

REPUBLIC OF KENYA

WAJIR WATER AND SEWERAGE  
COMPANY LIMITED



WATER AND SANITATION DEVELOPMENT PROJECT  
WAJIR FAECAL SLUDGE TREATMENT PLANT PROJECT

DETAILED DRAWINGS  
VOL III

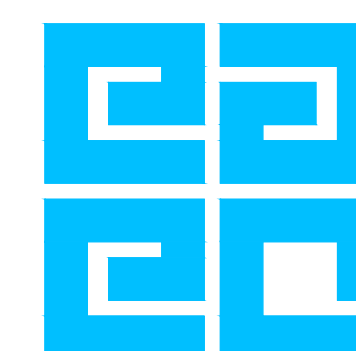
SEPTEMBER 2024



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with



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WAJIR FAECAL SLUDGE TREATMENT PLANT DRAWINGS	
Drawing No	Title
CIVIL AND REINFORCEMENT DRAWINGS	
WFSTP- 1.1.1	WAJIR SITE LAYOUT ( 01 OF 02)
WFSTP- 1.1.1	WAJIR SITE LAYOUT (02 OF 02)
WFSTP- 1.2.1	WAJIR SCHEMATIC FLOW DIAGRAM
WFSTP- 1.3.1	WAJIR HYDRAULIC PROFILE (SHEET 01 OF 01)
WFSTP- 1.4.1	SLUDGE DISCHARGE BAY PLAN,SECTION AND DETAILS (01 OF 02)
WFSTP- 1.4.1	SLUDGE DISCHARGE BAY REINFORCEMENT DETAILS (02 OF 02)
WFSTP- 1.5.1	MIXED SLUDGE ANAEROBIC BASIN PLAN,SECTIONS AND DETAILS (01 OF 02)
WFSTP- 1.5.1	MIXED SLUDGE ANAEROBIC BASIN REINFORCEMENT DETAILS (02 OF 02)
WFSTP- 1.5.2	SLUDGE PUMP STATION PLAN (01 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION SECTIONS AND DETAILS (02 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION SECTIONS AND DETAILS (03 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION ROOF AND FINISHES PLANS (04 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION ELEVATIONS (05 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION PLAN SECTION AND REINFORCEMENT DETAILS (06 OF 07)
WFSTP- 1.5.2	SLUDGE PUMP STATION BEAM LAYOUT AND ROOF LAYOUT  DETAILS (07 OF 07)
WFSTP- 1.5.3	SLUDGE DRYING BED GENERAL ARRANGEMENT (01 OF 04)
WFSTP- 1.5.3	SLUDGE DRYING BED GENERAL LAYOUT (02 OF 04)
WFSTP- 1.5.3	SLUDGE DRYING BED SECTIONS (03 OF 04)
WFSTP- 1.5.3	SLUDGE DRYING BED REINFORCEMENT DETAILS(04 OF 04)
WFSTP- 1.5.4	INFLUENT DISTRIBUTION CHAMBER 1 ( IDC 1) PLAN AND SECTION DETAILS (01 OF 04)
WFSTP- 1.5.4	INFLUENT DISTRIBUTION CHAMBER 2 ( IDC 2) PLAN AND SECTION DETAILS (02 OF 04)
WFSTP- 1.5.4	INFLUENT DISTRIBUTION CHAMBER 3 ( IDC 3) PLAN AND SECTION DETAILS (03 OF 04)
WFSTP- 1.5.4	INFLUENT DISTRIBUTION CHAMBER 4 ( IDC 4) PLAN AND SECTION DETAILS (04  OF 04)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS PLANS,SECTIONS AND DETAILS (01 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS INLET CHAMBER PLANS,SECTIONS AND DETAILS (02 OF 08)






					Design Consultant:		Drawn by: J.K.M	Date: SEP 2024	Client:	Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY
							Designed by: P.M.M	Date: SEP 2024		
							Checked by: T.J.O	Date: SEP 2024		Drawing Title: DETAILED DESIGN
					Systel Engineering Limited		Approved by: J.K.W	Date: SEP 2024		WAJIR FAECAL SLUDGE TREATMENT PLANT DRAWING LIST
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REV	Description	Sign	Date	Approved						Financier: WORLD BANK
REVISIONS							Contract No:			Scale: AS SHOWN
										Sheet No: 1 / 4
										Drawing No: WFSTP -



WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS TYPICAL OUTLET PLANS,SECTIONS AND DETAILS (03 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS ACCESS RAMP PLANS,SECTIONS AND DETAILS (04 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS DRAINAGE SUMP PLATFORM PLAN,SECTIONS AND TYPICAL PIER DETAILS (05 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS REINFORCEMENT DETAILS (06 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS REINFORCEMENT DETAILS (07 OF 08)
WFSTP- 1.6.1	PRIMARY ANAEROBIC PONDS REINFORCEMENT DETAILS (08 OF 08)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS PLANS,SECTIONS AND DETAILS (01 OF 06)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS TYPICAL INLET AND FEED PIER PLANS,SECTIONS AND DETAILS (02 OF 06)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS TYPICAL OUTLET PLANS,SECTIONS AND DETAILS (03 OF 06)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS ACCESS RAMP PLANS,SECTIONS AND DETAILS (04 OF 06)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS REINFORCEMENT DETAILS (05 OF 06)
WFSTP- 1.6.2	SECONDARY ANAEROBIC PONDS REINFORCEMENT DETAILS (06 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS PLANS,SECTIONS AND DETAILS (01 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS INLET CHAMBER AND FEED PIPE PIER PLANS,SECTIONS AND DETAILS (02 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS TYPICAL OUTLET CHAMBER PLAN,SECTIONS AND DETAILS(03 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS ACCESS RAMP PLAN,SECTIONS AND DETAILS (04 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS REINFORCEMENT DETAILS (05 OF 06)
WFSTP- 1.6.3	FACULTATIVE PONDS REINFORCEMENT DETAILS (06 OF 06)
WFSTP- 1.7.1	MATURATION PONDS PLANS,SECTIONS AND DETAILS (01 OF 06)
WFSTP- 1.7.1	MATURATION PONDS INLET CHAMBER AND FEED PIPE PIER PLANS,SECTIONS AND DETAILS (02 OF 0)6
WFSTP- 1.7.1	MATURATION PONDS TYPICAL OUTLET CHAMBER PLANS,SECTIONS AND DETAILS (03 OF 0)6
WFSTP- 1.7.1	MATURATION PONDS ACCESS RAMP PLAN,SECTIONS AND DETAILS (04 OF 06)
WFSTP- 1.7.1	MATURATION PONDS INLET CHAMBER AND FEED PIPE PIER PLANS REINFORCEMENT DETAILS (05 OF 06)
WFSTP- 1.7.1	MATURATION PONDS TYPICAL OUTLET CHAMBER REINFORCEMENT DETAILS (06 OF 06)
WFSTP- 1.7.2	CONSTRUCTED WETLAND GENERAL ARRANGEMENT LAYOUT (01 OF 03)
WFSTP- 1.7.2	CONSTRUCTED WETLAND PLAN (02 OF 03)
WFSTP- 1.7.2	CONSTRUCTED WETLAND SECTIONS AND DETAILS (03 OF 03)
WFSTP- 1.8.1	BIOSOLIDS SLABS ARRANGEMENT LAYOUT (01 OF 05)
WFSTP- 1.8.1	BIOSOLIDS SLABS PLAN,SECTIONS AND DETAILS (02 OF 05)
WFSTP- 1.8.1	BIOSOLIDS SLABS ARRANGEMENT REINFORCEMENT DETAILS (03 OF 05)
WFSTP- 1.8.1	BIOSOLIDS SLABS REINFORCEMENT DETAILS (04 OF 05)





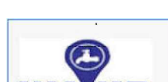

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WFSTP- 1.8.1	BIOSOLIDS SLABS REINFORCEMENT DETAILS (05 OF 05)
WFSTP-R-1.1	ROADS AND PARKING LAYOUT (01 OF 21)
WFSTP-R-1.1	ROADS AND PARKING LAYOUT (02 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (03 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (04 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (05 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (06 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (07 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (08 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (09 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (10 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (11 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (12 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (13 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (14 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (15 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (16 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (17 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (18 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (19 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (20 OF 21)
WFSTP-R-1.1	ACCESS ROADS PLAN AND PROFILE (21 OF 21)
ELECTRICAL DRAWINGS	
WFSTP--EM- 1.1.3	WAJIR  ELECTRICAL GENERAL LAYOUT
WFSTP--EM- 2.0.1	MECHANICAL PUMP STATION PLAN AND ELEVATION DRAWINGS  (01 OF 02)
WFSTP--EM- 2.0.1	MECHANICAL PUMP STATION PLAN AND ELEVATION DRAWINGS  (02 OF 02)

					<div>Design Consultant:</div> <div><div>SYSTEL ENGINEERING LTD</div></div> <div>Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 191709 - 00100 Nairobi, Kenya Tel: +254(0)791329680/ 726038006 E-mail: consulting@systelengineering.com</div>	<div>in cooperation with</div> <div><div>EAST AFRICAN ENGINEERING CONSULTANTS</div></div> <div>Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com</div>	<div><div>Sanivation</div><div>Sanitation as a Service</div></div> <div>SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 362 Naivasha Kenya Tel: +254729465035, +25472679842 E-mail: info@sanivation.com www.sanivation.com</div>	<div>Drawn by: J.K.M      Date: SEP 2024</div> <div>Designed by: P.M.M      Date: SEP 2024</div> <div>Checked by: T.J.O      Date: SEP 2024</div> <div>Approved by: J.K.W      Date: SEP 2024</div> <div>Project No:</div> <div>Contract No:</div>	<div>Client:</div> <div><div>WAJIR WATER AND SEWERAGE COMPANY LIMITED</div></div> <div>Financier:</div> <div><div>WORLD BANK</div></div>	<div>Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY</div> <div>Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT DRAWING LIST</div> <div>Scale: AS SHOWN      Sheet No: 3 / 4      Drawing No: WFSTP -</div>
REV      Description      Sign      Date      Approved					REVISIONS					



WFSTP--EM- 2.3.3	GUARD HOUSE LIGHTING AND POWER LAYOUTS (01 OF 02)
WFSTP--EM- 2.3.4	GUARD HOUSE CCU SCHEMATICS (02 OF 02)
WFSTP--EM- 2.5.4	GENERATOR HOUSE ELECTRICAL LIGHTING AND POWER LAYOUT (01 OF 02)
WFSTP--EM- 2.5.5	GENERATOR HOUSE CCU SCHEMATICS (02 OF 02)
WFSTP--EM- 2.6.4	OPERATIONS BUILDING ELECTRICAL LIGHTING,POWER LAYOUT AND CCU SCHEMATICS (01 OF 01)
WFSTP--EM- 2.7.1	ELECTRICAL MAIN LV PANEL SCHEMATICS (01 OF 02)
WFSTP--EM- 2.7.2	PUMP STARTER PANEL SCHEMATICS (02 OF 02)
WFSTP--EM- 2.8.1	ELECTRICAL LEGEND (01 OF 01)
STANDARD DRAWINGS	
WFSTP - SD -2.1.1	PROJECT SIGN BOARD
WFSTP - SD - 2.2.1	GATE AND FENCE DETAILS
WFSTP - SD -2.3.1	GUARD HOUSE PLAN AND SECTIONS (01 OF 03)
WFSTP - SD -2.3.1	GUARD HOUSE ROOF, SECTION AND ELEVATION DETAILS (02 OF 03)
WFSTP - SD -2.3.1	GUARD HOUSE LAYOUT, BEAM AND COLUMN REINFORCEMENT DETAILS (03 OF 03)
WFSTP-SD - 2.4.1	SOLAR SECURITY LIGHTING POLE PLAN,SECTION AND REINFORCEMENT DETAILS (01 OF 01)
WFSTP - SD - 2.4.2	SOLAR SECURITY HIGH MAST LIGHTS PLAN, SECTION AND REINFORCEMENT DETAILS (01 OF 01)
WFSTP - SD - 2.5.1	GENERATOR HOUSE PLAN (01 OF 05)
WFSTP - SD - 2.5.1	GENERATOR HOUSE SECTIONS AND DETAILS (02 OF 05)
WFSTP - SD - 2.5.1	GENERATOR HOUSE ELEVATIONS VIEWS (03 OF 05)
WFSTP - SD - 2.5.1	GENERATOR HOUSE FOUNDATION, BEAM AND COLUMN REINFORCEMENT DETAILS (04 OF 05)
WFSTP - SD - 2.5.1	GENERATOR HOUSE ROOF TRUSS DETAILS (05 OF 05)
WFSTP - SD - 2.6.1	OPERATIONS BUILDING PLAN AND SECTIONS (01 OF 04)
WFSTP - SD - 2.6.2	OPERATIONS BUILDING SECTIONS AND ELEVATIONS (02 OF 04)
WFSTP - SD - 2.6.3	OPERATIONS BUILDING FOUNDATION AND GROUND FLOOR REINFORCEMENT DETAILS (03 OF 04)
WFSTP - SD - 2.6.4	OPERATIONS BUILDING ROOF AND BEAM LAYOUT REINFORCEMENT AND DETAILS (04 OF 04)

					Design Consultant:		Drawn by:	J.K.M	Date:	SEP 2024	Client:	Project:			CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY							
						in cooperation with								WAJIR WATER AND SEWERAGE COMPANY LIMITED			Drawing Title:	DETAILED DESIGN				
					Systel Engineering Limited 5th Floor,Wing II, CIG Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)791329680/ 726038006 E-mail:consulting@systelengineering.com	EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No. 3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com	SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 382 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com	Approved by:	J.K.W	Date:	SEP 2024	Financier:		WORLD BANK			Scale:	AS SHOWN	Sheet No:	4 / 4	Drawing No:	WFSTP -
REV	Description	Sign	Date	Approved																		
REVISIONS																						

WFSTP - SD - 2.7.1	20M3 HIGH STEEL ELEVATED TANK PLAN,SECTIONS AND REINFORCEMENT DETAILS (01 OF 01)
WFSTP - SD - 2.8.1	SEPTIC TANK PLAN,SECTIONS AND REINFORCEMENT DETAILS (01 OF 01)
WFSTP - SD - 2.9.1	GENERAL NOTES ON ARCHITECTURAL FINISHES SCHEDULE (01 OF 01)
WFSTP - SD - 2.10.1	INCINERATOR SHED FLOOR PLAN AND ROOF PLAN (01 OF 03)
WFSTP - SD - 2.10.2	INCINERATOR SHED ELEVATIONS (02 OF 03)
WFSTP - SD - 2.10.3	INCINERATOR SHED FOUNDATION, BEAM AND SECTIONS REINFORCEMENT DETAILS (03 OF 03)

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NOTES

1. THE DIMENSIONS ARE IN METRES

LEGEND

- FENCE
- ROAD
- GATE
- MANHOLE
- RAMP
- WATER GATE VALVE
- CONTOURS
- DIRECTION FLOW
- SUPERNATANT DRAW OFF PIPE
- PROPOSED PHASE 1
- PROPOSED PHASE 2
- ANAEROBIC POND
- MATURATION POND
- CONSTRUCTED WETLAND
- SLUDGE DRYING BED
- INFLUENT DISTRIBUTION CHAMBER

					Design Consultant:					Drawn by: J.K.M Date: SEP 2024					Client:					Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
										Designed by: P.M.M Date: SEP 2024										Drawing Title: DETAILED DESIGN				
					Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com					Checked by: T.J.O Date: SEP 2024					Financier:					WAJIR FAECAL SLUDGE TREATMENT PLANT				
					in cooperation with  EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72368-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com					Approved by: J.K.W Date: SEP 2024										Scale: 1:1000				
					SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 282 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com					Contract No:					Sheet No: 1 / 2					Drawing No: WFSTP - 1.1				
REV					Description					Sign					Date					Approved				
					REVISIONS																			





NOTES

1. THE DIMENSIONS ARE IN METRES

LEGEND

- FENCE
- ROAD
- GATE
- MANHOLE
- RAMP
- WATER GATE VALVE
- CONTOURS
- DIRECTION FLOW
- DIRECTION FLOW
- PROPOSED PHASE 1
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- AP ANAEROBIC POND
- MP MATURATION POND
- CW CONSTRUCTED WETLAND
- SDB SLUDGE DRYING BED
- IDC INFLUENT DISTRIBUTION CHAMBER

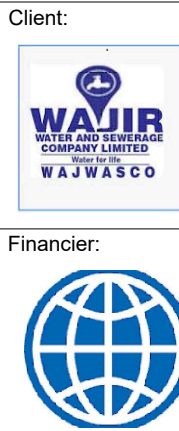
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
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in cooperation with  
**EAST AFRICAN ENGINEERING CONSULTANTS**  
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**SANIVATION LIMITED**  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

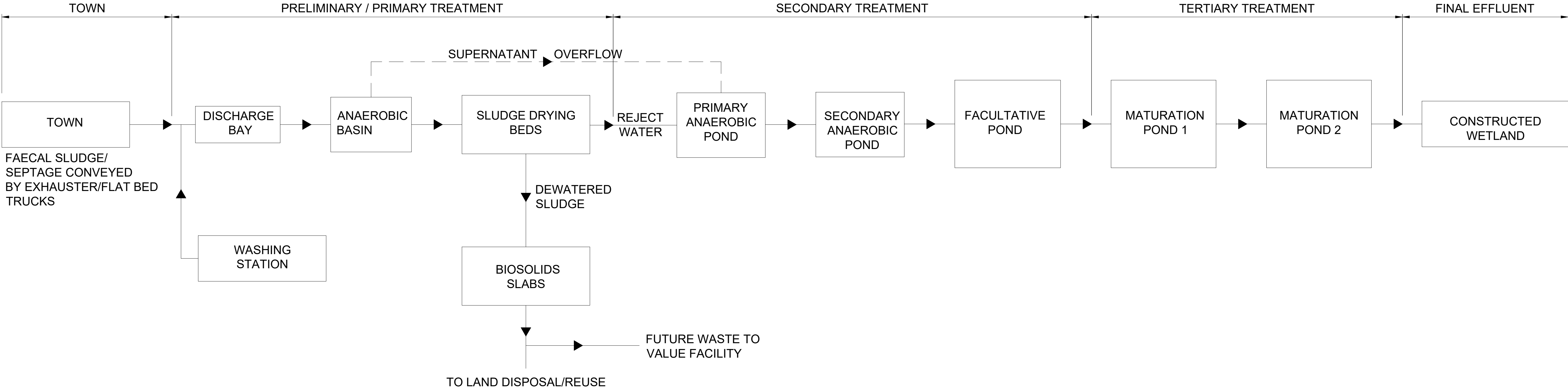


WAJIR WATER AND SEWERAGE COMPANY LIMITED






WORLD BANK

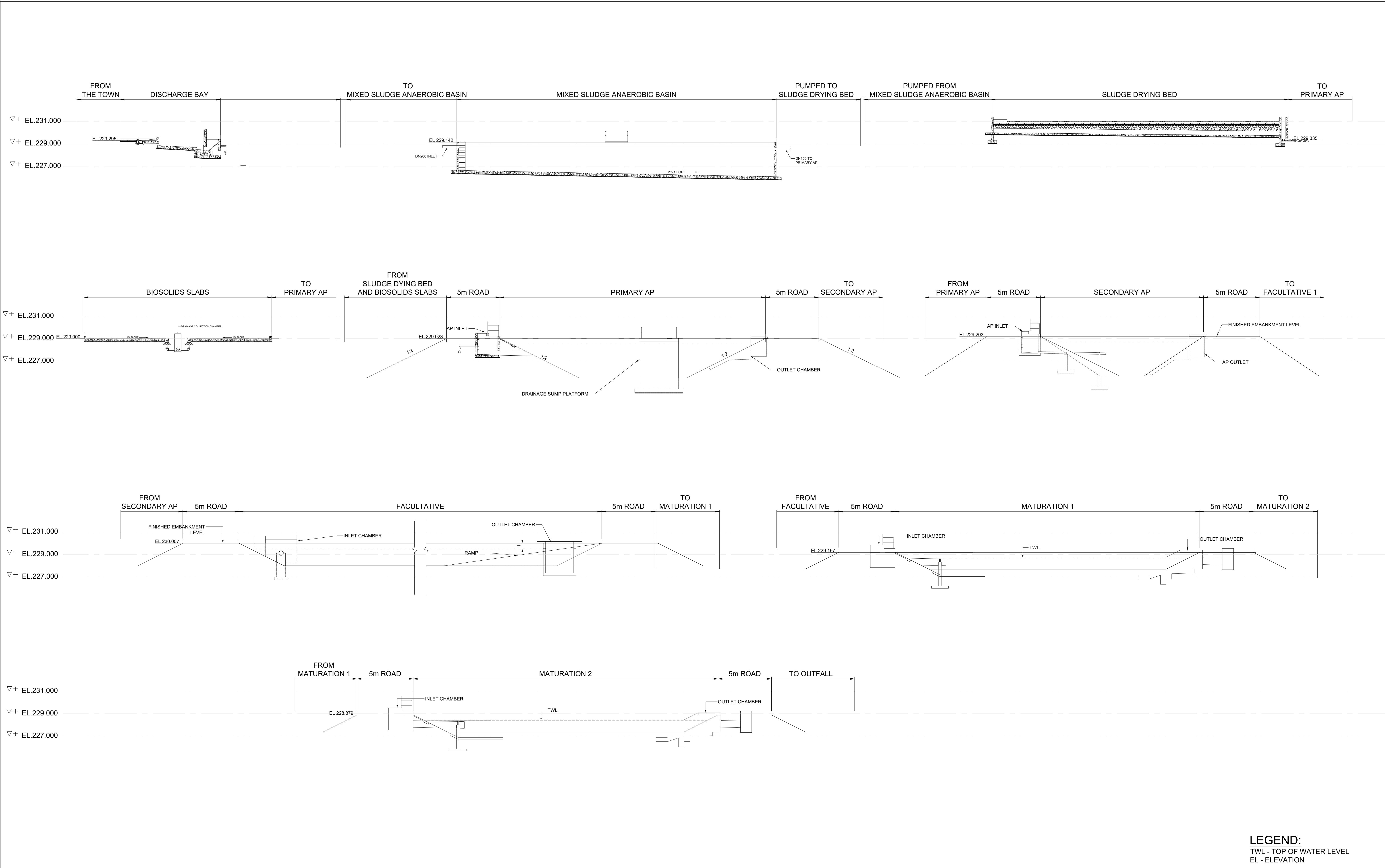
Project:	CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title:	DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT GENERAL LAYOUT		
Scale:	1:1000	Sheet No:	2 / 2
Drawing No:	WFSTP - 1.1		





PROCESS SCHEMATIC DRAWING FOR WAJIR FAECAL SLUDGE TREATMENT PLANT WORKS

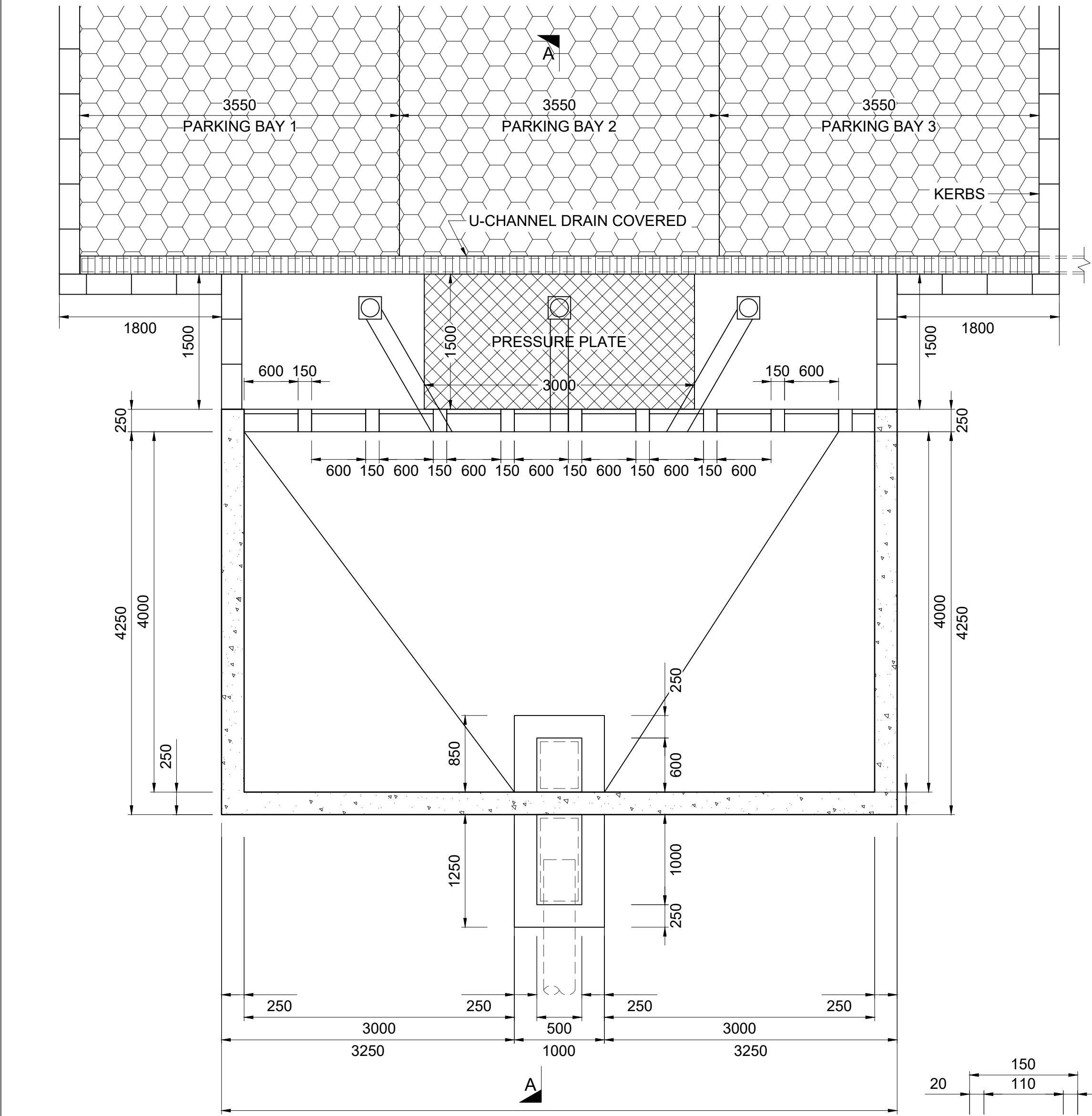
					Design Consultant:					Drawn by: J.K.M Date: SEP 2024					Client:					Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
										Designed by: P.M.M Date: SEP 2024										Drawing Title: DETAILED DESIGN				
					Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com					Checked by: T.J.O Date: SEP 2024					Financier:					WAJIR FAECAL SLUDGE TREATMENT PLANT PROCESS FLOW SCHEMATIC DIAGRAM				
					in cooperation with					Approved by: J.K.W Date: SEP 2024										Scale: AS SHOWN				
										Project No:					WORLD BANK					Sheet No: 1 / 1				
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					EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72368-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com																			
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REV					Description					Sign					Date					Approved				
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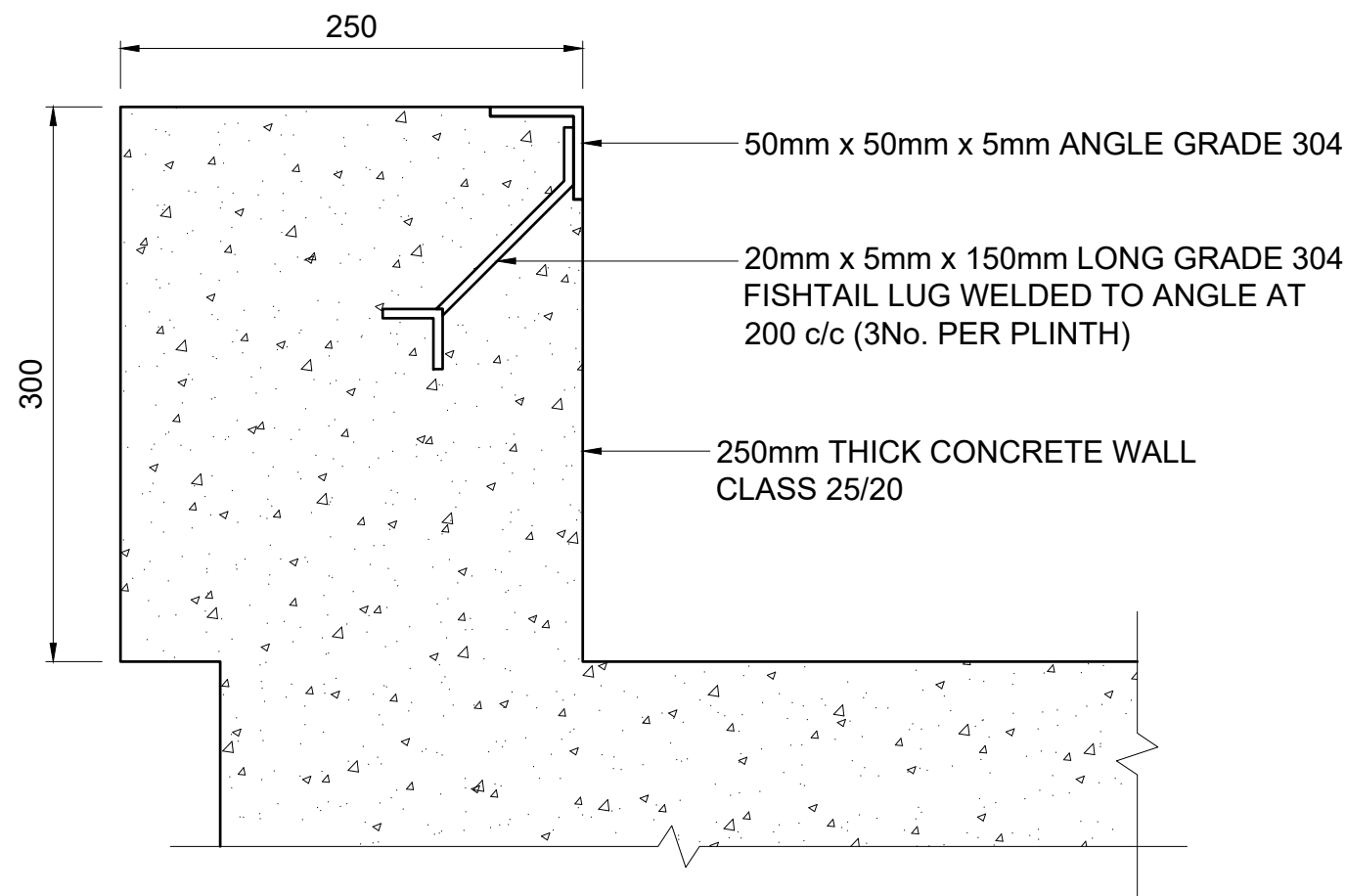
**LEGEND:**  
TWL - TOP OF WATER LEVEL  
EL - ELEVATION

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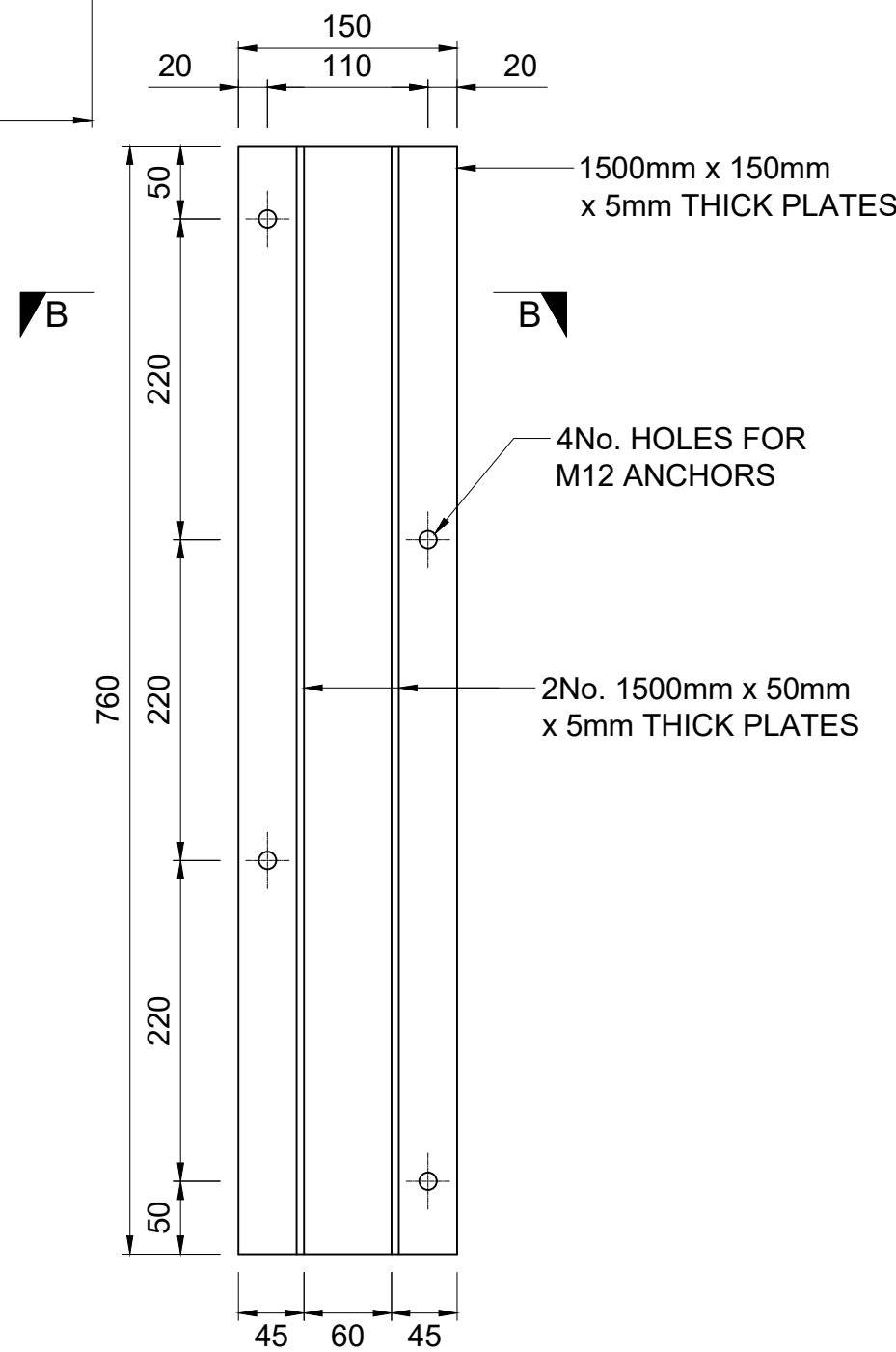




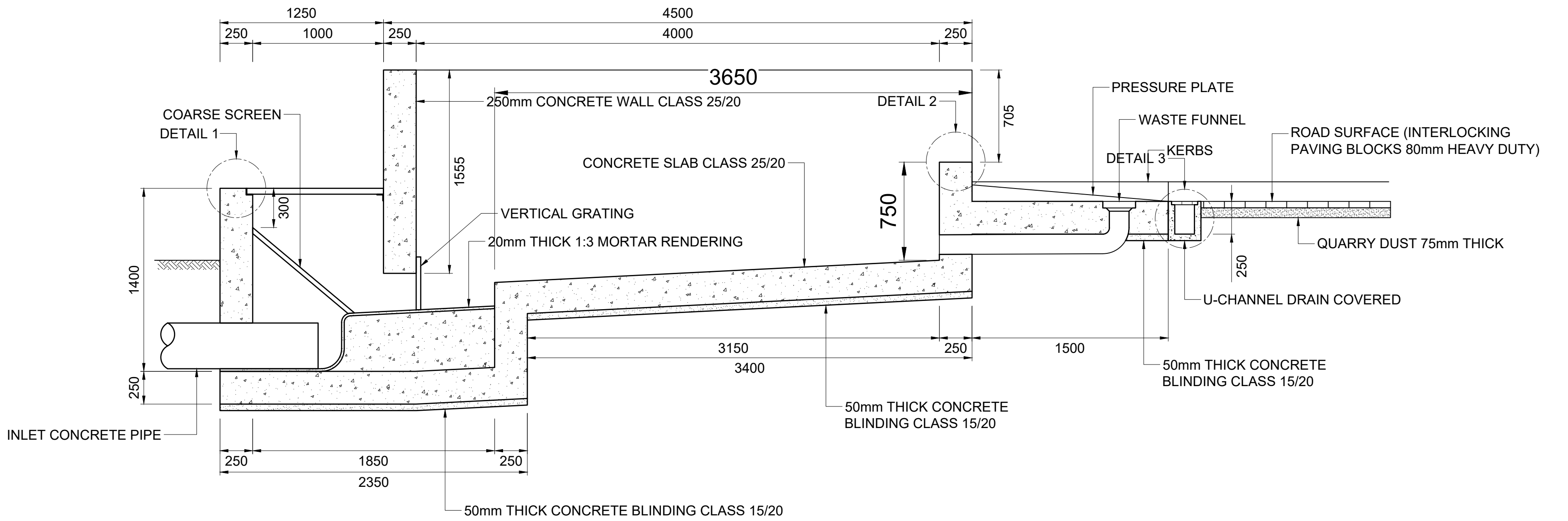
TANKER DISCHARGE BAY PLAN  
SCALE 1:40



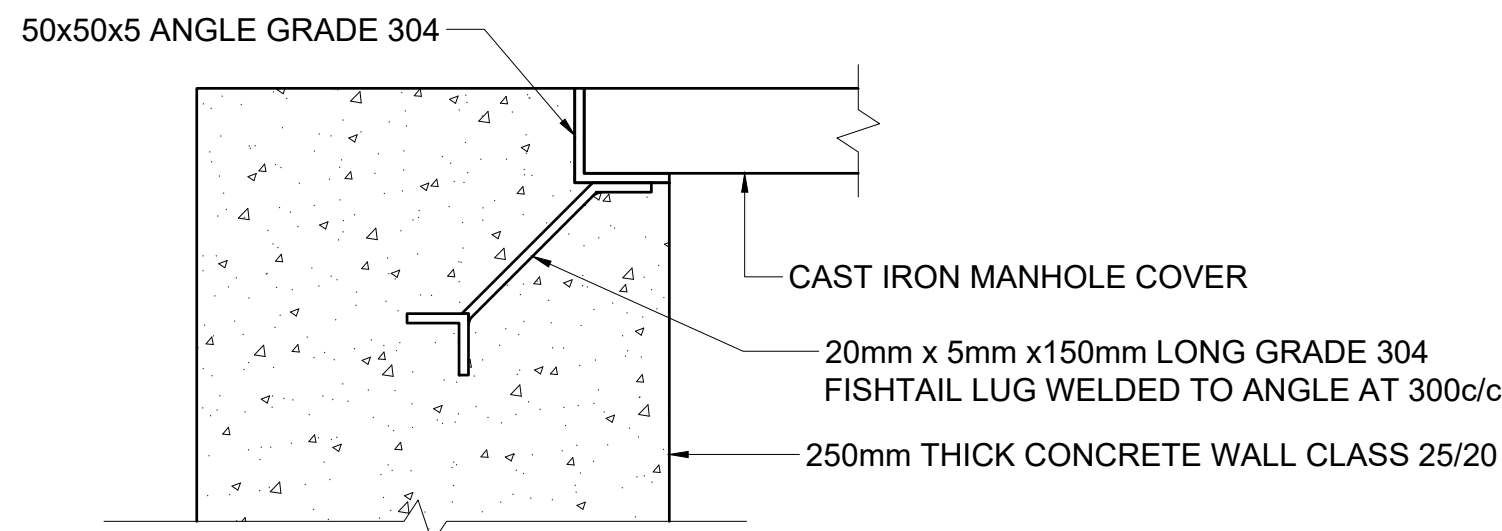
DETAIL 2  
SCALE 1:4



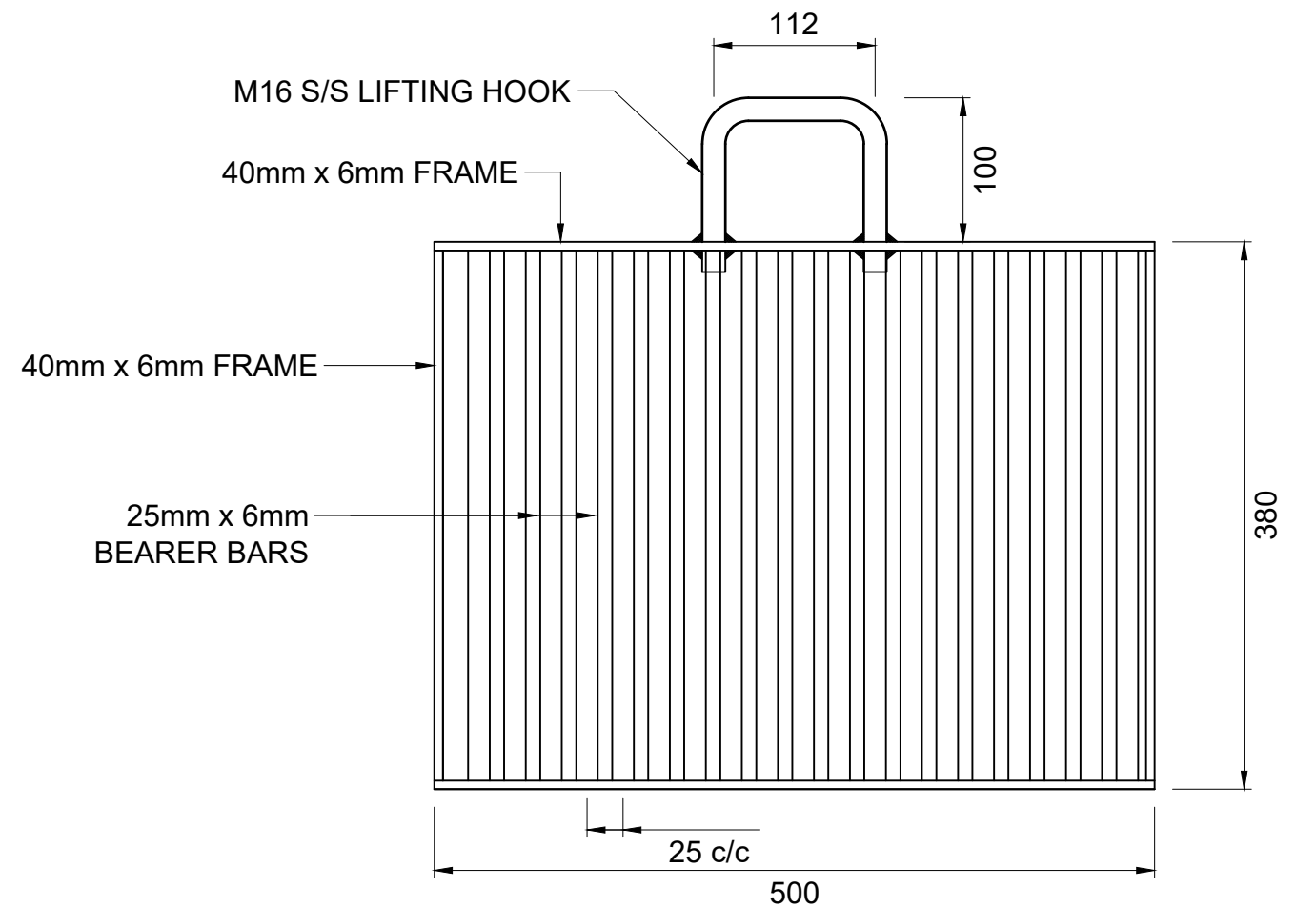
2No. VERTICAL GRATING  
GUIDES AND SUPPORT SYSTEM  
SCALE 1:5



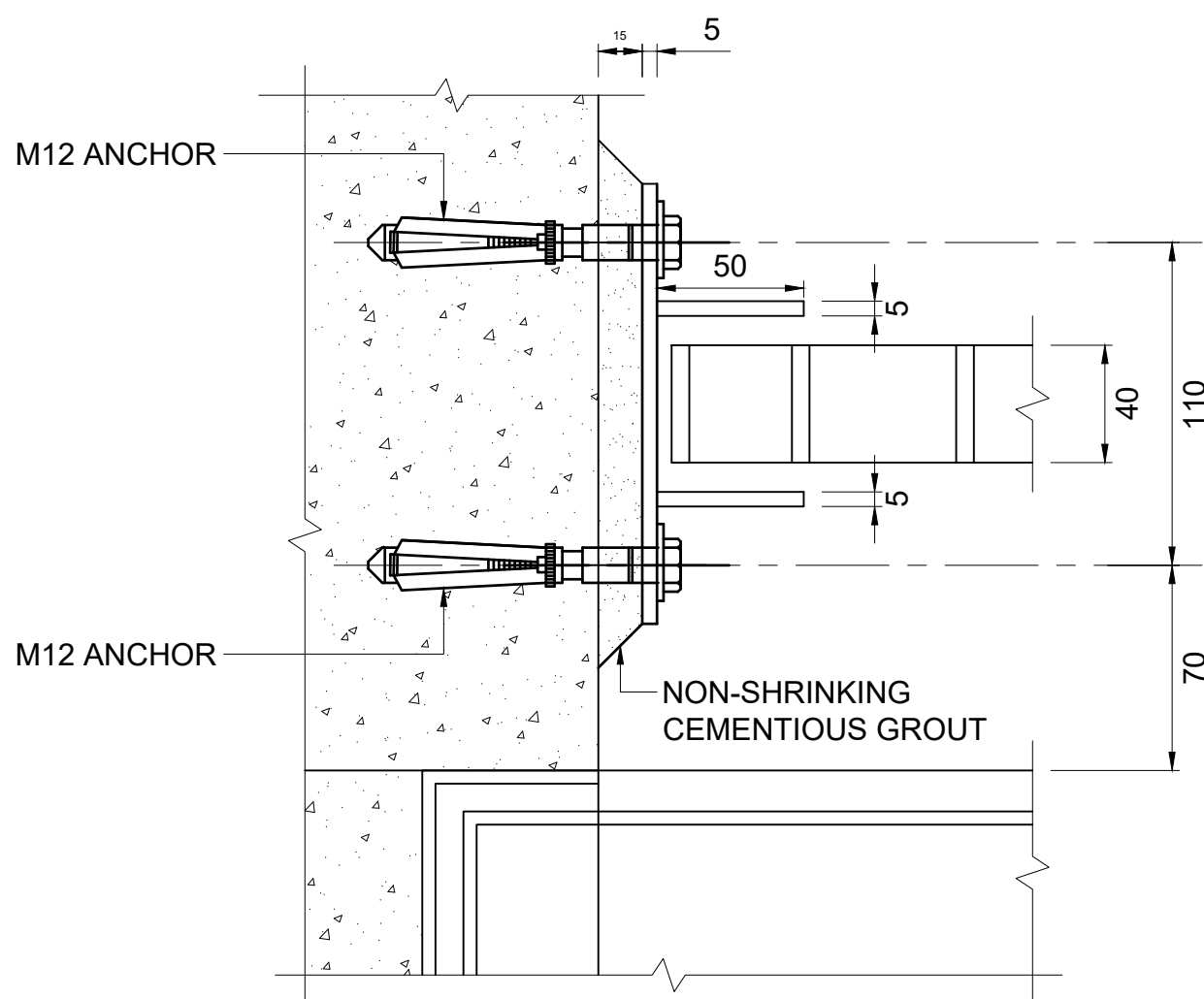
SECTION A-A  
SCALE 1:25



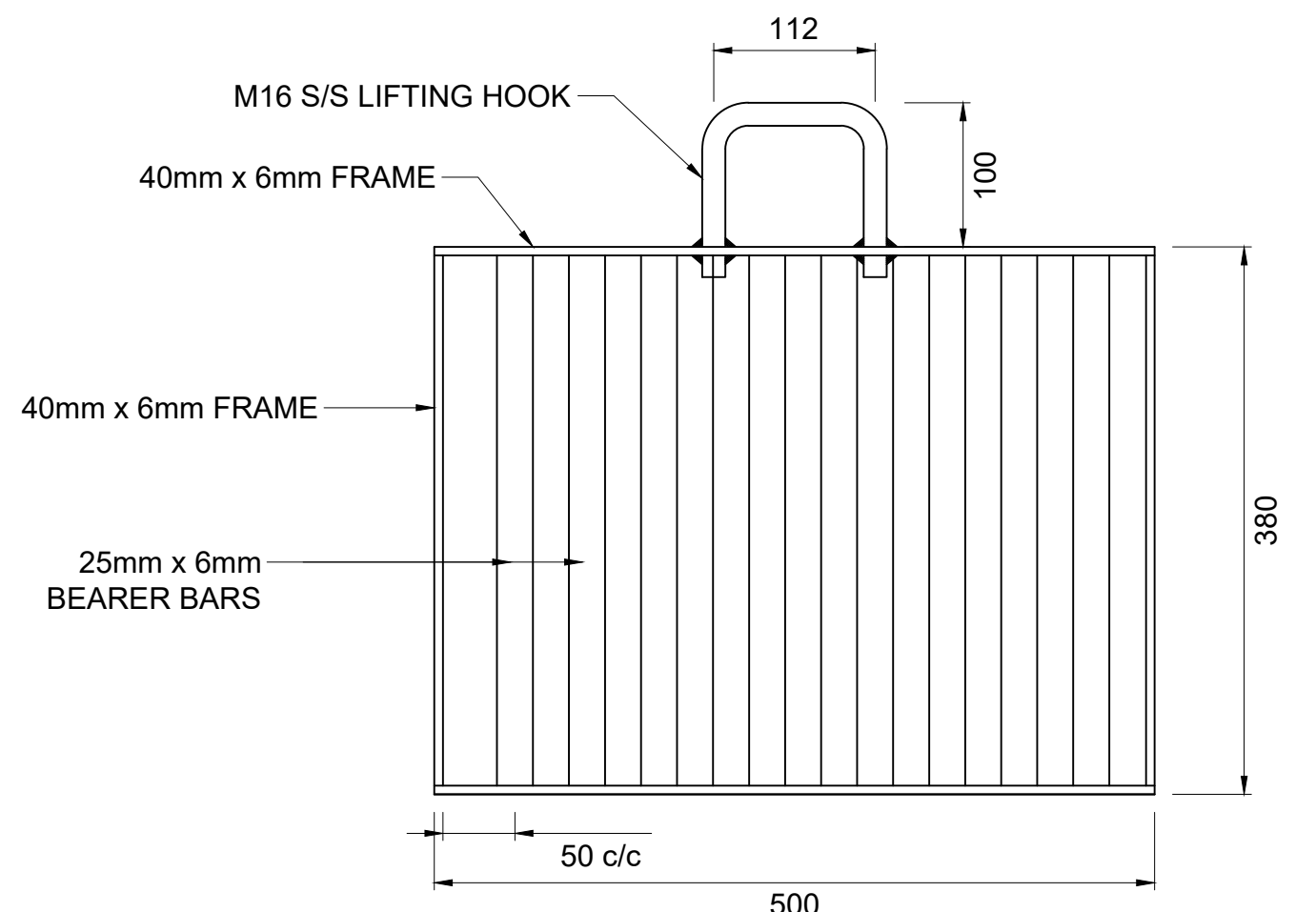
DETAIL 1  
SCALE 1:4



COARSE SCREEN  
SCALE 1:5



SECTION B-B  
SCALE 1:2.5



VERTICAL GRATING  
SCALE 1:5

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
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in  
cooperation  
with

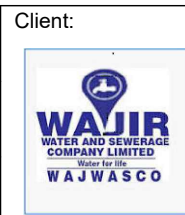


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www.sanivation.com

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			



**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**



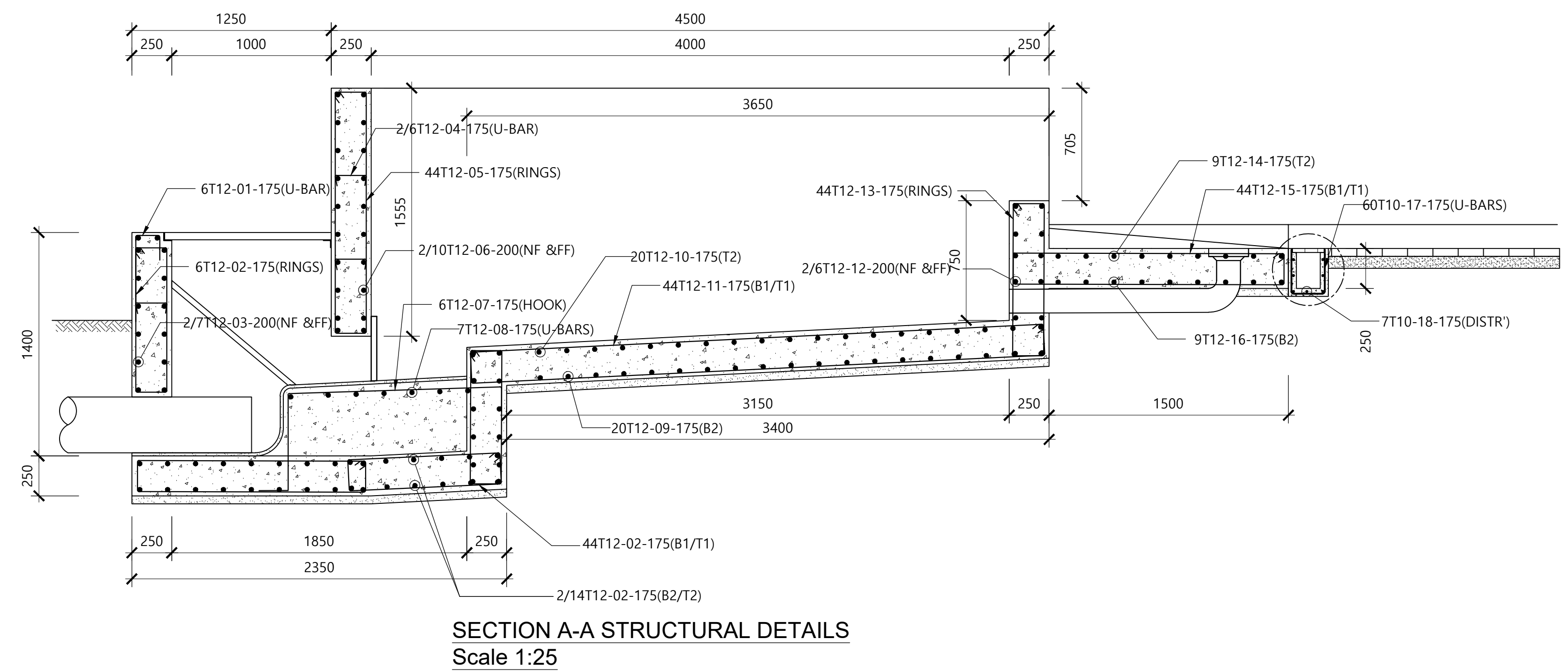
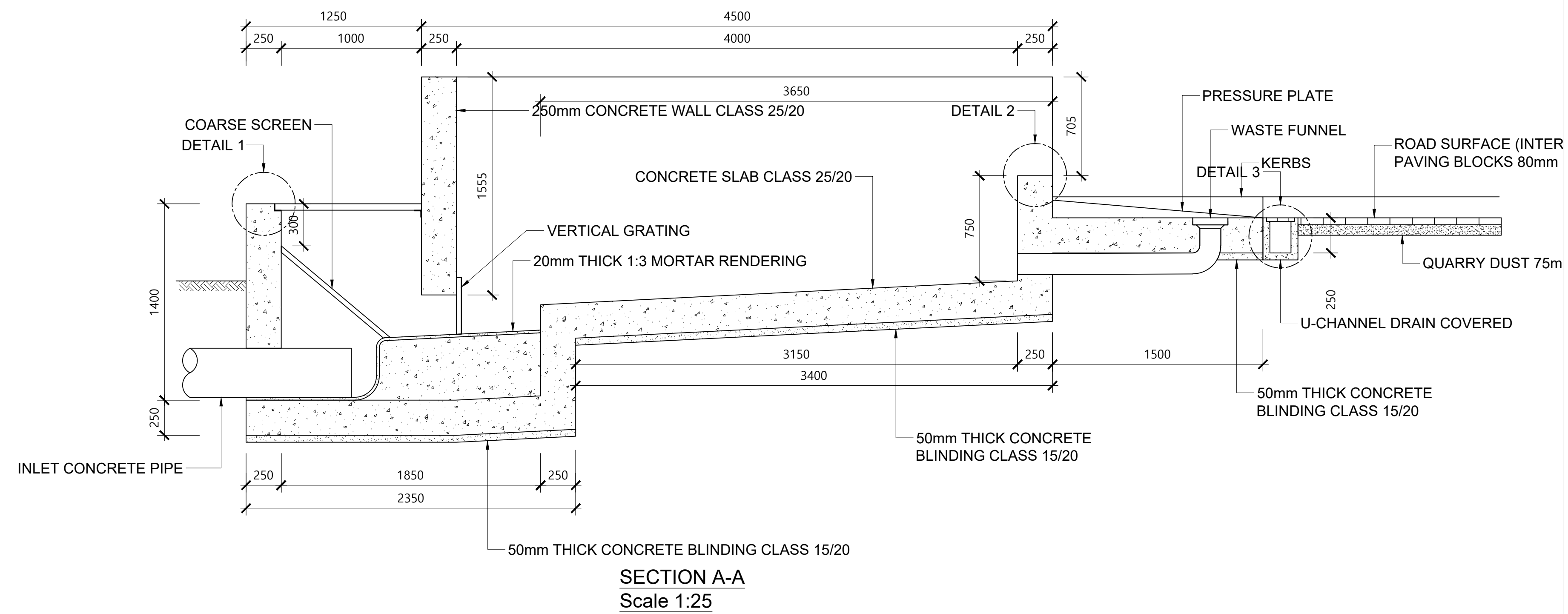
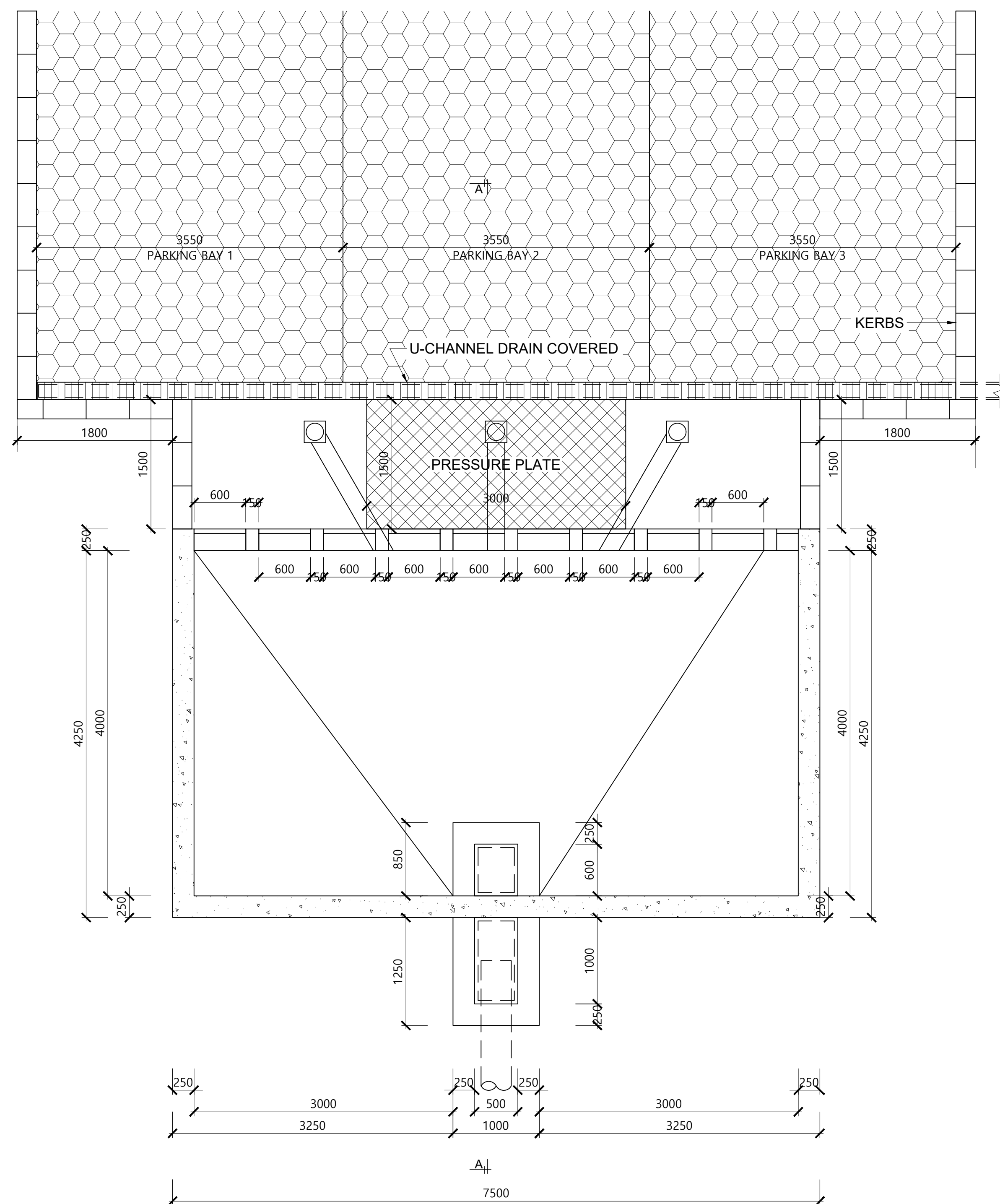
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
SLUDGE DISCHARGE BAY  
PLAN, SECTION AND DETAILS

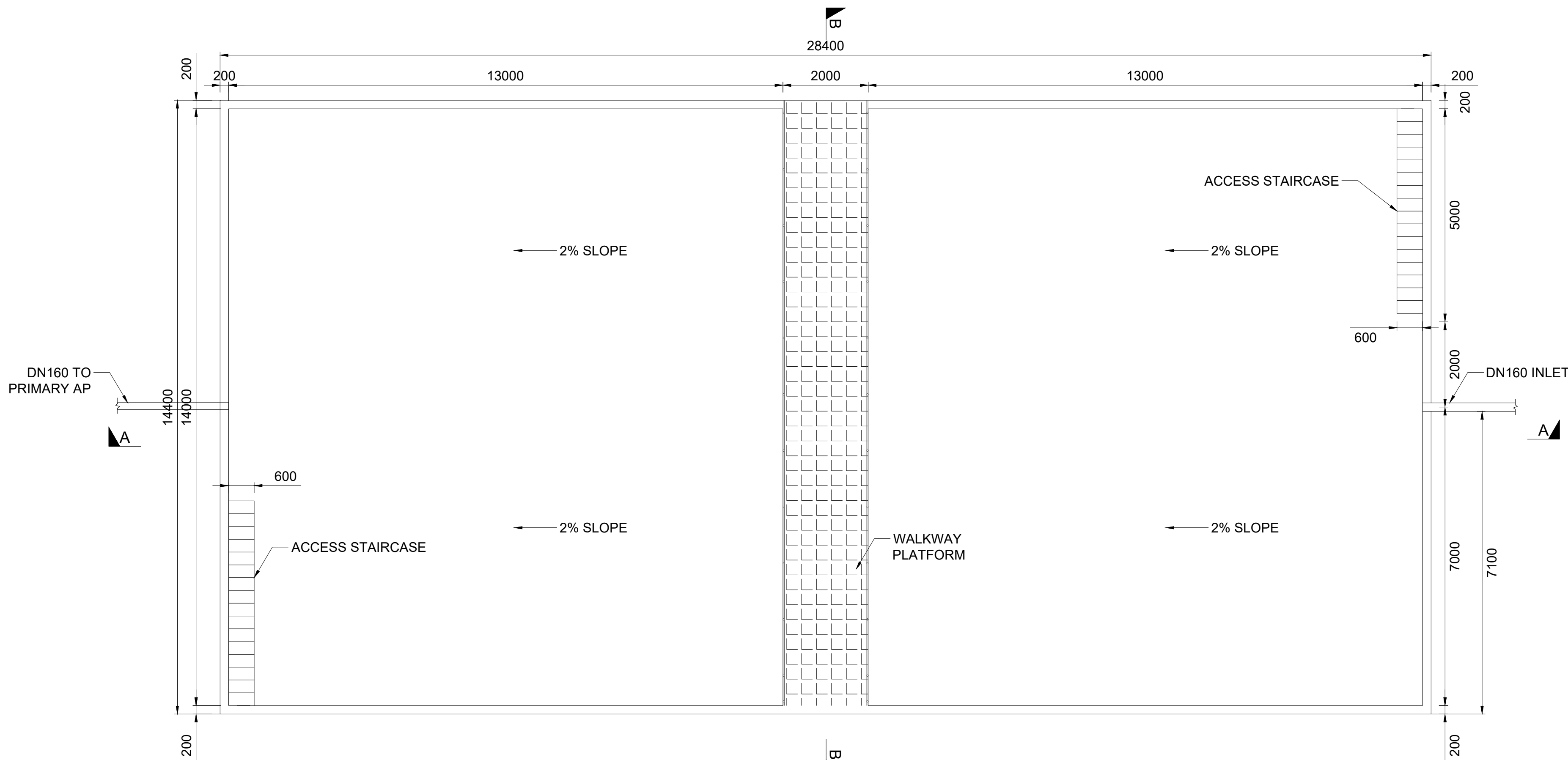
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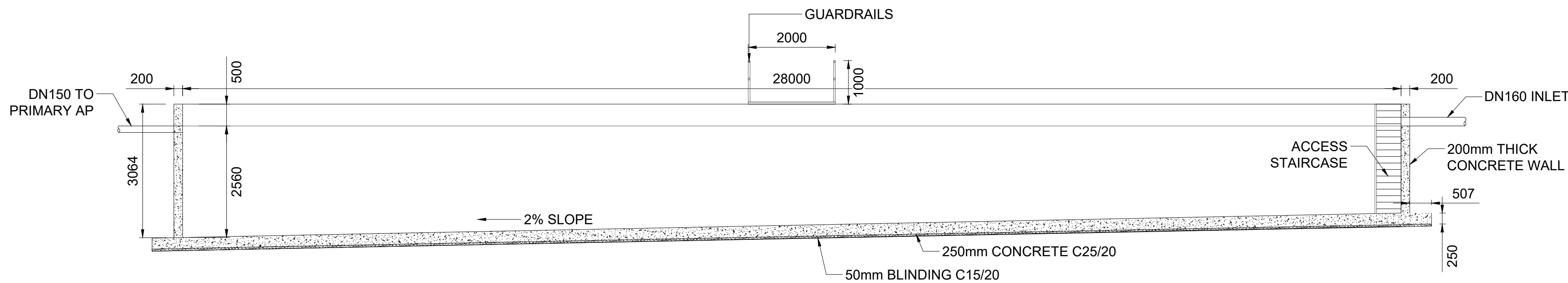


REV	Description	Sign	Date	Approved
REVISIONS				

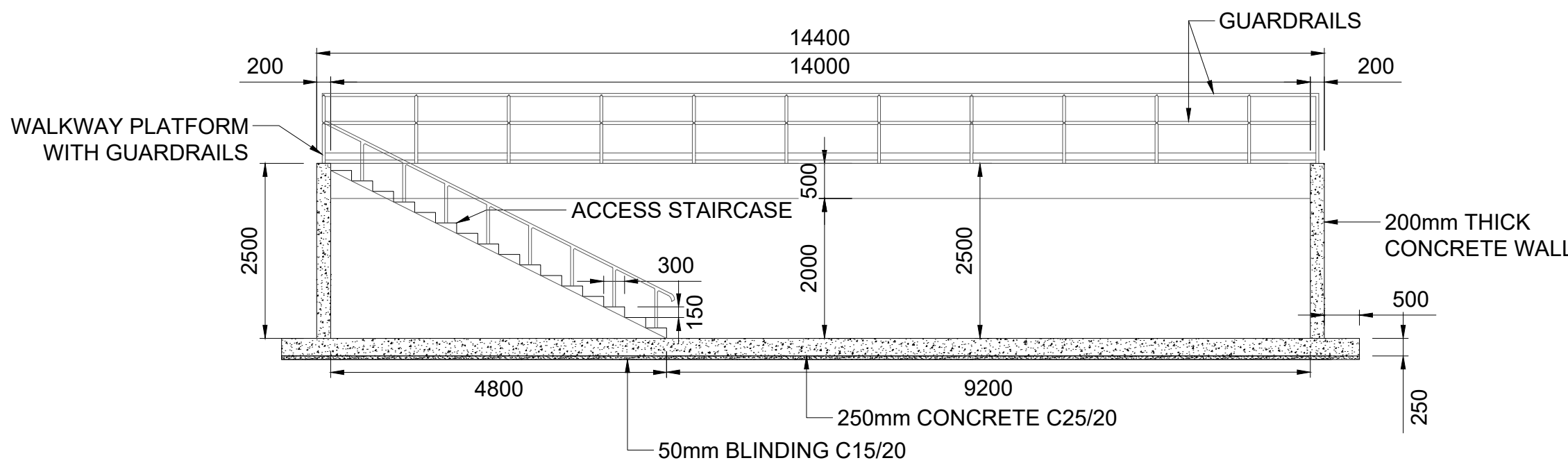
Design Consultant:  <div>             in cooperation with           </div>   <div> <b>SYSTEL</b> ENGINEERING LTD  <b>EAST AFRICAN</b> ENGINEERING CONSULTANTS  <b>SANIVATION LIMITED</b>  <small>Villa View Estate, Moi South Lake Road, Naivasha.</small>  <small>P.O.Box 362, Naivasha Kenya</small>  <small>Tel: +254720666035, +254787878842</small>  <small>E-mail: info@sanivation.com</small>  <small>www.sanivation.com</small> </div>		Drawn by: J.K.M Date: SEP 2024 Designed by: G.S.O Date: SEP 2024 Checked by: T.J.O Date: SEP 2024 Approved by: J.K.W Date: SEP 2024 Project No: Contract No:		Client:  <b>WAJIR WATER AND SEWERAGE</b> <b>COMPANY LIMITED</b> Financier:  <b>WORLD BANK</b>		Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT TANKER DISCHARGE REINFORCEMENT DETAILS Scale: AS SHOWN Sheet No: 2 / 2 Drawing No: WFSTP - 1.4.1			
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MIXED SLUDGE ANAEROBIC BASIN PLAN  
SCALE 1:75



SECTION A-A  
SCALE 1:75



SECTION B-B  
SCALE 1:75

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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www.sanivation.com

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

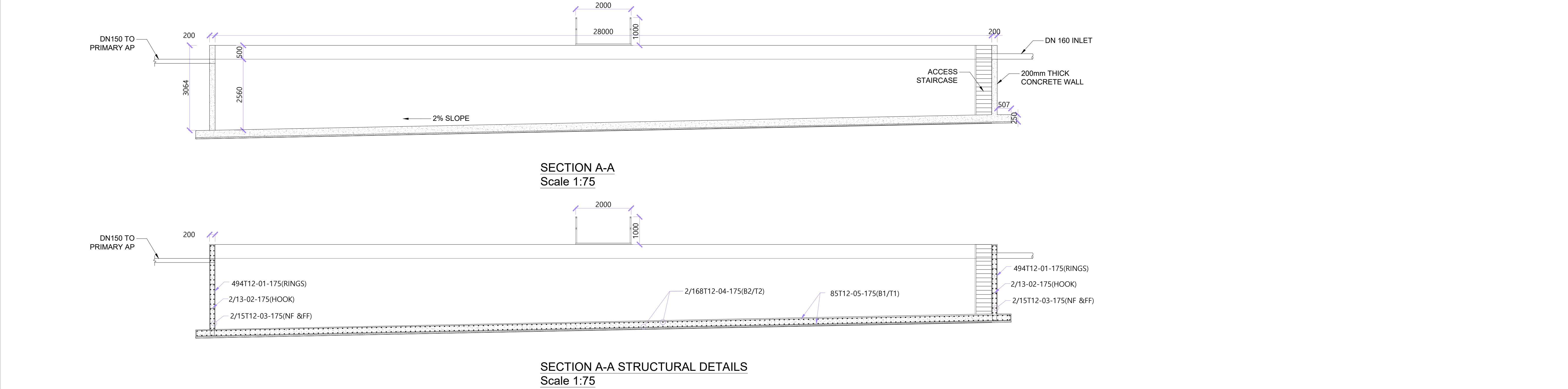
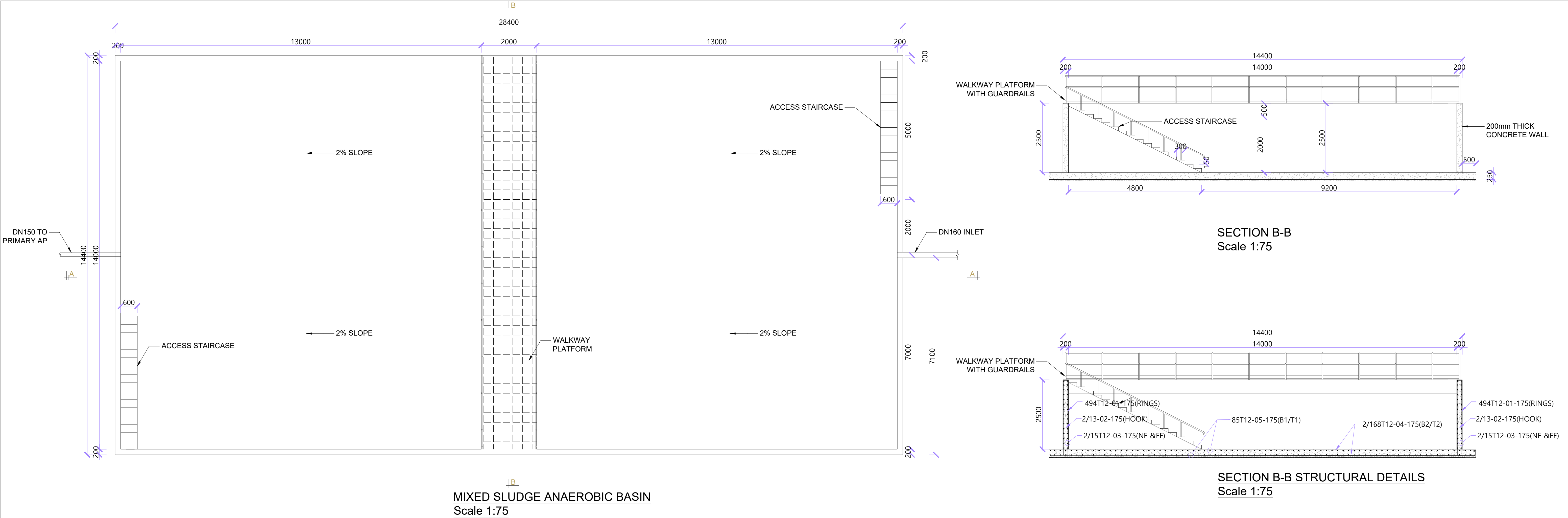
**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

Financier:

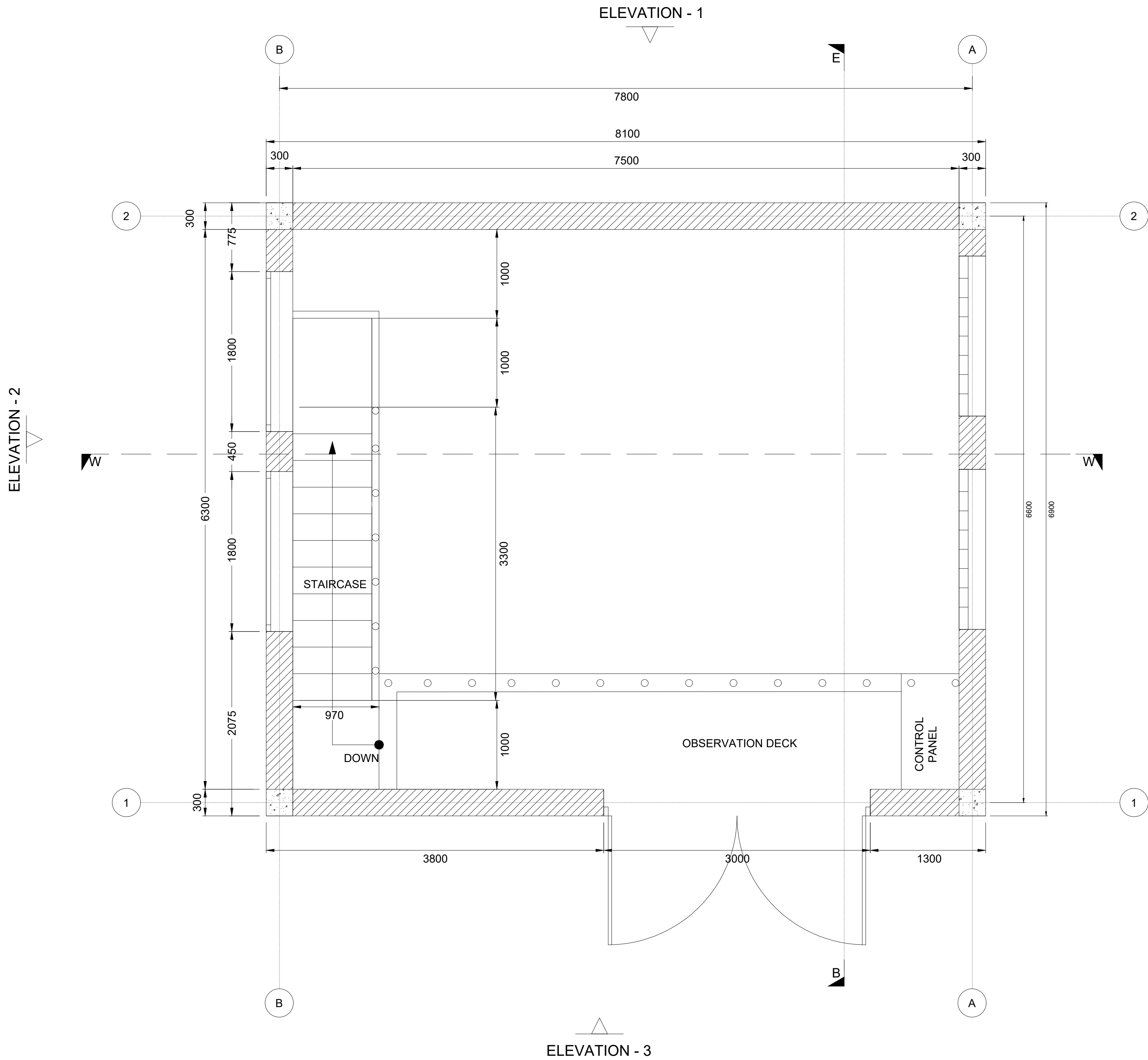
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MIXED SLUDGE ANAEROBIC BASIN PLAN, SECTIONS AND DETAILS			
Scale: AS SHOWN	Sheet No: 1 / 2	Drawing No: WFSTP - 1.5.1	





						Design Consultant:			Drawn by: J.K.M			Client:			Project:		
															CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
						Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperville P. O. Box 19109 - 00109 Nairobi, Kenya Tel: +2542079132980/ 72628086 E-mail:consulting@systelengineering.com			EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72390-0020, Nairobi, Kenya Tel: +254728455035, +254728679842 E-mail: info@eaecgroup.com www.eaecgroup.com			Financier: 			Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MIXED SLUDGE ANAEROBIC BASIN REINFORCEMENT DETAILS		
									Date: SEP 2024			Scale: AS SHOWN			Sheet No: 2 / 2		
									Date: SEP 2024			Drawing No: WFSTP - 1.5.1					
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NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.
3. ALL EXPOSED CONCRETE EDGES TO HAVE A 25x25mm CHAMFER.
4. CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE SPECIFIED OTHERWISE
5. ALL VENT BLOCKS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING.
6. THE CONTRACTOR IS EXPECTED TO REVIEW THE PUMP STATION DESIGN BASED ON SITE CONDITIONS, AGREED OPERATION REGIME AND EXACT DIMENSION OF EQUIPMENT TO BE SUPPLIED.

LEGENDS

1. RC - REINFORCED CONCRETE
2. F.G.L - FINISHED GROUND LEVEL
3. P.C.C - PRECAST CONCRETE
4. F.S.L - FULL SUPPLY LEVEL

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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Drawn by: J.K.M Date: SEP 2024

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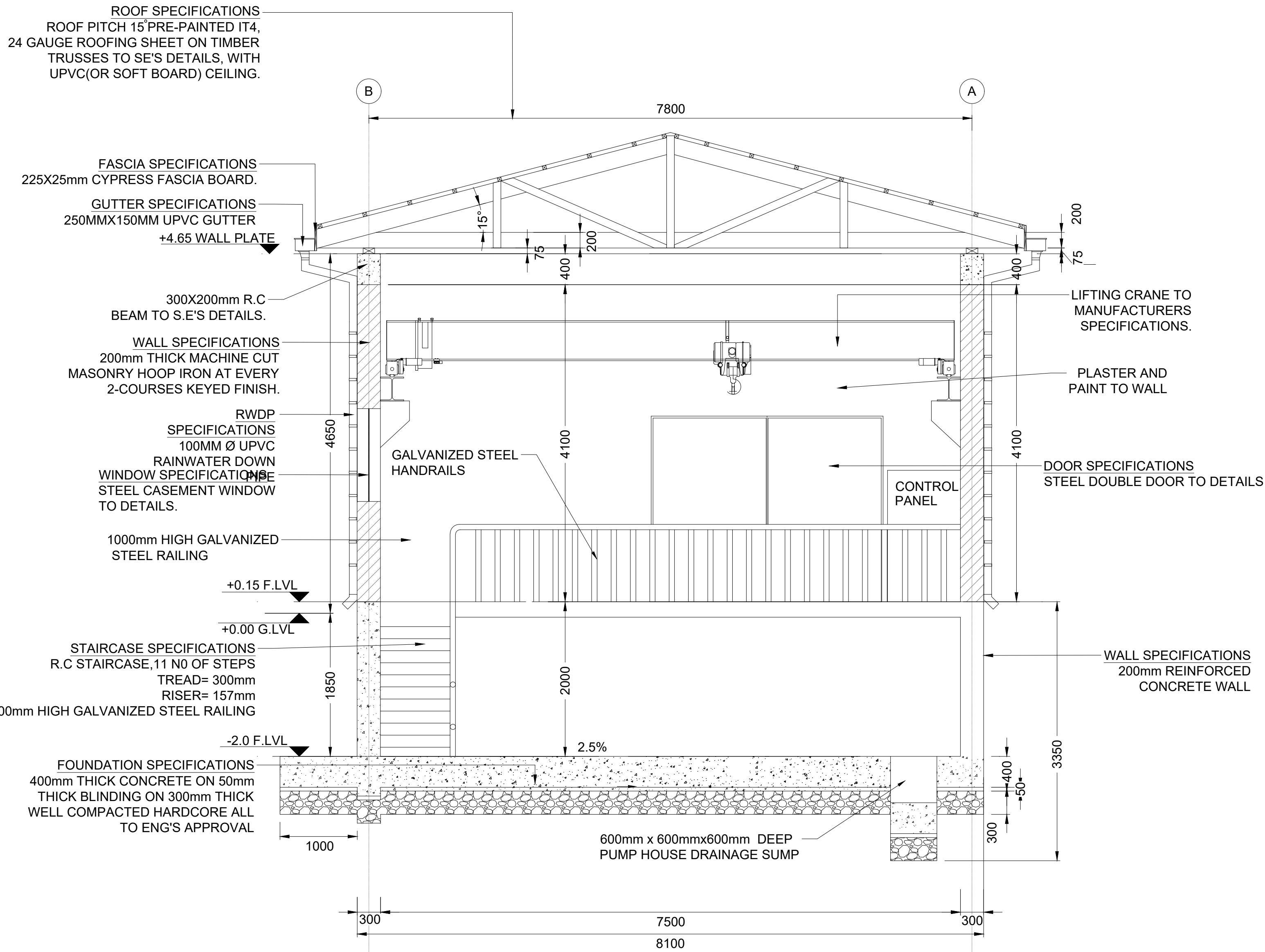
**WAJIR WATER AND SEWERAGE**  
COMPANY LIMITED

Financier:

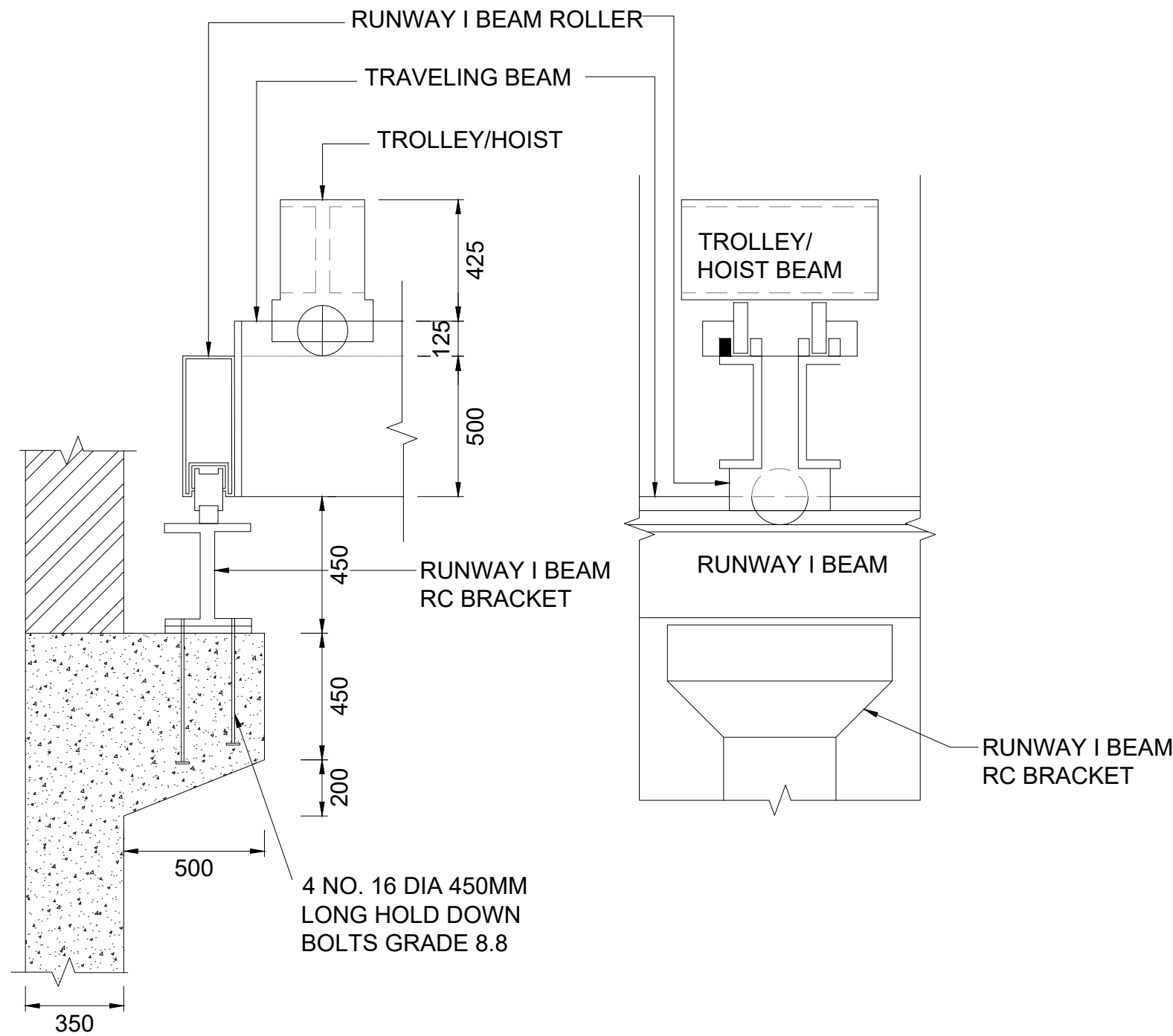
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Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SLUDGE PUMP STATION PLAN			
Scale: AS SHOWN	Sheet No: 1 / 7	Drawing No: WFSTP - 1.5.2	



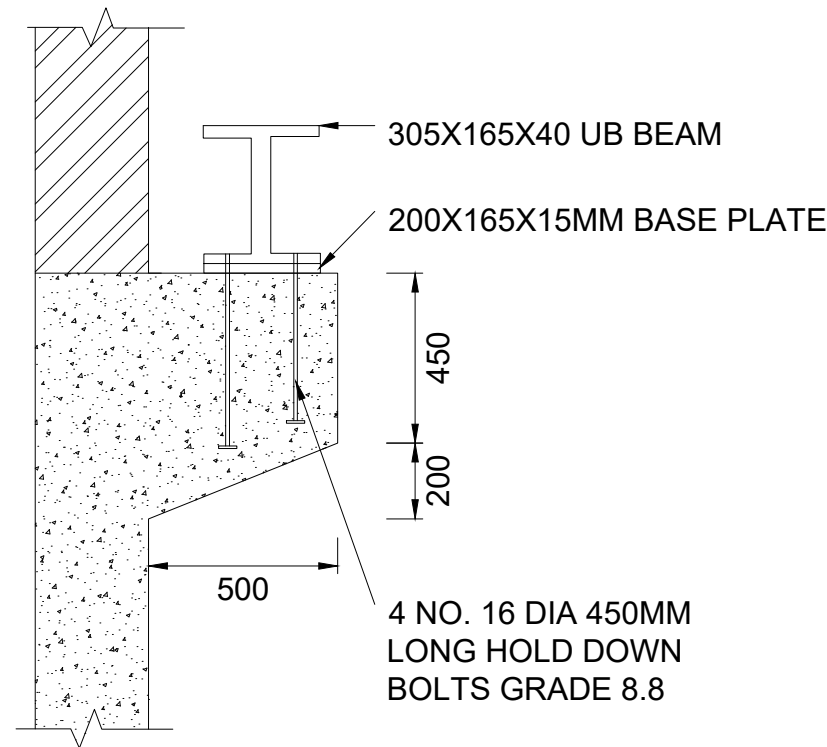


SECTION W - W



TRAVELING CRANE TYPICAL DETAIL

SCALE 1:20



TRAVELING CRANE TYPICAL DETAIL


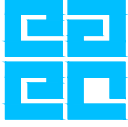


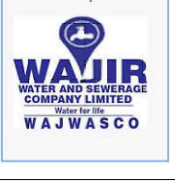

SCALE 1:20

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6. THE CONTRACTOR IS EXPECTED TO REVIEW THE PUMP STATION DESIGN BASED ON SITE CONDITIONS, AGREED OPERATION REGIME AND EXACT DIMENSION OF EQUIPMENT TO BE SUPPLIED.
7. FOR RAILING DETAILS REFER TO DRAWING NO. LNBSP-S-WW-7.13.

LEGENDS

1. RC - REINFORCED CONCRETE
2. F.G.L - FINISHED GROUND LEVEL
3. P.C.C - PRECAST CONCRETE
4. F.S.L - FULL SUPPLY LEVEL

						Design Consultant:		in cooperation with		Sanivation		Sanitation as a Service		Drawn by: J.K.M Date: SEP 2024		Client:		Project:	
														Designed by: P.M.M Date: SEP 2024				CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY	
						Systel Engineering Limited		EAST AFRICAN ENGINEERING CONSULTANTS		SANIVATION LIMITED		Sanitation as a Service		Checked by: T.J.O Date: SEP 2024		WAJIR WATER AND SEWERAGE COMPANY LIMITED		Drawing Title:	
						5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com		Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com		Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 262,Naivasha Kenya Tel: +254729465035, +254729679842 E-mail: info@sanivation.com www.sanivation.com		Approved by: J.K.W Date: SEP 2024		WORLD BANK		Financier:		WAJIR FAECAL SLUDGE TREATMENT PLANT	
						REV		Description		Sign		Date		Approved				Scale: AS SHOWN	
						REVISIONS												Sheet No: 2 / 7	
																		Drawing No:	
																		WFSTP - 1.5.2	

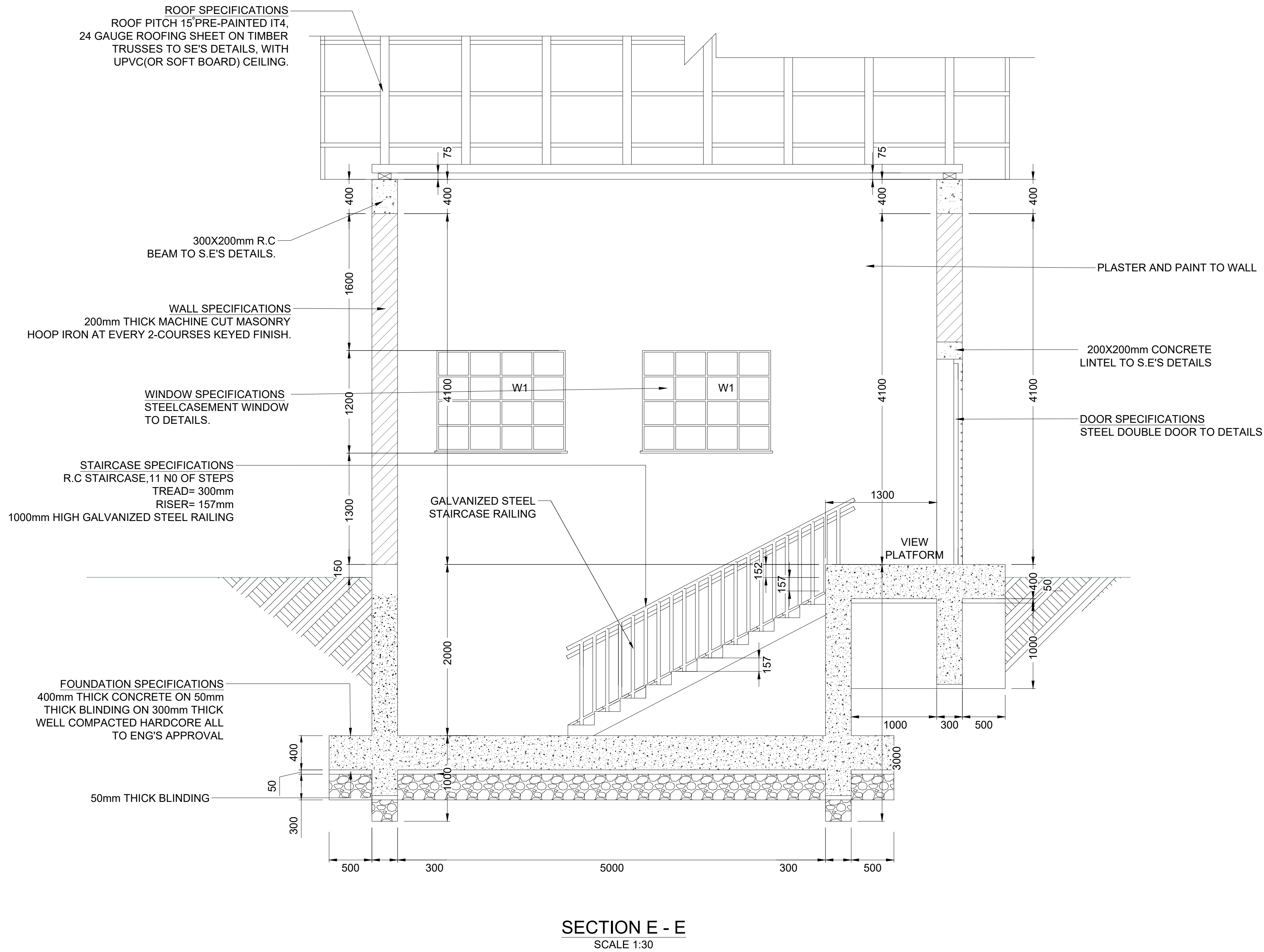


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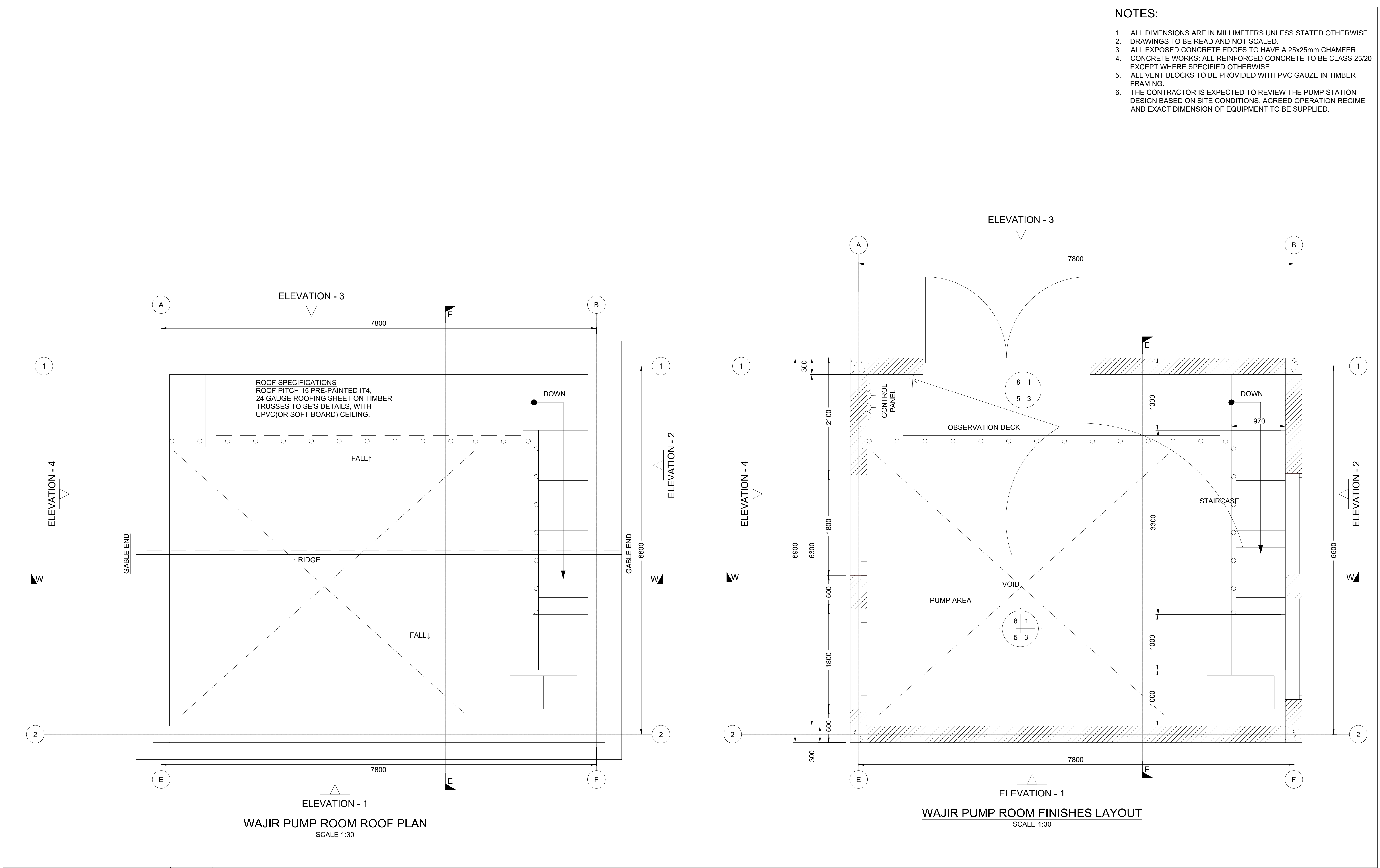
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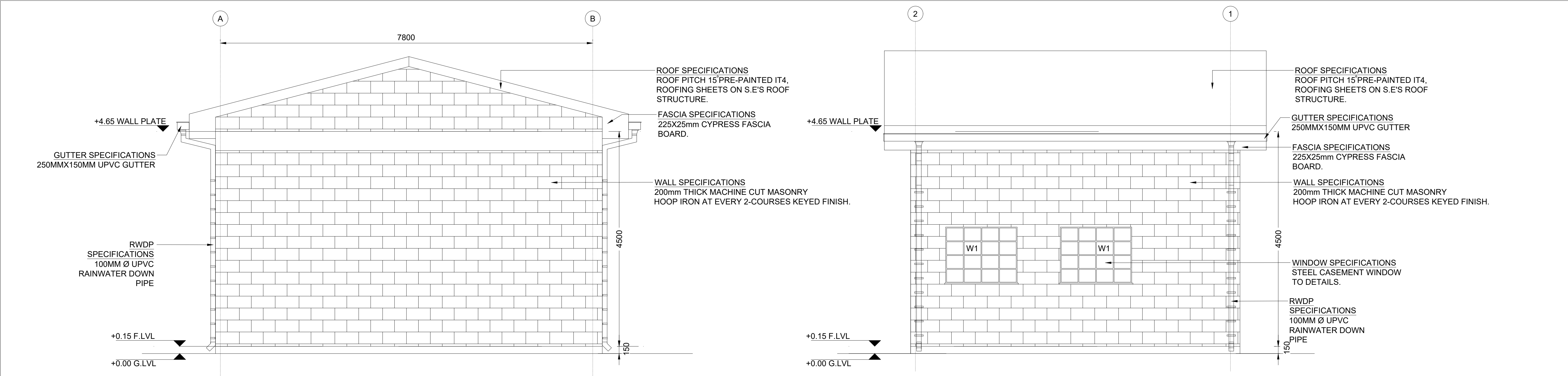
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					Systel Engineering Limited 5th Floor,Wing II, CIG Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728339006 E-mail: consulting@systelengineering.com					Checked by: T.J.O Date: SEP 2024					Financier:					Drawing Title:				
					in cooperation with					Approved by: J.K.W Date: SEP 2024										DETAILED DESIGN				
					EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com					Project No:					WORLD BANK					WAJIR FAECAL SLUDGE TREATMENT PLANT SLUDGE PUMP STATION PLANS				
					SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 262,Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com					Contract No:										Scale: AS SHOWN				
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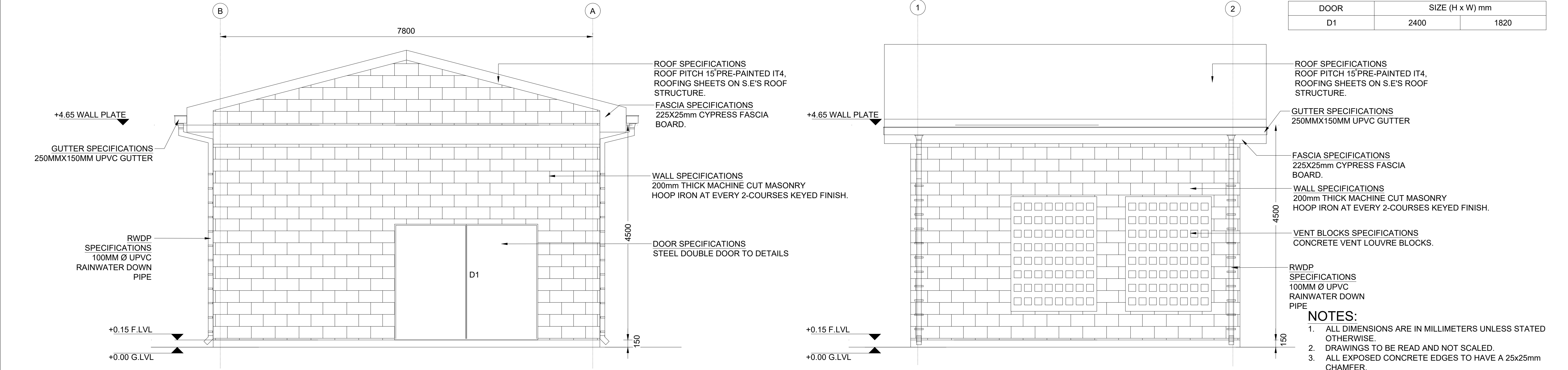
ELEVATION - 1  
SCALE 1:40

ELEVATION - 2  
SCALE 1:40

WINDOWS AND DOOR SCHEDULE

WINDOW	SIZE (H x W) mm	
W1	1200	1800
W2 VENT BLOCKS	2400	1820

DOOR	SIZE (H x W) mm	
D1	2400	1820



ELEVATION - 3  
SCALE 1:40

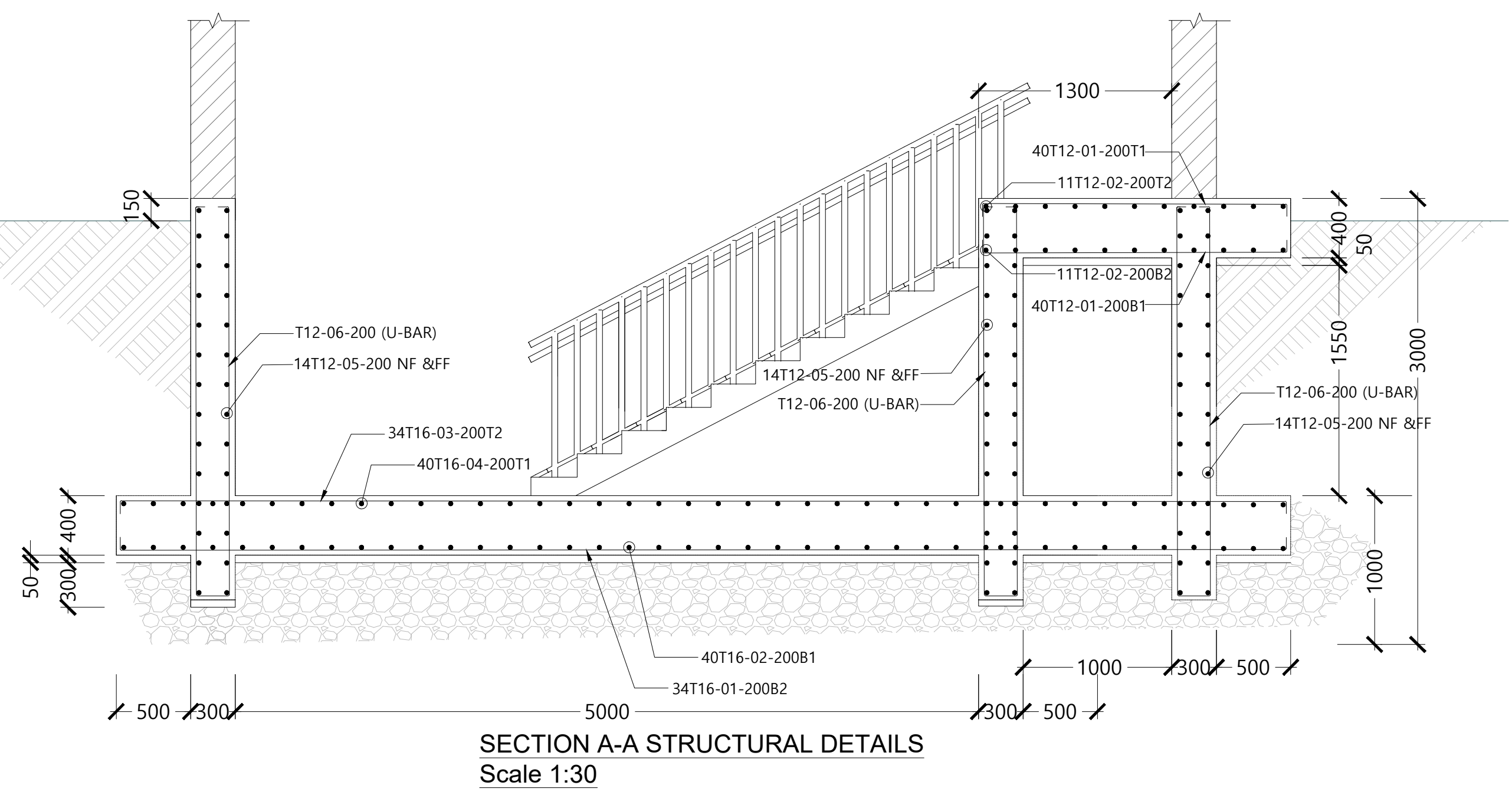
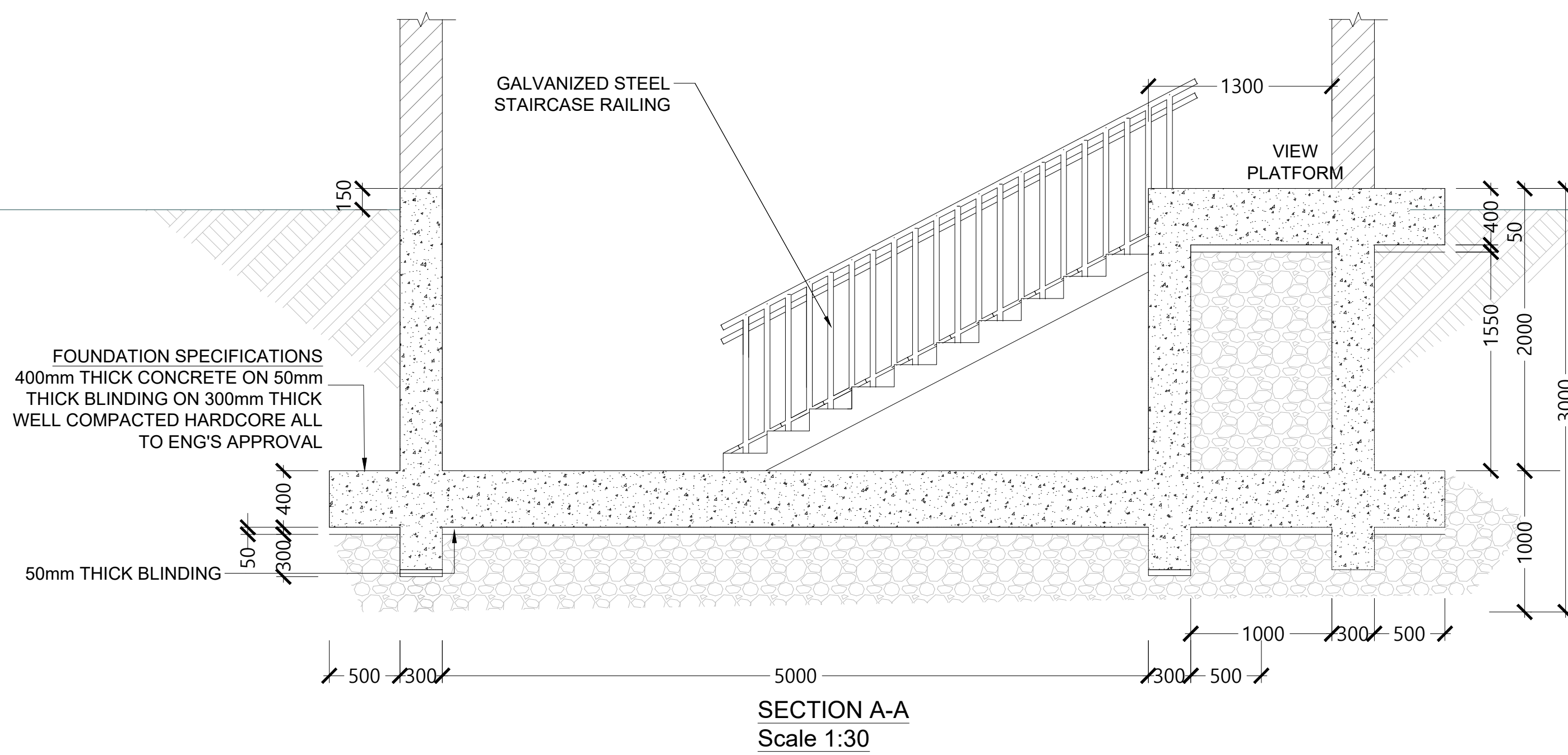
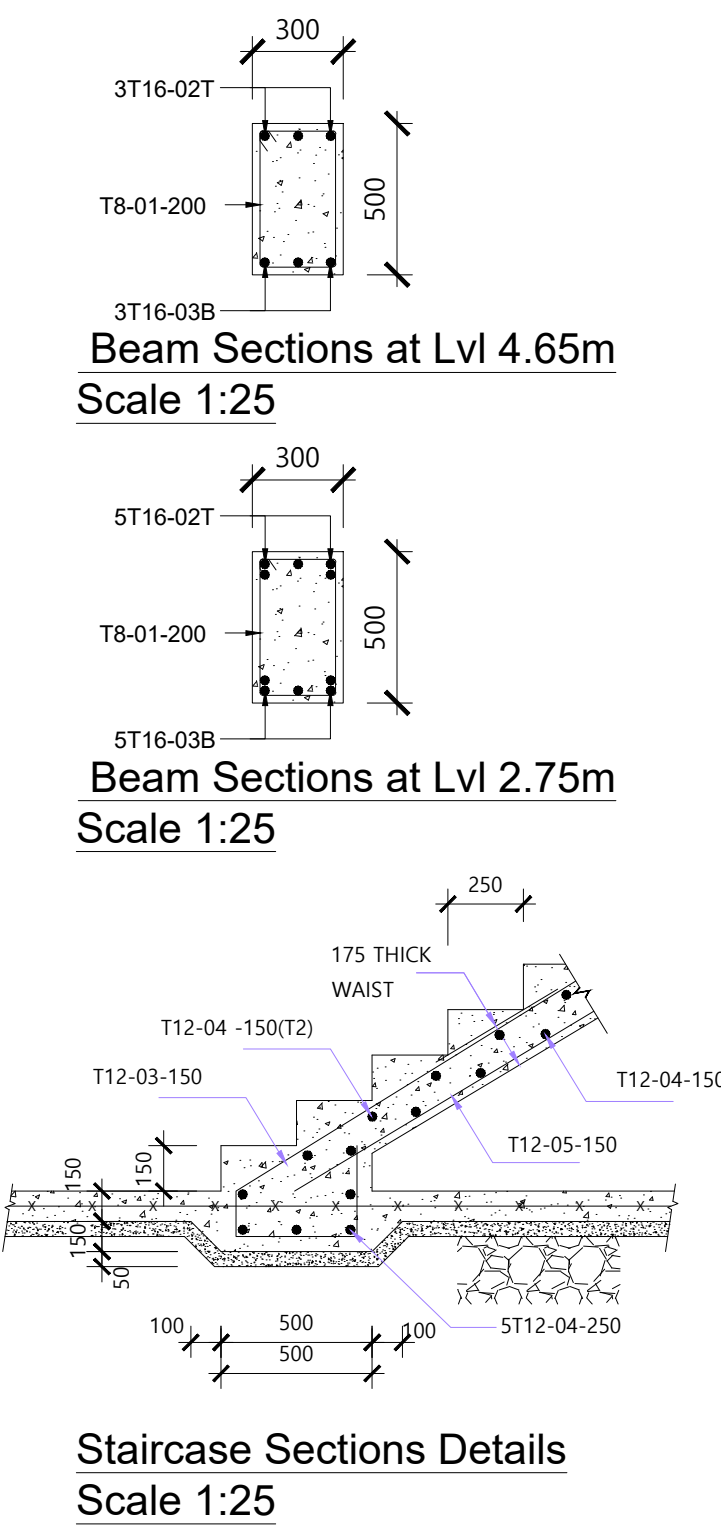
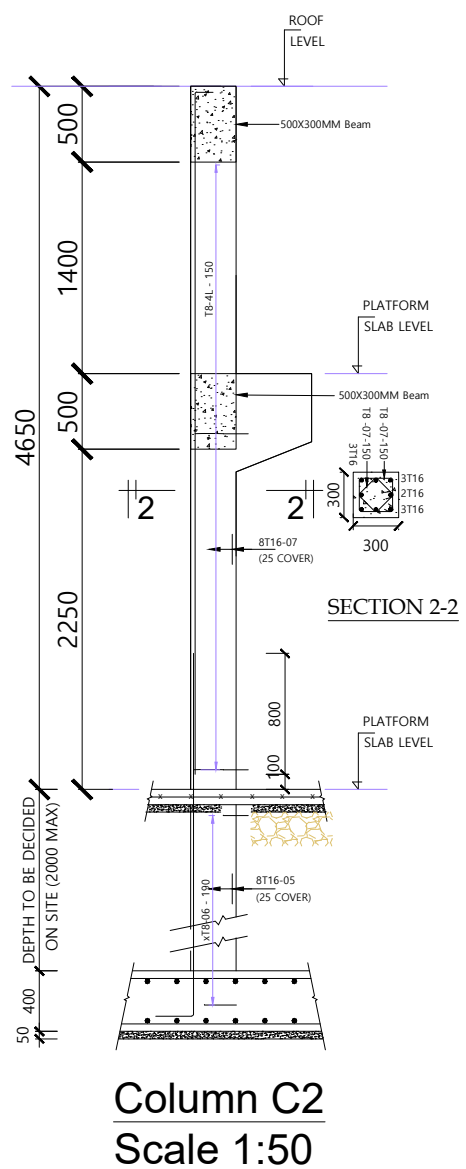
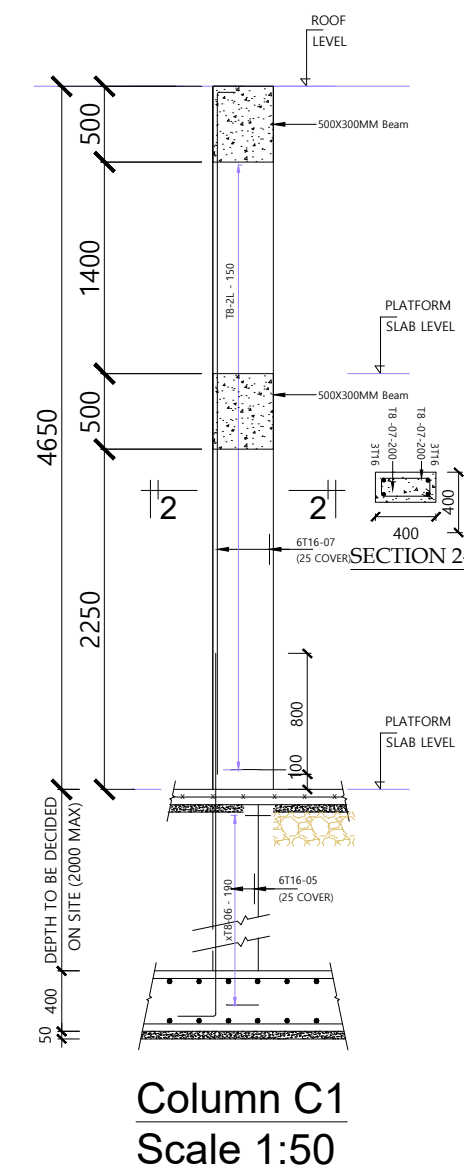
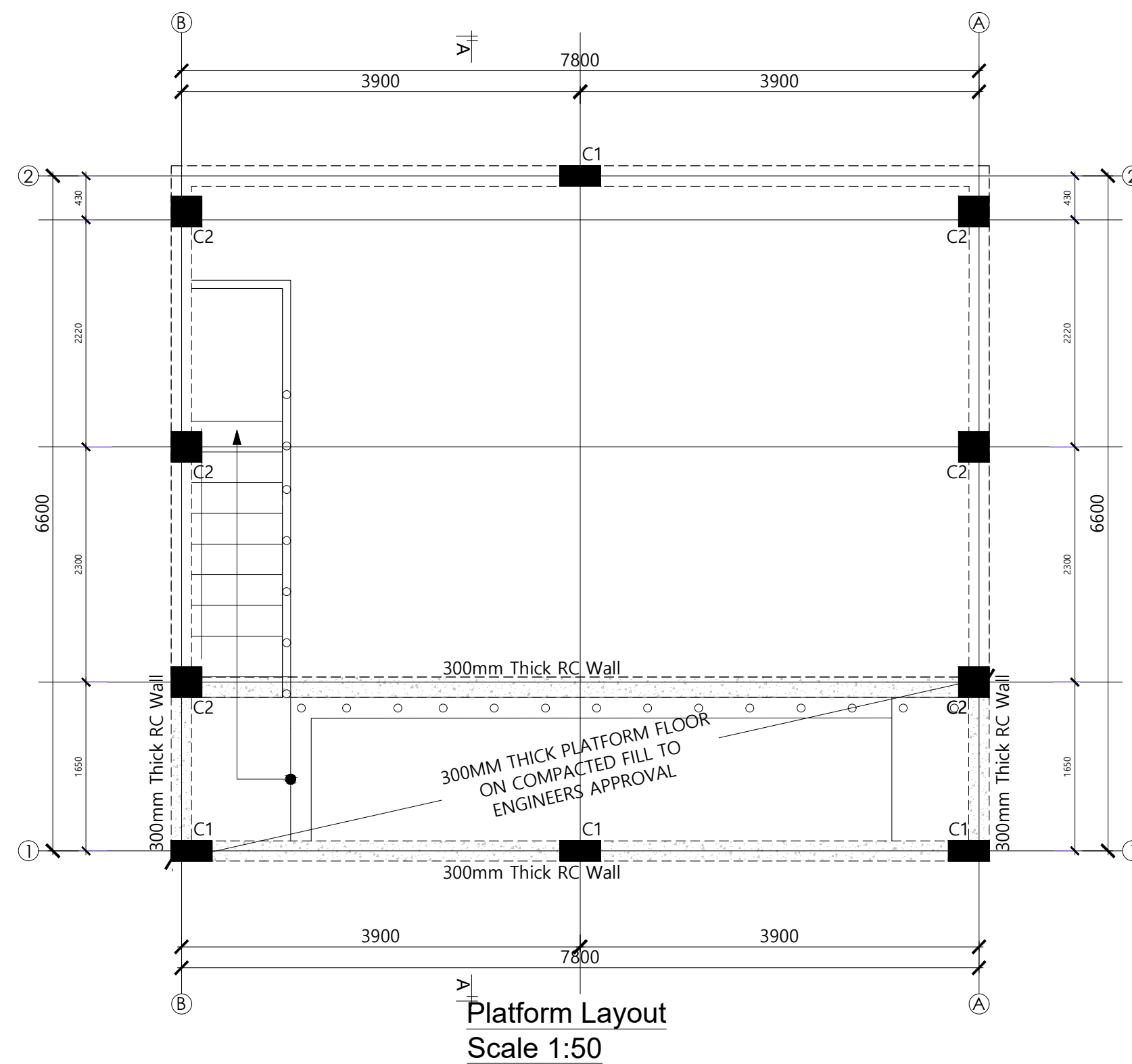
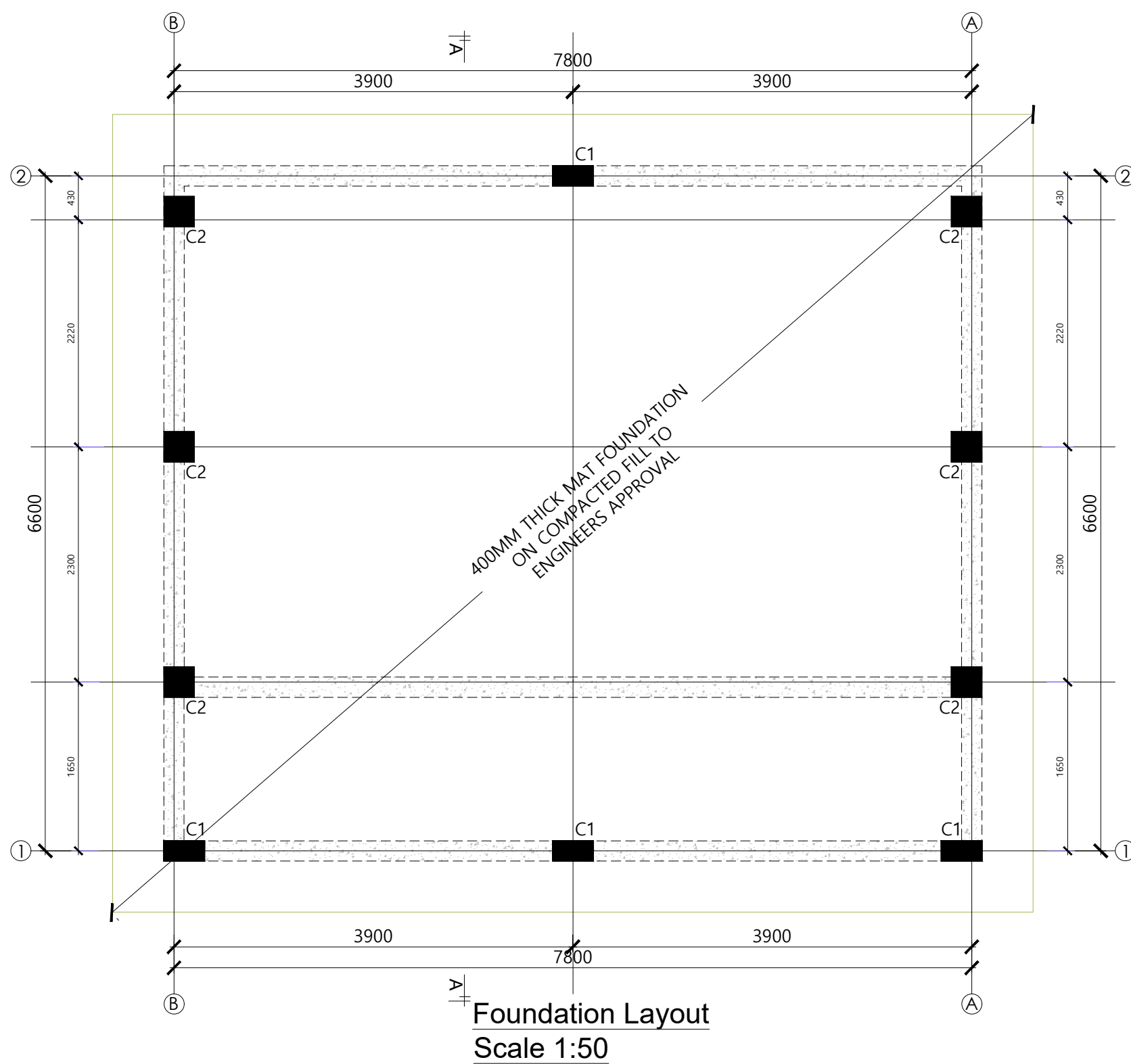
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REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
5th Floor, Wing II, CIC Plaza  
Mara Road, Upperhill  
P. O. Box 19109 - 00109 Nairobi, Kenya  
Tel: +2542079132980/ 72603866  
E-mail: info@systelengineering.com

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cooperation  
with

**EAST AFRICAN  
ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72398-00206, Nairobi, Kenya  
Tel: +254-20-2714514/1516, +254-20-2718861, +254-20-2527995  
E-mail: info@eaecgroup.com

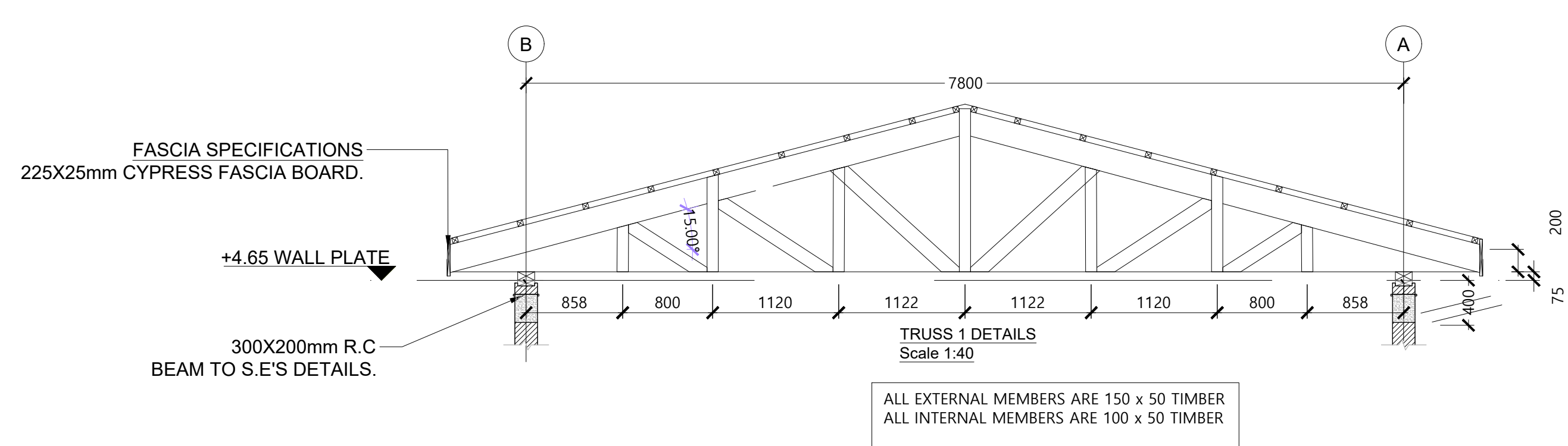
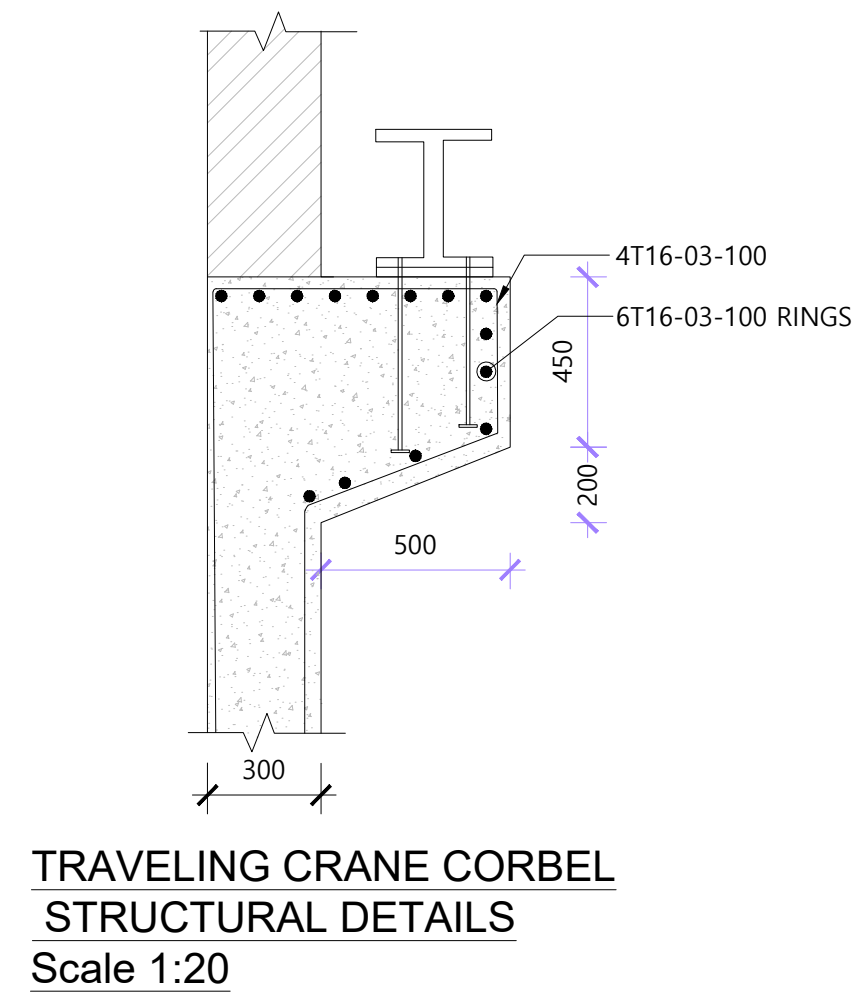
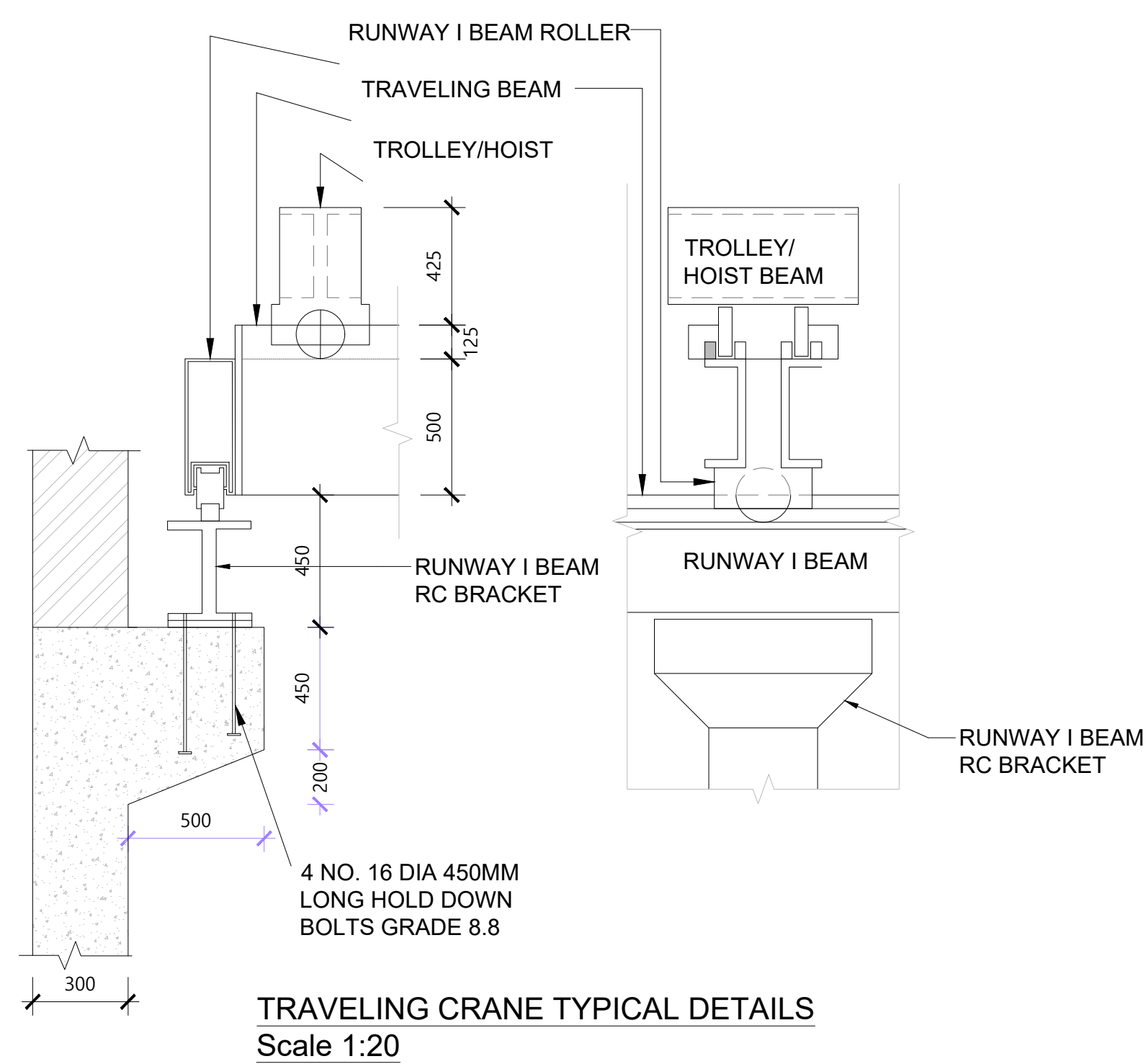
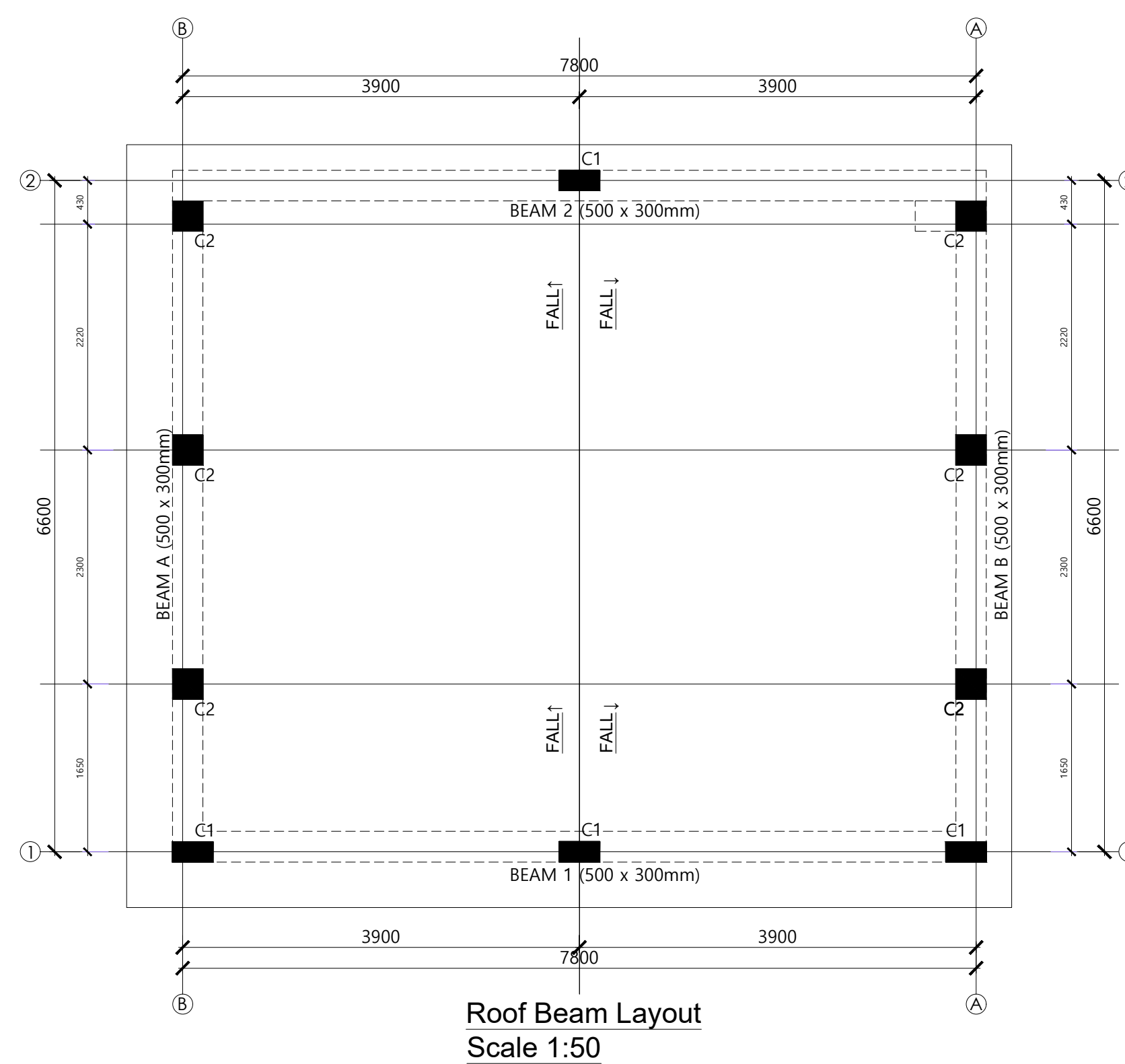
**Sanivation**  
Sanitation as a Service  
**SANIVATION LIMITED**  
Villa View Estate, Meru South, Lake Road, Naivasha.  
P.O.Box 262, Naivasha, Kenya  
Tel: +25472845935, +254728679842  
E-mail: info@sanivation.com  
www.sanivation.com

Drawn by: J.K.M Date: SEP 2024  
Designed by: P.M.M Date: SEP 2024  
Checked by: T.J.O Date: SEP 2024  
Approved by: J.K.W Date: SEP 2024  
Project No:  
Contract No:


Client:  
**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**  
Financier:  
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY  
Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
SLUDGE PUMP STATION  
PLAN, SECTIONS AND REINFORCEMENT DETAILS  
Scale: AS SHOWN Sheet No: 6 / 7 Drawing No: WFSTP - 1.5.2



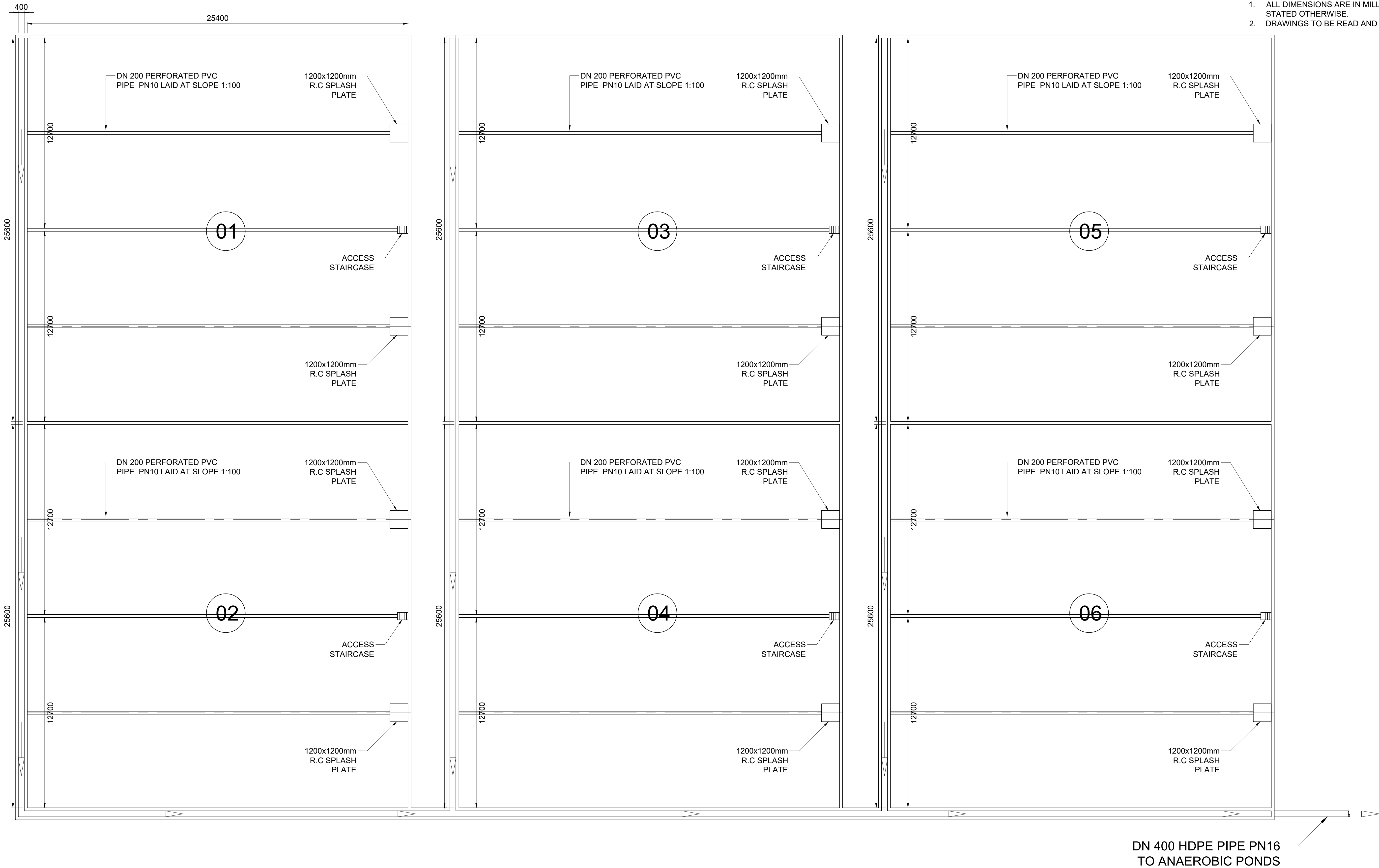


REV	Description	Sign	Date	Approved
REVISIONS				

<p>Design Consultant:</p> <div>  <div> <p>in cooperation with</p>   <div> <p><b>Sanivation</b> Sanitation as a Service</p> </div> </div> </div>		<p>Drawn by: J.K.M Date: SEP 2024</p> <p>Designed by: P.M.M Date: SEP 2024</p> <p>Checked by: T.J.O Date: SEP 2024</p> <p>Approved by: J.K.W Date: SEP 2024</p> <p>Project No:</p> <p>Contract No:</p>		<p>Client:</p> <div>  <p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p> </div> <p>Financier:</p> <div>  <p><b>WORLD BANK</b></p> </div>		<p>Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY</p> <p>Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SLUDGE PUMP STATION BEAM LAYOUT AND ROOF LAYOUT DETAILS</p> <p>Scale: AS SHOWN Sheet No: 7 / 7 Drawing No: WFSTP - 1.5.2</p>			
<p><b>Systel Engineering Limited</b> 5th Floor, Wing II, C/O Plaza Mara Road, Upperhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)11-25996000, Nairobi E-mail: consulting@syselengineering.com</p>		<p><b>EAST AFRICAN ENGINEERING CONSULTANTS</b> Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72388-00100, Nairobi Tel: +254-20-2714514/15116, +254-20-2718861, +254-20-2327995 E-mail: info@eaecgroup.com</p>		<p><b>SANIVATION LIMITED</b> Villa View Estate, Mid South Lake Road, Naivasha. P.O.Box 352, Naivasha Kenya Tel: +2547284560505, +254728679842 E-mail: info@sanivation.com www.sanivation.com</p>					



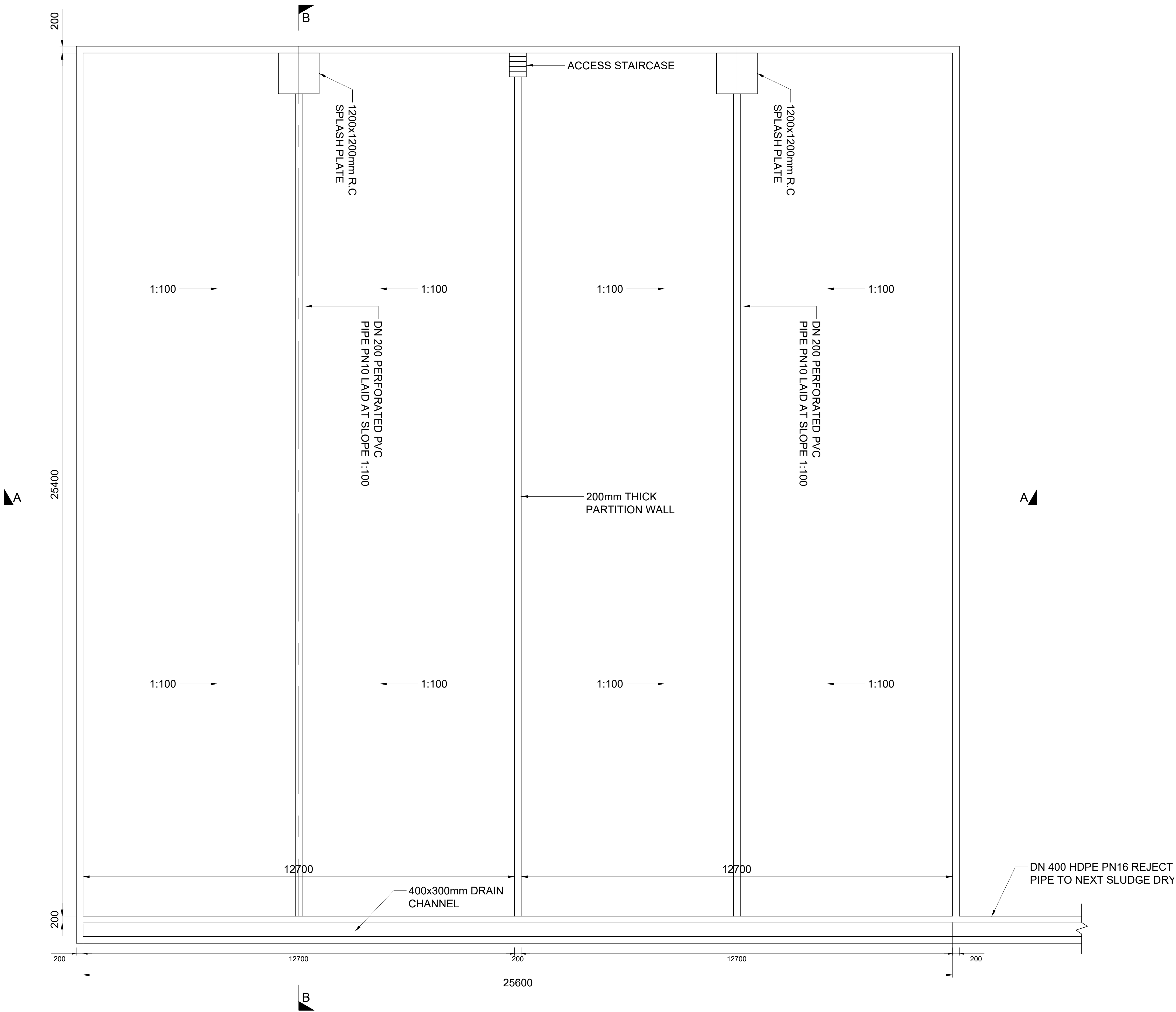
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  2. DRAWINGS TO BE READ AND NOT SCALED.



ARRANGEMENT OF SLUDGE DRYING BED 25.4m BY 25.4m  
SCALE 1:125

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- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  2. DRAWINGS TO BE READ AND NOT SCALED.

LAYOUT OF SLUDGE DRYING BED 25.4m BY 25.4m

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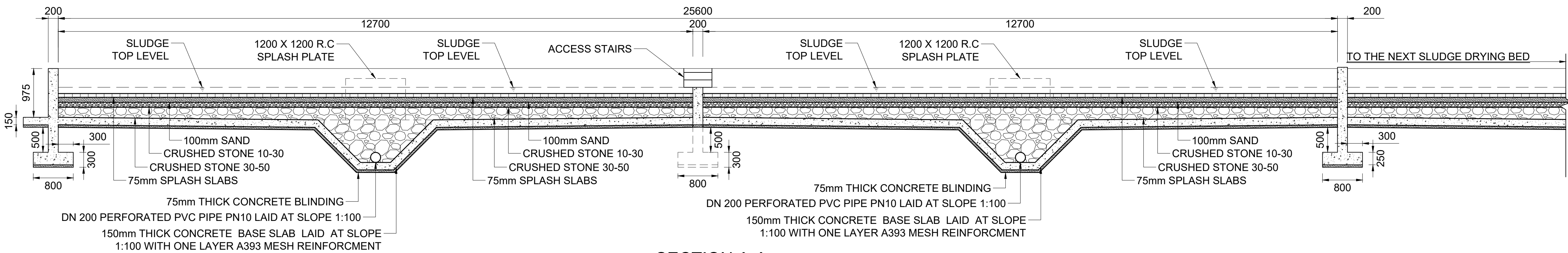


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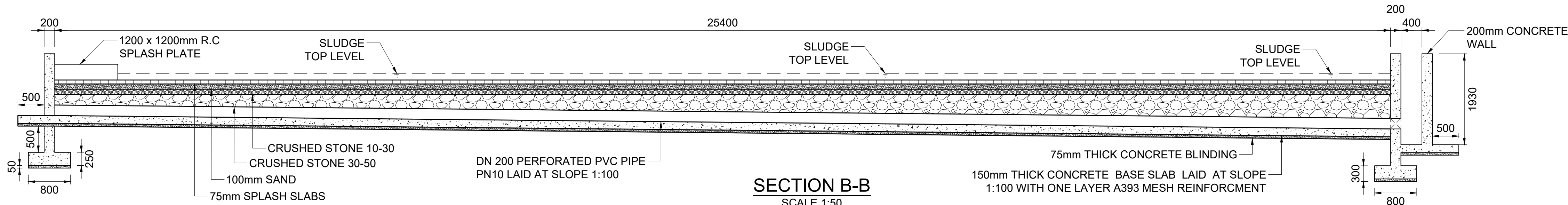
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.  
2. DRAWINGS TO BE READ AND NOT SCALED.

LEGEND:

EL - ELEVATION



SECTION A-A  
SCALE 1:50



SECTION B-B  
SCALE 1:50

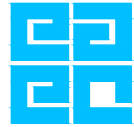
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



Systel Engineering Limited  
5th Floor/Wing II, CIG Plaza  
Mara Road, Upperhill  
P.O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)791329600 726039006  
E-mail: consulting@systelengineering.com

in  
cooperation  
with



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ENGINEERING CONSULTANTS  
Lenana Court, New Wing No. 3, Lenana rd, Kilimani  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

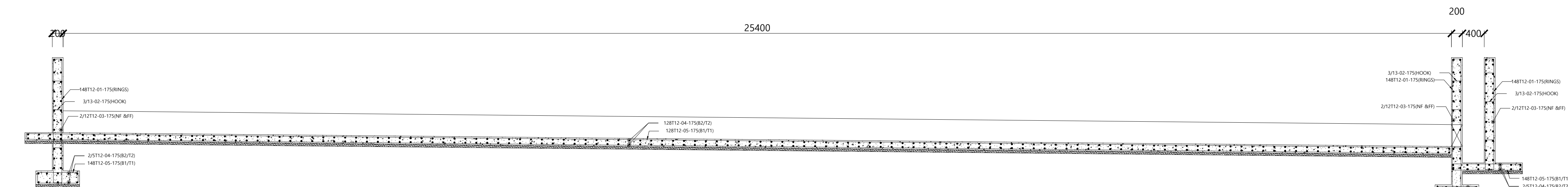
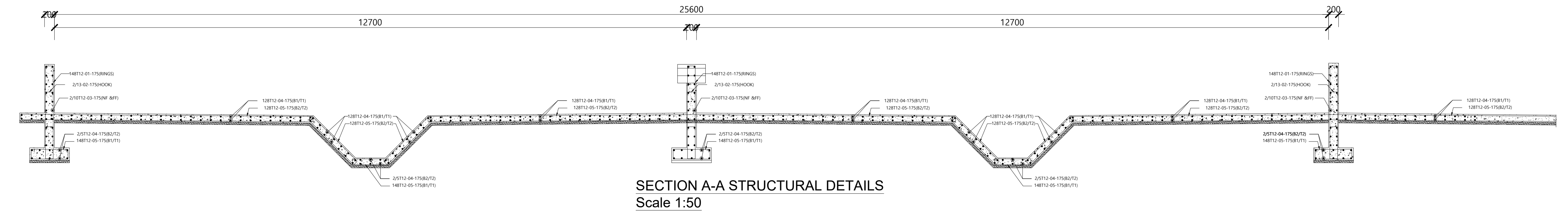
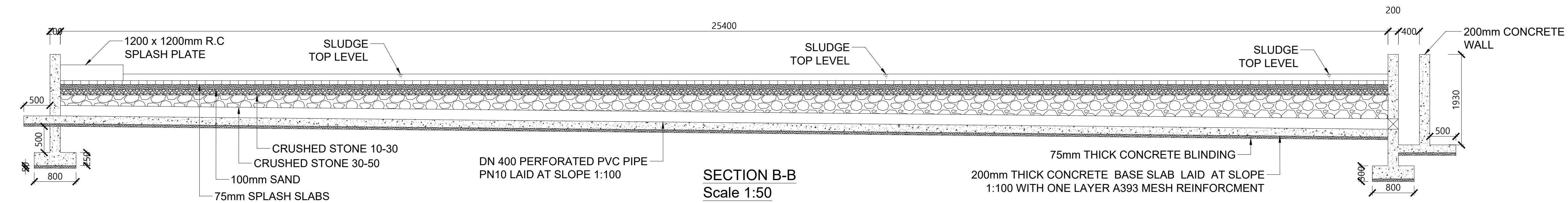
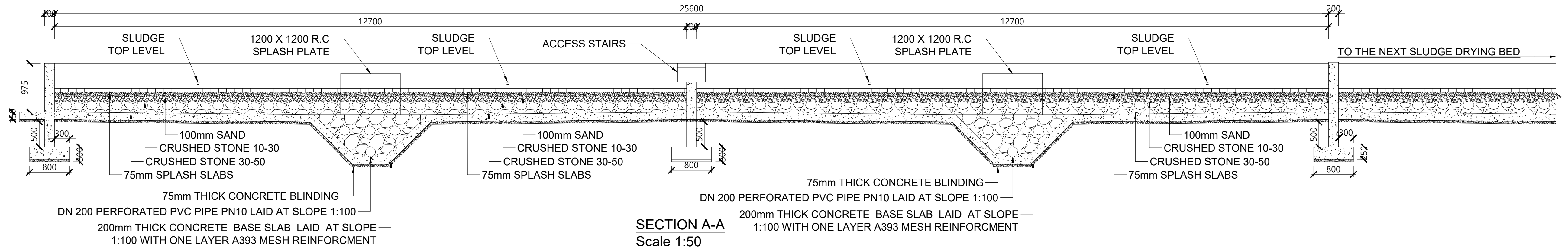
Financier:



WORLD BANK

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SLUDGE DRYING BED SECTIONS			
Scale: AS SHOWN	Sheet No: 3 / 4	Drawing No: WFSTP - 1.5.3	





REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL**  
ENGINEERING LTD

Systel Engineering Limited  
5th Floor Wing II, CIC Plaza  
Mara Road Upperhill  
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Tel: +25420719132980 / 72603606  
E-mail: consulting@systelengineering.com

in cooperation with

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Lenana Court, New Wing No.3, Lenana rd, Kilimani  
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E-mail: info@eaecgroup.com

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E-mail: info@sanivation.com  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

Financier:

**WORLD BANK**

Project:	CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title:	DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SLUDGE DRYING BEDS REINFORCEMENT DETAILS		
Scale:	AS SHOWN	Sheet No:	4 / 4
Drawing No:	WFSTP - 1.5.3		

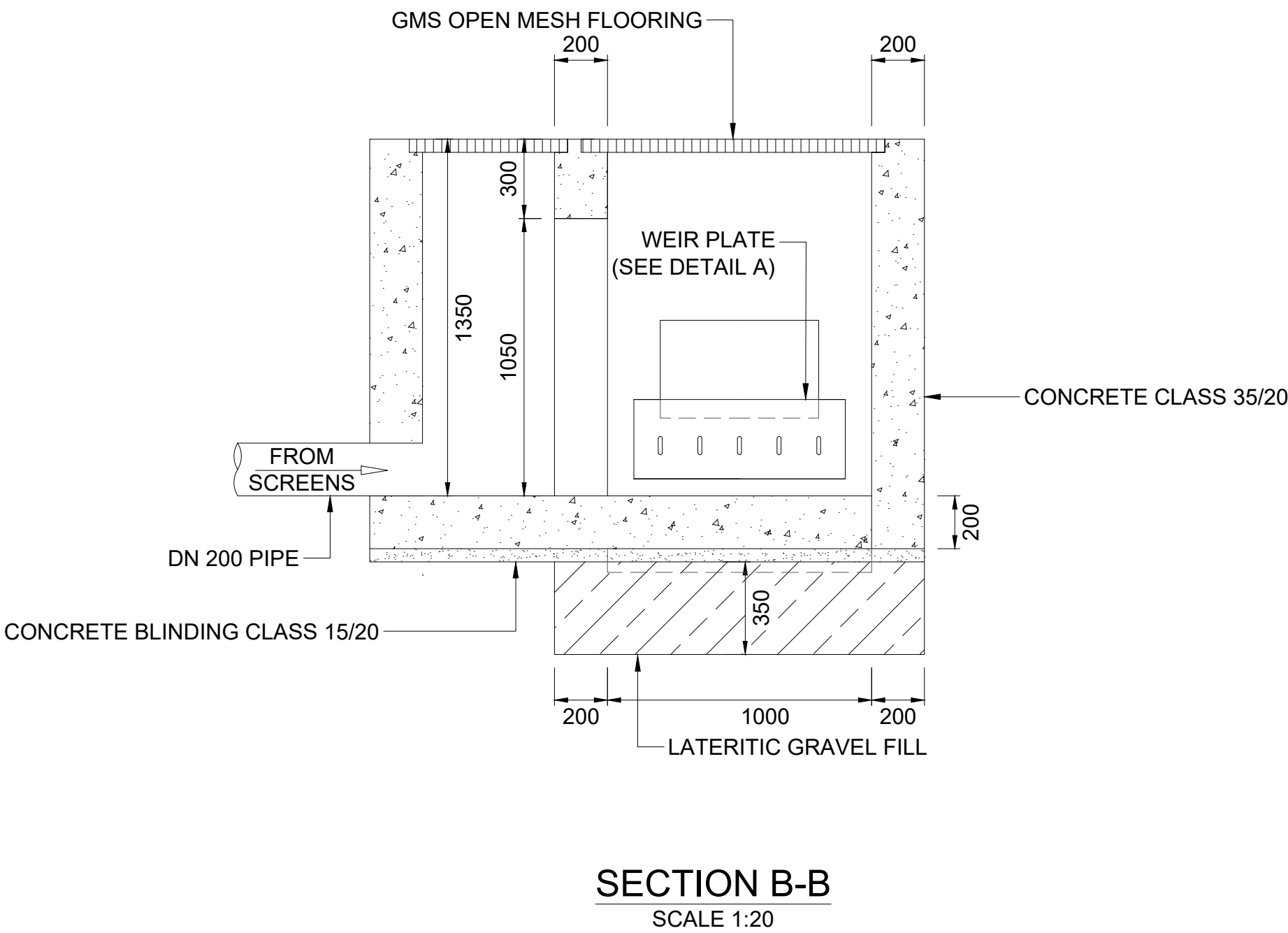
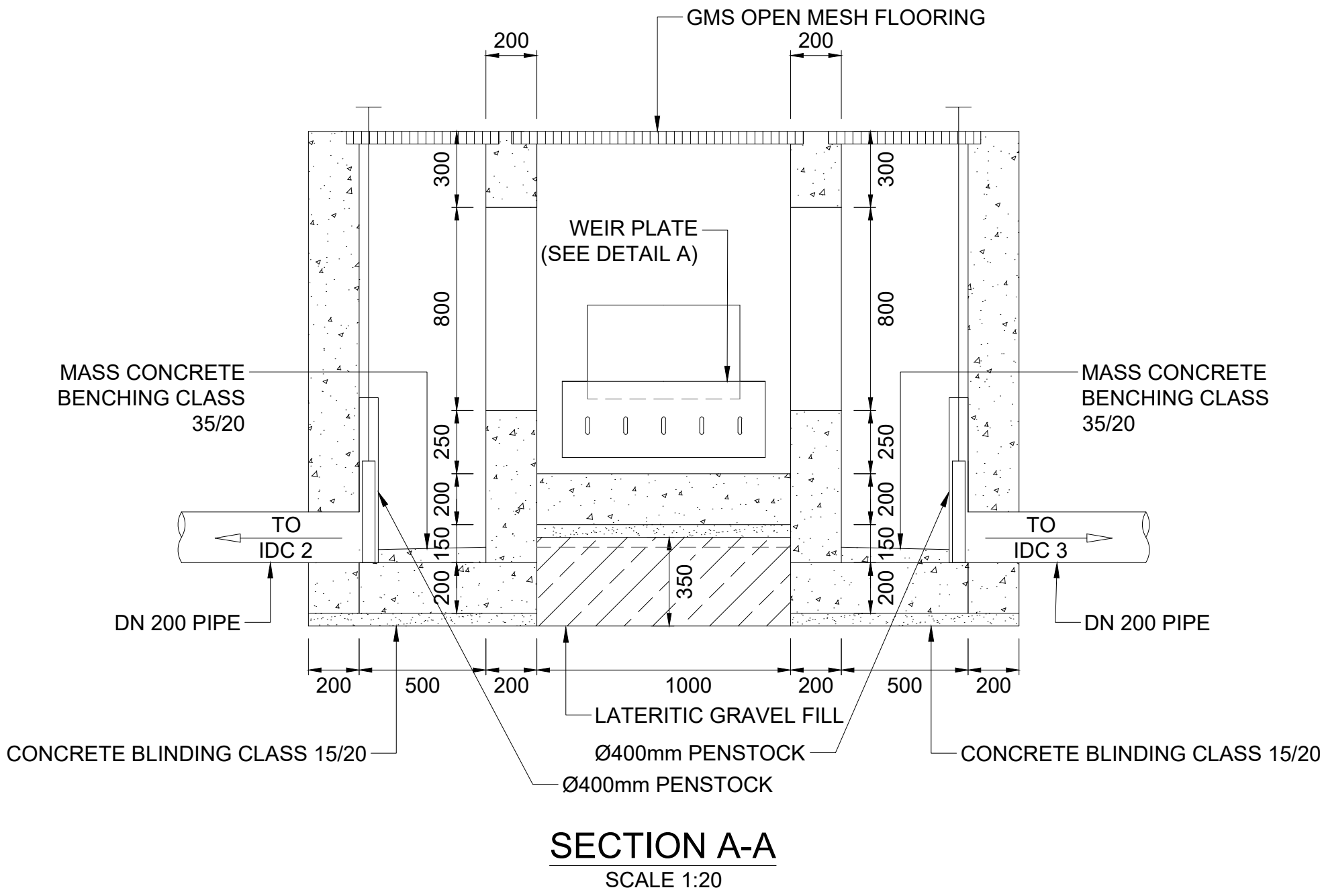
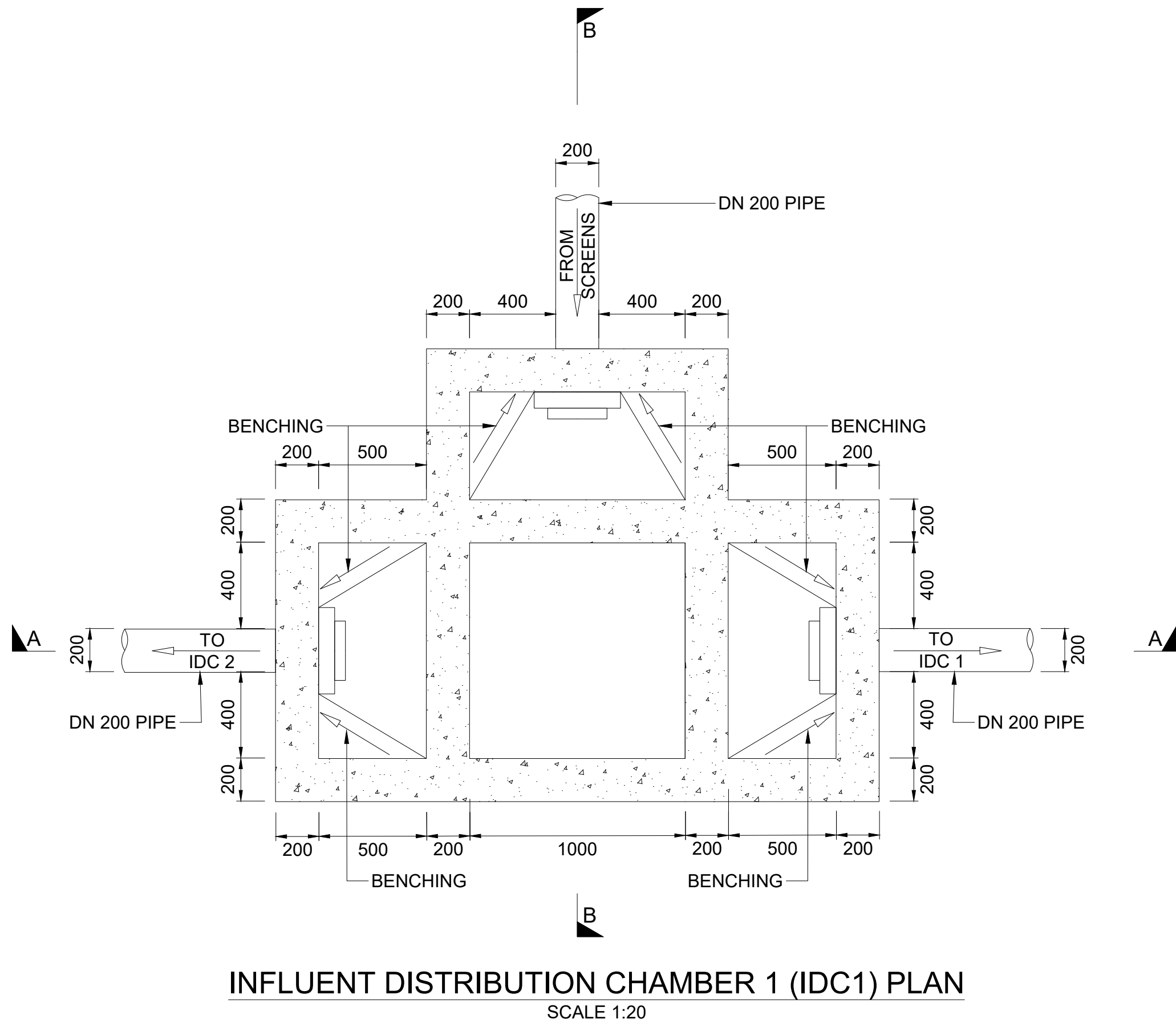






NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE  
2. DRAWINGS TO BE READ AND NOT SCALED  
3. FOR DETAIL A REFER TO DRAWING NUMBER LNBCP-S-WW-6.7

LEGENDS.

1. IDC - INFLUENT DISTRIBUTION CHAMBER  
2. FGL - ORIGINAL GROUND LEVEL  
3. GMS - GALVANISED MILD STEEL



					Design Consultant:					Drawn by: J.K.M Date: SEP 2024					Client:					Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
					 in cooperation with 					Designed by: P.M.M Date: SEP 2024										Drawing Title: DETAILED DESIGN				
					Systel Engineering Limited 5th Floor,Wing II, C/O Plaza Mara Road,Upperrhill P.O. Box 191709 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com					Checked by: T.J.O Date: SEP 2024					Financier: 					WAJIR FAECAL SLUDGE TREATMENT PLANT				
					EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com					Approved by: J.K.W Date: SEP 2024					WORLD BANK					INFLUENT DISTRIBUTION CHAMBER 1 (IDC 1)				
					SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 282 Naivasha Kenya Tel: +254729465035, +254729679842 E-mail: info@sanivation.com www.sanivation.com					Project No:										PLAN AND SECTION DETAILS				
REV					Description					Contract No:										Scale: AS SHOWN				
					Sign										Sheet No: 1 / 4					Drawing No: WFSTP - 1.5.4				
					Date																			
					Approved																			
					REVISIONS																			

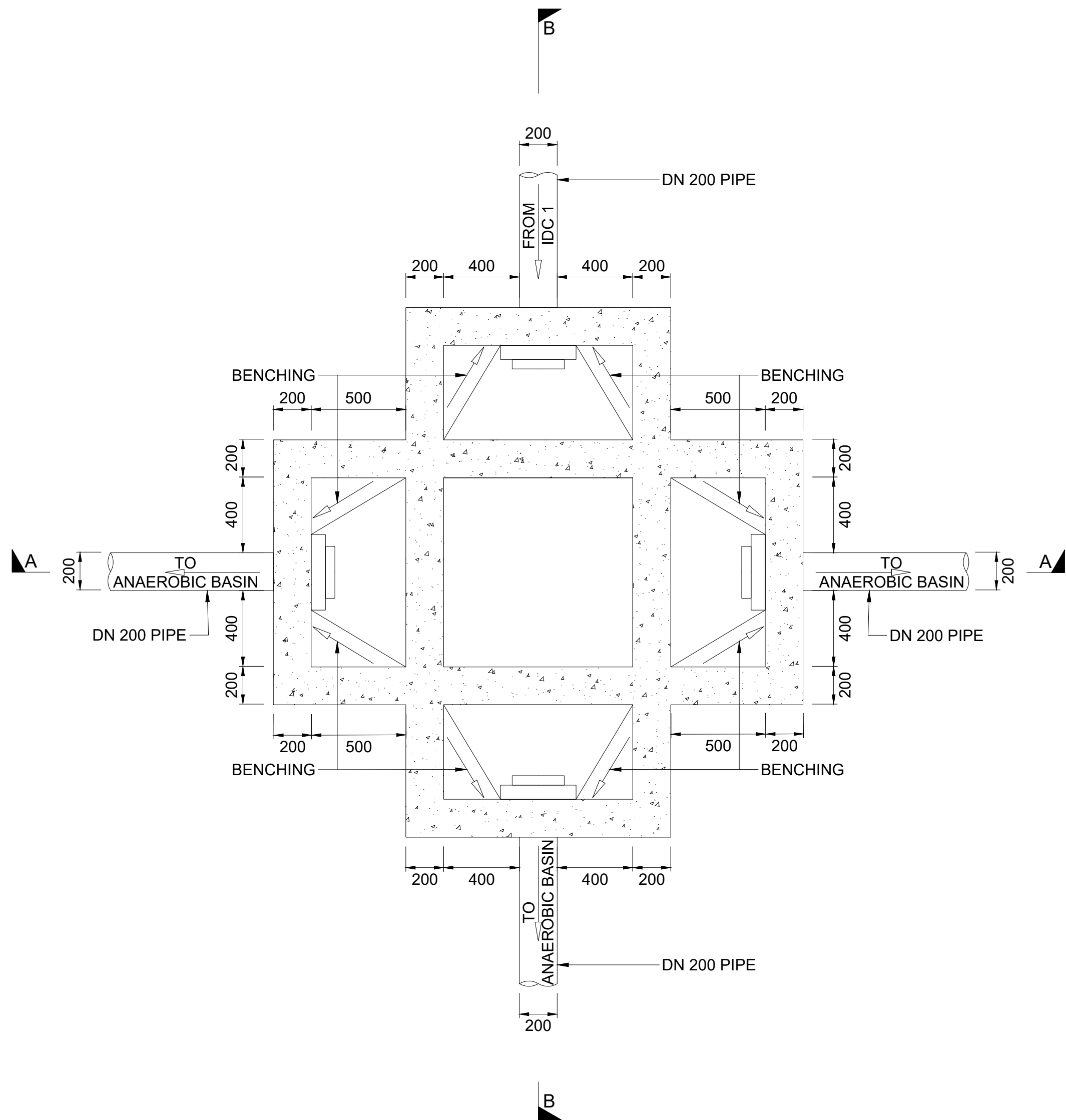


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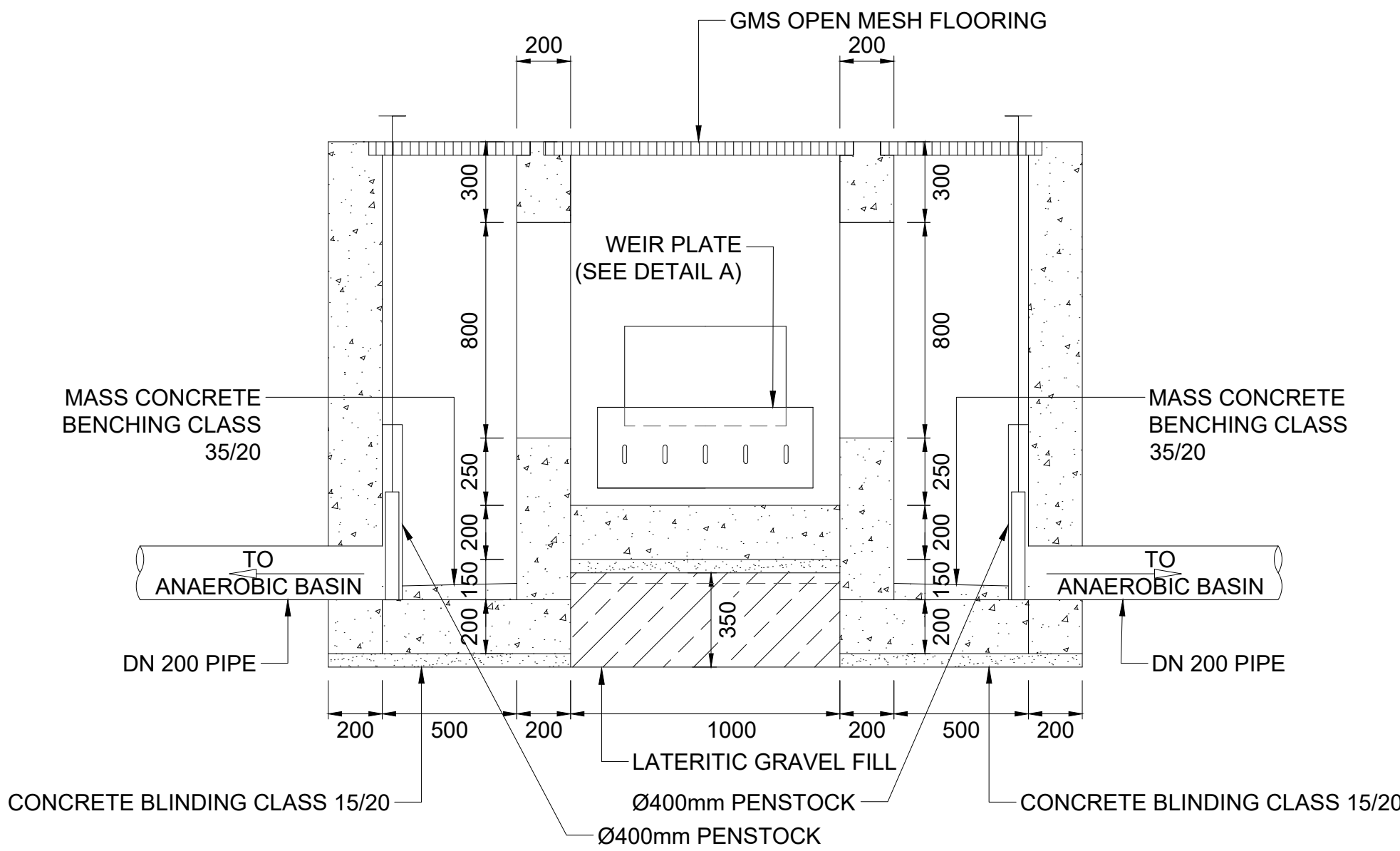
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LEGENDS.

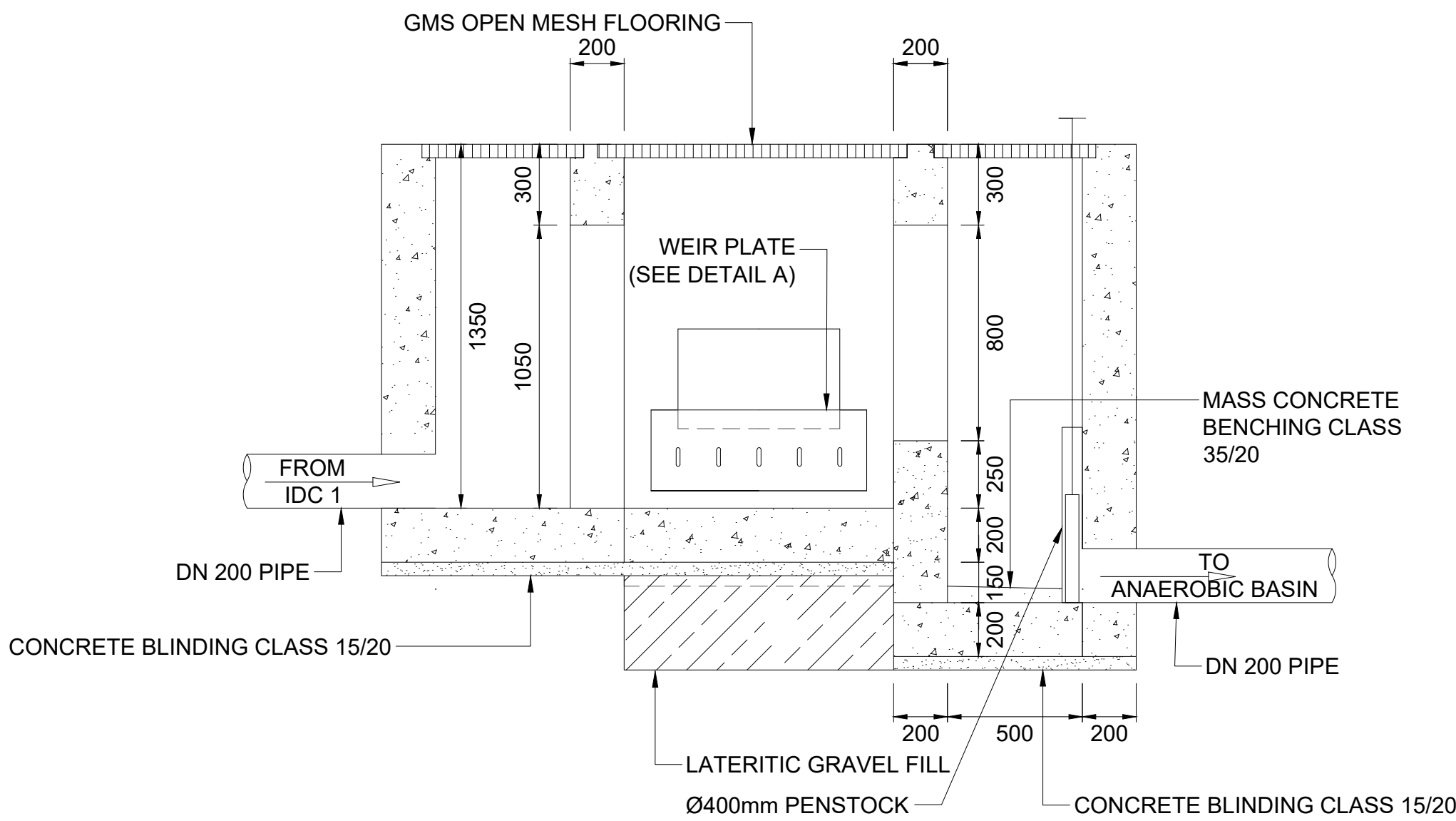
1. IDC - INFLUENT DISTRIBUTION CHAMBER
2. FGL - ORIGINAL GROUND LEVEL
3. GMS - GALVANISED MILD STEEL



INFLUENT DISTRIBUTION CHAMBER 2 (IDC 2) PLAN  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL ENGINEERING LTD**

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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT INFLUENT DISTRIBUTION CHAMBER 2 (IDC 2) PLAN AND SECTIONS AND DETAILS		
Scale: AS SHOWN	Sheet No: 2 / 4	Drawing No: WFSTP - 1.5.4

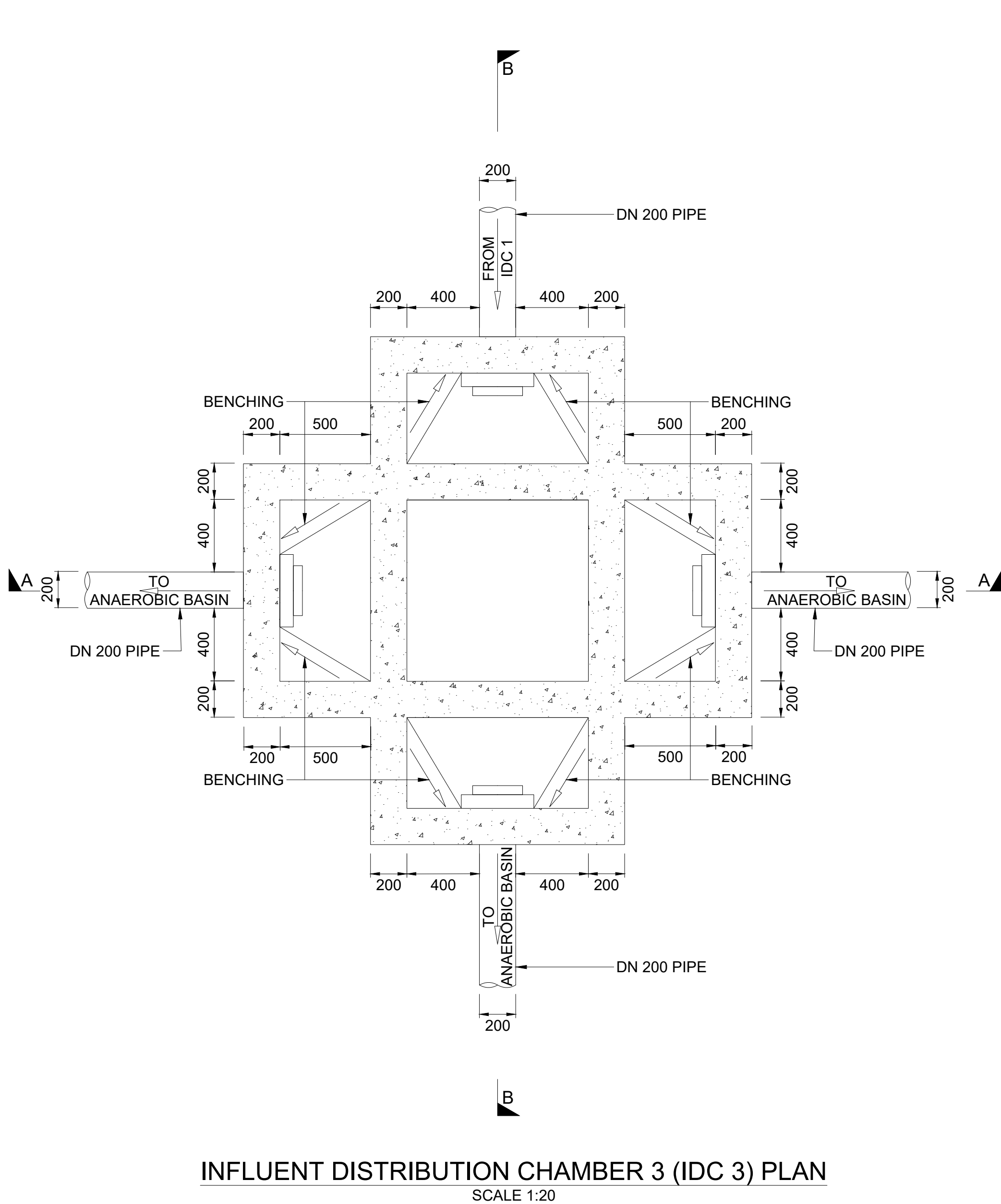


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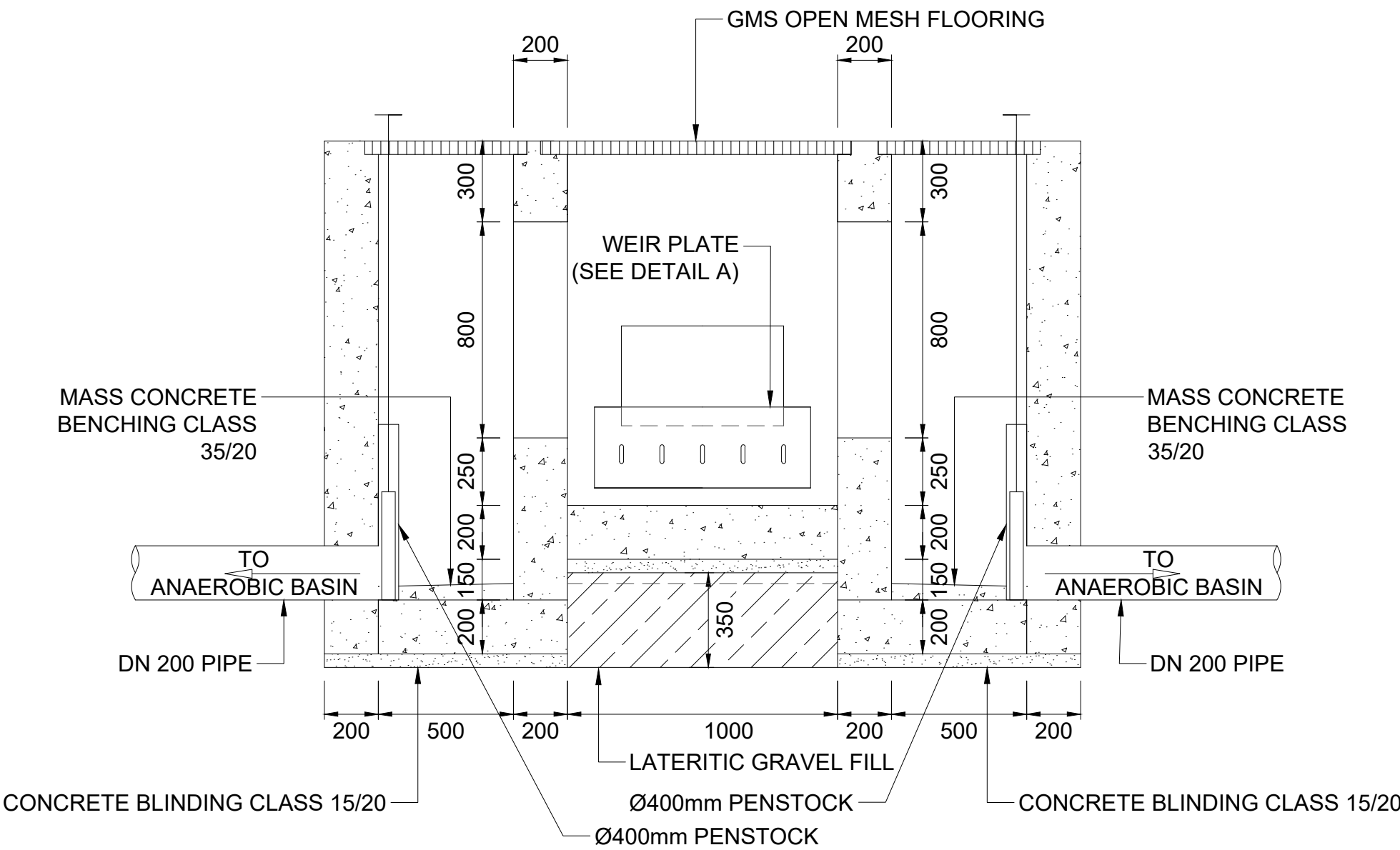
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE
2. DRAWINGS TO BE READ AND NOT SCALED
3. FOR DETAIL A REFER TO DRAWING NUMBER LNBCEP-S-WW-6.7

LEGENDS.

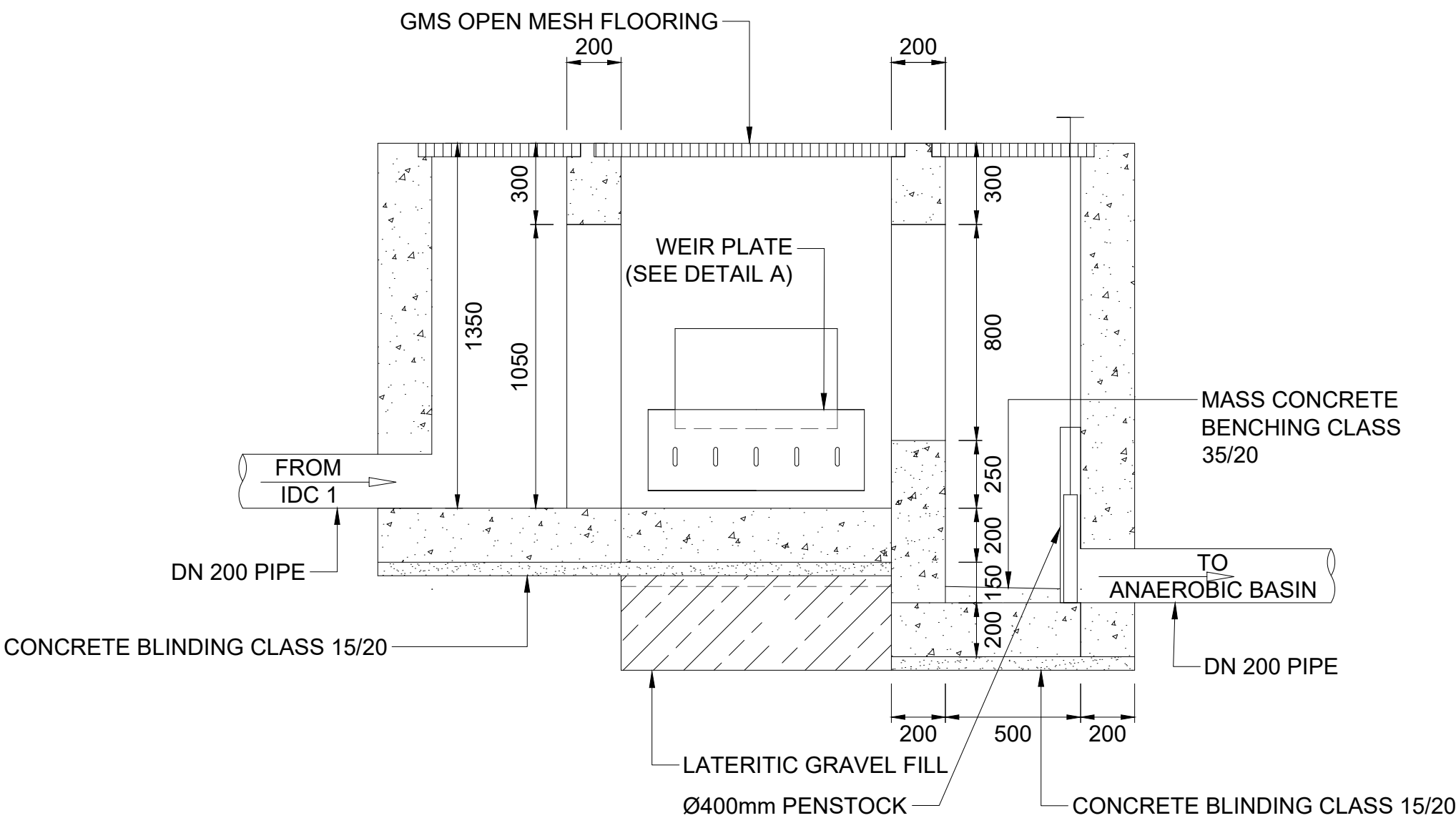
1. IDC - INFLUENT DISTRIBUTION CHAMBER
2. FGL - ORIGINAL GROUND LEVEL
3. GMS - GALVANISED MILD STEEL







INFLUENT DISTRIBUTION CHAMBER 3 (IDC 3) PLAN  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20

					Design Consultant:			Drawn by: J.K.M Date: SEP 2024			Client:			Project:		
								Designed by: P.M.M Date: SEP 2024						CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
					in cooperation with			Checked by: T.J.O Date: SEP 2024			Financier:			Drawing Title:		
								Approved by: J.K.W Date: SEP 2024						DETAILED DESIGN		
					Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com			Contract No:			WAJIR WATER AND SEWERAGE COMPANY LIMITED			WAJIR FAECAL SLUDGE TREATMENT PLANT INFLUENT DISTRIBUTION CHAMBER 3 (IDC 3) PLAN AND SECTION DETAILS		
					EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com						WORLD BANK			Scale: AS SHOWN Sheet No: 3 / 4 Drawing No: WFSTP - 1.5.4		
					SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 382 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com											
REVISIONS																
REV	Description	Sign	Date	Approved												

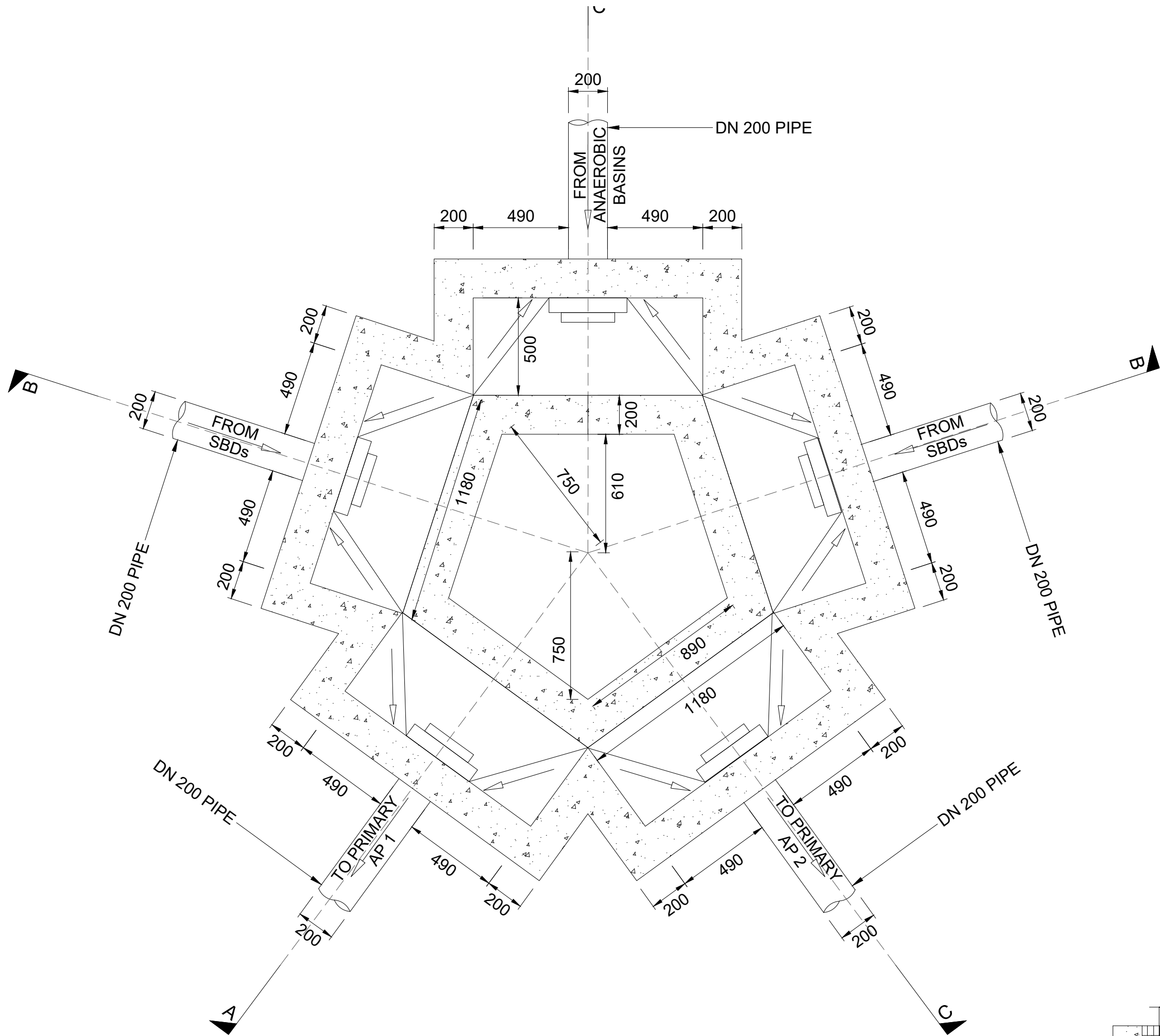


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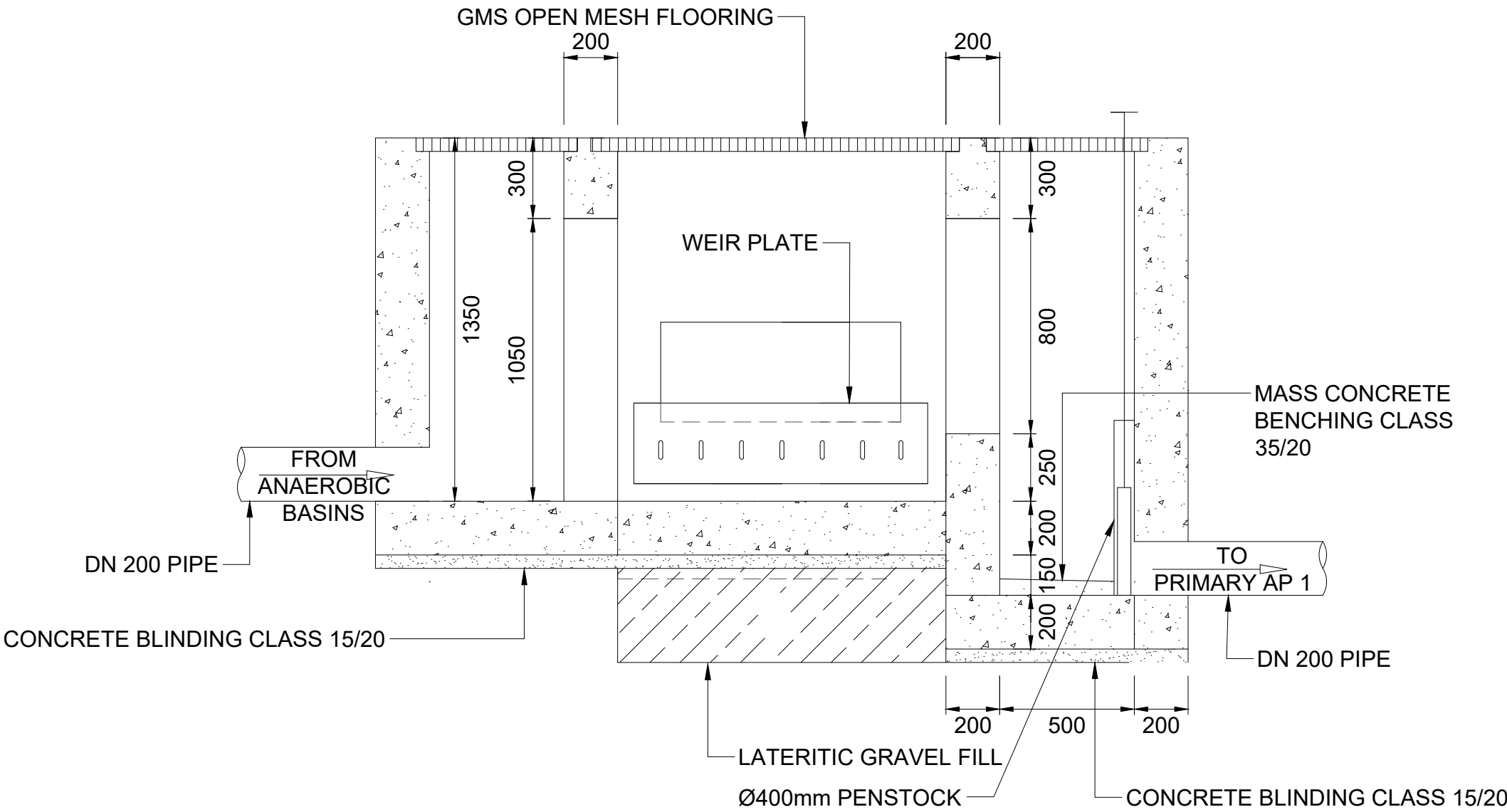
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LEGENDS.

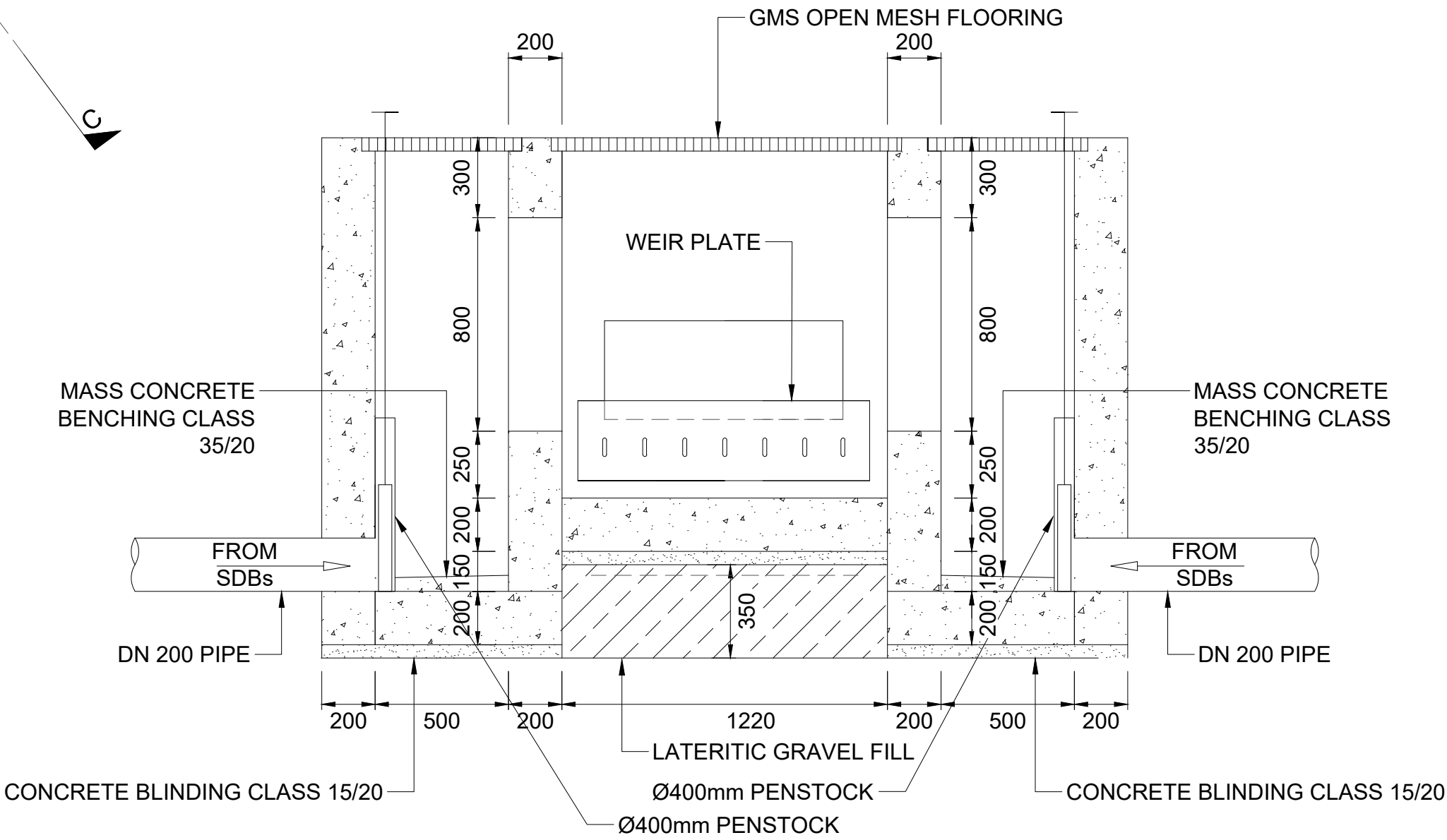
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2. FGL - ORIGINAL GROUND LEVEL  
3. GMS - GALVANISED MILD STEEL



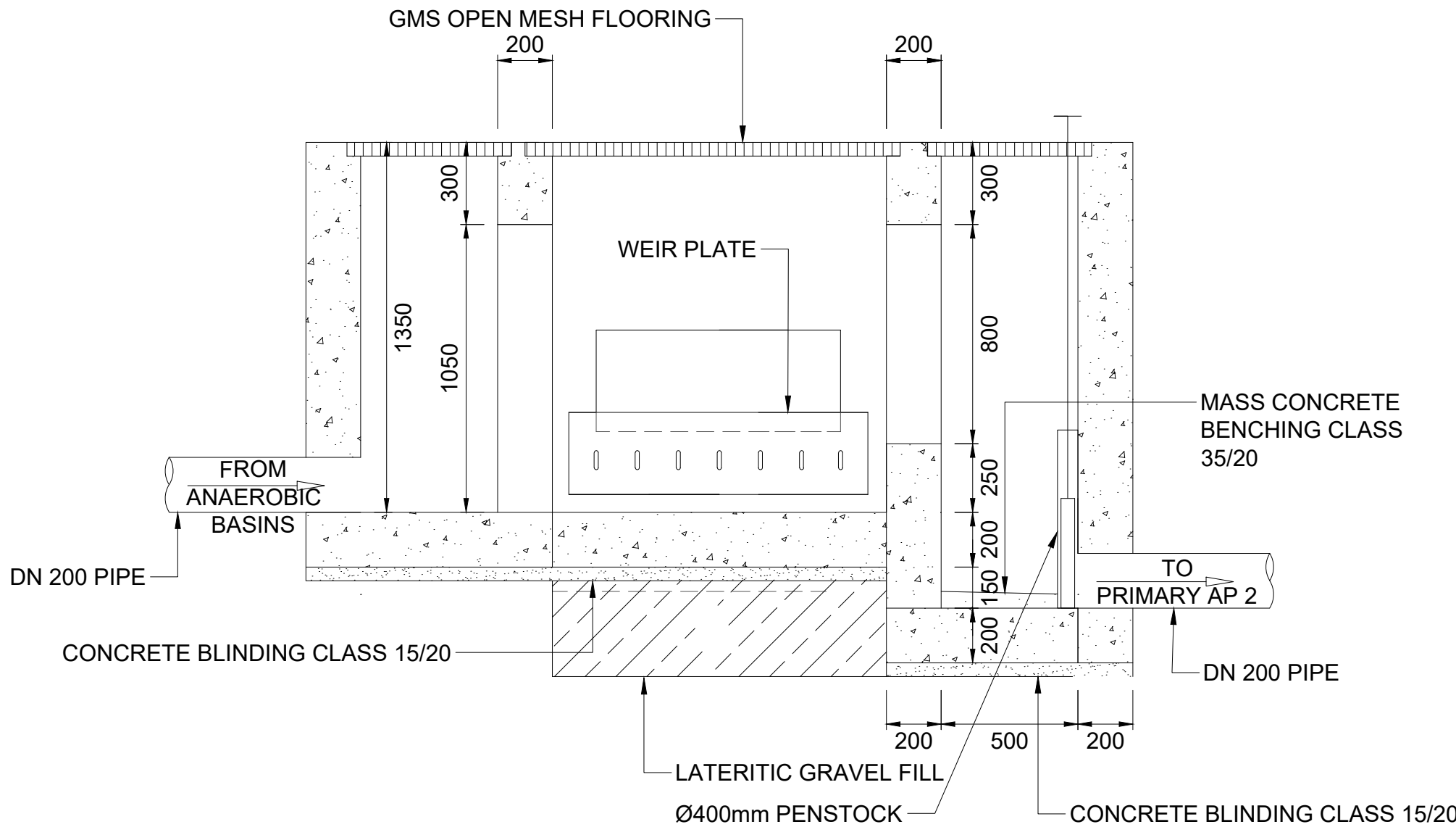
INFLUENT DISTRIBUTION CHAMBER 4 (IDC 4) PLAN  
SCALE 1:20



SECTION A-A  
SCALE 1:20



SECTION B-B  
SCALE 1:20



SECTION C-C  
SCALE 1:20

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL ENGINEERING LTD**

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5th Floor/Wing II, CIC Plaza  
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in cooperation with

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Sanitation as a Service

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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

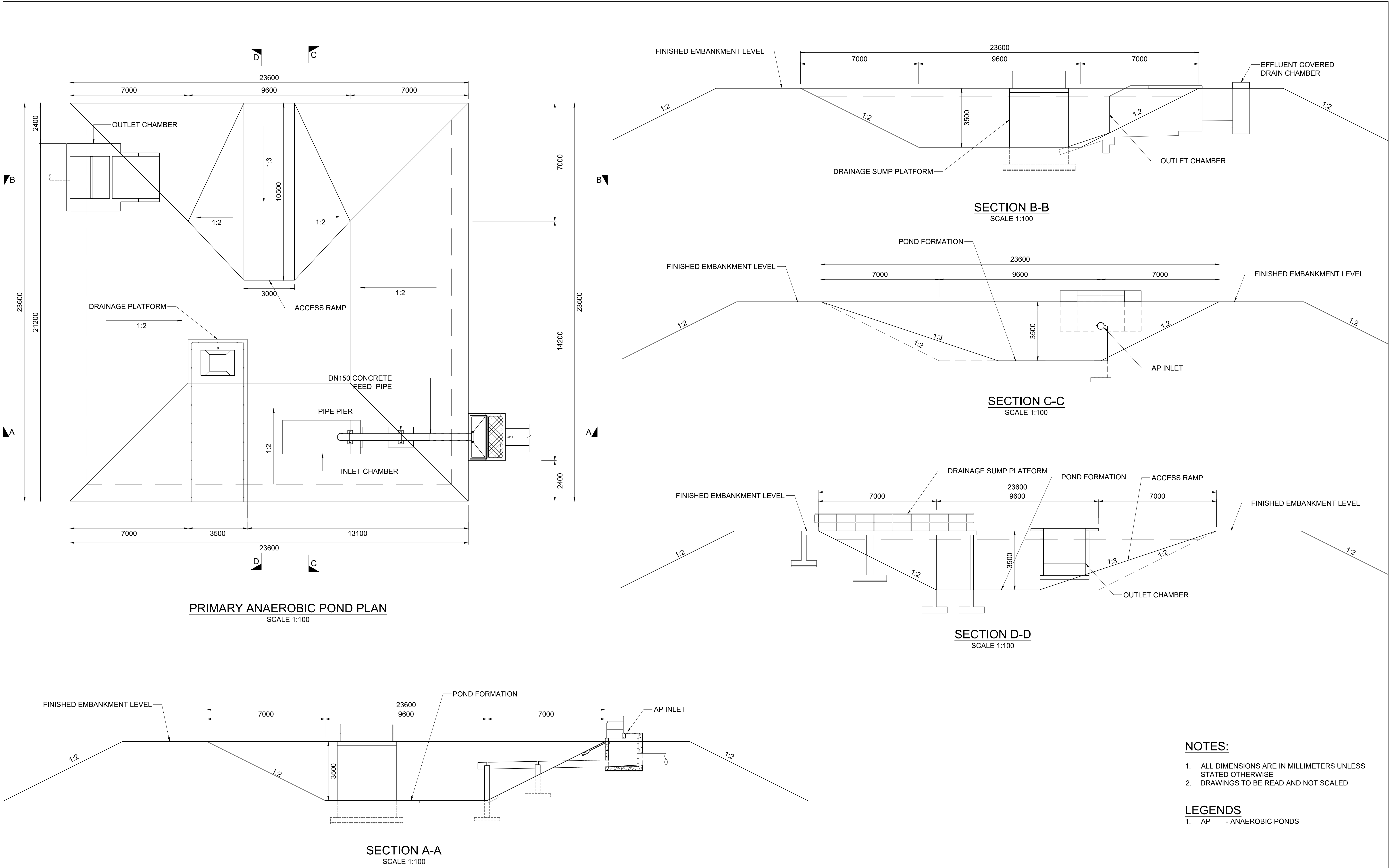
**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT INFLUENT DISTRIBUTION CHAMBER 4 (IDC 4) PLAN AND SECTIONS DETAILS		
Scale: AS SHOWN	Sheet No: 4 / 4	Drawing No: WFSTP - 1.5.4





- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE
  - DRAWINGS TO BE READ AND NOT SCALED
- LEGENDS**
- AP - ANAEROBIC PONDS

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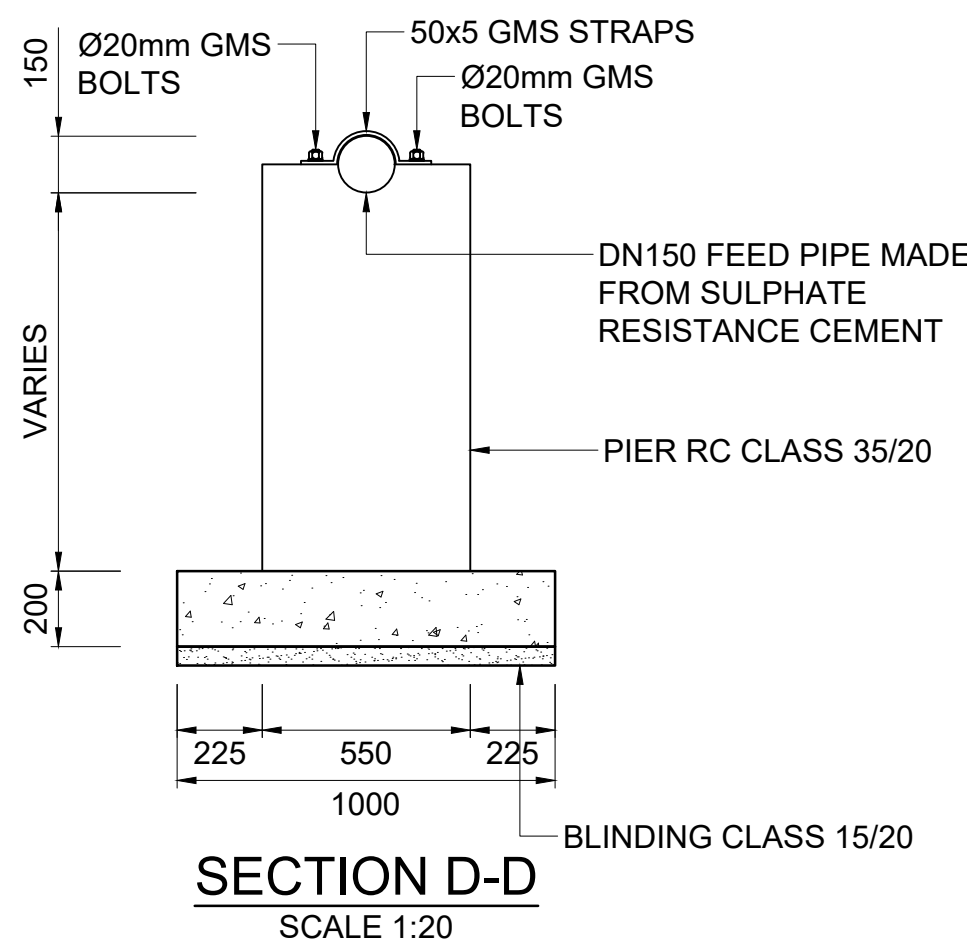
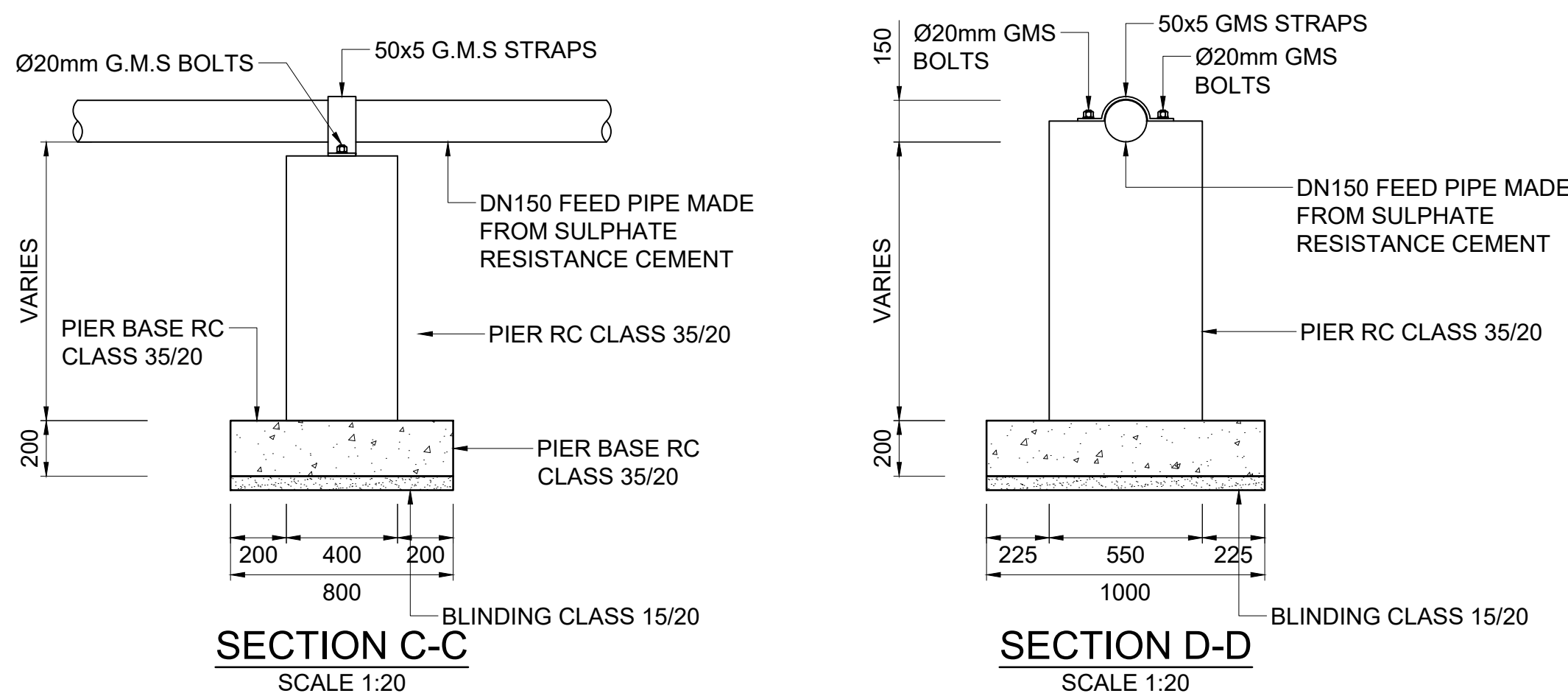
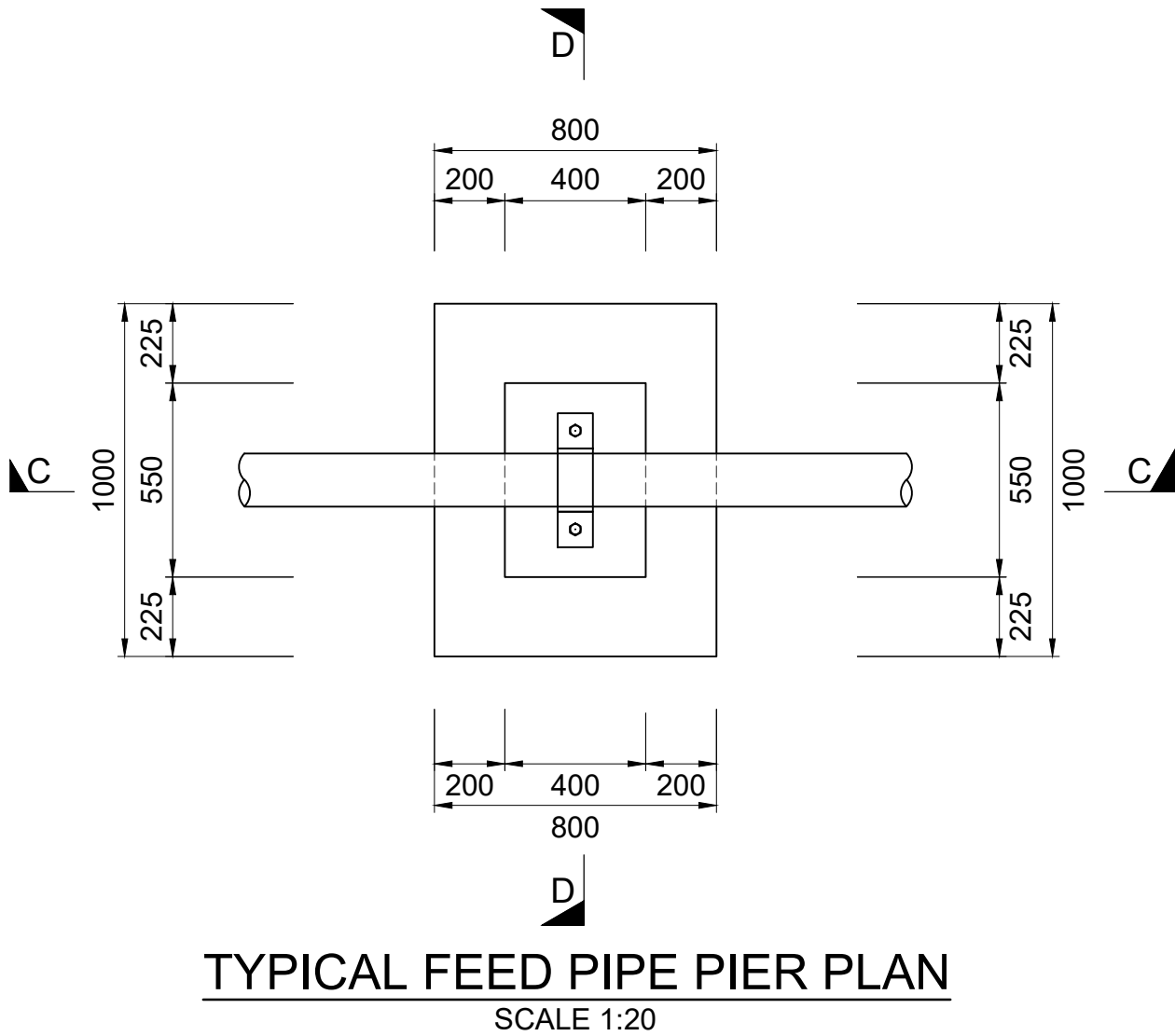
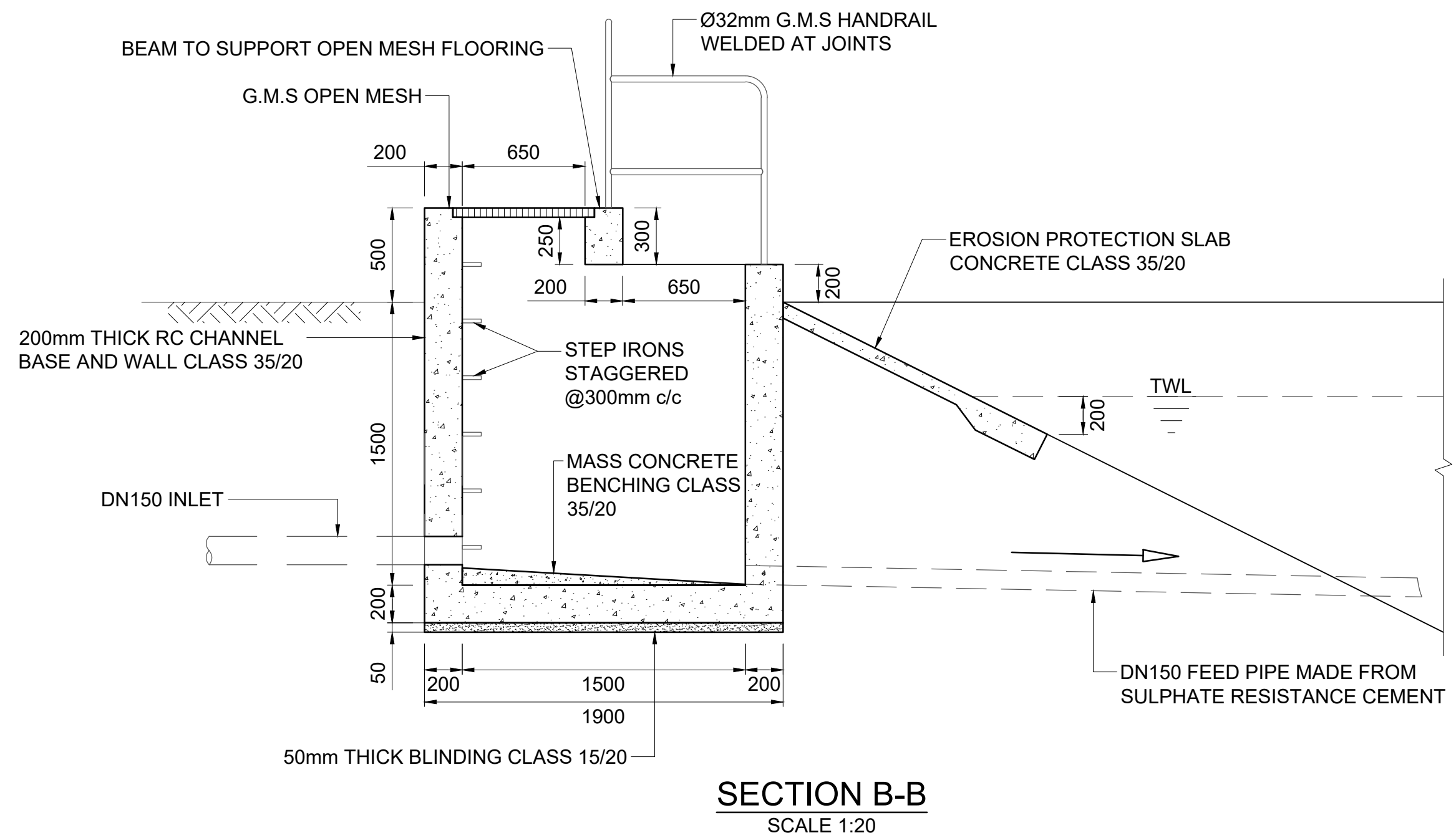
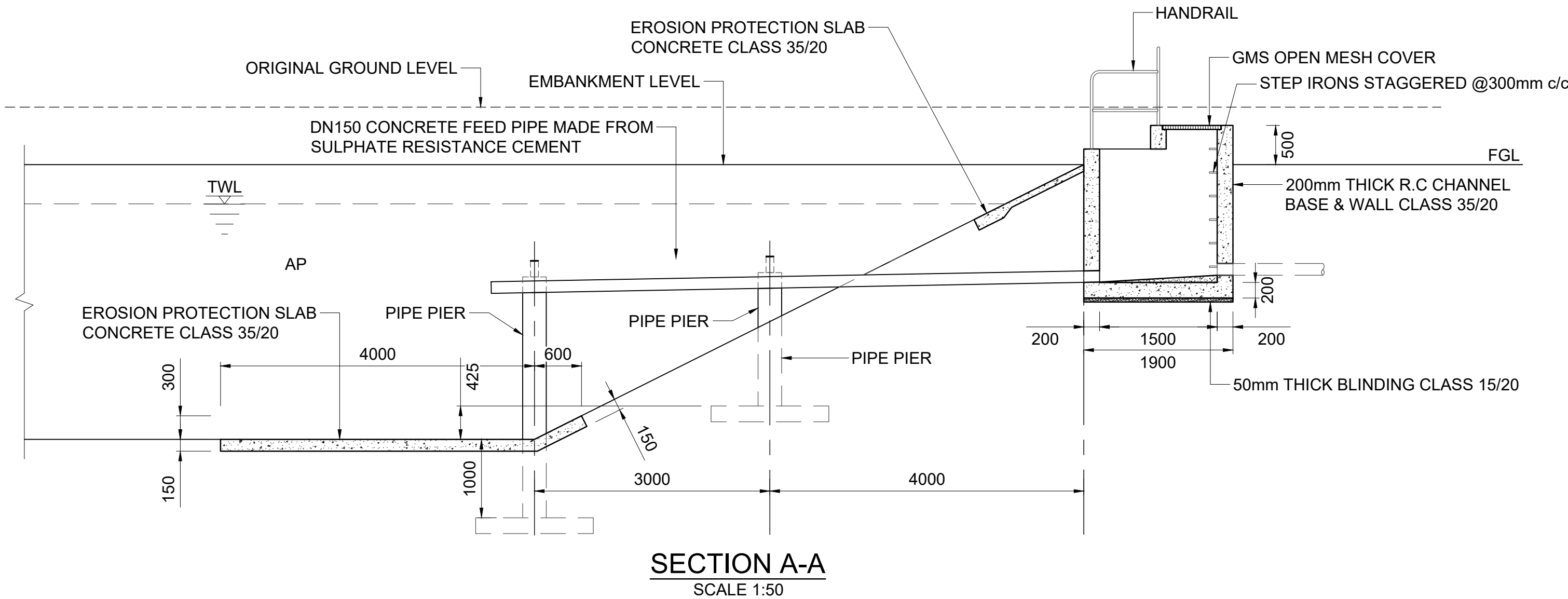
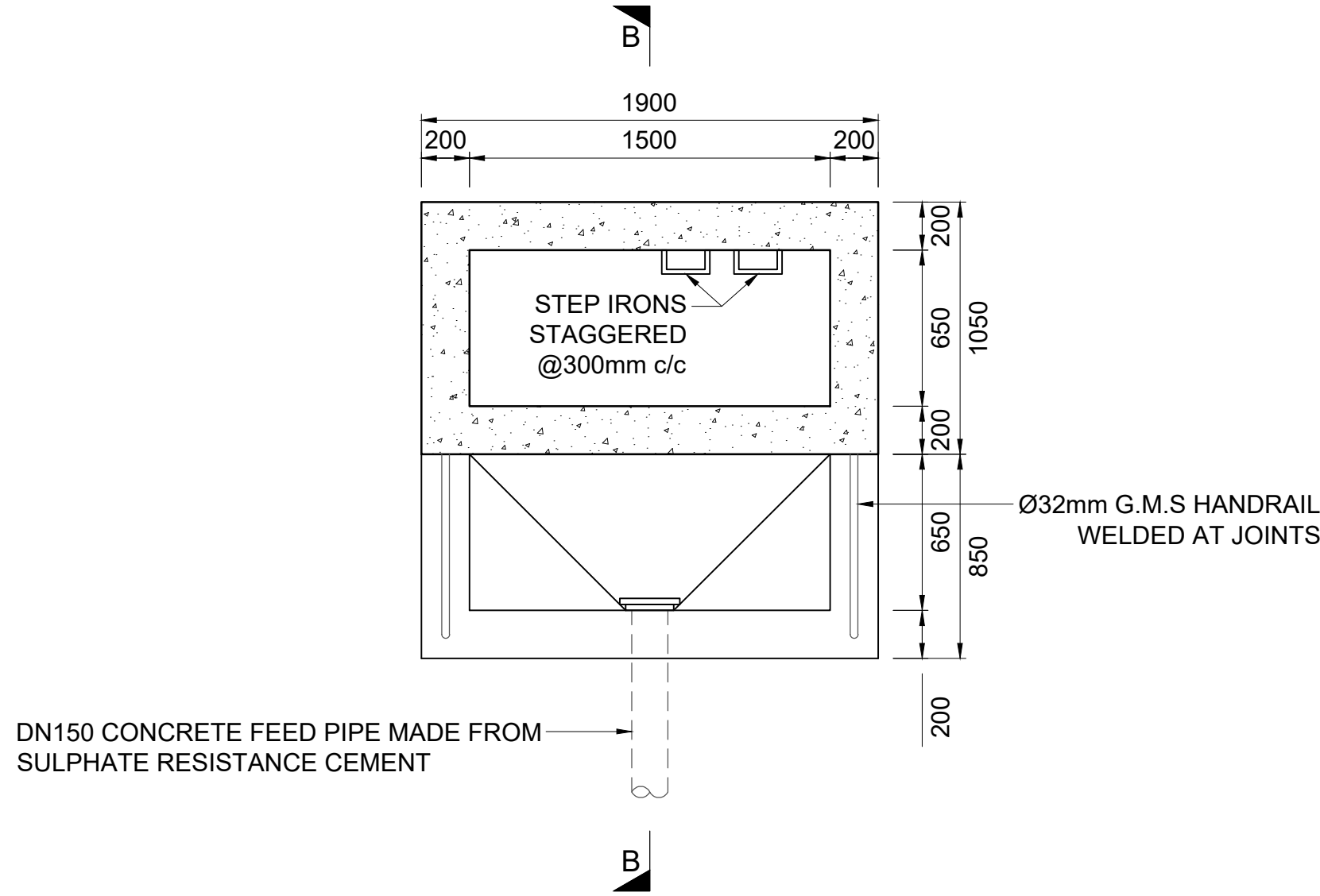
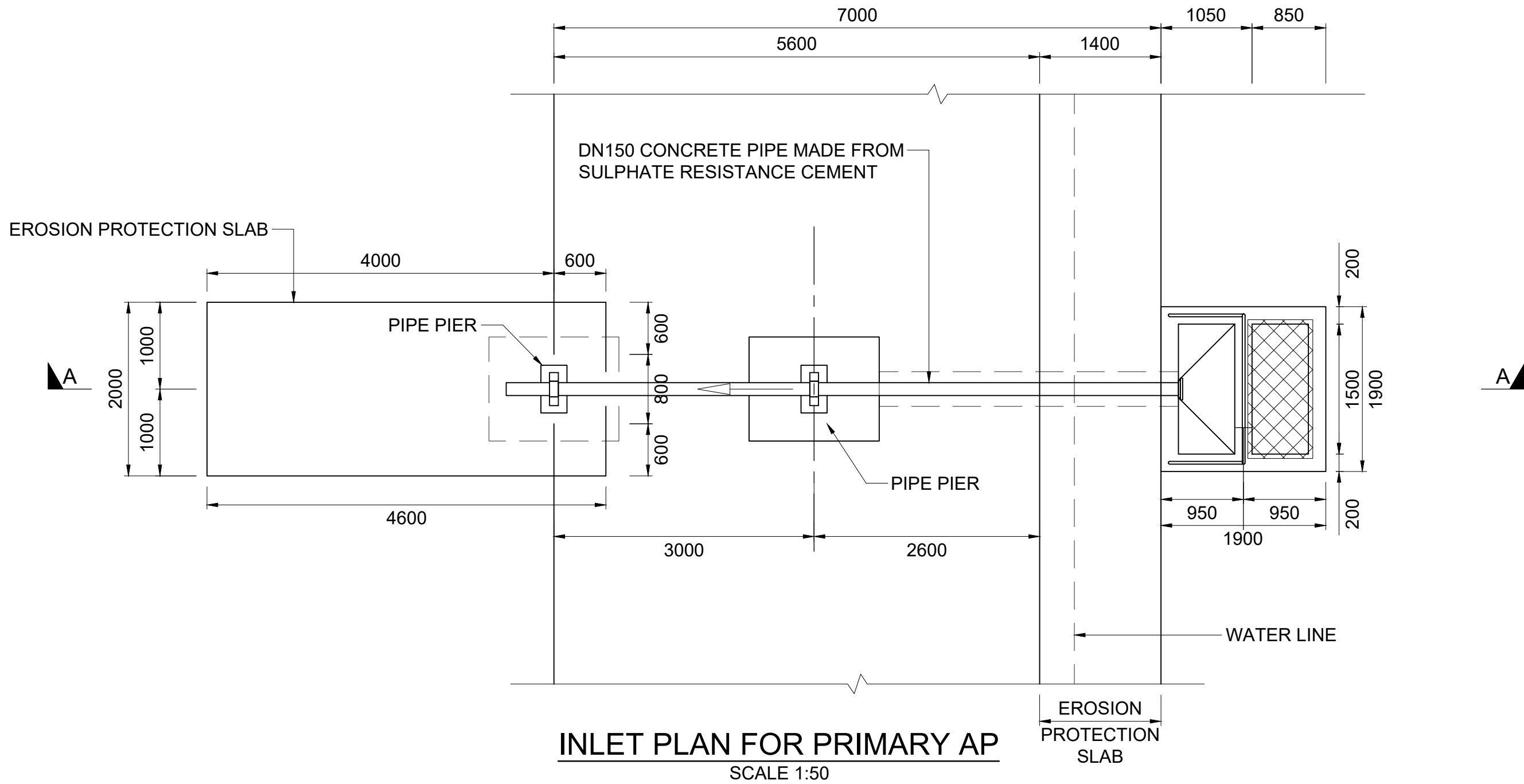


NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
- DRAWINGS TO BE READ AND NOT SCALED.

LEGENDS.

- AP - ANAEROBIC POND
- GMS - GALVANISED MILD STEEL
- FGL - FINISHED GROUND LEVEL



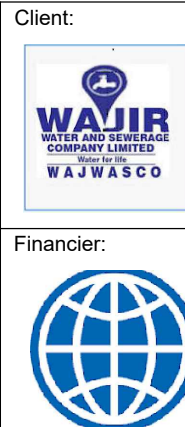
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
5th Floor/Wing II, CIC Plaza  
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P.O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)781329860/ 728038006  
E-mail: consulting@systemengineering.com

in cooperation with  
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Drawn by: J.K.M Date: SEP 2024  
Designed by: P.M.M Date: SEP 2024  
Checked by: T.J.O Date: SEP 2024  
Approved by: J.K.W Date: SEP 2024  
Project No:  
Contract No:



**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

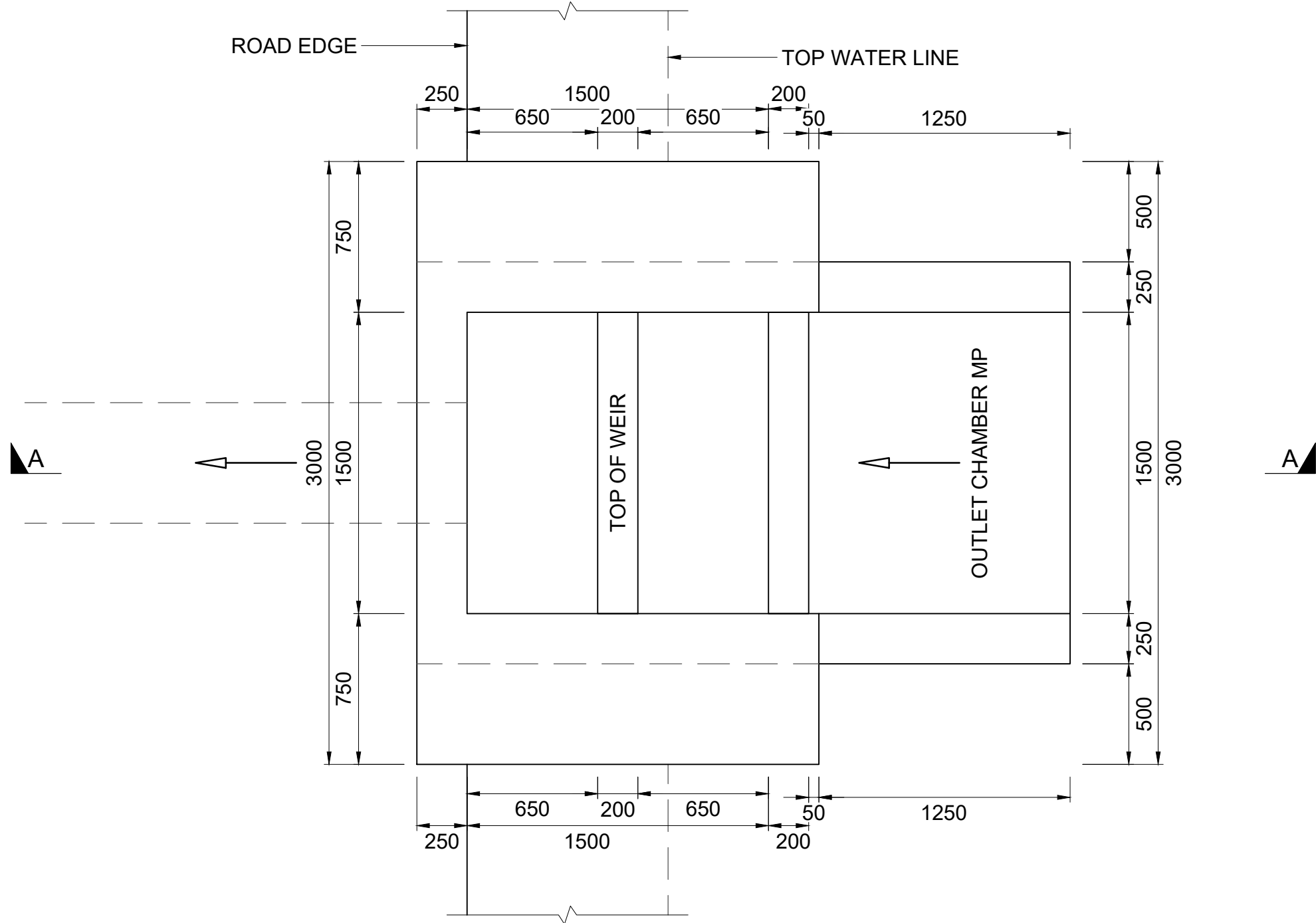
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

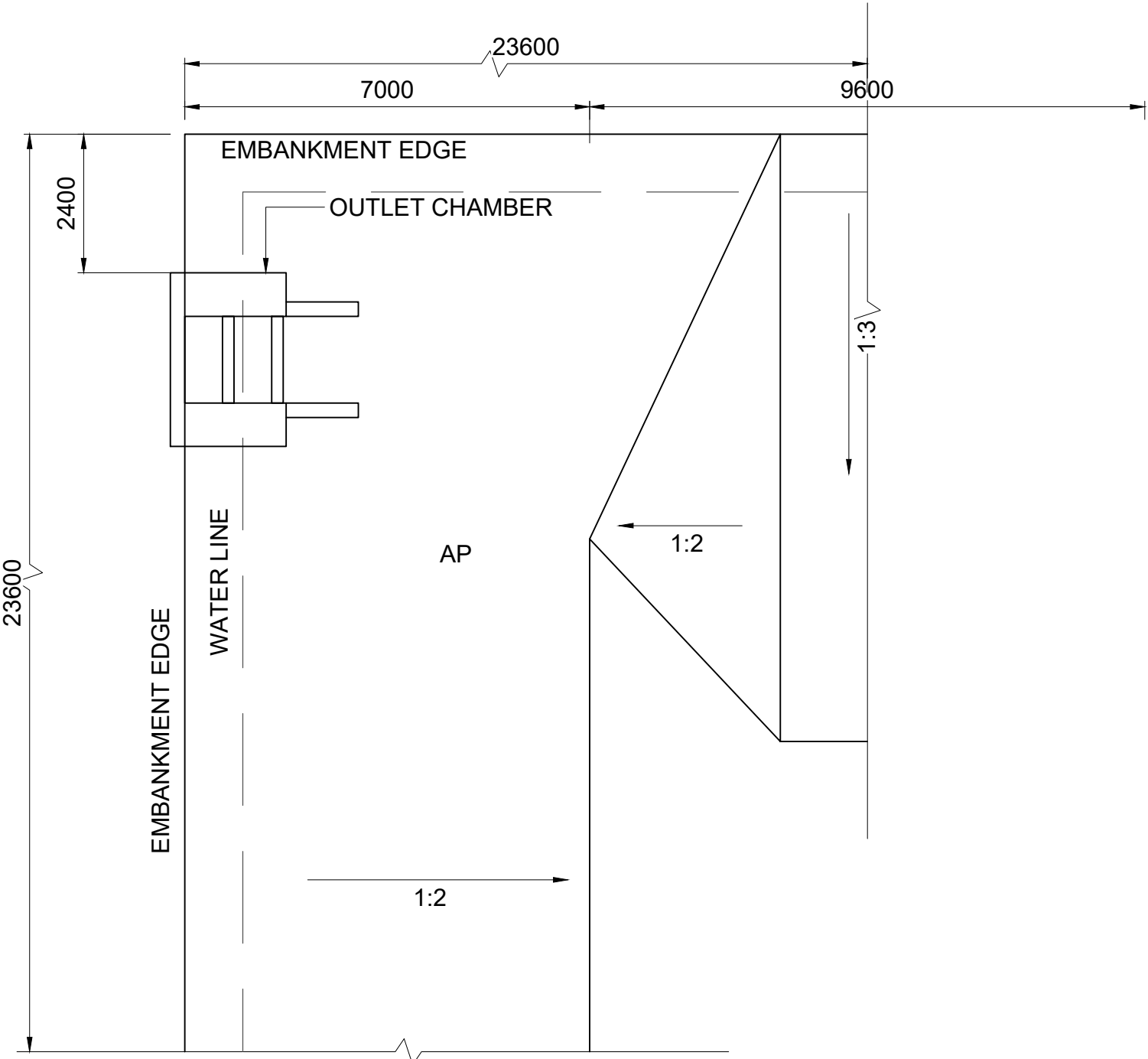
Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
PRIMARY ANAEROBIC PONDS INLET CHAMBER  
PLANS, SECTIONS AND DETAILS

Scale: AS SHOWN Sheet No: 2 / 8 Drawing No: WFSTP - 1.6.1

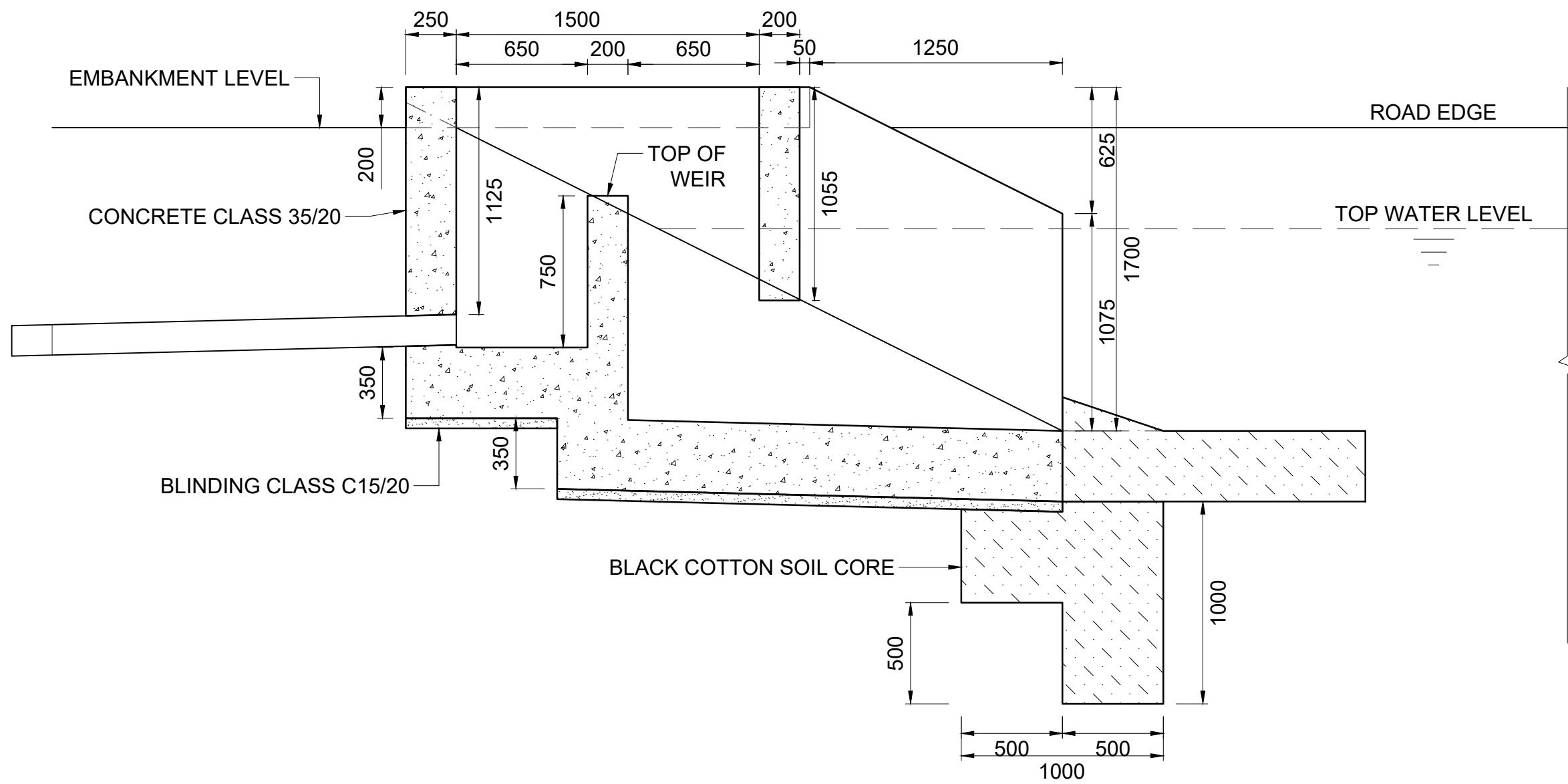
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  - DRAWINGS TO BE READ AND NOT SCALED.
- LEGENDS:**
- AP - ANAEROBIC POND
  - TWL - TOP WATER LEVEL





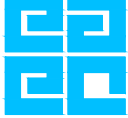


**PRIMARY AP OUTLET CHAMBER**  
SCALE 1:25



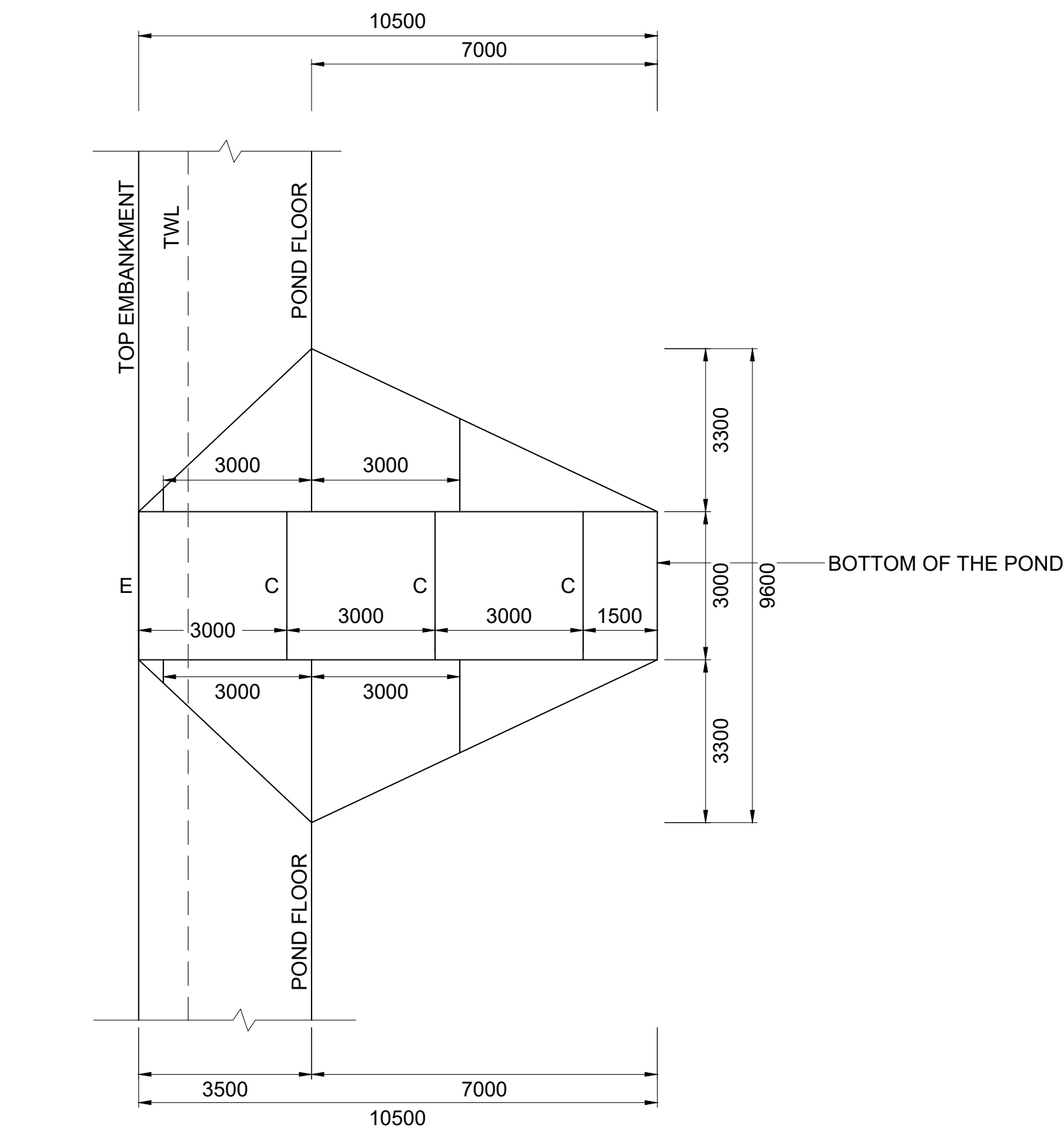
**TYPICAL OUTLET CHAMBER LOCATION FOR PRIMARY AP PLAN**  
SCALE 1:100



**SECTION A-A**  
SCALE 1:25

					Design Consultant:			Drawn by: J.K.M. Date: SEP 2024			Client:			Project:		
								Designed by: P.M.M. Date: SEP 2024						CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
					in cooperation with			Checked by: T.J.O. Date: SEP 2024			Approved by: J.K.W. Date: SEP 2024			Drawing Title:		
								Project No:			Financier:			DETAILED DESIGN		
								Contract No:						WAJIR FAECAL SLUDGE TREATMENT PLANT		
					Systel Engineering Limited 5th Floor, Wing II, C/O Plaza Mara Road, Upperhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860 728038006 E-mail: consulting@systelengineering.com			East African Engineering Consultants Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O. Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com			Sanivation Limited Villa View Estate, Moi South Lake Road, Naivasha P.O. Box 262 Naivasha, Kenya Tel: +254729465035, +254729679842 E-mail: info@sanivation.com www.sanivation.com			WAJIR WATER AND SEWERAGE COMPANY LIMITED		
					Scale: AS SHOWN			Sheet No: 3 / 8			Drawing No:			WFSTP - 1.6.1		
REVISIONS																
REV	Description	Sign	Date	Approved												



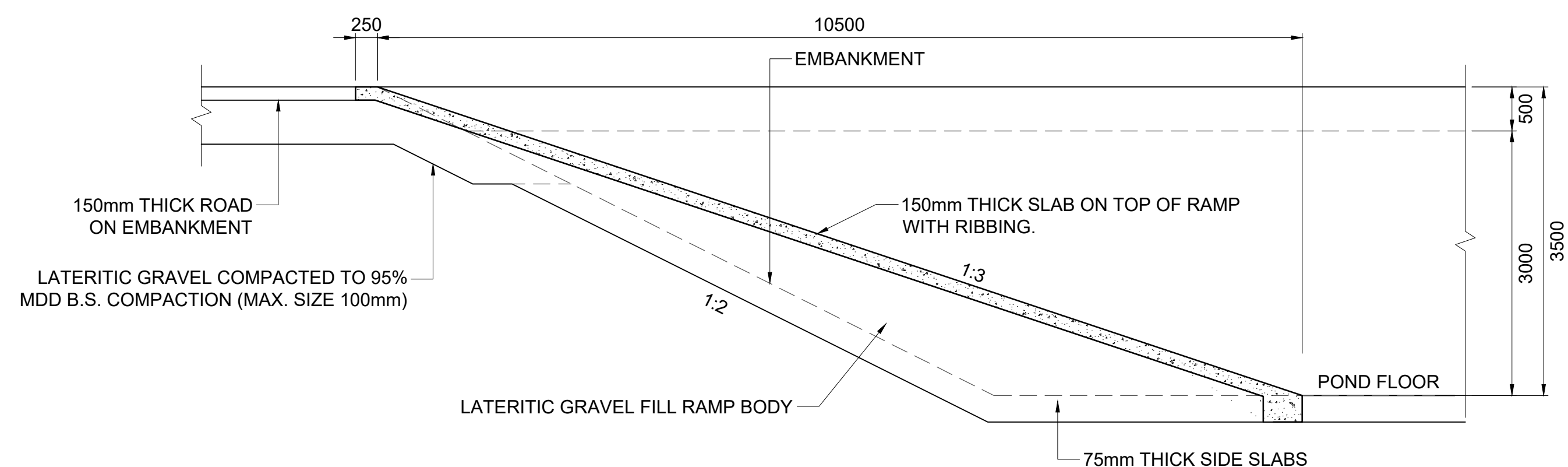


NB: E - EXPANSION JOINT  
C - CONTRACTION JOINT

ACCESS RAMP DETAILS FOR THE CONSTRUCTION JOINTS

## ACCESS RAMP PLAN

SCALE 1:100



SECTION A-A  
SCALE 1:50

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.

## LEGENDS

1. TWL - TOP WATER LEVEL
2. MDD - MAXIMUM DRY DENSITY


[illegible]



1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.

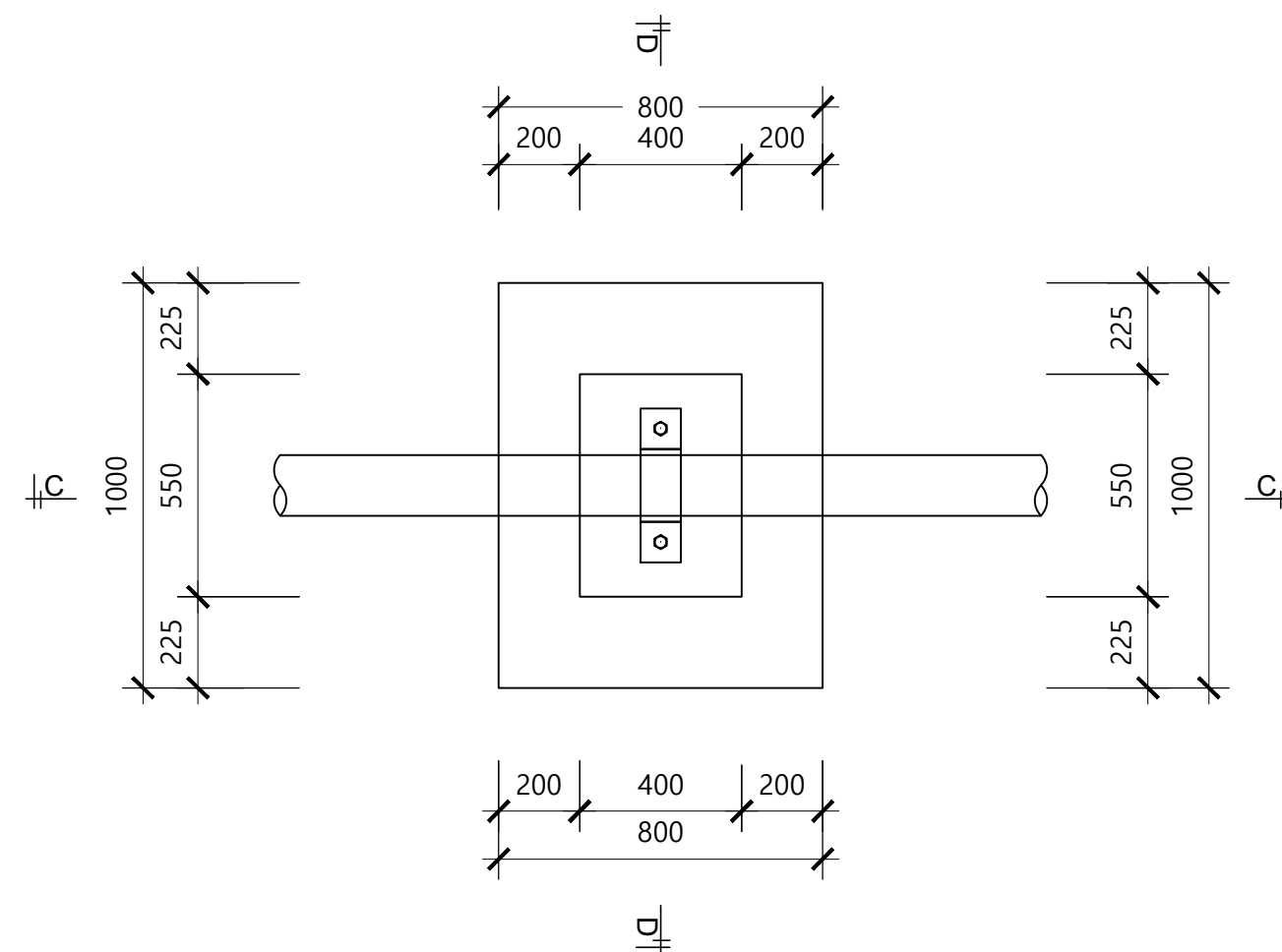
1. TWL - TOP WATER LEVEL.
2. RC - REINFORCED CONCRETE
3. G.M.S - GALVANISED MILD STEEL
4. AP - ANAEROBIC PONDS

<p>Design Consultant:</p>  <p><b>SYSTEL</b> ENGINEERING LTD</p>	<p>in cooperation with</p>	 <p><b>EAST AFRICAN ENGINEERING CONSULTANTS</b></p>	 <p><b>Sanivation</b> sanitation solutions</p>
<p><b>Systel Engineering Limited</b> 5th Floor, Wing II, CIC Plaza Mara Road Upperhill P. O. Box 10101, 010100 Nairobi, Kenya Tel: +254(0)791329800/72603006 E-mail: consulting@sysengineering.com</p>		<p><b>LEMANA CONSULTANTS</b> Lemana Court, Newlands, No.3, Lenana rd, Kilimani P.O Box 72388-00200, Nairobi, Kenya Tel: +254-20-2714514/51616, +254-20-2718861, +254-20-2527995 E-mail: info@lemanaconsulting.com</p>	<p><b>SANIVATION LIMITED</b> Villa Vito Estate 4th South Lake Road Nairobi P.O.Box 262, Naivasha Kenya Tel: +254729466033, +254728979842 E-mail: info@sanivation.com www.sanivation.com</p>

Client:	 <p>WAJIR WATER AND SEWERAGE COMPANY LIMITED WJWSCCO</p>
Financier:	 <p>WORLD BANK</p>

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT PRIMARY ANAEROBIC PONDS DRAINAGE SUMP PLATFORM PLANS, SECTIONS AND TYPICAL PIER DETAILS			
Scale:	AS SHOWN	Sheet No:	5 / 8 Drawing No: WFSTP - 1.6.1





Technical drawing of a pier structure. The drawing shows a cross-section of a pier with a base and a main body. The base is labeled "PIER BASE RC CLASS 35/20" and has a height of 200. The main body is labeled "PIER RC CLASS 35/20". The base has a width of 1000, with 225 on each side of a central 550 section. The main body has a width of 500. The top of the pier is labeled "DN150 FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT". The pier is supported by "50x5 G.M.S STRAPS" and "Ø20mm G.M.S BOLTS". The height of the pier is labeled "VARIES". The base is on a "BLINDING CLASS 15/20" layer.

Ø20mm GMS BOLTS

150

VARIES

200

400

800

200

50x5 GMS STRAPS

Ø20mm GMS BOLTS

DN150 FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT

PIER RC CLASS 35/20

PIER BASE RC CLASS 35/20

BLINDING CLASS 15/20

Technical drawing of the T12-150B1/T2 tank. The drawing shows a side view of the tank with a vertical cylindrical body and a horizontal cylindrical head. The tank is supported by a base. The dimensions are as follows:

- Overall height: VARIES
- Overall width: 1000
- Head radius: 225
- Body diameter: 550
- Head diameter: 550

The components are labeled as follows:

- 7T12-01-150
- 7T12-02-150(RINGS)
- 7T12-03-150B2/T2
- 5T12-04-150B1/T1

Technical drawing of a staircase showing a plan view and a section view.

**Plan View Dimensions:**

- Overall width: 1900
- Overall length: 1500
- Top section length: 1050
- Bottom section length: 850
- Top section width: 650
- Bottom section width: 850
- Reinforcement spacing: 300mm c/c

**Section View Dimensions:**

- Overall height: 200
- Top section height: 650
- Bottom section height: 850

**Reinforcement Details:**

- STEP IRONS STAGGERED @ 300mm c/c
- Ø32mm G.M.S HANDRAIL WELDED AT JOINTS



Diagram illustrating the cross-section of a concrete structure, likely a culvert or bridge pier, showing various components and dimensions:

- Handrail:** Located at the top of the structure.
- GMS OPEN MESH COVER:** Located on the right side of the structure.
- EROSION PROTECTION SLAB CONCRETE CLASS 20/25:** The top horizontal slab.
- 200mm THICK R.C CHANNEL BASE & WALL CLASS 20/25:** The main structural walls and base.
- STEP IRONS STAGGERED @300mm c/c:** Reinforcement bars within the walls.
- DN150 CONCRETE FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT:** The vertical pipe on the left.
- 50mm THICK BLINDING CLASS 15/20:** The bottom-most layer of the structure.

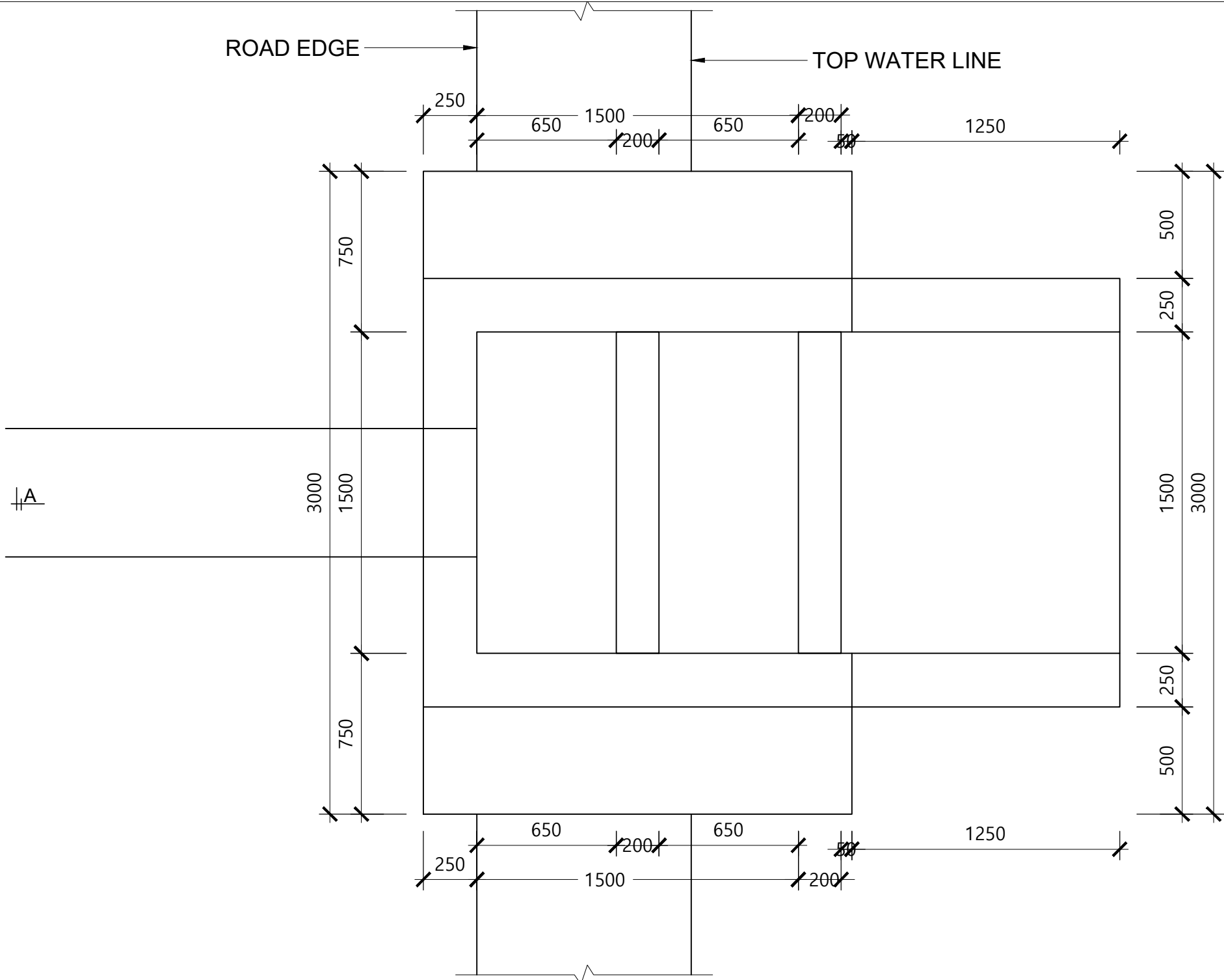
**Dimensions:**

- Vertical Dimensions:** 650 (top slab), 1100 (main wall height), 200 (base thickness).
- Horizontal Dimensions:** 1500 (main wall width), 1900 (total width including side slabs), 200 (side slab width).

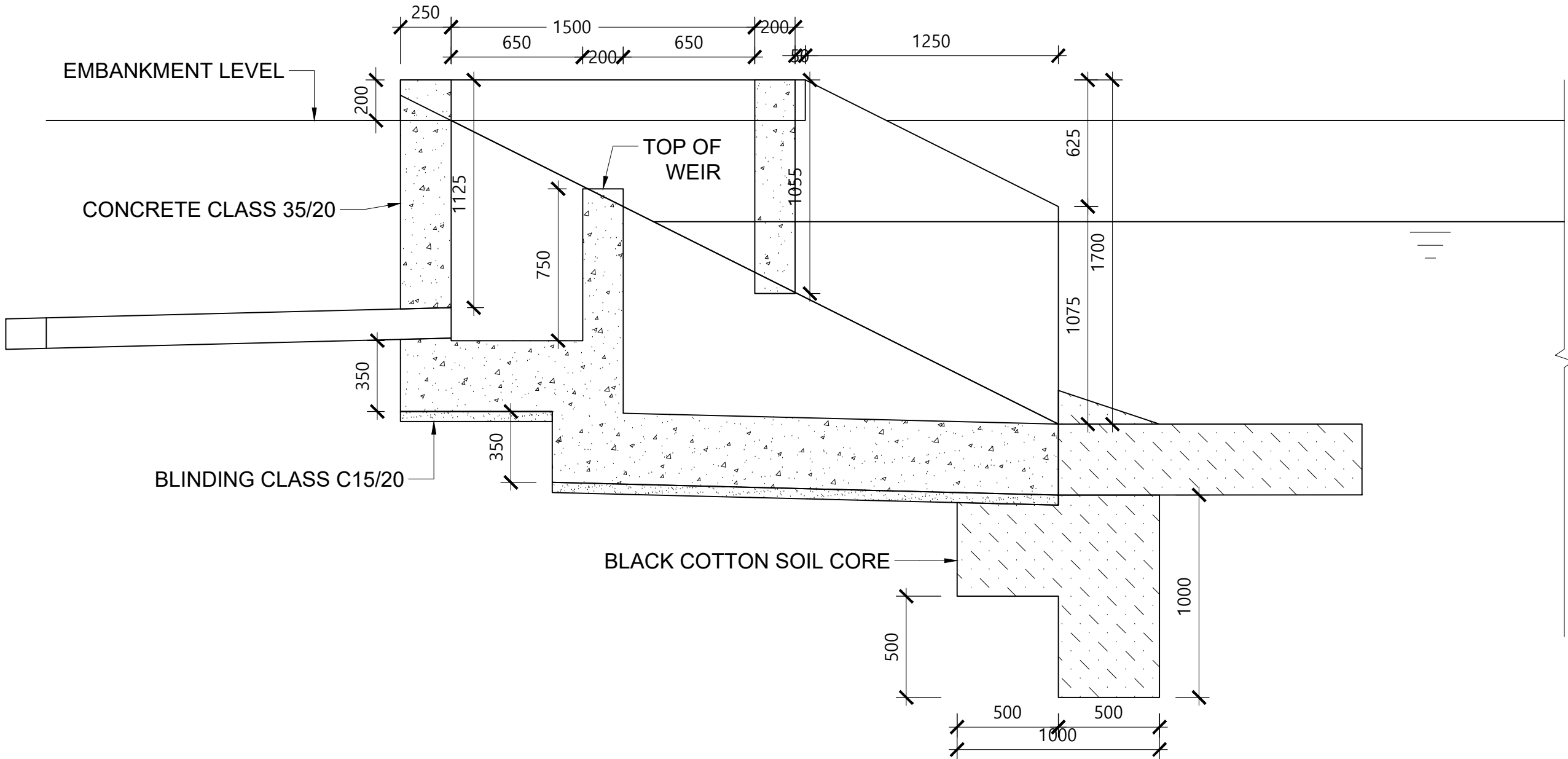
Technical drawing of a reinforced concrete structure, likely a foundation or wall, showing dimensions and reinforcement details. The structure is L-shaped with a vertical section and a horizontal section. Dimensions include 200, 1500, 1900, 200, 50, 1100, 650, and 200. Reinforcement details include 36T12-01 (RINGS), 8-02 (HOOK), 2/10T12-03-200 (NF & FF), and 9T12-05-200 (B.W.).

<p>Client:</p>  <p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b> WAJIRWASCO</p>	<p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p>
<p>Financier:</p> 	<p><b>WORLD BANK</b></p>

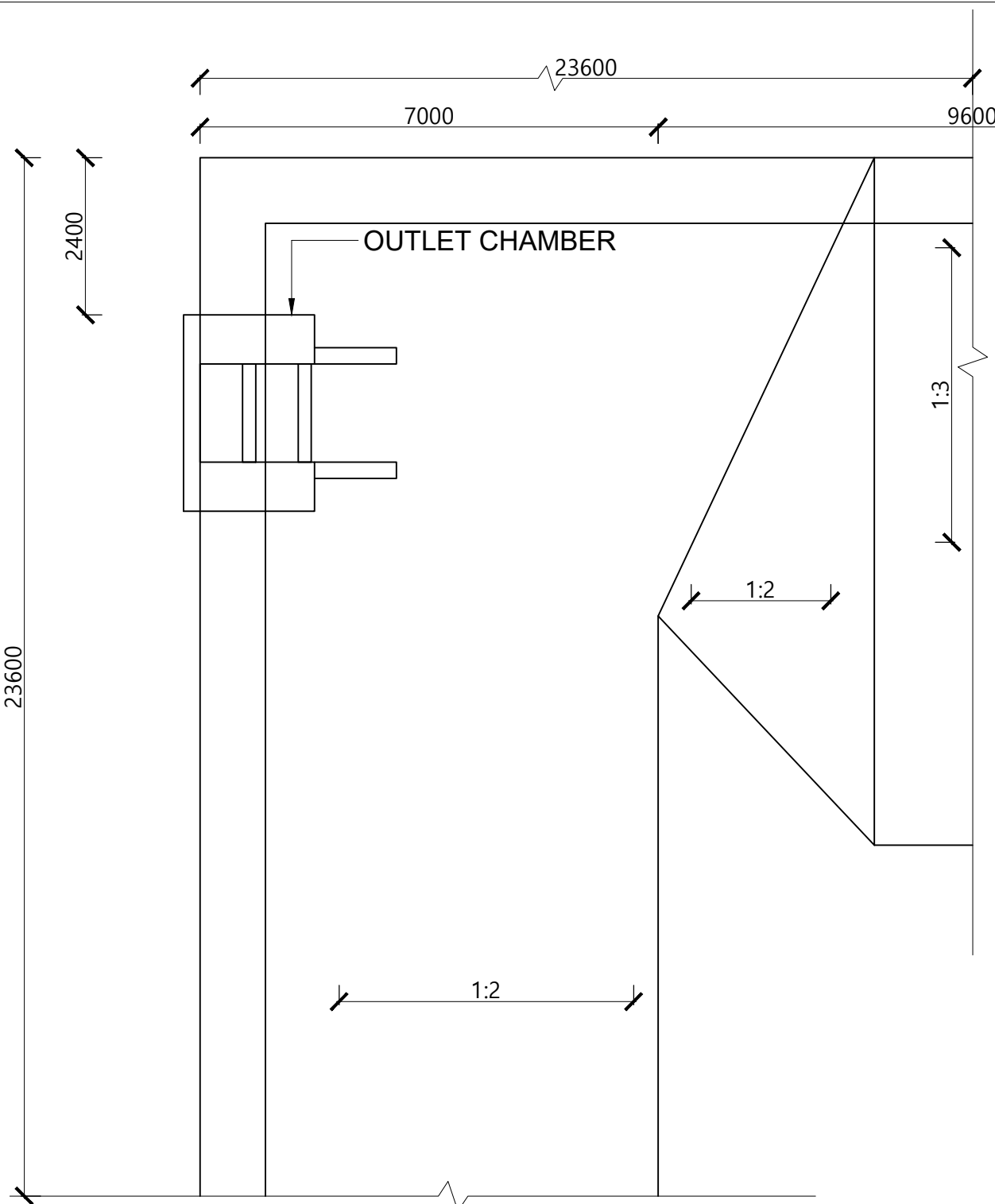
Project:		CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY	
Drawing Title:		<p align="center"><b>DETAILED DESIGN</b></p> <p align="center"><b>WAJIR FAECAL SLUDGE TREATMENT PLANT</b></p> <p align="center"><b>PRIMARY ANAEROBIC PONDS</b></p> <p align="center"><b>REINFORCEMENT DETAILS</b></p>	
Scale:	AS SHOWN	Sheet No:	<p align="center">6 / 8</p> <p align="right">Drawing No: WFSTP - 1.6.1</p>



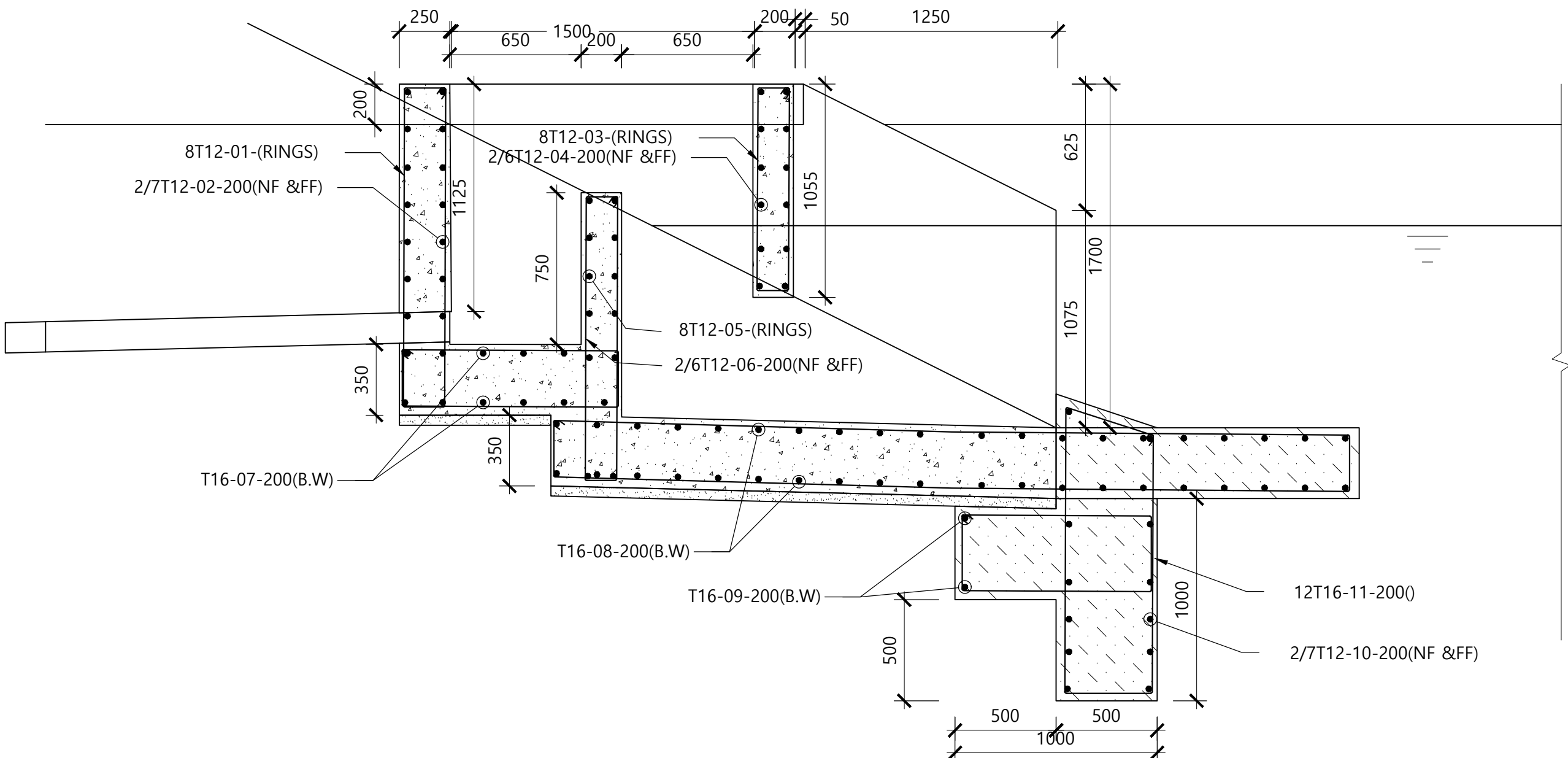
PRIMARY ANAEROBIC POND OUTLET CHAMBER PLAN  
Scale 1:25



SECTION A-A  
Scale 1:25



TYPICAL OUTLET CHAMBER LOCATION FOR PRIMARY  
ANAEROBIC POND PLAN  
Scale 1:50



SECTION A-A STRUCTURAL DETAILS  
Scale 1:25

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



**Systel Engineering Limited**  
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Mara Road, Upperhill  
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Tel: +2547079132980/ 72608066  
E-mail: consulting@systelengineering.com

in  
cooperation  
with



**EAST AFRICAN  
ENGINEERING CONSULTANTS**  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

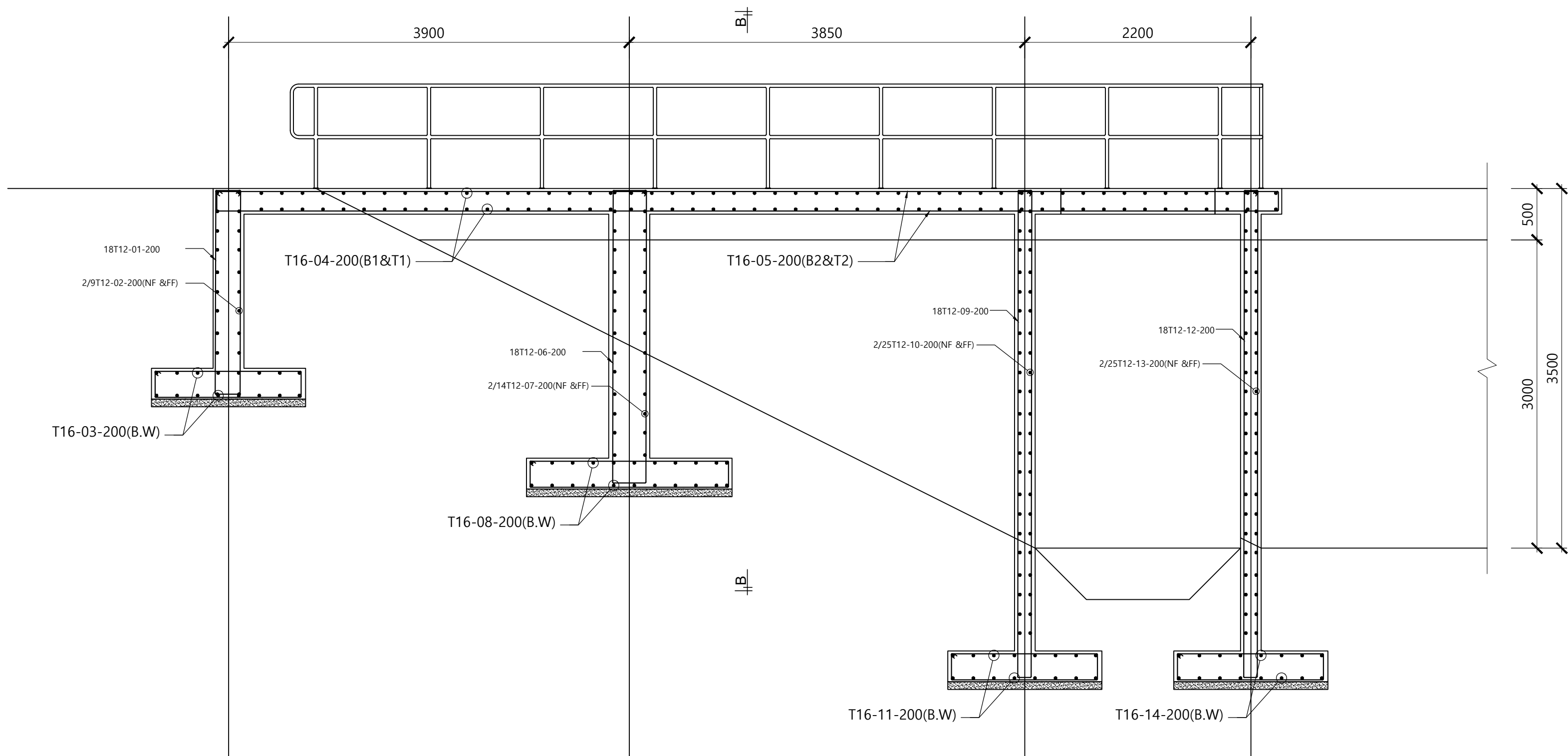
Financier:



**WORLD BANK**

Project:			CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title:			DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT PRIMARY ANAEROBIC PONDS REINFORCEMENT DETAILS		
Scale:	AS SHOWN	Sheet No:	7 / 8	Drawing No:	WFSTP - 1.6.1





SECTION A-A STRUCTURAL DETAILS  
Scale 1:40

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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E-mail: consulting@systelengineering.com

in cooperation with

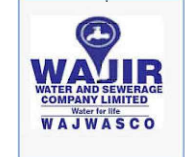


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E-mail: info@eaecgroup.com




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Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

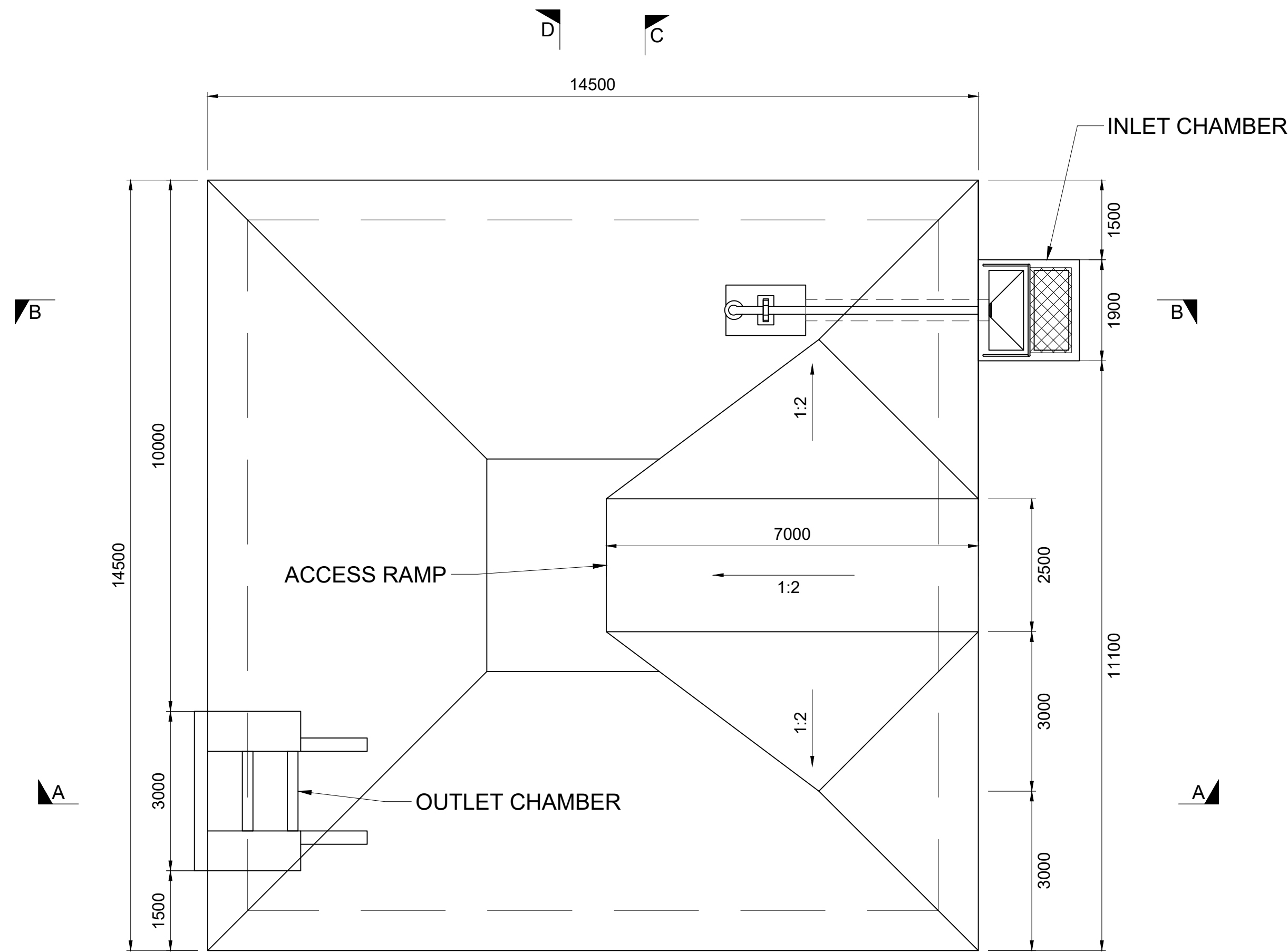


**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

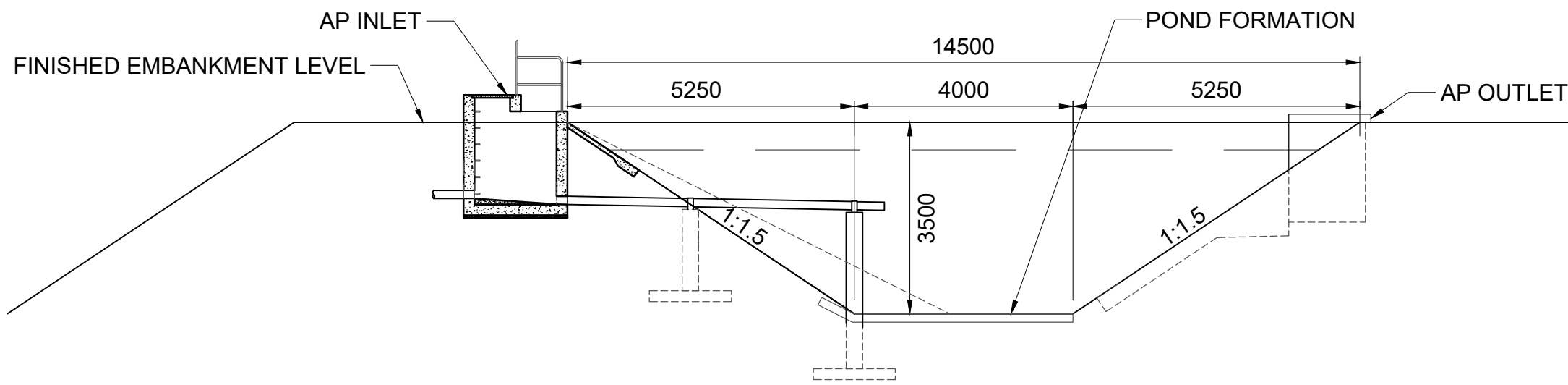


**WORLD BANK**

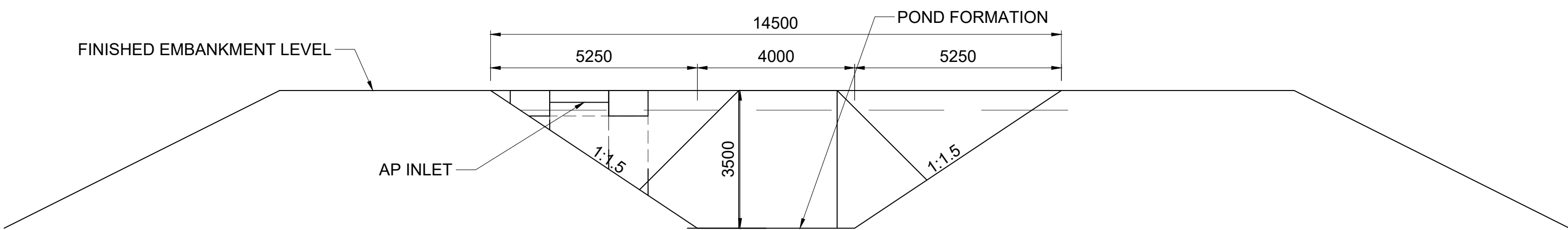
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Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT PRIMARY ANAEROBIC PONDS REINFORCEMENT DETAILS		
Scale: AS SHOWN	Sheet No: 8 / 8	Drawing No: WFSTP - 1.6.1



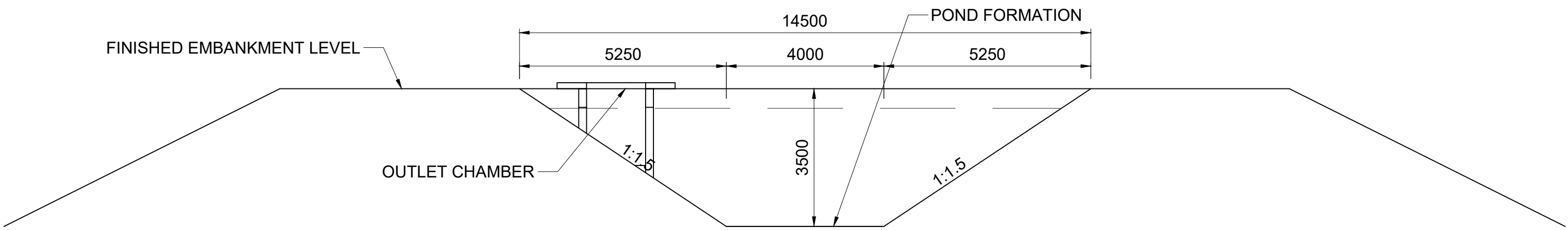
SECONDARY ANAEROBIC POND PLAN  
SCALE 1:75



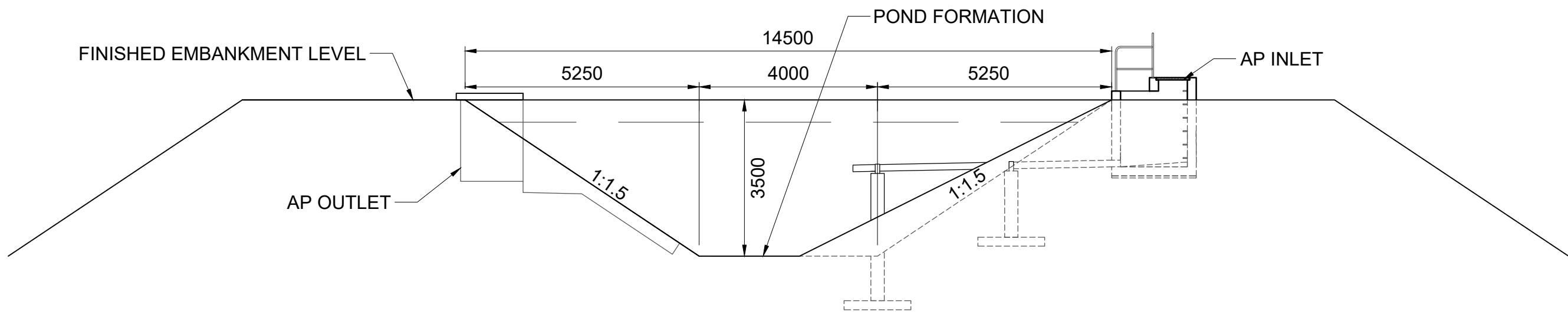
SECTION B-B  
SCALE 1:100



SECTION C-C  
SCALE 1:100



SECTION D-D  
SCALE 1:100



SECTION A-A  
SCALE 1:100

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE
- DRAWINGS TO BE READ AND NOT SCALED

LEGENDS

- AP - ANAEROBIC PONDS

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
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in  
cooperation  
with



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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

Financier:



**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
SECONDARY ANAEROBIC PONDS  
PLANS, SECTIONS AND DETAILS

Scale: AS SHOWN Sheet No: 1 / 6 Drawing No: WFSTP - 1.6.2

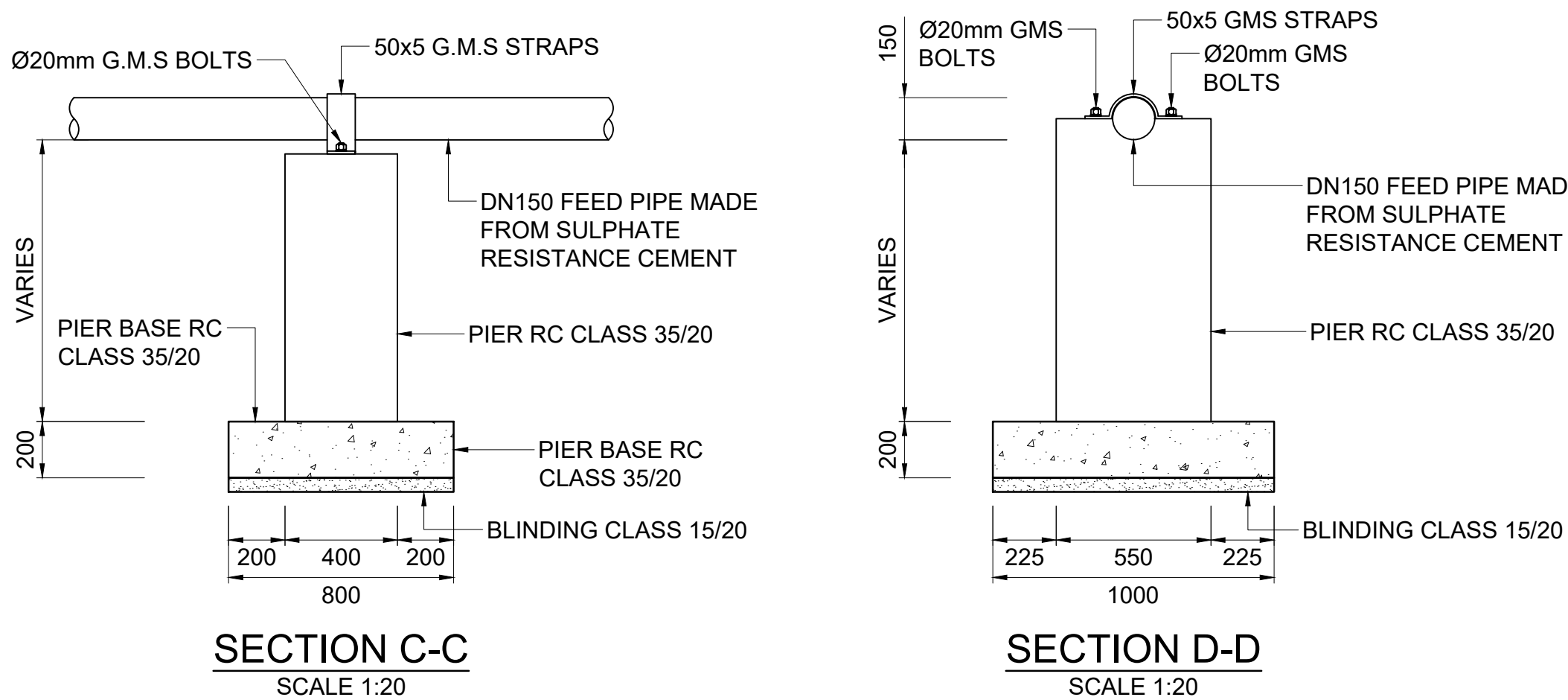
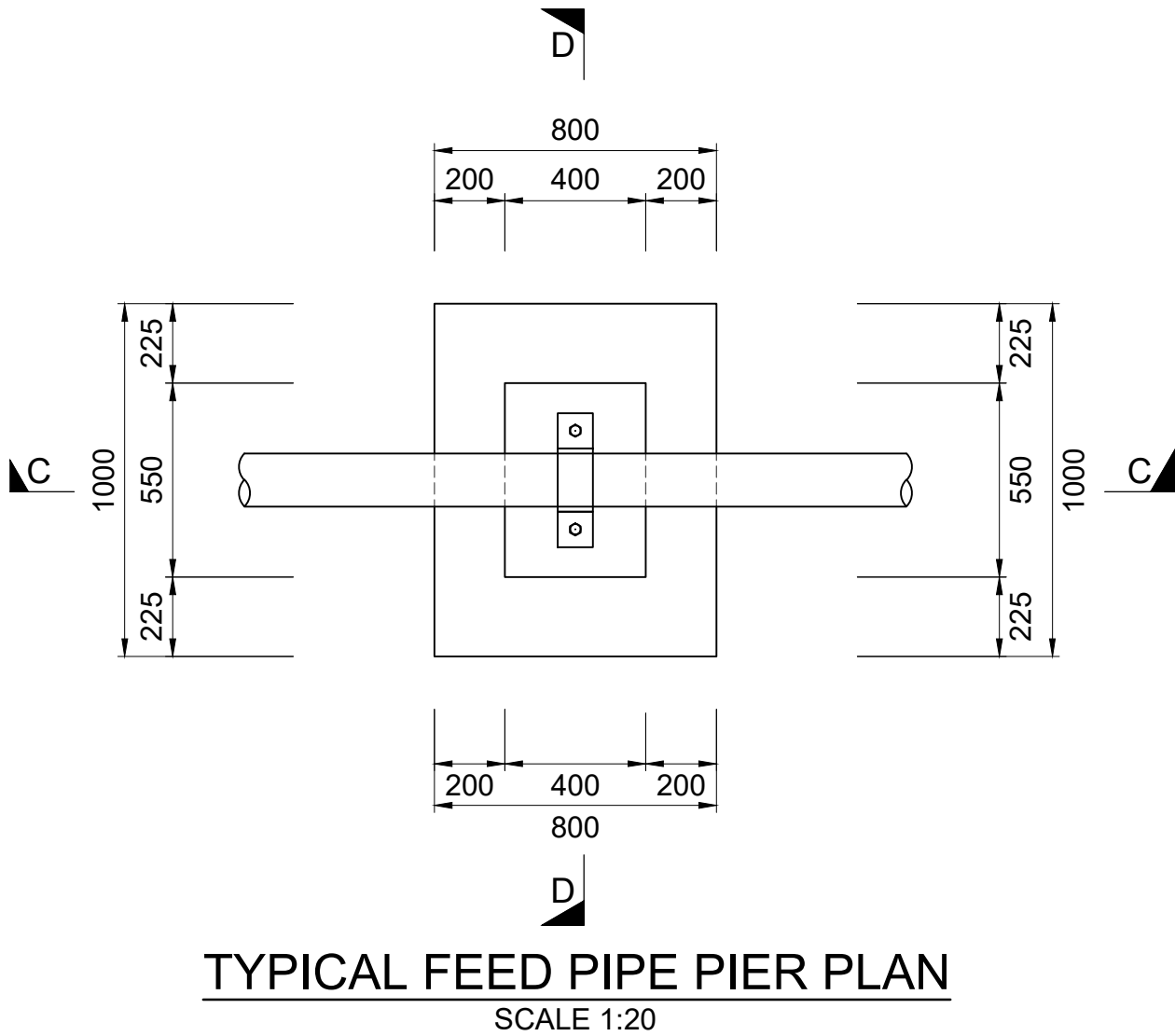
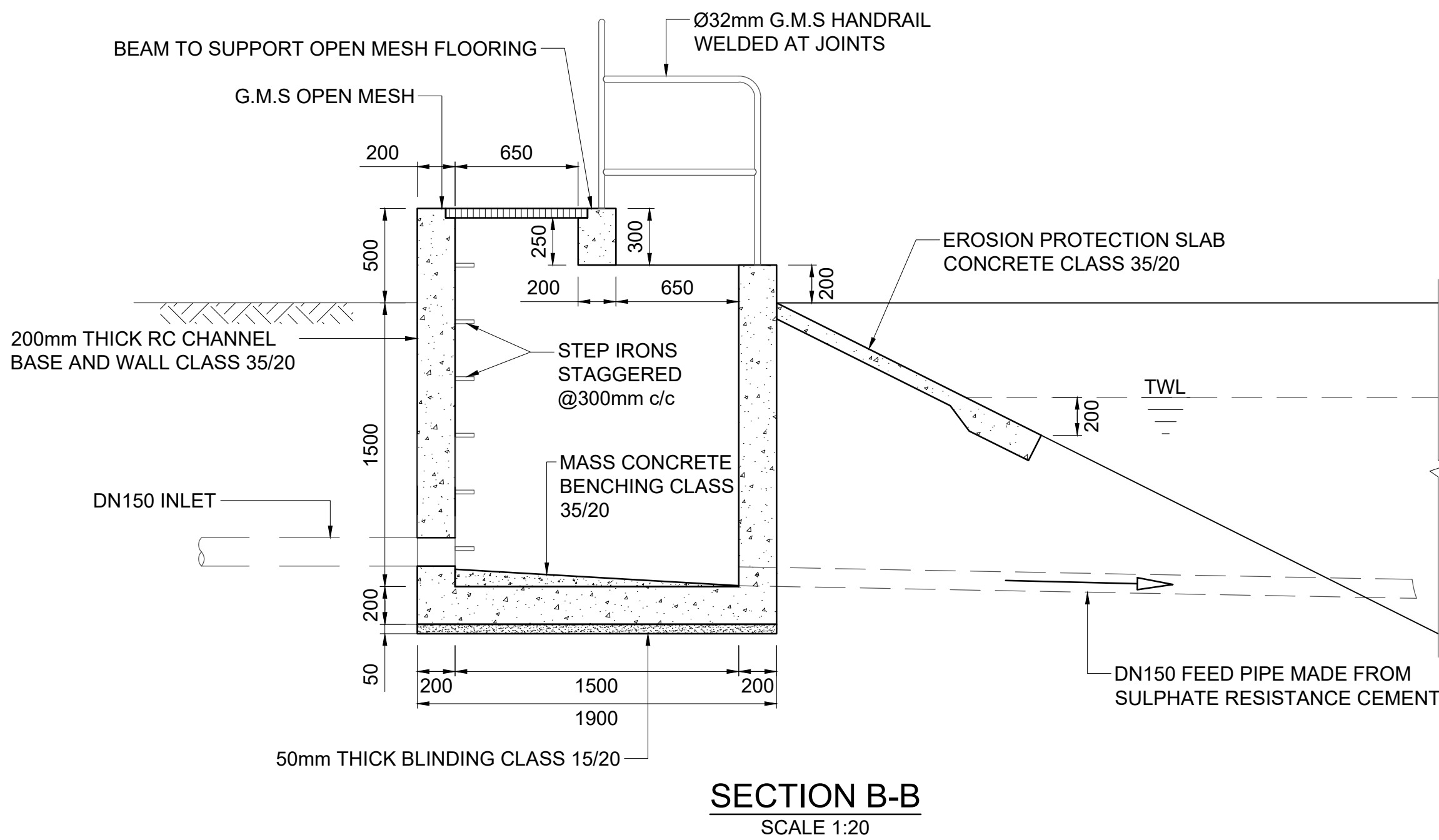
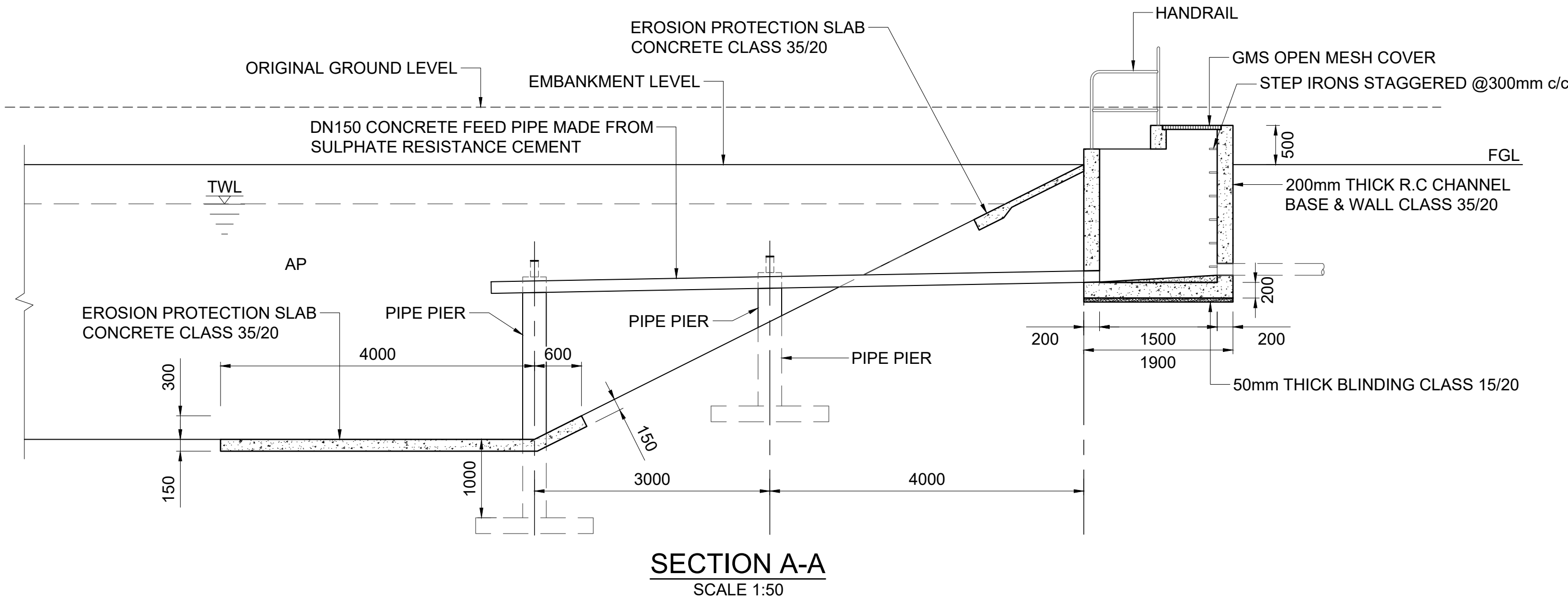
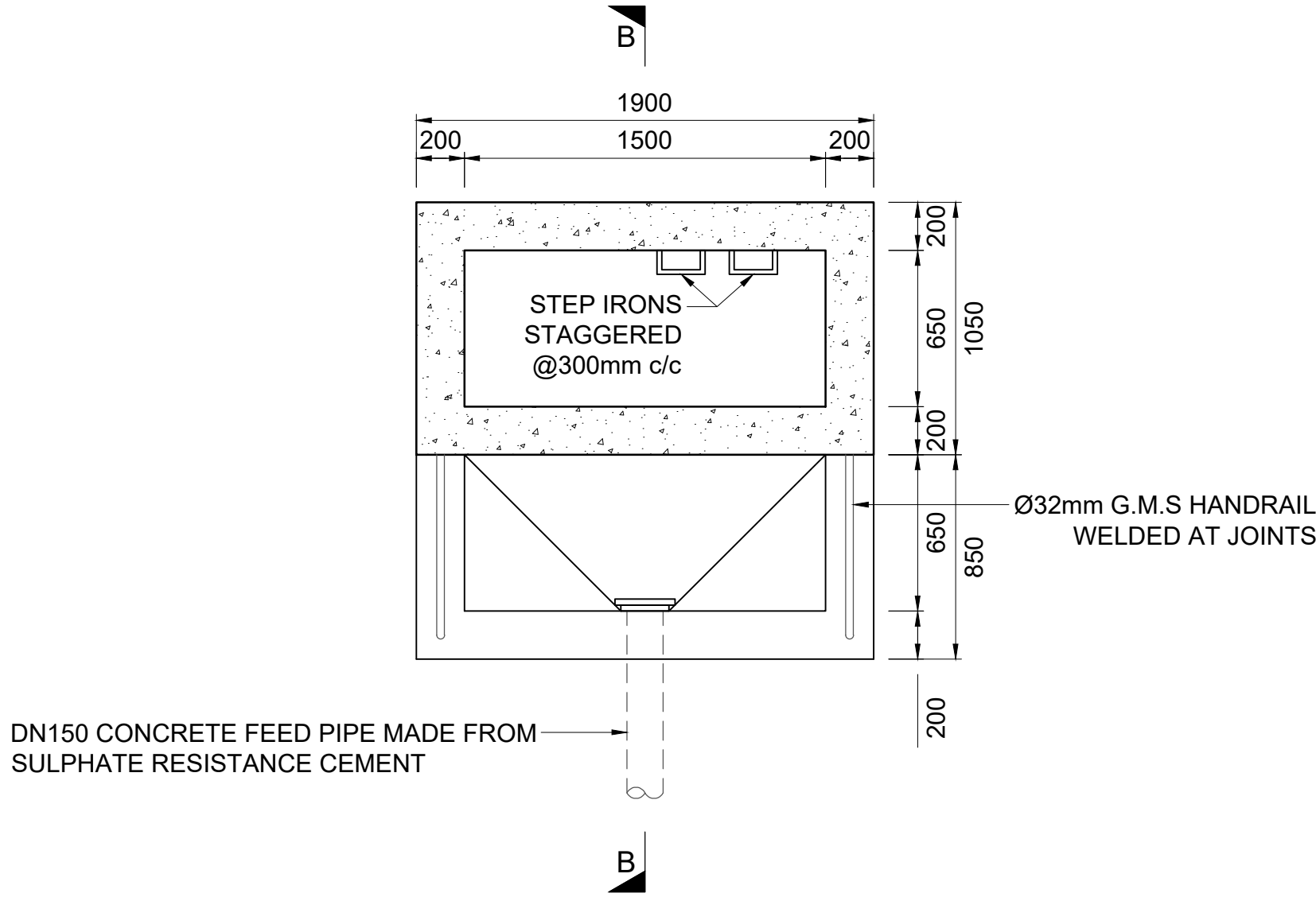
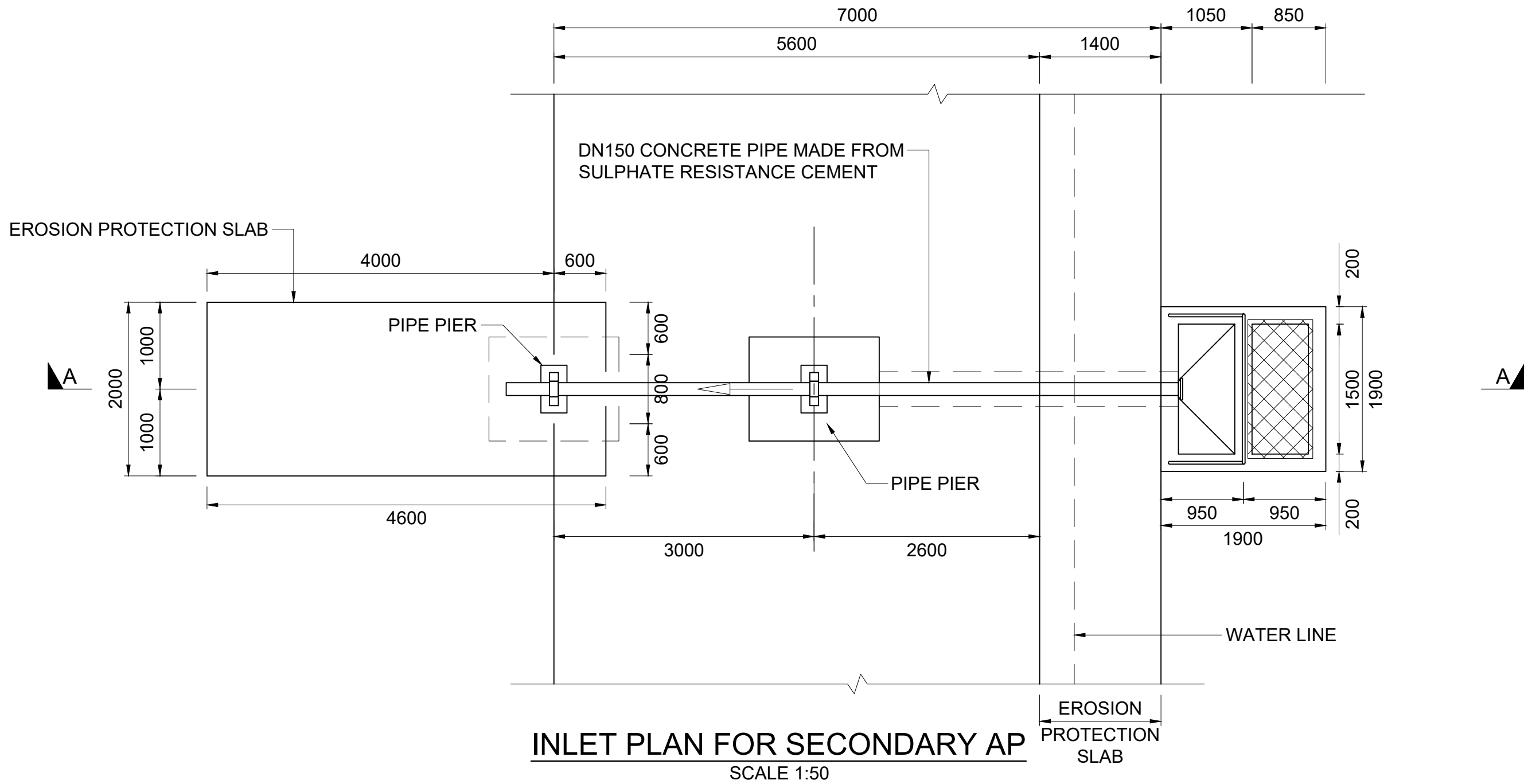


NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.

LEGENDS.

1. AP - ANAEROBIC POND
2. GMS - GALVANISED MILD STEEL
3. FGL - FINISHED GROUND LEVEL



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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E-mail: consulting@systemengineering.com

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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project:	CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title:	DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SECONDARY ANAEROBIC PONDS TYPICAL INLET AND FEED PIER PLANS, SECTIONS AND DETAILS		
Scale:	AS SHOWN	Sheet No:	2/ 6
Drawing No:	WFSTP - 1.6.2		

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.

1. AP - ANAEROBIC POND
2. TWL - TOP WATER LEVEL



Sep 10, 2024 - 2:39pm



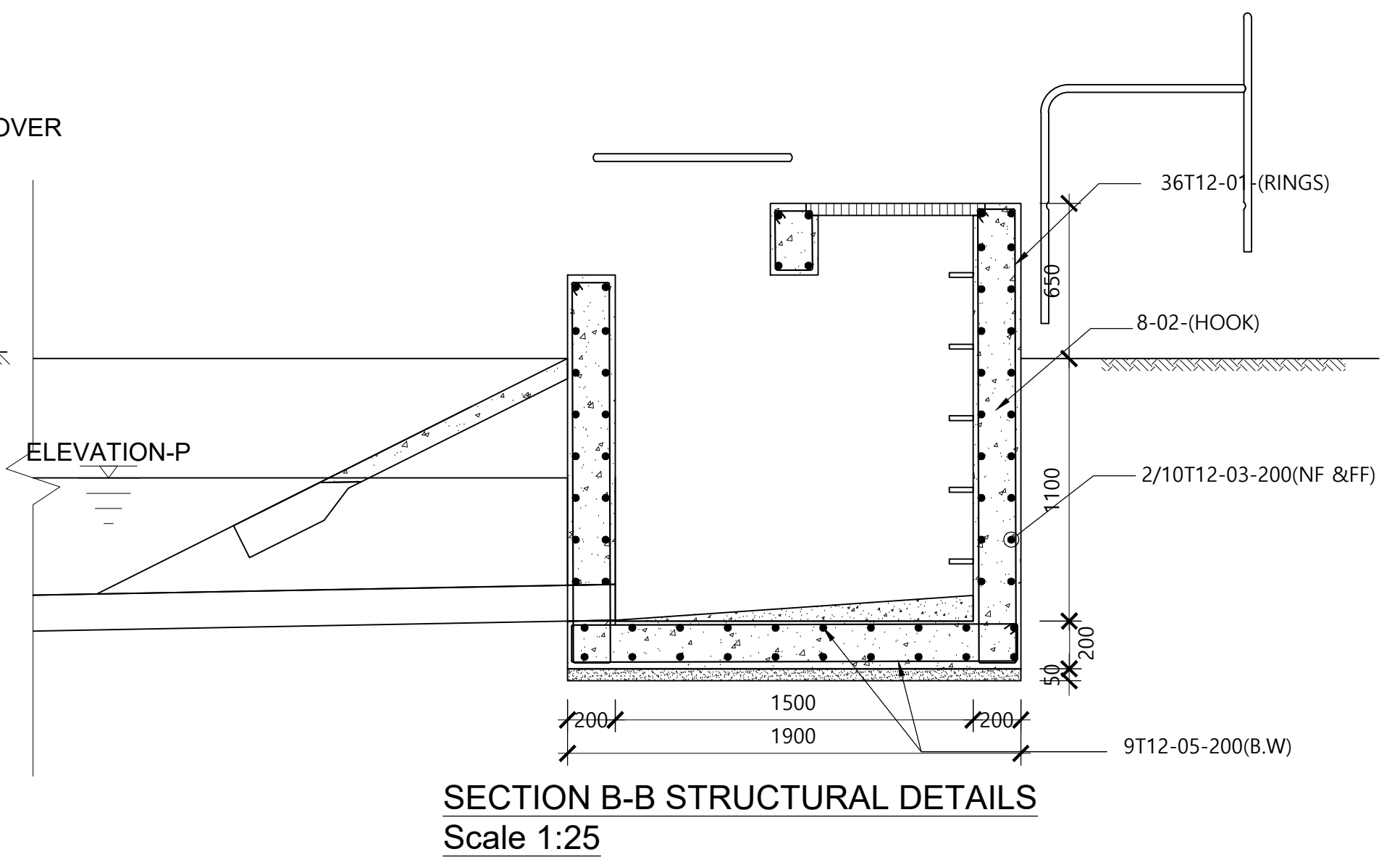
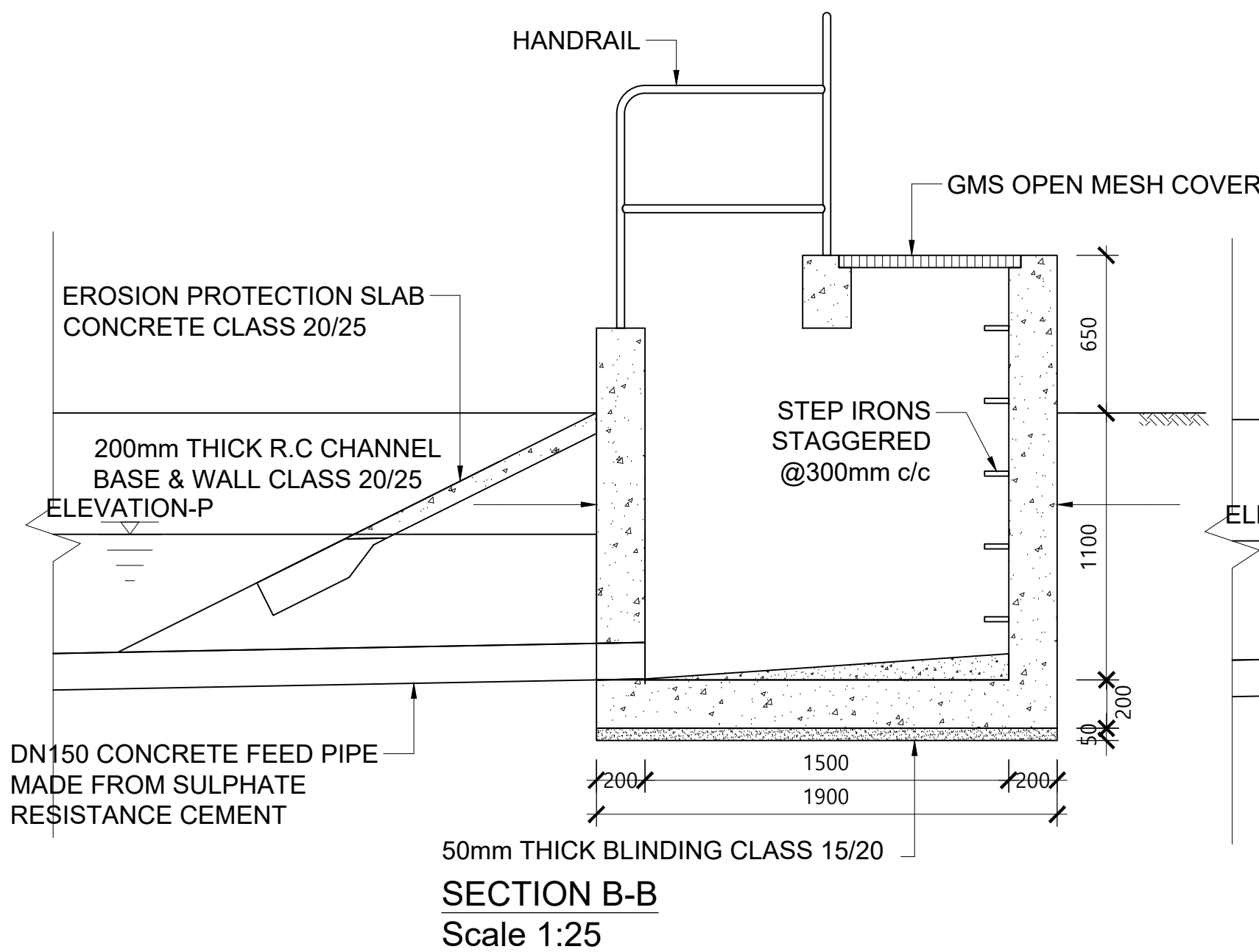
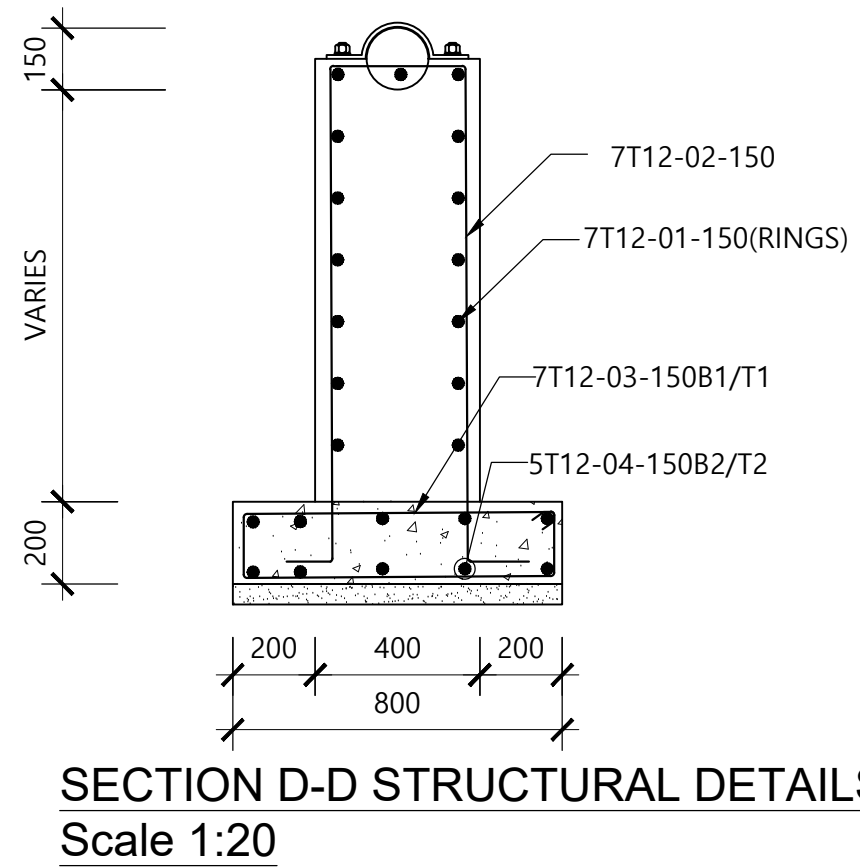
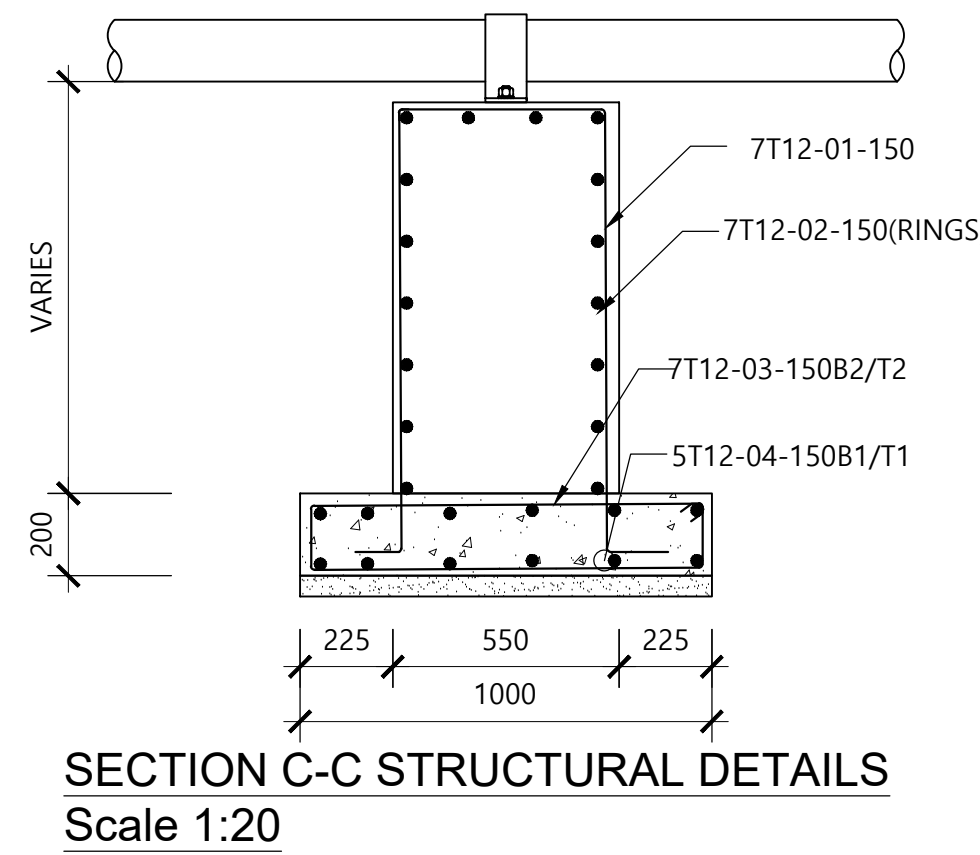
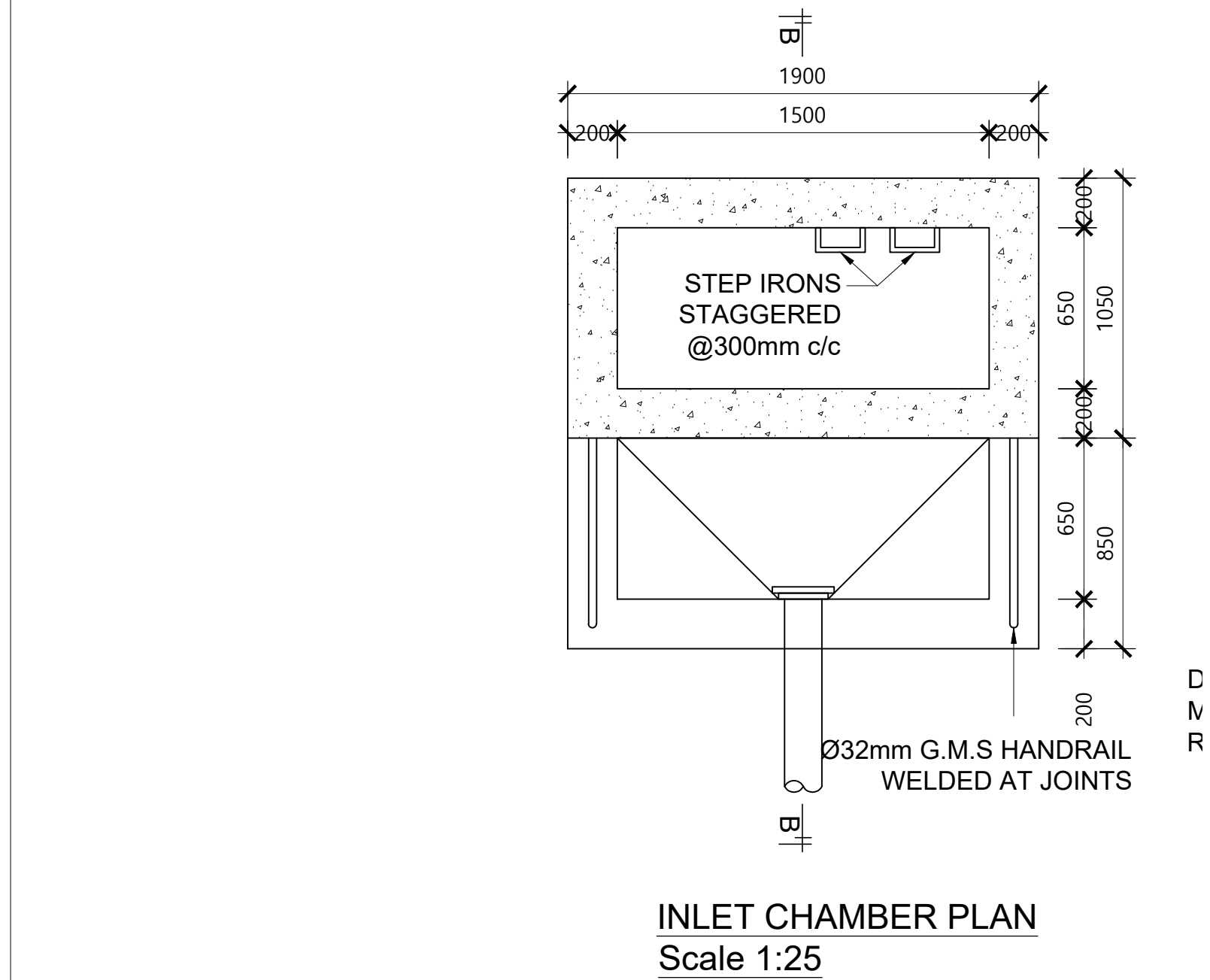


### ACCESS RAMP DETAILS FOR THE CONSTRUCTION JOINTS

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.

1. TWL - TOP WATER LEVEL
2. MDD - MAXIMUM DRY DENSITY

Sep 10, 2024 - 2:43pm

[illegible]

Design Consultant:

**SYSTEL**  
ENGINEERING LTD



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cooperation  
with

**EAST AFRICAN  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

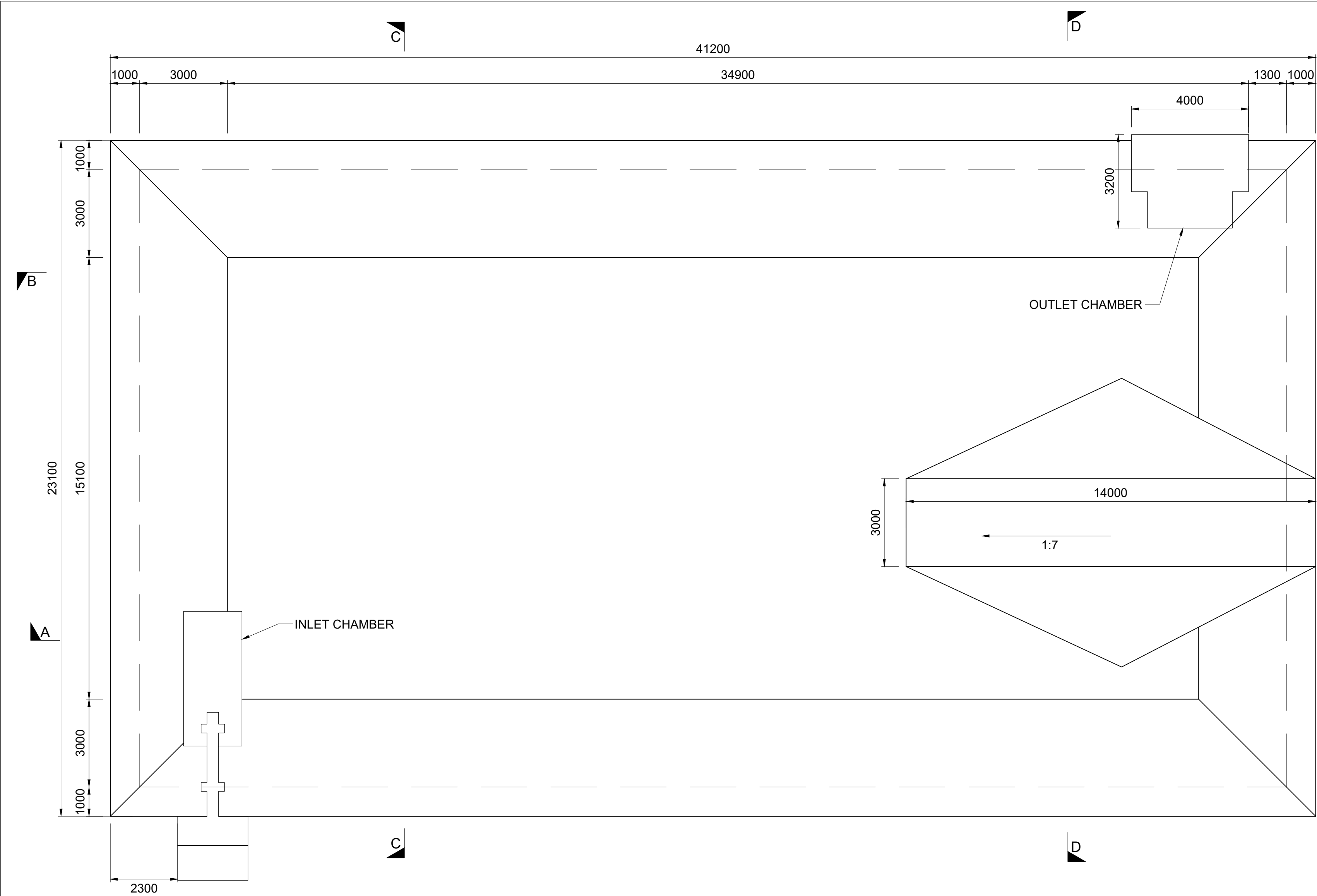
<p>Client:</p> 	<p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p>
<p>Financier:</p> 	<p><b>WORLD BANK</b></p>

Project:		CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY	
Drawing Title:		<p style="text-align: center;"><b>DETAILED DESIGN</b></p> <p style="text-align: center;"><b>WAJIR FAECAL SLUDGE TREATMENT PLANT</b></p> <p style="text-align: center;"><b>SECONDARY ANAEROBIC POND</b></p> <p style="text-align: center;"><b>REINFORCEMENT DETAILS</b></p>	
Scale:	AS SHOWN	Sheet No:	<p style="text-align: center;">5 / 6</p> <p style="text-align: right;">Drawing No: <b>WFSTP - 1.6.2</b></p>





<b>Project:</b> CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
<b>Drawing Title:</b>  DETAILED DESIGN  <b>WAJIR FAECAL SLUDGE TREATMENT PLANT</b>  SECONDARY ANAEROBIC POND  REINFORCEMENT DETAILS			
<b>Scale:</b> AS SHOWN	<b>Sheet No.:</b> 6 / 6	<b>Drawing No.:</b> WFSTP - 1.6.2	

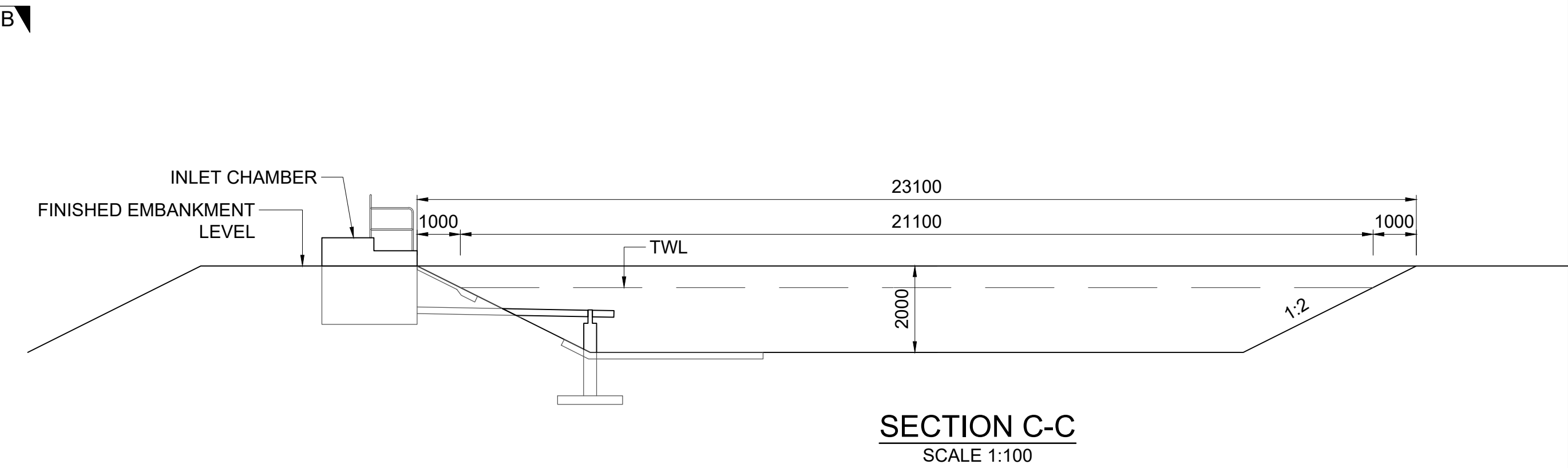


FACULTATIVE POND PLAN  
SCALE 1:100

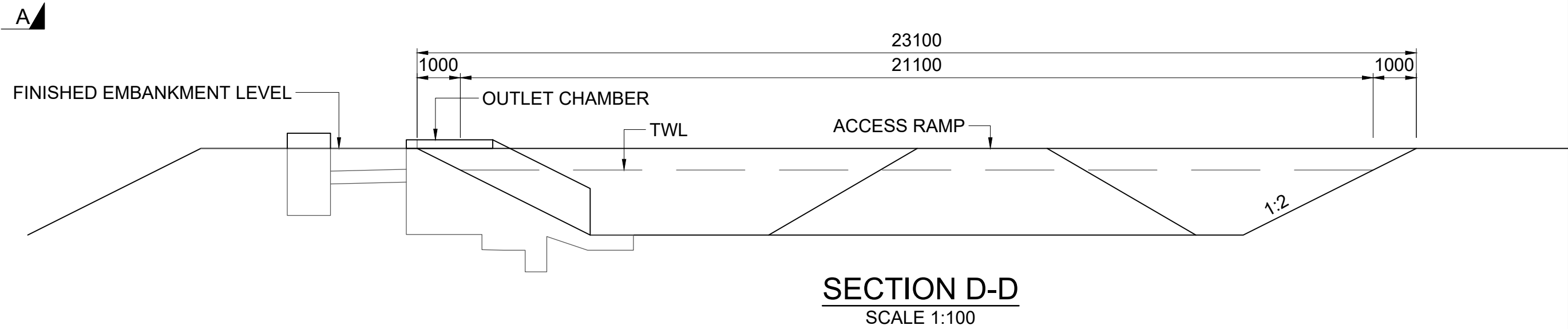
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- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  - DRAWINGS TO BE READ AND NOT SCALED.

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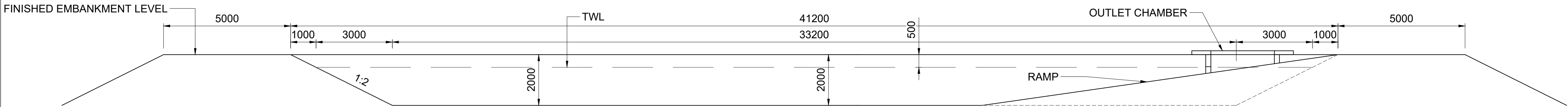
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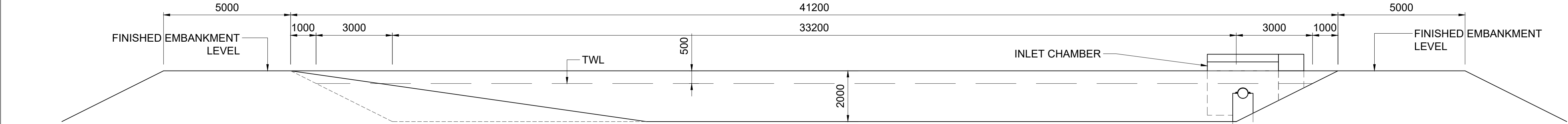
SECTION C-C  
SCALE 1:100



SECTION D-D  
SCALE 1:100



SECTION A-A  
SCALE 1:100



SECTION B-B  
SCALE 1:100

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
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cooperation  
with

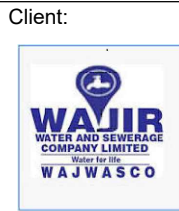


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**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

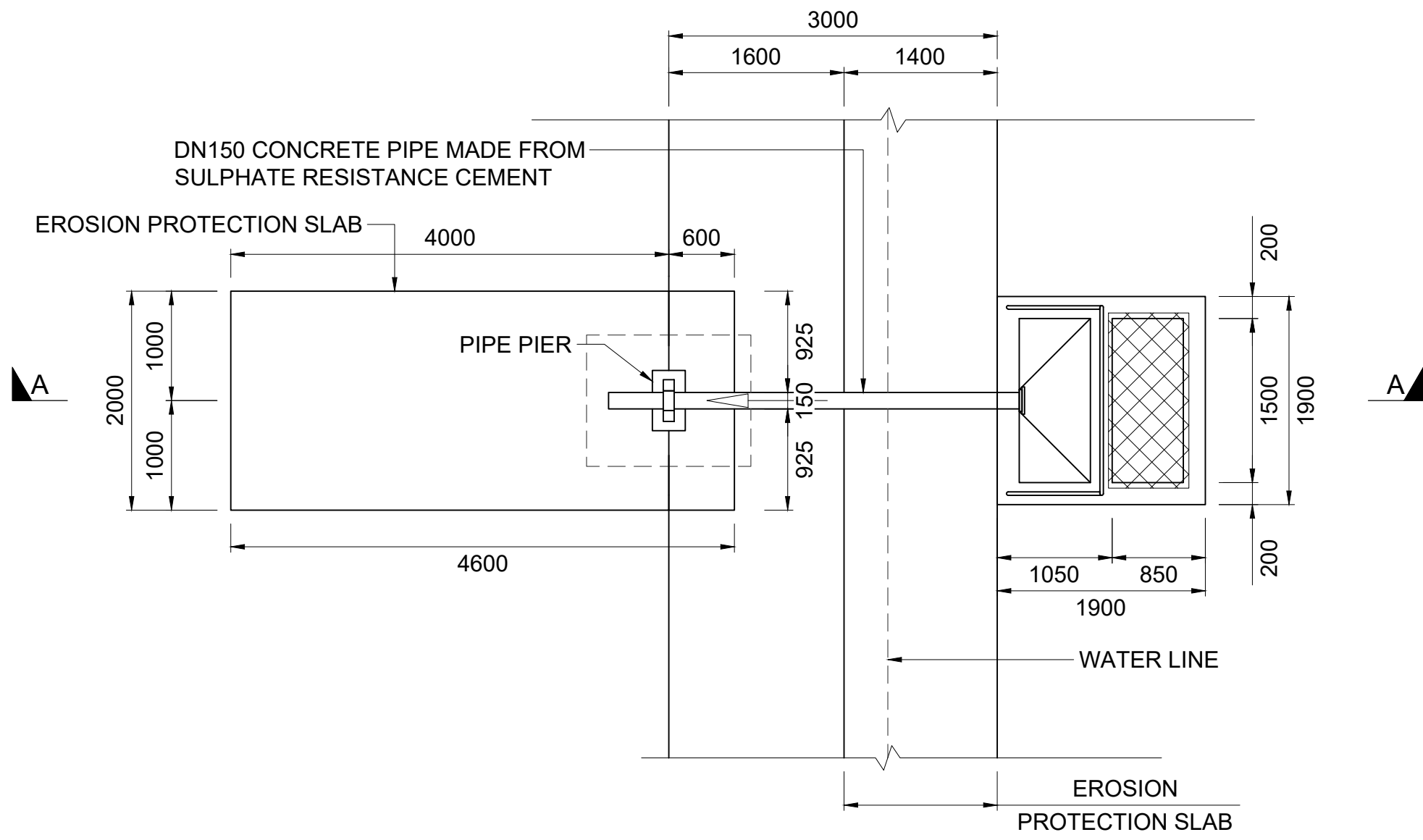


**WORLD BANK**

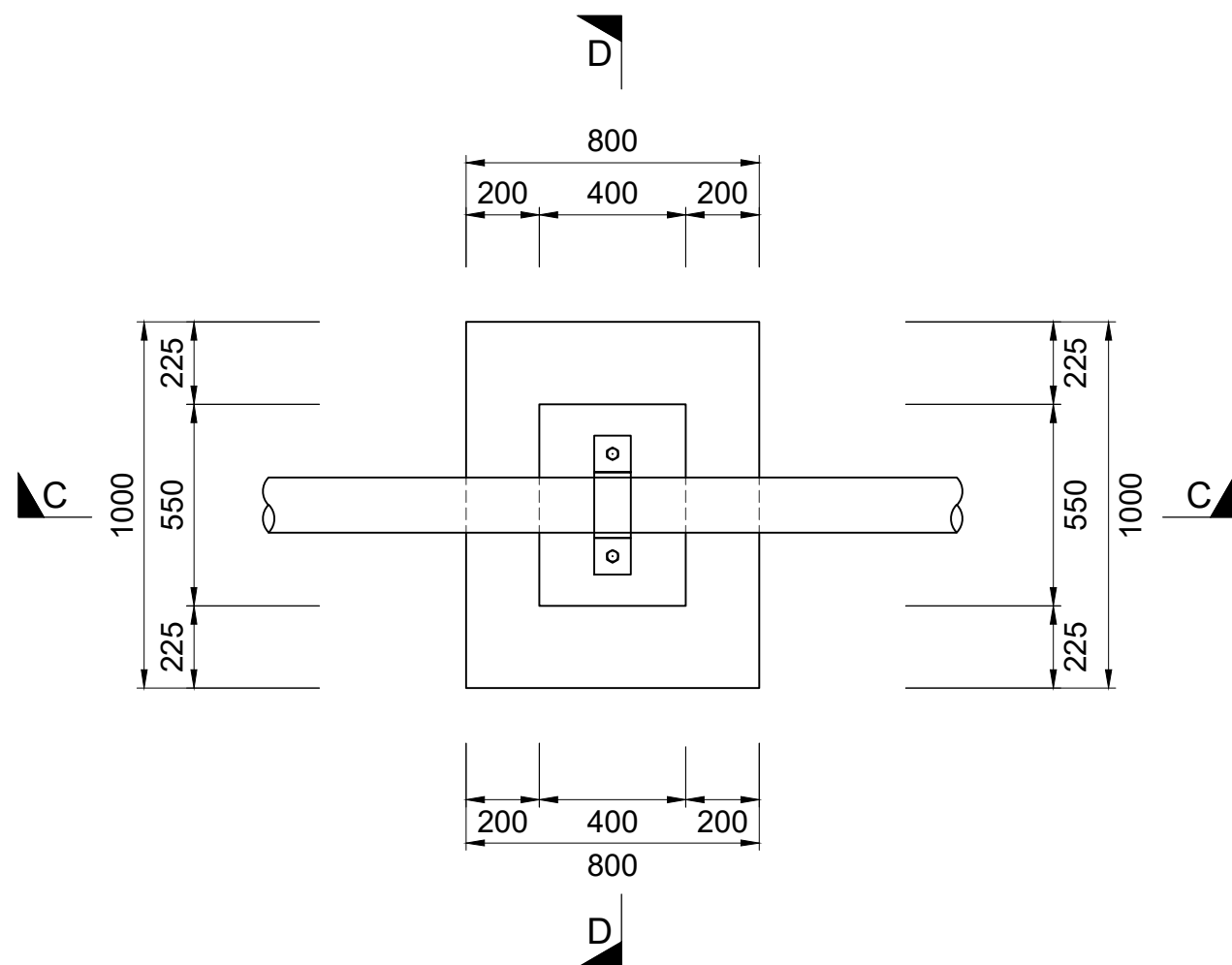
Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT FACULTATIVE PONDS PLANS,SECTIONS AND DETAILS		
Scale: AS SHOWN	Sheet No: 1 / 6	Drawing No: WFSTP - 1.6.3



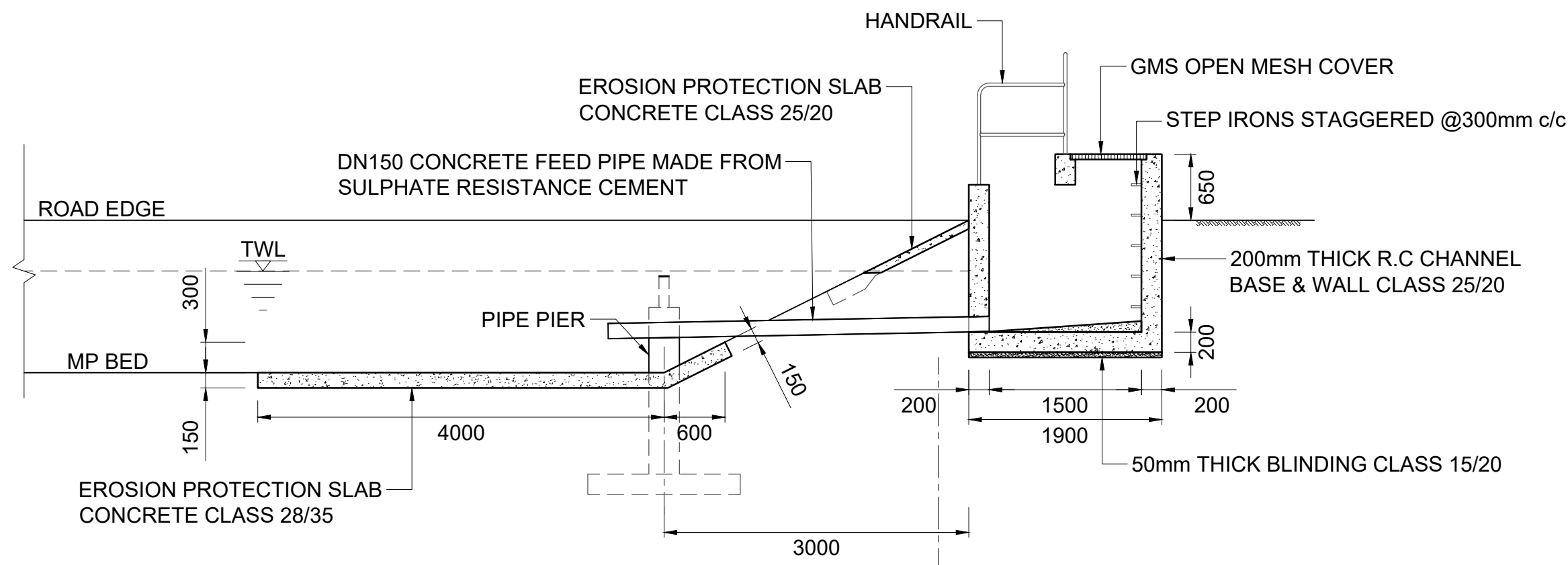
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
  - DRAWINGS TO BE READ AND NOT SCALED.



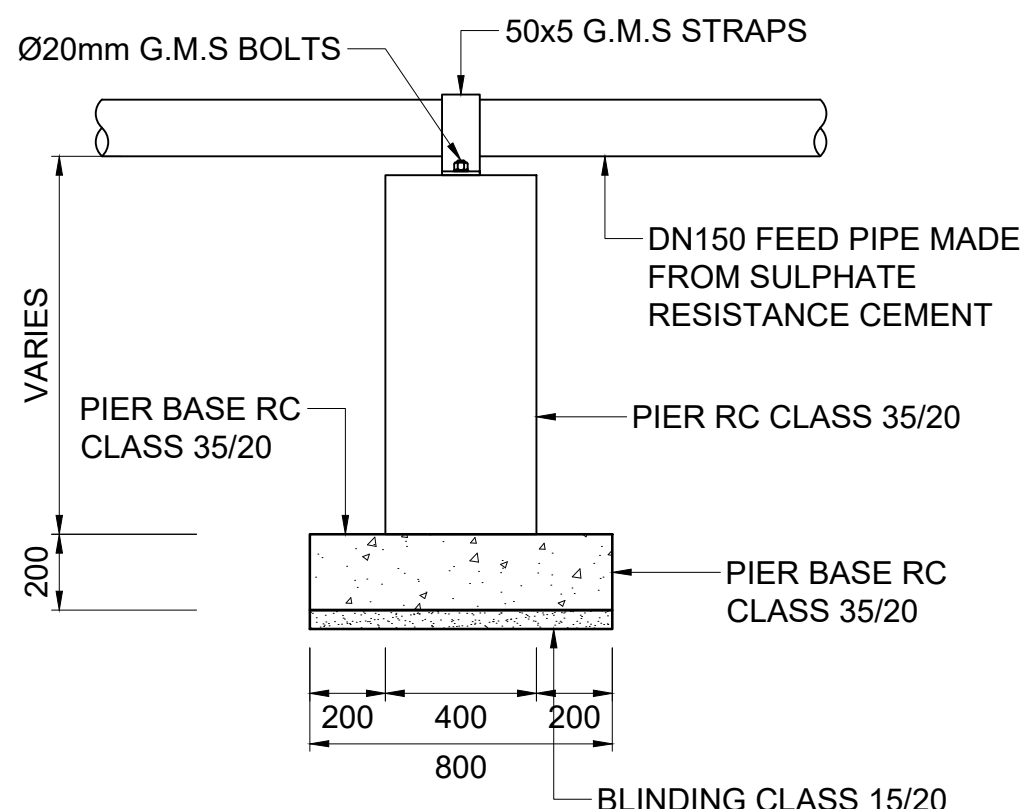
**TYPICAL FACULTATIVE POND INLET PLAN**  
SCALE 1:50



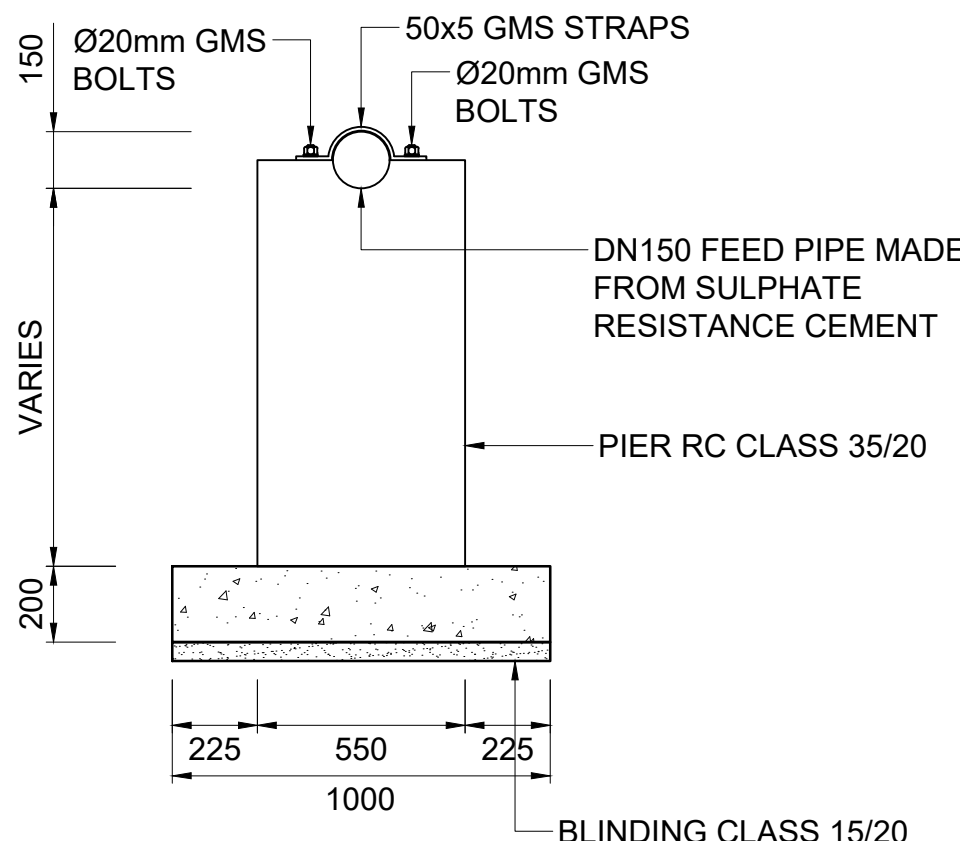
**TYPICAL FEED PIPE PIER PLAN**  
SCALE 1:20



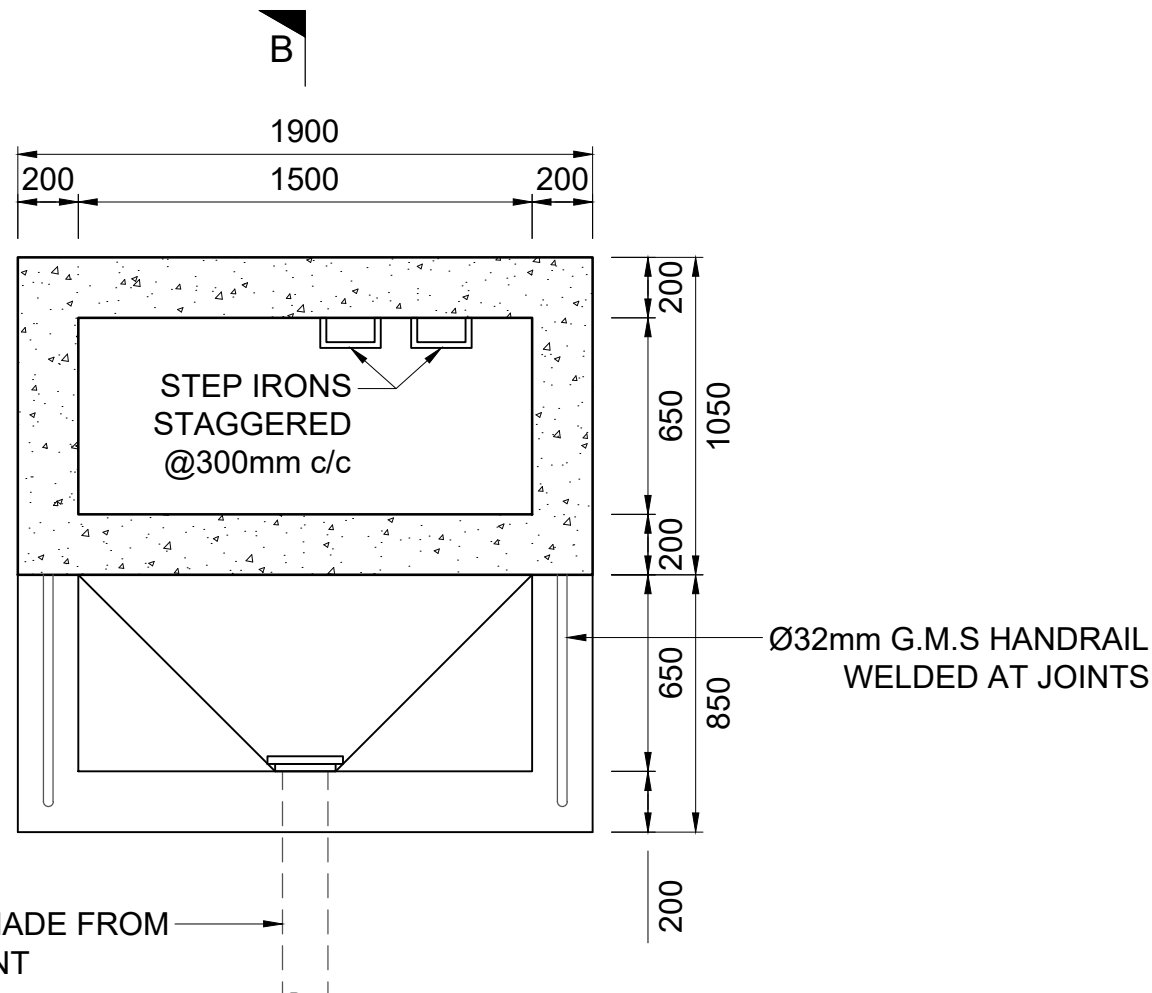
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SCALE 1:50



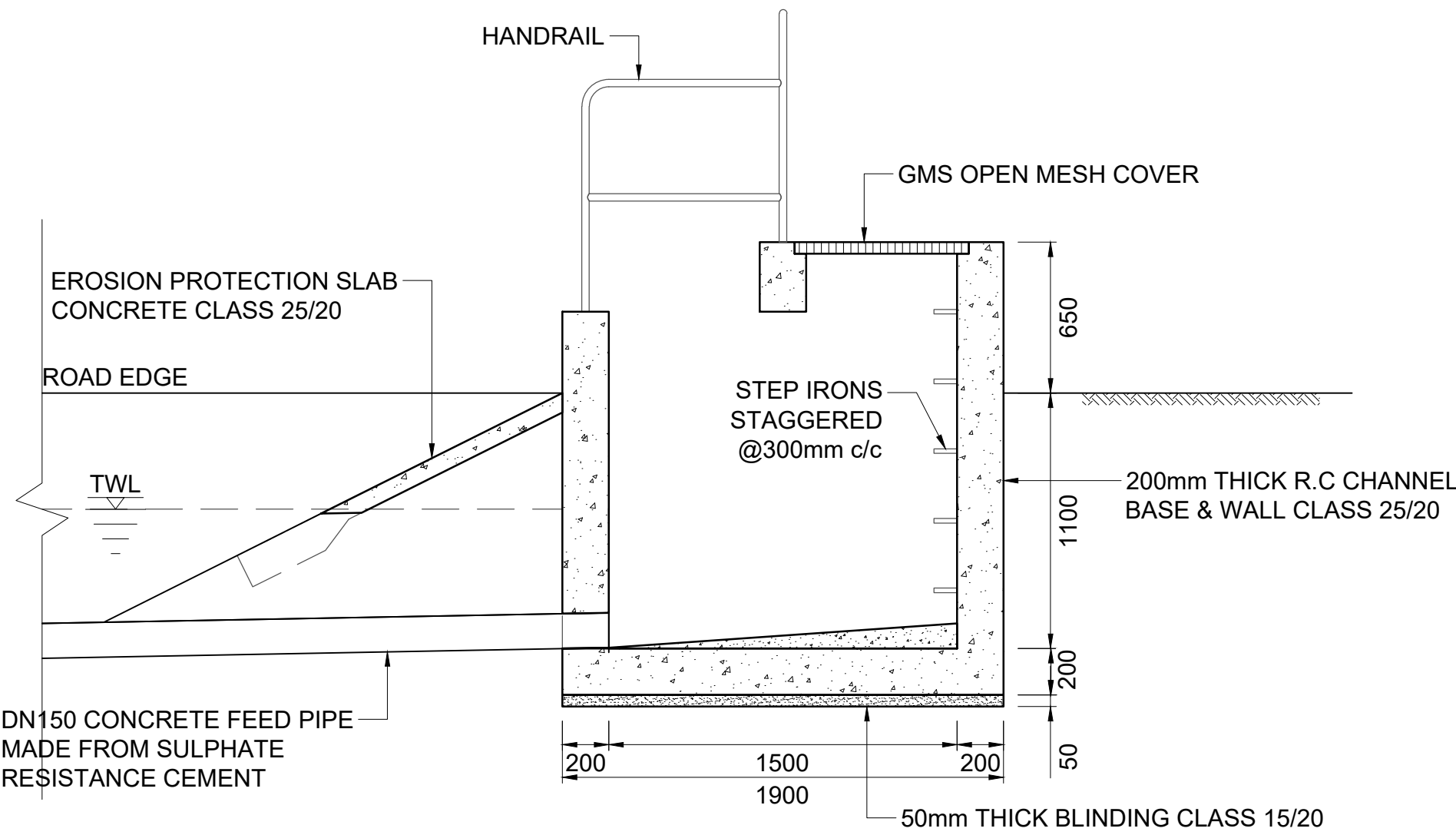
**SECTION C-C**  
SCALE 1:20



**SECTION D-D**  
SCALE 1:20



**INLET CHAMBER PLAN**  
SCALE 1:25



**SECTION B-B**  
SCALE 1:25

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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Mara Road, Upperhill  
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in  
cooperation  
with



EAST AFRICAN  
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Drawn by:

J.K.M

Date:

SEP 2024

Designed by:

P.M.M

Date:

SEP 2024

Checked by:

T.J.O

Date:

SEP 2024

Approved by:

J.K.W

Date:

SEP 2024

Project No:

Contract No:

Client:



WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

Financier:



WORLD BANK

Project:

CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN,  
BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs)  
AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND  
SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
FACULTATIVE PONDS INLET CHAMBER AND FEED PIPE PIER  
PLANS, SECTIONS AND DETAILS

Scale: AS SHOWN

Sheet No: 2 / 6

Drawing No:

WFSTP - 1.6.3

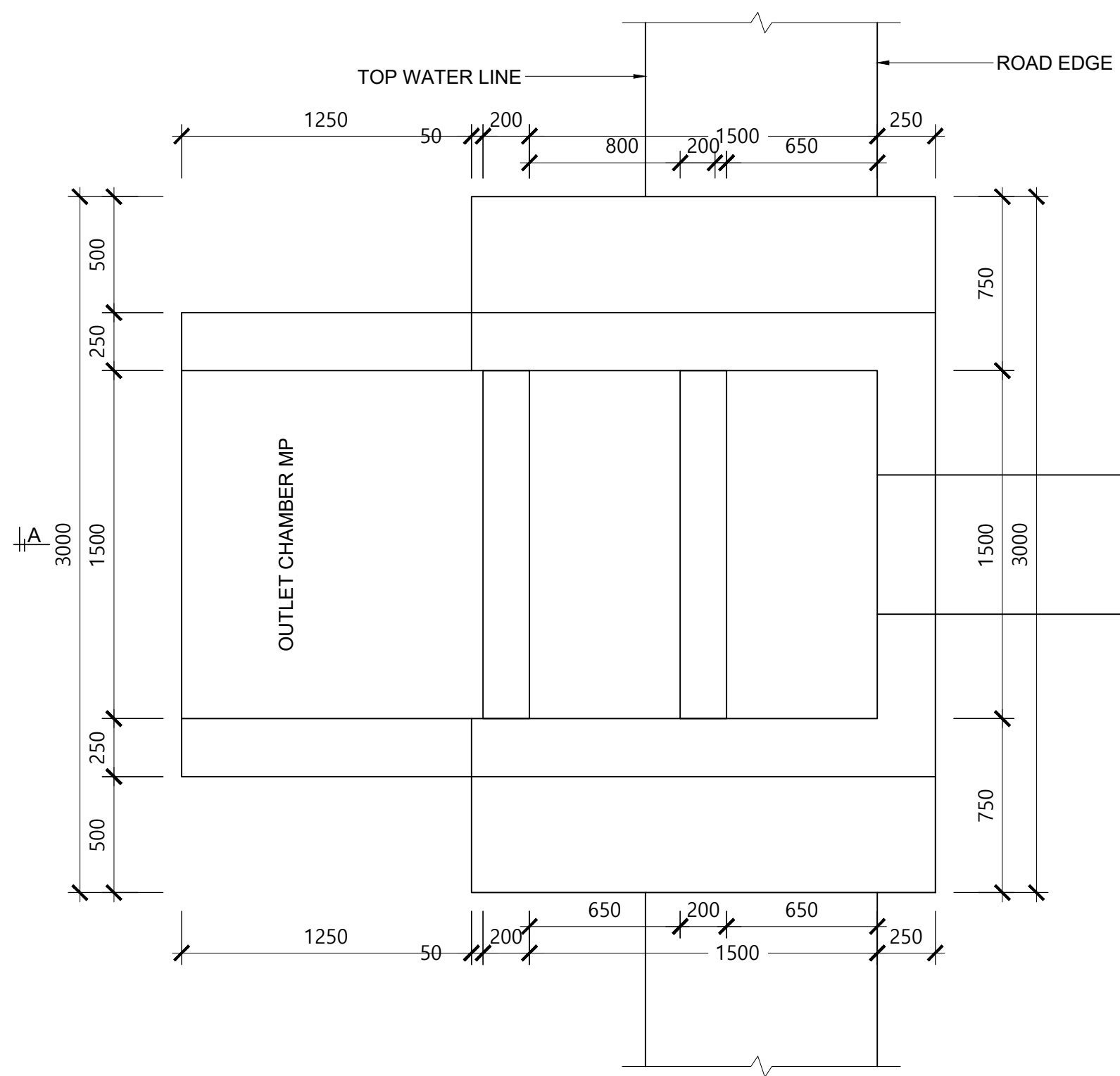
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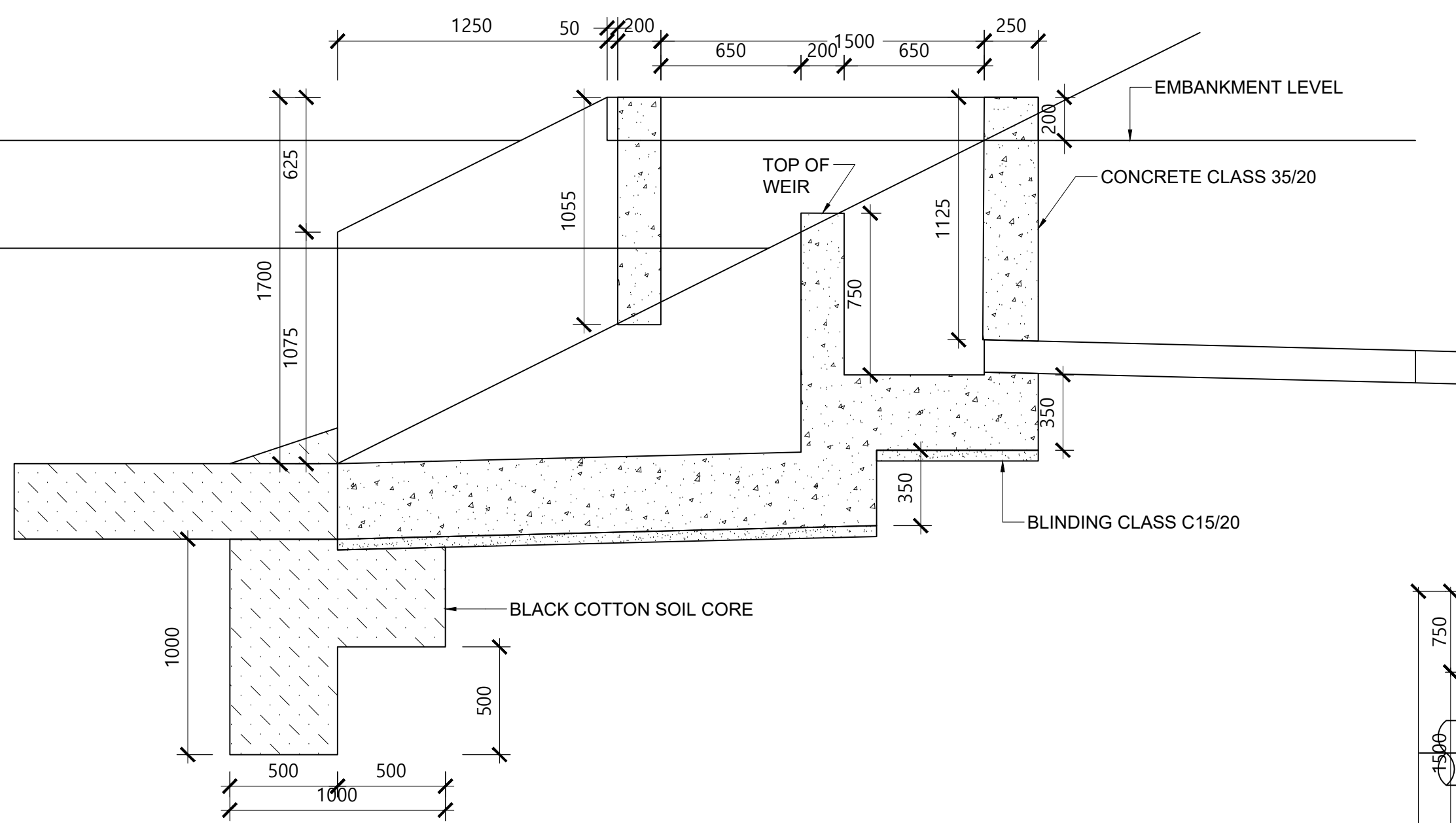


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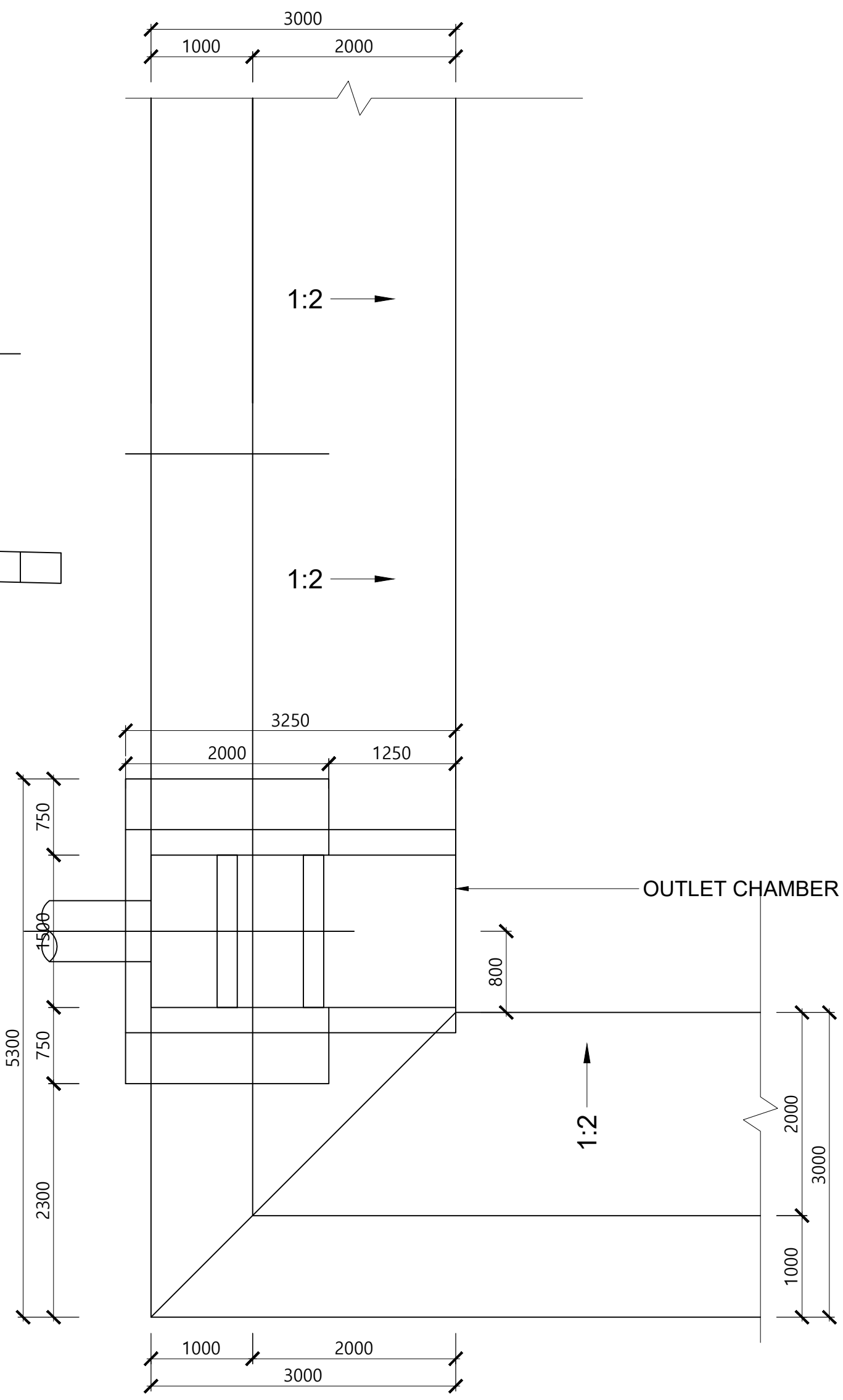
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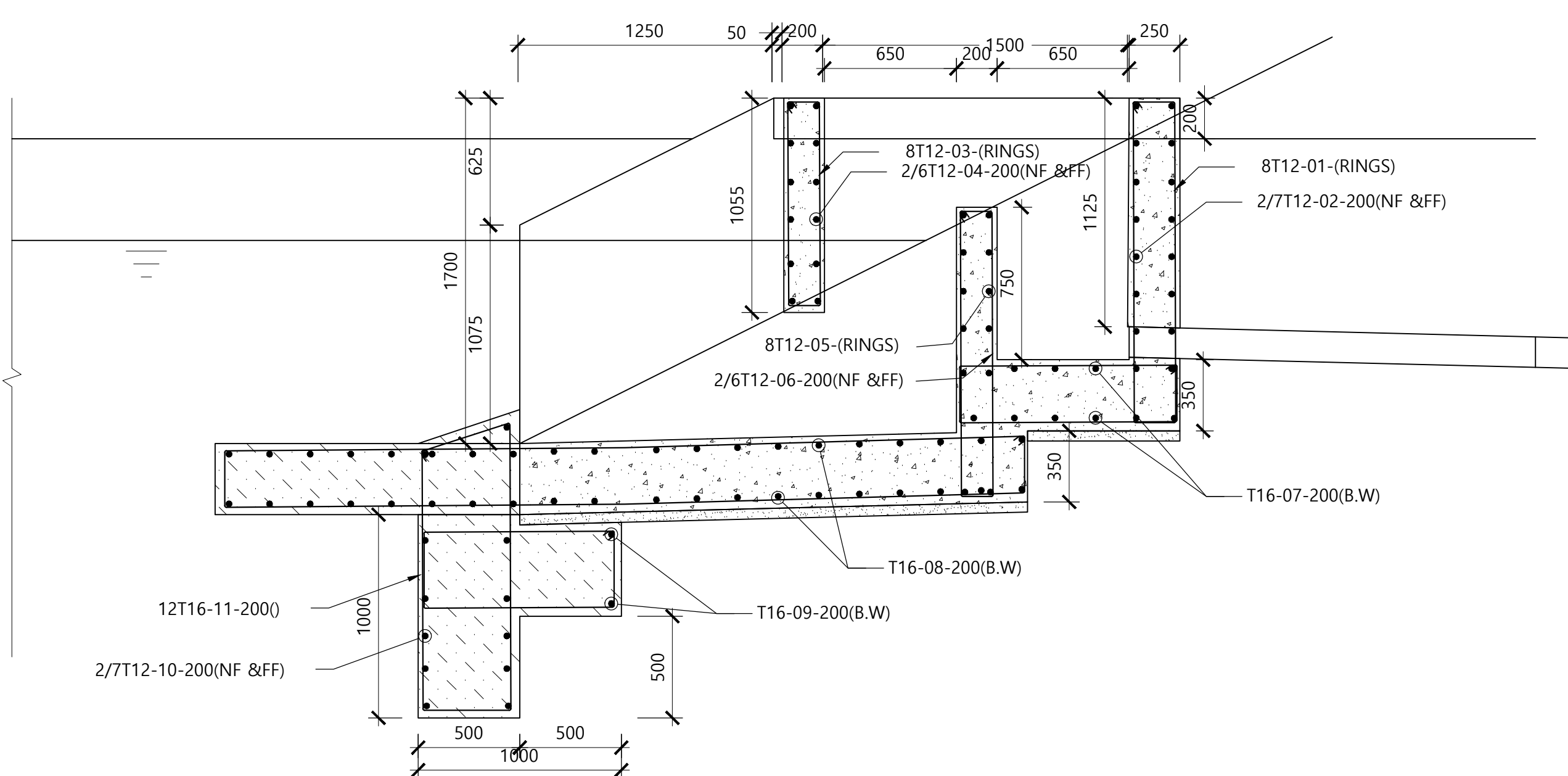
FACULTATIVE POND OUTLET CHAMBER PLAN  
Scale 1:25



SECTION A-A  
Scale 1:25



OUTLET CHAMBER LOCATION FOR FACULTATIVE POND PLAN  
Scale 1:50



SECTION A-A STRUCTURAL DETAILS  
Scale 1:25

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
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Drawing Title:			DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT FACULTATIVE PONDS REINFORCEMENT DETAILS		
Scale:	AS SHOWN	Sheet No:	5 / 6	Drawing No:	WFSTP - 1.6.3



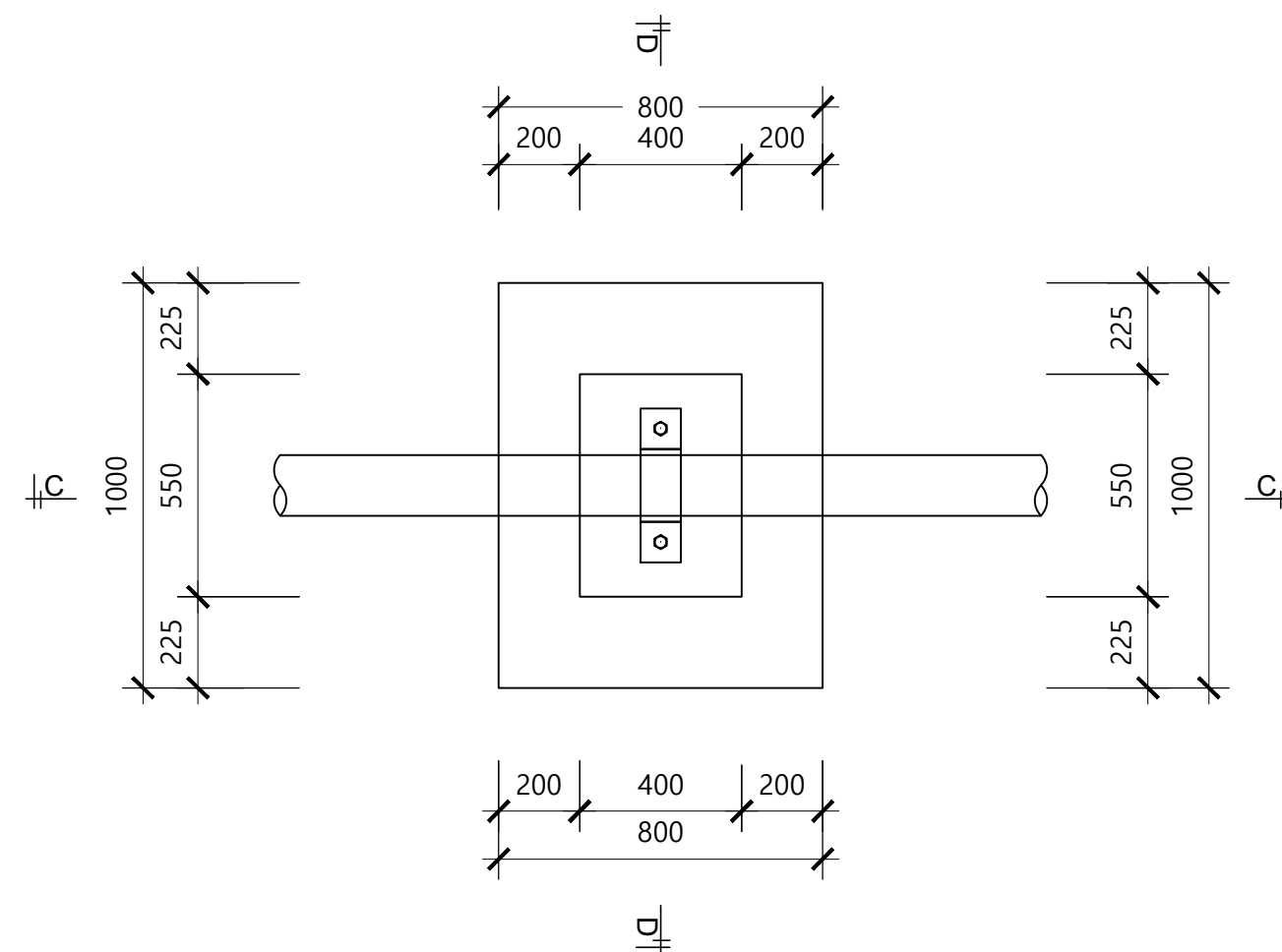


Diagram illustrating the cross-section of a pier structure, showing various components and dimensions:

- Ø20mm G.M.S BOLTS**: Indicated at the top connection point.
- 50x5 G.M.S STRAPS**: Indicated at the top connection point.
- DN150 FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT**: Indicated on the right side of the pier.
- PIER RC CLASS 35/20**: Indicated on the left side of the pier.
- PIER RC CLASS 35/20**: Indicated on the right side of the pier.
- PIER BASE RC CLASS 35/20**: Indicated at the base of the pier.
- BLINDING CLASS 15/20**: Indicated at the bottom of the pier base.
- VARIABLES**: Indicated on the left side, pointing to the vertical dimensions.
- 200**: Dimension indicating the height of the pier base.
- 225**: Dimension indicating the width of the pier base.
- 550**: Dimension indicating the width of the pier base.
- 1000**: Dimension indicating the total width of the pier base.

Technical drawing of a pier structure showing dimensions and materials. The drawing includes the following labels and dimensions:

- Ø20mm GMS BOLTS**: Two bolts at the top of the pier.
- 50x5 GMS STRAPS**: Two straps at the top of the pier.
- DN150 FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT**: The main vertical pipe.
- PIER RC CLASS 35/20**: The main body of the pier.
- PIER BASE RC CLASS 35/20**: The base of the pier.
- BLINDING CLASS 15/20**: The bottom layer of the pier base.
- Dimensions**:
  - Top section height: 150
  - Variable section height: VARIES
  - Base section height: 200
  - Base width: 800 (divided into 200, 400, and 200 segments)

VARIES

200

225 550 225

1000

7T12-01-150

7T12-02-150(RINGS)

7T12-03-150B2/T2

5T12-04-150B1/T1

Diagram illustrating the cross-section of a staircase structure, showing dimensions and reinforcement details.

**Dimensions:**

- Overall width: 1900 mm
- Overall height: 1050 mm
- Slab thickness: 200 mm
- Wall height: 850 mm
- Foundation width: 200 mm

**Reinforcement Details:**

- Slab reinforcement: 8mm diameter bars, staggered @ 300mm c/c.
- Wall reinforcement: 8mm diameter bars, staggered @ 300mm c/c.
- Foundation reinforcement: 8mm diameter bars, staggered @ 300mm c/c.
- Handrail: Ø32mm G.S. HANDRAIL WELDED AT JOINTS.

Technical drawing of a concrete structure, likely a culvert or drainage structure, showing a cross-section and plan view. The structure is composed of several layers and materials:

- EROSION PROTECTION SLAB CONCRETE CLASS 20/25**: The top layer of the structure.
- 200mm THICK R.C CHANNEL BASE & WALL CLASS 20/25**: The main structural layer.
- DN150 CONCRETE FEED PIPE MADE FROM SULPHATE RESISTANCE CEMENT**: The pipe entering the structure from the left.
- 50mm THICK BLINDING CLASS 15/20**: The bottom layer of the structure.
- STEP IRONS STAGGERED @300mm c/c**: Reinforcement bars within the concrete walls.
- GMS OPEN MESH COVER**: The cover at the top of the structure.
- HANDRAIL**: A handrail on top of the structure.

Dimensions are provided in millimeters (mm):

- Vertical Dimensions (from top to bottom)**:
  - 650
  - 1100
  - 200
  - 50
- Horizontal Dimensions (from left to right)**:
  - 200
  - 1500
  - 1900
  - 200

Technical drawing of a reinforced concrete structure, likely a foundation or wall, showing dimensions and reinforcement details. The structure is L-shaped with a vertical section on the left and a horizontal section on the right. Dimensions include 200, 1500, 1900, 200, 50, 200, 1100, 650, and 200. Reinforcement details include 36T12-01 (RINGS), 8-02 (HOOK), 2/10T12-03-200 (NF & FF), 9T12-05-200 (B.W.), and 36T12-01 (RINGS).

Sep 10, 2024 - 3:15pm



Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
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<b>Drawing Title:</b> DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MATURATION PONDS PLANS, SECTIONS AND DETAILS			
<b>Scale:</b> AS SHOWN	<b>Sheet No:</b> 1 / 6	<b>Drawing No:</b> WFSTP - 1.7.1	

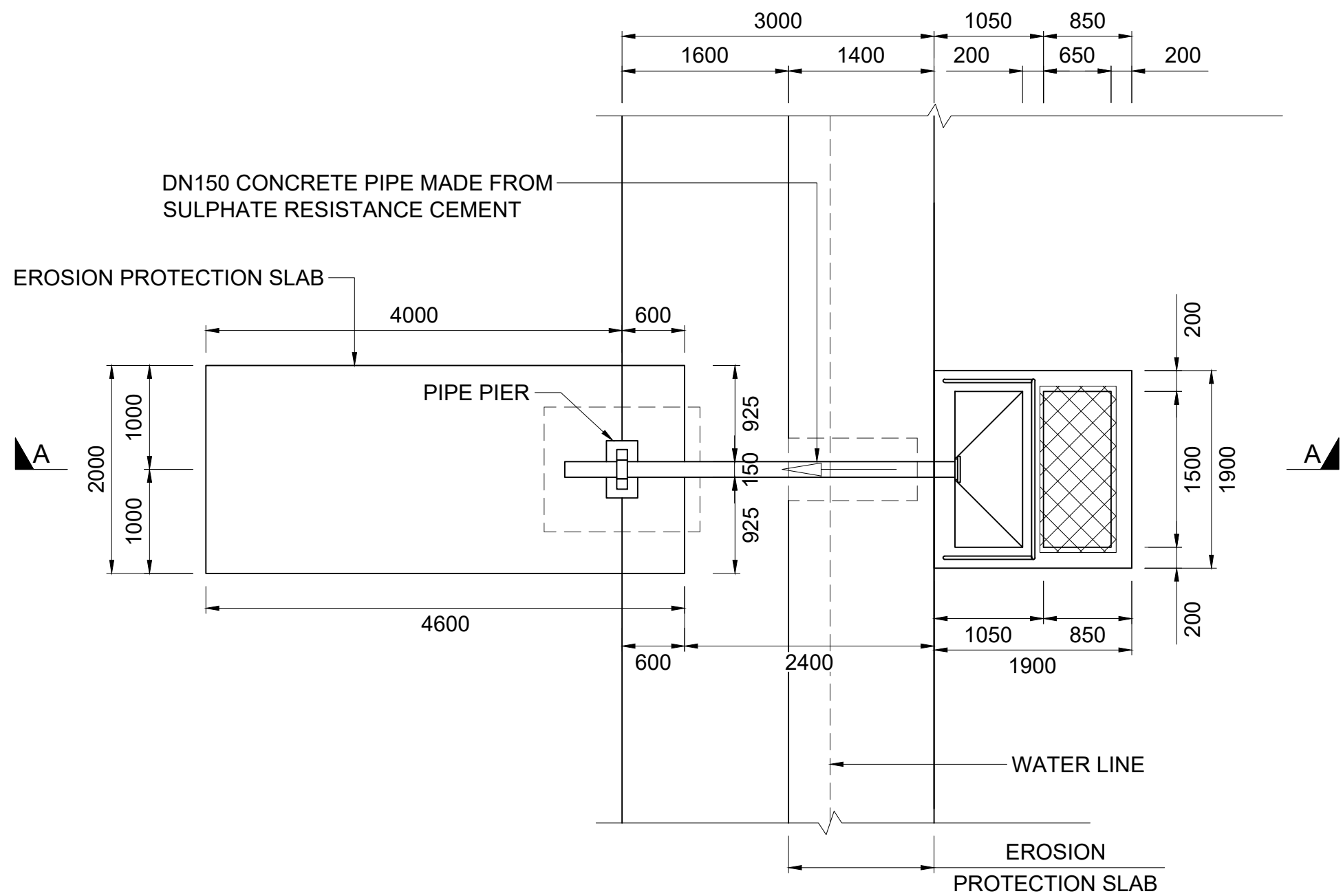
----- TOP WATER LEVEL (OR LINE) - TWL

MP MATURATION POND

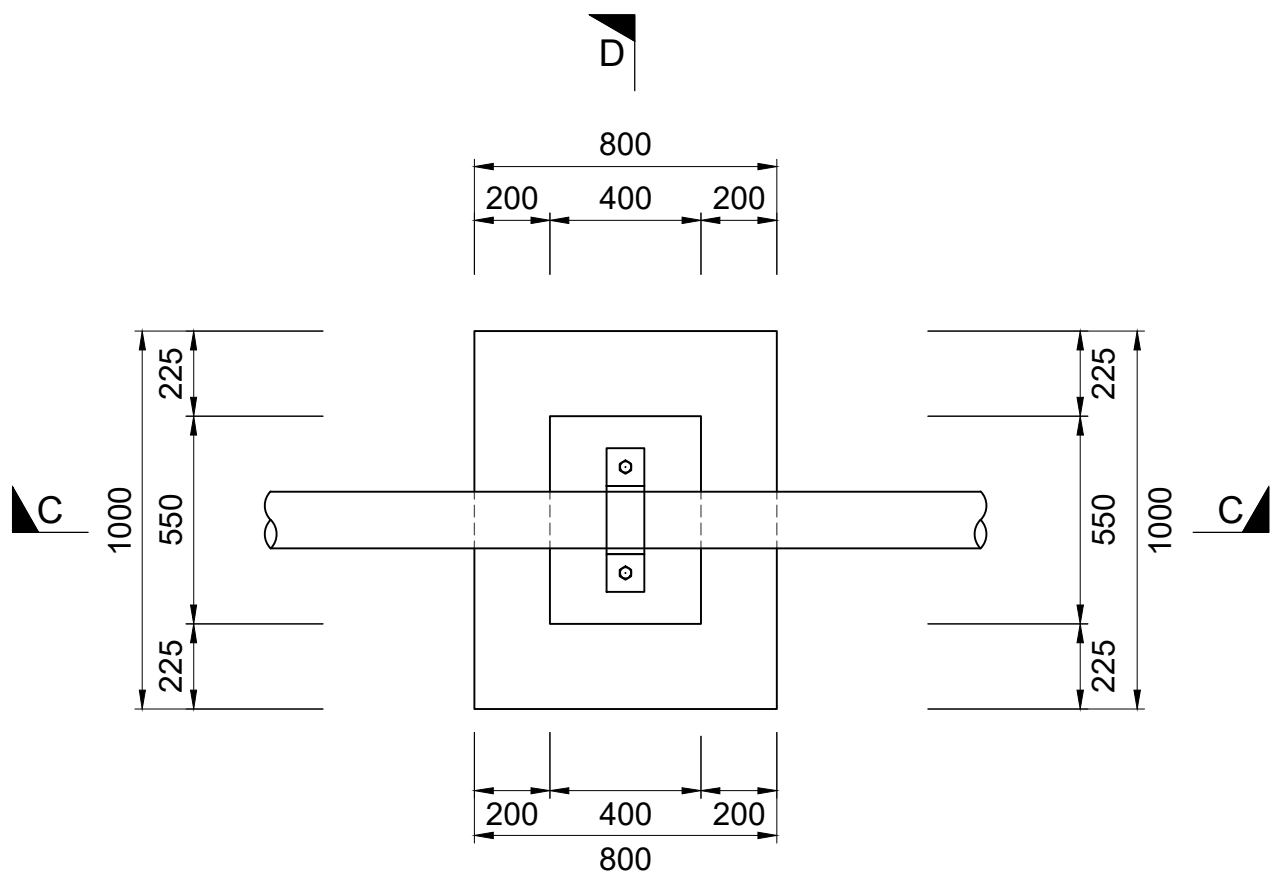
EL ELEVATION



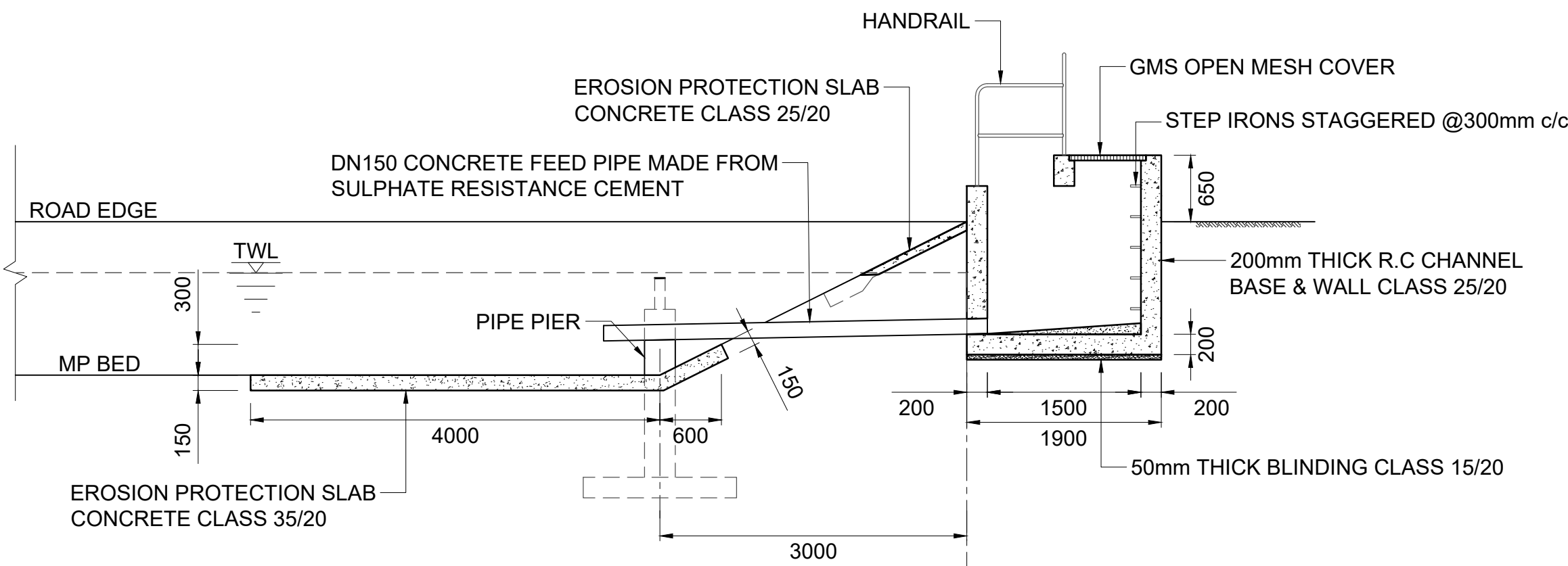
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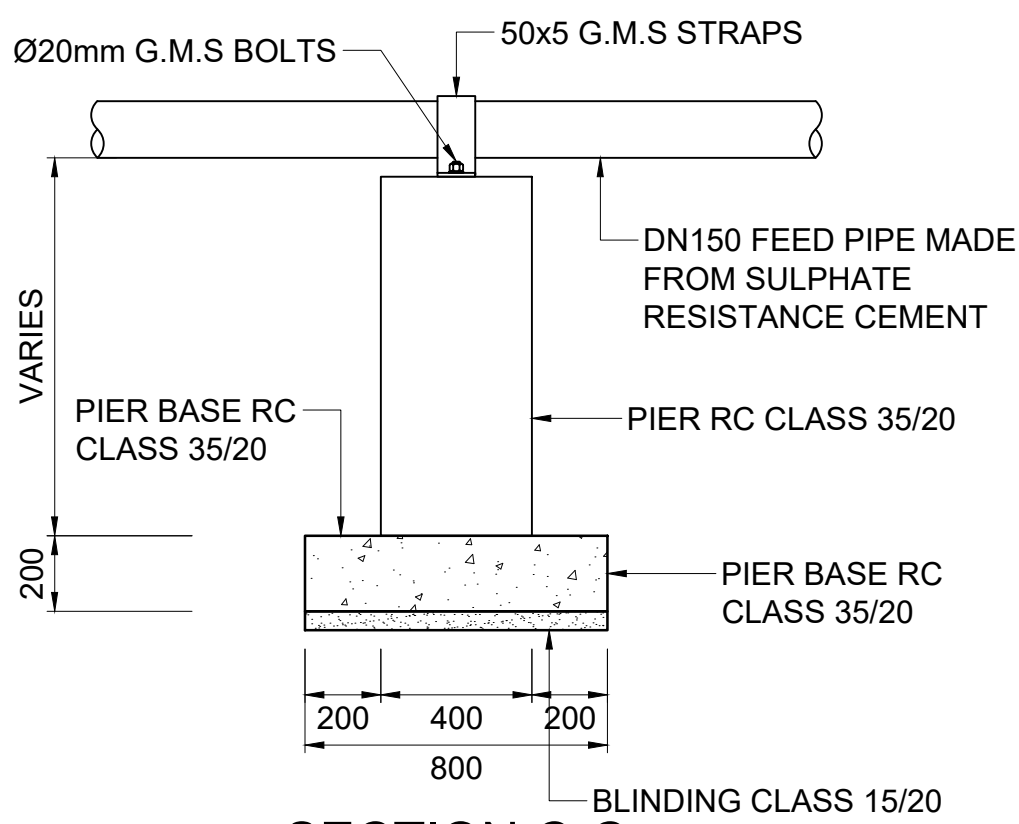
TYPICAL MATURATION POND INLET PLAN  
SCALE 1:50



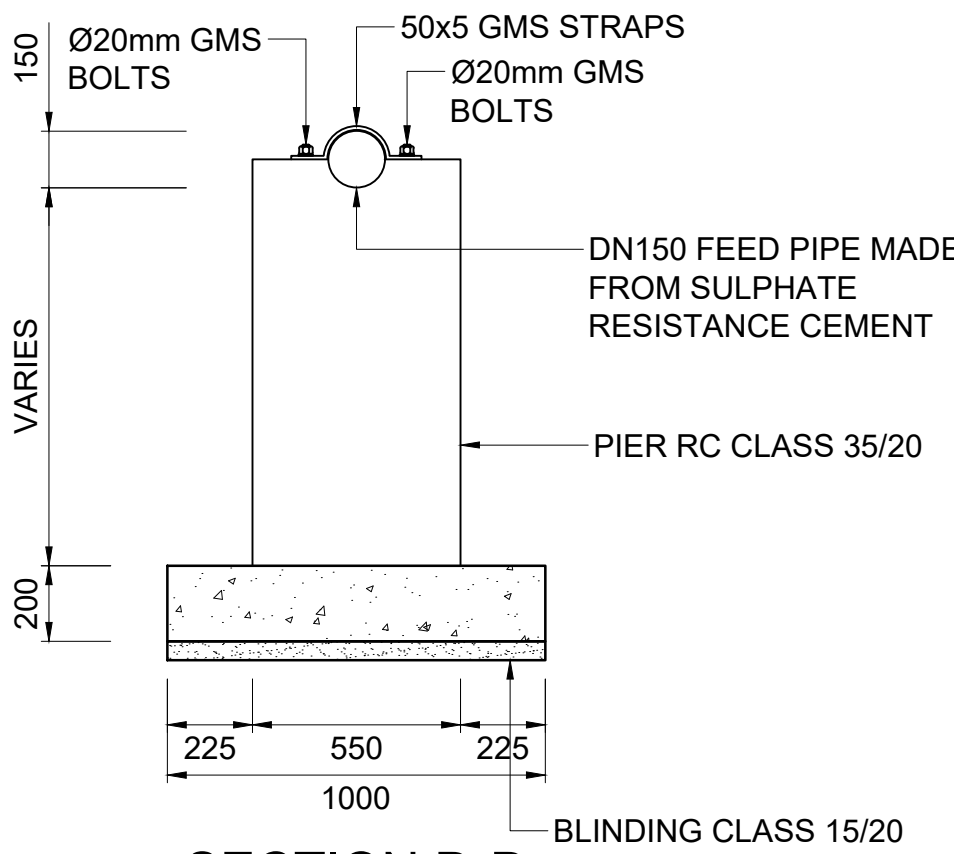
TYPICAL FEED PIPE PIER PLAN  
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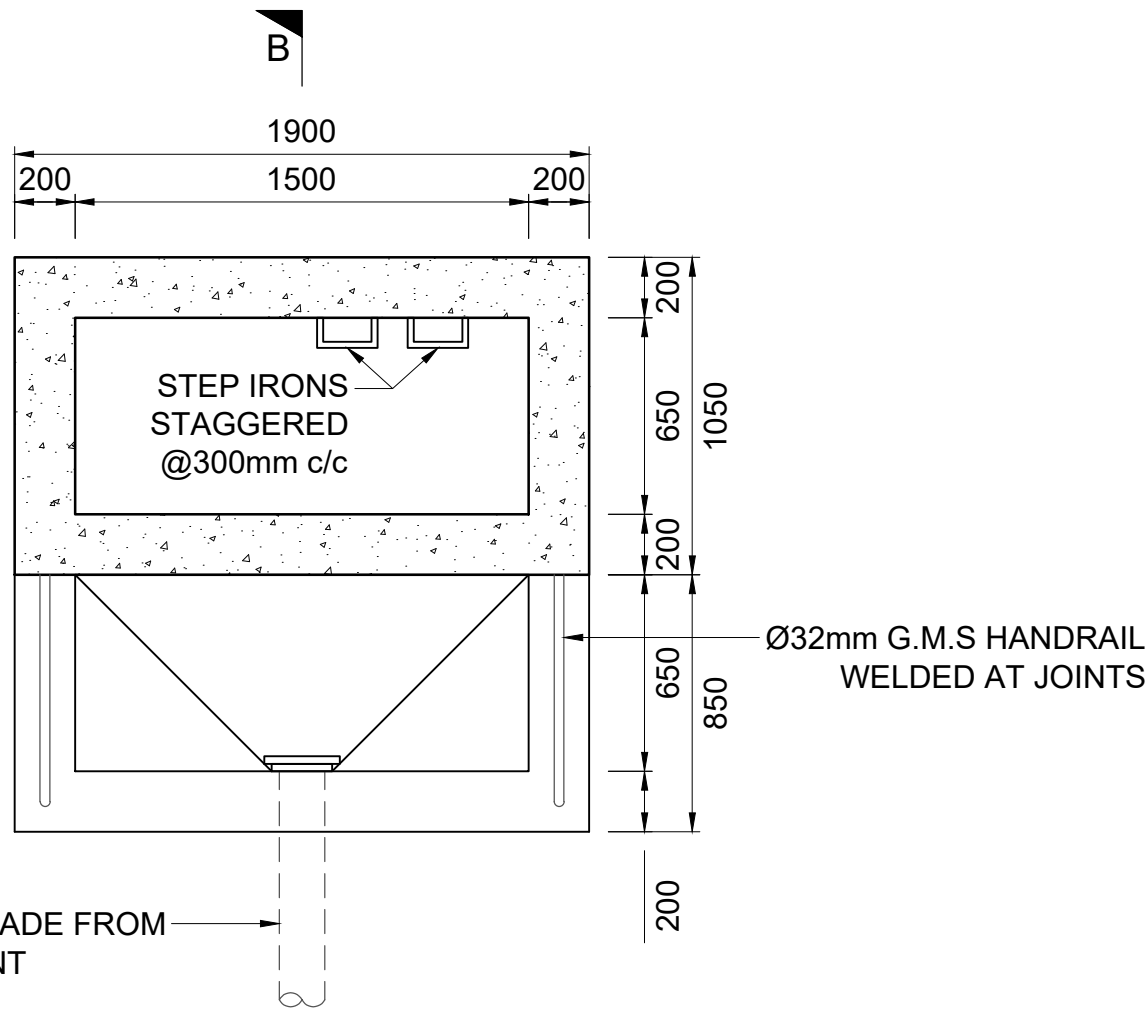
SECTION A-A  
SCALE 1:50



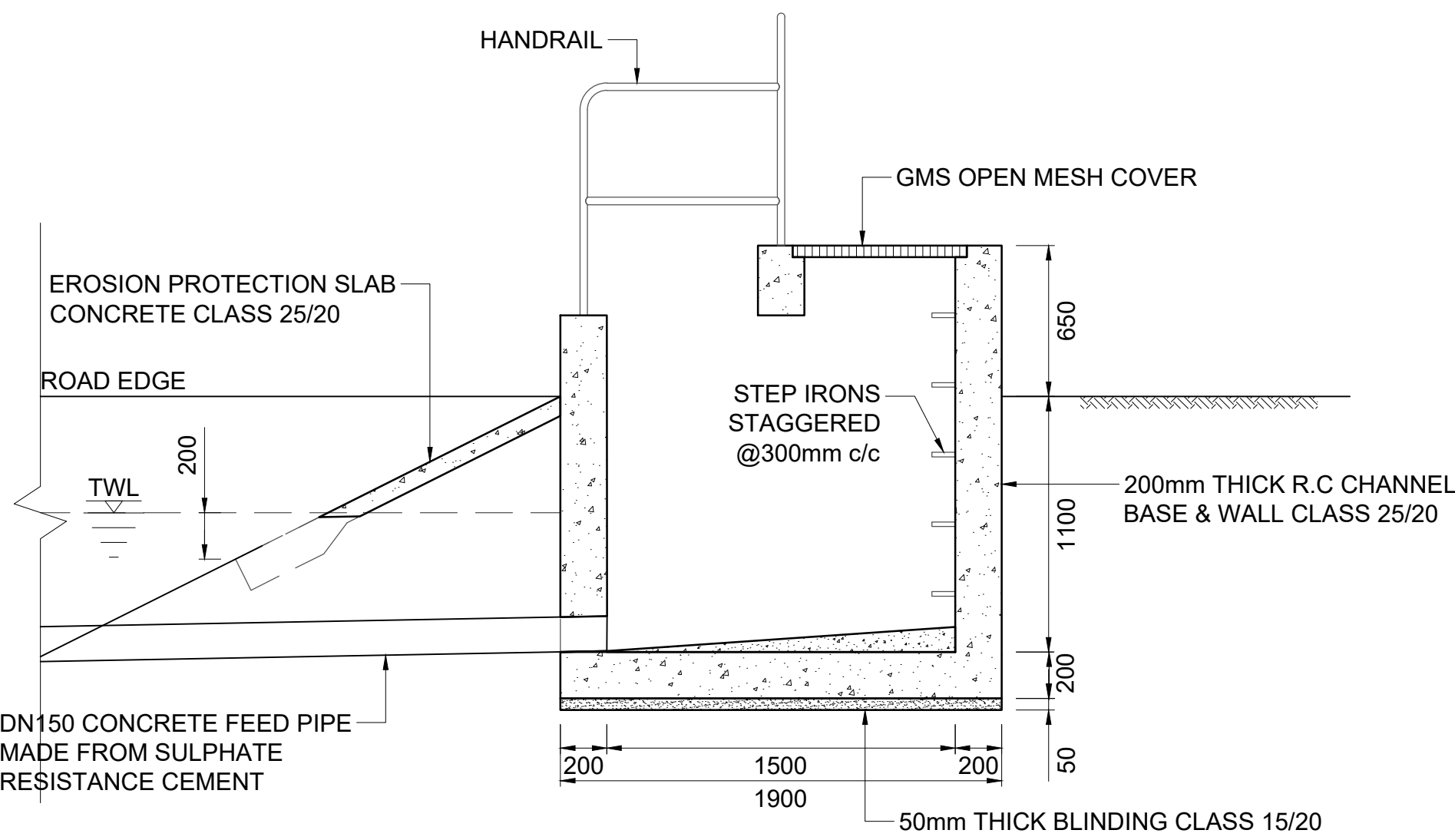
SECTION C-C  
SCALE 1:20



SECTION D-D  
SCALE 1:20



INLET CHAMBER PLAN  
SCALE 1:25



SECTION B-B  
SCALE 1:25

REV	Description	Sign	Date	Approved
REVISIONS				

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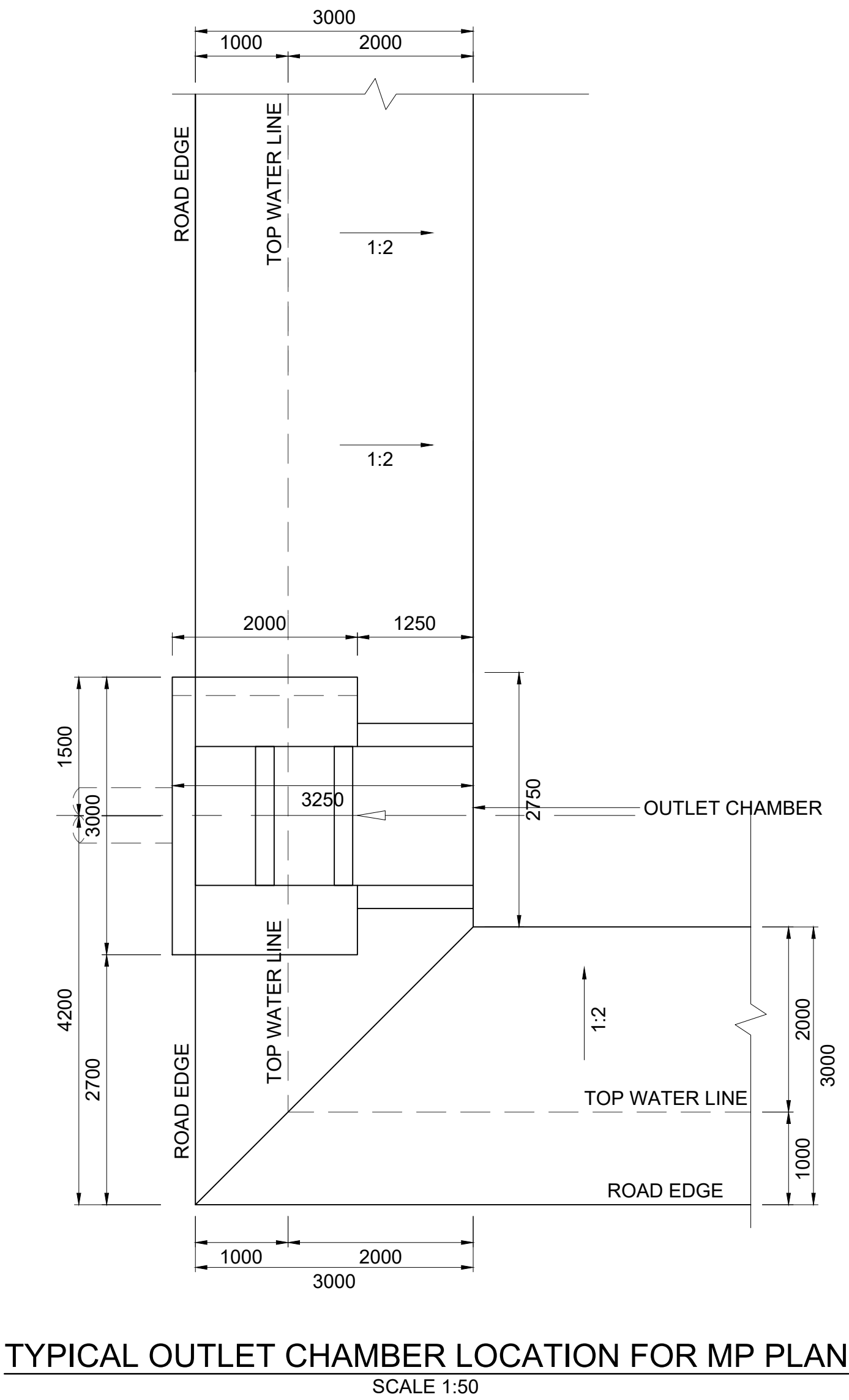
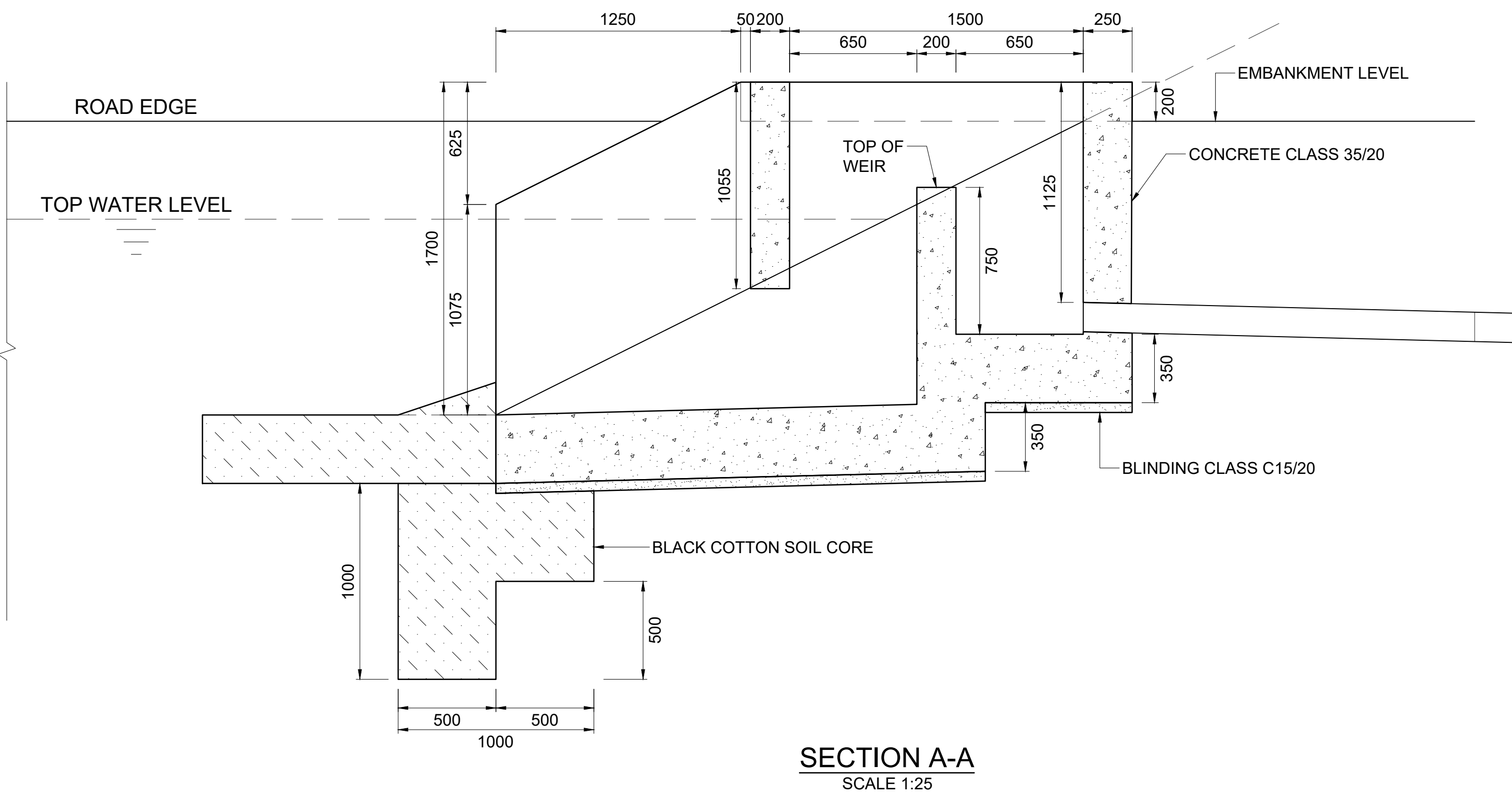
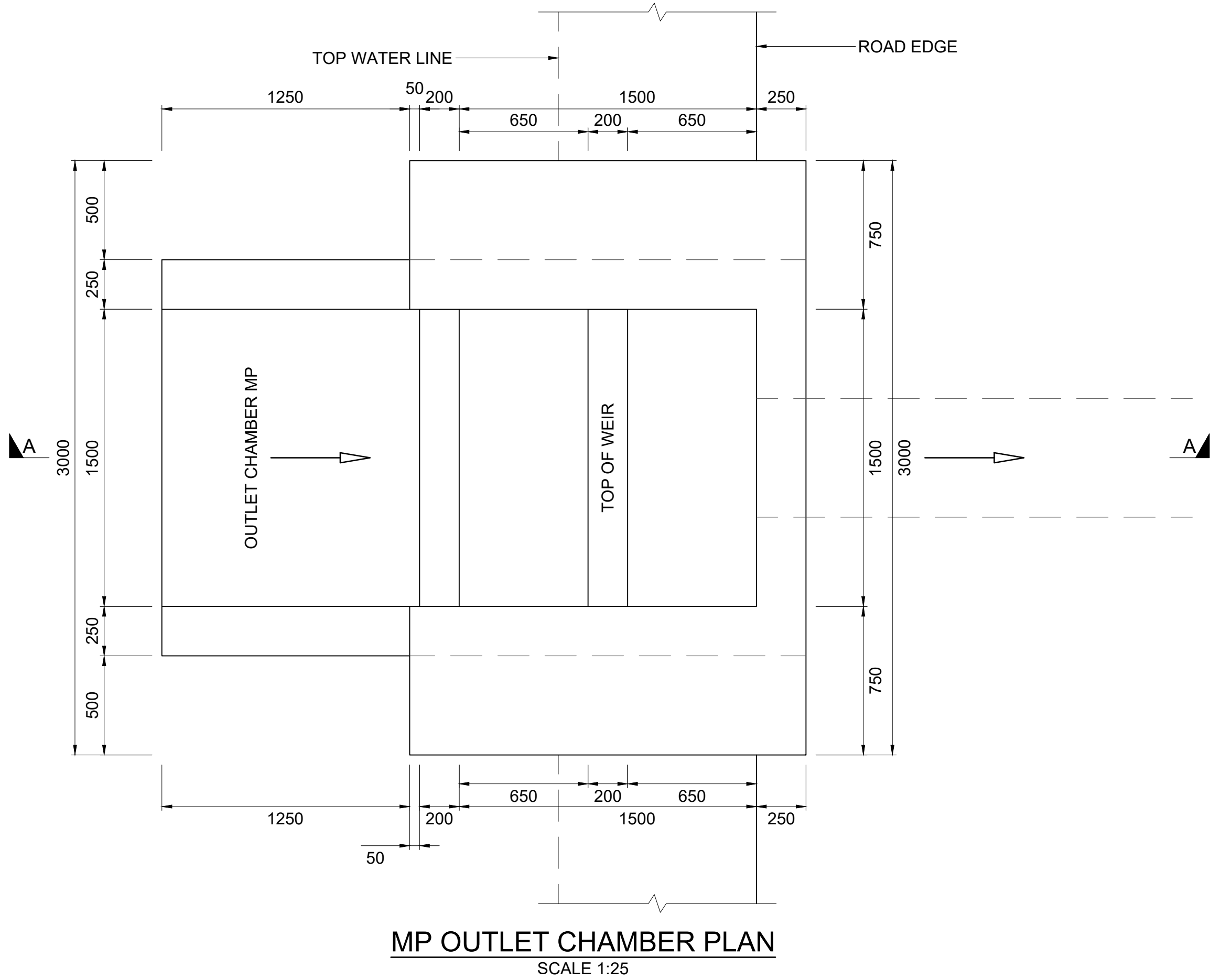
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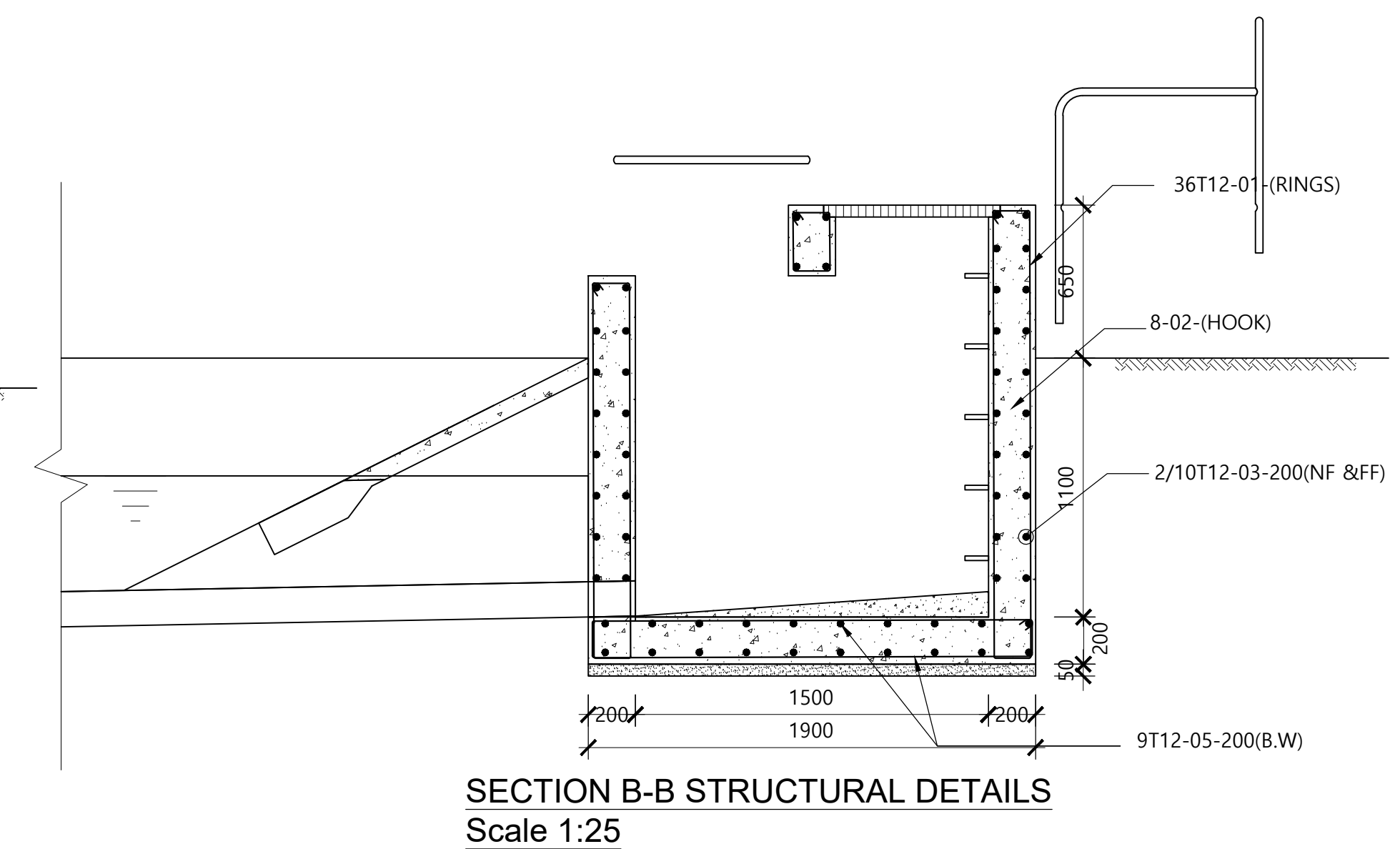
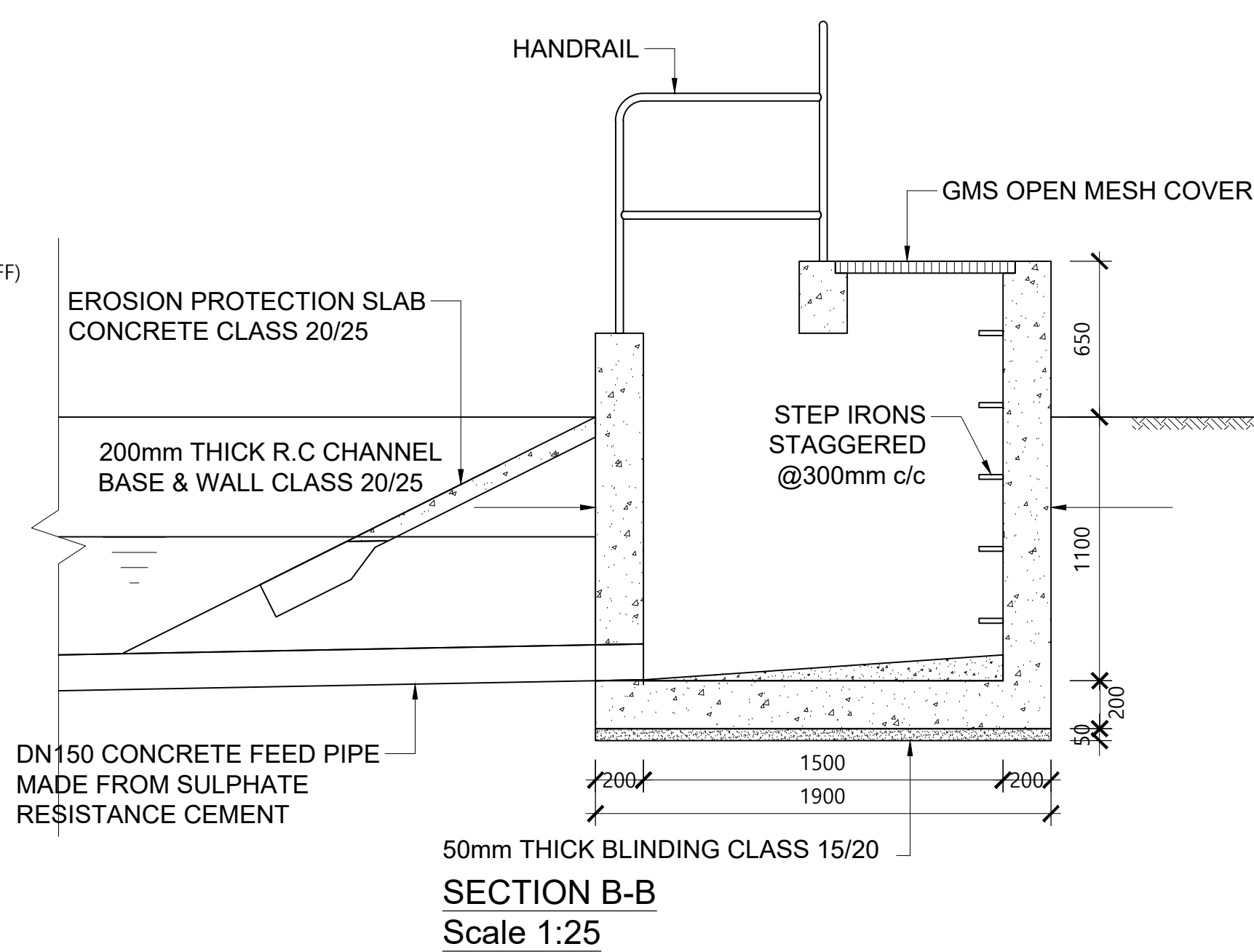
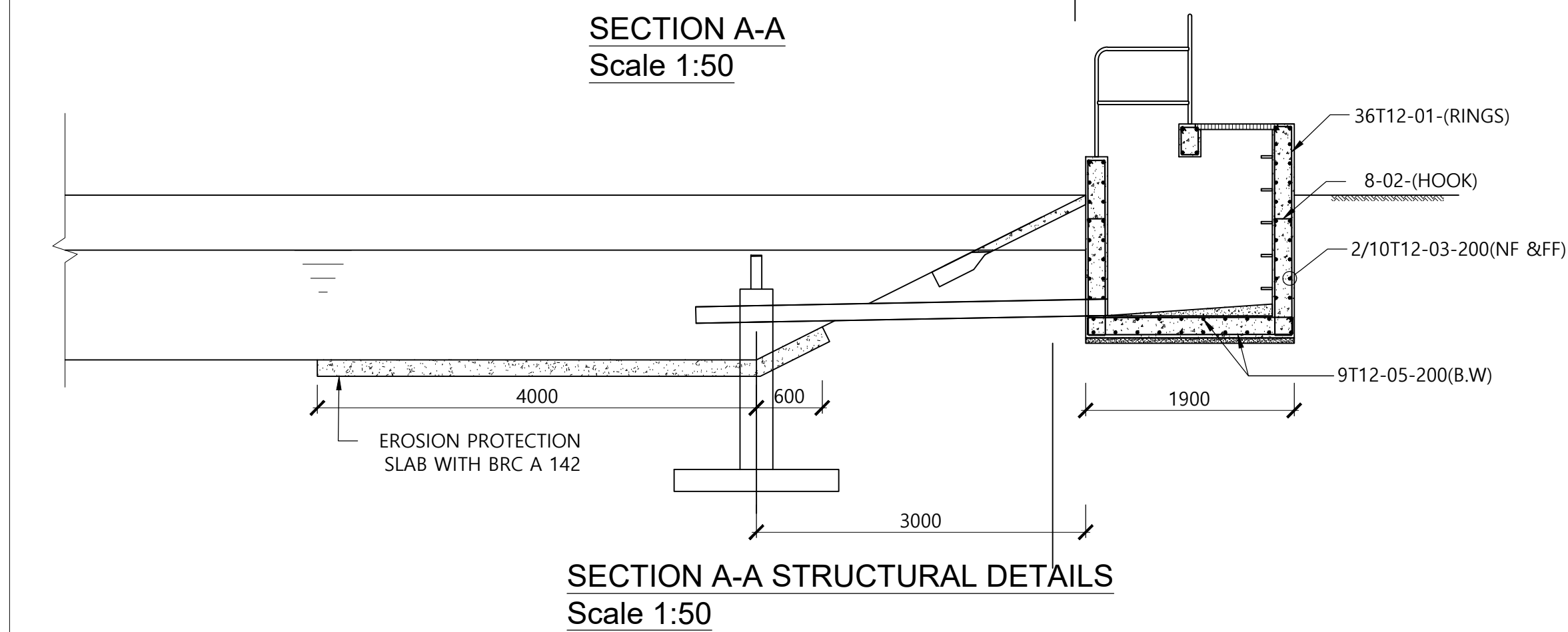
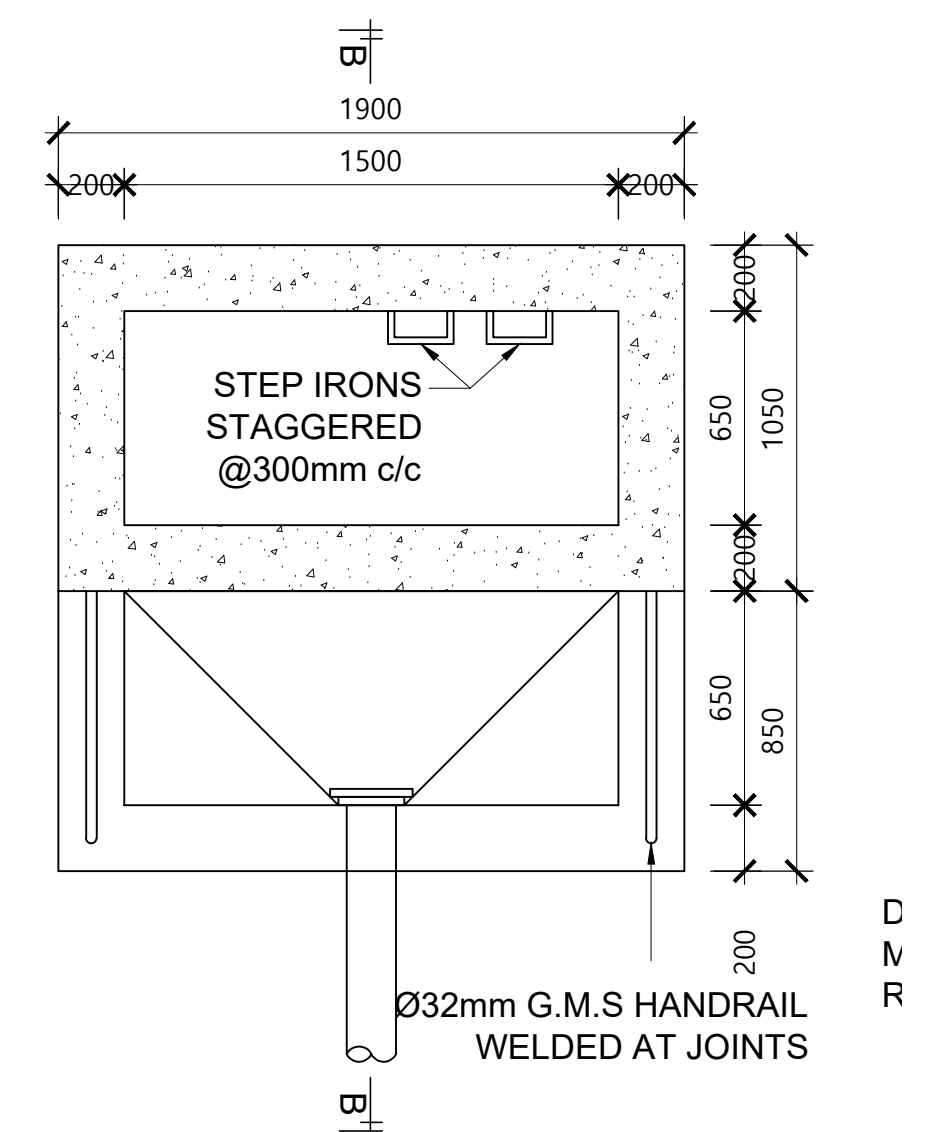
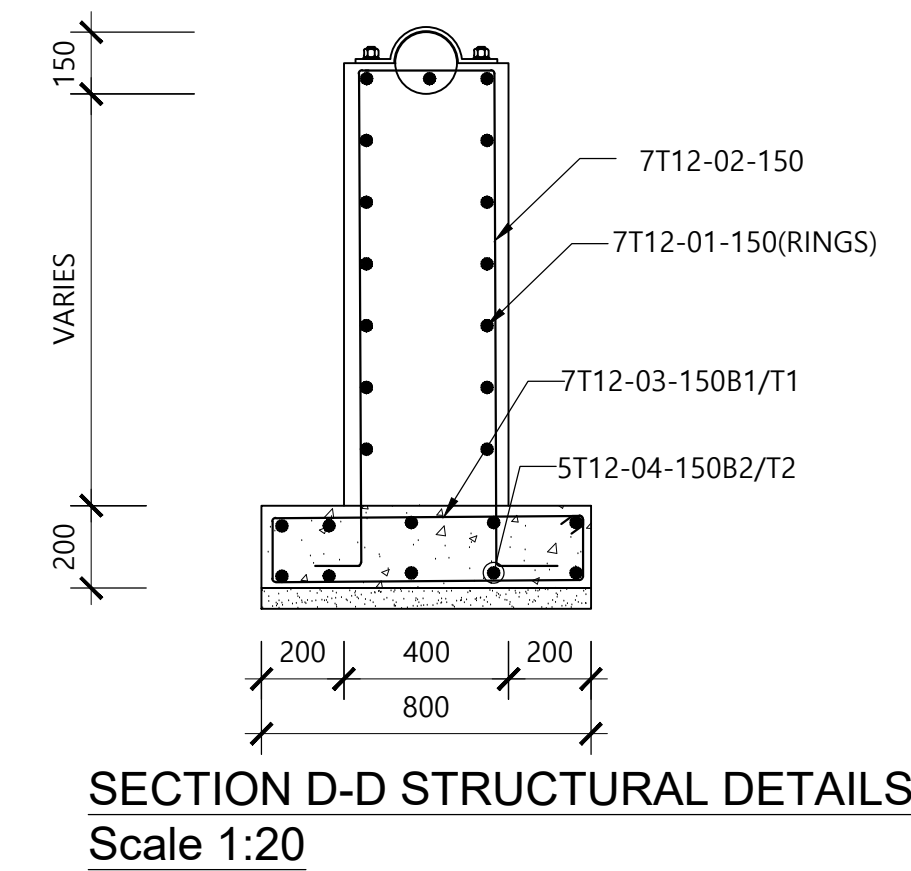
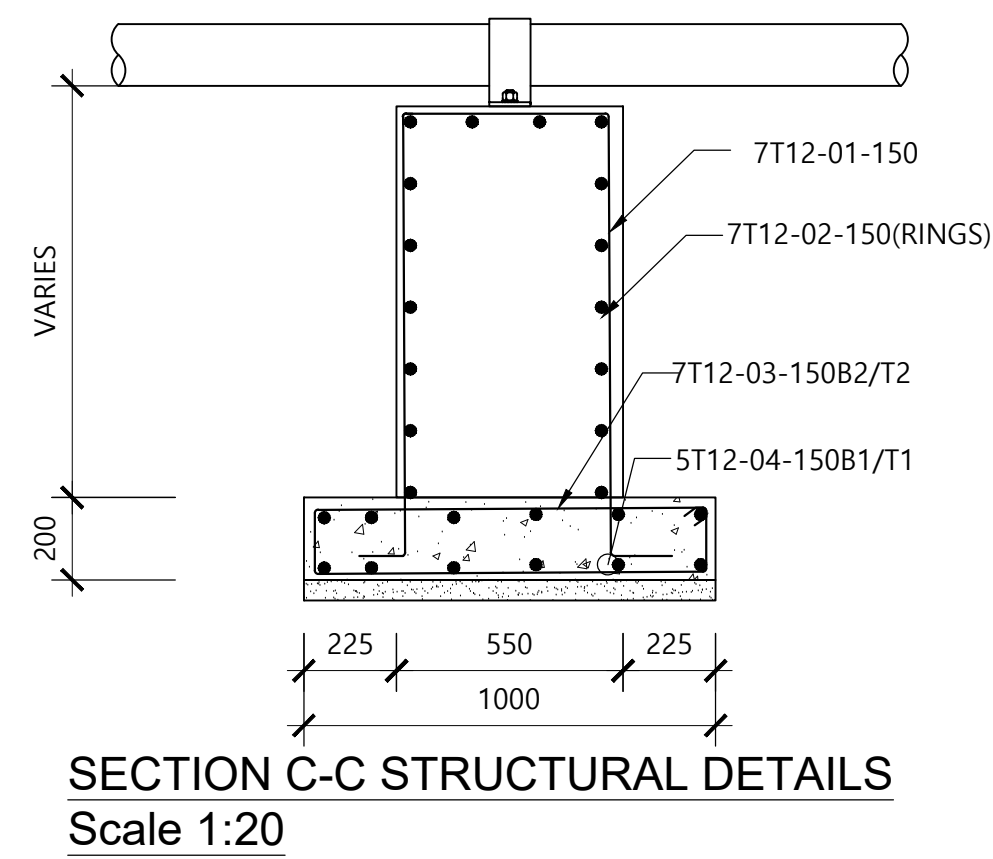
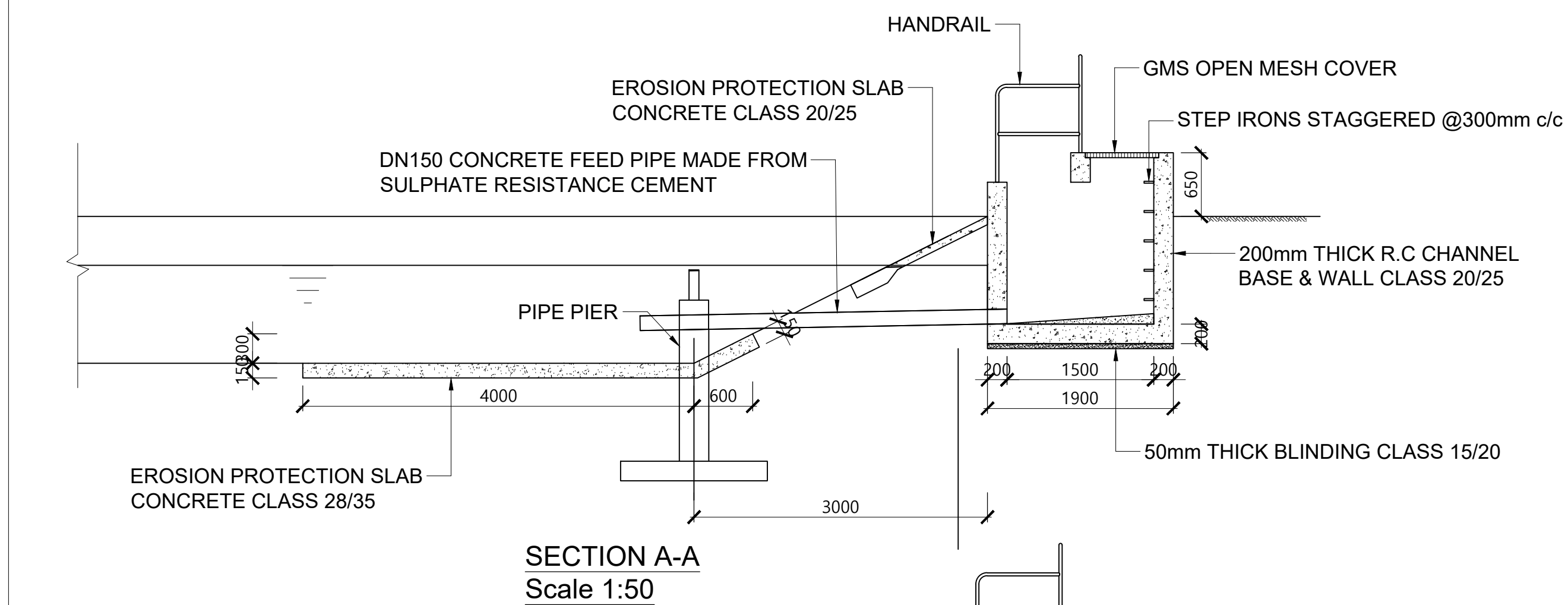
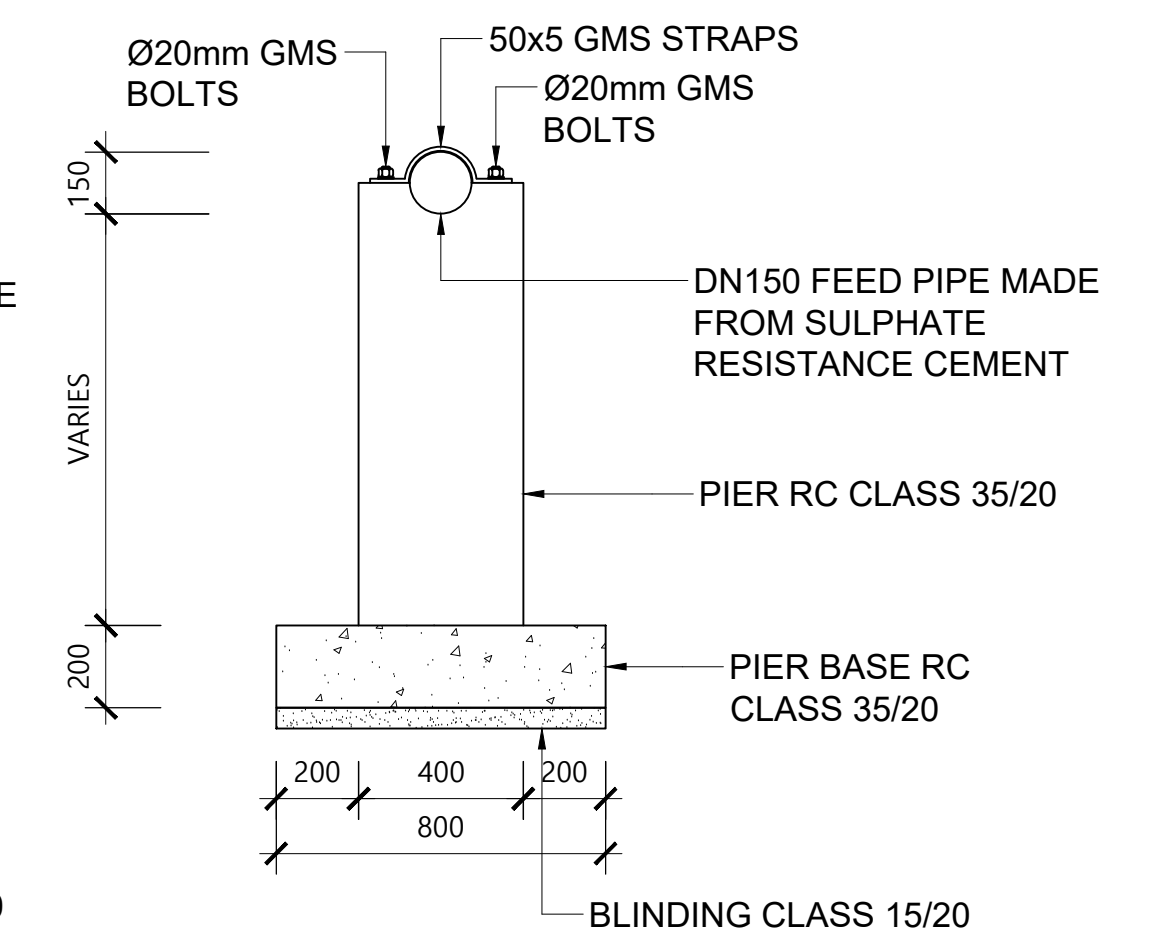
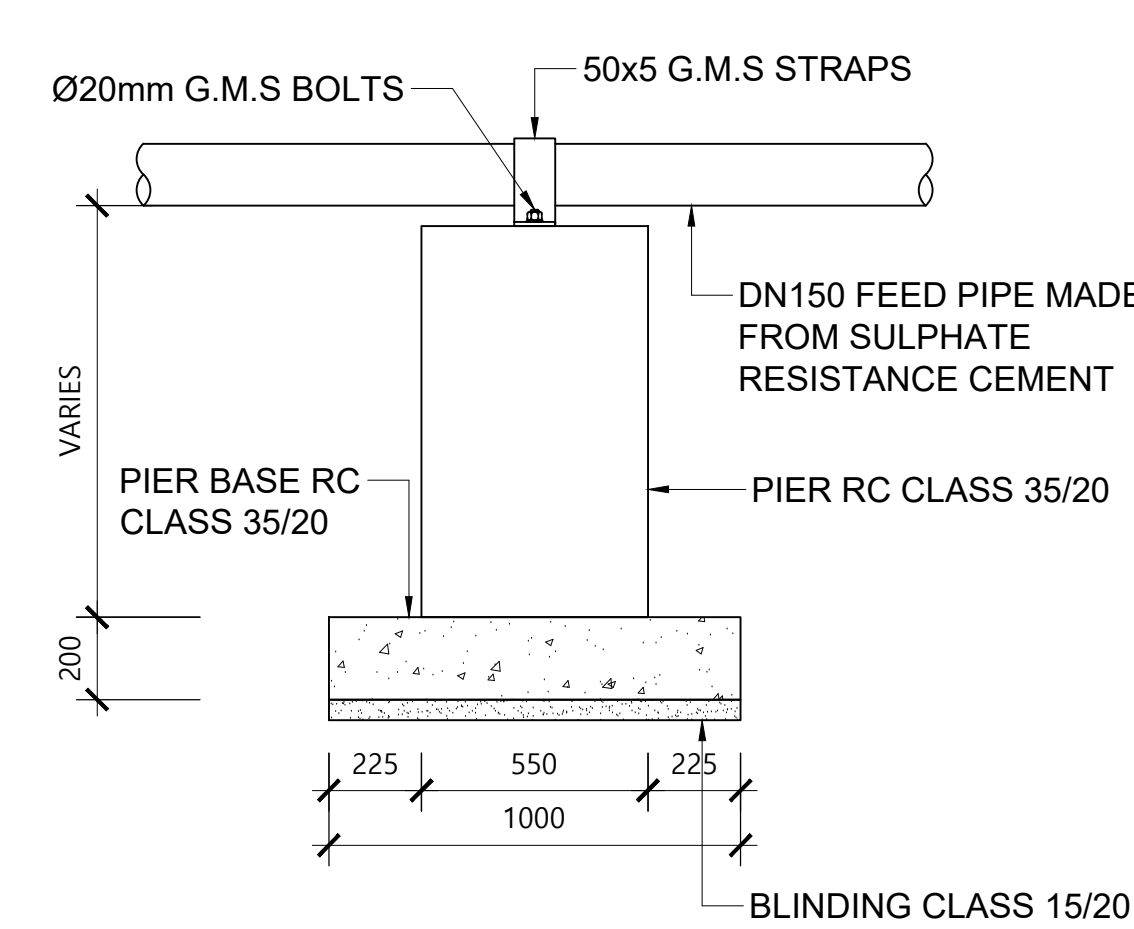
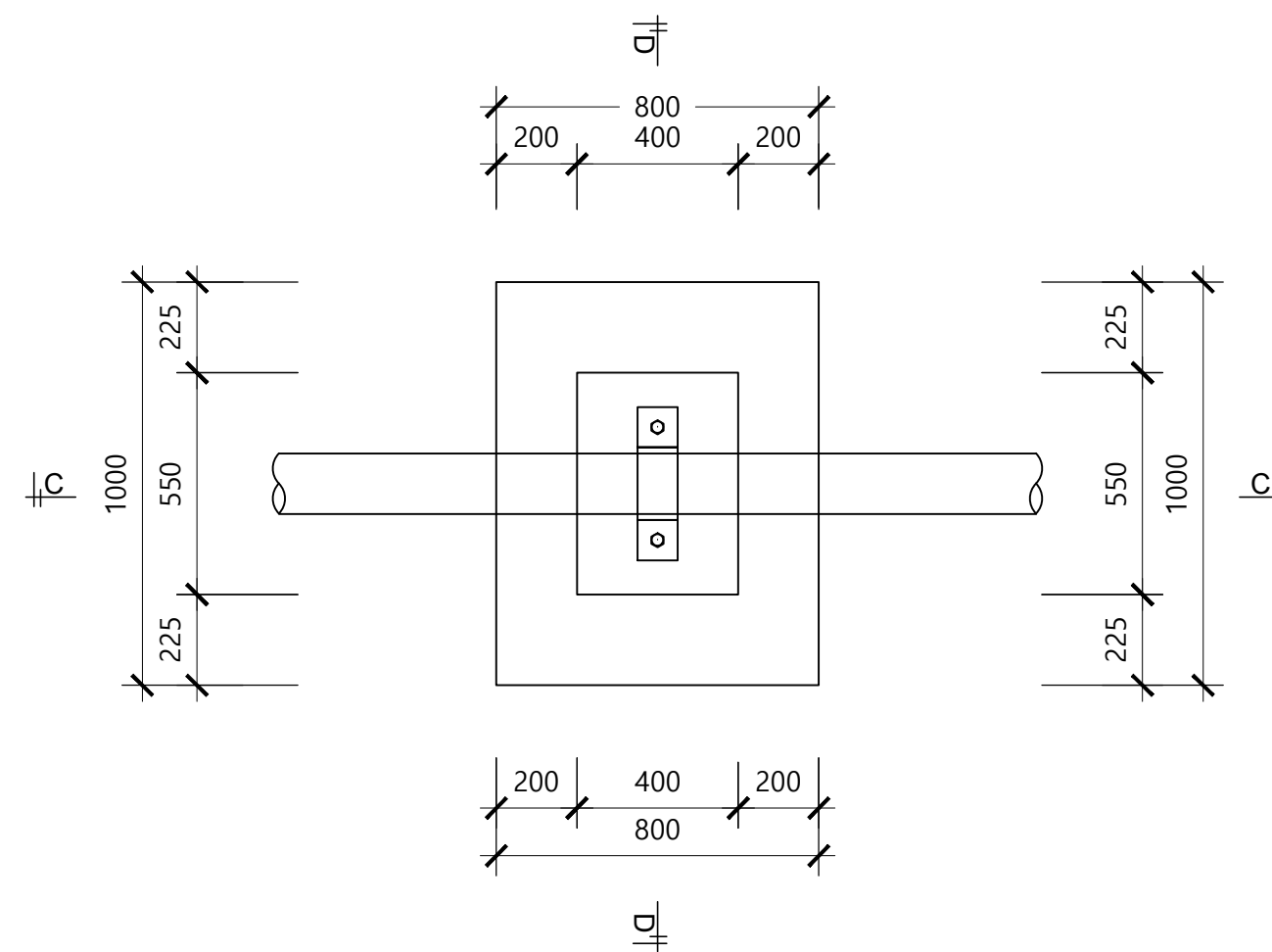
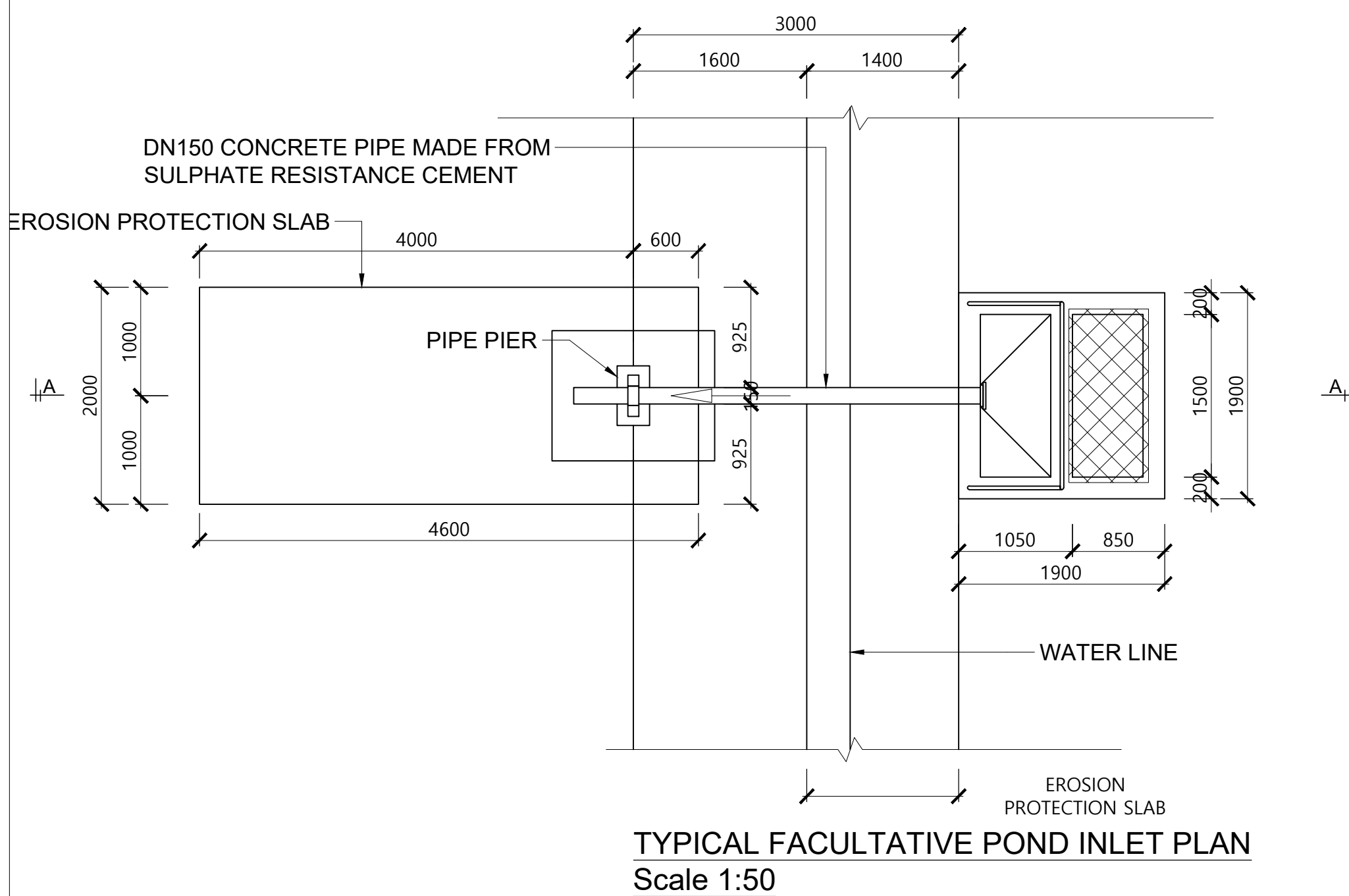


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1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.



[illegible]



REV	Description	Sign	Date	Approved
<b>REVISIONS</b>				

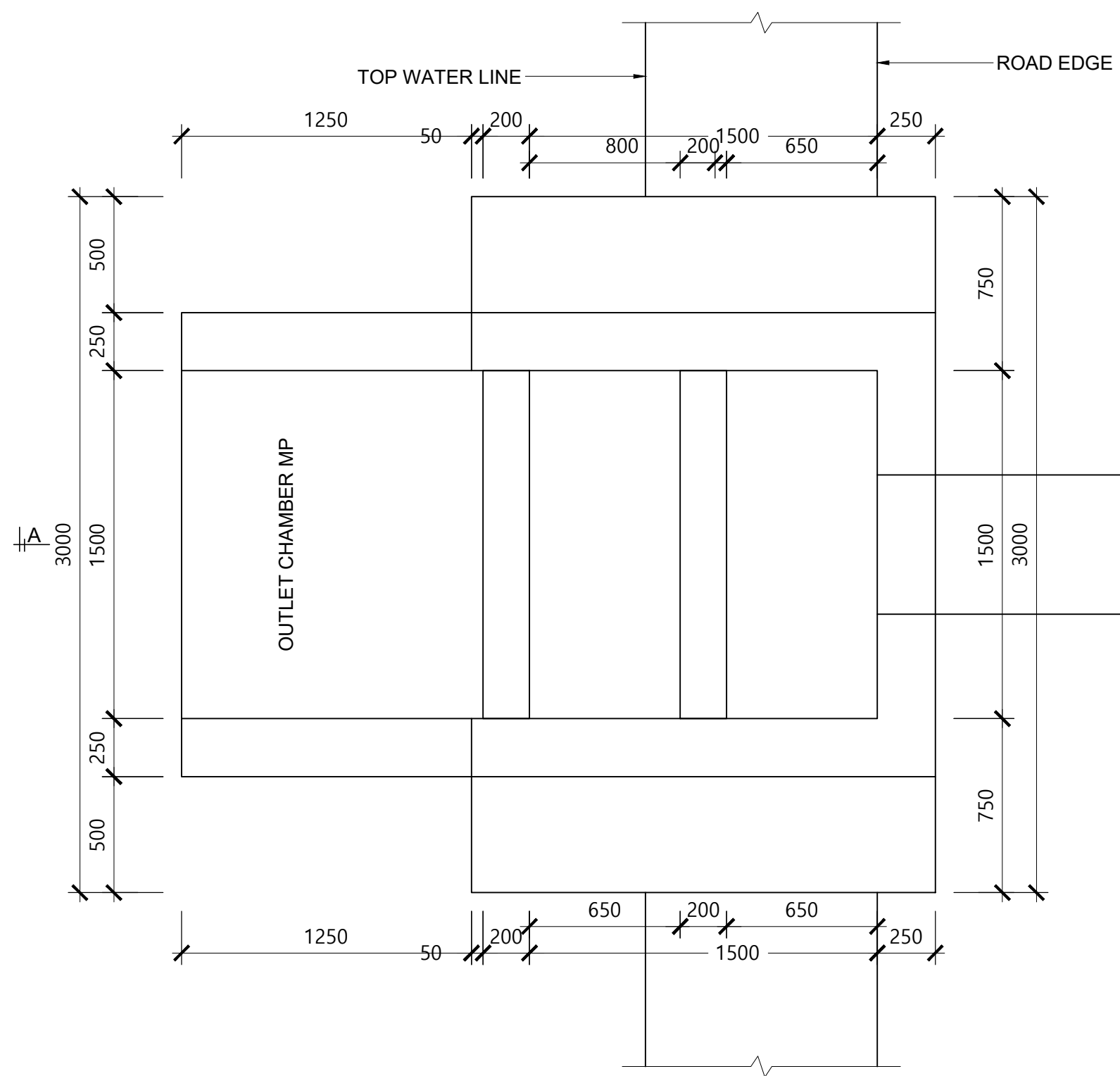
The banner is a horizontal strip with a light blue background. On the left is the SYSTEL logo, which consists of a stylized orange and yellow flame-like icon next to the word 'SYSTEL' in bold blue letters, with 'ENGINEERING LTD' in smaller blue letters below it. In the center, the text 'in cooperation with' is written in a dark blue serif font. To the right of this text is the East African Engineering Consultants logo, which is a blue square containing two white stylized 'E' shapes. Further right is the Sanivation logo, which features a red circular icon with a white cross-like shape inside, followed by the word 'Sanivation' in a dark blue sans-serif font and 'Sanitation as a Service' in a smaller, lighter blue font below it.

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

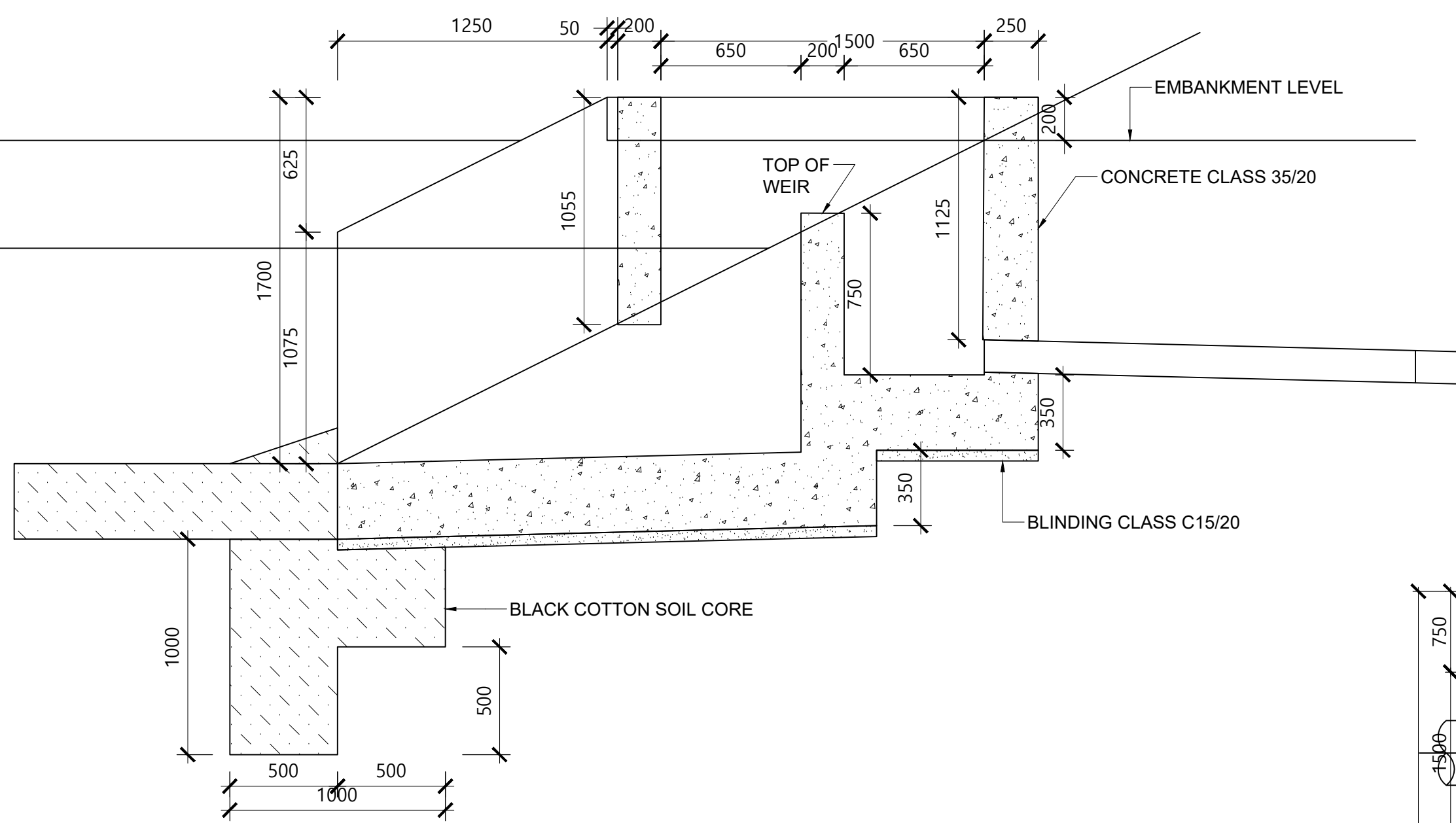
<p>Client:</p> 	<p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p>
<p>Financier:</p> 	<p><b>WORLD BANK</b></p>

<b>Project:</b> CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
<b>Drawing Title:</b> DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MATURATION PONDS REINFORCEMENT DETAILS			
<b>Scale:</b> AS SHOWN	<b>Sheet No:</b> 5 / 6	<b>Drawing No:</b> WFSTP - 1.7.1	

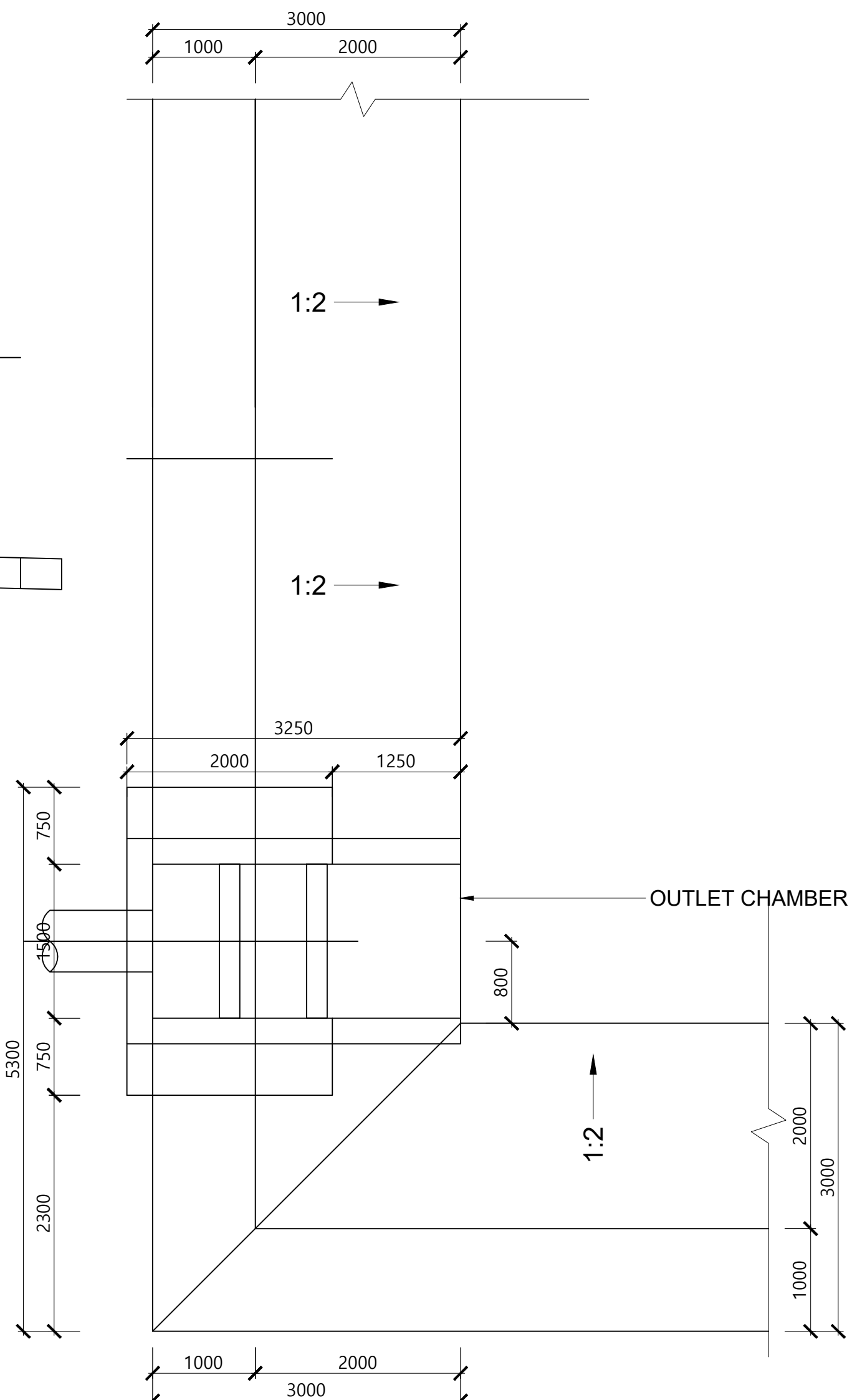




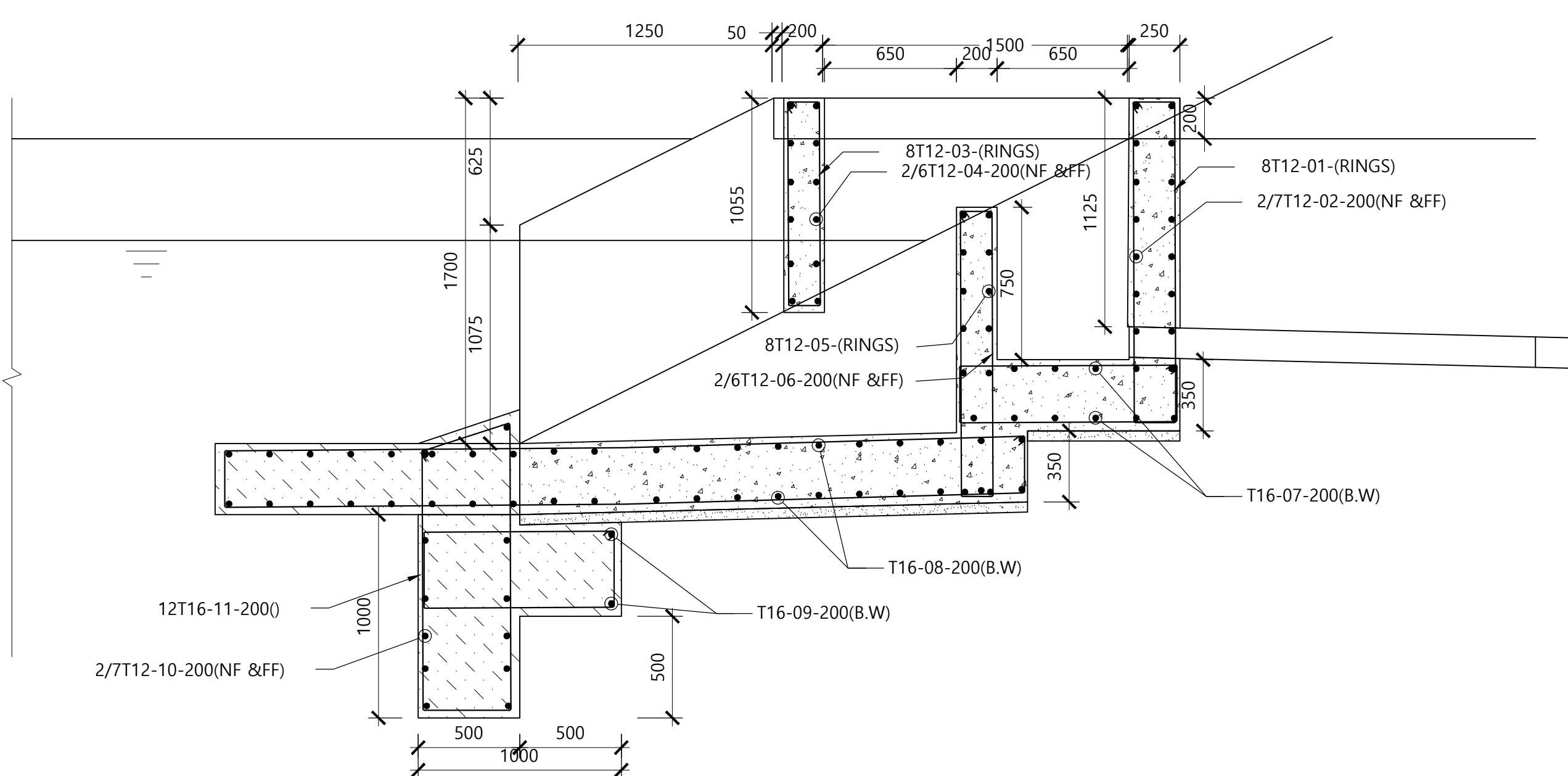
FACULTATIVE POND OUTLET CHAMBER PLAN  
Scale 1:25



SECTION A-A  
Scale 1:25



OUTLET CHAMBER LOCATION FOR FACULTATIVE POND PLAN  
Scale 1:50



SECTION A-A STRUCTURAL DETAILS  
Scale 1:25

REV	Description	Sign	Date	Approved
REVISIONS				

**SYSTEL**  
ENGINEERING LTD

Systel Engineering Limited  
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in cooperation with

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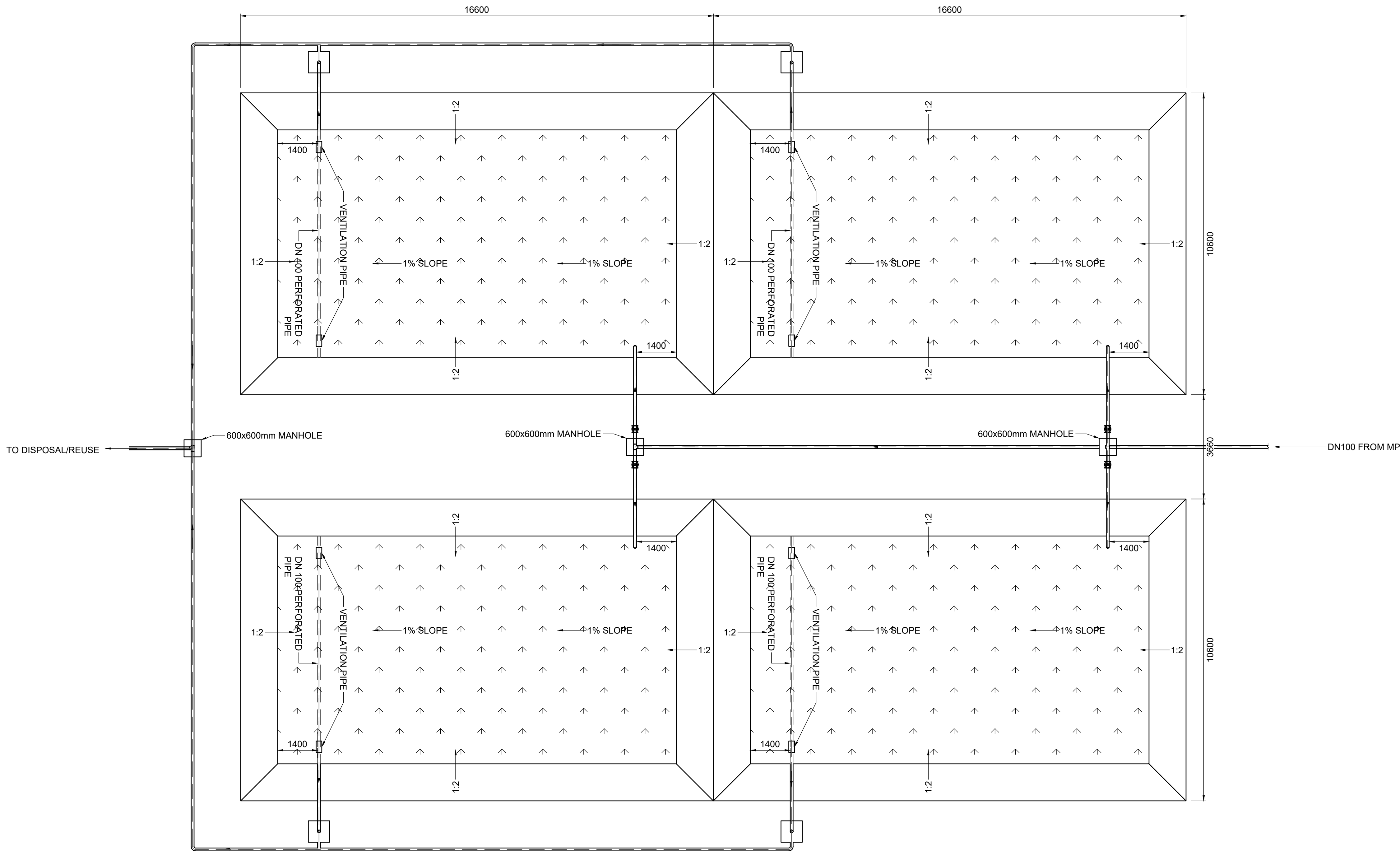
**SANIVATION LIMITED**  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			






**WAJIR WATER AND SEWERAGE**  
COMPANY LIMITED

**WORLD BANK**

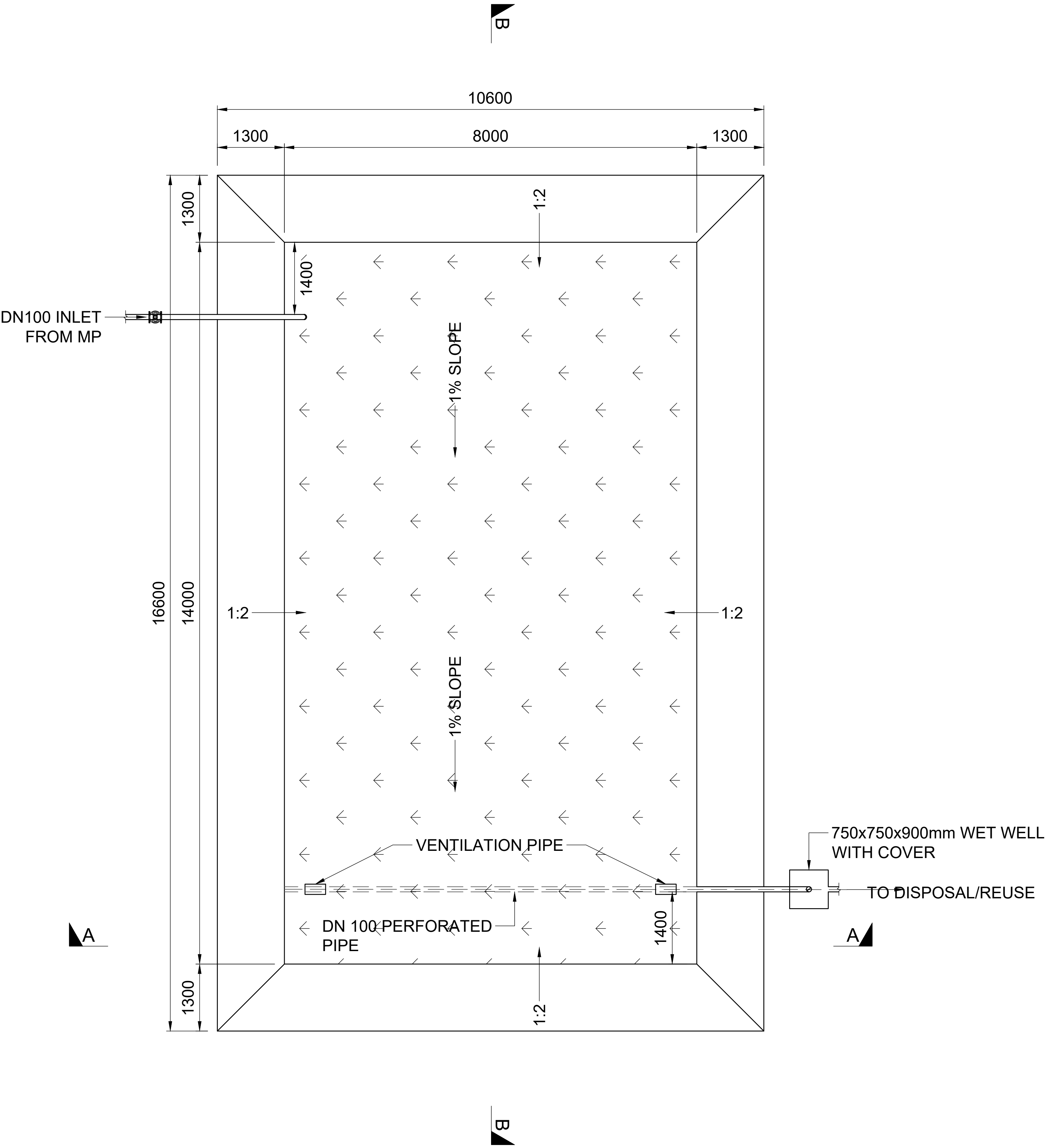
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Drawing Title:			DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MATURATION PONDS REINFORCEMENT DETAILS		
Scale:	AS SHOWN	Sheet No:	6 / 6	Drawing No:	WFSTP - 1.7.1



CONSTRUCTED WETLAND GENERAL ARRANGEMENT LAYOUT  
SCALE 1:75





					Design Consultant:					Drawn by: J.K.M. Date: SEP 2024					Client:					Project:				
										Designed by: P.M.M. Date: SEP 2024										CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
					in cooperation with					Checked by: T.J.O. Date: SEP 2024					WAJIR WATER AND SEWERAGE COMPANY LIMITED					Drawing Title:				
										Approved by: J.K.W. Date: SEP 2024					Financier:					DETAILED DESIGN				
										Contract No:										WAJIR FAECAL SLUDGE TREATMENT PLANT CONSTRUCTED WETLAND GENERAL ARRANGEMENT LAYOUT				
					Systel Engineering Limited 5th Floor, Wing II, CIG Plaza Mara Road, Upperhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860 728038000 E-mail: consulting@systelengineering.com					East African Engineering Consultants Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O. Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com					Sanivation Limited Villa View Estate, Moi South Lake Road, Naivasha P.O. Box 262, Naivasha, Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com					World Bank				
REVISIONS																				Scale: AS SHOWN				
																				Sheet No: 1 / 3				
																				Drawing No: WFSTP - 1.7.2				



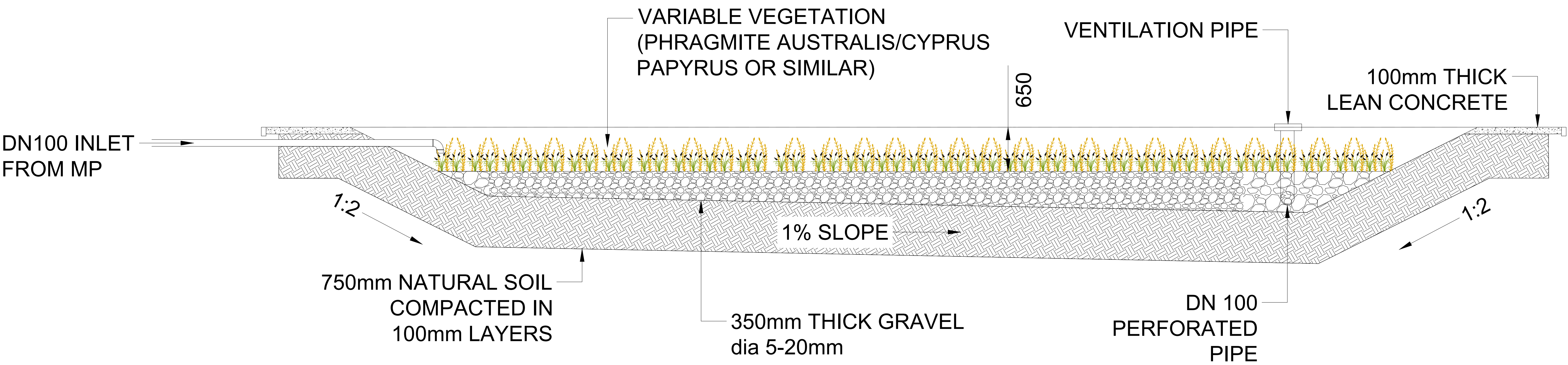


TYPICAL CONSTRUCTED WETLAND PLAN

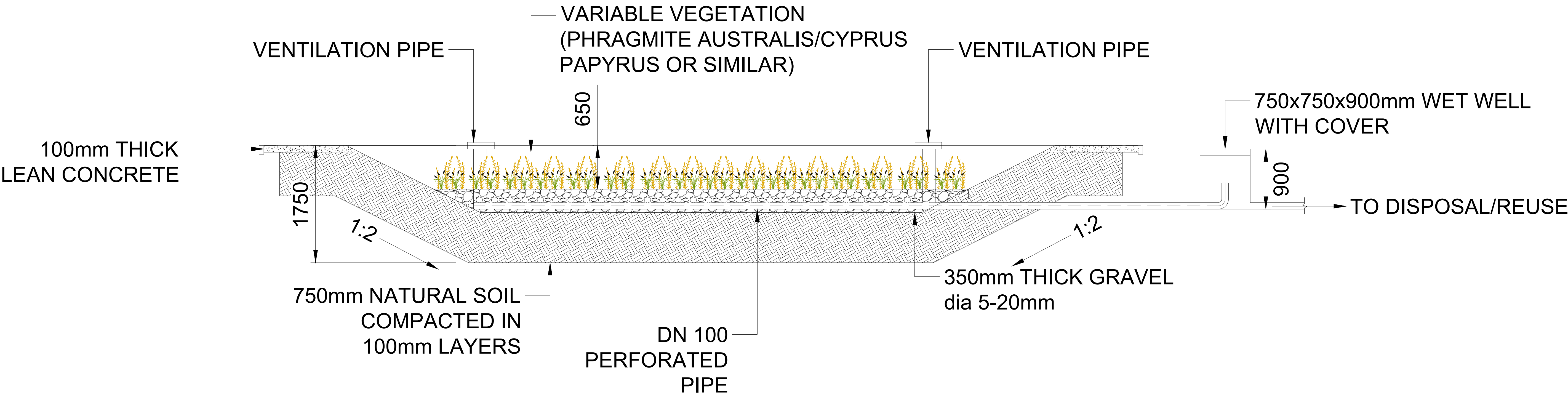
SCALE 1:75

					Design Consultant:					Drawn by: J.K.M Date: SEP 2024					Client:					Project:				
										Designed by: P.M.M Date: SEP 2024										CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
					Systel Engineering Limited 5th Floor,Wing II, C/O Plaza Mara Road,Upperrhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038000 E-mail: consulting@systelengineering.com					Checked by: T.J.O Date: SEP 2024					Approved by: J.K.W Date: SEP 2024					Drawing Title:				
					in cooperation with					Contract No:					Financier:					DETAILED DESIGN				
										Project No:										WAJIR FAECAL SLUDGE TREATMENT PLANT CONSTRUCTED WETLAND PLAN				
					EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com					SANIVATION LIMITED Villa View Estate,Moi South Lake Road,Naivasha P.O.Box 262 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com					WORLD BANK					Scale: AS SHOWN				
REVISIONS																				Sheet No: 2 / 3				
																				Drawing No: WFSTP - 1.7.2				
REV	Description	Sign	Date	Approved																				





SECTION B-B  
SCALE 1:75



SECTION A-A  
SCALE 1:75

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL**  
ENGINEERING LTD

Systel Engineering Limited  
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Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

**WAJIR**  
WATER AND SEWERAGE  
COMPANY LIMITED  
WAJWASCO

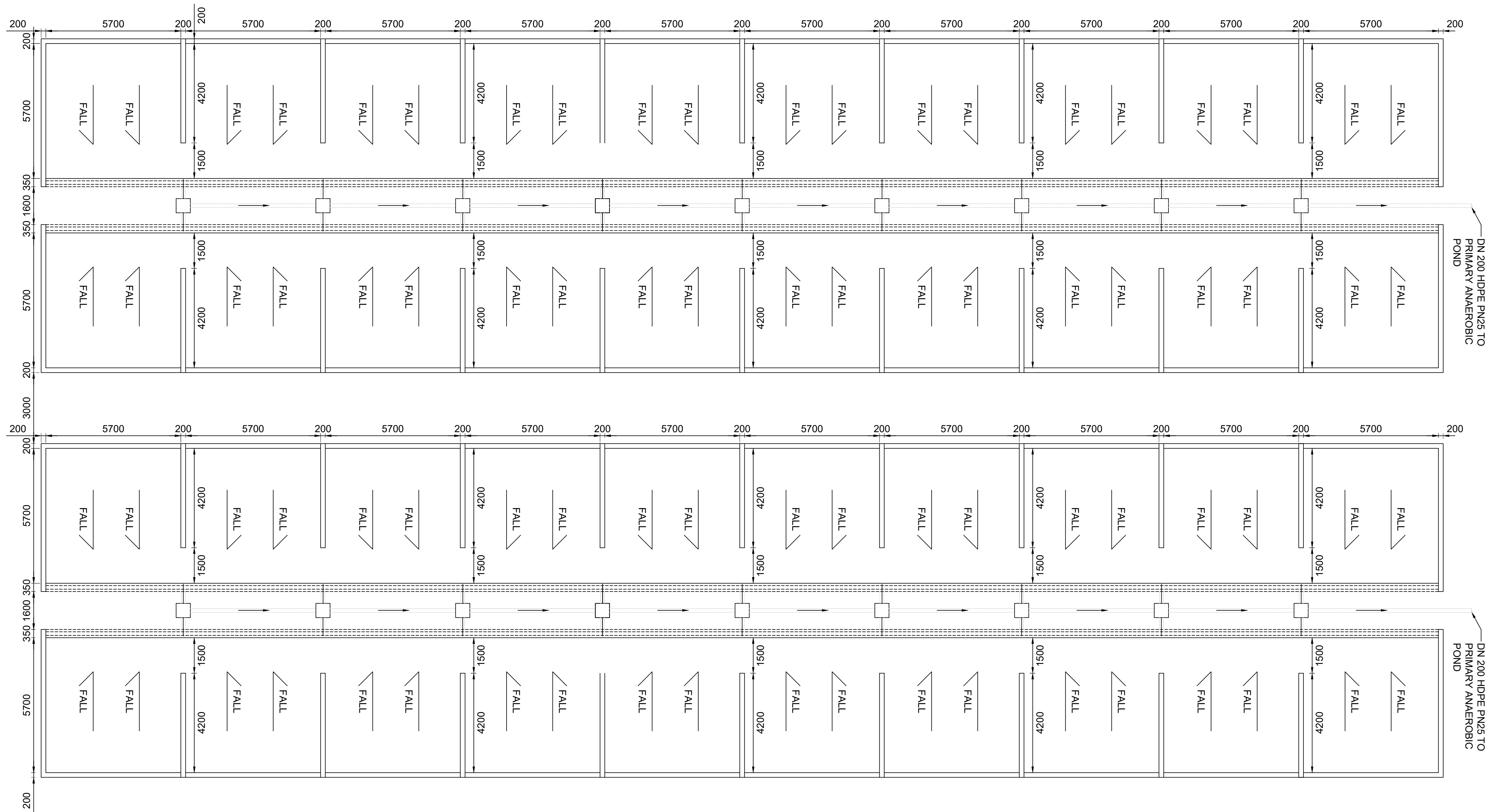
**WAJIR WATER AND SEWERAGE**  
COMPANY LIMITED

Financier:

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT CONSTRUCTED WETLAND SECTIONS AND DETAILS			
Scale: AS SHOWN	Sheet No: 3 / 3	Drawing No: WFSTP - 1.7.2	





BIOSOLIDS SLABS ARRANGEMENT LAYOUT x2  
SCALE 1:100

REV	Description	Sign	Date	Approved
REVISIONS				

**SYSTEL**  
ENGINEERING LTD

Systel Engineering Limited  
5th Floor, Wing II, CIC Plaza  
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P.O.Box 72398-00200, Nairobi, Kenya  
Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995  
E-mail: info@eaecgroup.com

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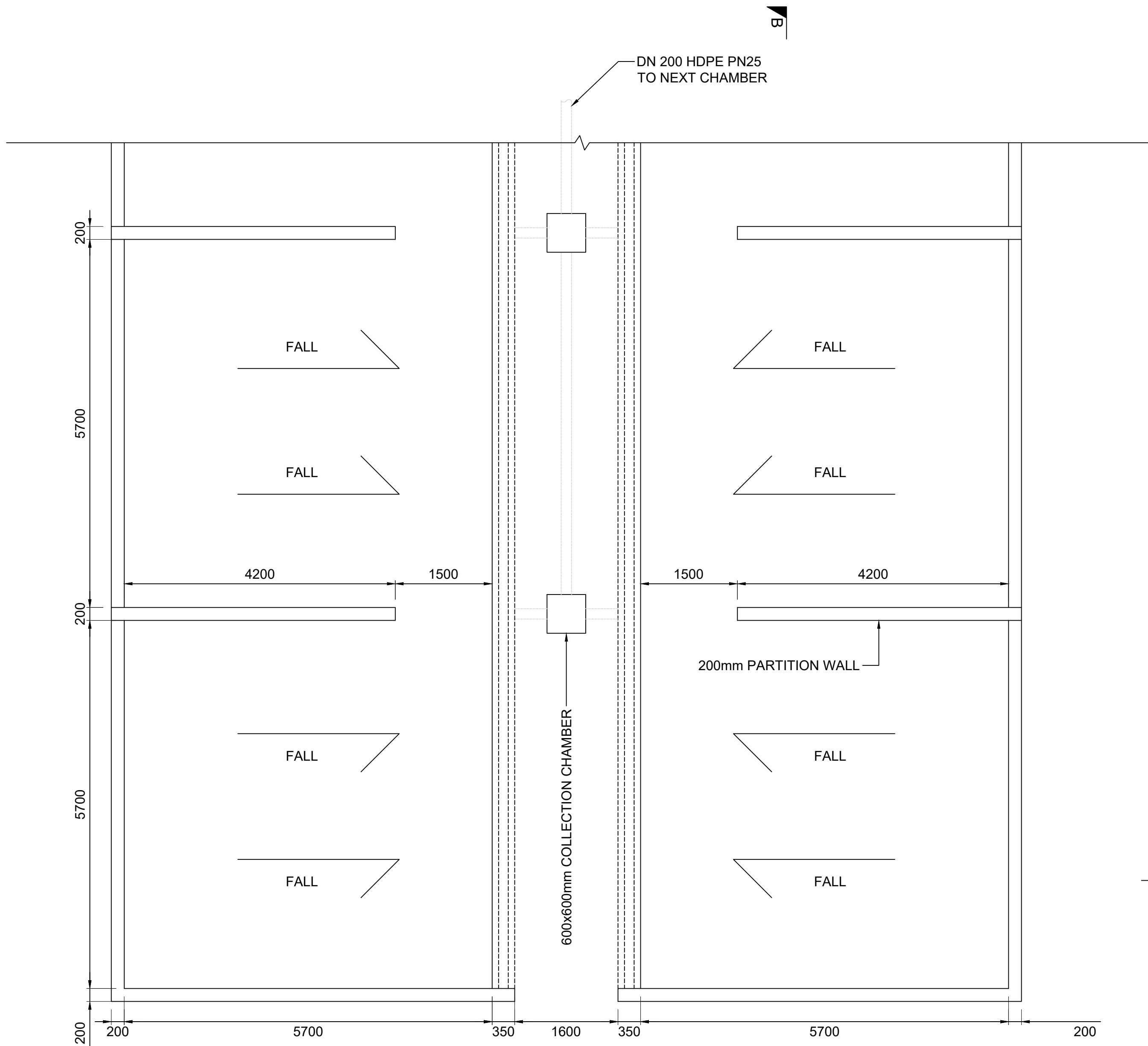
**SANIVATION LIMITED**  
Villa View Estate, Moi South Lake Road, Naivasha  
P.O.Box 262 Naivasha Kenya  
Tel: +254729465035, +254728679842  
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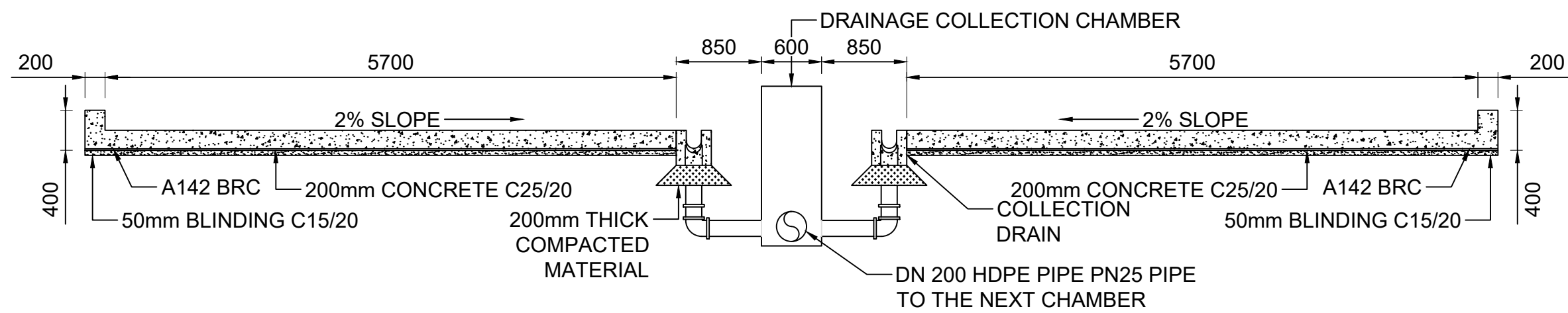
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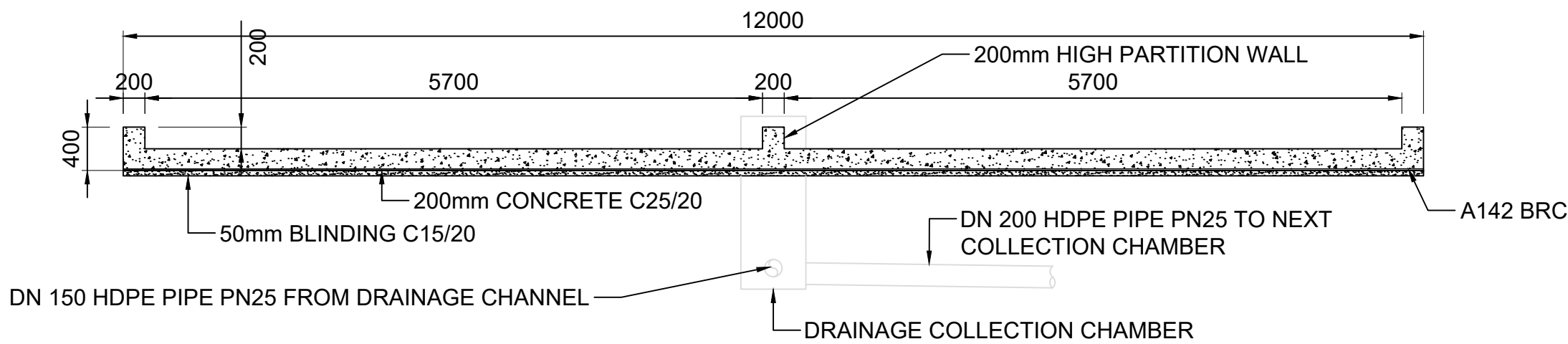
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Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT BIOSOLIDS SLABS ARRANGEMENT LAYOUT		
Scale: AS SHOWN	Sheet No: 1 / 5	Drawing No: WFSTP - 1.8.1



**BIOSOLIDS SLABS PLAN**  
SCALE 1:50



**BIOSOLIDS SLABS SECTION A-A**  
SCALE 1:50



**BIOSOLIDS SLABS SECTION B-B**  
SCALE 1:50

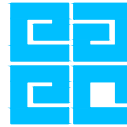
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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5th Floor, Wing II, CIC Plaza  
Mara Road, Upperhill  
P.O. Box 191109 - 00100 Nairobi, Kenya  
Tel: +254(0)781329860 / 728038006  
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cooperation  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

Financier:



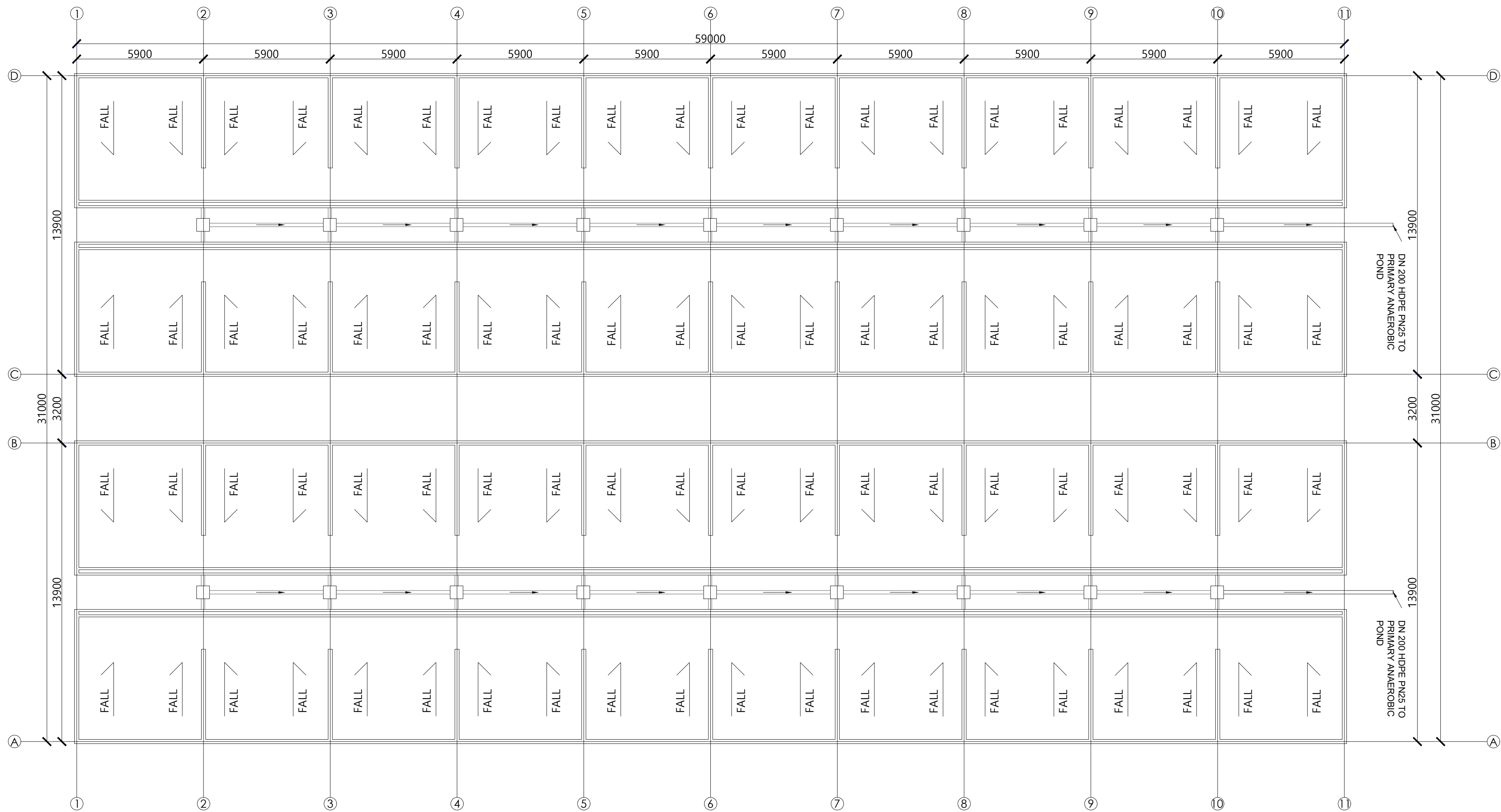
WORLD BANK

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
BIOSOLIDS SLABS  
PLAN, SECTIONS AND DETAILS

Scale: AS SHOWN Sheet No: 2/ 5 Drawing No: WFSTP - 1.8.1





BIOSOLIDS SLABS ARRANGEMENT  
LAYOUT (2 NO.)  
Scale 1:150

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



Systel Engineering Limited  
5th Floor Wing II, CIC Plaza  
Mara Road Upperhill  
P. O. Box 19109 - 00109 Nairobi, Kenya  
Tel: +2547079132980/ 72620868  
E-mail: consulting@systelengineering.com

in  
cooperation  
with



EAST AFRICAN  
ENGINEERING CONSULTANTS  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72395-00205, Nairobi, Kenya  
Tel: +254-20-2714514/1516, +254-20-2718861, +254-20-2527995  
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Drawn by:

J.K.M

Date:

SEP 2024

Designed by:

G.S.O

Date:

SEP 2024

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Drawing Title:

DETAILED ESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
BIOSOLIDS SLAB ARRANGEMENT  
REINFORCEMENT DETAILS

Scale:

AS SHOWN

Sheet No:

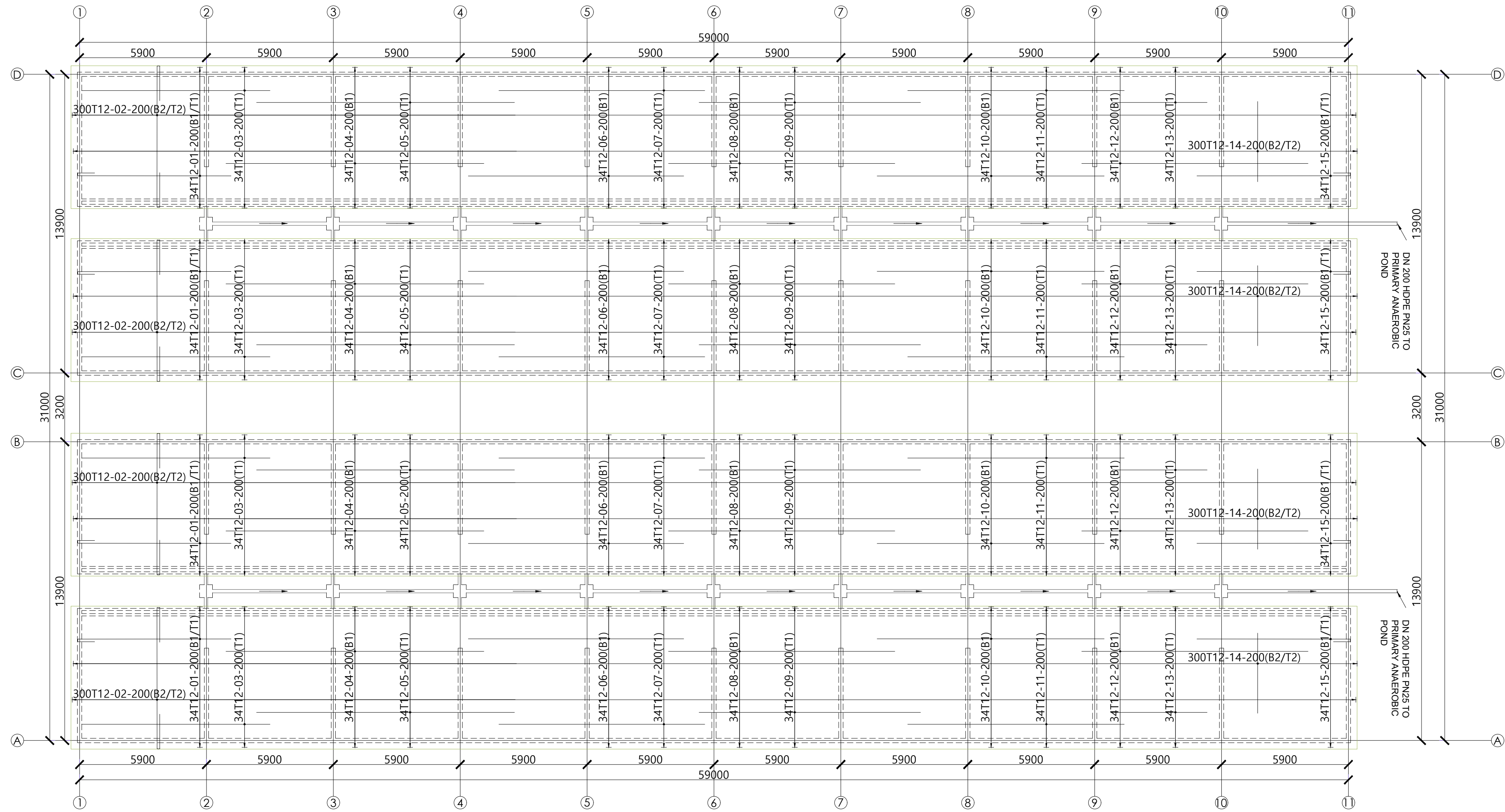
3 / 5

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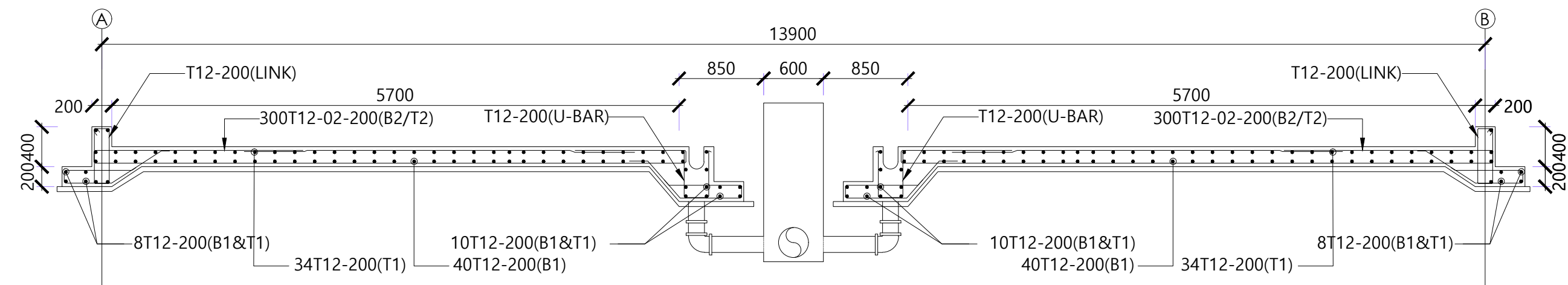
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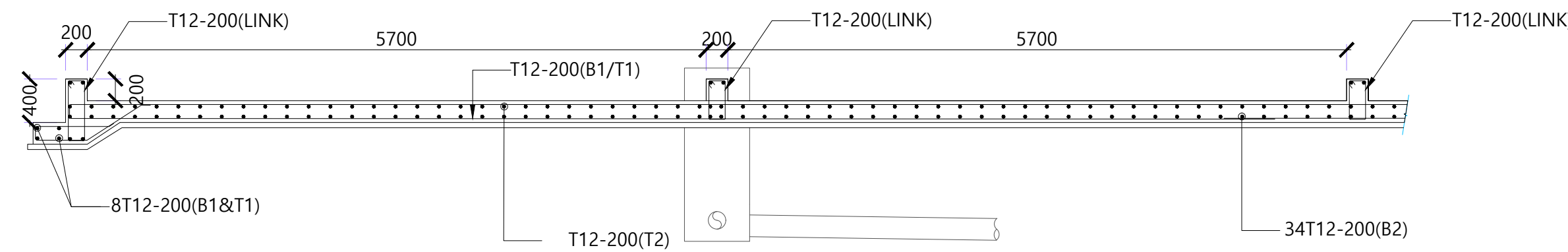




STRUCTURAL DETAILS  
Scale 1:150



SECTION A-A  
Scale 1:50



SECTION B-B  
Scale 1:50

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



Systel Engineering Limited  
5th Floor Wing II, CIC Plaza  
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P. O. Box 19109 - 0100 Nairobi, Kenya  
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E-mail: info@systelengineering.com

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SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

DETAILED ESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
BIOSOLIDS SLAB  
REINFORCEMENT DETAILS

Scale:

AS SHOWN

Sheet No:

5 / 5

Drawing No:

WFSTP- 1.8.1





NOTES

1. THE DIMENSIONS ARE IN METRES

LEGEND

- FENCE
- ROAD
- GATE
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- DIRECTION FLOW
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NOTES

1. THE DIMENSIONS ARE IN METRES

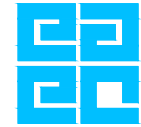
LEGEND

- FENCE
- ROAD
- GATE
- MANHOLE
- RAMP
- WATER GATE VALVE
- CONTOURS
- DIRECTION FLOW
- PAVING BLOCKS

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
Systel Engineering Limited  
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Mara Road,Upperhill  
P.O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)781329600 728038006  
E-mail: consulting@systelengineering.com

in cooperation with



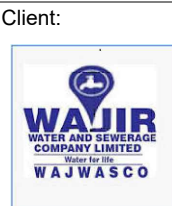
**EAST AFRICAN ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
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**WAJIR WATER AND SEWERAGE COMPANY LIMITED**



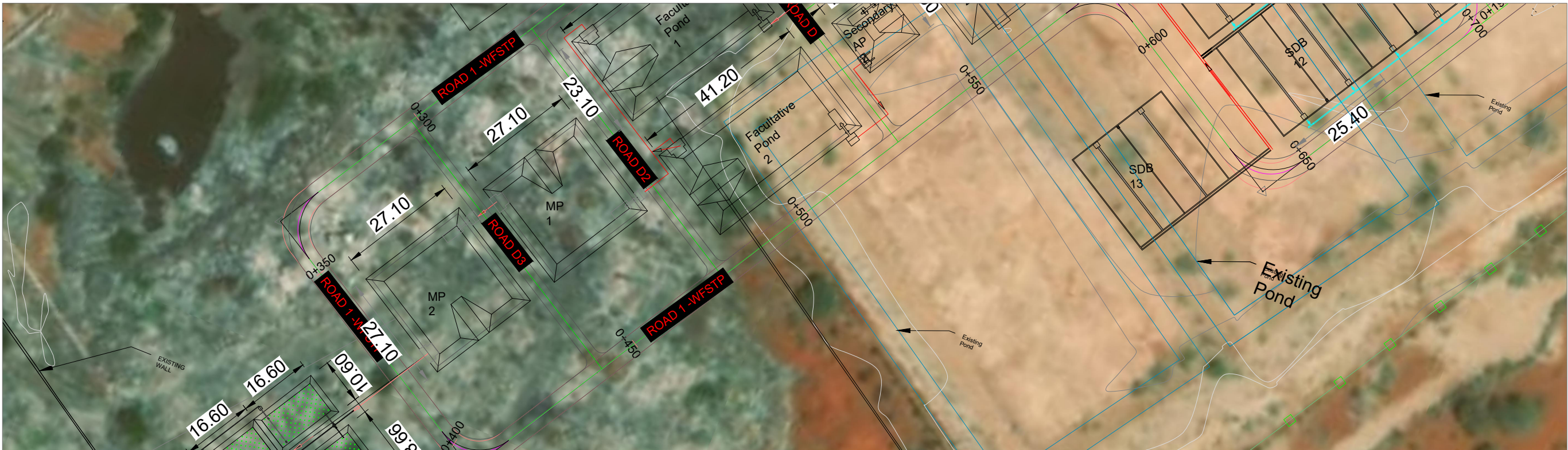
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT ROADS AND PARKING LAYOUT			
Scale: 1:1000	Sheet No: 2 / 21	Drawing No: WFSTP- R-1.1	

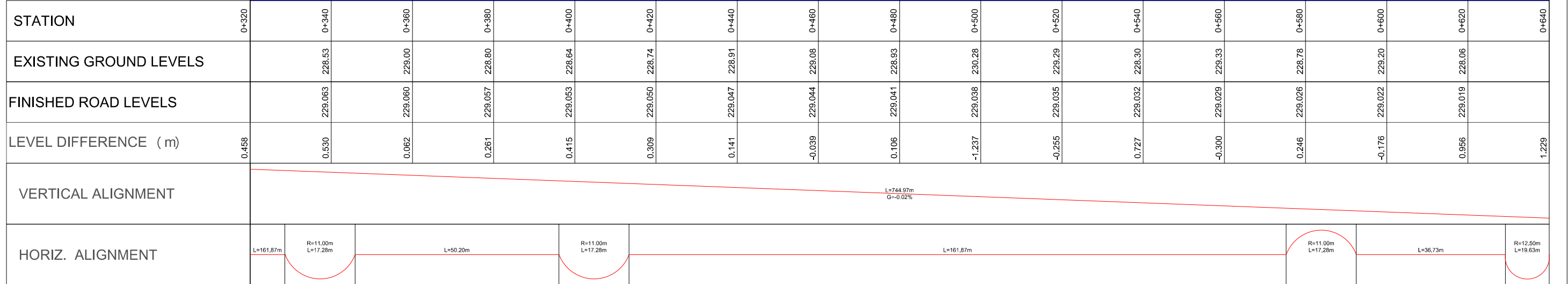




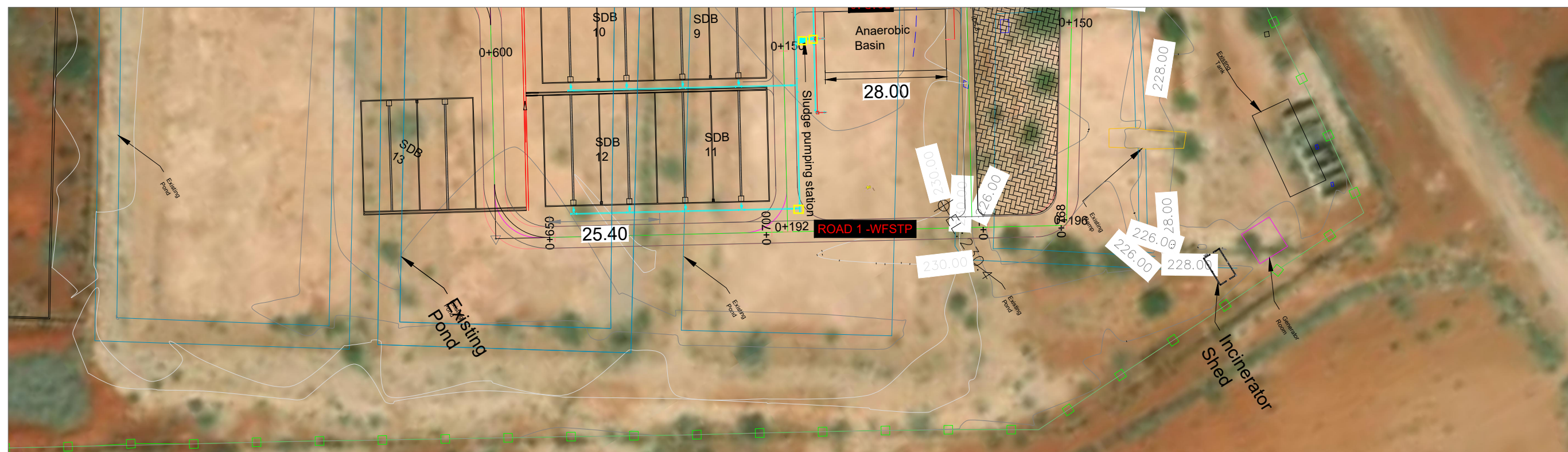




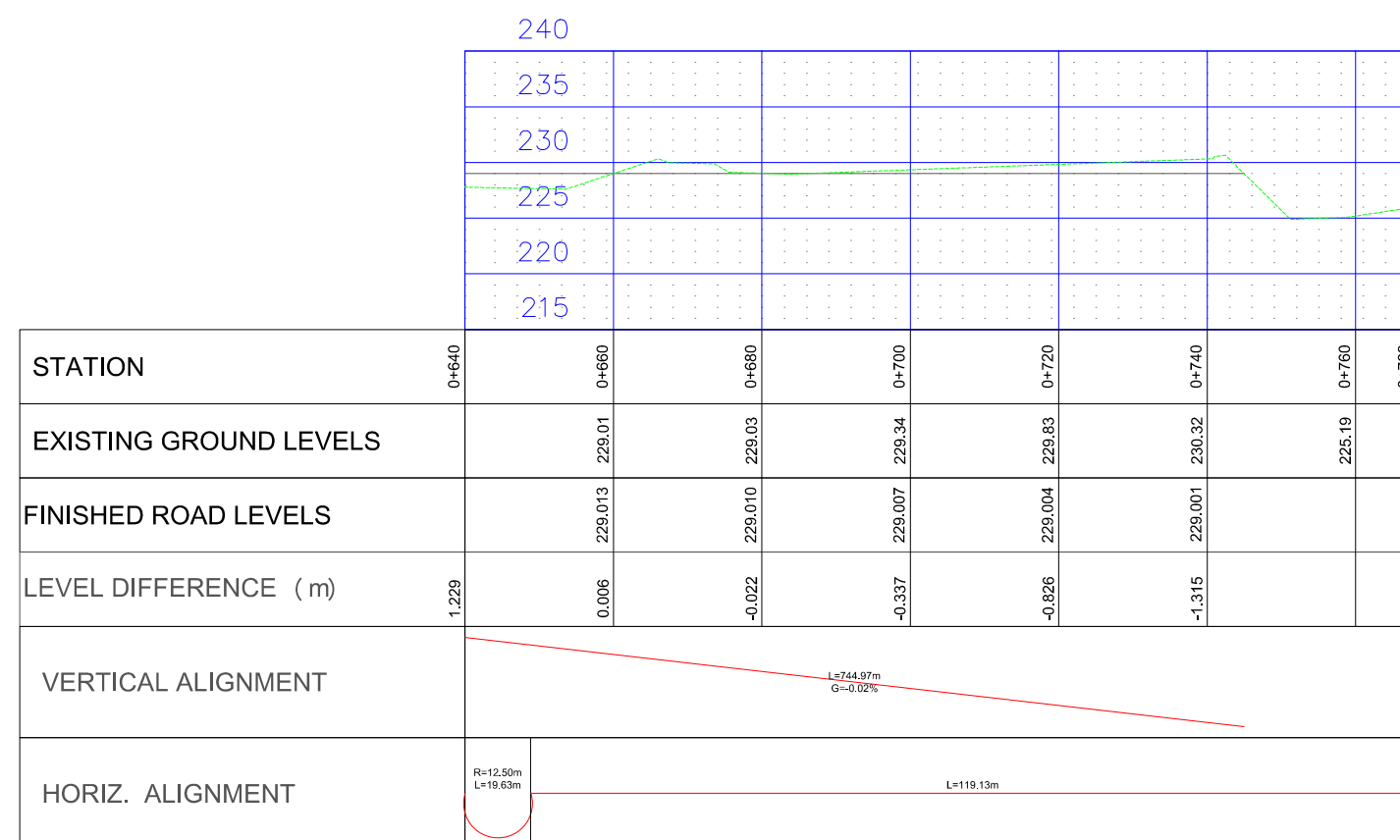
ALG 1 – WFTSP Profile (0+640km)

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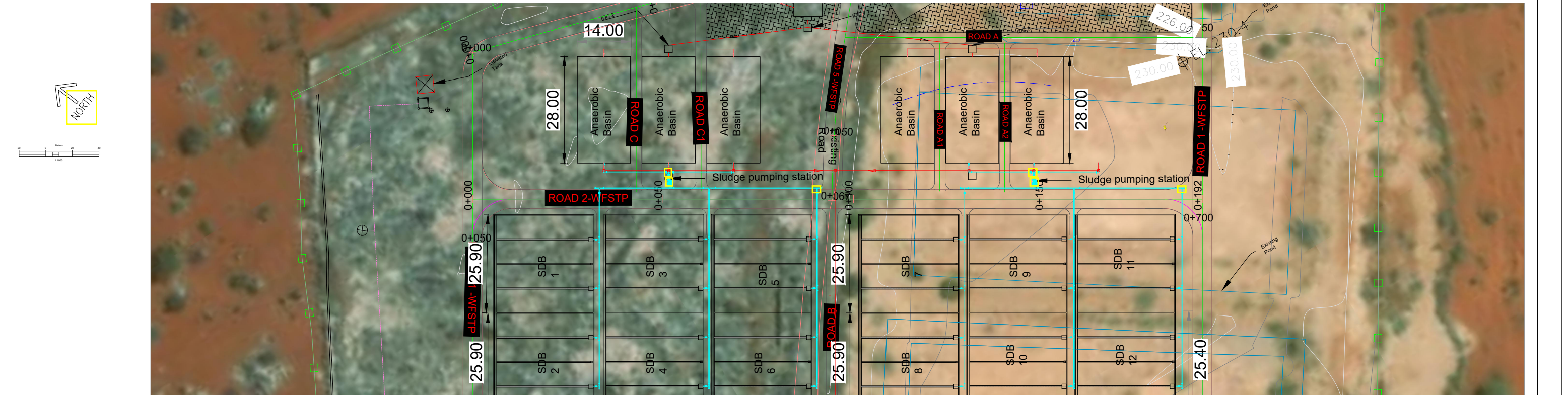




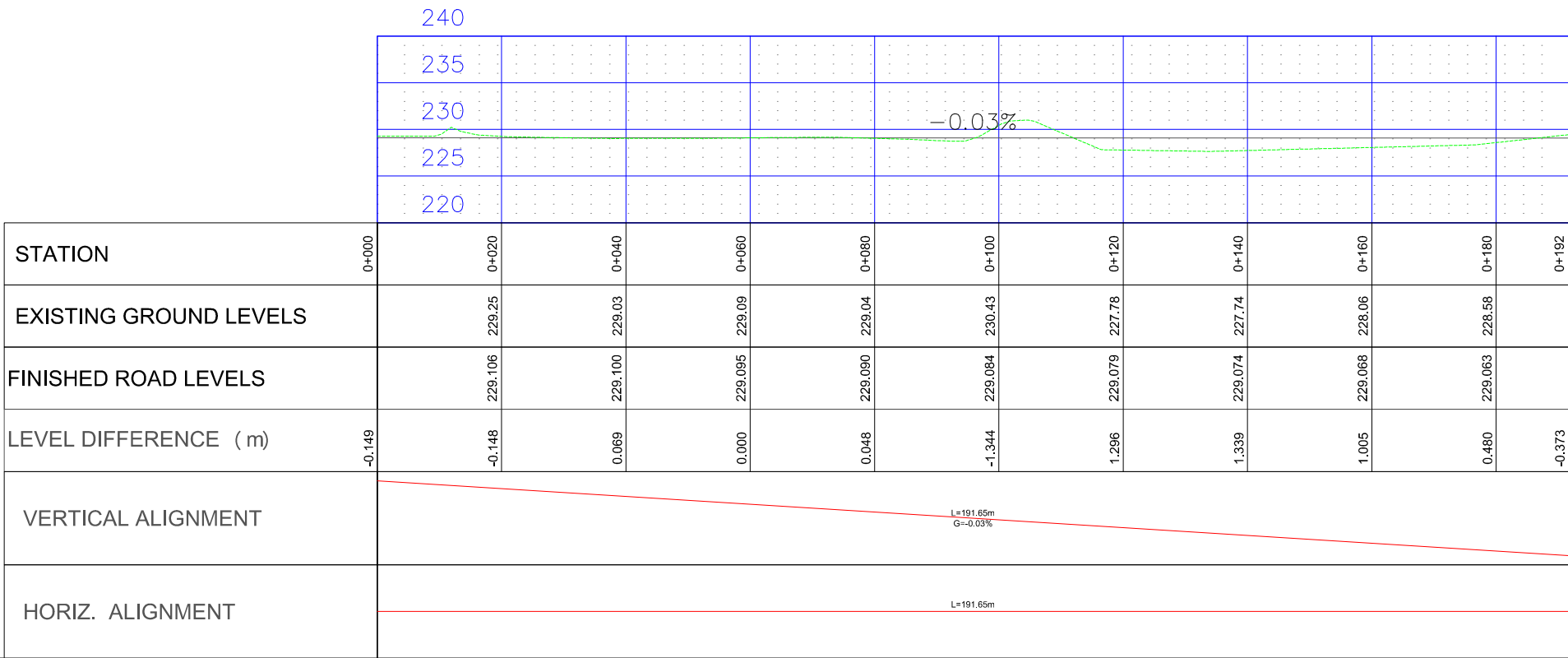
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ALG 2 – WFSTP Profile (0+192km)

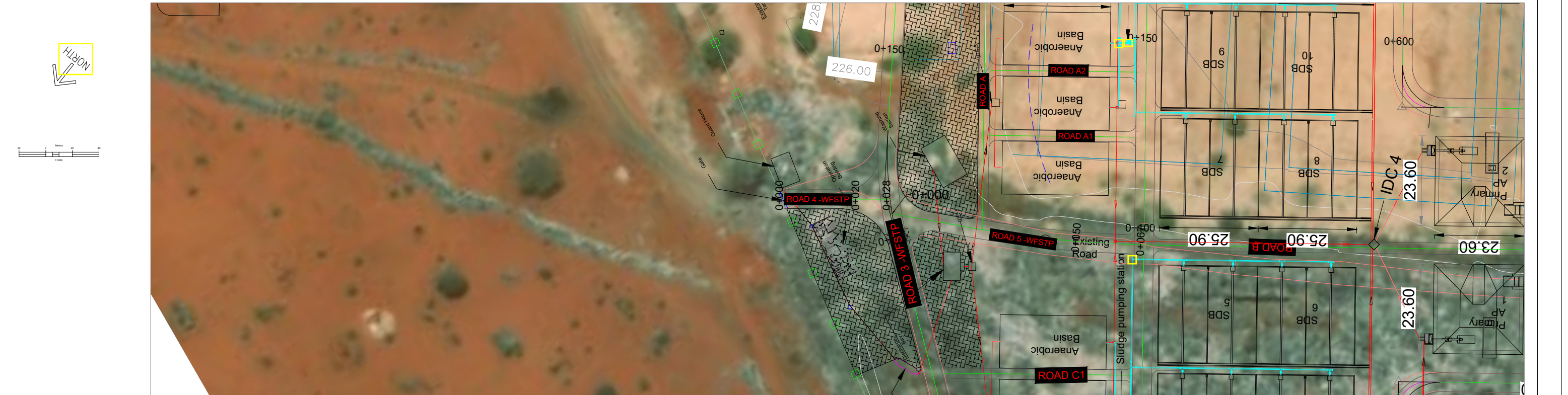


<div>Design Consultant:  Systel Engineering Limited 5th Floor, Wing II, C/O Plaza Mara Road, Upperhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)791329980/ 726039006 E-mail: consulting@systelengineering.com</div> <div>in cooperation with  EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O. Box 72398-00200, Nairobi, Kenya Tel: +254-20-2714514/1516, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com</div> <div> SANIVATION LIMITED Villa View Estate, Moi South Lake Road, Naivasha P.O. Box 262 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com</div>					<div>Drawn by: J.K.M. Date: SEP 2024</div> <div>Designed by: P.M.M. Date: SEP 2024</div> <div>Checked by: T.J.O. Date: SEP 2024</div> <div>Approved by: J.K.W. Date: SEP 2024</div> <div>Project No:</div> <div>Contract No:</div>			<div>Client:  WAJIR WATER AND SEWERAGE COMPANY LIMITED</div> <div>Financier:  WORLD BANK</div>			<div>Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY</div> <div>Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT ACCESS ROADS PLAN AND PROFILE</div> <div>Scale: 1:1000 Sheet No: 6 / 21 Drawing No: WFSTP- R-1.1</div>													
REV					Description					Sign					Date					Approved				
REVISIONS																								









ALG 4– WFSTP Profile (0+028km)

				235
				230
				=0.63%
				225
				220
STATION	0+000	0+020	0+028	
EXISTING GROUND LEVELS		229.22		
FINISHED ROAD LEVELS		228.896		
LEVEL DIFFERENCE ( m)	0.000	-0.322	-0.373	
VERTICAL ALIGNMENT		L=28, 12m G=-0.63%		
HORIZ. ALIGNMENT		L=28, 12m		

REV	Description	Sign	Date	Approved
REVISIONS				

**SYSTEL**  
ENGINEERING LTD

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in cooperation with

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Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
ACCESS ROADS PLAN AND PROFILE

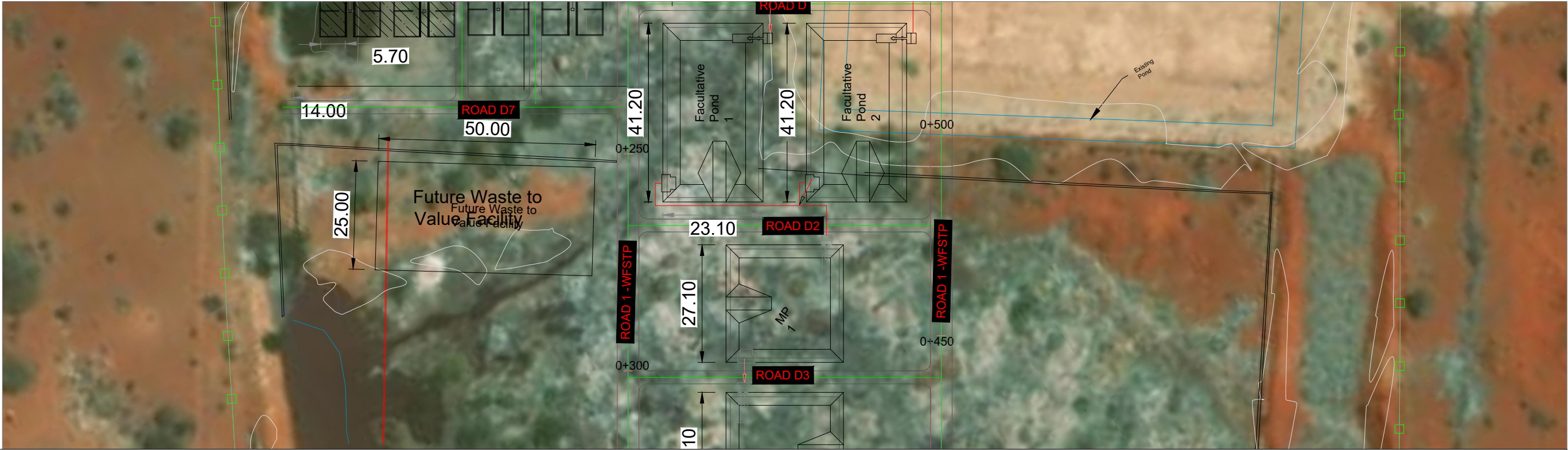
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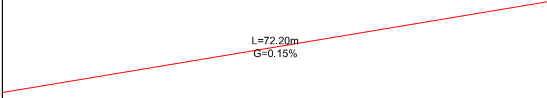
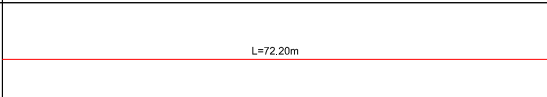






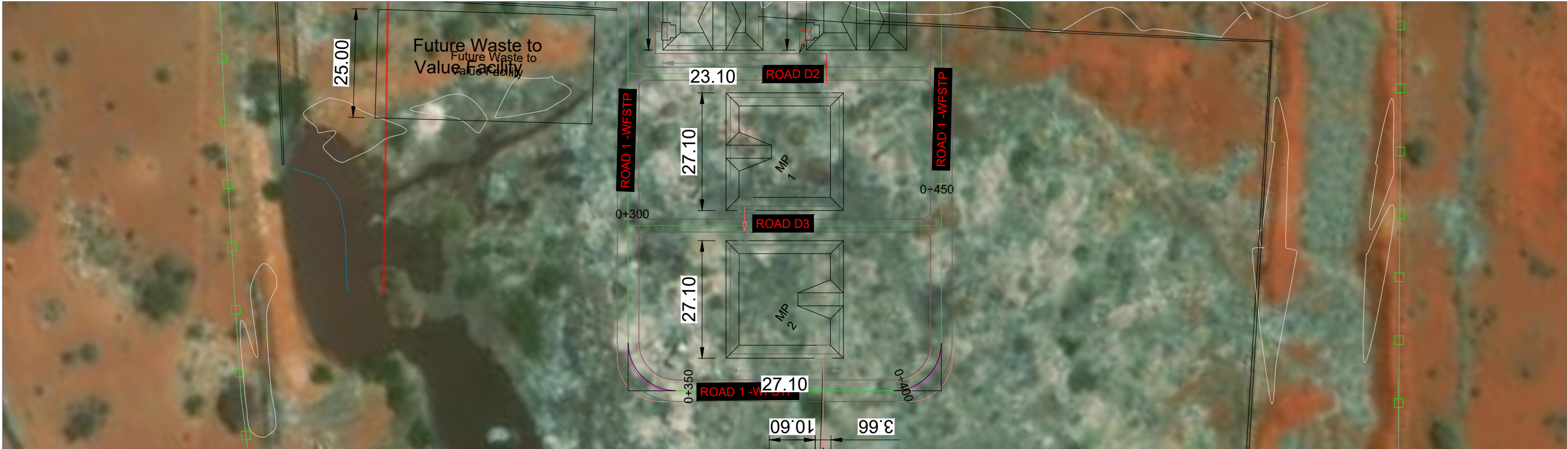
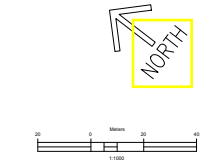
ALG- D2 Profile (0+072km)

A 4x4 grid of points. The y-axis is labeled with values 235, 230, 225, and 220 from top to bottom. A green dashed horizontal line is drawn at the y=225 level. The label '0.15%' is placed in the center of the grid, above the green line.

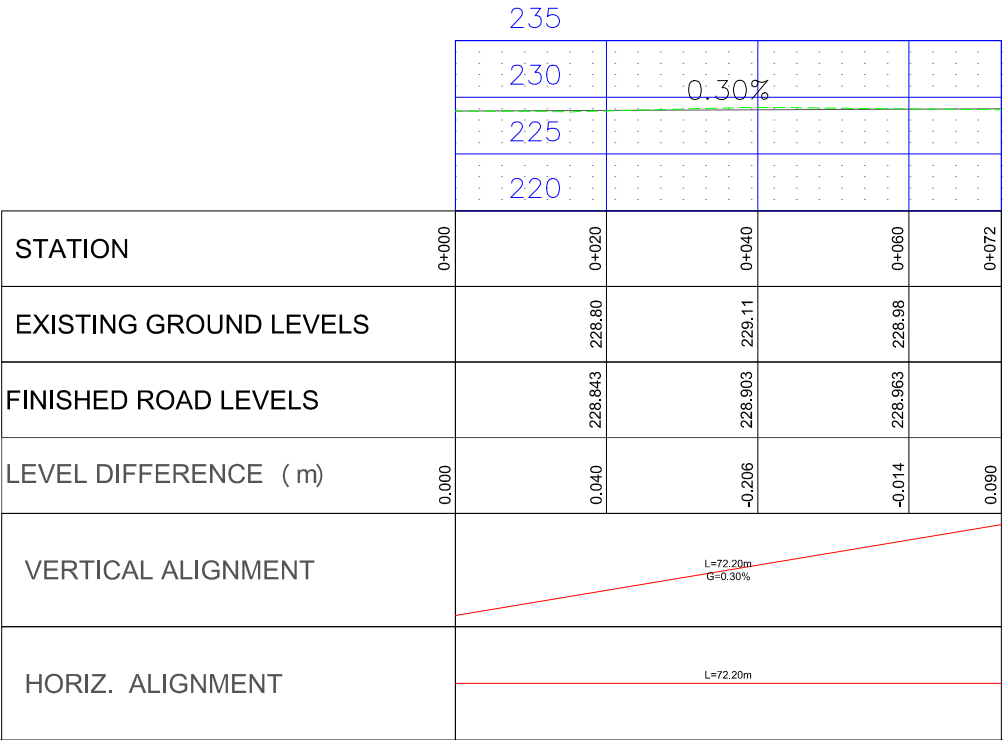
STATION	0+000	0+020	0+040	0+060	0+072
EXISTING GROUND LEVELS		228.87	229.15	229.03	
FINISHED ROAD LEVELS		228.922	228.952	228.982	
LEVEL DIFFERENCE ( m)	0.000	0.047	-0.193	-0.046	0.021
VERTICAL ALIGNMENT					
HORIZ. ALIGNMENT					

[illegible]





ALG- D3 Profile (0+072km)



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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in cooperation with

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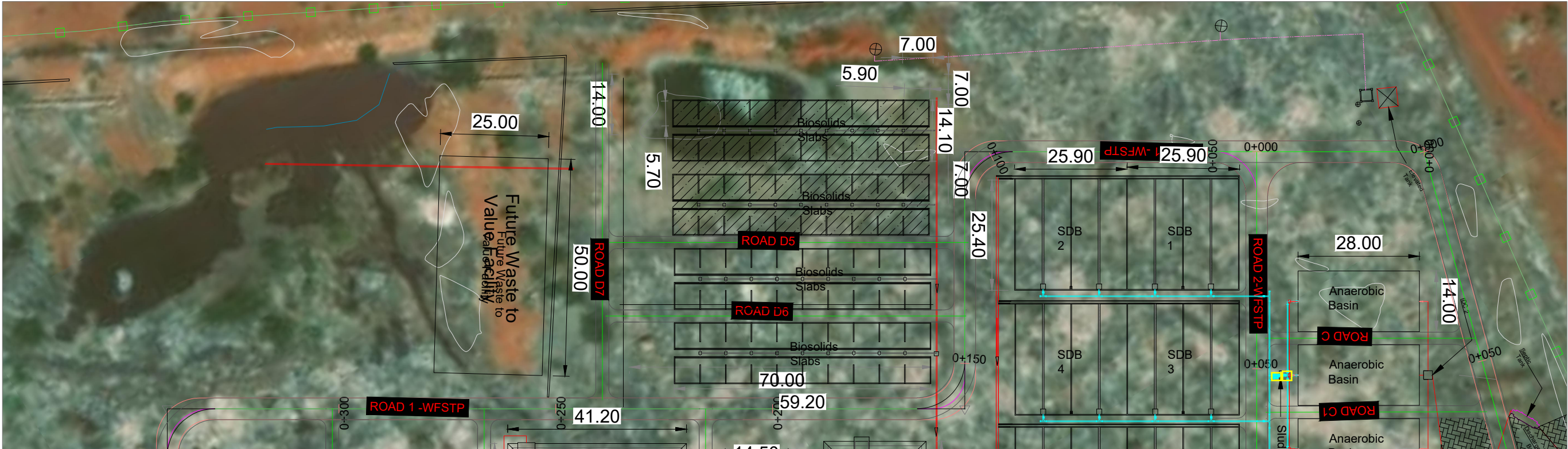
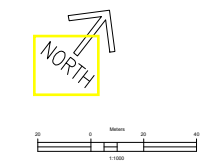
Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT ACCESS ROADS PLAN AND PROFILE			
Scale: 1:1000	Sheet No: 12 / 21	Drawing No: WFSTP- R-1.1	





ALG- D5 Profile (0+083km)

		235				
		230		0.52%		
		225				
		220				
STATION	0+000	0+020	0+040	0+060	0+080	0+083
EXISTING GROUND LEVELS		229.09	228.86	228.00	228.06	
FINISHED ROAD LEVELS		228.683	228.787	228.892	228.996	
LEVEL DIFFERENCE (m)	-0.038	-0.405	-0.070	-0.104	-0.067	-0.020
VERTICAL ALIGNMENT						
HORIZ. ALIGNMENT						

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**Systel Engineering Limited**  
5th Floor/Wing II, C/O Plaza Mara Road Upperhill  
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E-mail: consulting@systelengineering.com

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Drawn by: J.K.M. Date: SEP 2024

Designed by: P.M.M. Date: SEP 2024

Checked by: T.J.O. Date: SEP 2024

Approved by: J.K.W. Date: SEP 2024

Project No:

Contract No:

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

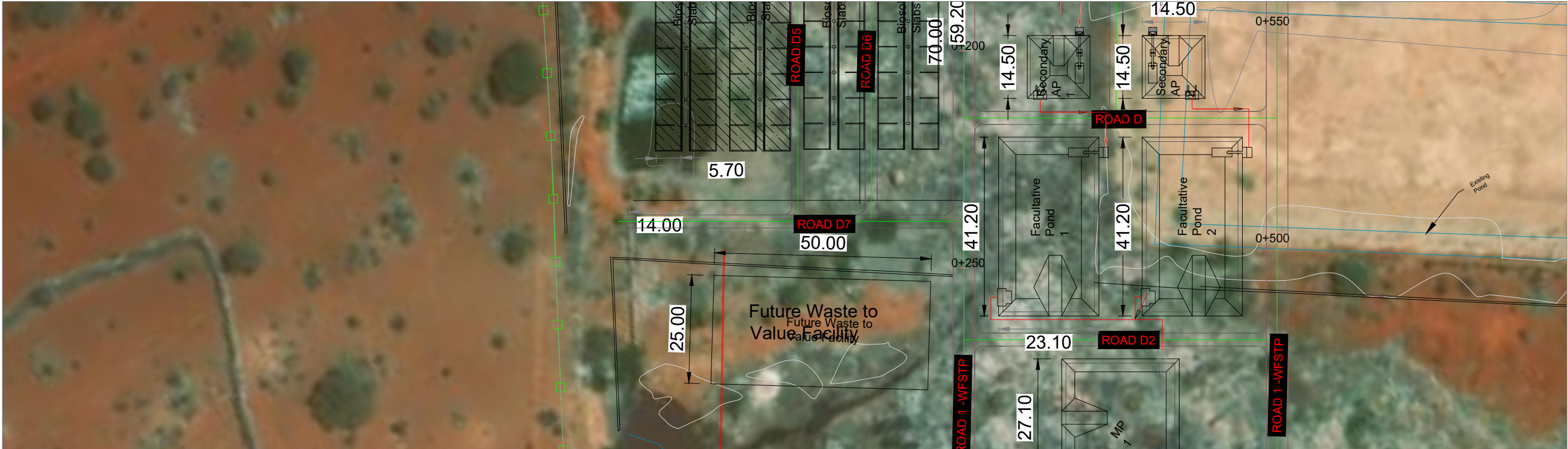
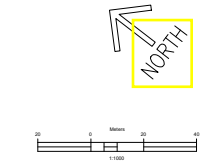
Drawing Title: DETAILED DESIGN  
**WAJIR FAECAL SLUDGE TREATMENT PLANT  
ACCESS ROADS PLAN AND PROFILE**

Scale: 1:1000	Sheet No: 13 / 21	Drawing No: WFSTP- R-1.1
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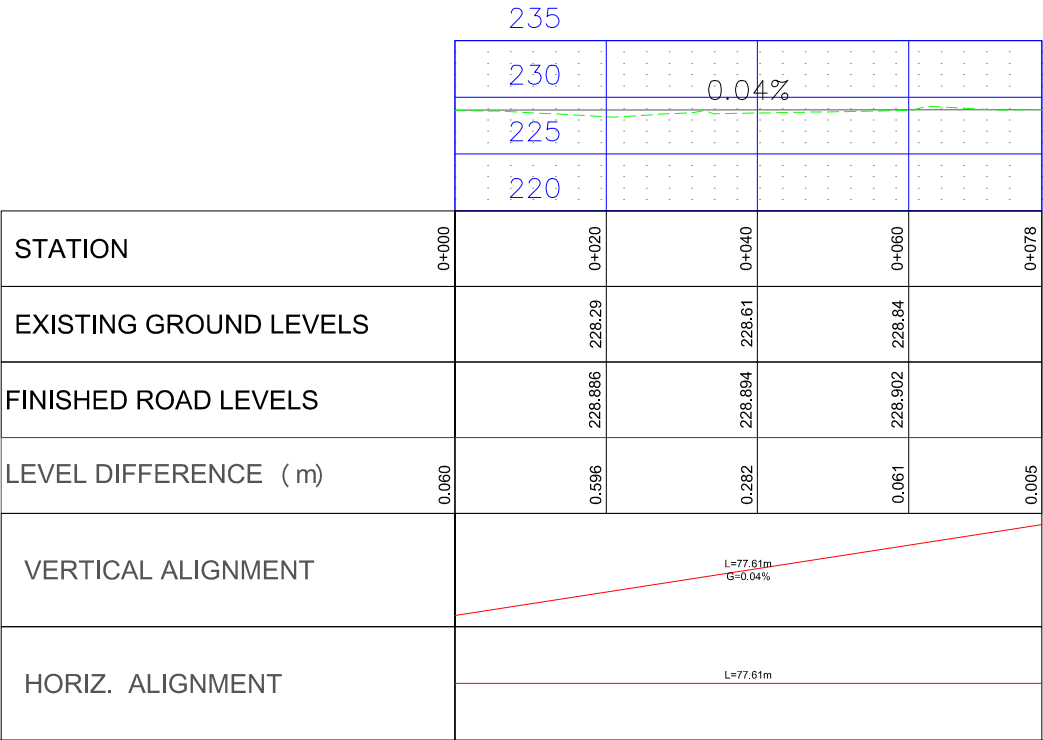








ALG– D7 Profile (0+078km)



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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ENGINEERING LTD

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Drawn by: J.K.M Date: SEP 2024

Designed by: P.M.M Date: SEP 2024

Checked by: T.J.O Date: SEP 2024

Approved by: J.K.W Date: SEP 2024

Project No:

Contract No:

Client:

**WAJIR WATER AND SEWERAGE**  
COMPANY LIMITED

Financier:

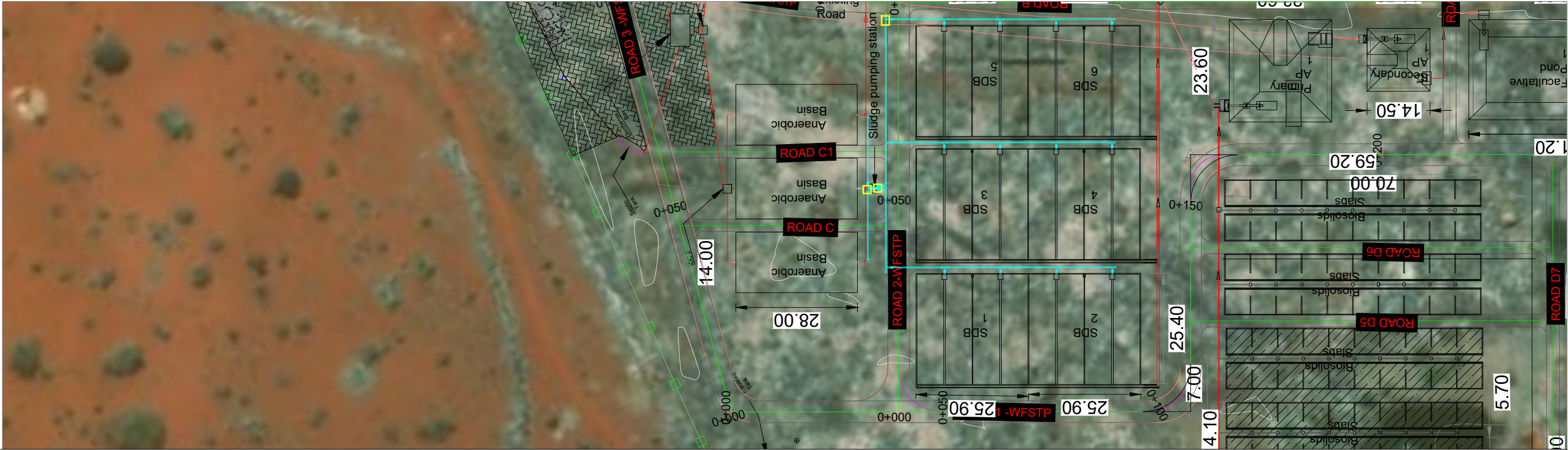
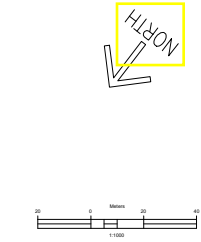
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
ACCESS ROADS PLAN AND PROFILE

Scale: 1:1000 Sheet No: 15 / 21 Drawing No: WFSTP- R-1.1





ALG- C Profile (0+049km)

		235		
		230	-0.59%	
		225		
		220		
STATION	0+000		0+020	0+040
EXISTING GROUND LEVELS			228.10	229.04
FINISHED ROAD LEVELS			229.201	229.084
LEVEL DIFFERENCE ( m)	0.000		0.105	0.039
VERTICAL ALIGNMENT		L=48.50m G=-0.59%		
HORIZ. ALIGNMENT		L=48.50m		

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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WAJIR WATER AND SEWERAGE COMPANY LIMITED

WORLD BANK

Drawn by: J.K.M

Designed by: P.M.M

Checked by: T.J.O

Approved by: J.K.W

Project No:

Contract No:

Date: SEP 2024

Date: SEP 2024

Date: SEP 2024

Date: SEP 2024

Client:

Financier:

WAJIR WATER AND SEWERAGE COMPANY LIMITED

WORLD BANK

Project:

Drawing Title:

Scale: 1:1000

Sheet No: 16 / 21

Drawing No: WFSTP- R-1.1

CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

DETAILED DESIGN

WAJIR FAECAL SLUDGE TREATMENT PLANT

ACCESS ROADS PLAN AND PROFILE

Oct 16, 2024 - 4:05pm





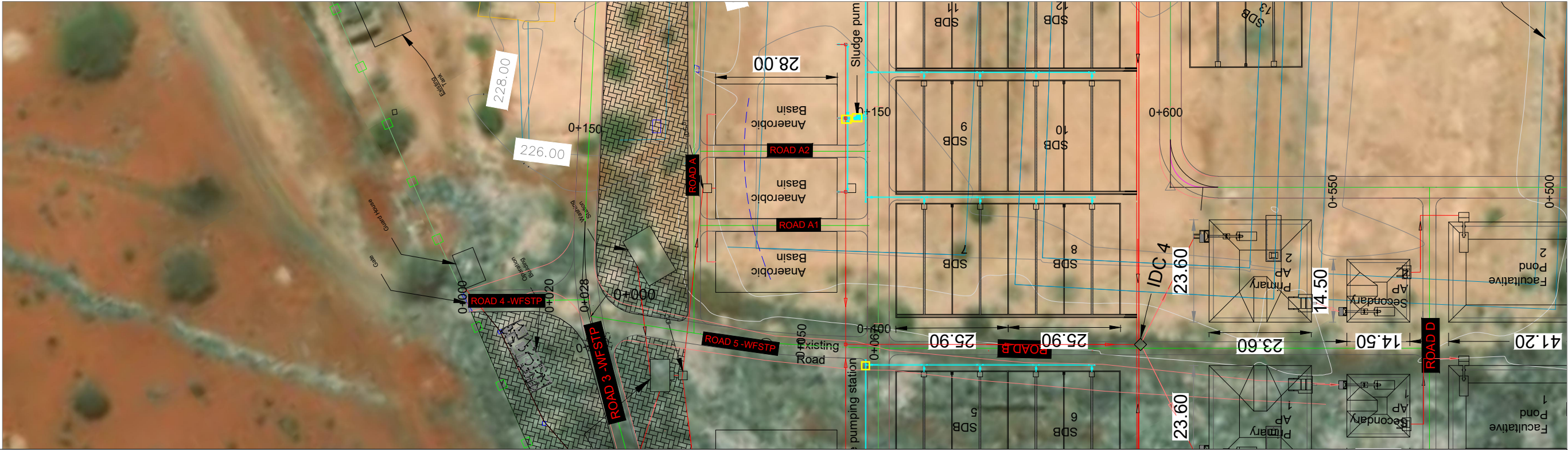
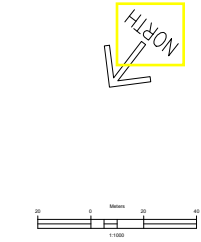




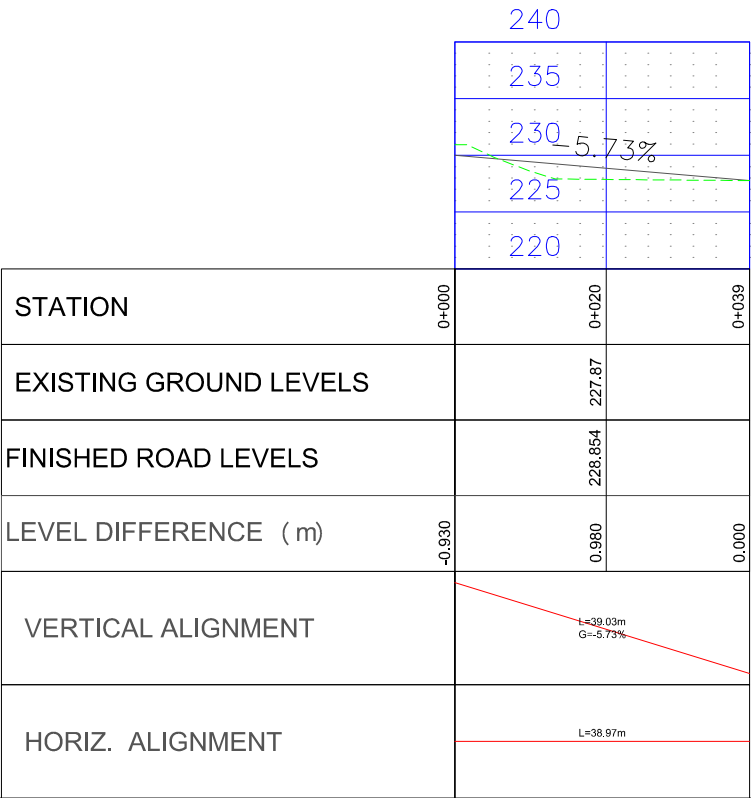








ALG – A1 Profile (0+039km)



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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Drawn by: J.K.M Date: SEP 2024

Designed by: P.M.M Date: SEP 2024

Checked by: T.J.O Date: SEP 2024

Approved by: J.K.W Date: SEP 2024

Project No:

Contract No:

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project:

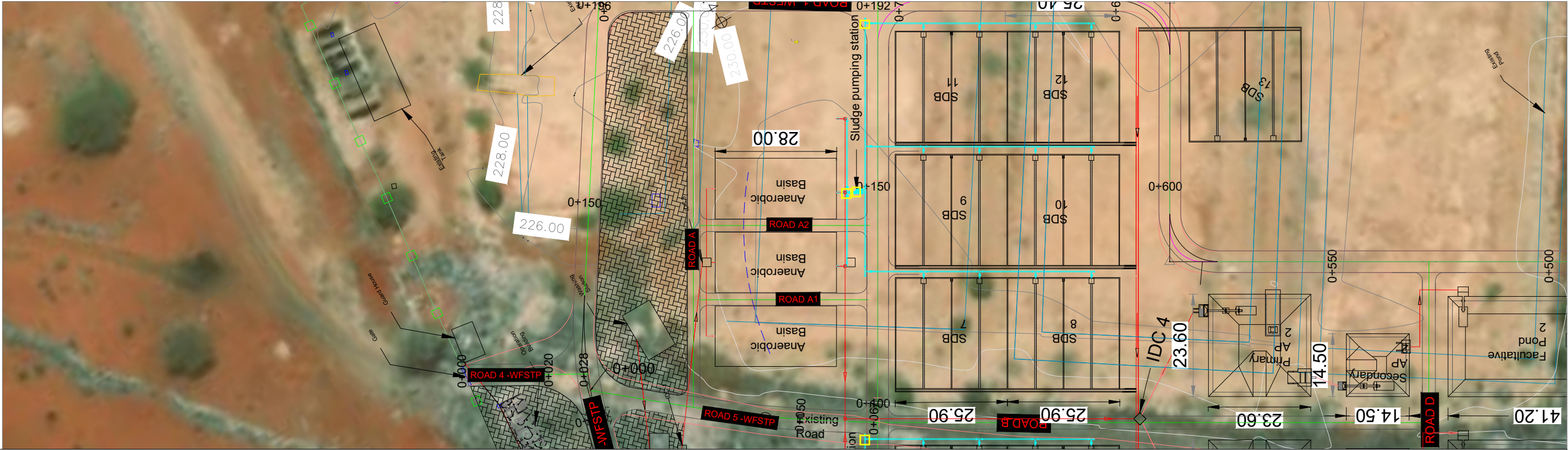
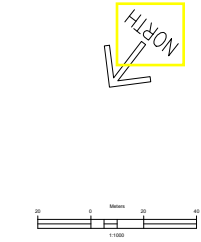
CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

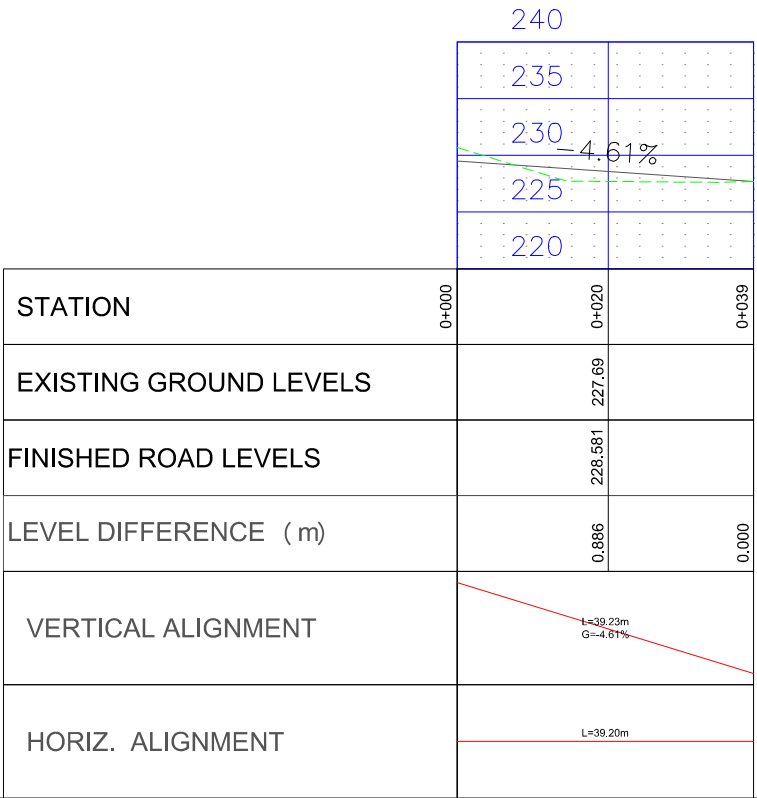
DETAILED DESIGN  
WAJIR FACIAL SLUDGE TREATMENT PLANT  
ACCESS ROADS PLAN AND PROFILE

Scale: 1:1000 Sheet No: 20 / 21 Drawing No: WFSTP- R-1.1





ALG – A2 Profile (0+039km)



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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Drawn by: J.K.M. Date: SEP 2024

Designed by: P.M.M. Date: SEP 2024

Checked by: T.J.O. Date: SEP 2024

Approved by: J.K.W. Date: SEP 2024

Project No:

Contract No:

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project:

CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

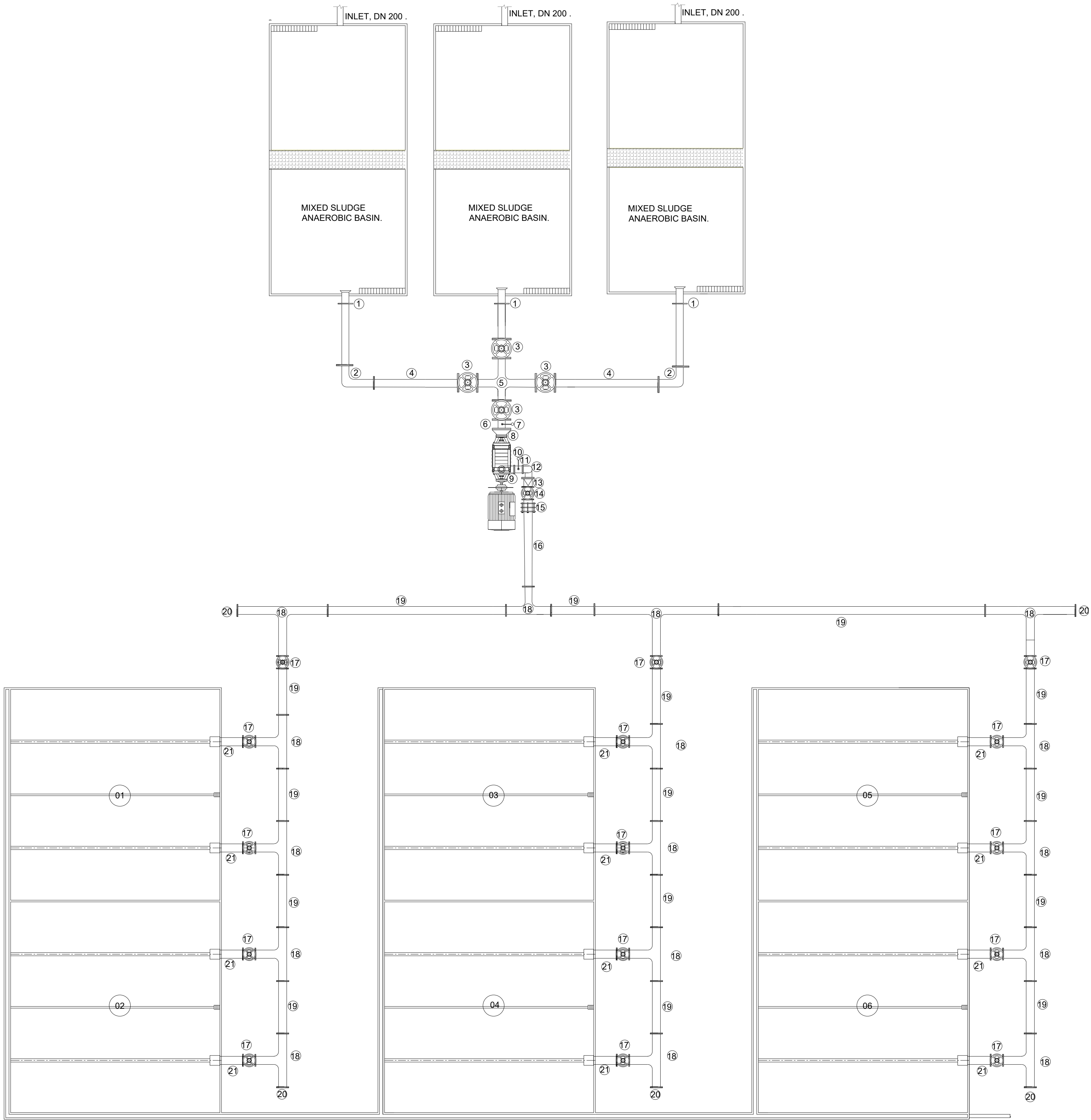
DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
ACCESS ROADS PLAN AND PROFILE

Scale: 1:1000 Sheet No: 21 / 21 Drawing No: WFSTP- R-1.1









FIRST SET OF MIXED SLUDGE ANAEROBIC BASIN.  
SCALE: AS SHOWN.

SCHEDULE OF PIPEWORK AND FITTING FOR WAJIR FSTP.				
ITEM NO.	DESCRIPTION	DIA	MATERIAL	QTY
1	BELL MOUTHED SINGLE FLANGE PIPE PIECE WITH PUDDLE FLANGE.	DN 100	HDPE	6
2	DOUBLE FLANGE 90° BEND.	DN 100	HDPE	4
3	DOUBLE FLANGE GATE VALVE.	DN 100	SS	8
4	DOUBLE FLANGED PIPE PIECE 10,000MM ( LENGTH TO BE DETERMINED ON SITE.)	DN 100	HDPE	4
5	DOUBLE FLANGED 4 - WAY CROSS PIPE FITTINGS.	DN 100*100*100*100	HDPE	2
6	DOUBLE FLANGE PIPE PIECE (LENGTH TO BE ADJUSTED ON SITE.)	DN 100	HDPE	2
7	DOUBLE FLANGE PRESSURE GAUGE ( 0 - 4) BARS.	DN 50	SS	2
8	DOUBLE FLANGE CONCENTRIC TAPER.	DN 100*80	HDPE	2
9	DOUBLE FLANGE ECCENTRIC TAPER.	DN 80*90	HDPE	2
10	DOUBLE FLANGE PRESSURE GAUGE ( 0 - 15) BARS.	DN 50	SS	2
11	DOUBLE FLANGE PIPE PIECE (LENGTH TO BE ADJUSTED ON SITE).	DN 90	HDPE	2
12	DOUBLE FLANGE 90° BEND.	DN 90	HDPE	2
13	DOUBLE FLANGE NON RETURN VALVE.	DN 90	SS	2
14	DOUBLE FLANGE GATE VALVE.	DN 90	SS	2
15	DOUBLE FLANGE DISMANTLING UNIT.	DN 90	SS	2
16	DOUBLE FLANGE PIPE PIECE, 8000MM (LENGTH TO BE ADJUSTED ON SITE).	DN 90	HDPE	2
17	DOUBLE FLANGE GATE VALVE.	DN 90	SS	32
18	DOUBLE FLANGE TEE .	DN 90*90*90	HDPE	32
19	DOUBLE FLANGE PIPE PIECE, (LENGTH TO BE ADJUSTED ON SITE.)	DN 90	HDPE	30
20	DOUBLE FLANGE BLIND.	DN 90	HDPE	10
21	BELL MOUTHED SINGLE FLANGE PIPE PIECE WITH PUDDLE FLANGE.	DN 90	HDPE	24

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL**  
ENGINEERING LTD

in cooperation with

**EAST AFRICAN**  
ENGINEERING CONSULTANTS

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E-mail: info@eaeengroup.com

Drawn by:	W.A.O.	Date:	SEPT 2024
Designed by:	D.O.N.	Date:	SEPT 2024
Checked by:	D.O.N.	Date:	SEPT 2024
Approved by:	J.K.W	Date:	SEPT 2024
Project No:			
Contract No:			

Client:

**WAJIR**  
WATER AND SEWERAGE  
COMPANY LIMITED  
WAJWASCO

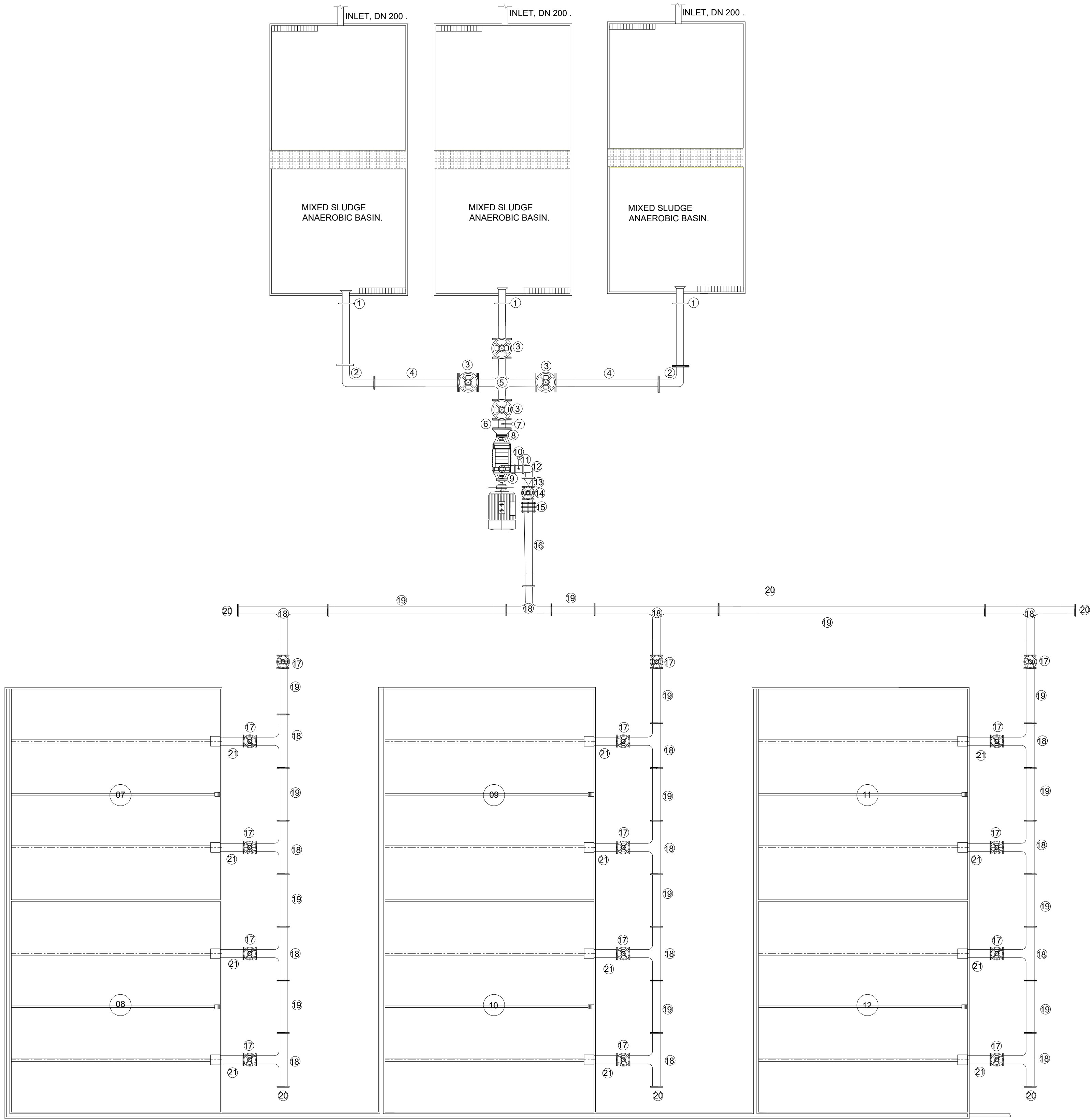
**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

Financier:

**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT MECHANICAL PUMP STATION DRAWINGS PLAN ELEVATION DRAWINGS		
Scale: AS SHOWN	Sheet No: 1 / 2	Drawing No: WFSTP -EM- 2.0.1.





SECOND SET OF MIXED SLUDGE ANAEROBIC BASIN.  
SCALE: NOT DRAWN TO SCALE.

SCHEDULE OF PIPEWORK AND FITTING FOR WAJIR FSTP.				
ITEM NO.	DESCRIPTION	DIA	MATERIAL	QTY
1	BELL MOUTHED SINGLE FLANGE PIPE PIECE WITH PUDDLE FLANGE.	DN 100	HDPE	6
2	DOUBLE FLANGE 90° BEND.	DN 100	HDPE	4
3	DOUBLE FLANGE GATE VALVE.	DN 100	SS	8
4	DOUBLE FLANGED PIPE PIECE 10,000MM ( LENGTH TO BE DETERMINED ON SITE.)	DN 100	HDPE	4
5	DOUBLE FLANGED 4 - WAY CROSS PIPE FITTINGS.	DN 100*100*100*100	HDPE	2
6	DOUBLE FLANGE PIPE PIECE (LENGTH TO BE ADJUSTED ON SITE.)	DN 100	HDPE	2
7	DOUBLE FLANGE PRESSURE GAUGE ( 0 - 4) BARS.	DN 50	SS	2
8	DOUBLE FLANGE CONCENTRIC TAPER.	DN 100*80	HDPE	2
9	DOUBLE FLANGE ECCENTRIC TAPER.	DN 80*90	HDPE	2
10	DOUBLE FLANGE PRESSURE GAUGE ( 0 - 15) BARS.	DN 50	SS	2
11	DOUBLE FLANGE PIPE PIECE (LENGTH TO BE ADJUSTED ON SITE).	DN 90	HDPE	2
12	DOUBLE FLANGE 90° BEND.	DN 90	HDPE	2
13	DOUBLE FLANGE NON RETURN VALVE.	DN 90	SS	2
14	DOUBLE FLANGE GATE VALVE.	DN 90	SS	2
15	DOUBLE FLANGE DISMANTLING UNIT.	DN 90	SS	2
16	DOUBLE FLANGE PIPE PIECE, 8000MM (LENGTH TO BE ADJUSTED ON SITE).	DN 90	HDPE	2
17	DOUBLE FLANGE GATE VALVE.	DN 90	SS	32
18	DOUBLE FLANGE TEE .	DN 90*90*90	HDPE	32
19	DOUBLE FLANGE PIPE PIECE, (LENGTH TO BE ADJUSTED ON SITE.)	DN 90	HDPE	30
20	DOUBLE FLANGE BLIND.	DN 90	HDPE	10
21	BELL MOUTHED SINGLE FLANGE PIPE PIECE WITH PUDDLE FLANGE.	DN 90	HDPE	24

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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E-mail: consulting@systelengineering.com

in cooperation with



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Drawn by: W.A.O. Date: SEPT 2024

Designed by: D.O.N. Date: SEPT 2024

Checked by: D.O.N. Date: SEPT 2024

Approved by: J.K.W Date: SEPT 2024

Project No:

Contract No:

Client:



**WAJIR WATER AND SEWERAGE**  
COMPANY LIMITED

Financier:

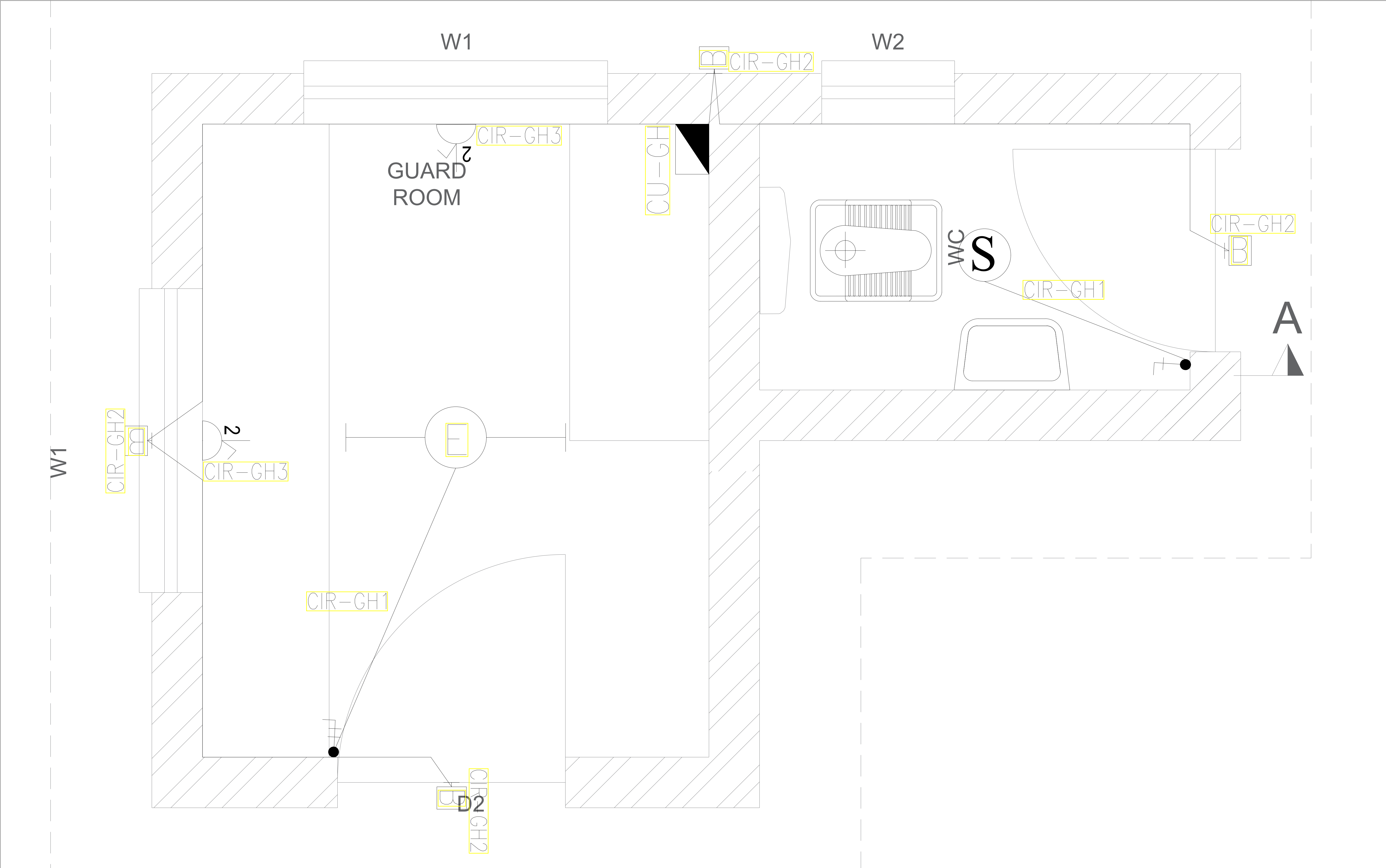


**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

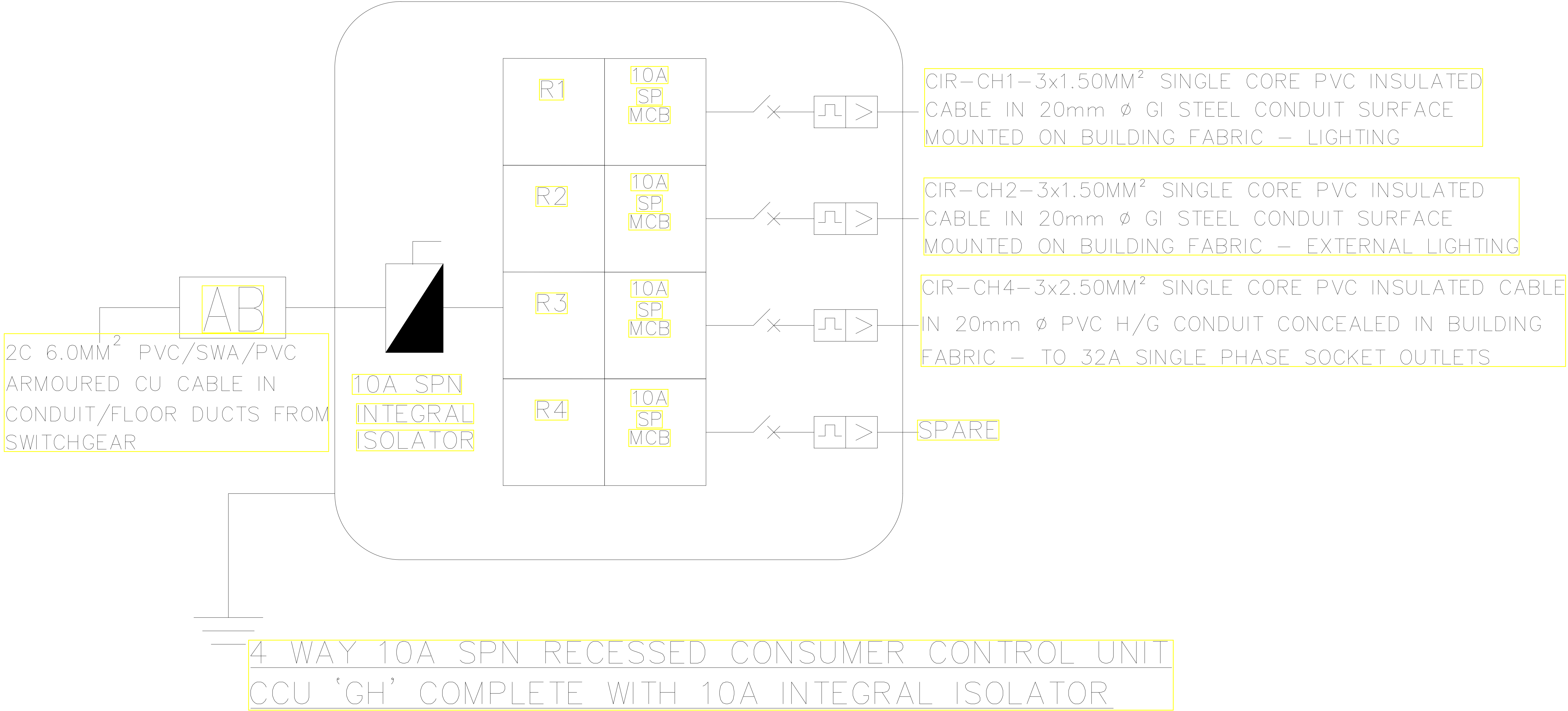
Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
MECHANICAL PUMP STATION DRAWINGS  
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Scale: AS SHOWN	Sheet No: 2 / 2	Drawing No: WFSTP - EM - 2.0.1.
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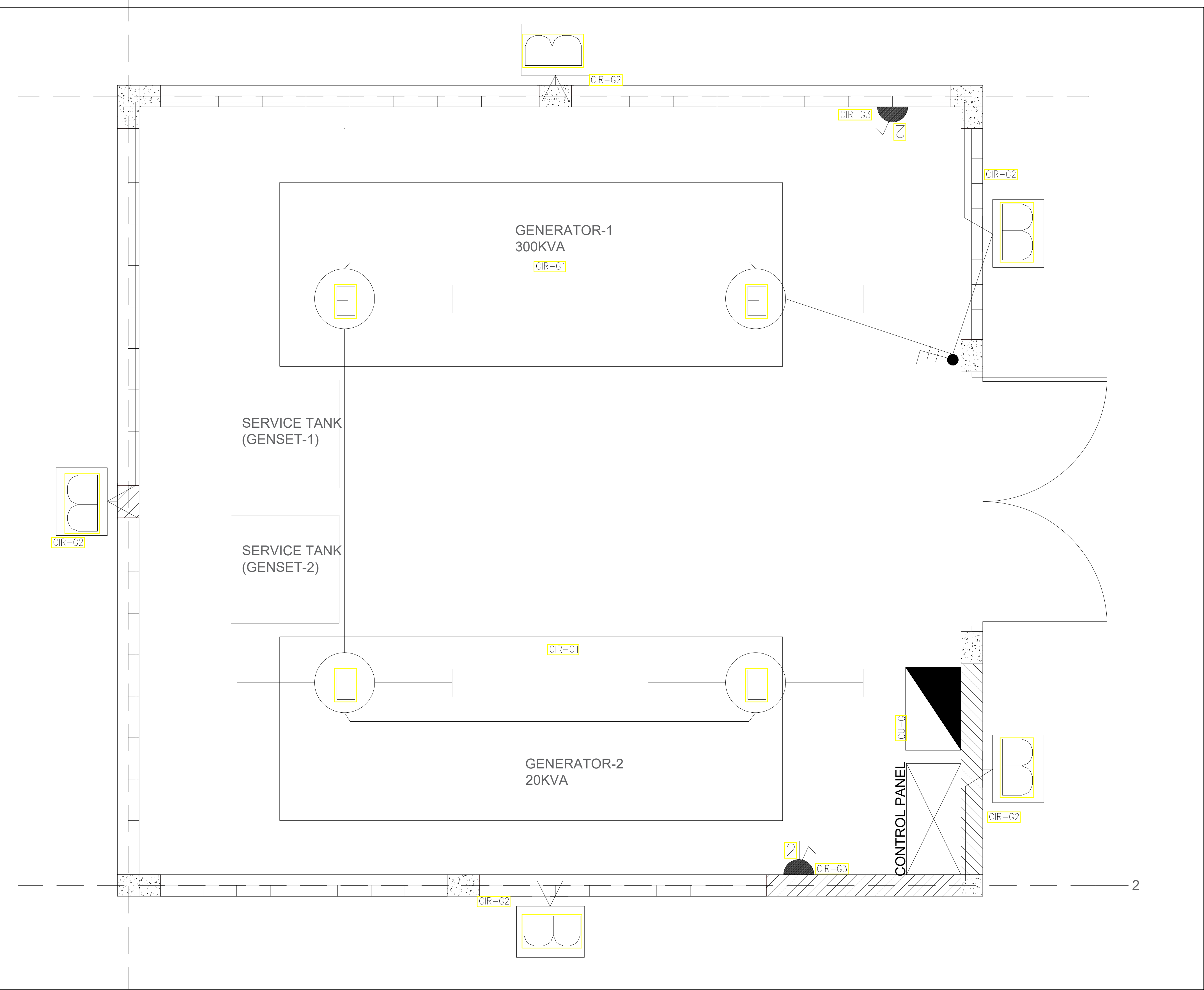


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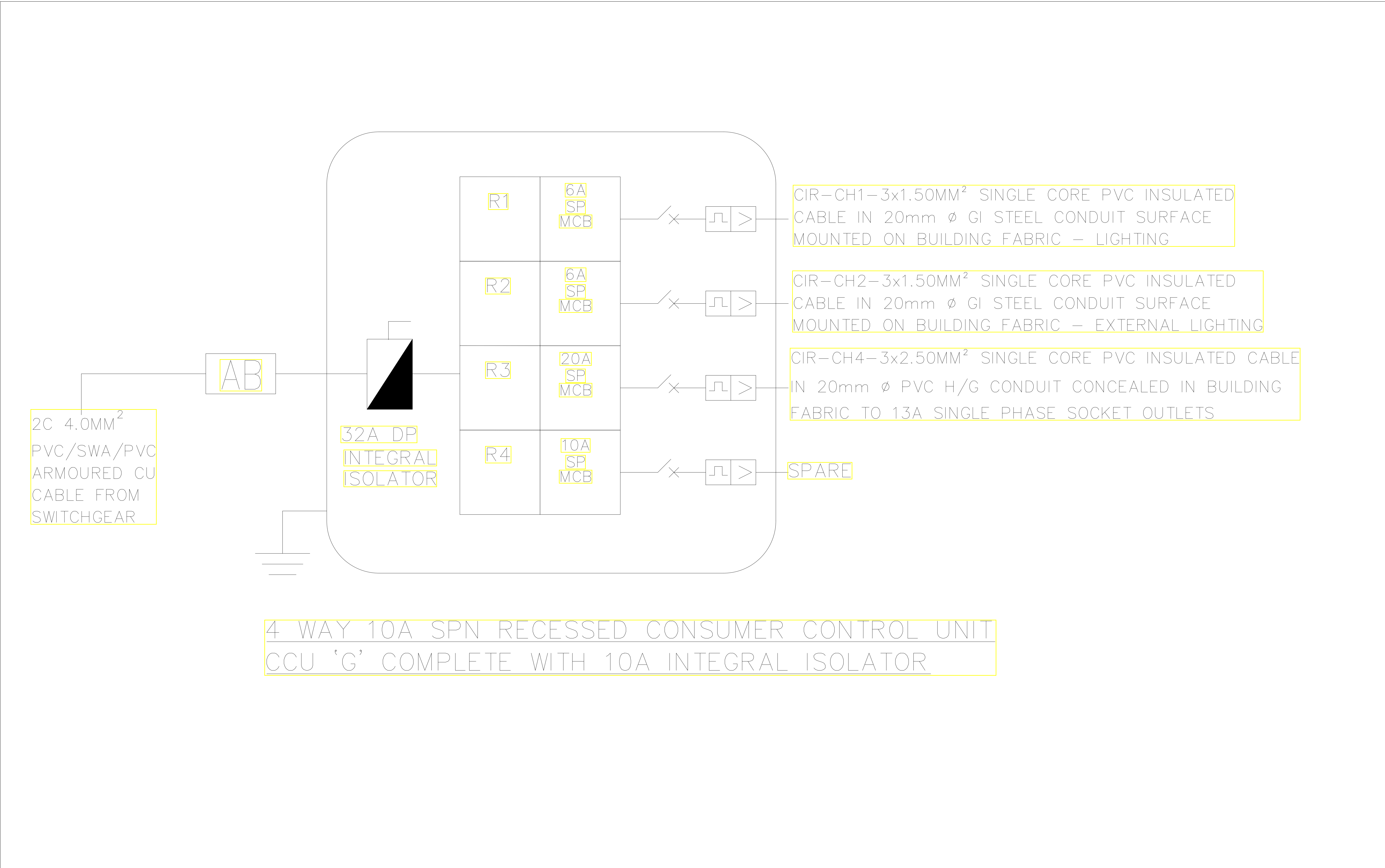
					Design Consultant:		in cooperation with		Sanivation		Drawn by: E.M		Date: SEP 2024		Client:		Project:	
											Designed by: D.O.N		Date: SEP 2024				CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY	
					Systel Engineering Limited 5th Floor, Wing II, CIC Plaza Mara Road, Upperhill P.O. Box 191109 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038000 E-mail: consulting@systelengineering.com		EAST AFRICAN ENGINEERING CONSULTANTS Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O.Box 72368-00200, Nairobi, Kenya Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com		SANIVATION LIMITED Villa View Estate, Moi South Lake Road, Naivasha P.O.Box 382 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com		Checked by: D.O.N		Date: SEP 2024		WAJIR WATER AND SEWERAGE COMPANY LIMITED		Drawing Title:	
											Approved by: J.K.W		Date: SEP 2024		Financier:		DETAILED DESIGN	
											Project No:						WAJIR FAECAL SLUDGE TREATMENT PLANT GUARD HOUSE CCU SCHEMATICS	
											Contract No:						Scale: AS SHOWN	
REVISIONS																	Sheet No: 2 / 2	
																	Drawing No: WFSTP - EM -2.3.3	



GENERATOR HOUSE ELECTRICAL LAYOUTS

					Design Consultant:					Drawn by: E.M Date: SEP 2024					Client:					Project:				
										Designed by: D.O.N Date: SEP 2024										CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY				
					Systel Engineering Limited 5th Floor,Wing II, CIC Plaza Mara Road,Upperrhill P.O. Box 191709 - 00100 Nairobi, Kenya Tel: +254(0)781329860/ 728038006 E-mail: consulting@systelengineering.com					Checked by: D.O.N Date: SEP 2024					Financier:					Drawing Title:				
					in cooperation with					Approved by: J.K.W Date: SEP 2024										DETAILED DESIGN				
										Contract No:					WAJIR WATER AND SEWERAGE COMPANY LIMITED					WAJIR FAECAL SLUDGE TREATMENT PLANT GENERATOR HOUSE ELECTRICAL LIGHTING AND POWER LAYOUT				
					SANIVATION LIMITED Villa View Estate, Moi South Lake Road,Naivasha P.O.Box 282 Naivasha Kenya Tel: +254729465035, +254728679842 E-mail: info@sanivation.com www.sanivation.com										WORLD BANK					Scale: AS SHOWN				
					REVISIONS															Sheet No: 1 / 2				
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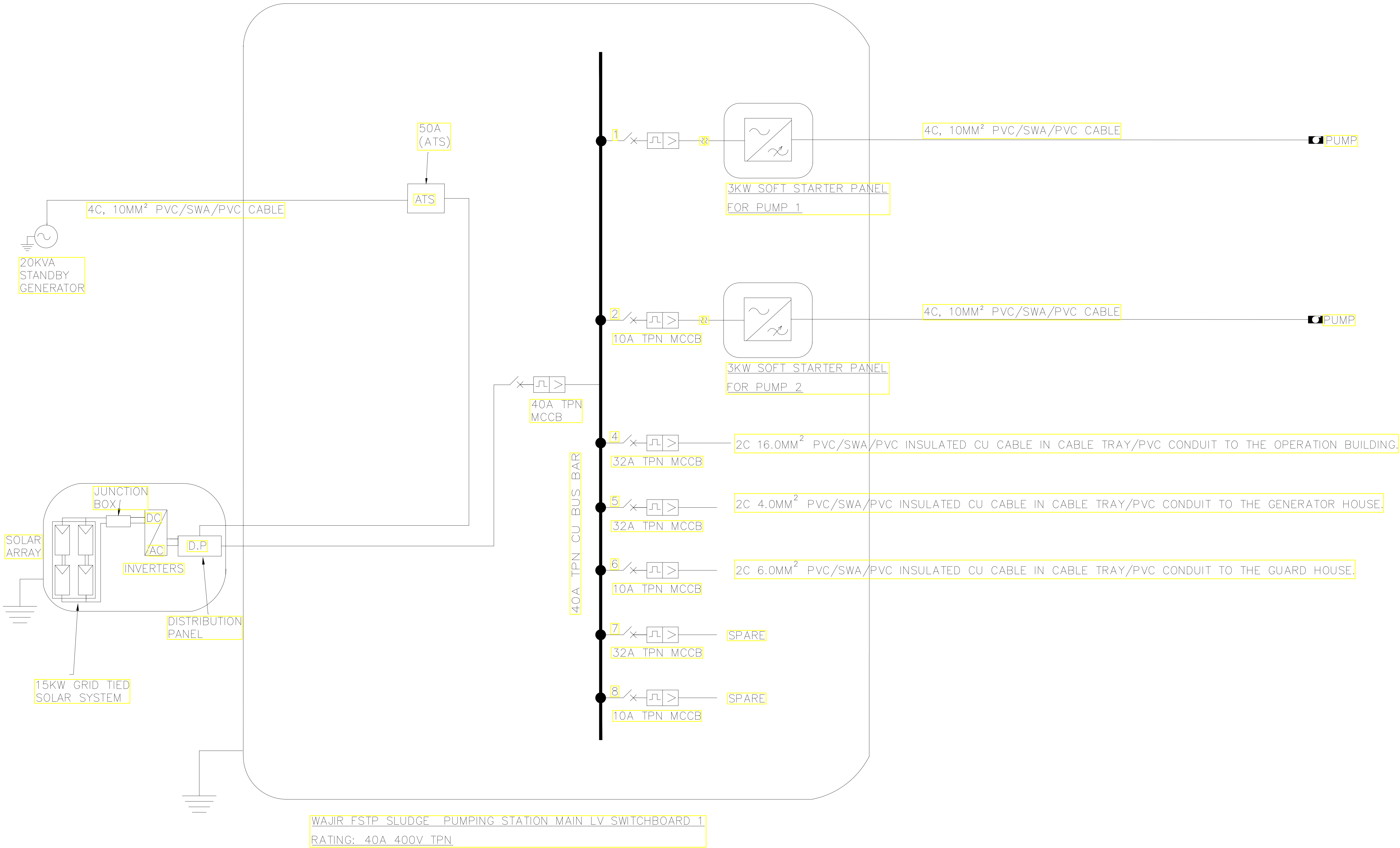




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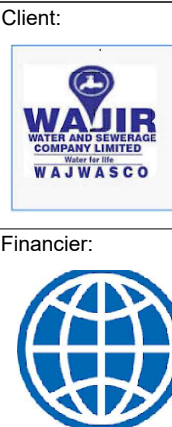
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
Systel Engineering Limited  
5th Floor, Wing II, CIC Plaza  
Mara Road, Upperhill  
P.O. Box 19109 - 00100 Nairobi, Kenya  
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in cooperation with  
**EAST AFRICAN ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72398-00200, Nairobi, Kenya  
Tel: +254-20-2714514/15/16, +254-20-2718861, +254-20-2527995  
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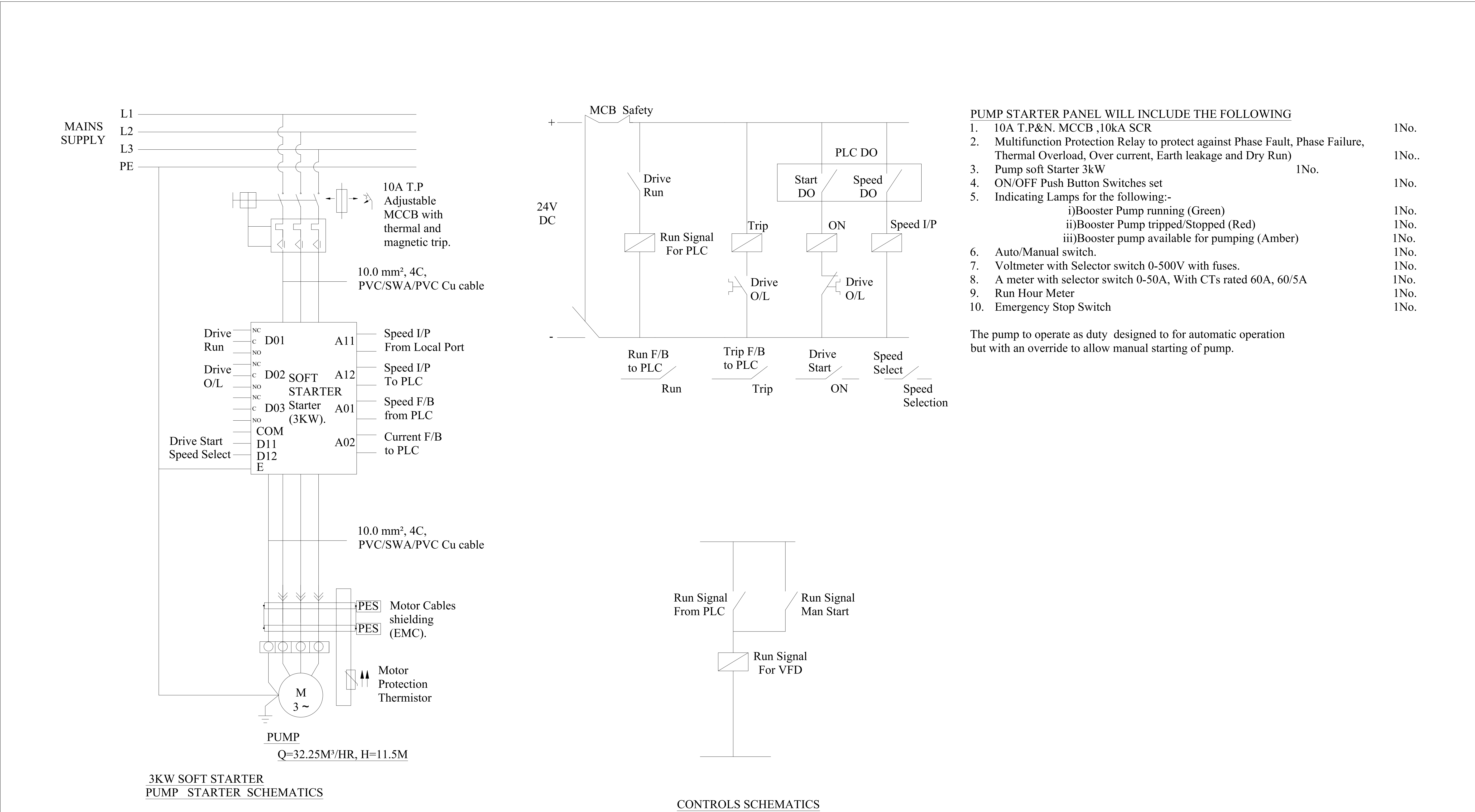
**Sanivation**  
Sanitation as a Service  
**SANIVATION LIMITED**  
Villa View Estate, Moi South Lake Road, Naivasha  
P.O.Box 382 Naivasha Kenya  
Tel: +254729465035, +254728679842  
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www.sanivation.com

Drawn by: **E.M** Date: **SEP 2024**  
Designed by: **D.O.N** Date: **SEP 2024**  
Checked by: **D.O.N** Date: **SEP 2024**  
Approved by: **J.K.W** Date: **SEP 2024**  
Project No:  
Contract No:



**WAJIR WATER AND SEWERAGE COMPANY LIMITED**  
**WORLD BANK**

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT ELECTRICAL MAIN LV PANEL SCHEMATICS			
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ELECTRICAL LEGEND:

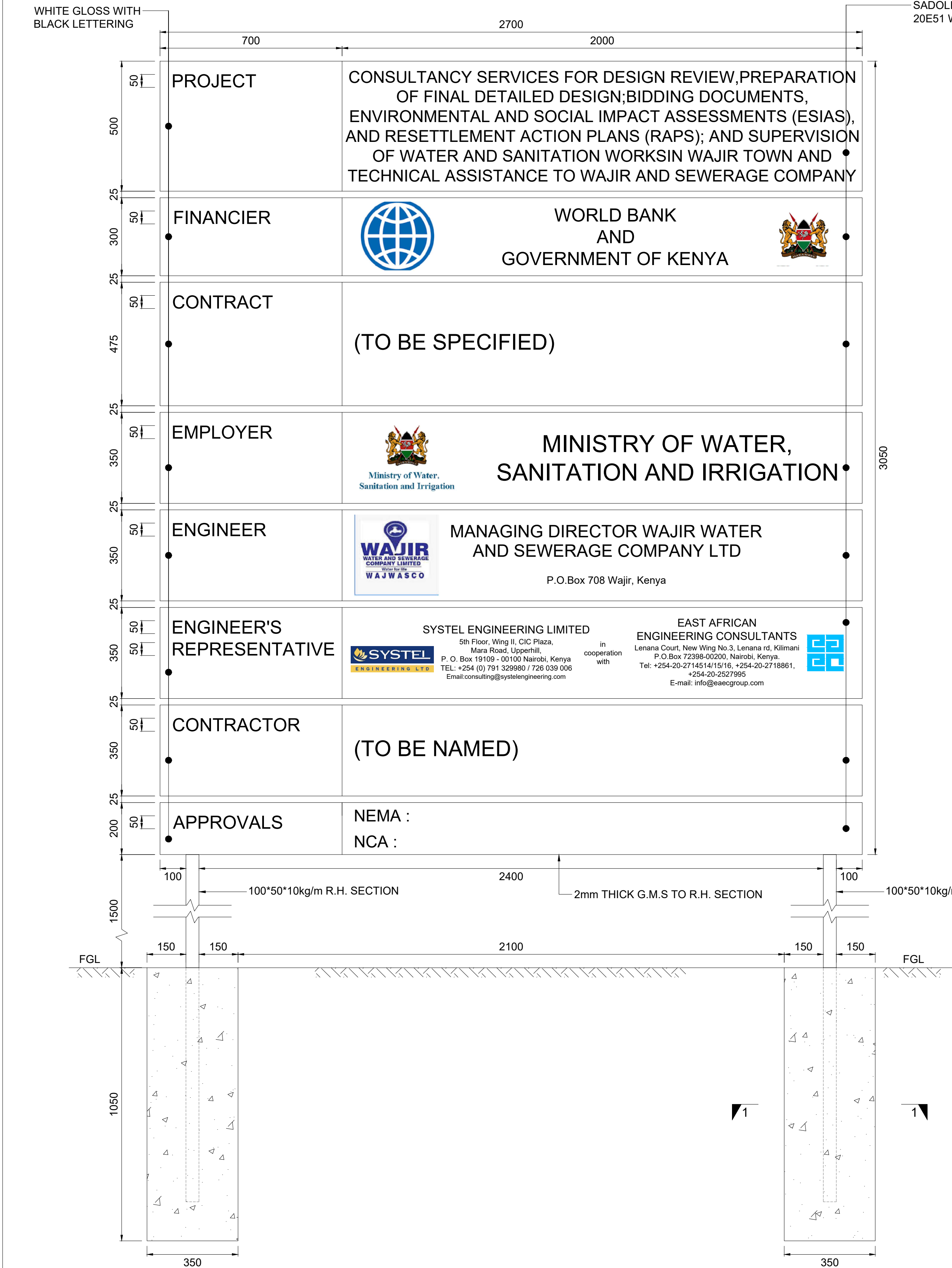
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	TELEVISION AERIAL OUTLET.
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	13A STANDARD/ WATER PROOF SINGLE SWITCHED SOCKET OUTLET
	13A STANDARD/ WATER PROOF TWIN SWITCHED SOCKET OUTLET
	RJ45 VOICE/ DATA OUTLET.
	SUB-MAIN LV SWITCH BOARD
	SPN/ TPN WALL MOUNT ISOLATOR

	ADAPTOR BOX/ DRAW OUT BOX
	CONSUMER UNIT/ DISTRIBUTION BOARD
	CIRCULAR SURFACE MOUNTED POLYCARBONATE BODY, OPAL DIFFUSER IP 65 12W, 1200 LM LED LAMPS
	SURFACE MOUNT ROUND BULKHEAD LED LUMINAIRE 18W, 1800 LM, 6500K, 340MM OUTER DIAMETER IP 65.
	1200MM 1 X 18W GENERAL PURPOSE LED LUMINAIRE WITH A LUMINOUS EFFICIENCY OF 100 L/W COMPLETE WITH TUBE
	IP 65 70W, 7000 LUMEN, 5700K LED FLOOD LIGHT
	100W LED STAND ALONE STREET LIGHT FOR MINOR ROADS WITH BATTERY & DUSK TO DAWN SENSOR FOR 12HOURS OPERATION C/W 9M GALVANIZED STEEL COLUMN.
	SWITCH, 1 WAY 1 GANG, 10A
	SWITCH, 1 WAY 2 GANG, 10A
	SWITCH, 2 WAY 1 GANG, 10A

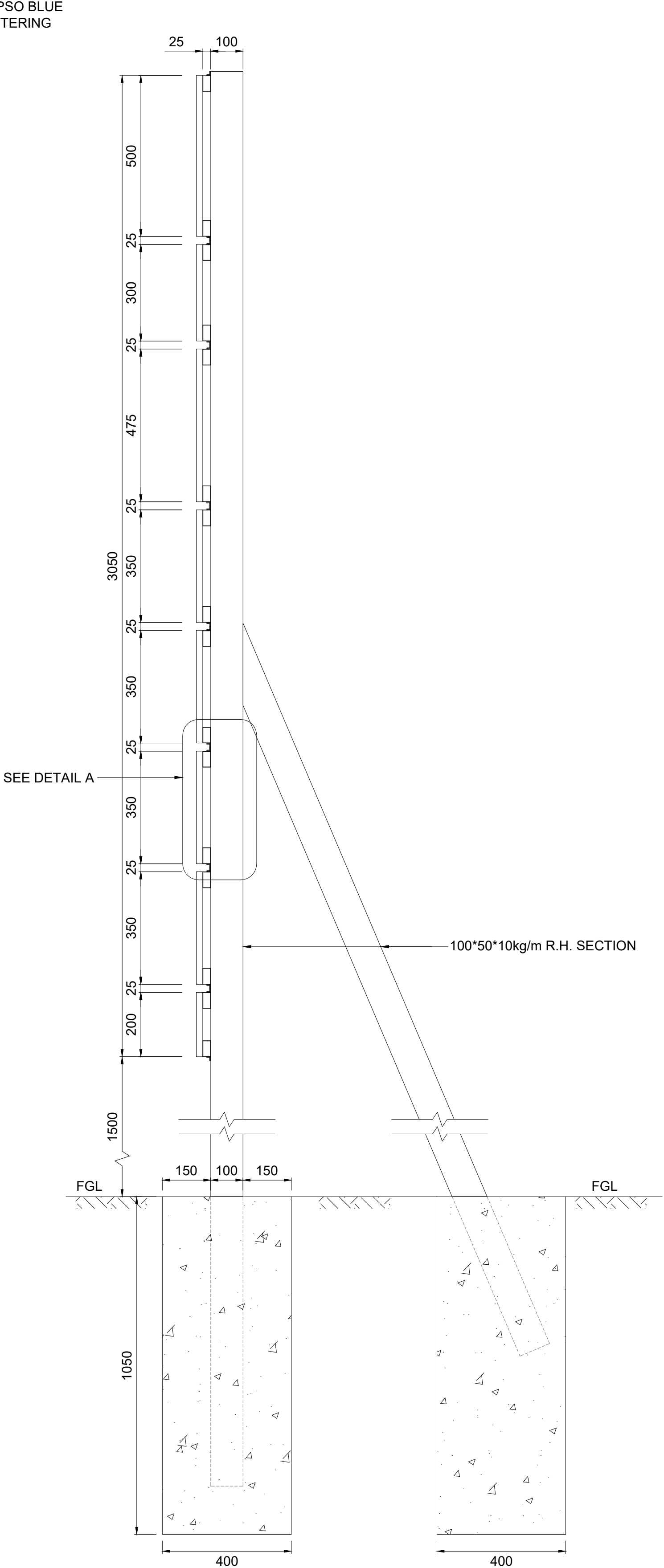
	CABLE
	VOLTAGE SELECTOR SWITCH
	AMMETER SELECTOR SWITCH
	VFD/ SOFT/ STAR DELTA STARTER
	FUSE
	CONTACTOR
	PUMP
	FLOAT SWITCH
	TRANSFORMER
	PUMP TO DETAILS

	VOLT METER
	MOTOR-3 PHASE
	LIGHT
	OVER LOAD RELAY
	MOLDED CASE CIRCUIT BREAKER (MCCB)
	MINIATURE CIRCUIT BREAKER (MCB)-SINGLE PHASE
	MINIATURE CIRCUIT BREAKER (MCB)-TRIPPLE PHASE
	ISOLATING SWITCH
	EARTHING
	ENERGY METER
	SANDBUCKET

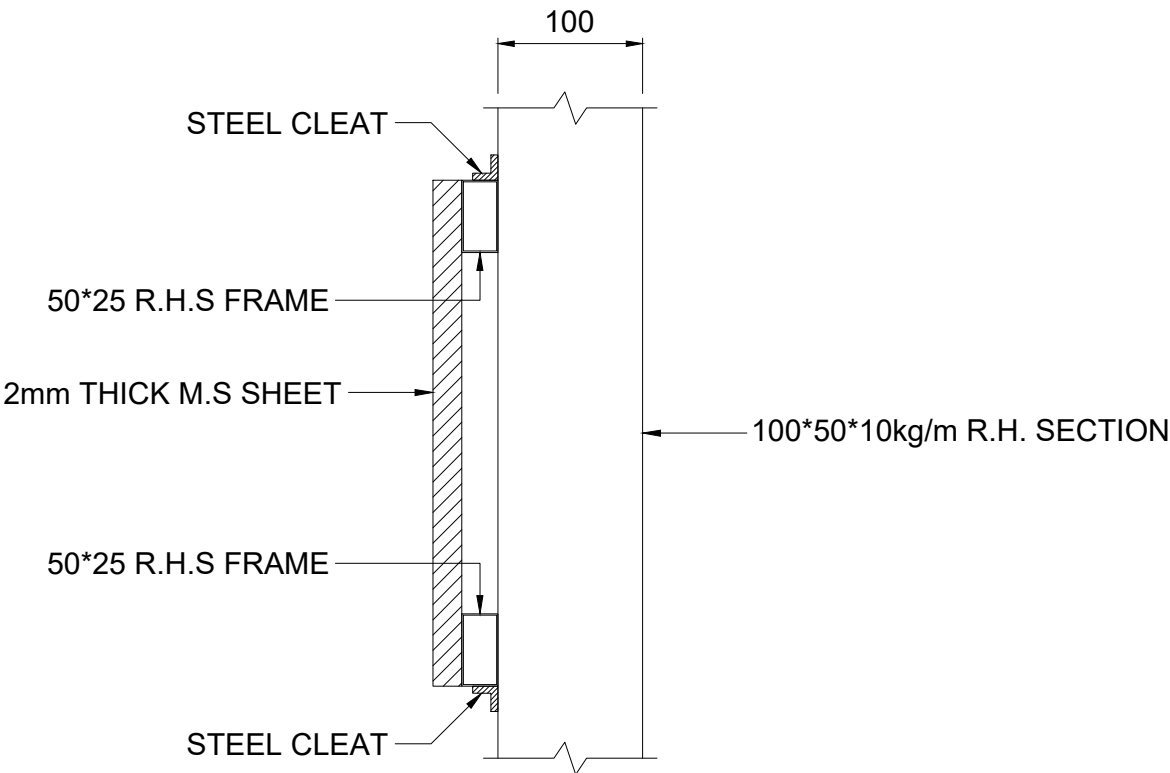
					Design Consultant:		in cooperation with		Sanivation Limited		Client:		Project:		
													CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
					Systel Engineering Limited		EAST AFRICAN ENGINEERING CONSULTANTS		SANIVATION LIMITED		Financier:		Drawing Title:		
					5th Floor-Wing II, C/O Plaza Mara Road, Upperhill P. O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)791 320980/ 726039006 E-mail: consulting@systelengineering.com		Lenana Court, New Wing No.3, Lenana rd, Kilimani P. O. Box 72398-00200, Nairobi, Kenya Tel: +254-20-271451/1516, +254-20-2719861, +254-20-2527995 E-mail: info@eaecgroup.com		Villa View Estate, Moi South Lake Road, Naivasha P. O. Box 262, Naivasha Kenya Tel: +254 726465035, +254 726078642 E-mail: info@sanivation.com www.sanivation.com				DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT ELECTRICAL LEGEND		
					REV		Description		Sign		Date		Approved		
					REVISIONS								Scale: AS SHOWN		
													Sheet No: 1 / 1		
													Drawing No: WFSTP - EM - 2.8.1		



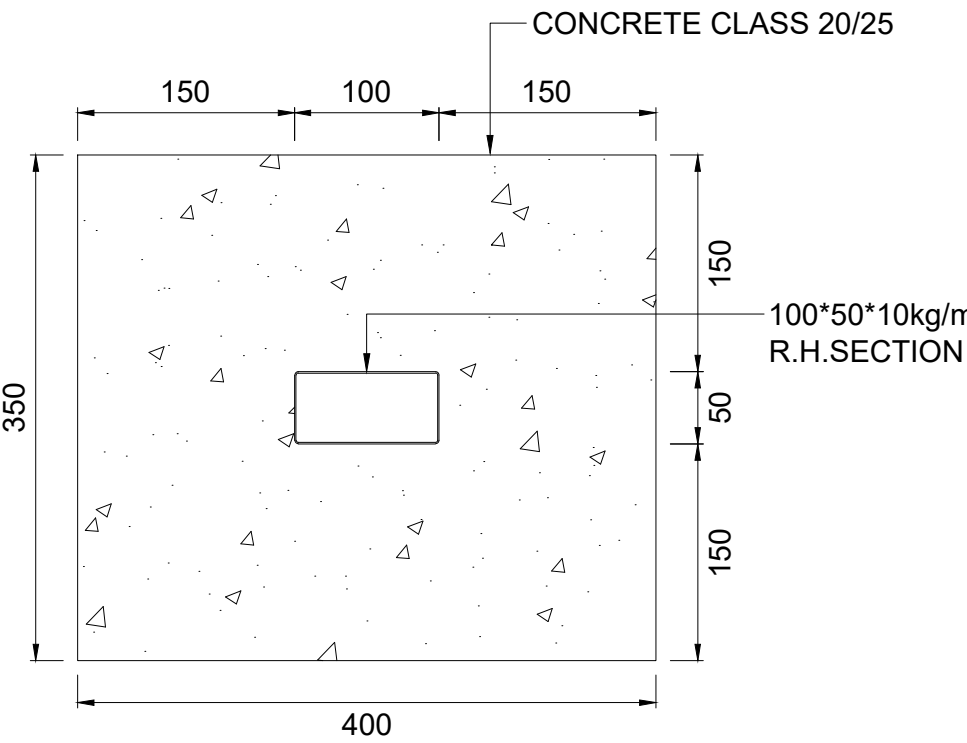
FRONT ELEVATION VIEW  
SCALE 1:10



SIDE ELEVATION VIEW  
SCALE 1:10



DETAIL A  
SCALE 1:5



SECTION 1 - 1  
SCALE 1:5

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

**SYSTEL**  
ENGINEERING LTD

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in cooperation with

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www.sanivation.com

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:

**WAJIR WATER AND SEWERAGE COMPANY LIMITED**

Financier:

**WORLD BANK**

Project:	CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY		
Drawing Title:	DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT PROJECT SIGN BOARD		
Scale:	AS SHOWN	Sheet No:	1 / 1
Drawing No:	WFSTP - SD -2.1.1		

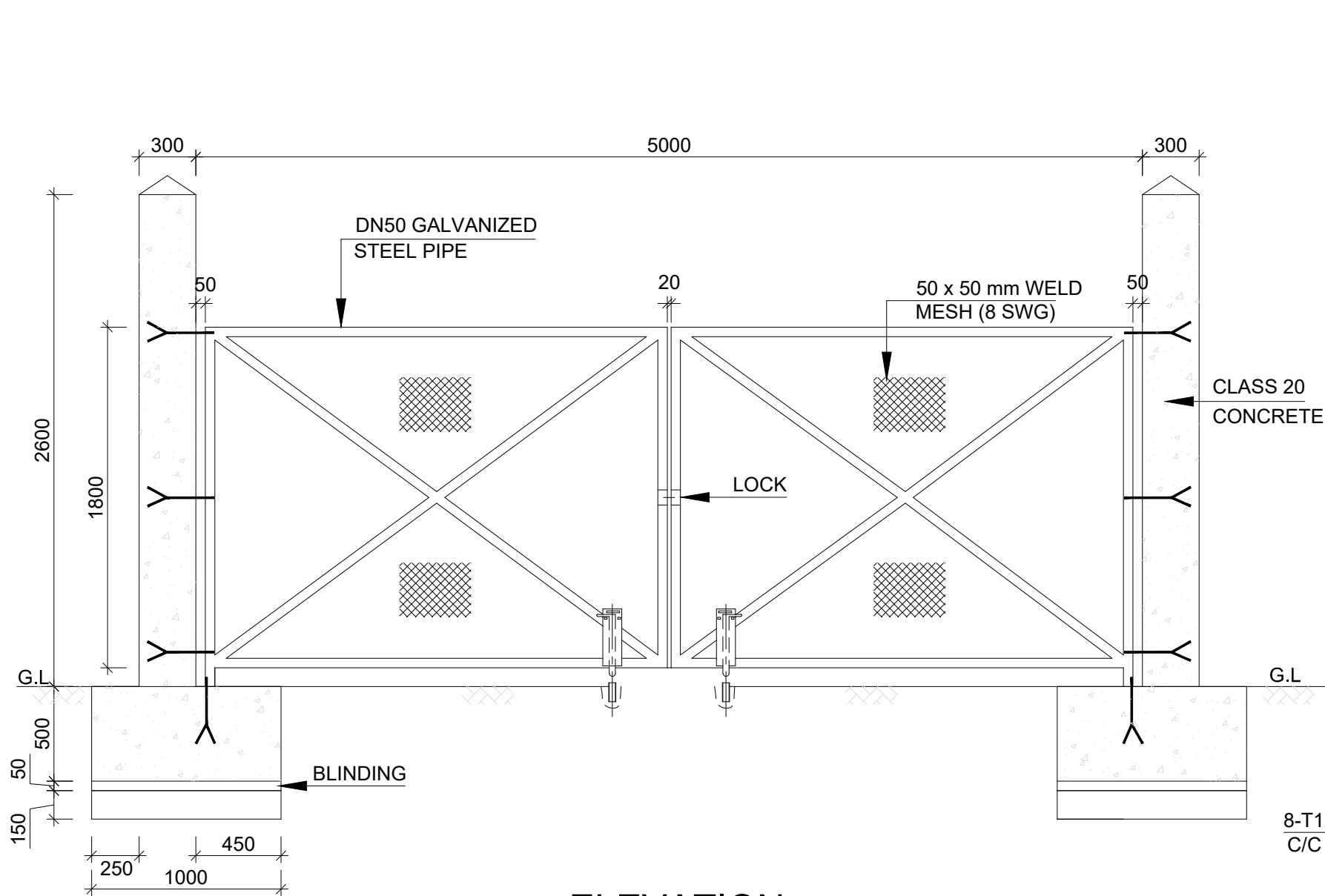


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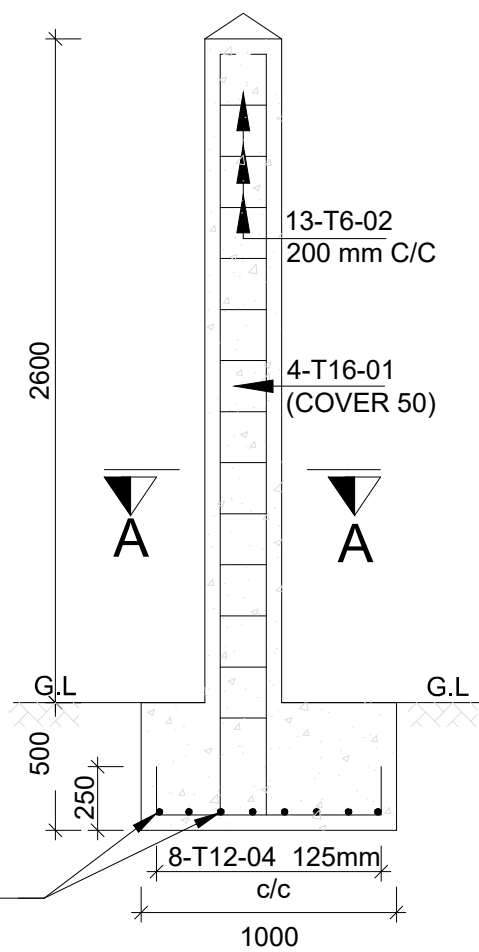
1. ALL CONCRETE IS CLASS 25 UNLESS STATED OTHERWISE.
2. FENCE POSTS SHALL NOT BE MORE THAN 3 m c/c
3. SPECIAL FENCE POSTS WITH STRUTS SHALL BE USED AT ALL CORNERS AND AT DISTANCES NOT MORE THAN 30 m c/c.
4. WHERE CHAINLINK (TYPE GLC) 180 IS SPECIFIED, THEN USE ONLY THREE LINE WIRES AND THREE ROWS OF BARBED WIRE AT THE TOP.
5. ALL DIMENSIONS IN MM UNLESS OTHERWISE STATED

LEGEND:

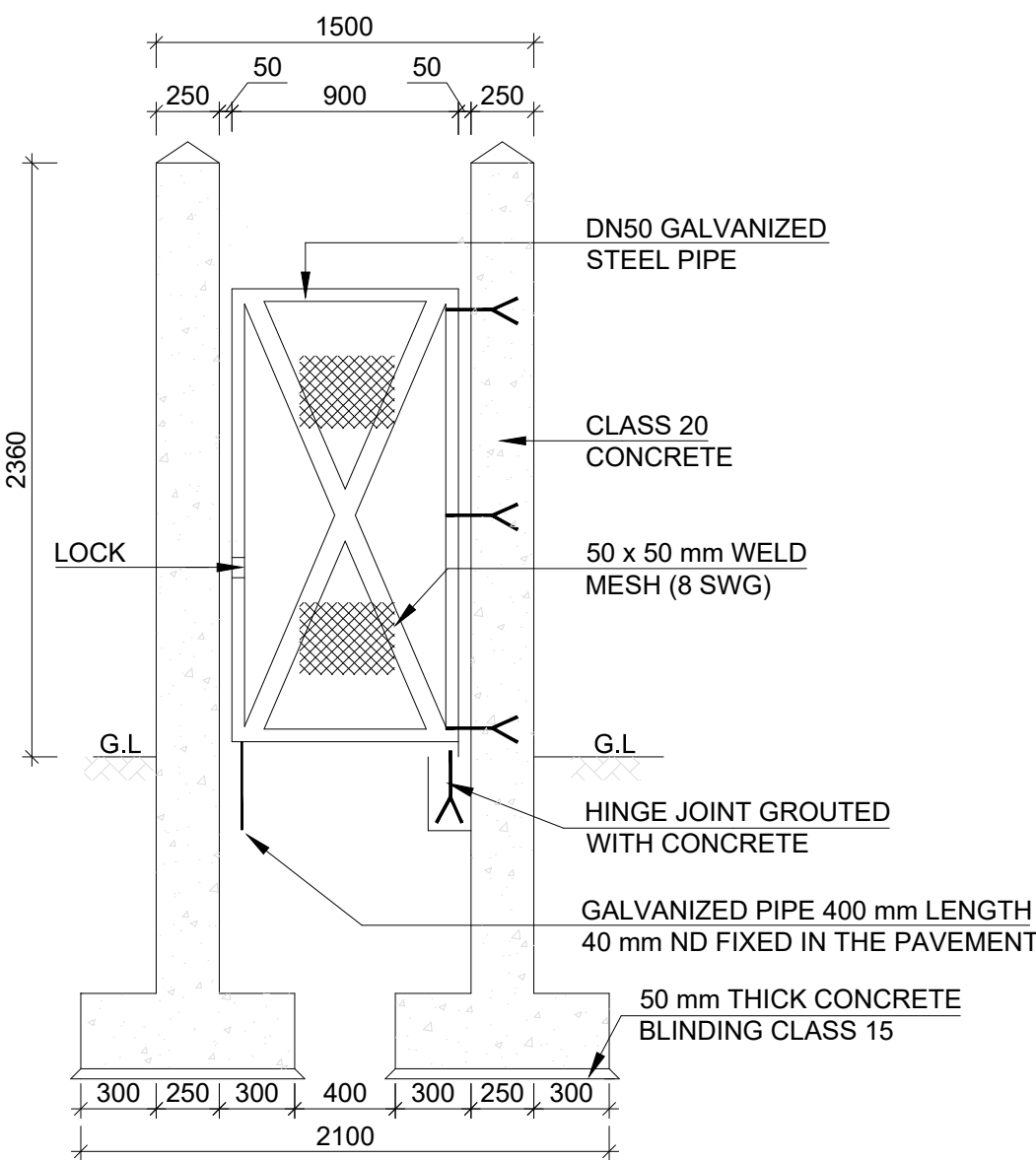
- GLC GALVANISED LINK CHAIN  
P.C.C. PRECAST CONCRETE  
ND NOMINAL DIAMETER  
GL GROUND LEVEL



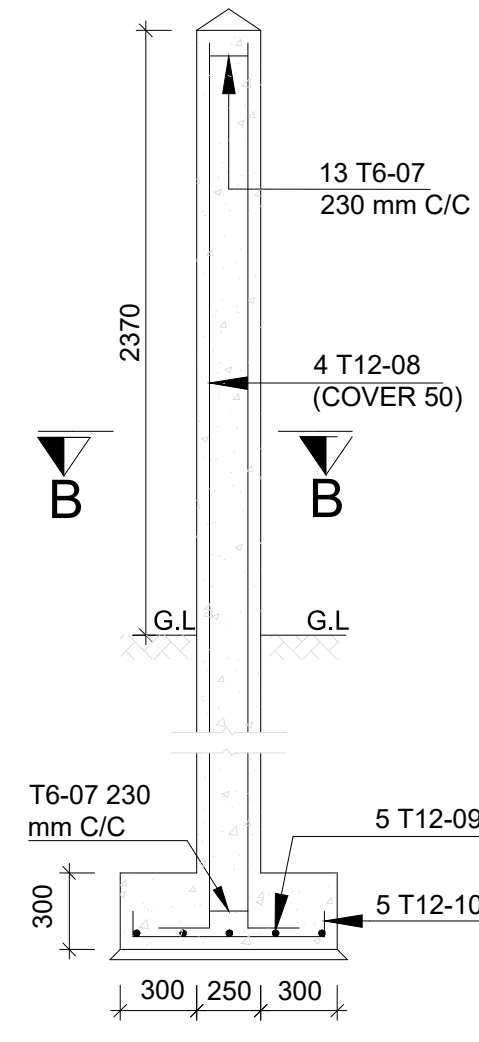
ELEVATION  
SCALE 1:2.5



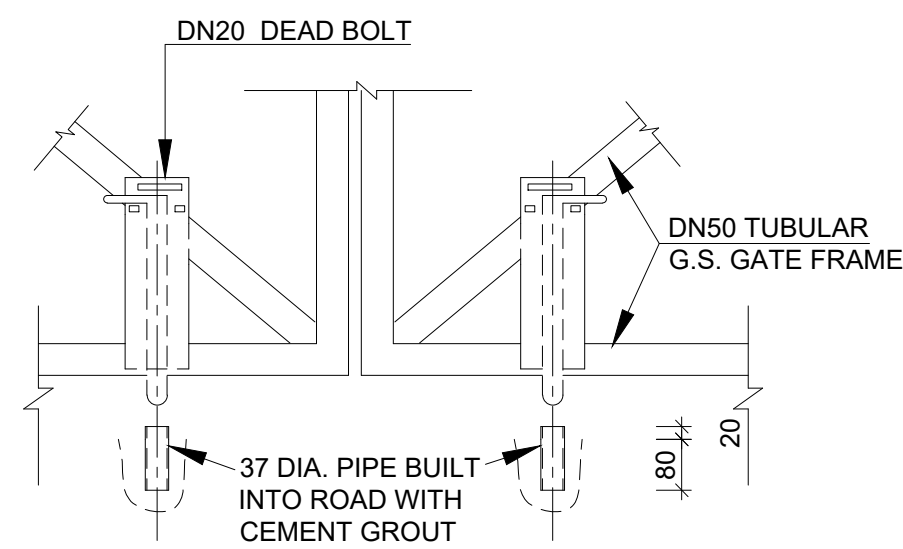
GATE POST -C1  
SCALE 1:2.5



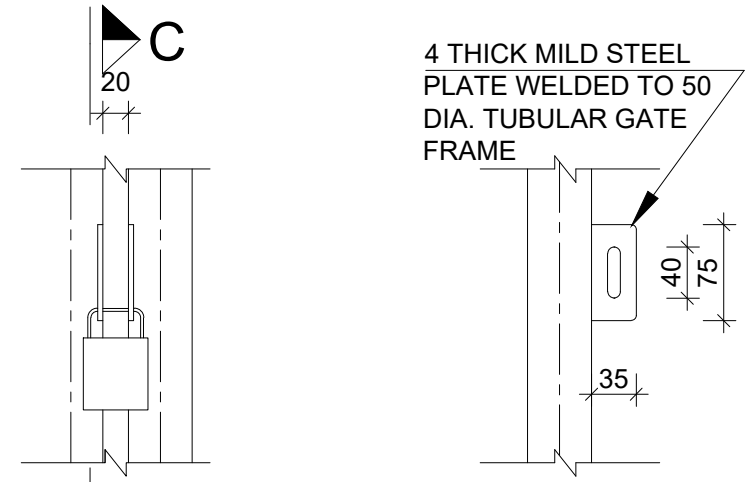
SIDE GATE  
ELEVATION  
SCALE 1:2.5



GATE POST  
SCALE 1:2.5

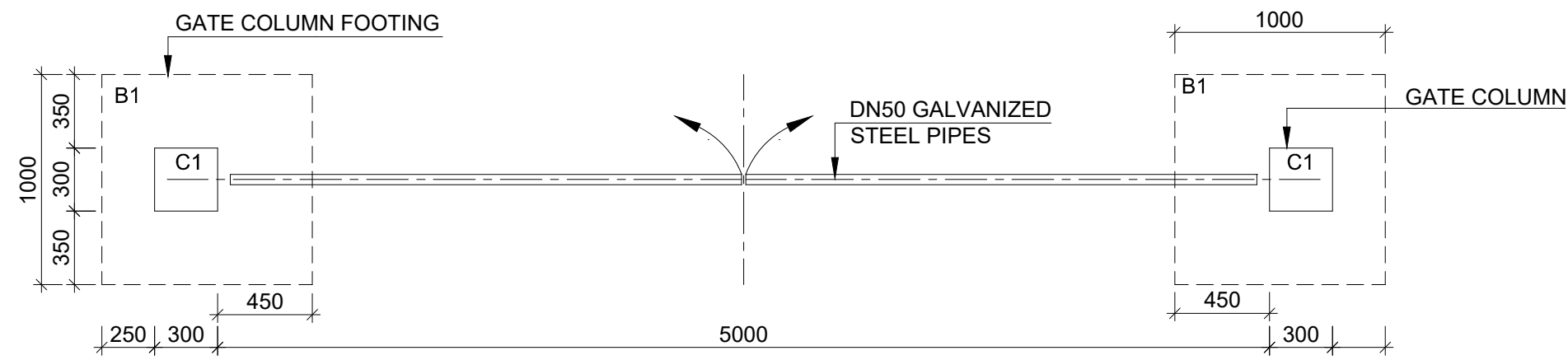


MAIN GATE BOLTING  
DETAIL 1  
SCALE 1:10

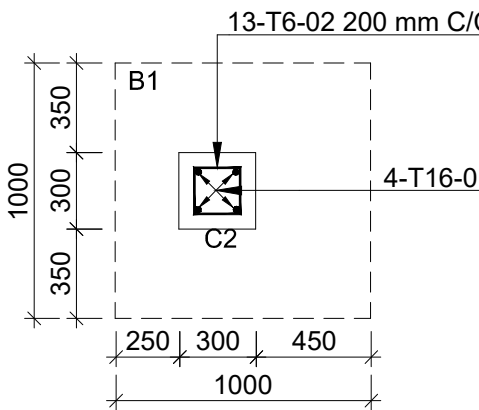


MAIN GATE  
DETAIL 2  
SCALE 1:2.5

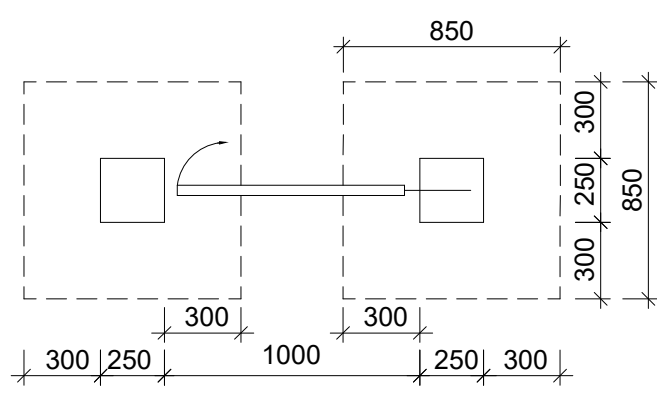
SECTION C-C



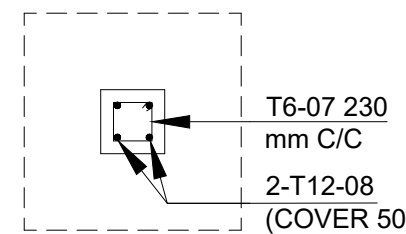
ENTRANCE GATE  
PLAN  
SCALE 1:2.5



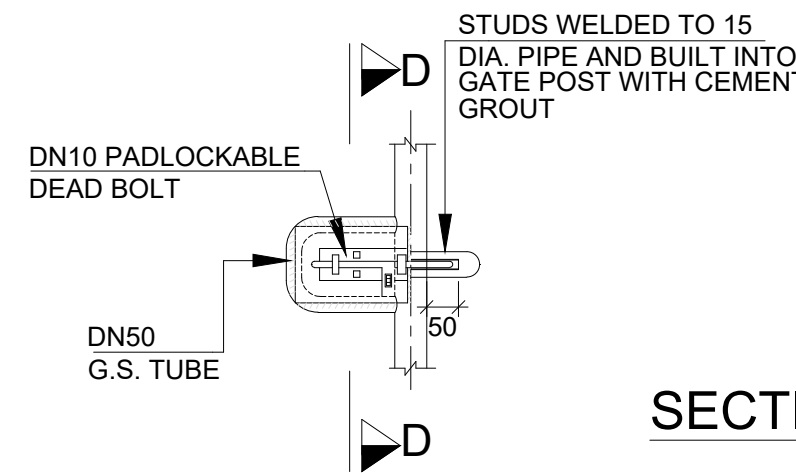
SECTION A-A  
SCALE 1:2.5



SIDE GATE  
PLAN  
SCALE 1:2.5

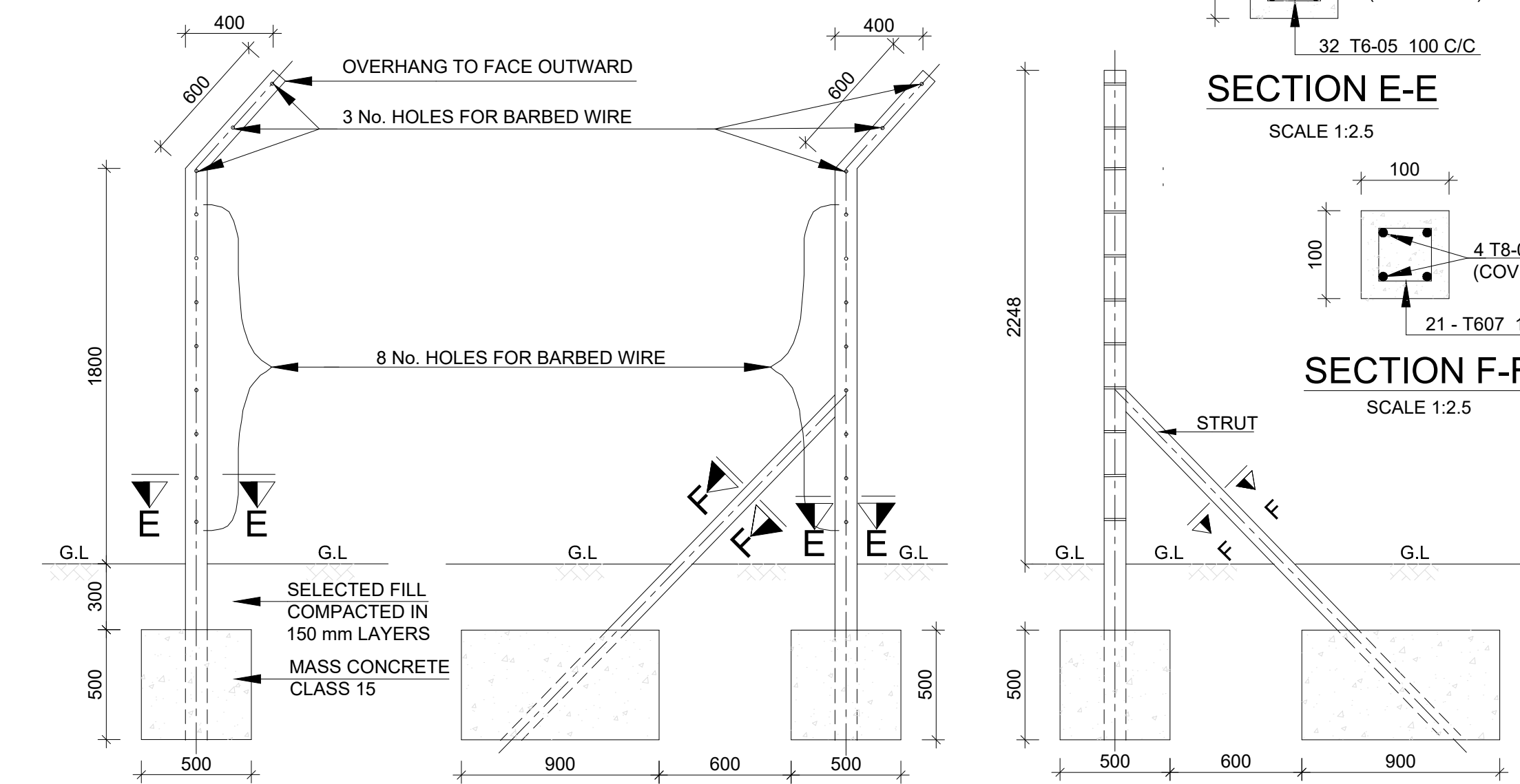


SECTION B-B  
SCALE 1:2.5



SIDE GATE LOCKING  
DETAIL 3  
SCALE 1:2.5

SECTION D-D

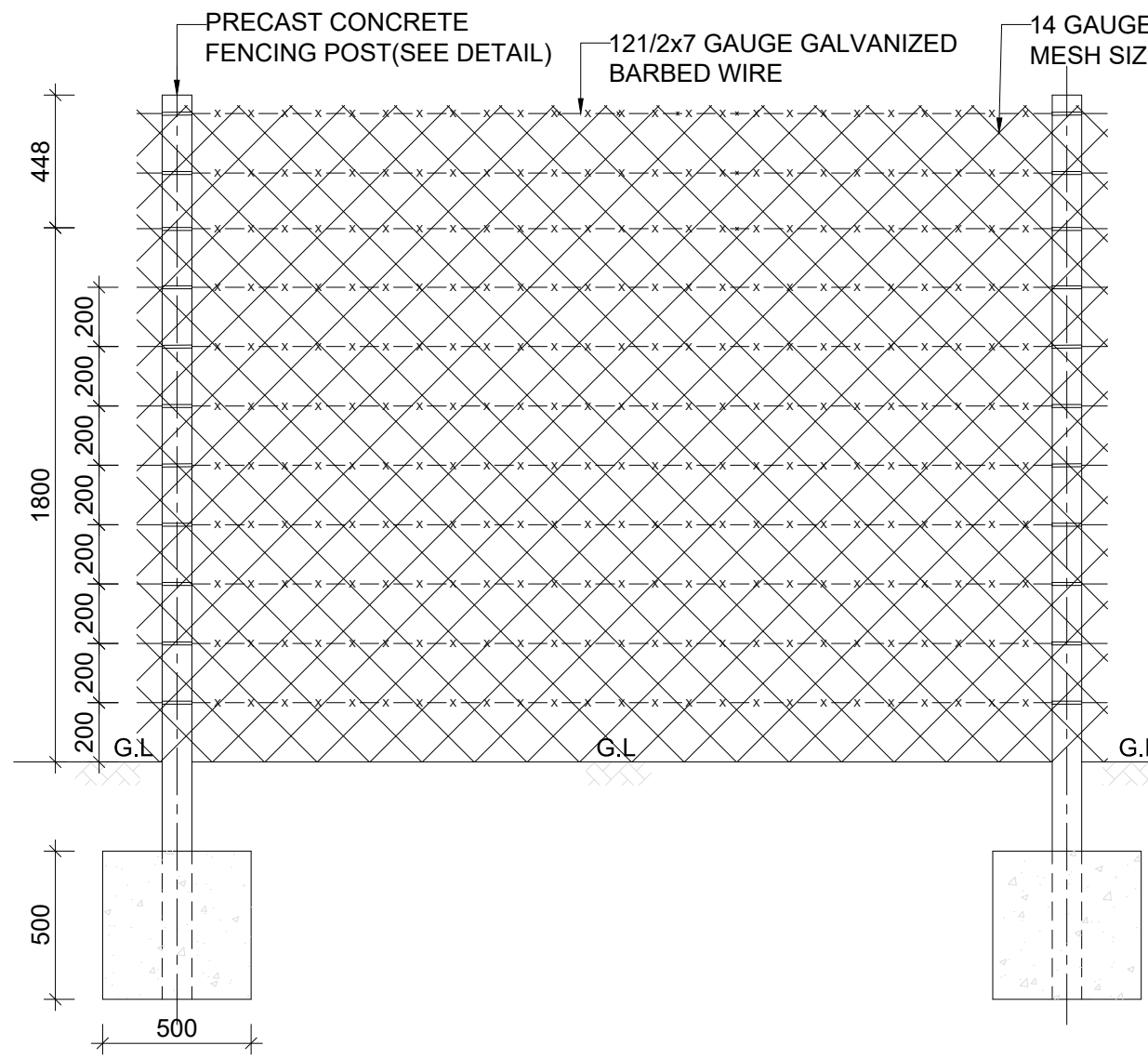


CROSS SECTION DETAIL  
NON-STRUTTED  
FENCING POST  
SCALE 1:2.5

CROSS SECTION DETAIL  
STRUTTED FENCING POST  
SCALE 1:2.5

CROSS SECTION DETAIL  
STRUTTED FENCING POST  
SCALE 1:2.5

GATE DETAILS



LONGITUDINAL DETAIL  
SCALE 1:2.5

BAR BENDING SCHEDULE

LOCATION	BAR MARK	TYPE AND SIZE	No. IN EACH	TOTAL No.	CUT LENGTH METRES	TOTAL LENGTH METRES	SHAPE CODE	A	B	C	D	WEIGHT KG
ENTRANCE GATE 5m WIDE	1601	T16	4	8	3.050	24.400	37	0.050	3.000			38.527
	602	T6	13	26	1.050	27.300	60	0.200	0.200			6.060
	1203	T12	8	8	1.400	11.200	38	0.250	0.900			9.945
	1204	T12	8	8	1.400	11.200	38	0.250	0.900			9.945
ENTRANCE GATE 1.0 m WIDE	607	T6	-	-	0.950	-	60	0.150	0.150			-
	1208	T12	4	4	-	-	37	0.200	-			-
	1209	T12	5	5	1.000	5.000	35	0.770				4.440
	1210	T12	5	5	1.000	5.000	35	0.770				4.440
CHAIN LINK FENCING POST	605	T6	32	15.68	0.456	715.00	60	0.600	600	-	-	158.73
	806	T8	4	196	3.160	619.36	62	0.580	0.385	2.580	-	244.65
PRECAST CONCRETE STRUT	607	T6	21	126	0.450	56.70	60	0.600	0.600	-	-	12.59
	807	T8	4	24	2.100	50.40	20	2.100	-	-	-	19.19

ALL BENDING DIMENSIONS ARE IN ACCORDANCE WITH SSRN 129

FENCING DETAILS

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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E-mail: consulting@systelengineering.com

in cooperation with



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ENGINEERING CONSULTANTS  
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www.sanivation.com

Drawn by:

J.K.M

Date:

SEP 2024

Designed by:

P.M.M

Date:

SEP 2024

Checked by:

T.J.O

Date:

SEP 2024

Approved by:

J.K.W

Date:

SEP 2024

Project No:

Contract No:

Client:



WAJIR WATER AND SEWERAGE  
COMPANY LIMITED



WORLD BANK

Project:

CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

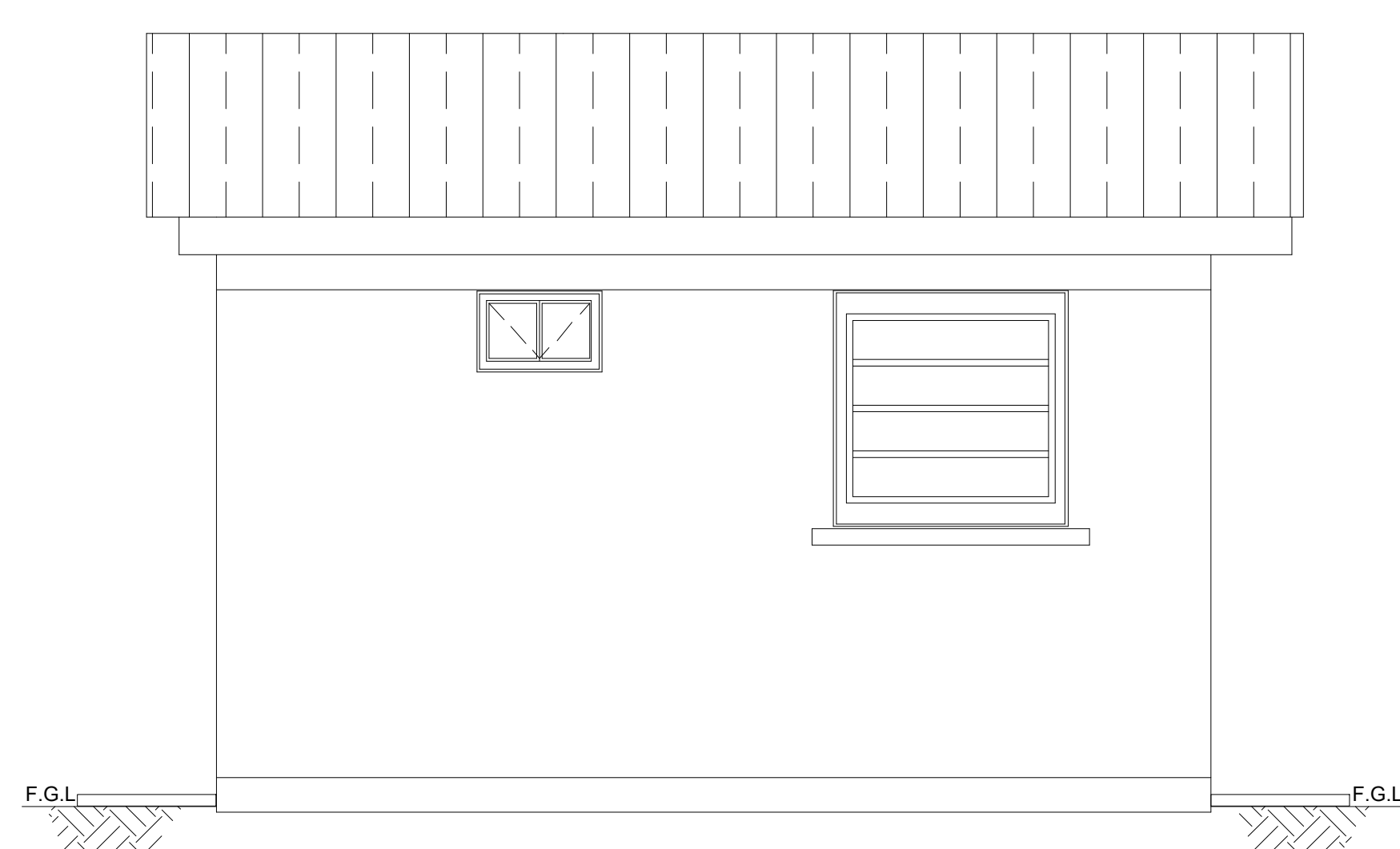
DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
GATE AND FENCE  
DETAILS

Scale: AS SHOWN

Sheet No: 1 / 1

Drawing No:

WFSTP - SD - 2.2.1



ELEVATION C

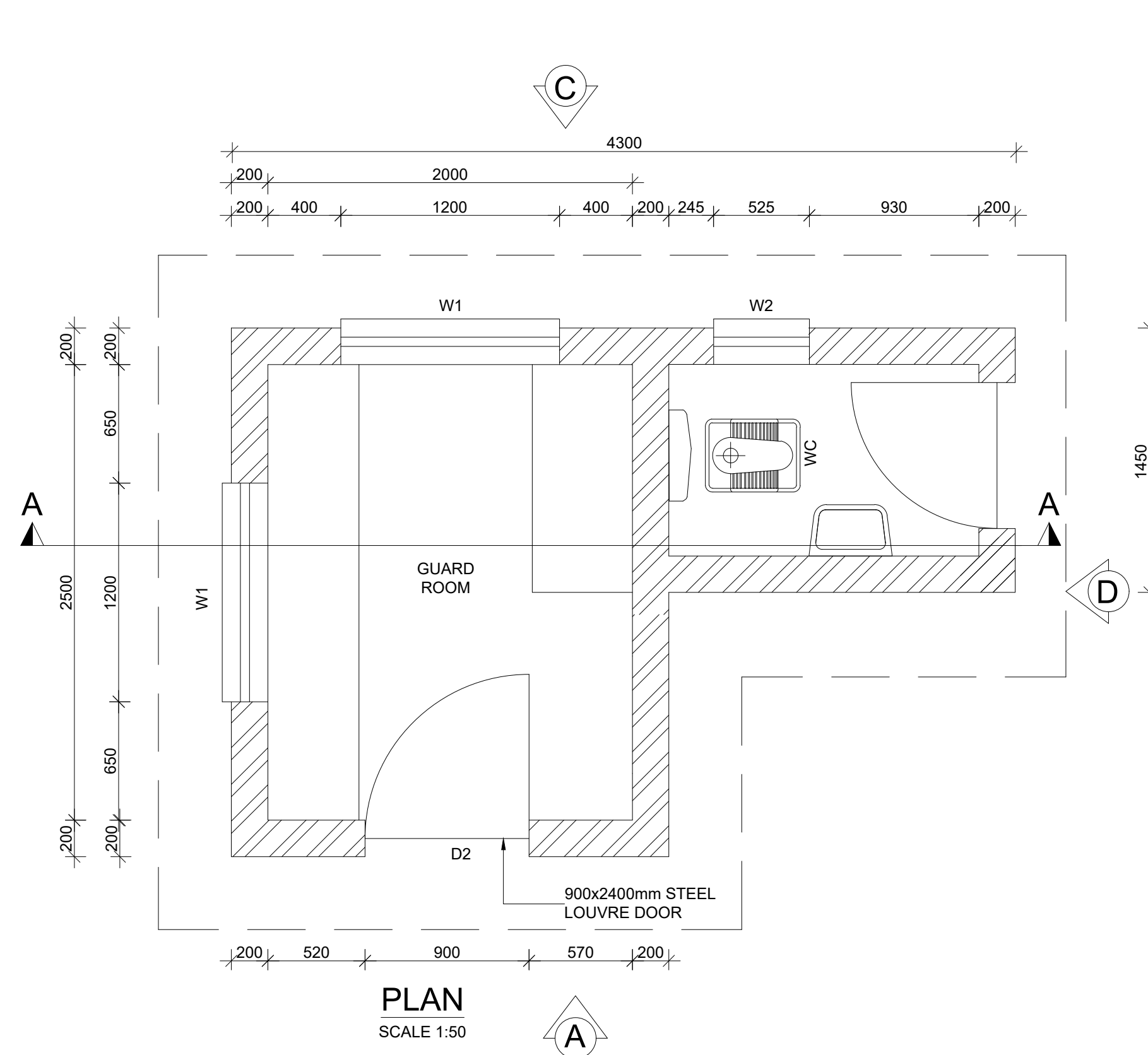
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SCALE 1:50

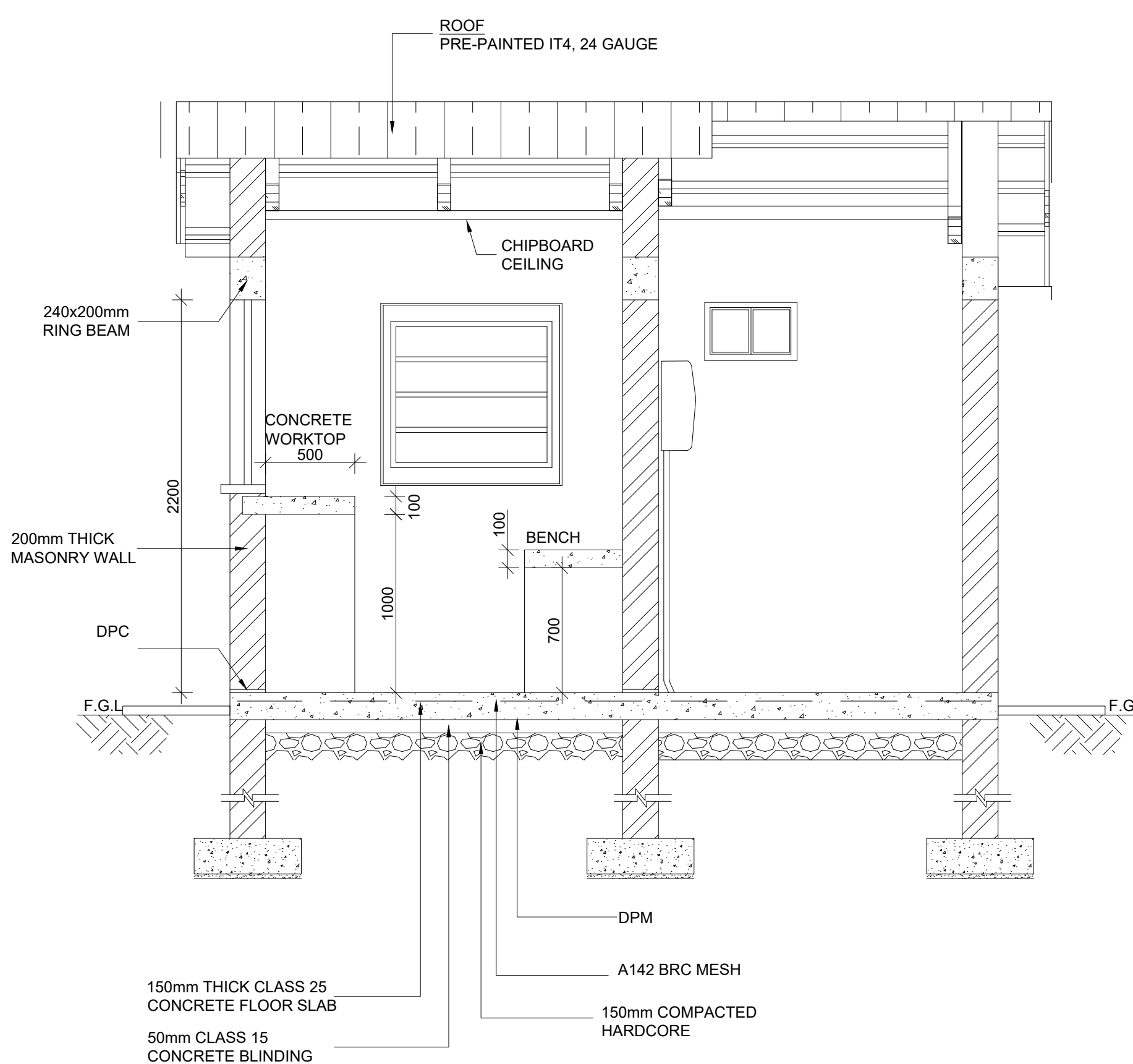
- ## NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
  2. WALLS SHALL BE BUILT OF SOLID CONCRETE BLOCKS OR MASONRY, 150 mm (225 mm) THICK. ALL JOINTS SHALL BE 10 mm.
  3. EXTERNAL FINISH ON CONCRETE BLOCK WALLS SHALL BE 10 mm CEMENT RENDERING WITH TWO COATS EXTERNAL QUALITY WATER PAINT FINISH.
  4. INTERNAL FINISH ON WALLS SHALL BE 10 mm INTERNAL GAUGED LIME PLASTER WITH GLOSS PAINT FINISH
  5. LEVELS OF FOUNDATION TO BE DECIDED ON SITE AFTER EXCAVATION 1000 mm BELOW EXISTING GROUND LEVEL.
  6. CELOTEX CEILINGS SHALL BE PAINTED WITH DISTEMPER.
  7. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH REQUIRED LAYOUT DRAWINGS

LEGEND :

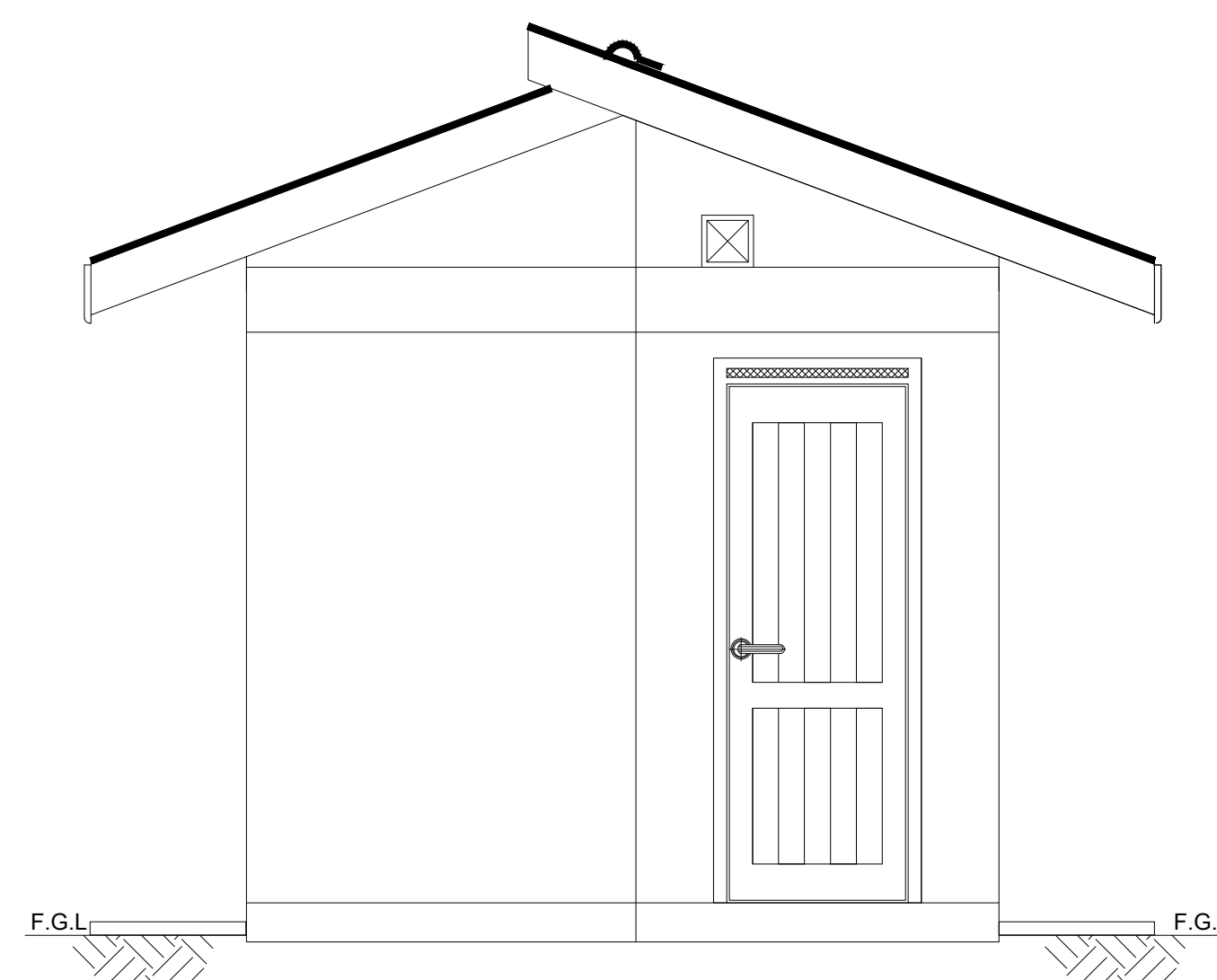
F.G.L FINISHED GROUND LEVEL  
P.V PERMANENT VENTILATION



PLAN  
SCALE 1:50



SECTION A-A  
SCALE 1:50



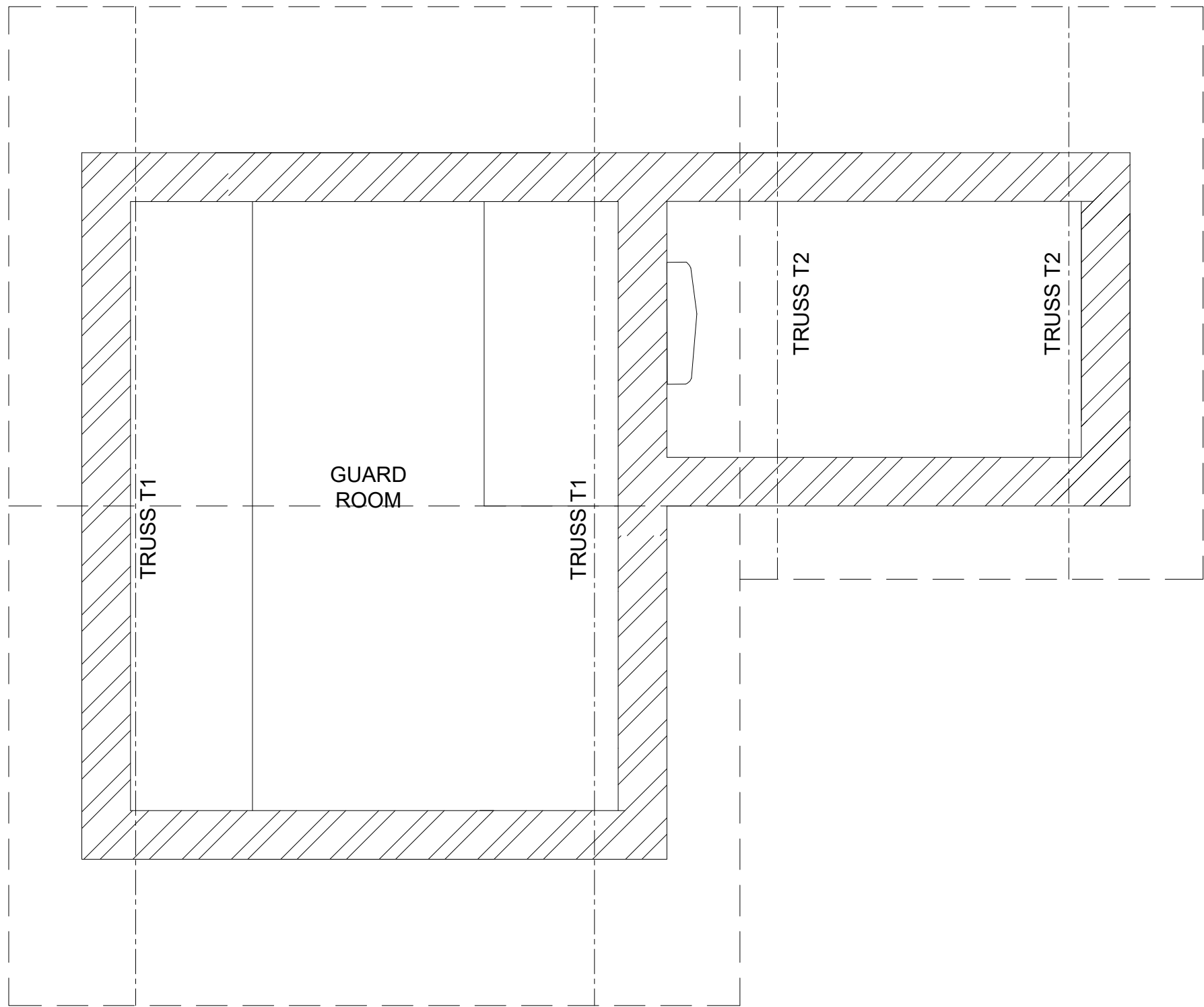
ELEVATION D

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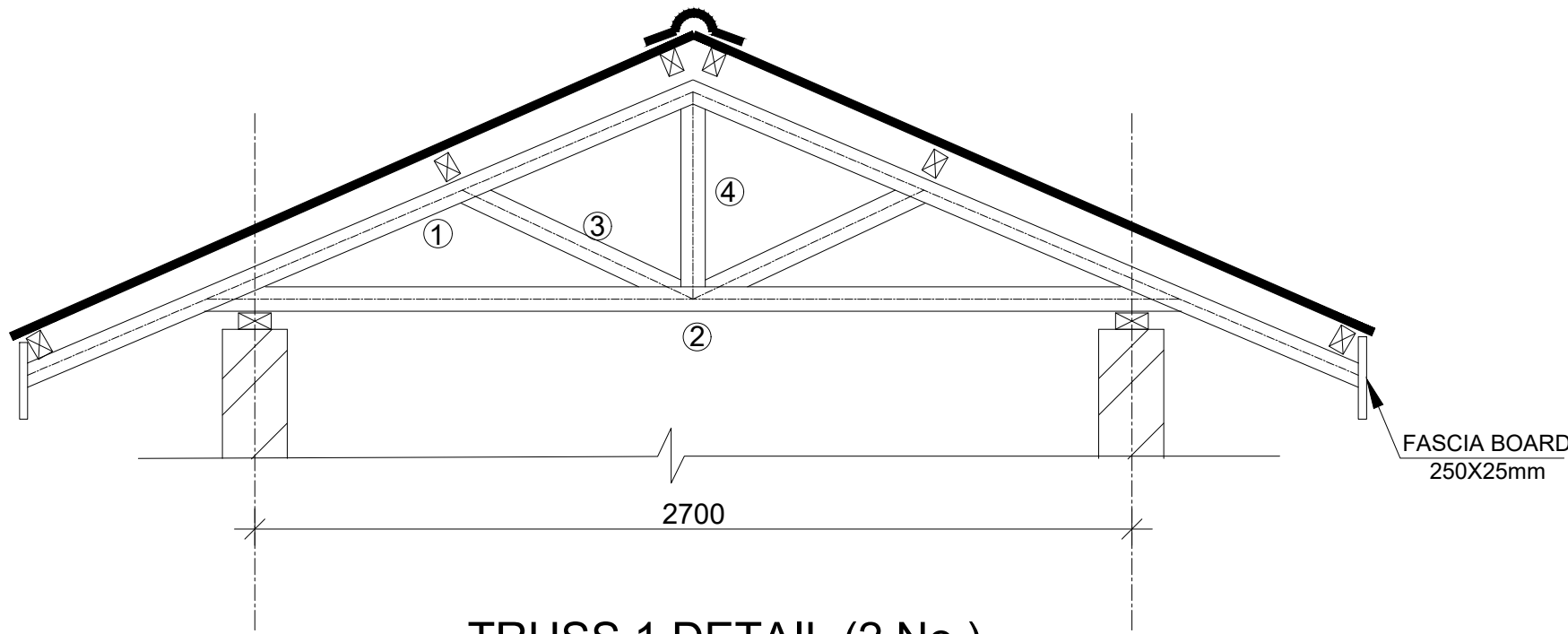
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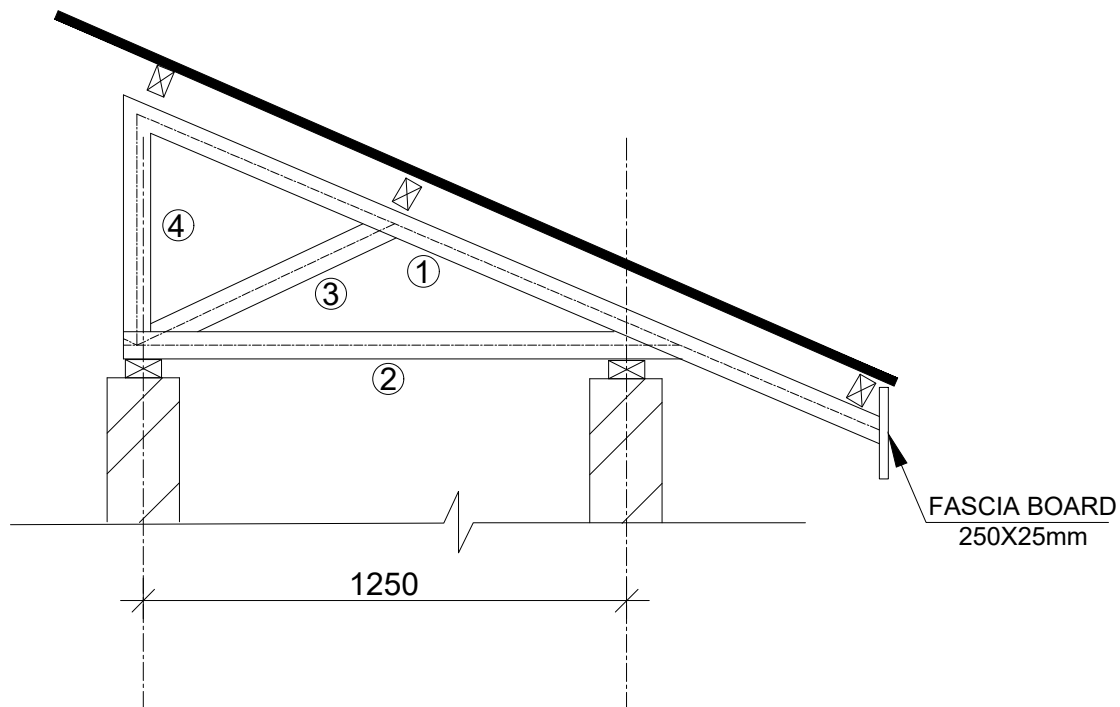


ROOF PLAN  
SCALE 1:50



TRUSS 1 DETAIL (2 No.)  
SCALE 1:40

TRUSS 1 (2 No.)				
NO.	MEMBER LENGTH (mm)	NO. OF	SIZE (mm)	DESCRIPTION
1	2230	2	75 x 50	SINGLE MEMBER
2	3000	1	75 x 50	SINGLE MEMBER
3	780	2	75 x 50	SINGLE MEMBER
4	700	1	75 x 50	SINGLE MEMBER



TRUSS 2 DETAIL (2 No.)  
SCALE 1:40

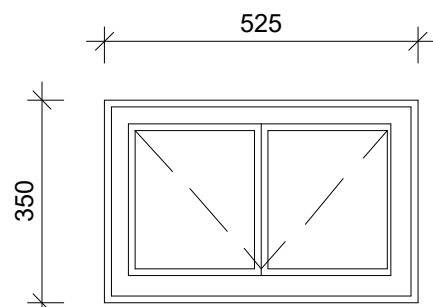
TRUSS 2 (2 No.)				
NO.	MEMBER LENGTH (mm)	NO. OF	SIZE (mm)	DESCRIPTION
1	2500	1	75 x 50	SINGLE MEMBER
2	3440	1	75 x 50	SINGLE MEMBER
3	850	1	75 x 50	SINGLE MEMBER
4	700	1	75 x 50	SINGLE MEMBER

NOTES :

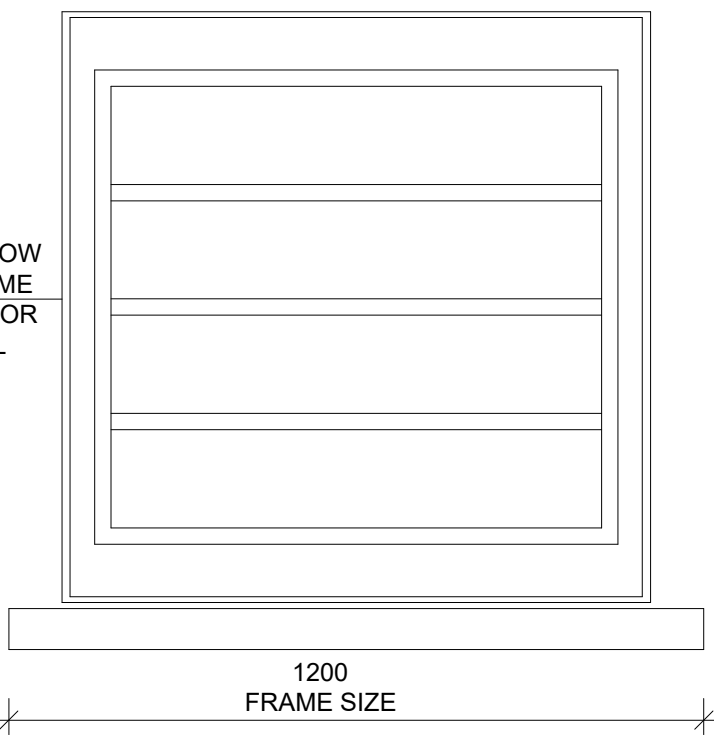
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- CELOTEX CEILINGS SHALL BE PAINTED WITH DISTEMPER.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH REQUIRED LAYOUT DRAWINGS

LEGEND :

F.G.L FINISHED GROUND LEVEL  
P.V PERMANENT VENTILATION



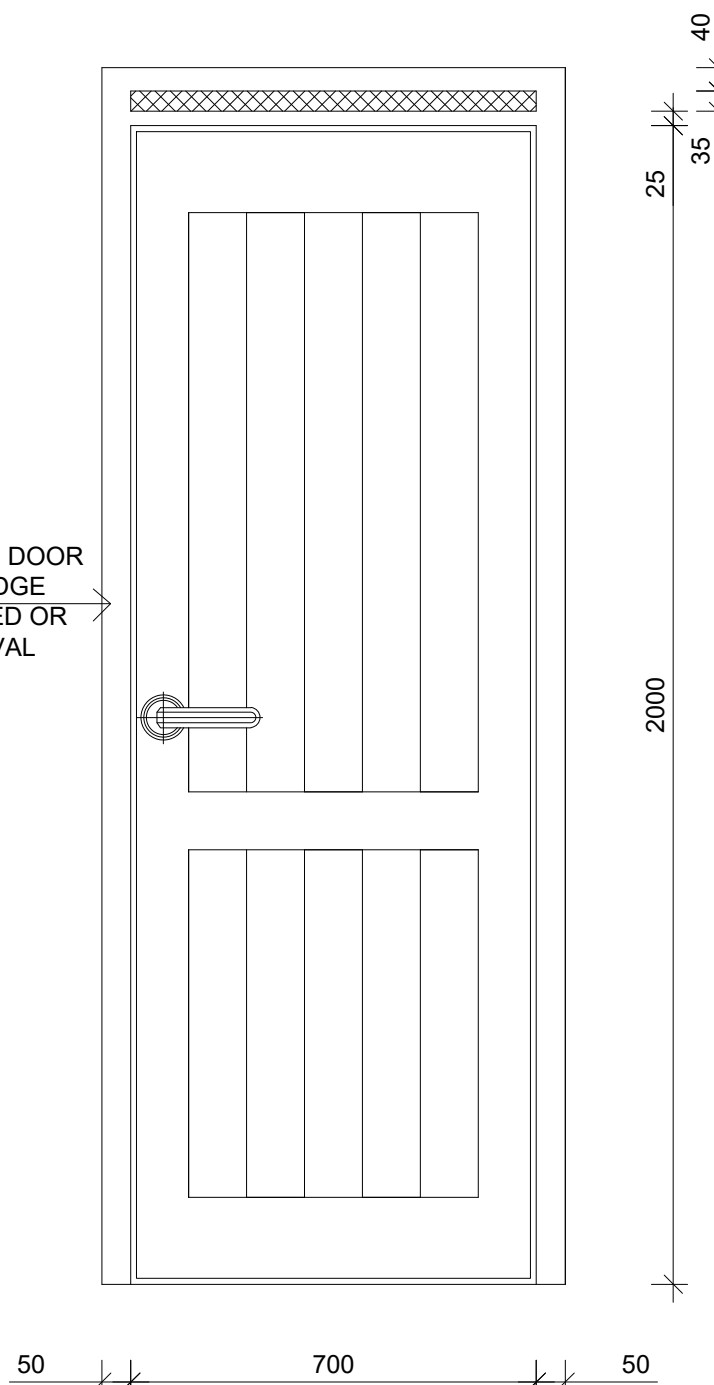
W2 - ELEVATION  
SCALE 1:25



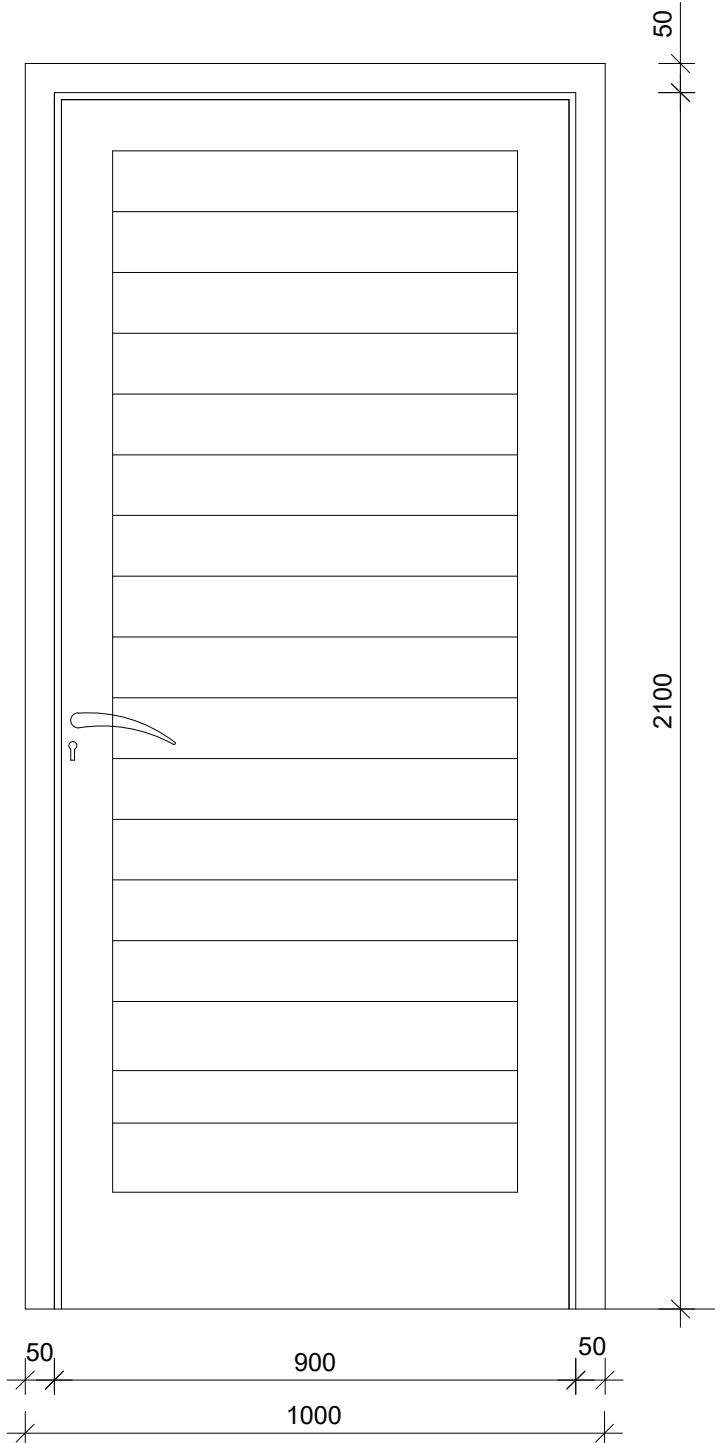
W1 - ELEVATION  
SCALE 1:25

T&G PAINTED FLUSH DOOR WITH HARDWOOD EDGE ALL ROUND POLISHED OR PAINTED TO APPROVAL

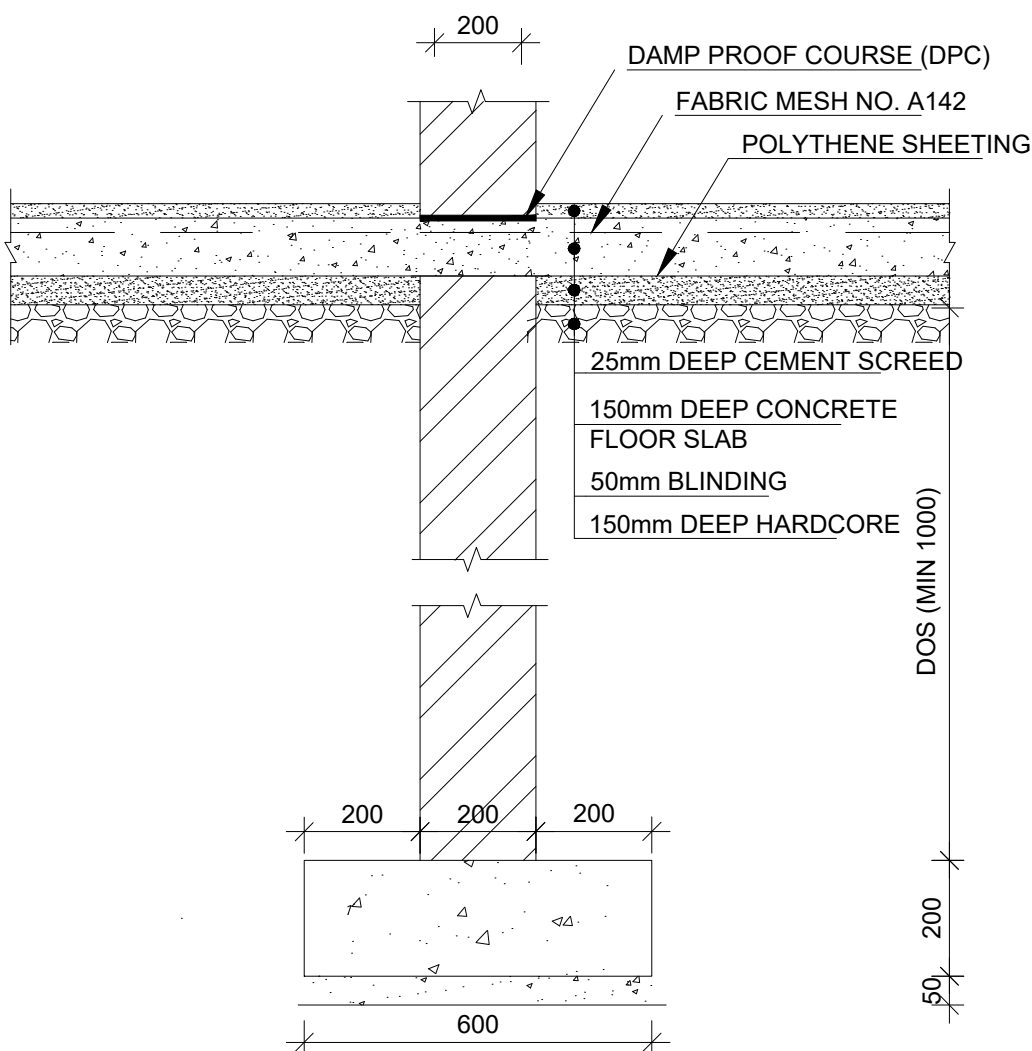
1000 FRAME SIZE  
1020 STRUCTURAL OPENING IN WALL



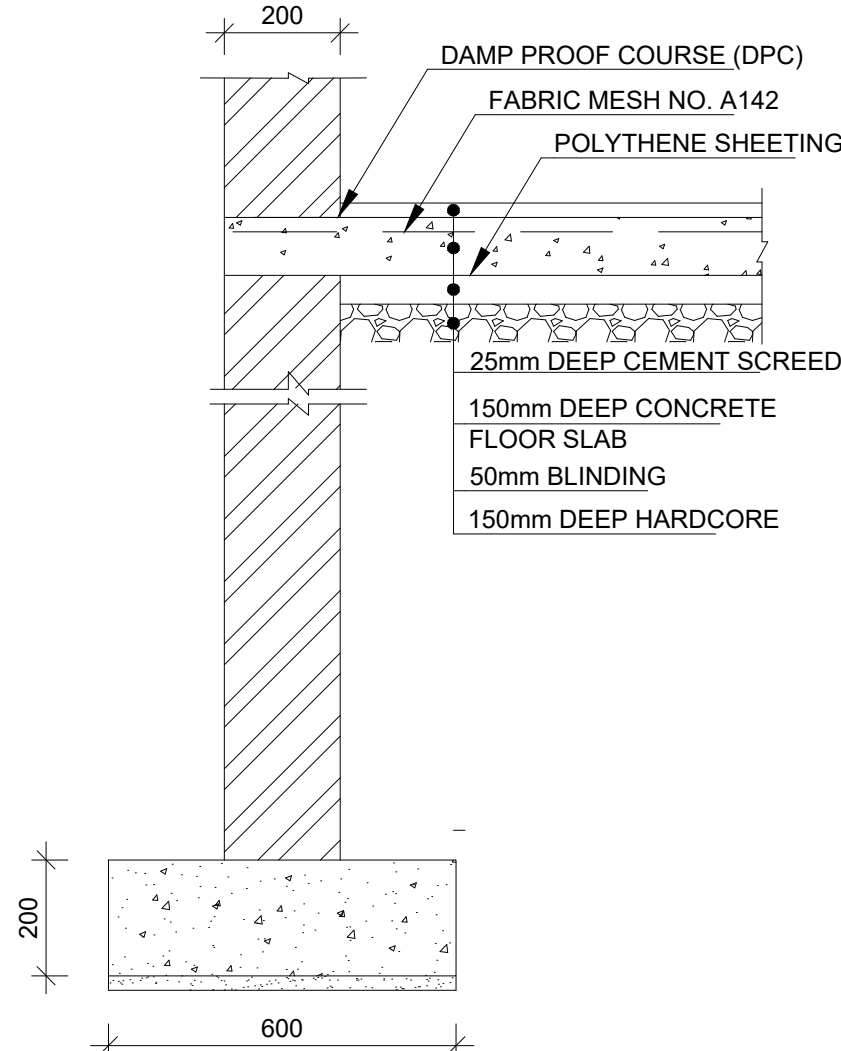
D1 - ELEVATION  
SCALE 1:25



D2 - ELEVATION  
SCALE 1:25



SECTION C-C  
SCALE 1:25



TYPICAL SECTION THROUGH WALL FOOTING  
SCALE 1:25

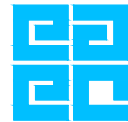
REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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Mara Road, Upper Hill  
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Tel: +254(0)71122960/ 726039006  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

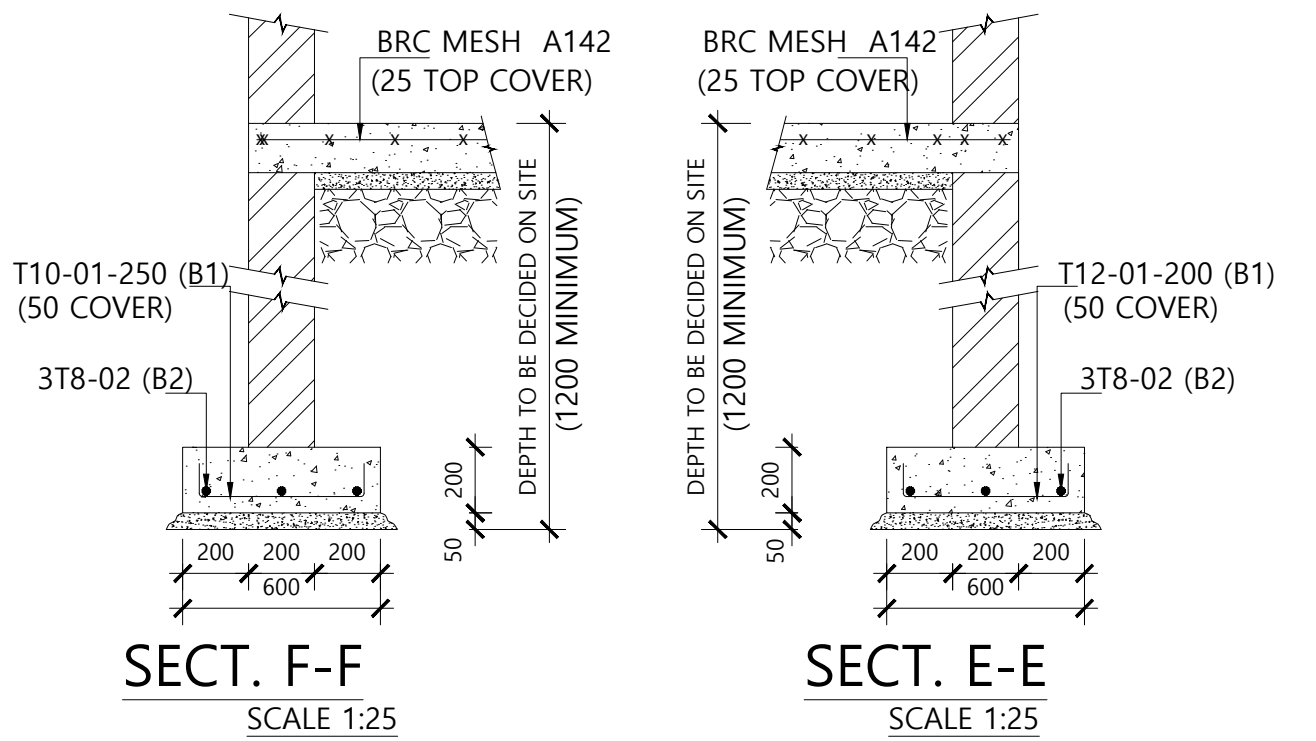
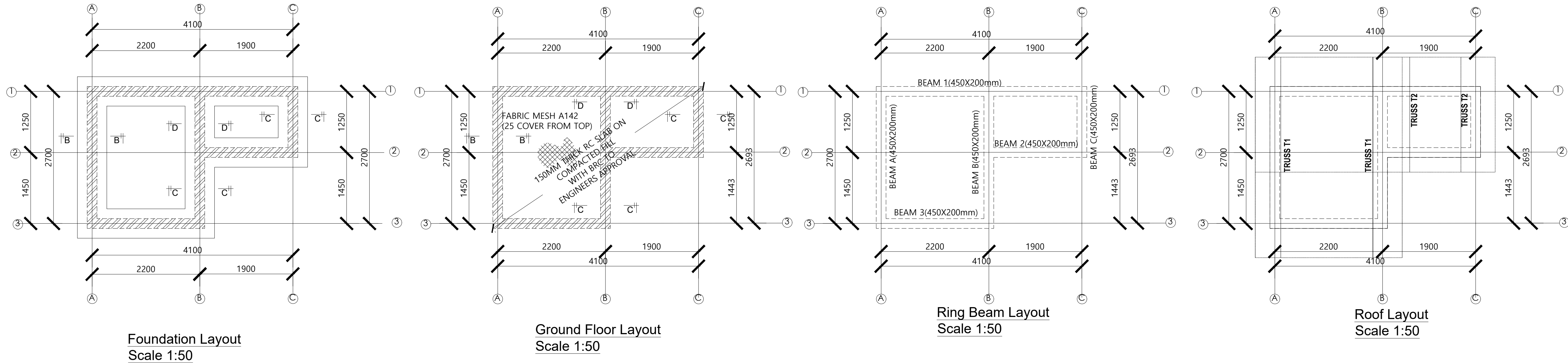


WORLD BANK

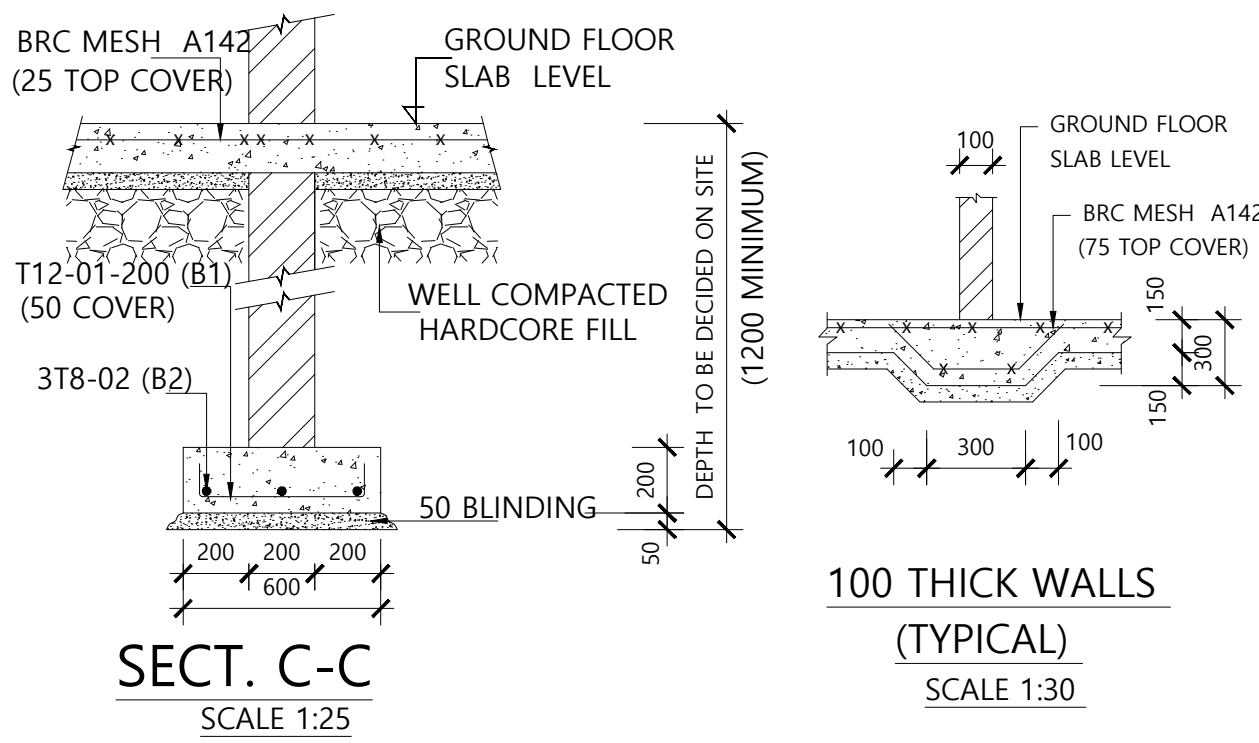
Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
GUARD HOUSE  
ROOF, SECTION AND ELEVATION DETAILS

Scale: AS SHOWN Sheet No: 2 / 3 Drawing No: WFSTP - SD -2.3.1



Typical Ring Beam Section  
Scale 1:25



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
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Mara Road Upperhill  
P. O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)713298007 / 72603806  
E-mail: info@systelengineering.com

in  
cooperation  
with

**EAST AFRICAN  
ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72398-00201, Nairobi, Kenya  
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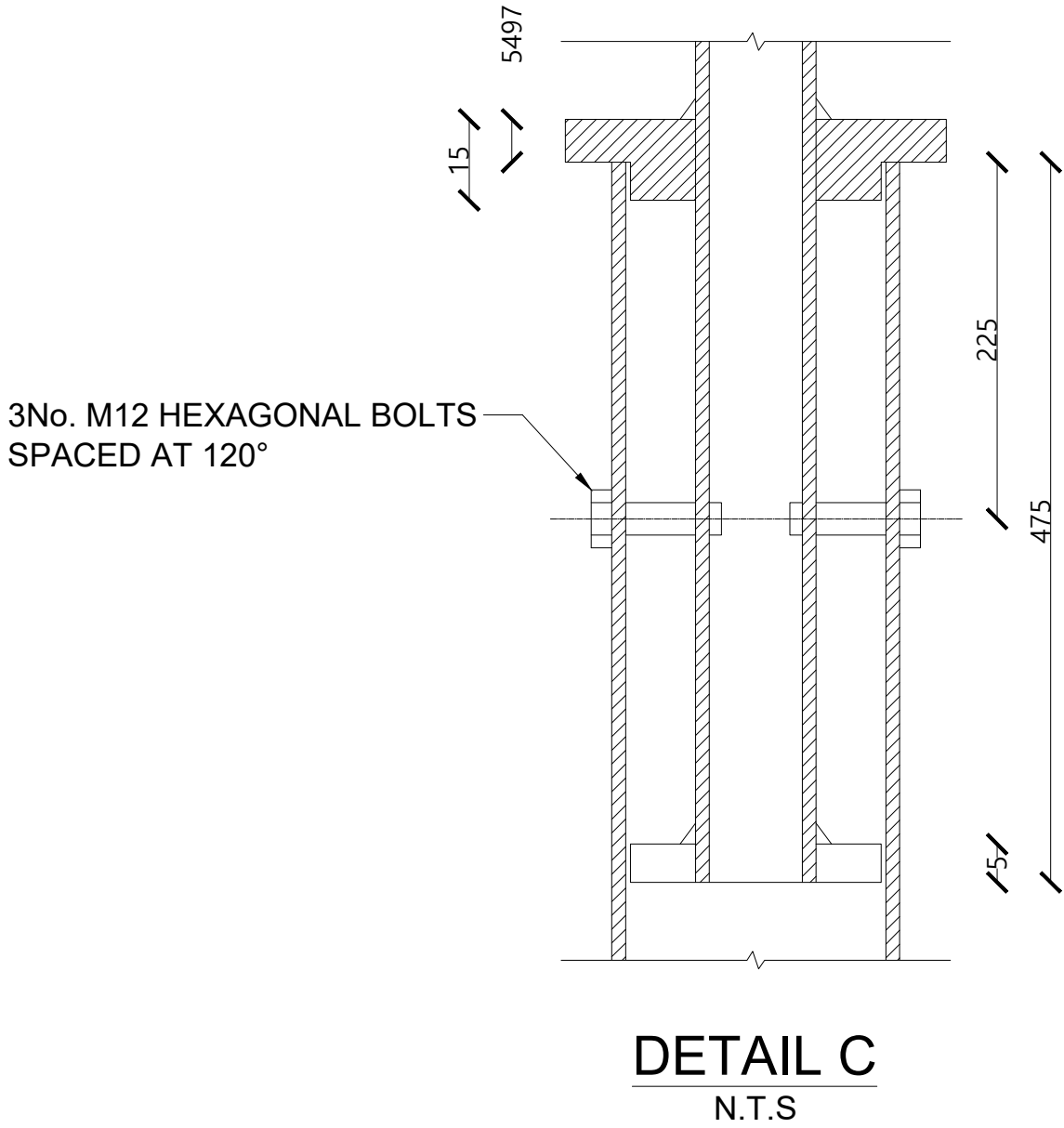
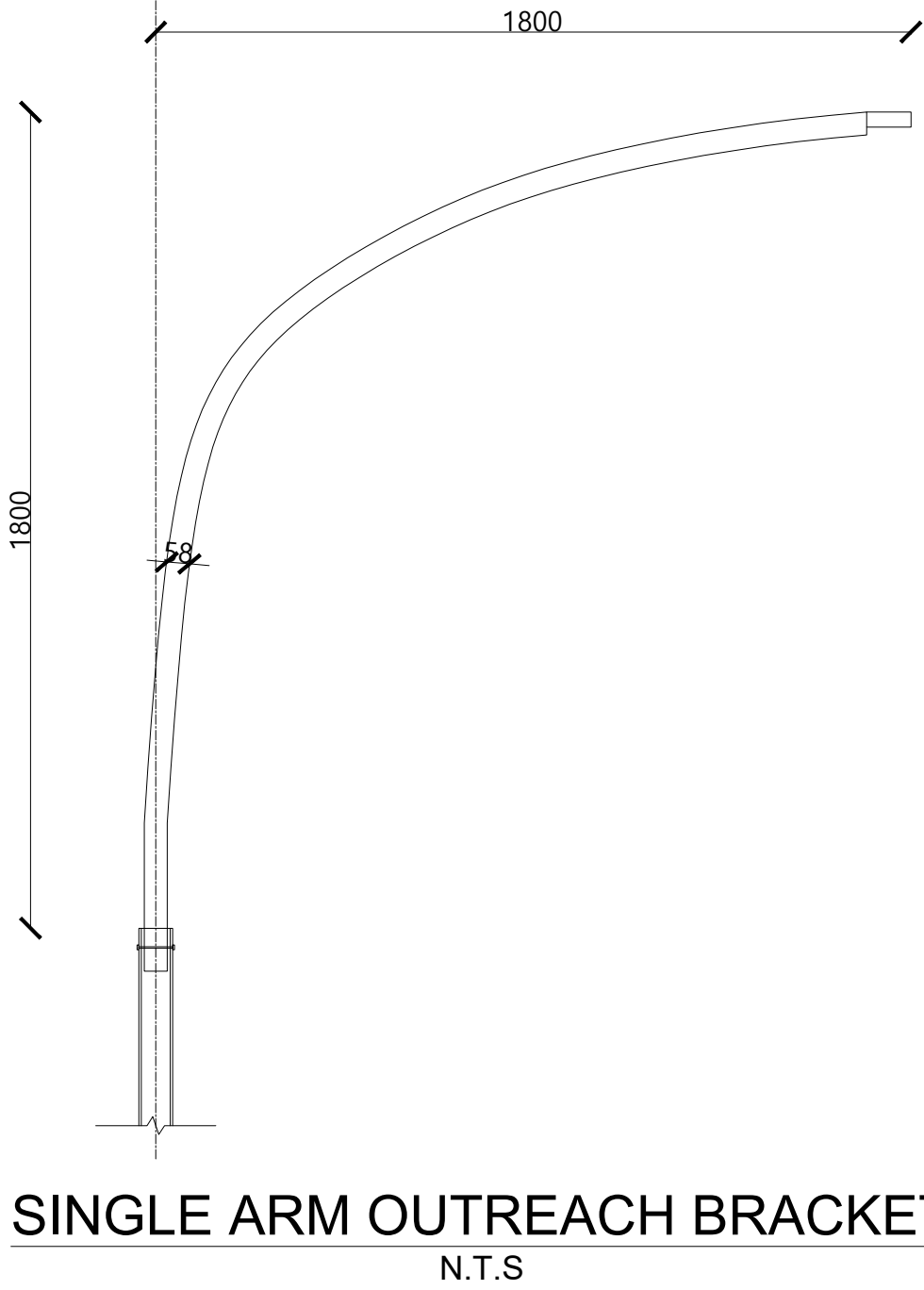
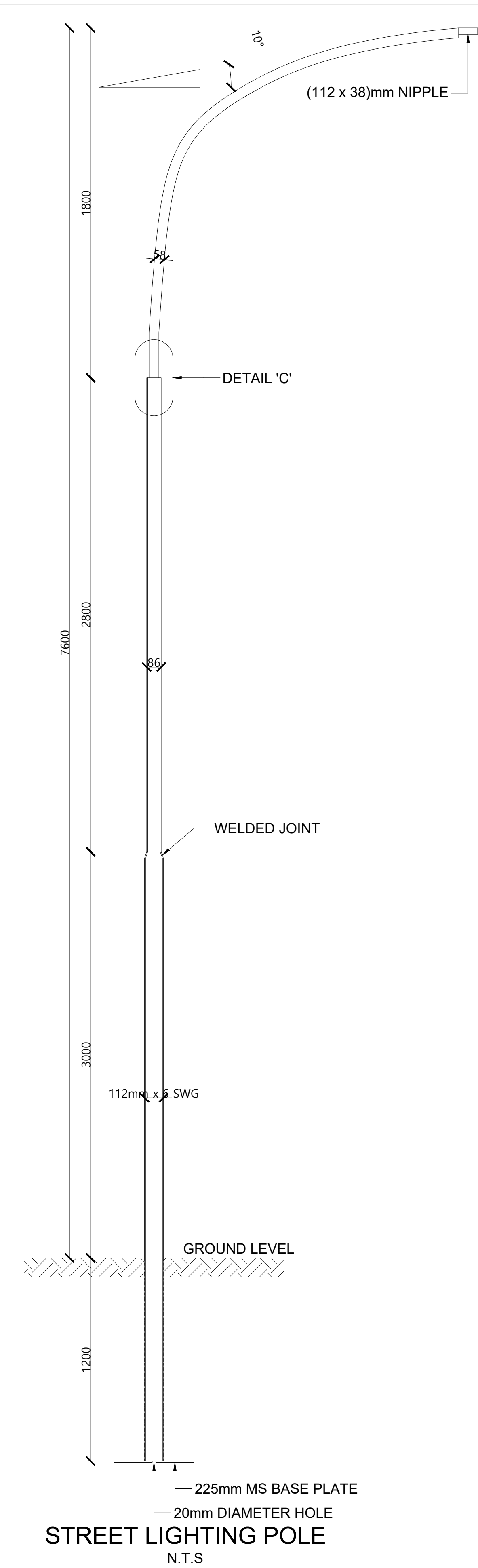
**Sanivation**  
Sanitation as a Service  
**SANIVATION LIMITED**  
Villa View Estate, Moi South Lake Road, Naivasha.  
P.O.Box 252 Naivasha Kenya  
Tel: +25472945935, +254728679842  
E-mail: info@sanivation.com  
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Drawn by: J.K.M Date: SEP 2024  
Designed by: G.S.O Date: SEP 2024  
Checked by: T.J.O Date: SEP 2024  
Approved by: J.K.W Date: SEP 2024  
Project No:  
Contract No:

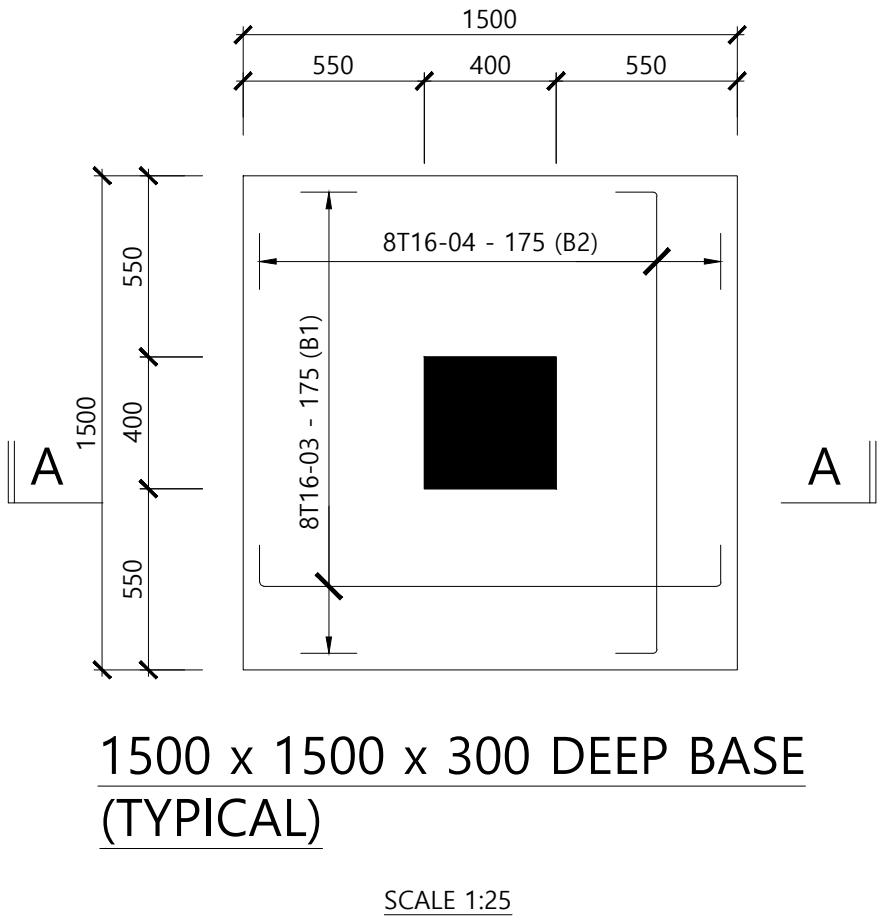
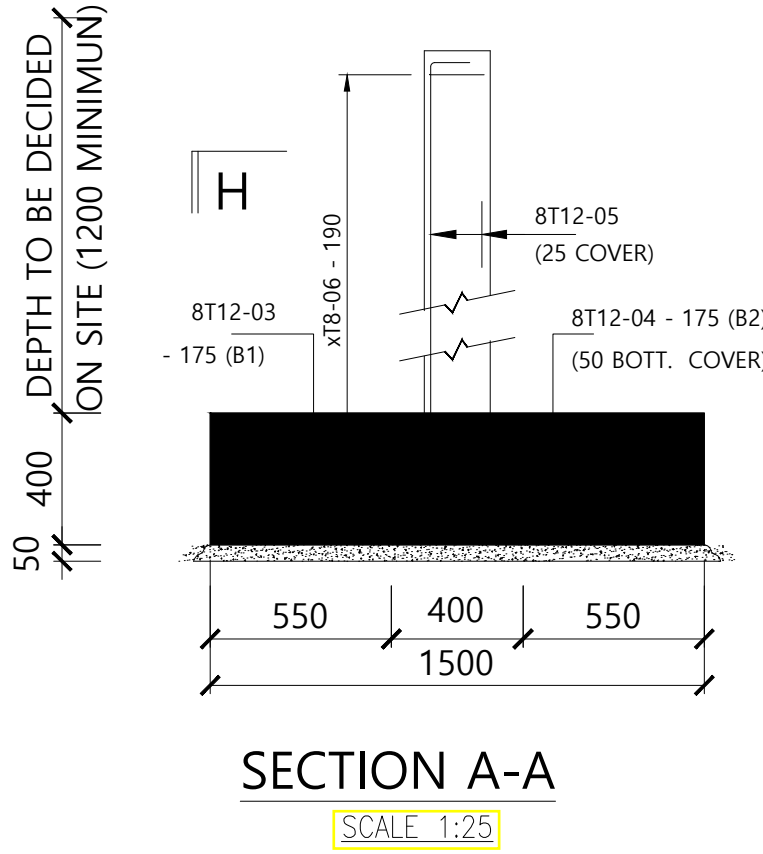
Client:  
**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**  
Financier:  
**WORLD BANK**

Project:  
CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY  
Drawing Title:  
DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
GUARD HOUSE  
LAYOUT, BEAMS AND COLUMNS REINFORCEMENT DETAILS  
Scale: AS SHOWN Sheet No: 3 / 3 Drawing No: WFSTP-SD-2.3.1





120 WATTS INTERGRATED  
SOLAR STREET LIGHT (3D VIEW)  
N.T.S



REV	Description	Sign	Date	Approved
REVISIONS				

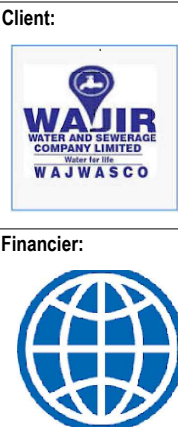
Design Consultant:  
**SYSTEL**  
ENGINEERING LTD  
5th Floor Wing B, CIC Plaza  
Mara Road Upperhill  
P. O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)713298007 / 72603806  
E-mail: consulting@systelengineering.com

in  
cooperation  
with

**EAST AFRICAN  
ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72395-00200, Nairobi, Kenya  
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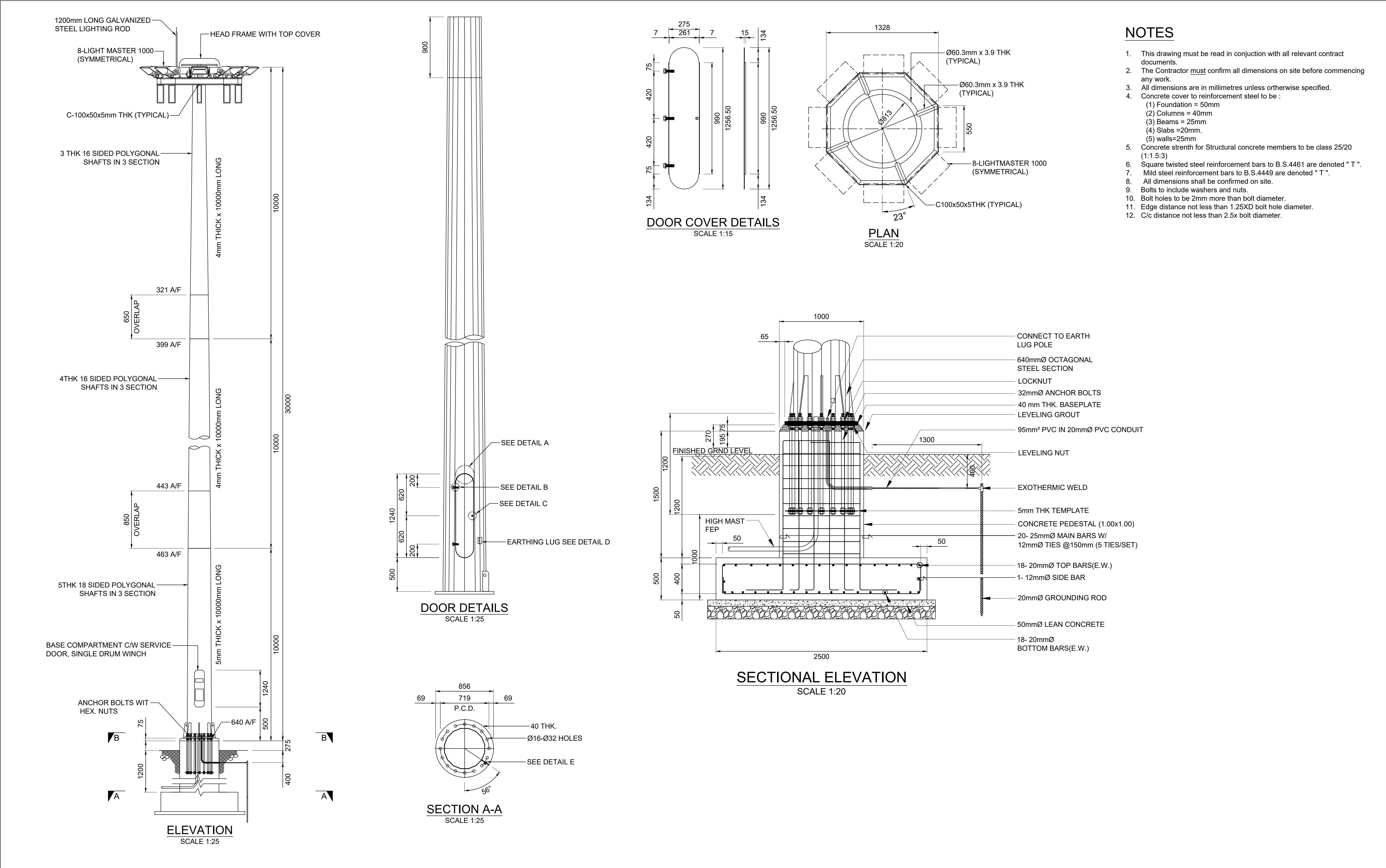
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**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

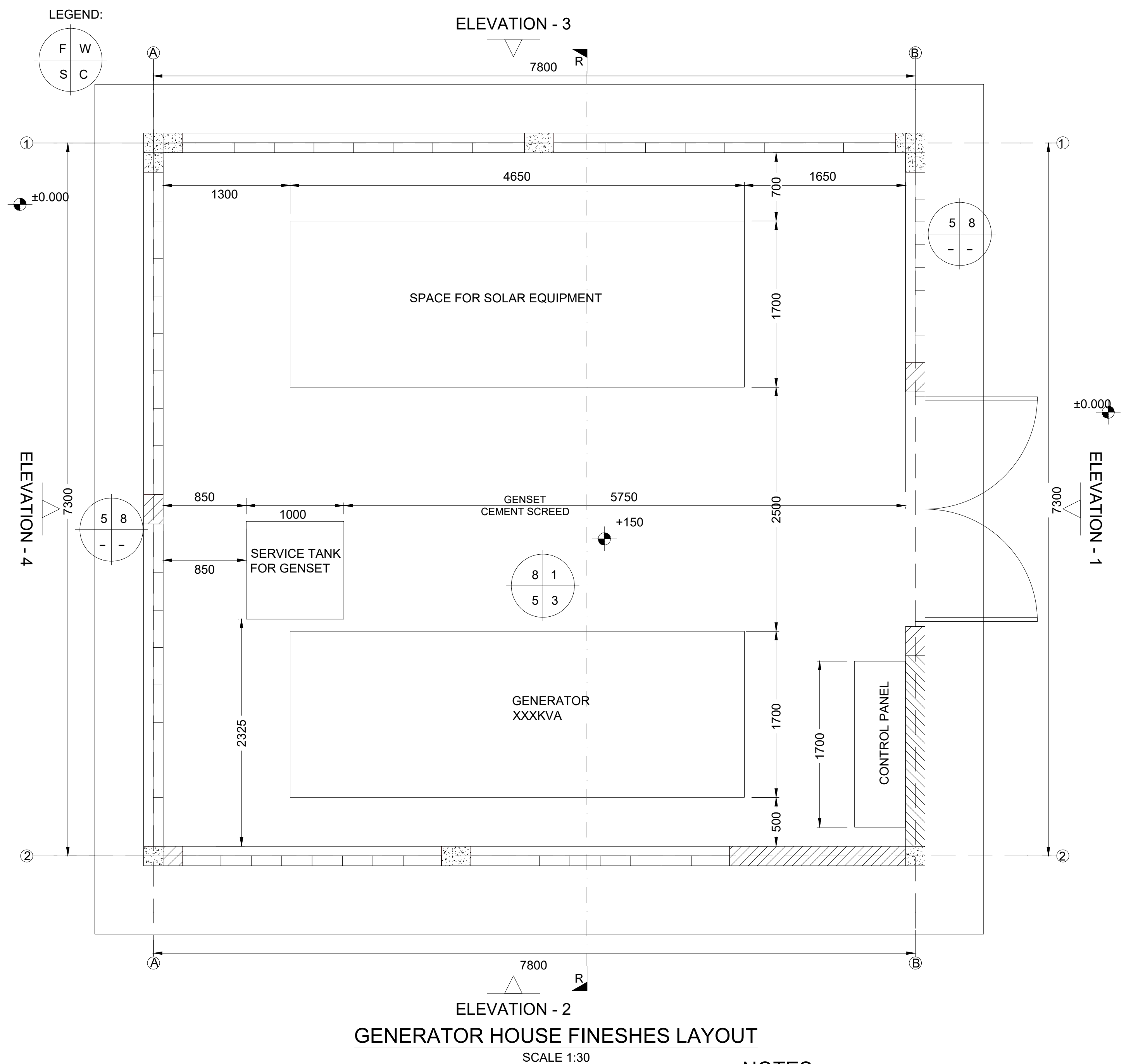
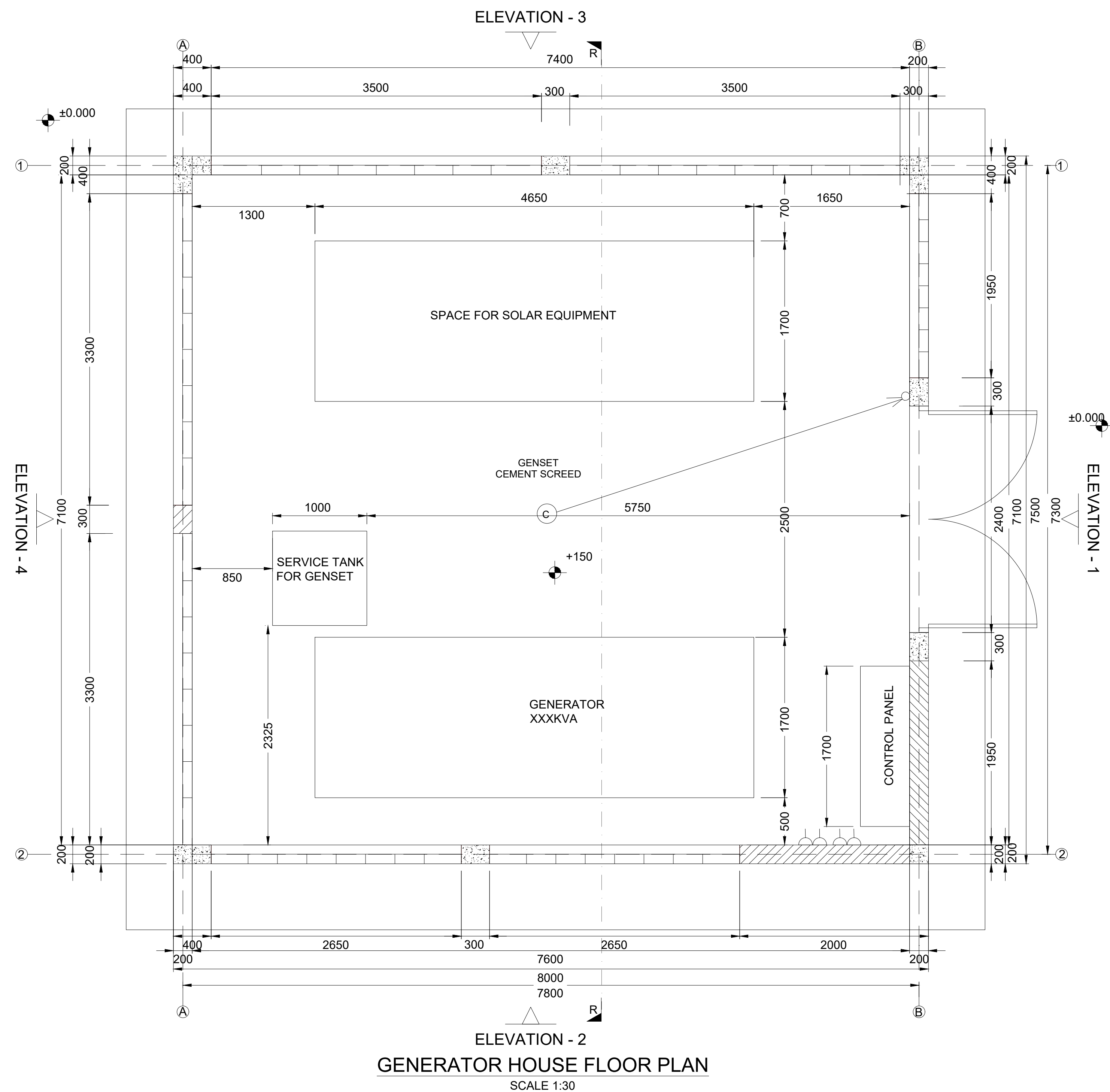
**WORLD BANK**

Project:			CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY
Drawing Title:			DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SOLAR SECURITY LIGHTING POLE PLAN, SECTION AND REINFORCEMENT DETAILS
Scale:	AS SHOWN	Sheet No:	1 / 1
Drawing No:		WFSTP-SD - 2.4.1	



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NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.
3. ALL EXPOSED CONCRETE EDGES TO HAVE A 25x25mm CHAMFER.
4. CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE SPECIFIED OTHERWISE
5. ALL VENT BLOCKS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
6. FOR FINISHES SCHEDULE REFER TO DRAWING NO: WFSTP - SD - 2.9.1

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



**SYSTEL**  
ENGINEERING LTD

in  
cooperation  
with





**Sanivation**  
sanitation design services

**Systel Engineering Limited**

5th Floor, Wing II, CIC Plaza  
Mara Road Upperhill  
P. O. Box 19109 - 00100 Nairobi, Kenya  
Tel: +254(0)719329980/ 726039006  
Email: consulting@systelengineering.com



**EAST AFRICAN  
ENGINEERING CONSULTANTS**

Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72398-00200, Nairobi, Kenya  
Tel: +254-20-2714514/516, +254-20-2715861, +254-20-2527995  
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<p>Client:</p> 	<p>WAJIR WATER AND SEWERAGE COMPANY LIMITED</p>
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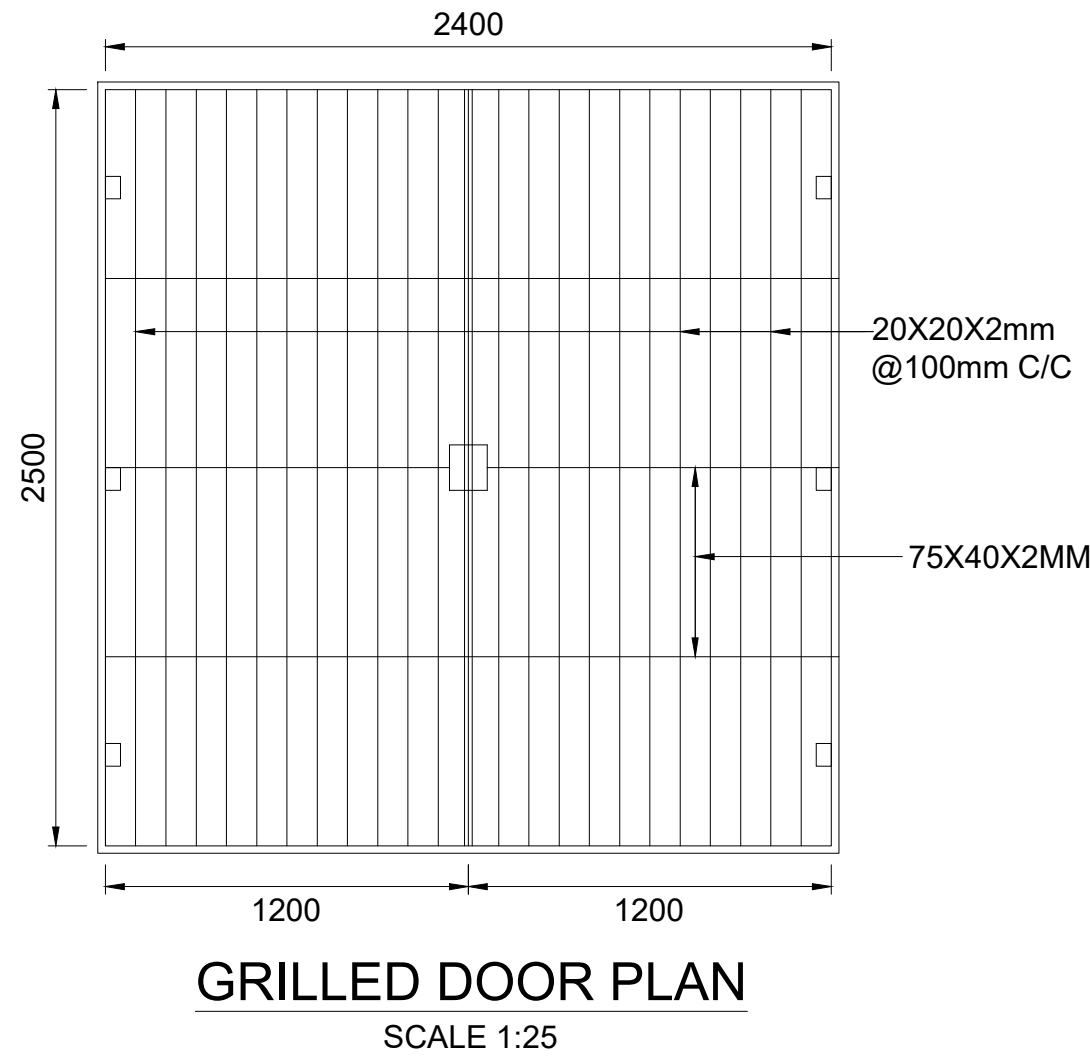
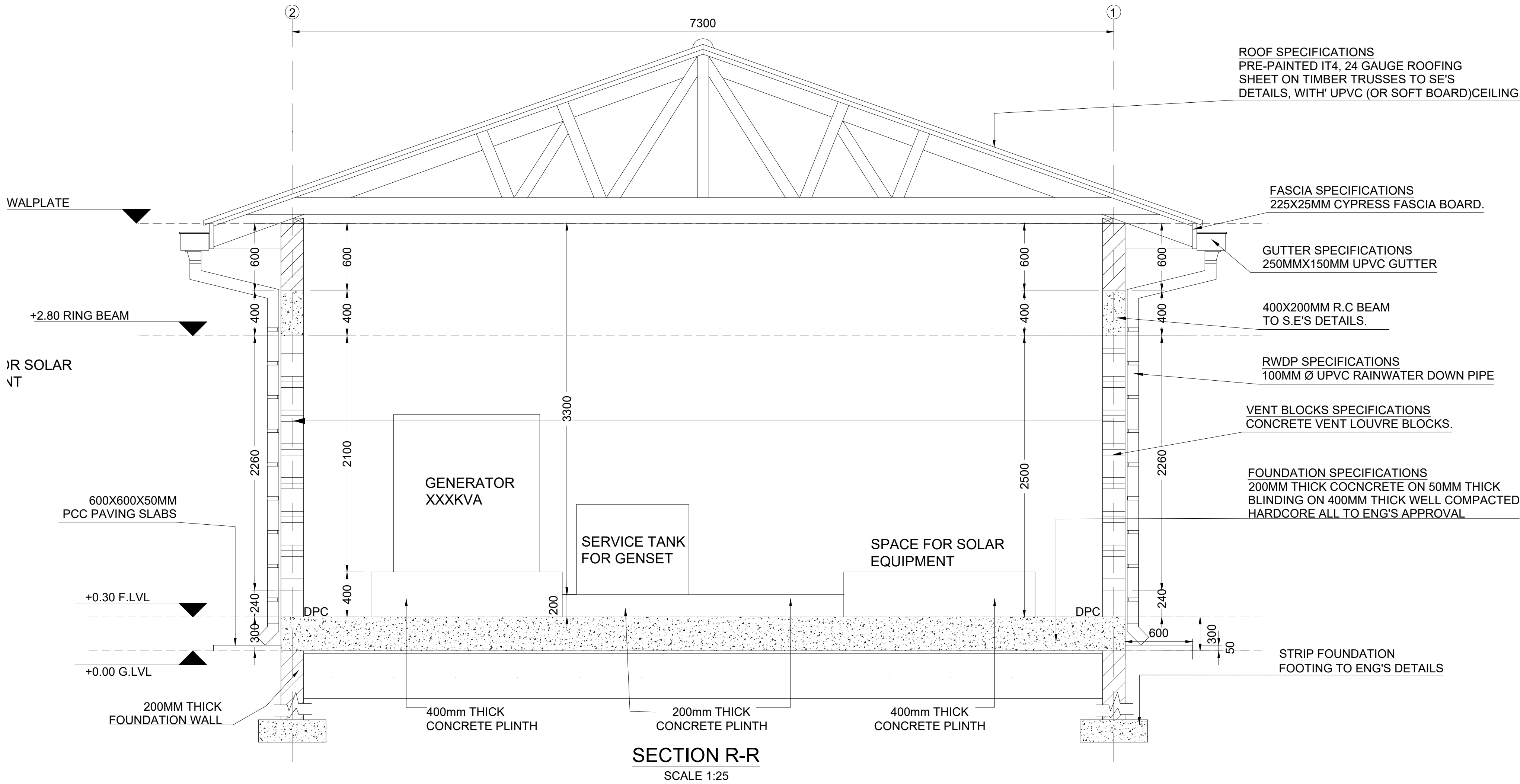
Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT GENERATOR HOUSE PLAN			
Scale:	AS SHOWN	Sheet No:	1 / 5
		Drawing No:	WFSTP - SD - 2.5.1

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
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3. ALL EXPOSED CONCRETE EDGES TO HAVE A 25x25mm CHAMFER.
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5. ALL VENT BLOCKS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
6. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO.WFSTP - SD - 2.9.1

LEGENDS

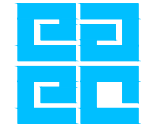
1. RC - REINFORCED CONCRETE
2. M.S - MILD STEEL
3. F.G.L - FINISHED GROUND LEVEL
4. P.C.C - PRECAST CONCRETE
5. F.S.L - FULL SUPPLY LEVEL



REV	Description	Sign	Date	Approved
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Design Consultant:  
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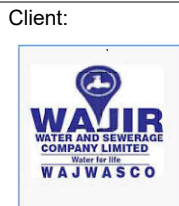


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**WAJIR WATER AND SEWERAGE  
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**WORLD BANK**

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Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT GENERATOR HOUSE SECTIONS AND DETAILS			
Scale: AS SHOWN	Sheet No: 2 / 5	Drawing No: WFSTP - SD - 2.5.1	

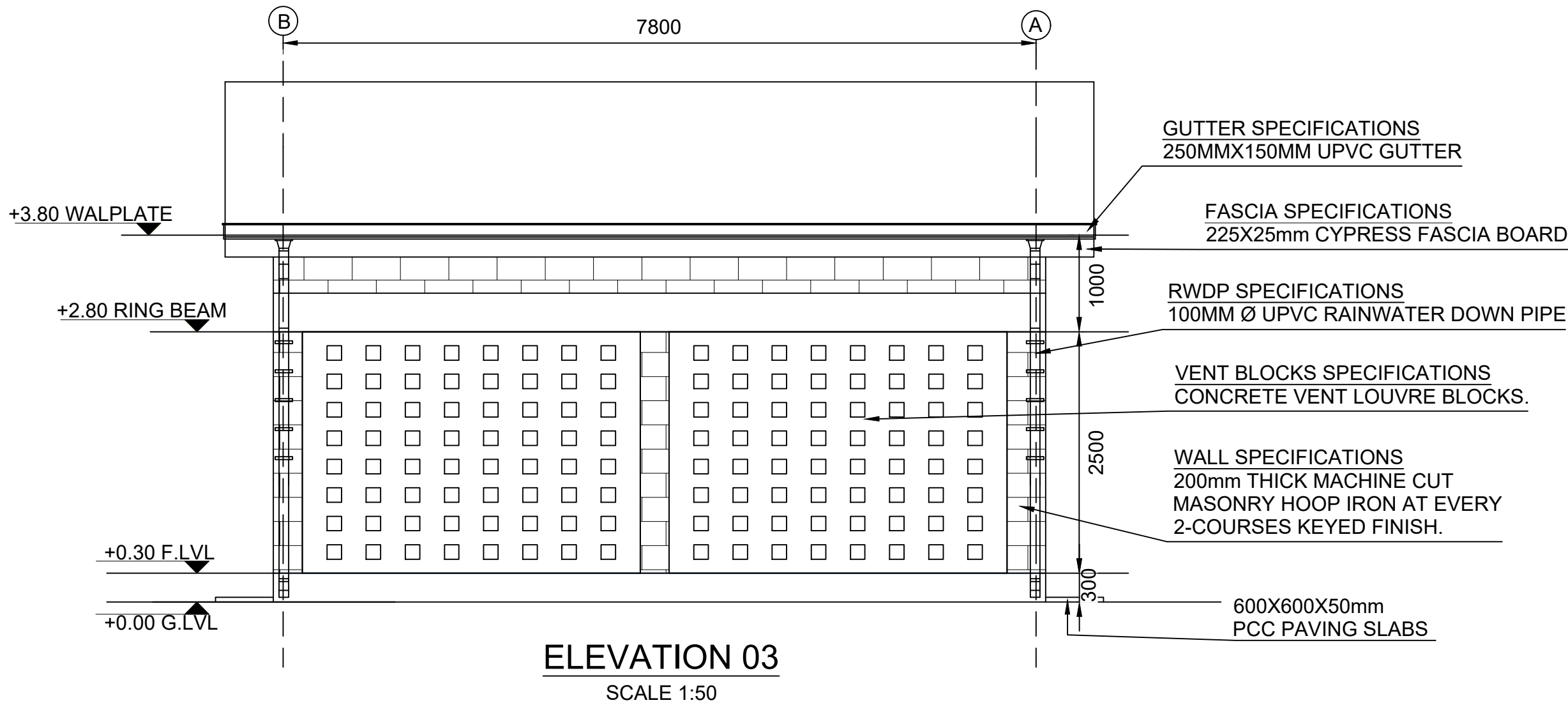
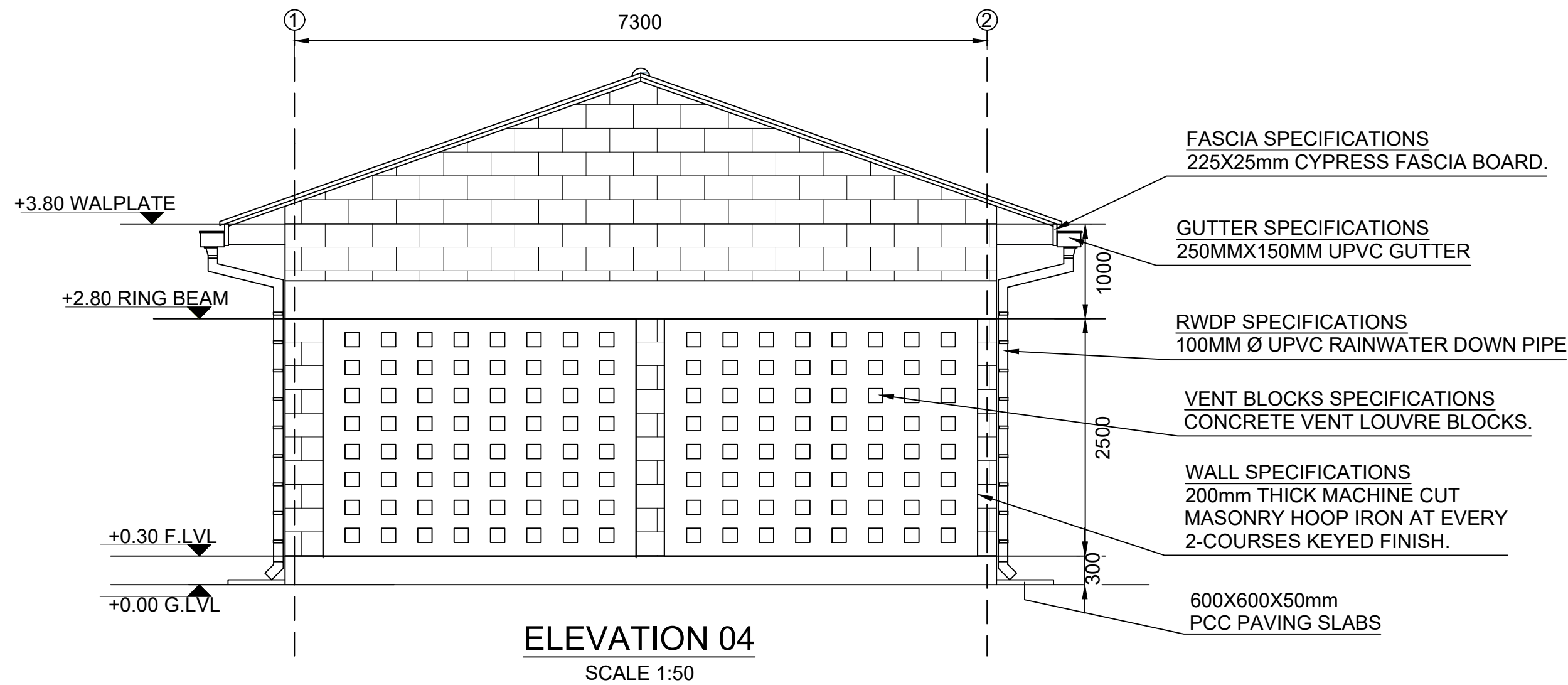
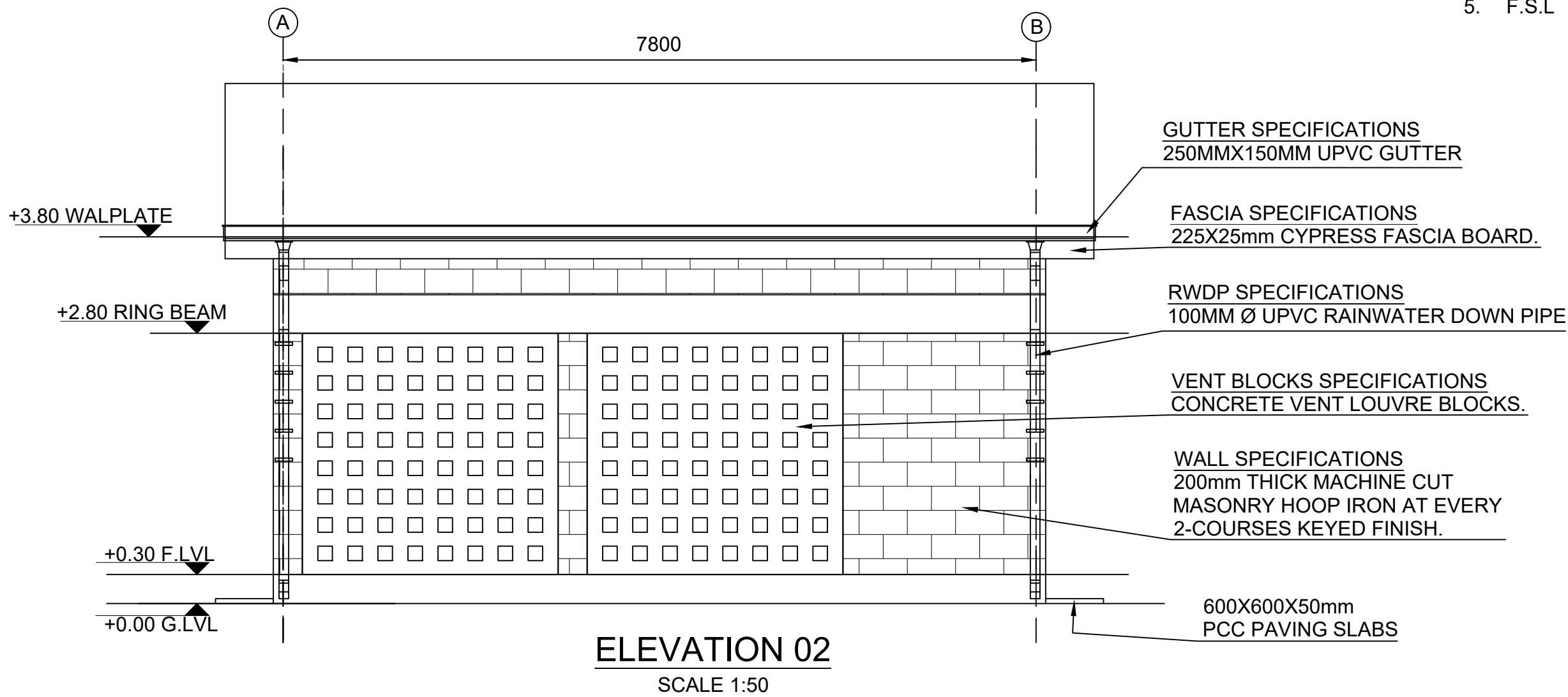
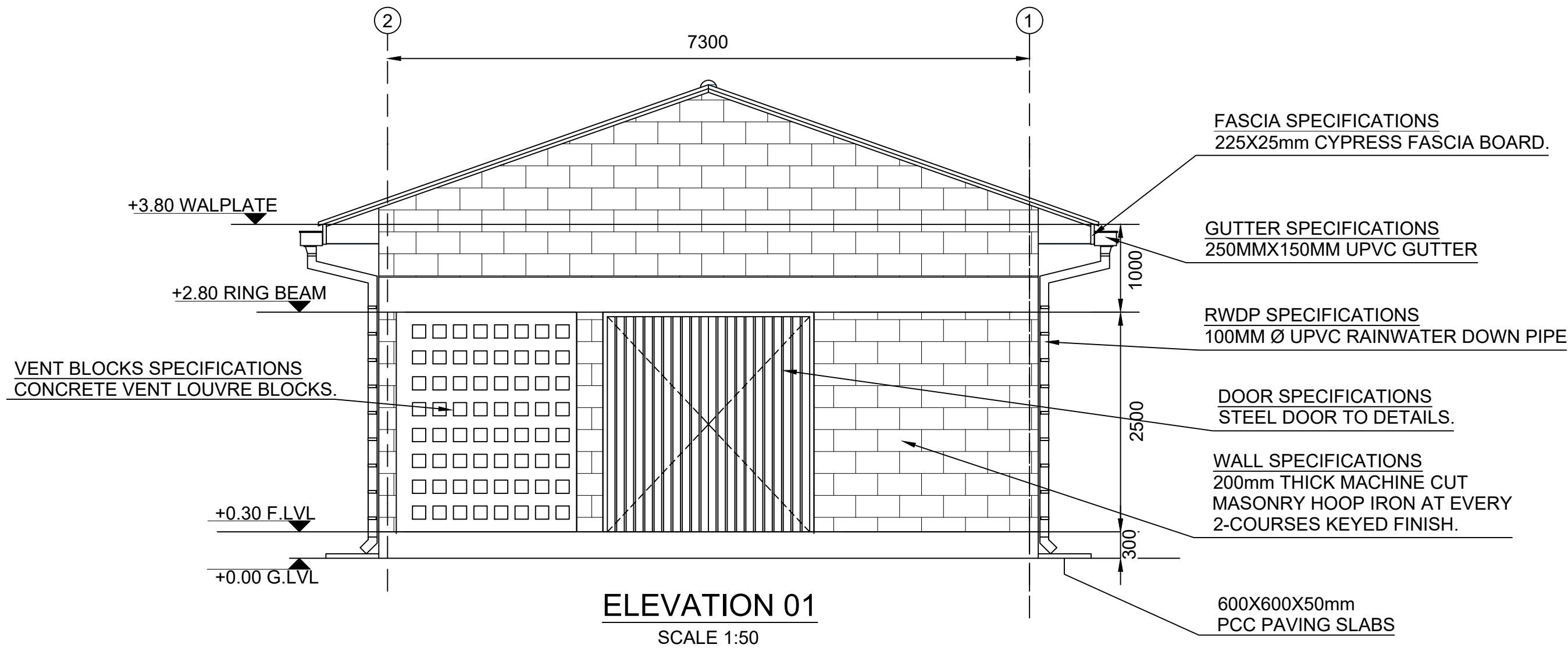


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6. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO.WFSTP - SD - 2.9.1

LEGENDS

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REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:

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ENGINEERING LTD

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Mara Road, Upperhill  
P.O. Box 191109 - 00100 Nairobi, Kenya  
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E-mail: consulting@systelengineering.com

in cooperation with

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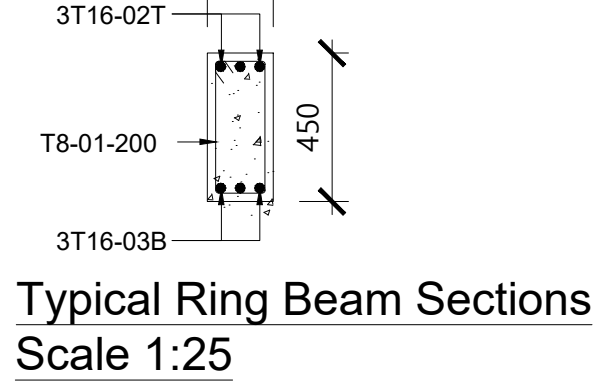
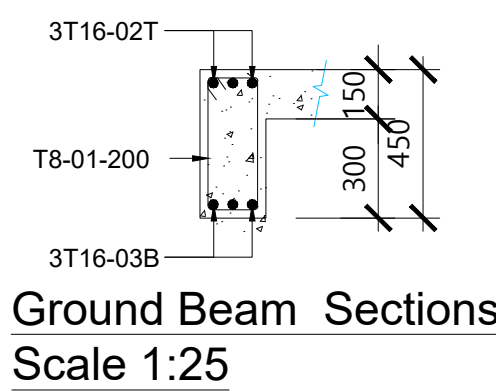
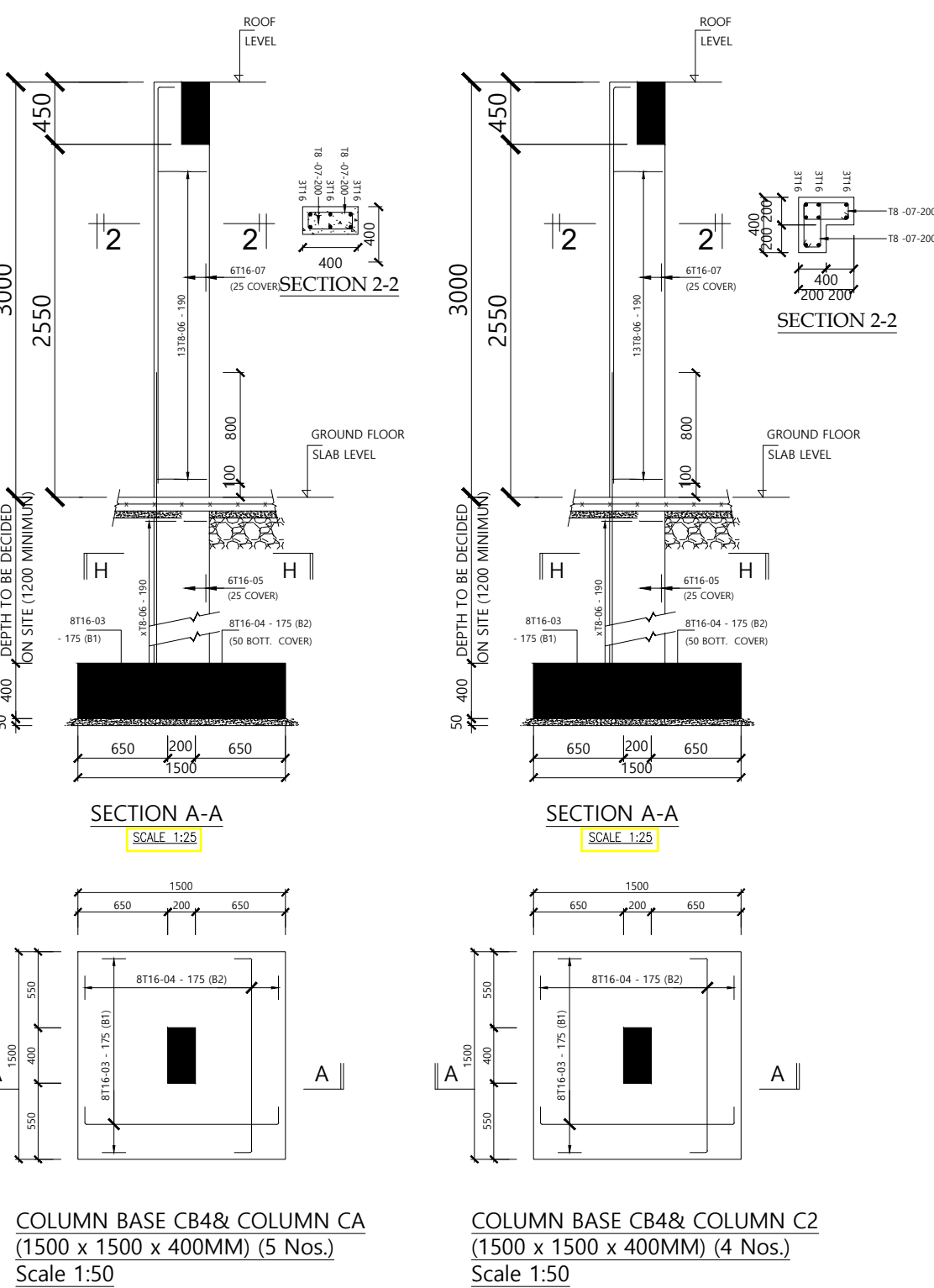
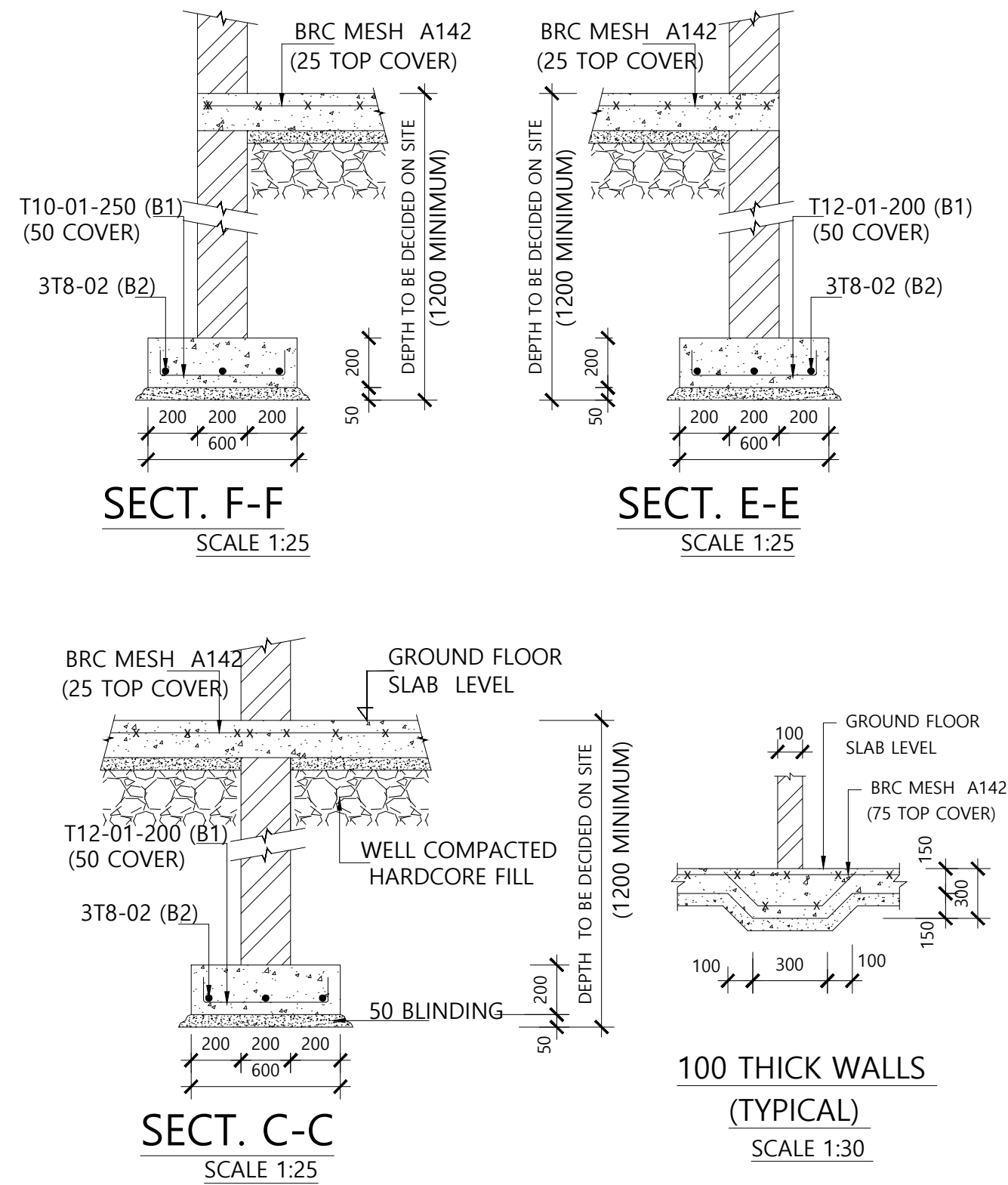
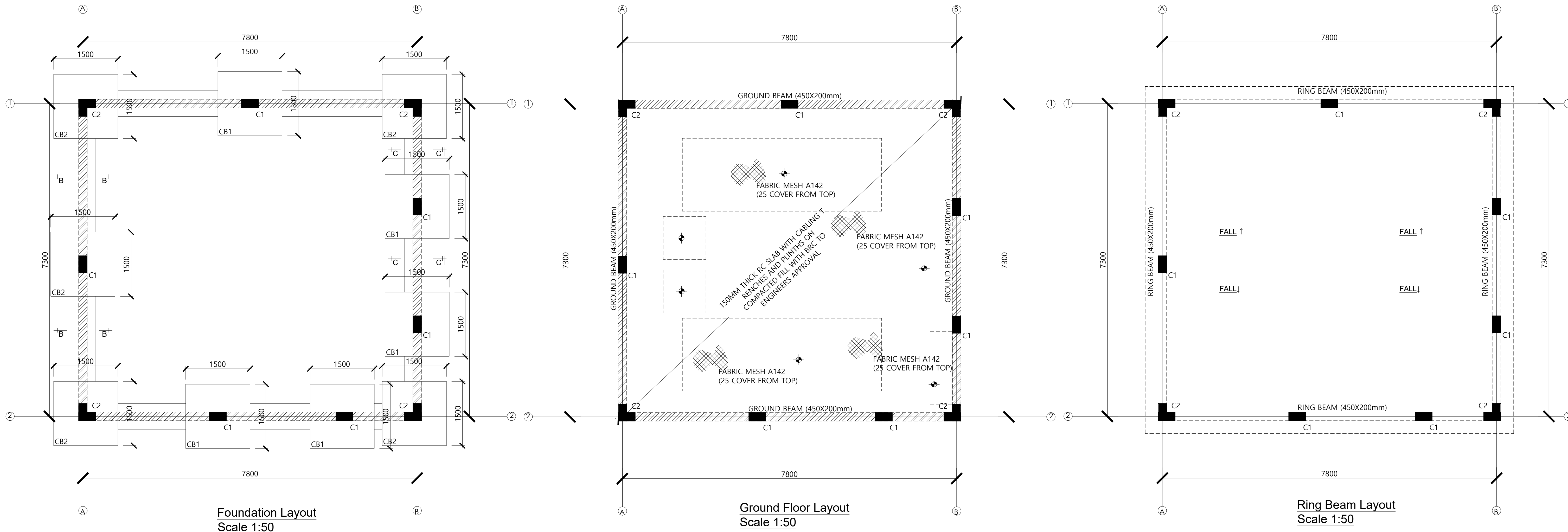
Client:

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Drawing Title: DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT GENERATOR HOUSE ELEVATIONS VIEWS		
Scale: AS SHOWN	Sheet No: 3 / 5	Drawing No: WFSTP - SD - 2.5.1



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL**  
ENGINEERING LTD  
Systel Engineering Limited  
5th Floor, Wing B, CIC Plaza  
Mara Road, Upperhill  
P. O. Box 19109 - 00109 Nairobi, Kenya  
Tel: +254(0)791329800 / 72603066  
E-mail: consulting@systelengineering.com

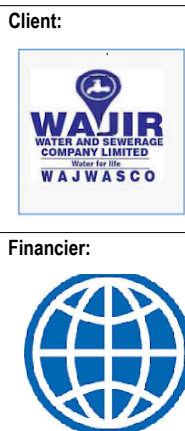
in  
cooperation  
with

**EAST AFRICAN  
ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72388-00100, Nairobi, Kenya  
Tel: +254-20-2714514/1516, +254-20-2718861, +254-20-2527995  
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E-mail: info@sanivation.com  
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Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			



**WAJIR WATER AND SEWERAGE  
COMPANY LIMITED**

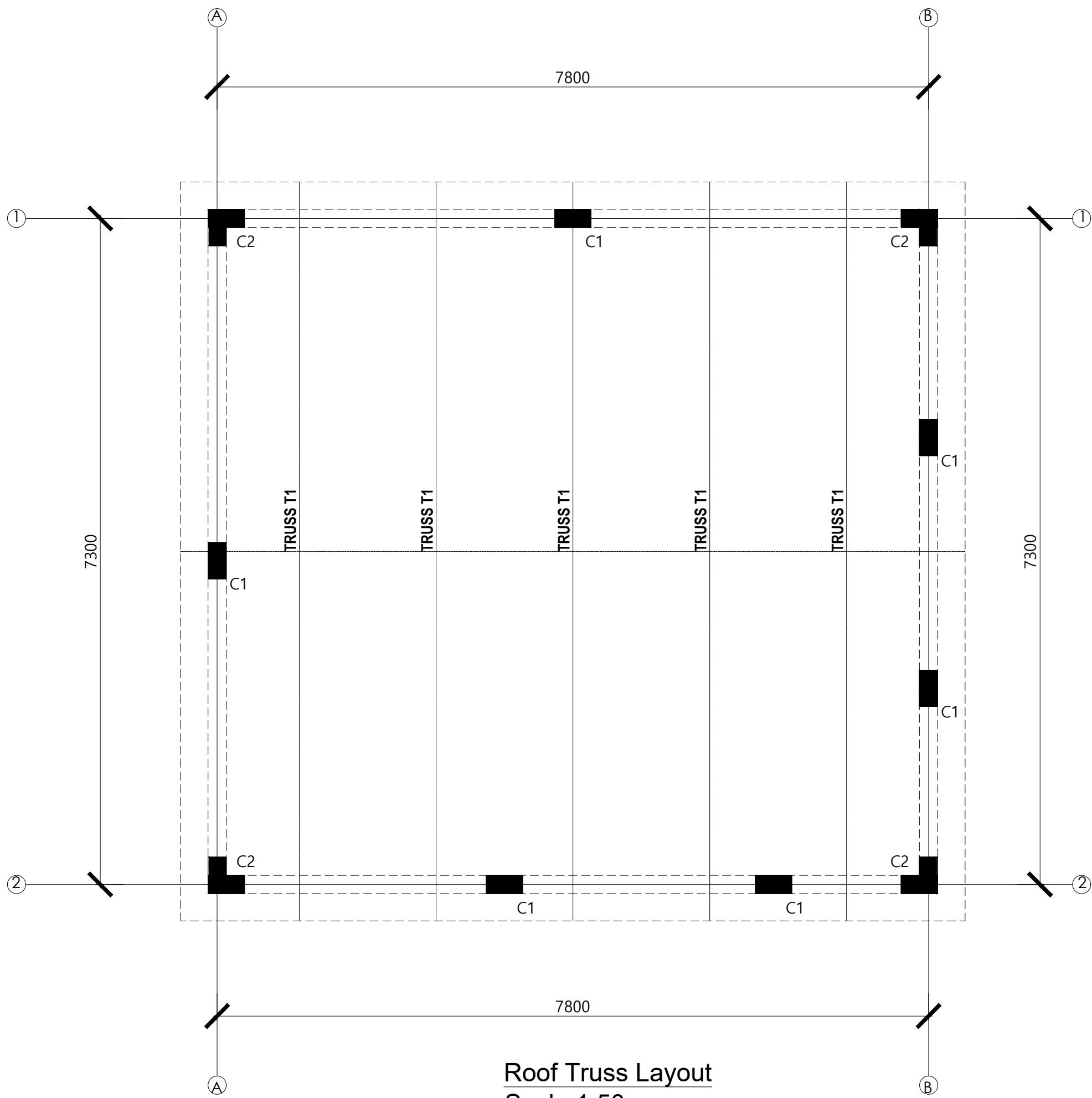
**WORLD BANK**

Project: **CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY**

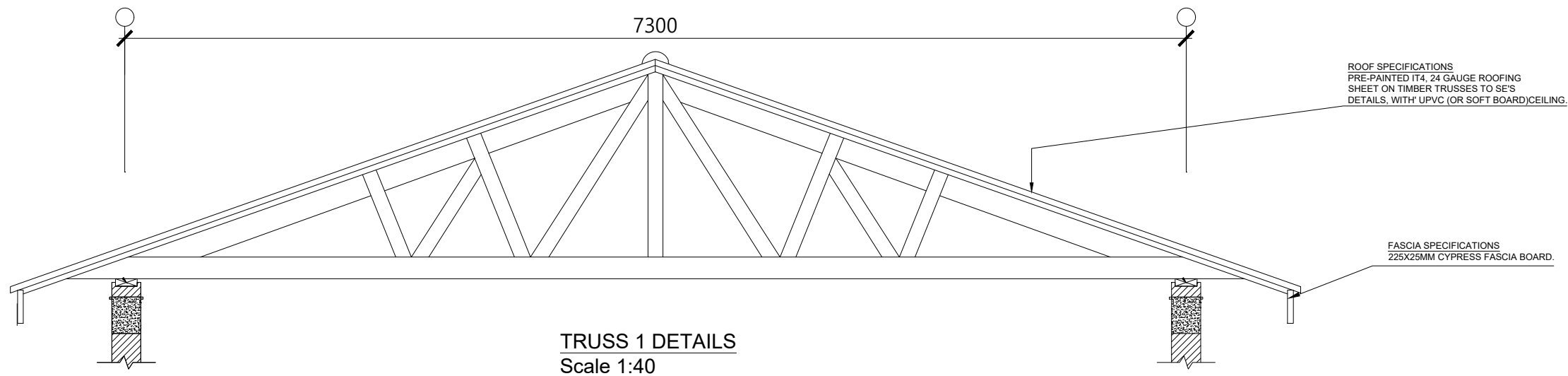
Drawing Title: **DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
GENERATOR HOUSE  
FOUNDATION, BEAM AND COLUMN REINFORCEMENT DETAILS**

Scale: **AS SHOWN** Sheet No: **4 / 5** Drawing No: **WFSTP-SD - 2.5.1**





Roof Truss Layout  
Scale 1:50



TRUSS 1 DETAILS  
Scale 1:40

ALL EXTERNAL MEMBERS ARE 150 x 50 TIMBER  
ALL INTERNAL MEMBERS ARE 100 x 50 TIMBER

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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in  
cooperation  
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Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

Client:



WAJIR WATER AND SEWERAGE  
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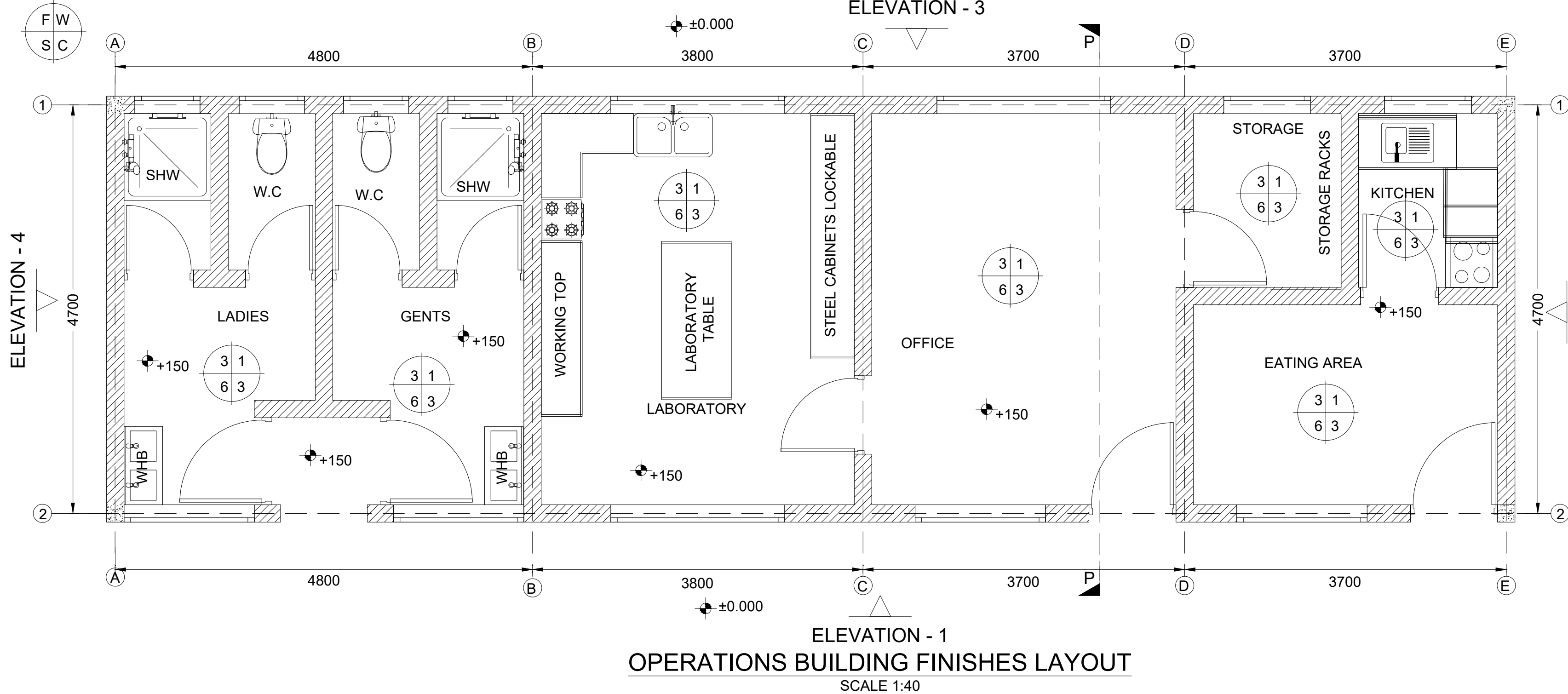
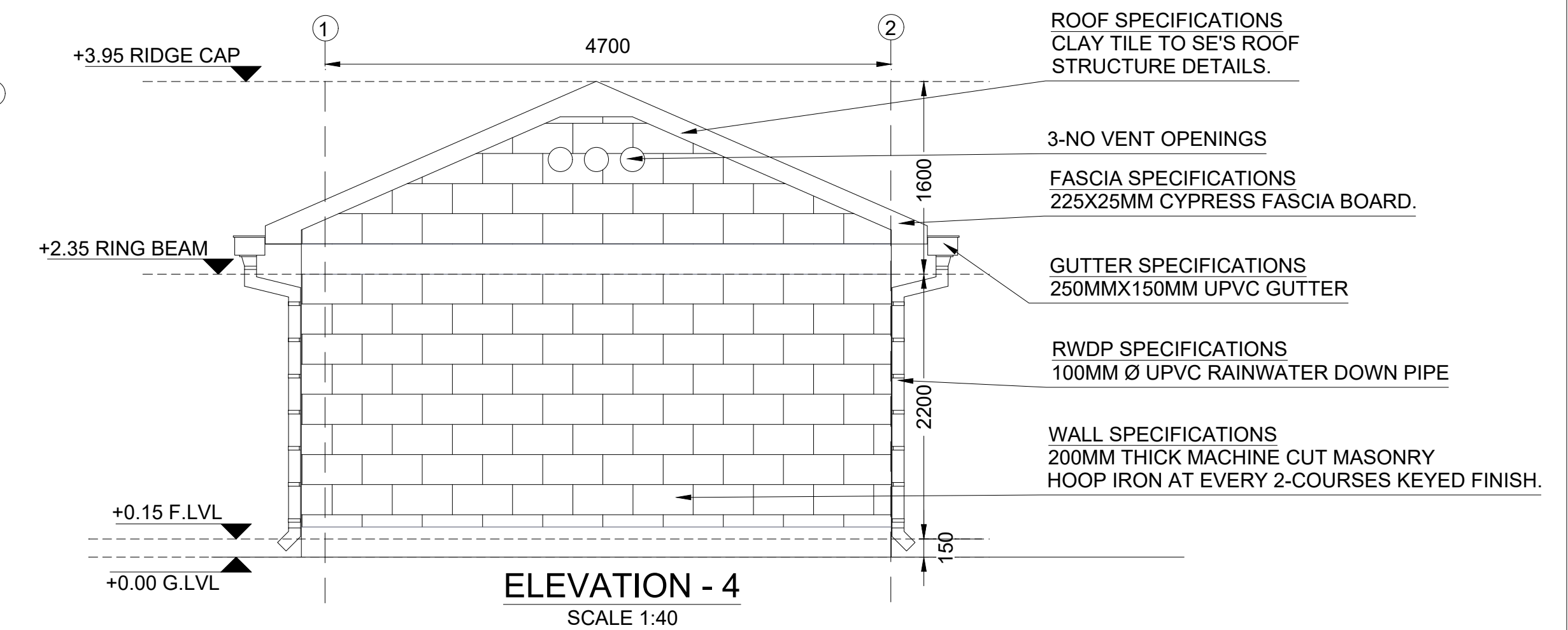
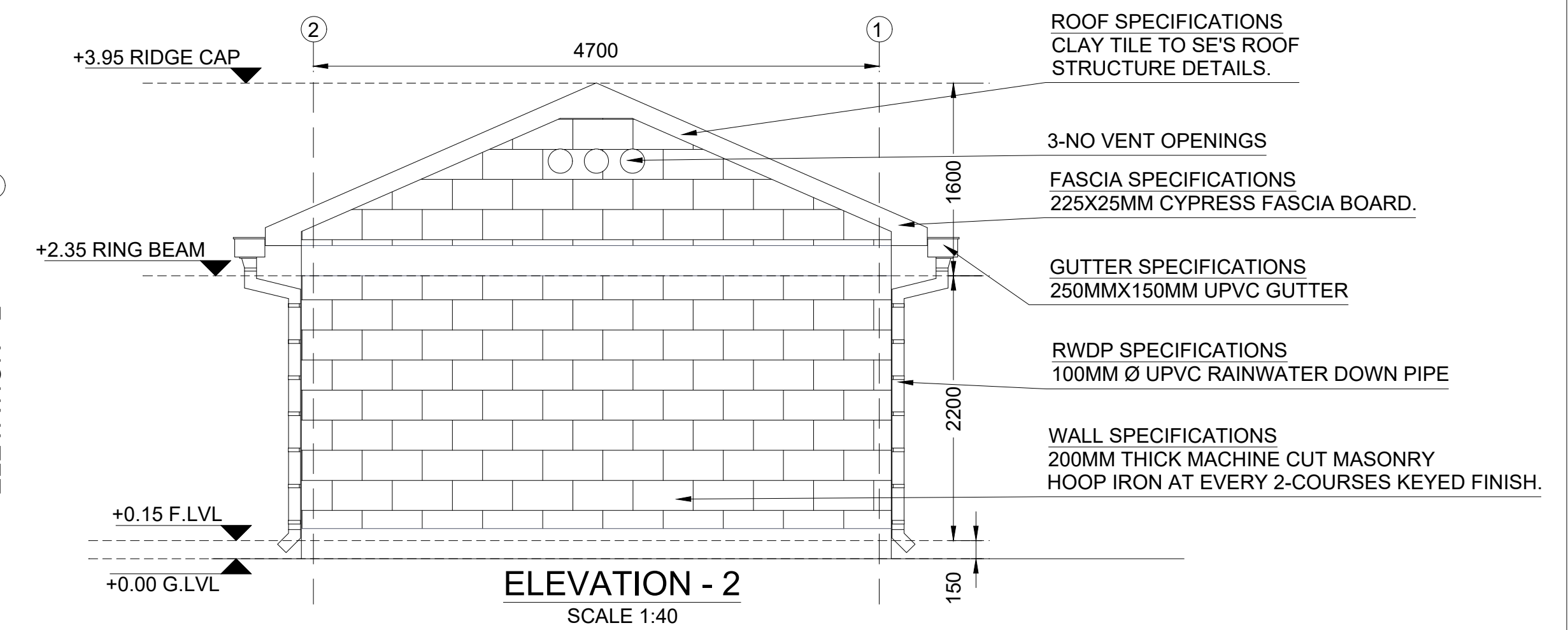
WORLD BANK

Financier:

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN,  
BIDDING DOCUMENTS,ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs)  
AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND  
SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
GENERATOR HOUSE  
ROOF TRUSS DETAILS

Scale: AS SHOWN	Sheet No: 5 / 5	Drawing No: WFSTP-SD - 2.5.1
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WINDOW	SIZE (H x W) mm	
W1	1200	2000
W2	1200	1500
W3	1200	1000
W4	600	1500
W5	600	750

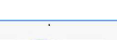

DOOR	SIZE (H x W) mm	
D1	2100	1000
D2	2100	900
D3	2100	800

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.
3. IN CASE OF DISCREPANCIES, CONSULT WITH ENGINEER ON SITE.
4. EXTERNAL FINISH ON CONCRETE BLOCK WALLS KEY SHALL BE 10mm CEMENT RENDERING WITH TWO COATS EXTERNAL QUALITY WATER PAINT FINISH.
5. INTERNAL FINISH ON WALLS SHALL BE 10mm GAUGED LIME PLASTER WITH GLOSS PAINT FINISH.
6. LEVELS OF FOUNDATION TO BE DECIDED ON SITE AFTER EXCAVATION, 1000mm BELOW EXISTING GROUND LEVEL.

REV	Description	Sign	Date	Approved
REVISIONS				

<p>Design Consultant:</p>  <p><b>SYSTOL</b> ENGINEERING LTD</p>	<p>in cooperation with</p>	 <p><b>EAST AFRICAN ENGINEERING CONSULTANTS</b> Lenaia Court, New Wing No.3, Lenaia rd, Kilimani P.O Box 72388-00201, Nairobi, Kenya Tel: +254-20-271451/151/16, +254-20-2718861, +254-20-2527995 E-mail: <a href="mailto:info@eastafricanconsultants.com">info@eastafricanconsultants.com</a></p>	 <p><b>Sanivation</b> solutions out of Service</p>
<p><b>System Engineering Limited</b> 4th Floor, Wing 1, CFC Plaza Mara Road, Uppertall P.O. Box 10109 - 00100 Nairobi, Kenya Tel: +254(0) 11 2386827 / 23863500 E-mail: <a href="mailto:consulting@systemengineering.com">consulting@systemengineering.com</a></p>		<p><b>SANIVATION LIMITED</b> Villa View Estate, Moi South Lake Road, Naivasha P.O Box 382, Naivasha Kenya Tel: +254729465035, +254728670842 E-mail: <a href="mailto:info@sanivation.com">info@sanivation.com</a> <a href="http://www.sanivation.com">www.sanivation.com</a></p>	

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	P.M.M	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

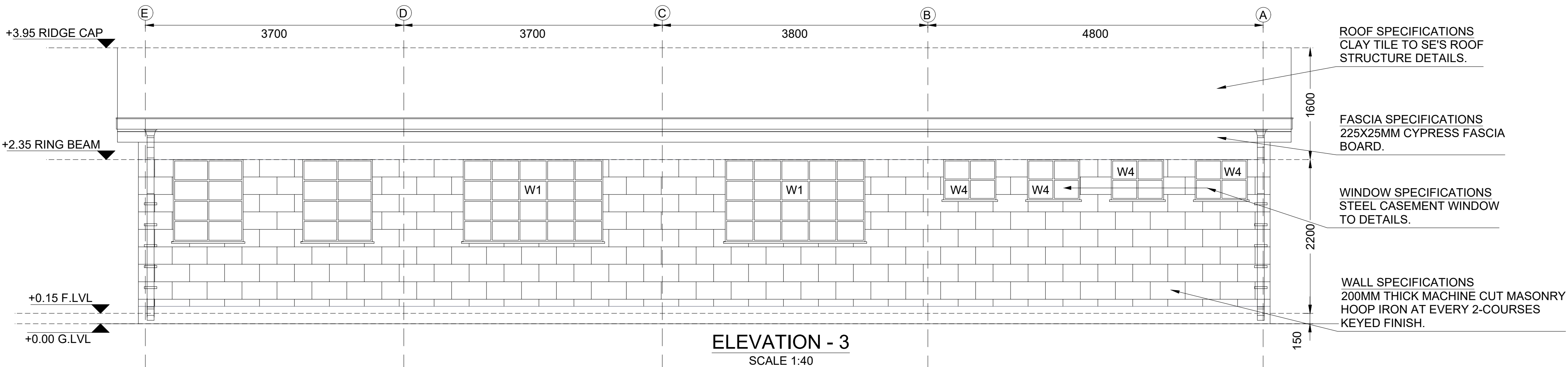
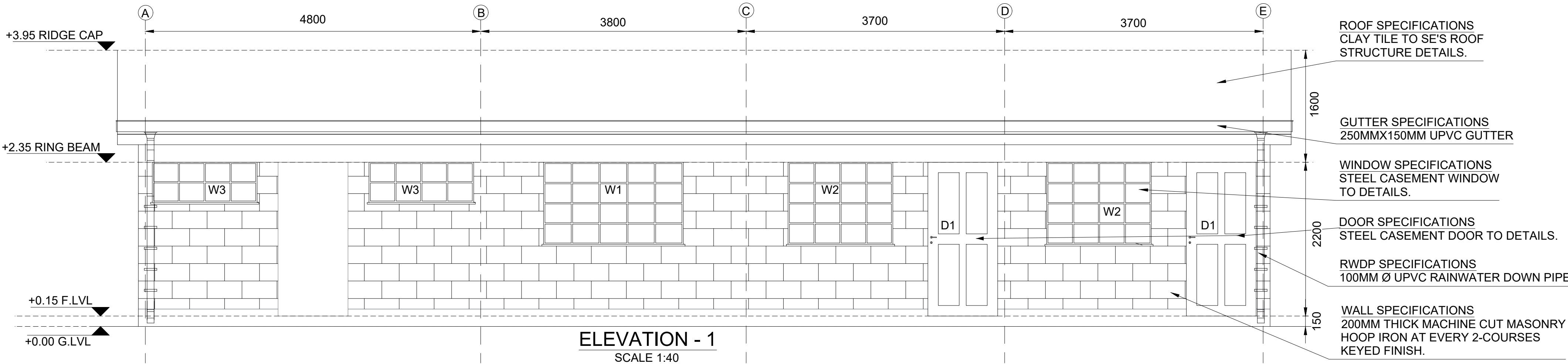
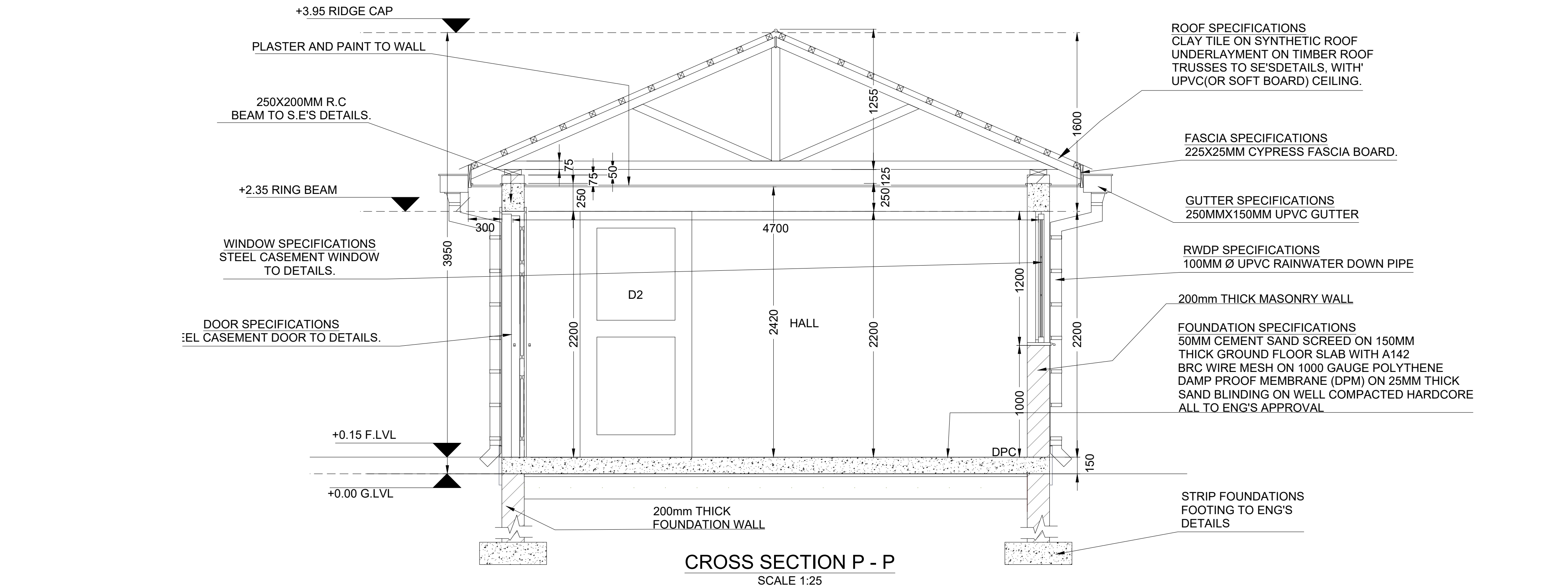
Client:	 <div> <p><b>WAJIR</b> WATER AND SEWERAGE COMPANY LIMITED WAJIRWASCO</p> </div>
Financier:	 <div> <p><b>WORLD BANK</b></p> </div>

Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
Drawing Title:		<p style="text-align: center;">DETAILED DESIGN</p> <p style="text-align: center;">WAJIR FAECAL SLUDGE TREATMENT PLANT</p> <p style="text-align: center;">OPERATIONS BUILDING</p> <p style="text-align: center;">PLAN AND SECTIONS</p>	
Scale:	AS SHOWN	Sheet No:	<p style="text-align: center;">1 / 4</p> <p style="text-align: right;">Drawing No: WFSTP - SD -2.6.1</p>



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.
3. INCASE OF DISCREPANCIES, CONSULT WITH ENGINEER ON SITE.
4. EXTERNAL FINISH ON CONCRETE BLOCK WALLS KEY SHALL BE 10mm CEMENT RENDERING WITH TWO COATS EXTERNAL QUALITY WATER PAINT FINISH.
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6. LEVELS OF FOUNDATION TO BE DECIDED ON SITE AFTER EXCAVATION, 1000mm BELOW EXISTING GROUND LEVEL.



REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  
**SYSTEL ENGINEERING LTD**  
Systel Engineering Limited  
5th Floor, Wing II, C.I.C. Plaza  
Mara Road, Upperhill  
P. O. Box 19119 - 00100 Nairobi, Kenya  
Tel: +254(0)791329980/ 726039006  
E-mail: consulting@systelengineering.com

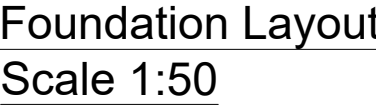
in cooperation with  
**EAST AFRICAN ENGINEERING CONSULTANTS**  
Lenana Court, New Wing No.3, Lenana rd, Kilimani  
P.O.Box 72398-00200, Nairobi, Kenya  
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E-mail: info@sanivation.com  
www.sanivation.com

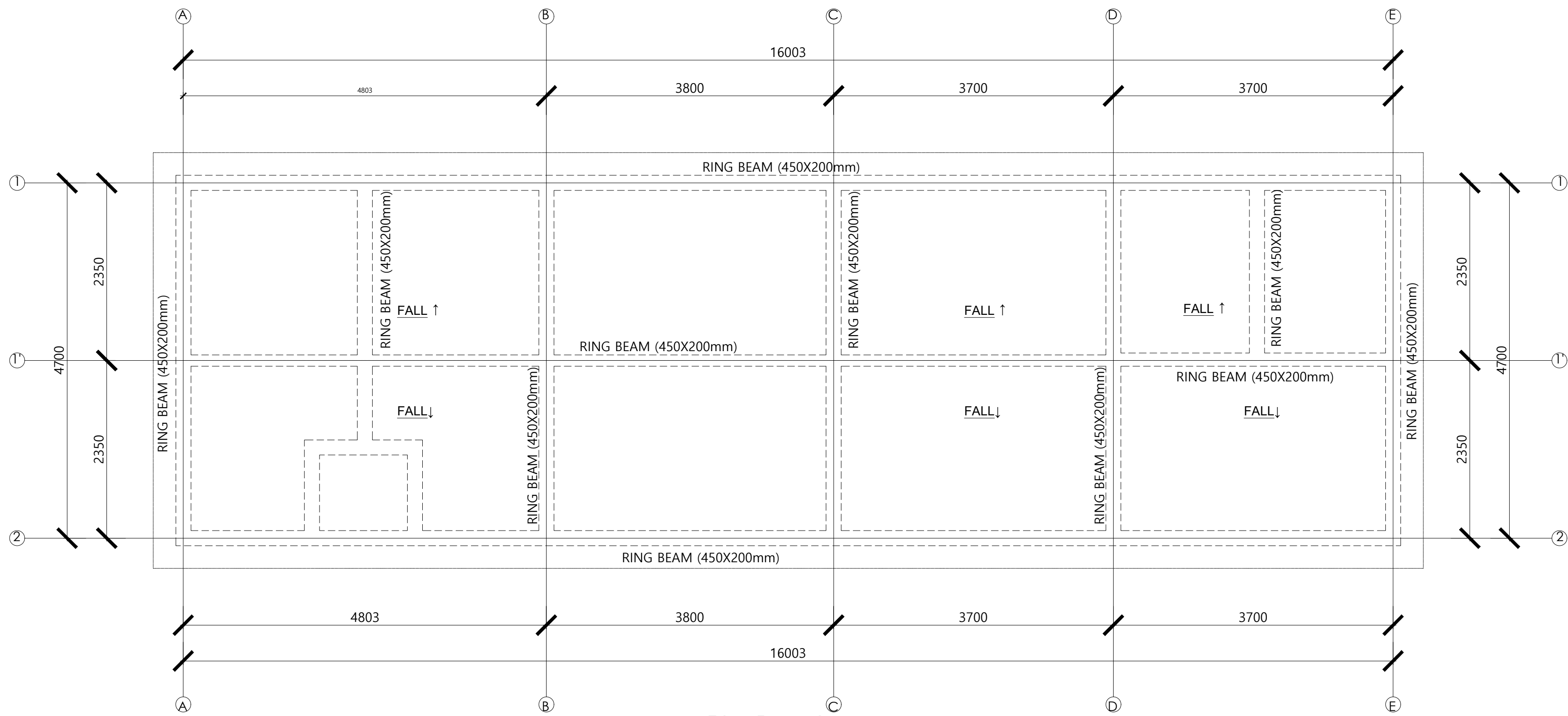
Drawn by: J.K.M Date: SEP 2024  
Designed by: P.M.M Date: SEP 2024  
Checked by: T.J.O Date: SEP 2024  
Approved by: J.K.W Date: SEP 2024  
Project No:  
Contract No:

Client:  
**WAJIR WATER AND SEWERAGE COMPANY LIMITED**  
Financier:  
**WORLD BANK**

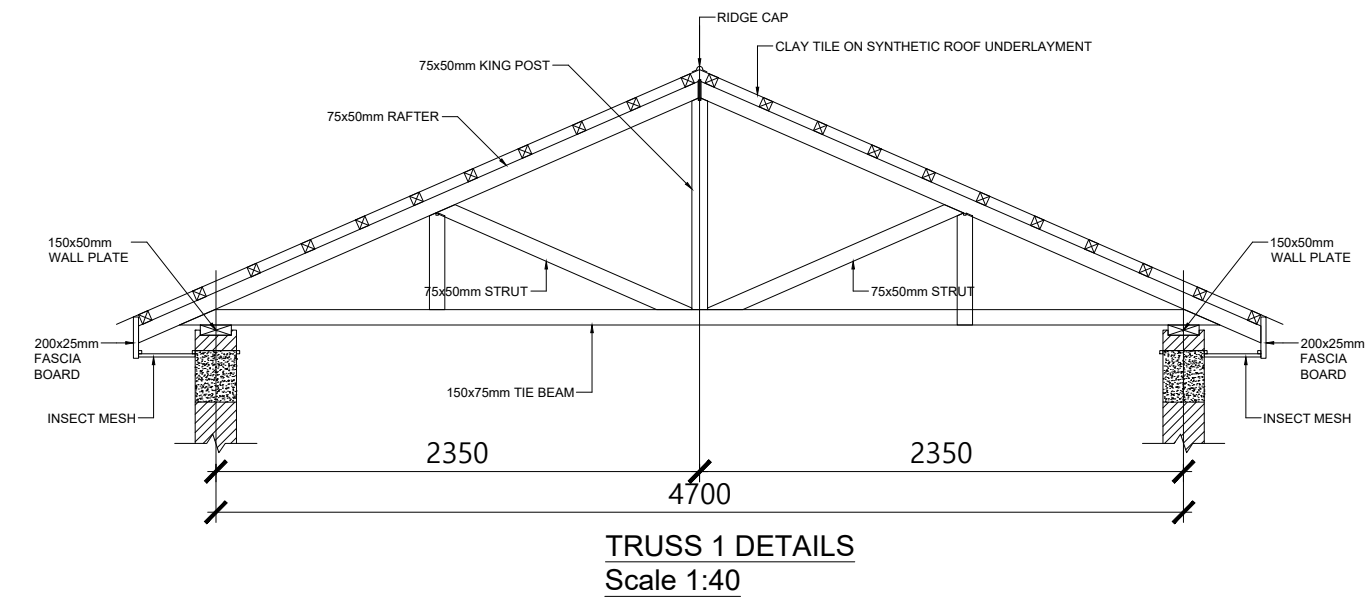
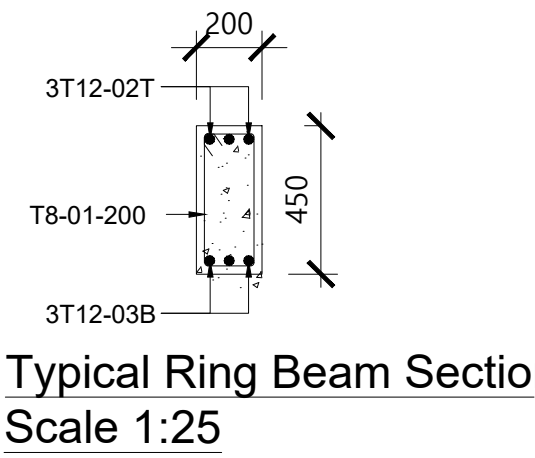
Project: CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY  
Drawing Title: DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
OPERATIONS BUILDING  
SECTIONS AND ELEVATIONS  
Scale: AS SHOWN Sheet No: 2 / 4 Drawing No: WFSTP - SD -2.6.1

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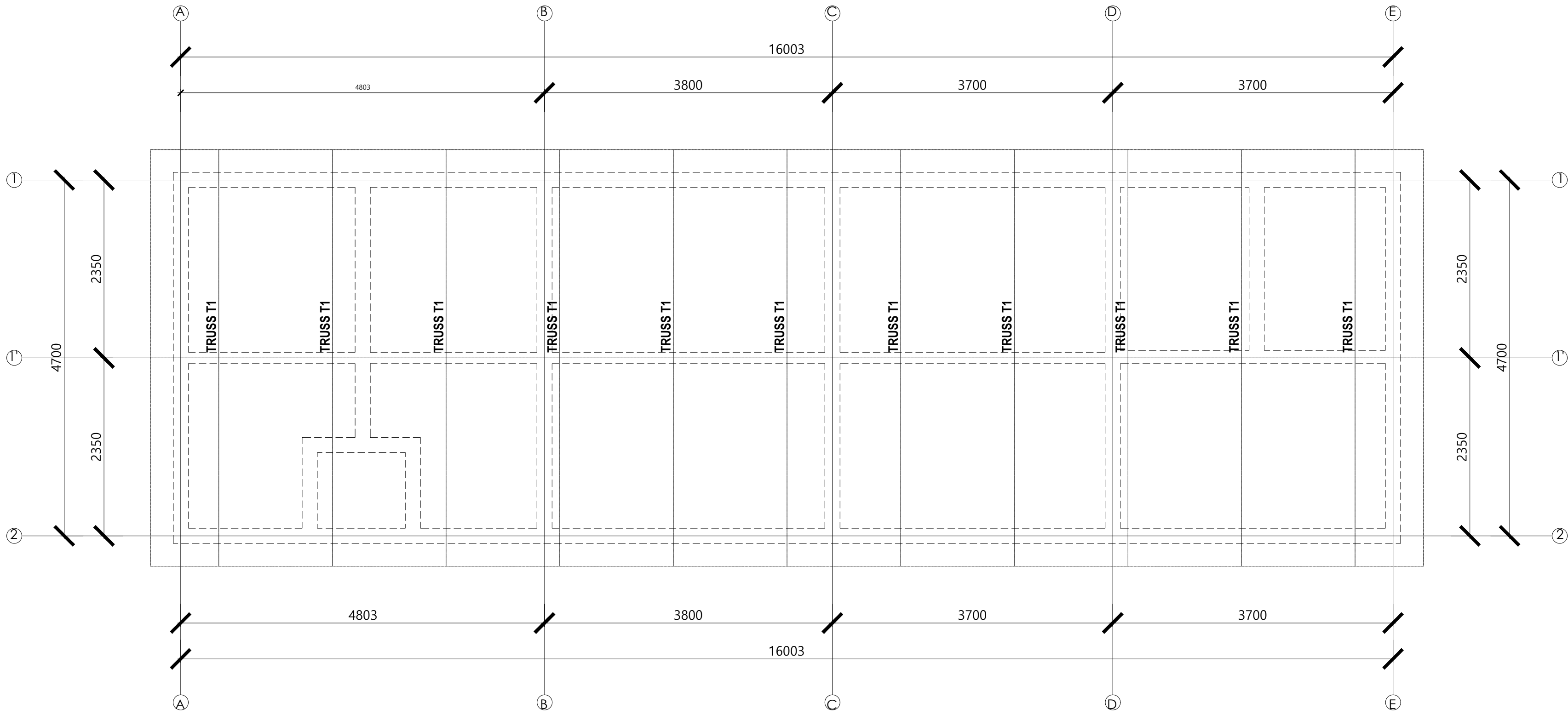




Ring Beam Layout  
Scale 1:50



TRUSS 1 DETAILS  
Scale 1:40



Roof Layout  
Scale 1:50

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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Drawn by:

J.K.M

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WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

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WORLD BANK

Project:

CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN,  
BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs)  
AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND  
SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
OPERATIONS BUILDING  
ROOF AND BEAM LAYOUT DETAILS

Scale:

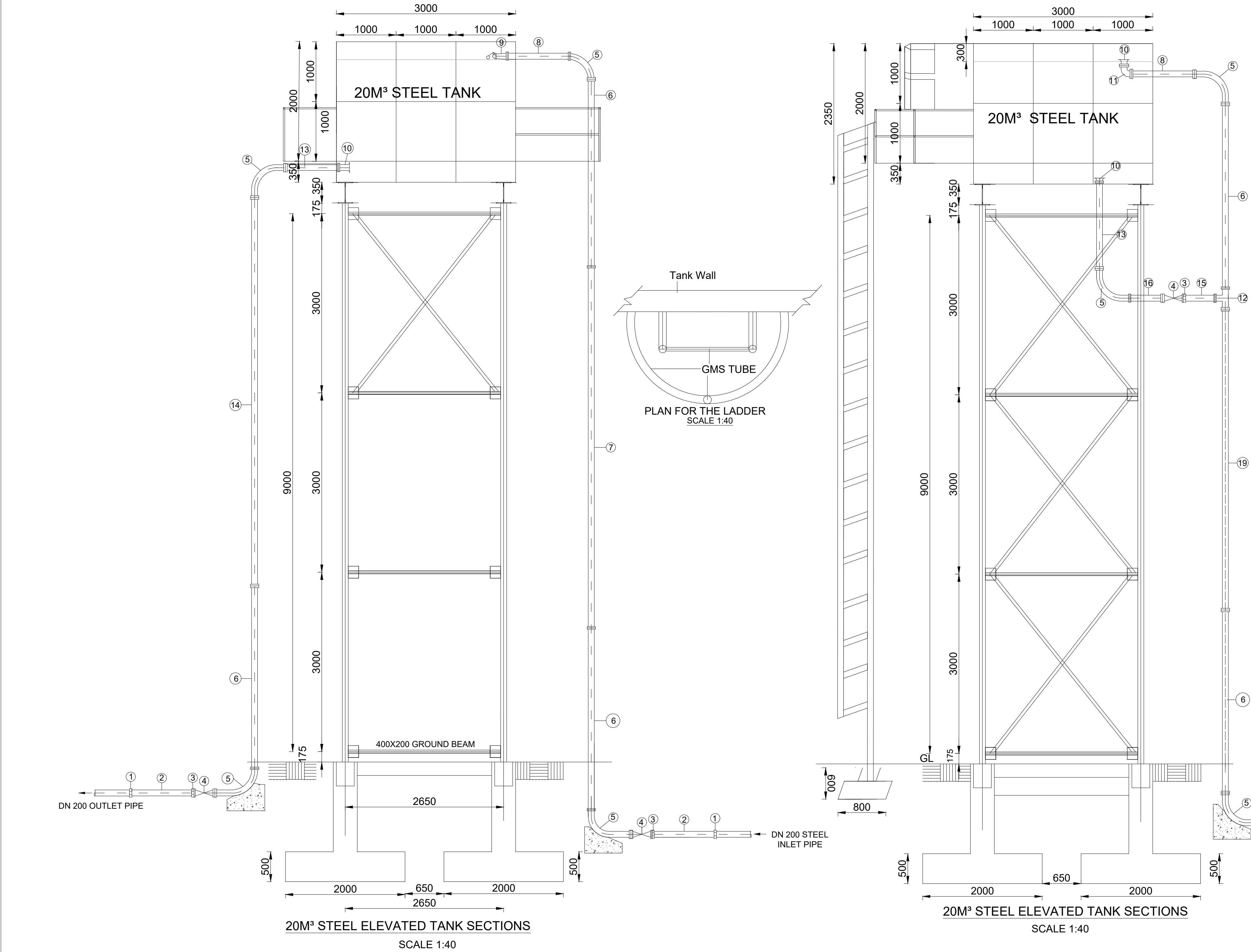
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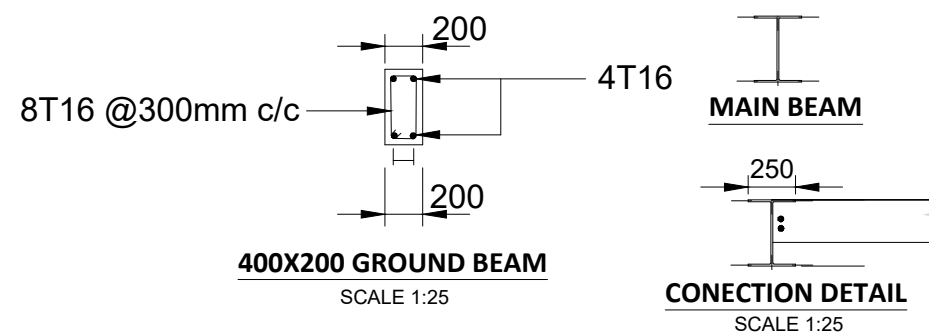
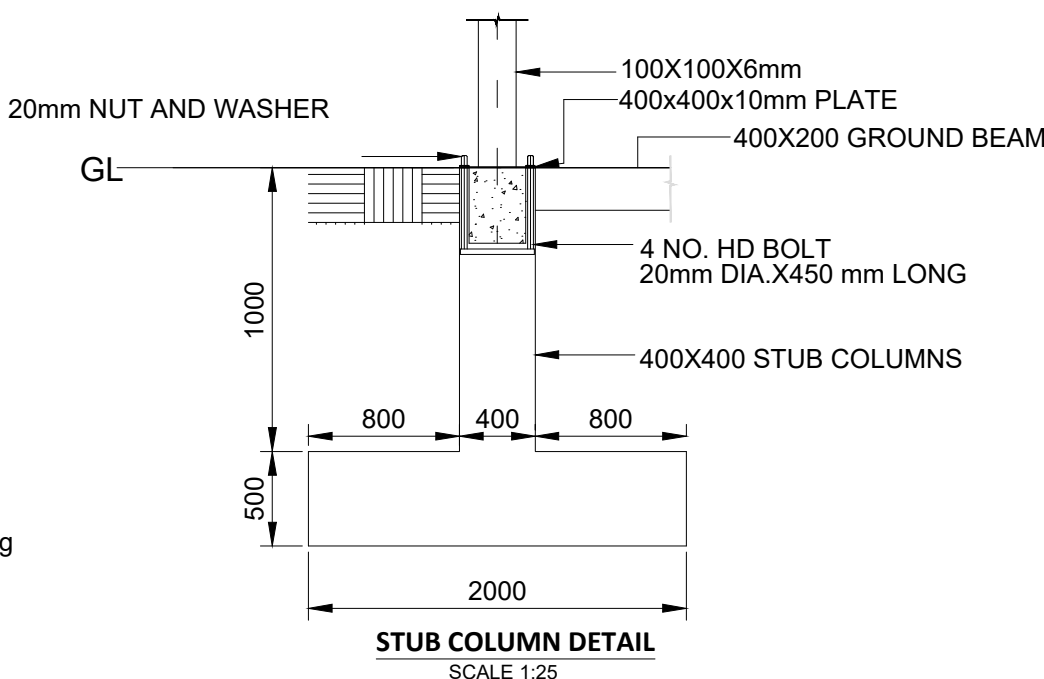
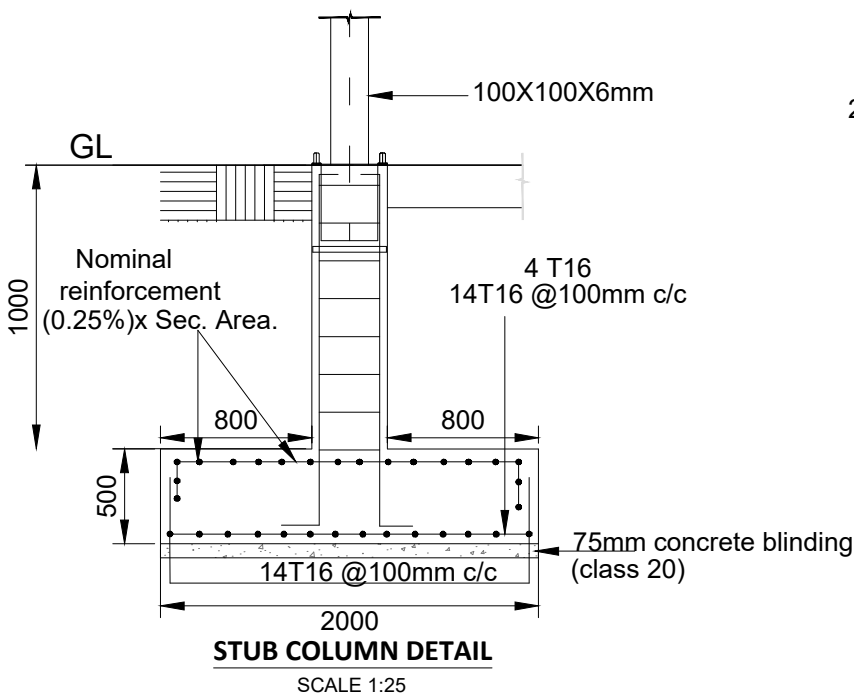
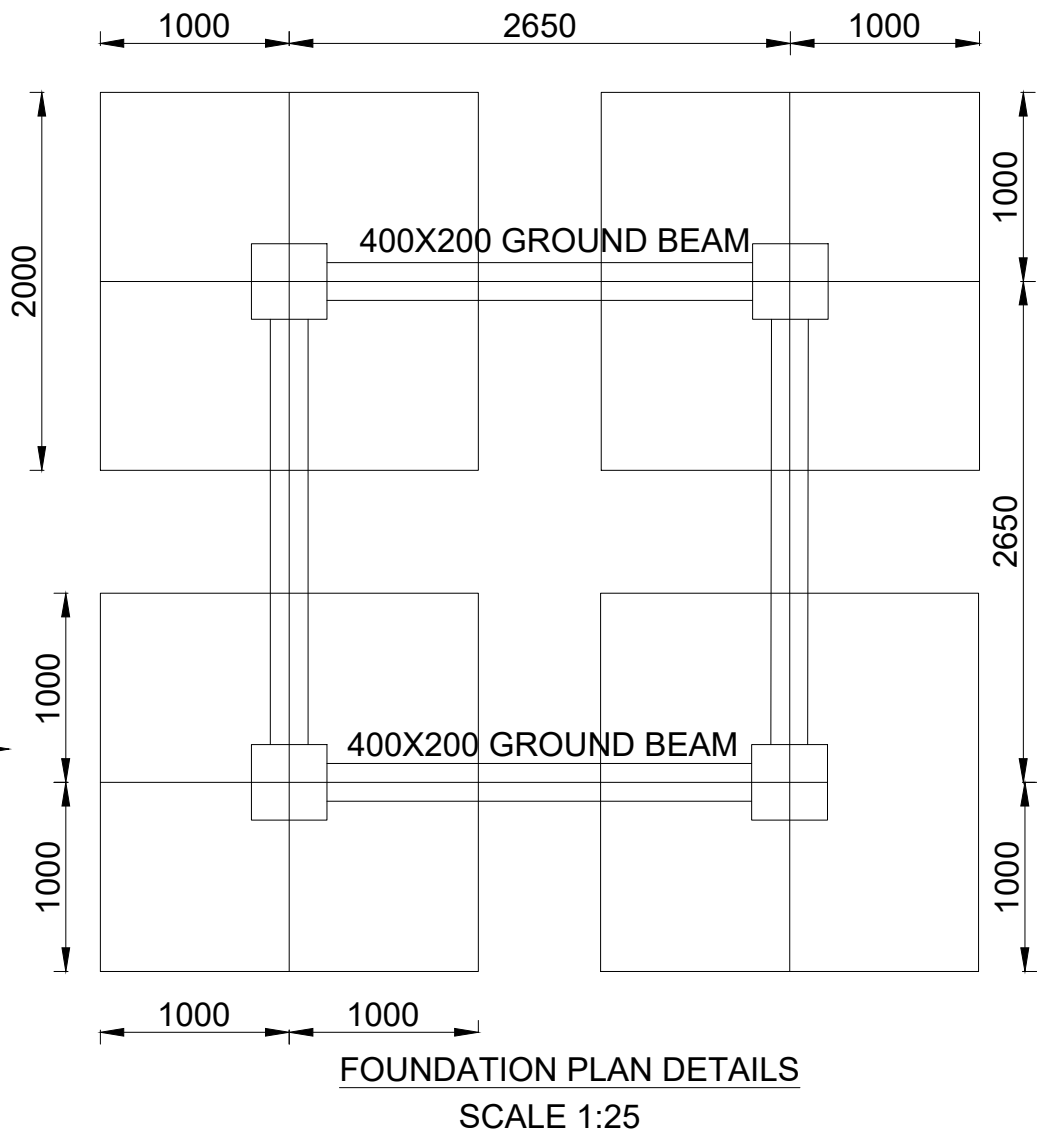
4 / 4

Drawing No:

WFSTP-SD - 2.6.1



SCHEDULE OF OUTLET PIPE DETAILS TO FILTERS				
NO	DESCRIPTION	LENGTH (mm)	DIA (mm)	QTY
1	V.J COUPLING EPOXY COATED	—	200	3
2	ALL SPIGOT PIPE PIECE EPOXY COATED	1000	200	2
3	FLANGED ADAPTOR EPOXY COATED	—	200	5
4	ALL FLANGED SLUICE VALVE	—	200	3
5	ALL FLANGED 90° LONG RADIUS BEND EPOXY COATED	—	200	6
6	ALL FLANGED PIPE PIECE EPOXY COATED	3000	200	5
7	ALL FLANGED PIPE PIECE EPOXY COATED	6000	200	1
8	ALL FLANGED PIPE PIECE EPOXY COATED	1000	200	2
9	FLANGED BALL AND FLOAT VALVE	—	200	1
10	FLANGED BELL MOUTH EPOXY COATED	—	200	3
11	ALL FLANGED 90° SHORT RADIUS BEND EPOXY COATED	—	200	1
12	ALL FLANGED EQUAL TEE EPOXY COATED	—	200	1
13	ALL FLANGED PIPE PIECE EPOXY COATED	1200	200	2
14	ALL FLANGED PIPE PIECE EPOXY COATED	6600	200	1
15	FLANGED SPIGOT PIPE PIECE EPOXY COATED	500	200	1
16	ALL FLANGED PIPE PIECE EPOXY COATED	500	200	1
17	FLANGED FLAP VALVE	—	200	1
18	CUT TO SUITE UPVC DRAIN PIPE	3000	200	1
19	ALL FLANGED PIPE PIECE EPOXY COATED	5000	200	1



- NOTES
- ALL DIMENSIONS ARE IN MM
  - GENERAL DETAILED ARRANGEMENT DRAWINGS INCLUDING STRUCTURAL TO BE SUPPLIED BY THE VENDOR.
- 1 PLATES = 1.25mX1.25mx6mm  
2 MAIN BEAM(I SECTION) = 350X200X10mm  
3 SECONDARY BEAM = 350X100X10mm  
4 ANGLE LINE = 75X75X6mm  
5 HOLLOW SECTION = 100X100X6mm  
6 STIFFENERS = 200X260mm  
7 BOLTS PER PLATE = 16 no. x4sides  
8 BOLTS PER STRUT = 2no.x2sides

REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:



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Drawn by:

J.K.M

Date:

SEP 2024

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Checked by:

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Date:

SEP 2024

Project No:

Contract No:

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WAJIR WATER AND SEWERAGE  
COMPANY LIMITED

Financier:



WORLD BANK

Project:

CONSULTANCY SERVICES FOR DESIGN REVIEW,PREPARATION OF FINAL DETAILED DESIGN,  
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AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND  
SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY

Drawing Title:

DETAILED DESIGN  
WAJIR FAECAL SLUDGE TREATMENT PLANT  
20M3 HIGH STEEL ELEVATED TANK  
PLAN,SECTIONS AND REINFORCEMENT DETAILS

Scale:

AS SHOWN

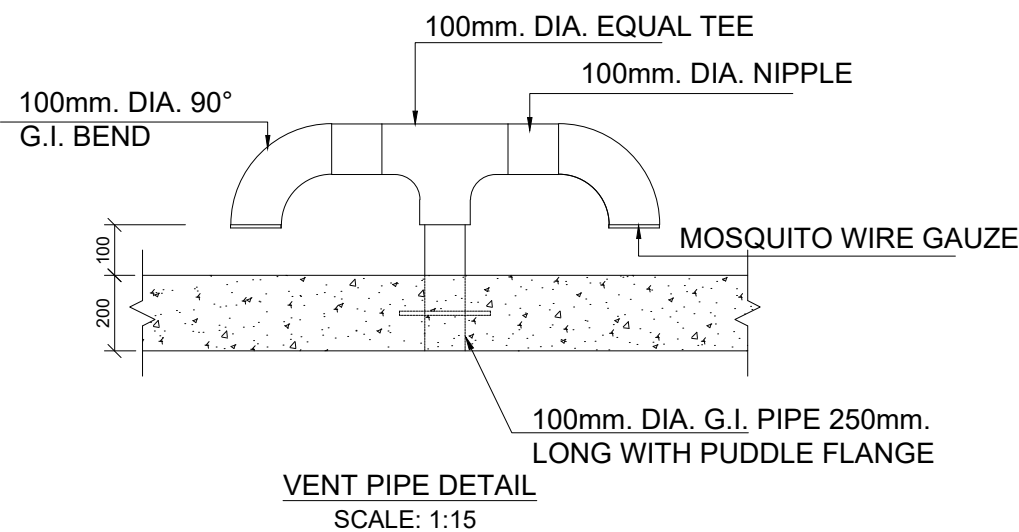
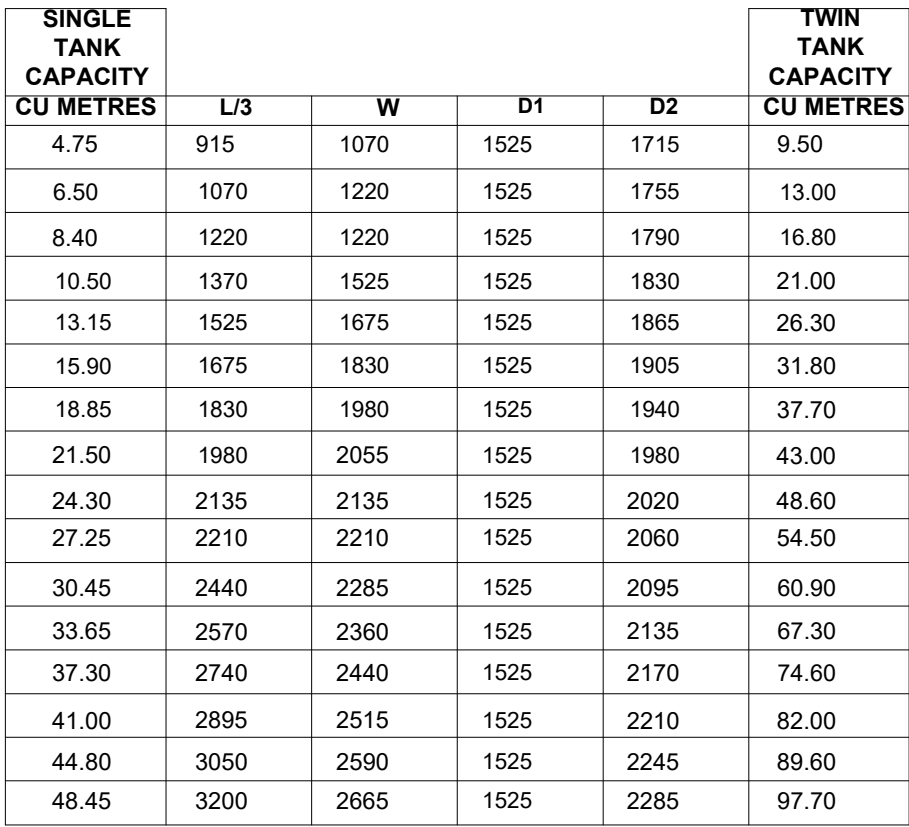
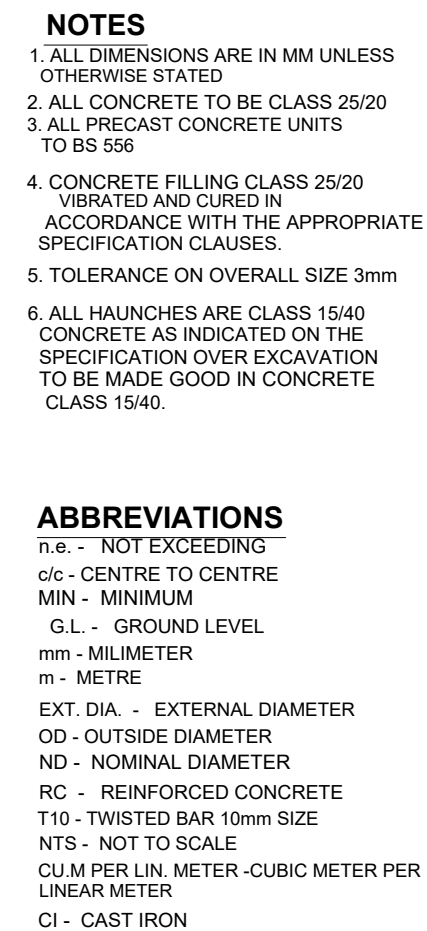
Sheet No:

1 / 1






Drawing No:

WFSTP - SD -2.7.1





REV	Description	Sign	Date	Approved
REVISIONS				

Design Consultant:  <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;">  <p>in cooperation with</p> </div> <div style="text-align: center;">  <p><b>SANIVATION LIMITED</b>  <i>Sanitation as a Service</i></p> </div> </div>		Drawn by: J.K.M Date: SEP 2024 Designed by: P.M.M Date: SEP 2024 Checked by: T.J.O Date: SEP 2024 Approved by: J.K.W Date: SEP 2024 Project No: Contract No:		Client:  <p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p>	
System Engineering Limited 5th Floor Wing II, CIC Plaza Mara Road, Upperhill P.O. Box 19109 - 00100 Nairobi, Kenya Tel: +254(0)791329880 / 726798008 E-mail: consulting@systemengineering.com		EAST AFRICAN <b>ENGINEERING CONSULTANTS</b> Lenana Court, New Wing No.3, Lenana rd, Kilimani P.O. Box 72398-00200 Nairobi, Kenya Tel: +254-20-2714514/1516, +254-20-2718861, +254-20-2527995 E-mail: info@eaecgroup.com		Financier:  <p><b>WORLD BANK</b></p>	

<b>Project:</b> CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
<b>Drawing Title:</b> DETAILED DESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT SEPTIC TANK PLAN, SECTIONS AND REINFORCEMENT DETAILS			
<b>Scale:</b> AS SHOWN	<b>Sheet No:</b> 1 / 1	<b>Drawing No:</b> WFSTP - SD - 2.8.1	



ARCHITECTURAL FINISHES SCHEDULE

F	FLOORS		W	WALLS	
	DESCRIPTION	REMARKS		DESCRIPTION	REMARKS
1.	600X600mm CERAMIC TILES SAMPLE TO BE PROVIDED FOR APPROVAL.	- 2mm SPACING FOR TILES	1.	-2 COATS OF (UNDERCOAT) SOFT WHITE EMULSION FINNISH ON THE SMOOTH STEEL TROWELLED AND SKImmED INTERNAL CEMENTPLASTER-2 COATS OF (FINISH COAT) VINYL SILK AND 2 COATS ACRYLIC	- INTERNAL WALLS SILK VINYL TOO CEILING LEVEL
2.	300X300mm NON -SLIP CERAMIC TILES, A SAMPLE TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY SITE ENGINEER.	- LAID IN TO GIVE A LINEAR EFFECT GREY COLOUR (RAL 7045) 2mm SPACING BETWEEN TILES	2.	2 COATS OF UNDERCOAT. 2 -COATS OF SOFT WHITE CREAM PERMAPLAST PROOF PAINT WHICH IS OFFERING PROTECTION AGAINST WEATHER SEVERE TROPICAL WEATHER	- EXTERNAL WALLS AS INDICATED
3.	BLUE CHIPS,WHITE CEMENT UNPOLISHED TERRAZO FINISH WITH BLACK STRIPS AT 1000mm SPACING	UNPOLISHED EXTERIOR TERRAZO.	3.	- 200X400mm GLAZED CERAMIC WHITE WALL TILE UPTO A HEIGHT OF 2,100mm,SAMPLE TO BE PROVIDED BY CONTRACTOR FOR APPROVAL BY THE SITE ENGINEER - FROM 2,100mmTO CEILING HEIGHT PAINT AS DESCRIPTION 1	- WHITE COLOUR WALL TILES
4.	200X400X10mm CONCRETE TILE A SAMPLE TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY SITE ENGINEER.		4.	- WALL MASTER OR RUFF N TUFF-WHITE AND OR OFF WHITE IN COLOUR.	- EXTERNAL WALLS - SAMPLES TO BE PROVIDED - COLOUR TO BE APPROVED BY ENGINEERS
5.	600x600x50mm PRECAST CONCRETE PAVING SLABS	N/A	5.	50mm THICK BURNT BRICK CLADDING FINISHED WITH 2 COATS (UNDERCOAT) SOFT WHITE EMULSION FINISH & 2 COATS (FINISH COAT)	- SAMPLE TO BE APPROVED BY ENGINEERS
6.	EXCAVATE,FILLING BRC AND 75mm THICK MASS CONCRETE	ROUGH FINISHED	6.	- 2 COATS OF UNDERCOAT (EMULSION PAINT). - 2 COATS FINISH COAT (BITUMINOUS PAINT).	- FOR ALL EXTERNAL WALLS. - BEIGE COLOUR. - THE PLINTH OF THE BUILDING SHOULD HAVE 2 COATS BLACK BITUMINOUS PAINT
7.	WHITE CHIPS,GREY CEMENT UNPOLISHED TERRAZO FINISH WITH BLACK STRIPS AT 1000mm SPACING	UNPOLISHED EXTERIOR TERRAZO.	7.	- 2 COATS OF (UNDERCOAT) SOFT WHITE EMULSION FINNISH ON THE SMOOTH STEEL TROWELLED INTERNAL CEMENT PLASTER,- 2 COATS OF (FINISH COAT) SILK VINYL. -SOUND PROOFING ACCOUSTIC PANELS	- SAMPLES TO BE PROVIDED
8.	POWER FLOATED SCREED WITH HARDENER		8.	200mm THICK MASONRY WALLING WITH KEY FINISH	- SAMPLE TO BE APPROVED BY ENGINEERS

S	SKIRTING	
	DESCRIPTION	REMARKS
1.	300x100mm NON SLIP CERAMIC TILES SKIRTING (SAMPLE TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY THE SITE ENGINEER)	N/A
2.	100mm HIGH TERRAZO SKIRTING WITH GREY CEMENT AND WHITE CHIPS(SAMPLE TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY THE SITE ENGINEER)	GROUND SEALED & POLISHED TO ENGINEER APPROVAL.
3.	100mm HIGH SKIRTING - WHITE CEMENT & GREY CHIPS	GROUND SEALED & POLISHED TO ENGINEER APPROVAL.
4.	450mm HIGH PLASTER FINISHED WITH BITUMINOUS PAINT	SANDED & POLISHED EXTERNAL WALL.
5.	100mm HIGH PLASTER FINISHED WITH BITUMINOUS PAINT	SANDED & POLISHED EXTERNAL WALL.
6.	100mm HIGH TERRAZO SKIRTING WITH WHITE CEMENT AND BLUE CHIPS (SAMPLE TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY THE SITE ENGINEER)	SANDED & POLISHED EXTERNAL WALL.

R	ROOF	
	DESCRIPTION	REMARKS
1.	GALVANISED STEEL INSULATED SHEETS -OVERALL THICKNESS APPROX 100mm -CORE THICKNESS APPROX 50mm -U VALUE OF 0.35W/m²K	-BLUE COLOUR. -FIXED AS PER STRUCTURAL DETAILS.
2	REINFORCED CONCRETE SLAB TO STRUCTURAL ENGINEERS DETAILS FINISHED WITH 600X600X10mm CONCRETE TILES	-ALL WATER PROFING DONE. -SCREED LAID TO FALL TOWARDS DRAINS.

C	CEILING	
	DESCRIPTION	REMARKS
1.	- 2 COATS SOFT WHITE EMULSION & 2 COATS BRILLIANT WHITE SILK VINYL (REINFORCED CONCRETE SLAB SOFFITS)	- BRILLIANT WHITE COLOUR
2.	- 600X600X9mm ACOUSTIC CEILING LAY-IN PANEL	- SAMPLES TO BE PROVIDED BY THE CONTRACTOR FOR APPROVAL BY engineer.
3.	9mm THICK PLAIN CEILING BOARD	-9mm GYPSUM THICK CEILING BOARD FOR WET AREAS /LAB/UTILITY ROOM PROVIDE WATER RESISTANT BOARD

G	GUTTERS	
	DESCRIPTION	REMARKS
1.	GALVANISED GUTTERS PREFORMED FROM 1mm THICK PLATE AS PER DRAWING	FIXED WITH ANGLE STEEL BRACKETS @ EVERY 1m

R	RAILLING	
	DESCRIPTION	REMARKS
1.	-50mm DIA HANDRAIL,35mm BALUSTRADE -SEE DETAILED DRAWINGS FOR FURTHER SPECS	-2 COATS GREY OXIDE UNDERCOAT -2 COATS PREMIUM QUALITY OIL PAINT

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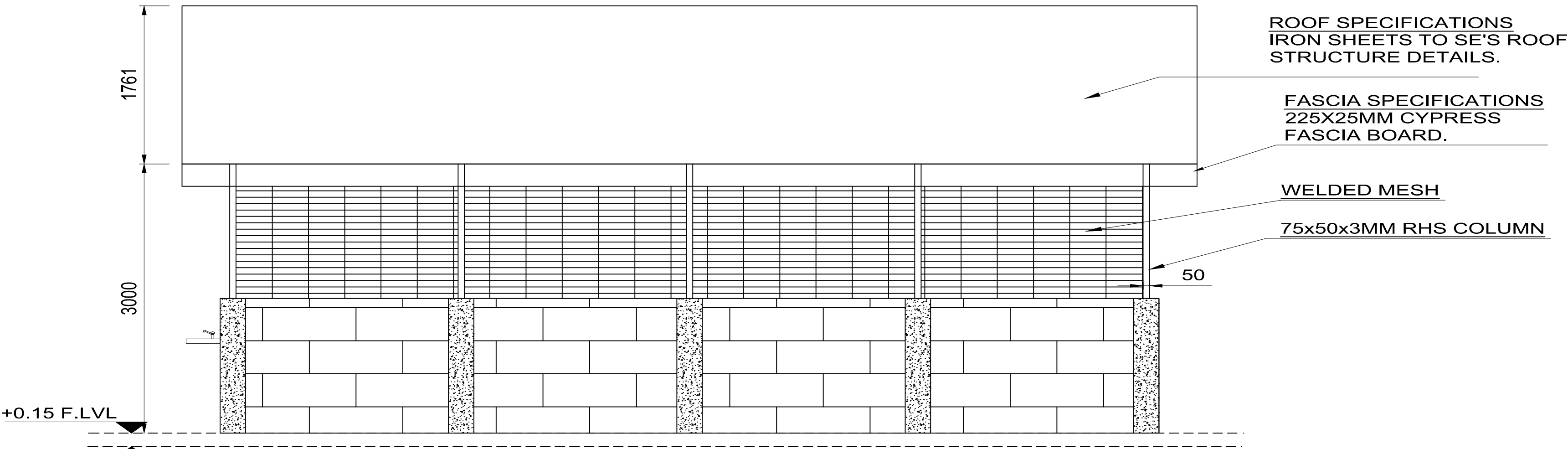


1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
2. DRAWINGS TO BE READ AND NOT SCALED.
3. IN CASE OF DISCREPANCIES, CONSULT WITH ENGINEER ON SITE.
4. EXTERNAL FINISH ON CONCRETE BLOCK WALLS KEY SHALL BE 10mm CEMENT RENDERING WITH TWO COATS EXTERNAL QUALITY WATER PAINT FINISH.
5. INTERNAL FINISH ON WALLS SHALL BE 10mm GAUGED LIME PLASTER WITH GLOSS PAINT FINISH.
6. LEVELS OF FOUNDATION TO BE DECIDED ON SITE AFTER EXCAVATION, 1000mm BELOW EXISTING GROUND LEVEL.

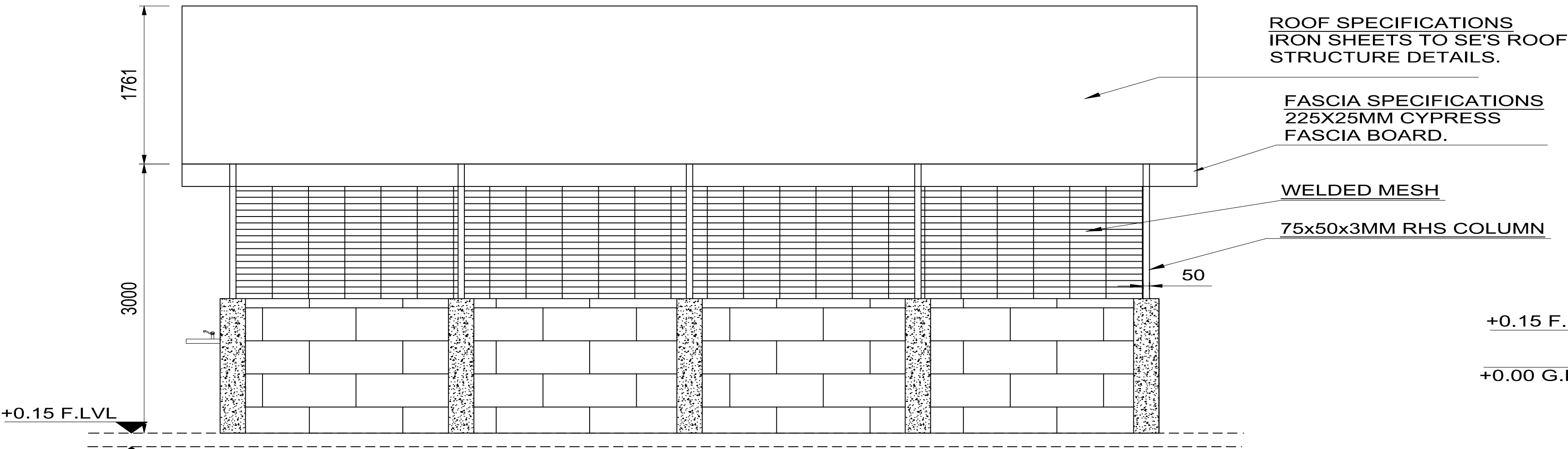
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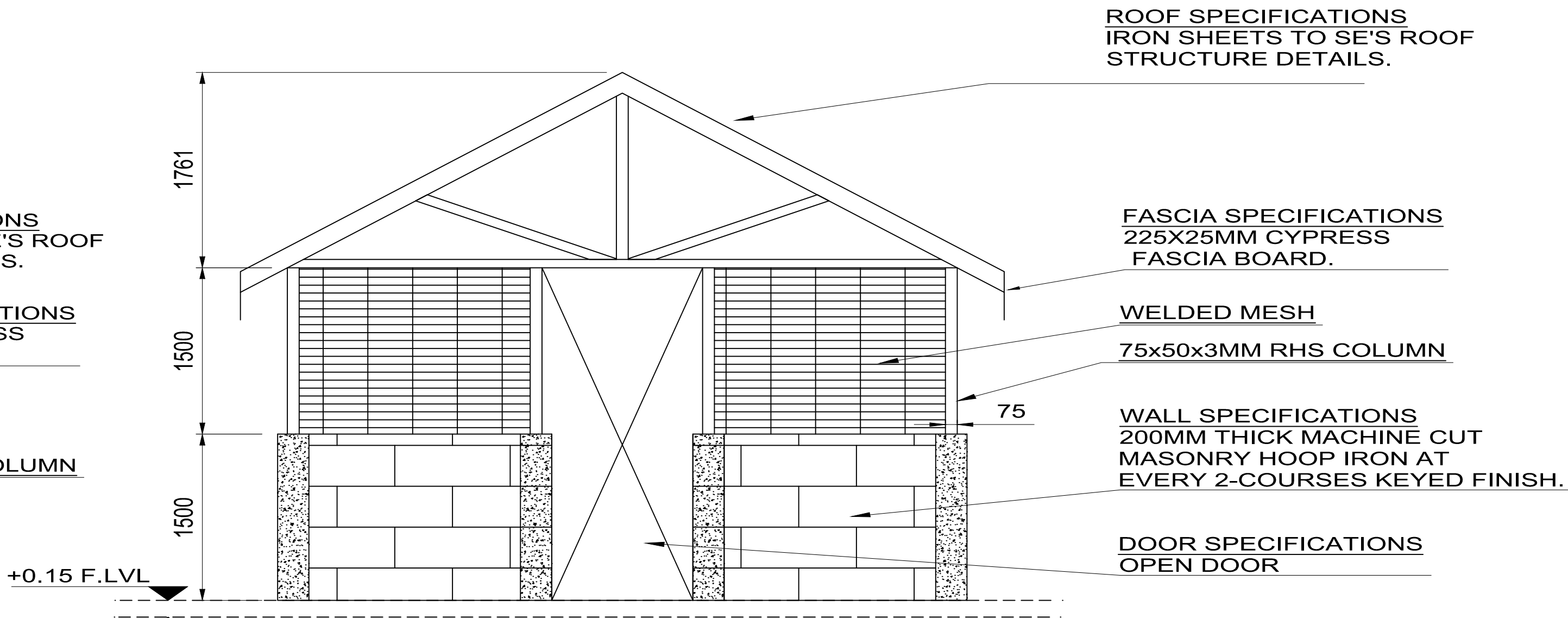
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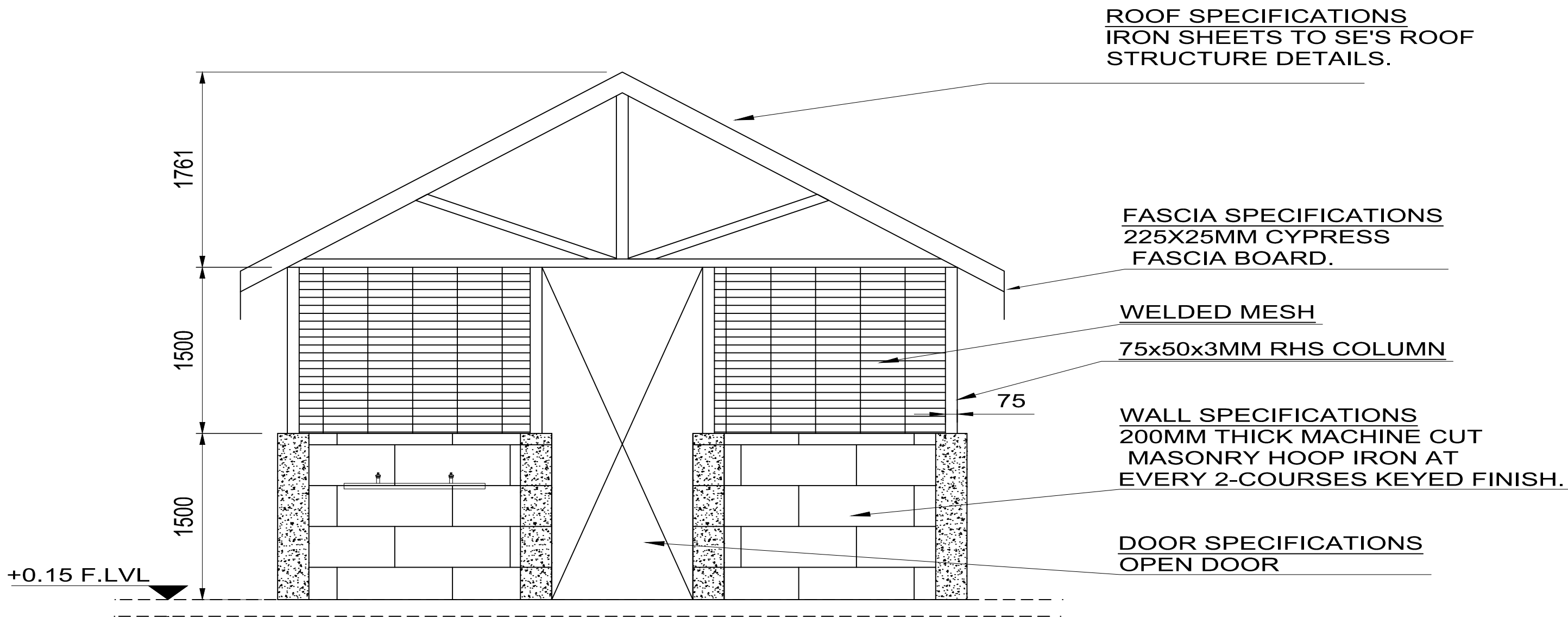
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ELEVATION - 3  
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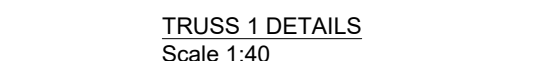
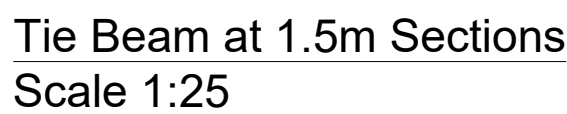
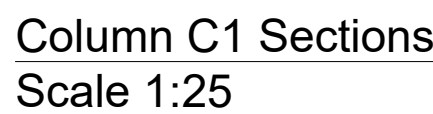
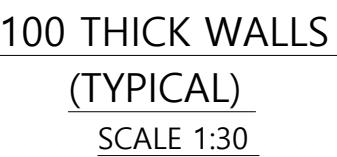
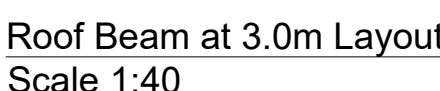
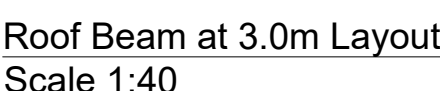
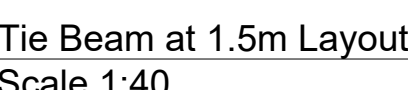
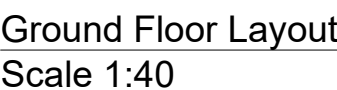
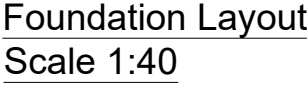
ELEVATION - 2  
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ELEVATION - 4  
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REV	Description	Sign	Date	Approved
REVISIONS				

Drawn by:	J.K.M	Date:	SEP 2024
Designed by:	G.S.O	Date:	SEP 2024
Checked by:	T.J.O	Date:	SEP 2024
Approved by:	J.K.W	Date:	SEP 2024
Project No:			
Contract No:			

<p>Client:</p>  <p><b>WAJIR</b> WATER AND SEWERAGE COMPANY LIMITED WAJWASCO</p>	<p><b>WAJIR WATER AND SEWERAGE COMPANY LIMITED</b></p>
<p>Financier:</p> 	<p><b>WORLD BANK</b></p>

<b>Project:</b> CONSULTANCY SERVICES FOR DESIGN REVIEW, PREPARATION OF FINAL DETAILED DESIGN, BIDDING DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs) AND RESETTLEMENT ACTION PLANS (RAPs) AND SUPERVISION OF WATER AND SANITATION WORKS IN WAJIR TOWN AND SEWERAGE COMPANY			
<b>Drawing Title:</b>  DETAILED ESIGN WAJIR FAECAL SLUDGE TREATMENT PLANT INCINERATOR SHED FOUNDATION, BEAM AND SECTIONS REINFORCEMENT DETAILS			
<b>Scale:</b> AS SHOWN	<b>Sheet No:</b> 3 / 3	<b>Drawing No:</b> WFSTP-SD - 2.10.1	