

# **BANGLADESH WATER DEVELOPMENT BOARD**

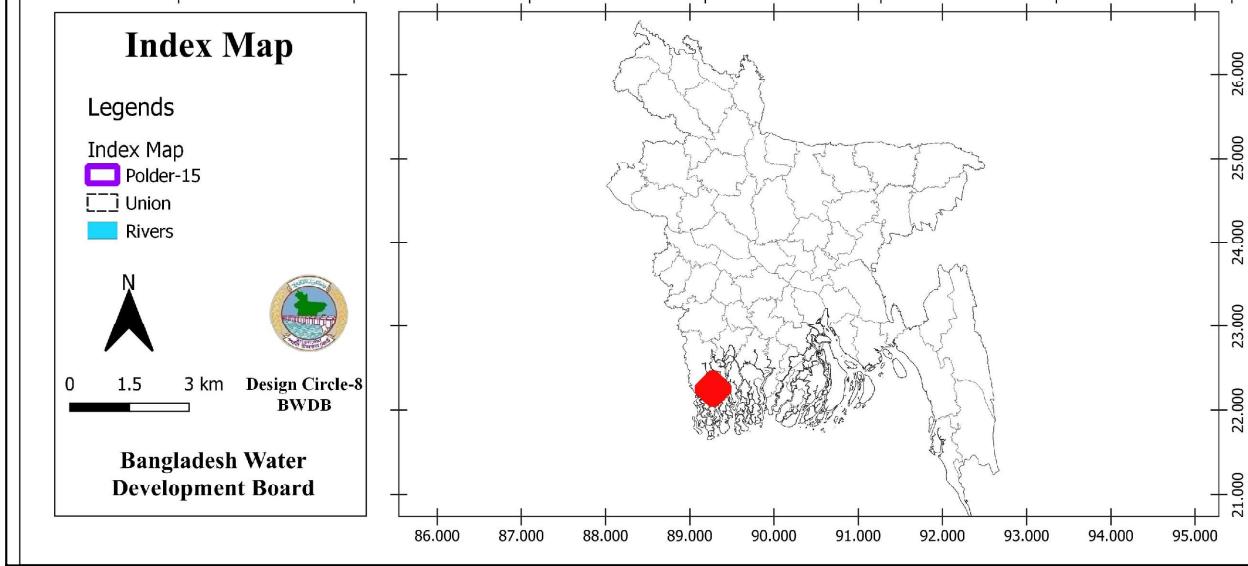
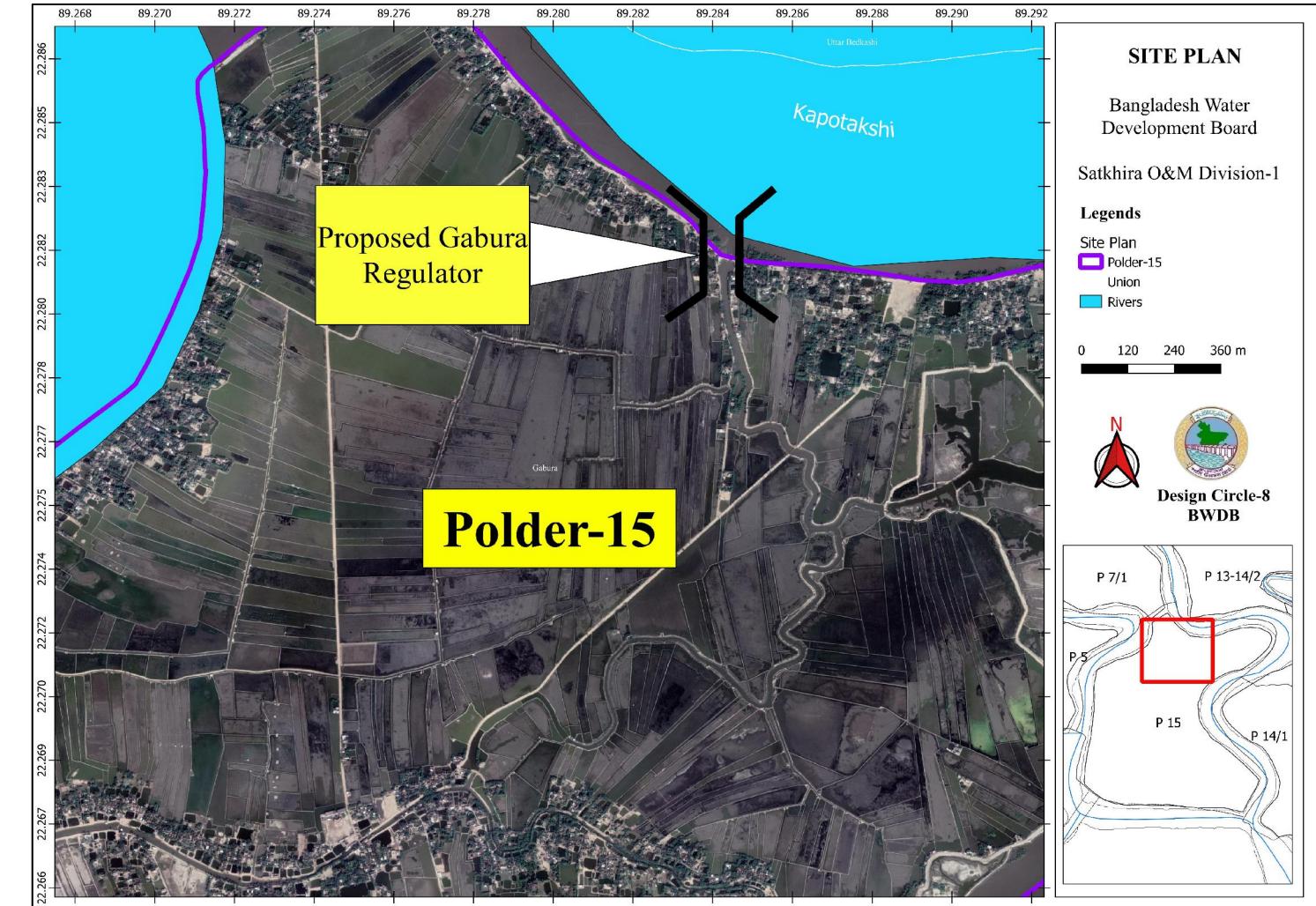


## **REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT**

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN  
POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER  
SATKHIRA O&M DIVISION-1 , BWDB , SATKHIRA.**

**SATKHIRA O&M DIVISION-1, BWDB, SATKHIRA**

**DESIGNED BY: DESIGN CIRCLE-8, BWDB, DHAKA.  
OCTOBER, 2022**



**INDEX MAP**  
(Not to Scale)

**SITE PLAN**  
(Not to Scale)

| <b>Bangladesh Water Development Board</b>   |                                 |
|---|---------------------------------|
| Office of the Superintending Engineer   |                                 |
| Design Circle-8   |                                 |
| <b>REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT</b>   |                                 |
| DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M DIVISION-1, BWDB, SATKHIRA. |                                 |
| <b>INDEX MAP &amp; SITE PLAN</b>  |                                 |
| <b>DESIGNED BY :</b><br><br>(SAKIB BIN RAFT), AE  | <b>APPROVED BY :</b>            |
| <b>CHECKED &amp; RECOMMENDED BY :</b>   |                                 |
| <br>(JAKARIA PERVEZ), EE  | <br>(MOHAMMAD SAIF UDDIN), SE   |
| <b>DATE:</b>  | <b>DWG. NO.:DC-8-0000-02/25</b> |

FI/FORM-

| BANGLADESH WATER DEVELOPMENT BOARD  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
|---|----------------|--------------------------|---------------------------------------|--------------------|--------------------|-------------------|-------------|----------------------|--------------------------------|-------|
| GROUNDWATER HYDROLOGY   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| GROUNDWATER HYDROLOGY DIVISION-2  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| FIELD BORE LOG  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| Project: Rehabilitation of polder no 15 at satkhira district under satkhira O&M division. |                |                          |                                       |                    | SITE: Gabura khal  |                   |             |                      |                                |       |
|   |                |                          |                                       |                    | P.S: Shyamnagar    |                   |             | DIST: Satkhira       |                                |       |
| LOCATION: Gabura khal   |                |                          |                                       |                    | HOLE NO: H1        |                   |             | GROUND LEVEL: 2.75 m |                                |       |
| CLIENT: XEN,O&M DIVISION, Satkhira  |                |                          |                                       |                    | WATER LEVEL: .30 m |                   |             | AT 7:00              | HRS                            |       |
| DATE STARTED: 17-06-2022  |                | DATE COMPLETED: 17-06-22 |                                       | OF DATE-           |                    |                   |             |                      |                                |       |
| DRILLED BY: GWHD-2  |                | UNIT: Rig-21             |                                       | TOTAL DEPTH: 72 ft |                    |                   |             |                      |                                |       |
| No of Sample  | Type of Sample | Scale (ft)               | LITHOLOGICAL DESCRIPTION              | PHYSICAL           |                    | DISTURBED SAMPLES |             | PENETRATION TEST     |                                | INDEX |
|   |                |                          |                                       | DENSITY            | COLOR              | MOISTURE          | DILATANCY   | BLOWS ON SPOON       | BLOWS ON CASING                |       |
| 5   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D1  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 10  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D2  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 15  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D3  |                |                          | Clay with trace silt                  | Soft               | Very soft          | Gray              | Plastic     | 0 1 1 1              | 10 20 30 40 50 60 70 80 90 100 |       |
| 20  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D4  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 25  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D5  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 30  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D6  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 35  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D7  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 40  |                |                          | Clay with some silt                   | Stiff              | Soft               | Gray              | MOIST       | 1 1 1 1              | 10 20 30 40 50 60 70 80 90 100 |       |
| 45  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D9  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 50  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D10   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 55  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D11   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 60  |                |                          | Very fine sand little silt,trace clay | Medium Dense       | dark gray          |                   | Non-plastic | 1 1 1 1              | 10 20 30 40 50 60 70 80 90 100 |       |
| 65  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D13   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| 70  |                |                          |                                       |                    |                    |                   |             |                      |                                |       |
| D14   |                |                          |                                       |                    |                    |                   |             |                      |                                |       |

Note: >50% =Dominant size, 50%-50% =and, 20%-40% =some, 10%-20% =little, <10% =trace.

Top of Sand Pile  
EL (-) 3.775

6.5m long  
Sand Pile  
0.300m Dia  
@0.900m C/C

EL (-) 10.275  
Bottom of Sand Pile

Masud Rana  
Sub-Assistant Engineer  
Vetkhali O&M Section  
BWDB, Shyamnagar

17-06-22

FI/FORM

| BANGLADESH WATER DEVELOPMENT BOARD  |                                |   |
|---|--------------------------------|---|
| GROUNDWATER HYDROLOGY DIVISION-2  |                                |   |
| 72 GREEN ROAD, DHAKA-1205.  |                                |   |
| FIELD BORE LOG  |                                |   |
| Project: Rehabilitation of polder no 15 at satkhira district under satkhira O&M division. |                                | SITE: Gabura khal   |
|   |                                | P.S: Shyamnagar   |
|   |                                | DIST: Satkhira  |
| LOCATION: Gabura khal   |                                | HOLE NO: H1-H5  |
| CLIENT: XEN,O&M DIVISION, Satkhira  |                                | GROUND LEVEL: WATER LEVEL: AT 7:00 HRS  |
| DATE STARTED: 17-06-2022  |                                | DATE COMPLETED: 21-06-22 OF DATE-   |
| DRILLED BY: GWHD-2  |                                | UNIT: Rig-21 TOTAL DEPTH: 72 ft   |
| SOIL SAMPLING   |                                |   |
| <b>A) UNDISTURB</b>   |                                |   |
| SAMPLE NOS:   | DIMENSIONS:                    | NO TAKEN:   |
| TYPE:   | DRILLER: Md. Abu Jaher         | GEOLOGIST: Md.Maniruzzaman Bhuiyan  |
| <b>B) DISTURB</b>   |                                |   |
| SAMPLE NOS: D1-D14  | DIMENSIONS: 1 3/4 ID X 24 Inch | NO TAKEN: 14 Nos  |
| TYPE: Split Spoon   | WEIGHT OF HAMMER: 140 lb       | AVG. DROP: 30 Inces   |
| HOW SAMPLED: WOODEN/BOX/JARS/CANS/BAGS  |                                | DESPATCHED ON:  |
| CASING  |                                |   |
| SIZE:   | LENGTH USED:                   | WT OF HAMMER:   |
|   |                                | AVG. DROP:  |
| REMARKS   |                                | LOCATION SKETCH   |
| Drilling was advanced by Chopping method.   |                                | <br><small>21-06-22</small><br><small>মোড় মানিক জাহান রুস্তা<br/>কলকাতাবাস<br/>কৃষ্ণগঞ্চ পানি বিদ্যুৎ উপ-বিভাগ<br/>বাল্পাড়ো, খুল্লো।</small><br><br><small>২১/০৬/২২</small><br><small>(মোড় জাহান রোডের)<br/>উপ-বিভাগীয় অঞ্চলীয় পরিষদ<br/>শায়েস্ক নজে কলকাতাবাস<br/>বাল্পাড়ো, খুল্লো।</small> |
| Not drawn to scale.   |                                |   |

**LOCATION SKETCH**  
(Not to Scale)

**Bangladesh Water Development Board**

**Office of the Superintending Engineer  
Design Circle-8**

## **REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER  
GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT  
SATKHIRA DISTRICT ' PROJECT UNDER SATKHIRA O&M DIVISION-1 , BWDB ,  
SATKHIRA.**

## **BORE LOG & LOCATION SKETCH**

**DESIGNED BY :**

**APPROVED BY :**

(SAKIB BIN RAED) AE

CHECKED & RECOMMENDED BY:

(JAKARIA PERVEZ), EE

**(MOHAMMAD SAIF UDDIN ), SE**

**DATE:**

DWG. NO.:DC-8-0000-02/25

FI/FORM-2

| BANGLADESH WATER DEVELOPMENT BOARD<br>GROUNDWATER HYDROLOGY<br>GROUNDWATER HYDROLOGY DIVISION-2<br>FIELD BORE LOG |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
|---|----------------|--------------------------|--------------------------------|---|-------|----------------------|-----------|------------------|-----------------|----------------------------------|----------------------|
| Project: Rehabilitation of polder no 15 at satkhira district under satkhira O&M division.                         |                |                          |                                | SITE: Gabura khal<br>P.S: Shyamnagar DIST: Satkhira |       |                      |           |                  |                 |                                  |                      |
| LOCATION: Gabura khal   |                |                          |                                | HOLE NO: H2   |       | GROUND LEVEL: 2.20 m |           |                  |                 |                                  |                      |
| CLIENT: XEN,O&M DIVISION, Satkhira  |                |                          |                                | WATER LEVEL: .45 m                                  |       | AT 7:00              |           | HRS              |                 |                                  |                      |
| DATE STARTED: 18-06-2022  |                | DATE COMPLETED: 18-06-22 |                                | OF DATE-  |       |                      |           |                  |                 |                                  |                      |
| DRILLED BY: GWHD-2  |                | UNIT: Rig-21             |                                | TOTAL DEPTH: 72 ft                                  |       |                      |           |                  |                 |                                  |                      |
| No of Sample  | Type of Sample | Scale (ft)               | LITHOLOGICAL DESCRIPTION       | PHYSICAL  |       | DISTURBED SAMPLES    |           | PENETRATION TEST |                 | INDEX                            |                      |
|   |                |                          |                                | DENSITY   | COLOR | MOISTURE             | DILATANCY | BLOWS ON SPOON   | BLOWS ON CASING | NO OF BLOWS PER 1 FT PENETRATION | Disturb<br>Undisturb |
| 5   |                |                          |                                | 0   | 6     | 12                   | 18        | 0                | 12              | 10                               |                      |
| D1  |                |                          |                                | 6   | 12    | 18                   | 24        | 12               | 24              | 20                               |                      |
| 10  |                |                          |                                |   |       |                      |           |                  |                 | 30                               |                      |
| D2  |                |                          |                                |   |       |                      |           |                  |                 | 40                               |                      |
| 15  |                |                          |                                |   |       |                      |           |                  |                 | 50                               |                      |
| D3  |                |                          |                                |   |       |                      |           |                  |                 | 60                               |                      |
| 20  |                |                          |                                |   |       |                      |           |                  |                 | 70                               |                      |
| D4  |                |                          |                                |   |       |                      |           |                  |                 | 80                               |                      |
| 25  |                |                          |                                |   |       |                      |           |                  |                 | 90                               |                      |
| D5  |                |                          |                                |   |       |                      |           |                  |                 | 100                              |                      |
| 30  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D6  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 35  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D7  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 40  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D8  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 45  |                |                          | silt, little clay              |   |       |                      |           |                  |                 |                                  |                      |
| D9  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 50  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D10   |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 55  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D11   |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 60  |                |                          | Very fine sand with trace silt |   |       |                      |           |                  |                 |                                  |                      |
| D12   |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 65  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D13   |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| 70  |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |
| D14   |                |                          |                                |   |       |                      |           |                  |                 |                                  |                      |

Note: >50% =Dominant size, 50%-50% =and, 20%-40% =some, 10%-20% =little, <10% =trace.

*M.R.*  
18-06-22  
(Masud Rana)  
Sub-Assistant Engineer  
Vetkhali O&M Section  
BWDB, Shyamnagar

**BORE LOG BH-03**

| Bangladesh Water Development Board<br>Office of the Superintending Engineer<br>Design Circle-8  |                           |
|---|---------------------------|
| DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M DIVISION-1, BWDB, SATKHIRA. |                           |
| BORE LOG & LOCATION SKETCH  |                           |
| DESIGNED BY :   | APPROVED BY :             |
| (SAKIB BIN RAFT), AE  |                           |
| CHECKED & RECOMMENDED BY :  |                           |
| (JAKARIA PERVEZ), EE  | (MOHAMMAD SAIF UDDIN), SE |
| DATE: DWG. NO.:DC-8-0000-02/25  |                           |

**GENERAL NOTES**

1. THE SPECIFICATION OF MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD TECHNICAL SPECIFICATION OF BWDB, IN GENERAL.
2. ALL DIMENSIONS ARE IN MILLIMETERS AND ALL ELEVATIONS ARE IN mPWD UNLESS OTHERWISE MENTIONED IN THE DRAWINGS.
3. COMPRESSIVE STRENGTH OF REINFORCED CEMENT CONCRETE SHALL HAVE MINIMUM 28 DAYS CYLINDER STRENGTH,  $f_c \geq 25.00 \text{ N/mm}^2$  (ITEM CODE: 28-230-10) AND SHALL BE CHECKED BY COLLECTING SAMPLES AND TESTING DURING CONSTRUCTION.
4. REINFORCING BAR SHALL BE DEFORMED MILD STEEL HAVING YIELD STRENGTH,  $f_y \geq 400.00 \text{ N/mm}^2$ . (ITEM CODE: 76-120-10), (MADE FROM BILLET) IN R.C.C. WORK.
5. CONCRETE FOR CC BLOCKS SHALL HAVE MINIMUM STRENGTH,  $f_c \geq 10.50 \text{ N/mm}^2$  AT 28 DAYS.
6. CURING OF CONCRETE SHALL BE CONTINUED FOR MINIMUM 21 DAYS AFTER CASTING.
7. CONCRETE SHALL BE POURED IN DRY BED CONDITION.
8. THE SURFACE OF CONSTRUCTION JOINTS SHALL BE WASHED THOROUGHLY WITH WATER JET & SHALL BE CLEAN ENOUGH AFTER THAT, SURFACE SHALL BE DRY PRIOR TO PLACEMENT OF ADJOINING CONCRETE.
9. CONCRETE MIXTURE SHALL BE POURED AS QUICK AS POSSIBLE BUT NOT LATER THAN 45 MINUTES AFTER MIXING.
10. 75 mm LEAN CONCRETE AT BASE SHALL BE IN 1:3:6.
11. THE LEAN CONCRETE AT FOUNDATION OF THE PROPOSED REGULATOR SHALL BE PLACED AFTER PROPERLY PREPARING & COMPACTING EXCAVATED BASE.
12. CLEAR COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:
  - a) Operating deck & Railing : 25mm
  - b) Concrete adjacent to earth at foundation: 75mm
  - c) Concrete adjacent to earth: 75mm
  - d) Concrete exposed to weather and water or others: 75mm
  - e) Beam: 40mm
13. MINIMUM LAP LENGTH SHALL BE 40 TIMES THE BAR DIAMETER.
14. LAP SHALL BE STAGGERED SO THAT NOT MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION. WHERE BARS MUST LAPPED IN ONE CROSS SECTION, THEN LAP LENGTH SHALL NOT BE LESS THAN 1.30 TIMES MINIMUM LAP LENGTH.
15. REINFORCING BAR MUST BE SUPPORTED IN ITS PROPER POSITION BY USE OF MORTAR BLOCK, SUPPORTS OR BY OTHERS APPROVED MEANS.
16. SAND FILLING IN FOUNDATION SHOULD BE DONE WITH SAND OF F.M. $\geq 1.50$  IN LAYERS OF 150 mm THICK LAYER BY LAYER AND COMPACTED TO ATTAIN MINIMUM 50% RELATIVE DENSITY.
17. UNLESS OTHERWISE SPECIFIED, BACK FILLING SHALL BE DONE WITH SAND (F.M. $\geq 0.80$ ) FREE FROM VEGETABLE ROOTS AND ORGANIC MATTER, BACK FILLING FOR U-SHAPED WALL SHALL BE DONE SIMULTANEOUSLY ON BOTH WALLS.
18. DESIGN OF GATE AND HOISTING SYSTEM WILL BE PREPARED BY DESIGN CIRCLE-III, BWDB, DHAKA.
19. GATE TO BE OPERATED IN CONTROLLED WAY TO AVOID ANY SCOUR WHEN HEAD DIFFERENCE IS BEYOND 0.60m.
20. THE EMBEDDED PARTS OF GATE TO BE INSTALLED DURING CONSTRUCTION OF BARREL PART AND IT SHALL BE DONE IN ACCORDANCE WITH APPROVED MECHANICAL DRAWING .
21. THE GATE SHALL BE INSTALLED BEFORE THE OPERATION OF THE STRUCTURE.
22. ANY ERROR/OMISSION IF DETECTED SHALL BE REFERRED TO THE CONCERNED DESIGN OFFICE TAKING NECESSARY ACTION.
23. ALL BORE HOLES SHALL BE SEALED BEFORE CONSTRUCTION OF REGULATOR.

**SPECIAL NOTES:**

1. THIS DRAWING IS PREPARED AS PER PROPOSAL AND DESIGN DATA SUBMITTED BY SE, KHULNA O&M CIRCLE, BWDB, KHULNA VIDE HIS OFFICE MEMO NO: , DATE: AND ADDITIONAL DATA RECEIVED FROM EE, SATKHIRA O&M DIVISION-2 BWDB SATKHIRA TROUGH EMAIL ON .
2. THE WORK SHALL BE EXECUTED WITH PRIOR ADMINISTRATIVE AND FINANCIAL APPROVAL FROM THE COMPETENT AUTHORITY & WITHIN THE DPP / BUDGET PROVISION .
3. EXISTING KHAL/LINK KHAL AT THE U/S & D/S OF THIS PROPOSED REGULATOR TO BE RE-EXCAVATED UPTO THE REQUIRED LENGTH AND LEVEL IF NECESSARY.

**NOTES FOR SHEET PILES:**

1. HOT ROLLED U-SHAPE STEEL SHEET PILE SHALL BE USED. COLD ROLLED SHEET PILE SHALL NEVER BE USED.
2. COATING SHALL BE PROVIDED OVER SHEET PILE IN THE FOLLOWING WAY :-
  - i) CLEAN THE SHEET PILE SURFACE PREFERABLY WITH SAND BLASTING.
  - ii) PROVIDE 1 (ONE) COAT OF ZINK PHOSPHATE AS PRIMARY COAT,
  - iii) PROVIDE 2 (TWO) COAT OF COALTAR EPOXY COAT OVER PRIMARY COAT.
3. THICKNESS OF SHEET PILE SHALL BE 10.50mm ( $\pm 0.50\text{mm}$ ) (ITEMCODE: 44-240-10).
4. CONCERNED EXECUTIVE ENGINEER MUST ENSURE SHEET PILE INTERLOCKING, LENGTH, & DRIVING.
5. TOP LEVEL OF EVERY CONNECTED SHEET PILES MUST HAVE SAME LEVEL.

**NOTES FOR EMBEDDED PARTS, GROOVE AND GATE:**

1. ALL EMBEDDED PARTS OF GROOVE AND OTHERS WILL BE STAINLESS STEEL (SUS-304)
2. ALL PARTS OF MECHANICAL GATE WILL BE STAINLESS STEEL (SUS-304).

**Bangladesh Water Development Board**

Office of the Superintending Engineer  
Design Circle-8

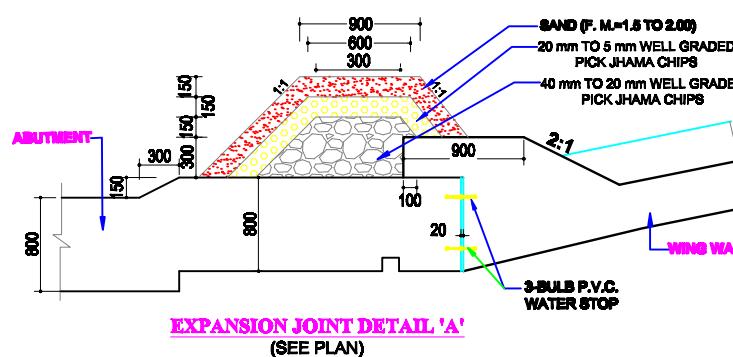
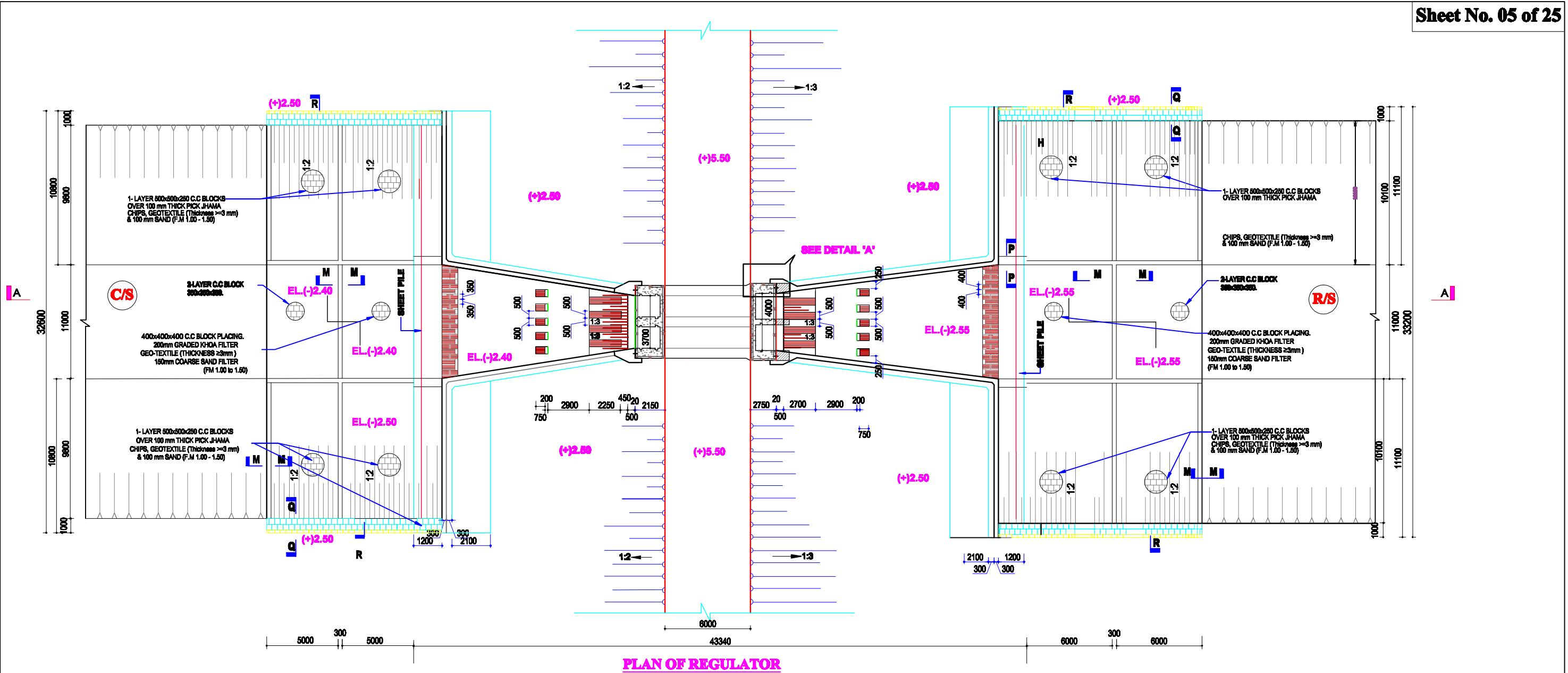
**REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M DIVISION-1, BWDB, SATKHIRA.

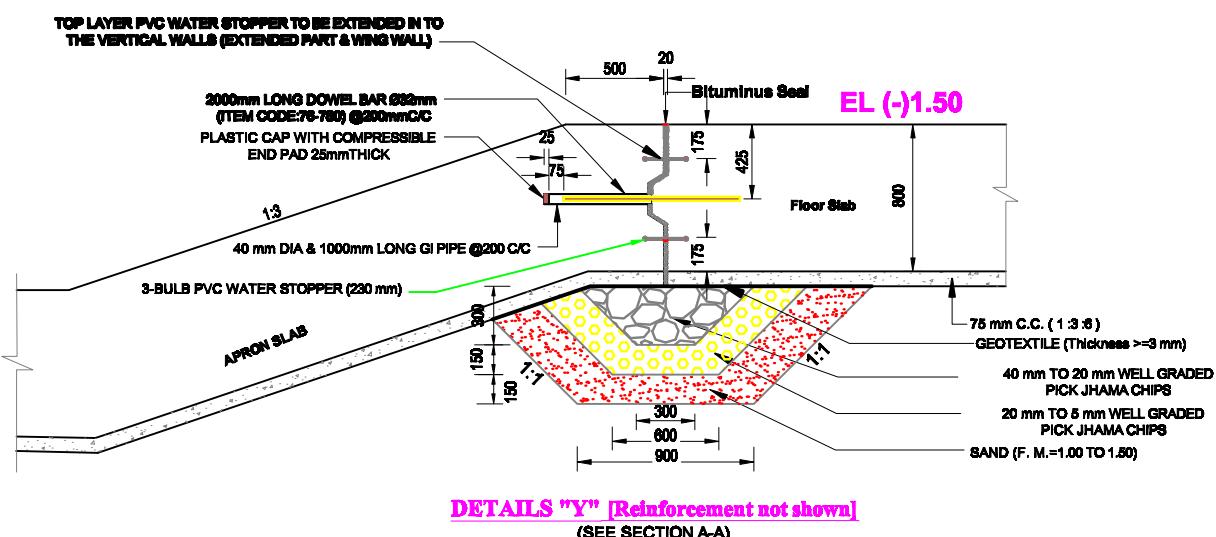
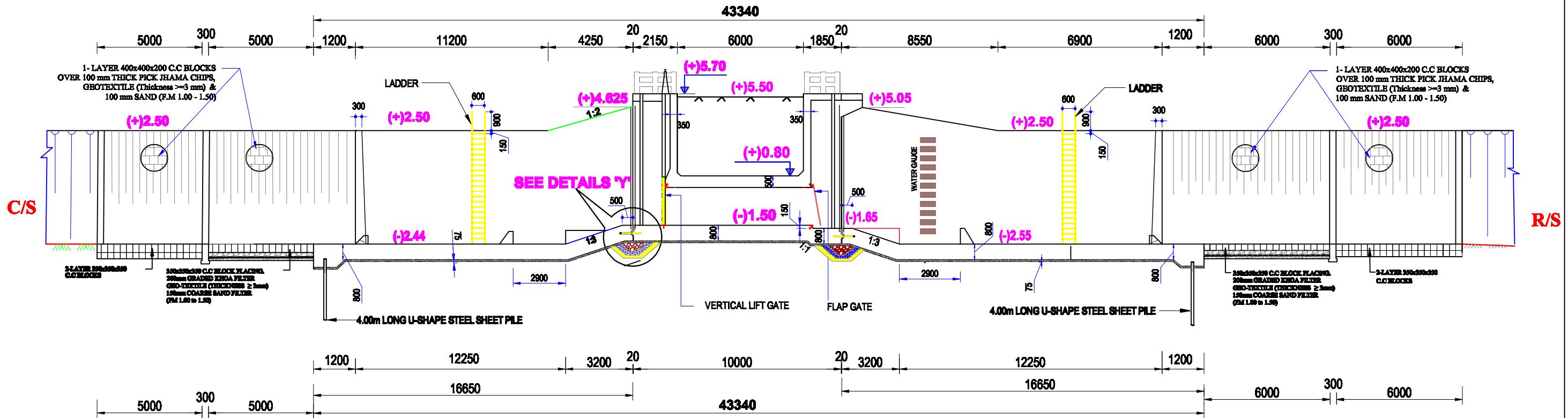
**NOTES**

|  |                           |
|--|---------------------------|
| <b>DESIGNED BY :</b><br><br>(SAKIB BIN RAFT), AE | <b>APPROVED BY :</b>      |
| <b>CHECKED &amp; RECOMMENDED BY :</b>            |                           |
| (JAKARIA PERVEZ), EE                             | (MOHAMMAD SAIF UDDIN), SE |

**DATE: DWG. NO.:DC-8-0000-02/25**



|  |                           |
|--|---------------------------|
| <b>Bangladesh Water Development Board</b><br>Office of the Superintending Engineer<br>Design Circle-8  |                           |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b>  |                           |
| <b>DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&amp;M DIVISION-1 , BWDB , SATKHIRA.</b> |                           |
| <b>PLAN OF REGULATOR</b>   |                           |
| <b>DESIGNED BY :</b><br><br>(SAKIB BIN RAFI), AE   | <b>APPROVED BY :</b>      |
| <b>CHECKED &amp; RECOMMENDED BY :</b>  |                           |
| JAKARIA PERVEZ, EE   | (MOHAMMAD SAIF UDDIN), SE |
| <b>DATE:00-00-2022 DWG. NO.:DC-8-0000-05/25</b>  |                           |



Bangladesh Water Development Board

Office of the Superintending Engineer  
Design Circle-8

REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT

DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM  
20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER  
REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT  
UNDER SATKHIRA O&M DIVISION-1 , BWDB , SATKHIRA.

## SECTIONAL ELEVATION &amp; DETAIL

DESIGNED BY :

(SAKIB BIN RAFI), AE

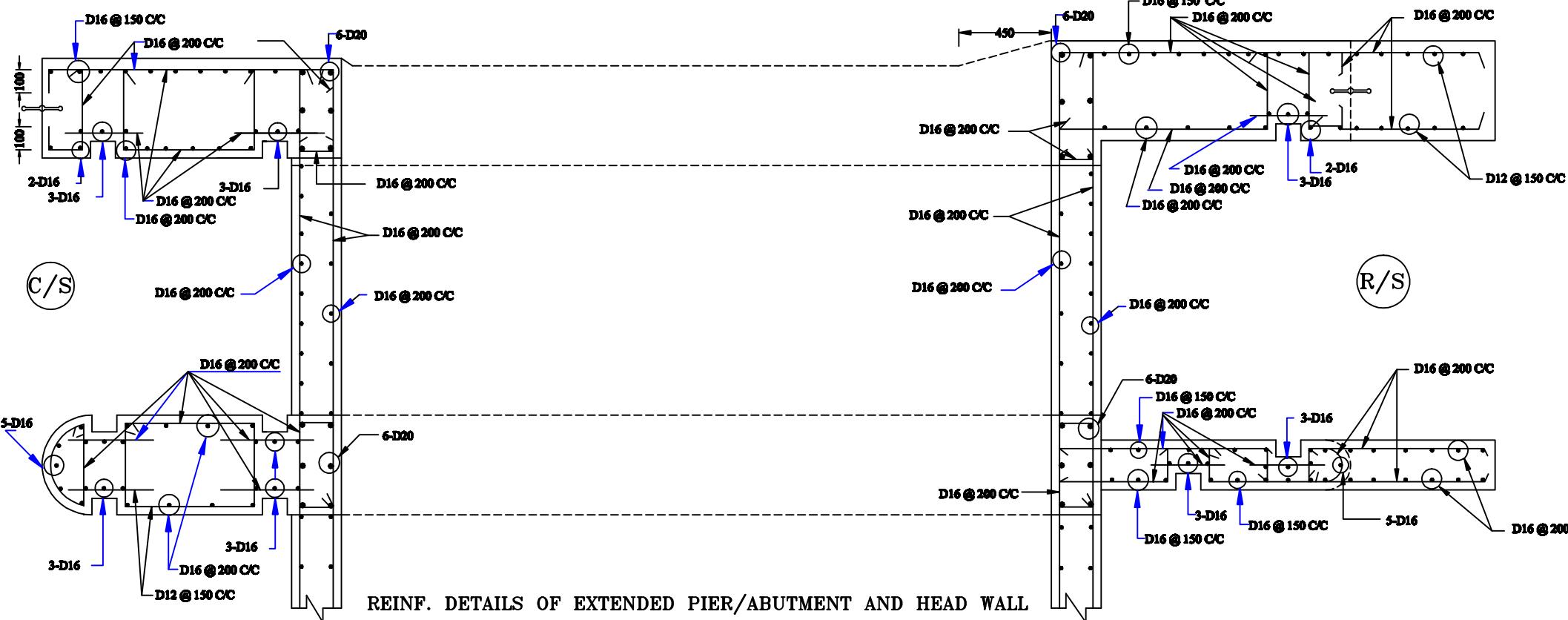
CHECKED &amp; RECOMMENDED BY :

(JAKARIA PERVEZ), EE

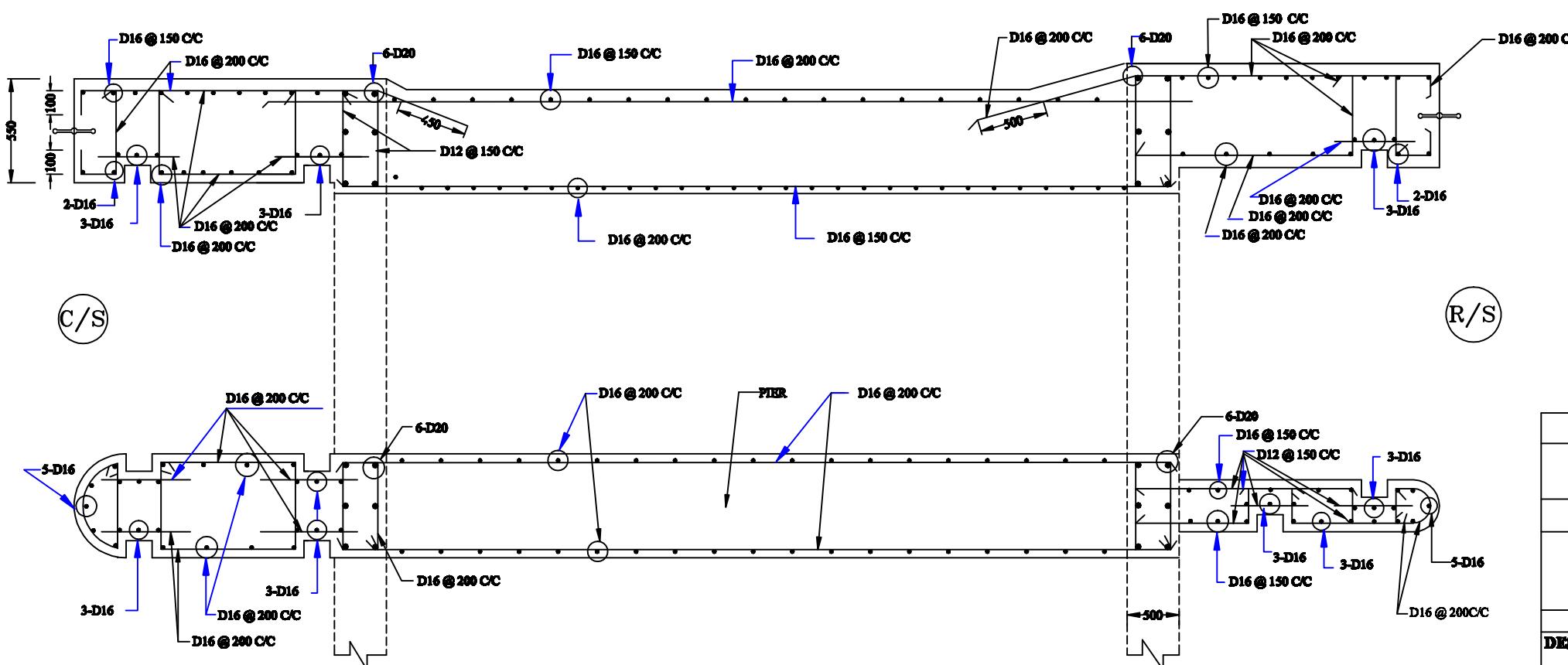
APPROVED BY :

(MOHAMMAD SAIF UDDIN), SE

DATE:00-00-2022 DWG. NO.:DC-8-0000-06/25



REINF. DETAILS OF EXTENDED PIER/ABUTMENT AND HEAD WALL  
(ABOVE TOP SLAB OF CONDUIT)



REINF. DETAILS OF EXTENDED PIER/ABUTMENT AND HEAD WALL  
(BELOW TOP SLAB OF CONDUIT)

(NOT TO SCALE)

### Bangladesh Water Development Board

Office of the Superintending Engineer  
Design Circle-8

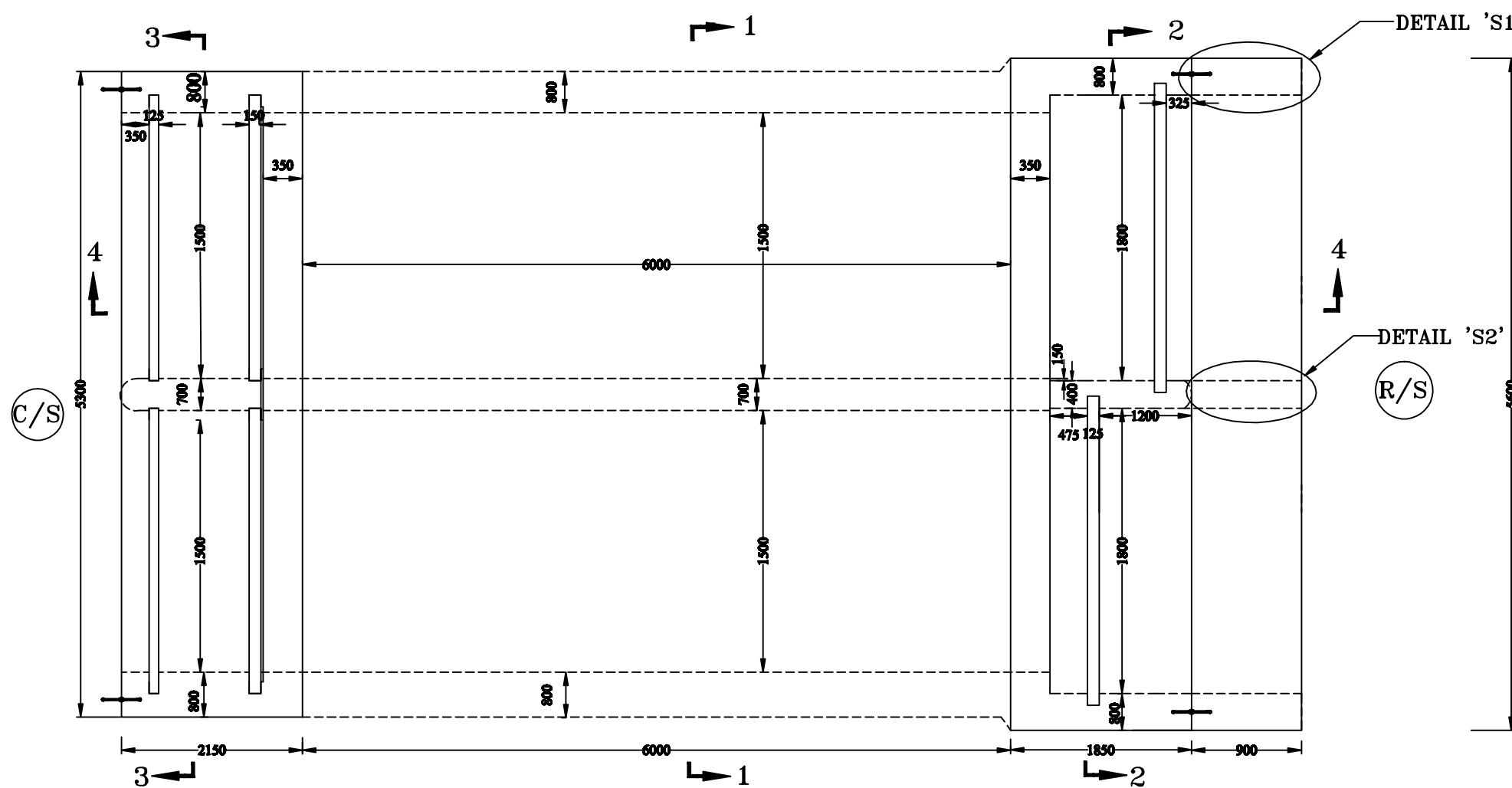
### REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT

DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER  
GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT  
SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA Q&M DIVISION-1, BWDB,  
SATKHIRA.

### REINFORCEMENT DETAILS OF EXTENDED PART

| DESIGNED BY:              | APPROVED BY:              |
|---------------------------|---------------------------|
| (SAKIB BIN RAFI), AE      |                           |
| CHECKED & RECOMMENDED BY: |                           |
| (JAKARIA PERVEZ), EE      | (MOHAMMAD SAIF UDDIN), SE |

DATE: DWG. NO.:DC-8-0000-02/25



PLAN OF ABUTMENT PIER AND HEAD WALL

(NOT TO SCALE)

**Bangladesh Water Development Board**Office of the Superintending Engineer  
Design Circle-8**REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**DESIGN OF REGULATOR 2-VENT (1.50mX1.30m) AT GABURA KM 20.830 OVER  
GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT  
SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M DIVISION-1 ,BWDB ,  
SATKHIRA.**PLAN OF DRAINAGE CUM FLUSHING REGULATOR****DESIGNED BY :**

(SAKIB BIN RAFT), AE

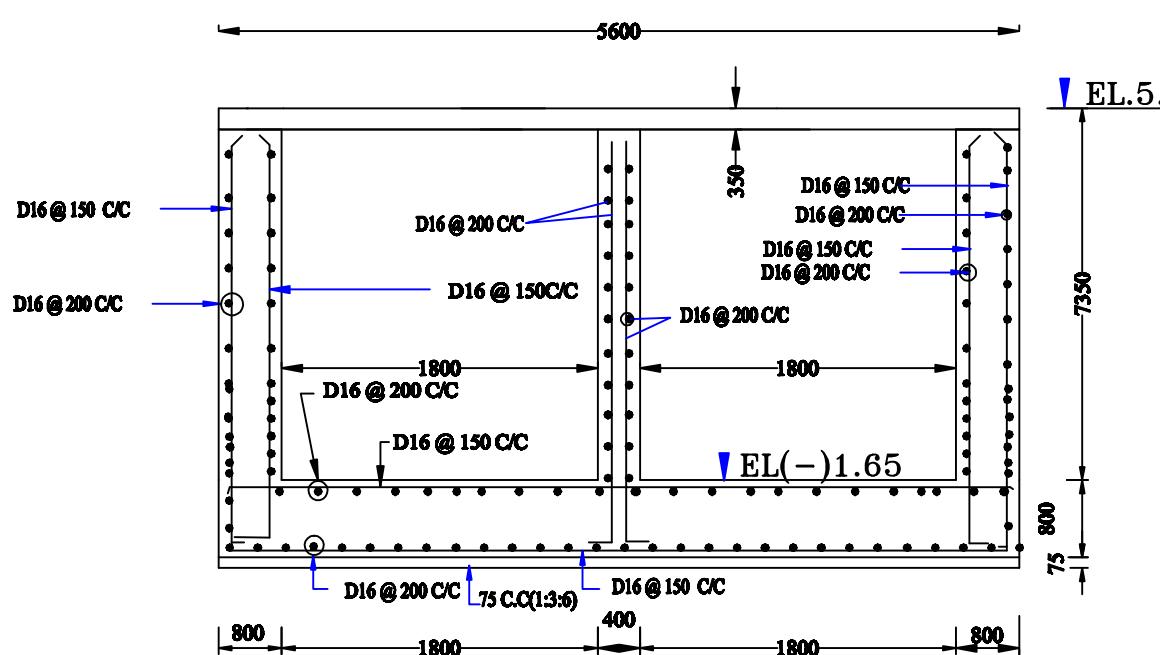
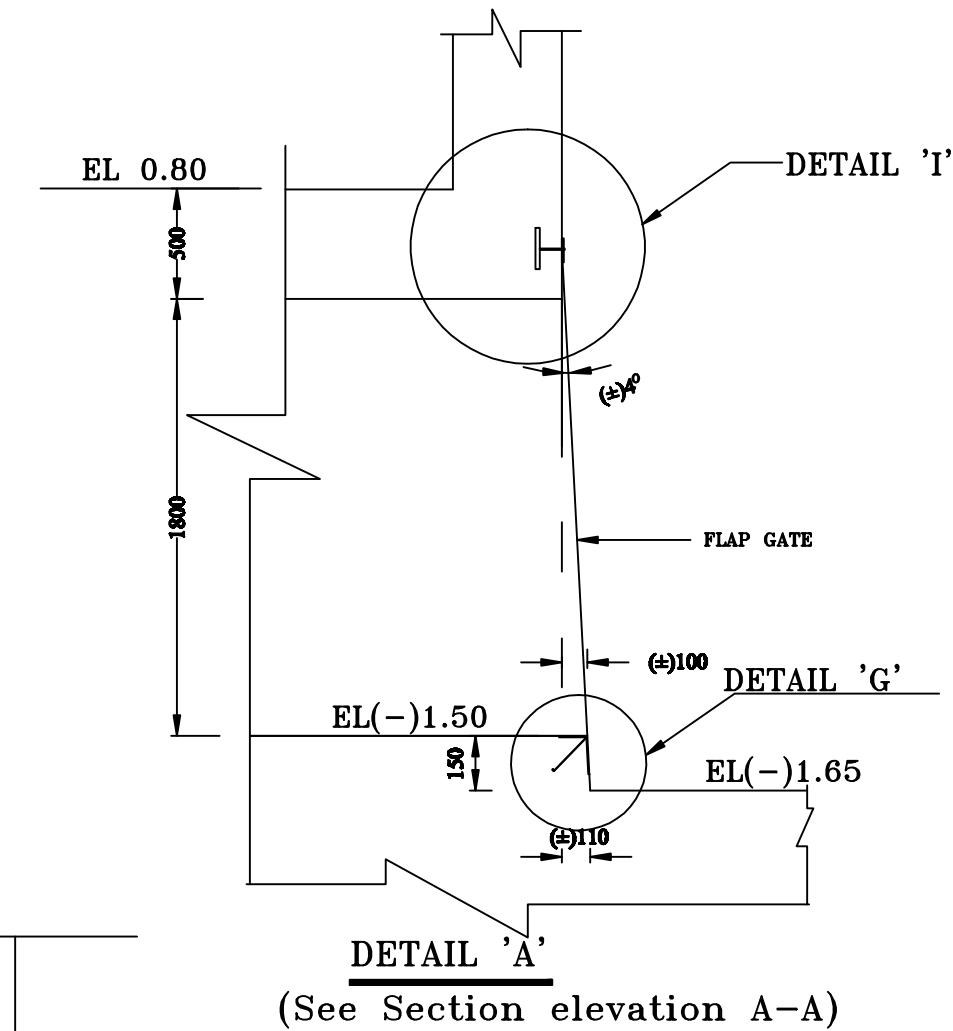
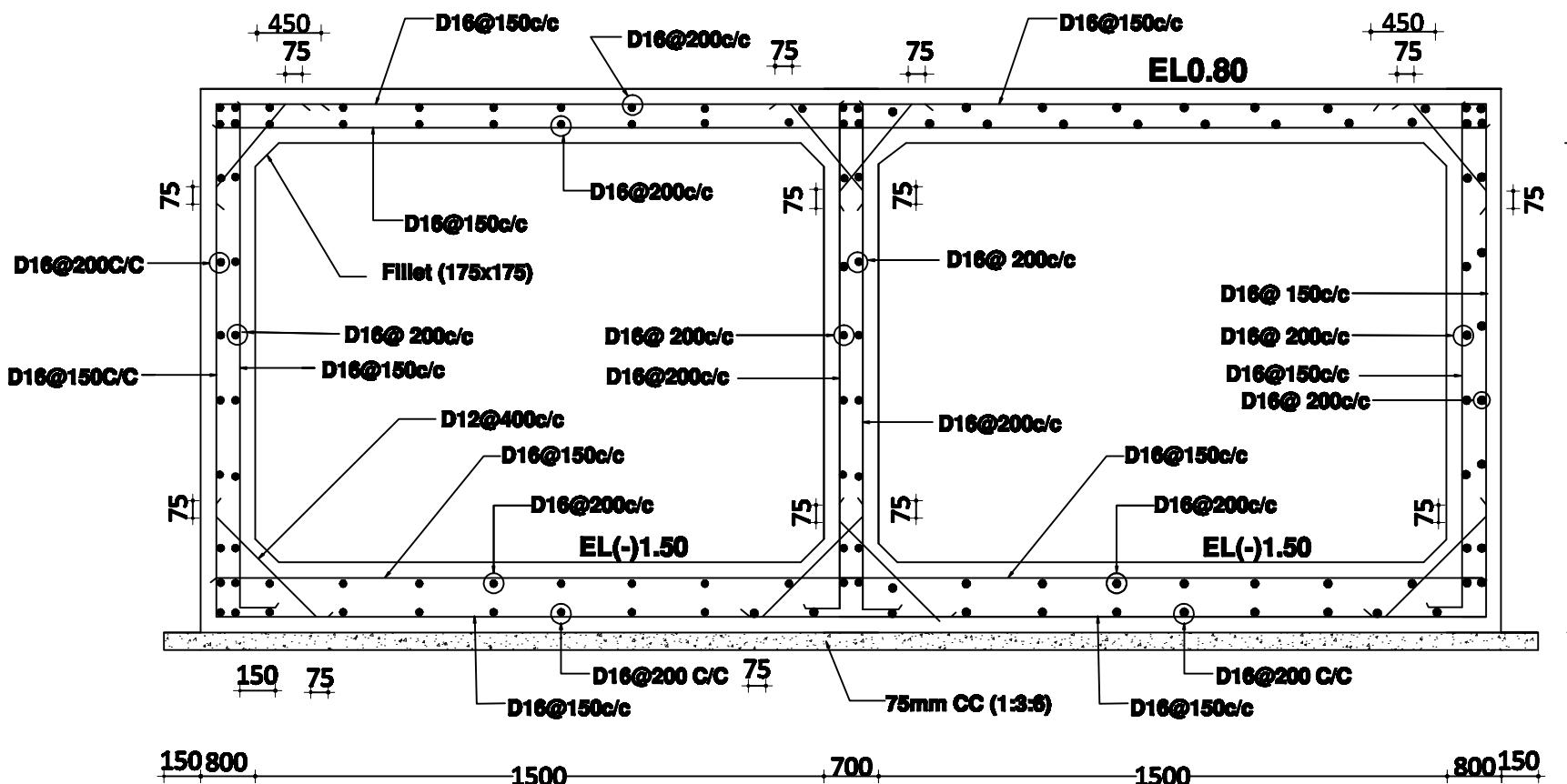
**CHECKED & RECOMMENDED BY :**

(JAKARIA PERVEZ), EE

**APPROVED BY :**

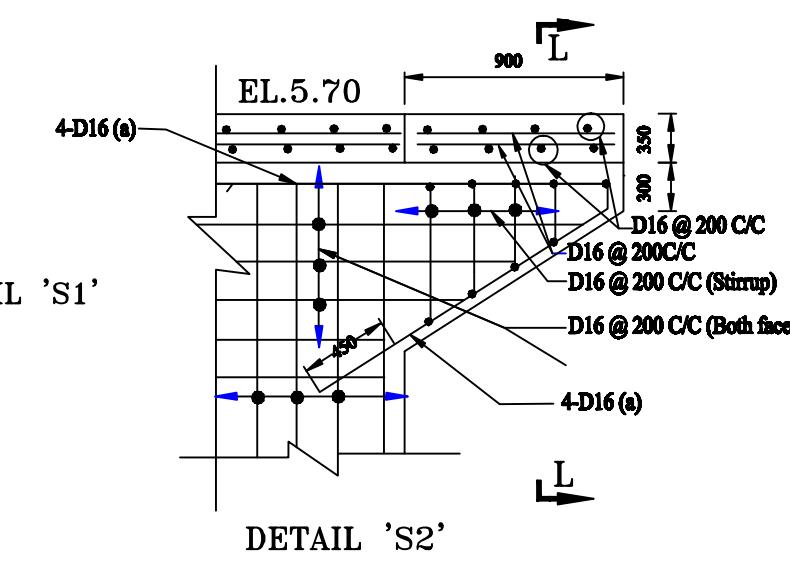
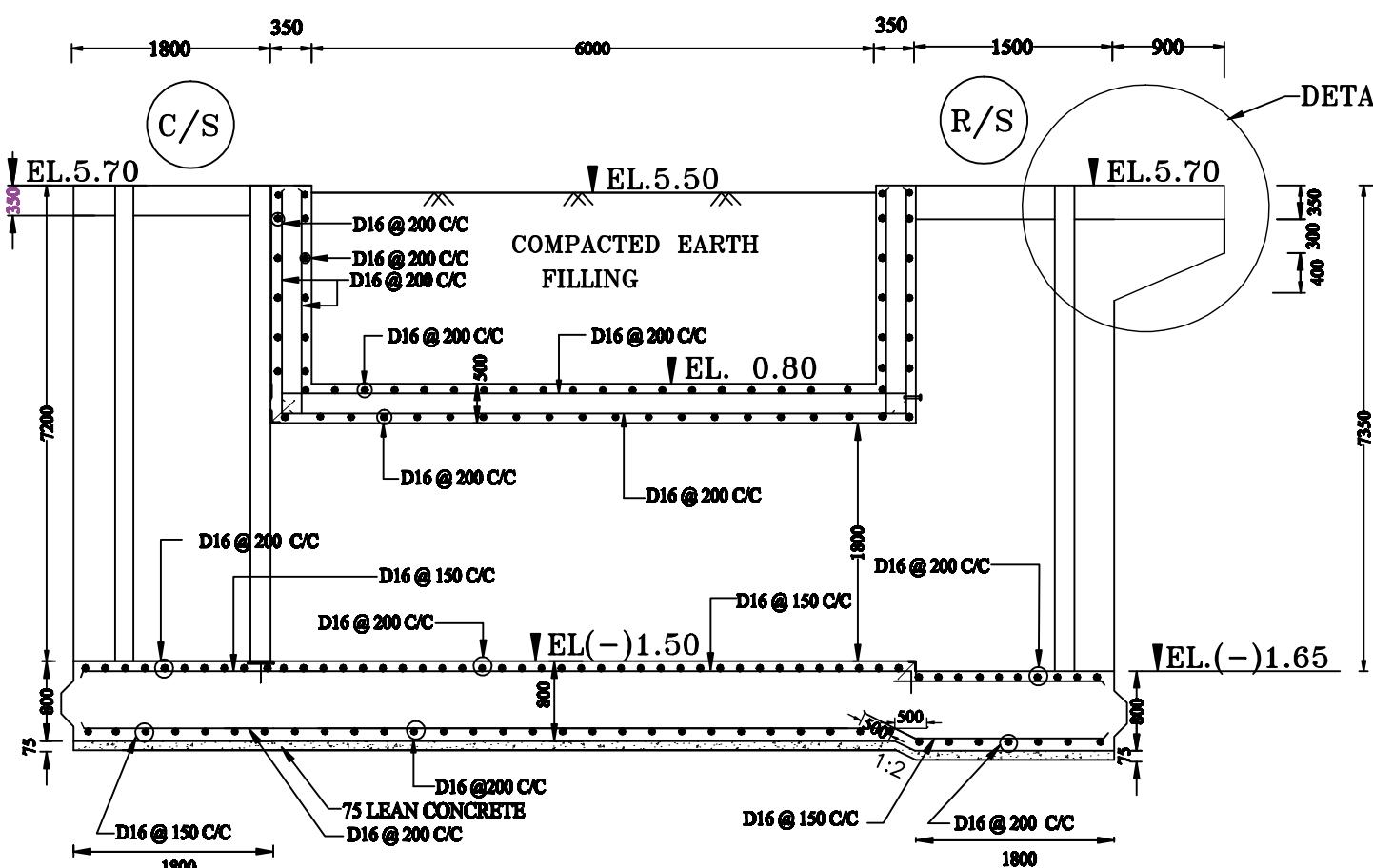
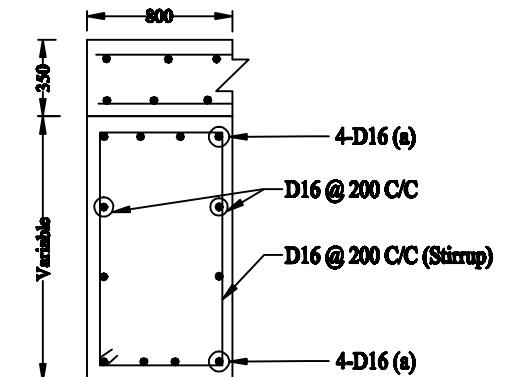
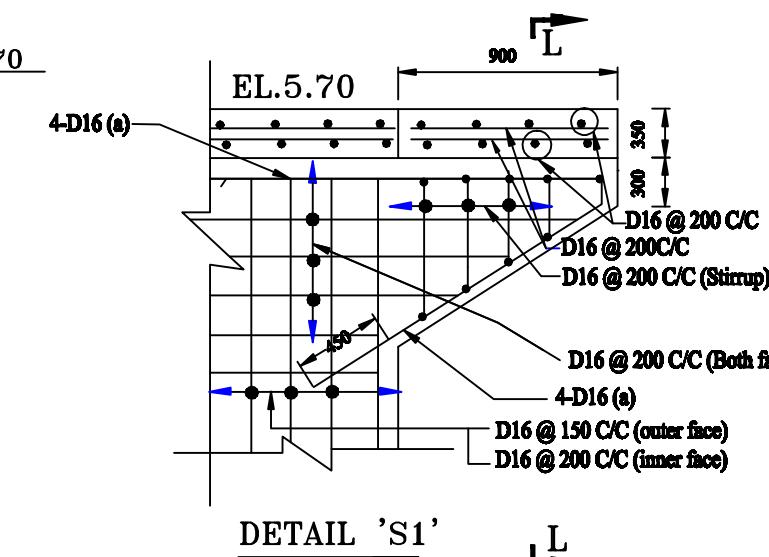
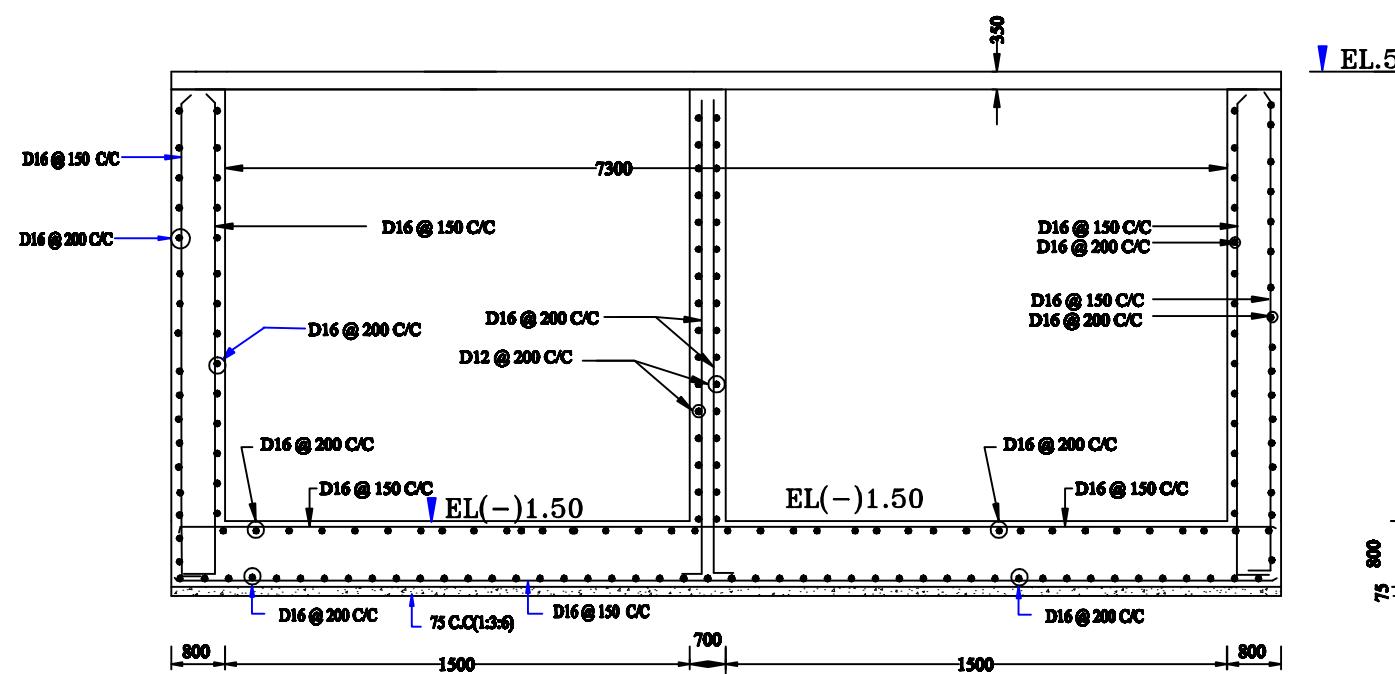
(MOHAMMAD SAIF UDDIN ), SE

**DATE:****DWG. NO.:DC-8-0000-02/25**

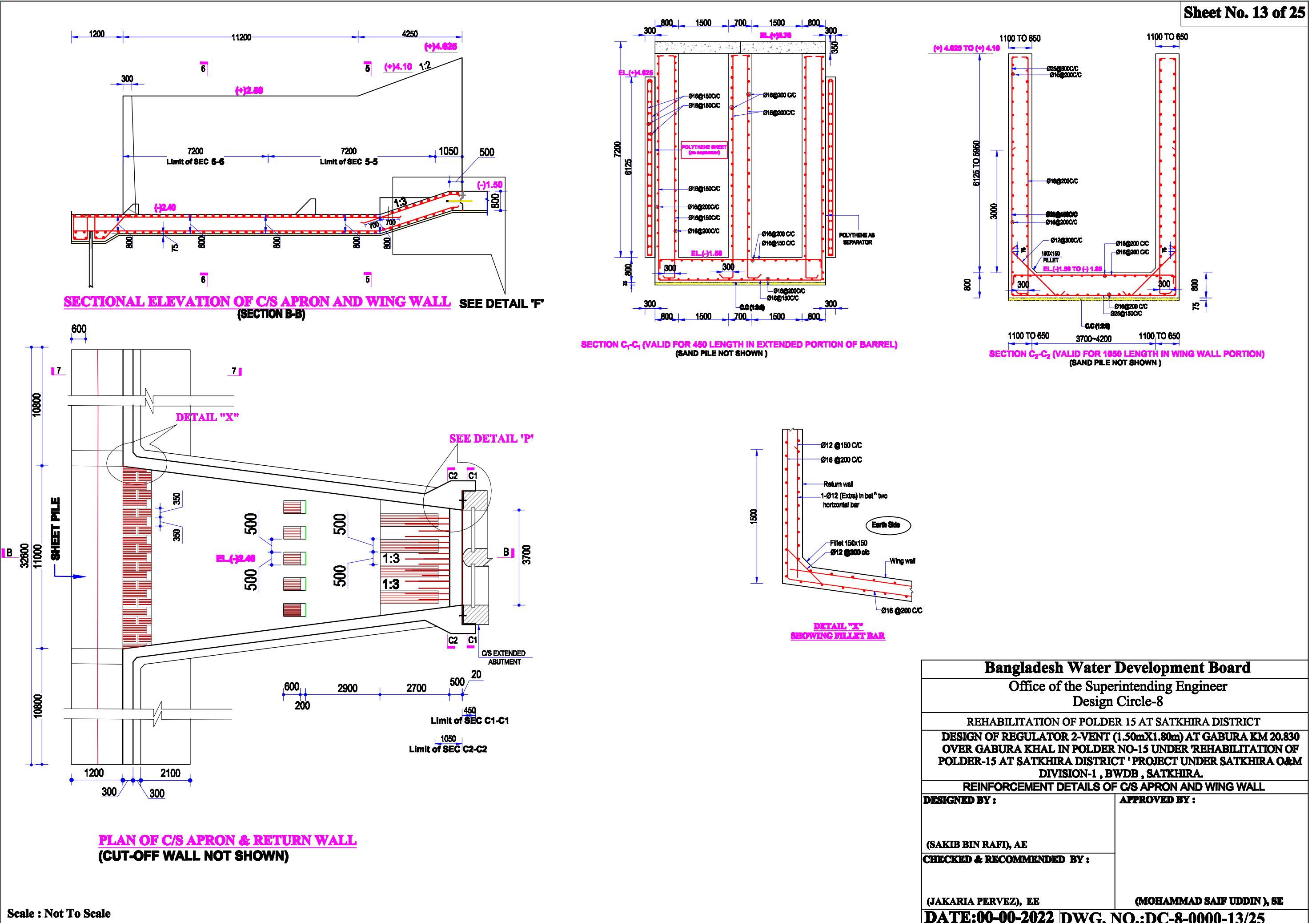


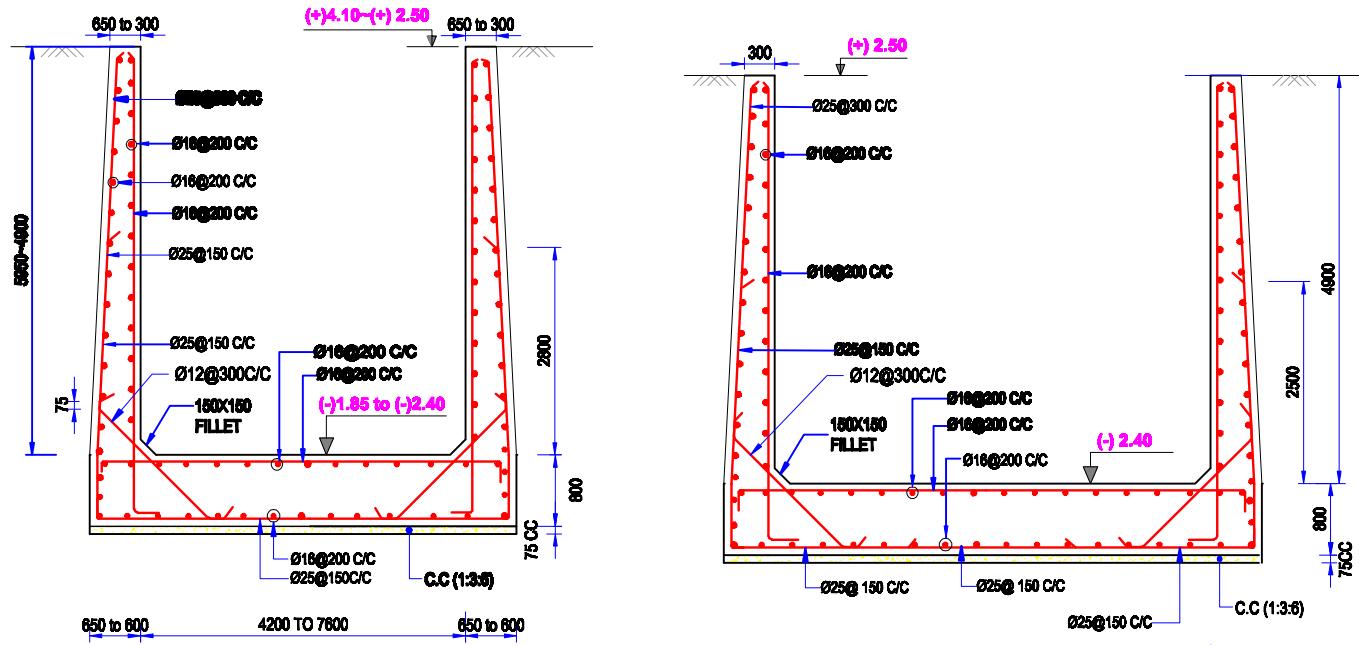
(NOT TO SCALE)

|   |                           |
|---|---------------------------|
| <b>Bangladesh Water Development Board</b>               |                           |
| Office of the Superintending Engineer                   |                           |
| Design Circle-8   |                           |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b> |                           |
| DESIGNED BY:  | APPROVED BY:              |
| (SAKIB BIN RAFI), AE                                    |                           |
| CHECKED & RECOMMENDED BY:                               |                           |
| (JAKARIA PERVEZ), EE                                    | (MOHAMMAD SAIF UDDIN), SE |
| DATE:   | DWG. NO.:DC-8-0000-02/25  |



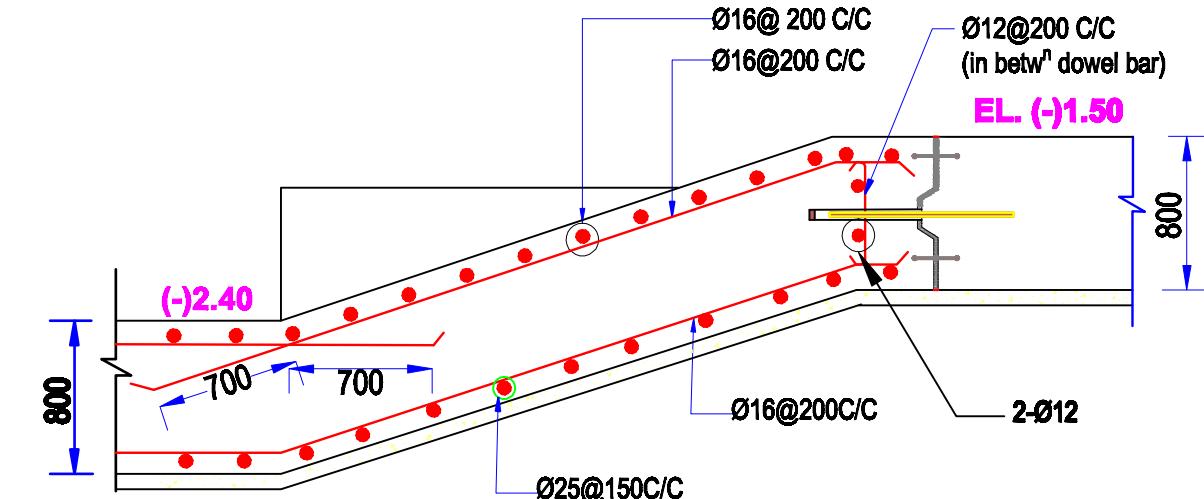
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| <b>Bangladesh Water Development Board</b>               |                           |
| Office of the Superintending Engineer                   |                           |
| Design Circle-8   |                           |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b> |                           |
| DESIGNED BY :   | APPROVED BY :             |
| (SAKIB BIN RAFI), AE                                    |                           |
| CHECKED & RECOMMENDED BY :                              |                           |
| (JAKARIA PERVEZ), EE                                    | (MOHAMMAD SAIF UDDIN), SE |
| DATE:   | DWG. NO.:DC-8-0000-02/25  |



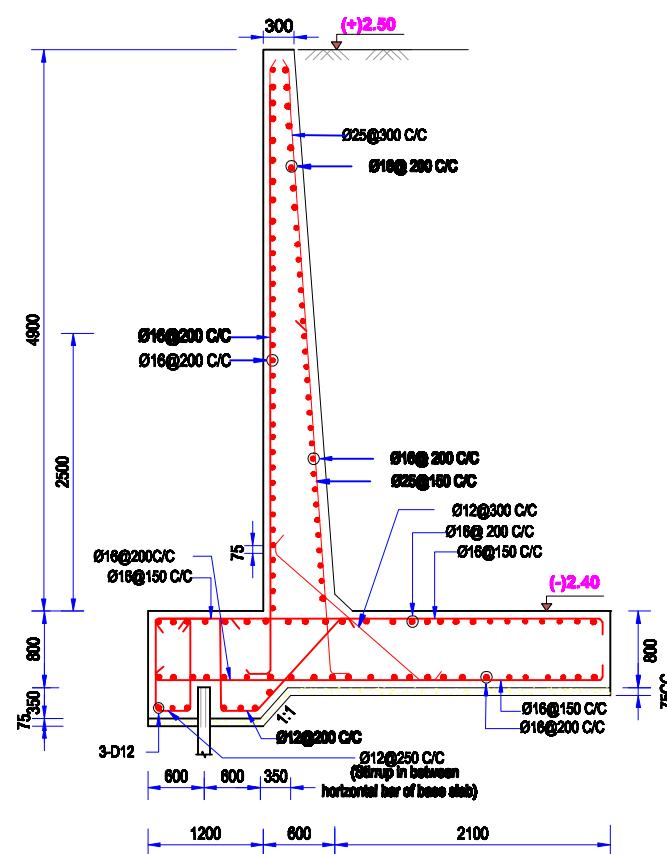


**SECTION 5-5 (VALID FOR 7200 LENGTH)**  
**(SAND PILE NOT SHOWN )**

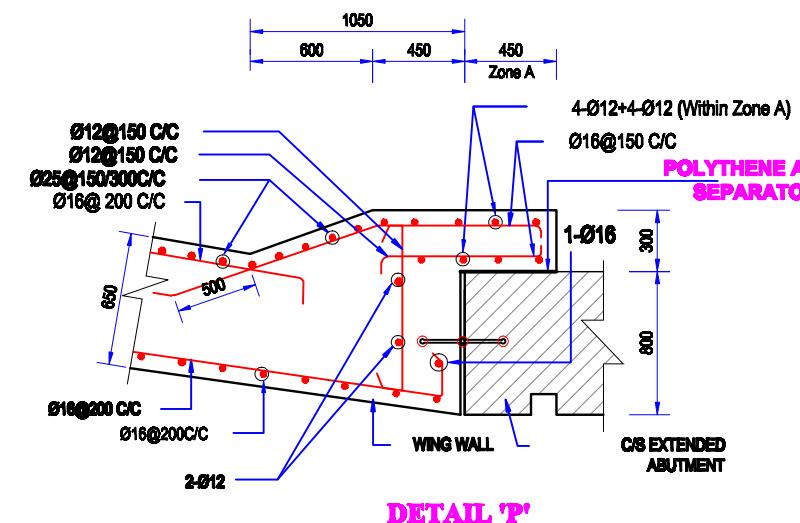
**SECTION 6-6 (VALID FOR 7200 LENGTH  
(SAND PILE NOT SHOWN )**



# DETAIL 'F



**SECTION 7-7**



DETAIL 'P'

**Bangladesh Water Development Board**

**Office of the Superintending Engineer  
Design Circle-8**

## **REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830  
OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF  
POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M  
DIVISION-1 . BWDB . SATKHIRA.**

## **REINFORCEMENT DETAILS OF C/S APRON, WING WALL & RETURN WALL**

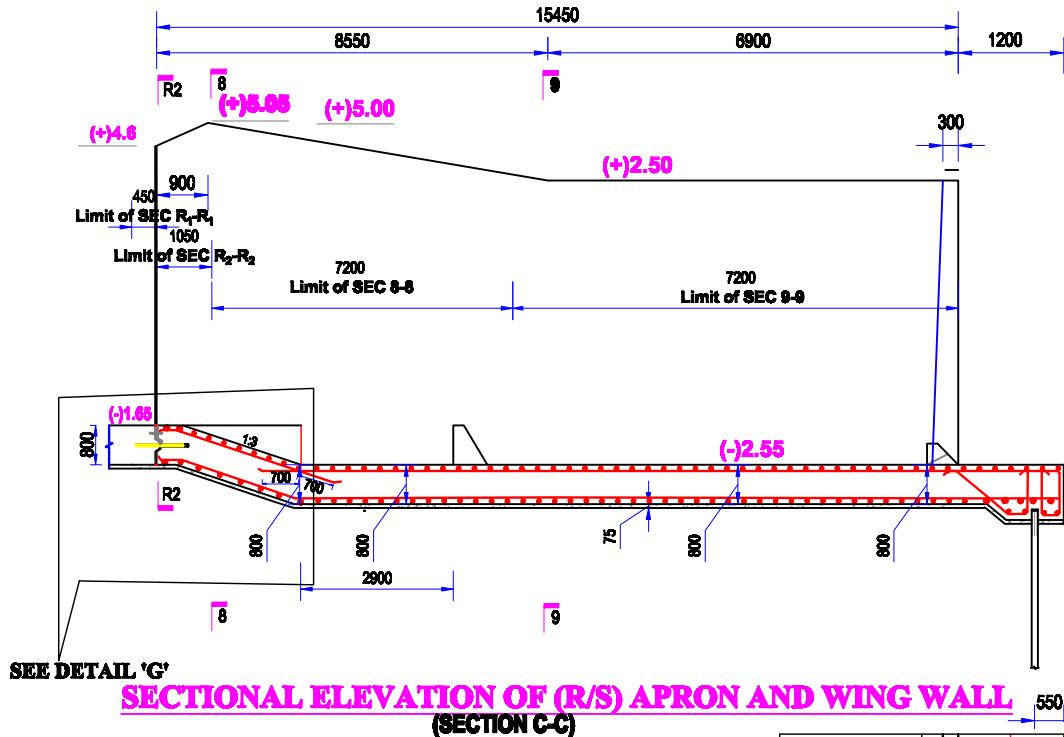
DESIGNED BY

APPROVED BY :

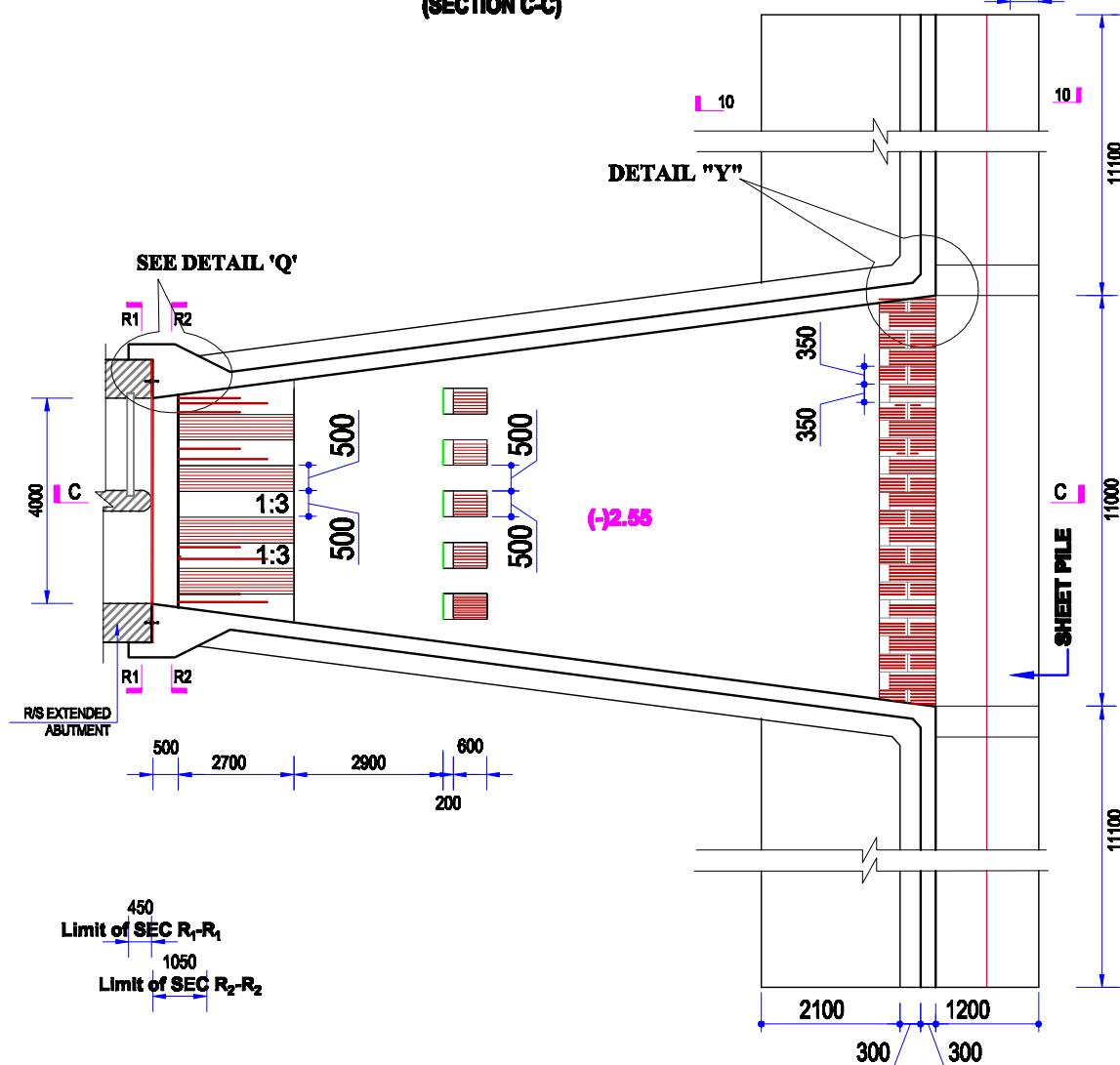
**(SAKIB BIN RAFI), AE**

(JAKARIA PERVEZ) E

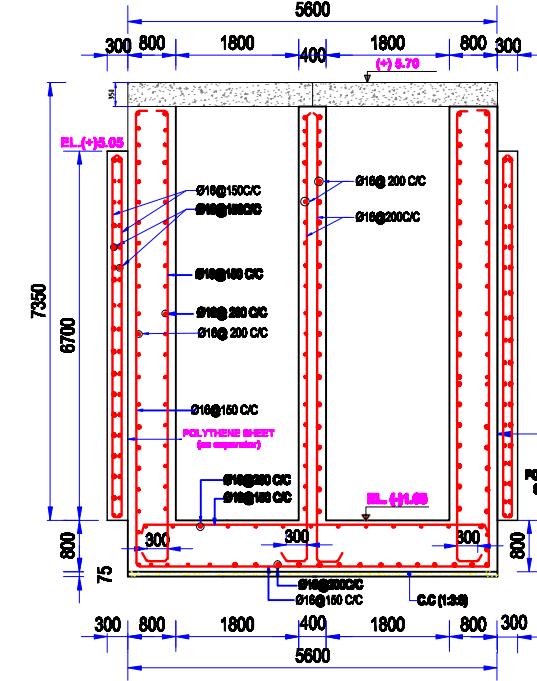
(MOHAMMAD SAIE UDDIN L. SIE



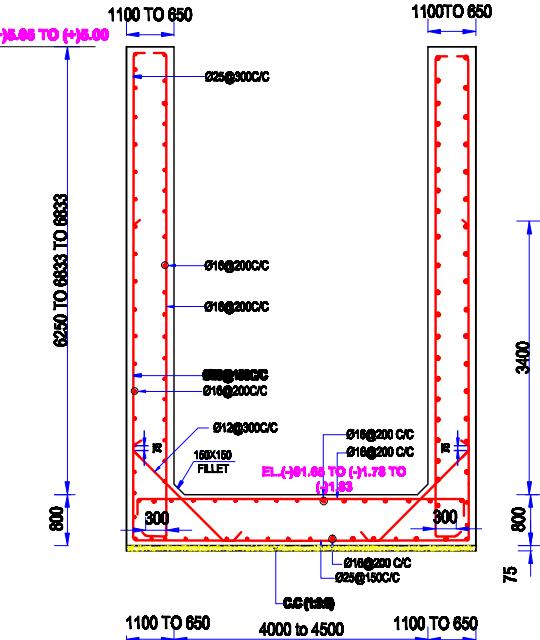
**SECTIONAL ELEVATION OF (R/S) APRON AND WING WALL  
(SECTION C-C)**



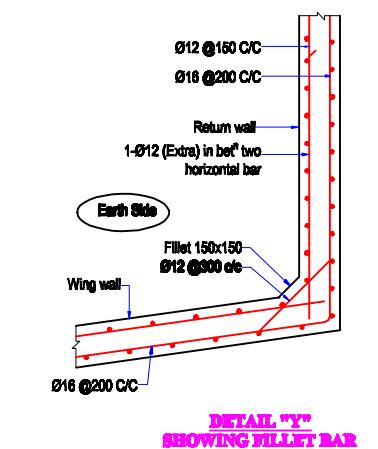
## **PLAN OF R/S APRON & RETURN WALL**



**SECTION R<sub>1</sub>-R<sub>1</sub> (VALID FOR 460 LENGTH IN EXTENDED PORTION OF BARREL  
(BAND FILE NOT SHOWN))**

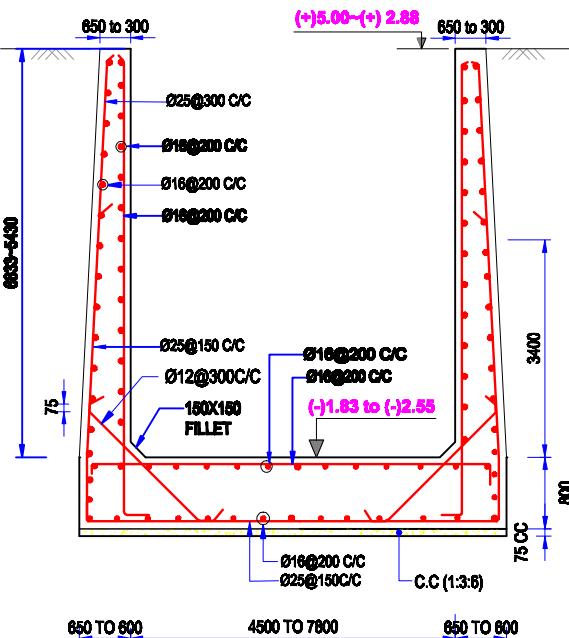


**SECTION R<sub>2</sub>-R<sub>2</sub> (VALID FOR 1000 LENGTH IN WING WALL PORTION)  
(SAND FILE NOT SHOWN)**

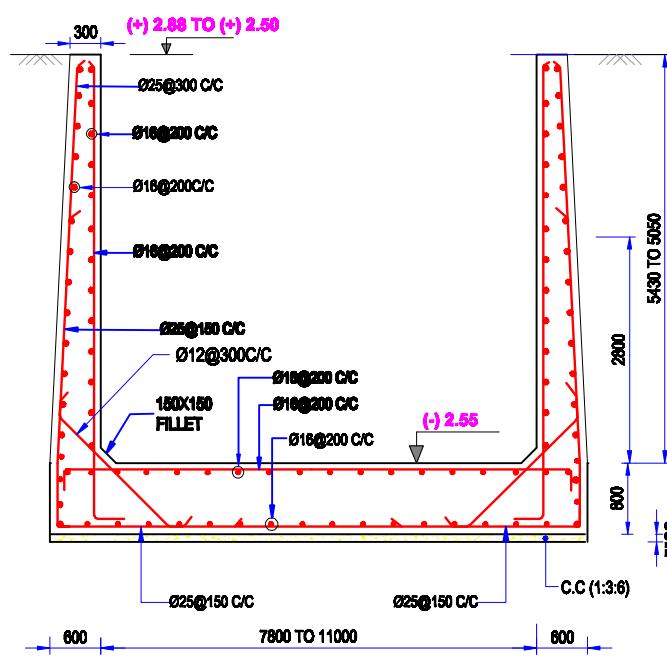


**DETAIL "Y"**

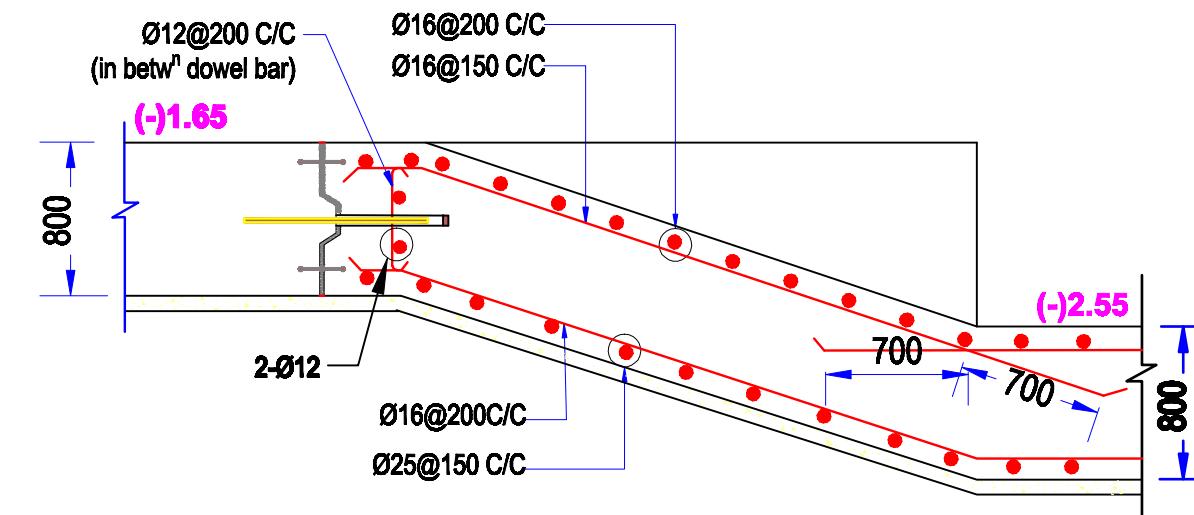
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| <p style="text-align: center;"><b>Bangladesh Water Development Board</b></p> <p style="text-align: center;"><b>Office of the Superintending Engineer</b></p> <p style="text-align: center;"><b>Design Circle-8</b></p>                        |                                  |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b>   |                                  |
| <p><b>DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830<br/>OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF<br/>POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&amp;M<br/>DIVISION-1 , BWDB , SATKHIRA.</b></p> |                                  |
| <p style="text-align: center;"><b>REINFORCEMENT DETAILS OF R/S APRON AND WING WALL</b></p>  |                                  |
| <p><b>DESIGNED BY :</b></p> <p>(SAKIB BIN RAFT), AE</p>   | <p><b>APPROVED BY :</b></p>      |
| <p><b>CHECKED &amp; RECOMMENDED BY :</b></p> <p>(JAKARIA PERVEZ), EE</p>  | <p>(MOHAMMAD SAIF UDDIN), SE</p> |
| <p><b>DATE:00-00-2022 DWG. NO.:DC-8-0000-15/25</b></p>  |                                  |



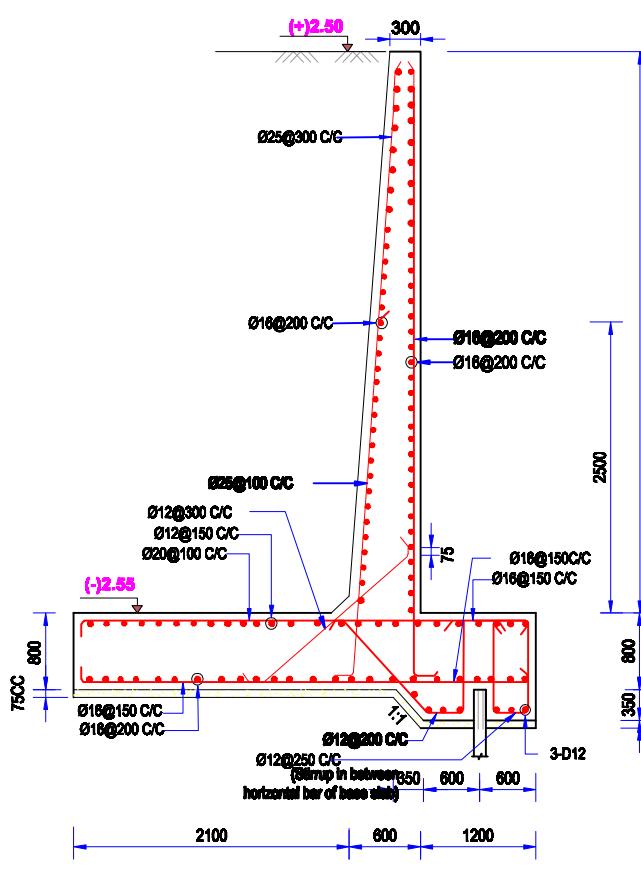
**SECTION 8-8 (VALID FOR 7200 LENGTH)**  
**(SAND PILE NOT SHOWN)**



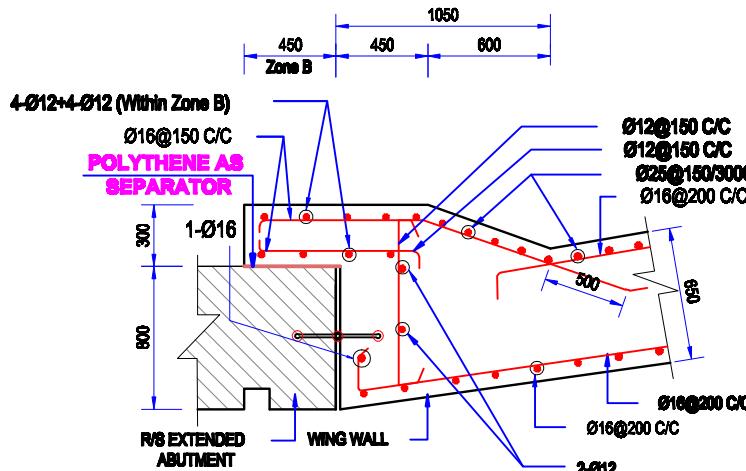
**SECTION 9-9 (VALID FOR 7200 LENGTH  
(SAND PILE NOT SHOWN )**



**DETAIL 'G**



## **SECTION 10-10**



DETAIL 'Q

**Bangladesh Water Development Board**

Office of the Superintending Engineer  
Design Circle-8

REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830  
OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF  
POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M  
DIVISION-1, BWDB, SATKHIRA.**

## **REINFORCEMENT DETAILS OF R/S APRON, WING WALL & RETURN WALL**

DESIGNED BY:

**APPROVED BY :**

For more information about the study, please contact Dr. Michael J. Hwang at (319) 356-4000 or email at [mhwang@uiowa.edu](mailto:mhwang@uiowa.edu).

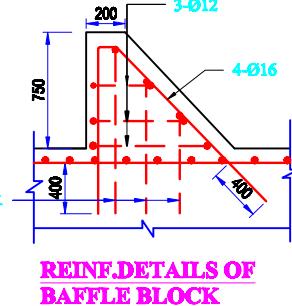
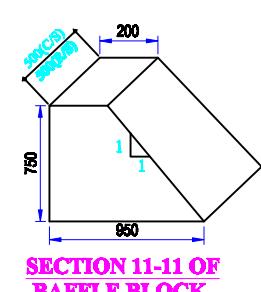
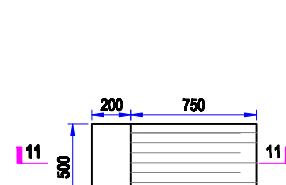
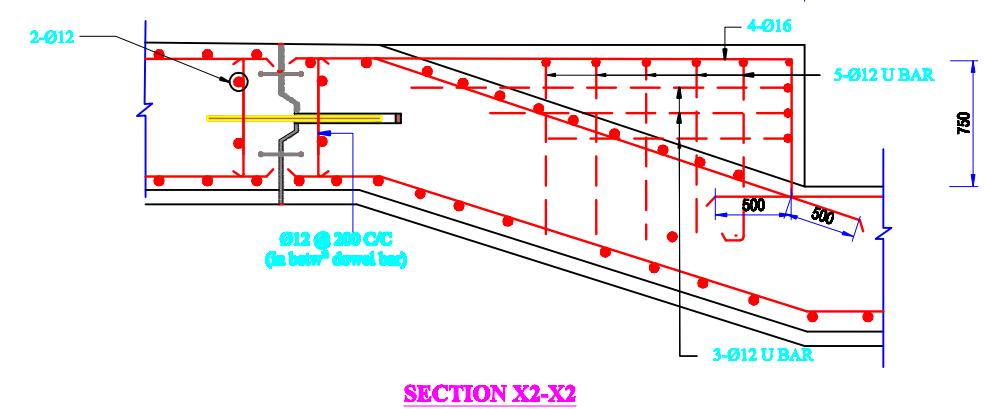
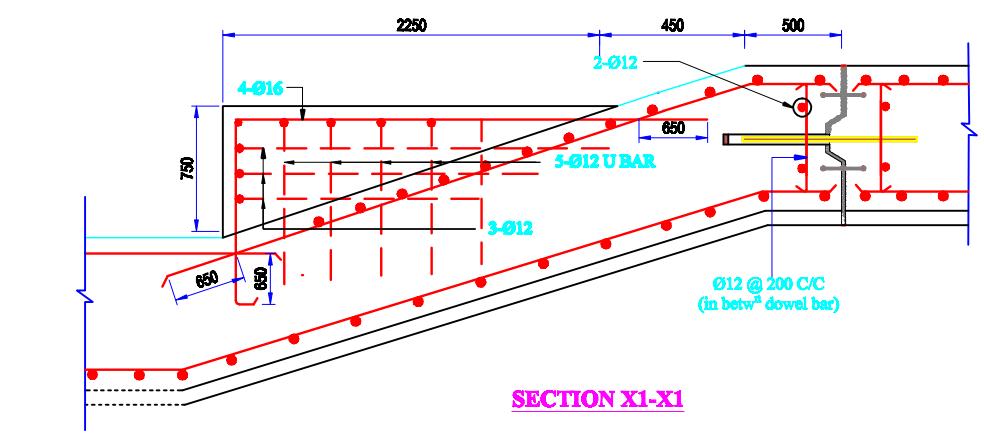
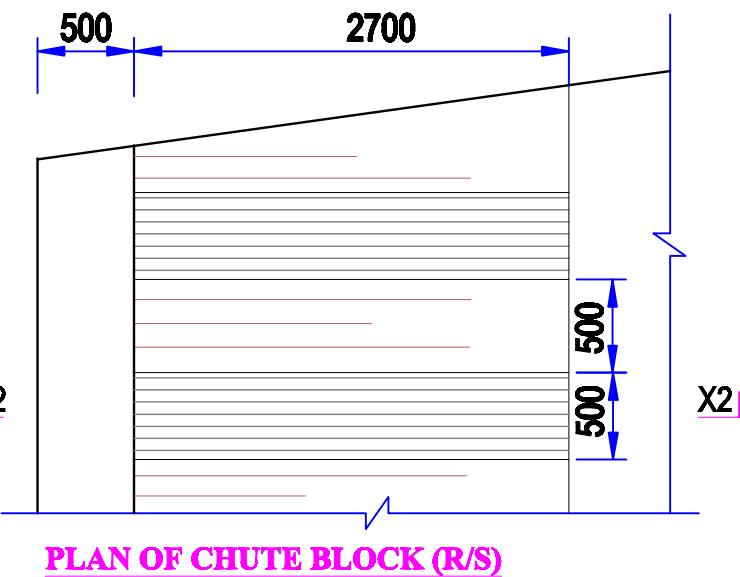
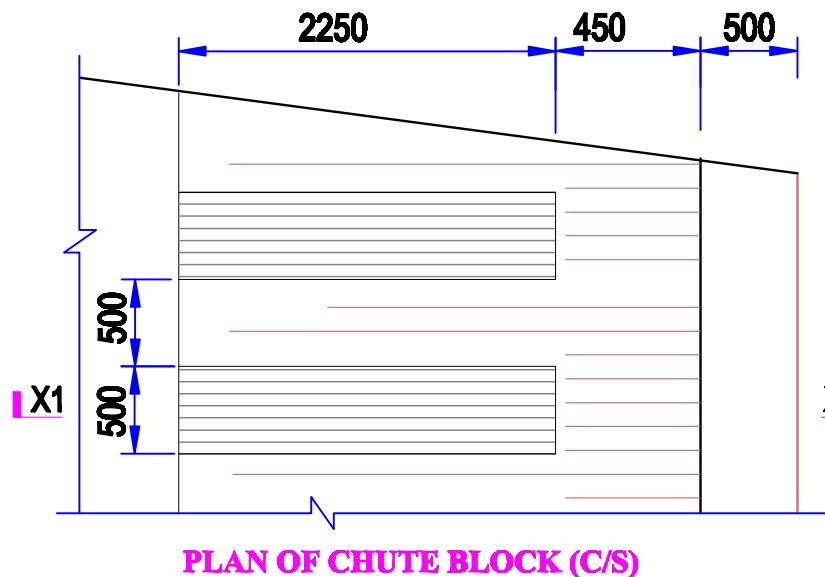
**(SAKIB BIN RAFI), AE**

10. The following table summarizes the results of the study. The first column lists the variables, the second column lists the sample size, and the third column lists the estimated effect sizes.

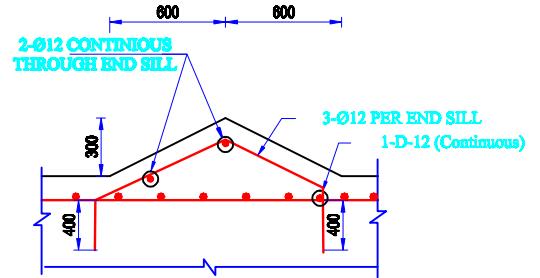
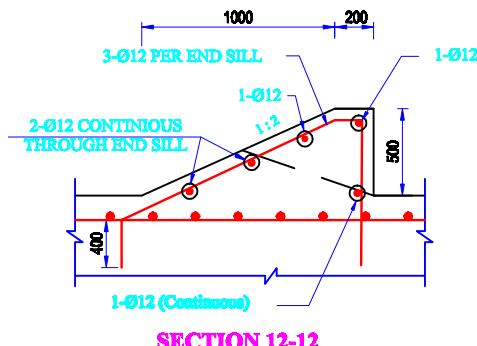
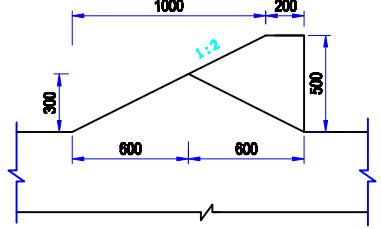
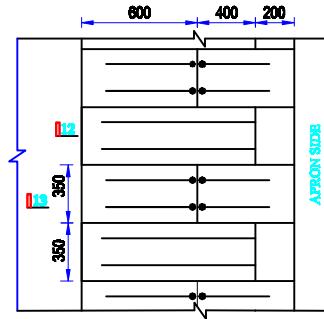
CEA/CEA/DRRA/PRR/2007

For more information about the study, please contact Dr. Michael J. Hwang at (319) 356-4000 or email at [mhwang@uiowa.edu](mailto:mhwang@uiowa.edu).

**DATE:00-00-2022** | **DWC NO :DC 8 0000 16/35**



**BAFFLE BLOCK DETAILS**  
(Concrete Outline & Reinforcement)



**Bangladesh Water Development Board**

Office of the Superintending Engineer  
Design Circle-8

**REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830  
OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF  
POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA O&M  
DIVISION-1 , BWDB , SATKHIRA.**

**CHUTE , ENDSILL & BAFFLE REINFORCEMENT DETAILS**

**DESIGNED BY :**

(SAKIB BIN RAFI), AE

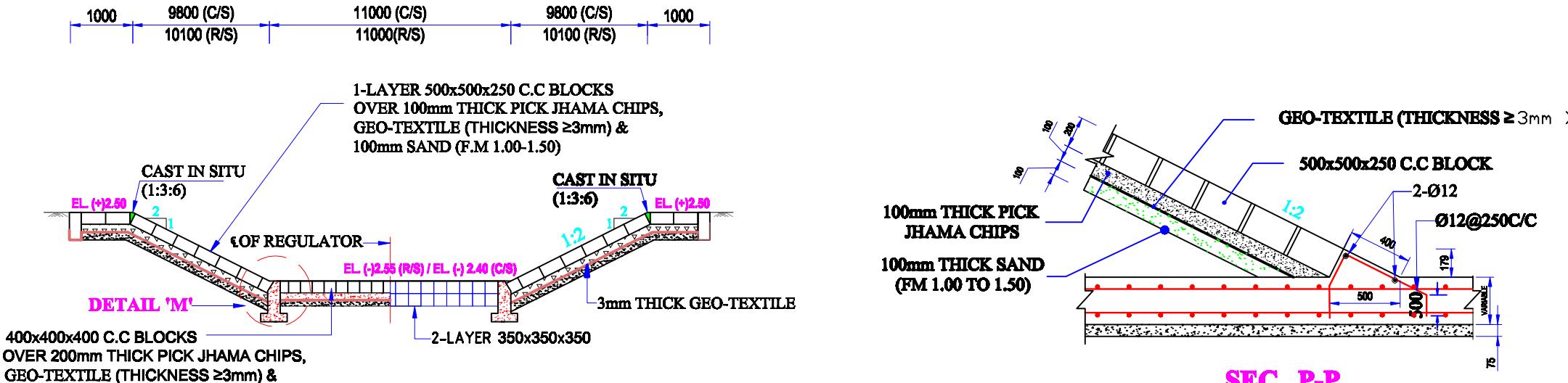
**CHECKED & RECOMMENDED BY :**

(JAKARIA PERVEZ), EE

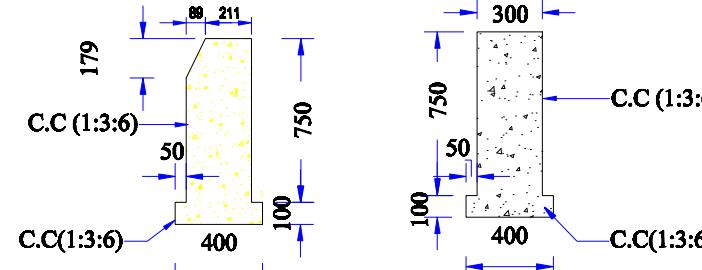
**APPROVED BY :**

(MOHAMMAD SAIF UDDIN ), SE

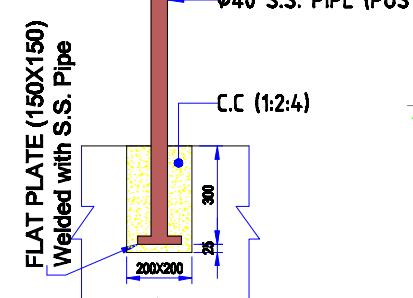
**DATE:00-00-2022 DWG. NO.:DC-8-0000-17/25**



## **SECTION R-R (SEE PLAN)**



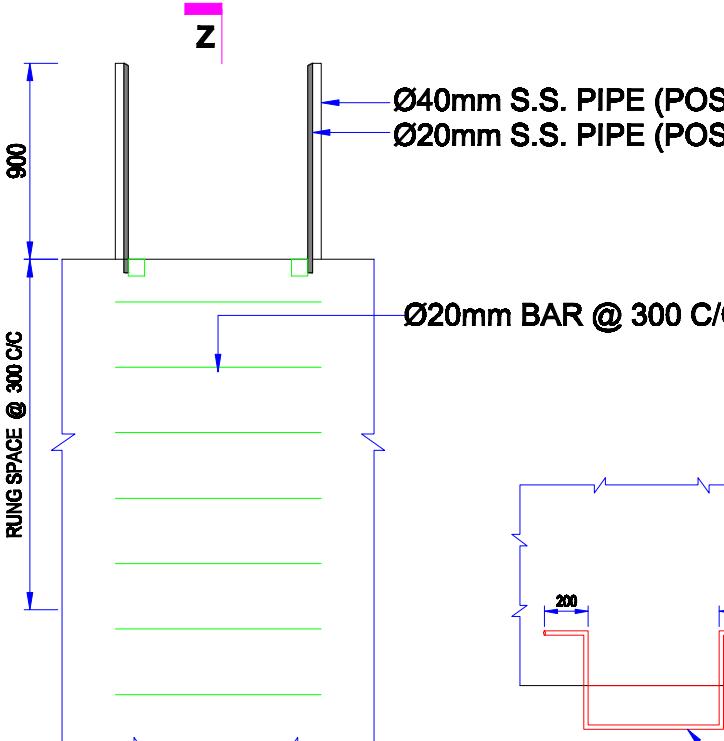
## **SECTION M-M**



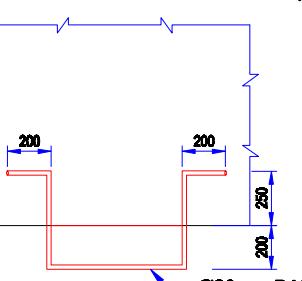
**DETAIL 'E'**



## **SECTION Z-Z**



## RUNG DETAILS



## RUNG DETAILS

**Bangladesh Water Development Board**

**Office of the Superintending Engineer  
Design Circle-8**

REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT

**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830  
OVER GABURA KHAL IN POLDER NO-15 UNDER REHABILITATION OF  
POLDER-15 AT SATKHIRA DISTRICT ' PROJECT UNDER SATKHIRA O&M  
DIVISION-1 , BWDB , SATKHIRA.**

## **DETAIL OF PROTECTIVE WORKS & OTHERS**

**DESIGNED BY :**

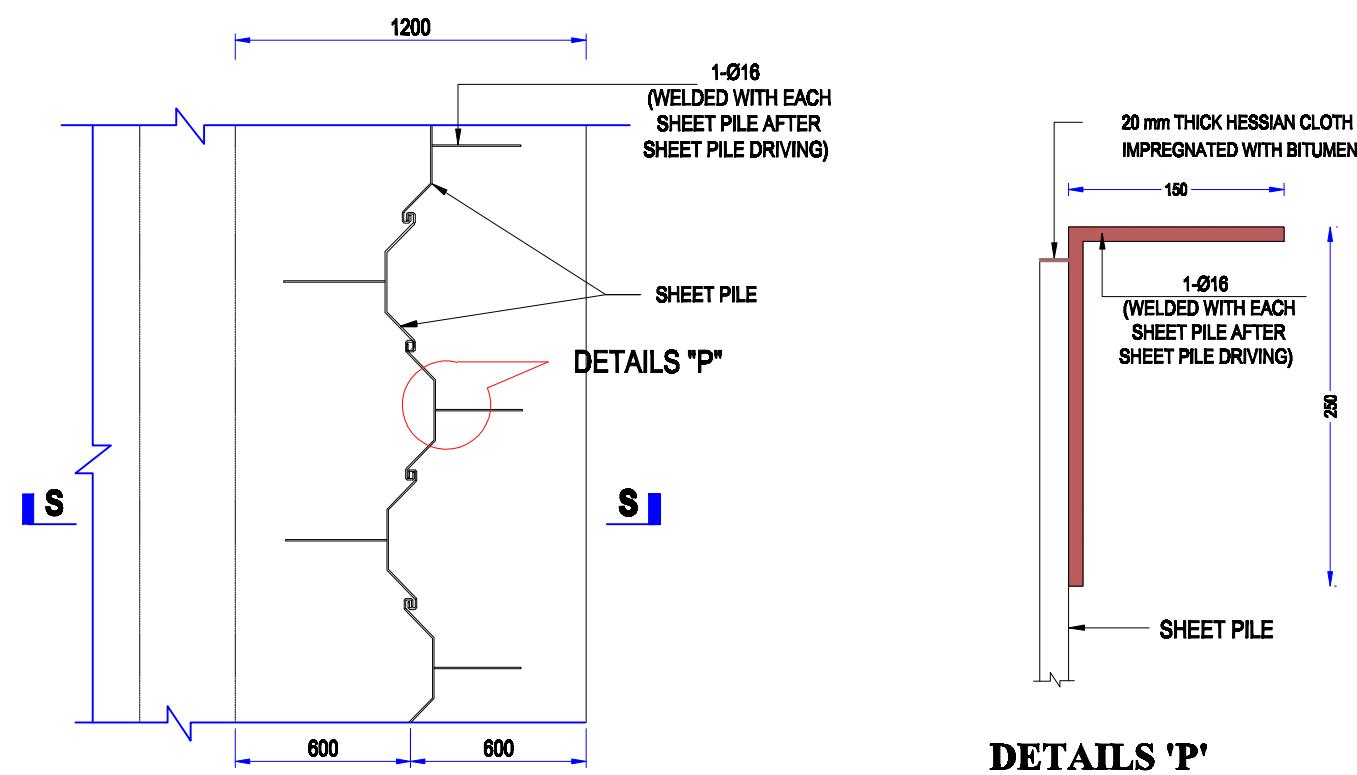
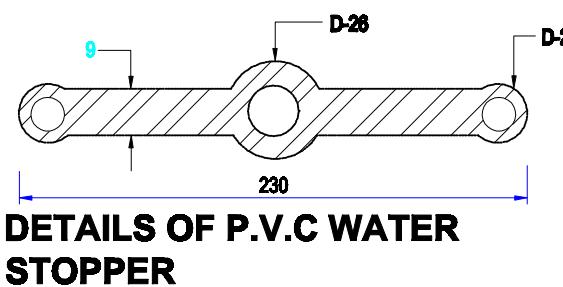
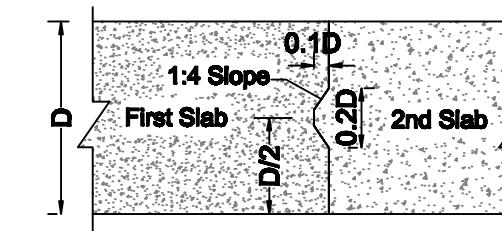
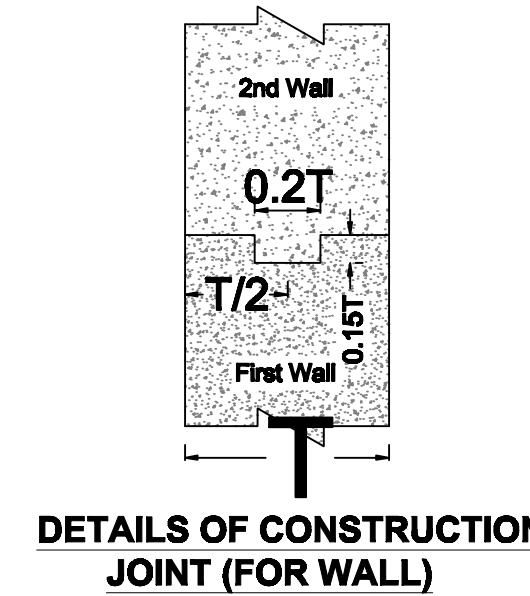
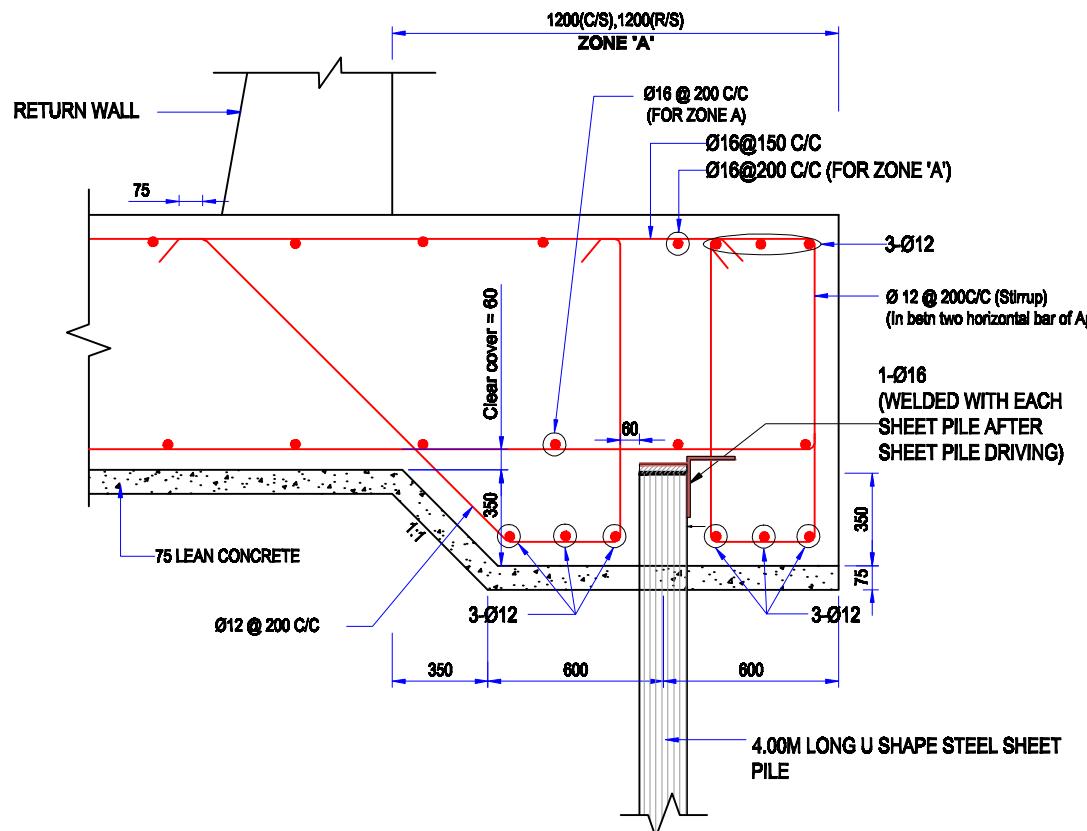
**APPROVED BY :**

**CHECKED & RECOMMENDED BY**

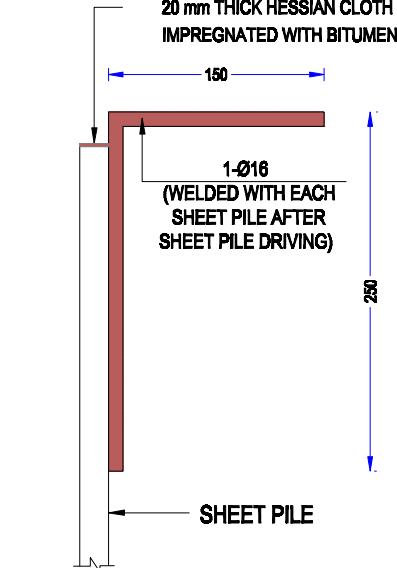
**(JAKARIA PERVEZ), ETC.**

**(MOHAMMAD SAIF UDDIN ), SE**

**DATE:00-00-2022 DWG. NO.:DC-8-0000-18/25**

**LAYOUT PLAN OF SHEET PILE**

Scale : Not To Scale



|  |  |
|--|--|
| <b>Bangladesh Water Development Board</b>  |  |
| Office of the Superintending Engineer  |  |
| Design Circle-8  |  |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b>  |  |
| DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM<br>20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER<br>'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT<br>UNDER SATKHIRA O&M DIVISION-1 , BWDB , SATKHIRA. |  |

**DETAIL OF SHEET PILE & OTHERS**

DESIGNED BY :

APPROVED BY :

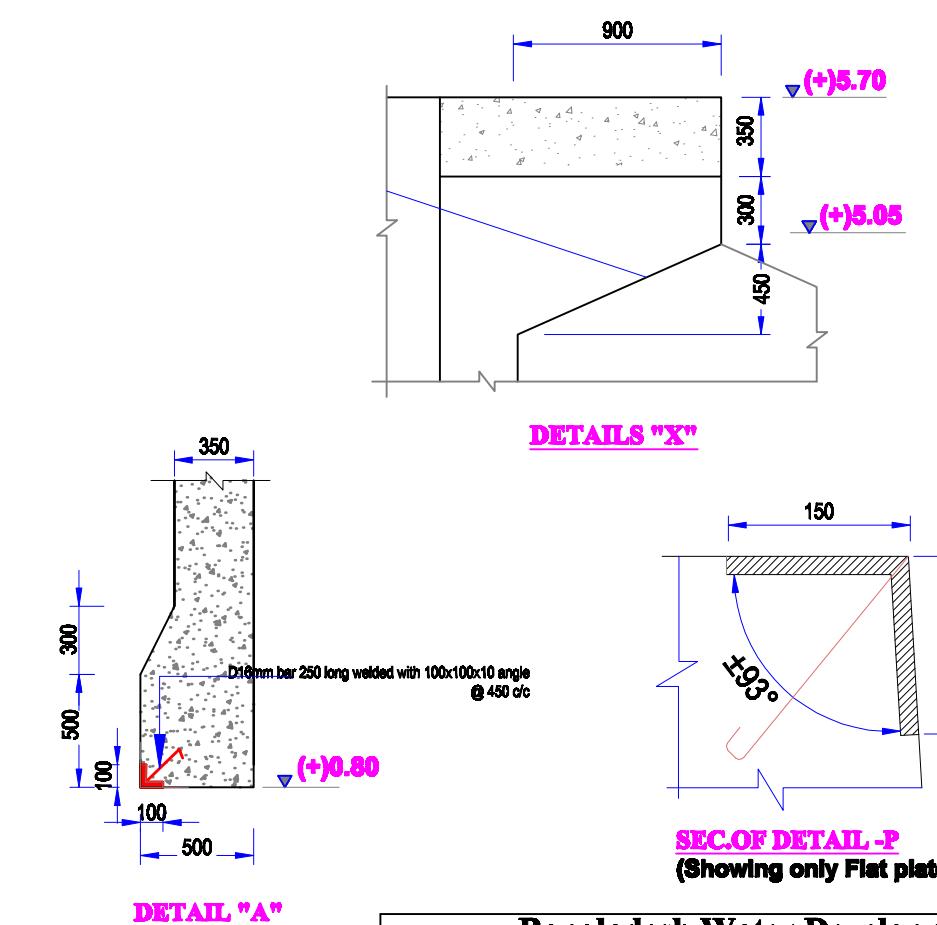
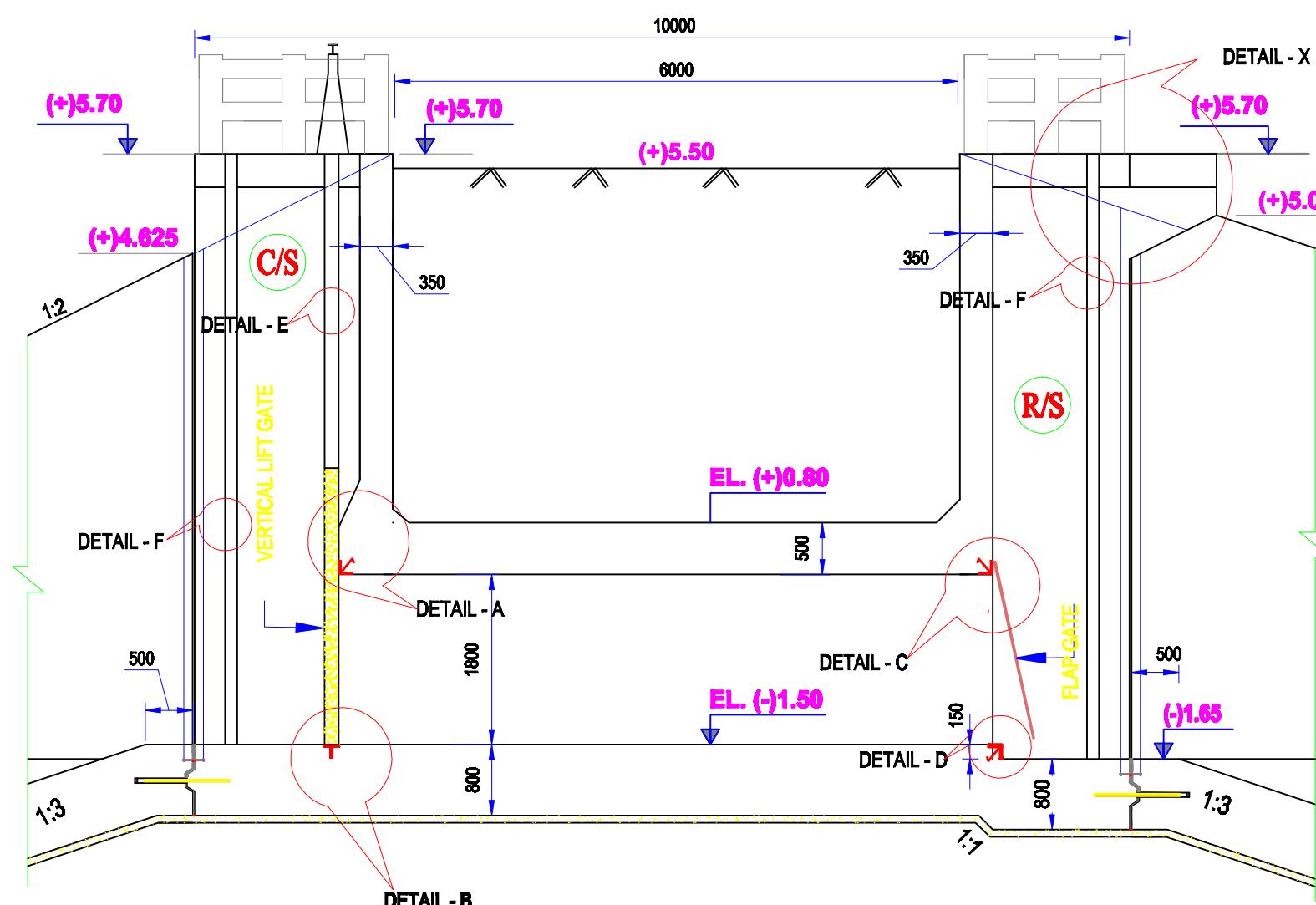
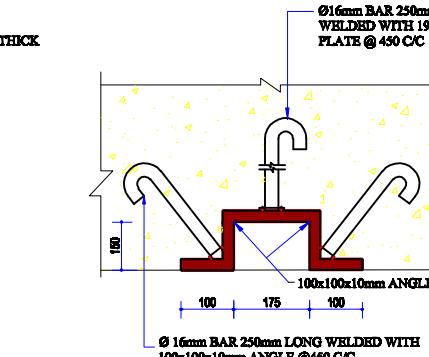
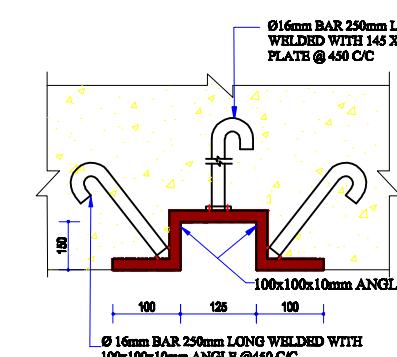
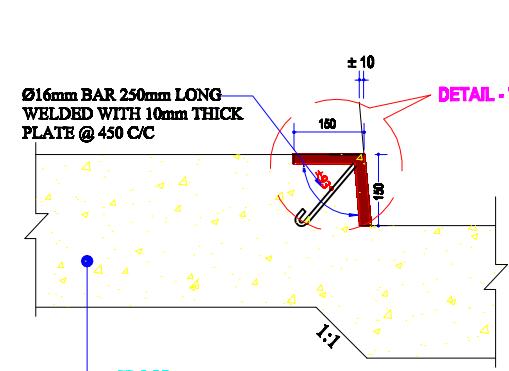
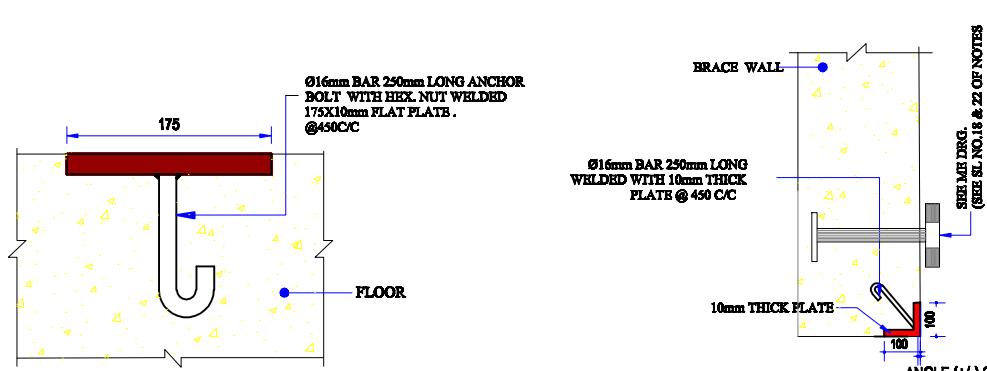
(SAKIB BIN RAFI), AE

CHECKED &amp; RECOMMENDED BY :

(JAKARIA PERVEZ), EE

(MOHAMMAD SAIF UDDIN), SE

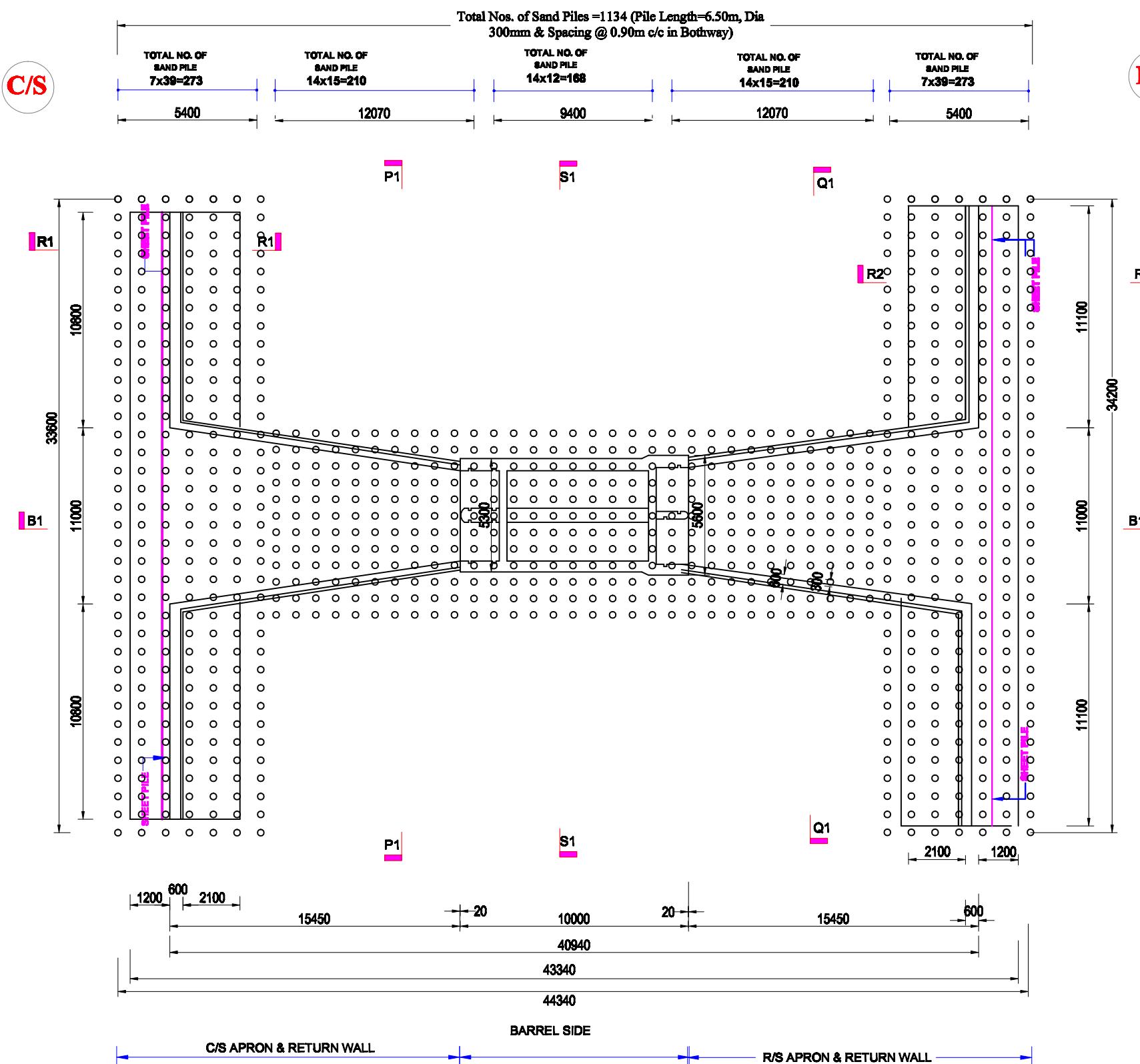
**DATE:00-00-2022 DWG. NO.:DC-8-0000-19/25**



|  |  |
|--|--|
| <b>Bangladesh Water Development Board</b>  |  |
| Office of the Superintending Engineer  |  |
| Design Circle-8  |  |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b>  |  |
| DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM<br>20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER<br>'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT<br>UNDER SATKHIRA O&M DIVISION-1 , BWDB , SATKHIRA. |  |

**MISCELLANEOUS METAL DETAIL**

|  |                           |
|--|---------------------------|
| <b>DESIGNED BY :</b><br><br>(SAKIB BIN RAFI), AE | <b>APPROVED BY :</b>      |
| <b>CHECKED &amp; RECOMMENDED BY :</b>            |                           |
| JAKARIA PERVEZ, EE                               | (MOHAMMAD SAIF UDDIN), SE |
| <b>DATE:00-00-2022 DWG. NO.:DC-8-0000-20/25</b>  |                           |

**SAND PILE LAYOUT PLAN****NOTE FOR SAND PILE:**

1. SAND PILE OF 4.00m LENGTH WITH 300mm CASING DIA. AS SPECIFIED IN THE DRAWING SHALL HAVE TO BE CONSTRUCTED AS PER STANDARD DISPLACEMENT METHOD.
2. SAND TO BE USED IN PILING SHALL BE FREE FROM ALL ORGANIC AND FOREIGN MATERIALS AND SHALL HAVE FM=2.00.
3. DIAMETER LENGTH CONTINUITY OF PILE SHALL HAVE TO BE CHECKED BY MEASURING SAND FORCE VOLUME FOR EACH EXECUTED PILE. THE SAND FORCE VOLUME PER METER AND PER PILE SHALL NOT BE LESS THAN 0.25 CUBIC METER AND 1.00 CUBIC METER RESPECTIVELY (ITEM CODE: 44-400-40).
4. BEFORE EXECUTION AND AFTER EXECUTION OF SAND PILE PLATE BEARING TEST MUST BE CONDUCTED. FOR COHESIVE SOIL CONSOLIDATION TEST SHOULD BE DONE.
5. AFTER EXECUTION OF ALL SAND PILE, SPT VALUES SHALL HAVE TO BE DETERMINED BY THE FIELD TESTS. SPT VALUES ATTAINED AT 1.50 METER INTERVALS SHALL BE DETERMINED.
6. AFTER PILING SPT VALUE IN BETWEEN SAND PILES AT FOUNDATION LEVEL SHALL BE MINIMUM 12 TO 14 .
7. ALL THE RECORDS OF SAND PILLING SHALL BE MAINTAINED IN DETAILS WITH CONSTANT SUPERVISION AND IT SHOULD BE SENT TO THE DESIGN OFFICE.

**Bangladesh Water Development Board**Office of the Superintending Engineer  
Design Circle-8**REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA Q&amp;M DIVISION-1 , BWDB , SATKHIRA.

**SAND PILE LAYOUT PLAN**

DESIGNED BY :

(SAKIB BIN RAFI), AE

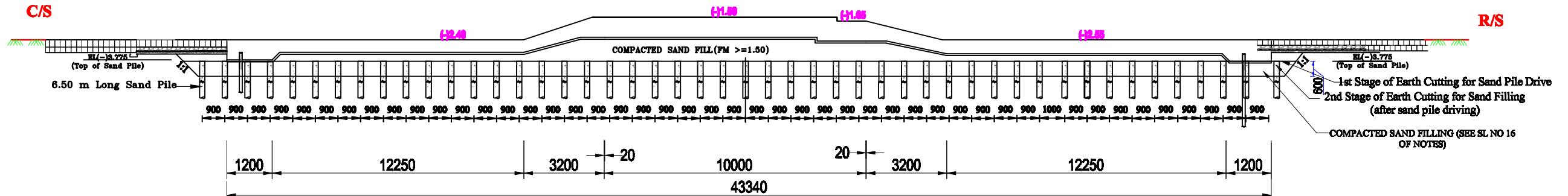
CHECKED &amp; RECOMMENDED BY :

(JAKARIA PERVEZ), EE

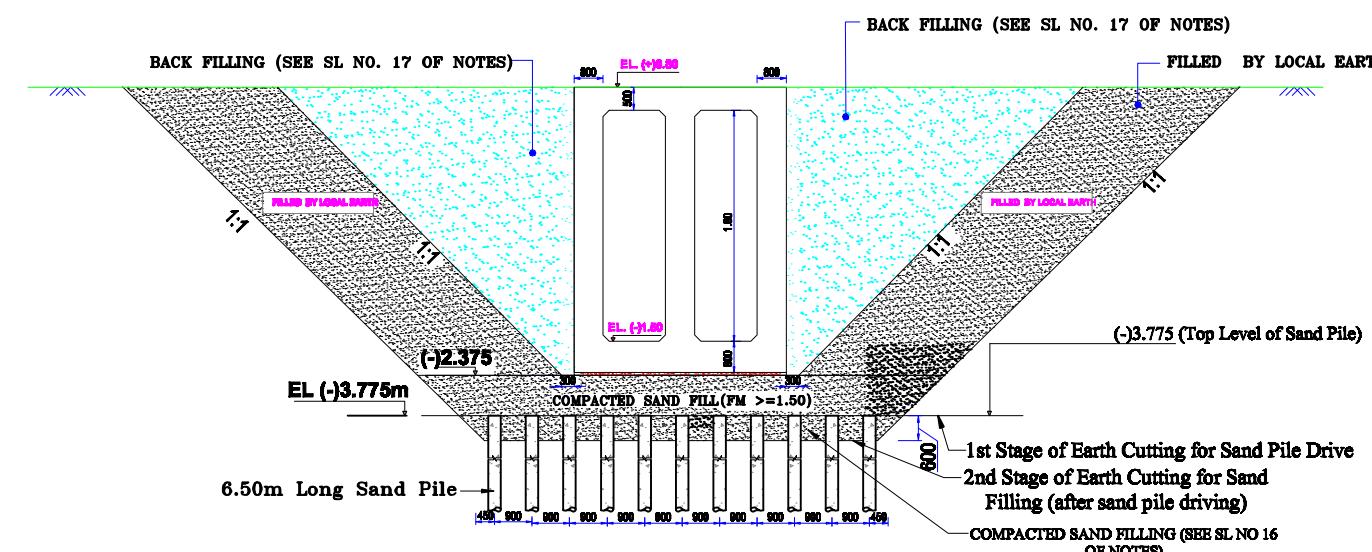
APPROVED BY :

(MOHAMMAD SAIF UDDIN), SE

**DATE:00-00-2022 DWG. NO.:DC-8-0000-21/25**



**SECTION (B1-B1) SHOWING  
SAND PILE DETAIL**



## **SECTION S1-S1**

**Bangladesh Water Development Board**  
**Office of the Superintending Engineer**  
**Design Circle-8**

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**REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT**

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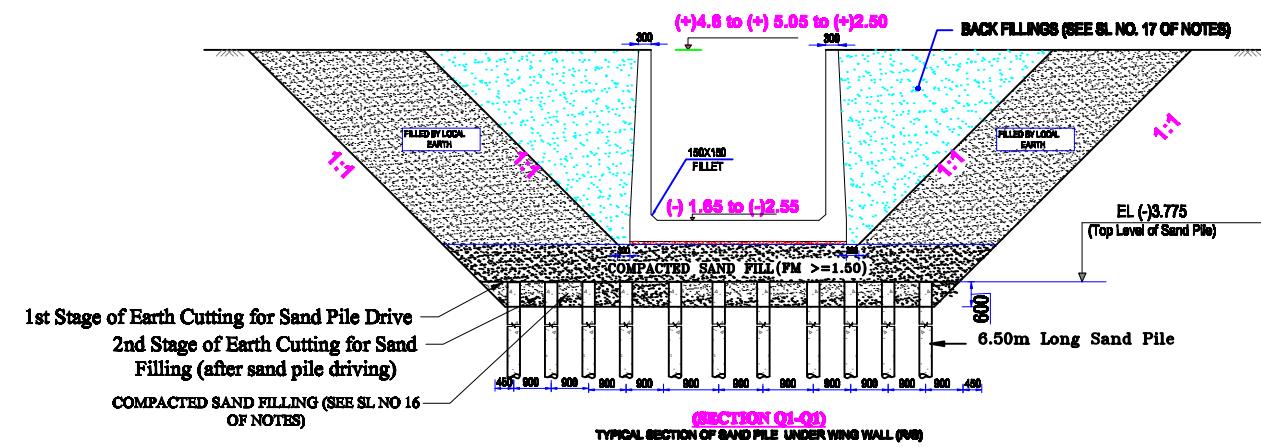
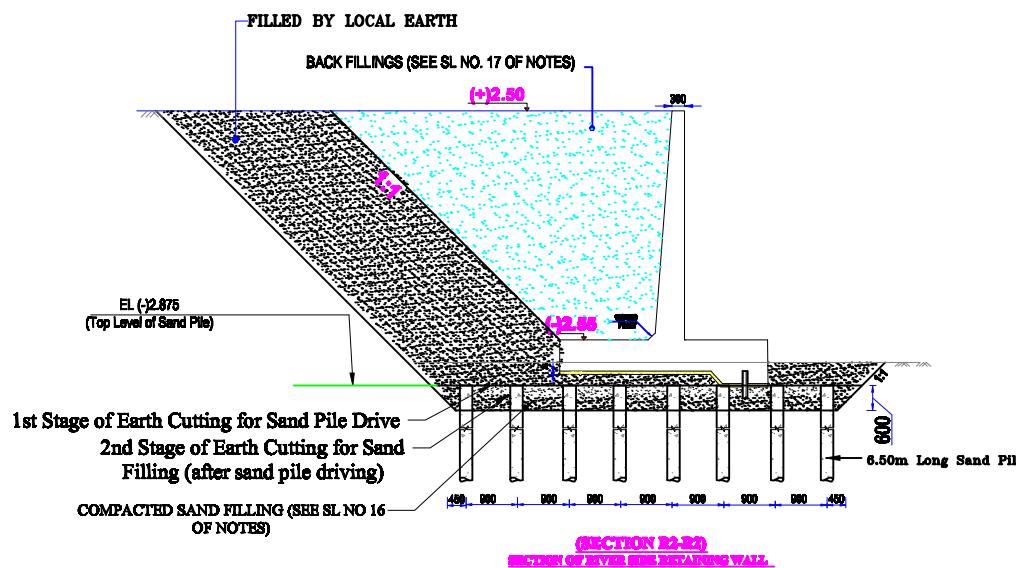
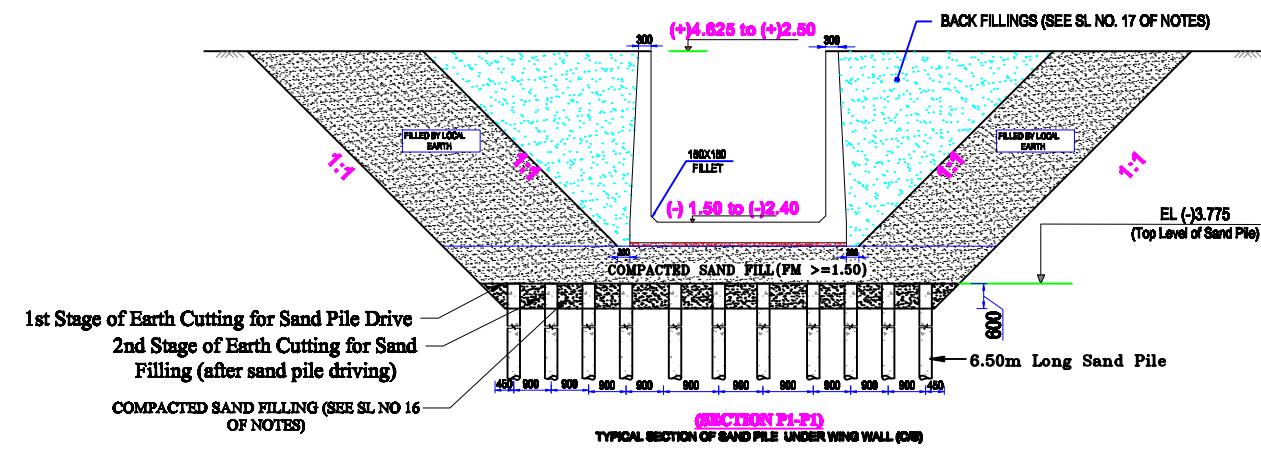
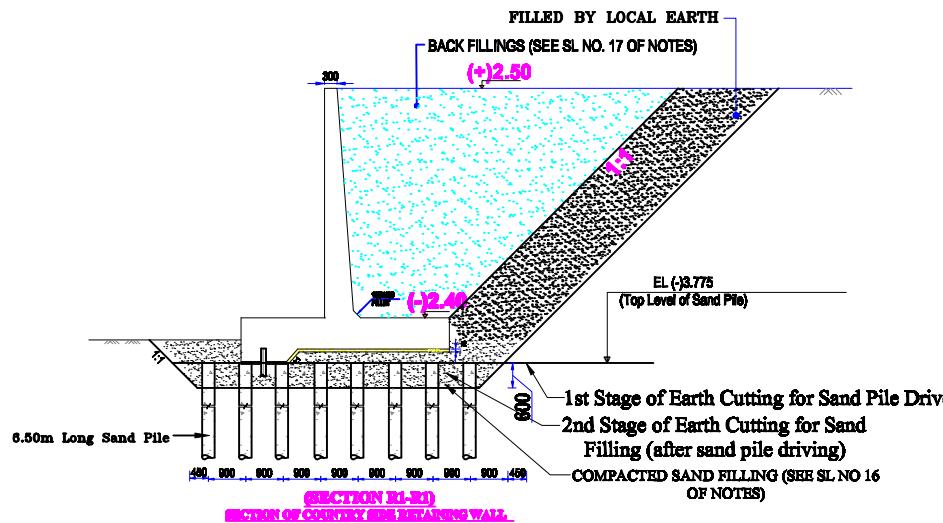
**DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830  
OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF  
POLDER-15 AT SATKHIRA DISTRICT ' PROJECT UNDER SATKHIRA Q&M  
DIVISION-1 , BWDB , SATKHIRA.**

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**SAND PILE DETAILS OF LONGITUDINAL PROFILE & BOX**

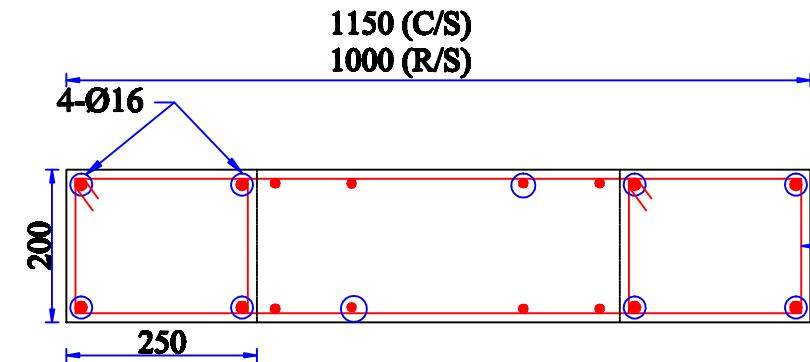
|  |   |
|--|---|
| <b>DESIGNED BY :</b><br><br><b>(SAKIB BIN RAFT), AE</b>                  | <b>APPROVED BY :</b><br><br><b>(MOHAMMAD SAIF UDDIN ), SE</b> |
| <b>CHECKED &amp; RECOMMENDED BY :</b><br><br><b>(JAKARIA PERVEZ), EE</b> |   |

**DATE:00-00-2022 DWG. NO.:DC-8-0000-22/25**





**1150 (C/S)/1000 (R/S)**

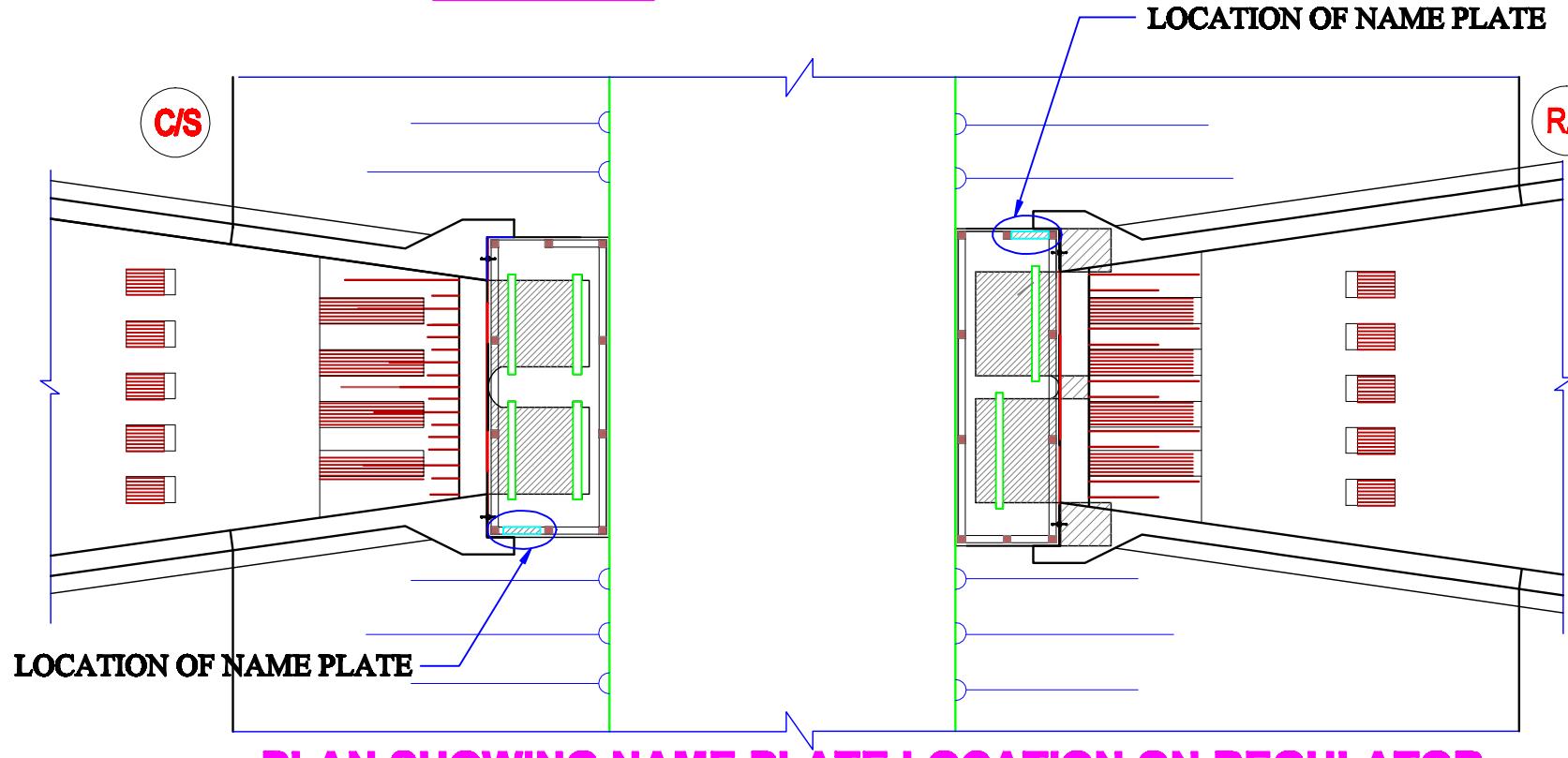


**1150 (C/S)  
1000 (R/S)**

**NAME PLATE**

**ELEVATION**

**LOCATION OF NAME PLATE**



**PLAN SHOWING NAME PLATE LOCATION ON REGULATOR**

|  |  |
|--|--|
| <b>Bangladesh Water Development Board</b>  |  |
| Office of the Superintending Engineer  |  |
| Design Circle-8  |  |
| <b>REHABILITATION OF POLDER 15 AT SATKHIRA DISTRICT</b>  |  |
| <b>DESIGN OF REGULATOR 2-VENT (1.50mX1.80m) AT GABURA KM 20.830 OVER GABURA KHAL IN POLDER NO-15 UNDER 'REHABILITATION OF POLDER-15 AT SATKHIRA DISTRICT' PROJECT UNDER SATKHIRA Q&amp;M DIVISION-1, BWDB, SATKHIRA.</b> | <b>PLAN, ELEVATION &amp; DETAILS OF NAME PLATE</b> |
| <b>DESIGNED BY :</b><br><br>(SAKIB BIN RAFT), AE   | <b>APPROVED BY :</b>                               |
| <b>CHECKED &amp; RECOMMENDED BY :</b>  |  |
| <b>JAKARIA PERVEZ, EE</b>  | <b>(MOHAMMAD SAIF UDDIN), SE</b>                   |
| <b>DATE:00-00-2022 DWG. NO.:DC-8-0000-25/25</b>  |  |