Initial Environmental Examination

Document stage: Draft
Project number: 49329-006
February 2019

BAN: Second City Region Development Project – Dhaka Region Roads (Araihazar) PART B

Package No: CRDP-II/LGED/NARAYANGANJ/ARAIHAZAR/NCB/2018/W-02

Prepared by the Local Government Engineering Department, Government of Bangladesh for the Asian Development Bank.

Table 23: Environmental Management Plan Matrix

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
1. Before Construction Activities					
Consents, permits, clearances, etc.	Failure to obtain necessary consents, permits, and other appropriate regulatory clearances can result to design revisions and work stoppage	- Obtain all of the necessary consents, permits, and clearances before the start of civil works. - Include in detailed design drawings and documents all conditions and provisions if necessary	PMCU, Araihazar PIU, PDSC	Incorporated in final design and communicated to contractors	Before award of contract
Existing utilities	Disruption of services	- Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction - Require construction contractors to prepare a contingency and spoil management plan	PMCU, Araihazar PIU, PDSC	List of affected utilities and operators; Bid document to include a requirement for a contingency plan for service interruptions, e.g. provision of water if disruption is more than 24 hours, spoil management plan	During detailed design phase Review of spoils management plan: Twice (once after first draft and once before final approval)
Construction work camps, stockpile areas, storage areas, and disposal areas	Disruption to traffic flow and sensitive receptors	- Determine locations beforeaward of construction contracts	PMCU, Araihazar PIU, PDSC	List of selected sites for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas. Written consent of landowner/s (not lessee/s) for reuse of excess spoils to agricultural land	During detailed design phase
Waste generation	Generation of solid waste, wastewater from labor camp and other	- Follow the principle of “Reduce, Reuse, Recycle, and Recover” - Prohibition of unwanted littering and discharge of waste.	Contractor	Contractor records. Visual inspection	Visual inspection by RPMOs and DSMC-ESS on monthly basis

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
	construction waste may cause pollution	- Solid waste is either managed in a pit or disposed in municipal collection system.			
Sources of materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, resulting water logging, and water pollution	- Prepare list of approved quarry sites and sources of materials	PMCU, Araihazar PIU, PDSC	List of approved quarry sites and sources of materials; (ii) Bid document to include requirement for verification of quarry sites	During detailed design phase, as necessary with a discussion with detailed design engineers and Araihazar PIU suitability of sources and permit for additional quarry sites if necessary.
EMP Implementation Training	Without training, the EMP may not be implemented efficiently. Hence, will have impact to the environment, workers, and community	- Project manager and contractors should be trained on EMP implementation, spoils management, standard operating procedures (SOP), health and safety (H&S), applicable regulatory compliance.	PMCU, Araihazar PIU, PDSC, Contractor's Environmental Supervisor	Record of completion (Safeguards Compliance Orientation) Contractor records for EMP implementation at worksites	During the detailed design phase before the mobilization of workers to site
2. During Construction Activities					
A. Physical Characteristics					
Topography landforms, geology, and soils and river morphology and hydrology	Sand, gravel or crushed stone will be required for this town project. Extraction of natural aggregate materials may cause localized changes in topography and landforms (if on land) or river morphology and hydrology (if on	- Utilize readily available sources with environmental clearance and license - Borrow areas and quarries comply with environmental requirements. - Coordinate with local authorities such as the Bangladesh Water Resources Development Board for quarrying from rivers. Alternative sources should be identified.	Contractor	Records of sources of materials	Monthly by Araihazar PIU

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
	the river).				
Water quality	Trenching and excavation, run-off from stockpiled materials and chemical contamination from fuels and lubricants may result to silt-laden runoff during rainfall, which may cause siltation and reduction in the quality of adjacent bodies of water.	- Spoils management plan. - Reuse excess spoils and materials - Disposal site in designated areas. - Earthworks during dry season - Stockyards at least 300m away from watercourses. - Fuel and other petroleum products stored at storage areas away from water drainage and protected by impermeable lining and bunded 110%. - Take precautions to minimize the overuse of water - Prevent wastewater into water sources. - Ensure safe water diversion. - No obstruction in flowing water.	Contractor	Areas for stockpile storage of fuels and lubricants and waste materials; Number of silt traps installed along trenches leading to water bodies; No visible degradation to nearby drainage, water bodies due to construction activities	Visual inspection by Araihazar PIU and/or PDSC on weekly basis Frequency and sampling sites to be finalized during detailed design.
Air quality	Work at the dry season and transporting construction materials may increase dust, carbon, monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons in air environment	- Use of physical controls, sprays, covers, compaction, screening, enclosure, windbreakers, binders and road surfacing - Cover delivery trucks during transport. - Construction vehicle's speed limited to 30kph. - Use of vehicles with government registration and complying with Bangladesh vehicle emission standards. - Prohibition of open burning of solid waste. - Minimize stockpile height.	Construction Contractor	Location of stockpiles; Number of complaints from sensitive receptors; Heavy equipment and machinery with air pollution control devices; A certification that vehicles are compliant with Bangladesh vehicle emission standards. Ambient air quality tests.	Visual inspection by Araihazar PIU and/or PDSC on monthly basis Ambient air quality testing will be conducted consistent with the monitoring plan, or increase frequency as may be needed.
Acoustic environment	Temporary increase in noise level and	- Prepare work schedule with community consultation and local administration	Contractor	Number of complaints from sensitive receptors;	Visual inspection by Araihazar PIU and/or PDSC on

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
	vibrations by excavation equipment, and the transportation of materials, equipment and people.	- Overtime work restricted - Use of low noise generating equipment. - Minimize drop heights - No use of horns unless necessary - Use modern vehicles and machinery with low noise emissions - Maintain low noise levels - Warning signs in noise hazard areas. Require workers to wear ear plugs while in these areas. - Identify vibration risk to nearby structures. Take caution working in such areas.		Use of silencers in noise-producing equipment Use of sound barriers or enclosures for generators, if any; Noise level measured at day time and night time	monthly basis
Aesthetics	Interference with the enjoyment of the area and creation of unsightly or offensive conditions	- Prepare a debris disposal plan. - Minimize stockpile size - Clear wastes regularly - Avoid stockpiling of excess spoils. - Cover delivery trucks during transportation. - Clean roads. - Use screening enclosure shade cloth, temporary walls - Clean site regularly. - Follow the principle of “Reduce, Reuse, Recycle, and Recover”	Contractor	Number of complaints from sensitive receptors; Worksite clear of all types of wastes Worksite clear of any wastes unutilized materials, and debris Transport route and worksite cleared of dirt	Visual inspection by Araihazar PIU and/or PDSC on monthly basis
B. Biological Characteristics					
Biodiversity	Potential cutting of trees along road alignments Threat to animals due to poaching or leisure catching by workers in the subproject areas	- Tree cutting will be avoided, or minimized if total avoidance is not possible, for this subproject. - In case of unavoidable tree cutting, replacement of 10 trees per tree cut and follows the LGED tree plantation program to implement this measure (see **Appendix 9** for the LGED Manual).	Contractor	Number of trees cut and planted if any (during detailed design stage) Some complaints from sensitive receptors on disturbance of vegetation, poaching fishing, etc.	Visual inspection by Araihazar PIU and/or PDSC on monthly basis

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
		- Any encounter with nomadic animal species will ensure these creatures are not hurt or killed. Any unintentional catch of any species should be reported and surrendered to authorized authorities for proper handling.			
C. Socioeconomic Characteristics					
Existing provisions for pedestrians and other forms of transport	Potential road closures due to construction activities. Hauling of construction materials and operation of equipment on-site can cause traffic problems.	- Implement the Traffic Management Plan - Prepare suitable transportation routes - Safe passage for vehicles and pedestrians - Schedule material deliveries on low traffic hours. - Erect and maintain barricades if required - Inform through display board about nature, duration of construction and contact for complaints - Complete the work quickly in nearby institution, place of worship, business, hospitals, and schools. - Consult with business and institutions for work schedules. - Restore damaged properties and utilities	Contractor	Traffic route during construction works, including number of permanent signs, barricades, and flagmen on worksite; Number of complaints from sensitive receptors; Some signage placed at the subproject location. Number of walkways, signage, and metal sheets placed at subproject location	Visual inspection by Araihazar PIU and/or PDSC on monthly basis
Socioeconomic status	Staffing will be required during construction. This can result in an increase in local revenue.	- Engage the local workforce. - Secure construction materials from local market.	Contractor	Employment records; Records of sources of materials Records of compliance with Bangladesh Labor Act 2006.	Visual inspection by Araihazar PIU and/or PDSC on monthly basis
Other amenities for community welfare	Civil works may result in animpact to the sensitive	- Identify location and nature of existing infrastructure before excavation	Contractor	Number of complaints from sensitive receptors	Visual inspection by Araihazar PIU and/or PDSC on

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
	receptors such as residents, businesses, and the communities. Excavation may also damage infrastructure located alongside the roads.	- Minimize repeated disturbance to locals by integrating other forms of infrastructures. - Inform local about nature, duration and possible impacts of the construction and integrate their concerns - Promptly relocate infrastructure materials - Take prior permission from local authority for water use - Restore damaged properties and utilities to pre-work conditions. -			monthly basis
Community health and safety	Construction works will impede the access of residents and business in limited cases. Construction works will raise danger to community people.	- Restrict work force in designated areas. - Identify stockyard areas in consultation with local administration - Work on private land requires written permission of landowners. - Prefer small mechanical excavator for trenching - Prohibit alcohol and drugs on site - Prevent excessive noise; - Code of conduct for workers includes restricting workers in designated areas, no open defecation, no littering, no firewood collection, no fire except designated places, no trespassing, no residence at construction sites, and no obligation to potentially dangerous work - Follow international best practices on community health	Contractor	The number of permanent signs, barricades, and flagmen on worksites per Traffic Management Plan (see **Appendix 15** for sample which can be modified according to applicability); Number of complaints from sensitive receptors; Number of walkways, signs, and metal sheets placed at the subproject location Agreement between landowner and contractors in case of using private land as work camps storage areas etc.	Visual inspection by Araihazar PIU and/or PDSC on weekly basis

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
		and safety such as those in Section 4.3 of World Bank Environmental Health and Safety (EHS) Guidelines on Construction and Decommissioning Activities - Maintain a complaint logbook in workers camp and take action promptly of complaints			
Workers Health and Safety	There is invariably a safety risk when construction works such as excavation and earthmoving are conducted in urban areas. Workers need to be mindful of the occupational hazards, which can arise from working at height and excavation works.	- Comply with Bangladesh Labor Act 2006. - Follow international best practices on occupational health and safety such as those in Section 4.2 of World Bank EHS Guidelines on Construction and Decommissioning Activities. - Train all site personnel on environmental health and safety - Exclude public from worksites - Provide personal protective equipment to workers and ensure their effective usage - Document procedures to be followed for site activities. - Maintain accident reports and records. - Make first aid kits readily available. - Maintain hygienic accommodation in work camps. - Ensure uncontaminated water for drinking, cooking and washing. - Ensure clean eating areas. - Ensure sanitation facilities are readily available. - Provide medical insurance coverage for workers.	Contractor	Site-specific health and safety plan Equipped first-aid stations Medical insurance coverage for workers Number of accidents Records of supply of uncontaminated water Condition of eating areas of workers Record of orientation training Availability of personal protective equipment at construction site Percentage of moving equipment outfitted with audible back-up alarms Signage for storage and disposal areas Condition of sanitation facilities for workers	Visual inspection by Araihazar PIU and/or PDSCon a weekly basis.

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
		- Provide orientation for guest visitors. - Ensure that visitors do not enter hazard areas unescorted. - Require workers to wear high visibility clothes. - Ensure moving equipment is outfitted with audible backup alarms. - Chemical and material storage areas need to be marked clearly. - Hearing protection equipment enforced in noisy environment.			
D. Historical, Cultural, and Archaeological Characteristics					
Physical and cultural heritage	There are no archaeological, paleontological, or architectural sites of significance listed by Bangladesh Department of Archaeology and UNESCO.	- Stop work immediately to allow further investigation if any findings are suspected.	Contractor	Records of chance finds	Visual inspection by Araihazar PIU and/or PDSC Monthly basis.
E. Others					
Submission of EMP implementation Report	Unsatisfactory compliance to EMP	- Appointment of EMP supervisor - Timely monitoring reports with field photographs	Contractor	Availability and competency of appointed supervisor Daily monitoring sheets by Contractor EHS supervisor Monthly monitoring reports by Contractor to Araihazar PIU.	Monthly monitoring report to be submitted by contractors to Araihazar PIU and Araihazar PIU submit quarterly reports to PMCU. PMCU to submit semi-annual monitoring report to ADB

Field	Impacts	Mitigations Measures	Responsible for Implementation	Monitoring Indicator	Frequency of Monitoring
3. During Post Construction Activities and Operation and Maintenance					
Post construction site clearing activities	Damage due to debris, spoils, excess construction materials	- Remove spoils wreckage, rubbish, or temporary structures no longer required; - All disrupted utilities should be restored - All affected structures rehabilitated /compensated - The construction camp needs to clear of spills e.g. oil, paint, etc. and other pollutants after dismantling - All hardened surfaces shall be ripped; all imported materials shall be removed, and all temporary services shall be cancelled - Request PMCU or PIUs in writing that worksites and camps are already vacated and restored to pre-project conditions	Contractor	PMCU and/or Araihazar PIU report in writing that (i) worksite is restored to original conditions; (ii) camp has been vacated and restored to pre-project conditions; (iii) all construction related structures not relevant to O&M are removed, and (iv) worksite cleanup is satisfactory.	Beforeturnover of completed works to Araihazar PIU

C. Environmental Monitoring Program

159. Monitoring of mitigation measures during construction is the responsibility of the PIU supported by the PMCU Environment Officer and PDSC Environmental Specialist. **Table 24**: shows the proposed Environmental Monitoring Plan for this subproject, which specifies the various monitoring activities, indicating location, frequency of monitoring and responsibility.

Table 24: Environmental Monitoring Program

Activities or Items to Monitor	Location	Responsible for Activities	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
PRE-CONSTRUCTION					
Secure Environmental Compliance Certificate from Department of Environment	PMCU office	PMCU, PDSC	Copy of approved ECC	Before construction activities	PMCU, PDSC
IEEs and EMPs are included in bid and contract documents	PMCU office	PMCU, PDSC	Copies of bid and contract documents	Before approval tender document	PMCU, PDSC
Site-specific EMP (SEMP) submitted by Contractor for approval by PIU	PIU office	Contractor, PIU	Copy of approved SEMP	Before construction activities commence	PMCU, PDSC
Spoil Management Plan (SMP) submitted by Contractor for approval byPIU	PIU office	Contractor, PIU	Copy of approved SMP	Before construction activities commence	PMCU, PDSC
Traffic Management Plan (TMP) submitted by Contractor for approval by PIU	PIU office	Contractor	Copy of approved TMP	Before construction activities commence	PMCU, PDSC
Baseline environmental data gathering	All subproject sites	Contractor	Ambient air quality sampling Noise level measurements	Once before construction activities commence	PMCU, PDSC
Secure all other necessary permits and licenses from relevant government agencies		Contractor	Copies of permits and licenses	Before construction activities commence	PMCU, PIU, PDSC
CONSTRUCTION					
Implementation of SEMP; including implementation of community and occupational health and safety measures.	Subproject sites	Contractor	Site visits, Contractor records,	Weekly or as needed	PIU, PDSC
Implementation of SMP	Subproject sites	Contractor	Site visits, Contractor records	Weekly or as needed	PIU, PDSC
Implementation of TMP	Subproject sites	Contractor	Site visits, Contractor records	Weekly or as needed	PIU, PDSC
Conduct of ambient air quality sampling and noise level measurements	Subproject sites	Contractor	Contractor records, Results of laboratory analyses	At least semi-annual or as needed	PMCU, PIU, PDSC

Activities or Items to Monitor	Location	Responsible for Activities	Monitoring Method	Monitoring Frequency	Monitoring Responsibility
Develop and apply archaeological protocol to protect chance finds	All subproject sites	Contractor, PMCU, Araihazar PIU, PDSC	Contractor records	Once until protocol is approved	PMCU,PIU, PDSC
Provide EHS training for all personnel	All subproject sites	Contractor	Contractor records; Interviews to workers	Monthly	PIU, PDSC
Keep accident reports and records	All subproject sites	Contractor	Contractor records; Interviews to workers and community people	Monthly	PIU, PDSC
Employ workforce from communities near sites	All subproject sites	Contractor	Contractor records	Monthly	PIU, PDSC
Implementation of EHS measures at construction camps	Construction camp sites	Contractor	Site visits; Interviews to workers at camps	Monthly	PIU, PDSC
OPERATION AND MAINTENANCE					
Maintain safe passage for vehicles and pedestrians during maintenance activities	Subproject road sites	PIU	Site observations	Monthly	LGED
Maintain all road signages at critical points particularly the accident-prone areas and areas near institutional establishments such as schools, places of worship, hospitals.	Subproject road sites	PIU	Site observations	Monthly	LGED
Provide signboards informing nature and duration of maintenance activities	Subproject road sites	PIU	Site observations	Monthly	LGED
Prevent run-off/deposit of foreign materials (oil, grease, solid waste, plastics) into watercourses, and clean drain periodically; dispose of materials removed from drains	Subproject road sites	PIU	Site observations	Monthly	LGED
Dispose of material from blocked drain in location away from roadway and drain	Subproject road sites	PIU	Site observations	Monthly	LGED

D. Capacity Development Training

160. The PMCU safeguards experts (environmental and social) with support from PDSC Environment Specialist and Social Safeguard Specialist will be responsible for training the Araihazar PIU' safeguards officers (environmental and social). Training modules will need to cover safeguards awareness and management in accordance with both ADB and government requirements as specified below:

(i) Environmental Safeguards
  (a) sensitization on ADB's policies and guidelines on environment;
  (b) introduction to environment and environmental considerations in roads, drainage and solid waste management projects;
  (c) review of IEEs and integration into the project detailed design;
  (d) improved coordination within nodal departments; and
  (e) monitoring and reporting system. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites.

(ii) Social Safeguards
  (a) sensitization on ADB's policies on Involuntary Resettlement and Indigenous People;
  (b) introduction to social safeguards assessment and document requirements;
  (c) Consultation and participations requirements;
  (d) Project GRM and ADB's Accountability Mechanism (AM); and
  (e) monitoring and reporting system.

161. The proposed training project along with the frequency of sessions is presented in **Table** 25: **25.**

Table 25: Training Program for Environmental Management

Items	**Pre-construction**	**Construction**	
Training Title	**Orientation workshop**	**Orientation program/ workshop for contractors and supervisory staff**	**Experiences and best practices sharing**
Purpose	To make the participants aware of the environmental safeguard requirements of ADB and Government of Bangladesh and how the project will meet these requirements	To build the capacity of the staff for effective implementation of the designed EMPs aimed at meeting the environmental safeguard compliance of ADB and Government of Bangladesh	To share the experiences and best practices aimed at learning lessons and improving implementation of EMP
Contents	**Module 1**: Orientation ADB Safeguards Policy Statement Government of Bangladesh Environmental Laws and Regulations **Module 2**: Environmental	Roles and responsibilities of officials/contractors/consultants towards protection of the environment Environmental issues during construction Implementation of EMP	Experiences on EMP implementation – issues and challenges Best practices followed

Items	Pre-construction	Construction	
	Assessment Process ADB environmental process, identification of impacts and mitigation measures, formulation of an environmental management plan (EMP), implementation, and monitoring requirements Review of environmental assessment report to comply with ADB requirements Incorporation of EMP into the project design and contracts	Monitoring of EMP implementation Reporting requirements	
Duration	1 day	1 day	1 day on a regular period to be determined by PMCU and PDSC
Participants	PMCU and PIU staff (technical and environmental) involved in the project implementation	PMCU, PIU, Contractors	PMCU, PIU, Contractors

E. Environmental Management and Monitoring Plan Implementation Cost (Indicative)

162. Most of the costs associated with environmental mitigation and enhancement measures are included in the EMP budget. In consideration to the environmental impacts and their mitigation measures for this sub-project, some items need to be incorporated in the BOQ of this sub-project. A substantial part of environmental costs shall cover under Civil Works Contract. However, environmental costs under Civil Works Contract are not included here. Costs of these items will be dealt elsewhere in the respective project component document. The environmental costs presented in **Table 26**: are tentative provisions based on experience of undertaking similar works under different LGED projects. For the details of environmental costs under civil works contract, individual contract package bid document may be consulted. It is assumed that the environmental cost under civil works contract for each contract package will be more or less same.

Table 26: Tentative EMP Budget for BOQ

(The following items need to be incorporated in the BOQ of this sub-project):

Item #	Description of Items	Unit	Quantity	Unit Rate, Taka	Item Total, Taka
1	Environmental Monitoring a) Air Quality, b) Noise level, c) Water quality, d) Sediment at work site to the entire satisfaction of the engineer-in-charge.	LS			3,20,000.00
2	Dust suppression measures (excluding watering for compaction) to the entire satisfaction of the Engineer-in-charge.	LS			1,30,000.00
3	Prevention of spillage, leakages of polluting materials to the entire satisfaction of the engineer-in-charge.	LS			10,000.00
4	Providing and maintaining adequate potable water supply facilities (Shallow Tube well) at camp site and work site to the entire satisfaction of engineer-in-charge. Water Supply Tube well 02 Nos.	Nos.	4	15,000.00	60,000.00
5	Providing and maintaining adequate sanitation facilities at camp site and work site to the entire satisfaction of engineer-in-charge. Sanitation Toilet 02 nos. (01 for women and 01for men)	Nos.	6	10,000.00	60,000.00
6	Rehabilitation of ancillary sites including stockpile sites, brick crushing sites, borrow areas, workforce camp, to the entire satisfaction of the engineer-in-charge.	LS			1,00,000.00
7	Proper disposal of camp site wastes to the entire satisfaction of the engineer-in-charge.	LS			2,00,000.00
8	Maintain First aid box at camp site to the entire satisfaction of the Engineer-in-charge.	LS			20,000.00
9	Miscellineus	LS			1,00,000.00
Estimated cost for additional environmental items					**10,00,000.00**

These costs are included in Bid Documents (Bill of Quantities, Road Item no. Road item no. 42

VIII. MONITORING AND REPORTING

163. PMCU will monitor the progress of EMP implementation in the different subproject jurisdictions. The PMCU and PIU will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome. The contractor will conduct day to day implementation of the SEMP.

164. The contractor will submit monthly reports to the PIU with jurisdiction over the subproject sites. The monthly reports will include compilation of copies of monitoring sheets accomplished and duly signed by the contractor's EHS supervisor (or equivalent) on a daily basis. A sample daily monitoring sheet which can be used by the contractors is in **Appendix 16**. This monitoring sheet is indicative which can be further enhanced depending on the actual situations at subproject construction sites.

165. The PIU will submit quarterly environmental monitoring reports to PMCU, which will include summary of daily monitoring activities of contractor and results of any independent monitoring or inspection activities of the PIU. In the conduct of these independent inspection activities, PIU will be supported by PDSC in this regard. A sample inspection checklist is in **Appendix 17**. This checklist is indicative which can be further enhanced depending on the actual situations at subproject construction sites.

166. PMCU shall consolidated quarterly reports from the PIUs including Araihazar PIU and results of its independent monitoring or inspection activities. PMCU shall accomplish semi-annual environmental monitoring report (SEMRs), which shall be submitted to ADB for review and disclosure on ADB website. Submission of SEMR will continue until ADB issues a Project Completion Report. The template for the SEMR is attached as **Appendix 18**.

167. ADB will carry out the following monitoring actions to supervise Second CRDP implementation:

(i) On a need basis, conduct site visits for subproject with potential adverse environmental or social impact;

(ii) Conduct supervision missions with detailed review by ADB's environment/social safeguard specialists and/or officers and/or consultants for subprojects with adverse environmental and social impacts;

(iii) Review the SEMRs submitted by PMCU to ensure that adverse impacts and risks are mitigated as planned in the EMP;

(iv) Work with LGED to rectify to the extent possible any failures to comply with its environmental safeguard commitments, as covenanted in the loan agreement and elaborated in all environmental safeguard documents; and formulate and implement a corrective action plan to re-establish compliance as appropriate; and

(v) Prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, taking into account the baseline conditions and the results of monitoring.

IX. CONCLUSION AND RECOMMENDATIONS

168. The proposed subproject is not an environmentally critical undertaking. IEE indicates that the proposed subproject, and its components, is not located within or adjacent to environmentally sensitive areas.

169. The extent of adverse impacts is expected to be local, confined within the projects' main areas of influence, waste disposal sites, and the routes to and from these sites. With mitigation measures in place and ensuring that the bulk of earthworks are completed before the onset of the rainy season, the potential adverse impacts during construction would be site-specific.

170. The few adverse impacts of moderate magnitude during construction will be temporary and short-term (i.e., most likely to occur only during peak construction activities). These will not be sufficient to threaten or weaken the surrounding resources. Mitigation measures, integral to socially and environmentally responsible construction practices, are commonly used at construction sites and are well known to contractors. Hence, mitigation measures would not be difficult to implement.

171. Based on the above findings, the classification of the subproject under Package No. CRDP-II/LGED/NARAYANGANJ/ARAIHAZAR/NCB/2018/W-02 as Category B per ADB SPS is confirmed, and no further special study or detailed EIA needs to be undertaken. However, this IEE has been prepared based on final detailed designs of the subproject. Considering this IEE as the final IEE, it will be submitted to ADB for final review and disclosure.

Appendix 1: Rapid Environmental Assessment (REA) Checklist

Country/Project Title: Bangladesh / City Regions Development Project - II

Subproject / Package No.: Second CRDP/LGED/Narayanganj/Araihazar/ NCB/2018/W-02

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		√	
▪ Protected Area		√	
▪ Wetland		√	
▪ Mangrove		√	
▪ Estuarine		√	
▪ Buffer zone of protected area		√	
▪ Special area for protecting biodiversity		√	
B. Potential Environmental Impacts Will the Project cause…			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		√	
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?		√	
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?	√		Construction and rehabilitation of roads and drainage will potentially increase siltation of surface waters near or along the alignments. However, this impact will be mitigated through implementation of measures in the EMP.
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	√		Construction and rehabilitation of roads and drainage will potentially increase siltation of surface waters near or along the alignments. However, this impact will be mitigated through implementation of measures in the EMP.

Screening Questions	Yes	No	Remarks
▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?		√	Rock crushing and asphalt processing will not be undertaken under the subproject.
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation?	√		Construction activities will pose risks to workers. However, this can be mitigated through the implementation of the EMP particularly occupational health and safety measures both at work sites and construction camp sites.
▪ noise and vibration due to blasting and other civil works?	√		Construction activities will elevate noise levels and vibration. However, this can be mitigated through the implementation of the EMP.
▪ dislocation or involuntary resettlement of people?		√	Not anticipated. All works will be confirmed on existing road alignments.
▪ dislocation and compulsory resettlement of people living in right-of-way?		√	Not anticipated. All identified road alignments are free of settlements. No widening works is included.
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	
▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?	√		Construction activities will potentially increase pollutant concentration in ambient air. However, this can be mitigated through the implementation of the EMP, particularly on implementing both the community and occupational EHS measures.
▪ hazardous driving conditions where construction interferes with pre-existing roads?	√		Construction activities may pose hazardous driving conditions at the sites. However, the implementation of the Traffic Management Plan will mitigate this impact.
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	√		Construction activities may result to poor sanitation and improper solid waste handling and disposal. However, the implementation of the EMP will mitigate this impact.
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?	√		The EMP provides measures to avoid proliferation of disease vectors.
▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?		√	Not anticipated.

Screening Questions	Yes	No	Remarks
▪ increased noise and air pollution resulting from traffic volume?	√		Construction activities will elevate noise levels and worsen air pollution due to traffic. However, the TMP will provide measures to avoid traffic congestion at subproject sites.
▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		√	Not anticipated.
▪ social conflicts if workers from other regions or countries are hired?		√	Labor requirements will be sourced locally.
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		√	Labor requirements will be sourced locally.
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	√		Construction activities will pose risks to community health and safety. However, the EMP provides measures to mitigate this impact, including adoption of the WB EHS guidelines on construction and decommissioning relating to community health and safety.
▪ community and occupational safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning.	√		Construction activities will pose risks to community health and safety. However, the EMP provides measures to mitigate this impact, including adoption of the WB EHS guidelines on construction and decommissioning relating to community and occupational health and safety.

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Bangladesh / City Regions Development Project - II

Subproject / Package No. :

Screening Questions		Score	Remarks[20]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	1	
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	1	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	1	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	1	
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	1	

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): Medium

Other Comments:_____
_____

Prepared by: _____

[20] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 2: Template for Application for Environmental Clearance Certificate from Bangladesh Department of Environment

Application for Environmental Clearance Certificate

[See Rule 7(5) of ECR]

Director/Deputy Director
Department of Environment
Dhaka Division/Chittagong Division/Khulna Division/Rajshahi Division (Bogra),

Sir,

I do hereby apply for Environmental Clearance Certificate for my proposed industrial unit or project, or for the existing industrial unit or project, and enclose papers and furnish information as follows:

1.	(a) Name of the industrial unit or project	:
	Address of location of the industrial unit of Project	:
	(b) Address of the present office	:
2.	(a) Proposed industrial unit or project	
	Expected date of starting construction	:
	Expected date for completion of construction	:
	Expected date of trial production, in case of industrial unit, in other cases, date of starting operation of the project	:
	(b) Existing industrial unit or project	
	Date of starting trial production in case of industrial unit, in other cases, date of starting operation of the project	:
3.	Name of product and quantity to produced (daily/monthly/yearly)	:
4.	(a) Name of raw material and quantity (daily/monthly/yearly)	:
	(b) Source of raw material	:
5.	(a) Quantity of water to be used daily	:
	(b) Source of water	:
6.	(a) Name of fuel and quantity (daily/monthly/yearly)	:
	(b) Source of fuel	:
7.	(a) Probable quantity of daily liquid waste	:
	(b) Location of waste discharge	:
	(c) Probable quantity of daily emission of gaseous substance	:
	(d) Mode of emission of gaseous substance	:
8.	Mouza (village) map indicating “Daag” (plot) and “Khatiyan” (land tax account) number	:
9.	Approval of Rajdhani UnnayanKatripakkhya / Chittagong Development Authority / Khulna Development Authority / Local Authority (if applicable)	:
10.	(a) Design and time schedule of proposed Effluent Treatment Plant	:

	(b) Fund allocated	:
	(c) Area	:
11.	Process Flow Diagram	:
12.	(a) Location map of industrial unit or project	:
	(b) Layout plan (with location of Effluent Treatment Plant)	:
13.	(a) IEE / EIA report * (if applicable)	:
	(b) Environmental Management Plan*(if applicable)	:
14.	Feasibility Report (if applicable)	:

Seal

Signature of the entrepreneur:
Name:
Address:
Phone:
Date:

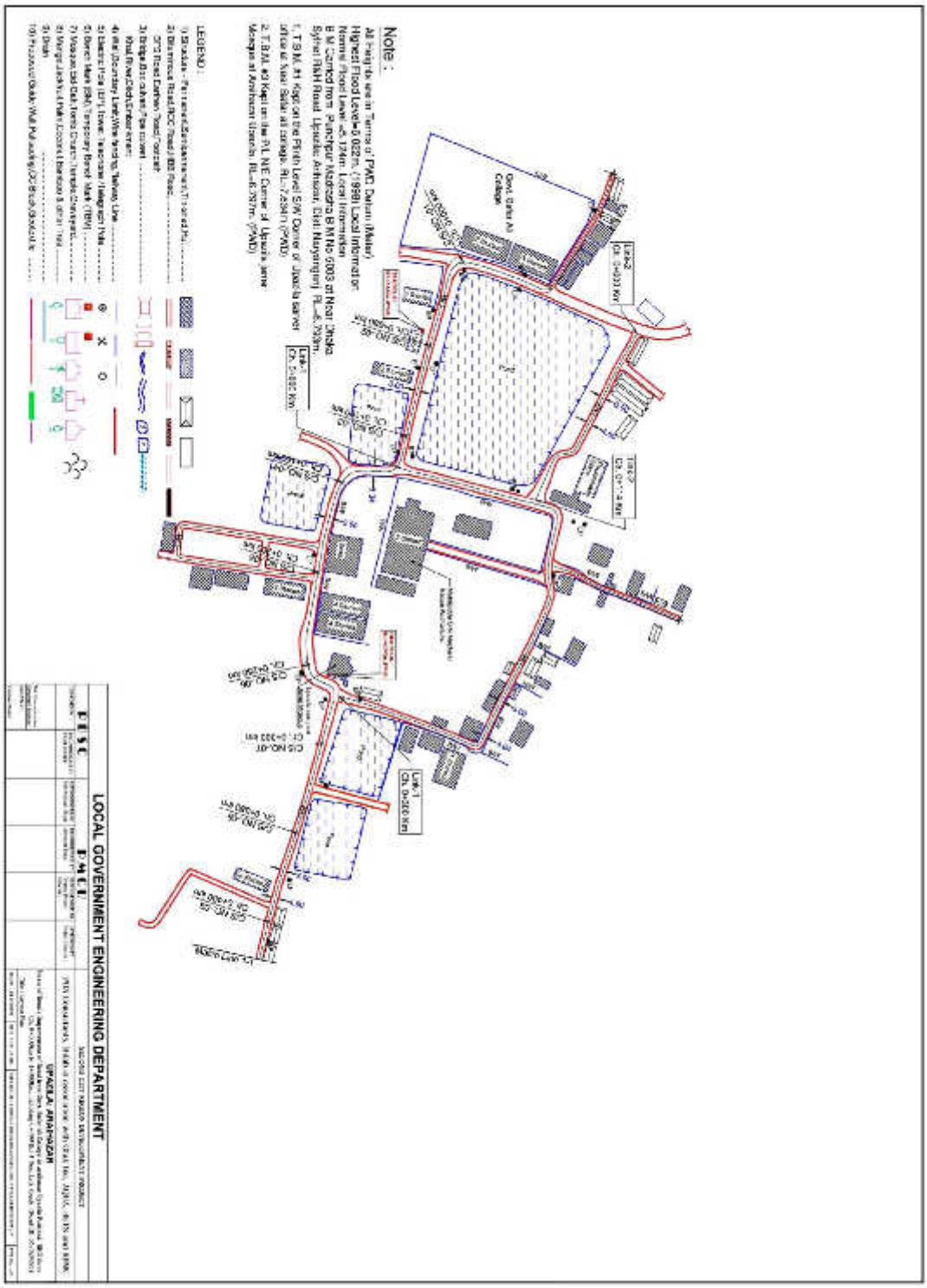
Declaration

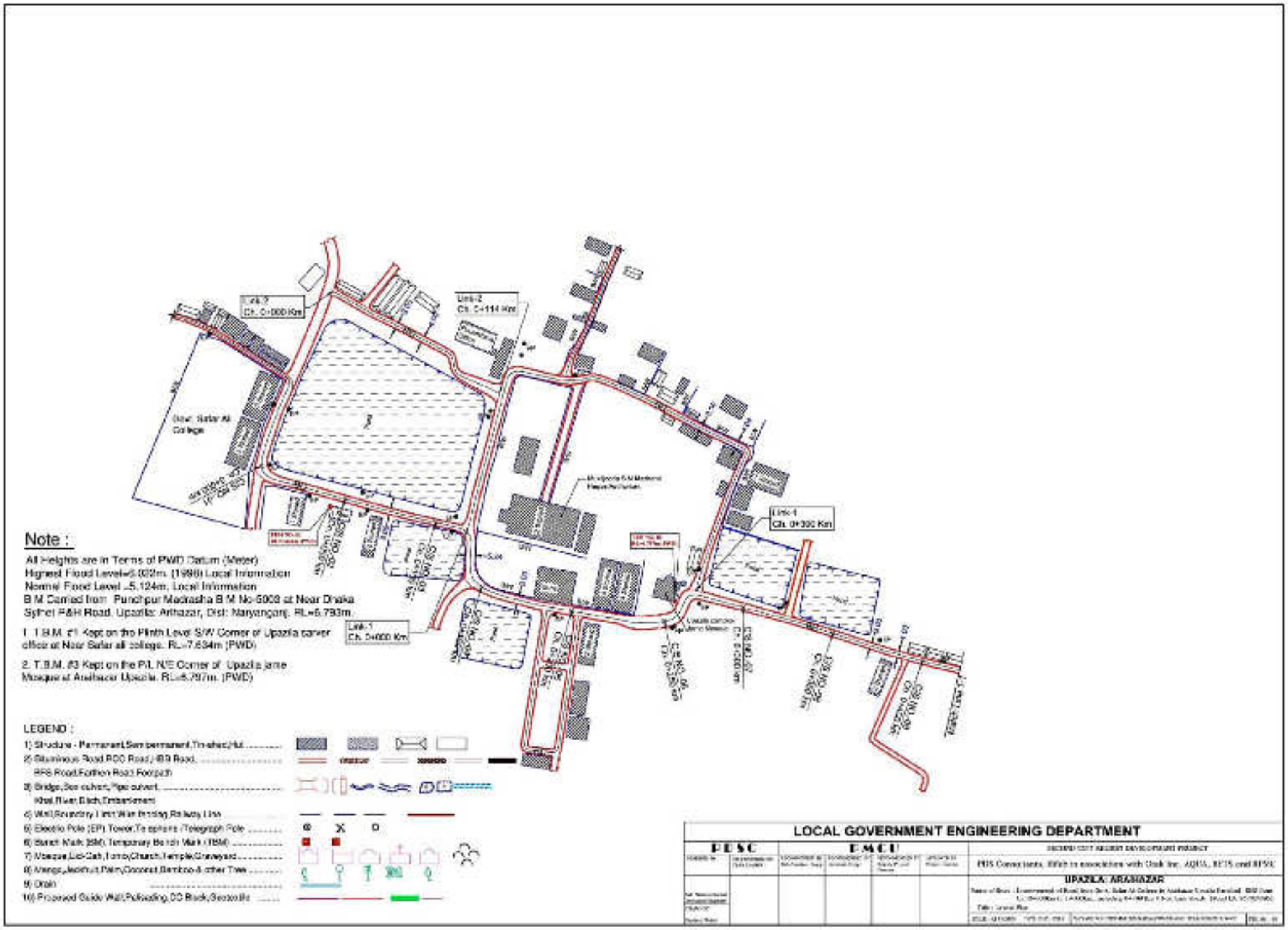
I do hereby declare that all information provided by me in this application are true to the best of my knowledge and no information has been concealed or distorted.

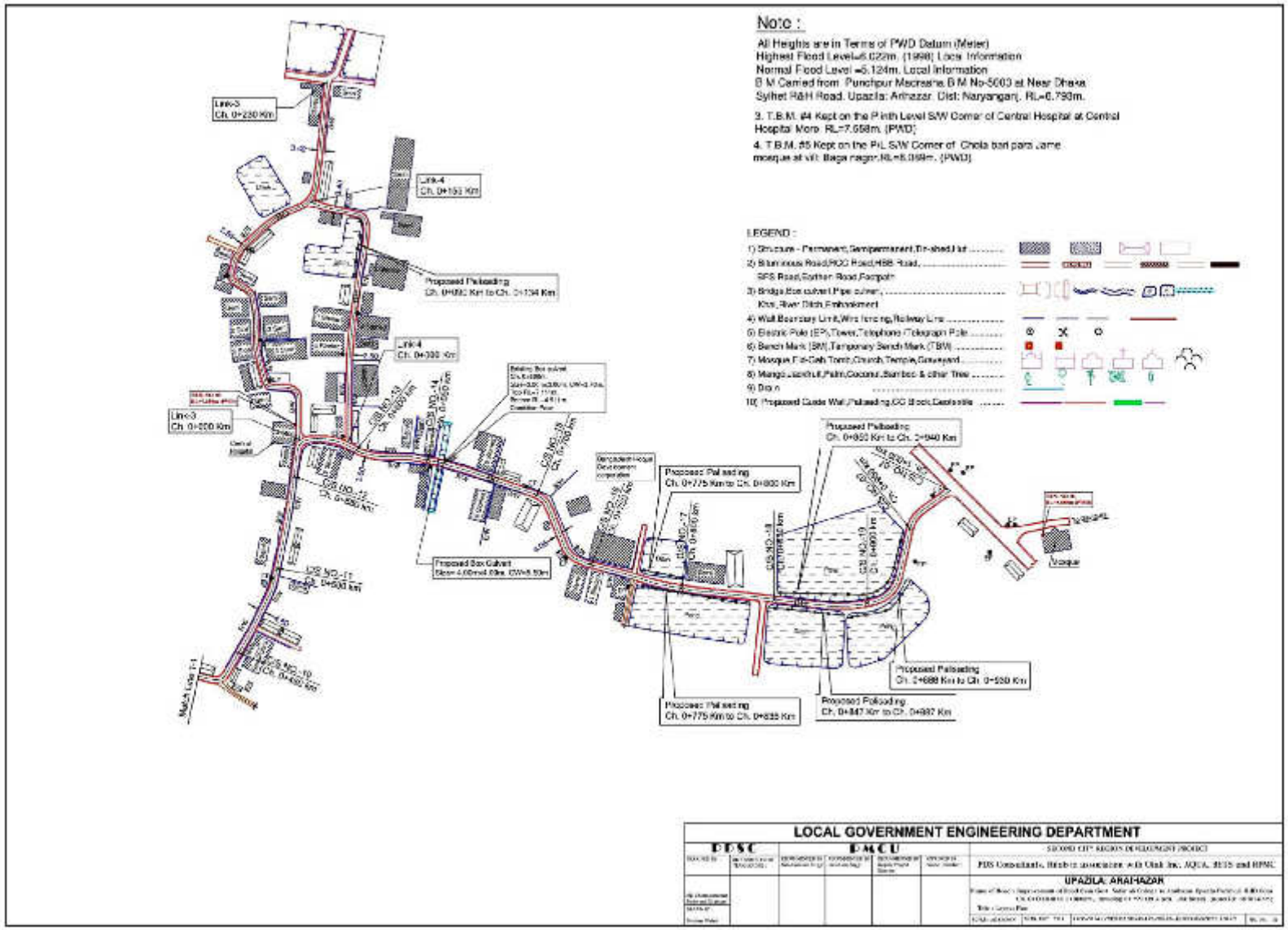
Name and Signature of Entrepreneur

* Each page must be countersigned by the person who fills out this application form and by the entrepreneur.

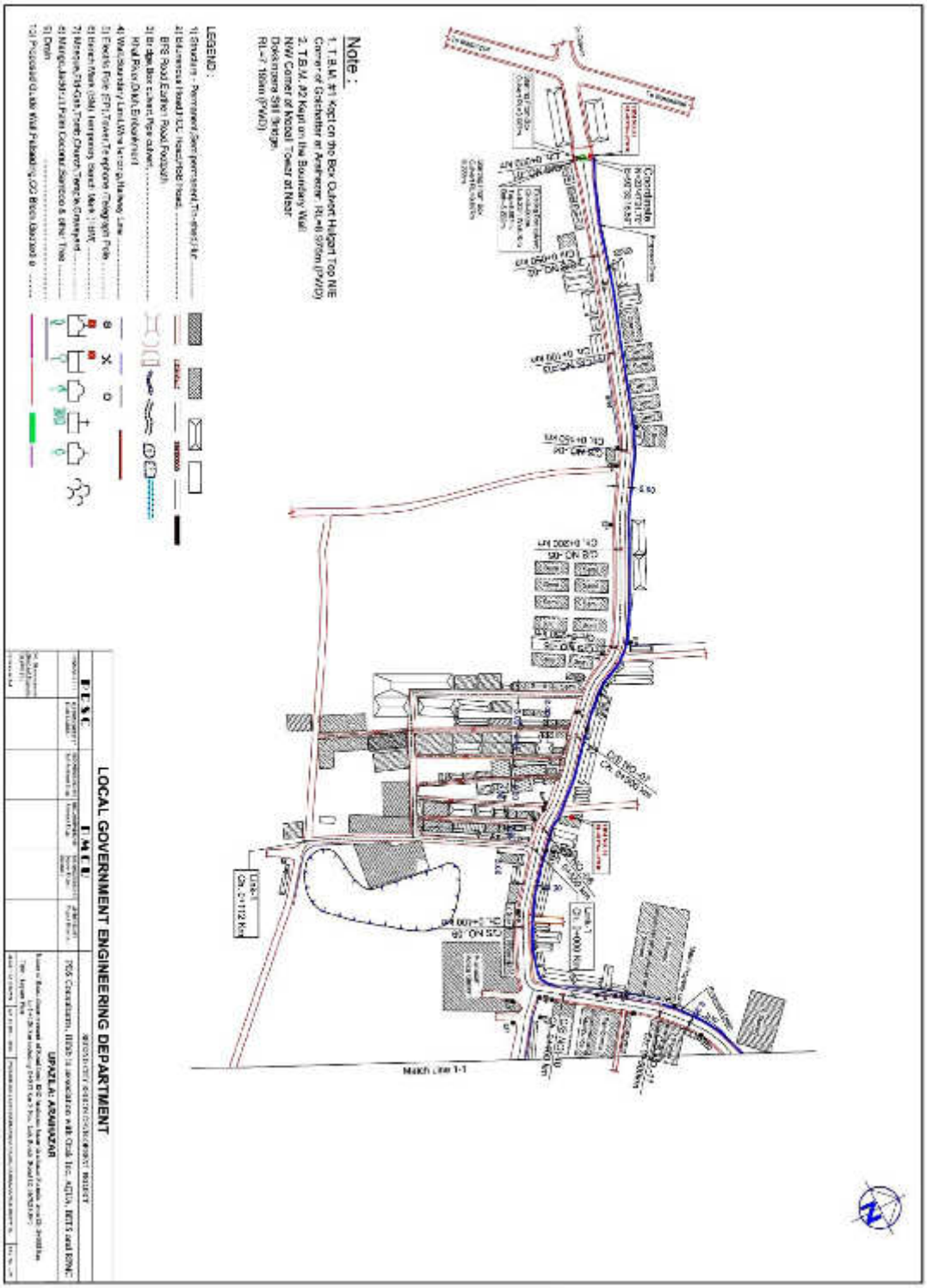
Appendix 3: Strip Maps of Subproject Alignments-Road from Govt. Safar Ali College-Araihazar Upazila Parishad-RHD via Mohila College (Road ID 4095)

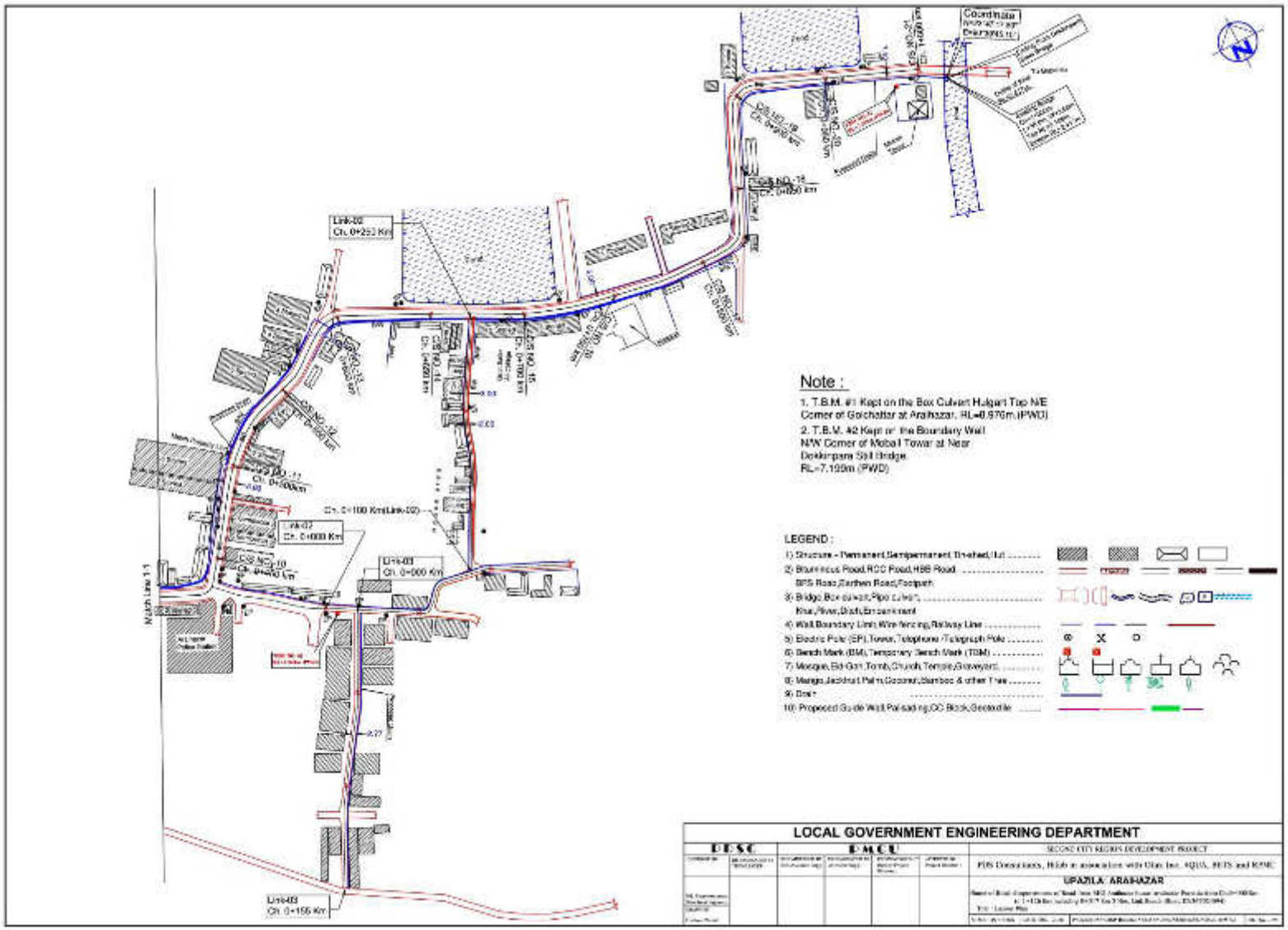


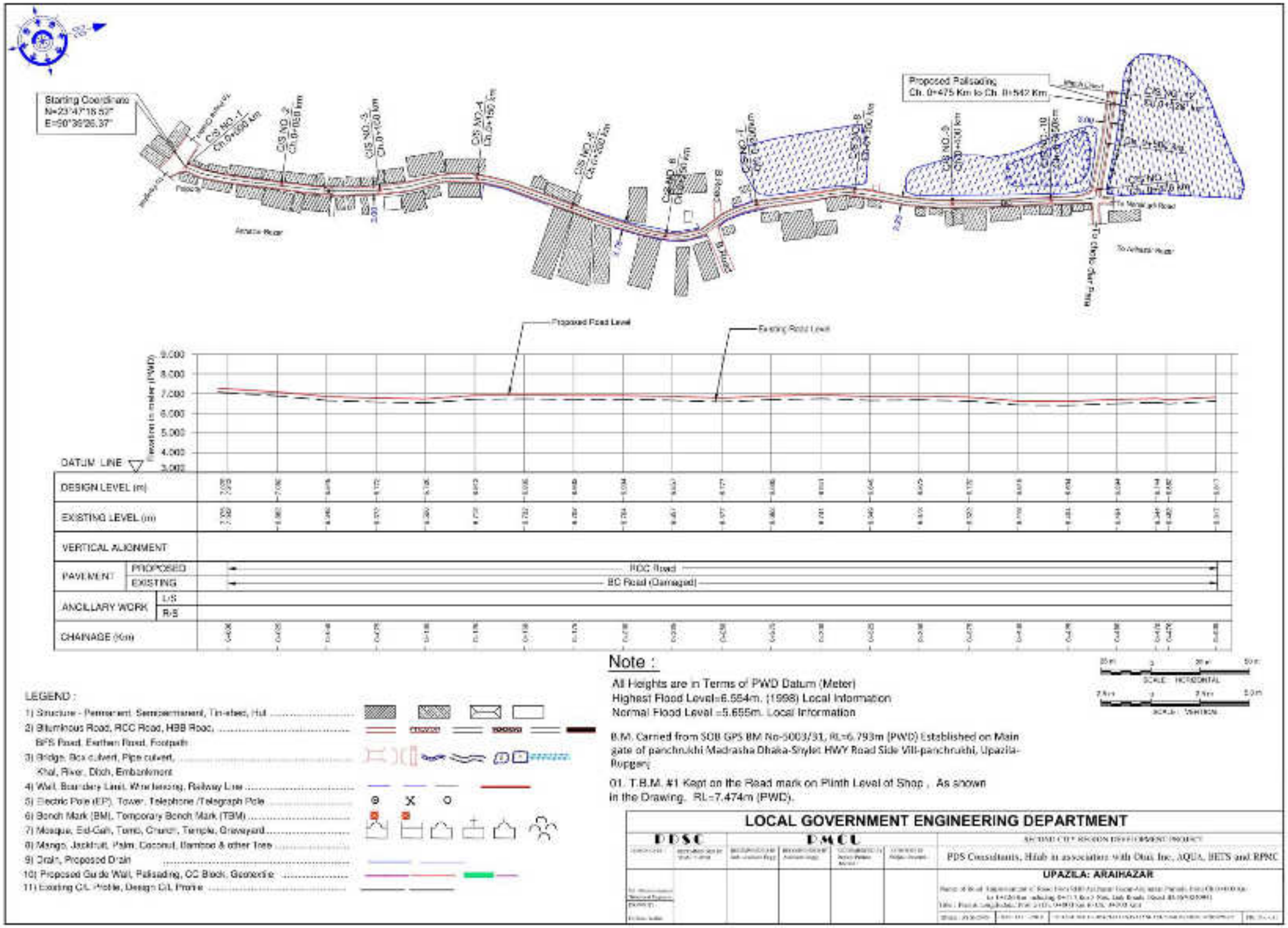

Link-2
Ch. 0+000 Km
Link-2
Ch. 0+114 Km
Govt. Safar Ali College
Link-1
Ch. 0+000 Km
Link-4
Ch. 0+300 Km
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.002m. (1998) Local Information
Normal Flood Level =5.124m. Local Information
B M Carried from Punchpur Madrasha B M No-5003 at Near Dhaka
Sylhet F&H Road. Upazila: Arihazar, Dist: Naryanganj. RL=6.793m.
1. T.B.M. #1 Kept on the Plinth Level S/W Corner of Upazila carver office at Near Safar ali college. RL=7.634m (PWD)
2. T.B.M. #3 Kept on the P/L N/E Corner of Upazila jame Mosque at Araihazar Upazila. RL=6.797m. (PWD)
LEGEND :
1) Structure - Permanent,Semipermanent,Tin-shed,Hut
2) Bituminous Road,RCC Road,HBB Road,
BFS Road,Earthen Road,Footpath
3) Bridge,Box culvert,Pipe culvert,
Khal,River,Ditch,Embankment
4) Wall,Boundary Line,Wire fencing,Railway Line
5) Electric Pole (EP),Tower,Telephone /Telegraph Pole
6) Bench Mark (BM),Temporary Bench Mark (TBM)
7) Mosque,Eid-Gah,Tomb,Church,Temple,Graveyard
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other Tree
9) Drain
10) Proposed Guide Wall,Pallisading,CC Block,Geotextile
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
UPAZILA: ARAHAZAR

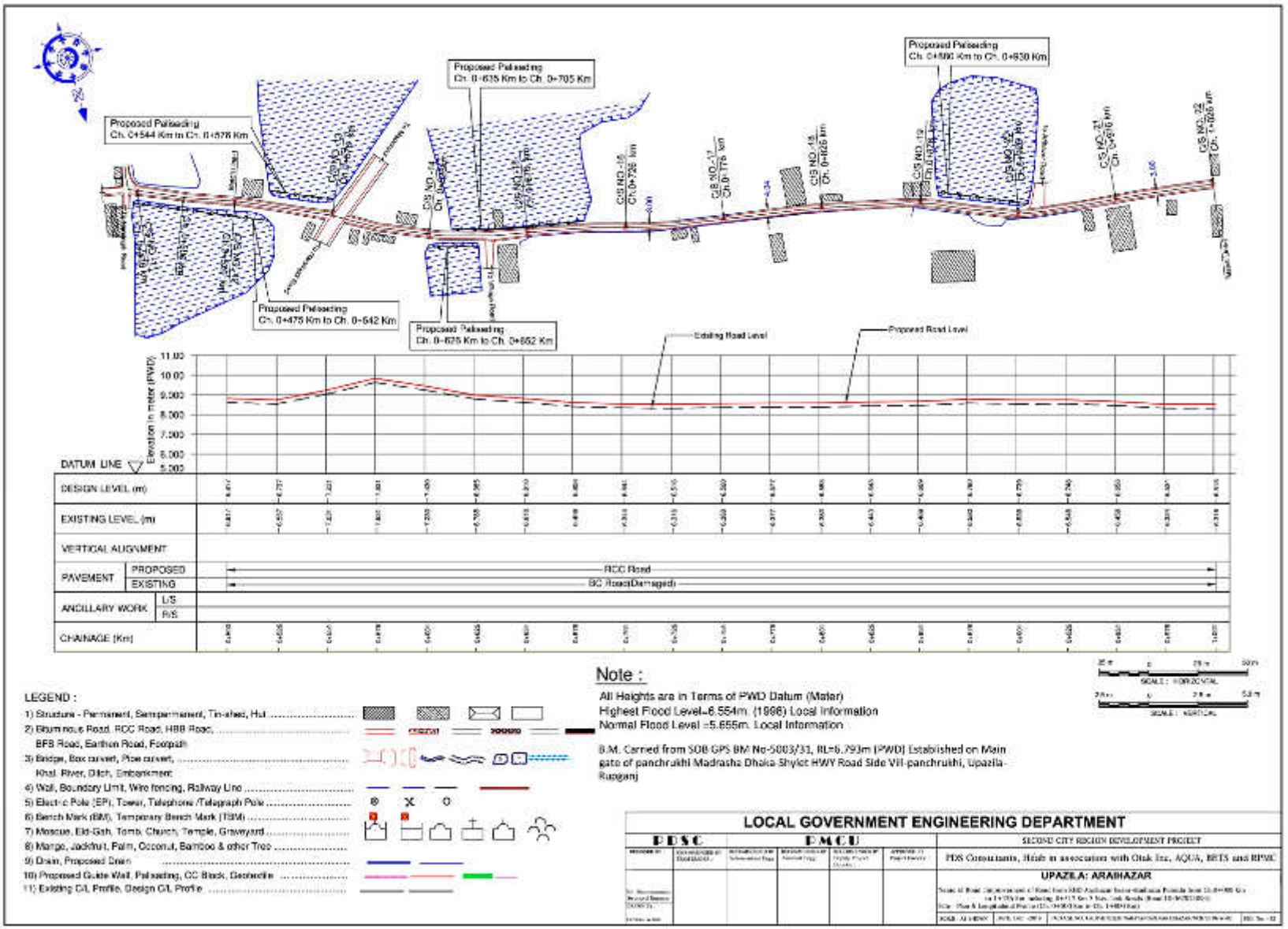

Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.022m. (1998) Local Information
Normal Flood Level =5.124m. Local Information
B M Carried from Punchpur Macrorine B M No-5003 at Near Dhaka Sylhet R&H Road, Upazila: Arihazar, Dist: Narayanganj, RL=6.793m.
3. T.B.M. #4 Kept on the Plinth Level S/W Corner of Central Hospital at Central Hospital More RL=7.658m. (PWD)
4. T.B.M. #5 Kept on the Pl. S/W Corner of Chola bari para Jame mosque at vill: Baga nagar, RL=6.098m. (PWD)
LEGEND :
1) Structure - Permanent,Semipermanent,Tin-shed,Ist .....
2) Bituminous Road,RCC Road,HBB Road, ... SFS Road,Soiling Road,Footpath
3) Bridge,Box culvert,Pipe culvert, ... Khal, River,Ditch,Embankment
4) Wall,Boundary Limit,Wire fencing,Railway Line .....
5) Electric Pole (EP),Tower, Telephone /Telegraph Pole .....
6) Bench Mark (BM),Temporary Bench Mark (TBM) .....
7) Mosque,Pucca Qabr,Tomb,Church,Temple,Graveyard .....
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other Tree .....
9) Drain .....
10) Proposed Guide Wall /Palisading,CC Block,Gabion/Bo .....
Link-3 Ch. 0+230 Km
Link-4 Ch. 0+153 Km
Proposed Palisading Ch. 0+082 Km to Ch. 0+134 Km
Link-4 Ch. 0+300 Km
Link-3 Ch. 0+500 Km
Proposed Box Culvert
Proposed Palisading Ch. 0+775 Km to Ch. 0+800 Km
Proposed Palisading Ch. 0+775 Km to Ch. 0+835 Km
Proposed Palisading Ch. 0+847 Km to Ch. 0+887 Km
Proposed Palisading Ch. 0+688 Km to Ch. 0+550 Km
Proposed Palisading Ch. 0+850 Km to Ch. 0+940 Km
Mosque
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
DDSC
DMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Bitchi Associates with Utah Inc. AQUA, IESS and RPMC
UPAZILA: ARAIHAZAR

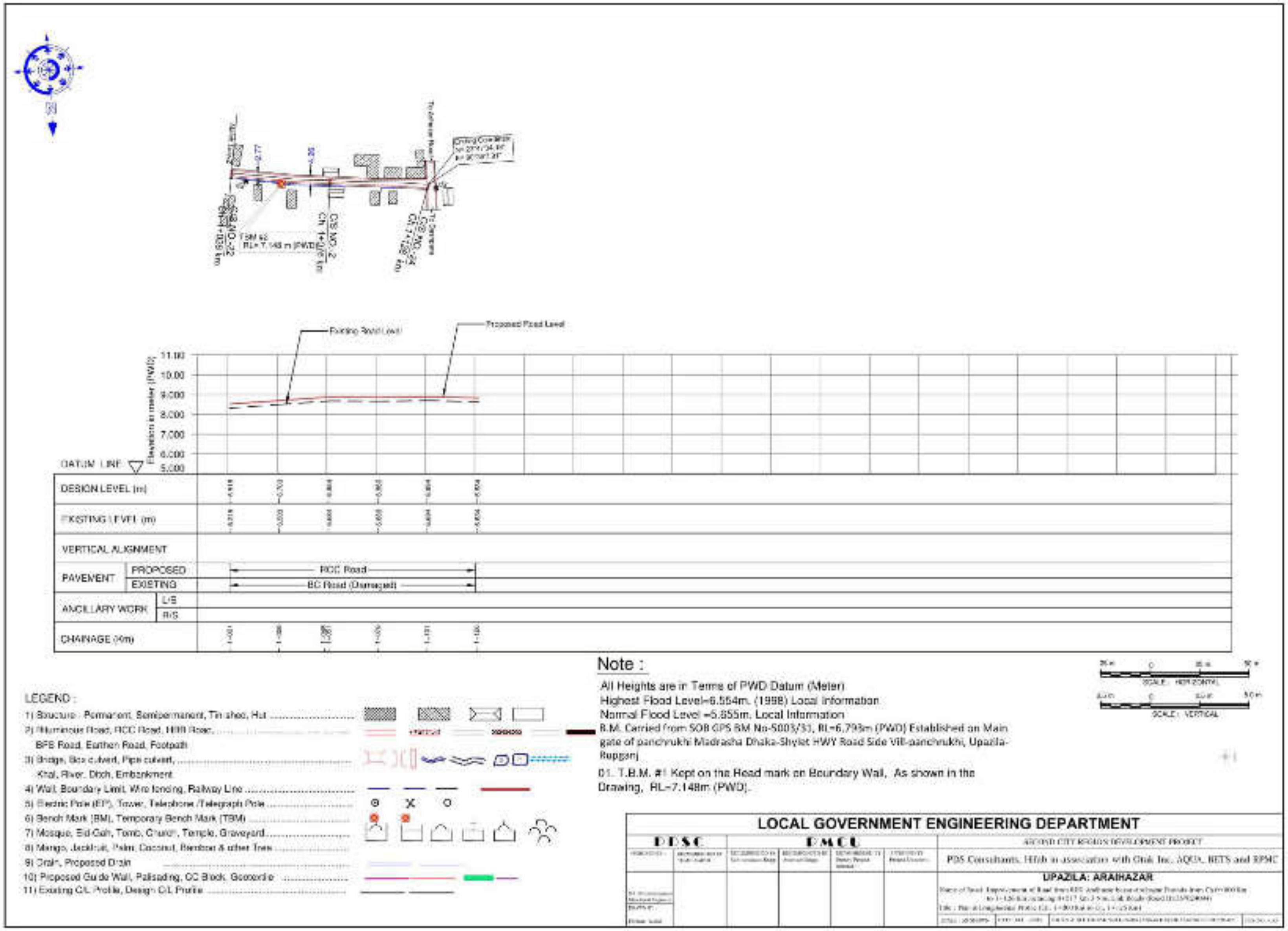
Appendix 4: Strip Maps of Subproject Alignments-Road from RHD Araihazar Bazar-Araihazar Purinda Parishad-RHD via Mohila College (Road ID 4094)



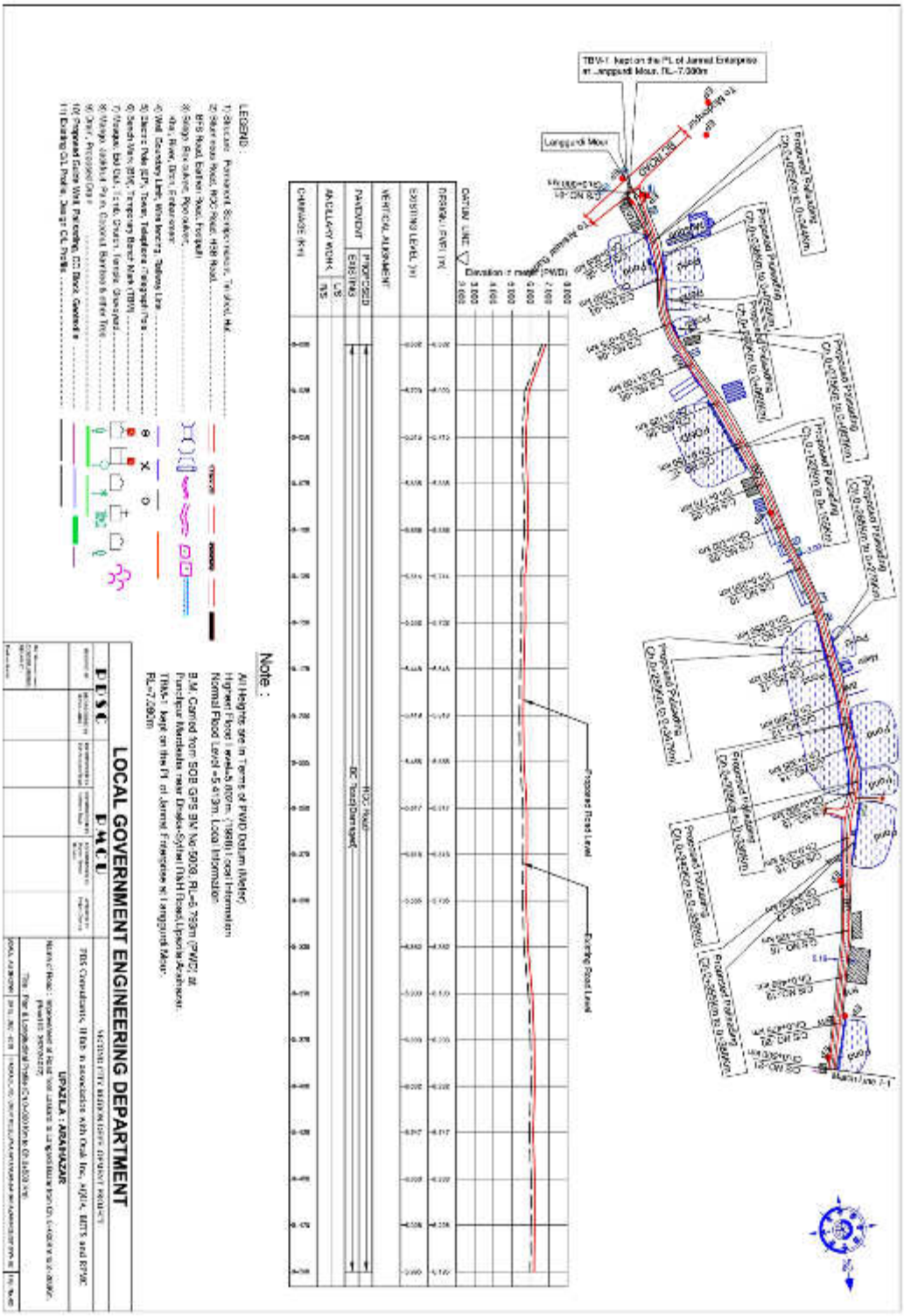

Note :
1. T.B.M. #1 Kept on the Box Culvert Hulgari Top N/E Corner of Golchattar at Arailhazar, RL=8.976m.(PWD)
2. T.B.M. #2 Kept on the Boundary Wall N/W Corner of Mobail Towar at Near Doldanpara Sill Bridge RL=7.199m (PWD)
LEGEND :
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
UPAZILA: ARAIHAZAR

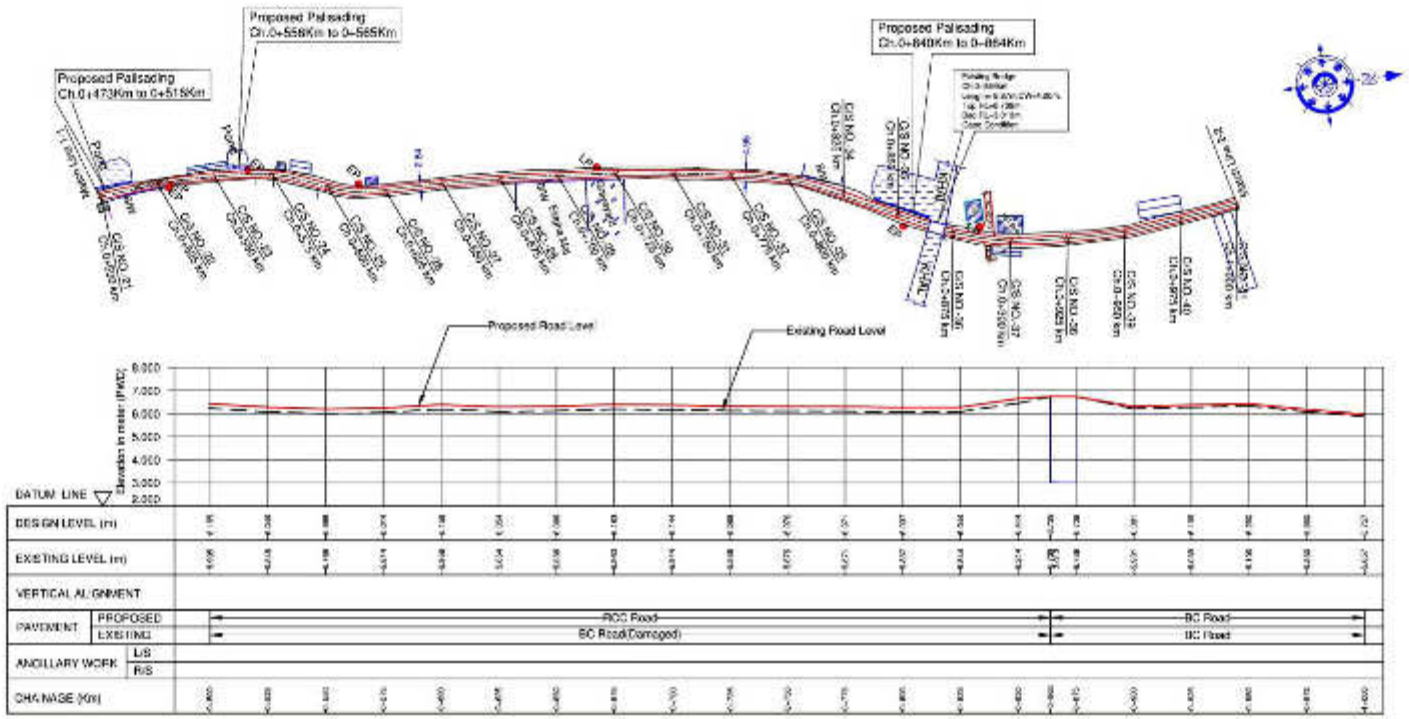

Starting Coordinate
N=23°47'18.57"
E=90°39'26.37"
C/S NO.-1 Ch.0+000 km
C/S NO.-2 Ch.0+050 km
C/S NO.-3 Ch.0+100 km
C/S NO.-4 Ch.0+150 km
Proposed Palisading Ch. 0+475 Km to Ch. 0+542 Km
Proposed Road Level
Existing Road Level
Elevation in meter (PWD)
9.000
8.000
7.000
6.000
5.000
4.000
3.000
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
RCC Road
BC Road (Damaged)
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
SCALE: HORIZONTAL
SCALE: VERTICAL
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.554m. (1998) Local Information
Normal Flood Level =5.655m. Local Information
B.M. Carried from SOB GPS BM No-5003/31, RL=6.793m (PWD) Established on Main gate of panchrukhi Madrasha Dhaka-Shylet HWY Road Side Vill-panchrukhi, Upazila-Rupganj
01. T.B.M. #1 Kept on the Road mark on Plinth Level of Shop . As shown in the Drawing. RL=7.474m (PWD).
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road, BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Hifab in association with Otak Inc, AQUA, BETS and RPMC
UPAZILA: ARAIHAZAR


Proposed Paleading
Ch. 0+544 Km to Ch. 0+578 Km
Proposed Paleading
Ch. 0+635 Km to Ch. 0+705 Km
Proposed Paleading
Ch. 0+890 Km to Ch. 0+930 Km
Proposed Paleading
Ch. 0+475 Km to Ch. 0+542 Km
Proposed Paleading
Ch. 0+625 Km to Ch. 0+662 Km
Existing Road Level
Proposed Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
RCC Road
BC Road(Damaged)
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road, BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Paleading, CC Block, Geotextile
11) Existing GL Profile, Design GL Profile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.554m. (1998) Local Information
Normal Flood Level =5.655m. Local Information
B.M. Carried from SOB GPS BM No-5003/31, RL=6.793m (PWD) Established on Main gate of panchrukhi Madrasha Dhaka-Shylet HWY Road Side Vill-panchrukhi, Upazila-Rajganj
SCALE : HORIZONTAL
SCALE : VERTICAL
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Hitab in association with Oluk Inc, AQUA, BETS and RPWC
UPAZILA: ARAIHAZAR


Existing Road Level
Proposed Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
RCC Road
BC Road (Damaged)
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.554m. (1998) Local Information
Normal Flood Level =5.855m. Local Information
B.M. Carried from SOB GPS BM No-5003/33, RL=6.793m (PWD) Established on Main gate of panchrukhi Madrasha Dhaka-Shylet HWY Road Side Vill-panchrukhi, Upazila-Rupganj
01. T.B.M. #1 Kept on the Head mark on Boundary Wall, As shown in the Drawing, RL=7.148m (PWD).
LEGEND :
1) Structure : Permanent, Semipermanent, Tin shed, Hut
2) Bituminous Road, RCC Road, HBB Road, BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Trees
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
SCALE : HORIZONTAL
SCALE : VERTICAL
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
DDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Hifab in association with Ohak Inc, AQUA, BETS and RPMC
UPAZILA: ARAIHAZAR

Appendix 5: Strip Maps of Subproject Alignments-Road from Laskardi-Langardi Bazar (Road ID 4072)





LEGEND :

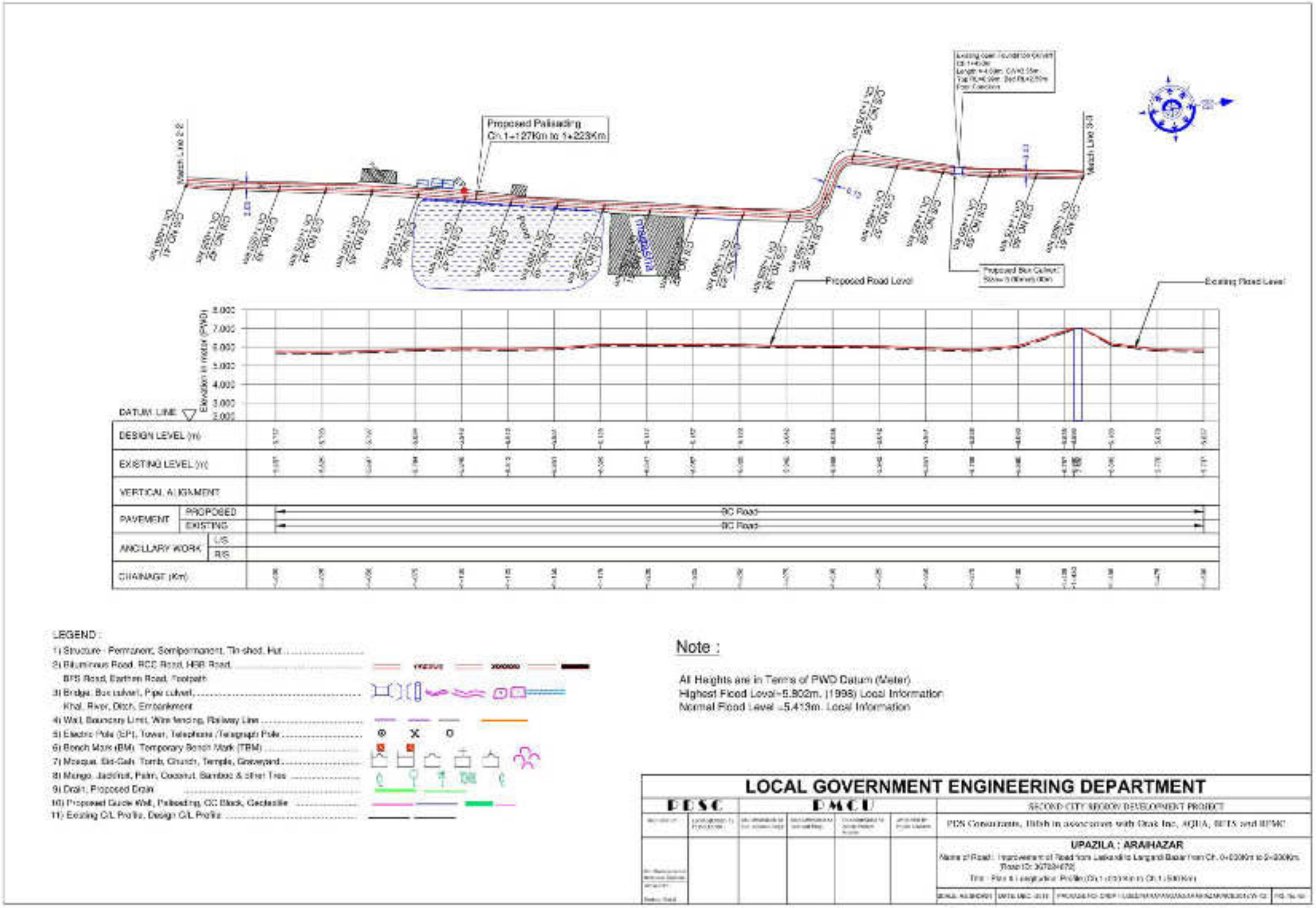
1) Structure : Permanent, Semipermanent, Tin shed, Hut .....
2) Bituminous Road, RCC Road, HBB Road, ...
BPS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, ...
Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line .....
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole .....
6) Bench Mark (BM), Temporary Bench Mark (TBM) .....
7) Mosque, Pucca, Tomb, Church, Temple, Graveyard .....
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree .....
9) Drain, Proposed Drain .....
10) Proposed Guide Wall, Palisading, CC Block, Centerline .....
11) Existing C/L Profile, Design C/L Profile .....

Note :

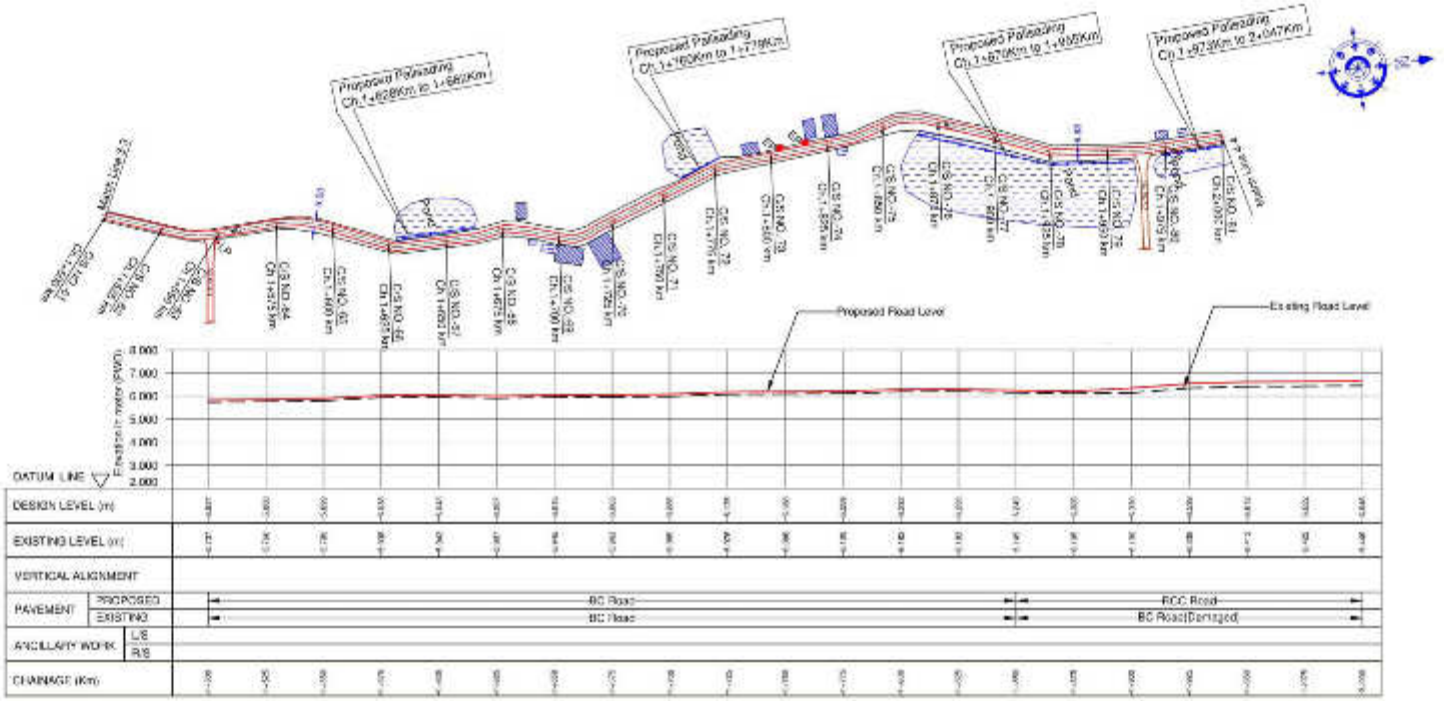
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information

LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DUSC		PMCU				SECOND CITY REGION DEVELOPMENT PROJECT
						PDS Consultants, Hitab in association with Orak Inc, AQUA, BETS and BPMC
						UPAZILA : ARAIHAZAR Name of Road : Improvement of Road from Lakhandi to Langardi Bazar from Ch. 3+000Km to 3+200Km. (Road ID : 387024072) Title : Plan & Longitudinal Profile (Ch.0+500 Km to Ch.1+000 Km)



Proposed Palisading Ch.1+127Km to 1+223Km
Proposed Road Level
Existing Road Level
Match Line 2-2
Match Line 3-3
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
BC Road
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road, BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Ditsh in association with Ozak Inc, AQUA, BETS and BPMC
UPAZILA : ARAIHAZAR



LEGEND :

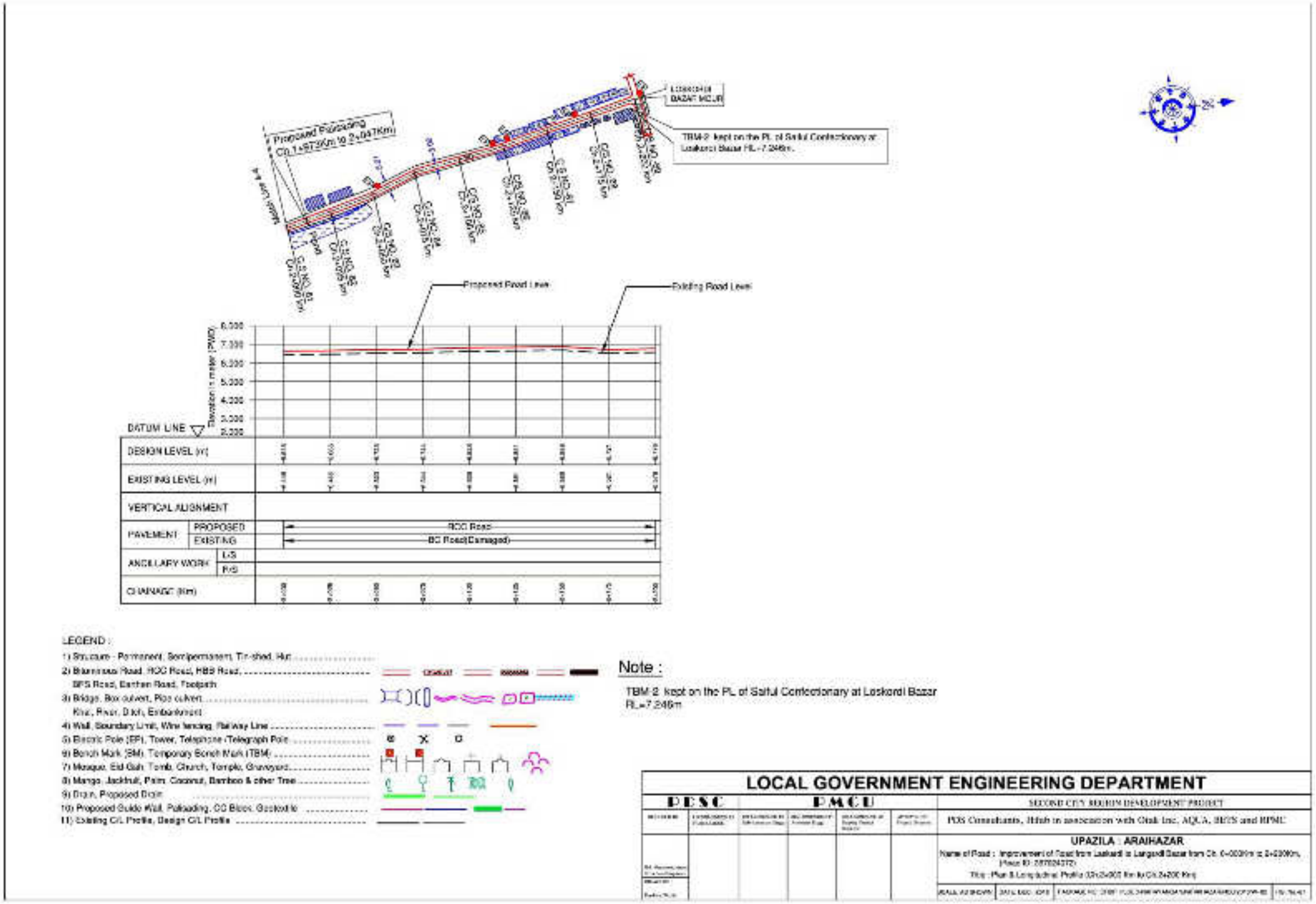
1) Structure - Permanent, Semi permanent, Tin-shed, Hut .....
2) Bituminous Road, RCC Road, Hill Road, ...
BRS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert .....
Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line .....
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole .....
6) Bench Mark (BM), Temporary Bench Mark (TBM) .....
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard .....
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree .....
9) Drain, Proposed Drain .....
10) Proposed Guide Wall, Paloading, CC Block, Geotextile .....
11) Existing GL Profile, Design GL Profile .....

Note :

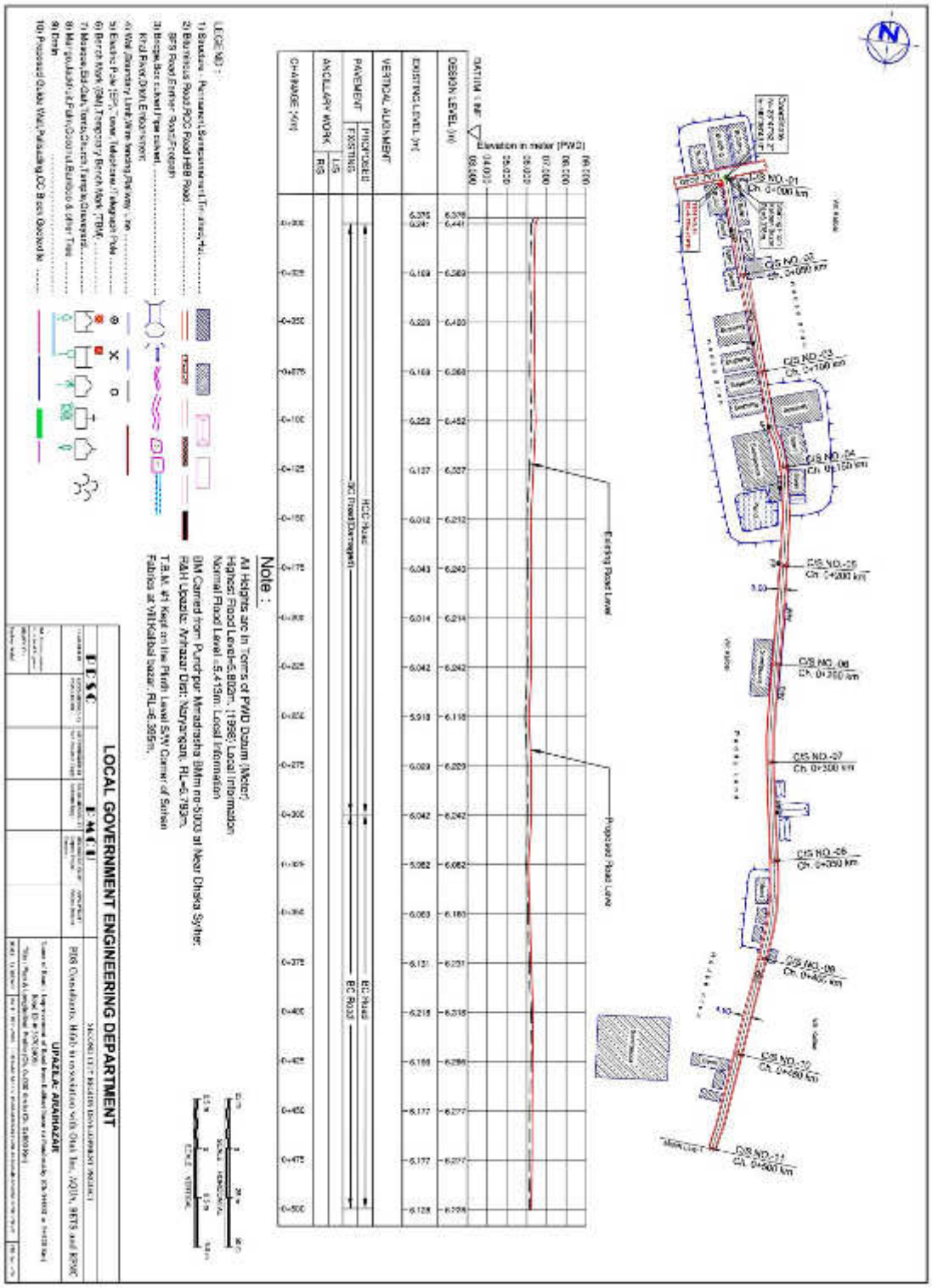
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.803m. (1998) Local Information
Normal Flood Level =5.413m. Local Information

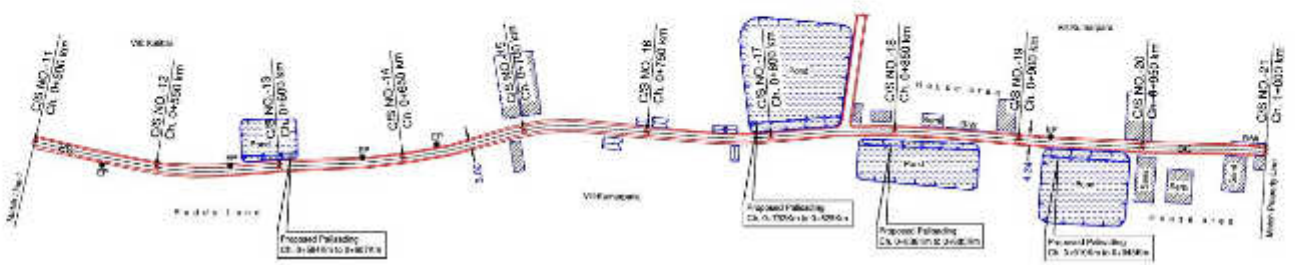
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

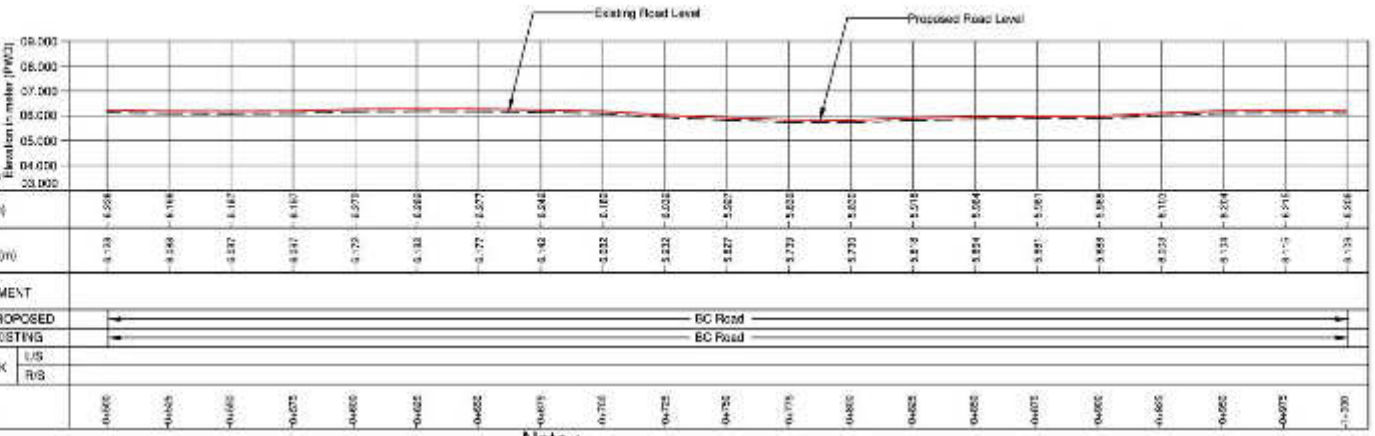
DLSC	EMCU	SECOND CITY REGION DEVELOPMENT PROJECT
		PDS Constrants, Hrob in association with Oriak Inc, AQUA, BETS and BPMC
		UPAZILA : ARAIHAZAR
		Name of Road : Improvement of Road from Lakhardi to Largard Bazar from Ch. 0+000Km to 2+200Km. (Road ID :38702402)
		Title : Plan & Longitudinal Profile (Ch.1+600 Km to Ch.2+000 Km)


Proposed Palisading
Ch.1+873Km to 2+047Km
Match Line 4-4
BAZAR MOUR
TBM-2 kept on the PL of Saiful Confectionary at Laskardi Bazar RL-7.246m.
Proposed Road Level
Existing Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
RCC Road
BC Road(Damaged)
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road,
BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert
Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
Note :
TBM-2 kept on the PL of Saiful Confectionary at Laskordi Bazar
RL=7.246m
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Iftikh in association with Oliak Inc, AQUA, BETS and BPMC
UPAZILA : ARAIHAZAR

Appendix 6: Strip Maps of Subproject Alignments-Road from Kalibari Bazar-Panchruky (Road ID 4081)







Note :

All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.902m. (1998) Local Information
Normal Flood Level =5.413m. Local Information

BM Carried from Punchpur Mmadrasha BMm no-5003 at Near Dhaka Sylhet R&H Upazila: Arihazar Dist: Naryanganj. RL=6.793m.

T.B.M. #2 Kept on the Plinth Level S/E Corner House of Mr.Monir Hossain at Vill:Kumarpara. RL =6.600m

SCALE : HORIZONTAL

SCALE : VERTICAL

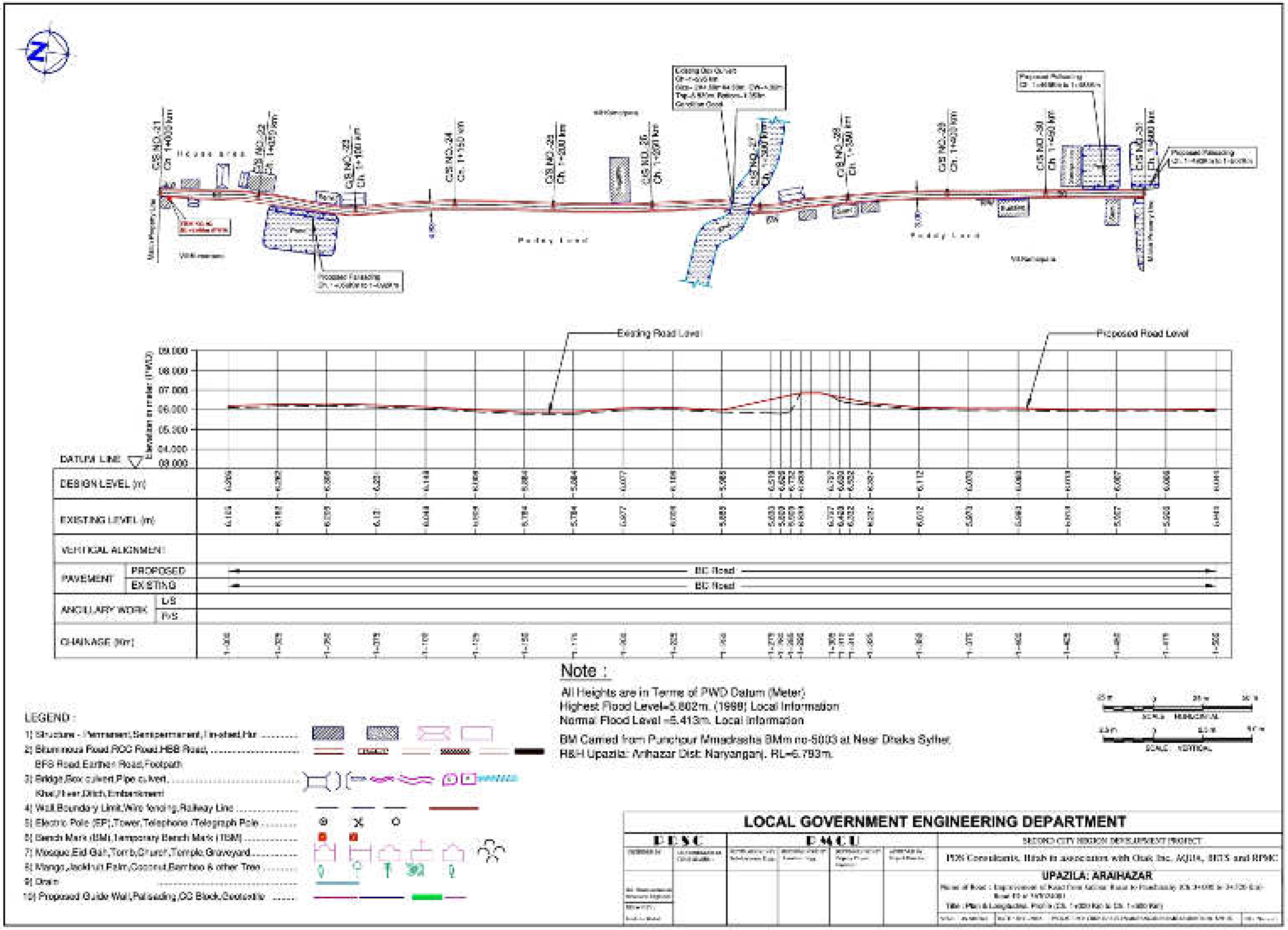
LEGEND :

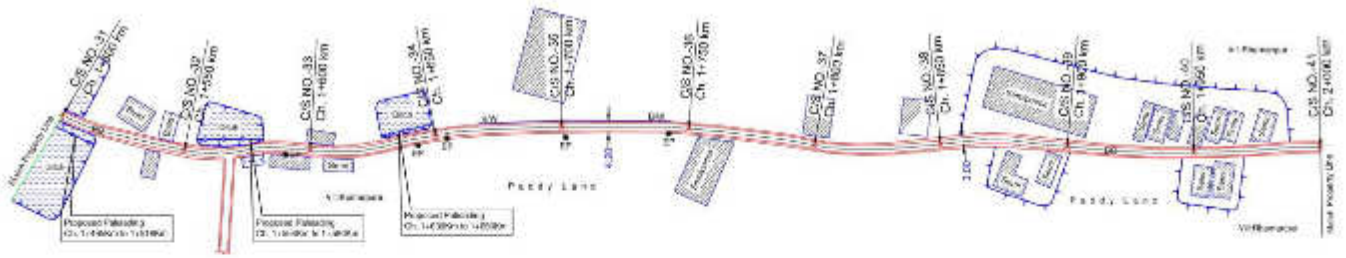
1) Structure - Permanent,Semi permanent,Tin-shed,Hut .....
2) Bituminous Road,RCC Road,HBB Road, ... BPS Road,Earthen Road,Footpath
3) Bridge,Box culvert,Pipe culvert, ... Khal,River Ditch,Embankment
4) Wall,Boundary Limit,Wire fencing,Railway Line .....
5) Electric Pole (EP),Tower,Telephone /Telegraph Pole .....
6) Bench Mark (BM),Temporary Bench Mark (TBM) .....
7) Mosque,Eid-Gah,Tomb,Church,Temple,Graveyard .....
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other Tree .....
9) Drain .....
10) Proposed Guide Wall,Palisading,CC Block,Geotextile .....

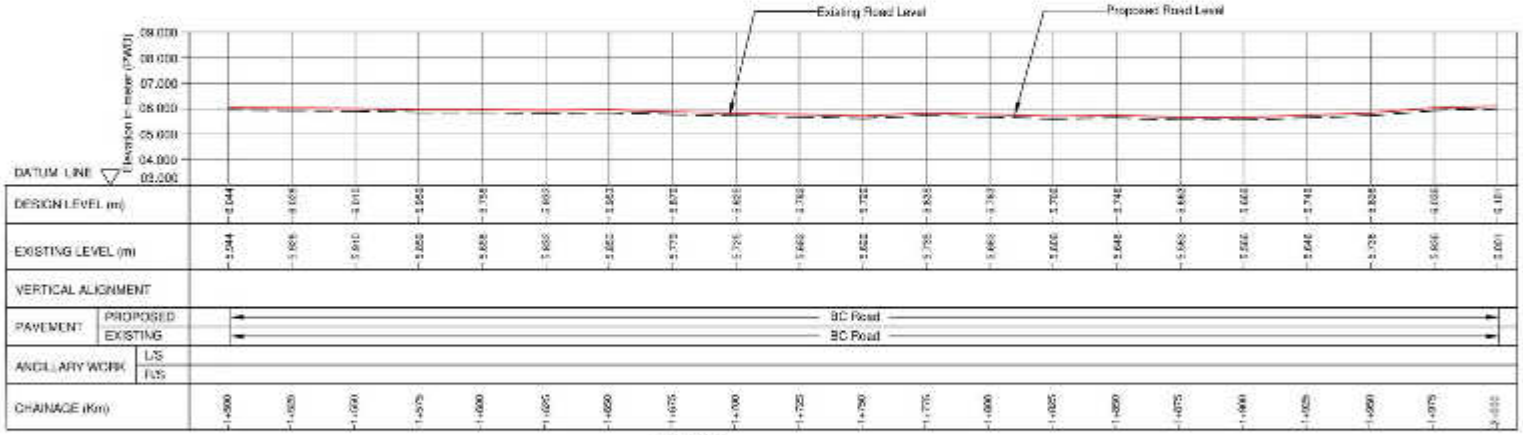
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

DESC	EMCU	
		PDS Consultants, Hitab in association with Orak Inc, AQUA, BETS and RPMC

UPAZILA: ARAIHAZAR


C/S NO.-21 Ch. 1+000 km
C/S NO.-22 Ch. 1+050 km
C/S NO.-23 Ch. 1+100 km
C/S NO.-24 Ch. 1+150 km
C/S NO.-25 Ch. 1+200 km
C/S NO.-26 Ch. 1+250 km
C/S NO.-27 Ch. 1+300 km
C/S NO.-28 Ch. 1+350 km
C/S NO.-29 Ch. 1+400 km
C/S NO.-30 Ch. 1+450 km
C/S NO.-31 Ch. 1+500 km
House area
Paddy Land
Existing Road Level
Proposed Road Level
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
BC Road
ANCILLARY WORK
CHAINAGE (Km)
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
BM Carried from Punchpur Mmadrasha BMm no-5003 at Near Dhaka Sylhet
H&H Upazila: Arihazar Dist: Naryanganj. RL=6.793m.
LEGEND :
1) Structure - Permanent,Semipermanent,Tin-shed,Hut
2) Bituminous Road,RCC Road,HBB Road,
BFS Road,Earthen Road,Footpath
3) Bridge,Box culvert,Pipe culvert,
Khal,River,Ditch,Embankment
4) Wall,Boundary Limit,Wire fencing,Railway Line
5) Electric Pole (EP),Tower,Telephone /Telegraph Pole
6) Bench Mark (BM),Temporary Bench Mark (TBM)
7) Mosque,Eid Gah,Tomb,Church,Temple,Graveyard
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other Tree
9) Drain
10) Proposed Guide Wall,Palisading,CC Block,Geotextile
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
UPAZILA: ARAIHAZAR





Note :

All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information

BM Carried from Punchpur Mmadrasha BMm no-5003 at Near Dhaka Sylhet R&H Upazila: Arinazar Dist: Narayanganj. RL=6.759m.

LEGEND :

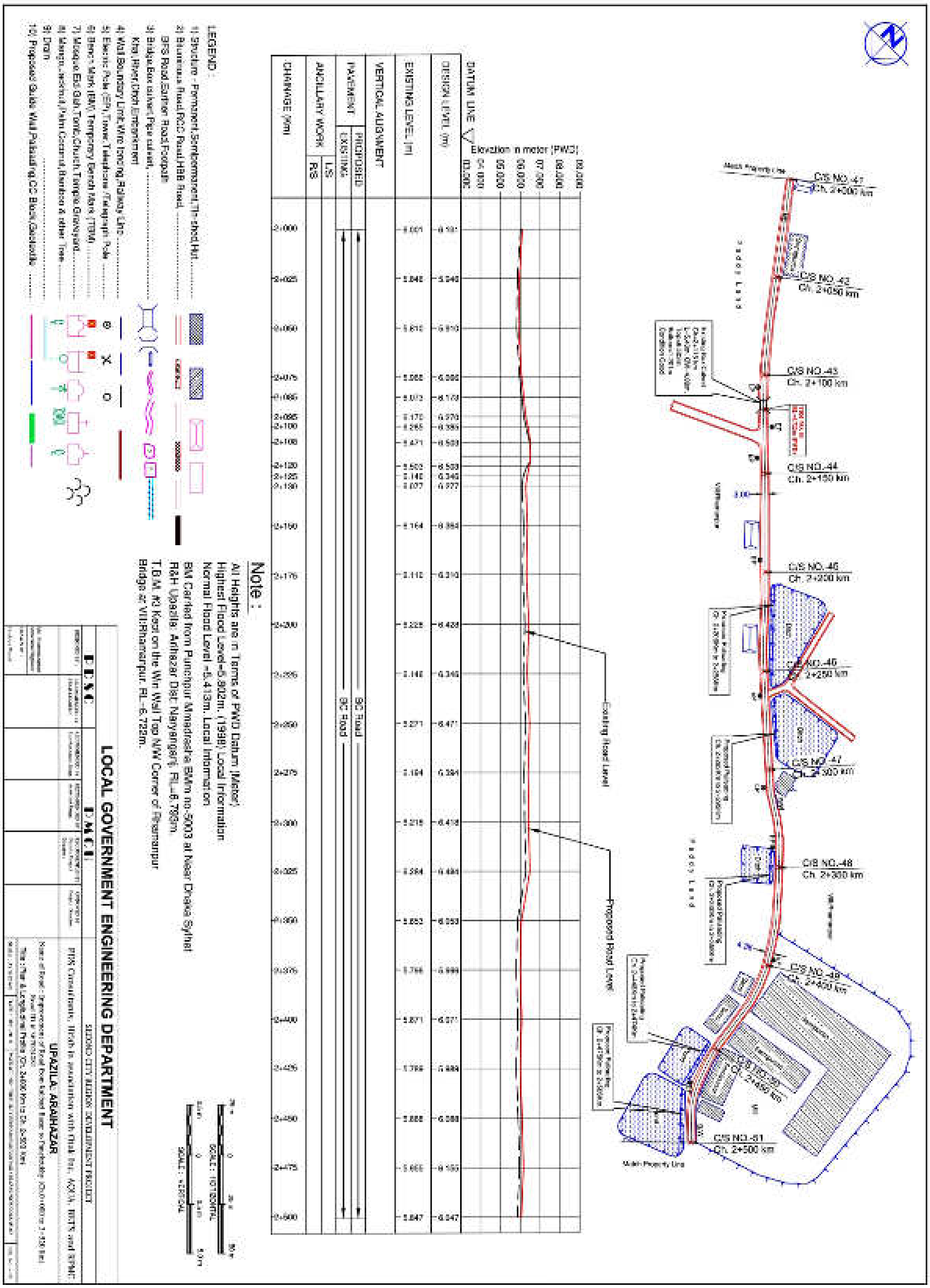
1) Structure - Permanent Semipermanent,Tin shed,Hut .....
2) Bituminous Road,RCC Road,HBB Road, ... BFS Road,Earthen Road,Footpath
3) Bridge,Box culvert,Pipe culvert, ... Khal River Ditch,Embankment
4) Wall,Boundary Line,Wire fencing,Railway Line .....
5) Electric Pole (EP),Tower,Telephone /Telegraph Pole .....
6) Bench Mark (BM),Temporary Bench Mark (TBM) .....
7) Mosque,Eid-Gah,Tomb,Church,Temple,Graveyard.....
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other Tree .....
9) Drain .....
10) Proposed Guide Wall Palisading,CC Block,Geotextile .....

SCALE : HORIZONTAL

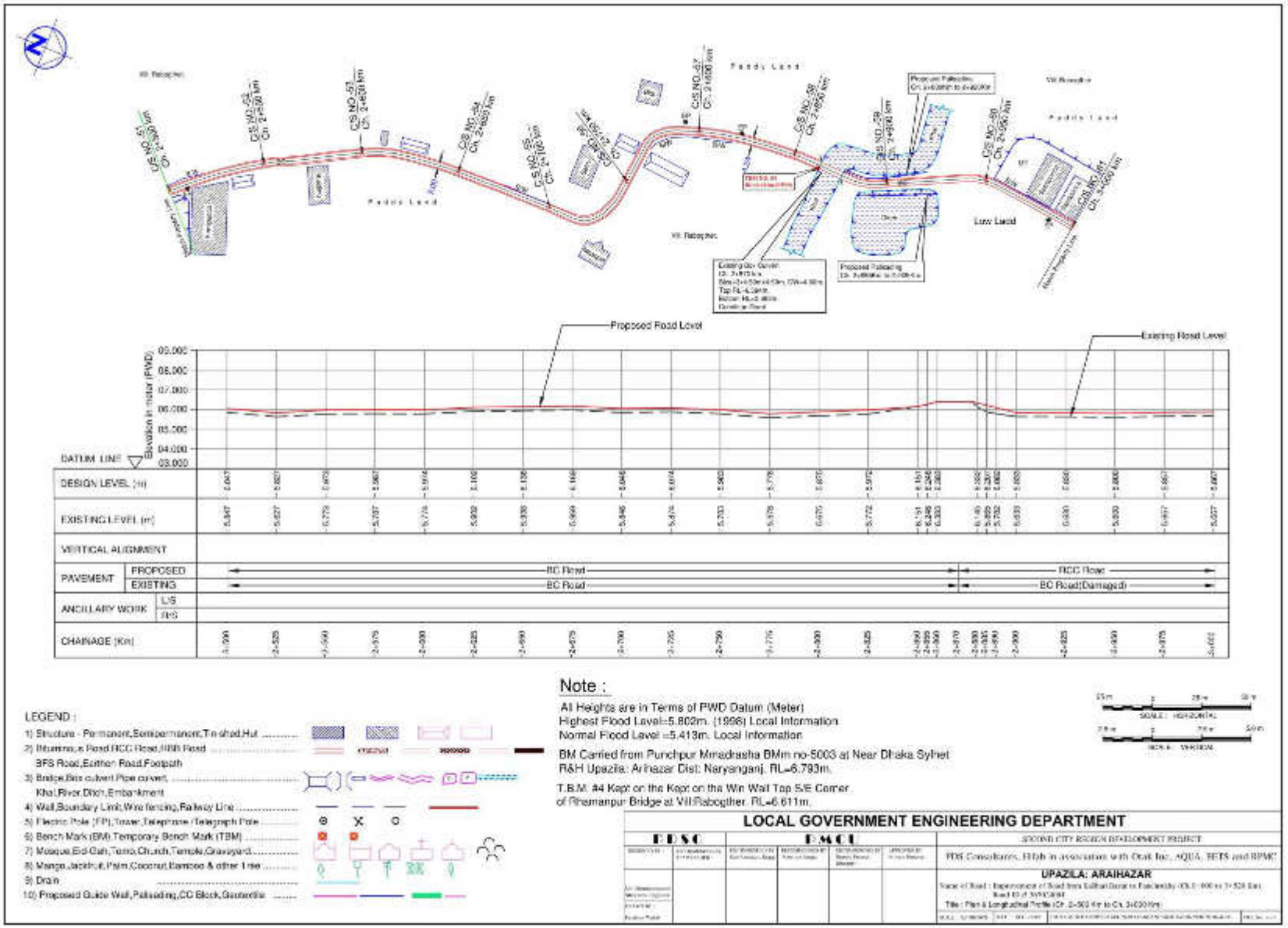
SCALE : VERTICAL

LOCAL GOVERNMENT ENGINEERING DEPARTMENT

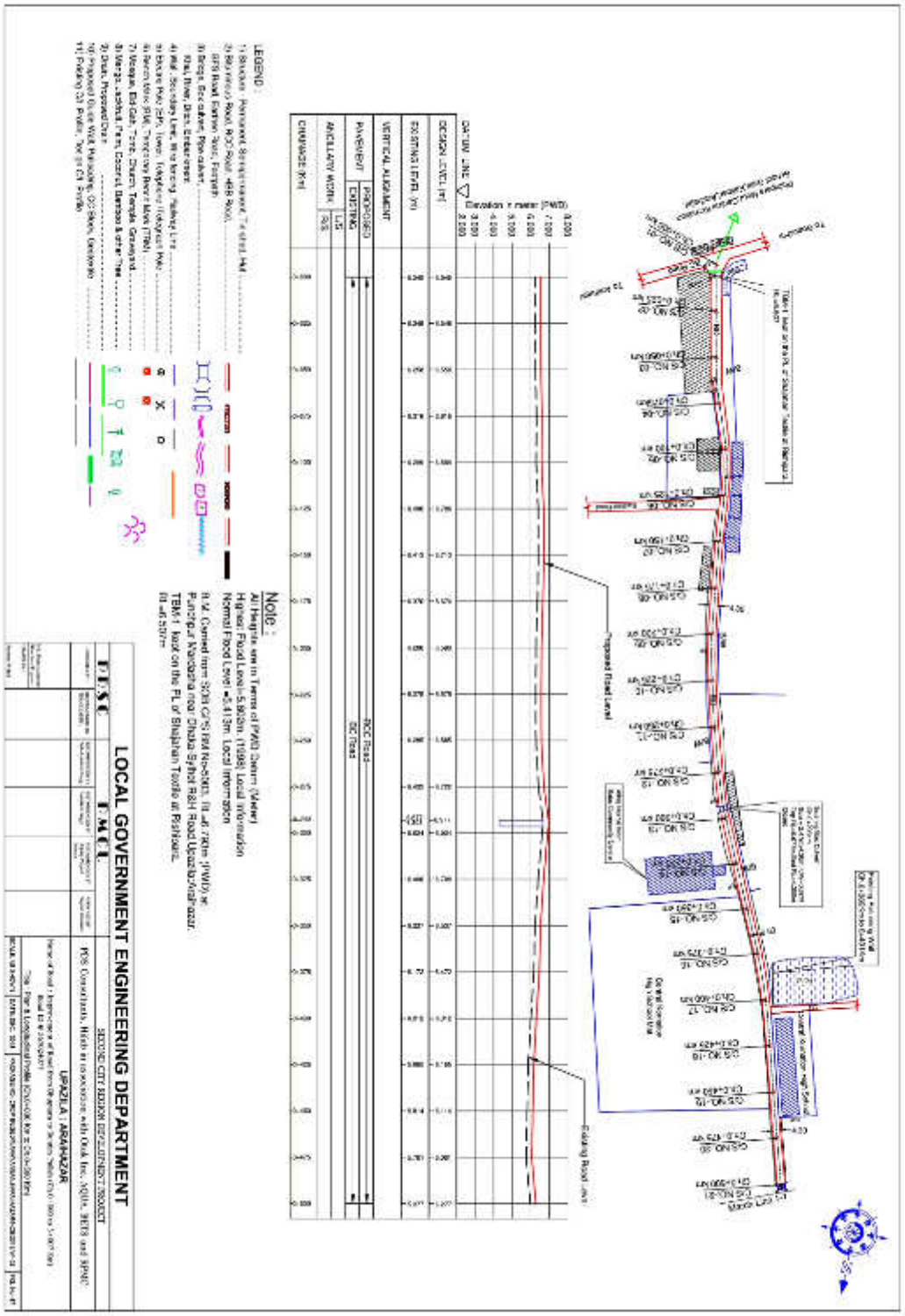
EDSC	PMCU	SECOND CITY REGION DEVELOPMENT PROJECT
		PDS Consultants, Rilab in association with Oriak Inc. AQUA, SETS and SPMC
		UPAZILA: ARAIHAZAR
		Title : Plan & Longitudinal Profile (Ch. 1+650 Km to Ch. 2+630 Km)

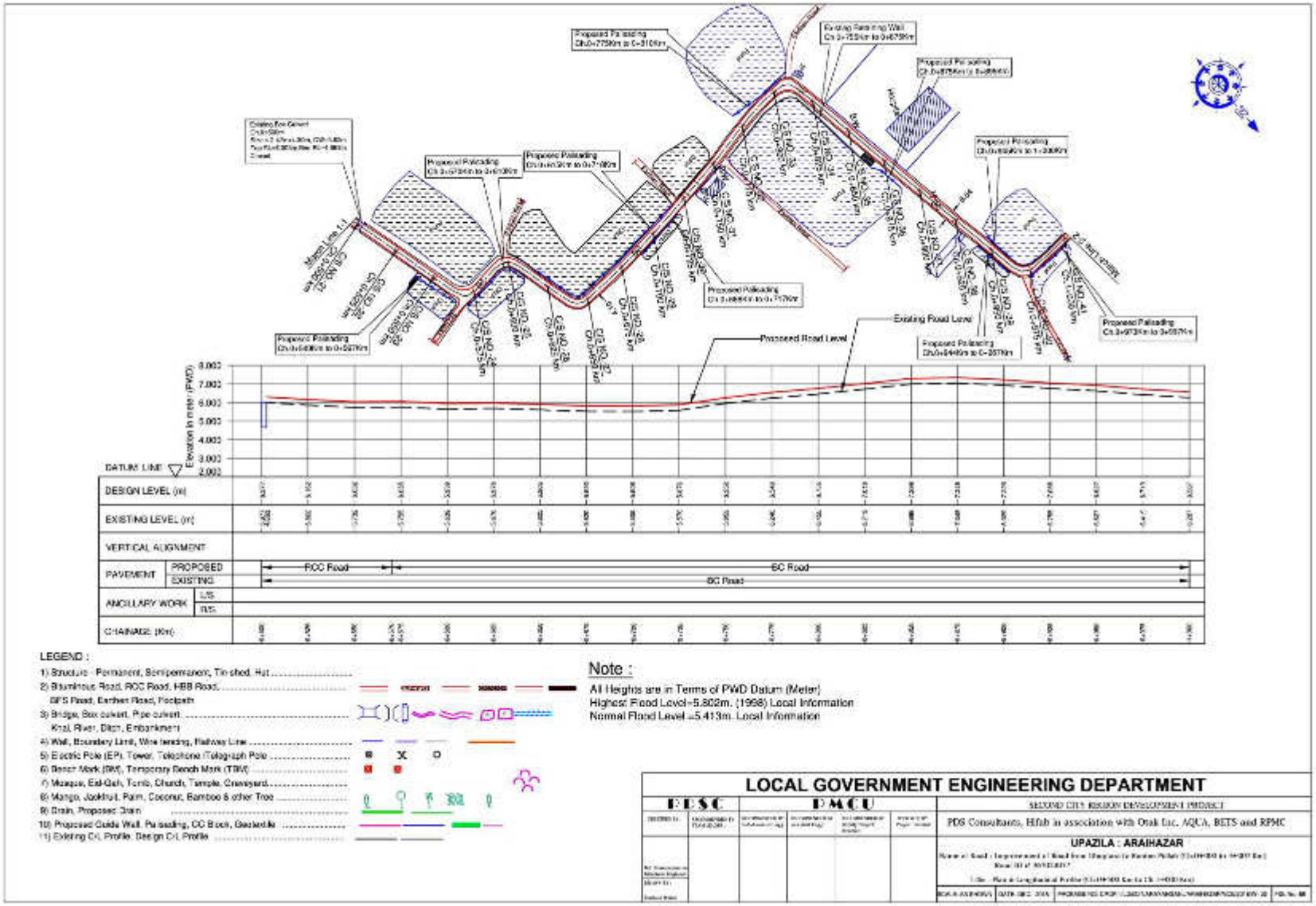


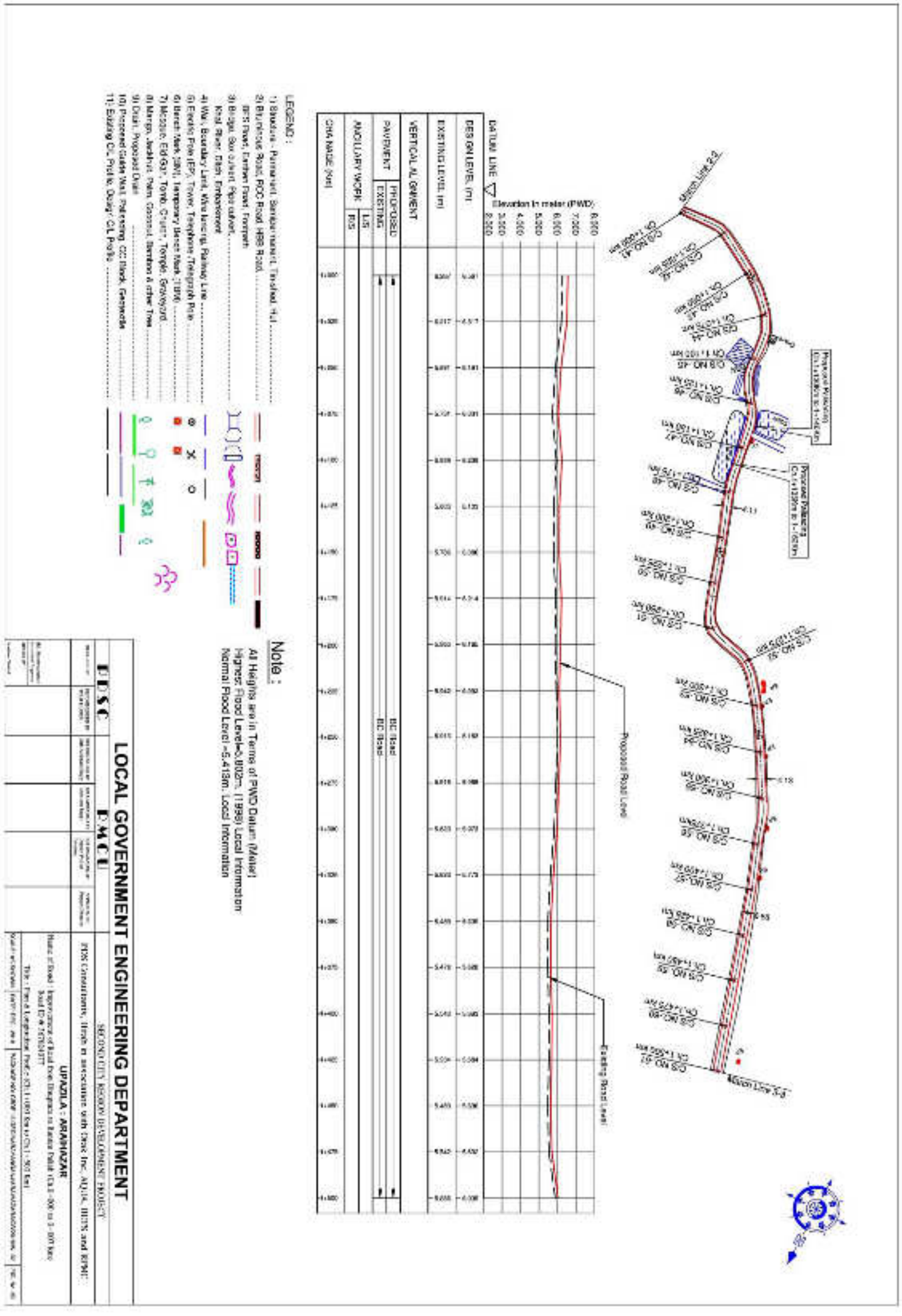
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
UPAZILA: ARAIHAZAR
LEGEND :
Note :
All Heights are in Terms of PWD Datum (Meter)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
ANCILLARY WORK
LS
RS
CHAINAGE (Km)
Existing Road Level
Proposed Road Level
BC Road
Paddy Land

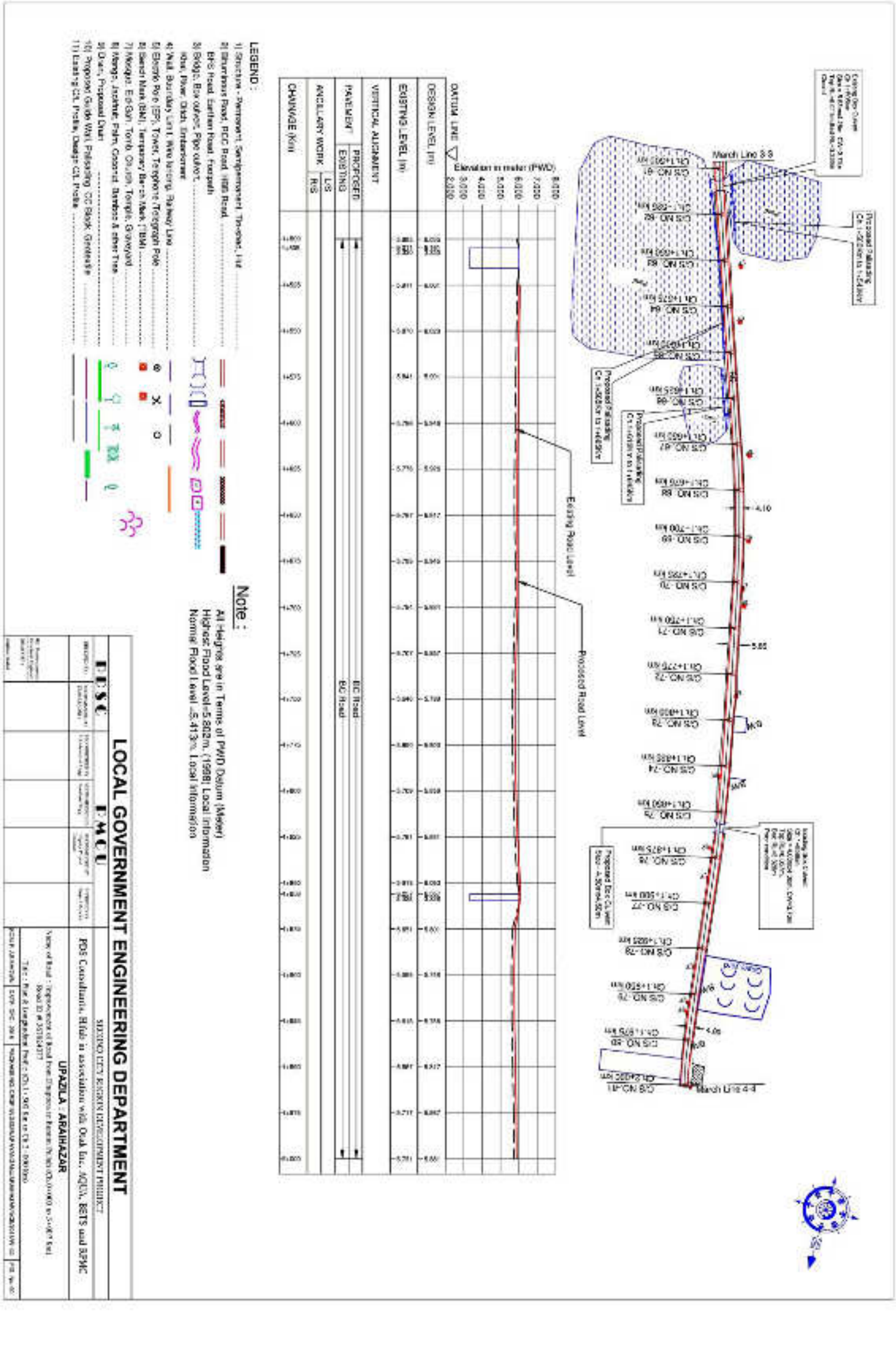

Proposed Road Level
Existing Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
RC Road
RCC Road
BC Road
BC Road(Damaged)
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
Paddy Land
Low Land
LEGEND :
1) Structure - Permanent,Semipermanent,Tin shed,Hut
2) Bituminous Road,RCC Road,WBM Road
BFS Road,Earthen Road,Footpath
3) Bridge,Box culvert,Pipe culvert,
Kha,River,Ditch,Embankment
4) Wall,Boundary Limit,Wire fencing,Railway Line
5) Electric Pole (FP),Tower,Telephone /Telegraph Pole
6) Bench Mark (BM),Temporary Bench Mark (TBM)
7) Mosque,Eid-Gah,Temb,Church,Temple,Graveyard
8) Mango,Jackfruit,Palm,Coconut,Bamboo & other tree
9) Drain
10) Proposed Guide Wall,Palisading,CC Block,Geotextile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
BM Carried from Punchpur Mirradrasha BMm no-5003 at Near Dhaka Sylhet
R&H Upazila: Arihazar Dist: Naryanganj. RL=6.783m.
T.B.M. #4 Kept on the Kept on the Wn Wall Top S/E Corner
of Rhamanpur Bridge at Vill:Rabogther. RL=6.611m.
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
SECOND CITY REGION DEVELOPMENT PROJECT
UPAZILA: ARAIHAZAR

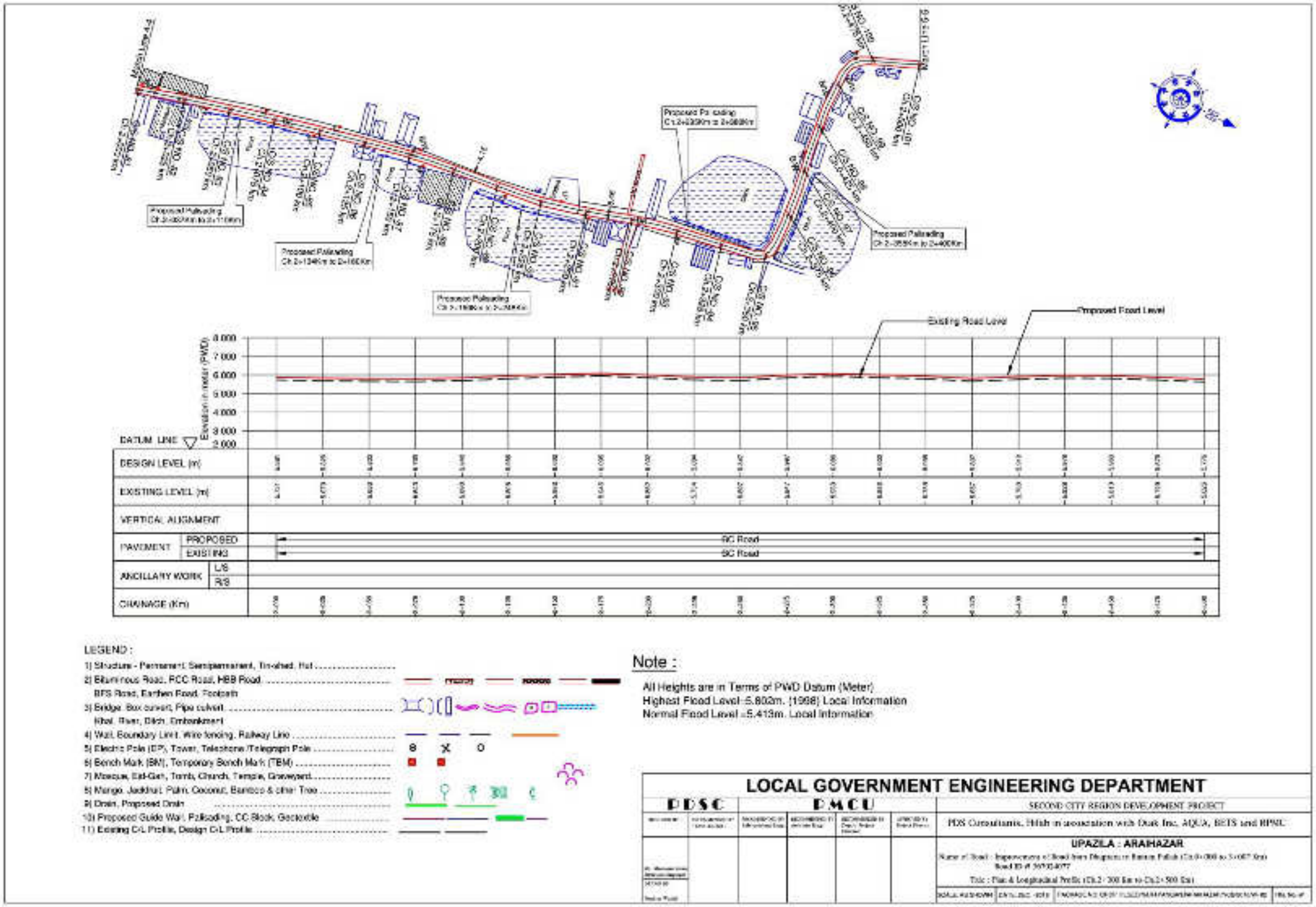
Appendix 7: Strip Maps of Subproject Alignments-Road from Dhuptara –Buntim Pullah (Road ID 4077)

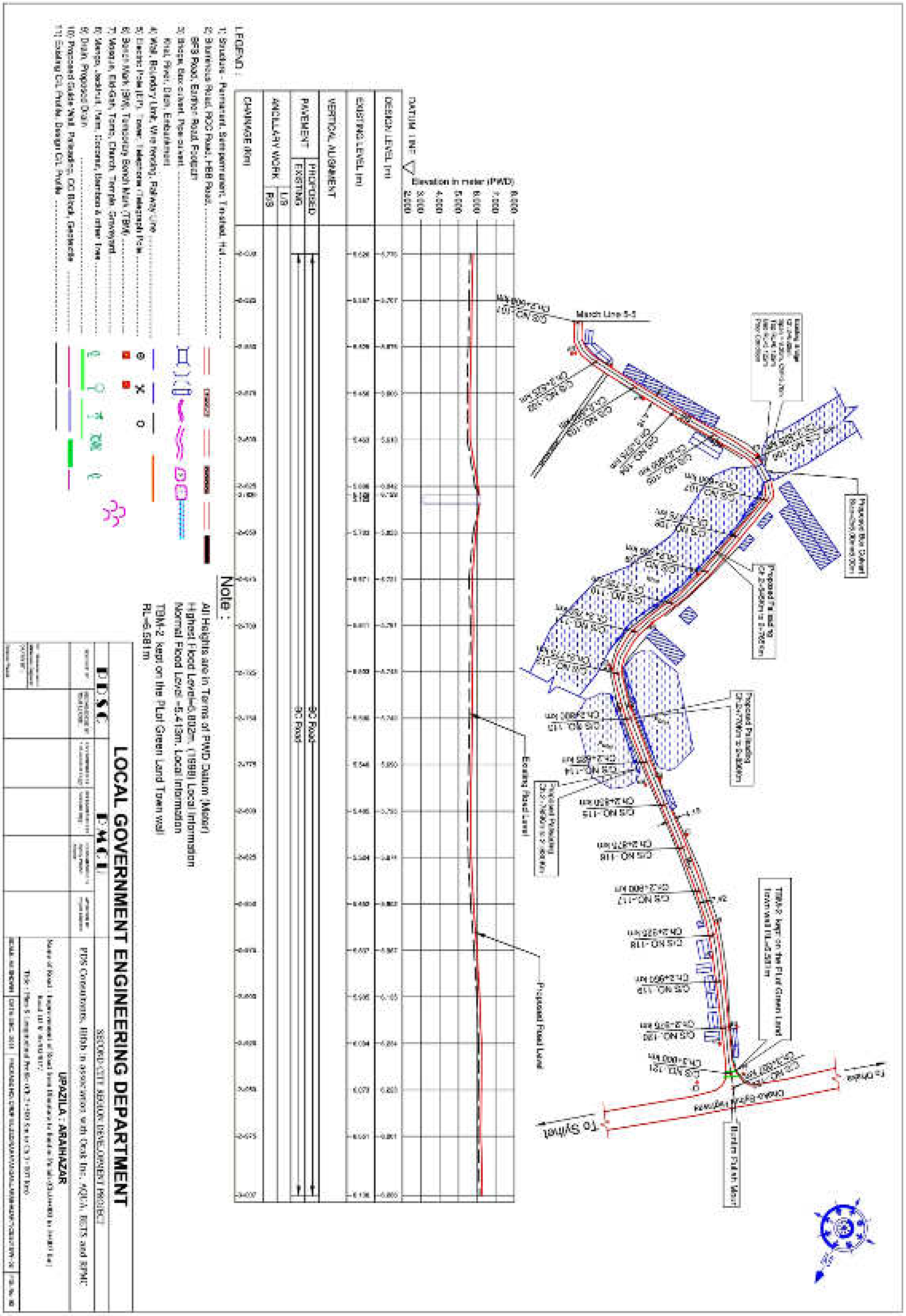



Proposed Road Level
Existing Road Level
DATUM LINE
Elevation in meter (PWD)
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
PCC Road
BC Road
ANCILLARY WORK
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin shed, Hut
2) Bituminous Road, RCC Road, HBB Road,
BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert,
Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone (Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Pitching, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
DESIGNED BY
DRAWN BY
CHECKED BY
APPROVED BY
SECOND CITY REGION DEVELOPMENT PROJECT
PDS Consultants, Hifab in association with Orak Inc, AQUA, BETS and RPMC
UPAZILA : ARAIHAZAR


Proposed Palisading
Proposed Road Level
Existing Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALGNMENT
PAVEMENT
PROPOSED
EXISTING
BC Road
BC Road
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road, BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert, Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=6.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
UPAZILA : ARAIHAZAR


LEGEND :
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level=5.802m, (1988) Local information
Normal Flood Level =5.413m Local information
Existing Road Level
Proposed Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
ANCILLARY WORK
CHAINAGE (Km)
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
UPAZILA : ARAIHAZAR


Existing Road Level
Proposed Road Level
Elevation in meter (PWD)
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
SC Road
SC Road
ANCILLARY WORK
L/S
R/S
CHAINAGE (Km)
LEGEND :
1) Structure - Permanent, Semipermanent, Tin-shed, Hut
2) Bituminous Road, RCC Road, HBB Road
BFS Road, Earthen Road, Footpath
3) Bridge, Box culvert, Pipe culvert
Khal, River, Ditch, Embankment
4) Wall, Boundary Limit, Wire fencing, Railway Line
5) Electric Pole (EP), Tower, Telephone /Telegraph Pole
6) Bench Mark (BM), Temporary Bench Mark (TBM)
7) Mosque, Eid-Gah, Tomb, Church, Temple, Graveyard
8) Mango, Jackfruit, Palm, Coconut, Bamboo & other Tree
9) Drain, Proposed Drain
10) Proposed Guide Wall, Palisading, CC Block, Geotextile
11) Existing C/L Profile, Design C/L Profile
Note :
All Heights are in Terms of PWD Datum (Meter)
Highest Flood Level-5.802m. (1998) Local Information
Normal Flood Level =5.413m. Local Information
LOCAL GOVERNMENT ENGINEERING DEPARTMENT
PDSC
PMCU
SECOND CITY REGION DEVELOPMENT PROJECT
UPAZILA : ARAIHAZAR


LOCAL GOVERNMENT ENGINEERING DEPARTMENT
UPAZILA : ARAIHAZAR
LEGEND :
DATUM LINE
DESIGN LEVEL (m)
EXISTING LEVEL (m)
VERTICAL ALIGNMENT
PAVEMENT
PROPOSED
EXISTING
ANCILLARY WORK
CHAINAGE (Km)
Elevation in meter (PWD)
Note :
All Heights are in Terms of PWD Datum (Meter)
TBM-2 kept on the PLot Green Land Town wall
Existing Road Level
Proposed Road Level
Match Line 5-5
To Dhaka
To Sylhet

Appendix 8: Sample Spoil Management Plan

Purpose and Application: Spoil Management Plan (SMP) is to describe how Second CRDP will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works in accordance with the spoil management hierarchy outlined in this document.

Objectives of SMP: The objectives of SMP are:

(i) To minimize spoil generation where possible
(ii) Maximize beneficial reuse of spoil from construction works in accordance with spoil management hierarchy
(iii) Mange on site spoil handling to minimize environmental impacts on resident and other receivers
(iv) Minimize any further site contamination of land, water and soil
(v) Manage the transportation of spoil with consideration of traffic impacts and transport related emissions

Structure of SMP:
Section1: Introduction of SMP
Section2: Legal and other requirements
Section3: Roles and responsibilities
Section4: Identification and assessment of spoil aspects and impacts
Section5: Spoil volumes, characteristics and minimization
Section6: Spoil reuses opportunities, identification and assessment
Section7: On-site spoil management approach
Section8: Spoil transportation methodology
Section9: Monitoring, Reporting, Review, and Improvements

Aspects and Potential Impacts

The key aspects of potential impacts in relation to SMP are listed in table below

Aspects	PotentialImpacts
Air Quality	Potential for high winds generating air-borne dust from the stockpiles
Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads
Surface and groundwater	Contamination of surface and ground water
Noise	Associated with spoil handling and haulage and storage
Traffic	Impacts associated with spoil haulage
Land Use	Potential for spoil to be transported to a that does not have permission for storage/disposal
Designspecifications	Limitations on opportunities to minimize spoil generation
Sustainability	Limited sites for storage, reuse opportunities

Spoil volumes, Characteristics and Minimization

Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites.

Characterization of spoil: Based on the type of spoil, characterization is done (sandstone, mud-mix materials, reusable materials

Adopt Spoil Reduce, Reuse Opportunities: An overview of the assessment methodology to be used is mentioned below:

- Consideration of likely spoil characteristics
- Identification of possible reuse sites
- Screening of possible reuse opportunities

Identification of possible safe disposal sites for spoil: Those spoils which can"t be reuse shall be properly disposed in designated areas, such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior cliental approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if required permission should be obtained from them.

Storage and Stockpiling Transportation and Haulage route

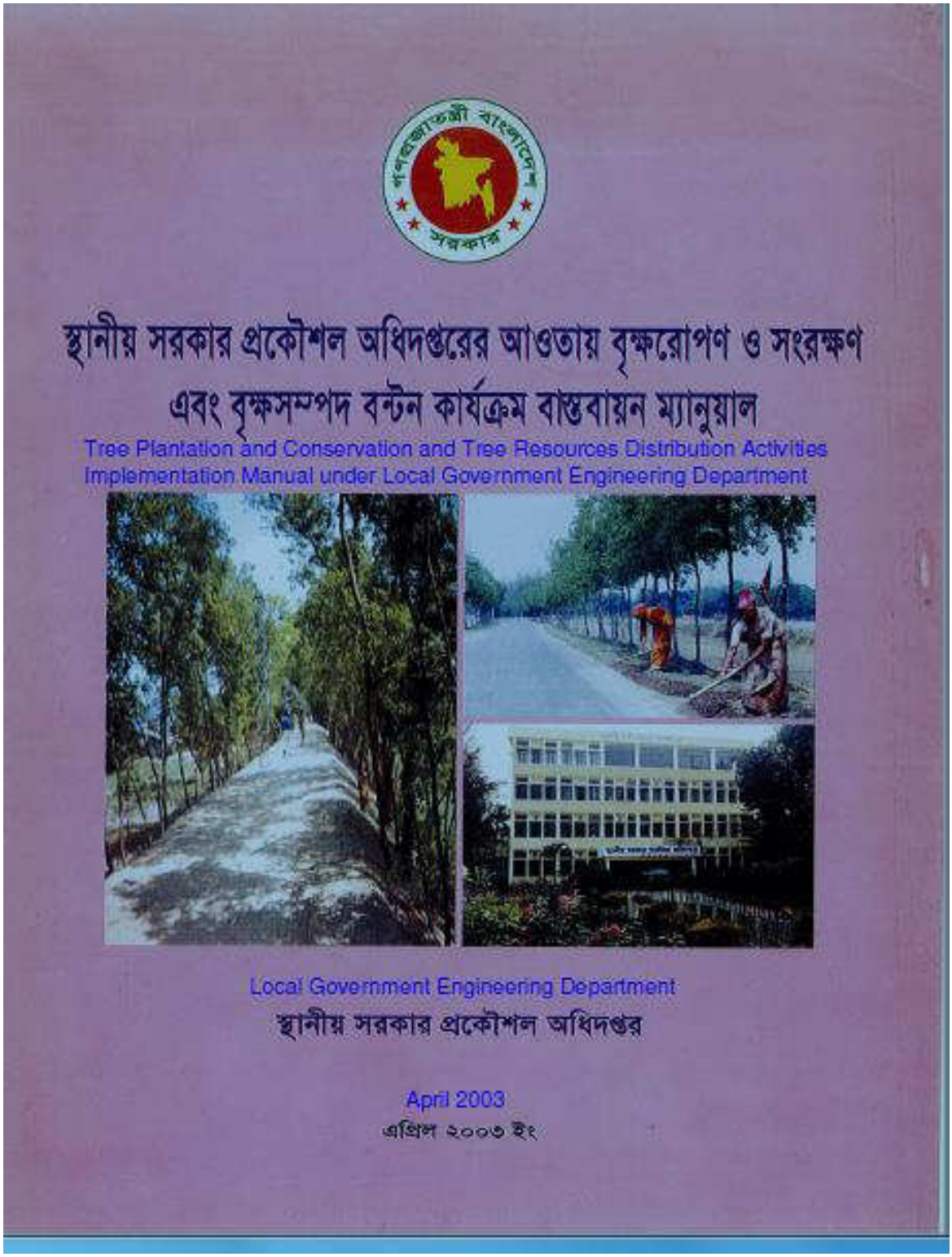
Based on the above, the contractor will prepare a SMP as an integral part of EMP and submit it to the PDSC for their review and approval.

Summary of Key Issues and Remedial Actions

Summary of follow-up time bound actions to be taken within a set time-frame.

Appendix 9: LGED Tree Plantation Program Manual (Cover Page and Table of Contents)

Note: Copy of the full manual is available upon request at the PMCU Office



Tree Plantation and Conservation and Tree Resources Distribution Activities Implementation Manual under Local Government Engineering Department

Table of Contents

2.6 Wage
- 2.6.1 Wage Fixation
- 2.6.2 Bank Account
- 2.6.3 Wage Payment
- 2.6.4 Compulsory Savings

2.7 Distribution of Income from Trees
- 2.7.1 Tree Resources Distribution System
- 2.7.2 Template: Tree Resources Distribution
- 2.7.3 Contract signed for Distribution of Tree Resources among different parties according to the Adopted Policy
- 2.7.4 Monitoring the Implementation of the Contract

2.8 Financing
- 2.8.1 Source of Funding for the Program
- 2.8.2 Financing Process

2.9 Description of Responsibility of Representatives of Local Government Organizations and of LGED Officials in the Implementation of Road Maintenance (off-pavement), Plantation and Conservation Program
- 2.9.1 Responsibility of Union Parishad (UP)
- 2.9.2 Responsibility of UP Male/Female Member
- 2.9.3 Responsibility of UP Chairman
- 2.9.4 Responsibility of Upazila Parishad
- 2.9.5 Responsibility of Upazila Executive/Nirbahi Officer (UNO)
- 2.9.6 Responsibility of LGED's Community Organizer (CO)
- 2.9.7 Responsibility of Sub-Assistant Engineer
- 2.9.8 Responsibility of Upazila Engineer (UE)
- 2.9.9 Responsibility of LGED's Executive Engineer (Training)
- 2.9.10 Responsibility of LGED's District Executive Engineer

3. Tree Plantation at Embankment and Canal Bank and their Conservation

3.1 Selection of Proposals for Tree Plantation and Conservation at Embankment Slope and Canal Bank

3.2 Implementation

3.3 Selection of Tree Species
- 3.3.1 Tree planting Distance
- 3.3.2 Tree Sapling Planting Method
- 3.3.3 Tree Caring and Prohibition
- 3.3.4 Inspection and Monitoring

3.4 Wages

3.5 Financing

3.6 Implementing Agency

3.7 Tree Resources Distribution

3.8 Distribution of Money from Sale of Trees Grown at Embankment Slope and Canal Bank

Annexures

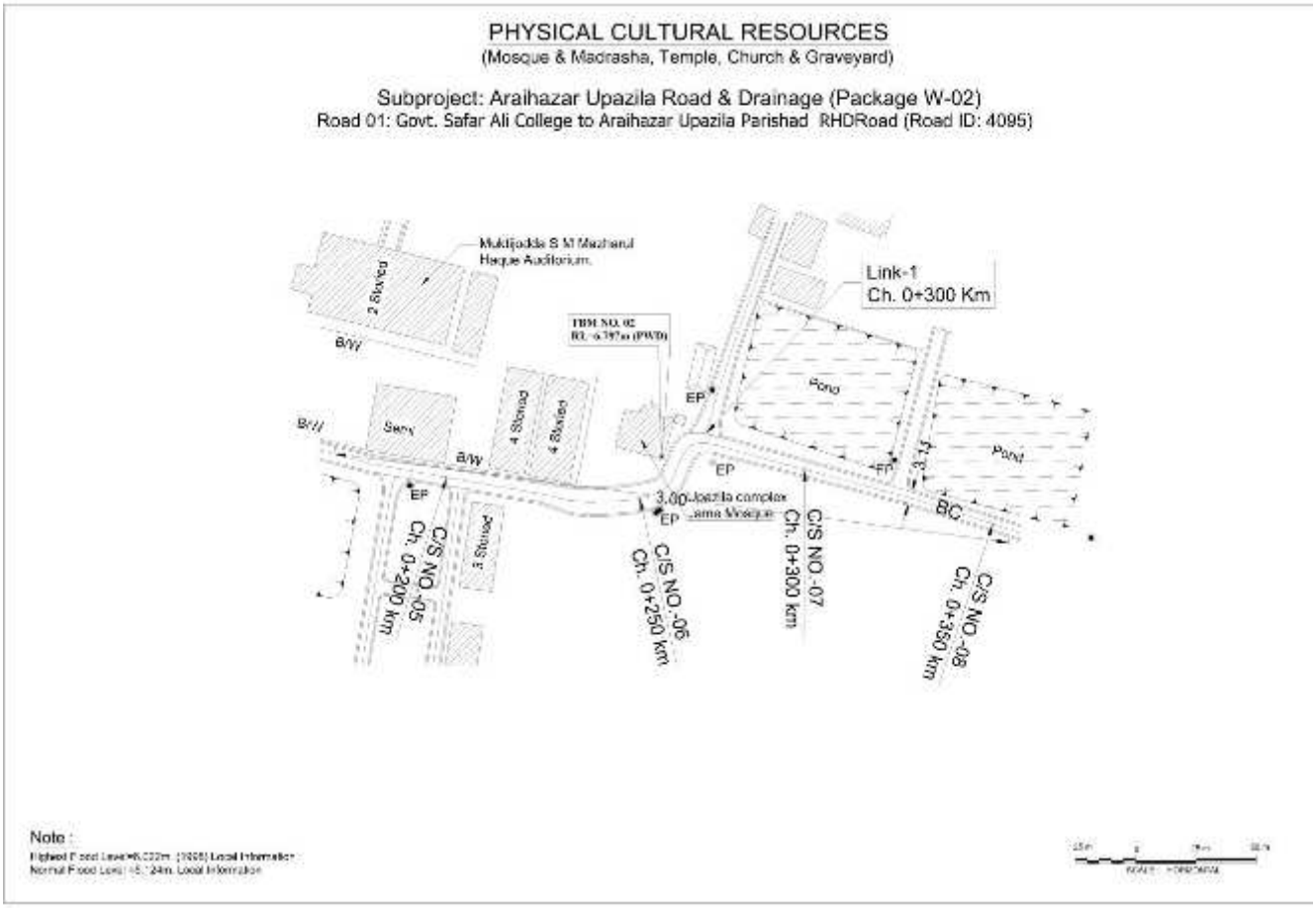
A) Road

Road/Annex – 1:	Tree Species Selection, Tree Plantation and Caution in
Road/Annex – 2:	Method of Tree Sapling Plantation
Road/Annex – 3:	Points Value for Priority Ranking
Road/Annex – 4:	Technical Report
Road/Annex – 5:	Format for Cost Estimate
Road/Annex – 6:	Appointment Letter of Women Worker
Road/Annex – 6a:	Appointment Letter of Supervisor
Road/Annex – 7:	Women Worker's acceptance Letter for Working Tools for Road Maintenance, Tree Plantation and Conservation Scheme
Road/Annex – 8:	Regular Road Maintenance and Tree Care Monitoring Register
Road/Annex – 8a:	Work Code and Description
Road/Annex – 8b:	Daily Activity Report of Regular Maintenance Work done by Women Worker
Road/Annex – 9:	Monthly Monitoring of Regular Road Maintenance and Tree Care
Road/Annex – 10:	Monthly Monitoring Summary Report
Road/Annex – 11:	Tree Resources Distribution Agreement

B) Embankment

Embankment/Annex- 1:	Proposal of Plantation at Embankment Slope and Canal Bank
Embankment/Annex- 2:	Schedule 1
Embankment/Annex- 3:	Executable at a Non-Judicial Stamp of Value of Taka 150.00
Embankment/Annex- 4:	Contractor's Responsibility and Condition of Recruitment
Embankment/Annex- 5:	Sample – Method of Tree Plantation at Embankment Slope
Embankment/Annex- 6:	Template of Monthly Proress Report

Appendix 10: Strip Maps Showing PCRs (Religious Establishments) Along the Road Alignments

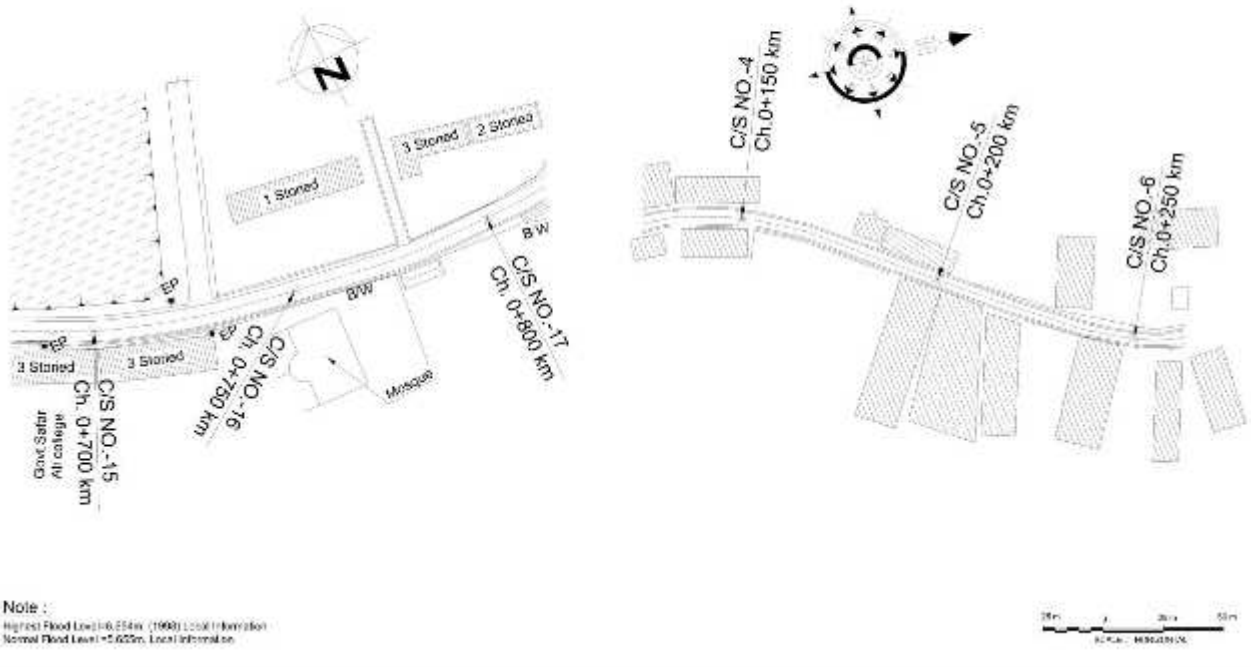


PHYSICAL CULTURAL RESOURCES

(Mosque & Madrasha, Temple, Church & Graveyard)

Subproject: Araihazar Upazila Road & Drainage (Package W-02)

Road 02: RHD Araihazar bazar-Araihazar Purinda (Road ID: 4094)



Note :

Highest Flood Level +6.654m. (1998) Local Information

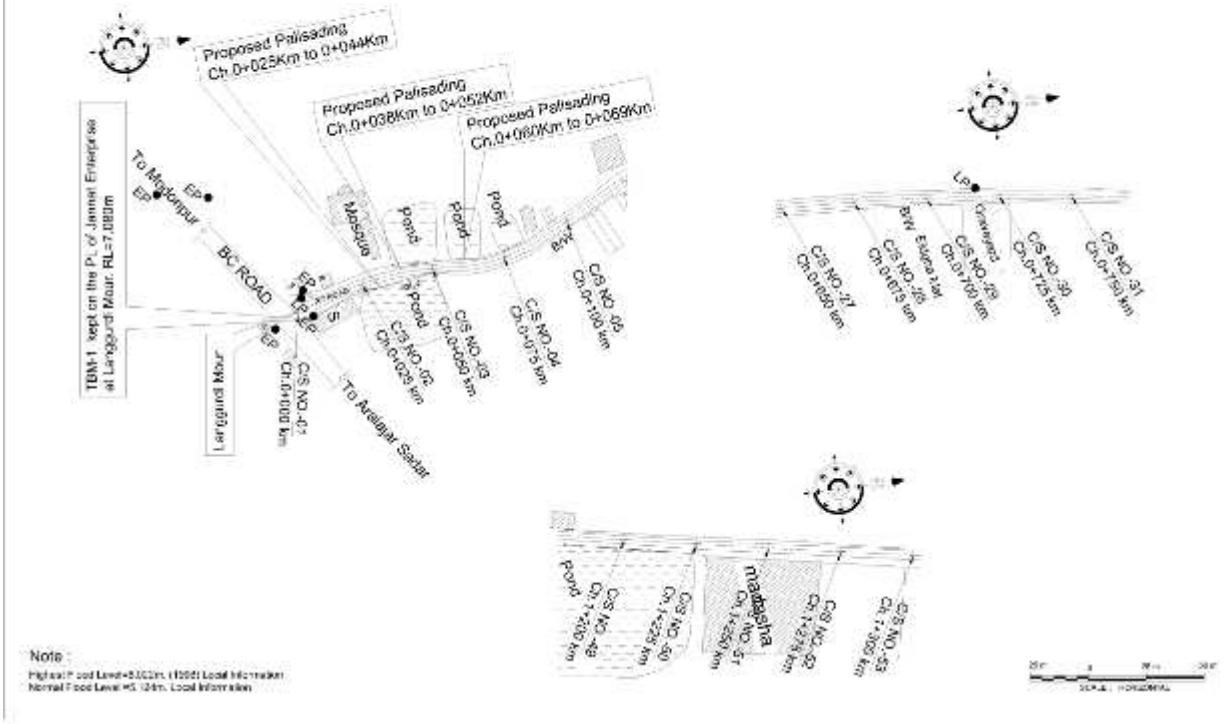
Normal Flood Level +5.625m. Local Information

PHYSICAL CULTURAL RESOURCES

(Mosque & Madrasha, Temple, Church & Graveyard)

Subproject: Araihazar Upazila Road & Drainage (Package W-02)

Road 03: Laskardi to Langardi Bazar (Road ID: 4072)

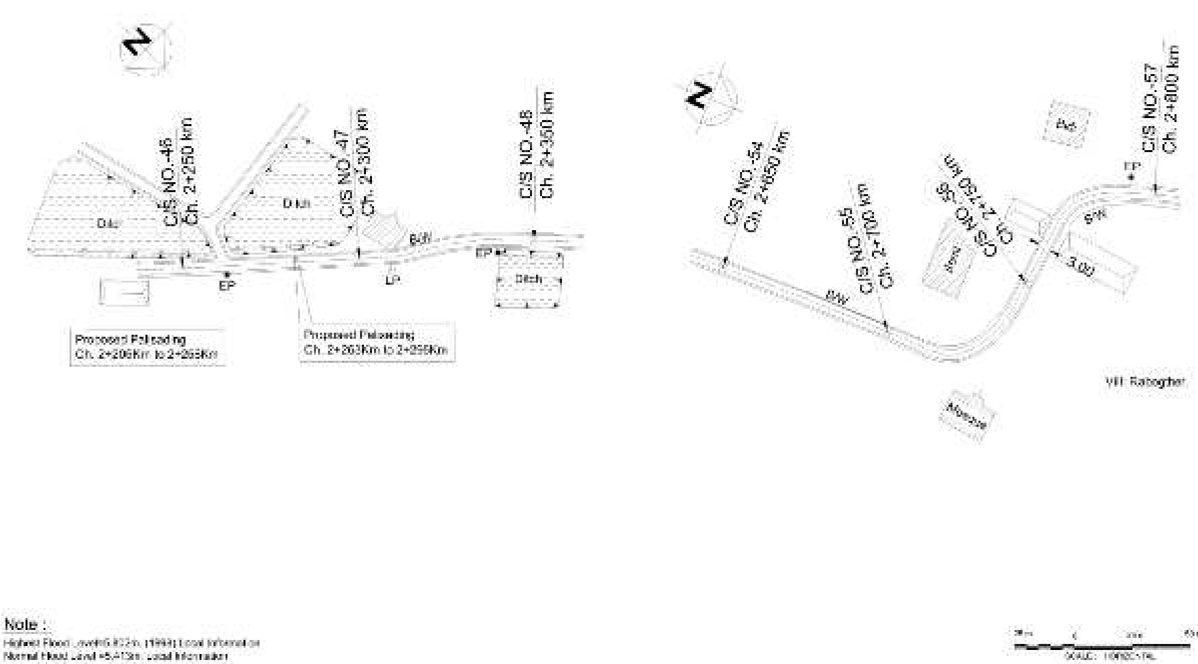


PHYSICAL CULTURAL RESOURCES

(Mosque & Madrasha, Temple, Church & Graveyard)

Subproject: Araihazar Upazila Road & Drainage (Package W-02)

Road 03: Kalibari Bazar to Panchrukhy (Road ID: 4061)

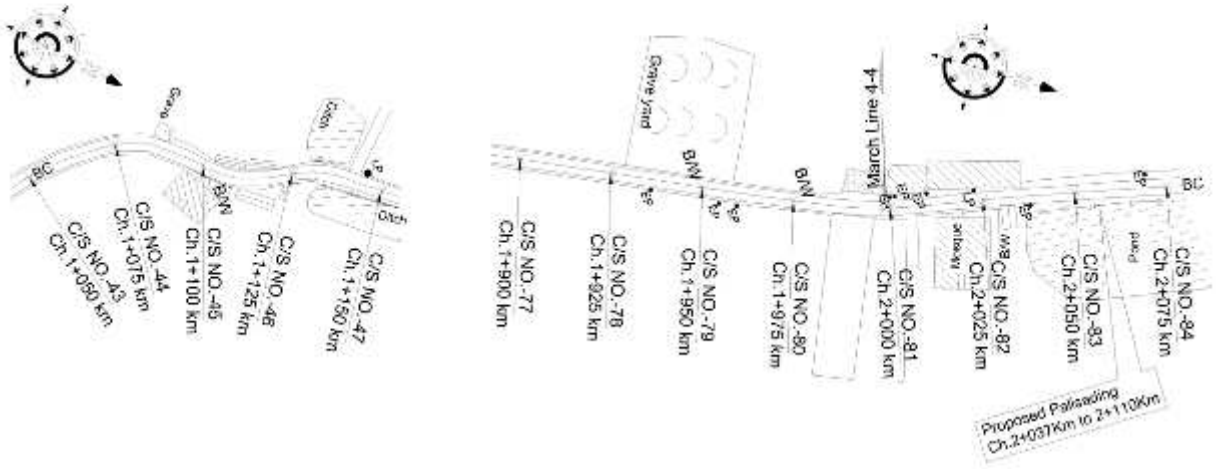


PHYSICAL CULTURAL RESOURCES

(Mosque & Madrasha, Temple, Church & Graveyard)

Subproject: Araihazar Upazila Road & Drainage (Package W-02)

Road 05: Dhuptara to Buntim Pullah (Road ID: 4077)



Note :

Highest Flood Level=5.900m. [2022] Local Information

Normal Flood Level =5.473m. Local Information

Appendix 11: Public Consultation

Details of date, time, location, type of participants and discussed issues are presented in a tabular form below:

Sl. No	Date of Consultation	Road & Place of consultation	Number & Type of Participants	Issues Discussed
01	01.10. 18	For a) Govt. Safar Ali College to Araihazar Upazila Parishad RHD (2.554 km) - Pourashava hall room	18 (Male 16+Female 2) – (Councilors, Retired Govt. Officials, Local Elite, Businessmen, project beneficiaries etc.)	General perception about the project and the awareness about the proposed project are disseminated in the meeting. The following pre-defined issues are discussed in the consultation meetings: • Information dissemination about the subproject • possible impacts of the subproject • participation of local people in different project activities • Employment potential for local people in the project works • Loss of residential/commercial structures, if any due to the project • Resettlement and land acquisition (if foreseen specially on private land). • Impact on social issues due to the project • Protected areas (national park, protected forest, religiously sensitive sites, historical or archaeological sites), if any • Any critical issue or concern by the local people regarding the project • Grievances redress mechanism etc.
02.	01.10. 18	b) RHD Araihazar bazar-Araihazar Purinda road (2.40 km) - at road side tea stall	17 (Male 17+Female 0) - (Councilors, Retired Govt. Officials, Local Elite, Businessmen, project beneficiaries etc.)	
03	01.10. 18	c) Laskardi to Langardi Bazar (2.20 km) - at Laskardi bazaar	13 (Male13+Female 0) - (Councilors, Businessmen, Local Elites, Beneficiaries Service holders etc.)	
04.	01.10. 18	d) Kalibari Bazar to Panchrukhy (3.52 km) - at Dhuptara Union parishad	17 (Male 6+Female 11) - (Councilors, Retired Govt. Officials, Local Elite, Businessmen, project beneficiaries etc.)	
05.	01.10. 18	e) Dhuptara to Buntim Pullah (3.007 km) at Dhuptara Union parishad		

Finding in the public consultation meeting

- Local people will support the project activities.
- The main issue arising from the consultation is that the people of this area suffering huge traffic congestion due to movement of heavy container truck. They cannot easily move to the school, hospital, and their working place from their dwelling places due to congestion. Peoples will be benefitted who are residing alongside the road of area if the project will undertake..
- The area is dominating business area, about 70% area depends on business and the rest on service and cultivations.
- During construction period short term community activities will be affected.
- No resettlement and land acquisition required for due to the project, only compensation need for the unauthorized shop and residence.
- There is no protected area in and around the project area.
- The project will never impact on natural water body and not contaminate the soil resources.
- The NGOs within the areas are: ASA, BRAC, Grameen Bank, Karitas, MSS, ODC, UPPR, JIZ, Gonosasto,etc.
- It assured by the participant, that they will welcome the project, and will support/cooperate in all stages of the project works.

List of Participants in Consultations Meetings in different Location of CRDP-II/LGED/Araihazar/W-02

প্রকল্পের নামঃ [illegible] উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা তারিখঃ- ০২/১০/১৮

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	মোঃ সুন্দর আলী মেয়র । আড়াইহাজার পৌরসভা	মেয়র	[signature] আড়াইহাজার পৌরসভা, আড়াইহাজার, নারায়ণগঞ্জ।
২।	মোঃ কামাল হোসেন	ব্যবসায়ী	[signature]
৩।	আরিফুল ইসলাম 01912442347	ব্যবসায়ী	[signature]
৪।	মোঃ আমির হোসেন 01911539 84	ব্যবসায়ী	[signature]
৫।	মোঃ নূরে আলম [illegible] 01711 646160	ব্যবসায়ী	[signature]
৬।	মোঃ [illegible] 01851562272	ব্যবসায়ী	[signature]
৭।	মোঃ আফি উল্লাহ মিয়া 01726804460	ব্যবসায়ী	[signature]
৮।	মুঃ রফিক উল্লা দুলাল ০১৯১১-৭৭৬২৫২	চাকুরী	[signature]
৯।	নাজমুল হাসান 01912-579130	চাকুরী	[signature]
১০।	[illegible] উল্লাহ	চাকুরী	[signature]

প্রকল্পের নামঃ- গাছ, সবুজ বেষ্টনী জলের হইতে উপকূলীয় পরিবেশ উপজেলাঃ- 2

ফোকাস গ্রুপ আলোচনায় অংশগ্রহনকারীর হাজিরা

তারিখঃ- ০২|১০|১৮

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	কাউছার আহমেদ 01742388589	চাকুরী	[illegible]
২।	আতিক উল্লাহ 01711120069	চাকুরী	[illegible]
৩।	মো. ফারুক মিয়া 01745647539	শ্রমিক	[illegible]
৪।	মোঃ ইব্রাহিম আহমদ 01939-873774	প্রেস ইমাম	[illegible]
৫।	ইশরাত জাহান মুক্তা 01843586703	গৃহিনী	Mekhe
৬।	ফেরদৌসী আক্তার 01718289962	গৃহিনী	[illegible]
৭।	মোঃ [illegible] 01923708084	[illegible]	Aman
৮।	মোঃ [illegible]	[illegible]	[illegible]
৯।			
১০।			

প্রকল্পের নামঃ- [illegible] উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা তারিখঃ- ০১/২০/১৮

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	মোঃ জোবেদ মিয়া 01944708159	ইউপি চেয়ারম্যান	[illegible]
২।	মোঃ [illegible] হোসেন 01924861760	ব্যবসা	[illegible]
৩।	[illegible] মোঃ [illegible] 01930089901	ব্যবসা	[illegible]
৪।	মোঃ আঃ [illegible] 01724124[illegible]77	ব্যবসা	[illegible]
৫।	মোঃ [illegible] মিয়া	ব্যবসা	[illegible]
৬।	মোঃ আজাদ [illegible]	ব্যবসা	[illegible]
৭।	মোঃ আবু তালেব মিয়া 01724411439	ব্যবসা	[illegible]
৮।	মোঃ [illegible] হোসেন 01833550032	ব্যবসা	[illegible]
৯।	মোঃ [illegible] 01961680620	ব্যবসা	[illegible]
১০।	মোঃ আমজুবুল [illegible] 01726235458	ব্যবসা	[illegible]

প্রকল্পের নামঃ- [illegible]   উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা   তারিখঃ- ০১/১০/১৮

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	মোঃ [illegible] মিস্ত্রী	ব্যবসা	[illegible]
২।	মোঃ [illegible] 01921364914	ব্যবসা	[illegible]
৩।	মোঃ নুরুল ইসলাম/[illegible]	ব্যবসা	নুরুল ইসলাম
৪।			
৫।			
৬।			
৭।			
৮।			
৯।			
১০।			

প্রকল্পের নামঃ- রূপতারা থেকে বানাই পাম্প   উপজেলাঃ- ঘোড়াঘাট

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা   তারিখঃ- ০১/১০/১৮

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	মোঃ আনোয়ারুল ইসলাম 01717175139	কৃষক	
২।	মনিরুজ্জামান মনু 01726180275	কৃষক	
৩।	হাবিবা বেগম 01746085964	ইউপি সদস্য	
৪।	আঞ্জুমানারা আক্তার 01913386305	ইউপি সদস্য	
৫।	ইয়াসমিন 01836351327	ইউপি সদস্য	yesmin
৬।	মোঃ সালাউদ্দিন মোল্লা ০১৯৮১৩৫২৫৩০	চাকরীজীবী	সালাউদ্দিন
৭।	মোঃ রফিকুল ইসলাম মোল্লা 01913962962	[illegible]	
৮।	আনোয়ারা আক্তার 01684614085	উদ্যোক্তা	
৯।	মোঃ মোমেন মোল্লা 01979865752	উদ্যোক্তা	
১০।	শিপ্রা রানী দাস 01750656263	গৃহিনী	

প্রকল্পের নামঃ- [illegible]

উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা

তারিখঃ-

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	[illegible] 01728264004	গৃহিনী	
২।			
৩।	[illegible] 01745272081	গৃহিনী	
৪।	[illegible]	গৃহিনী	
৫।	[illegible]	গৃহিনী	
৬।	[illegible]	গৃহিনী	
৭।	[illegible]	গৃহিনী	
৮।			
৯।			
১০।			

প্রকল্পের নামঃ- [illegible] উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা তারিখঃ-

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।	[illegible]	[illegible]	[illegible] 01724598025
২।	[illegible]	[illegible]	[illegible] 01743889037
৩।	[illegible]	[illegible]	[illegible] 01817587207
৪।	[illegible]	সেলুন	[illegible] 01923960657
৫।	[illegible] 01819099792	[illegible]	[illegible]
৬।	[illegible]	[illegible]	
৭।	[illegible]	ঐ	
৮।	[illegible]	সেলুন	
৯।	[illegible] 01729560692	[illegible]	[illegible]
১০।	[illegible] 01764070099	[illegible]	[illegible]

প্রকল্পের নামঃ-

উপজেলাঃ-

ফোকাস গ্রুপ আলোচনায় আংশগ্রহনকারীর হাজিরা

তারিখঃ-

ক্রমিক নং	নাম ঠিকানা মোবাইল নম্বর	পেশা	স্বাক্ষর
১।			
২।			
৩।			
৪।			
৫।			
৬।			
৭।			
৮।			
৯।			
১০।			

Photographs of Community Consultations

Consultation for Govt. Safar Ali College to Araihazar Upazila Parishad RHD Road (Road ID:4095)

Consultation at RHD Araihazar Bazar – Araihazar Purinda Road (Road ID: 4094)

Consultation for Kalibari bazar – Panchrukhy Road (Road ID: 4081) and Dhuptara to Buntim Pullah Road (Road ID: 4077).

Consultation at Laskardi – Langardi Bazar Road (Road ID:4072)

Appendix 12: Sample Grievance Registration Form

(To be available in Bangla and Other Local Language, if any)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details, but want that information to remain confidential? Please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		***Place of registration***			
Contact Information/Personal Details					
Name		**Gender**	■ **Male** ■ **Female**	**Age**	
Home Address					
Village / Town					
District					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: ■ **Note/Letter** ■ **E-mail** ■ **Verbal/Telephonic**	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	■ **Yes** ■ **No**
Means of Disclosure:	

Appendix 13: Suggested Template for Record-Keeping of Grievances

S. No.	Date of receipt of grievance	Name and contact details of complainant	Description of complaint	Nature of complaint	Decisions taken	Response given to complainant and date	Whether closed/ resolved

Appendix 14: Indicative Terms of Reference for Safeguards Specialist for PMCU, PIUs and PDSC

A. Preparation, Design, and Supervision Consultants (PDSC)

1. Environmental Safeguards Specialist (National)

1. **Experience.** A civil engineer with specialization in environment, having at least 5-10 years of working experience related to the integration of environmental issues in design, and construction of infrastructure projects. Past experience working on donor projects preferable.

2. Detailed Tasks:

(i) Prepare Initial Environmental Examination (IEE)in accordance with the Environmental Assessment Review Framework (EARF) for subprojects;
(ii) Assist PMCU Environment Officer in ensuring prepared IEEs are submitted to ADB for review;
(iii) Assist PMCU in ensuring approved IEEs are disclosed on PMCU/LGED website;
(iv) Ensure approved final IEEs and Environmental Management Plans (EMPs) are included in contract documents;
(v) Assist PMCU in ensuring compliance of Second CRDP and its subprojects with all relevant national laws;
(vi) Interact with the sector specialists and integrate environmentally sound practices into the detailed design of project components;
(vii) Work out the site specific mitigation and adaptation measures for components as required and integrate the same into contractual provisions;
(viii) Assist the international environment/Climate Change specialist in environmental training programs and workshops for the staffs of the PMCU, PIU and contractors and in accordance to the Capacity Building Program;
(ix) Prepare activity plans as identified in IEE (includes site management plans, waste management plans, sludge management and disposal plans, occupational safety plans, etc.);
(x) Assist PIU in reviewing the contractors' SEMPs to ensure compliance with the IEE/EMP;
(xi) Assist PIU in supervising the implementation of the EMP and SEMP by the contractors;
(xii) Assist PIU in preparing quarterly environmental monitoring reports and submit to PMCU;
(xiii) Review site specific environmental enhancement/mitigation designs worked out by the contractor and assist PIU in approving such designs;
(xiv) Assist in providing occupational health and safety training for contractors' personnel before commencement of civil works for all sub-projects;
(xv) Assist the PMCU environment officer in preparing semi-annual environmental monitoring reports and submit to ADB;
(xvi) Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project;
(xvii) Assist PMCU and PIUs in attending to or facilitating responses to any public grievances per GRM; and

(xviii) Assist in any other task assigned by the PMCU Environment Officer and/or supervising consultant in relevance to effective project implementation.

B. Project Management Coordination unit (PMCU)

1. Environmental Safeguards Officer – PMCU

3. **Experience.** An Environmental Engineer / scientist with experience in management of environmental issues of infrastructure projects and understanding of the regulatory framework for environmental management in Bangladesh.

4. Detailed Tasks:

(i) Ensure the conformance of all Subprojects proposed under Second CRDP to the regulatory compliance to the Government, with reference to environmental requirements, with support from the Environmental Officer of the PIUs. This shall include preparation of the documents as required under the Environmental Conservation rules, submission of application forms, and obtaining clearances from the DOE; and ensuring conformance to the clearance conditions laid down in the clearances for the Subprojects by the DOE;
(ii) Liaise with the various Government agencies on environmental and other regulatory matters pertaining to implementation of the subprojects;
(iii) Work closely with the PIUs and provide guidance on the shifting of utilities and services, including obtaining necessary clearances from the respective line agencies, prior to award of civil works contracts;
(iv) Provide support and assistance to the Government Agencies and the Asian Development Bank to supervise the implementation of the IEE during the construction as well as operation stage of the project ;
(v) Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the IEE and advise PIUs for compliance with statutory requirements;
(vi) Work in close co-ordination with the Social Safeguards officer of the PMCU and participate in the Grievance Redressal Mechanism for all grievances that are brought forward to the PMCU. Monitor on a continuous basis the effective functioning of the Grievance mechanisms at the PIU and Pourashava levels on all grievances related to environmental issues; and
(vii) Jointly (with the environmental engineer of the PMCU), review the environmental performance of the project through an assessment of the periodic environmental monitoring reports submitted by the PDSC; provide a summary of the same to the Project Director, and initiate necessary follow-up actions.

2. Environmental Engineer - PMCU

5. **Experience.** A Civil Engineer with specialization in Environment with experience in implementation of environmental management plans of infrastructure projects, especially those funded by donor agencies.

6. Detailed Tasks.

(i) Review the IEE Document and contract clauses and ensure adequacy under ADB's Environmental Assessment Guidelines, 2003 and the updated Safeguards Policy Statement, 2009 and identify any areas for improvement.

(ii) Ensure that the subproject design and specifications adequately reflect the IEE.
(iii) Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the IEE.
(iv) Review and approve the Contractor's Implementation Plan for the environmental measures, as per IEEs/EMPs.
(v) Liaise with the Contractors and Consultants on the implementation of the Environmental management measures proposed in the IEE/EMP.
(i) Jointly (with the environmental safeguards officer of the PMCU), review the environmental performance of the project through an assessment of the periodic environmental monitoring reports submitted by the PDSC; provide a summary of the same to the Project Director, and initiate necessary follow-up actions.
(ii) Document the good practices in the project, with support from Environmental Specialists of the PDSC and PIU on (a) incorporation and integration of environmental issues into engineering design and (b) on implementing environmental measures in the construction, and dissemination of the same.

C. Project Implementation Unit (PIU)

1. Environmental Officer (PIU)

7. **Experience.** A civil engineer with working experience related to the integration of environmental issues in design, and construction of infrastructure projects.

8. Detailed tasks:

(i) Support the Environmental Safeguards officer of the PMCU towards ensuring the conformance of the subproject to the regulatory compliance to the Government, with reference to environmental requirements; including preparation of documents required for clearances, obtaining clearances from the divisional office of the DOE, etc..
(ii) Work with the PDSC Environmental Specialists in the preparation of the Environmental Safeguards Documents; including integration of environmental provisions into the contract provisions of the respective subprojects.
(iii) With support of the PMCU and PDSC Environmental Specialists, monitor compliance of the implementation of the environmental provisions; and ensure that identified control measures are effective and in compliance with the IEE.
(iv) Review and approve the Contractor's Implementation Plan for the environmental measures, as per IEEs/EMPs.
(v) Liaise with the Contractors and Consultants on the implementation of the Environmental management measures proposed in the IEE/EMP; including the implementation of the environmental monitoring plan outlined in the IEE.
(vi) Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project.
(vii) Participate in the Grievance redressal of all grievances pertaining to environment and support the PIU/Pourashava in redressal of the same.
(viii) Prepare and submit environmental monitoring and implementation progress reports with support from PDSC consultants, to the PMCU.
(ix) Assist Environmental Specialist of the PMCU to prepare good practice dissemination notes based on the experience gained from site supervision.

Appendix 15: Traffic Management Plan Template

A. Principles

1. One of the prime objectives of this traffic management plan (TMP) is to ensure the safety of all the road users along the work zone, and to address the following issues:

- the safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
- protection of work crews from hazards associated with moving traffic;
- mitigation of the adverse impact on road capacity and delays to the road users;
- maintenance of access to adjoining properties
- Avoid hazards in addressing issues that may delay the project.

B. Operating Policies for Traffic Management Plan

2. The following principles will help promote safe and efficient movement for all road users (motorists, bicyclists, and pedestrians, including persons with disabilities) through and around work zones while reasonably protecting workers and equipment.

- Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
- Inhibit traffic movement as little as possible.
- Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
- Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
- Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
- Train all persons that select, place, and maintain temporary traffic control devices.
- Keep the public well informed.
- Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

C. Analyze the Impact Due to Street Closure

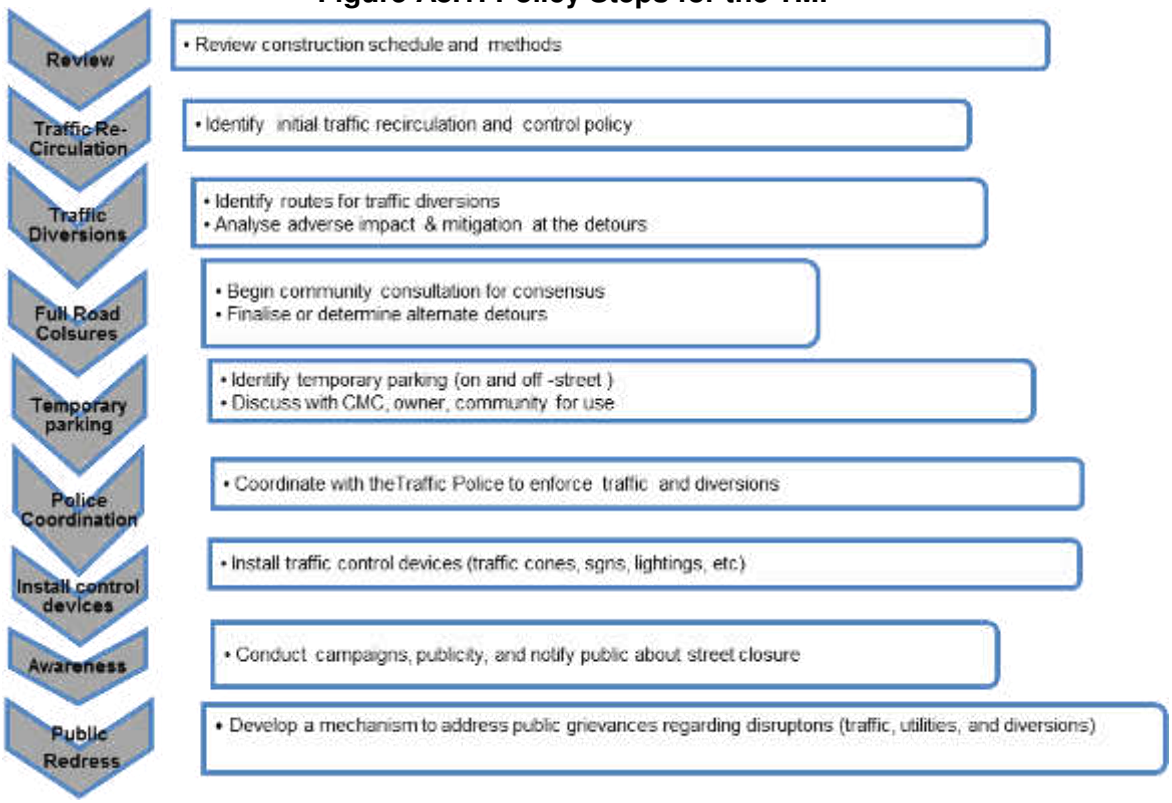
3. Apart from the capacity analysis, a final decision to close a particular street and divert the traffic should involve the following steps:

- approval from the local authorities to use the local streets as detours;
- consultation with businesses, community members, traffic police, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;
- determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;
- determining if additional traffic control or temporary improvements are needed along the detour route;
- considering how access will be provided to the worksite;
- contacting emergency service, school officials, and transit authorities to determine if there are impacts to their operations; and

- developing a notification program to the public so that the closure is not a surprise. As part of this program, the public should be advised of alternate routes that commuters can take or will have to take as result of the traffic diversion.

4. If full road-closure of certain streets within the area is not feasible due to inadequate capacity of the Detour Street or public opposition, the full closure can be restricted to weekends.

Figure A8.1: Policy Steps for the TMP



D. Public awareness and notifications

5. As per discussions in the previous sections, there will be travel delays during the constructions, as is the case with most construction projects, albeit on a reduced scale if utilities and traffic management are properly coordinated. There are additional grounds for travel delays in the area, as most of the streets lack sufficient capacity to accommodate additional traffic from diverted traffic as a result of street closures to accommodate the works.

6. The awareness campaign and the prior notification for the public will be a continuous activity which the project will carry out to compensate for the above delays and minimize public claims as result of these problems. These activities will take place sufficiently in advance of the time when the roadblocks or traffic diversions take place at the particular streets. The reason for this is to allow sufficient time for the public and residents to understand the changes to their travel plans. The project will notify the public about the roadblocks and traffic diversion through public notices, ward level meetings and city level meeting with the elected representatives.

7. The PMCUand PIU will also conduct an awareness campaign to educate the public

about the following issues:

- traffic control devices in place at the work zones (signs, traffic cones, barriers, etc.);
- defensive driving behavior along the work zones; and
- reduced speeds enforced at the work zones and traffic diversions.

8. It may be necessary to conduct the awareness programs/campaigns on road safety during construction.

9. The campaign will cater to all types of target groups i.e. children, adults, and drivers. Therefore, these campaigns will be conducted in schools and community centers. In addition, the project will publish a brochure for public information. These brochures will be widely circulated around the area and will also be available at the PMCU, PIU and the contractor's site offices. The text of the brochure should be concise to be effective, with a lot of graphics. It will serve the following purpose:

- Explain why the brochure was prepared, along with a brief description of the project;
- Advise the public to expect the unexpected;
- Educate the public about the various traffic control devices and safety measures adopted at the work zones;
- Educate the public about the safe road user behavior to emulate at the work zones;
- Tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and
- Indicate the office hours of relevant offices.

E. Vehicle Maintenance and Safety

10. A vehicle maintenance and safety program shall be implemented by the construction contractor. The contractor should ensure that all the vehicles are in proper running condition and it comply with roadworthy and meet certification standards of Government of Bangladesh. All vehicles to be used shall be in perfect condition meeting pollution standards of Government of Bangladesh. The vehicle operator requires a prestate of shift checklist. Additional safety precautions will include the requirement for:

- Driver will follow the special code of conduct and road safety rules of Government of Bangladesh.
- Drivers to ensure that all loads are covered and secured drivers to ensure operation equipment can’t leak materials hauled
- Vehicles will be cleaned and maintained in designed places.

F. Install traffic control devices at the work zones and traffic diversion routes

11. The purpose of installing traffic control devices at the work zones is to delineate these areas to warn, inform, and direct the road users about a hazard ahead, and to protect them as well as the workers. As proper delineation is a key to achieve the above objective, it is important to install good traffic signs at the work zones. The following traffic control devices are used in work zones:

- Signs
- Pavement Markings
- Channelizing Devices
- Arrow Panels
- Warning Lights

12. Procedures for installing traffic control devices at any work zone vary, depending on road configuration, location of the work, construction activity, duration, traffic speed and volume, and pedestrian traffic. Work will take place along major roads, and the minor internal roads. As such, the traffic volume and road geometry vary. The main roads carry considerable traffic; internal roads in the new city areas are wide but in old city roads very narrow and carry considerable traffic. However, regardless of where the construction takes place, all the work zones should be cordoned off, and traffic shifted away at least with traffic cones, barricades, and temporary signs (temporary “STOP” and “GO”).

13. The work zone should take into consideration the space required for a buffer zone between the workers and the traffic (lateral and longitudinal) and the transition space required for delineation, as applicable. For the works, a 30 cm clearance between the traffic and the temporary STOP and GO signs should be provided. In addition, at least 60 cm is necessary to install the temporary traffic signs and cones.

14. Traffic police should regulate traffic away from the work zone and enforce the traffic diversion result from full street closure in certain areas during construction. Flaggers/ personnel should be equipped with reflective jackets at all times and have traffic control batons (preferably the LED type) for regulating the traffic during night time.

15. In addition to the delineation devices, all the construction workers should wear fluorescent safety vests and helmets in order to be visible to the motorists at all times. There should be provision for lighting beacons and illumination for night constructions.

16. The PIU and contractor will coordinate with the local administration and traffic police regarding the traffic signs, detour, and any other matters related to traffic. The contractor will prepare the traffic management plan in detail and submit it along with the EMP for the final approval.

Appendix 16: Sample Daily Monitoring Sheet for Contractors

CITY REGIONS DEVELOPMENT PROJECT II
Contractor Monitoring Sheet

Name of Subproject: _____
Location of Subproject: _____
Chainage covered (for linear works): _____
Supervising PIU: _____
Contractor: _____
Contractor EHS Supervisor (or equivalent): _____
Date of monitoring: _____

Summary of Findings

Monitoring Item	Status	Remarks
1. Compliance with Local Permit Requirements	**(Secured / Application Submitted / Not Applicable)**	
Location/zoning permits		
Permit to construct		
Building permit		
Transport / hauling permits		
2. Compliance with IEE Requirements	**(Approved / Under Preparation / Submitted to PIU for Approval)**	
Site-specific EMP (SEMP)		
Corrective Action Plan, if any		
3. Compliance with SEMP		
Construction Site	**(Satisfactory / Needs Improvement / Not Implemented)**	
- Conduct of toolbox talk		
- Use of PPE		
- Rest areas for male and female workers		
- Toilets for male and female workers		
- Medical kits		
- Drinking water supply		
- Dust control		
- Noise control		
- Solid waste management		
- Wastewater management		
- Chemicals storage (fuel, oil, etc.)		

Monitoring Item	Status	Remarks
- Siltation or erosion control		
- Heavy equipment staging / parking area		
- Barricades around excavation sites		
- Access to residential houses/shops/businesses		
- Traffic routing signages		
- Lightings at night		
- Trench shoring / landslide protection		
Construction Workers' Camp Site	**(Available / Needs Improvement / Not Available)**	
- Quarters for male and female workers		
- Sleeping utilities (e.g. beds, pillows, blankets, mosquito nets, etc.)		
- Power/Electricity supply		
- Drinking water supply		
- Toilets for male and female workers		
- General purpose water supply (cooking, washing, bathing)		
- Cooking facilities and areas		
- Solid waste management		
- Wastewater management		
- Pest control		
4. Implementation of GRM	**(Yes / No or None / Under Resolution)**	
Complaints		
Complaints resolution		
5. Environmental Quality Measurement	**(Passed / Failed / Not Applicable)**	
Ambient air quality sampling		
Noise level measurement		
Receiving water quality sampling		

Other Issues: _____

_____

_____

_____

Attachments:
1. Copies of permits secured, if any.
2. Photos taken at worksites, if any.
(photos attached in previous monitoring sheets should not be used again).
3. Laboratory results of environmental quality measurements, if any.

Prepared by: _____
Name, Designation and Signature

Appendix 17: Sample Inspection Report for PMCU and PIUs

CITY REGIONS DEVELOPMENT PROJECT II
SITE INSPECTION CHECKLIST

Subproject: _____ Date: _____
Location: _____
Chainage (for linear works): _____

MONITORING/INSPECTION QUESTIONS		FINDINGS			COMMENTS / CLARIFICATIONS
1.	Supervision and Management On-SIte	Yes	No	NA	
	a. Is an EHS supervisor available?				
	b. Is a copy of the SEMP available?				
	c. Are daily toolbox talks conducted on site?				
2.	The Facilities	Yes	No	NA	
	a. Are there a medical and first aid kits on site?				
	b. Are emergency contact details available on-site?				
	c. Are there PPEs available? What are they?				
	d. Are the PPEs in good condition?				
	e. Are there firefighting equipment on site?				
	f. Are there separate sanitary facilities for male and female workers?				
	g. Is drinking water supply available for workers?				
	h. Is there a rest area for workers?				
	i. Are storage areas for chemicals available and with protection? in safe locations?				
3.	Occupational Health and Safety	Yes	No	NA	
	a. Are the PPEs being used by workers?				
	b. Are excavation trenches provided with shores or protection from landslide?				
	c. Is breaktime for workers provided?				
	d. How many for each type of collection				

MONITORING/INSPECTION QUESTIONS		FINDINGS			COMMENTS / CLARIFICATIONS
	vehicle is in current use?				
4.	Community Safety	Yes	No	NA	
	a) Are excavation areas provided with barricades around them?				
	b) Are safety signages posted around the sites?				
	c) Are temporary and safe walkways for pedestrians available near work sites?				
	d) Is there a record of treated wastewater quality testing/measurement?				
5.	Solid Waste Management	Yes	No	NA	
	a. Are excavated materials placed sufficiently away from water courses?				
	b. Is solid waste segregation and management in place?				
	c. Is there a regular collection fo solid wastes from work sites?				
6.	Wastewater Management	Yes	No	NA	
	a) Are there separate sanitary facilities for various types of use (septic tanks, urination, washing, etc.)?				
	b) Is any wastewater discharged to storm drains?				
	c) Is any wastewater being treated prior to discharge?				
	d) Are measures in place to avoid siltation of nearby drainage or receiving bodies of water?				
	e) Are silt traps or sedimentation ponds installed for surface runoff regularly cleaned and freed of silts or sediments?				
7.	Dust Control	Yes	No	NA	
	a. Is the construction site watered to minimize generation of dust?				
	b. Are roads within and around the				

MONITORING/INSPECTION QUESTIONS		FINDINGS			COMMENTS / CLARIFICATIONS
	construction sites sprayed with water on regular intervals?				
	c. Is there a speed control for vehicles at construction sites?				
	d. Are stockpiles of sand, cement and other construction materials covered to avoid being airborne?				
	e. Are construction vehicles carrying soils and other spoils covered?				
	f. Are generators provided with air pollution control devices?				
	g. Are all vehicles regularly maintained to minimize emission of black smoke? Do they have valid permits?				
8.	Noise Control	Yes	No	NA	
	a) Is the work only taking place between 7 am and 7 pm, week days?				
	b) Do generators operate with doors closed or provided with sound barrier around them?				
	c) Is idle equipment turned off or throttled down?				
	d) Are there noise mitigation measures adopted at construction sites?				
	e) Are neighboring residents notified in advance of any noisy activities expected at construction sites?				
9.	Traffic Management	Yes	No	NA	
	a) Are traffic signages available around the construction sites and nearby roads?				
	b) Are re-routing signages sufficient to guide motorists?				
	c) Are the excavation sites along roads provided with barricades with reflectors?				
	d) Are the excavation sites provided with				

MONITORING/INSPECTION QUESTIONS		FINDINGS			COMMENTS / CLARIFICATIONS
	sufficient lighting at night?				
10.	Recording System	Yes	No	NA	
	a) Do the contractors have recording system for SEMP implementation?				
	b) Are the daily monitoring sheets accomplished by the contractor EHS supervisor (or equivalent) properly compiled?				
	c) Are laboratory results of environmental sampling conducted since the commencement of construction activities properly compiled?				
	d) Are these records readily available at the site and to the inspection team?				

Other Issues: _____

_____

_____

_____

Prepared by: _____

Name, Designation and Signature

Appendix 18: Semi-Annual Environmental Monitoring Template

- Introduction
- Overall project description and objectives
- Environmental category as per ADB Safeguard Policy Statement, 2009
- Environmental category of each subproject as per national laws and regulations
- Project Safeguards Team

Name	Designation/Office	Email Address	Contact Number	Roles
1. PMU				
2. PIUs				
3. Consultants				

- Overall project and sub-project progress and status
- Description of subprojects (package-wise) and status of implementation (preliminary, detailed design, on-going construction, completed, and/or O&M stage)

Package Number	Components/List of Works	Contract Status (specify if under bidding or contract awarded)	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M)[21]	If On-going Construction	
				%Physical Progress	Expected Completion Date

[21] If on-going construction, include %physical progress and expected date of completion

Compliance status with National/State/Local statutory environmental requirements[22]

Package No.	Subproject Name	Statutory Environmental Requirements[23]	Status of Compliance[24]	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish[25]

Compliance status with environmental loan covenants

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

Compliance status with the environmental management plan (refer to EMP TaBLES in APPROVED IEE/S)

- Confirm if IEE/s require contractors to submit site-specific EMP/construction EMPs. If not, describe the methodology of monitoring each package under implementation.

Package-wise IEE Documentation Status

Package Number	Final IEE based on Detailed Design				Site-specific EMP (or Construction EMP) approved by Project Director? (Yes/No)	Remarks
	Not yet due (detailed design not yet completed)	Submitted to ADB (Provide Date of Submission)	Disclosed on project website (Provide Link)	Final IEE provided to Contractor/s (Yes/No)		

[22] All statutory clearance/s, no-objection certificates, permit/s, etc. should be obtained prior to award of contract/s. Attach as appendix all clearance obtained during the reporting period. If already reported, specify in the "remarks" column.
[23] Specify (environmental clearance? Permit/consent to establish? Forest clearance? Etc.)
[24] Specify if obtained, submitted and awaiting approval, application not yet submitted
[25] *Example: Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.*

- For each package, provide name/s and contact details of contractor/s' nodal person/s for environmental safeguards.

Package-wise Contractor/s' Nodal Persons for Environmental Safeguards

Package Name	Contractor	Nodal Person	Email Address	Contact Number

- With reference to approved EMP/site-specific EMP/construction EMP, complete the table below

Summary of Environmental Monitoring Activities (for the Reporting Period)[26]

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

[26] Attach Laboratory Results and Sampling Map/Locations

Overall Compliance with CEMP/ EMP

No.	Sub-Project Name	EMP/ CEMP Part of Contract Documents (Y/N)	CEMP/ EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required

APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

- Briefly describe the approach and methodology used for environmental monitoring of each sub-project.

MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

- Discuss the general condition of surroundings at the project site, with consideration of the following, whichever are applicable:

    - Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
    - Identify if muddy water is escaping site boundaries or if muddy tracks are seen on adjacent roads.
    - Identify type of erosion and sediment control measures installed on site/s, condition of erosion and sediment control measures including if these are intact following heavy rain;
    - Identify designated areas for concrete works, chemical storage, construction materials, and refueling. Attach photographs of each area in the Appendix.
    - Confirm spill kits on site and site procedure for handling emergencies.
    - Identify any chemical stored on site and provide information on storage condition. Attach photograph.
    - Describe management of stockpiles (construction materials, excavated soils, spoils, etc.). Provide photographs.
    - Describe management of solid and liquid wastes on-site (quantity generated, transport, storage and disposal). Provide photographs.
    - Provide information on barricades, signages, and on-site boards. Provide photographs in the Appendix.
    - Indicate if there are any activities being under taken out of working hours and how that is being managed.

- Briefly discuss the basis for environmental parameters monitoring.
- Indicate type of environmental parameters to be monitored and identify the location.

- Indicate the method of monitoring and equipment used.
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements.

As a minimum the results should be presented as per the tables below.

Air Quality Results

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 µg/m3	SO2 µg/m3	NO2 µg/m3

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 µg/m3	SO2 µg/m3	NO2 µg/m3

Water Quality Results

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L

Site No.	Date of Sampling	Site Location	Parameters (Monitoring Results)					
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L

Noise Quality Results

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Monitoring Results)	
			Day Time	Night Time

Grievance Redress Mechanism

- Provide information on establishment of grievance redress mechanism and capacity of grievance redress committee to address project-related issues/complaints. Include as appendix Notification of the GRM (town-wise if applicable).

Complaints Received during the Reporting Period

- Provide information on number, nature, and resolution of complaints received during reporting period. Attach records as per GRM in the approved IEE. Identify safeguards team member/s involved in the GRM process. Attach minutes of meetings (ensure English translation is provided).

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

- Summary of follow up time-bound actions to be taken within a set timeframe.

APPENDIXES

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection report
- all supporting documents including **signed** monthly environmental site inspection reports prepared by consultants and/or contractors
- Others

Appendix 19: Environmental Clearance Certificate (ECC)

Government of the People's Republic of Bangladesh
Department of Environment
Head Office, Paribesh Bhaban
E-16 Agargaon, Dhaka-1207
www.doe.gov.bd

Memo No: DOE/Clearance/5194/2013/53 Date: 10 /02/2019

Subject: Environmental Clearance for City Region Development Project-II (CRDP-II).

Ref: Your application on 30/08/2018 and 27/12/2018.

Please refer to your letter and the captioned subject mentioned above, I have the pleasure to convey the approval of Environmental Clearance for City Region Development Project-II (CRDP-II).

A copy of the said Environmental Clearance Certificate is attached herewith for your kind information and necessary action at your end.

10.02.2019

(Syed Nazmul Ahsan)
Director (Environmental Clearance)
Phone # 8181673

Project Director
City Region Development Project-II (CRDP-II)
Local Government Engineering Department
RDEC LGED Bhaban (Level-4), Agargaon, Sher-e-Bangla Nagar, Dhaka.

Copy Forwarded to :

1) PS to Secretary, Ministry of Environment, Forest and Climate Change, Bangladesh Secretariat, Dhaka.
2) Director, Department of Environment, Dhaka Regional Office, Dhaka.
3) Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

Government of the People's Republic of Bangladesh
Department of Environment
Paribesh Bhaban, E-16, Agargaon
Sher-e-Bangla Nagar, Dhaka-1207
www.doe.gov.bd

Environmental Clearance Certificate

Section 12 of the Environment Conservation Act, 1995 (Amended 2010)

Clearance Certificate Number: 53

File number: DOE/Clearance/5194/2013/

Clearance Certificate Issue Date: 10 February 2019

Renewal date not later than: 09 February 2020

A. Clearance Certificate Type
Environmental Clearance Certificate

B. Clearance Certificate Holder
Project Director City Region Development Project-II (CRDP-II) Local Government Engineering Department RDEC LGED Bhaban (Level-4), Agargaon, Sher-e-Bangla Nagar, Dhaka.

C. Premises to which this Clearance Certificate Applies
Construction and Rehabilitation of Roads and associated Drainage subprojects in Dhaka region comprise 9 roads in Gazipur City Corporation, 31 roads in Savar Upazila and Municipality, 10 roads in Rupganj Upazila and 23 roads in Araihazar Upazila of Narayanganj District.

D. Activities for which this Clearance Certificate Authorizes and Regulates
Construction and Rehabilitation of Roads and associated Drainage Network. These roads and associated drainage subprojects in Dhaka region comprise 9 roads in Gazipur City Corporation, 31 roads in Savar Upazila and Municipality, 10 roads in Rupganj Upazila and 23 roads in Araihazar Upazila of Narayanganj District.

E. Terms and Conditions for Environmental Clearance Certificate

1. **Limit Condition for Discharges to Air and Water:** The Environmental Clearance Certificate must comply with schedule 2 and 10, rule 12 of the Environment Conservation Rules, 1997.

2. **Noise Limit:** The Environmental Clearance Certificate must comply with the Noise Pollution (Control) Rules, 2006.

In case of non-coverage of ECR 1997 the World Bank Environment, Health and Safety Guideline shall be adhered to.

3. Operating conditions:

3.1 Activities must be carried out in a competent manner. This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

3.2 All plant and equipment installed at the premises or used in connection with the Environmental Clearance activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.

3.3 Construction works shall be restricted to day time hours so as to avoid/mitigate the disturbance of local lives as well as implementation schedules of the works shall be notified in advance to nearby residents.

3.4 Storage area for soils and other construction materials shall be carefully selected to avoid disturbance of the natural drainage.

3.5 This shall be ensured that soil is obtained from nearby areas, which are free of invasive plants. Re-vegetation and replanting shall be undertaken if rehabilitation works involve extensive vegetation clearance.

3.6 Vegetation clearance shall be minimizing at the construction phase as to minimize soil erosion. Soils for embankments shall be properly tested and compacted to ensure stability.

3.7 Proper construction practices shall be followed that minimize loss of habitats and fish breeding, feeding & nursery sites.

3.8 Proper and adequate sanitation facilities shall be ensured in labor camps throughout the proposed project period.

3.9 In order to control noise pollution, vehicles & equipment shall be maintained regularly; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.

3.10 No solid waste can be burnt in the project area. An environment friendly solid waste management should be in place during whole the period of the project in the field.

3.11 Proper and adequate on-site precautionary measures and safety measures shall be ensured so that no habitat of any flora and fauna would be demolished or destructed.

3.12 All the required mitigation measures suggested in the IEE report are to be strictly implemented and kept operative/functioning on a continuous basis.

3.13 Any heritage sight, ecological critical area, and other environmentally and/or religious sensitive places shall be avoided during project construction phase.

3.14 Resettlement plan should be properly implemented and people should be adequately compensated, where necessary.

3.15 Construction material should be properly disposed off after the construction work is over.

3.16 The Environmental Management Plan included in the IEE report shall strictly be implemented and kept functioning on a continuous basis.

4.1 Monitoring and Recording conditions:

4.1.1 The results of any monitoring required to be conducted by this Clearance Certificate must be recorded.

4.1.2 The following records must be kept in respect of any samples required to be collected for the purposes of this Clearance Certificate:
(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

4.2 Requirement to monitor concentration of pollutants discharged

For each monitoring, the Clearance Certificate holder must monitor (by sampling and obtaining results by analysis) the following parameter: air quality, water quality and Noise.

5. **Reporting Conditions:** Environmental Monitoring Reports shall be made available simultaneously to Head quarters and respective Regional office of the Department of Environment on a quarterly basis during the whole period of the project.

6. **Notification of environmental harm:** The Clearance Certificate holder or its employees must notify the Department of Environment of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

F. <u>Recording of pollution complaints</u>

The certificate holder must keep a legible record of all complaints made to the certificate holder or any employee or agent of the certificate holder in relation to pollution arising from any activity to which this Environmental certificate applies. The record must include details of the following:

(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the certificate holder in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the certificate holder, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made. The record must be produced to any authorized officer of the DOE who asks to see them.

G. **Validity of the Clearance Certificate**

This Environmental Clearance is valid for one year from the date of issuance and Project Director shall apply for renewal to the Dhaka Regional Office with a copy to Head Office of DOE in Dhaka at least 30 days ahead of expiry.

Violation of any of the above conditions shall render this clearance void.

This Environmental Clearance Certificate has been issued with the approval of the appropriate authority.

10.02.2019

(Syed Nazmul Ahsan)
Director (Environmental Clearance)
Phone # 8181673

Appendix 20: BoQ Item No. 39

Item No.	Specification		Description of Item	Unit	Quantity		Quoted Rate		Total Amount (BDT)
	LSED	CRDP II			Break up	Total	in Figure (BDT)	in Word (BDT)	
39	7.25F		Cost for re-location/ Replacement of existing Utilities Like as electricity, telephone, Gas etc and Dismantling etc along the alignment, Environmental Management (environmental monitoring, dust suppression measure, providing adequate potable water supply and sanitation facilities at work site, disposal of construction wastes, maintain first aid box at site etc.) Payment will be reimbursed as per work done and actual cost Certified by concerned authorities.	P.S	i) 600,000,000 iv) 700,000,000 vii) 500,000,000 ix) 500,000,000 xi) 600,000,000	2,900,000,000			2,900,000.00
			Total Amount in Figure (BDT)						