

CONSULTANCY SERVICES FOR SURVEY, DESIGN AND EIA WORKS OF WATER SUPPLY AND
SEWERAGE FACILITIES IN 6 ISLANDS, MALDIVES

PACKAGE 5

WATER SUPPLY SYSTEM OF M. RAIYMANDHOO, MALDIVES

For Ministry of National Planning and Housing Infrastructure, Republic of Maldives

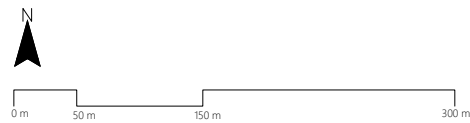


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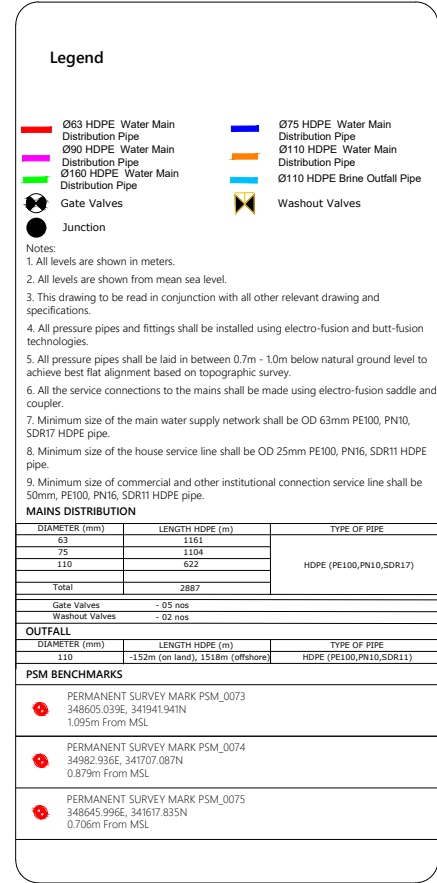




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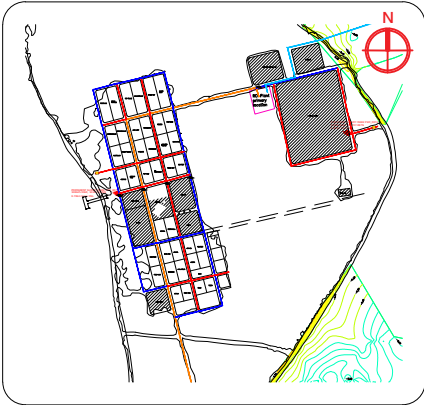
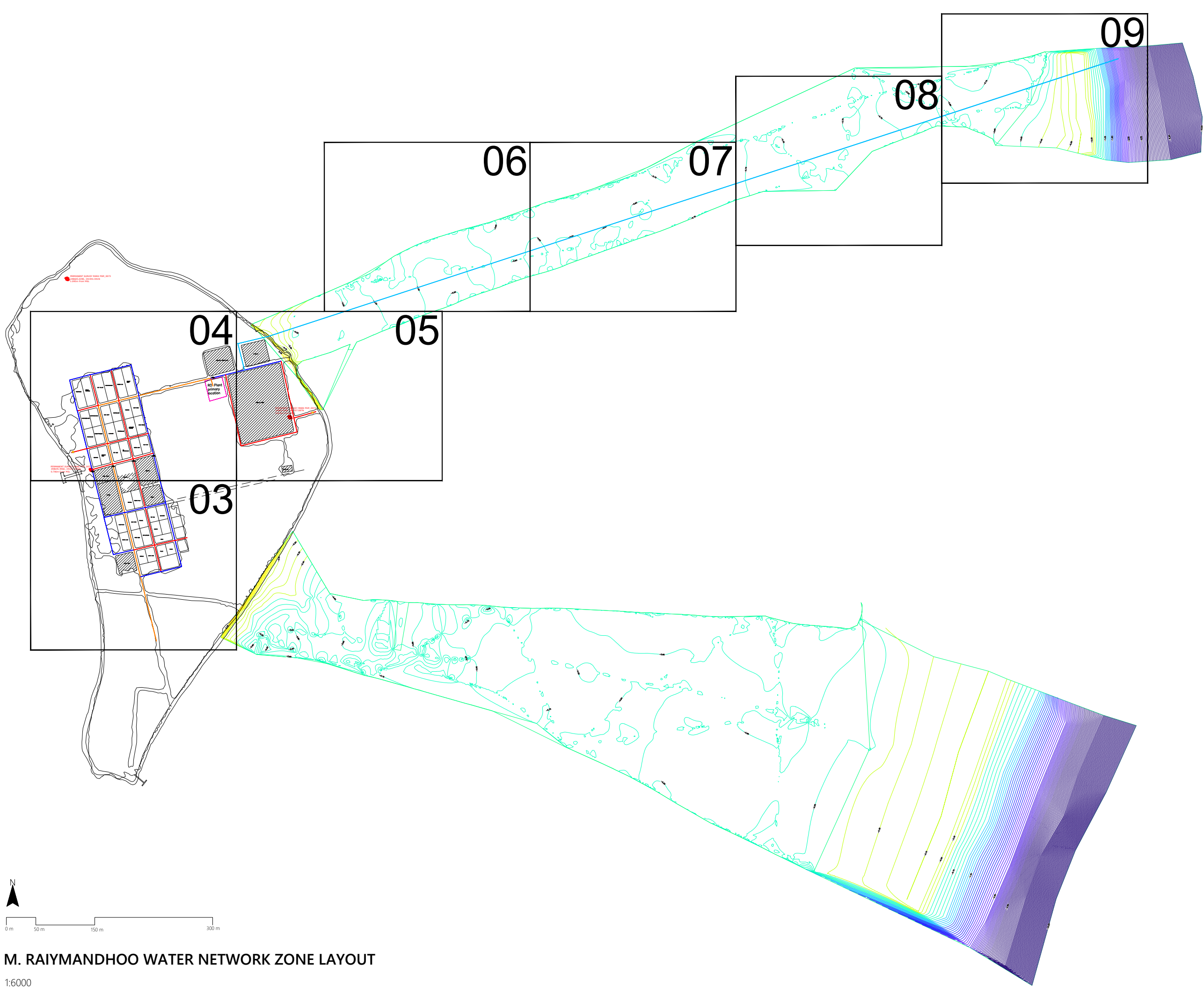
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1:6000



<p>Title:</p> <p>Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 6 islands, Maldives - Package 5</p> <p>Sub Title:</p> <p>Water Supply System in M. Raiymandhoo</p>	
<p>Client:</p> <p>Ministry of National Planning, Housing and Infrastructure, Republic of Maldives</p>	
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<p>Drawn: F.J.A.</p>	<p>Checked: M.S.S.</p>
<p>Designed: F.J.A.</p>	<p>Approved: I.W.</p>
<p>Date: Sep 2020</p>	<p>SCALE (A3): 1:6000</p>
<p>Project No: EP-WS/2019/05</p>	
<p>Rev:</p> <p>R-01</p>	<p>Page:</p> <p>01</p>



Legend

- Ø63 HDPE Water Main

Ø90 HDPE Water Main

Ø160 HDPE Water Main

Gate Valves

Junction
- Ø75 HDPE Water Main

Ø110 HDPE Water Main

Ø110 HDPE Brine Outfall Pipe

Washout Valves

- Notes:
- All levels are shown in meters.
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MAINS DISTRIBUTION		
DIAMETER (mm)	LENGTH HDPE (m)	TYPE OF PIPE
63	1161	HDPE (PE100,PN10,SDR17)
75	1104	
110	622	
Total	2887	
Gate Valves	- 05 nos	
Washout Valves	- 02 nos	

OUTFALL		
DIAMETER (mm)	LENGTH HDPE (m)	TYPE OF PIPE
110	-152m (on land), 1518m (offshore)	HDPE (PE100,PN10,SDR11)

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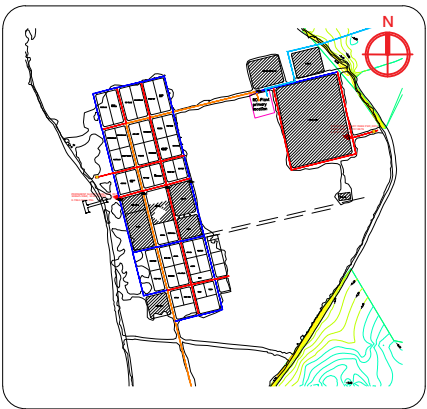
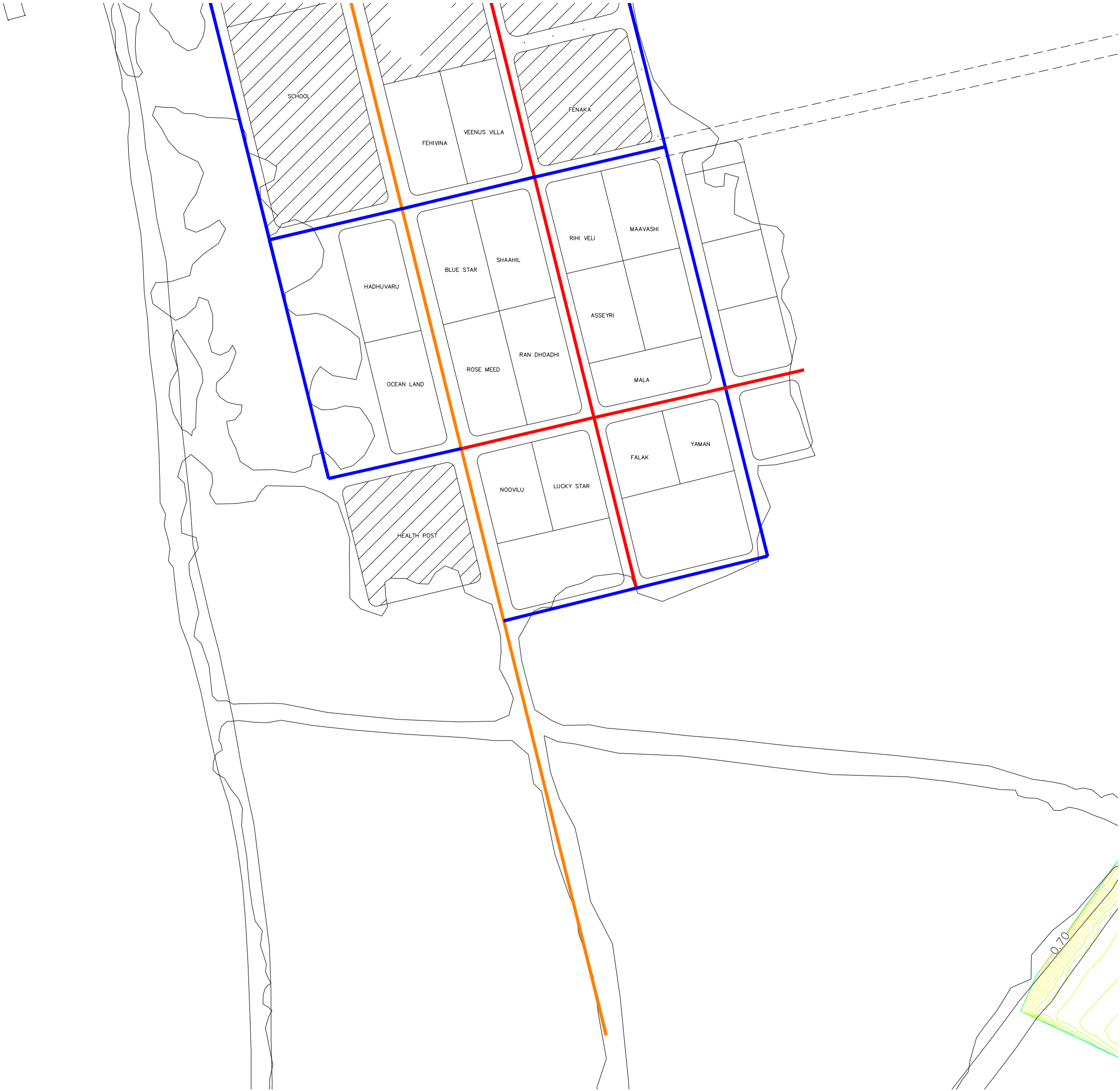
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M. RAIYMANDHOO WATER NETWORK ZONE LAYOUT

1:6000



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Ø90 HDPE Water Main Distribution Pipe

Ø160 HDPE Water Main Distribution Pipe

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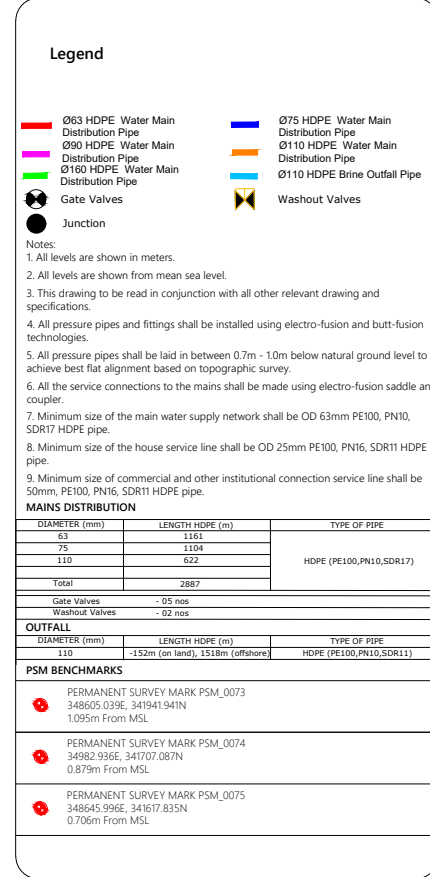
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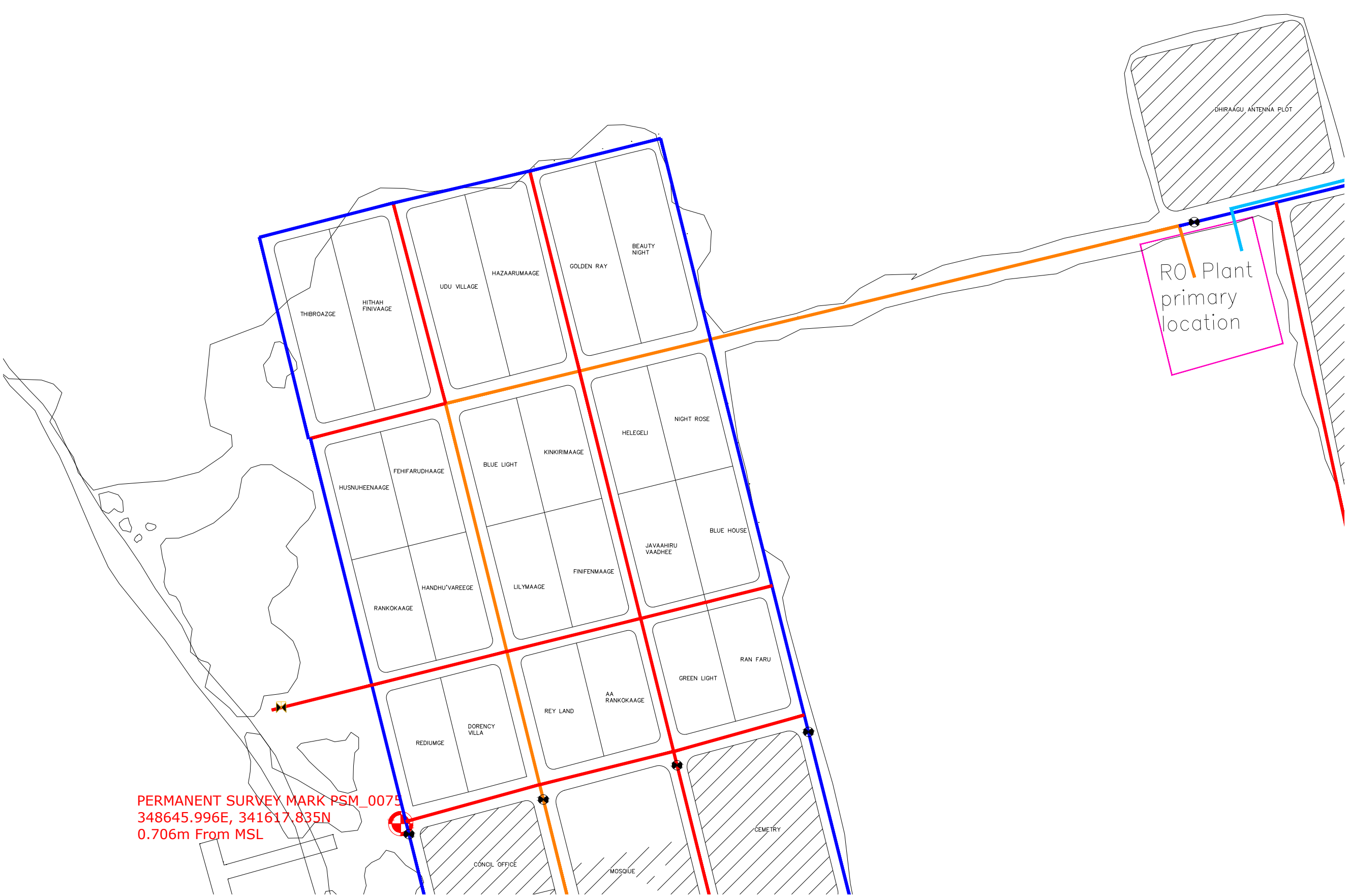
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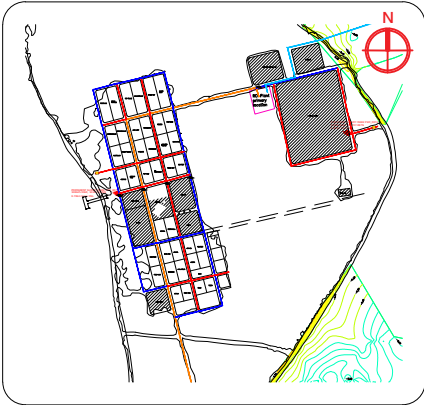
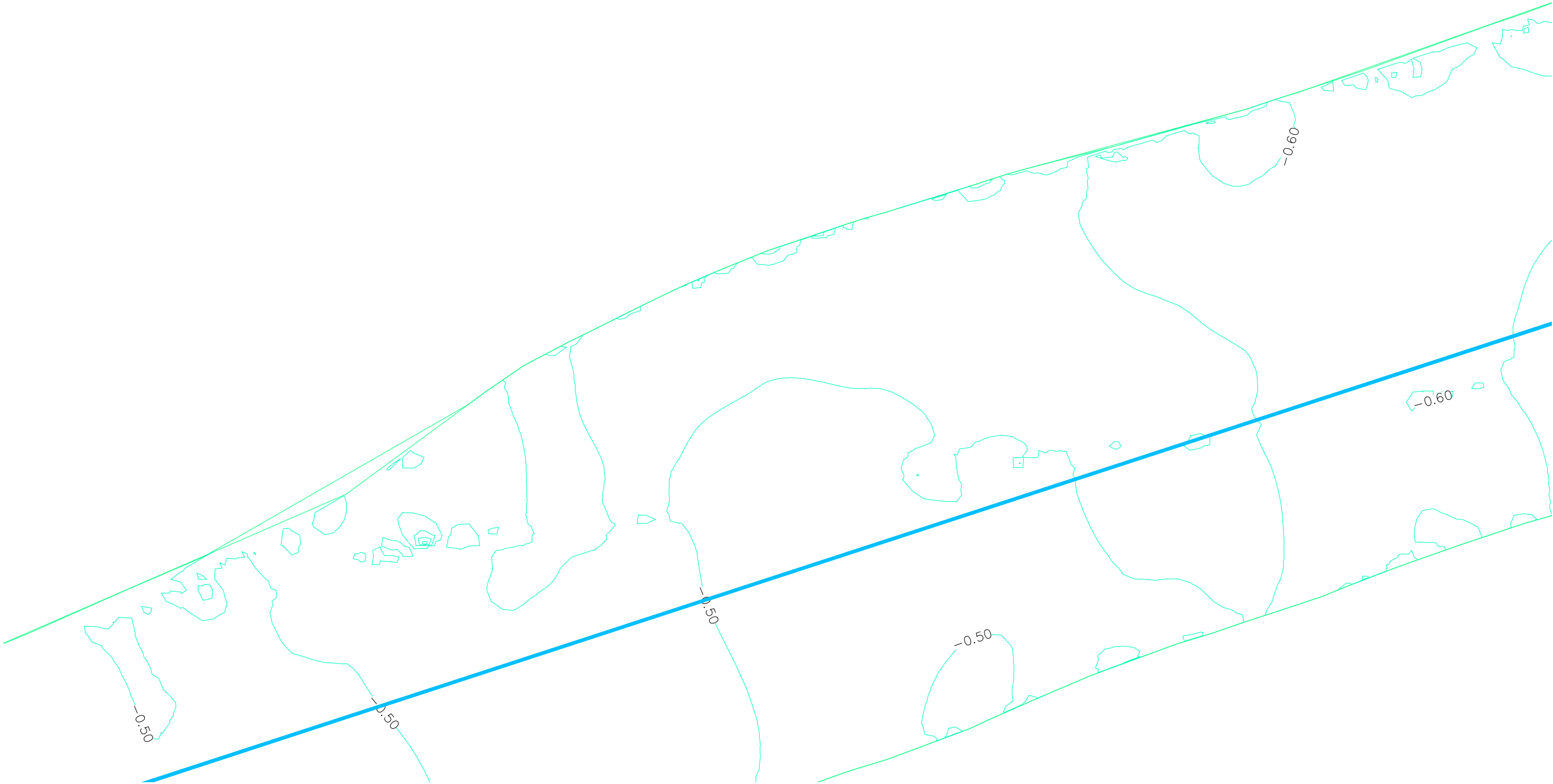
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Legend

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Ø90 HDPE Water Main Distribution Pipe

Ø160 HDPE Water Main Distribution Pipe

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Junction
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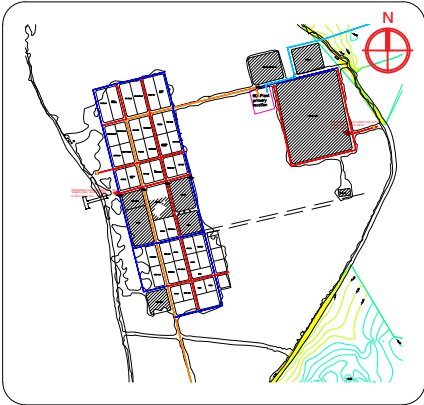
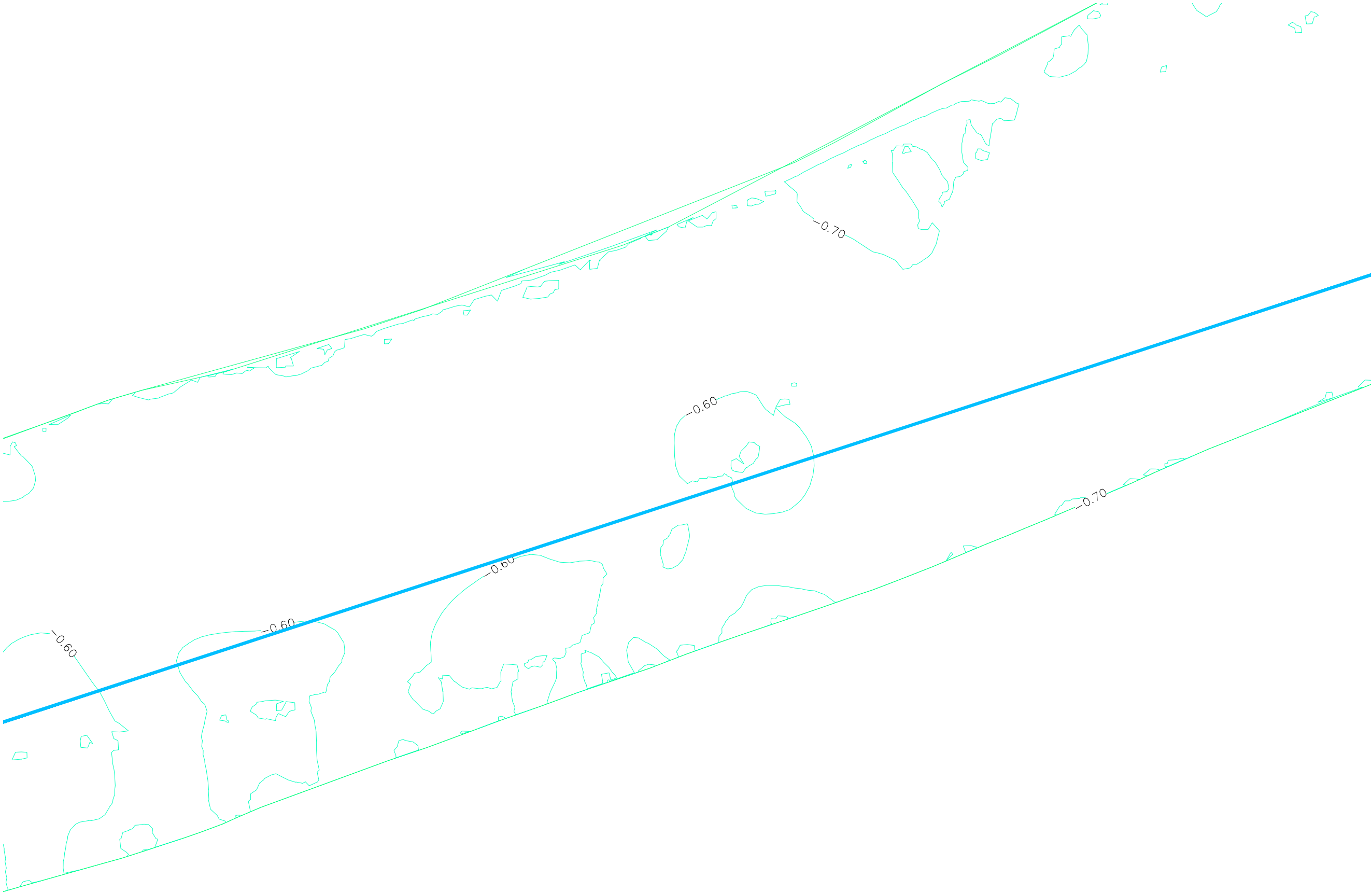
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Ø90 HDPE Water Main Distribution Pipe

Ø160 HDPE Water Main Distribution Pipe

Gate Valves

Junction
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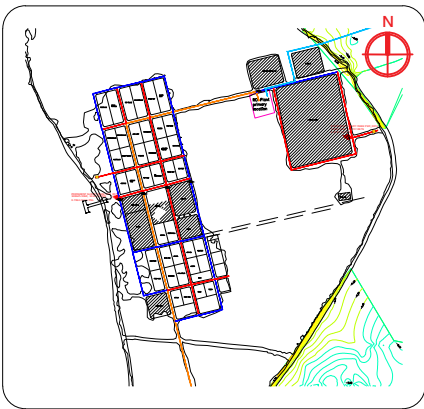
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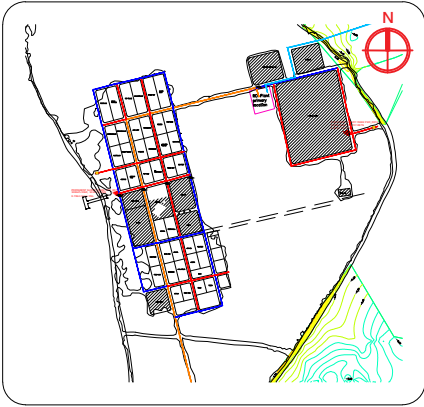
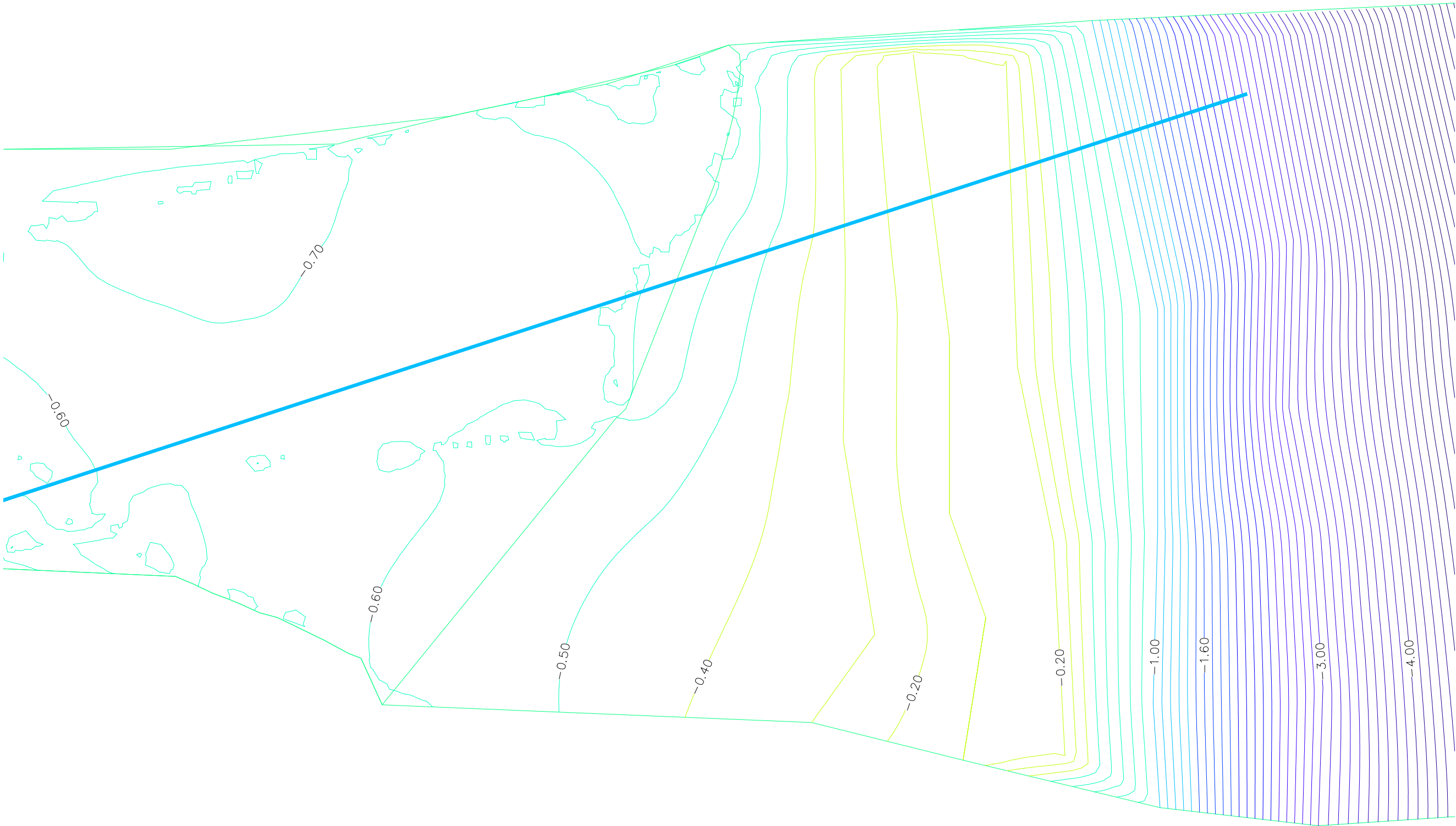
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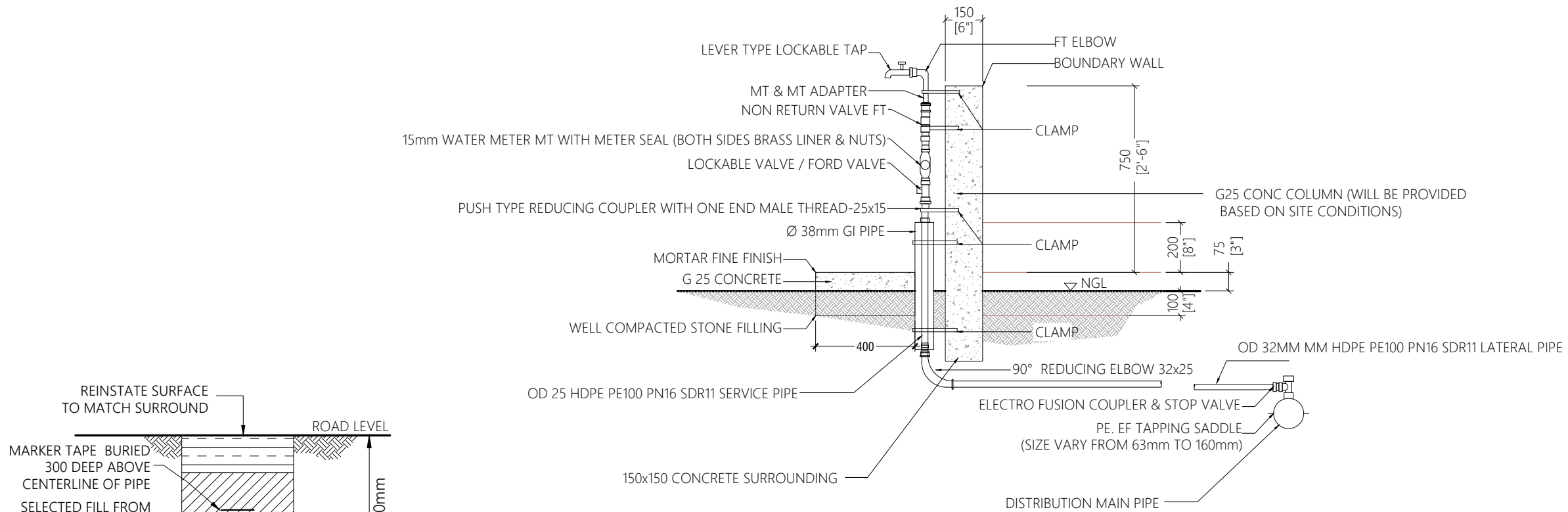


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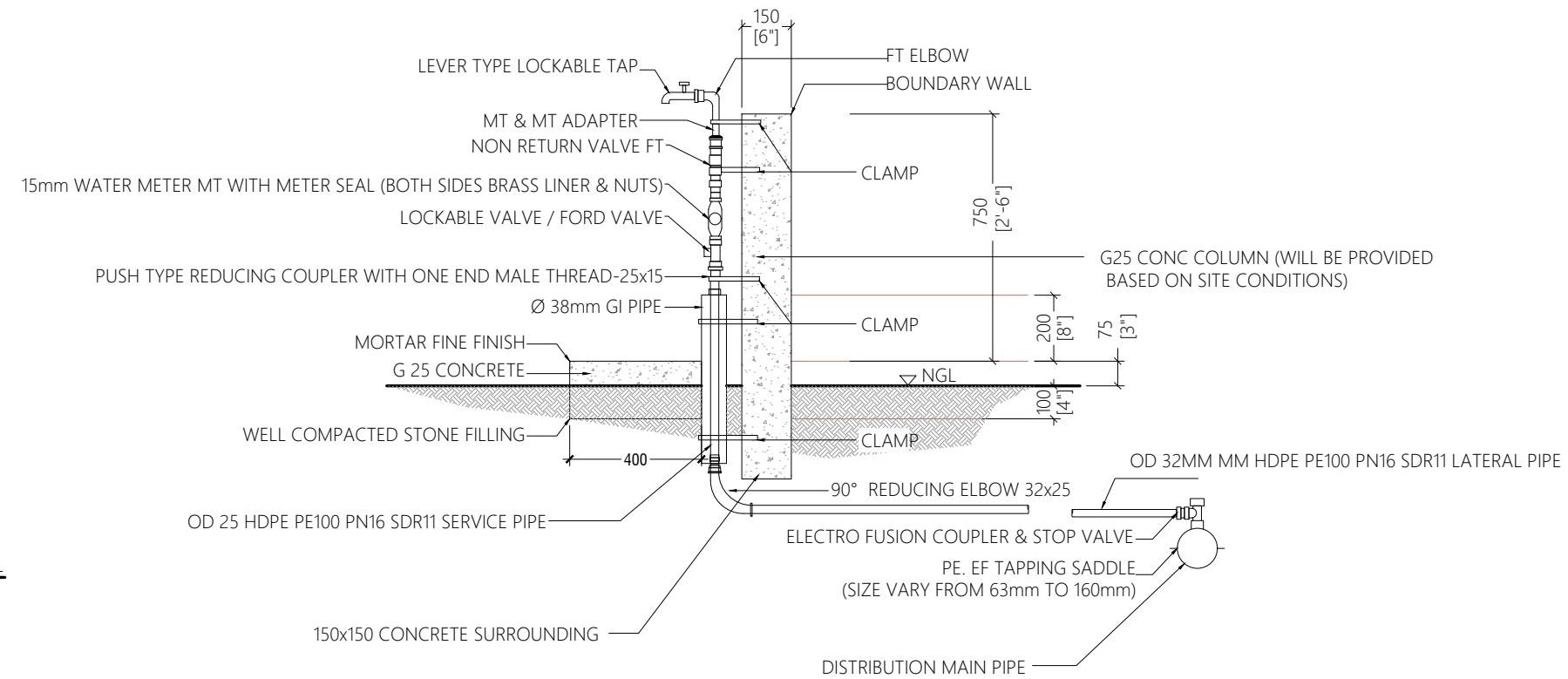


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TRENCH & BEDDING DETAILS



WATER SUPPLY COMMERCIAL/INSTITUTIONAL CONNECTION DETAILS

Legend

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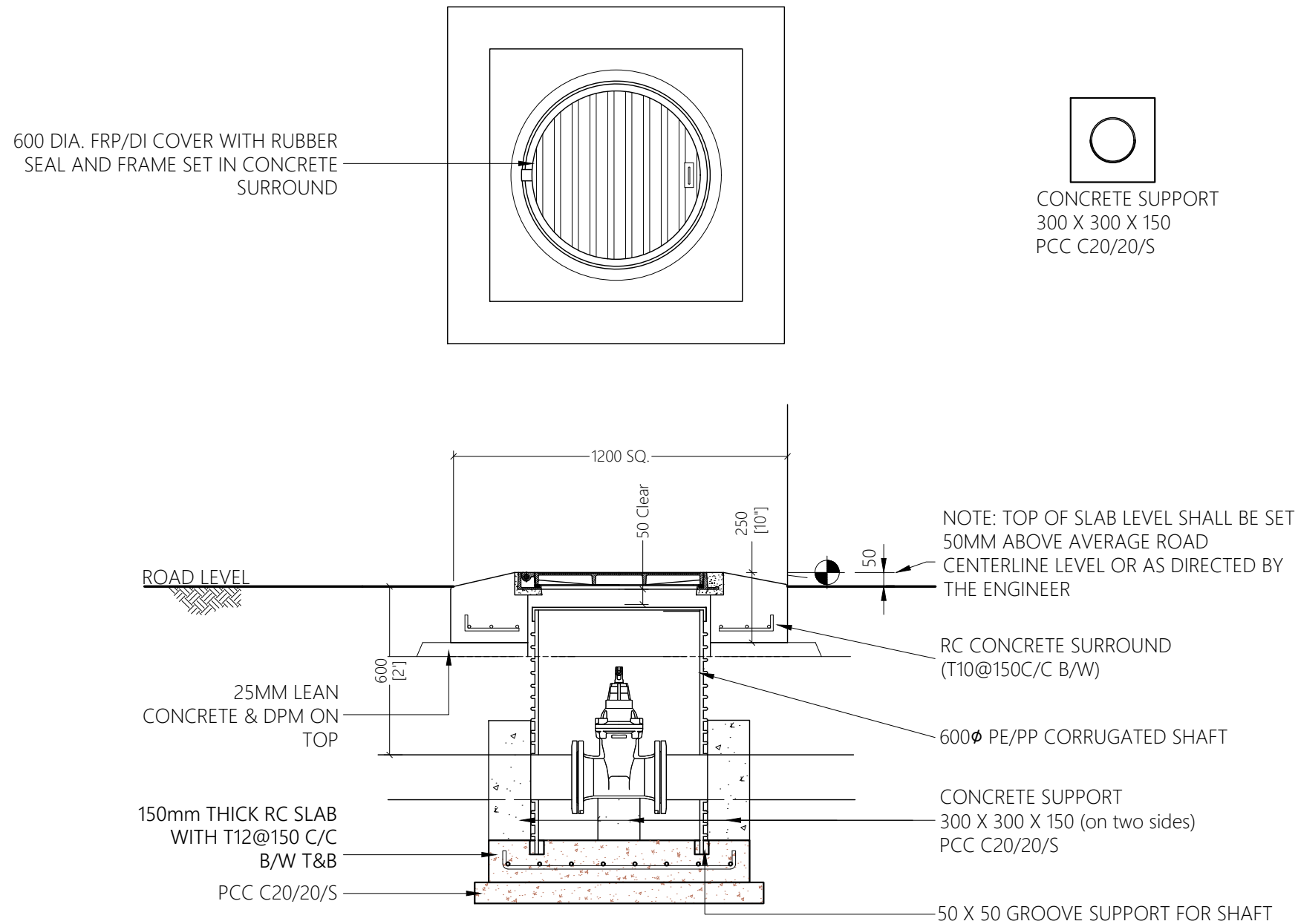
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CONCRETE SUPPORT
300 X 300 X 150
PCC C20/20/S

NOTE: TOP OF SLAB LEVEL SHALL BE SET
50MM ABOVE AVERAGE ROAD
— CENTERLINE LEVEL OR AS DIRECTED BY
— THE ENGINEER

RC CONCRETE SURROUND
(T10@150C/C B/W)

600 ϕ PE/PP CORRUGATED SHAFT

CONCRETE SUPPORT
— 300 X 300 X 150 (on two sides)
PCC C20/20/S

—50 X 50 GROOVE SUPPORT FOR SHAFT

SECTION - VALVE CHAMBER

Legend

R00	JUNE 2020	STAGE -1	PD	SBC	SD
REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.

Title:
**Consultancy Services for Survey,
Design and EIA works of Water
Supply and Sewerage Facilities in
6 islands, Maldives - Package 5**

Sub Title:
Water Supply System in M. Raiymandhoo

Client:
**Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives**



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 Husnuheena Magu, Male', Maldives



Drawn: F.I.A.	Checked: M.S.S.
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Designed: F.I.A.	Approved: I.W.
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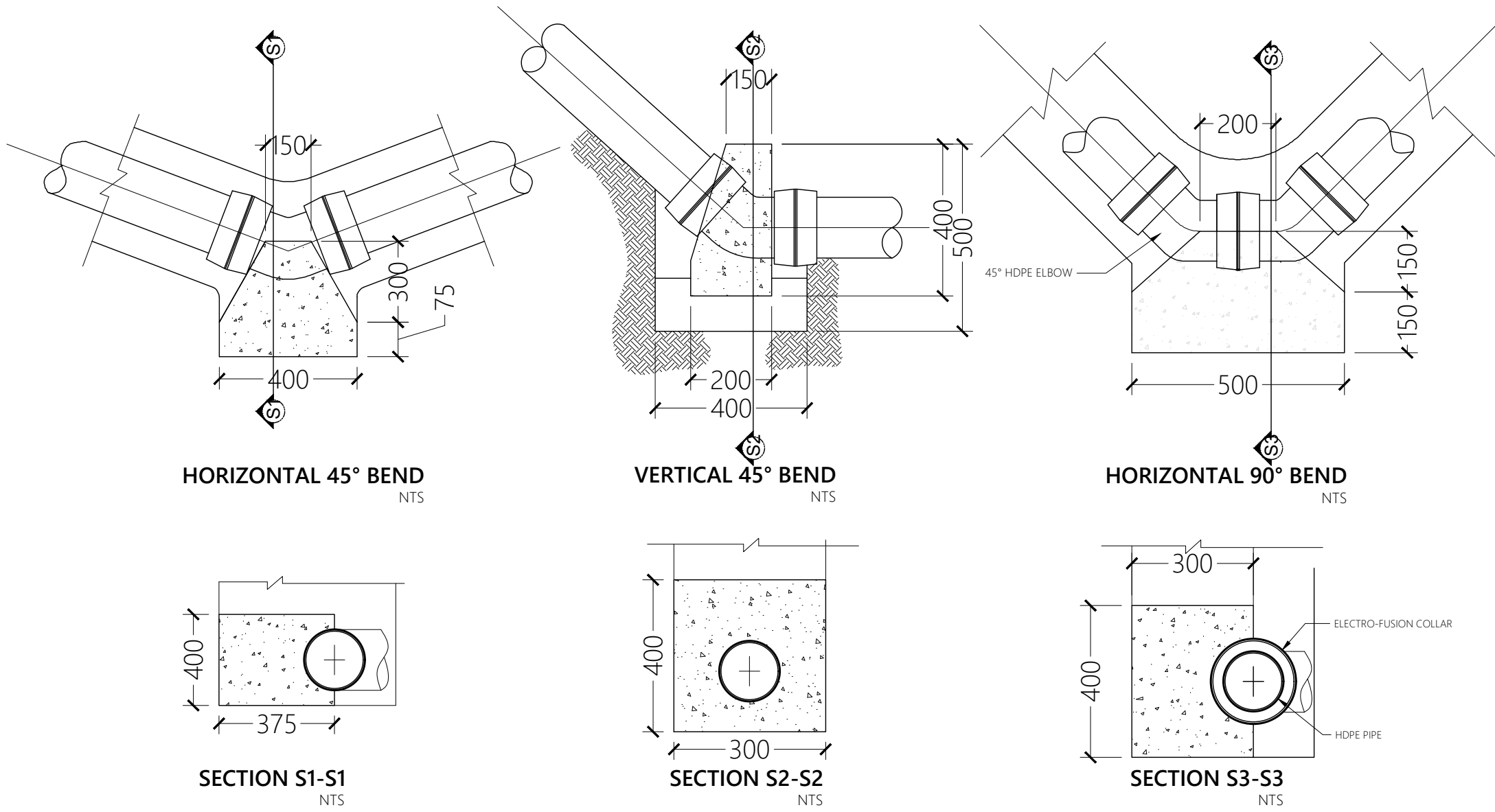
Date: Sep 2020 SCALE (A3): 1:20

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VALVE CHAMBER DETAILS

1:20



THRUST BLOCK DETAILS

NTS



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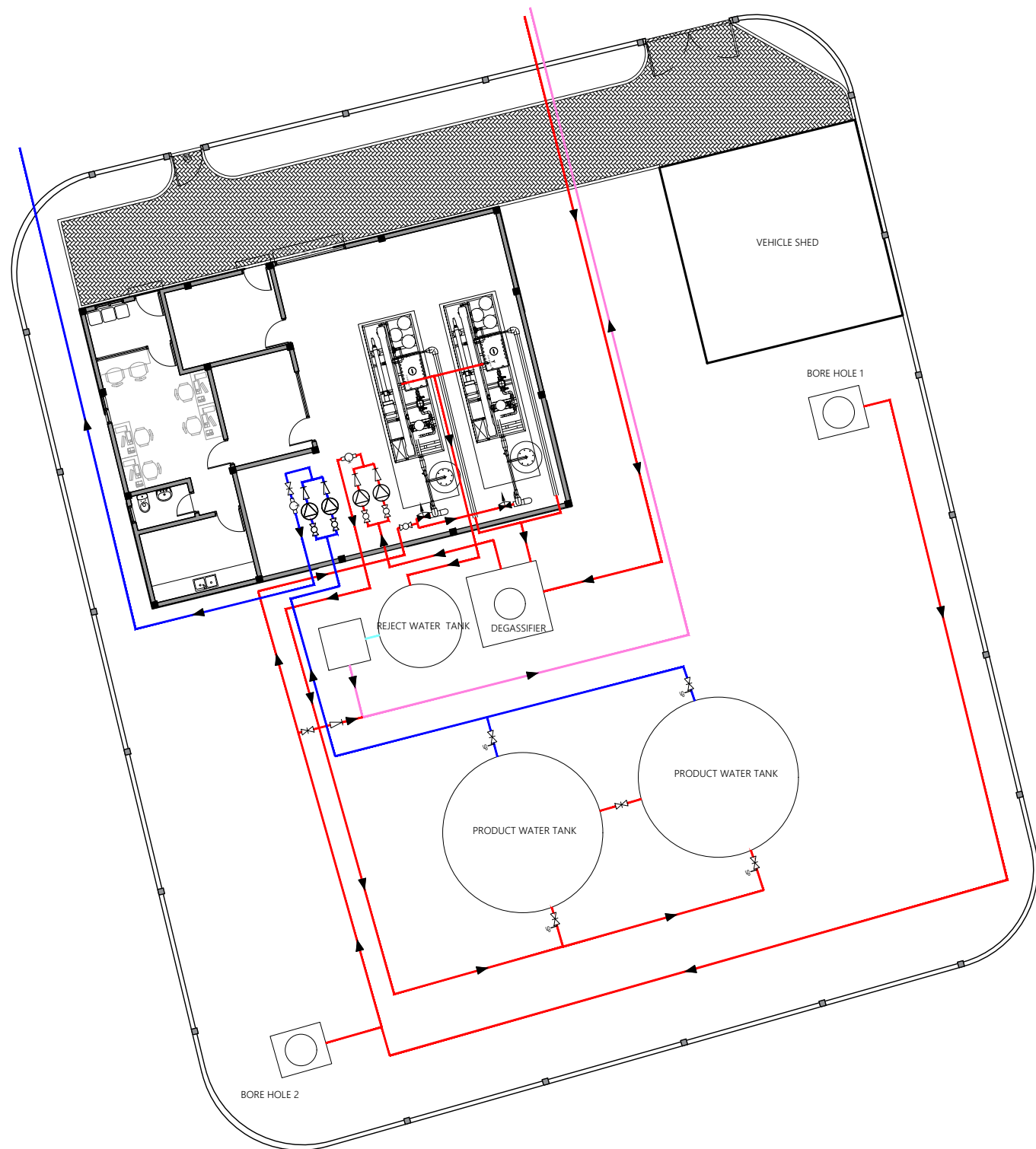
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Date: Sep 2020 SCALE (A3): NTS

Project No: EP-WS/2019/05

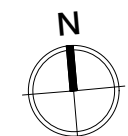
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PUMP DETAILS

- Borehole Pump : 2 Nos
- Flow (Q) = 5.56 m³/hr
- Head (h) = 50 m
- High Pressure Pump : 2 Nos
- Flow (Q) = 2.8 m³/hr
- Pressure Range = 45-65 bar
- Transfer Pump : 2 Nos
- Flow (Q) = 4.20 m³/hr
- Head (h) = 10 m
- Distribution Pump Set : 2 Nos
- Flow (Q) = 3.10 m³/hr
- Head (h) = 30 m
- Brine Pump : 2 Nos
- Flow (Q) = 3.90 m³/hr
- Head (h) = 17 m
- Rainwater Transfer Pump : 2 Nos
- Flow (Q) = 2.7 m³/hr
- Head (h) = 30 m

- Gate Valve
- Check Valve
- Totalizer
- Pump
- Closed Gate Valve
- SP
- Sampling Point
- Butterfly Valve
- Ball Valve



INTERNAL PIPE LAYOUT

1:200

Legend

- Ø90 HDPE (PE100, PN10, SDR17)
- Ø63 HDPE (PE100, PN10, SDR17)
- Ø110 HDPE (PE100, PN10, SDR17)
- Ø110 HDPE (OUTFALL PE100, PN16, SDR11)

Notes:

- All Pump sizes are based on 15 year demands.
- Rainwater collection Pump sizing is done considering Maximum Rainfall intensity of 50mm/hr.
- UF feed pump will be subject to Approved UF Plant suppliers approval.
- Both Feed Pump and High pressure pump capacity will need to be approved by the approved RO plant Supplier. The working pressure range will be established based on the approved suppliers requirements.
- Distribution Pump set will have Variable Frequency Drive.
- All pump control float switches and automated valves will be provided.
- Rainwater transfer pump to be placed in existing RWH UF shed.
- 63mm pipe from existing rainwater harvesting system is connected to the degassifier.

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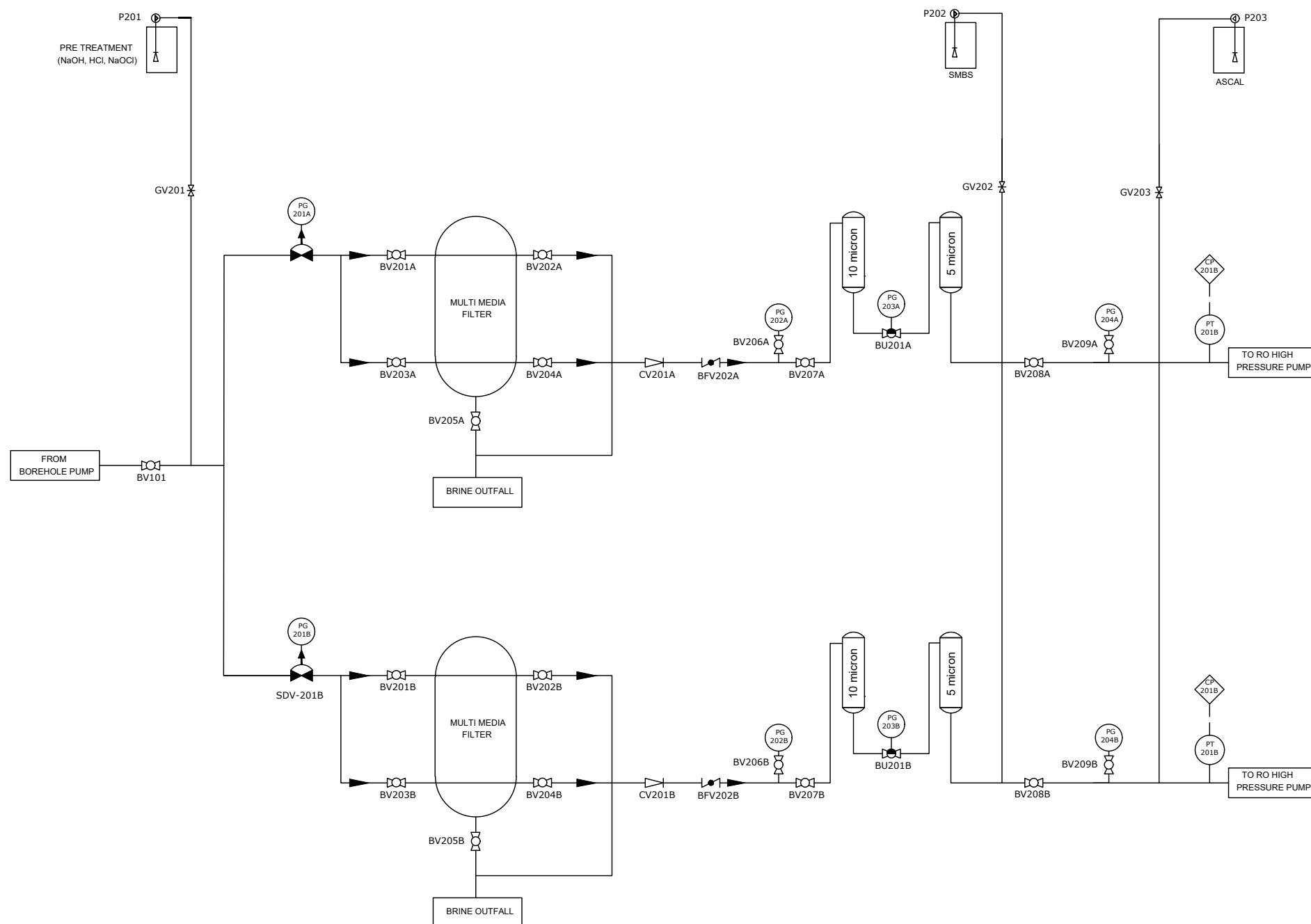
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IWRM PLANT P&I DETAIL A

NTS



LEGEND										
ACTUATION		VALVES			FEATURES		CONDITION		ABBREVIATIONS	
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL		FLANGED CONNECTION		VALVE NORMALLY OPEN	LS - LEVEL SENSOR FT - FLOW TRANSMITTER PI - PRESSURE INDICATOR SP - SAMPLING POINT AR - AIR RELEASE P - PUMP PG - PRESSURE GAUGE PS - PRESSURE SENSOR CP - CONNECTION POINT LT - LEVEL TRANSMITTER QIT - CONDUCTIVITY INDICATOR PLC - PROGRAMMABLE LOGIC CONTROLLER
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER		TRAP		VALVE NORMALLY CLOSED	
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE		DISCHARGE TO ATMOSPHERE			
	PNEUMATIC PISTON		3-WAY		CHECK VALVE		SAMPLING POINT			
	PNEUMATIC PISTON		SLUICE		MOTORIZED 3 WAY		FLOW INDICATOR			

NTS

- SMBS Pre dosing chemical to be used only if Chlorine based dosing chemical is added prior to filtration.
- Union valve to be connected in between the two cartridge filters.
- MM filters to be controlled manually.

Title:
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Drawn: EIA	Checked: MSS
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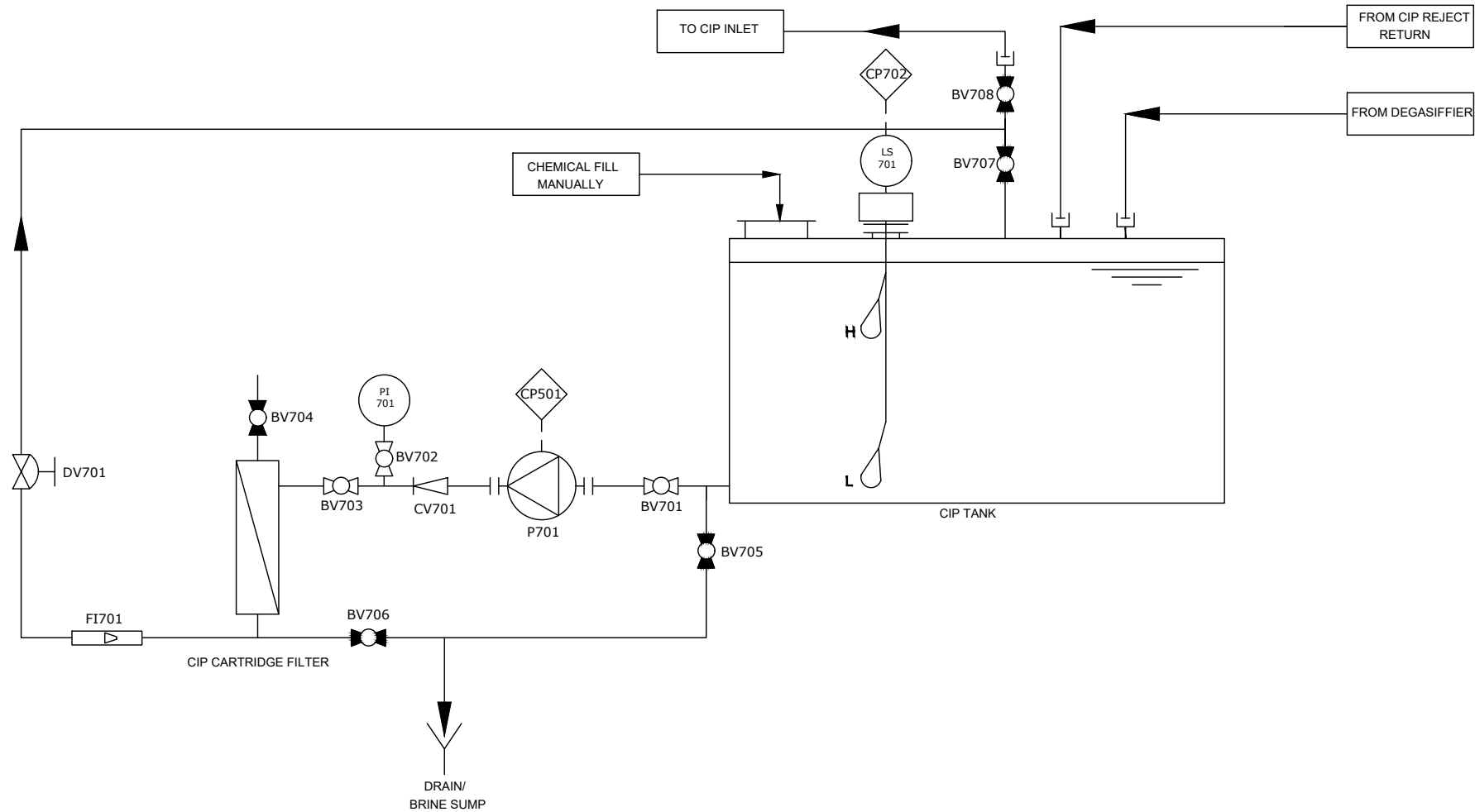
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DETAIL C

LEGEND									
ACTUATION		VALVES				FEATURES		CONDITION	
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL		FLANGED CONNECTION		VALVE NORMALLY OPEN
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER		TRAP		VALVE NORMALLY CLOSED
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE		DISCHARGE TO ATMOSPHERE		
	PNEUMATIC PISTON		3-WAY		CHECK VALVE		SAMPLING POINT		
			SLUICE		MOTORIZED 3 WAY		FLOW INDICATOR		

LS - LEVEL SENSOR
FT - FLOW TRANSMITTER
PI - PRESSURE INDICATOR
SP - SAMPLING POINT
AR - AIR RELEASE
P - PUMP
PG - PRESSURE GAUGE
PS - PRESSURE SENSOR
CP - CONNECTION POINT
LT - LEVEL TRANSMITTER
QIT - CONDUCTIVITY INDICATOR
PLC - PROGRAMMABLE LOGIC CONTROLLER

IWRM PLANT P&I DETAIL C

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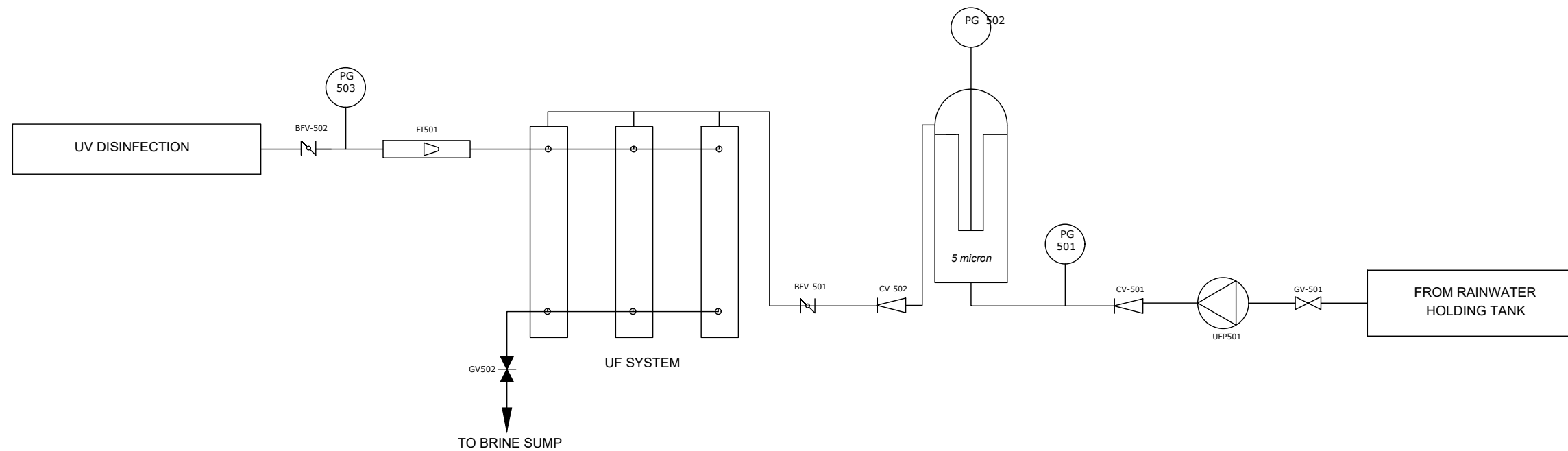
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NTS

UV DISINFECTION



DETAIL G

LEGEND										
ACTUATION		VALVES				FEATURES		CONDITION		ABBREVIATIONS
	MANUALLY OPERATED		BUTTERFLY		MOTORIZED BALL		FLANGED CONNECTION		VALVE NORMALLY OPEN	LS - LEVEL SENSOR FT - FLOW TRANSMITTER PI - PRESSURE INDICATOR SP - SAMPLING POINT AR - AIR RELEASE P - PUMP PG - PRESSURE GAUGE PS - PRESSURE SENSOR CP - CONNECTION POINT LT - LEVEL TRANSMITTER QIT - CONDUCTIVITY INDICATOR PLC - PROGRAMMABLE LOGIC CONTROLLER
	PNEUMATIC DIAPHRAGM - SINGLE ACTING		BALL		TORTALIZER		TRAP		VALVE NORMALLY CLOSED	
	PNEUMATIC DIAPHRAGM - DOUBLE ACTING		DIAPHRAGM		GATE		DISCHARGE TO ATMOSPHERE			
	PNEUMATIC PISTON		3-WAY		CHECK VALVE		SAMPLING POINT			
			SLUICE		MOTORIZED 3 WAY		FLOW INDICATOR			

IWRM PLANT P&I DETAIL G

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Legend

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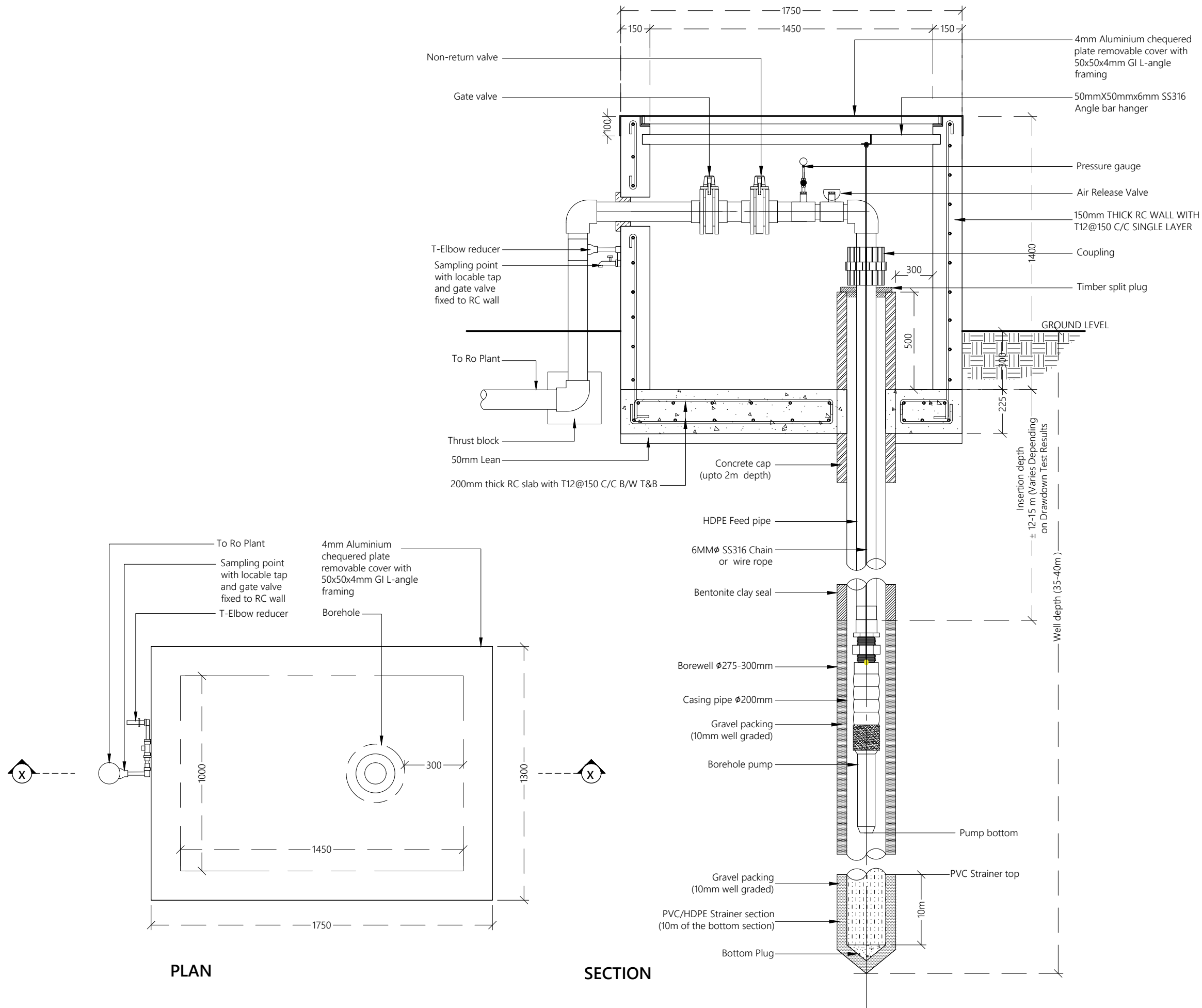
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BOREHOLE DETAILS

NTS



Legend

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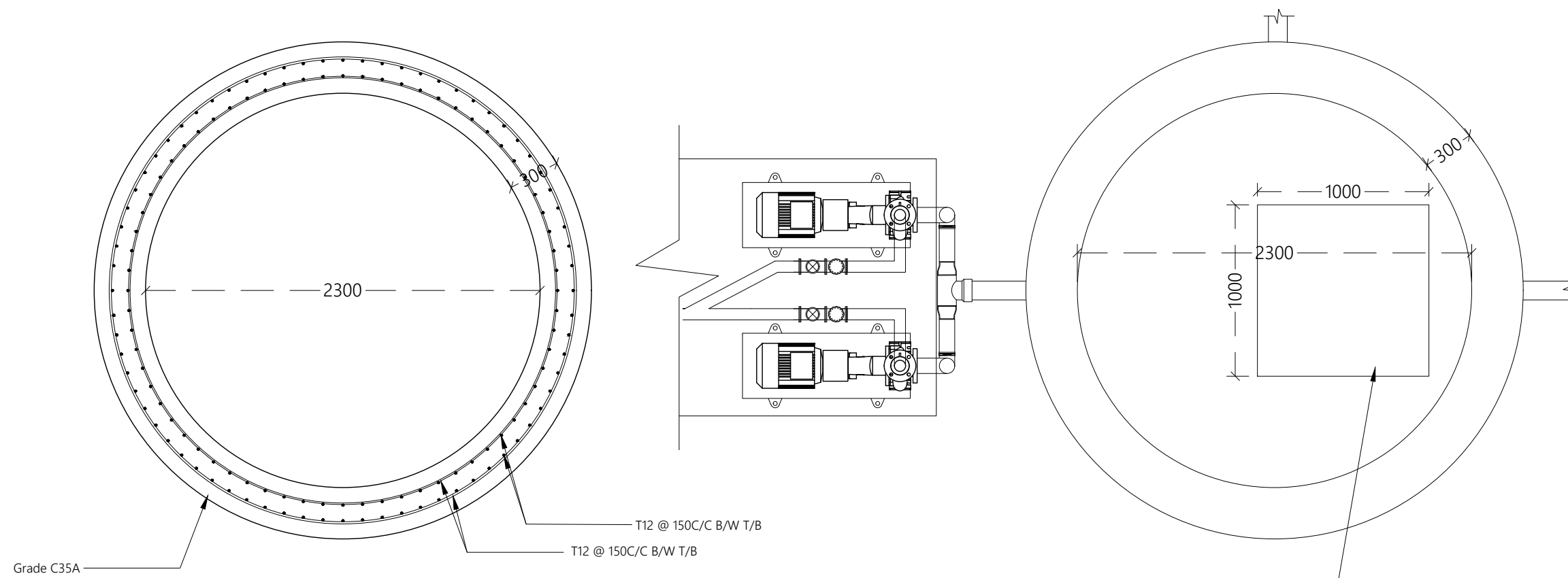
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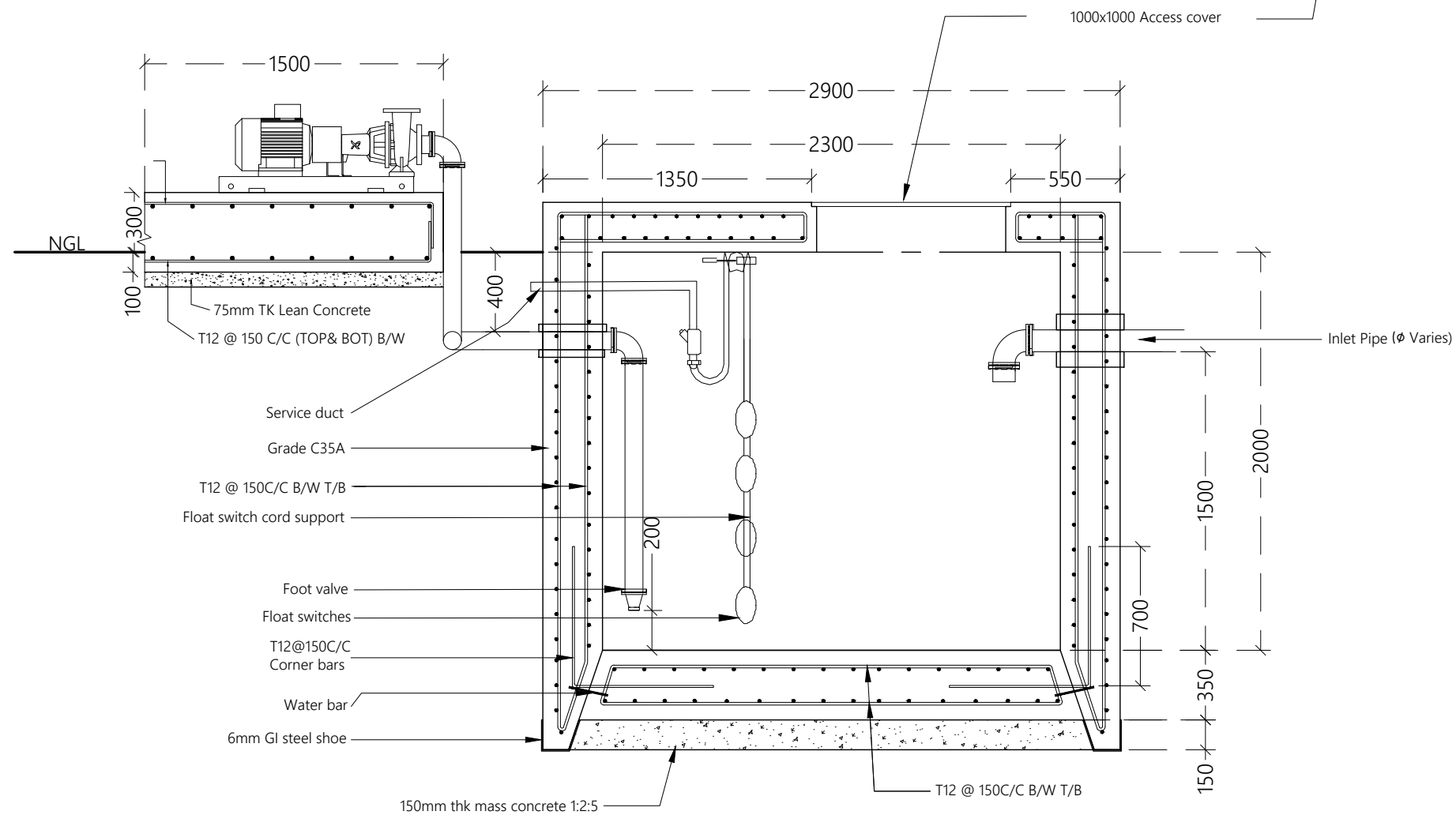
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BRINE WATER TANK PLAN

BRINE WATER TANK PLAN



BRINE WATER TANK SECTION X-X

BRINE TANK DETAILS

1:30



Legend

- Note:**
- Pumps, pipe work, fittings and control panel shall be installed in accordance with manufacturers recommendations.
 - Orientation of tanks and pipe work to suit location.

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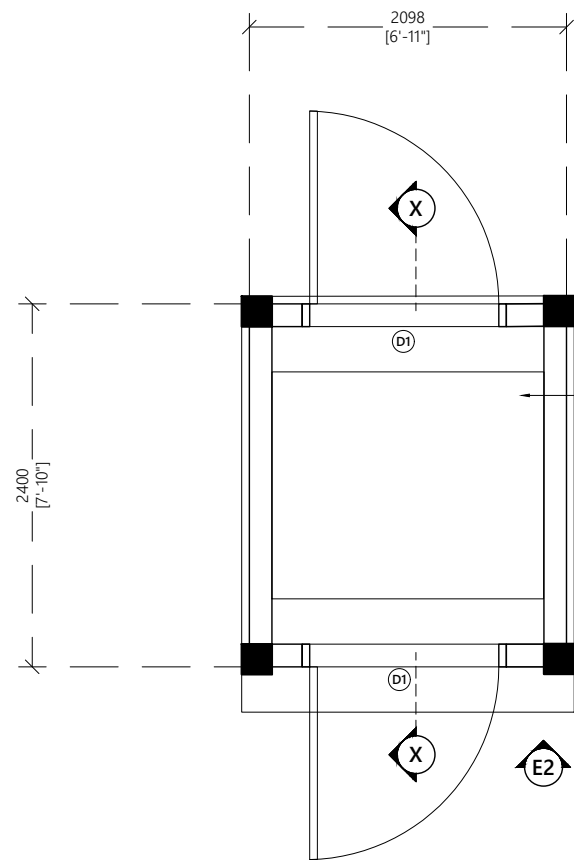
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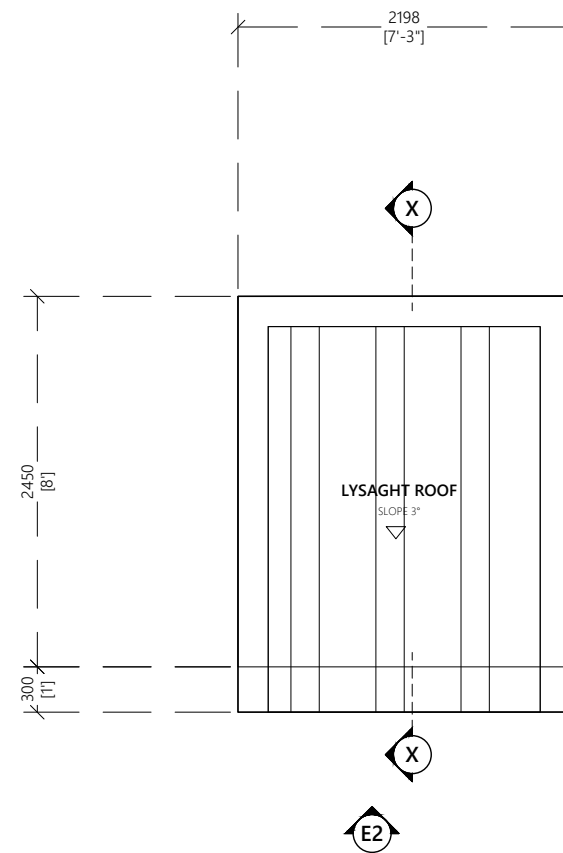
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Project No: EP-WS/2019/05

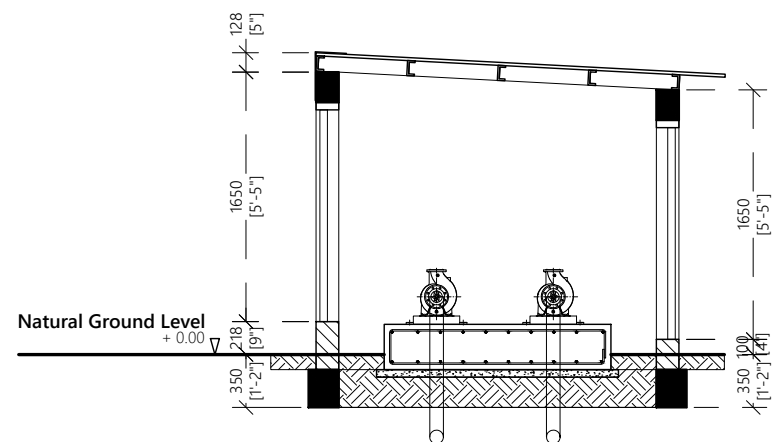
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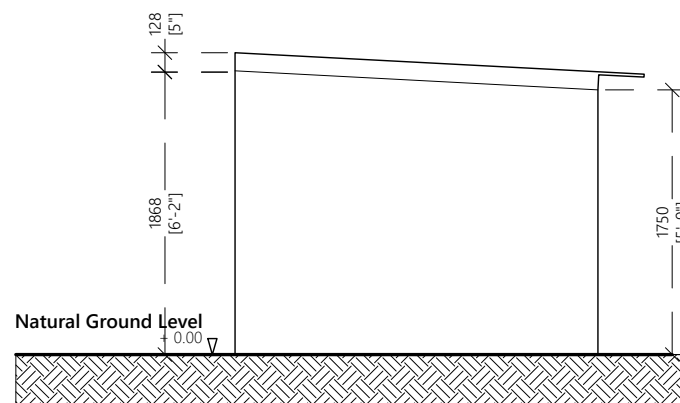
GROUND FLOOR PLAN
1:50



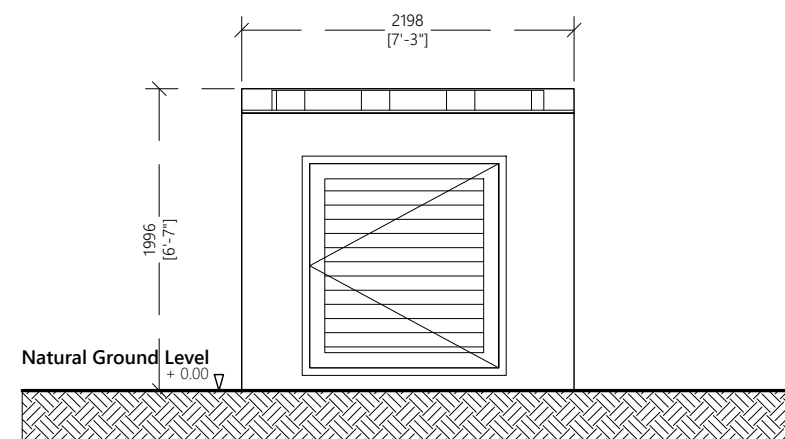
ROOF PLAN
1:50



SECTION X-X
1:50



ELEVATION E1
1:100



ELEVATION E2
1:100

PUMP SHED DETAILS



Legend

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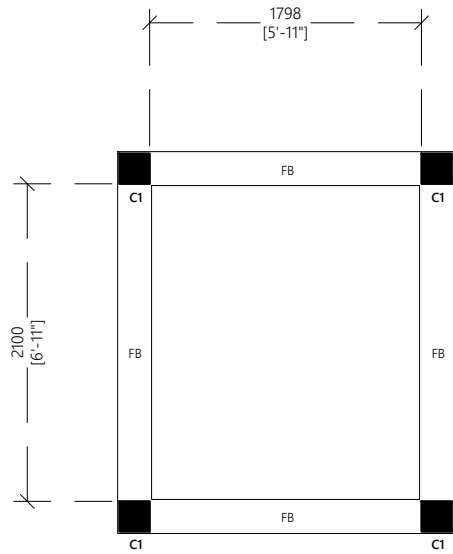
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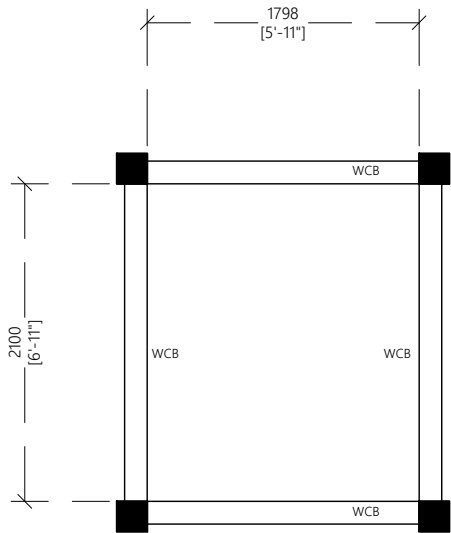
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GROUND FLOOR PLAN

1:100



ROOF PLAN

1:100

Door ID		
Plan view		
Elevation view		
FFL		
Frame material	600 micron powder coated aluminum frames	
Panel material	600 micron powder coated aluminum louvered panel with side aluminum frames with allowance for handle and lock	
Openable area	-	

General Door Notes:

Dimensions shown on DWG indicate effective openings of frame

All frame depths are 100mm
All dor panel thicknesses are 35mm
All window manel thickness are 25mm
Al frame edges shal be trimmed 3mm

All wodden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12X12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of al functions of the units

Hinges shall confirm to

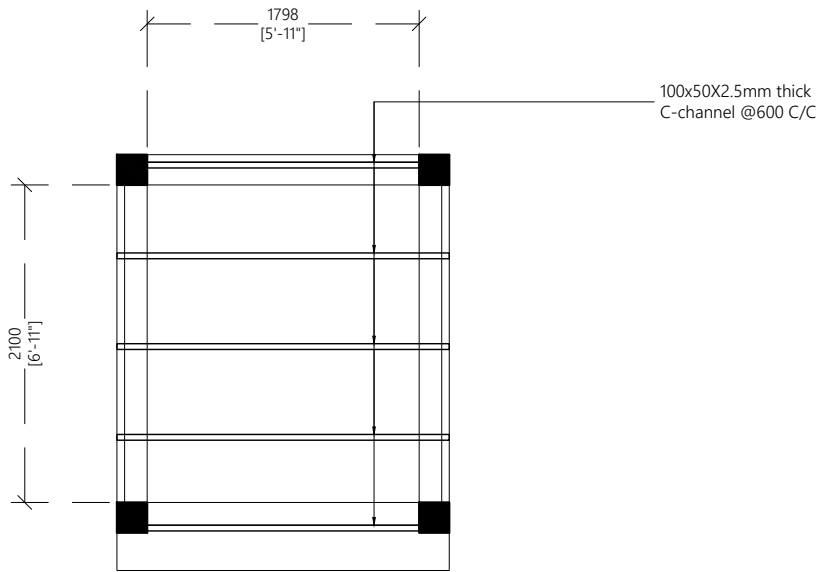
- Door size more than 700X1900mm
WD: 125mm X2 sets
SD: 150mm X3 sets
- Door size less than 700X1900mm
WD: 100mm X2 sets
SD: 125mm X2 sets

Locks shall be cylindrical with master key sets

Door knobs shall be1000mm above FFL

Door Schedule

1:100



ROOF PLAN

1:100

PUMP SHED DETAILS



Legend

Notes:

- All CHS shall have minimum yield stress of 275MPa
- All welds shall be 6mm thick full perimeter fillet welds
- All Truss ends shall be end capped with 6mm plates
- All truss members shall be protected with anti corrosive coatings

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Date: Sep 2020	SCALE (A3): 1:100
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1:20



1:20

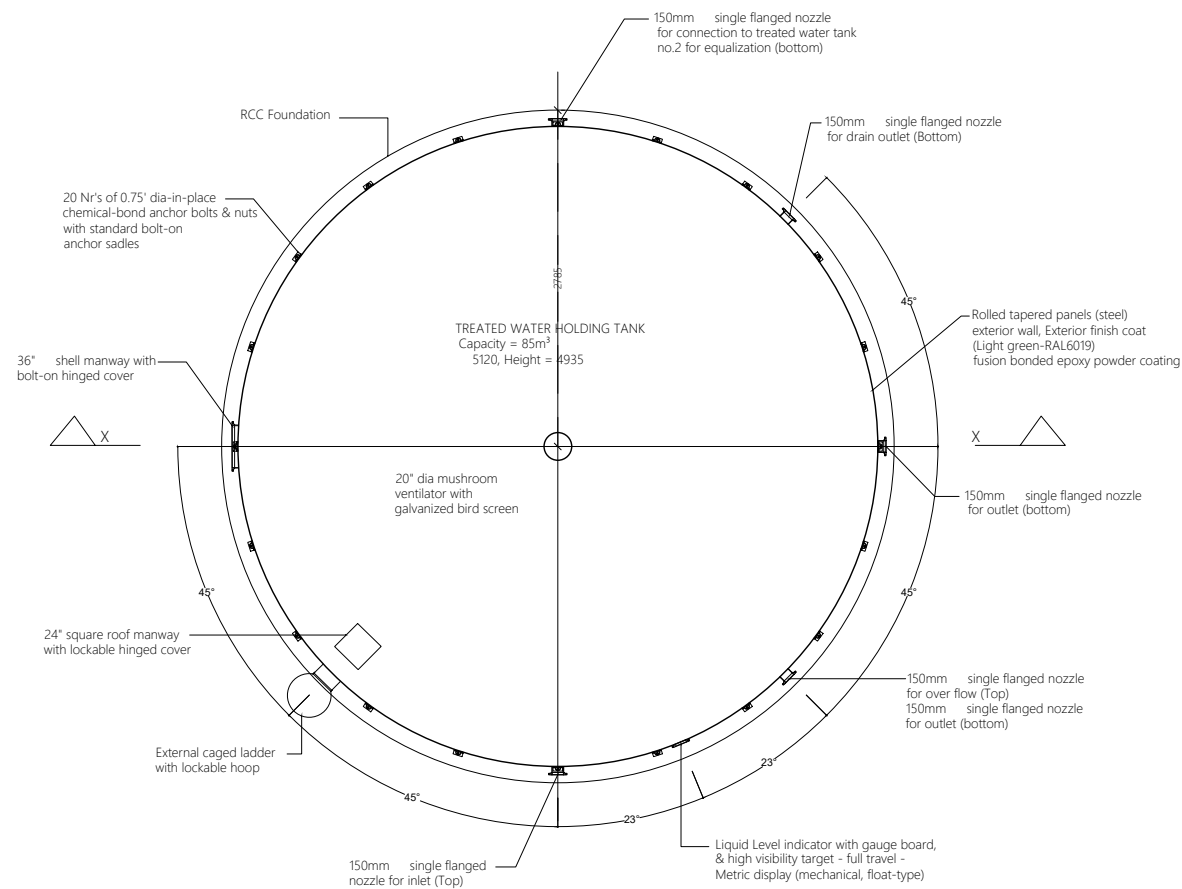


Legend

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1:20



Technical drawing of a 10,000-gallon chemical storage tank, showing elevation and plan views with detailed annotations.

Elevation View Annotations:

- 20" dia mushroom ventilator with galvanized bird screen
- Rolled tapered panels (steel) exterior wall, Exterior finish coat (Light green-RAL6019) fusion bonded epoxy powder coating
- External caged ladder with lockble hoop
- 36" shell manway with bolt-on hinged cover
- Full deck perimeter guardrail
- 150mm single flanged nozzle for inlet (Top)
- 150mm single flanged nozzle for inlet (Top)
- Liquid Level indicator with guage board & high visibility target - full travel - Metric display (mechanical, float-type)
- 20 Nr's of 0.75" dia drill-in-place chemical-bond anchor bolts & nuts with standard bolt-on anchor saddles
- 150mm single flanged nozzle for outlet (bottom)

Plan View Annotations:

- 4 mil polythene sheets between foundation & fiberboard/tank bottom
- Tank Foundation

Dimensions:

- Overall Diameter: 5120
- Overall Height: 4935
- Foundation Width: 5570
- Foundation Thickness: 482
- Foundation Offset: 151
- Ground Level: +0.00(G.L.)

The diagram illustrates the cross-section of a 1000mm diameter water storage tank. The foundation consists of a 150mm thick RC slab (1:2:3) resting on a well-compacted hardcore with a minimum bearing capacity of 150 kPa. The tank floor is made of fibre board (12.7mm thick) and a 4 mil polythene sheet. The tank wall is constructed from 450mm x 900mm RCC ring beams with 6T20 reinforcement. The wall is 300mm thick and has a 50mm thick lean concrete (1:2:4) base. The tank is anchored to the foundation as per manufacturer details. The ground level is marked as +0.00 (G.L.) and the finished floor level is marked as +300 (F.L.). The tank has a height of 3000mm and a diameter of 1000mm. The foundation slab is 450mm wide and 600mm long.

Labels and Dimensions:

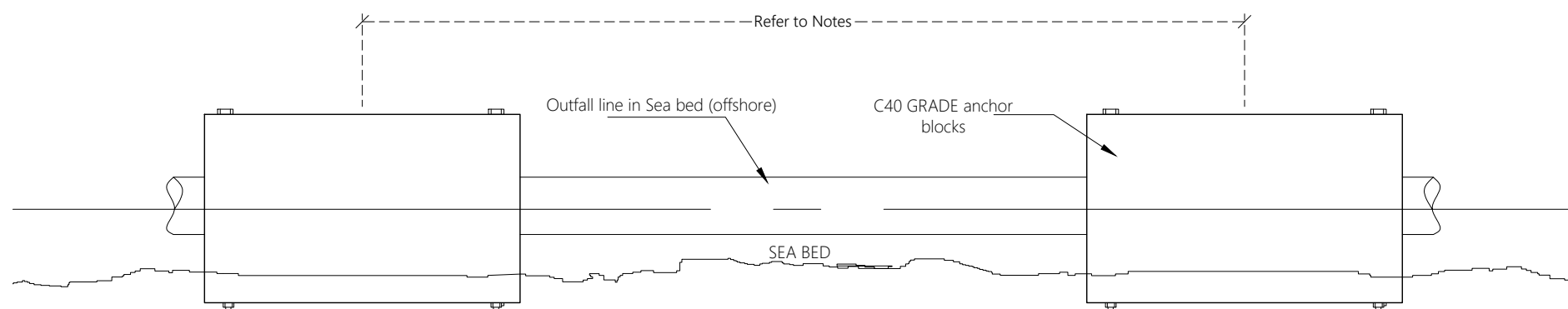
- TANK FLOOR
- FIBRE BOARD 12.7MM TK. & 4 mil polythene sheet
- TOP OF FOUNDATION
- 150mm tk. RC slab (1:2:3)
- T10@150 c/c BW, Top & Bottom
- T10 rings @ 150 c/c
- Well Compacted hardcore Bearing capacity minimum 150Kpa
- 450mm x 900mm RCC Ring beam
- 6T20
- 50mm thick Lean Concrete (1:2:4)
- TANK ANCHORING AS PER MANUFACTURERS DETAILS
- +300 (F.L.)
- +0.00 (G.L.)
- 3000
- 300
- 450
- 600

Note:-
Cover = 50mm
Lap length 50

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Technical drawing of a sea bed marker. The drawing shows a cross-section of the marker, which is a trapezoid with a semi-circular top. The dimensions are as follows:

- Top width: 900
- Bottom width: 600
- Height of the trapezoid: 300
- Radius of the semi-circular top: 150
- Height of the marker from the sea bed: 100

The marker is shown resting on the sea bed, which is indicated by a horizontal line labeled "SEA BED". A cross-section of the marker is shown, revealing a hollow interior with a shaded area representing the sea bed.

Technical drawing of a dome-shaped structure on a sea bed. The structure features a hemispherical upper section and a conical lower section. Key components and dimensions are labeled as follows:

- Labels:**
 - T12 @200c/c B/W**: Reinforcement for the dome and base.
 - Anchor blocks C40A GRADE**: Located at the base of the structure.
 - 4 nos. 25mm \varnothing Threaded rod with bolts (SS316)**: Connects the anchor blocks to the structure.
 - Outfall pipe**: A circular pipe passing through the center of the dome.
 - SEA BED**: The ground surface on which the structure is installed.
- Dimensions (mm):**
 - Vertical Height:** 300 (dome height) + 300 (conical section height) + 100 (base thickness).
 - Horizontal Width:** 150 (left base offset) + 600 (dome diameter) + 150 (right base offset).

4 nos. 25mm \varnothing Threaded rod with bolts (SS316)

27mm \varnothing hole

1000

150

100

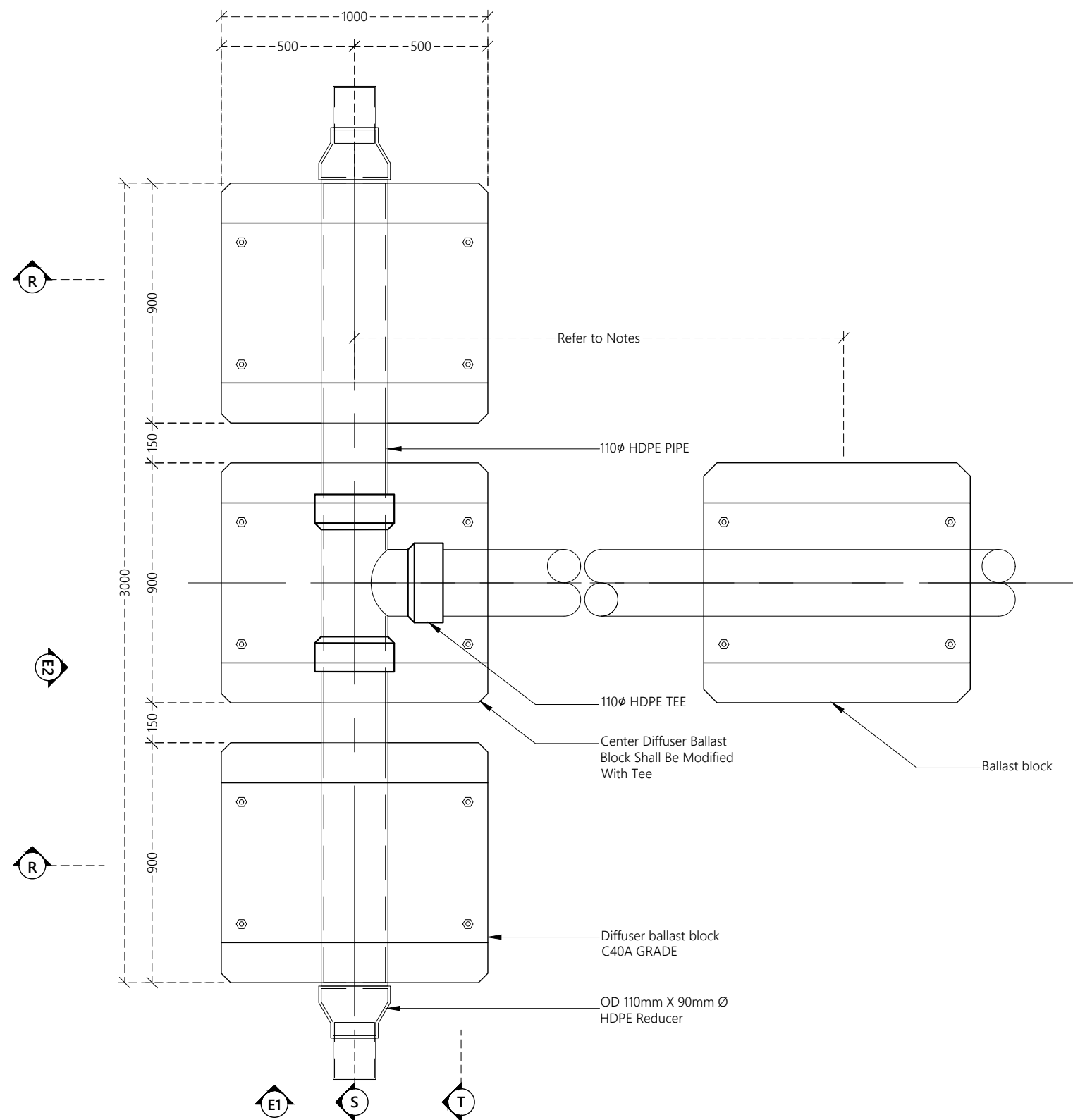
400

600

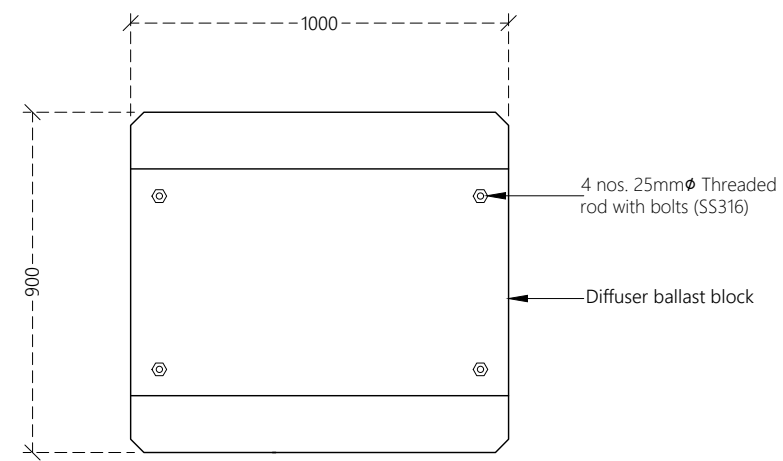
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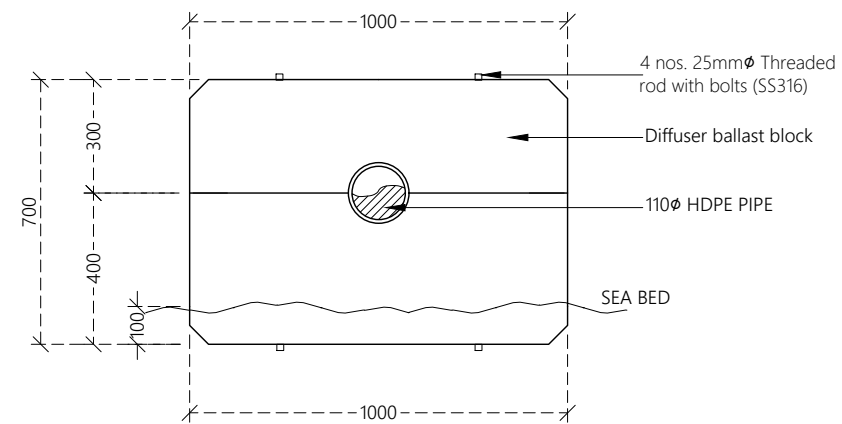
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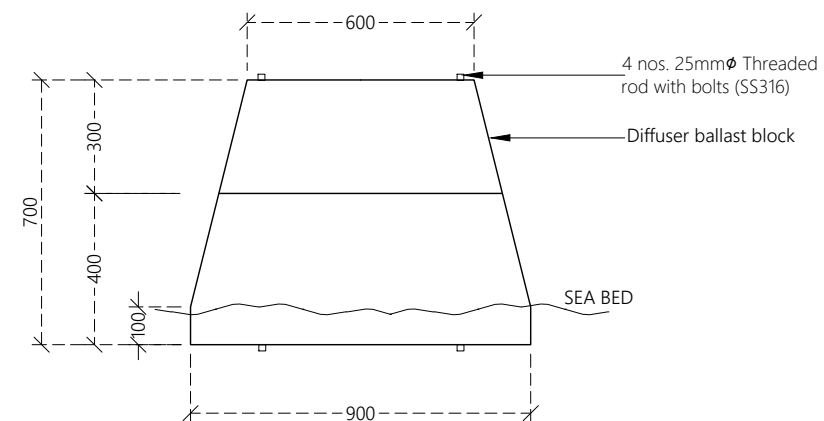
DIFFUSER BALLAST BLOCK SECTION - R



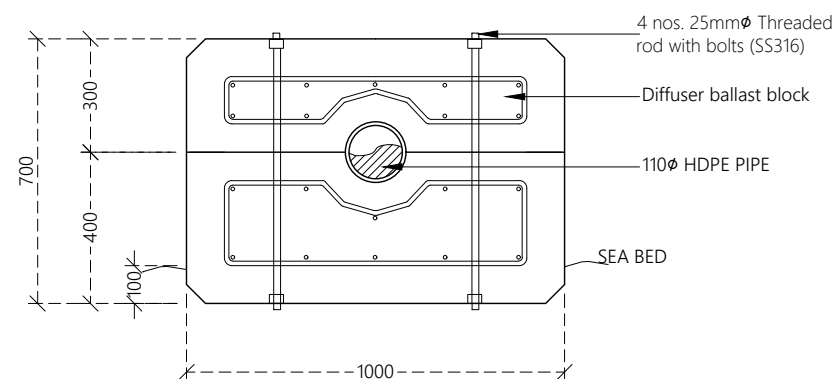
DIFFUSER BALLAST BLOCK PLAN



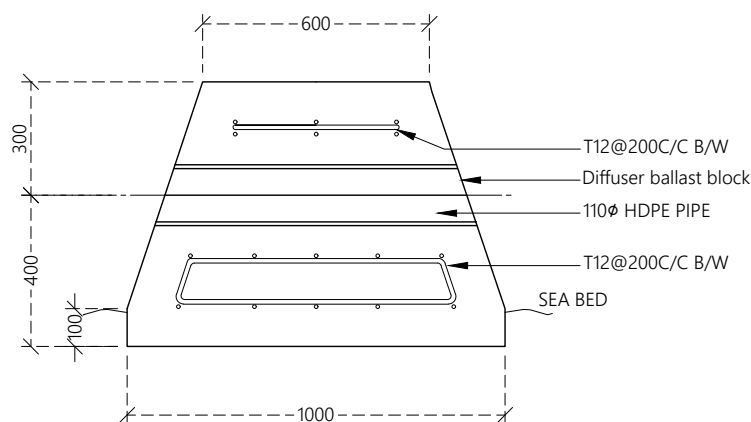
DIFFUSER BALLAST BLOCK FRONT ELEVATION - E1



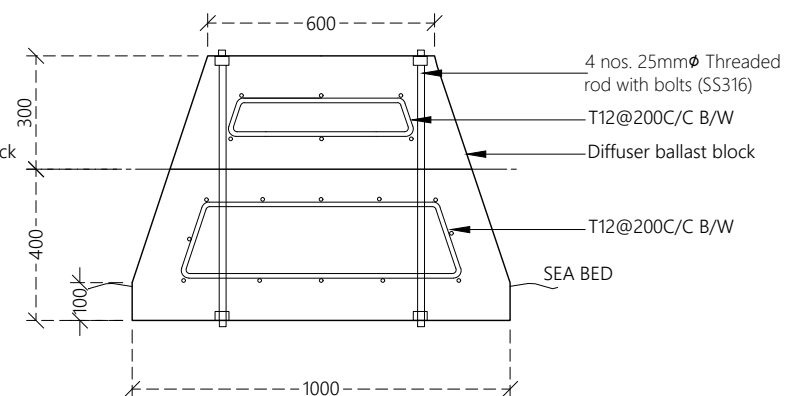
DIFFUSER BALLAST BLOCK FRONT ELEVATION - E2



DIFFUSER BALLAST BLOCK SECTION - R



DIFFUSER BALLAST BLOCK SECTION - S



DIFFUSER BALLAST BLOCK SECTION - T

DIFFUSER DETAILS

NTS



Legend

Notes:

- All backing rings for stub flanges , nuts and bolts shall be grade 316 stainless steel.
- All pipe work shall be bedded on 10mm thick neoprene rubber seat in semicircular recess matching the O.D. the pipe.
- Fabricate specific pipe clamps to provide firm clamping action according to pipe O.D.
- All structural concrete shall be of grade C40A.
- All castings shall be done using sulphate resistant portland cement to BS 4027:1996.
- All structural reinforcement shall be epoxy coating of non-pre-stressed reinforcement to ASTM-A775/A775M.
- A cover of 75mm should be given for all reinforcements.
- In shallow water (regions where the depth is less than 1m), the ballast block spacing is 3.5m. In deeper water (regions where the depth is greater than 1m), the ballast block spacing is 2.0m. All distances are from c/c of blocks.

REV. NO.	Date	Revision Description	Drawn	Chkd	Appd.
R00	JUNE 2020	STAGE -1	PD	SBC	SD

Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 6 islands, Maldives - Package 5

Sub Title:
Water Supply System in M. Raiymandhoo

Client:
Ministry of National Planning, Housing and Infrastructure, Republic of Maldives

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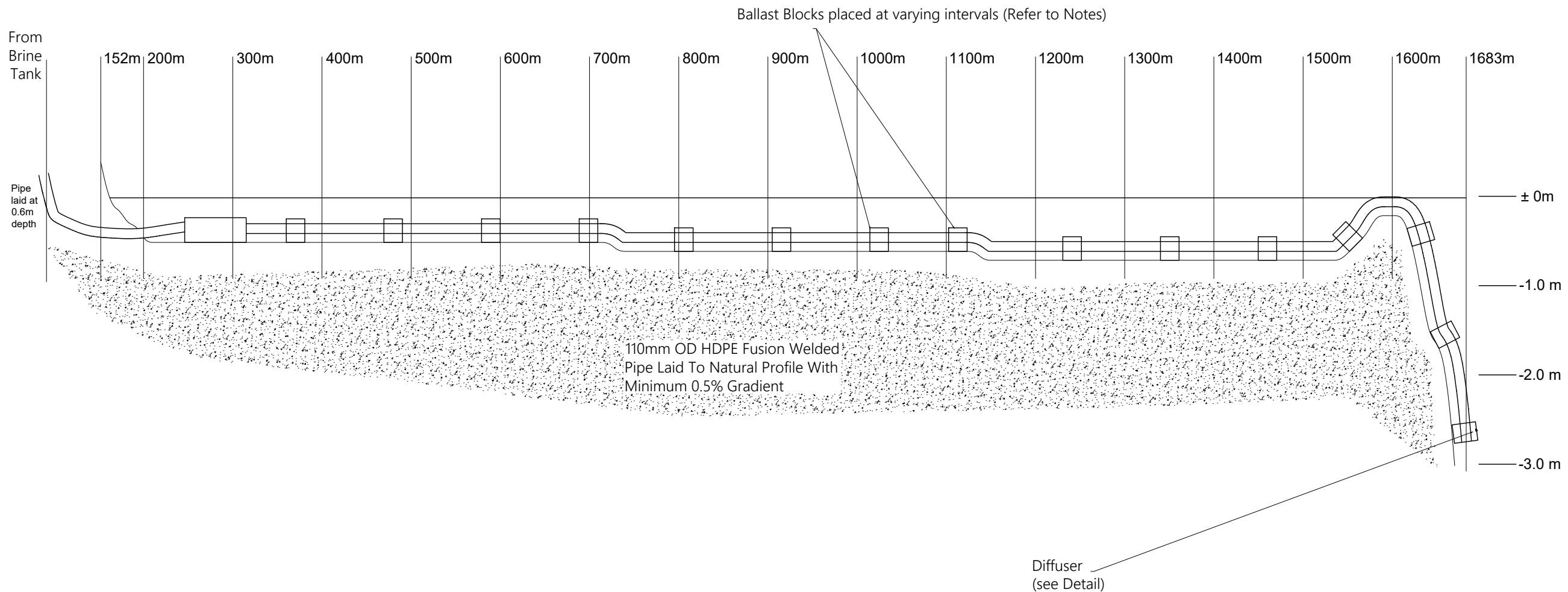
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Designed: F.I.A. Approved: I.W.

Date: Sep 2020 SCALE (A3): NTS


Project No: EP-WS/2019/05

Rev: R-01 Page: W-20



Notes:

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| R00 | JUNE 2020 | STAGE -1 | PD | SBC | SD |
| REV. NO. | Date | Revision Description | Drawn | Chkd | Appd. |

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	Approved: I.W.
	SCALE (A3): NTS
	Page:
	W-21

ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

RO PLANT ADMIN BUILDING & VEHICLE SHED, M.RAIYMANDHOO



For Ministry of National Planning, Housing and Infrastructure

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1:200

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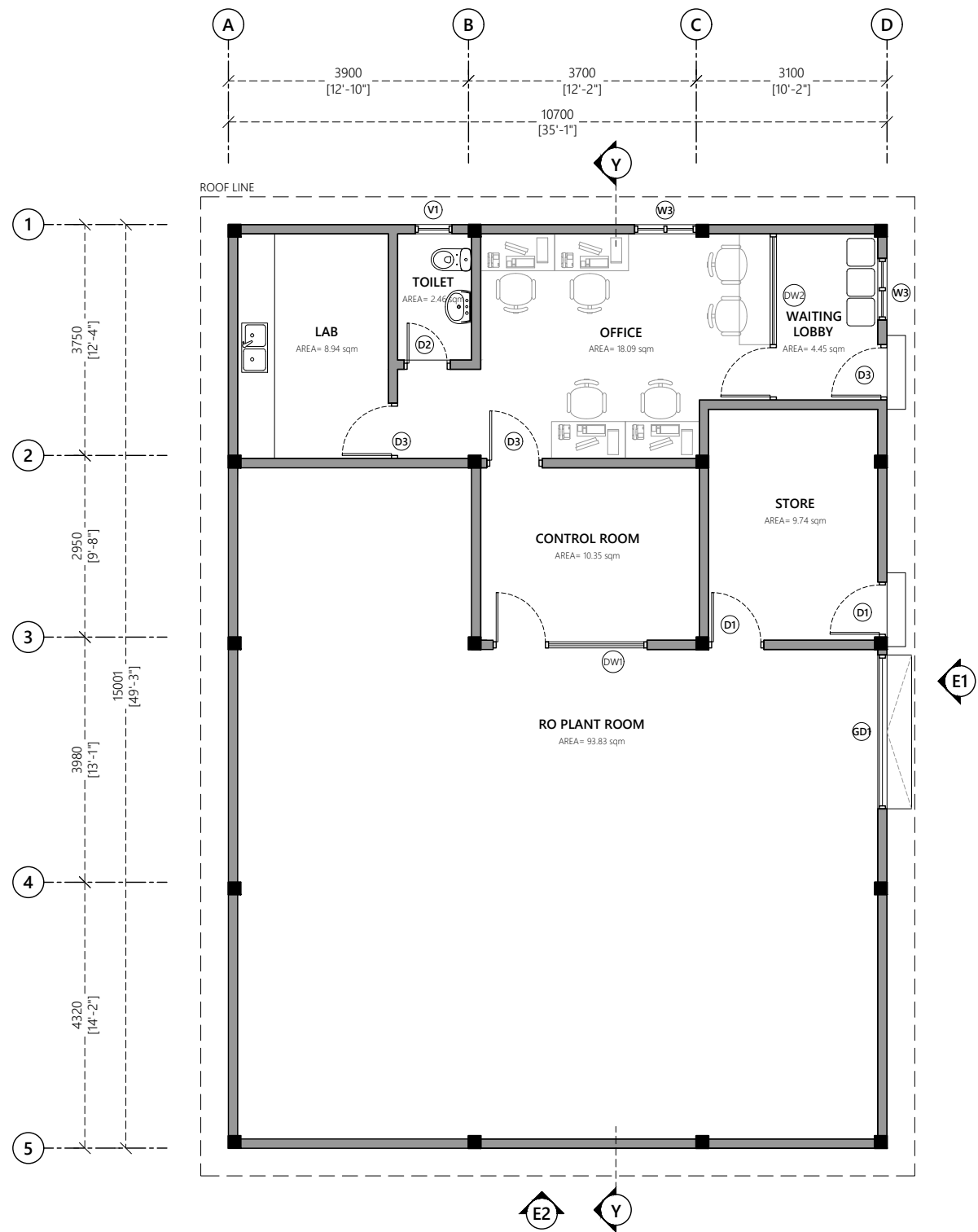
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ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

RO PLANT ADMIN BUILDING, M.RAIYMANDHOO



Wall Legend:

150mm thick masonry blocks with 20mm plaster on exterior and 12mm plaster on interior

Wall Finish:

Internal Wall Finish: Easy to wash odour-less Nippon paint Ivory White

External Wall Finish: Weatherboard Algae guard Nippon September Cream

Toilet and shower walls: 300x300mm ceramic wall lanka tiles up to ceiling height with tile adhesive, use joint filler of appropriate color for grouting joints between tiles

Floor Finish:

Floor Finishes: 600x600mm homogenous floor tiles with tile adhesive unless specified

Toilet Floor Finishes: 300x300mm homogenous non skid floor tiles with tile adhesive unless specified

Notes:

FFL of balconies and toilets should be 25mm lower than the FFL of respective floors

Water proofing to be applied in toilets, balconies and roof terrace prior to tiling



GROUND FLOOR PLAN

1:100

Legend

Note:

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Title:
Consultancy Services for Survey, Design and EIA works of Water Supply and Sewerage Facilities in 6 Islands, Maldives – Package 6
Sub Title:
Water Supply System in L.Hithadhoo

Client:
Ministry of National Planning, Housing and Infrastructure, Republic of Maldives





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1:100

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1:100

1:100

Legend

Note:

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SECTION

1:100

Door ID	D1	D2	D3	GD1
Plan view				
Elevation view				
FFL				50 [2']
Frame material	Aluminum black powder coated	Aluminum black powder coated	Aluminum black powder coated	Aluminum framed roller shutter
Panel material	Aluminum cladding sheet	Aluminum cladding sheet	Aluminum cladding sheet & Fixed clear glass	Aluminium
Openable area	1.74	1.45	1.74	6.0

Door ID	G1	G2
Plan view		
Elevation view		
FFL		
Frame material	Steel gate frame	Steel gate frame
Panel material	Steel frame with steel panels as shown on elevation view	Steel frame with steel panels as shown on elevation view
Openable area	-	-

General Notes:

Dimensions shown on DWG indicate effective openings of frame

All frame depths are 100mm
All dor panel thicknesses are 35mm
All window manel thickness are 25mm
Al frame edges shal be trimmed 3mm

All wooden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12X12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of al functions of the units

- Hinges shall confirm to
- Door size more than 700X1900mm
WD: 125mm X2 sets
SD: 150mm X3 sets
 - Door size less than 700X1900mm
WD: 100mm X2 sets
SD: 125mm X2 sets

Locks shall be cylindrical with master key sets

Door knobs shall be1000mm above FFL

DOOR & WINDOW SCHEDULE -1

1:50

Legend

Note:

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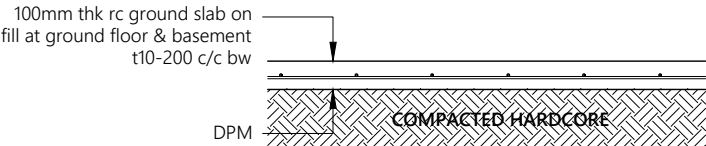
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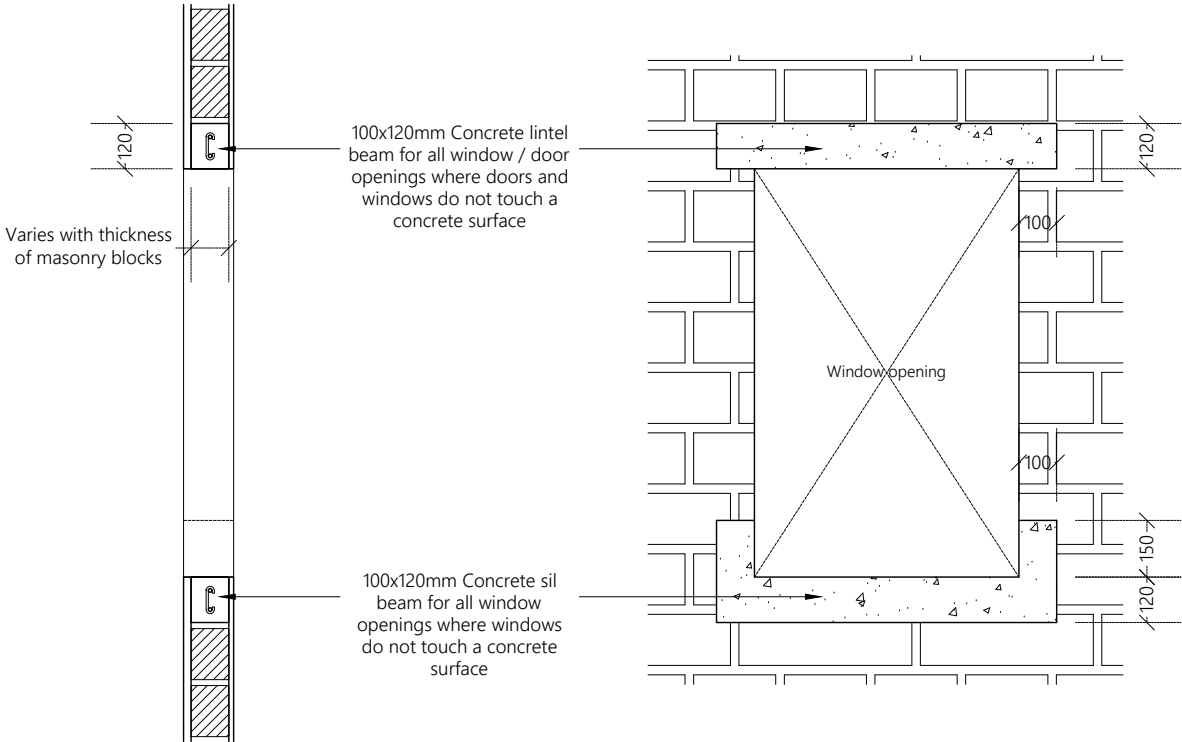
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- Note:**
- All cover blocks shall be casted using grade C25/30 concrete with 5-10mm aggregates
 - For slab, rebar spacer chairs spacing shall be minimum 1m spacing or 1 no. per 1 sqm

TYPICAL GROUND SLAB DETAIL

1:20



TYPICAL OPENING DETAIL

1:20

Legend

Note:

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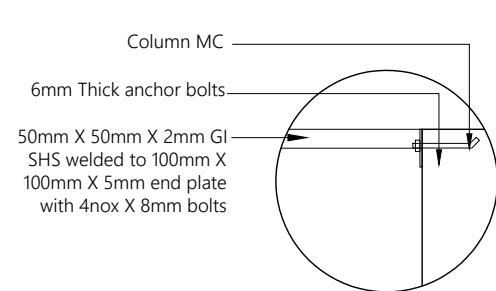
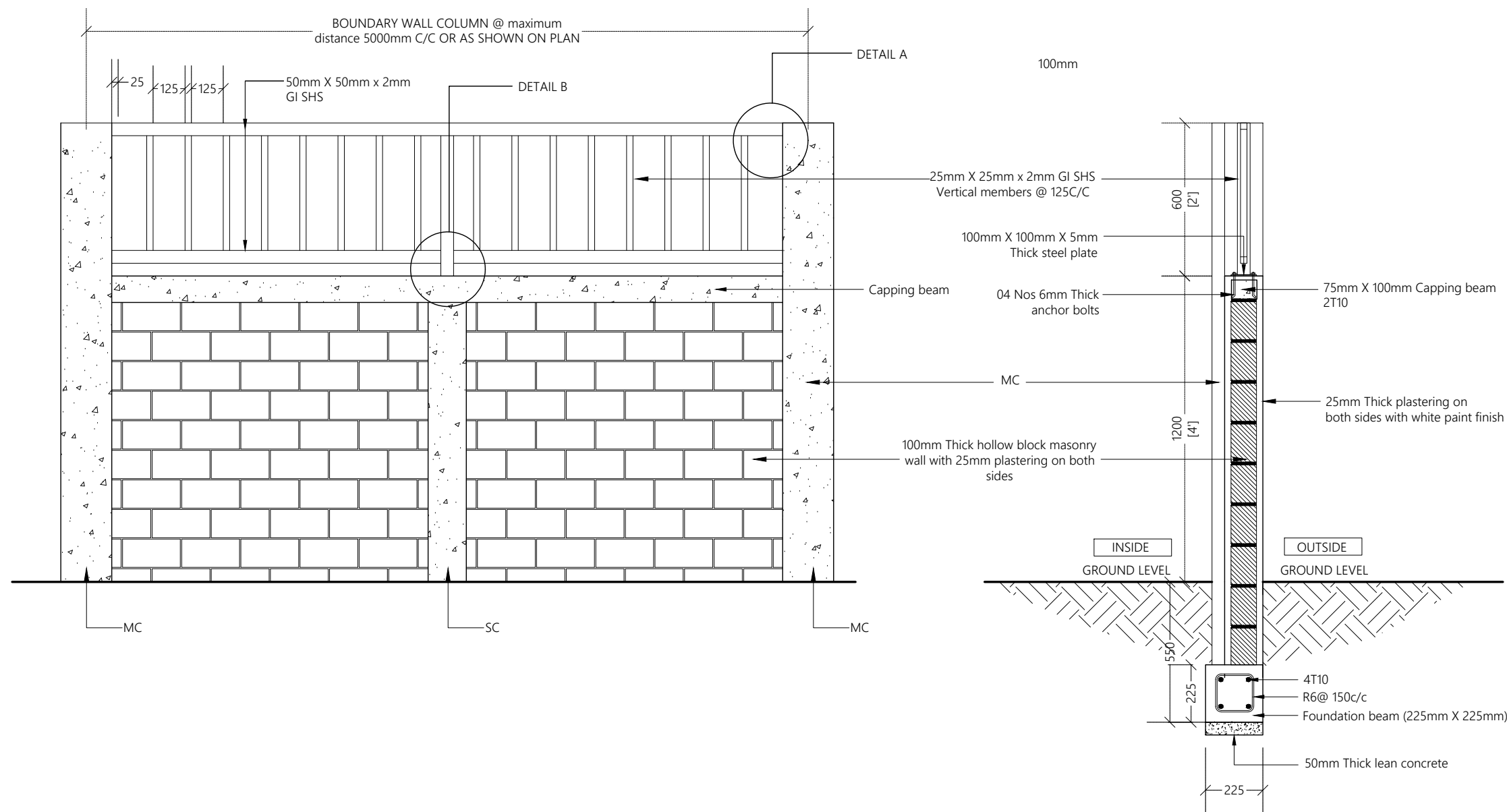
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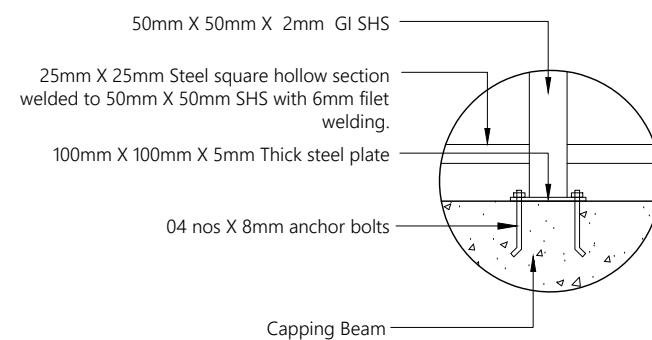
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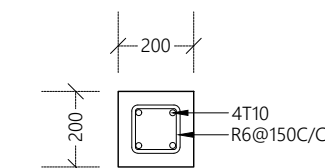
DETAIL A

1:10



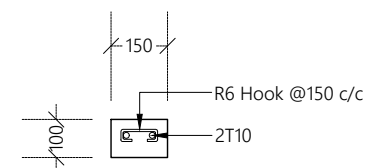
DETAIL B

1:10



(MC)

MAIN COLUMN
@ maximum distance 5000mm C/C



(SC)

STIFFENER COLUMN
(in between two main columns)

NOTE:

- FRAME MATERIAL : Steel gate frame 2.5mm thick GI sections SHS
- All steel members and GI SHS to be applied with 2 coats of anti-corrosive paint with epoxy finishing paint
- Allowance shall be made to fix pad lock in Gates

BOUNDARY WALL DETAIL

1:20

Legend

Note:

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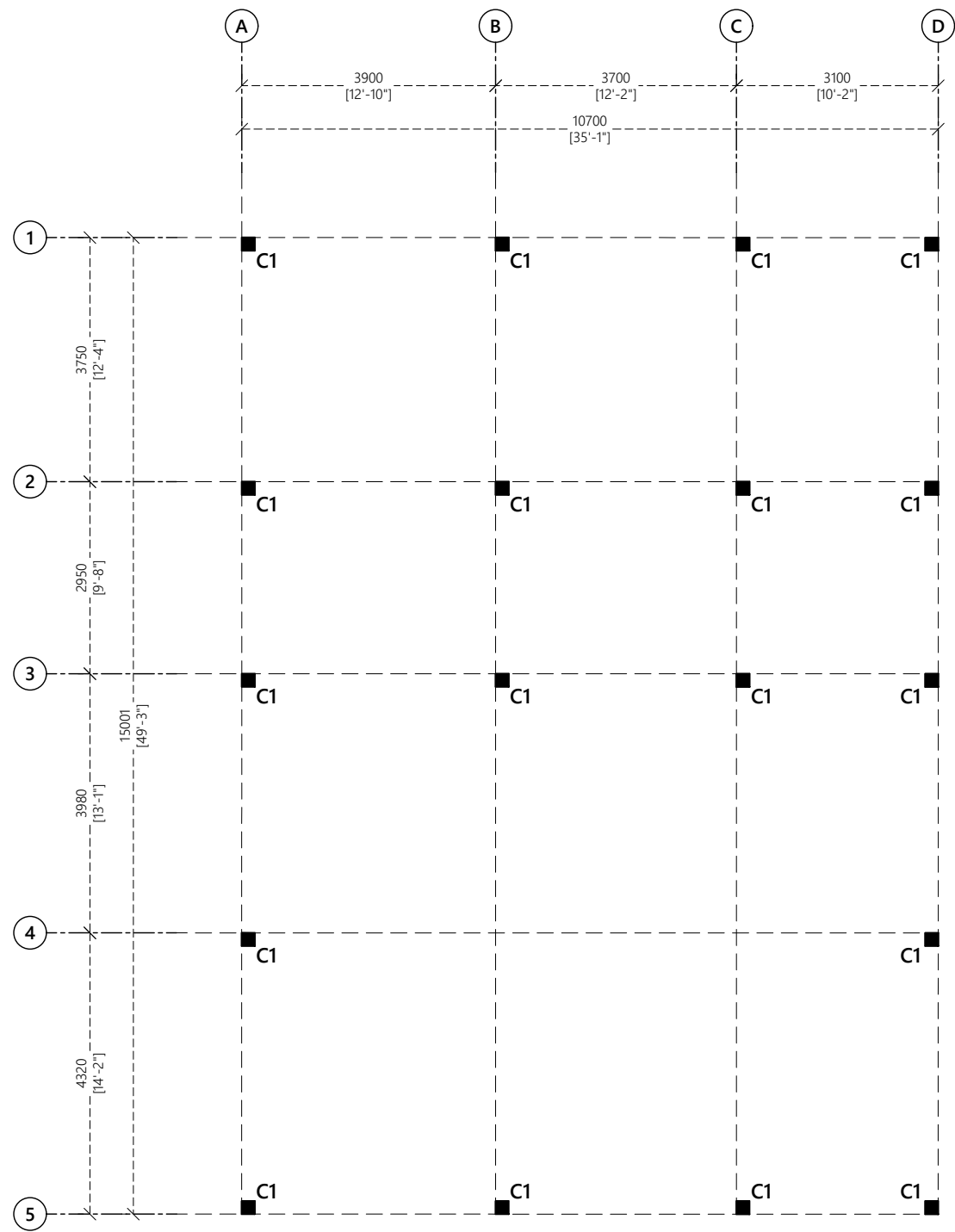
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**Consultancy Services for
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in 6 Islands, Maldives – Package 6**
Sub Title:
Water Supply System in L.Hithadhoo

Client:
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COLUMN LAYOUT PLAN

1:100

Legend

Note:

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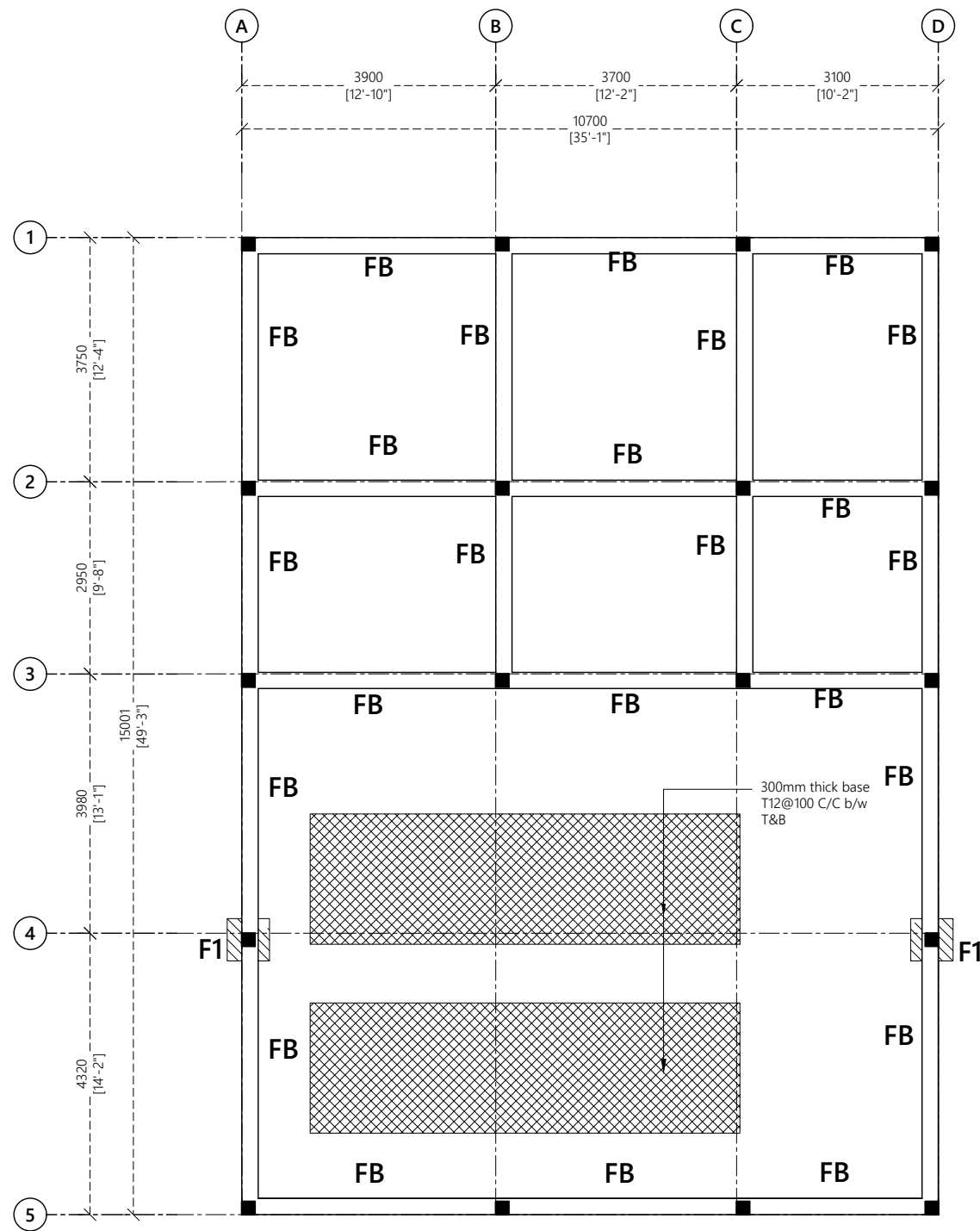
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Project No: 01010101

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Page: S.1 (1)



Notes:

Foundation Depth: 600mm

FOUNDATION PLAN

1:100

Legend

Note:

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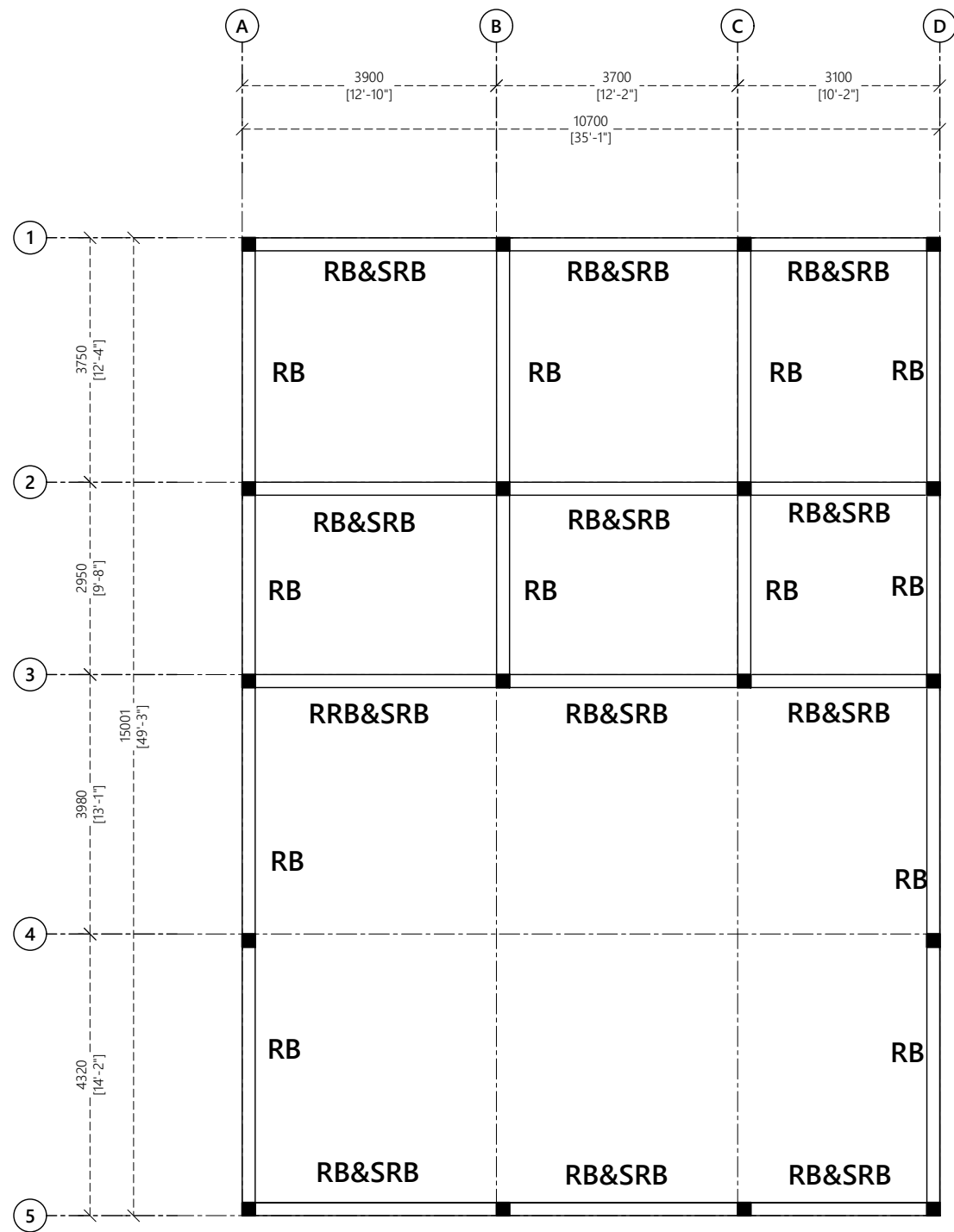
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ROOF BEAM PLAN

1:100

Legend

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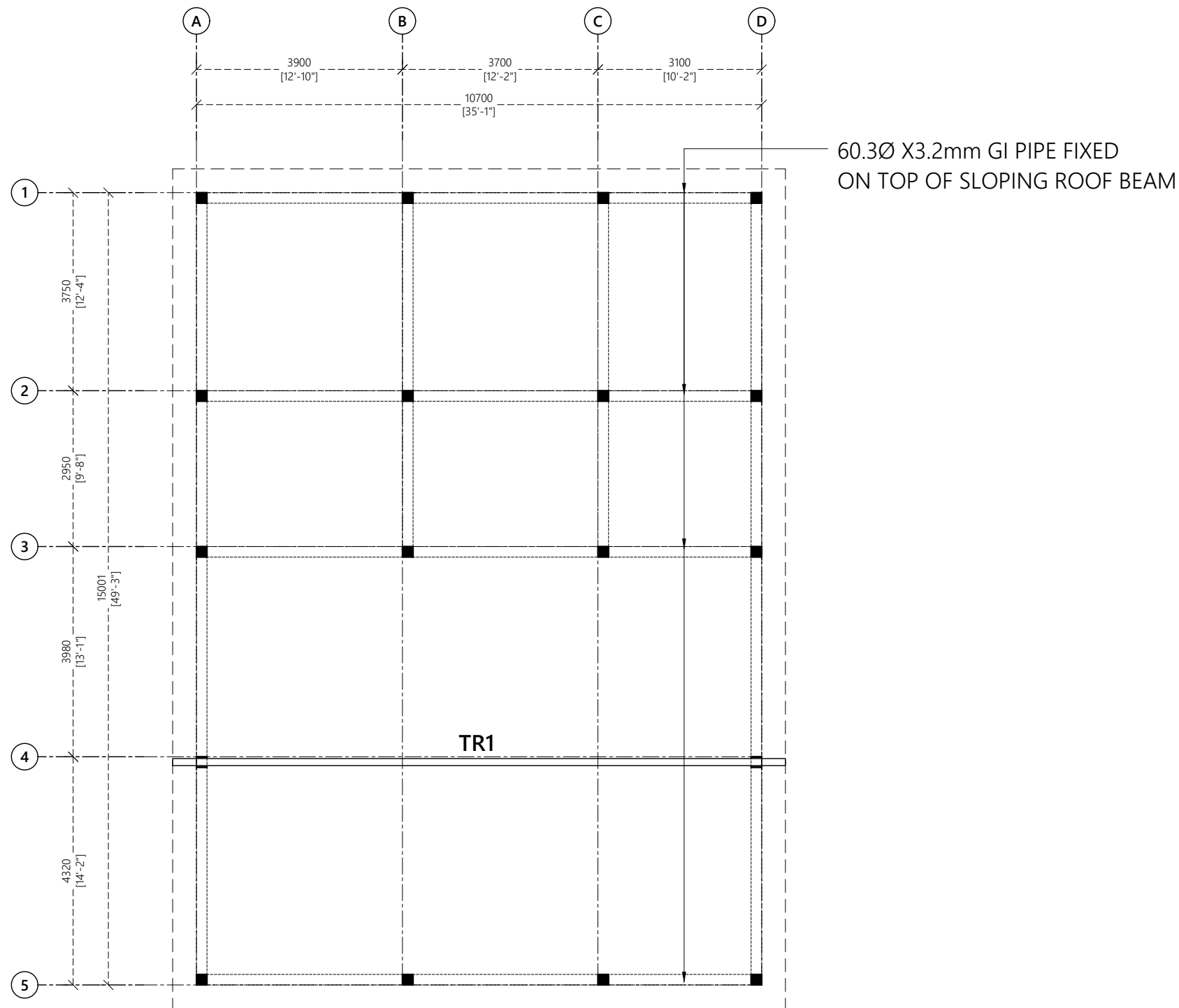
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ROOF TRUSS PLAN

1:100

Legend

Note:

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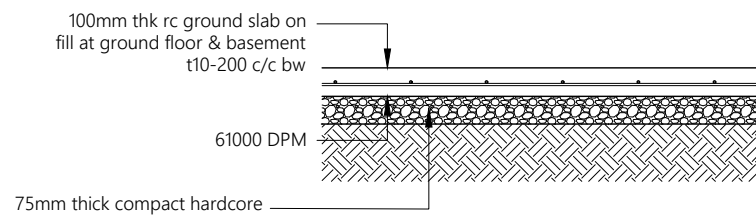
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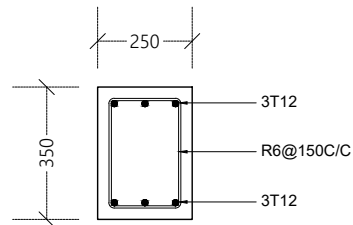


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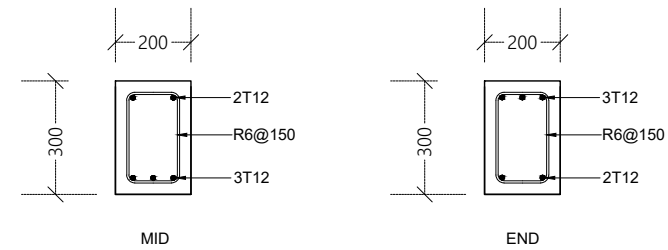
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TYPICAL GROUND SLAB DETAIL

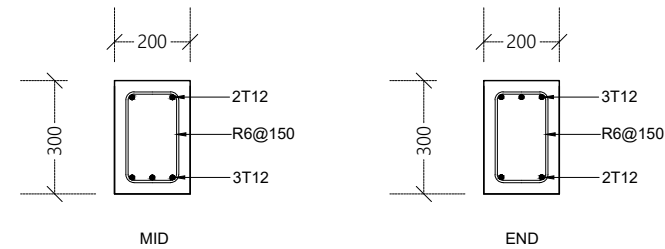
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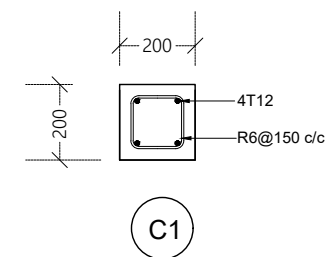
FOUNDATION BEAM (FB)



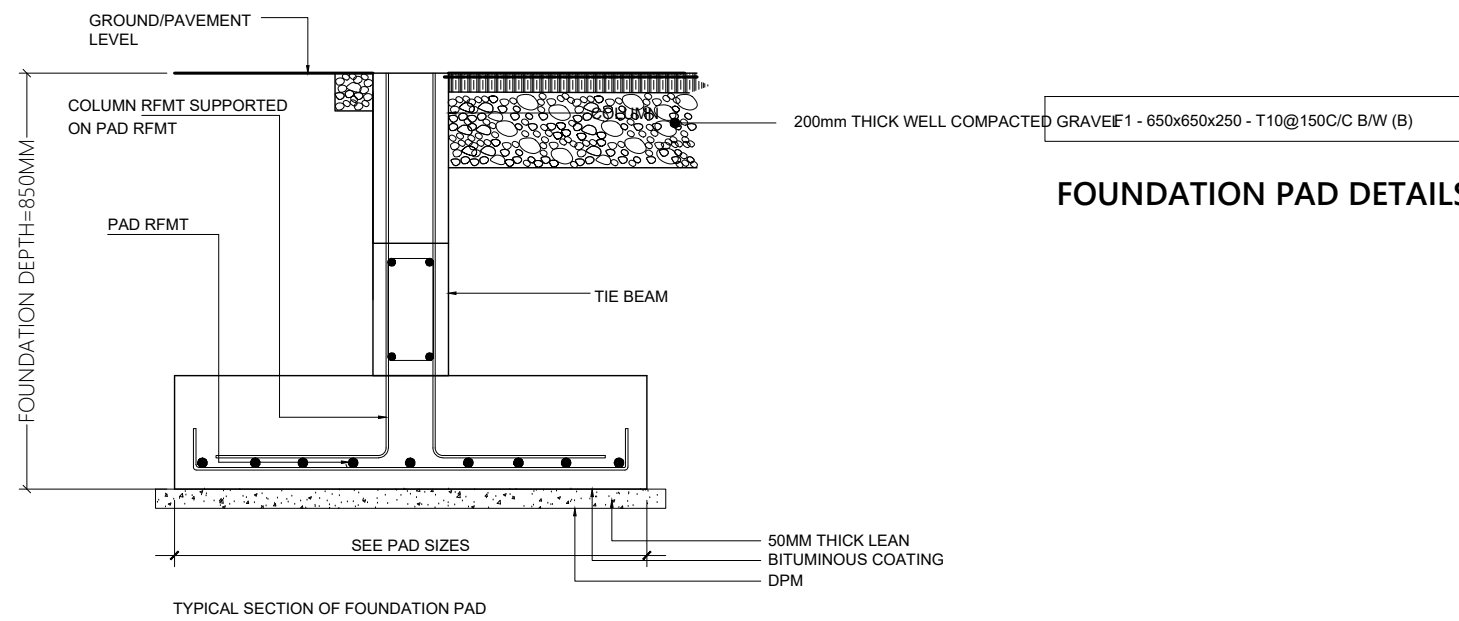
ROOF BEAM (RB)



SLOPING ROOF BEAM (SRB)

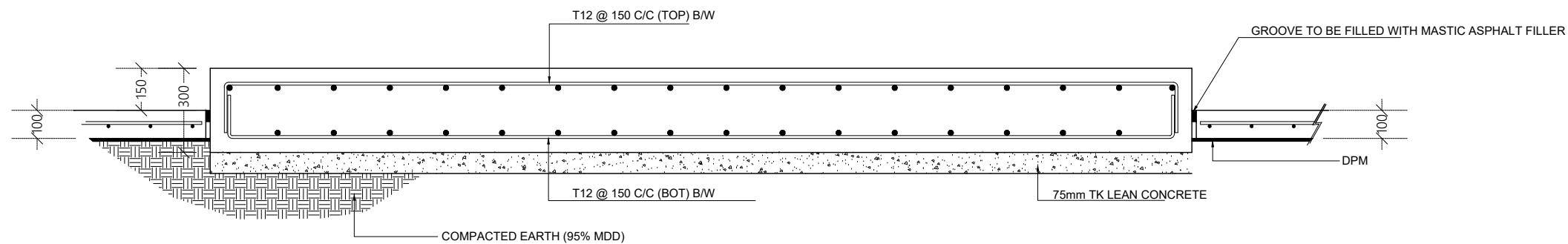


COLUMN DETAIL



FOUNDATION PAD DETAILS

TYPICAL COLUMN SECTION



RO PLANT BASE DETAIL

STRUCTURAL DETAILS

1:20

Legend

Note:

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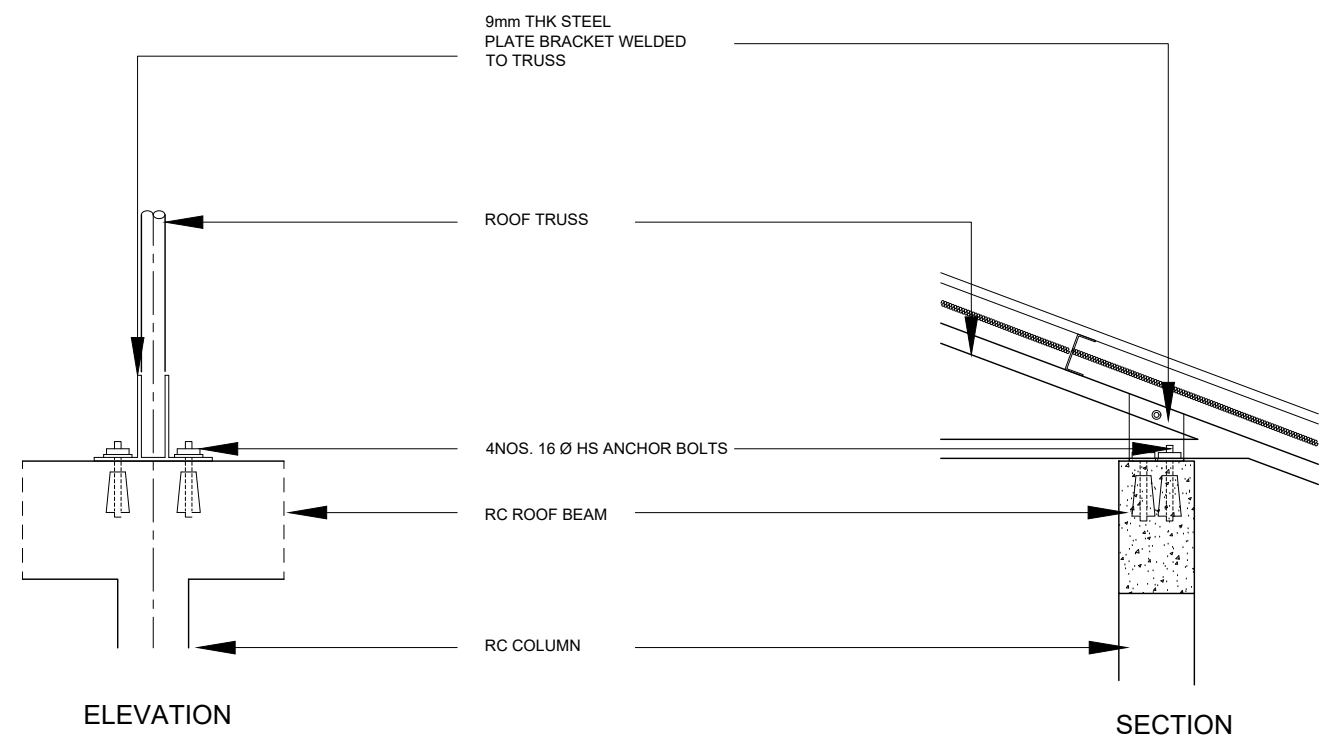
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Survey, Design and EIA works of
Water Supply and Sewerage
Facilities
in 6 Islands, Maldives – Package 6**
Sub Title:
Water Supply System in L.Hithadhoo

Client:
Ministry of National Planning, Housing and
Infrastructure, Republic of Maldives

 EPOCH <small>ASSOCIATES</small>		FEEDBACK INFRA <i>Making Software Happen</i>	
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Designed: A.S.A.		Approved: M.H.	
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DETAIL OF 63 ϕ x3.2MM PIPE FIXED ON GRID 1,3,4 & 5

1:50



Legend

Note:

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DETAIL A

1:20

ARCHITECTURAL AND STRUCTURAL DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

RO PLANT VEHICLE SHED, M.RAIYMANDHOO



Legend

Note:

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Notes:
Foundation Pad Detail:
F1 - 300x300x30 - 100@150C/C R/W (B)

Notes:
*All CHS shall have minimum yield stress of 275N/㎡
*All welds shall be 6mm thick full perimeter fillet welds.
*All Truss ends shall be end capped with 6mm plates
*All truss members shall be protected with anti corrosive coatings

Legend

Note:

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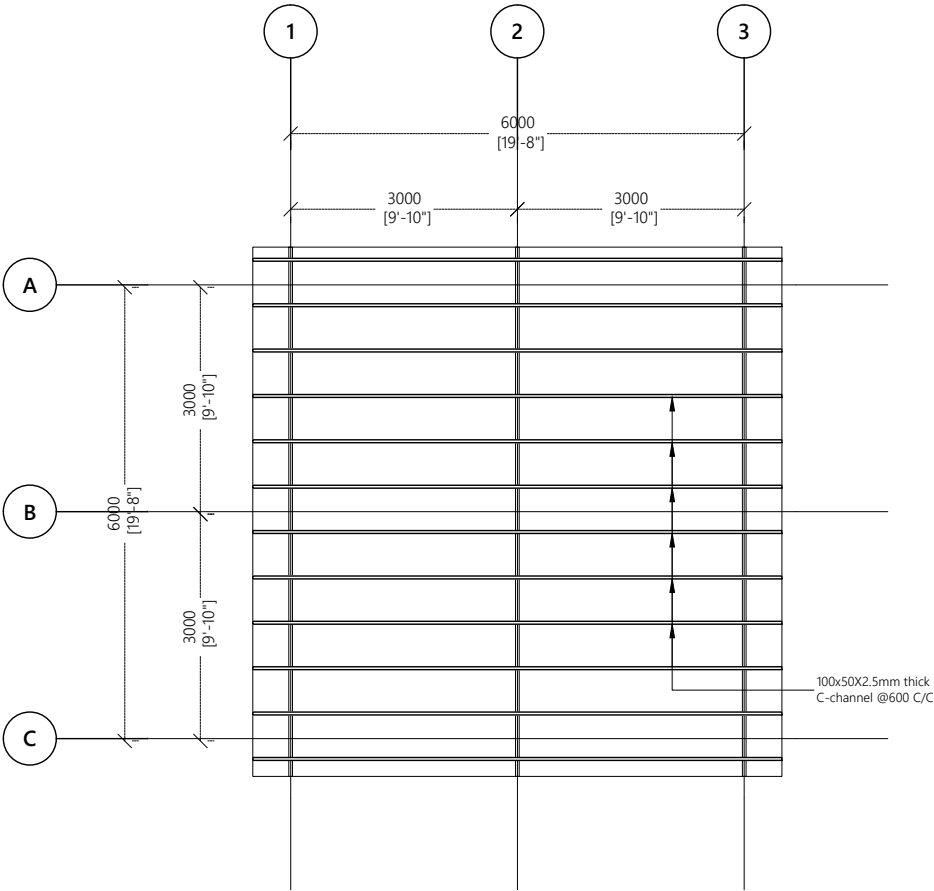
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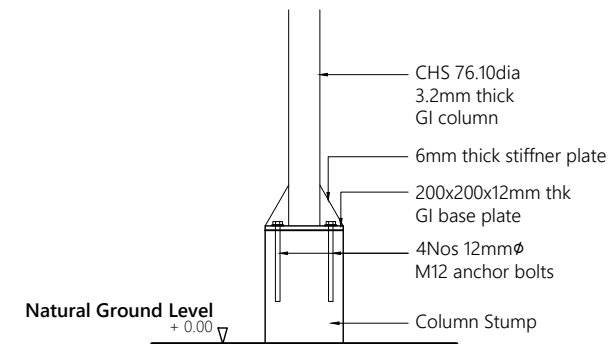


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ROOF FRAMING PLAN

1:100



1:20



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BUILDING SERVICES DRAWINGS OF

PROPOSED SINGLE STOREY BUILDING AT

RO PLANT ADMIN BUILDING, M.RAIYMANDHOO

For Ministry of National Planning, Housing and Infrastructure

CONTENTS

BUILDING SERVICES DRAWINGS	
GROUND FLOOR POWER AND ACV LAYOUT	PAC-01
GROUND FLOOR FDP LAYOUT	FDP-01
GROUND FLOOR LIGHTING LAYOUT	EL-01
GROUND FLOOR PLUMBING LAYOUT	PL-01
GROUND FLOOR DRAINAGE LAYOUT	DR-01
ROOF DRAINAGE LAYOUT	DR-02
SITE LIGHTING LAYOUT	EL-02

Legend

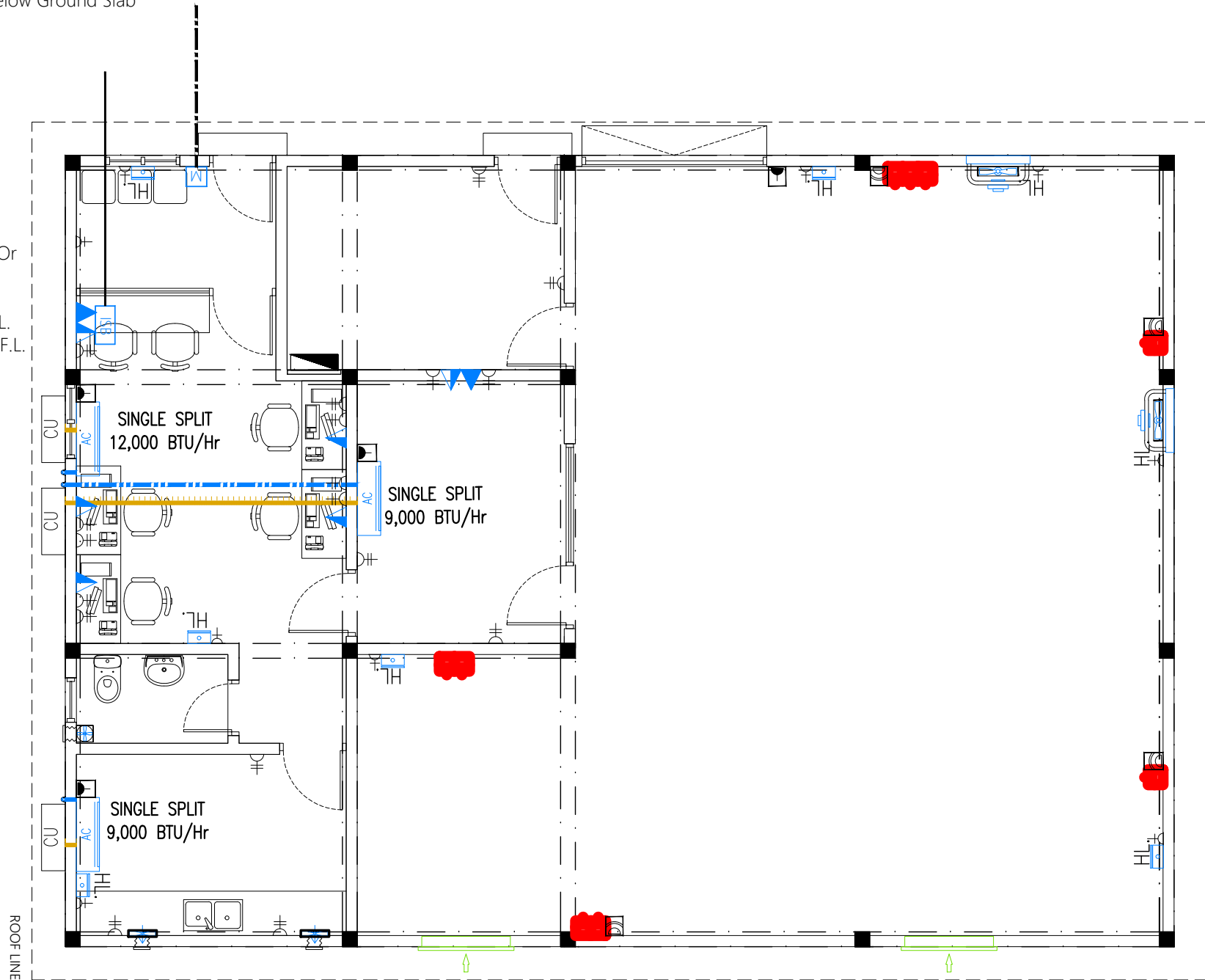
- 13A Twin Socket
- 13A Twin Socket With USB Ports
- 15A Switched Socket @ H.L.
- 15A Socket In Polycarbonate Box
- 15A Switch @ 1200mm From F.F.L.
- 13A Power Socket

- Distribution Board
- HL. High Level
- 82Ø PVC Duct For Tel./Internet Cable Lead In Below Ground Slab
- Main Incoming Cable For Power In 110Ø PVC Duct Below Ground Slab

- ISB Internet Switchboard
- Telephone Outlet
- Computer Network Outlet
- Emergency Light
- Electricity Meter

Notes: -

- All 13A Power Outlets For Kitchen Hood Or Under Cabinet Or Wardrobe Lights At 1800mm From F.F.L.
- All Twin Sockets At 300mm From F.F.L. Except Located At Kitchen Cupboard Area Which Shall Be At 1200mm From F.F.L.
- All Computer, TV And Telephone Points At 300mm From F.F.L.
- All 20A Switched Neon Indicator At 1200mm From F.F.L.



Legend

- Ref
- 250
- 400
- AC
- CU
- Ce
- Wa
- Sin
- Mo
- Fre

Legend

Note:

- All 13A Power Outlets For Kitchen Hood Or Under Cabinet Or Wardrobe Lights At 1800mm From F.F.L.
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GROUND FLOOR POWER AND ACV LAYOUT

1:75



-
- The diagram is a detailed floor plan of a building, likely a school or institutional facility, showing various rooms and their layout. Key features include:
- Rooms and Areas:** The plan includes a kitchen area with a sink and stove, a dining area with tables and chairs, a living area with a sofa and armchair, and several smaller rooms or offices with desks and chairs. There are also restrooms and a storage area.
 - Exits:** Multiple exits are marked with green 'EXIT' signs, indicating the primary egress points from the building.
 - SD (Smoke Detector) and HD (Hazardous Material) Locations:** These are marked with circles containing the respective letters. SD locations are found in the kitchen, dining area, and living area. HD locations are found in the living area and the large open space on the right.
 - Flow and Movement:** Red arrows indicate the direction of flow or movement, showing paths from the kitchen and dining area towards the exits and from the living area towards the exits.
 - Roof Line:** A dashed line on the left side of the plan is labeled 'ROOF LINE', indicating the boundary of the building's roof.

1:75

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-
- This architectural floor plan depicts a building level with various rooms and furniture. The plan includes a large open area on the right, a central corridor, and several smaller rooms on the left. Key features include:
- Rooms and Furniture:** A kitchen area with a sink and stove, a dining area with a table and chairs, a living area with a sofa and armchairs, and a bedroom with a bed and desk. There are also several smaller rooms, possibly bathrooms or storage areas, each containing specific fixtures like sinks, toilets, and showers.
 - Roof Line:** A dashed line labeled "ROOF LINE" indicates the boundary of the building's footprint.
 - Orientation and Scale:** A north arrow is located in the top right corner, and a scale bar is in the bottom right corner.
 - Annotations:** Various numbers (1, 2, 3, 4) and letters (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z) are placed throughout the plan, likely for identification or reference.

GROUND FLOOR LIGHTING LAYOUT

1:75



Note:

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





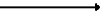

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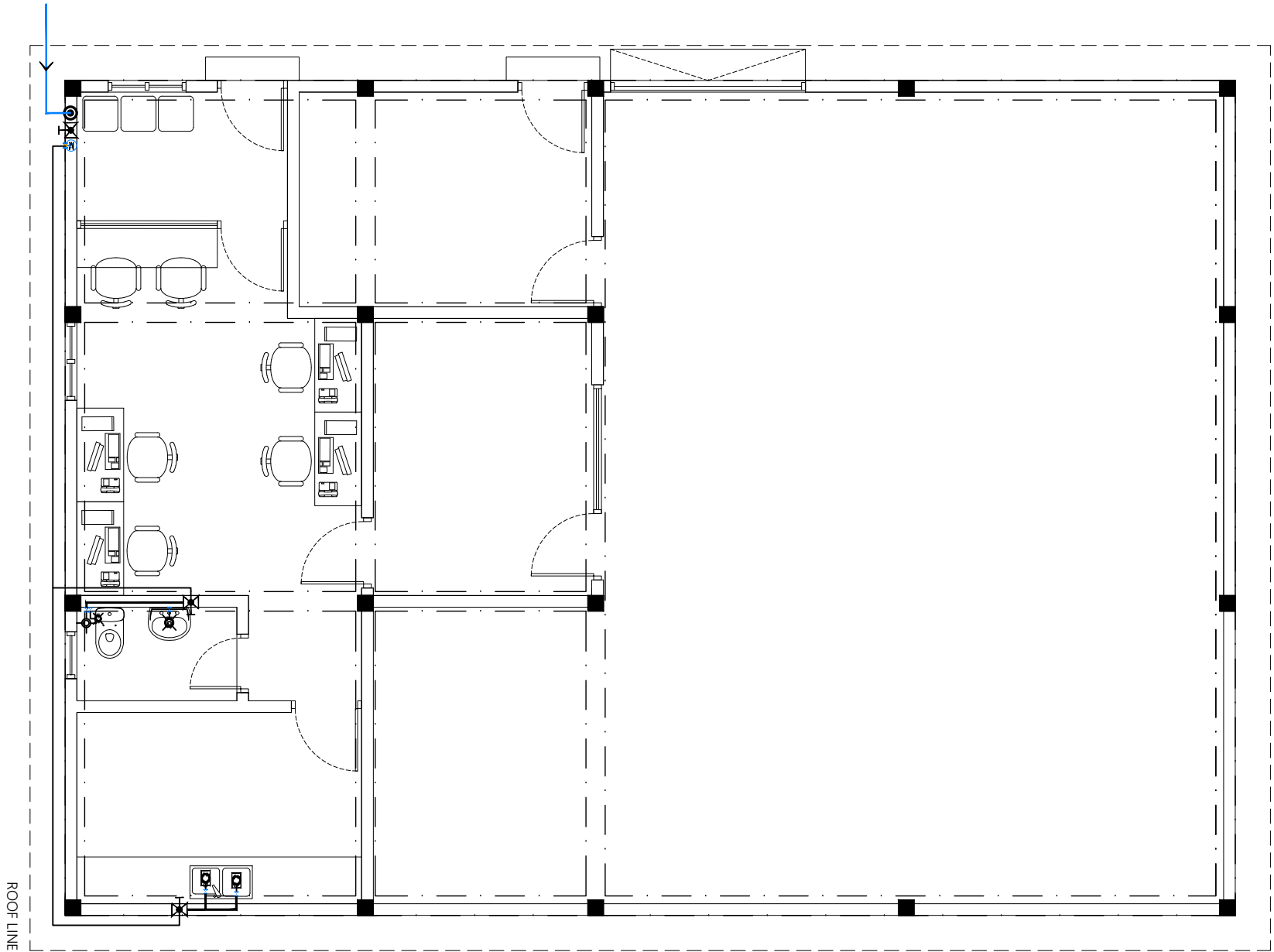


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Legend

-  16Ø Cold Water Supply To Basin Faucet
-  16Ø Cold Water Supply To Bidet Shower
-  16Ø Cold Water Supply To Wall Tap
-  16Ø Cold Water Supply To Cistern
-  Gate Valve
-  Rise In Wall
-  MWSC Meter
-  25Ø Cold Water Supply Pipes Running Underground
-  20Ø Cold Water Supply Pipes Running In Wall

PIPE FROM MAINS SUPPLY



GROUND FLOOR PLUMBING LAYOUT

1:75



Legend

Note:

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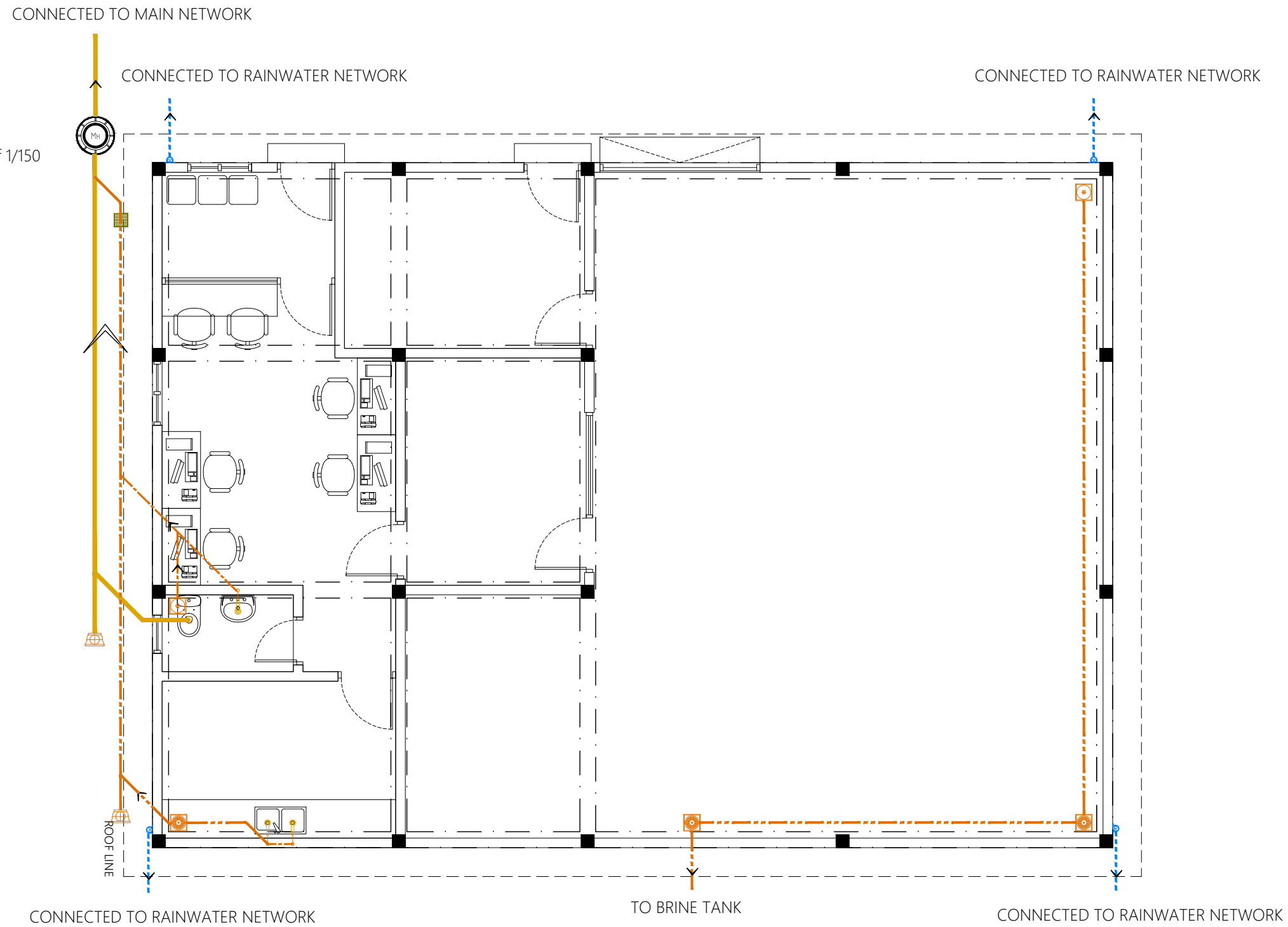
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-  Floor Drain
-  Floor Gully
-  82Ø Soil Pipe (uPVC Pipe)
-  82Ø Soil Vent Pipe (uPVC Pipe)
-  63Ø Waste Pipe (uPVC Pipe)
-  63Ø Waste Vent Pipe (uPVC Pipe)
-  40Ø Waste Pipe (uPVC Pipe)
-  50Ø Manhole Vent Pipe (uPVC Pipe)
-  110Ø Rain Water Pipes (uPVC Pipe)
-  Gully Trap
-  110Ø Rainwater Outlet
-  Clean Out Point
-  Bottle Trap

Notes: -

- All Drainage Pipes Should Have At A Slope Of 1/150
- All Floor Drains Should Have 'P' Traps



1:75



Note:

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Legend

-  Floor Drain
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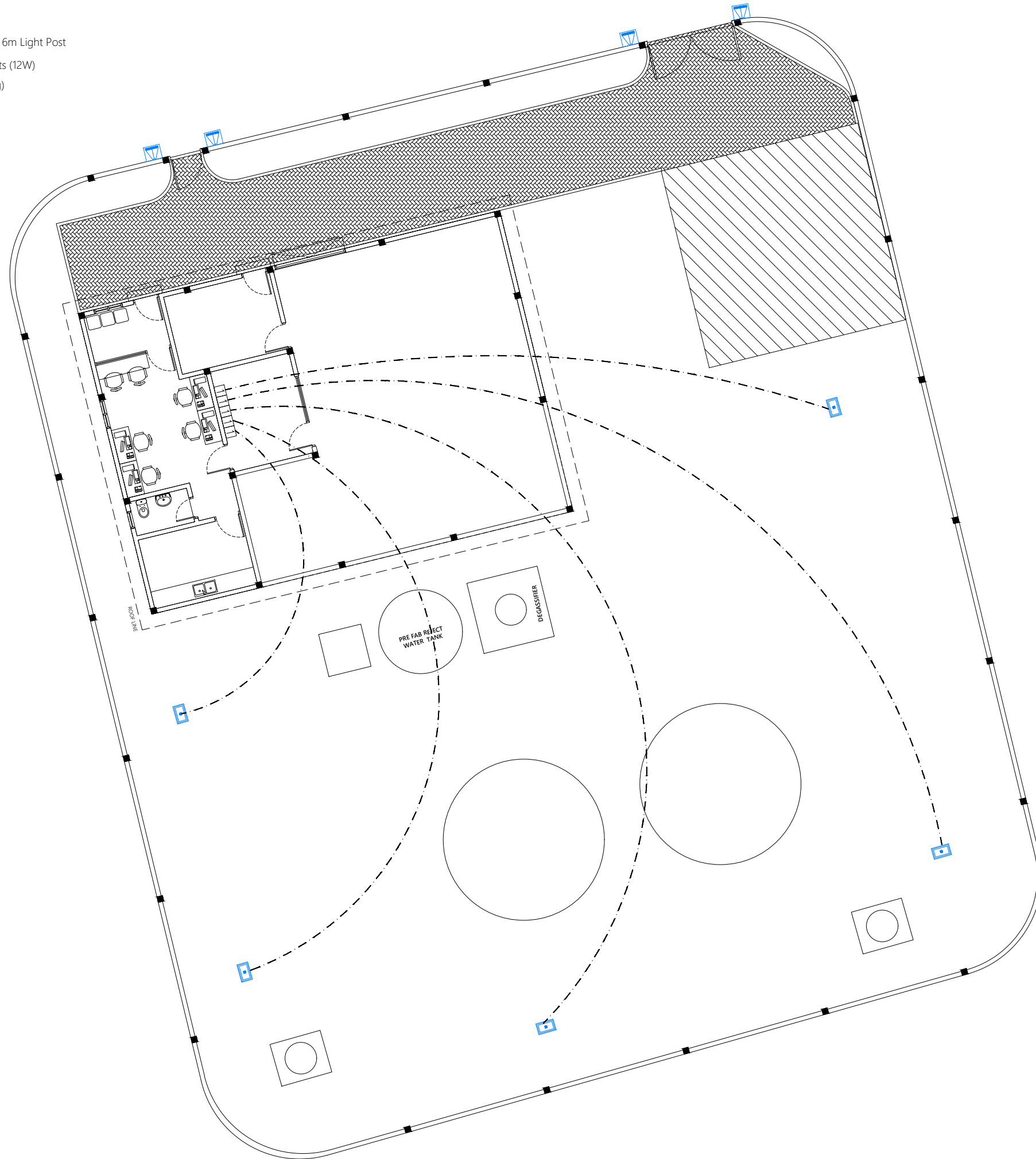
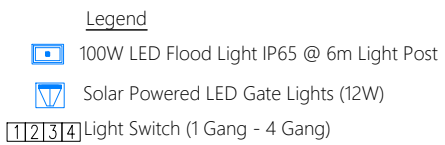


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SITE LIGHTING LAYOUT

1:150

Legend

Note:

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