

# Bangladesh Water Development Board

Protection of Morelganj Upazila Sadar & Adjacent Area from Erosion of Panguchi River & Re-excavation / Dredging of Biskhali River in Bagerhat District.

Re-excavation / Dredging of Biskhali River in Bagerhat District.

Design of Repair Bank Protection Work along the Right Bank of Panguchi River, at Moregonj Ferry Ghat Area; Upazila-Moregonj, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat.



**GENERAL NOTES:**

**SPECIAL NOTES:**

1. THIS DRAWING HAS BEEN PREPARED BASED ON DATA SENT BY THE SUPERINTENDING ENGINEER, KUJUNA 0 & M CIRCLE, BWDB, KUJUNA VIDE MEMO NO: 168, DATED-07/08/2022.	FOR ANY ERROR, OMISSION OR CONFUSION PLEASE REFER TO THIS OFFICE AS QUICK AS POSSIBLE FOR NECESSARY ACTION.
2. DUMPING WORK SHALL BE DONE DURING MONSOON OR WHEN WATER LEVEL IS MORE THAN THE WORKING LEVEL SHOWN IN THE DRAWING.	2. FOR SUSTAINABILITY OF THE WORK IN THE PROPOSED LENGTH OF PROTECTION, ALL DUMPING AND PITCHING WORK SHALL BE COMPLETED IN THE DRY SEASON. UNDER NO CIRCUMSTANCES, DUMPING WORK SHALL BE DONE DURING MONSOON OR WHEN WATER LEVEL IS MORE THAN THE WORKING LEVEL SHOWN IN THE DRAWING.
3. THE WORK SHALL BE EXECUTED WITH PRIOR FINANCIAL & ADMINISTRATIVE APPROVAL AND TECHNICAL SANCTION FROM THE COMPETENT AUTHORITY.	3. THE WORK SHALL BE EXECUTED WITH PRIOR FINANCIAL & ADMINISTRATIVE APPROVAL AND TECHNICAL SANCTION FROM THE COMPETENT AUTHORITY.
4. ALL DIMENSIONS ARE IN MILLIMETRE (mm) AND ALL ELEVATIONS ARE IN METRE (PWD) UNLESS OTHERWISE MENTIONED IN THE DRAWING.	4. ALL DIMENSIONS ARE IN MILLIMETRE (mm) AND ALL ELEVATIONS ARE IN METRE (PWD) UNLESS OTHERWISE MENTIONED IN THE DRAWING.
a) SALVAGEABLE BLOCKS SHALL BE DUMPED UNIFORMLY OVER THE CHAINAGE IN ADDITION TO DUMPING VOLUME SHOWN IN THE DRAWING.	5. THE MATERIAL & WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF BWDB MANUAL.
2. THE FOLLOWING NOTE ARE ADDED FOR THE SALVAGING & REUSING OF EXISTING C.C BLOCKS AT DIFFERENT FOUR LOCATIONS AS SHOWN IN THE DRAWING.	6. NECESSARY LAND SHALL BE ARRANGED BEFORE EXECUTION OF WORK.
7. THE GEO-TEXTILE FILTER HAVE THICKNESS OF 3.00 mm.	7. THE GEO-TEXTILE FILTER HAVE THICKNESS OF 3.00 mm.
8. GEO-TEXTILE FILTER SHALL BE EXTENDED UPTO 1000 mm BELOW THE W.WL/TOE & SHALL HAVE TO BE ANCHORED CAREFULLY AT THE TOP OF THE SLOPE AS SHOWN IN THE DRAWING.	8. GEO-TEXTILE FILTER SHALL BE EXTENDED UPTO 1000 mm BELOW THE W.WL/TOE & SHALL HAVE TO BE ANCHORED CAREFULLY AT THE TOP OF THE SLOPE AS SHOWN IN THE DRAWING.
9. GEO-TEXTILE MATERIALS SHALL BE PRESERVED AGAINST UV RAY AND FROM ANY OTHER DAMAGES.	9. GEO-TEXTILE MATERIALS SHALL BE PRESERVED AGAINST UV RAY AND FROM ANY OTHER DAMAGES.
10. GEO-TEXTILE MATERIALS AFTER PLACING SHALL NEVER BE EXPOSED TO SUNLIGHT.	10. GEO-TEXTILE MATERIALS AFTER PLACING SHALL NEVER BE EXPOSED TO SUNLIGHT.
11. SAND LAYER BELOW GEO-TEXTILE SHALL BE MADE BY USING SAND OF F.M. 1.0 TO 1.50.	11. SAND LAYER BELOW GEO-TEXTILE SHALL BE MADE BY USING SAND OF F.M. 1.0 TO 1.50.
12. FULL LENGTH OF PROPOSED PROTECTIVE WORK SHALL BE DONE AT A TIME IN ONE DRY SEASON FOR EFFECTIVENESS.	12. FULL LENGTH OF PROPOSED PROTECTIVE WORK SHALL BE DONE AT A TIME IN ONE DRY SEASON FOR EFFECTIVENESS.
13. IF THERE ARE ANY POND OR DITCH EXISTS WITHIN 100 m DISTANCE FROM THE RIVER BANK, IT MUST BE PROPERLY FILLED UPTO G.I. WITH LOCAL EARTH AND SHALL BE COMPACTED AS PER SCHEDULE BEFORER STARTING THE PROTECTIVE WORK.	13. IF THERE ARE ANY POND OR DITCH EXISTS WITHIN 100 m DISTANCE FROM THE RIVER BANK, IT MUST BE PROPERLY FILLED UPTO G.I. WITH LOCAL EARTH AND SHALL BE COMPACTED AS PER SCHEDULE BEFORER STARTING THE PROTECTIVE WORK.
14. SLOPE OF PITCHING WORK SHALL BE MAINTAINED AS PER EXISTING SLOPE OR AS PER REHABILITATION SECTION, BUT NOT STEEPER THAN 2H:1V. ALL BANK IRRREGULARITIES ABOVE WORKING WATER LEVEL SHALL BE REMOVED. NECESSARY CUTTING & FILLING SHALL BE DONE IN THIS RESPECT AS PER FIELD REQUIREMENT.	14. SLOPE OF PITCHING WORK SHALL BE MAINTAINED AS PER EXISTING SLOPE OR AS PER REHABILITATION SECTION, BUT NOT STEEPER THAN 2H:1V. ALL BANK IRRREGULARITIES ABOVE WORKING WATER LEVEL SHALL BE REMOVED. NECESSARY CUTTING & FILLING SHALL BE DONE IN THIS RESPECT AS PER FIELD REQUIREMENT.
15. A SMOOTH TRANSITION TO BE PROVIDED BETWEEN HIGHER & LOWER LEVEL AND FLATTER & STEEPER SLOPE OF THE PROTECTIVE WORK. TOP LEVEL OF PITCHING WORK SHOULD BE MATCH WITH PROTECTION OF MOREGONI RIVER & RE-EXCAVATION/DREDGING OF BISKHALI RIVER IN BISKHALI AREA FROM A DISTANCE OF 100m.	15. A SMOOTH TRANSITION TO BE PROVIDED BETWEEN HIGHER & LOWER LEVEL AND FLATTER & STEEPER SLOPE OF THE PROTECTIVE WORK. TOP LEVEL OF PITCHING WORK SHOULD BE MATCH WITH PROTECTION OF MOREGONI RIVER & RE-EXCAVATION/DREDGING OF BISKHALI RIVER IN BISKHALI AREA FROM A DISTANCE OF 100m.
16. AT THE STARTING AND AT THE END OF THE PROTECTIVE WORK TRANSITION TO THE EXISTING DESIGN OF REPAIR OF TOTAL 962M RIVER BANK PROTECTIVE WORK ALONG THE RIGH BANK OF PANAGUCHI RIVER; AT THE RIGH BANK OF PANAGUCHI RIVER, AT MOREGONI FEERY GHAT AREA; UPZILLA-MOREGONI, DISTRICT-BAGERHAT UNDER BAGERHAT Q & M DIVISION, BWDB, BAGERHAT.	16. AT THE STARTING AND AT THE END OF THE PROTECTIVE WORK TRANSITION TO THE EXISTING DESIGN OF REPAIR OF TOTAL 962M RIVER BANK PROTECTIVE WORK ALONG THE RIGH BANK OF PANAGUCHI RIVER; AT THE RIGH BANK OF PANAGUCHI RIVER, AT MOREGONI FEERY GHAT AREA; UPZILLA-MOREGONI, DISTRICT-BAGERHAT UNDER BAGERHAT Q & M DIVISION, BWDB, BAGERHAT.
DESIGNED BY: <i>[Signature]</i>	NOTES
RECOMMENDED BY: <i>[Signature]</i>	
MOHAMMAD SAIF UD DIN, AE [Signature]	APPROVED BY: MD. ENAYETUL HAQUE, CE, Design
ZAFAR BIN SADIQ, AE [Signature]	CHECKED BY: MD. ENAYETUL HAQUE, CE, Design
DATE: 23-11-2022 DWG NO.: DC-8-0313-02/16	

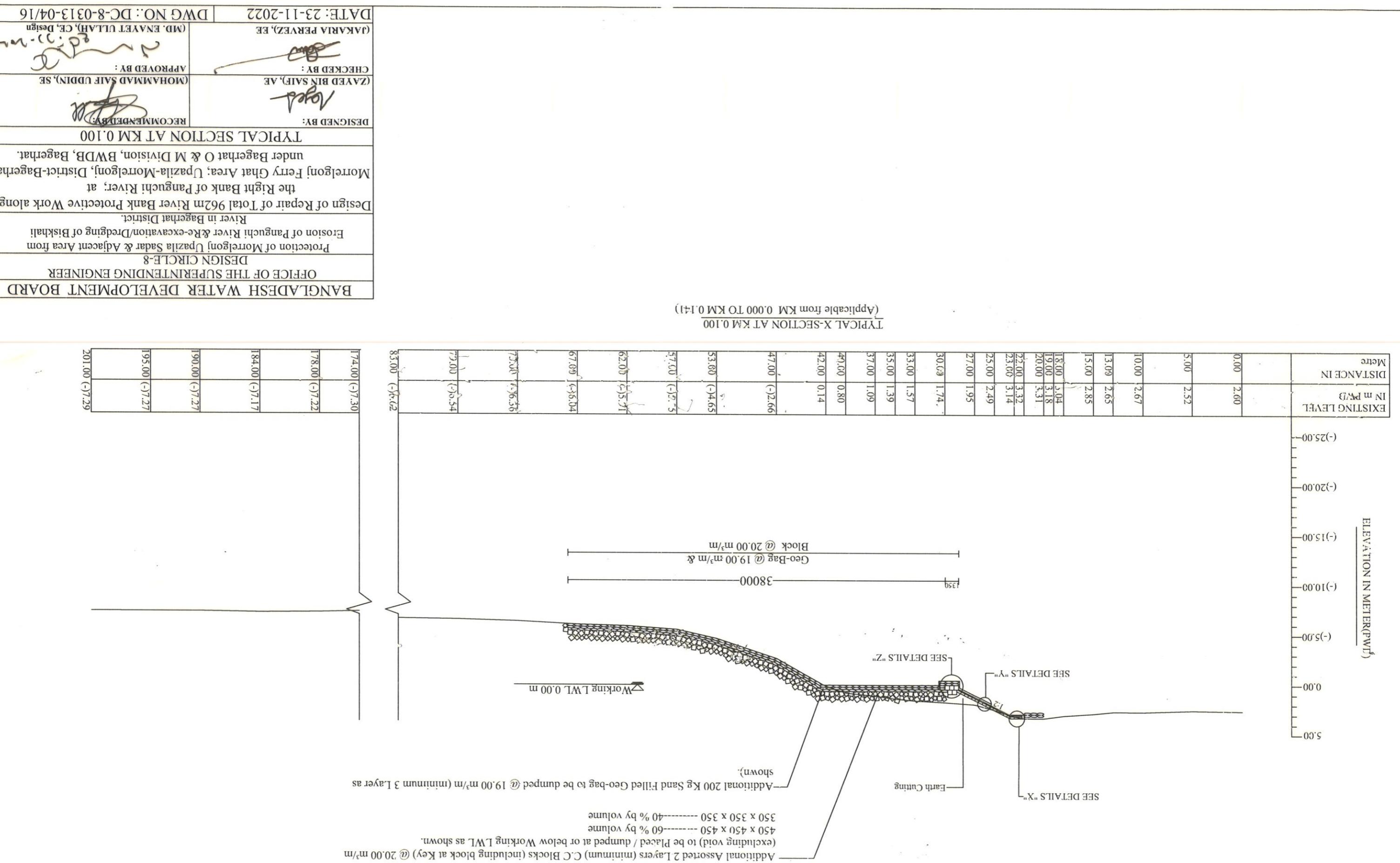
**NOTES FOR C.C BLOCKS:****NOTES FOR GEOBAG:**

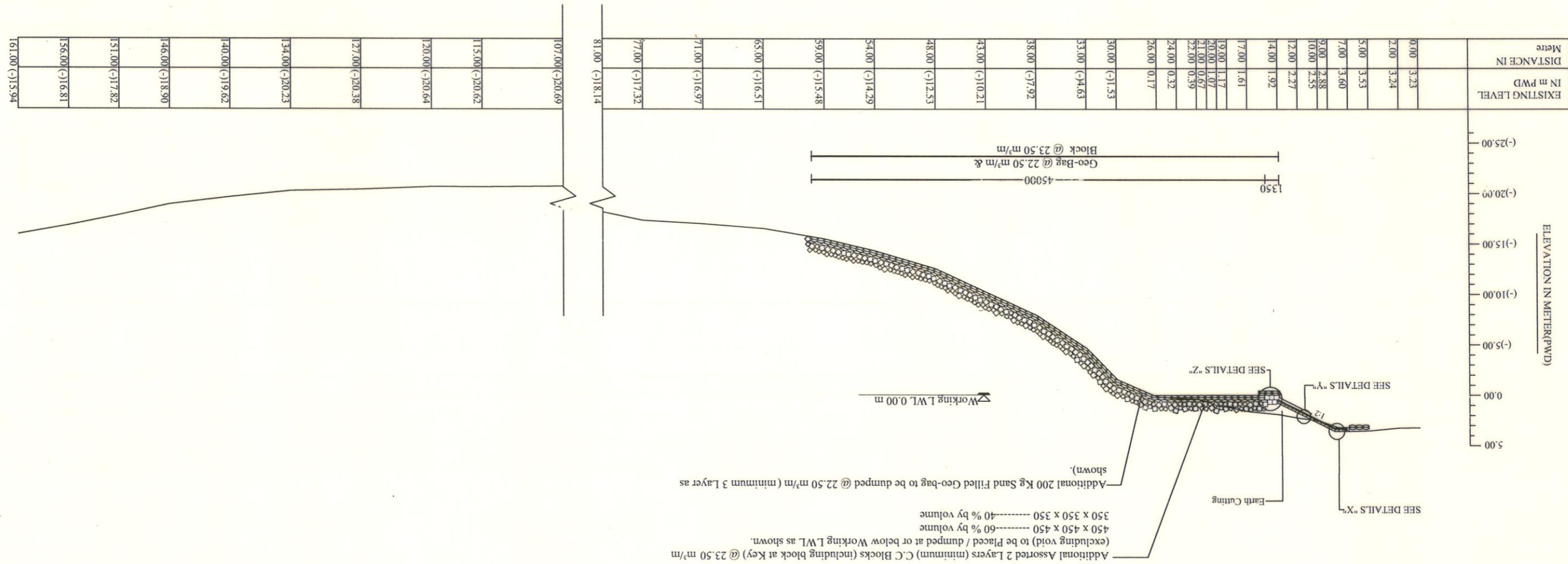
- AS BUILT DRAWING CONTAINING CROSS SECTIONS AT 50 m INTERVAL SHALL BE PREPARED IMMEDIATELY AFTER COMPLETION OF DUMPING.
- THE RIVER BEHAVIOR WITH RESPECT TO SCOUR AND EROSION AND PERFORMANCE OF REVENEMENT WORK DURING AND AFTER EXECUTION SHALL BE MONITORED CAREFULLY ON REGULAR BASIS TO TAKE TIMELY MITIGATIVE AND STRENGTHENING MEASURES. REGULAR MONITORING OF THIS PROTECTIVE WORK MUST BE DONE THROUGH BATHYMETRIC SURVEY.
- EACH BAG DELIVERED AT SITE SHALL BE MARKED WITH LABELS THAT IDENTIFY BRAND NAME, CONTRACTOR ETC. CONTRACTOR NO, SIZE OF BAG, ATE OF PRODUCTION OF GEOTEXTILE, NAME OF SEWING SHALL BE DONE BY MACHINE WITH LOCK STITCH (TYPE 301 UNDER ISO 4915/DIN61400) OR DOUBLE CHAIN STITCH (TYPE 401 UNDER ISO 4915/DIN61400) AS PER RWDB TECHNICAL SPECIFICATION AND TENDER DOCUMENT. THREAD FOR STITCHING SHOULD BE 100% POLYPROPYLENE OR NYLON.
- SHOULD BE FREE FROM CLAY & ORGANIC MATTER. POLYPROPYLENE SHOULD BE SAND AND 80% SHOULD RETAIN ON #100 SIEVE. SAND SHOULD BE FREE FROM CLAY & ORGANIC MATTER. MATERIAL OF GEOBAG SHALL BE 100% POLYPROPYLENE.
- SURVEY BOAT EQUIPPED WITH NECESSARY DUMPING EQUIPMENT, SURVEY EQUIPMENT & SURVEY TEAM SHOULD BE ENSURED AT SITE BEFORE START OF DUMPING.
- THE DRAWING.

**NOTES FOR DUMPING:**

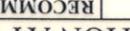
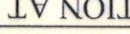
- WORK SHALL BE EXECUTED ONLY WHEN WL IS AT OR NEAR WORKING L.W.L AS SHOWN IN THE DRAWING.
- FAT TOP BARGE / PONTOOONS/BOATS SHALL BE USED FOR DUMPING.
- ENGINE BOAT - FOR TRANSPORTING THE DUMPING MATERIAL TO THE BARGE.
- TOPOGRAPHIC & BATHYMETRIC SURVEY TEAM EQUIPPED WITH TOTAL STATION.
- NO DUMPING SHALL ALLOWED WITHOUT PROPERLY POSITIONED & ANCORED FLAT TOP BARGE OR DUMPING PONToon OR BOAT.
- SPeCIAL CAR SHALL BE TAKEN FOR ANCHorING OF DUMPING PONToon / BOAT.
- WORK SHALL BE STARTED FROM U/S END AND DUMPING END TO BANK.
- FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED DURING EXECUTION OF THIS PROTECTIVE WORK.
  - EXECUTION OF WORK SHALL BE DONE FROM THE EXTREME END OF DUMPING TO TOWARDS THE BANK.
  - DUMPING OF GEOBAG BELOW L.W.L.
  - DUMPING OF C.C BLOCKS BELOW LWL OVER GEOBAG.
  - SLOPE PREPARATION & PITCHING WORK ABOVE LWL.

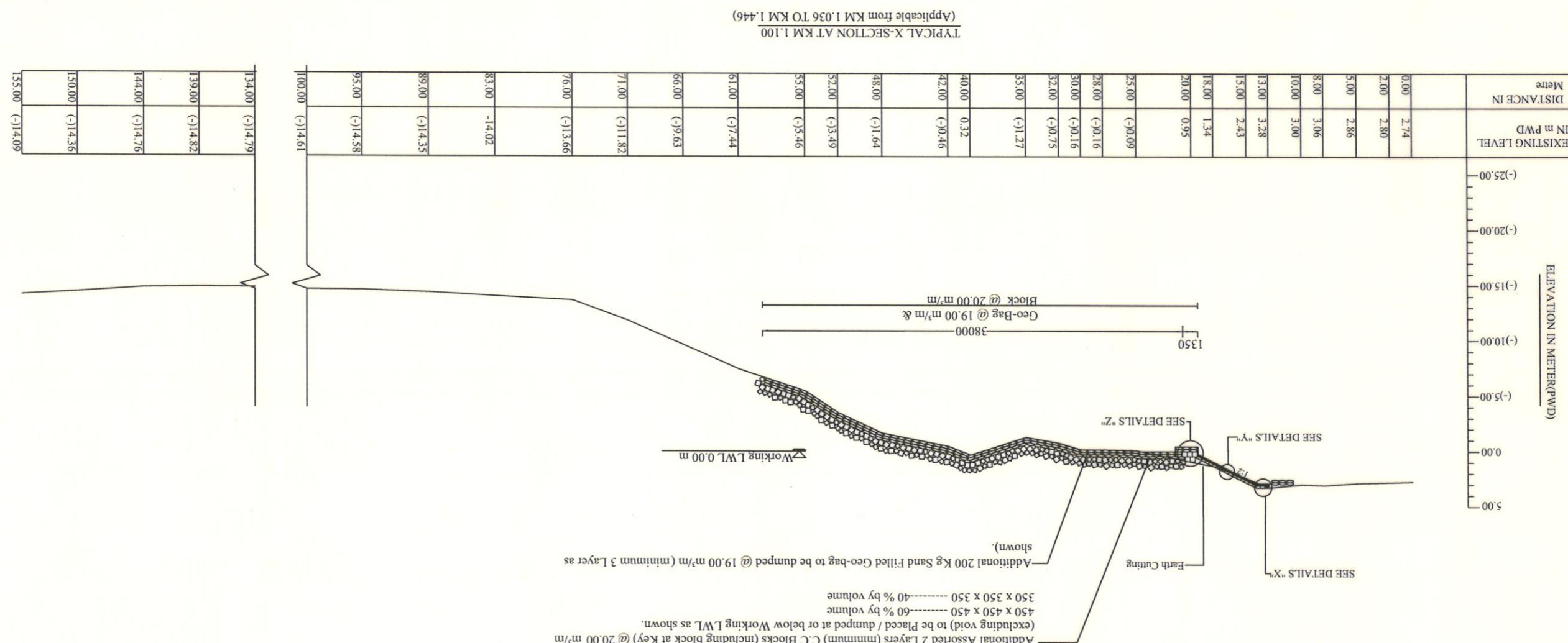
NOTES	Design of Repair of Total 962m River Bank Protective Work along Morelgoni Ferry Ghat Area; Upazila-Morelgoni, District-Bagherhat under Bagherhat O & M Division, BWD, Bagherhat.	Design of Repair of Panuguchi River, at the Right Bank of 962m River Bank of Panuguchi River, at Morelgoni Ferry Ghat Area; Upazila-Morelgoni, District-Bagherhat under Bagherhat O & M Division, BWD, Bagherhat.	RECOMMENDED BY: <i>[Signature]</i>	APPROVED BY: <i>[Signature]</i>	DESIGNED BY: <i>[Signature]</i>	CHEKED BY: <i>[Signature]</i>	MOHAMMAD SAIF UDDEEN, SE <i>[Signature]</i>	(ZAYED BIN SAID, AE <i>[Signature]</i> )	(JAKARTA PERVEZ, EE <i>[Signature]</i> )	APPROVED BY: <i>[Signature]</i>	DATE: 23-11-2022	DWG NO.: DC-8-0313-03/16
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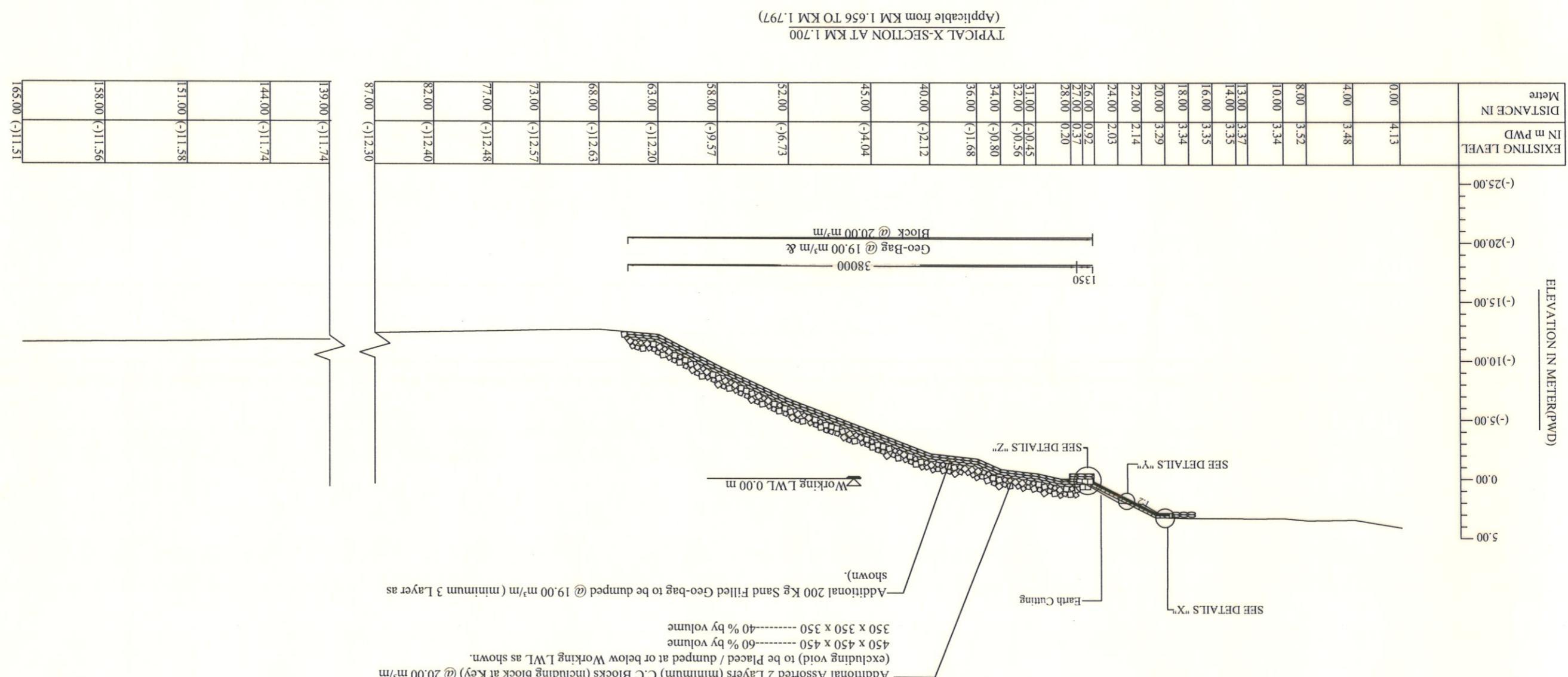


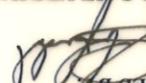
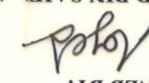
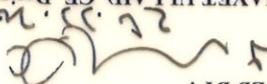
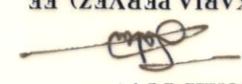
Sheet No. 05 of 16

BANGLADESH WATER DEVELOPMENT BOARD		OFFICE OF THE SUPERINTENDING ENGINEER	DESIGN CIRCLE-8
PROTECTION OF MOTTEGONI UPAZILA SADAR & ADJACENT AREA FROM EROSION OF PANGUCHI RIVER & RE-EXCAVATION/DRDGING OF BISKHAI RIVER IN BAGERHAT DISTRICT.		DESIGN OF REPAIR OF TOTAL 962M RIVER BANK PROTECTIVE WORK ALONG THE RIGH BANK OF PANGUCHI RIVER; AT MORELGOONI FERRY GHAT AREA; UPAZILA-MOTTEGONI, DISTRICT-BAGERHAT UNDER BAGERHAT O & M DIVISION, BWDB, BAGERHAT.	
TYPICAL SECTION AT KM 1.100		DESIGNED BY: 	
RECOMMENDED BY: 		(ZAYED BIN SAIF), AE MOHAMMAD SAIF UDDEEN, SE APPROVED BY: 	
CHECKED BY: 		(JAKARIA PERVEZ), EE (MD. ENAYET ULLAH), EE, DESIGNEE	
DATE: 23-11-2022		DWG NO.: DC-8-0313-06/16	

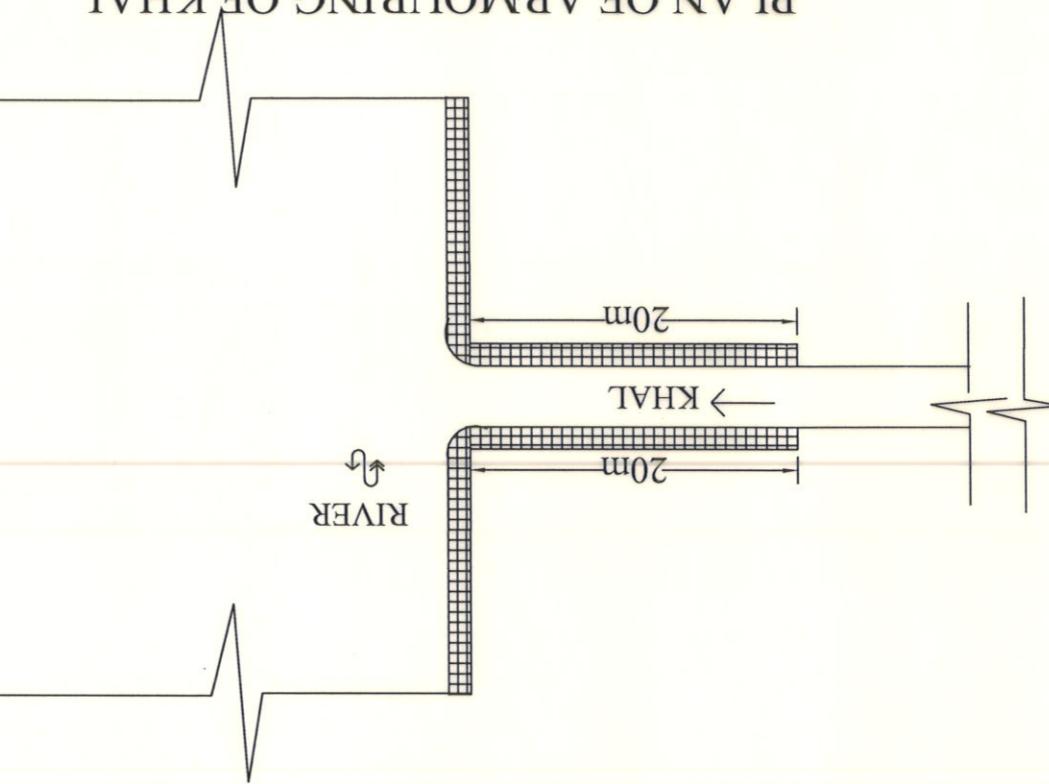


BANGLADESH WATER DEVELOPMENT BOARD		OFFICE OF THE SUPERINTENDING ENGINEER		DESIGN CIRCLE-8		Protection of Morelgoni Upariza Sader & Adjacent Areas from Erosion of Panguchi River & Re-excavation/Dredging of Biskhali River in Bagerhat District.		Design of Repair of Panguchi River at the Right Bank of Panguchi River & Re-excavation/Dredging of Biskhali River in Bagerhat District.		Design of Repair of Total 962m River Bank Protection Work along Morelgoni Ferry Ghat Area; Upazila-Morelgoni, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat		Design of Repair of Total 962m River Bank Protection Work along Morelgoni Ferry Ghat Area; Upazila-Morelgoni, District-Bagerhat under Bagerhat O & M Division, BWDB, Bagerhat		TYPEICAL SECTION AT KM 1.700		RECOMMENDED BY: MOHAMMAD SAIF UD DIN, SE APPROVED BY: ZAYED BIN SAID, AE CHECKED BY: JAKARIA PERVEZ, EE DESIGNED BY: MD. ENAYET UL HAQ, CE, Design		DATE: 23-11-2022 DWG NO.: DC-8-0313-07/16	
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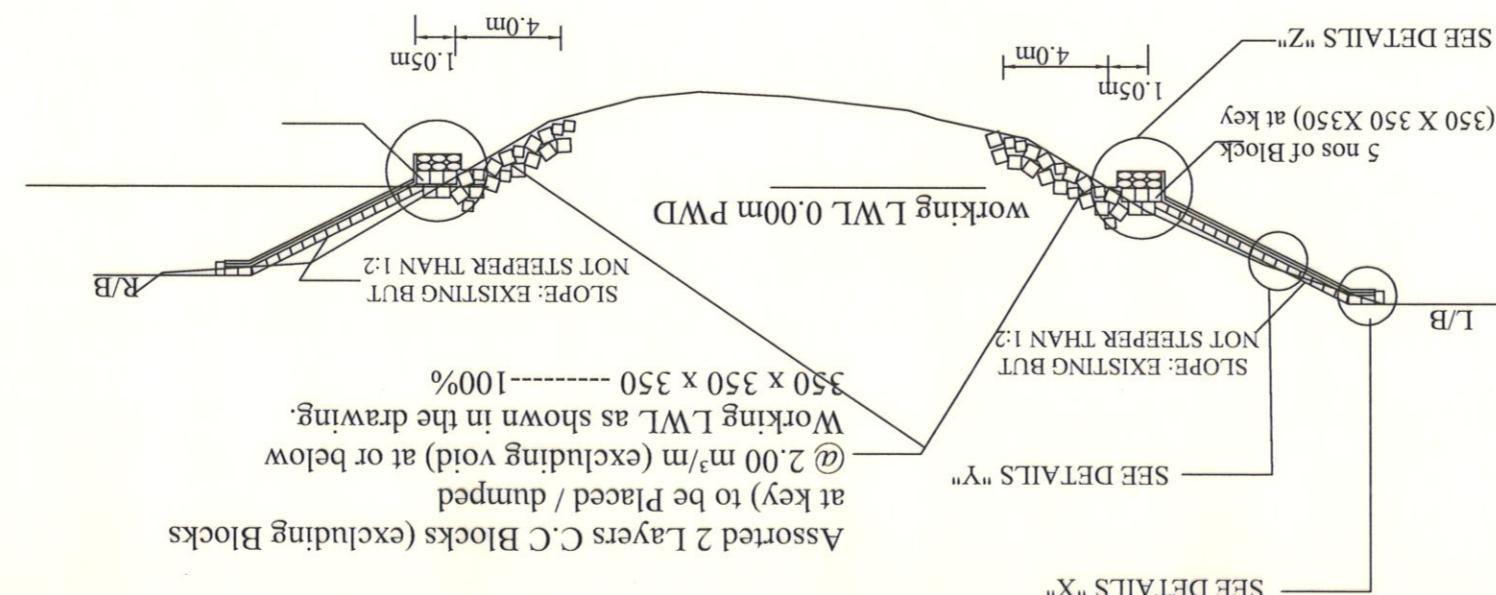
BANGLADESH WATER DEVELOPMENT BOARD	OFFICE OF THE SUPERINTENDING ENGINEER	DESIGN CIRCLE-8	PROTECTION OF MORELGOON UPPAZILA SABAR & ADJACENT AREA FROM EROSION OF PANGUCHI RIVER & RE-EXCAVATION/REDREDGING OF BISKHALI RIVER IN BAGERHAT DISTRICT.	DESIGN OF REPAIR OF TOTAL 962M RIVER BANK PROTECTIVE WORK ALONG THE RIGGHT BANK OF PANGUCHI RIVER, AT MORELGOON FERRY GHAT AREA, UPAZILLA-MORELGOON, DISTRICT-BAGERHAT UNDER BAGERHAT O & M DIVISION, BWDB, BAGERHAT.	TYPEPICTAL SECTION AT FOR KHAL ARMOURING RECOMMENDED BY:  MOHAMMAD SAFI UDDEEN, SE	SIGNED BY:  MD. ENAYET ULLAH, CE, DESIGNER KARIA PERVEZ, EE	APPROVED BY:  MOHAMMAD BIN SAIFI, AE	AWDED BIN SAIFI, AE HEKED BY: 	DWG NO.: DC-8-0313-08/16 ATE: 23-11-2022
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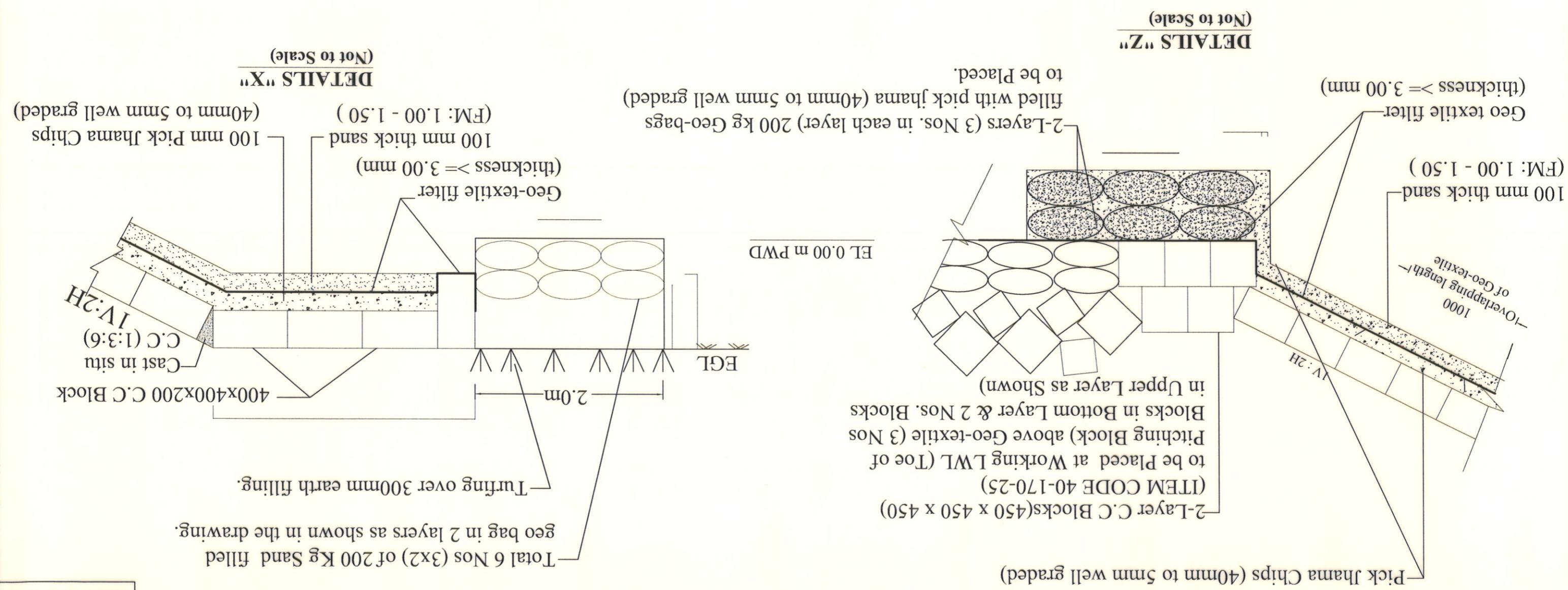
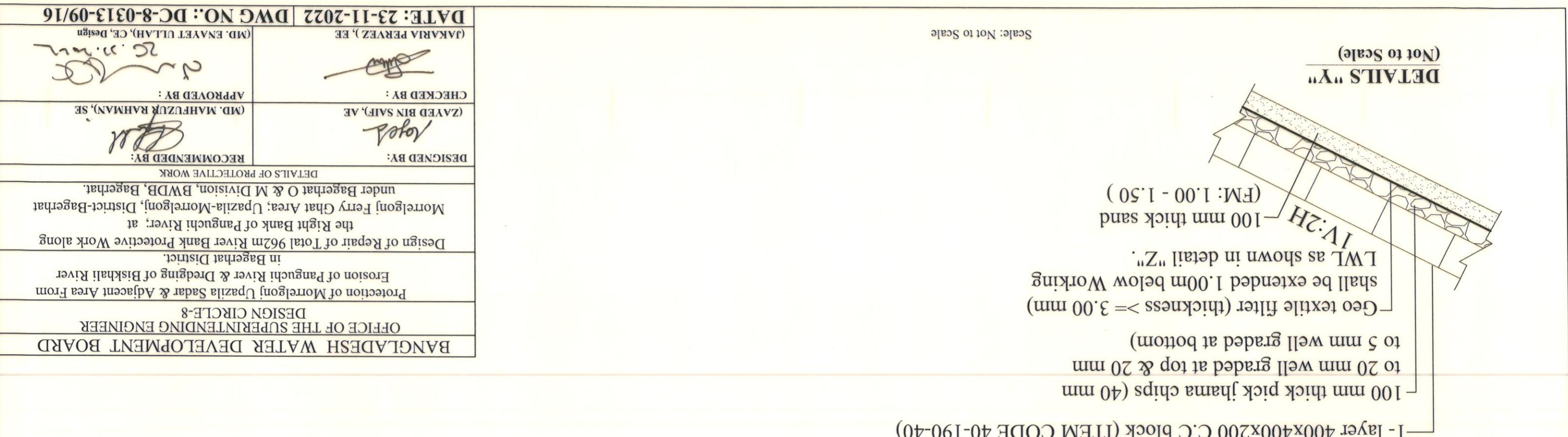
## PLAN OF ARMOUR (NOT TO SCALE)



(Limit of Wprk: To be Extended 20m towards Khal from Confluence of Khal and River)

LYPIICAL X-SECTION FOR ARMOURING OF PROTECTIVE WORK AT CONFLUENCE OF KHAL





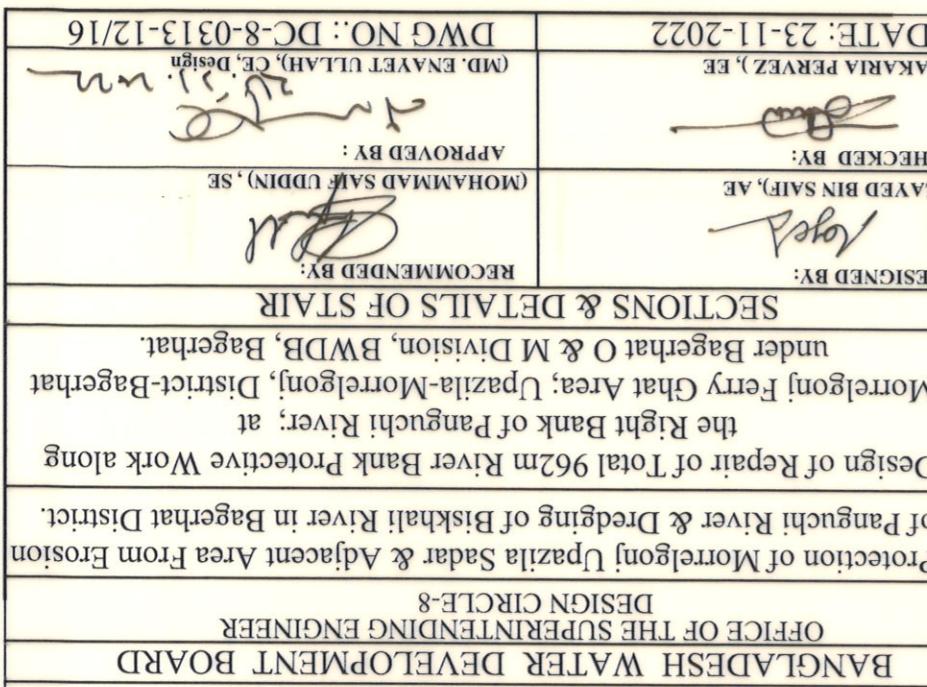
## GENERAL NOTES FOR STAR, R.C.C U-DRAIN & NAME PLATE :

1. THE SPECIFICATION OF MATERIALS & WORKMANSHIP SHALL CONFORM TO THE STANDARD TECHNICAL SPECIFICATION OF BWDB IN GENERAL.
2. THE FOLLOWING SPECIFICATION OF MATERIALS & WORKS SHALL BE FOLLOWED:

  - a. CONCRETE STRENGTH (CYLINDER TEST) IN R.C.C WORKS :  $22 \text{ N/mm}^2$  : 1:3:6 : BLINDING LAYER CONCRETE
  - b. YIELD STRENGTH OF REINF. BAR (DEFORMED BAR) :  $400 \text{ N/mm}^2$
  - c. CLEAR COVER FOR R.C.C WORK : 65mm (unless otherwise mentioned in the drawing)

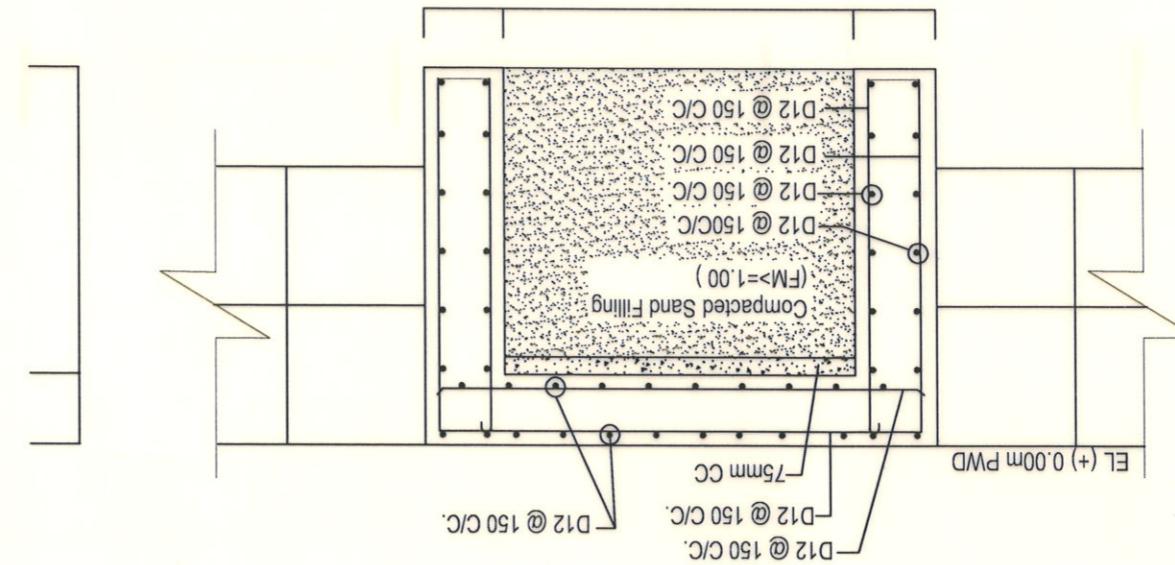
3. CONCRETE SHALL BE Poured IN DRY BED CONDITIONS.
4. CONCRETE MIXTURE SHALL BE Poured AS QUICK AS POSSIBLE BUT NOT LATER THAN 45 MINUTES AFTER MIXING.
5. THE SURFACE OF CONSTRUCTION JOINTS SHALL BE WASHED THOROUGHLY WITH WATER JET & SHALL BE CLEAN ENOUGH. SURFACE SHALL BE KEPT DRY PRIOR TO PLACEMENT OF CYLINDER TEST AT 28 DAYS AND USING STONE CHIPS AS COARSE AGGREGATE.
6. COMPRESSIVE STRENGTH OF C.C. BLOCK SHOULD NOT BE LESS THAN  $12.00 \text{ N/mm}^2$  BY ADJOINING CONCRETE.
7. CURING OF C.C. BLOCK SHALL BE CONTINUED FOR MINIMUM 21 DAYS.
8. FILLING IN FOUNDATION TREATMENT SHALL BE DONE BY COMPACTION SAND OF F.M  $\geq 1.00$  AS SHOWN IN THE DRAWING (IF REQUIRED).
9. LAP LENGTH / DEVELOPMENT LENGTH OF REINFORCING BARS SHALL BE 40 BAR DIA.
10. LAPS SHALL BE STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION. WHERE BARS MUST BE LAPPED IN ONE CROSS SECTION, THE LAP LENGTH SHALL NOT BE LESS THAN 1.3 TIMES MINIMUM LAP LENGTH.
11. REINFORCING BAR SHALL BE SUPPORTED IN ITS PROPER POSITION BY USE OF MORTAR BLOCKS, SUPPORTS OR BY OTHER APPROVED MEANS.
12. LOCATION & NUMBERS OF RCC STAR, R.C.C U-DRAIN & NAME PLATE SHALL BE FIXED FOLLOWING THE ACTUAL FIELD REQUIREMENT.
13. DIMENSIONS AND LEVELS SHOWN IN THE DRAWINGS ARE IN MILLIMETER AND METER PWD RESPECTIVELY.
14. THE COMPACTION MUST BE ENSURED BY THE CONCERNED FIELD EXECUTIVE ENGINEER.
15. CUT-OFF WALL OF STAR & R.C.C U-DRAIN MUST BE CONSTRUCTED FROM THE LOWER PART (NEAR LWL) DESIGN OF Repair of Total 962m River Bank Protection Work along O UPWARDS.
16. DRAWING FOR STAR, R.C.C U-DRAIN & NAME PLATE ARE AN INTEGRAL PART OF THIS PROPOSED ROTECTIVE WORKS.
17. ANY OMISSION / CORRECTION SHALL BE IMMEDIATELY INFORMED TO THE DESIGN CIRCLE-8, BWDB, DHAKA FOR TAKING NECESSARY ACTION.





See Plan of Stair

Scale: Not to Scale



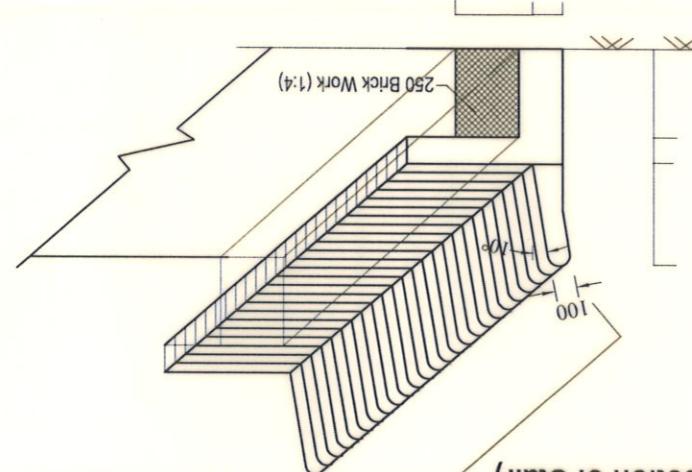
## SECTION 2-2

This cross-section diagram illustrates the construction of a concrete foundation wall. The wall is 100 mm thick and made of C.C. Blocks. It features vertical reinforcement bars labeled D10 @ 200 C/C. at the top and D12 @ 150 C/C. near the base. A guide wall is shown on the left side. The backfill behind the wall consists of 100 mm thick jhama chips graded from 20 m at the top to 5 m at the bottom. A geo-textile filter layer with a thickness of 3.00 mm is placed above the backfill. The overall height of the foundation wall is indicated as FM: 1.00 - 1.50.

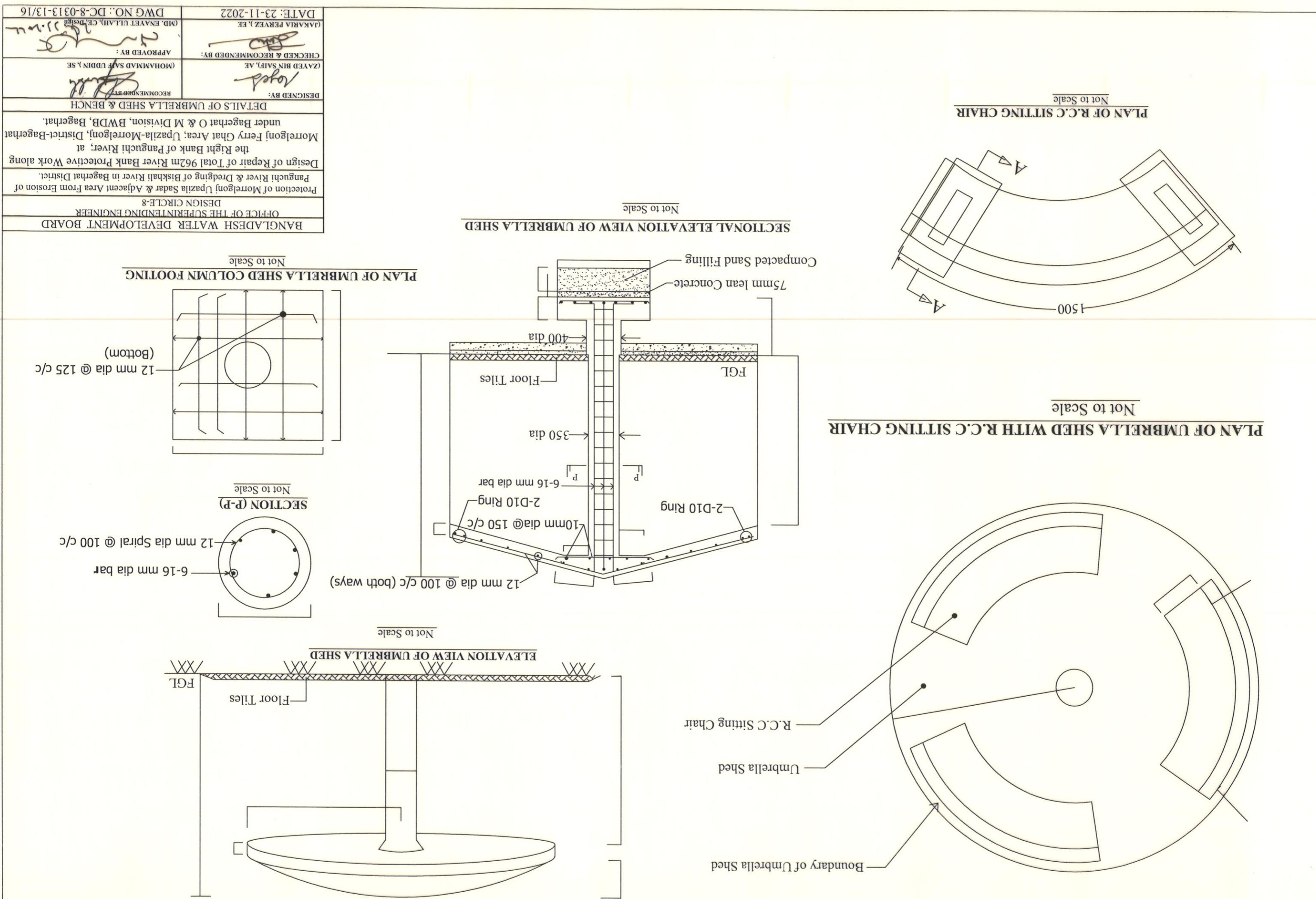
ee Plan of Star)

This technical cross-section diagram illustrates a foundation wall construction. The wall is built in two sections, each 1.2 meters wide, separated by a vertical joint. The top section is labeled '100 mm thick sand' and contains a 'Geo textile filter (thickness >= 3.00 mm)'. Below the filter, there is a layer of 'jihama chips (40 mm to 20 mm well graded at top & 20 mm to 5 mm well graded at bottom)'. The main body of the wall consists of '1-Layer 400X400X200 C.C Blocks'. Reinforcement is provided with 'D12 @ 150 C/C' bars on the outer faces and 'D12 @ 200 C/C' bars on the inner faces. A central vertical column features 'D12 @ 150 C/C' bars on its outer face and 'D12 @ 200 C/C' bars on its inner face. A shaded area within this column is labeled '250 Brick Work (1:4)'. The base of the wall is reinforced with 'D12 @ 150 C/C' bars. A vertical column on the left side is labeled 'EGL'. A horizontal dimension line indicates a total width of '160'.

ONT SIDE OF R C SEAT



See Section of Stair







DATE: 23-11-2022 DWG NO.: DC-8-0313-16/16  
 (MD. ENAVET ULHAJ, CE, Design)  
 (JAKARTA PERVEZ), EE  
 APPROVED BY:  
 (MOHAMMAD SAIFUDDIN), SE  
 RECOMMENDED BY:  
 (ZAYED BIN SAIF), AE  
 CHECKED BY:  
 (SAFIAH PERVEZ), EE  
 DETAILS OF NAME PLATE

Scale: Not To Scale

