The First Engineering Bureau of Henan Water Conservancy (CHWE)

Coastal Embankment Improvement Project, Phase-I (CEIP-I)

Environmental Action Plan (EAP) for Polder 33

February 2017

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1. Introduction

1.1 The Project

The overall objective of the Coastal Embankment Improvement Project -Phase 1(CEIP-1) is to increase the resilience of coastal population to natural disasters and climate change. More specifically, the project aims at (a) reducing the loss of life, assets, crops and livestock during natural disasters; (b) reducing the time of recovery after natural disaster such as cyclone; and (c) improving agricultural production by reducing saline water intrusion which is expected to worsen due to climate change. This objective will be achieved by rehabilitating and improving the existing polder system in the coastal area.

Based on a multi criteria analysis for strategic polder assessment, a first priority group of 17 polders was selected. Among the 17 polders, 4 have been considered for Coastal Embankment Improvement Project -Phase 1(CEIP-1)/W-01, which are 32, 33, 35-1 & 35-3 in the following referred to as ''the Project''.

The EIAs and the connecting EMPs relevant for Polder-33 of Coastal Embankment Improvement Project, Phase-I (CEIP-I) have been prepared. This EMP set-up has been translated in this Environmental Action Plan (EAP) for site operational use and purposes. The FIDIC-inspired Contract (CEIP-1)/W-01 is complete as to the Environmental, Health, Safety (EHS) compliances which are fully compatible the IFC/EHS Guidelines, as outlined in the following WB/IFC website:

http://www.ifc.org/wps/wcm/connect/3aa0bc8048855992837cd36a6515bb18/4%2BConstruction%2Band%2BDecommissioning.pdf?MOD=AJPERES

These guidelines had been disseminated and instilled among all key site managers of the four Polders. As the IFC guidelines are conforming to the said Contract, it is not appended to this EAP Document. Contractor is frequently doing rehearsal and drilling sessions with the site managers to enhance the overall awareness.

1.2 Project Activities

The proposed interventions in the four Polders are almost of similar types. The interventions of ploder-33 include the following rehabilitation and improvement activities:

Table 1-1: Project activities for rehabilitation and improvement

Sl. No	Project Activities of Polder 33	Quantity
1	Re-sectioning of embankment	48.20 km
2	Construction of retired embankment	3.8 km
3	Construction of Forward embankment	-
4	Forwarding of embankment with slope protection	-
5	Construction of drainage sluices	13
6	Construction of drainage sluices under Aila	
7	Repairing of drainage sluice	-
8	Construction of flushing inlets	12
9	Repairing of flushing inlets	5
10	Demolishing of drainage sluices	-
11	Demolishing of flushing inlets	2
12	Re-excavation of drainage channels	63.21 km

13	Bank revetment/protection works	1.45 km
14	Slope protection of embankment	6.00 km
15	Closure	-

1.3 Relevant EIA

The Environmental Impact Assessment (EIA) report has been prepared for the Polder-33, which also contains an Environmental Management Plan (EMP) to be carried out during the pre-construction, construction and operation phases of the project.

1.4 Purpose of the Environmental Action Plan

This EAP has been drafted for Polder No. 33. For a complete overview of the environmental and social issues connected with this Environmental Action Plan (EAP) reference is made to the EIA for Polder No. 33.

The specific Works to be executed in Polder No. 33 including their chainage are show on the map in Annex 1 (Overview Works Polder 33). The table in Annex 2 (Updated Work Programme - Oct-2016) gives an overview of their implementation in time.

EAP summarizes the actions required to implement the project components and related activities in an environmentally sound manner. Further, it sets out the actions to be taken in combination with the necessary compliance monitoring.

This document should be seen as a "living document'; subject to changes over time. During the execution of the Works, based on monitoring results or changes in working conditions or aspects of the Works, the necessary mitigation measures and monitoring activities could alter as well. Therefore, this document is subject for review quarterly.

1.5 Scope of the Environmental Action Plan

Particular areas for action are the avoidance of pollution of any land or water (coastal, transitional, surface or groundwater), the preservation of flora and fauna and the avoidance of disruption from noise, vibrations or dust and compliance of Occupational Health and Safety and Public Health and Safety during the course of the works. We are aware of and will be compliant with the recommendations of the Department of Environment (DoE), Bangladesh and the Environmental Safeguard Policies of World Bank. Moreover, with this EAP we intend to comply with the following contract clauses:

General Conditions	Specifications
4.8 Safety Procedures 4.9 Quality Assurance 4.14 Avoidance of Interference 4.15 Access routes 4.21 Progress reports 4.22 Security on site 6.6 Facilities for Staff and Labor 6.7 Health and Safety 6.13 Supply of Foodstuff	1.07 Disruption of Local Communities 1.18 Signboards 1.20 Contractor's Offices, Workshops, Accommodation, Inspection shed, etc. 1.21 Quality Assurance Plan 1.23 Sanitation 1.24 Medical Arrangements and First Aid Facilities 1.25 Construction and Maintenance of Temporarily Access Road

6.14 Supply of water 7.2 Samples	1.26 Environmental Mitigation Works 1.30 Contractor's Sites Facilities (2)

2. Environmental Actions per Project Component

In the following sections specific Environmental Actions are described for the major project components, as there are: Temporary Facilities (Section 2.1) and Construction Works (Section 2.2). The Environmental Actions are defined following assessment of the potential environmental and social issues related to the activities performed under these components. It must be noted that these sections should be read in conjunction with Section 3 in which the generic Environmental Actions as per environmental or social aspect are described. Appendix 1 provides a table containing a checklist for Environmental Actions while Appendix 2 summarises the Monitoring Activities.

2.1 Temporary Facilities

In order to mitigate and prevent potential impacts associated with the temporary facilities, the following measures will be taken as a minimum:

2.1.1 Construction Camp

- Before the commencement of the development of the construction camp, the contractor shall submit to the Engineer for approval a detailed layout plan for the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, drainage facilities, etc.
- For the location of construction camps, access roads, etc. a suitable area, away from local habitation in cooperation with the local authorities will be selected.
- The area to take will be the required minimum, compatible with operational safety and environmental requirements.
- Before its construction, stripping will be carried out and if necessary, the field will be levelled. The removed material will be stored for use in restoring the area occupied by the camp at the end of the construction phase.
- Drainage channels and ditches in areas with slopes of less than 5% will be installed. These systems will discharge in a controlled way in natural field, and if considered necessary, grease or sediment traps will be installed.
- The drainage works like ditches, perimeter canals and storm water treatment systems will be permanently surveyed to prevent them from clogging by debris, especially the settlers.
- Operational areas will have a perimeter fence to have better control and avoid the entry of outsiders to work. They will also have the corresponding signalling information, restrictive and preventive aiming to perform all activities safely.
- All personnel working in these areas will be provided personal protective equipment and be trained to perform the various tasks assigned.

2.1.2 Fuel supplies for cooking and heating purposes

- In order to discourage workforce to use fuel wood or other biomass, supplies of gas cylinder for domestic purpose will be ensured.

2.1.3 Solid Waste Management

- Proper collection and disposal of solid wastes within the construction camps will be ensured.
- Inorganic wastes will be stored in a safe place within the household and organic wastes will be cleared on daily basis to waste collector.

- Waste collection, transportation and disposal systems will be established at camp sites.
- All waste will be collected and removed from the work camps and disposed in approved disposal sites.

2.1.4 Fuel Storage Areas

- All fuel stored on site will be confined to specific, secured, and bunded areas with an impervious surface. Fuel storage areas will have an adequate secondary storage capacity (110% of the total volume stored in the tanks) and be protected from the rain.
- The physical condition of the tanks and the inlet and outlet of the fuel will be checked to prevent spills by deficiencies in them.
- A control valve will be installed for drainage of rain water in the fuel storage area. The valve will remain padlocked at all times. For drainage of rain water a grease trap will be incorporated prior to discharge on the storm water channel to control oil discharges into the environment.
- Fuel storage areas will be clearly marked indicating the dangers of explosion.
- Points will be marked with the location of fire extinguishers.

2.1.5 Access Roads Construction

- The existing Embankment is now intensively being used by the local, therefore the contractor will also use the same as access road for the construction of embankment.
- The Cofferdam for DS/FS excavation will be used as common access road for both public and construction activities. The typical drawing of cofferdam is attached for reference.
- The fences and other elements that define and provide access to farms will be moved and put back in the state they were found in.
- Construction of box culverts will be used when required for crossing water bodies.

2.1.6 Sanitation

- The construction camps will be provided with suitable sanitation facilities for the workforce.
- The location of the latrine will be at least 50 meter away from the accommodation facility.
- Separate latrines will be reserved for the use of women.
- Treatment facilities (i.e. septic tank, soak pits etc.) will be installed for sewerage of toilet and camp site wastes.
- All discharge from toilets will be piped to a purpose designed sewage treatment facility prior to discharge to a natural watercourse.
- Wastewater from washrooms, kitchens etc. will be disposed via the camp area's drainage system.
- Toilet blocks will be properly cleaned on a daily basis.

2.1.7 Water Supply

- The construction camps will be provided with potable water either through installing tube wells (hand pump, shallow and deep tubewell), Pond Sand Filter

(PSF) or supplying safe bottled water.

- The location plan of tube wells (used for supplying potable water) will take into account that these are not sited near any sanitation facilities as to avoid water contamination.
- The distance of a tube well / surface water resource from a soak pit will be at minimum 15m.
- Drainage from the tube well will be diverted into the drainage system of the camp area.
- Separate tube wells are kept reserved for the use of women.
- Storm water drainage facilities at camp site will be provided.

2.1.8 Temporary Facilities Decommissioning

- During decommissioning of the camps, all natural areas will be reinstated, for which stripping material removed and stored prior to the construction of camp will be used.
- The camp area, roads etc. will be recovered by dismantling if not needed for other purposes; to be decided upon in concert with local authorities.
- Before the dismantling or handing over of the area, a review of it will be carried out in order to establish whether there are any environmental liabilities generated during the operation of the camp.
- Focus will on removing any and all temporary structures, hardstands etc.
- The intervened structures (roads, services, etc.) that have been damaged during activities will be reconstructed.
- Vegetation rehabilitation will take place in areas where there will be no further construction.
- The collection of wastewater and solid wastes in the area will be carried out properly, cleaning the grease and sand traps and disposing of these wastes properly.
- In case of soil contamination by mineral oil, it will be removed and will arrange an agreement with a local industry that has treatment processes for contaminated soils and its proper disposal will be carried out.
- Checks will be carried out that the areas used by the camp and associated facilities are fully restored at the end of the work.

2.2 Construction Works

Construction Works in Polder No. 33 comprises the construction and re-sectioning of embankments, construction of sluices and inlets, the bank and slope protection works, the re-excavation of drainage channels.

2.2.1 Construction and re-sectioning of embankments

- Pavement (if present) will be removed and disposed of at the premises of BWDB.
- Top soil from areas of earth works will not be used for construction works. The top soil (from surface to 15 cm depth) will be removed and preserved for later use of replacing after construction in rehabilitation.
- Disposal of excess soil will be done at site with no objection from DoE and local authority.
- All works will be demarcated clearly.
- Signals will be installed to indicate the entry and exits of vehicles and movement

of construction equipment in the work area.

- Borrow material (earth) will preferably be collected from outside the polder areas in order to protect the fertile agricultural land (country side) and control of river erosion (river side).
- Borrow materials will only be used when free of pollutants.
- Earth will not be borrowed from close to the toe line on any part of the embankment.
- Borrowing will be avoided from the following areas:
  - Lands close to toe line and within 50m from toe line.
  - Irrigated agricultural lands (In case of necessity for borrowing from such lands, the topsoil shall be preserved in stockpiles, although burrowing of agricultural land is discouraging).
  - Grazing land.
  - Lands within 1 km of settlements.
  - Environmentally sensitive areas such as reserve forests, protected forests, sanctuary and wetlands. A distance of at least 500 m will be maintained from such areas.
  - Water-bodies (only if permitted by the local authority and with specific pre-approved re-development plans by the concerned authority and engineer-in-charge).
  - Streams and seepage areas.
  - Areas supporting rare plant/ animal species.
- Following data will be documented for each identified borrowing area before commencing the borrowing activity that provides the basis of the re-development plan:
  - Chainage along with offset distance.
  - Area (Sq.m).
  - Photograph and plan of the borrowing area from all sides.
  - Type of access/width/surface from the roadway.
  - Soil type, Slope/drainage characteristics.
  - Existing land use, for example barren / agricultural /grazing land.
  - Location/name/population of the nearest settlement from borrow area.
  - Quantity excavated (likely and actual) and its use.
  - Copy of agreement with owner/government.
  - Community facility in the vicinity of borrow pit; and
  - Rehabilitation certificate from the land owner along with at least four photographs of the rehabilitated site from different angles.
- To minimize adverse impacts during excavation and transport of material the following measures will be undertaken:
  - At the stockpiling locations barriers will be constructed to prevent the removal of excavated material due to runoff.
  - During transportation of the material, measures will be taken to minimize the generation of dust and to prevent accidents.

2.2.2 Demolishing and Construction of drainage sluices, flushing sluices and inlets

- Demolishing debris of sluices and inlets will be disposed of at a site approved

by the Engineer.

- Before starting the construction activities of drainage sluices, ring bundh and diversion channel will be constructed and a dewatering system (ensuring that dewatering operations do not result water turbidity> 30 NTU entering natural waterways) will be installed in order to work in dry conditions.
- Disposal of excess soil will be done with no objection from DoE and local authority.
- No waste water from concrete mixing will be disposed of directly to the surface water.
- Steel sheet pile driving will not be done at night.
- The work area will be demarcated clearly.
- Signals will be installed to indicate the entry and exits of vehicles and movement of construction equipment in the work area.
- Prior to every monsoon season all the temporary and permanent drainage structures under construction will be made free from debris.

2.2.3 The bank and slope protection works

- Spilling of earth material in surface water will be avoided.
- Turfing will be applied to prevent erosion.
- Proper drainage provision will be kept to avoid formation of rain cuts due to surface run off.

2.2.4 Re-excavation of drainage channels

- Unnecessary resuspension will be avoided by selection of suitable dredging equipment.
- Dredge material may be used as embankment material (if necessary and applicable) or will be placed at suitable places, subject to approval of the Engineer.
- Temporarily deposition of dredged material will be away from the channel edge to limit damage to streamside and stream habitats.
- Return water will be conveyed through siltation chambers to avoid high loads of fines to be discharged on surface water.
- Where applicable biotechnical engineering, for example geo textiles, may be used to help stabilize the material.
- Smothering of important flora and habitats will be avoided.

2.2.5 Manufacture of pre-cast CC blocks

- Workers will be equipped with proper PPE.
- Signals will be installed to indicate the entry and exits and movement of vehicles in the work area.
- A flagman should be appointed to regulate movement of workers and visitor along with their safety.
- Manufacturing only can take place at night within proper environmental protective measurement.
- Stacks with sand will be covered or wetted.

Hard Rock Revetment to be assessed when the detailed design is completed

3. Environmental Actions per Environmental and Social Aspect

3.1 Occupational Health and Safety

A Health and Safety Plan will be developed and implemented that will include, but not be limited to:

- National and World Bank Occupational Health and Safety Standards in force and applicable to project activities.
- Environmental and security policies of the company.
- Worker responsibilities regarding the use and care of clothing and other personal protective equipment.
- Emergency procedures.
- Specific job hazards.
- Safety precautions.
- Job responsibilities.
- Training programme for all construction workers in basic sanitation and health care issues and safety matters and on the specific hazards of their work.
- Provision of HIV, including STI (sexually transmitted infections) information, education and communication.

The following services will be enabled at the construction sites:

- Fire extinguishers clearly signposted.
- First aid facility clearly signposted.
- Stock of medicines at site.
- Personal Protective Equipment.

3.2 Public Health and Safety

- Members of the public adjacent to the construction area will be notified of construction activities in order to limit unnecessary disturbance or interference.
- At all times, safe and convenient passage for vehicles, pedestrians and livestock will be provided.
- All necessary measures for the safety of traffic during construction will be taken, including signs, markings, flags, lights and flagmen as may be required.
- The temporary traffic detours in settlement areas will be kept free of dust by frequent application of water.
- Construction activities will be undertaken according to during daylight working hours between the hours of 07:00 – 17:00 on weekdays.
- Construction vehicles will avoid public roads during peak hours.
- Special consideration will be given to the safety of pedestrians and workers at night.
- Liaison with the communities will be maintained and Grievances Redress Mechanism to be established immediately

3.3 Cultural Properties

- Necessary and adequate care will be taken to minimize impact on cultural properties which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures as identified during design and all properties / sites / remains notified.
- No work will spill over to these properties and premises. If needed, design options for cultural property relocation and enhancement will be prepared.
- All conservation and protection measures will be taken up as per design. Access to such properties from the road will be maintained clear.

3.4 Waste

3.4.1 Non-hazardous Solid Waste

The following measures for the handling and management of non-hazardous solid waste will be implemented:

- Installing containers/bins to store non-hazardous solid waste. Containers must have sufficient capacity for the frequency of collection established in the works
- Containers used for storage of waste should be provided with lids that prevent rainwater from entering the trash and overflow them. This will also prevent the sun to accelerate waste decomposition, generate odours or help the proliferation of flies.
- Waste produced will be collected for disposal at an appropriate waste dump site
- No burning of solid waste out on the open or in the containers will be done.

3.4.2 Hazardous Waste

All hazardous waste will be:

- Stored in properly labelled containers for easy identification
- Separated from low lying, flood-prone areas.
- Located on an impervious surface.
- Protected from the rain
- Disposal in an appropriate way as soon as possible
- Encourage recycle/reuse of waste

3.5 Waste water

The following activities will be adhered to waste water at construction sites:

- Installation of decanter boxes for washing buckets and balloon mixers
- Installation of proper filtering elements.
- Carrying out periodic checks and clean-ups for the decanter box.
- Prioritize reuse of aggregates and water from the decanter box.

3.6 Air Emissions

The following activities will be adhered to:

- Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition.
- Service all vehicles regularly in accordance with manufactures maintenance procedures to minimize emissions.
- Operate the vehicles in a fuel efficient manner.
- Cover haul vehicles carrying dusty materials (cement, borrow, etc.) moving between outside and the construction site or water construction material if suitable.
- Impose speed limits on all vehicle movement at the worksite to reduce dust emissions.
- Control the movement of construction traffic.
- Cover the construction materials to check erosion and dust/air and other pollution.
- Watering the material stockpiles, access roads and bare soils as and when required to minimize dust emissions.
- Increase the watering frequency during periods of high risk (e.g. high winds).
- Minimize the extent and period of exposure of the bare surfaces.
- Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site
- Restore disturbed areas/side of the embankment as soon as practicable by plantation/vegetation/grass-turfing.
- Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations.
- Performance of monitoring.

3.7 Noise Management

The following activities will be adhered to:

- Construction Vehicular Traffic
  - Maintenance of all vehicles in order to keep them in good working order in accordance with manufacturer's maintenance procedures.
  - Organizing the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise at the work site.
- Construction Machinery
  - Appropriately site all noise generating activities to avoid noise pollution to local residents
  - Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures.
- Construction Activity
  - Location of all noise generating activities to be avoided that will cause noise pollution to local residents.
  - Adjacent landholders, educational institution etc. will be notified prior to any typical noise events.

- Temporary noise control barriers will be installed where appropriate.
- Activities on site and deliveries to and from site will be organized such as to minimize impact.
- Working during 09:00pm to 06:00 am will be avoided within 500m from the existing residences.
- Monitor and analyse noise and vibration results and adjust construction practices as required.

3.8 Water Management

Measures will be taken in order to prevent pollution, erosion and sedimentation in water courses by:

- Refuelling will not take place within 50m from surface water.
- Installing temporary sediment basins, where appropriate, to capture sediment-laden run-off.
- Preventing all solid and liquid wastes entering waterways by collecting solid waste, oils, lubricants, chemicals, fertilizer waste and transport to an approved waste disposal site.
- All temporarily working sites will be reinstated ASAP to its initial conditions (relief, topsoil, vegetation cover).
- Excess water coming from filling up land with riverbed material will be discharged to the river directly.
- Preventing discharge of cement and water used for curing cement concrete into water courses and drainage inlets.
- Monitoring the water quality in the runoff from the site or areas affected by dredge spoil plumes and improving work practices as necessary.
- Use of plastic sheet or gravel in the workshop and equipment yard to prevent soil and water contamination.

3.9 Flora and Fauna Management

- Flora
  - Only designated sites allocated for construction works will be used.
  - Tree felling will be performed upon preliminary notification to the relevant authority (District Forest Office, DoE).
  - All trees to be removed should be counted and marked to avoid excessive no. of trees to be felled and provision of proper treatment of the remaining trees.
  - Adequate knowledge to the workers regarding natural protection and the need of avoiding felling/damaging trees during construction will be provided.
  - Tree cutting and clearing will be avoided around streams, restricted areas e.g. native vegetation, protected riparian strips, historic and heritage sites, research areas.
  - For site re-vegetation, local species will be selected as planting materials.
  - Proper turfing should be implemented at embankment slopes with local grasses (i.e. Durba (Cynodondactylon), Mutha (Cyperus sp) and ensure regular monitoring of turf grasses till they matured.
  - Fruit and timber trees owned by local population will be compensated at their replacement cost according to market prices (Compensation guidelines

to be followed).

- Fauna
  - No animals will be disturbed unnecessarily and no animals will to be shot, trapped or caught for any reason.
  - Critical breeding areas of major fish species will be identified and declared as sanctuaries.
  - Creation of small lagoons and pools that may trap fish will be avoided.
  - Sufficient free flow will be guaranteed in the construction works to ensure free passage of migrating fishes.
  - Dredging during fish spawning periods will be avoided.
  - Dredging activities will create minimum sediment load in the water.

3.10 Soil Management

- Preferably soils from fallow lands / non-agricultural lands will be used in earthworks.
- To minimize the adverse impact during excavation, storage and transport of material the following measures will be undertaken:
  - Adequate drainage system will be provided at the excavated area if applicable.
  - At the stockpiling locations, sediment barriers to prevent the erosion of excavated material due to runoff will be constructed.
  - During transportation of the material, measures will be taken to minimize the generation of dust.
- Top soil will be striped before earth filling and stored for reuse at final surfacing of embankment top and tree plantation/afforestation.
- Top soil will be striped to a depth of 15 cm and store in stock piles of height not exceeding 2m to maintain the physico-chemical and biological activity of the soil.
- Unwanted materials like grass, roots of trees and similar others will be removed from top soil.
- Slopes of stockpiles will not exceed 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil.
- Stockpiles will be located in areas outside drainage lines and will be protect from erosion.
- Topsoil stockpiles will be monitored and should any adverse conditions like erosion be identified, corrective actions will be taken.

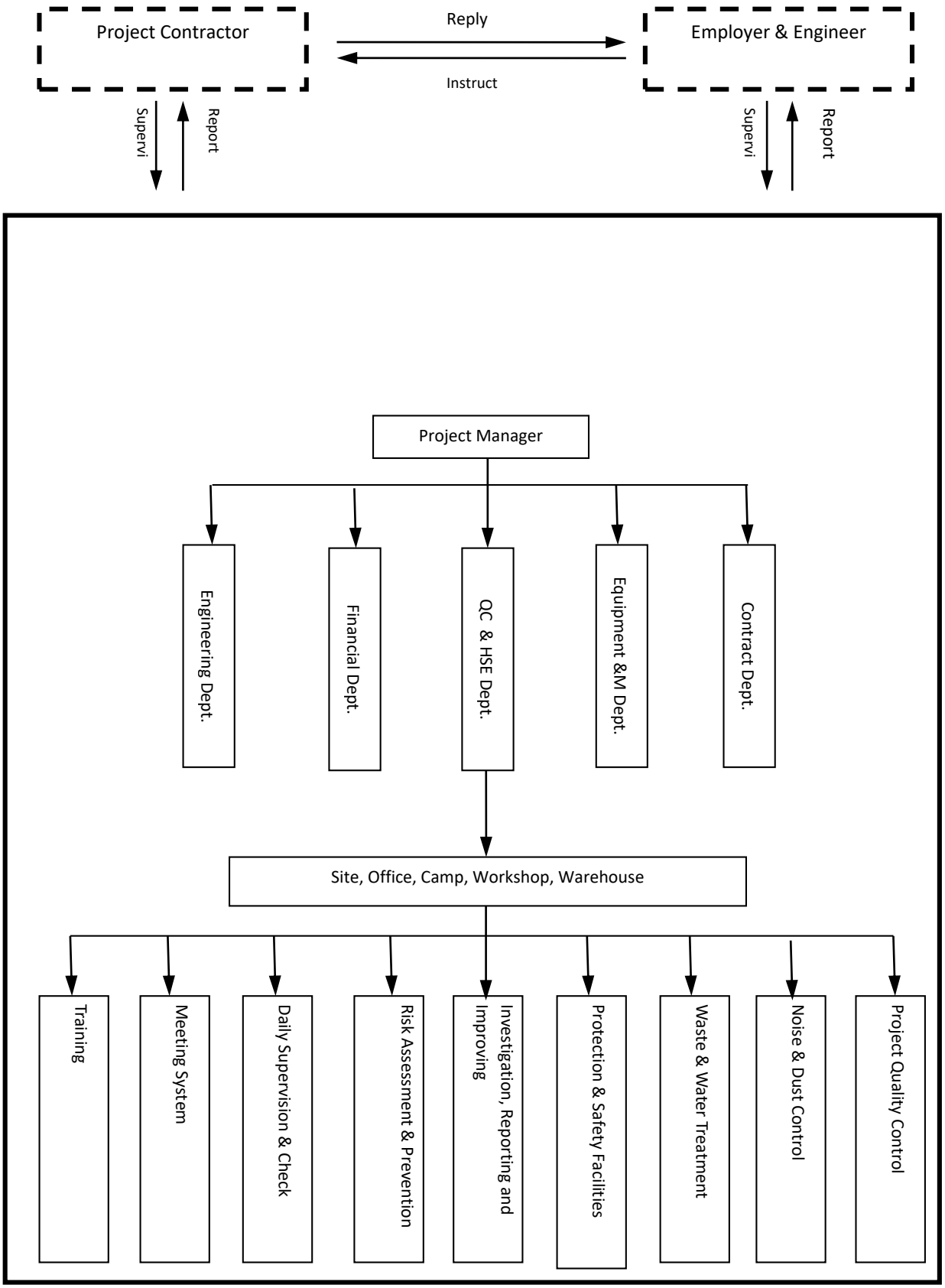
4. Environmental Management Organization

The Contractors Project Manager will be the first person in charge of quality, safety and environmental protection. The Environment & Safety Officer will be on behalf of the Contractor responsible for the specific works, inspection and supervision and reporting to the Engineer periodically. The Khulna based Environmental & Safety Officer will be in charge of environmental compliance for all the 4 Polders of Package-1. An overview of the responsible staff is given in the following table along with the names and contact details:

Table 4-1: List of Environment and Safety Officers responsible for Environment Management

Polder No.	Name	Designation	Contact No.	E-Mail Address
Khulna Office	Jia Kai	QC & HSE Dept in charge	01876298227	Jiakai_ceip@163.com
33	Yang Chunliang	QC & HSE Engineer	01767087375	784063874@qq.com
33	Xing Cangsheng	Assistant Environment & Safety Officer	01753353897	3172850352@qq.com

Figure 4-1: Environmental Management Organization



5. Monitoring, Reporting and Record Keeping

Monitoring will help to evaluate the performance of the environmental protection measures as specified in this EAP and with that, the overall effectiveness of environmental management.

Monitoring consists of the following:

- Environmental Inspections (undertaken once a week.)
- Assessment of the inspections (monthly)
- Follow-up inspections on corrective actions (when needed)

The Environmental Inspections will generate the primary set of monitoring data that will be used to evaluate the effectiveness of environmental management and to demonstrate compliance with the Contract Specifications and implementation of EAP.

Monitoring Reports / Records will to be kept in an orderly manner and easily accessible to all concerned parties for the full period of construction. Documents (or copy of these) like workers' register, design drawings, etc. will be kept at worksite.

The following documents will be kept in contractor's local offices (per Polder):

- Results of Environmental Inspections.
- Register of complaints.

The following records regarding environmental management issues will be kept at Contractors premises in Khulna:

- All necessary permits, including borrow area approvals, private landowners' permission for activities on their land, etc.
- Training Records (attendance lists).
- Register of non-compliance and corrective actions proposed.
- Monthly environmental evaluation reports.
- Correspondences.

Complaints received from the public or other stakeholders will be registered and recorded by the Environmental Officer and brought to the attention of the Site Engineer. The following information will be recorded in the case of any complaint:

- Time, date and nature of complaint.
- Response and investigation undertaken.
- Actions taken and by whom.

All complaints will be investigated and a response is to be given to the complaint within 7 days of receipt.

All environmental incidents occurring on the site will be recorded in an Environmental Incident Register. The following information will be provided:

- Time, date and nature of incident.
- Response and investigation undertaken.
- Corrective and preventative actions taken and by whom.

All environmental incidences will be immediately reported to the Engineer such as damage to land/structures, spills of hazardous materials, or other incidents which are likely to cause pollution and other detrimental environmental effects or loss or damage to private resources.

Environmental Inspections will be reported to the Engineer providing details of environmental problems (spills, dust, noise etc.), non-conformities, safety incidents etc. on a weekly basis.

6. Contingency Planning

The objective of a Contingency (Emergency Preparedness and Response) Plan is to establish and define the actions to control/mitigate the occasional accidents and natural or human threats during project construction. It must provide efficient and immediate response for any emergency and it must guarantee the safety of all personnel of the project and third parties. It is recommended to conduct a detailed and quantitative risk analysis to inform the Contingency Plan. The plan must cover the following:

- An Approved Emergency Plan is shown as attached.
- Planning Coordination: This should include procedures for:
    - Informing the public and emergency response agencies
    - Documenting first aid and emergency medical treatment
    - Taking emergency response actions
    - Reviewing and updating the emergency response plan to reflect changes and ensuring that the employees are informed of such changes
- Emergency Equipment: The plan should include procedures for using, inspecting, testing, and maintaining emergency response equipment.
- Training: Employees should be trained in any relevant procedures

Basic elements are:

- Administration (policy, purpose, distribution, definitions, etc.)
- Organisation of emergency areas (command centres, medical stations, etc.)
- Roles and responsibilities
- Communication systems
- Emergency response procedures
- Emergency resources
- Training and updating
- Checklists (role and action list and equipment checklist)
- Business Continuity and Contingency

Areas of attention are among others:

- Preparedness for natural disasters (floods, storms leading to e.g. breach of embankment etc.
- Preparedness for fire prevention and control, road accidents, fuel spills, etc.

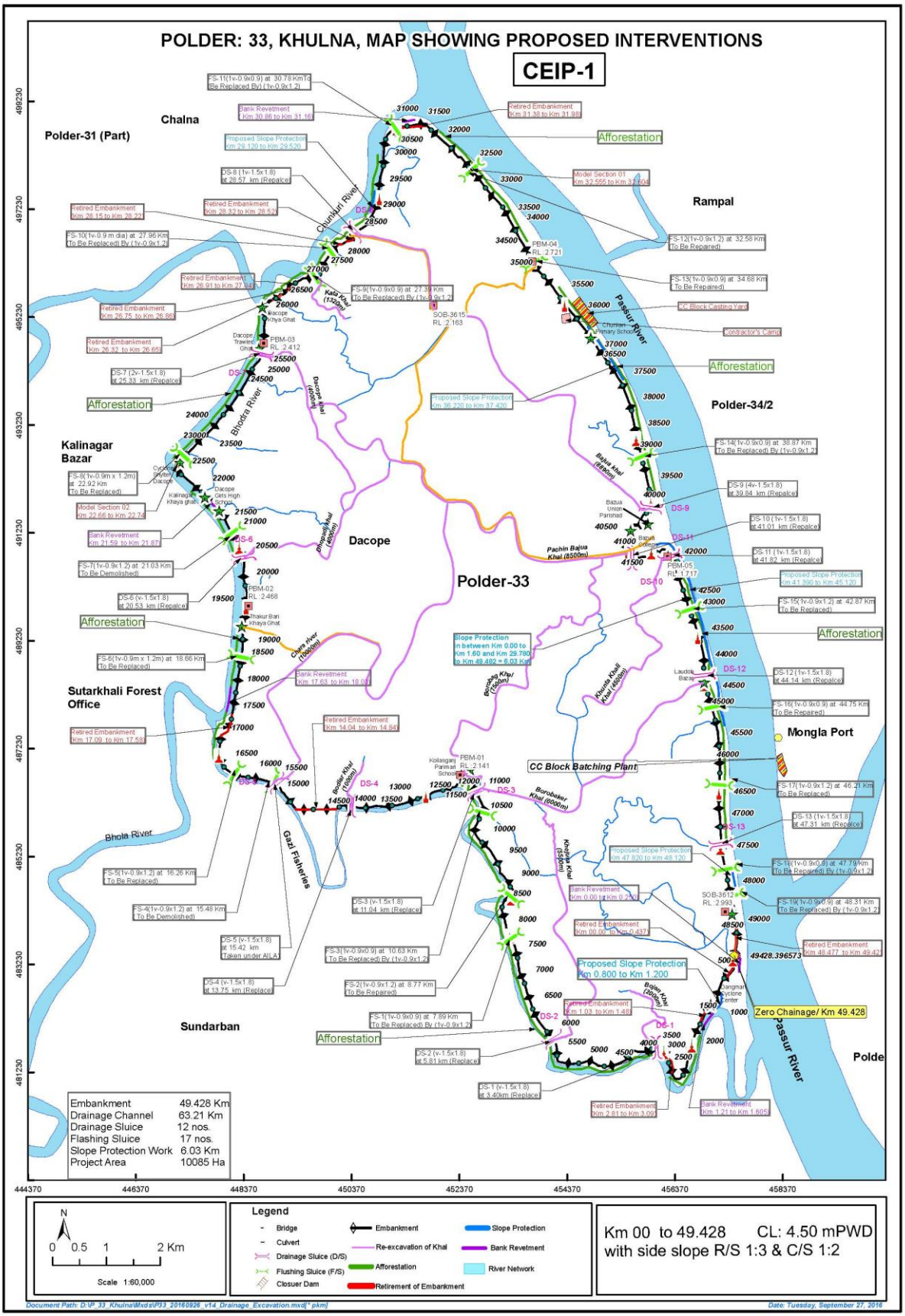
7. Site Specific Environmental Action Plan

Annex 3; 'Site Specific Environmental Action Plan' will be updated each quarter based on actual works executed, monitoring results, monthly environmental evaluation etc. This Site Specific Environmental Action Plan should be used in combination with Annex 1 and Annex 2; respectively 'Overview Works' and Update 'Work Programme'.

8. Environmental Monitoring

Extensive monitoring of the environmental concerns of the CEIP-1 project is required as per World Bank EHS-guidelines. The monitoring program will help to evaluate: (i) the extent and severity of the environmental impacts against the predicted impacts and baseline; (ii) the performance of the environmental protection measures or compliance with pertinent rules and regulations; (iii) trends in impacts; and (iv) overall effectiveness of the project environmental protection measures. The monitoring details are included in the 'Monitoring Plan' in Annex 4.

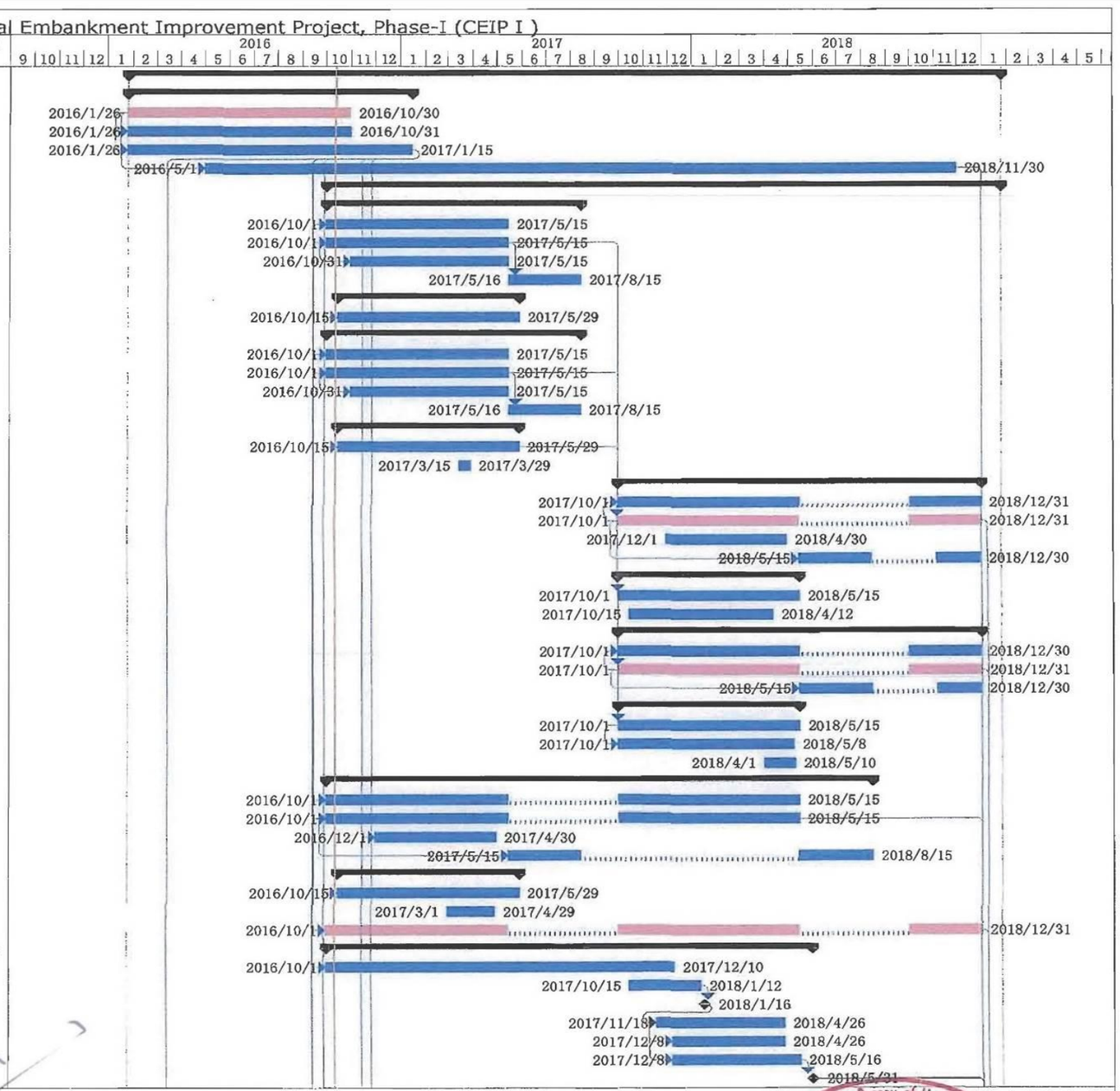
Annex-1: Overview Works Polder-33



Annex-2: Update progress CEIP-1 Contract W-01

Work Programme for Coastal Embankment Improvement Project, Phase-I (CEIP I)

ID	WBS	Description	Item	Qty.	Duration
1	**1**	**Update Construction Programme CEIP-1**		**1**	**1096 days**
2	**1.1**	**Preparation**		**1**	**356 days**
3	1.1.1	Mobilization (manpower, equipment & materials)	item	1	279 days
4	1.1.2	Engineers Facilties	item	1	280 days
5	**1.1.3**	Survey works & Shop Drawings	item	1	356 days
6	**1.2**	**Precast of CC Blocks including preparatory Work**	**No.**	**6241222**	**943 days**
7	**1.3**	**Main work of Polder 32**		**1**	**847 days**
8	**1.3.1**	**Section1 (Km0.5~Km7)**	**Km**	**6.5**	**319 days**
9	1.3.1.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days
10	1.3.1.2	Construction / Re-sectioning of Embankment	m³	286533	227 days
11	1.3.1.3	Embankment Slope Protection Works (0.7km)	Nos.	98000	197 days
12	1.3.1.4	Fine dressing and close turfing	item	1	92 days
13	**1.3.1.5**	**Structure Work**	**Nos.**	**2**	**227 days**
14	1.3.1.5.1	Construction of DS-10,11	Nos.	2	227 days
15	**1.3.2**	**Section2 (Km7~Km20)**	**Km**	**13**	**319 days**
16	1.3.2.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days
17	1.3.2.2	Construction / Re-sectioning of Embankment	m³	254487	227 days
18	1.3.2.3	Embankment Slope Protection Works (2.6km)	Nos.	271500	197 days
19	1.3.2.4	Fine dressing and close turfing	item	1	92 days
20	**1.3.2.5**	**Structure Work**	**Nos.**	**4**	**227 days**
21	1.3.2.5.1	Construction of DS-1,16 & D-10	Nos.	3	227 days
22	1.3.2.5.2	Demolish of DS-15	Nos.	1	15 days
23	**1.3.3**	**Section3 (Km20~Km30)**	**Km**	**10**	**457 days**
24	1.3.3.1	Dismantling of Brick Soling/Bituminous Road	item	1	318 days
25	1.3.3.2	Construction / Re-sectioning of Embankment	m³	179320	318 days
26	1.3.3.3	River Bank Protection Works (1.25km)	m³	29850	151 days
27	1.3.3.4	Fine dressing and close turfing	item	1	148 days
28	**1.3.3.5**	**Structure Work**	**Nos.**	**7**	**227 days**
29	1.3.3.5.1	Construction of DS-2 & F-3	Nos.	2	227 days
30	1.3.3.5.2	Repair of FS-1,3,4,FFDFB-1,FFDFE-2	Nos.	5	180 days
31	**1.3.4**	**Section4 (Km30~Km42)**	**Km**	**12**	**457 days**
32	1.3.4.1	Dismantling of Brick Soling/Bituminous Road	item	1	318 days
33	1.3.4.2	Construction / Re-sectioning of Embankment	m³	218363	319 days
34	1.3.4.3	Fine dressing and close turfing	item	1	149 days
35	**1.3.4.4**	**Structure Work (K30-K42)**	**Nos.**	**16**	**227 days**
36	1.3.4.4.1	Construction of DS-7,8	Nos.	2	227 days
37	1.3.4.4.2	Repair DFM-1,FM-1,2,5,7,8,9,10,11,FO-3,DFP-1,F-8	Nos.	12	220 days
38	1.3.4.4.3	Demolish of F-3,FO-2	Nos.	2	40 days
39	**1.3.5**	**Section5 (Km42~Km49.5)**	**Km**	**7.5**	**684 days**
40	1.3.5.1	Dismantling of Brick Soling/Bituminous Road	item	1	453 days
41	1.3.5.2	Construction / Re-sectioning of Embankment	m³	287203	453 days
42	1.3.5.3	River Bank Protection Works (0.75km)	m³	35110	151 days
43	1.3.5.4	Fine dressing and close turfing	item	1	187 days
44	**1.3.5.5**	**Structure Work**	**Nos.**	**2**	**227 days**
45	1.3.5.5.1	Construction of DS-9	Nos.	1	227 days
46	1.3.5.5.2	Repair of FFDFR-1	Nos.	1	60 days
47	**1.3.6**	**Excavation of Drainage Channels (14.5km)**	**m3**	**77226**	**545 days**
48	**1.3.7**	**Nalian Closure Dam**	**Km**	**0.5**	**607.38 days**
49	1.3.7.1	Preparation for Construction	item	1	435 days
50	1.3.7.2	Dyke Construcion on Both Sides	m³	49389	90 days
51	1.3.7.3	Dyke Closing Operation	item	1	1 day
52	1.3.7.4	Construction of the Closure Dam	m³	118297	160 days
53	1.3.7.5	Dam Slope Protection Works	Nos.	86000	140 days
54	1.3.7.6	Fine dressing and close turfing	item	1	160 days
55	1.3.7.7	Hand over of Closure Dam	item	1	15 days



Project : CEIP I
Contractor : CHWE
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Task — Split — Milestone ◆ — Summary — Project Summary — External Tasks — External Tasks Milestone ◇ — Progress — Critical Path

J.M.Labbo
Team Leader
CEIP-1

13 October 2016

Paul Zwetsloot
Construction Resident Engineer.
DCS & Management Support.
CEIP-1, Khulna

Mazibur Rahman Khan
Deputy Resident Engineer.
DCS & Management Support
CEIP-1 Khulna

The first Engineering Bureau of Henan Water Conservancy
河南省水利第一工程局
HWE
孟加拉海堤改良項目
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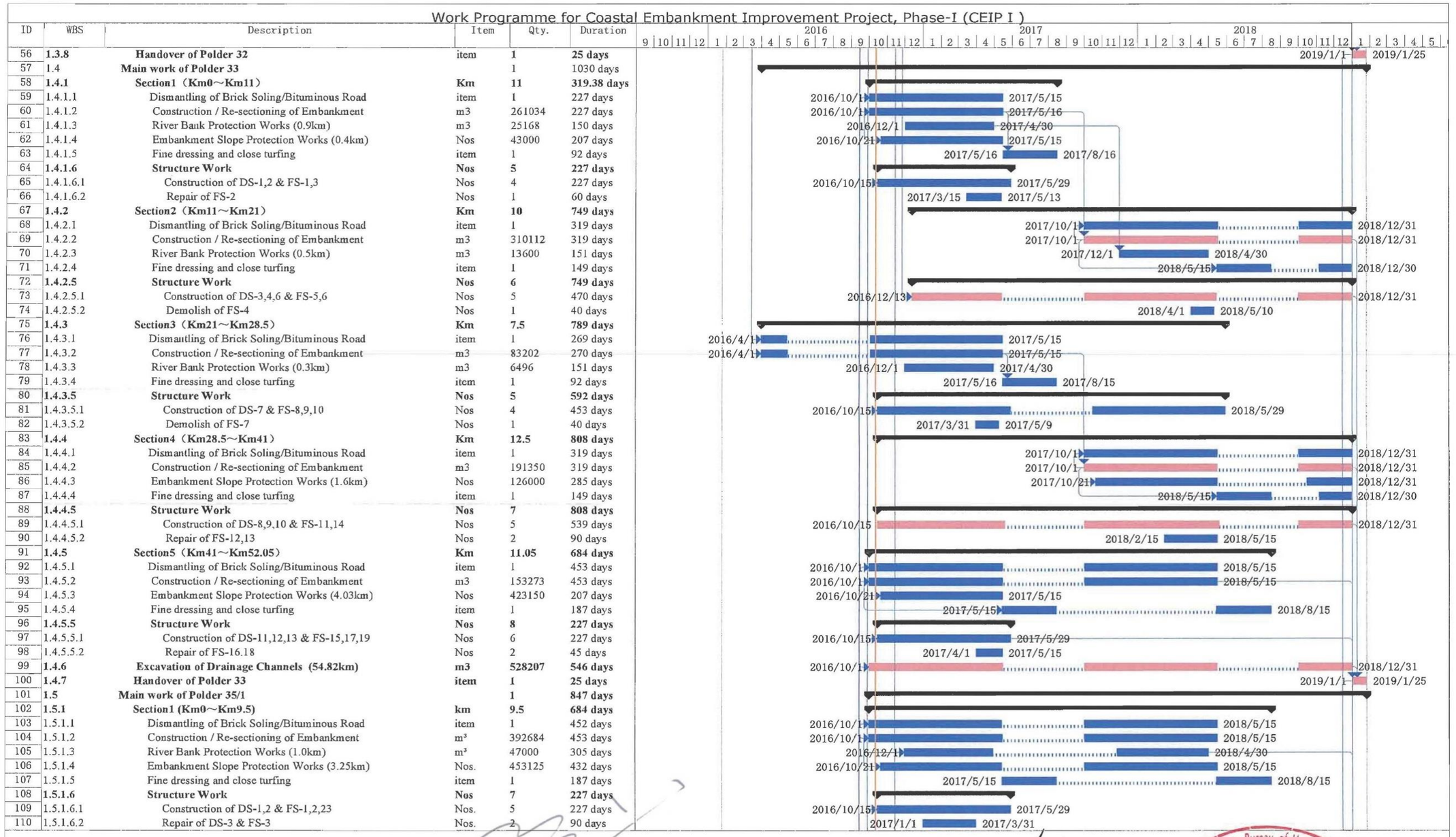
Work Programme for Coastal Embankment Improvement Project, Phase-I (CEIP I)

ID	WBS	Description	Item	Qty.	Duration	Start	Finish
56	**1.3.8**	**Handover of Polder 32**	item	**1**	**25 days**	2019/1/1	2019/1/25
57	1.4	**Main work of Polder 33**		1	1030 days		
58	**1.4.1**	**Section1（Km0～Km11）**	**Km**	**11**	**319.38 days**		
59	1.4.1.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days	2016/10/1	2017/5/15
60	1.4.1.2	Construction / Re-sectioning of Embankment	m3	261034	227 days	2016/10/1	~~2017/5/16~~
61	1.4.1.3	River Bank Protection Works (0.9km)	m3	25168	150 days	2016/12/1	~~2017/4/30~~
62	1.4.1.4	Embankment Slope Protection Works (0.4km)	Nos	43000	207 days	2016/10/21	2017/5/15
63	1.4.1.5	Fine dressing and close turfing	item	1	92 days	2017/5/16	2017/8/16
64	**1.4.1.6**	**Structure Work**	**Nos**	**5**	**227 days**		
65	1.4.1.6.1	Construction of DS-1,2 & FS-1,3	Nos	4	227 days	2016/10/15	2017/5/29
66	1.4.1.6.2	Repair of FS-2	Nos	1	60 days	2017/3/15	2017/5/13
67	**1.4.2**	**Section2（Km11～Km21）**	**Km**	**10**	**749 days**		
68	1.4.2.1	Dismantling of Brick Soling/Bituminous Road	item	1	319 days	2017/10/1	2018/12/31
69	1.4.2.2	Construction / Re-sectioning of Embankment	m3	310112	319 days	2017/10/1	2018/12/31
70	1.4.2.3	River Bank Protection Works (0.5km)	m3	13600	151 days	2017/12/1	2018/4/30
71	1.4.2.4	Fine dressing and close turfing	item	1	149 days	2018/5/15	2018/12/30
72	**1.4.2.5**	**Structure Work**	**Nos**	**6**	**749 days**		
73	1.4.2.5.1	Construction of DS-3,4,6 & FS-5,6	Nos	5	470 days	2016/12/13	2018/12/31
74	1.4.2.5.2	Demolish of FS-4	Nos	1	40 days	2018/4/1	2018/5/10
75	**1.4.3**	**Section3（Km21～Km28.5）**	**Km**	**7.5**	**789 days**		
76	1.4.3.1	Dismantling of Brick Soling/Bituminous Road	item	1	269 days	2016/4/1	2017/5/15
77	1.4.3.2	Construction / Re-sectioning of Embankment	m3	83202	270 days	2016/4/1	~~2017/5/15~~
78	1.4.3.3	River Bank Protection Works (0.3km)	m3	6496	151 days	2016/12/1	2017/4/30
79	1.4.3.4	Fine dressing and close turfing	item	1	92 days	2017/5/16	2017/8/15
80	**1.4.3.5**	**Structure Work**	**Nos**	**5**	**592 days**		
81	1.4.3.5.1	Construction of DS-7 & FS-8,9,10	Nos	4	453 days	2016/10/15	2018/5/29
82	1.4.3.5.2	Demolish of FS-7	Nos	1	40 days	2017/3/31	2017/5/9
83	**1.4.4**	**Section4（Km28.5～Km41）**	**Km**	**12.5**	**808 days**		
84	1.4.4.1	Dismantling of Brick Soling/Bituminous Road	item	1	319 days	2017/10/1	2018/12/31
85	1.4.4.2	Construction / Re-sectioning of Embankment	m3	191350	319 days	2017/10/1	2018/12/31
86	1.4.4.3	Embankment Slope Protection Works (1.6km)	Nos	126000	285 days	2017/10/21	2018/12/31
87	1.4.4.4	Fine dressing and close turfing	item	1	149 days	2018/5/15	2018/12/30
88	**1.4.4.5**	**Structure Work**	**Nos**	**7**	**808 days**		
89	1.4.4.5.1	Construction of DS-8,9,10 & FS-11,14	Nos	5	539 days	2016/10/15	2018/12/31
90	1.4.4.5.2	Repair of FS-12,13	Nos	2	90 days	2018/2/15	2018/5/15
91	**1.4.5**	**Section5（Km41～Km52.05）**	**Km**	**11.05**	**684 days**		
92	1.4.5.1	Dismantling of Brick Soling/Bituminous Road	item	1	453 days	2016/10/1	2018/5/15
93	1.4.5.2	Construction / Re-sectioning of Embankment	m3	153273	453 days	2016/10/1	~~2018/5/15~~
94	1.4.5.3	Embankment Slope Protection Works (4.03km)	Nos	423150	207 days	2016/10/21	2017/5/15
95	1.4.5.4	Fine dressing and close turfing	item	1	187 days	~~2017/5/15~~	2018/8/15
96	**1.4.5.5**	**Structure Work**	**Nos**	**8**	**227 days**		
97	1.4.5.5.1	Construction of DS-11,12,13 & FS-15,17,19	Nos	6	227 days	2016/10/15	~~2017/5/29~~
98	1.4.5.5.2	Repair of FS-16.18	Nos	2	45 days	2017/4/1	2017/5/15
99	**1.4.6**	**Excavation of Drainage Channels (54.82km)**	**m3**	**528207**	**546 days**	2016/10/1	2018/12/31
100	**1.4.7**	**Handover of Polder 33**	**item**	**1**	**25 days**	2019/1/1	2019/1/25
101	**1.5**	**Main work of Polder 35/1**		**1**	**847 days**		
102	**1.5.1**	**Section1 (Km0～Km9.5)**	**km**	**9.5**	**684 days**		
103	1.5.1.1	Dismantling of Brick Soling/Bituminous Road	item	1	452 days	2016/10/1	2018/5/15
104	1.5.1.2	Construction / Re-sectioning of Embankment	m^3	392684	453 days	2016/10/1	2018/5/15
105	1.5.1.3	River Bank Protection Works (1.0km)	m^3	47000	305 days	2016/12/1	~~2018/4/30~~
106	1.5.1.4	Embankment Slope Protection Works (3.25km)	Nos.	453125	432 days	2016/10/21	2018/5/15
107	1.5.1.5	Fine dressing and close turfing	item	1	187 days	2017/5/15	2018/8/15
108	**1.5.1.6**	**Structure Work**	**Nos**	**7**	**227 days**		
109	1.5.1.6.1	Construction of DS-1,2 & FS-1,2,23	Nos.	5	227 days	2016/10/15	2017/5/29
110	1.5.1.6.2	Repair of DS-3 & FS-3	Nos.	2	90 days	2017/1/1	2017/3/31



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Task — Summary — External Tasks Milestone ◇
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13 October 2016

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Mazibur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support.
CEIP-1, Khulna

The First Engineering Bureau of Henan Water Conservancy
河南省水利第一工程局
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孟加拉海堤改良項目
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Work Programme for Coastal Embankment Improvement Project, Phase-I (CEIP I)

ID	WBS	Description	Item	Qty.	Duration	Start	Finish
111	**1.5.2**	**Section2(Km9.5~Km15)**	**km**	**5.5**	**822 days**		
112	1.5.2.1	Dismantling of Brick Soling/Bituminous Road	item	1	545 days	2016/10/1	2018/12/30
113	1.5.2.2	Construction of Embankment (Provisional)	m³	303124	546 days	2016/10/1	2018/12/31
114	1.5.2.3	Embankment Slope Protection Works (1.5km)	Nos.	323750	289 days	2017/10/31	2018/12/31
115	1.5.2.4	Fine dressing and close turfing	item	1	241 days	2017/5/15	2018/12/30
116	**1.5.2.5**	**Structure Work**	**Nos**	**3**	**592 days**		
117	1.5.2.5.1	Construction of DS-4,5 & FS-4	Nos.	3	454 days	2016/10/15	2018/5/29
118	**1.5.3**	**Section3 (Km15~Km19.5)**	**km**	**4.5**	**319 days**		
119	1.5.3.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days	2016/10/1	2017/5/15
120	1.5.3.2	Construction / Re-sectioning of Embankment	m³	430965	227 days	2016/10/1	2017/5/15
121	1.5.3.3	Embankment Slope Protection Works (2.0km)	Nos.	450000	207 days	2016/10/21	2017/5/15
122	1.5.3.4	Fine dressing and close turfing	item	1	92 days	2017/5/16	2017/8/15
123	**1.5.3.5**	**Structure Work**	**Nos**	**3**	**227 days**		
124	1.5.3.5.1	Construction of DS-6 & FS-5,6	Nos.	3	227 days	2016/10/15	2017/5/29
125	**1.5.4**	**Section4 (Km19.5~Km25.5)**	**km**	**6**	**593 days**		
126	1.5.4.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days	2016/10/1	2017/5/15
127	1.5.4.2	Construction / Re-sectioning of Embankment	m³	627363	227 days	2016/10/1	2017/5/15
128	1.5.4.3	Embankment Slope Protection Works (5.0km)	Nos.	1087500	434 days	2016/10/21	2018/5/16
129	1.5.4.4	Fine dressing and close turfing	item	1	92 days	2017/5/16	2017/8/15
130	**1.5.4.5**	**Structure Work**	**Nos**	**3**	**227 days**		
131	1.5.4.5.1	Construction of DS-7,18 & FS-7	Nos.	3	227 days	2016/10/15	2017/5/29
132	**1.5.5**	**Section5 (Km25.5~Km37)**	**km**	**11.5**	**670 days**		
133	1.5.5.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days	2017/10/1	2018/5/15
134	1.5.5.2	Construction / Re-sectioning of Embankment	m³	221157	227 days	2017/10/1	2018/5/15
135	1.5.5.3	River Bank Protection Works (0.5km)	m³	8350	151 days	2017/12/1	2018/4/30
136	1.5.5.4	Fine dressing and close turfing	item	1	92 days	2018/5/16	2018/8/15
137	**1.5.5.5**	**Structure Work**	**Nos**	**9**	**593 days**		
138	1.5.5.5.1	Construction of DS-8, & FS-12,13,14	Nos.	4	454 days	2016/10/15	2018/5/30
139	1.5.5.5.2	Repair of DS-10 & FS-10	Nos.	2	90 days	2018/2/1	2018/5/1
140	1.5.5.5.3	Demolish of FS-8,9,11	Nos.	3	45 days	2018/3/1	2018/4/14
141	**1.5.6**	**Section6 (Km37~Km53.15)**	**km**	**16.15**	**457 days**		
142	1.5.6.1	Dismantling of Brick Soling/Bituminous Road	item	1	319 days	2017/10/1	2018/12/30
143	1.5.6.2	Construction / Re-sectioning of Embankment	m³	280803	320 days	2017/10/1	2018/12/31
144	1.5.6.3	Fine dressing and close turfing	item	1	149 days	2018/5/15	2018/12/30
145	**1.5.6.4**	**Structure Work**	**Nos**	**7**	**456 days**		
146	1.5.6.4.1	Construction of DS-11,12,16,17 & FS-15,16,17	Nos.	7	318 days	2017/10/1	2018/12/30
147	**1.5.7**	**Section7 (Km53.15~Km62.995)**	**km**	**9.85**	**457 days**		
148	1.5.7.1	Dismantling of Brick Soling/Bituminous Road	item	1	318 days	2017/10/1	2018/12/30
149	1.5.7.2	Construction / Re-sectioning of Embankment	m³	181692	319 days	2017/10/1	2018/12/31
150	1.5.7.3	Fine dressing and close turfing	item	1	149 days	2018/5/15	2018/12/30
151	**1.5.7.4**	**Structure Work**	**Nos**	**8**	**456 days**		
152	1.5.7.4.1	Construction of DS-13,14,15 & FS-18,19,21,22	Nos.	7	318 days	2017/10/1	2018/12/30
153	1.5.7.4.2	Repair of FS-20	Nos	1	60 days	2018/3/4	2018/5/3
154	**1.5.8**	**Excavation of Drainage Channels (70.5km)**	**m³**	**605108**	**545 days**	2016/10/1	2018/12/31
155	**1.5.9**	**Handover of Polder 35/1**	**item**	**1**	**25 days**	2019/1/1	2019/1/25
156	**1.6**	**Main work of Polder 35/3**	**item**	**1**	**663 days**		
157	**1.6.1**	**Section1 (Km0~Km14.08)**	**km**	**14.08**	**662 days**		
158	1.6.1.1	Dismantling of Brick Soling/Bituminous Road	item	1	452 days	2016/10/1	2018/5/14
159	1.6.1.2	Construction / Re-sectioning of Embankment	m³	491390	452 days	2016/10/1	2018/5/15
160	1.6.1.3	River Bank Protection Works (1.3km)	m³	28656	300 days	2016/12/1	2018/5/1
161	1.6.1.4	Fine dressing and close turfing	item	1	178 days	2017/5/16	2018/7/24
162	**1.6.1.5**	**Structure Work**	**Nos**	**7**	**591 days**		
163	1.6.1.5.1	Construction of DS-1,4; FS-1,3,4,13	Nos.	6	452 days	2016/10/15	2018/5/28
164	1.6.1.5.2	Repair of Flushing Inlets	Nos.	1	60 days	2017/11/1	2017/12/30
165	**1.6.2**	**Section2 (Km14.08~Km19.35)**	**km**	**5.27**	**297 days**		

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Task — Summary — External Tasks Milestone ◇
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Mazibur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
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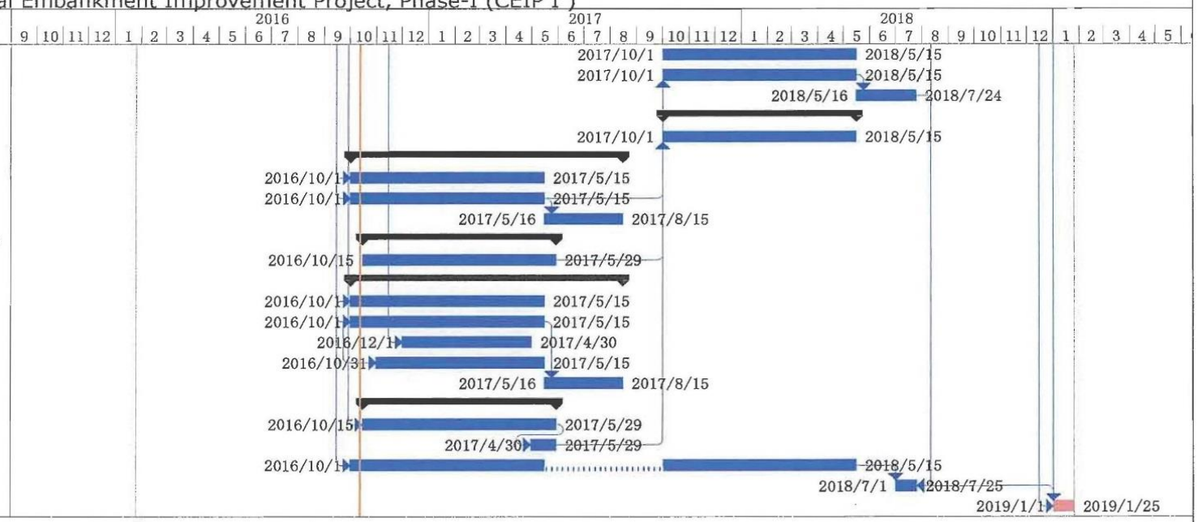
Work Programme for Coastal Embankment Improvement Project, Phase-I (CEIP I)

ID	WBS	Description	Item	Qty.	Duration
166	1.6.2.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days
167	1.6.2.2	Construction / Re-sectioning of Embankment	m³	158520	227 days
168	1.6.2.3	Fine dressing and close turfing	item	1	70 days
169	**1.6.2.4**	**Structure Work**	**Nos**	**2**	**227 days**
170	1.6.2.4.1	Construction of FS-5,6	Nos.	2	227 days
171	**1.6.3**	**Section3 (Km19.35～Km29.14)**	**km**	**9.79**	**319 days**
172	1.6.3.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days
173	1.6.3.2	Construction / Re-sectioning of Embankment	m³	242650	227 days
174	1.6.3.3	Fine dressing and close turfing	item	1	92 days
175	**1.6.3.4**	**Structure Work**	**Nos**	**5**	**226.38 days**
176	1.6.3.4.1	Construction of DS-2 & FS-7,8,9,10	Nos.	5	226 days
177	**1.6.4**	**Section4 (Km29.14～Km40)**	**km**	**10.86**	**319 days**
178	1.6.4.1	Dismantling of Brick Soling/Bituminous Road	item	1	227 days
179	1.6.4.2	Construction / Re-sectioning of Embankment	m³	293205	227 days
180	1.6.4.3	River Bank Protection Works (1.2km)	m³	17536	151 days
181	1.6.4.4	Embankment Slope Protection Works (0.9km)	Nos.	96750	197 days
182	1.6.4.5	Fine dressing and close turfing	item	1	92 days
183	**1.6.4.6**	**Structure Work**	**Nos**	**2**	**227 days**
184	1.6.4.6.1	Construction of DS-3	Nos.	1	227 days
185	1.6.4.6.2	Demolish of FS-11	Nos.	1	30 days
186	**1.6.5**	**Excavation of Drainage Channels (24.0km)**	**m³**	**421970.7**	**453 days**
187	**1.6.6**	**Handover of Polder 35/3**	**item**	**1**	**25 days**
188	**1.7**	**Site Clearance, Demobilization & Handover**	**item**	**1**	**25 days**



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Mazibur Rahman Khan
Deputy Resident Engineer
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support
CEIP-1 Khulna

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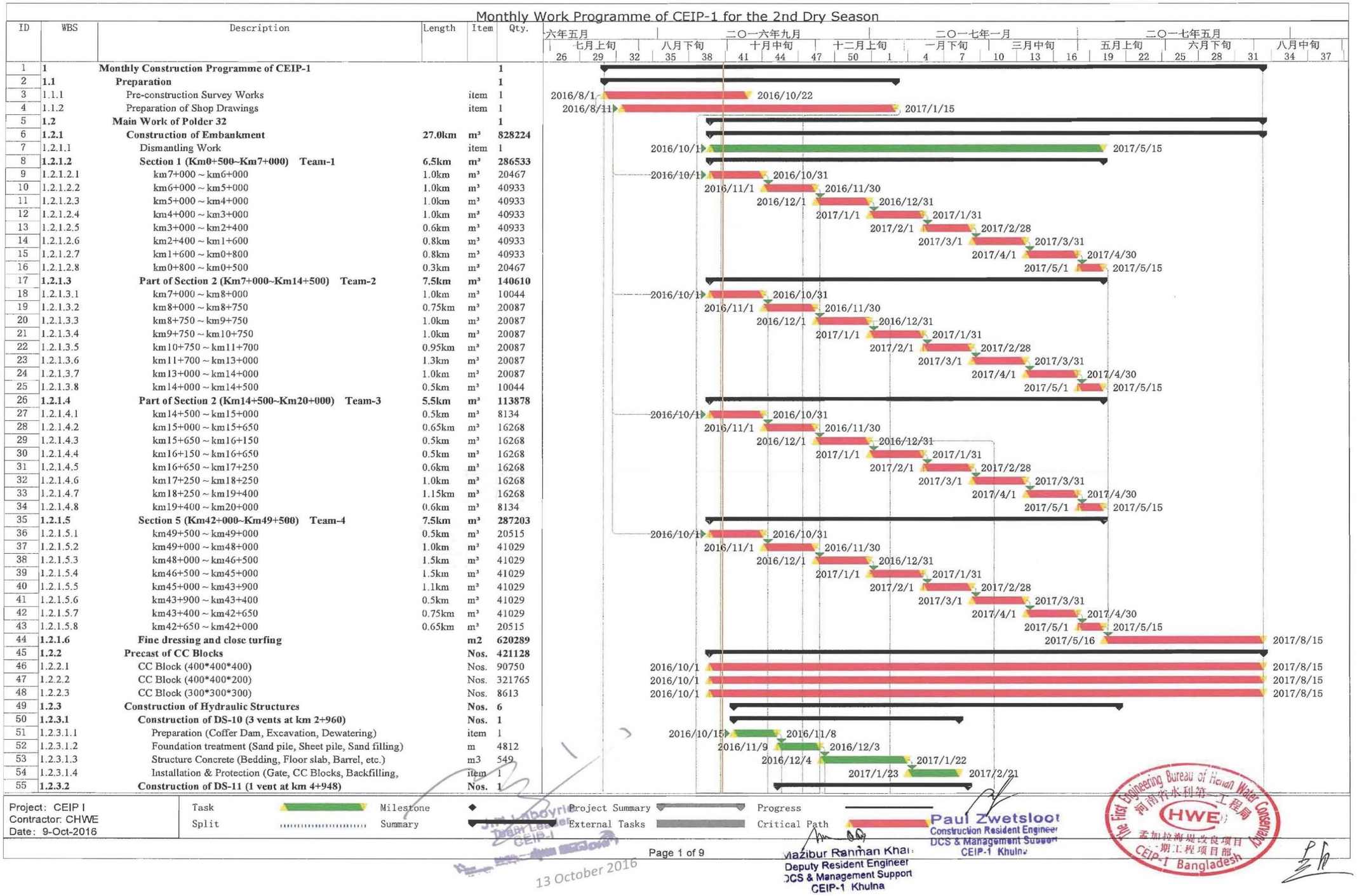
Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
1	**1**	**Monthly Construction Programme of CEIP-1**			**1**
2	**1.1**	**Preparation**			**1**
3	1.1.1	Pre-construction Survey Works		item	1
4	1.1.2	Preparation of Shop Drawings		item	1
5	**1.2**	**Main Work of Polder 32**			**1**
6	**1.2.1**	**Construction of Embankment**	**27.0km**	**m³**	**828224**
7	1.2.1.1	Dismantling Work		item	1
8	**1.2.1.2**	**Section 1 (Km0+500~Km7+000) Team-1**	**6.5km**	**m³**	**286533**
9	1.2.1.2.1	km7+000 ~ km6+000	1.0km	m³	20467
10	1.2.1.2.2	km6+000 ~ km5+000	1.0km	m³	40933
11	1.2.1.2.3	km5+000 ~ km4+000	1.0km	m³	40933
12	1.2.1.2.4	km4+000 ~ km3+000	1.0km	m³	40933
13	1.2.1.2.5	km3+000 ~ km2+400	0.6km	m³	40933
14	1.2.1.2.6	km2+400 ~ km1+600	0.8km	m³	40933
15	1.2.1.2.7	km1+600 ~ km0+800	0.8km	m³	40933
16	1.2.1.2.8	km0+800 ~ km0+500	0.3km	m³	20467
17	**1.2.1.3**	**Part of Section 2 (Km7+000~Km14+500) Team-2**	**7.5km**	**m³**	**140610**
18	1.2.1.3.1	km7+000 ~ km8+000	1.0km	m³	10044
19	1.2.1.3.2	km8+000 ~ km8+750	0.75km	m³	20087
20	1.2.1.3.3	km8+750 ~ km9+750	1.0km	m³	20087
21	1.2.1.3.4	km9+750 ~ km10+750	1.0km	m³	20087
22	1.2.1.3.5	km10+750 ~ km11+700	0.95km	m³	20087
23	1.2.1.3.6	km11+700 ~ km13+000	1.3km	m³	20087
24	1.2.1.3.7	km13+000 ~ km14+000	1.0km	m³	20087
25	1.2.1.3.8	km14+000 ~ km14+500	0.5km	m³	10044
26	**1.2.1.4**	**Part of Section 2 (Km14+500~Km20+000) Team-3**	**5.5km**	**m³**	**113878**
27	1.2.1.4.1	km14+500 ~ km15+000	0.5km	m³	8134
28	1.2.1.4.2	km15+000 ~ km15+650	0.65km	m³	16268
29	1.2.1.4.3	km15+650 ~ km16+150	0.5km	m³	16268
30	1.2.1.4.4	km16+150 ~ km16+650	0.5km	m³	16268
31	1.2.1.4.5	km16+650 ~ km17+250	0.6km	m³	16268
32	1.2.1.4.6	km17+250 ~ km18+250	1.0km	m³	16268
33	1.2.1.4.7	km18+250 ~ km19+400	1.15km	m³	16268
34	1.2.1.4.8	km19+400 ~ km20+000	0.6km	m³	8134
35	**1.2.1.5**	**Section 5 (Km42+000~Km49+500) Team-4**	**7.5km**	**m³**	**287203**
36	1.2.1.5.1	km49+500 ~ km49+000	0.5km	m³	20515
37	1.2.1.5.2	km49+000 ~ km48+000	1.0km	m³	41029
38	1.2.1.5.3	km48+000 ~ km46+500	1.5km	m³	41029
39	1.2.1.5.4	km46+500 ~ km45+000	1.5km	m³	41029
40	1.2.1.5.5	km45+000 ~ km43+900	1.1km	m³	41029
41	1.2.1.5.6	km43+900 ~ km43+400	0.5km	m³	41029
42	1.2.1.5.7	km43+400 ~ km42+650	0.75km	m³	41029
43	1.2.1.5.8	km42+650 ~ km42+000	0.65km	m³	20515
44	**1.2.1.6**	**Fine dressing and close turfing**		**m2**	**620289**
45	**1.2.2**	**Precast of CC Blocks**		**Nos.**	**421128**
46	1.2.2.1	CC Block (400*400*400)		Nos.	90750
47	1.2.2.2	CC Block (400*400*200)		Nos.	321765
48	1.2.2.3	CC Block (300*300*300)		Nos.	8613
49	**1.2.3**	**Construction of Hydraulic Structures**		**Nos.**	**6**
50	**1.2.3.1**	**Construction of DS-10 (3 vents at km 2+960)**		**Nos.**	**1**
51	1.2.3.1.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
52	1.2.3.1.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	4812
53	1.2.3.1.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	549
54	1.2.3.1.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
55	**1.2.3.2**	**Construction of DS-11 (1 vent at km 4+948)**		**Nos.**	**1**



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Deputy Resident Engineer
DCS & Management Support
CEIP-1 Khulna

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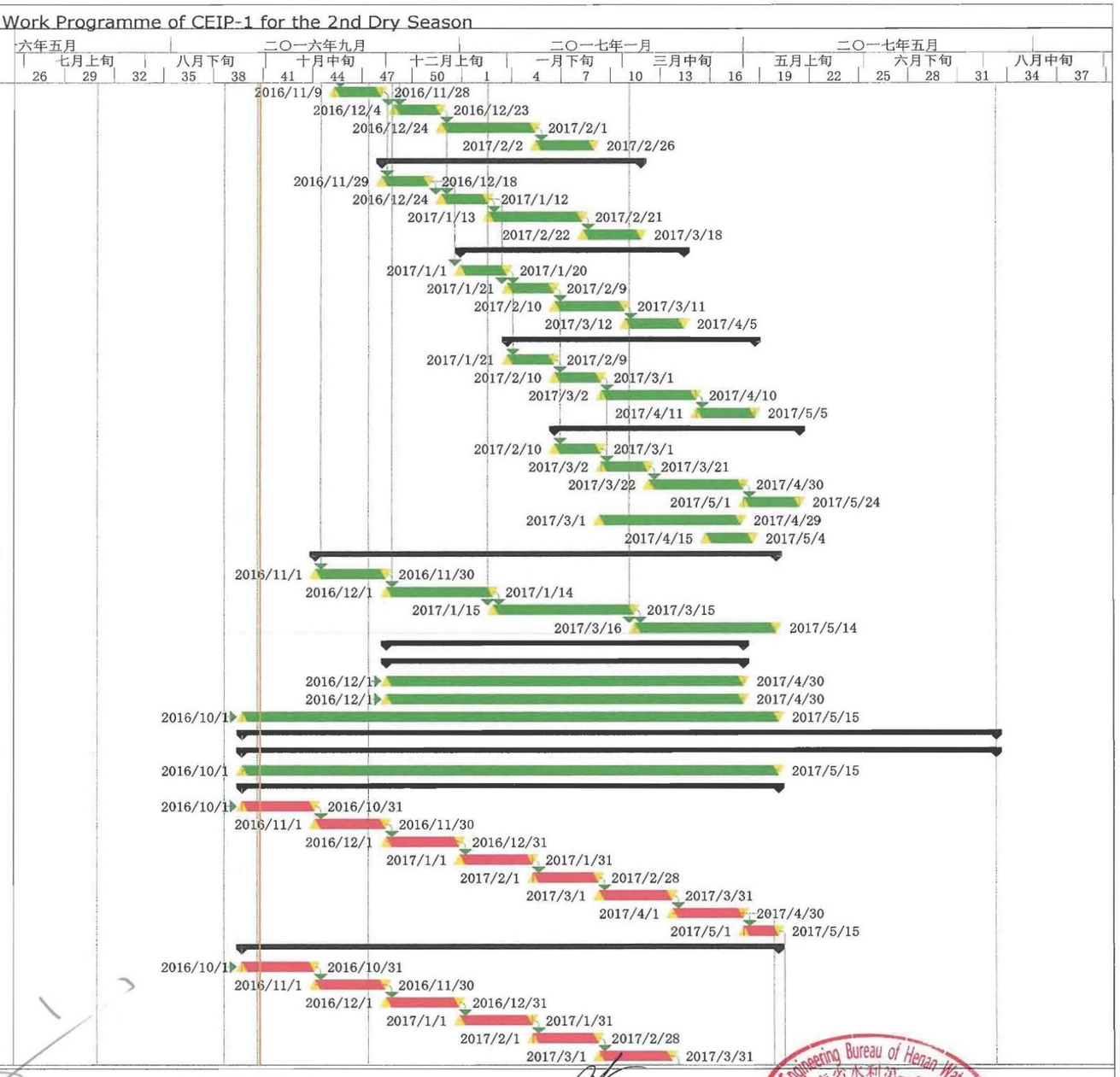
Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
56	1.2.3.2.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
57	1.2.3.2.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3153
58	1.2.3.2.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	320
59	1.2.3.2.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
60	**1.2.3.3**	**Construction of DS-09 (1 vent at km 45+506)**		**Nos.**	**1**
61	1.2.3.3.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
62	1.2.3.3.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3060
63	1.2.3.3.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	394
64	1.2.3.3.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
65	**1.2.3.4**	**Construction of D-10 (1 vent at km 10+875)**		**Nos.**	**1**
66	1.2.3.4.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
67	1.2.3.4.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328
68	1.2.3.4.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	198
69	1.2.3.4.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
70	**1.2.3.5**	**Construction of DS-16 (1 vent at km 14+305)**		**Nos.**	**1**
71	1.2.3.5.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
72	1.2.3.5.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2708
73	1.2.3.5.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	348
74	1.2.3.5.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
75	**1.2.3.6**	**Construction of DS-01 (1 vent at km 18+810)**		**Nos.**	**1**
76	1.2.3.6.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
77	1.2.3.6.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2709
78	1.2.3.6.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	351
79	1.2.3.6.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
80	1.2.4	Repair of FFDFR-1		Nos.	1
81	1.2.5	Demolish of DS-15		Nos.	1
82	**1.2.6**	**Embankment Slope Protection Works**	**3.3km**	**Nos.**	**369500**
83	1.2.6.1	km7+100 ~ km7+700	0.6km	Nos.	61500
84	1.2.6.2	km4+800 ~ km5+500	0.7km	Nos.	98000
85	1.2.6.3	km9+000 ~ km10+000	1.0km	Nos.	105000
86	1.2.6.4	km15+000 ~ km16+000	1.0km	Nos.	105000
87	**1.2.7**	**River Bank Protection Works**	**0.75km**	**item**	**1**
88	**1.2.7.1**	**km48+450 ~ km49+200**	0.75km	**item**	**1**
89	1.2.7.1.1	Dumping Hard Rock / CC Blocks		m³	33970
90	1.2.7.1.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	35625
91	**1.2.8**	**Excavation of Drainage Channels**	**14.5km**	**m3**	**77226**
92	**1.3**	**Main Work of Polder 33**			**1**
93	**1.3.1**	**Construction of Embankment**	**30.0km**	**m³**	**512768**
94	1.3.1.1	Dismantling Work		item	1
95	**1.3.1.2**	**Section 3 (Km21+000~Km28+500) Team-1**	**7.5km**	**m³**	**83202**
96	1.3.1.2.1	km21+000 ~ km22+000	1.0km	m³	5943
97	1.3.1.2.2	km22+000 ~ km23+300	1.3km	m³	11886
98	1.3.1.2.3	km23+300 ~ km24+250	0.95km	m³	11886
99	1.3.1.2.4	km24+250 ~ km25+250	1.0km	m³	11886
100	1.3.1.2.5	km25+250 ~ km26+050	0.8km	m³	11886
101	1.3.1.2.6	km26+050 ~ km27+050	1.0km	m³	11886
102	1.3.1.2.7	km27+050 ~ km28+050	1.0km	m³	11886
103	1.3.1.2.8	km28+050 ~ km28+500	0.45km	m³	5943
104	**1.3.1.3**	**Part of Section 5 (Km41+000~Km44+500) Team-2**	**3.5km**	**m³**	**60706**
105	1.3.1.3.1	km41+000 ~ km41+350	0.25km	m³	4336
106	1.3.1.3.2	km41+350 ~ km41+800	0.45km	m³	8672
107	1.3.1.3.3	km41+800 ~ km42+200	0.4km	m³	8672
108	1.3.1.3.4	km42+200 ~ km42+750	0.55km	m³	8672
109	1.3.1.3.5	km42+750 ~ km43+200	0.45km	m³	8672
110	1.3.1.3.6	km43+200 ~ km43+800	0.6km	m³	8672



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Mazibur Rahman Khan
Deputy Resident Engineer
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
Construction Resident Engineer
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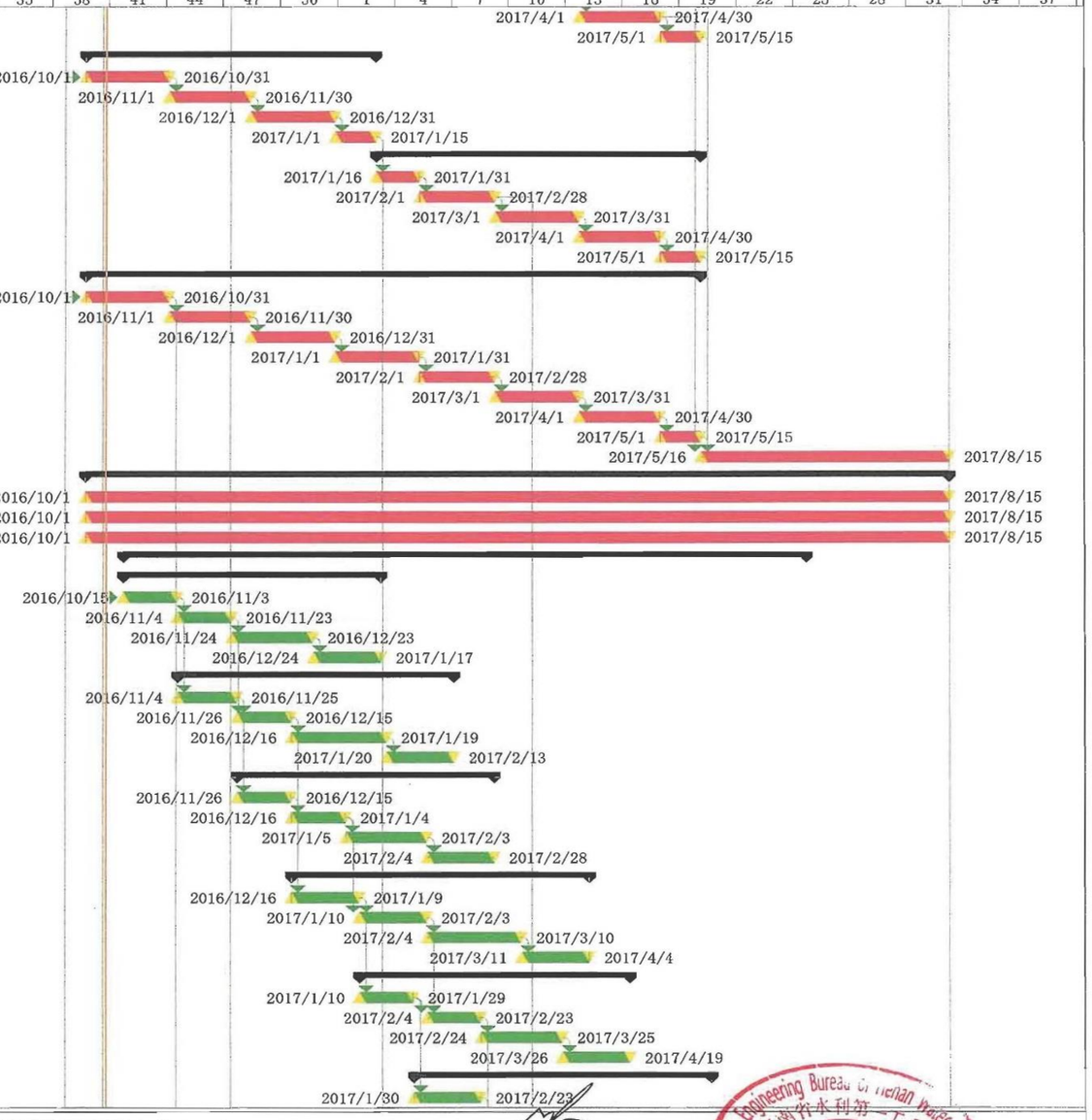
Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.	Start	Finish
111	1.3.1.3.7	km43+800 ~ km44+250	0.45km	m³	8672	2017/4/1	2017/4/30
112	1.3.1.3.8	km44+250 ~ km44+500	0.25km	m³	4336	2017/5/1	2017/5/15
113	**1.3.1.4**	**Part of Section 5 (Km44+500~Km52+500) Team-3**	**8.0km**	**m³**	**92567**		
114	1.3.1.4.1	km44+500 ~ km45+500	1.0km	m³	15428	2016/10/1	2016/10/31
115	1.3.1.4.2	km45+500 ~ km48+300	2.8km	m³	30856	2016/11/1	2016/11/30
116	1.3.1.4.3	km48+300 ~ km50+800	2.5km	m³	30856	2016/12/1	2016/12/31
117	1.3.1.4.4	km50+800 ~ km52+500	1.7km	m³	15428	2017/1/1	2017/1/15
118	**1.3.1.5**	**Part of Section 1 (Km0+000~Km3+750)**	**3.75km**	**m³**	**123184**		
119	1.3.1.5.1	km0+000 ~ km0+750	0.75km	m³	15398	2017/1/16	2017/1/31
120	1.3.1.5.2	km0+750 ~ km1+750	1.0km	m³	30796	2017/2/1	2017/2/28
121	1.3.1.5.3	km1+750 ~ km2+750	1.0km	m³	30796	2017/3/1	2017/3/31
122	1.3.1.5.4	km2+750 ~ km3+300	0.55km	m³	30796	2017/4/1	2017/4/30
123	1.3.1.5.5	km3+300 ~ km3+750	0.45km	m³	15398	2017/5/1	2017/5/15
124	**1.3.1.6**	**Part of Section 1 (Km3+750~Km11+000) Team-4**	**7.25km**	**m³**	**137850**		
125	1.3.1.6.1	km3+750 ~ km4+150	0.4km	m³	9846	2016/10/1	2016/10/31
126	1.3.1.6.2	km4+150 ~ km5+500	1.35km	m³	19693	2016/11/1	2016/11/30
127	1.3.1.6.3	km5+500 ~ km6+750	1.25km	m³	19693	2016/12/1	2016/12/31
128	1.3.1.6.4	km6+750 ~ km7+750	1.0km	m³	19693	2017/1/1	2017/1/31
129	1.3.1.6.5	km7+750 ~ km9+000	1.25km	m³	19693	2017/2/1	2017/2/28
130	1.3.1.6.6	km9+000 ~ km9+900	0.9km	m³	19693	2017/3/1	2017/3/31
131	1.3.1.6.7	km9+900 ~ km10+750	0.85km	m³	19693	2017/4/1	2017/4/30
132	1.3.1.6.8	km10+750 ~ km11+000	0.25km	m³	9846	2017/5/1	2017/5/15
133	**1.3.1.7**	**Fine dressing and close turfing**		**m2**	**372737**	2017/5/16	2017/8/15
134	**1.3.2**	**Precast of CC Blocks**		**Nos.**	**638862**		
135	1.3.2.1	CC Block (400*400*400)		Nos.	121825	2016/10/1	2017/8/15
136	1.3.2.2	CC Block (400*400*200)		Nos.	492681	2016/10/1	2017/8/15
137	1.3.2.3	CC Block (300*300*300)		Nos.	24356	2016/10/1	2017/8/15
138	**1.3.3**	**Construction of Hydraulic Structures**		**Nos.**	**12**		
139	**1.3.3.1**	**Construction of FS-15 (1 vent at km 42+870)**		**Nos.**	**1**		
140	1.3.3.1.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2016/10/15	2016/11/3
141	1.3.3.1.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328	2016/11/4	2016/11/23
142	1.3.3.1.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188	2016/11/24	2016/12/23
143	1.3.3.1.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1	2016/12/24	2017/1/17
144	**1.3.3.2**	**Construction of DS-12 (1 vents at km 44+140)**		**Nos.**	**1**		
145	1.3.3.2.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2016/11/4	2016/11/25
146	1.3.3.2.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2148	2016/11/26	2016/12/15
147	1.3.3.2.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	395	2016/12/16	2017/1/19
148	1.3.3.2.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1	2017/1/20	2017/2/13
149	**1.3.3.3**	**Construction of FS-17 (1vent at km 46+210)**		**Nos.**	**1**		
150	1.3.3.3.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2016/11/26	2016/12/15
151	1.3.3.3.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328	2016/12/16	2017/1/4
152	1.3.3.3.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188	2017/1/5	2017/2/3
153	1.3.3.3.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1	2017/2/4	2017/2/28
154	**1.3.3.4**	**Construction of DS-13 (1 vent at km 47+310)**		**Nos.**	**1**		
155	1.3.3.4.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2016/12/16	2017/1/9
156	1.3.3.4.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	4050	2017/1/10	2017/2/3
157	1.3.3.4.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	398	2017/2/4	2017/3/10
158	1.3.3.4.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1	2017/3/11	2017/4/4
159	**1.3.3.5**	**Construction of FS-19 (1 vents at km 48+310)**		**Nos.**	**1**		
160	1.3.3.5.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2017/1/10	2017/1/29
161	1.3.3.5.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328	2017/2/4	2017/2/23
162	1.3.3.5.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188	2017/2/24	2017/3/25
163	1.3.3.5.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1	2017/3/26	2017/4/19
164	**1.3.3.6**	**Construction of DS-01 (1 vent at km 3+400)**		**Nos.**	**1**		
165	1.3.3.6.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1	2017/1/30	2017/2/23



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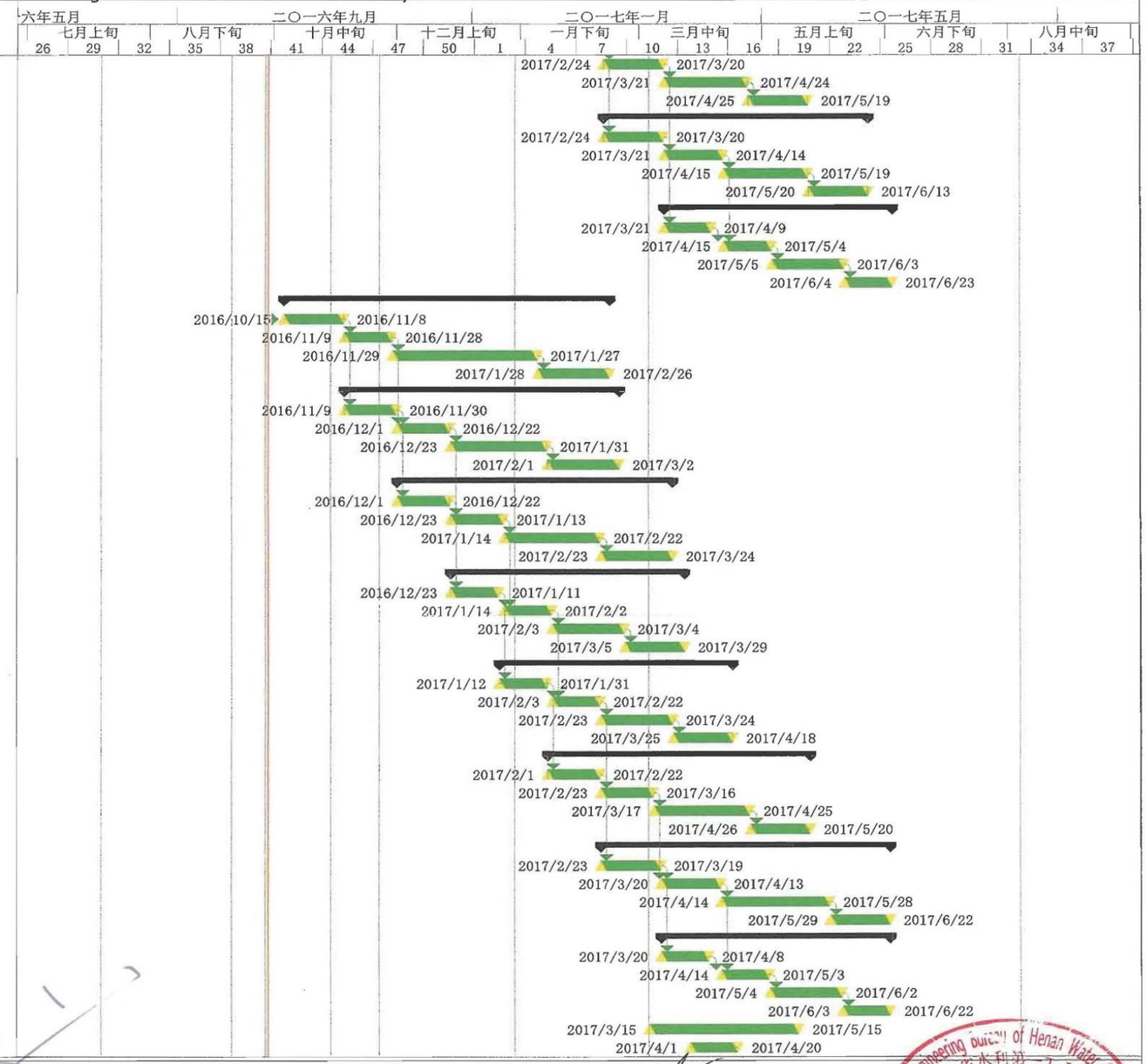
ID	WBS	Description	Length	Item	Qty.
166	1.3.3.6.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3920
167	1.3.3.6.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	391
168	1.3.3.6.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
169	**1.3.3.7**	**Construction of DS-02 (1 vent at km 5+810)**		**Nos.**	**1**
170	1.3.3.7.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
171	1.3.3.7.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3231
172	1.3.3.7.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	357
173	1.3.3.7.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
174	**1.3.3.8**	**Construction of FS-01 (1 vent at km 7+890)**		**Nos.**	**1**
175	1.3.3.8.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
176	1.3.3.8.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328
177	1.3.3.8.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188
178	1.3.3.8.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
179	**1.3.3.9**	**Construction of DS-09 (4 vent at km 39+840)**		**Nos.**	**1**
180	1.3.3.9.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
181	1.3.3.9.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2090
182	1.3.3.9.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	657
183	1.3.3.9.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
184	**1.3.3.10**	**Construction of DS-10 (1 vent at km 41+010)**		**Nos.**	**1**
185	1.3.3.10.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
186	1.3.3.10.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3881
187	1.3.3.10.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	396
188	1.3.3.10.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
189	**1.3.3.11**	**Construction of DS-11 (1 vent at km 41+820)**		**Nos.**	**1**
190	1.3.3.11.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
191	1.3.3.11.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3517
192	1.3.3.11.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	379
193	1.3.3.11.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
194	**1.3.3.12**	**Construction of FS-03 (1 vent at km 10+630)**		**Nos.**	**1**
195	1.3.3.12.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
196	1.3.3.12.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328
197	1.3.3.12.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188
198	1.3.3.12.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
199	**1.3.3.13**	**Construction of FS-06 (1 vent at km 18+660)**		**Nos.**	**1**
200	1.3.3.13.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
201	1.3.3.13.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328
202	1.3.3.13.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188
203	1.3.3.13.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
204	**1.3.3.14**	**Construction of DS-06 (1 vent at km 20+530)**		**Nos.**	**1**
205	1.3.3.14.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
206	1.3.3.14.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3633
207	1.3.3.14.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	414
208	1.3.3.14.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
209	**1.3.3.15**	**Construction of DS-07 (2 vent at km 25+330)**		**Nos.**	**1**
210	1.3.3.15.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
211	1.3.3.15.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	4518
212	1.3.3.15.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	496
213	1.3.3.15.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
214	**1.3.3.16**	**Construction of FS-08 (1 vent at km 22+920)**		**Nos.**	**1**
215	1.3.3.16.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
216	1.3.3.16.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2328
217	1.3.3.16.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	188
218	1.3.3.16.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
219	1.3.4	Repair of FS-2,16,18		Nos.	2
220	1.3.5	Demolish of FS-7		Nos.	1



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Sazidur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support
CEIP-1 Khulna

The First Engineering Bureau of Henan Water Conservancy
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Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
221	**1.3.6**	**Embankment Slope Protection Works**	**4.43km**	**Nos.**	**466150**
222	1.3.6.1	km44+670 ~ km48+400	3.73km	Nos.	391650
223	1.3.6.2	km51+100 ~ km51+400	0.3km	Nos.	31500
224	1.3.6.3	km0+800 ~ km1+200	0.4km	Nos.	43000
225	**1.3.7**	**River Bank Protection Works**	**1.15km**	**item**	**4**
226	**1.3.7.1**	**km0+000 ~ km0+200**	**0.2km**	**item**	**1**
227	1.3.7.1.1	Dumping Hard Rock / CC Blocks		m^3	8640
228	1.3.7.1.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	19000
229	**1.3.7.2**	**km1+200 ~ km1+600**	**0.4km**	**item**	**1**
230	1.3.7.2.1	Dumping Hard Rock / CC Blocks		m^3	7920
231	1.3.7.2.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	43000
232	**1.3.7.3**	**km2+900 ~ km3+200**	**0.3km**	**item**	**1**
233	1.3.7.3.1	Dumping Hard Rock / CC Blocks		m^3	6120
234	1.3.7.3.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	15750
235	**1.3.7.4**	**km25+250 ~ km25+550**	**0.3km**	**item**	**1**
236	1.3.7.4.1	Dumping Hard Rock / CC Blocks		m^3	5440
237	1.3.7.4.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	33000
238	**1.3.8**	**Excavation of Drainage Channels**	**27.41km**	**m3**	**264103**
239	**1.4**	**Main Work of Polder 35/1**			**1**
240	**1.4.1**	**Construction of Embankment**		m^3	**1387219**
241	1.4.1.1	Dismantling Work		item	1
242	**1.4.1.2**	**Part of Section 1 (Km0+000~Km8+000) Team-6**	**8.0km**	m^3	**328891**
243	1.4.1.2.1	km0+000 ~ km0+500	0.5km	m^3	23492
244	1.4.1.2.2	km0+500 ~ km1+500	1.0km	m^3	46984
245	1.4.1.2.3	km1+500 ~ km2+500	1.0km	m^3	46984
246	1.4.1.2.4	km2+500 ~ km3+200	0.7km	m^3	46984
247	1.4.1.2.5	km3+200 ~ km4+000	0.8km	m^3	46984
248	1.4.1.2.6	km4+000 ~ km6+500	2.5km	m^3	46984
249	1.4.1.2.7	km6+500 ~ km7+500	1.0km	m^3	46984
250	1.4.1.2.8	km7+500 ~ km8+000	0.5km	m^3	23492
251	**1.4.1.3**	**Section 3 (Km15+000~Km19+500)**	**4.5km**	m^3	**430965**
252	1.4.1.3.1	km15+000 ~ km15+500 Team-1	0.5km	m^3	52916
253	1.4.1.3.2	km15+500 ~ km16+000 Team-2	0.5km	m^3	48502
254	1.4.1.3.3	km16+000 ~ km16+500 Team-3	0.5km	m^3	42771
255	1.4.1.3.4	km16+500 ~ km17+000 Team-4	0.5km	m^3	45694
256	1.4.1.3.5	km17+000 ~ km17+500 Team-5	0.5km	m^3	46454
257	1.4.1.3.6	km17+500 ~ km18+100	0.6km	m^3	57951
258	1.4.1.3.7	km18+100 ~ km18+600	0.5km	m^3	57013
259	1.4.1.3.8	km18+600 ~ km19+250	0.65km	m^3	60633
260	1.4.1.3.9	km19+250 ~ km19+500	0.25km	m^3	63774
261	**1.4.1.4**	**Section 4 (Km19+500~Km25+500)**	**6.0km**	m^3	**627363**
262	1.4.1.4.1	km19+500 ~ km20+500	1.0km	m^3	56793
263	1.4.1.4.2	km20+500 ~ km21+000	0.5km	m^3	61817
264	1.4.1.4.3	km21+000 ~ km21+600	0.6km	m^3	65469
265	1.4.1.4.4	km21+600 ~ km22+200	0.6km	m^3	61114
266	1.4.1.4.5	km22+200 ~ km22+700	0.5km	m^3	52074
267	1.4.1.4.6	km22+700 ~ km23+250	0.55km	m^3	59884
268	1.4.1.4.7	km23+250 ~ km23+700	0.45km	m^3	45041
269	1.4.1.4.8	km23+700 ~ km24+200	0.5km	m^3	48605
270	1.4.1.4.9	km24+200 ~ km24+600	0.4km	m^3	46198
271	1.4.1.4.10	km24+600 ~ km25+000	0.4km	m^3	42540
272	1.4.1.4.11	km25+000 ~ km25+500	0.5km	m^3	43085
273	**1.4.1.5**	**Fine dressing and close turfing**		**m2**	**1039312**
274	**1.4.2**	**Precast of CC Blocks**		**Nos.**	**1190111**
275	1.4.2.1	CC Block (400*400*400)		Nos.	151250

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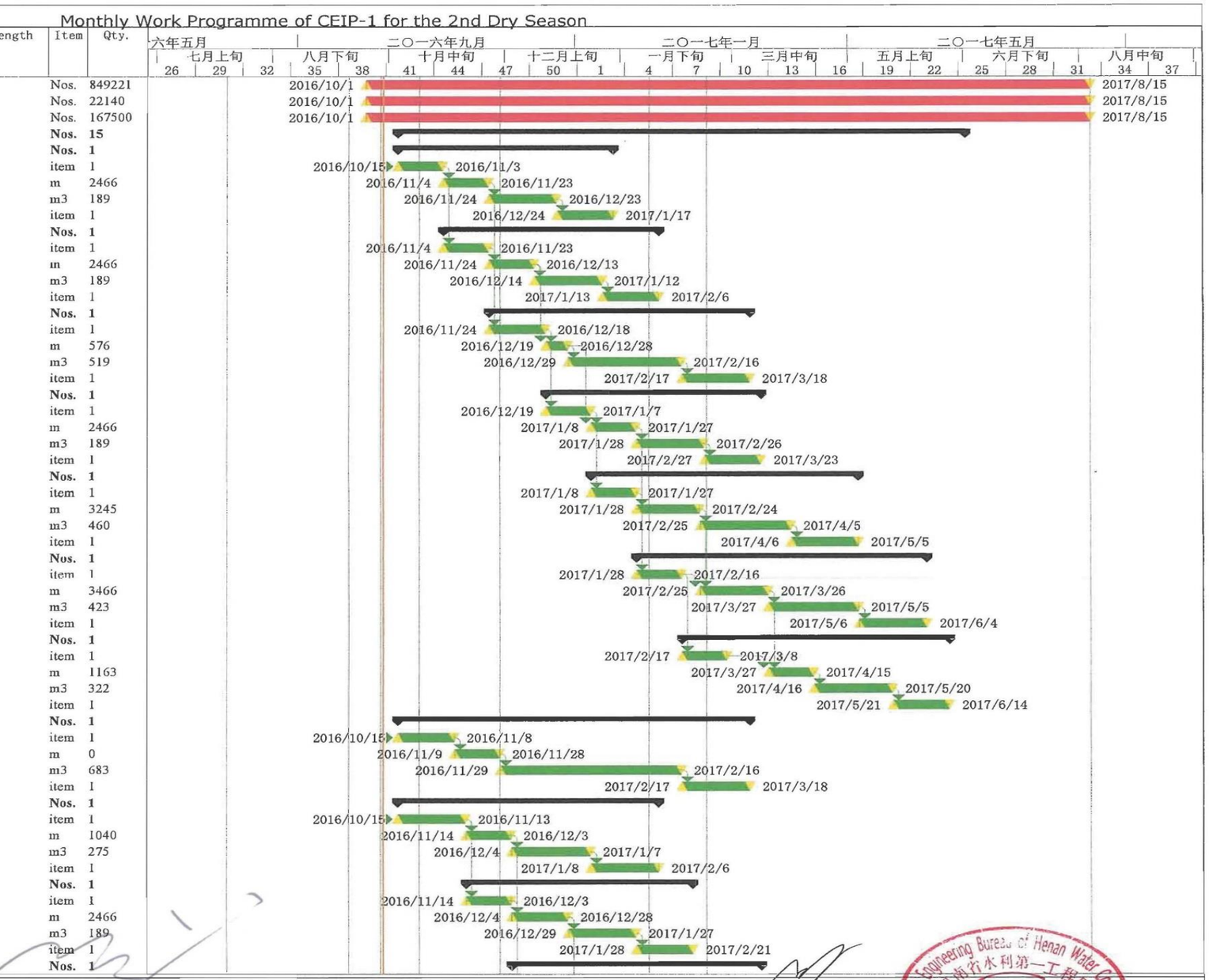
Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support
CEIP-1 Khulna

Mazibur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

HWE

Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
276	1.4.2.2	CC Block (400*400*200)		Nos.	849221
277	1.4.2.3	CC Block (300*300*300)		Nos.	22140
278	1.4.2.4	CC Block (400*400*300)		Nos.	167500
279	**1.4.3**	**Construction of Hydraulic Structures**		**Nos.**	**15**
280	**1.4.3.1**	**Construction of FS-5 (1 vent at km 16+774)**		**Nos.**	**1**
281	1.4.3.1.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
282	1.4.3.1.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
283	1.4.3.1.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
284	1.4.3.1.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
285	**1.4.3.2**	**Construction of FS-6 (1 vent at km 18+768)**		**Nos.**	**1**
286	1.4.3.2.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
287	1.4.3.2.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
288	1.4.3.2.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
289	1.4.3.2.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
290	**1.4.3.3**	**Construction of DS-6 (2 vents at km 19+736)**		**Nos.**	**1**
291	1.4.3.3.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
292	1.4.3.3.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	576
293	1.4.3.3.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	519
294	1.4.3.3.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
295	**1.4.3.4**	**Construction of FS-7 (1 vent at km 20+214)**		**Nos.**	**1**
296	1.4.3.4.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
297	1.4.3.4.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
298	1.4.3.4.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
299	1.4.3.4.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
300	**1.4.3.5**	**Construction of DS-7 (1 vent at km 23+537)**		**Nos.**	**1**
301	1.4.3.5.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
302	1.4.3.5.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3245
303	1.4.3.5.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	460
304	1.4.3.5.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
305	**1.4.3.6**	**Construction of DS-18 (1 vent at km 24+787)**		**Nos.**	**1**
306	1.4.3.6.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
307	1.4.3.6.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	3466
308	1.4.3.6.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	423
309	1.4.3.6.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
310	**1.4.3.7**	**Construction of DS-8 (1 vent at km 25+997)**		**Nos.**	**1**
311	1.4.3.7.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
312	1.4.3.7.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	1163
313	1.4.3.7.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	322
314	1.4.3.7.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
315	**1.4.3.8**	**Construction of DS-4 (4 vents at km 12+097)**		**Nos.**	**1**
316	1.4.3.8.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
317	1.4.3.8.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	0
318	1.4.3.8.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	683
319	1.4.3.8.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
320	**1.4.3.9**	**Construction of DS-1 (1 vent at km 0+000)**		**Nos.**	**1**
321	1.4.3.9.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
322	1.4.3.9.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	1040
323	1.4.3.9.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	275
324	1.4.3.9.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
325	**1.4.3.10**	**Construction of FS-1 (1 vent at km 0+736)**		**Nos.**	**1**
326	1.4.3.10.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
327	1.4.3.10.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
328	1.4.3.10.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
329	1.4.3.10.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
330	**1.4.3.11**	**Construction of FS-23 (1 vent at km 5+243)**		**Nos.**	**1**



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Mazibur Ranman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support
CEIP-1 Khulna

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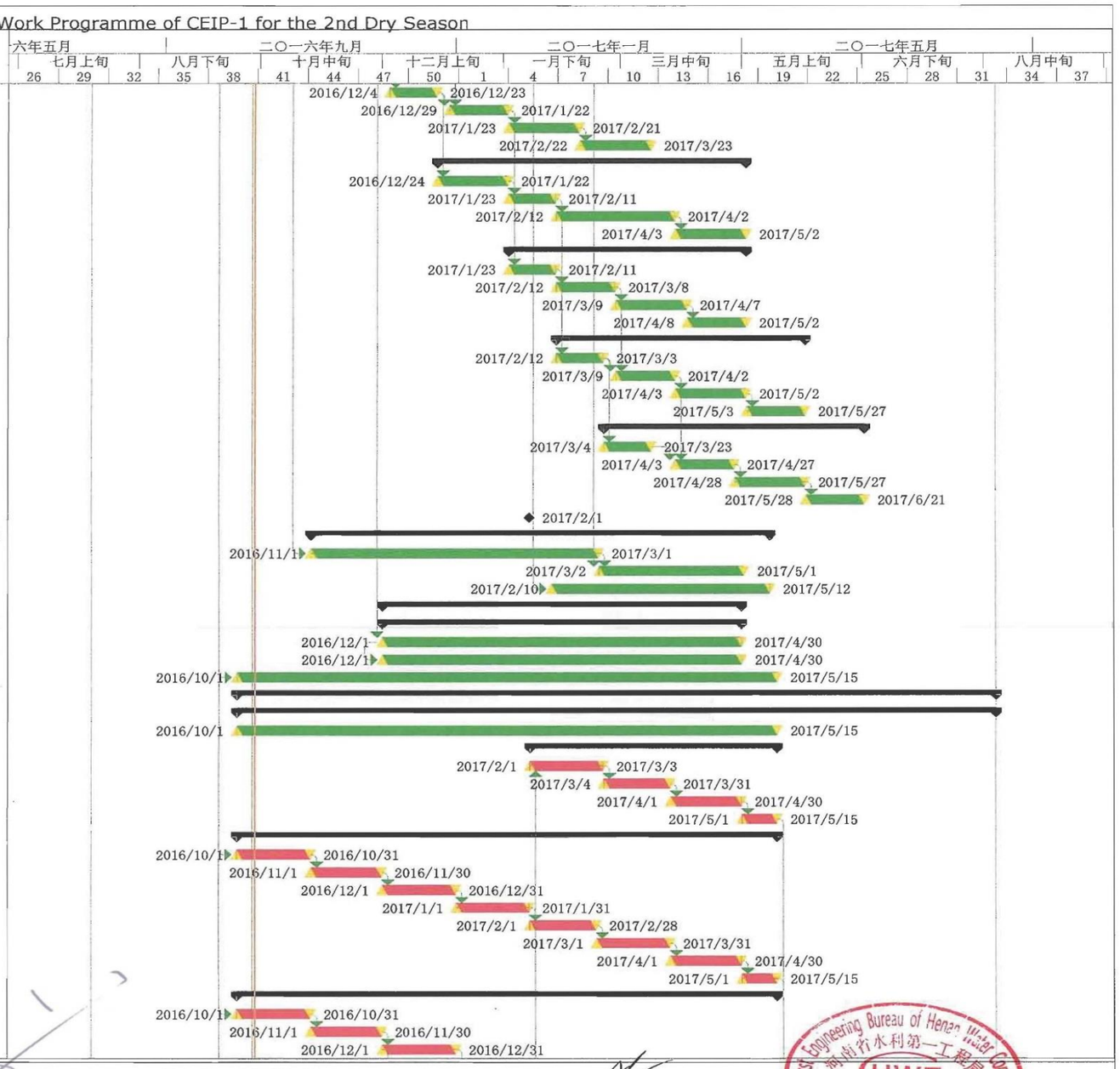
ID	WBS	Description	Length	Item	Qty.
331	1.4.3.11.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
332	1.4.3.11.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
333	1.4.3.11.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
334	1.4.3.11.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
335	**1.4.3.12**	**Construction of DS-2 (3 vents at km 6+322)**		**Nos.**	**1**
336	1.4.3.12.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
337	1.4.3.12.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	810
338	1.4.3.12.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	527
339	1.4.3.12.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
340	**1.4.3.13**	**Construction of FS-2 (1 vent at km 6+737)**		**Nos.**	**1**
341	1.4.3.13.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
342	1.4.3.13.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
343	1.4.3.13.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
344	1.4.3.13.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
345	**1.4.3.14**	**Construction of FS-12 (1 vent at km 31+821)**		**Nos.**	**1**
346	1.4.3.14.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
347	1.4.3.14.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
348	1.4.3.14.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
349	1.4.3.14.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
350	**1.4.3.15**	**Construction of FS-13 (1 vent at km 32+659)**		**Nos.**	**1**
351	1.4.3.15.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
352	1.4.3.15.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2466
353	1.4.3.15.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	189
354	1.4.3.15.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
355	1.4.4	Repair & Demolish of Hydraulic Structures		Nos.	0
356	**1.4.5**	**Embankment Slope Protection Works**	**5.5km**	**Nos.**	**1126250**
357	1.4.5.1	km15+000 ~ km17+000	2.0km	Nos.	450000
358	1.4.5.2	km2+300 ~ km3+300	1.0km	Nos.	132500
359	1.4.5.3	km20+500 ~ km23+000	2.5km	Nos.	543750
360	**1.4.6**	**River Bank Protection Works**	**0.5km**	**item**	**1**
361	**1.4.6.1**	**km3+300 ~ km3+800**	**0.5km**	**item**	**1**
362	1.4.6.1.1	Dumping Hard Rock / CC Blocks		m^3	27000
363	1.4.6.1.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	25000
364	**1.4.7**	**Excavation of Drainage Channels**	**30.0km**	**m3**	**302554**
365	**1.5**	**Main Work of Polder 35/3**			**1**
366	**1.5.1**	**Construction of Embankment**	**24.65km**	**m^3**	**669447**
367	1.5.1.1	Dismantling Work		item	1
368	**1.5.1.2**	**Part of Section 1 (Km0+000~Km4+000) Team-1**	**4.0km**	**m^3**	**133592**
369	1.5.1.2.1	km0+000 ~ km1+650	1.65km	m^3	38169
370	1.5.1.2.2	km1+650 ~ km2+750	1.1km	m^3	38169
371	1.5.1.2.3	km2+750 ~ km3+600	0.85km	m^3	38169
372	1.5.1.2.4	km3+600 ~ km4+000	0.4km	m^3	19085
373	**1.5.1.3**	**Section 3 (Km19+350~Km29+140) Team-2**	**9.79km**	**m^3**	**242650**
374	1.5.1.3.1	km29+140 ~ km28+250	0.89km	m^3	17332
375	1.5.1.3.2	km28+250 ~ km27+000	1.25km	m^3	34664
376	1.5.1.3.3	km27+000 ~ km26+250	0.75km	m^3	34664
377	1.5.1.3.4	km26+250 ~ km25+000	1.25km	m^3	34664
378	1.5.1.3.5	km25+000 ~ km23+500	1.5km	m^3	34664
379	1.5.1.3.6	km23+500 ~ km22+000	1.5km	m^3	34664
380	1.5.1.3.7	km22+000 ~ km20+500	1.5km	m^3	34664
381	1.5.1.3.8	km20+500 ~ km19+350	1.15km	m^3	17332
382	**1.5.1.4**	**Section 4 (Km29+140~Km40+000) Team-3**	**10.86km**	**m^3**	**293205**
383	1.5.1.4.1	km29+140 ~ km29+600	0.46km	m^3	11912
384	1.5.1.4.2	km29+600 ~ km30+500	0.9km	m^3	23823
385	1.5.1.4.3	km30+500 ~ km31+100	0.6km	m^3	23823



Project: CEIP I
Contractor: CHWE
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13 October 2016

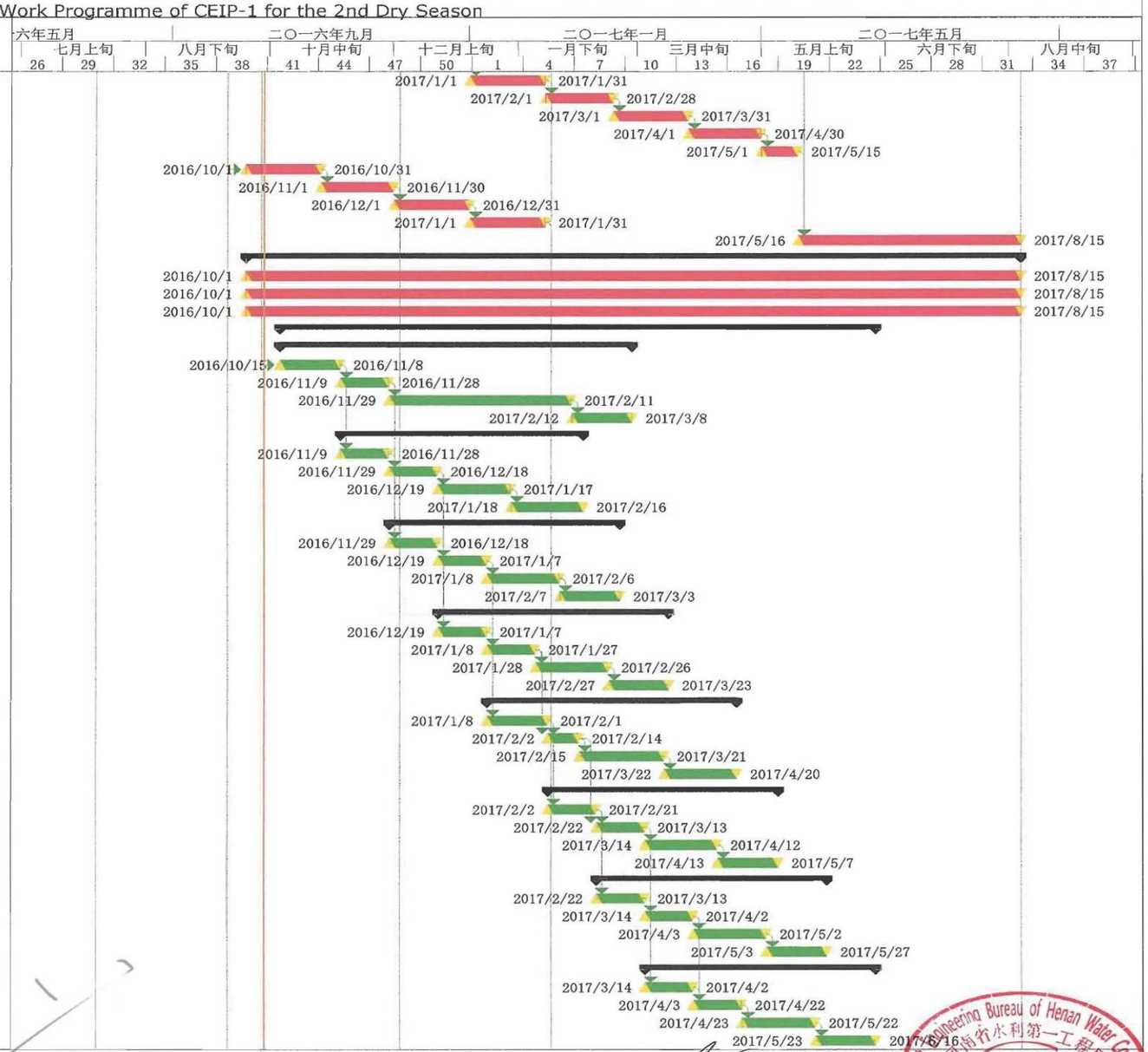
Abdur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1, Khulna

Paul Zwetsloot
Construction Resident Engineer
DCS & Management Support
CEIP-1, Khulna

The First Engineering Bureau of Henan Water Conservancy
河南省水利第一工程局
HWE
孟加拉海堤改良项目
一期工程项目部
CEIP-1 Bangladesh

Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
386	1.5.1.4.4	km31+100 ~ km31+600	0.5km	m³	23823
387	1.5.1.4.5	km31+600 ~ km32+400	0.8km	m³	23823
388	1.5.1.4.6	km32+400 ~ km33+500	1.1km	m³	23823
389	1.5.1.4.7	km33+500 ~ km34+500	1.0km	m³	23823
390	1.5.1.4.8	km34+500 ~ km36+500	2.0km	m³	11912
391	1.5.1.4.9	km36+500 ~ km37+100 Team-1	0.6km	m³	18063
392	1.5.1.4.10	km37+100 ~ km38+200	1.1km	m³	36126
393	1.5.1.4.11	km38+200 ~ km39+250	1.05km	m³	36126
394	1.5.1.4.12	km39+250 ~ km40+000	0.75km	m³	36126
395	**1.5.1.5**	**Fine dressing and close turfing**		**m2**	**501553**
396	**1.5.2**	**Precast of CC Blocks**		**Nos.**	**270672**
397	1.5.2.1	CC Block (400*400*400)		Nos.	24750
398	1.5.2.2	CC Block (400*400*200)		Nos.	224542
399	1.5.2.3	CC Block (300*300*300)		Nos.	21380
400	**1.5.3**	**Construction of Hydraulic Structures**		**Nos.**	**8**
401	**1.5.3.1**	**Construction of DS-1 (6 vents at km 4+910)**		**Nos.**	**1**
402	1.5.3.1.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
403	1.5.3.1.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2601
404	1.5.3.1.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	639
405	1.5.3.1.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
406	**1.5.3.2**	**Construction of DS-2 (1 vent at km 24+860)**		**Nos.**	**1**
407	1.5.3.2.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
408	1.5.3.2.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2550
409	1.5.3.2.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	247
410	1.5.3.2.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
411	**1.5.3.3**	**Construction of FS-9 (1 vent at km 26+450)**		**Nos.**	**1**
412	1.5.3.3.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
413	1.5.3.3.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2268
414	1.5.3.3.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	191
415	1.5.3.3.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
416	**1.5.3.4**	**Construction of FS-10 (1 vent at km 27+160)**		**Nos.**	**1**
417	1.5.3.4.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
418	1.5.3.4.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2268
419	1.5.3.4.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	191
420	1.5.3.4.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
421	**1.5.3.5**	**Construction of DS-3 (2 vents at km 33+436)**		**Nos.**	**1**
422	1.5.3.5.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
423	1.5.3.5.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	1071
424	1.5.3.5.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	313
425	1.5.3.5.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
426	**1.5.3.6**	**Construction of FS-1 (1 vent at km 0+345)**		**Nos.**	**1**
427	1.5.3.6.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
428	1.5.3.6.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2268
429	1.5.3.6.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	191
430	1.5.3.6.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
431	**1.5.3.7**	**Construction of FS-13 (1 vent at km 5+520)**		**Nos.**	**1**
432	1.5.3.7.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
433	1.5.3.7.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2268
434	1.5.3.7.3	Structure Concrete (Bedding, Floor slab, Barrel, etc.)		m3	191
435	1.5.3.7.4	Installation & Protection (Gate, CC Blocks, Backfilling,		item	1
436	**1.5.3.8**	**Construction of FS-8 (1 vent at km 21+620)**		**Nos.**	**1**
437	1.5.3.8.1	Preparation (Coffer Dam, Excavation, Dewatering)		item	1
438	1.5.3.8.2	Foundation treatment (Sand pile, Sheet pile, Sand filling)		m	2268
439	1.5.3.8.3	Structure Concrete (Bedding, Floor slab, Barrel, Apron and		m3	191
440	1.5.3.8.4	Installation & Protection (Gate and Hoist, Guardrail, CC		item	1



Project: CEIP I
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Deputy Resident Engineer
CEIP-1

13 October 2016

Mazibur Rahman Khan
Deputy Resident Engineer,
DCS & Management Support
CEIP-1 Khulna

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Construction Resident Engineer
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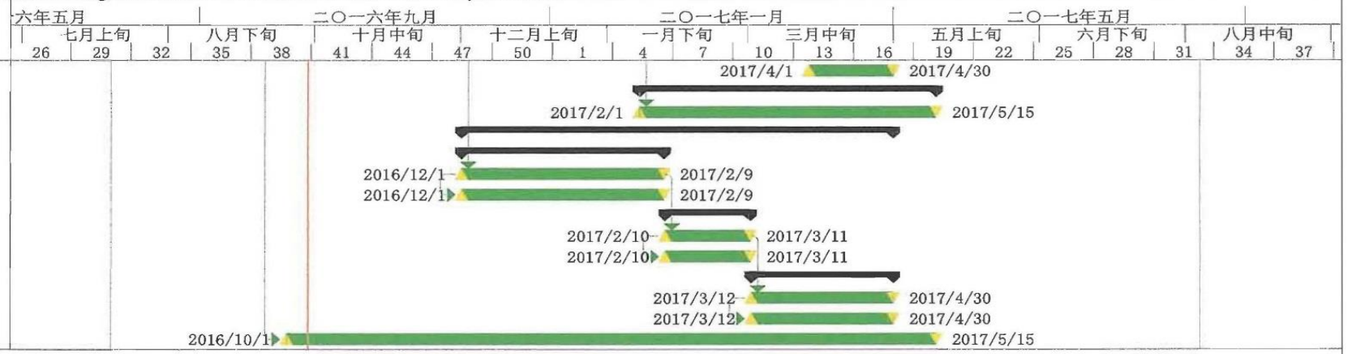
Monthly Work Programme of CEIP-1 for the 2nd Dry Season

ID	WBS	Description	Length	Item	Qty.
441	1.5.4	Repair & Demolish of Hydraulic Structures		Nos.	1
442	**1.5.5**	**Embankment Slope Protection Works**	**0.9km**	**Nos.**	**96750**
443	1.5.5.1	km39+100 ~ km40+000	0.9km	Nos.	96750
444	**1.5.6**	**River Bank Protection Works**	**1.7km**	**item**	**3**
445	**1.5.6.1**	**km29+500 ~ km30+500**	1.0km	**item**	**1**
446	1.5.6.1.1	Dumping Hard Rock / CC Blocks		m^3	10400
447	1.5.6.1.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	77500
448	**1.5.6.2**	**km35+800 ~ km36+000**	0.2km	**item**	**1**
449	1.5.6.2.1	Dumping Hard Rock / CC Blocks		m^3	4080
450	1.5.6.2.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	18000
451	**1.5.6.3**	**km1+000 ~ km1+500**	0.5km	**item**	**1**
452	1.5.6.3.1	Dumping Hard Rock / CC Blocks		m^3	9720
453	1.5.6.3.2	Placing CC Blocks(0.4*0.4*0.2) above water		Nos.	45000
454	**1.5.7**	**Excavation of Drainage Channels**	**12.0km**	**m3**	**210985**



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Annex-3: Site Specific Environmental Action Plan

Polder: 33 **Coastal Embankment Improvement Project, Phase-1** **Responsible for implementation: QC & HSE Engineer Song Kunpeng**	Please refer for compliance dates to Contractor Planning as attached

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
1.	Construction camps	• Obtaining approval • Erection of signboard in Bangla and English with project details • Install accommodation facilities for workers • Drainage channels installation • Supply of safe drinking water • Supply of adequate sanitation • Solid fencing and demarcation to prevent villagers from entering the premises	• Before start Works • Start of the Works Ditto	• Once • Continuously Ditto	
2.	Fuel storage areas	• Install hardstand and secondary containment • Firefighting equipment installation • Sand and shovel close-by • Regular checks on physical condition	• Start of the Works	• Continuously • Quarterly	
3.	Access road construction	• Obtaining approval • Construction of culverts if needed	• Start or the Works	• Once	
4.	Temporary Facilities Decommissioning	• Agreeing with local authorities on demolition • Review of environmental liabilities • Waste removal • General re-instatement of site	• Before end Works	• Once Ditto	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Revegetation implementation • Close-out check			
5.	Construction and Demolishing of drainage sluices, flushing sluices and inlets	• Demolishing debris of sluices and inlets will be disposed of at a site approved by the Engineer. • Before starting the construction activities of drainage sluices, ring bundh and diversion channel will be constructed and a dewatering system will be installed in order to work in dry conditions. • Disposal of excess soil will be done with no objection from DoE and local authority. • No waste water from concrete mixing will be disposed of directly to the surface water. • Steel sheet pile driving will not be done at night. • The work area will be demarcated clearly. • Signals will be installed to indicate the entry and exits of vehicles and movement of construction equipment in the work area. • Prior to every monsoon season all the temporary and permanent drainage structures under construction will be made free from debris.	• When applicable	• When applicable	
6.	Construction and re-sectioning of embankments	• Pavement (if present) will be removed and disposed of at the premises of BWDB. • Top soil from areas of earth works will not be used for construction works. The top soil (from surface to 15 cm depth) will be removed and preserved for later use of replacing after construction in rehabilitation. • Disposal of excess soil will be done at site with no objection from DoE and local authority. • All works will be demarcated clearly. • Signals will be installed to indicate the entry and exits of vehicles and movement of construction equipment in the work area. • The contractor shall manage the top fertile soil (15 cm) during earth work activities	• When applicable	• When applicable	
7.	The bank and slope protection works	• Spilling of earth material in surface water will be avoided. • Turfing will be applied to prevent erosion.	• When applicable	• When applicable	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Proper drainage provision will be kept to avoid formation of rain cuts due to surface run off.			
8.	Re-excavation works	• Spoil plan (volume to be dredged; disposal site to be used; quality of dredged material; applicability of the dredged material) to be developed for approval by Engineer • Unnecessary resuspension will be avoided by selection of suitable dredging equipment. • Temporarily deposition of dredged material will be away from the channel edge to limit damage to streamside and stream habitats. • Return water will be conveyed through siltation chambers to avoid high loads of fines to be discharged on surface water. • Where applicable biotechnical engineering, for example geo textiles, may be used to help stabilize the material. • Smothering of important flora and habitats will be avoided	• When applicable	• When applicable	
9.	Manufacture of pre-cast CC blocks	• Workers will be equipped with proper PPE. • Signals will be installed to indicate the entry and exits and movement of vehicles in the work area. • Manufacturing only can take place at night within proper environmental protective measurement. • Stacks with sand will be covered or wetted.	• At start operation	• When applicable	
10.	Borrow material	• Agreeing on borrow area • Document borrow area • Perform soil analyses on borrow materials when contamination is expected • Prevention of erosion/dust forming • Borrow area excavation complying with distance from the embankment as per the Technical Specifications • No Tress-pass line fixed with bamboo poles	• Prior to open borrow pit • During Works	 • When applicable • When applicable	
11.	Hard Rock Revetment			To be assessed when the detailed design is completed	
12.	Occupational Health and safety	• Development of Health and Safety Plan including emergency procedures	• Before start Works	• Continuously	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Train all staff in health and safety • Provision of HIV, including STI (sexually transmitted infections) information, education and communication. • Provision of PPE and ensuring their use • Provision and use of life jacket during visiting campsite/worksite by boat • Installation of first aid facilities at work site and camps with adequate stock • Provide sanitation facilities where needed • Provision of safe drinking water to work force (tube-well water, bottled water or pond water) • Proper signalling of work areas	• During Works	Ditto	
13.	Public Health and Safety	• Notification of the public adjacent to the construction areas • Installation of dedicated pathways for pedestrians • Proper signalling of work areas • Limitation of construction vehicles at public roads during peak hours. • The temporary traffic detours in settlement areas will be kept free of dust by frequent application of water. • Construction activities will be undertaken according to during daylight working hours between the hours of 07:00 – 17:00 on weekdays.	• Start of the Works • During the Works	• Continuously Ditto	
14.	Water Supply	• Providing construction camps with potable water either through installing tube wells (hand pump, shallow and deep tubewell), Pond Sand Filter (PSF) or supplying safe bottled water. • Ensuring the location plan of tube wells (used for supplying potable water) that these are not sited near any sanitation facilities as to avoid water pollution. • Maintaining the distance of a tube well / surface water resource from a soak pit at minimum 15m. • Maintaining the drainage from the tube well diverting into the drainage system of the camp area. • Providing separate tube wells for the use of women.	• Start of the Works	• Continuously Ditto	
15.	Sanitation	• Providing suitable sanitation facilities for the workforce. • Ensuring the location plan of the latrine at least 50 meter away from the accommodation facility.	• Start of the Works	• Continuously Ditto	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Providing separate latrines for the use of women. • Installing treatment facilities (i.e. septic tank, soak pits etc.) for sewerage of toilet and camp site wastes. • Arranging disposal of wastewater from washrooms, kitchens, s, etc. via the camp area's drainage system			
16.	Solid Waste Management	• Ensuring collection and disposal of solid wastes within the construction camps and work areas • Taking measure to collect and store inorganic wastes in a safe place within the household and organic wastes cleared on daily basis to waste collector. • Establish measures for Waste collection, transportation and disposal systems at approved disposal sites. • Disposal of construction and demolition waste.	• During the Works	• Continuously Ditto	
17.	Waste water	• Installation of decanter boxes for washing buckets and cement mixers • Installation of proper filtering elements. • Carrying out periodic checks and clean-ups for the decanter box. • Prioritize reuse of aggregates and water from the decanter box. • Ensure safe disposal of liquid wastes generated at camp site.	• Start of the Works • During the Works	• Continuously Ditto	
18.	Air	• Regular maintenance of vehicles • Covering or wetting of dusty materials • Dust suppression by wetting surfaces • Impose speed limits • Revegetate bare surfaces soonest	• During the Works	• Continuously Ditto	
19.	Noise	• Notify nearby population prior to any typical noise events • Ensure construction activities do not generate unacceptably high level of noise • Restrict working to daylight hours • Locate noisy equipment / facilities away from sensitive receptors	• Before start of the Works • During the Works	• Continuously Ditto	
20.	Water and Hydrology	• Preventing waste, soil, etc. entering in the water system by waste collection, revegetation and dust suppression etc.	• During the Works	• Continuously Ditto	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Insure proper drainage of working areas e.g. perimeters lines must be provided with open shallow drains			
21.	Flora and Fauna	• Agreeing with local authorities on tree felling. • Document trees / area of trees. • Avoid/prevent un-necessary tree vegetation cutting and clearing. • Revegetate disturbed construction and ancillary site surfaces. • Prevent disturbance of animals • Ensuring sufficient free flow in the construction work for fish migration	• Prior to tree felling • During the Works • After the Works • During the Works	• When applicable • Continuously • Once • Continuous	
22.	Monitoring of Air Quality	• Performance of air quality tests at selected sensitive sites for parameters SPM 2.5/10, SOx, NOx and CO during working hours	• Start of the Works and annually	• Annually	
23.	Monitoring of Noise Quality	• Monitoring of noise level (dB) at selected sensitive sites during working hours	• Start of the Works and annually	• Annually	
24.	Monitoring of Soil Quality	• Performance of soil quality tests at selected sites (borrow areas, spill sites) for parameters as organic matter, N, P, K, pH, Salinity, S and Zn.	• Start of the Works and annually	• Annually	
25.	Monitoring of Surface Water Quality	• Performance of analyses on surface water (river, khal, beel and pond) for: pH, TDS, DO, BOD, EC/Salinity and Turbidity.	• Start of the Works and annually	• Annually	
26.	Monitoring of Drinking Water Quality	• Performance of analyses on drinking water for: arsenic, iron, chloride and total faecal coliform bacteria.	• Start of the Works and annually	• Annually	
27.	Deployment of Environment and Safety Supervisor	• Employ one full-time Environment and Safety Supervisor for compliance monitoring of EMP	• During the Works	• Continuously	
28.	Complaints and Environmental Incidents	• Grievance Redress Mechanism will be established. • Complaints received from the public or other stakeholders will be registered and recorded and be brought to the attention of the Site Engineer. • All environmental incidents occurring on the site will be recorded and be brought to the attention of the Site Engineer.	• During the Works	• Continuously	

Sl No.	Works / Aspects	Management Actions to be taken	Implementation	Frequency	Compliance (date)
		• Action will be taken within 7 working days.			
29.	Reporting and Documentation	• The following records will be kept at site: - Environmental Monitoring Results - Contractors self-assessment record/results - Register of non-compliance - Register of corrective actions - Monthly Environmental Reports	• During the Works	• Continuously	
30.	Training	• Environmental training on EMP will be arranged for Construction Field supervisors and Environment & Safety Supervisors.	• During the Works	• According to Training Plan	

Annex-4: Monitoring Plan

Polder: 33 **Coastal Embankment Improvement Project, Phase-1**	**Site inspected (incl. chainage):** **Inspection date:** **Inspected by:**

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
31.	Construction camps	• Obtaining approval • Erection of signboard in Bangla and English with project details • Install accommodation facilities for workers • Drainage channels installation • Supply of safe drinking water • Supply of adequate sanitation • Solid fencing and demarcation to prevent villagers from entering the premises	1 1 1 1 D W M	Document Field visit Ditto				
32.	Fuel storage areas	• Install hardstand and secondary containment • Firefighting equipment installation • Sand and shovel close-by • Regular checks on physical condition	1 M M M	Field visit Ditto				
33.	Access road construction	• Obtaining approval • Construction of culverts if needed	1 1	Document Field visit				
34.	Temporary Facilities Decommissioning	• Agreeing with local authorities on demolition • Review of environmental liabilities • Waste removal • General re-instatement of site	1 1 1 1	Document Field visit Ditto				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• Revegetation implementation • Close-out check	1 1					
35.	Construction and Demolishing of drainage sluices, flushing sluices and inlets	• Demolishing debris of sluices and inlets will be disposed of at a site approved by the Engineer. • Before starting the construction activities of drainage sluices, ring bundh and diversion channel will be constructed and a dewatering system will be installed in order to work in dry conditions. • Disposal of excess soil will be done with no objection from DoE and local authority. • No waste water from concrete mixing will be disposed of directly to the surface water. • Steel sheet pile driving will not be done at night. • The work area will be demarcated clearly. • Signals will be installed to indicate the entry and exits of vehicles and movement of construction equipment in the work area. • Prior to every monsoon season all the temporary and permanent drainage structures under construction will be made free from debris.	W 1 Y W W W M 1	Document Field visit Ditto				
36.	Construction and re-sectioning of embankments	• Pavement (if present) will be removed and disposed of at the premises of BWDB. • Top soil from areas of earth works will not be used for construction works. The top soil (from surface to 15 cm depth) will be removed and preserved for later use of replacing after construction in rehabilitation. • Disposal of excess soil will be done at site with no objection from DoE and local authority. • All works will be demarcated clearly.	1 W W W	Field visit Ditto				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• Signals will be installed to indicate the entry and exits of vehicles and movement of construction equipment in the work area. • The contractor shall manage the top fertile soil (15 cm) during earth work activities	W W					
37.	The bank and slope protection works	• Spilling of earth material in surface water will be avoided. • Turfing will be applied to prevent erosion. • Proper drainage provision will be kept to avoid formation of rain cuts due to surface run off.	W W M	Field visit				
38.	Re-excavation works	• Spoil plan (volume to be dredged; disposal site to be used; quality of dredged material; applicability of the dredged material) to be developed for approval by Engineer • Unnecessary resuspension will be avoided by selection of suitable dredging equipment. • Temporarily deposition of dredged material will be away from the channel edge to limit damage to streamside and stream habitats. • Return water will be conveyed through siltation chambers to avoid high loads of fines to be discharged on surface water. • Where applicable biotechnical engineering, for example geo textiles, may be used to help stabilize the material. • Smothering of important flora and habitats will be avoided	1 W W W 1 W	Document Field visit				
39.	Construction of the closure dam	•	W					to be assessed when the detailed design is completed
40.	Manufacture of pre-cast CC blocks	• Workers will be equipped with proper PPE. • Signals will be installed to indicate the entry and exits and movement of vehicles in the work area.	D Y	Field visit				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• Manufacturing will not take place at night. • Stacks with sand will be covered or wetted.	W W					
41.	Borrow material	• Agreeing on borrow area • Document borrow area • Perform soil analyses on borrow materials when contamination is expected • Prevention of erosion/dust forming • Borrow area excavation complying with distance from the embankment as per the Technical Specifications • No-Tress pass line fixed with bamboo poles	1 1 1 W 1 1	Document Field visit				
42.	Hard Rock Revetment	•						to be assessed when the detailed design is completed
43.	Occupational Health and safety	• Development of Health and Safety Plan including emergency procedures • Train all staff in health and safety • Provision of HIV, including STI (sexually transmitted infections) information, education and communication. • Provision of PPE and ensuring their use • Provision and use of life jacket during visiting campsite/worksite by boat • Installation of first aid facilities at work site and camps with adequate stock • Provide sanitation facilities where needed • Provision of safe drinking water to work force (tube-well water, bottled water or pond water) • Proper signalling of work areas	1 M 1 W W M 1 W W	Document Document Field visit Ditto				
44.	Public Health and Safety	• Notification of the public adjacent to the construction areas • Installation of diversion signboard with warning for dedicated pathways for pedestrians • Proper signalling of work areas	M W W W	Field visit				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• Limitation of construction vehicles at public roads during peak hours. • The temporary traffic detours in settlement areas will be kept free of dust by frequent application of water. • Construction activities will be undertaken according to during daylight working hours between the hours of 07:00 – 17:00 on weekdays.	W W					
45.	Water Supply	• Providing construction camps with potable water either through installing tube wells (hand pump, shallow and deep tubewell), Pond Sand Filter (PSF) or supplying safe bottled water. • Ensuring the location plan of tube wells (used for supplying potable water) that these are not sited near any sanitation facilities as to avoid water pollution. • Maintaining the distance of a tube well / surface water resource from a soak pit at minimum 15m. • Maintaining the drainage from the tube well diverting into the drainage system of the camp area. • Providing separate tube wells for the use of women.	1 1 1 Y 1	Field visit				
46.	Sanitation	• Providing suitable sanitation facilities for the workforce. • Ensuring the location plan of the latrine at least 50 meter away from the accommodation facility. • Providing separate latrines for the use of women. • Installing treatment facilities (i.e. septic tank, soak pits etc.) for sewerage of toilet and camp site wastes. • Arranging disposal of wastewater from washrooms, kitchens, s, etc. via the camp area's drainage system	1 1 1 1 1	Field visit				

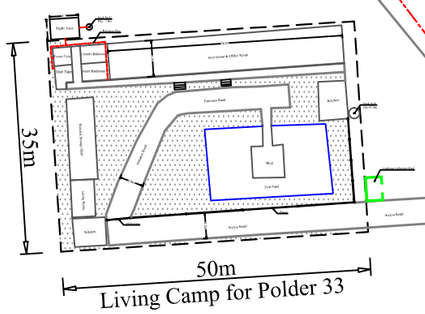
Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
47.	Solid Waste Management	• Ensuring collection and disposal of solid wastes within the construction camps and work areas • Taking measure to collect and store inorganic wastes in a safe place within the household and organic wastes cleared on daily basis to waste collector. • Establish measures for Waste collection, transportation and disposal systems at approved disposal sites. • Disposal of construction and demolition waste.	M M 1 M	Field visit Document				
48.	Waste water	• Installation of decanter boxes for washing buckets and cement mixers • Installation of proper filtering elements. • Carrying out periodic checks and clean-ups for the decanter box. • Prioritize reuse of aggregates and water from the decanter box. • Ensure safe disposal of liquid wastes generated at camp site.	1 1 M M M	Field visit				
49.	Air	• Regular maintenance of vehicles • Covering or wetting of dusty materials • Dust suppression by wetting surfaces • Impose speed limits • Revegetate bare surfaces soonest	M M W W M	Field visit				
50.	Noise	• Notify nearby population prior to any typical noise events • Ensure construction activities do not generate unacceptably high level of noise • Restrict working to daylight hours • Locate noisy equipment / facilities away from sensitive receptors	1 M W W	Field visit				
51.	Water and Hydrology	• Preventing waste, soil, etc. entering in the water system by waste collection, revegetation and dust suppression etc.	M M	Field visit				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• Insure proper drainage of working areas e.g. perimeters lines must be provided with open shallow drains						
52.	Flora and Fauna	• Agreeing with local authorities on tree felling. • Document trees / area of trees. • Avoid/prevent un-necessary tree vegetation cutting and clearing. • Revegetate disturbed construction and ancillary site surfaces. • Prevent disturbance of animals • Ensuring sufficient free flow in the construction work for fish migration	1 1 M 1 M	Document Ditto Field visit				
53.	Monitoring of Air Quality	• Performance of air quality tests at selected sensitive sites for parameters SPM 2.5/10, SOx, NOx and CO during working hours	Y	Chemical analyses				
54.	Monitoring of Noise Quality	• Monitoring of noise level (dB) at selected sensitive sites during working hours	Y	Chemical analyses				
55.	Monitoring of Soil Quality	• Performance of soil quality tests at selected sites (borrow areas, spill sites) for parameters as organic matter, N, P, K, pH, Salinity, S and Zn.	Y	Chemical analyses				
56.	Monitoring of Surface Water Quality	• Performance of analyses on surface water (river, khal, beel and pond) for: pH, TDS, DO, BOD, EC/Salinity and Turbidity.	Y	Chemical analyses				
57.	Monitoring of Drinking Water Quality	• Performance of analyses on drinking water for: arsenic, iron, chloride and total faecal coliform bacteria.	Y	Chemical analyses				
58.	Deployment of Environment and Safety Supervisor	• Employ one full-time Environment and Safety Supervisor for compliance monitoring of EMP	1	Document				
59.	Complaints and Environmental Incidents	• Grievance Redress Mechanism will be established. • Complaints received from the public or other stakeholders will be registered and recorded and be brought to the attention of the Site Engineer.	1 W	Document Ditto				

Sl No.	Environmental Issues / Aspects	Actions to be taken / Inspection items	Monitoring Frequency (1, D, W, M, Y*)	Means of monitoring	Compliant (Y/N) Repeating non-compliance (R)			Remarks
					Y	N	R	
		• All environmental incidents occurring on the site will be recorded and be brought to the attention of the Site Engineer. • Action will be taken within 7 working days.	W M					
60.	Reporting and Documentation	• The following records will be kept at site: - Environmental Monitoring Results - Contractors self-assessment record/results - Register of non-compliance - Register of corrective actions - Monthly Environmental Reports	M	Document				
61.	Training	• Environmental training on EMP will be arranged for Construction Field supervisors and Environment & Safety Supervisors.	M	Document				

(*1= Once; D=Daily; W=Weakly; M=Monthly; Y=Yearly)

Annex-5: Layout plan for Construction Camp



Living Camp for Polder 33

36+600

36+650

36+700

36+750

36+800

36+850

36+900

Access Road

3.0m

Existing Embankment

Proposed Embkt.
Center Line

Fuel Storage House

12.41

8.2

Aggregate Storage Yard

37.58

24

C.C Block Casting Area

16.95

2.5m

4m

Generator House

Material & Spare Parts
Storage Shed

6m

4m

Reinforcement Processing Area

Entrance Road

C.C Block Storage Area

Garbage Collection Pool

3m

6m

Toilet & Septic Tank
Soak Well

3.6

19.04

Entrance Road

C.C Block Storage Area

Entrance Road

39.32

221.97m C.C Block Casting Yard(Manufacted by Manpower)

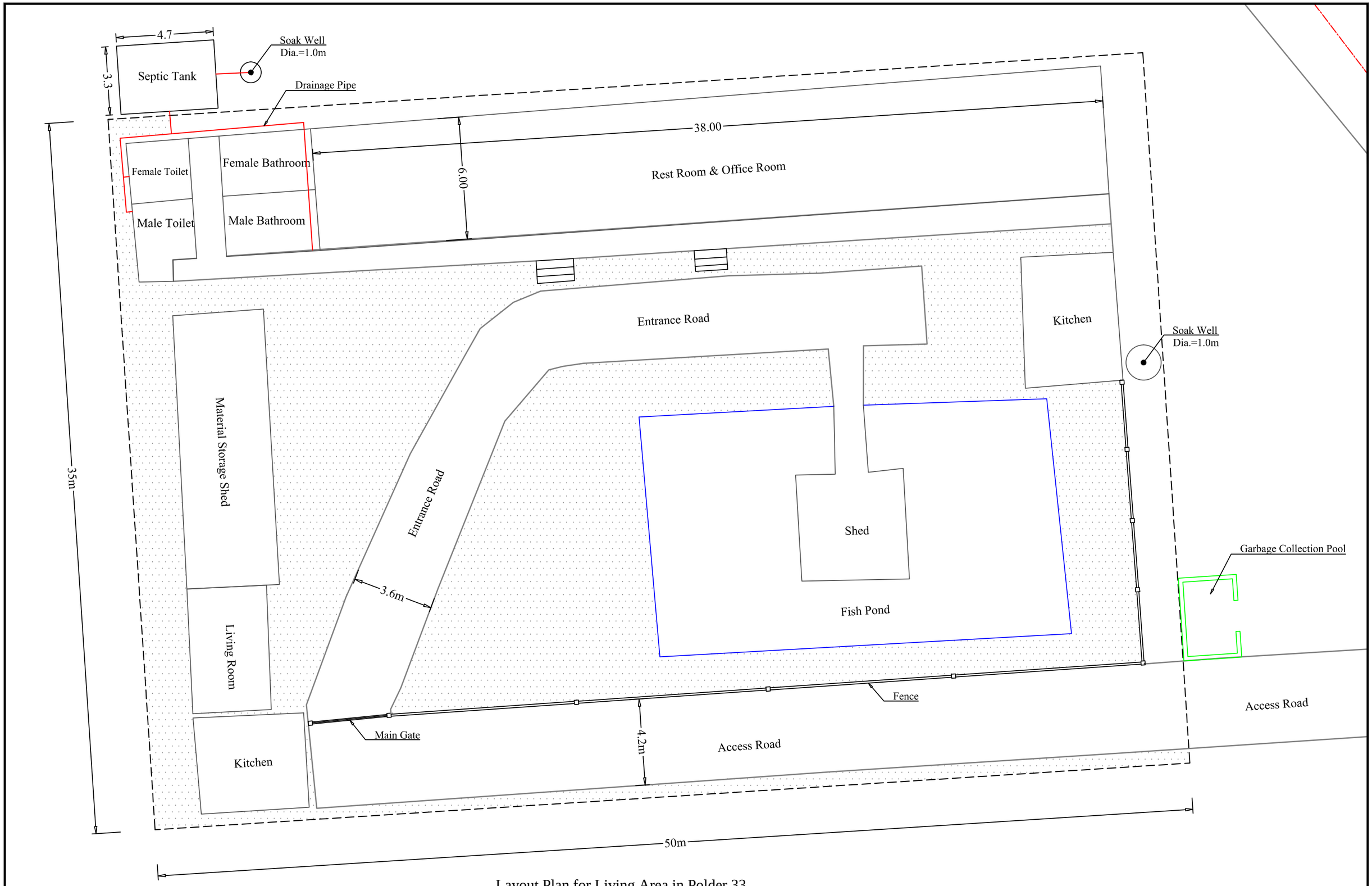
River

River Bank Line

Layout Plan for Main Camp in Polder 33

Scale-1:1000

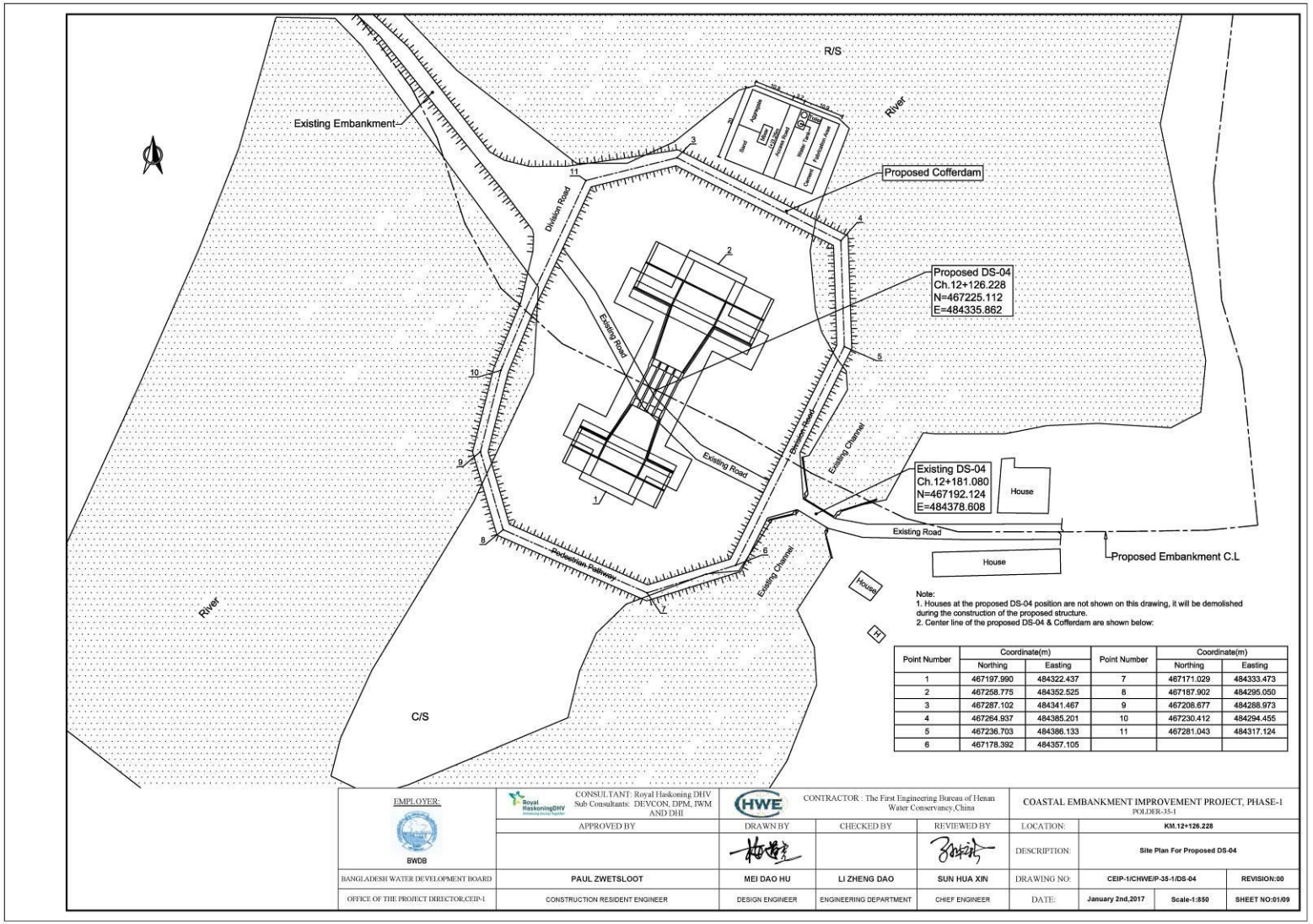
Sheet No.:01/02



Layout Plan for Living Area in Polder 33

Scale-1:200

Annex-6: Typical Diversion Road Layout



Point Number	Coordinate(m) Northing	Coordinate(m) Easting	Point Number	Coordinate(m) Northing	Coordinate(m) Easting
1	467197.990	484322.437	7	467171.029	484333.473
2	467258.775	484352.525	8	467187.902	484295.050
3	467287.102	484341.467	9	467208.677	484288.973
4	467264.937	484385.201	10	467230.412	484294.455
5	467236.703	484386.133	11	467281.043	484317.124
6	467178.392	484357.105			

EMPLOYER: BWDB	CONSULTANT: Royal Haskoning DHV Sub Consultants: DEVCON, DPM, IWM AND DHI	CONTRACTOR : The First Engineering Bureau of Henan Water Conservancy,China			COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1 POLDER-35-1	
	APPROVED BY	DRAWN BY	CHECKED BY	REVIEWED BY	LOCATION:	KM.12+126.228
					DESCRIPTION:	Site Plan For Proposed DS-04
BANGLADESH WATER DEVELOPMENT BOARD	PAUL ZWETSLOOT	MEI DAO HU	LI ZHENG DAO	SUN HUA XIN	DRAWING NO:	CEIP-1/CHWE/P-35-1/DS-04 REVISION:00
OFFICE OF THE PROJECT DIRECTOR,CEIP-1	CONSTRUCTION RESIDENT ENGINEER	DESIGN ENGINEER	ENGINEERING DEPARTMENT	CHIEF ENGINEER	DATE:	January 2nd,2017 Scale-1:850 SHEET NO:01/09

Annex-7: GRM for Polder 33

A PR officer will nominated in each polder with assistance of local staff especially the local chairman. Before the construction activities in the surrounding area a GRM leaflet will have to be distributed to the local residence.

The contents of GRM leaflets will contain the following information:

Nature of the work,

Location of work,

Duration of the Work,

The possible risk during the execution,

The contact person as well as the mobile phone number

PR officer will keep a logbook to record all the complaint received including the following information:

The name of complainer, the date and time of complain, the mobile number of complainer, issues complained, action taken.

The GRM logbook shall be checked, reviewed by the supervising engineer.

Several social and environmental issues may arise during implementation stages of the Project. Potential sources of grievances from the affected people, concerned public, construction workers and civil society members may deal with:

- Soil, water, dust, noise and air pollution from construction related activities;
- Traffic movement and congestion;
- Lack of adequate safety at the construction areas and approach roads;
- Lack of water and sanitation facilities at the construction sites/camps;
- Waste disposal;
- Conflicts among construction workers and with local community;
- Disturbances to flora and fauna;
- Failure to comply with standards or contractual obligations.

Of course the GRM will also entertain concerns about matters of resettlement and land acquisition including livelihood restoration. The role here is to collect the complaints and forward the issues to the competent arrangements such as GRC (consisting of multi-stakeholders groups).

There exist already five (5) operational GRCs in this Polder-33. There are 15 Grievance Redress Committees (GRC) at local level for all Polders of Package-1.

Membership of GRC

1. Executive Engineer (BWDB Division Office): Convener
2. Representative of the RAP Implementing NGO: Member -Secretary
3. Local UP Member / Ward Councillor: Member
4. Teacher from Local Educational Institution (nominated by Upazila Administration): Member
5. Representative from Local Women's Group: Member

6. Representative from the PAP Group: Member

Annex-8: Construction Health and Safety plan

CONSTRUCTION SAFETY & HEALTH PLAN

for

Coastal Embankment Improvement Project, Phase 1

(CEIP-1) Bangladesh

The First Engineering Bureau of Henan Water Conservancy

19th Feb. 2017

Table of Contents

CONSTRUCTION SAFETY & HEALTH PLAN

1. SAFETY AND HEALTH POLICY

CHWE believes that **no job or no task is more important than worker health and safety.**

If a job represents a potential safety or health threat, every effort will be made to plan a safe way to do the task.

Every procedure must be a safe procedure. Shortcuts in safe procedures by either foremen or workers will not be tolerated.

If a worker observes any unsafe condition, which may pose a potential threat to their health or safety, it is expected that employees will immediately correct the situation when feasible or inform management. Management has the responsibility to take adequate precautions, and assure the safety and health of employees.

If a job cannot be done safely it will not be done.

Management will provide visible ongoing commitment, resources, and leadership to assure the implementation of the SHMS. All employees will be provided equally high quality safety and health protection.

We acknowledge the importance of creating a positive safety culture through employee involvement and effective policies and procedures.

2.SAFETY AND HEALTH OBJECTIVES

CHWE plans to achieve worker safety and health through the following:

1. Designate a qualified safety person to coordinate the program.
2. Make regular job site safety inspections and conduct health monitoring.
3. Follow safety procedures and rules.
4. Provide on-going safety training.
5. Enforce safety rules and use appropriate discipline.

2.1 DESIGNATED SAFETY COORDINATOR

CHWE has designated Ren gaofei 、Song kunpeng、Yang chunliang、Meng qinghua、Yuan weiming to coordinate, implement, and administer the safety and health system.
Responsibilities include:

1. Understand potential job hazards and how to eliminate them.

2. Conduct or assist with Job Safety Analysis.

3. Assure compliance with construction safety and health standard requirements.

4. Conduct regular job site safety and health inspections.

5. Establish safety and health procedures.

6. Coordinate regular safety and health training.

7. Conduct or assist with Tool Box Talks or Five Minute Safety Talks.

8. Maintain documentation of training, inspections, injuries and illnesses, and other safety records.

9. Participate in accident investigations and implementation of corrective actions.

10. Create statistical reports that compare severity and frequency rates against prior records.

2.2 SUPERVISOR'S RESPONSIBILITY

Our supervisors' play an important part in creating and maintaining safe and healthful work practices, policies, and procedures. It is the supervisor's responsibility to identify potential hazards, identify methods to control or eliminate the hazards, ensure employees engage in safe and healthful work practices, and ensure employees receive safety and health training to do their work. Safety and health performance will be part of our supervisors' evaluations.

2.3 SAFETY AND HEALTH TEAM

Our management will take an active role on the safety and health team. At least annually the safety and health team will develop written safety and health goals and track monthly progress. These goals will be communicated to all employees. Our team will be comprised of management and hourly employees.

2.4 RESPONDING TO SAFETY AND HEALTH ISSUES

Our management will take prompt consistent action when responding to safety and health issues. They will demonstrate our management commitment to addressing safety and health concerns and encourage employee participation. Management will respond to employees' reports of hazards or potential hazards.

Immediate supervisors will review, investigate, and take any necessary and appropriate action on all employee reports of hazards or potential hazards. The employee reporting the hazard or potential hazard will be notified of the outcome. Reporting of hazards or potential hazards will be without fear of reprimand.

3. EMPLOYEE INVOLVEMENT

3.1 SAFETY AND HEALTH TEAM

The purpose of our safety and health team is to participate in the implementation of the safety and health system.

Our team will be comprised of management and employee representatives. The team will:

- Address safety and health issues.

- Record and post minutes of the meetings.
- Involve employees in problem solving.
- Document action taken and post on the bulletin boards for all employees to read and-or comment.
- Have a formal agenda.

3.2 SAFETY INSPECTIONS

Our employees will participate in regular safety and health inspections to help identify potentially hazardous conditions and unsafe actions and initiate corrections. Findings will be presented to for review. Corrective action will be implemented in a timely manner.

3.3 SUGGESTION SYSTEM

Our employees are encouraged to make safety and health suggestions to help improve a process, prevent an accident, or to make any improvement in the safety and health system.

4. WORKSITE ANALYSIS

We will conduct a worksite analysis, through systematic actions that provide information as needed to recognize and understand the hazards and potential hazards of our workplace.

4.1 JOB SAFETY ANALYSIS

CHWE will utilize job safety analysis to determine potential hazards and identify methods to reduce exposure to the hazards.

Job Safety Analysis (JSA) is a method of planning for safety and health. There are three parts to the JSA.

1. The first component of a JSA is breaking down a job or task into the specific steps it takes to complete the job.
2. The second component of a JSA is to list all the hazards that are involved in each step. There may be many hazards that get listed next to some steps and may not be any associated with some steps.
3. The third step is to write down how each hazard will be eliminated or controlled.

Sample JSA Form

Job Title:	Page: __ of	JSA No.	Date:	__New __Revised
Equipment:	Supervisor:		Analysis by:	
Department:	Approved by:			
Required Personal Protective Equipment (PPE):				
Job Steps	Potential Hazards		Recommended Safe Job Procedures	

Trainee(s) Name:		Training Date:
Trainer(s) Name:		Trainer(s) Signature:
Four-Step Instruction Completed?	Prepare the Worker…… Trainer(s) Initials Present the Operation…… Trainer(s) Initials Try Out Performance……..Trainer(s) Initials Follow Up……..Trainer(s) Initials	
Comments:		

4.2 EMPLOYEE REPORT OF HAZARDS

Our employees play a key role in identifying, controlling, and reporting hazards that may occur or already exist in the workplace. Employee reports of potential hazards can be an effective tool to trigger a closer look at a piece of equipment, operation, or how work is being performed. Reports of potential hazards can also provide suggestions to eliminate a hazard.

4.3 ACCIDENT/INCIDENT INVESTIGATION

We will conduct an investigation for all accidents/incidents and near misses. Our primary goal of conducting an investigation is to determine the “root cause” to prevent the risk of a future occurrence. Investigation reports can help determine injury and illness trends over time, so that patterns with common causes can be identified and prevented. Investigations are not intended to place blame.

5. HAZARD PREVENTION AND CONTROL

5.1 JOB SITE INSPECTIONS

Job site inspections will be conducted daily. Hazards will be documented, reviewed, and corrections will be made in a timely manner. More detailed, written inspections will be conducted on monthly basis. The Safety Coordinator or other designated safety person will tour each job site and observe potential safety/health hazards, and develop a plan for safeguarding this company's workers which may include the following:

1. Removing the hazard.
2. Guarding against the hazard.
3. Providing personal protective equipment and enforcing its use.
4. Training workers in safe work practices.
5. Coordinating protection of workers through other contractors.

A record of all safety inspections and correctional steps will be kept.

5.2 ACCIDENT INVESTIGATION

All accidents resulting in injury or property damage will be investigated. The purpose of the investigation is not to find fault, but to find the cause of the accident so similar incidents can be prevented in the future.

1. All accidents, no matter how minor must be reported to the Foreman immediately.
2. Foremen must report all accidents to the Safety Coordinator as soon as possible.
3. Foremen must complete an initial written accident investigation the day of the accident, if possible.
4. All workers involved in the accident or who witnessed the accident must complete a written statement describing the incident.
5. The Safety Coordinator will complete a thorough accident investigation to determine root causes and corrective actions.
6. Near misses should be reported. Corrective action must be taken to prevent the same situation from occurring again with the potential for serious injury. Foremen should make a note of near misses and the corrective actions taken and report them to the Safety Coordinator, so that the same corrections may be made on all polder job sites.

5.3 PERSONAL PROTECTIVE EQUIPMENT

1. Helmet will be worn on job sites at all times.
2. Eye protection will be worn when there are potentials of hazards from flying objects or particles, chemicals, arcing, glare, or dust.
3. Leather work boots shall be worn to protect from falling objects, chemicals, or stepping on sharp objects. Safety toe footwear may be necessary in some instances.
4. Protective gloves or clothing shall be worn when required to protect against a hazard.
4. Harnesses and lanyards shall be utilized for fall protection as required.

6 POLICIES, PROCEDURES, SAFETY AND HEALTH RULES

Our management is responsible for implementing major decisions, policies and safety and health procedures. Specific safety and health procedures will be put in writing such as: lockout, right to know, fall protection, confined space, respiratory program, etc. A copy of our written safety program will be available on every polder jobsite, either in the jobsite trailer, the gang box, or with the foremen. we will inform and enforce the following safety rules:

All of our safety rules must be obeyed. Failure to do so will result in strict disciplinary action.

1. Wear appropriate clothing and vest.
2. Watch where you are walking. Do not run. Keep your mind on your work at all times.
3. The use of illegal drugs or alcohol or being under the influence during working hours shall be cause for termination. Inform your supervisor if taking strong prescription drugs that warn against driving or using machinery.

4. Do not distract the attention of fellow workers or engage in horseplay. Do not engage in

any act which would endanger another employee.

5. Keep your working area free from rubbish and debris. A clean job is the start of a safe job.
6. Do not use a compressor to blow dust or dirt from your clothes, hair, or hands.
7. Report any fear of walking at heights to your supervisor.
8. Know where fire extinguishers are located and how to use them.
9. Lift correctly - with legs, not the back. Do stretching exercises prior to work activities. Approximately twenty percent of all construction related injuries result from lifting materials.
10. Keep back at least 10m from all power lines, further if high voltage.
11. Nobody but the operator shall be allowed to ride on equipment.
12. Do not use power tools and equipment until you have been properly instructed in the safe work methods and become authorized to use them.
13. Do not remove, displace, damage, or destroy any safety device or safeguard on equipment or machinery.
14. If you must work around power shovels, trucks, rough-terrain fork-lifts, dozers, or other heavy equipment, make sure operators can always see you.
    - Never walk within the swing radius of equipment counterweights.
    - Never stand next to trucks when load straps are being released.
    - Barricades are required for cranes.
    - High visibility vests may be used to increase your visibility.
15. Never oil, lubricate, or fuel equipment while it is running or in motion.
16. Before servicing, repairing, or adjusting any powered tool or piece of equipment, disconnect it, lock out the source of power, and tag it out.
17. Excavations over five feet deep must be shored or sloped as required. Keep out of trenches or cuts that are not properly shored or sloped. Excavated material or other debris shall not be stored nearer than 1m from the edge of the excavation. Excavations less than 2m will require cave in protection where conditions indicate possible side failure.
18. Build scaffolds according to manufacturers' recommendations.
    - Scaffolds over 10m must have guardrails on all open sides.
    - Scaffold planks shall be properly lapped, cleated or otherwise secured to prevent shifting.
19. Use ground fault circuit interrupters at all times with any temporary power supply. Use only extension cords of the three-prong type.
20. Never enter a manhole, well, shaft, tunnel or other confined space which could possibly have a hazardous atmosphere because of lack of oxygen, or presence of toxic or flammable gas, or has a possibility of engulfment by solids or liquids.
    - Only a qualified person will test the confined area with an appropriate detector before entry.
    - Wear the necessary personal protective equipment.
    - Provide ventilation by blowing fresh air into the confined space.
    - An attendant may be required to be stationed at the entrance.

7 SAFETY DISCIPLINE

The following four step disciplinary system shall be implemented when safety rules are not followed or other unsafe actions endanger workers.

First violation: Oral warning; notation for personnel file.

Second violation: Written warning; copy for file or Personnel Office.

Third violation:Written warning; one day suspension without pay.

Fourth violation: Written warning and one-week suspension, or termination if warranted.

Zero-tolerance Violations: Some safety violations are of such serious nature that there will be no warnings and termination may result. Examples include:

- Entering hazardous confined spaces without following proper procedures,
- Failing to use fall protection equipment,
- Entering unsafe excavations.

Both the employee and the supervisor allowing these unsafe acts may be terminated.

8 EMERGENCY PROCEDURES

In case of an emergency on site the following procedures will be instituted at each polder site.

1. Method of communication will be determined at each site: telephone, mobile phone, etc.
2. Post the following emergency telephone numbers:
   - Police,
   - Fire,
   - Ambulance.
3. Post the polder job site address near the communication station.
4. First Aid Box shall be stored at every polder working site. First responders should obtain all required First Aid.

9 SAFETY AND HEALTH TRAINING

CHWE will provide training to assure the requirements of standards are met and continuously evaluate employee training needs to keep workers safe and healthy on the job.

1. New Employee Orientation: New employees will receive training on the company safety and health management system, safe work practices and expectations, and specific safety and health training for the tasks that they will perform.
2. After inspecting a job site, we will identify and evaluate all potential hazards for potential of serious injuries and probability of an accident. Actions will be taken to minimize the hazards and protect the workers.
3. The Safety Coordinator or other designated site person will appraise the skill and knowledge level of exposed workers, and provide any needed training.
4. Where safety and health training is needed, appropriate training will be provided.
   - Hazards will be identified.
   - Necessary precautions will be explained.
   - Training length and level of detail will be determined by the severity of the hazards.
5. Toolbox Talks: Toolbox talks will be conducted regularly weekly. Topics covered will include:
   - The safe work practices necessary for that day's work.
   - Any safety concerns workers may have.
   - Brief refresher training on relevant safety topics.

Annex-9: Traffic management plan

TRAFFIC MANAGEMENT PLAN

General

The overall objective of the Coastal Embankment Improvement Project -Phase 1(CEIP-1) is to increase the resilience of coastal population to natural disasters and climate change. More specifically, the project aims at (a) reducing the loss of life, assets, crops and livestock during natural disasters; (b) reducing the time of recovery after natural disaster such as cyclone; and (c) improving agricultural production by reducing saline water intrusion which is expected to worsen due to climate change. This objective will be achieved by rehabilitating and improving the existing polder system in the coastal area.

Based on a multi criteria analysis for strategic polder assessment, a first priority group of 17 polders was selected. Among the 17 polders, 4 have been considered for Coastal Embankment Improvement Project -Phase 1(CEIP-1)/W-01, which are 32, 33, 35/1 & 35/3.

Managing traffic at a construction site is an important part of ensuring the site is without risks to health and safety. Vehicles including powered mobile plant moving in and around a site, reversing, loading and unloading are often linked with death and injuries to workers and members of the public. Traffic includes cars, trucks and powered mobile plant like forklifts and loader, and pedestrians like workers and visitors. The most effective way to protect pedestrians is to eliminate traffic hazards. This can be done by designing the layout of the site to eliminate interactions between pedestrians and vehicles. Examples include prohibiting vehicles from being used in pedestrian spaces or providing separate traffic routes so pedestrians cannot enter areas where vehicles are used. Where this is not possible the risks must be minimized so far as is reasonably practicable. This can be done by careful planning and controlling vehicle operations and pedestrian movements at the site.

Signs, warning devices and visibility

Signs should be used to alert workers and pedestrians to potential hazards from vehicles entering and exiting the construction site and other requirements like pedestrian exclusion zones.

Traffic routes should be clearly signed to indicate restricted parking, visitor parking, headroom, speed limits, vehicle movement, key site areas and other route hazards. Standard road signs should be used where possible and speed limits should be implemented and enforced.

The following control measures should be considered to manage risks:

- installing mirrors, reversing cameras, sensors and alarms to help drivers see or be aware of movement around the vehicle
- installing visual warning devices like flashing lights and high-visibility markings for powered mobile plant
- implementing safe systems of work to stop loads being carried forward where they impair clear vision
- appointing trained persons with flag to control traffic
- ensuring high-visibility or reflective clothing is worn by workers, plant operators and pedestrians at the site
- using communication methods like:
- radio – however ensure a back-up communication process is in place if it fails
- line of sight communication e.g. hand signals or cap lamp light signals. The person receiving the message should acknowledge the message has been received and understood, and

- verbal commands and confirmation of warnings and signals.

Traffic management

A traffic management plan documents and helps explain how risks will be managed at the construction site. This may include details of:

- designated travel paths for vehicles including entry and exit points, haul routes for debris or plant and materials, or traffic crossing other streams of traffic
- pedestrian and traffic routes
- designated delivery and loading and unloading areas
- travel paths on routes remote from the site including places to turn around, dump material, access ramps and side roads
- how often and where vehicles and pedestrians interact
- requirements for special vehicles like large vehicles and mobile cranes
- requirements for loading from the side of road onto the site
- the responsibilities of people managing traffic at the site
- the responsibilities of people expected to interact with traffic at the site
- instructions or procedures for controlling traffic including in an emergency, and
- how to implement and monitor the effectiveness of a traffic management plan.

The traffic management plan should be monitored and reviewed regularly including after an incident to ensure it is effective and considers changes at the site.

Workers should be aware of and understand the traffic management plan and receive information, instruction, training and supervision.

Annex-10: Capacity Building

Environmental action success depends of effective capacity building, the training of staff and all others involved. All those responsible for the management, implementation and operation of any aspect shall be adequately trained for their role. Training records shall be maintained on site, for each employee, to provide evidence for auditing/inspection purposes. The following training shall be considered for each organization.

1.1. CEIP-1 Project Management Board

The CHWE shall establish an environmental unit to oversee the preparation, implementation and oversight. The environmental unit shall be provided with enough technical and financial resources to complete this oversight role; external resources or contractors may be required. Specific training to the environmental unit should be provided as follows:

- Principles and procedures for environmental impact assessment;
- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Environmental audits;
- Social impact assessment and public consultation; and
- Auditing and follow-up.

1.2. Construction Contractor

The construction contractor shall have environmental staff trained to ensure contractor and all subcontractor compliance with EMP requirements. The construction contractor shall maintain training records, including attendance and specific course, for inspection by the CHWE. Specific training to the construction contractor environmental unit should be provided as follows:

- Principles and procedures for environmental impact assessment;
- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Air, soil and water sampling procedures;
- Construction impacts, including civil works, sediment and erosion control, soil handling and vegetation removal;
- Waste management;
- Fuel and hazardous materials management;
- Construction camp management;
- Community relations and public consultation procedures;

1.3. Technical Assistance In addition to staff training, technical assistance for outside consultants has been included into the training budget. Technical assistance could be full-time onsite within the CHWE or include short visits by consultants to provide training seminars and workshops.

Annex-11: Emergency Response Plan

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Coastal Embankment Improvement Project, Phase-1 (CEIP-1)

Field Office, House # 353 (Ground Floor), Road # 02, Sonadanga Residential Area (2nd Phase), Khulna, Bangladesh

HASKONINGDHV NEDERLAND B.V.

WATER

Jonkerbosplein 52
Postbus 151
Nijmegen 6500 AD
Netherlands
+31 (240) 328 42 84 Telephone
info@rhdhv.com E-mail
www.royalhaskoningdhv.com Internet
Gooi-, Eem- en Flevoland 565151454 CoC

To
Mr. Zhao Lei
Project Manager
The First Engineering Bureau of
Henan Water Conservancy
House: 2A, Road 55, Room 2A
Gulshan-2, Dhaka-1212
Bangladesh

Your reference	:	CHWE/CEIP-1/RE/0318
Our reference	:	RDCOR_BC5883-100_L397_PZ-MIP
Direct line	:	+880 173 6097 763
E-mail	:	paul.zwetsloot@rhdhv.com
Date	:	15.December.2016
Enclosure(s)	:	

Subject: Emergency Response Plan.

Dear Sir,

We refer to your above letter, dated 27.Nov,2016, under which you submtted the Emergency Response Plan.

After our review, we herewith give our consent for the Emergency Response Plan

Kind regards

Paul Zwetsloot
Construction Resident Engineer - CEIP-1/W-01
CEIP-1, Khulna
Copy to:

1. Team Leader, CEIP-1, Banani, Dhaka-1213
2. The Executive Engineer, CEIP-1, Khulna
3. Md. Mazibur Rahman Khan, Deputy Resident Engineer, CEIP-1, Khulna
4. Office copy

The First Engineering Bureau of Henan Water Conservancy

Coastal Embankment Improvement Project Phase-1(CEIP-1)

Project Office: House 411, Road 4, Sonadanga 2nd Phase, Khulna, Bangladesh

Our Ref. No.: CHWE/CEIP-1/RE/0318 Date: 27th Nov. 2016

To:
Paul Zwetsloot,
Construction Resident Engineer, CEIP-I
House 353 (Ground Floor), Road 02, Sonadanga 2nd Phase
Khulna, Bangladesh

Subject: Submission of Emergency Response Plan for CEIP-1/W-01

Dear Sir,

Please kindly find herewith our Emergency Response Plan for your kind review and reference.

Best regards!
Yours faithfully,

Zhao Lei
Project Manager

Enclosure(s): Emergency Response Plan for CEIP-1/W-01

CC.

1. Mr. Jean Henry Laboyrie, Team Leader of RHDHV for CEIP-1
2. Mr. Md. Abdul Hannan, The Executive Engineer, CEIP-1, Khulna
3. Office copy

Coastal Embankment Improvement Project, Phase-1 （CEIP-1）

Bangladesh Water Development Board (BWDB)

Emergency Response Plan

Approved by:_____

Checked by:_____ Sun. Huaxin.

Prepared by:_____

Jia Kai
QC In Charge
CHWE, CEIP-1

Ren Gaofei
HSE Engineer
CHWE, CEIP-1

The First Engineering Bureau of Henan Water Conservancy (CHWE)

2016

Table of Contents

Emergency Response Plan

1 Purpose

To ensure the implementation of the occupation health, safety target of the Project as per stipulated in the company's environment, occupation health and safety policy and organization system. To form a safe, healthy, civilized, clean and tidy cultural environment in the entire Project, and to continuously improve the management level of engineering construction.

As stipulated in the EIA management system, EIA management system shall be under control during the whole construction activities, the ability of EIA management shall be continuously improved so as to ensure effective prevention and rapid response to the potential EHS emergency accident occur in the building construction activities via the products and services, at the same time to minimize the damage and lost to the personnel and the company.

Based on the above mentioned, the EHS Emergency Response Plan is made.

2 Emergency Rescue Principle and Procedure

2.1 Emergency Rescue Principles

(1)Confirm no secondary danger first, then rescue personnel and property;

(2)Personnel first and then property;

(3)Life-saving prior to cure, serious wound prior to minor wound, save alive prior to corpse treatment;

(4)Record of the original site situation shall be made before moving the personnel and goods at accident site;

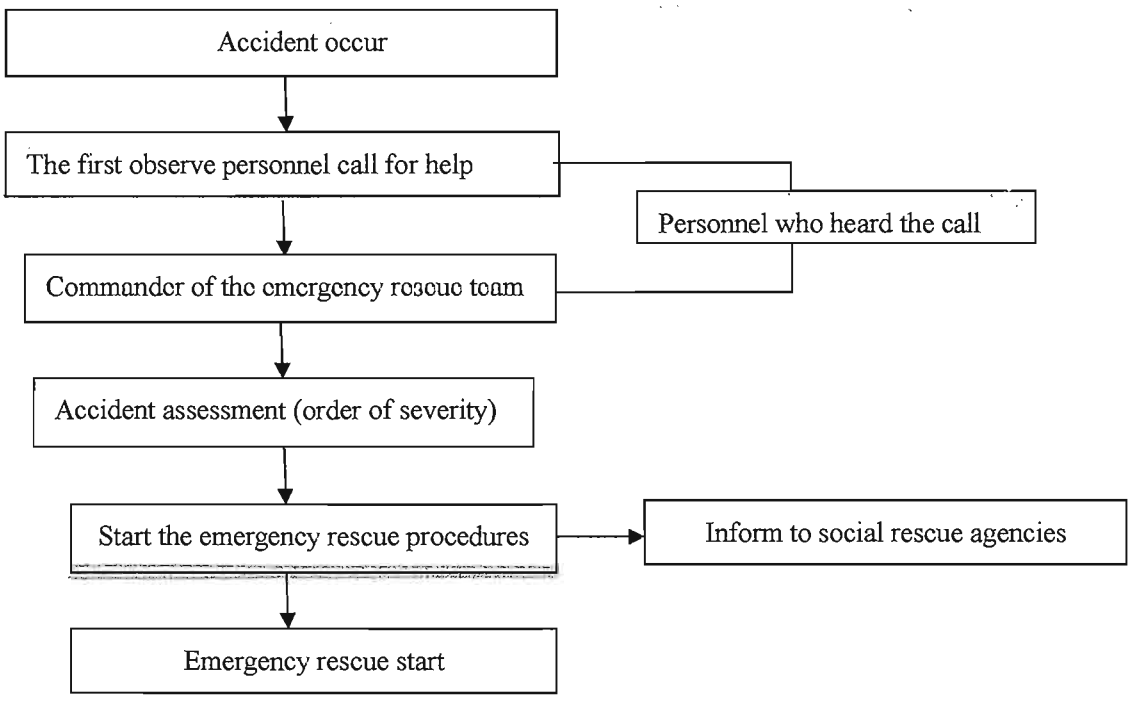
(5)The wounded rescue work shall be carried out rapidly in time, and shall be work hard for sending the wounded to hospital as soon as possible and as fast as possible, for the situation of severe bleeding, severe trauma, suffocation, severe heatstroke, the wounded should be sent to the nearby hospital under medical monitoring.

2.2 Principles of Emergency organization

Emergency rescue work shall on the premise of 'prevention first, combining prevention with remedying', as well as under the principle that 'Unity of command, Graded responsibility, mainly in area, self-rescue combine with social rescue'.

All personnel take part in the emergency rescue shall obey the command from the rescue group, individual obeying organization, the lower level subordinates itself to the higher level, normal work give the way to the emergency one.

2.3 Rescue procedure



3 Scope of Emergency

This Emergency plan is suitable for following emergency situations occur on site: the fire hazard, collapse, high falling, object strike, electric shock, lifting injury, mechanical injury, asphyxia, heatstroke, strong wind, thunder and lighting, epidemic, drowning, etc.

3.1 Occupational Health and Safety Emergency Accident Focus

Key point of occupational health and safety emergency accident:

(1)Hoisting and erection of equipment;

(2)Erection and removal of scaffolding;

(3)Power supply for construction;

(4)Machinery injury during construction;

(5)Fire welding and electric welding;

(6)Aloft work;

(7)Vehicles for indoor transportation;

(8)Marine transport and offshore operations.

3.2 Occupational health and safety accident types

Classification of occupational health and safety emergency accident: Mechanical injury accident, lifting injury accident, traffic accident, fire accident, object strike accident.

4 Emergency organization

4.1 Emergency Rescue Team

Accident Emergency rescue leading group shall be set up to organize, commander the accident rescue and to allocate various task, deploy Emergency resources (manpower, vehicles, equipment), so as to achieve the Emergency action to the accident in the first time. Handling process of the accident shall be report to the higher management layer and related department, and the follow-up situation shall be feedback to the aforesaid relatives in due time.

Organization of Emergency team are as follows:

Duty	Name	Position	Cell Number
Team Leader	Zhao Lei	Project Manager	01993-345005
Deputy Team Leader	Xue Yingke	Deputy Project Manager	01992-177661
	Sun Huaxin	Chief Engineer	01995-623946
	Jia kai	In charge of QSE Department	01992-177659
	Wei Lei	Manager of Engineering Department	01725-772045
Team Member	Ren Gaofei	QSE Department, Khulna	01992-219783
	Zhou Wenyi	Manager of Polder 32	01753-379019
	Dou Xin'guo	Manager of Polder 33	01990-777498
	Liu Tailiang	Manager of Polder 35/1	01768-783959
	Song Shebin	Manager of Polder 35/3	01753-353967
	Jiao Huaitao	QSE Department ,Polder 32&33	01995-623943
	Meng Qinghua	QSE Department ,Polder 35/1	01992-177659
	Zhi Chaoyang	QSE Department ,Polder 35/3	01971-562183

	Md. Shariful Islam	Assistant Engineer	01911-920319
	Md. Shahin	Quantity Engineer	01981-690283
	Md. Arafat	Assistant Engineer	01925-370060

The phone shall be 24 hours unimpeded.

4.2 Emergency Team

The Emergency team should reaction rapidly once they get the emergency information, and report the accurate situation to the commander or deputy commander the time, location, patient information, first-aid situation and injury type of the accident. At the same time, site rescue command group shall be set up under the command of the commander of deputy commander consist the related personnel. The rescue command group shall deploy the related Emergency team to element the dispose and coordinate work on basis of the requirement.

5 Emergency resources

First aid medicines and equipment of Polder 32

S.N	Equipment name	Purpose	Specification	Deployment	Commander	Remarks
1	Ferryboat	Transport	Mini scale	Polder site	All Staffs	2 Nos.
2	Sedan car	Wounded transfer	Mini scale	Pre-cast Yard	Zhou Wenyi Zhang Shuai	1 Nos.
3	Extinguisher	Fire fighting	Dry powder	Polder site	All Staffs	2 Nos.
4	First-aid Box	Emergency treatment	Local standards	Polder site	All Staffs	2 Set
5	Life buoy	Water first-aid	Local standards	Polder	All Staffs	2 Set

First aid medicines and equipment of Polder 33

S.N	Equipment name	Purpose	Specification	Deployment	Commander	Remarks
1	Toll cart	Transport	Mini scale	Pre-case Yard	All Staffs	1 Nos.
2	Sedan car	Wounded transfer	Mini scale	Pre-case Yard	Polder Manager	1 Nos.
3	Extinguisher	Fire fighting	Dry powder	Polder site	All Staffs	6 Nos.
4	First-aid Box	Emergency treatment	Local standards	Polder site	All Staffs	2 Set

First aid medicines and equipment of Polder 35/1

S.N	Equipment name	Purpose	Specification	Deployment	Commander	Remarks
1	Toll cart	Transport	Mini scale	Pre-case Yard	Shi Guangming/ Wang Suo	3 Nos.

2	SUV car	Wounded transfer	Medium scale	Main camp	Polder Manager	1 Nos.
3	Extinguisher	Fire fighting	Dry powder	Main/Vice camp	All Staffs	6 Nos.
4	First-aid Box	Emergency treatment	Local standards	Main/Vice camp	All Staffs	2 Set

First aid medicines and equipment of Polder 35/3

S.N	Equipment name	Purpose	Specification	Deployment	Commander	Remarks
1	Toll cart	Transport	Mini scale	Main camp	Zhang Yongli	1 Nos.
2	Sedan car	Wounded transfer	Medium scale	Main/Vice camp	Liu Zhanqing	1 Nos.
3	Extinguisher	Fire fighting	Dry powder	Main/Vice camp	All Staffs	8 Nos.
4	First-aid Box	Ambulance	Local standards	Main/Vice camp	All Staffs	1 Set

Note: First aid kit shall be allocated on site and the following medicines shall be prepared and periodic replaced: first-aid packet, Hydrogen Peroxide, mercurochrome, injector, Medicinal alcohol, cotton yarn, wound plaster. These medicines shall custody by specialist so as to ensure the effectiveness.

6 Emergency plan

6.1 Accident report

The site insider shall report the site information to the Polder Manager immediately after the accident happened. The Polder Manager shall report to the personnel at Project Office who is in charge of the emergency team. The personnel in charge shall estimate the order of severity and report this to the commanders.

The commanders shall send a report to the relatives and the local safety production management department, the report shall contain the followings: the time, location, organization and context of the accident, the situation and quantity of the casualty, the economic damage, scope and site situation of the accident, etc.

6.2 Prevention of Casualties

(1)The principle of prevention of casualties

Comprehensive and systematic measures shall be adopted to ensure safety produce, prevention of injury and death accident. To keep the system safety, the detailed principle of prevention and reducing vulnerability of accident contains but not limited to the followings:

①The principle of reducing, controlling and eliminating potential hazards;

②Raise the safety factor;

③Locking principle (interlocking principle of automatic fault prevention);

④The principle of barrier and distance;

⑤The principle of warning and prohibition of information;

⑥The principle of PPE;

⑦The principles of asylum, survival and e.

(2)Measures of prevention

Casualty prevention is to eliminate the insecurity of people and objects, to keep operating practices and operating conditions safe.

①Artificial unsafe behavior, ensure operation safe

ⅰ)Carry out safety education and ideological education safety regulations;

ⅱ)Carry out safety knowledge training, enhance the worker's safety engineering quality;

ⅲ)Popularize safety standardization management operations and safety confirmation system activities, Carry out the work by strictly following the stipulation of safe operation and procedure.

ⅳ)Enhance the safety management and monitor of the key working equipment and personnel, ensure safety production;

ⅴ)Alternate work with rest so as to maintain full energy therefore no unsafe behavior occur.

②Eliminate the unsafe physical object so as to ensure working conditions safe.

ⅰ)Adopt new technology, new technologies, new equipment, improve working conditions;

ⅱ)Strengthen the safety technology research, adopt safeguard equipment to keep apart the dangerous positions

ⅲ)Adopt safe PPE;

ⅳ)Carry out security checks, find and rectify the unsafe hidden danger in time.

ⅴ)Periodically carry out safety assessment of operating conditions (environment) in order to take safety measures to ensure compliance with the operational safety requirements.

③Strengthen safety management to achieve safety measures.

Strengthening the safety management is an important guarantee for the achievement of safety measures. Make a good basic job of accident prevention by establish, finalize and strictly implement safety stipulations, carry out regular safety education, job training and safety knowledge contest, through safety management such as formulate safety inspection and

implementation of safety prevention measures to eliminate potential accident.

6.3 Emergency Rescue Procedures

(1)Report to the headman to startup the Emergency plan and related procedure immediately after the accident.

(2)According to different incidents, each group dispatches the corresponding professional technicians, transfers the corresponding rescue and protection equipment, and endeavors to minimize the accident loss with the corresponding technical measures. Deploy corresponding professional technicians, rescues/protective equipment, adopt corresponding technical measures to minimize the damage caused by the accident on basis of the various accident situation.

(3)Unite and cooperate with the Emergency rescue commander team to carry out the rescue, mobilize the masses, staffs, relatives and social youths who is high-quality but out of the professional rescue team and allocate them into the various professional rescue team as per their major, while serious accident happened and there is not enough resources of the professional rescue.

6.4 Site Emergency rescue, rescue specific measures

6.4.1 Fire emergency

(1) Call for help

When there is a fire on site, the person who first found it shall cry out lustily for help by telling the clear information of where and what happened. The man who heard the call shall report to the nearest management person or the manager of the Polder.

(2) Rescue

First rescue the wounded to a safe place from the accident site and carry out the rescue, then evacuate the staffs in the fire region, cut off the electric power, organize people to fight with the fire so as to prevent the fire from spreading. Investigate the wounded quantities and order of severity at the same time

In case the wounded lost large quantity of blood and feel fear, apply proper analgesic treatment; if the wounded develop fidgety and wanna drink, prepare some dilute saline and let the wounded to drink in several times. Plain boiled water and/or syrup shall not apply to the wounded merely. During physical examination and transporting additional attention shall be

paid to protecting the wound to prevent the enlargement of the wound.

In case the clothes is on fire, take off the clothes and lie down immediately, get the fire out via slowly roll over or using water.

In case burnt by hydrothermal fluid, take off the clothes impregnated by hydrothermal fluid, rapidly cool the burnt area either by soaking in the cool water or sprinkling cool water to the burnt.

Chose a place in good ventilation and lay down the wounded rescued from the fire before the ambulance arrive the site. Artificial respiration shall be carried out when the wounded has dyspnea.

Personnel on a fire site shall apply clothes to muffle his/her mouth and nose, bent down in the lowest position to evacuate from the fire site rapidly.

Ask help from the professional medical staffs while carrying out the aforesaid procedure. At the same time, inform them of the location of fire and phone number of linkman.

Rescue the property via well organization.

Assist the fire-fighter, medical staffs to carry out the rescue work, transport the wounded to the hospital as soon as possible.

Keep the site original.

6.4.2 Height falls, mechanical injury, lifting damage

Stop the field operations immediately when accident happened, bring the wounded out to the flat area for checking by the relief-experienced staff on-site, keep still and take certain emergency relief according to the situation of the wounded. Escort the wounded with the medical staff to the hospital as soon as possible after the ambulance arrived.

(1) First aid on shock and coma

Work-site shock coma is due to trauma, pain, brain damage caused by spinal cord.

①Let the shock lay supine without pillows and 30 degrees legs raised. If the shock cannot lay supine due to the cardiogenic shock accompanied by heart failure, shortness of breath, make him half-lying, keep warm, quiet and unmoved unless it is necessary to move. The move action should be gently.

②Take Oxygen or artificial respiration to keep the shock breath smoothly. Critically ill patients shall be given oxygen under nasal or endotracheal intubation

③The secretions, vomit should be removed from the nose and mouth of the unconsciousness',

and then keep the injured lay lateral to prevent suffocation.

(2) First aid for bleeding

① General hemostasis: for small bleeding wound, apply with saline coated with mercurochrome syrup first, and then covered with sterile gauze, band it tightly

②For severer bleeding, suppress method, the most basic, the most common and most effective method of hemostasis, shall be applied. It is temporary applicable to the head, neck, limbs, arterial bleeding. That is, with the fingers or the palm of your hand to suppress the part of the artery which is nearer to the heart than the wound is. As long as the suppressed location is precise, this method can immediately play a hemostatic effect.

③There are usually 8 hemostats on the body. Generally, the upper arm artery, thigh artery, radial artery are more commonly used. Upper arm artery: use 4 finger to pinch the muscles of the upper arm and press the arm; thigh artery: use the end of the palm of your hand to suppress the middle of the thigh slightly above the point of the medial; radial artery: use 3 fingers suppress the part close to the end of the thumb.

④Other methods of hemostasis. In addition to aforesaid methods for hemostasis, there are tourniquet hemostasis, compression bandage hemostatic method and add pad to stop bleeding and other hemostasis method.

Tourniquet hemostasis is applicable for limb hemorrhage, especially arterial bleeding. Use a tourniquet (usually a rubber tube, can also be replaced with a towel, cloth or rope, etc.) tie around the limb tightly, or stick a short wooden stick throughout the knot and entwine tight until no blood so far. When entwine the tourniquet, do not over-tighten or over-loosen. Too tight will cause skin and nerve damage, too loose cannot play a hemostatic effect.

In this way there is the risk of tissue necrosis resulting from ischemia of the injured limb, so pay attention to the following points:

①Tourniquet cannot be directly in contact with the skin, first use gauze, cotton or clothes for separation.

②after the tourniquet tied, transfer to the hospital as soon as possible. During the transfer, release 1-2 minutes every hour to temporarily restore blood circulation, and then tie tightly on the higher parts.

③the part applying the tourniquet shall be not too far from the bleeding point, in order to avoid more muscle tissue ischemia, hypoxia. Generally tied position shall be on the one third

place away from upper arm or thigh.

(3)First aid for fracture

The correct fixation is most important for fractured victims.

Field fixation of fractures:

①The material used for fixing bones can be locally drawn, such as sticks, branches, wood, and crutches, cardboard etc. the length of the material shall be enough to keep the upper and lower joints of the fracture fixed or unmoved.

②Spinal fractures or fractures or neck fractures, unless it is special circumstances such as indoor fire, or let the injured remain in place, waiting for medical personnel with medical equipment to carry to move.

③when lift the injured person up from the ground, many people should hold up the injured slowly; during delivery, use wood or hard materials other than stretcher or rope bed. Board can be padded with quilts other than pillows, the head of the cervical vertebra fractured person shall be placed between the sandbags in both sides with the head grip.

(4)Other aid

①In case of traumatic injury on brain or abdominal, such as brain tissue or abdominal visceral out, contaminated tissue should not be tugged inside. It should be covered with a clean bowl, and then wrapped; avoid eating, drinking or with analgesics, sending to the hospital for treatment.

②Don't pulled out when there are stakes and other objects into the body cavity or limbs. It is necessary to saw off the outside part of the piercing (keep a small part near the body). It can be pulled out when the surgery is ready to be carried out in the hospital. Because in some case, the object pierced is right on the blood vessels, which can temporarily stop the bleeding. Massive hemorrhage may occur if the stick pulled out immediately.

③If there is the chest wall floating, immediately use clothing, cotton pad, etc. filling with the appropriate pressure to band to limit the floating. In case of failure of aforesaid activity, lay the injured person on his floating wall to limit the abnormal breathing.

④If there is a traumatic injury on chest, immediately making the injured person take a semi-supine position and bind the chest wall wound tightly and closely So that adjust the open pneumothorax into a closed pneumothorax and speed to the hospital. If the rescue personnel is enough experienced to determine that the symptom is tension pneumothorax, the methods of

puncture exhaust or upper thoracic drainage tube can be applied upon good conditions.

6.4.3 Electric shock accident

(1) The circuit shall be verified and the switches shall be cut off rapidly when there is an electric shock, so as to implement the rescue and prevent the accident from extension.

(2) Electric shock first aid

①The first-aid to electric shock wounded shall be a matter of seconds. The contact with professional shall be carried out at the same time when rescuing due to normally the electric shock wounded with no breath and heart beat is in a bad way. The rescue shall not be interrupted during the transferring of wounded to the hospital.

②Turn off the switches, cut off the power supply prior to the rescue. Dry wooden stick or dry bamboo pole shall be adopted to remove the cables from body of the wounded when it is not available to cut off the power supply. In case of the failure, dry rope could be adopted to hold the wounded and to tow him/her away from the electric current. The rescuer shall wear rubber gloves and rubber shoes. Touching the wounded by hand is strictly prohibited and own safety shall be always keep in mind when rescuing others.

③Lay down the wounded and closely observe his/her situation if the wounded is in his/her senses as well as independent breathing and heart beating, no stand up and walk is allowed in order to prevent from shock or heart failure.

④Call the ambulance immediately and try to awaken the wounded when he/she is out in his/her senses. Lay down the wounded when no breath but heart beating, unbutton his/her clothes to ensure respiratory unimpeded and start mouth-to-mouth respiration immediately. External chest compression shall be adopted to the wounded who has no heart beat but breath. Rescue measures such as mouth to mouth artificial respiration and external chest compression shall be adopted immediately when the wounded is found to have no breath or heart-beat. The rescue time shall not less than 60-90 minutes till the wounded restore his breath and/or heart-beat or the wounded is proved to be absolutely dead. If there are two people on site to carry out the mouth to mouth artificial respiration and external chest compression respectively. The ratio of artificial respiration and external chest compression shall be carried out with ratio 1:5, that means 1 time artificial respiration and then 5 times external chest compression. If there is only 1 people to do this, the ratio shall be 2:15 which means first 15 times external chest compression and then 2 times artificial respiration. The artificial respiration and external

chest compression shall be carried out alternatively and thoroughly.

⑤Note:

Additional attention of checking other injury/hurt shall be paid before treat the wound of electric burns. Syndrome such like cranio-cerebral trauma, hemopneumothorax, visceral rupture, limbs and pelvic fractures may occur when the wounded falling from high after the electric shock.

Optional movement of the wounded is prohibited during the site rescue. The interrupted time shall not exceed 30 seconds when it is really must to move the wounded. During moving the wounded or transporting the wounded to the hospital, continuously rescue shall be maintained as well as the wounded lying flat on the stretcher with flat, wide, harden wood board under his back. Artificial respiration and/or external chest compression shall be adopted to the wounded who has no breath and no heart-beat. Such rescue shall not be interrupted before the professional medical rescue staff take over the rescue work.

The wound of electric burns shall be wrapped by clean gauze rather than ointment or dirty gauze, or to be treated by doctor after got to the hospital.

6.4.4 Emergency measures for collapse accident

(1) Once there is a collapse, the evacuate management shall first organize people to evacuate and then count up the number of people present to be aware of lost and/or injured. After familiar with the situation and numbers of personnel in the collapse region, effective rescue via excavation shall be immediately carried out when someone is found to be lost during the collapse.

(2) Excavation should use artificial excavation, prohibit the use of mechanical excavation, to prevent mechanical damage to the buried staff. Artificial digging Avoid sharp tools as far as possible. For large heavy objects, should be reasonable organization of handling, in particular, buried in the body pressure on large objects, must be organized enough manpower before handling, handling clear responsibilities, by the person responsible for moving the buried staff.

The excavation shall be carried out artificially, equipment such as excavators are prohibited so as not to mechanical hurt the buried. For objects which is big-sized and heavy, the carrying shall be reasonable, adequate number of personnel shall be well organized and responsibility shall be confirmed especially when carrying the big-sized object which pressed above the

buried. The buried shall be carried out by specialist.

(3) Rescue excavation staff should be arranged in groups and distributed to different work reaches according to the situation. The staff shall be timely shifted to avoid over consume of the physical strength, so that buried personnel can be rescued in the shortest possible time.

If any personnel missing or injured, immediately report to the police. Keep well experienced vehicle guider for the guidance of the rescue vehicles.

(4) Delimit the dangerous area, maintain the regular deformation displacement observation on the slope and arrange experienced technical personnel to do the monitoring work. In case unstable situation found out, take measures to deal with immediately.

(5)The rescue team shall carry out some preliminary aid to the wounded before the professional medical staffs arrive.

①Race against the clock to rescue the buried via head exposed first so as to enable the wounded breath freely.

②Artificial respiration and subsequently standard cardio-pulmonary resuscitation (CPR) shall be carried out after the wounded were digged out.

③Tourniquet shall be adopted for the bleeding wound.

④Hot compress and massage shall be forbidden to the crush wound.

6.4.5 Traffic accident

(1)When a traffic accident occurs, the emergency command of the project department immediately organizes the force and promptly rushes to the scene.

The Emergency rescue team of the Project Office shall organize resources and rush to the site immediately when there is a traffic accident.

(2)Rapidly report to the local traffic department in charge on the brief site situation and consequences, rescue wounded and investigate the accident site by asking for help from the department of hygiene, insurance, transportation, fire brigade in accordance with the situation at accident site.

(3)Cordoned off the area, maintain the original site, interrupt the traffic via apply to the local traffic department in charge when necessary, signs and traffic vehicle routes shall be clearly indicated.

(4)Emergency measures such as rescue, firefighting shall be adopted and the principle of 'nearby and group' shall be followed. The specific rescue measures please see to the aforesaid

chapters and sections of the fire hazard accident, high falling accident, mechanical injury accident, physical objects injury accident, etc. Parking conditions shall be considered when transfer the dead.

(5)Get people who concerned custody and search for the witness.

(6)Arrange someone as the commander to guide the site investigation.

6.4.6 Heat stroke

6.4.6.1 Premonitory heat stroke

(1)Rescue immediately through separate the patient away from hyperthermia condition, bring the patients to the place with good ventilation for rest, unbutton the clothes and waist belt of the patient, rip open or take off the patient's clothes.

(2)Organize mutual rescue. Give cooler salty drink to patient and anti- heat stroke medicine such as Camphoradin, Jintan, Ageratum-liquid, etc.

Massage shall not be adopted when the patient has a muscle cramps, otherwise it will increase the pain to the patient. Salts and calcium shall be given to the patient as soon as possible for humoral supplement.

Dial the emergency call for help and at the same time carry out the above said procedures when the patient present to be circulatory failure. Cooperate with the medical staffs to carry out emergency rescue and transfer the wounded to hospital as soon as possible.

6.4.6.2 Severe heat stroke

(1)Rescue immediately through separate the patient away from hyperthermia condition, bring the patients to the place with good ventilation for rest, unbutton the clothes and waist belt of the patient, rip open or take off the patient's clothes.

(2)Organize mutual rescue, take various cooling measures rapidly, the measures are as follows:

①4□ water bath method: immerge the patient in to 4□ water except the head so as to enable the heat to be absorbed by cooling water, but this not apply to the extremely serious, comatose, shocked, heart failure patient.

②Transfer the patient into the Air-conditioned room with temperature about 25□, place ice-bags near main artery of his/her head, neck, neck sides, armpit, groin and wash his/her body by using icy water, continuously rub his/her skin to make it red to prevent hypostasis

occur.

③Sprinkling icy water and/or placing ice cubes in the room and fans shall be adopted when air-condition is not available. At the same time, wash the whole body by using well water and cover the body by wet towel to accelerate hypothermy.

While performing the above-mentioned steps, the medical emergency aid 120 is assisted. To assist 120 to carry out medical emergency work, quickly sent to the hospital for treatment of the wounded.

Dial the emergency call for help and at the same time carry out the above said procedures when the patient present to be circulatory failure. Cooperate with the medical staffs to carry out emergency rescue and transfer the wounded to hospital as soon as possible.

7 Environmental management and control measures

7.1 Dust control

(1)Dust discharging shall follow the standard that not to endanger the operating personnel health.

(2)Measures of dust control

①The cement shall be stored in a sealed warehouse, workers for transportation shall wear dustproof mask, and transportation shall be carried out in gentle so as to prevent from forming dust.

②For sand and aggregate stacking yard, materials shall be stored in stipulated area as per the civilized construction. Covers shall be adopted to prevent dust from forming on basis of the various weather.

③Dust disposal methods for operating activities:

i)For the dust pollution of the batching equipment operation, dustproof cover shall be installed firstly in shed with good ventilation condition, batching equipment shall be fixed properly, and workers shall wear dustproof masks and operate the equipment in upwind direction.

ii)When clearing up the site after the construction finished, bagging-off the big-sized first, then sweep and sprinkle water to prevent from forming dust, the sweeper shall wear dustproof mask. Vacuum cleaner shall be adopted for the powder dust, and then cleaned by water.

iii)Operators/Workers shall wear dustproof masks in closed rooms when doing the grinding

process of the coating work. Prevent the dust from spreading by the method of one room grinded, one room sealed.

iv)during the demolition process, to do things removed can not be littering, unified by an export transport, to take chute or bag transport, to prevent the removal of objects falling down caused by dust.

During dismantling work, components removed shall not to be thrown optional, and shall be transferred in one unitive outlet via adoption of slots or bags, so as to ensure there is no dust formed by the compaction of the dismantled parts.

v)Oxygen cutting and welding work shall be carried out in an open field, ventilation measures and dustproof mask shall be adopted when such work is carried out in closed room or basement where ventilation is not so good.

vi)For area of vehicles transportation which is easy to form dust, speed limit area shall be set up first, then specialist shall be arranged to sweep and sprinkle water regularly.

vii)For sieving of sand and aggregate, no such work is allowed to carry out during the strong wind, operators shall be upwind when carrying out such work in normal weather conditions.

(3)The full-time safety supervisor, civilized construction management staffs and safety construction supervisor of labor union shall supervise the place where the dust formed and follow the related activities, make record of this, find out the potential factors, issue the rectification notice and push the site staffs to implement the rectify.

(4)The Quality Control (QC) department under the leadership of Project Office, shall carry out the supervision and inspection of the dust management, issue the rectification notice with the signature of the Project Manager when problem is found, feedback the rectification results to the Project Manager in time.

7.2 Noise control

(1)Source of pollution: High decibel noise may occur during installation or operation of large and/or medium-sized machinery; installation and removal of scaffolding and protective sheds, transportation and stacking of formwork, material and equipment, and when using other mini type machinery.

(2)Mechanical equipment, noise control

①Maintenance to the excavation, transportation equipment of various pile construction shall be carried out prior to the construction in accordance with the stipulation of maintenance. All

troubles of the equipment found during construction shall be debugged in time so as not to working with troubles.

②Large-scale equipment set up on site such as tower crane, construction elevator, concrete pump and concrete batching plant shall be checked/inspected and shall be used only the checking/inspection result qualified. During operating, operators shall clean, lubricate, maintenance the parts of the equipment in order to reduce the possibility of emitting noise.

③For small and medium-sized mechanical equipment which may emit large noise, it should be checked and identified before use, used for normal maintenance and maintenance. If necessary, special noise control measures should be taken for the equipment, such as equipment, Device protective cover, try to use environmentally friendly machinery and equipment.

For the mini-type and medium-type equipment which may emit big noise, inspection and normal maintenance shall be done prior to use. Special noise control measures such as soundproof sheds and protective cover for rotating device shall be adopted when necessary.

④Service time, frequency, and quantities shall be strictly controlled when using mini power tools such as electric-pick, portable electric saw, etc. Such work shall be carried out as less as possible at night.

⑤Noise control of construction

i)Noise from construction shall be strictly controlled. Activities such as erecting and dismantling machinery equipment and formwork, installing scaffolding and reinforcement, batching concrete shall be carried out in daytime on basis of the degree of noise.

ii)In the tower crane, construction elevator, concrete mixing station installation, removal, to control the construction time, spare parts, tools placed lightly to minimize the impact of metal parts, not from the higher metal parts, so as not to a larger sound.

Construction time shall be well arranged when erecting, dismantling the tower crane, construction elevator, concrete batching plant. Accessories and tools shall be handled with care in order to reduce the impaction of metal parts. No high throw of metal parts is allowed which will cause big noise.

iii)Procedure shall be followed strictly when installing/dismantling scaffold and various types of metal gratings by using components such as steel pipe and steel frame. No high throw of steel pipe, fastener and other components is allowed, especially during the dismantling.

iv)Sound from impaction during transport, install, remove the formwork and bending, installing reinforcement shall be limited when constructing structures. Construction shall be carried out as per requirement of the noise control measures. No optional knocking of steel formwork and reinforcement, no free falling or throwing from high when removing the formwork.

v)Construction shall be carried out as per the procedure when vibrating the concrete, environment friendly vibrators shall be adopted when necessary so as to limit the harsh sound from impaction of vibrators and the steel reinforcement and steel formworks.

⑥Noise control in transportation

i)Noise from the transportation of materials and equipment on site shall be limited via implementation of noise control measures. The equipment adopted for transportation shall meet the requirement of sound emission.

ii)Mechanical lifting or manual handling measures shall be adopted for the dismantling/removing for the materials such as reinforcement, steel pipes, meal components, steel formwork, etc.

iii)Handle with care when stacking materials which is easy to sounding so as to prevent from making big noise. No materials to be thrown and/or stacked from high.

iv)Noise shall be tested and recorded, it can be done either by the construction team via their own or the rent equipment or by professional testing agency via authorize from construction team.

Special protective measure (such as soundproof working place) shall be adopted as well as making special plan and set up a special fund. Environment friendly tools (such as vibrators) could be used for soundproof cover.

7.3 Solid waste control

(1)Classification of solid waste

①Non-toxic, harmfulness and valuable waste

i)waste steel, waste wood, waste nonferrous metals;

ii) Packing boxes, buckets and bags for materials and equipment;

iii)Waste electrical materials, waste accessories of mechanical metals;

iv)Waste buildings as well as the bricks, tiles, doors and windows, etc.

v) Disused office supplies;

vi)Waste decoration materials;

vii)Materials;

②Non-toxic, harmfulness and not valuable waste

i)Disused construction waste;

ii) Waste broken bricks, broken stones.

iii)Domestic waste;

③Toxic and harmful

i)Waste fluorescent tubes, batteries, accumulators;

ii) Discarded ball-point pen refill, calculator;

iii)Waste carbon paper, photographic film, cingulate;

iv)Wastc cartridges, disks, selenium drum ;

v)Waste rubber, plastic products;

vi)Discard toxic and harmful chemical packaging;

vii)Waste oil drums, drums for chemical additives;

(2)Collection and storage of solid waste

①Set up stack yard or containers for solid waste prior to the commencement of the construction work. Rainproof facilities shall be established for the waste which is easy to pollute the environment when wet by the rain.

②The solid waste staked on site shall be categorical in accordance with the marked labels, toxic or non-toxic shall be separated stored.

③Hazardous and toxic waste shall not be stored together with non-toxic and harmless waste.

④The stacking of solid waste shall be neat, reasonable and in compliance with the requirements of the construction civilization on site.

⑤The solid waste collection shall be confirmed by the foreman via the work arrangement, and specialist shall be arranged for daily management.

(3)Disposal of solid waste

①The solid waste shall be treated by the personnel who is in charge of waste disposal management according to the amount of waste storage and storage place arrangements, report shall be submitted to the Project Manager when the storage is overloaded, the site civilized construction image is affected by the waste or the project is going to be completed in short time.

②The Project Manager shall review the disposal report submitted by the personnel in charge of waste dispose and he shall then report to the company's material department. After got the approval of the company, a disposal team shall be set up to deal with the solid waste which contains the staffs of material department and the man in charge of waste management.

③Solid waste shall be classified according to the toxic properties and then be treated, combined treatment shall be prevented.

④For non-toxic, harmless and valuable solid waste, if it is re-useable in other projects, recycling suggestions and responsible recycling department shall be reported to the material dept. and construction dept. Business certificated agency shall recycle it when the solid waste is uselessness.

⑤For non-toxic, harmfulness and not valuable waste, sanitation department shall be entrusted to clean up it.

⑥For the toxic and hazardous solid waste, entrust companies who is qualified with hazardous substances business license with it.

7.4 Control of Water pollution ~~control~~

(1)Sources of pollution: Muddy water from construction, water from flushing vehicles, sewage water from construction staffs, and surface water in the monsoon.

(2)Control measures and requirements:

①Wastewater discharged into the city sewer, for wastewater discharged into city sewer suspended solids (SS) follow the standard 400 mg/L of grade III in "Integrated Wastewater Discharge Standard" (GB8978-1996). For Wastewater discharged in to nature water, suspended solids (SS) follow the standard 150 mg/L of grade II in "Integrated Wastewater Discharge Standard" (GB8978-1996)

②Choosing of location and method of discharging shall be in accordance with the trend and overload capacity of the drainages in various construction areas.

③Complete the drainage system and wastewater treatment plant prior to the commencement of the work, make sure their effectiveness during the whole construction period to get no ponding at site, no overflow, no block so as to enable the water quality meet the requirements.

④The size of the stockpile of backfilling earth and sedimentation tank of muddy water shall on basis of the sediment time required.

⑤Water discharging Emergency plan of monsoon, especially the heavy rain period which is

for the purpose to prevent water pollution accident from wastewater discharged unorganized, overflow or block the sewer of city, shall be made and implement when required on basis of the practical construction situation and considering of rainfall characters of Khulna City.

⑥Exclusive oil storage shall be set up on site, anti-seepage treatment shall be made to the floor of the storage to prevent the oil from drop/leakage and/or pollute the soil and water.

7.5 Air Pollution

(1)Sources of pollution: transportation, excavation, fuel machinery, stoves and so on.

(2)Impact: dust (during preparation and excavation construction stage), dust, waste gas (during the whole construction period).

(3)Control measures and requirements:

①It is forbidden to burn down any waste and other materials which may produce toxic and hazardous gases, soot and bad smell while burning. Toxic material such like melting-asphalt shall be used cooperatively with the sealable equipment with soot treatment plant.

②Commercial concrete shall be used for the Project.

③Cement and other materials which is easy to blow away shall be stored in the warehouse. Spoil pit, outdoor stockpile of loose material shall be covered and compacted.

④Qualified transportation equipment shall be adopted so as to ensure nothing drop while transporting.

⑤Tires of vehicles shall be washed before go out the site in order to reduce the soil/dust adhere to the tires.

⑥Green energy shall be used, stoves to be used shall meet the soot emission requirements.

⑦The construction site shall be well planned and arranged prior to the commencement of the work, foundation of temporary construction road shall be compacted and the road shall be harden.

8 Evaluation and Adjustment of Emergency Plan

The Project Office shall organize the evaluation and conclusion on the following situations:

(1) After the Emergency maneuver plan but not more than one week.

(2)Not more than a week after investigation and conduction completed when potential accident and/or emergency situation occur. The evaluation shall be organized by the Quality

Control Dept. of the Project Office and the personnel involved in the accident shall be present. The evaluation shall contain the comments on the reasonability, measure of rescue and implementation effective, suggestion on improvement shall be given at the same time.

9 Improve the Emergency rescue ability, Strengthen Safety education of Project staffs

In order to improve the commanding ability of Emergency rescue, as well as the self and mutual medical aid of the staffs and minimize the damage, the Emergency rescue shall be carried out semiannually in accordance with different construction stage by the construction units under the leadership of the Project Office.

Furthermore, the Project Office shall educate and train the staffs on safety conducted weekly and get ready for the proper safety inspection, prevention and rectify so as to make sure no safety accident will incur.

10 Emergency calls

(1)Emergency call of Polder 32:

Police station: Secretary	01712-575296
Resident Doctor 1:	01820-633270
Resident Doctor 2:	01914-311213
Vice Manager of Polder 32: Mr. Zhou Wenyi	01753-379019
Mr. Zhang Shuai	01779-615576

(2) Emergency call of Polder 33:

Fire Emergency	04176033
Hospital	01717-613738
Police Station	01713-374110
Manager of Polder 33: Mr. Dou Xin'guo	01990-777498
Chief Engineer of Polder 33: Mr. Xing Cangsheng	01753-353897

(3)Emergency call of Polder 35/1:

Fire Emergency	0465956222
Hospital	0175856813
First Aid	01934-817444
	01748-931196
Police station	0465956007
	01713-374128
	01716-132101
Manager of Polder 35/1： Mr. Liu Tailiang	01768-783959
Vice Manager of Polder 35/1 Mr. Zhao Huaijiang	01745-088067

(4)Emergency call of Polder 35/3：

Fire Emergency	199
First Aid： Mossarrof Hossain	01730-324793
Traffic accident: Mannan	01757-833555
Imran	01794-438171
Manager of Polder 35/3 Mr. Song Shebin:	01753-353967