Ministry of Road Transport and Bridges
Bangladesh Bridge Authority
Technical Wing, Design-2 Section
Setu Bhaban, Banani, Dhaka-1212
www.bba.gov.bd

Pre-Tender Meeting Minutes on BBA Work Package: WR-005/2025-2026, Name: 'Renovation, Widening and Strengthening of Jamuna Bridge Deck and Associated Works for Appropriate Use of Abandoned Rail Line during the FY 2025-2026'

Chairperson	Quazi Muhammad Ferdous Chief Engineer, BBA
Meeting Date	08 February 2026
Meeting Time	11:00 AM (BST)
Venue	BBA Conference Room (#219), Setu Bhaban, Banani, Dhaka-1212
Attendance/Participating	Annex-I

The Chief Engineer, BBA welcomed the participants (Annex-I), briefly described the works. Written and oral both type of questions regarding the works & documents were raised by the representatives of the Tenderer and subsequently the Chief Engineer answered. After detailed discussions the following Clarify/Responses/Reply/Replaced/Revised were made.

SI No.	Reference	As per Published Tender Document	Query/Suggestions made by the Tenderer	Clarification/Response/Reply/Replaced/Revised by BBA
(1)	*(2)*	*(3)*	*(4)*	*(5)*

<table>
<tr>
<td>1.1</td>
<td>TDS, ITT Clause 18.2</td>
<td>
<table>
<tr><th>TDS Clauses References</th><th>Requirements by summation</th><th>Requirements for Leading Partner</th><th>Requirements for other Partner(s)</th></tr>
<tr><td>ITT-14.1(b)</td><td>100% (summation of different contract)</td><td>At least 14.1(b) i) & ii) Contract</td><td>At least one contract</td></tr>
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</td>
<td>Pursuant to ITT 14.1(b): similar nature work experiences required are as below (may be in a single contract or separate contracts):

(i) Construction of Stone Mastic Asphalt (SMA) Wearing Course on a bridge/flyover/elevated expressway in a single contract of minimum value of BDT 15 Crore.

(ii) Execution of deck pavement repair works using Carbon Fiber Reinforced Polymer (CFRP) (including Epoxy Seal, Epoxy Regin Mortar and Thermal Insulation) for bridge/flyover/elevated expressway maintenance works of minimum value of BDT 40 Crore.

(iii) Bridge expansion joint removal and installation works of minimum value of BDT 10 Crore.

Again Section 2: Tender Data Sheet, ITT Clause 18.2 says, Requirements for other Partner(s) under ITT 14.1(b) shall be "at least one contract" i.e. any one of the above 3.

We would like to draw your kind attention that this project is a very special type of work (renovation, widening and strengthening of existing bridge), which need technology transfer from expatriate contractors to Bangladeshi contractors; so that Bangladeshi contractors can be self-sufficient in very near future to renovate, widen and strengthen all our existing bridges and structures in Bangladesh and to save huge foreign currency.

But setting the Qualification Criteria to "at least one contract" as above is against the spirit of last paragraph prohibiting Bangladeshi contractors to be the Joint Venture Partner to acquire knowledge and technology transfer.</td>
<td>TDS, ITT Clause 18.2 is revised as:
i. Requirement for Leading Partner: At least 14.1(b)(i) or 14.1(b)(ii).
ii. Requirement for other JVCA Partner: not required.

Please follow Addendum-1.</td>
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			Considering the above facts and figures, we would therefore, request you to modify the qualification criteria of other Partner(s) as "Minimum not required" in place of "at least one contract".	
2.1	Volume -2 Bill of Quantities Part-2	Item Code: 2.7(b) Bond CFRP (300 mm wide, 1.4 mm thick) i) one layer (4800m) alone the length, accepted by the Engineer.	Item 2.7, "Bond CFRP (300 mm wide. 1.4 mm thick): The width of CFRP does not match with the drawing, please clarify.	Applicable for longitudinal direction CFRP. Please follow Addendum-1.
2.2	Volume -2 Bill of Quantities Part-2	Item Code: 2.2 Demolition of MS Square hollow section of Railling at North Side and stored at the BBA designated locations, accepted by the Engineer.	Demolition works: Please clarify whether the site for the waste disposal and the cost of disposal site are the responsibility of the employer?	Disposal site will be within 1.5 Km radius from bridge end. Cost of disposal is the responsibility of the contractor.
2.3	Volume -2 Bill of Quantities Part-3	Item Code: 3.1(b) Repositioning and Installation/new construction of Center Barrier (Including necessary fittings & fixing), accepted by the Engineer.	Item 3.1(b), "Reposition and Install the Center Barrier (Including necessary fittings & fixing) accepted by the Engineer": Question is the quantity of BOQ 5663m*2-11326m? Please explain why the quantity is doubled.	Total Qty of Works: 5,663.000 m. Please follow Addendum-1.
2.4	Volume -2 Bill of Quantities Part-3	Item Code: 3.2(a) Cutting of North Parapet height (as per South Parapet) by Wire saw/ Diamond cutting/ equivalent method without disturbing bridge deck, accepted by the Engineer.	Item 3.2, "Cutting of North Parapet (height as South Parapet) by Wire saw/ Diamond cutting/equivalent method without disturbing bridge deck, accepted by the Engineer.": After North Parapet is cut, necessary protective measures required, and specific construction measures?	As per the Technical Specification of Tender Document and as per direction & accepted by the Engineer. Please follow Addendum-1.
2.5	Volume -2 Bill of Quantities Part-4	Item Code: 4.5 Luminous Pigmented Thermoplastic paint, (1 time) Road marking, accepted by the Engineer.	Item 4.5, "Deck surface with thermoplastic paint, (1 time) Road marking, accepted by the Engineer: The amount of quantity involved in removing the original road markings the bridge surface is not included in the BOQ Please clarify.	Not included. Please follow Addendum-1.
2.6	Volume -2 Bill of Quantities Part-5	Part-5: Approach Road : Construction of proposed (2+2) 4-lane at both side.	Part-5: Approach Road Construction of proposed (2+2) 4-lane at both side.: Please clarify where the approach road will be built and state the starting and finishing point.	As per Tender Document and Drawings.

2.7	Volume-2 Bill of Quantities Part-7	Part-7: Construction of 04 (2+2) Nos. Toll Booth & Installation of Toll Collection System and Shifting of Bridge Management System.	Part-7: Construction of 04 (2+2) Nos. Toll Booth & Installation of Toll Collection System and Shifting of Bridge Management System: Please provide the drawings for the relocation and modification of the electronic toll collection system, toll monitoring system, bridge management system.	As per Tender Document
2.8	Volume-2 Bill of Quannics Part-9	Part-9: Supplying & Installation of Lighting System at Bridge Deck, Viaduct, Approach Road, toll plaza, Navigation and inside Box-girder.	Part-9: Supplying & Installation of Lighting System at Bridge Deck Viaduct. Approach Road Toll plaza, Navigation and inside Box-girder.: Please provide the drawings for Supplying & Installation of Lighting System at Bridge Deck systems for the bridge deck, approach spans, approaches, toll stations, please provide the drawings for the supply and installation of lighting navigation marks, and interior of box girders. Please provide detailed specifications, functions, and site location of the Lowmast Tower.	As per Tender Document
2.9	Volume-2 Bill of Quantities Part-10	Item Code: 10.1 Construction of a 02 (two) storied Toll Plaza Complex (Total area = 2176.44 sqm - approximate of two-storyed building) with five storied foundation including installation of all accessories for complete Bridge Management System and Electrical-plumbing fitting, fixing complete with supply of required furnitures and necessary appliances, complete as directed and accepted by the Engineer	Part-10. Construction of Two Storied Toll Plaza Complex: Please provide detailed drawings of the pile foundation for the toll plaza building, and specify the pile foundation parameters and geological conditions.	As per Tender Document.
2.10	Volume-2 Bill of Quantities Part-4-4 Volume-4 Drawings	Item Code: 4.4 Paving 30mm thick SMA-9.5 Asphalt concrete, accepted by the Engineer.	PROPOSED CROSS-SECTION DIAGRAM OF BRIDGE DECK: The thickness of the SMA-9.5 asphalt concrete specified in the BOQ (Item Please clarify which thickness shall prevail. 4.4) is 30 mm, whereas the drawings indicate a thickness of 50 mm. Please clarify which thickness shall prevail.	As per Tender Document and Drawings.

<table>
<tr>
<td>3.1</td>
<td>Original ITT 18.2</td>
<td>ITT 18.2

The figures for each of the partners of a JV shall be added together to determine the Tenderer's compliance with the minimum qualifying criteria; however, for a JV under ITT Sub Clause 18.1, with number of partners as specified in the TDS to qualify, leading partner and other partners must meet the criteria as specified in the TDS. Failure to comply with these requirements will result in non-responsiveness of the JV Tender.</td>
<td>ITT 18.2 Maximum number of partners in the JV shall be 03 (three)
The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:
<table>
<tr><th>TDS Clauses References</th><th>Requirements by summation</th><th>Requirements for Leading Partner</th><th>Requirements for other Partner(s)</th></tr>
<tr><td>ITT-14.1(a)</td><td>Summation not applicable</td><td>Same as stated in TDS</td><td>Same as for Leading Partner</td></tr>
<tr><td>ITT-14.1(b)</td><td>100% (summation of different contracts)</td><td>At least 14.1(b) i) & ii) Contract</td><td>At least one contract</td></tr>
</table>
As currently stated, the clause implies that the JV leading partner must demonstrate compliance with both Special Experience-1 and Special Experience -2. We understand that these requirements are intended to ensure adequate technical capability; however, fulfilling both experiences within a single entity may unnecessarily limit qualified participation without compromising project execution quality.
Proposed Amendment:

In this context, we respectfully propose revising the wording:

"Special Experience 1 & Special Experience 2"
To:
"Special Experience 1 or Special Experience 2."

This amendment would maintain the technical intent of the qualification criteria while allowing capable JV Partners with relevant expertise in either specialized area to participate competitively. Such flexibility is consistent with promoting broader participation, fair competition, and optimal value for the Employer</td>
<td>Please follow Sl. No. 1.1.</td>
</tr>
<tr>
<td>3.2</td>
<td>Item 2.2, 8.1(a). 8.1(b)</td>
<td></td>
<td>Bill of Quantities / General Construction Drawings:

The Bill of Quantities specifies that the storage site for construction and demolition materials shall be designated by BBA, but the construction drawings do not clearly indicate the specific location. Please provide the location map of the designated site or specify the basis for distance calculation, so that transportation costs can be accurately calculated and the quotation completed.</td>
<td>Within Jamuna Bridge Site Area</td>
</tr>
</table>

3.3	Item 1.4	Maintain temporary Structures & Equipment for the maintenance and protection of Traffic, accepted by the Engineer.	Construction Traffic Organization Plan: To meet the requirement of "uninterrupted construction," a traffic diversion plan is required, but it is missing from the drawings. Please clarify the current operational status of the bridge and provide the official construction traffic diversion plan drawings, so that the costs of the related measures can be assessed.	Tenderer has to submit Traffic Management Plan.
3.4	Item 8.1(a). 8.1(b)		Toll Plaza and Roundabout Demolition Drawings: No detailed construction drawings were found for the demolition of the existing two-level toll plaza, related structures, and the roundabouts on both sides. Please provide detailed construction drawings or a Bill of Quantities for the above-mentioned demolition areas, to clarify the scope of work, quantities, and complete the quotation.	Please follow Sl. No. 2.2.
3.5	Item 2.7(a). 2.7(b)	Item 2.7(a): Bond CFRP (300 mm wide, 1.4 mm thick) i) one layer (4800m) alone the length, accepted by the Engineer.	Part-2 Bill of Quantities Project Code 2.7(a) & 2.7(b): The project descriptions for Project Code 2.7(a) and 2.7(b) are completely identical, both being "Bonding CFRP (width 300 mm, thickness 1.4 mm), single layer (4800 m)." Please confirm whether items (a) and (b) are duplicate entries. If not, please specify the exact differences between the two in terms of construction location, process, or technical standards.	Item 2.7(a) will be replaced as: Bond CFRP (100 mm wide, 1.4 mm thick) i) @ 500 mm c/c at long direction ii) one layer (4800m) alone the length, accepted by the engineer. Please follow Addendum-1.

4.1			We would like to inform you that this project is a very special type of work which need technology transfer from foreign contractors to Bangladeshi contractors for the sake of greater interest of Bangladesh to be self-sufficient. But setting the Qualification Criteria is against the above spirit not allowing Bangladeshi contractors to be the Joint Venture Partner to acquire knowledge and technology transfer. Moreover, there are certain part in the tender which need to be executed by local contractors only. And specialized works to be executed by foreign contractors only. Hence, combination of foreign and local contractors is very essential. Also please note that foreign bidders for this project are from China only and Chinese New Year holidays will start from 15 February and it's a long vacation. Considering the above, we would request you to (1) modify the qualification criteria of other Partner(s) as "Minimum not required" in place of "at least one contract" & (2) extend tender submission time upto 31 March 2026	Please follow Sl. No. 1.1. For Tender submission time extension please follow Corrigendum-2.
5.1			We have already purchased tender documents for the subject mentioned project and applied for modification of qualification criteria vide our letter dated January 28, 2026 and waiting for your positive response. Kindly note that tender submission deadline is on March 02, 2026. Whereas, most bidders for the subject mentioned project are Chinese and Chinese New Year holidays will start from February 15th. Considering the above facts and figures, we would therefore, request you to extend tender submission deadline for another 4 (four) weeks.	As per Tender Document. Please follow Addendum-1. For Tender submission time extension please follow Corrigendum-2.

6.1			Due to the Spring Festival (Chinese New Year) from 15 February to 23 February, our JV partner's head office and key technical and financial personnel remain unavailable during this period. Consequently, we are facing delays in obtaining required technical clarifications, financial documents, bank commitments, and necessary approvals from our foreign partner. In addition, the nature and magnitude of this project require detailed technical analysis, joint venture coordination, compilation of extensive supporting documents, and careful review to ensure full compliance with the tender requirements. In view of the above circumstances, we respectfully request you to grant an extension of 15 (Fifteen) days from the current submission deadline to enable us to submit a fully responsive and competitive bid.	As per Tender Document. Please follow Addendum-1. For Tender submission time extension please follow Corrigendum-2.

Addendum-1 of Tender Document

Sl No.	Existing Text in Issued Tender Document	Replaced/Additional Text in Issued Tender Document by BBA
Volume-2: Section 6: Bill of Quantities		

<table>
<tr><td>1.0</td><td>Part- 2: Demolition of M Gauge Rail, Crack Repair, Shot Blasting and Installation of CFRP.

Item Code-2.10: NOT INCLUDED, NEW ITEM.</td><td>Part- 2: Demolition of M Gauge Rail, Crack Repair, Shot Blasting and Installation of CFRP.

Item Code-2.10: NEW ITEM INCLUDED AS PER:
<table><tr><th>Sl. No.</th><th>Item Code.</th><th>Description of Work</th><th>Unit</th><th>Total Qty of Works</th><th>Quoted Unit Rates</th><th>Amount in Tk.</th></tr><tr><td>10</td><td>2.10</td><td>Installation of Carbon Fiber Fabric (CFF) inside the Box Girder as per requirement and direction of Engineer, accepted by the Engineer.</td><td>sqm</td><td>11088.000</td><td></td><td></td></tr><tr><td></td><td>In Word:</td><td colspan="5"></td></tr></table></td></tr>
<tr><td>2.0</td><td>Part-3: Barrier Replacement & Expansion Joint Works.

Item Code-3.7: NOT INCLUDED, NEW ITEM.</td><td>Part-3: Barrier Replacement & Expansion Joint Works.

Item Code-3.7: NEW ITEM INCLUDED AS PER:
<table><tr><th>Sl. No.</th><th>Item Code.</th><th>Description of Work</th><th>Unit</th><th>Total Qty of Works</th><th>Quoted Unit Rates</th><th>Amount in Tk.</th></tr><tr><td>7</td><td>3.7</td><td>MASH TL3 water-filled traffic barriers, (3x3)+15=24 No's, as per requirement and direction of Engineer, accepted by the Engineer.</td><td>each</td><td>24.000</td><td></td><td></td></tr><tr><td></td><td>In Word:</td><td colspan="5"></td></tr></table></td></tr>
<tr><td>3.0</td><td>Part- 4: Waterproofing Layer, Stone Mastic Asphalt & Road Marking (Bridge & Viaduct).

Item Code-4.5:
Description of Work: Deck surface with Thermoplastic paint, (1 time) Road marking, accepted by the Engineer.</td><td>Part- 4: Waterproofing Layer, Stone Mastic Asphalt & Road Marking (Bridge & Viaduct).

Item Code-4.5:
Description of Work: Luminous Pigmented Thermoplastic paint, (1 time) Road marking, accepted by the Engineer.</td></tr>
</table>

<table>
<tr><td>4.0</td><td>Part-5: Approach Road: Construction of proposed (2+2) 4-lane at both side.

Item Code-5.15:
Total Qty of Works: 6.000</td><td>Part-5: Approach Road: Construction of proposed (2+2) 4-lane at both side.

Item Code-5.15:
Total Qty of Works: 1033.200 sqm.</td></tr>
<tr><td>5.0</td><td>Part-7: Construction of 04 (2+2) Nos. Toll Booth & Installation of Toll Collection System and Shifting of Bridge Management System.

Item Code-7.2:
Unit: LS
Total Qty of Works: 4.000</td><td>Part-7: Construction of 04 (2+2) Nos. Toll Booth & Installation of Toll Collection System and Shifting of Bridge Management System.

Item Code-7.2:
Unit: System
Total Qty of Works: 1.000</td></tr>
<tr><td>6.0</td><td>Part- 8: Dismantling of Two storied existing Toll Plaza and associated structures and roundabout at both side.

Item Code-8.2: NOT INCLUDED, NEW ITEM.</td><td>Part- 8: Dismantling of Two storied existing Toll Plaza, associated other structures and roundabout at both side and Concrete Recycling.

Item Code-8.2: NEW ITEM INCLUDED AS PER:
<table>
<tr><th>Sl. No.</th><th>Item Code.</th><th>Description of Work</th><th>Unit</th><th>Total Qty of Works</th><th>Quoted Unit Rates</th><th>Amount in Tk.</th></tr>
<tr><td>2</td><td>8.2</td><td>Crushing of Concrete Block cut pieces, Screening and related others, as per requirement and direction of Engineer, accepted by the Engineer.</td><td>cum</td><td>3609.980</td><td></td><td></td></tr>
<tr><td></td><td>In Word:</td><td colspan="5"></td></tr>
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7.0	**Part- 2: Demolition of M Gauge Rail, Crack Repair, Shot Blasting and Installation of CFRP.**	**Part- 2: Demolition of M Gauge Rail, Crack Repair, Shot Blasting and Installation of CFRP.**
	Sl. No. | **Item Code.** | **Description of Work** | **Unit** | **Total Qty of Works** | **Quoted Unit Rates** | **Amount in Tk.** 7 | 2.7(a) | Bond CFRP (300 mm wide, 1.4 mm thick) i) one layer (4800m) alone the length, accepted by the Engineer. | m | 38448.000 | | | In Word: |	**Sl. No.** | **Item Code.** | **Description of Work** | **Unit** | **Total Qty of Works** | **Quoted Unit Rates** | **Amount in Tk.** 7 | 2.7(a-i) | Bond CFRP (100 mm wide, 1.4 mm thick) i) @ 500 mm c/c at long direction. | m | 33648.000 | | | In Word: | | 2.7(a-ii) | Bond CFRP (100 mm wide, 1.4 mm thick) ii) one layer (4800m) alone the length, accepted by the engineer. | m | 4800.000 | | | In Word: |
8.0	**Part- 1: General Site Facilities and Safety.** Item Code-1.2: Unit: LS Total Qty of Works:	**Part- 1: General Site Facilities and Safety.** Item Code-1.2: Unit: LS Total Qty of Works: 1.000
Volume-1: Section 2: Tender Data Sheet		
9.0	**TDS, ITT 18.2** **TDS Clauses References** | **Requirements for Leading Partner** | **Requirements for other Partner(s)** ITT-14.1(b) | At least 14.1(b) i) & ii) Contract | At least one contract	**TDS, ITT 18.2** **TDS Clauses References** | **Requirements for Leading Partner** | **Requirements for other Partner(s)** ITT-14.1(b) | At least 14.1(b) i) or 14.1(b) ii) | Not required
Volume-3: Section 7: Technical Specifications		

10.	**2.10: Supply, installation and maintenance of Mash TL-3 water-filled traffic barriers, including all accessories for permanent traffic management.** The Contractor shall supply, install, maintain, relocate, and remove a portable water-filled longitudinal barrier system that is TL-3 compliant under MASH (or an equivalent nationally accepted crash-testing regime) in the proposed installed configuration, including all interlocks and transition connections. The barrier units shall be modular with a nominal unit length of 2.0 m. The system shall be arranged so that three (3) consecutive units can be removed or repositioned to create a controlled opening of 6.0 m when directed by the Engineer. The Contractor shall provide all proprietary interlocks and connectors required to ensure continuity between adjacent water-filled units and to connect the water-filled barrier system to the existing concrete median barriers. All transitions and connections shall follow the manufacturer's tested TL-3 configuration and shall be deemed included in the relevant unit rates. Each 2.0 m unit shall have an empty (drained) mass not exceeding 100 kg. The barrier height shall be at least equal to the height of the existing median barrier and shall not exceed the existing barrier height by more than 0.30 m. The barrier width shall be equal to or less than the width of the existing median barrier. The barrier body shall be orange in color (integral pigmentation preferred) and shall be manufactured from UV-stabilized polymer suitable for outdoor exposure; UV resistance shall be demonstrated by manufacturer certification or test documentation acceptable to the Engineer. Each unit shall be provided with fill and drain ports suitable for field filling and emptying. The emptying/drain system shall incorporate a locking cap/valve arrangement so that only authorized personnel can empty the barriers. The barriers shall be installed on a stable surface, aligned to provide a smooth and continuous line, and all interlocks shall remain fully engaged during service. Any unit that is leaking, damaged, deformed, or has defective interlocks or drain locks shall be repaired or replaced immediately at the Contractor's cost. Measurement and payment shall be as per the BOQ, and the rate shall include all supply, delivery, interlocks/transitions, installation, filling, maintenance, relocation, and removal.

11.

3.7: Supply and installation of Carbon Fiber Fabric (CFF) strengthening system application.

2.1 Description

This item shall consist of applying Carbon Fiber Reinforced Polymer (CFRP) to the interior box girders with epoxy materials, such as epoxy primer, epoxy repair adhesive and bonding adhesive, to strengthening the concrete structures, in accordance with the requirement of this specification

2.2 Material Requirement

1. Epoxy primer

The epoxy primer shall be a two-component epoxy resin, providing an improved adhesive bond for the bonding adhesive. The epoxy primer shall comply with the requirements of Table 2.1.

Table 2.1 Minimum requirements of epoxy primer

Properties	Unit	Requirements	Test method
Viscosity	Pa-s	≤6	ASTM DI 084
Gel time	min	≥30	ASTMC881
Compressive strength,7d	Mpa	≥60	ASTM D579
Pull-out strength,7d	Mpa	≥2.5Mpa or concrete failure	ASTM D4541

2. Epoxy repair adhesive

The epoxy repair adhesive shall be a two-component epoxy adhesive which is used to fill small surface voids in the substrate, such as bug holes, and to provide a smooth and flat substrate to which the CFF system will be applied. Filled substrate voids also prevent bubbles from forming during curing of the saturating resin. The epoxy repair adhesive shall comply with the requirements of Table 2.2.

Table 2.2 Minimum requirements of epoxy repair adhesive

Properties	Unit	Requirements	Test method
Gel time	min	≥30	ASTMC881
Flexural strength,7d	Mpa	≥40	ASTM D790
Compressive strength,7d	Mpa	≥60	ASTM D579
Tensile strength, 7d	Mpa	≥30	ASTM D638
Pull-out strength,7d	Mpa	≥2.5Mpa or concrete failure	ASTM D4541

3. Bonding adhesive

The bonding adhesive shall be a two-component epoxy resin which is used to impregnate the reinforcing Carbon Fiber Fabric, fix them in place, and provide a shear load path between the previously primed concrete substrate and the Carbon Fiber Fabric. The bonding adhesive shall comply with the requirements of table 1.3.

2. **Table 2.3: Minimum Requirements of Bonding Adhesive**

Properties	**Unit**	**Requirements**	**Test Method**
Gel time	min	≥30	ASTM C881

Tensile strength, 7d	Mpa	≥30	ASTM D638
Tensile elastic modulus, 7d	Mpa	≥3000	ASTM D638
Flexural strength, 7d	Mpa	≥50	ASTM D790
Compressive strength, 7d	Mpa	≥70	ASTM C579
Pull-out strength, 7d	Mpa	≥2.5Mpa or concrete failure	ASTM D4541

2.2.4 Carbon Fiber Fabric

1. The Carbon Fiber Reinforced Fabric shall be high strength, high modulus, carbon fiber is unidirectional and woven into sheet. ETA or ICC ES certification is highly recommended.
2. The size of Carbon Fiber Fabric should be 50±2 cm wide. The mechanical and physical properties of the Carbon Fiber Fabric are as follows:

Table 1.4: Minimum Requirements of Carbon Fiber Fabric

Properties	Unit	Requirements	Test Method
Tensile strength	Mpa	≥3400	ASTM D3039
Tensile elastic modulus	Mpa	≥230000	ASTM D3039
Elongating at break	%	≥1.7	ASTM D3039
Dry sheet weight	g/m²	(300 to 450) ±5%	Measure method

2.3 Execution of work

1. Surface preparation

All surfaces shall be sound. Remove dust, laitance, grease, paint, waxes, impregnations, foreign particles, and other bond inhibiting materials from the surface.

2. **Primer application**

- Mix and stir the two components in a clean and dry container evenly in accordance with the Manufacturer's recommendations. Stir RMP and mixing time should be done in accordance with Manufacturer's recommendations.
- Apply primer in accordance with Manufacturer's recommendations. Primer may be applied with a brush or roller. When the primer is in tacky condition then proceed to the next working procedure.
- The substrate shall be covered by primer without missing area.
- In the case of environment temperature is below 5°C, the application of primer shall not be conduct.
- Each mixed primer shall be used out within gel time.

3. **Epoxy repair adhesive application**

- surface irregularities shall be ground and smoothed and/or filled with epoxy repair adhesive if needed.
- Surface depressions shall be filled with epoxy repair adhesive as per manufacturers' instructions.

- Edges and corners shall be made into round (cove) shape with radius more than 20mm.
- Primer shall not be applied until the repair adhesive is completely cured.

4. Carbon Fiber Fabric application

CFF shall be applied right after finger touching the primer without pulling off any material. The following procedures shall be followed:

- During transportation, storage, cutting and applying, it is strictly prohibited to bend CFF exceedingly, to prevent any damage to CFF.
- Cut CFF as per the necessary length. When cutting, firstly attach wide scotch tape to the cutting position, and then cut the center line of the wide scotch tape, thus ensure the cut edge of CFRF is uniform and without any carbon fiber pulled off.
- Work shall only be carried out when the ambient temperature is above 5°C and relative humidity RH > 85%.
- Weight the bonding adhesive precisely as per the required ratio in clean mixing containers, duly mix with mixing machine until uniform. The mixing quantity for a blend shall be consumed in the gel time of the bonding adhesive, any mixed bonding adhesive placed for more than the gel time, shall not be used anymore.
- During application of CFF sheet inside the girder, remove the existing cable trays and other utility lines.
- Apply the second layer of CFF right after the bonding adhesive over the first layer is dry when touching with finger.
- Over old CFRP on top of new CFRP application sanding process need to done properly. Special care is being taken when sanding being done.
- Apply the second layer of CFF in the same method as the first layer. Press the CFF in the carbon fiber direction with rollers for several times, clear air bubbles beneath the CFF and make sure the CFF is fully saturated with the bonding adhesive and there is pressed out bonding adhesive over the CFF surface.
- reinstall all cable trays and other utility lines after finishing of CFF laying procedure.

For applying of high GSM>300-gram materials wet process should follow.

5. Curing

- After applying CFF, it needs to be cured for 24 hours naturally for initial hardening, ensure there is no disturbance during the curing.
- Curing period necessary for reaching the design strength after applying CFF:
- 2 weeks when the ambient temperature is below 10°C;
- 1-2 weeks when the ambient temperature is between 10°C and 20°C;
- 1 week when the ambient temperature is above 20°C.
- The applied CFF shall be duly protected from any disturbance during the curing period.

2.4 Quality Control

Upon completion of the curing process, the installed system shall be checked bonding adhesive has not penetrated or where bonding adhesive has not completely cured. The aforesaid areas shall be treated, either by fill additional bonding adhesive; or by cutting defect area and provide new CFF as a patching, but both of such repairing method shall be approved by the Engineer first. When patching, the overlap length shall not be less than 10cm.

2.5 Method of Measurement

The work to be paid for under this item shall constitute the completed and accepted quantity, which shall be measure for payment in the manner prescribed in the several sub-items involved.

2.6 Basis of Payment

The accepted quantity, measured as prescribed above shall be paid for at the unit price for CARBON FIBER FABRIC STRENGTHENING SYSTEM APPLICATION, which price and payment shall be full compensation for furnishing and placing all materials including all labor, equipment, tools and incidentals necessary to complete this Item.

Payment will be made under:

Item Pay Number	Description	Unit of Measurement
2.1	Preparation of surface where CFF is going to be applied	M2
2.2	Provide and applying the Carbon Fiber Fabrics to strengthen the box girder	M2
2.3	Scaffolds and platform for repairing crack and applying strengthening measurement inside box girder	span
2.4	Dust prevention inside box girder	LS (Lump Sum)
2.6	Material transportation for long distance inside box girder. Removal and reinstallation cable tray and other utility line.	LS (Lump Sum)

12.

8.2: Dismounting to the Crushing of Concrete Block and Screening

Crushing and Screening of Concrete Blocks

3.1 General

This item covers mechanical crushing, screening, and stockpiling of demolished concrete blocks obtained from the rail bed shall be crushed using an approved mechanical crusher and screened to produce recycled aggregates comprising coarse aggregate of size 20 mm to 5 mm and fine aggregate of size less than 5 mm

Recycled aggregate will be used in the construction of toll plaza and other RC works except bridge.

The work includes collection of concrete debris, removal of deleterious materials, crushing, screening, handling, and stacking at designated locations.

3.2 Equipment

Mechanical jaw crusher / impact crusher suitable for concrete crushing, Vibratory screen with appropriate mesh sizes; Excavator or loader for feeding and handling; Magnetic separator (if required); Water spraying arrangement for dust suppression

3.3 Crushing and Screening Process

Concrete blocks shall be broken into manageable sizes. Material shall be fed into the crusher to obtain graded aggregates.

Crushed material shall be screened to separate:

- 20 mm to 5 mm recycled coarse aggregate
- Less than 5 mm recycled fine aggregate

- Oversized materials shall be re-crushed until the required gradation is achieved.

3.4 Stockpiling and Storage

Coarse and fine aggregates shall be stockpiled separately on clean, hard ground. Cross-contamination shall be avoided.

Stockpiles shall be protected from excessive moisture and soil intrusion.

3.5 Measurement & Payment

Contractor to provide the rate of concrete using recycled aggregate.

The contractor shall submit detailed rate analyses for various grades of concrete and road works. Utilization of recycled aggregates shall be carried out strictly as directed by the Engineer-in-Charge. The material cost equivalent to the recycled aggregates used shall be deducted from the payable amounts accordingly.

13.

4.5: Pavement Marking (Existing Text will be replaced as per)

4.5.1 Description

This item shall consist of placing markings on the finished surfacing. The work shall include the furnishing of premixed reflectorized traffic paint or reflectorized pavement marking paint conforming to the requirements of AASHTO M248, sampling and packing, preparing the surface and applying the paint to the carriageway surface, all in accordance with this specification. Application shall be to the size, shape and location shown on the plans or as directed by the Engineer.

4.5.2. Luminous Road Marking

4.5.2.1. Composition and Material Properties

- Luminous Pigments: Shall incorporate strontium aluminate ($SrAl_2O_4$)-based phosphorescent pigments with high afterglow performance, ensuring long-lasting luminance in low-light conditions (ISO 17398:2004).
- Binder: Acrylic, polyurethane, or epoxy resins must be used to provide strong adhesion and durability. The binder must be compatible with luminous pigments and prevent degradation over time.
- Glass Beads: Must be integrated to enhance retro-reflectivity, conforming to AASTHO M24781/ BS EN 1423:2012 standards.
- UV Stabilizers: To ensure resistance to photodegradation, UV-resistant additives must be included.
- Fillers: High-quality calcium carbonate or silica-based fillers shall be used to improve abrasion resistance and durability.

4.5.2.2. Performance Requirements

- Luminance (Afterglow Performance):
  - Luminance shall meet or exceed ISO 17398:2004 phosphorescent classification, with an afterglow performance of:
    - ≥100 mcd/m² at 10 minutes
    - ≥20 mcd/m² at 60 minutes after light excitation.
  - Testing shall be conducted under controlled conditions using a standard light source D654 for excitation.
- Durability: The paint shall maintain luminous and structural properties for at least 12 months under standard environmental conditions.
- Skid Resistance: The dry film shall achieve a minimum PTV (Pendulum Test Value) of 45 (indicating good slip resistance) as per BS 7976-2:2002+A1:2013 standards.
- Weather Resistance: Must withstand UV radiation, moisture, and temperature variations without significant loss of luminance or adhesion.
- Adhesion: Paint must adhere strongly to asphalt and concrete surfaces, conforming to the ISO 2409 cross-cut adhesion test. 4D65 is a standardized light source defined by the International Commission on Illumination (CIE). It represents a correlated color temperature (CCT) of approximately 6500K and is meant to simulate average daylight conditions.

4.5.3 Construction Requirements

1. The surface to be painted shall be thoroughly cleaned of dust oil and other contaminants that may impair proper bonding of the paint to the pavement.
2. Application of pavement marker shall be carried out by the use of a machine applicator or by brushes if approved by the Engineer. If application is by brush, the brushes shall be round or oval which shall not exceed 100 mm in width. The paint shall be so applied as to produce a uniform, even coating in close contact with the in 15 to 30 minutes.
3. No application shall be carried out during rainy or wet weather or when the air is misty and the pavement surface is damp neither does application be permitted when the pavement is too hot to cause blistering and produce an excessively porous film of paint.
4. After application, the marking shall be well guarded/protected from both pedestrians and vehicular traffic until fully dry.

5. Markings that fail to have a uniform, satisfactory appearance either by day or night shall be corrected by the contractor in a manner acceptable to the Engineer without extra cost to the Government.

4.5.4. Application Guidelines

Surface Preparation

- Ensure the road surface is at least one month old before application.
- The surface must be clean, dry, and free from dust, oil, grease, or pollutants. If necessary, wash the surface and let it dry completely.
- For best results, apply a white undercoat paint before the luminous paint to amplify the phosphorescent effect.
- The white undercoat should be applied at 400 g/m² and allowed to dry for at least 30 minutes before applying the luminous paint.

Equipment Preparation

- Use an airless spray machine, a pneumatic spray gun, or a hand-held brush/roller for application.
- If spraying, ensure that the equipment is clean and free of previous coatings. Clean with appropriate solvent before and after use.
- If required, homogenize the luminous paint thoroughly before application to ensure even pigment distribution.

Paint Application

- If necessary, dilute the paint to achieve the desired viscosity for optimal application.
- Apply one coat of luminous road marking paint at a dosage of 900 g/m², following manufacturer recommendations.
- Ensure uniform application with clear and sharp edges. Use tape or stencils to maintain precision for lines and symbols.
- If applying multiple layers, allow each coat to dry fully before applying the next.

Drying and Protection

- Allow the luminous paint to dry for at least 45 minutes before exposure to traffic.
- Drying time may vary based on environmental factors such as humidity and temperature.
- Protect the newly painted surface from traffic and adverse weather conditions during the drying period.

Post-Application Maintenance

- After application, clean tools and spray equipment with an appropriate solvent such as acetyl thinner.
- Perform regular inspections and maintenance to ensure the continued luminance and durability of the markings.

4.5.5. Testing and Compliance

- Luminance Testing: Shall comply with ASTM E2073-10 (Standard Test Method for Photometric Measurement of Fluorescent Coatings) and ISO 17398:2004.
- Skid Resistance Test: Conducted as per BS 7976-2:2002+A1:2013.
- Adhesion Testing: Cross-cut adhesion test in accordance with ISO 2409.
- Weather Resistance: Must comply with ISO 4892-2 (Xenon-arc exposure test) for accelerated weathering performance.
- Water Resistance: Evaluated as per ISO 2812-2 (Immersion Test) to ensure no degradation under prolonged exposure to moisture.
- Luminance testing on site, re-use of material, defective materials or workmanship, and protection of traffic criteria shall be followed as described before for cold-applied reflective road marking

4.5.6 Method of Measurement

The quantity to be paid for shall be the number of square meter of markings applied and accepted.

4.5.7 Basis of Payment

The quantities measured as determined shall be paid for at the appropriate contract unit price for the pay item shown in the bid schedule, which price and payment shall be full compensation for placing and furnishing all materials, labor, tools, equipment and incidentals necessary to complete the work.

Volume-4: Section 10: Drawings	
14.	Three Drawings of the component added: i. APPROACH ROAD SIDE DRAIN (Annex-II) ii. Typical Section of North Side uPVC Pipe Drain for Deck Portion (Annex-III) iii. TOLL PLAZA BUILDING (ARCHITECTURAL) (Annex-IV)
	General:
	The Work Package Name in all the applicable text of the issued Tender Document will be: **Renovation, Widening and Strengthening of Jamuna Bridge Deck and Associated Works for Appropriate Use of Abandoned Rail Lane during the FY 2025-2026.**

This clarification and addendum -1 should be read in conjunction with the issued Tender Document and as Minutes of the Pre-Tender Meeting would be part and parcel.

Annexures: Attached as above.

19.02.2026

Quazi Muhammad Ferdous
Chief Engineer, BBA

Record Number: 50.01.0000.000.000.14.0001.26 Date:

Copy forwarded for information/necessary action to (Not in the order of seniority):

1. Director (all)/ Chief Engineer, Bangladesh Bridge Authority, Dhaka;
2. PS to Executive Director, Bangladesh Bridge Authority, Dhaka;
3. Programmer (Regular Duty), ICT Cell, Bangladesh Bridge Authority, Dhaka [Requested to publish the document in the B BA Website] and
4. Potential Tenderers of the Work Package, Dhaka,

.

17.02.2026

Md. Arif Uddin
Executive Engineer (Design-2)

Annex-I

Attendance Sheet

Subject: Pre-Tender Meeting for the Work Package of 'Renovation, Widening and Strengthening of Jamuna Bridge Deck and Associated Works for Appropriate Use of Abandoned Rail Line during the FY 2025-2026'

Date & Time: 08 February 2026, Sunday, 11:00 am (BST)

Venue: BBA Conference Room, Setu Bhaban, Banani, Dhaka-1212.

Chairperson: Chief Engineer, Bangladesh Bridge Authority.

Sl. No.	Name & Designation	Firm/Organization	Mobile & Email	Signature
01.	Dr. K.M. Amanat	BUET	01711596989	
02.	Dr. Md. Tarek Uddin	IUT	01714220390	
03.	Dr. ~~Md.~~ Hossain Md. Shaha,	IUT	01871866582	
04.	Dr. Md. Kamruzz-aman	Dercon	01817-061820	
05.	Md. Ashanul Hoque	UDC	01715-302367	
06.	Song Anbang. Marketing Manager	CRBC	01933315757	
07.	Liu Wanning Deputy Marketing Manager	CRBC	0177-0205173	

Sl. No.	Name & Designation	Firm/Organization	Mobile & Email	Signature
08.	Engr. Md. Shamsul Arefeen Director, Technical, Business Development & SCM	UDC Construction Ltd.	01743124572 sarefeen93@gmail.com	Arefeen
09.	Eng. Farhan Senior Planning Engineer CCECC	CCECC	01674308260 arifyanfarhan@yahoo.com	Farhan
10.	Apurba Sarker	UDC	01817141572	Apurba
11.	Wang Wei Yu Yang	MBEC.	01) 21488848. 01) 08002429	
12.	Mohd. Momtazul Karim Khan	MIR AKHTER	01714-097-010 m_karim@miraakhter.com	08/02
13.	Md. Zahangir Alam	IUT-Devcon	01716086316 z.alam09@gmail.com	
14.	Md. Arman Ali	IUT - DevCon	01718-H129846 engrarman55@gmail.com	
15.	Md. Alef Hossain AE	BBA	01700-716452 alifbba2@gmail.com	
16.	Md. Arif Uddin Executive Engineer	"	01558035755 arif2385@gmail.com	Arif Uddin

Sl. No.	Name & Designation	Firm/Organization	Mobile & Email	Signature
17.	Md. Abul Kalam Azad. SE.	BBA	01712105657 azadbba69@gmail.com	
18.	Mohammad Khalid Hossain Environment Expert	DevCon	01716248100 engr.khalid.env.pro@gmail.com	
19.	HUMAYUN KABIR	DEVCON	01971-660066 emilton.gupta@gmail.com	
20.	Muktaharun Alam	Dercon	01910121819	
21.	Yutang	MBEC	01708002429	
22.	Chen Zhimi	CRBC	9330071161	
23.	Shahbaz Siddique	IUT	01781764085 shahbazsiddique@iut-dhaka.edu	
24.	~~Wu~~ Kevin Wu	China Civil Engineering Construction Capration (CCECC)	01332836783 wuchunbin.ccecc@gmail.com	
25.	Dr. Nazmus Sakib	IUT	01307110954 sakib@iut-dhaka.edu	

Sl. No.	Name & Designation	Firm/Organization	Mobile & Email	Signature
26.	MD. MASUM BILLAH Office Asistan com co:typis	BBA	01312006996	
27.				
28.				
29.				
30.				
31.				
32.				
33.				
34.				

Annex-II

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Road Transport and Bridges
Bangladesh Bridge Authority (BBA)

PROJECT NAME:

RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

VOLUME-4
SECTION 10, DRAWINGS

DOCUMENT NAME: APPROACH ROAD SIDE DRAIN

DATE: JANUARY, 2026

Submitted by Joint Venture of:

Islamic University of Technology (IUT), Bangladesh

DevConsultants Limited (DevCon), Bangladesh

DOCUMENT NAME: APPROACH ROAD SIDE DRAIN

Islamic University of Technology (IUT), Bangladesh

DevConsultants Limited (DevCon), Bangladesh

REVISIONS					
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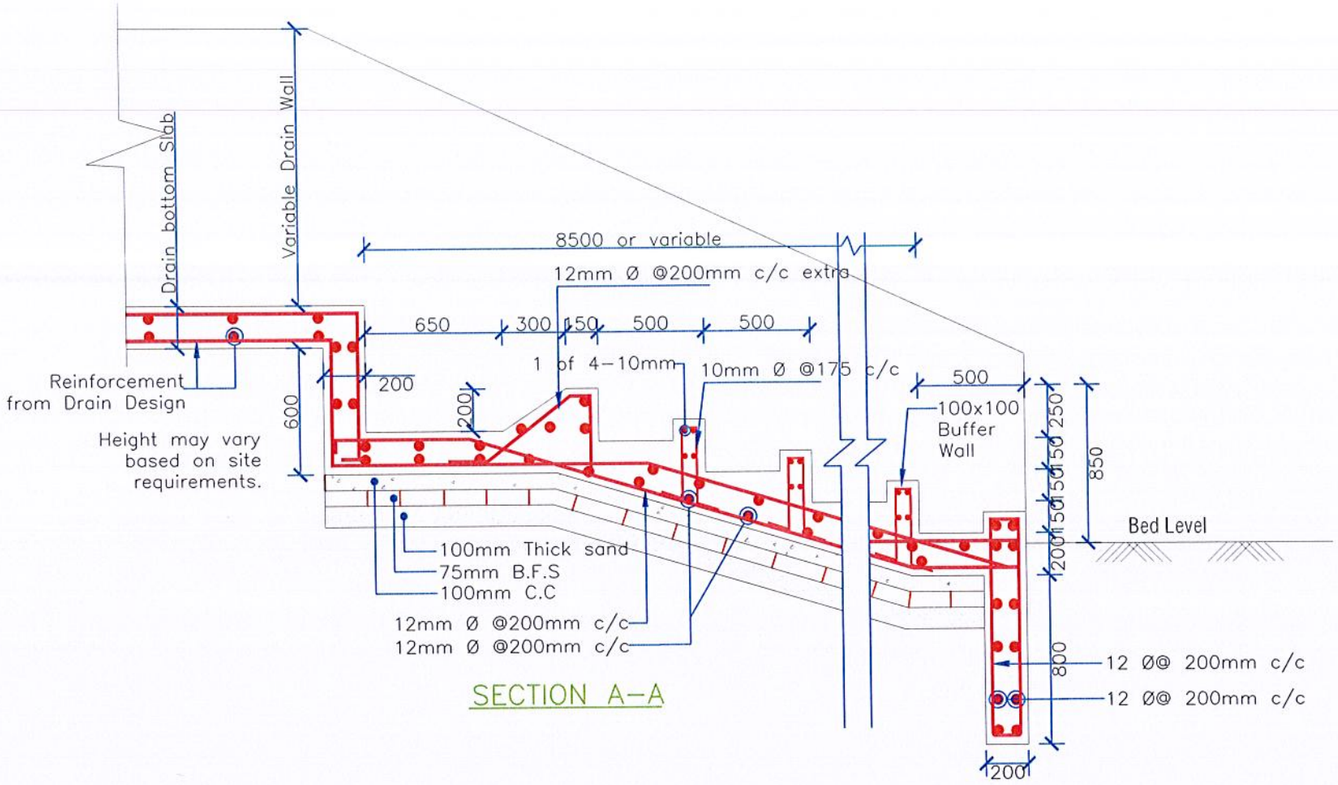
R03					
R02					
R01					
R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN
REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY

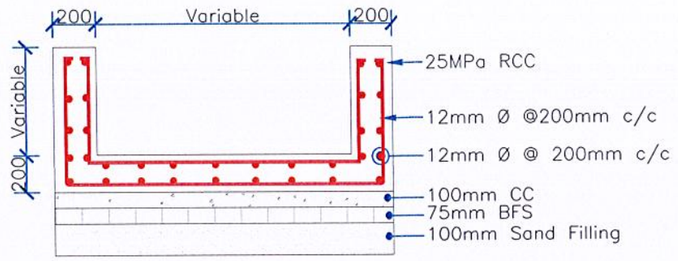
CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

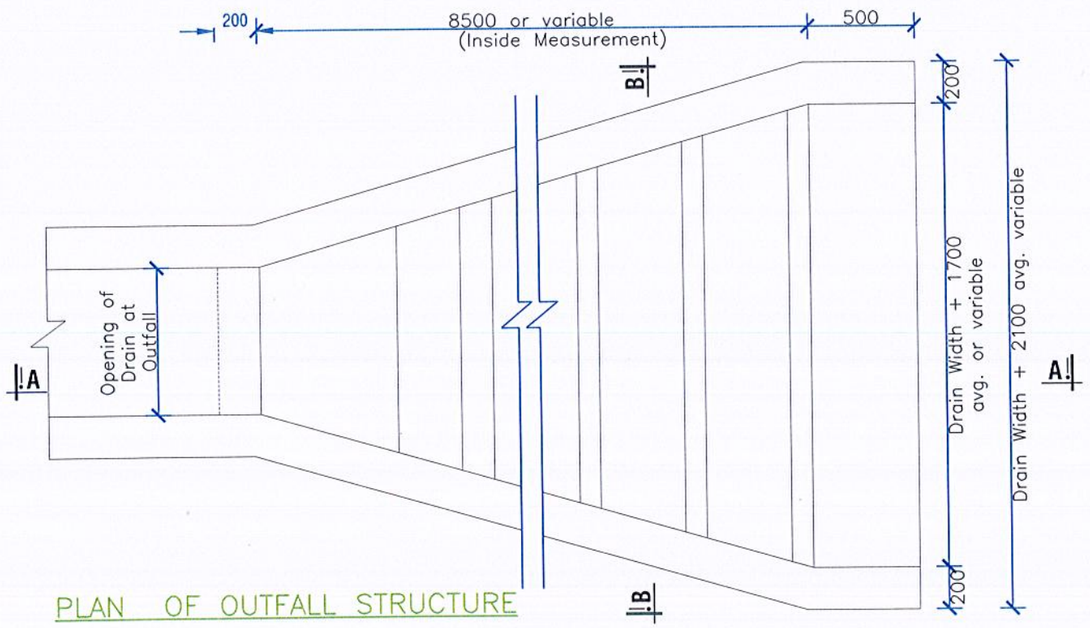
SIGNATURE				SHEET INFO
NAME				DATE: 18-01-2026
DESIGNATION				SCALE: as shown
SIZE: A3	DOC. NAME: APPROACH ROAD SIDE DRAIN			PAGE NO.: 01 of 2
				DWG. NAME: OUT FALL PLAN AND SECTIONS



SECTION A–A



SECTION : B–B



PLAN OF OUTFALL STRUCTURE

NOTE:

1. All DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. EXACT POSITION OF OUTFALL STRUCTURE WILL BE DETERMINED BY ENGINEER AT SITE
3. ENGINEER MAY ADJUST DIMENSION TO SUIT SITE CONDITION

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DevCon DevConsultants Limited (DevCon), Bangladesh

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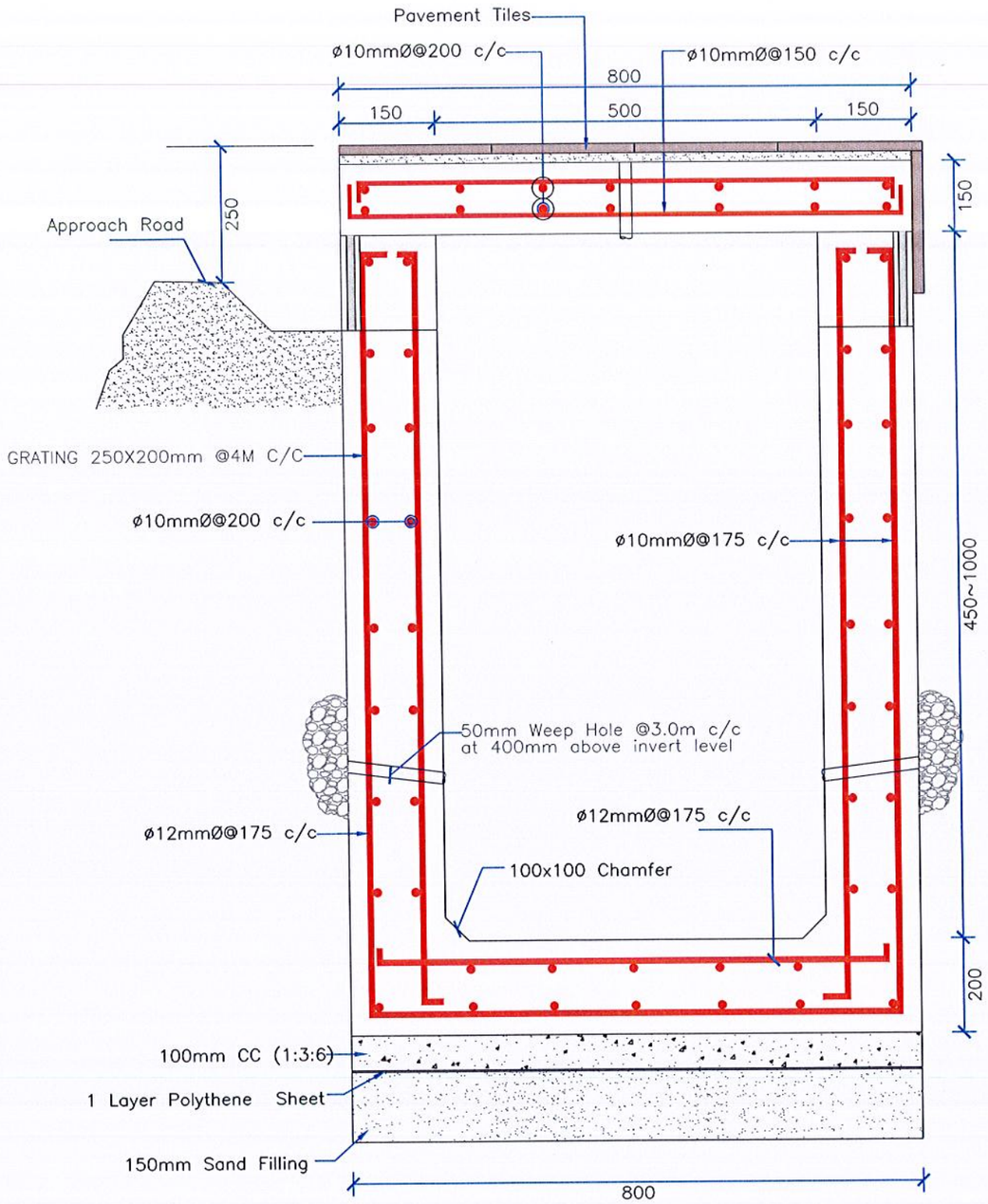
REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY

CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE				SHEET INFO
NAME				DATE: 18-01-2026
DESIGNATION				SCALE: as shown
SIZE: A3	DOC. NAME: APPROACH ROAD SIDE DRAIN		DWG. NAME: OUT FALL PLAN AND SECTIONS	PAGE NO.: 02 of 2



CROSS SECTION OF RCC DRAIN FOR EAST & WEST SIDE OF BRIDGE APPROACH ROAD (BRIDGE TO 100M LENGTH BOTH SIDES)

NOTE:

1. All DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. GREETINGS POSITION AND HEIGHT TO BE ADJUSTED AS PER FIELD CONDITION.

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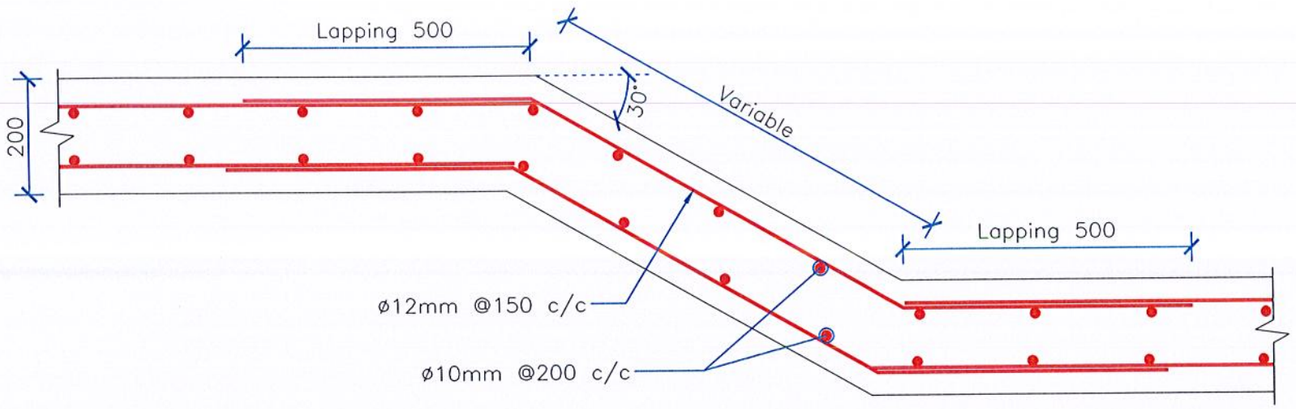
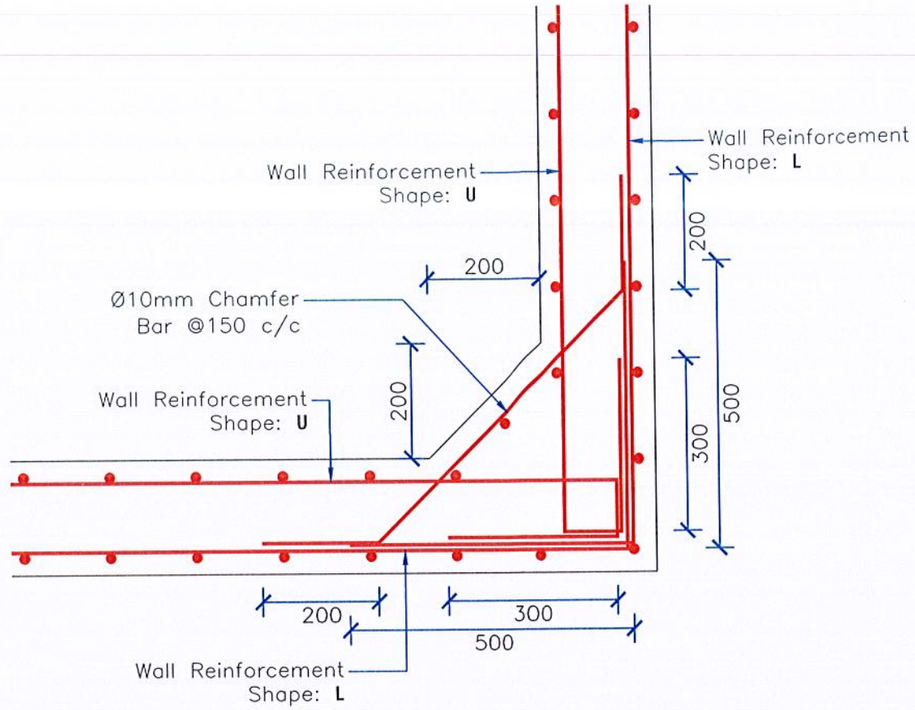
CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

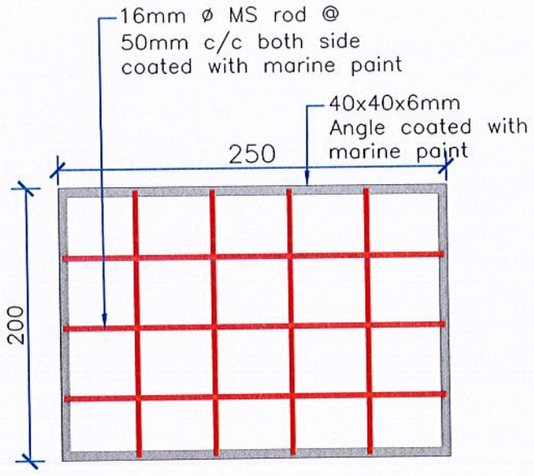
SIGNATURE				SHEET INFO
NAME				DATE: 18-01-2026
DESIGNATION				SCALE: as shown
SIZE: A3	DOC. NAME: APPROACH ROAD SIDE DRAIN			PAGE NO.: 03 of 2
				DWG. NAME: TYPICAL CROSS SECTIONS OF DRAIN



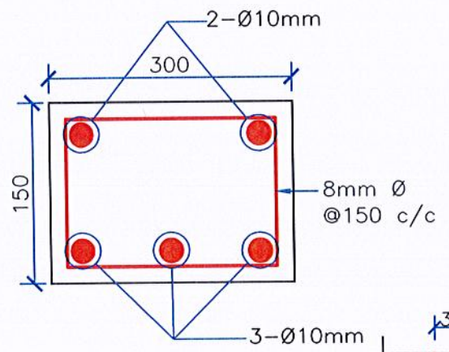
TYPICAL DRAIN BOTTOM SLAB JOINT DETAIL FOR DIFFERENT ELEVATION



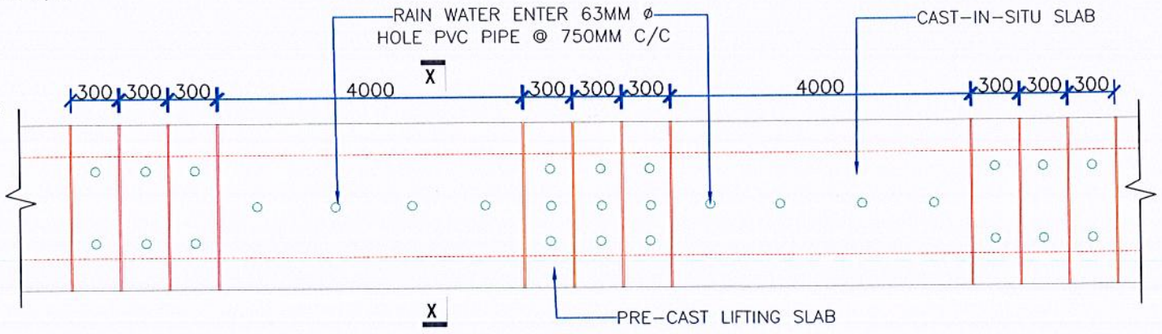
TYPICAL CORNER JOINT DETAIL FOR WALL



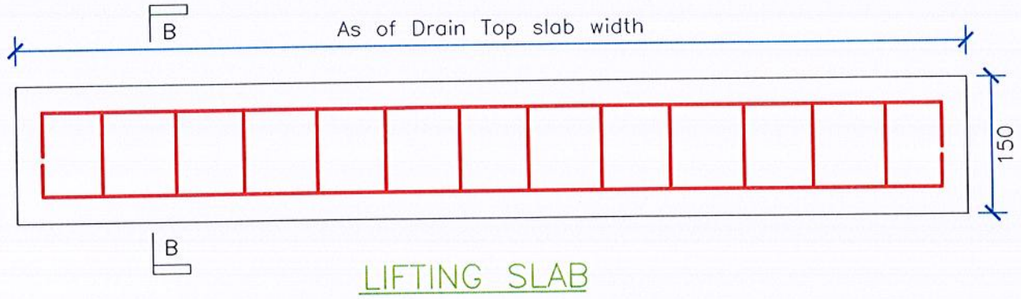
TYPICAL DETAILS OF GRATING



SECTION B–B



TYPICAL PLAN OF DRAIN COVER



LIFTING SLAB

NOTE:

1. All DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. GREETINGS POSITION AND HEIGHT TO BE ADJUSTED AS PER FIELD CONDITION.

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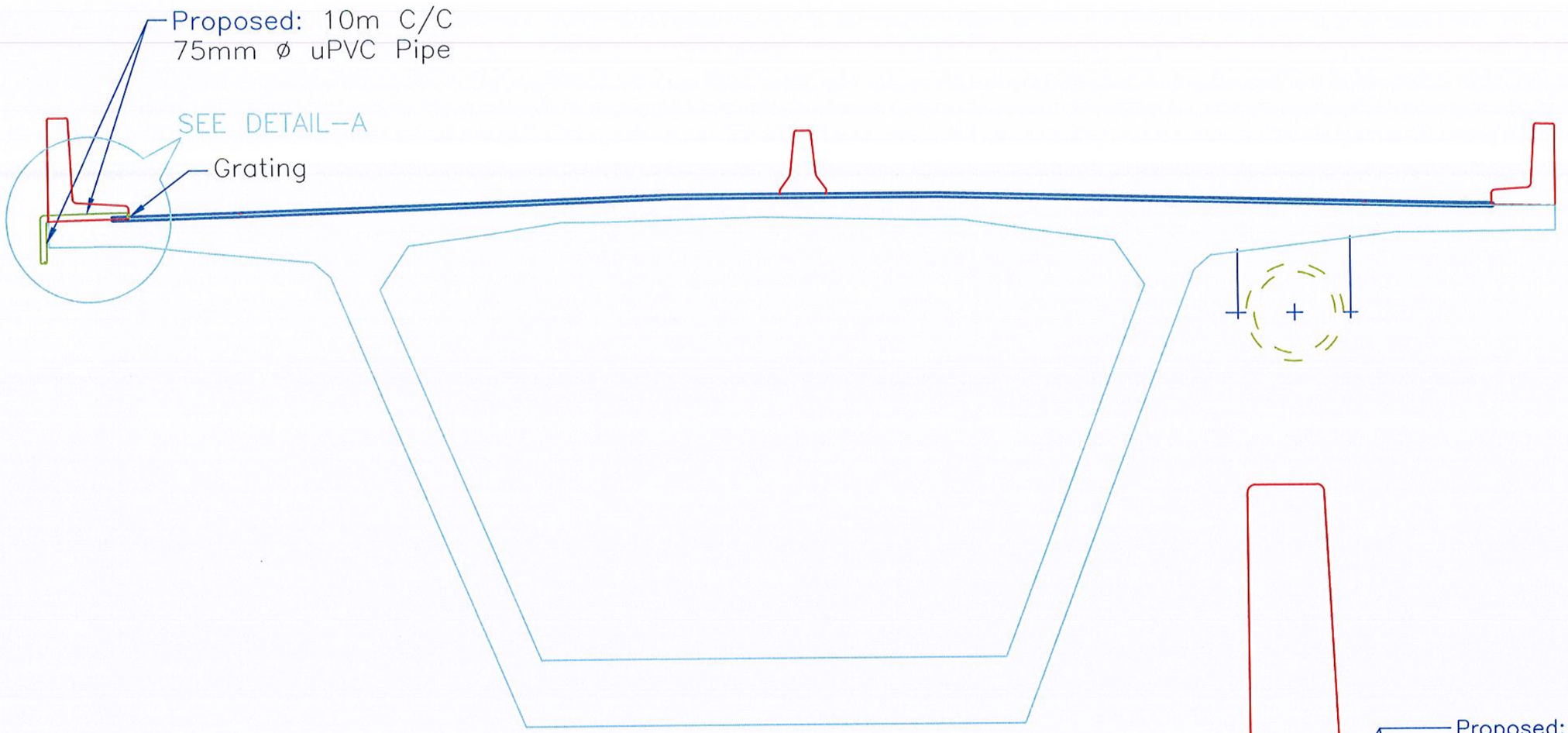
CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

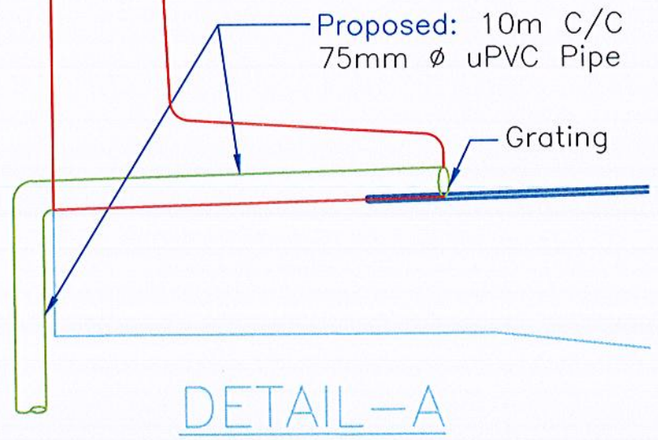
SIGNATURE			
NAME			
DESIGNATION			
SIZE: A3	DOC. NAME: APPROACH ROAD SIDE DRAIN		DWG. NAME: TYPICAL BOTTOM SLAB, COVER, JOINT LIFTING & JOINT DETAIL

SHEET INFO
DATE: 18-01-2026
SCALE: as shown
PAGE NO.: 04 of 2

Annex-III



TYPICAL SECTION OF NORTH SIDE uPVC PIPE DRAIN FOR DECK PORTION



DETAIL-A

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CLIENT

BANGLADESH BRIDGE AUTHORITY
DHAKA, BANGLADESH

PROJECT TITLE

RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE				SHEET INFO
NAME				DATE: February 26
DESIGNATION				SCALE: AS SHONE
SIZE: A3	DOC. NAME: PROPOSED DRAIN DECK SIDE			PAGE NO.: 05 of 17
				DWG.: TYPICAL SECTION OF NORTH SIDE uPVC PIPE DRAIN FOR DECK PORTION

Annex-IV

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Road Transport and Bridges
Bangladesh Bridge Authority (BBA)

PROJECT NAME:

RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

VOLUME-4
SECTION 10, DRAWINGS

DOCUMENT NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)

DATE: JANUARY, 2026

Submitted by Joint Venture of:

Islamic University of Technology (IUT), Bangladesh

DevConsultants Limited (DevCon), Bangladesh

DOCUMENT NAME: TOLL PLAZA COMPLEX (ARCHITECTURAL)

Islamic University of Technology (IUT), Bangladesh

DevConsultants Limited (DevCon), Bangladesh

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R04						
R03						
R02						
R01						
R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN
REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY

CLIENT

BANGLADESH BRIDGE AUTHORITY
DHAKA, BANGLADESH

PROJECT TITLE

RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE				SHEET INFO
NAME				DATE: January 26
DESIGNATION				SCALE: AS SHONE
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			PAGE NO.: 01 of 18
				DWG.: INDEX

I. Project Overview

1. Project Name: Renovation, widening and strengthening of jamuna bridge deck and associated works for appropriate use of abandoned rail line during the fy 2025-2026.

II. Design basis

1. Examination and approval documents of relevant departments about engineering design plan
2. Design commission and design requirements documents of the Employer for this project
3. Approval documents of relevant departments about the preliminary design of this project
4. Main laws and regulations executed by the design and Atlas
(1) The Compulsory Provisions of Engineering Construction Standards (2013)
(2) Uniform Standard for Design of Civil Buildings (GB50252-2019)
(3) Codes for Accessibility Design (GB50763-2012)
(4) Code for Fire Protection Design of Buildings (GB50016-2014) (Edition 2018)
(5) Code For Fire Prevention in Design of Interior Decoration of Buildings (GB50222-2017)
(6) Code for Thermal Design of Civil Building (GB50176-2016)
(7) Technical Code for Roof Engineering (GB50345-2012)
(8) Code for Acceptance of Construction Quality of Roof (GB50207-2012)
(9) Uniform Technical Code for Wall Materials Used in Buildings (GB50574-2010 (2013)
(10) Code for Indoor Environmental Pollution Control of Civil Building Engineering (GB50325-2010) (2013)
(11) Administration of Building Safety Glass Alteration and Function No 2116 [2003]
(12) Technical Specification for Application of Architectural Glass (JGJ113-2015)
(13) Gross Floor Area Standards of the Constructional Engineering (GB/T50353-2013)
(14) Graduation and Test Methods of Air Permeability, Water Tightness, Wind Load Resistance Performance for Building External Windows and Doors (GB/T7106-2008),
(15) Graduation and Test Method for Thermal Insulating Properties of External Doors and Windows (GB/T8484-2008)
(16) Graduation and Test Method for Airborne Sound Insulating Properties of Windows and Doors (GB/T8485-2008)
(17) Technical Code for Glass Curtain Wall Engineering (JGJ102-2003)
(18) Regulations on Compiling Depth of Construction Project Design Documents (2016)
(19) Indoor Decorating and Refurbishing Materials - Limit of Harmful Substances of Interior Architectural Coatings (GB18582-2008)
(20) Code for Design of Extinguisher Distribution in Buildings (GB50140-2005)
(21) Code for Construction and Acceptance of Fire Proofing Installation of Interior Decoration Engineering of Buildings (GB50354-2005)
(22) Design Code for Office Building (JGJ67-2006)
(24) Relevant specifications and standards of Bangladesh Design and Contractor's documents meet technical standards, building, construction and environmental laws of Bangladesh, and the laws applicable to engineering products, as well as other standards specified in the Employer's requirements or other standards set out in the applicable laws

III. Design scope of construction drawing of this project

1. Buildings, structures and outdoor works within the scope of property line. The supporting content of buildings, structures, water supply and drainage, HVAC and electrics is included
2. The construction drawing design of lightweight steel construction, elevators, special equipment, curtain wall, refined decoration and other specialties are not included

IV. Designed elevation and size and other description:

1. In this project, the indoor elevation ±0.000 equals to the absolute elevation, as shown in the general plan for details. The elevation in this project is MSL. (mean sea level)
2. All dimension units in this design drawing is mm except that the unit of elevation and the dimension in the General Plan is m.
3. The floor (including staircase) elevation of the building marked in this design drawing is the completed floor elevation of the building, and the roof elevation is the elevation of structure layer.
4. If there are details for the sizes and practices of the corresponding parts in the drawings, the detailed drawings shall prevail. The structural components shall be constructed according to the structural construction drawings. The reserved holes and embedded parts of the equipment type of work shall be constructed simultaneously in combination with relevant professional drawings. This construction drawing only indicates the main reserved holes and embedded parts related to the building structure.
5. The decoration practice of main buildings in this project is shown in Form of Building Decoration Practice. The structural layers in the form are arranged from surface layer to base layer.
6. All kinds of products selected for the architectural design of this project generally do not specify the manufacturer and brand. Before construction, the Employer and the design institute shall jointly negotiate and make corresponding adjustments to the design. The product which has been selected for use shall have the production license, quality conformance certificate and quality inspection certificate as issued by the relevant national or local authority; and the kind, specifications and properties of the material to be used shall be in conformity with the relevant national or industrial quality standard.
7. The material, texture, color and model of all decoration materials must be determined through consultation with the designer. Samples shall be provided and can only be used for large-scale construction after being approved by relevant departments such as the Employer and the design unit.
8. Matters not mentioned in the drawing shall be implemented according to the current national specifications and construction acceptance specifications. During construction, in case of any error or conflict between the drawings of different disciplines, the design institute shall be notified in time for a solution. In case of any modification during construction, it shall be approved by the designer in advance, and the construction can only be started after receiving the design change notice and modification drawing.
9. If the embedded parts are in the filled wall body, the embedded part module having the same size with masonry material shall be made with C30 concrete to replace the light masonry material.
10. Secondary decoration shall not destroy the original load-bearing structure. Lightweight partitions shall be used in rebuilding or increasing internal partitions.

V. Pollution control of indoor environment of buildings

1. According to provisions of 2013 version of Code for Indoor Environmental Pollution Control of Civil Building Engineering (GB50325-2010), this project belongs to Class II civil building.
2. The radioactive index limit of sand, stone, brick, cement, commercial concrete, concrete prefabricated components and new wall materials used in this project shall meet the following requirements: Internal irradiation index: ≤ 1.0; external irradiation index: ≤ 1.0.
3. The radioactive index limit of inorganic nonmetallic decoration materials used in this project, including stone, building sanitary ceramics, gypsum board, suspended ceiling materials, inorganic porcelain brick adhesives, etc., shall meet the following requirements: Internal irradiation index: ≤ 1.0; external irradiation index: ≤ 1.3.
4. In this project artificial timber boards and artificial timber boards for finishes are used indoor. The content or releasing amount of free formaldehyde must be measured.
5. The ammonia release of fire retardant and concrete admixture used in the project shall not be greater than 0.1%, and the measurement method shall conform to the provisions of the national standard - Limit of Ammonia Emitted from the Concrete Admixtures. For concrete admixtures that can release formaldehyde, the amount of formaldehyde released shall not be greater than 0.5 g/kg.
6. Class A inorganic nonmetallic decoration materials should be used in this project. When Class A and Class B inorganic nonmetallic decoration materials are mixed, the usage of each material shall be calculated according to the following formula: $\sum_i f_i \cdot I_{Ra} \le 1.0$, $\sum_i f_i \cdot I_{Yi} \le 1.3$ [Wherein: f_i--The mass percentage (%) of material ith in the total material consumption; I_{Ra} - Internal irradiation index of material ith; I_{Yi} - External irradiation index of material ith.
7. Artificial boards and decorated artificial boards used for interior decoration should meet the requirements of grade E1. When E2 artificial wood boards are used, the parts directly exposed to air should be coated and sealed on the surface.
8. It is forbidden to use asphalt and coal tar anticorrosion or moisture-proof treatment agent for wooden floor and other wood materials in indoor decoration of this project.
9. Building materials whose use is prohibited and restricted by the state shall not be used indoor in this project.
10. Inorganic nonmetallic materials used in the main building of this project and granite, porcelain tiles and phosphogypsum products used in the building decoration must have radioactive index detection reports, which shall meet the requirements of Chapters 3 and 4 of the Code for Indoor Environmental Pollution Control of Civil Building Engineering (GB50325-2010) (2013 edition).
11. During the acceptance of this project, the concentration of indoor environmental pollutants must be tested, and the limit shall meet the requirements of Table 6.0.4 in the Code for Indoor Environmental Pollution Control of Civil Building Engineering (GB50325-2010) (2013 edition).

[Radon(Bq/m3):≤400, Formaldehyde (mg/m3):≤0.10;
Benzene(mg/m3):≤0.09, Ammonia (mg/m3):≤0.2, TVOC(mg/m3):≤0.6]

VI. Fire protection design

1. Fire design
(1) Classification and fire resistance rating of building fire prevention: This project belongs to the multi-storey public building, and the fire resistance is Grade II. The combustion performance and fire resistance limit of the internal walls and building components should comply with the provisions of table 5.1.2 of the Code for Fire Protection Design of Buildings (GB50016-2014).
(2) The project is provided with a circular fire lane, and the distance between it and the surrounding buildings is shown in the general plan, which conforms to the provisions of the specification.
(3) The spaces between the project and the surrounding buildings are all larger than 6 m, meeting the provisions of Table 5.2.2 of the Code for Fire Protection Design of Buildings (GB50016-2014).
(4) Fire zone and emergency exit: Each floor of the project is a fire zone. The construction area of the fire zone is ≤ 2,500 m2, with seven emergency exits on the ground floor and two emergency exits on the first, second and third floors respectively. The distance between two adjacent evacuation doors of the emergency exits is ≤40 m, and the distance between two adjacent evacuation doors at the both sides and ends of the pocket corridor is≤22 m. The total number of floors of the project is 4, and the stairs on the ground floor are all straight to the outside.
(5) The spacing between the upper and lower window sill walls is more than 1.2 m, and the total safety evacuation width meets the requirements of personnel evacuation width.
(6) The width of staircase windows and window walls of adjacent apartments is greater than 1.0 m.

2. Building construction
(1) The shaft wall of the pipeline well shall adopt a non-combustible component with a fire resistance limit ≥ 1 hour. A threshold with a height of 150 shall be made under the door of each pipeline well. The door of the pipeline well shall adopt Class C fire door.
(2) The walls used as firewalls are directly located on the foundation of the building or the reinforced concrete load-bearing structure, and the firewalls and partition walls are all built to the top plate without any gaps.
All kinds of cable shafts and water wells except positive pressure air supply shafts, shall be provided with fire plug at each floor slab after the pipeline is installed. The fire plug shall be made of non-combustible component that has the same fire resistance limit as the floor slab. Use fireproof materials to fill the holes connecting the pipe well with the room, walkway, etc.
(3) The blocking of reserved hole on floor slab: After the installation of the equipment pipeline is completed, C20 fine aggregate concrete is used to block and compact.
(4) The secondary decoration of the interior of the building shall not reduce the number of net widths required for the design and evacuation of safety exits, evacuation exits or evacuation walkways, and shall not reduce the combustion performance and fire resistance limit of the original fire prevention components. The secondary decoration shall meet the provisions of Code for Fire Prevention Design of Interior Decoration of Buildings (GB50222-2017).
(5) All fire protection facilities shall be manufactured by the manufacturer approved by the fire department.

VII. Masonry engineering:

1. The enclosing structure of this project is non-bearing masonry filler wall.
Solid clay bricks with the thickness of 240 are used for ±0.000 and below and wall body in direct contact with soil.
Solid clay bricks with the thickness of 240 are used for ±0.000 and above. Solid clay bricks with the thickness of 120 are used in some parts of the toilet.
Exterior wall 1. Solid clay brick with the thickness of 240, scope of application: All exterior walls on the outer circle of the building.
2. The cracks between the block and the beam and slab must be compacted with small blocks to ensure the close connection between the block wall and the bottom of the beam and slab.
3. The gap between the block and the concrete beam, column and wall, the periphery and four corners of the door and window openings shall be strengthened by sticking alkali-resistant glass fiber grid cloth polymer cement reinforcement layer.
4. Damp-proofing of wall: A 20-thick layer of 1:2 cement mortar plus 5% waterproofing agent shall be applied to all walls that are 60 mm below indoor ground. When the ground has level difference, the wall shall be paint with a damp-proof course toward the soil surface to form a loop with the horizontal damp-proof course. The vertical damp-proof course is made of 30-thick 1:2 cement mortar plus 5% waterproofing agent.
5. At the bottom of the partition wall around all ground toilets (except door openings), 3950psi concrete ridges are cast in situ on the cushion layer, with a height 200 higher than the ground and a width the same as the wall thickness.
6. The wall-attached concealed pipes and wall-piercing pipes should be sealed tightly around the installation.
7. Holes on the wall shall be reserved and shall not be drilled. Anti-leakage treatment shall be done around the holes: 2-thick polyurethane waterproof layer shall be coated around the holes of equipment with water.

VIII. Roof and canopy:

1. The floor works of this project shall be subject to Technical Code for Roof Engineering GB50345-2012, Code for Acceptance of Construction Quality of Roof (GB50207-2012).
2. The roof waterproof grade of the project is Grade I. The waterproof layer is three water level for prevention of up-floating. For details, please refer to the Form of Building Decoration Practice.
The inaccessibility flat roof is made of 1.5 mm thick polymer waterproof coating + modified asphalt waterproof coiled material, and a rigid fine stone concrete protective layer is used.
3. White 100 PVC-U finished drain pipes and ancillary products are installed for external drainage of downspout, and roof drains are installed.
4. When rain water on the roof is discharged to a lower roof, waterproof enhancement layer of coiled material shall be laid on the part of low roof washed by water. Concrete slabs shall be laid on it.
5. Base and protruding roof structure (parapet, vertical wall, skylight wall, deformation joint, chimney, pipeline on the manhole, etc.), and the corner of the base (water pipe, gutter, eaves, eaves, roof ridge, etc.) should be made in an arc shape (adopts 1:3 cement mortar, R=150). The portions of the pipes passing through the roof and the holes reserved on the roof shall be checked and verified before the waterproof materials are made to avoid the situation that the holes are made after the waterproof materials are applied. After the pipe is installed, fine stone concrete shall be used for sealing, and waterproof glue shall be embedded around the pipe root to connect to the waterproof layer for a loop. All reverse beam water holes must be embedded with steel casing, and the bottom of the pipe shall be flush with the completed surface of the floor (roof) building.
6. Gaps shall be left at the junction of fine aggregate concrete surface layer and gable wall, parapet and protruding roof structure, and flexible sealing treatment shall be carried out. Fine aggregate concrete surface layer shall be provided with dividing joints, and sealing materials shall be embedded in the joints. The dividing joint of water-proof layer shall be set at the supporting end of roof boarding corner of the roofing and the connection between water-proof layer and extrusive roof structure, and be aligned with the slab joint.
7. Organized drainage is used for roof drainage in this project. Generally, the slope of roof is 2%.
8. Roof leveling layer should be left with dividing joints which would be set according to joints between column net and the boards supporting edge. The vertical and horizontal spacing is not more than 6 m, and the seam width is 20 mm. The grid seam is filled with modified asphalt sealant. When the grid seam is also used as the exhaust passage, the seam width is 50 mm, and the exhaust pipe outlet hole is set, and the exhaust pipe is set as far as possible against the parapet.
9. Coil waterproof layer base treatment is required of flat, dense, clean and dry; coating waterproof layer base treatment is required of flat, solid and clean; The completed works shall be protected to take the waterproofing test which could ensure the next step of construction.
10. All waterproof materials are rolled around to 300 mm above the finished roof surface or planting soil. Roof vertical shaft, parapet corner, gutter, eaves gutter should be added with a layer of waterproof material. When the base of facilities is connected with the structural layer, the water-proof layer shall wrap up the top of the base of facilities and be sealed around the foundation bolt. When facilities are installed on the waterproof layer, the waterproof layer at the lower part of the facility should be used as a coil reinforcement layer. If necessary, fine aggregate concrete should be poured on it. The thickness should not be less than 50 mm. The sidewalks between the facilities that need frequent maintenance and the roof entrances to the facilities should be laid with a rigid protective layer and sealed with modified asphalt sealant around the anchor bolts.
11. A reversed reinforced concrete threshold of 500 mm high (counting from the roof structural surface and no less than 250 mm higher than the completed roof surface) shall be provided for the roof staircase, elevator room, roof equipment room, pipe well, chimney, masonry wall, and parapet root, and shall be casted at the same time as the beam and slab, with the same width as the upper wall. A layer of hot-dip galvanized steel wire mesh (12.7 *12.7 *0.7) is laid at the junction of different materials, with a peripheral width of 250 mm, a waterproof coating film of 1.5 mm thick, and a height of 500 mm along the root of the structural surface (and no less than 250 mm higher than the finished roof surface).
12. After the completion of the construction, the net height between the top of the parapet of the upper roof or the railing and the roof (calculated from the treadable surface) shall not be less than 1200 mm. The parapet body and coping must be cast-in-situ with reinforced concrete structure, the outer side should be higher than the inner side, the slope should not be less than 5%. The reinforcement should be designed in detail.
13. The junction of the coiled material waterproof roof base and the protruding roof structure (parapet, vertical wall, deformation joint, chimney, etc.), as well as the corner of the base, shall be made into circular arcs, and slightly lower pits shall be made around the water drop opening of internal drainage.
14. Roof gutter, eaves, parapet flooding coiled material waterproof layer should be fully sticky, and be equipped with additional waterproof layer, exposed coiled material and coating layer should be coated with ultraviolet resistant protective coating.
15. After the laying of full sticky coiled material or waterproof coating film, the base treatment agent shall be applied to the surface of cement sand screed.
16. The closing mouth of all the coiled materials and the connecting part of different roofing materials shall be sealed by sealant.
17. 2 layers of coiled material with the size of 100*100 shall be fully stuck in the place where the embedded anchor bar in the roofing board penetrates into the waterproof layer of the coiled material, and then sealed by sealant.
18. When the base of facilities at roof is connected with the structural layer, the membrane water-proof layer shall wrap up the top of the base of facilities and be sealed around the foundation bolt.
19. The thickness of the fine aggregate concrete waterproof layer shall not be less than 40 mm, and two-way steel mesh with a diameter of 4 mm and a spacing of 150 mm shall be configured. The steel mesh should be disconnected at the grid joint, and the thickness of its protective layer shall not be less than 10 mm.
20. Safety buckles and other facilities used in construction and maintenance shall be set on the roof.
21. The construction acceptance of various roofs shall be strictly made according to relevant current national construction specifications, standards and technical regulations.
22. The net distance between finished surface of the roof and the parapet wall shall be 1.05 m.

IX. Floor:

1. Castoff-situ reinforced concrete floor slab is adopted in this project. Please refer to the Form of Building Decoration Practice for details of floor practice. The floor design of this project shall comply with Code for Design of Building Ground GB50037-2013, and the Code for Construction Ground Engineering and Acceptance GB50209-2010 shall be strictly observed during construction.
2. Standard table of elevation system in the floor-plan sets out floor full slab, building elevation and structural elevation difference standard. See the plan identification and structural construction drawing for details of special places. There is a difference between the reduction range and elevation of local structural slab surface of the floor and the design surface layer of the building, and C20 ceramsite concrete shall be selected as the filling material for slope leveling.
3. Water and electricity pipes are arranged in advance. According to the pipe arrangement, the reserved size for construction is notified to Civil Engineering Department. The slab and the structural slab on the same floor are poured simultaneously.
4. Reserved holes on the floor shall be completed in detail. And cooperate with warm application, water application and electricity application. After the pipeline is installed, the gap is packed with C20 micro-expansive fine aggregate concrete (UEA mixed with 10% cement dosage) in two times (the thickness is the same as that of the floor slab). The first time is filled to 2/3 of the slab thickness, the second time is filled to the slab surface and the horn cone is made around the pipe root. The curing time is 48 hours, and a waterproof additional layer is made within 200 mm of the pipe root periphery and at the horn cone. Hole shall be reserved for each floor of electric well and water well, and steel bars shall be reserved for the hole on the floor (see structural working drawing). After the installation of equipment and pipelines is completed, C30 micro-expansive concrete (with the same thickness as the adjacent floor slab) shall be poured twice to seal and compact. The addition ratio of micro-expansive agent is 8% of cement dosage.
5. Where there is floor drain in the room, the floor of the room shall be provided with a slope of not less than 1%. The backfilling and padding materials for toilet decoration are all backfilled with light materials (density < 1,200 Kg/m). The elevation of the completed surface is 20 mm lower than that of the completed surface of this floor, and the completed surface of accessibility toilet is 15 mm lower.
6. A slope shall be formed within the scope of 2 m from floor drain, with a grade of 0.5%, collecting sump or drainage ditch, so as to meet the requirements of necessary sweeping and drainage.
7. Backfill soil shall conform to the requirements of relevant quality acceptance specifications, corrosive organic matters and other impurities shall be removed before backfilling, and backfilling of soil and construction waste that do not meet the requirements shall be strictly prohibited.
According to the specification requirements, each tamping layer shall not exceed 300 mm in mechanical tamping, each tamping layer in manual tamping shall not exceed 200 mm, and the corners shall be compacted with compaction coefficient greater than or equal to 0.94.
8. The 24h closed water test shall be done on the floor surface of toilet.
9. For building ground engineering with waterproof requirements, sealing treatment must be carried out between the standpipe, casing and floor drain and the floor joint before laying. For the standpipe passing through the floor slab, a bushing shall be embedded in advance to height 30 mm above the floor, and the gap between the bushing and floor shall be filled tightly with waterproof material. The floor of the building where water is easily accumulated shall form a 1% slope, and the slope shall let the water flow towards floor drain or outlet.
10. If several floor practices are used on the same floor and the surface layers are required to be flat and consistent, the thickness of cushion or leveling layer of different floors shall be adjusted with the maximum thickness.

X. Doors and windows

1. The List of Doors and Windows of this project are all the design dimensions of doors and windows openings, and the dimensions and quantities during processing and manufacturing shall be subject to on-site actual measurement. The dimension of the facade grid diagram can be adjusted appropriately according to the actual frame materials and decoration and installation requirements, and the doors and windows manufacturer are responsible for the design, construction and installation drawings. It can only be implemented after meeting the corresponding design, construction and acceptance specifications for doors and windows and being approved by the design institute and Party A.
2. The varieties, specifications, thickness and material selection of door and window glass shall be designed in strict accordance with the requirements of the Technical Specification for Application of Architectural Glass (JGJ113-2015) and the Administration of Building Safety Glass Alteration and Function [Document No.2116 [2003] issued jointly by the Ministry of Construction and other four ministries and commissions in December 2003] according to different areas and parts. Safety glass must be used in the following parts:
Outward-opening windows in buildings of 7-stories or above storeys.
Window glass with an area of more than 1.5 m2 or French windows with the bottom edge of the glass less than 900 mm (plastic steel) or 500 mm (aluminum alloy) from the final decoration surface. Curtain wall (except full glass curtain wall). Slant assembly window, various canopies (including skylights and daylighting roof) and suspended ceilings. Sightseeing elevator and its external retaining. Indoor partition, bathroom enclosure and screen. Stair, balcony, breast board of platform corridors and in atrium, Floor panel for people to walk on. Entrance and exits, lobby and other parts of public buildings. Other parts that may cause personal injury due to collision and impact.
3. Doors with a glass area of more than 0.5 m2, windows with a glass area of more than 1.5 m2, and door and window glass with a height of less than 1.1 m from the floor or a height of less than 0.9 m from the treadable surface shall adopt tempered glass (including ordinary glass and hollow glass) with a thickness of not less than 5 mm according to the corresponding area specified in the specification. All frameless all-glass doors (including their adjacent fixed glass fans) shall be tempered glass with a nominal thickness of not less than 12 mm in accordance with Table 7.1.1-1 (2) in the Technical Specification for Application of Architectural Glass (JGJ113-2015). There should be striking signs on the glass.
4. The glass fence whose lowest point is 3 m and above and 5 m and below from one side of the floor, can bear horizontal load, but toughened laminated glass with nominal thickness of not less than 16.76 shall be used.
5. The outer windows of the toilet are all made of inner frosted glass. For details of lighting roof glass, please refer to energy-saving design and professional manufacturer design. Tempered glass shall be used for glass curtain wall, tempered laminated glass shall be used for lighting roof glass, and the thickness of laminated film shall not be less than 0.76 mm. For specific design, please refer to the drawings of professional companies.
6. Technical indexes such as frame material type, section height, section thickness and matching hardware fittings selected for outer doors and windows shall meet the requirements of the national code where the project is located and shall be determined by design and calculation of professional manufacturers. The air permeability performance of the external window shall be grade 6 as regulated in Graduations and Test Methods of Air Permeability, Water Tightness, Wind Load Resistance Performance for Building External Windows and Doors (GB-T7106-2008). The thermal insulation performance of public buildings shall not be less than Grade 2, and the thermal insulation performance of residential buildings shall not be less than Grade 5 and Grade 6. Sound insulation performance shall not be less than Grade 3. For the requirements of energy saving and fire prevention, please refer to the section on energy saving and fire prevention in this note. Specifications to be followed: Classification and Test Methods of Air Permeability, Water Tightness, Wind Load Resistance Performance for Building External Windows and Doors (GB/T7106-2008); Graduation and Test Method for Thermal Insulating Properties of Doors and Windows.
7. The installation of windows, if there are no special requirements, shall be in the wall or beam. The embedded wood parts of doors and windows shall be treated with anti-corrosion, the embedded iron parts shall be treated with anti-rust, and the doors and windows shall be elastically connected to the hole. When the mid-point of the opening height of all window sashes is more than 1.5 m from the floor height, a window opener shall be set up.
8. Windows used in this project are aluminium alloy doors and windows.
9. For the opening direction of doors and windows, please refer to the plan view of each floor and the details of doors and windows. Door and window construction. The door and window node structure, connection details with the wall and lightning protection structures that have been provided with the Atlas shall be constructed and installed according to the relevant requirements of the Atlas. If the distance between the entrance of doors and windows and the wall is not indicated on the drawing, the relevant description of the construction drawings shall be detailed.
10. Protective measures should be taken for the installation of building glass, such as French windows, glass doors, glass partitions, etc., which is prone to collide with human bodies or objects.
Based on the specific part where the collision-prone building is located, protective measures should include warnings (highly visible signs at eye level) or anti-collision facilities (guardrails), etc. Reliable guardrails must be set up in the event that human bodies or glass falls from a height after collision.
11. The vertical hinged fire door for evacuation in firewall and public corridor shall be set with door closer (up), the double vertical hinged fire door shall be set with door closer (up) and sequencer, and the hold-open fire door shall be set with signal control closing and feedback devices. The wooden face added to the wooden fire door shall be treated with fire prevention, and the hardware fittings of the wooden fire door shall be fire prevention hardware fittings approved by the Fire Department.
12. Railing protecting windows shall be installed if the height of window sill of external window does not meet the requirements of specification. There is window gauze on all external windows which can be opened.

XI. Indoor and outdoor decoration:

1. The safety of secondary decoration design in this project shall be recognized by our institute or other institutions with qualifications.
2. During the whole service age of this project, it is strictly prohibited to change the main body, load-bearing structure or main use functions of the building without authorization during decoration, and it is strictly prohibited to dismantle and change equipment and facilities, change structural components and add floors without design confirmation and approval of relevant departments.
3. For details of decoration practice of interior and exterior walls, see Description of Building Decoration Practice. For details of colors, see the elevation annotation.
4. In addition to the product technology, the interior and exterior wall coating method shall be constructed according to the Specification for Construction and Acceptance of Building Painting Operation.
And the exterior wall tile method shall be constructed according to the Specification for Construction and Acceptance of Tapestry Brick Work for Exterior Wall (JGJ/T9-2003) in addition to the product technology.
5. The width, depth and color of the exterior wall surface painting grid seam shall be determined at the same time when the sample plate is made. If the dividing joint is caulked with plastic board, the board width, depth and color must be determined by the design.
6. Through-wall pipes of air conditioner shall be reserved when a wall is built. The surrounding of a hole shall be tightly sealed.
7. Wall Angle Bead: For the interior walls, pillars, door openings, staircase edge beams and window openings, 1:2 cement mortar angle bead shall be painted at first with a height of 1,800 and width of 50.
8. The thickness is the same to that of plaster on the ball body. Door and window openings shall be painted to the roof. At the edge of aerated concrete block wall, the plastic or steel screen protection guard shall be provided.
9. The net height of protection railing at heights within the design scope of a building is 1.05 m.
10. It is strictly forbidden to install all pipes, lamps whose weight is greater than 3 kg and other heavy equipment on the keel of ceiling engineering.

XII. Painting and anti-corrosive treatment

1. The contact surface between all wood components and the wall shall be painted with non-bitumen and non-coal tar preservatives twice, and all metal parts buried in the wall shall be painted with anti-rust paint twice.
2. For details of painting of all exposed wooden components, see the Form of Building Decoration Practice.
3. Sample plates shall be first provided for painting color and luster of exposed wooden components for the selection by designers. The samples shall be made first. The large area of construction can be started after checking and ratification.
4. Rust on exposed iron pieces shall be removed first. One coat of minisumite primer or iron oxide red primer shall be applied. Two coats of light grey alkyd ready mixed paint shall be applied on the surface.

Islamic University of Technology (IUT), Bangladesh DevCon DevConsultants Limited (DevCon), Bangladesh	REVISIONS						CLIENT	PROJECT TITLE	SHEET INFO
	R05						BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.	DATE: January 26
	R04								SCALE: AS SHONE
	R03								
	R02								PAGE NO.: 02 of 18
	R01								
	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN			
	REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY		SIGNATURE / NAME / DESIGNATION / SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL) / DWG.: General Description of Building Design(I)

5 Steel components without galvanized layer of canopy and their weld surface shall be treated as follows
(1) Derusting The annual derusting grade shall be Grade St3 The grade of sand blast for derusting shall be Grade Sa2 1/2
(2) To apply 1-2 coatings of alkyd iron oxide red primer
(3) To apply 2-4 coatings of alkyd enamel, with total film thickness no less than 150μm

XIV Accessibility design
1 Parts with accessibility design include Entrance platform and slope

XV Other precautions during construction
1 Drip lines shall be made for reinforced concrete cornices, canopy, lintel of window, bottom of the balcony and bottom of the outside corridor For details of the production method, see relevant drawings
2 Drain grade (i= 1%) and water drip trenching shall be made for the coping of windowsill and canopy eaves with 1 2 5 cement mortar
3 In standard drawings, there are embedded parts and reserved holes for structural works, such as staircases, steel platform railings, doors and windows, and building accessories All the reserved holes and embedded parts that are specified in the drawings shall be confirmed with corresponding specialties before construction During construction, in case any major mistake or omission, or conflict between different disciplines has been found on the design drawing, the construction contractor shall not modify the drawing without authorization, must discuss with the responsible designer of our design institute and go through the formalities before further construction, so as not to cause any unnecessary waste
4 The wall junction of the two materials shall be equipped with metal net or glass screen affixed cloth in the construction process to prevent fracture based on the decorative material
5 Antiseptic treatment shall be carried out for the embedded wood bricks and wooden surfaces close to wall, and rust-proof treatment shall be made for exposed iron parts
6 Antiseptic treatment shall be carried out for the embedded wood bricks and wooden surfaces close to wall, and rust-proof treatment shall be made for exposed iron parts It is strict forbidden to use bitumen and coal tar anticorrosion or moisture-proof treatment agent
7 All water supply and drainage pipelines, electrical pipelines and other equipment pipelines must accurately reserve holes or embedded sleeves when passing through reinforced concrete beams and slabs, prefabricated components, and wall bodies Temporary excavations are inappropriate, and the gaps should be filled with non-combustible materials
8 Party A shall first determine the manufacturer and provide samples for the selection of specifications, models, materials, colors and patterns of building decoration materials related to this project, and the architect shall cooperate with the Employer and relevant parties for examination and approval before ordering in batches and putting them into construction
9 In case of any major modifications during construction, the construction company shallobtain the design basis at first as well as the modification drawing or modification contact sheet provided by design institute, and then start construction again as per drawing

XVI The General Description shall prevail if there is inconsistency between the project drawing and the General Description

XVII. The construction company shall be familiar with the drawings before the construction, and the construction can only be carried out after the technical disclosure of all disciplines of our institute. Contact with the design personnel in time if there are any doubts about the drawing. The design shall not be altered without consent. All matters not mentioned in the drawings shall be subject to the current national construction quality acceptance criteria

XVIII. After the construction drawing of this project passes the examination of relevant departments, the construction can start

1 Roof	Application place	The thinnest point shall be 20 thick, slope making layer with 1 3 cement mortar, screeding	
Roof 1 Thermal-insulation accessible roof	Used for main roof	Single layer of plain cement paste (Mixed with architectural glue inside)	
40-thick C20 fine aggregate concrete protective layer	Accessible roof	Cast-in-situ reinforced concrete floor	
20-thick 1 3 cement and mortar plastering and polishing			
One layer of polyethylene film (0 4-thick)		III Interior wall	Application place
One layer of SBS modified asphalt waterproofing coiled materials (4-thick)		Interior Wall 1 Interior wall with face tiles	For men's and women's toilets,
1 5-thick polyurethane waterproofing paint		5-thick glazed tiles Fill joint with white cement paste (size 300*300)	bathrooms and washrooms
20-thick 1 3 cement and mortar leveling layer		1 1 cement mortar mixed with white latex of 3-5% water weight (3-thick)	
40-thick extruded polystyrene board (B1 level)		1 5-thick polymer cement waterproof paint	
20 mm thick 1 3 cement mortar		1 3 cement mortar (15-thick)	
One layer of modified asphalt waterproofing coiled materials (4-thick)		Interior wall 2 Coating inner wall surface	All indoor rooms except
20-thick 1 3 cement and mortar leveling layer		Spray or roll-brush coating for two times	interior wall 1
30-thick (the thinnest portion) LC5 0 lightweight aggregate concrete to form a 2% slope by levelling		Make the surface course for several times with surface waterproof putty (2-thick)	
Roof boarding of reinforced concrete		5-thick 1 0 5 2 5 cement lime putty mortar screeding	
	Inaccessible roof	1 1 6 Cement-Lime plaster (8-thick) priming and becoming or drawing lines	
Roof 2 No thermal-insulation inaccessible roof	Elevation 18 600	Roughen with mortar primer (3-thick) special for additive or with one layer of special interface	
20-thick 1 3 cement and mortar plastering and polishing		agent (wet the wall surface before roughening)	
One layer of polyethylene film (0 4-thick)			
One layer of SBS modified asphalt waterproofing coiled materials (4-thick)		IV Skirting	
1 5-thick polyurethane waterproofing paint		Skirting 1 Skirting of face tile (150 high)	For indoor wall surface
20-thick 1 3 cement and mortar leveling layer		8-thick face tile (color is determined by Party A), with joint filled by cement paste	
30-thick (the thinnest portion) LC5 0 lightweight aggregate concrete to form a 2% slope by levelling		1 1 cement mortar is paneled with construction glue with the water weight of 20% (3-thick)	
Roof boarding of reinforced concrete		17-thick 2 1 8 cement-lime mortar is plastered for two times	
		Single layer of plain cement paste (Mixed with architectural glue inside)	
Roof 3 No thermal-insulation inaccessible roof	Air conditioning board,		
Brush the colored styrene-acrylic emulsion protective layer once	equipment platform	V Ceiling	
Fully apply a layer of polyethylene film (0 15-thick)		Ceiling 1 Ceiling decorated with gypsum boards	
Two layers of polyurethane waterproof coating		Reserved Φ8 reforced lifting ring at cast-in-situ reinforced concrete base slab, and the	The ceiling height of the walkway on the ground floor is 3 8 m
20-thick 1 3 cement and mortar leveling layer		two-way center distance of the hoisting bar is 900-1200	2 Other places such as walkways and halls
35-thick (the thinnest portion) LC5 0 lightweight aggregate concrete to form a 2% slope by levelling		Light steel keel standard skeleton The center distance of main keel, subsidiary keel and	Ceiling of public space
Roof boarding of reinforced concrete		transverse keel is 900-1,000, 500-600 and 500-600 respectively	(The ceiling height is uniform at the bottom of the beam)
		600*600 gypsum decorative board (10-thick), self-tapping screw tightening, hole filling with putty	
II Ground and floor		Ceiling 2 Aluminum alloy square plate ceiling	
Ground 1 The ground of washroom with ceramic floor tiles	For men's and women's	Reserved Φ8 reforced lifting ring at reinforced concrete , and the two-way center distance of the	For men's and women's toilets,
Anti-skid floor tiles (12-thick) shall be paved in level Joints shall be filled with cement paste or cement mortar of a proportion of 1 1 (size 300*300)	toilets, bathrooms and	hoisting bar is 900-1200	bathroom and washrooms
1 3 dry and rigid cement mortar (25-thick)	washrooms	Matching metal keel (supplied by manufacturer and constructed according to manufacturer's requirement)	Height of suspended ceiling
1 5-thick polyurethane waterproof coating surface casted with yellow sand, and upturned 400 from the surrounding along the wall		Square aluminum alloy sheet (size 500*500)	above the ground is 2400
Coat one layer of base course treating agent		Ceiling 3 Painted ceiling	
The thinnest 30-thick 3000psi fine aggregate concrete slope shall be trowelled		Base cleaning	Suspended ceilings for
Single layer of plain cement paste (Mixed with architectural glue inside)		Brush cement paste for a layer (add proper amount of building glue)	places other than that of 1 2
2000psi concrete cushion of 80-thick		1:1:4 cement lime mortar priming and leveling (10-thick cast-in-place base,	
Plain soil tamped in layers		15-thick prefabricated base) (10-15 thick) with twice paint.	
		4-thick 1 0 3 3 cement, lime and mortar leveling layer	
Ground 2 Ceramic tile floor		Scrape the putty to level and polish	
Anti-skid floor tiles (12-thick) shall be paved in level Joints shall be filled with white cement paste or joint mixture (size 600*600)	For all indoor floors	Brush the emulsion paint	
Cement and mortar (1 3) leveling layer of 20mm thick	except ground 1 and		
Coat one layer of plain cement paste binding course	ground 3	VI Exterior wall surface	
2000psi concrete cushion of 80-thick		Exterior 1 Exterior wall with coating	Detailed elevation
Plain soil tamped in layers		Spray or roll-brush coatings twice	
		Spray or roll-brush a layer of primer	
Floor 3 Anti-static floor		Elastic primer of coatings	
300 overhead anti-static movable floor	Monitoring room,	5-thick dry powder polymer cement waterproof mortar with a layer of alkali-resistant	
The surface is painted with floor paint	communication	fiberglass mesh in the middle	
1 2 5 cement mortar cover with 20-thick in compaction and float finish	machine room	1:3 cement mortar (15-thick)	
Single layer of plain cement paste (Mixed with architectural glue inside)		Clean the wall surface and brush the interface mortar	
2000psi concrete cushion of 60-thick			
Compacted base soil with plain soil		VII Paint	
		Paint 1 Advanced varnish	General wood decoration
Floor 1 Ceramic floor tile floor	For all indoor floors	Cleaning, decontamination and grinding of wood base	
Anti-skid floor tiles (12-thick) shall be paved in level Joints shall be filled with white cement paste or joint mixture (size 600*600)	except floor 2	Mositening powder	
Cement and mortar (1 3) leveling layer of 20mm thick		Puttying and polishing	
Coat one layer of plain cement paste binding course		Color wash	
Cast-in-situ reinforced concrete floor		Varnish for three times	
		Paint 2 Mixed paint (color selected separately)	Exposed iron component
Floor 2 Ground tile waterproof floor	For Men's and	Clean the metal surface (derusting grade not lower than Sa2)	
Anti-skid floor tiles (12-thick) shall be paved in level Joints shall be filled with cement paste or cement mortar of a proportion of 1 1 (size 300*300)	Women's Room	Rust-proofing paint once	
1 3 dry and rigid cement mortar (25-thick)	Lavatory	Puttying and polishing	
1 5-thick polyurethane waterproof coating surface casted with yellow sand, and upturned 400 from the surrounding along the wall		Mixed paint twice	
Coat one layer of base course treating agent			

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REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY	

CLIENT

BANGLADESH BRIDGE AUTHORITY
DHAKA, BANGLADESH

PROJECT TITLE

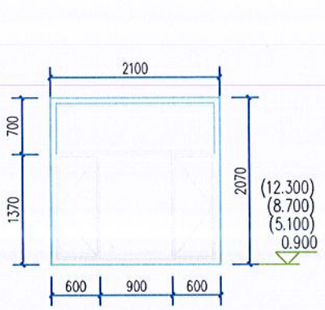
RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE				SHEET INFO
				DATE: January 26
NAME				SCALE: AS SHONE
DESIGNATION				PAGE NO.: 03 of 18
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			DWG.: General Description of Building Design (II) Decoration Practice of Building Materials

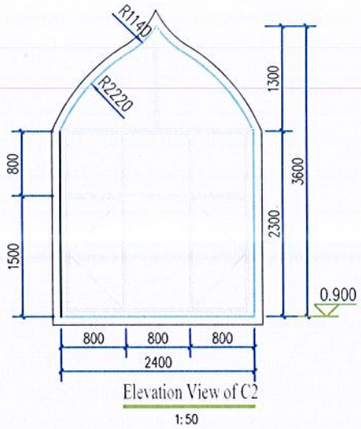
List of Doors & Windows

Type	Design number	Size of opening (mm)	Quantity	Title of atlas	Page No	Model	Remarks
Fire door	FM Grade-C 1021			Finished fire door (A0.5h)			Finished wooden fire door with a threshold height of 15?
	FM Grade-A 1			Finished fire door (A1.5h)			Finished wooden fire door
	FM Grade-B 2			Finished fire door (A1.5h)			Finished wooden fire door
Security door							Finished security door
Ordinary door							Finished wood door
							Finished wood door
							Finished wood door
Door connecting with window				Refer to the detail drawing			Low-strength tempered glass floor spring door (electric window)
Ordinary window				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window (inward opening)
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window (inward opening)
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window (flat-opening)
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window
				Refer to the detail drawing			Aluminum alloy window
	XC1 Reverse			Refer to the detail drawing			Aluminum alloy window
Tunnel portal							

1. Anti-corrosive treatment shall be made for doors of toilet and bathroom. Windows of toilet are made of frosted glass.
2. Flat-opening wooden door, fire door and wall surface in the direction of opening are aligned.
3. Swing door, sliding door and various exterior wall windows are installed in the vertical wall;
4. 6-thick white glass is used for all external windows in this project.
5. For the opening method of windows, see the details. The dotted line indicates inward opening, while the solid line indicates outward opening.
6. In this project, tempered glass shall be used for windows whose elevation of bottom is 0.3.
7. All the dimensioning is for reference of partition of doors and windows. The size of doors and windows shall be based on the actual measurement. All details of production of doors and windows are prepared by a professional manufacturer of doors and windows. After the approval of the design institute, they can be produced and installed.
8. The quantity and size of doors and windows shall be checked carefully in the construction before making an order.
9. The area of a single piece of glass shall be greater than 1.5 km2. When the distance between the lower opening of the glass and the final decorated floor is less than 50 cm, safety glass shall be used,

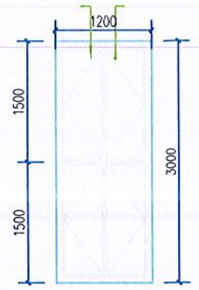


Elevation View of C1
1:50

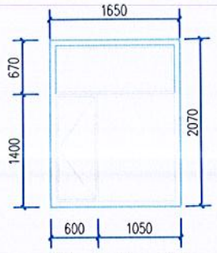


Elevation View of C2
1:50

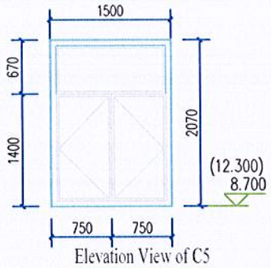
Electric window (window area is 1.51 m2)



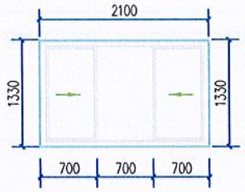
Elevation View of C3
1:50



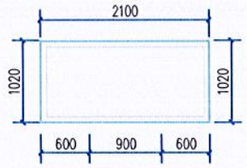
Elevation View of C4
1:50



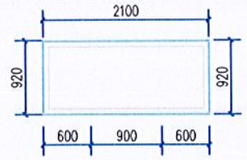
Elevation View of C5
1:50



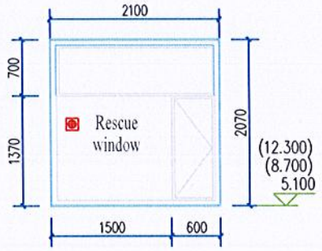
Elevation View of C1-1'
1:50



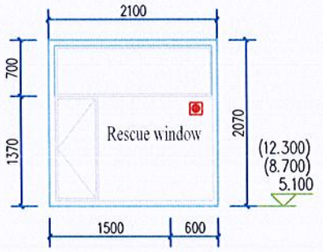
Elevation View of C1-2
1:50



Elevation View of C1-2'
1:50

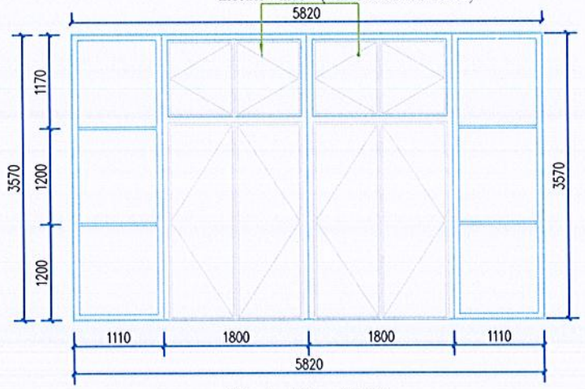


Elevation View of XC1
1:50

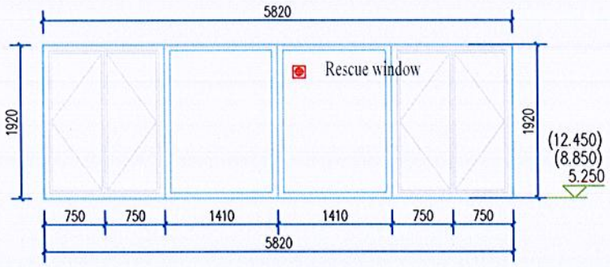


Elevation View of XC1 Reverse
1:50

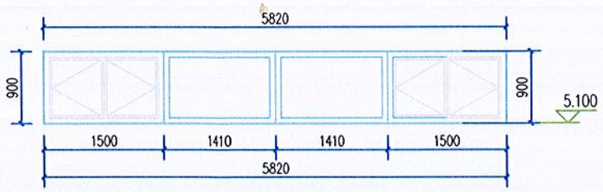
Electric window (window area is 3.18 m2)



Elevation View of MLC1
1:50



Elevation View of C6
1:50



Elevation View of C7
1:50

Islamic University of Technology (IUT), Bangladesh	REVISIONS						CLIENT
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	R02						
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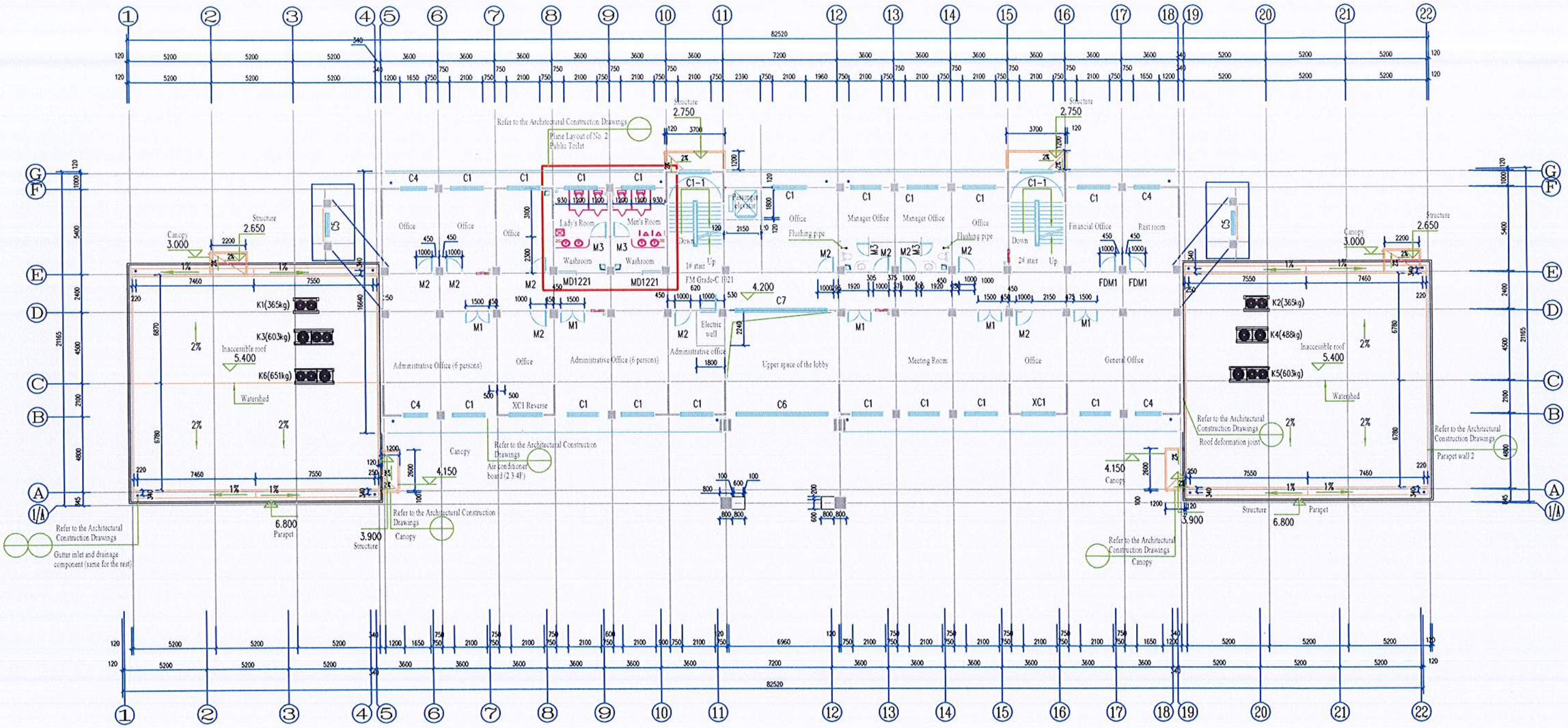
PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE				SHEET INFO
NAME				DATE: January 26
DESIGNATION				SCALE: AS SHONE
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			PAGE NO.: 04 of 18
				DWG.: List of Doors and Windows and Detail Drawing of Doors and Windows

The width of the squat toilets was changed to 1.2m, and one of each type was removed.

Two manager's offices will have an additional 1800x1800 bathroom.



Legends

- Concrete column
- Φ100 rainwater pipe
- Φ63PVC Air conditioning casing
- Air-conditioning outside unit
- Solid clay brick

Notes:

1. The location and dimension of the column are shown in the Structure Construction Drawings.
2. The locations of the doors and walls not indicated in the drawings are shown in detailed drawings.
3. 240 solid clay bricks are used for the interior and exterior walls in the drawing. Solid clay bricks with the thickness of 120 are used in some parts of the toilet.
4. The elevation of washrooms is 20 mm lower than that of adjacent buildings (finished surface), and the water in the washroom flows to the floor drain with a grade of 0.5%
5. D1 Holes shall be reserved for air conditioner split hanging machine, and DN80 PVC sleeve shall be embedded. The middle of the pipe shall be 2,200mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the location of reserved holes shall be indicated in detail.
D2 Holes shall be reserved for tank air conditioner, and DN80 PVC sleeve shall be embedded. The middle of the pipe shall be 300 mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the center of the reserved hole is 150 away from the window wall or column edge.
6. Reserved holes in the wall for split air conditioning can be seen in the plan of each floor, and DN30UPVC condensate collecting standpipe is installed in the adjacent exterior wall.
7. D-W1-28 Exhaust passage on P10 of International 16J916-1 is used, whose section size is 300*300. The size of reserved hole on the floor slab is 350*350. The product is 15 mm thick.

Plan of the First Floor 1:150

Construction area of this floor: 1402.53 sqm (Approx.)

Islamic University of Technology (IUT), Bangladesh

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PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE			
NAME			
DESIGNATION			
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)	DWG.: Plan of the First Floor	

SHEET INFO

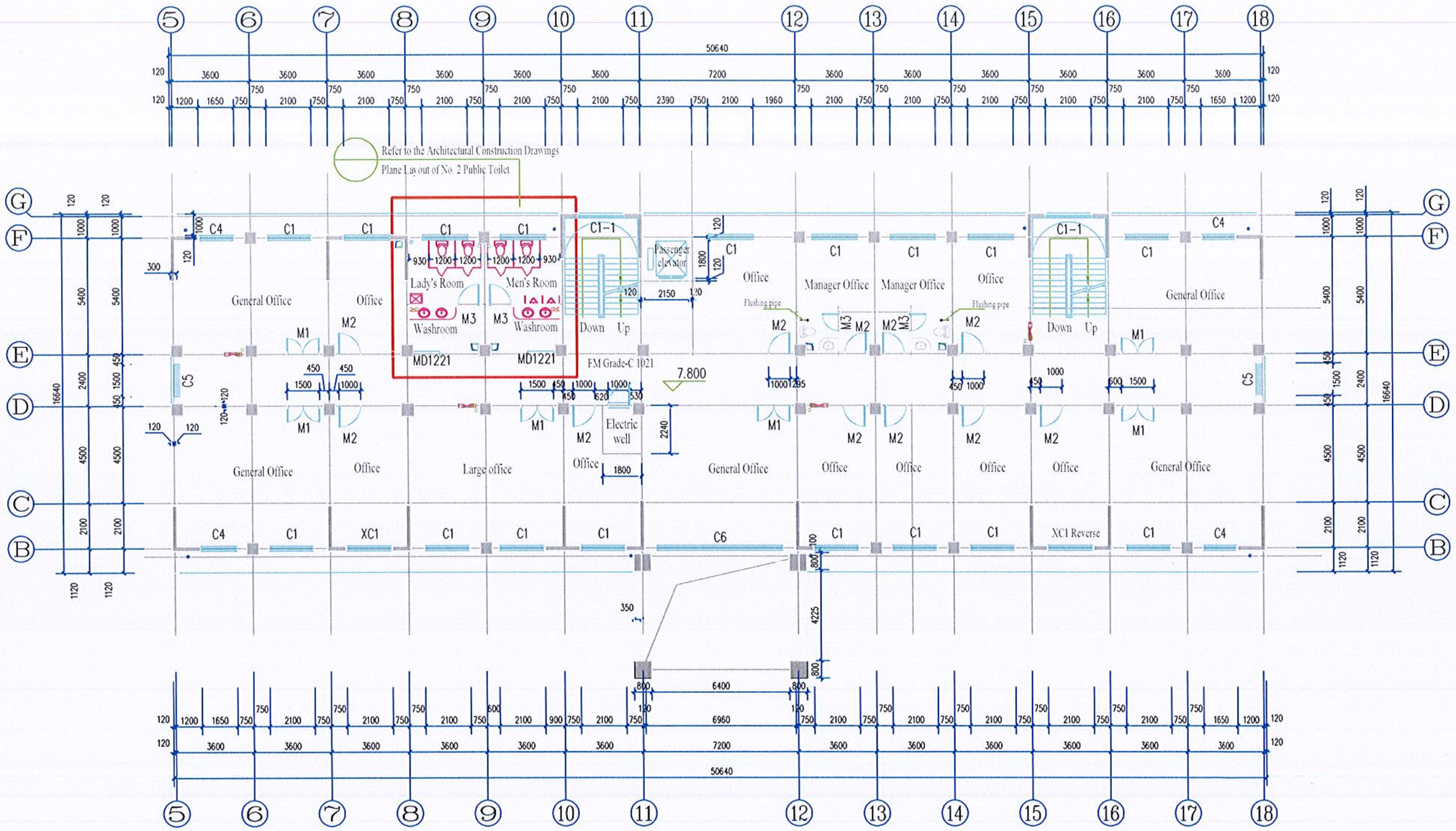
DATE: January 26

SCALE: AS SHONE

PAGE NO.: 05 of 18

The width of the squat toilets was changed to 1.2m, and one of each type was removed.

Two manager's offices will have an additional 1800 x 2100 square meter restroom.



Legends:

- Concrete column
- Ø100 rainwater pipe
- Ø80PVC Air conditioning casing
- Air-conditioning outside unit
- Solid clay brick

Notes:

1. The location and dimension of the column are shown in the Structure Construction Drawings
2. The locations of the doors and walls not indicated in the drawings are shown in detailed drawings.
3. 240 solid clay bricks are used for the interior and exterior walls in the drawing. Solid clay bricks with the thickness of 120 are used in some parts of the toilet.
4. The elevation of washrooms is 20 mm lower than that of adjacent buildings (finished surface), and the water in the washroom flows to the floor drain with a grade of 0.5%.
5. D1 Holes shall be reserved for air conditioner split hanging machine, and DX80 PVC sleeve shall be embedded. The middle of the pipe shall be 2,200mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the location of reserved holes shall be indicated in detail.
   D2 Holes shall be reserved for tank air conditioner, and DX80 PVC sleeve shall be embedded. The middle of the pipe shall be 300 mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the center of the reserved hole is 150 away from the window wall or column edge.
6. Reserved holes in the wall for split air conditioning can be seen in the plan of each floor, and DN30UPVC condensate collecting standpipe is installed in the adjacent exterior wall.
7. D-WT-28 Exhaust passage on P10 of 16J916-1 is used, whose section size is 300*300. The size of reserved hole on the floor slab is 350*350. The product is 15 mm thick.

Plan of the Second Floor

1: 150

Construction area of this floor: 848.76 sqm (Approx.)

Islamic University of Technology (IUT), Bangladesh DevConsultants Limited (DevCon), Bangladesh	REVISIONS						CLIENT	PROJECT TITLE
	R05						BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.
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	R03							
	R02							
	R01							
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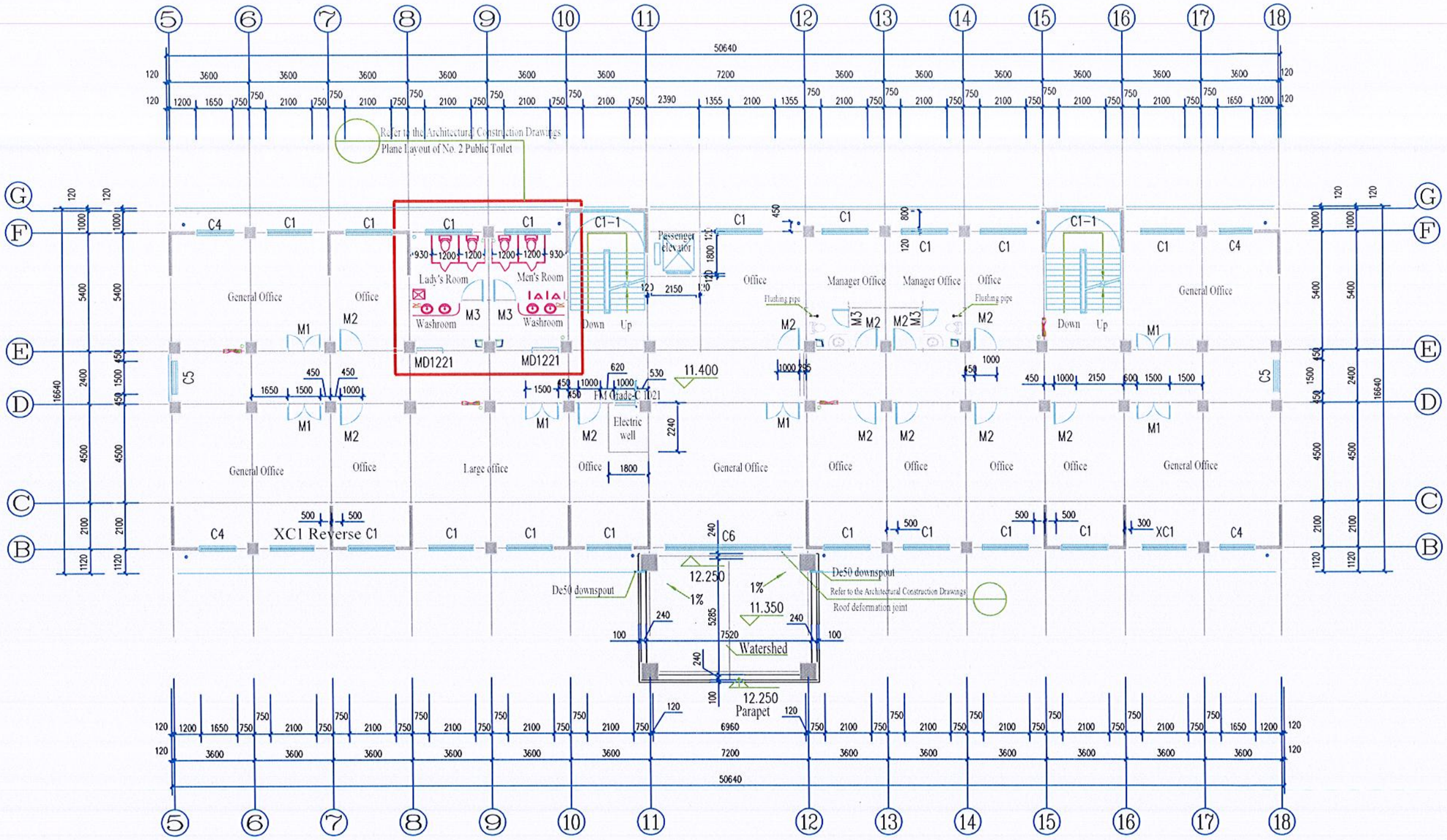
SIGNATURE				SHEET INFO
NAME				DATE: January 26
DESIGNATION				SCALE: AS SHONE
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			PAGE NO.: 06 of 18
				DWG.: Plan of the Second Floor

The width of the squat toilets was changed to 1.2m, and one of each type was removed.

Two manager's offices will have an additional 1800x1800 bathroom.



Legends:

- Concrete column
- O100 rainwater pipe
- O80PVC Air conditioning casing
- Air-conditioning outside unit
- Solid clay brick

Notes:

1. The location and dimension of the column are shown in the Structure Construction Drawings.
2. The locations of the doors and walls not indicated in the drawings are shown in detailed drawings.
3. 240 solid clay bricks are used for the interior and exterior walls in the drawing. Solid clay bricks with the thickness of 120 are used in some parts of the toilet.
4. The elevation of washrooms is 20 mm lower than that of adjacent buildings (finished surface), and the water in the washroom flows to the floor drain with a grade of 0.5%.
5. D1 Holes shall be reserved for air conditioner split hanging machine, and DN80 PVC sleeve shall be embedded. The middle of the pipe shall be 2,200mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the location of reserved holes shall be indicated in detail.
D2 Holes shall be reserved for tank air conditioner, and DN80 PVC sleeve shall be embedded. The middle of the pipe shall be 300 mm away from the floor, and the outward inclination shall be 10°; Unless otherwise indicated, the center of the reserved hole is 150 away from the window wall or column edge.
6. Reserved holes in the wall for split air conditioning can be seen in the plan of each floor, and DN30UPVC condensate collecting standpipe is installed in the adjacent exterior wall.
7. D-W1-28 Exhaust passage on P10 of 16J916-1 is used, whose section size is 300*300. The size of reserved hole on the floor slab is 350*350. The product is 15 mm thick.

Plan of the Third Floor

1:150

Construction area of this floor: 896.85 sqm (Approx.)

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R01						
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CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

SIGNATURE			
NAME			
DESIGNATION			
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)		DWG.: Plan of the Third Floor

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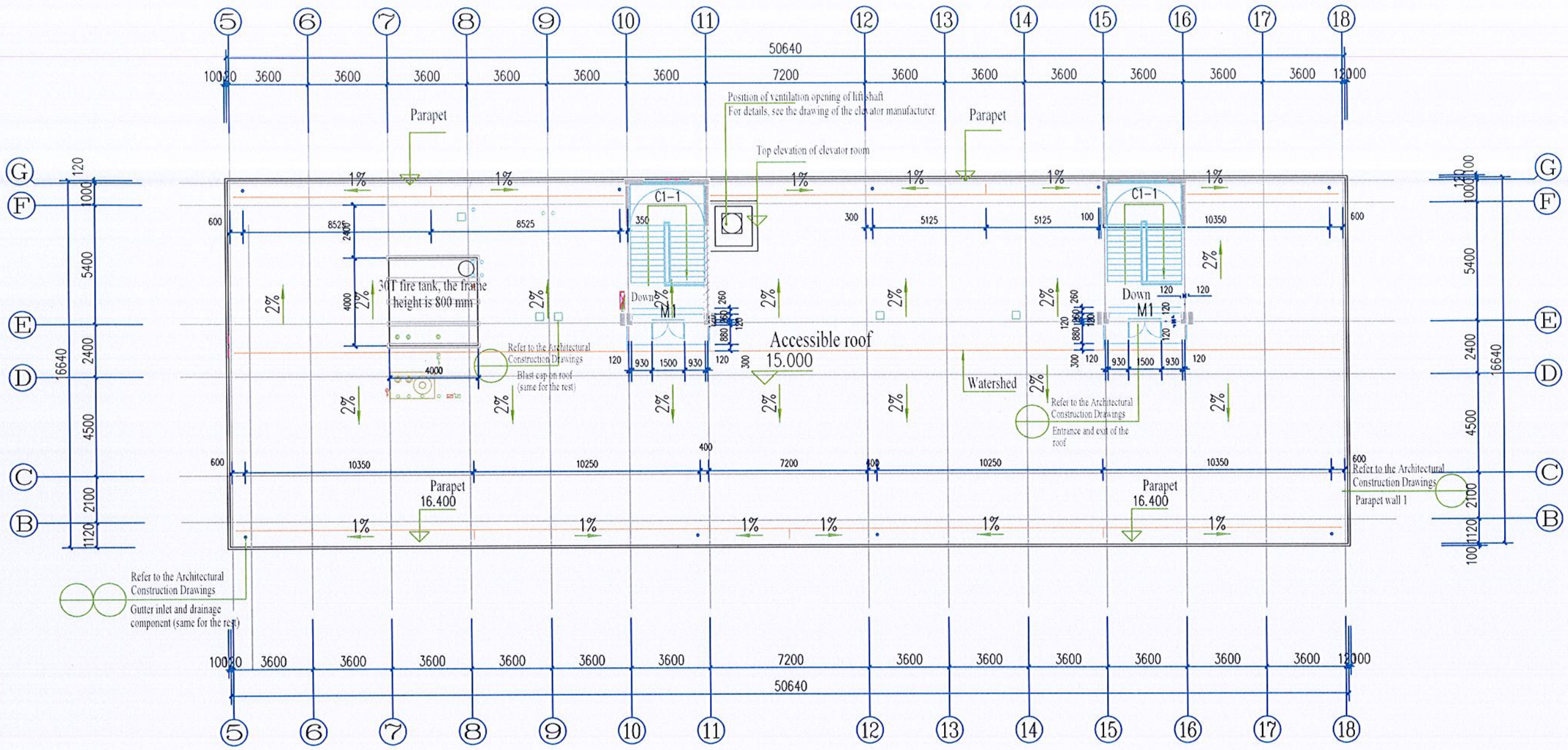
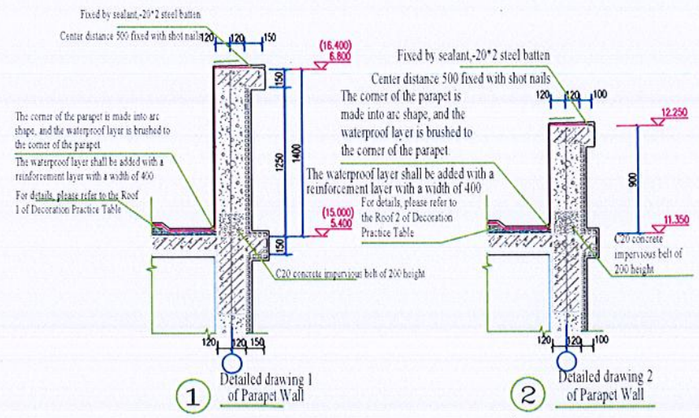


Roof Plan 1:150

Construction area of this floor: 51.76 sqm (Approx.)



Islamic University of Technology (IUT), Bangladesh DevCon DevConsultants Limited (DevCon), Bangladesh	REVISIONS						CLIENT	PROJECT TITLE
	R05						BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.
	R04							
	R03							
	R02							
	R01							
	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN		
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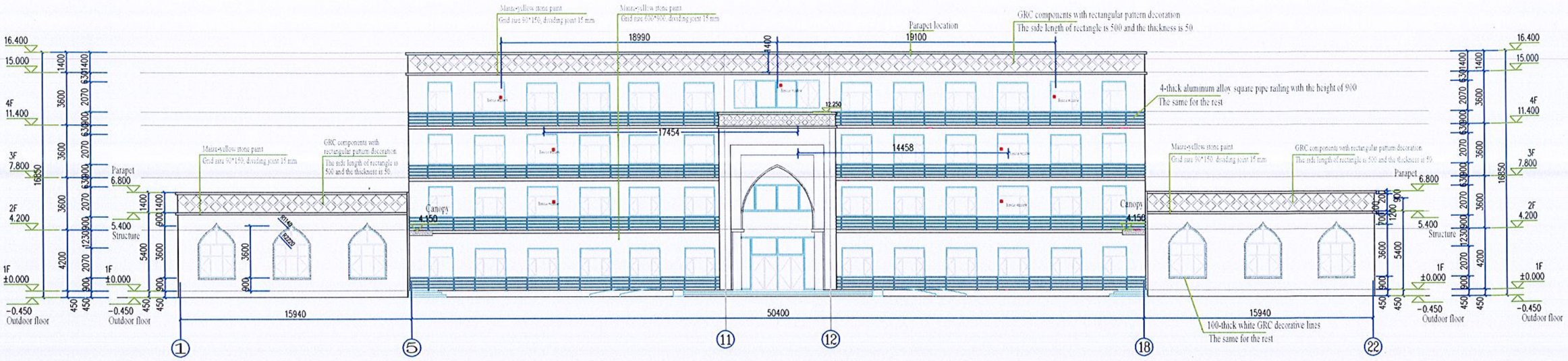
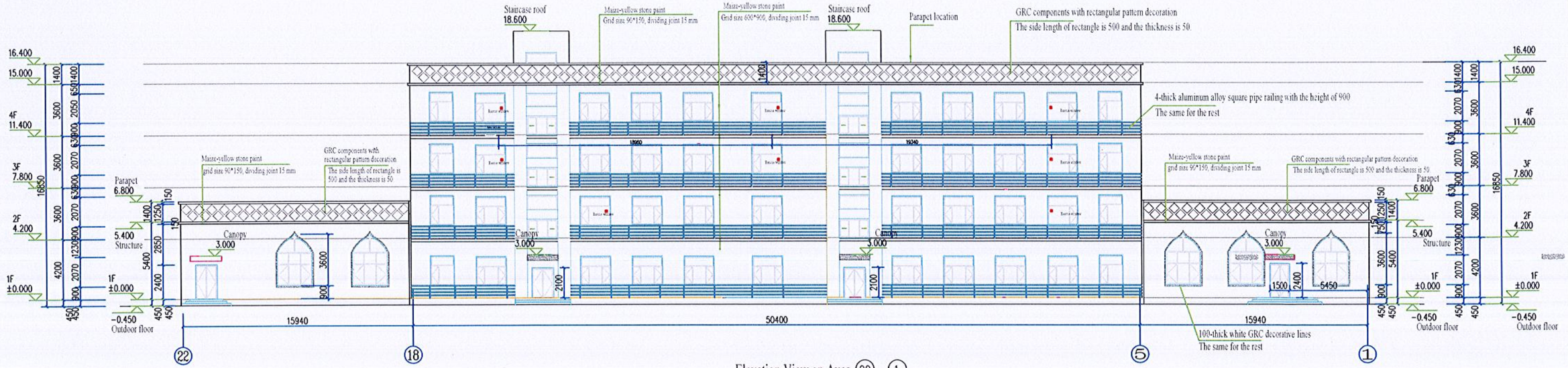
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			PAGE NO.: 08 of 18
				DWG.: Plan of the Roof



Elevation View on Axes ① ? ㉒

1:150



Elevation View on Axes ㉒ ①

1:150

Legends: Maize-yellow stone paint; White GRC decorative lines (for walls and parapet kerb stylobate)

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NAME			
DESIGNATION			
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)		DWG.: Elevation View on Axes (1~22 & 22~1)

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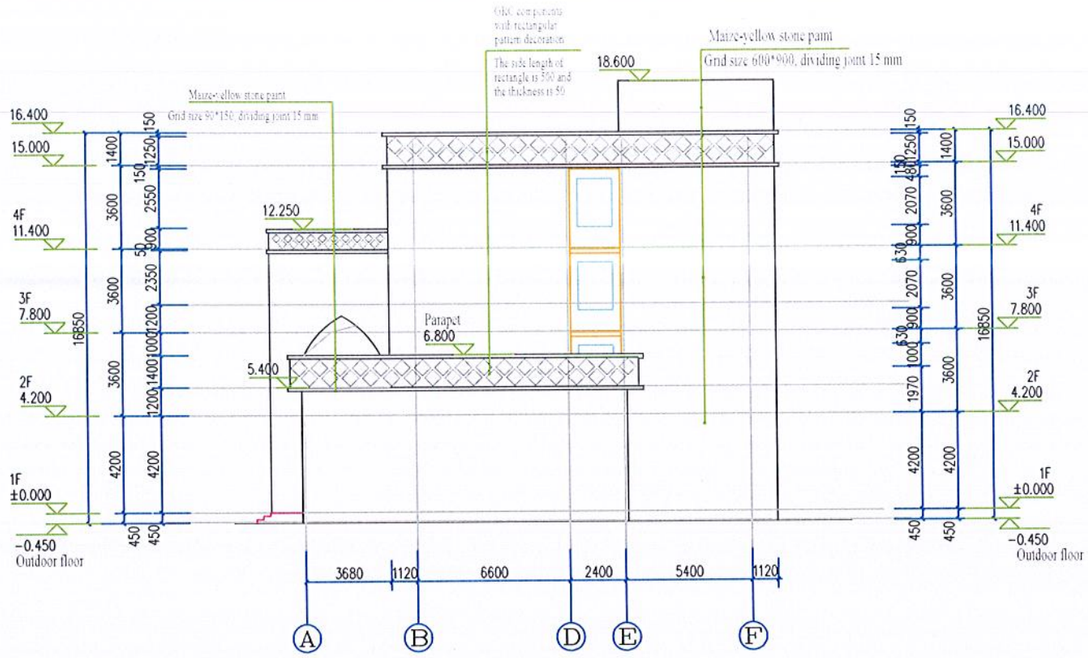
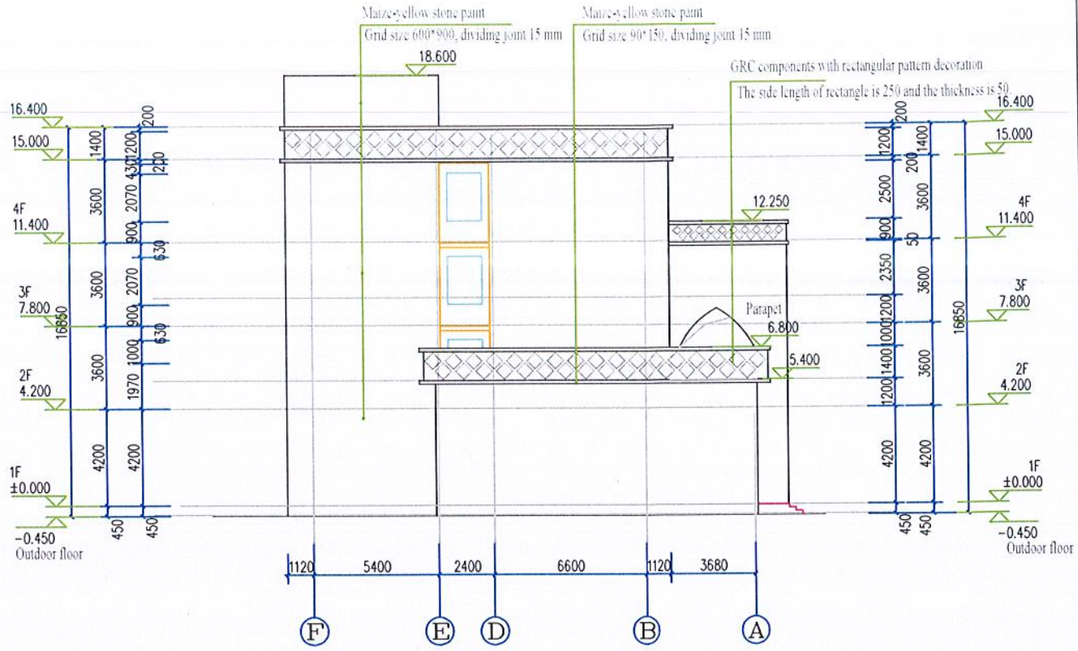
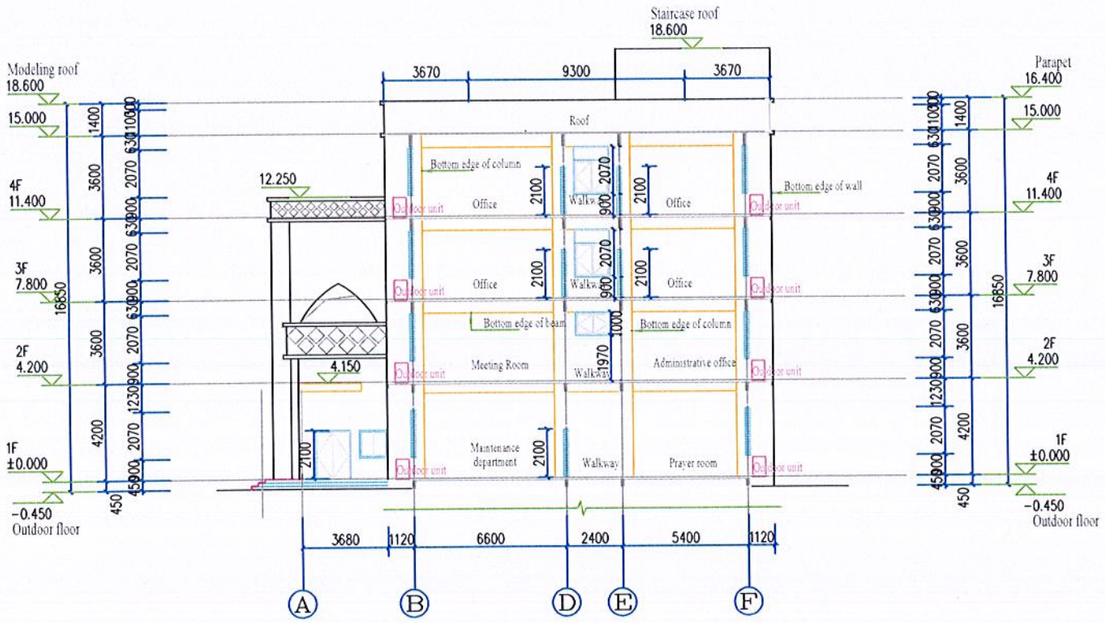


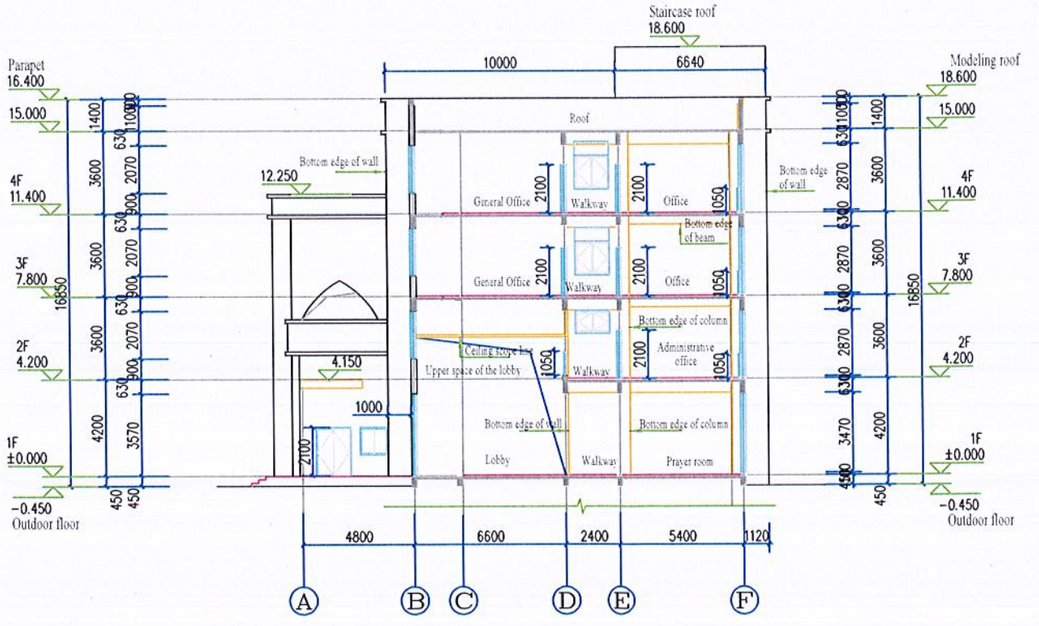
Elevation View on Axes (A) ~ (F) 1:150



Elevation View on Axes (F) ~ (A) 1:150



Section View 1-1 1:150



Section View 2-2 1:150

Islamic University of Technology (IUT), Bangladesh DevCon DevConsultants Limited (DevCon), Bangladesh	REVISIONS					
	R05					
	R04					
	R03					
	R02					
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	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN
	REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY

CLIENT: BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH

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SIGNATURE			
NAME			
DESIGNATION			
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)		DWG.: Elevation View on Axes (A~F & F~A)

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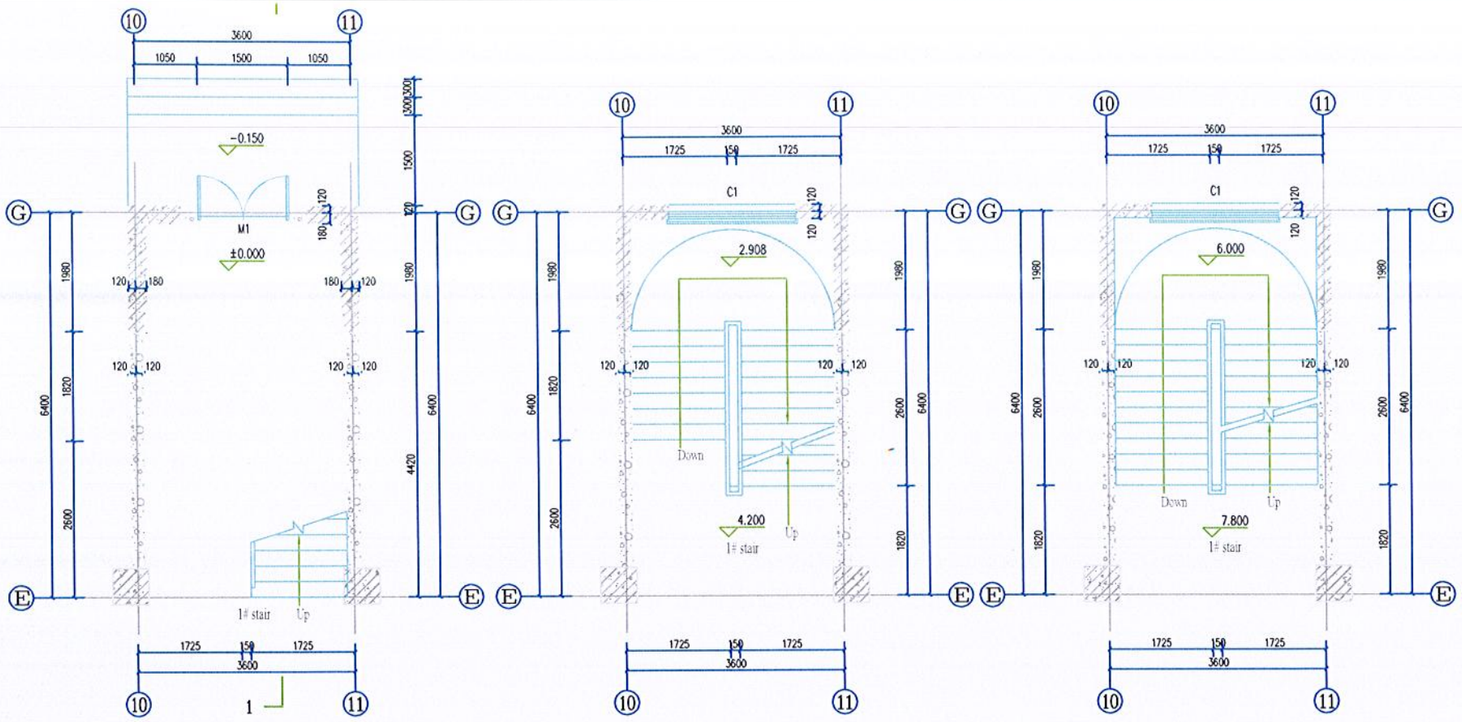
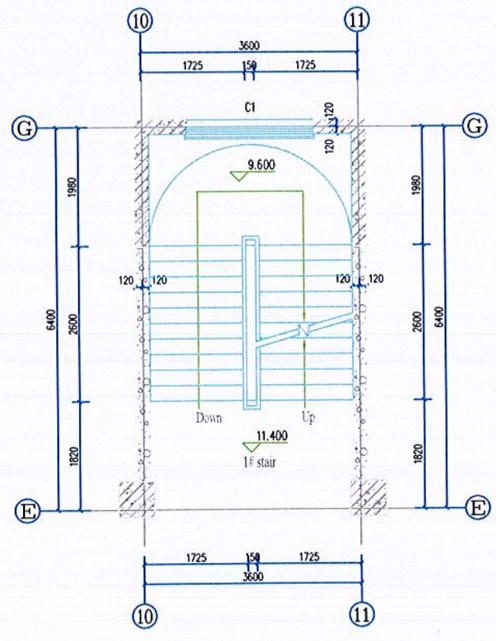


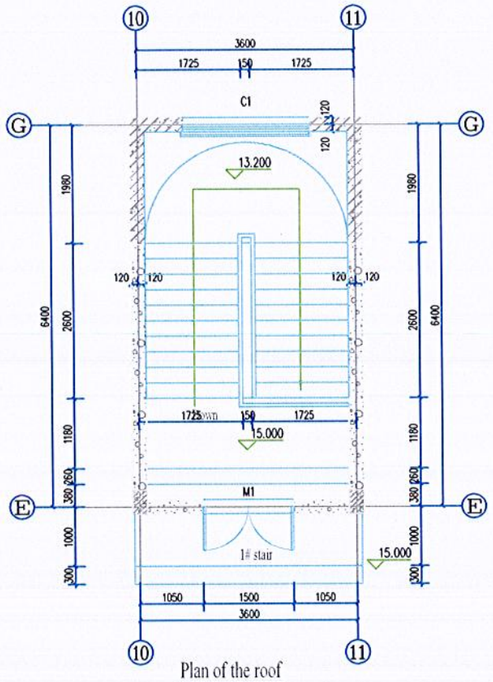
Plan of the Ground Floor

Plan of the First Floor

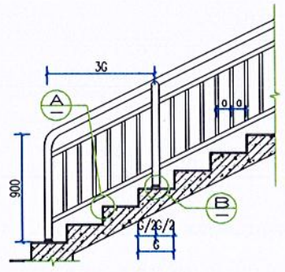
Plan of the Second Floor



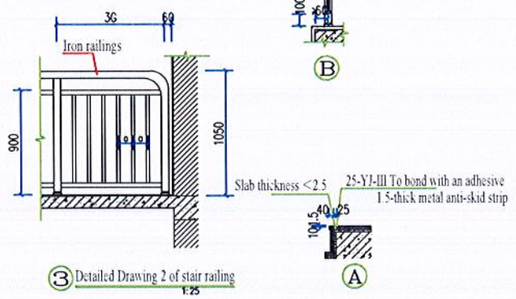
Plan of the Third Floor



Plan of the roof



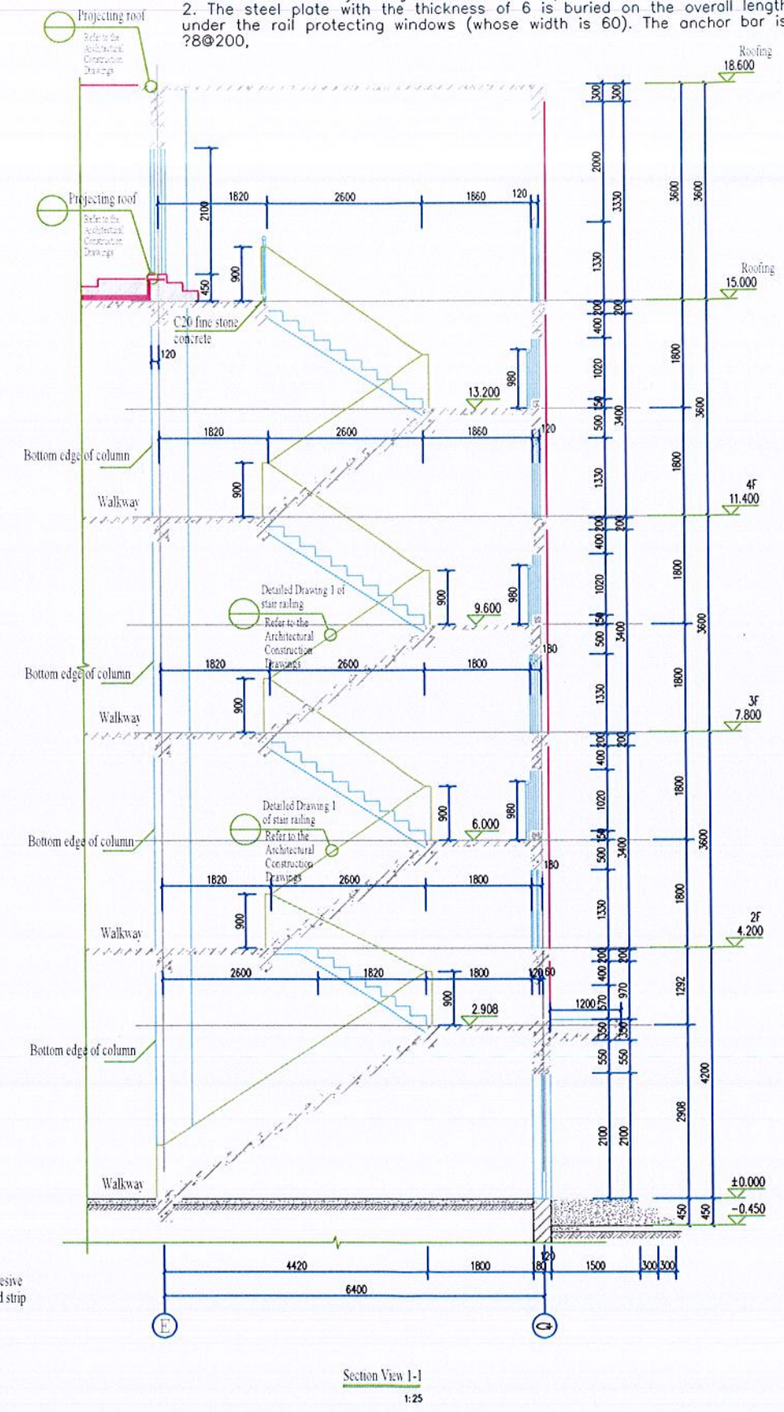
② Detailed Drawing 1 of stair railing
1:25



③ Detailed Drawing 2 of stair railing
1:25

Design description of stairs:

1. The height of stair handrail is 900. When the length of horizontal handrail is greater than 0.50 m, the height of handrail shall not be less than 1.05 m. If the distance of the guardrail column is less than 110, children's anti climbing measures shall be adopted, and the horizontal thrust load borne by the guardrail is 1.0 KN/m2.
2. The steel plate with the thickness of 6 is buried on the overall length under the rail protecting windows (whose width is 60). The anchor bar is ?8@200,



Section View 1-1
1:25

Islamic University of Technology (IUT), Bangladesh DevConsultants Limited (DevCon), Bangladesh	REVISIONS					CLIENT	PROJECT TITLE
	R05					BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.
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	R03						
	R02						
	R01						
	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN	
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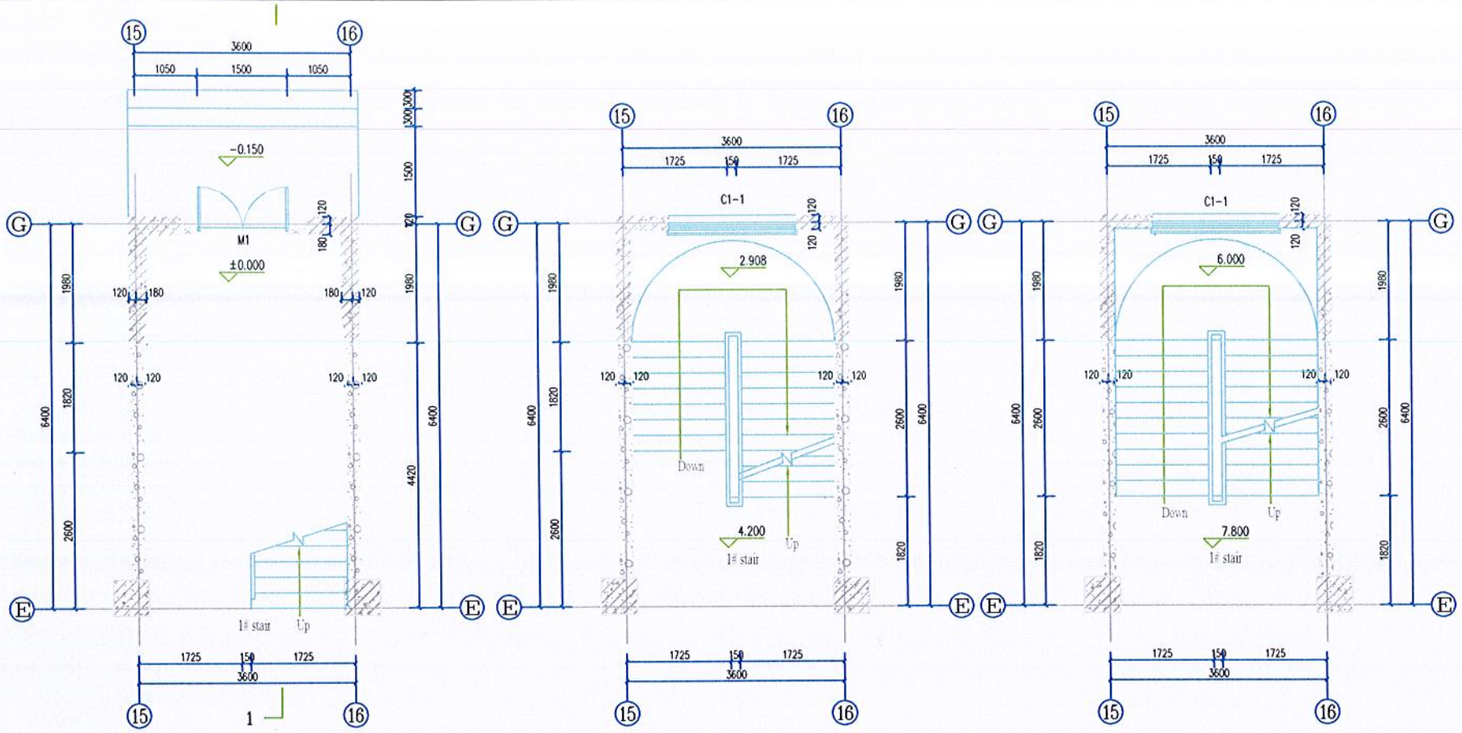
NAME				DATE: January 26
DESIGNATION				SCALE: AS SHONE
SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			PAGE NO.: 11 of 18
				DWG.: Detail Drawing of #1 Stair



Plan of the Ground Floor

Plan of the First Floor

Plan of the Second Floor

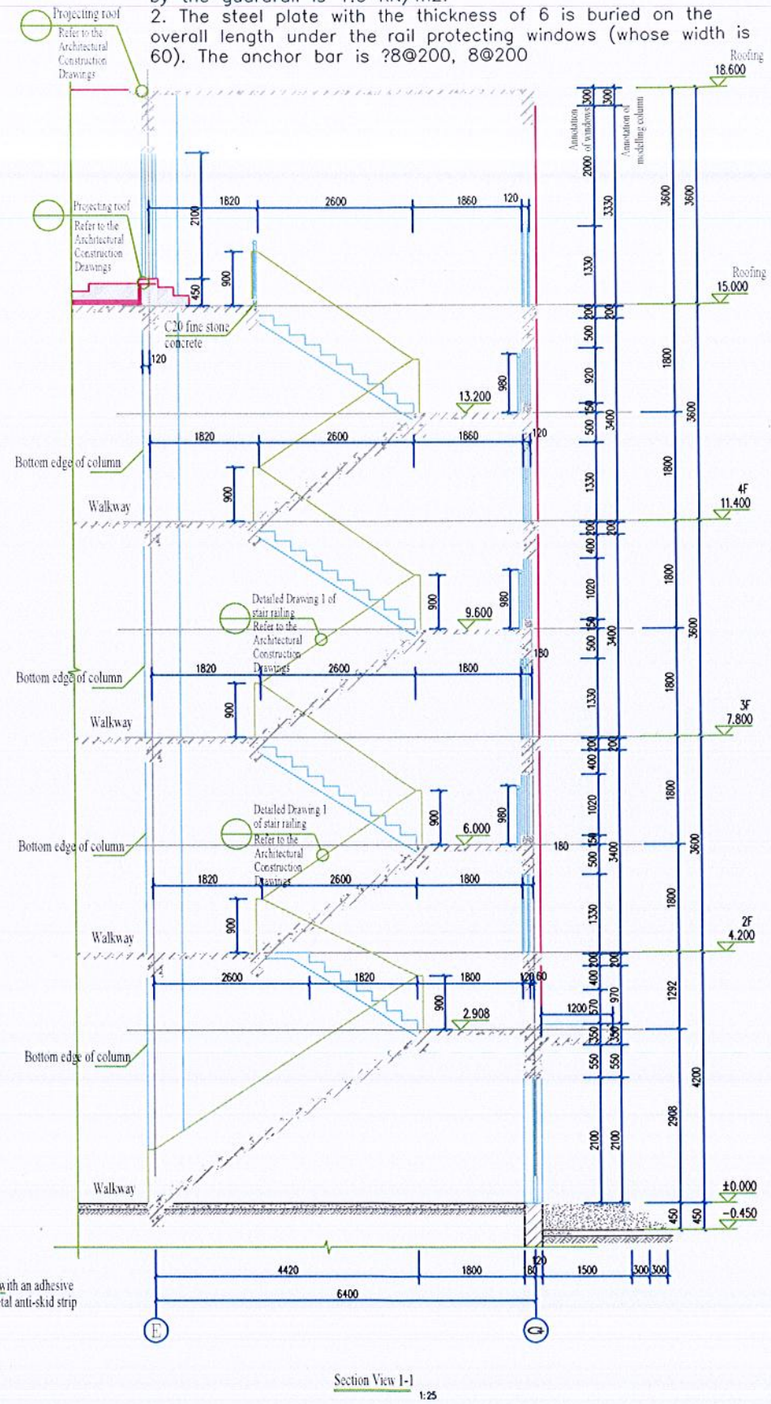
Plan of the Third Floor

Plan of the roof

1. The height of stair handrail is 900. When the length of horizontal handrail is greater than 0.50 m, the height of handrail shall not be less than 1.05 m. If the distance of the guardrail column is less than 110, children's anti climbing measures shall be adopted, and the horizontal thrust load borne by the guardrail is 1.0 KN/m2.
2. The steel plate with the thickness of 6 is buried on the overall length under the rail protecting windows (whose width is 60). The anchor bar is ?8@200, 8@200

② Detailed Drawing 1 of stair railing 1:25

③ Detailed Drawing 2 of stair railing 1:25



Section View 1-1 1:25

Islamic University of Technology (IUT), Bangladesh	REVISIONS					
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	R04					
	R03					
	R02					
	R01					
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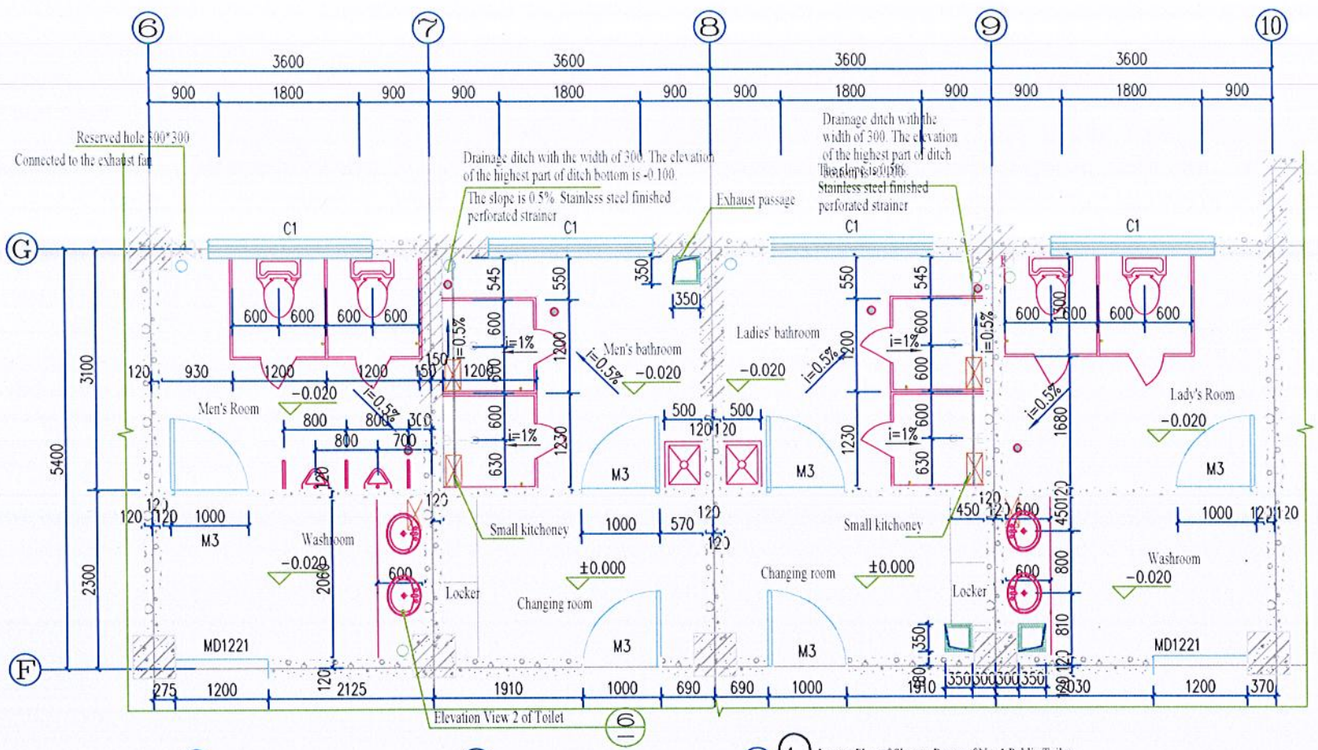
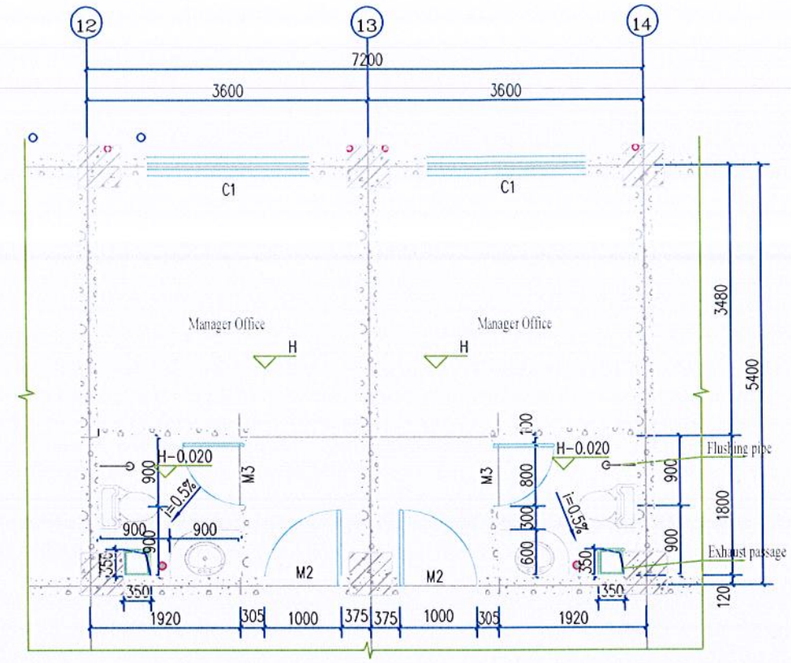
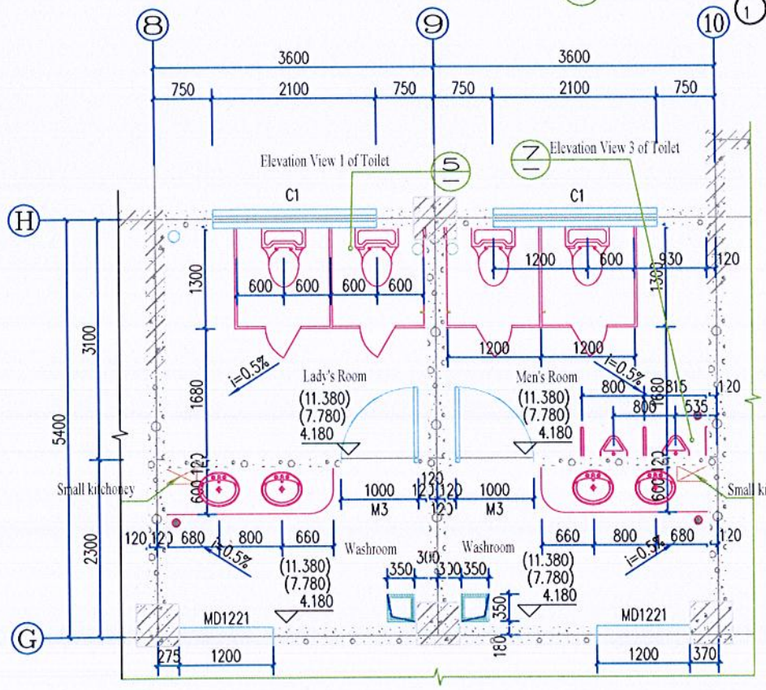
CLIENT	PROJECT TITLE	SIGNATURE		SHEET INFO
BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.	NAME		SCALE: AS SHONE
		DESIGNATION		PAGE NO.: 12 of 18
		SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)	DWG.: Detail Drawing of # 2 Stair



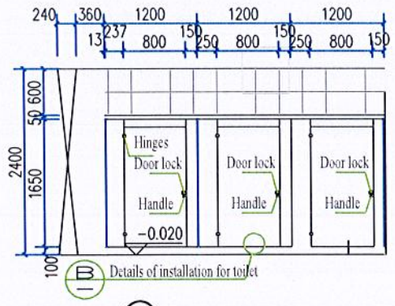
1 Layout Plan of Shower Room of No. 1 Public Toilet



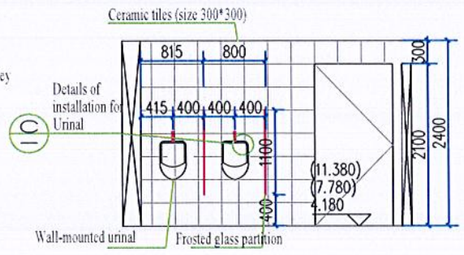
3 Plan of the Toilet in General Manager Office



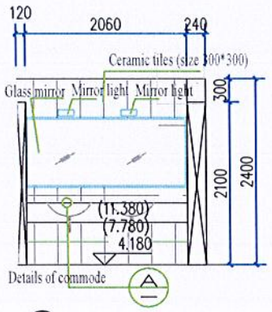
2 Plane Layout of No. 2 Public Toilet



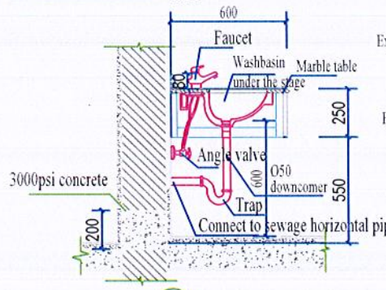
5 Elevation View 1 of Toilet 1:50



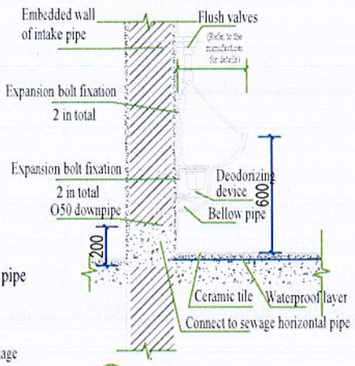
7 Elevation View 3 of Toilet 1:50



6 Elevation View 2 of Toilet 1:50



A Details of the Commode under the Stage 1:20



C Details of Wall-mounted Urinal 1:20

	REVISIONS					
	R05					
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	R03					
	R02					
	R01					
	R00	1st Issue	A.H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN
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PROJECT TITLE: RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.

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SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)		DWG.: Detail Drawing of Toilet

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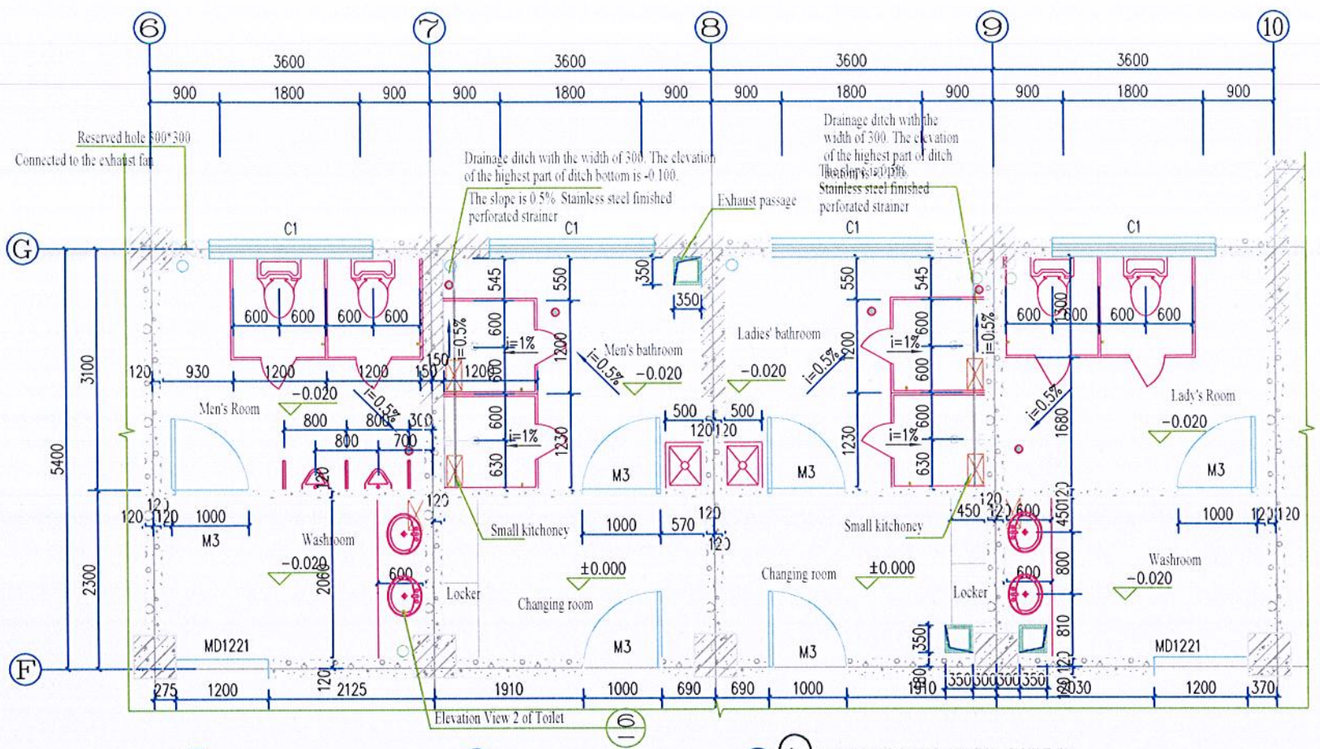
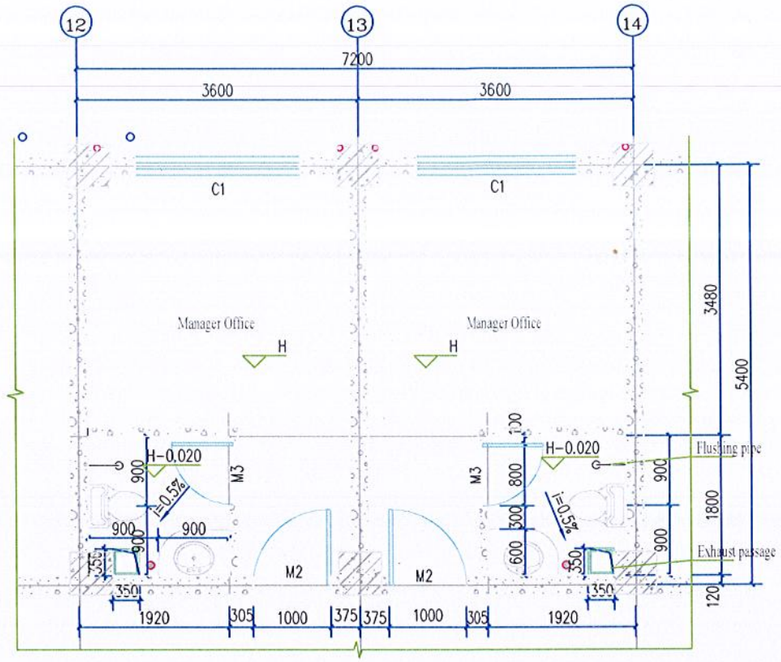
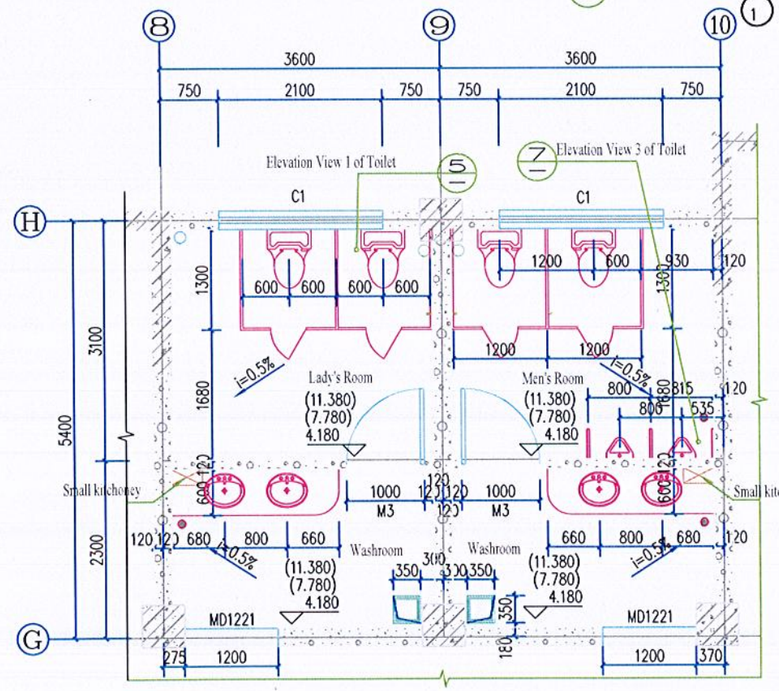
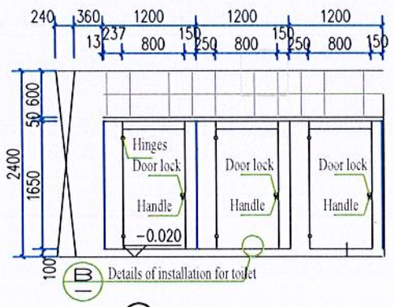
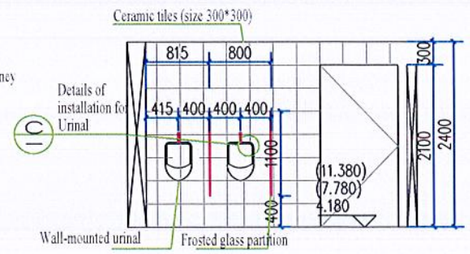
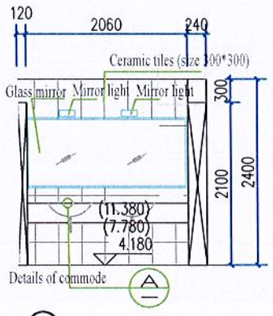


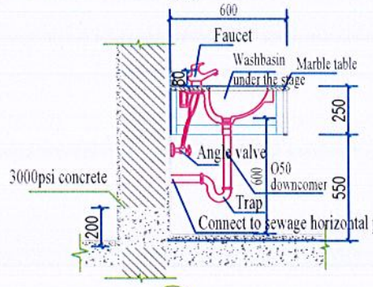


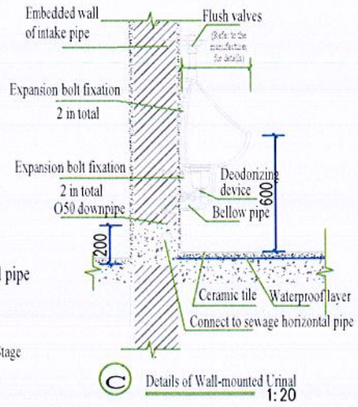




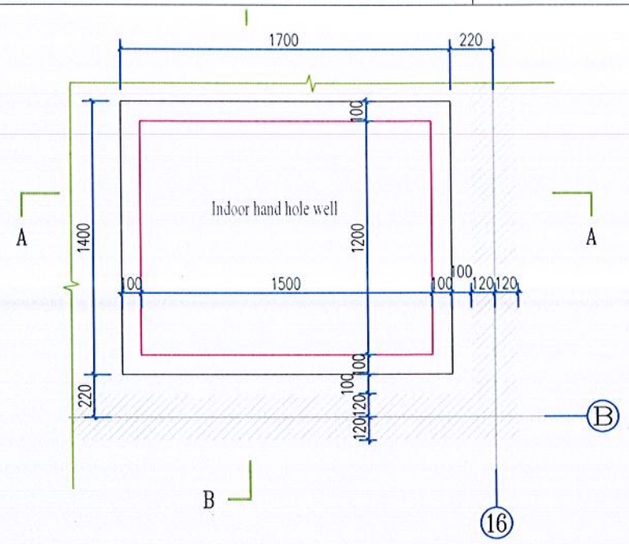




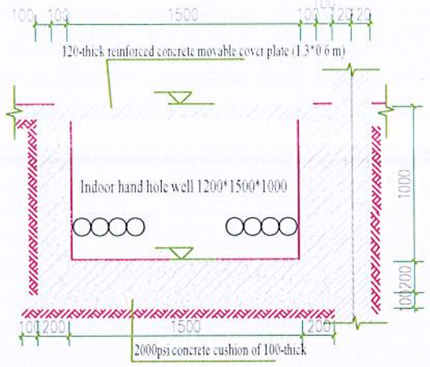




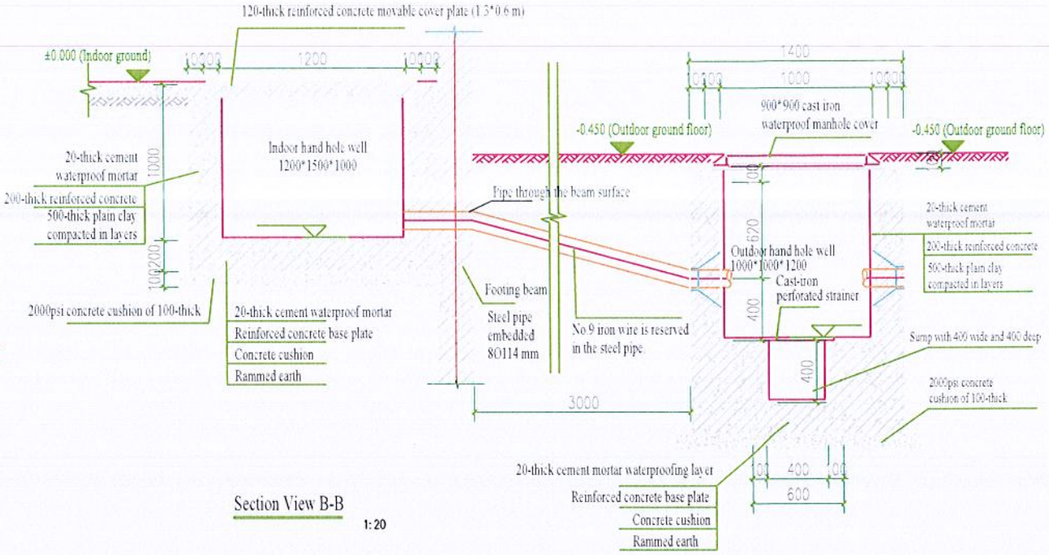
Islamic University of Technology (IUT), Bangladesh	REVISIONS						CLIENT	PROJECT TITLE	SIGNATURE				SHEET INFO
	R05						BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.					DATE: January 26
DevCon DevConsultants Limited (DevCon), Bangladesh	R04								NAME				SCALE: AS SHONE
	R03								DESIGNATION				PAGE NO.: 14 of 18
	R02												
	R01												
	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN			SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)			DWG.: Detail Drawing of Toilet
	REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY							



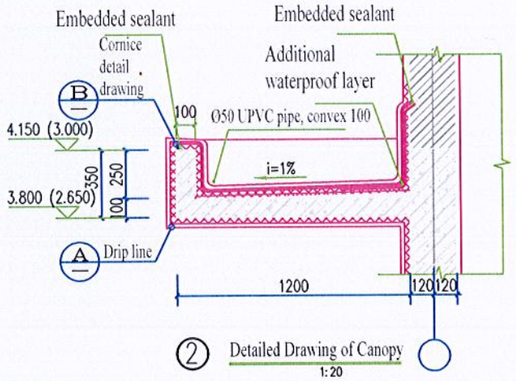
① Floor plan of hand hole well
1:20



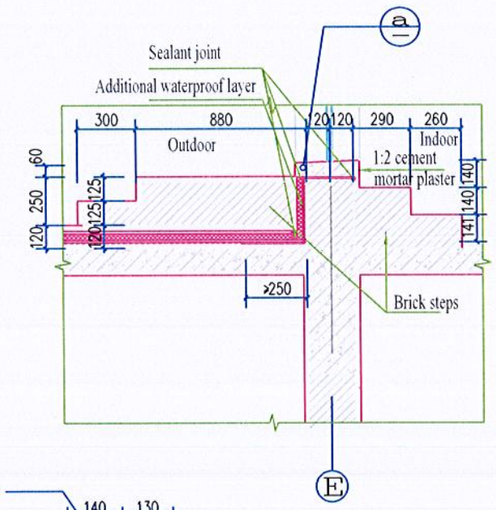
Section View A-A
1:20



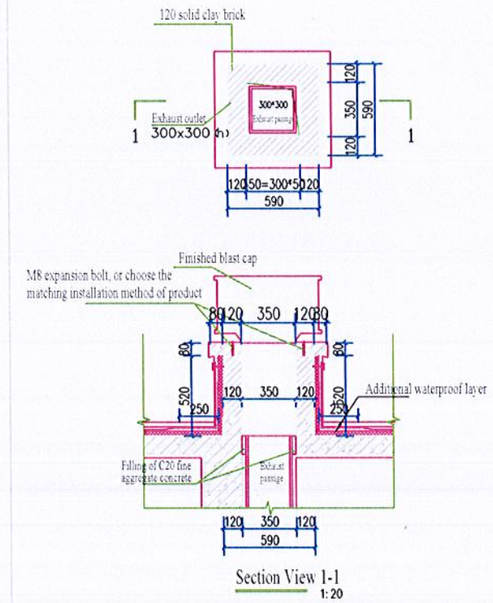
Section View B-B
1:20



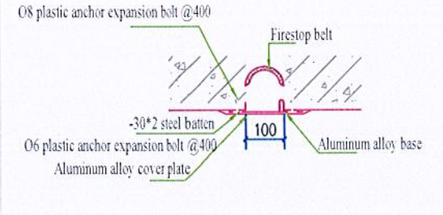
② Detailed Drawing of Canopy
1:20



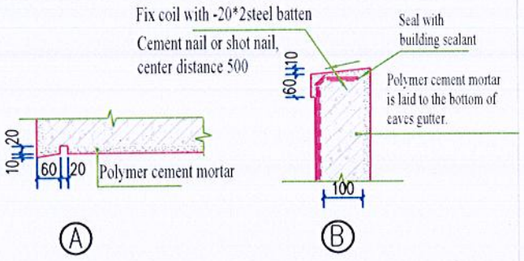
③ Detailed drawing of access of roofing
1:20

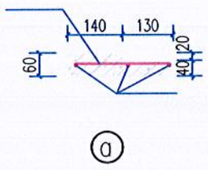


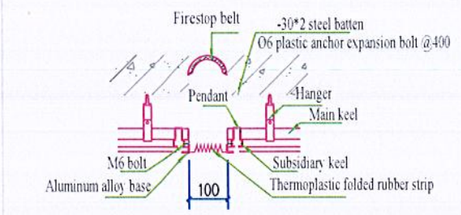
④ Detailed Drawing of Air Duct on Roof
1:20



⑤ Detailed Drawing of Interior Wall Deformation Joint
1:10







⑥ Detailed Drawing of Ceiling Deformation Joint
1:10

Islamic University of Technology (IUT), Bangladesh DevCon DevConsultants Limited (DevCon), Bangladesh	REVISIONS						CLIENT	PROJECT TITLE
	R05						BANGLADESH BRIDGE AUTHORITY DHAKA, BANGLADESH	RENOVATION, WIDENING AND STRENGTHENING OF JAMUNA BRIDGE DECK AND ASSOCIATED WORKS FOR APPROPRIATE USE OF ABANDONED RAIL LINE DURING THE FY 2025-2026.
	R04							
	R03							
	R02							
	R01							
	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN		
	REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY		

SIGNATURE				SHEET INFO
NAME				DATE: January 26
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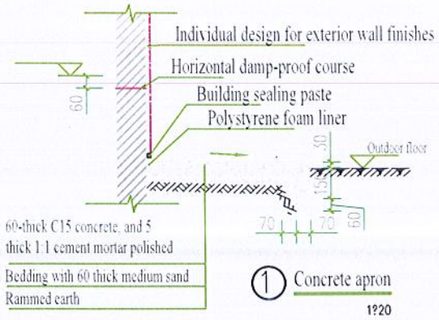
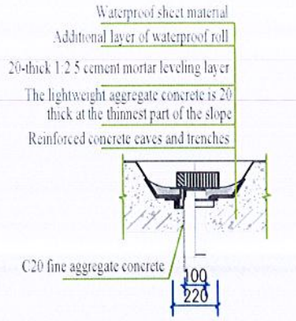
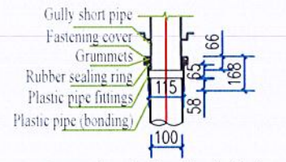


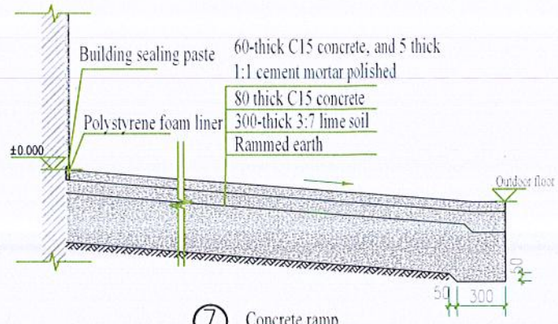
① Concrete apron 1:20



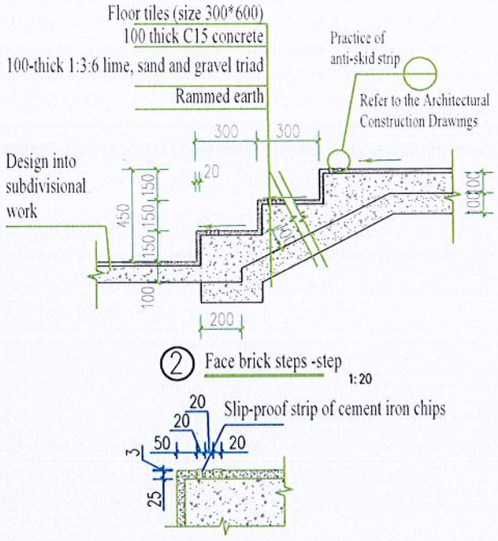
④ 87-type steel gully 1:20



Connection of gully with plastic pipe 1:20

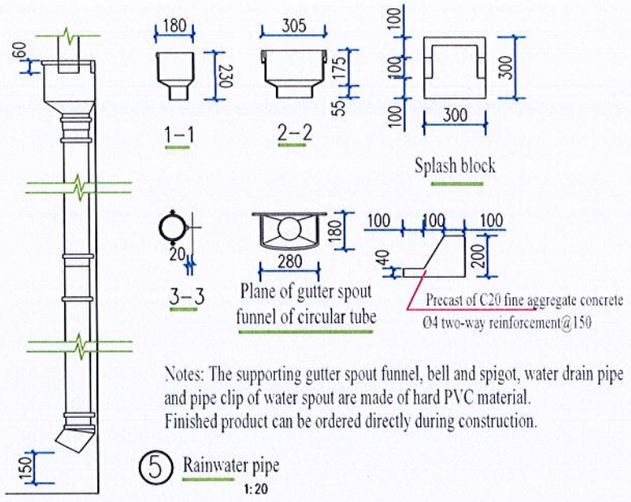


⑦ Concrete ramp 1:25



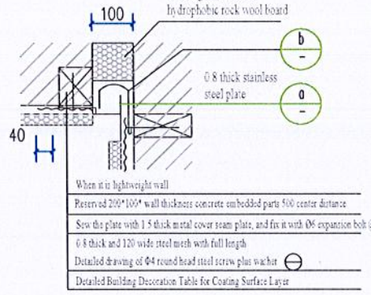
② Face brick steps -step 1:20

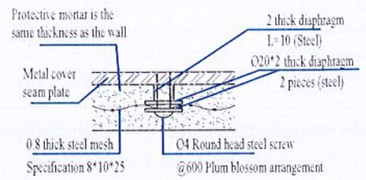
Ⓐ Non-slip strips 1:10



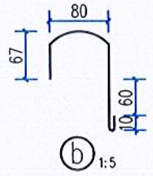
Notes: The supporting gutter spout funnel, bell and spigot, water drain pipe and pipe clip of water spout are made of hard PVC material.
Finished product can be ordered directly during construction.

⑤ Rainwater pipe 1:20

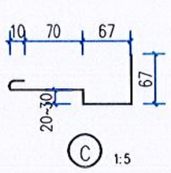




ⓐ 1:5

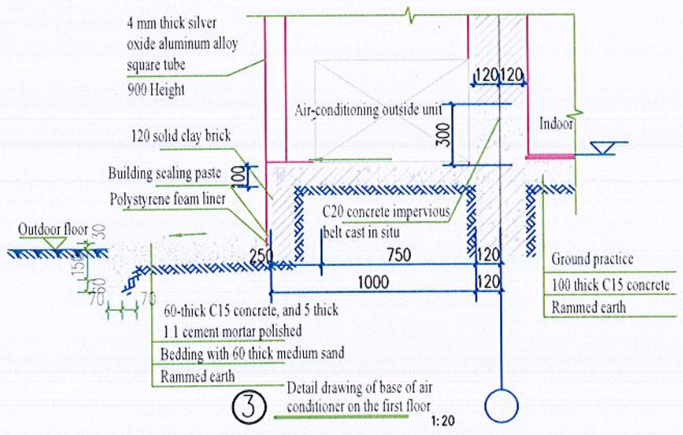


ⓑ 1:5

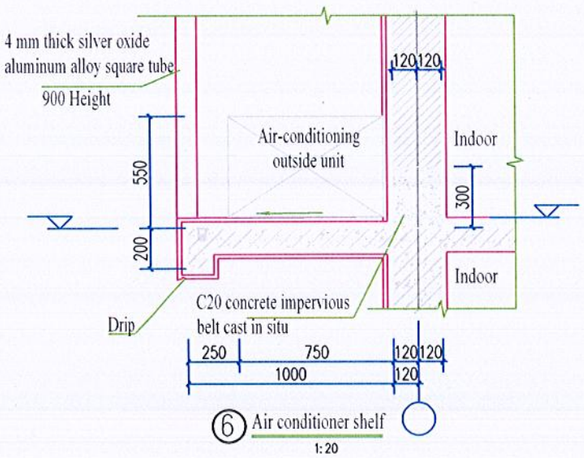


ⓒ 1:5

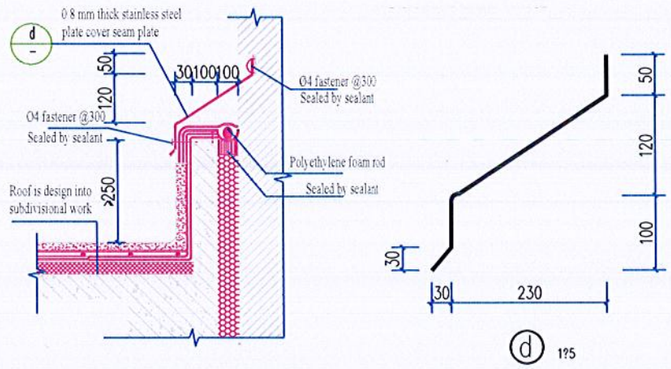
⑧ Exterior wall deformation joint 1:25



③ Detail drawing of base of air conditioner on the first floor 1:20



⑥ Air conditioner shelf 1:20



⑨ Roof deformation joint 1:25

ⓓ 1:5

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	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN
	REV.	DESCRIPTION	DRAWN BY	DESIGNED BY	CHECKED BY	REVIEWED BY

PROJECT TITLE				SHEET INFO
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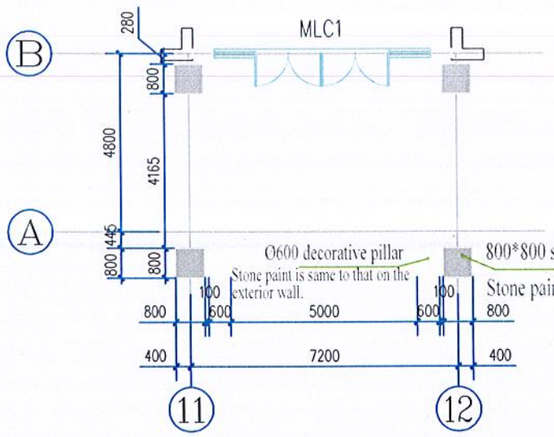
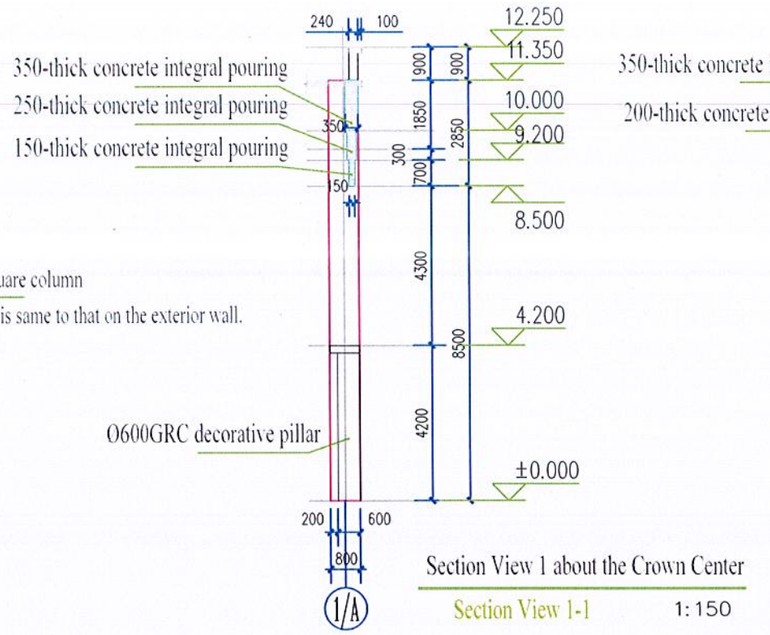


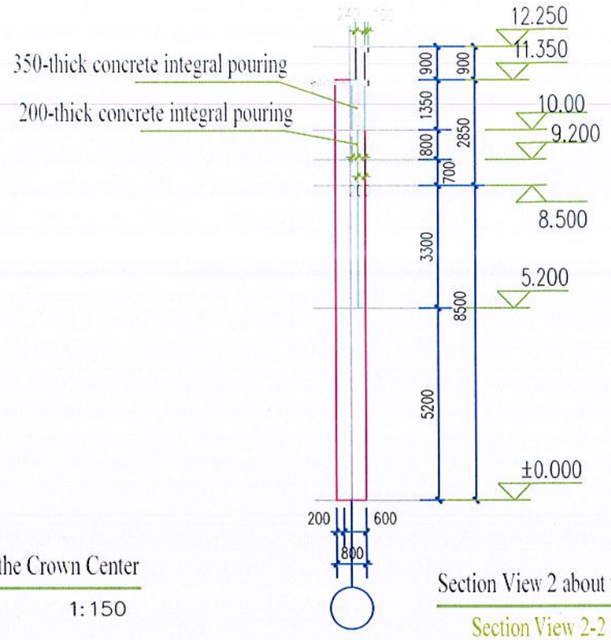
Plan of the Ground Floor of Gatehouse

1:150



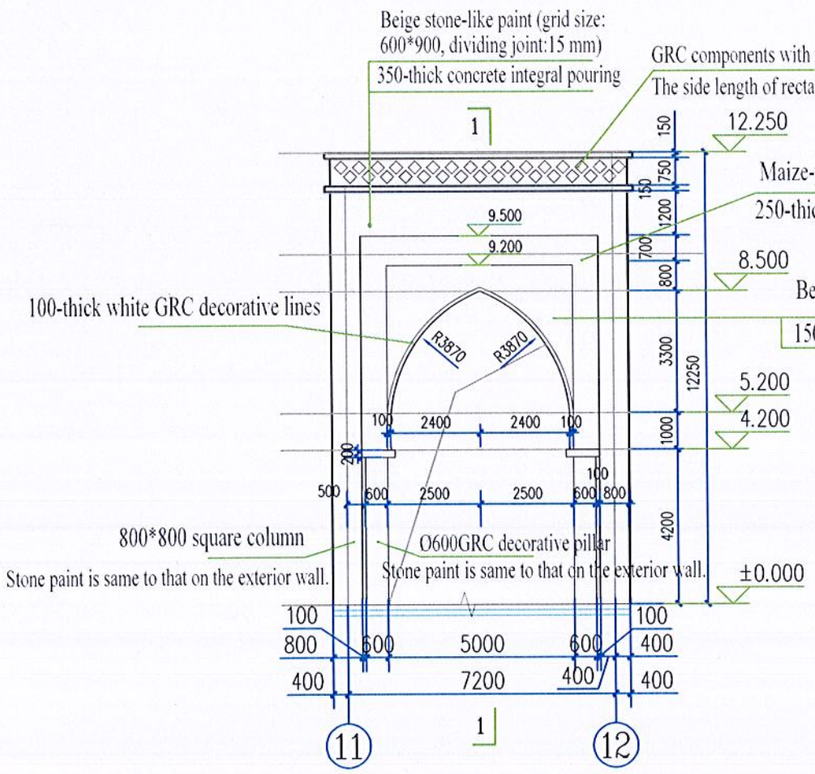
Section View 1 about the Crown Center

Section View 1-1 1:150



Section View 2 about the Crown Center

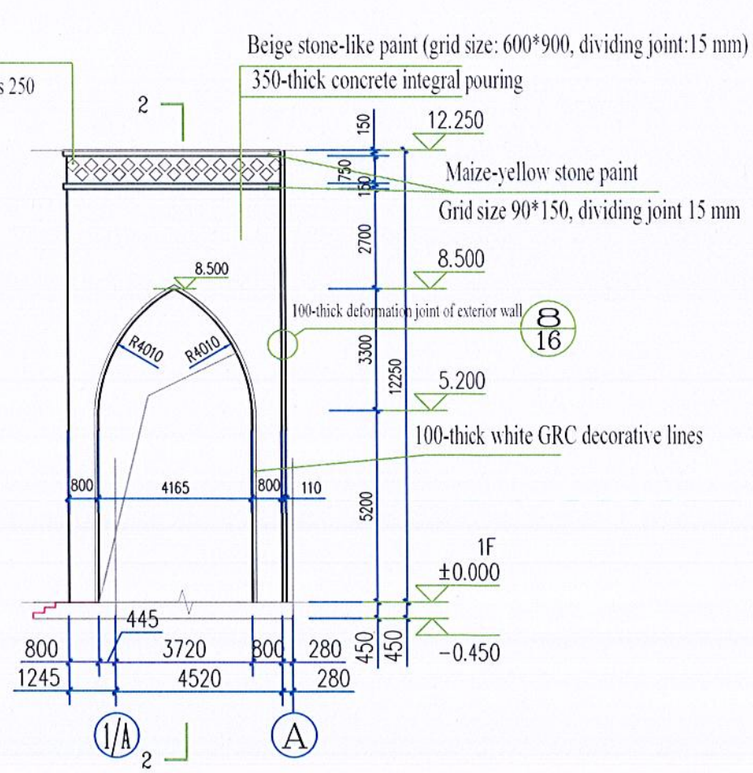
Section View 2-2 1:150



Elevation View on Axes (11) ~ (12) 1:150

Detail Drawing of Gatehouse

1:150



Elevation View on Axes (1/A) ~ (A) 1:150

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	R00	1st Issue	A H TOHA	HUMAYUN KABIR	ZAMAN	MD. TAREK UDDIN			SIZE: A3	DOC. NAME: TOLL PLAZA BUILDING (ARCHITECTURAL)		DWG.: Detail Drawing of Gatehouse
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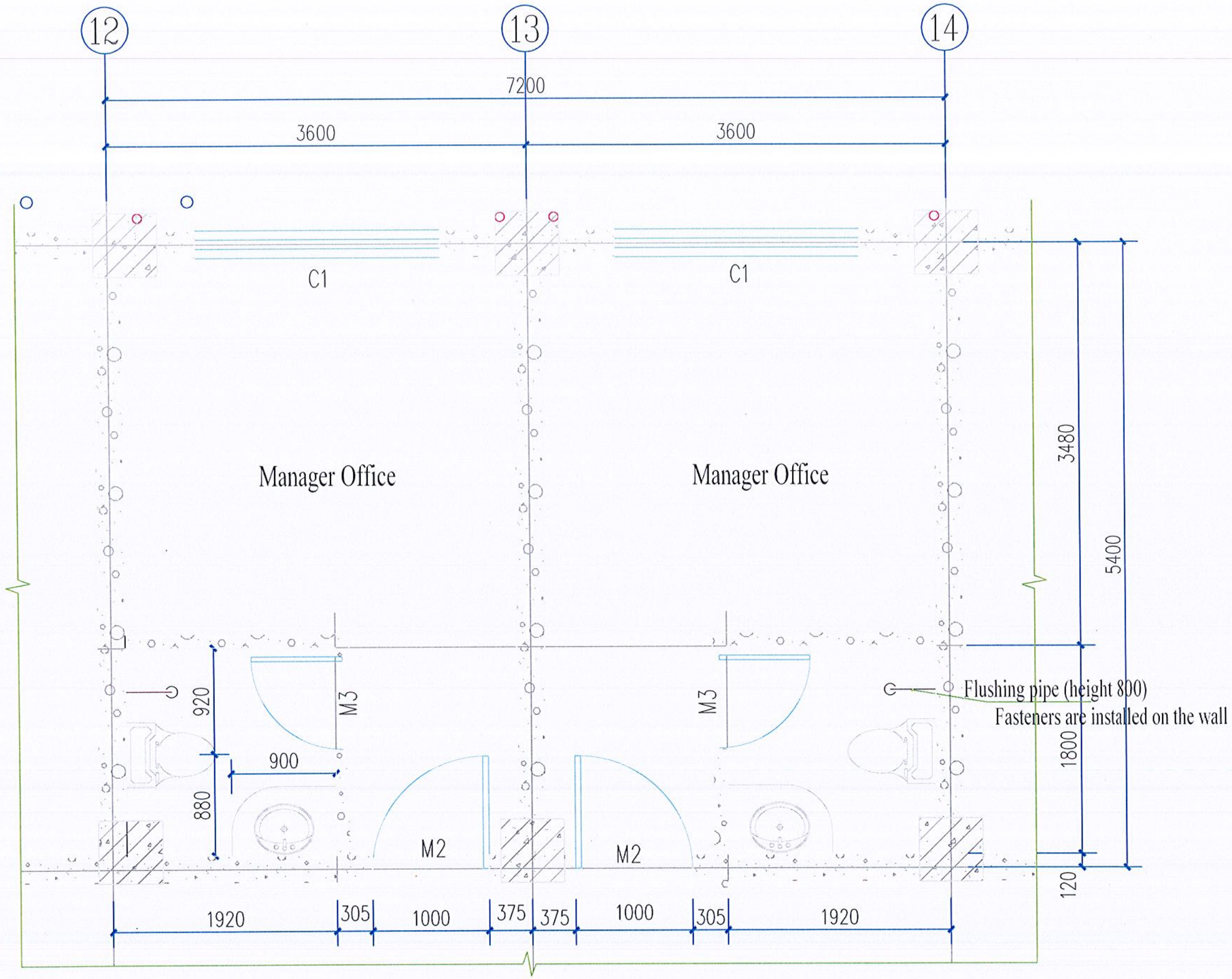

Islamic University of Technology (IUT), Bangladesh DevConsultants Limited (DevCon), Bangladesh	REVISIONS					
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