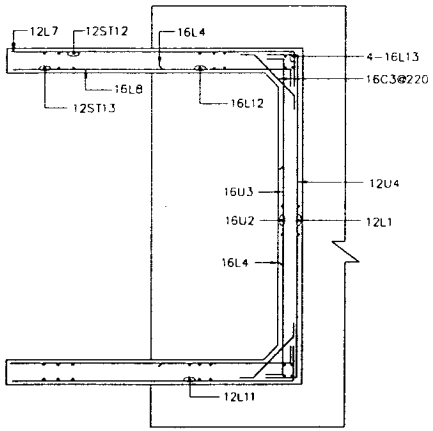
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2236301	

Web Copy

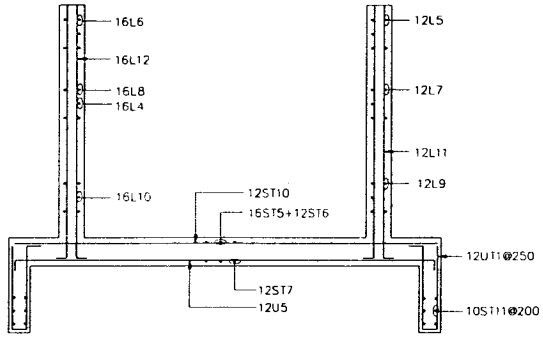
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.0m



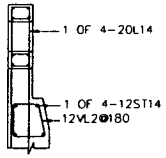
REINFORCEMENT DETAILS



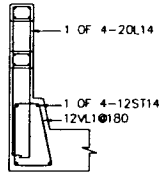
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



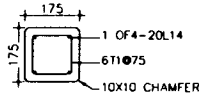
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

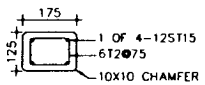
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX & APPROACH & CUTOFF	16	ST1	29	7975				7975
	16	ST2	19	2625				2625
	10	ST3	2 X 41	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	30	11225				11225
	12	ST6	2 x 29	2670				2670
	12	ST7	35	11225				11225
	16	ST8	34	2625				2625
	12	ST9	46	5360				5360
	12	ST10	4 X 7	2045				2045
	12	C1	2 X 20	144	786	144		1074
	12	C2	2 X 20	144	810	144		1098
	12	VT1	20	2 X 150	2 X 602			1504
	12	VT2	20	2 X 150	2 X 626			1552
	12	L1	2 X 14	3511	250			3761
	16	L2	2 X 18	1263	250			1513
	12	L3	2 X 18	3511	250			3761
	16	L13	4 X 4	3511	250			3761
	12	U1	20	1260	7975	1260		10495
	16	U2	2 X 20	1475	3535	1475		6485
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	46	250	5290	250		5790
	10	ST11	4 X 5	11175				11175
	12	UT1	2 X 46	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3563	250			3813
	16	L12	4 X 11	3563	250			3813
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17275				17275
	12	VL1	2 X 46	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	17285				17285
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 30 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

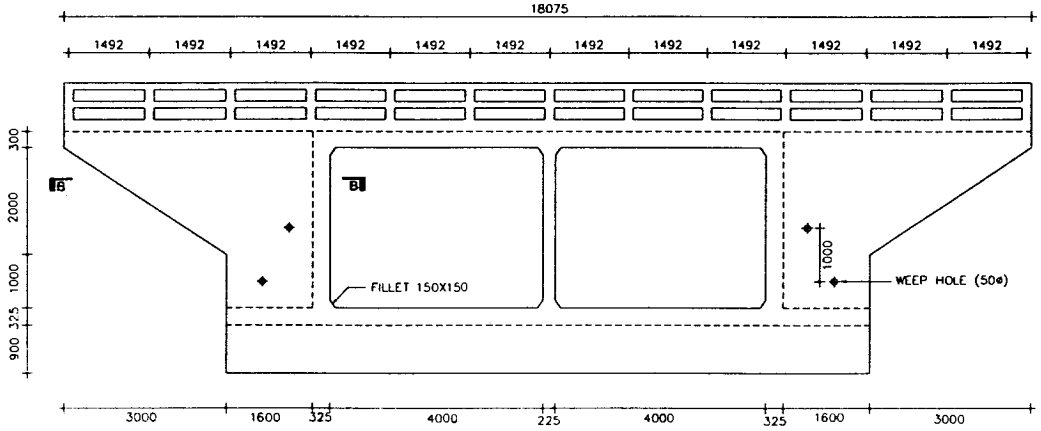
REINFORCEMENT DETAILS OF BOX CULVERT DOUBLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2236302

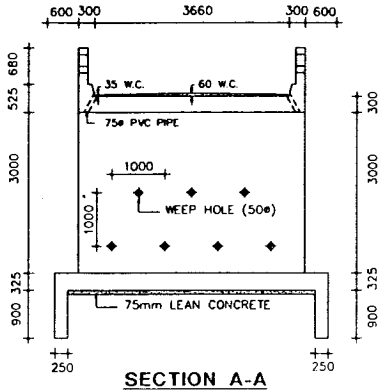
Web Copy

BC-244

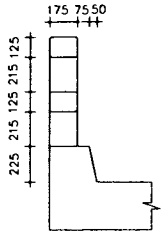
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.0m



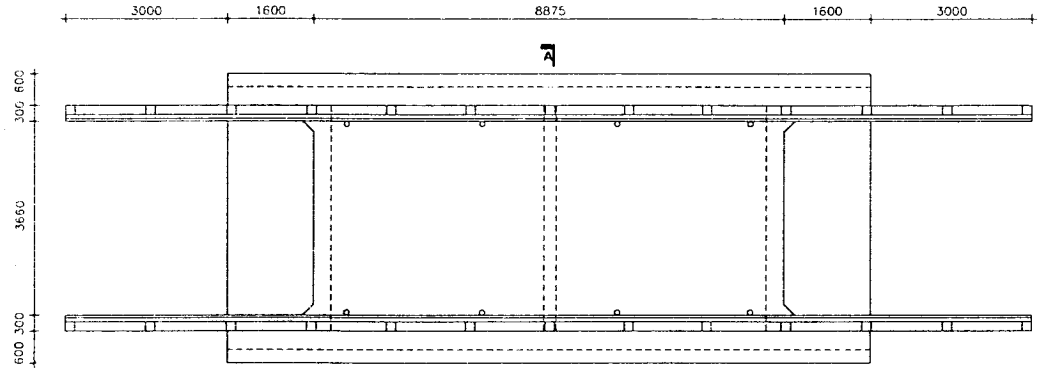
GENERAL ELEVATION



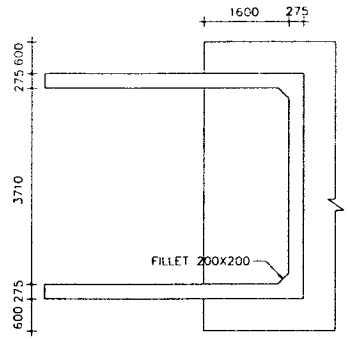
SECTION A-A



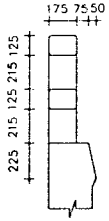
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing. filter material shall be provided as per specification

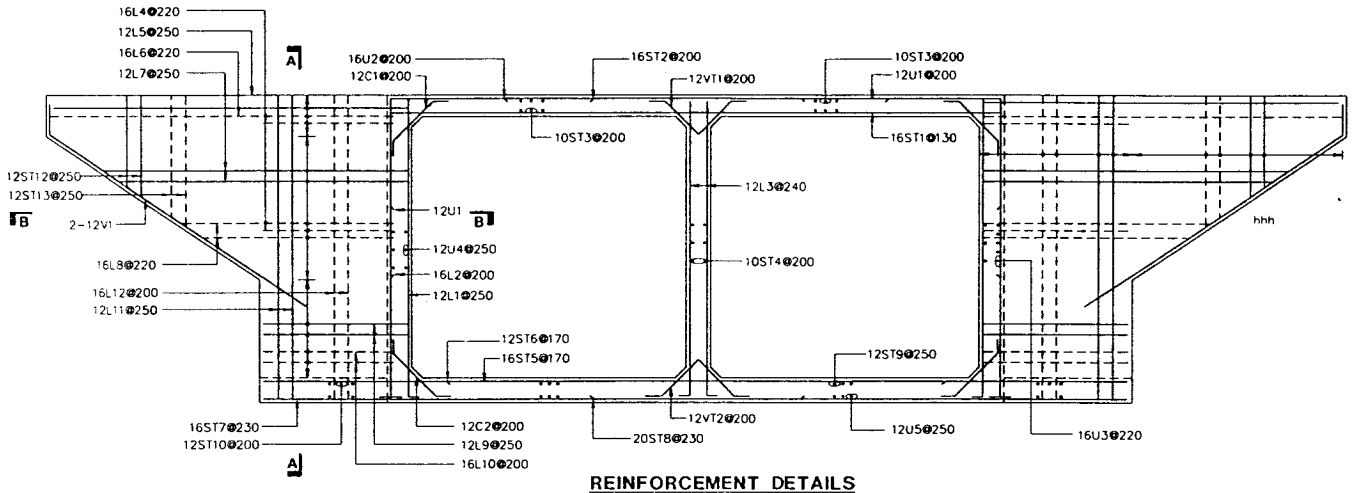
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 3.66m

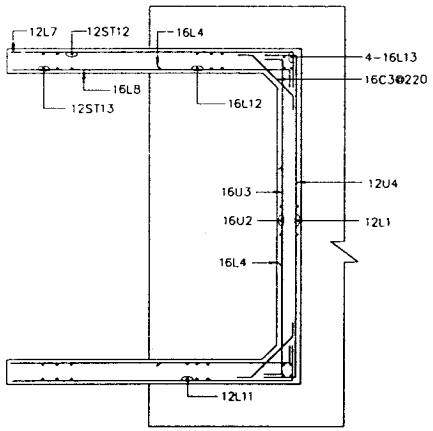
DATE :	ISSUED BY :
CAD FILE REF CULV\B2240301	

Web Copy

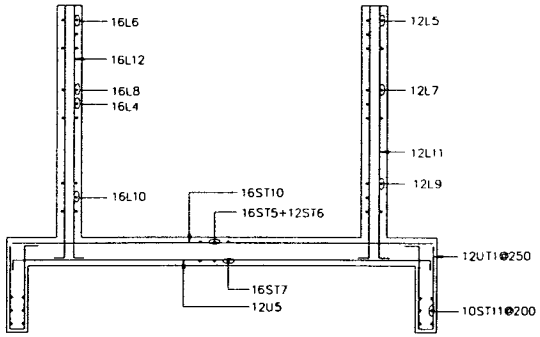
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.0m



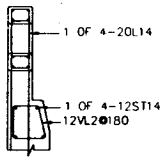
REINFORCEMENT DETAILS



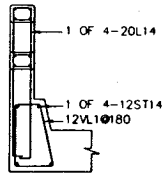
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



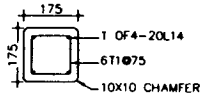
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

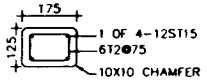
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	8775				8775
	16	ST2	21	2891				2891
	10	ST3	2 X 45	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	33	12025				12025
	12	ST6	2 x 32	2750				2750
	16	ST7	25	12025				12025
	20	ST8	24	2891				2891
	12	ST9	50	5360				5360
	12	ST10	4 X 7	2045				2045
	12	C1	2 X 22	144	786	144		1074
	12	C2	2 X 22	144	804	144		1092
	12	VT1	22	2 X 150	2 X 602			1504
	12	VT2	22	2 X 150	2 X 620			1540
	12	L1	2 X 14	3507	250			3757
	16	L2	2 X 20	1263	250			1513
	12	L3	2 X 19	3507	250			3757
	20	L13	4 X 4	3507	250			3757
	12	U1	22	1260	8775	1260		11295
	16	U2	2 X 22	1608	3535	1608		6751
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	50	250	5290	250		5790
	10	ST11	4 X 5	11975				11975
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5288 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	18075				18075
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	18085				18085
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ⩾ 37 kN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

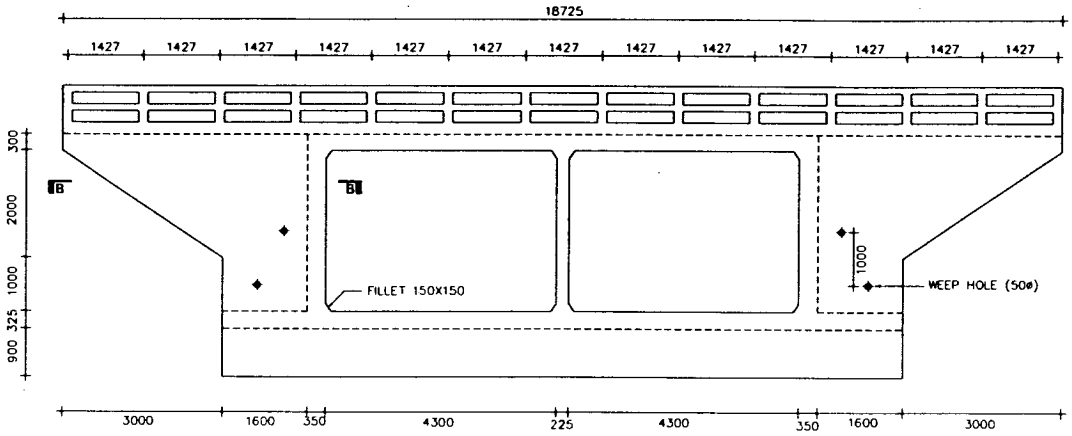
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2240302

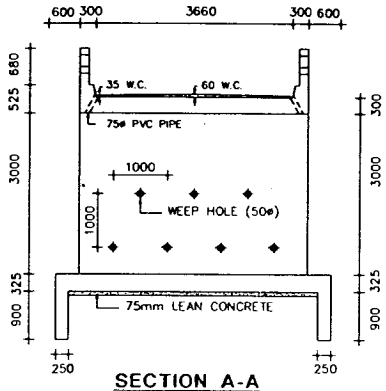
Web Copy

BC-246

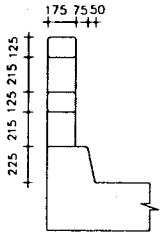
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.0m



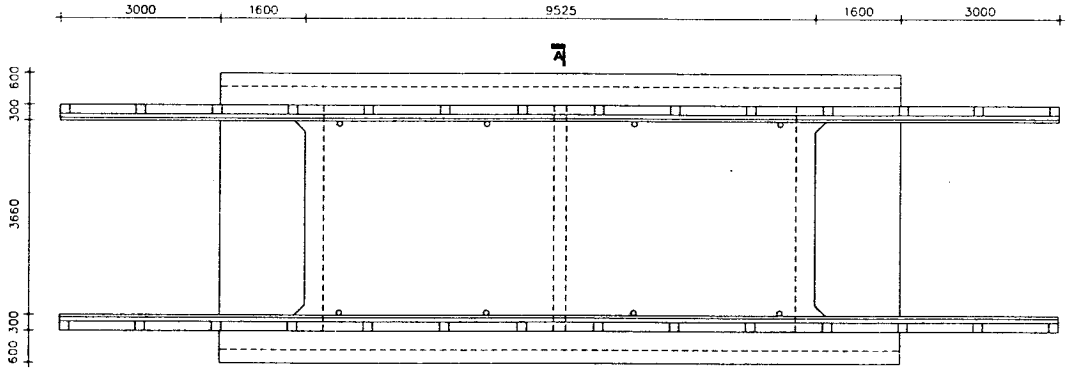
GENERAL ELEVATION



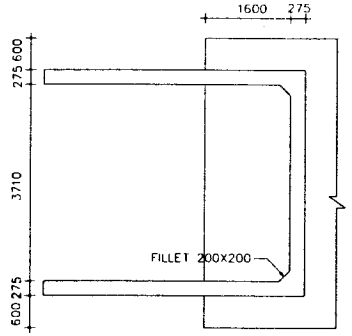
SECTION A-A



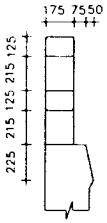
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1 All dimensions are in milimeter unless otherwise specified

2 Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

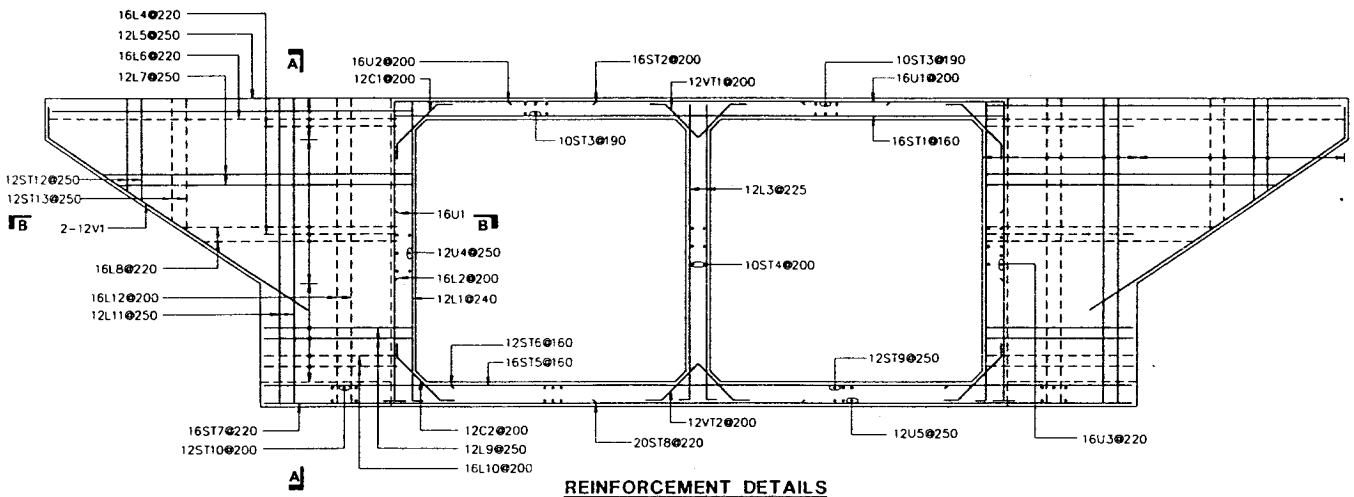
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 3.66m

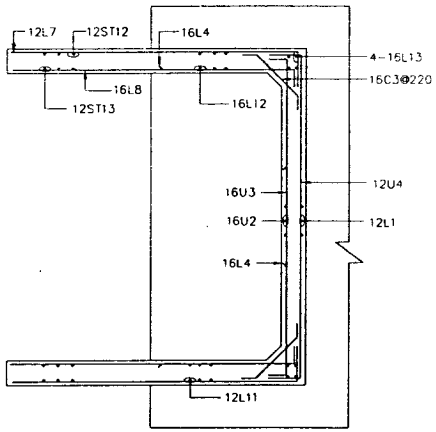
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2243301	

Web Copy

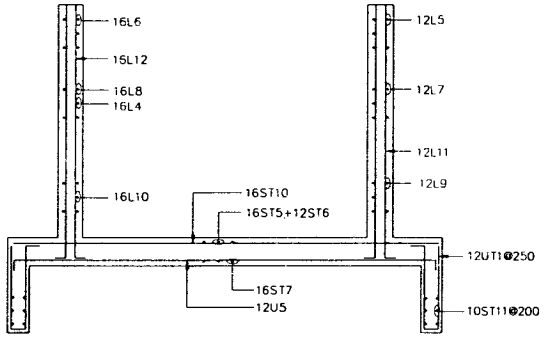
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.0m



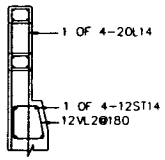
REINFORCEMENT DETAILS



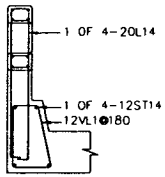
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



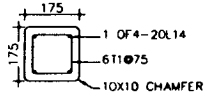
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

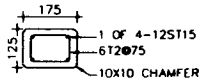
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CUTOFF	16	ST1	27	9425				9425
	16	ST2	21	3091				3091
	10	ST3	2 X 51	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	35	12625				12625
	12	ST6	2 x 34	2810				2810
	16	ST7	26	12625				12625
	20	ST8	25	3091				3091
	12	ST9	52	5360				5360
	12	ST10	4 X 7	2045				2045
	12	C1	2 X 22	144	821	144		1109
	12	C2	2 X 22	144	840	144		1128
	12	VT1	22	2 X 150	2 X 602			1504
	12	VT2	22	2 X 150	2 X 620			1540
	12	L1	2 X 15	3507	250			3757
	16	L2	2 X 20	1263	250			1513
	12	L3	2 X 20	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	16	U1	22	1260	9425	1260		11945
	16	U2	2 X 22	1733	3535	1733		7001
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	494	4160	494		5148
	12	U5	52	250	5290	250		5790
	10	ST11	4 X 5	12575				12575
	12	UT1	2 X 52	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3559	250			3709
	16	L12	4 X 11	3559	250			3809
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18675				18675
	12	VL1	2 X 54	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18685				18685
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

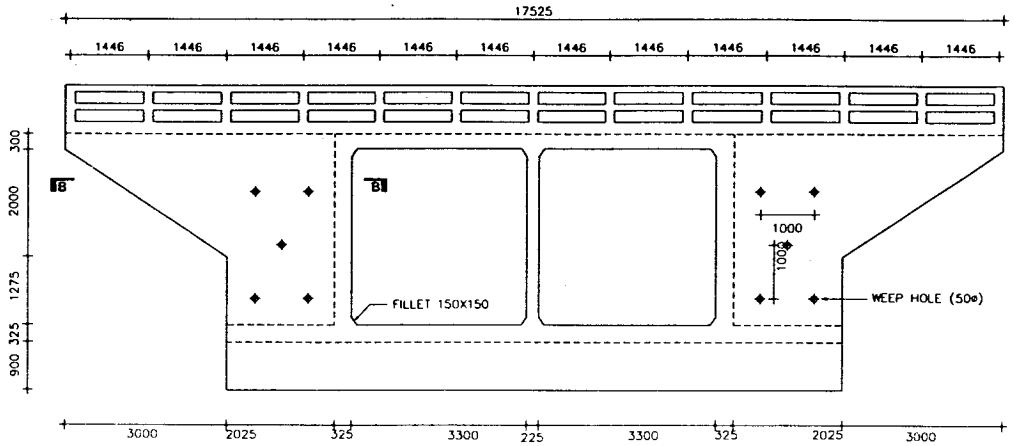
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2243302

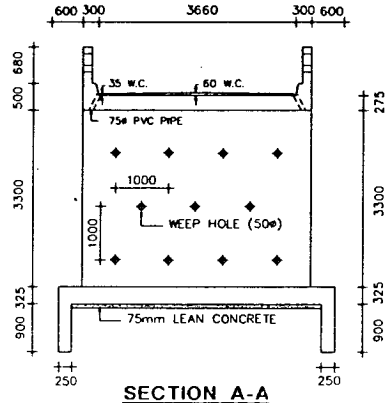
Web Copy

BC-248

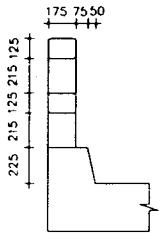
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.3m



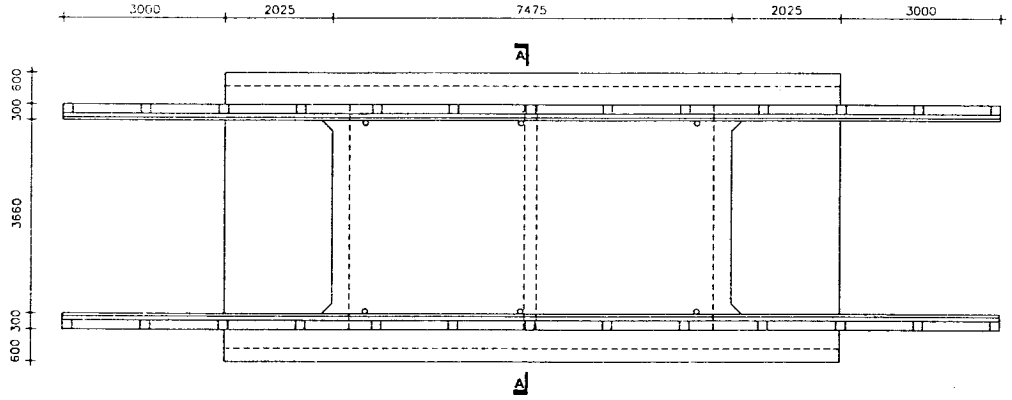
GENERAL ELEVATION



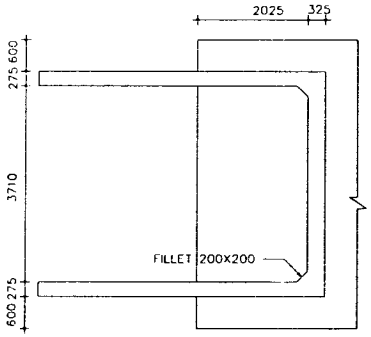
SECTION A-A



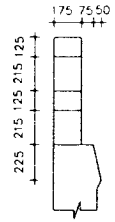
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing. filter material shall be provided as per specification

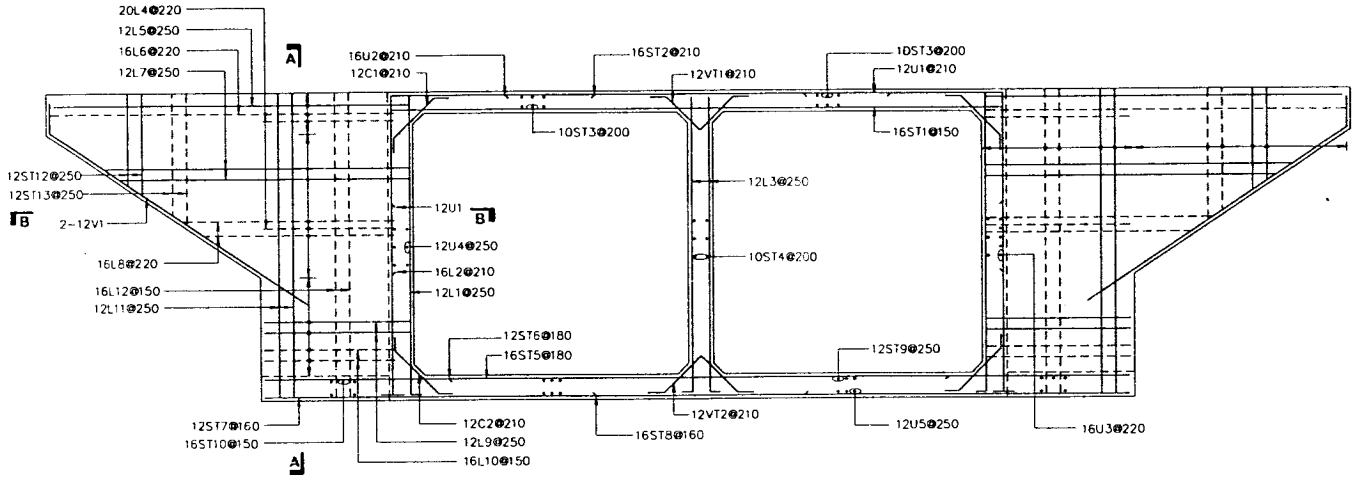
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 3.3m ROADWAY 3.66m

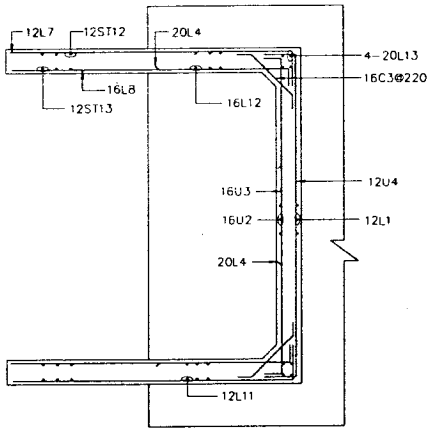
DATE :	ISSUED BY
CAD FILE REF : CULV\B2233331	

Web Copy

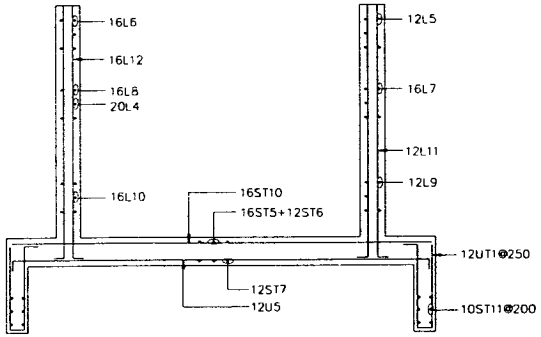
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.3m
CLEAR HEIGHT : 3.3m



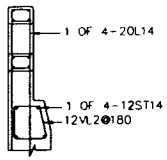
REINFORCEMENT DETAILS



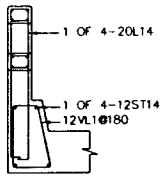
SECTION B-B



SECTION A-A



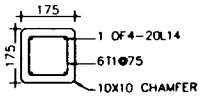
RAILING ON WING WALL (REINF. DETAIL)



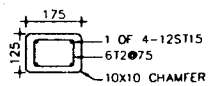
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	7375				7375
	16	ST2	20	2425				2425
	10	ST3	2 X 38	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	31	11425				11425
	12	ST6	2 x 30	3010				3010
	12	ST7	35	11425				11425
	16	ST8	34	2425				2425
	12	ST9	47	5360				5360
	16	ST10	4 X 8	2045				2045
	12	C1	2 X 21	144	751	144		1039
	12	C2	2 X 21	144	810	144		1098
	12	VT1	21	2 X 150	2 X 566			1432
	12	VT2	21	2 X 150	2 X 626			1552
	12	L1	2 X 14	3786	250			4036
	16	L2	2 X 19	1363	250			1613
	12	L3	2 X 18	3786	250			4036
	20	L13	4 X 4	3786	250			4036
	12	U1	21	1335	7375	1335		10045
	16	U2	2 X 21	1375	3810	250		5435
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	469	4160	469		5098
	12	U5	47	250	5290	250		5790
	10	ST11	4 X 5	11375				11375
	12	UT1	2 X 47	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2288	1220			3508
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5959 To 2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	1220			3458
	12	L11	4 X 8	3838	250			4088
	16	L12	4 X 14	3838	250			4088
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17475				17475
	12	VL1	2 X 43	204	445	300	435	1384
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	26 X 4	1096	120			1216
	12	ST15	4 X 4	17485				17485
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coorse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 49 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

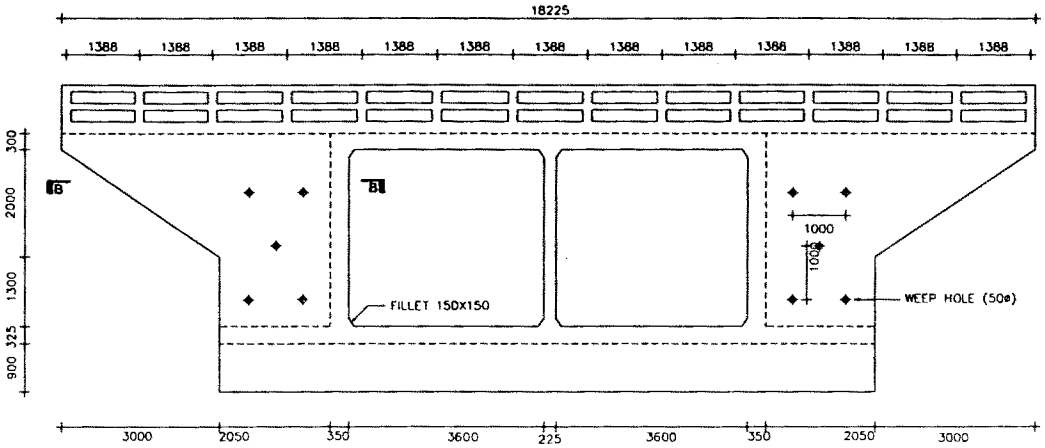
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2233332

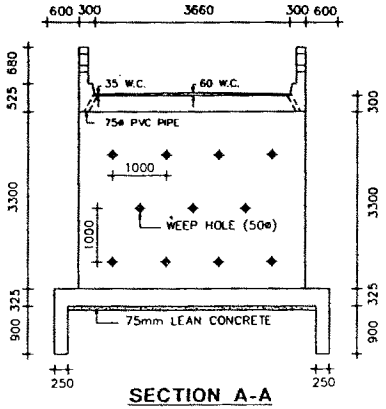
Web Copy

BC-250

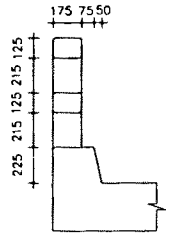
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.3m



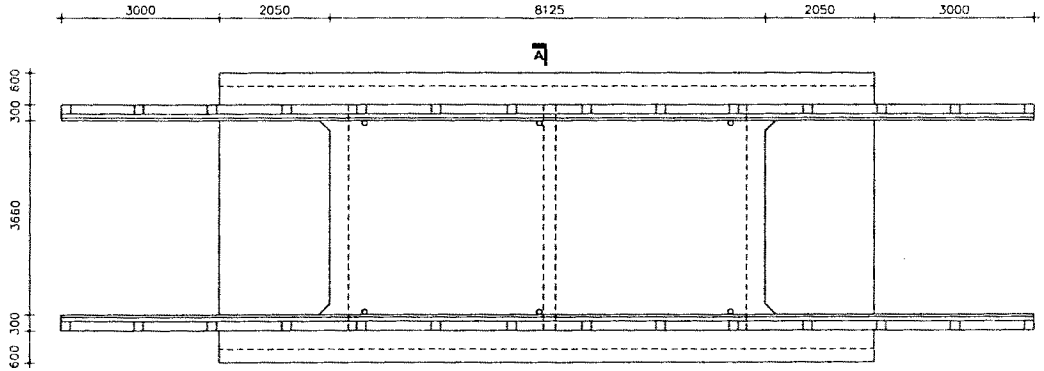
GENERAL ELEVATION



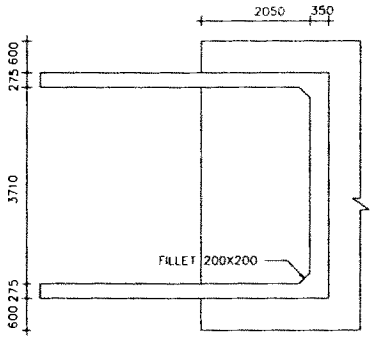
SECTION A-A



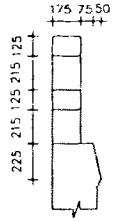
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

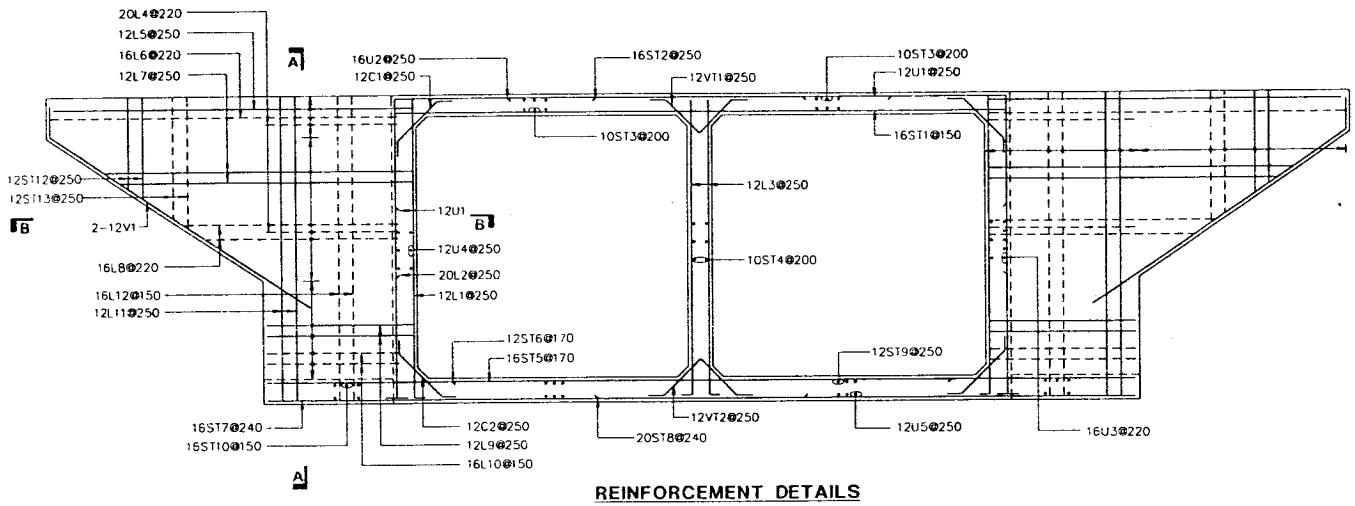
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 3.66m

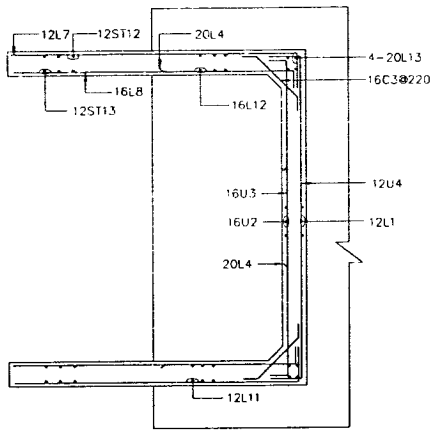
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2236331	

Web Copy

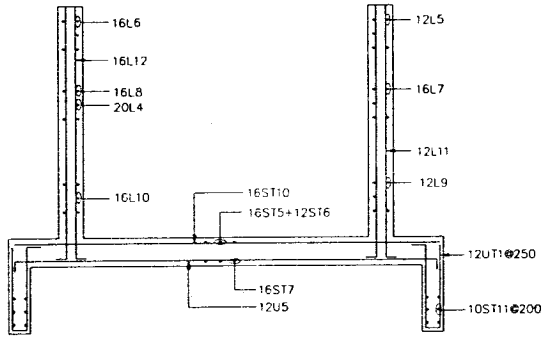
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.3m



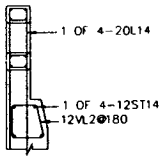
REINFORCEMENT DETAILS



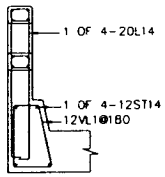
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



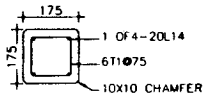
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

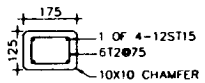
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	8025				8025
	16	ST2	17	2625				2625
	10	ST3	2 X 42	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	33	12125				12125
	12	ST6	2 X 32	3120				3120
	16	ST7	24	12125				12125
	20	ST8	23	2625				2625
	12	ST9	50	5360				5360
	16	ST10	4 X 8	2045				2045
	12	C1	2 X 18	144	821	144		1109
	12	C2	2 X 18	144	834	144		1122
	12	VT1	18	2 X 150	2 X602			1504
	12	VT2	18	2 X 150	2 X 620			1540
	12	L1	2 X 14	3807	250			4057
	20	L2	2 X 16	1363	250			1613
	12	L3	2 X 18	3807	250			4057
	20	L13	4 X 4	3807	250			4057
	12	U1	18	1360	8025	1360		10745
	16	U2	2 X18	1500	3835	1500		6835
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	464		5148
	12	U5	50	250	5290	250		5790
	10	ST11	4 X 5	12075				12075
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var 5259To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var 5259To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3859	250			4109
	16	L12	4 X 14	3859	250			4109
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18175				18175
	12	VL1	2 X47	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18185				18185
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 39 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

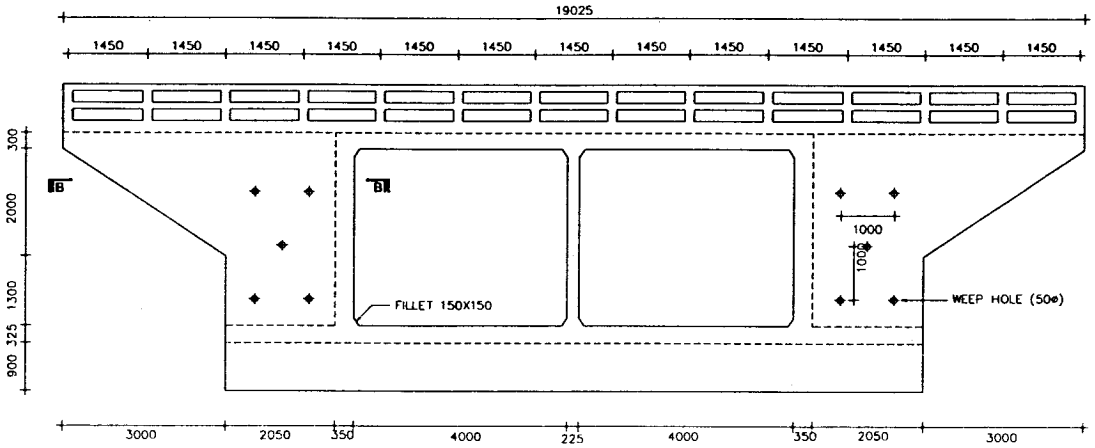
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2236332

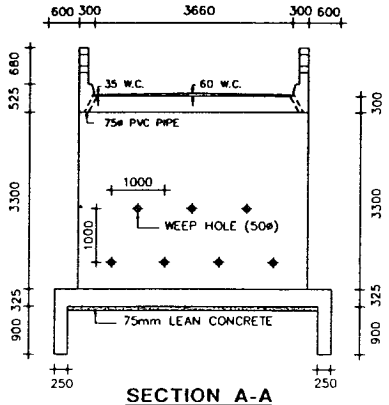
Web Copy

BC-252

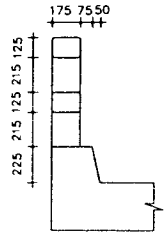
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.3m



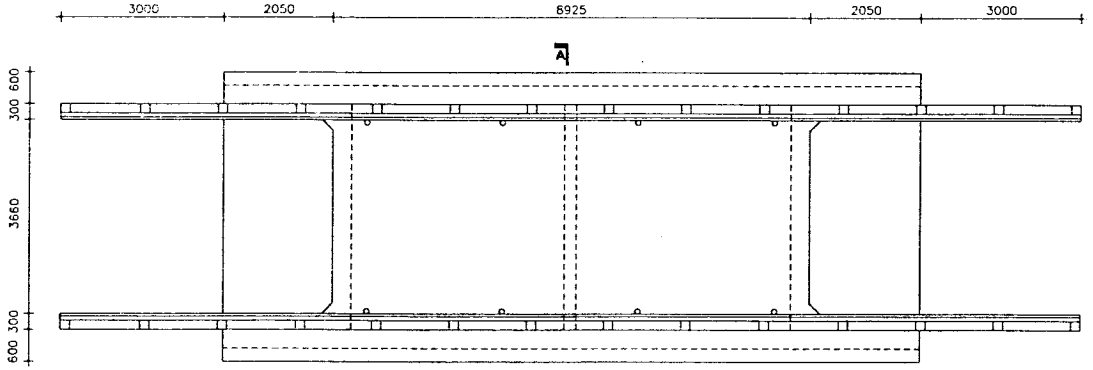
GENERAL ELEVATION



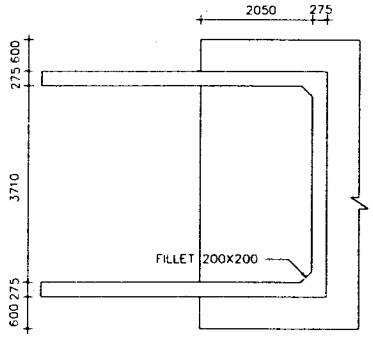
SECTION A-A



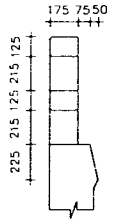
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

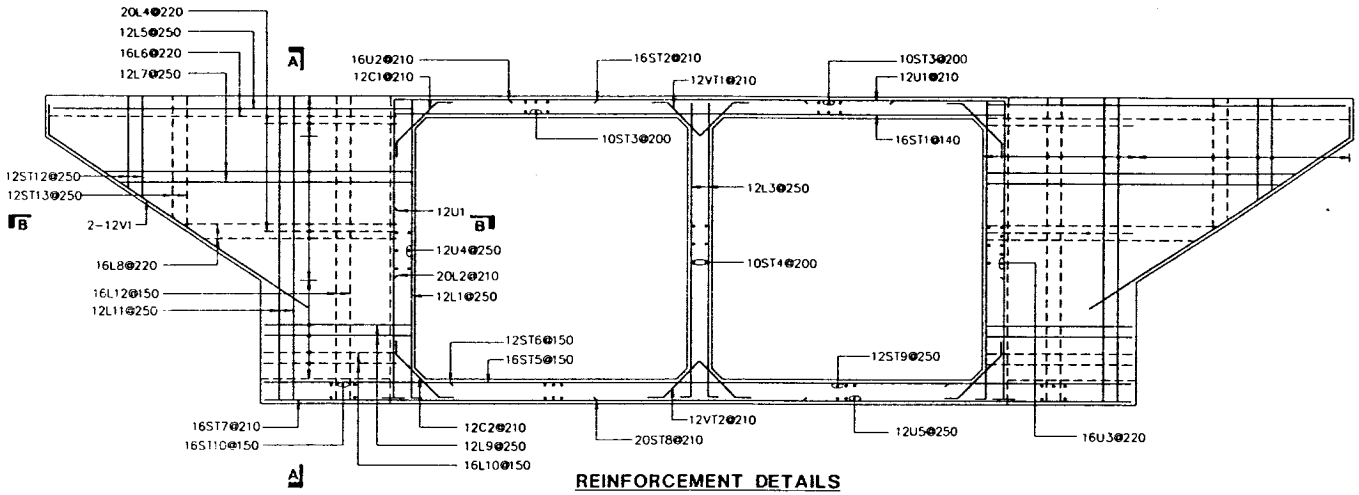
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF . CULV\B2240331	

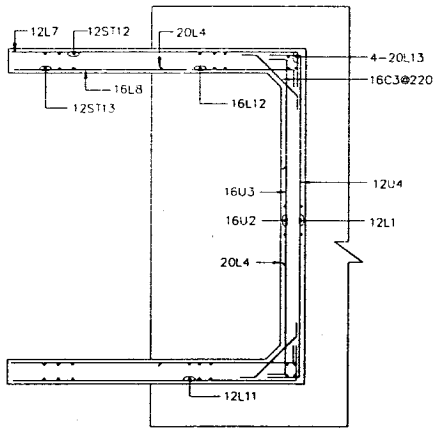
Web Copy

BC-253

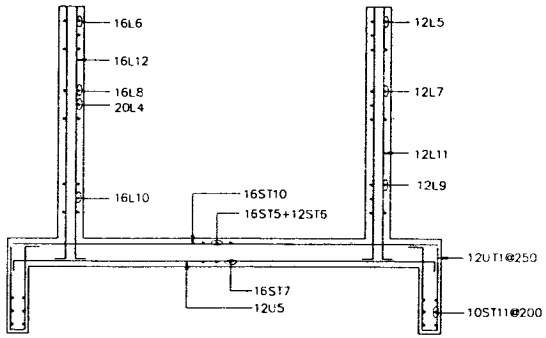
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.3m



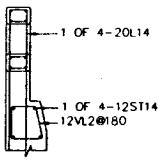
REINFORCEMENT DETAILS



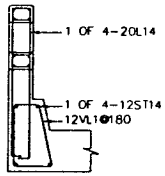
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



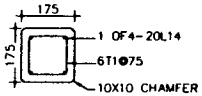
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

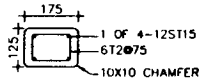
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	8825				8825
	16	ST2	20	2891				2891
	10	ST3	2 X 46	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	37	12925				12925
	12	ST6	2 X 36	3200				3200
	16	ST7	27	12925				12925
	20	ST8	26	2891				2891
	12	ST9	53	5360				5360
	16	ST10	4 X 8	2045				2045
	12	C1	2 X 21	144	821	144		1109
	12	C2	2 X 21	144	834	144		1122
	12	VT1	21	2 X 150	2 X 602			1504
	12	VT2	21	2 X 150	2 X 620			1540
	12	L1	2 X 14	3807	250			4057
	20	L2	2 X 19	1363	250			1613
	12	L3	2 X 18	3807	250			4057
	20	L13	4 X 4	3807	250			4057
	12	U1	21	1360	8825	1360		11545
	16	U2	2 X 21	1633	3835	1633		7101
	16	U3	2 X14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	53	250	5290	250		5790
	10	ST11	4 X 5	12875				12875
	12	UT1	2 X 53	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var.5259To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259To 2288 @ 297	250			Var 5509 To 2538
	12	L9	4 X6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3859	250			4109
	16	L12	4 X14	3859	250			4109
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18975				18975
	12	VL1	2 X51	204	471	306	460	1441
	12	VL2	4 X28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18985				18985
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 41 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

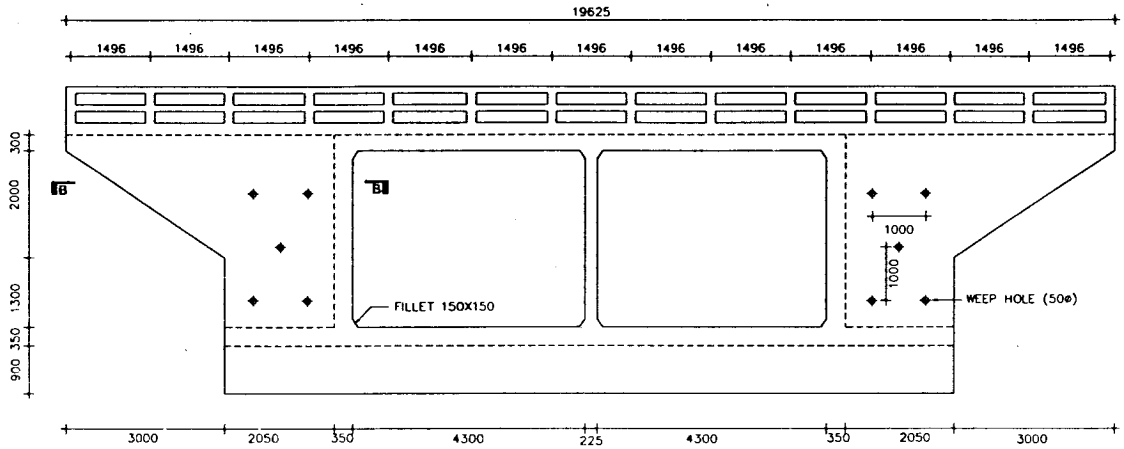
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2240332

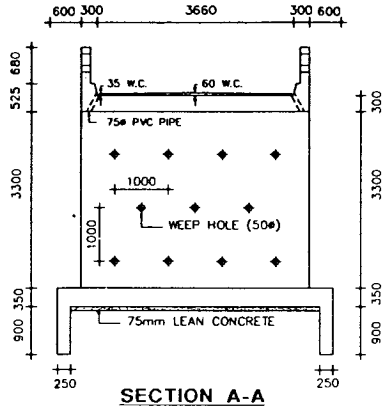
Web Copy

BC-254

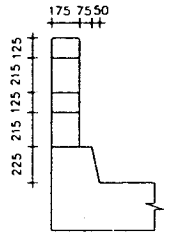
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.3m



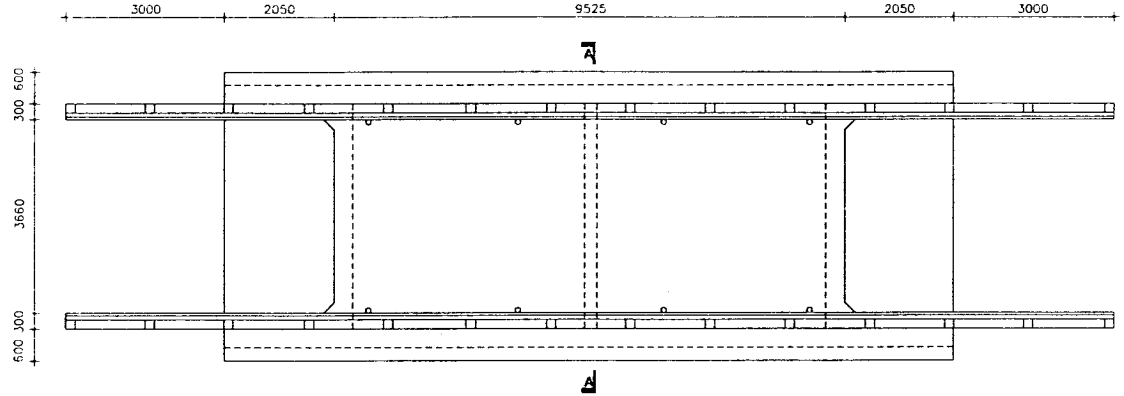
GENERAL ELEVATION



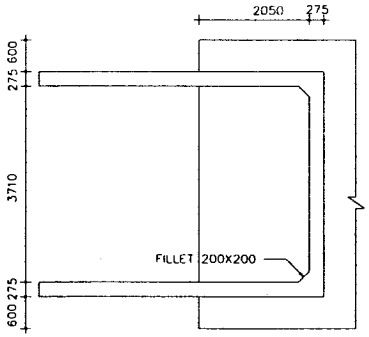
SECTION A-A



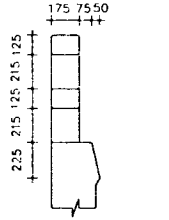
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

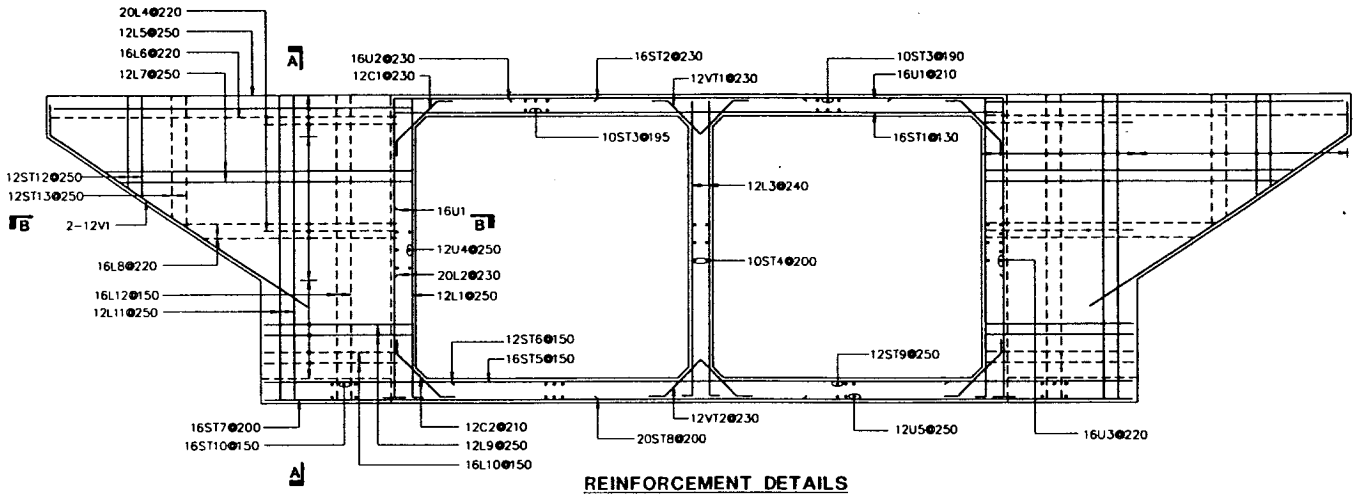
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 3.66m

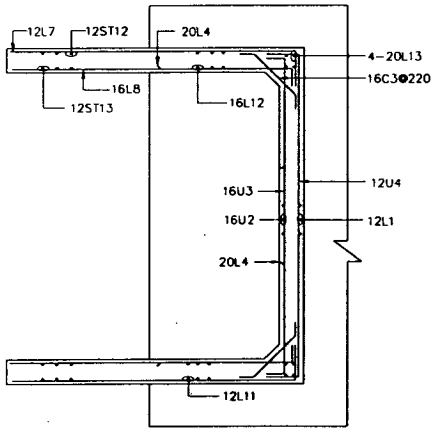
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2243331	

Web Copy

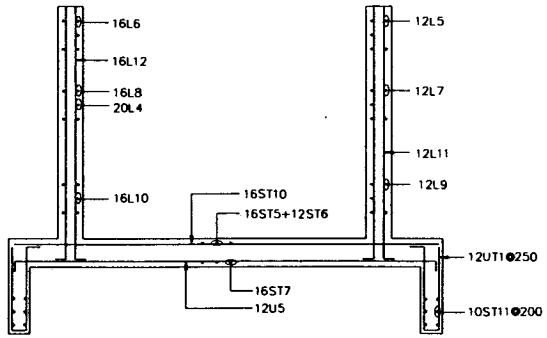
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.3m



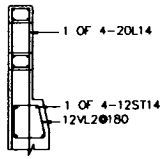
REINFORCEMENT DETAILS



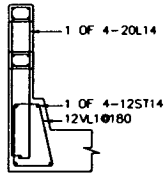
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



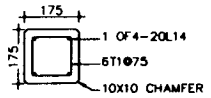
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

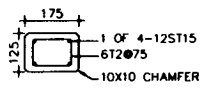
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	9425				9425
	16	ST2	19	3091				3091
	10	ST3	2 X 51	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	37	13525				13525
	12	ST6	36	6675				6675
	16	ST7	28	13525				13525
	20	ST8	27	3091				3091
	12	ST9	56	5360				5360
	16	ST10	4 X 8	2045				2045
	12	C1	2 X 20	144	821	144		1109
	12	C2	2 X 20	144	870	144		1158
	12	VT1	20	2 X 150	2 X 602			1504
	12	VT2	20	2 X 150	2 X 672			1644
	12	L1	2 X 14	3832	250			4082
	20	L2	2 X 18	1388	250			1638
	12	L3	2 X 19	3832	250			4082
	20	L13	4 X 4	3832	250			4082
	16	U1	20	1360	9425	1360		12145
	16	U2	2 X 20	1733	3860	1733		7326
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	56	250	5290	250		5790
	10	ST11	4 X 5	13475				13475
	12	UT1	2 X 56	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var.5259To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var.5259To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X6	2288	419			2707
	16	L10	4 X9	2288	1220			3508
	12	L11	4 X 8	3884	250			4134
	16	L12	4 X 14	3884	250			4134
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19575				19575
	12	VL1	2 X54	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	19585				19585
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 41 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

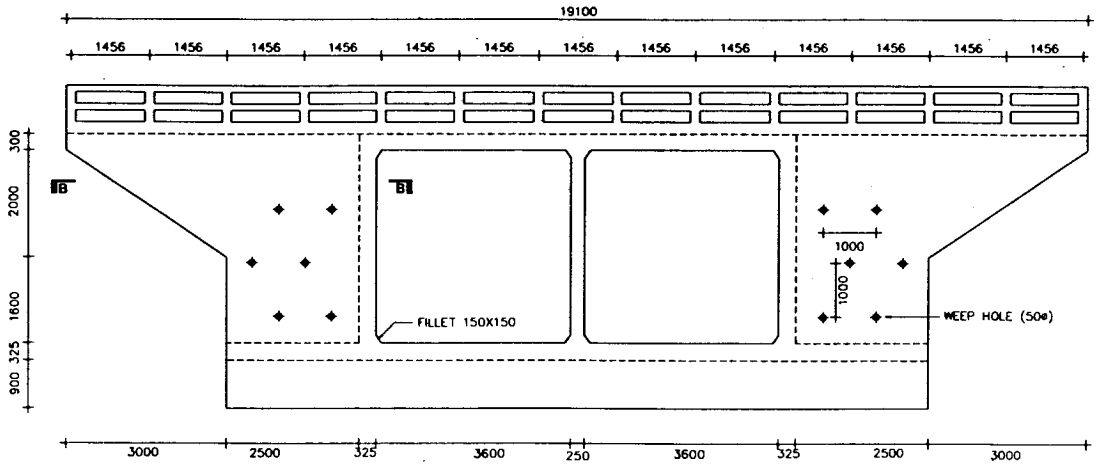
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAO FILE REF : CULV\B2243332

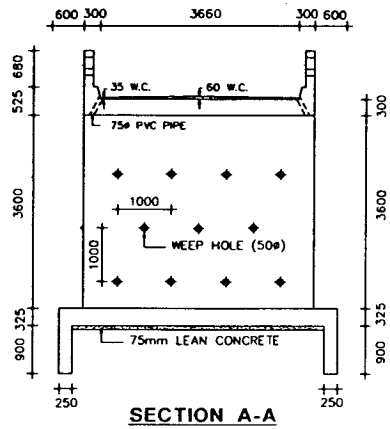
Web Copy

BC-256

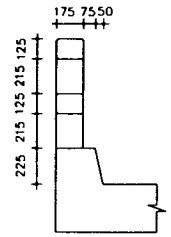
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.6m



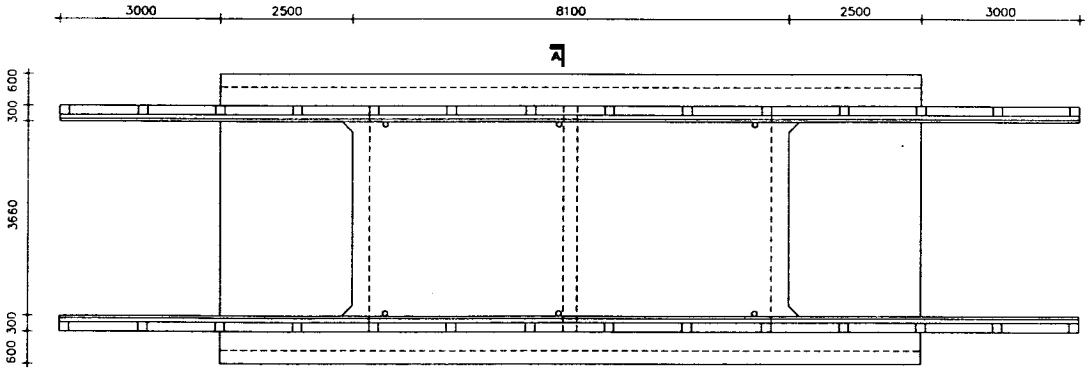
GENERAL ELEVATION



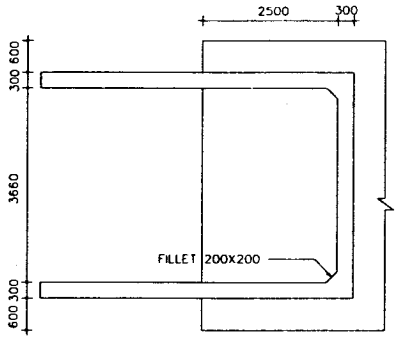
SECTION A-A



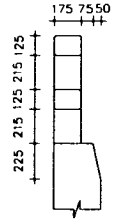
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

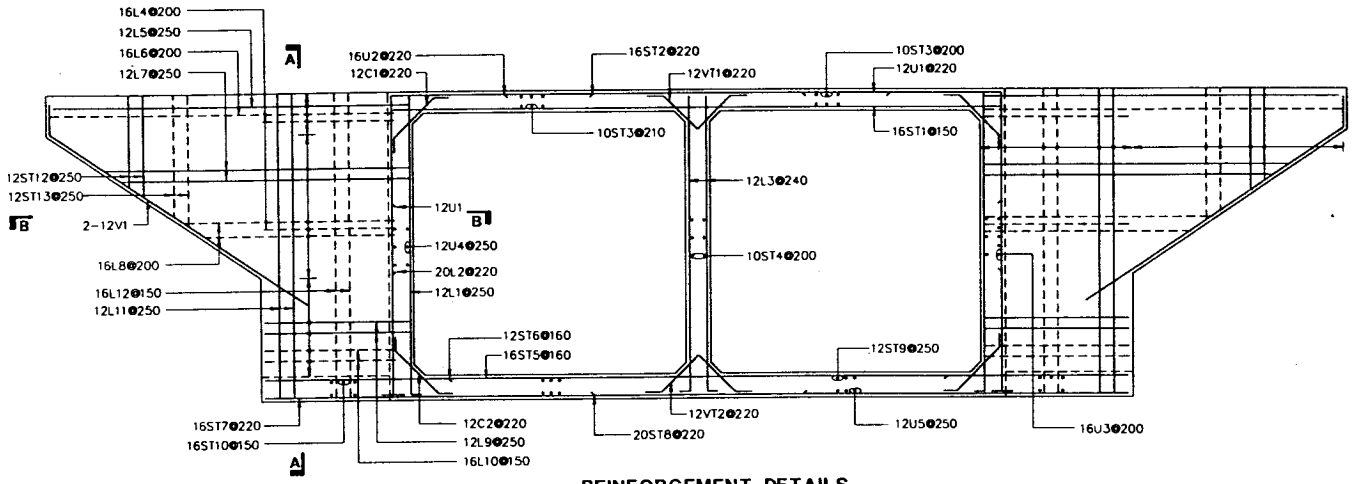
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF . CULV\B2236361	

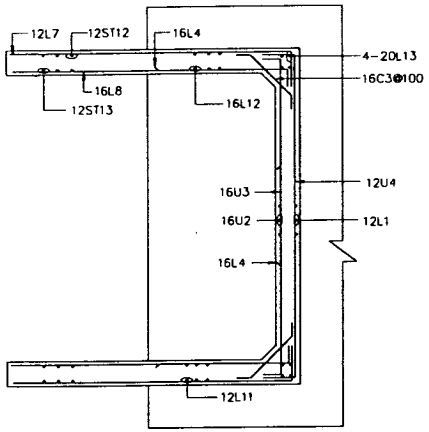
Web Copy

BC-257

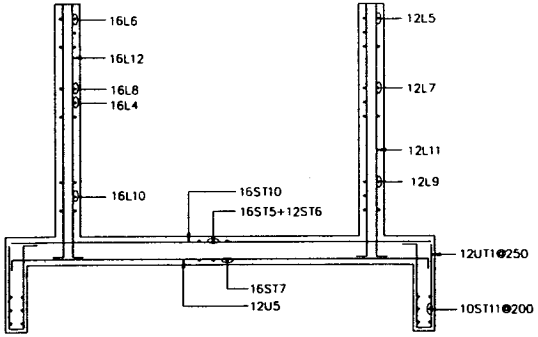
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x3.6m
CLEAR HEIGHT : 3.6m



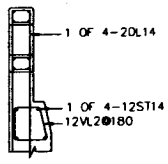
REINFORCEMENT DETAILS



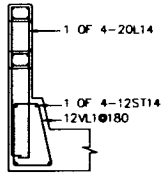
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



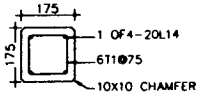
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

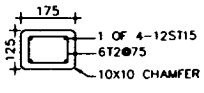
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	29	8000				8000
	16	ST2	19	2650				2650
	10	ST3	2 X 41	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	35	13050				13050
	12	ST6	2 X 34	3570				3570
APPRON	16	ST7	26	13050				13050
	20	ST8	25	2650				2650
	12	ST9	54	5360				5360
	16	ST10	4 X 10	2070				2070
&	12	C1	2 X 20	144	786	144		1074
	12	C2	2 X 20	144	799	144		1087
CUTOFF	12	VT1	20	2 X 150	2 X 619			1538
	12	VT2	20	2 X 150	2 X 638			1576
	12	L1	2 X 14	4107	250			4357
	20	L2	2 X 18	1463	250			1713
	12	L3	2 X 19	4107	250			4357
	20	L13	4 X 4	4107	250			4357
	12	U1	20	1460	8000	1460		10920
	16	U2	2 X 20	1475	4135	1475		7085
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 14	469	4160	469		5098
	12	U5	54	250	5290	250		5790
	10	ST11	4 X 5	13000				13000
	12	UT1	2 X 54	144	2 X 1100	100		2444
WING	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var.5709To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var.5709To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4159	250			4409
	16	L12	4 X17	4159	250			4409
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	VT	4 X 2	4305	200			4505
	16	C3	4 X 40	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19100				19100
	12	VL1	2 X46	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	19110				19110
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Roil-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 47 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

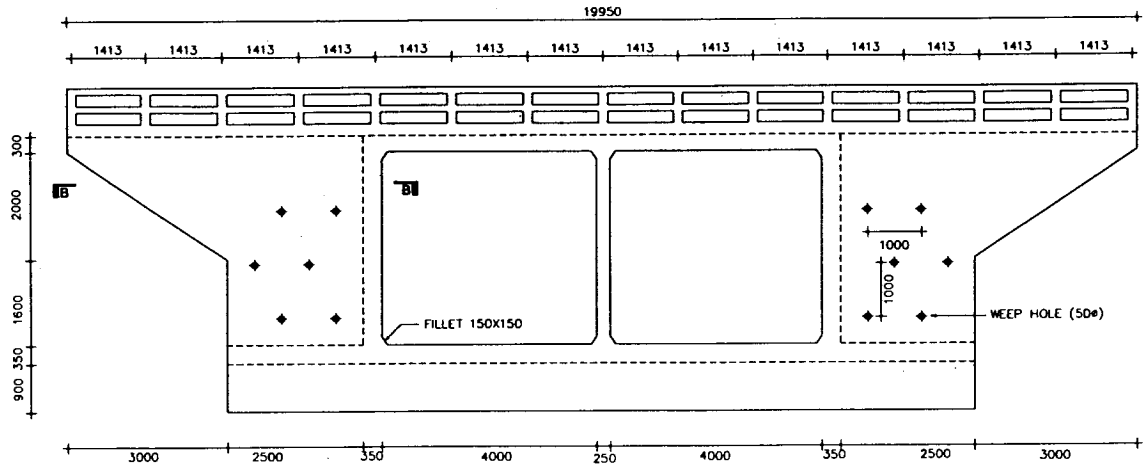
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2236362	

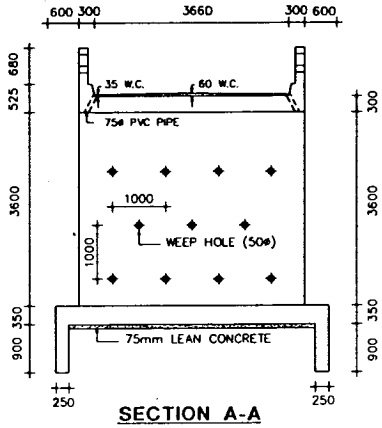
Web Copy

BC-258

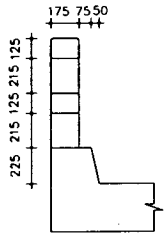
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.6m



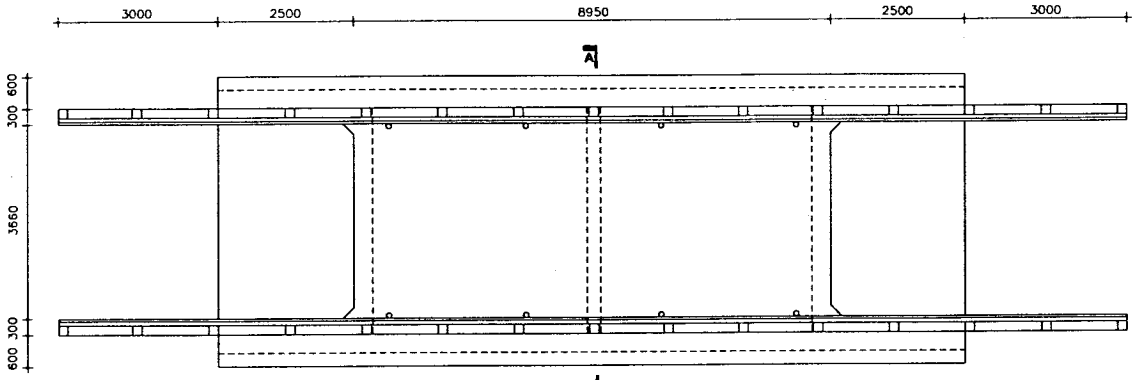
GENERAL ELEVATION



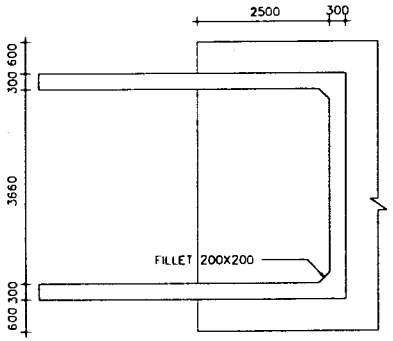
SECTION A-A



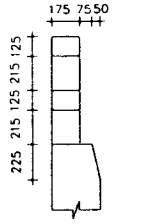
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

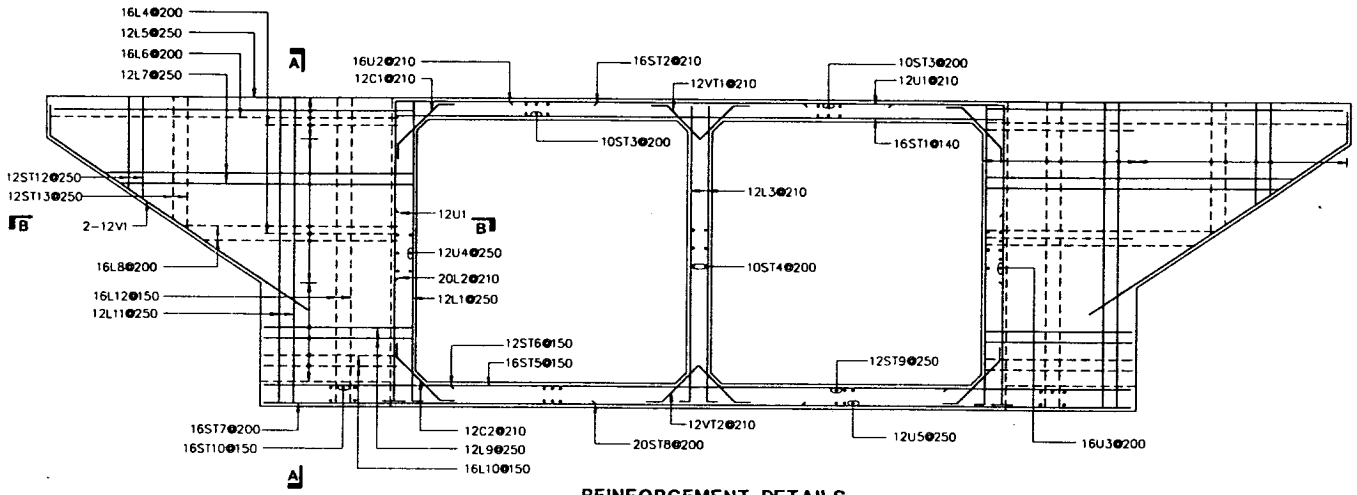
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.6m ROADWAY 3.66m

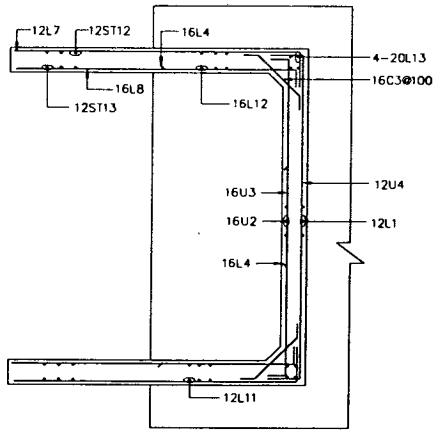
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2240361	

Web Copy

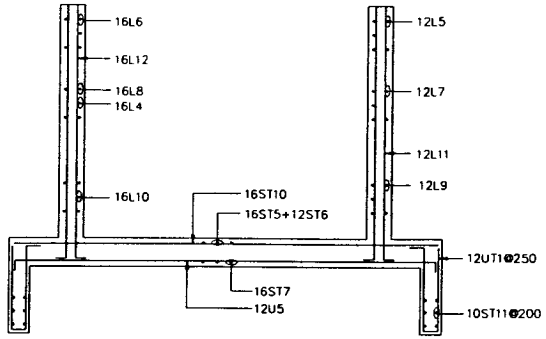
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.6m



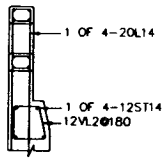
REINFORCEMENT DETAILS



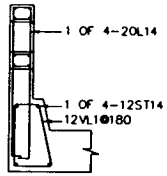
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



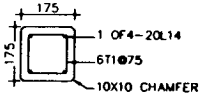
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

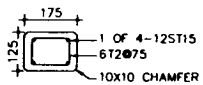
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	8850				8850
	16	ST2	20	2916				2916
	10	ST3	2 X 46	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	37	13850				13850
	12	ST6	2 X 36	3650				3650
	16	ST7	28	13850				13850
	20	ST8	27	2916				2916
	12	ST9	57	5360				5360
	16	ST10	4 X 10	2070				2070
	12	C1	2 X 21	144	821	144		1109
	12	C2	2 X 21	144	870	144		1158
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 673			1646
	12	L1	2 X 14	4132	250			4382
	20	L2	2 X 19	1488	250			1738
	12	L3	2 X 21	4132	250			4382
	20	L13	4 X 4	4132	250			4382
	12	U1	21	1460	8850	1460		11770
	16	U2	2 X 21	1633	4160	1633		7426
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 14	494	4160	494		5148
	12	U5	57	250	5290	250		5790
	10	ST11	4 X 5	13800				13800
	12	UT1	2 X 57	144	2 X 1125	100		2494
WING WALL	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var.5709To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4184	250			4434
	16	L12	4 X 17	4184	250			4434
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	19900				19900
	12	VL1	2 X51	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	19910				19910
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rait-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

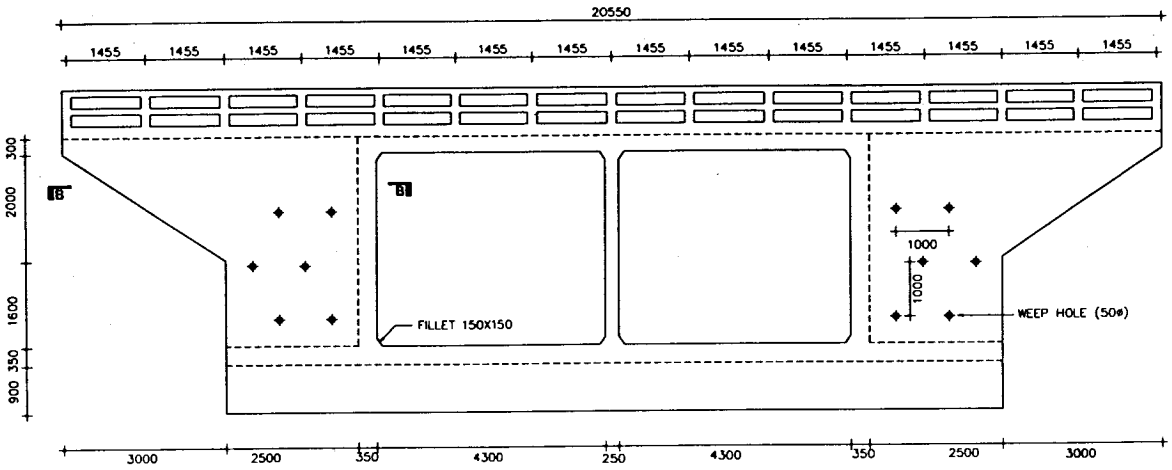
REINFORCEMENT DETAILS OF BOX CULVERT DOUBLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2240362

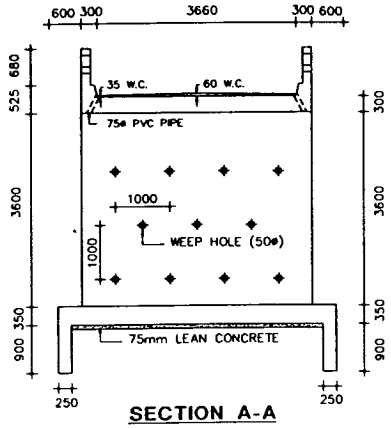
Web Copy

BC-260

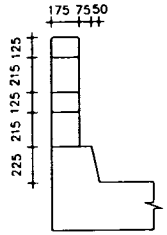
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.6m



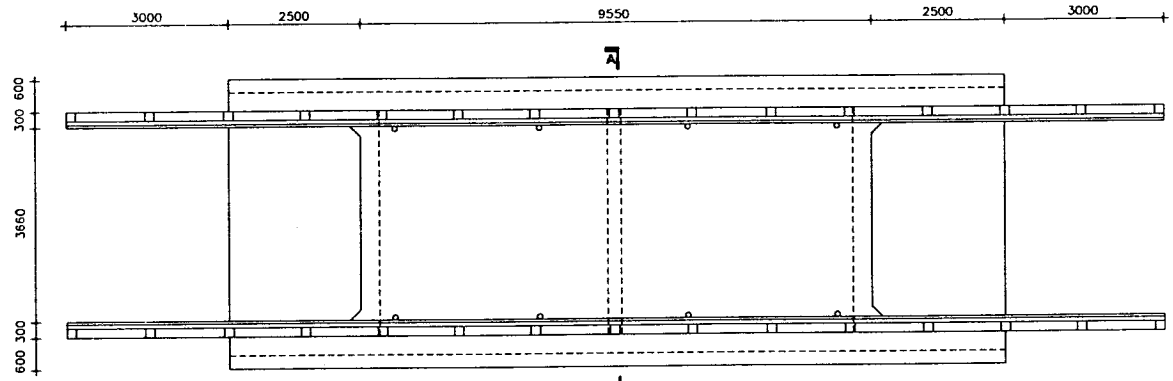
GENERAL ELEVATION



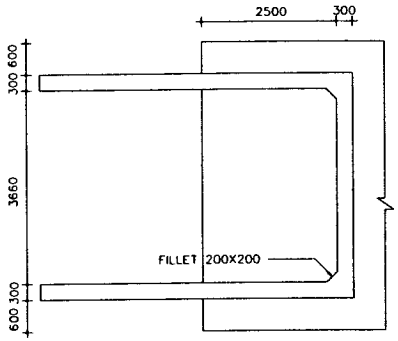
SECTION A-A



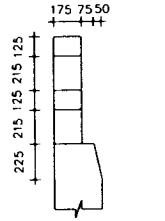
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

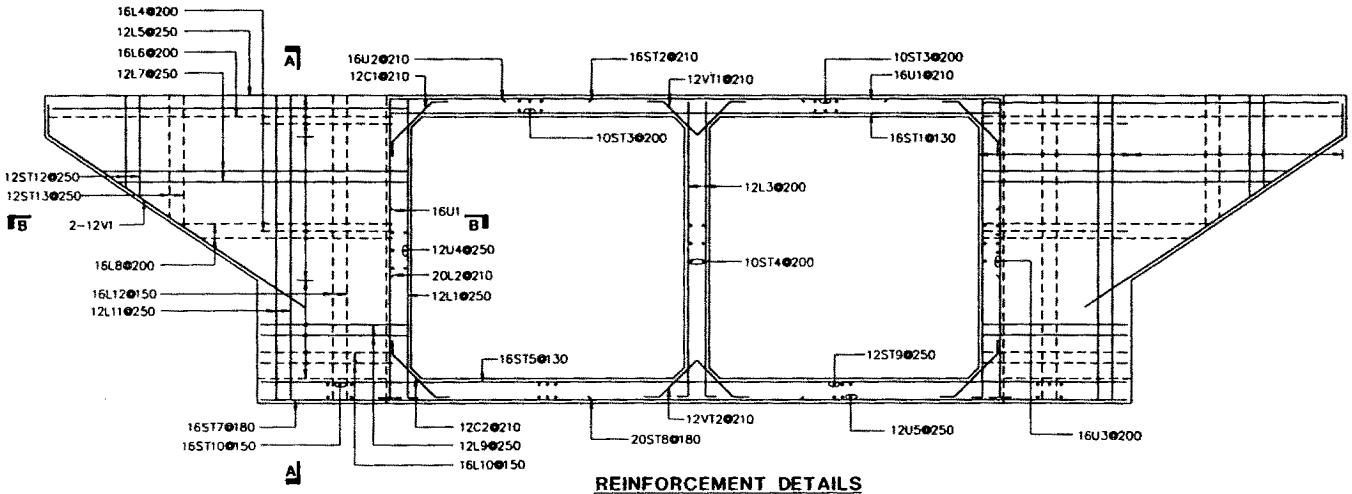
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 3.66m

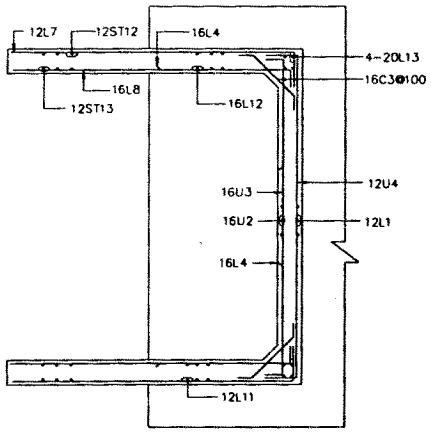
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2243361	

Web Copy

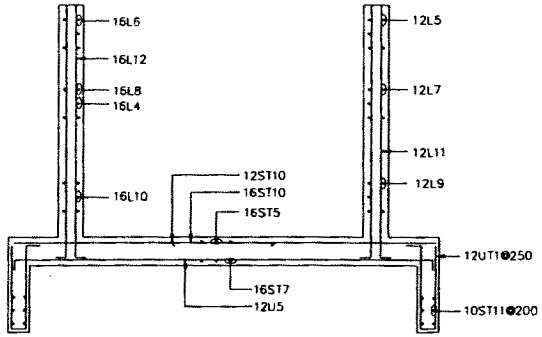
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.6m



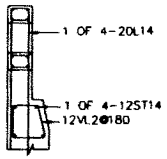
REINFORCEMENT DETAILS



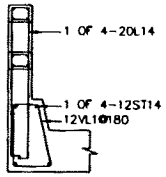
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



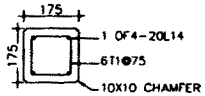
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

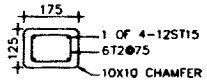
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	33	9450				9450
	16	ST2	20	3116				3116
	10	ST3	2 X 49	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	43	14450				14450
	16	ST7	31	14450				14450
APPROACH & CUTOFF WALL	20	ST8	30	3116				3116
	12	ST9	58	5360				5360
	16	ST10	4 X 10	2070				2070
	12	C1	2 X 21	144	821	144		1109
	12	C2	2 X 21	144	870	144		1158
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 690			1680
	12	L1	2 X 14	4132	250			4382
	20	L2	2 X 19	1488	250			1738
	12	L3	2 X 22	4132	250			4382
	20	L13	4 X 4	4132	250			4382
	16	U1	21	1460	9450	1460		12370
	16	U2	2 X 21	1733	4160	1733		7626
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	59	250	5290	250		5790
	10	ST11	4 X 5	14400				14400
	12	UT1	2 X 59	144	2 X 1125	100		2494
WING	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4184	250			4434
	16	L12	4 X 17	4184	250			4434
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	20500				20500
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	20510				20510
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

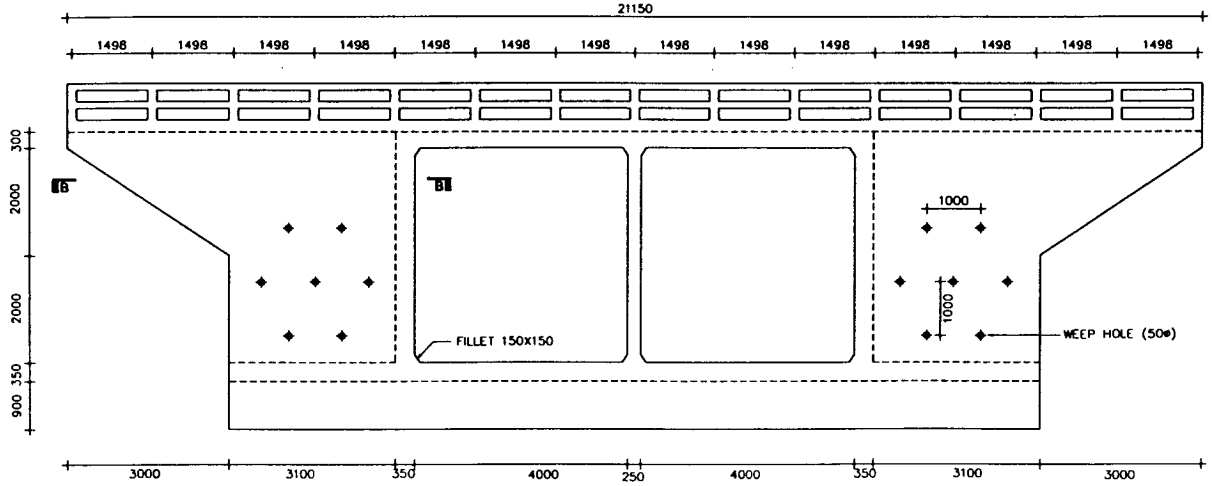
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2243362

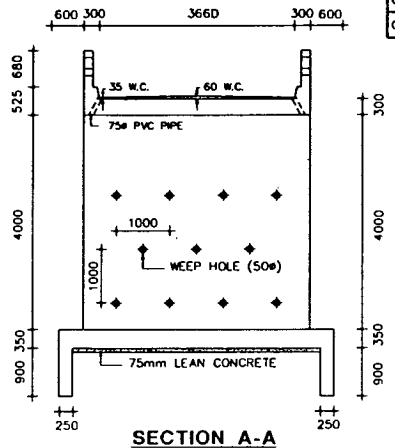
Web Copy

BC-262

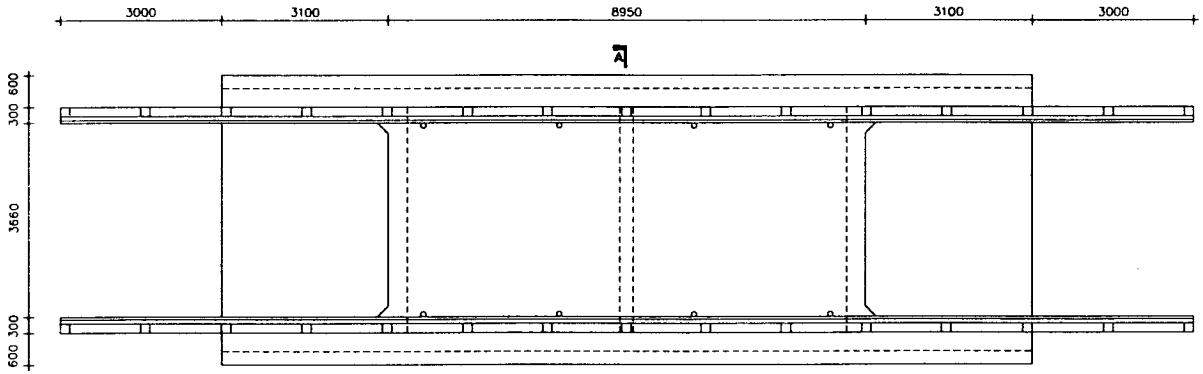
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 4.0m



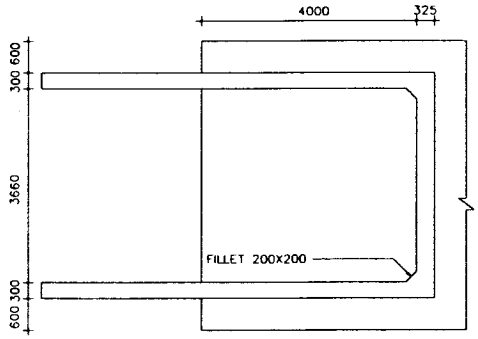
GENERAL ELEVATION



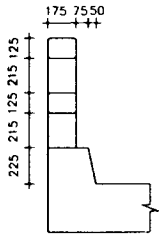
SECTION A-A



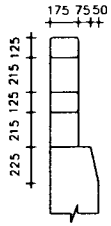
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

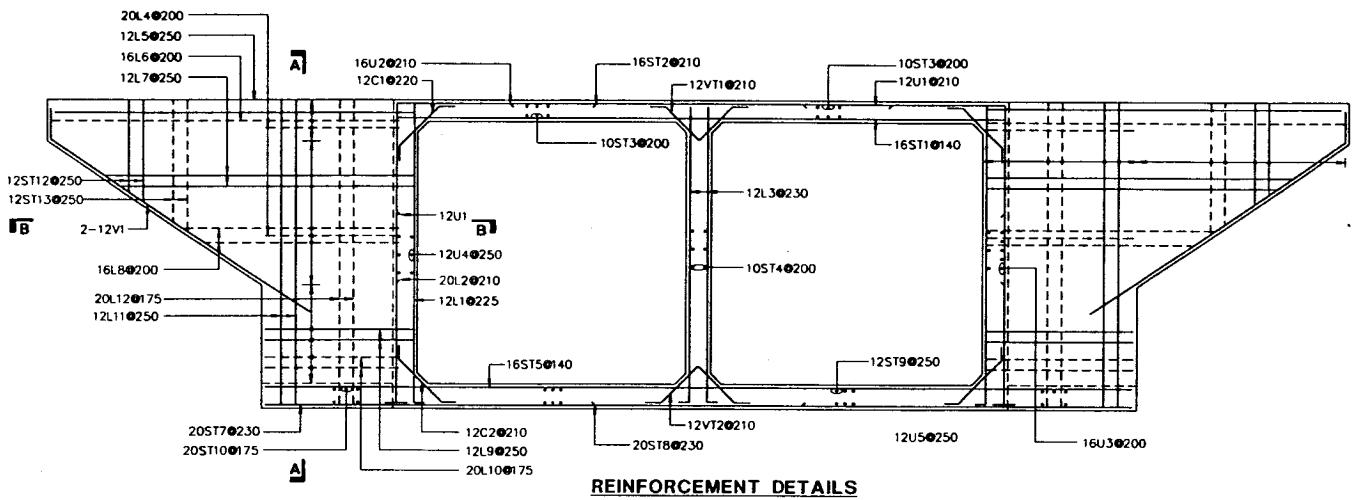
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2240401	

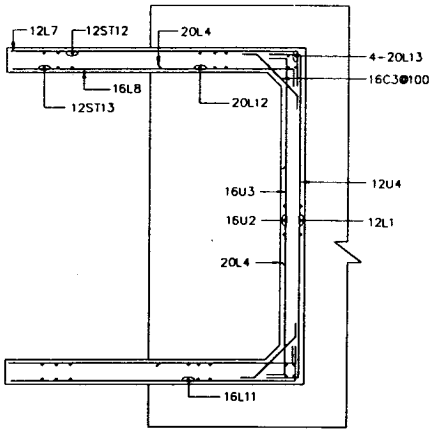
Web Copy

BC-263

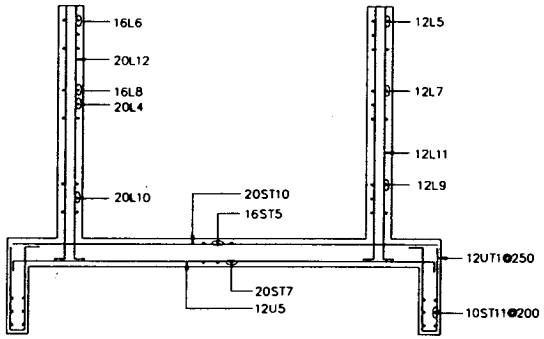
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 4.0m



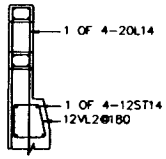
REINFORCEMENT DETAILS



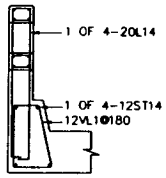
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



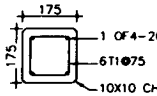
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

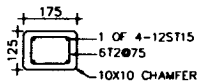
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	8850				8850
	16	ST2	20	2916				2916
	10	ST3	2 X 46	4160				4160
	10	ST4	2 X 20	4160				4160
	16	ST5	40	15050				15050
	20	ST7	25	15050				15050
	20	ST8	24	2916				2916
	12	ST9	37	5360				5360
	12	ST10	2 X 18	2095				2095
	12	C1	2 X 21	144	816	144		1104
	12	C2	2 X 21	144	858	144		1146
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 684			1668
	12	L1	2 X 16	4528	250			4778
	20	L2	2 X 19	1621	250			1871
	12	L3	2 X 20	4528	250			4778
	20	L13	4 X 4	4528	250			4778
	12	U1	21	1593	8850	1593		12036
	16	U2	2 X 21	1633	4560	1633		7826
	16	U3	2 X 19	250	4160	250		4660
	12	U4	4 X 15	494	4160	494		5148
	12	U5	62	250	5290	250		5790
	10	ST11	4 X 5	15000				15000
	12	UT1	2 X 62	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 13	3388	1220			4608
	12	L5	4 X 1	6338	469			6807
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4580	250			4830
	20	L12	4 X 18	4580	250			4830
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	21100				21100
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	21110				21110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 82 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

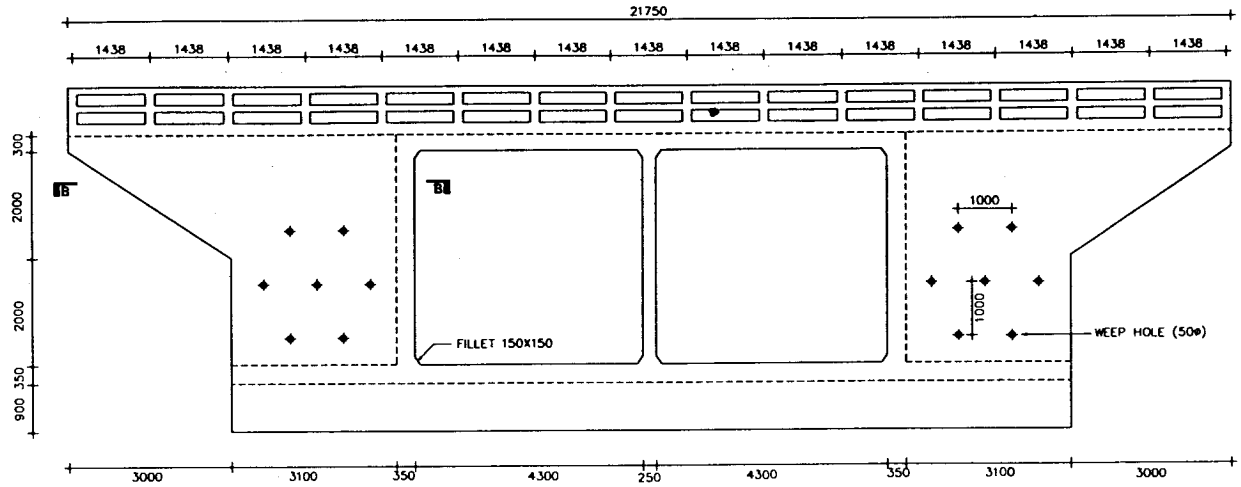
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2240402

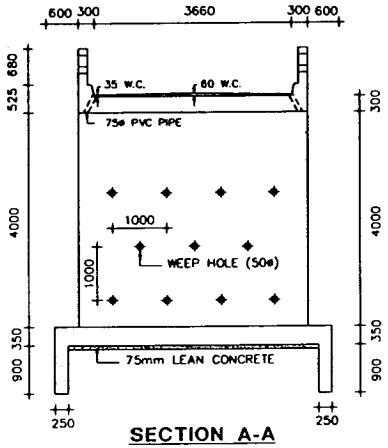
Web Copy

BC-264

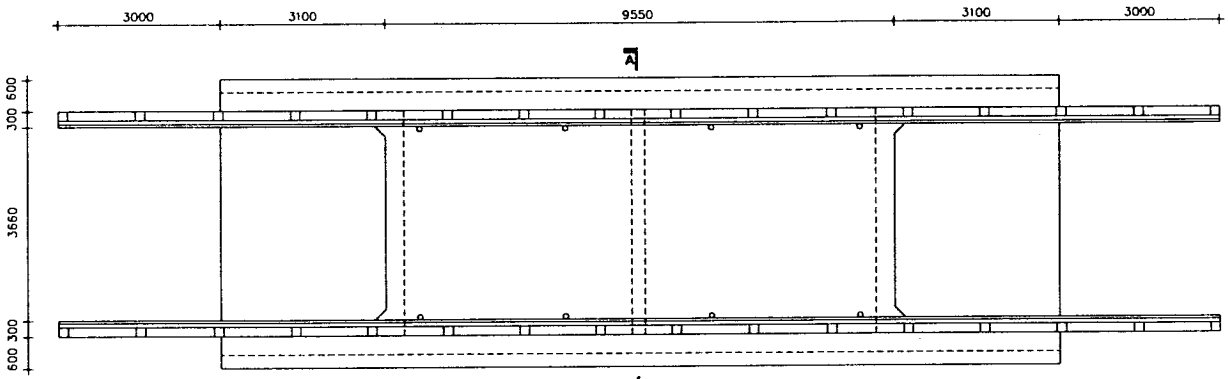
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.0m



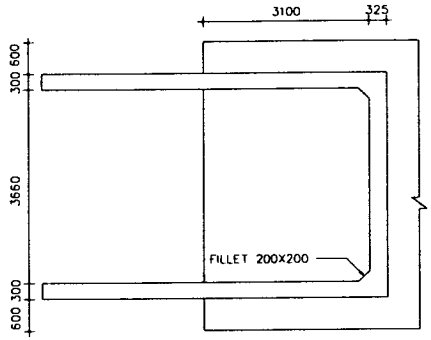
GENERAL ELEVATION



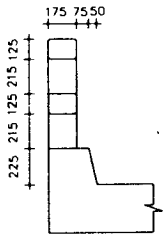
SECTION A-A



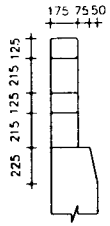
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :

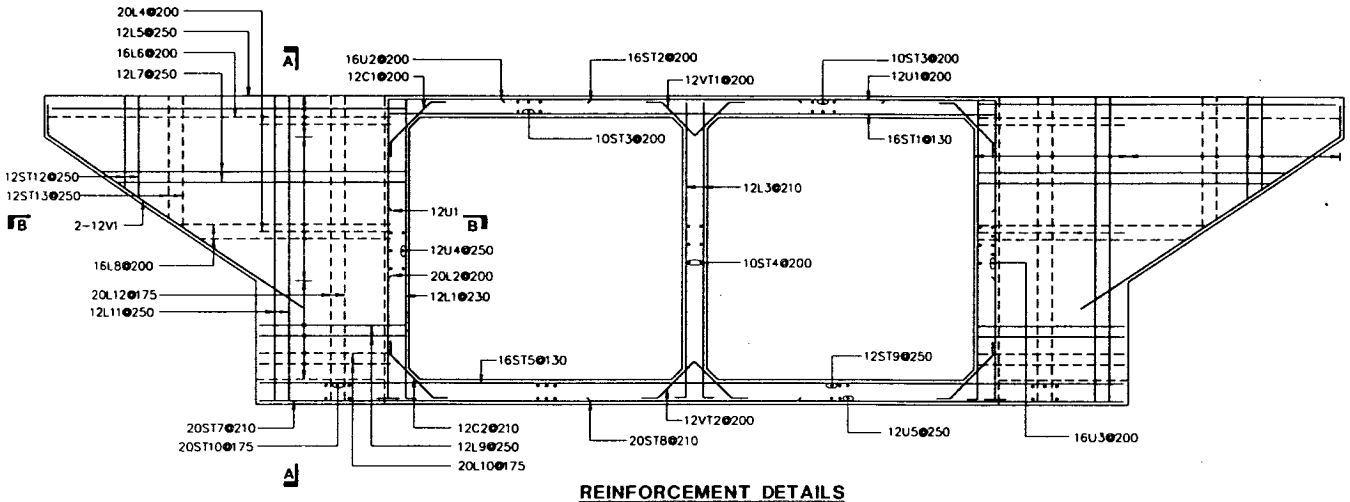
ISSUED BY :

CAD FILE REF : CULV\B2243401

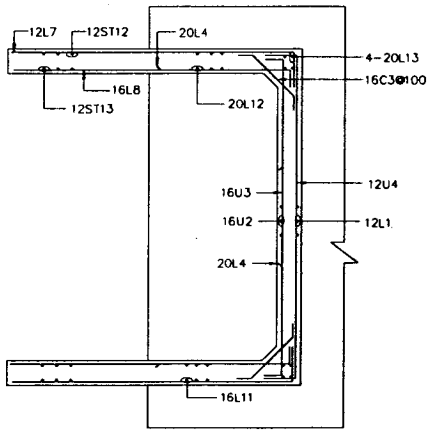
Web Copy

BC-265

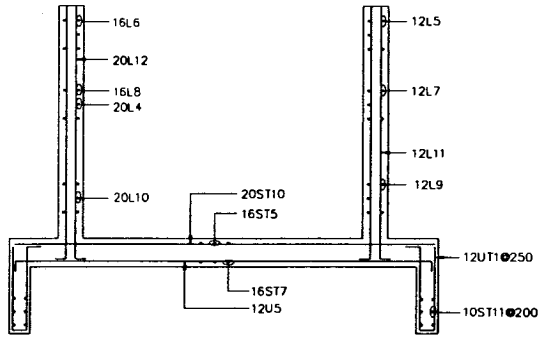
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.0m



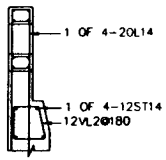
REINFORCEMENT DETAILS



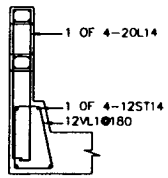
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



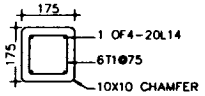
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

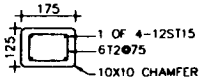
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	9450				9450
	16	ST2	21	3116				3116
	10	ST3	2 X 49	4160				4160
	10	ST4	2 X 20	4160				4160
	16	ST5	28	15650				15650
	12	ST6	27	6700				6700
	20	ST7	27	15650				15650
	20	ST8	26	3166				3116
	12	ST9	40	5360				5360
	20	ST10	4 X 18	2095				2095
	12	C1.	2 X 22	144	816	144		1104
	12	C2	2 X 22	144	858	144		1146
	12	VT1	22	2 X 150	2 X 619			1538
	12	VT2	22	2 X 150	2 X 667			1634
	12	L1	2 X 15	4528	250			4778
	20	L2	2 X 20	1621	250			1871
	12	L3	2 X 21	4528	250			4778
	20	L13	4 X 4	4528	250			4778
	12	U1	22	1593	9450	1593		12636
	16	U2	2 X 22	1733	4560	1733		8026
	16	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 15	494	4160	494		5148
	12	U5	64	250	5290	250		5790
	10	ST11	4 X 5	15600				15600
	12	UT1	2 X 64	144	2 X 1125	100		2494
WING WALL	20	L4	4 X 13	3388	1220			4608
	12	L5	4 X 1	6388	469			6807
	16	L6	4 X 2	6388	250			6588
	12	L7	4 X 9	Var. 6309 To 3388 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3388 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4580	250			4830
	20	L12	4 X 18	4580	250			4830
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	21700				21700
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	21710				21710
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 255	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 81 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

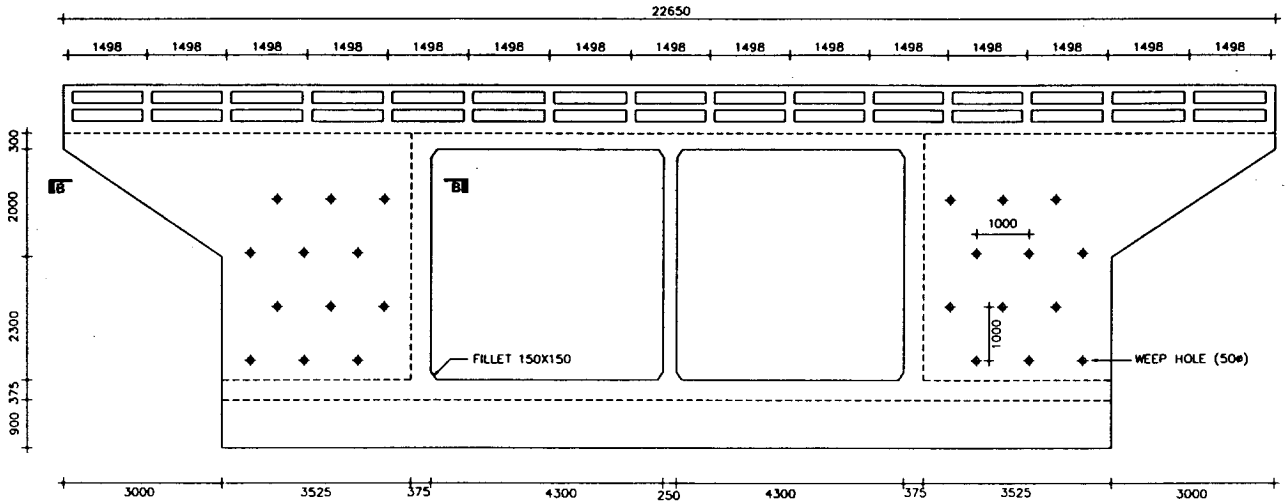
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2243402

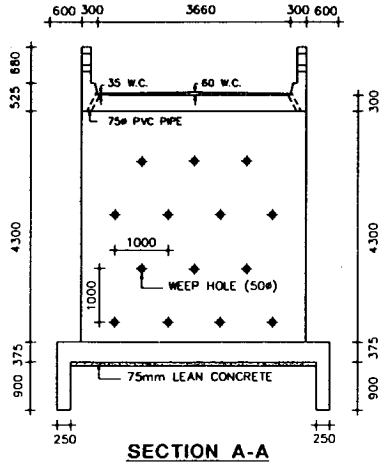
Web Copy

BC-266

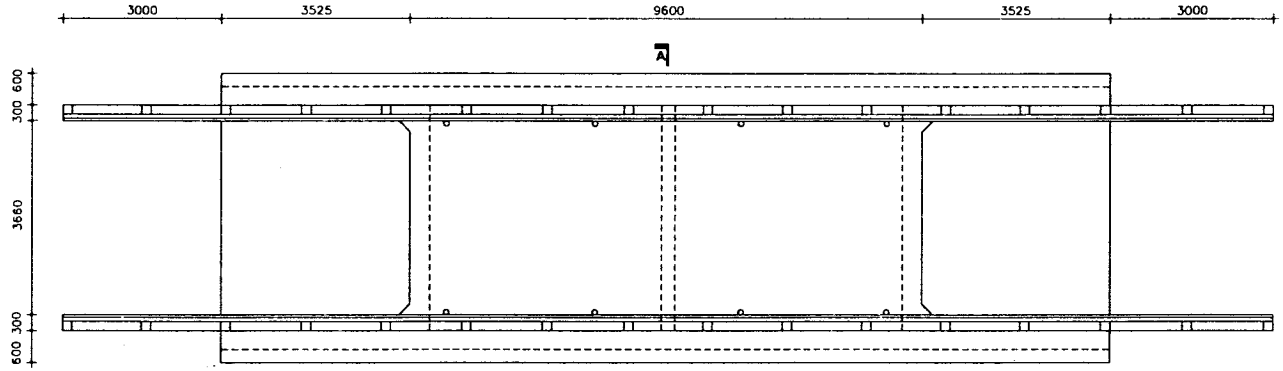
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.3m



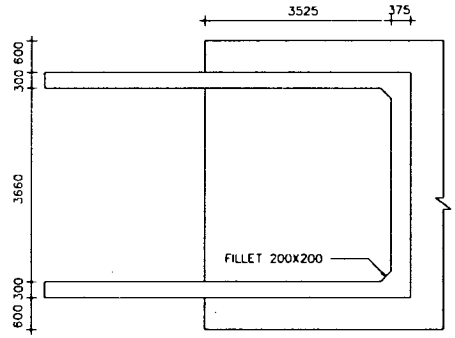
GENERAL ELEVATION



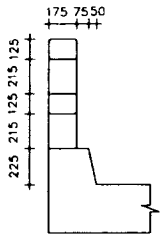
SECTION A-A



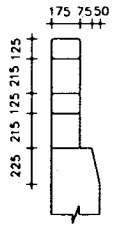
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

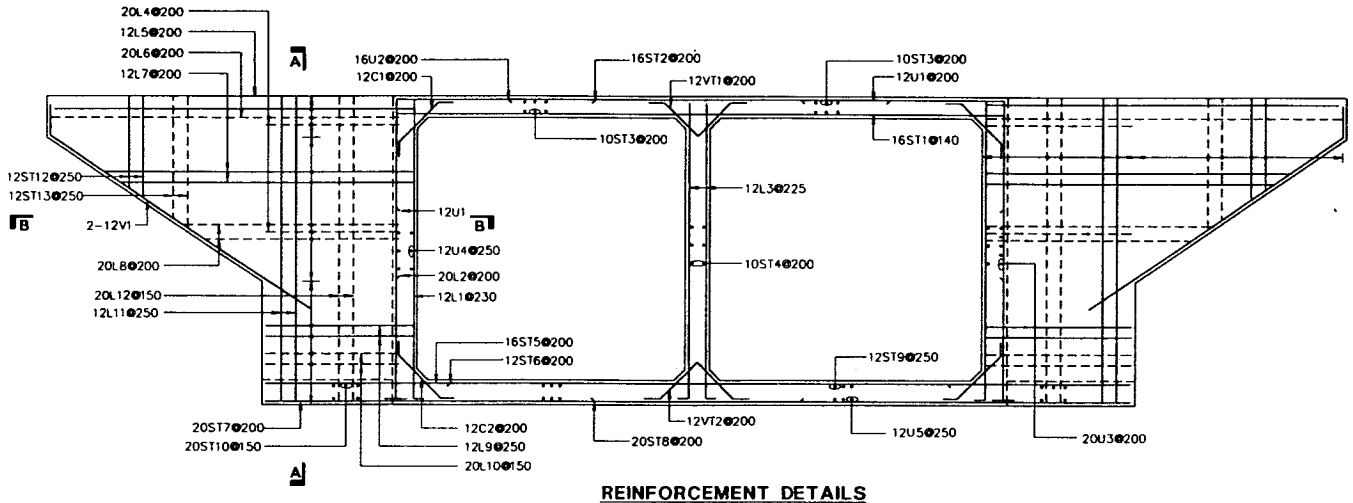
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2243431	

Web Copy

BC-267

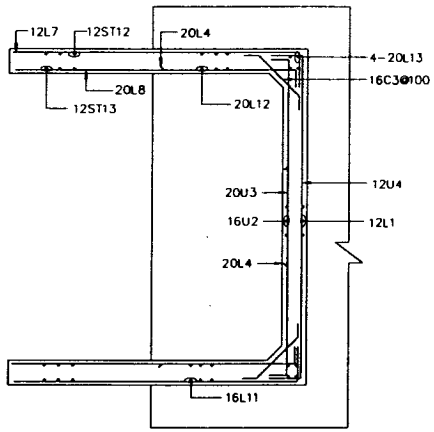
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.3m



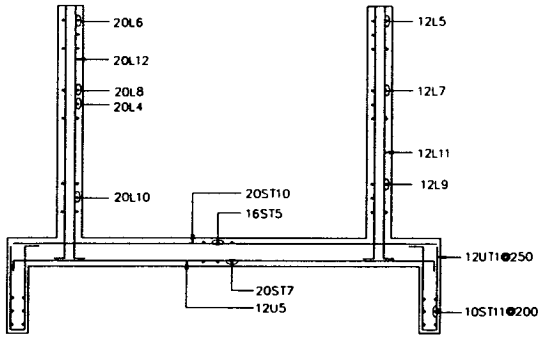
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

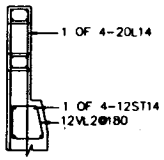
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF WALL	16	ST1	31	9500				9500
	16	ST2	21	3116				3116
	10	ST3	2 X 49	4160				4160
	10	ST4	2 X 21	4160				4160
	16	ST5	28	16550				16550
	12	ST6	27	6700				6700
	20	ST7	28	16550				16550
	20	ST8	27	3166				3116
	12	ST9	40	5360				5360
	20	ST10	2 X 24	5360				5360
	12	C1	2 X 22	144	851	144		1139
	12	C2	2 X 22	144	929	144		1217
	12	VT1	22	2 X 150	2 X 619			1538
	12	VT2	22	2 X 150	2 X 703			1706
	12	L1	2 X 21	4853	250			5103
	20	L2	2 X 20	1746	250			1996
	12	L3	2 X 20	4853	250			5103
	20	L13	4 X 4	4853	250			5103
	12	U1	22	1693	9500	1693		12886
	16	U2	2 X 22	1758	4885	250		6893
	20	U3	2 X 21	250	4160	250		4660
	12	U4	2 X 17	519	4160	519		5198
	12	U5	68	250	5290	250		5790
	10	ST11	4 X 5	16500				16500
	12	UT1	2 X 68	144	2 X 1150	100		2544
WING WALL	20	L4	4 X 13	3838	1220			5058
	12	L5	4 X 1	6788	469			7257
	20	L6	4 X 2	6788	250			7038
	12	L7	4 X 9	Var. 6759 To 3788 @ 371	444			Var. 7203 To 4232
	20	L8	4 X 11	Var. 6759 To 3788 @ 297	250			Var. 7009 To 4038
	12	L9	4 X 10	3788	469			4257
	20	L10	4 X 16	3788	1220			5008
	12	L11	4 X 14	4905	250			5155
	20	L12	4 X 24	4905	250			5155
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 46	144	928	144		1216
CURB AND RAILING	12	ST14	2 X 4	22600				22600
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 36	204	204	248	200	856
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22610				22610
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440



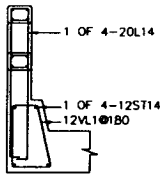
SECTION B-B



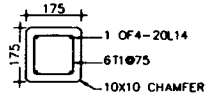
SECTION A-A



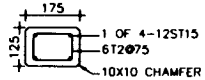
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 56 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

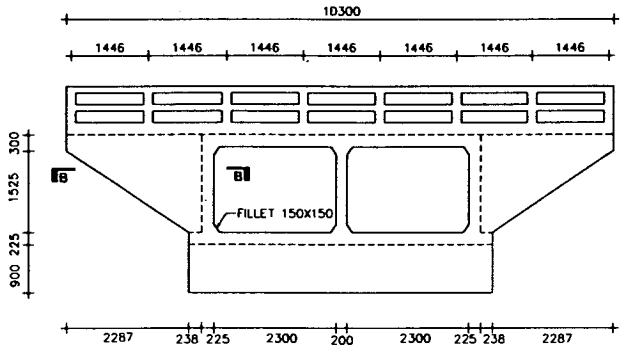
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2243432

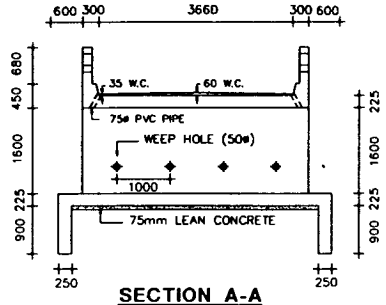
Web Copy

BC-268

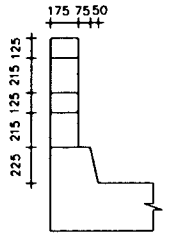
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



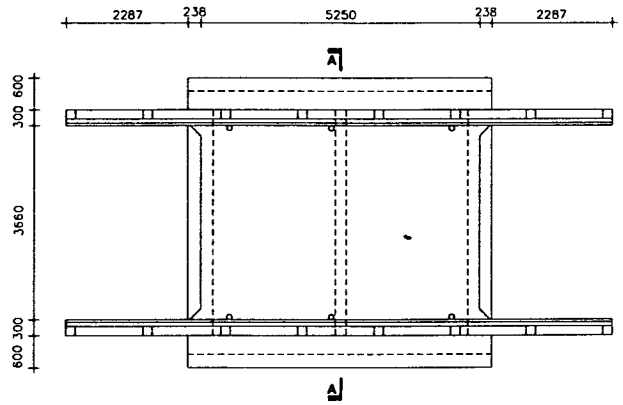
GENERAL ELEVATION



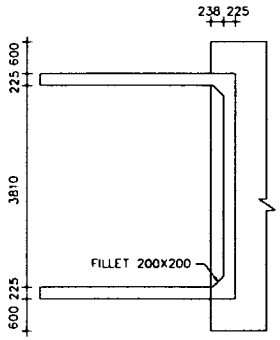
SECTION A-A



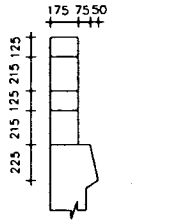
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

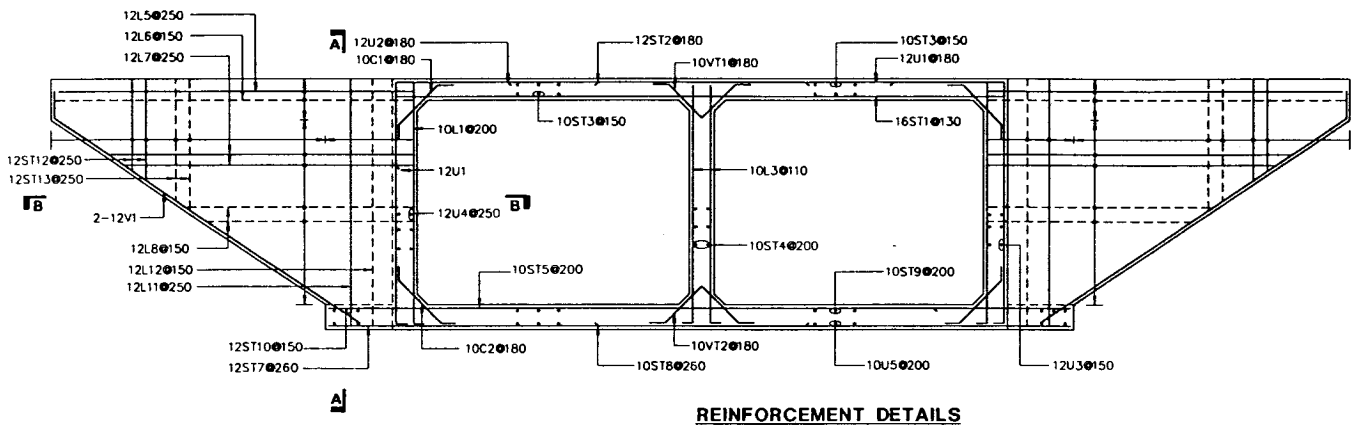
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 3.66m

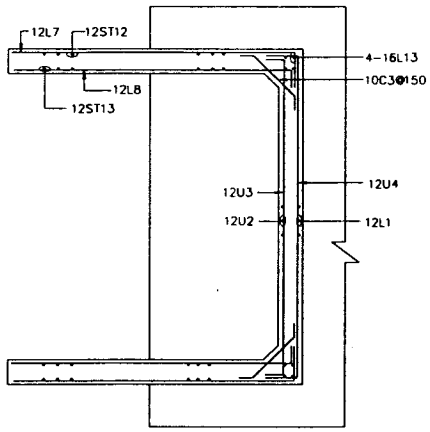
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2323161	

Web Copy

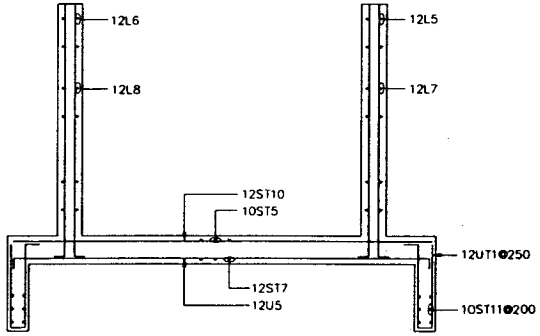
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 1.6m



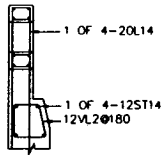
REINFORCEMENT DETAILS



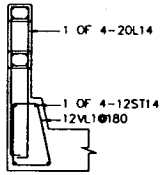
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



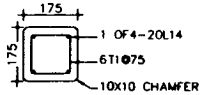
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

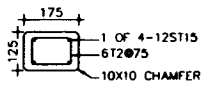
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	33	5150				5150
B	12	ST2	24	1733				1733
O	10	ST3	2 X 36	4160				4160
X	10	ST4	2 X 8	4160				4160
	10	ST5	28	5626				5626
	12	ST7	22	5626				5626
A	10	ST8	21	1733				1733
P	10	ST9	2 x 2	5360				5360
P	12	ST10	2 x 2	5360				5360
R	10	C1	2 X 25	120	556	120		796
O	10	C2	2 X 25	120	558	120		798
N	10	VT1	25	2 X 150	2 X 484			1268
	10	VT2	25	2 X 150	2 X 484			1268
&	10	L1	2 X 19	1938	250			2188
	10	L3	2 X 39	1938	250			2188
	16	L13	4 X 4	1938	250			2188
C	12	U1	25	718	5150	718		6586
U	12	U2	2 X 25	941	1960	250		3151
T	12	U3	2 X 10	250	4160	250		4660
O	12	U4	2 X 6	369	4160	369		4898
F	10	U5	30	250	5290	250		5790
F	10	ST11	4 X 5	5576				5576
	12	UT1	2 X 24	144	2 X 1000	100		2244
	12	L5	4 X 1	2402	369			2771
W	12	L6	4 X 2	2402	250			2652
I	12	L7	4 X 7	Var. 2371 To 353 @ 336	369			Var. 2740 To 722
N	12	L8	4 X 11	Var. 2371 To 353 @ 201	250			Var. 2621 To 603
G	12	L11	4 X 1	1988	250			2238
	12	L12	4 X 2	1988	250			2238
W	12	ST12	4 X 8	Var. 1605 To 376 @175				Var. 1605 TO 376
A	12	ST13	4 X 8	Var. 1605 To 376 @175				VER. 1605 TO 376
L	12	V1	4 X 2	2712	200			2912
L	10	C3	4 X 13	120	612	120		852
	12	ST14	2 X 4	9774				9774
CURB	12	VL1	2 X 31	204	394	289	385	1372
	12	VL2	4 X 13	204	204	248	200	956
AND	20	L14	16 X 4	1046	120			1166
	12	ST15	4 X 4	9784				9784
RAILING	6	T1	16 X 6	2 X 135	2 X 135			540
	6	T2	4X 119	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 24 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 1.6m ROADWAY 3.66m

DATE :

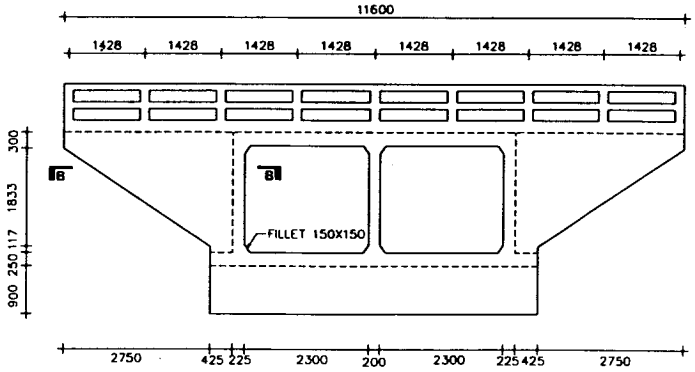
ISSUED BY :

CAD FILE REF : CULV\B2323162

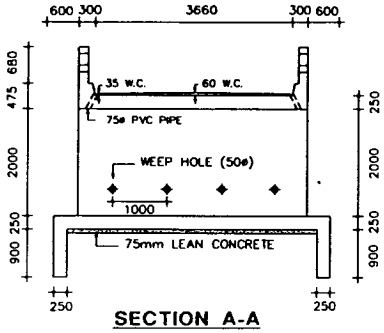
Web Copy

BC-270

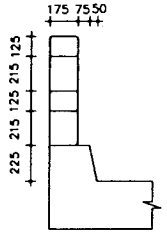
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



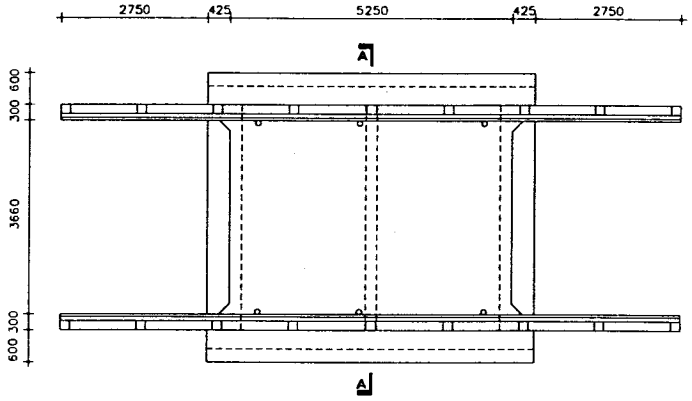
GENERAL ELEVATION



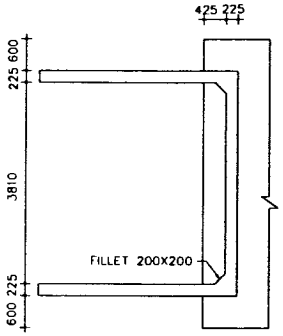
SECTION A-A



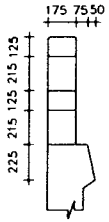
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

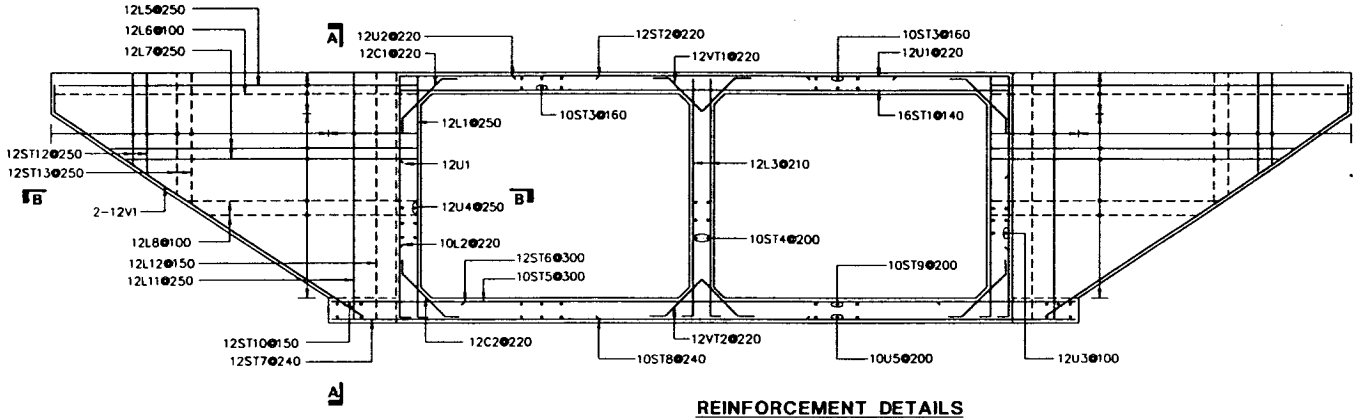
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2323201	

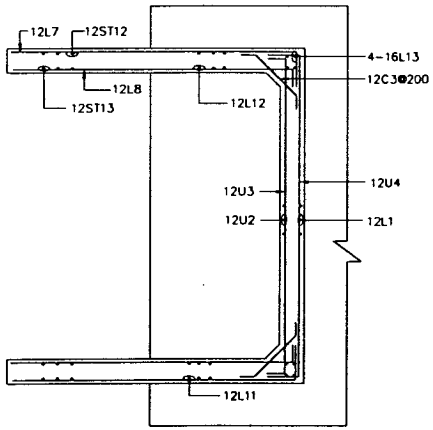
Web Copy

BC-271

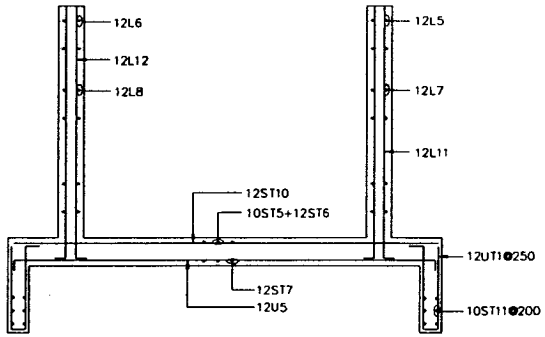
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.0m



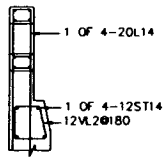
REINFORCEMENT DETAILS



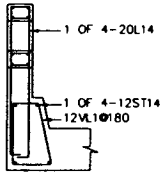
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



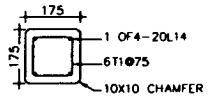
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

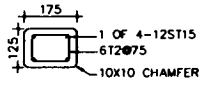
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF WALL	16	ST1	31	5150				5150
	12	ST2	19	1733				1733
	10	ST3	2 X 34	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	19	6000				6000
	12	ST6	18	3650				3650
	12	ST7	24	6000				6000
	10	ST8	23	1733				1733
	10	ST9	28	5360				5360
	12	ST10	2 X3	5360				5360
	12	C1	2 X 20	144	591	144		879
	12	C2	2 X 20	144	580	144		868
	12	VT1	20	2 X 150	2 X 519			1338
	12	VT2	20	2 X 150	2 X 505			1310
	12	L1	2 X 15	2388	250			2638
	10	L2	2 X 18	856	250			1106
	12	L3	2 X 21	2388	250			2638
	16	L13	4 X 4	2388	250			2638
	12	U1	20	876	5150	876		6902
	12	U2	2 X 20	941	2410	250		3601
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	31	250	5290	250		5790
	10	ST11	4 X 5	5950				5950
	12	UT1	2 X 26	144	2 X 1025	100		2294
WING WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var.3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	11550				11550
	12	VL1	2 X 31	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	18 X 4	1071	120			1191
	12	ST15	4 X 4	11560				11560
	6	T1	18 X 6	2 X 135	2 X 135			540
	6	T2	4X 136	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 30 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

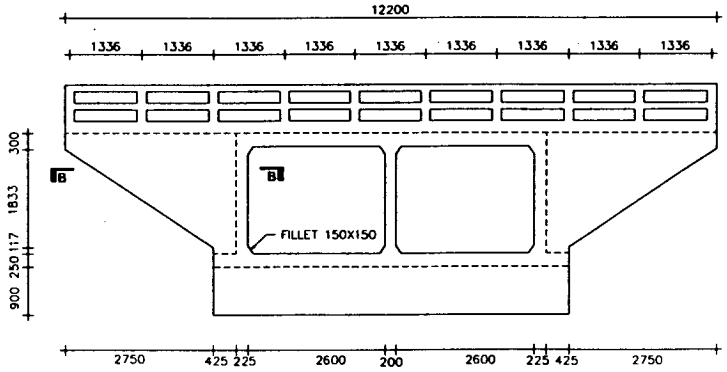
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2323202

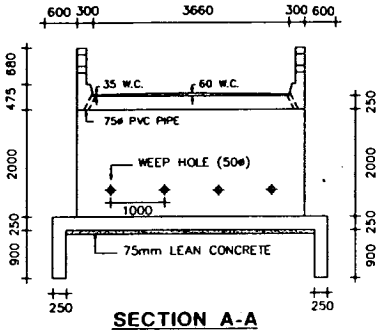
Web Copy

BC-272

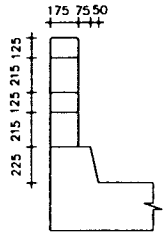
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.0m



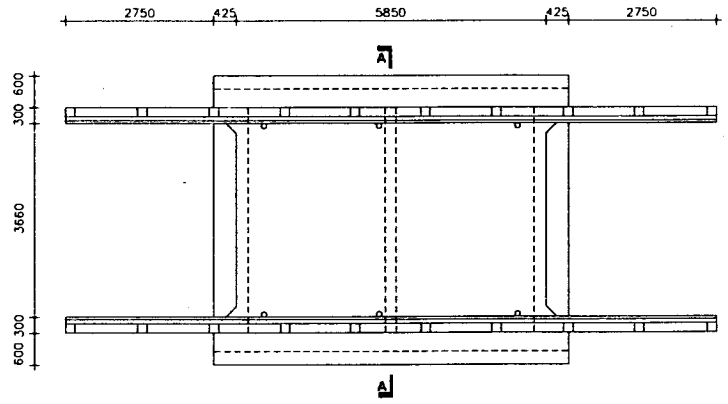
GENERAL ELEVATION



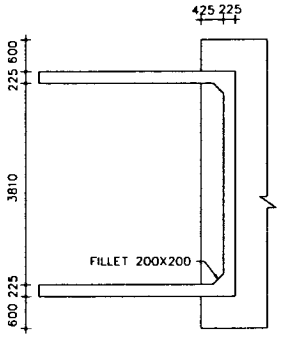
SECTION A-A



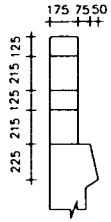
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

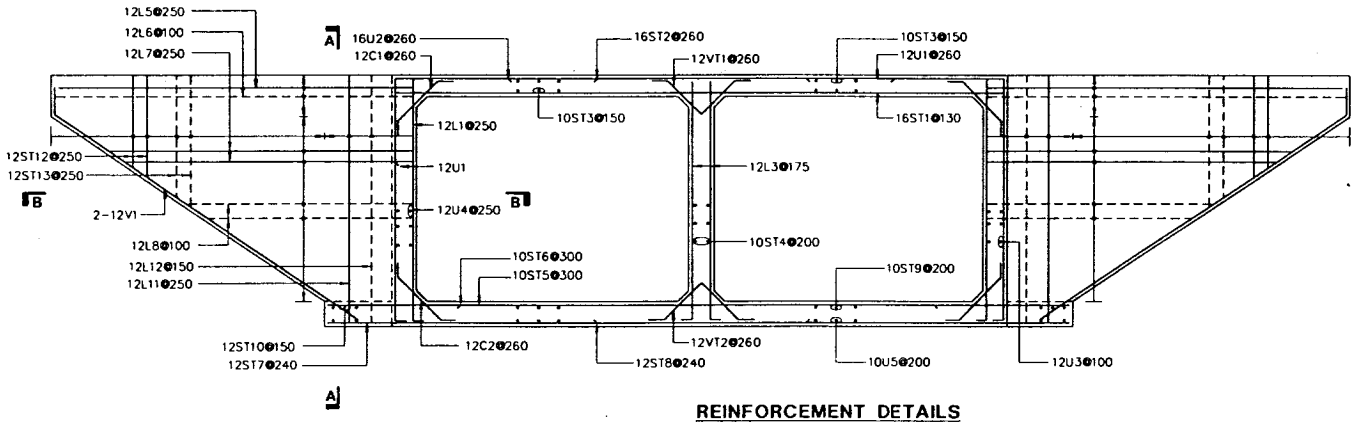
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 3.66m

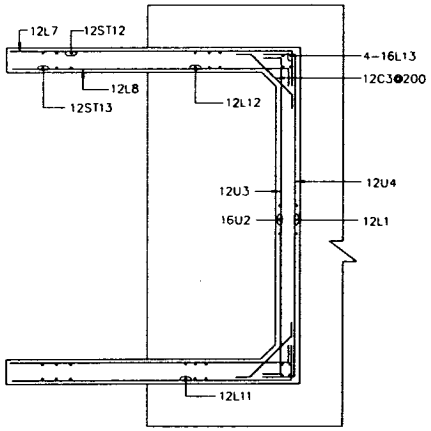
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2326201	

Web Copy

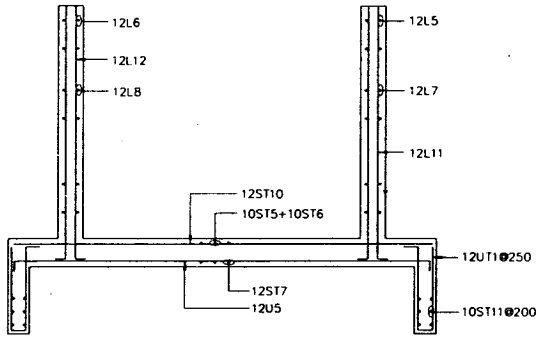
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2x2.6m
CLEAR HEIGHT : 2.0m



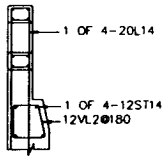
REINFORCEMENT DETAILS



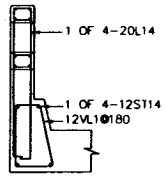
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



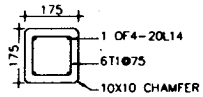
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

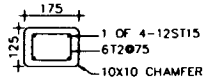
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APRON & CUTOFF WALL	16	ST1	33	5750				5750
	16	ST2	16	1933				1933
	10	ST3	2 X 40	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	19	6600				6600
	10	ST6	18	4100				4100
	12	ST7	24	6600				6600
	12	ST8	23	1933				1933
	10	ST9	31	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 17	144	580	144		868
	12	C2	2 X 17	144	594	144		882
	12	VT1	17	2 X 150	2 X 513			1326
	12	VT2	17	2 X 150	2 X 505			1310
	12	L1	2 X 15	2388	250			2638
	12	L3	2 X 25	2388	250			2638
	16	L13	4 X 4	2388	250			2638
CUTOFF WALL	12	U1	17	876	5750	876		7502
	16	U2	2 X 17	1041	2410	250		3701
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	34	250	5290	250		5790
	10	ST11	4 X 5	6550				6550
	12	UT1	2 X 28	144	2 X 1025	100		2294
WING WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var.2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12150				12150
	12	VL1	2 X 34	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12160				12160
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 20 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

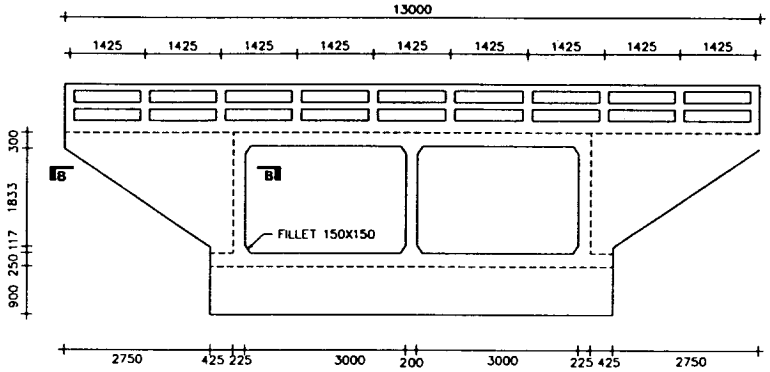
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.0m ROADWAY 3.66m

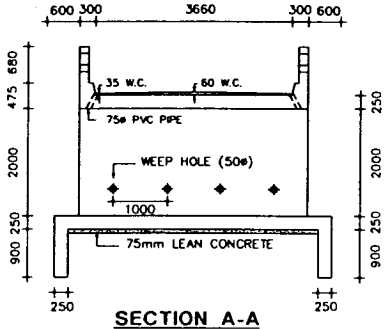
DATE :
ISSUED BY :
CAD FILE REF : CULV\B2326202

Web Copy

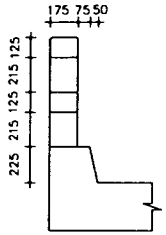
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



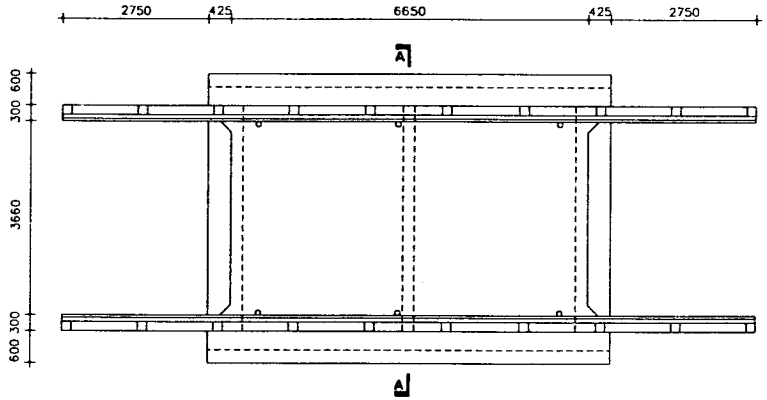
GENERAL ELEVATION



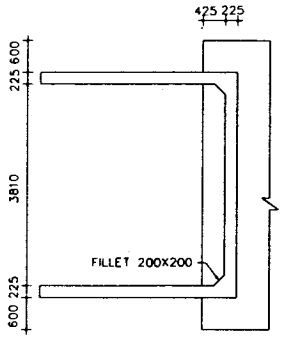
SECTION A-A



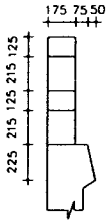
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

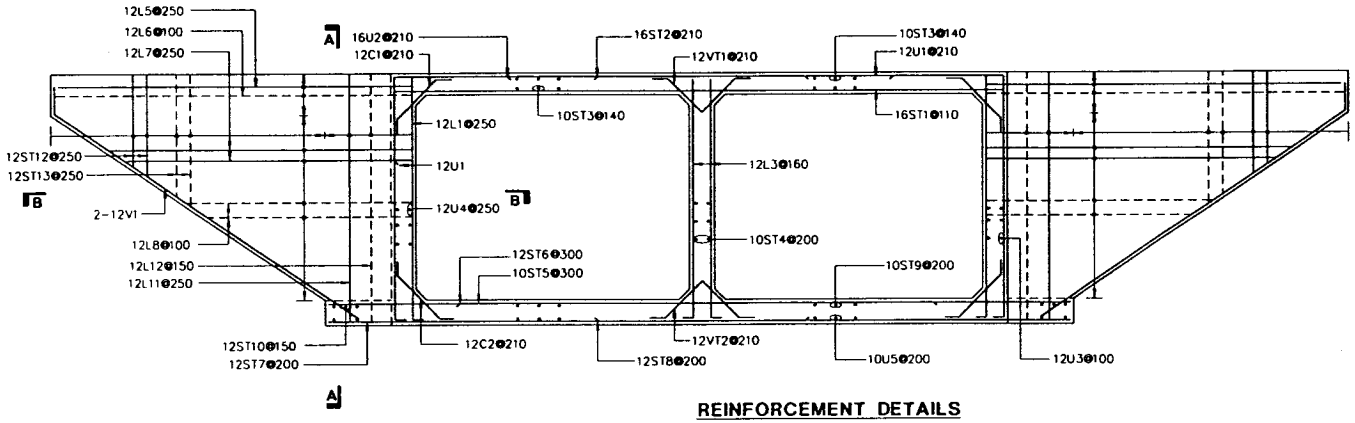
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 3.66m

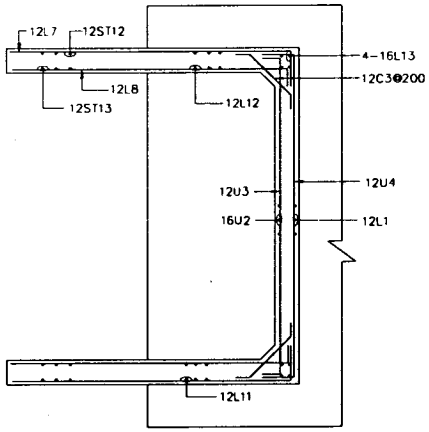
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2330201	

Web Copy

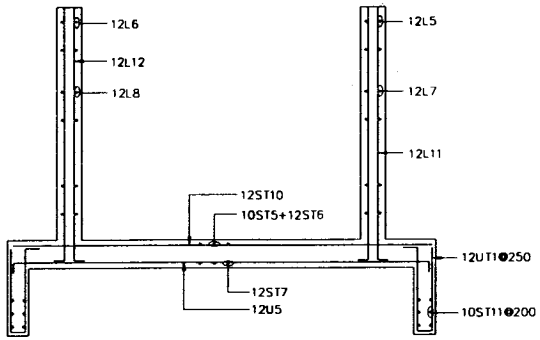
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.0m



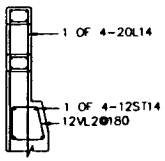
REINFORCEMENT DETAILS



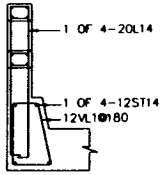
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



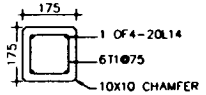
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

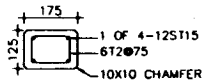
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	39	6550				6550
	16	ST2	20	2200				2200
	10	ST3	2 X 48	4160				4160
	10	ST4	2 X 10	4160				4160
	10	ST5	19	7400				7400
	12	ST6	18	4700				4700
APPROX & CUTOFF	12	ST7	28	7400				7400
	12	ST8	27	2200				2200
	10	ST9	35	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 21	144	580	144		868
	12	C2	2 X 21	144	594	144		882
	12	VT1	21	2 X 150	2 X 513			1326
	12	VT2	21	2 X 150	2 X 502			1304
	12	L1	2 X 15	2388	250			2638
	12	L3	2 X 27	2388	250			2638
	16	L13	4 X 4	2388	250			2638
	12	U1	21	876	6550	876		8302
	16	U2	2 X 21	1175	2410	250		3835
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	10	U5	38	250	5290	250		5790
	10	ST11	4 X 5	7350				7350
	12	UT1	2 X 31	144	2 X 1025	100		2294
WING WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 2	3288	250			5538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @169				VER. 2073 TO 376
	12	V1	4 X 2	3555	200			3755
	12	C3	4 X 12	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12950				12950
	12	VL1	2 X 38	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12960				12960
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

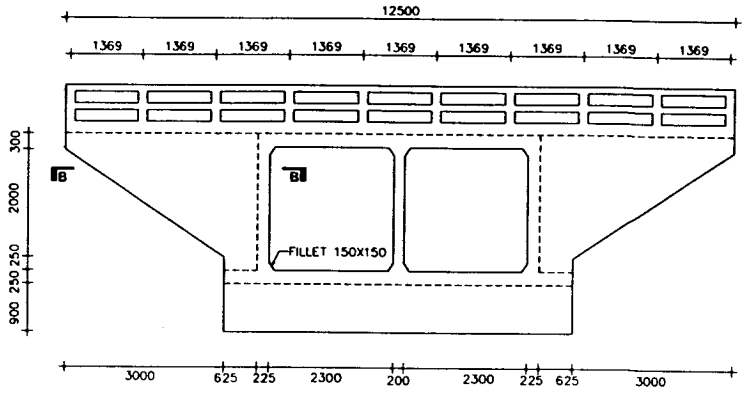
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2330202

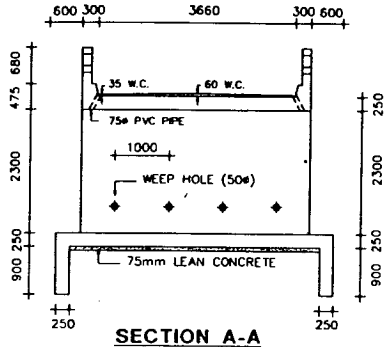
Web Copy

BC-276

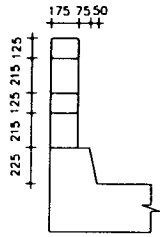
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



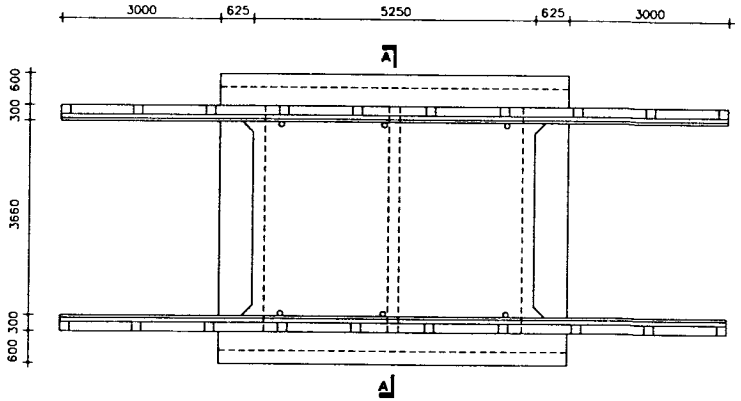
GENERAL ELEVATION



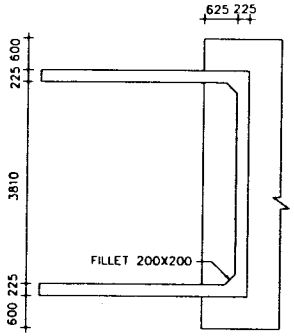
SECTION A-A



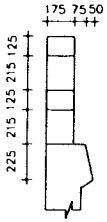
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

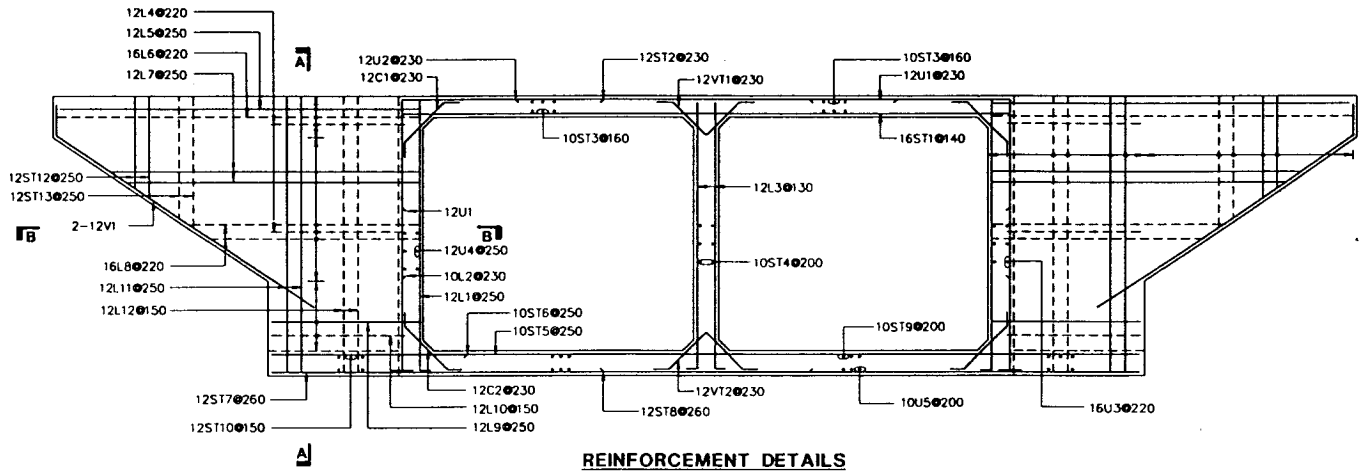
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 3.66m

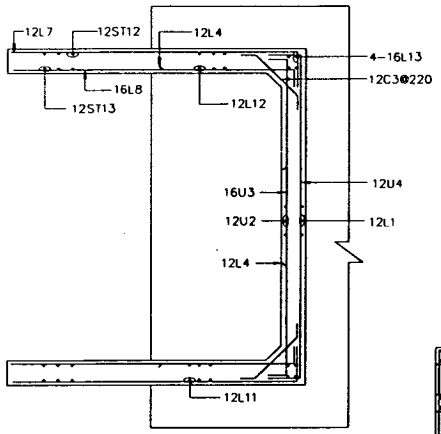
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2323231	

Web Copy

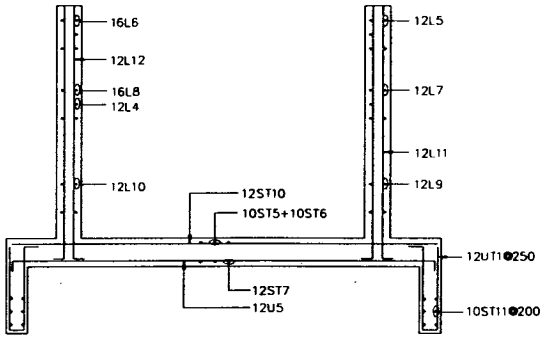
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X2.3m
CLEAR HEIGHT : 2.3m



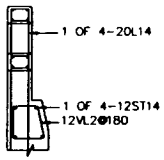
REINFORCEMENT DETAILS



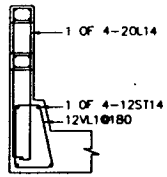
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



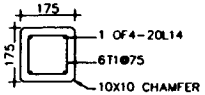
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

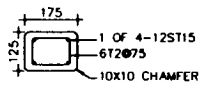
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	5150				5150
	12	ST2	19	1733				1733
	10	ST3	2 X 34	4160				4160
	10	ST4	2 X 11	4160				4160
	10	ST5	23	6400				6400
	10	ST6	22	3650				3650
	12	ST7	22	6400				6400
	12	ST8	21	1733				1733
	10	ST9	28	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 20	144	585	144		873
	12	C2	2 X 20	144	574	144		862
	12	VT1	20	2 X 150	2 X 519			1338
	12	VT2	20	2 X 150	2 X 505			1310
	12	L1	2 X 15	2688	250			2938
	10	L2	2 X 18	956	250			1206
	12	L3	2 X 33	2688	250			2938
	16	L13	4 X 4	2688	250			2938
	12	U1	20	976	5150	976		7102
	12	U2	2 X 20	941	2710	250		3901
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	10	U5	33	250	5290	250		5790
	10	ST11	4 X 5	6350				6350
	12	UT1	2 X 27	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	1220			1958
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	12450				12450
	12	VL1	2 X 31	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	12460				12460
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 144	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Roil-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be > 33 kN/m^2
8) This drawing is to be read in conjuction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

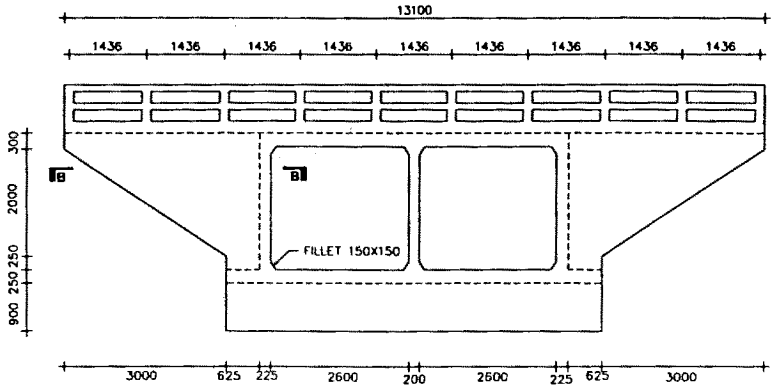
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2323232

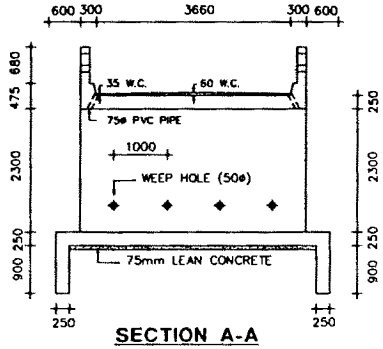
Web Copy

BC-278

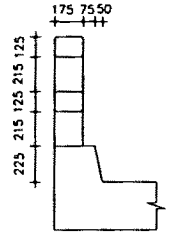
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.3m



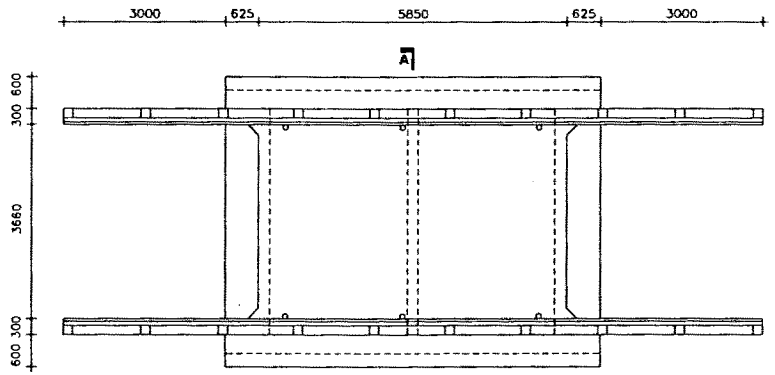
GENERAL ELEVATION



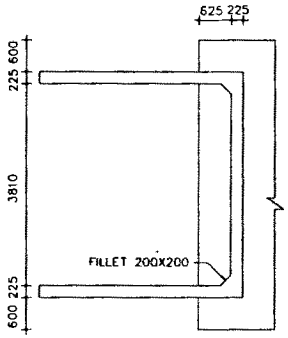
SECTION A-A



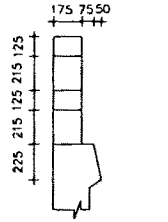
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

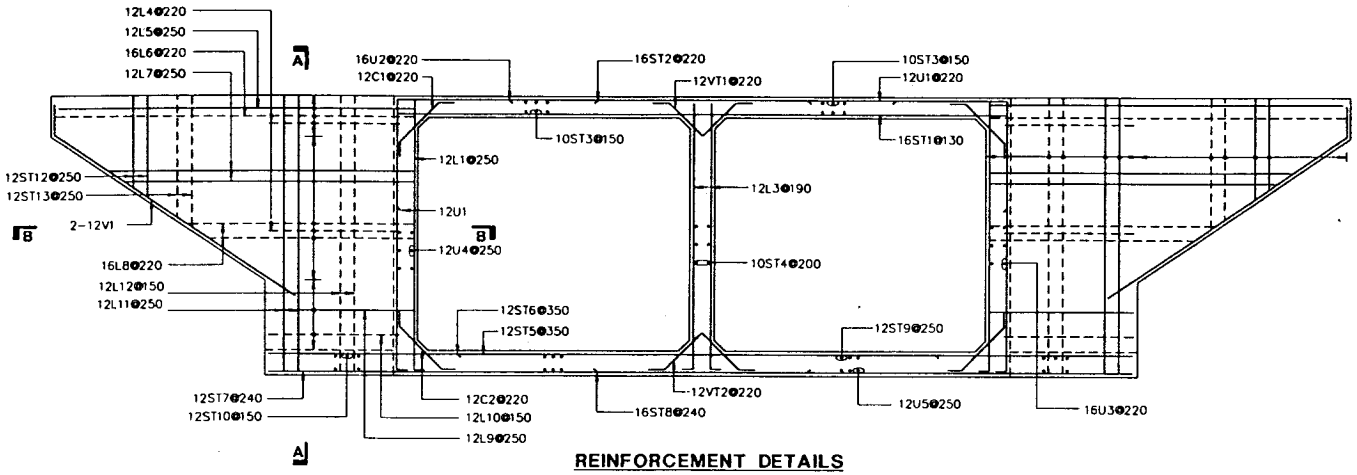
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 3.66m

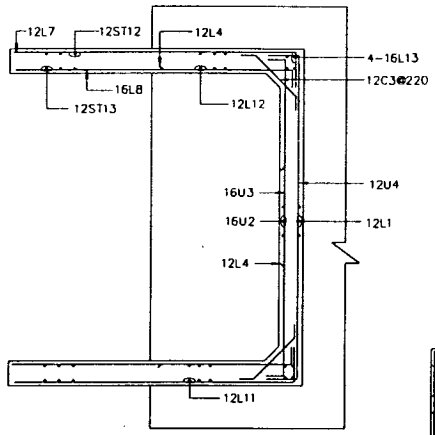
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2326231	

Web Copy

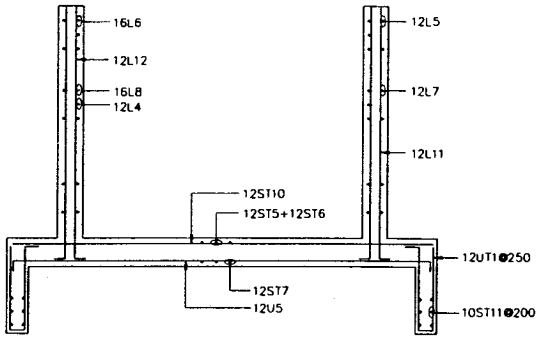
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.3m



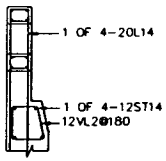
REINFORCEMENT DETAILS



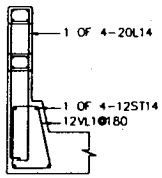
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



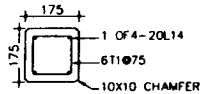
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

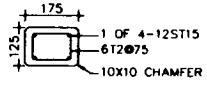
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	5750				5750
	16	ST2	19	1933				1933
	10	ST3	2 X 40	4160				4160
	10	ST4	2 X 11	4160				4160
	12	ST5	17	7000				7000
	12	ST6	16	4100				4100
	12	ST7	24	7000				7000
	16	ST8	23	1933				1933
	12	ST9	25	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 20	144	574	144		862
	12	C2	2 X 20	144	585	144		873
	12	VT1	20	2 X 150	2 X 513			1326
	12	VT2	20	2 X 150	2 X 502			1304
	12	L1	2 X 15	2686	250			2936
	12	L3	2 X 23	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	20	976	5750	976		7702
	16	U2	2 X 20	1041	2710	250		4001
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	29	250	5290	250		5790
	10	ST11	4 X 6	6950				6950
	12	UT1	2 X 30	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2688
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	13050				13050
	12	VL1	2 X 34	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	20 X 4	1071	120			1191
	12	ST15	4 X 4	13060				13060
	6	T1	20 X 6	2 X 135	2 X 135			540
	6	T2	4X 153	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 31 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

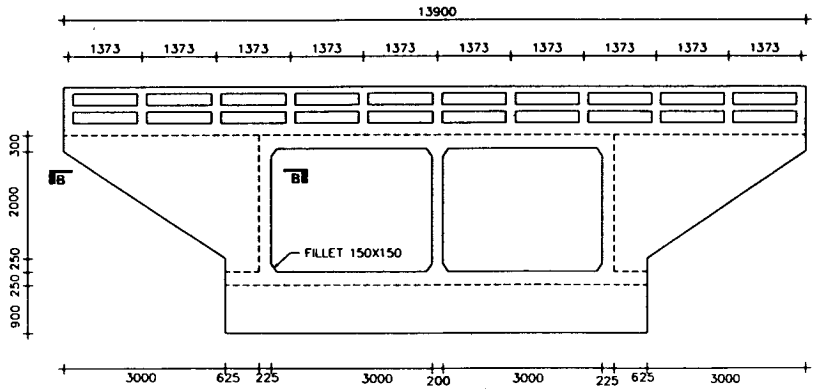
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2326232

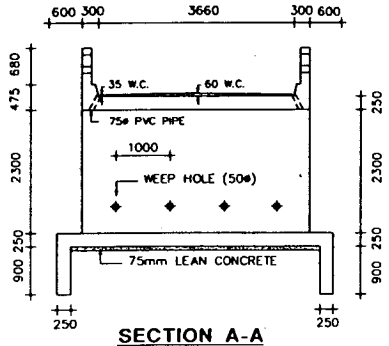
Web Copy

BC-280

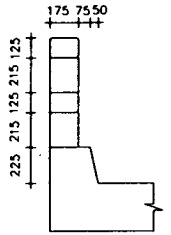
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



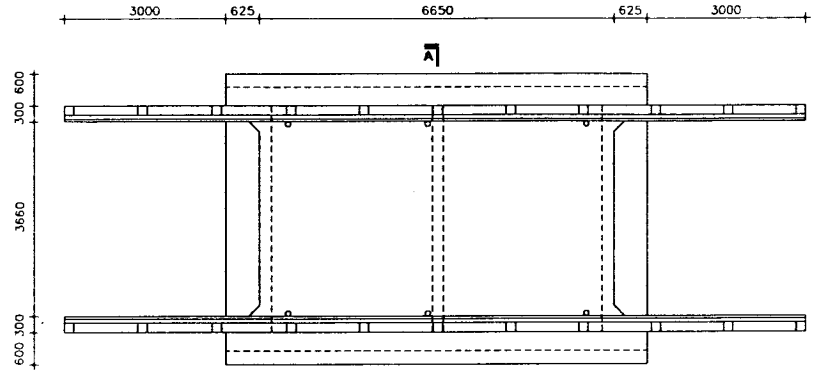
GENERAL ELEVATION



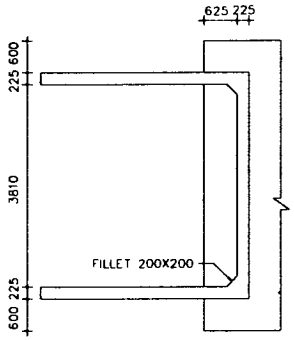
SECTION A-A



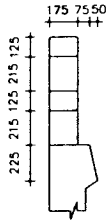
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

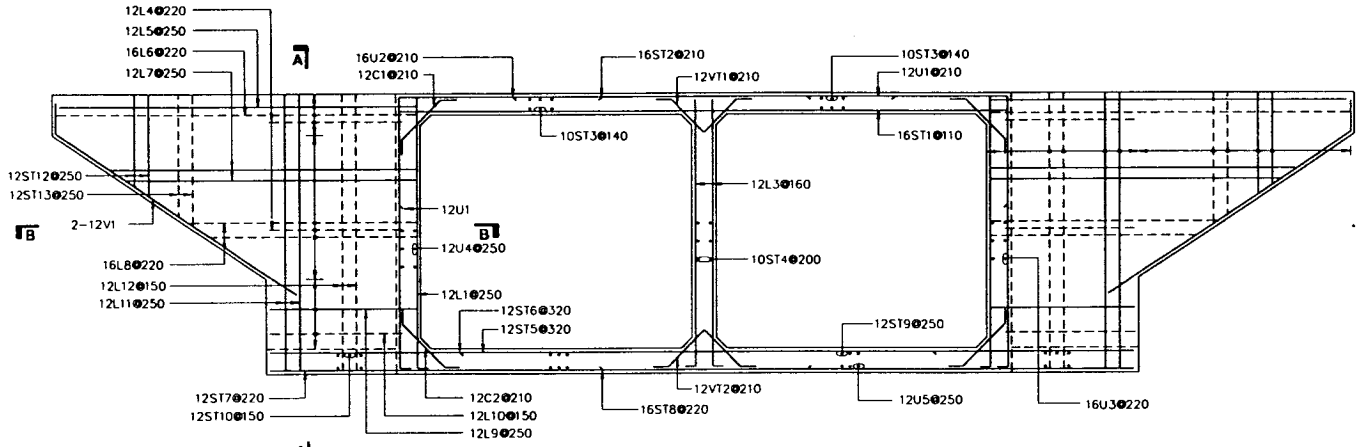
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2330231	

Web Copy

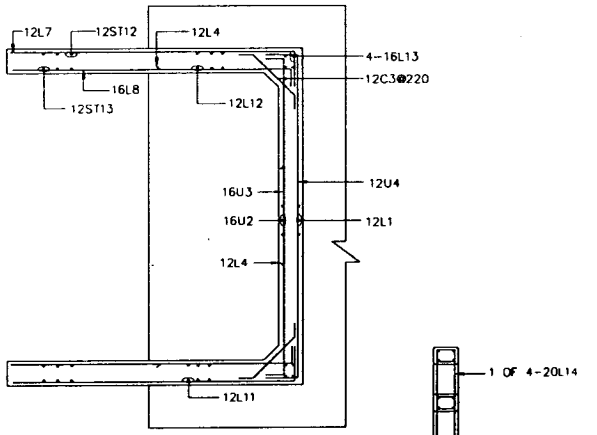
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.3m



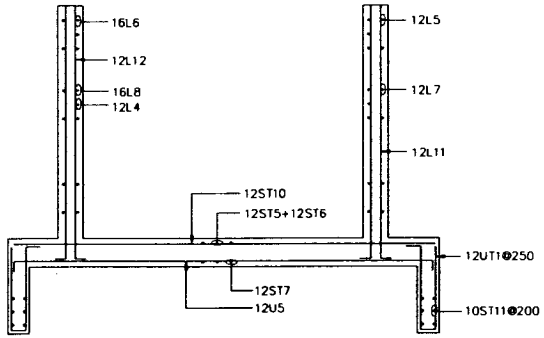
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

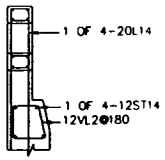
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF WALL	16	ST1	39	6550				6550
	16	ST2	20	2200				2200
	10	ST3	2 X 48	4160				4160
	10	ST4	2 X 11	4160				4160
	12	ST5	18	7800				7800
	12	ST6	17	4700				4700
	12	ST7	26	7800				7800
	16	ST8	25	2200				2200
	12	ST9	28	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 21	144	574	144		862
	12	C2	2 X 21	144	585	144		873
	12	VT1	21	2 X 150	2 X 513			1326
	12	VT2	21	2 X 150	2 X 502			1304
	12	L1	2 X 15	2686	250			2936
	12	L3	2 X 27	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	21	976	6550	976		8502
	16	U2	2 X 21	1175	2710	250		4135
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	33	250	5290	250		5790
	10	ST11	4 X 5	7750				7750
	12	UT1	2 X 33	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	609	144		897
CURB AND RAILING	12	ST14	2 X 4	13850				13850
	12	VL1	2 X 38	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	13860				13860
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 160	2 X 85	2 X 135			440



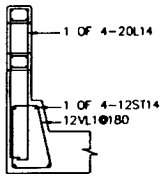
SECTION B-B



SECTION A-A



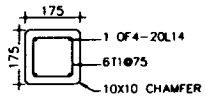
RAILING ON WING WALL (REINF. DETAIL)



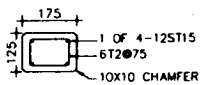
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 29 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

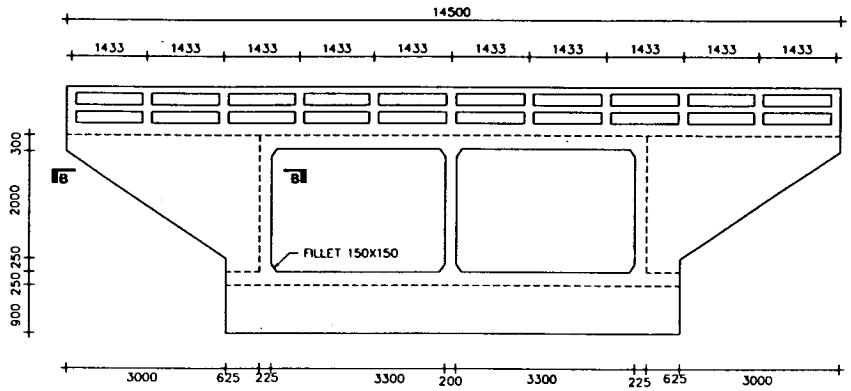
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2330232

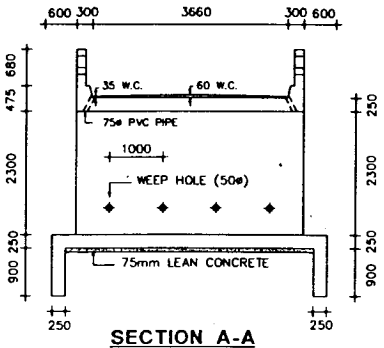
Web Copy

BC-282

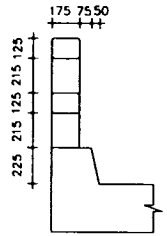
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



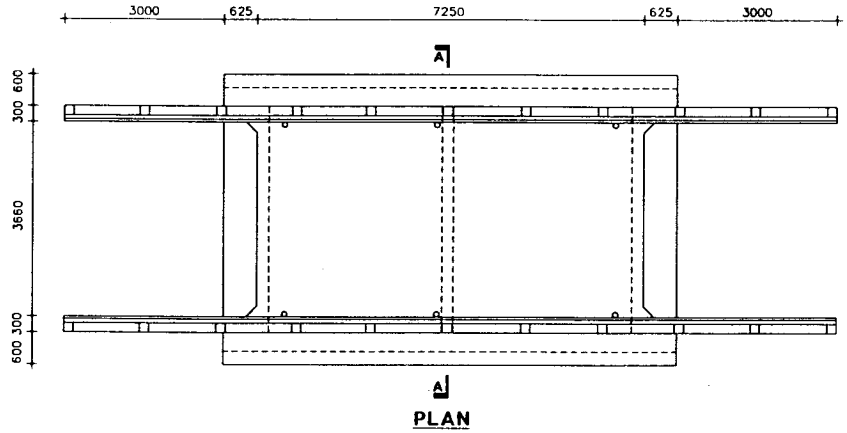
GENERAL ELEVATION



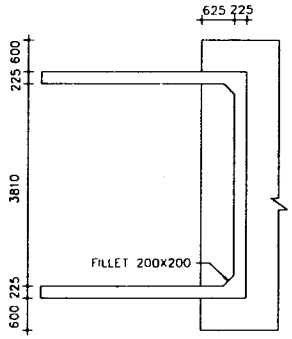
SECTION A-A



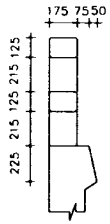
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

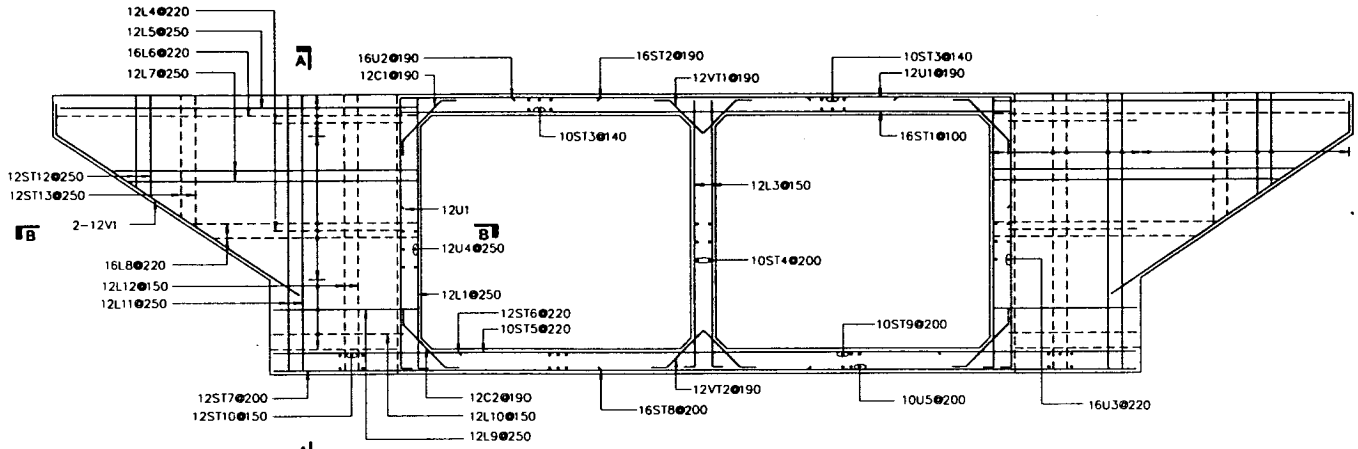
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 3.66m

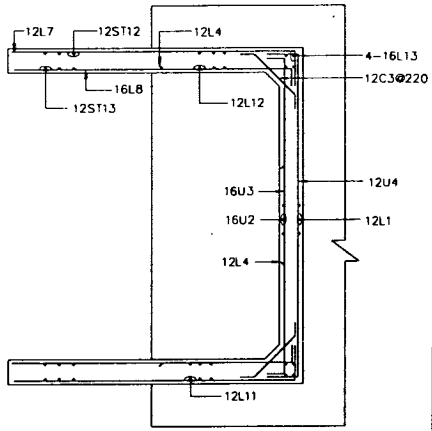
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2333231	

Web Copy

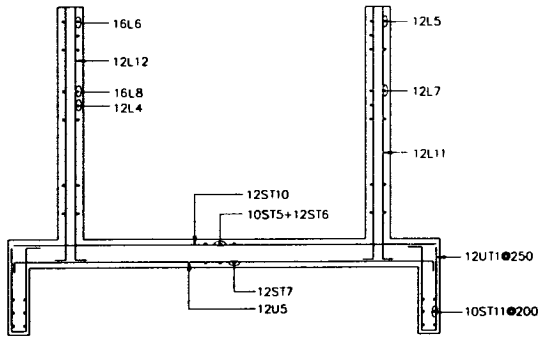
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.3m



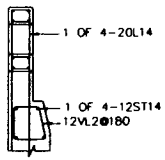
REINFORCEMENT DETAILS



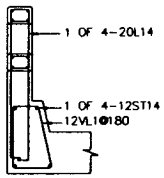
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



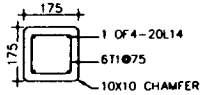
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

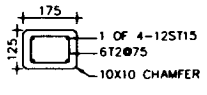
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	7150				7150
	16	ST2	22	2400				2400
	10	ST3	2 X 53	4160				4160
	10	ST4	2 X 11	4160				4160
	10	ST5	26	8400				8400
	12	ST6	25	5150				5150
	12	ST7	28	8400				8400
	16	ST8	27	2400				2400
	10	ST9	38	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 23	144	574	144		862
	12	C2	2 X 23	144	588	144		876
	12	VT1	23	2 X 150	2 X 513			1326
	12	VT2	23	2 X 150	2 X 502			1304
	12	L1	2 X 15	2688	250			2938
	12	L3	2 X 29	2688	250			2938
	16	L13	4 X 4	2688	250			2938
	12	U1	23	976	7150	976		9102
	16	U2	2 X 23	1275	2710	250		4235
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	10	U5	43	250	5290	250		5790
	10	ST11	4 X 5	8350				8350
	12	UT1	2 X 35	144	2 X 1025	100		2294
WING	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	394			4132
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	394			Var. 4103 To 1132
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	144	645	144		933
CURB AND RAILING	12	ST14	2 X 4	14450				14450
	12	VL1	2 X 42	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	14460				14460
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 28 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

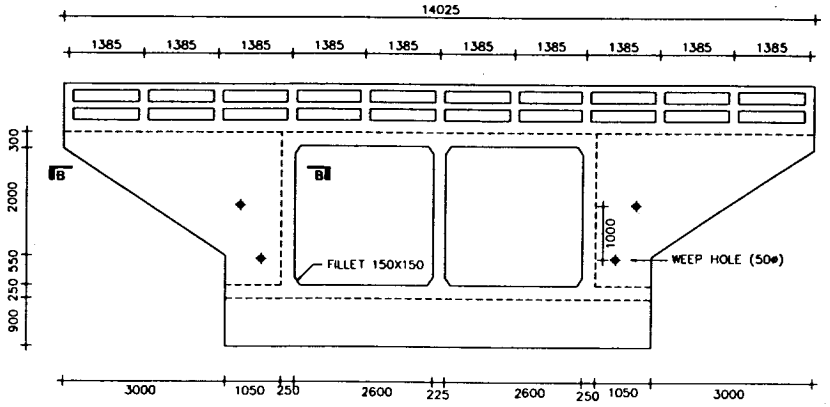
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2333232

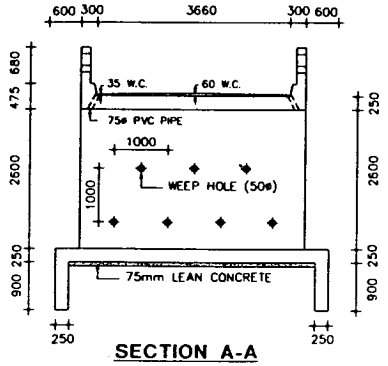
Web Copy

BC-284

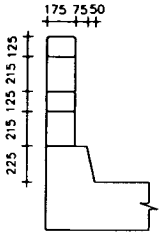
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.6m



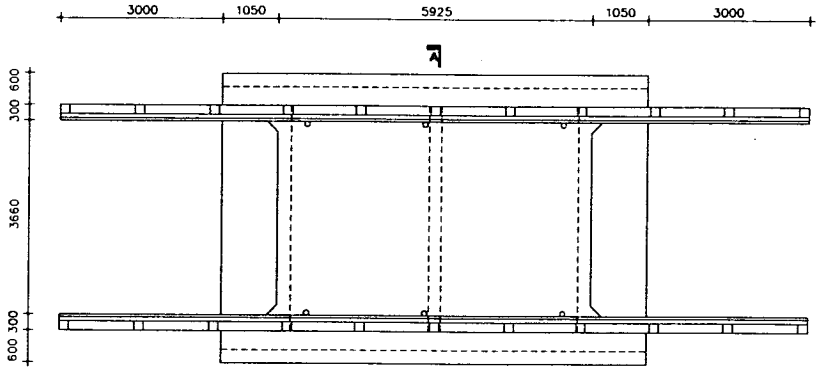
GENERAL ELEVATION



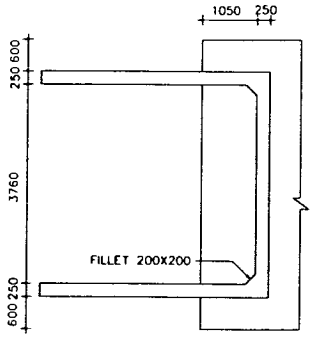
SECTION A-A



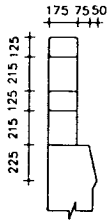
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 3.66m

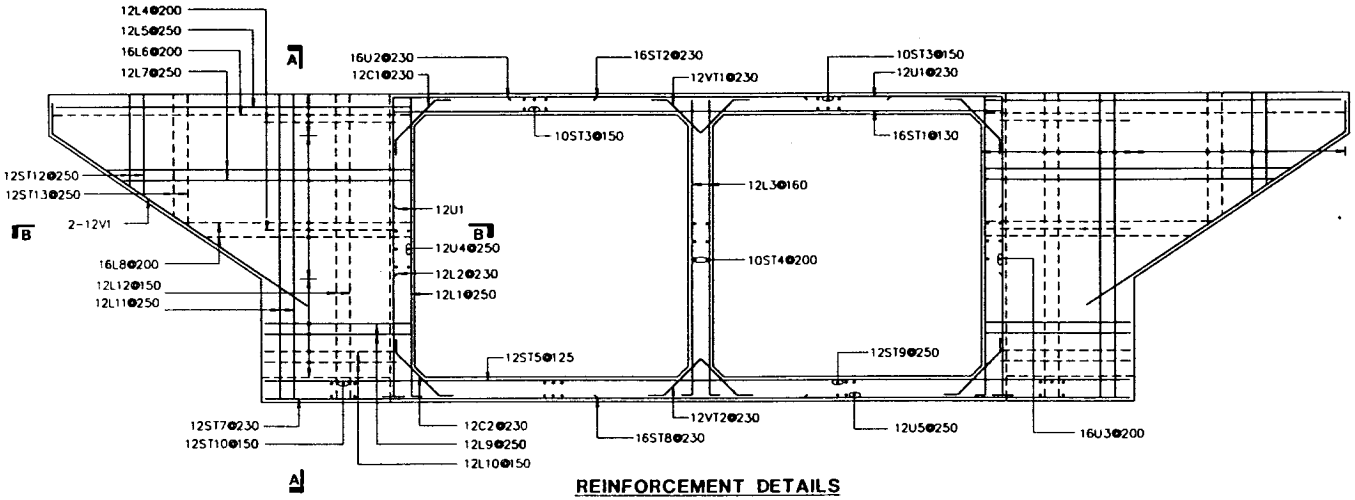
DATE :

ISSUED BY :

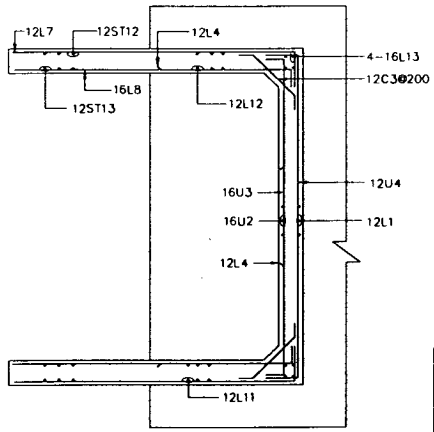
CAD FILE REF : CULV\B2326261

Web Copy

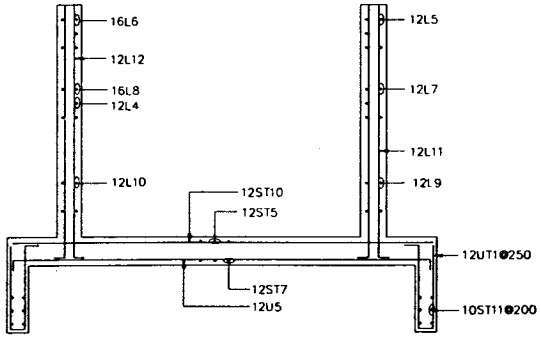
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X2.6m
CLEAR HEIGHT : 2.6m



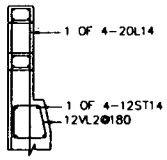
REINFORCEMENT DETAILS



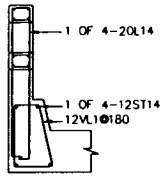
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



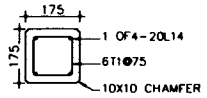
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

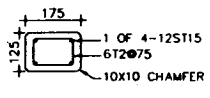
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	5825				5825
	16	ST2	19	1958				1958
	10	ST3	2 X 40	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	44	7925				7925
	0	ST6	43	4125				4125
	12	ST7	25	7925				7925
	16	ST8	24	1958				1958
	12	ST9	25	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 20	144	609	144		897
	12	C2	2 X 20	144	604	144		892
	12	VT1	20	2 X 150	2 X 531			1362
	12	VT2	20	2 X 150	2 X 537			1374
	12	L1	2 X 15	2986	250			3236
	12	L2	2 X 18	1054	250			1304
	12	L3	2 X 27	2986	250			3236
	16	L13	4 X 4	2986	250			3236
	12	U1	20	1076	5825	1076		7977
	16	U2	2 X 20	1066	3010	250		5142
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	394	4160	394		4948
	12	U5	33	250	5290	250		5790
	10	ST11	4 X 5	7875				7875
	12	UT1	2 X 33	144	2 X 1025	100		2294
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3038	250			3288
	12	L12	4 X 7	3038	250			3288
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	144	680	144		968
CURB AND RAILING	12	ST14	2 X 4	13975				13975
	12	VL1	2 X 34	204	419	295	410	1328
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	22 X 4	1071	120			1191
	12	ST15	4 X 4	13985				13985
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 170	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

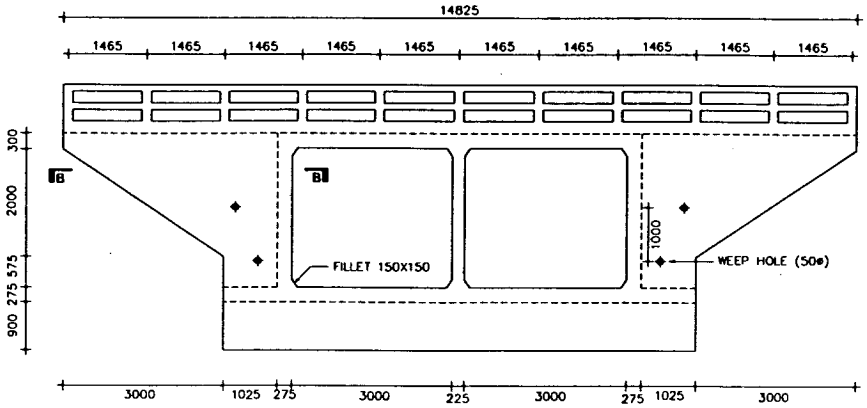
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 2.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2326262

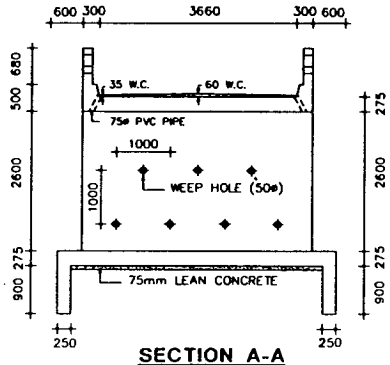
Web Copy

BC-286

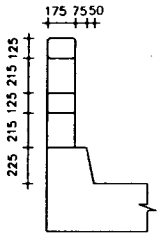
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.6m



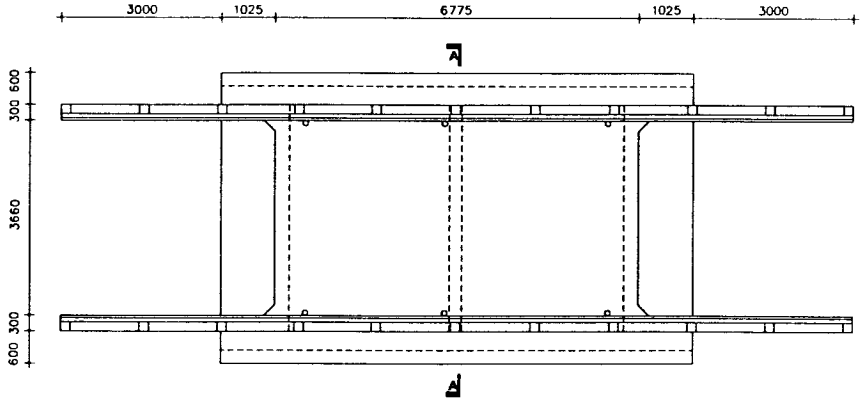
GENERAL ELEVATION



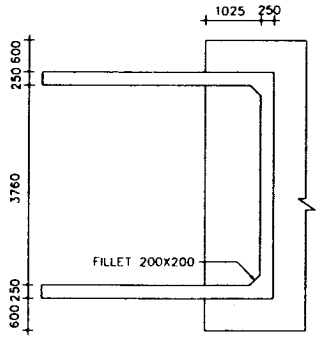
SECTION A-A



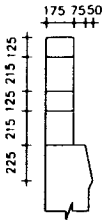
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

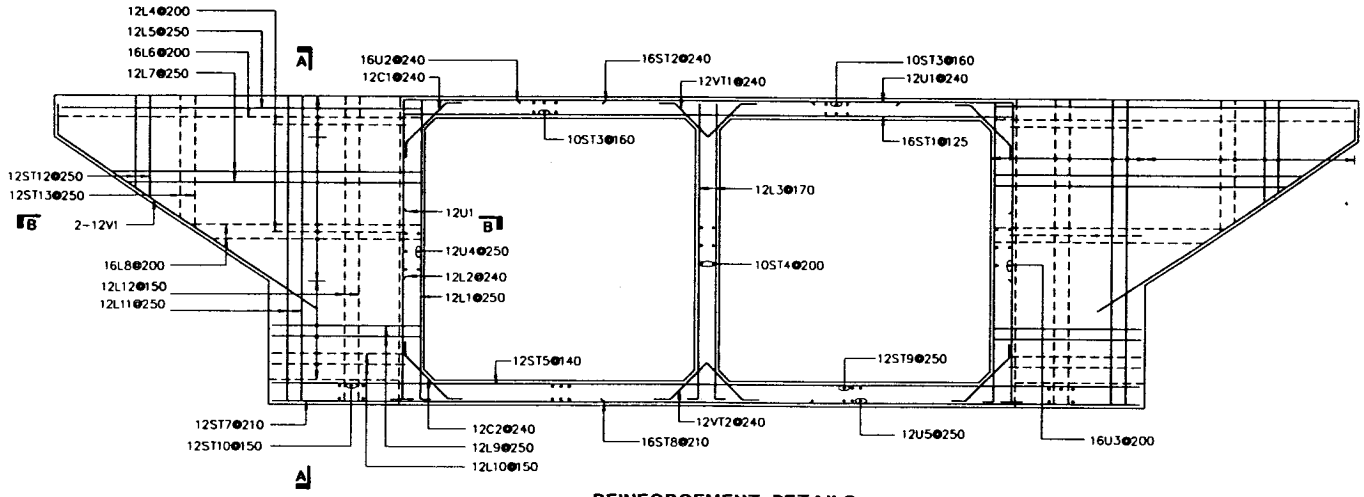
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 2.6m ROADWAY 3.66m

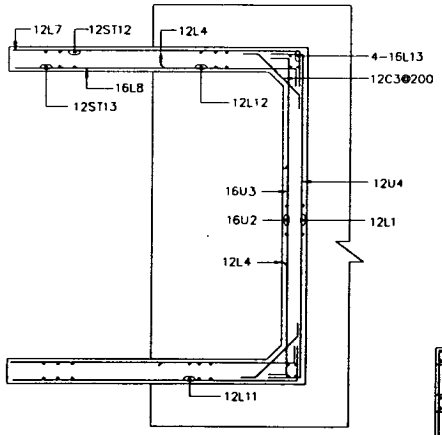
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2330261	

Web Copy

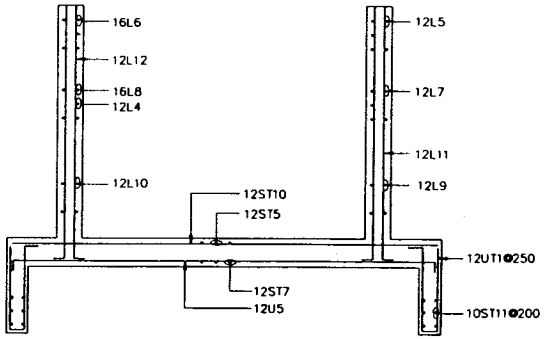
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 2.6m



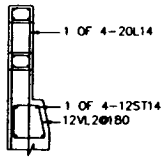
REINFORCEMENT DETAILS



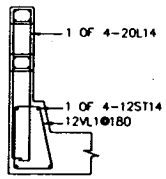
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



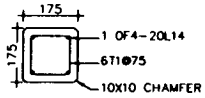
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

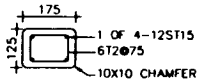
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	35	6675				6675
	16	ST2	18	2225				2225
	10	ST3	2 X 43	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	40	8725				8725
	0	ST6	39	4725				4725
	12	ST7	27	8725				8725
	16	ST8	26	2225				2225
	12	ST9	29	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X19	144	680	144		968
	12	C2	2 X 19	144	674	144		962
	12	VT1	19	2 X 150	2 X 566			1432
	12	VT2	19	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 17	1079	250			1329
	12	L3	2 X26	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	19	1101	6675	1101		8877
	16	U2	2 X19	1225	3060	250		5510
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	36	250	5290	250		5790
	10	ST11	4 X 5	8675				8675
	12	UT1	2 X 36	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088.	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	14775				14775
	12	VL1	2 X 39	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	22 X 4	1096	120			1216
	12	ST15	4 X 4	14785				14785
	6	T1	22 X 6	2 X 135	2 X 135			540
	6	T2	4X 180	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 35 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

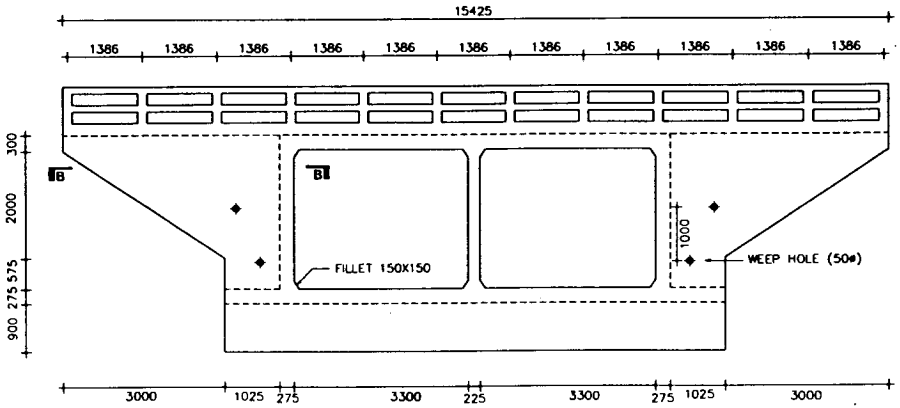
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2330262

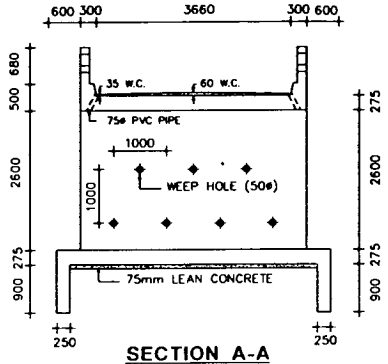
Web Copy

BC-288

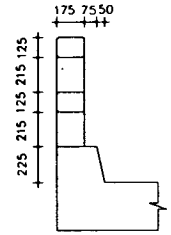
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.6m



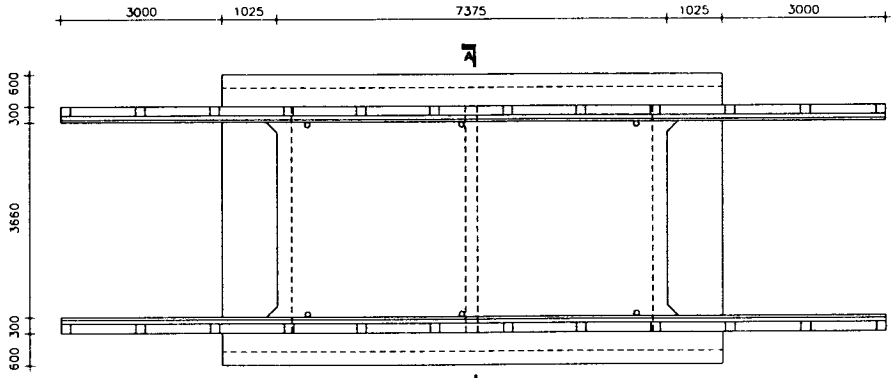
GENERAL ELEVATION



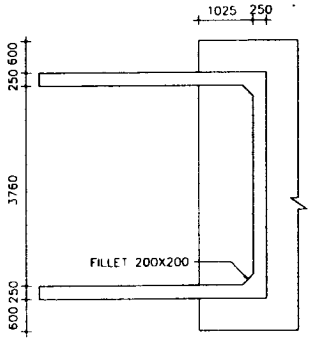
SECTION A-A



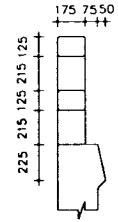
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

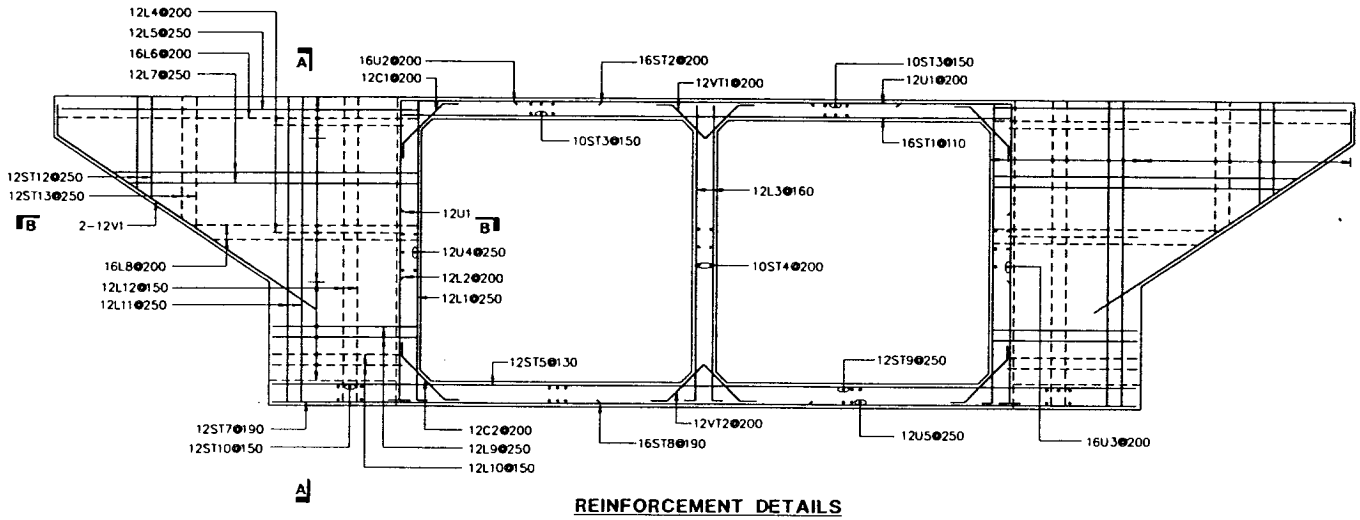
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2333261	

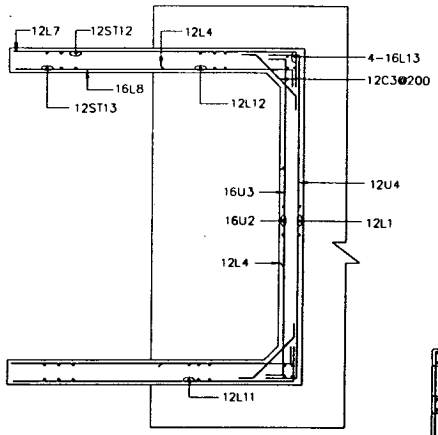
Web Copy

BC-289

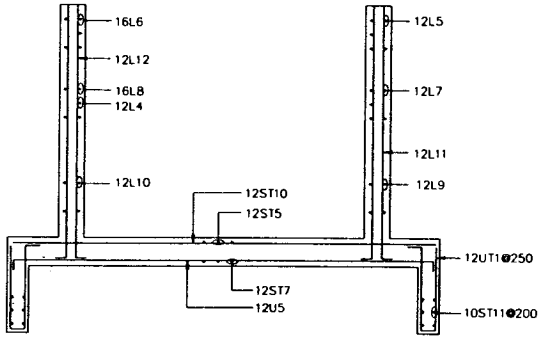
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 2.6m



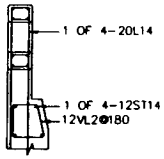
REINFORCEMENT DETAILS



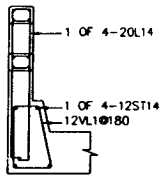
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



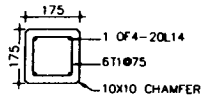
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

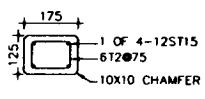
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	7275				7275
	16	ST2	21	2425				2425
	10	ST3	2 X 50	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	43	9325				9325
	0	ST6	42	5175				5175
	12	ST7	30	9325				9325
	16	ST8	29	2425				2425
	12	ST9	31	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 22	144	680	144		968
	12	C2	2 X 22	144	674	144		962
	12	VT1	22	2 X 150	2 X 566			1432
	12	VT2	22	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 20	1079	250			1329
	12	L3	2 X 27	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	22	1101	7275	1101		9477
	16	U2	2 X 22	1325	3060	250		5710
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	39	250	5290	250		5790
	10	ST11	4 X 6	9275				9275
	12	UT1	2 X 39	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15375				15375
	12	VL1	2 X 42	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15385				15385
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

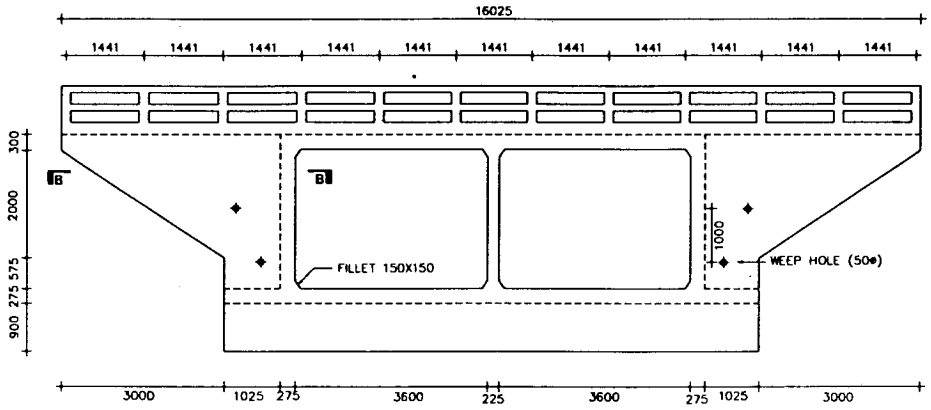
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2333262

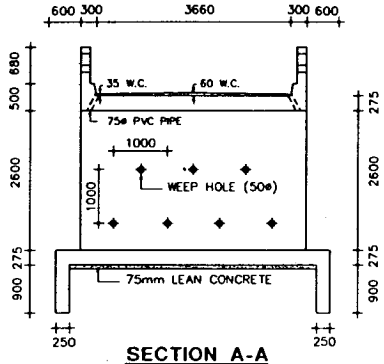
Web Copy

BC-290

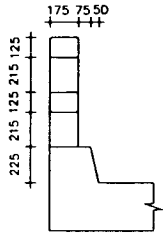
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 2.6m



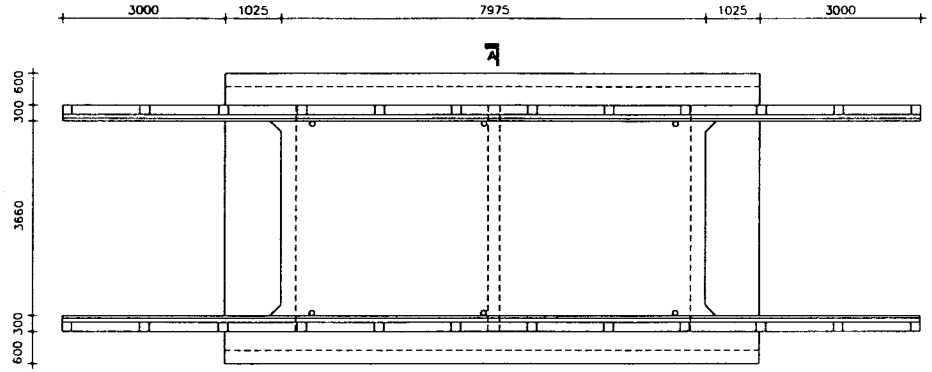
GENERAL ELEVATION



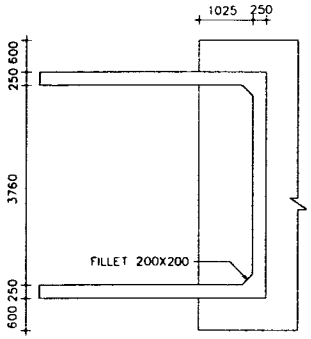
SECTION A-A



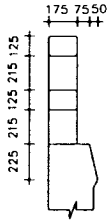
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

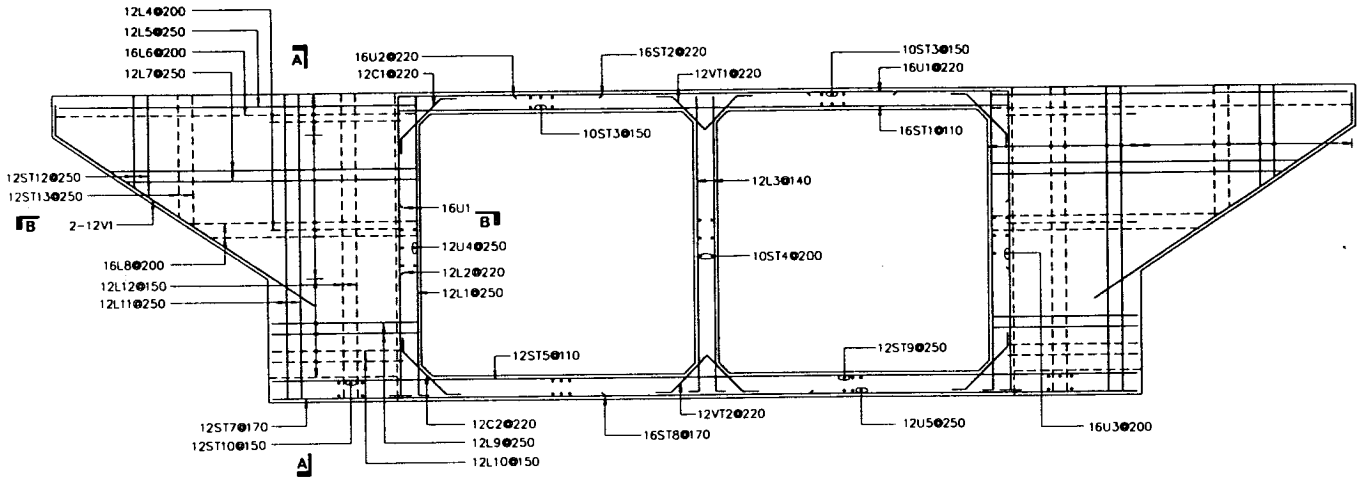
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 3.66m

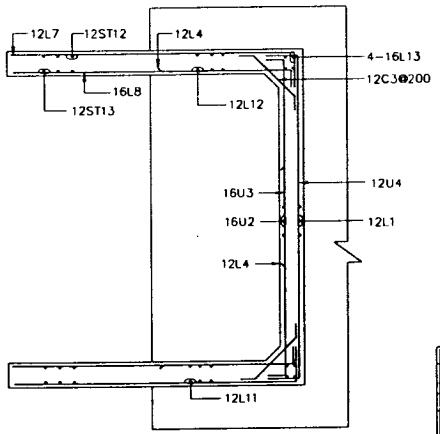
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2336261	

Web Copy

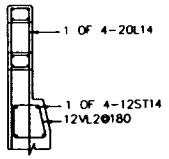
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 2.6m



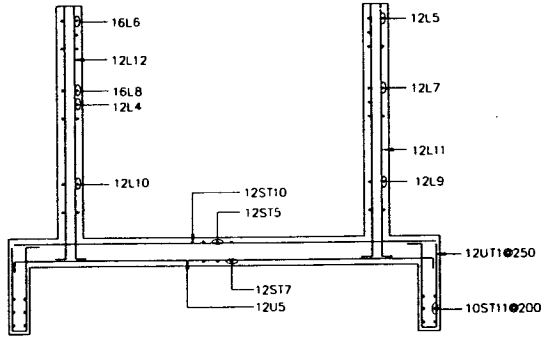
REINFORCEMENT DETAILS



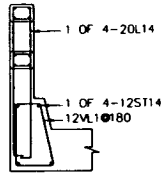
SECTION B-B



RAILING ON WING WALL (REINF. DETAIL)



SECTION A-A



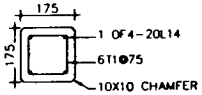
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

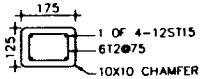
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	7875				7875
	16	ST2	19	2625				2625
	10	ST3	2 X 54	4160				4160
	10	ST4	2 X 13	4160				4160
	12	ST5	50	9925				9925
	0	ST6	49	5625				5625
	12	ST7	33	9925				9925
	16	ST8	32	2625				2625
	12	ST9	33	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 20	144	680	144		968
	12	C2	2 X 20	144	674	144		962
	12	VT1	20	2 X 150	2 X 566			1432
	12	VT2	20	2 X 150	2 X 572			1444
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	2 X 31	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	16	U1	20	1101	7875	1101		10077
	16	U2	2 X 20	1425	3060	250		5910
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	41	250	5290	250		5790
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1050	100		2344
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X16	144	715	144		1003
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X 46	204	445	300	435	1384
	12	VL2	4 X 23	204	204	248	200	856
	20	L14	24 X 4	1096	120			1216
	12	ST15	4 X 4	15985				15985
	6	T1	24X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-25 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 32 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

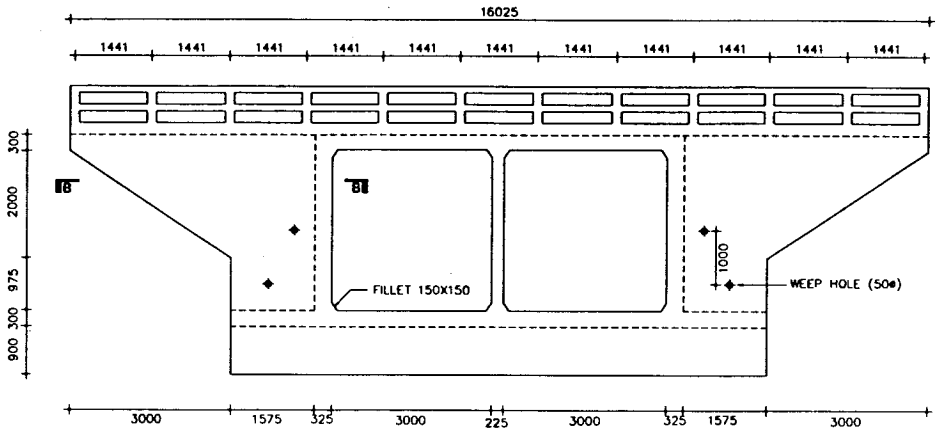
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2336262

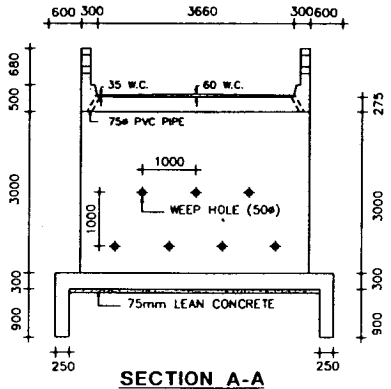
Web Copy

BC-292

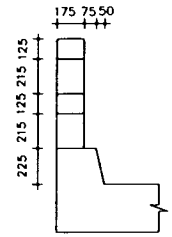
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 3.0m



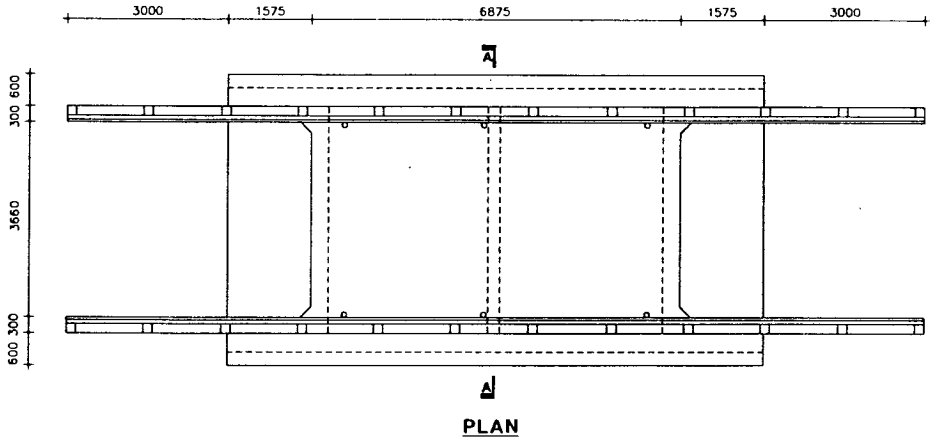
GENERAL ELEVATION



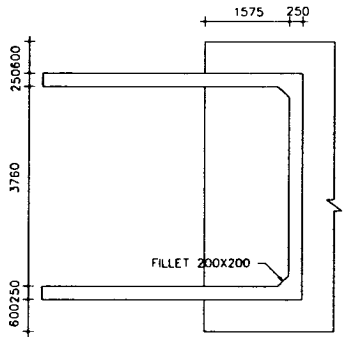
SECTION A-A



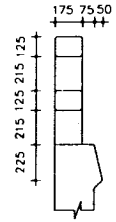
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

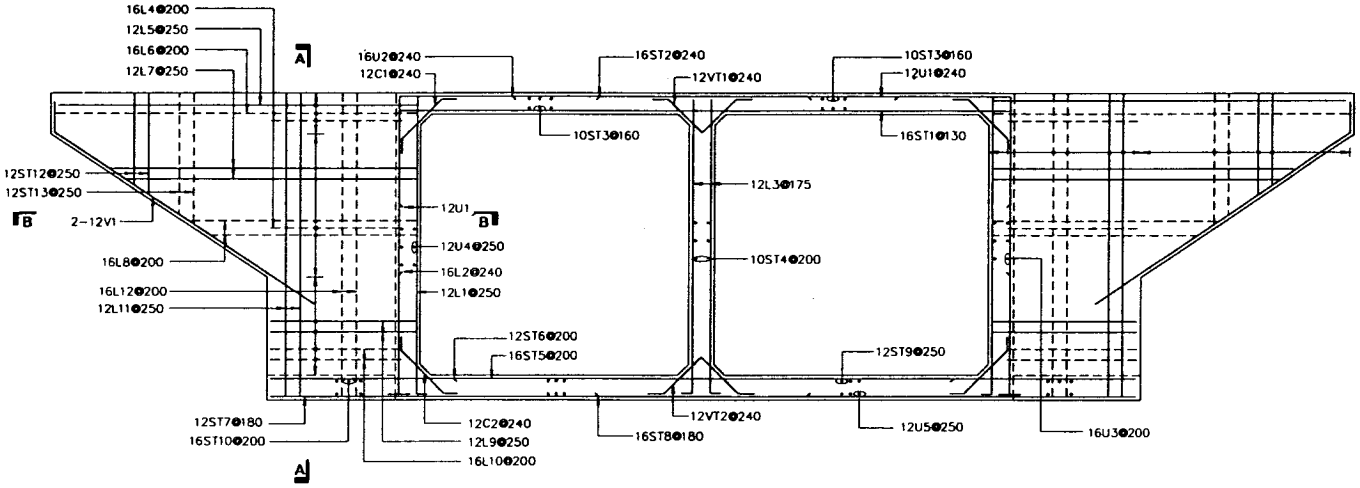
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 3.66m

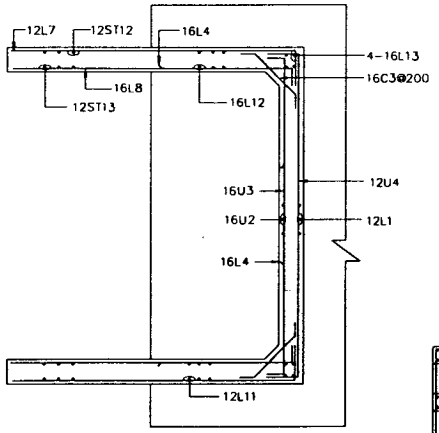
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2330301	

Web Copy

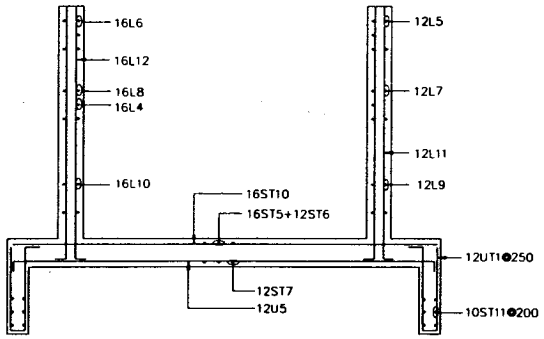
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.0m
CLEAR HEIGHT : 3.0m



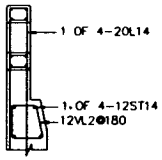
REINFORCEMENT DETAILS



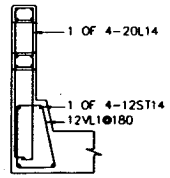
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



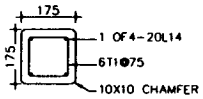
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

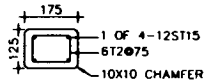
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	6775				6775
	16	ST2	18	2225				2225
	10	ST3	2 X 44	4160				4160
	10	ST4	2 X15	4160				4160
	16	ST5	28	9925				9925
	12	ST6	2 X 27	2500				2500
	12	ST7	31	9925				9925
	16	ST8	30	2225				2225
	12	ST9	29	5360				5360
	16	ST10	2 X 7	5360				5360
	12	C1	2 X 19	144	751	144		1039
	12	C2	2 X 19	144	775	144		1063
	12	VT1	19	2 X 150	2 X 566			1432
	12	VT2	19	2 X 150	2 X 590			1480
	12	L1	2 X 15	3461	250			3711
	16	L2	2 X 17	1238	250			1488
	12	L3	2 X 25	3461	250			3711
	16	L13	4 X 4	3461	250			3711
	12	U1	19	1235	6775	1235		9245
	16	U2	2 X 19	1275	3485	250		6035
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	41	250	5290	250		5790
	10	ST11	4 X 5	9875				9875
	12	UT1	2 X 41	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 13	1838	1220			3058
	12	L5	4 X 1	4788	394			5182
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	394			2182
	16	L10	4 X 8	1788	1220			3008
	12	L11	4 X 7	3513	250			3763
	16	L12	4 X 11	3513	250			3763
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	786	144		1074
CURB AND RAILING	12	ST14	2 X 4	15975				15975
	12	VL1	2 X 40	204	445	300	435	1384
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	24X 4	1096	120			1216
	12	ST15	4 X 4	15985				15985
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 187	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 41 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

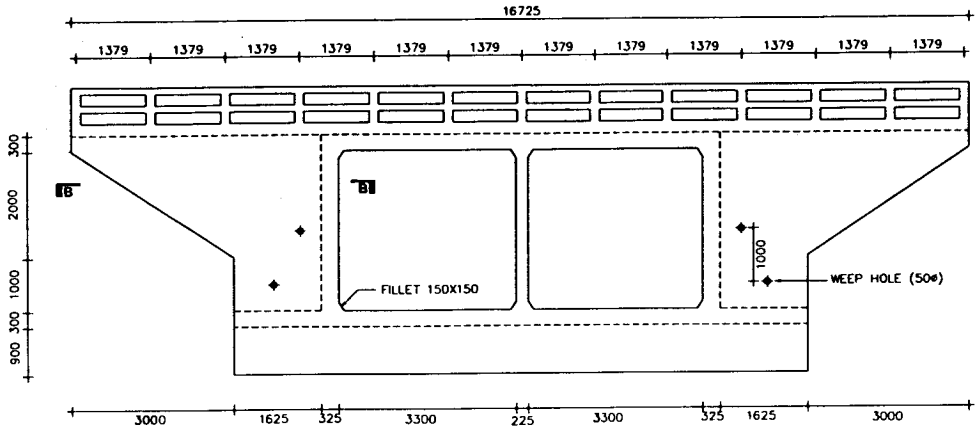
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2330302

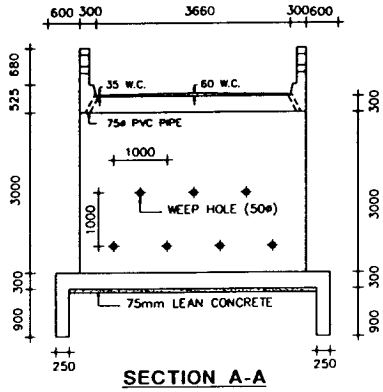
Web Copy

BC-294

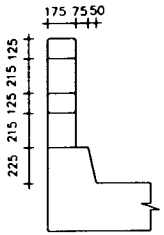
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.0m



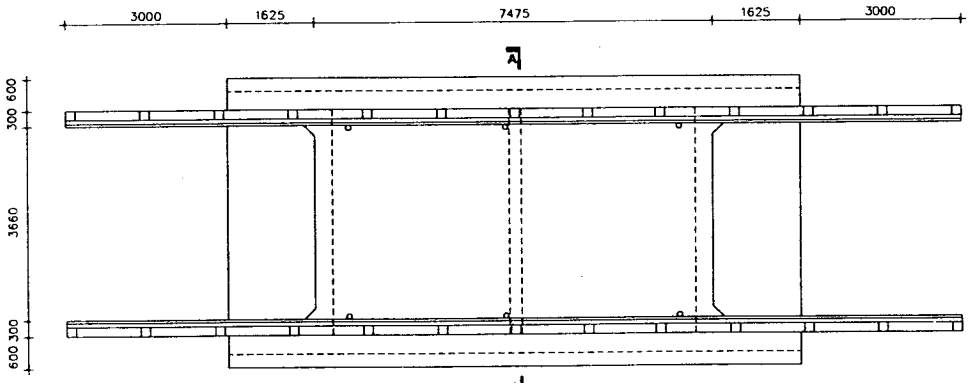
GENERAL ELEVATION



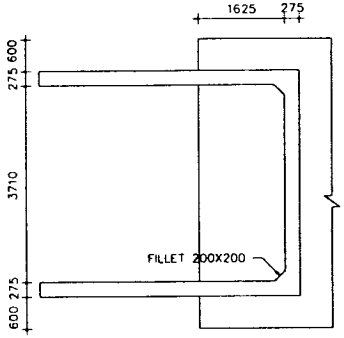
SECTION A-A



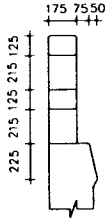
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing. filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 3.66m

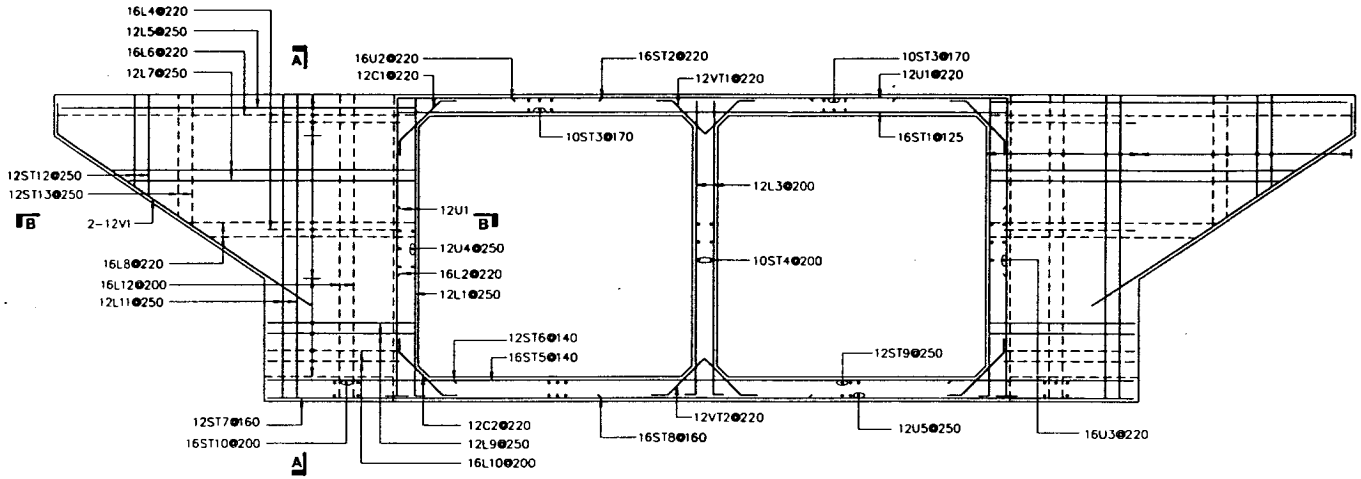
DATE :

ISSUED BY :

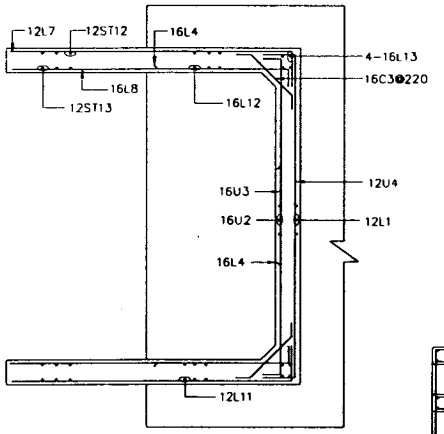
CAD FILE REF : CULV\B2333301

Web Copy

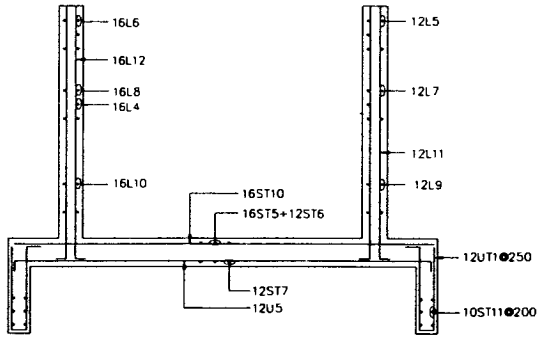
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.0m



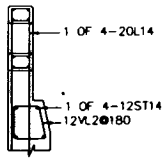
REINFORCEMENT DETAILS



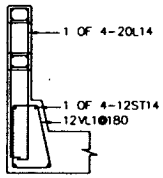
SECTION B-B



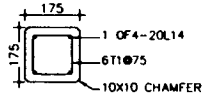
SECTION A-A



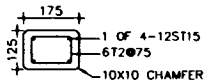
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	35	7375				7375
	16	ST2	19	2425				2425
	10	ST3	2 X 45	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	40	10625				10625
	12	ST6	2 X 39	2610				2610
	12	ST7	35	10625				10625
	16	ST8	34	2425				2425
	12	ST9	31	5360				5360
	16	ST10	2 X 7	5360				5360
	12	C1	2 X 20	144	786	144		1074
	12	C2	2 X 20	144	775	144		1063
	12	VT1	20	2 X 150	2 X 602			1504
	12	VT2	20	2 X 150	2 X 590			1480
	12	L1	2 X 14	3486	250			3736
	16	L2	2 X 18	1238	250			1488
	12	L3	2 X 22	3486	250			3736
	16	L13	4 X 4	3486	250			3736
	12	U1	20	1260	7375	1260		9895
	16	U2	2 X 20	1375	3510	250		6260
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	44	250	5290	250		5790
	10	ST11	4 X 5	10575				10575
	12	UT1	2 X 44	144	2 X 1075	100		2394
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838@ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5228 To 2257
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3538	250			3788
	16	L12	4 X 11	3538	250			3788
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	16675				16675
	12	VL1	2 X 43	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26X 4	1121	120			1241
	12	ST15	4 X 4	16685				16685
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :

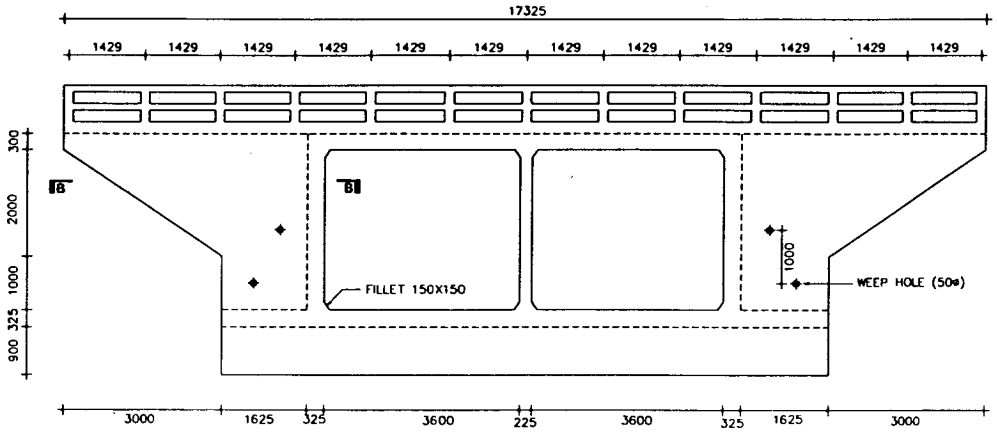
ISSUED BY :

CAD FILE REF : CULV\B2333302

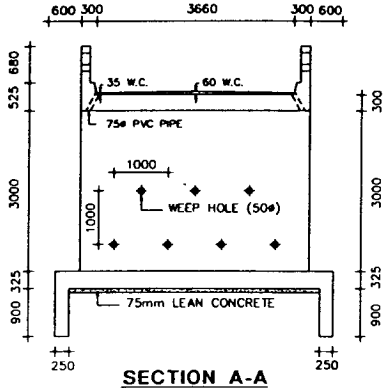
Web Copy

BC-296

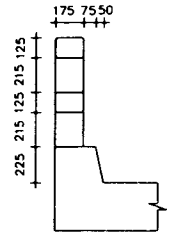
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.0m



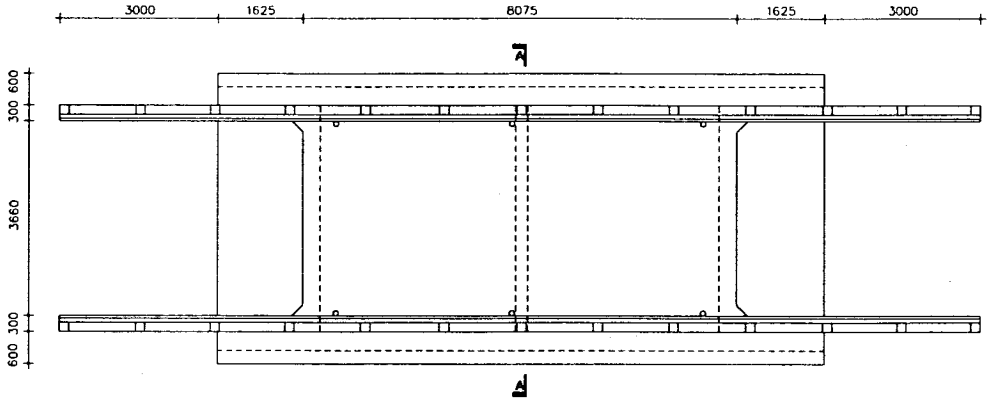
GENERAL ELEVATION



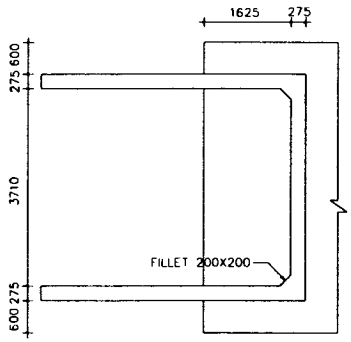
SECTION A-A



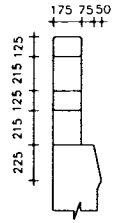
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

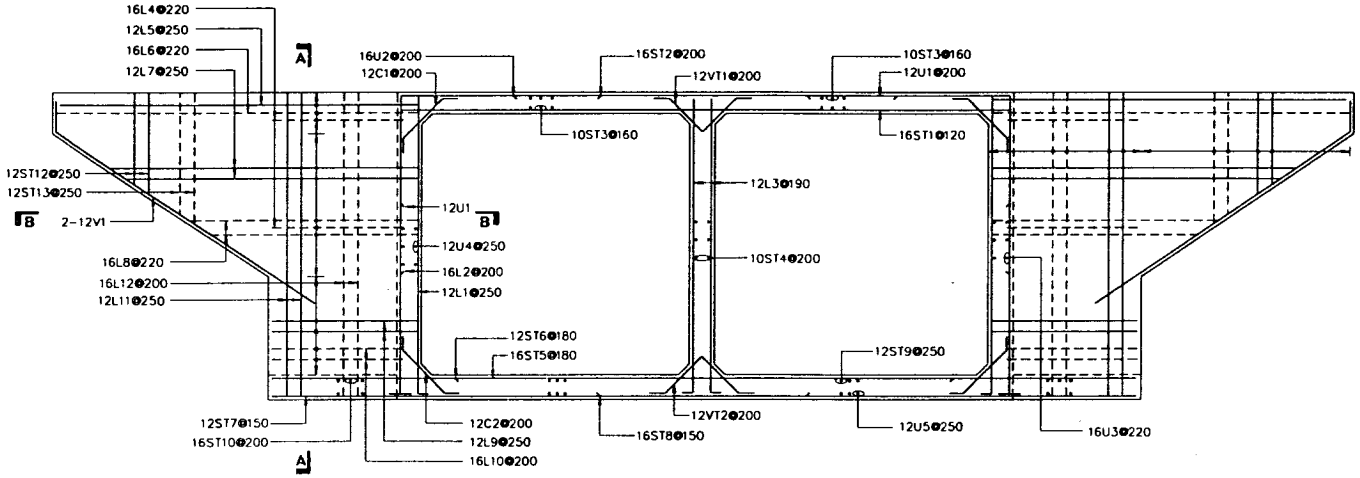
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.0m ROADWAY 3.66m

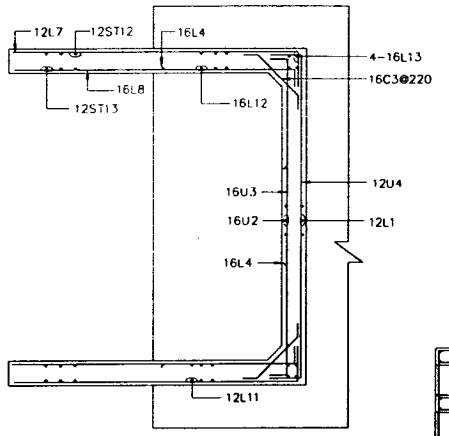
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2336301	

Web Copy

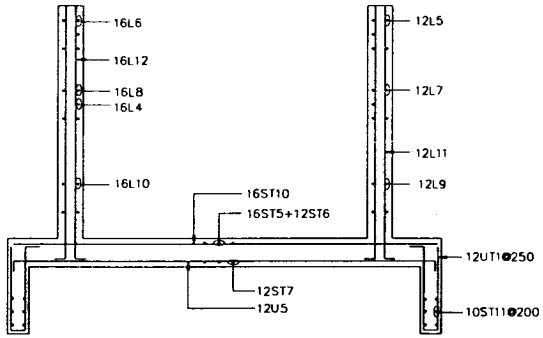
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.0m



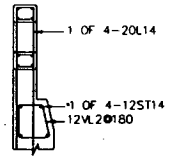
REINFORCEMENT DETAILS



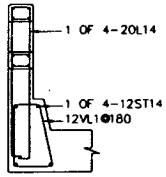
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



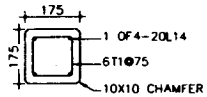
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

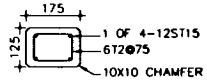
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	16	ST1	36	7975				7975
	16	ST2	21	2625				2625
	10	ST3	2 X 51	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	31	11225				11225
	12	ST6	2 X 30	2670				2670
	12	ST7	37	11225				11225
	16	ST8	36	2625				2625
	12	ST9	34	5360				5360
	16	ST10	2 X 7	5360				5360
	12	C1	2 X 22	144	786	144		1074
	12	C2	2 X 22	144	810	144		1098
	12	VT1	22	2 X 150	2 X 602			1504
	12	VT2	22	2 X 150	2 X 626			1552
	12	L1	2 X 14	3511	250			3761
	16	L2	2 X 20	1263	250			1517
	12	L3	2 X 23	3511	250			3761
	16	L13	4 X 4	3511	250			3761
	12	U1	22	1260	7975	1260		10495
	16	U2	2 X 22	1475	3535	250		6485
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	46	250	5290	250		5790
	10	ST11	4 X 5	11175				11175
	12	UT1	2 X 46	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To2257
	16	L8	4 X 11	Var.4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X8	1838	1220			3058
	12	L11	4 X 7	3563	250			3813
	16	L12	4 X 11	3563	250			3813
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	VI	4 X 2	4305	200			4505
	16	C3	4 X 16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17275				17275
	12	VL1	2 X 46	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	17285				17285
	6	T1	26X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

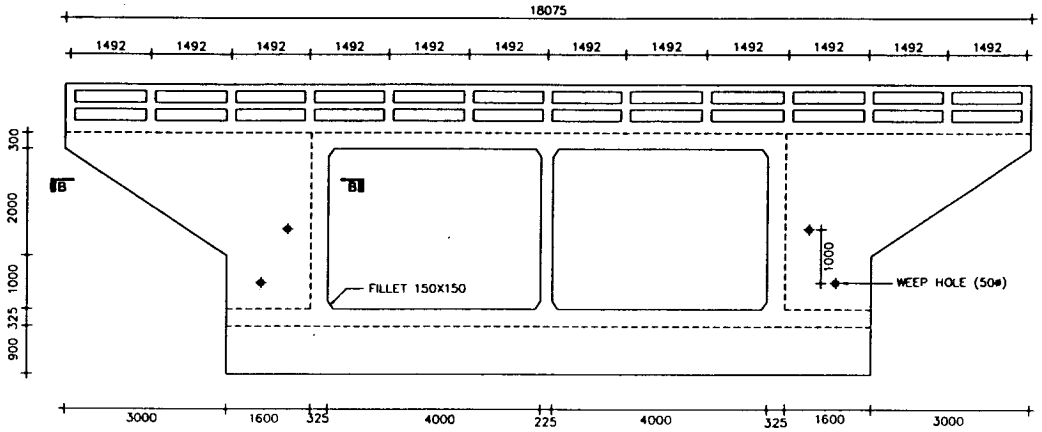
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2336302

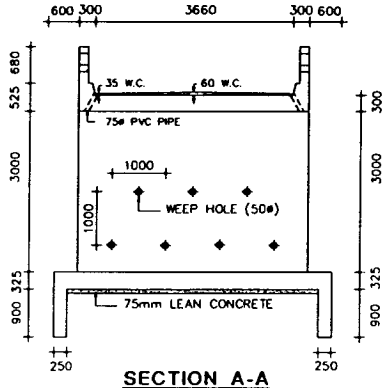
Web Copy

BC-298

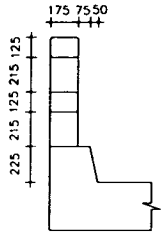
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.0m



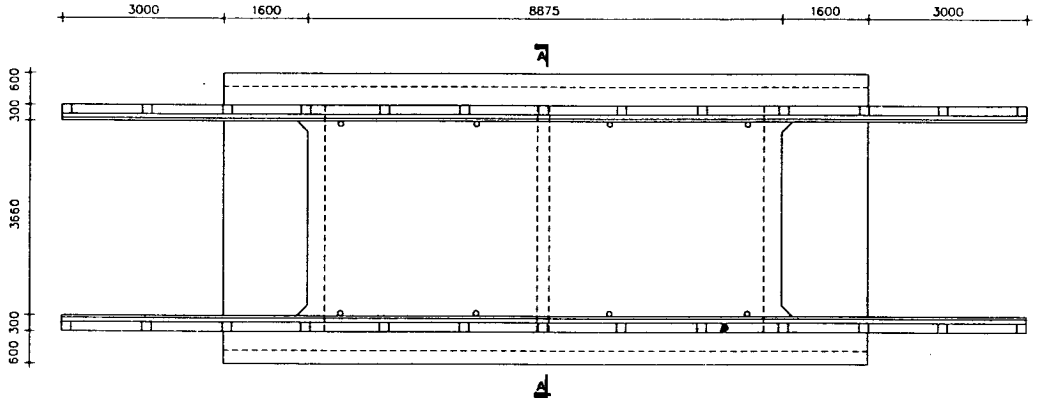
GENERAL ELEVATION



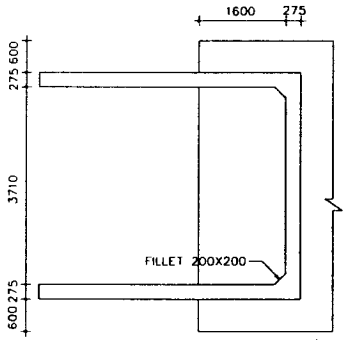
SECTION A-A



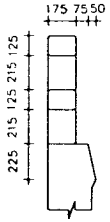
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

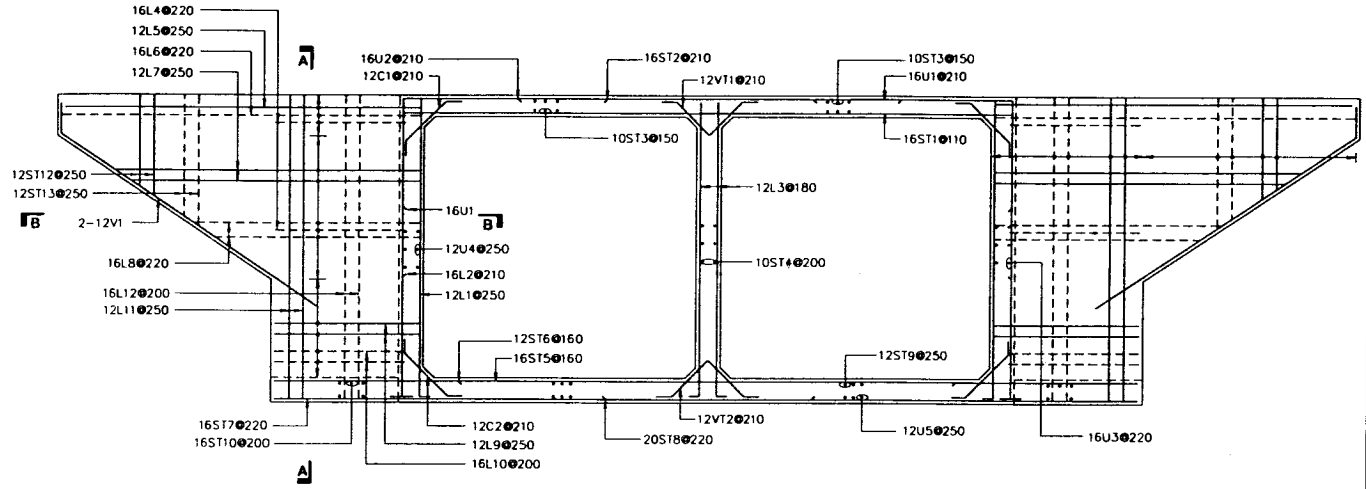
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 3.66m

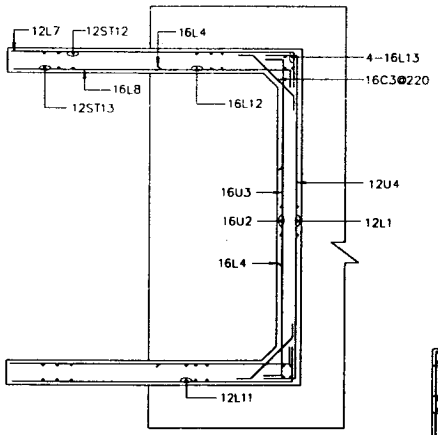
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2340301	

Web Copy

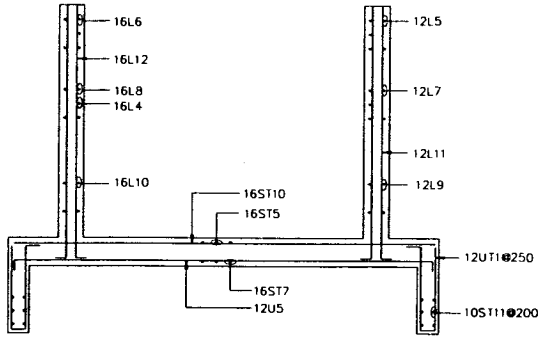
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.0m



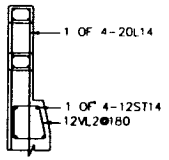
REINFORCEMENT DETAILS



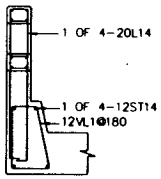
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



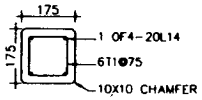
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

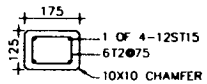
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	8775				8775
	16	ST2	20	2891				2891
	10	ST3	2 X 60	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	35	12025				12025
	12	ST6	2 X 34	2750				2750
	16	ST7	26	12025				12025
	20	ST8	25	2891				2891
	12	ST9	37	5360				5360
	16	ST10	2 X 7	5360				5360
	12	C1	2 X 21	144	786	144		1074
	12	C2	2 X 21	144	804	144		1092
	12	VT1	21	2 X 150	2 X 602			1504
	12	VT2	21	2 X 150	2 X 620			1540
	12	L1	2 X 14	3507	250			3757
	16	L2	2 X 19	1263	250			1513
	12	L3	2 X 25	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	16	U1	21	1260	8775	1260		11295
	16	U2	2 X 21	1608	3535	250		6751
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	50	250	5290	250		5790
	10	ST11	4 X 5	11975				11975
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING & WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var.4809To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X16	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	18075				18075
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	26 X 4	1121	120			1241
	12	ST15	4 X 4	18085				18085
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 38 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

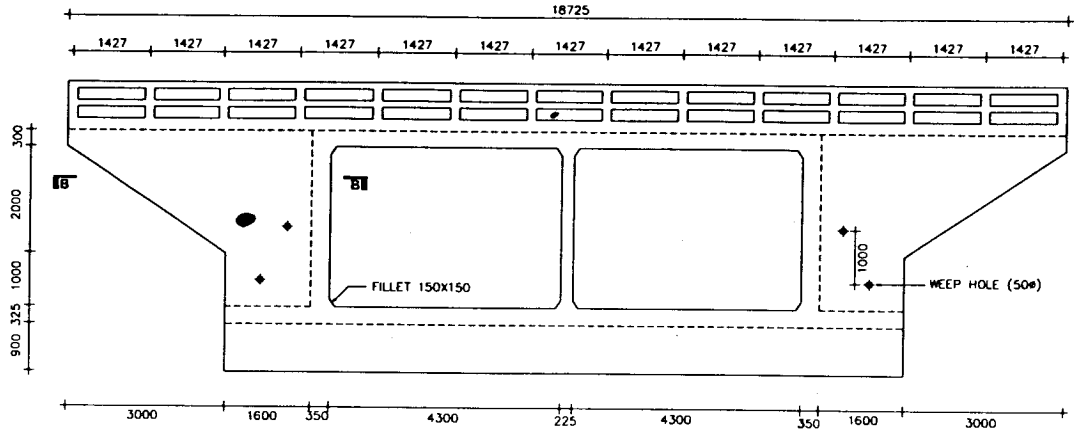
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2340302

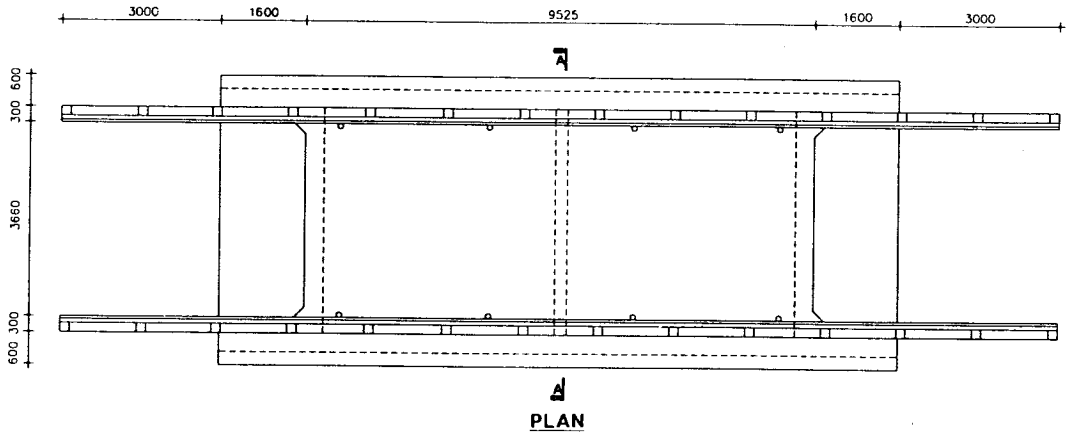
Web Copy

BC-300

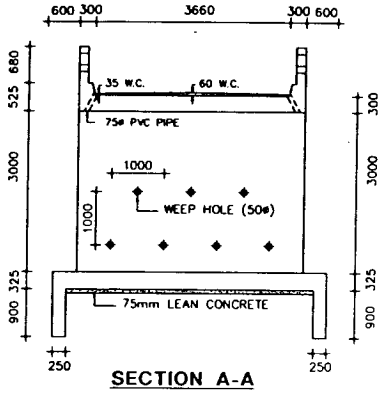
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 3.0m



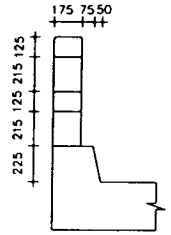
GENERAL ELEVATION



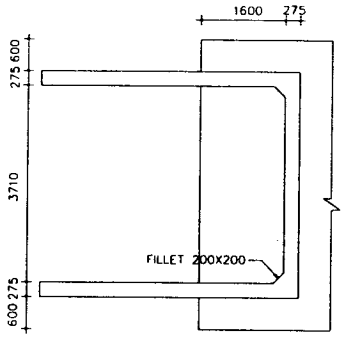
PLAN



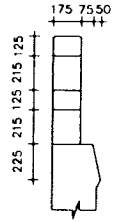
SECTION A-A



GENERAL ARRANGEMENT OF RAILING ON CULVERT



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

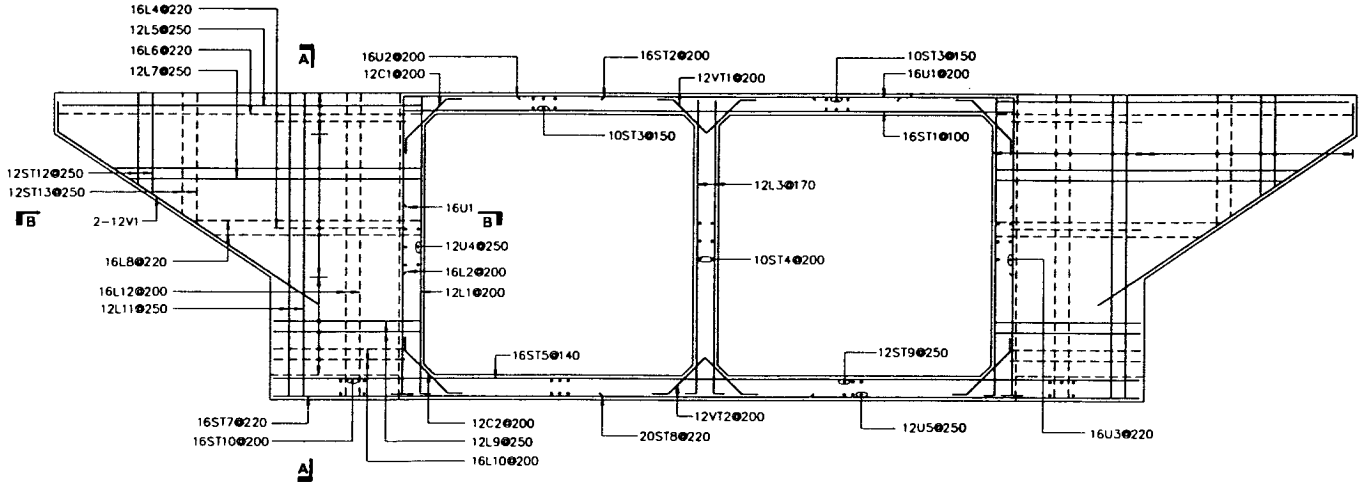
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 3.66m

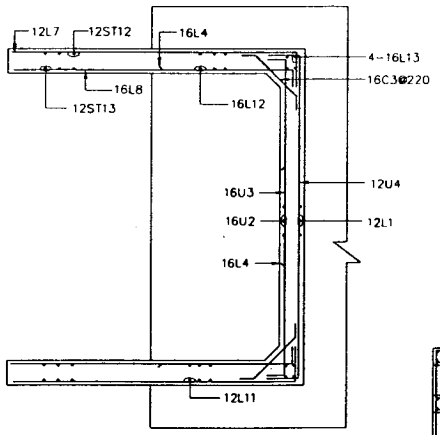
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2343301	

Web Copy

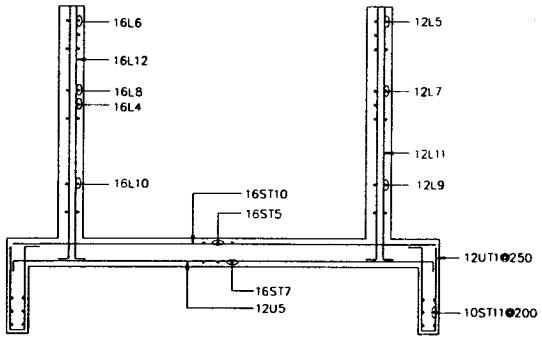
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.0m



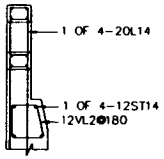
REINFORCEMENT DETAILS



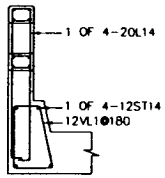
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



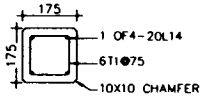
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

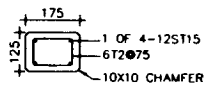
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	9425				9425
	16	ST2	21	3091				3091
	10	ST3	2 X 64	4160				4160
	10	ST4	2 X 15	4160				4160
	16	ST5	40	12625				12625
	0	ST6	39	6675				6675
	16	ST7	26	12625				12625
	20	ST8	25	3091				3091
	12	ST9	40	5360				5360
	16	ST10	2 X 7	5360				5360
	12	C1	2 X 22	144	821	144		1109
	12	C2	2 X 22	144	840	144		1128
	12	VT1	22	2 X 150	2 X 602			1504
	12	VT2	22	2 X 150	2 X637			1574
	12	L1	2 X 18	3507	250			3757
	16	L2	2 X 20	1263	250			1513
	12	L3	2 X 26	3507	250			3757
	16	L13	4 X 4	3507	250			3757
	16	U1	22	1260	9425	1260		11945
	16	U2	2 X22	1733	3535	250		7001
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	494	4160	494		5148
	12	U5	52	250	5290	250		5790
	10	ST11	4 X 5	12575				12575
	12	UT1	2 X 52	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var.4809To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 8	1838	1220			3058
	12	L11	4 X 7	3559	250			3809
	16	L12	4 X 11	3559	250			3809
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X16	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18675				18675
	12	VL1	2 X 54	204	471	306	460	1441
	12	VL2	4 X 26	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18685				18685
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 37 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

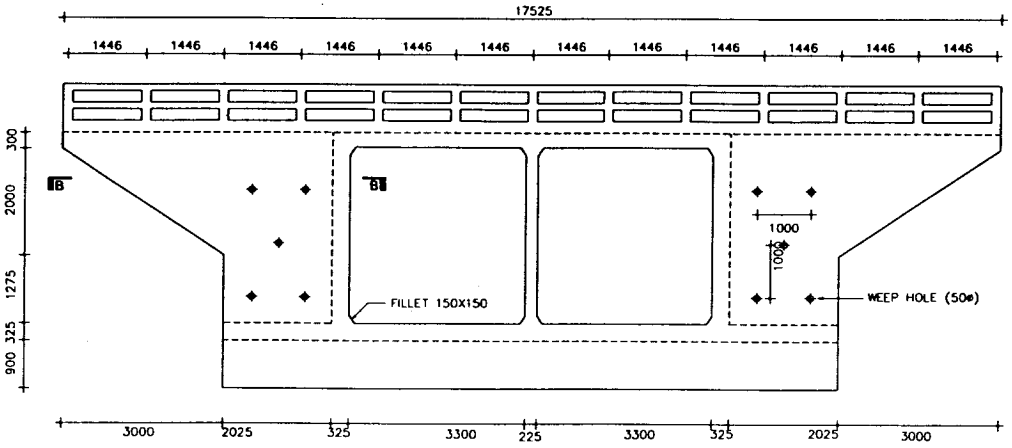
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2343302

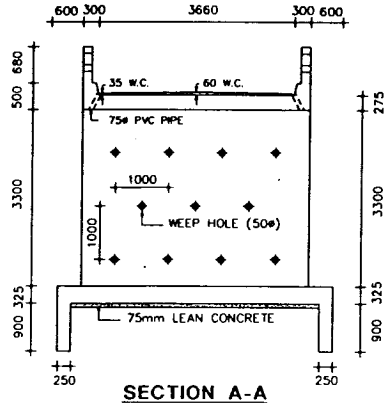
Web Copy

BC-302

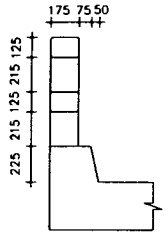
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.3m



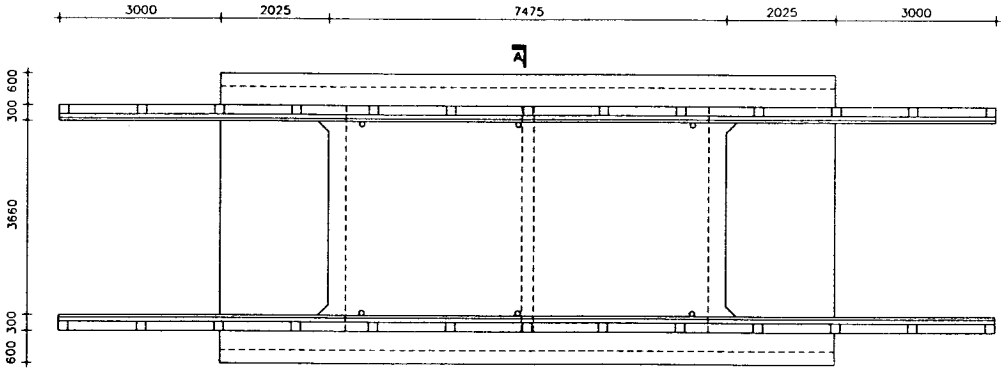
GENERAL ELEVATION



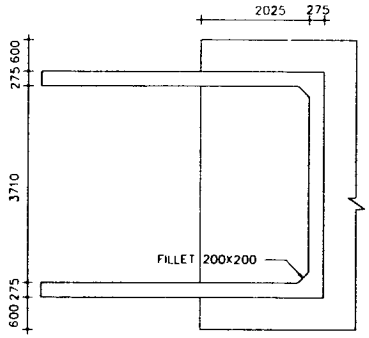
SECTION A-A



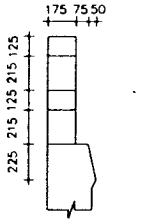
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

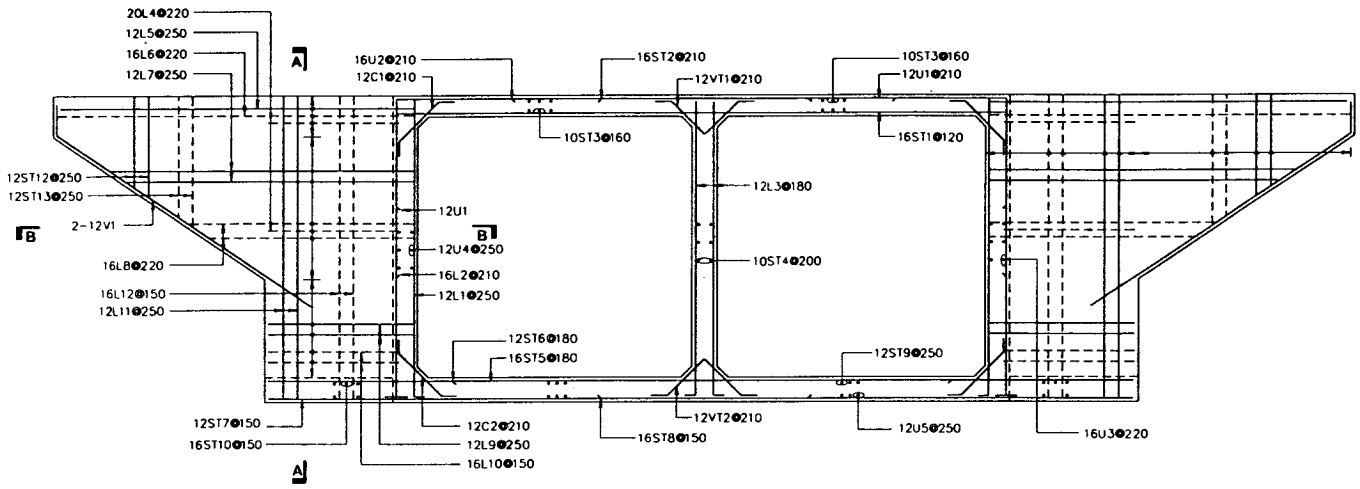
NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

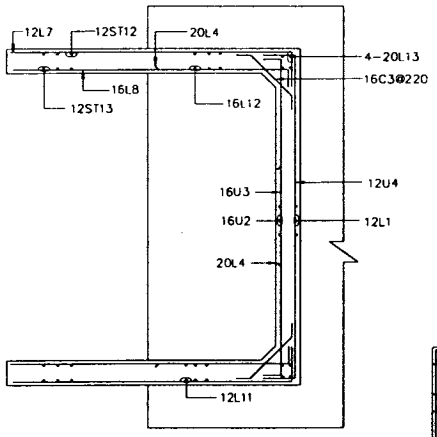
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH LOCAL GOVERNMENT ENGINEERING DEPARTMENT
GENERAL ARRANGEMENT OF BOX CULVERT DOUBLE VENT 3.3m x 3.3m ROADWAY 3.66m
DATE : ISSUED BY :
CAD FILE REF : CULV\B2333331

Web Copy

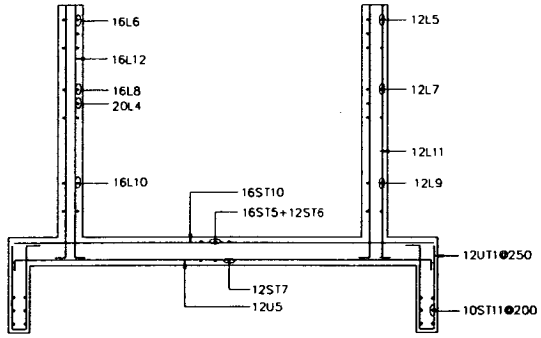
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.3m
CLEAR HEIGHT : 3.3m



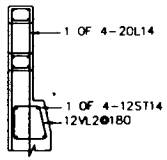
REINFORCEMENT DETAILS



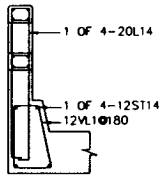
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



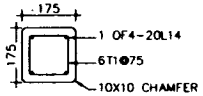
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

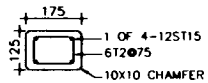
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	36	7375				7375
	16	ST2	20	2425				2425
	10	ST3	2 X 48	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	31	11425				11425
	12	ST6	2 X 30	3010				3010
	12	ST7	37	11425				11425
	16	ST8	36	2425				2425
	12	ST9	31	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 21	144	751	144		1039
	12	C2	2 X 21	144	810	144		1098
	12	VT1	21	2 X 150	2 X 566			1432
	12	VT2	21	2 X 150	2 X626			1552
	12	L1	2 X 14	3786	250			4036
	16	L2	2 X 19	1363	250			1613
	12	L3	2 X 25	3786	250			4036
	20	L13	4 X 4	3786	250			4036
	12	U1	21	1335	7375	1335		10045
	16	U2	2 X 21	1375	3810	1375		6560
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	469	4160	469		5098
	12	U5	47	250	5290	250		5790
	10	ST11	4 X 5	11375				11375
	12	UT1	2 X 47	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2288	1220			3508
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var.5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	1220			3458
	12	L11	4 X 8	3838	250			4088
	16	L12	4 X 14	3838	250			4088
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	821	144		1109
CURB AND RAILING	12	ST14	2 X 4	17475				17475
	12	VL1	2 X 43	204	445	300	435	1384
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	26 X 4	1096	120			1216
	12	ST15	4 X 4	17485				17485
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

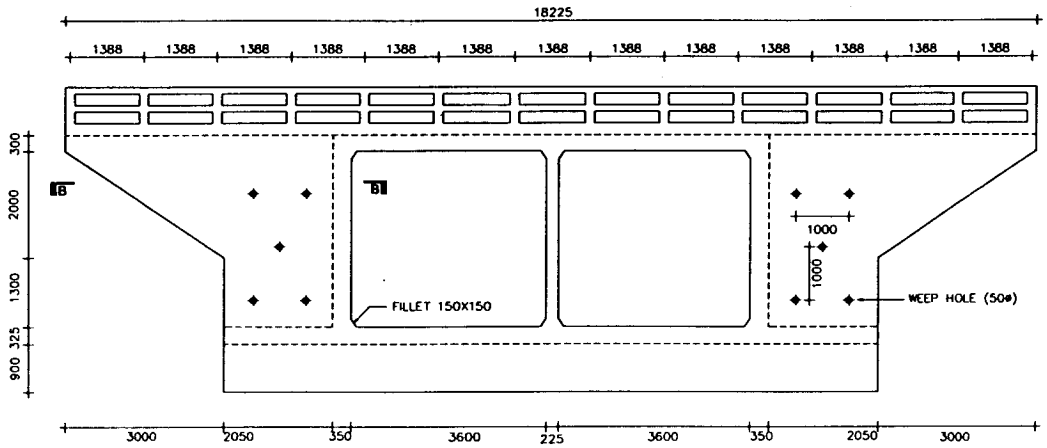
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2333332

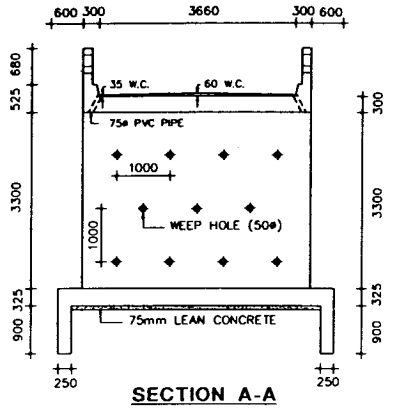
Web Copy

BC-304

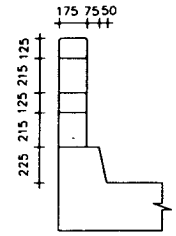
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.3m



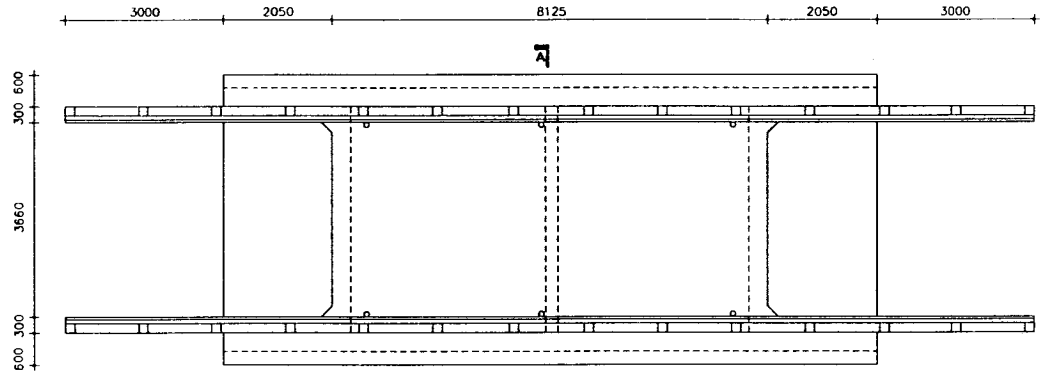
GENERAL ELEVATION



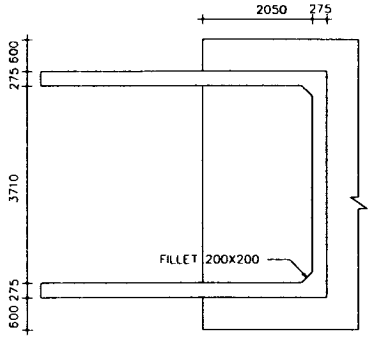
SECTION A-A



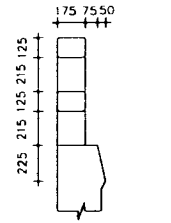
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

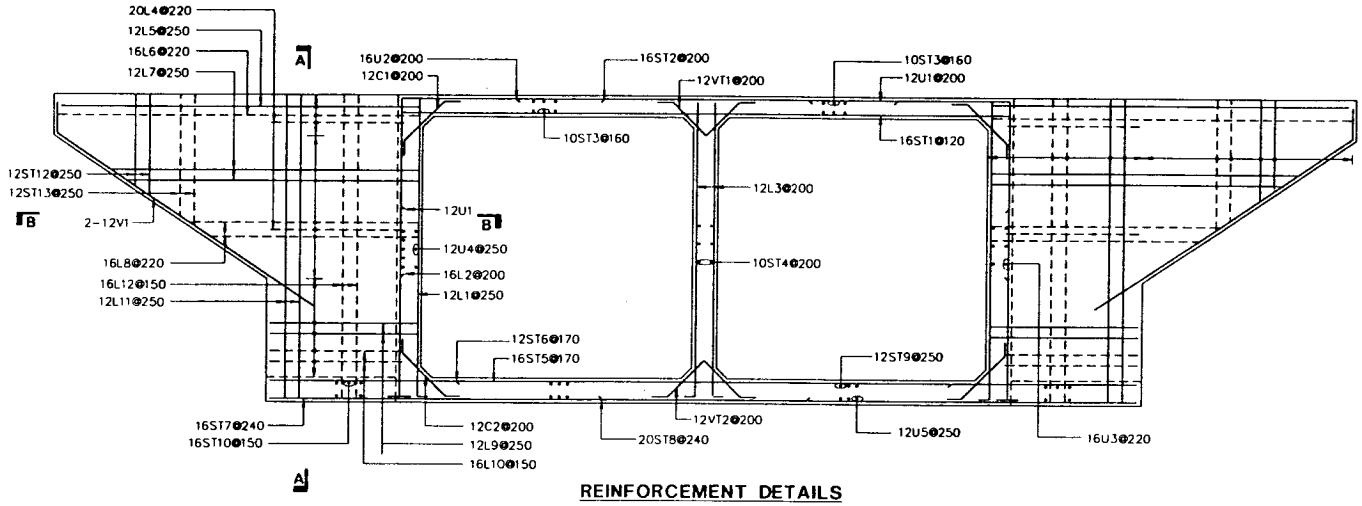
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 3.66m

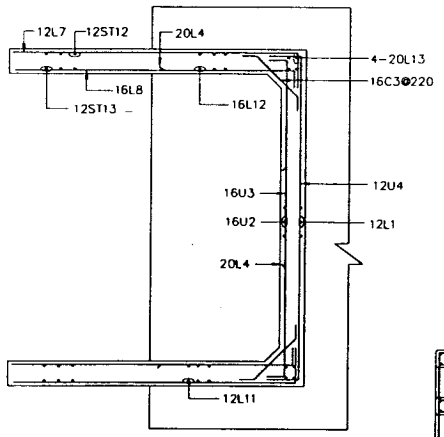
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2336331	

Web Copy

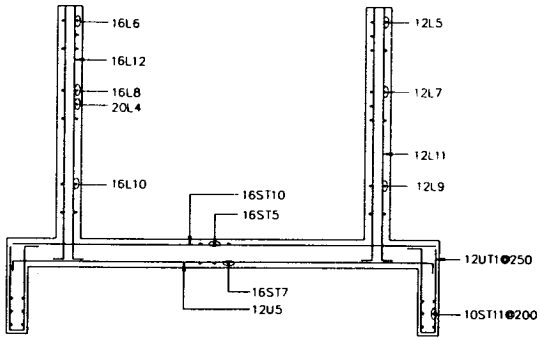
SHEET 2 OF 2
LIVE LOAD: AASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.3m



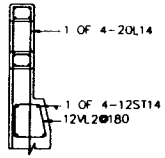
REINFORCEMENT DETAILS



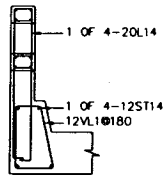
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



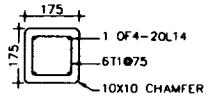
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

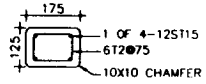
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	36	8025				8025
	16	ST2	21	2625				2625
	10	ST3	2 X 52	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	33	12125				12125
	12	ST6	2 X 32	3120				3120
	16	ST7	24	12125				12125
	20	ST8	23	2625				2625
	12	ST9	34	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 22	144	821	144		1109
	12	C2	2 X 22	144	840	144		1128
	12	VT1	22	2 X 150	2 X 602			1504
	12	VT2	22	2 X 150	2 X 620			1540
	12	L1	2 X 14	3807	250			4057
	16	L2	2 X 20	1363	250			1613
	12	L3	2 X 22	3807	250			4057
	20	L13	4 X 4	3807	250			4057
	12	U1	22	1360	8025	1360		10745
	16	U2	2 X 22	1500	3835	1500		6835
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	50	250	5290	250		5790
	10	ST11	4 X 5	12075				12075
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3859	250			4109
	16	L12	4 X 14	3859	250			4109
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18175				18175
	12	VL1	2 X 47	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18185				18185
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 44 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

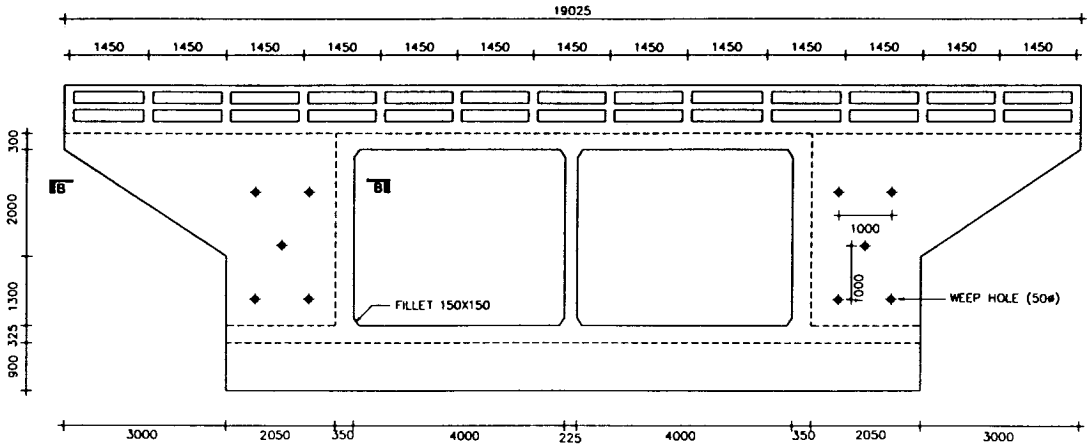
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2336332

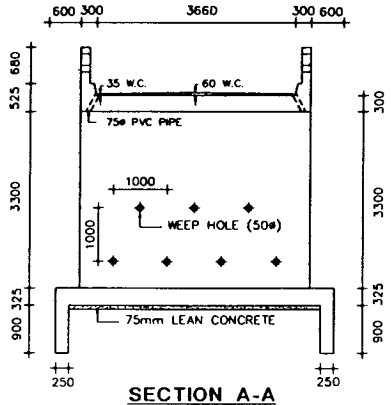
Web Copy

BC-306

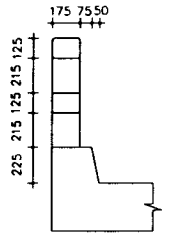
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2x4.0m
CLEAR HEIGHT : 3.3m



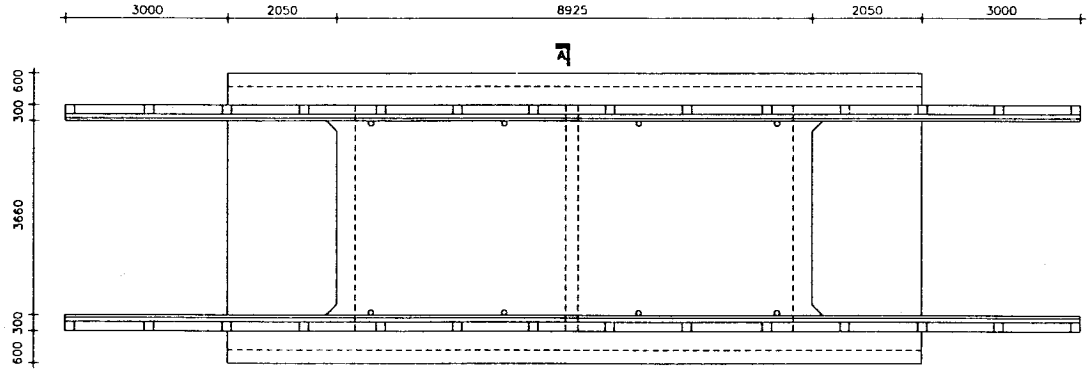
GENERAL ELEVATION



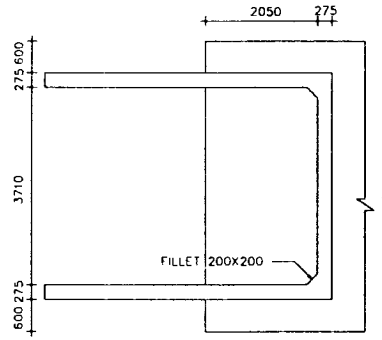
SECTION A-A



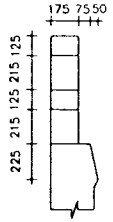
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

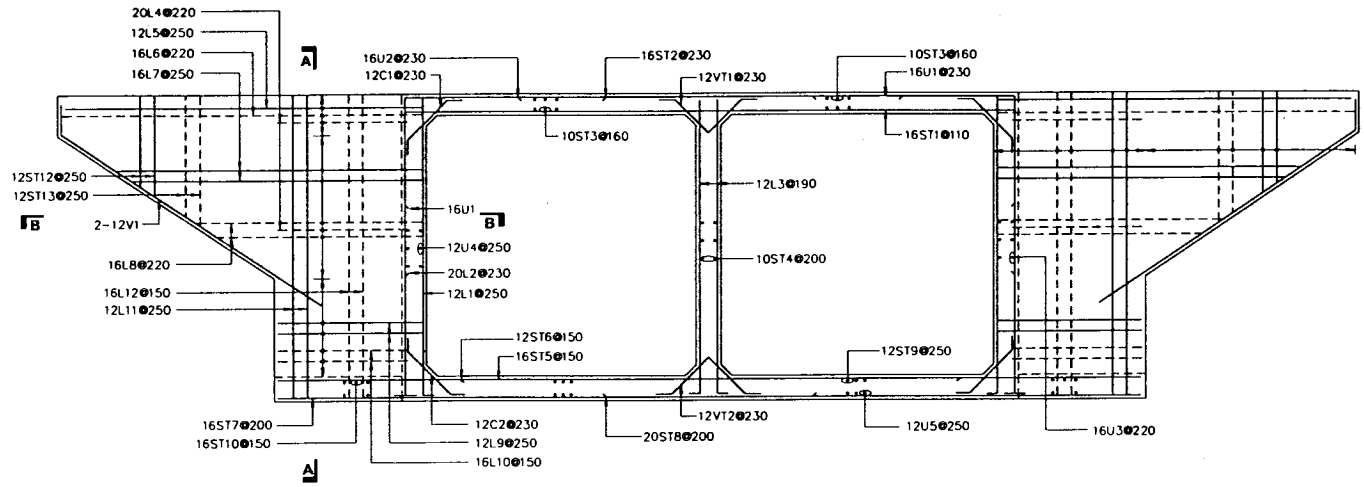
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2340331	

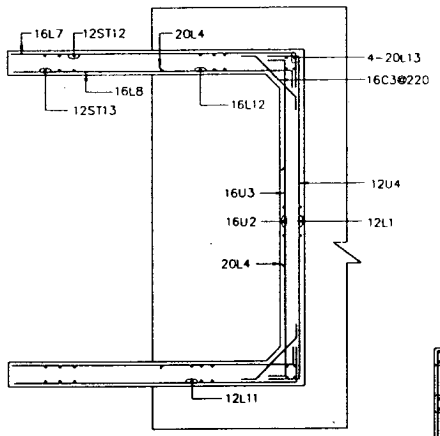
Web Copy

BC-307

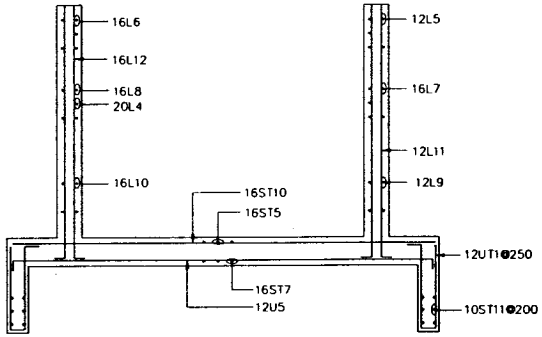
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.3m



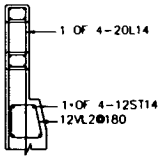
REINFORCEMENT DETAILS



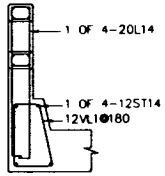
SECTION B-B



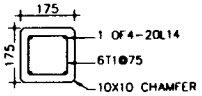
SECTION A-A



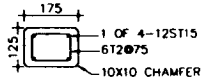
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	39	8825				8825
	16	ST2	19	2891				2891
B	10	ST3	2 X 57	4160				4160
O	10	ST4	2 X 16	4160				4160
X	16	ST5	37	12925				12925
	12	ST6	2 X 36	3200				3200
	16	ST7	28	12925				12925
A	20	ST8	27	2891				2891
P	12	ST9	37	5360				5360
P	16	ST10	2 X 8	5360				5360
R	12	C1	2 X 20	144	821	144		1109
O	12	C2	2 X 20	144	834	144		1122
N	12	VT1	20	2 X 150	2 X 602			1504
	12	VT2	20	2 X 150	2 X 620			1540
&	12	L1	2 X 14	3807	250			4057
	20	L2	2 X 18	1363	250			1613
	12	L3	2 X 23	3807	250			4057
C	20	L13	4 X 4	3807	250			4057
U	16	U1	20	1360	8825	1360		11545
T	16	U2	2 X 20	1633	3835	250		7101
O	16	U3	2 X 14	250	4160	250		4660
F	12	U4	2 X 13	494	4160	494		5148
F	12	U5	53	250	5290	250		5790
	10	ST11	4 X 5	12875				12875
	12	UT1	2 X 53	144	2 X 1100	100		2444
	20	L4	4 X 12	2338	1220			3558
W	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
I	16	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
N	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
G	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3859	250			4109
W	16	L12	4 X 14	3859	250			4109
A	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
L	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
L	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
	12	ST14	2 X 4	18975				18975
CURB	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
AND	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	18985				18985
RAILING	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

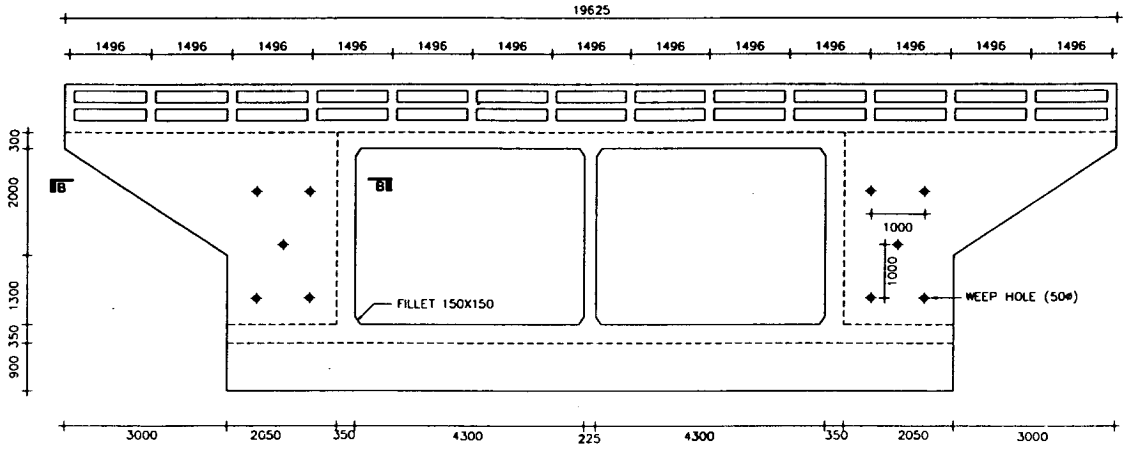
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2340332

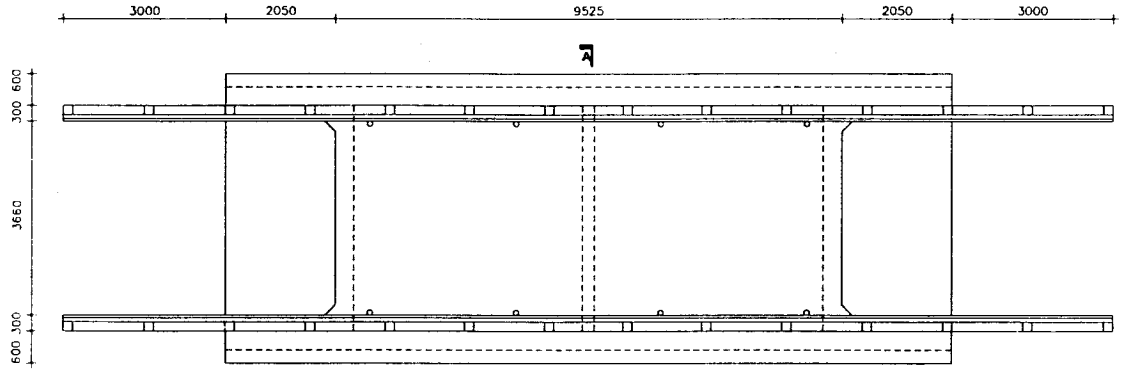
Web Copy

BC-308

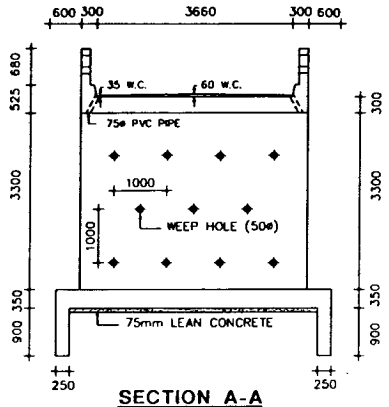
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.3m



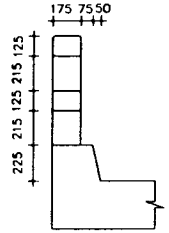
GENERAL ELEVATION



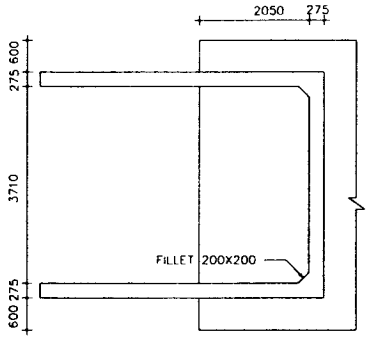
PLAN



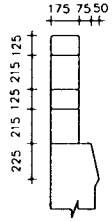
SECTION A-A



GENERAL ARRANGEMENT OF RAILING ON CULVERT



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 3.66m

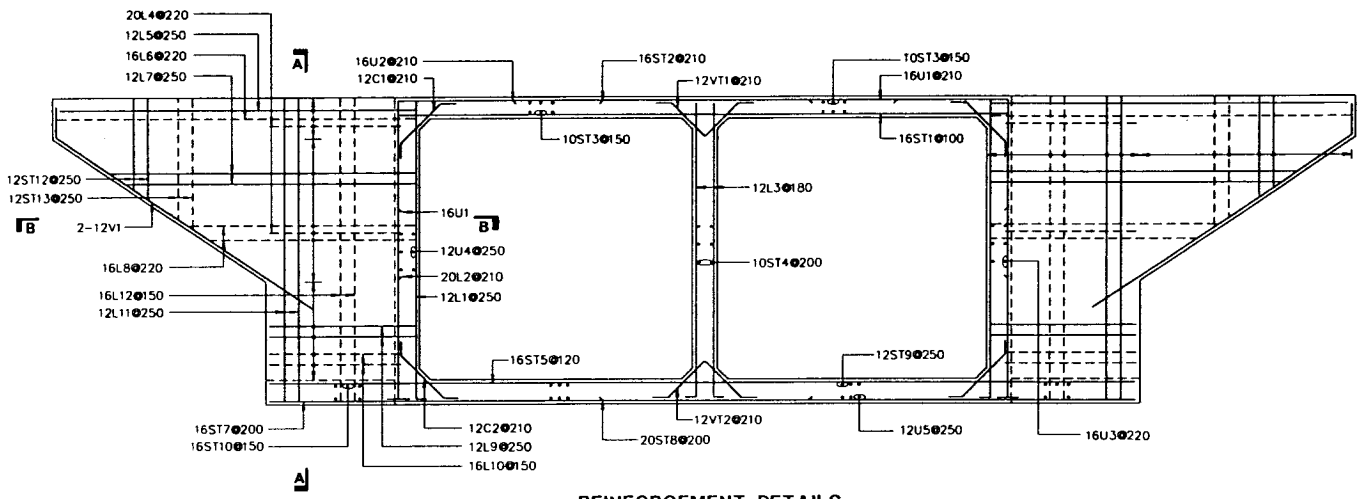
DATE :

ISSUED BY :

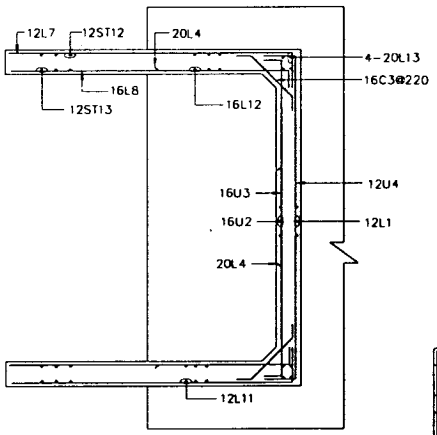
CAD FILE REF : CULV\B2343331

Web Copy

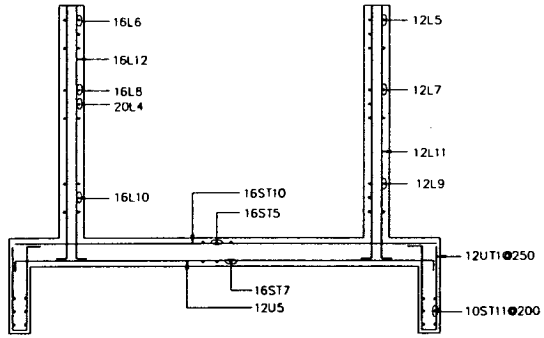
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.3m



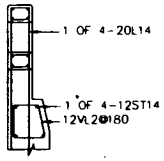
REINFORCEMENT DETAILS



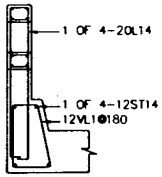
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



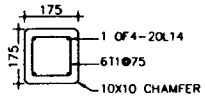
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

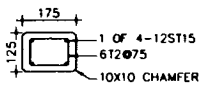
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	9425				9425
	16	ST2	20	3091				3091
	10	ST3	2 X 64	4160				4160
	10	ST4	2 X 16	4160				4160
	16	ST5	46	13525				13525
	16	ST7	28	13525				13525
	20	ST8	27	3091				3091
	12	ST9	40	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 21	144	821	144		1109
	12	C2	2 X 21	144	870	144		1158
	12	VT1	21	2 X 150	2 X 602			1504
	12	VT2	21	2 X 150	2 X 672			1644
	12	L1	2 X 14	3832	250			4082
	20	L2	2 X 19	1388	250			1638
	12	L3	2 X 25	3832	250			4082
	20	L13	4 X 4	3832	250			4082
	16	U1	21	1360	9425	1360		12145
	16	U2	2 X 21	1733	3860	250		7326
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	56	250	5290	250		5790
	10	ST11	4 X 5	13475				13475
	12	UT1	2 X 56	144	2 X 1125	100		2494
WING	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5678
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3884	250			4134
	16	L12	4 X 14	3884	250			4134
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	VI	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19575				19575
	12	VL1	2 X 54	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	19585				19585
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 42 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

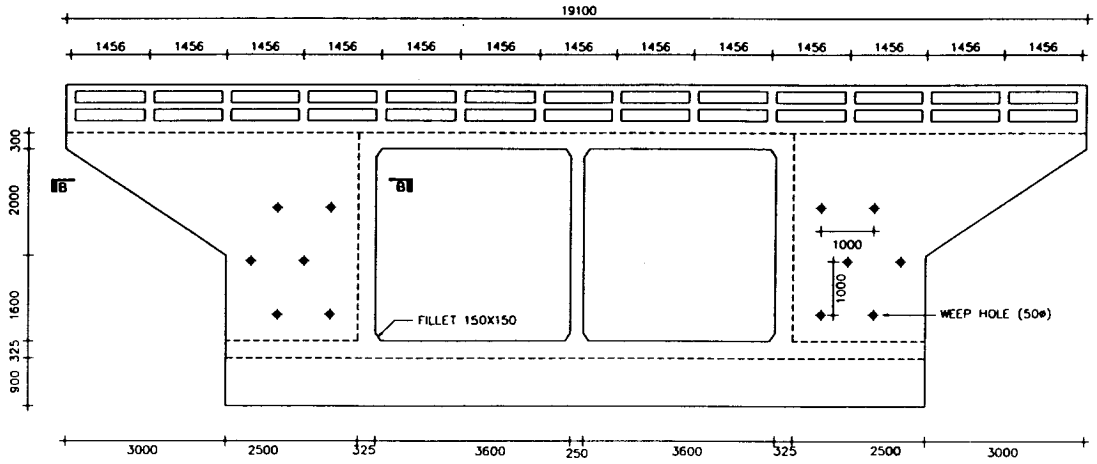
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2343332

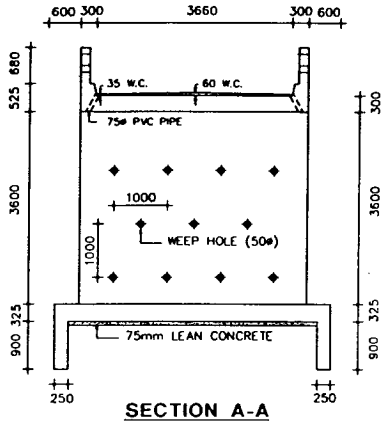
Web Copy

BC-310

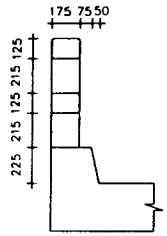
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.6m



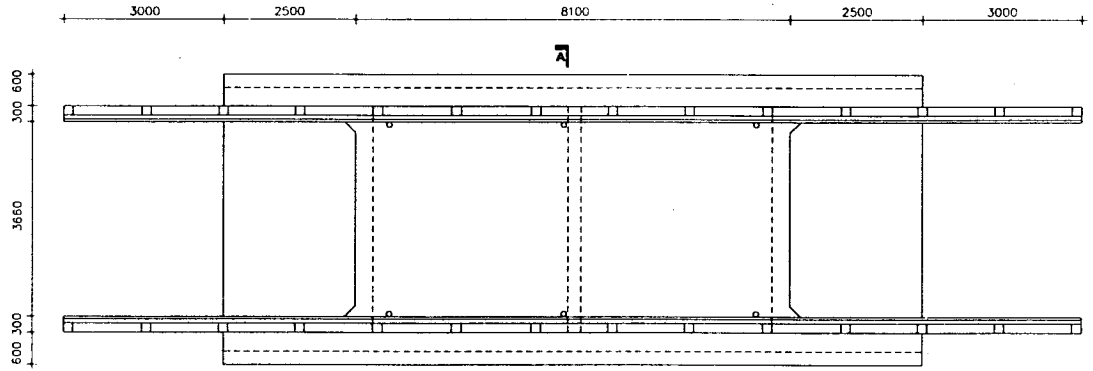
GENERAL ELEVATION



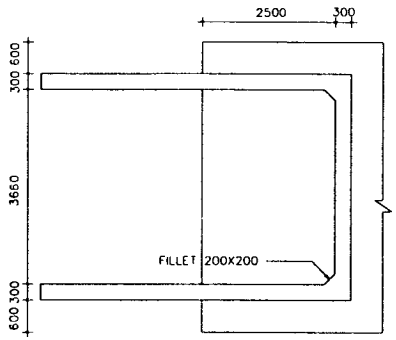
SECTION A-A



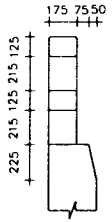
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification

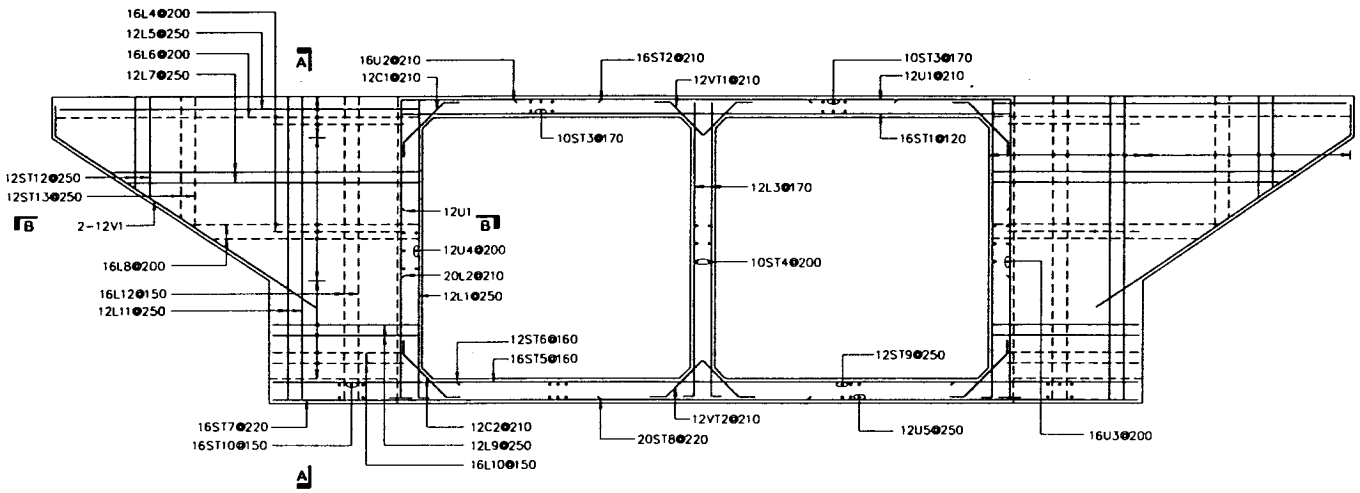
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 3.66m

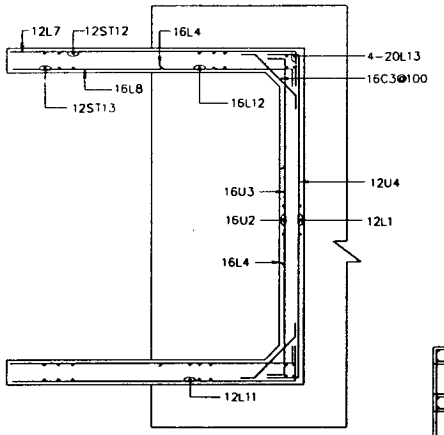
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2336361	

Web Copy

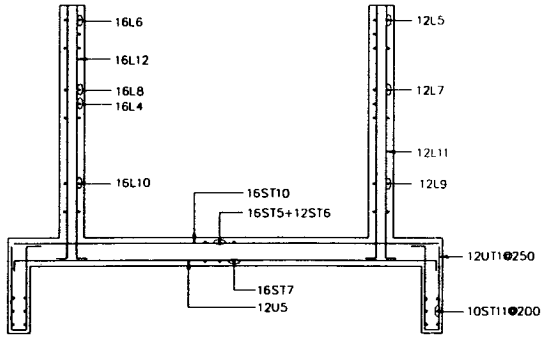
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X3.6m
CLEAR HEIGHT : 3.6m



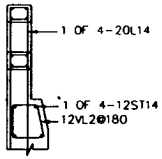
REINFORCEMENT DETAILS



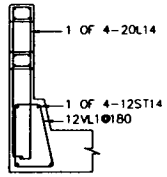
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



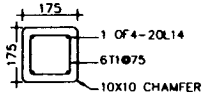
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

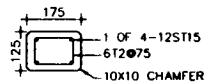
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APRON & CURB AND RAILING	16	ST1	36	8000				8000
	16	ST2	20	2650				2650
	10	ST3	2 X 49	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	35	13050				13050
	12	ST6	2 X 34	3570				3570
	16	ST7	26	13050				13050
	20	ST8	25	2650				2650
	12	ST9	34	5360				5360
	16	ST10	2 X 10	5360				5360
	12	C1	2 X 21	144	786	144		1074
	12	C2	2 X 21	144	799	144		1087
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 638			1576
	12	L1	2 X 14	4107	250			4357
	20	L2	2 X 19	1463	250			1713
	12	L3	2 X 26	4107	250			4357
	20	L13	4 X 4	4107	250			4357
	12	U1	21	1460	8000	1460		10920
	16	U2	2 X 21	1475	4135	250		7085
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 14	469	4160	469		5098
	12	U5	54	250	5290	250		5790
	10	ST11	4 X 5	13000				13000
	12	UT1	2 X 54	144	2 X 1100	100		2444
WING WALL	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4159	250			4409
	16	L12	4 X 17	4159	250			4409
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	19100				19100
	12	VL1	2 X 46	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	28 X 4	1121	120			1241
	12	ST15	4 X 4	19110				19110
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

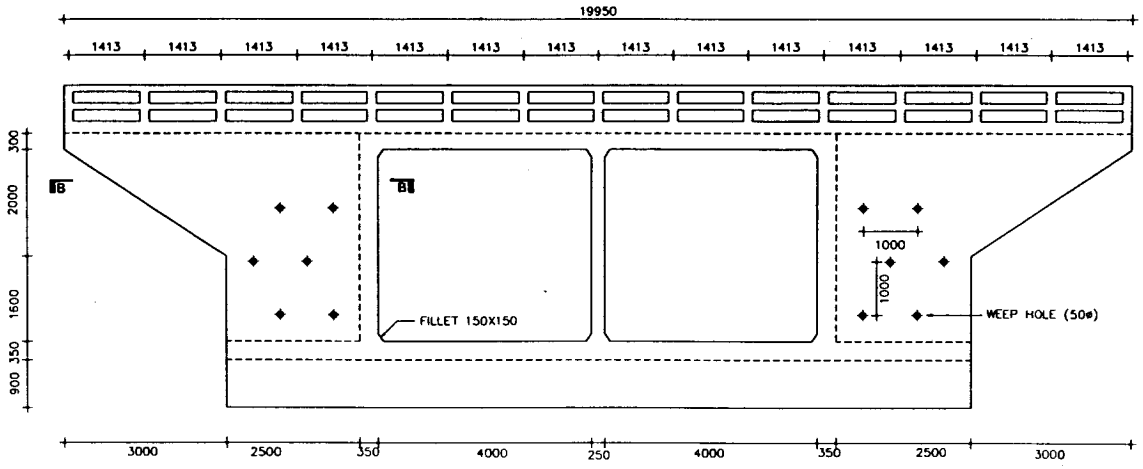
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2336362

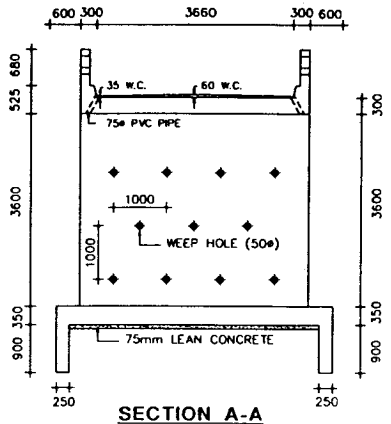
Web Copy

BC-312

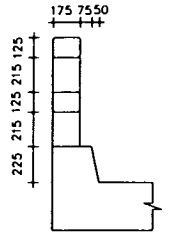
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.6m



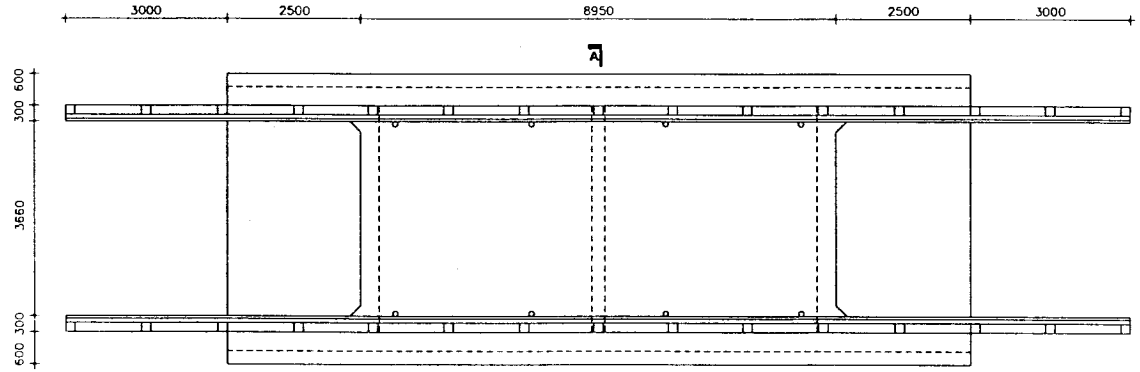
GENERAL ELEVATION



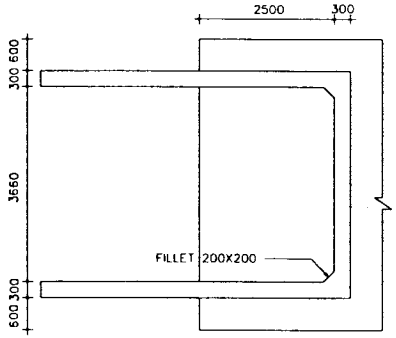
SECTION A-A



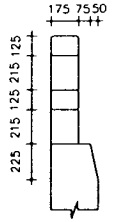
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

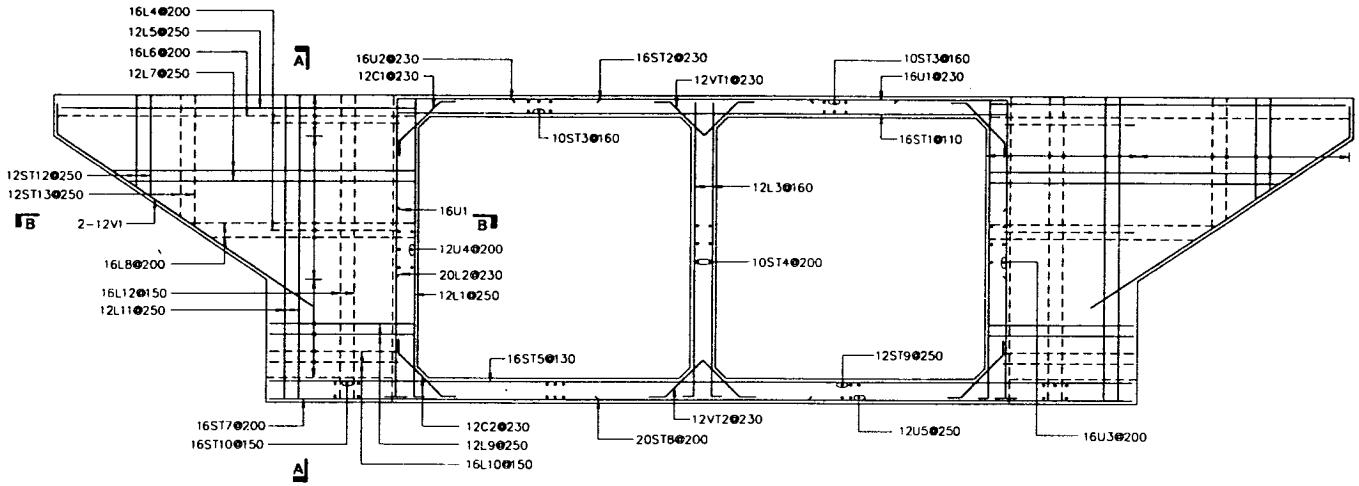
GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B2340361	

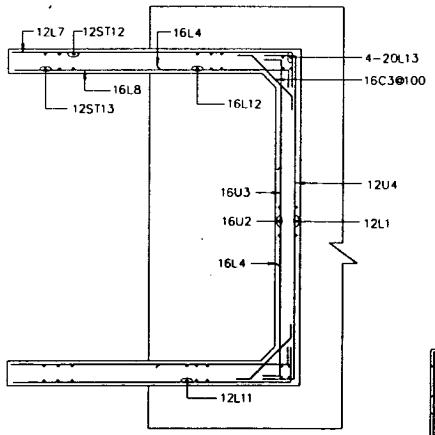
Web Copy

BC-313

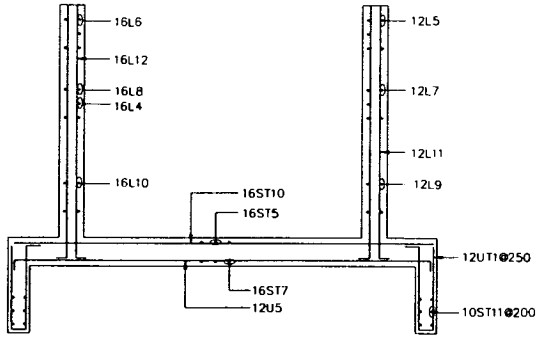
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 3.6m



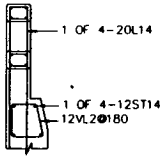
REINFORCEMENT DETAILS



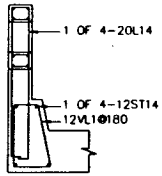
SECTION B-B



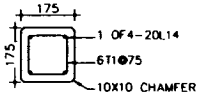
SECTION A-A



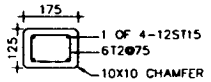
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	8850				8850
	16	ST2	19	2916				2916
	10	ST3	2 X 57	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	43	13850				13850
	16	ST7	28	13850				13850
	20	ST8	27	2916				2916
	12	ST9	37	5360				5360
	16	ST10	2 X 10	5360				5360
	12	C1	2 X 20	144	821	144		1109
	12	C2	2 X 20	144	870	144		1158
	12	VT1	20	2 X 150	2 X 619			1538
	12	VT2	20	2 X 150	2 X 690			1680
	12	L1	2 X 14	4132	250			4382
	20	L2	2 X 18	1488	250			1738
	12	L3	2 X 27	4132	250			4382
	20	L13	4 X 4	4132	250			4382
	16	U1	20	1460	8850	1460		11770
	16	U2	2 X 20	1633	4160	250		7426
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 14	494	4160	494		5148
	12	U5	57	250	5290	250		5790
	10	ST11	4 X 5	13800				13800
	12	UT1	2 X 57	144	2 X 1125	100		2494
WING WALL	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4184	250			4434
	16	L12	4 X 17	4184	250			4434
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	19900				19900
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	19910				19910
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 47 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

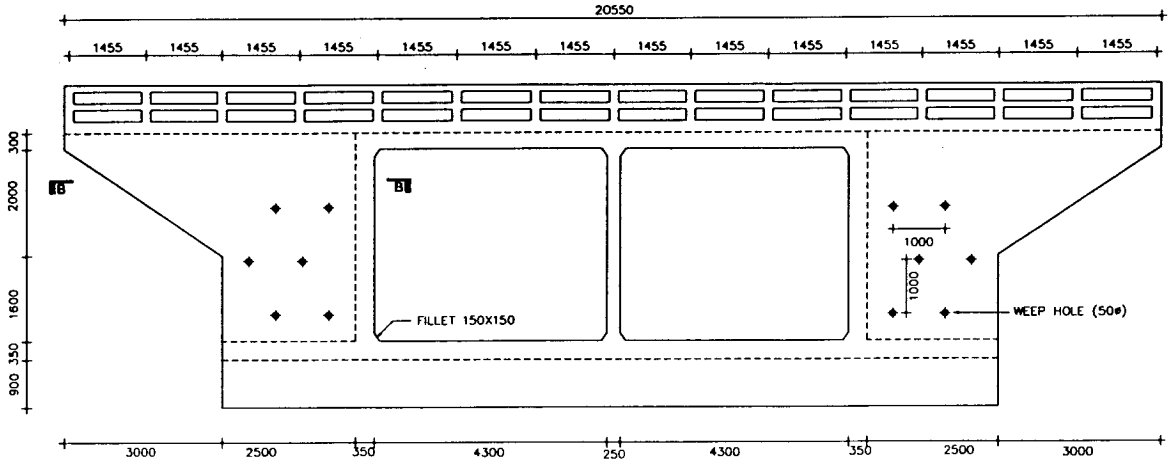
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2340362

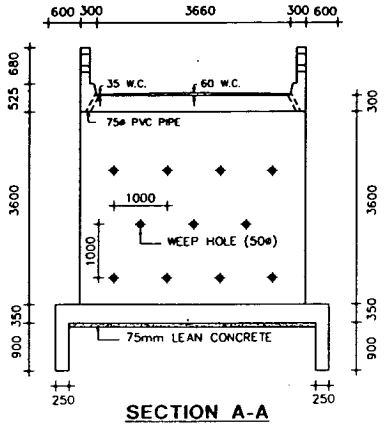
Web Copy

BC-314

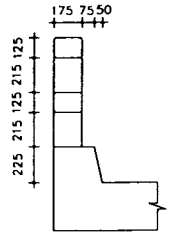
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.6m



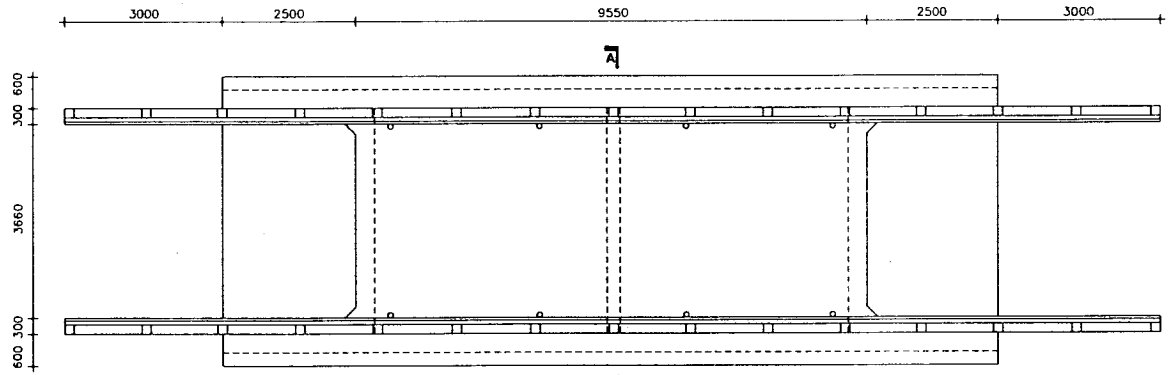
GENERAL ELEVATION



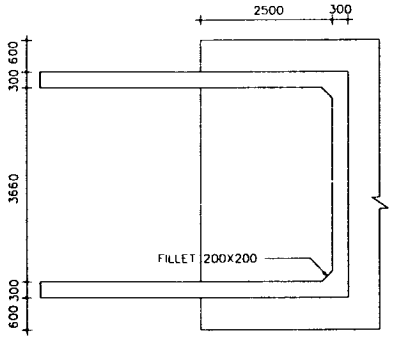
SECTION A-A



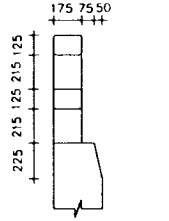
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

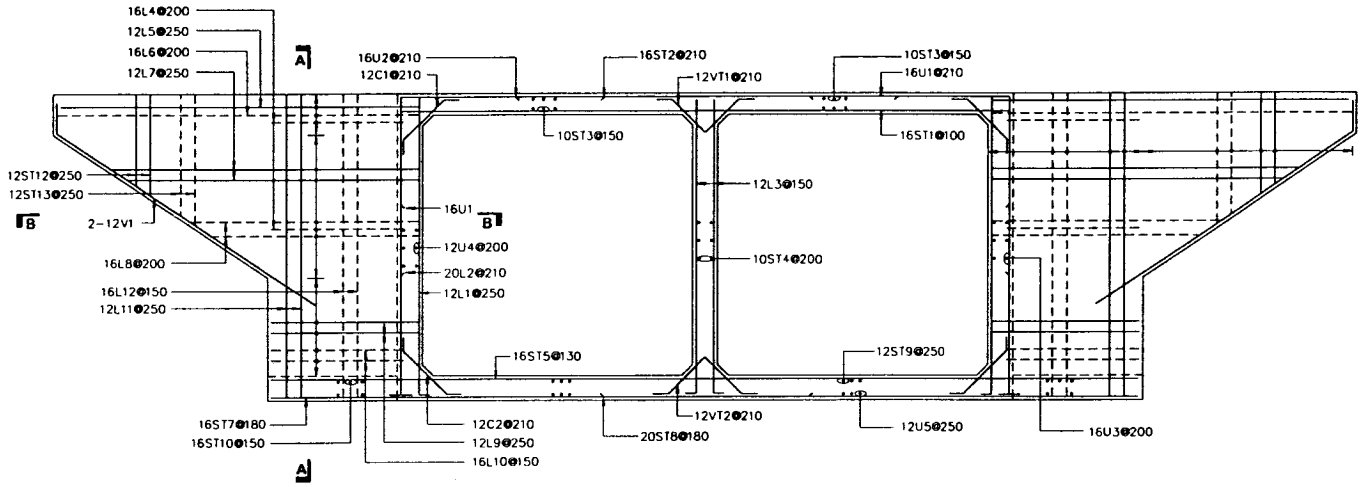
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 3.66m

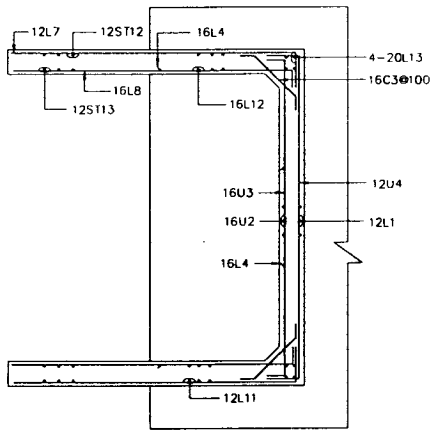
DATE :	ISSUED BY :
CAD FILE REF : CULV\B2343361	

Web Copy

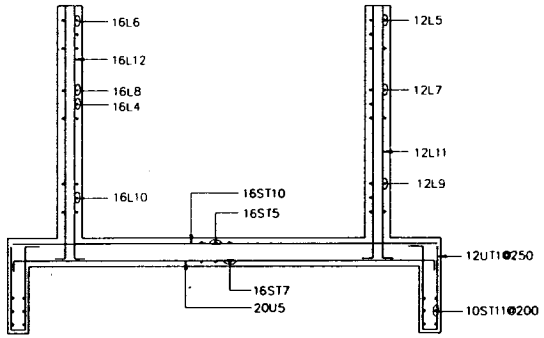
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 3.6m



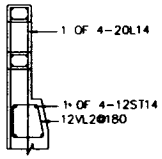
REINFORCEMENT DETAILS



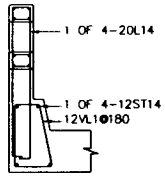
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



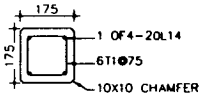
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

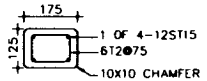
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	9450				9450
	16	ST2	20	3116				3116
	10	ST3	2 X 64	4160				4160
	10	ST4	2 X 18	4160				4160
	16	ST5	43	14450				14450
	16	ST7	31	14450				14450
	20	ST8	30	3116				3116
	12	ST9	40	5360				5360
	16	ST10	2 X 10	5360				5360
	12	C1	2 X 21	144	821	144		1109
	12	C2	2 X 21	144	870	144		1158
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 690			1680
	12	L1	2 X 14	4132	250			4382
	20	L2	2 X 19	1488	250			1738
	12	L3	2 X 29	4132	250			4382
	20	L13	4 X 4	4132	250			4382
	16	U1	21	1460	9450	1460		12370
	16	U2	2 X 21	1733	4160	250		7626
	16	U3	2 X 17	250	4160	250		4660
	12	U4	2 X 14	494	4160	494		5148
	12	U5	59	250	5290	250		5790
	10	ST11	4 X 5	14400				14400
	12	UT1	2 X 59	144	2 X 1125	100		2494
WING WALL	16	L4	4 X 13	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 13	2738	1220			3958
	12	L11	4 X 10	4184	250			4434
	16	L12	4 X 17	4184	250			4434
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	20500				20500
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 31	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	20510				20570
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capcity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 3.6m ROADWAY 3.66m

DATE :

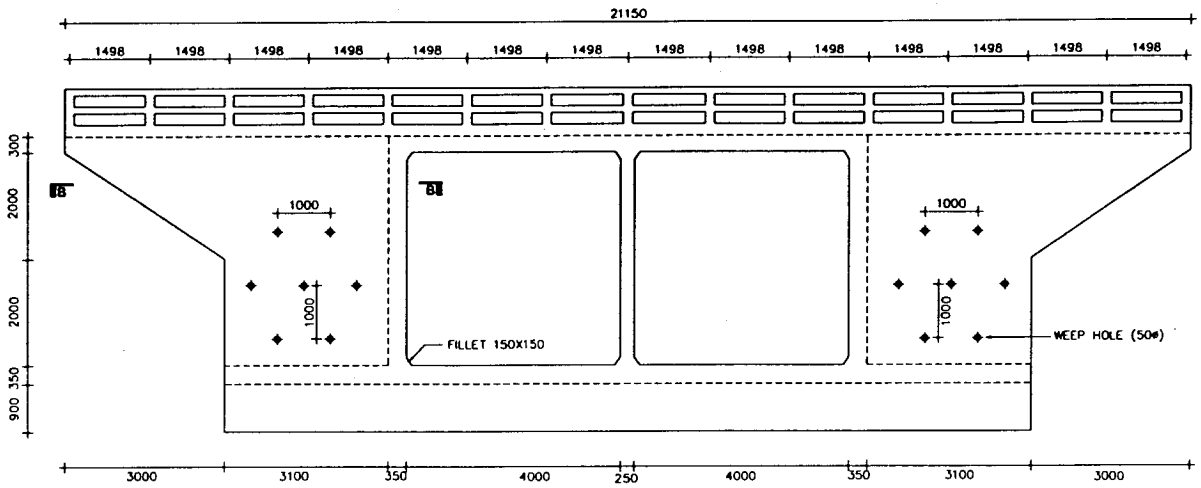
ISSUED BY :

CAD FILE REF : CULV\B2343362

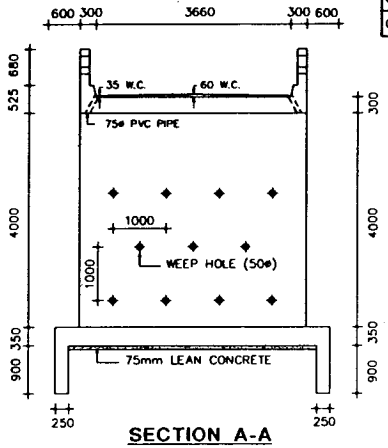
Web Copy

BC-316

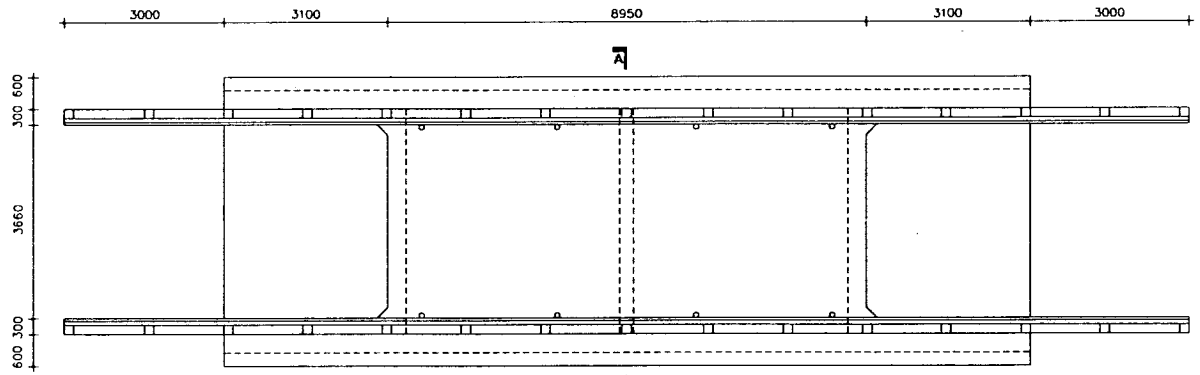
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 4.0m



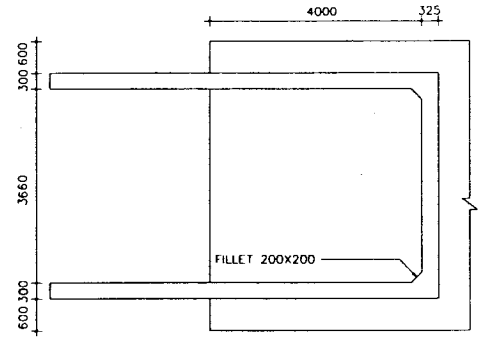
GENERAL ELEVATION



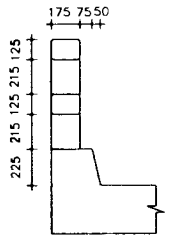
SECTION A-A



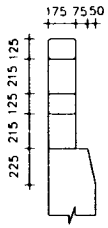
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 3.66m

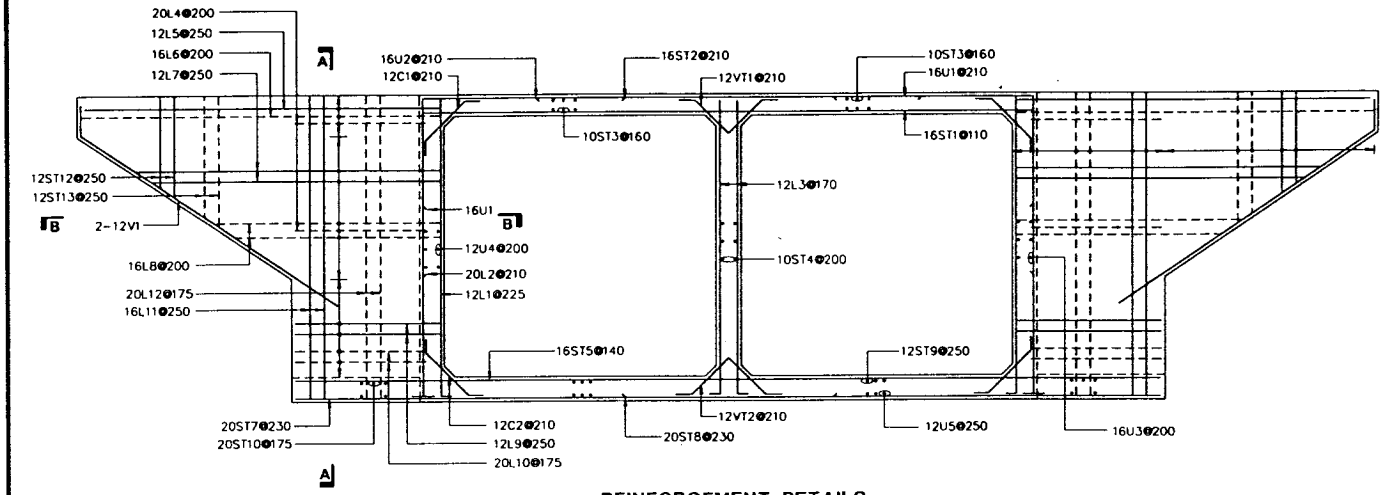
DATE :

ISSUED BY

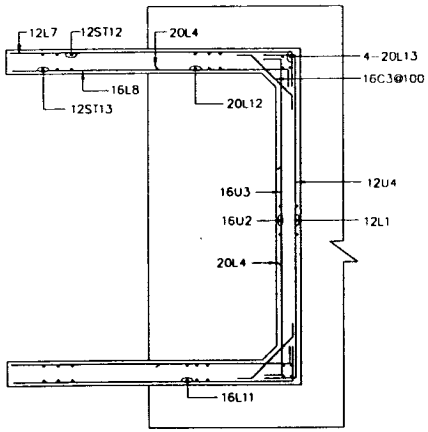
CAD FILE REF : CULV\B2340401

Web Copy

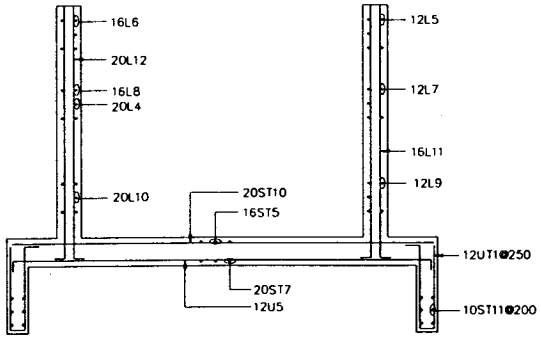
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.0m
CLEAR HEIGHT : 4.0m



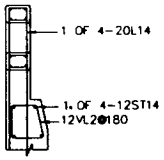
REINFORCEMENT DETAILS



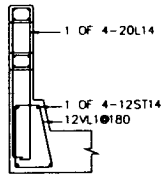
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



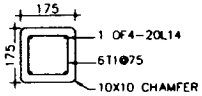
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

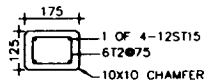
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APRON & CUTOFF	16	ST1	39	8850				8850
	16	ST2	20	2916				2916
	10	ST3	2 X 57	4160				4160
	10	ST4	2 X 20	4160				4160
	16	ST5	40	15050				15050
	20	ST7	25	15050				15050
	20	ST8	24	2916				2916
	12	ST9	37	5360				5360
	20	ST10	2 X 18	5360				5360
	12	C1	2 X 21	144	816	144		1104
	12	C2	2 X 21	144	858	144		1146
	12	VT1	21	2 X 150	2 X 619			1538
	12	VT2	21	2 X 150	2 X 684			1668
	12	L1	2 X 16	4528	250			4778
	20	L2	2 X 19	1621	250			1871
	12	L3	2 X 26	4528	250			4778
	20	L13	4 X 4	4528	250			4778
	16	U1	21	1593	8850	1593		12036
	16	U2	2 X 21	1633	4560	250		7826
	16	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 15	494	4160	494		5148
	12	U5	62	250	5290	250		5790
	10	ST11	4 X 5	15000				15000
	12	UT1	2 X 62	144	2 X 1125	100		2494
WING	20	L4	4 X 13	3388	1220			4608
	12	L5	4 X 1	6338	444			6807
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4580	250			4830
	20	L12	4 X 18	4580	250			4830
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	21100				21100
	12	VL1	2 X 51	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	21110				21110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coorse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 53 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMERNT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :

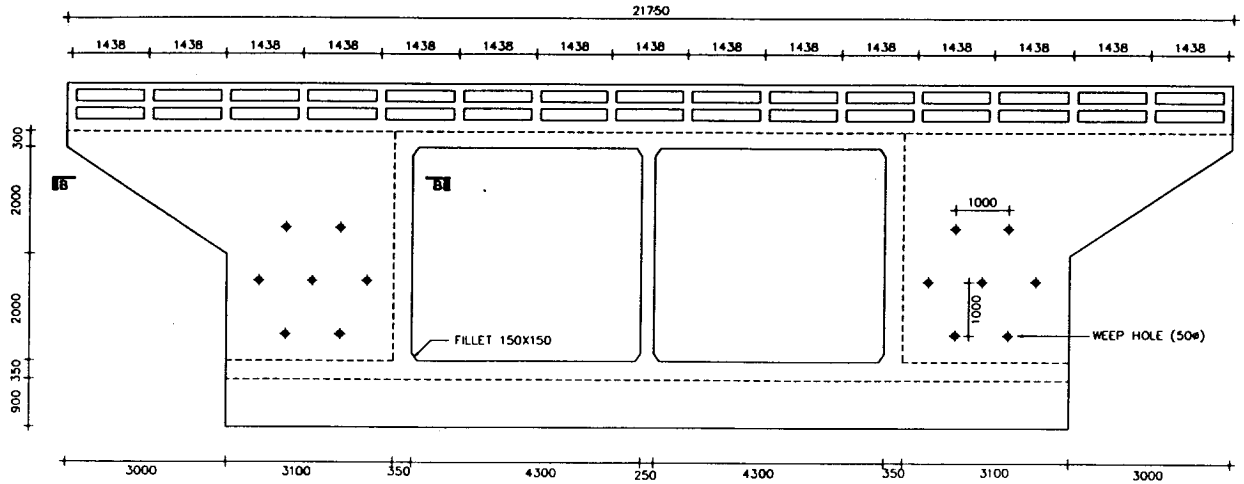
ISSUED BY :

CAD FILE REF : CULV\B2340402

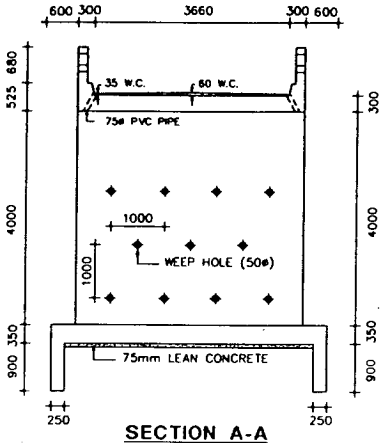
Web Copy

BC-318

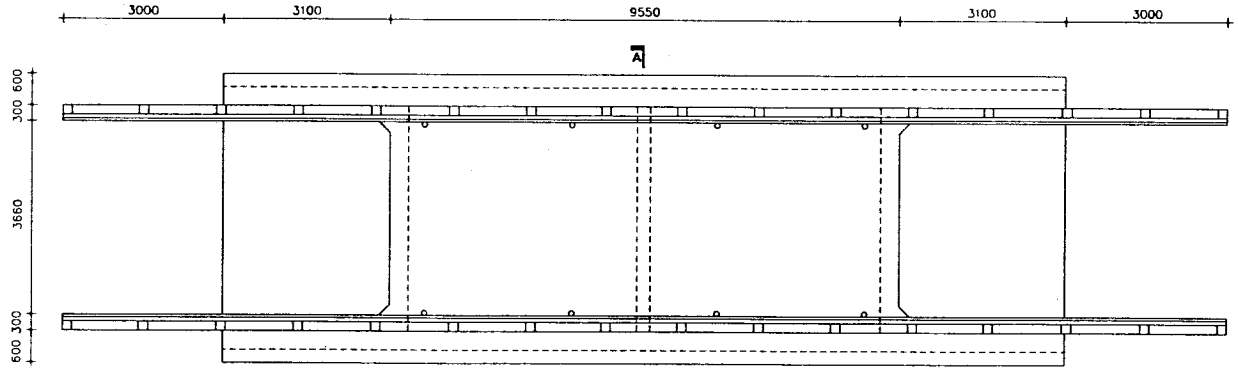
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.0m



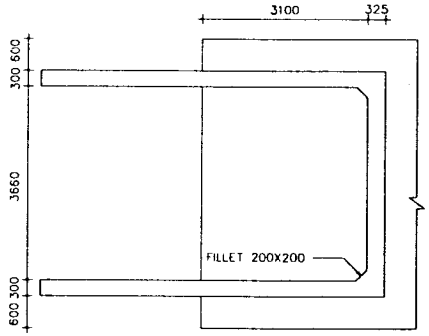
GENERAL ELEVATION



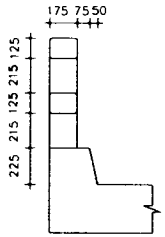
SECTION A-A



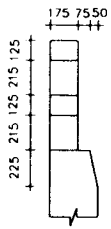
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

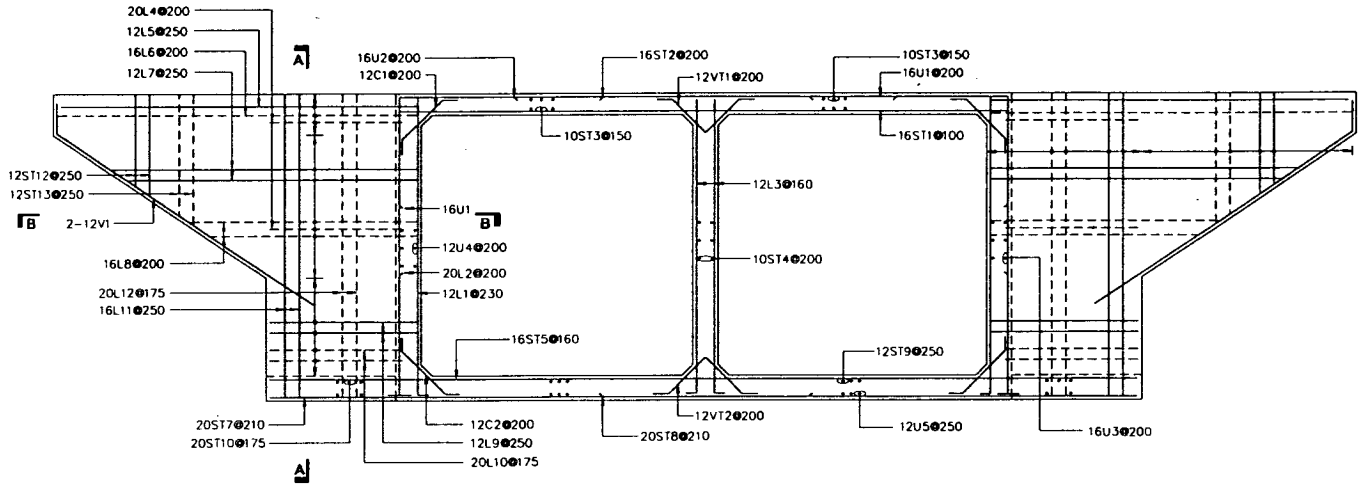
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 3.66m

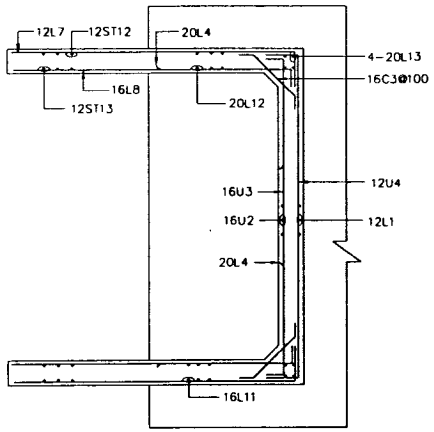
DATE	ISSUED BY :
CAD FILE REF : CULV\B2343401	

Web Copy

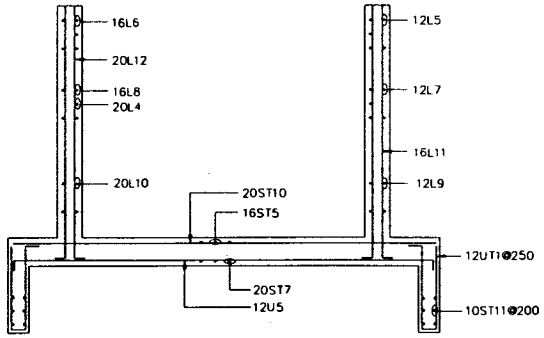
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.0m



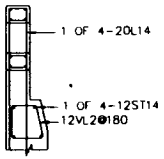
REINFORCEMENT DETAILS



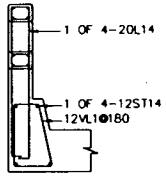
SECTION B-B



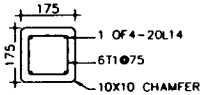
SECTION A-A



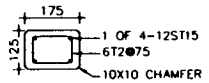
RAILING ON WING WALL (REINF. DETAIL)



RAILING ON CULVERT (REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	43	9450				9450
	16	ST2	21	3116				3116
	10	ST3	2 X 64	4160				4160
	10	ST4	2 X 20	4160				4160
	16	ST5	35	15650				15650
	12	ST6	34	6700				6700
	20	ST7	27	15650				15650
APPROACH	20	ST8	26	3116				3116
	12	ST9	40	5360				5360
	20	ST10	2 X 18	5360				5360
&	12	C1	2 X 22	144	816	144		1104
	12	C2	2 X 22	144	858	144		1146
CUTOFF	12	VT1	22	2 X 150	2 X 619			1538
	12	VT2	22	2 X 150	2 X 667			1634
	12	L1	2 X 15	4528	250			4778
	20	L2	2 X 20	1621	250			1871
	12	L3	2 X 27	4528	250			4778
	20	L13	4 X 4	4528	250			4778
	16	U1	22	1593	9450	1593		12636
	16	U2	2 X 22	1733	4560	250		8026
	16	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 15	494	4160	494		5148
	12	U5	64	250	5290	250		5790
	10	ST11	4 X 5	15600				15600
	12	UT1	2 X 64	144	2 X 1125	100		2494
WING	20	L4	4 X 13	3388	1220			4608
	12	L5	4 X 1	6338	469			6807
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	469			3807
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4580	250			4830
	20	L12	4 X 18	4580	250			4830
WING A	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 44	144	892	144		1180
CURB AND RAILING	12	ST14	2 X 4	21700				21700
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 34	204	204	248	200	856
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	21710				21710
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 255	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 81 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

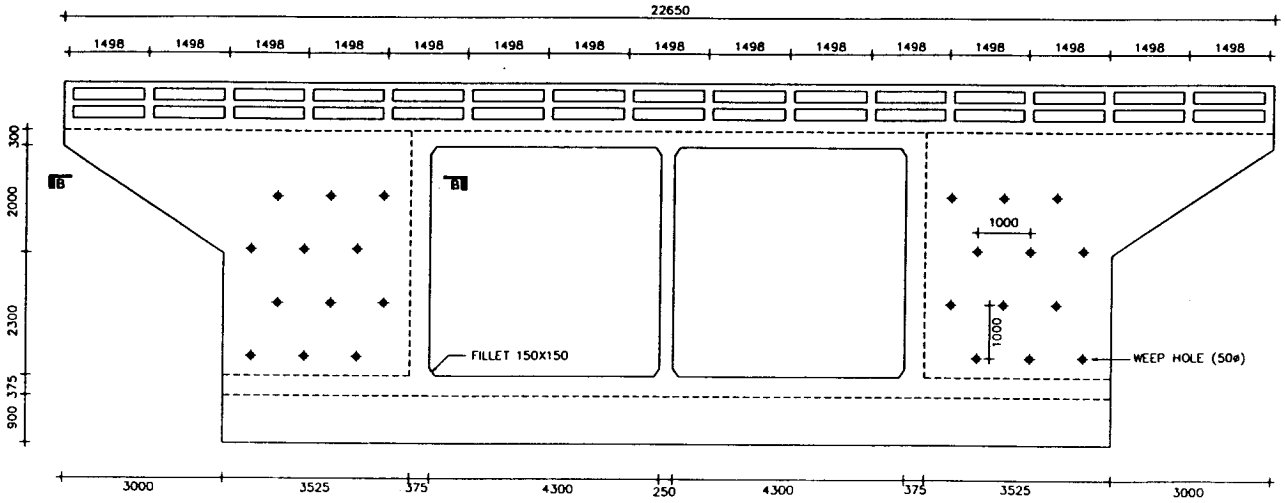
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2343402

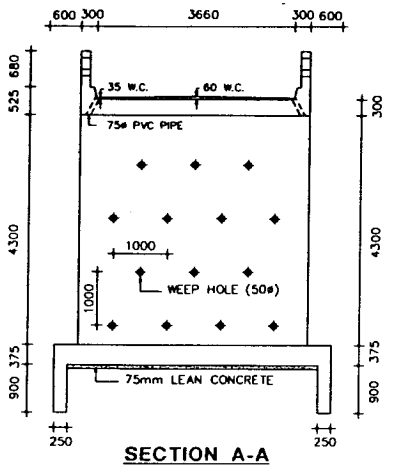
Web Copy

BC-320

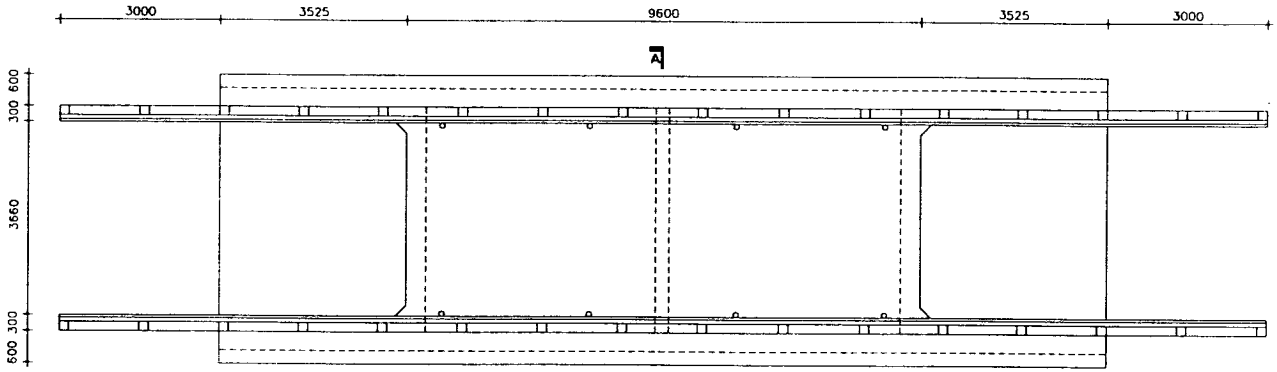
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 2x4.3m
CLEAR HEIGHT : 4.3m



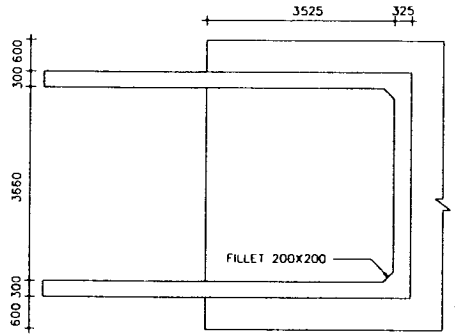
GENERAL ELEVATION



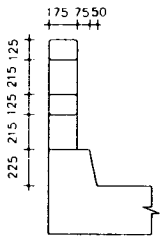
SECTION A-A



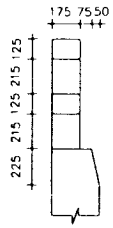
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :

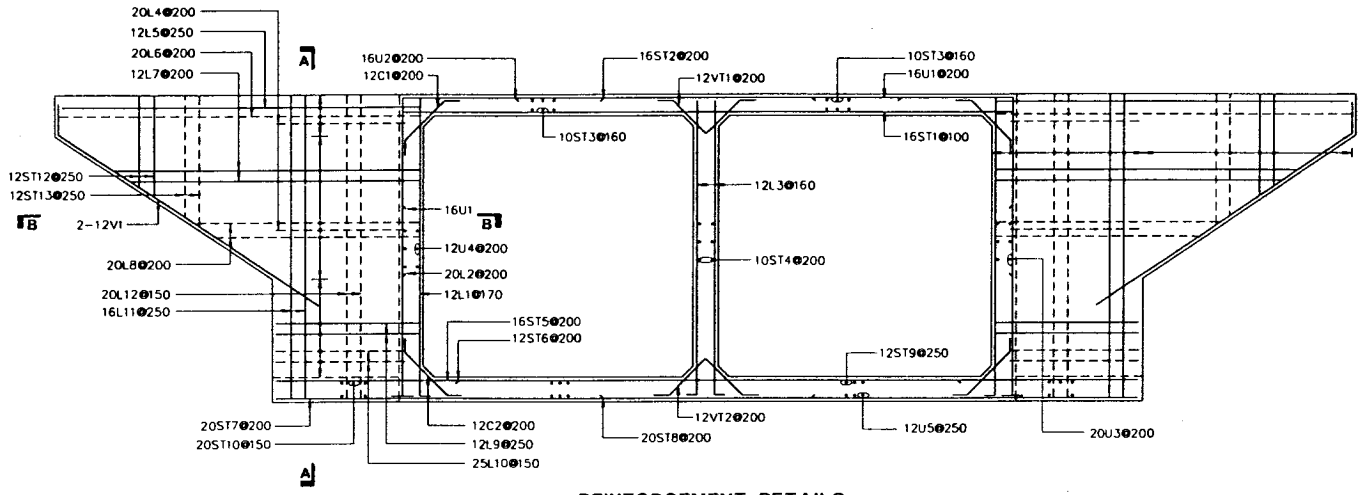
ISSUED BY :

CAD FILE REF : CULV\B2343431

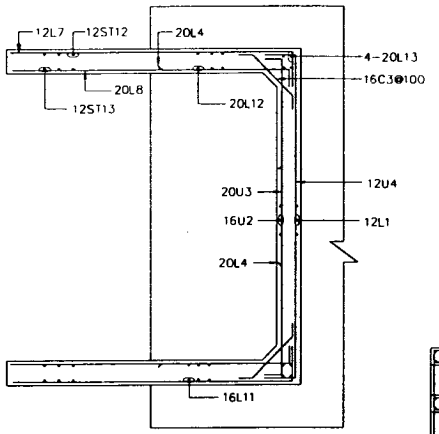
Web Copy

BC-321

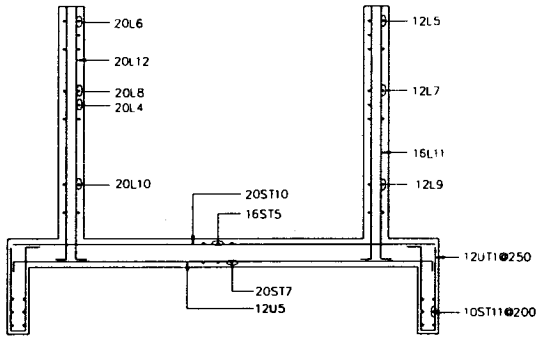
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 2X4.3m
CLEAR HEIGHT : 4.3m



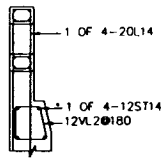
REINFORCEMENT DETAILS



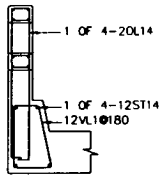
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



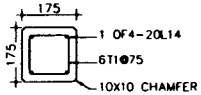
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

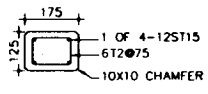
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	9500				9500
	16	ST2	21	3116				3116
	10	ST3	2 X 61	4160				4160
	10	ST4	2 X 21	4160				4160
	16	ST5	28	16550				16550
	12	ST6	27	6700				6700
	20	ST7	28	16550				16550
	20	ST8	27	3116				3116
	12	ST9	40	5360				5360
	20	ST10	2 X 24	5360				5360
	12	C1	2 X 22	144	851	144		1139
	12	C2	2 X 22	144	929	144		1217
	12	VT1	22	2 X 150	2 X 619			1538
	12	VT2	22	2 X 150	2 X 703			1706
	12	L1	2 X 21	4853	250			5103
	20	L2	2 X 20	1746	250			1996
	12	L3	2 X 27	4853	250			5103
	20	L13	4 X 4	4853	250			5103
	12	U1	22	1693	9500	1693		12886
	16	U2	2 X 22	1758	4885	250		8401
	20	U3	2 X 21	250	4160	250		4660
	12	U4	2 X 17	519	4160	519		5198
	12	U5	68	250	5290	250		5790
	10	ST11	4 X 5	16500				16500
	12	UT1	2 X 68	144	2 X 1150	100		2544
WING WALL	20	L4	4 X 13	3838	1220			5058
	12	L5	4 X 1	6788	469			7232
	20	L6	4 X 2	6788	250			7038
	12	L7	4 X 9	Var. 6759 To 3788 @ 371	444			Var. 7203 To 4232
	20	L8	4 X 11	Var. 6759 To 3788 @ 297	250			Var. 7009 To 4038
	12	L9	4 X 10	3788	469			4257
	20	L10	4 X 16	3788	1220			5008
	12	L11	4 X 14	4905	250			5155
	20	L12	4 X 24	4905	250			5155
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 To 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 46	144	928	144		1216
CURB AND RAILING	12	ST14	2 X 4	22600				22600
	12	VL1	2 X 55	204	471	306	460	1441
	12	VL2	4 X 36	204	204	248	200	856
	20	L14	32 X 4	596	120			716
	12	ST15	4 X 4	22610				22610
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 58 kN/m^2.
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

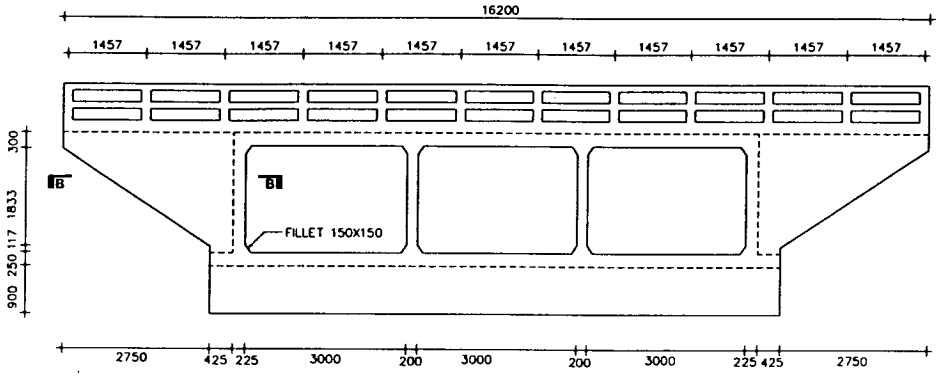
REINFORCEMENT DETAILS OF BOX CULVERT
DOUBLE VENT 4.3m x 4.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B2343432

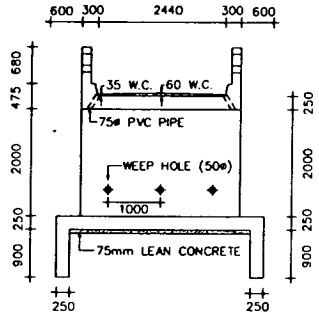
Web Copy

BC-322

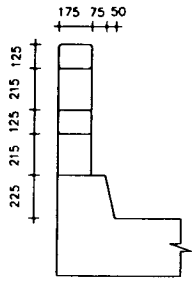
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.0m



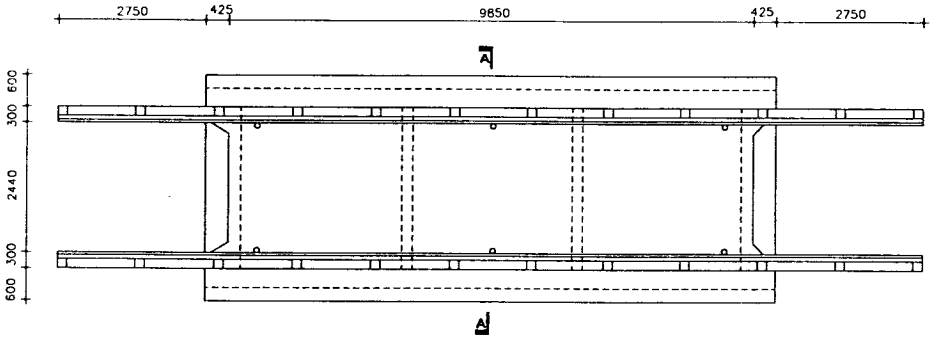
GENERAL ELEVATION



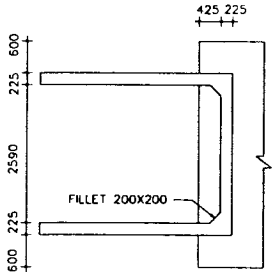
SECTION A-A



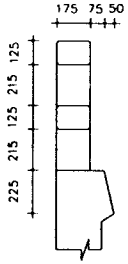
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

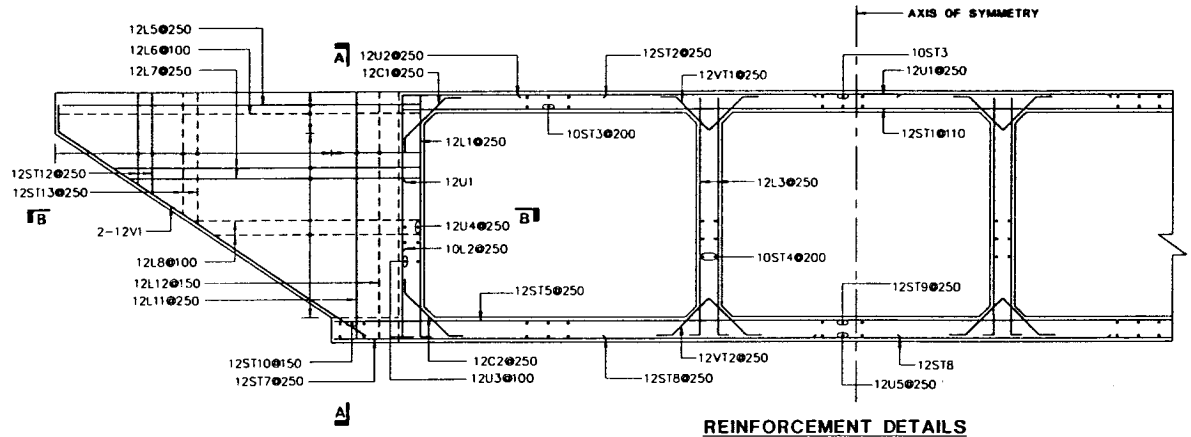
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 2.44m

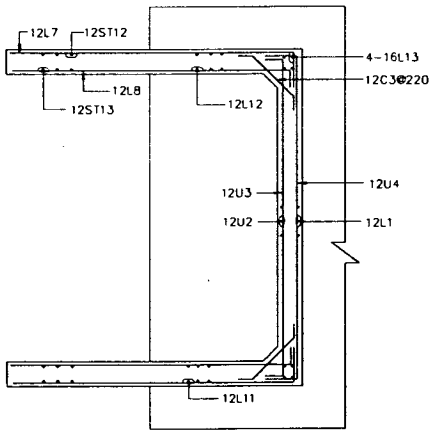
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3130201	

Web Copy

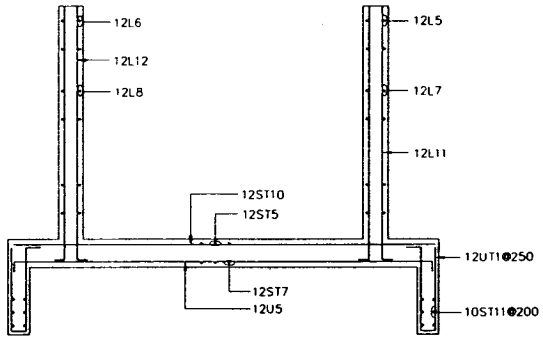
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.0m



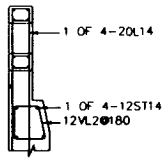
REINFORCEMENT DETAILS



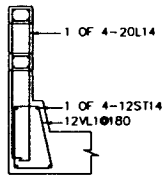
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



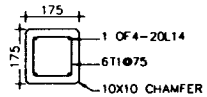
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

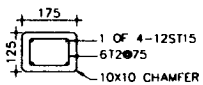
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	12	ST1	28	9750				9750
	12	ST2	2 x 12	2200				2200
	10	ST3	2 X 50	2940				2940
	10	ST4	4 X 10	2940				2940
	12	ST5	18	10600				10600
	12	ST7	18	10600				10600
APPRON & CUTOFF	12	ST8	2 x 17	2200				2200
	12	ST9	41	4140				4140
	12	ST10	2 X 3	4140				4140
	12	C1	2 X 13	150	591	150		891
	12	C2	2 X 13	150	577	150		877
	12	VT1	2 x 13	2 X 150	2 X 519			1338
	12	VT2	2 x 13	2 X 150	2 X 519			1338
	12	L1	2 X 10	2386	250			2636
	10	L2	2 X 11	854	250			1104
	12	L3	4 X 13	2386	250			2636
	16	L13	4 X 4	2386	250			2636
	12	U1	13	876	9750	876		11502
	12	U2	2 X 13	1175	2410	250		3835
	12	U3	2 X 19	250	2940	250		3440
	12	U4	2 X 7	369	2940	369		3678
	12	U5	44	250	4070	250		4570
	10	ST11	4 X 5	10550				10550
	12	UT1	2 X 44	150	2 X 1025	100		2300
WING	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
WALL	12	ST12	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 TO 376
	12	ST13	4 X 11	Var. 2073 To 376 @ 169				VER. 2073 TO 376
	12	V1	4 X 2	3605	200			3805
	12	C3	4 X 23	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	16150				16150
	12	VL1	2 X 56	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	24 X 4	1071	120			1191
	12	ST15	4 X 4	16160				16160
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 198	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 21 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

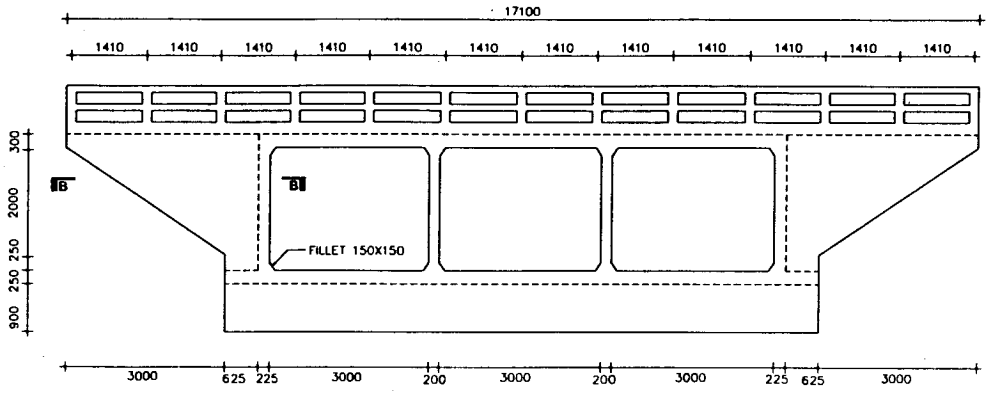
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3130202

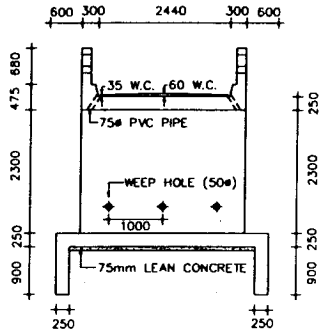
Web Copy

BC-324

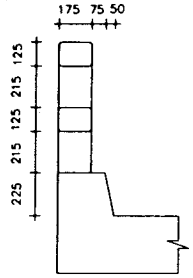
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



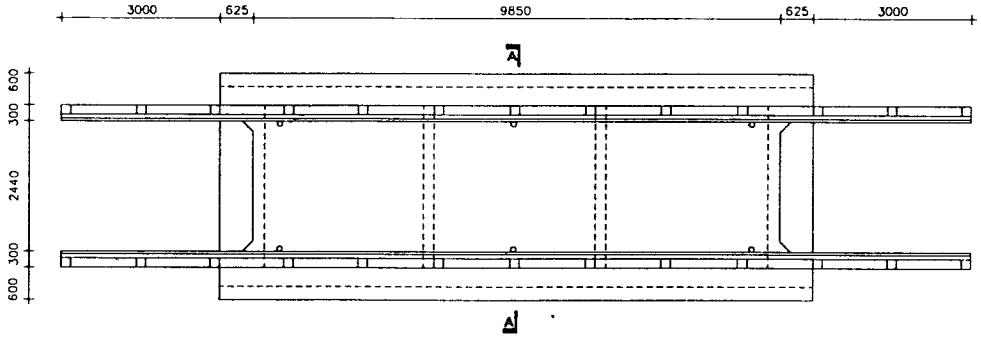
GENERAL ELEVATION



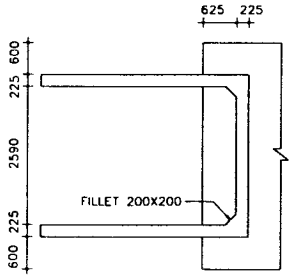
SECTION A-A



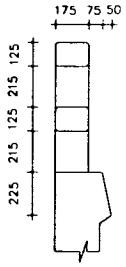
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

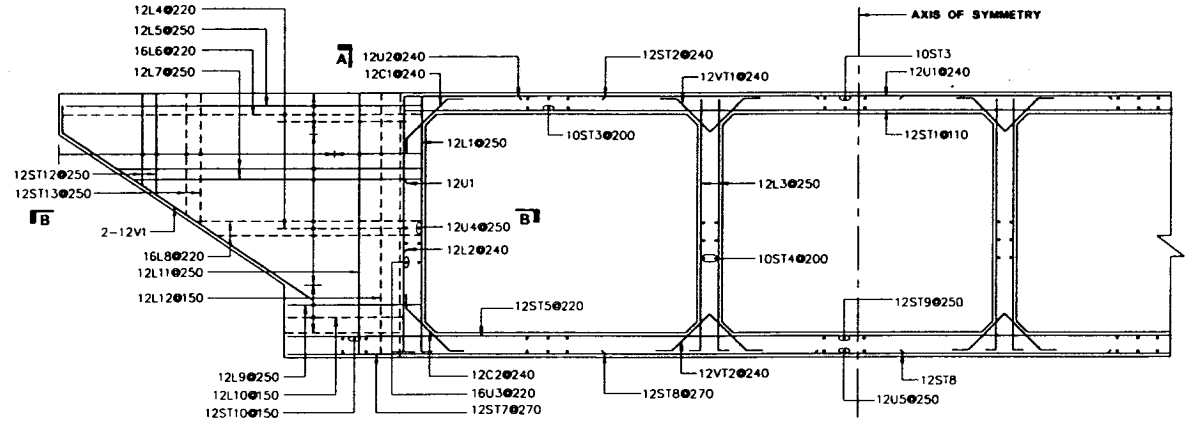
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 2.44m

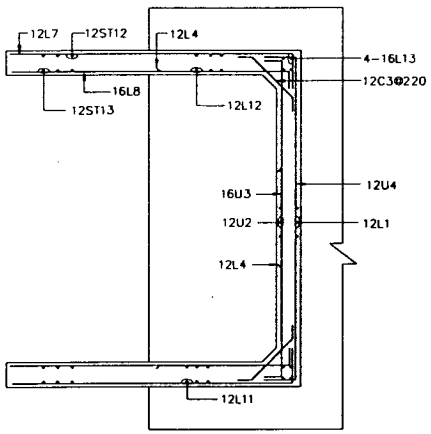
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3130231	

Web Copy

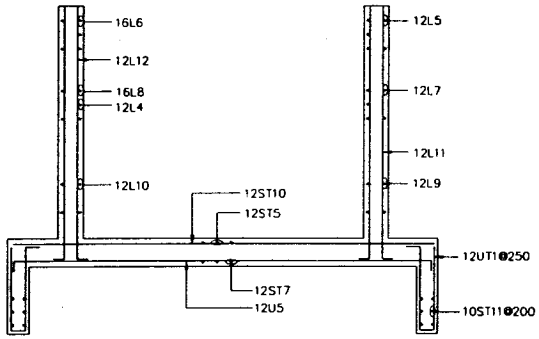
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



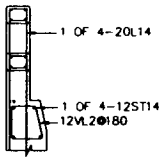
REINFORCEMENT DETAILS



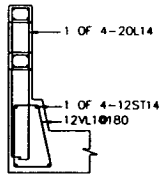
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



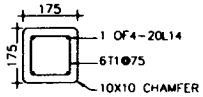
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

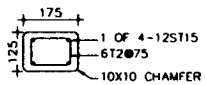
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	9750				9750
	12	ST2	2 x 13	2200				2200
	10	ST3	2 X 50	2940				2940
	10	ST4	2 X 11	2940				2940
	12	ST5	20	11000				11000
	12	ST7	17	11000				11000
	12	ST8	2 x 16	2200				2200
	12	ST9	41	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 14	150	585	150		885
	12	C2	2 X 14	150	568	150		868
	12	VT1	2 x 14	2 X 150	2 X 519			1338
	12	VT2	2 x 14	2 X 150	2 X 519			1338
	12	L1	2 X 10	2686	250			2936
	12	L2	2 X 12	954	250			1204
	12	L3	4 x 13	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	14	976	9750	976		11702
	12	U2	2 X 14	1175	2710	250		4135
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	12	U5	45	250	4070	250		4570
	10	ST11	4 X 5	10950				10950
	12	UT1	2 X 46	150	2 X 1025	100		2300
WING WALL	12	L4	4 X 12	788	813			1601
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	813			1551
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	17050				17050
	12	VL1	2 X 56	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17060				17060
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 24 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

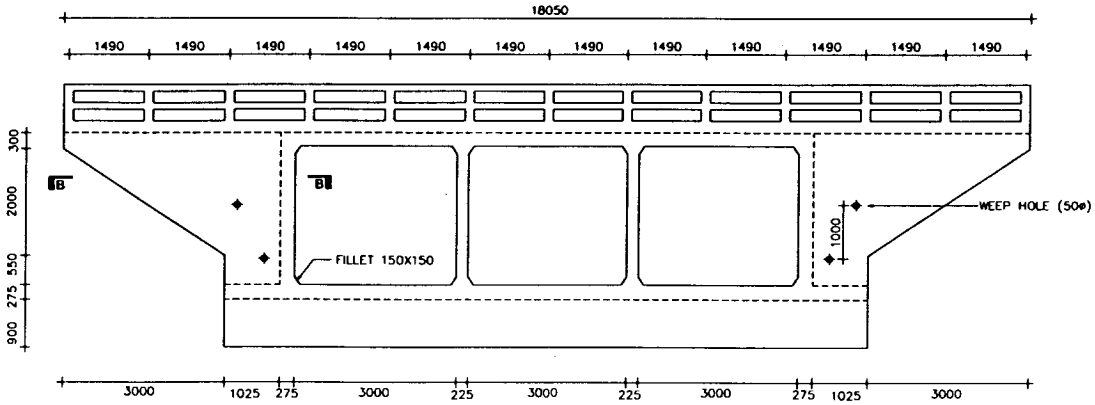
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3130232

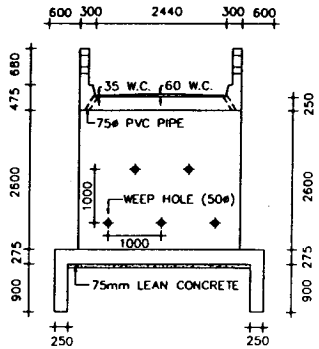
Web Copy

BC-326

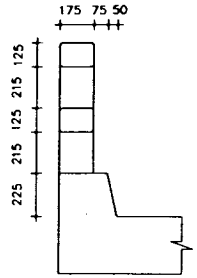
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.6m



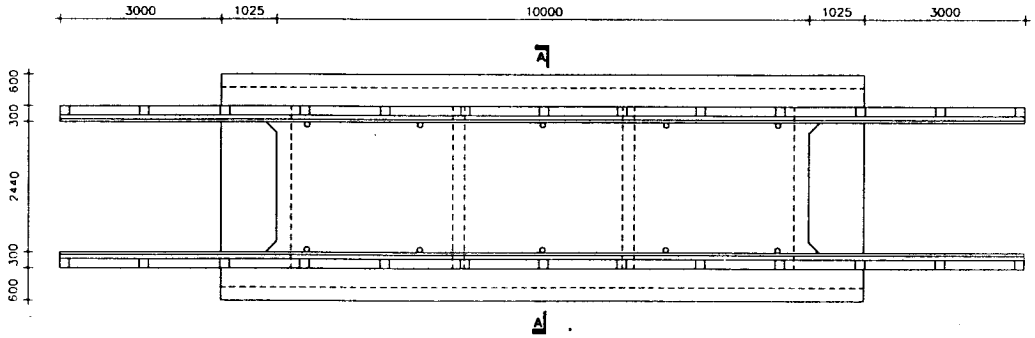
GENERAL ELEVATION



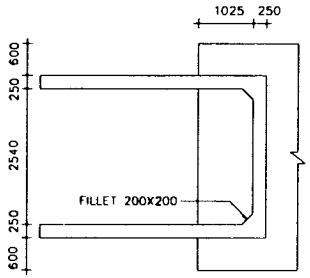
SECTION A-A



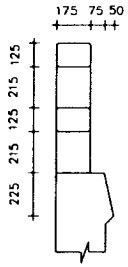
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1 All dimensions are in milimeter unless otherwise specified.

2 Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

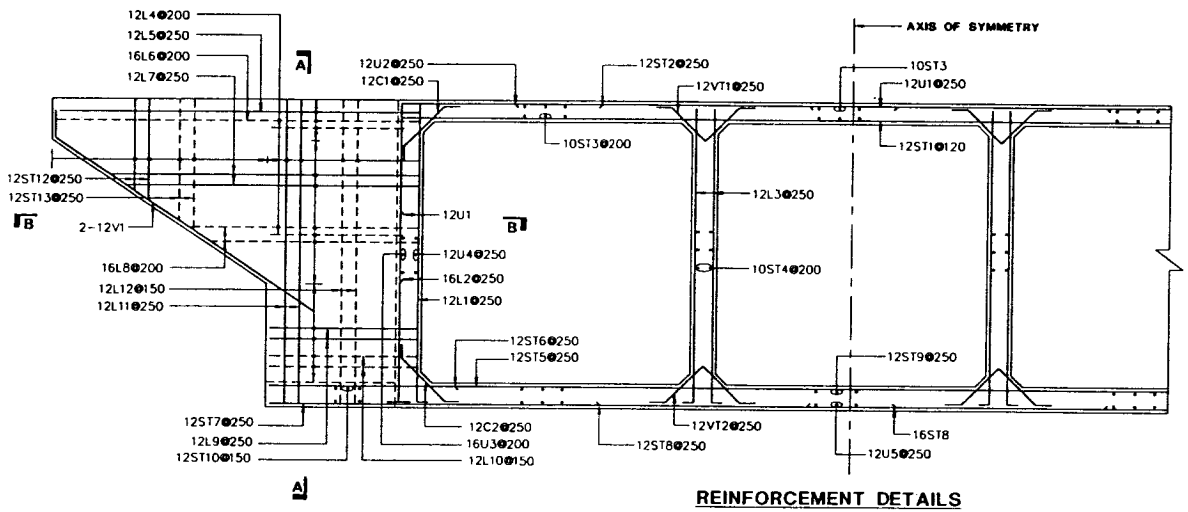
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 2.44m

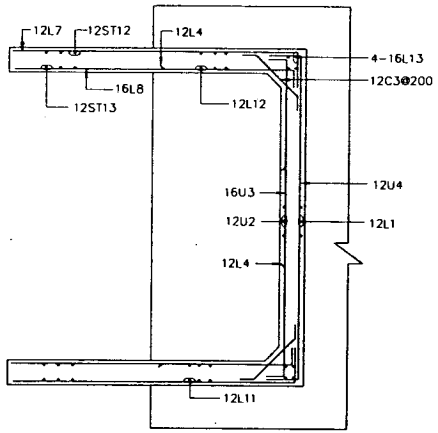
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3130261	

Web Copy

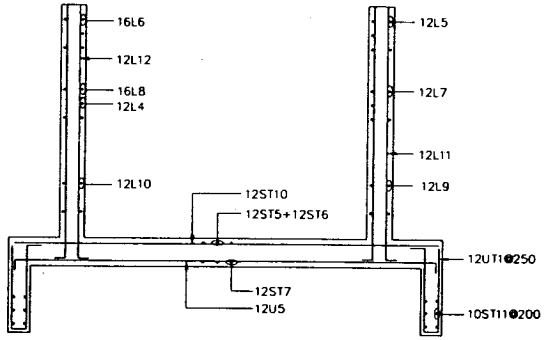
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.6m



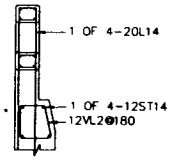
REINFORCEMENT DETAILS



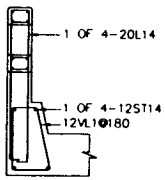
SECTION B-B



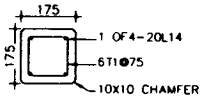
SECTION A-A



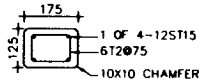
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	9900				9900
	12	ST2	2 x 12	2225				2225
	10	ST3	2 X 51	2940				2940
	10	ST4	4 X 13	2940				2940
	12	ST5	18	11950				11950
	12	ST6	2 x 17	1900				1900
	12	ST7	18	11950				11950
	12	ST8	2 x 17	2225				2225
	12	ST9	41	4140				4140
	12	ST10	2 X 7	4140				4140
	12	C1	2 X 13	150	656	150		956
	12	C2	2 X 13	150	669	150		969
	12	VT1	2 x 13	2 X 150	2 X 537			1374
	12	VT2	2 x 13	2 X 150	2 X 555			1410
	12	L1	2 X 10	3011	250			3261
	16	L2	2 X 11	1079	250			1329
	12	L3	4 X 14	3011	250			3261
	16	L13	4 X 4	3011	250			3261
	12	U1	13	1076	9900	1076		12052
	12	U2	2 X 13	1225	3035	250		4510
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	49	250	4070	250		4570
	10	ST11	4 X 5	11900				11900
	12	UT1	2 X 49	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3063	250			3313
	12	L12	4 X 7	3063	250			3313
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 15	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	18000				18000
	12	VL1	2 X 57	204	419	295	410	1428
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	18010				18010
	6	T1	26 x 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 28 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cod File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

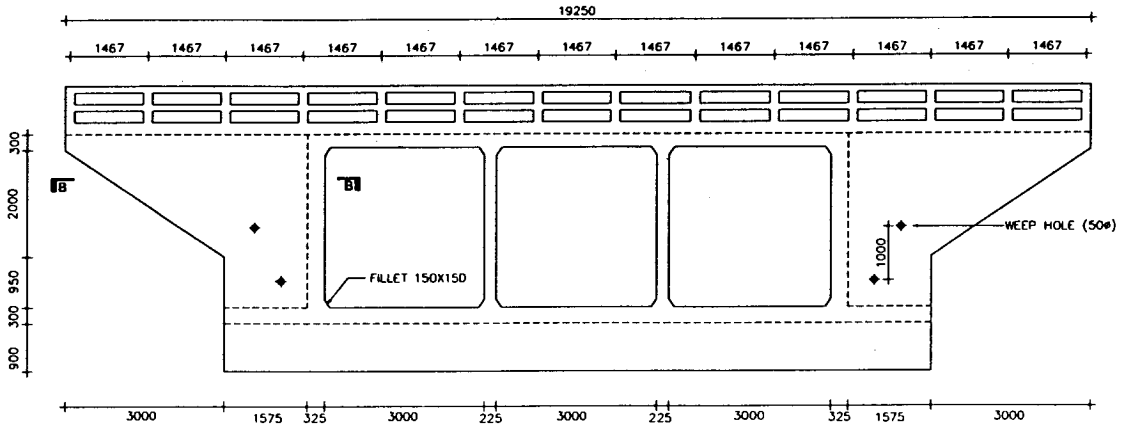
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\83130262

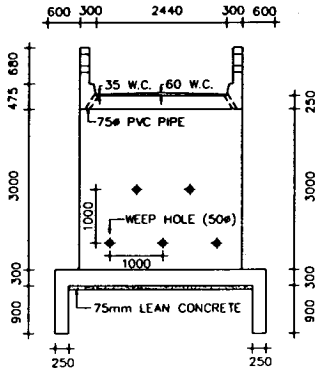
Web Copy

BC-328

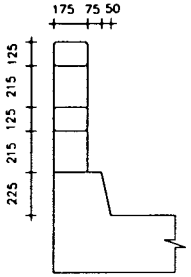
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



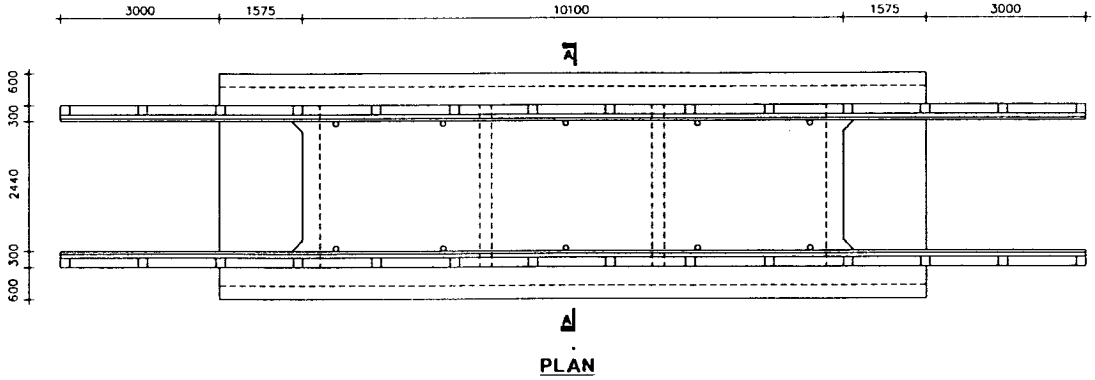
GENERAL ELEVATION



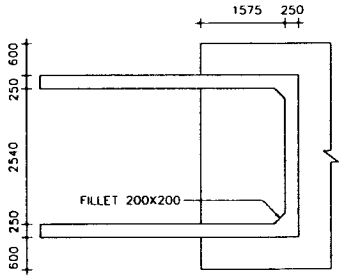
SECTION A-A



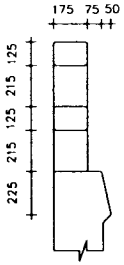
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

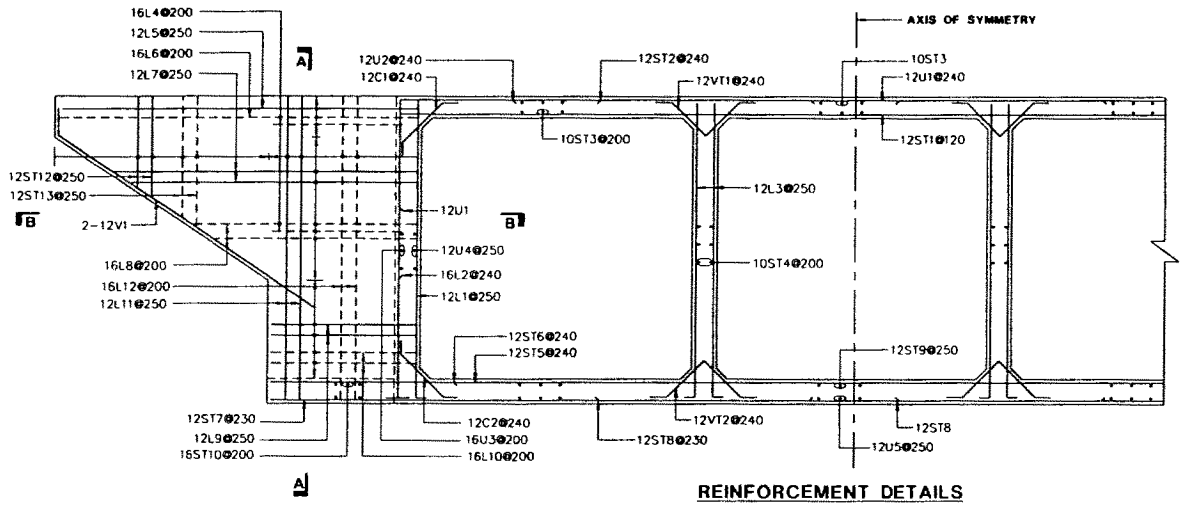
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 2.44m

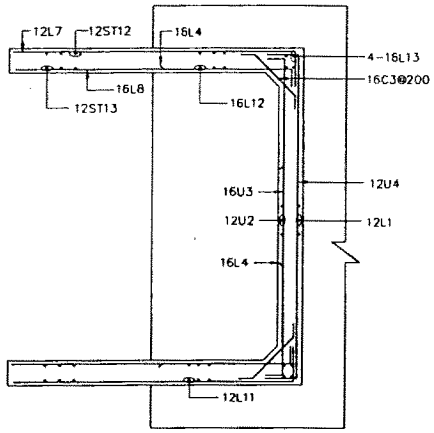
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3130301	

Web Copy

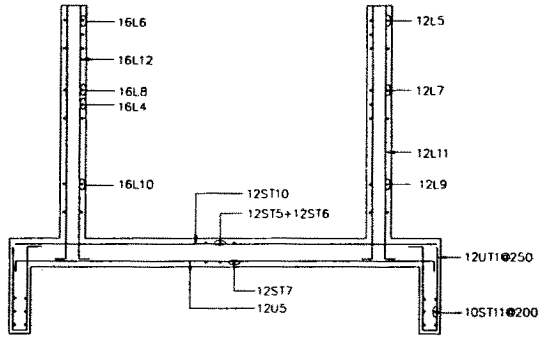
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



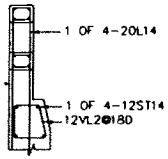
REINFORCEMENT DETAILS



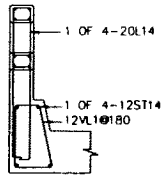
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



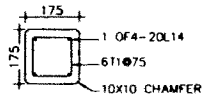
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

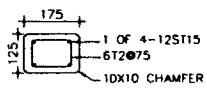
MEM.	BAR DIA.	SHAPE CODE	SPACING (mm)	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	120	26	10000				10000
	12	ST2	240	2 X 13	2225				2225
	10	ST3	200	2 X 51	2940				2940
	10	ST4	200	4 X 15	2940				2940
	12	ST5	240	19	13150				13150
	12	ST6	240	2 X 18	2500				2500
	12	ST7	230	19	13150				13150
	12	ST8	230	2 X 18	2225				2225
	12	ST9	250	42	4140				4140
	16	ST10	200	2 X 8	4140				4140
	12	C1	240	2 X 14	150	727	150		1027
	12	C2	240	2 X 14	150	775	150		1075
	12	VT1	240	2 X 14	2 X 150	2 X 537			1374
	12	VT2	240	2 X 14	2 X 150	2 X 590			1480
	12	L1	250	2 X 10	3436	250			3686
	16	L2	240	2 X 12	1238	250			1488
	12	L3	250	4 X 13	3436	250			3686
	16	L13		4 X 4	3436	250			3686
	12	U1	240	14	1210	10000	1210		12420
	12	U2	240	2 X 14	1275	3460	250		4985
	16	U3	200	2 X 14	250	2940	250		3440
	12	U4	250	2 X 11	469	2940	469		3878
	12	U5	250	54	250	4070	250		4570
	10	ST11	200	4 X 5	13100				13100
	12	UT1	250	2 X 54	150	2 X 1075	100		2400
WING	16	L4	200	4 X 13	1838	813			2651
	12	L5	250	4 X 1	4788	394			5182
	16	L6	200	4 X 2	4788	250			5038
	12	L7	250	4 X 9	Var. 4759 To 1788 @ 371	394			Var.5153 To 2182
	16	L8	200	4 X 11	Var. 4759 To 1788 @ 297	250			Var.5009 To 2038
	12	L9	250	4 X 4	1788	394			2182
	16	L10	200	4 X 5	1788	813			2601
	12	L11	250	4 X 7	3488	250			3738
	16	L12	200	4 X 8	3488	250			3738
	12	ST12	250	4 X 12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	ST13	250	4 X 12	Var. 2239 To 376 @ 169				Var.2239 To 376
	12	V1		4 X 2	4305	200			4505
	16	C3	200	4 X 17	192	786	192		1170
CURB AND RAILING	12	ST14		2 X 4	19200				19200
	12	VL1	180	2 X 58	204	419	295	410	1428
	12	VL2	180	4 X 26	204	204	248	200	956
	20	L14		28 X 4	1071	120			1191
	12	ST15		4 X 4	19210				19210
	6	T1	75	28 X 6	2 X135	2 X 135			540
	6	T2	75	4 X234	2 X85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 2.44m

DATE :

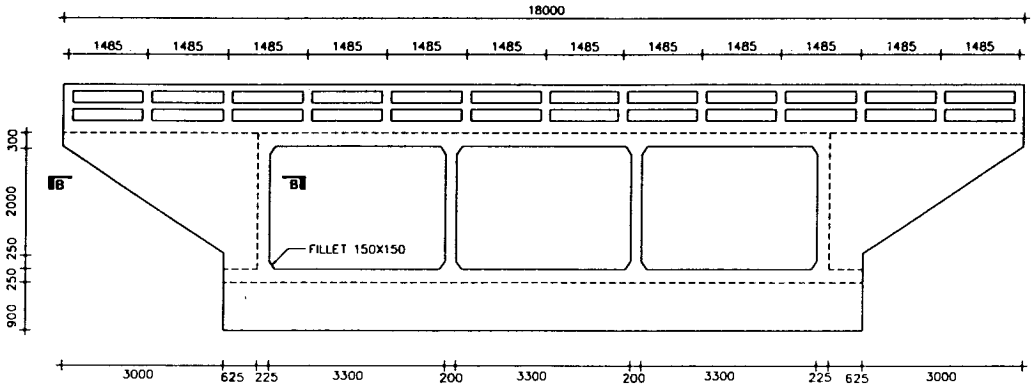
ISSUED BY :

CAD FILE REF : CULV\B3130302

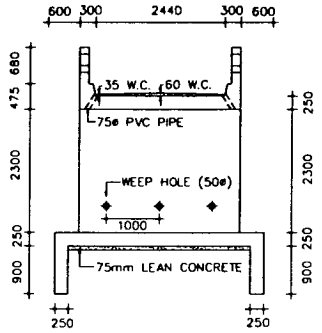
Web Copy

BC-330

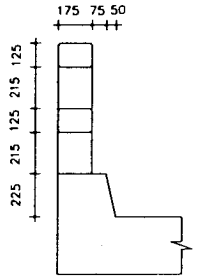
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



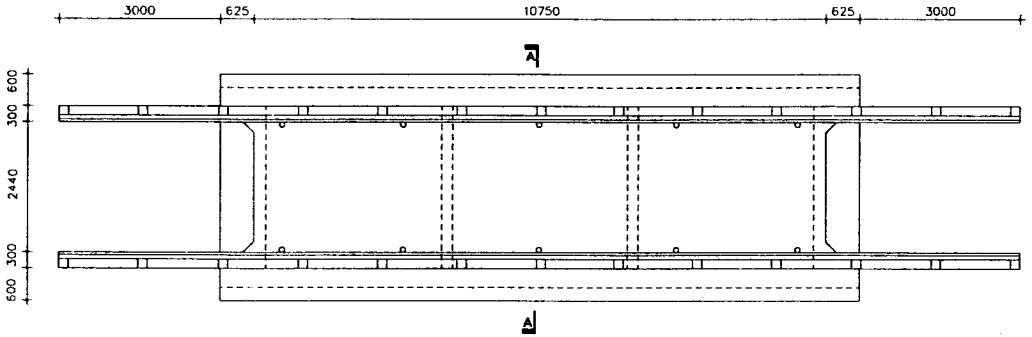
GENERAL ELEVATION



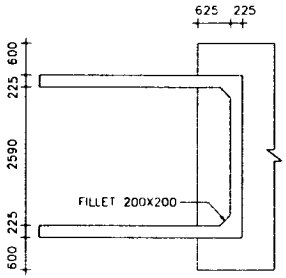
SECTION A-A



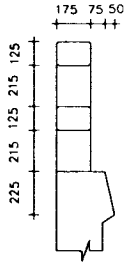
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

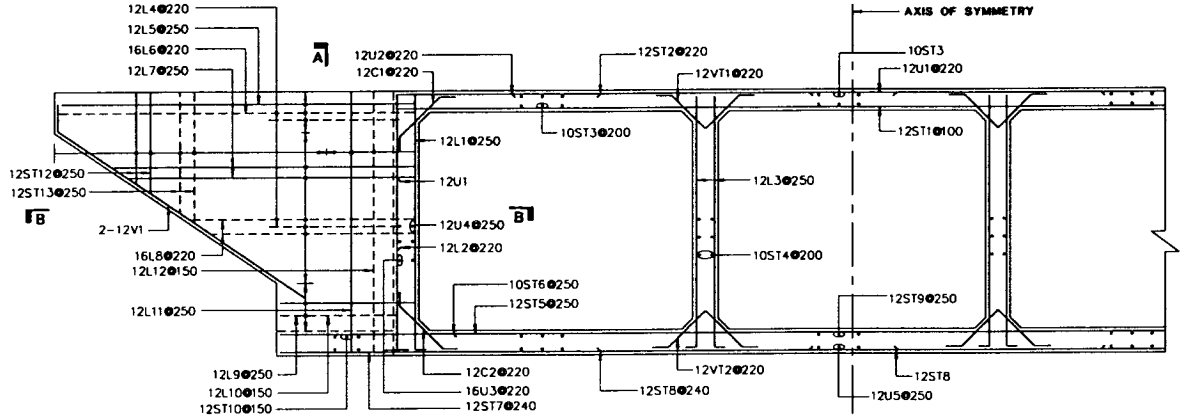
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 2.44m

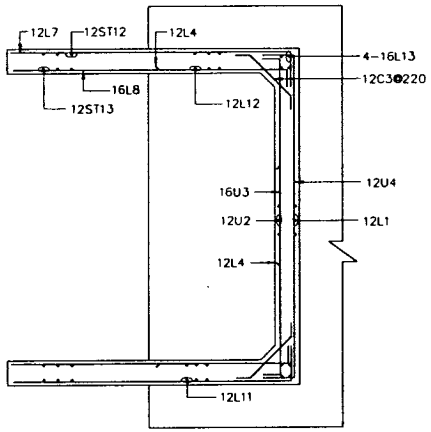
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3133231	

Web Copy

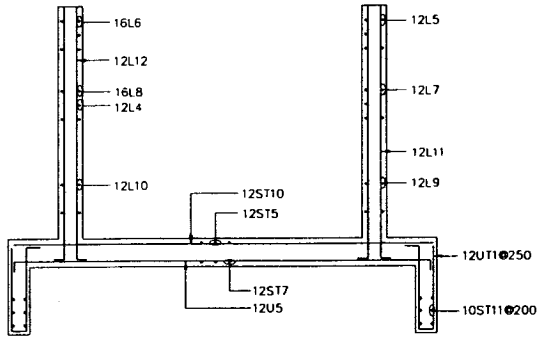
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



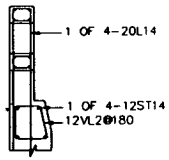
REINFORCEMENT DETAILS



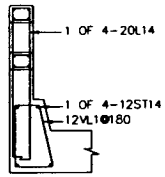
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



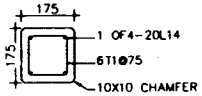
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

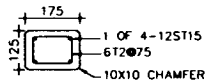
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	10650				10650
	12	ST2	2 x 14	2400				2400
	10	ST3	2 X 55	2940				2940
	10	ST4	4 X 11	2940				2940
	12	ST5	18	11900				11900
	10	ST6	2 x 17	1510				1510
	12	ST7	19	11900				11900
	12	ST8	2 x 18	2400				2400
	12	ST9	44	4140				4140
	12	ST10	2 X 4	4140				4140
	12	C1	2 X 15	150	574	150		874
	12	C2	2 X 15	150	568	150		868
	12	VT1	2 x 15	2 X 150	2 X 519			1338
	12	VT2	2 x 15	2 X 150	2 X 505			1310
	12	L1	2 X 10	2686	250			2936
	12	L2	2 X 13	954	250			1204
	12	L3	4 X 10	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	15	976	10650	976		12602
	16	U2	2 X 15	1275	2710	250		4235
	16	U3	2 X 10	250	2940	250		3440
	12	U4	2 X 9	369	2940	369		3678
	12	U5	49	250	4070	250		4570
	10	ST11	4 X 5	11850				11850
	12	UT1	2 X 49	150	2 X 1025	100		2300
WING WALL	12	L4	4 X 12	788	813			1601
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	813			1551
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	17950				17950
	12	VL1	2 X 61	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17960				17960
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 23 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

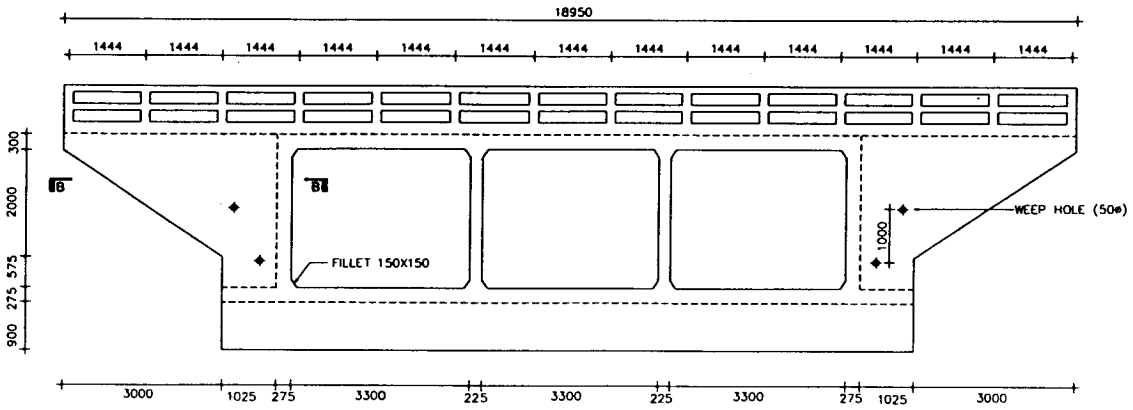
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3133232

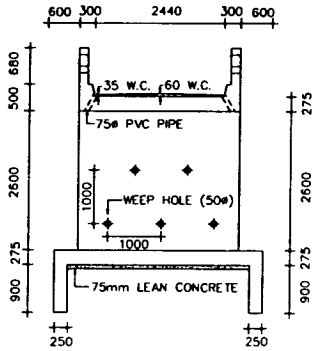
Web Copy

BC-332

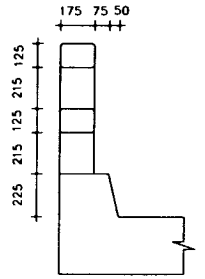
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.6m



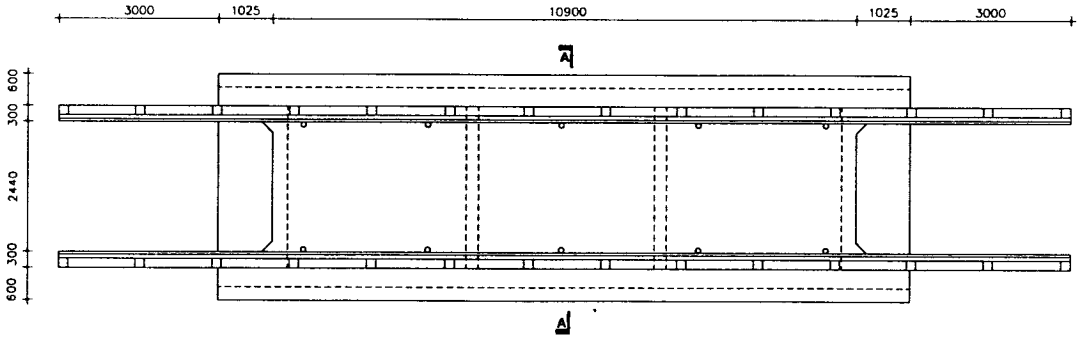
GENERAL ELEVATION



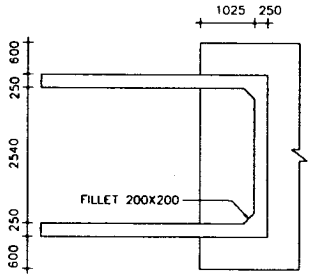
SECTION A-A



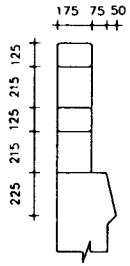
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

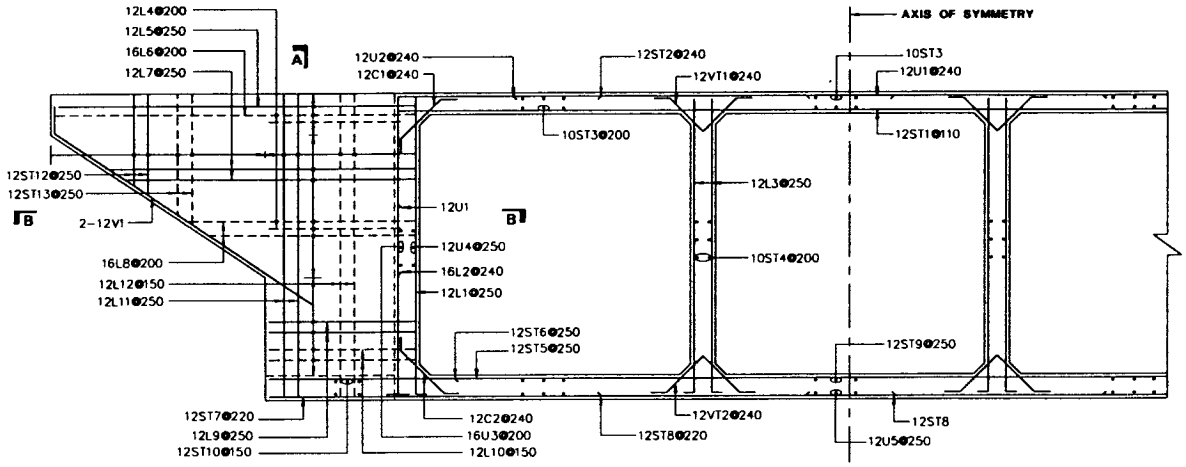
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 2.44m

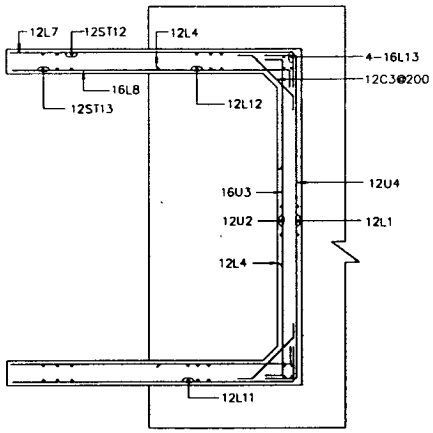
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3133261	

Web Copy

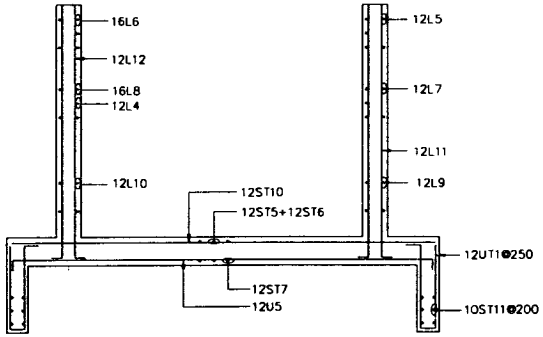
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.6m



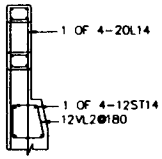
REINFORCEMENT DETAILS



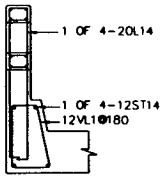
SECTION B-B



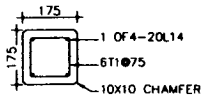
SECTION A-A



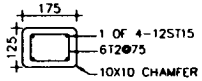
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	10800				10800
	12	ST2	2 x 13	2425				2425
	10	ST3	2 X 55	2940				2940
	10	ST4	4 X 13	2940				2940
	12	ST5	18	12850				12850
	12	ST6	2 x 17	1960				1960
	12	ST7	20	12850				12850
	12	ST8	2 x 19	2425				2425
	12	ST9	45	4140				4140
	12	ST10	2 X 7	4140				4140
	12	C1	2 X 14	150	680	150		980
	12	C2	2 X 14	150	669	150		969
	12	VT1	2 x 14	2 X 150	2 X 572			1444
	12	VT2	2 x 14	2 X 150	2 X 555			1410
	12	L1	2 X 10	3036	250			3286
	16	L2	2 X 12	1079	250			1329
	12	L3	4 X 13	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	14	1101	10800	1101		13002
	12	U2	2 X 14	1325	3060	250		4635
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	53	250	4070	250		4570
	10	ST11	4 X 5	12800				12800
	12	UT1	2 X 53	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	18000				18900
	12	VL1	2 X 62	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	18910				18910
	6	T1	28 x 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

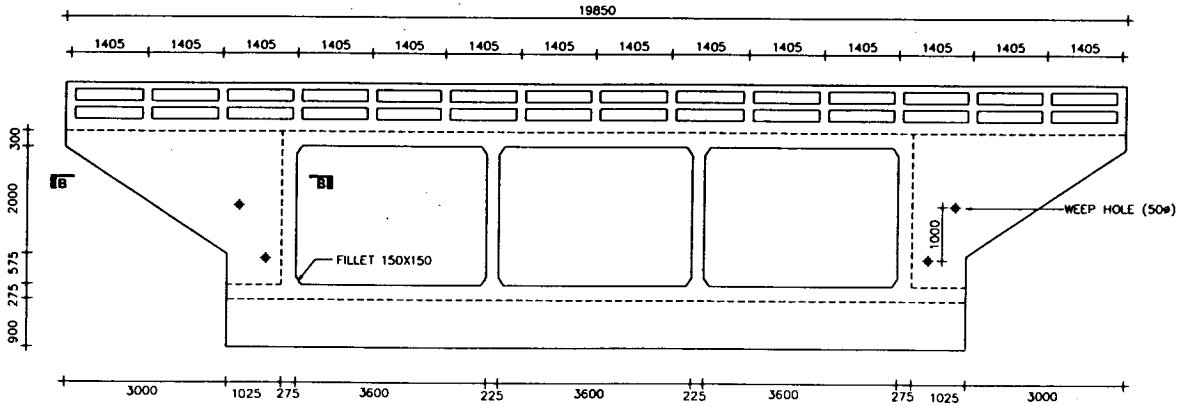
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3133262

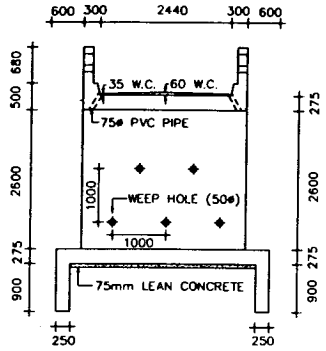
Web Copy

BC-334

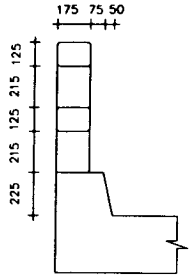
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 2.6m



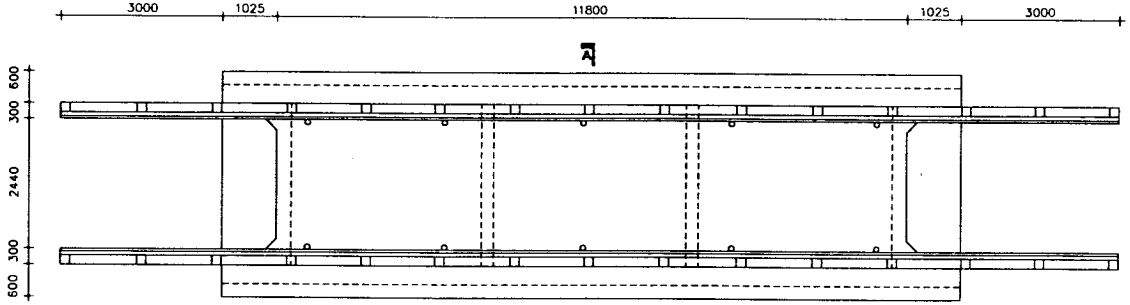
GENERAL ELEVATION



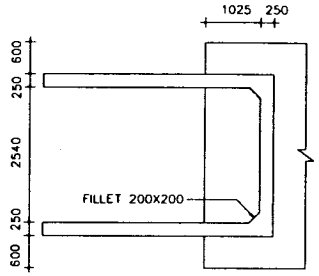
SECTION A-A



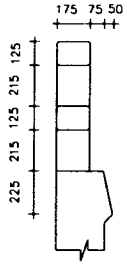
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 2.44m

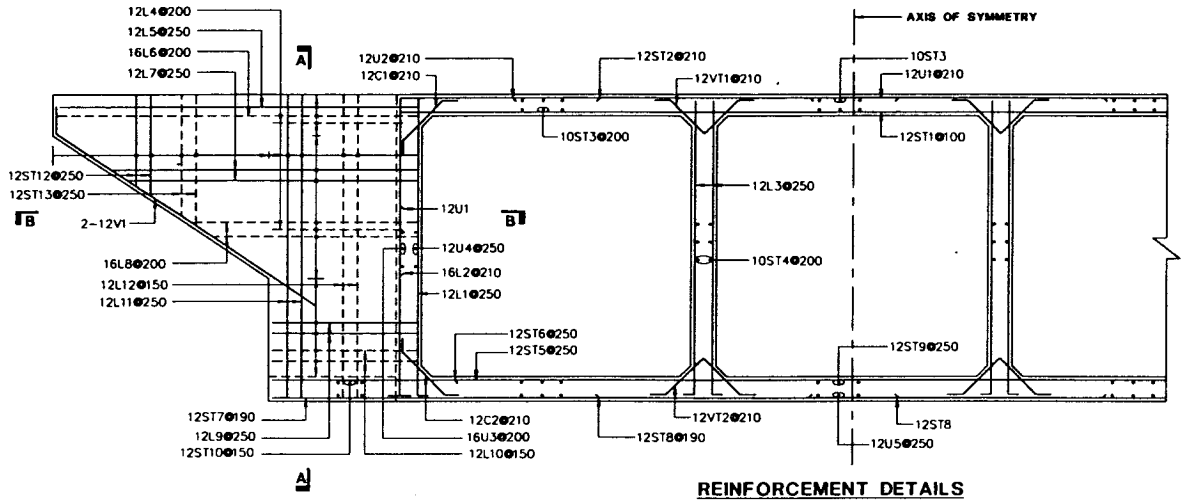
DATE :

ISSUED BY :

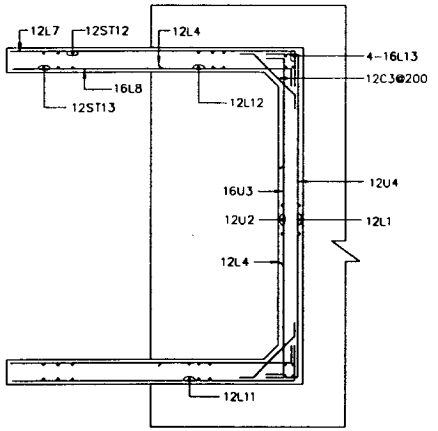
CAD FILE REF : CULV\B3136261

Web Copy

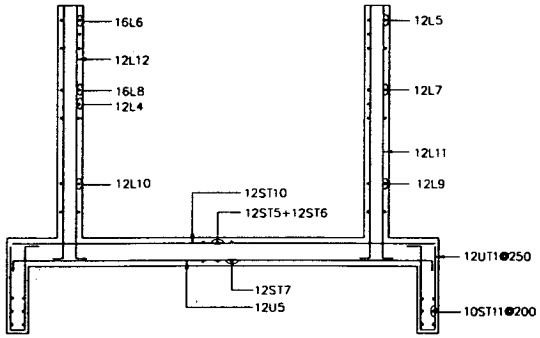
SHEET 2 OF 2	
LIVE LOAD: ASHTO H10	
CLEAR SPAN : 3X3.6m	
CLEAR HEIGHT : 2.6m	



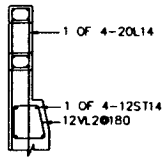
REINFORCEMENT DETAILS



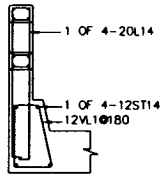
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



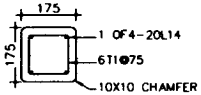
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

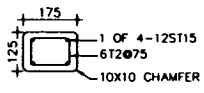
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	11700				11700
	12	ST2	2 x 14	2625				2625
	10	ST3	2 X 60	2940				2940
	10	ST4	4 X 13	2940				2940
	12	ST5	18	13750				13750
	12	ST6	2 x 17	2020				2020
	12	ST7	23	13750				13750
	12	ST8	2 x 22	2625				2625
	12	ST9	49	4140				4140
	12	ST10	2 X 7	4140				4140
	12	C1	2 X 15	150	691	150		991
	12	C2	2 X 15	150	669	150		969
	12	VT1	2 x 15	2 X 150	2 X 572			1444
	12	VT2	2 x 15	2 X 150	2 X 555			1410
	12	L1	2 X 10	3036	250			3286
	16	L2	2 X 13	1079	250			1329
	12	L3	4 X 13	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	15	1101	11700	1101		13902
	12	U2	2 X 15	1425	3060	250		4735
	16	U3	2 X 12	250	2940	250		3440
	12	U4	2 X 10	419	2940	419		3778
	12	U5	56	250	4070	250		4570
	10	ST11	4 X 5	13700				13700
	12	UT1	2 X 57	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	813			2051
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	813			2001
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	19800				19800
	12	VL1	2 X 67	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	19810				19810
	6	T1	30 x 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 20 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

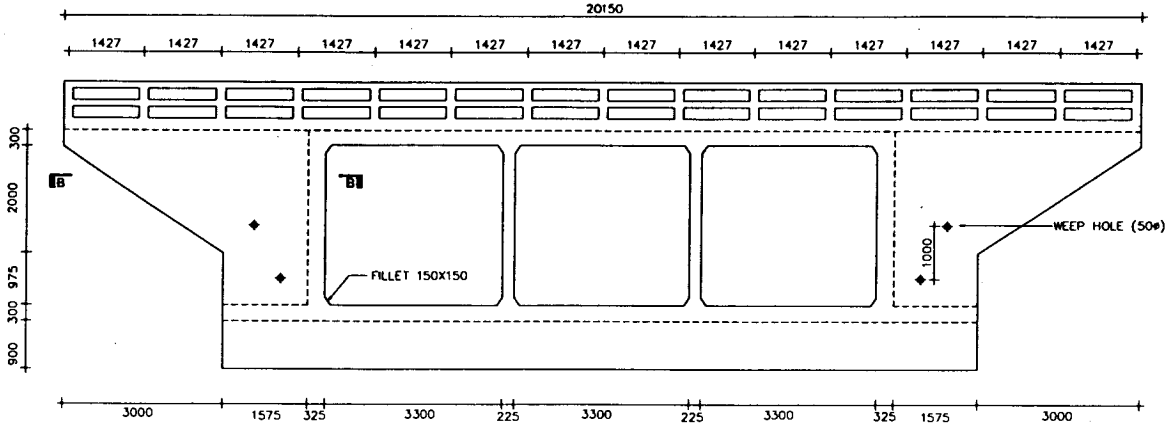
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3136262	

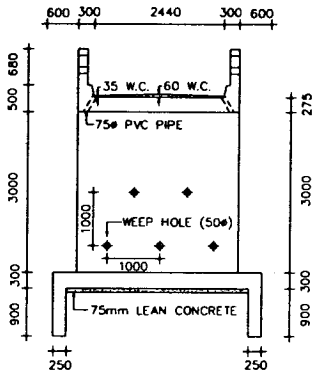
Web Copy

BC-336

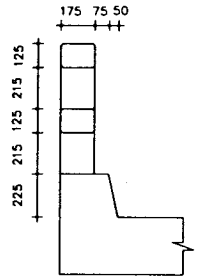
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



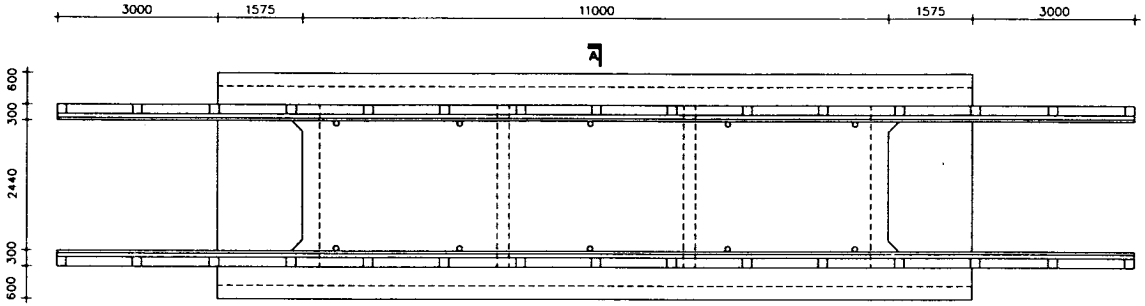
GENERAL ELEVATION



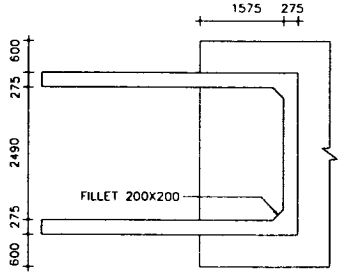
SECTION A-A



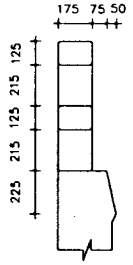
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

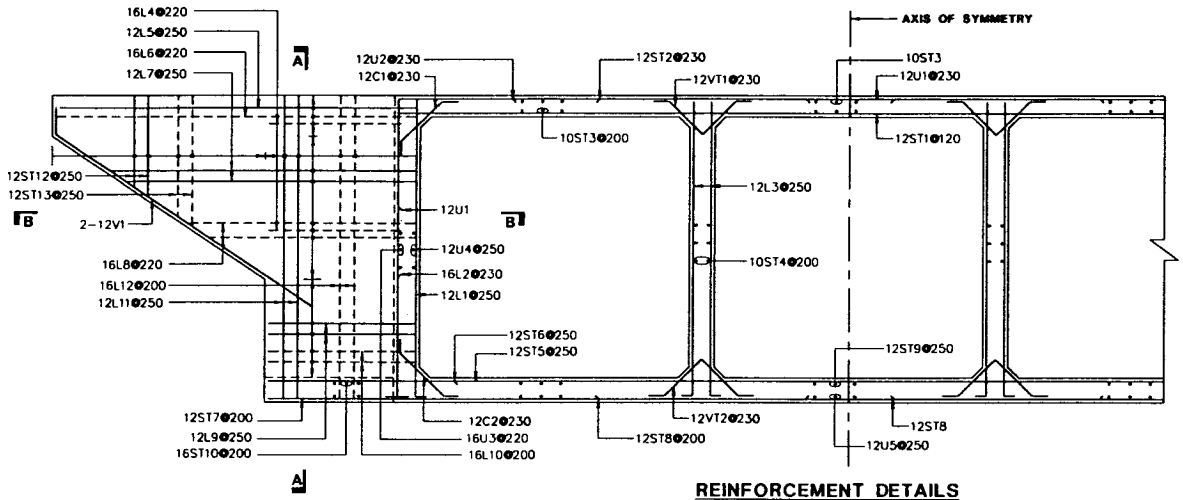
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3133301	

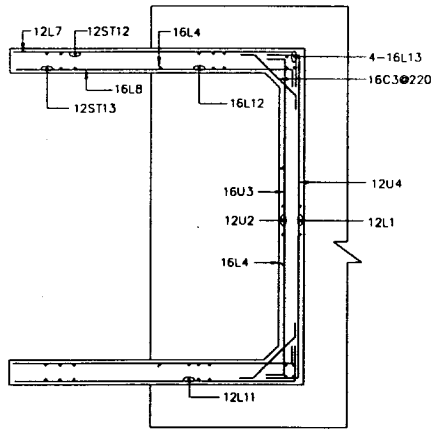
Web Copy

BC-337

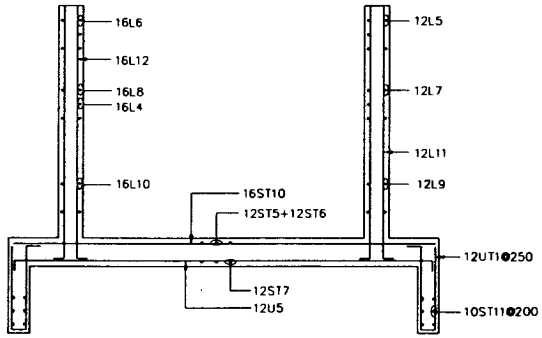
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



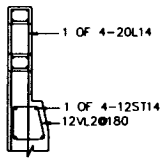
REINFORCEMENT DETAILS



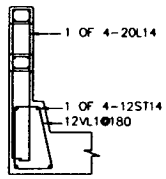
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



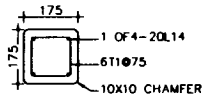
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

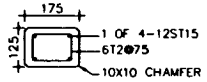
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	26	10900				10900
	12	ST2	2 x 13	2425				2425
	10	ST3	2 X 56	2940				2940
	10	ST4	4 X 15	2940				2940
	12	ST5	18	14050				14050
	12	ST6	2 x 17	2560				2560
	12	ST7	22	14050				14050
	12	ST8	2 x 21	2425				2425
	12	ST9	45	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 14	150	762	150		1062
	12	C2	2 X 14	150	775	150		1075
	12	VT1	2 x 14	2 X 150	2 X 572			1444
	12	VT2	2 x 14	2 X 150	2 X 590			1480
	12	L1	2 X 9	3461	250			3711
	16	L2	2 X 12	1238	250			1488
	12	L3	4 X 13	3461	250			3711
	16	L13	4 X 4	3461	250			3711
	12	U1	14	1235	10900	1235		13370
	12	U2	2 X 14	1375	3485	250		5110
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	58	250	4070	250		4570
	10	ST11	4 X 5	14000				14000
	12	UT1	2 X 58	150	2 X 1075	100		2400
WING WALL	16	L4	4 X 12	1838	813			2651
	12	L5	4 X 1	4788	419			5207
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5178 To 2207
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	419			2207
	16	L10	4 X 5	1788	813			2601
	12	L11	4 X 7	3513	250			3763
	16	L12	4 X 8	3513	250			3763
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	20100				20100
	12	VL1	2 X 63	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	20100				20110
	6	T1	30 x 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 32 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

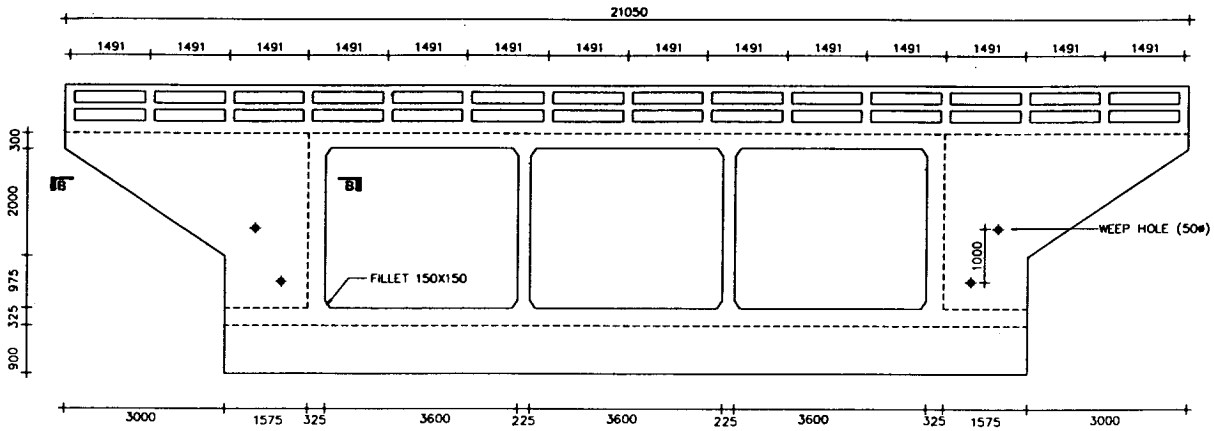
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3133302

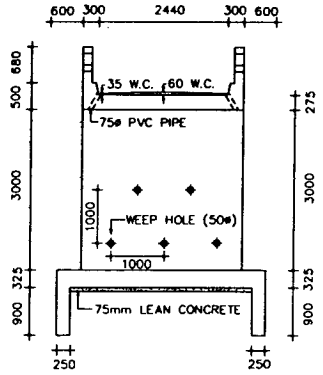
Web Copy

BC-338

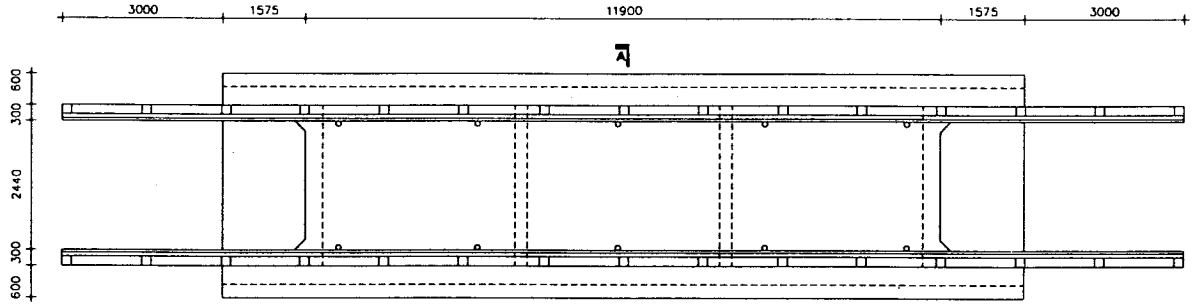
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



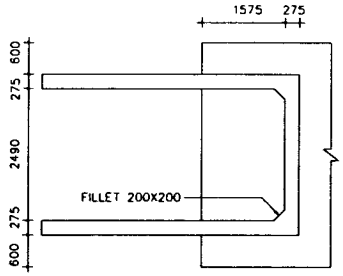
GENERAL ELEVATION



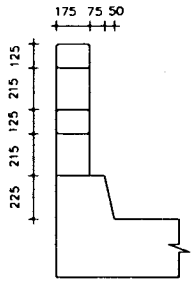
SECTION A-A



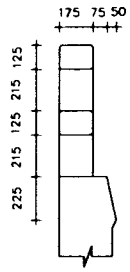
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

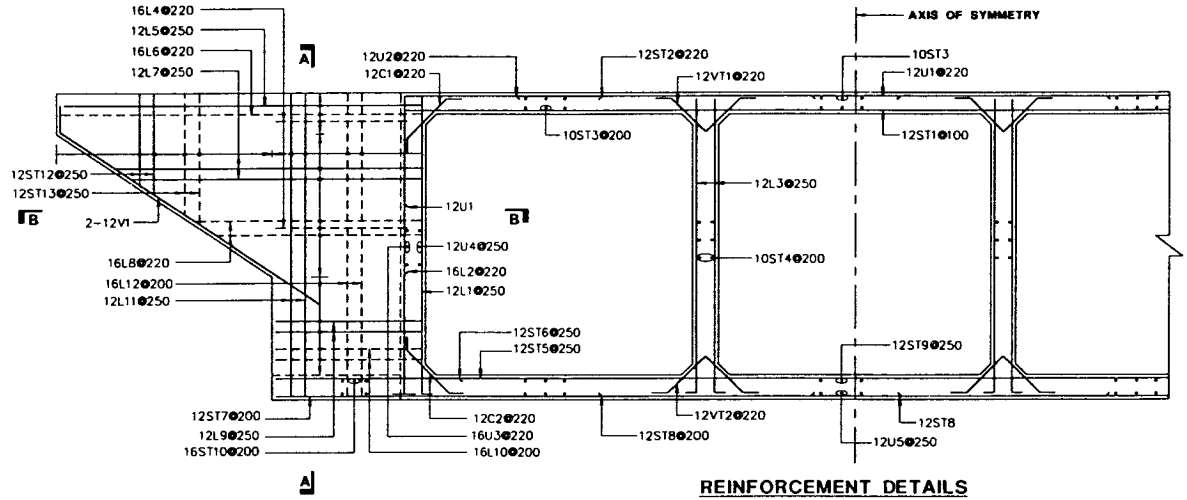
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 2.44m

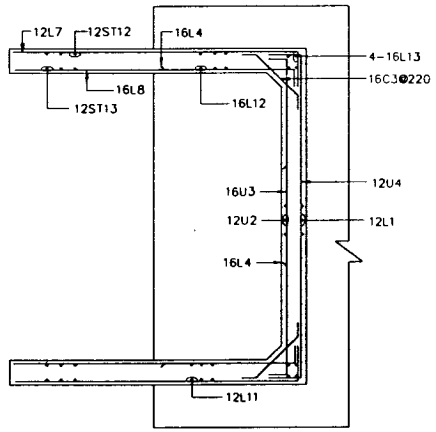
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3136301	

Web Copy

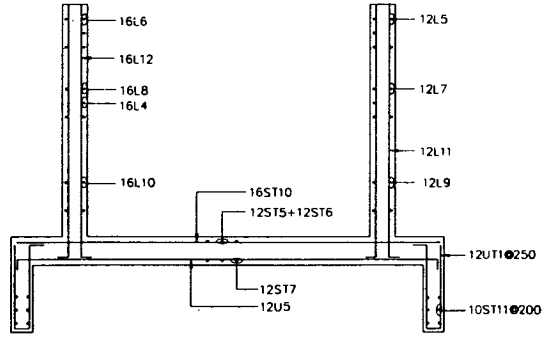
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



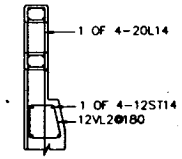
REINFORCEMENT DETAILS



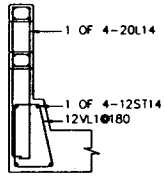
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



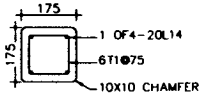
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

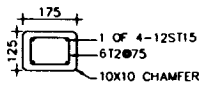
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	31	11800				11800
	12	ST2	2 x 14	2625				2625
	10	ST3	2 X 60	2940				2940
	10	ST4	4 X 15	2940				2940
	12	ST5	18	14950				14950
	12	ST6	2 x 17	2620				2620
	12	ST7	22	14950				14950
	12	ST8	2 x 21	2625				2625
	12	ST9	49	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 15	150	762	150		1062
	12	C2	2 X 15	150	810	150		1110
	12	VT1	2 x 15	2 X 150	2 X 572			1444
	12	VT2	2 x 15	2 X 150	2 X 626			1552
	12	L1	2 X 9	3486	250			3736
	16	L2	2 X 13	1263	250			1513
	12	L3	4 X 13	3486	250			3736
	16	L13	4 X 4	3486	250			3736
	12	U1	15	1235	11800	1235		14270
	12	U2	2 X 15	1475	3510	250		5235
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	61	250	4070	250		4570
	10	ST11	4 X 5	14900				14900
	12	UT1	2 X 61	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1838	813			2651
	12	L5	4 X 1	4788	419			5207
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5178 To 2207
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	419			2207
	16	L10	4 X 5	1788	813			2601
	12	L11	4 X 7	3538	250			3788
	16	L12	4 X 8	3538	250			3788
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	192	821	192		1121
CURB AND RAILING	12	ST14	2 X 4	21000				21000
	12	VL1	2 X 68	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	21010				21010
	6	T1	30 x 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 22 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

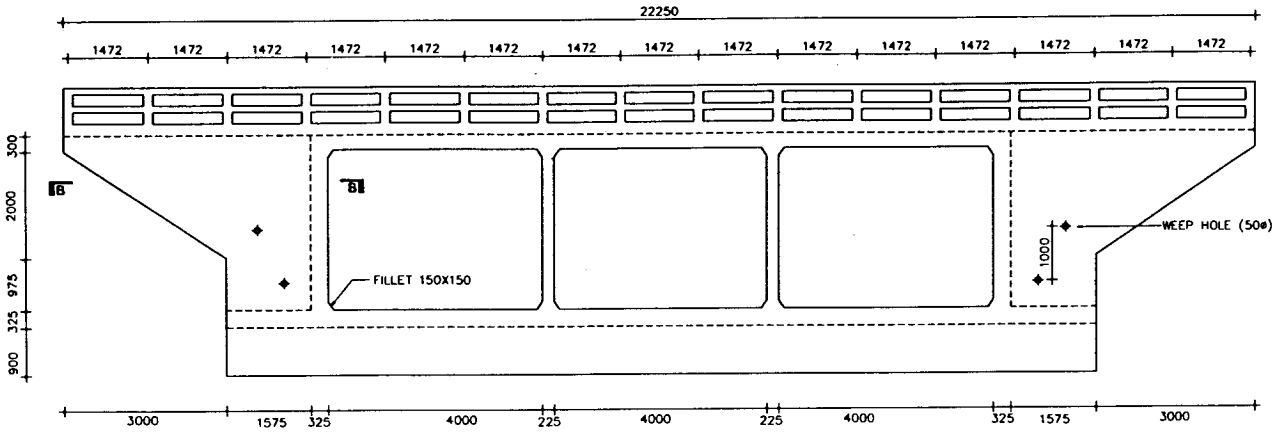
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3136302

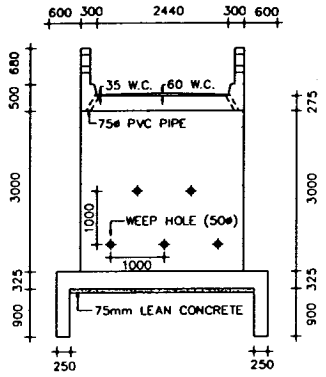
Web Copy

BC-340

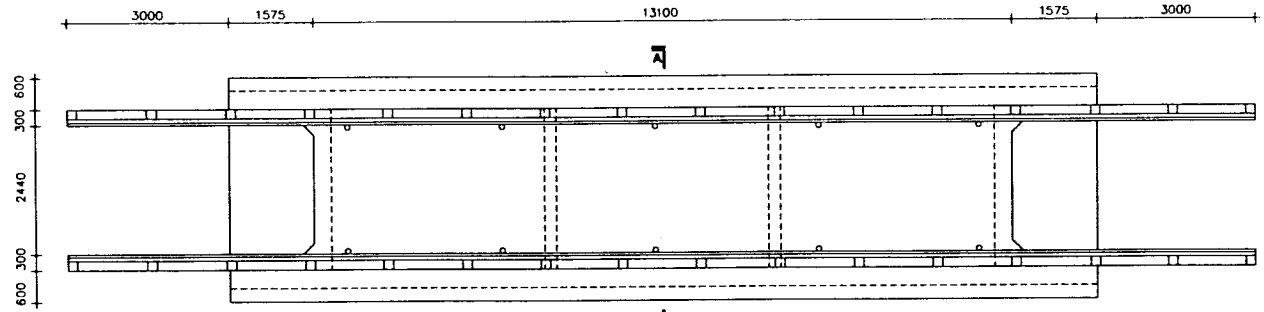
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



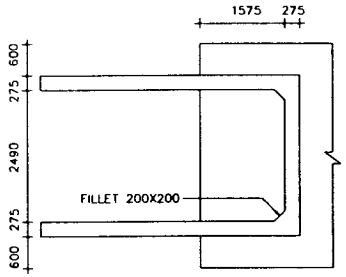
GENERAL ELEVATION



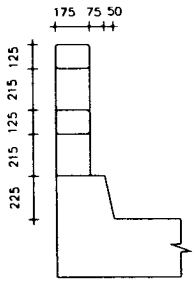
SECTION A-A



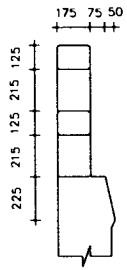
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

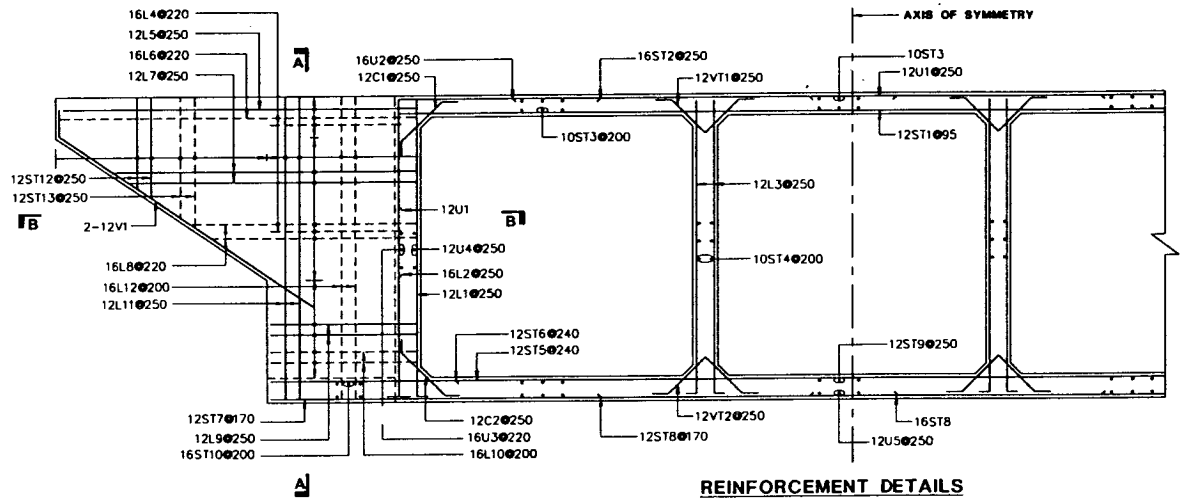
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 2.44m

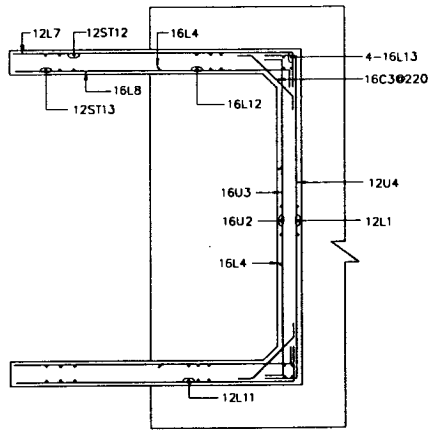
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3140301	

Web Copy

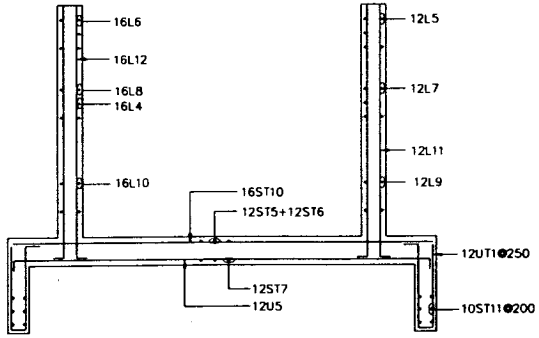
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



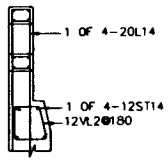
REINFORCEMENT DETAILS



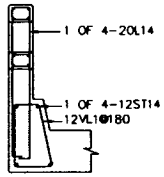
SECTION B-B



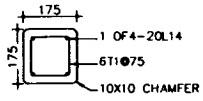
SECTION A-A



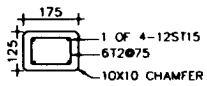
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	32	13000				13000
	16	ST2	2 x 12	2891				2891
	10	ST3	2 X 66	2940				2940
	10	ST4	4 X 15	2940				2940
	12	ST5	19	16150				16150
	12	ST6	2 x 18	2700				2700
	12	ST7	26	16150				16150
	12	ST8	2 x 25	2891				2891
	12	ST9	54	4140				4140
	16	ST10	2 X 8	4140				4140
	12	C1	2 X 13	150	751	150		1051
	12	C2	2 X 13	150	810	150		1110
	12	VT1	2 x 13	2 X 150	2 X 566			1432
	12	VT2	2 x 13	2 X 150	2 X 620			1540
	12	L1	2 X 10	3486	250			3736
	16	L2	2 X 11	1263	250			1513
	12	L3	4 X 13	3486	250			3736
	16	L13	4 X 4	3486	250			3736
	12	U1	13	1235	13000	1235		15470
	16	U2	2 X 13	1608	3510	250		5368
	16	U3	2 X 13	250	2940	250		3440
	12	U4	2 X 11	469	2940	469		3878
	12	U5	66	250	4070	250		4570
	10	ST11	4 X 5	16100				16100
	12	UT1	2 X 66	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1838	813			2651
	12	L5	4 X 1	4788	419			5207
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5178 To 2207
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	419			2207
	16	L10	4 X 5	1788	813			2601
	12	L11	4 X 7	3538	250			3788
	16	L12	4 X 8	3538	250			3788
	12	ST12	4 X 12	Var. 2239 To 376 @ 169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @ 169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	22200				22200
	12	VL1	2 X 74	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	32 X 4	1096	120			1216
	12	ST15	4 X 4	22210				22210
	6	T1	32 x 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 31 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

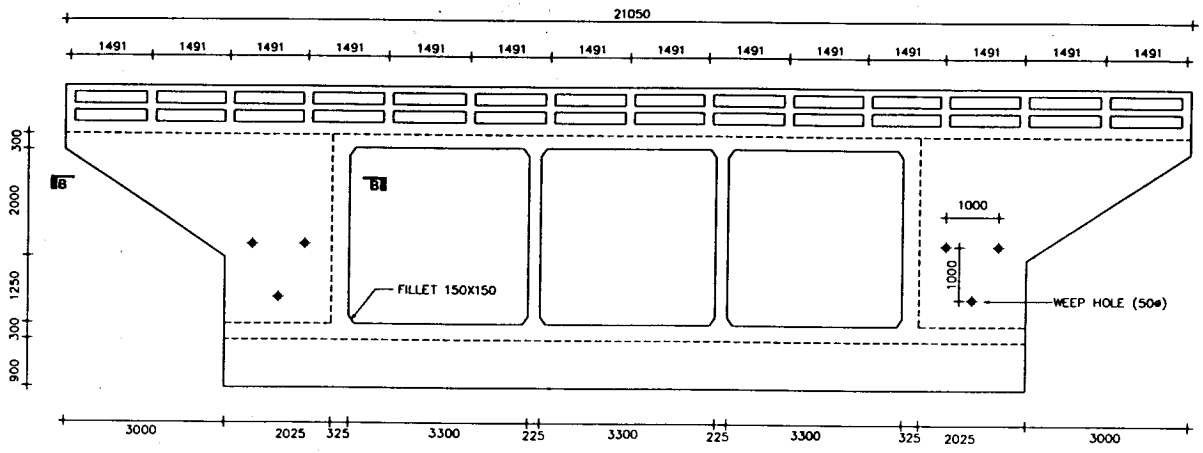
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3140302

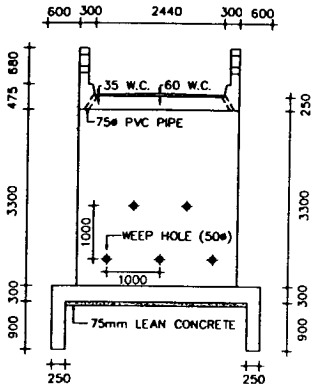
Web Copy

BC-342

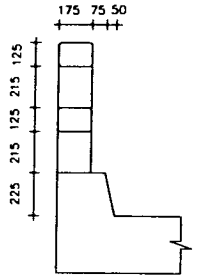
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



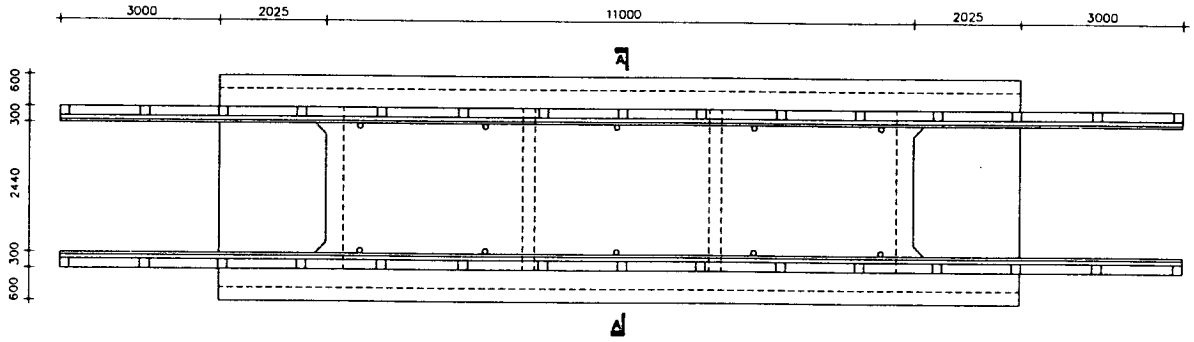
GENERAL ELEVATION



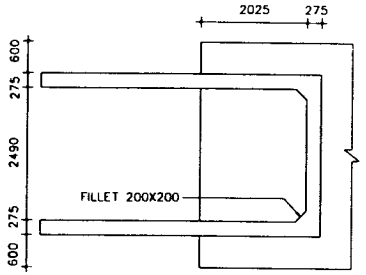
SECTION A-A



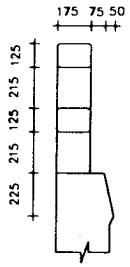
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

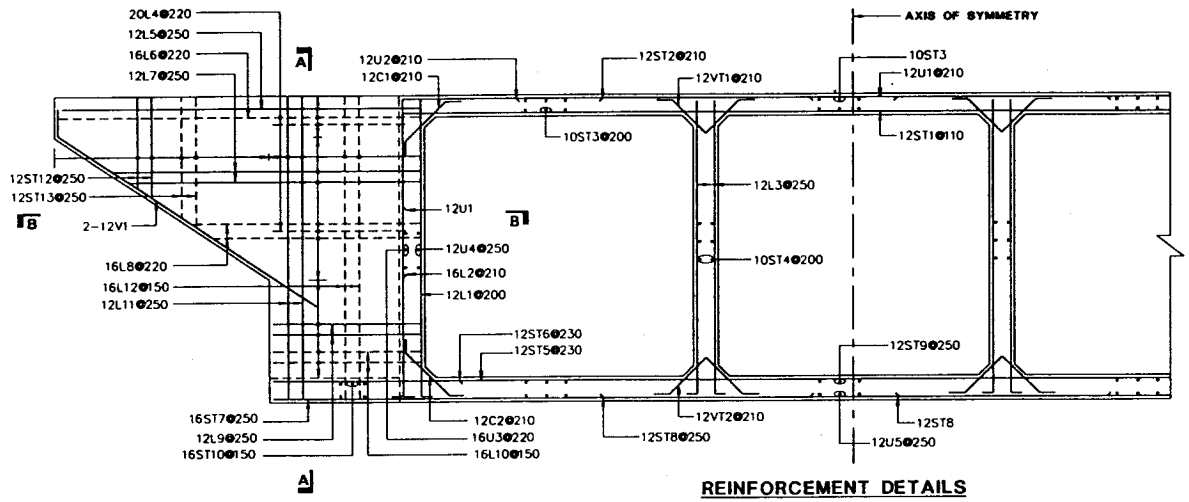
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3133331	

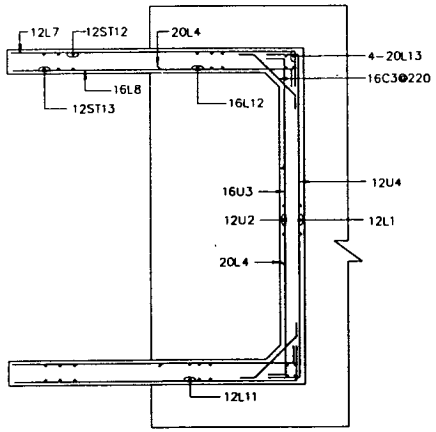
Web Copy

BC-343

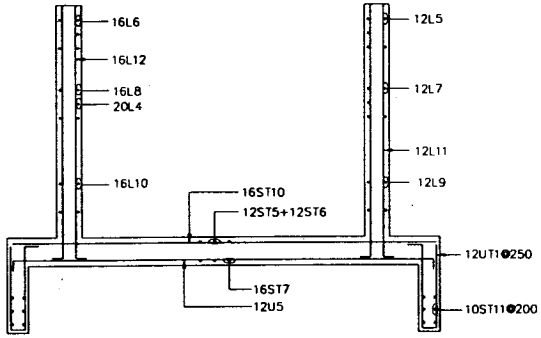
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



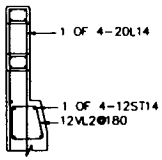
REINFORCEMENT DETAILS



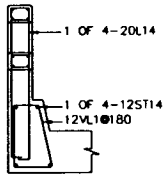
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



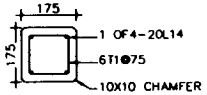
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

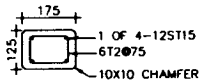
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	10900				10900
	12	ST2	2 x 14	2425				2425
	10	ST3	2 X 56	2940				2940
	10	ST4	4 X 16	2940				2940
	12	ST5	19	14950				14950
	12	ST6	2 x 18	3010				3010
	16	ST7	18	14950				14950
	12	ST8	2 x 17	2425				2425
	12	ST9	45	4140				4140
	16	ST10	2 X 14	4140				4140
	12	C1	2 X 15	150	727	150		1027
	12	C2	2 X 15	150	769	150		1069
	12	VT1	2 x 15	2 X 150	2 X 537			1374
	12	VT2	2 x 15	2 X 150	2 X 585			1470
	12	L1	2 X 12	3732	250			3982
	16	L2	2 X 13	1338	250			1588
	12	L3	4 X 13	3732	250			3982
	20	L13	4 X 4	3732	250			3982
	12	U1	15	1310	10900	1310		13520
	12	U2	2 X 15	1375	3760	250		5385
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	469	2940	469		3878
	12	U5	61	250	4070	250		4570
	10	ST11	4 X 5	14900				14900
	12	UT1	2 X 61	150	2 X 1075	100		2400
WING WALL	20	L4	4 X 12	2288	813			3101
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 5	2238	419			2657
	16	L10	4 X 9	2238	813			3051
	12	L11	4 X 8	3784	250			4034
	16	L12	4 X 14	3784	250			4034
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	21000				21000
	12	VL1	2 X 63	204	419	295	410	1428
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	30 X 4	1071	120			1191
	12	ST15	4 X 4	21010				21010
	6	T1	30 x 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 35 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

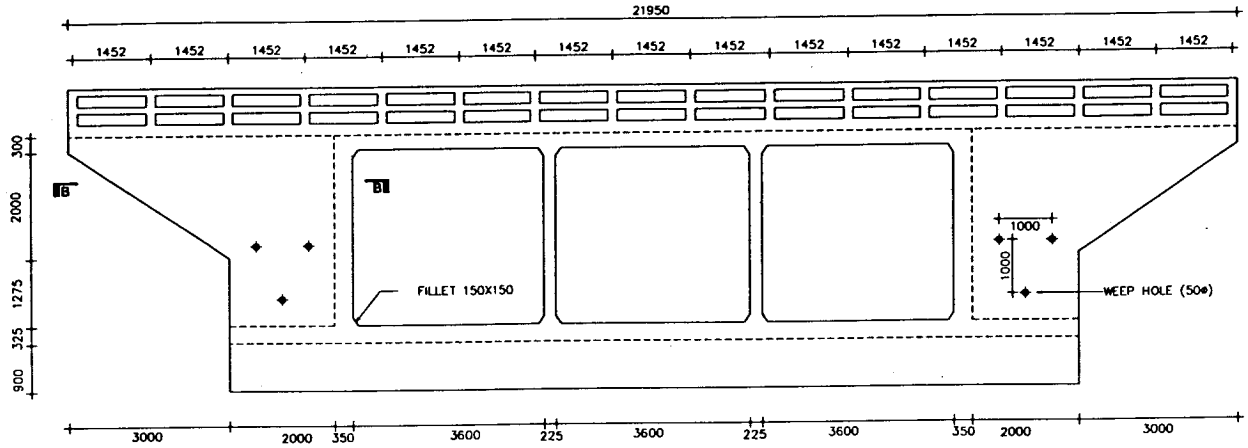
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3133332

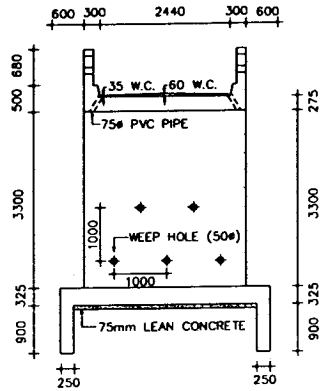
Web Copy

BC-344

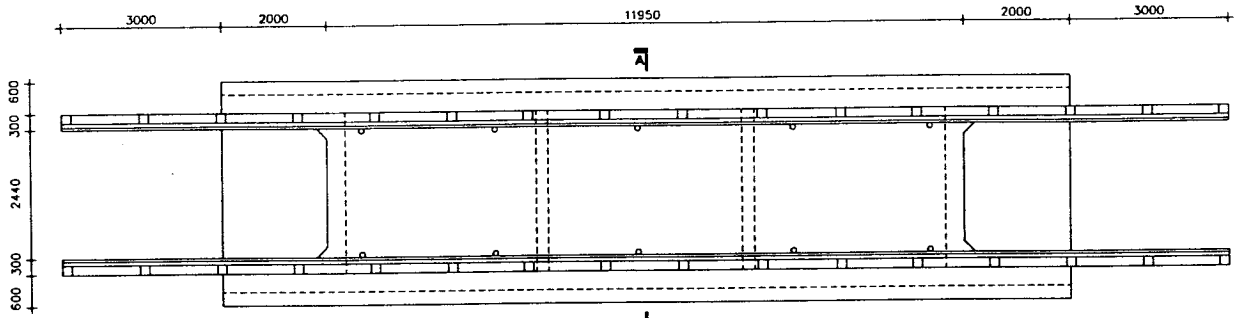
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



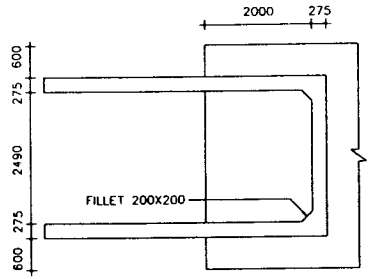
GENERAL ELEVATION



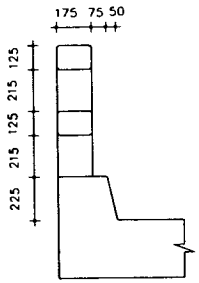
SECTION A-A



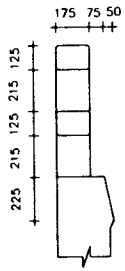
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

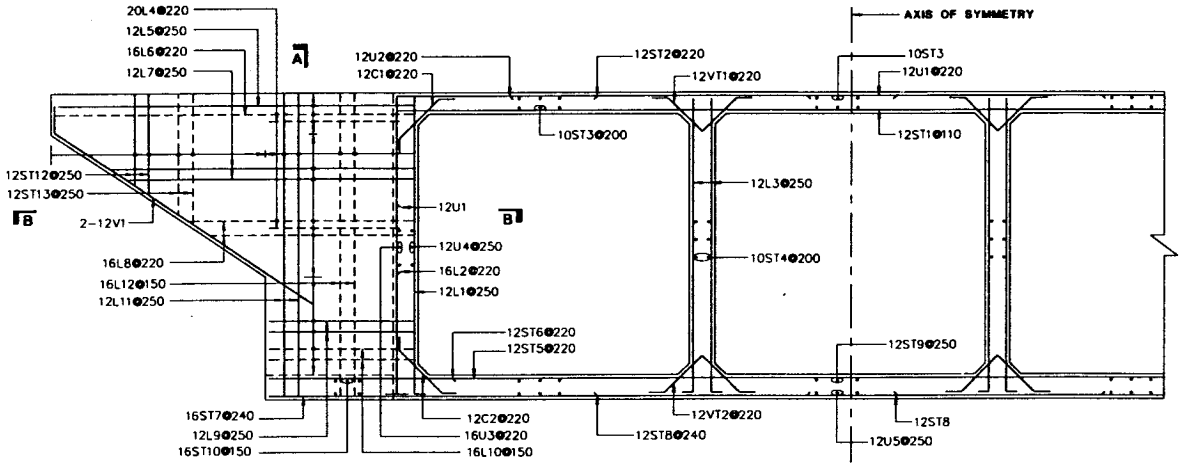
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 2.44m

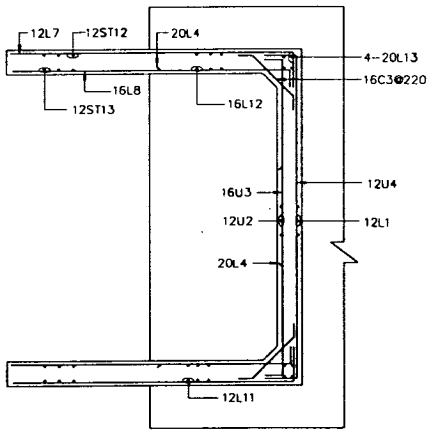
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3136331	

Web Copy

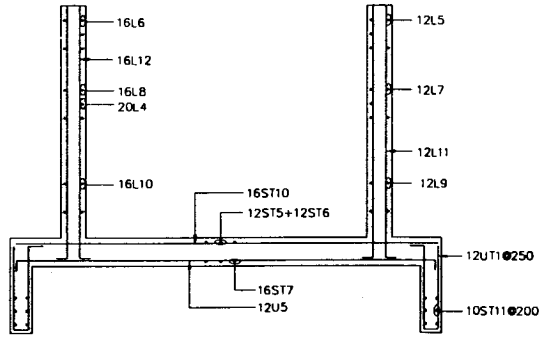
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



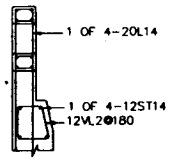
REINFORCEMENT DETAILS



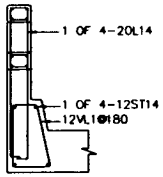
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



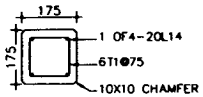
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

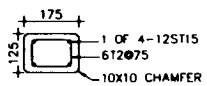
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF WINGWALL CURB AND RAILING	12	ST1	28	11850				11850
	12	ST2	2 x 14	2625				2625
	10	ST3	2 X 61	2940				2940
	10	ST4	4 X 16	2940				2940
	12	ST5	20	15850				15850
	12	ST6	2 x 19	3070				3070
	16	ST7	19	15850				15850
	12	ST8	2 x 18	2625				2625
	12	ST9	49	4140				4140
	16	ST10	2 X 13	4140				4140
	12	C1	2 X 15	150	797	150		1097
	12	C2	2 X 15	150	840	150		1140
	12	VT1	2 x 15	2 X 150	2 X 572			1444
	12	VT2	2 x 15	2 X 150	2 X 620			1540
	12	L1	2 X 9	3782	250			4032
	16	L2	2 X 13	1363	250			1613
	12	L3	4 X 13	3782	250			4032
	20	L13	4 X 4	3782	250			4032
	12	U1	15	1335	11850	1335		14520
	12	U2	2 X 15	1500	3810	250		5560
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	65	250	4070	250		4570
	10	ST11	4 X 5	15800				15800
	12	UT1	2 X 65	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2288	813			3101
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	813			3051
	12	L11	4 X 8	3834	250			4084
	16	L12	4 X 13	3834	250			4084
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	21900				21900
	12	VL1	2 X 68	204	445	300	435	1484
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	32 X 4	1096	120			1216
	12	ST15	4 X 4	21910				21910
	6	T1	32 x 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 270MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 35 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

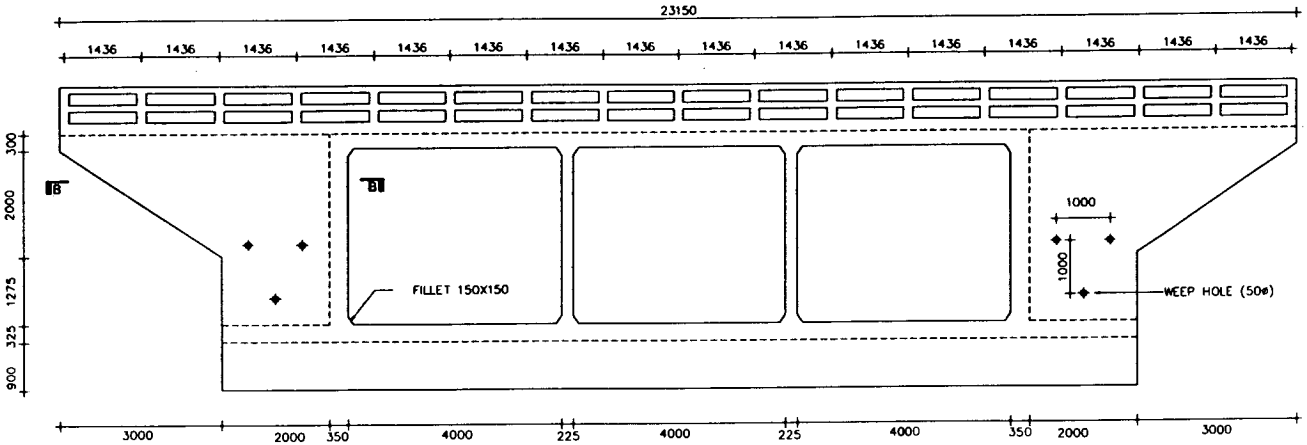
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3136332

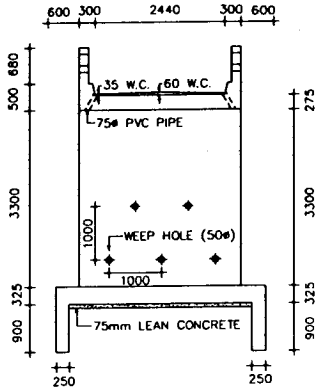
Web Copy

BC-346

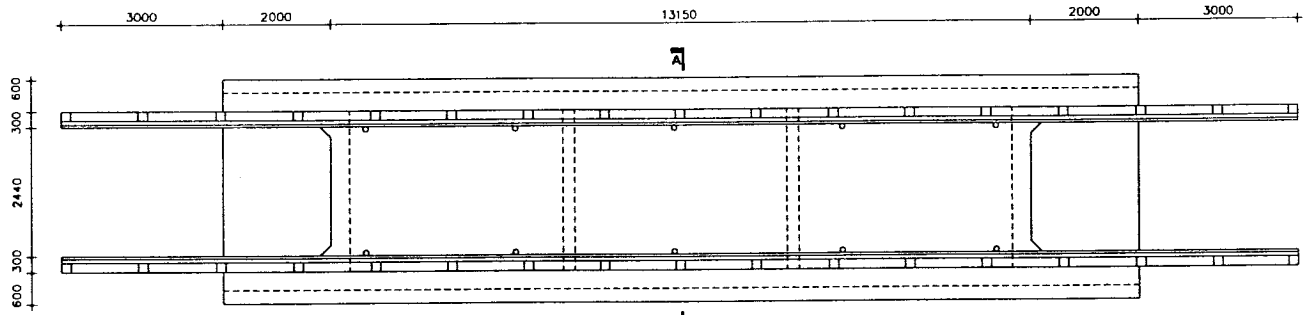
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



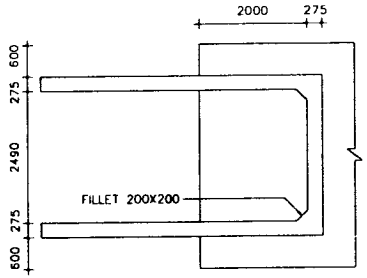
GENERAL ELEVATION



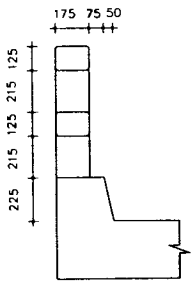
SECTION A-A



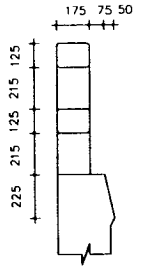
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

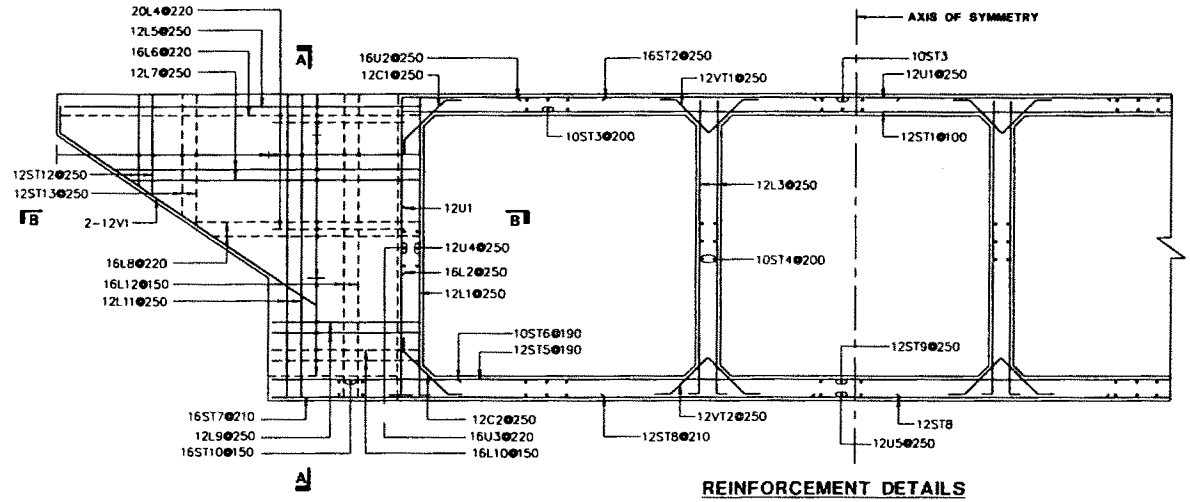
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 2.44m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3140331	

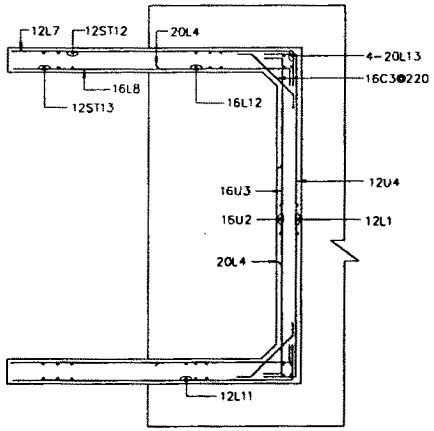
Web Copy

BC-347

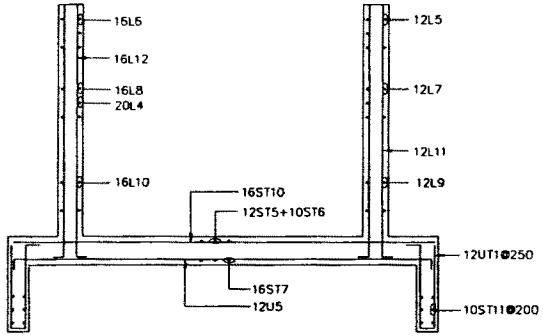
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



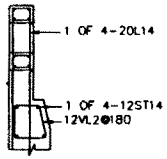
REINFORCEMENT DETAILS



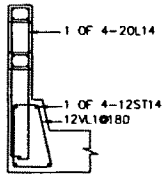
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



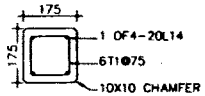
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

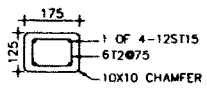
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	12	ST1	31	13050				13050
	16	ST2	2 x 12	2891				2891
	10	ST3	2 X 67	2940				2940
	10	ST4	4 X 16	2940				2940
	12	ST5	23	17050				17050
	10	ST6	2 x 22	3150				3150
	16	ST7	21	17050				17050
	12	ST8	2 x 20	2891				2891
	12	ST9	54	4140				4140
	16	ST10	2 X 13	4140				4140
	12	C1	2 X 13	150	786	150		1086
	12	C2	2 X 13	150	840	150		1140
	12	VT1	2 x 13	2 X 150	2 X 566			1432
	12	VT2	2 x 13	2 X 150	2 X 623			1546
	12	L1	2 X 9	3782	250			4032
	16	L2	2 X 11	1363	250			1613
	12	L3	4 X 13	3782	250			4032
	20	L13	4 X 4	3782	250			4032
	12	U1	13	1335	13050	1335		15720
	16	U2	2 X 13	1335	3810	250		5693
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	70	250	4070	250		4570
	10	ST11	4 X 5	17000				17000
	12	UT1	2 X 70	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2288	813			3101
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	813			3051
	12	L11	4 X 8	3834	250			4084
	16	L12	4 X 13	3834	250			4084
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	23100				23100
	12	VL1	2 X 75	204	445	300	435	1484
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	34 X 4	1096	120			1216
	12	ST15	4 X 4	23110				23110
	6	T1	34 x 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

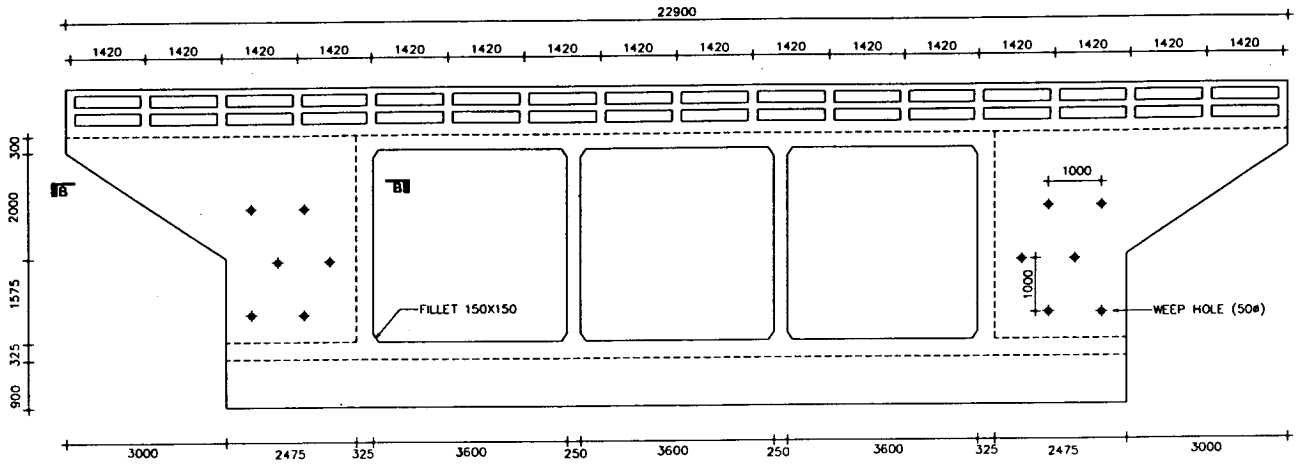
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3140332

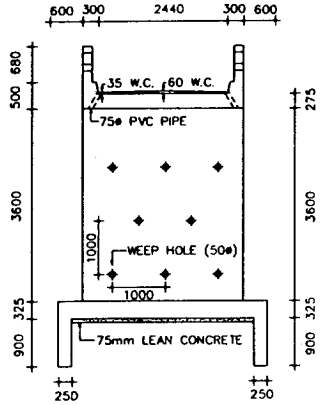
Web Copy

BC-348

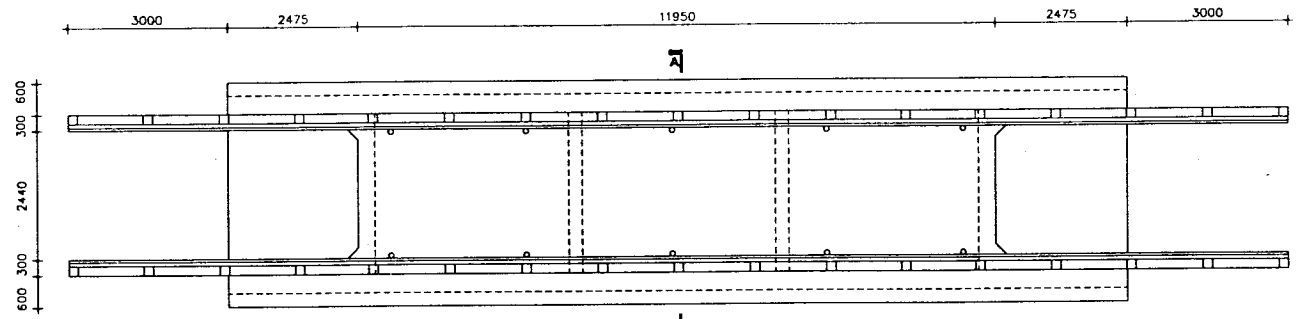
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



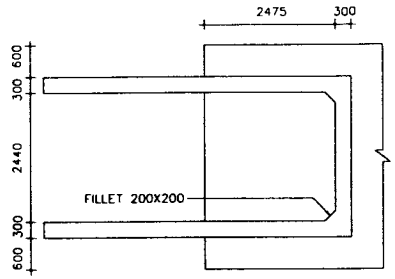
GENERAL ELEVATION



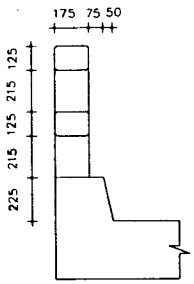
SECTION A-A



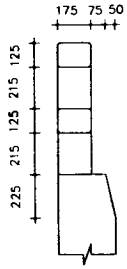
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

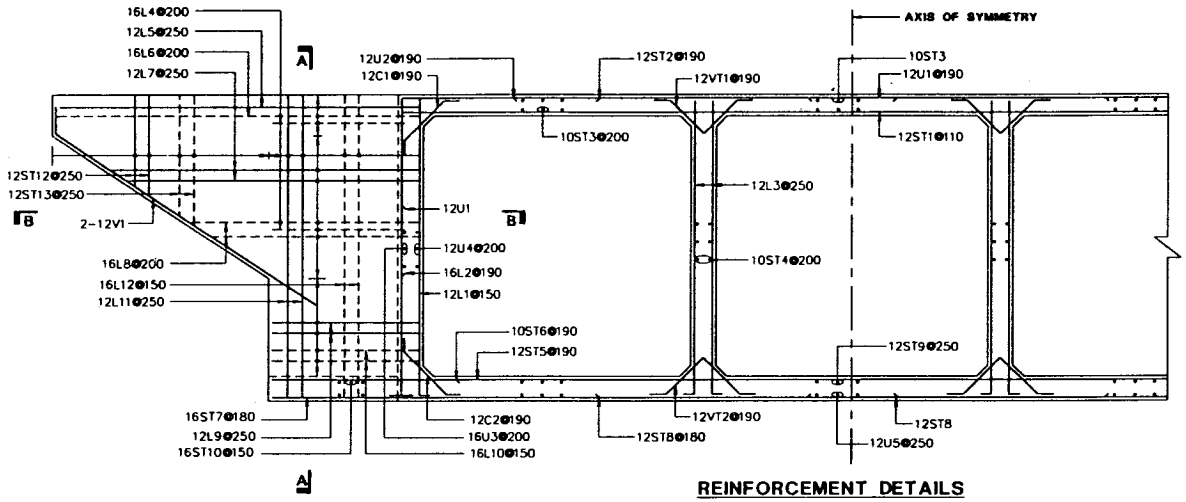
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.6m ROADWAY 2.44m

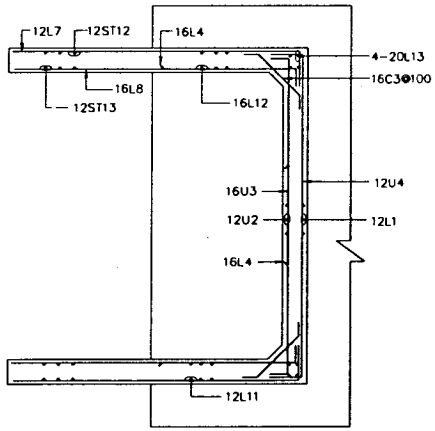
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3136361	

Web Copy

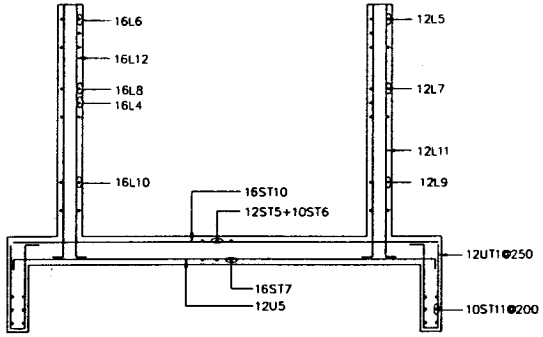
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



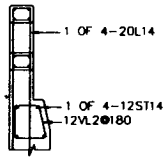
REINFORCEMENT DETAILS



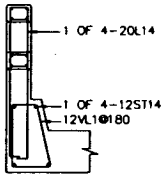
SECTION B-B



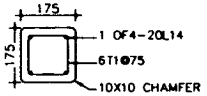
SECTION A-A



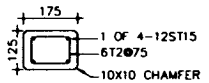
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	11850				11850
	12	ST2	2 x 16	2650				2650
	10	ST3	2 X 61	2940				2940
	10	ST4	4 X 18	2940				2940
	12	ST5	23	16800				16800
	10	ST6	2 x 22	3520				3520
	16	ST7	24	16800				16800
	12	ST8	2 x 23	2650				2650
	12	ST9	49	4140				4140
	16	ST10	2 X 17	4140				4140
	12	C1	2 X 17	150	762	150		1062
	12	C2	2 X 17	150	804	150		1104
	12	VT1	2 x 17	2 X 150	2 X 590			1480
	12	VT2	2 x 17	2 X 150	2 X 641			1582
	12	L1	2 X 16	4082	250			4332
	16	L2	2 X 15	1463	250			1713
	12	L3	4 X 13	4082	250			4332
	20	L13	4 X 4	4082	250			4332
	12	U1	17	1435	11850	1435		14720
	12	U2	2 X 17	1475	4110	250		5835
	16	U3	2 X 16	250	2940	250		3440
	12	U4	2 X 17	469	2940	469		3878
	12	U5	69	250	4070	250		4570
	10	ST11	4 X 5	16750				16750
	12	UT1	2 X 69	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	2738	813			3551
	12	L5	4 X 1	5688	444			5132
	16	L6	4 X 2	5688	250			5938
	12	L7	4 X 9	Var. 5659 To 2688 @ 371	444			Var. 6103 To 3132
	16	L8	4 X 11	Var. 5659 To 2688 @ 297	250			Var. 5909 To 2938
	12	L9	4 X 7	2688	444			3132
	16	L10	4 X 11	2688	813			3501
	12	L11	4 X 10	4134	250			4384
	16	L12	4 X 17	4134	250			4384
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	22850				22850
	12	VL1	2 X 68	204	445	300	435	1484
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	34 X 4	1096	120			1216
	12	ST15	4 X 4	22860				22850
	6	T1	34 x 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

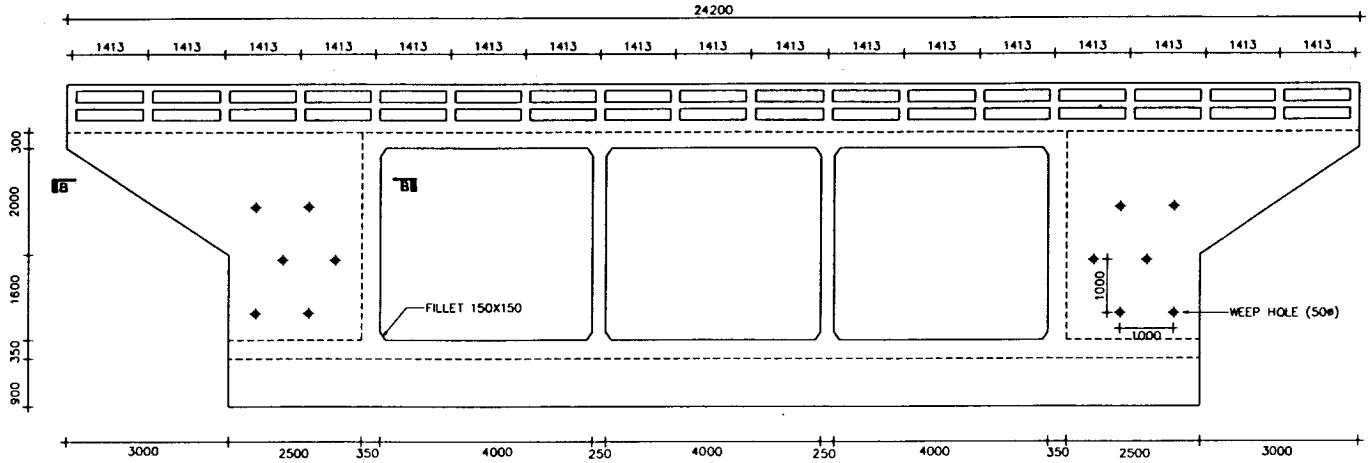
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3136362

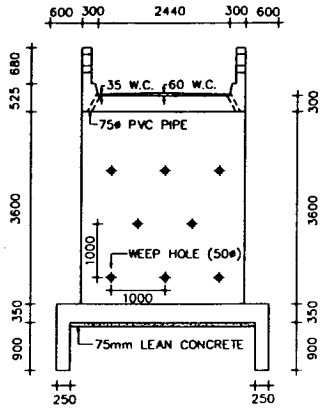
Web Copy

BC-350

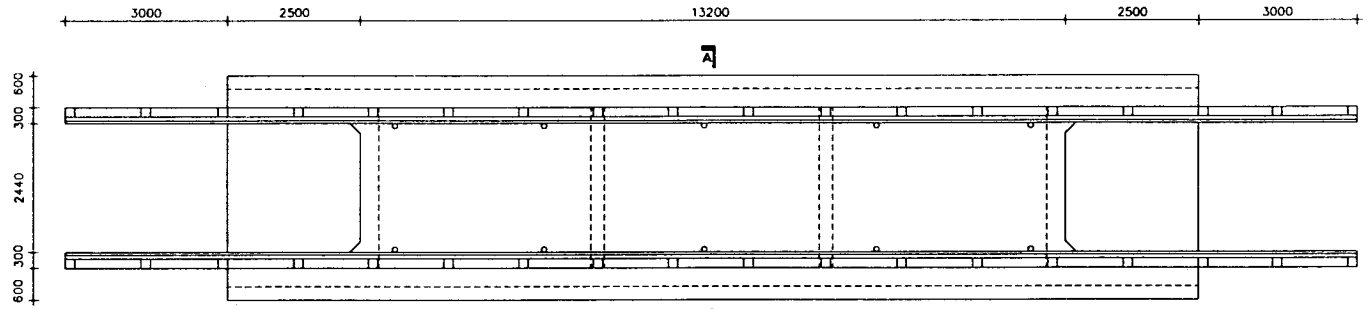
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



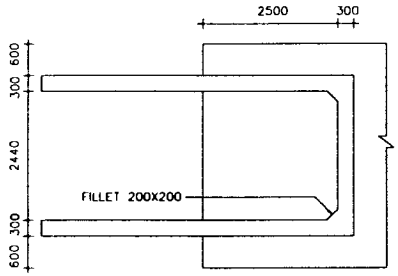
GENERAL ELEVATION



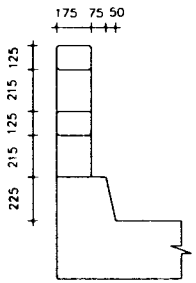
SECTION A-A



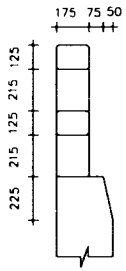
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing. filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 2.44m

DATE :

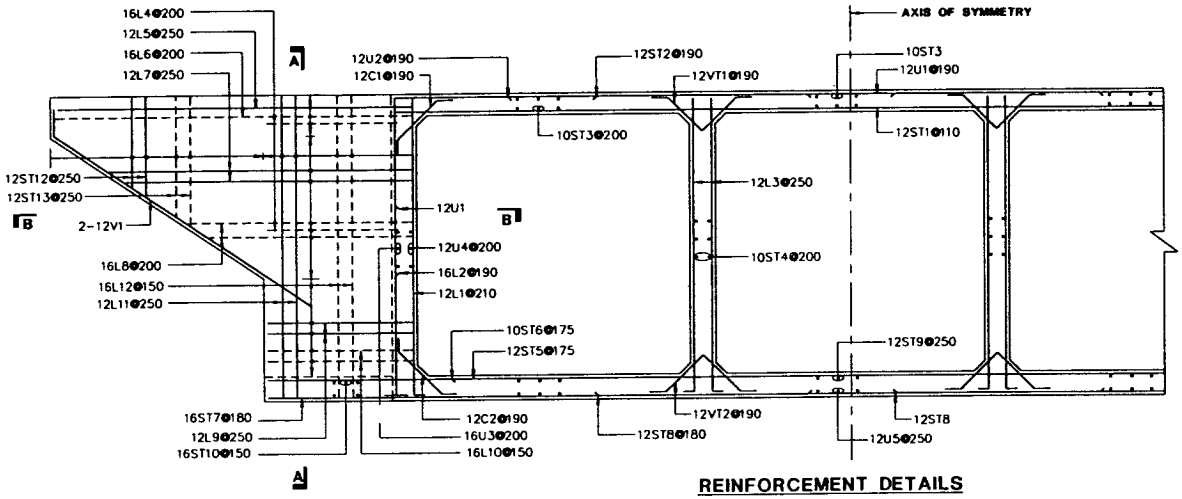
ISSUED BY :

CAD FILE REF : CULV\B3140361

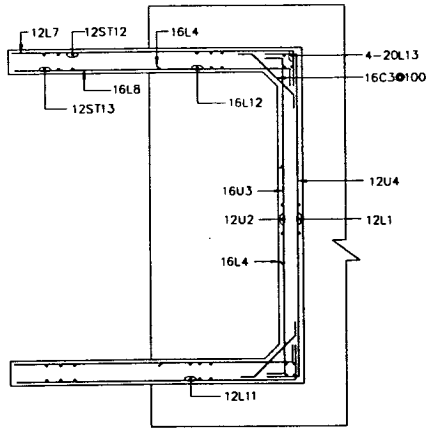
Web Copy

BC-351

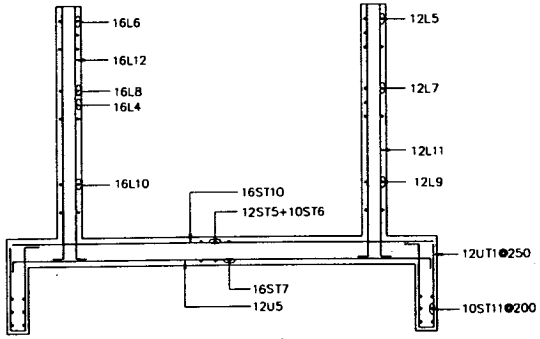
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



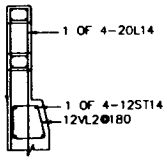
REINFORCEMENT DETAILS



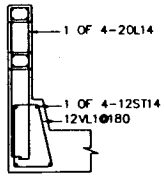
SECTION B-B



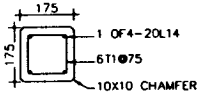
SECTION A-A



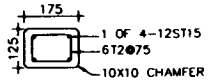
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	12	ST1	28	13100				13100
	12	ST2	2 x 16	2916				2916
	10	ST3	2 X 67	2940				2940
	10	ST4	4 X 18	2940				2940
	12	ST5	25	18100				18100
	10	ST6	2 x 24	3650				3650
	16	ST7	24	18100				18100
	12	ST8	2 x 23	2916				2916
	12	ST9	54	4140				4140
	16	ST10	2 X 17	4140				4140
	12	C1	2 X 17	150	833	150		1133
	12	C2	2 X 17	150	875	150		1175
	12	VT1	2 x 17	2 X 150	2 X 625			1550
	12	VT2	2 x 17	2 X 150	2 X 676			1652
	12	L1	2 X 11	4132	250			4382
	16	L2	2 X 15	1488	250			1738
	12	L3	4 X 13	4132	250			4382
	20	L13	4 X 4	4132	250			4382
	12	U1	17	1460	13100	1460		16020
	12	U2	2 X 17	1633	4160	250		6043
	16	U3	2 X 16	250	2940	250		3440
	12	U4	2 X 17	494	2940	494		3928
	12	U5	74	250	4070	250		4570
	10	ST11	4 X 5	18050				18050
	12	UT1	2 X 74	150	2 X 1125	100		2500
WING WALL	16	L4	4 X 12	2788	813			3601
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 11	2738	813			3551
	12	L11	4 X 10	4184	250			4434
	16	L12	4 X 17	4184	250			4434
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	892	150		1192
CURB AND RAILING	12	ST14	2 X 4	24150				24150
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	24160				14160
	6	T1	36 x 6	2 X 135	2 X 135			540
	6	T2	4X 289	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

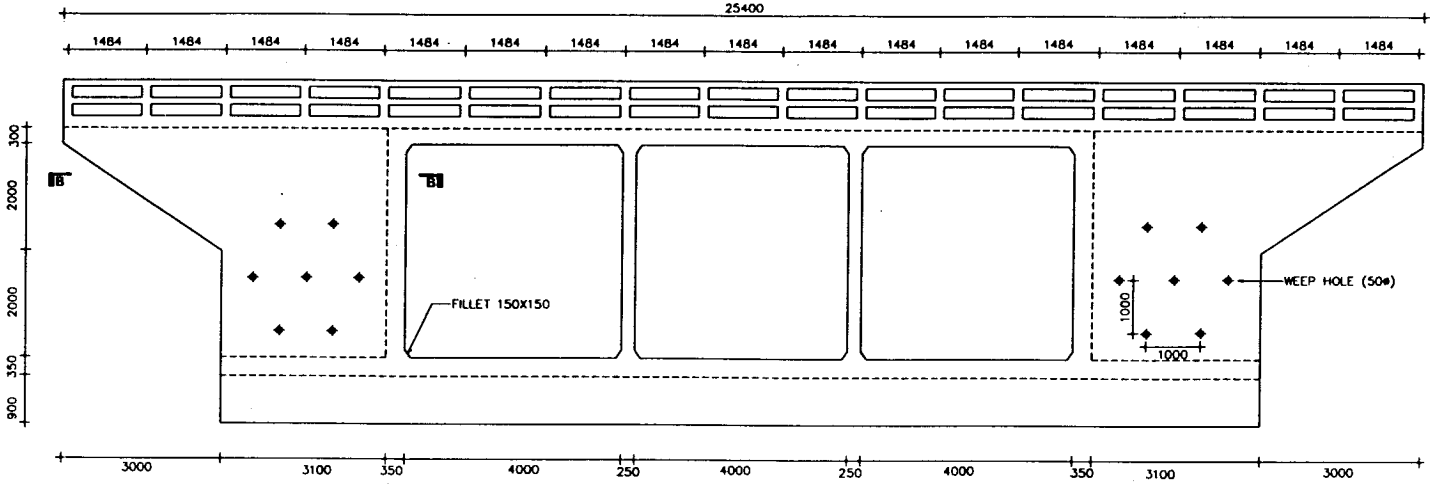
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3140362

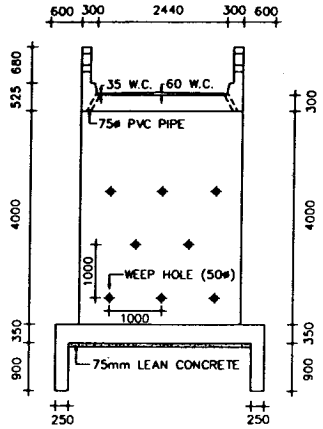
Web Copy

BC-352

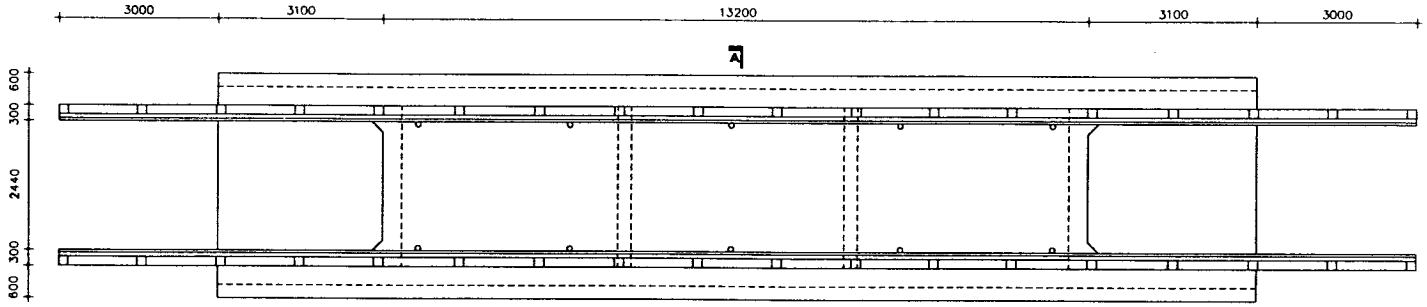
SHEET 1 OF 2
LIVE LOAD : AASHTO H10
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 4.0m



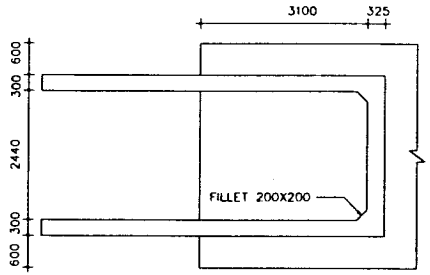
GENERAL ELEVATION



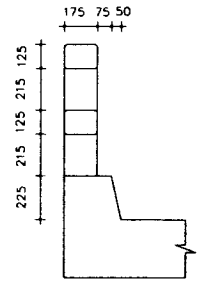
SECTION A-A



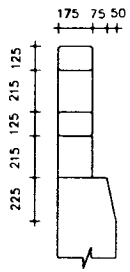
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

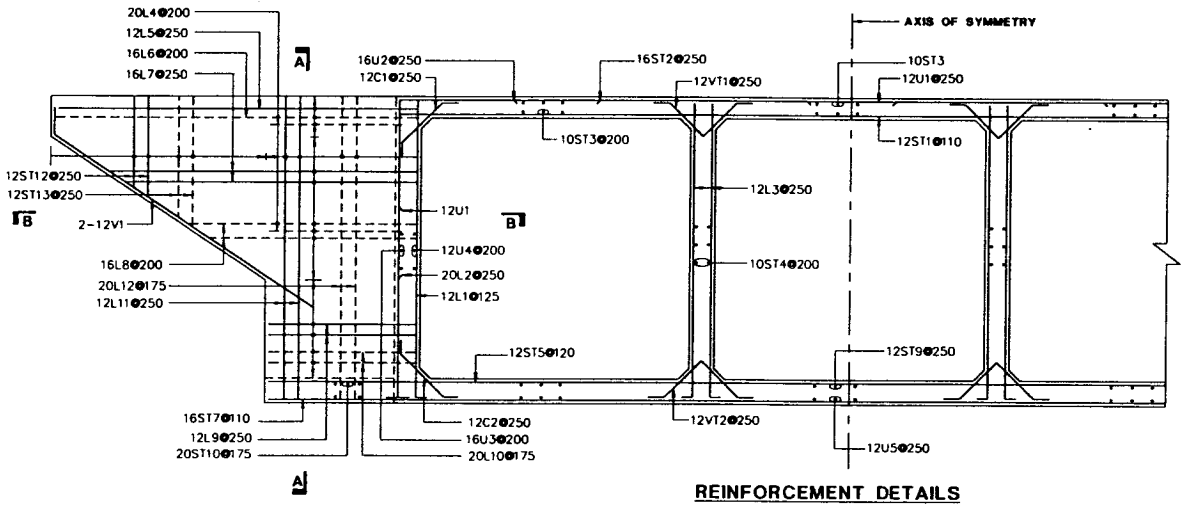
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 2.44m

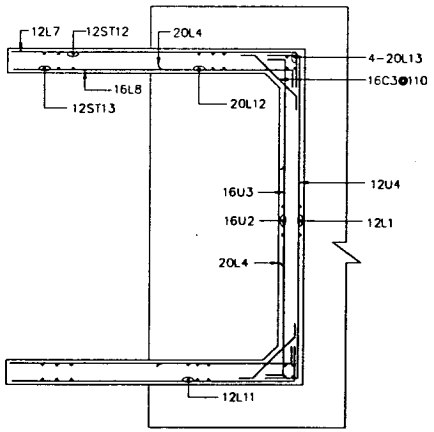
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3140401	

Web Copy

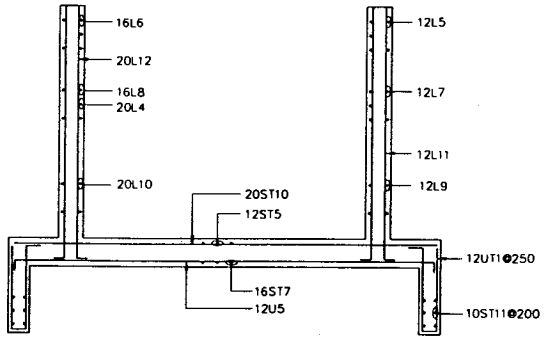
SHEET 2 OF 2
LIVE LOAD: ASHTO H10
CLEAR SPAN : 3x4.0m
CLEAR HEIGHT : 4.0m



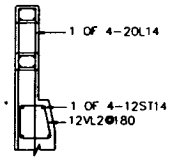
REINFORCEMENT DETAILS



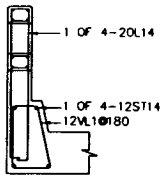
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



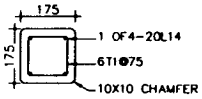
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

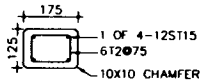
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	12	ST1	28	13100				13100
	16	ST2	2 x 12	2916				2916
	10	ST3	2 X 67	2940				2940
	10	ST4	4 X 20	2940				2940
	12	ST5	36	19300				19300
	16	ST7	39	19300				19300
	12	ST9	54	4140				4140
	20	ST10	2 X 18	4140				4140
	12	C1	2 X 13	150	821	150		1121
	12	C2	2 X 13	150	870	150		1170
	12	VT1	2 x 13	2 X 150	2 X 619			1538
	12	VT2	2 x 13	2 X 150	2 X 690			1680
	12	L1	2 X 19	4532	250			4782
	20	L2	2 X 11	1621	250			1871
	12	L3	4 X 13	4532	250			4782
	20	L13	4 X 4	4532	250			4782
	12	U1	13	1593	13100	1593		16286
	16	U2	2 X 13	1633	4560	250		6443
	16	U3	2 X 18	250	2940	250		3440
	12	U4	2 X 19	494	2940	494		3928
	12	U5	79	250	4070	250		4570
	10	ST11	4 X 5	19250				19250
	12	UT1	2 X 79	150	2 X 1125	100		2500
WING WALL	20	L4	4 X 12	3388	813			4201
	12	L5	4 X 1	6338	444.			6782
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var.6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	444			3782
	20	L10	4 X 12	3338	813			4151
	12	L11	4 X 13	4584	250			4834
	20	L12	4 X 18	4584	250			4834
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	192	892	192		1276
CURB AND RAILING	12	ST14	2 X 4	25350				25350
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 34	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	25360				25360
	6	T1	36 x 6	2 X 135	2 X 135			540
	6	T2	4X 306	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 43 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

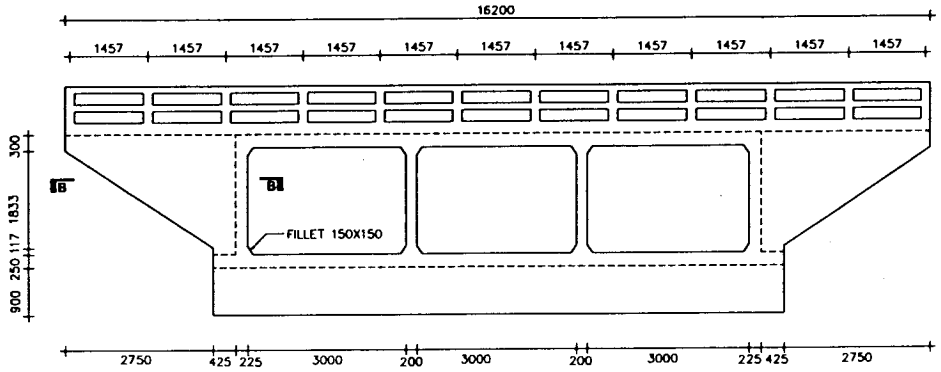
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 2.44m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3140402

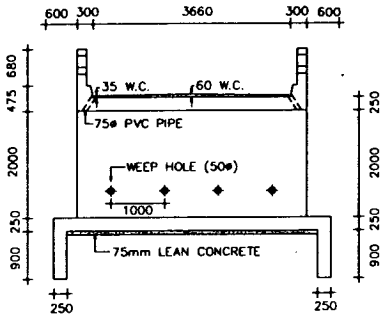
Web Copy

BC-354

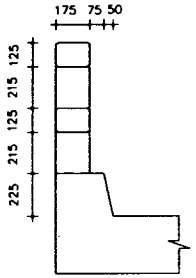
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3x3.0m
CLEAR HEIGHT : 2.0m



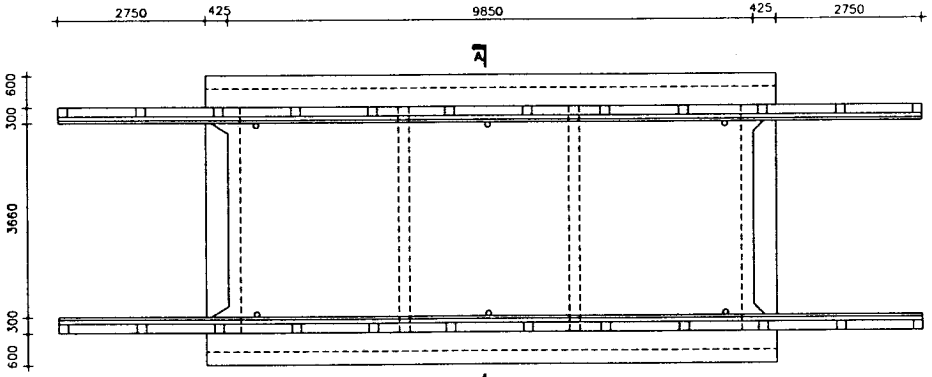
GENERAL ELEVATION



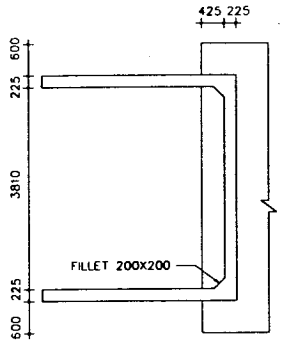
SECTION A-A



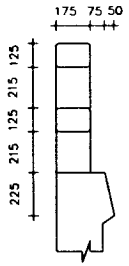
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

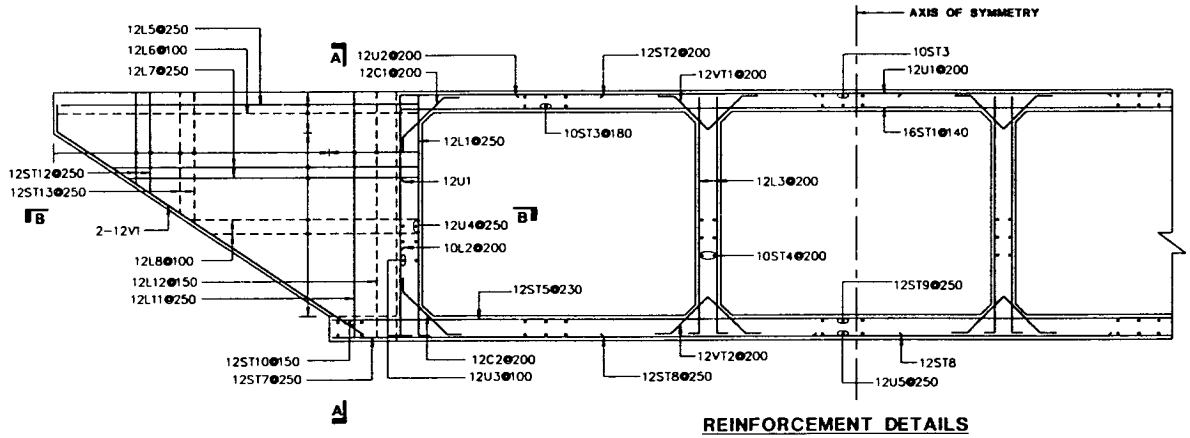
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3230201	

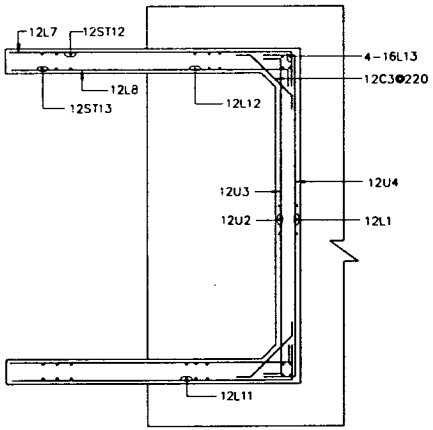
Web Copy

BC-355

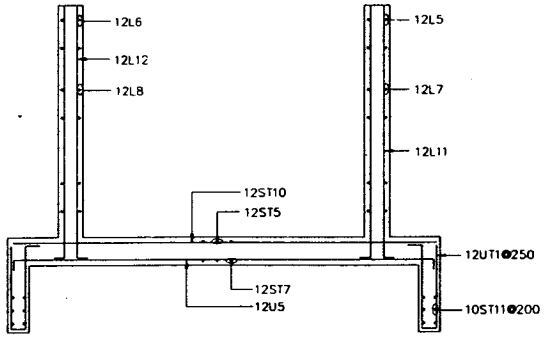
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.0m



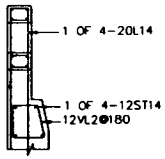
REINFORCEMENT DETAILS



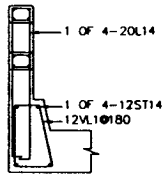
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



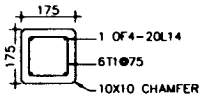
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

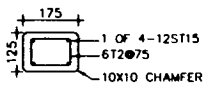
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	9750				9750
	12	ST2	2 x 21	2200				2200
	10	ST3	2 X 56	4160				4160
	10	ST4	4 X 10	4160				4160
	12	ST5	25	10600				10600
	12	ST7	23	10600				10600
	12	ST8	2 x 22	2200				2200
	12	ST9	41	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 22	150	591	150		891
	12	C2	2 X 22	150	577	150		877
	12	VT1	2 x 22	2 X 150	2 X 519			1338
	12	VT2	2 x 22	2 X 150	2 X 519			1338
	12	L1	2 X 15	2386	250			2636
	10	L2	2 X 20	854	250			1104
	12	L3	4 X 22	2386	250			2636
	16	L13	4 X 4	2386	250			2636
	12	U1	22	876	9750	876		11502
	12	U2	2 X 22	1175	2410	250		3835
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	12	U5	44	250	5290	250		5790
	10	ST11	4 X 5	10550				10550
	12	UT1	2 X 44	150	2 X 1025	100		2300
WING WALL	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 3628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
	12	ST12	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 To 376
	12	ST13	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 To 376
	12	V1	4 X 2	3605	200			3805
	12	C3	4 X 23	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	16150				16150
	12	VL1	2 X 56	204	419	296	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	24 X 4	1071	120			1191
	12	ST15	4 X 4	16160				16160
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 198	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 22 kN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :

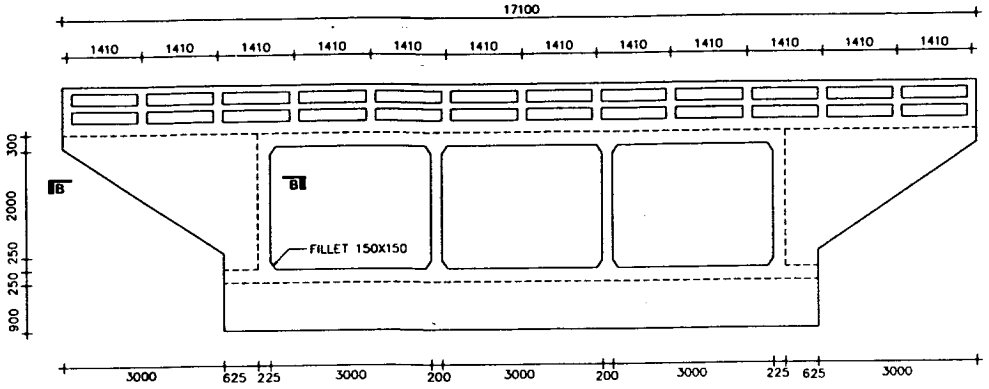
ISSUED BY :

CAD FILE REF : CULV\B3230202

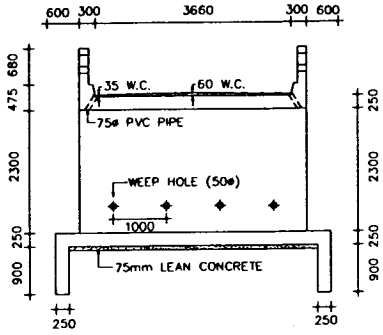
Web Copy

BC-356

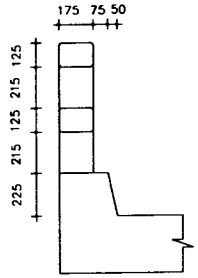
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



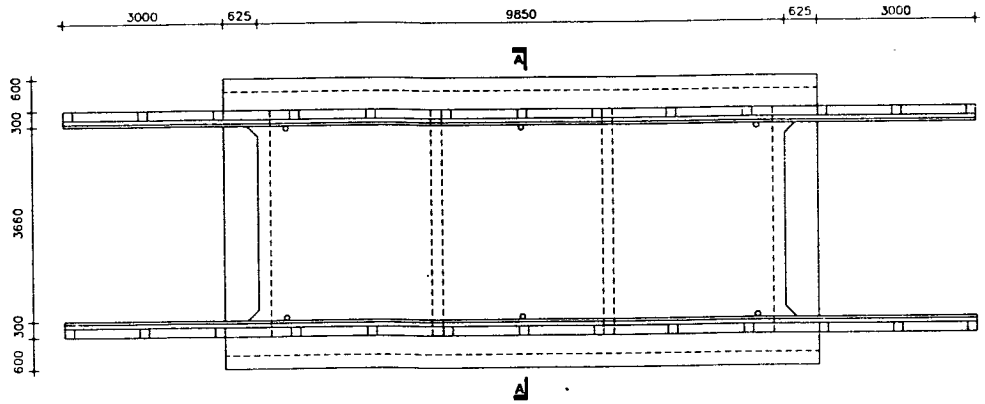
GENERAL ELEVATION



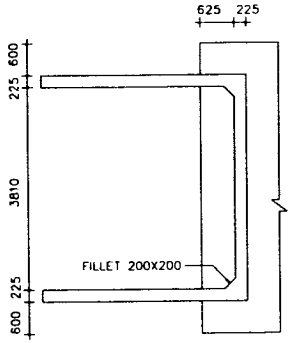
SECTION A-A



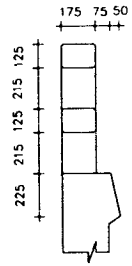
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specificotion.

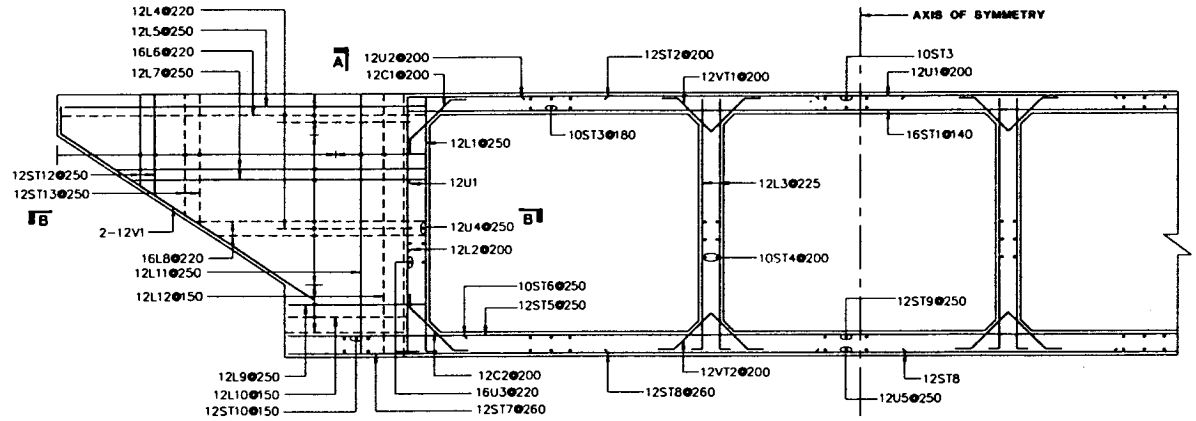
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 3.66m

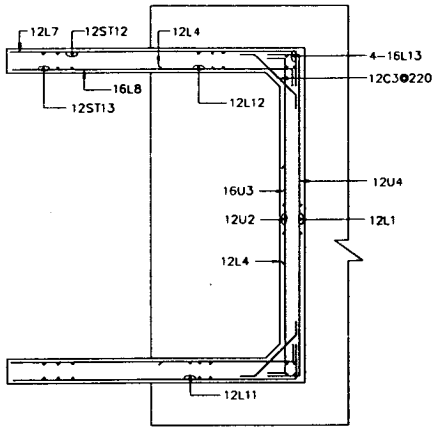
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3230231	

Web Copy

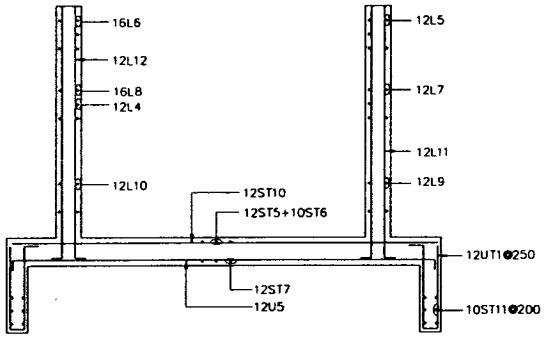
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



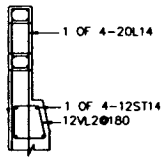
REINFORCEMENT DETAILS



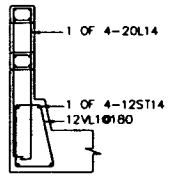
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



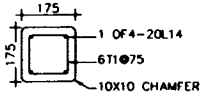
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

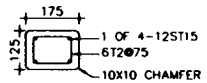
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	9750				9750
	12	ST2	2 x 21	2200				2200
	10	ST3	2 X 56	4160				4160
	10	ST4	4 X 11	4160				4160
	12	ST5	23	11000				11000
	10	ST6	2 x 22	1450				1450
	12	ST7	22	11000				11000
	12	ST8	2 x 21	2200				2200
	12	ST9	41	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 22	150	585	150		885
	12	C2	2 X 22	150	568	150		868
	12	VT1	2 x 22	2 X 150	2 X 519			1338
	12	VT2	2 x 22	2 X 150	2 X 505			1310
	12	L1	2 X 15	2686	250			2936
	12	L2	2 X 20	954	250			1204
	12	L3	4 X 20	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	22	976	9750	976		11702
	12	U2	2 X 22	1175	2710	250		4135
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	45	250	5290	250		5790
	10	ST11	4 X 5	10950				10950
	12	UT1	2 X 46	150	2 X 1025	100		2300
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	1220			1958
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	17050				17050
	12	VL1	2 X 56	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17060				17060
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Roll-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 24 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

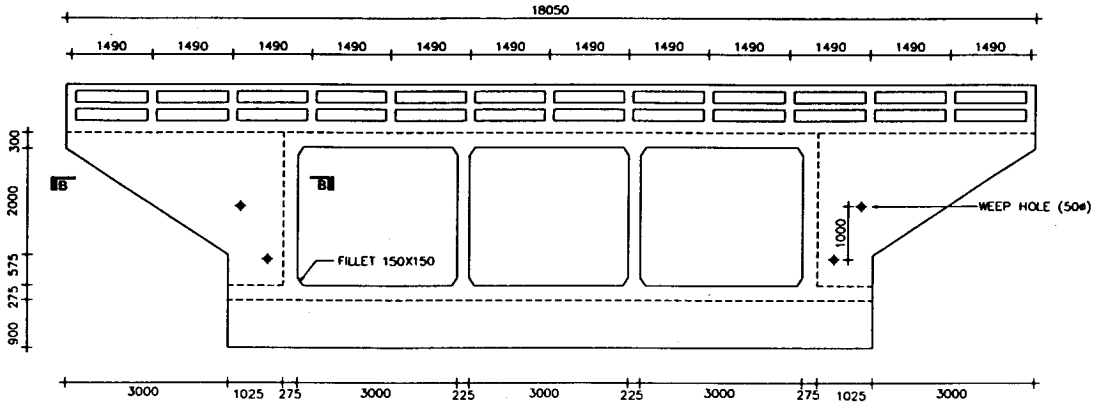
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3230232

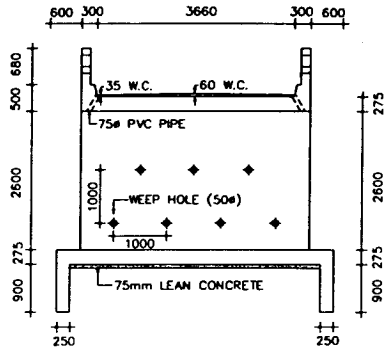
Web Copy

BC-358

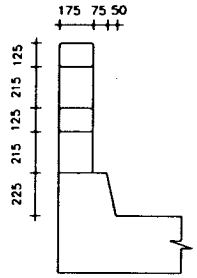
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.6m



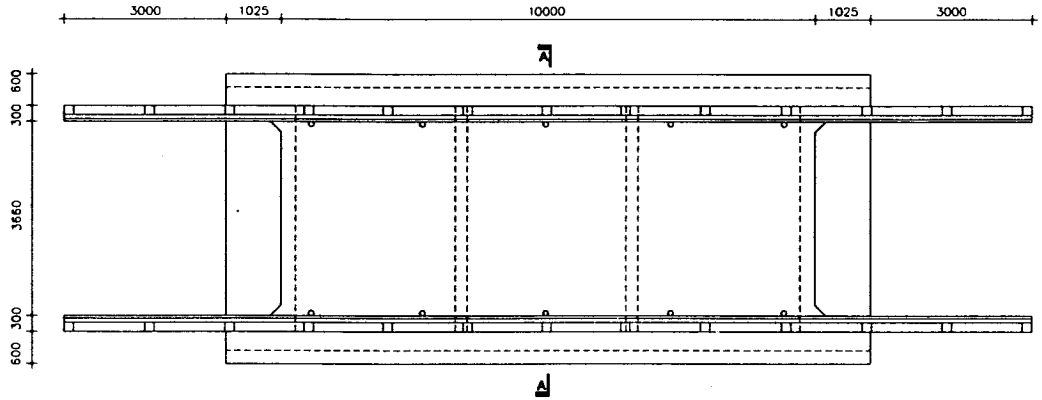
GENERAL ELEVATION



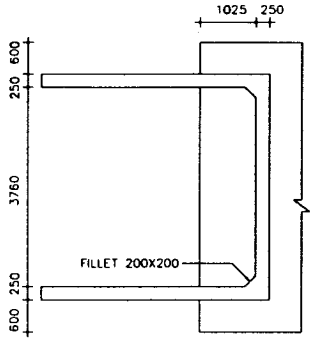
SECTION A-A



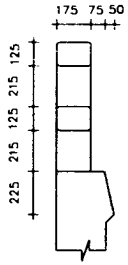
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

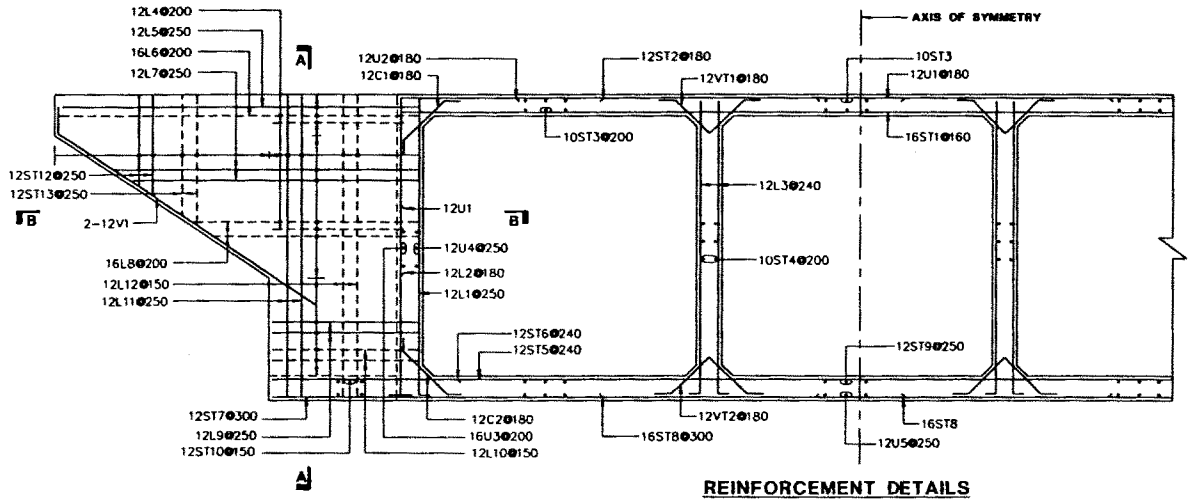
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 3.66m

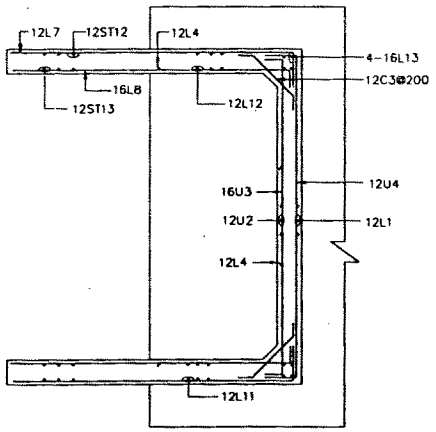
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3230261	

Web Copy

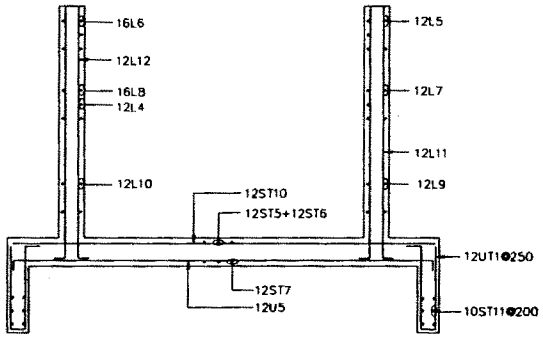
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.6m



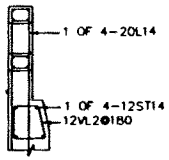
REINFORCEMENT DETAILS



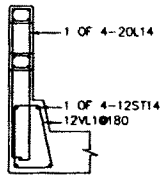
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



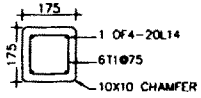
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

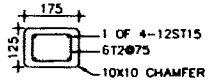
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	27	9900				9900
	12	ST2	2 x 24	2225				2225
	10	ST3	2 X 51	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	24	11950				11950
	12	ST6	2 x 23	1900				1900
	12	ST7	19	11950				11950
	16	ST8	2 x 18	2225				2225
	12	ST9	41	5360				5360
	12	ST10	4 X 7	5360				5360
	12	C1	2 X 25	150	691	150		991
	12	C2	2 X 25	150	674	150		974
	12	VT1	2 x 25	2 X 150	2 X 572			1444
	12	VT2	2 x 25	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 23	1079	250			1329
	12	L3	4 X 19	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	25	1101	9900	1101		12102
	12	U2	2 X 25	1225	3060	250		4535
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	49	250	5290	250		5790
	10	ST11	4 X 5	11900				11900
	12	UT1	2 X 49	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	18000				18000
	12	VL1	2 X 57	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	26 X 4	1096	120			1216
	12	ST15	4 X 4	18010				18010
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 20 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

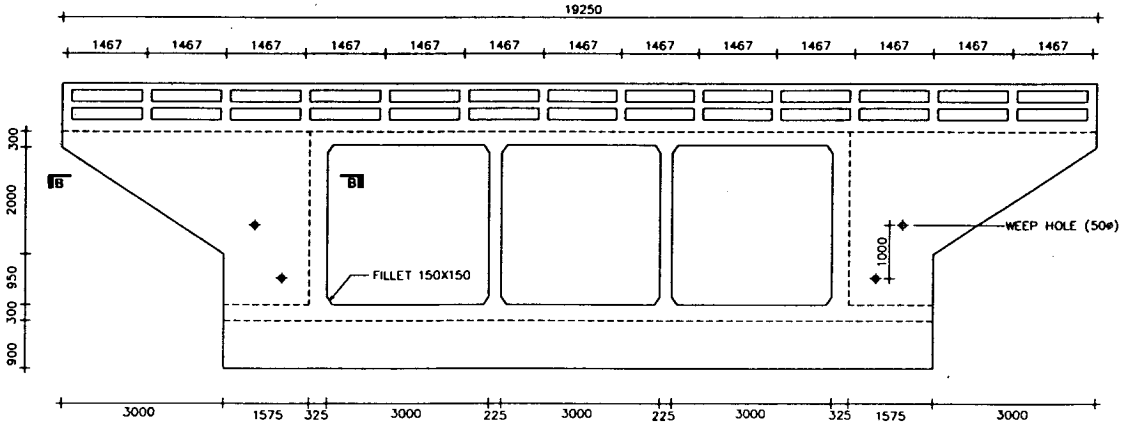
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3230262

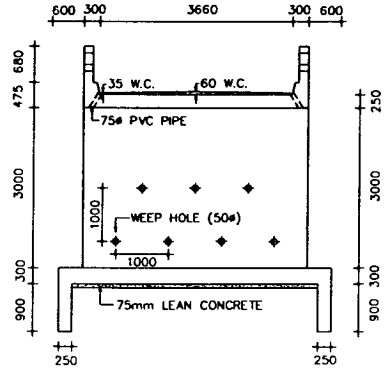
Web Copy

BC-360

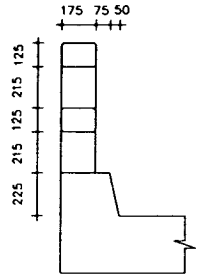
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



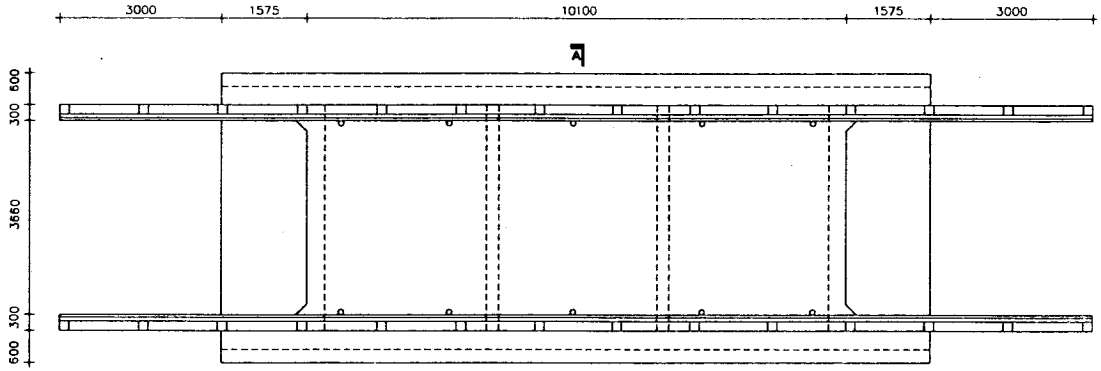
GENERAL ELEVATION



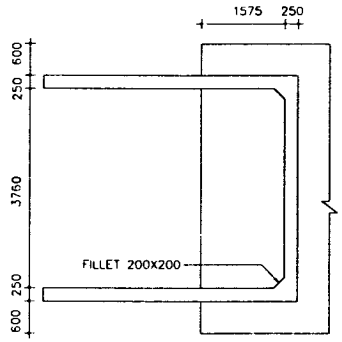
SECTION A-A



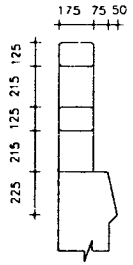
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

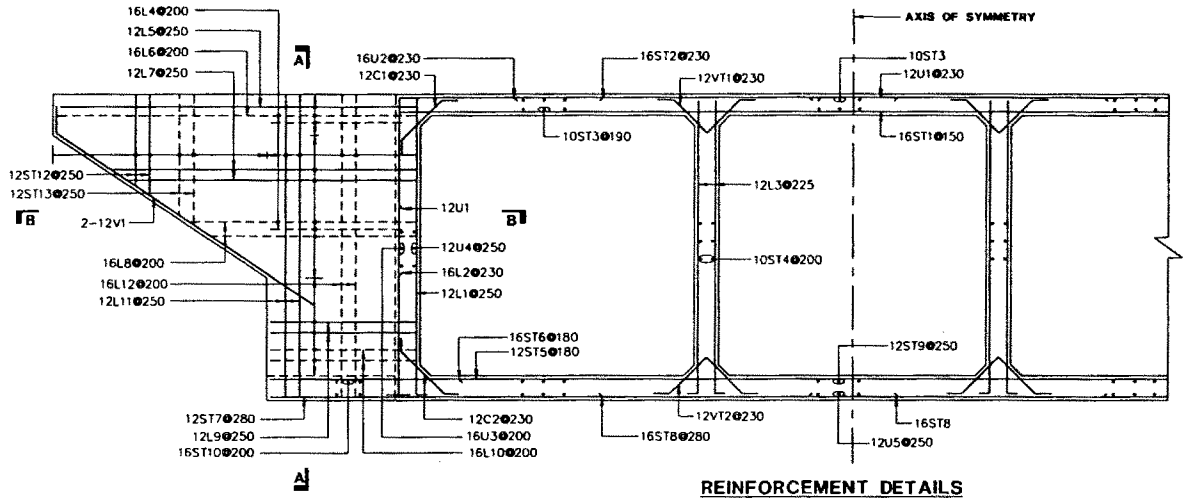
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3230301	

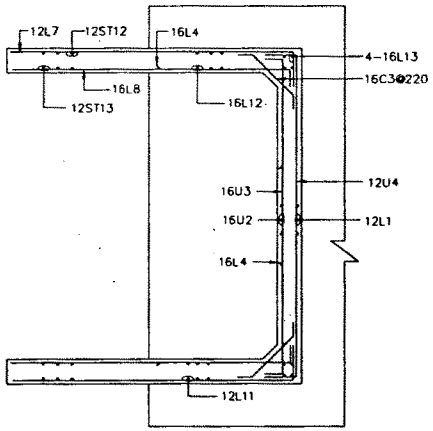
Web Copy

BC-361

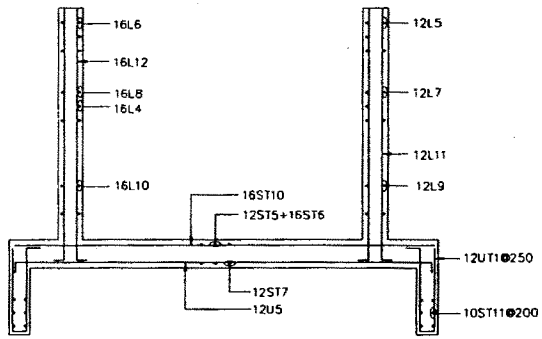
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



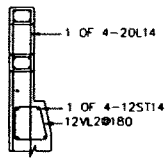
REINFORCEMENT DETAILS



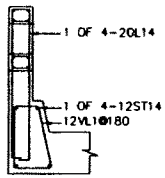
SECTION B-B



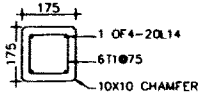
SECTION A-A



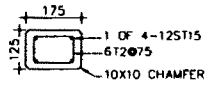
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	10000				10000
	16	ST2	2 x 19	2225				2225
	10	ST3	2 X 54	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	31	13150				13150
	16	ST6	2 x 30	2500				2500
	12	ST7	21	13150				13150
	16	ST8	2 x 20	2225				2225
	12	ST9	42	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 20	150	715	150		1015
	12	C2	2 X 20	150	775	150		1075
	12	VT1	2 x 20	2 X 150	2 X 531			1362
	12	VT2	2 x 20	2 X 150	2 X 585			1470
	12	L1	2 X 15	3436	250			3686
	16	L2	2 X 18	1238	250			1488
	12	L3	4 X 20	3436	250			3686
	16	L13	4 X 4	3436	250			3686
	12	U1	20	1210	10000	1210		12420
	16	U2	2 X 20	1275	3460	250		4985
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	54	250	5290	250		5790
	10	ST11	4 X 5	13100				13100
	12	UT1	2 X 54	150	2 X 1075	100		2400
WING WALL	16	L4	4 X 13	1838	1220			3058
	12	L5	4 X 1	4788	394			5182
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	394			2182
	16	L10	4 X 5	1788	1220			3008
	12	L11	4 X 7	3488	250			3738
	16	L12	4 X 8	3488	250			3738
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	150	786	150		1086
CURB AND RAILING	12	ST14	2 X 4	19200				19200
	12	VL1	2 X 58	204	419	295	410	1428
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	28 X 4	1071	120			1191
	12	ST15	4 X 4	19210				19210
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

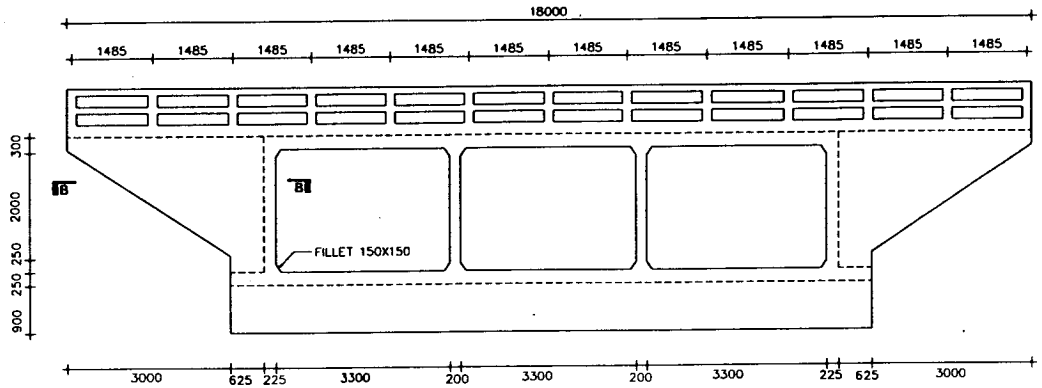
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3230302	

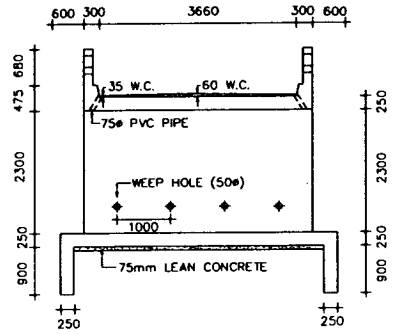
Web Copy

BC-362

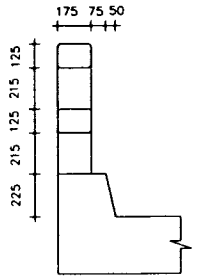
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



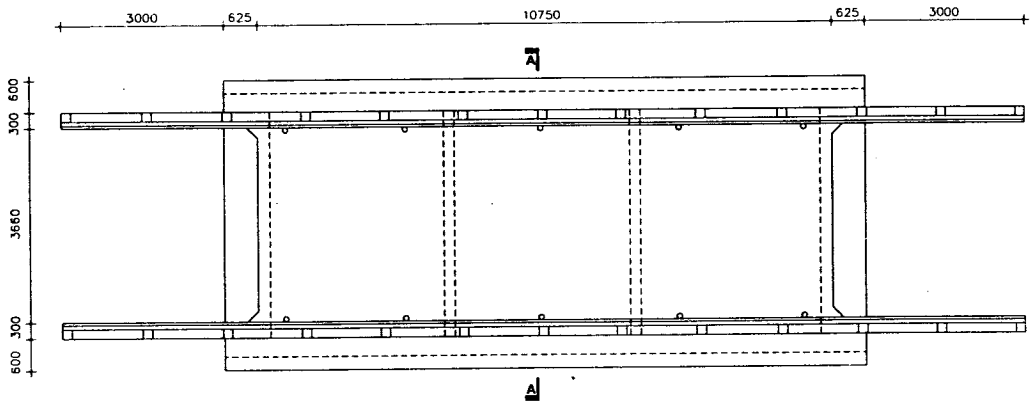
GENERAL ELEVATION



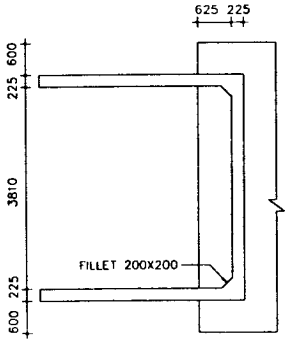
SECTION A-A



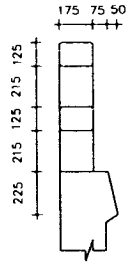
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

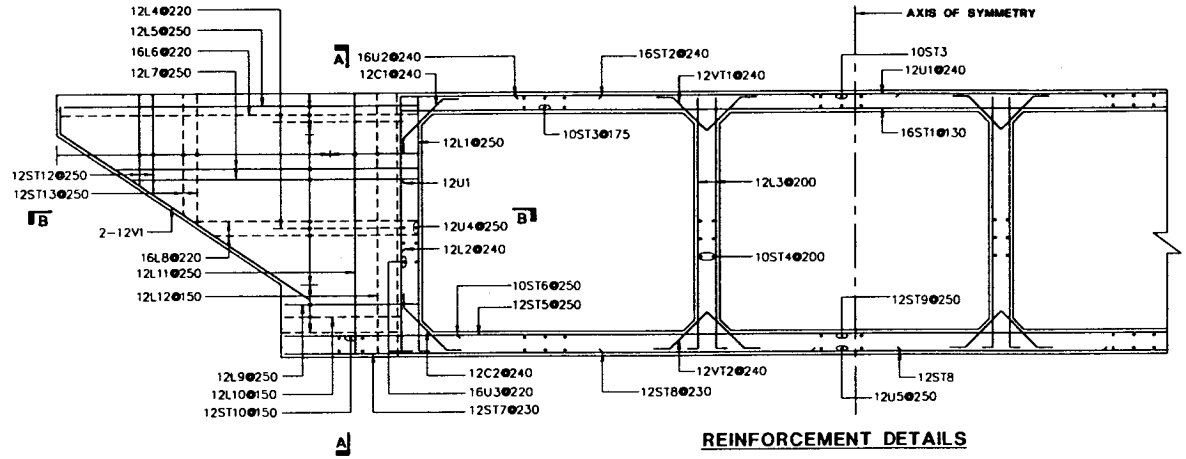
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3233231	

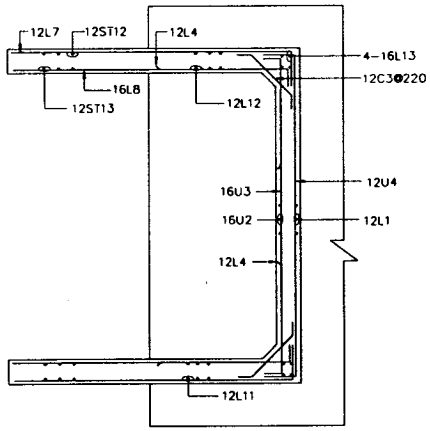
Web Copy

BC-363

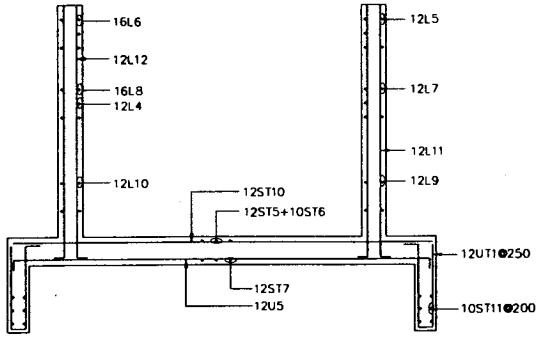
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



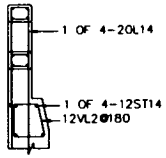
REINFORCEMENT DETAILS



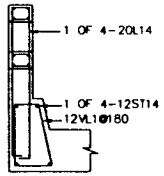
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



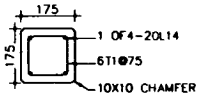
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

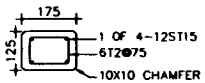
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CUTOFF WALL	16	ST1	33	10650				10650
	16	ST2	2 x 18	2400				2400
	10	ST3	2 X 62	4160				4160
	10	ST4	4 X 11	4160				4160
	12	ST5	23	11900				11900
	10	ST6	2 x 22	1510				1510
	12	ST7	25	11900				11900
	12	ST8	2 x 24	2400				2400
	12	ST9	44	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 19	150	574	150		874
	12	C2	2 X 19	150	568	150		868
	12	VT1	2 x 19	2 X 150	2 X 513			1326
	12	VT2	2 x 19	2 X 150	2 X 505			1310
	12	L1	2 X 15	2686	250			2936
	12	L2	2 X 17	954	250			1204
	12	L3	4 X 19	2686	250			2936
	16	L13	4 X 4	2686	250			2936
CUTOFF WALL	12	U1	19	976	10650	976		12602
	16	U2	2 X 19	1275	2710	250		4235
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	49	250	5290	250		5790
	10	ST11	4 X 5	11850				11850
	12	UT1	2 X 49	150	2 X 1025	100		2300
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	225			963
	12	L10	4 X 2	738	1220			1958
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	17950				17950
	12	VL1	2 X 61	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17960				17960
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 23 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

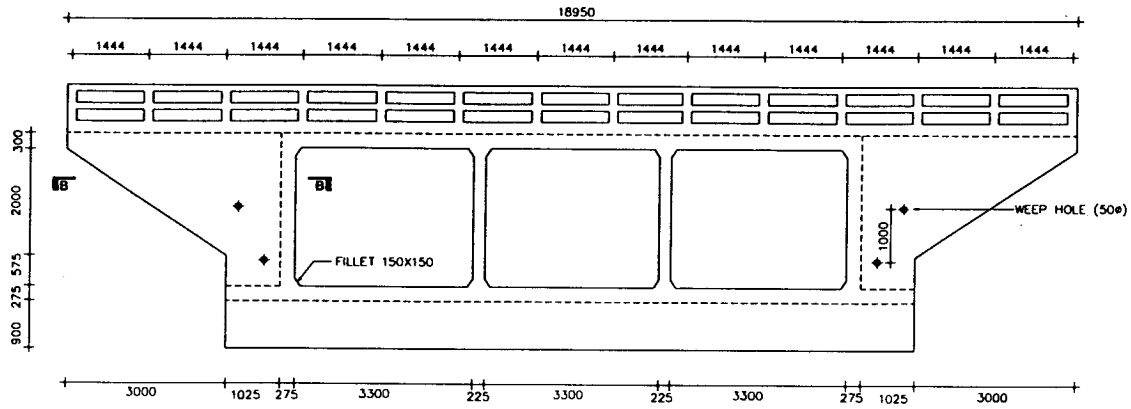
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3233232

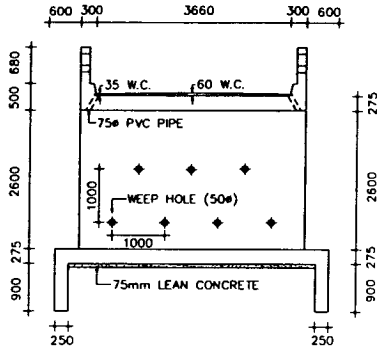
Web Copy

BC-364

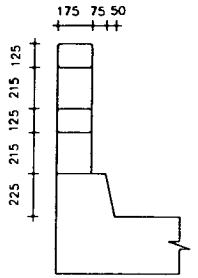
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.6m



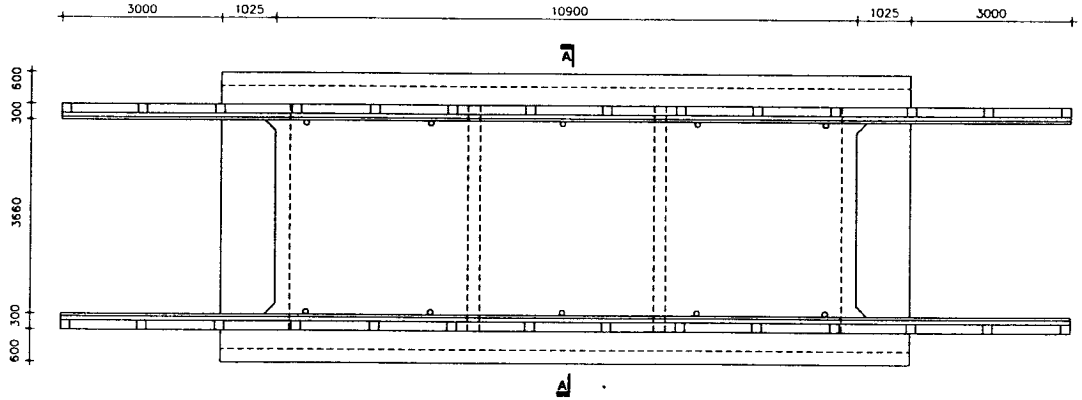
GENERAL ELEVATION



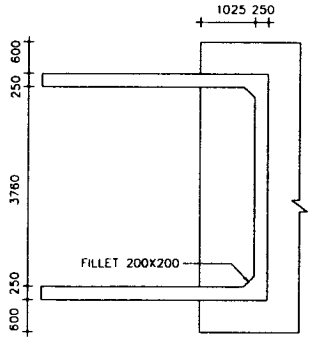
SECTION A-A



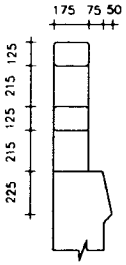
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

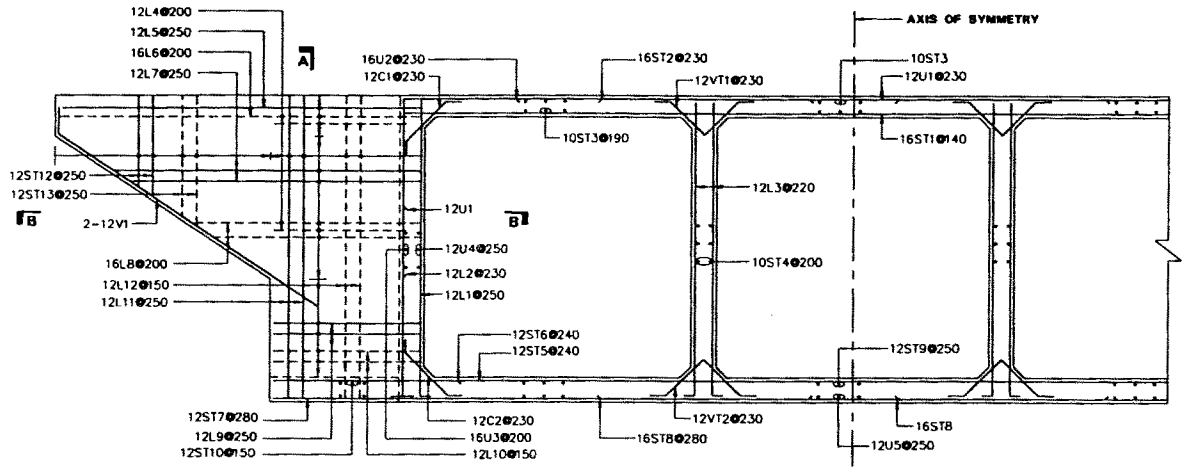
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3233261	

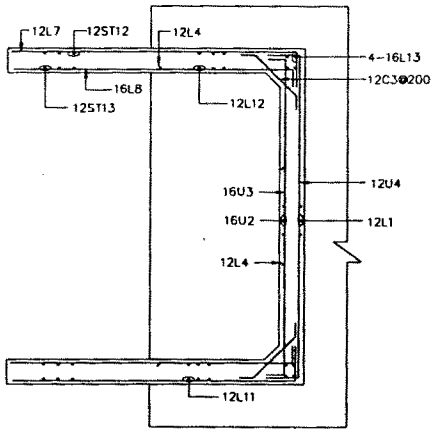
Web Copy

BC-365

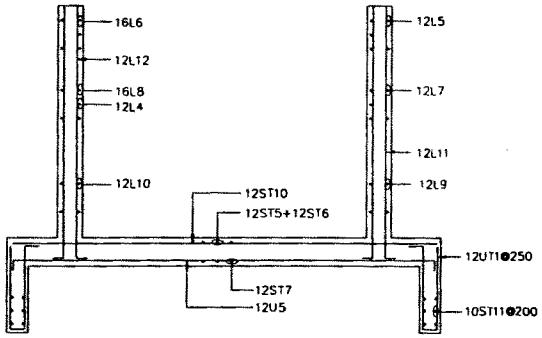
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.6m



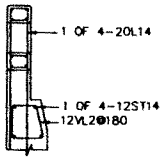
REINFORCEMENT DETAILS



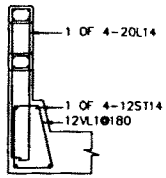
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



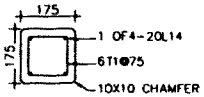
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

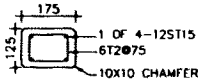
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON CUTOFF	16	ST1	31	10800				10800
	16	ST2	2 x 19	2425				2425
	10	ST3	2 X 58	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	24	12850				12850
	12	ST6	2 x 23	1960				1960
	12	ST7	21	12850				12850
	16	ST8	2 x 20	2425				2425
	12	ST9	45	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 20	150	680	150		980
	12	C2	2 X 20	150	674	150		974
	12	VT1	2 x 20	2 X 150	2 X 566			1432
	12	VT2	2 x 20	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	4 X 20	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	10800	1101		13002
	16	U2	2 X 20	1325	3060	250		4635
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	53	250	5290	250		5790
	10	ST11	4 X 5	12800				12800
	12	UT1	2 X 53	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
	12	ST14	2 X 4	18900				18900
CURB AND RAILING	12	VL1	2 X 62	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	18910				18910
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 28 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :

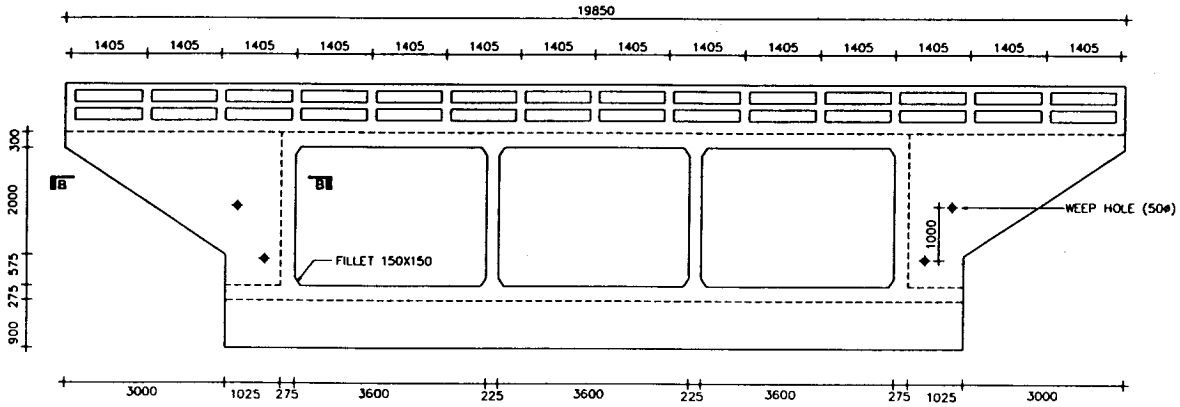
ISSUED BY :

CAD FILE REF : CULV\B3233262

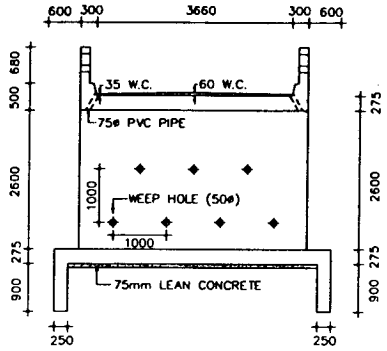
Web Copy

BC-366

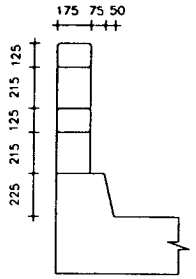
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 2.6m



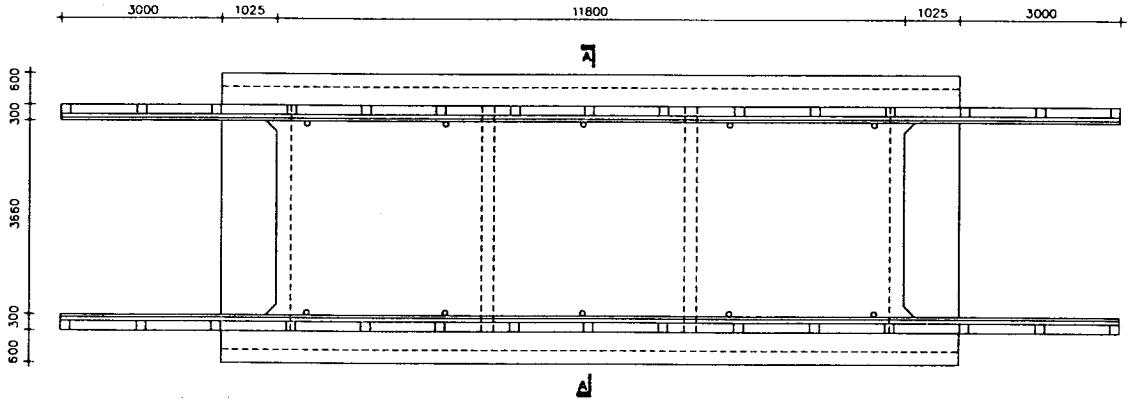
GENERAL ELEVATION



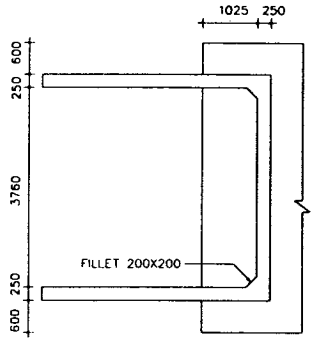
SECTION A-A



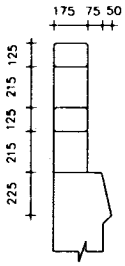
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C. = Wearing Course

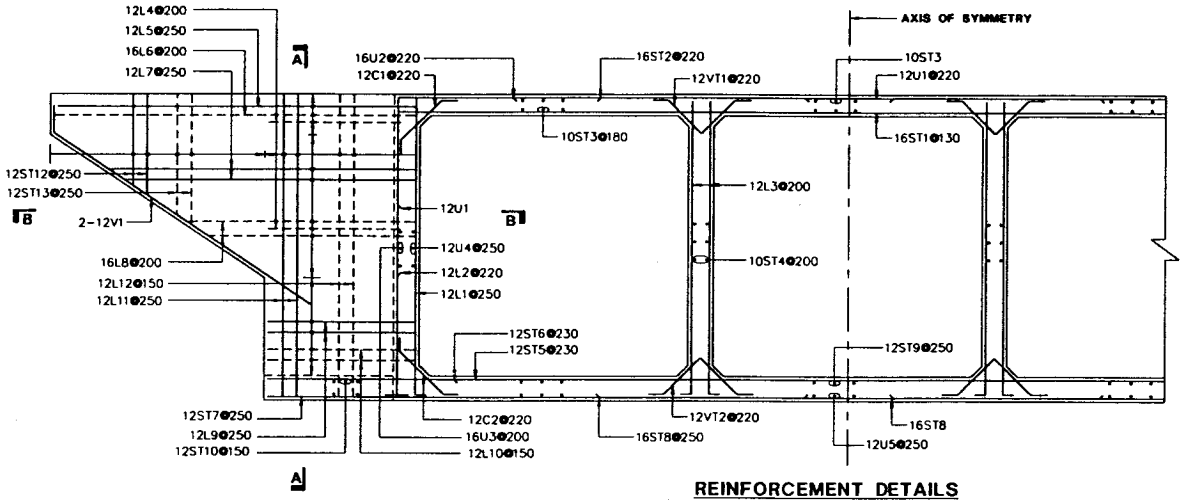
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 3.66m

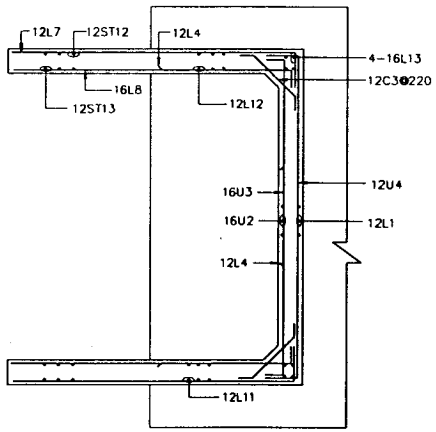
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3236261	

Web Copy

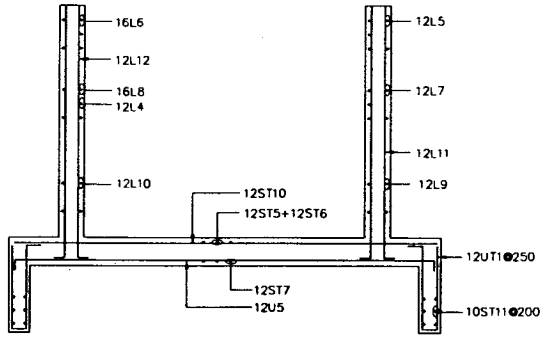
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 2.6m



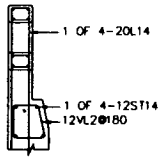
REINFORCEMENT DETAILS



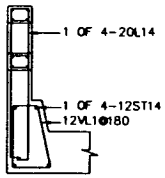
SECTION B-B



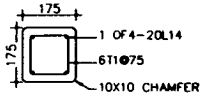
SECTION A-A



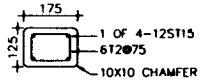
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	11700				11700
	16	ST2	2 x 19	2625				2625
	10	ST3	2 X 66	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	25	13750				13750
	12	ST6	2 x 24	2020				2020
	12	ST7	23	13750				13750
	16	ST8	2 x 22	2625				2625
	12	ST9	49	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 20	150	680	150		980
	12	C2	2 X 20	150	674	150		974
	12	VT1	2 x 20	2 X 150	2 X 566			1432
	12	VT2	2 x 20	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	2 X 22	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	11700	1101		13902
	16	U2	2 X 20	1425	3060	250		4735
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	56	250	5290	250		5790
	10	ST11	4 X 5	13700				13700
	12	UT1	2 X 57	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	19800				19800
	12	VL1	2 X 67	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	19810				19810
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

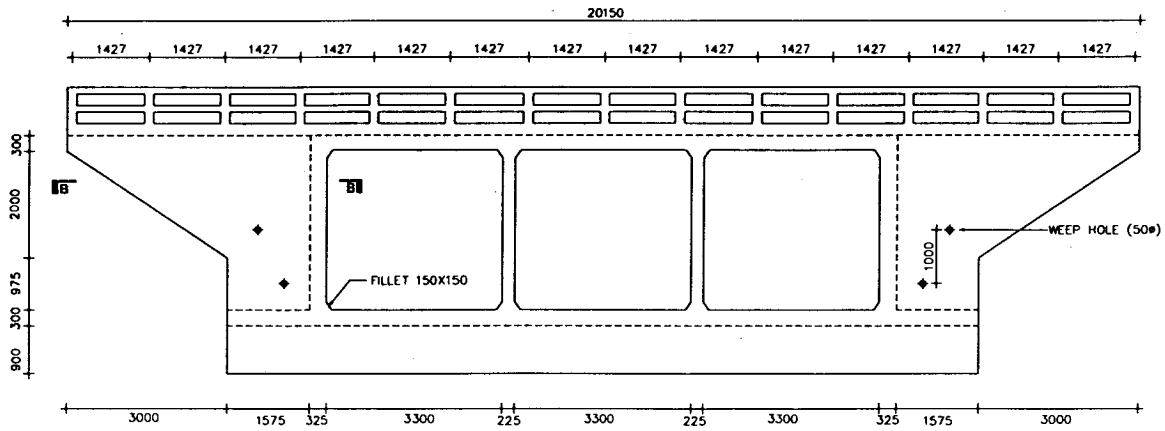
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3236262

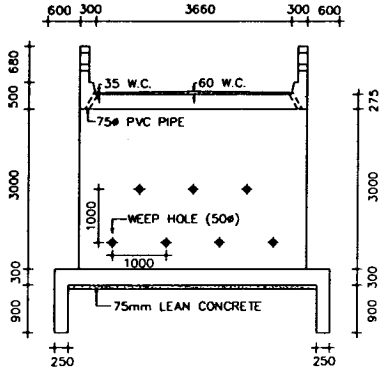
Web Copy

BC-368

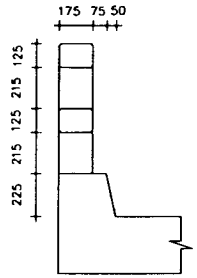
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



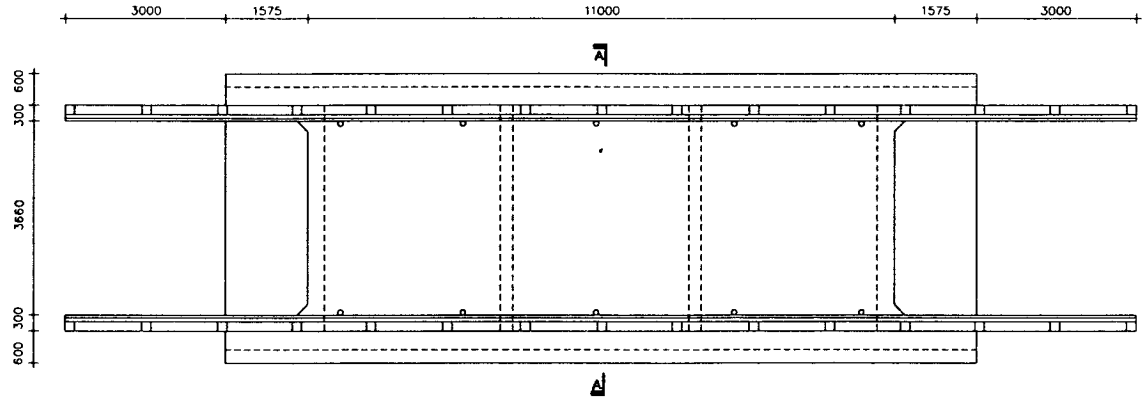
GENERAL ELEVATION



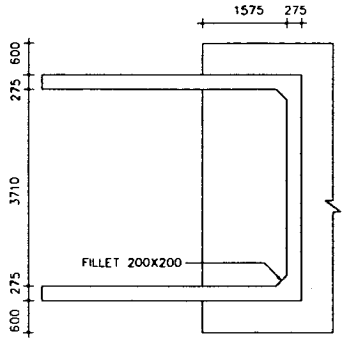
SECTION A-A



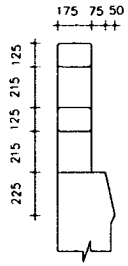
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and verticalty as shown in drawing; filter material shall be provided as per specification.

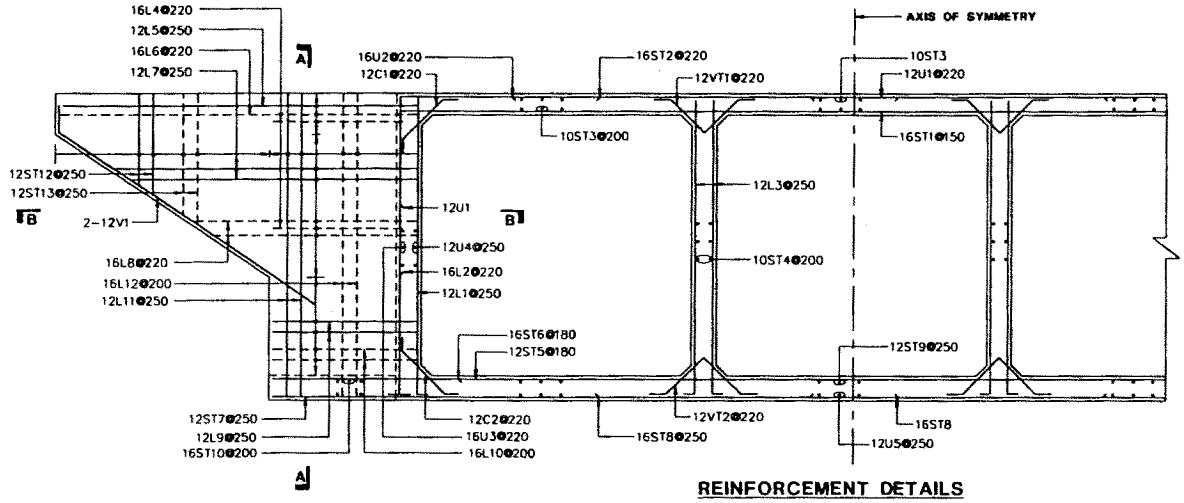
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 3.66m

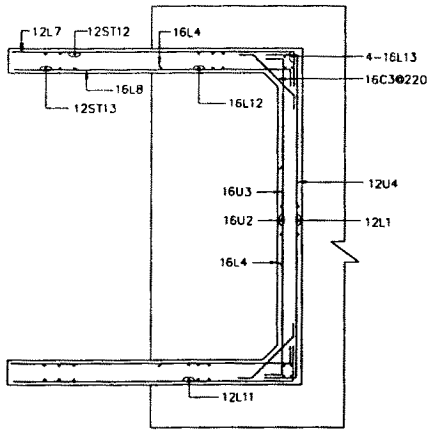
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3233301	

Web Copy

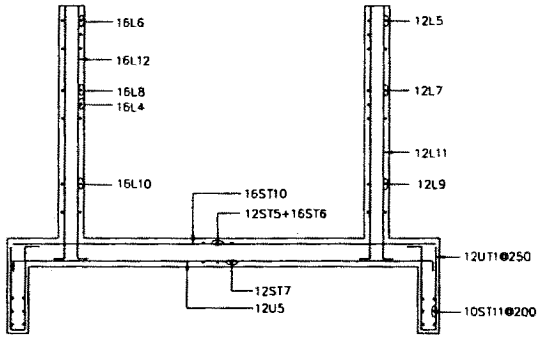
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



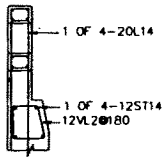
REINFORCEMENT DETAILS



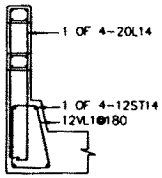
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



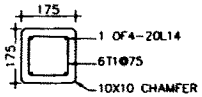
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

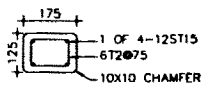
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	10900				10900
	16	ST2	2 x 19	2425				2425
	10	ST3	2 X 56	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	31	14050				14050
	16	ST6	2 x 30	2560				2560
	12	ST7	23	14050				14050
	16	ST8	2 x 22	2425				2425
	12	ST9	45	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 20	150	751	150		1051
	12	C2	2 X 20	150	775	150		1075
	12	VT1	2 x 20	2 X 150	2 X 566			1432
	12	VT2	2 x 20	2 X 150	2 X 585			1470
	12	L1	2 X 14	3461	250			3711
	16	L2	2 X 18	1238	250			1488
	12	L3	4 X 18	3461	250			3711
	16	L13	4 X 4	3461	250			3711
	12	U1	20	1235	10900	1235		13370
	16	U2	2 X 20	1375	3485	250		5110
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	58	250	5290	250		5790
	10	ST11	4 x 5	14000				14000
	12	UT1	2 X 58	150	2 X 1075	100		2400
WING WALL	16	L4	4 X 12	1838	1220			3058
	12	L5	4 X 1	4788	419			5207
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5178 To 2207
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	419			2207
	16	L10	4 X 5	1788	1220			3008
	12	L11	4 X 7	3513	250			3763
	16	L12	4 X 8	3513	250			3763
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	20100				20100
	12	VL1	2 X 63	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	20110				20110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

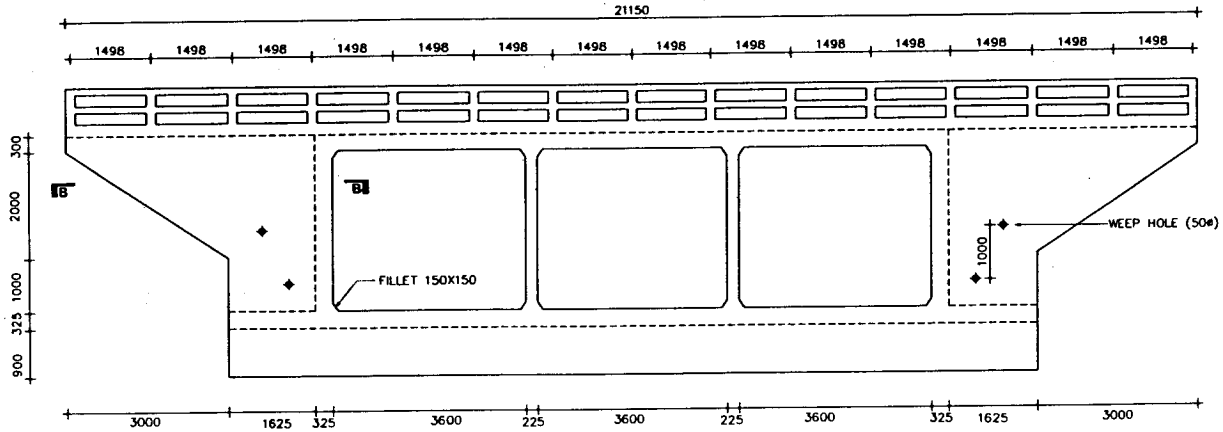
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3233302

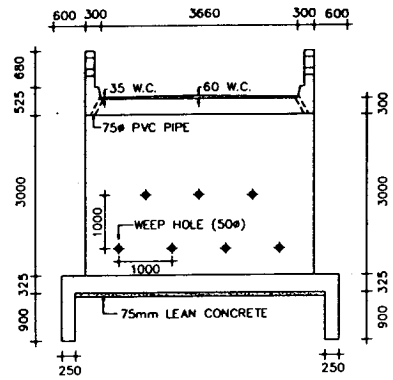
Web Copy

BC-370

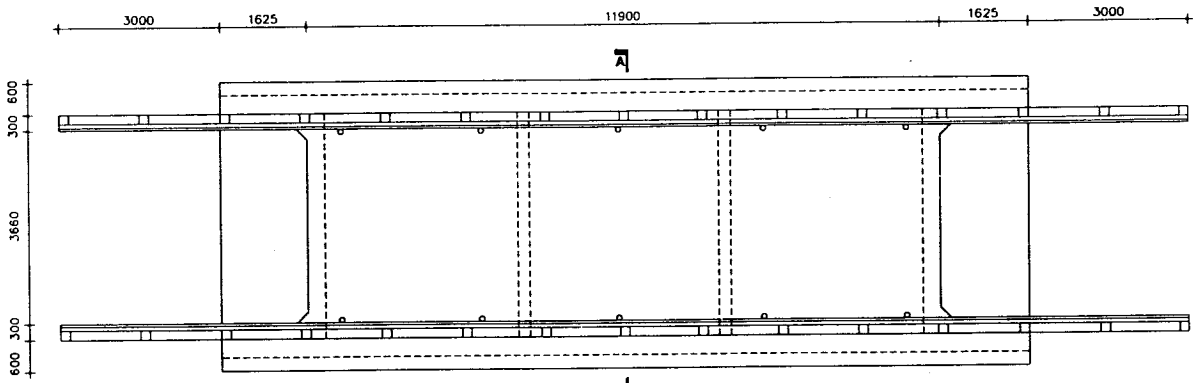
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



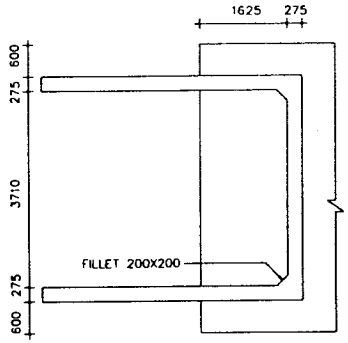
GENERAL ELEVATION



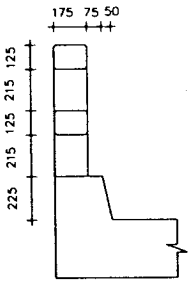
SECTION A-A



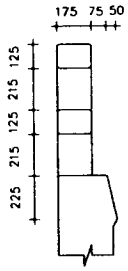
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C. = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 3.66m

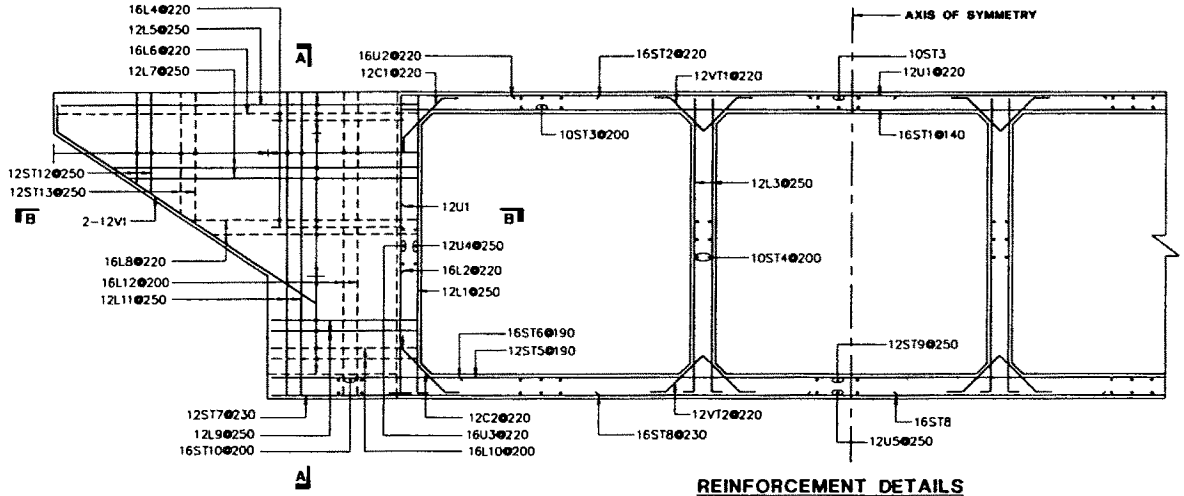
DATE :

ISSUED BY :

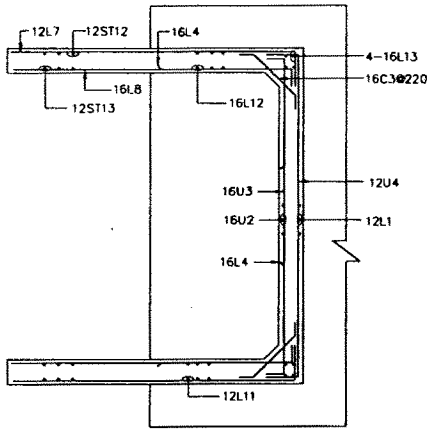
CAD FILE REF : CULV\B3236301

Web Copy

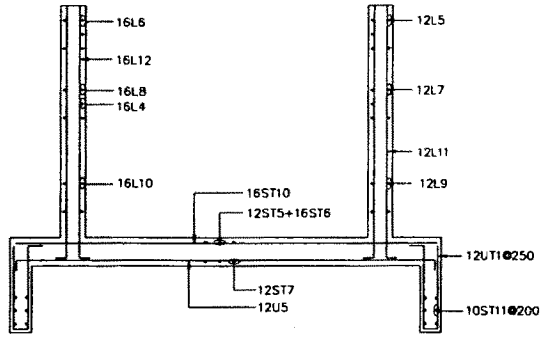
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



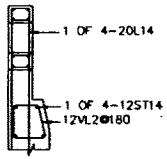
REINFORCEMENT DETAILS



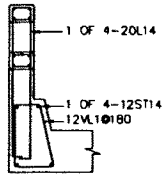
SECTION B-B



SECTION A-A



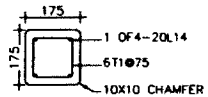
RAILING ON WING WALL (REINF. DETAIL)



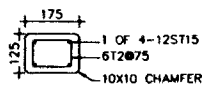
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CUTOFF	16	ST1	31	11800				11800
	16	ST2	2 x 19	2625				2625
	10	ST3	2 X 60	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	30	15050				15050
	16	ST6	2 x 29	2670				2670
	12	ST7	25	15050				15050
	16	ST8	2 x 24	2625				2625
	12	ST9	49	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 20	150	786	150		1086
	12	C2	2 X 20	150	810	150		1110
	12	VT1	2 x 20	2 X 150	2 X 602			1504
	12	VT2	2 x 20	2 X 150	2 X 620			1540
	12	L1	2 X 14	3511	250			3761
	16	L2	2 X 18	1263	250			1513
	12	L3	4 X 21	3511	250			3761
	16	L13	4 X 4	3511	250			3761
CUTOFF	12	U1	20	1260	11800	1260		14320
	16	U2	2 X 20	1475	3535	250		5260
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	62	250	5290	250		5790
	10	ST11	4 X 5	15000				15000
	12	UT1	2 X 62	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 5	1838	1220			3058
	12	L11	4 X 7	3563	250			3813
	16	L12	4 X 8	3563	250			3813
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	21100				21100
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	21110				21110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 33 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

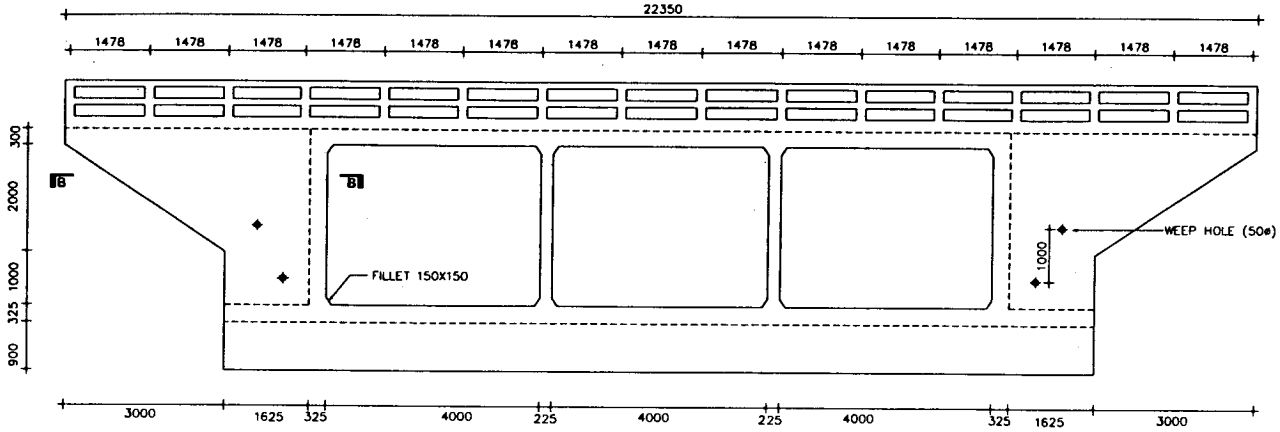
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3236302	

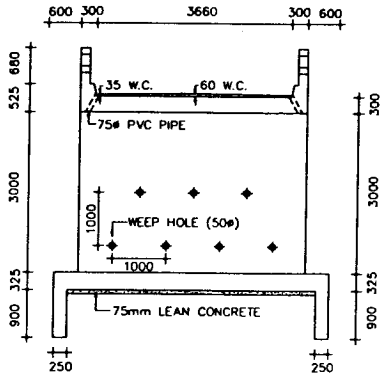
Web Copy

BC-372

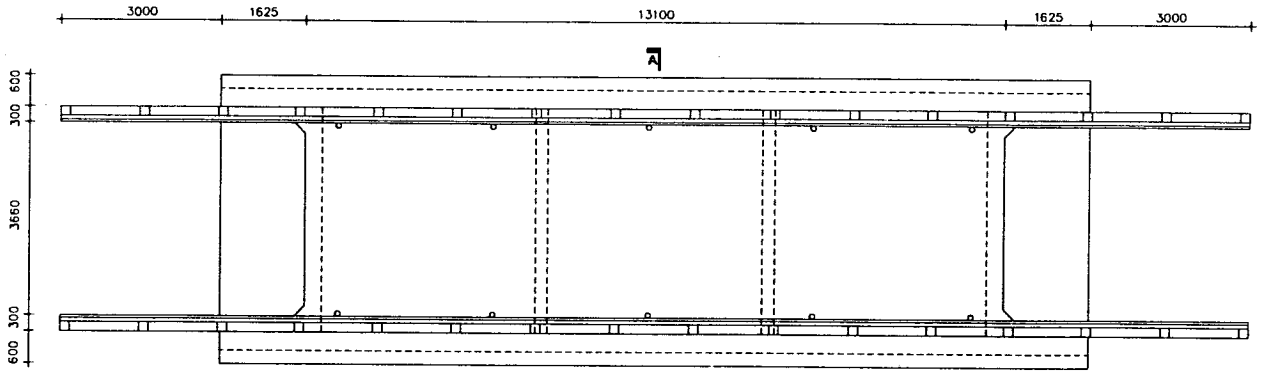
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



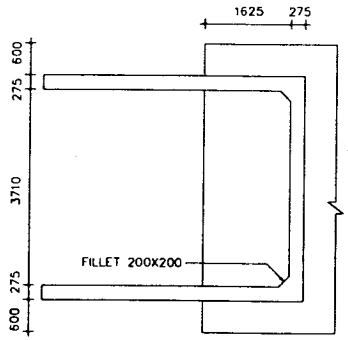
GENERAL ELEVATION



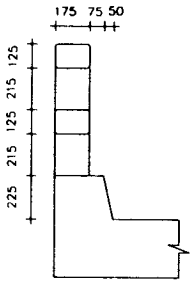
SECTION A-A



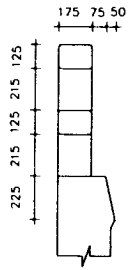
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :

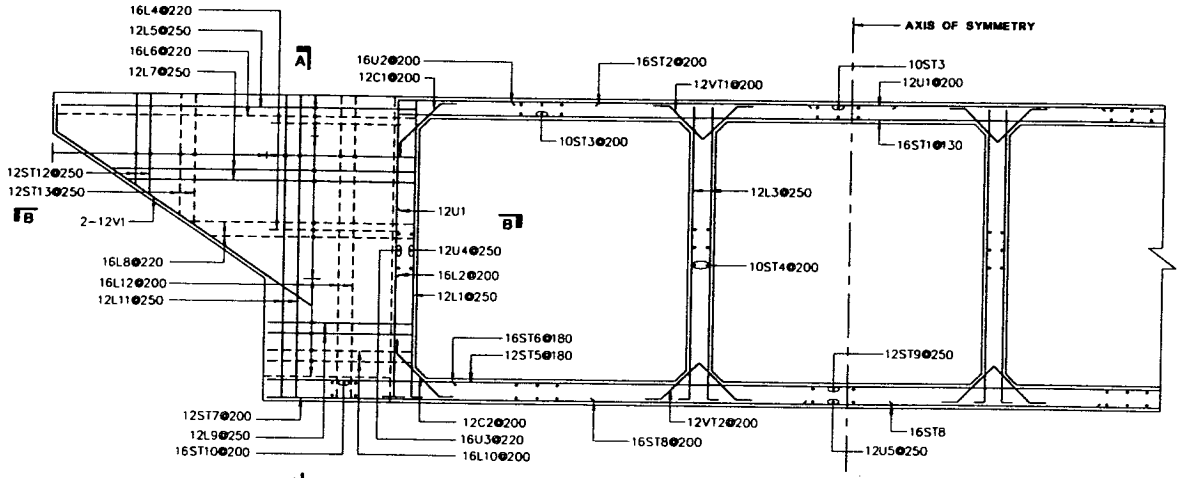
ISSUED BY :

CAD FILE REF : CULV\B3240301

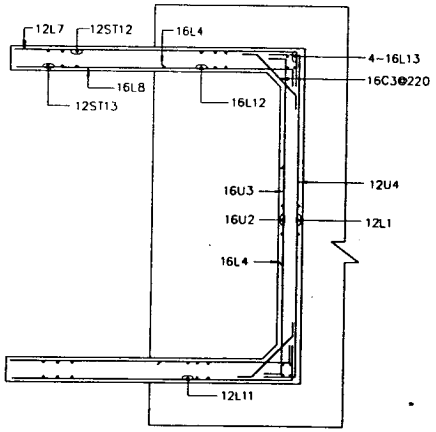
Web Copy

BC-373

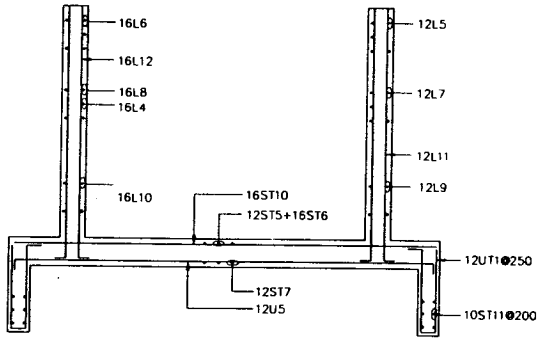
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



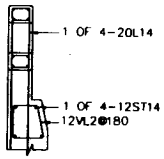
REINFORCEMENT DETAILS



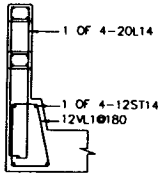
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



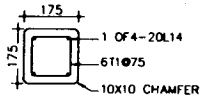
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

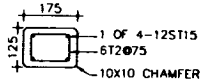
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	13000				13000
	16	ST2	2 x 21	2891				2891
	10	ST3	2 X 66	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	31	16250				16250
	16	ST6	2 x 30	2750				2750
	12	ST7	28	16250				16250
	16	ST8	2 x 27	2891				2891
	12	ST9	54	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 22	150	786	150		1086
	12	C2	2 X 22	150	810	150		1110
	12	VT1	2 x 22	2 X 150	2 X 602			1504
	12	VT2	2 x 22	2 X 150	2 X 620			1540
	12	L1	2 X 15	3511	250			3761
	16	L2	2 X 20	1263	250			1513
	12	L3	4 X 18	3511	250			3761
	16	L13	4 X 4	3511	250			3761
	12	U1	22	1260	13000	1260		15520
	16	U2	2 X 22	1608	3535	250		5393
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	66	250	5290	250		5790
	10	ST11	4 X 5	16200				16200
	12	UT1	2 X 67	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 5	1838	1220			3058
	12	L11	4 X 7	3563	250			3813
	16	L12	4 X 8	3563	250			3813
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	22300				22300
	12	VL1	2 X 74	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22310				22310
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 32 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

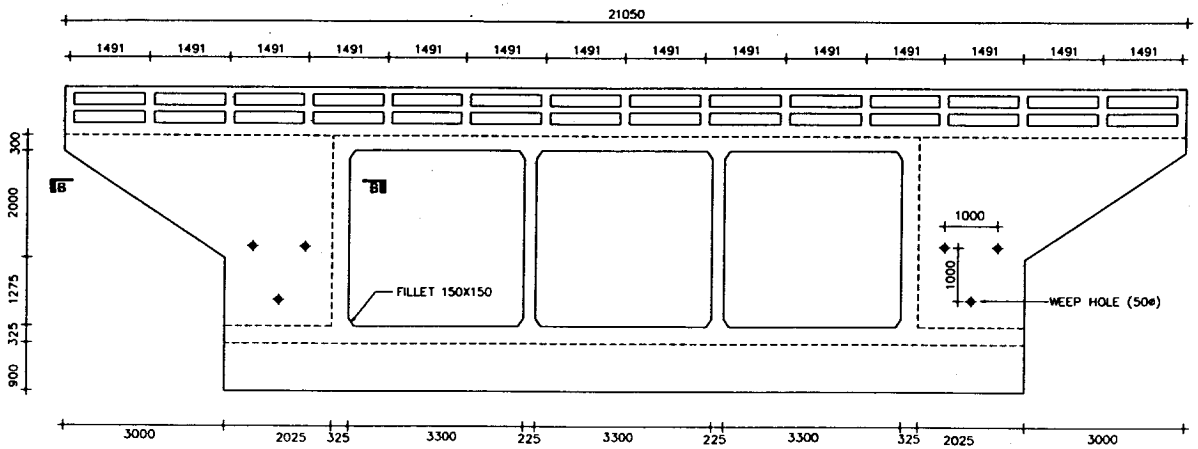
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE : 30/03/1997
ISSUED BY :
CAD FILE REF : CULV\B3240302

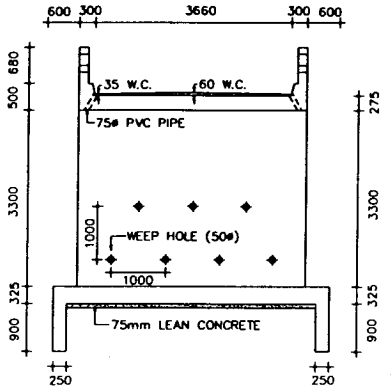
Web Copy

BC-374

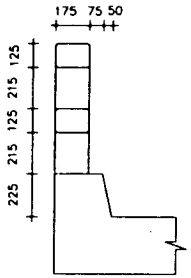
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



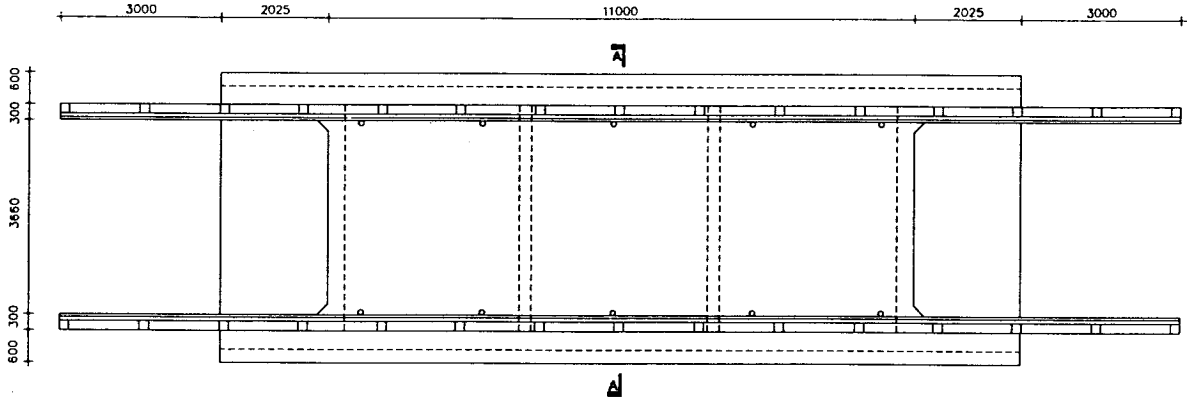
GENERAL ELEVATION



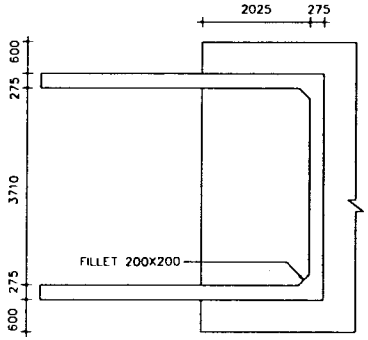
SECTION A-A



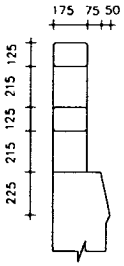
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

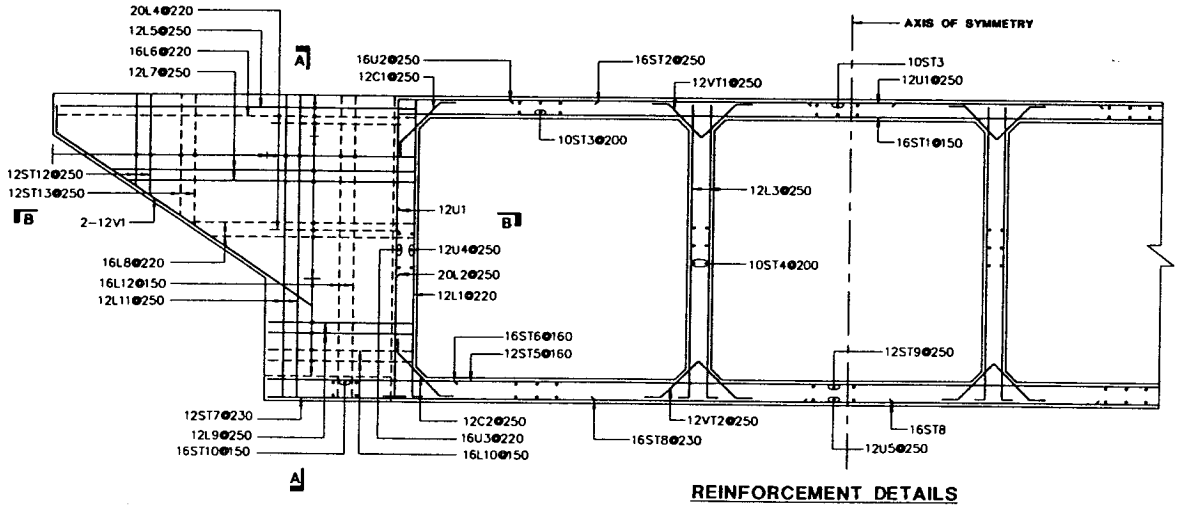
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 3.66m

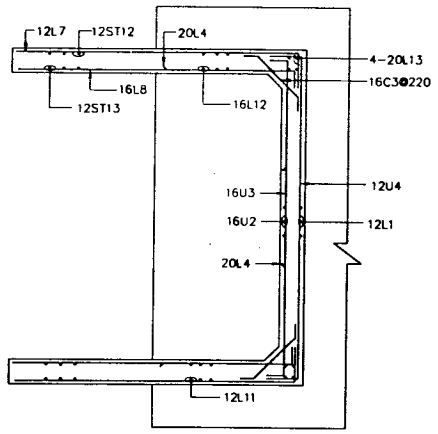
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3233331	

Web Copy

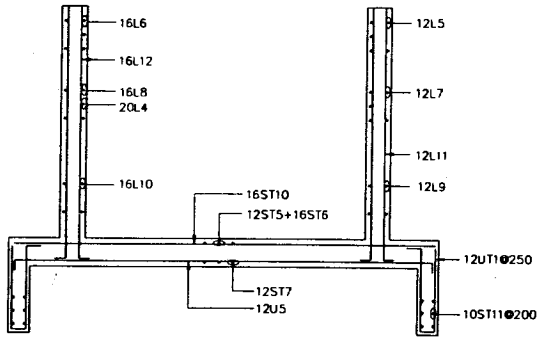
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



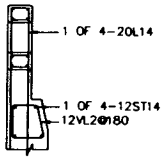
REINFORCEMENT DETAILS



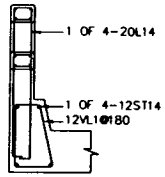
SECTION B-B



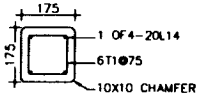
SECTION A-A



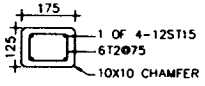
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	10900				10900
	16	ST2	2 x 17	2425				2425
	10	ST3	2 X 56	4160				4160
	10	ST4	4 X 16	4160				4160
	12	ST5	35	14950				14950
	16	ST6	2 x 34	3010				3010
	12	ST7	25	14950				14950
	16	ST8	2 x 24	2425				2425
	12	ST9	45	5360				5360
	16	ST10	2 X 14	5360				5360
	12	C1	2 X 18	150	751	150		1051
	12	C2	2 X 18	150	804	150		1104
	12	VT1	2 x 18	2 X 150	2 X 566			1432
	12	VT2	2 x 18	2 X 150	2 X 620			1540
	12	L1	2 X 16	3786	250			4036
	20	L2	2 X 16	1363	250			1613
	12	L3	4 X 18	3786	250			4036
	20	L13	4 X 4	3786	250			4036
	12	U1	18	1335	10900	1335		13570
	16	U2	2 X 18	1375	3810	250		5435
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	469	4160	469		5098
	12	U5	61	250	5290	250		5790
	10	ST11	4 X 5	14900				14900
	12	UT1	2 X 61	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2288	1220			3508
	12	L5	4 X 1	5238	419			5657
	16	L6	4 X 2	5238	250			5488
	12	L7	4 X 9	Var. 5209 To 2238 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 5209 To 2238 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 6	2238	419			2657
	16	L10	4 X 9	2238	1220			3458
	12	L11	4 X 8	3838	250			4088
	16	L12	4 X 14	3838	250			4088
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	21000				21000
	12	VL1	2 X 63	204	445	300	435	1484
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	21010				21010
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 37 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

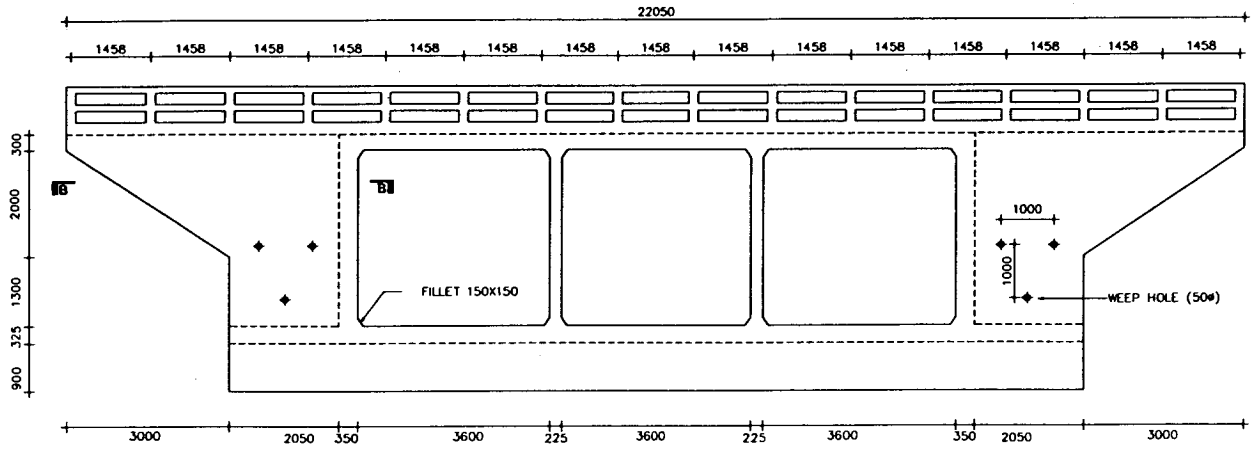
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3233332

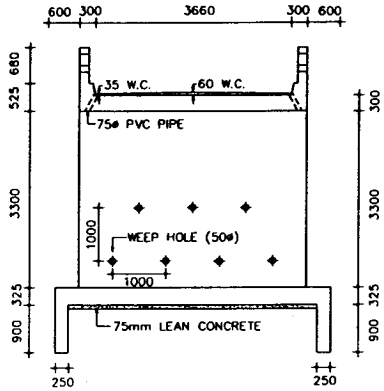
Web Copy

BC-376

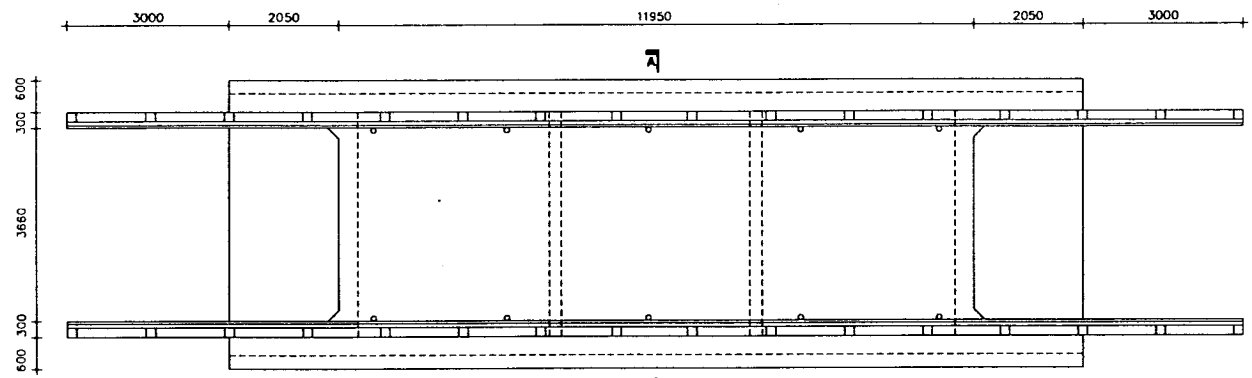
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



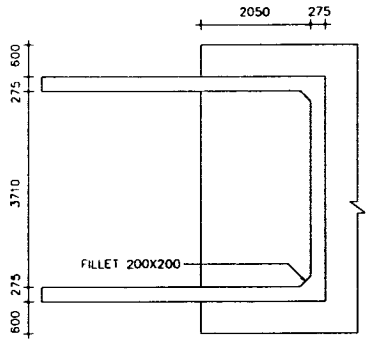
GENERAL ELEVATION



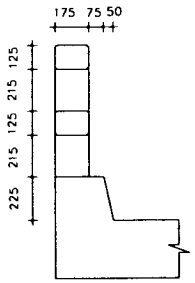
SECTION A-A



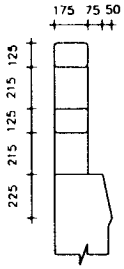
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

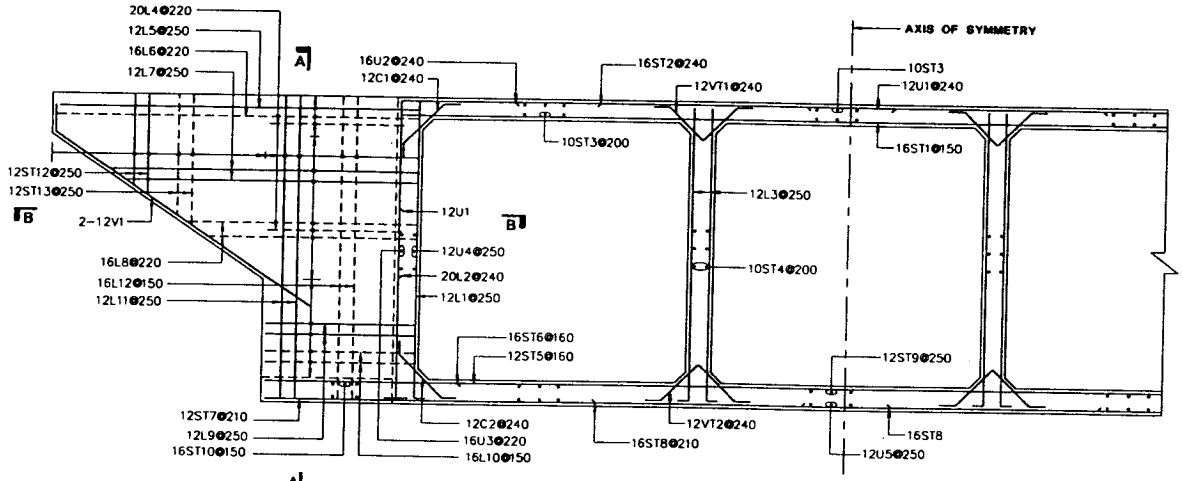
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3236331	

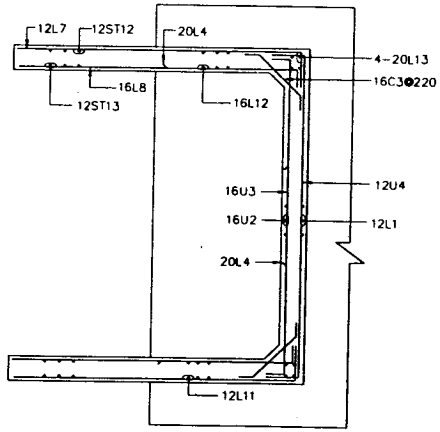
Web Copy

BC-377

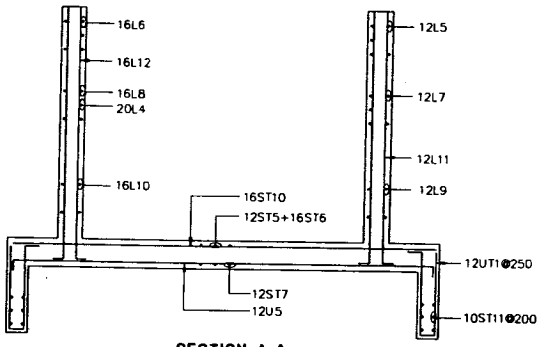
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



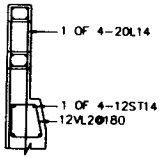
REINFORCEMENT DETAILS



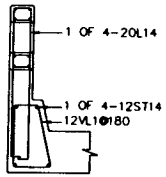
SECTION B-B



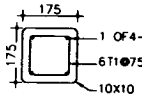
SECTION A-A



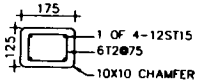
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	11850				11850
	16	ST2	2 x 18	2625				2625
	10	ST3	2 X 61	4160				4160
	10	ST4	4 X 16	4160				4160
	12	ST5	35	15950				15950
	16	ST6	2 x 34	3120				3120
	12	ST7	27	15950				15950
	16	ST8	2 x 26	2625				2625
	12	ST9	49	5360				5360
	16	ST10	2 X 18	5360				5360
	12	C1	2 X 19	150	821	150		1121
	12	C2	2 X 19	150	840	150		1140
	12	VT1	2 x 19	2 X 150	2 X 602			1504
	12	VT2	2 x 19	2 X 150	2 X 620			1540
	12	L1	2 X 14	3811	250			4061
	20	L2	2 X 17	1363	250			1613
	12	L3	4 X 18	3811	250			4061
	20	L13	4 X 4	3811	250			4061
	12	U1	19	1360	11850	1360		14570
	16	U2	2 X 19	1500	3835	250		5585
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	65	250	5290	250		5790
	10	ST11	4 X 5	15900				15900
	12	UT1	2 X 65	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3863	250			4113
	16	L12	4 X 14	3863	250			4113
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	22000				22000
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22010				22010
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 37 kN/m^2
8) This drowing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

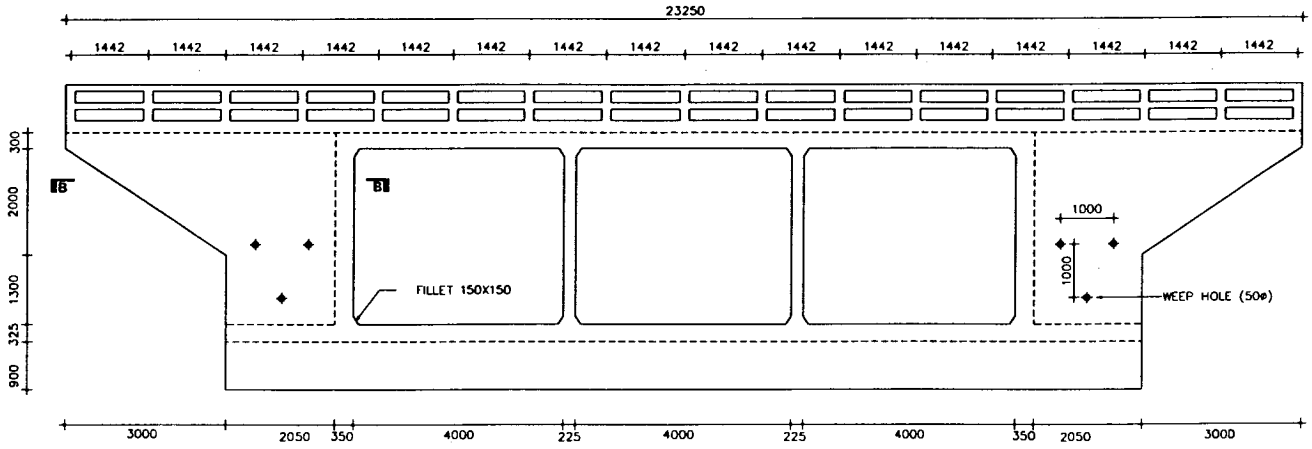
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3236332

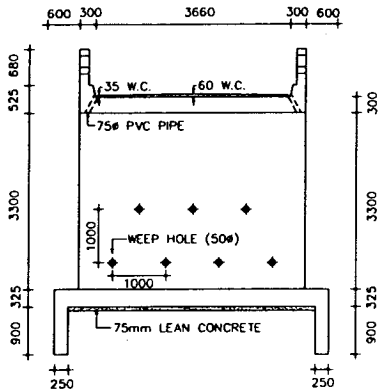
Web Copy

BC-378

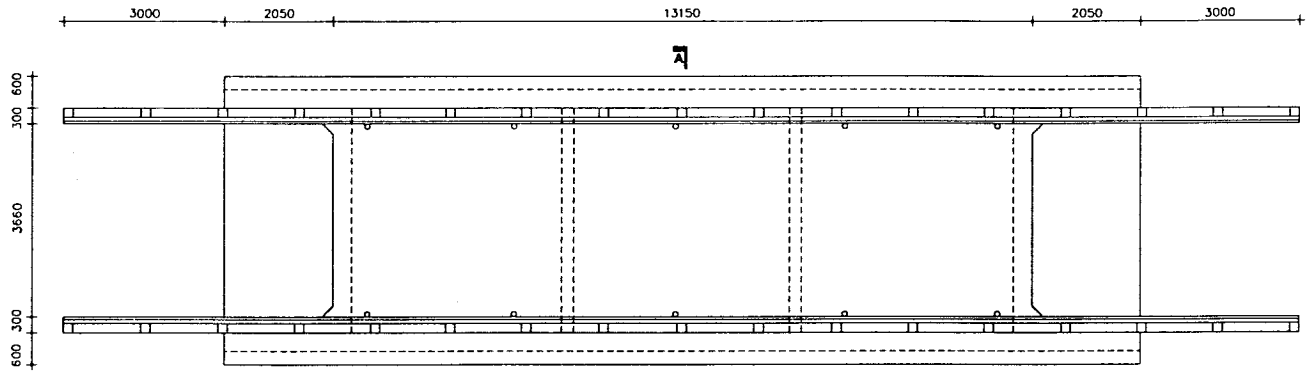
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



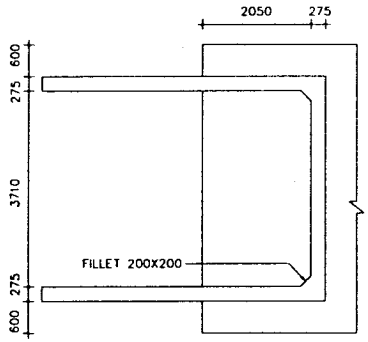
GENERAL ELEVATION



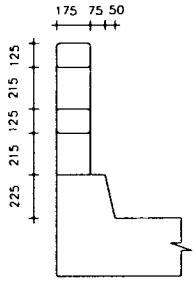
SECTION A-A



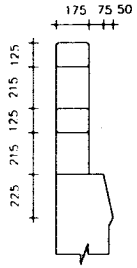
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing, filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :

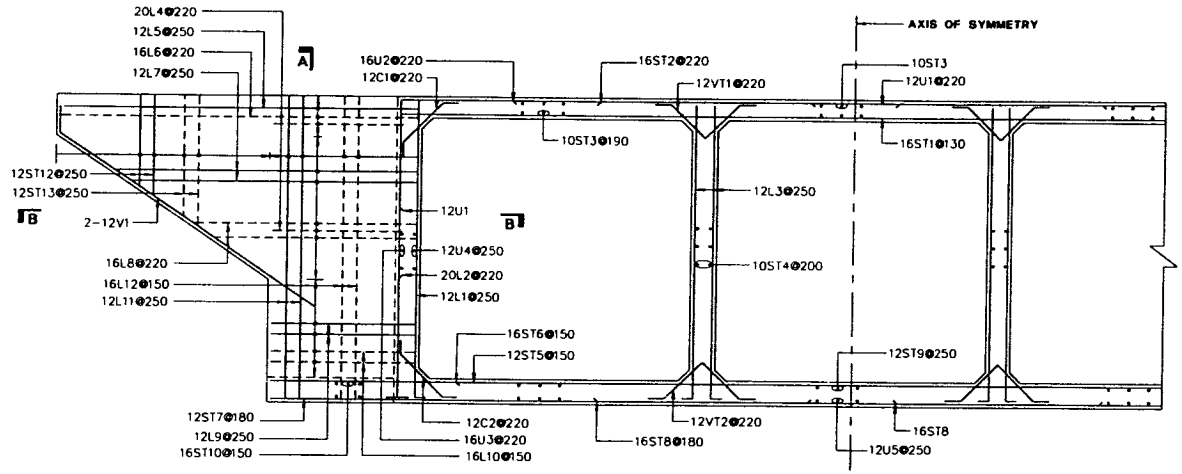
ISSUED BY :

CAD FILE REF : CULV\B3240331

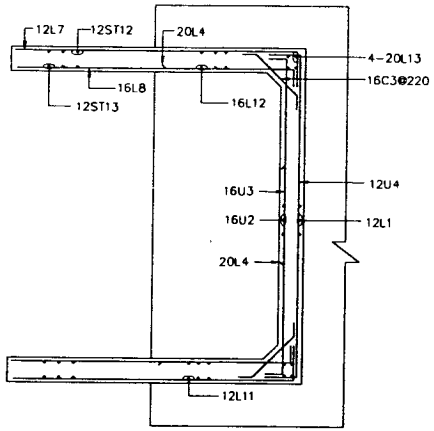
Web Copy

BC-379

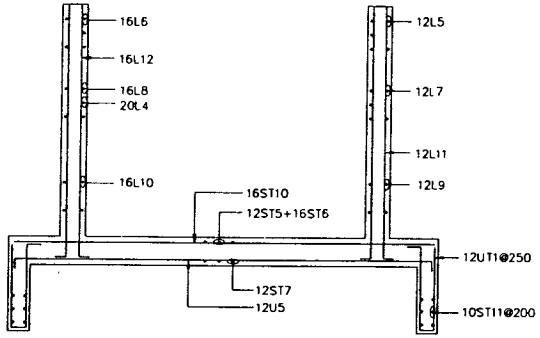
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



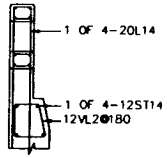
REINFORCEMENT DETAILS



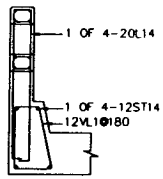
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



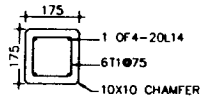
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

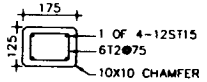
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	33	13050				13050
	16	ST2	2 x 19	2891				2891
	10	ST3	2 X 70	4160				4160
	10	ST4	4 X 16	4160				4160
	12	ST5	37	17150				17150
	16	ST6	2 x 36	3200				3200
	12	ST7	31	17150				17150
	16	ST8	2 x 30	2891				2891
	12	ST9	54	5360				5360
	16	ST10	2 X 14	5360				5360
	12	C1	2 X 20	150	821	150		1121
	12	C2	2 X 20	150	840	150		1140
	12	VT1	2 x 20	2 X 150	2 X 602			1504
	12	VT2	2 x 20	2 X 150	2 X 620			1540
	12	L1	2 X 14	3811	250			4061
	20	L2	2 X 18	1363	250			1613
	12	L3	4 X 18	3811	250			4061
	20	L13	4 X 4	3811	250			4061
	12	U1	20	1360	13050	1360		15770
	16	U2	2 X 20	1633	3835	250		5718
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	70	250	5290	250		5790
	10	ST11	4 X 5	17100				17100
	12	UT1	2 X 70	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3863	250			4113
	16	L12	4 X 14	3863	250			4113
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	23200				23200
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	34 X 4	1121	120			1241
	12	ST15	4 X 4	23210				23210
	6	T1	34 X 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 275MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 35 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

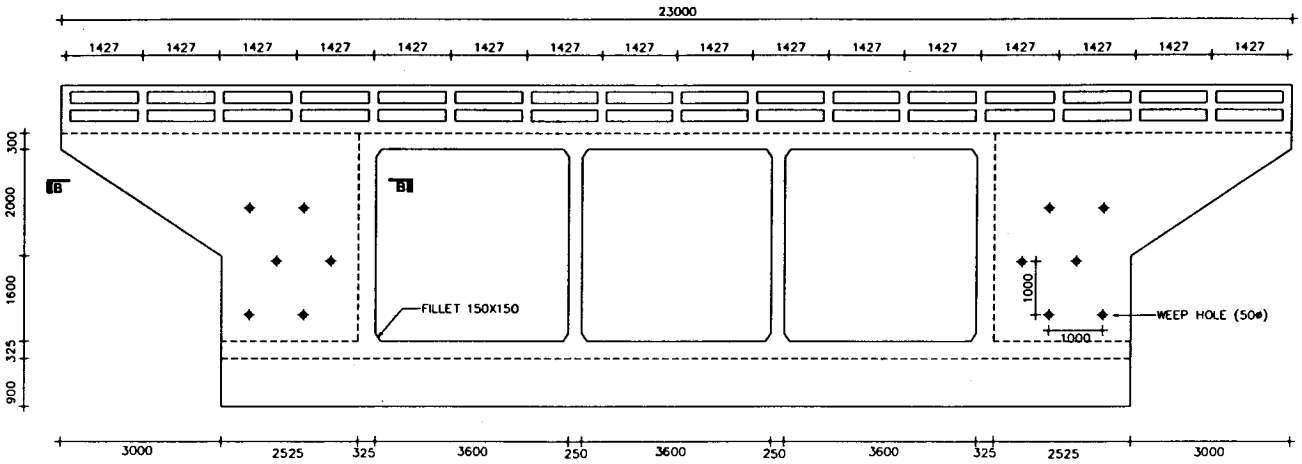
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3240332

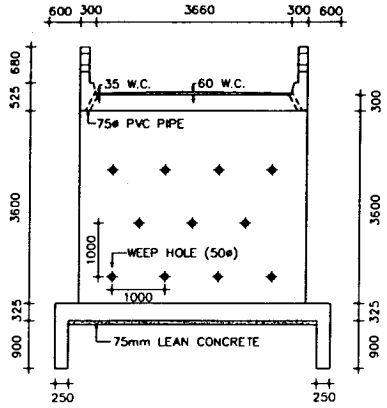
Web Copy

BC-380

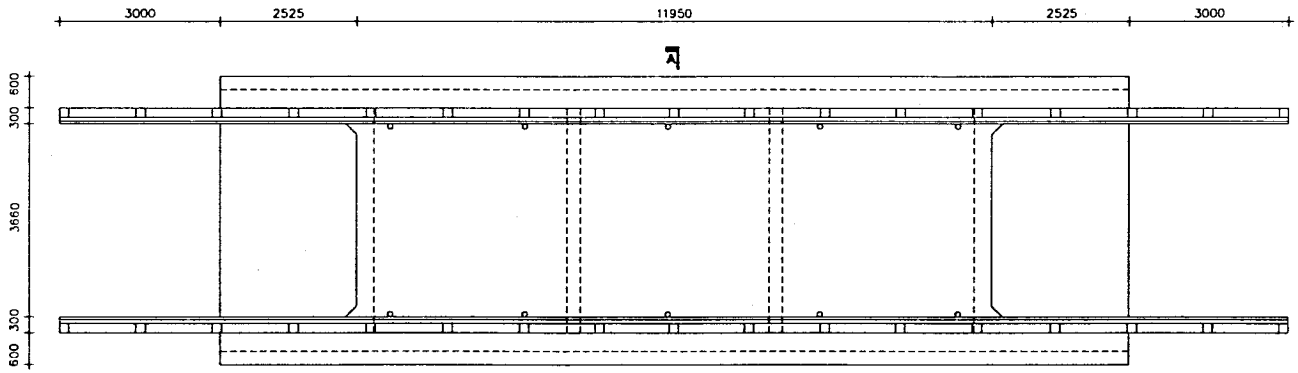
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



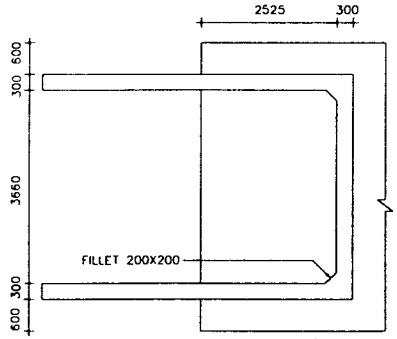
GENERAL ELEVATION



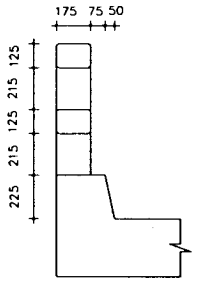
SECTION A-A



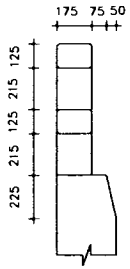
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C. = Wearing Course

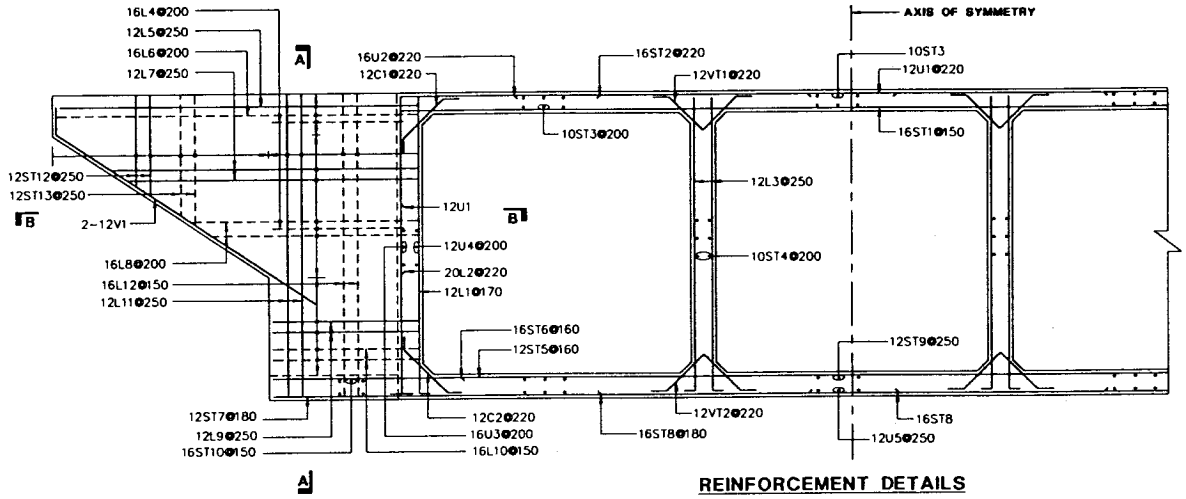
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.6m ROADWAY 3.66m

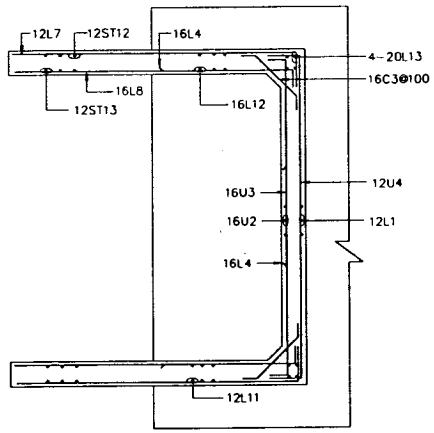
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3236361	

Web Copy

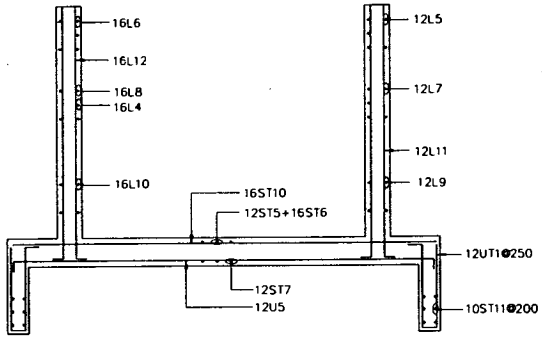
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



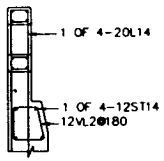
REINFORCEMENT DETAILS



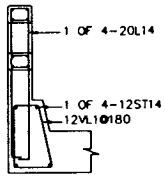
SECTION B-B



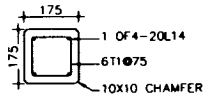
SECTION A-A



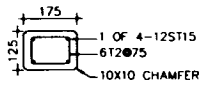
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	29	11850				11850
	16	ST2	2 x 19	2650				2650
	10	ST3	2 X 61	4160				4160
	10	ST4	4 X 18	4160				4160
	12	ST5	35	16900				16900
	16	ST6	2 x 34	3570				3570
	12	ST7	31	16900				16900
	16	ST8	2 x 30	2650				2650
	12	ST9	49	5360				5360
	16	ST10	2 X 17	5360				5360
	12	C1	2 X 20	150	786	150		1086
	12	C2	2 X 20	150	804	150		1104
	12	VT1	2 x 20	2 X 150	2 X 619			1538
	12	VT2	2 x 20	2 X 150	2 X 638			1576
	12	L1	2 X 21	4111	250			4361
	20	L2	2 X 18	1463	250			1713
	12	L3	4 X 18	4111	250			4361
	20	L13	4 X 4	4111	250			4361
	12	U1	20	1460	11850	1460		14770
	16	U2	2 X 20	1475	4135	250		5860
	16	U3	2 X 16	250	4160	250		4660
	12	U4	2 X 17	469	4160	469		5098
	12	U5	69	250	5290	250		5790
	10	ST11	4 X 5	16850				16850
	12	UT1	2 X 69	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 11	2738	1220			3958
	12	L11	4 X 10	4163	250			4413
	16	L12	4 X 17	4163	250			4413
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	22950				22950
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	34 X 4	1121	120			1241
	12	ST15	4 X 4	22960				22960
	6	T1	34 X 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

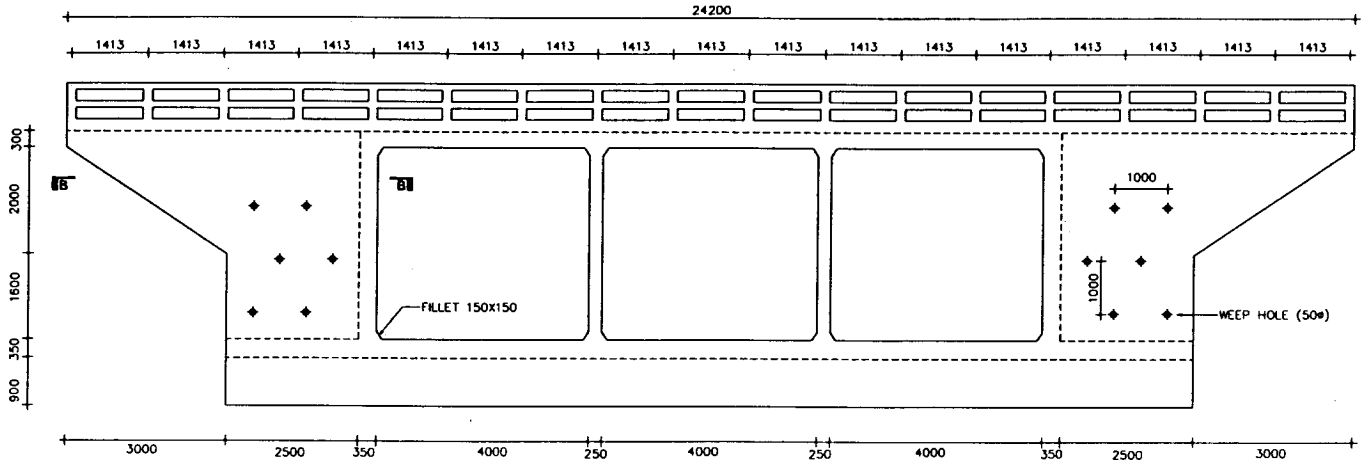
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3236362

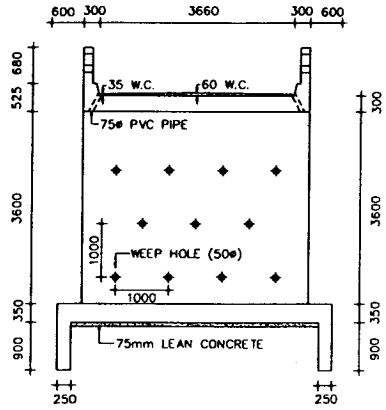
Web Copy

BC-382

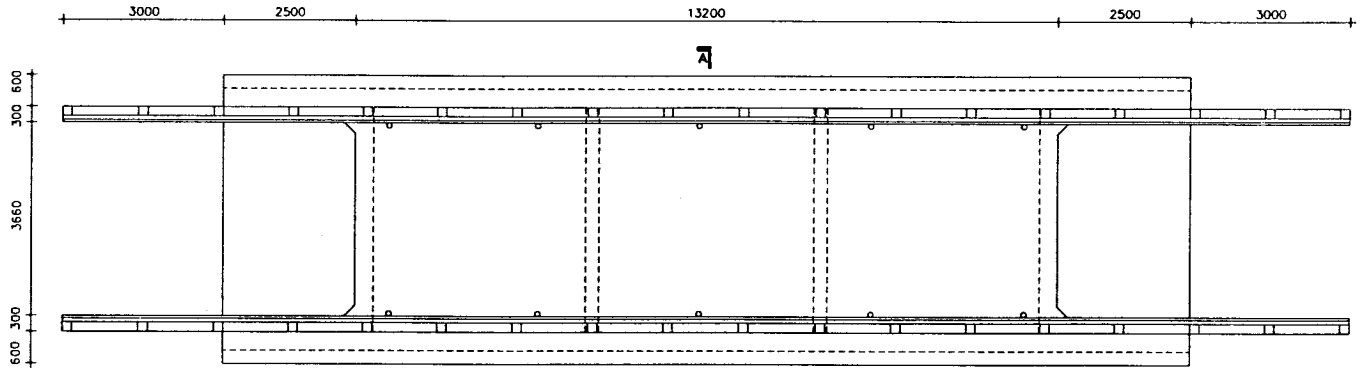
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



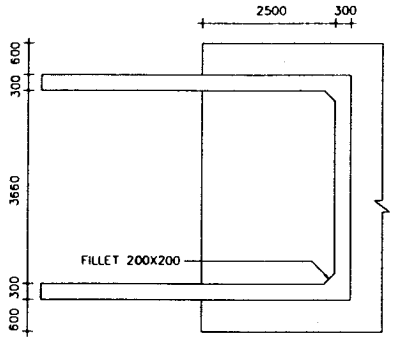
GENERAL ELEVATION



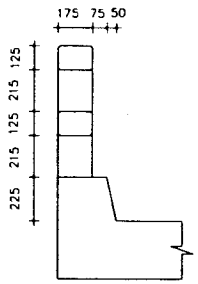
SECTION A-A



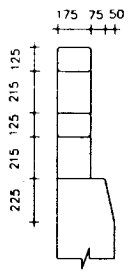
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

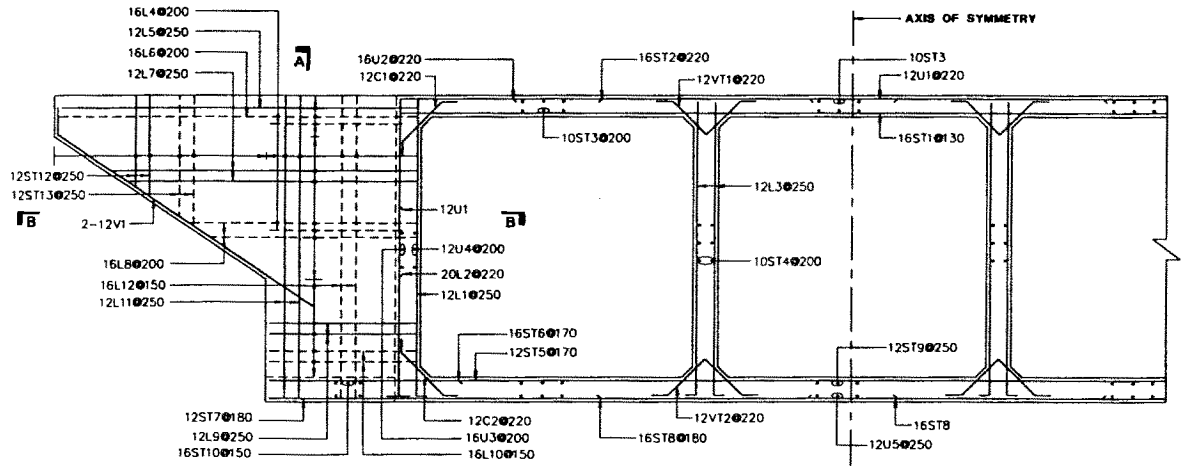
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3240361	

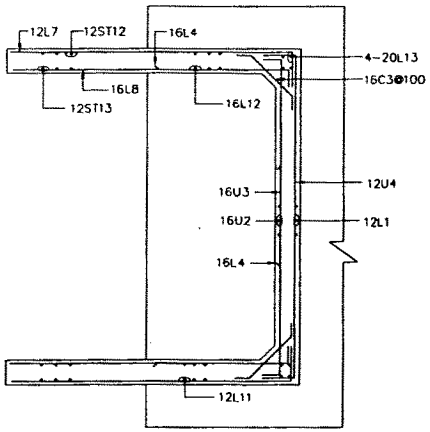
Web Copy

BC-383

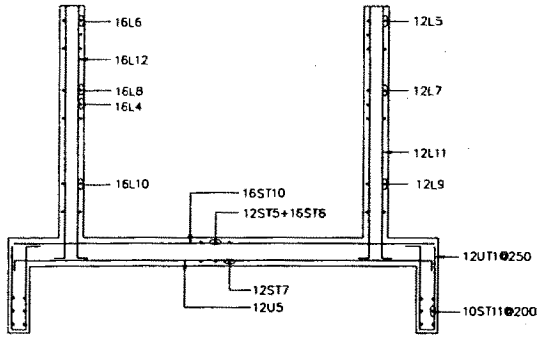
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



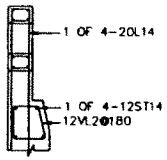
REINFORCEMENT DETAILS



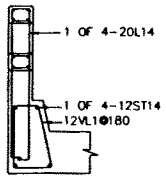
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



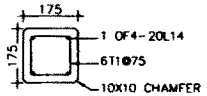
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

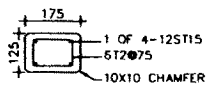
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	33	13100				13100
	16	ST2	2 x 19	2916				2916
	10	ST3	2 X 67	4160				4160
	10	ST4	4 X 18	4160				4160
	12	ST5	33	18100				18100
	16	ST6	2 x 32	3650				3650
	12	ST7	31	18100				18100
	16	ST8	2 x 30	2916				2916
APPROON & CUTOFF WALL	12	ST9	54	5360				5360
	16	ST10	2 X 17	5360				5360
	12	C1	2 X 20	150	821	150		1121
	12	C2	2 X 20	150	875	150		1175
	12	VT1	2 x 20	2 X 150	2 X 619			1538
	12	VT2	2 x 20	2 X 150	2 X 673			1646
	12	L1	2 X 14	4136	250			4386
	20	L2	2 X 18	1488	250			1738
	12	L3	4 X 18	4136	250			4386
	20	L13	4 X 4	4136	250			4386
	12	U1	20	1460	13100	1460		16020
	16	U2	2 X 20	1633	4160	250		6043
	16	U3	2 X 16	250	4160	250		4660
	12	U4	2 X 17	494	4160	494		5148
	12	U5	74	250	5290	250		5790
	10	ST11	4 X 5	18050				18050
	12	UT1	2 X 74	150	2 X 1125	100		2500
WING & WALL	16	L4	4 X 12	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 11	2738	1220			3958
	12	L11	4 X 10	4188	250			4438
	16	L12	4 X 17	4188	250			4438
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	892	150		1192
CURB AND RAILING	12	ST14	2 X 4	24150				24150
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	24160				24160
	6	T1	36 X 6	2 X 135	2 X 135			540
	6	T2	4X 289	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 30 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

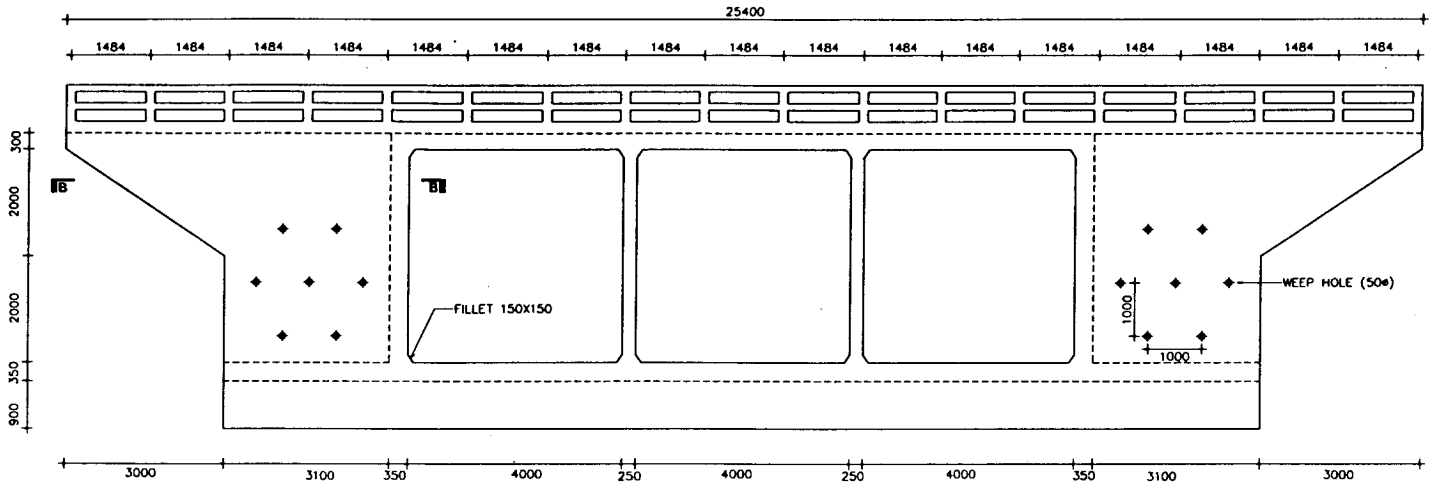
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3240362

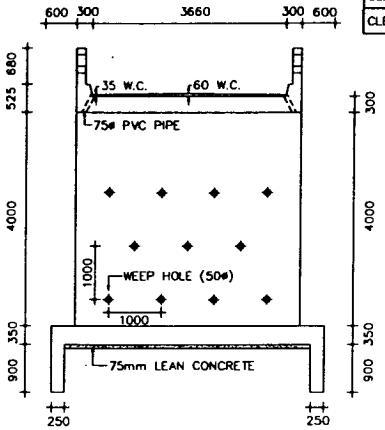
Web Copy

BC-384

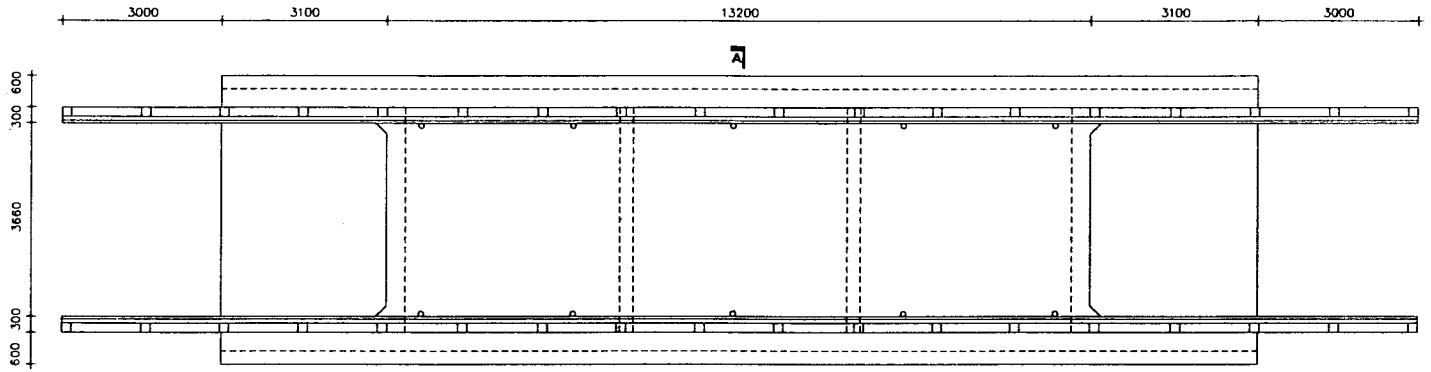
SHEET 1 OF 2
LIVE LOAD : AASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 4.0m



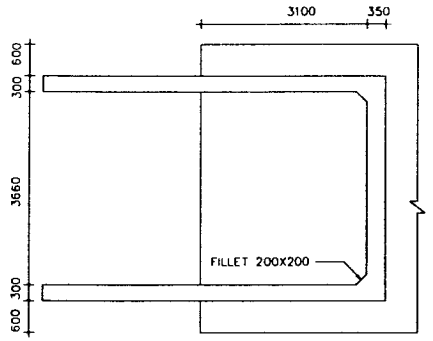
GENERAL ELEVATION



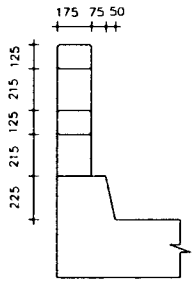
SECTION A-A



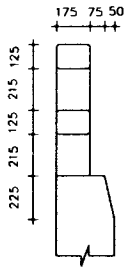
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

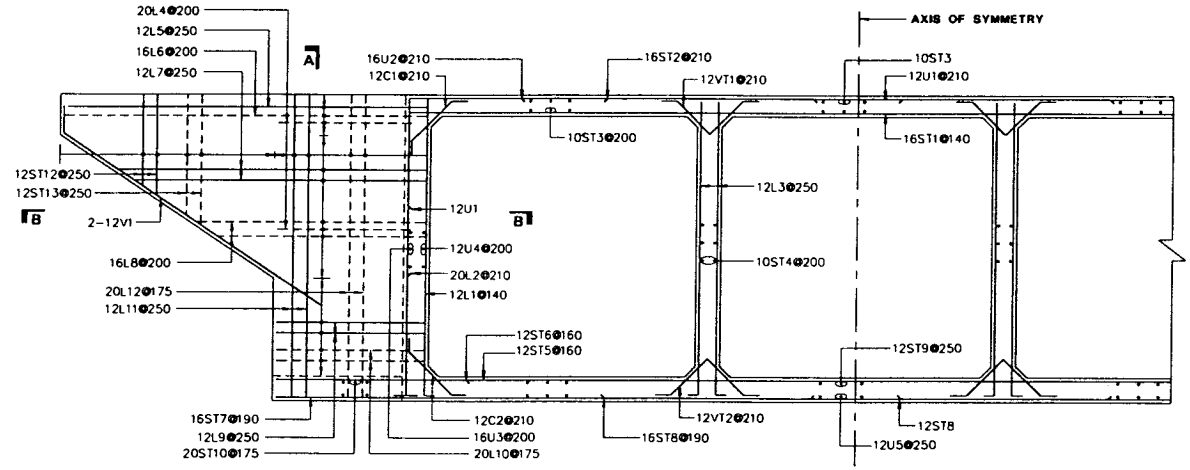
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3240401	

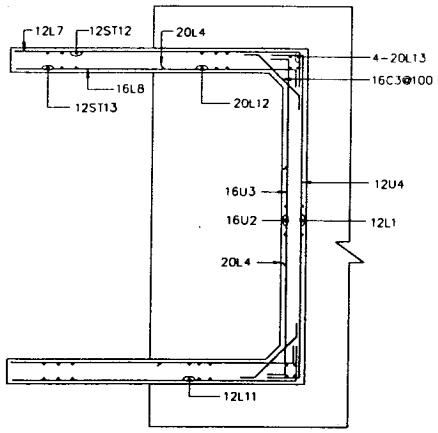
Web Copy

BC-385

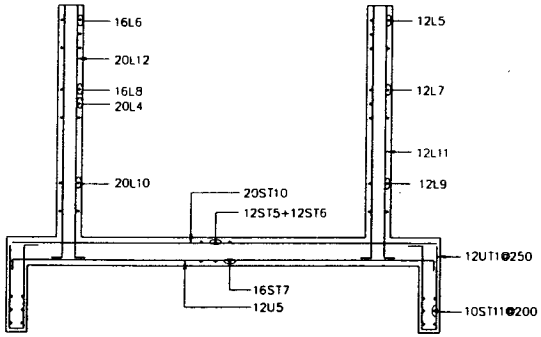
SHEET 2 OF 2
LIVE LOAD: ASHTO H15
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 4.0m



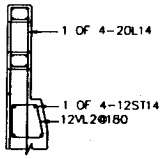
REINFORCEMENT DETAILS



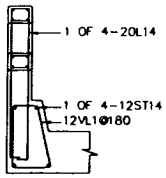
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



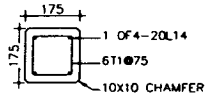
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

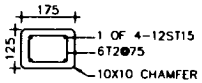
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	13100				13100
	16	ST2	2 x 20	2916				2916
	10	ST3	2 X 67	4160				4160
	10	ST4	4 X 20	4160				4160
	12	ST5	35	19300				19300
	12	ST6	2 x 34	4250				4250
	16	ST7	30	19300				19300
	16	ST8	2 x 29	2916				2916
	12	ST9	54	5360				5360
	20	ST10	2 X 16	5360				5360
	12	C1	2 X 21	150	816	150		1116
	12	C2	2 X 21	150	864	150		1164
	12	VT1	2 x 21	2 X 150	2 X 619			1538
	12	VT2	2 x 21	2 X 150	2 X 673			1646
	12	L1	2 X 26	4532	250			4782
	20	L2	2 X 19	1621	250			1871
	12	L3	4 X 18	4532	250			4782
	20	L13	4 X 4	4532	250			4782
	12	U1	21	1593	13100	1593		16286
	16	U2	2 X 21	1633	4560	250		6443
	16	U3	2 X 18	250	4160	250		4660
	12	U4	2 X 19	494	4160	494		5148
	12	U5	79	250	5290	250		5790
	10	ST11	4 X 5	19250				19250
	12	UT1	2 X 79	150	2 X 1125	100		2500
WING WALL	20	L4	4 X 12	3388	1220			4608
	12	L5	4 X 1	6338	444			6782
	16	L6	4 X 2	6338	250			6588
	12	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	444			3782
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4584	250			4834
	20	L12	4 X 18	4584	250			4834
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 40	150	892	150		1192
CURB AND RAILING	12	ST14	2 X 4	25350				25350
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 34	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	25360				25360
	6	T1	36 X 6	2 X 135	2 X 135			540
	6	T2	4X 306	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structurol grade deformed bars, with minimum yield strength of 276MPa.
6) Cleor cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 44 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

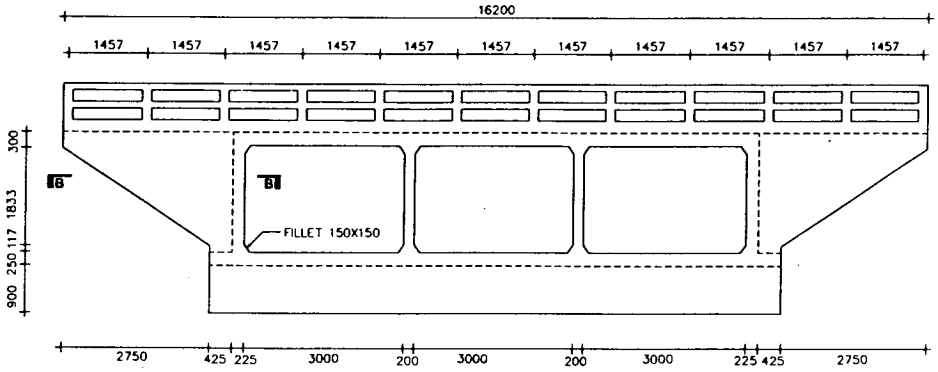
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3240402

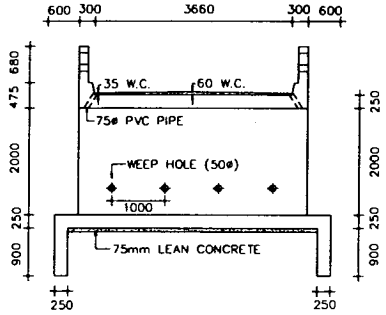
Web Copy

BC-386

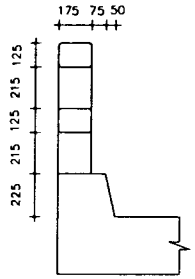
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.0m



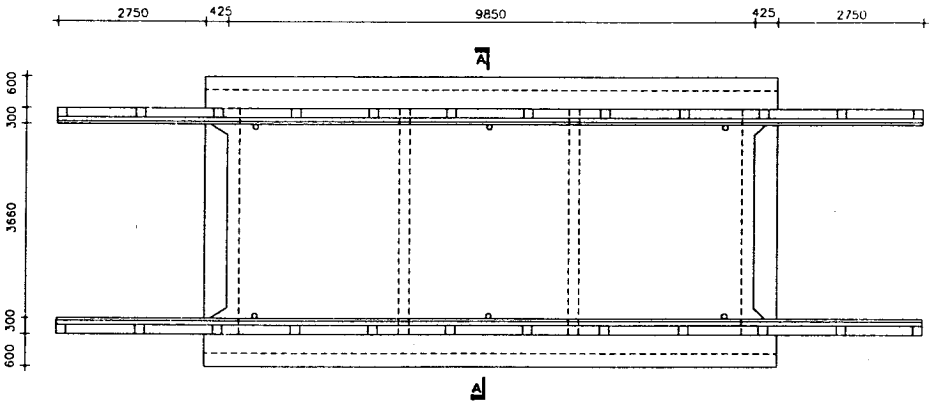
GENERAL ELEVATION



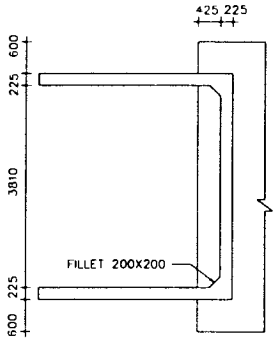
SECTION A-A



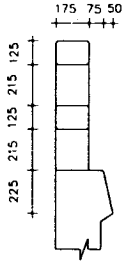
GENERAL ARRANGEMENT
OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF
RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

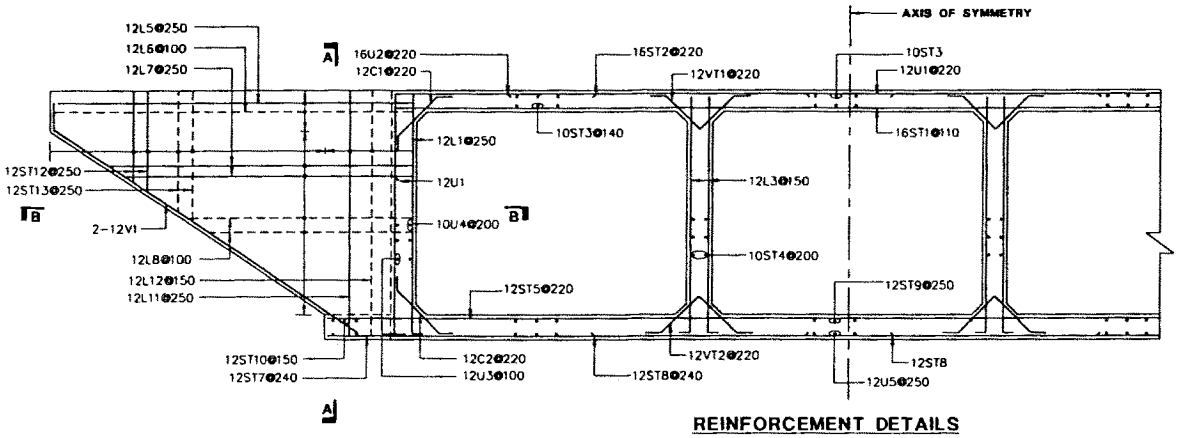
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3330201	

Web Copy

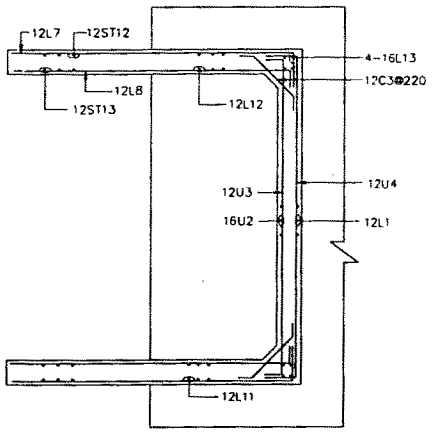
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.0m



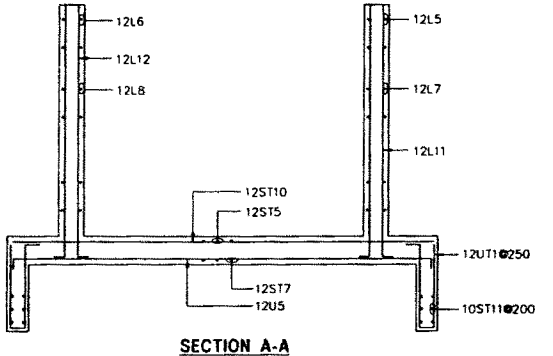
REINFORCEMENT DETAILS

BAR BENDING SCHEDULE

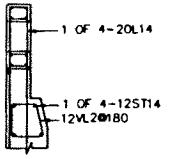
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	39	9750				9750
	16	ST2	2 x 19	2200				2200
	10	ST3	2 X 71	4160				4160
	10	ST4	4 X 10	4160				4160
	12	ST5	26	10600				10600
	12	ST7	24	10600				10600
APPRON & CUTOFF	12	ST8	2 x 23	2200				2200
	12	ST9	41	5360				5360
	12	ST10	2 X 3	5360				5360
	12	C1	2 X 20	150	580	150		880
	12	C2	2 X 20	150	591	150		891
	12	VT1	2 x 20	2 X 150	2 X 513			1326
	12	VT2	2 x 20	2 X 150	2 X 519			1338
	12	L1	2 X 15	2386	250			2636
	12	L3	4 X 29	2386	250			2636
	16	L13	4 X 4	2386	250			2636
	12	U1	20	876	9750	876		11502
	16	U2	2 X 20	1175	2410	250		3835
	12	U3	2 X 19	250	4160	250		4660
	12	U4	2 X 7	369	4160	369		4898
	12	U5	44	250	5290	250		5790
	10	ST11	4 X 5	10550				10550
	12	UT1	2 X 44	150	2 X 1025	100		2300
WING	12	L5	4 X 1	3288	369			3657
	12	L6	4 X 3	3288	250			3538
	12	L7	4 X 9	Var. 3259 To 538 @ 340	369			Var. 2628 To 907
	12	L8	4 X 20	Var. 3259 To 538 @ 143	250			Var. 3509 To 788
	12	L11	4 X 2	2438	250			2688
	12	L12	4 X 3	2438	250			2688
WALL	12	ST12	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 To 376
	12	ST13	4 X 11	Var. 2073 To 376 @ 169				Var. 2073 To 376
	12	V1	4 X 2	3605	200			3805
	12	C3	4 X 23	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	16150				16150
	12	VL1	2 X 56	204	419	295	410	1428
	12	VL2	4 X 18	204	204	248	200	956
	20	L14	24 X 4	1071	120			1191
	12	ST15	4 X 4	16160				16160
	6	T1	24 X 6	2 X 135	2 X 135			540
	6	T2	4X 198	2 X 85	2 X 135			440



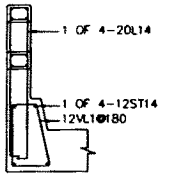
SECTION B-B



SECTION A-A



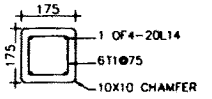
RAILING ON WING WALL (REINF. DETAIL)



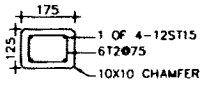
RAILING ON CULVERT (REINF. DETAIL)

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 22 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

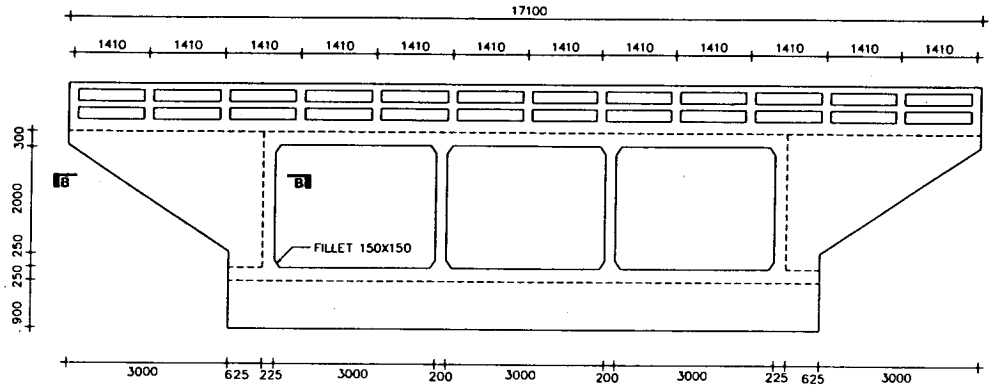
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3330202

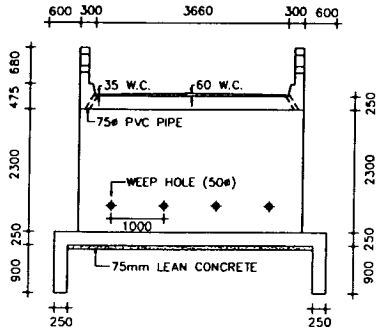
Web Copy

BC-388

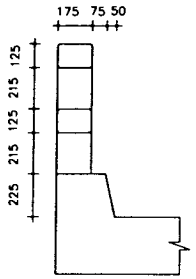
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



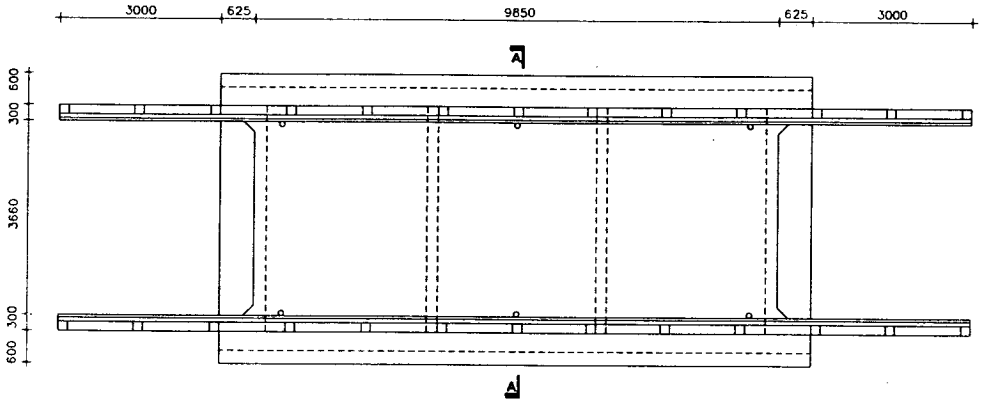
GENERAL ELEVATION



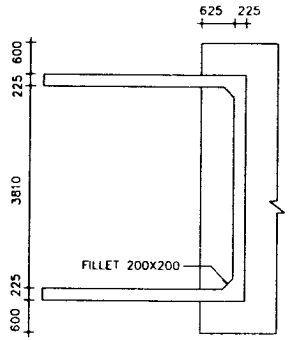
SECTION A-A



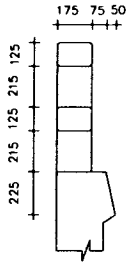
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

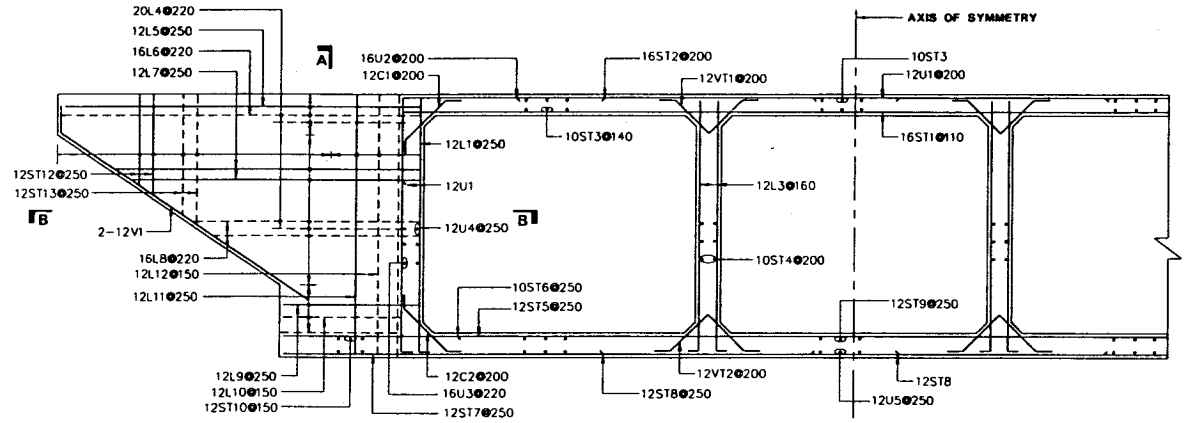
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 3.66m

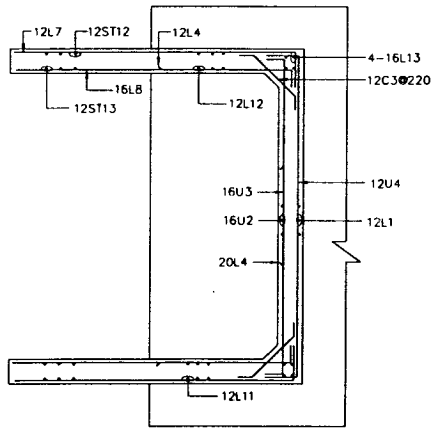
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3330231	

Web Copy

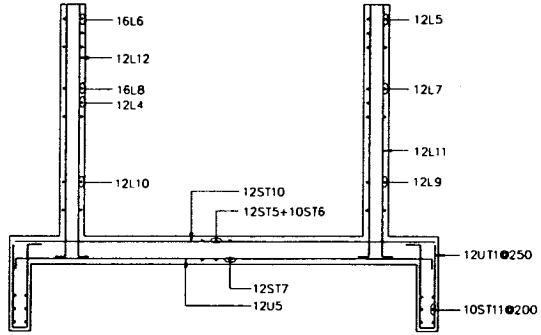
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.3m



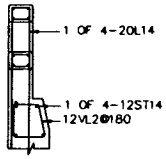
REINFORCEMENT DETAILS



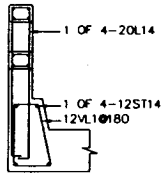
SECTION B-B



SECTION A-A



RAILING ON WING WALL (REINF. DETAIL)



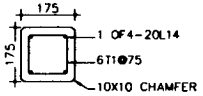
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

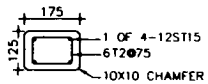
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
	16	ST1	39	9750				9750
B	16	ST2	2 x 21	2200				2200
O	10	ST3	2 X 71	4160				4160
X	10	ST4	4 X 11	4160				4160
	12	ST5	23	11000				11000
	10	ST6	2 X 22	1450				1450
	12	ST7	23	11000				11000
A	12	ST8	2 x 22	2200				2200
P	12	ST9	41	5360				5360
P	12	ST10	2 X 4	5360				5360
R	12	C1	2 X 22	150	574	150		874
O	12	C2	2 X 22	150	585	150		885
N	12	VT1	2 x 22	2 X 150	2 X 513			1326
	12	VT2	2 x 22	2 X 150	2 X 505			1326
&	12	L1	2 X 15	2686	250			2936
	12	L3	4 X 27	2686	250			2936
C.	16	L13	4 X 4	2686	250			2936
U	12	U1	22	976	9750	976		11702
T	16	U2	2 X 22	1175	2710	250		4135
O	16	U3	2 X 10	250	4160	250		4660
F	12	U4	2 X 9	369	4160	369		4898
F	12	U5	45	250	5290	250		5790
	10	ST11	4 X 5	10950				10950
	12	UT1	2 X 46	150	2 X 1025	100		2300
	12	L4	4 X 12	788	1220			2008
W	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
I	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var. 4078 To 1107
N	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
G	12	L9	4 X 1	738	250			963
	12	L10	4 X 2	738	1220			1958
	12	L11	4 X 3	2738	250			2988
W	12	L12	4 X 4	2738	250			2988
A	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
L	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
L	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
	12	ST14	2 X 4	17050				17050
CURB	12	VL1	2 X 56	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
AND	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17060				17060
RAILING	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4X 204	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 25 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

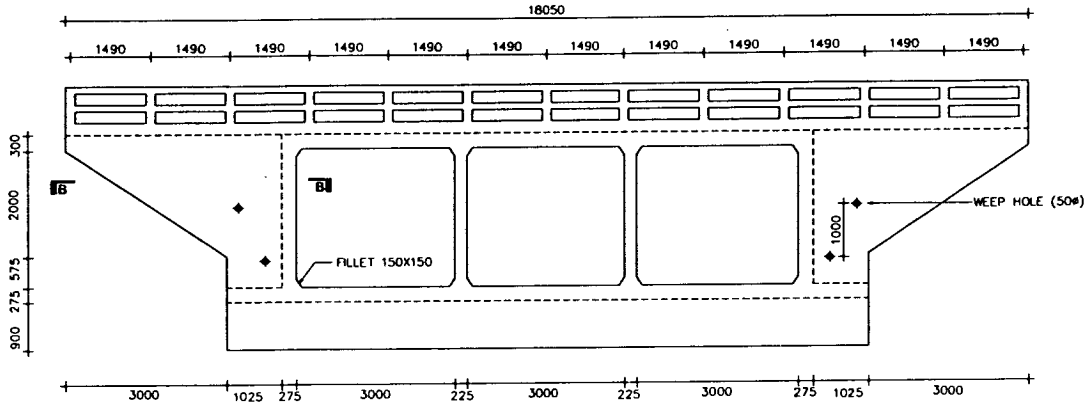
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3330232

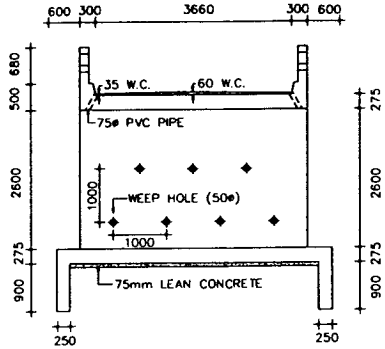
Web Copy

BC-390

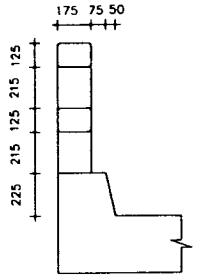
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 2.6m



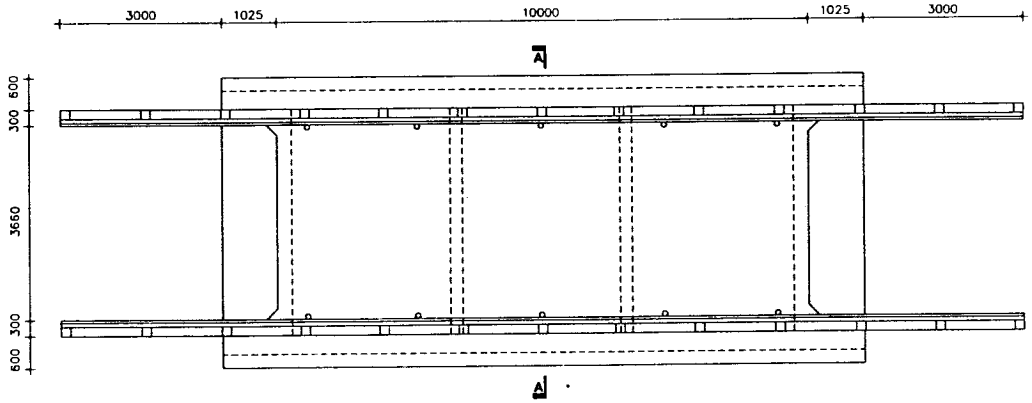
GENERAL ELEVATION



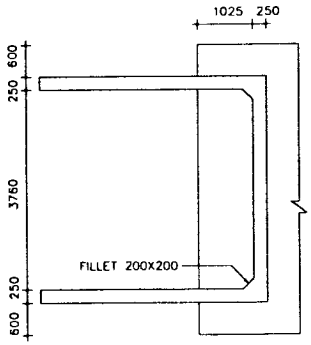
SECTION A-A



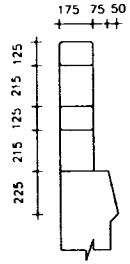
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

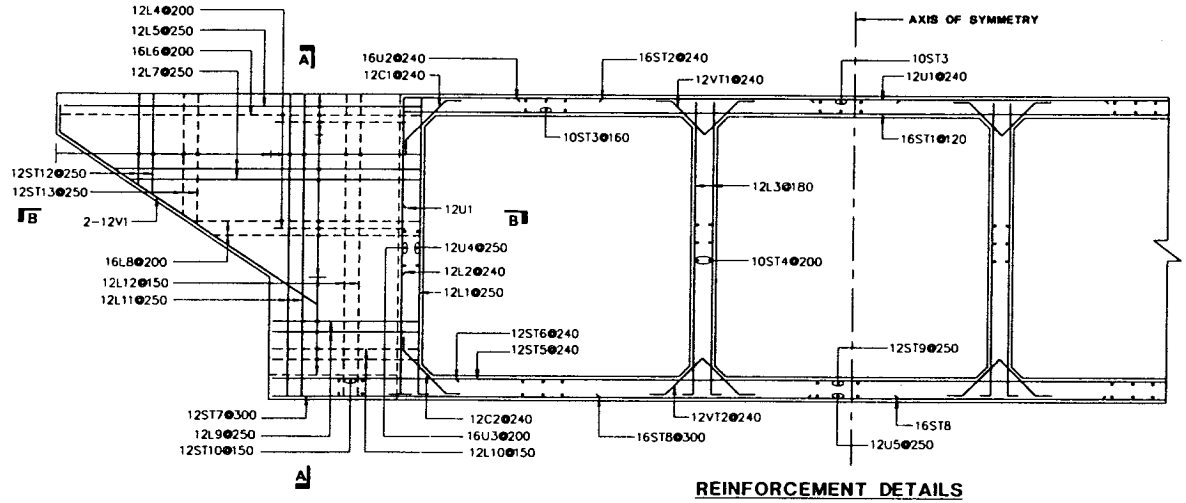
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 3.66m

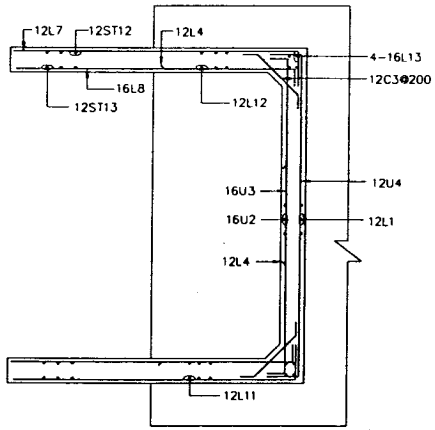
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3330261	

Web Copy

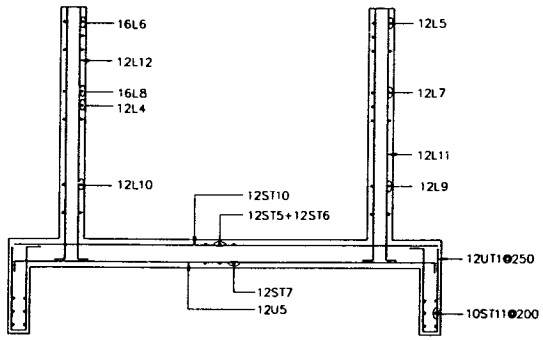
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT :2.6m



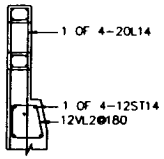
REINFORCEMENT DETAILS



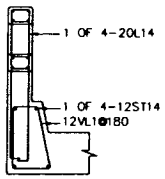
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



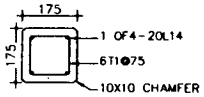
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

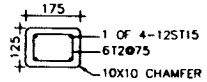
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	36	9900				9900
	16	ST2	2 X 18	2225				2225
	10	ST3	2 X 63	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	24	11950				11950
	12	ST6	2 X 23	1900				1900
	12	ST7	19	11950				11950
	16	ST8	2 X 18	2225				2225
	12	ST9	41	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 19	150	680	150		980
	12	C2	2 X 19	150	674	150		974
	12	VT1	2 X 19	2 X 150	2 X 566			1432
	12	VT2	2 X 19	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 17	1079	250			1329
	12	L3	4 X 25	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	19	1101	9900	1101		12102
	16	U2	2 X 19	1225	3036	250		4535
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	49	250	5290	250		5790
	10	ST11	4 X 5	11900				11900
	12	UT1	2 X 49	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING	12	ST14	2 X 4	18000				18000
	12	VL1	2 X 57	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	18010				18010
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4 X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 29 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

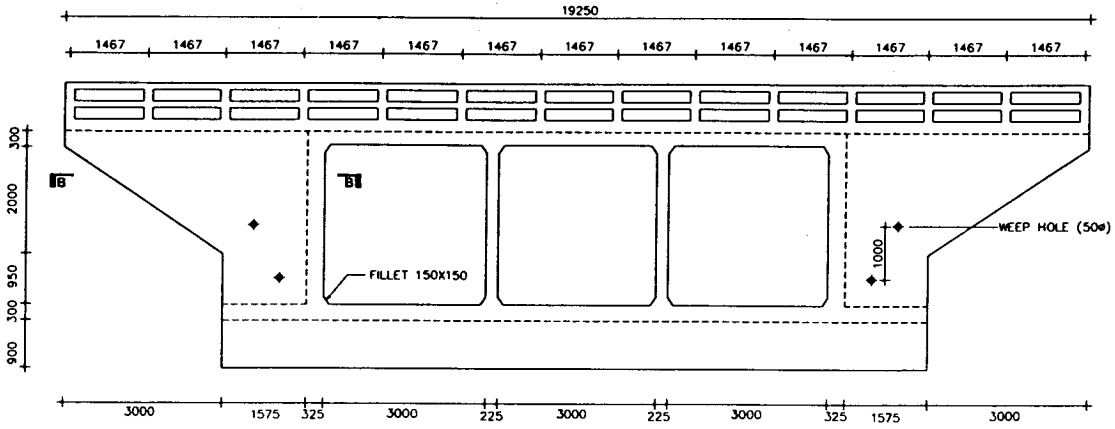
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3330262

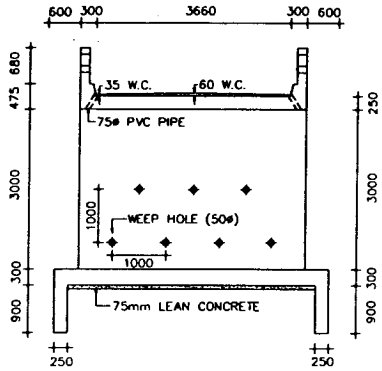
Web Copy

BC-392

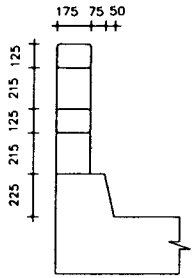
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



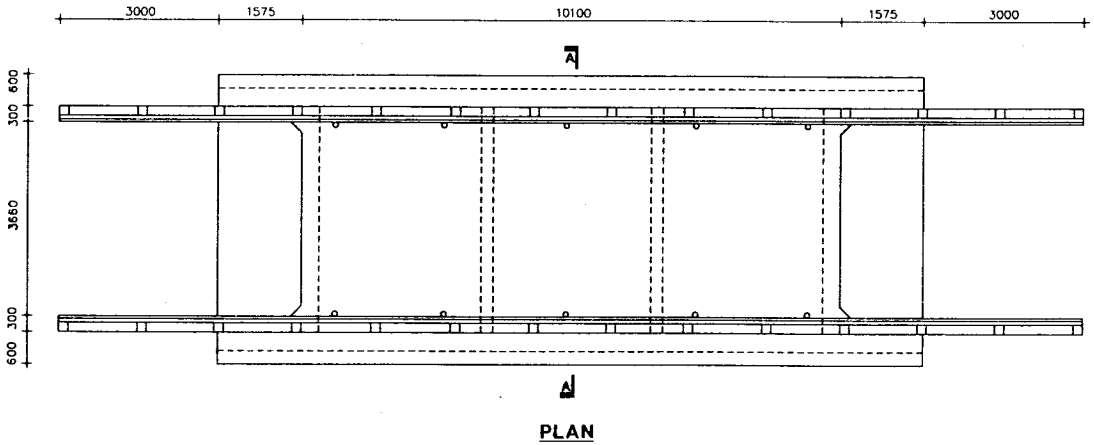
GENERAL ELEVATION



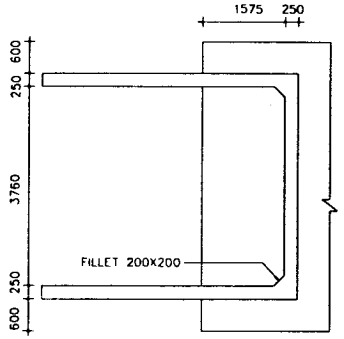
SECTION A-A



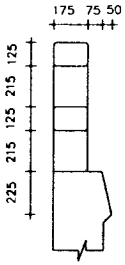
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in millimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

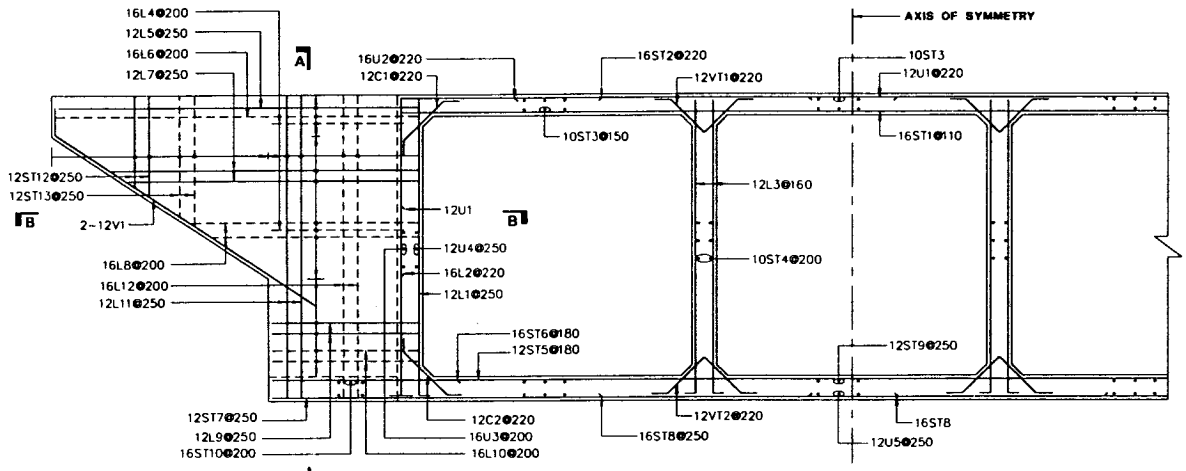
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 3.66m

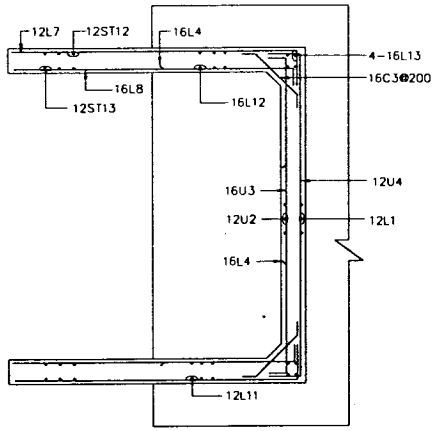
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3330301	

Web Copy

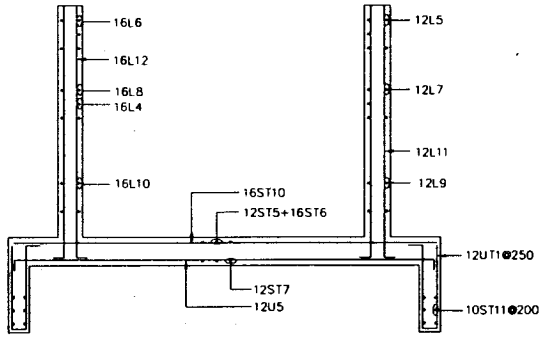
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.0m
CLEAR HEIGHT : 3.0m



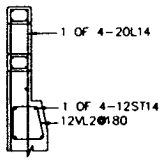
REINFORCEMENT DETAILS



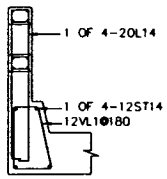
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



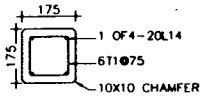
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

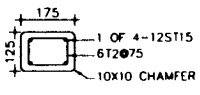
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	10000				10000
	16	ST2	2 X 19	2225				2225
	10	ST3	2 X 68	4160				4160
	10	ST4	2 X 15	4160				4160
	12	ST5	31	13150				13150
	16	ST6	2 X 30	2500				2500
	12	ST7	23	13150				13150
	16	ST8	2 X 22	2225				2225
	12	ST9	42	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 20	150	715	150		1015
	12	C2	2 X 20	150	775	150		1015
	12	VT1	2 X 20	2 X 150	2 X 531			1362
	12	VT2	2 X 20	2 X 150	2 X 585			1470
	12	L1	2 X 15	3436	250			3686
	16	L2	2 X 18	1238	250			1488
	12	L3	4 X 27	3436	250			3686
	16	L13	4 X 4	3436	250			3686
	12	U1	20	1210	10000	1210		12420
	16	U2	2 X 20	1275	3460	250		4985
	16	U3	2 X 20	250	4160	250		4660
	12	U4	2 X 14	469	4160	469		5098
	12	U5	54	250	5290	250		5790
	10	ST11	4 X 5	13100				13100
	12	UT1	2 X 54	150	2 X 1075	100		2400
WING WALL	16	L4	4 X 13	1838	1220			3085
	12	L5	4 X 1	4788	394			5182
	16	L6	4 X 2	4788	250			5038
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	394			Var. 5153 To 2182
	16	L8	4 X 11	Var. 4759 To 1788 @ 297	250			Var. 5009 To 2038
	12	L9	4 X 4	1788	394			2182
	16	L10	4 X 5	1788	1220			3008
	12	L11	4 X 7	3488	250			3738
	16	L12	4 X 8	3488	250			3738
WALL	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 17	150	786	150		1086
CURB AND RAILING	12	ST14	2 X 4	19200				19200
	12	VL1	2 X 58	204	419	410	460	1428
	12	VL2	4 X 26	204	204	200	200	956
	20	L14	28 X 4	1071	120			1191
	12	ST15	4 X 4	19200				19210
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 234	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code: Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEEING DEPARTMENT

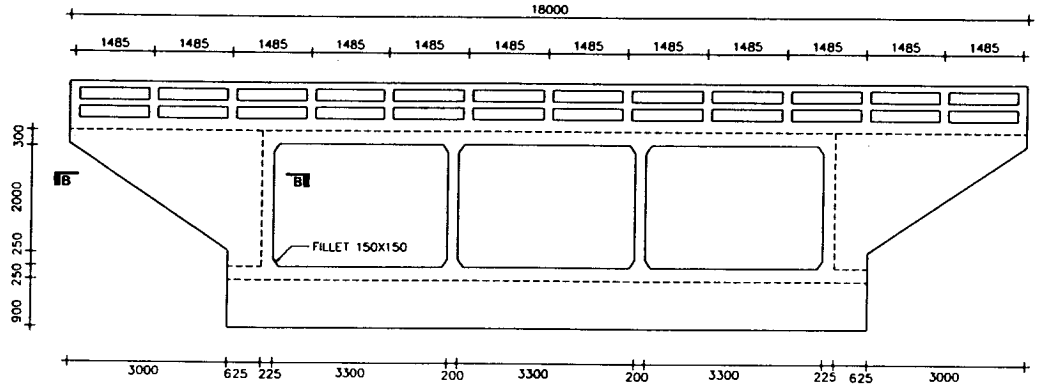
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3330302

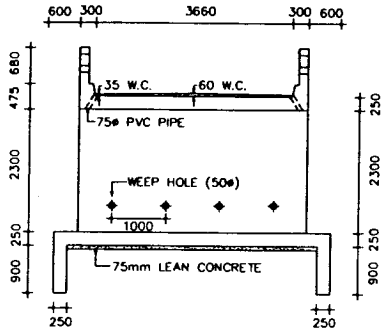
Web Copy

BC-394

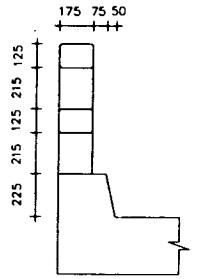
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



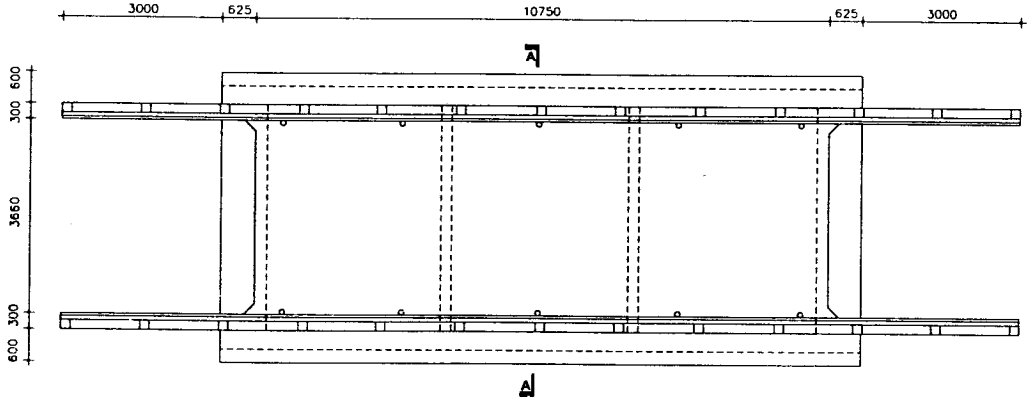
GENERAL ELEVATION



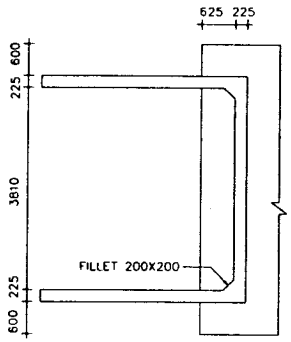
SECTION A-A



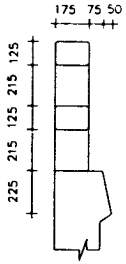
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

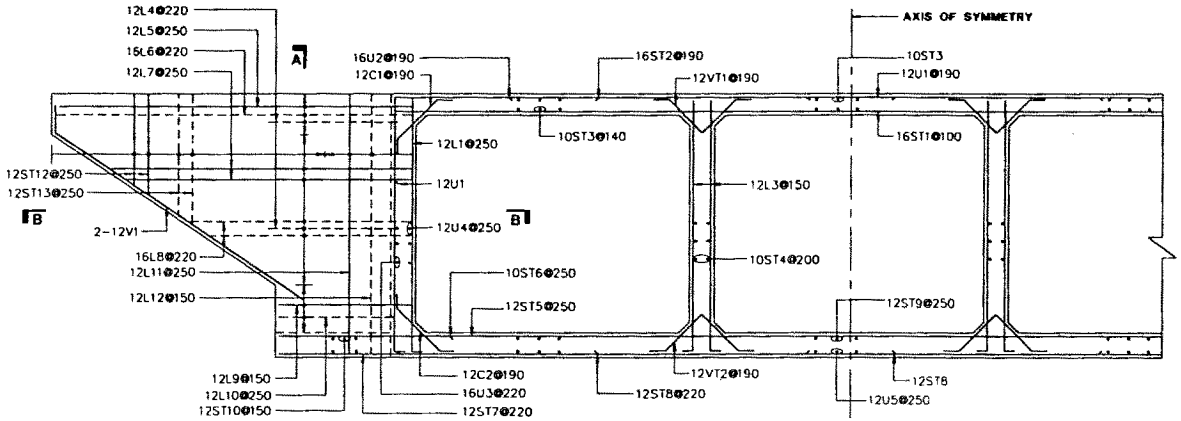
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 3.66m

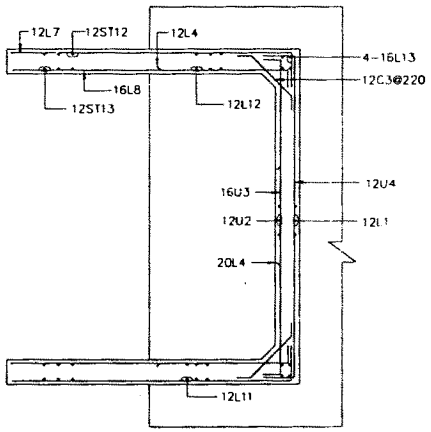
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3333231	

Web Copy

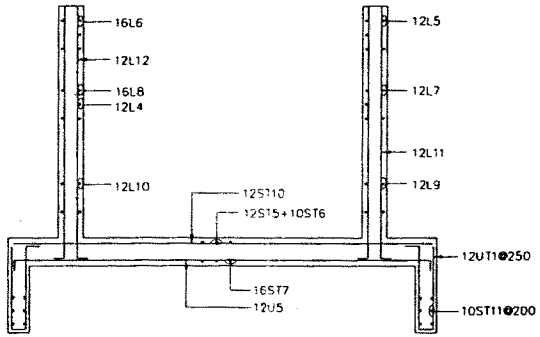
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.3m



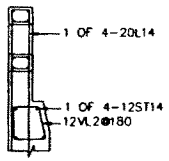
REINFORCEMENT DETAILS



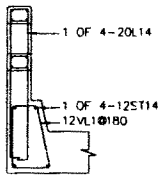
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



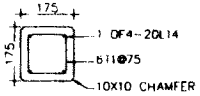
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

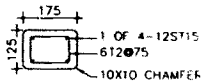
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROACH & CUTOFF	16	ST1	43	10650				10650
	16	ST2	2 X 22	2400				2400
	10	ST3	2 X 78	4160				4160
	10	ST4	4 X 11	4160				4160
	12	ST5	23	11900				11900
	10	ST6	2 X 22	1510				1510
	12	ST7	26	11900				11900
	12	ST8	2 X 25	2400				2400
	12	ST9	44	5360				5360
	12	ST10	2 X 4	5360				5360
	12	C1	2 X 23	150	574	150		874
	12	C2	2 X 23	150	585	150		885
	12	VT1	2 X 23	2 X 150	2 X 513			1326
	12	VT2	2 X 23	2 X 150	2 X 505			1310
	12	L1	2 X 15	2686	250			2936
	12	L3	4 X 29	2686	250			2936
	16	L13	4 X 4	2686	250			2936
	12	U1	23	976	10650	976		12602
	16	U2	2 X 23	1275	2710	250		4235
	16	U3	2 X 10	250	4160	250		4660
	12	U4	2 X 9	369	4160	369		4898
	12	U5	49	250	5290	250		5790
	10	ST11	4 X 5	11850				11850
	12	UT1	2 X 49	150	2 X 1025	100		2300
WING WALL	12	L4	4 X 12	788	1220			2008
	12	L5	4 X 1	3738	369			4107
	16	L6	4 X 2	3738	250			3988
	12	L7	4 X 9	Var. 3709 To 738 @ 371	369			Var.4078 To 1107
	16	L8	4 X 11	Var. 3709 To 738 @ 297	250			Var. 3959 To 988
	12	L9	4 X 1	738	250			963
	12	L10	4 X 2	738	1220			1958
	12	L11	4 X 3	2738	250			2988
	12	L12	4 X 4	2738	250			2988
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 13	150	609	150		909
CURB AND RAILING	12	ST14	2 X 4	17950				17950
	12	VL1	2 X 61	204	419	295	410	1428
	12	VL2	4 X 20	204	204	248	200	956
	20	L14	26 X 4	1071	120			1191
	12	ST15	4 X 4	17960				17960
	6	T1	26 X 6	2 X 135	2 X 135			540
	6	T2	4 X 216	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top) 40 mm, d) Slab (Bot.)-50mm
e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut off wall-75mm
7) Bearing capacity of soil Should be $\geq$ 24 kN/m^2
8) This drawing is to be read in conjunction with Shape Code: Cad File. CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

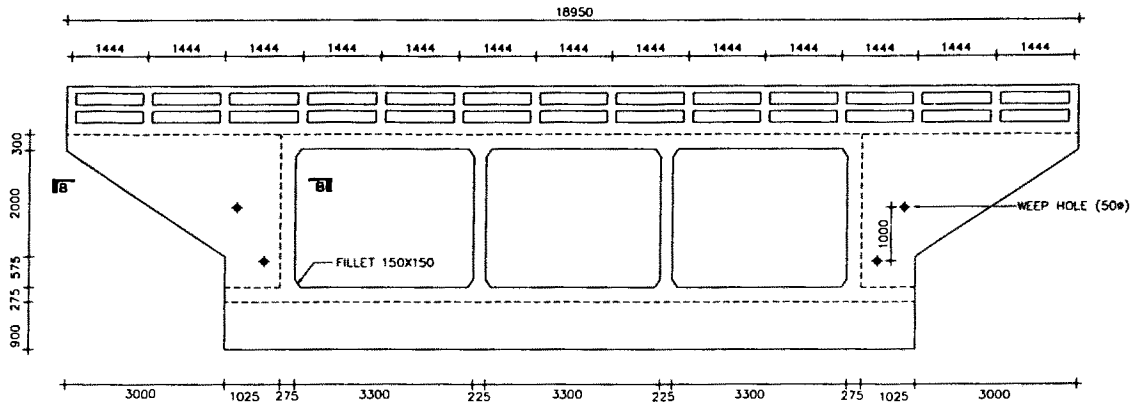
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3333232

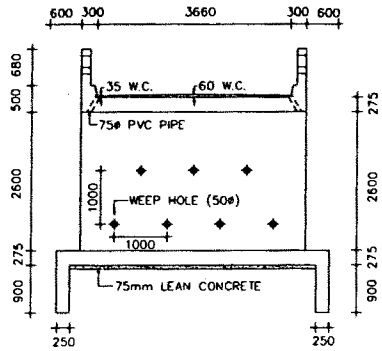
Web Copy

BC-396

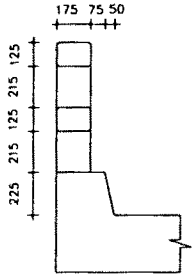
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3x3.3m
CLEAR HEIGHT : 2.6m



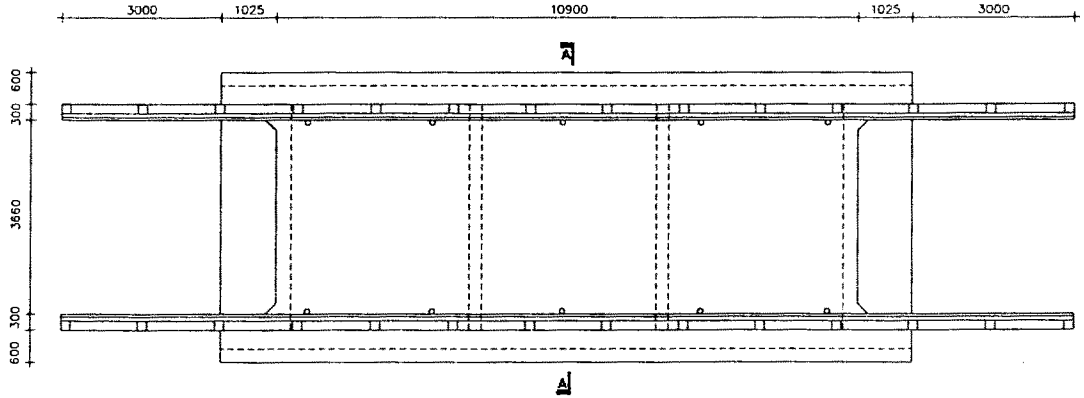
GENERAL ELEVATION



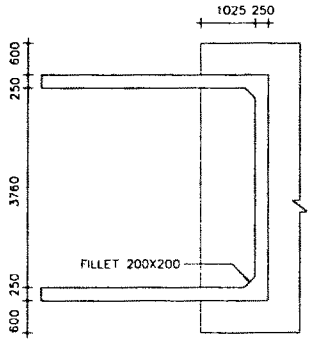
SECTION A-A



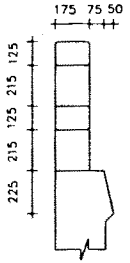
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

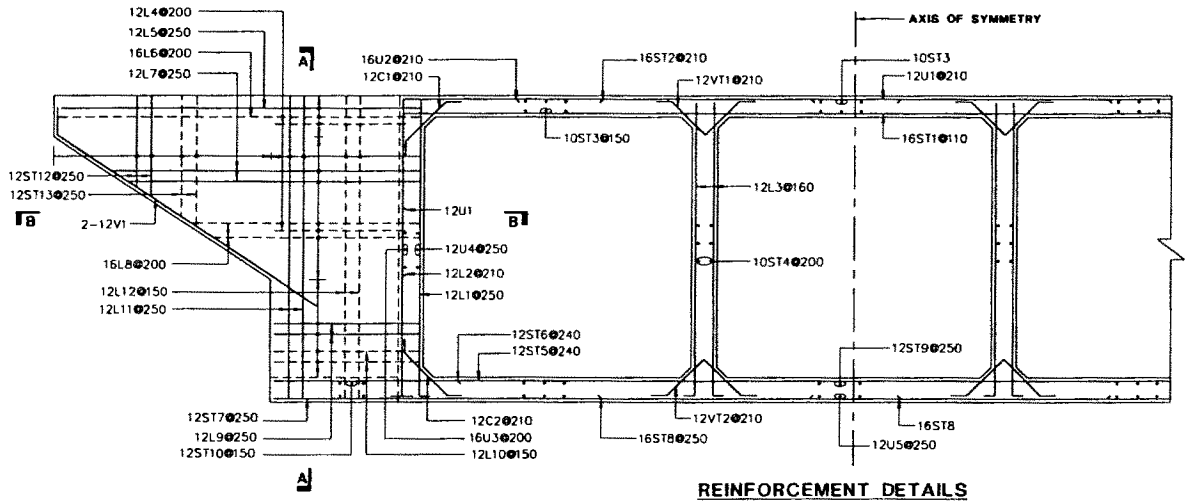
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3333261	

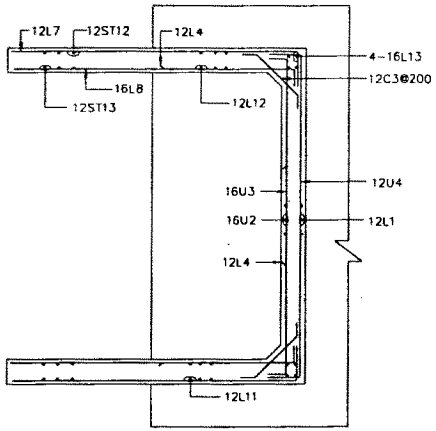
Web Copy

BC-397

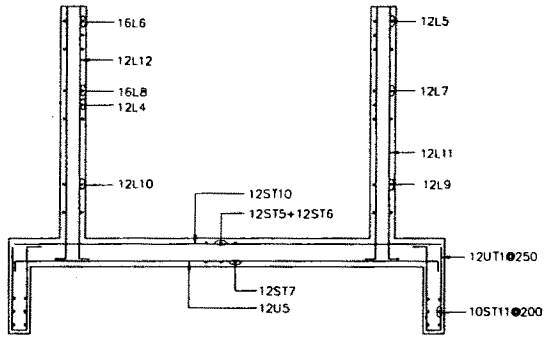
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 2.6m



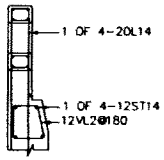
REINFORCEMENT DETAILS



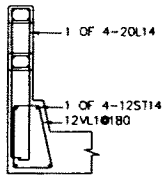
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



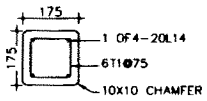
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

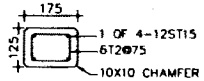
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	31	10800				10800
	16	ST2	2 X 19	2425				2425
	10	ST3	2 X 58	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	24	12850				12850
	12	ST6	2 X 23	1960				1960
	12	ST7	21	12850				12850
	16	ST8	2 X 20	2425				2425
	12	ST9	45	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 20	150	680	150		980
	12	C2	2 X 20	150	674	150		974
	12	VT1	2 X 20	2 X 150	2 X 566			1432
	12	VT2	2 X 20	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 18	1079	250			1329
	12	L3	4 X 27	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	20	1101	10800	1101		13002
	16	U2	2 X 20	1325	3060	250		4635
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	53	250	5290	250		5790
	10	ST11	4 X 5	12800				12800
	12	UT1	2 X 53	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715.	150		1015
CURB AND RAILING	12	ST14	2 X 4	18900				18900
	12	VL1	2 X 62	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	18910				18910
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 28 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

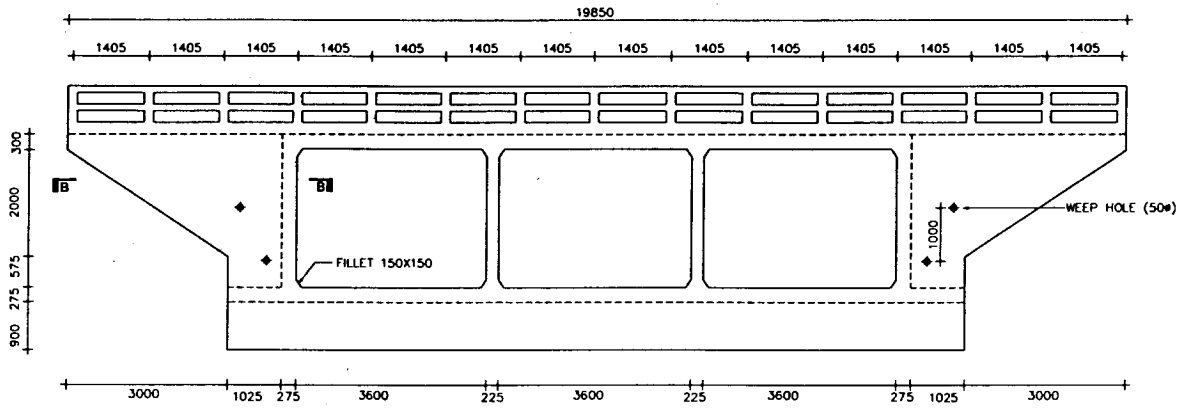
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3333262

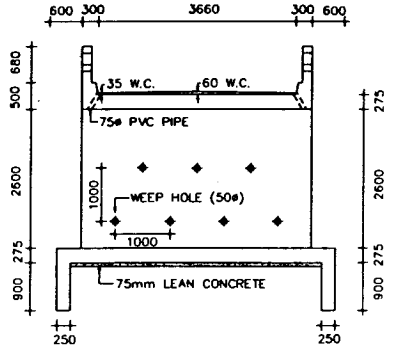
Web Copy

BC-398

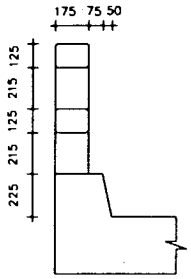
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3x3.6m
CLEAR HEIGHT : 2.6m



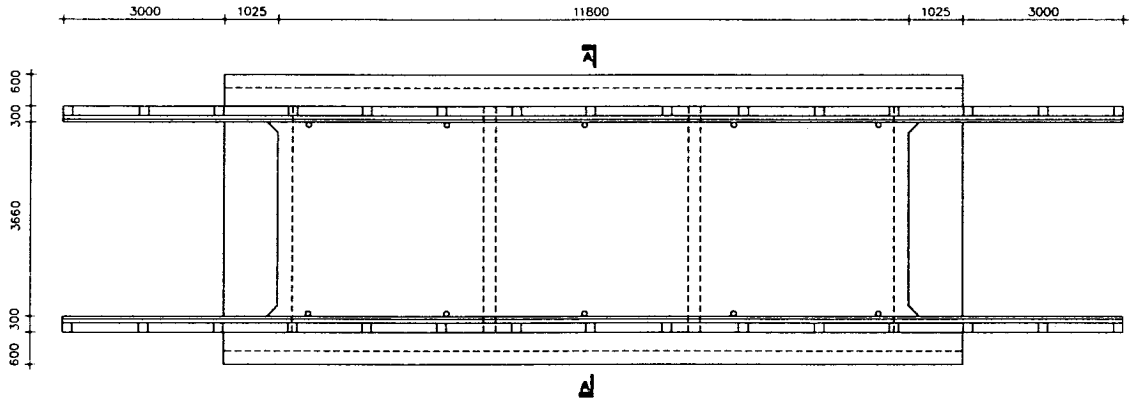
GENERAL ELEVATION



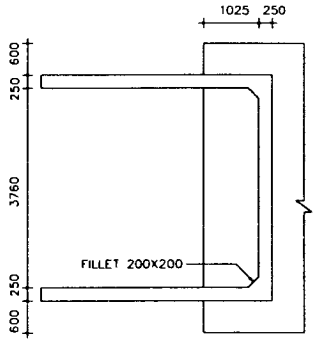
SECTION A-A



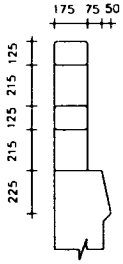
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C. = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :

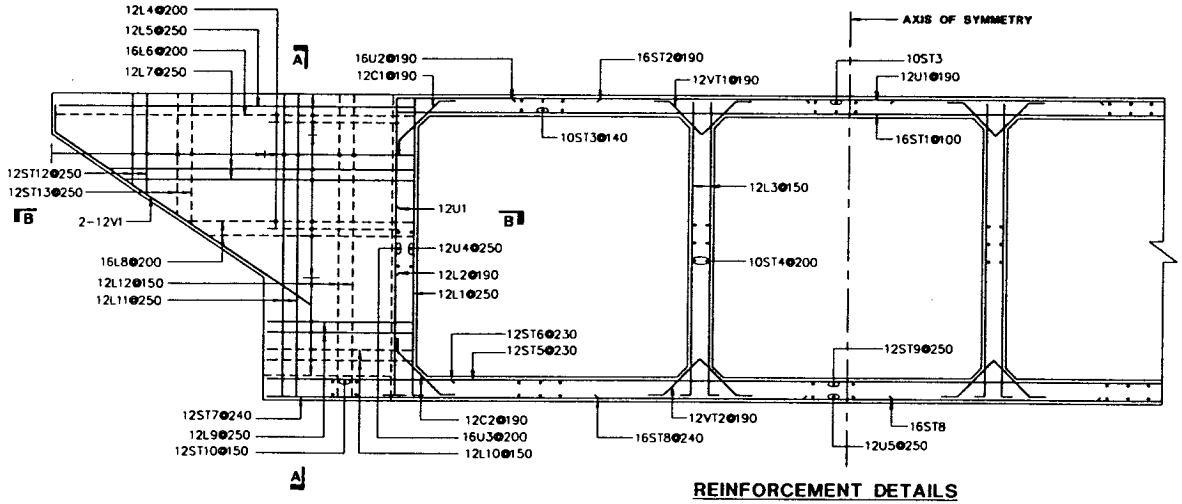
ISSUED BY :

CAD FILE REF : CULV\B3336261

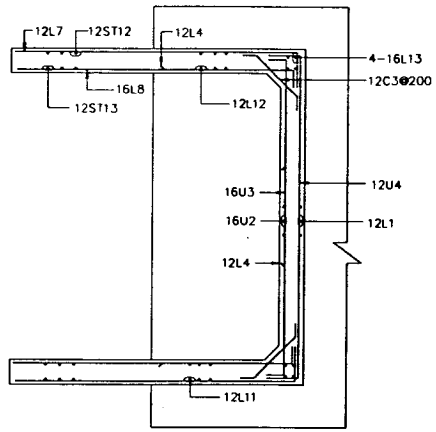
Web Copy

BC-399

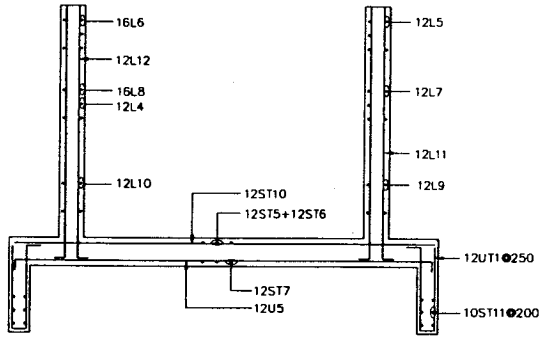
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 2.6m



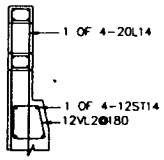
REINFORCEMENT DETAILS



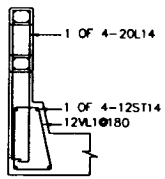
SECTION B-B



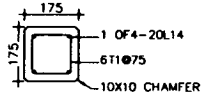
SECTION A-A



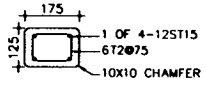
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	11700				11700
	16	ST2	2 X 22	2625				2625
	10	ST3	2 X 85	4160				4160
	10	ST4	4 X 13	4160				4160
	12	ST5	25	13750				13750
	12	ST6	2 X 24	2020				2020
	12	ST7	24	13750				13750
	16	ST8	2 X 23	2625				2625
	12	ST9	49	5360				5360
	12	ST10	2 X 7	5360				5360
	12	C1	2 X 23	150	680	150		980
	12	C2	2 X 23	150	674	150		974
	12	VT1	2 X 23	2 X 150	2 X 566			1432
	12	VT2	2 X 23	2 X 150	2 X 555			1410
	12	L1	2 X 15	3036	250			3286
	12	L2	2 X 21	1079	250			1329
	12	L3	4 X 29	3036	250			3286
	16	L13	4 X 4	3036	250			3286
	12	U1	23	1101	11700	1101		13902
	16	U2	2 X 23	1425	3060	250		4735
	16	U3	2 X 12	250	4160	250		4660
	12	U4	2 X 10	419	4160	419		4998
	12	U5	56	250	5290	250		5790
	10	ST11	4 X 5	13700				13700
	12	UT1	2 X 57	150	2 X 1050	100		2350
WING WALL	12	L4	4 X 13	1238	1220			2458
	12	L5	4 X 1	4188	394			4582
	16	L6	4 X 2	4188	250			4438
	12	L7	4 X 9	Var. 4159 To 1188 @ 371	394			Var. 4553 To 1582
	16	L8	4 X 11	Var. 4159 To 1188 @ 297	250			Var. 4409 To 1438
	12	L9	4 X 3	1188	394			1582
	12	L10	4 X 4	1188	1220			2408
	12	L11	4 X 4	3088	250			3338
	12	L12	4 X 7	3088	250			3338
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	12	C3	4 X 16	150	715	150		1015
CURB AND RAILING.	12	ST14	2 X 4	19800				19800
	12	VL1	2 X 67	204	445	300	435	1484
	12	VL2	4 X 23	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	19810				19810
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 27 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

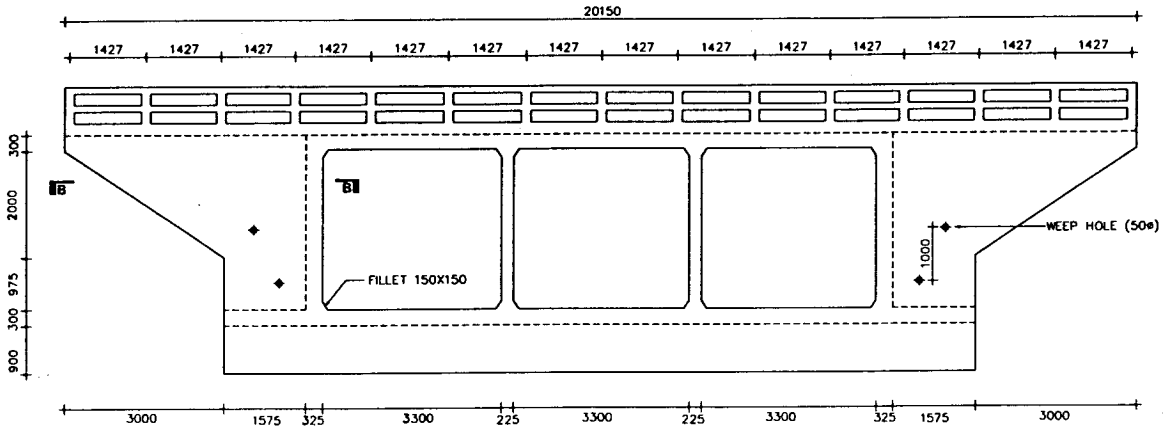
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 2.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3336262

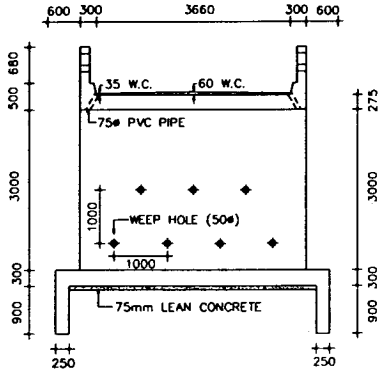
Web Copy

BC-400

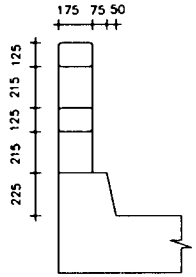
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



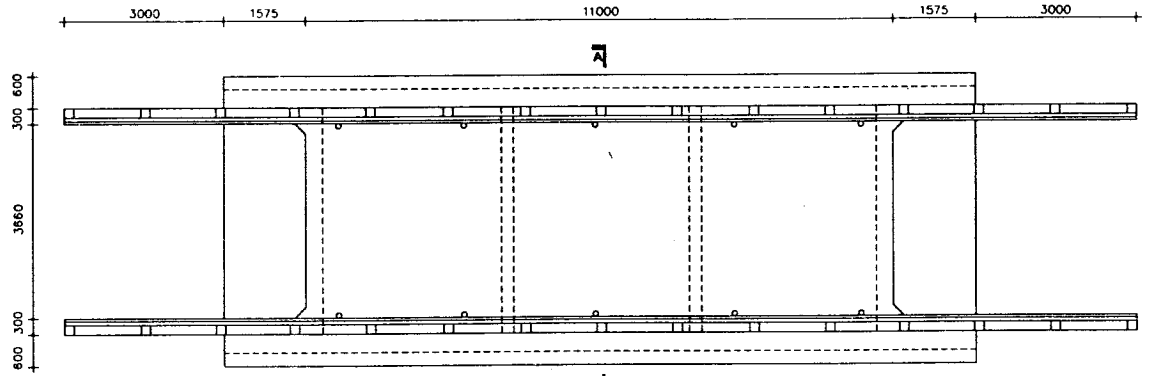
GENERAL ELEVATION



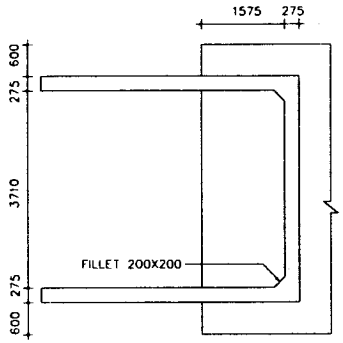
SECTION A-A



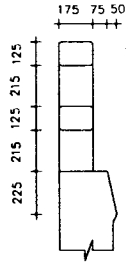
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

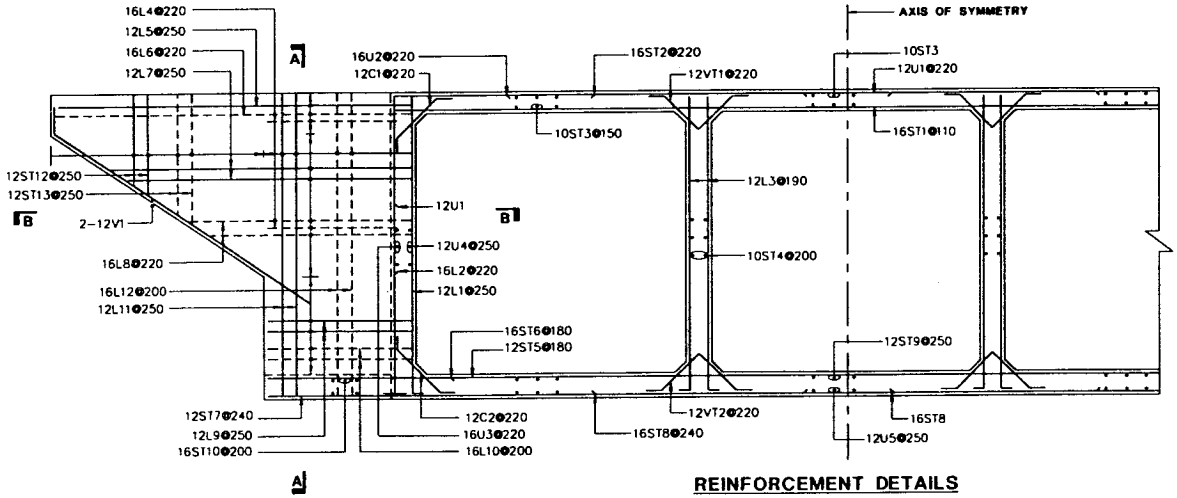
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 3.66m

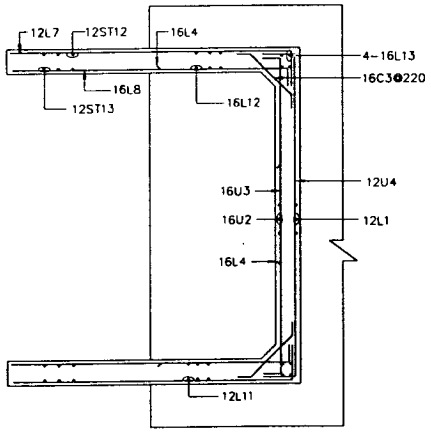
DATE :	ISSUED BY :
CAD FILE REF : CULV\B3333301	

Web Copy

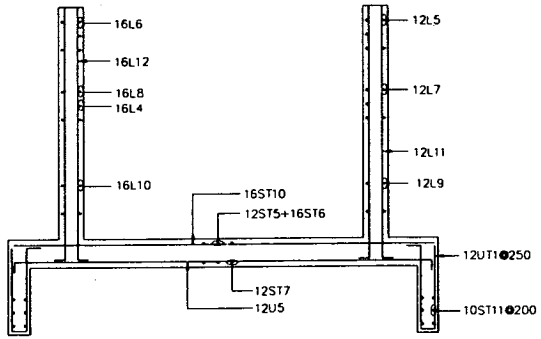
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.0m



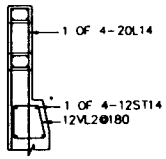
REINFORCEMENT DETAILS



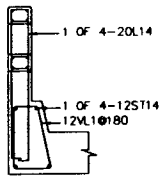
SECTION B-B



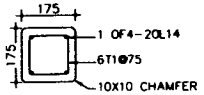
SECTION A-A



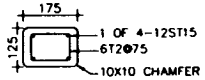
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPROON & CUTOFF	16	ST1	39	10900				10900
	16	ST2	2 X 19	2425				2425
	10	ST3	2 X 74	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	31	14050				14950
	16	ST6	2 X 30	2560				2560
	12	ST7	24	14050				14950
	16	ST8	2 X 23	2425				2425
	12	ST9	45	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 20	150	751	150		1051
	12	C2	2 X 20	150	810	150		1110
	12	VT1	2 X 20	2 X 150	2 X 566			1432
	12	VT2	2 X 20	2 X 150	2 X 620			1540
	12	L1	2 X 14	3461	250			4036
	16	L2	2 X 18	1238	250			1613
	12	L3	4 X 23	3461	250			4036
	16	L13	4 X 4	3461	250			4036
	12	U1	20	1235	10900	1335		13570
	16	U2	2 X 20	1375	3810	250		5435
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	58	250	5290	250		5790
	10	ST11	4 X 5	14000				14900
	12	UT1	2 X 58	150	2 X 1000	100		2450
WING WALL	16	L4	4 X 12	1838	1220			3508
	12	L5	4 X 1	4788	419			5657
	16	L6	4 X 2	4788	250			5488
	12	L7	4 X 9	Var. 4759 To 1788 @ 371	419			Var. 5628 To 2657
	16	L8	4 X 11	Var. 7859 To 1788 @ 297	250			Var. 5459 To 2488
	12	L9	4 X 4	1788	419			2657
	16	L10	4 X 5	1788	1220			3458
	12	L11	4 X 7	3513	250			4088
	16	L12	4 X 8	3513	250			4088
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	20100				21000
	12	VL1	2 X 63	204	445	300	435	1484
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1096	120			1216
	12	ST15	4 X 4	20110				21010
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4X 238	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

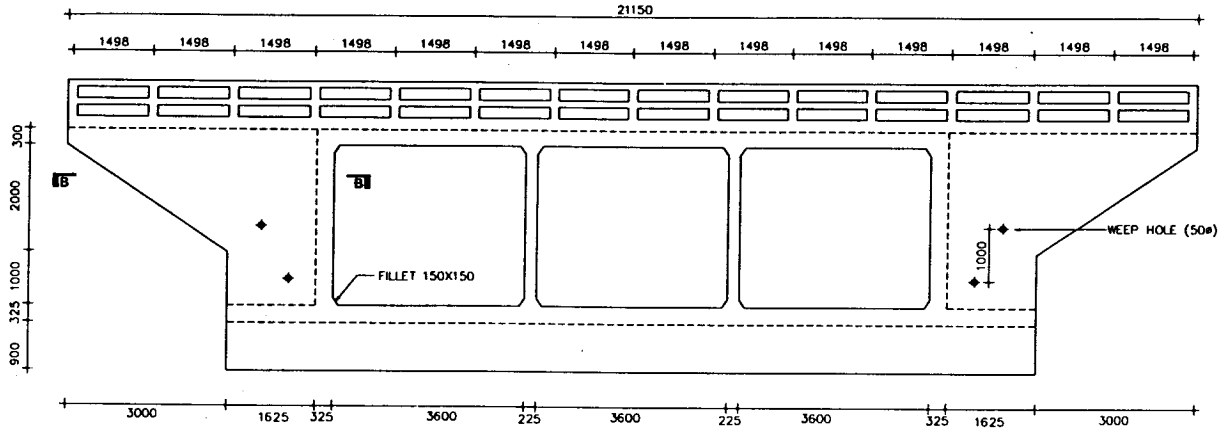
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3333302

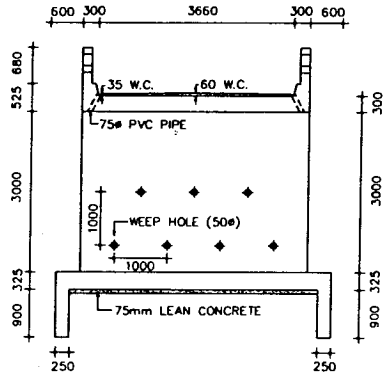
Web Copy

BC-402

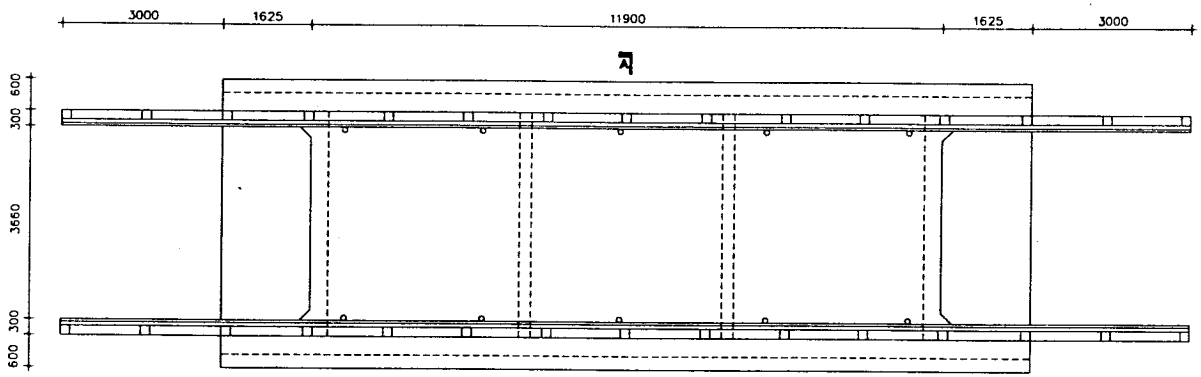
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



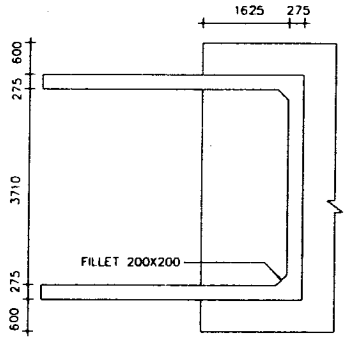
GENERAL ELEVATION



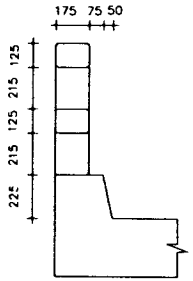
SECTION A-A



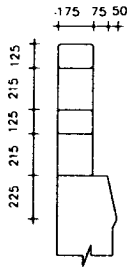
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND
W.C. = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :

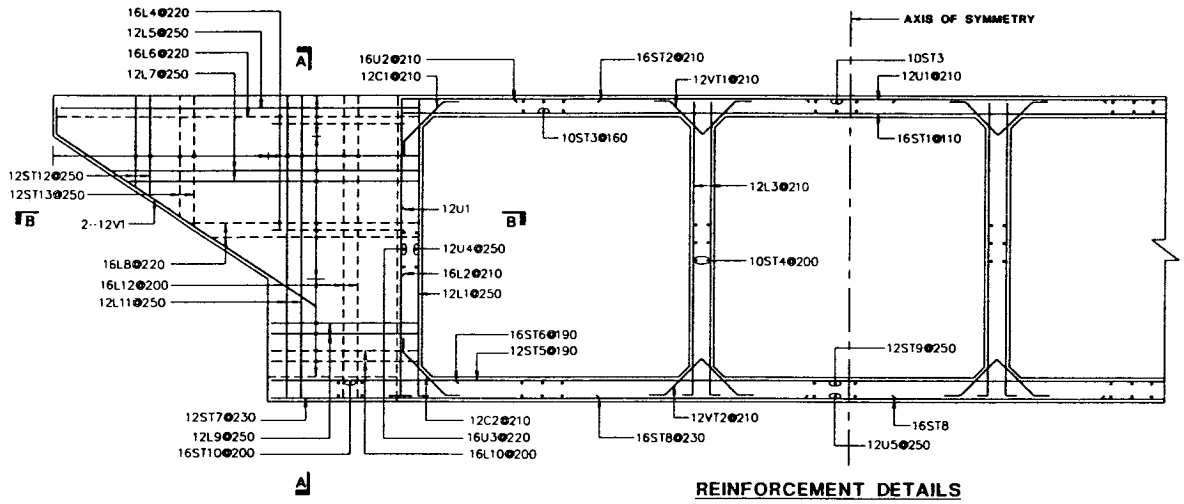
ISSUED BY :

CAD FILE REF : CULV\B3336301

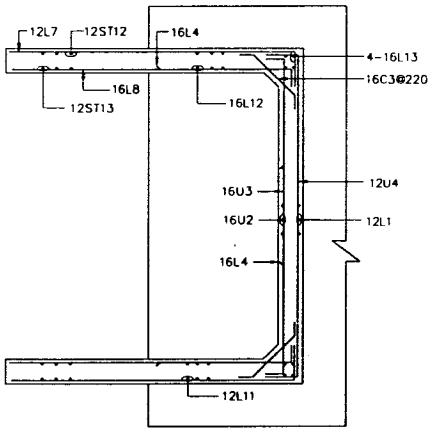
Web Copy

BC-403

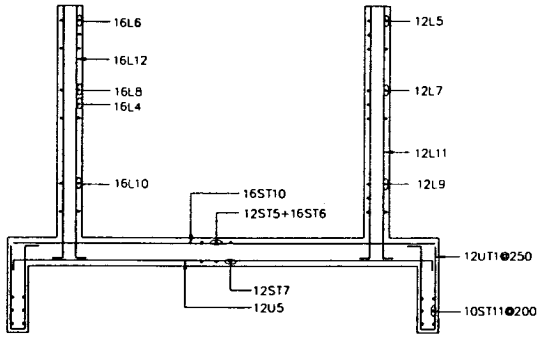
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.0m



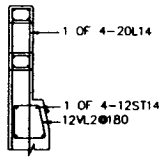
REINFORCEMENT DETAILS



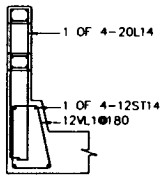
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



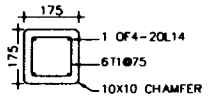
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

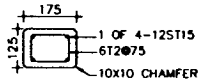
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	11800				11800
	16	ST2	2 x 20	2625				2625
	10	ST3	2 X 75	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	30	15050				15050
	16	ST6	2 x 29	2670				2670
	12	ST7	25	15050				15050
	16	ST8	2 x 24	2625				2625
	12	ST9	49	5360				5360
	16	ST10	2 x 8	5360				5360
	12	C1	2 X 21	150	786	150		1086
	12	C2	2 X 21	150	810	150		1110
	12	VT1	2 x 21	2 X 150	2 X 602			1504
	12	VT2	2 x 21	2 X 150	2 X 620			1540
	12	L1	2 X 14	3511	250			3761
	16	L2	2 X 19	1263	250			1513
	12	L3	4 x 21	3511	250			3761
	16	L13	4 X 4	3511	250			3761
	12	U1	21	1260	11800	1260		14320
	16	U2	2 X 21	1475	3535	250		5260
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	62	250	5290	250		5790
	10	ST11	4 X 5	15000				15000
	12	UT1	2 X 62	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 5	1838	1220			3058
	12	L11	4 X 7	3563	250			3813
	16	L12	4 X 8	3563	250			3813
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	21100				21100
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	30 X 4	1121	120			1241
	12	ST15	4 X 4	21110				21110
	6	T1	30 X 6	2 X 135	2 X 135			540
	6	T2	4 X 252	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 34 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

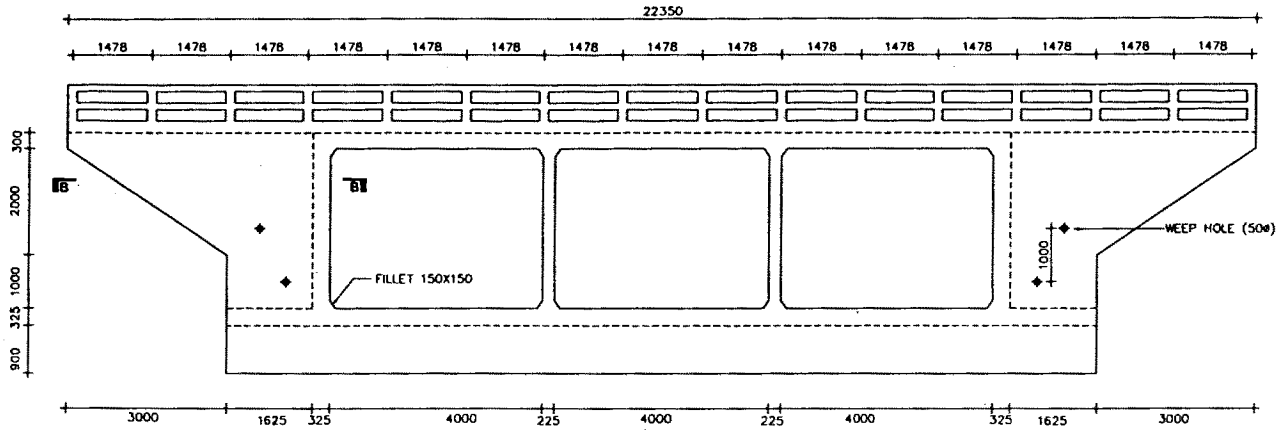
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3336302

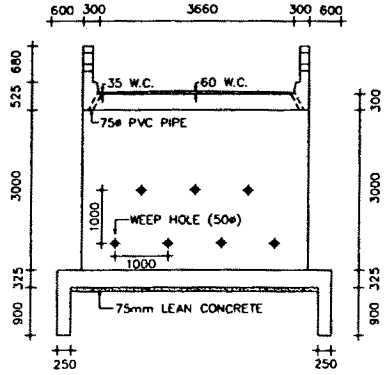
Web Copy

BC-404

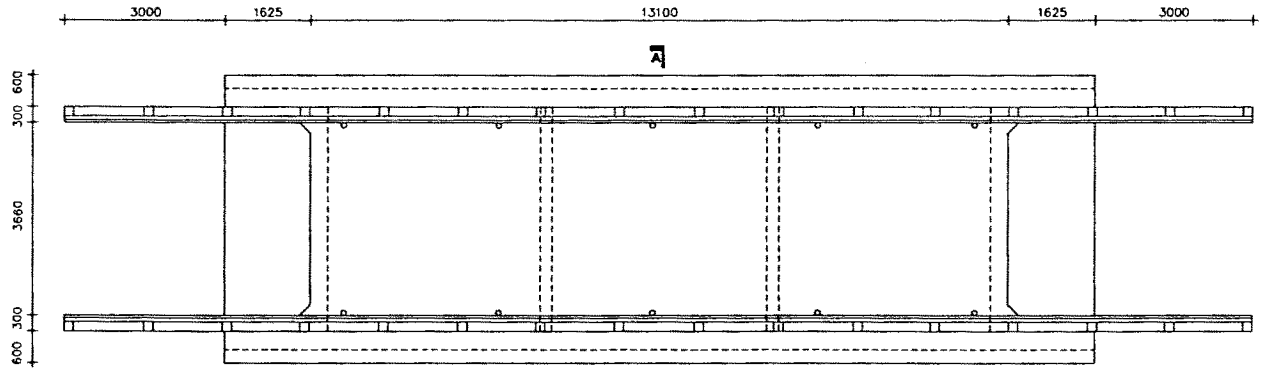
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



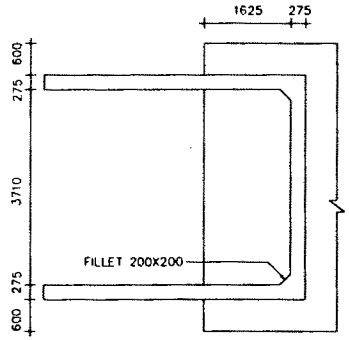
GENERAL ELEVATION



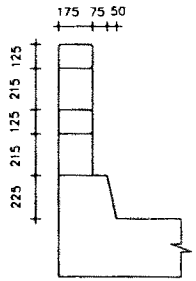
SECTION A-A



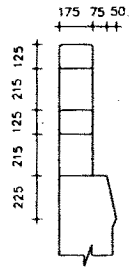
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 3.66m

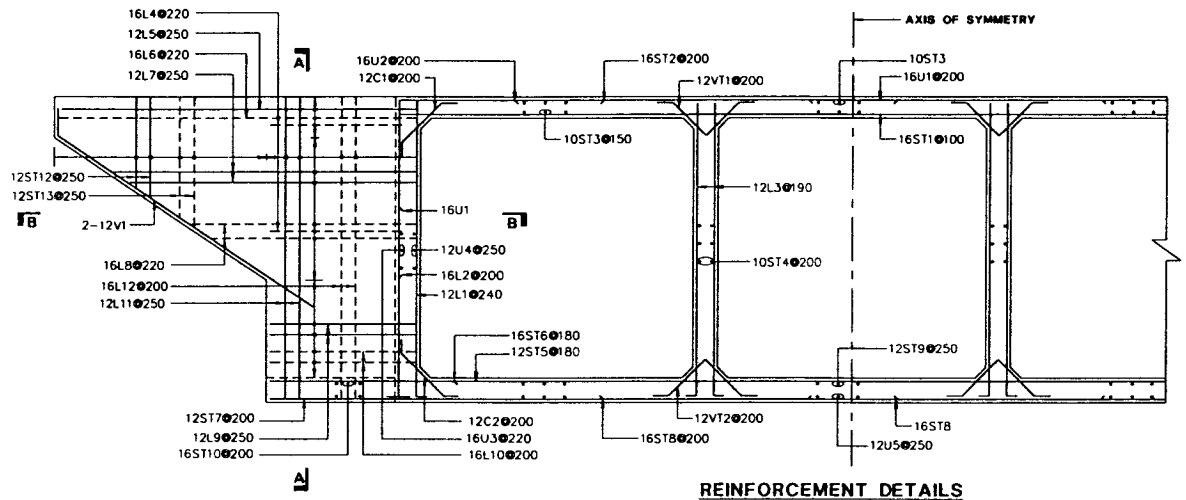
DATE :

ISSUED BY :

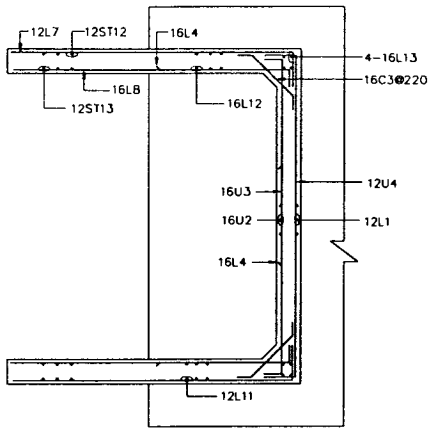
CAD FILE REF : CULV\B3340301

Web Copy

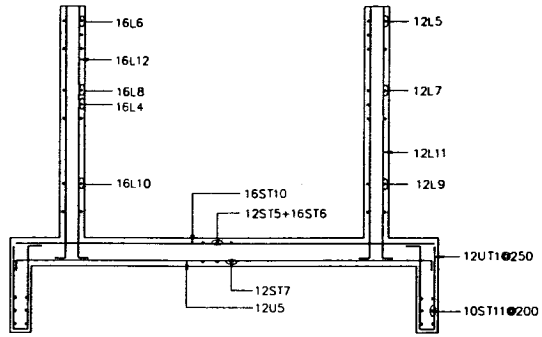
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.0m



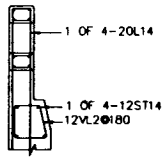
REINFORCEMENT DETAILS



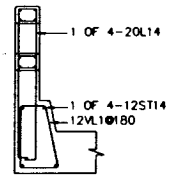
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



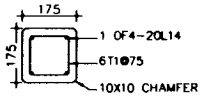
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

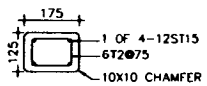
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	13000				13000
	16	ST2	2 x 21	2891				2891
	10	ST3	2 x 88	4160				4160
	10	ST4	4 X 15	4160				4160
	12	ST5	31	16250				16250
	16	ST6	2 x 30	2750				2750
	12	ST7	28	16250				16250
	16	ST8	2 x 27	2891				2891
	12	ST9	54	5360				5360
	16	ST10	2 X 8	5360				5360
	12	C1	2 X 22	150	786	150		1086
	12	C2	2 X 22	150	810	150		1110
	12	VT1	2 x 22	2 X 150	2 X 602			1504
	12	VT2	2 x 22	2 X 150	2 X 620			1540
	12	L1	2 X 15	3511	250			3761
	16	L2	2 X 20	1263	250			1513
	12	L3	4 X 23	3511	250			3761
	16	L13	4 X 4	3511	250			3761
	16	U1	22	1260	13000	1260		15520
	16	U2	2 X 22	1608	3535	250		5393
	16	U3	2 X 13	250	4160	250		4660
	12	U4	2 X 11	469	4160	469		5098
	12	U5	66	250	5290	250		5790
	10	ST11	4 X 5	16200				16200
	12	UT1	2 X 67	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	1888	1220			3108
	12	L5	4 X 1	4838	419			5257
	16	L6	4 X 2	4838	250			5088
	12	L7	4 X 9	Var. 4809 To 1838 @ 371	419			Var. 5228 To 2257
	16	L8	4 X 11	Var. 4809 To 1838 @ 297	250			Var. 5059 To 2088
	12	L9	4 X 4	1838	419			2257
	16	L10	4 X 5	1838	1220			3058
	12	L11	4 X 7	3563	250			3818
	16	L12	4 X 8	3563	250			3818
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 16	150	821	150		1121
CURB AND RAILING	12	ST14	2 X 4	22300				22300
	12	VL1	2 X 74	204	471	306	460	1541
	12	VL2	4 X 26	204	204	248	200	956
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22310				22310
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in ony view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 32 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

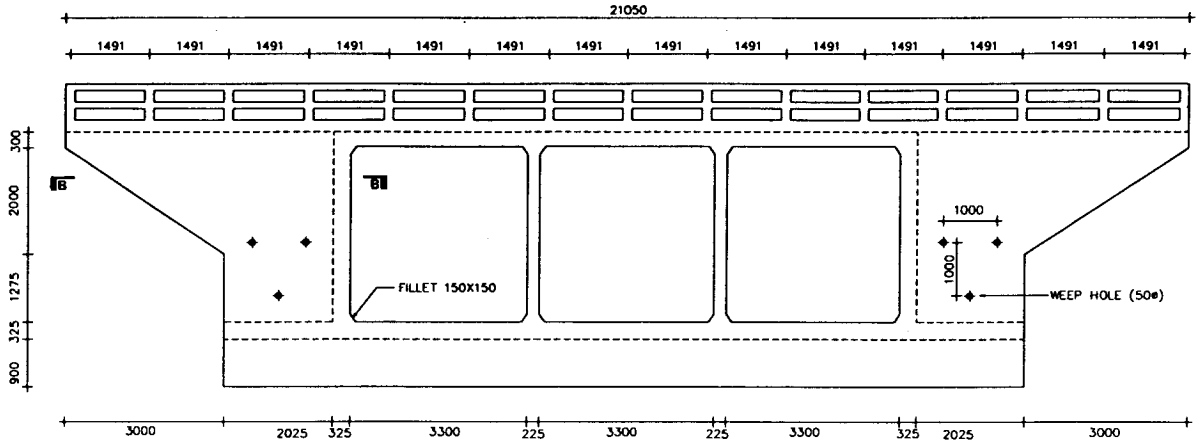
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3340302

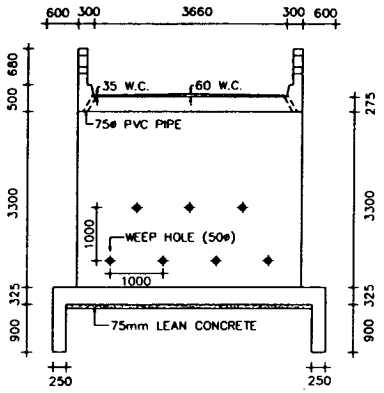
Web Copy

BC-406

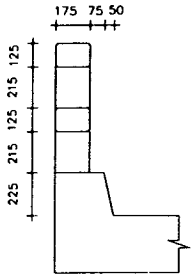
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



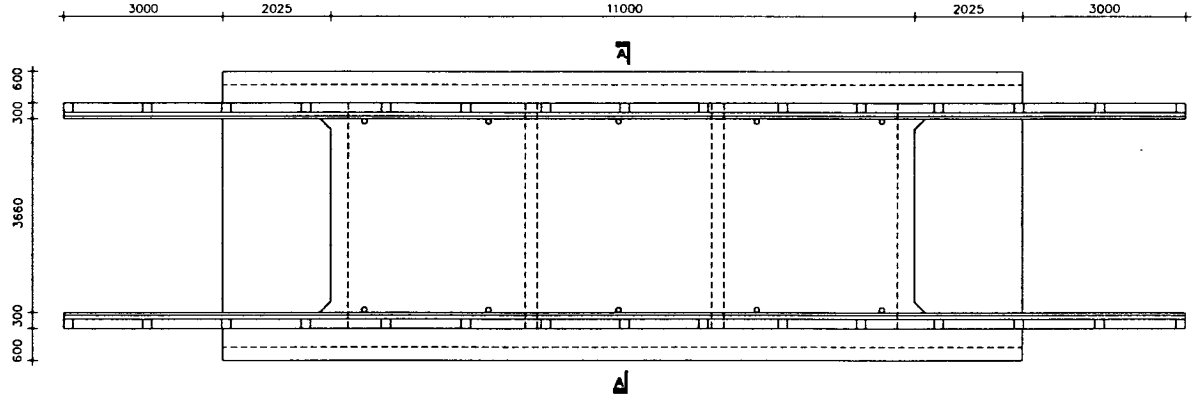
GENERAL ELEVATION



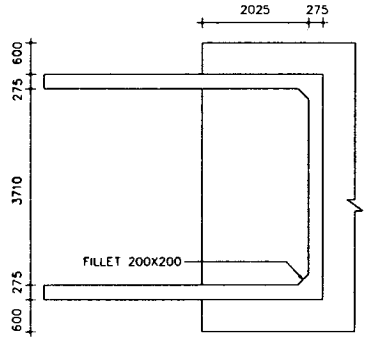
SECTION A-A



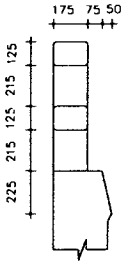
GENERAL ARRANGEMENT OF RAILING ON CULVERT



PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

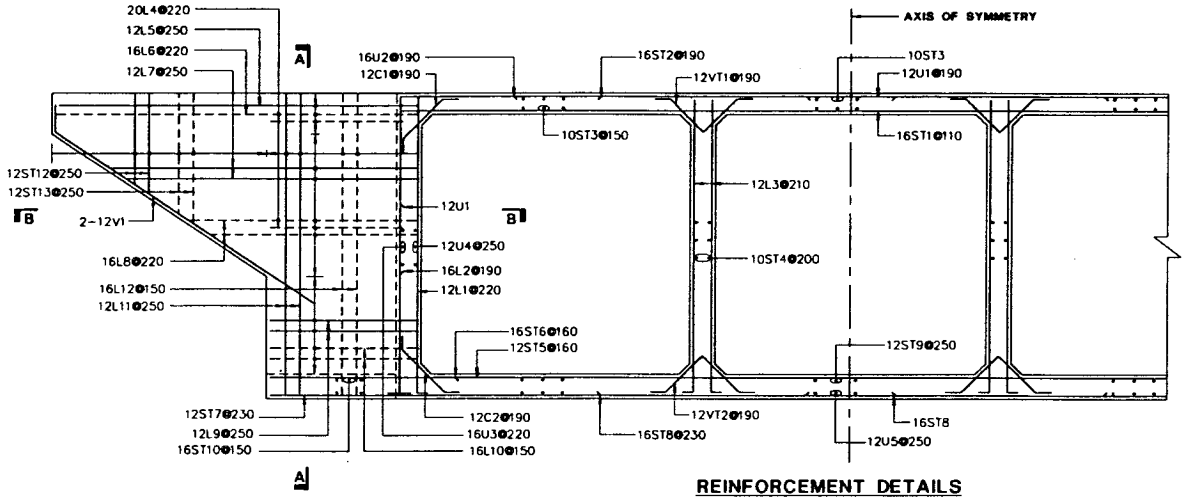
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3333331	

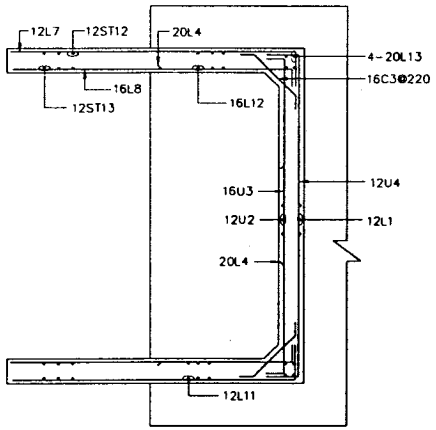
Web Copy

BC-407

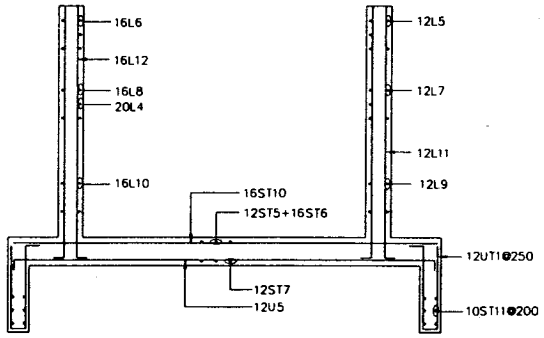
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.3m
CLEAR HEIGHT : 3.3m



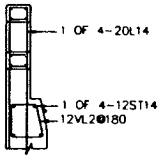
REINFORCEMENT DETAILS



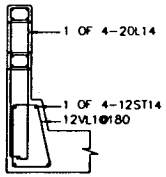
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



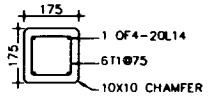
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

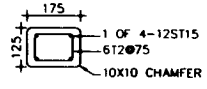
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	8025				8025
	16	ST2	14	2625				2625
	10	ST3	2 X 42	2940				2940
	10	ST4	2 X 16	2940				2940
	12	ST5	14	12125				12125
	16	ST6	13	3010				3010
	12	ST7	21	12125				12125
	16	ST8	20	2625				2625
	12	ST9	50	4140				4140
	16	ST10	4 X 8	1638				1638
	12	C1	2 X 15	144	833	144		1121
	12	C2	2 X 15	144	840	144		1128
	12	VT1	15	2 X 150	2 X 607			1514
	12	VT2	15	2 X 150	2 X 620			1540
	12	L1	2 X 9	3807	250			4057
	16	L2	2 X 13	1363	250			1613
	12	L3	2 X 21	3807	250			4057
	20	L13	4 X 4	3807	250			4057
	12	U1	15	1360	8025	1360		10745
	16	U2	2 X 15	1500	3835	1500		6835
	16	U3	2 X 14	250	2940	250		3440
	12	U4	2 X 13	494	2940	494		3928
	12	U5	50	250	4070	250		4570
	10	ST11	4 X 5	12075				12075
	12	UT1	2 X 50	144	2 X 1100	100		2444
WING WALL	20	L4	4 X 12	2338	813			3151
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	813			3101
	12	L11	4 X 8	3859	250			4109
	16	L12	4 X 14	3859	250			4109
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	144	857	144		1145
CURB AND RAILING	12	ST14	2 X 4	18175				18175
	12	VL1	2 X 47	204	471	306	460	1441
	12	VL2	4 X 28	204	204	248	200	856
	20	L14	28 X 4	1096	120			1216
	12	ST15	4 X 4	18185				18185
	6	T1	28 X 6	2 X 135	2 X 135			540
	6	T2	4X 221	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 38 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

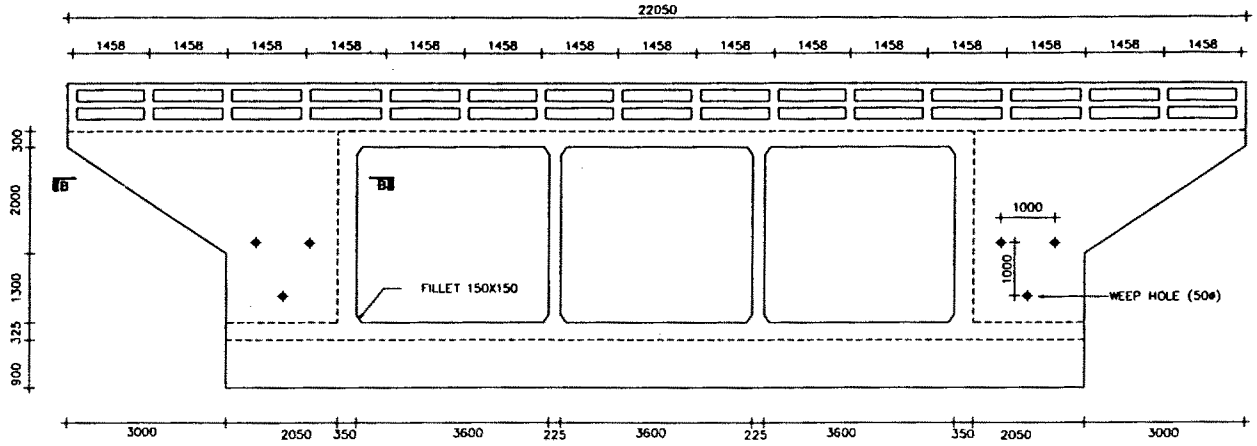
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.3m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3333332

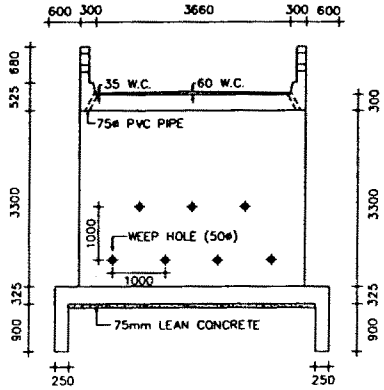
Web Copy

BC-408

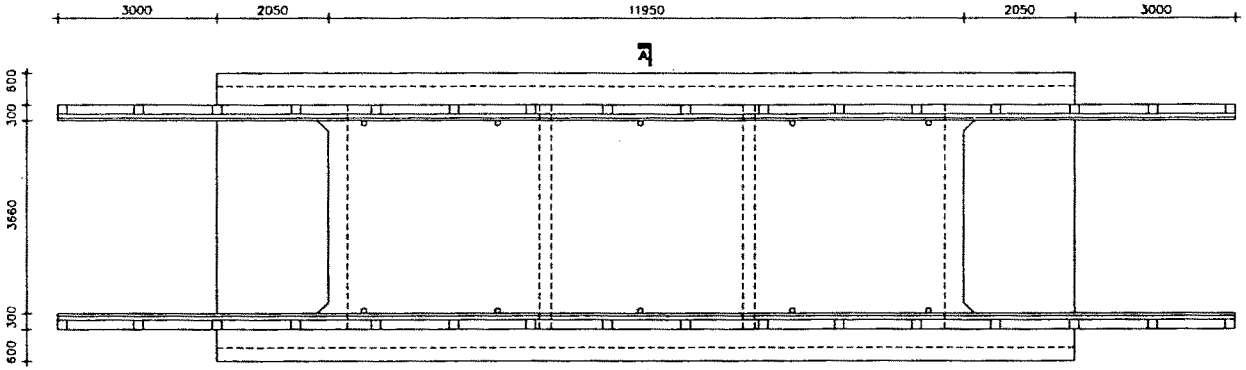
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



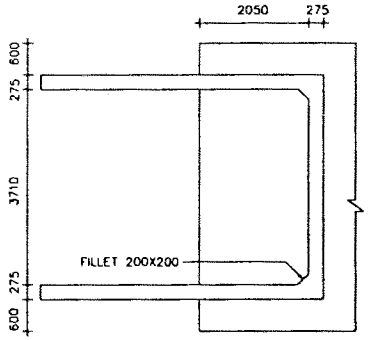
GENERAL ELEVATION



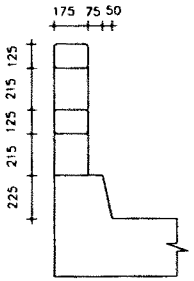
SECTION A-A



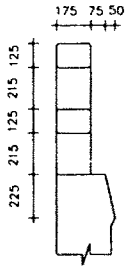
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :

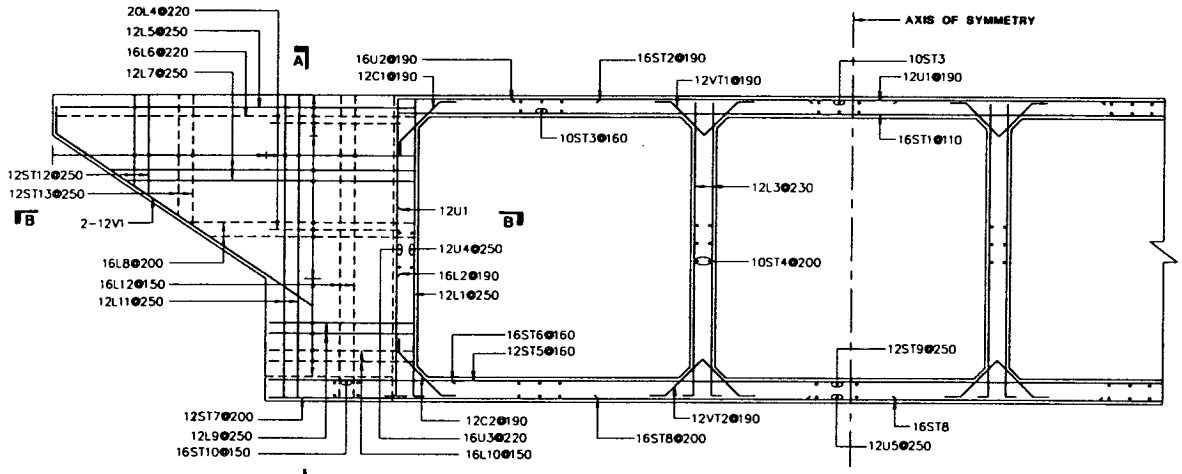
ISSUED BY :

CAD FILE REF : CULV\B3336331

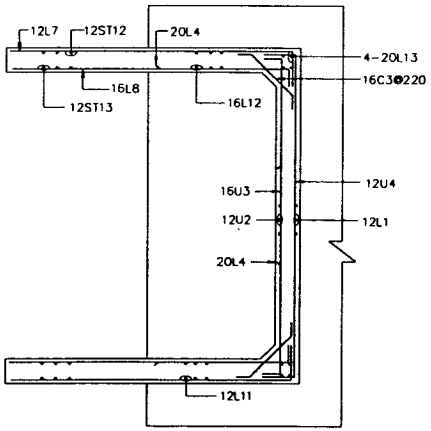
Web Copy

BC-409

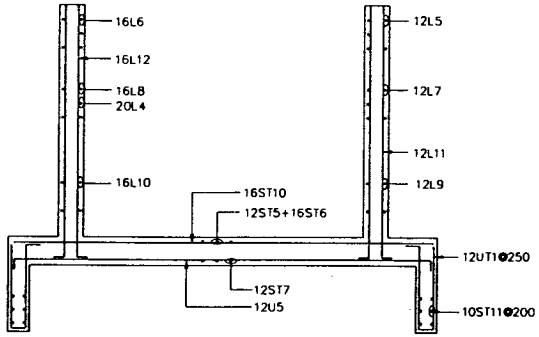
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.3m



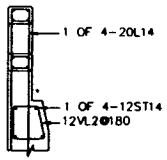
REINFORCEMENT DETAILS



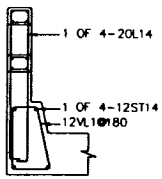
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



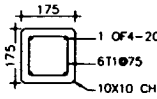
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

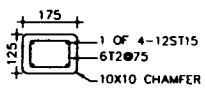
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	11850				11850
	16	ST2	2 x 22	2625				2525
	10	ST3	2 X 76	4160				4160
	10	ST4	4 x 16	4160				4160
	12	ST5	35	15950				15950
	16	ST6	2 x 34	3120				3120
	12	ST7	28	15950				15950
	16	ST8	2 x 27	2625				2625
	12	ST9	49	5360				5360
	16	ST10	2 X 14	5360				5360
	12	C1	2 X 23	150	821	150		1121
	12	C2	2 X 23	150	845	150		1145
	12	VT1	2 x 23	2 X 150	2 X 602			1504
	12	VT2	2 x 23	2 X 150	2 X 620			1540
	12	L1	2 X 14	3811	250			4061
	16	L2	2 X 21	1363	250			1613
	12	L3	4 X 20	3811	250			4061
	20	L13	4 X 4	3811	250			4061
	12	U1	23	1360	11850	1360		14570
	16	U2	2 X 23	1500	3835	250		5585
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	65	250	5290	250		5790
	10	ST11	4 X 5	15900				15900
	12	UT1	2 X 65	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3863	250			4113
	16	L12	4 X 14	3863	250			4113
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	22000				22000
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 x 28	204	204	248	200	956
	20	L14	32 X 4	1121	120			1241
	12	ST15	4 X 4	22010				22010
	6	T1	32 X 6	2 X 135	2 X 135			540
	6	T2	4X 270	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C.33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 37 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

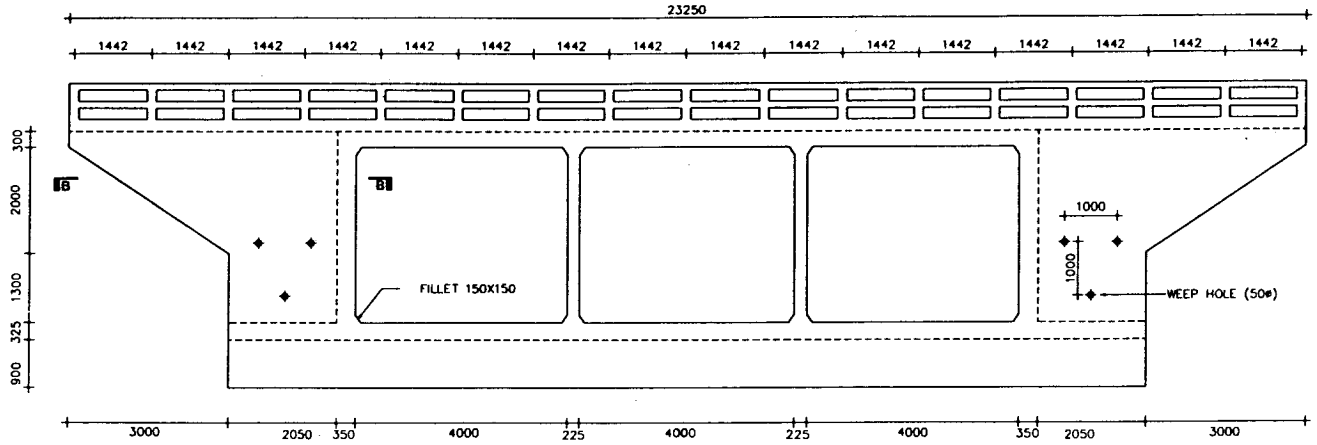
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3336332

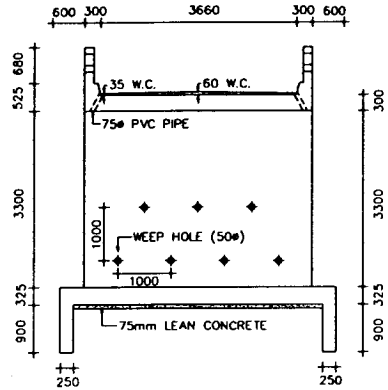
Web Copy

BC-410

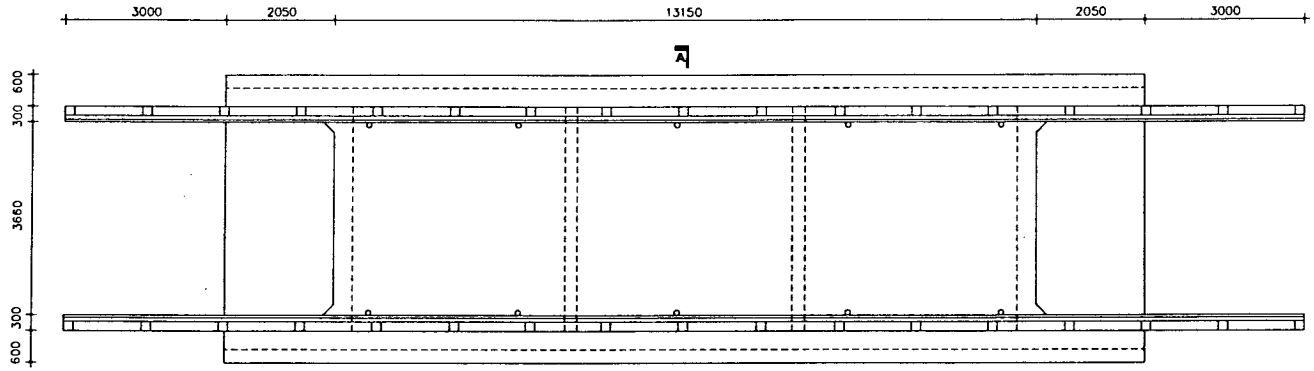
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



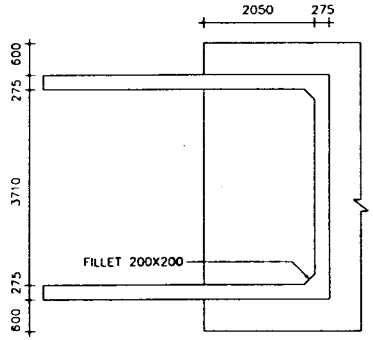
GENERAL ELEVATION



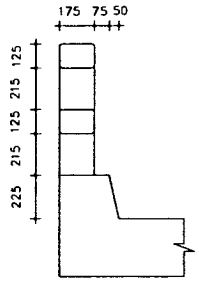
SECTION A-A



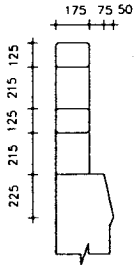
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 3.66m

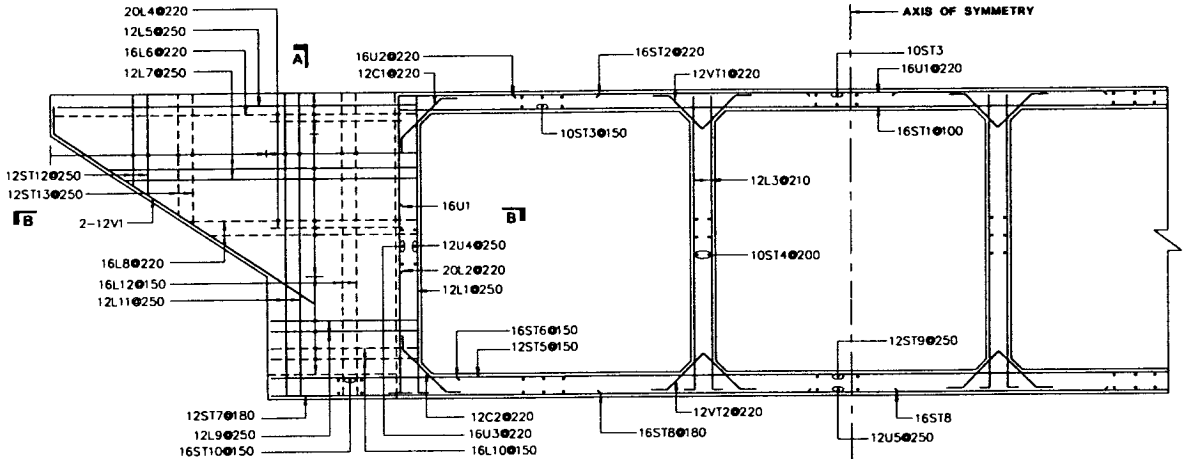
DATE :

ISSUED BY :

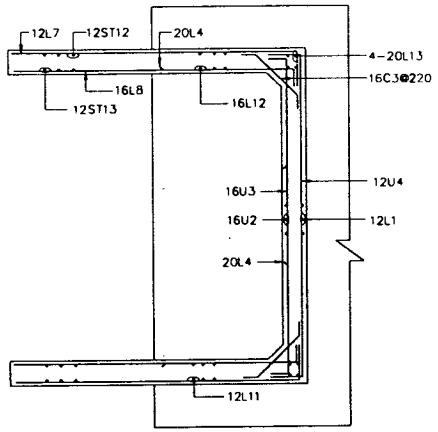
CAD FILE REF : CULV\B3340331

Web Copy

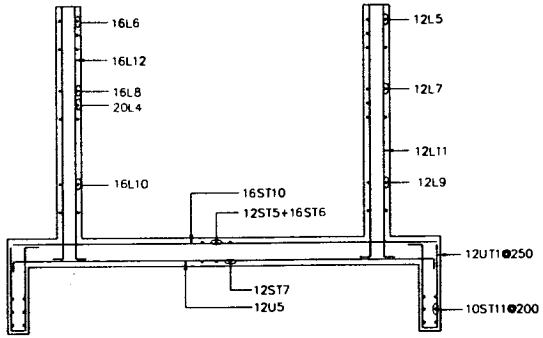
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.3m



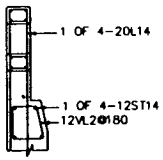
REINFORCEMENT DETAILS



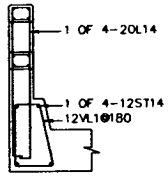
SECTION B-B



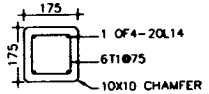
SECTION A-A



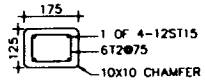
RAILING ON WING WALL
(REINF. DETAIL)



RAILING ON CULVERT
(REINF. DETAIL)



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX	16	ST1	43	13050				13050
	16	ST2	2 x 19	2891				2891
	10	ST3	2 X 88	4160				4160
	10	ST4	4 X 16	4160				4160
	12	ST5	37	17150				17150
	16	ST6	2 x 36	3200				3200
	12	ST7	31	17150				17150
	16	ST8	2 x 30	2891				2891
	12	ST9	54	5360				5360
	16	ST10	2 X 14	5360				5360
APPROACH & CUTOFF WALL	12	C1	2 X 20	150	821	150		1121
	12	C2	2 X 20	150	840	150		1140
	12	VT1	2 x 20	2 X 150	2 X 602			1504
	12	VT2	2 x 20	2 X 150	2 X 620			1540
	12	L1	2 X 14	3811	250			4061
	20	L2	2 X 18	1363	250			1613
	12	L3	4 X 21	3811	250			4061
	20	L13	4 X 4	3811	250			4061
	16	U1	20	1360	13050	1360		15770
	16	U2	2 X 20	1633	3835	250		5718
	16	U3	2 X 14	250	4160	250		4660
	12	U4	2 X 13	494	4160	494		5148
	12	U5	70	250	5290	250		5790
	10	ST11	4 X 5	17100				17100
	12	UT1	2 X 70	150	2 X 1100	100		2450
WING WALL	20	L4	4 X 12	2338	1220			3558
	12	L5	4 X 1	5288	419			5707
	16	L6	4 X 2	5288	250			5538
	12	L7	4 X 9	Var. 5259 To 2288 @ 371	419			Var. 5678 To 2707
	16	L8	4 X 11	Var. 5259 To 2288 @ 297	250			Var. 5509 To 2538
	12	L9	4 X 6	2288	419			2707
	16	L10	4 X 9	2288	1220			3508
	12	L11	4 X 8	3863	250			4113
	16	L12	4 X 14	3863	250			4113
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 18	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	23200				23200
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 28	204	204	248	200	956
	20	L14	34 X 4	1121	120			1241
	12	ST15	4 X 4	23210				23210
	6	T1	34 X 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strenght of 278MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm
7) Bearing capacity of soil Should be $\geq$ 36 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

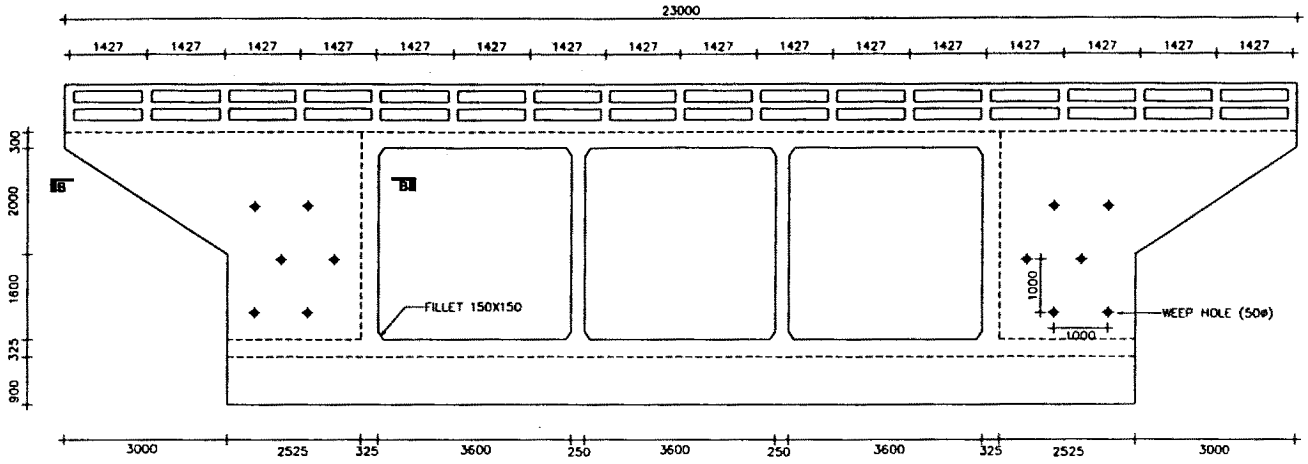
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.3m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3340332

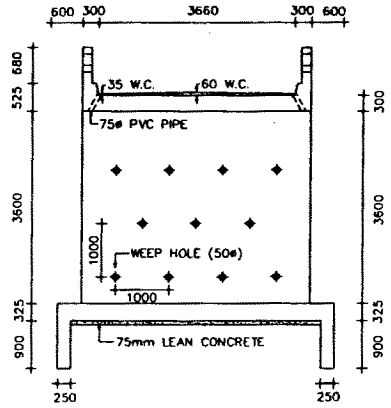
Web Copy

BC-412

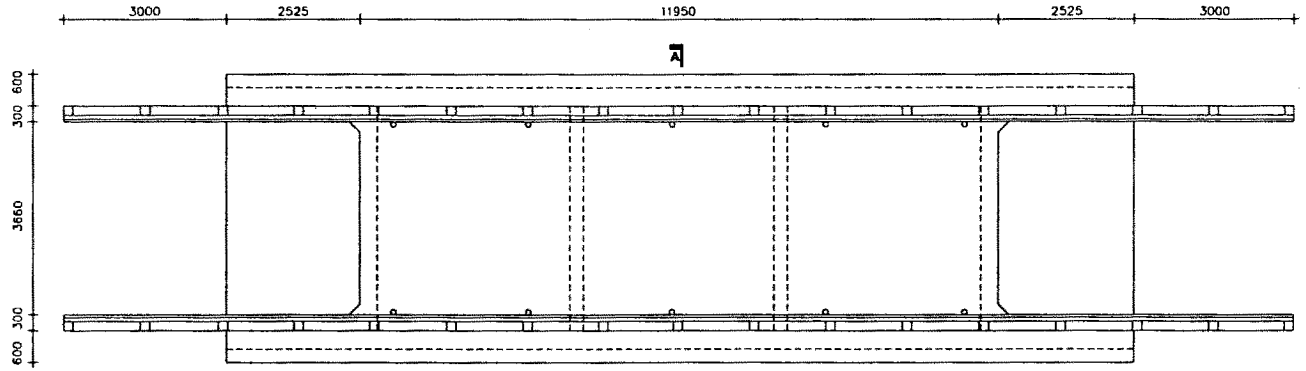
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



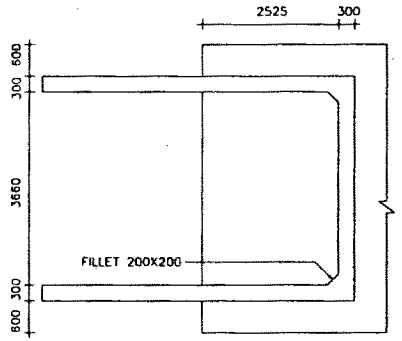
GENERAL ELEVATION



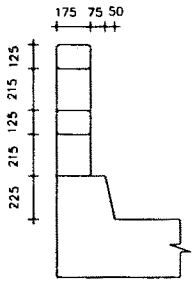
SECTION A-A



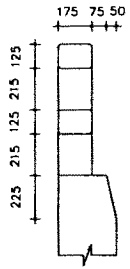
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

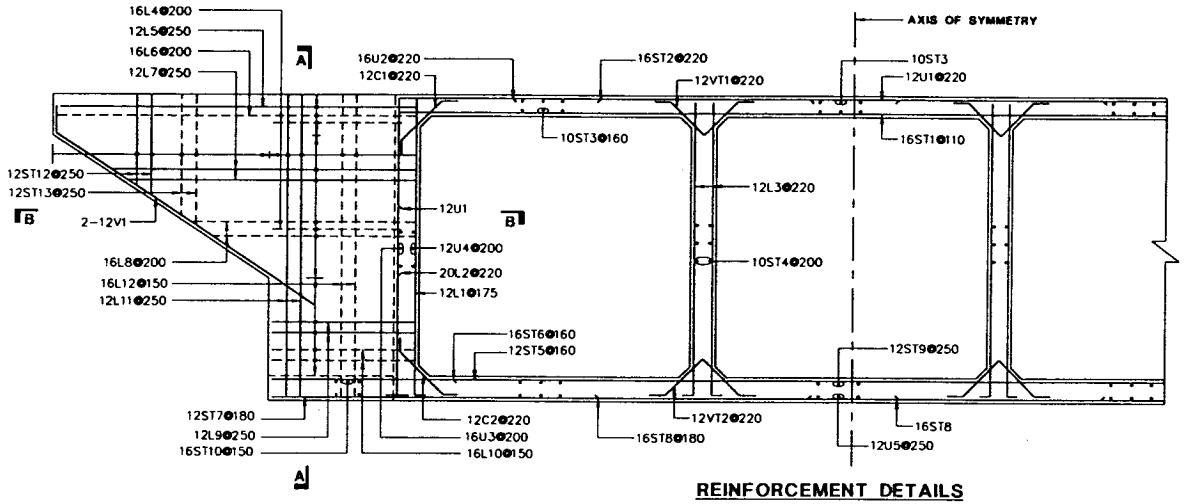
GENERAL ARRANGEMENT OF BOX CULVERT TRIPLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3336361	

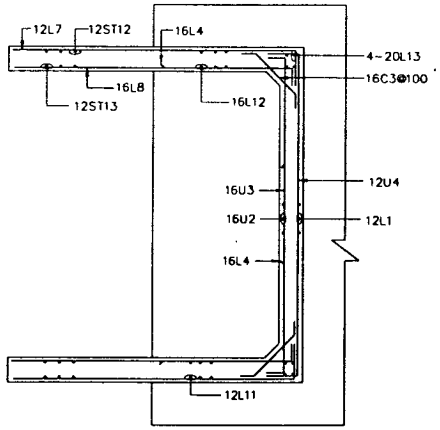
Web Copy

BC-413

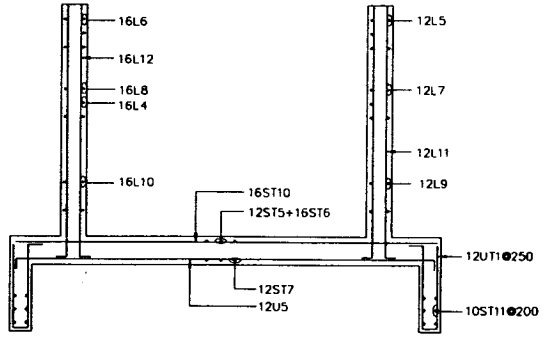
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X3.6m
CLEAR HEIGHT : 3.6m



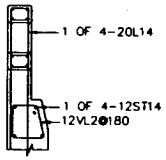
REINFORCEMENT DETAILS



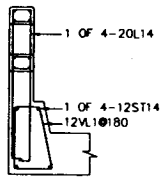
SECTION B-B



SECTION A-A



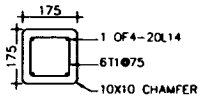
RAILING ON WING WALL (REINF. DETAIL)



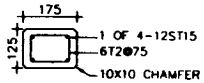
RAILING ON CULVERT (REINF. DETAIL)

BAR BENDING SCHEDULE

MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	11850				11850
	16	ST2	2 x 19	2650				2650
	10	ST3	2 X 76	4160				4160
	10	ST4	4 X 18	4160				4160
	12	ST5	35	16900				16900
	16	ST6	2 x 34	3570				3570
	12	ST7	31	16900				16900
	16	ST8	2 x 30	2650				2650
	12	ST9	49	5360				5360
	16	ST10	2 x 17	5360				5360
	12	C1	2 X 20	150	786	150		1086
	12	C2	2 X 20	150	804	150		1104
	12	VT1	2 x 20	2 X 150	2 X 619			1538
	12	VT2	2 x 20	2 X 150	2 X 638			1576
	12	L1	2 x 20	4111	250			4361
	20	L2	2 X 18	1463	250			1713
	12	L3	4 x 20	4111	250			4361
	20	L13	4 X 4	4111	250			4361
	12	U1	20	1460	11850	1460		14770
	16	U2	2 X 20	1475	4135	250		5860
	16	U3	2 X 16	250	4160	250		4660
	12	U4	2 X 17	469	4160	469		5098
	12	U5	69	250	5290	250		5790
	10	ST11	4 X 5	16850				16850
	12	UT1	2 X 69	150	2 X 1100	100		2450
WING WALL	16	L4	4 X 12	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 11	2738	1220			3958
	12	L11	4 X 10	4163	250			4413
	16	L12	4 X 17	4163	250			4413
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	857	150		1157
CURB AND RAILING	12	ST14	2 X 4	22950				22950
	12	VL1	2 X 68	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	34 X 4	1121	120			1241
	12	ST15	4 X 4	22960				22960
	6	T1	34 X 6	2 X 135	2 X 135			540
	6	T2	4X 272	2 X 85	2 X 135			440



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessorily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strength of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 41 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

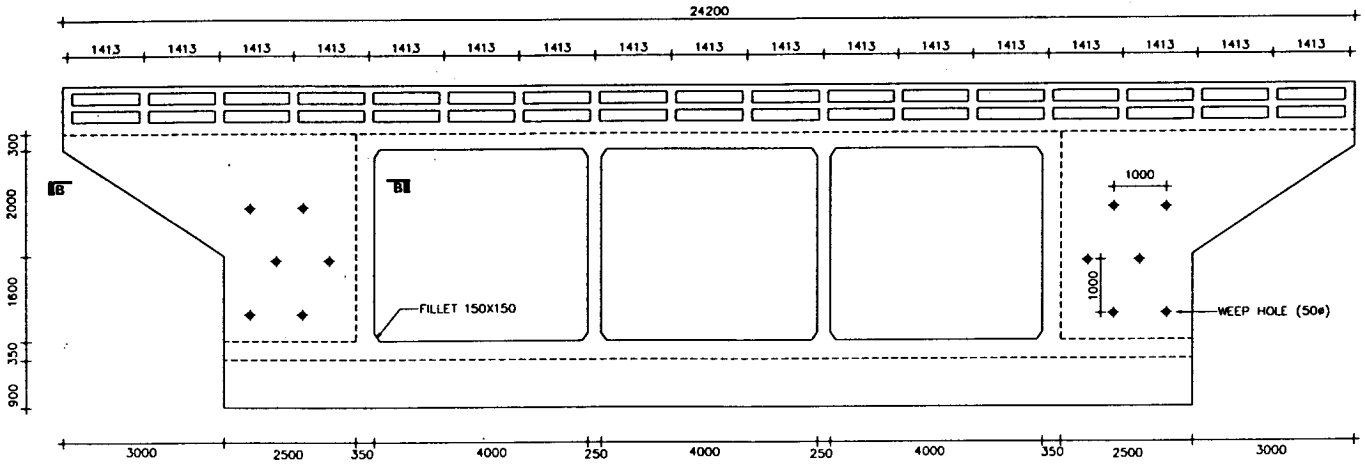
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 3.6m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3336362

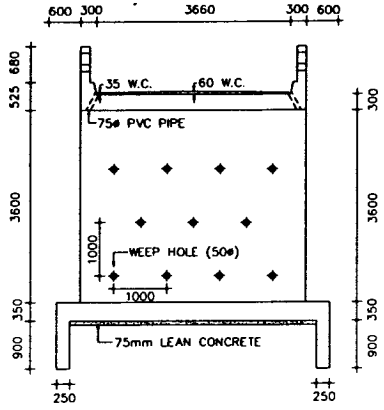
Web Copy

BC-414

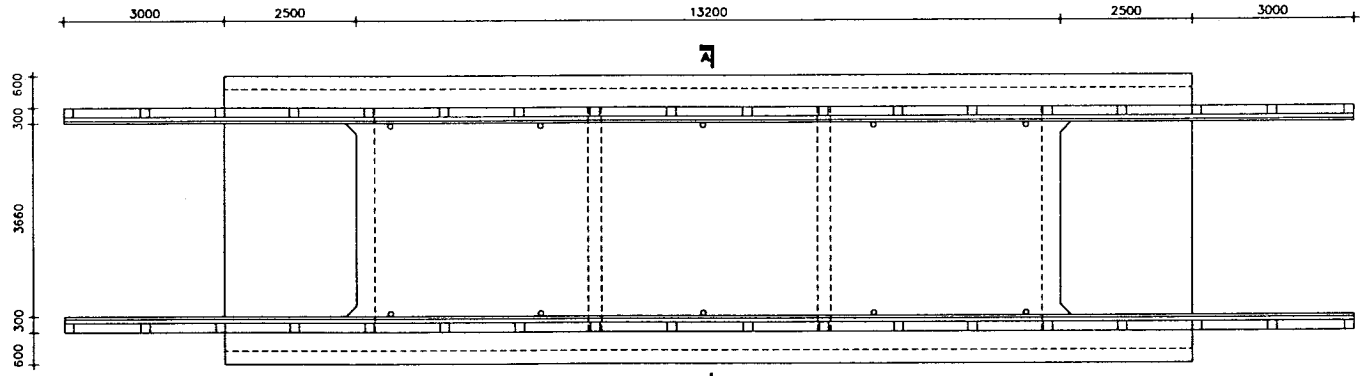
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



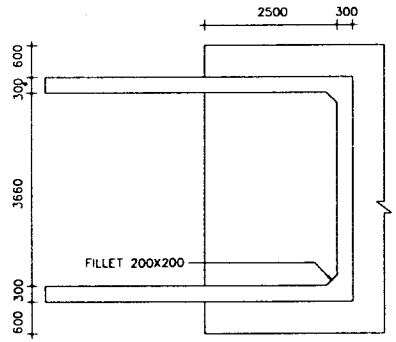
GENERAL ELEVATION



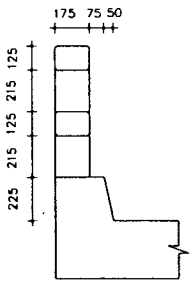
SECTION A-A



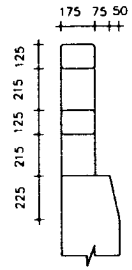
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C. = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified.
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 3.66m

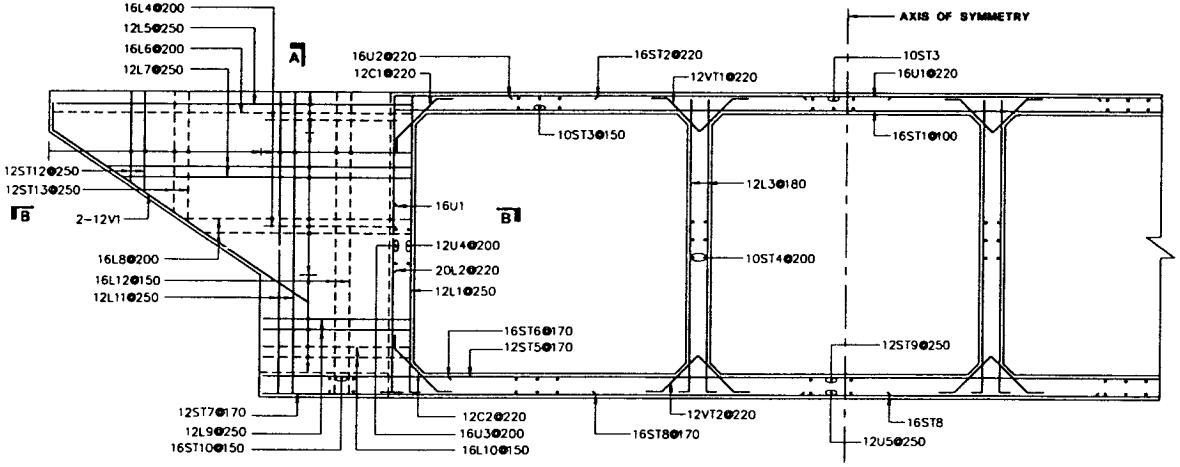
DATE :

ISSUED BY :

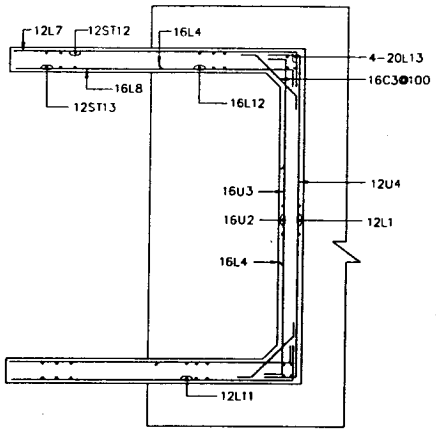
CAD FILE REF : CULV\B3340361

Web Copy

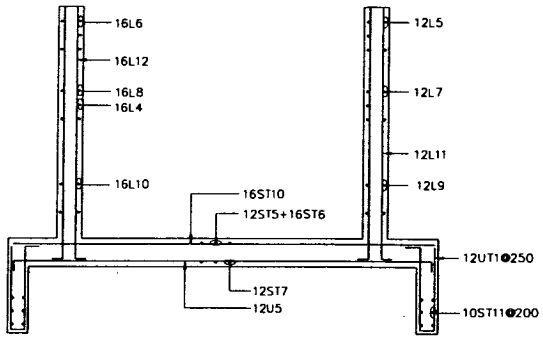
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 3.6m



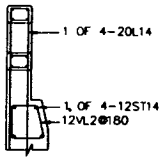
REINFORCEMENT DETAILS



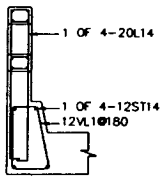
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



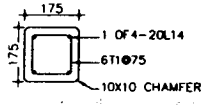
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

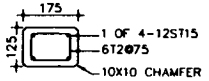
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	43	13100				13100
	16	ST2	2 x 19	2916				2916
	10	ST3	2 X 89	4160				4160
	10	ST4	4 X 18	4160				4160
	12	ST5	33	18100				18100
	16	ST6	2 x 32	3650				3650
	12	ST7	33	18100				18100
	16	ST8	2 x 32	2916				2916
	12	ST9	54	5360				5360
	16	ST10	2 X 17	5360				5360
	12	C1	2 X 20	150	821	150		1121
	12	C2	2 X 20	150	875	150		1175
	12	VT1	2 x 20	2 X 150	2 X 619			1538
	12	VT2	2 x 20	2 X 150	2 X 673			1646
	12	L1	2 X 14	4136	250			4386
	20	L2	2 X 18	1488	250			1738
	12	L3	4 X 25	4136	250			4386
	20	L13	4 X 4	4136	250			4386
	16	U1	20	1460	13100	1460		16020
	16	U2	2 X 20	1633	4160	250		6043
	16	U3	2 X 16	250	4160	250		4660
	12	U4	2 X 17	494	4160	494		5148
	12	U5	74	250	5290	250		5790
	10	ST11	4 X 5	18050				18050
	12	UT1	2 X 74	150	2 X 1125	100		2500
WING WALL	16	L4	4 X 12	2788	1220			4008
	12	L5	4 X 1	5738	444			6182
	16	L6	4 X 2	5738	250			5988
	12	L7	4 X 9	Var. 5709 To 2738 @ 371	444			Var. 6153 To 3182
	16	L8	4 X 11	Var. 5709 To 2738 @ 297	250			Var. 5959 To 2988
	12	L9	4 X 7	2738	444			3182
	16	L10	4 X 11	2738	1220			3958
	12	L11	4 X 10	4188	250			4438
	16	L12	4 X 17	4188	250			4438
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	V1	4 X 2	4305	200			4505
	16	C3	4 X 36	150	892	150		1192
CURB AND RAILING	12	ST14	2 X 4	24150				24150
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 31	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	24160				24160
	6	T1	36 X 6	2 X 135	2 X 135			540
	6	T2	4X 289	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strenght of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be ≥ 40 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



REINF. DETAIL OF RAILING

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

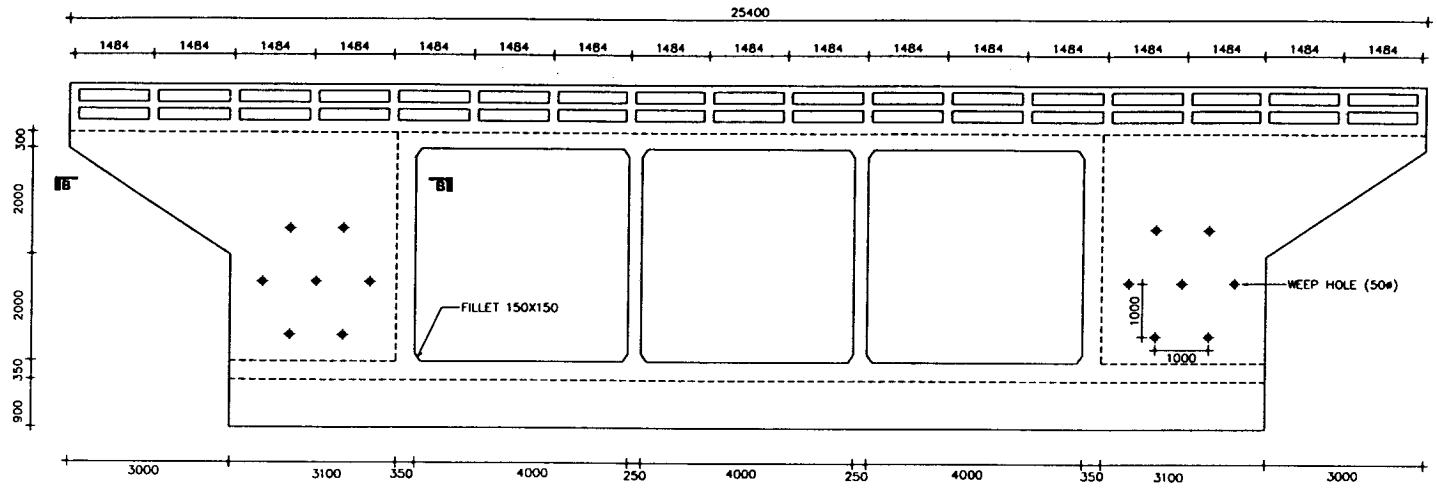
REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 3.6m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3340362

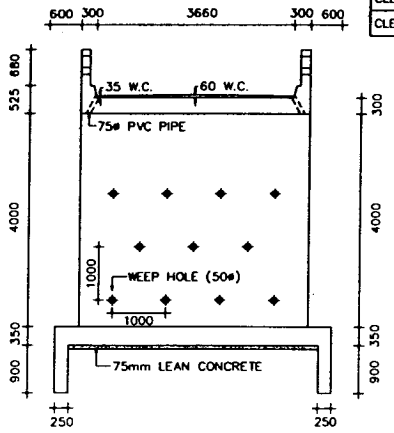
Web Copy

BC-416

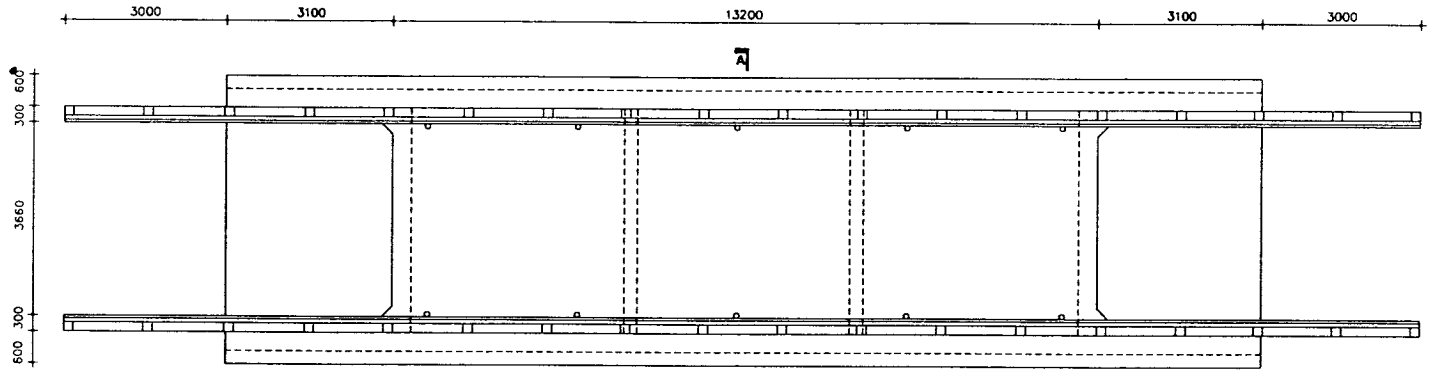
SHEET 1 OF 2
LIVE LOAD : AASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 4.0m



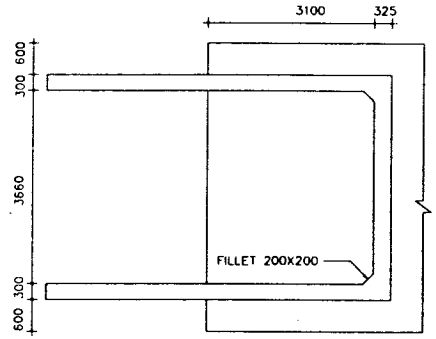
GENERAL ELEVATION



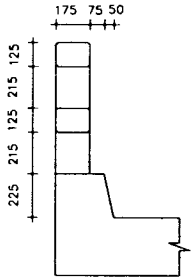
SECTION A-A



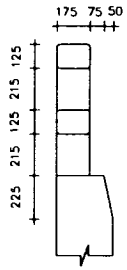
PLAN



SECTION B-B



GENERAL ARRANGEMENT OF RAILING ON CULVERT



GENERAL ARRANGEMENT OF RAILING ON WING WALL

LEGEND

W.C = Wearing Course

NOTES

1. All dimensions are in milimeter unless otherwise specified
2. Weep hole shall be provided at 1000mm horizontally and vertically as shown in drawing; filter material shall be provided as per specification

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

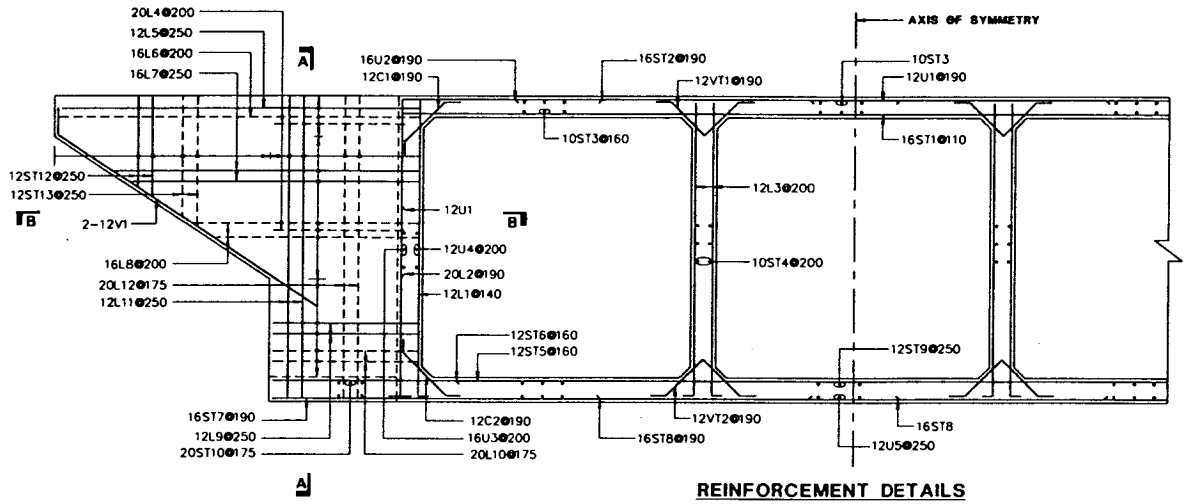
GENERAL ARRANGEMENT OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :	ISSUED BY :
CAD FILE REF : CULV\B3340401	

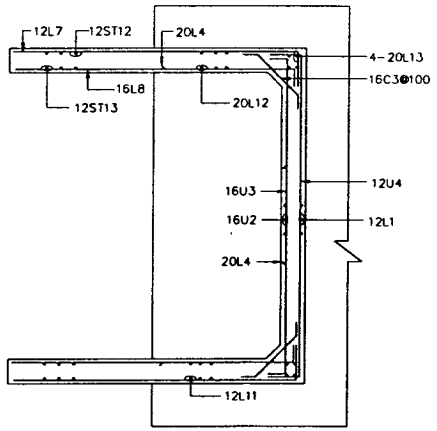
Web Copy

BC-417

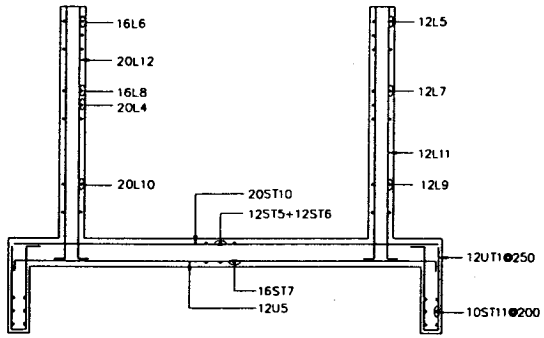
SHEET 2 OF 2
LIVE LOAD: ASHTO H20
CLEAR SPAN : 3X4.0m
CLEAR HEIGHT : 4.0m



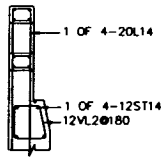
REINFORCEMENT DETAILS



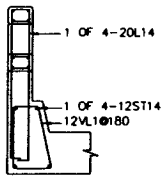
SECTION B-B



SECTION A-A



RAILING ON WING WALL
(REINF. DETAIL)



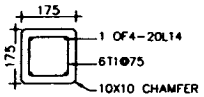
RAILING ON CULVERT
(REINF. DETAIL)

BAR BENDING SCHEDULE

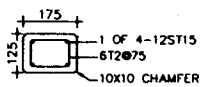
MEM.	BAR DIA.	SHAPE CODE	TOTAL NO.	SEGMENT DIMENSIONS a	b	c	d	BAR LENGTH
BOX APPRON & CUTOFF	16	ST1	39	13100				13100
	16	ST2	2 x 22	2916				2916
	10	ST3	2 X 83	4160				4160
	10	ST4	4 X 20	4160				4160
	12	ST5	35	19300				19300
	12	ST6	2 x 34	4250				4250
	16	ST7	30	19300				19300
	16	ST8	2 x 29	2916				2916
	12	ST9	54	5360				5360
	20	ST10	2 X 18	5360				5360
	12	C1	2 X 23	150	816	150		1116
	12	C2	2 X 23	150	864	150		1164
	12	VT1	2 x 23	2 X 150	2 X 619			1538
	12	VT2	2 x 23	2 X 150	2 X 673			1646
	12	L1	2 X 26	4532	250			4782
	20	L2	2 X 21	1621	250			1871
	12	L3	4 X 22	4532	250			4782
	20	L13	4 X 4	4532	250			4782
	12	U1	23	1593	13100	1593		16286
	16	U2	2 X 23	1633	4560	250		6443
	16	U3	2 X 18	250	4160	250		4660
	12	U4	2 X 19	494	4160	494		5148
	12	U5	79	250	5290	250		5790
	10	ST11	4 X 5	19250				19250
	12	UT1	2 X 79	150	2 X 1125	100		2500
WING WALL	20	L4	4 X 12	3388	1220			4608
	12	L5	4 X 1	6338	444			6782
	16	L6	4 X 2	6338	250			6588
	16	L7	4 X 9	Var. 6309 To 3338 @ 371	444			Var. 6753 To 3782
	16	L8	4 X 11	Var. 6309 To 3338 @ 297	250			Var. 6559 To 3588
	12	L9	4 X 8	3338	444			3782
	20	L10	4 X 12	3338	1220			4558
	12	L11	4 X 13	4584	250			4834
	20	L12	4 X 18	4584	250			4834
	12	ST12	4 X 12	Var. 2239 To 376 @169				Var. 2239 TO 376
	12	ST13	4 X 12	Var. 2239 To 376 @169				VER. 2239 TO 376
	12	VT	4 X 2	4305	200			4505
	16	C3	4 X 40	150	892	150		1192
CURB AND RAILING	12	ST14	2 X 4	25350				25350
	12	VL1	2 X 75	204	471	306	460	1541
	12	VL2	4 X 34	204	204	248	200	956
	20	L14	36 X 4	1121	120			1241
	12	ST15	4 X 4	25360				25360
	6	T1	36 X 6	2 X 135	2 X 135			540
	6	T2	4X 306	2 X 85	2 X 135			440

NOTES

1) All dimensions are in millimetre unless otherwise specified.
2) Not all reinforcement are necessarily shown in any view.
3) Coarse aggregate for Concrete shall be 19mm down graded stone chips conforming ASTM C33.
4) 28 days cylinder strength of concrete shall be 21MPa.
5) Reinforcement shall be structural grade deformed bars, with minimum yield strenght of 276MPa.
6) Clear cover for : a) Rail-20 mm, b) Post-20 mm, c) Slab (Top)-40 mm, d) Slab (Bot.)-50mm
   e) Curb-25mm, f) Wall-50mm, g) Base-50mm, h) Cut of wall-75mm.
7) Bearing capacity of soil Should be $\geq$ 48 kN/m^2
8) This drawing is to be read in conjunction with Shape Code; Cad File: CULV\S0000001.



REINF. DETAIL OF POST



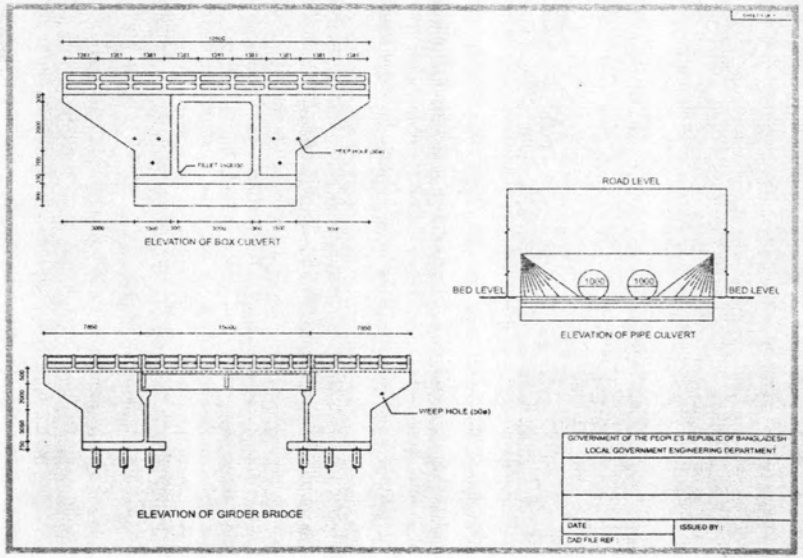
REINF. DETAIL OF RAILING

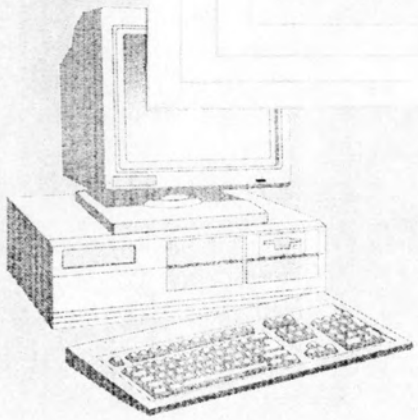
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

REINFORCEMENT DETAILS OF BOX CULVERT
TRIPLE VENT 4.0m x 4.0m ROADWAY 3.66m

DATE :
ISSUED BY :
CAD FILE REF : CULV\B3340402

Web Copy





PIPE CULVERT

Web Copy

SELECTION OF STANDARD DESIGN

PIPE CULVERTS :

Introduction

Standard design of pipe culverts of three different internal Diameter meters (300mm. 600mm & 900mm) having three types of live loading AASHTO H10, H15, and H20 are presented in the Manual. The carriageway widths have been considered as 2.44m and 3.66m and the number of vents ranges from single to quadruple vents. Each culverts has been assigned a reference code based on the internal Diameter meter, carriage way width, type of loading and number of vents.

Procedure of Selection

Selection of a pipe culvert along with is Diameter meter and number of vents will be determined by following the flow chart given in Chapter 14 of Part A of the Manual, selection of a standard design for undefined channel. For FRB 3.66m carriageway width (cw) and H10 loading will be followed. Detailed drawings of the required culverts (s) along with schedule are available in this section.

Selection of a suitable structure may also be done with the assistance of Structure WORKS, a computer software. See Part C of the Road Structure Manual for more information.

Quantity Estimate

The estimates of quantities involving different items of works are presented in the form of a Table in the following pages. Estimate for a particular design can be obtained from these tables.

The items of works whose quantities depend on the particular site conditions are included in the table, but their quantities are kept blank. Those are to be determined after actual field measurements.

In preparing the bill of quantities the full description of the related items should be taken from Chapter 16-Bill of Quantities.

List of all pipe culverts are summarized below :

Structural list of Pipe Culverts

Sl. No.	Reference Code	Structure Description	Page No.
1	CULV/P1003001	Pipe Culvert; Single Vent; Diameter 300mm;	PC-1
2	CULV/P1006001	Pipe Culvert; Single Vent; Diameter 600mm;	PC-2
3	CULV/P1009001	Pipe Culvert; Single Vent; Diameter 900mm;	PC-3
4	CULV/P2003001	Pipe Culvert; Double Vent; Diameter 300mm;	PC-4
5	CULV/P2006001	Pipe Culvert; Double Vent; Diameter 600mm;	PC-5
6	CULV/P2009001	Pipe Culvert; Double Vent; Diameter 900mm;	PC-6
7	CULV/P3003001	Pipe Culvert; Triple Vent; Diameter 300mm;	PC-7
8	CULV/P3006001	Pipe Culvert; Triple Vent; Diameter 600mm;	PC-8
9	CULV/P3009001	Pipe Culvert; Triple Vent; Diameter 900mm;	PC-9
10	CULV/P4003001	Pipe Culvert; Quadruple Vent; Diameter 300mm;	PC-10
11	CULV/P4006001	Pipe Culvert; Quadruple Vent; Diameter 600mm;	PC-11
12	CULV/P4009001	Pipe Culvert; Quadruple Vent; Diameter 900mm;	PC-12

Web Copy

PIPE CULVERT

Quantity Estimate The estimates of quantities for various items of work required in the construction of single, double, triple and quadruple vent pipe culverts are presented below in **E.Q. Table No. 2**. The estimates for a particular design can be obtained from this table by choosing the appropriate column corresponding to respective design loading.

The items of work whose quantities depend on the particular site conditions are including in the table, but their quantities are kept blank. These qunatities are to be determined after actual field measurements. Quantities of the items of work which depend on the length of culvert has been shown for per metre of length.To determine the quantities for a particular length these quantities are to be multiplied by the length.E. Q. Table No.2 contains only brief description of the items intended for ready reference. In preparing the bill of quantities the full description of the items should be copied from Road Structure Manual, Part - A, (Chapter 16, Table No. 16.1) for the corresponding item numbers.

Estimate Of Quantities For Pipe Culvert
E.Q. Table No. 2

Number of Vent				Single Vent									Double Vent									Triple Vent									Quadruple Vent								
Internal Diametre (mm)				300			600			900			300			600			900			300			600			900			300			600			900		
Wall Thickness (mm)				50		75	75	100	125	100	125	150	50		75	75	100	125	100	125	150	50		75	75	100	125	100	125	150	50		75	75	100	125	100	125	150
Type of Loading				H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20	H10	H15	H20
Carriageway Width (m)				2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66	2.44	3.66	3.66
Sl. No.	Item No.	Brief Description	Unit																																				
1.	1.	Mobilization	L.S.																																				
2.	2.	Engineer's Office	L.S.																																				
3.	3.	Diversion	Cu-m																																				
4.	4/43	Dismantling	L.S / C-m																																				
5.	6.	Earth work in excavation	Cu-m																																				
6.	**9	Brick flat soling	*Sq-m/m	0.85	0.85	0.90	1.20	1.25	1.30	1.55	1.60	1.65	1.80	1.80	1.80	2.40	2.50	2.50	3.10	3.20	3.30	2.55	2.55	2.70	3.60	3.75	3.90	4.65	4.80	4.95	3.40	3.40	3.60	4.30	5.00	5.20	6.20	6.40	6.60
7.	8.	Sand filling	Cu-m																																				
8.	10.	Brick on edge pavement	Sq-m																																				
9.	***11	Cement concreate (1:3:6)																																					
		i.) Under head wall , wing wall , apron	Cu-m	0.94	0.94	0.96	1.88	1.92	1.94	3.16	3.20	3.24	1.18	1.18	1.20	2.14	2.30	2.36	3.90	3.96	4.02	1.44	1.44	1.46	2.74	2.80	2.86	4.62	4.70	4.80	1.56	1.56	1.68	3.16	3.24	3.34	5.34	5.46	5.56
		ii.) Under pipes	*Cu-m/m	0.16	0.16	0.17	0.22	0.24	0.26	0.30	0.32	0.34	0.31	0.31	0.33	0.44	0.44	0.47	0.60	0.64	0.68	0.46	0.46	0.50	0.66	0.71	0.78	0.89	0.96	1.01	0.61	0.61	0.66	0.88	0.94	1.04	1.19	1.28	1.35
		Total of (i) & (ii)	Cu-m																																				
10.	12.	Brick work below G.L.	Cu-m	2.77	2.77	2.82	4.78	4.84	4.89	7.60	7.67	7.74	3.47	3.47	3.57	5.96	4.83	6.06	9.58	9.40	9.84	4.17	4.17	4.30	7.12	7.28	7.43	11.54	11.75	11.96	4.87	4.87	5.04	8.30	8.50	8.69	13.52	13.79	14.06
11.	14.	Brick work above G.L.	Cu-m	1.56	1.56	1.62	3.00	3.12	3.24	5.42	5.58	5.76	2.00	2.00	2.12	4.18	4.40	4.40	7.68	8.02	8.36	2.44	2.44	2.64	5.34	5.68	6.04	9.96	10.44	10.96	2.90	2.90	3.14	6.52	6.96	7.44	12.22	12.22	13.56
12.	31.	Earth work in culvert approaches	Cu-m																																				
13.	32.	Supply & installation of pipe																																					
		i). 300 mm dia	*Lm/m.	1.00	1.00	1.00	-	-	-	-	-	-	2.00	2.00	2.00	-	-	-	-	-	-	3.00	3.00	3.00	-	-	-	-	-	-	4.00	4.00	4.00	-	-	-	-	-	-
		ii) 600 mm dia	*Lm/m.	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-	2.00	2.00	2.00	-	-	-	-	-	-	3.00	3.00	3.00	-	-	-	-	-	-	4.00	4.00	4.00	-	-	-
		iii) 1000 mm dia	*Lm/m.	-	-	-	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-	2.00	2.00	2.00	-	-	-	-	-	-	3.00	3.00	3.00	-	-	-	-	-	-	4.00	4.00	4.00
14.	36.	Turfing on embankment	Sq-m																																				
15.	41.	Rule pointing	Sq-m	12.00	12.00	12.00	15.54	15.92	16.29	24.10	24.59	25.04	14.00	14.00	15.00	19.14	19.73	19.73	30.54	31.29	32.06	16.00	16.00	17.00	22.74	23.55	24.35	36.97	38.01	39.20	18.00	18.00	19.00	26.34	27.36	28.38	43.40	44.73	46.08
16.	48.	Demobilization	LS																																				

Remarks : **The items of work whose quantities depend on the length of pipe are to be calculated by applying following equations:**

L = Length of pipe = ...m

* Quantities per metre length

**For Item no. 9, Quantities =(Sq-m/m x Le) Sq.m

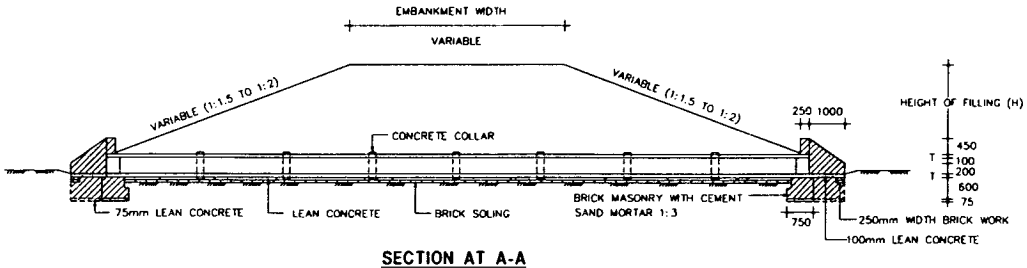
*** For Item No. 11, Quantities = 11(i) + 11(ii) x Le

Where , Le = L - 1.000, for 300mm dia pipe

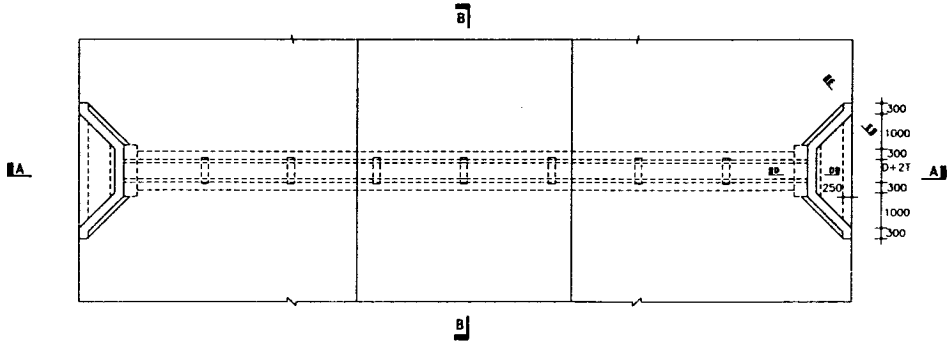
= L - 1.25, for 600mm dia pipe

= L - 1.75, for 1000mm dia pipe

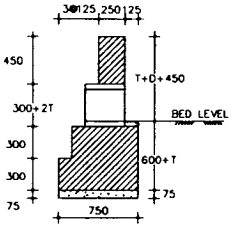
Web Copy



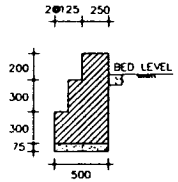
SECTION AT A-A



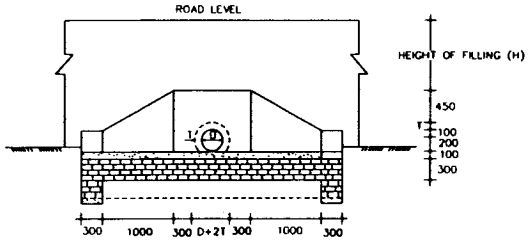
PLAN



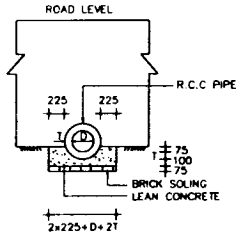
SECTION D-D



SECTION E-E



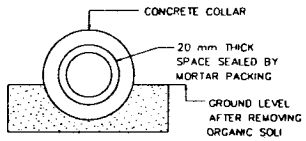
ELEVATION OF HEAD WALL



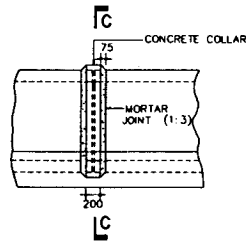
SECTION AT B-B

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

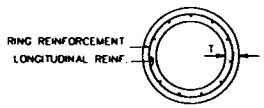
Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
300	1	71	75	6	175	6	150	102.52
	2	71	50	6	125	6	250	95.27
	3	71	75	6	150	6	150	123.58
	4	71	75	6	125	6	150	153.53
	5	71	75	6	200	6	150	193.65
	6	71	75	6	75	6	150	230.30
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
300	1	53	50	6	150	6	250	85.95
	2	53	50	6	125	6	250	89.86
	3	53	50	10	200	6	250	121.10
	4	53	75	6	125	6	150	153.54
	5	53	75	10	200	6	150	193.65
	6	53	75	10	175	6	150	230.32
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
300	1	36	50	6	175	6	250	70.23
	2	36	50	6	150	6	250	84.76
	3	36	50	6	100	6	250	118.73
	4	36	75	6	125	6	150	153.54
	5	36	75	10	200	6	150	193.65
	6	36	75	6	75	6	150	230.32



SECTION C-C



DETAILS OF CONCRETE COLLAR JOINT



REINF. DETAIL OF PIPE

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Renforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing orgonic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF SINGLE VENT PIPE CULVERT
DIAMETRE : 300 mm

DATE :

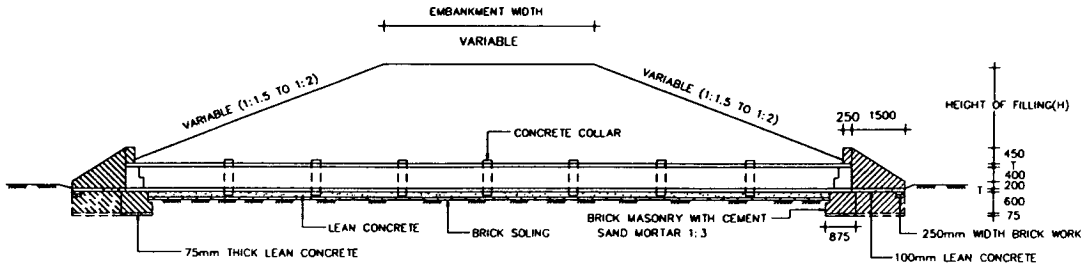
ISSUED BY :

CAD FILE REF : CULV\P1003001

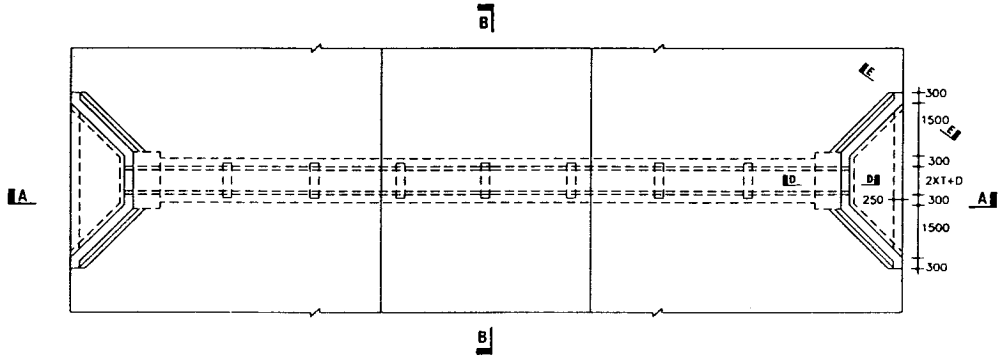
Web Copy

PC-2

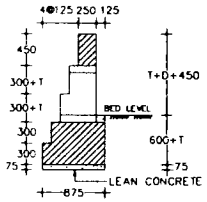
SHEET 1 OF 1



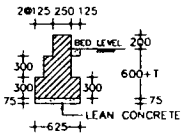
SECTION AT A-A



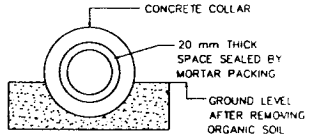
PLAN



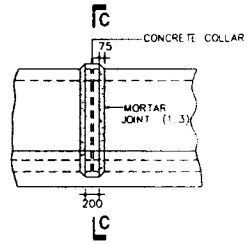
SECTION D - D



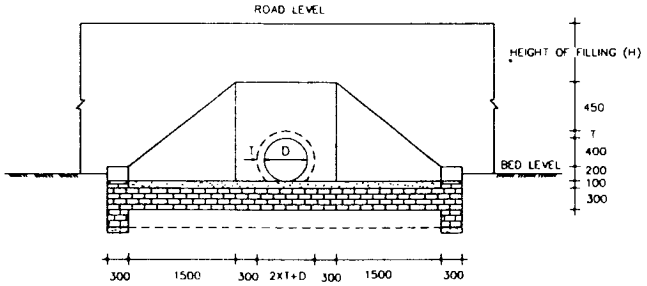
SECTION E - E



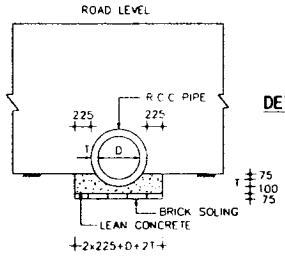
SECTION C -C



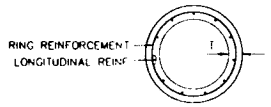
DETAILS OF CONCRETE COLLAR JOINT



ELEVATION OF HEAD WALL



SECTION AT B-B



REINF. DETAIL OF PIPE

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load p (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
600	1	71	125	10	200	6	100	84.23
	2	71	125	10	200	6	100	82.04
	3	71	125	6	75	6	100	102.04
	4	71	125	10	150	6	100	113.74
	5	71	100	10	75	6	125	156.39
	6	71	125	10	75	6	100	201.88
	7	71	150	10	75	6	75	243.12
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
600	1	53	100	10	200	6	125	70.08
	2	53	100	10	175	6	125	77.46
	3	53	125	10	175	6	100	99.96
	4	53	125	10	150	6	100	113.74
	5	53	150	10	125	6	75	153.39
	6	53	150	10	100	6	75	201.88
	7	53	150	10	75	6	75	243.12
	8	53	150	12	75	6	75	281.50
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
600	1	36	75	6	75	6	150	56.72
	2	36	75	10	175	6	125	73.14
	3	36	125	10	175	6	100	98.00
	4	36	125	10	125	6	100	113.74
	5	36	125	10	100	6	100	156.39
	6	36	125	10	75	6	100	201.88
	7	36	150	10	75	6	75	243.12
	8	36	150	12	75	6	75	281.51

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at o level after removing organic soil
6. Croddle bed shall be made with sand having F.M.not less than 1.5
7. Compaction of sand bed shall be done after full saturation
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at leost for 15 days.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

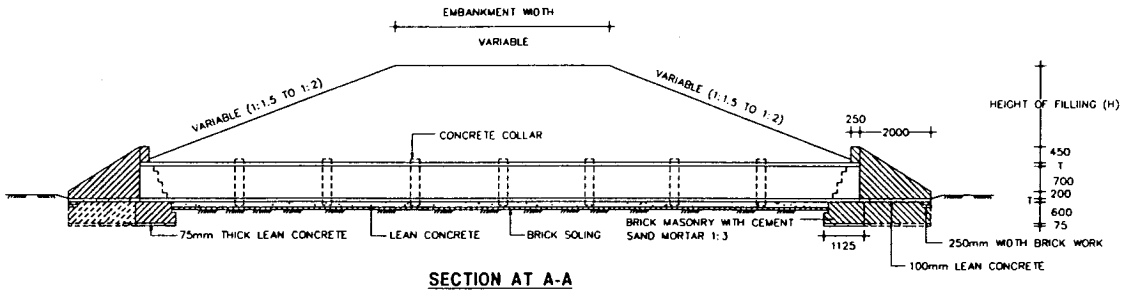
DETAILS OF SINGLE VENT PIPE CULVERT
DIAMETRE : 600 mm

DATE :

ISSUED BY :

CAD FILE REF : CULV\P1006001

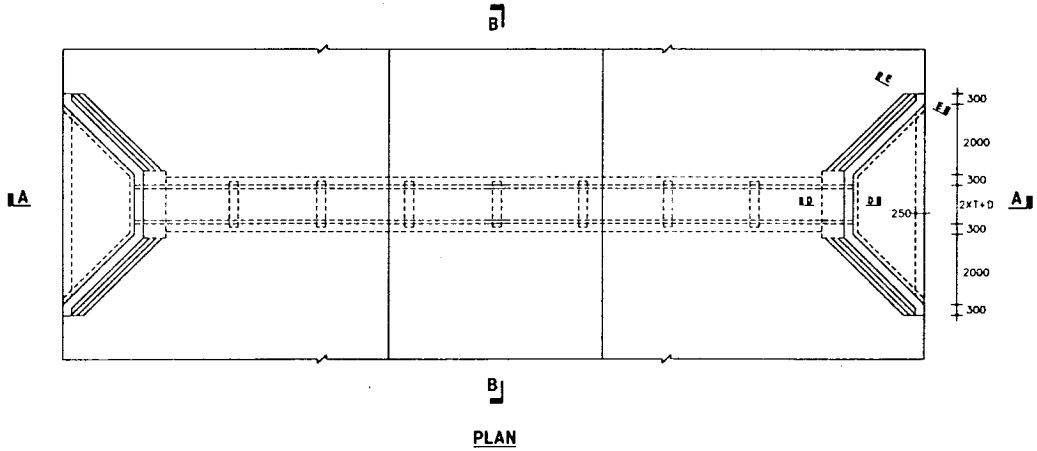
Web Copy



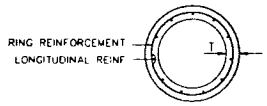
SECTION AT A-A

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
900	1	71	150	10	100	6	75	72.34
	2	71	150	10	100	6	75	69.49
	3	71	150	10	75	6	75	99.51
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
900	1	53	100	10	75	6	125	60.50
	2	53	125	10	100	6	100	65.50
	3	53	125	10	75	6	75	97.64
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
900	1	36	150	10	125	6	100	49.30
	2	36	125	10	125	6	75	61.73
	3	36	150	10	75	6	75	95.87



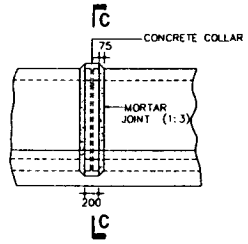
PLAN



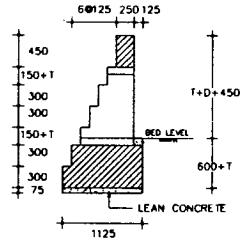
REINF. DETAIL OF PIPE

NOTES :

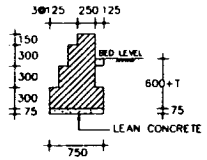
1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa
5. Bed level should be fixed at a level after removing organic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.



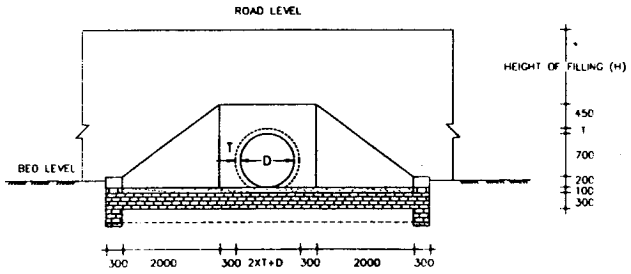
DETAILS OF CONCRETE COLLAR JOINT



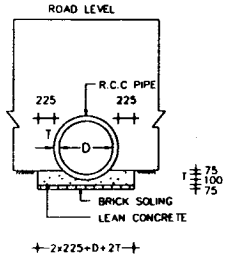
SECTION D - D



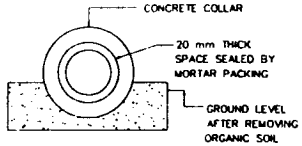
SECTION E - E



ELEVATION OF HEAD WALL



SECTION AT B-B



SECTION C -C

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

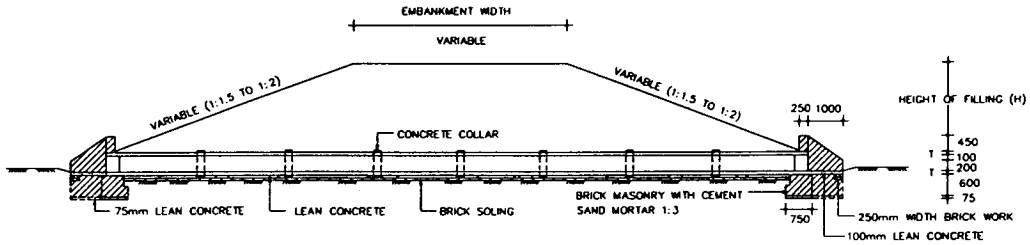
DETAILS OF SINGLE VENT PIPE CULVERT
DIAMETRE : 900 mm

DATE :

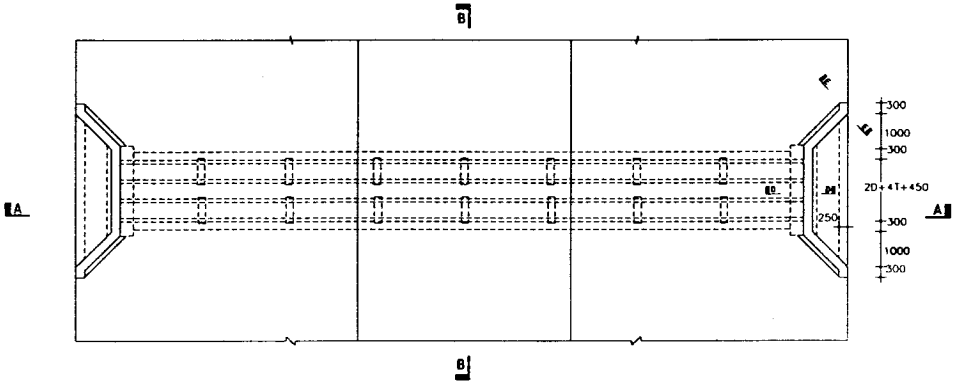
ISSUED BY :

CAD FILE REF : CULV\P1009001

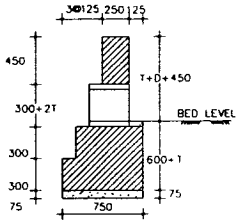
Web Copy



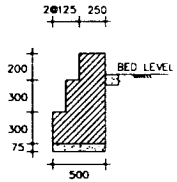
SECTION AT A-A



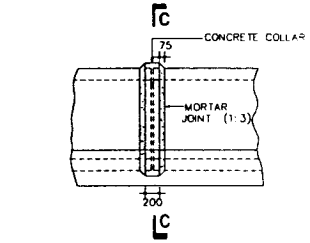
PLAN



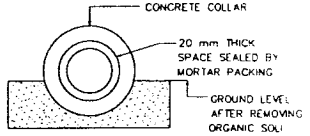
SECTION D-D



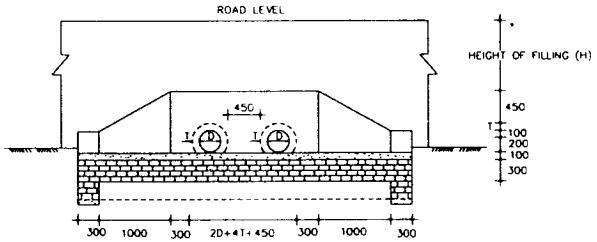
SECTION E-E



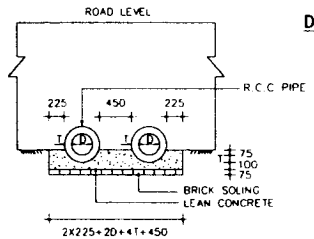
DETAILS OF CONCRETE COLLAR JOINT



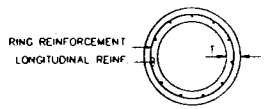
SECTION C-C



ELEVATION OF HEAD WALL



SECTION AT B-B



REINF. DETAIL OF PIPE

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
300	1	71	75	6	175	6	150	102.52
	2	71	50	6	125	6	250	95.27
	3	71	75	6	150	6	150	123.58
	4	71	75	6	125	6	150	153.53
	5	71	75	6	200	6	150	193.65
	6	71	75	6	75	6	150	230.30
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
300	1	53	50	6	150	6	250	85.95
	2	53	50	6	125	6	250	89.86
	3	53	50	10	200	6	250	121.10
	4	53	75	6	125	6	150	153.54
	5	53	75	10	200	6	150	193.65
	6	53	75	10	175	6	150	230.32
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
300	1	36	50	6	175	6	250	70.23
	2	36	50	6	150	6	250	84.76
	3	36	50	6	100	6	250	118.73
	4	36	75	6	125	6	150	153.54
	5	36	75	10	200	6	150	193.65
	6	36	75	6	75	6	150	230.32

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Renforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing orgonic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

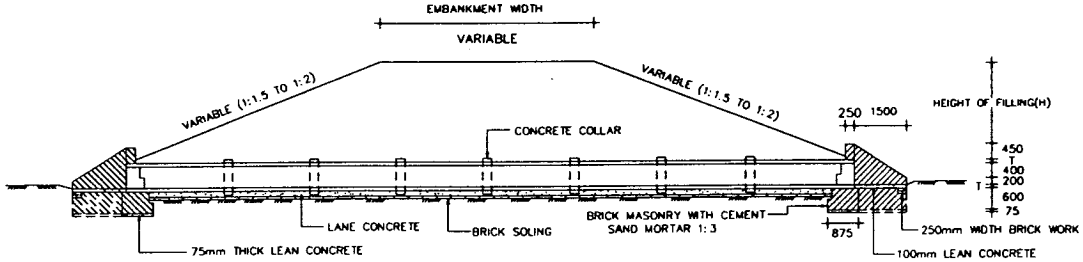
DETAILS OF DOUBLE VENT PIPE CULVERT
DIAMETRE : 300 mm

DATE :

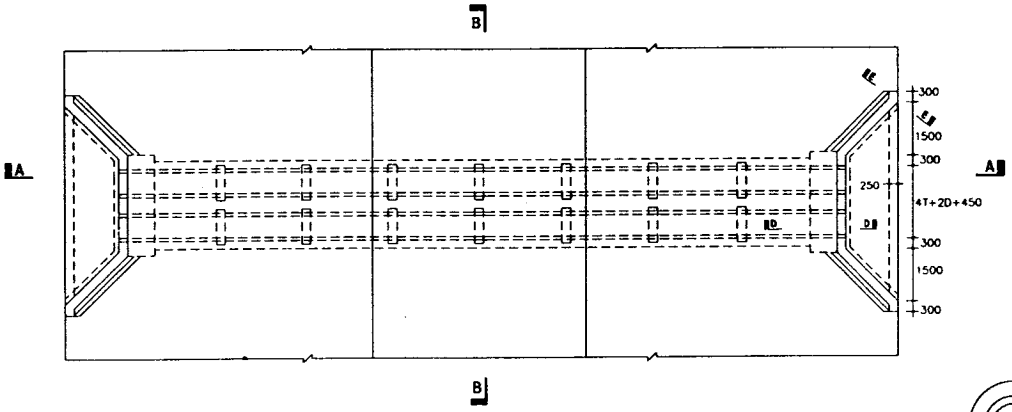
ISSUED BY :

CAD FILE REF : CULV\P200300

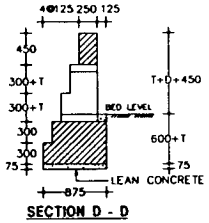
Web Copy



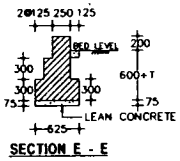
SECTION AT A-A



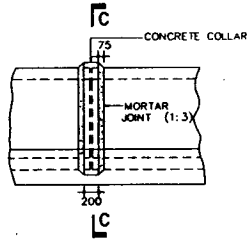
PLAN



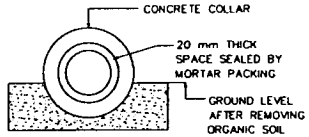
SECTION D - D



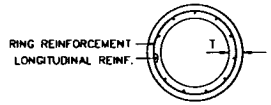
SECTION E - E



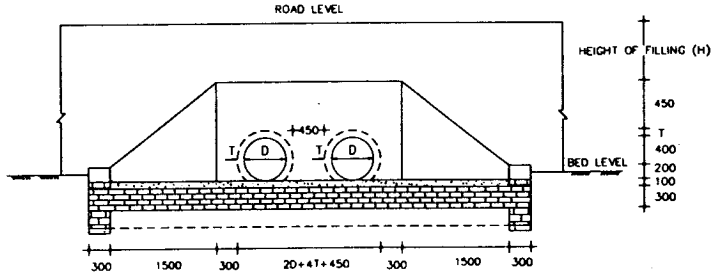
DETAILS OF CONCRETE COLLAR JOINT



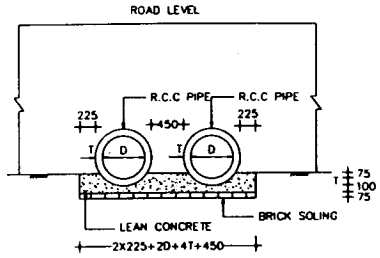
SECTION C -C



REINF. DETAIL OF PIPE



ELEVATION OF HEAD WALL



SECTION AT B-B

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load p (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
600	1	71	125	10	200	6	100	84.23
	2	71	125	10	200	6	100	82.04
	3	71	125	6	75	6	100	102.04
	4	71	125	10	150	6	100	113.74
	5	71	100	10	75	6	125	156.39
	6	71	125	10	75	6	100	201.88
	7	71	150	10	75	6	75	243.12

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING

600	1	53	100	10	200	6	125	70.08
	2	53	100	10	175	6	125	77.46
	3	53	125	10	175	6	100	99.96
	4	53	125	10	150	6	100	113.74
	5	53	150	10	125	6	75	153.39
	6	53	150	10	100	6	75	201.88
	7	53	150	10	75	6	75	243.12
	8	53	150	12	75	6	75	281.50

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING

600	1	36	75	6	75	6	150	56.72
	2	36	75	10	175	6	125	73.14
	3	36	125	10	175	6	100	98.00
	4	36	125	10	125	6	100	113.74
	5	36	125	10	100	6	100	156.39
	6	36	125	10	75	6	100	201.88
	7	36	150	10	75	6	75	243.12
	8	36	150	12	75	6	75	281.51

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 doys cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structurol grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Croddle bed shall be made with sond having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sond shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 doys.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF DOUBLE VENT PIPE CULVERT
DIAMETRE = 600 mm

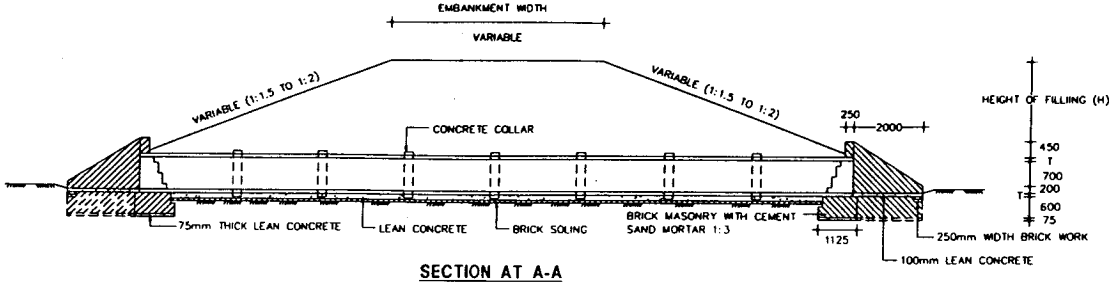
DATE :

ISSUED BY :

CAD FILE REF CULV\P2006001

Web Copy

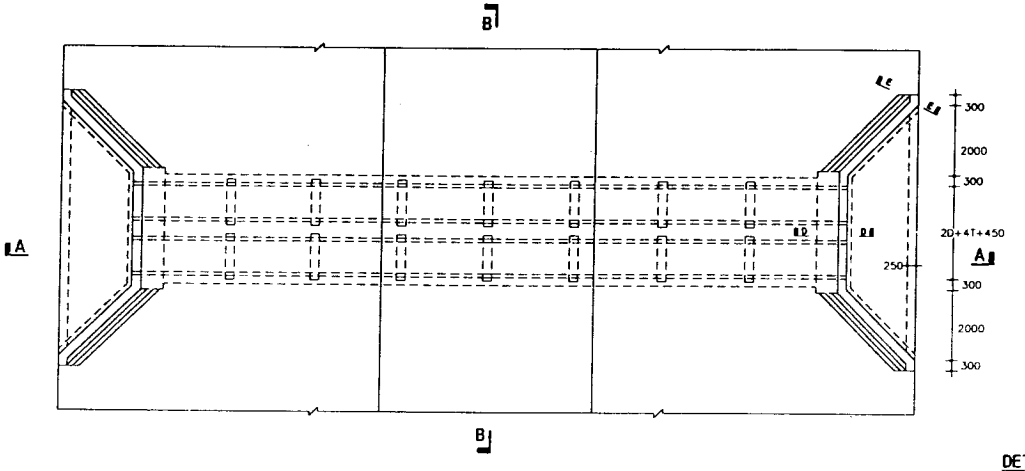
PC-6



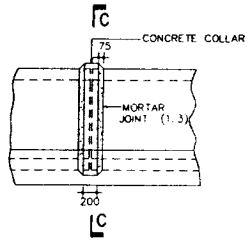
SECTION AT A-A

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

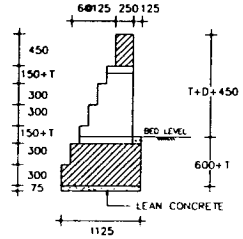
Internal Dia D (mm)	Height of Fill H (m)	Live Load p (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
900	1	71	150	10	100	6	75	72.34
	2	71	150	10	100	6	75	69.49
	3	71	150	10	75	6	75	99.51
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
900	1	53	100	10	75	6	125	60.50
	2	53	125	10	100	6	100	65.50
	3	53	125	10	75	6	75	97.64
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
900	1	36	150	10	125	6	100	49.30
	2	36	125	10	125	6	75	61.73
	3	36	150	10	75	6	75	95.87



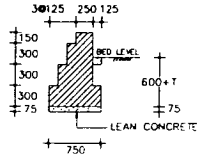
PLAN



DETAILS OF CONCRETE COLLAR JOINT



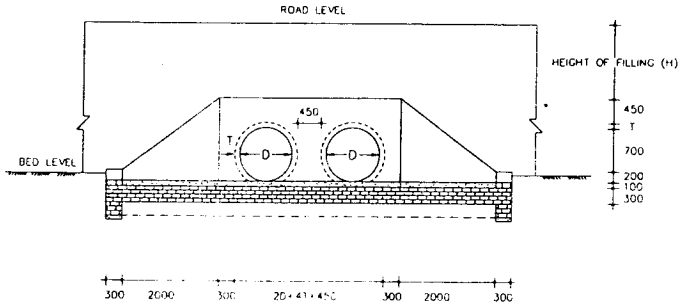
SECTION D - D



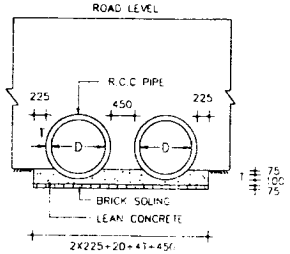
SECTION E - E

NOTES :

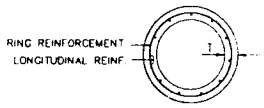
1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Craddle bed shall be made with sand having F.M not less than 1.5
7. Compaction of sand bed shall be done after full saturation
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.



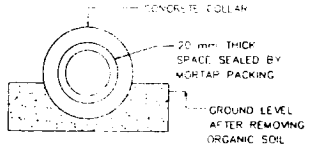
ELEVATION OF HEAD WALL



SECTION AT B-B



REINF. DETAIL OF PIPE



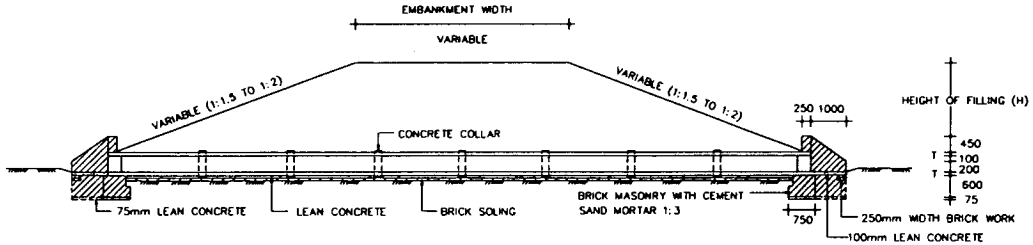
SECTION C -C

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

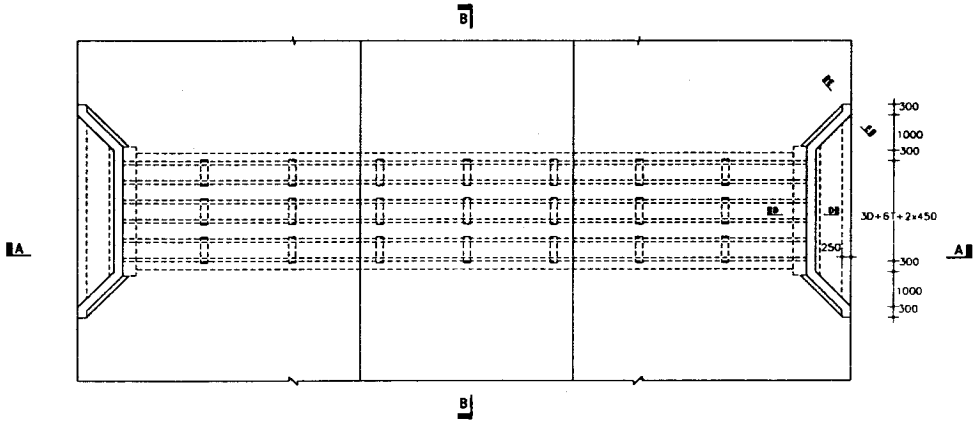
DETAILS OF DOUBLE VENT PIPE CULVERT
DIAMETRE : 900 mm

DATE :	ISSUED BY
CAD FILE REF : CULV\P2009001	

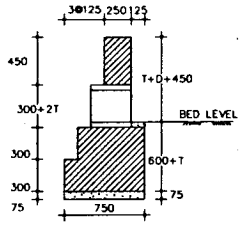
Web Copy



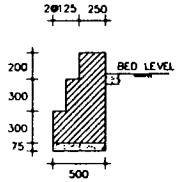
SECTION AT A-A



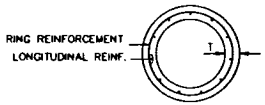
PLAN



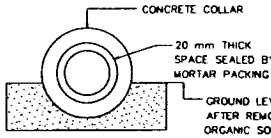
SECTION D-D



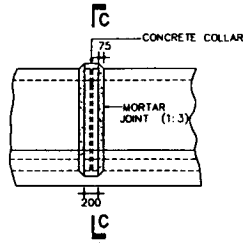
SECTION E-E



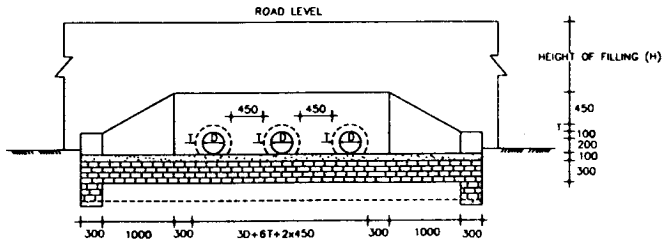
REINF. DETAIL OF PIPE



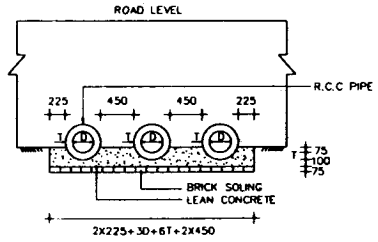
SECTION C-C



DETAILS OF CONCRETE COLLAR JOINT



ELEVATION OF HEAD WALL



SECTION AT B-B

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
300	1	71	75	6	175	6	150	102.52
	2	71	50	6	125	6	250	95.27
	3	71	75	6	150	6	150	123.58
	4	71	75	6	125	6	150	153.53
	5	71	75	6	200	6	150	193.65
	6	71	75	6	75	6	150	230.30
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
300	1	53	50	6	150	6	250	85.95
	2	53	50	6	125	6	250	89.86
	3	53	50	10	200	6	250	121.10
	4	53	75	6	125	6	150	153.54
	5	53	75	10	200	6	150	193.65
	6	53	75	10	175	6	150	230.32
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
300	1	36	50	6	175	6	250	70.23
	2	36	50	6	150	6	250	84.76
	3	36	50	6	100	6	250	118.73
	4	36	75	6	125	6	150	153.54
	5	36	75	10	200	6	150	193.65
	6	36	75	6	75	6	150	230.32

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coorse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be 21 MPa.
4. Renforcement shall be structural grade deformed bars with mimimum yield strength of 276 MPa.
5. Bed level should be fixed at a level after removing orgonic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.

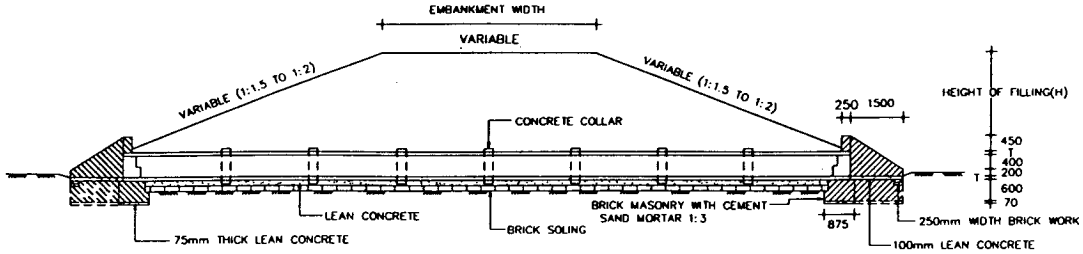
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF TRIPLE VENT PIPE CULVERT
DIAMETRE : 300 mm

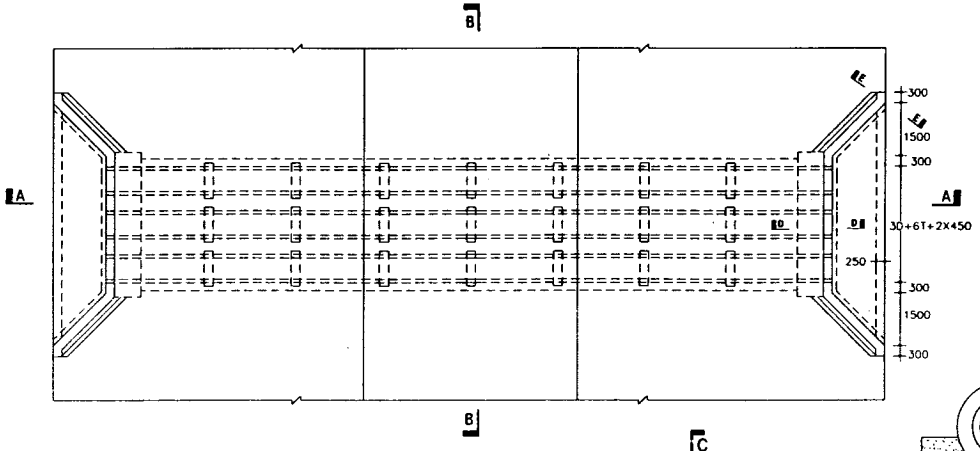
DATE :	ISSUED BY :
CAD FILE REF : CULV\P3003001	

Web Copy

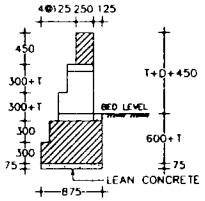
PC-8



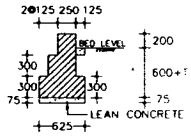
SECTION AT A-A



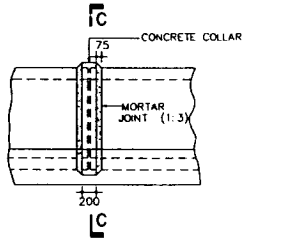
PLAN



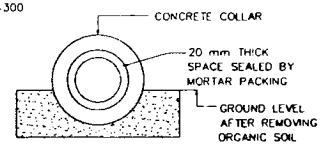
SECTION D - D



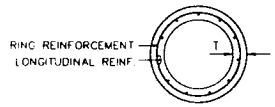
SECTION E - E



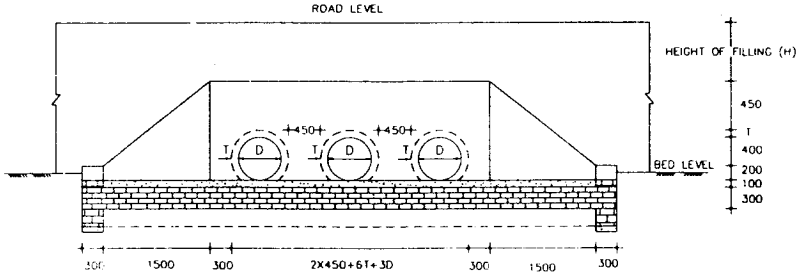
DETAILS OF CONCRETE COLLAR JOINT



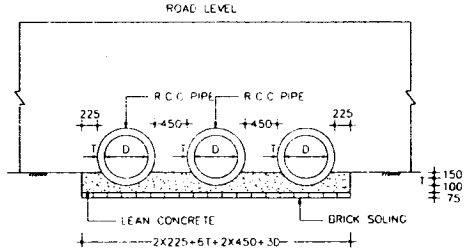
SECTION C -C



REINF. DETAIL OF PIPE



ELEVATION OF HEAD WALL



SECTION AT B-B

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load p (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
600	1	71	125	10	200	6	100	84.23
	2	71	125	10	200	6	100	82.04
	3	71	125	6	75	6	100	102.04
	4	71	125	10	150	6	100	113.74
	5	71	100	10	75	6	125	156.39
	6	71	125	10	75	6	100	201.88
	7	71	150	10	75	6	75	243.12

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING

600	1	53	100	10	200	6	125	70.08
	2	53	100	10	175	6	125	77.46
	3	53	125	10	175	6	100	99.96
	4	53	125	10	150	6	100	113.74
	5	53	150	10	125	6	75	153.39
	6	53	150	10	100	6	75	201.88
	7	53	150	10	75	6	75	243.12
	8	53	150	12	75	6	75	281.50

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING

600	1	36	75	6	75	6	150	56.72
	2	36	75	10	175	6	125	73.14
	3	36	125	10	175	6	100	98.00
	4	36	125	10	125	6	100	113.74
	5	36	125	10	100	6	100	156.39
	6	36	125	10	75	6	100	201.88
	7	36	150	10	75	6	75	243.12
	8	36	150	12	75	6	75	281.51

NOTES :

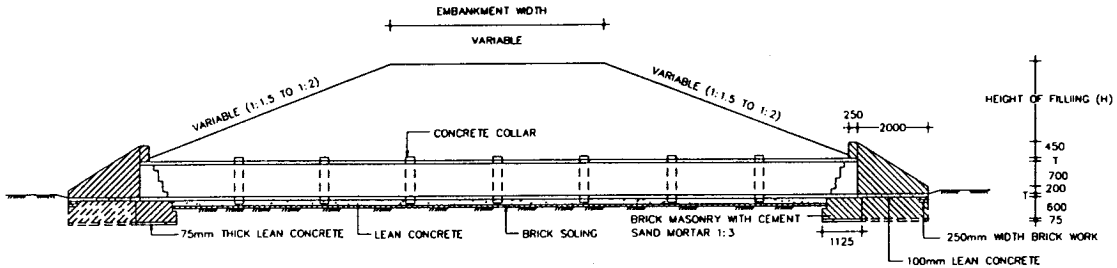
1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF TRIPLE VENT PIPE CULVERT
DIAMETRE : 600 mm

DATE :	ISSUED BY
CAD FILE REF CULV\P3006001	

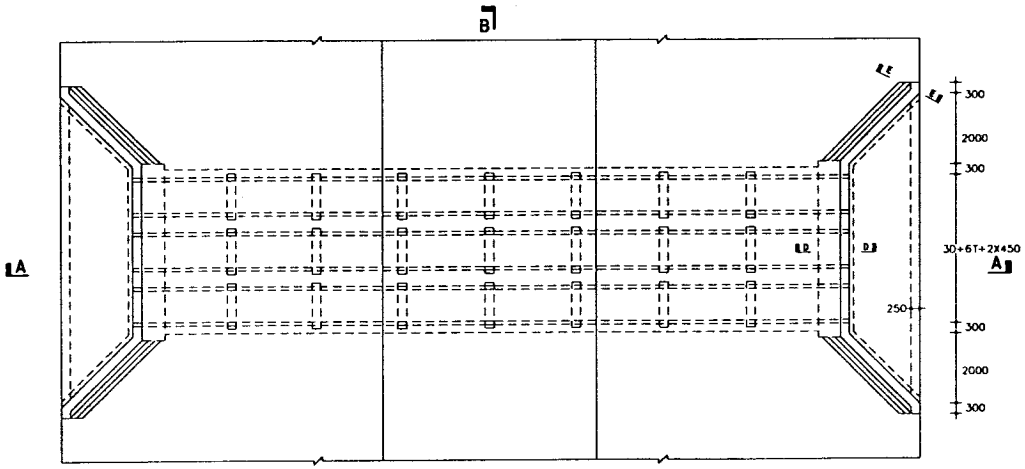
Web Copy



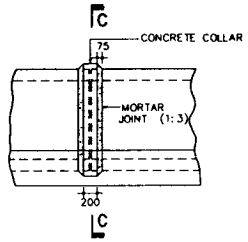
SECTION AT A-A

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

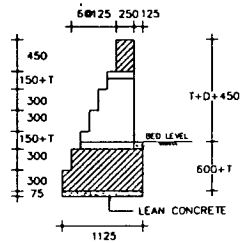
Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
900	1	71	150	10	100	6	75	72.34
	2	71	150	10	100	6	75	69.49
	3	71	150	10	75	6	75	99.51
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
900	1	53	100	10	75	6	125	60.50
	2	53	125	10	100	6	100	65.50
	3	53	125	10	75	6	75	97.64
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
900	1	36	150	10	125	6	100	49.30
	2	36	125	10	125	6	75	61.73
	3	36	150	10	75	6	75	95.87



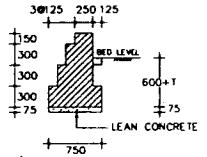
PLAN



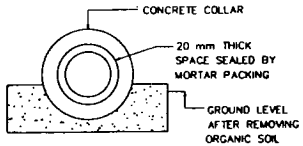
DETAILS OF CONCRETE COLLAR JOINT



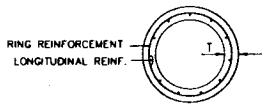
SECTION D - D



SECTION E - E



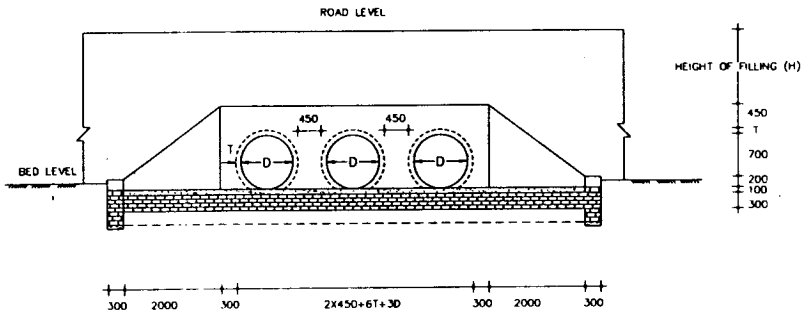
SECTION C -C



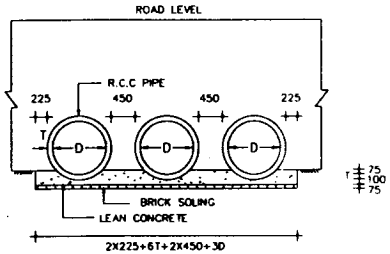
REINF. DETAIL OF PIPE

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be 21 MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of 276 MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Croddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.



ELEVATION OF HEAD WALL



SECTION AT B-B

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF TRIPLE VENT PIPE CULVERT
DIAMETRE : 900 mm

DATE :

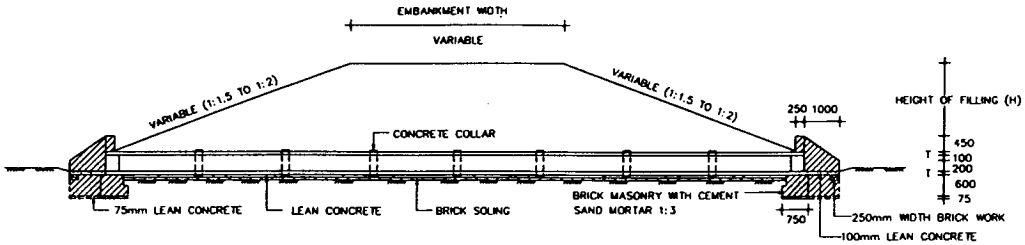
ISSUED BY :

CAD FILE REF : CULV\P3009001

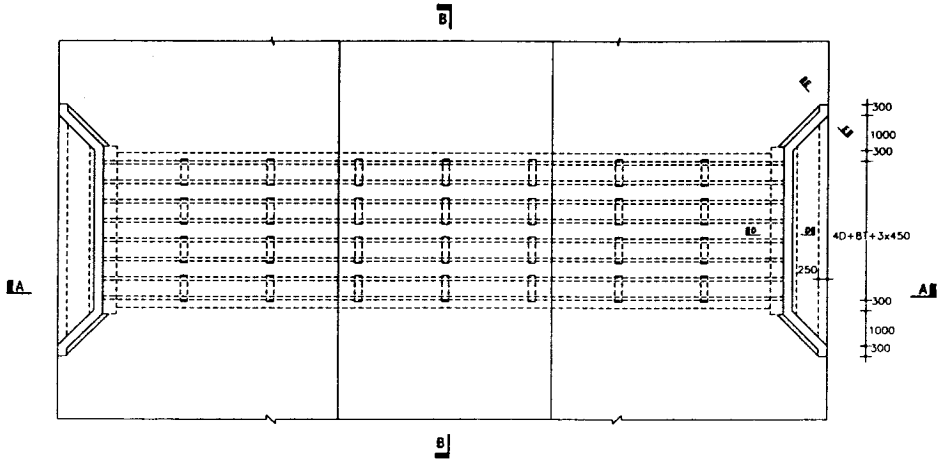
Web Copy

PC-10

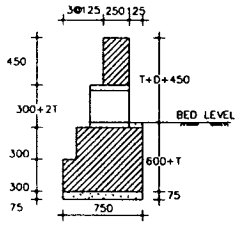
SHEET 1 OF 1



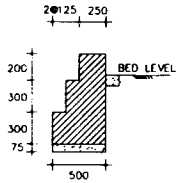
SECTION AT A-A



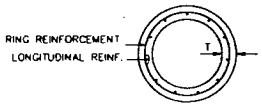
PLAN



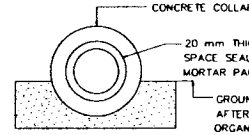
SECTION D-D



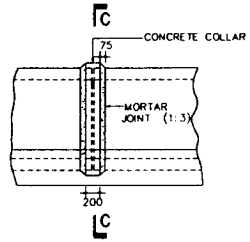
SECTION E-E



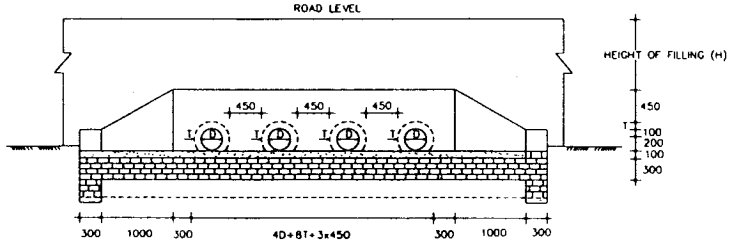
REINF. DETAIL OF PIPE



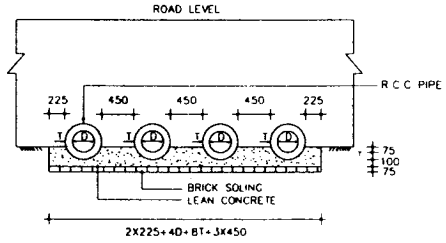
SECTION C -C



DETAILS OF CONCRETE COLLAR JOINT



ELEVATION OF HEAD WALL



SECTION AT B-B

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
300	1	71	75	6	175	6	150	102.52
	2	71	50	6	125	6	250	95.27
	3	71	75	6	150	6	150	123.58
	4	71	75	6	125	6	150	153.53
	5	71	75	6	200	6	150	193.65
	6	71	75	6	75	6	150	230.30
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
300	1	53	50	6	150	6	250	85.95
	2	53	50	6	125	6	250	89.86
	3	53	50	10	200	6	250	121.10
	4	53	75	6	125	6	150	153.54
	5	53	75	10	200	6	150	193.65
	6	53	75	10	175	6	150	230.32
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
300	1	36	50	6	175	6	250	70.23
	2	36	50	6	150	6	250	84.76
	3	36	50	6	100	6	250	118.73
	4	36	75	6	125	6	150	153.54
	5	36	75	10	200	6	150	193.65
	6	36	75	6	75	6	150	230.32

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Renforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

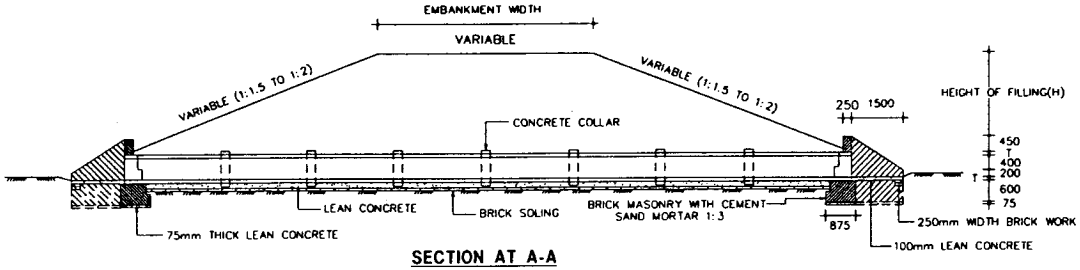
DETAILS OF QUADRUPLE VENT PIPE CULVERT
DIAMETRE : 300 mm

DATE :

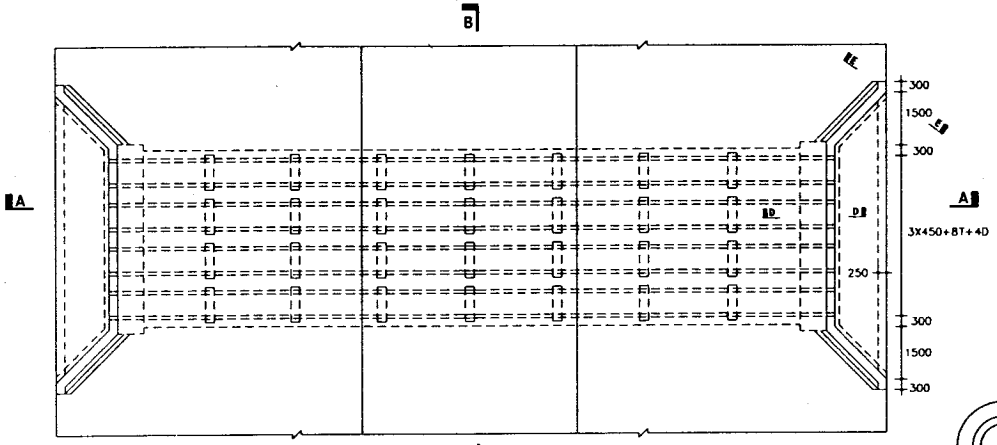
ISSUED BY :

CAD FILE REF : CULV\P400.3001

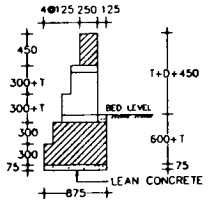
Web Copy



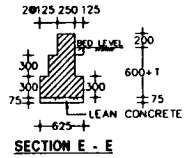
SECTION AT A-A



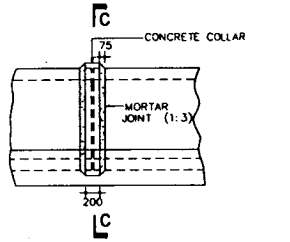
PLAN



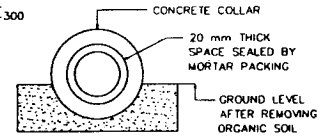
SECTION D - D



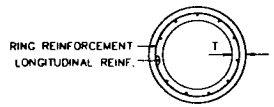
SECTION E - E



DETAILS OF CONCRETE COLLAR JOINT



SECTION C -C



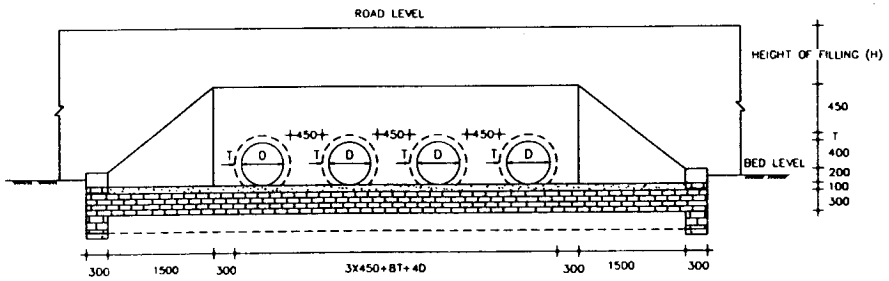
REINF. DETAIL OF PIPE

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

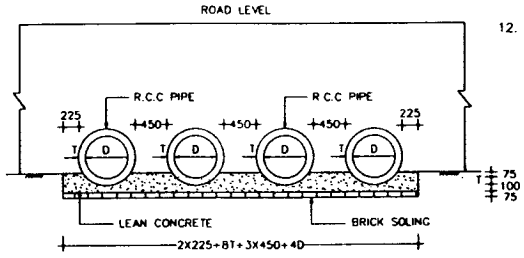
Internal Dia D (mm)	Height of Fill H (m)	Live Load p (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
600	1	71	125	10	200	6	100	84.23
	2	71	125	10	200	6	100	82.04
	3	71	125	6	75	6	100	102.04
	4	71	125	10	150	6	100	113.74
	5	71	100	10	75	6	125	156.39
	6	71	125	10	75	6	100	201.88
	7	71	150	10	75	6	75	243.12
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
600	1	53	100	10	200	6	125	70.08
	2	53	100	10	175	6	125	77.46
	3	53	125	10	175	6	100	99.96
	4	53	125	10	150	6	100	113.74
	5	53	150	10	125	6	75	153.39
	6	53	150	10	100	6	75	201.88
	7	53	150	10	75	6	75	243.12
	8	53	150	12	75	6	75	281.50
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
600	1	36	75	6	75	6	150	56.72
	2	36	75	10	175	6	125	73.14
	3	36	125	10	175	6	100	98.00
	4	36	125	10	125	6	100	113.74
	5	36	125	10	100	6	100	156.39
	6	36	125	10	75	6	100	201.88
	7	36	150	10	75	6	75	243.12
	8	36	150	12	75	6	75	281.51

NOTES :

1. All dimensions are in millimiter unless otherwise specified.
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa.
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Craddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation.
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3.
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortar shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.



ELEVATION OF HEAD WALL



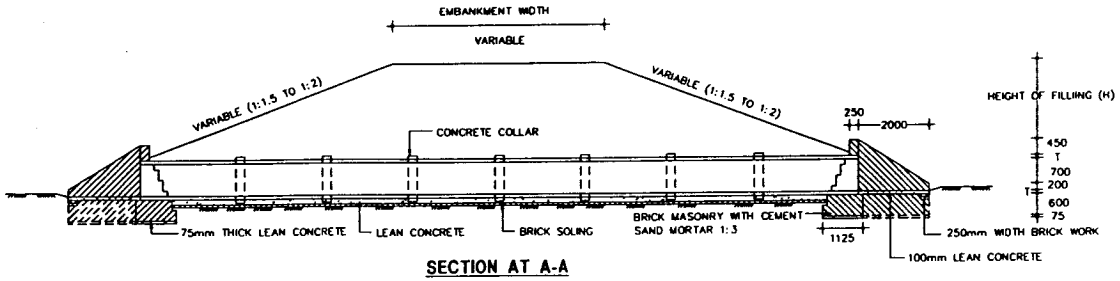
SECTION AT B-B

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DETAILS OF QUADRUPLE VENT PIPE CULVERT
DIAMETRE = 600 mm

DATE :	ISSUED BY :
CAD FILE REF : CULV\P4006001	

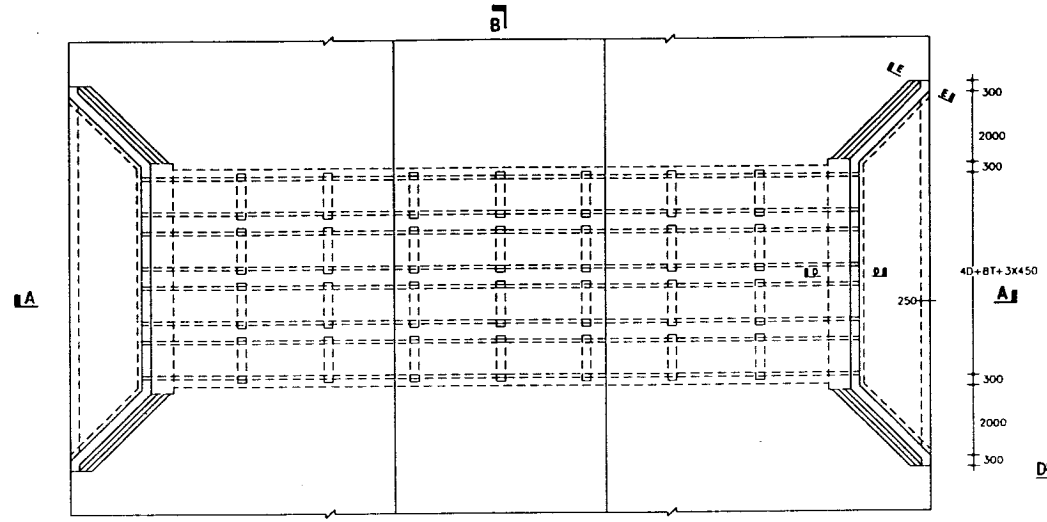
Web Copy



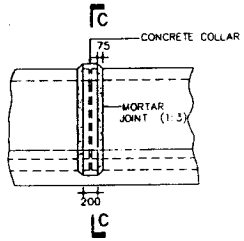
SECTION AT A-A

STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-20 LOADING

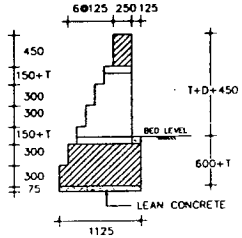
Internal Dia D (mm)	Height of Fill H (m)	Live Load P (kn)	Thickness T (mm)	Ring Reinforcement		Longitudinal Reinforcement		d-Load Capacity Required (kN/m/m)
				Dia (mm)	Spacing (mm)	Dia (mm)	Spacing (mm)	
900	1	71	150	10	100	6	75	72.34
	2	71	150	10	100	6	75	69.49
	3	71	150	10	75	6	75	99.51
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-15 LOADING								
900	1	53	100	10	75	6	125	60.50
	2	53	125	10	100	6	100	65.50
	3	53	125	10	75	6	75	97.64
STANDARD DESIGNS OF REINFORCED CONCRETE PIPES FOR H-10 LOADING								
900	1	36	150	10	125	6	100	49.30
	2	36	125	10	125	6	75	61.73
	3	36	150	10	75	6	75	95.87



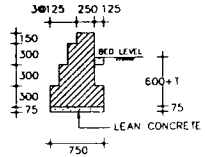
PLAN



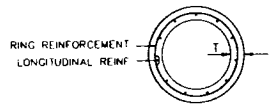
DETAILS OF CONCRETE COLLAR JOINT



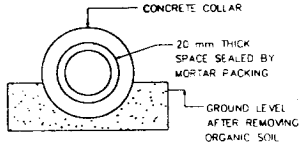
SECTION D - D



SECTION E - E



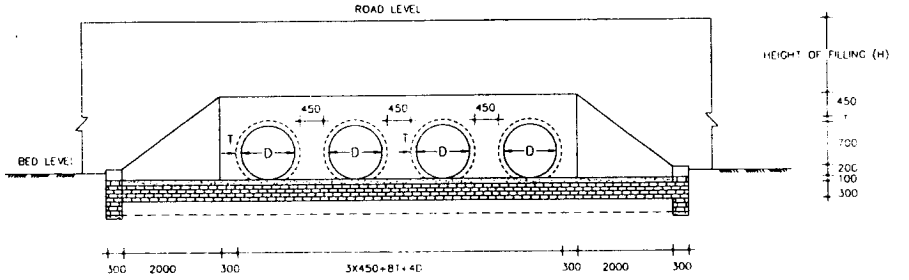
REINF. DETAIL OF PIPE



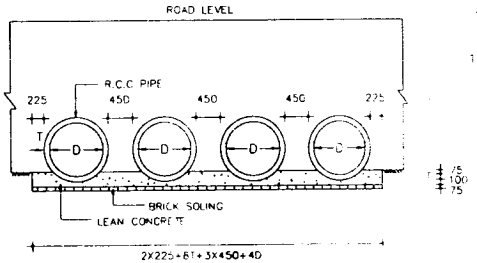
SECTION C -C

NOTES :

1. All dimensions are in millimiter unless otherwise specified
2. Coarse aggrete for concrete shall be 20mm down graded stone chips conforming to ASTM C33.
3. 28 days cylinder strength of concrete shall be **21** MPa
4. Reinforcement shall be structural grade deformed bars with mimimum yield strength of **276** MPa.
5. Bed level should be fixed at a level after removing organic soil.
6. Croddle bed shall be made with sand having F.M.not less than 1.5.
7. Compaction of sand bed shall be done after full saturation
8. Brick shall be of standard size and regular shape with sharp corners.
9. Masonry work shall have mixing ratio of mortar : cement=1:3
10. Finess modulus (F.M.) of sand shall be greater than 1.5.
11. Optimum water content in mortor shall be 50% of the weight of a cement bag.
12. Curing shall be done at least for 15 days.



ELEVATION OF HEAD WALL



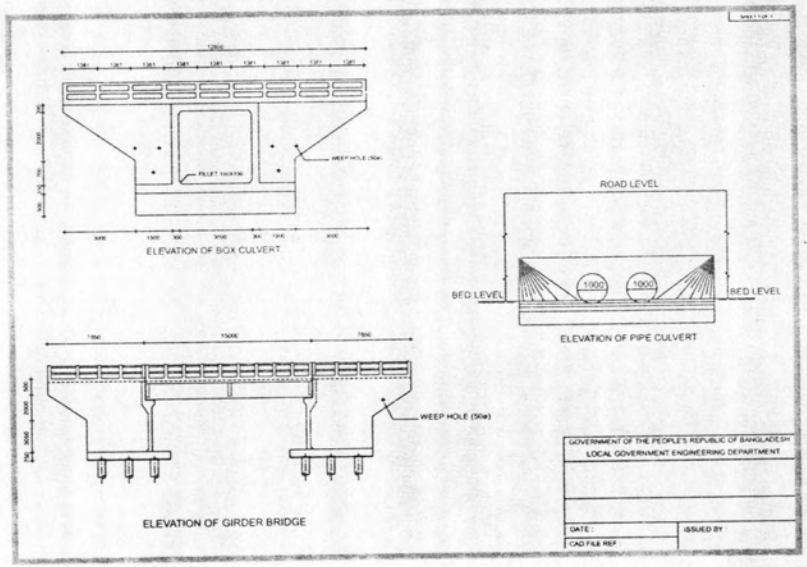
SECTION AT B-B

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

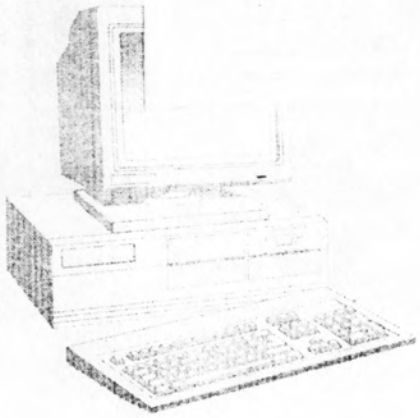
DETAILS OF QUADRUPLE VENT PIPE CULVERT
DIAMETRE : 900 mm

DATE :	ISSUED BY
CAD FILE REF : CULV\P4009001	

Web Copy



U-DRAIN



Web Copy

SELECTION OF STANDARD DESIGN

U - DRAIN :

Introduction

Standard design of U-Drain of two different span (375mm, 625mm) are presented in the Manual. Each U-Drains has been assigned a reference code based on the span.

Procedure of Selection

Selection of U-Drain along with its span will be determined by following the flow chart given in Chapter 14 of Part A of the Manual, selection of a standard design for undefined channel. Detailed drawing of the required U-Drain along with schedule are available in this section.

Selection of a suitable structure may also be done with the assistance of Structure WORKS, a computer software. See Part C of the Road Structure Manual for more information.

Quantity Estimate

The estimates of quantities involving different items of works are presented in the form of a Table in the following pages. Estimate for a particular design can be obtained from these tables.

The items of works whose quantities depend on the particular site conditions are included in the table, but their quantities are kept blank. Those are to be determined after actual field measurements.

In preparing the bill of quantities the full description of the related items should be taken from Chapter 16-Bill of Quantities.

List of all U-drain are summarized below :

Structural list of Pipe Culverts

Sl. No.	Reference Code	Structure Description	Page No.
1	CULV/U0037451	U-type Irrigation Drain; S375mm x H450mm;	UD-1
2	CULV/U0062601	U-type Irrigation Drain; S625mm x H600mm;	UD-2

Web Copy

U- DRAIN

Quantity Estimate The estimates of quantities for various items of work required in the construction of U-Drain are presented below in E.Q (Estimate of Quantities) table no.3. The estimates for a particular size can be obtained from this table by choosing the appropriate column.

The items of work whose quantities depend on the particular site conditions are included in the table but their quantities are left blank. These quantities are to be determined after field measurements.Quantities of the items of work which depend on the length of drain has been shown for per metre of length. To determine the quantities for a particular length these quantities are to be multiplied by the lenghth. E.Q. Table No.3 contains only a brief description of the items intended for ready reference. In preparing the bill of quantities the full description of the item should be copied from Road Structure Manual, Part - A (Chapter 16, Table No. 16.1) for the corresponding item

Estimate of Quantities for U - Drain

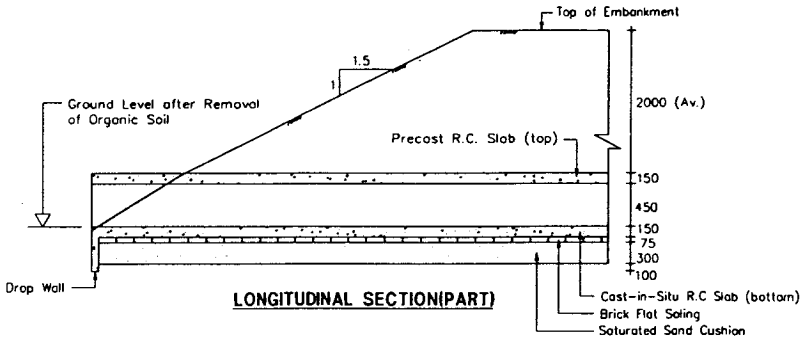
E.Q. Table No. 3

Clear Span (mm)				375	625
Carriageway Width (m)				-	-
Length of Culvert (m)				1.00	1.00
Sl. No.	Item No.	Brief Description	Unit		
1.	1	Mobilization	L.S.		
2.	2	Engineer's office	L.S.		
3.	3	Diversion	Cu.m		
4.	3/43	Dismantling	L.S./Cu-m		
5.	6	Earth work in excavation	Cu.m		
6.	8	Sand filling	*Cu.m/m	0.263 x (L-0.2)	0.413 x (L-0.2)
7.	9	Brick flat soling	*Sq.m/m	0.875 x (L-0.2)	1.375 x (L-0.2)
8.	10	Brick on edge pavement	Sq.m		
9.	14	Brick work (1:4)	*Cu.m/m	0.225	0.375
10.	15	a) Reinforcement			
		i) Bottom & top slab	*Kg/m	37.750	51.270
		ii) Drop wall	Kg	6.390	9.630
		Total of reinforcement	Kg		
11.	24.1	R.C.C work (1:2:4)			
		a) Bottom slab	*Cu.m/m	0.132	0.207
		b) Drop wall	Cu.m	0.084	0.131
		c) Top slab	*Cu.m/m	0.132	0.169
12.	31	Earth work in culvert approaches	Cu.m		
13.	36	Turfing on embankment	Sq.m		
14.	48	Demobilization	L.S.		
15.	49	Providing polythene sheet	*Sq.m/m	0.438	0.563
16.	50	Plastering work with neat cement finishing	*Sq.m/m	1.775	2.325

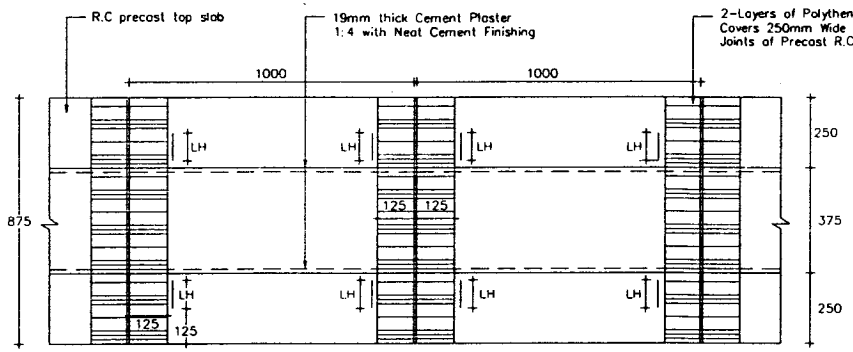
Remarks : *** Quantities for per metre of length.**

L = Length of U- drain

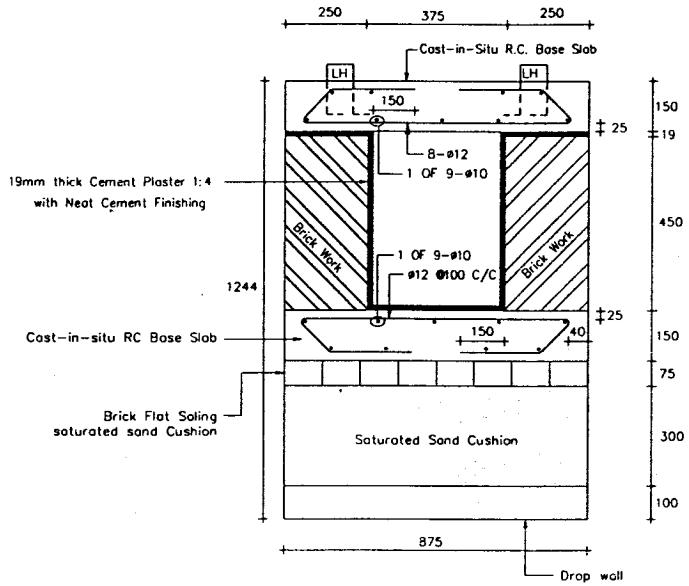
Web Copy



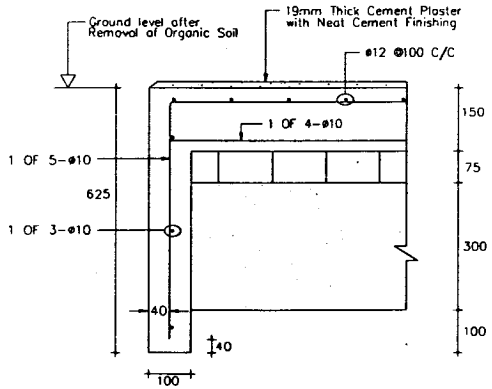
LONGITUDINAL SECTION(PART)



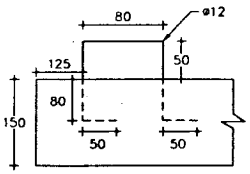
PART PLAN SHOWING PLACING ARRANGEMENT OF PRECAST R.C SLAB & LIFTING HOOKS



CROSS-SECTIONAL VIEW



END SECTION WITH DETAILS OF DROP WALL



DETAILS OF LIFTING HOOK

NOTES:

1. All dimensions are in milimeter except otherwise specified.
2. Coarse aggregate shall be 20mm down graded brick chips from overburnt bricks or sorted overburnt bricks from lot of 1st class bricks as approved by the Engineer-in-charge.
3. Reinforced concrete mix ratio shall be 1:2:4.
4. Re-bar shall be deformed bar of mild steel of grade 40 (276 MPa).
5. Fineness Modulus (FM) of sand shall be greater than 1.0.
6. Slump of concrete shall not exceed 3".
7. Optimum water content in water shall be 50% of the weight of a cement bag.
8. Brick shall be of standard size & regular shape with sharp corners.
9. For masonry (Brick work) mixing ratio of morter shall be - Cement: Sand 1:4.
10. Curing shall be done at least for 15 days. Constant care should be given.
11. Sand cushion shall be compacted after full saturation.
12. Brick flat soling shall be done after saturation and compaction of sand cushion.
13. Neat cement finish shall be trowel finish.
14. All precast top slab shall be 1000mm in longitudinal direction of Culvert as shown in "PART PLAN."

LEGEND

LH = LIFTING HOOK

Lifting hook to be provided at 4 corners of each precast top slab.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

U-TYPE CULVERT
SPAN : 375mm

DATE :	ISSUED BY :
CAD FILE REF : CULV\U0037451	