



Renovation, Upgrading and Adopted Designs of WASH Facilities for DANOD SECONDARY SCHOOL

Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH
and MHM Facilities in selected Secondary Schools in Somali Region

Prepared for: UNICEF

Prepared by: HALBEEG ARCHITECT & ENGINEERING CONSULTANCY

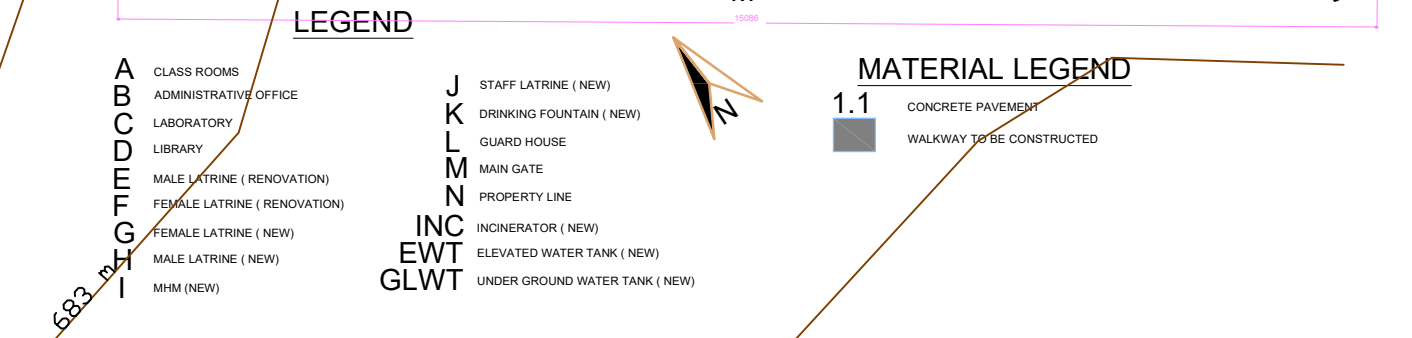
Date: September, 2025



DANOD SECONDARY SCHOOL

SN	DESCRIPTION	Remark
1	Site Plan & Water supply installation	
2	5 Seats Latrine Construction, for Girls	New
3	5 Seats Latrine construction, for Boys	New
4	4 Seat Latrine Renovate & Upgrade, for Girls	Renovate
5	4 Seat Latrine Renovate & Upgrade, for Boys	Renovate
6	2 Seat Latrine construction, for Staffs	New
7	MHM block Construction	New
8	Drinking Water Tap Stand Construction, 12 taps	New
9	Elevated Water Tanker Seat Construction, 10m3	New
10	Incinerator	New

SITE PLAN



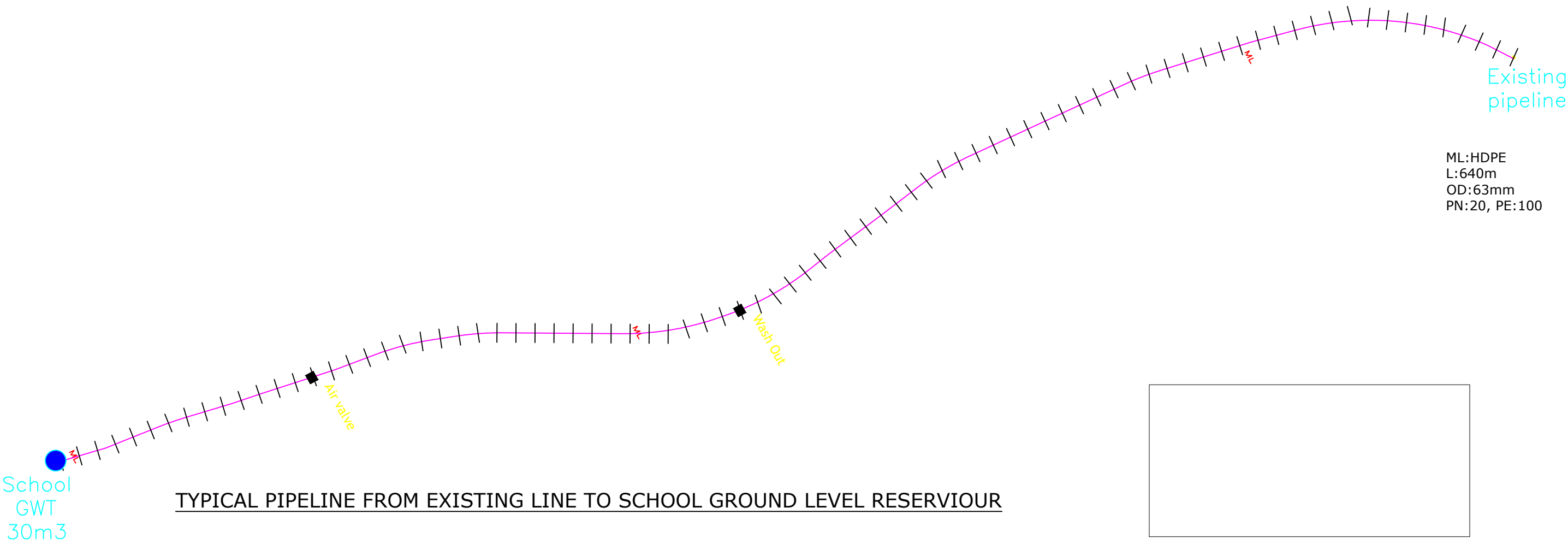
The site plan shows a central corridor running vertically. To the left of the corridor, from top to bottom, are: CLASS ROOMS, ADMINISTRATIVE OFFICE, LABORATORY, LIBRARY, MALE LATRINE (RENOVATION), FEMALE LATRINE (RENOVATION), FEMALE LATRINE (NEW), MALE LATRINE (NEW), and MHM (NEW). To the right of the corridor, from top to bottom, are: STAFF LATRINE (NEW), DRINKING FOUNTAIN (NEW), GUARD HOUSE, MAIN GATE, PROPERTY LINE, INCINERATOR (NEW), ELEVATED WATER TANK (NEW), and UNDER GROUND WATER TANK (NEW). The plan also includes a north arrow pointing towards the top right and a scale bar at the bottom left.

Room	Location
CLASS ROOMS	Left
ADMINISTRATIVE OFFICE	Left
LABORATORY	Left
LIBRARY	Left
MALE LATRINE (RENOVATION)	Left
FEMALE LATRINE (RENOVATION)	Left
FEMALE LATRINE (NEW)	Left
MALE LATRINE (NEW)	Left
MHM (NEW)	Left
STAFF LATRINE (NEW)	Right
DRINKING FOUNTAIN (NEW)	Right
GUARD HOUSE	Right
MAIN GATE	Right
PROPERTY LINE	Right
INCINERATOR (NEW)	Right
ELEVATED WATER TANK (NEW)	Right
UNDER GROUND WATER TANK (NEW)	Right

MATERIAL LEGEND

1.1  CONCRETE PAVEMENT

 WALKWAY TO BE CONSTRUCTED



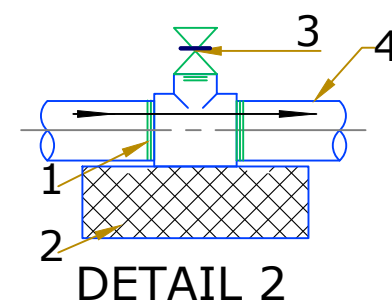
PROJECT
Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH and MHM Facilities in selected Secondary Schools in Somali Region

OWNER
UNICEF

DRAWING TITLE
MAIN PIPE LAYOUT
DANOD SECONDARY SCHOOL

CAD BY:
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

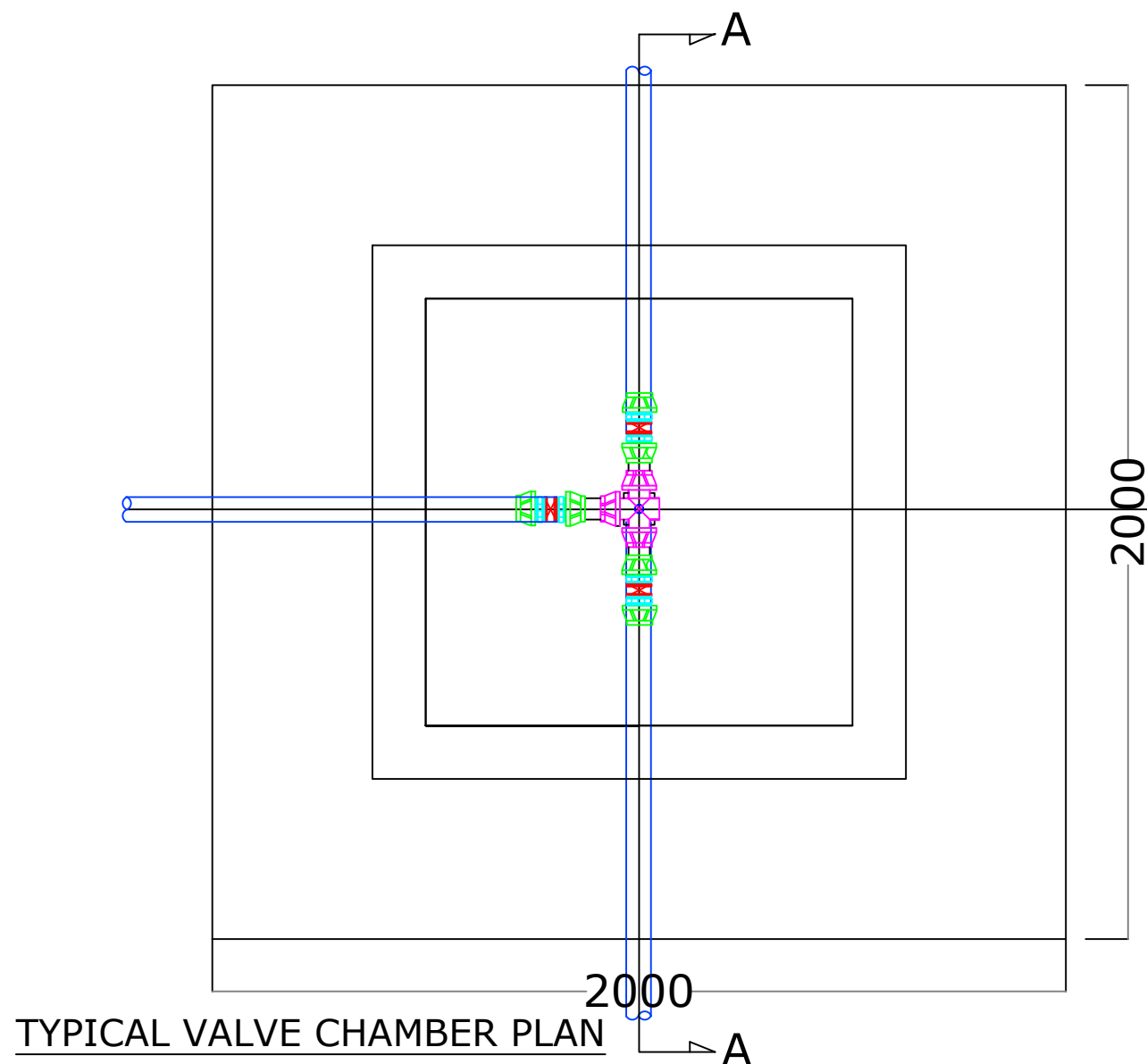
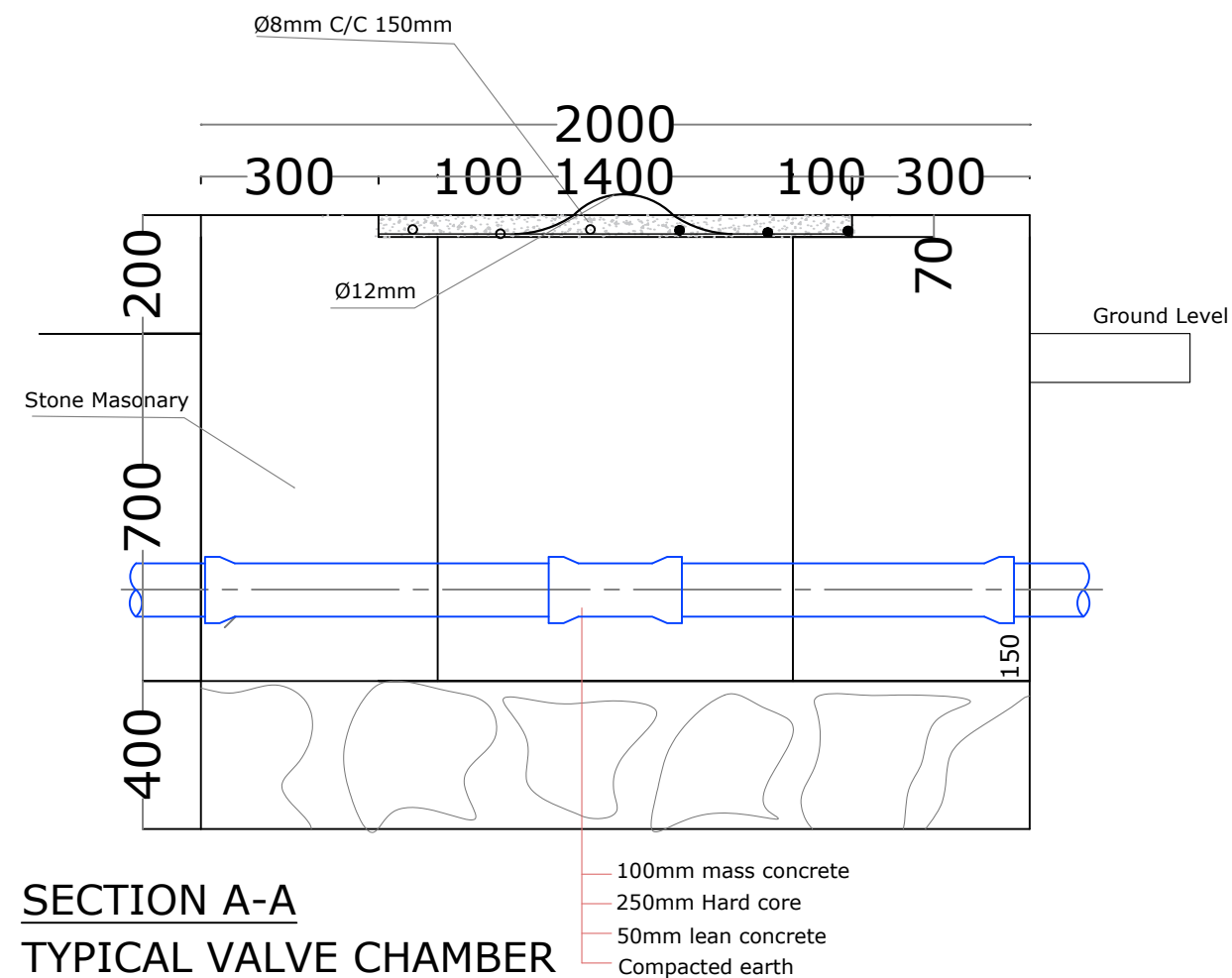
SCALE AS SHOWN	DATE SEPT.,2025	DT 01/04
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- ① Butt welding Flanged Tee
- ② Concrete Thrust block, 30X20cm
- ③ 2.5 " FLANGED GATE VALVE
- ④ HDPE Pipe



- ① HDPE Female Adaptor
- ② 2.5" NIPPLE
- ③ 2.5" INTERNALLY THREADED GATE VALVE
- ④ DN60 BLIND FLANGE WITH 2.5 " BORE
- ⑤ DN60 AIR RELEASE VALVE
- ⑥ HDPE PIpe
- ⑦ Butt welding Flnaged reducing Tee



CHAMBER BOX (J2/J4)

	1	HDPE Male Adaptor OD	32	3
	3	HDPE Piece Pipe OD	25	1
	4	HDPE Compression Equal Cross Tee OD	32x32x32	1
	5	HDPE Compression Tapper OD	32x25	1
	2	Bronze gate valve DN32	32	1

CHAMBER BOX (J3)

	1	HDPE Male Adaptor OD	32	4
	4	HDPE Compression Equal Cross Tee OD	32x32x32	1
	5	HDPE Compression Tapper OD	32x40	1
	6	HDPE Piece Pipe OD	40	1
	2	Bronze gate valve DN32	32	2

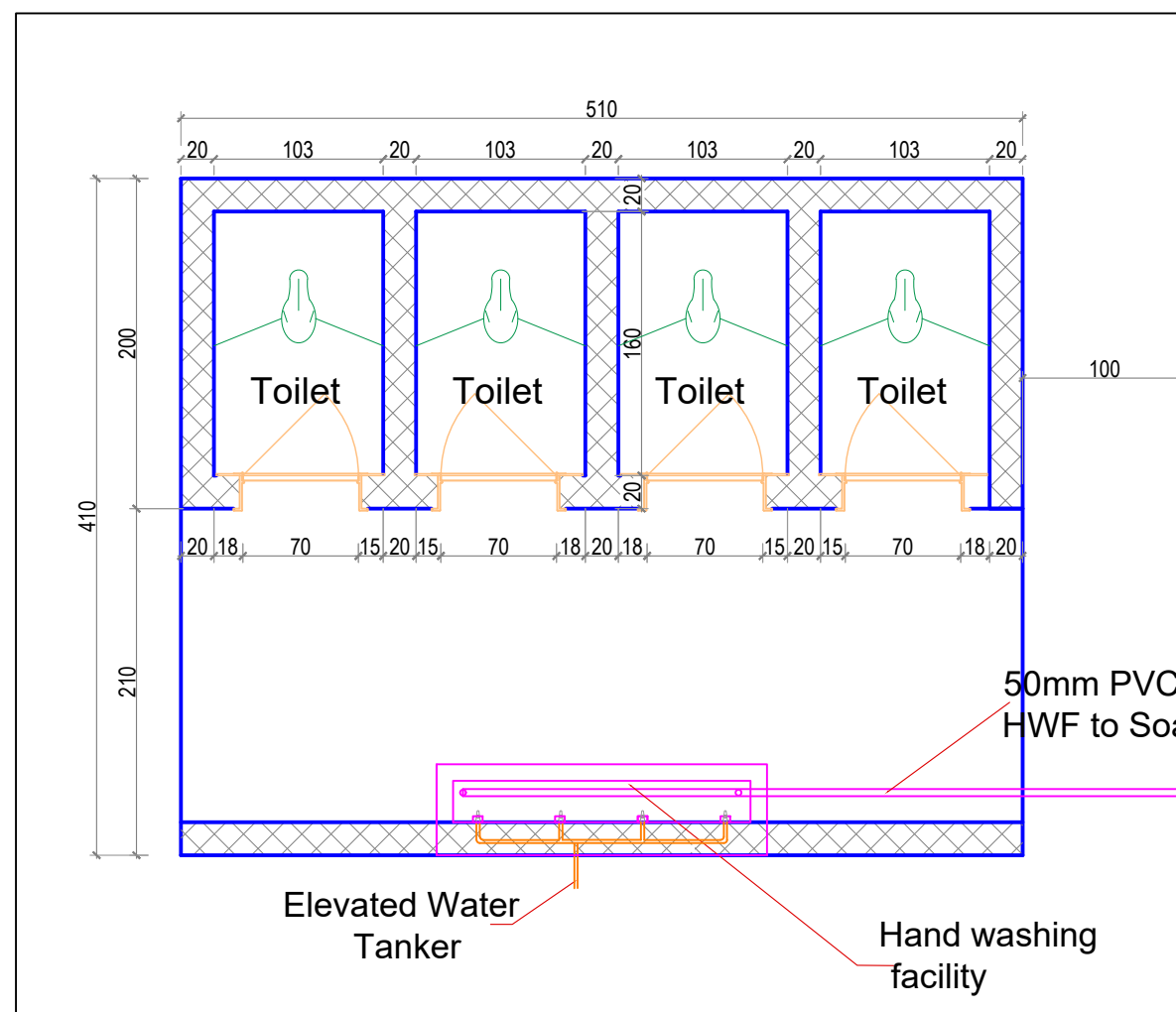
CHAMBER BOX (J5/J6)

	1	HDPE Male Adaptor OD	25	2
	2	Bronze gate valve DN32	25	1
	4	HDPE Compression Equal Cross Tee OD	25x25x25	1
	5	HDPE Compression Tapper OD	32x25	1
	6	HDPE Piece Pipe OD	32	1

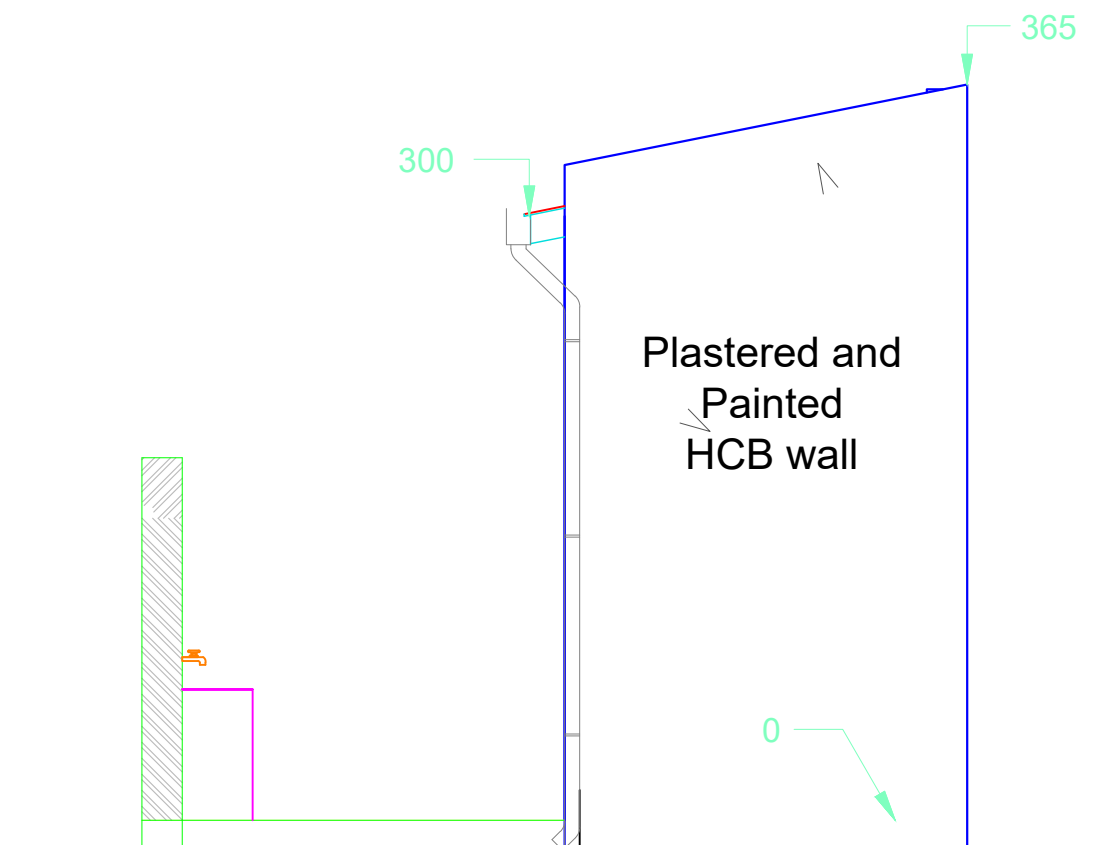
CHAMBER BOX (J1)

	1	HDPE Male Adaptor OD	32	3
	2	Bronze gate valve DN32	32	1
	4	HDPE Compression Equal Cross Tee OD	32x32x32	1
	5	HDPE Compression Tapper OD	32x25	1
	6	HDPE Piece Pipe OD	25	1
	2	Bronze gate valve DN32	32	1

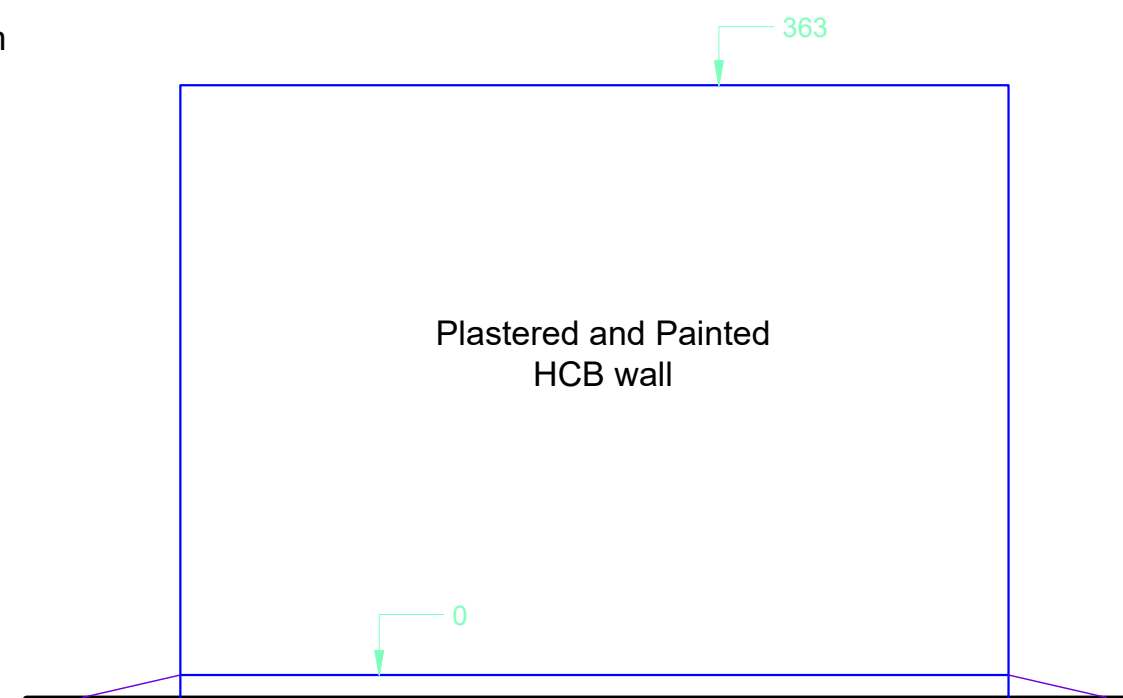
RENOVATION & UPGRADING OF WASH FACILITIES



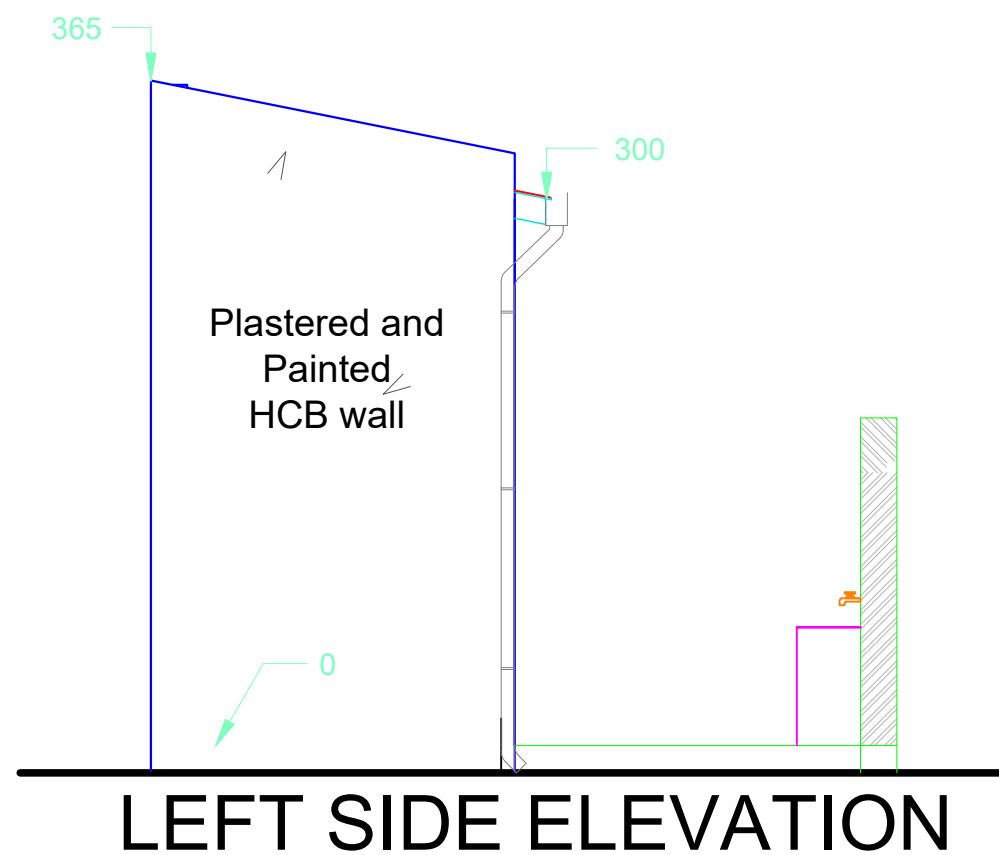
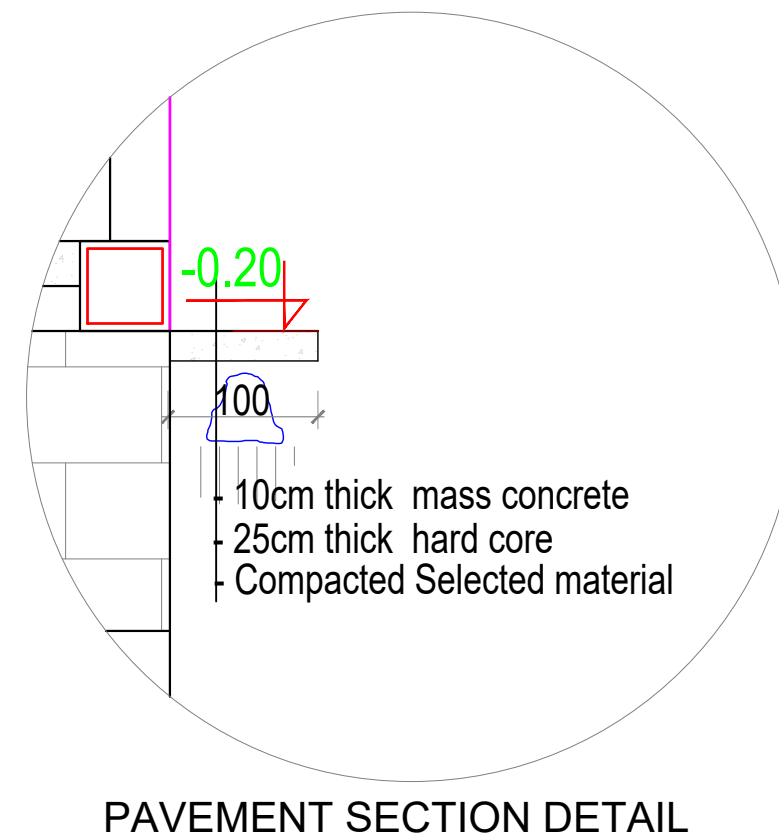
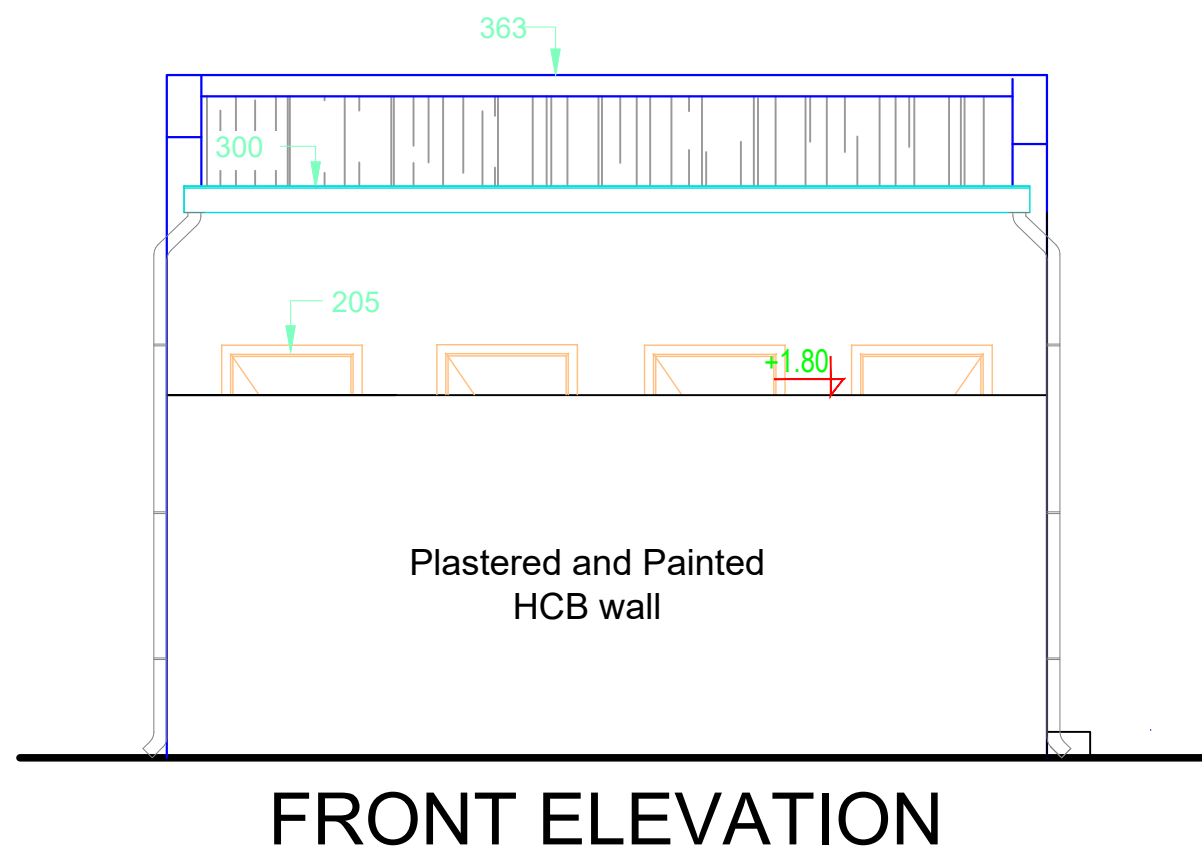
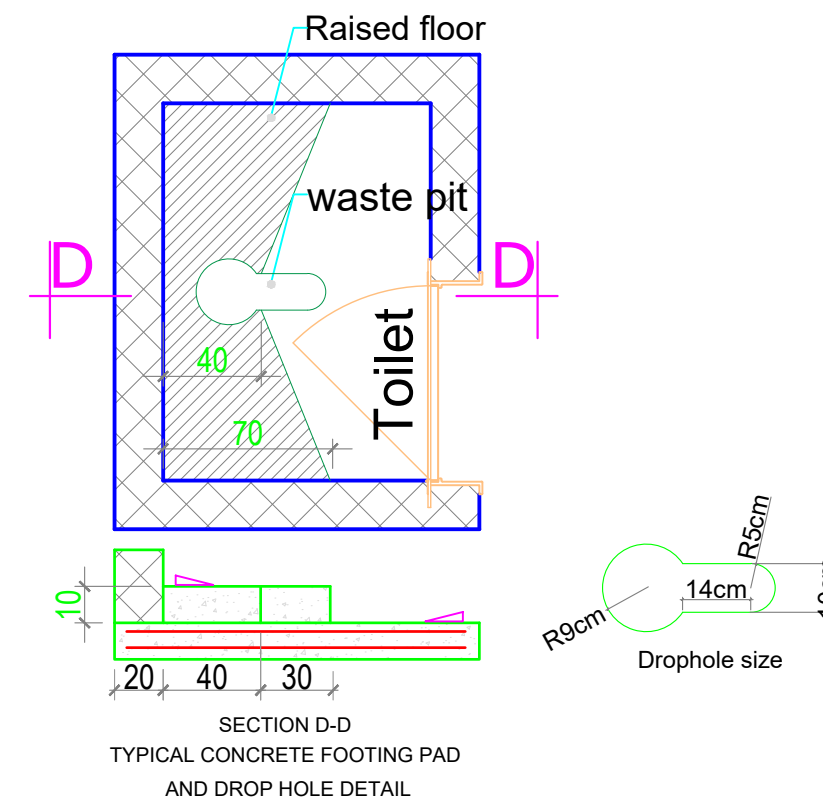
FLOOR PLAN



RIGHT SIDE ELEVATION



REAR SIDE ELEVATION



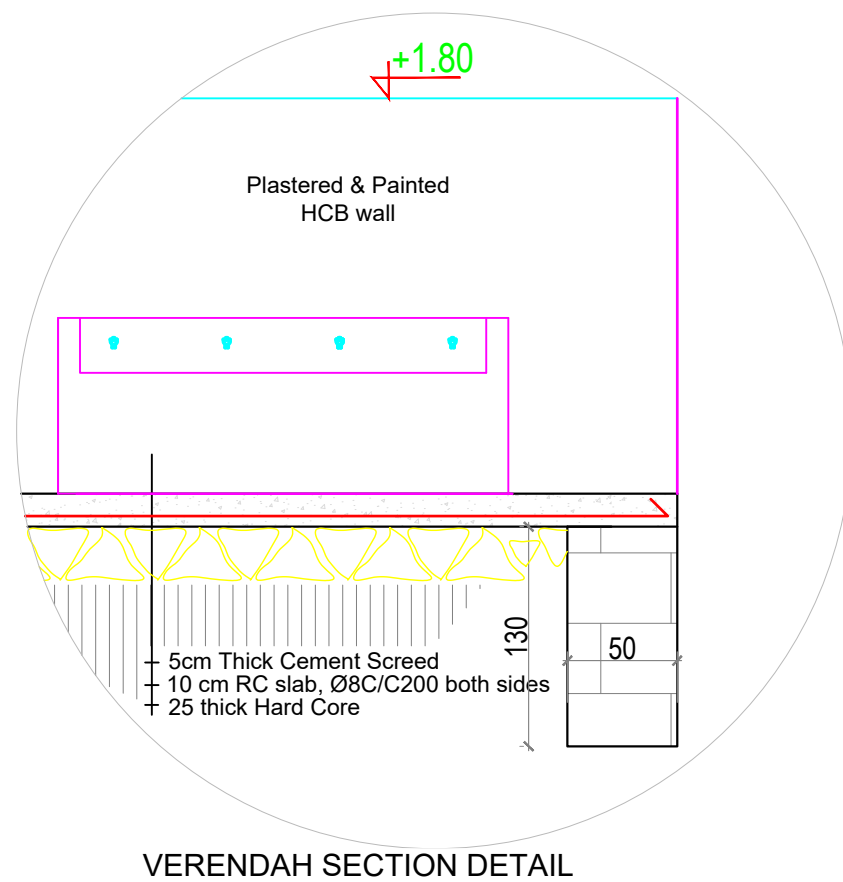
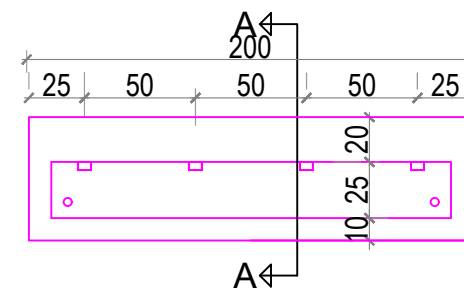
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OWNER
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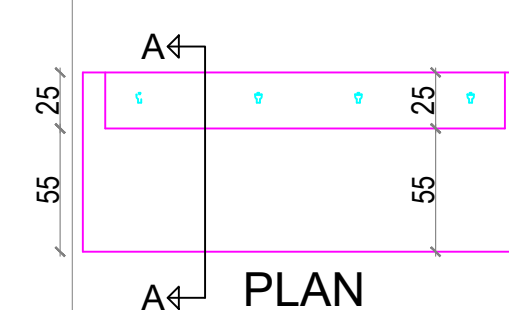
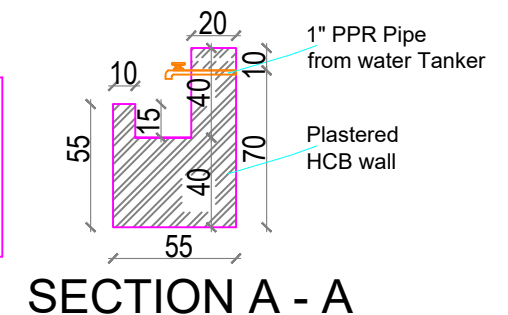
DRAWING TITLE
4 SEATS LATRINE BLOCK FOR BOYS (RENOVATION OF EXISTING LATRINE)
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

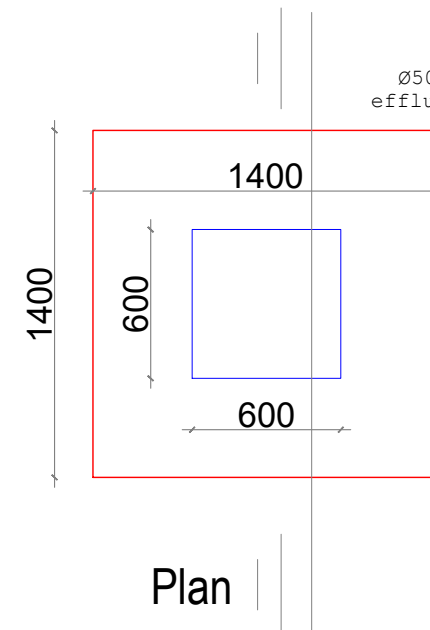
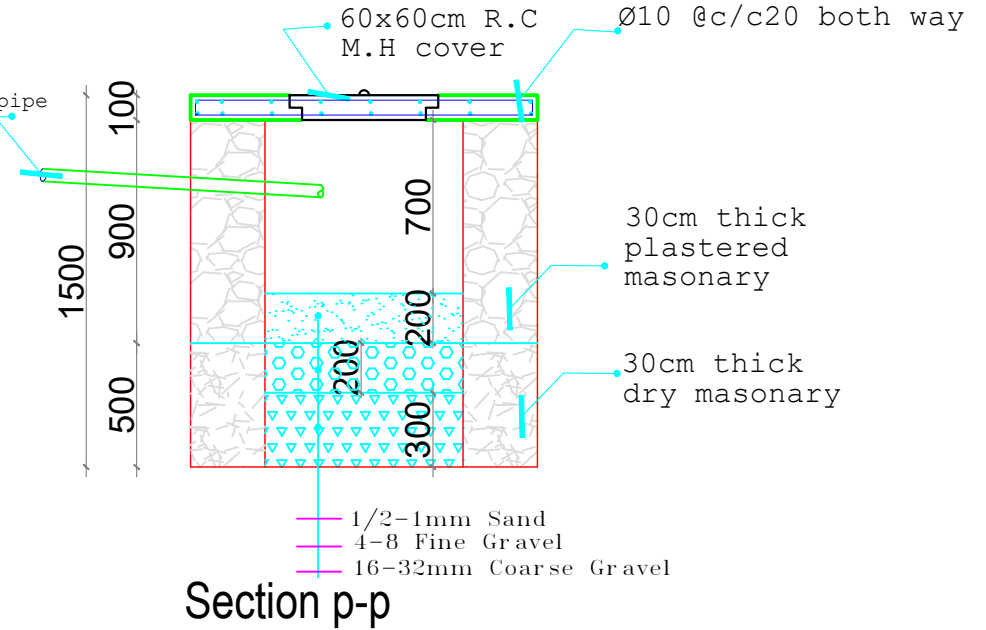
SCALE AS SHOWN	DATE SEPT., 2025	AR 02/03
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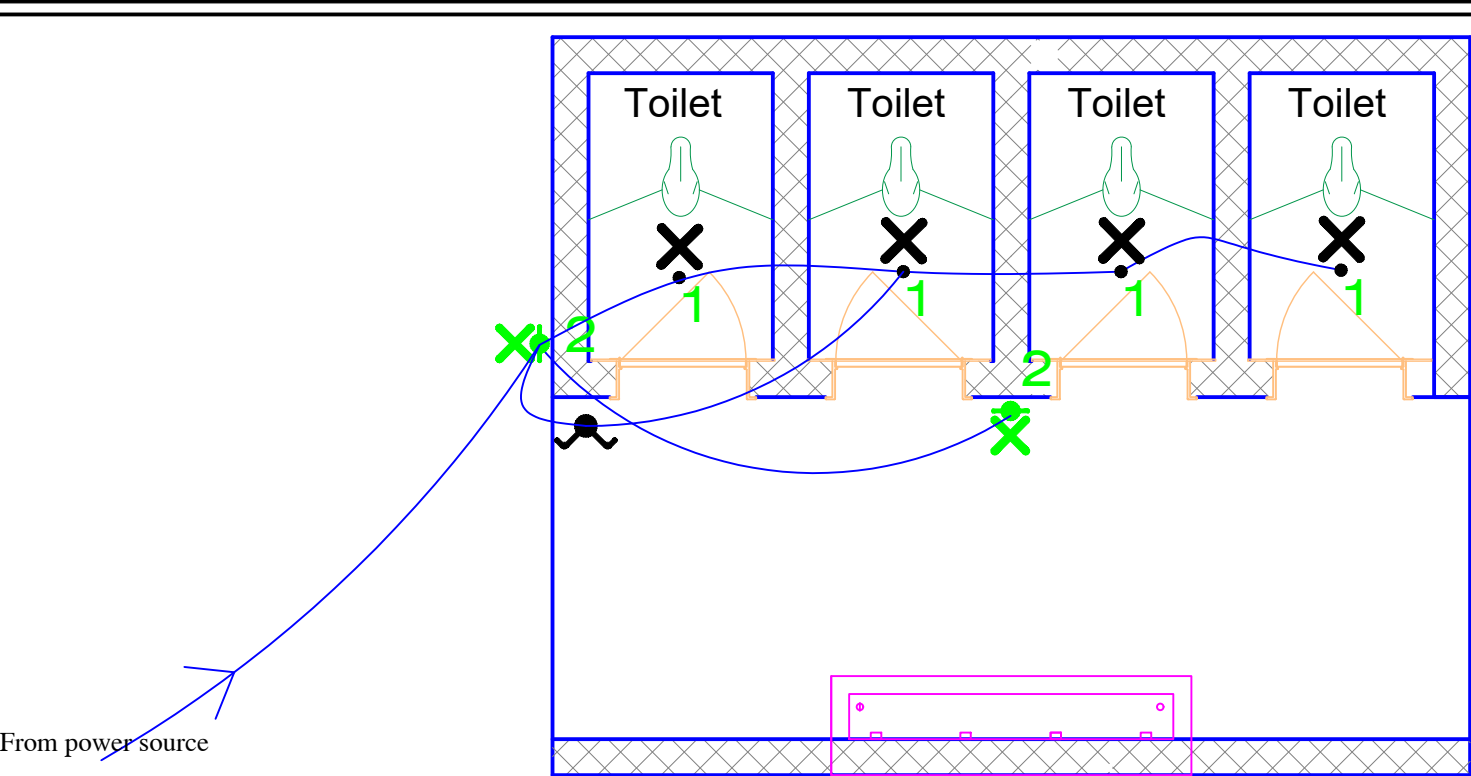


FAUCET DETAIL



SOAK AWAY PIT





FLOOR PLAN

FITTING No	TYPE OF LIGHT FITTING	LOCATION
1	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm	Internal Toilet Rooms
2	TYPE 2.Philips outdoor Lorikeets wall lantern LED black 1x3.5W water resistance IP 44	External Wall mounted Light

FROM

3X4MM²

FROM EXISTING

MDB

P-TOTAL

0.171

KW

P-MAX

0.171

KW

I-L

0.971A

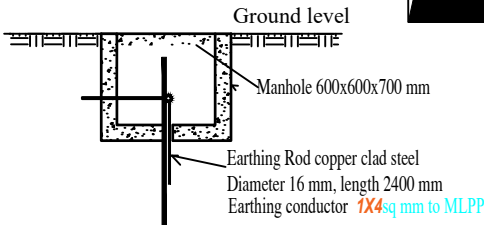
NAME

SDB-TOILET

DF 1

20A/1P

SDB-F.TOILET							
B.NO	DESCRIPTION	P(KW)	A(mm ²)	I(A)	R	S	T
1	LIGHTING	0.1415	2x2.5	10	0.171		
2	RESERVE						
3	TOTAL				0.17		



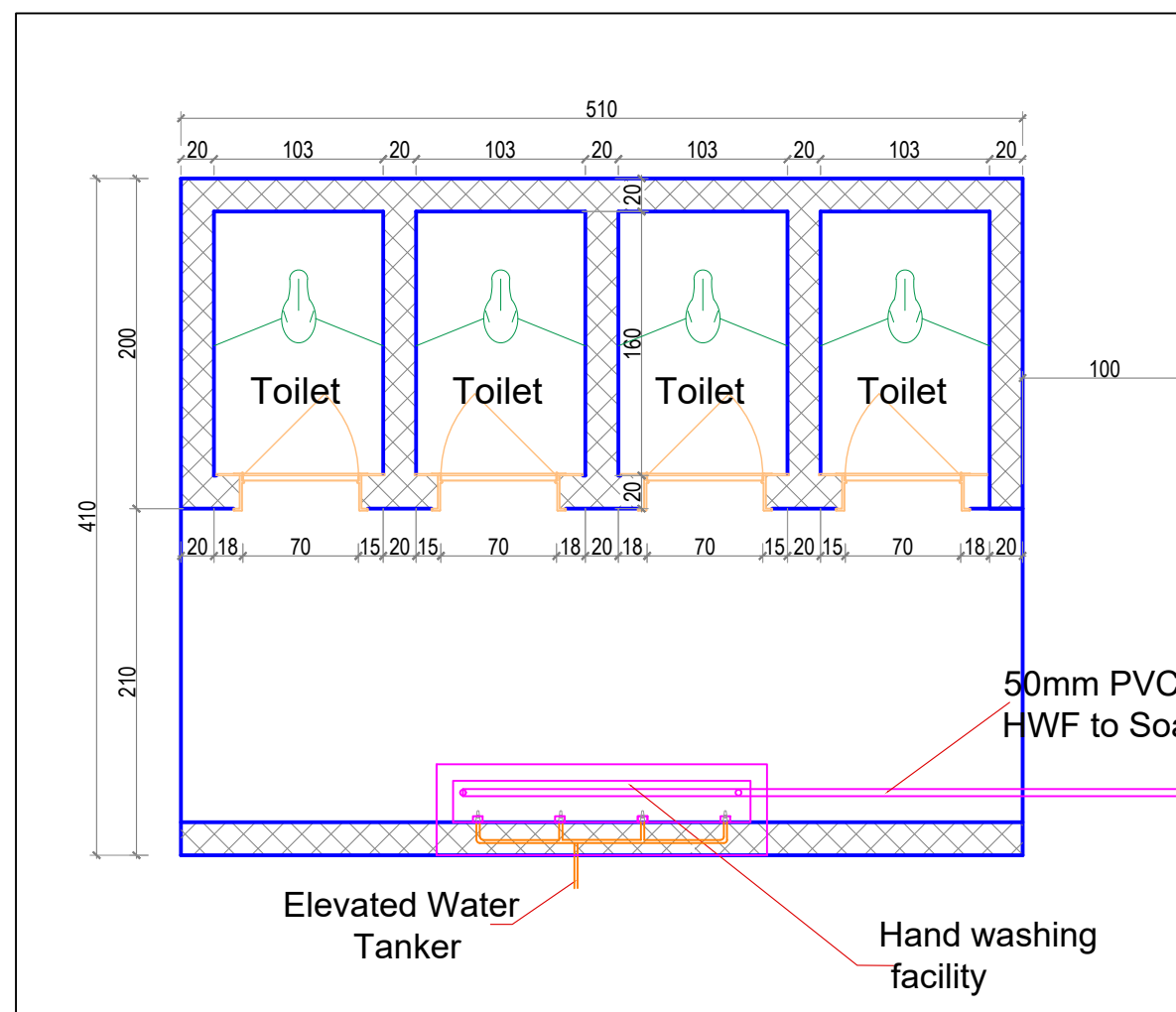
1. Earthing resistance shall not be greater than 5 Ohm.
2. If earthing resistance is greater than 5 Ohm additional electrode shall be buried spaced not less than the length of the electrode.

LEGEND

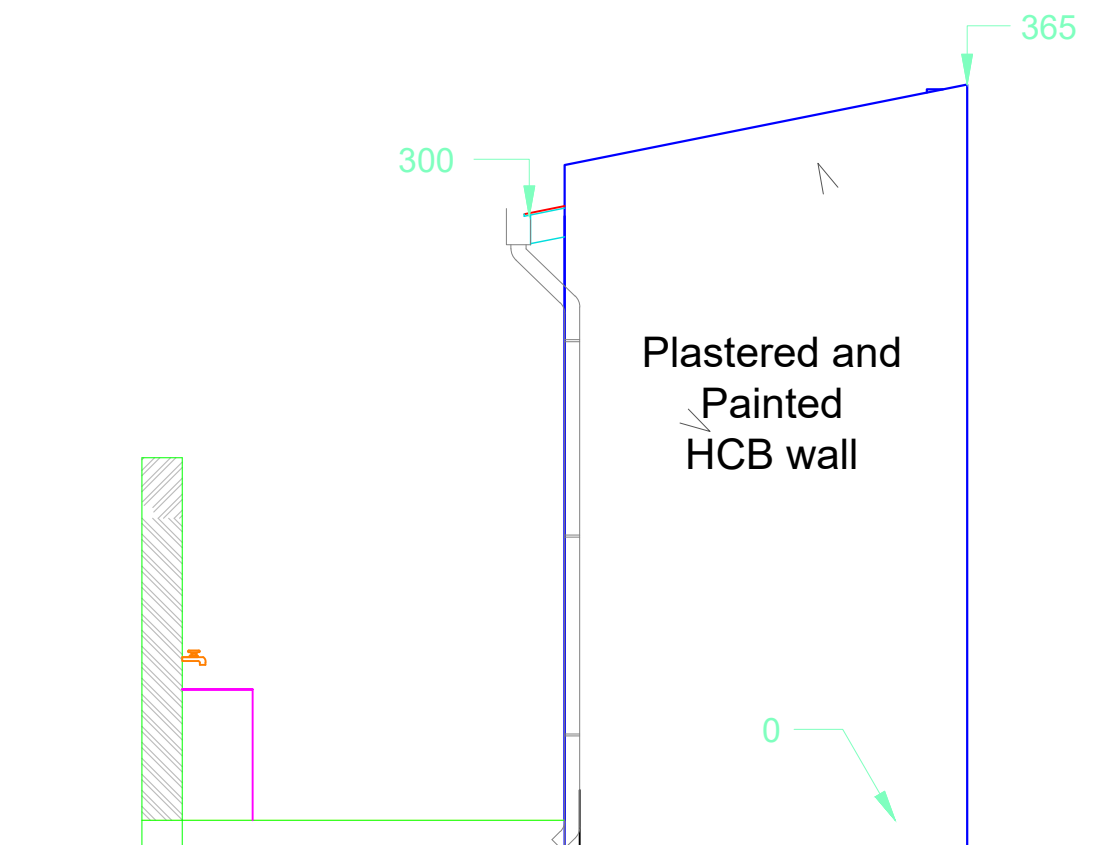
- Light fitting, fluorescent, wall mounted
- Light fitting, CFL, ceiling mounted
- Two way double gang - multi circuit switch, 6A - flush mounted

Note

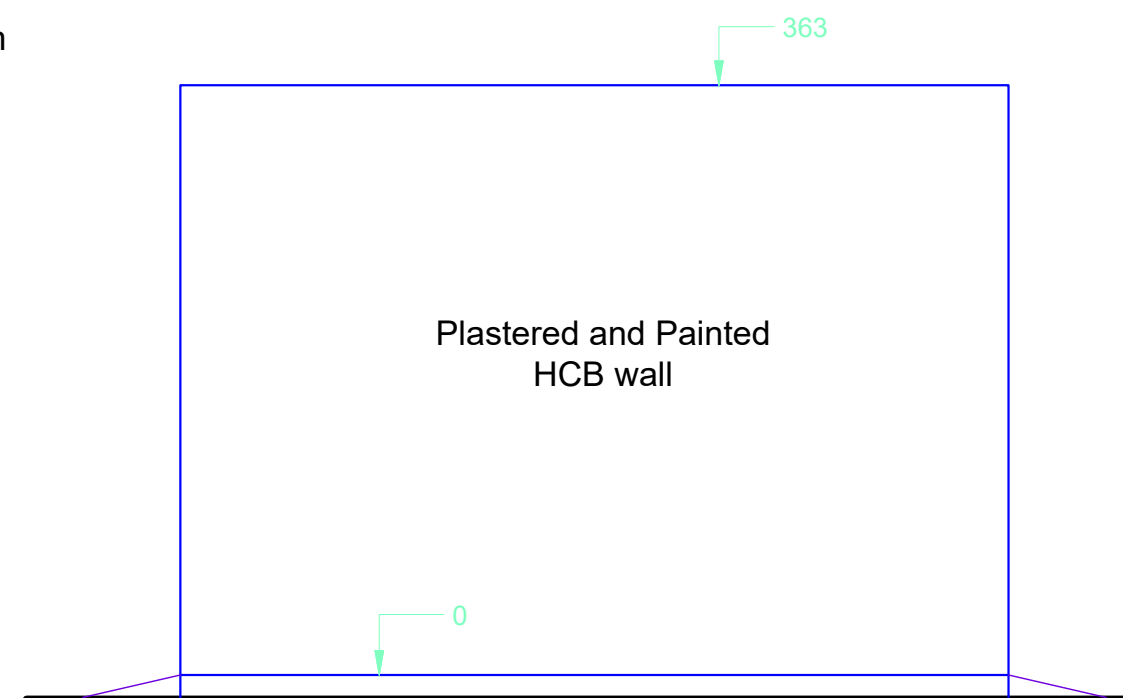
The recommended switch box location is 1.20m - 1.30m from FFL & 15cm from door edge. Locate switch box 92cm above FFL in Disable room & 15cm from door edge. All electric wires needs to run through PVC condutes and closed junction box.



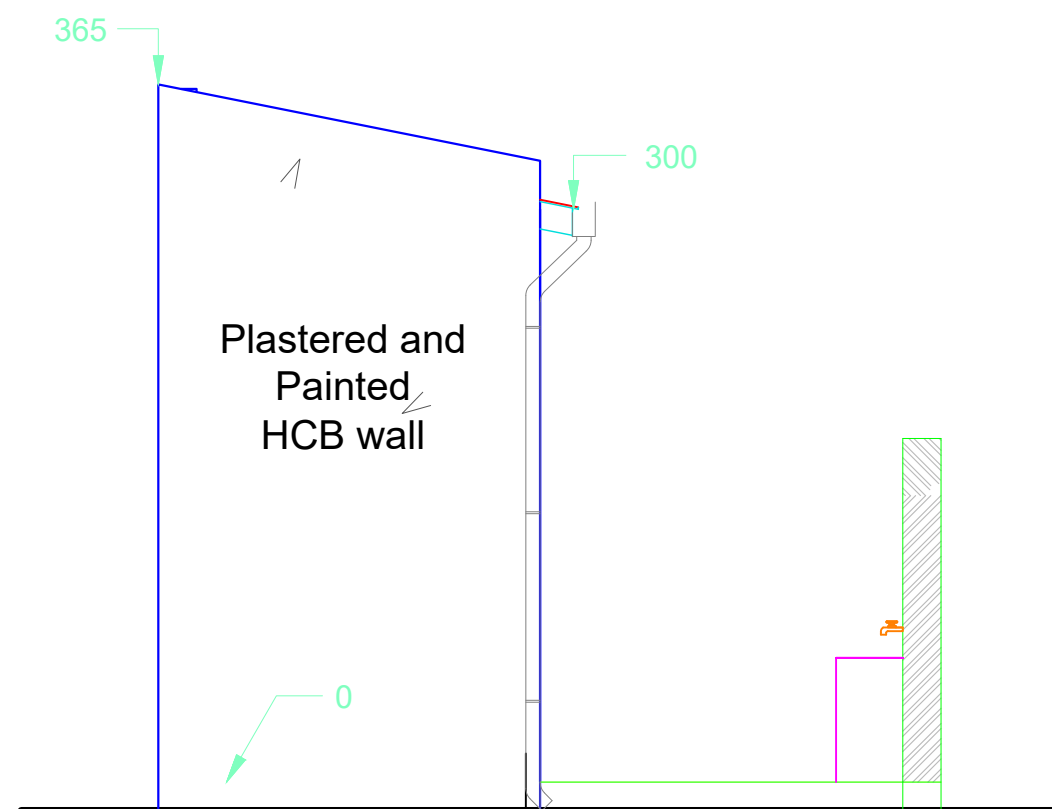
FLOOR PLAN



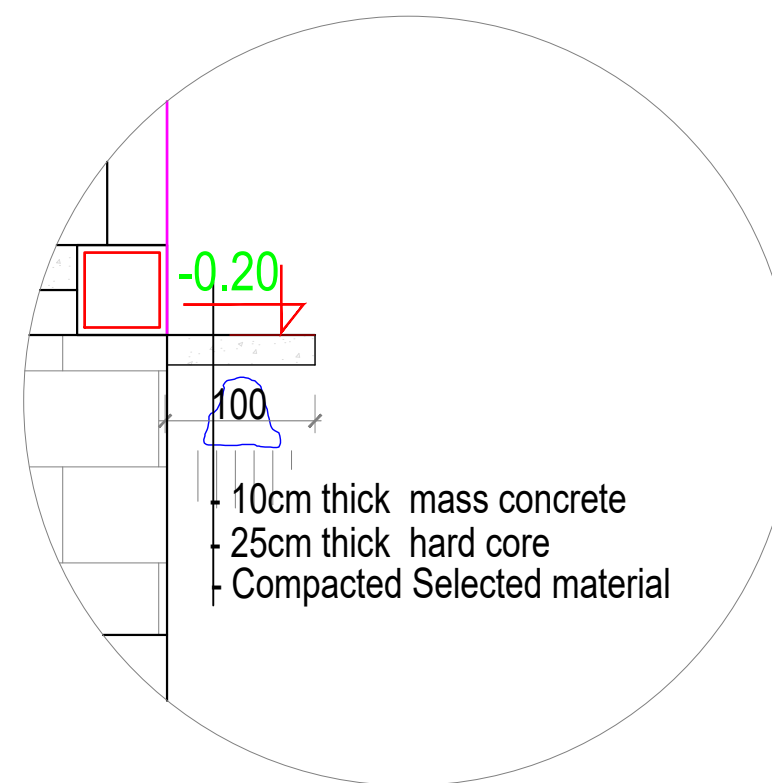
RIGHT SIDE ELEVATION



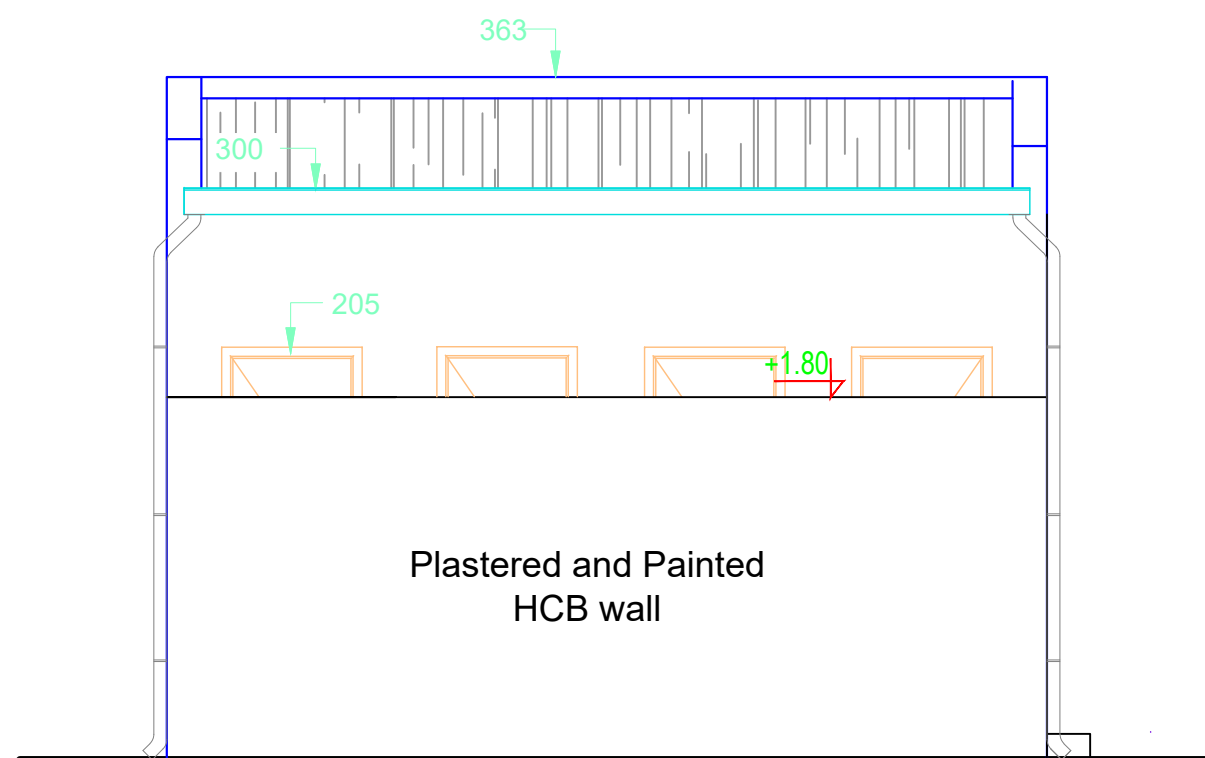
REAR SIDE ELEVATION



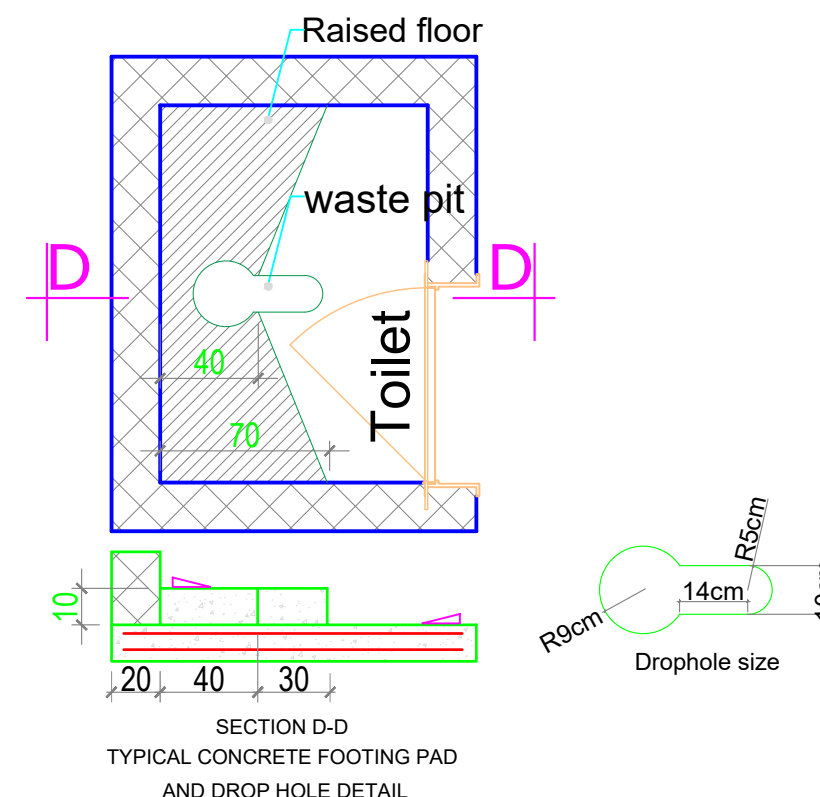
LEFT SIDE ELEVATION



PAVEMENT SECTION DETAIL



FRONT ELEVATION

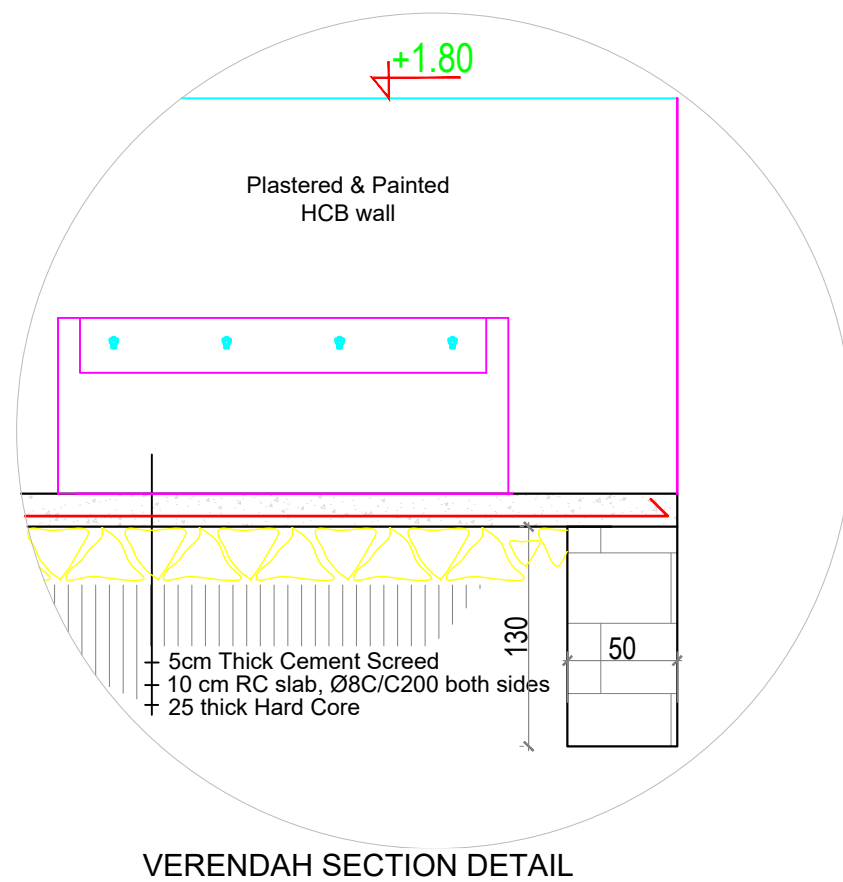
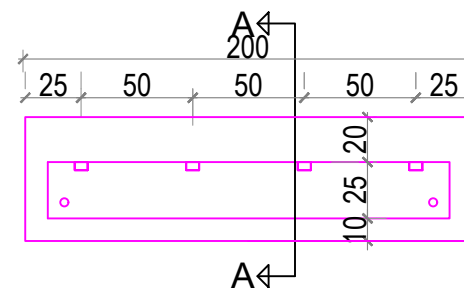
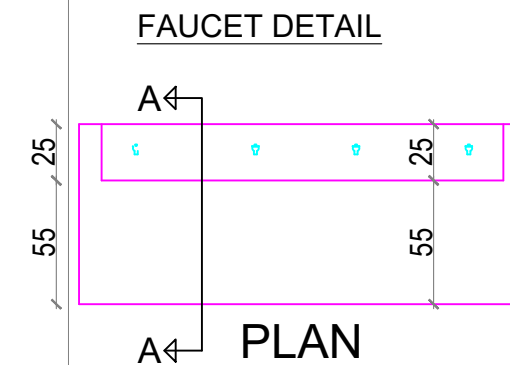
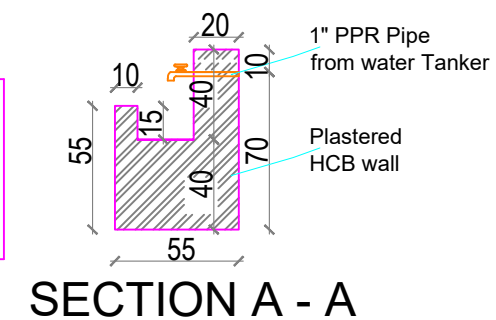


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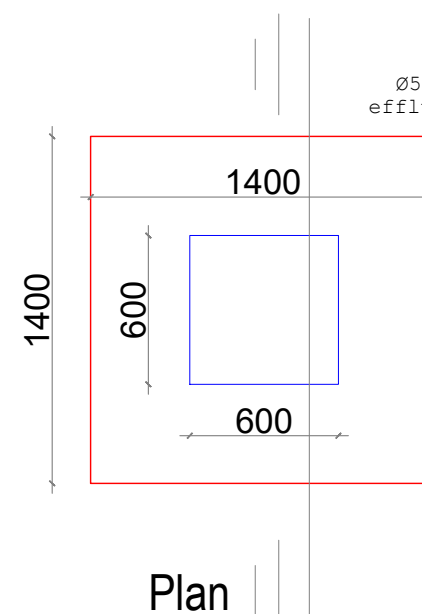
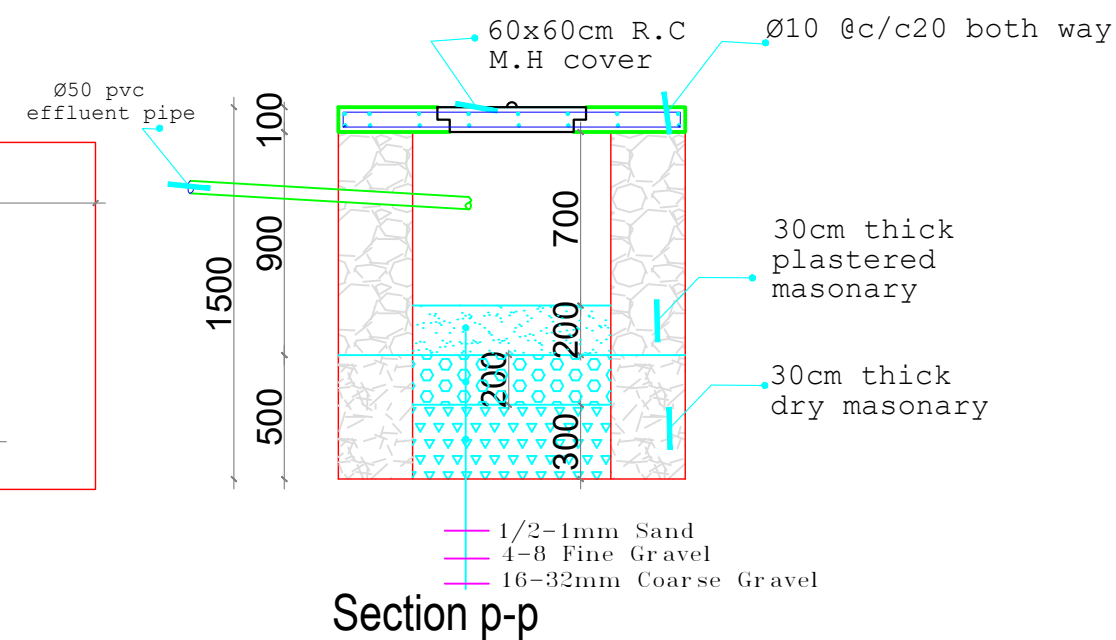
OWNER
UNICEF

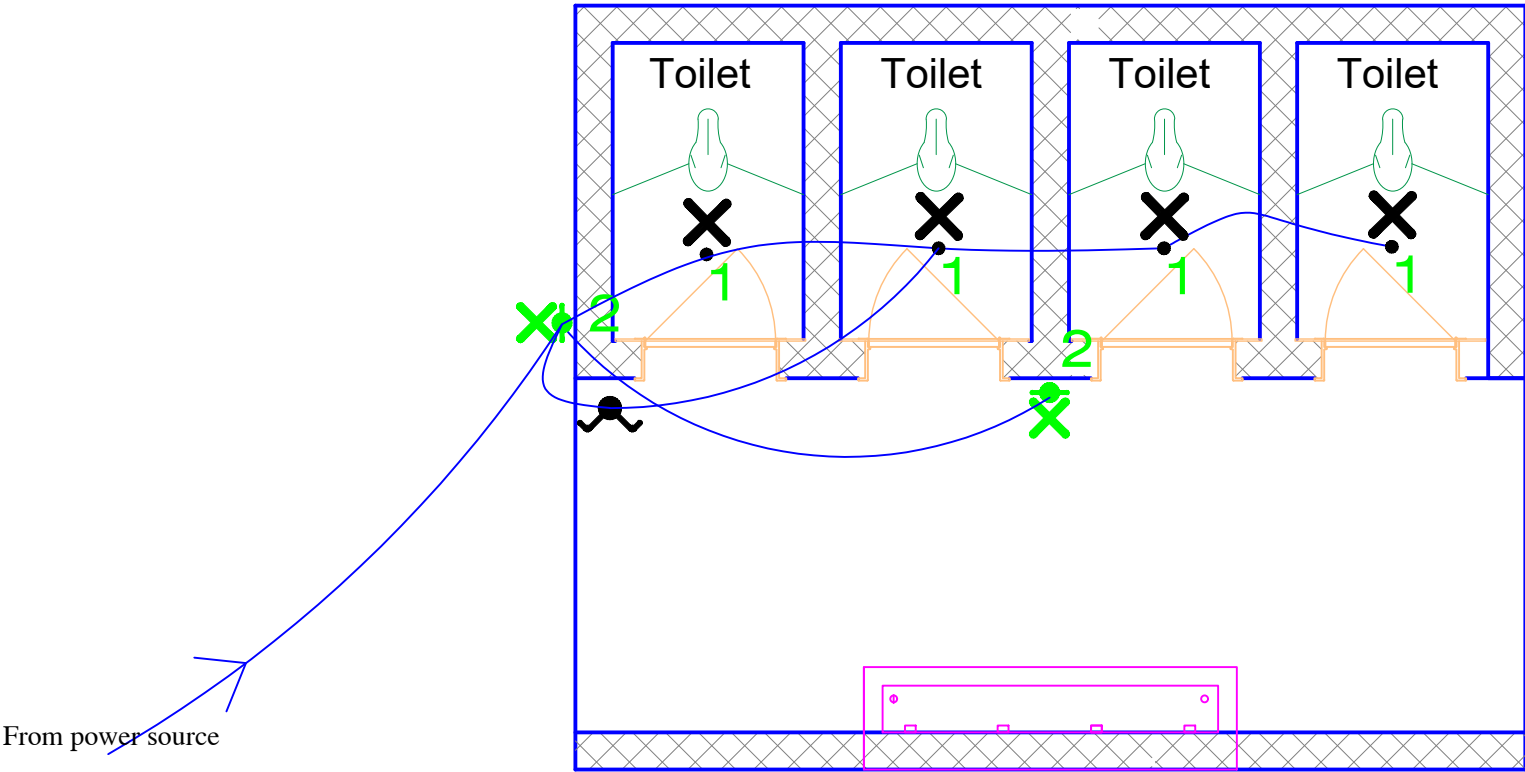
DRAWING TITLE
4 SEATS LATRINE BLOCK FOR GIRLS (RENOVATION OF EXISTING LATRINE)
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY. HALBEEG ARCHITECT & ENGINEERING CONSULTANCY Mesfin H.		
SCALE AS SHOWN	DATE SEPT., 2025	AR 02/03



SOAK AWAY PIT





FLOOR PLAN

FITTING No	TYPE OF LIGHT FITTING	LOCATION
1	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm	Internal Toilet Rooms
2	TYPE 2.Philips outdoor Lorikeets wall lantern LED black 1x3.5W water resistance IP 44	External Wall mounted Light

FROM
FROM EXISTING
MDB

P-TOTAL 0.171 KW
P-MAX 0.171 KW
I-L 0.971A
NAME SDB-TOILET
DF 1

3X4MM²

20A/1P

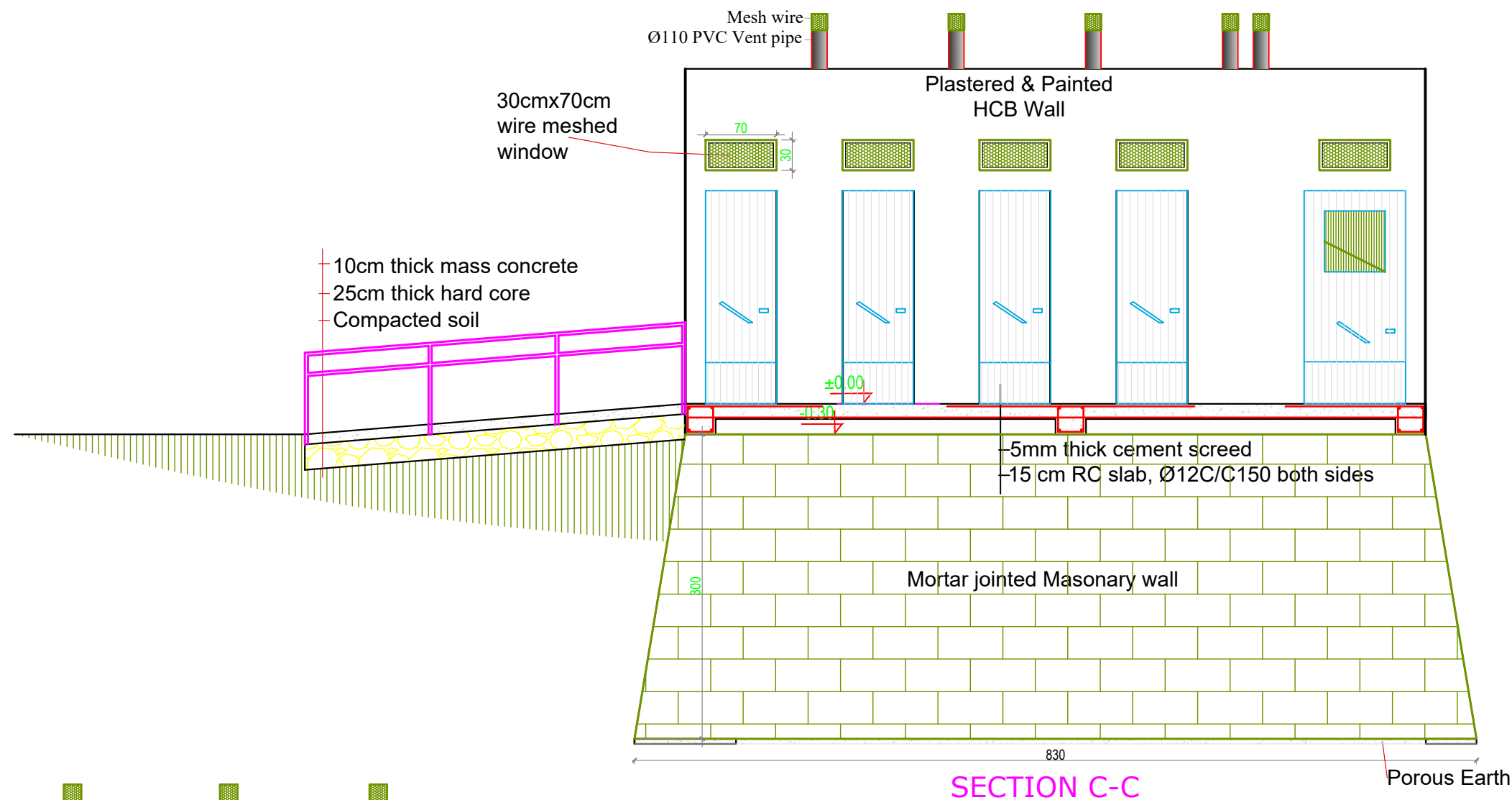
SDB-F.TOILET							
B.NO	DESCRIPTION	P(KW)	A(mm ²)	I(A)	R	S	T
1	LIGHTING	0.1415	2x2.5	10	0.171		
2	RESERVE						
3	TOTAL				0.17		

LEGEND

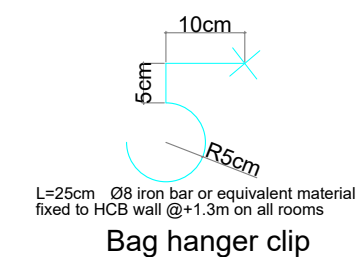
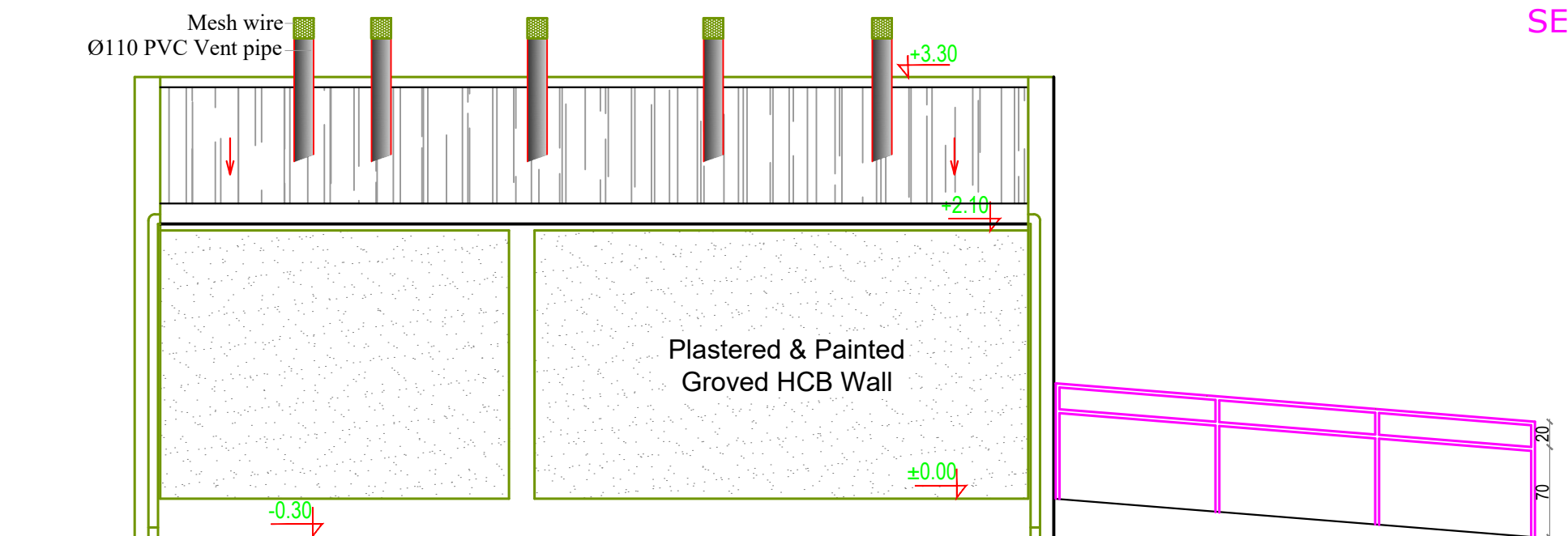
- Light fitting, fluorescent, wall mounted
- Light fitting, CFL, ceiling mounted
- Two way double gang - multi circuit switch, 6A - flush mounted

Note
The recommended switch box location is 1.20m - 1.30m from FFL & 15cm from door edge. Locate switch box 92cm above FFL in Disable room & 15cm from door edge. All electric wires needs to run through PVC condutes and closed junction box.

ADOPTED WASH FACILITIES



SECTION C-C



REAR ELEVATION

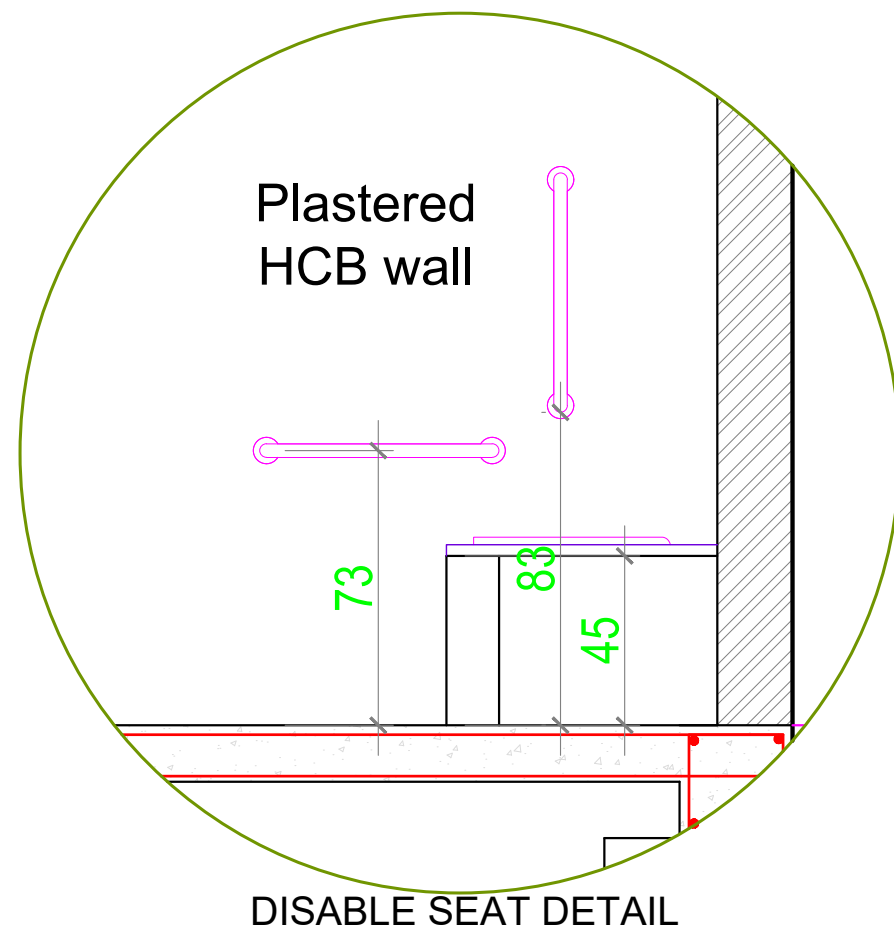
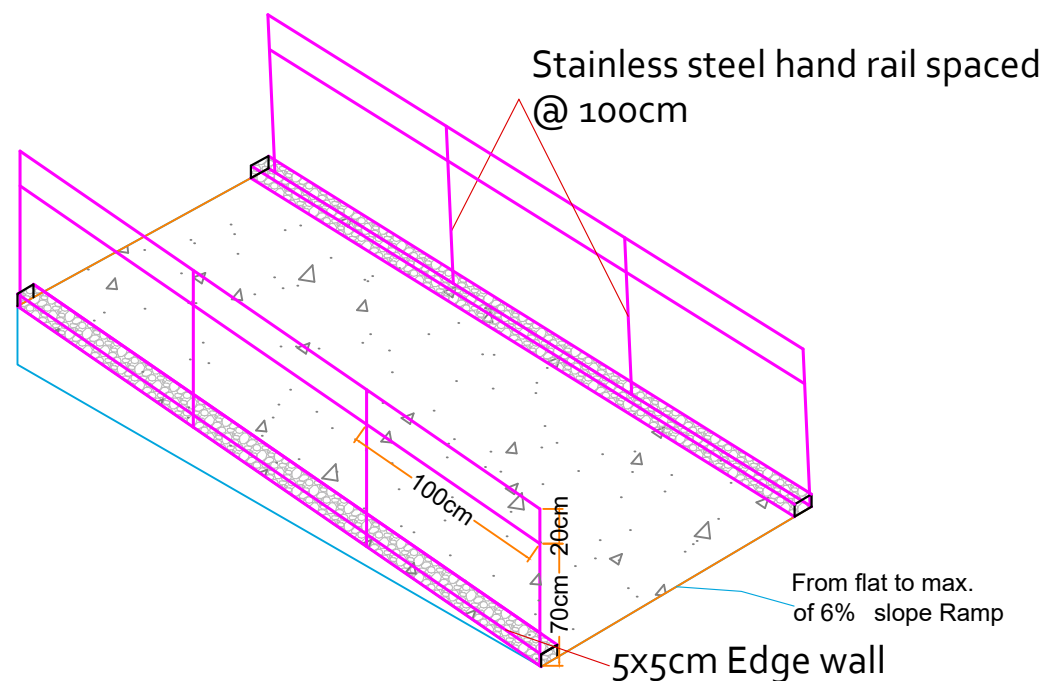
PROJECT
Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH and MHM Facilities in selected Secondary Schools in Somali Region

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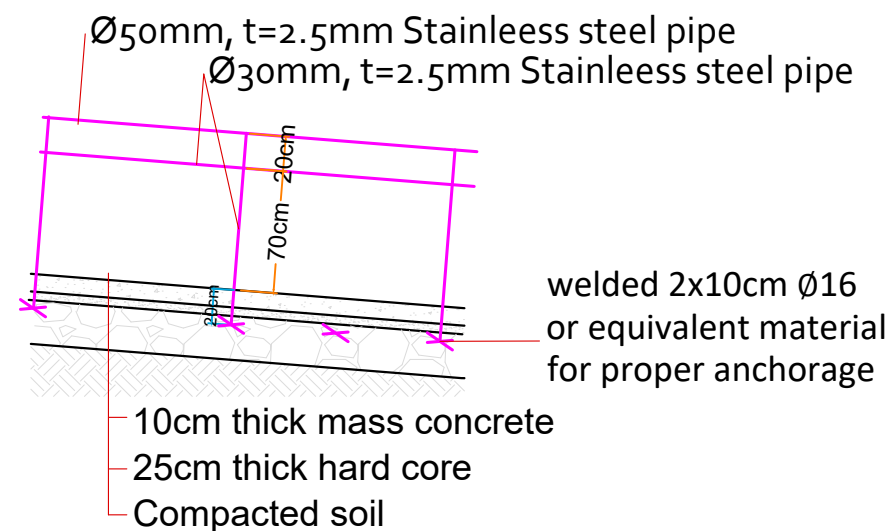
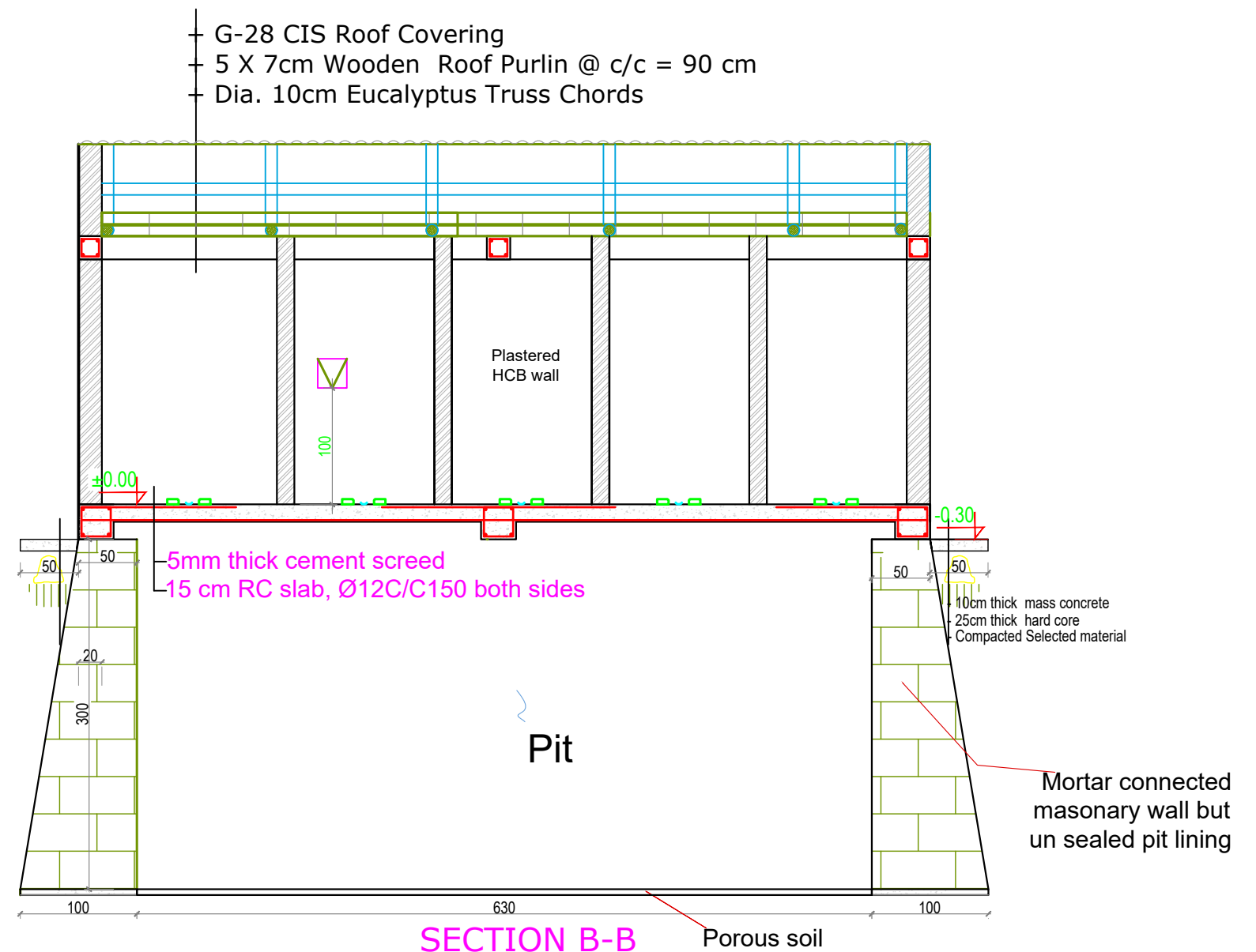
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT., 2025	AR 02/05
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RAMP DETAIL FOR PEOPLE LIVING WITH DISABILITIES



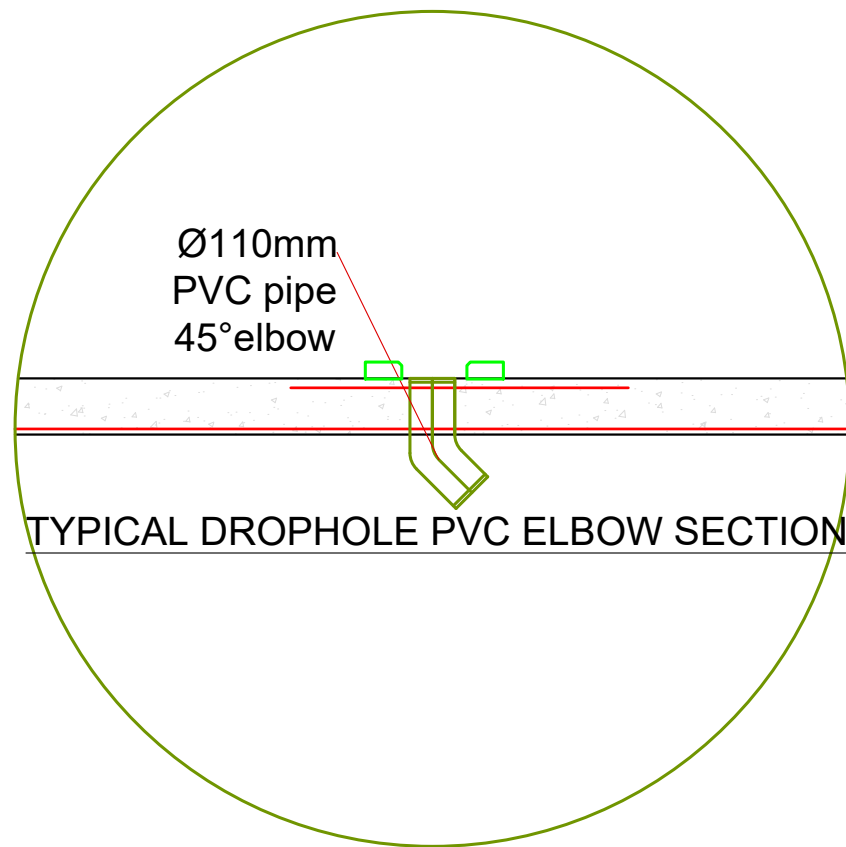
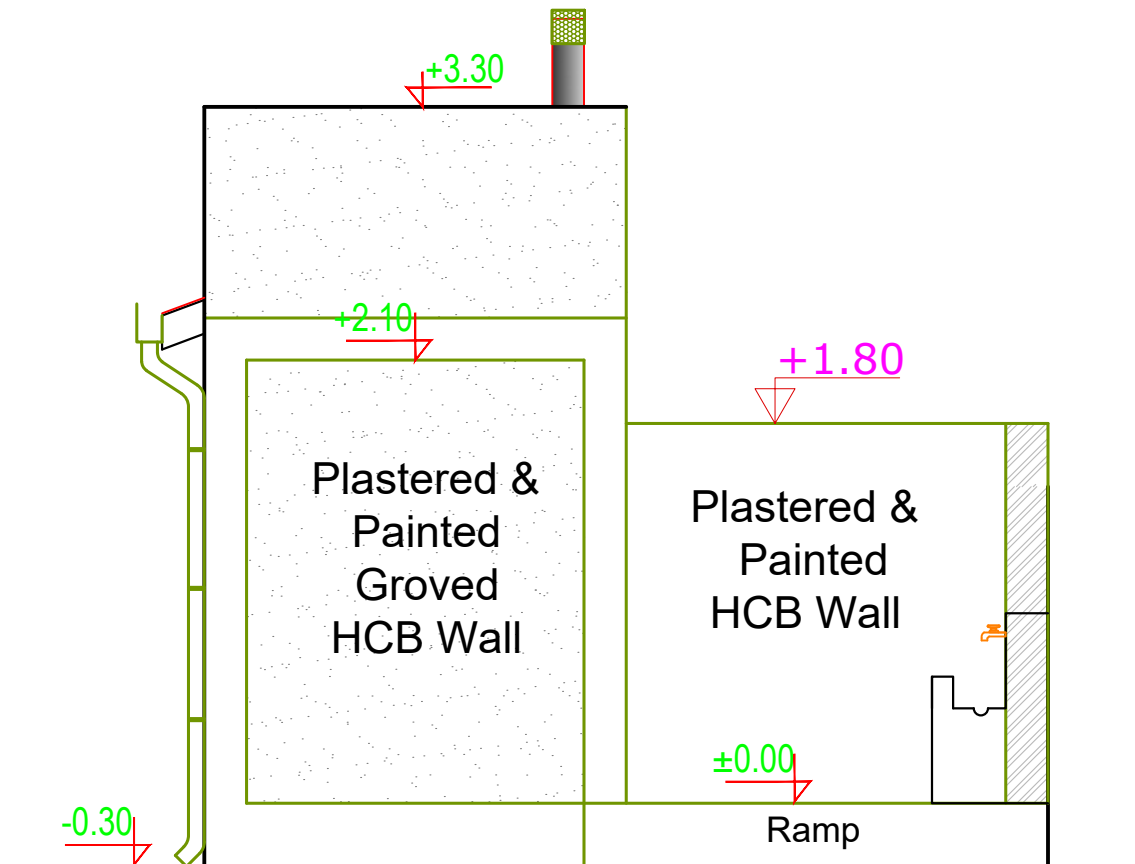
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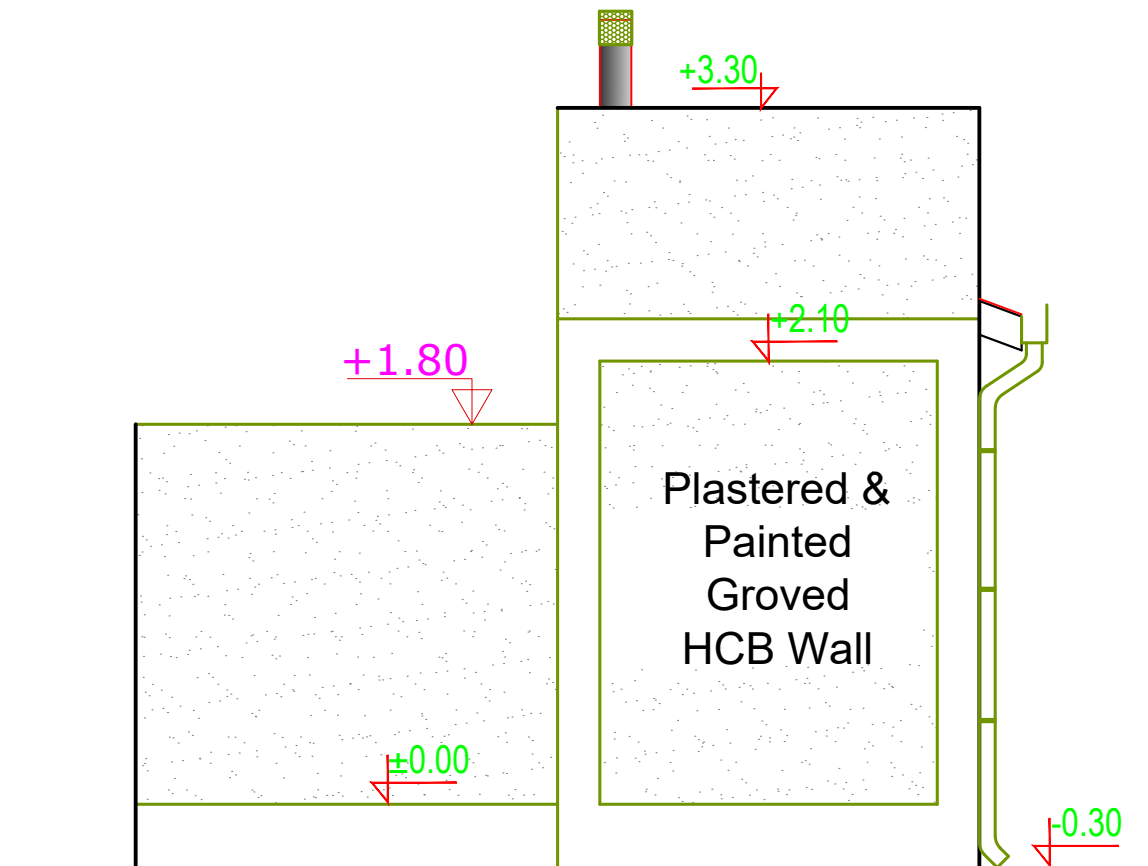
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT., 2025	AR 03/05
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LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

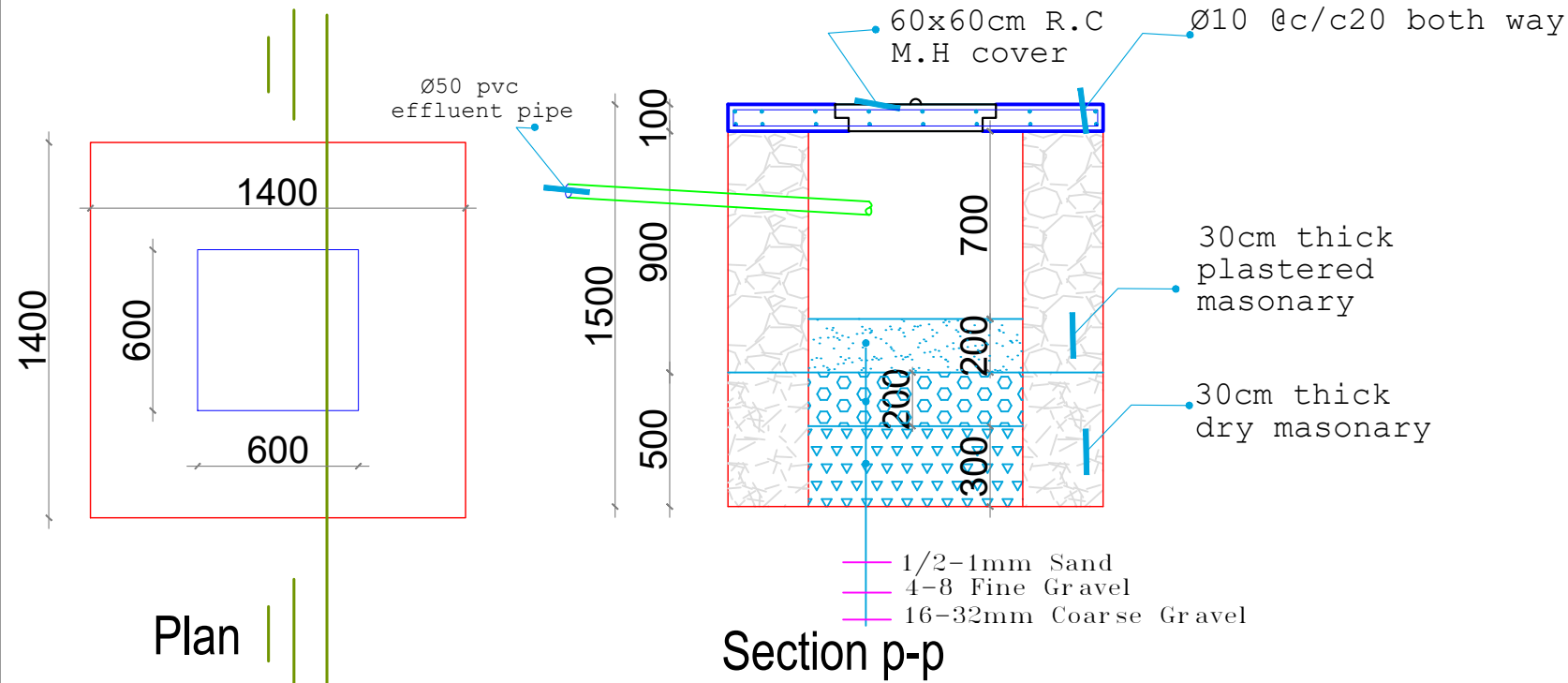
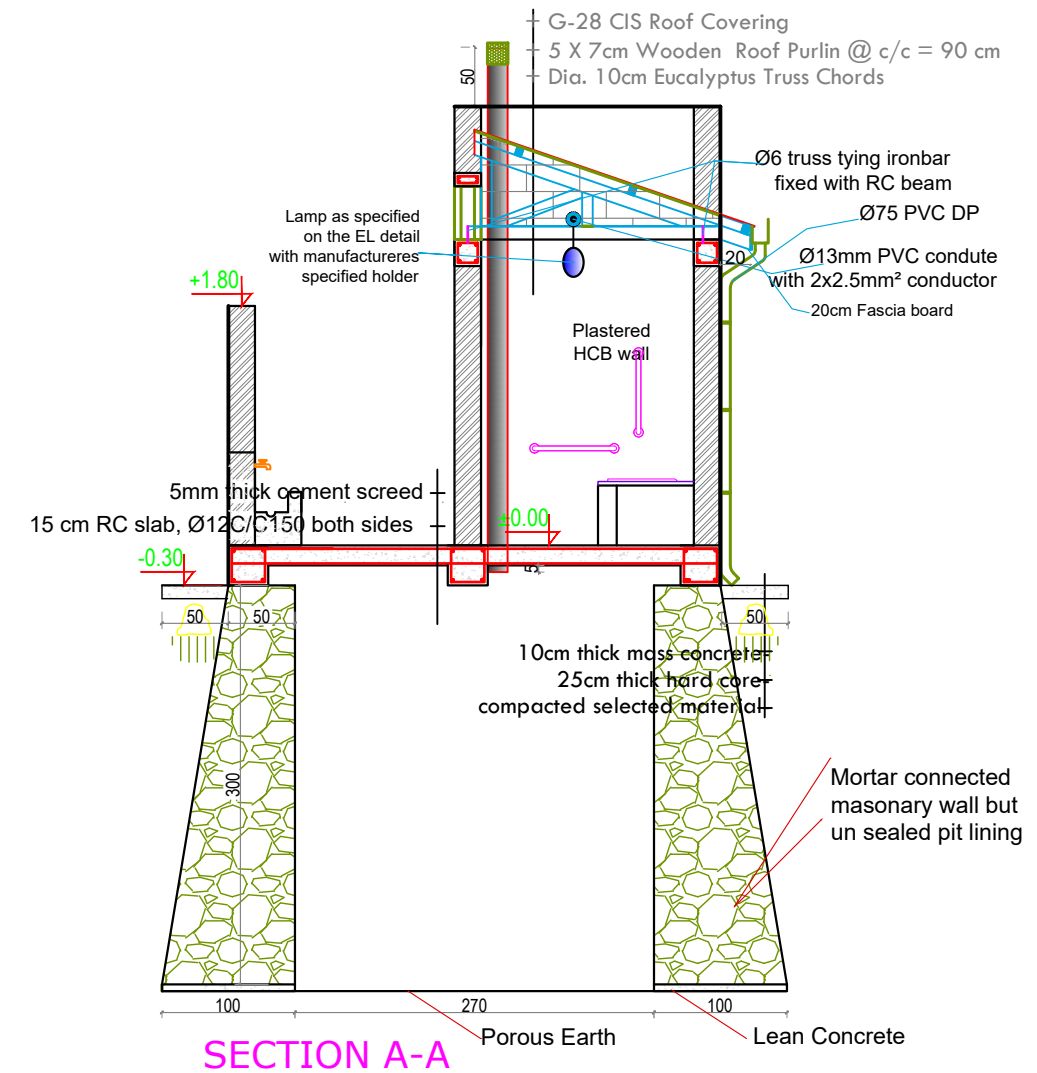
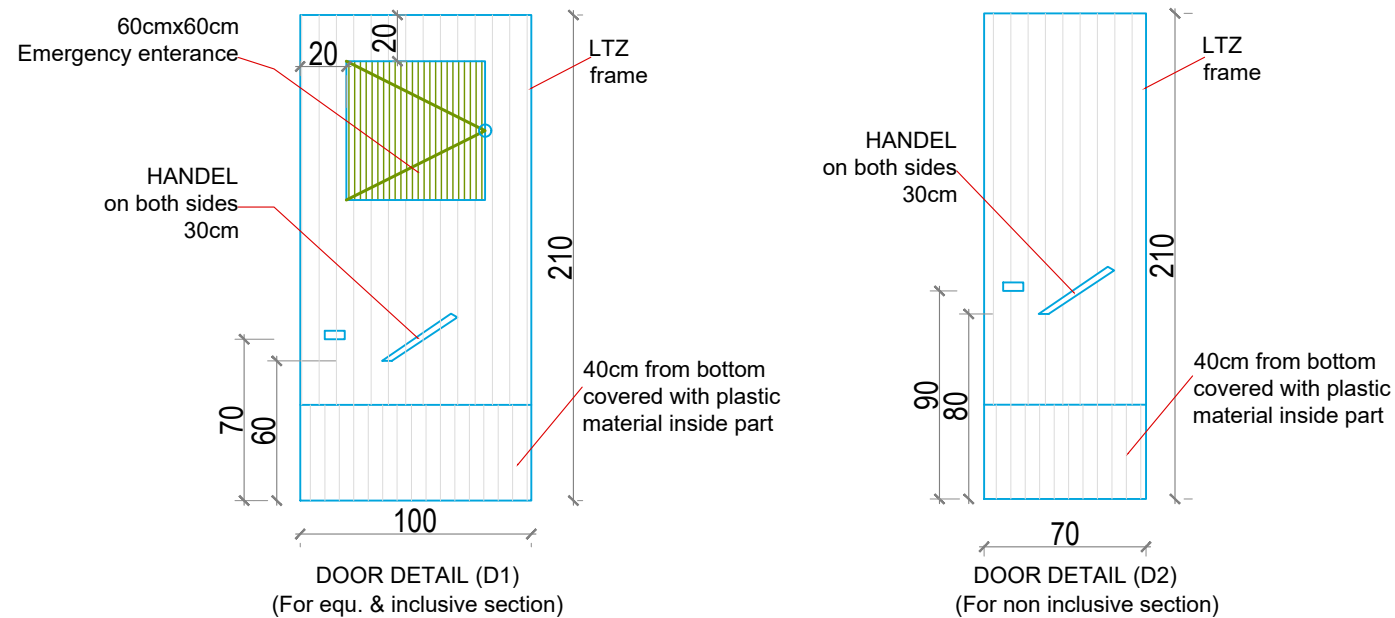
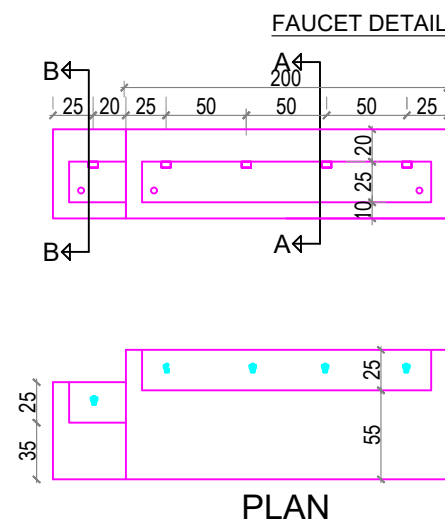
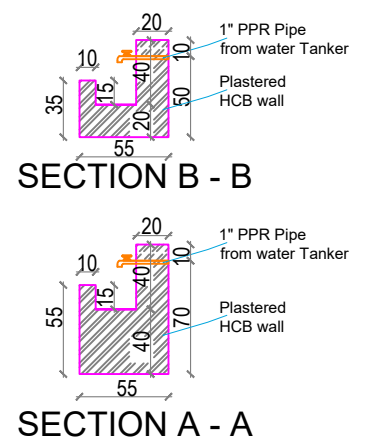
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DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY. HALBEEG ARCHITECT & ENGINEERING CONSULTANCY Mesfin H.		
SCALE AS SHOWN	DATE SEPT., 2025	AR 04/05

SOAK AWAY PIT



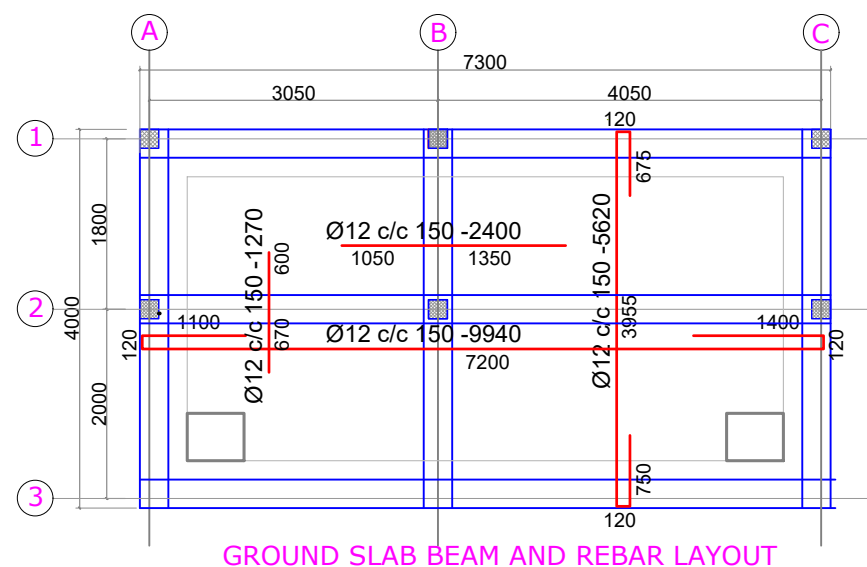
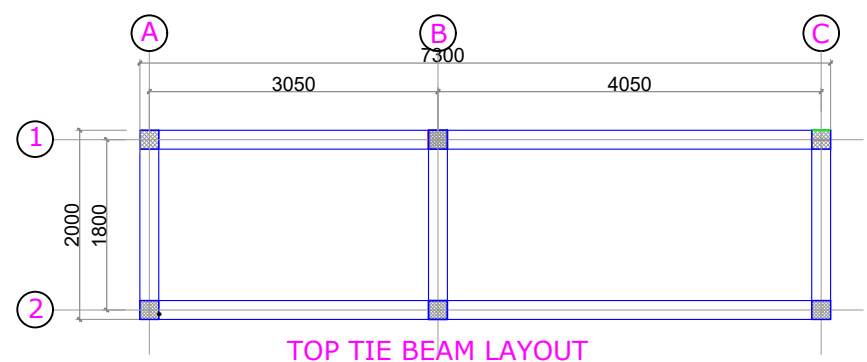
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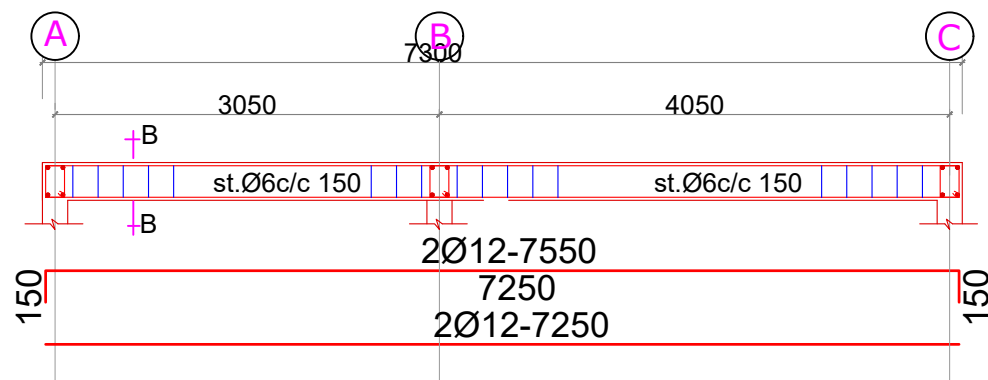
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

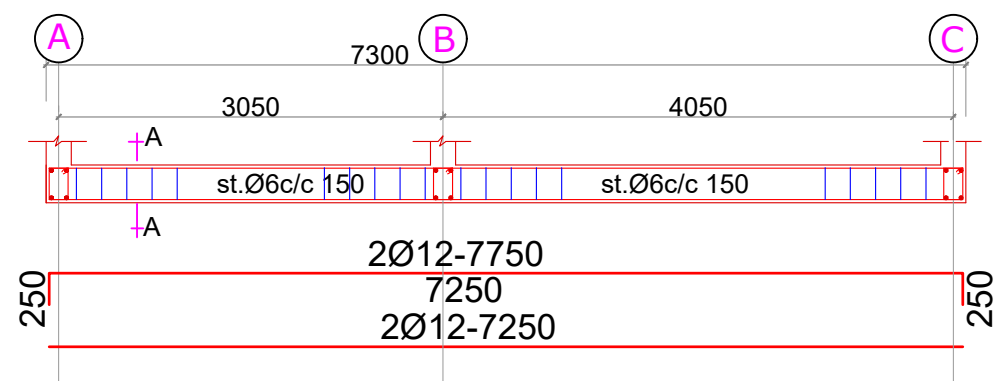
SCALE AS SHOWN	DATE SEPT., 2025	AR 05/05
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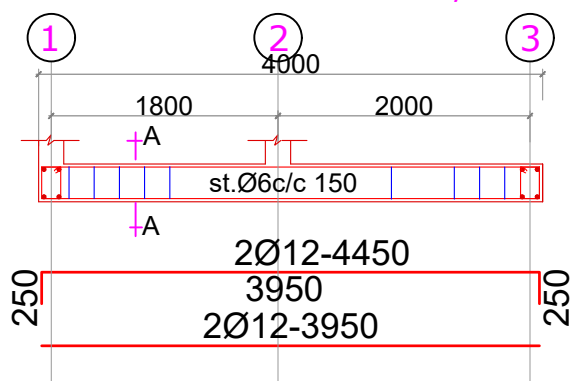
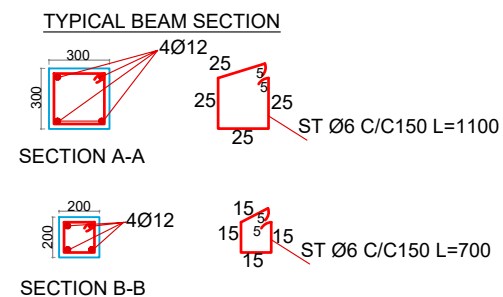
TOP TIE BEAM ON AXIS 1 & 2



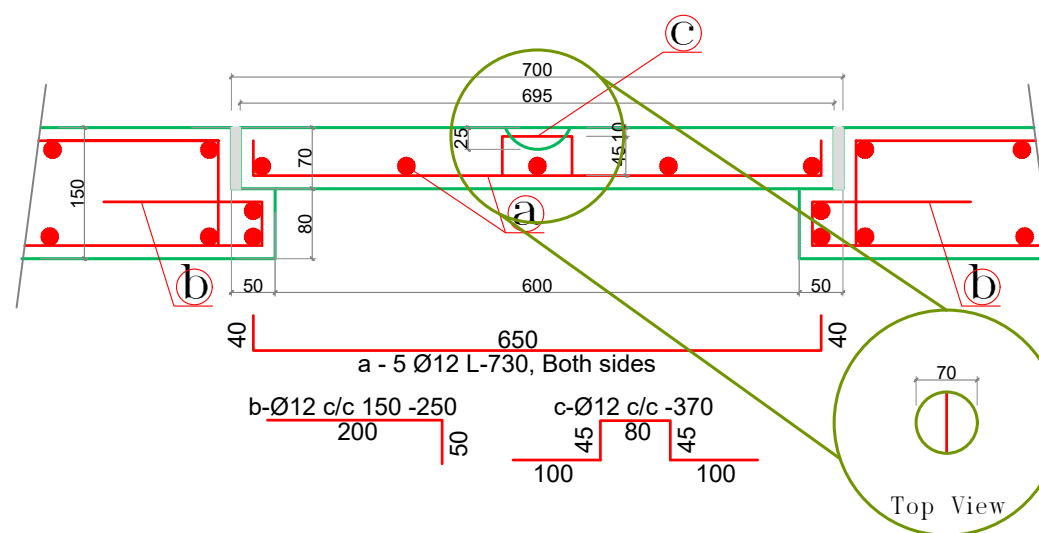
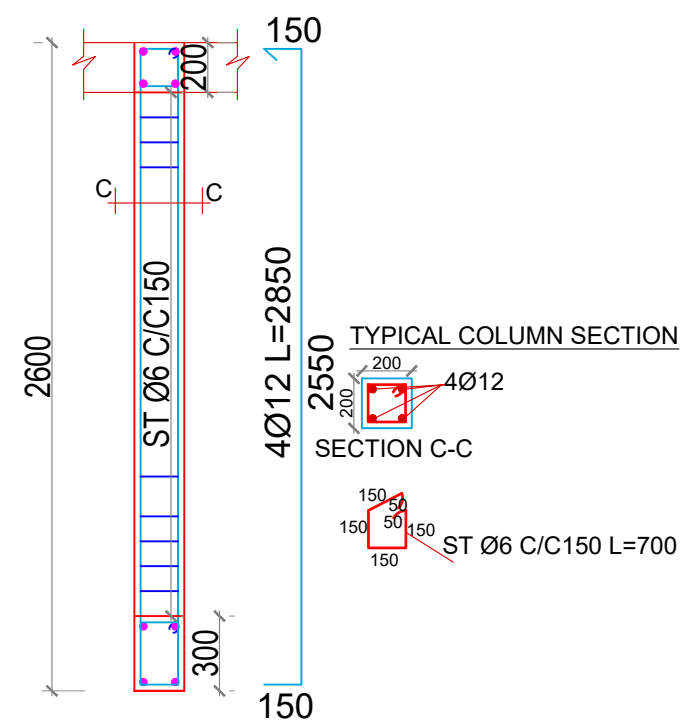
GRADE BEAM ON AXIS 1 & 3



GRADE BEAM ON AXIS A, B & C

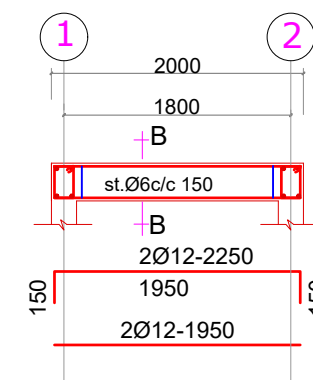


MANHOLE COVER DETAIL



Typical Column Detail

TOP TIE BEAM ON AXIS A, B & C

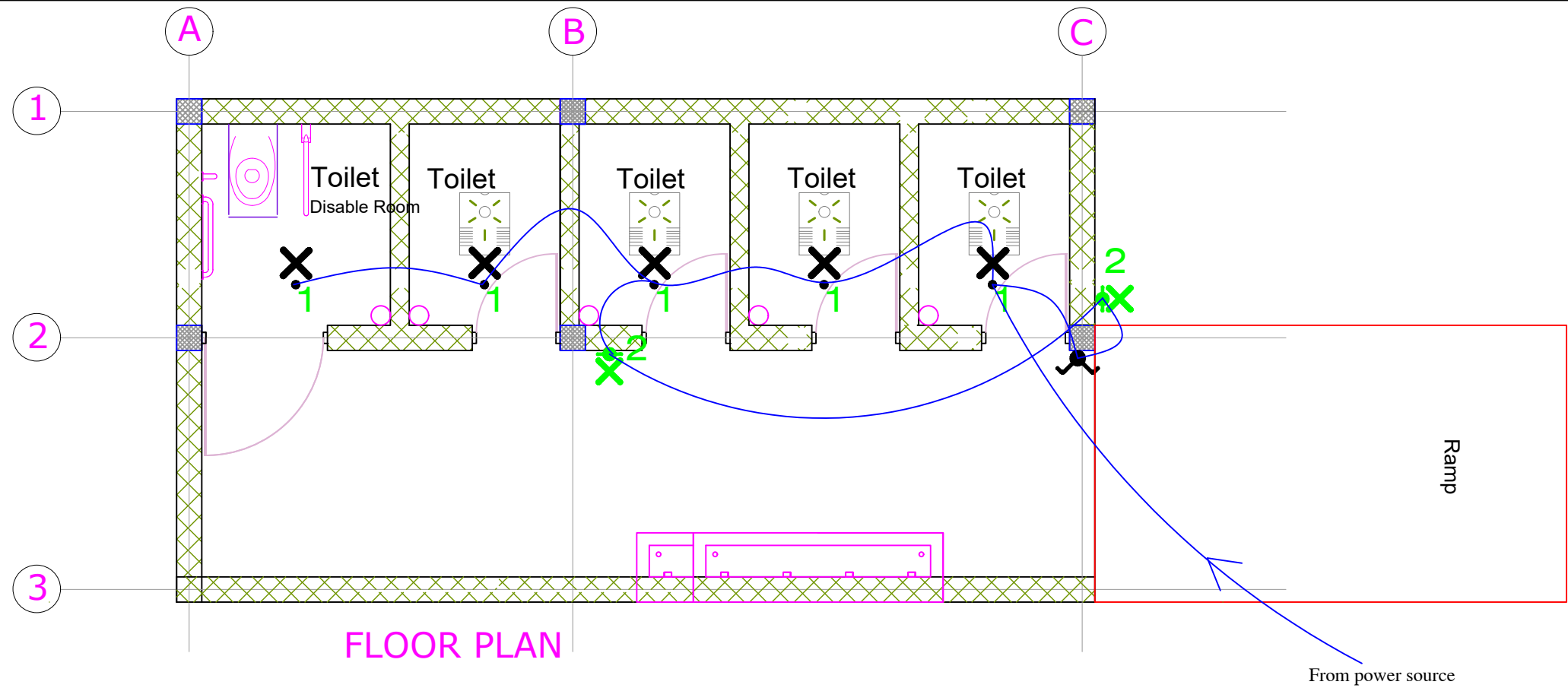


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OWNER
UNICEF

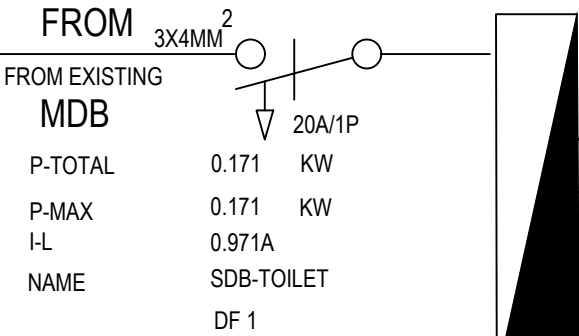
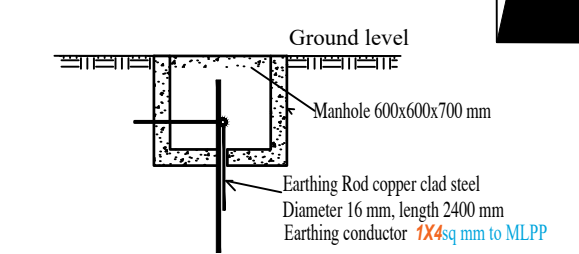
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.
SCALE
AS SHOWN
DATE
SEPT., 2025
ST
01/01



FLOOR PLAN

FITTING No	TYPE OF LIGHT FITTING	LOCATION
1	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm	Internal Toilet Rooms
2	TYPE 2.Philips outdoor Lorikeets wall lantern LED black 1x3.5W water resistance IP 44	External Wall mounted Light



1. Earthing resistance shall not be greater than 5 Ohm.
2. If earthing resistance is greater than 5 Ohm additional electrode shall be buried spaced not less than the length of the electrode.

SDB-F.TOILET							
B.NO	DESCRIPTION	P(KW)	A(mm ²)	I(A)	R	S	T
1	LIGHTING	0.1415	2x2.5	10	0.171		
2	RESERVE						
3	TOTAL				0.17		

LEGEND

- Light fitting, fluorescent, wall mounted
- Light fitting, CFL, ceiling mounted
- One way double gang - multi circuit switch, 6A - flush mounted

Note

The recommended switch box location is 1.20m - 1.30m from FFL & 15cm from door edge.
Locate switch box 92cm above FFL in Disable room & 15cm from door edge.
All electric wires needs to run through PVC conduits and closed junction box.

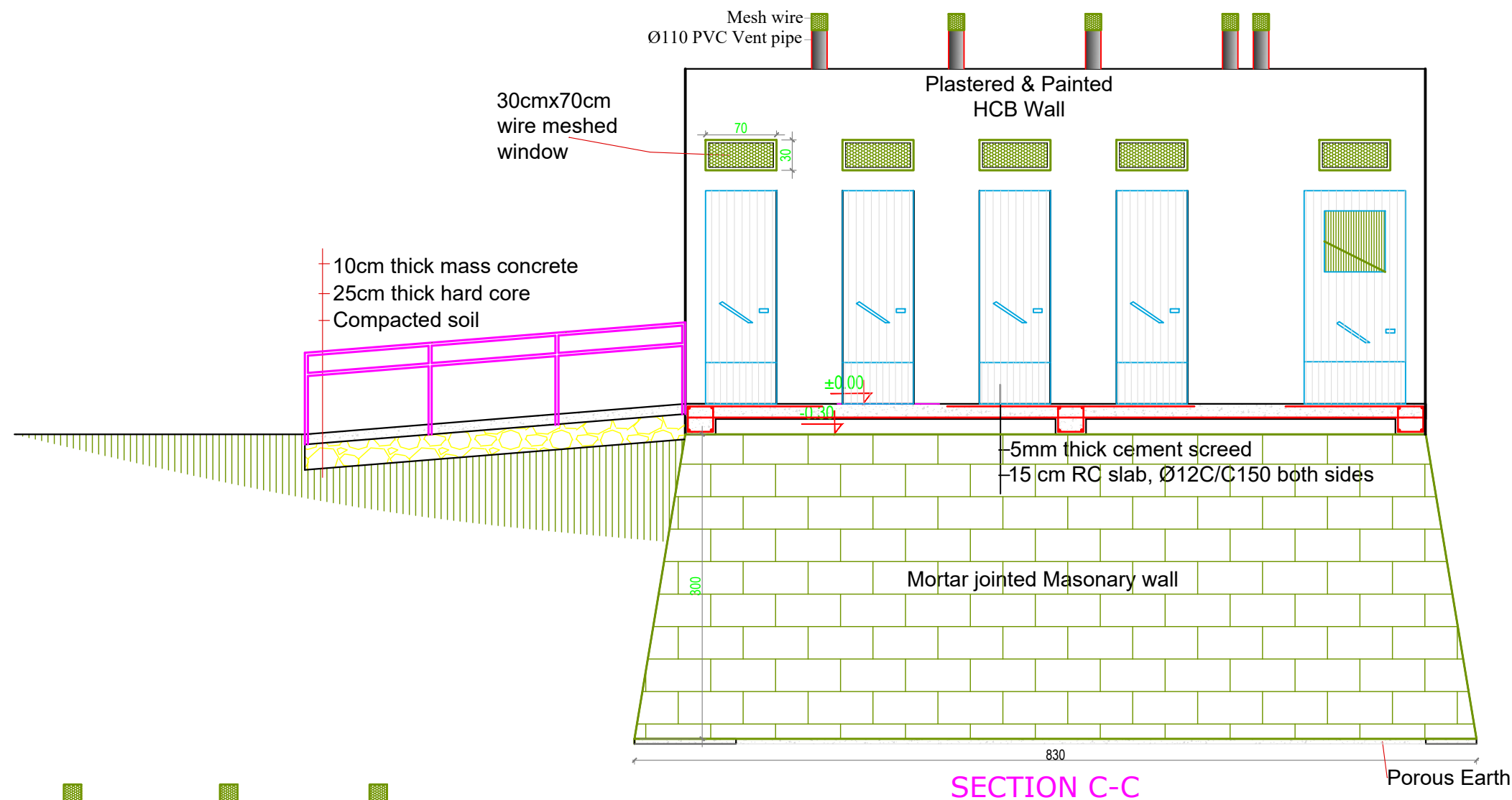
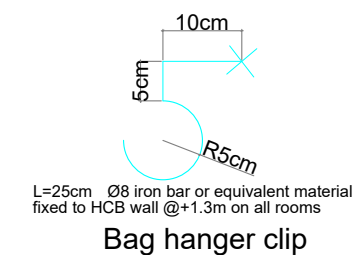
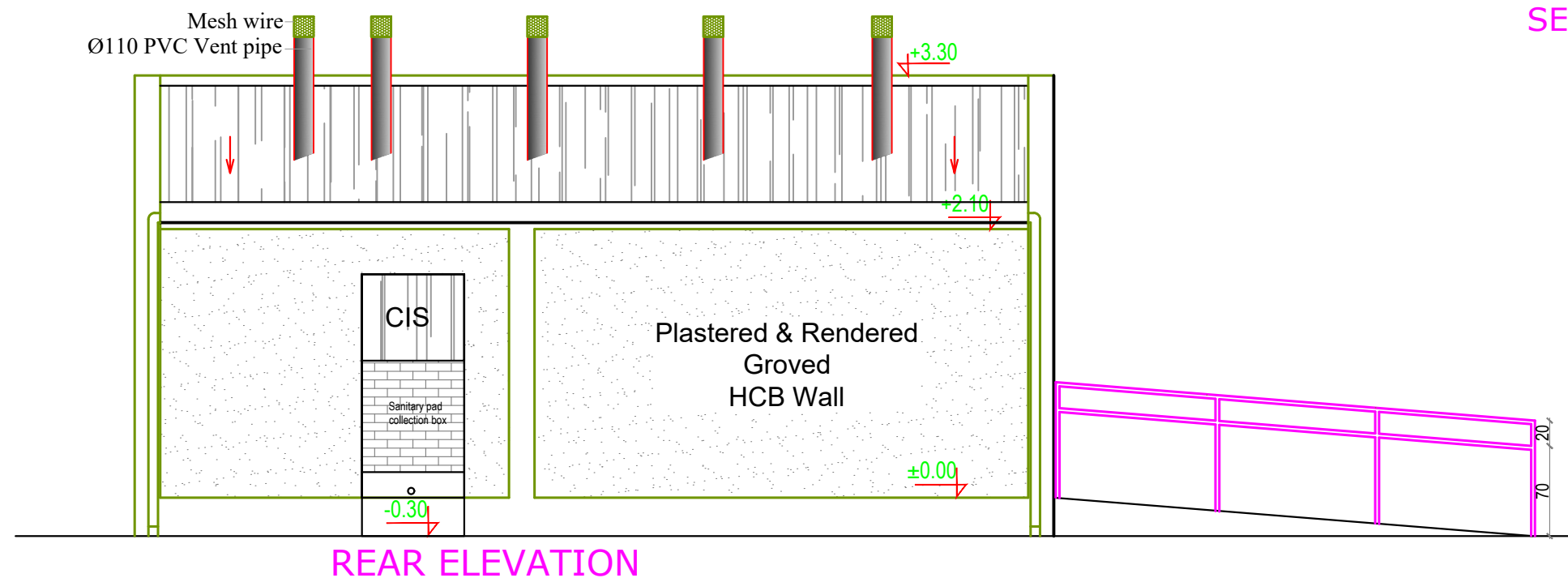
PROJECT
Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH and MHM Facilities in selected Secondary Schools in Somali Region

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DRAWING TITLE
5 SEATS LATRINE BLOCK FOR BOYS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT.,2025	EL 01/01
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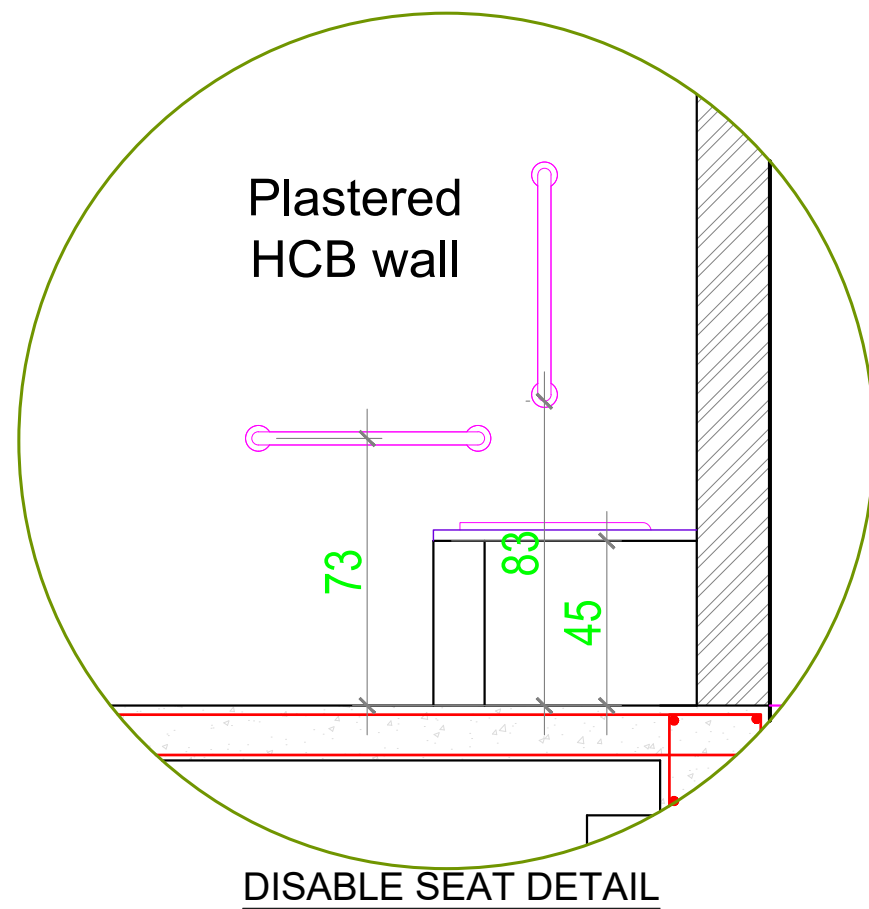
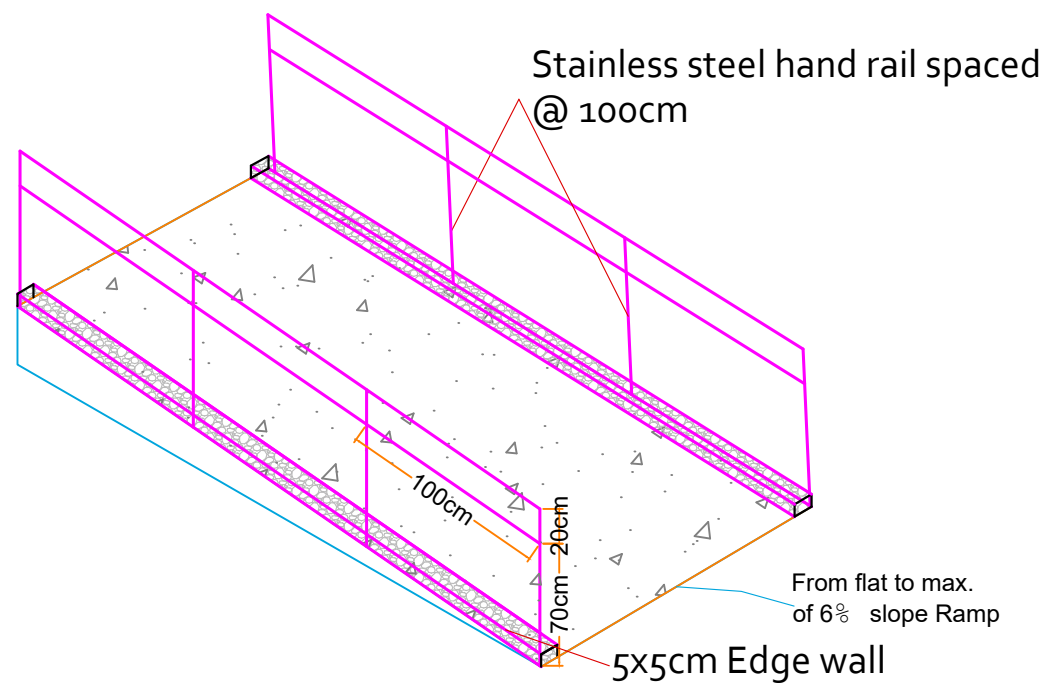
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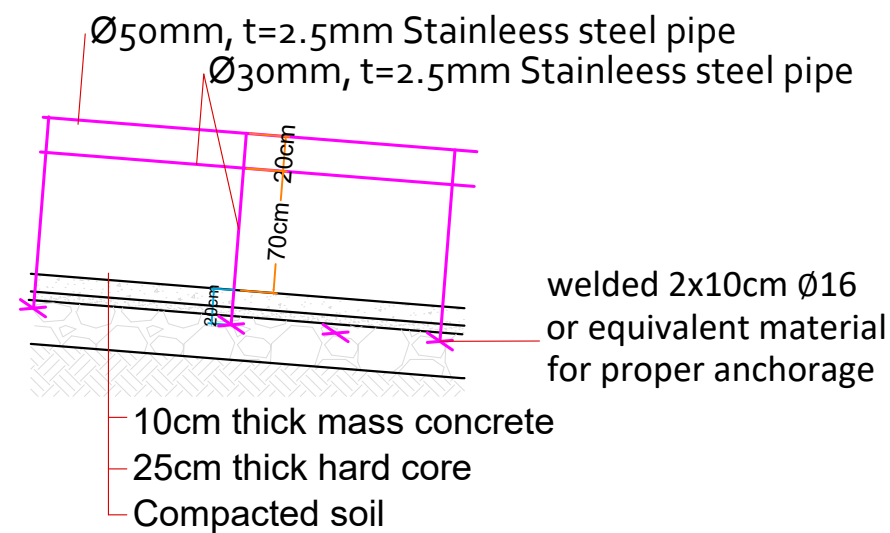
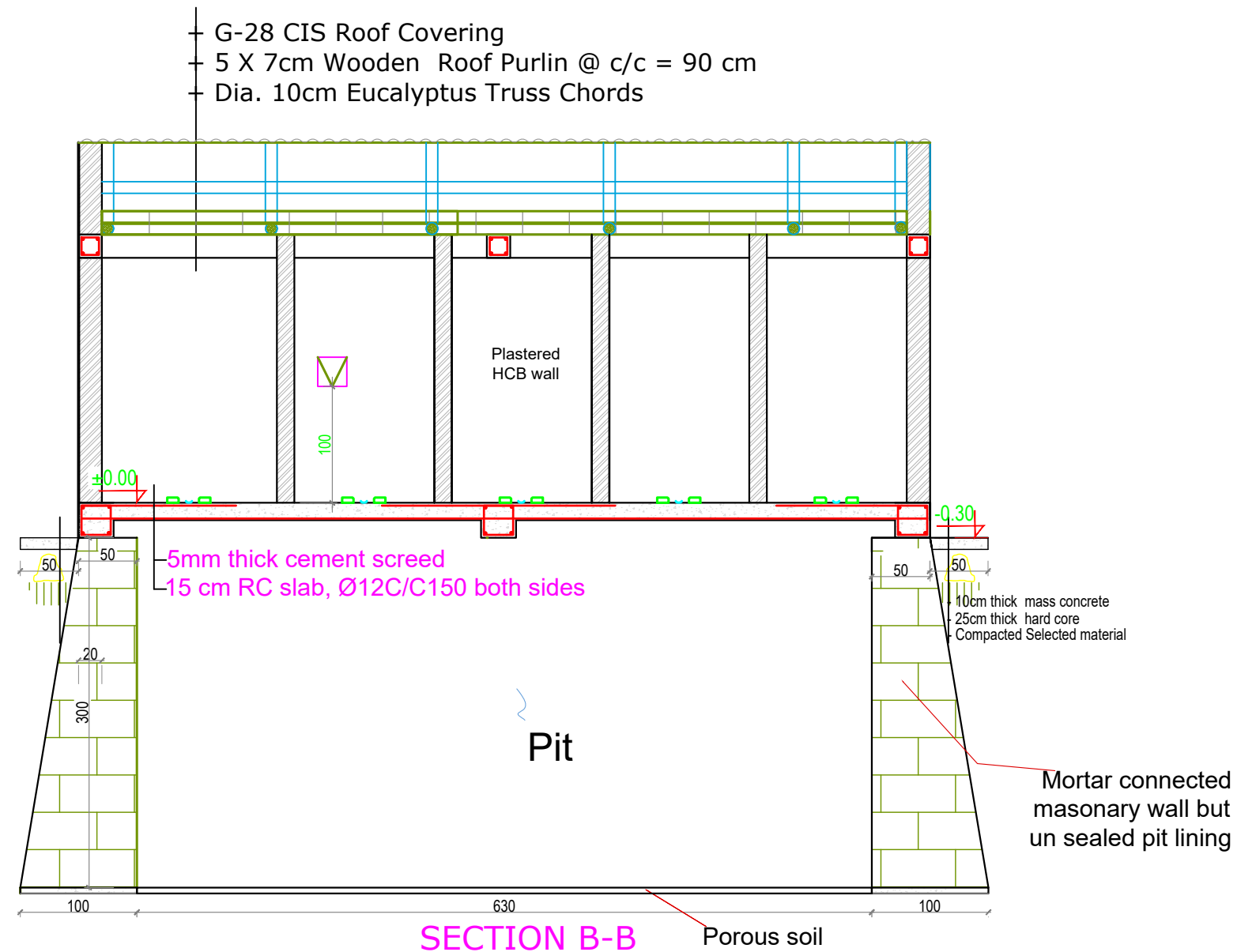
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR GIRLS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT., 2025	AR 02/05
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RAMP DETAIL FOR PEOPLE LIVING WITH DISABILITIES



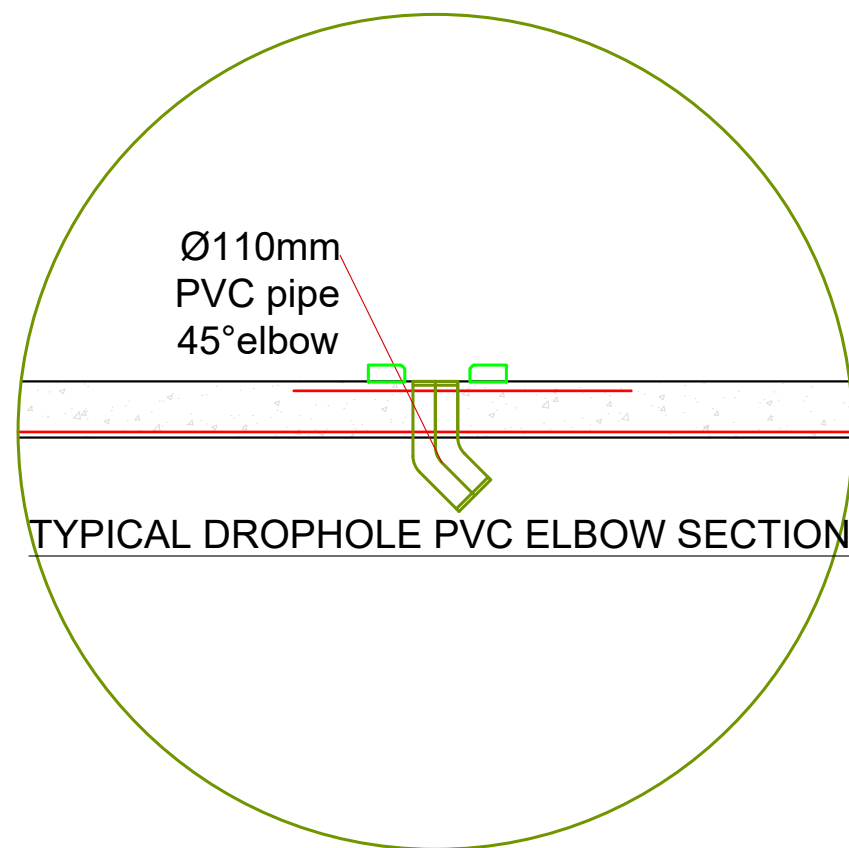
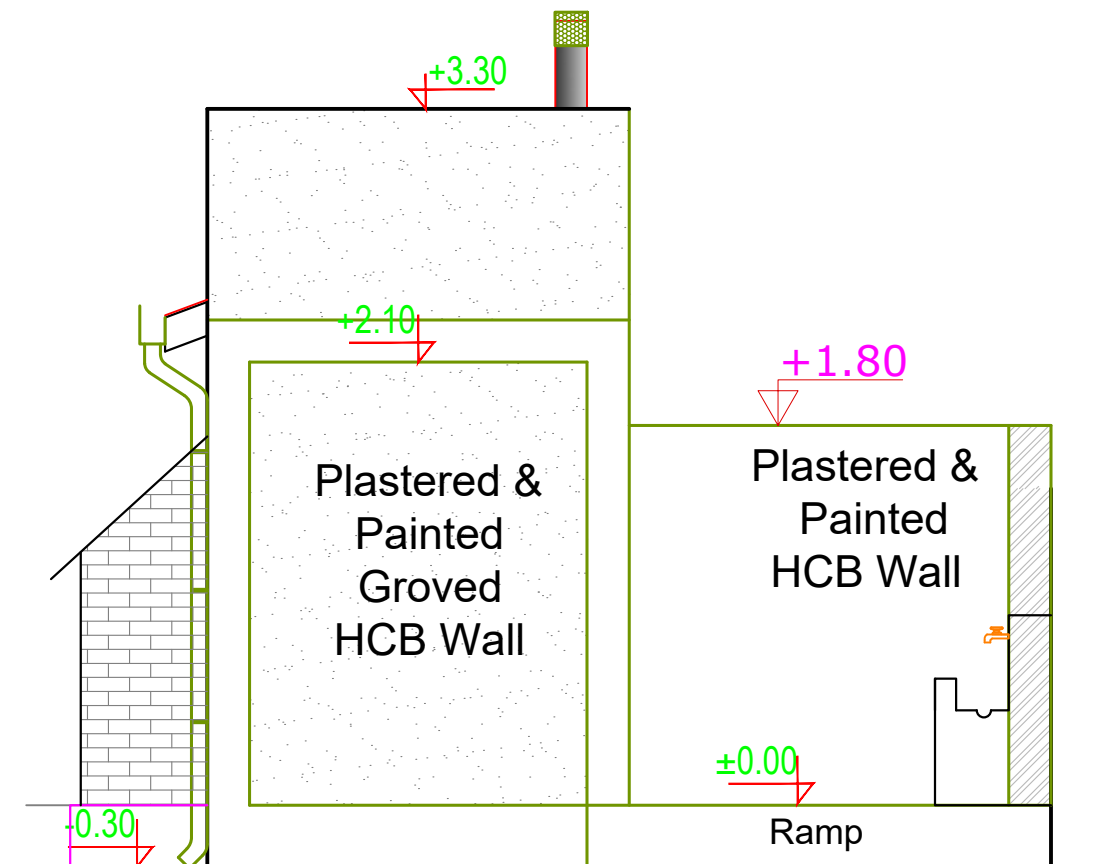
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Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH and MHM Facilities in selected Secondary Schools in Somali Region

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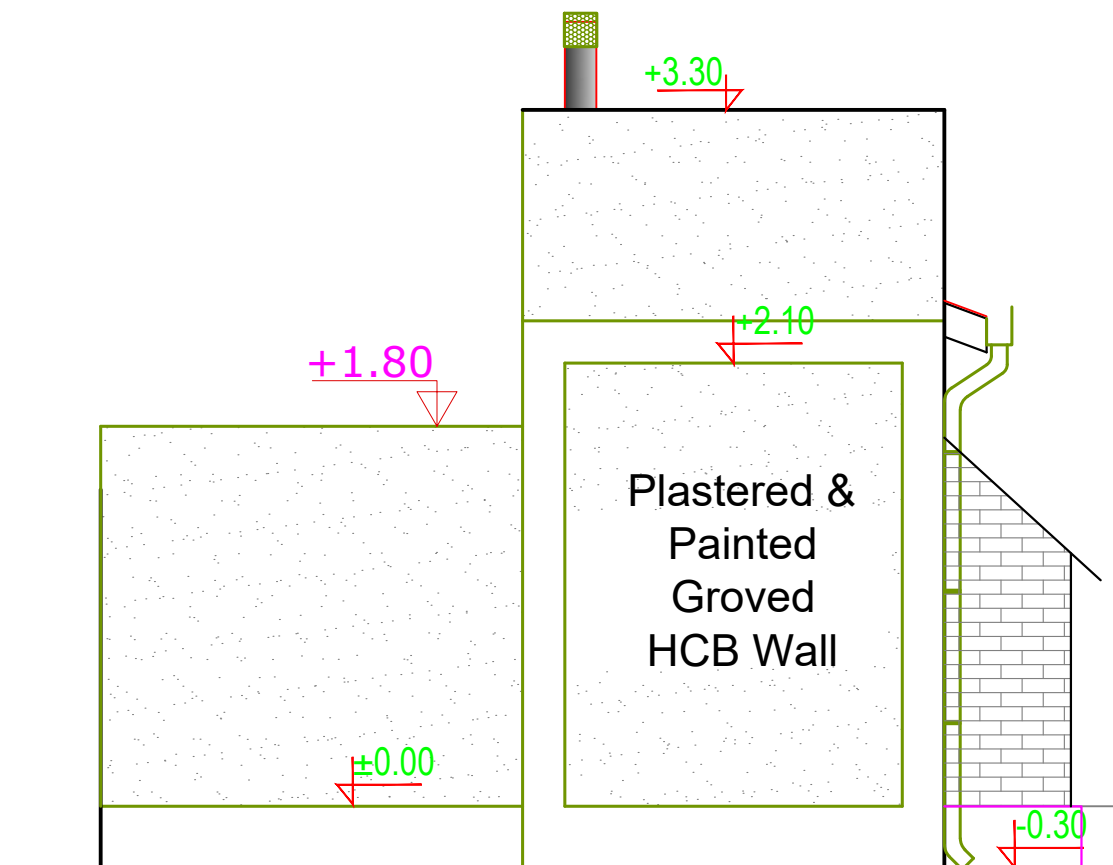
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5 SEATS LATRINE BLOCK FOR GIRLS
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HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT., 2025	AR 03/05
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LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

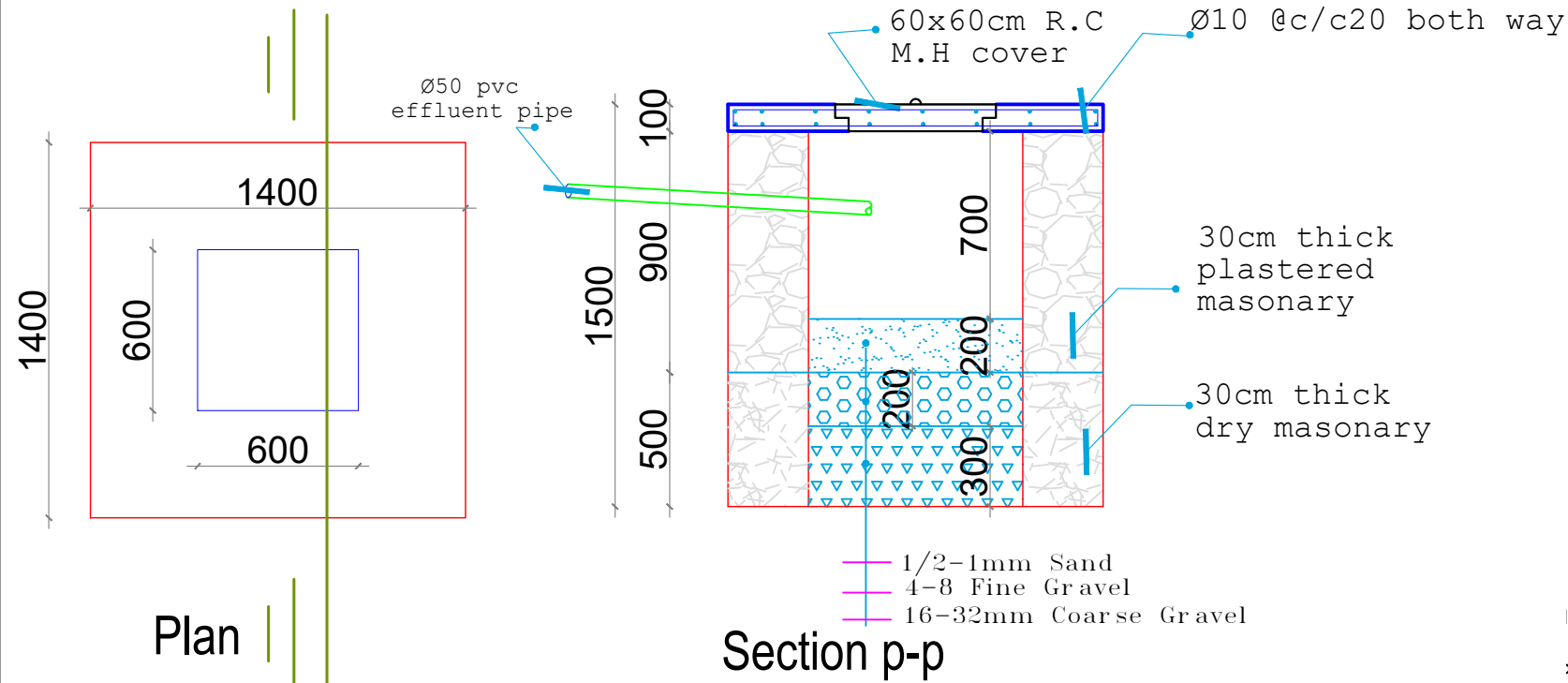
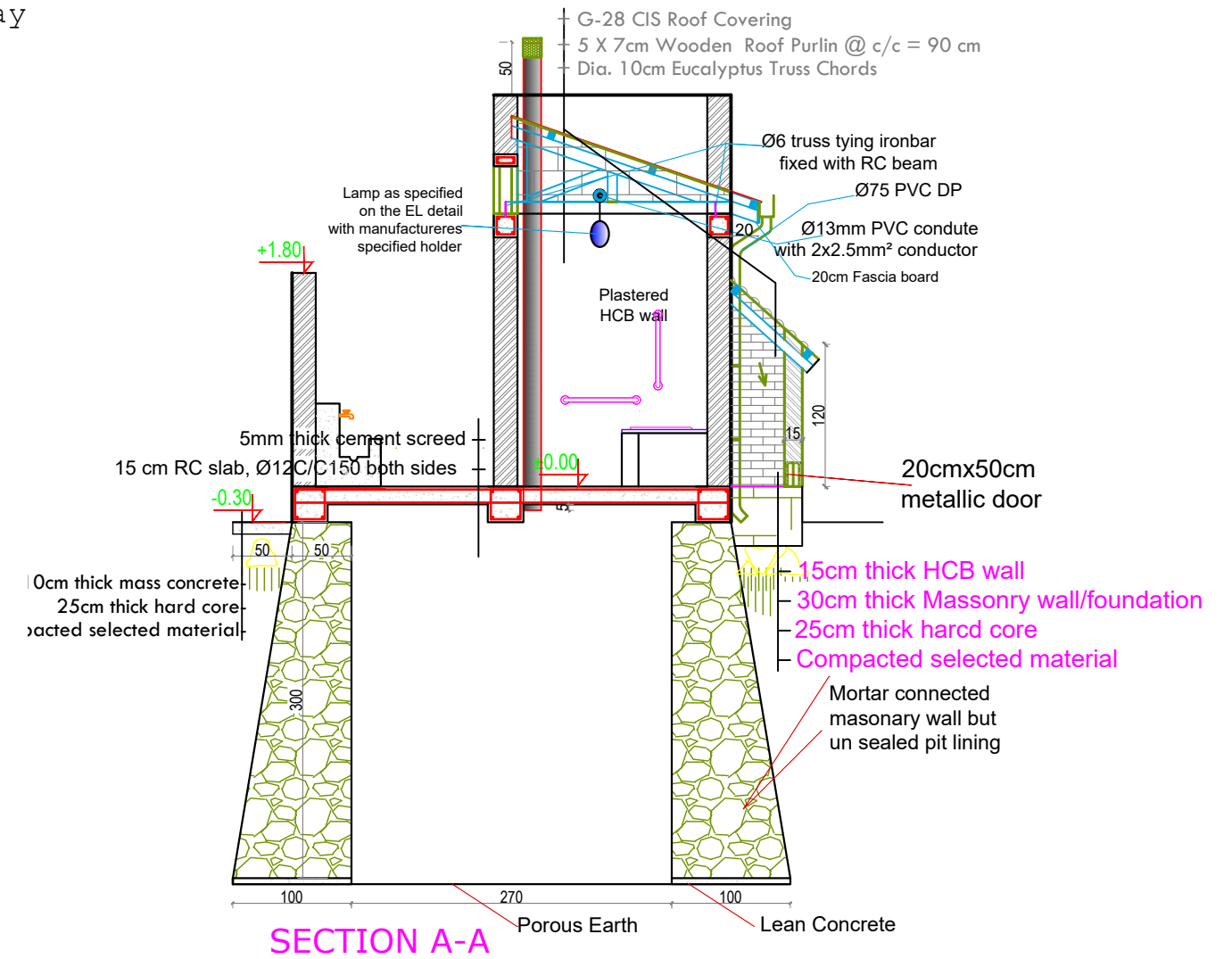
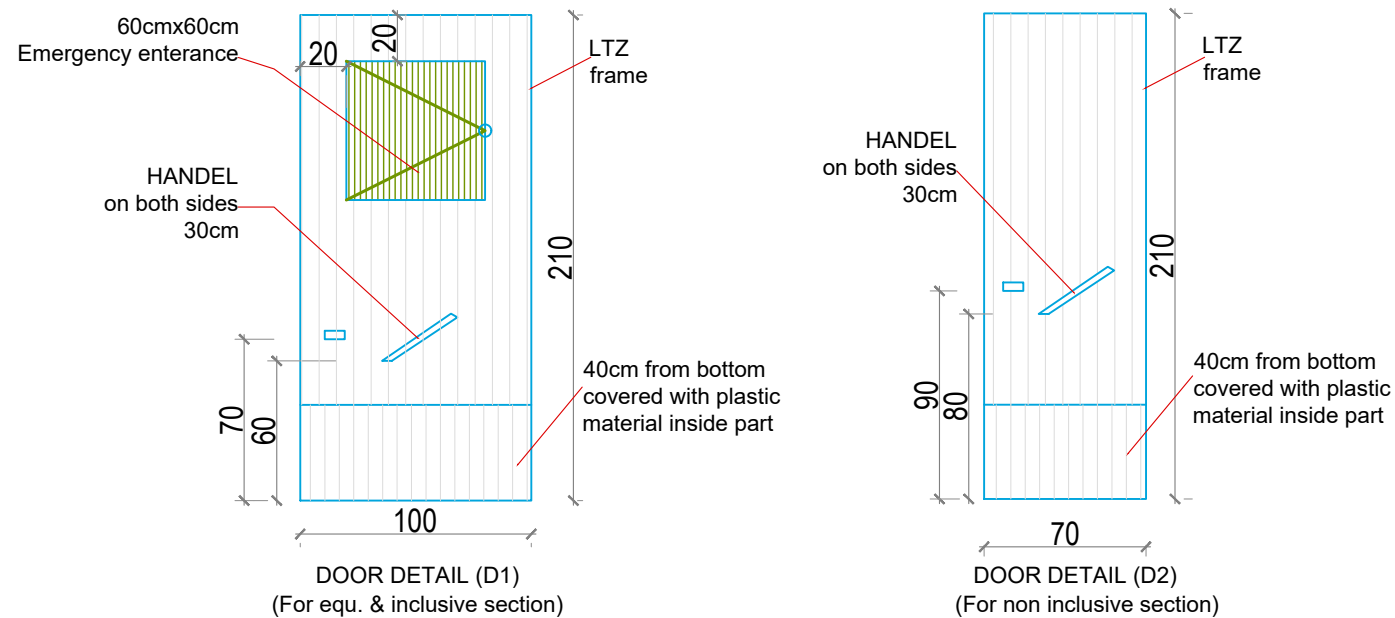
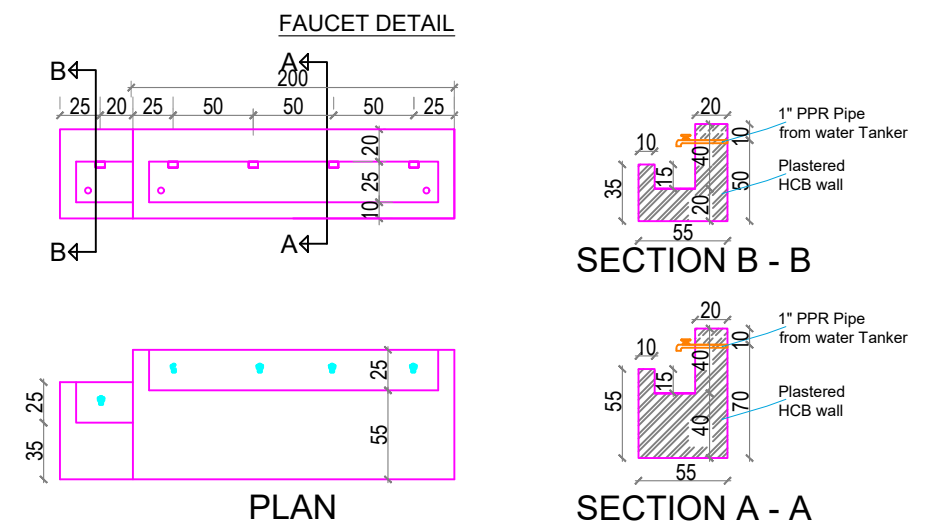
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OWNER
UNICEF

DRAWING TITLE
5 SEATS LATRINE BLOCK FOR GIRLS DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY: HALBEEG ARCHITECT & ENGINEERING CONSULTANCY Mesfin H.		
SCALE AS SHOWN	DATE SEPT., 2025	AR 04/05

SOAK AWAY PIT



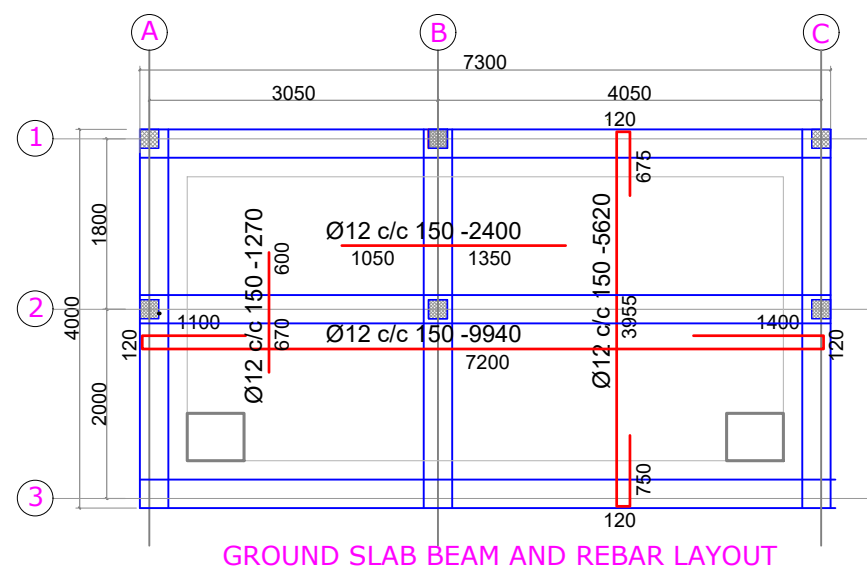
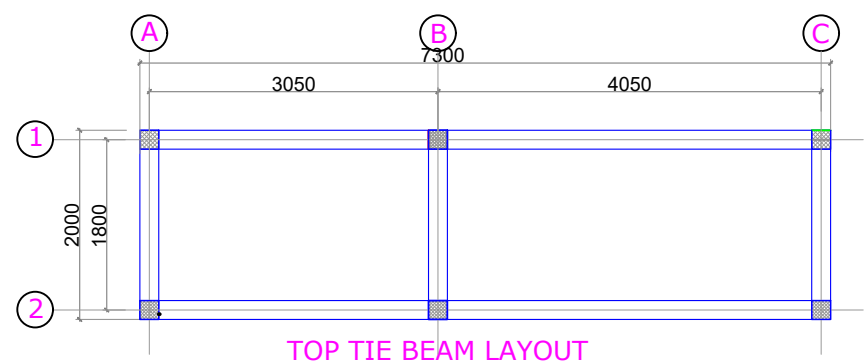
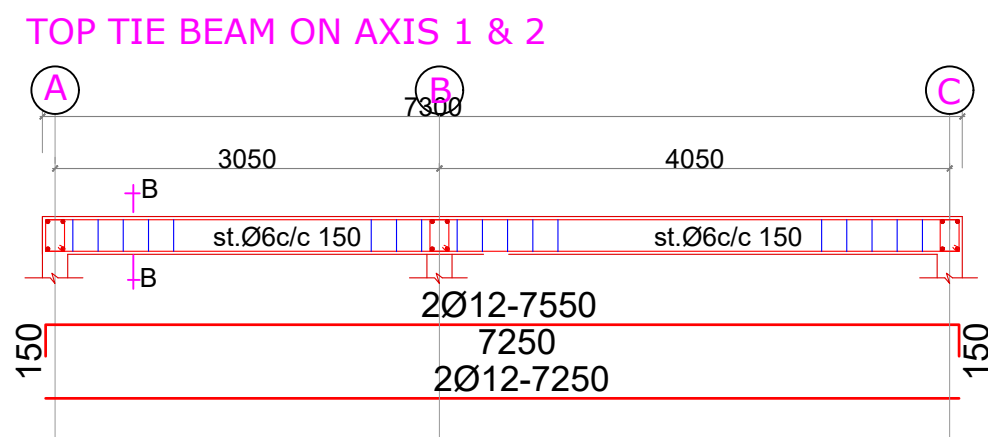
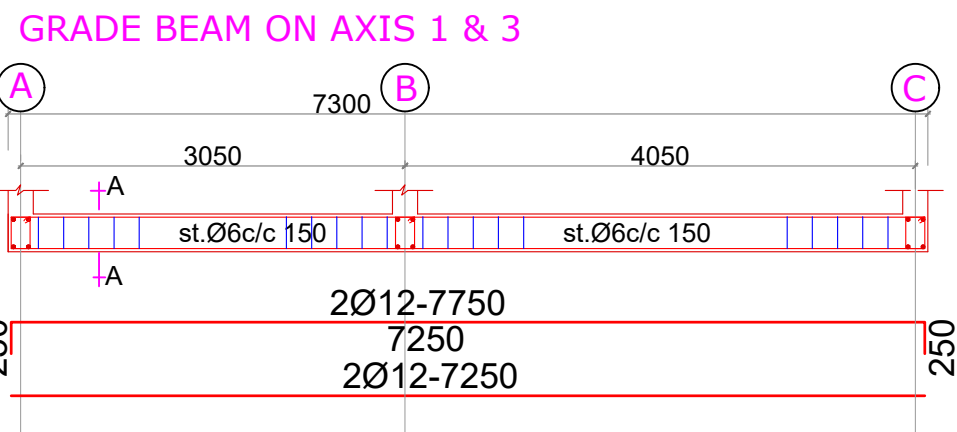
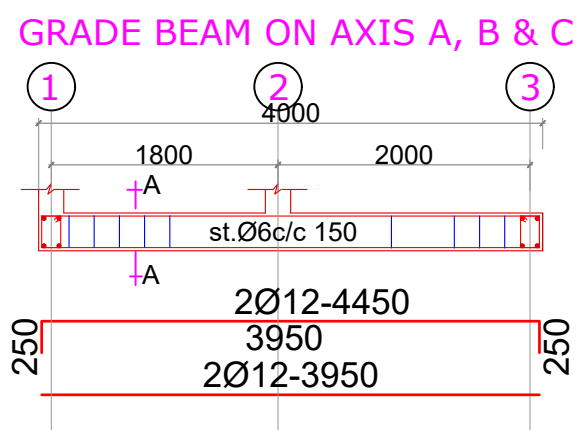
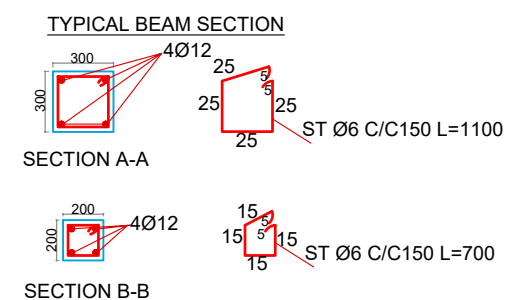
PROJECT
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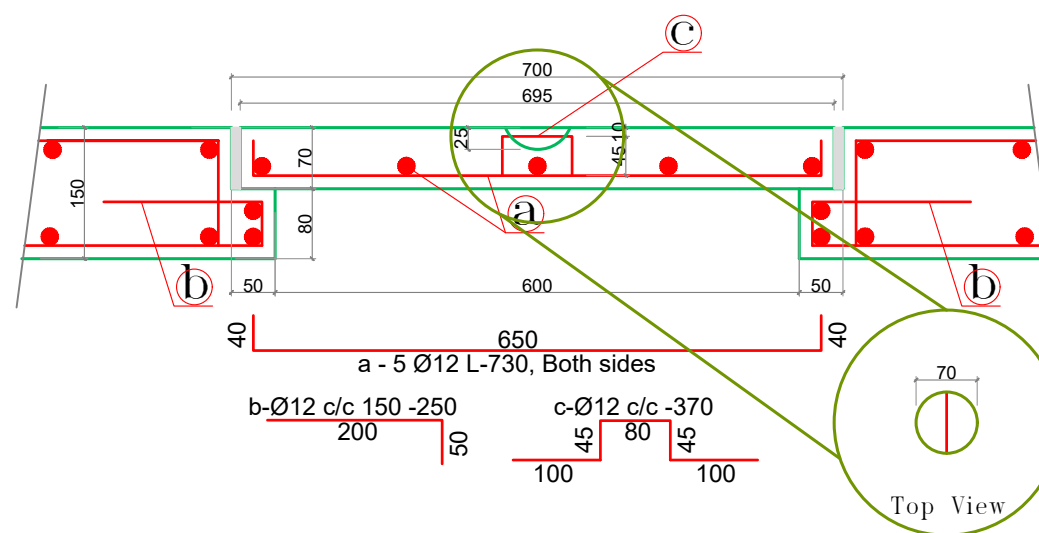
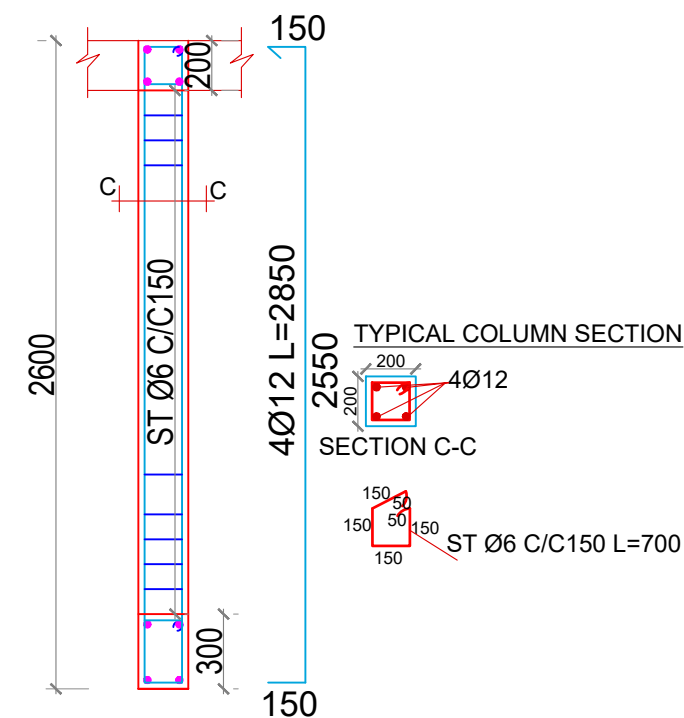
DRAWING TITLE
5 SEATS LATRINE BLOCK FOR GIRLS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

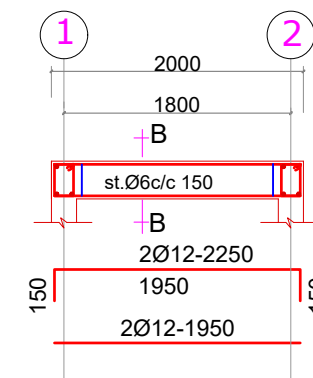
SCALE AS SHOWN	DATE SEPT., 2025	AR 05/05
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MANHOLE COVER DETAIL



TOP TIE BEAM ON AXIS A, B & C



Notes:

- Concrete Quality shall be C25.
- Structural drawings should be read with Architectural drawings.
- Reinforcement steel quality shall be $f_{yk}=300\text{MPa}$ and $f_{yk}=400\text{MPa}$ for rebar size less than 12 and greater than 10 respectively.
- Black cotton soil shall be removed entirely & suitable selected material shall be backfilled (compacted in 20cm layers).
- Hardcore layer of 25cm thickness shall be provided on top of the selected material.
- Concrete cover for Beams and columns shall be 25mm.
- Concrete cover for Slabs shall be 25mm.

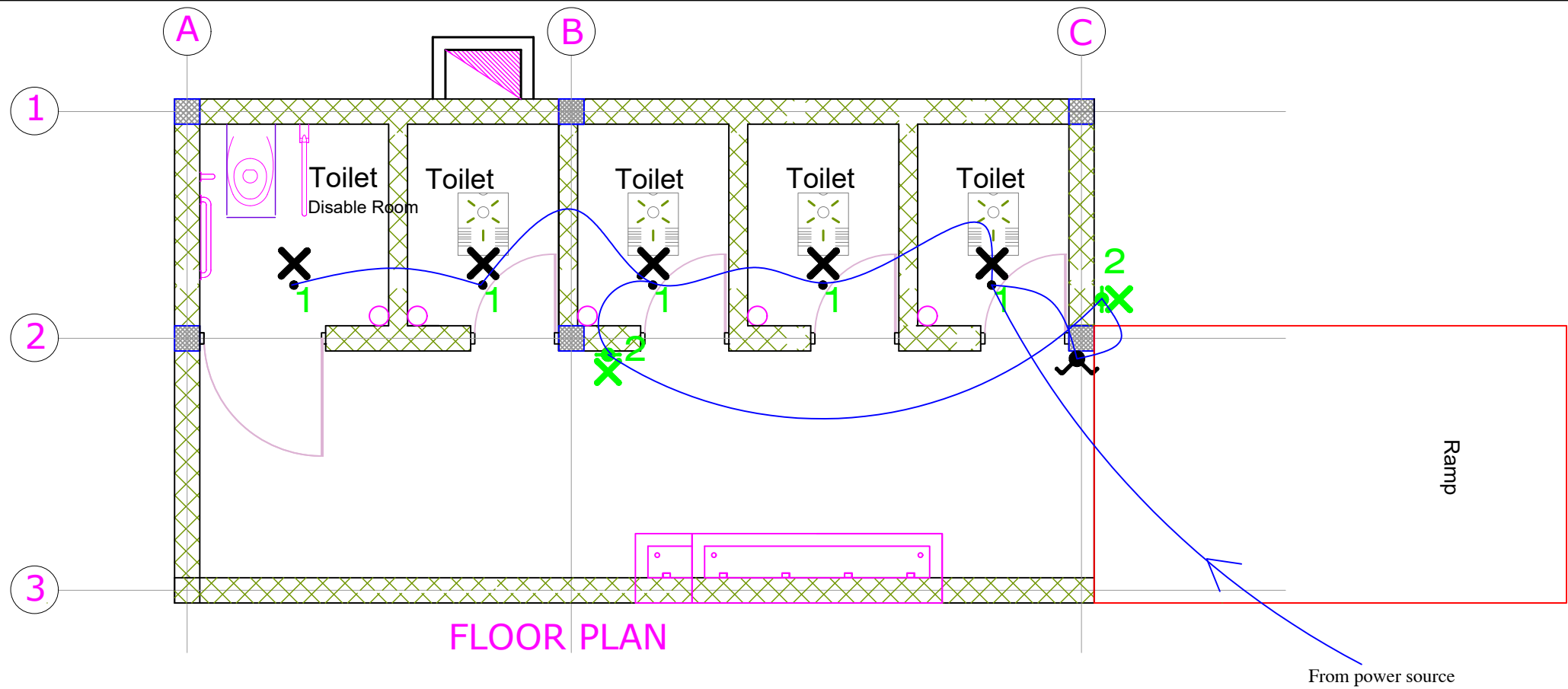
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5 SEATS LATRINE BLOCK FOR GIRLS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT., 2025	ST 01/01
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FLOOR PLAN

FITTING No	TYPE OF LIGHT FITTING	LOCATION
1	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm	Internal Toilet Rooms
2	TYPE 2.Philips outdoor Lorikeets wall lantern LED black 1x3.5W water resistance IP 44	External Wall mounted Light

FROM
FROM EXISTING
MDB

P-TOTAL 0.171 KW
P-MAX 0.171 KW
I-L 0.971A
NAME SDB-TOILET
DF 1

3X4MM²

20A/1P

Ground level

Manhole 600x600x700 mm

Earthing Rod copper clad steel
Diameter 16 mm, length 2400 mm
Earthing conductor 1X4sq mm to MLPP

SDB-F.TOILET							
B.NO	DESCRIPTION	P(KW)	A(mm ²)	I(A)	R	S	T
1	LIGHTING	0.1415	2x2.5	10	0.171		
2	RESERVE						
3	TOTAL				0.17		

LEGEND

- Light fitting, fluorescent, wall mounted
- Light fitting, CFL, ceiling mounted
- One way double gang - multi circuit switch, 6A - flush mounted

Note

The recommended switch box location is 1.20m - 1.30m from FFL & 15cm from door edge.
Locate switch box 92cm above FFL in Disable room & 15cm from door edge.
All electric wires needs to run through PVC conduits and closed junction box.

PROJECT
Engineering Services for Site Assessment, Design Adaptation and supervision works for Rehabilitation of WASH and MHM Facilities in selected Secondary Schools in Somali Region

OWNER
UNICEF

DRAWING TITLE
5 SEATS LATRINE BLOCK FOR GIRLS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

SCALE AS SHOWN	DATE SEPT.,2025	EL 01/01
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VIP LATRINE FOR TEACHERS TOILET (4 SEATS)

-Sheet List	
Sheet Number	Sheet Name
A100	3D View & Drawing Sheet
A101	Plans & sections
A201	Building Elevation

1. DO NOT SCALE FROM THE DRAWINGS.
2. ALL DIMENSIONS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO MANUFACTURE AND INSTALLATION.
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH OTHER RELEVANT ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS AND ALL RELEVANT SECTIONS OF THE SPECIFICATIONS.

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CONSULTANT:	
Client	
UNICEF ETHIOPIA	
Project	
VIP LATRINE FOR TEACHERS TOILET (4 SEATS)	
Project Address	
Drawing Size	
3D View & Drawing Sheet	
Architects Design Name	
Drawn By	
Date	Scale
September 2025	
Project No.	Design Status
Design Revision	Drawing No.



No.	Description	Date
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Client

UNICEF ETHIOPIA

CONSULTANT

UNICEF ETHIOPIA

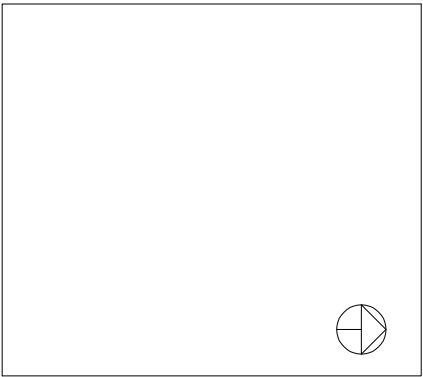
VIP LATRINE FOR TEACHERS TOILET (4 SEATS)

Architects (Design Team)

September, 2025

A10

1. DO NOT SCALE FROM THE DRAWINGS.
2. ALL DIMENSIONS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO MANUFACTURE AND INSTALLATION.
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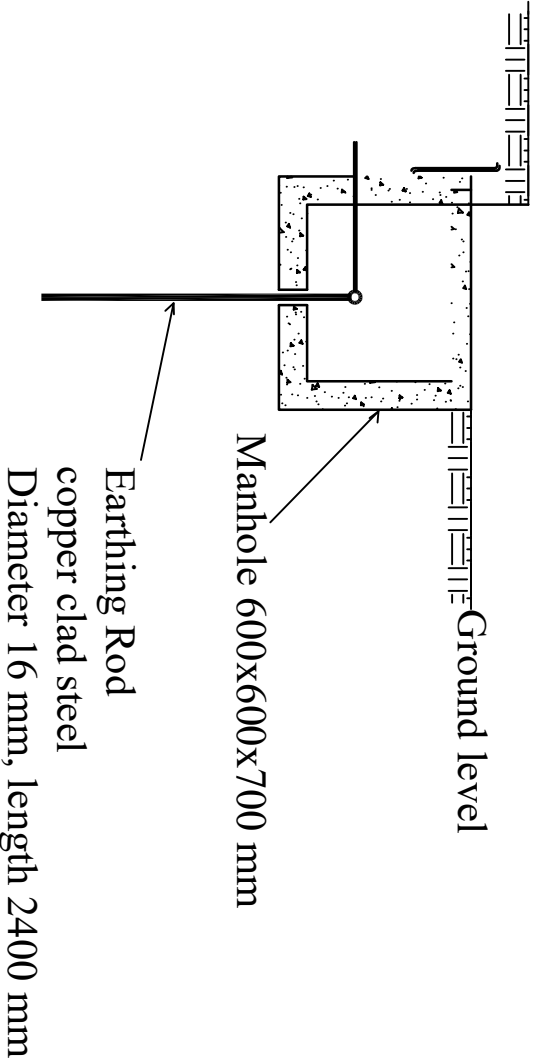


NOTES

1. DO NOT SCALE FROM THE DRAWINGS.
2. ALL DIMENSIONS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO MANUFACTURE AND INSTALLATION.
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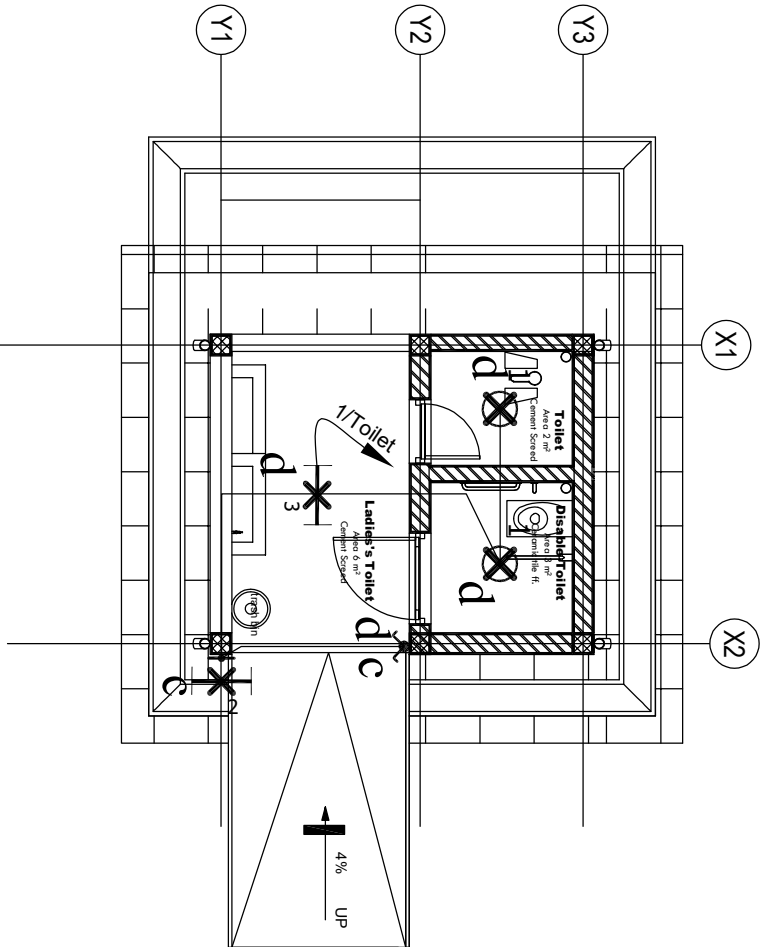
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Client	UNICEF ETHIOPIA
Project	
Project Address	VP LATRINE FOR TEACHERS TOILET (2 SEATS)
Drawing Title	
Author (Design Team)	
Drawn By	
Date	SEPTEMBER 2025
Project No.	Design Status: FINAL
Design Revision	Drawing No. EL 01/01



- ### Earthing conductor
- 1X4sq mm to MLPP**
1. Earthing resistance shall not be greater than 5 Ohm.
 2. If earthing resistance is greater than 5 Ohm additional electrode shall be buried spaced not less than the length of the electrode.

SYMBOL	DESCRIPTION
	Single switch
	Two gang switch
	Two way switch
	Three gang switch
	Intermediate switch



FROM EXISTING		20A/1P
MDB	P-TOTAL	0.171 kW
P-MAX	I-L	0.171 kW
I-L	SDB-TTOILET	0.971A
NAME	DF	1

B.NO	DESCRIPTION	P(KW)	A(m ²)	I(A)	R	S	T
1	LIGHTING	0.1415	2x2.5	10	0.171		
3	RESERVE						
4	RESERVE						
5	TOTAL				0.17		

FITTING TYPES (SPECIFIED OR EQUIVALENT)

	DESCRIPTION
1	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm
2	TYPE 2.Philips outdoor Lorikeets wall lantern LED black 1x3.5W water resistance IP 44
3	TYPE 3. Philips WT060C LED36S/840 PSU TW1 L1200 ,3600 lm, 30W, IP 66

GENERAL NOTES

GENERAL

- 1). THE PROJECT SHALL CONFORM TO ETHIOPIAN BUILDING CODE OF STANDARD ES-EN:2015 AND THE FOLLOWING INTERNATIONAL DESIGN STANDARDS
 - A. EUROPEAN STANDARDS:
 - EN1990:2002
 - EN1991-1-1:2002
 - EN1992-1-1:2004
 - EN1993-1-1:2006
 - EN1998-1-1:2004
 - DIN 1045-1:2001
 - B. AMERICAN CONCRETE INSTITUTION
 - AC318-08
- 2). ALL STRUCTURAL WORK SHALL CONFORM TO THE PROJECT DRAWINGS, ALL DRAWING NOTES, AND APPLICABLE REFERENCE STANDARDS. THE SCOPE OF WORK IS NOT SOLELY DEFINED BY THESE DRAWINGS.
- 3). TYPICAL DETAILS APPLY THROUGHOUT THE PROJECT EVEN IF NOT SPECIFICALLY REFERENCED IN PLANS OR DETAILS.
- 4). DO NOT USE SCALED DIMENSIONS; USE ONLY WRITTEN DIMENSIONS. WHERE NO DIMENSION IS PROVIDED, CONSULT THE ARCHITECT/ENGINEER FOR CLARIFICATIONS BEFORE PROCEEDING WITH WORK.
- 5). SEE ARCHITECTURAL DRAWINGS FOR SITE POSITIONING AND PROJECT DATUM REFERENCE.
- 6). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF PERSONS AND PROPERTY AND THE MEANS AND METHODS OF CONSTRUCTION.
- 7). STRUCTURAL ELEMENTS SHALL BE CENTERED ABOUT GRIDLINES OR DIMENSION LINES, UNLESS OTHERWISE NOTED.
- 8). ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC. REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN ON PLAN. DISCREPANCIES AND/OR INTERFERENCES SHALL BE REPORTED TO THE ARCHITECT/ENGINEER IMMEDIATELY. ALL PENETRATIONS AND DUCT POSITIONS TO BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 9). OPENINGS SHALL NOT BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
- 10).DEFICIENT WORK AND WORK NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AS IDENTIFIED BY THE ARCHITECT, ENGINEER, OR INSPECTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL COMPENSATE OWNER FOR SERVICES ARISING FROM DEFICIENT WORK.
- 11). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY REQUIRED DEWATERING OF THE SITE DURING CONSTRUCTION.
- 12). USE THE ELEVATION DRAWING IN CONJUNCTION WITH ELEVATION DRAWING. .

FOUNDATIONS

- 1). FOUNDATION DESIGN CRITERIA ARE BASED ON THE RECOMMENDATIONS CONTAINED WITHIN THE BUILDING GEOTECHNICAL REPORT.
- 2). SLAB-ON-GRADE SHALL BE PLACED ON WELL GRADED, FULLY COMPACTED BEARING SURFACE FREE OF VOIDS AND ORGANIC MATERIALS.
- 3). WATER SHALL NOT BE ALLOWED TO STAND IN TRENCHES OR FORMS BEFORE OR AFTER CONCRETE IS PLACED, AND SHALL BE PUMPED OUT. IF BOTTOMS OF TRENCHES BECOME SOFTENED DUE TO RAIN OR OTHER WATER BEFORE FOUNDATIONS ARE CAST, THE CONTRACTOR SHALL, AT THEIR OWN EXPENSE, EXCAVATE THE SOFTENED MATERIAL AND REPLACE WITH CONCRETE.
- 4). WHERE SOIL CONDITIONS ARE FOUND DURING CONSTRUCTION THAT DO NOT MEET CRITERIA DESCRIBED IN THE REPORT, SPECIAL INSPECTOR/CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER IMMEDIATELY.
- 5). LOCATION OF UNDERGROUND UTILITIES SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF FOUNDATION TO AVOID ANY INTERFERENCE. CONTRACTOR SHALL EXPOSE EXISTING UTILITY LINES IN THE IMMEDIATE AREA TO DETERMINE THEIR EXACT INVERT ELEVATION, SIZE AND LOCATION RELATIVE TO THE FOUNDATION. NOTIFY THE ENGINEER IMMEDIATELY OF ANY INTERFERENCE WITH FOOTINGS OR THE FOUNDATION WALL.

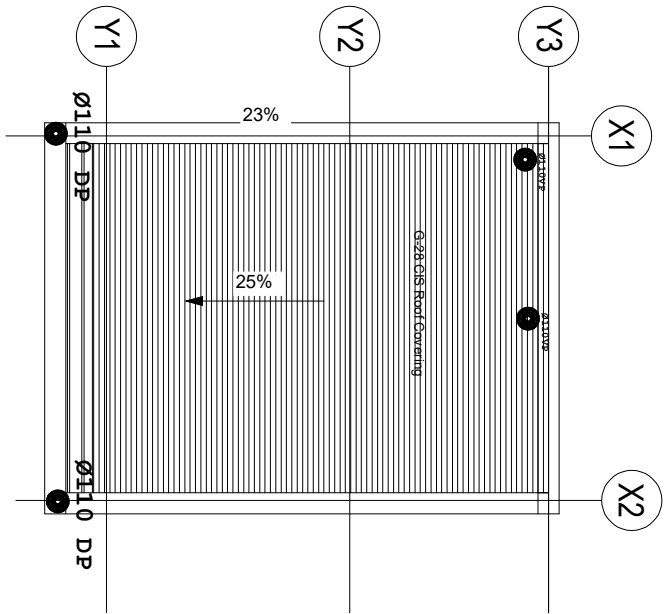
REINFORCED CONCRETE

- 1). CONCRETE SHALL CONFORM TO THE FOLLOWING CYLINDER STRENGTH/CUBE STRENGTH ($f_{ck}/f_{ck,cube}$) VALUES
 - MAIN BLOCK
 - SHEAR WALL AND COLUMNS – C25/30(C30)
 - FOUNDATION, SLAB, BEAM,RETAINING WALL, STAIR AND RAMP ST– C20/25(C25)
 - INTERSECTION BETWEEN SLAB/STAIR AND RETAINING WALL, SHEAR WALL AND COLUMNS– C20/25(C25)
 - 2). REINFORCING STEEL SHALL BE:
 - CLASS B DEFORMED BARS WITH MINIMUM YIELD STRENGTH OF $f_y=400\text{KN}/\text{m}^2$ (S–400B) FOR ALL DIAMETERS
 - 3). PROVIDE DOWELS OR CONTINUOUS REINFORCING BETWEEN ALL CONCRETE ELEMENTS. FOR FOUNDATIONS PROVIDE DOWELS OF SAME NUMBER AND SIZE AS THE VERTICAL REINFORCEMENT OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE. FOR OTHER STRUCTURAL ELEMENTS, VERTICAL DOWELS SHALL MATCH THE GREATER REINFORCING OF EACH ELEMENT.
 - 4). BAR SPLICES MAY BE DELETED AND CONTINUOUS REINFORCING USED AT CONTRACTORS OPTION. BAR SPLICES SHALL BE MADE AT POINTS OF MINIMUM STRESS. IN FRAMED BEAMS AND SLABS SPLICE TOP BARS AT MID-SPAN, BOTTOM BARS OVER SUPPORTS.
 - 5). STEEL REINFORCEMENT SHOP DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR AND SHALL INDICATE:
 - A. MATERIAL AND GRADE
 - B. BAR SCHEDULES WITH BAR LENGTHS AND BENT BAR DIAGRAMS
 - C. ARRANGEMENT, SPACING, COVER, LAP LOCATIONS AND LENGTHS
 - D. SPECIAL REINFORCEMENT AT OPENINGS
 - E. ALL EMBEDDED INSERTS, ANCHORS AND CAST-IN PLACE STEELWORK CONNECTIONS ALL OPENINGS AND EMBEDDED FIXINGS FOR CRANES, LIFTS, PUMPS AND OTHER TEMPORARY WORKS
 - 6). ALL PIPE AND CONDUIT OPENINGS SHALL BE SLEEVED AND CAST IN PLACE UNLESS OTHERWISE NOTED. DO NOT SAW CUT, CORE OR CORE DRILL STRUCTURAL CONCRETE WITHOUT EXPLICIT DIRECTION FROM THE STRUCTURAL ENGINEER.
 - 7). CONDUIT AND PIPES SHALL NOT BE PERMITTED IN STRUCTURAL CONCRETE ELEMENTS UNLESS SPECIFICALLY REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER. ANY CONDUITS TO BE EMBEDDED IN THE STRUCTURAL CONCRETE SHALL BE SUBMITTED FOR STRUCTURAL REVIEW.
 - 8). CONTRACTOR TO SUBMIT CONCRETE MIX DESIGN AT LEAST TWO WEEKS PRIOR TO CONCRETE POUR FOR APPROVAL BY THE STRUCTURAL ENGINEER.
 - 9). ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STRUPRS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.
 - 10). ALL REINFORCING BARS SHALL BE LAPPED AS SPECIFICALLY DETAILED ON THE DRAWINGS.
 - 11). SUBMIT SHOP DRAWINGS SHOWING CONSTRUCTION JOINT DETAILS, LOCATIONS AND THE SEQUENCE OF POURS FOR THE STRUCTURAL ENGINEER'S REVIEW PRIOR TO BEGINNING WORK.
 - 12). NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED IN BEAMS, WALLS AND SLABS UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS OR APPROVED IN WRITING PRIOR TO CONSTRUCTION BY THE ENGINEER.
 - 13). MECHANICAL, ELECTRICAL AND PLUMBING LIGHTNING RODS, OPENINGS AND SLEEVES ARE SHOWN INDICATIVELY AND CONTRACTOR TO COORDINATE WITH RESPECTIVE TRADES.
 - 14). ALL ADJOINING SURFACES NOT CAST MONOLITHICALLY SHALL BE ROUGHENED FOR THE ENTIRE INTERSECTING SURFACE AND APPLY A BONDING AGENT AS REQUIRED.
 - 15). CONTRACTOR SHALL COORDINATE SLAB DEPRESSIONS FOR FLOOR FINISHES WITH THE ARCHITECTURAL DRAWINGS.
 - 16). CONTRACTOR SHALL COORDINATE LOCATION OF INSERTS, WELDED PLATES, AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
 - 17). HORIZONTAL PIPES OR CONDUITS PLACED IN SLABS SHALL NOT BE SPACED CLOSER THAN 3X THE DIAMETER ON CENTER. PIPES AND CONDUITS PLACED IN SLABS SHALL NOT HAVE AN OUTSIDE DIAMETER LARGER THAN 1/3 OF SLAB THICKNESS. ALUMINUM CONDUITS SHALL NOT BE PLACED IN CONCRETE. NO CONDUITS SHALL BE PLACED IN THE SLAB WITHIN 600mm OF ANY COLUMN FACE.
 - 18). LONGITUDINAL BARS IN BETWEEN TWO DIFFERENT SECTIONS OF COLUMNS HAS TO BE BENT 1:6 SLOPE TO AVOID YELDING OF BARS.(REFER THE DRAWING BELOW)
 - 19). USE $\varnothing 8/250$ DISTRIBUTION REBAR AT SLABS
- ### CONCRETE JOINTS
- 1). CONSTRUCTION JOINTS SHALL BE INSTALLED SUCH THAT STRENGTH AND APPEARANCE OF CONCRETE ARE NOT IMPAIRED.
 - A. LAYOUT OF CONTRACTION JOINTS IN SLABS ON GRADE SHALL NOT EXCEED 7.5M IN LENGTH WITH A MAXIMUM ASPECT RATIO BETWEEN LONG AND SHORT DIRECTIONS OF 1.5.
 - B. CONSTRUCTION JOINTS IN CONCRETE FRAME AND SLAB SHALL OCCUR AT THE THIRD (3RD) POINT OF THE SPANS IN EITHER DIRECTION. REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS AND SPLICED ONLY AT LOCATIONS NOTED ON THE DRAWINGS.
 - C. WHERE THERE IS DIFFERENCE IN CONCRETE GRADE BETWEEN FLOOR SLABS AND COLUMN OR SHEARWALL, CAST PORTION OF SLAB WITH THE HIGHER CONCRETE GRADE ACCORDING TO THE DETAIL PROVIDED.

LOADS

- THE BUILDING IS DESIGNED FOR THE FOLLOWING LOADS.
- 1). LIVE LOADS (UNIFORMLY DISTRIBUTED)
 - MAIN BLOCK
 - 3.0 kN/m^2
 - 2). SEISMIC CRITERIA
 - MAIN BLOCK
 - SEISMIC FORCE RESISTING SYSTEM:
 - E/W: FRAME SYSTEM
 - N/S: FRAME SYSTEM
 - PEAK GROUND ACCELERATION = 0.01G
 - GROUND TYPE = C
 - BUILDING IMPORTANCE CLASS = II
 - DUCTILITY CLASS = DCM

3		
2		
1		
NO	DATE	AMENDMENT
REVISIONS		
Consultant Halbeeg Architects and Engineers Consultancy		
Client UNICEF ETHIOPIA		
Address:		
Project: Rehabilitation of WASH & Small Facilities in Schools in Somali Region		
Drawing Title: (W/ LATRINE FOR TEACHERS/2 SEAT/3)		
General Note		
Approved By		
Designed By: Meelin H.		
Drawn by:		
Date:	September, 2025	Scale: 1:25, 1:50 & 1:100
Drawing Phase :		Drawing No.: 1
FINAL		ST - 01/03

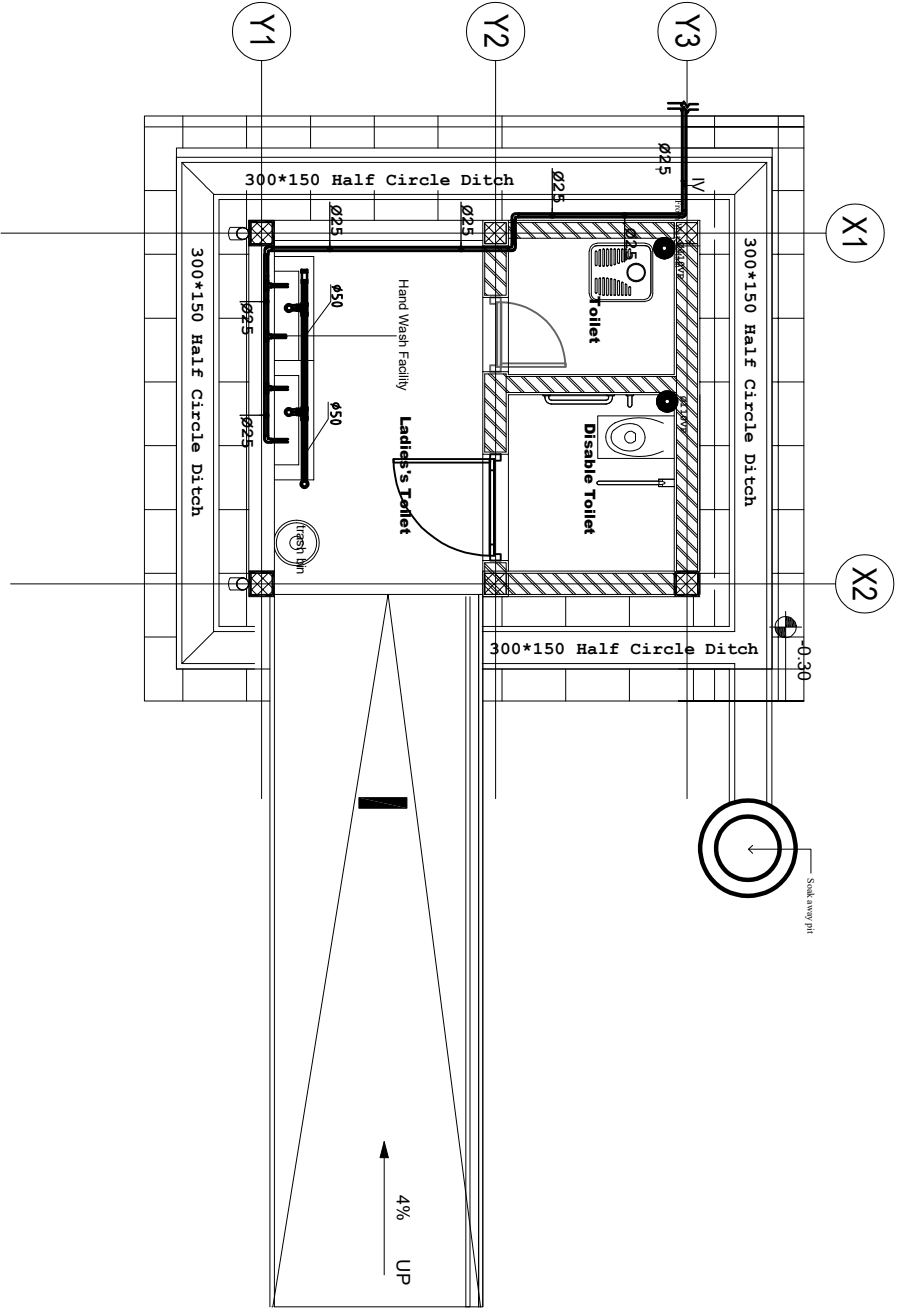


LEGEND

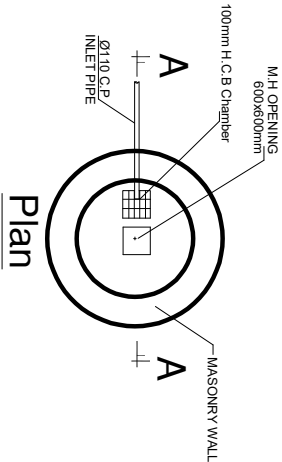
- 1. ALL HWBKS AND WC GATE VALVES HAVE TO BE INSTALLED AT +0.40 ABOVE FFL.
- 2. HWB HAS TO BE INSTALLED AT LEVEL +0.80 HIGH ABOVE FFL.
- 3. GATE VALVES FOR WATER HEATERS AND SH HAVE TO INSTALLED +1.50 HIGH ABOVE FFL.
- 4. BOTTOM OF WATER HEATER HAS TO BE +1.8 HIGH ABOVE FFL.
- 5. ALL PVC PIPES CROSSING A BEAM SHALL PASS THROUGH A SLEEVE WHICH HAS THE NEXT HIGHER COMMERCIAL DIAMETER THAN THE PIPE.
- 6. WATER PIPES INSTALLED IN THE CEILINGS HAS TO BE FIRML Y TIED WITH THE TRUSS AND SHOULD BE SEAMLESS TO AVOID LEAKAGE.
- 7. ALL PVC WASTE STACK PIPES INSTALLED ON THE OUTSIDE WALL OF THE BUILDINGS SHALL BE PAINTED AVOID THERMAL AND UV DAMAGE.

LEGEND

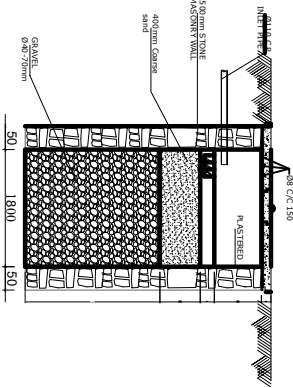
- HWB..... HAND WASH BASIN
- WC..... WATER CLOSET
- SH..... SHOWER HEAD
- BT..... BATH TUB
- FFL..... FLOOR FINISH LEVEL
- MH..... MANHOLE
- CO..... FLOOR MOUNTED CLEANOUT
- UPVC..... UPVC COLD WATER PIPE
- PVC..... PVC WASTE WATER PIPE
- GATE VALVE
- ND-50/090..... NOMINAL DIAMETER 50MM PVC PIPE FOR SEWERAGE
- ND-20/25..... NOMINAL DIAMETER 50 MM UPVC PRESSURE PIPE FOR WATER SUPPLY
- H/L..... HIGHER LEVEL
- L/L..... LOWER LEVEL
- CO..... CLEAN OUT
- FHC..... FIRE HYDRANT CABINET
- DP..... DOWN PIPE
- A.V..... AIR VENT
- CP..... CATCH PIT
- W.S..... Water Supply Riser
- W..... Waste Riser
- L..... Laundry
- ST..... Steam Bath



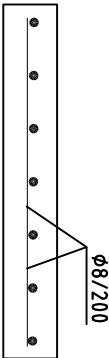
SOAKAWAY PIT sc.1:50



Plan

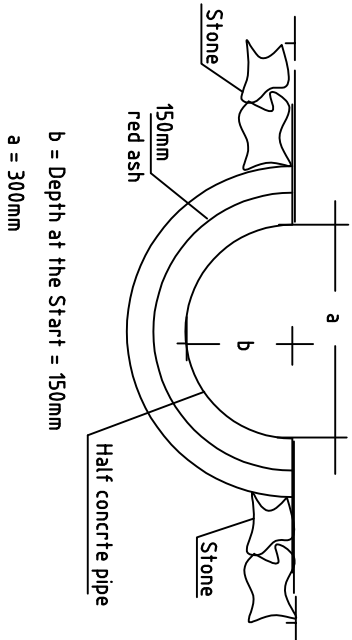


SLAB COVER



HALF CONCRETE PIPE OPEN CHANNEL

Sc.1:10



Key Plan:



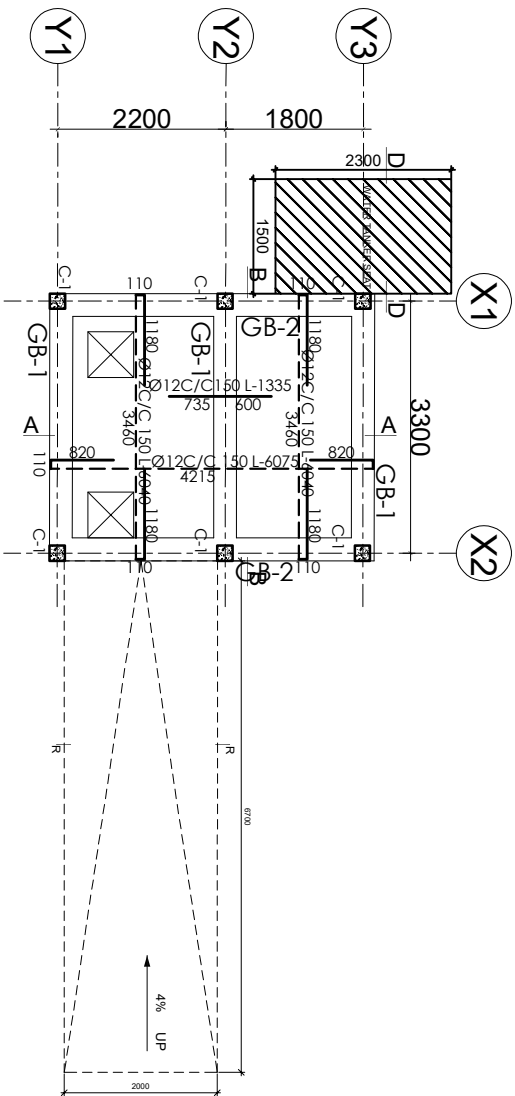
NOTES

- 1. DO NOT SCALE FROM THE DRAWINGS.
- 2. ALL DIMENSIONS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO MANUFACTURE AND INSTALLATION.
- 3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH OTHER RELEVANT ARCHITECTURAL, STRUCTURAL AND ALL RELEVANT SECTIONS OF THE SPECIFICATIONS.

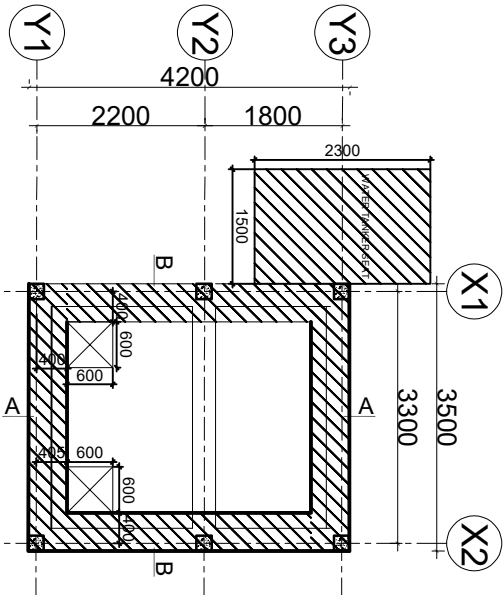
No.	Description	Date

Client	UNICEF ETHIOPIA
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Project	VIP LATRINE FOR TEACHERS TOILET (2 SEATS)		
Project Address			
Drawing title			
Architect (Design Team)			
Drawn by	Scale		
Date	SEPTEMBER 2025	Design Status	FINAL
Project No.		Drawing No.	SN 01/01
Design Revision			

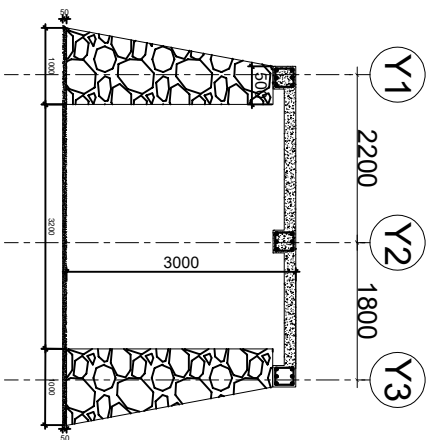


Ground Floor Beam, Columns Layout & Slab Reinforcement @ level (±0.00m)
sc 1:50

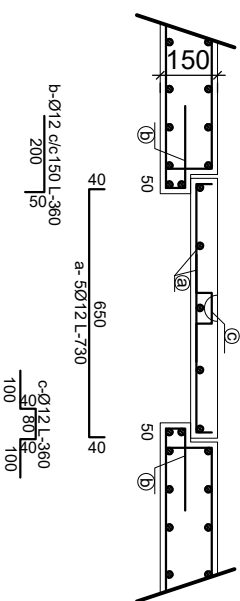
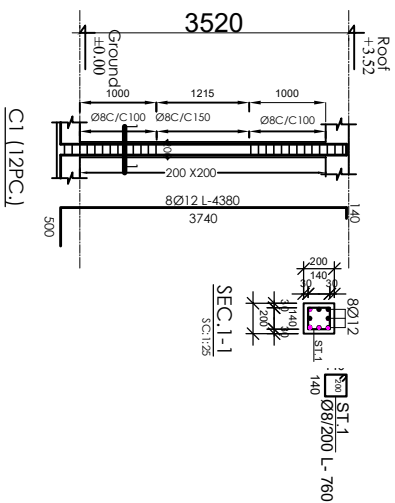
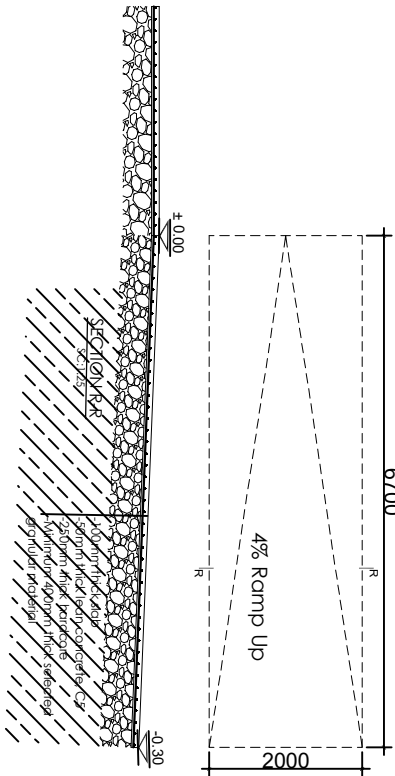


SECTION A-A

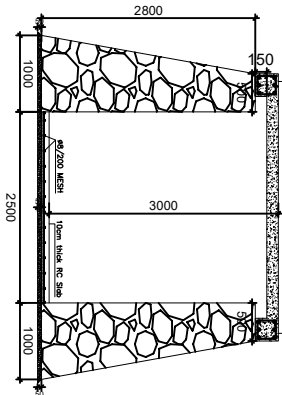
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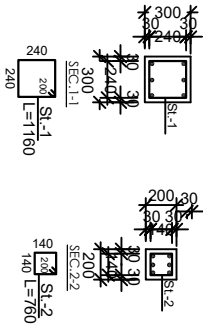
MANHOLE COVER DETAIL



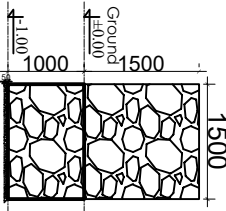
SECTION B-B
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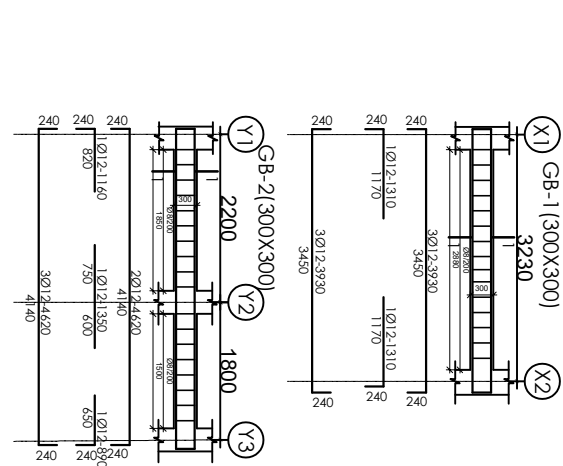
Beam Sections
SC:1:25



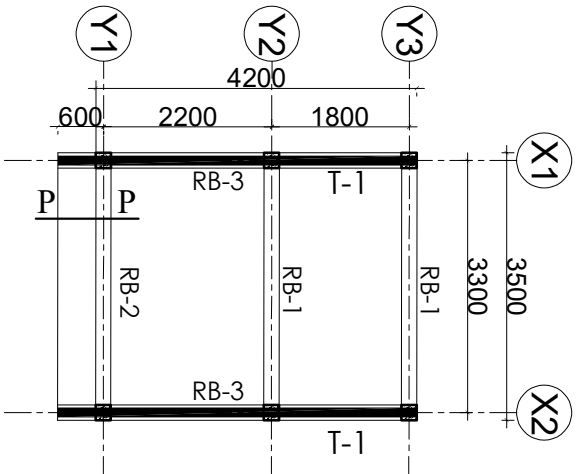
Masonry Water Tanker Seat



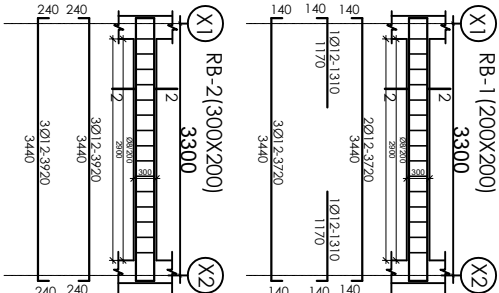
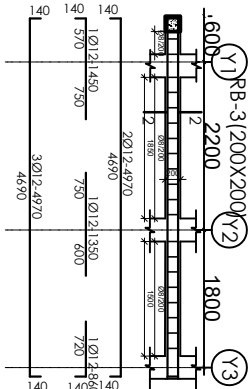
SECTION D-D
sc 1:50



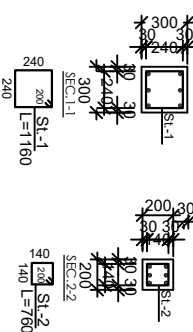
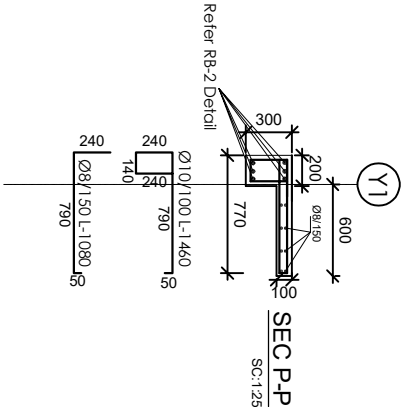
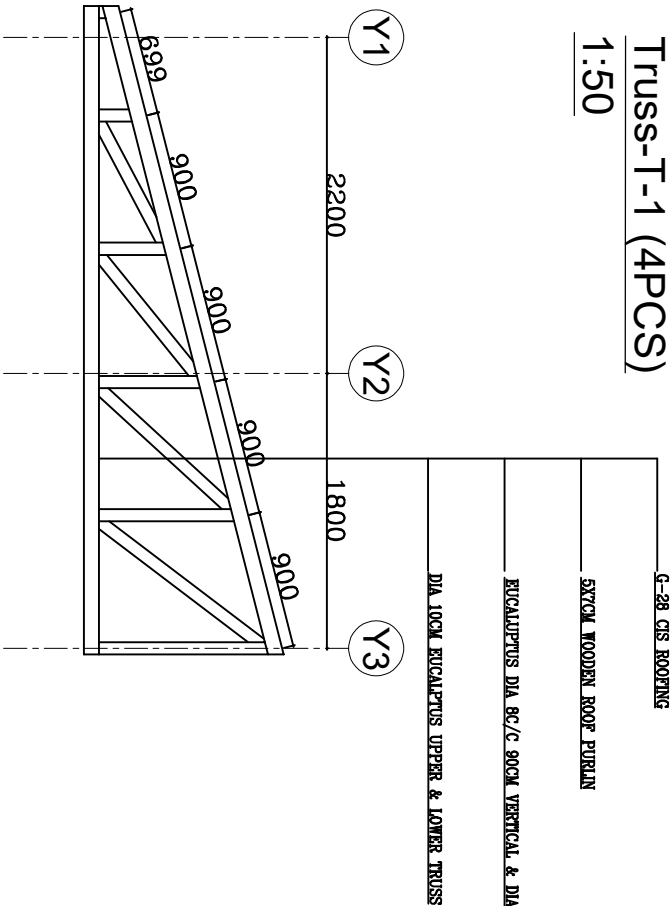
3			
2			
1			
NO	DATE	AMENDMENT	DESCRIPTION
REVISIONS			
Consultant Halbeeg Architects and Engineers Consultancy			
Client UNICEF ETHIOPIA			
Address:			
Project: Rehabilitation of WASH & Small Facilities in Schools in Somali Region			
Drawing Title: Columns, Beams, Columns Layout & Column, Beam, Ramp, Masonry & Plt Section Detail.			
Approved By			
Designed By: Meelin H.			
Drawn By:		Scale:	
Date: September, 2025		1:25, 1:50 & 1:100	
Drawing Phase : FINAL		Drawing No.: 1 ST - 02/03	



Roof Beam Layout @ level (+3.52m)
sc 1:50



Beam Sections
SC:1:25

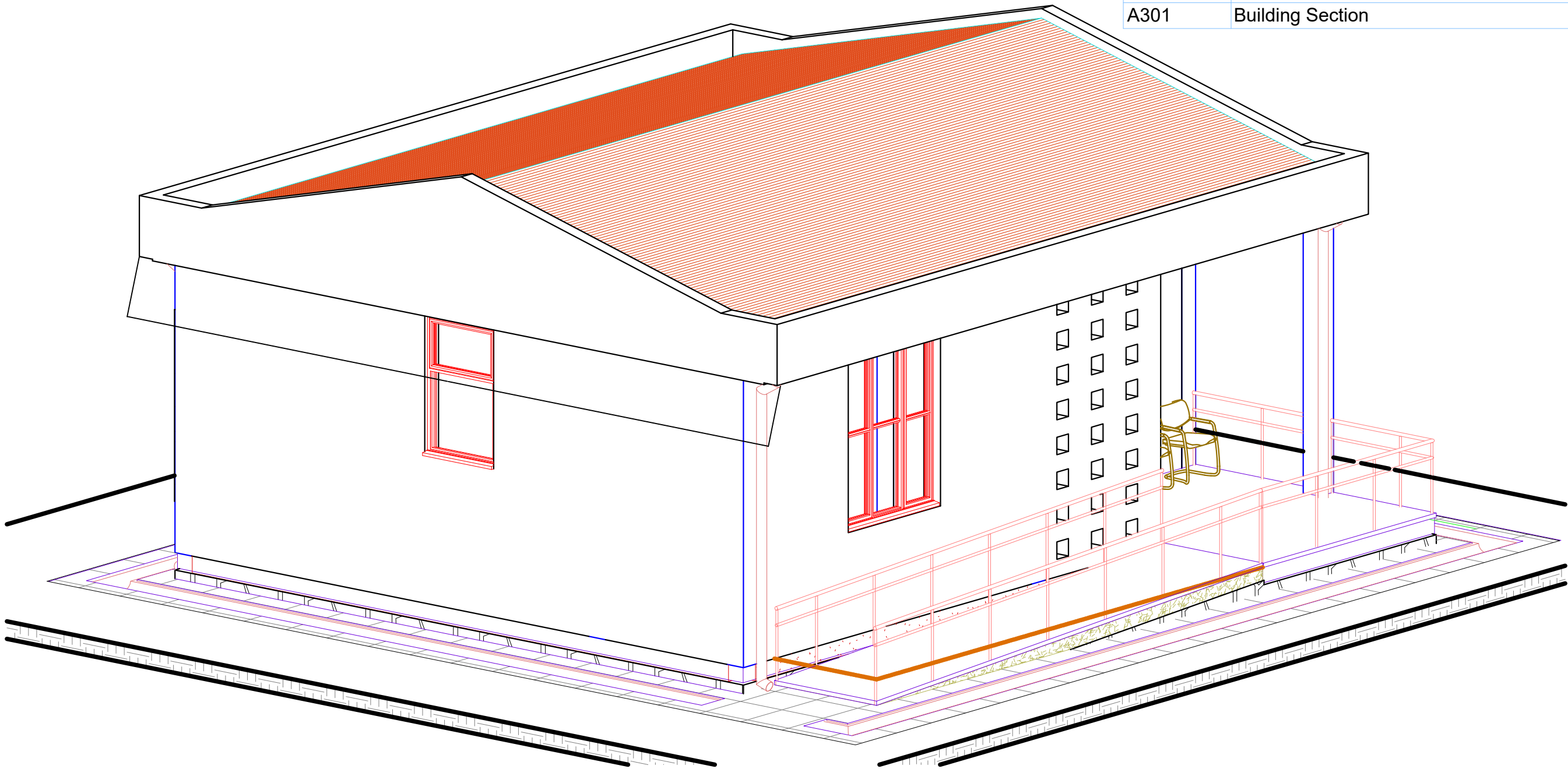


Truss-T-1 (4PCS)
1:50

3			
2			
1			
NO	DATE	AMENDMENT	DESCRIPTION
REVISIONS			
Consultant Halbeeg Architects and Engineers Consultancy			
Client UNICEF ETHIOPIA			
Address:			
Project: Rehabilitation of WASH & Small Facilities in Schools in Somali Region			
Drawing Title: Roof Beam Layout & Truss Layout, Roof Beam, Gutter & Truss Detail			
Approved By:			
Designed By: Meelin H.			
Drawn By:			
Date: September, 2025			
Drawing Phase : ST - 03/03			
Scale: 1:25, 1:50 & 1:100			
Drawing No.: 1			
FINAL			

MHM FACILITY

-Sheet List	
Sheet Number	Sheet Name
A100	3D View & Drawing Sheet
A101	Floor Plans & Elevations
A201	Elevations & Sections
A301	Building Section

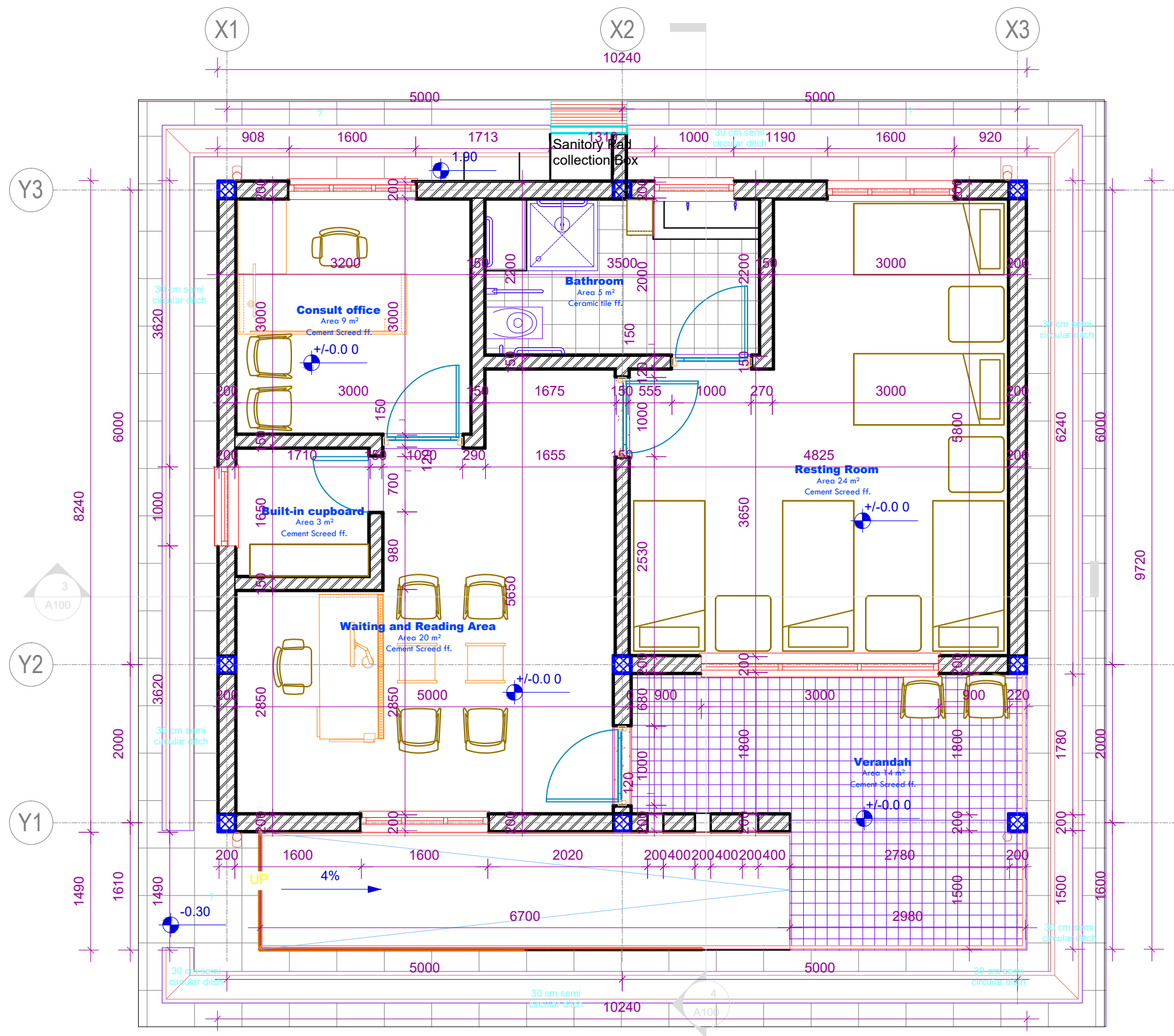


PROJECT
Engineering Services for Site Assessment, Design Adaptation and Supervision works for Rehabilitation of WASH and MHM Facilities in Lot-2 Secondary Schools in Somali Region

OWNER
UNICEF

DRAWING TITLE
MHM BLOCK
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

SCALE AS SHOWN	DATE SEPT.,2025	AR 01/04
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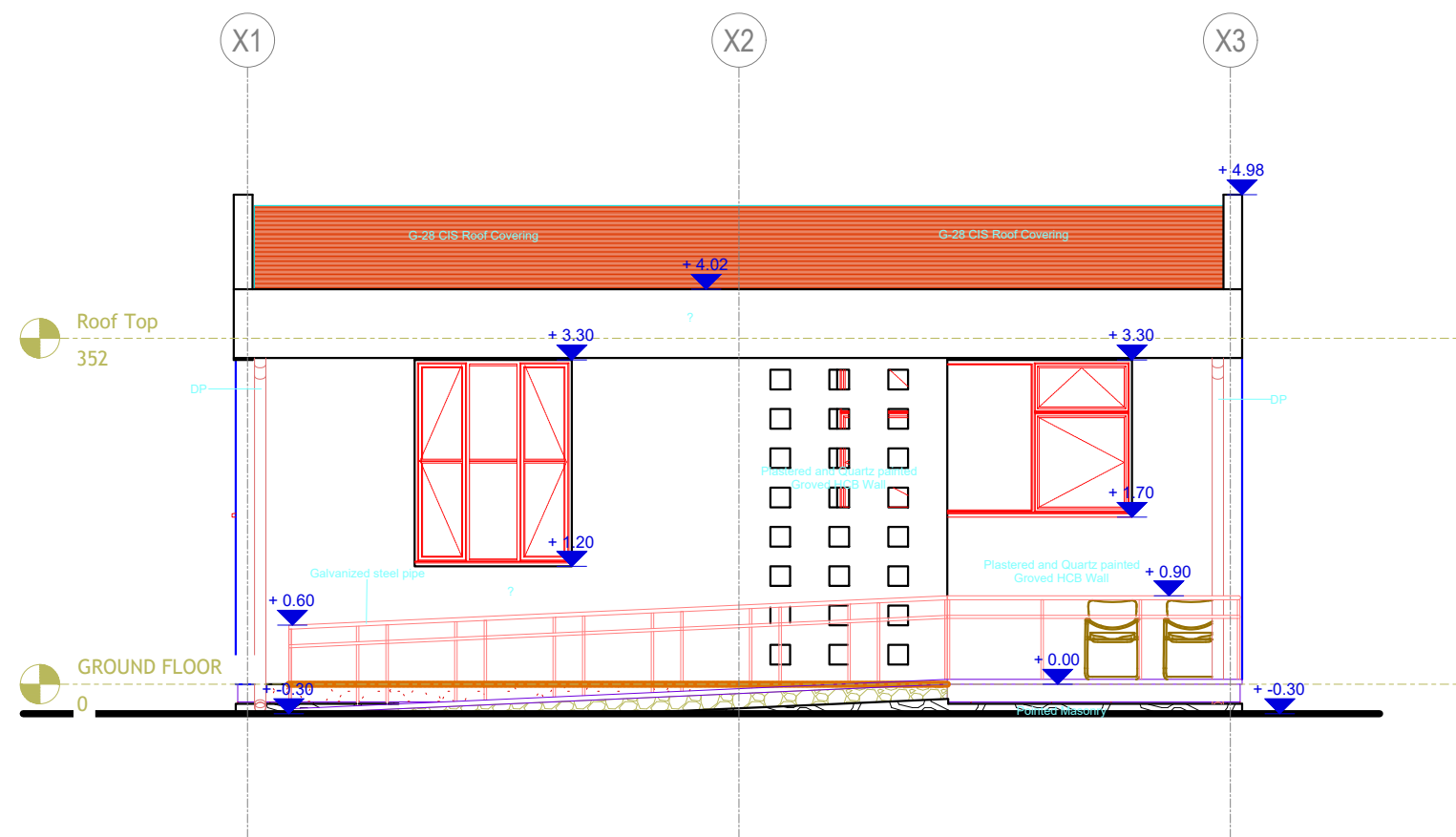
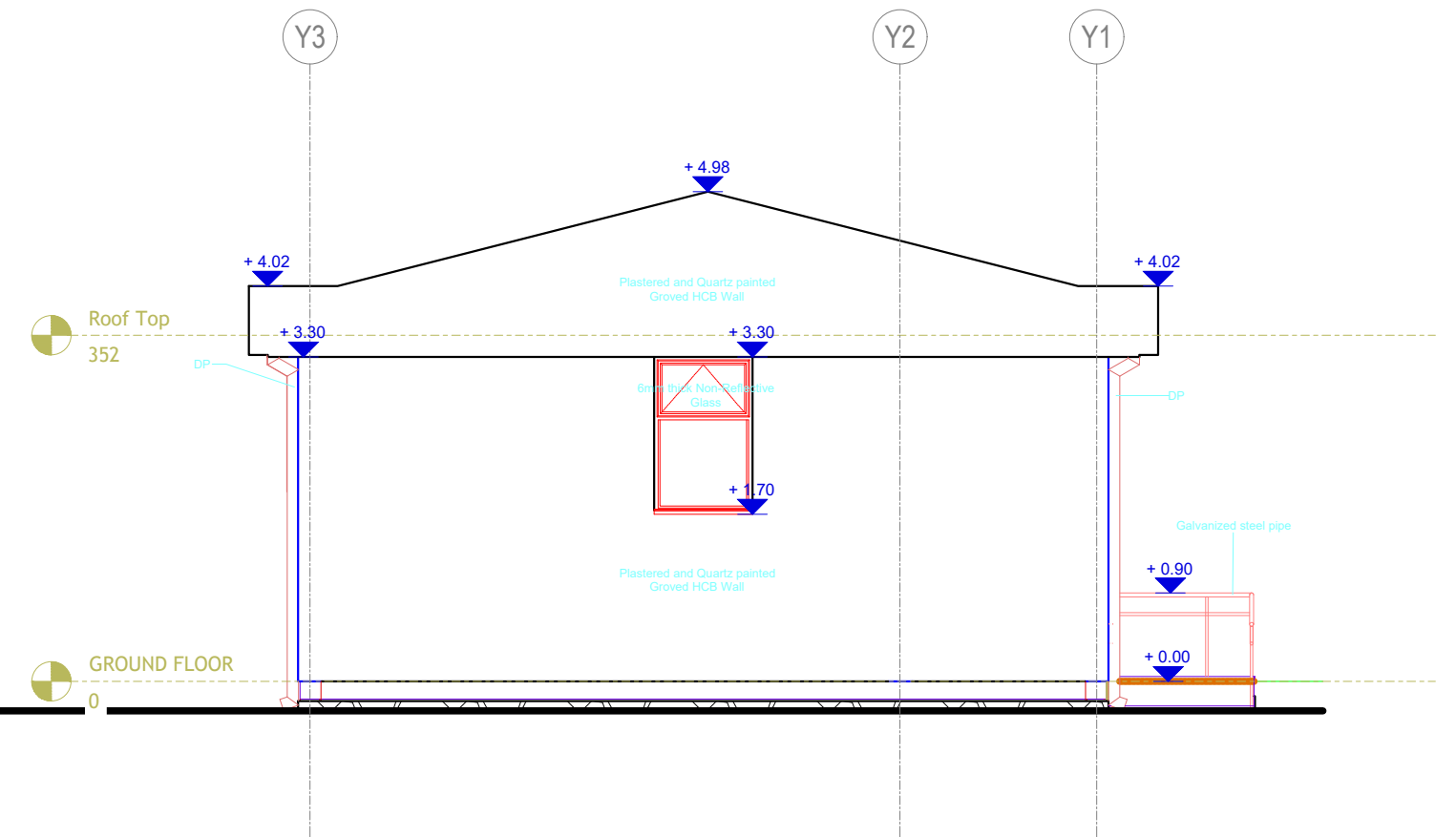
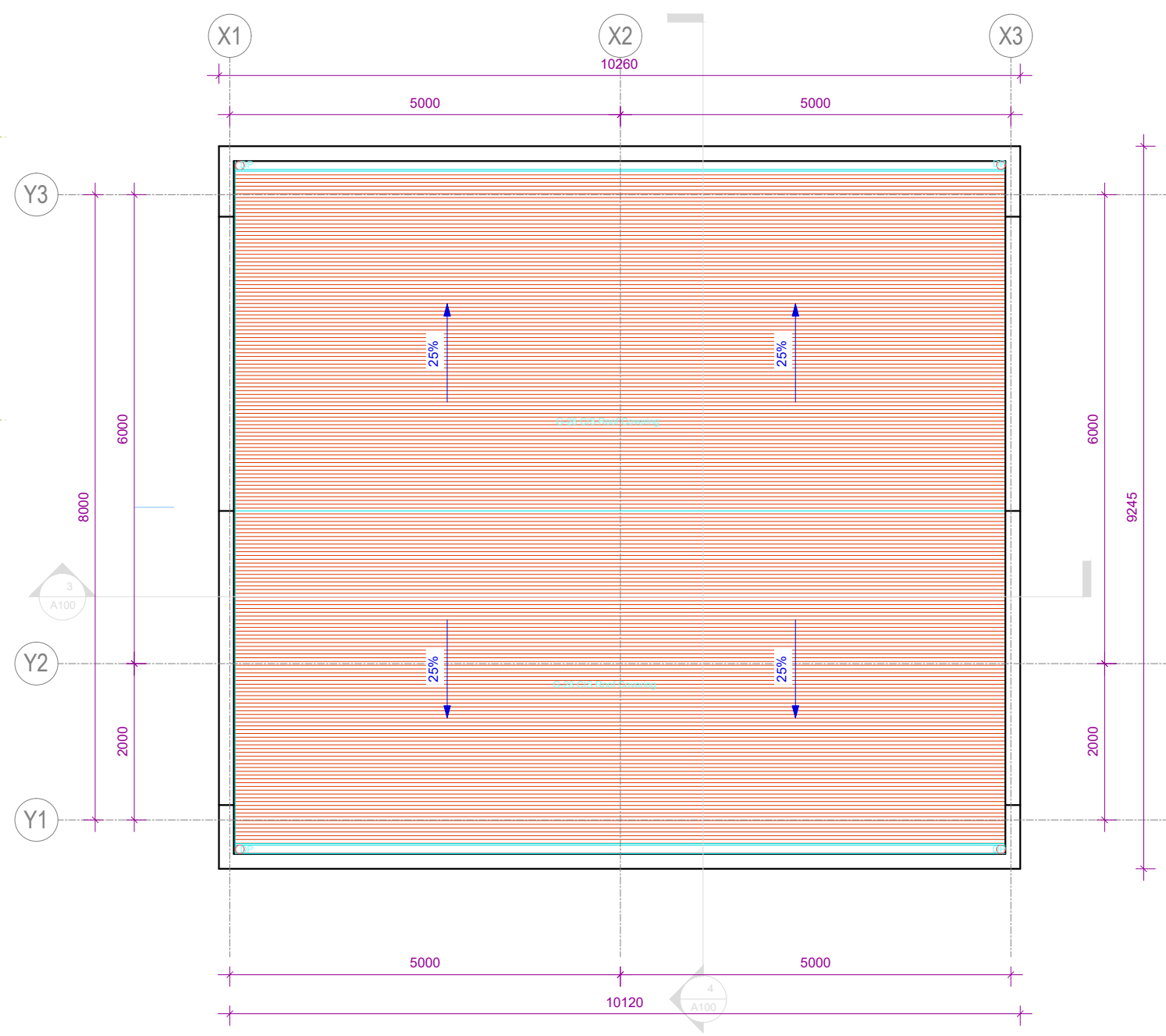


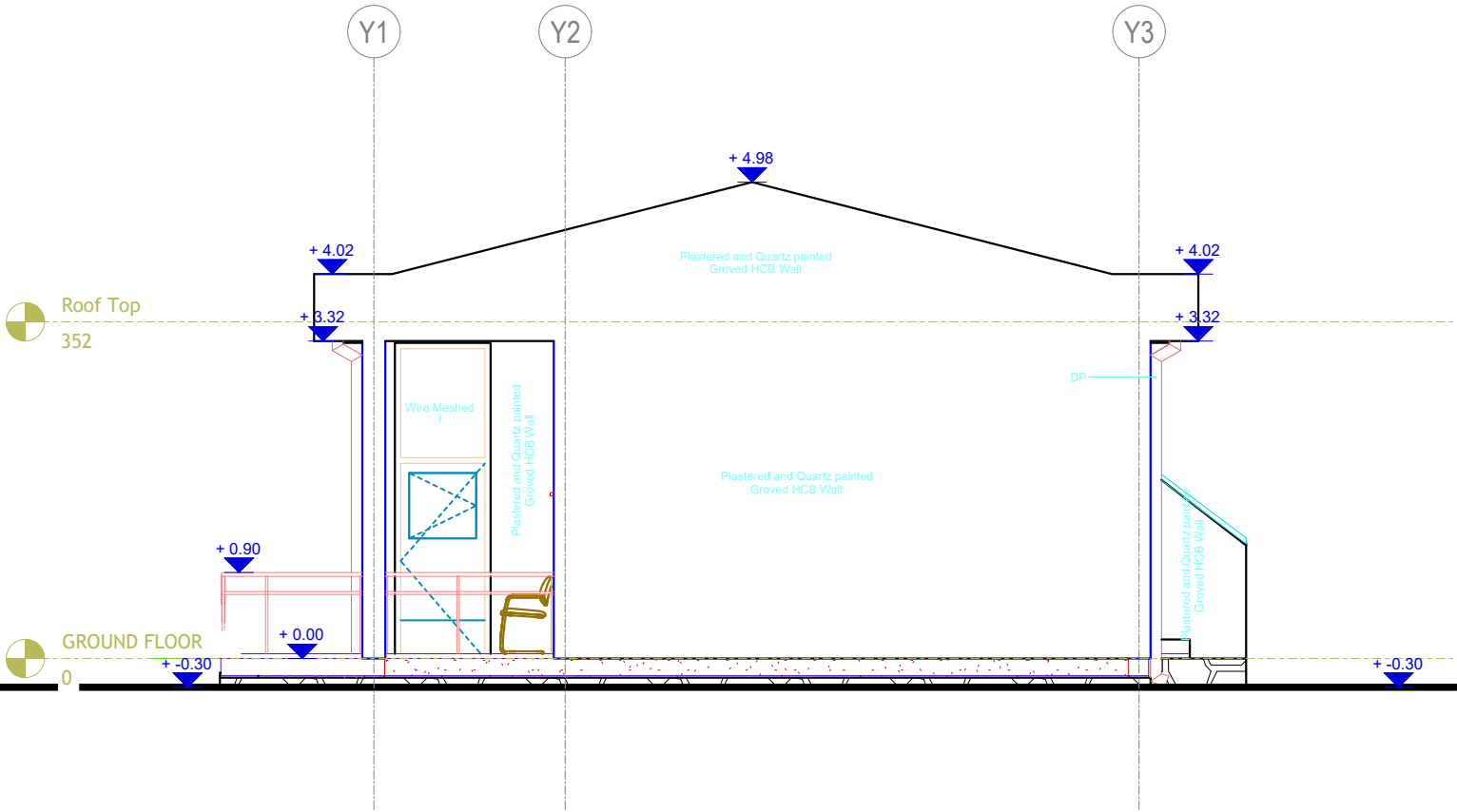
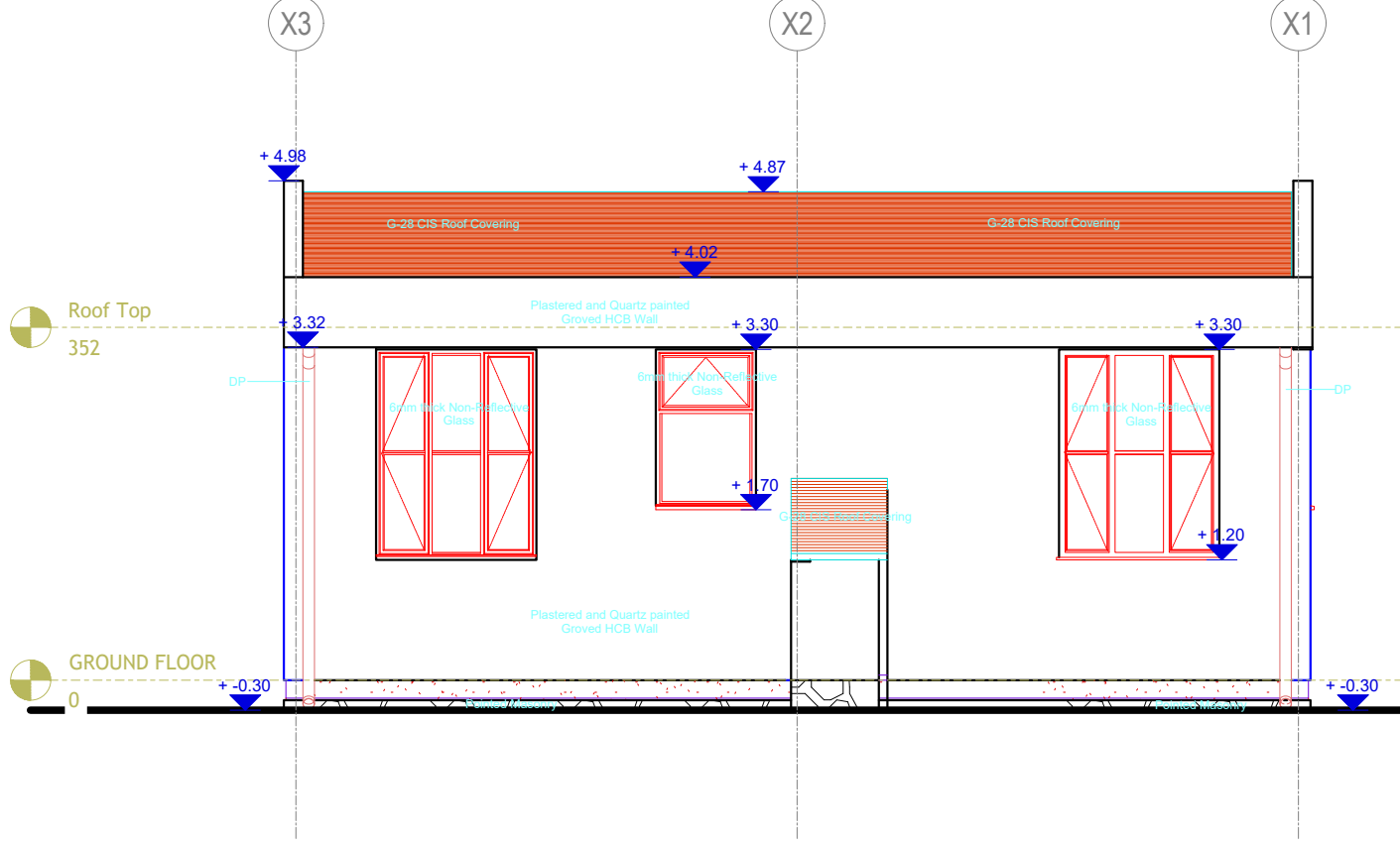
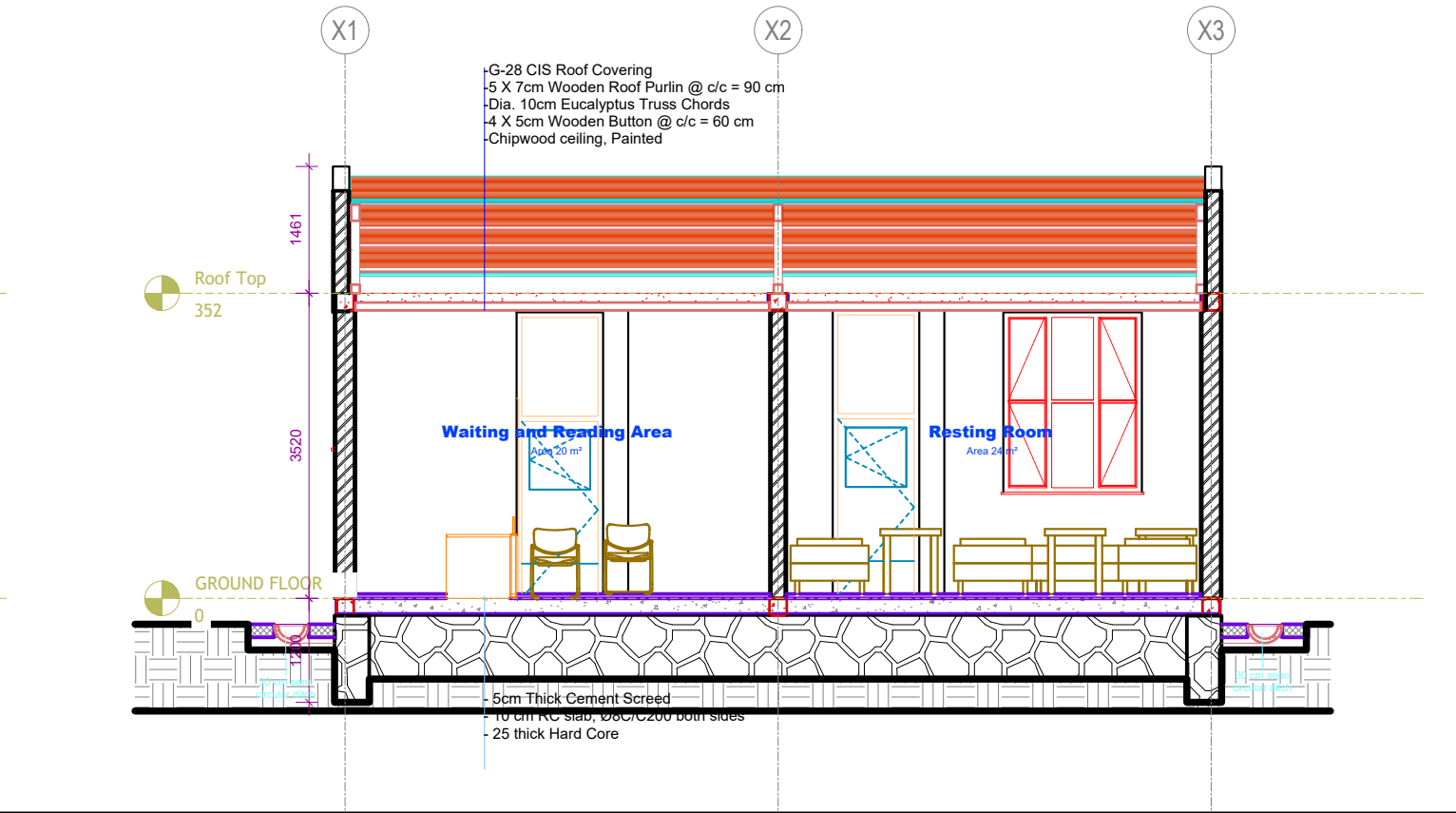
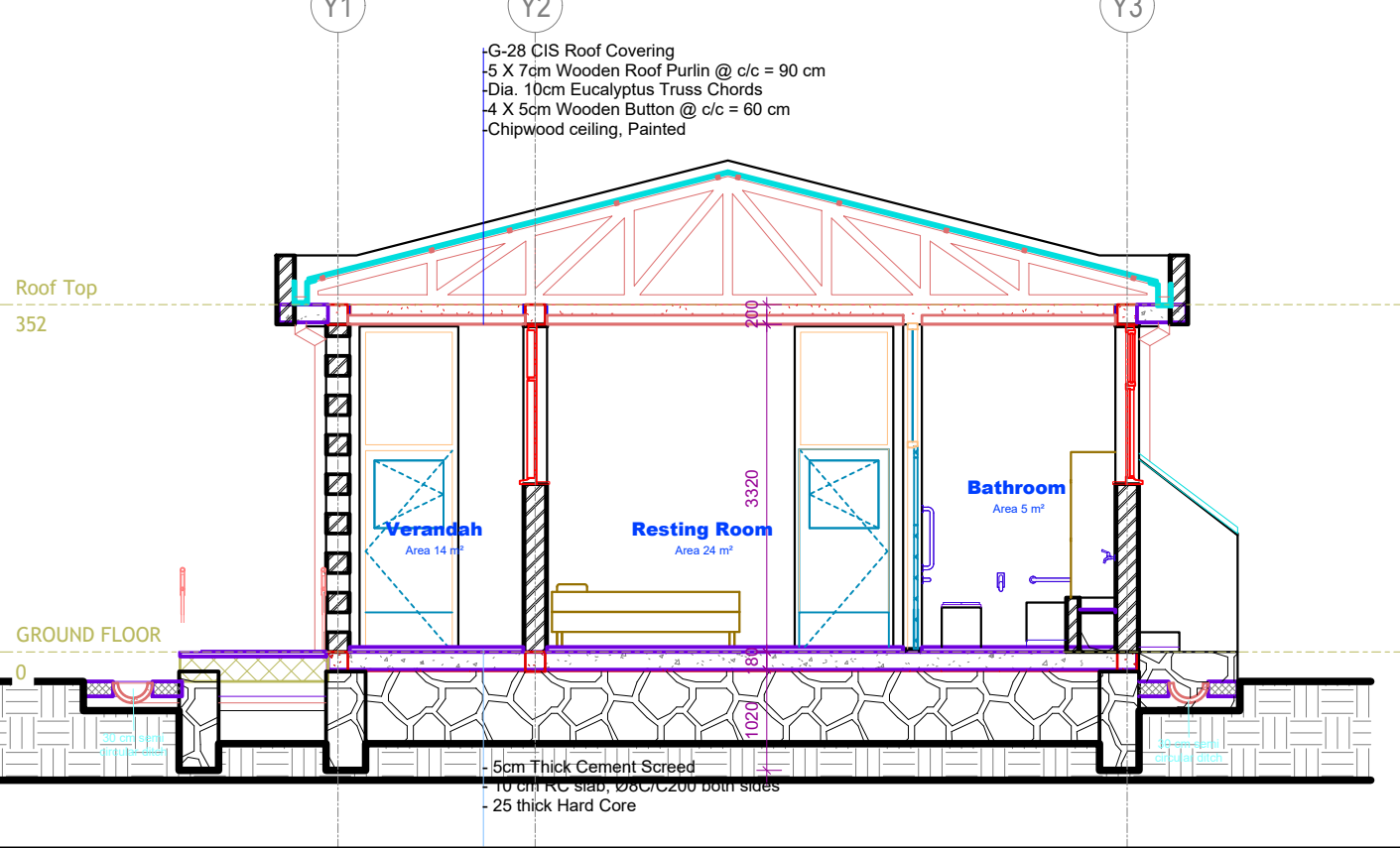
PROJECT
Engineering Services for Site Assessment, Design Adaptation and
Supervision works for Rehabilitation of WASH and MHM Facilities in
Lot-2 Secondary Schools in Somali Region

OWNER
UNICEF

DRAWING TITLE
MHM BLOCK
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

SCALE AS SHOWN	DATE SEPT., 2025	AR 01/05
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GENERAL NOTES

GENERAL

1). THE PROJECT SHALL CONFORM TO ETHIOPIAN BUILDING CODE OF STANDARD ES–EN:2015 AND THE FOLLOWING INTERNATIONAL DESIGN STANDARDS

A. EUROPEAN STANDARDS:

- EN1990:2002,
- EN1991–1–1:2002
- EN1992–1–1:2004
- EN1993–1–1:2006
- EN1998–1–1:2004
- DIN 1045–1:2001

B. AMERICAN CONCRETE INSTITUTION

- ACI318–08

2). ALL STRUCTURAL WORK SHALL CONFORM TO THE PROJECT DRAWINGS, ALL DRAWING NOTES, AND APPLICABLE REFERENCE STANDARDS. THE SCOPE OF WORK IS NOT SOLELY DEFINED BY THESE DRAWINGS.

3). TYPICAL DETAILS APPLY THROUGHOUT THE PROJECT EVEN IF NOT SPECIFICALLY REFERENCED IN PLANS OR DETAILS.

4). DO NOT USE SCALED DIMENSIONS; USE ONLY WRITTEN DIMENSIONS. WHERE NO DIMENSION IS PROVIDED, CONSULT THE ARCHITECT/ENGINEER FOR CLARIFICATIONS BEFORE PROCEEDING WITH WORK.

5). SEE ARCHITECTURAL DRAWINGS FOR SITE POSITIONING AND PROJECT DATUM REFERENCE.

6). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF PERSONS AND PROPERTY AND THE MEANS AND METHODS OF CONSTRUCTION.

7). STRUCTURAL ELEMENTS SHALL BE CENTERED ABOUT GRIDLINES OR DIMENSION LINES, UNLESS OTHERWISE NOTED.

8). ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC. REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN ON PLAN. DISCREPANCIES AND/OR INTERFERENCES SHALL BE REPORTED TO THE ARCHITECT/ENGINEER IMMEDIATELY. ALL PENETRATIONS AND DUCT POSITIONS TO BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

9). OPENINGS SHALL NOT BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.

10).DEFICIENT WORK AND WORK NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AS IDENTIFIED BY THE ARCHITECT, ENGINEER, OR INSPECTOR SHALL BE REPAIRED AT THE CONTRACTOR’S EXPENSE. CONTRACTOR SHALL COMPENSATE OWNER FOR SERVICES ARISING FROM DEFICIENT WORK.

11). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY REQUIRED DEWATERING OF THE SITE DURING CONSTRUCTION.

12). USE THE ELEVATION DRAWING IN CONJUNCTION WITH ELEVATION DRAWING .

FOUNDATIONS

1). FOUNDATION DESIGN CRITERIA ARE BASED ON THE RECOMMENDATIONS CONTAINED WITHIN THE BUILDING GEOTECHNICAL REPORT.

2). SLAB–ON–GRADE SHALL BE PLACED ON WELL GRADED, FULLY COMPACTED BEARING SURFACE FREE OF VOIDS AND ORGANIC MATERIALS.

3). WATER SHALL NOT BE ALLOWED TO STAND IN TRENCHES OR FORMS BEFORE OR AFTER CONCRETE IS PLACED, AND SHALL BE PUMPED OUT. IF BOTTOMS OF TRENCHES BECOME SOFTENED DUE TO RAIN OR OTHER WATER BEFORE FOUNDATIONS ARE CAST, THE CONTRACTOR SHALL, AT THEIR OWN EXPENSE, EXCAVATE THE SOFTENED MATERIAL AND REPLACE WITH CONCRETE.

4). WHERE SOIL CONDITIONS ARE FOUND DURING CONSTRUCTION THAT DO NOT MEET CRITERIA DESCRIBED IN THE REPORT, SPECIAL INSPECTOR/CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER IMMEDIATELY.

5). LOCATION OF UNDERGROUND UTILITIES SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF FOUNDATION TO AVOID ANY INTERFERENCE. CONTRACTOR SHALL EXPOSE EXISTING UTILITY LINES IN THE IMMEDIATE AREA TO DETERMINE THEIR EXACT INVERT ELEVATION, SIZE AND LOCATION RELATIVE TO THE FOUNDATION. NOTIFY THE ENGINEER IMMEDIATELY OF ANY INTERFERENCE WITH FOOTINGS OR THE FOUNDATION WALL.

REINFORCED CONCRETE

1). CONCRETE SHALL CONFORM TO THE FOLLOWING CYLINDER STRENGTH/CUBE STRENGTH (fck/fck,cube) VALUES

MAIN BLOCK

- SHEAR WALL AND COLUMNS – C25/30(C30)
- FOUNDATION, SLAB, BEAM,RETAINING WALL, STAIR AND RAMP ST– C25/30(C30)
- INTERSECTION BETWEEN SLAB/STAIR AND RETAINING WALL, SHEAR WALL AND COLUMNS– C25/30(C30)

2). REINFORCING STEEL SHALL BE:

- CLASS B DEFORMED BARS WITH MINIMUM YIELD STRENGTH OF fy=400kN/m² (S–400B) FOR DIAMETERS <= 14
fy=500kN/m² (S–500B) FOR DIAMETERS > 14

3). PROVIDE DOWELS OR CONTINUOUS REINFORCING BETWEEN ALL CONCRETE ELEMENTS. FOR FOUNDATIONS PROVIDE DOWELS OF SAME NUMBER AND SIZE AS THE VERTICAL REINFORCEMENT OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE. FOR OTHER STRUCTURAL ELEMENTS, VERTICAL DOWELS SHALL MATCH THE GREATER REINFORCING OF EACH ELEMENT.

4). BAR SPLICES MAY BE DELETED AND CONTINUOUS REINFORCING USED AT CONTRACTORS OPTION. BAR SPLICES SHALL BE MADE AT POINTS OF MINIMUM STRESS. IN FRAMED BEAMS AND SLABS SPLICE TOP BARS AT MID–SPAN, BOTTOM BARS OVER SUPPORTS.

5). STEEL REINFORCEMENT SHOP DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR AND SHALL INDICATE:

- A. MATERIAL AND GRADE
- B. BAR SCHEDULES WITH BAR LENGTHS AND BENT BAR DIAGRAMs
- C. ARRANGEMENT, SPACING, COVER, LAP LOCATIONS AND LENGTHs
- D. SPECIAL REINFORCEMENT AT OPENINGs
- E. ALL EMBEDDED INSERTs, ANCHORS AND CAST–IN PLACE STEELWORK CONNECTIONs ALL OPENINGs AND EMBEDDED FIXINGs FOR CRANES, LIFTs, PUMPS AND OTHER TEMPORARY WORKs

6). ALL PIPE AND CONDUIT OPENINGs SHALL BE SLEEVED AND CAST IN PLACE UNLESS OTHERWISE NOTED. DO NOT SAW CUT, CORE OR CORE DRILL STRUCTURAL CONCRETE WITHOUT EXPLICIT DIRECTION FROM THE STRUCTURAL ENGINEER.

7). CONDUIT AND PIPES SHALL NOT BE PERMITTED IN STRUCTURAL CONCRETE ELEMENTs UNLESS SPECIFICALLY REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER. ANY CONDUITs TO BE EMBEDDED IN THE STRUCTURAL CONCRETE SHALL BE SUBMITTED FOR STRUCTURAL REVIEW.

8). CONTRACTOR TO SUBMIT CONCRETE MIX DESIGN AT LEAST TWO WEEKs PRIOR TO CONCRETE POUR FOR APPROVAL BY THE STRUCTURAL ENGINEER.

9). ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

10). ALL REINFORCING BARS SHALL BE LAPPED AS SPECIFICALLY DETAILED ON THE DRAWINGs.

11). SUBMIT SHOP DRAWINGs SHOWING CONSTRUCTION JOINT DETAIlS, LOCATIONs AND THE SEQUENCE OF POURS FOR THE STRUCTURAL ENGINEER’S REVIEW PRIOR TO BEGINNING WORK.

12). NO HORIZONTAL CONSTRUCTION JOINTs WILL BE PERMITTED IN BEAMs, WALLs AND SLABs UNLESS SPECIFICALLY SHOWN ON THE DRAWINGs OR APPROVED IN WRITING PRIOR TO CONSTRUCTION BY THE ENGINEER.

13). MECHANICAL, ELECTRICAL AND PLUMBING LIGHTNING RODs, OPENINGs AND SLEEVES ARE SHOWN INDICATIVELY AND CONTRACTOR TO COORDINATE WITH RESPECTIVE TRADEs.

14). ALL ADJOINING SURFACEs NOT CAST MONOLITHICALLY SHALL BE ROUGHENED FOR THE ENTIRE INTERSECTING SURFACE AND APPLY A BONDING AGENT AS REQUIRED.

15). CONTRACTOR SHALL COORDINATE SLAB DEPRESSIONs FOR FLOOR FINISHES WITH THE ARCHITECTURAL DRAWINGs.

16). CONTRACTOR SHALL COORDINATE LOCATION OF INSERTs, WELDED PLATES, AND OTHER ITEMs TO BE EMBEDDED IN CONCRETE WITH ARCHITECTURAL AND MECHANICAL DRAWINGs.

17). HORIZONTAL PIPES OR CONDUITs PLACED IN SLABs SHALL NOT BE SPACED CLOSER THAN 3X THE DIAMETER ON CENTER. PIPES AND CONDUITs PLACED IN SLABs SHALL NOT HAVE AN OUTSIDE DIAMETER LARGER THAN 1/3 OF SLAB THICKNESS. ALUMINUM CONDUITs SHALL NOT BE PLACED IN CONCRETE. NO CONDUITs SHALL BE PLACED IN THE SLAB WITHIN 600mm OF ANY COLUMN FACE.

18). LONGITUDINAL BARS IN BETWEEN TWO DIFFERENT SECTIONs OF COLUMNs HAS TO BE BENT 1:6 SLOPE TO AVOID YIELDING OF BARS.(REFER THE DRAWING BELOW)

19). USE ø8/250 DISTRIBUTION REBAR AT SLABs

CONCRETE JOINTS

1). CONSTRUCTION JOINTs SHALL BE INSTALLED SUCH THAT STRENGTH AND APPEARANCE OF CONCRETE ARE NOT IMPAIRED.

A. LAYOUT OF CONTRACTION JOINTs IN SLABs ON GRADE SHALL NOT EXCEED 7.5M IN LENGTH WITH A MAXIMUM ASPECT RATIO BETWEEN LONG AND SHORT DIRECTIONs OF 1.5.

B. CONSTRUCTION JOINTs IN CONCRETE FRAME AND SLAB SHALL OCCUR AT THE THIRD (3RD) POINT OF THE SPANs IN EITHER DIRECTION. REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTs AND SPLICED ONLY AT LOCATIONs NOTED ON THE DRAWINGs.

C. WHERE THERE IS DIFFERENCE IN CONCRETE GRADE BETWEEN FLOOR SLABs AND COLUMN OR SHEARWALL, CAST PORTION OF SLAB WITH THE HIGHER CONCRETE GRADE ACCORDING TO THE DETAIL PROVIDED.

LOADS

THE BUILDING IS DESIGNED FOR THE FOLLOWING LOADS.

1). LIVE LOADS (UNIFORMLY DISTRIBUTED)

MAIN BLOCK
SCHOOL 3.0 kN/m²

2). SEISMIC CRITERIA

MAIN BLOCK

SEISMIC FORCE RESISTING SYSTEM:

– E/W: FRAME SYSTEM

– N/S: FRAME SYSTEM

PEAK GROUND ACCELERATION = 0.01g

GROUND TYPE = C

BUILDING IMPORTANCE CLASS = II

DUCTILITY CLASS = DCM

PROJECT

Engineering Services for Site Assessment, Design Adaptation and Supervision works for Rehabilitation of WASH and MHM Facilities in Lot-2 Secondary Schools in Somali Region

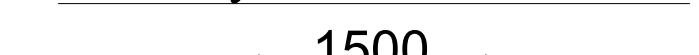
OWNER

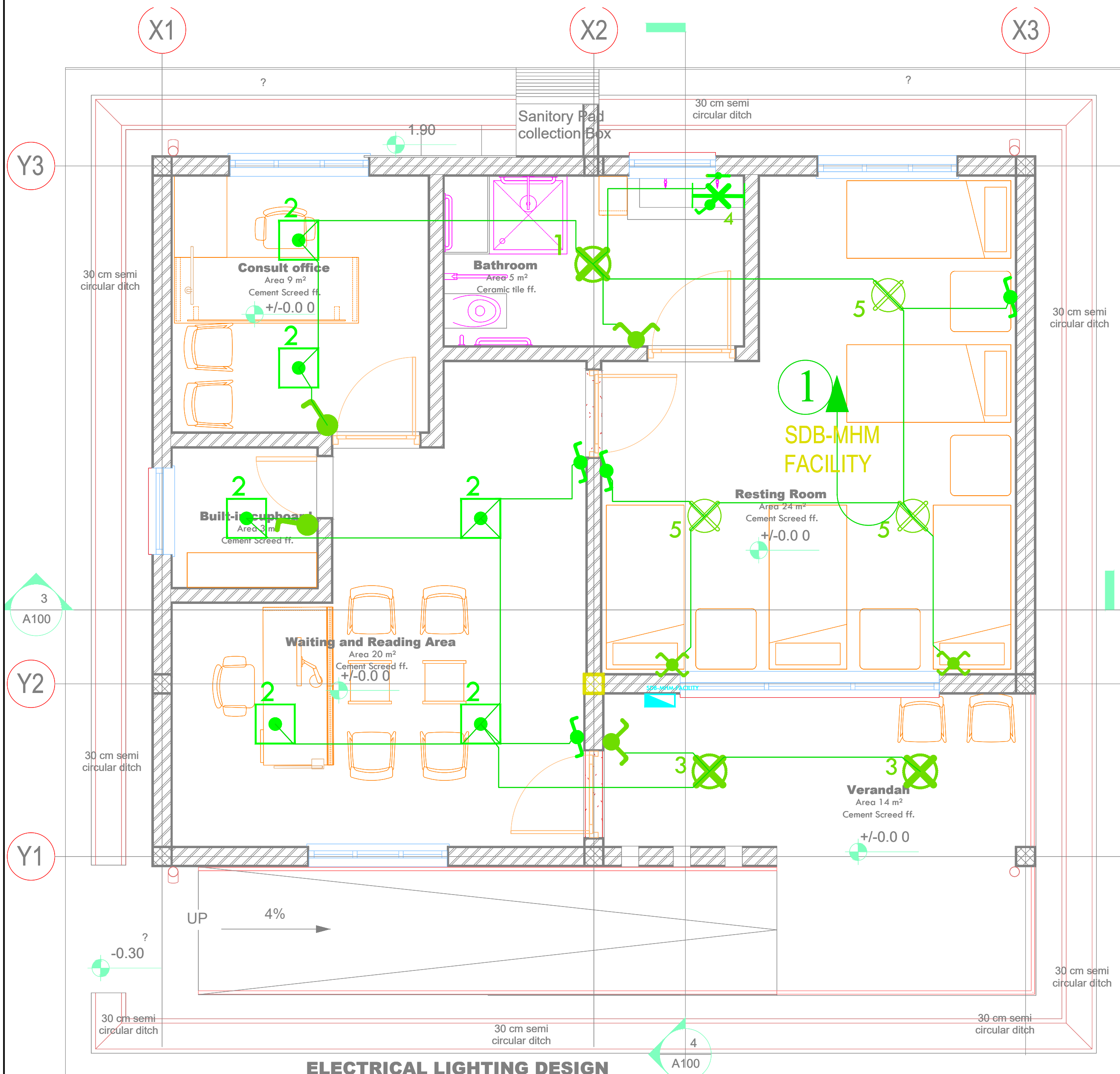
UNICEF

DRAWING TITLE

MHM BLOCK
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

SCALE		
AS SHOWN	DATE SEPT.,2025	ST 01/02





ELECTRICAL LIGHTING DESIGN

FROM
MDB

3X6MM 2

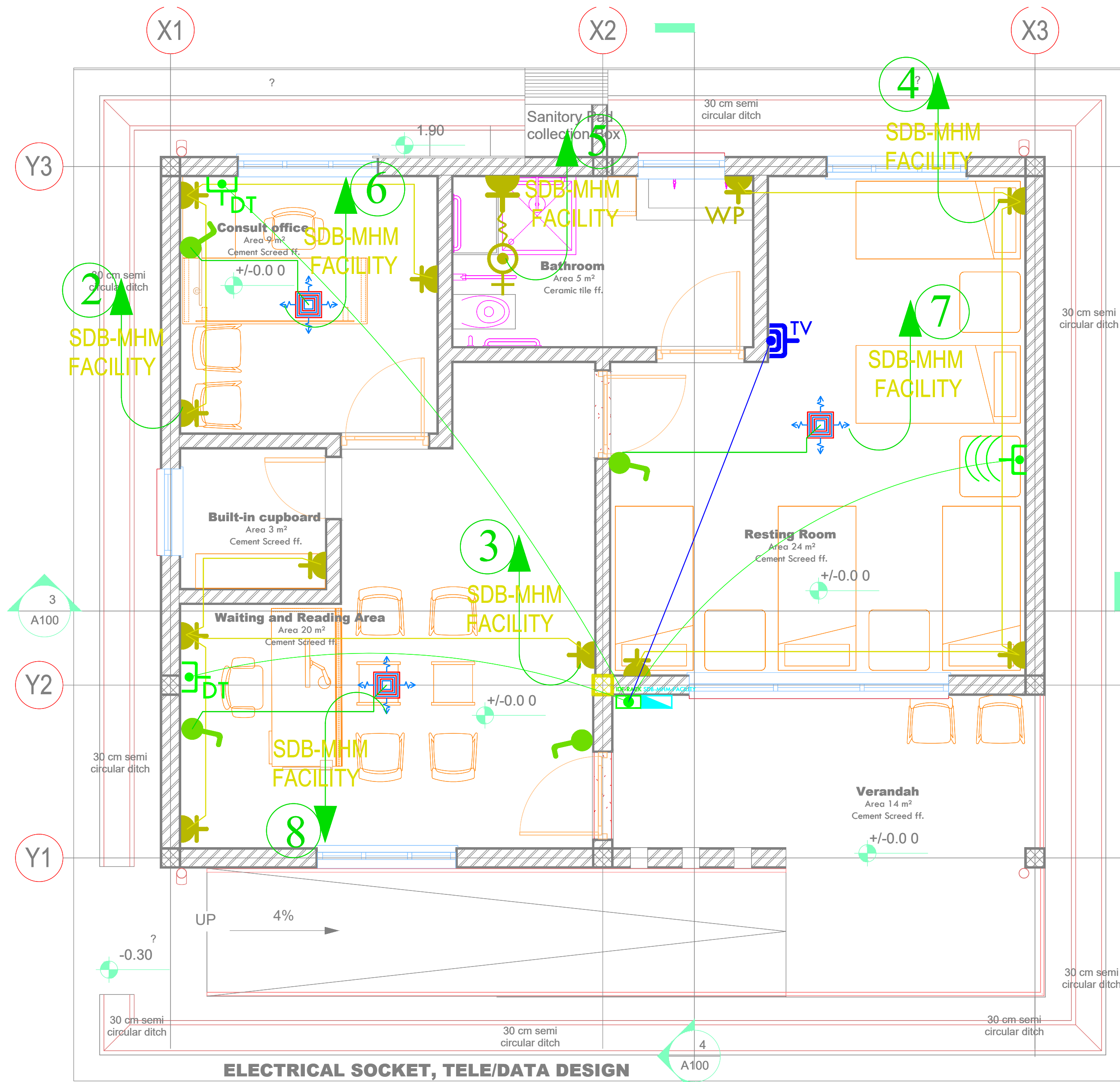
32A/1P

P-TOTAL 4.23 KW
P-MAX 2.96 KW
I-L 16.82 A

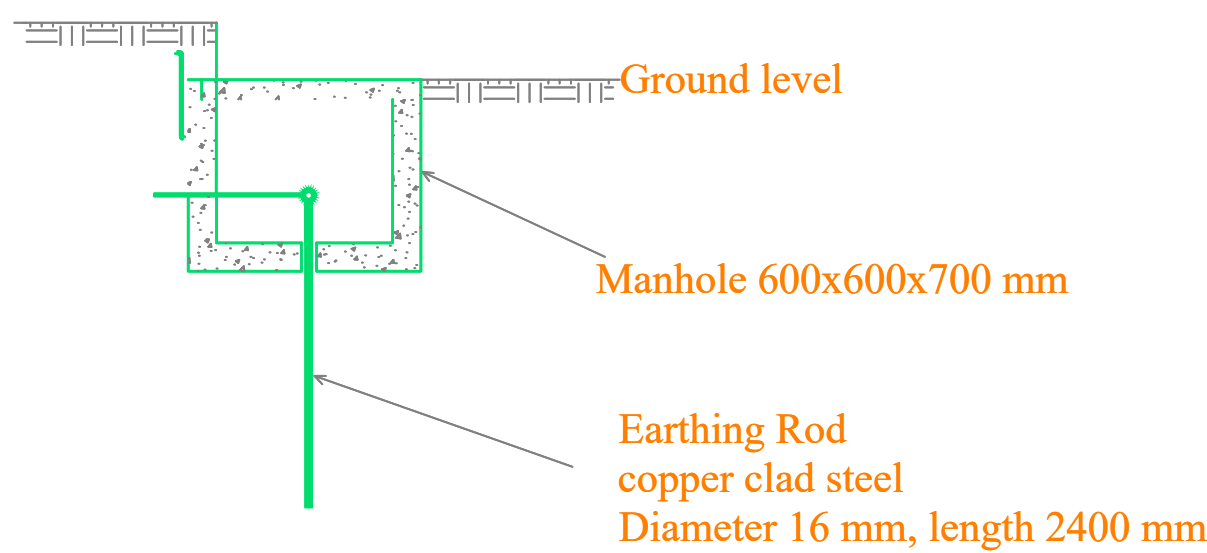
NAME SDB-MHM-FACILITY
LOCATION GROUND-FLOOR

DF 0.7

SDB-MHM FACILITY								
B.NO	DESCRIPTION	P(KW)	A(mm²)	I(A)	R	S	T	
1	LIGHTING	0.29	2x2.5	10	0.29			
2	SOCKET	0.60	3x2.5	16	0.60			
3	SOCKET	0.80	3x2.5	16	0.80			
4	SOCKET	0.80	3x2.5	16	0.80			
5	WATER HEATER	1.50	3x4	25	1.50			
6	CEILING FAN	0.08	2x2.5	10	0.08			
7	CEILING FAN	0.08	2x2.5	10	0.08			
8	CEILING FAN	0.08	2x2.5	10	0.08			
9	RESERVE							
10	RESERVE							
11	TOTAL				4.23			



ELECTRICAL SOCKET, TELE/DATA DESIGN



- Earthing conductor
1X6sq mm to MLPP
1. Earthing resistance shall not be greater than 5 Ohm.
 2. If earthing resistance is greater than 5 Ohm additional electrode shall be buried spaced not less than the length of the electrode.

SYMBOL	DESCRIPTION
	Single switch
	Two gang switch
	Two way switch
	Three gang switch
	Intermediate switch

	TV point
	Single Data and single telephone point
	Socket Outlet, Water heater
	wifi point
	Single Socket point
	Panasonic Ceiling Fan F-56XZ2, 76W, IP21

FITTING TYPES (SPECIFIED OR EQUIVALENT)		
	DESCRIPTION	PURPOSE
	TYPE 1.Philips DN145B LED20S/840 26W PSU II WH, 2100 lm	INTERNAL TOILET ROOM
	TYPE 2.Philips RC091V LED36S/840 40W PSU W60L60 GM G2, 3600 lm	OFFICE
	TYPE 3.Oppl LED Downlight Ecomax II,24W,20000lm,wh, 30000hr	CORRIDOR
	Type 4. Philips 919515813929, mirror light with switch, 10W	Mirror
	TYPE 5. Philips Superslim LED IP44 , 18W ,2500lm white	BED ROOM

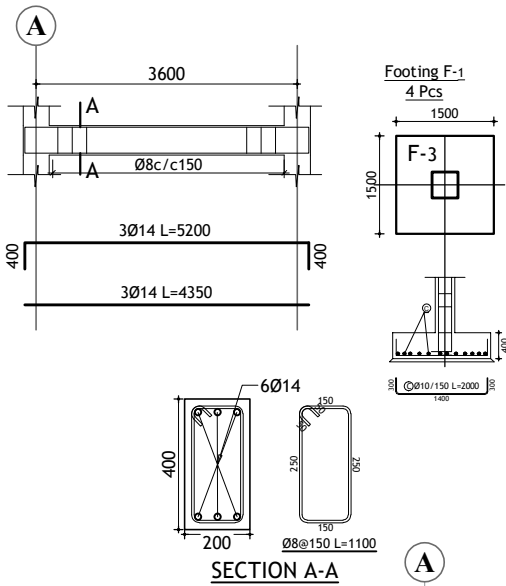
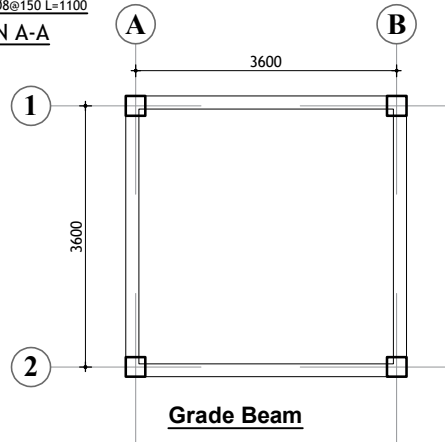
PROJECT
Engineering Services for Site Assessment, Design Adaptation and Supervision works for Rehabilitation of WASH and MHM Facilities in Lot-2 Secondary Schools in Somali Region

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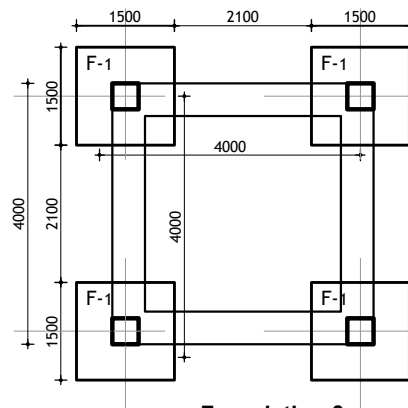
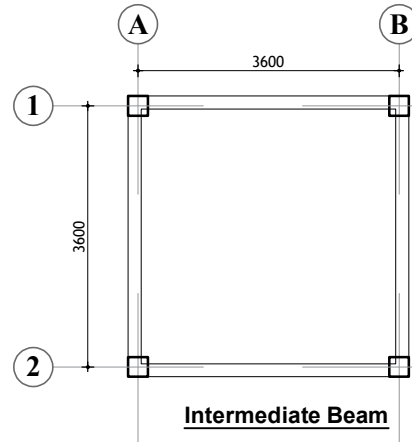
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MHM BLOCK
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

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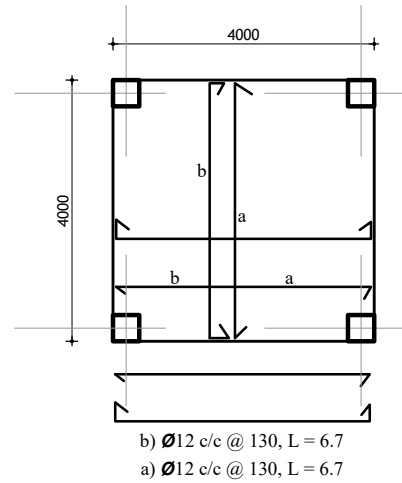
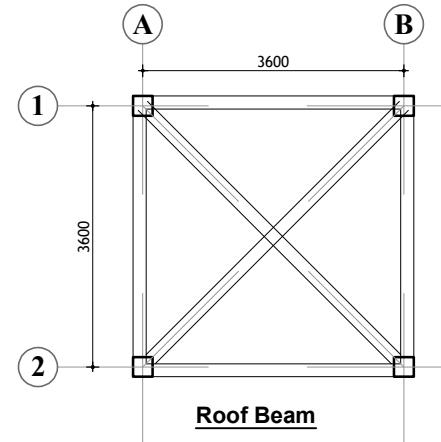
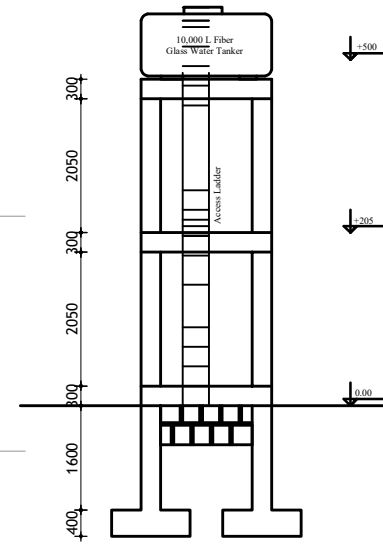
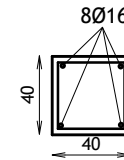
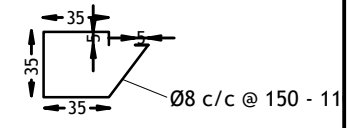
Beam Detail



Foundation & Masonry Layout



20cm Slab Reinforcement



Section M-M

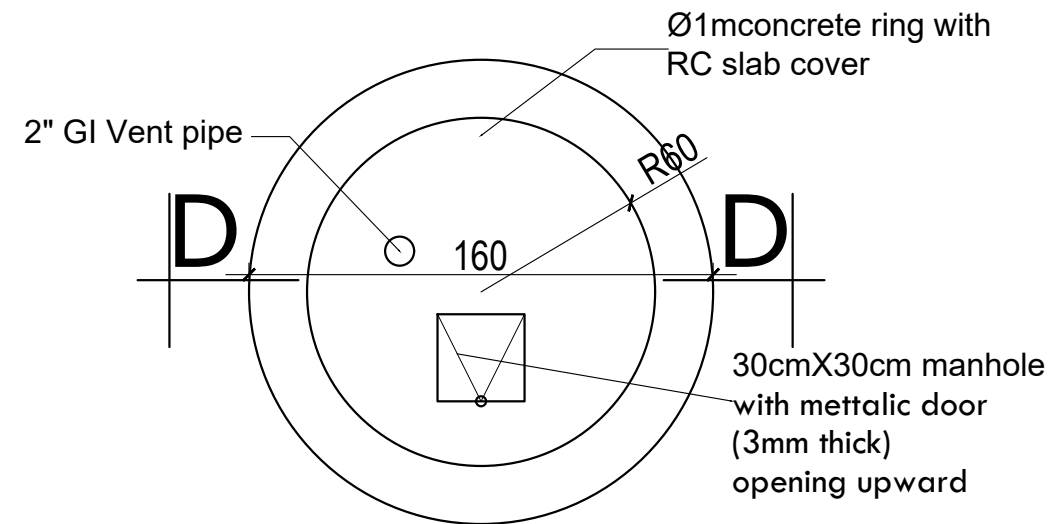
- Notes:
- Concrete Quality shall be C25.
 - Structural drawings should be read with Architectural drawings.
 - Reinforcement steel quality shall be $f_{yk}=400\text{MPa}$ and $f_{yk}=500\text{MPa}$ for rebar size less than 8 and greater than 10 respectively.
 - Black cotton soil shall be removed entirely & suitable selected material shall be backfilled (compacted in 20cm layers).
 - Hardcore layer of 25cm thickness shall be provided on top of the selected material.
 - Concrete cover for Beams and columns shall be 25mm.
 - Concrete cover for Slabs shall be 25mm.

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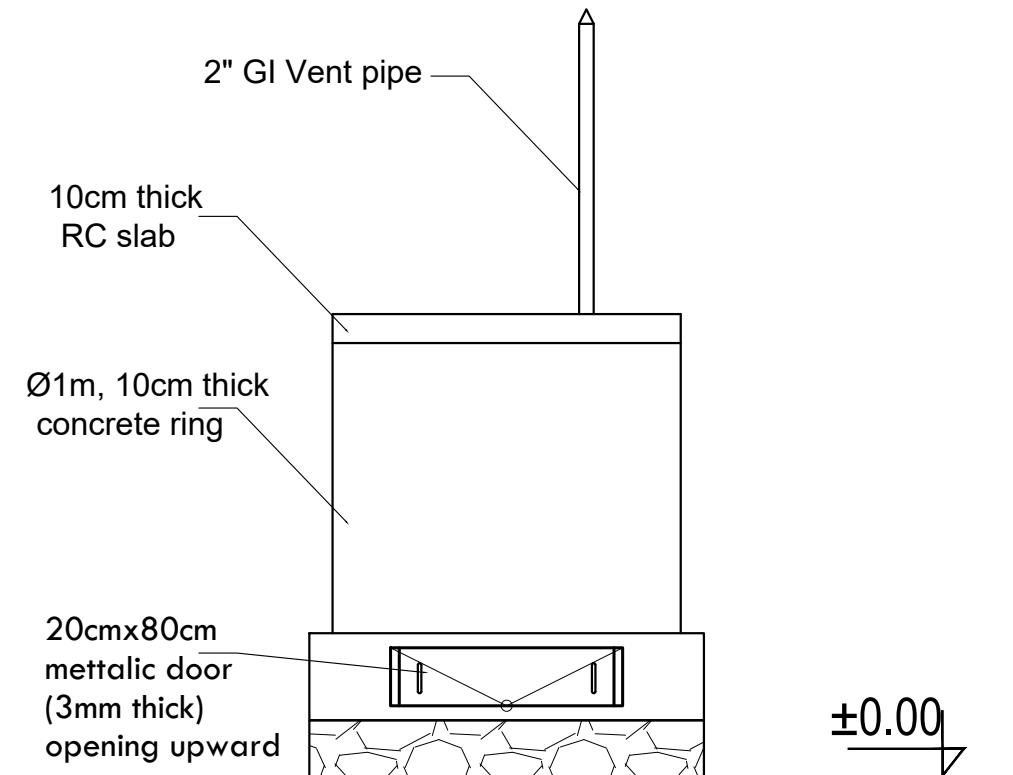
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DRAWING TITLE
Elevated Water Tanker Structure
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

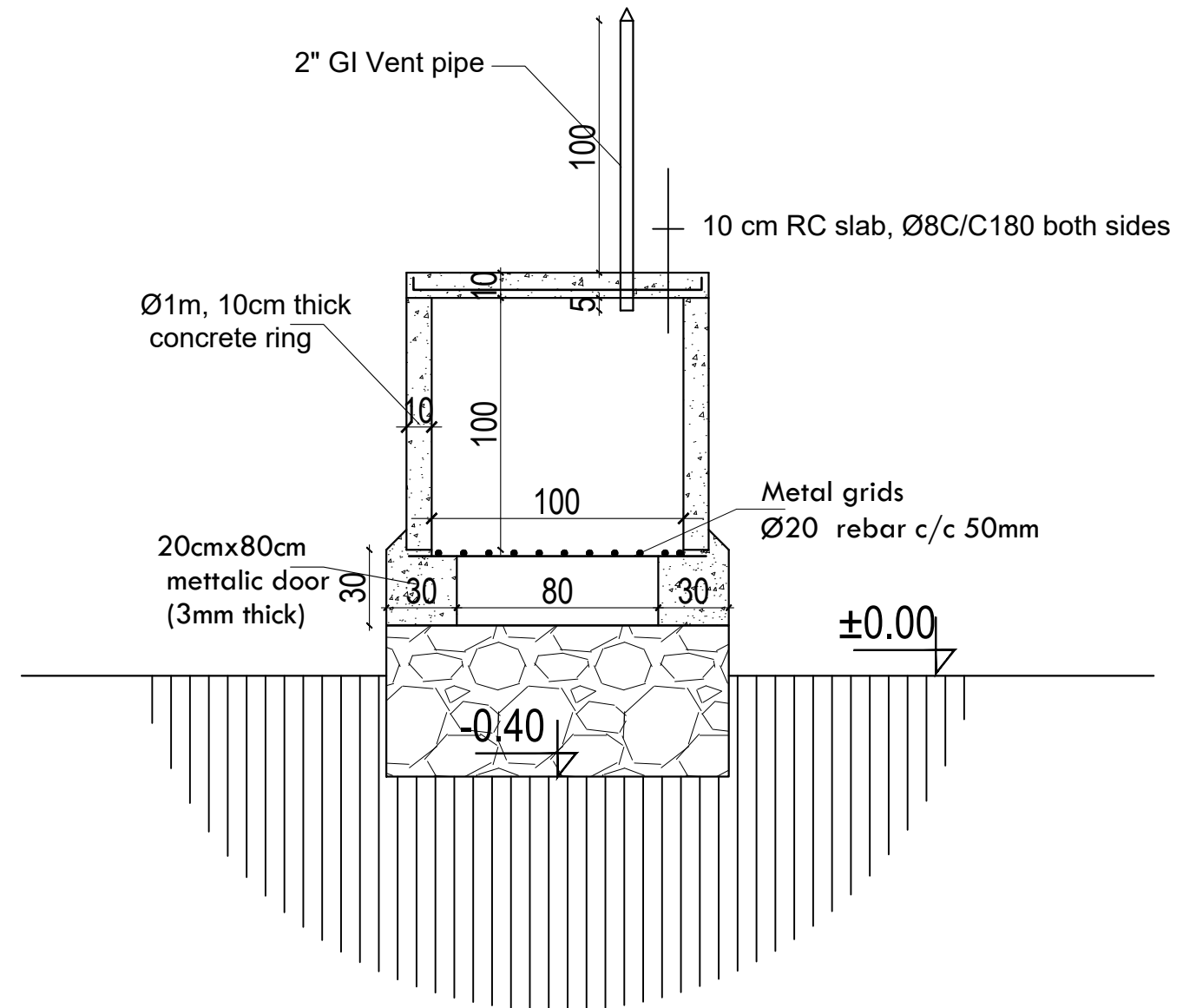
CAD BY:
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.
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01/01



PLAN
(Incinerator)



ELEVATION
(Incinerator)



SECTION D-D
(Incinerator)

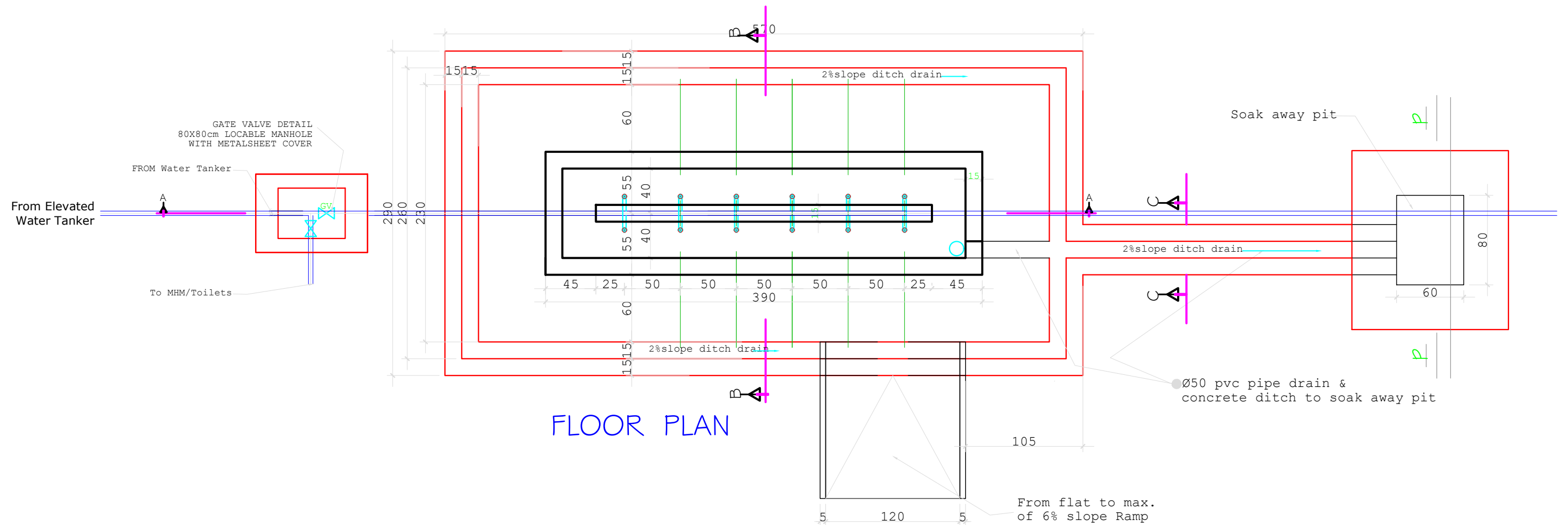
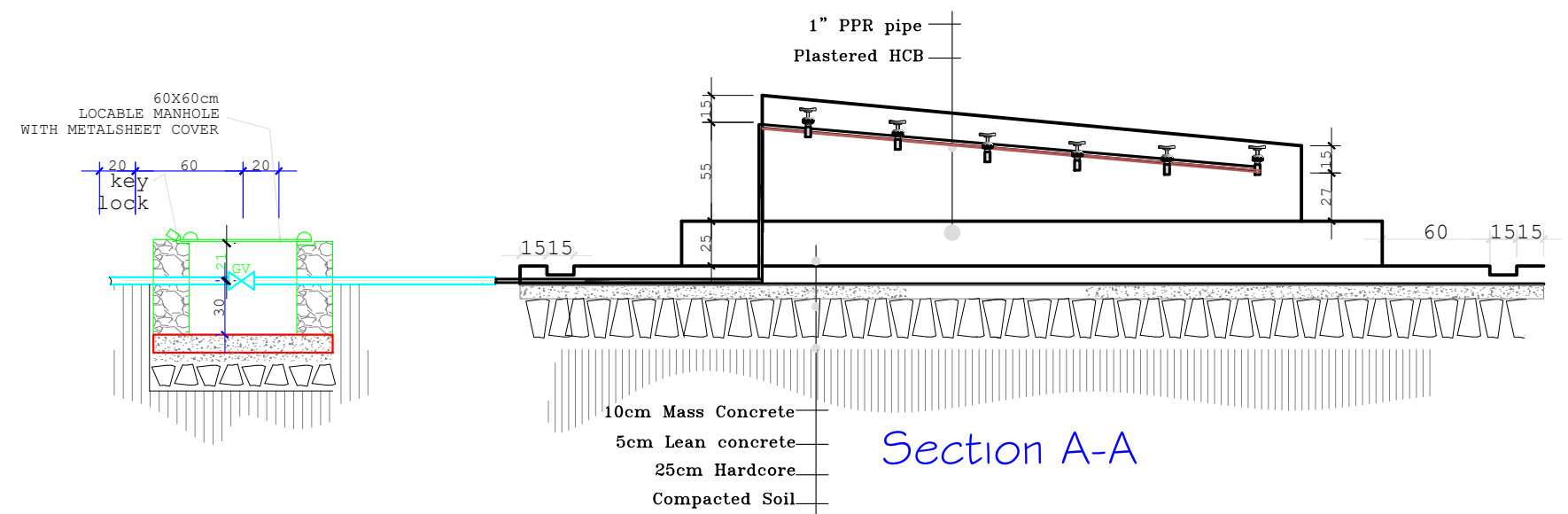
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INCENERATOR
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

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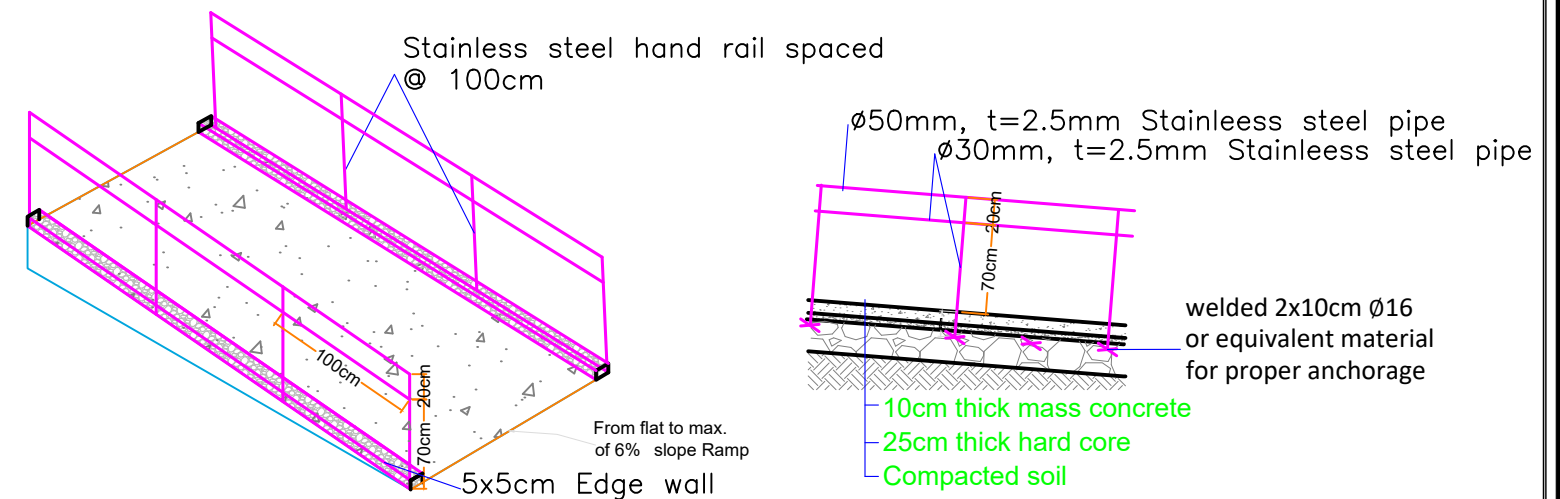
PROJECT
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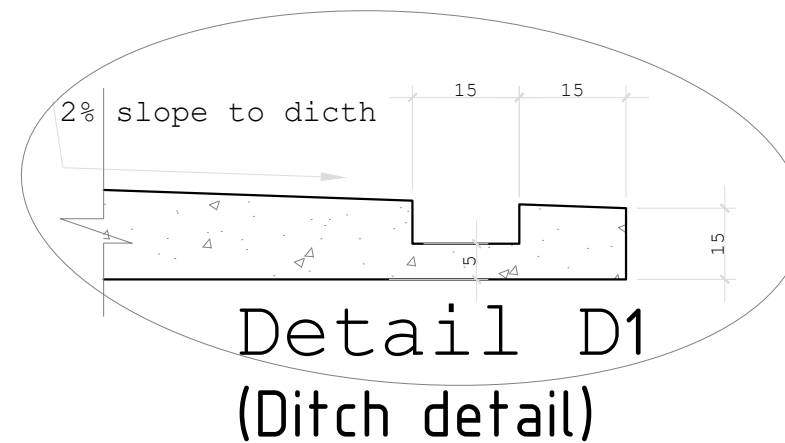
DRAWING TITLE
12 TAP WATER FOUNTAIN & SOAK AWAY PIT DETAILS
DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
HALBEEG ARCHITECT & ENGINEERING CONSULTANCY
Mesfin H.

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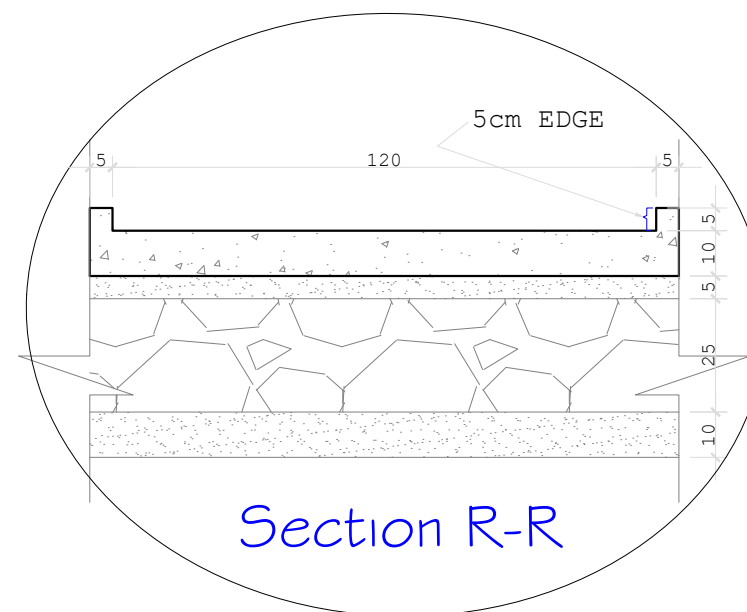
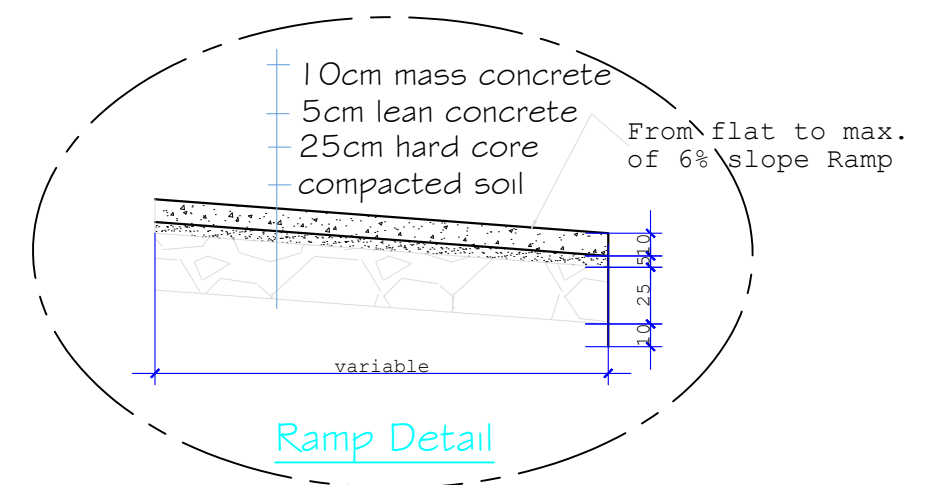


RAMP DETAIL FOR PEOPLE LIVING WITH DISABILITIES



NOTE

1. Any Change based on site level engineering judgment is possible.
2. Handrail can be constructed a long side of ramp where necessary.
3. Ramp should be constructed only on one side of the water point in the direction of faucet designed for Equity and Inclusion aspect.
4. The slope of the ramp should be from flat (plane) to 8% depending on nature of topography.
5. Maximum wheel chair size (1.2m) should be considered to construct ramp (to determine width)
6. 5cm thick edge (sort of Guiding edge) should be casted at two at two sides of ramp to protect sudden sliding of wheel chairs .
7. Ramps to be construct should be some what rough to ease walking for curanch users.
8. Each and every water point constructed should be as per this design.
9. Without compromising the average distance from users, water point shall be located on relatively flat site as much as possible.



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DANOD SECONDARY SCHOOL, Danod District, Doollo Zone.

CAD BY.
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Mesfin H.

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