

**FEDERAL GOVERNMENT OF SOMALIA**

**MINISTRY OF FISHERIES AND BLUE ECONOMY(MFBE)  
FEDERAL REPUBLIC OF SOMALIA**

**SOMALIA FISHERIES DEVELOPMENT PROJECT (BADMAAL)  
AT JAZEERA**

**SOMALIA**

**ARCHITECTURAL DESIGN DRAWINGS**



**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP



# ARCHITECTURAL DESIGN DRAWINGS

## CLIENT

FEDERAL GOVERNMENT OF SOMALIA

**MINISTRY OF FISHERIES AND BLUE ECONOMY(MFBE)  
FEDERAL REPUBLIC OF SOMALIA**

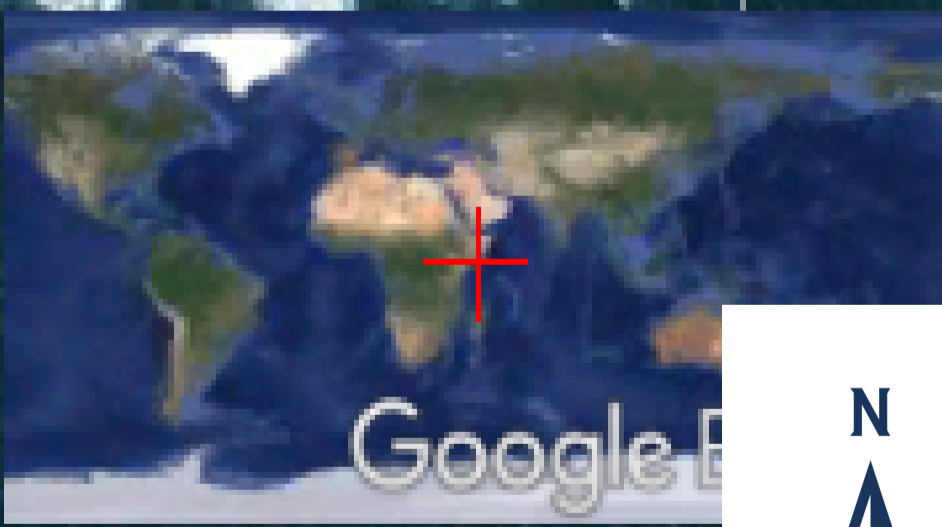
## PROJECT

**SOMALIA FISHERIES DEVELOPMENT PROJECT (BADMAAL)  
AT JAZEERA**

**SOMALIA**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

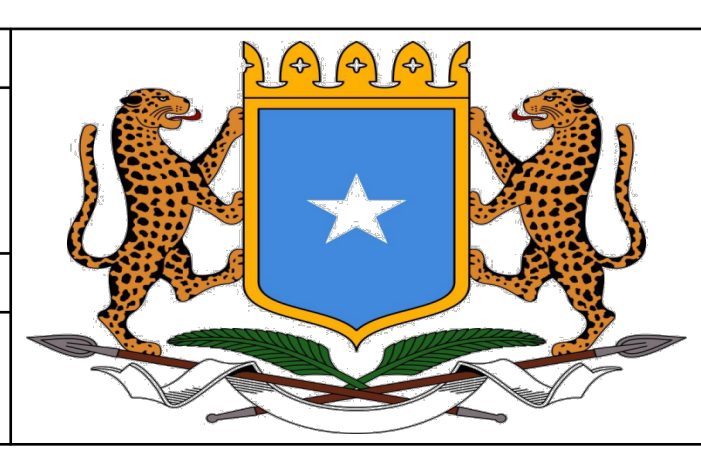
A  
B  
C  
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E  
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H  
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J



1985

Imagery Date: 6/7/2023 1°57'17.63" N 45°10'26.87" E elev 13 ft eye alt 5919

Architects	Project Title
	Somali Sustainable Fisheries Development Project (BADMAAL)
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



Revisions		
No.	Description	Date

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

Scale	Drawing No. & Title	
1:50	JAZEERA Site Data 1	
Date	Sheet No.	
10-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
Gerald Nyanjua Amolo	Eng. J.O	Eng. Mohammed Saahid

A

B

C

D

E

F

G

H

I

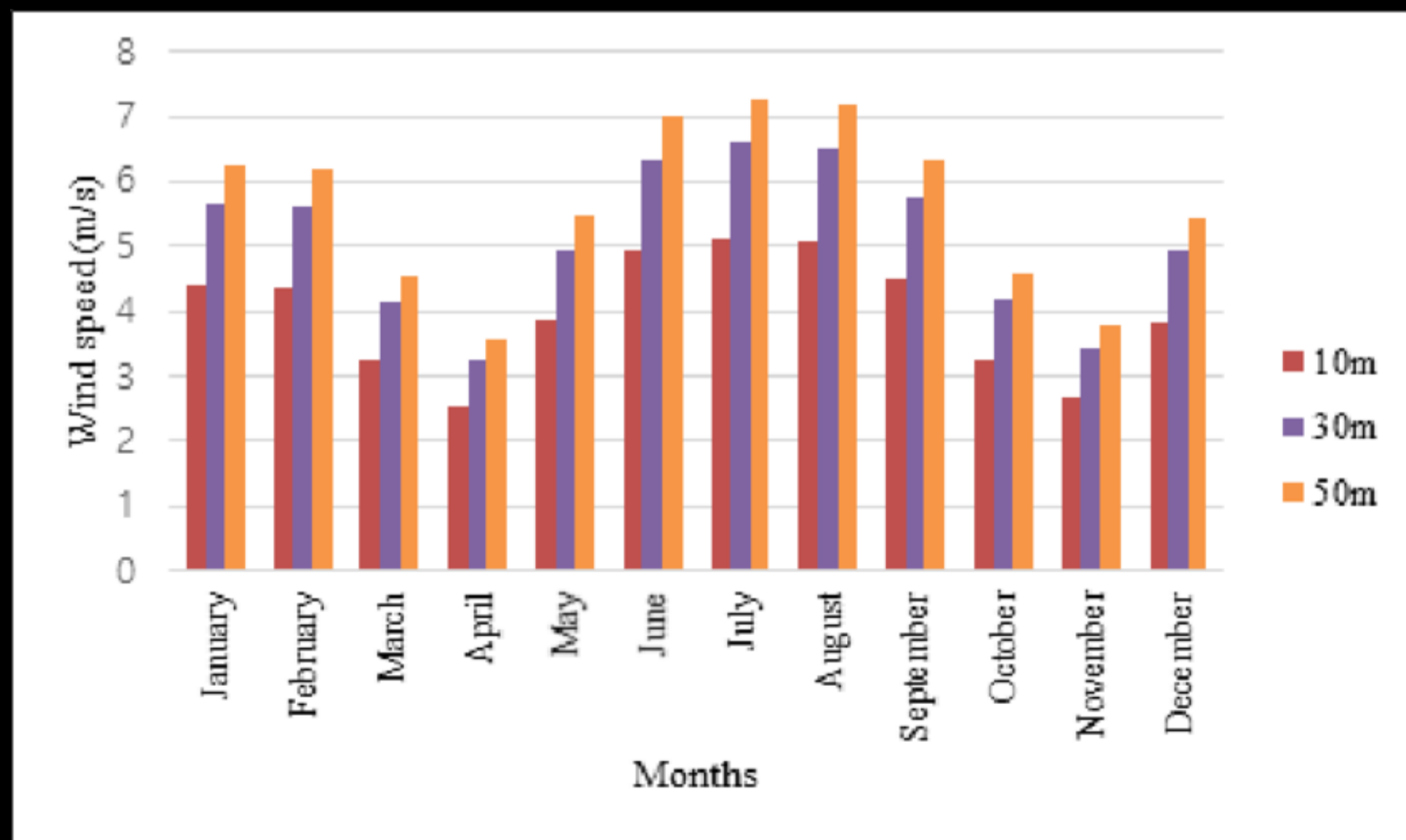
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## JAZEERA LOCATION

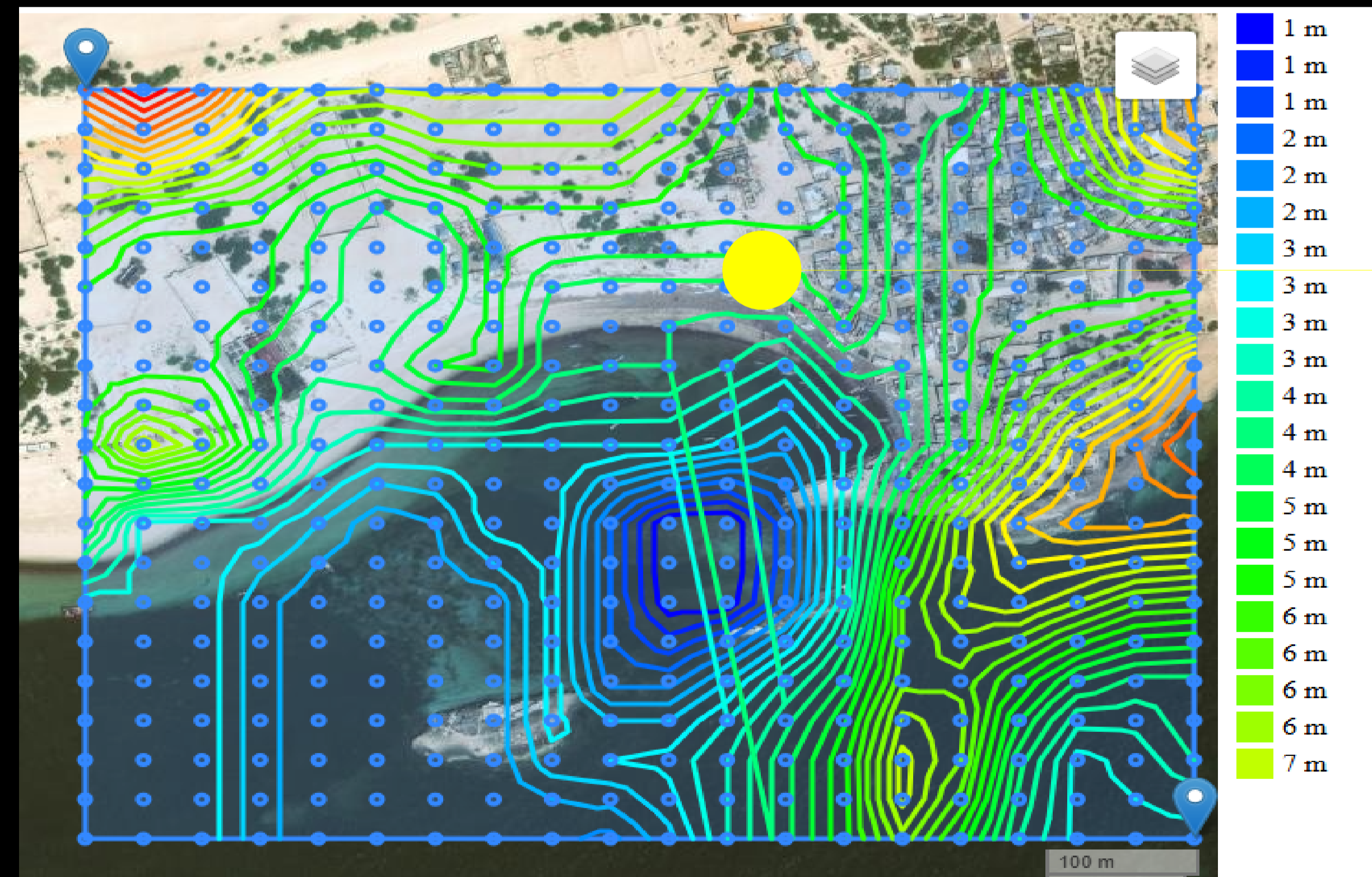


## PROJECTS SITE



The monthly wind speed data in Mogadishu, Somalia [19]

[https://www.researchgate.net/publication/355337830\\_Assessment\\_of\\_Optimum\\_Renewable\\_Energy\\_System\\_for\\_the\\_Somalia-Turkish\\_Training\\_and\\_Research\\_Hospital\\_in\\_Mogadishu?\\_tp=eyJjb250ZXh0ljp7ImZpcnN0UGFnZSI6Il9kaXJlY3QiLCJwYXVWdlIjoiX2RpcmVjdCJ9fQ](https://www.researchgate.net/publication/355337830_Assessment_of_Optimum_Renewable_Energy_System_for_the_Somalia-Turkish_Training_and_Research_Hospital_in_Mogadishu?_tp=eyJjb250ZXh0ljp7ImZpcnN0UGFnZSI6Il9kaXJlY3QiLCJwYXVWdlIjoiX2RpcmVjdCJ9fQ)



## PROJECTS SITE

Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions	Scale	Drawing No. & Title		
 Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:50 <b>JAZEERA Site Data 2</b>	
	Client			10-03-2026 Drawn By: Gerald Nyanjua Amolo			Sheet No.: <b>A1</b> Project No.: P178032	
Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Designed By:	Approved By:		
					Gerald Nyanjua Amolo	Mohamed Abdi Ahmed Saahid	J.A. Sciortino	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

E 45°10'48"

60m

20m



**A** LAT: 1°57'0.21"  
LON: 45°10'44.57"E

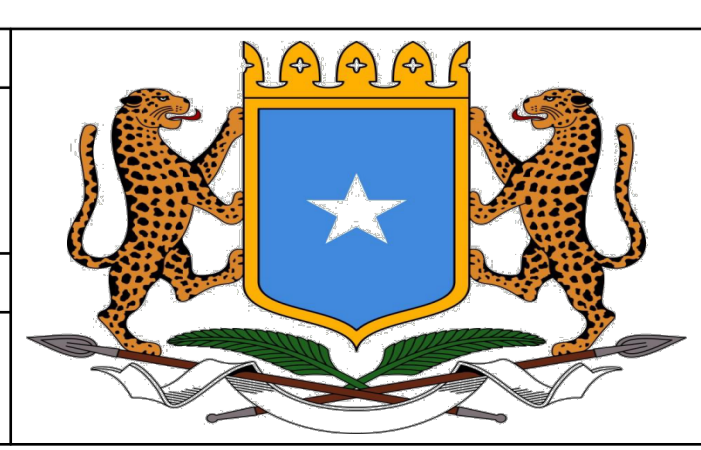
**C** LAT: 1°56'59.75"N  
LON: 45°10'44.40"E

**B** LAT: 1°56'59.32"N  
LON: 45°10'45.75"E

**D** LAT: 1°56'59.78"N  
LON: 45°10'45.90"E

**PROJECT SITE AREA: ABCD**

Architects	Project Title
	Somali Sustainable Fisheries Development Project (BADMAAL)
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



Revisions		
No.	Description	Date

Scale: **1:50**  
 Date: **10-03-2026**  
 Drawn By: **Gerald Nyanjua Amolo**

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
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Drawing No. & Title	
<b>JAZEERA</b>	<b>Site Data 3</b>
Sheet No.	
<b>A1</b>	<b>Project No: P178032</b>
Designed By	Approved By.
<b>Mohamed Abdi Ahmed Saahid</b>	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



مقام التخييم وبلان التخييم - مزارق با حسن

PROJECTS SITE

E 45°10'48"

Proposed Jetty

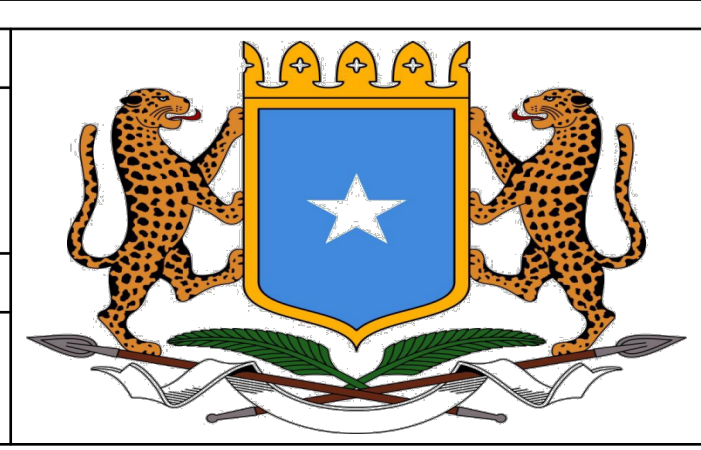
The Village Resta

Image © 2026 Airbus

270 ft

Imagery Date: 6/7/2023 1°57'00.49" N 45°10'45.47"

Architects	Project Title
	Somali Sustainable Fisheries Development Project (BADMAAL)
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



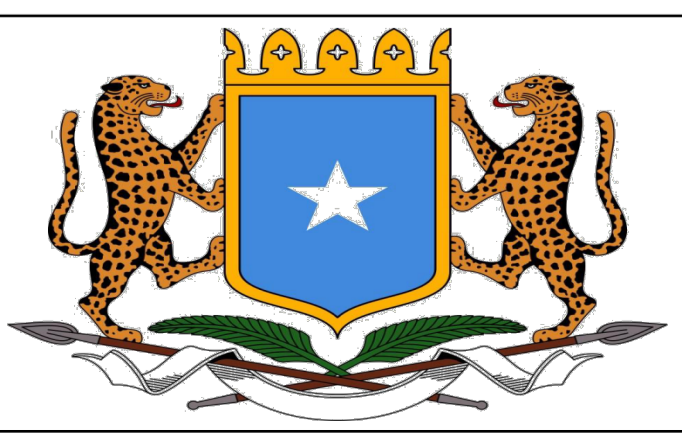
Revisions		
No.	Description	Date

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
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Scale	Drawing No. & Title	
1:50	JAZEERA	Site Data 4
Date	Sheet No.	
18-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
Gerald Nyanjua Amolo	Mohamed Abdi Ahmed Saahid	



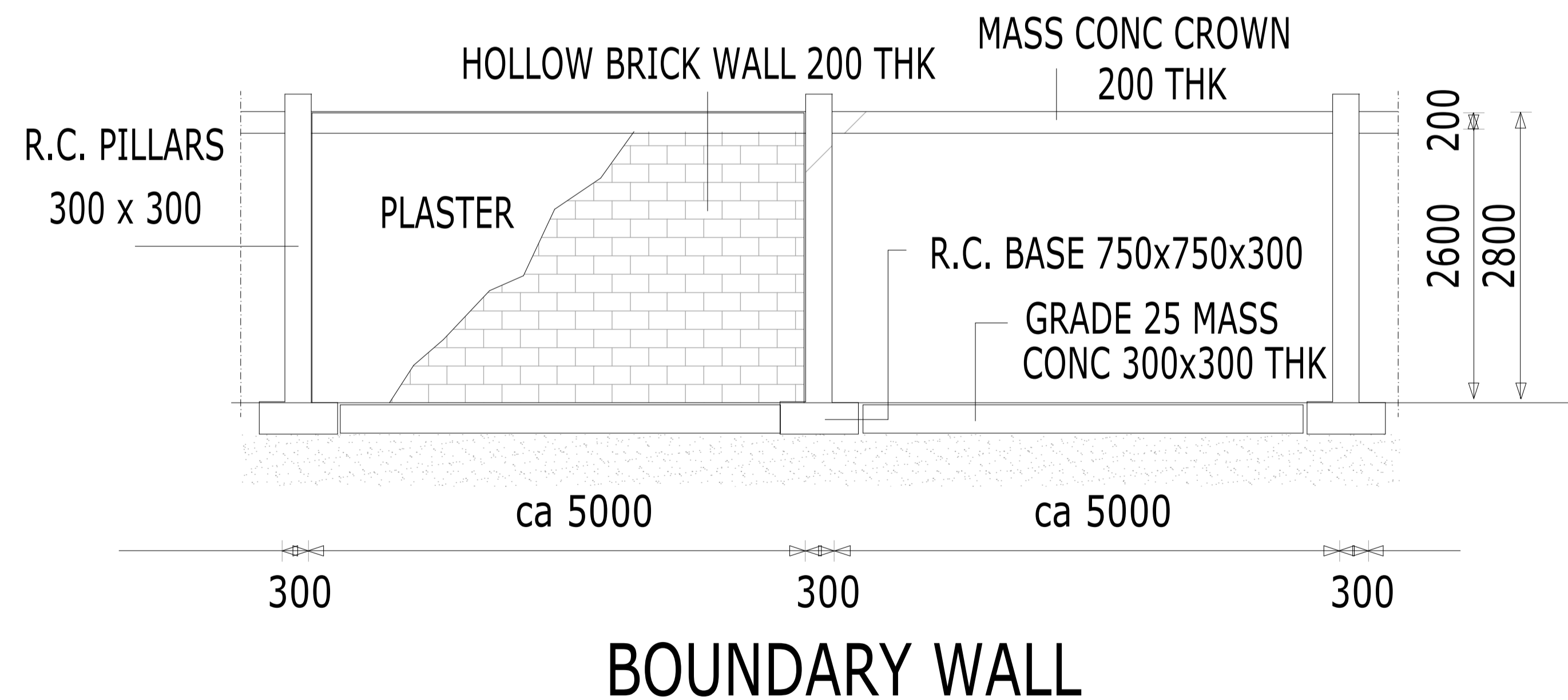
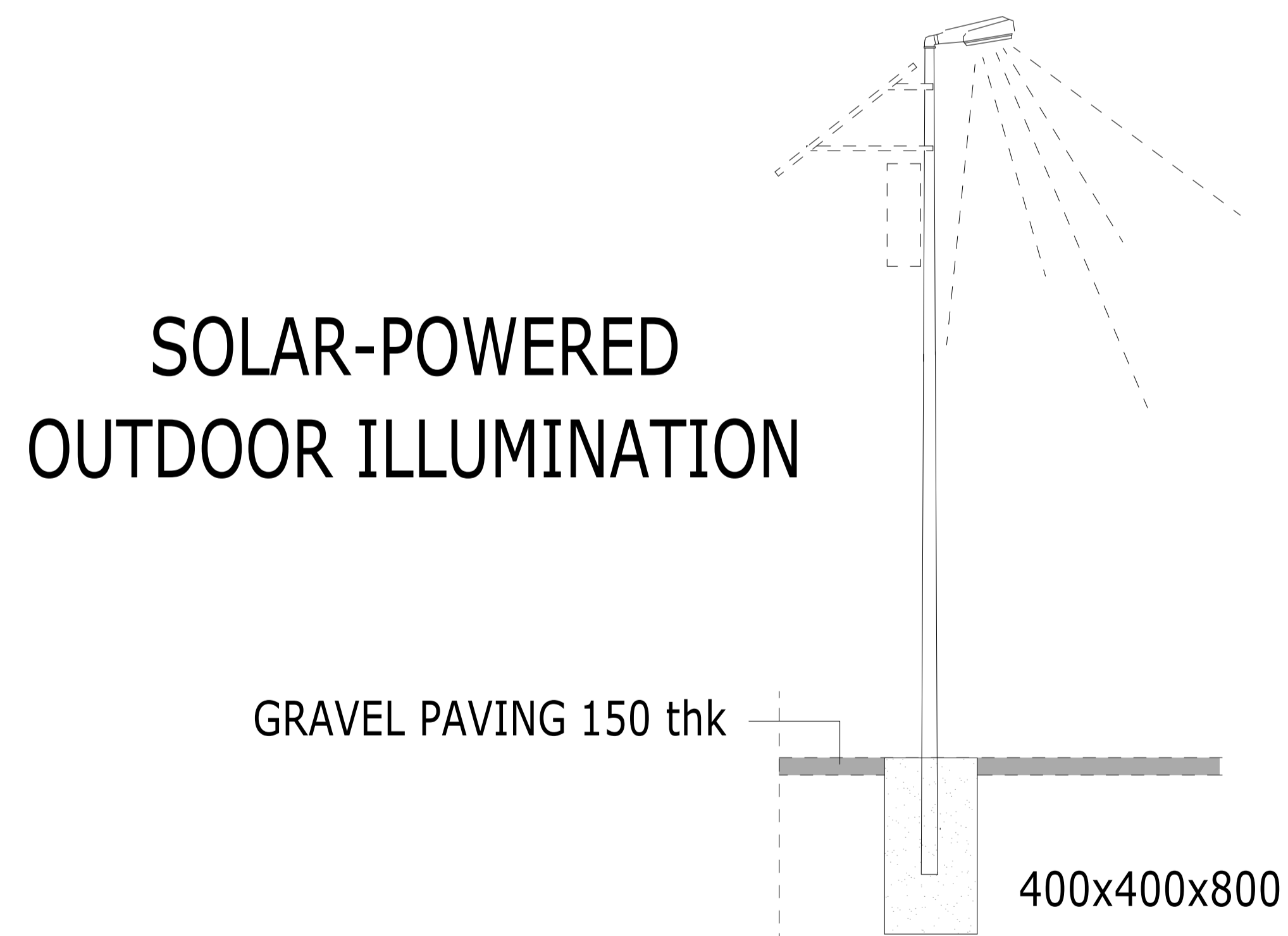
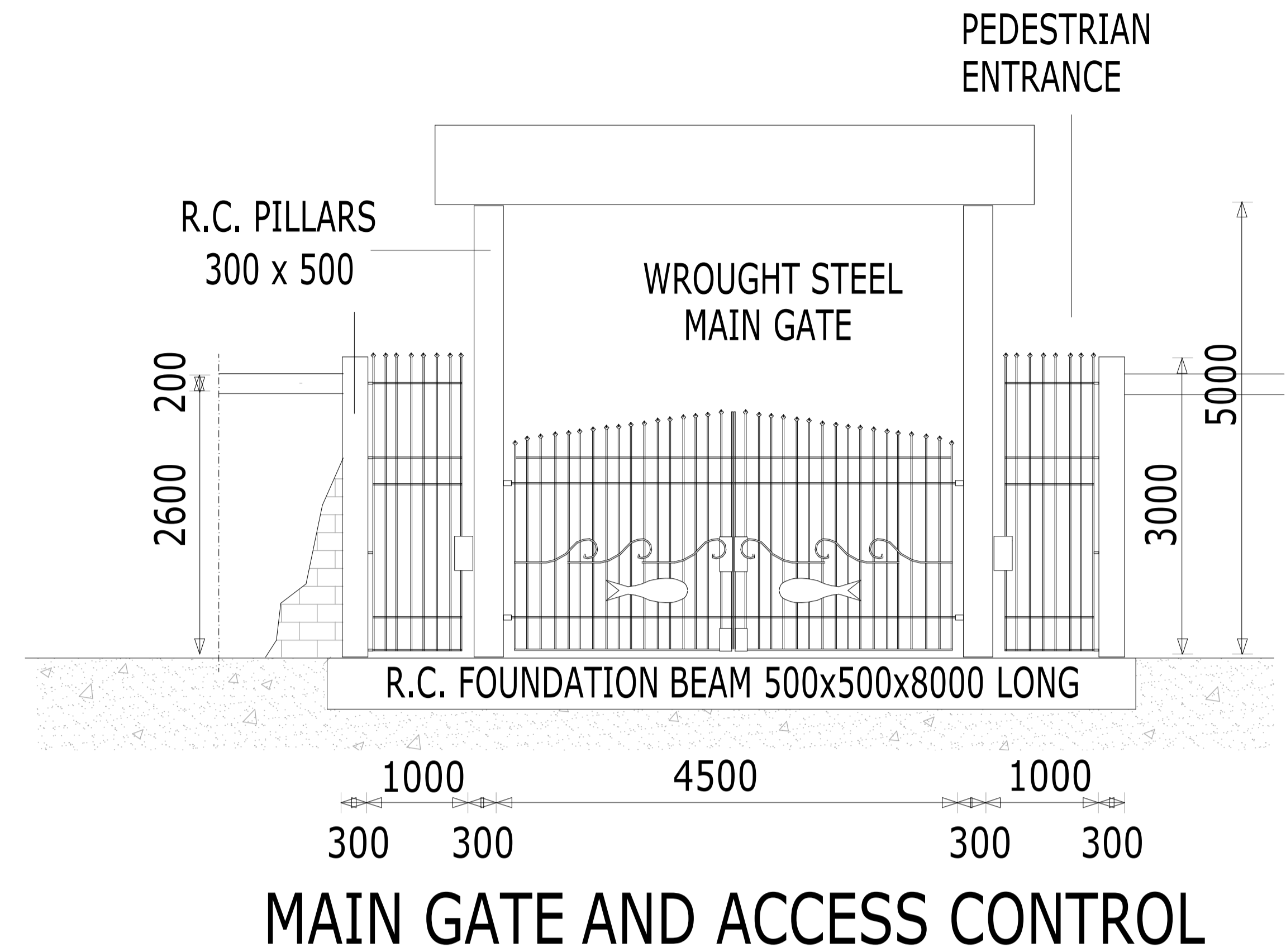
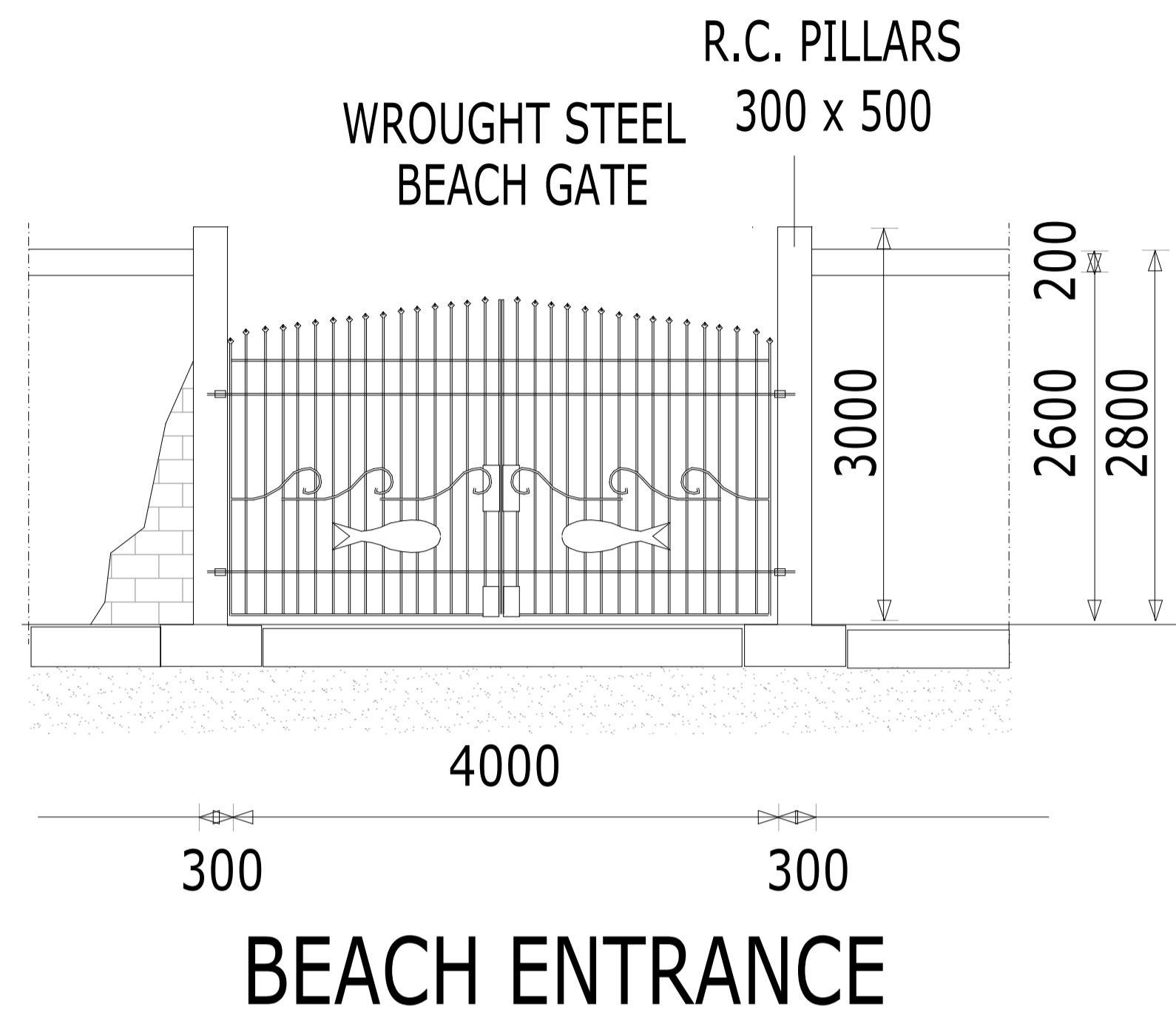
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 Somali Sustainable Fisheries Development Project	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



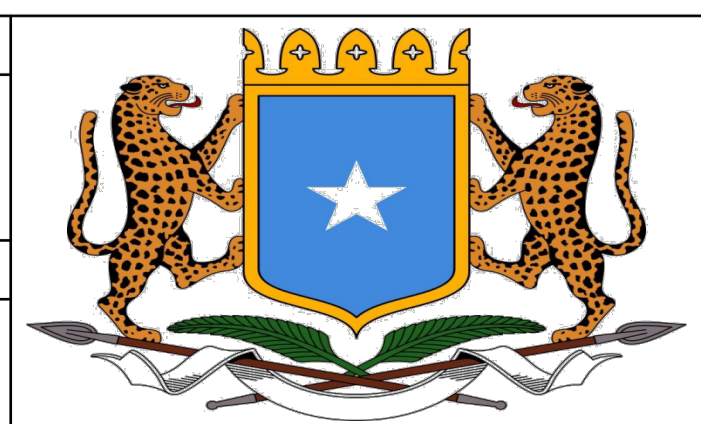
Revisions		
No.	Description	Date

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:2500</b>	<b>JAZEERA</b>	<b>Site Location Plan</b>
Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>Gerald Nyanjua Amolo</b>	<b>Mohamed Abdi Ahmed Saahid</b>	<b>Eng. Mohammed Saahid</b>



Architects	Project Title
	Somali Sustainable Fisheries Development Project (BADMAAL)
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



Revisions		
No.	Description	Date

Scale: 1:50

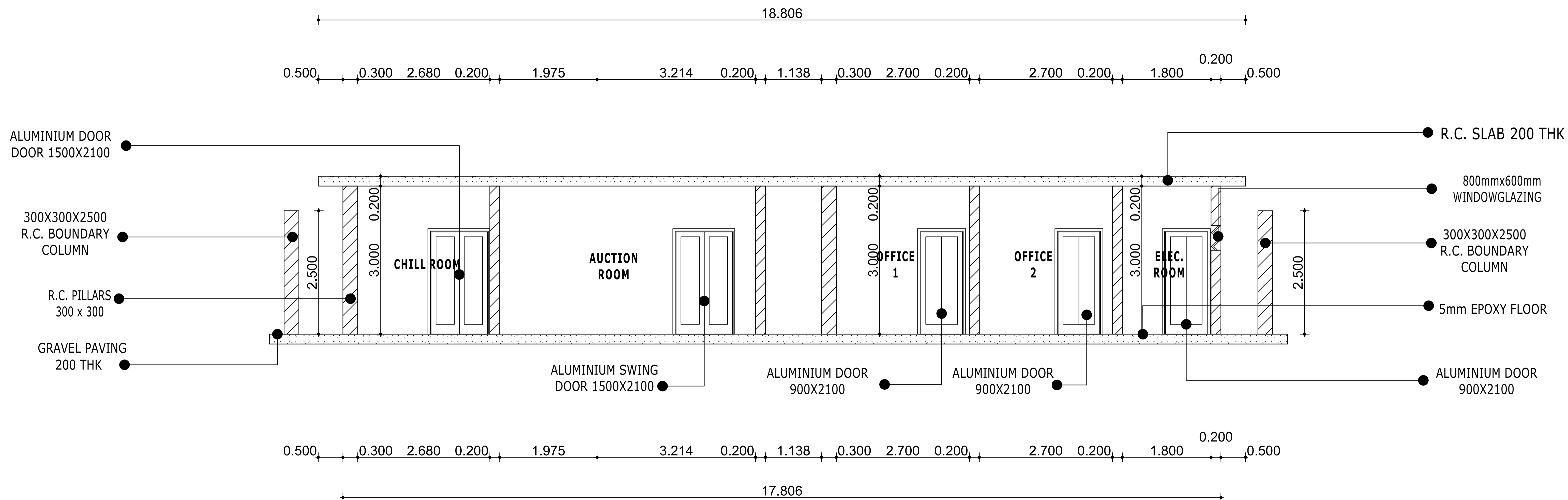
Date: 10-03-2026

Drawn By: J.A. Sciorfino

NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.

Drawing No. & Title	
JAZEERA	Perimeter Details
Sheet No.	
A1	Project No: P178032
Designed By	Approved By.
Mohamed Abdi Ahmed Saahid	

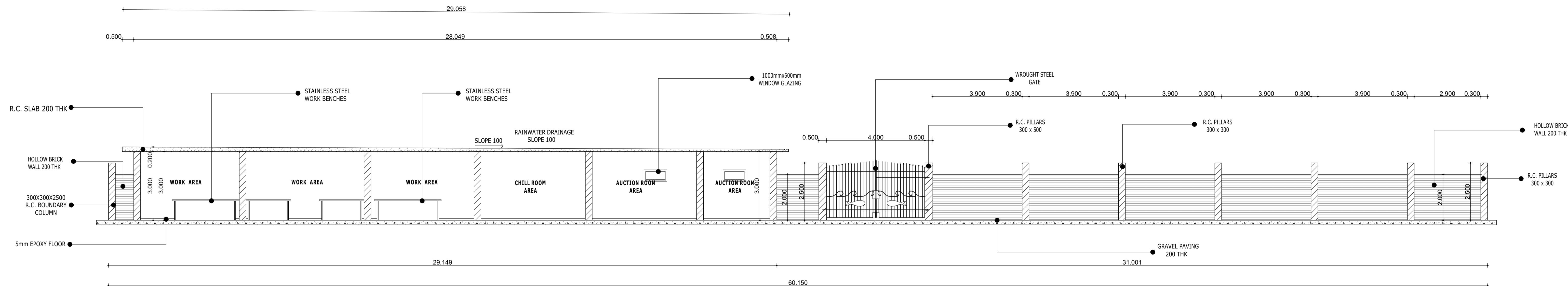




**NOTES**

All dimensions are in mm.  
 All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449  
 Minimum cover to reinforcement to be 50 mm unless otherwise stated  
 Minimum lap length to be 32 times bar diameter  
 10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm

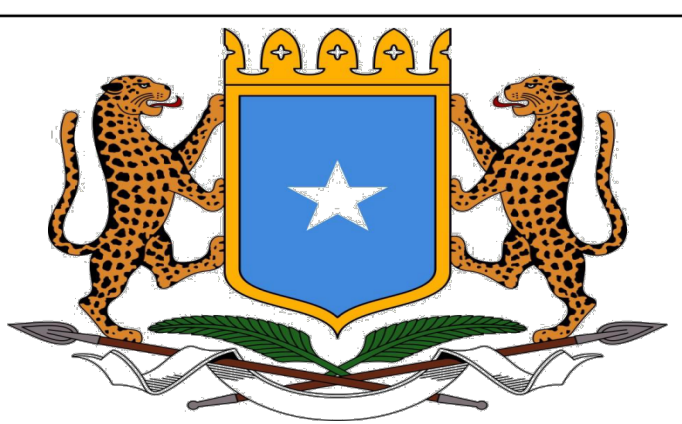
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	Client			Description	Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			Date	10-03-2026	A1	Project No: P178032
<small>NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.</small>				Drawn By	Designed By	Approved By.	
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid		



**NOTES**

All dimensions are in mm.  
 All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449  
 Minimum cover to reinforcement to be 50 mm unless otherwise stated  
 Minimum lap length to be 32 times bar diameter  
 10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm

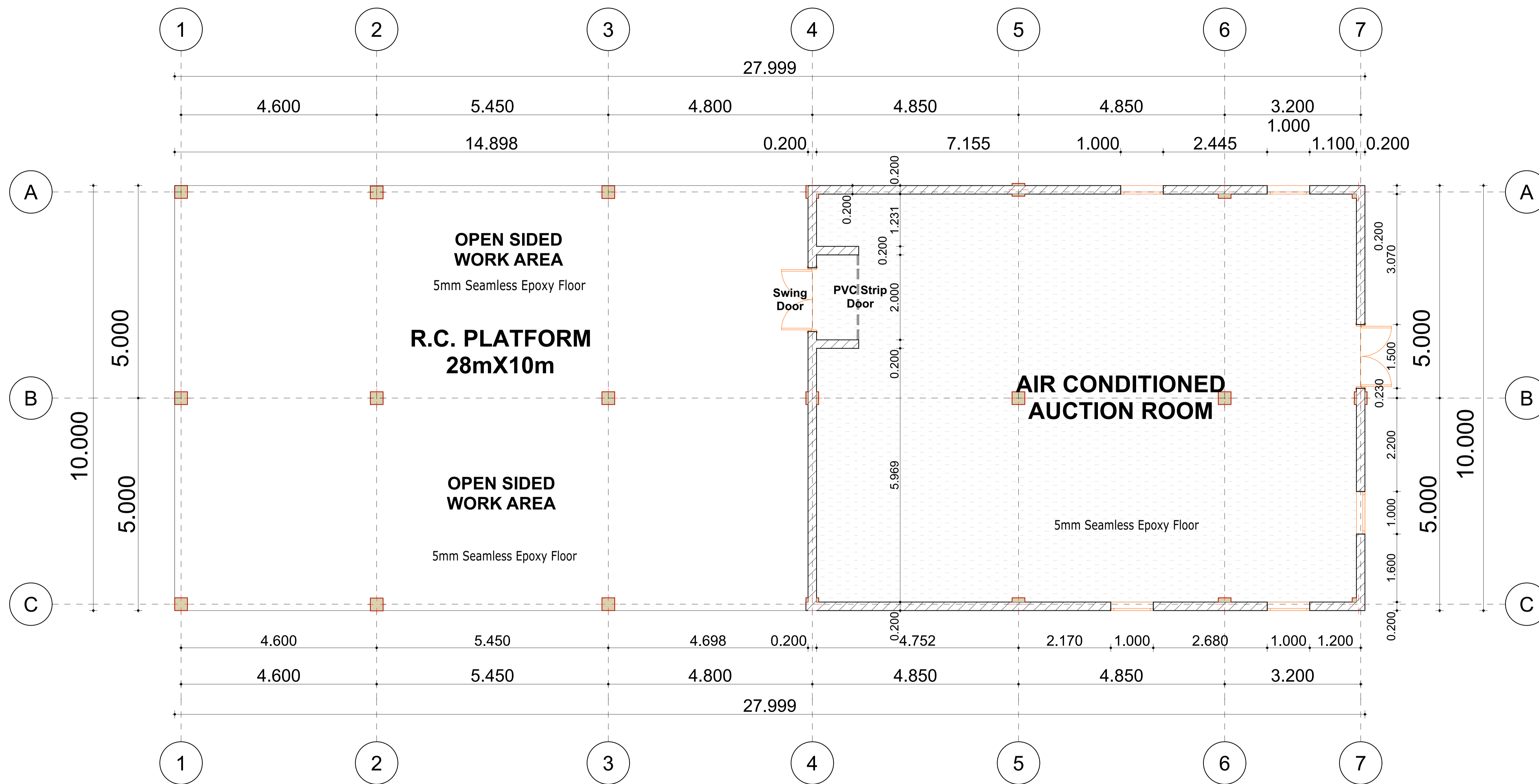
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



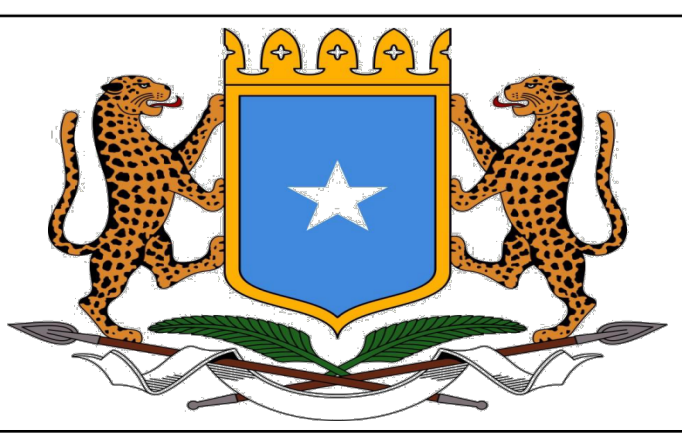
Revisions		
No.	Description	Date

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<b>1:50</b>	<b>JAZEERA Landscape Section 2</b>	
Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



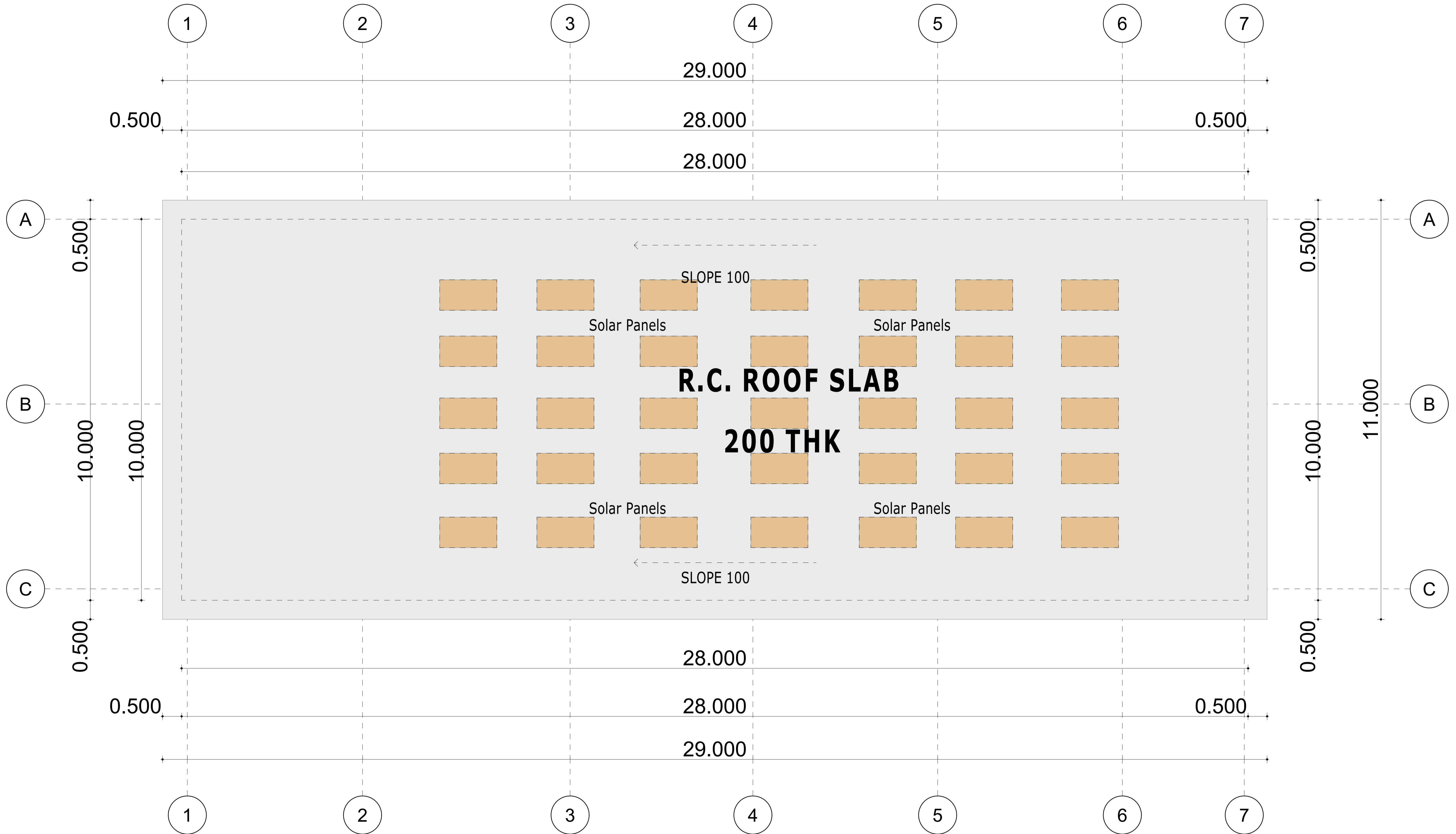
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



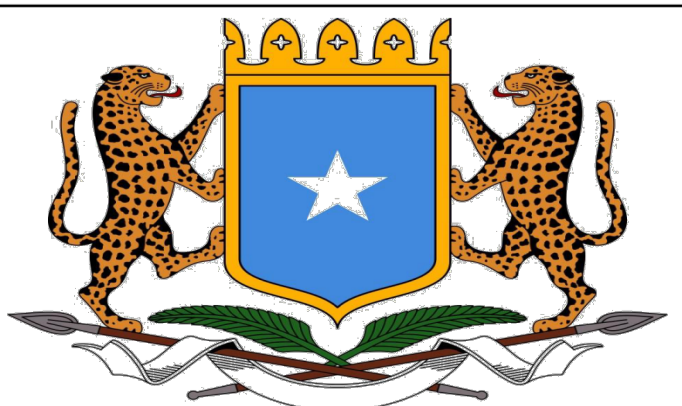
Revisions		
No.	Description	Date

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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:50</b>	<b>JAZEERA R.C Platform Floor Plan</b>	
Date	Sheet No.	
<b>18-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



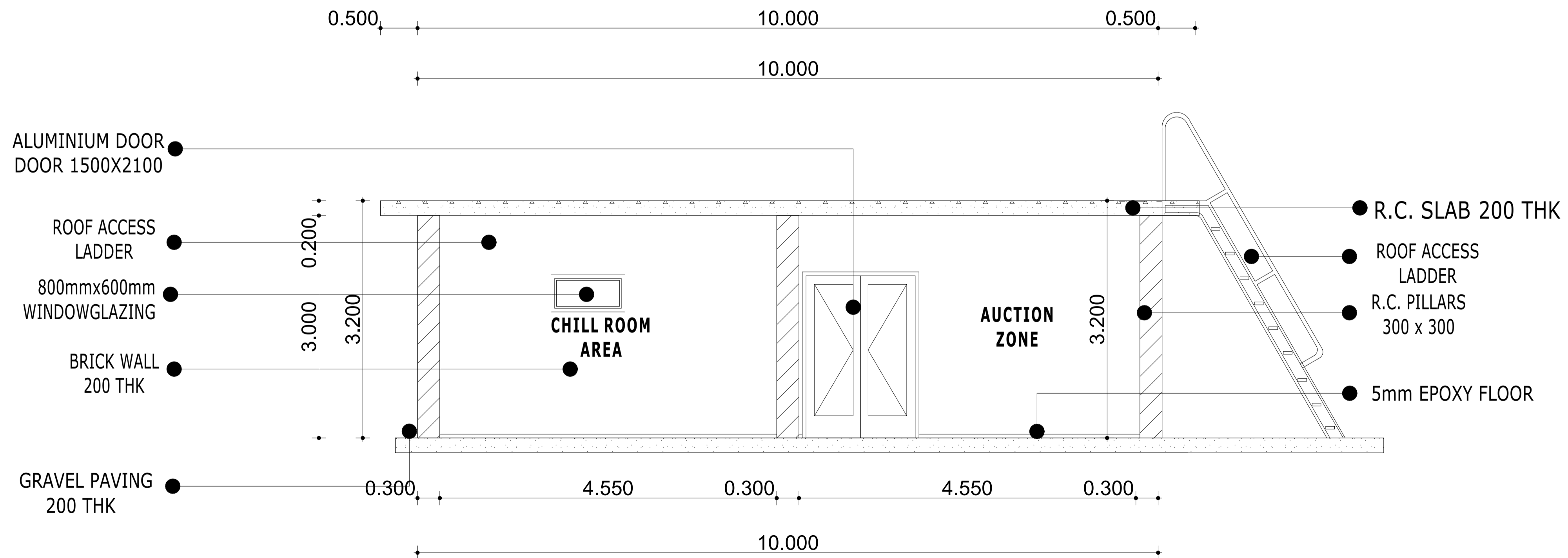
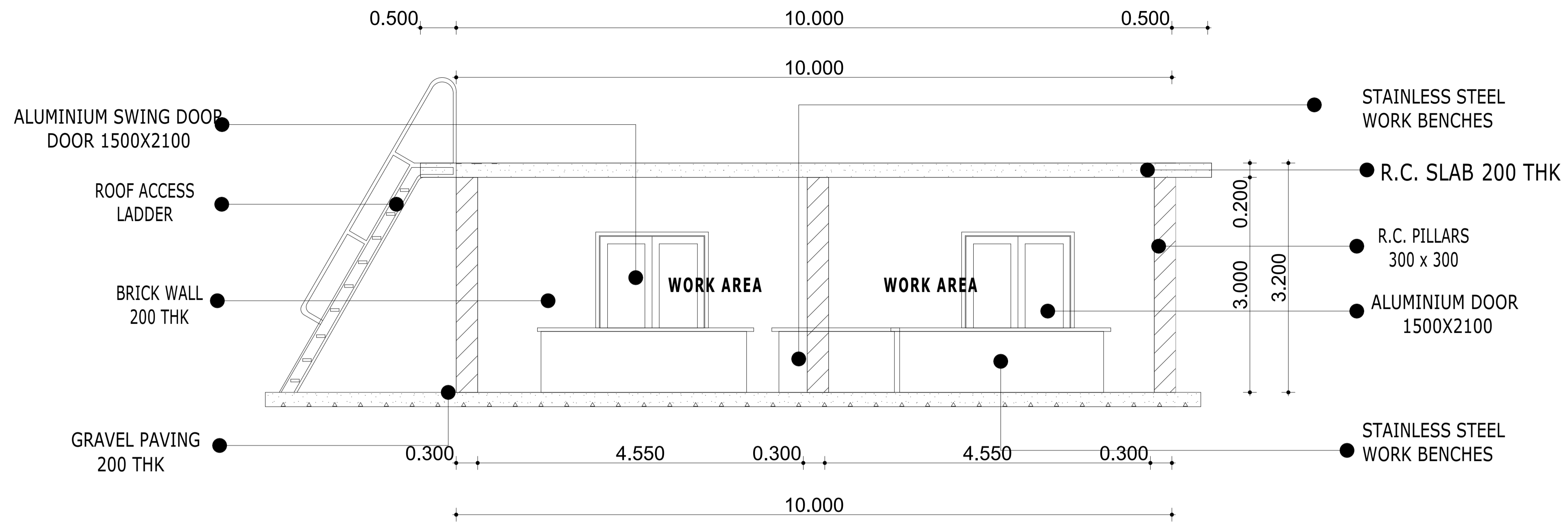
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



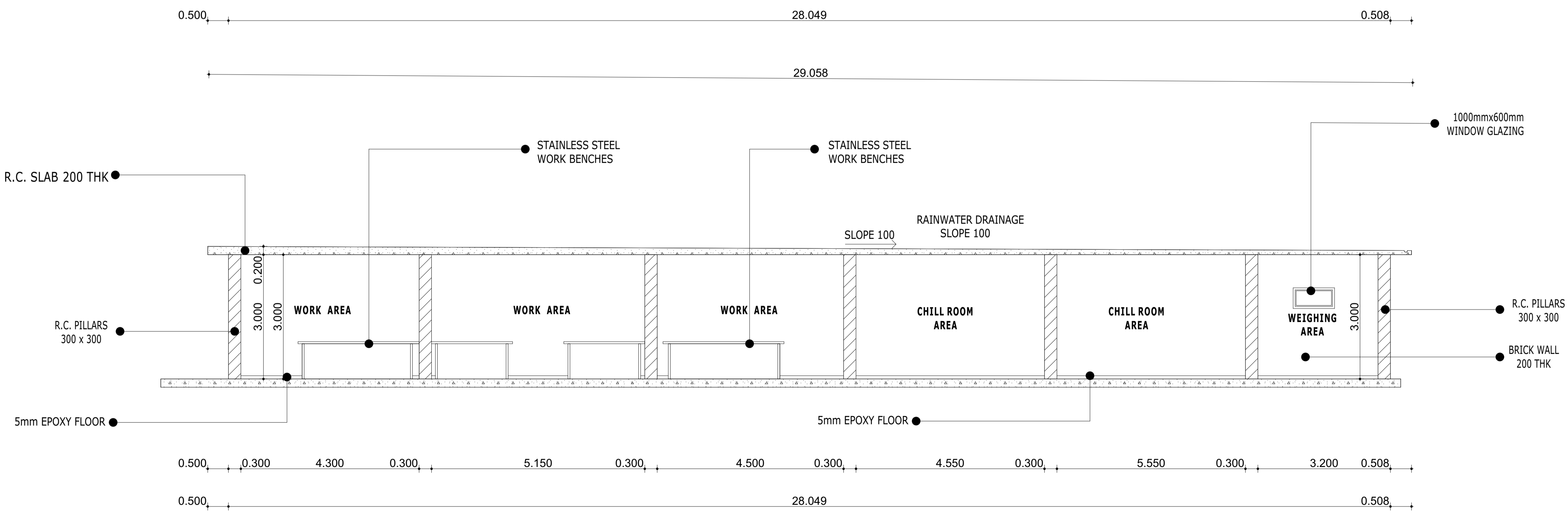
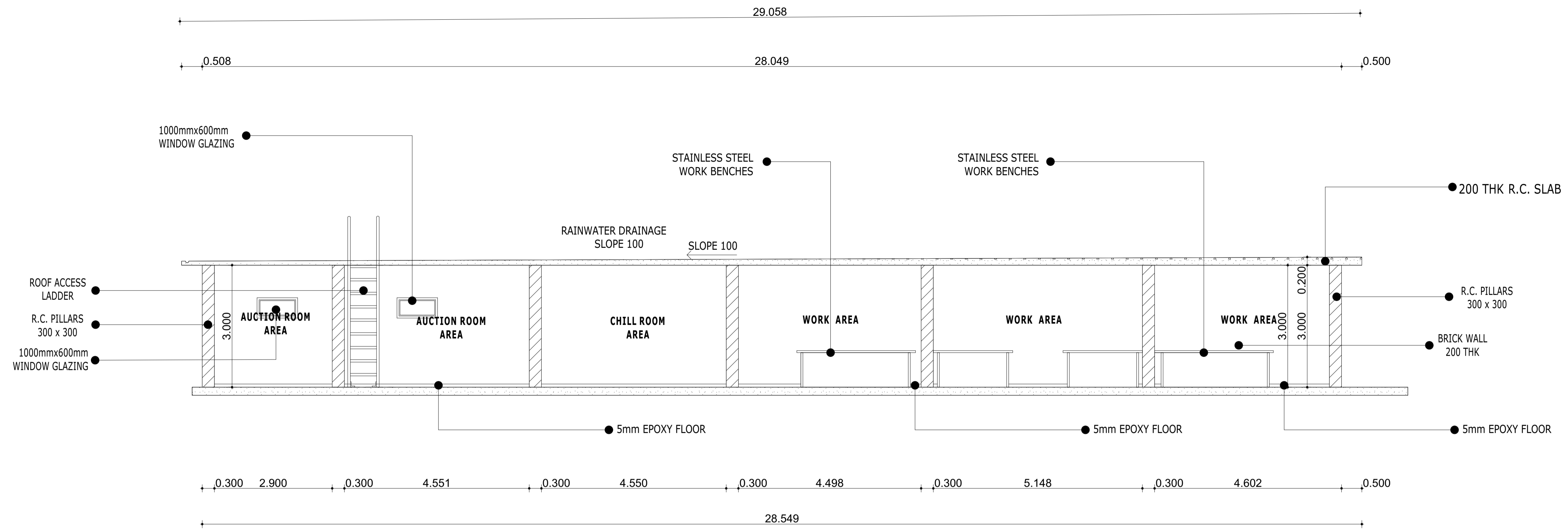
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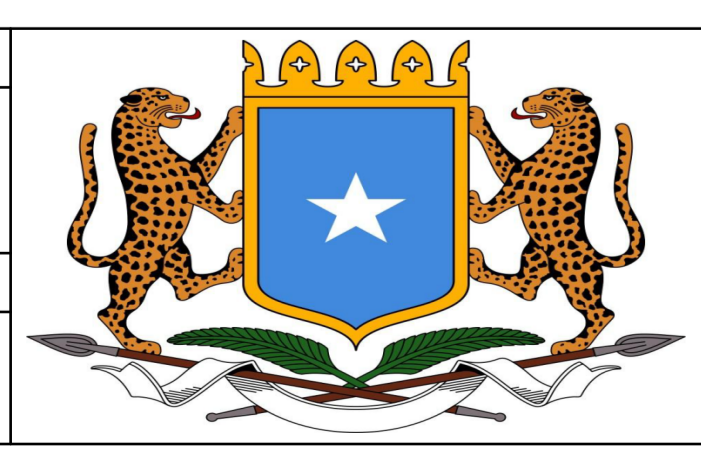
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Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciorfino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



<b>Architects</b> 	<b>Project Title</b> Somali Sustainable Fisheries Development Project (BADMAAL)		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>			Scale <b>1:50</b>	Drawing No. & Title <b>JAZEERA R.C Platform East, West Elevation</b>											
	<b>Client</b> Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date												
No.	Description	Date																	
NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.				Drawn By <b>J.A. Sciortino</b>	Designed By <b>Mohamed Abdi Ahmed Saahid</b>	Approved By.													



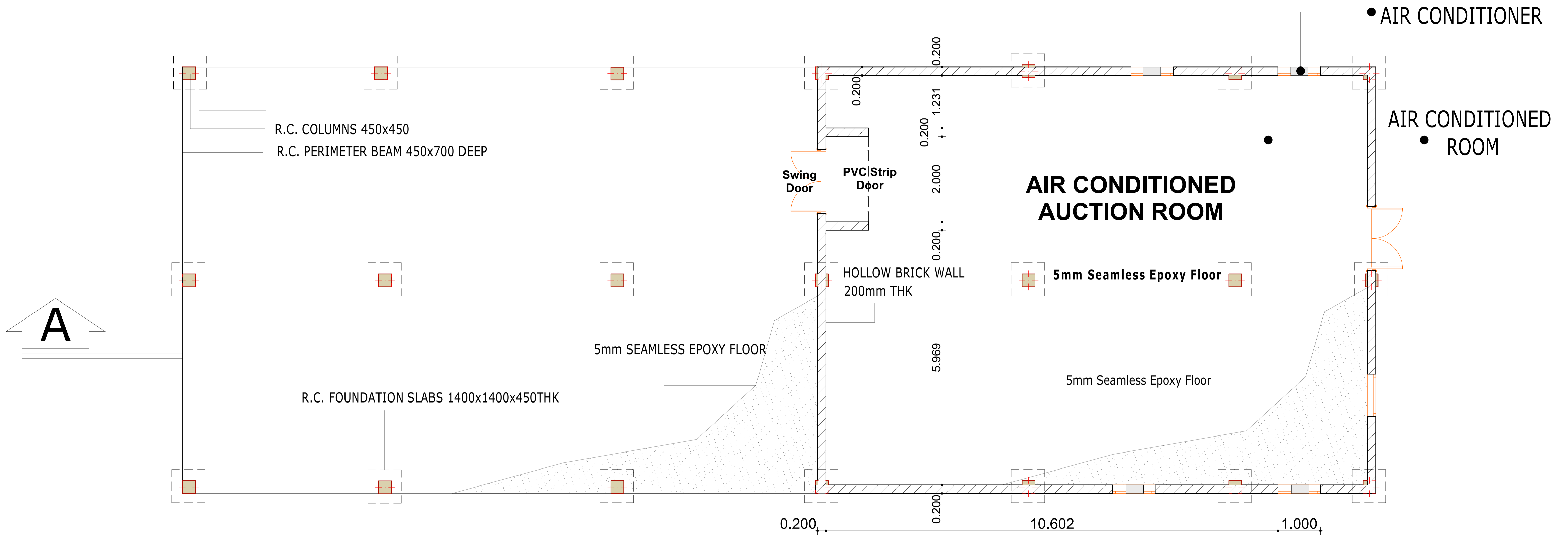
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



Revisions		
No.	Description	Date

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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:50</b>	<b>JAZEERA R.C Platform North, South Elevation</b>	
Date	Sheet No.	
<b>11-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



**NOTES**

**All dimensions are in mm.**

**All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449**

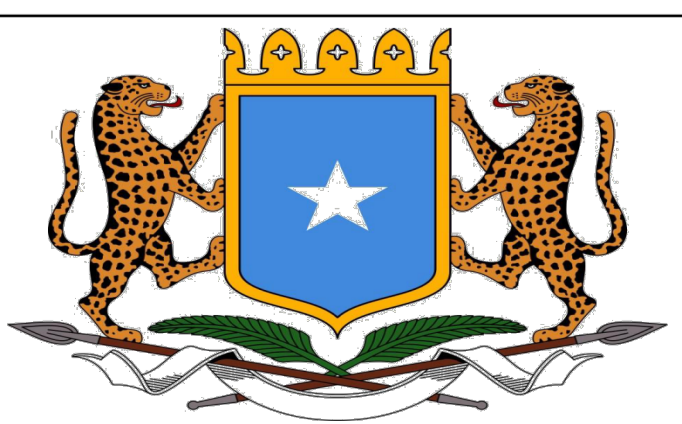
**Minimum cover to reinforcement to be 50 mm unless otherwise stated**

**Minimum lap length to be 32 times bar diameter**

**10:12:301:100 denotes 10 nos HYS 12mm bars**

**mark 301 at 100 mm**

<b>Architects</b>	<b>Project Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
<b>Client</b>	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>

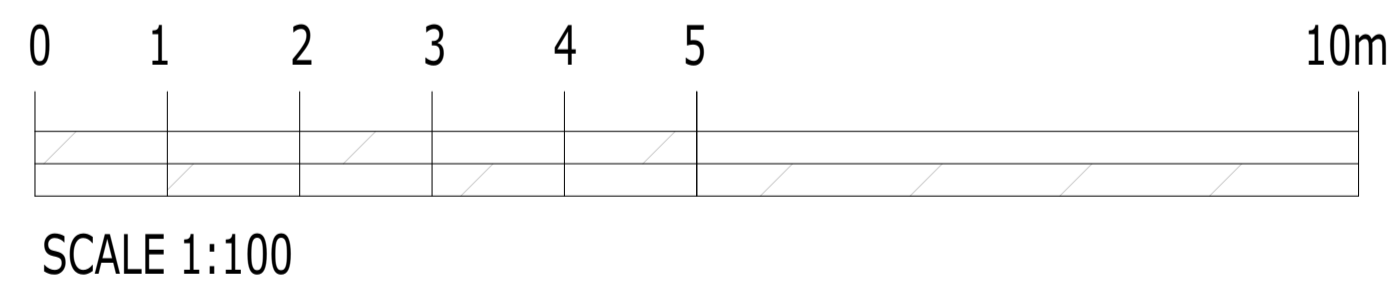
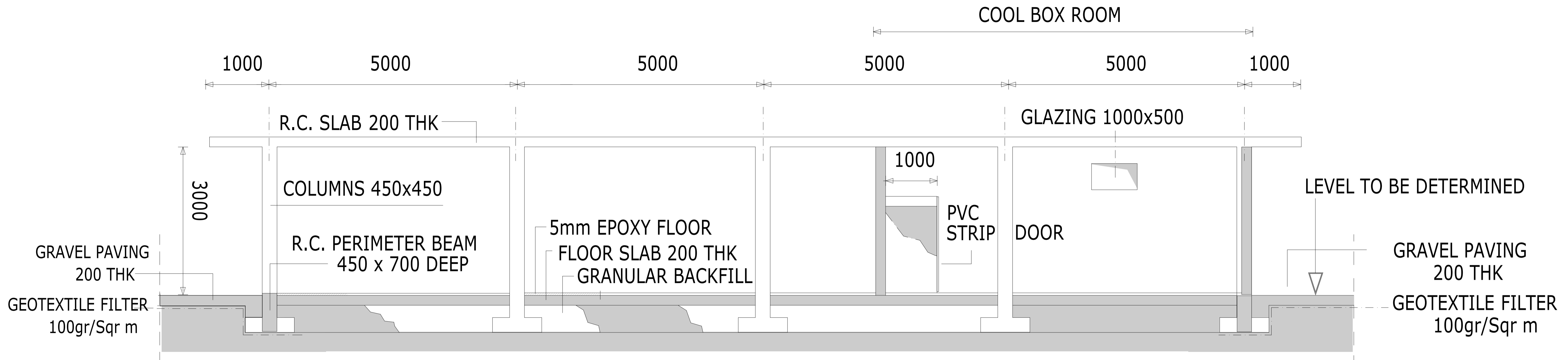


Revisions		
No.	Description	Date

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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:50</b>	<b>JAZEERA R.C Platform Details</b>	
<b>Date</b>	<b>Sheet No.</b>	
<b>18-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
<b>Drawn By</b>	<b>Designed By</b>	<b>Approved By.</b>
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	

# SECTION A

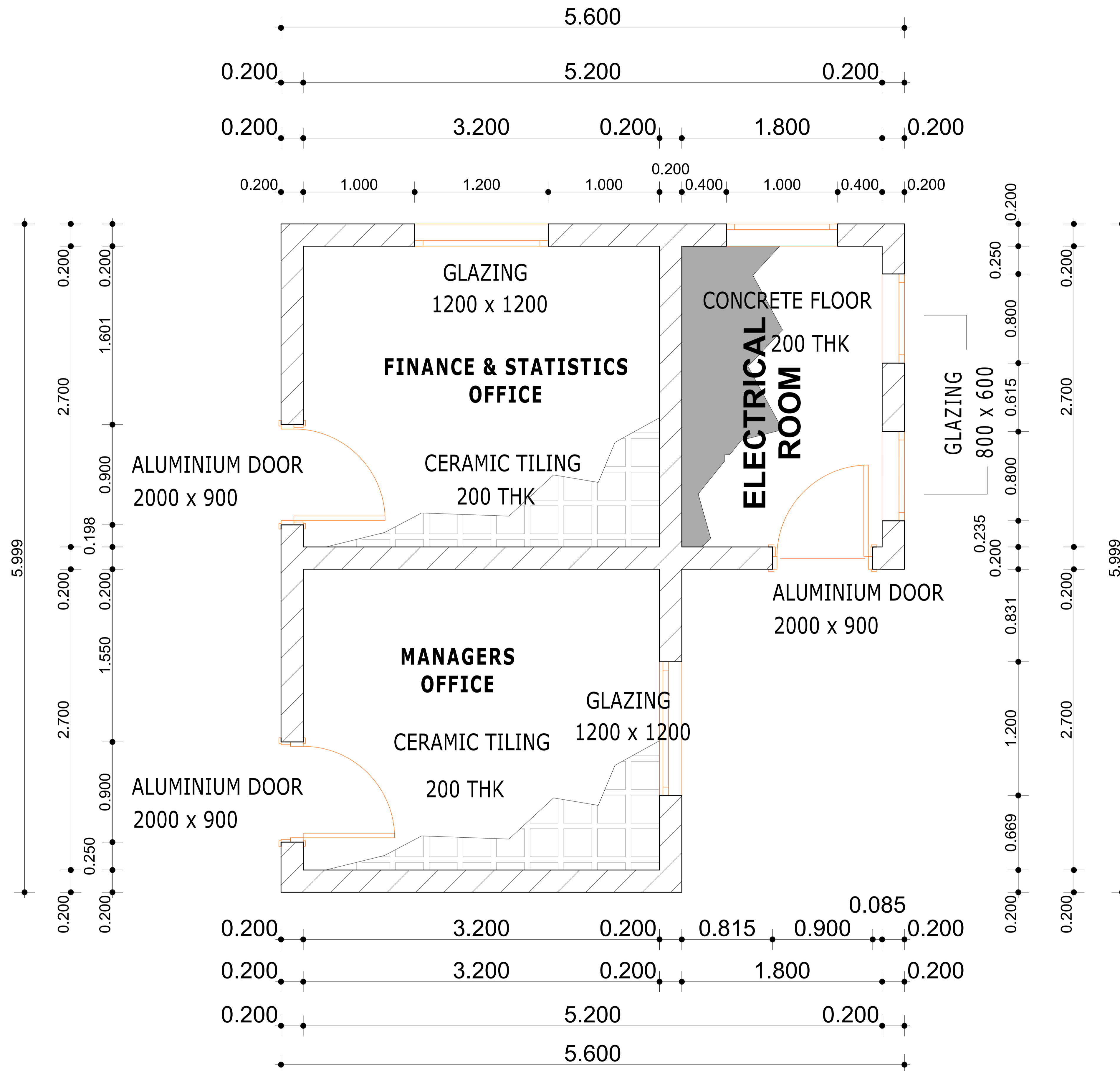


## NOTES

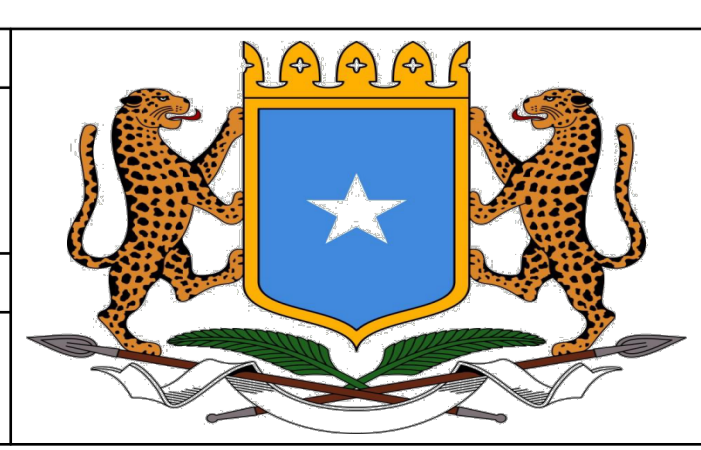
ALL CONCRETE GRADE 35  
 SOLAR PV PANELS TO BE INSTALLED  
 ON ROOF OF PLATFORM

<b>Architects</b>	<b>Project Title</b>			<b>Revisions</b>		<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	Description	Date	<b>1:25</b>	<b>JAZEERA R.C Platform Details Section</b>
	<b>Client</b>					Date	Sheet No.	
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>					<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
						Drawn By	Designed By	Approved By.
						<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	

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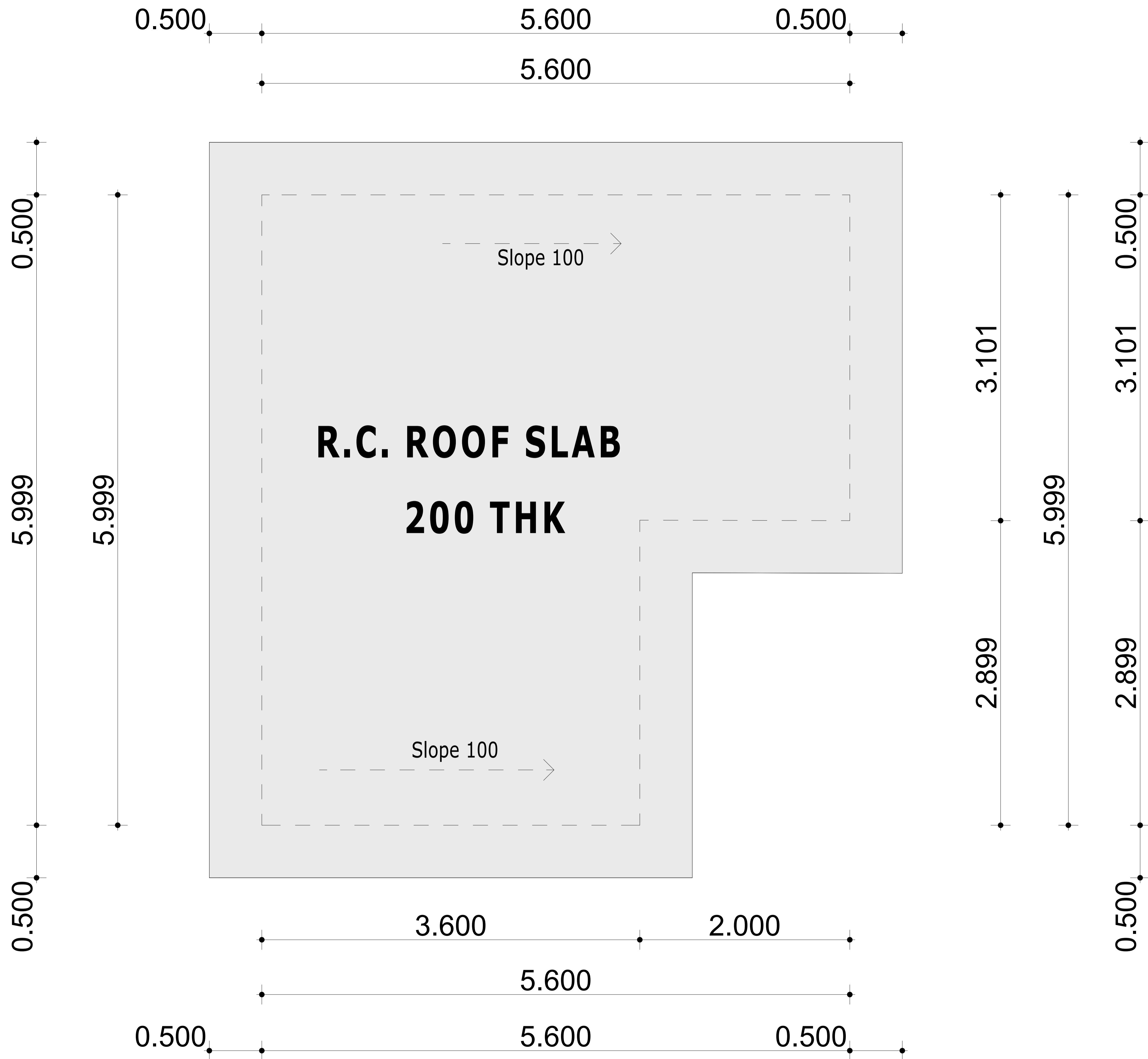
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	<b>Client</b>
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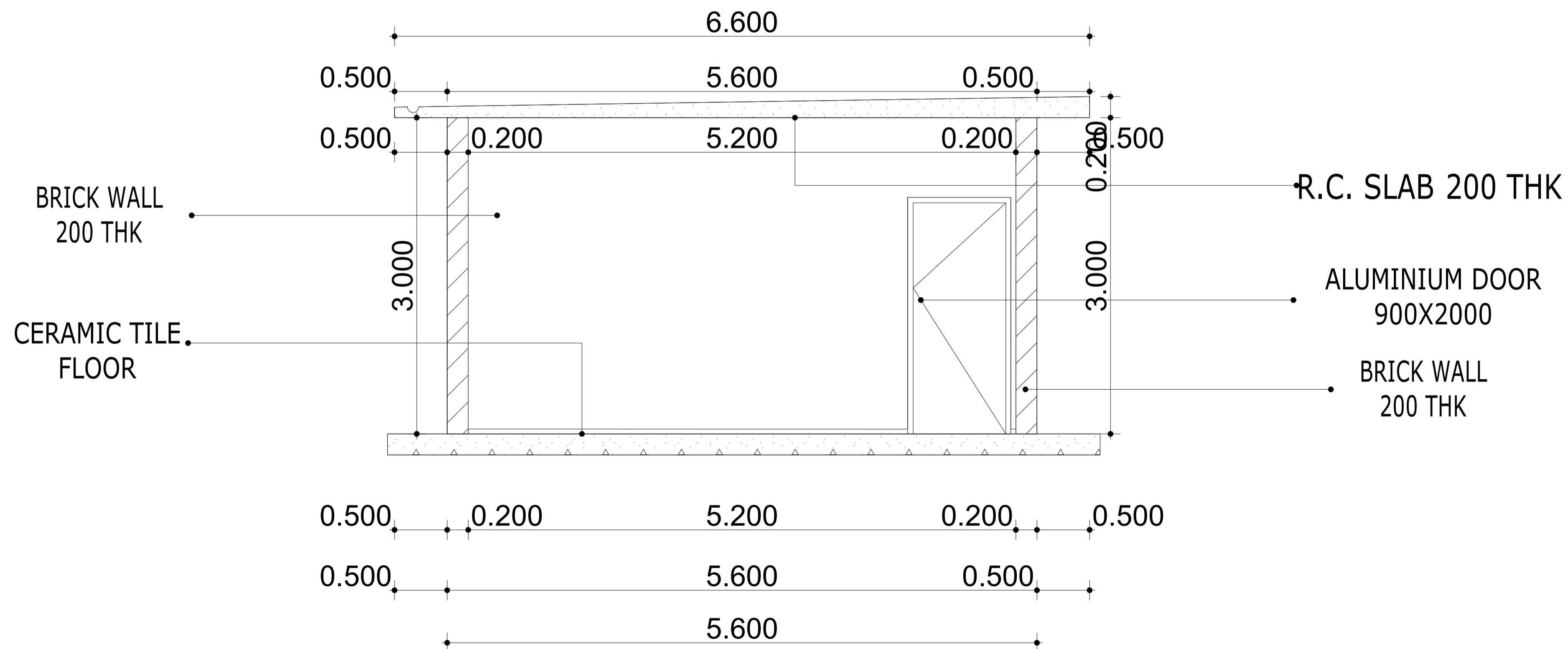
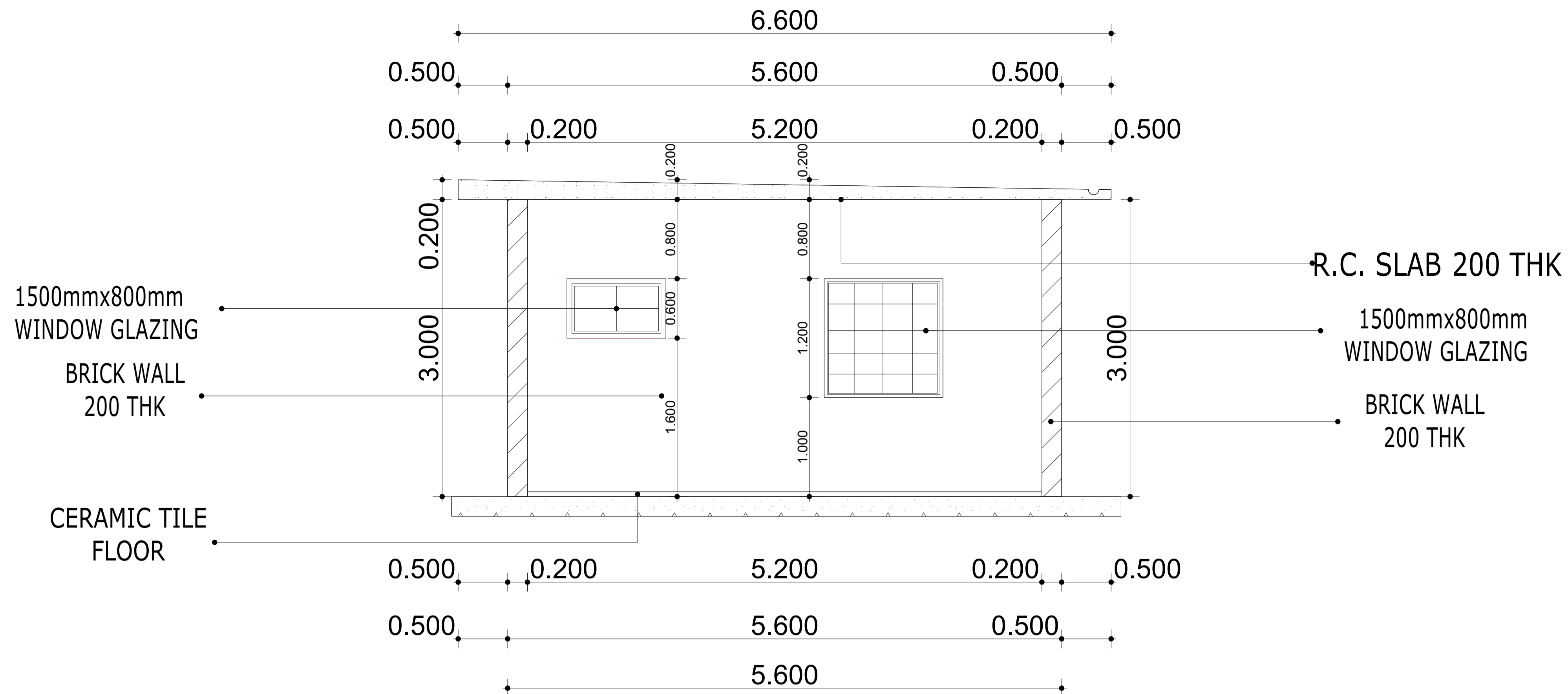
Revisions		
No.	Description	Date

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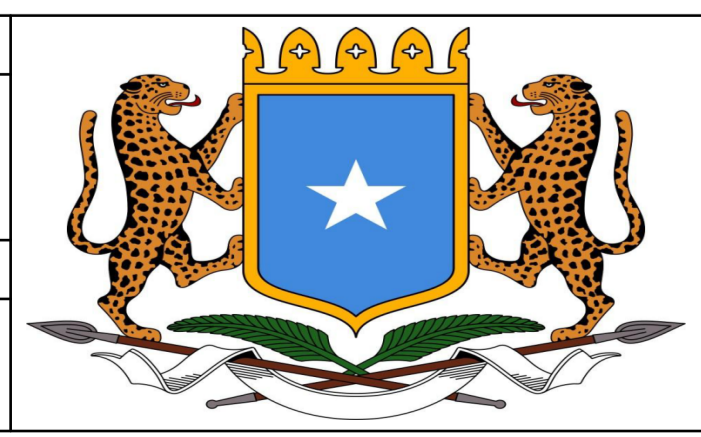
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<b>1:30</b>	<b>JAZEERA Staff Offices Block Layout Plan</b>	
Date	Sheet No.	
<b>18-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



<b>Architects</b>	<b>Project Title</b>			<b>Revisions</b>	Scale	Drawing No. & Title														
	Somali Sustainable Fisheries Development Project (BADMAAL)			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date													1:30
	No.	Description	Date																	
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			18-03-2026	A1	Project No: P178032														
<small>NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.</small>				Drawn By	Designed By	Approved By.														
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid															



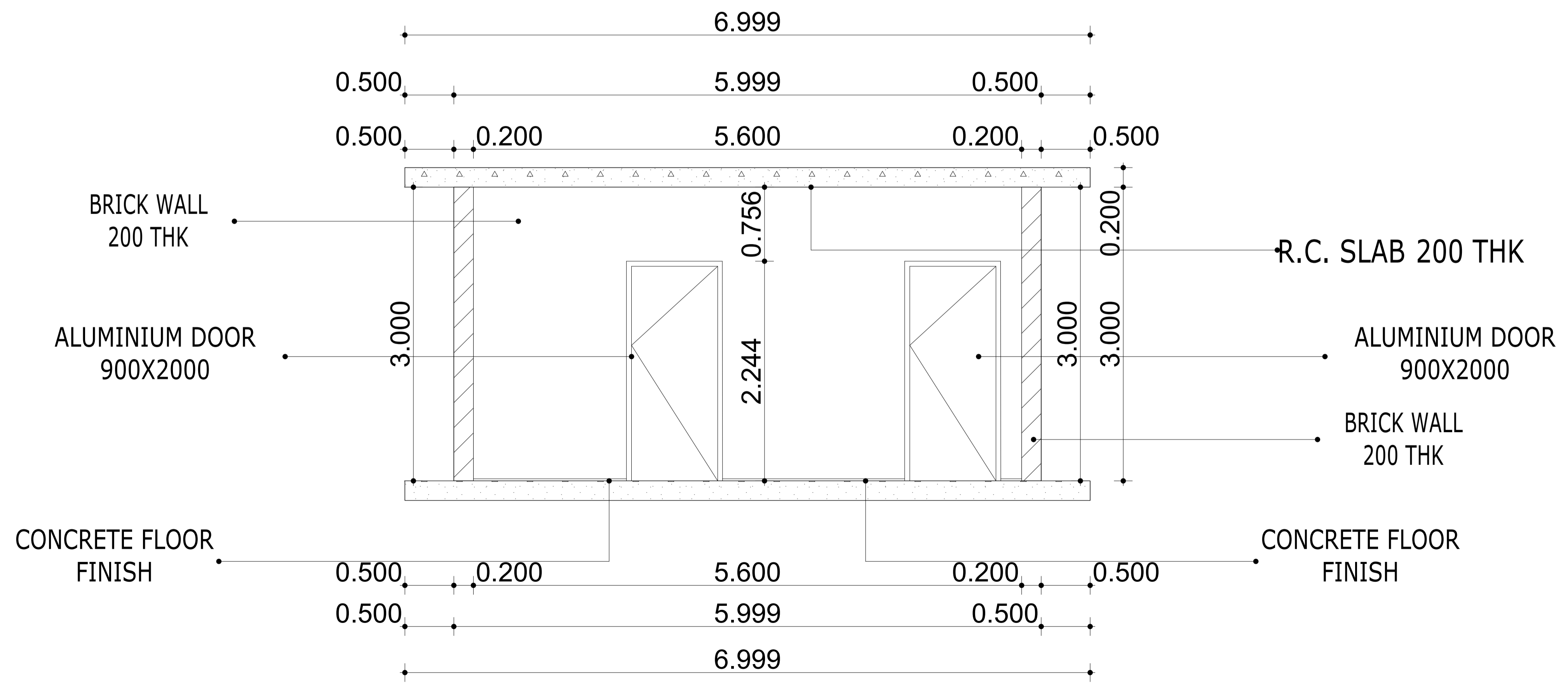
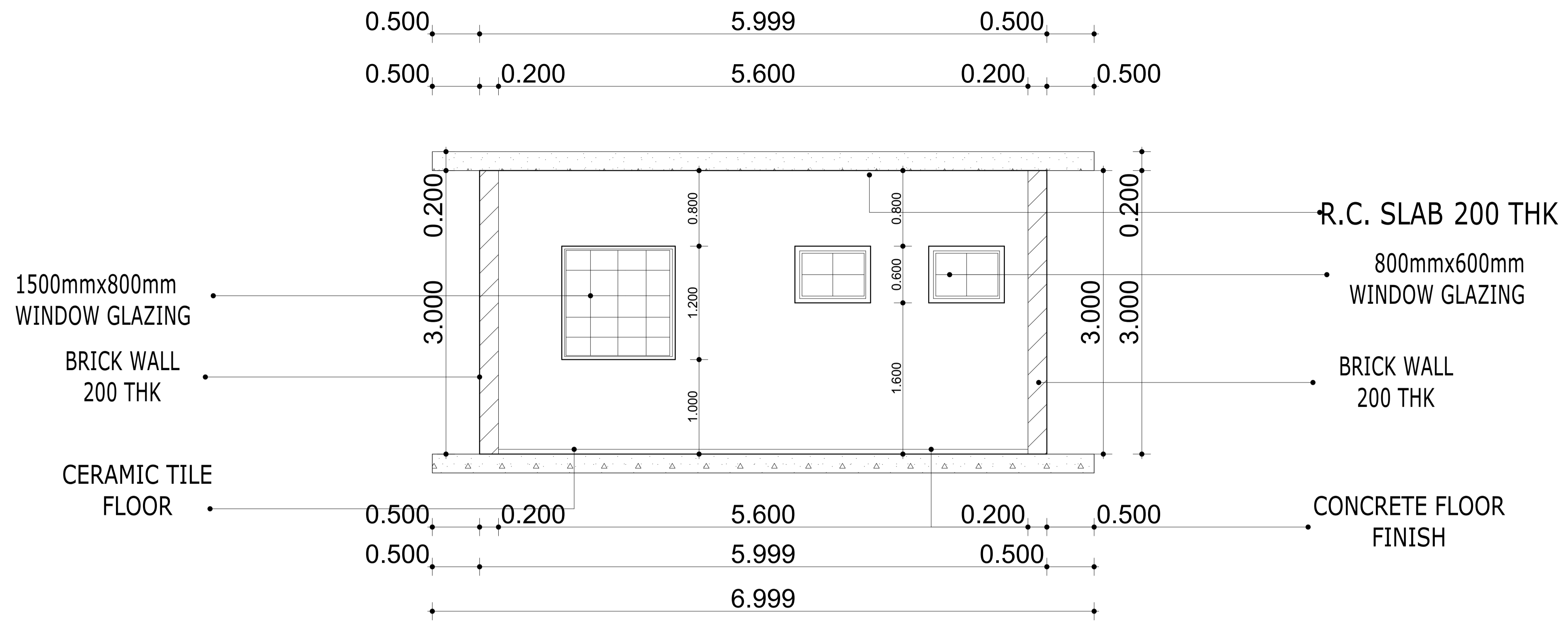
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
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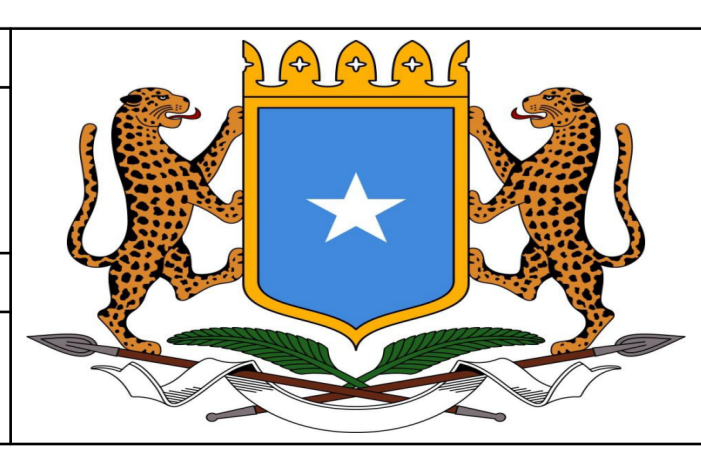
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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:50</b>	<b>JAZEERA Staff Offices Block, East, West Elevations</b>	
Date	Sheet No.	
<b>16-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



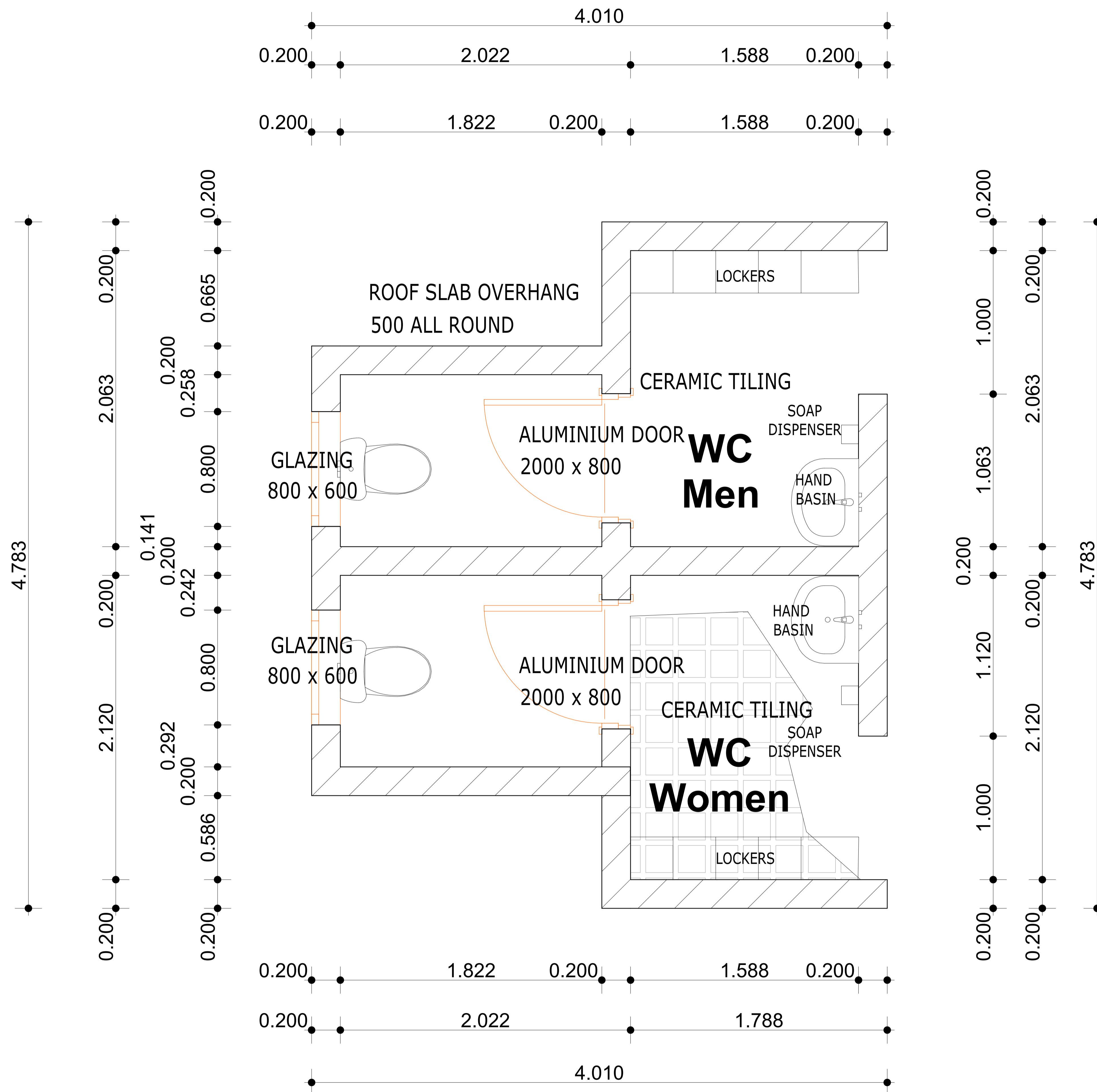
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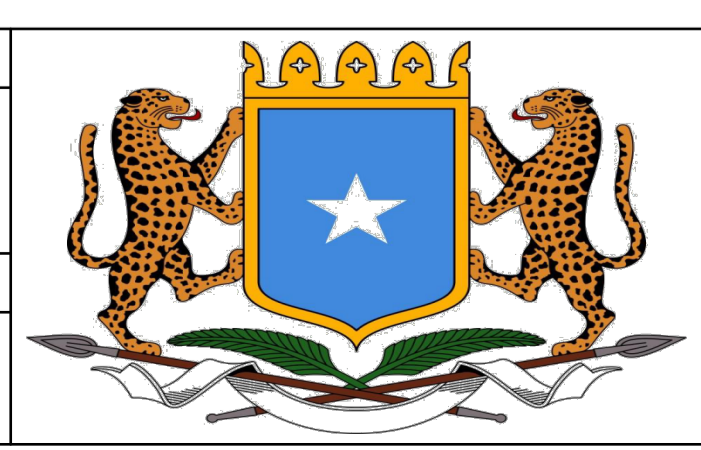
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<b>1:50</b>	<b>JAZEERA Staff Offices Block, North, South Elevations</b>	
Date	Sheet No.	
<b>16-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



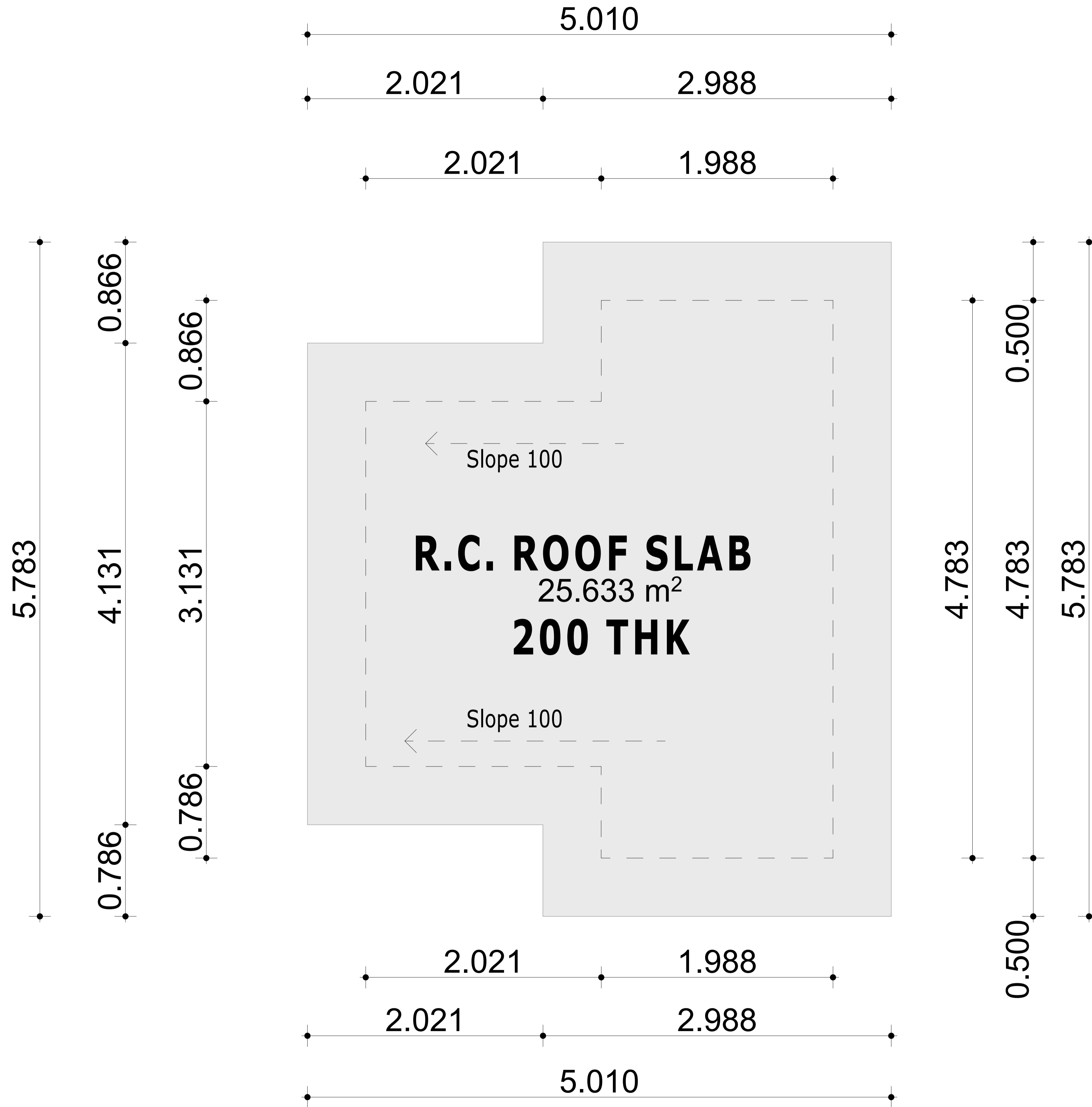
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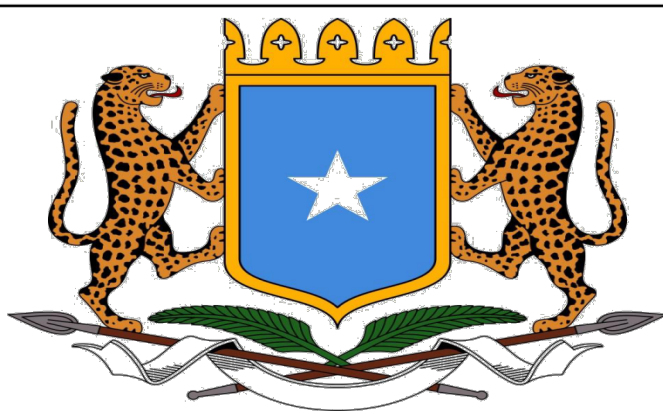
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No.	Description	Date

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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
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Date	Sheet No.	
<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



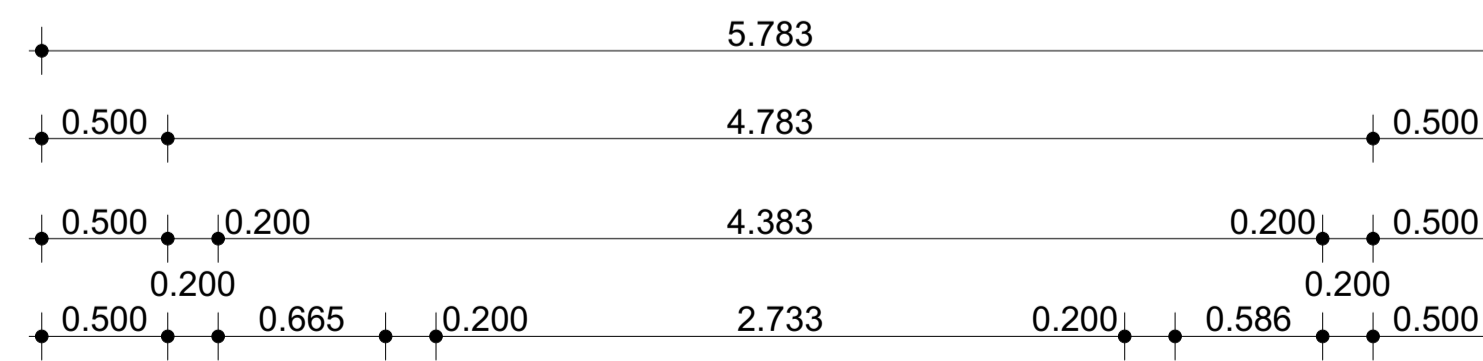
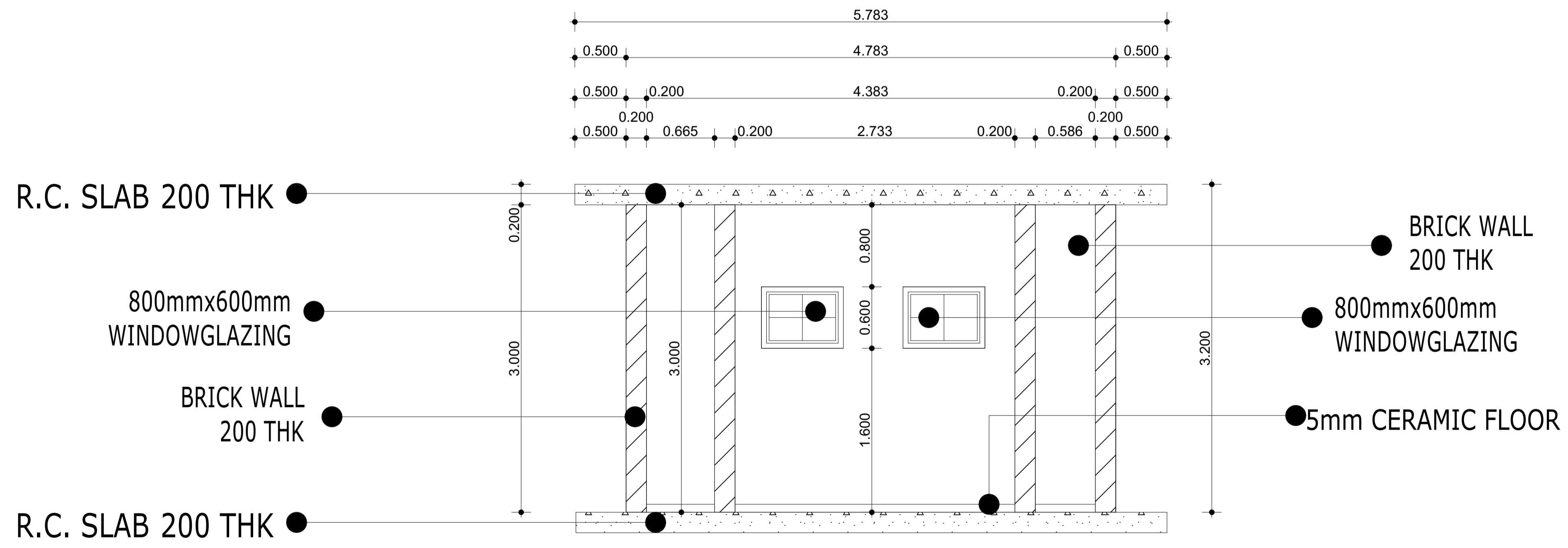
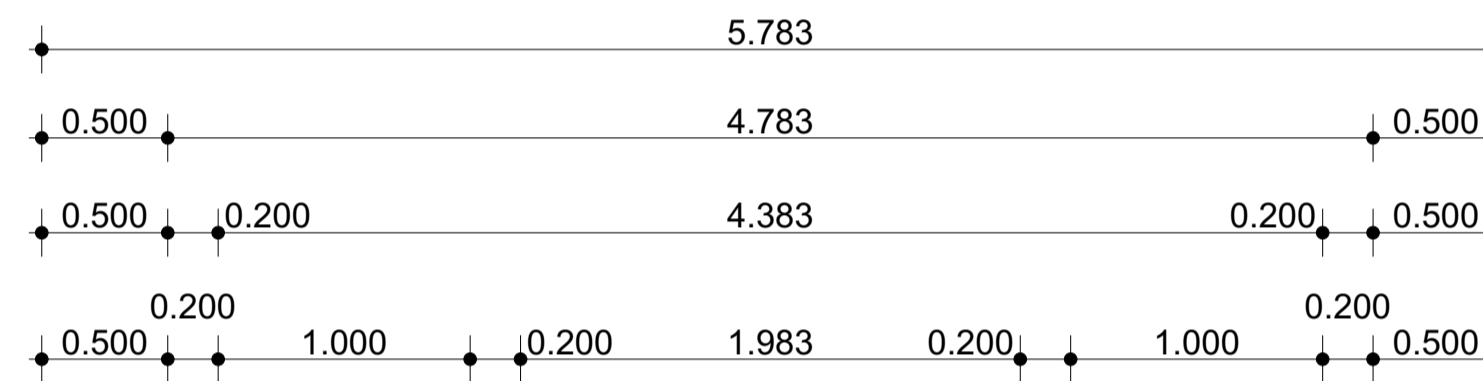
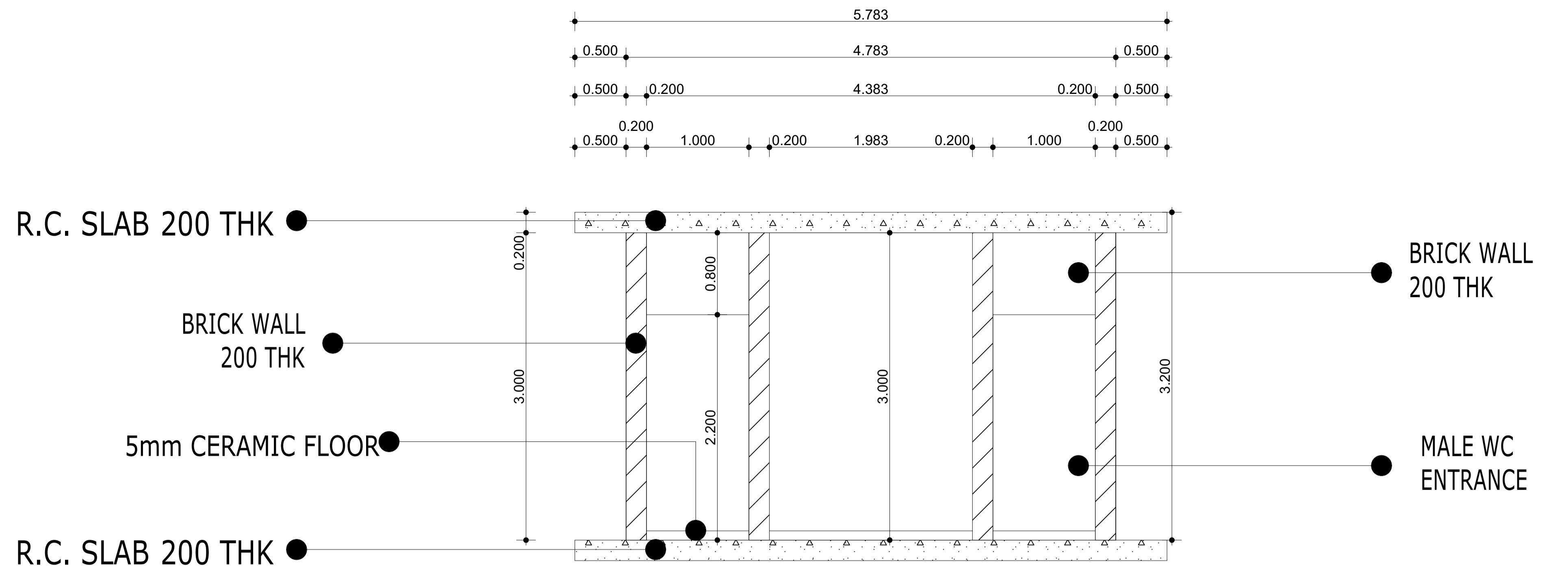
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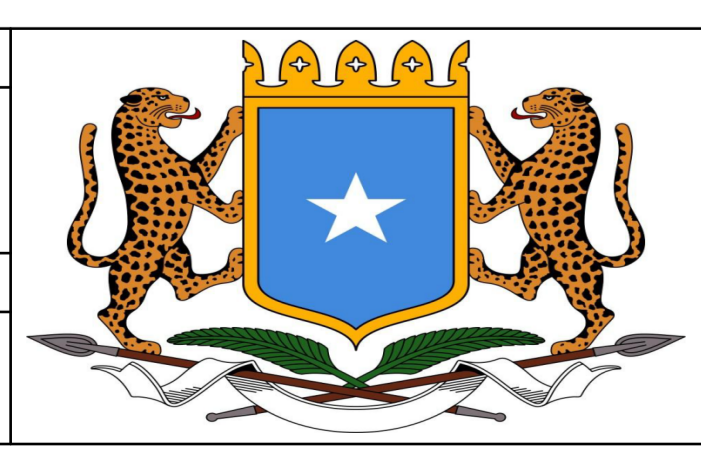
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<b>1:30</b>	<b>JAZEERA Staff Hygiene Block Roof Plan</b>	
Date	Sheet No.	
<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



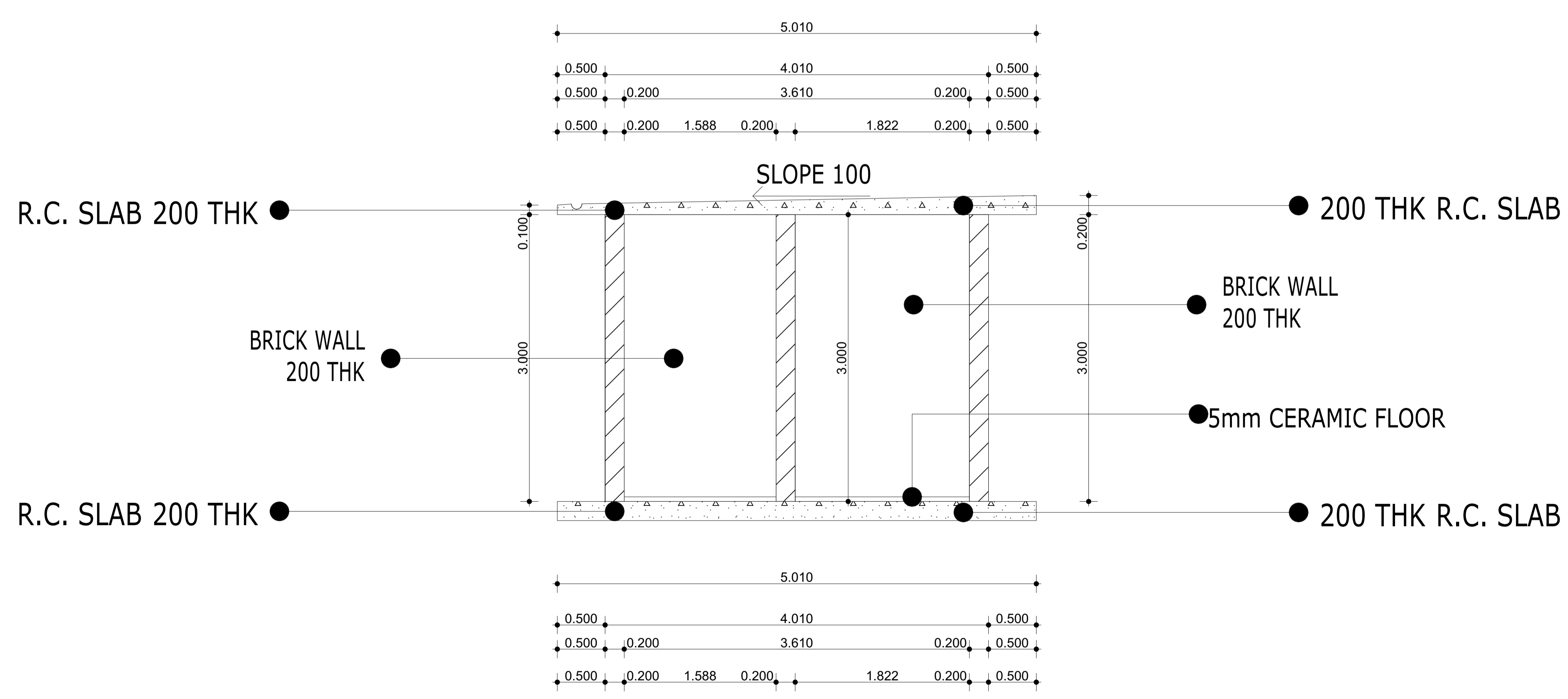
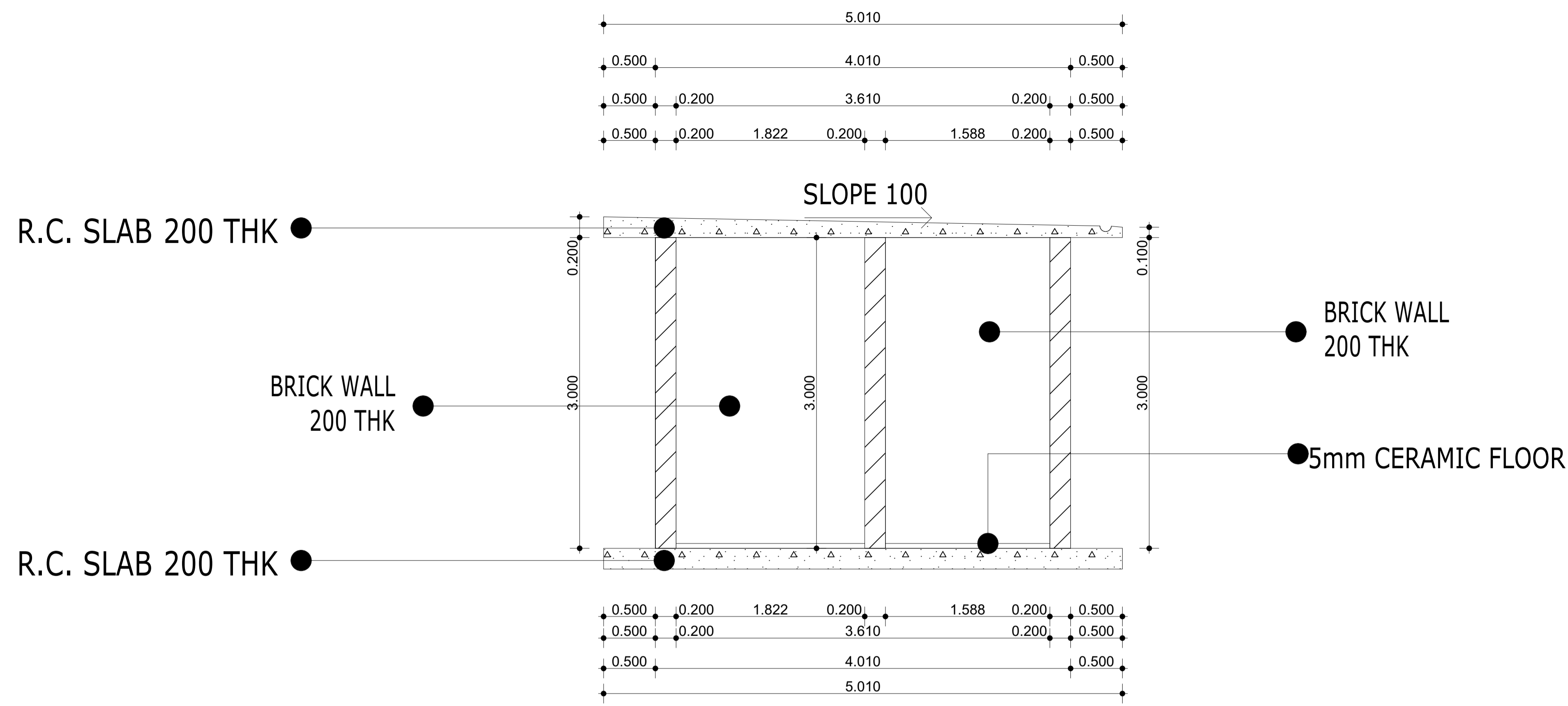
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	<b>Client</b>	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



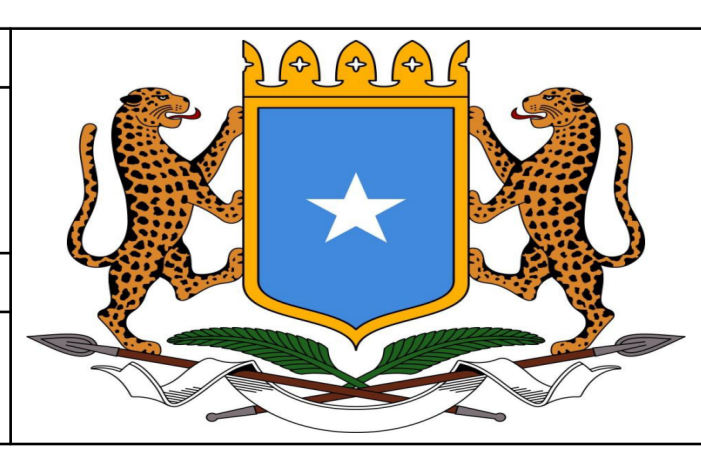
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No.	Description	Date

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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
1: 30	JAZEERA Staff Hygiene Block East, West Elevation	
Date	Sheet No.	
25-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



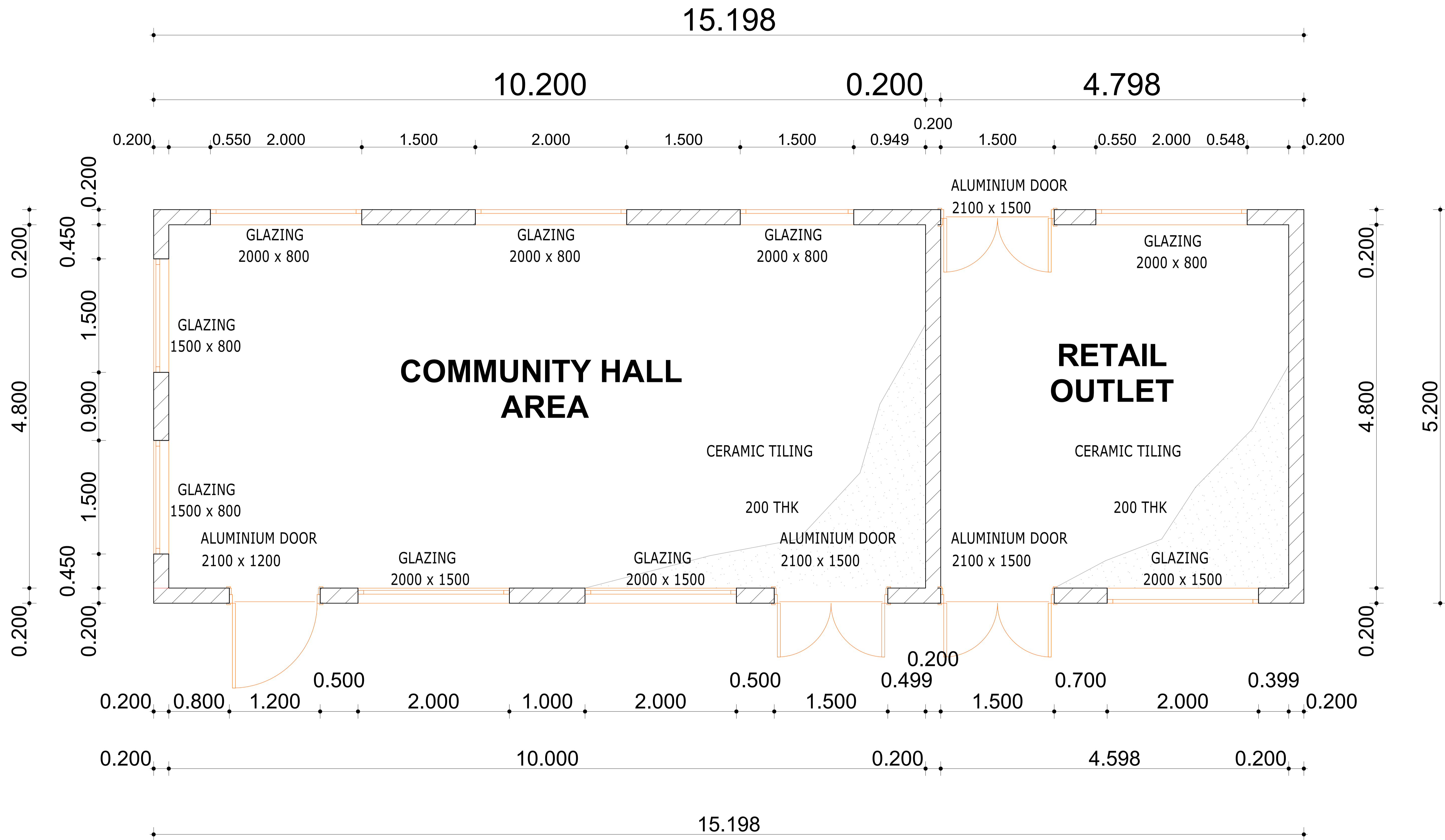
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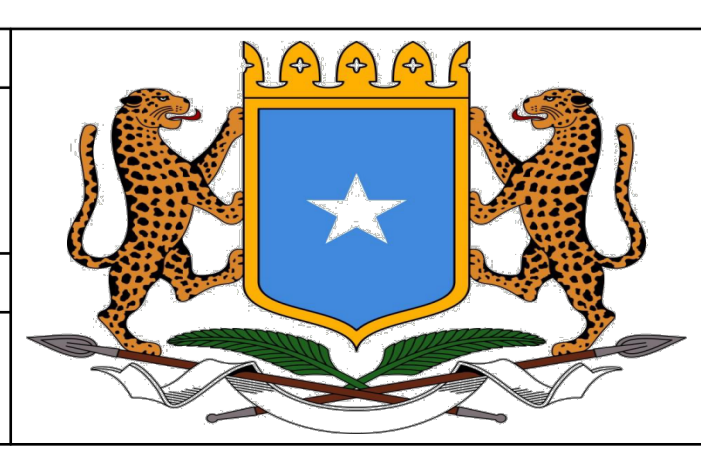
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Date	Sheet No.	
<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



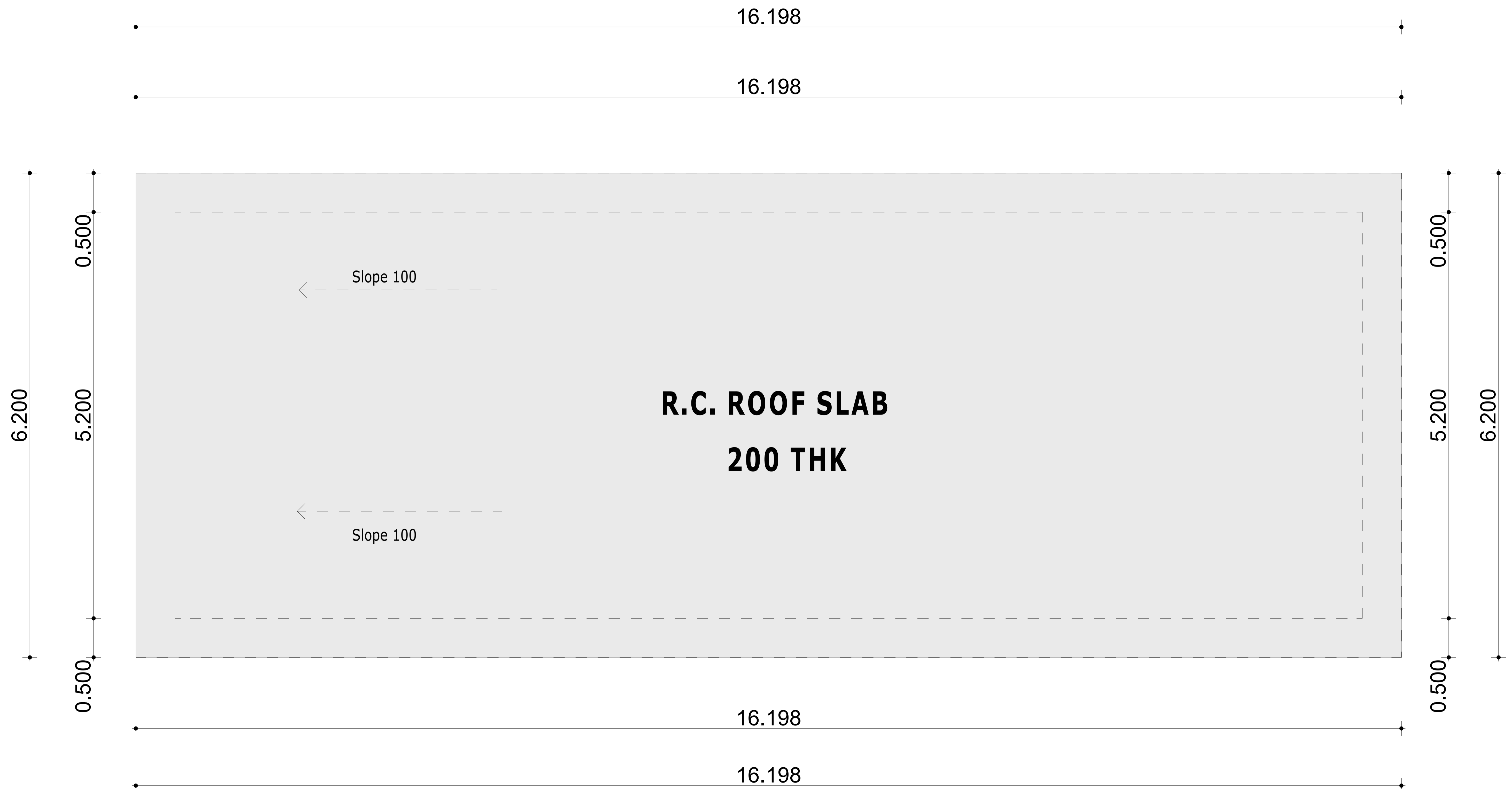
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
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Revisions		
No.	Description	Date

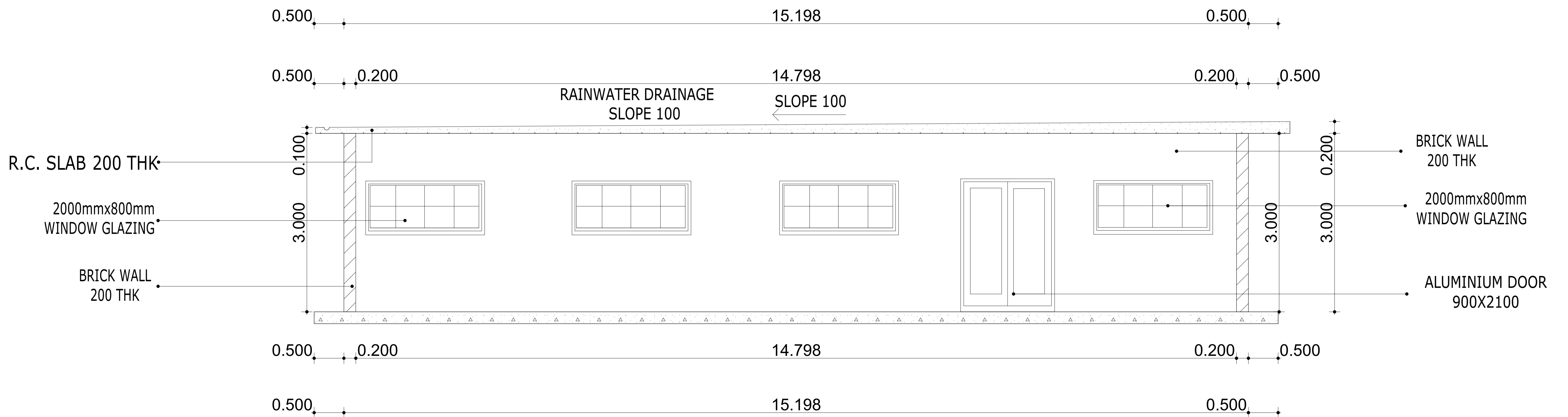
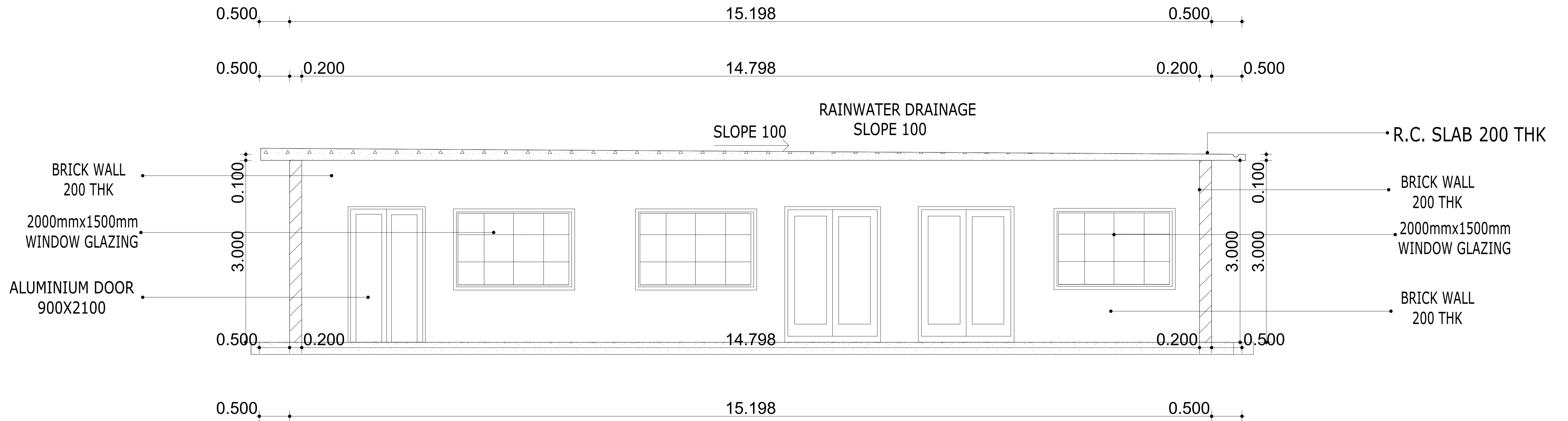
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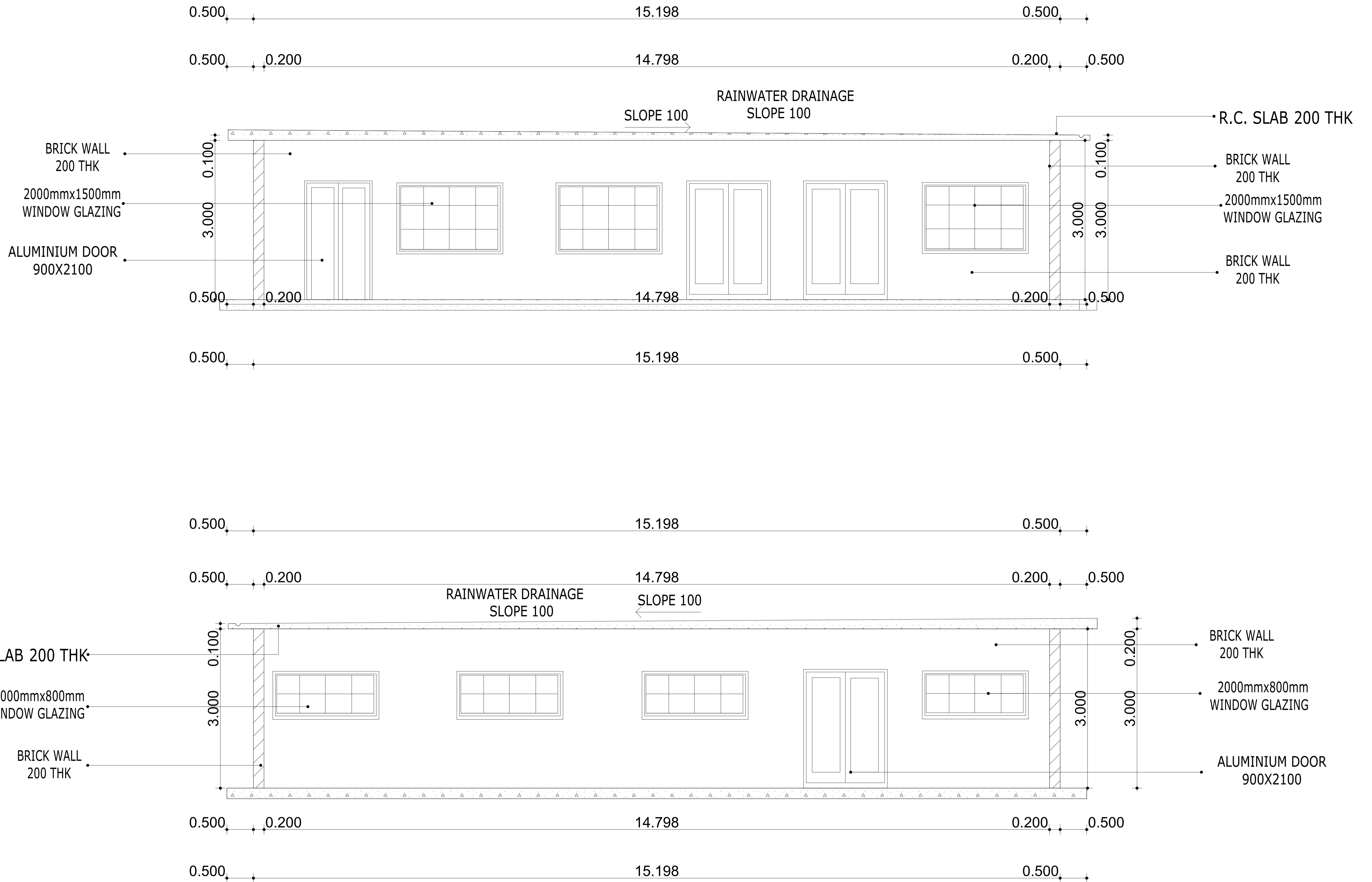
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Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciorfino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



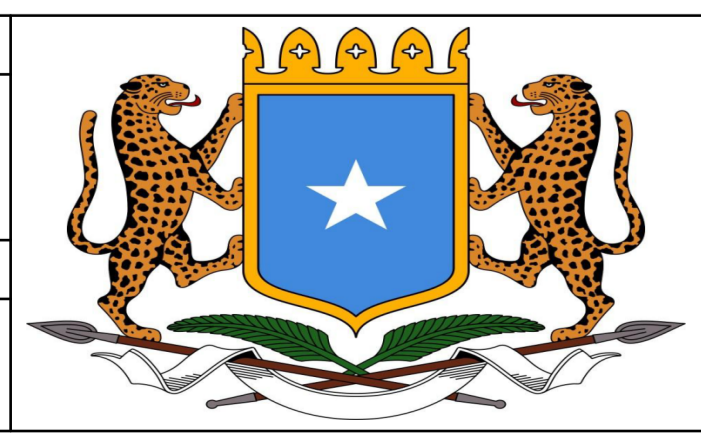
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Architects	Project Title			Revisions	Scale	Drawing No. & Title	
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	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			Date	10-03-2026	Sheet No.	Project No: P178032
<small>NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.</small>				Drawn By	Designed By	Approved By.	
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid		





<b>Architects</b>	<b>Project Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
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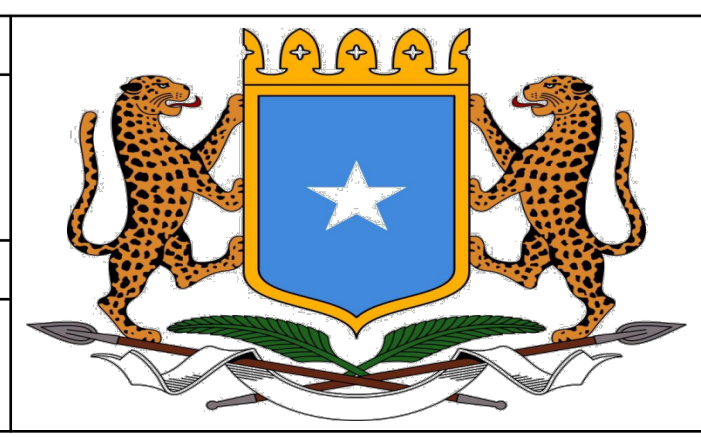
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Date	Sheet No.	
<b>16-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



<b>Architects</b>	<b>Project Title</b>
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	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



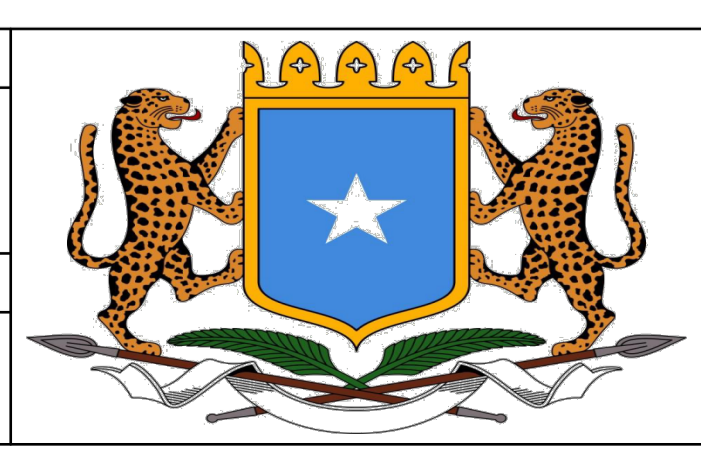
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<b>18-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
<b>Drawn By</b>	<b>Designed By</b>	<b>Approved By.</b>
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



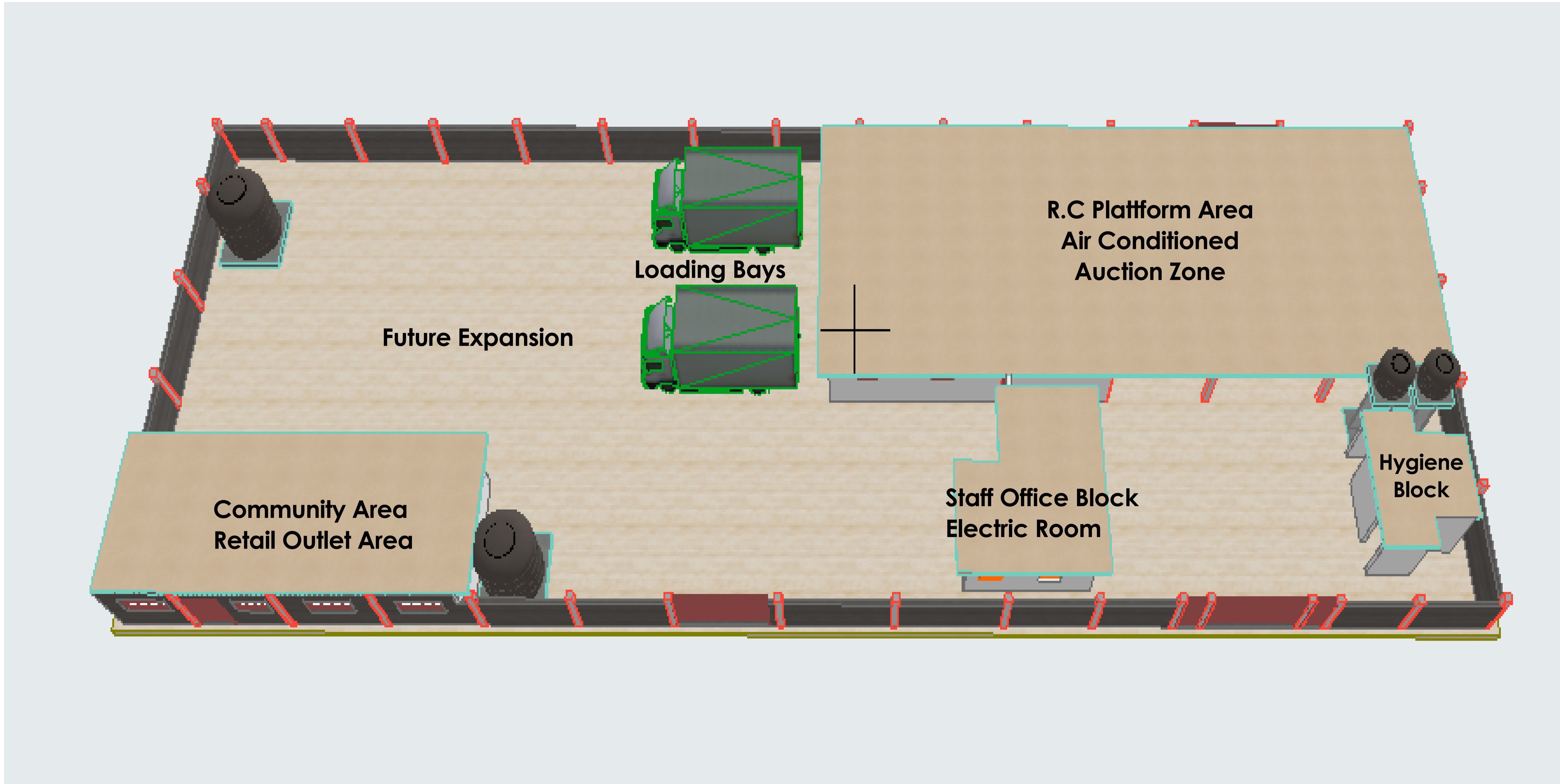
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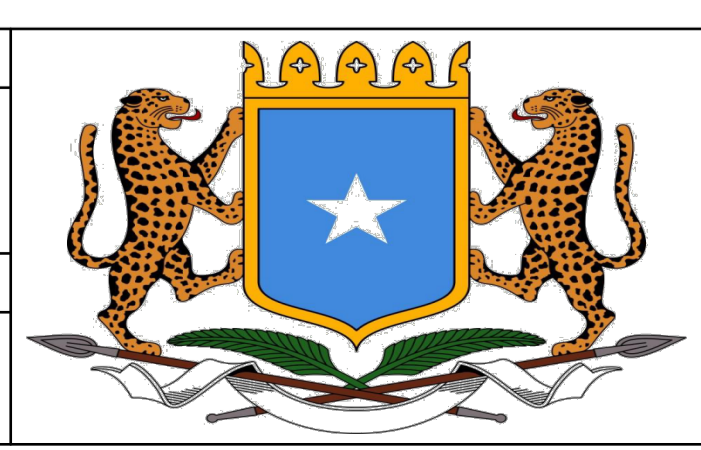
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<b>Date</b>	Sheet No.	
<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
<b>Drawn By</b>	<b>Designed By</b>	<b>Approved By.</b>
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



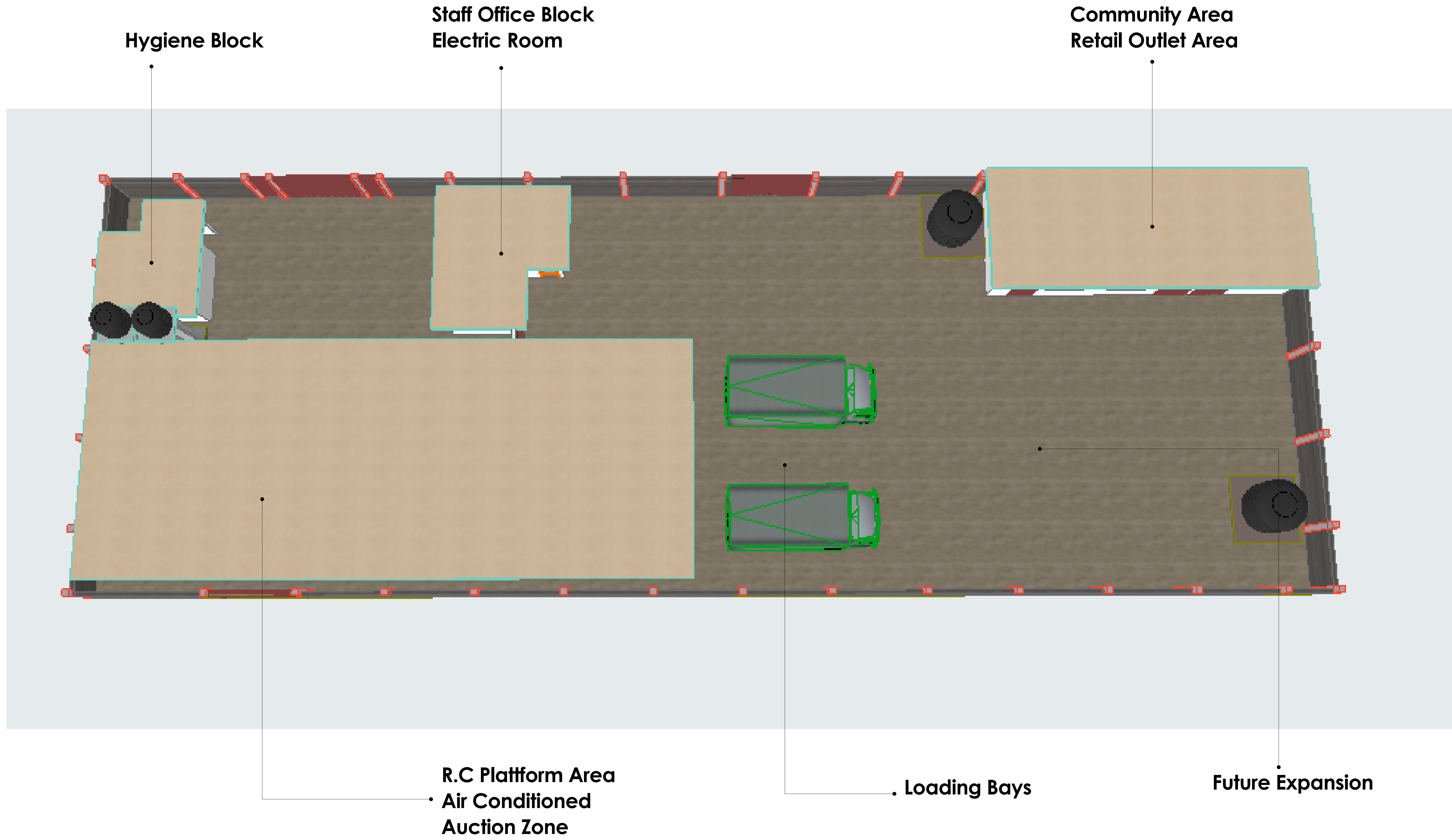
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	<b>Client</b>
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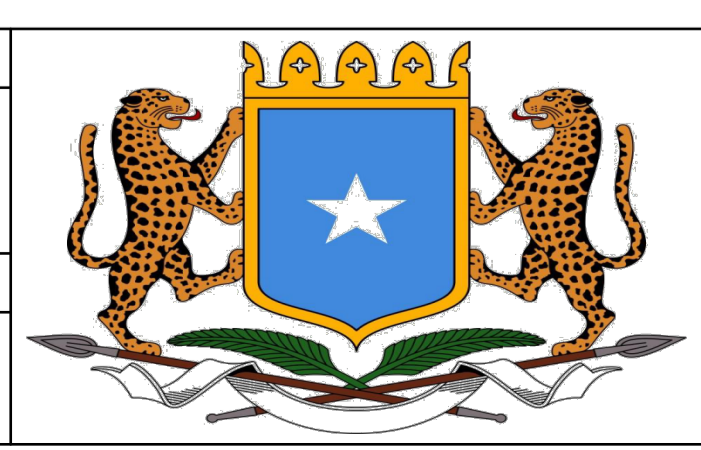
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Date	Sheet No.	
<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



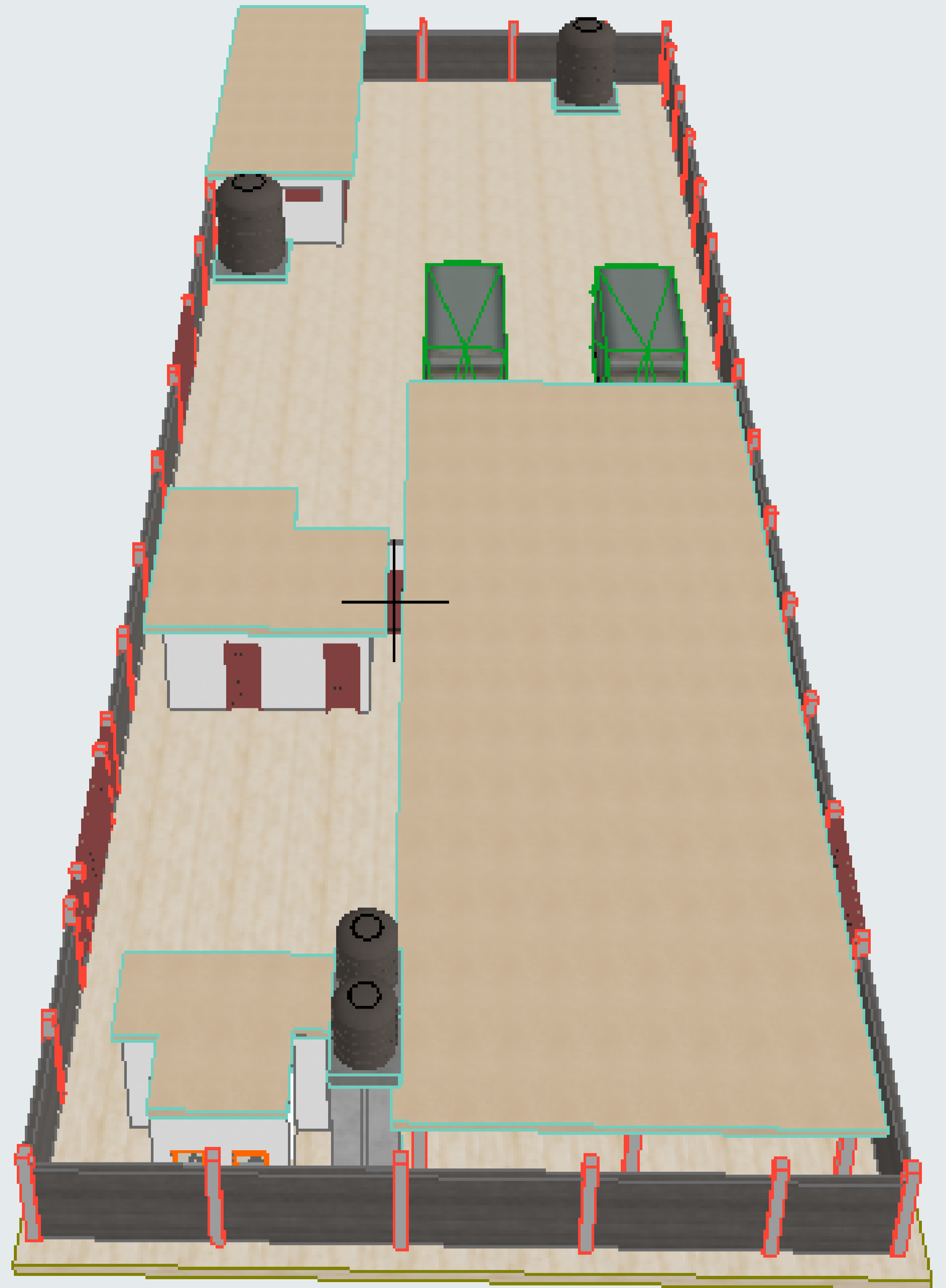
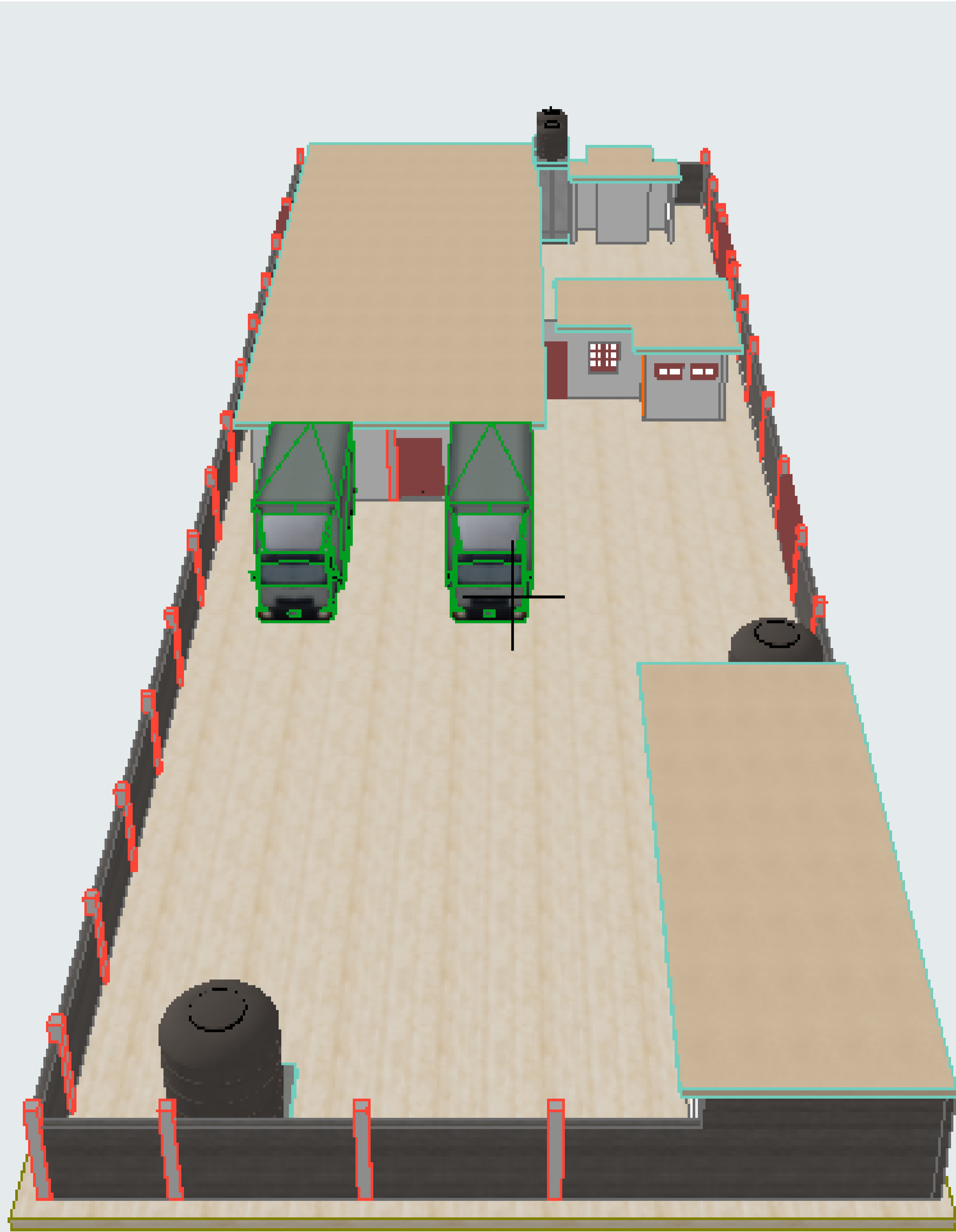
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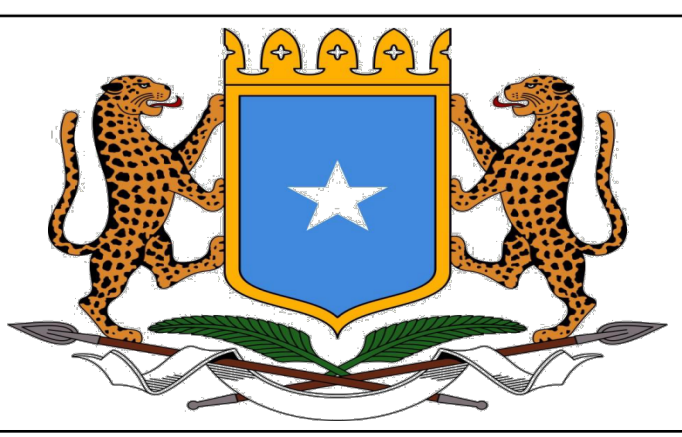
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<b>Date</b>	<b>Sheet No.</b>	
<b>18-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
<b>Drawn By</b>	<b>Designed By</b>	<b>Approved By.</b>
<b>J.A. Sciorfino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



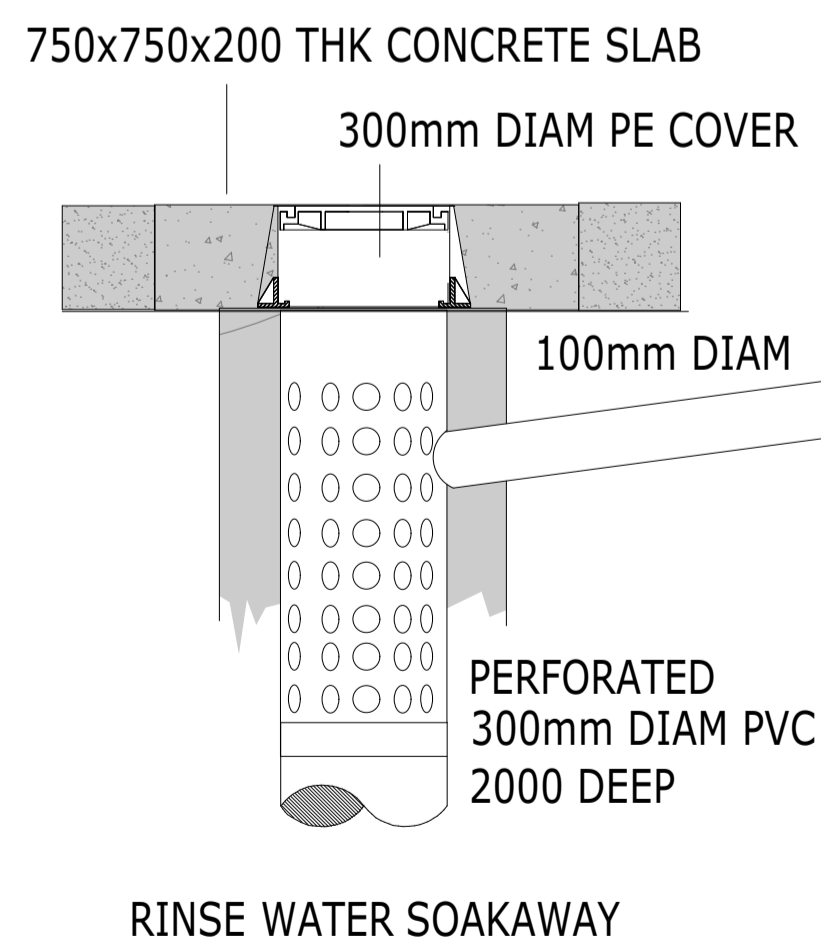
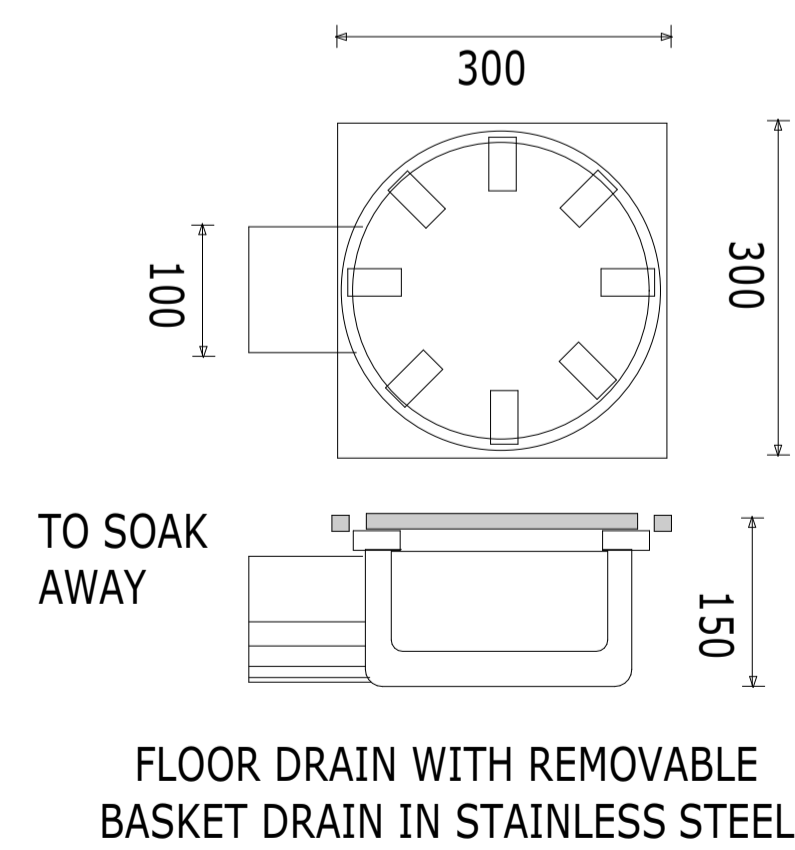
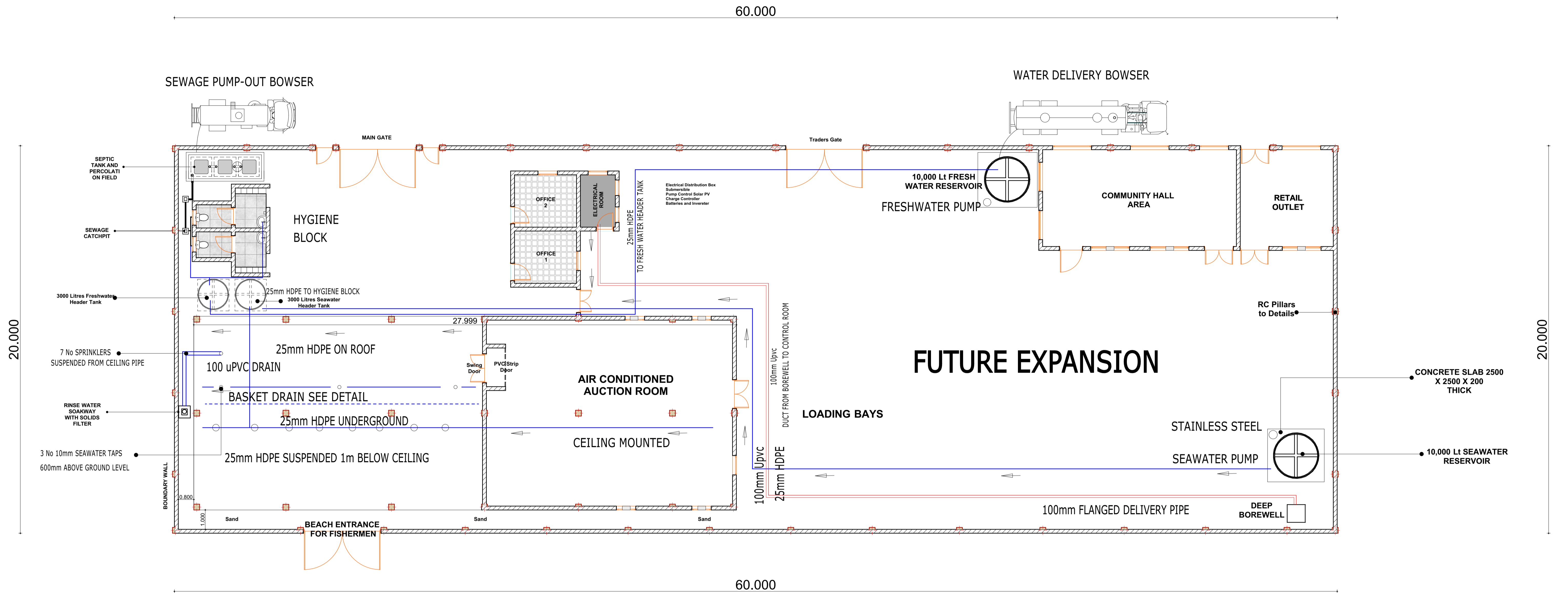
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	Client
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



Revisions		
No.	Description	Date

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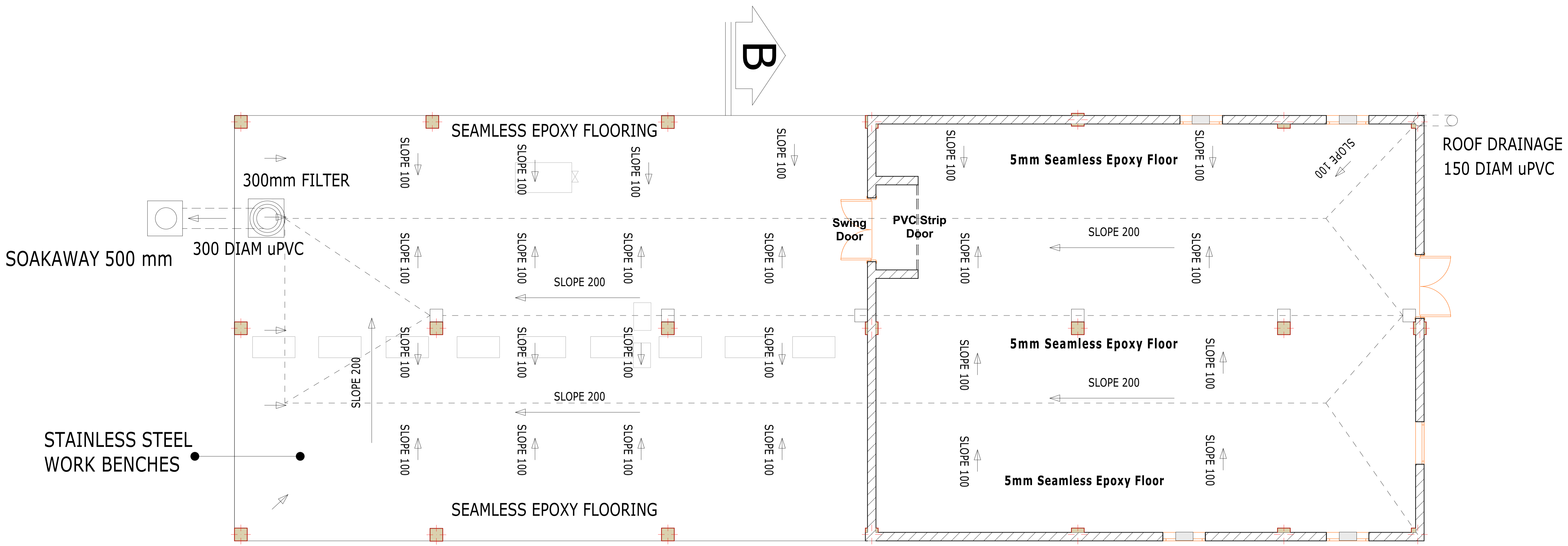
Scale	Drawing No. & Title	
NA	JAZEERA 3D Landscape Projections	
Date	Sheet No.	
25-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
J.A. Sciortino	Mohamed Abdi Ahmed Saahid	



## NOTES

**All dimensions are in mm.**  
**All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449**  
**Minimum cover to reinforcement to be 50 mm unless otherwise stated**  
**Minimum lap length to be 32 times bar diameter**  
**10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm**

<b>Architects</b>	<b>Project Title</b>			<b>Revisions</b>	Scale	Drawing No. & Title	
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	Description	Date	1:100
	<b>Client</b>				Date	Sheet No.	
<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>					<b>25-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
				Drawn By	J.A. Sciortino	Designed By	Mohamed Abdi Ahmed Saahid
				<small>           NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.            2. The contractor must check and verify all levels and dimensions before commencing any work.         </small>		Approved By.	

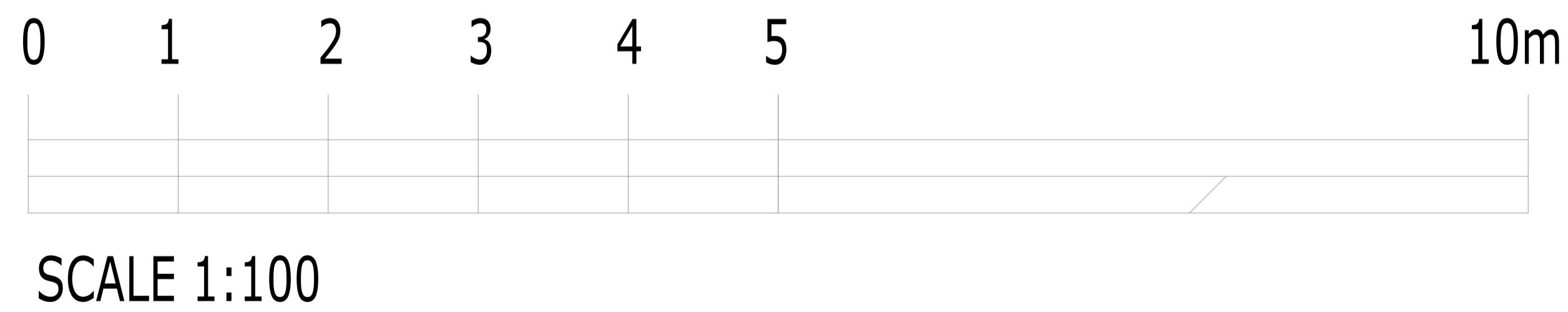
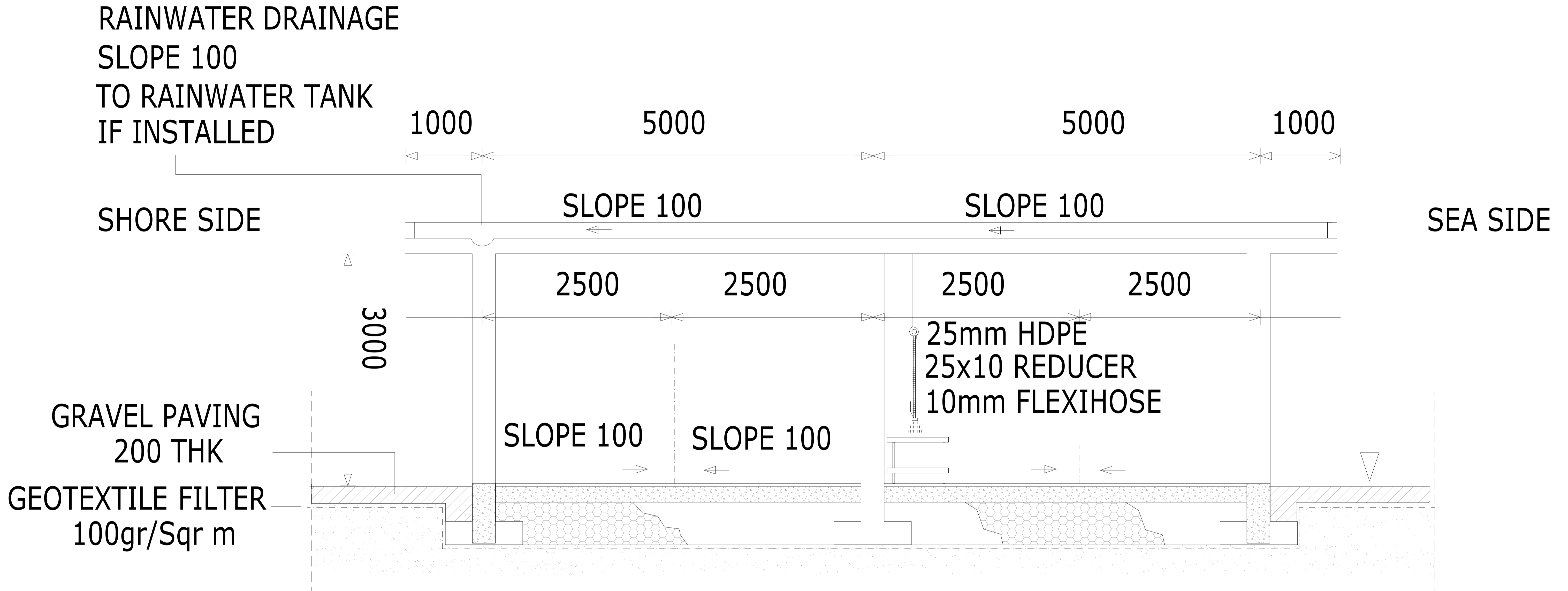


### NOTES

- All dimensions are in mm.**
- All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449**
- Minimum cover to reinforcement to be 50 mm unless otherwise stated**
- Minimum lap length to be 32 times bar diameter**
- 10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm**

Architects	Project Title			Revisions	Scale	Drawing No. & Title	
	Somali Sustainable Fisheries Development Project (BADMAAL)			No.	1:100	JAZEERA Drainag Floor Plan	
	Client			Description	Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			Date	18-03-2026	A1	Project No: P178032
		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Drawn By	Designed By	Approved By.		
			J.A. Sciorfino	Mohamed Abdi Ahmed Saahid			

# SECTION B

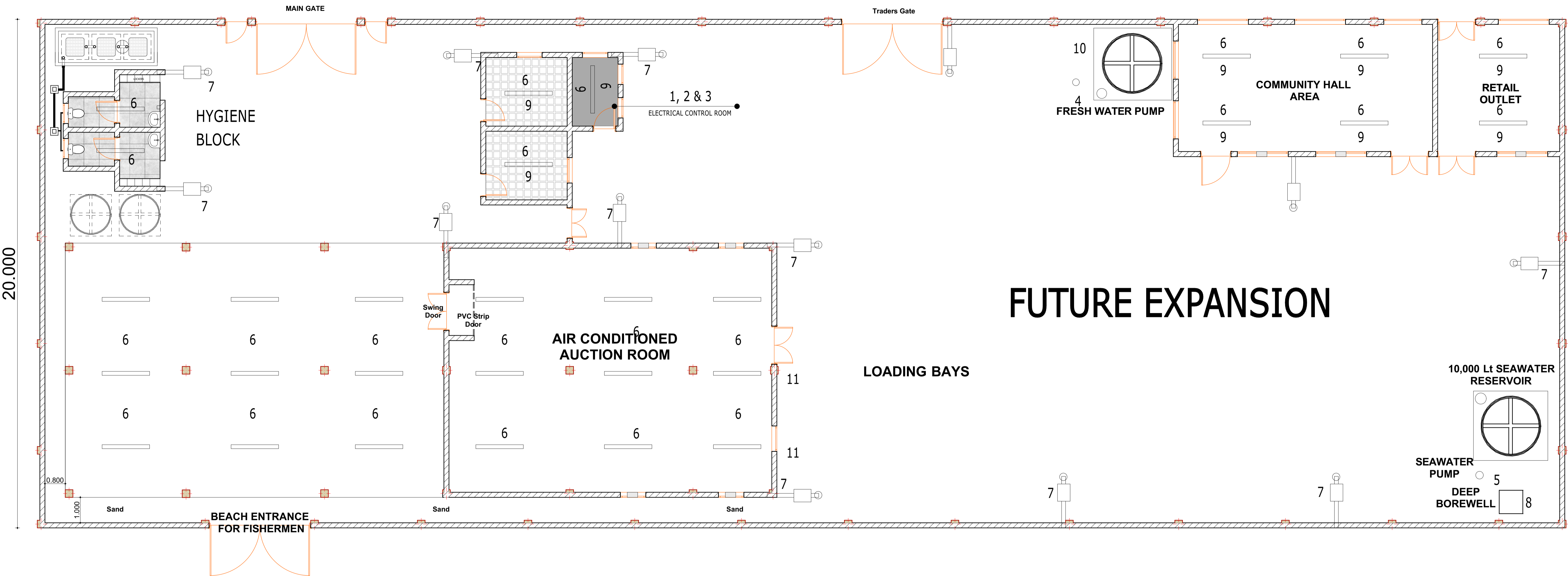


## NOTES

ALL CONCRETE GRADE 35  
SOLAR PV PANELS TO BE INSTALLED  
ON ROOF OF PLATFORM

Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions		Scale	Drawing No. & Title	
 Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:100	JAZEERA Floor Drainage Section B
	Client				Date	10-03-2026	Sheet No.	Project No: P178032
Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Drawn By	J.A. Sciortino	Designed By	Mohamed Abdi Ahmed Saahid
					NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		Approved By.	

60.000



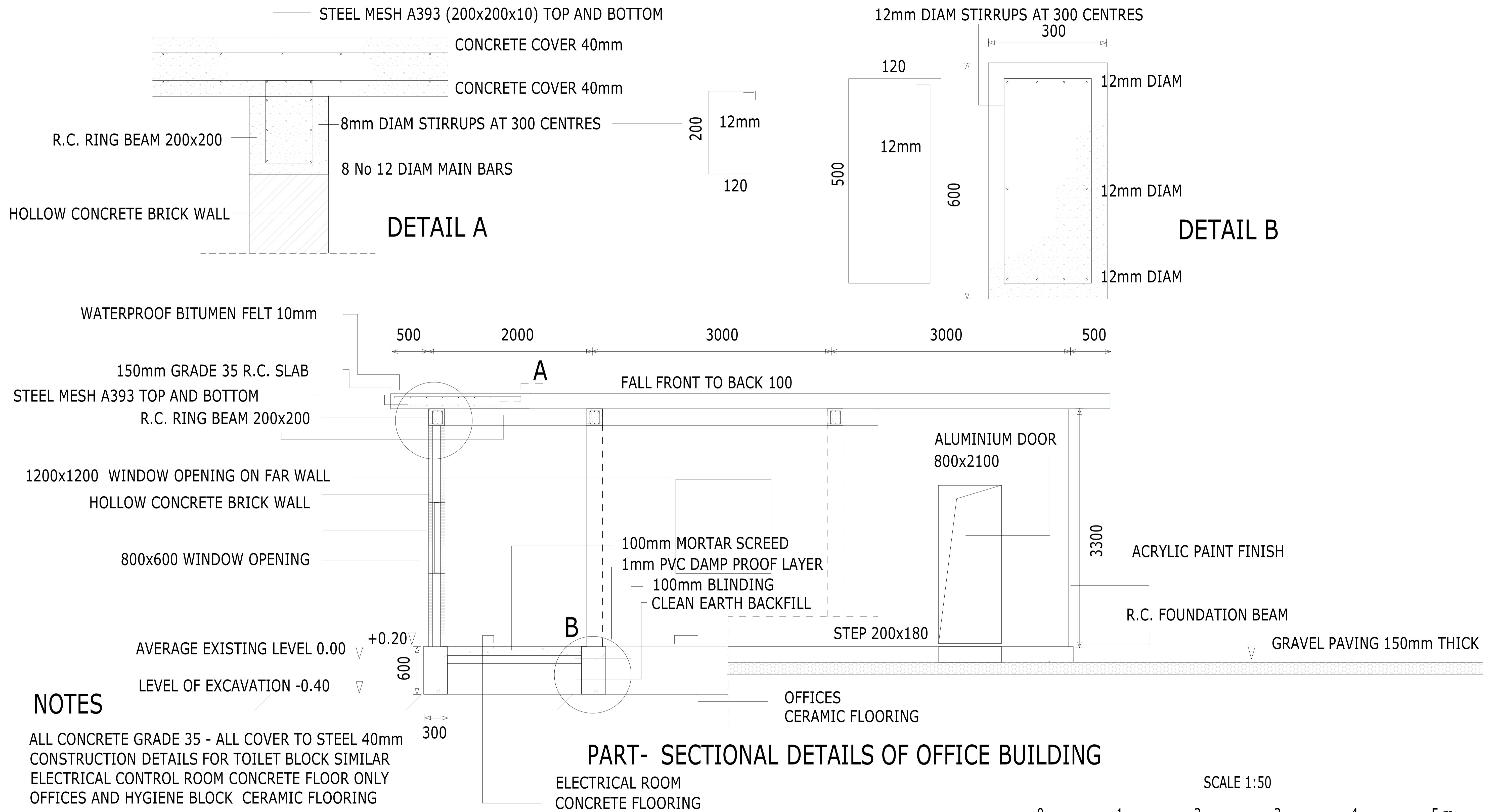
**FUTURE EXPANSION**

**NOTES**

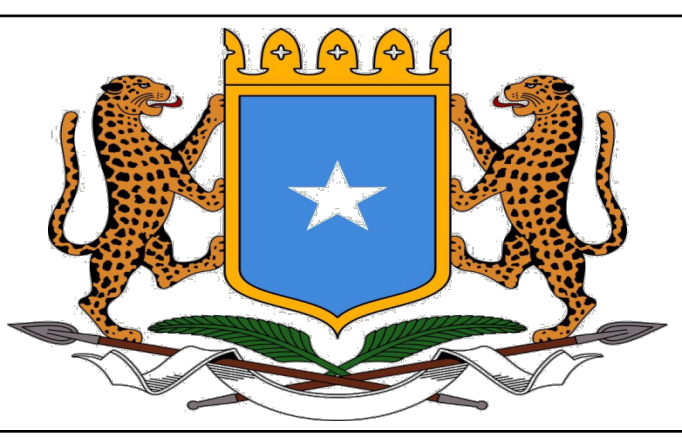
- 1. DISTRIBUTION BOX INSIDE CONTROL ROOM
- 2. PV INVERTER AND BATTERIES
- 3. SUBMERSIBLE PUMP CONTROL PANEL
- 4. FRESHWATER HEADER TANK PUMP (1/2 HP)
- 5. SEAWATER HEADER TANK PUMP (1/2HP)

- 6. STRIP LIGHTS - SOLAR+BATTERY POWERED
- 7. EXTERNAL POLE MOUNTED SOLAR LIGHTING
- 8. SOLAR POWERED SUBMERSIBLE PUMP - 2 kW
- 9. EACH OFFICE 1 CEILING FAN + 2x13 Amp SOCKETS
- 10. EQUIPMENT GROUNDING CONDUCTOR
- 11. AIR CONDITIONERS

Architects	Project Title			Revisions	Scale	Drawing No. & Title															
	Somali Sustainable Fisheries Development Project (BADMAAL)			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date													1:100	JAZEERA Electrical Plan Layout
No.	Description			Date																	
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	Date <b>25-03-2026</b>	Drawn By <b>J.A. Sciertino</b>	Sheet No. <b>A1</b>	Project No: P178032																
		NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.	Approved By. <b>Mohamed Abdi Ahmed Saahid</b>	Approved By.																	



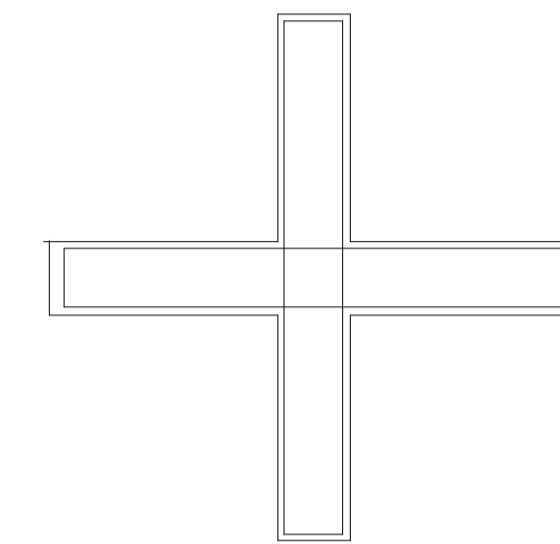
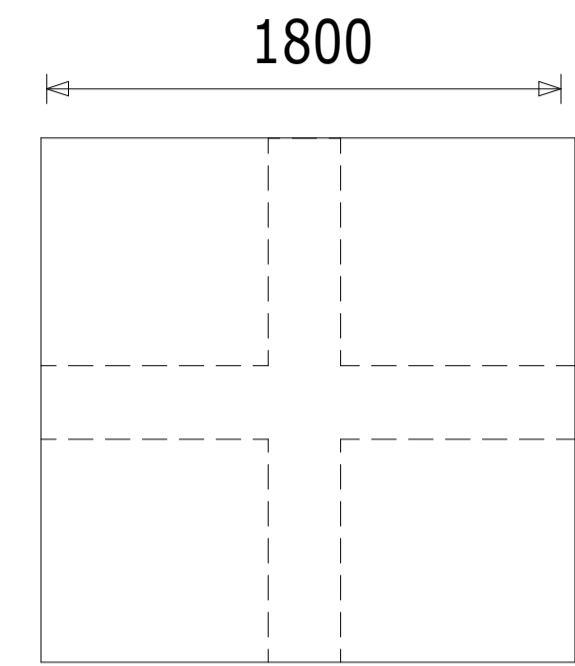
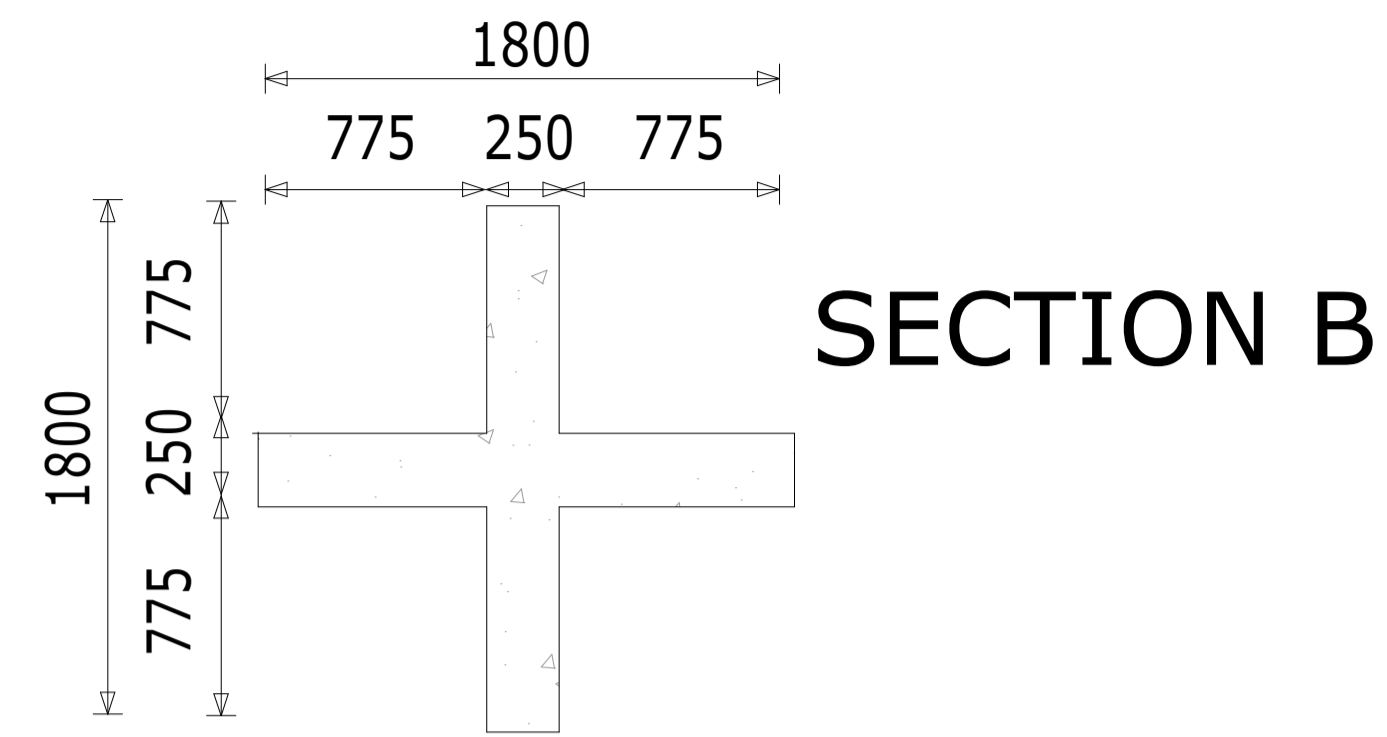
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	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



Revisions		
No.	Description	Date

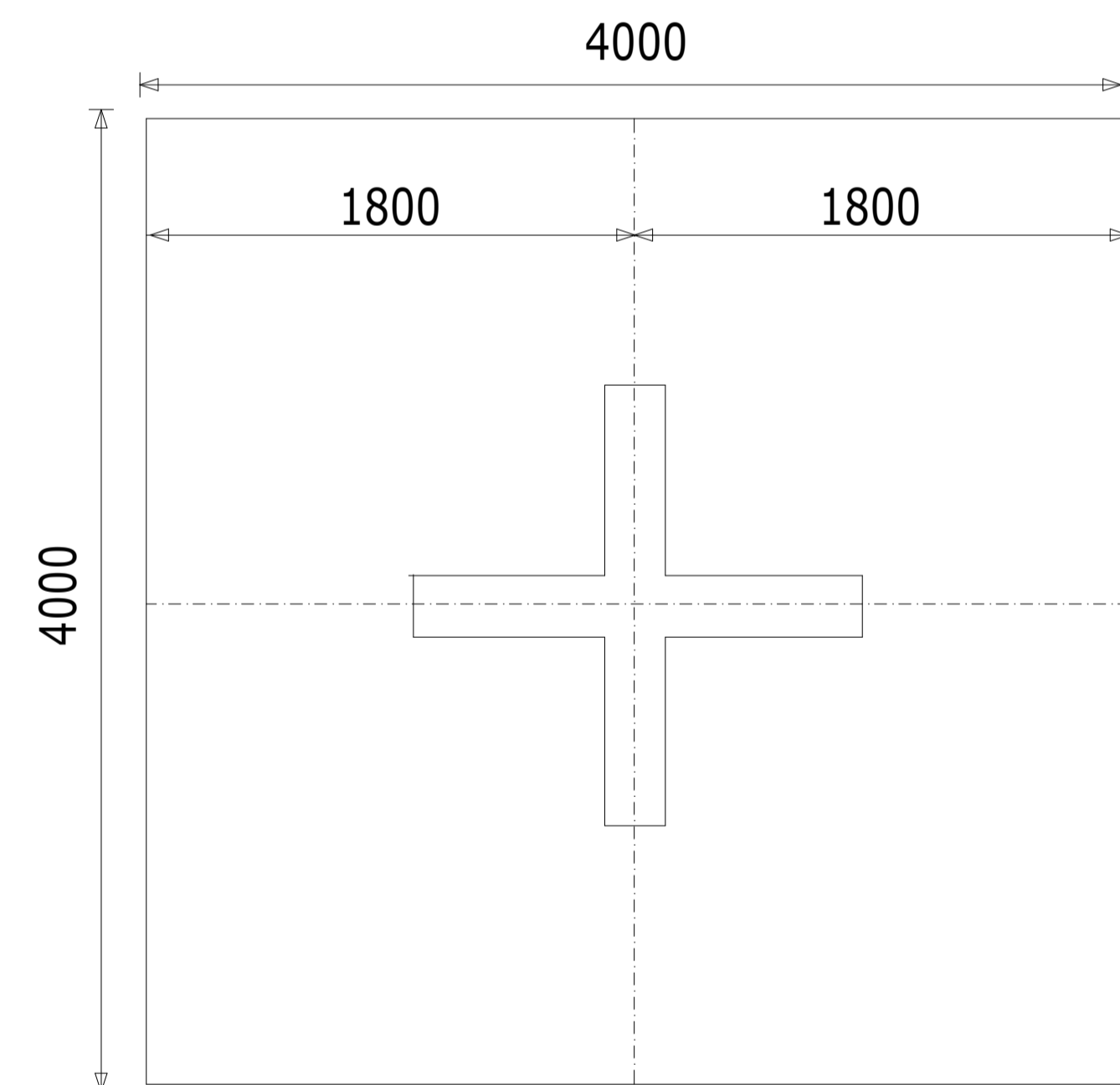
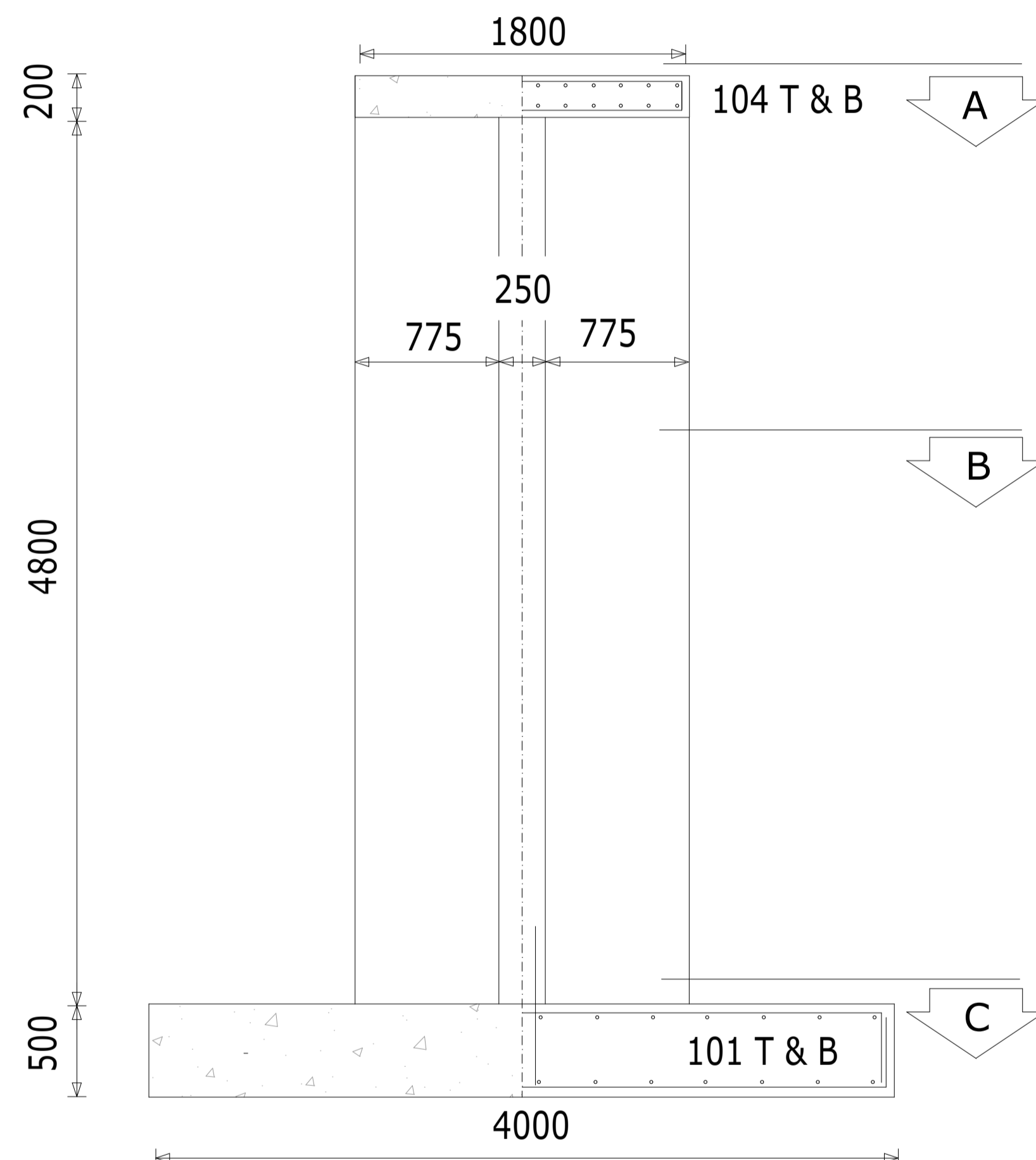
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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:100</b>	<b>JAZEERA Building Details</b>	
Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	

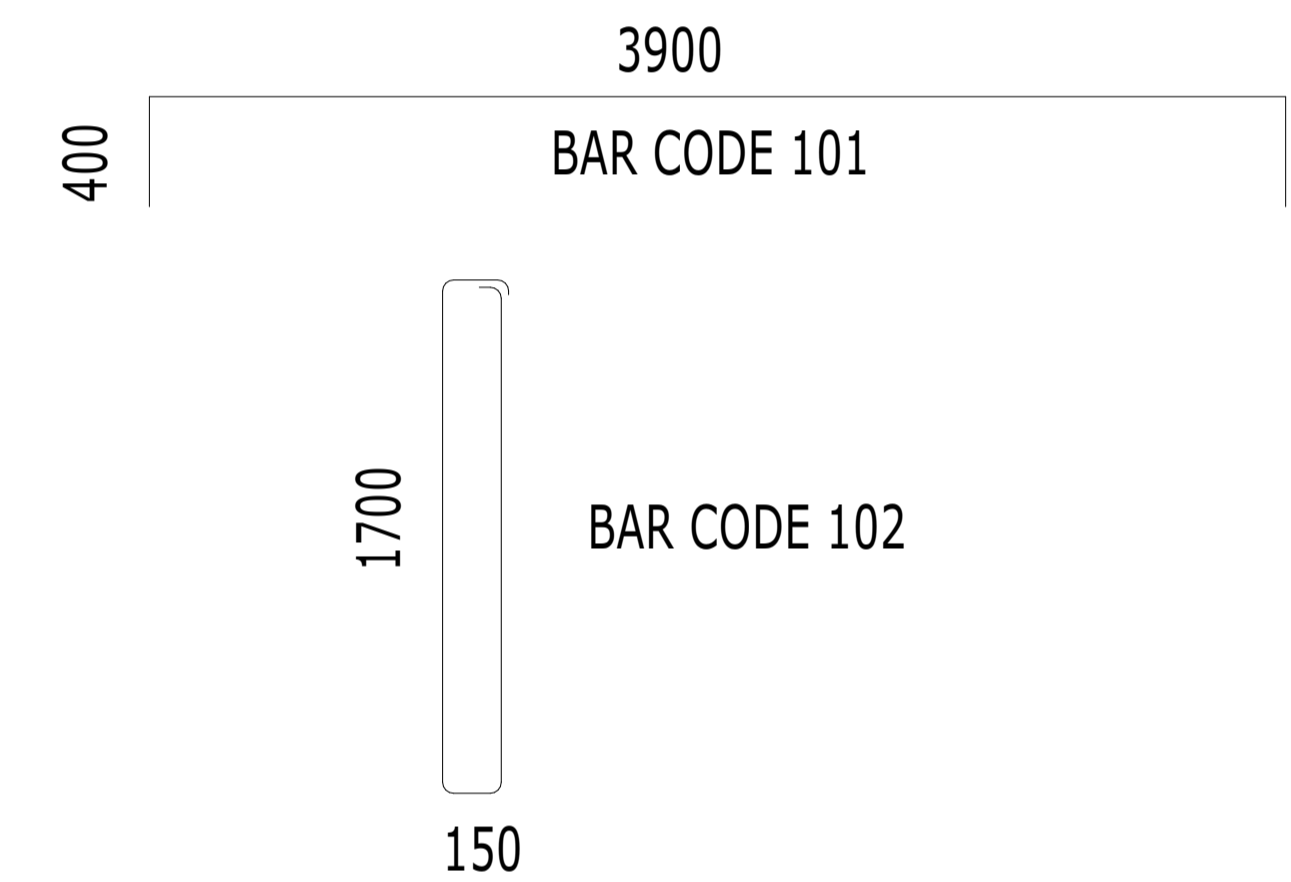


SECTION A

SECTION B



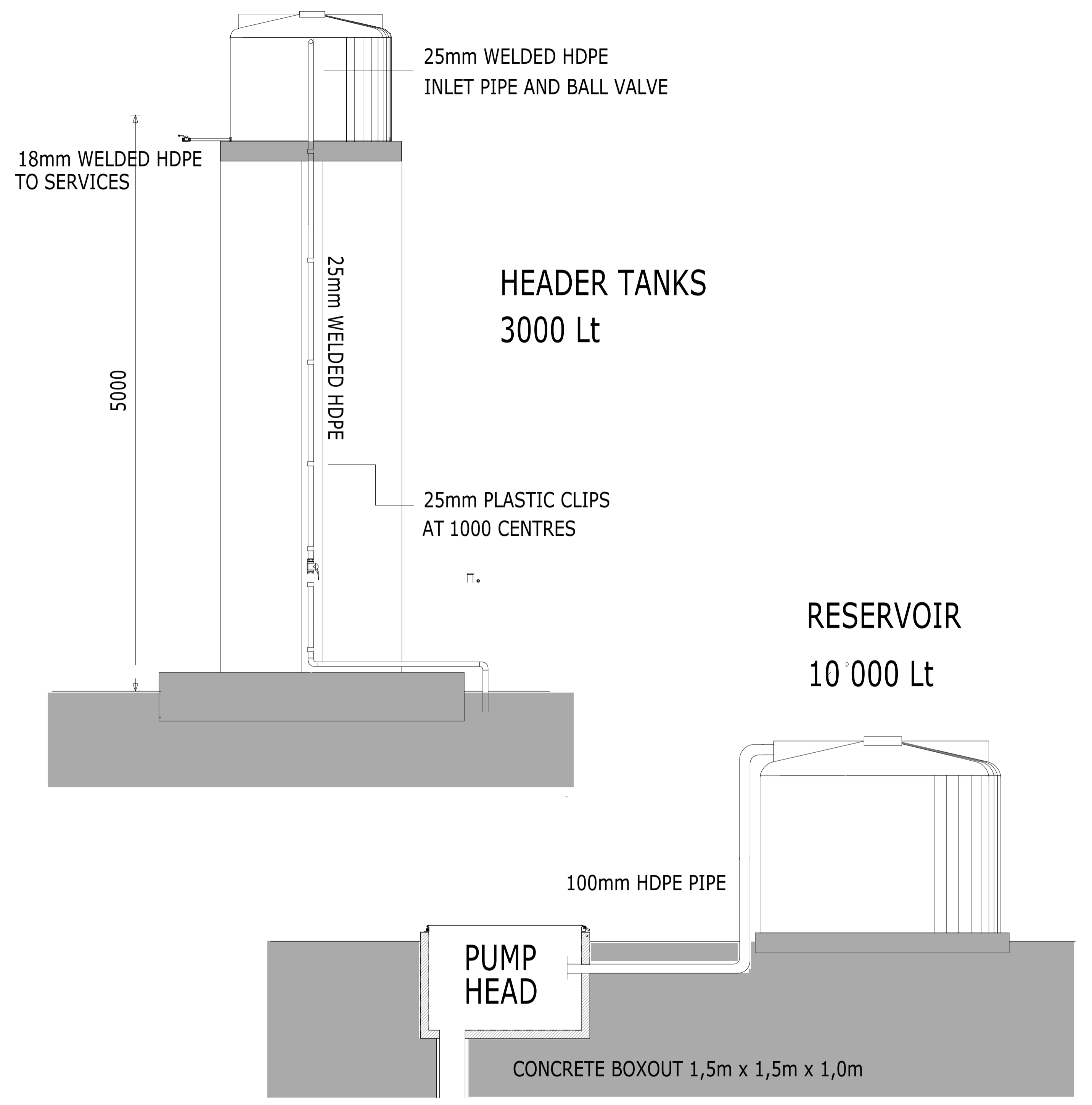
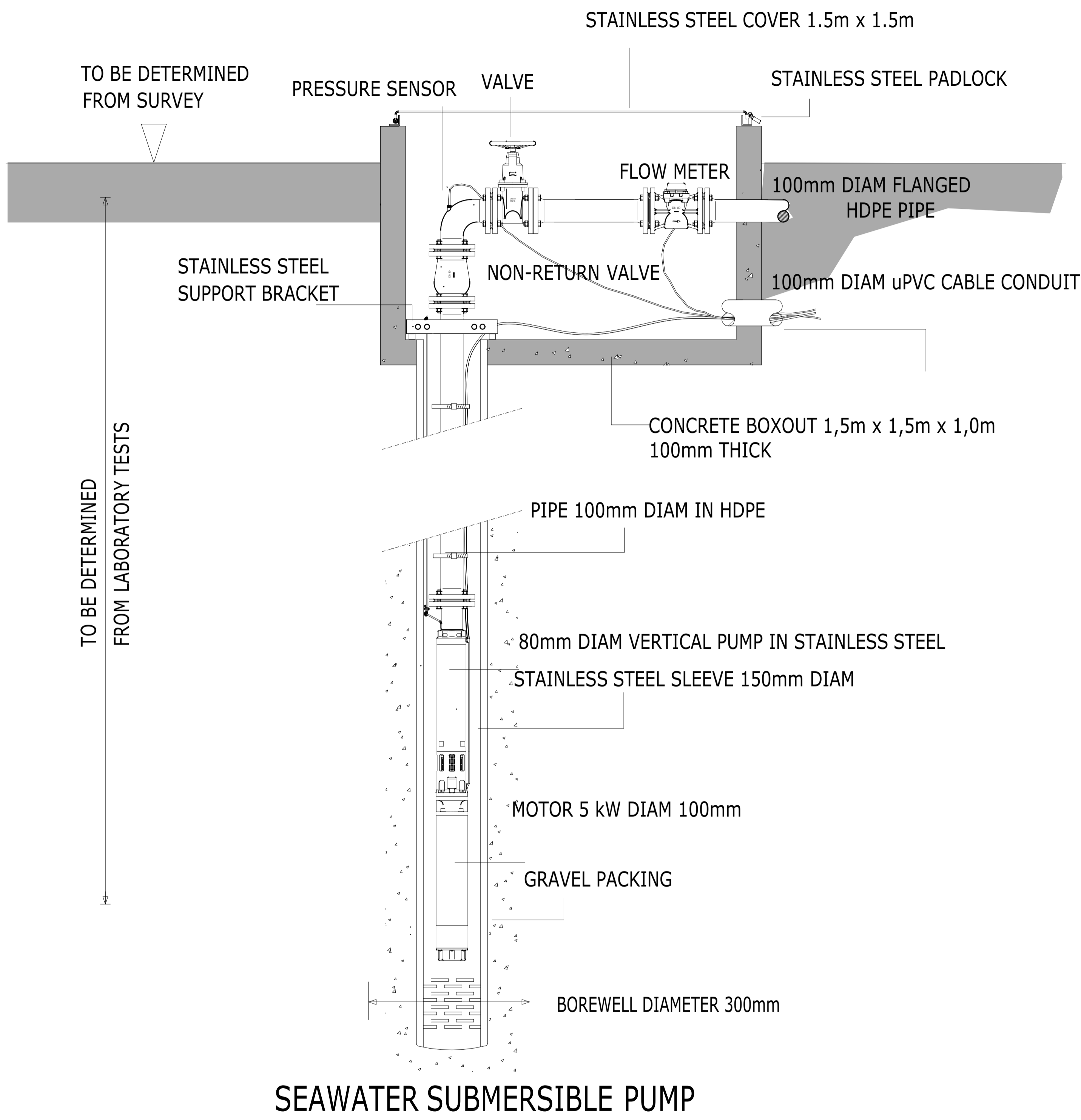
SECTION C



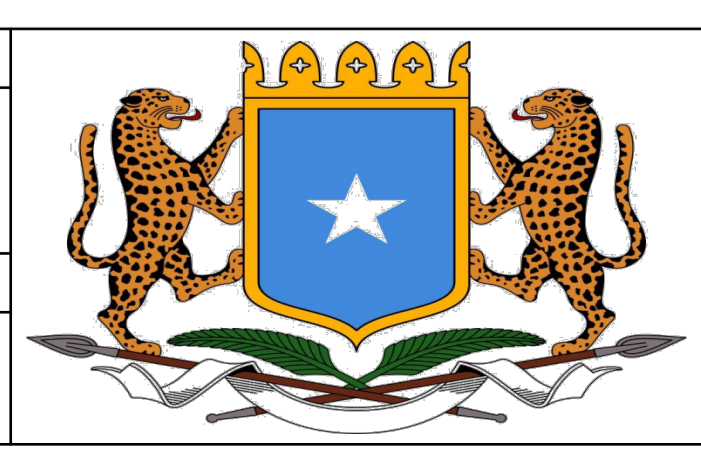
BAR CODE	BAR DIAMETER	UNIT WEIGHT	BAR LENGTH	NUMBER OF BARS	WEIGHT OF STEEL	REMARKS
101	18mm					
102	12					
103	12					STRAIGHT
104	12					
					1,200 Kg	

NOTES

- All dimensions are in mm.
- All concrete Grade 35
- All reinforcement to be hot-rolled HYS deformed bars type 2 to BS 4449
- All welded steel fabric to BS 4483:1969
- Minimum cover to reinforcement to be 50 mm unless otherwise stated
- Minimum lap length to be 32 times bar diameter
- 10:12:301:100 denotes 10 nos HYS 12mm bars mark 301 at 100 mm c/c



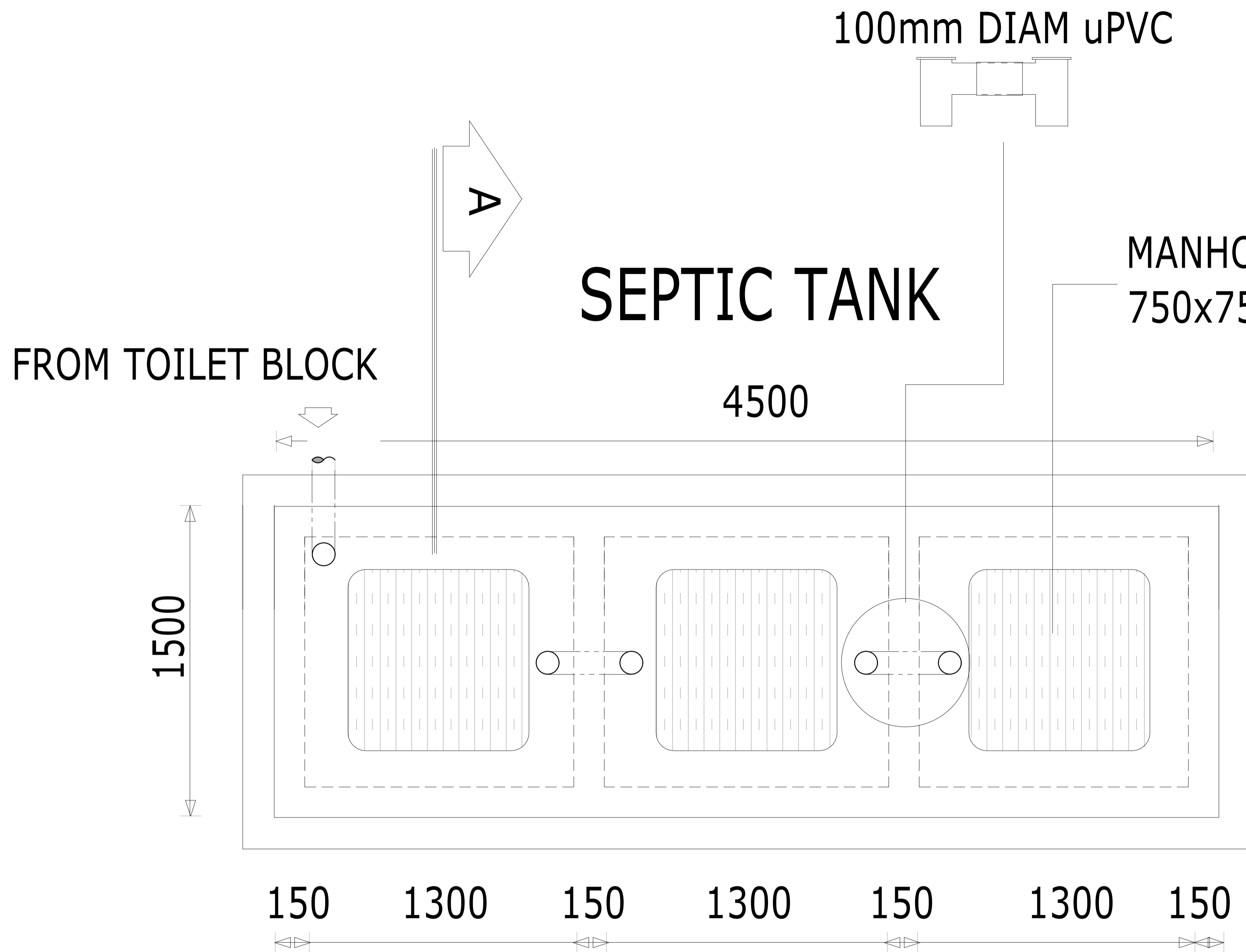
<b>Architects</b>	<b>Project Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



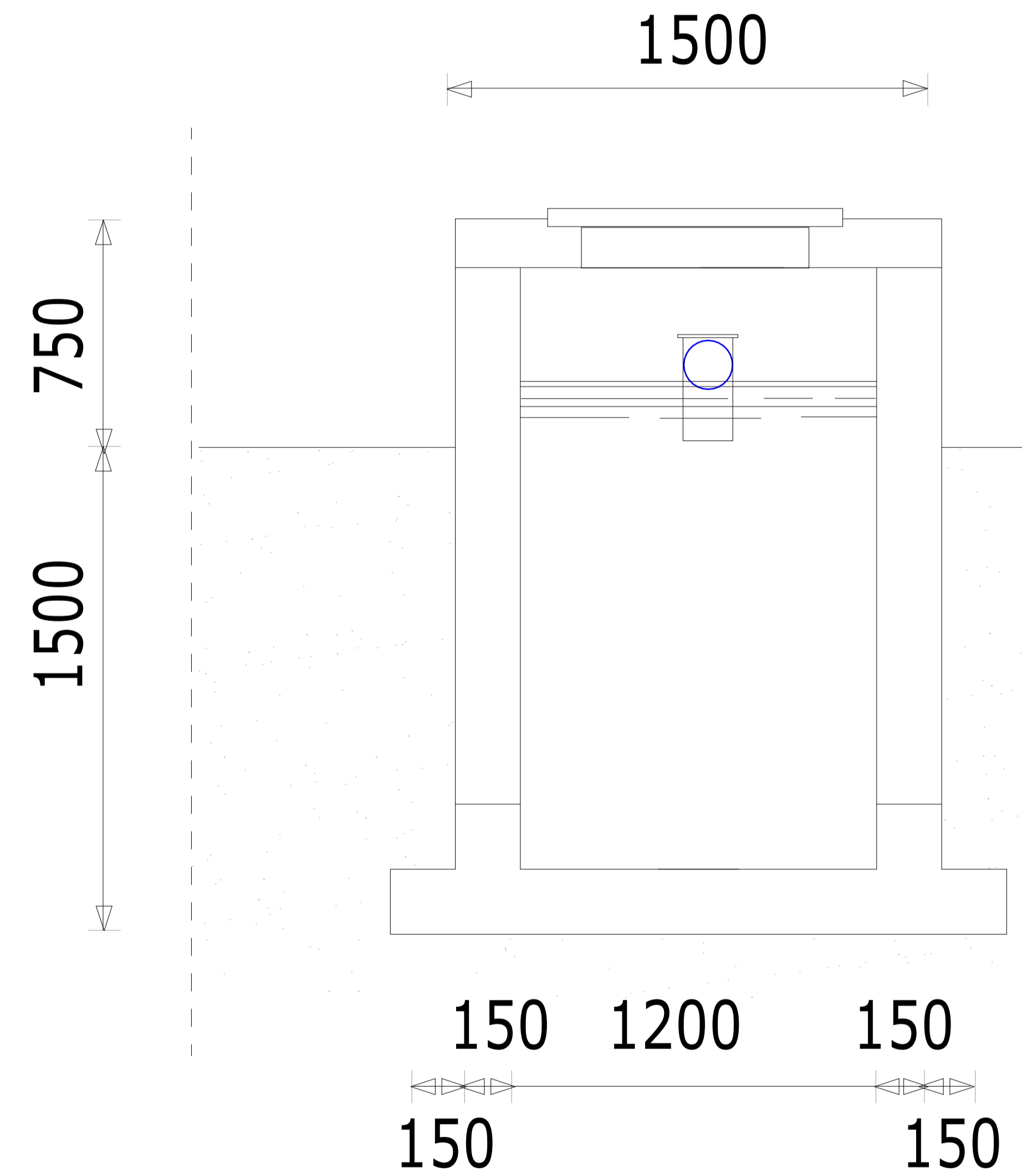
Revisions		
No.	Description	Date

NB:  
1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
2. The contractor must check and verify all levels and dimensions before commencing any work.

<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:100</b>	<b>JAZEERA Sea Water Systems</b>	
Date	Sheet No.	
<b>10-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



# SECTION A



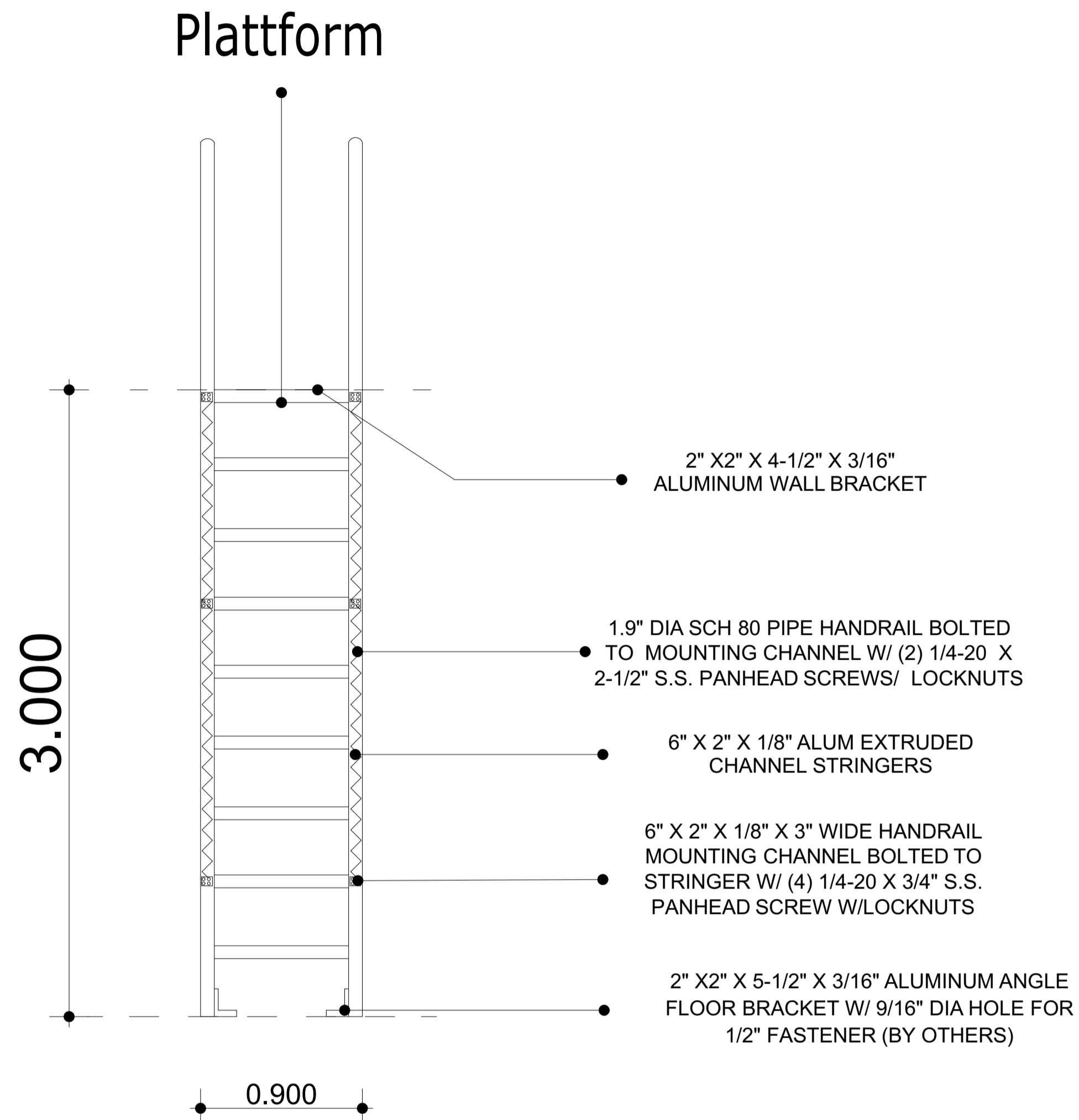
## NOTES

UNLESS OTHERWISE STATED, ALL CONCRETE GRADE 35

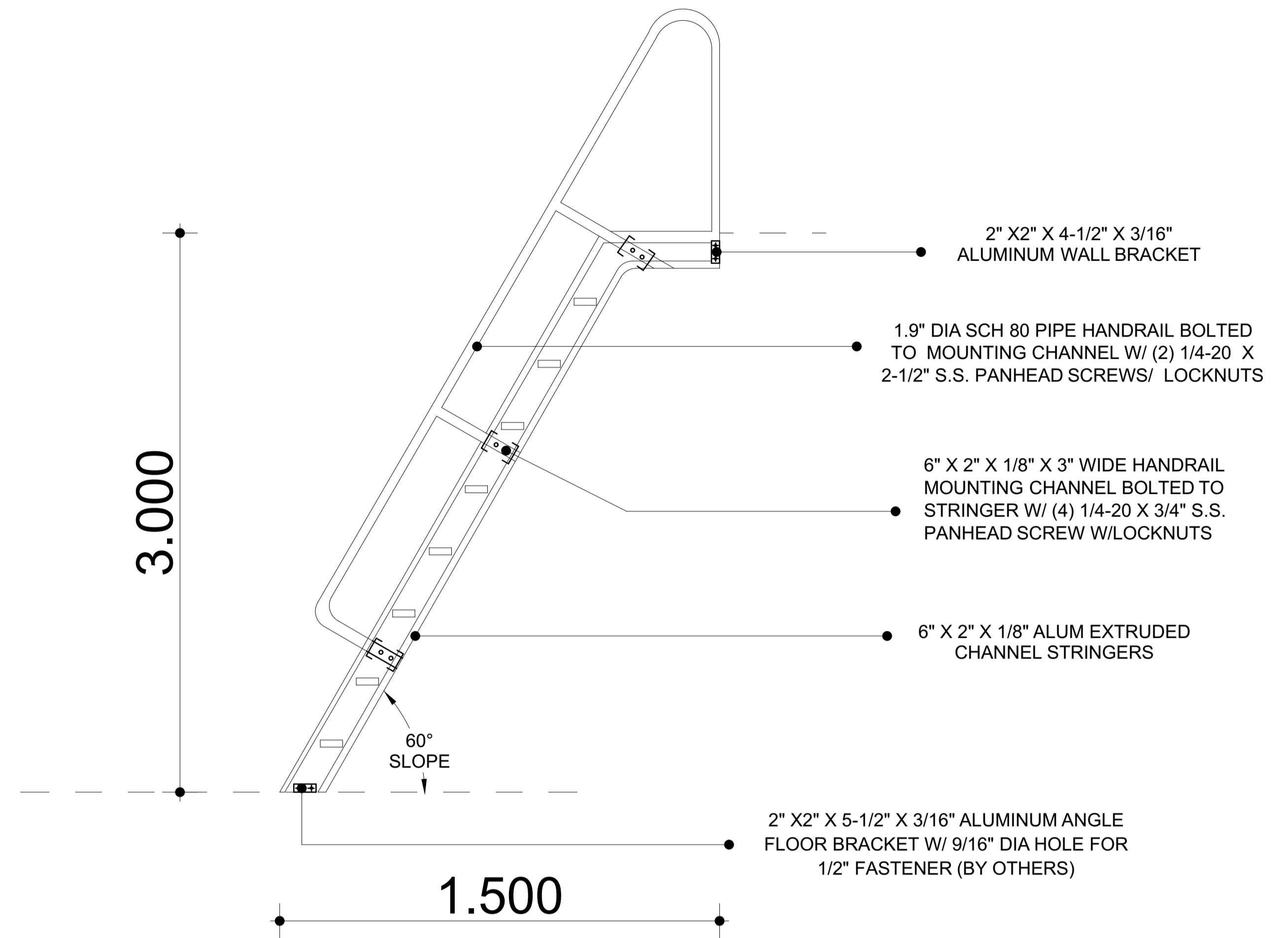
Architects	Project Title			Revisions	Scale	Drawing No. & Title																					
	Somali Sustainable Fisheries Development Project (BADMAAL) Client Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date													1:100 Date 10-03-2026 Drawn By J.A. Sciorfino	<table border="1"> <tr> <td colspan="2">JAZEERA Septic Tank Details</td> </tr> <tr> <td colspan="2">Sheet No.</td> </tr> <tr> <td>A1</td> <td>Project No: P178032</td> </tr> <tr> <td>Designed By Mohamed Abdi Ahmed Saahid</td> <td>Approved By.</td> </tr> </table>	JAZEERA Septic Tank Details		Sheet No.		A1	Project No: P178032
No.	Description	Date																									
JAZEERA Septic Tank Details																											
Sheet No.																											
A1	Project No: P178032																										
Designed By Mohamed Abdi Ahmed Saahid	Approved By.																										

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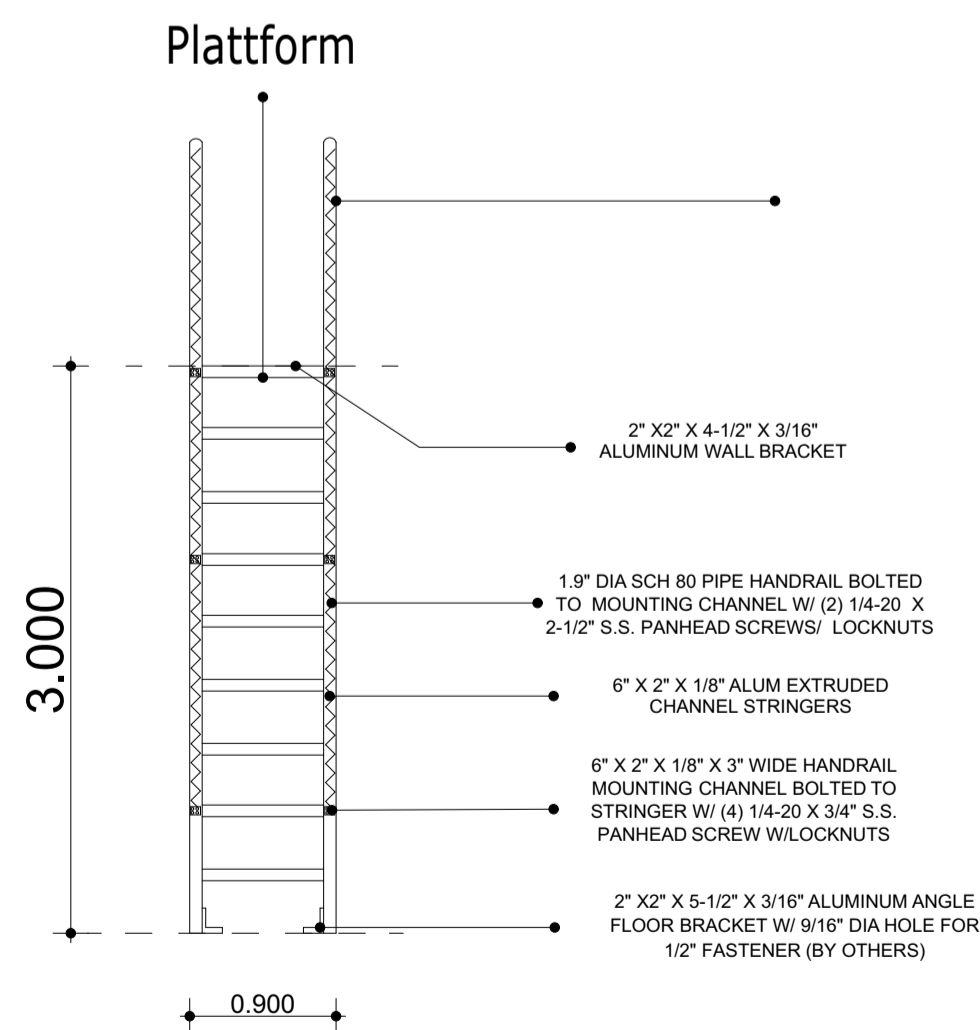
# PLAN VIEW



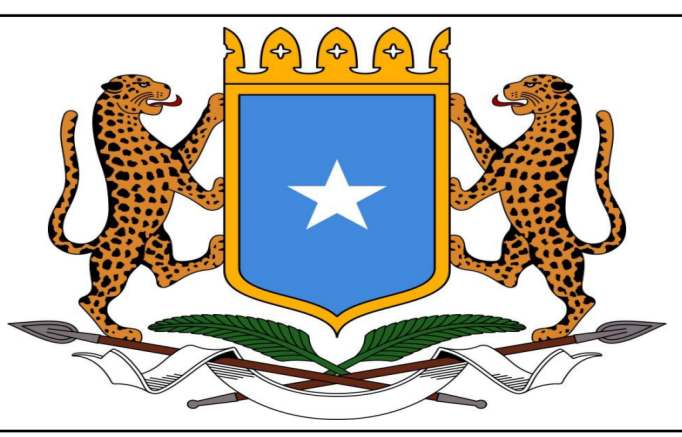
# SIDE ELEVATION



# FRONT ELEVATION



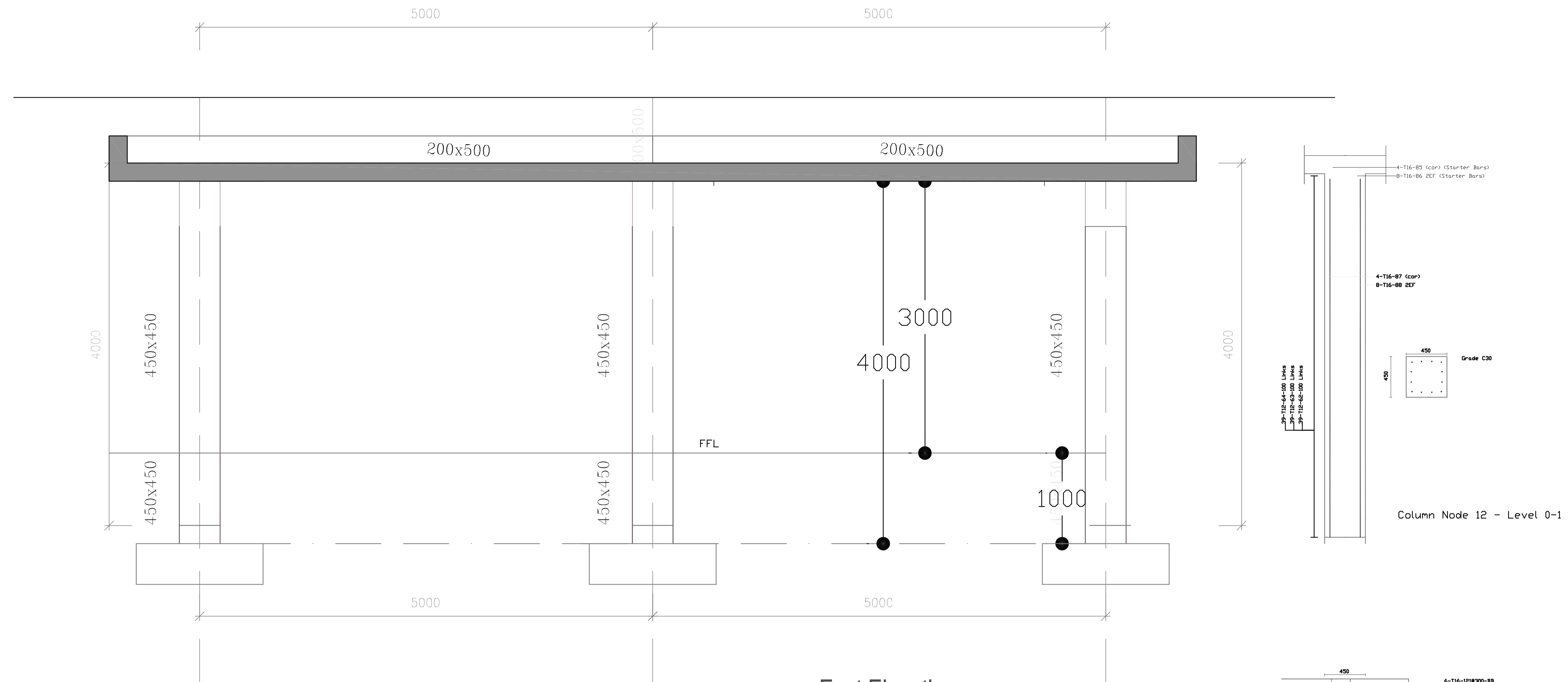
<b>Architects</b>	<b>Project Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



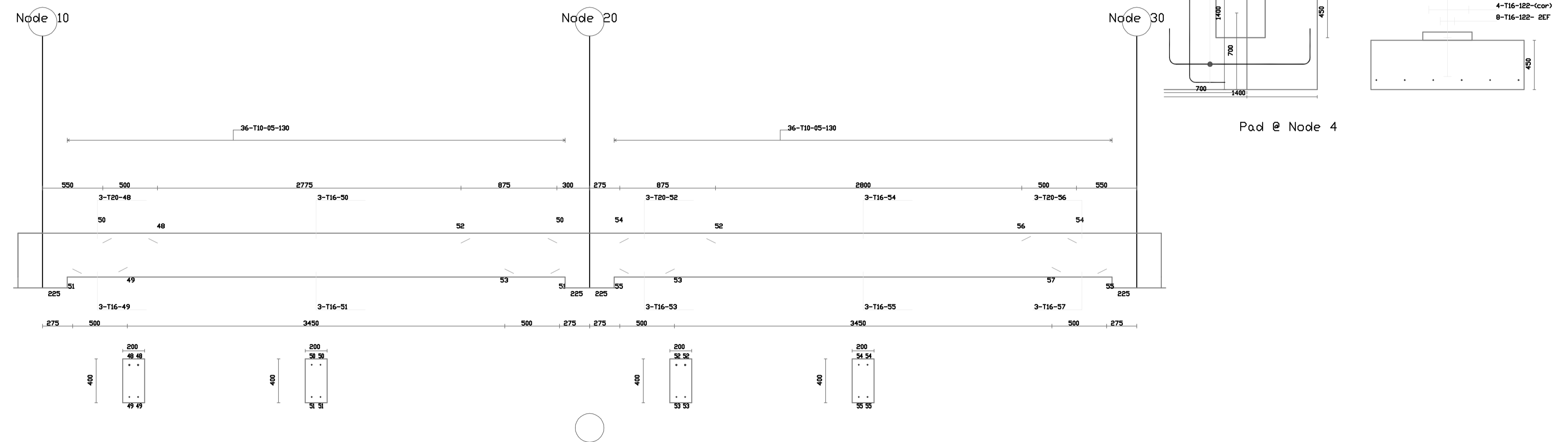
Revisions		
No.	Description	Date

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
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<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:50</b>	<b>JAZEERA Access Ladder Details</b>	
Date	Sheet No.	
<b>11-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	

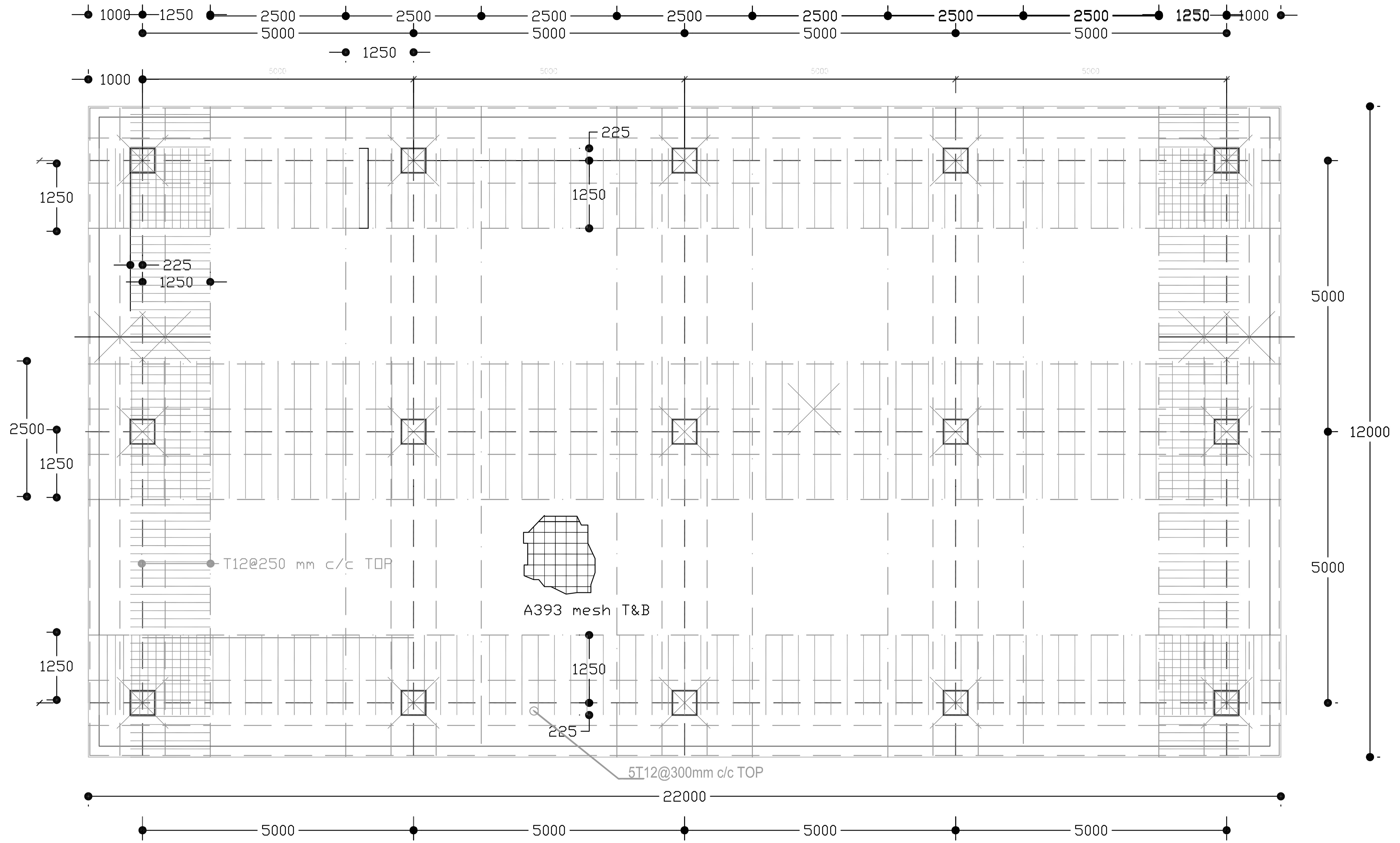


East Elevation



Architects	Project Title			Revisions	Scale	Drawing No. & Title																
	Somali Sustainable Fisheries Development Project (BADMAAL)			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date													1:25	JAZEERA Preliminary Sections Details	
No.	Description			Date																		
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	Date	12-03-2026	Sheet No.																		
		Drawn By <b>J.A. Sciortino</b>	Designed By <b>Mohamed Abdi Ahmed Saahid</b>	Project No: P178032 Approved By.																		

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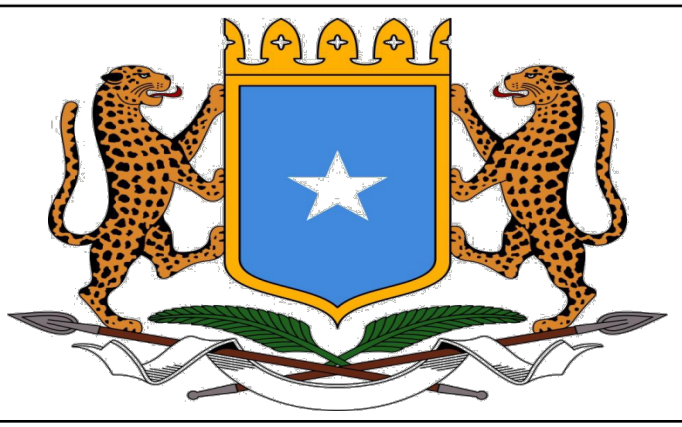
Floor Plan showing additional steel in addition to basic steel [A393 T&B]

<b>Architects</b> 	<b>Project Title</b> Somali Sustainable Fisheries Development Project (BADMAAL)			<b>Revisions</b>		Scale <b>1:25</b>	Drawing No. & Title <b>JAZEERA Additional Rebar Plan</b>												
	<b>Client</b> Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date												
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NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.				Drawn By <b>J.A. Sciorfino</b>	Designed By <b>Mohamed Abdi Ahmed Saahid</b>	Approved By.													

## PORT KISMAYO Rev B

Description	Qty	Concrete								Actual Steel	
		<u>L</u>	<u>B</u>	<u>H</u>	<u>Volume per Element</u>	<u>Total Volume</u>				<u>Calculated Steel Qty</u>	<u>Total Steel in structure</u>
Column Bases	15	1.40	1.40	0.45	0.88	13.23				150.00	2250.00
Columns	15	0.45	0.45	3.50	0.71	10.63	lapping allowance			258.00	3870.00
Slab 200mm Thick [A393 Top & Bottom-6.16kg/m2]+ Additional Steel	1	22.00	12.00	0.20	52.80	52.80	1.35			4390.85	4390.85
		Grid Qty:	length	No of bars	Type	Spacing	Wt Per Linear Meter	Lapping allowance	Total Kg		
N-S Additional Steel	1	3	2.50	40.00	T12	@300mm	0.888	1.25	333.00	333.00	333.00
N-S Additional Steel [Edges]	1	2	1.48	80.00	T12	@150mm	0.888	1.25	261.96	261.96	261.96
E-W additional steel	1	1	2.50	73.33	T12	@300mm	0.888	1.25	203.50	203.50	203.50
N-S Additional Steel[ Edge]	1	2	1.48	146.67	T12	@150mm	0.888	1.25	480.26	480.26	480.26
Allow for spacers, U-Bars etc. say	1										500.00
											6169.57
Edge Beam	1	0.30	0.20	68.00	4.08	4.08				20.68	1406.36
						<b>80.74</b>					<b>18086.78</b>
						<b>m3</b>					<b>Kg</b>

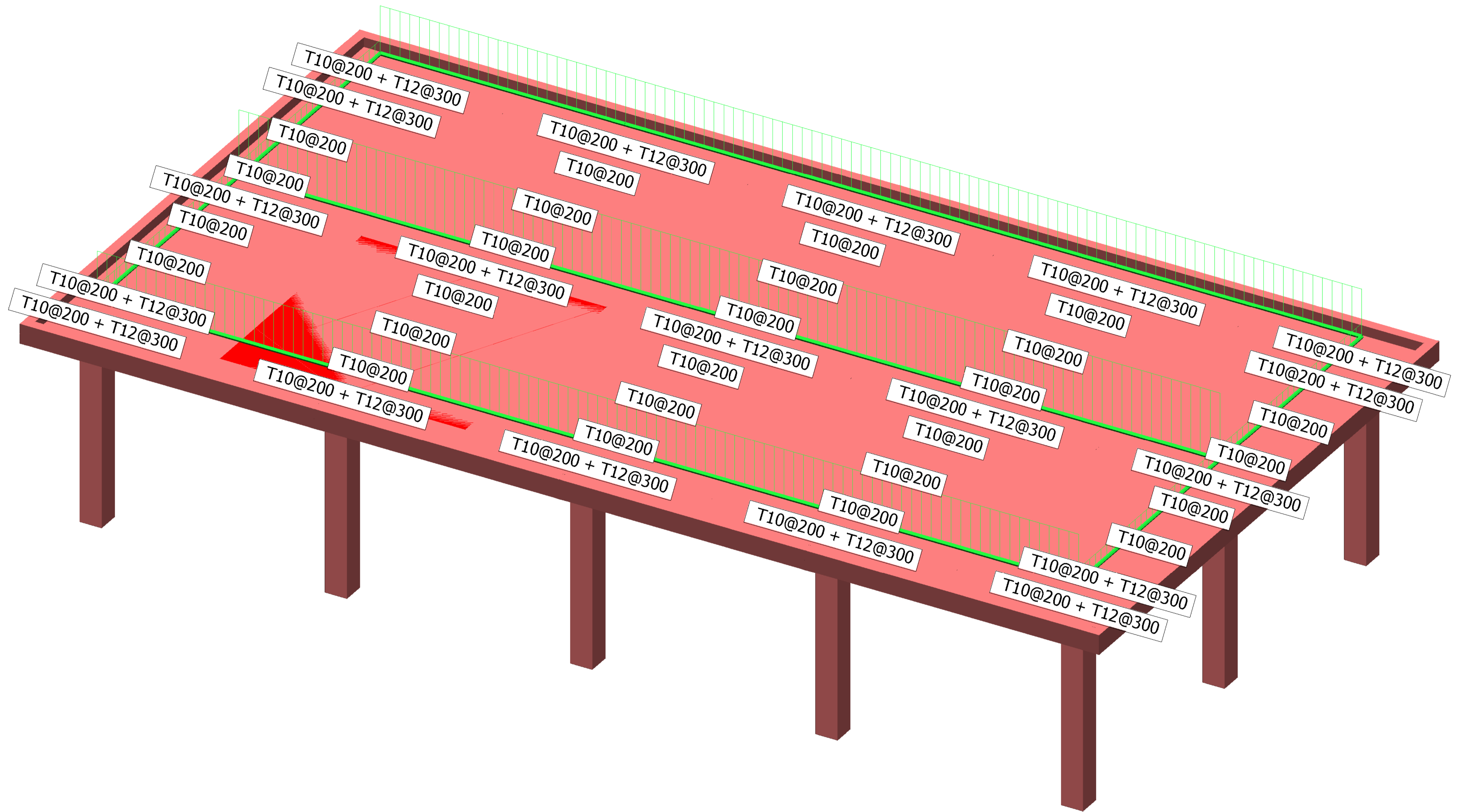
<b>Architects</b>	<b>Project Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>
	<b>Client</b>
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>



Revisions		
No.	Description	Date

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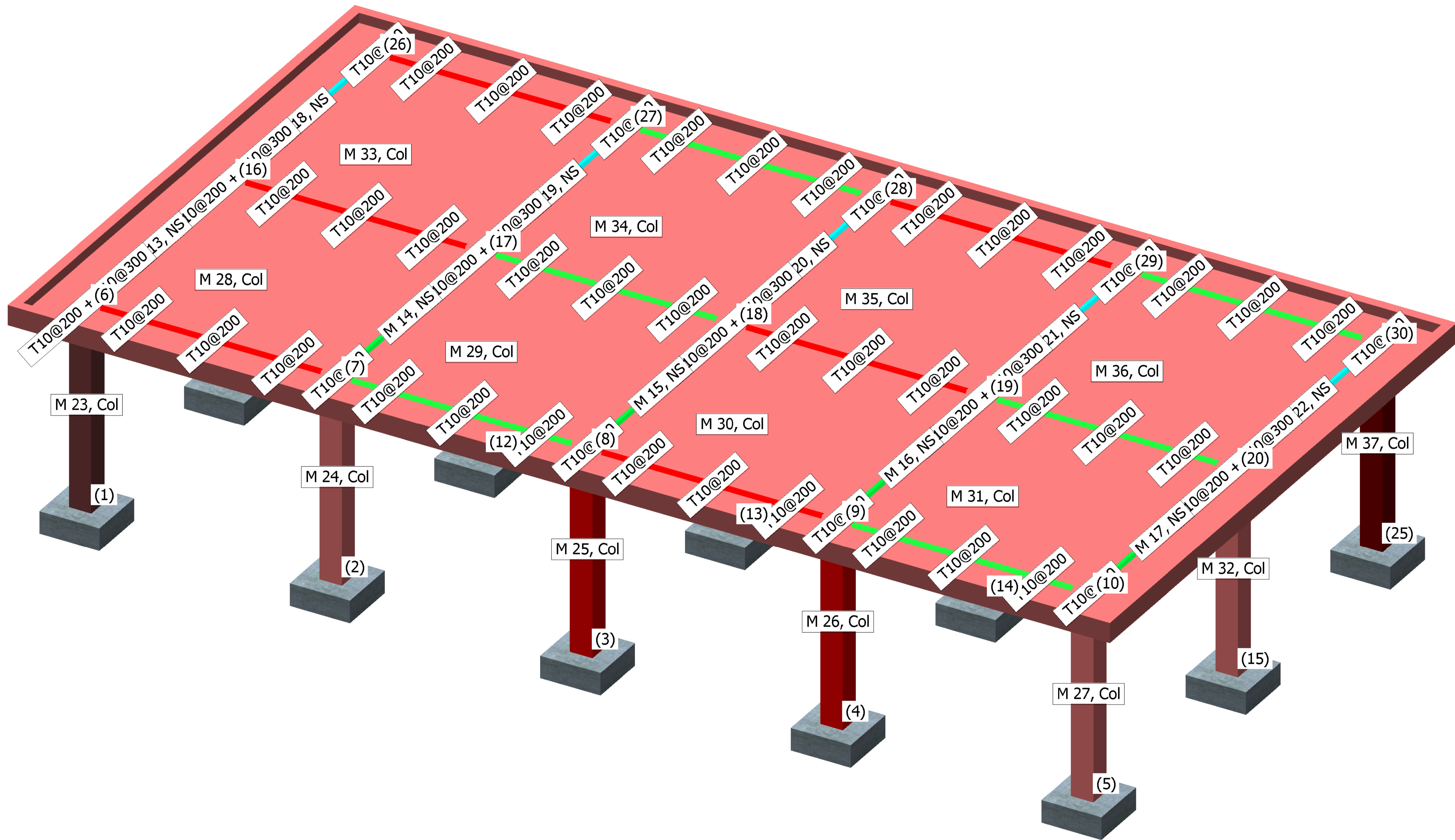
<b>Scale</b>	<b>Drawing No. &amp; Title</b>	
<b>1:25</b>	<b>JAZEERA Rebar Estimate</b>	
Date	Sheet No.	
<b>12-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
Drawn By	Designed By	Approved By.
<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	



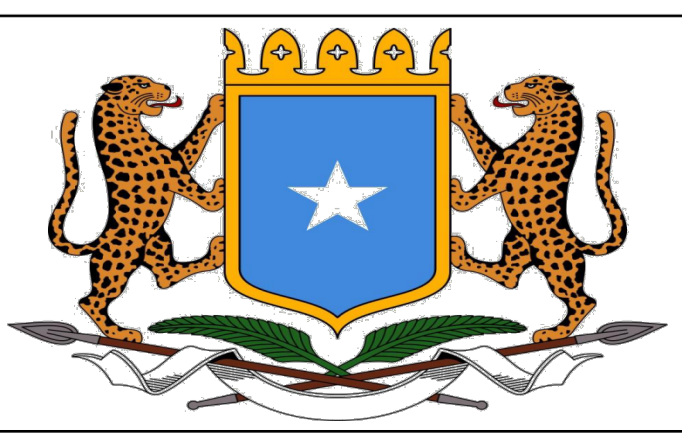
39-E-W All Top Rebar

1:0.21

<b>Architects</b> 	<b>Project Title</b> Somali Sustainable Fisheries Development Project (BADMAAL)		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>			Scale <b>1:25</b>	Drawing No. & Title <b>JAZEERA East, West Top Total Steel Reinforcement Load Diagram</b>	
	<b>Client</b> Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			No.   Description   Date	Date <b>12-03-2026</b>	Sheet No. <b>A1</b>	Project No: P178032		
NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.				Drawn By <b>J.A. Sciortino</b>	Designed By <b>Mohamed Abdi Ahmed Saahid</b>	Approved By.			



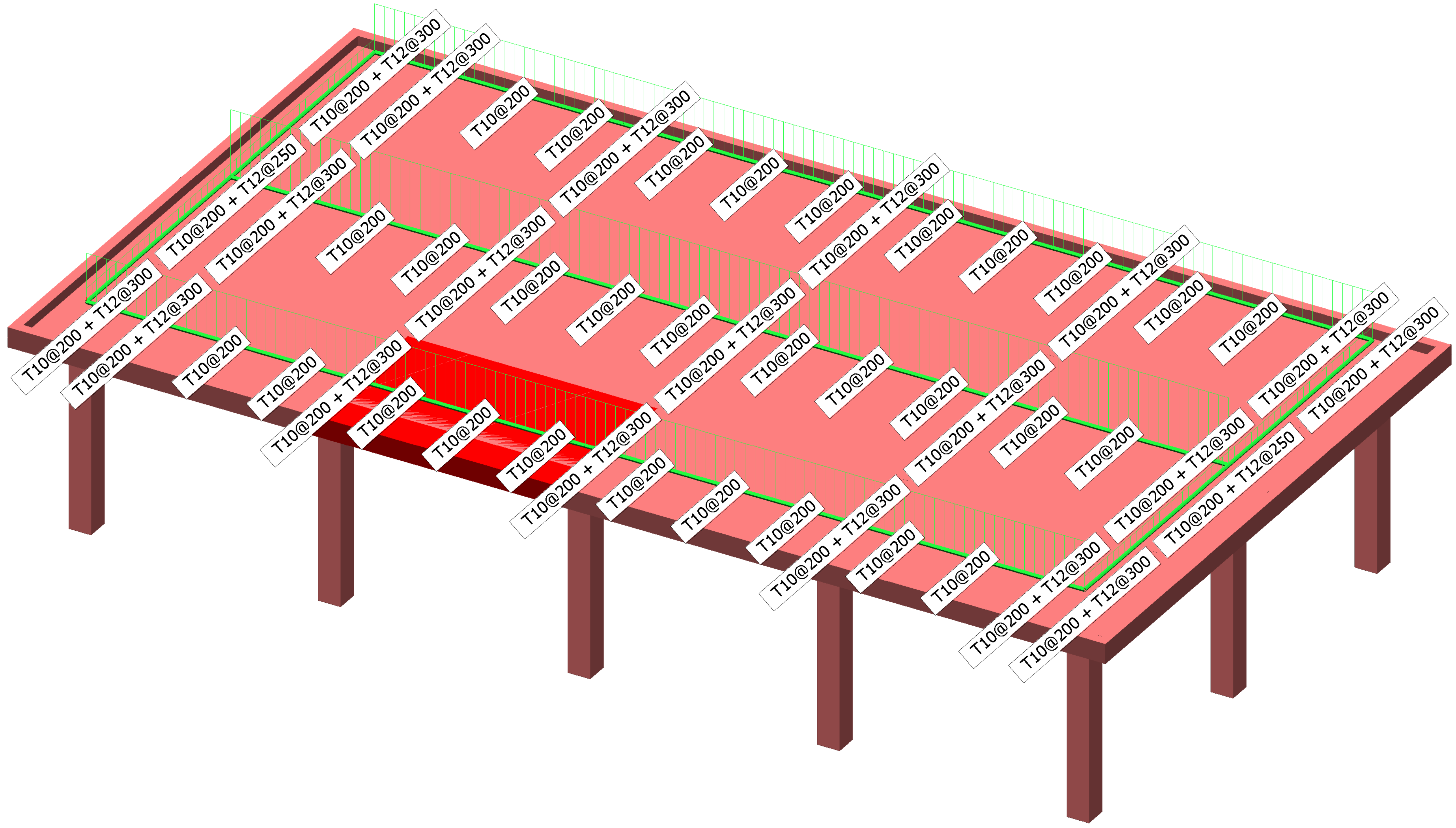
	Architects	Project Title
		Somali Sustainable Fisheries Development Project (BADMAAL)
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia



Revisions		
No.	Description	Date

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Scale	Drawing No. & Title	
1:25	JAZEERA North South Top Total Steel Reinforcement	
Date	Sheet No.	
12-03-2026	A1	Project No: P178032
Drawn By	Designed By	Approved By.
J.A. Sciorfino	Mohamed Abdi Ahmed Saahid	



38-N-S All Top Rebar

1:0.20

Architects	Project Title			Revisions	Scale	Drawing No. & Title																
	Somali Sustainable Fisheries Development Project (BADMAAL)			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date													1:25	JAZEERA North South Top Total Steel Reinforcement Load Diagram	
No.	Description			Date																		
Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia	<small>           NB:            1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.            2. The contractor must check and verify all levels and dimensions before commencing any work.         </small>	Date	Sheet No.																		
				Drawn By	12-03-2026	A1	Project No: P178032															
				J.A. Sciorfino	Designed By	Mohamed Abdi Ahmed Saahid	Approved By.															

## MasterFrame : Flat Slab Design Moments

Member Number	Elastic Moments		Effective Column Head		Limiting Moment	Reduced Moments		Positive Moment
	End 1	End 2	End 1	End 2		End 1	End 2	
1	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
2	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
3	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
4	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
5	98.66	156.34	0.508	0.508	183.60	62.34	114.39	95.24
6	146.67	138.06	0.508	0.508	183.60	105.49	97.75	84.72
7	138.06	146.68	0.508	0.508	183.60	97.75	105.49	84.72
8	156.34	98.67	0.508	0.508	183.60	114.38	62.34	95.24
9	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
10	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
11	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
12	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
13	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
14	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
15	97.27	161.49	0.508	0.508	183.60	60.47	118.28	94.23
16	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
17	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
18	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11
19	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
20	161.48	97.27	0.508	0.508	183.60	118.28	60.47	94.23
21	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
22	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel Node 26-C1-Node 7-Node 6 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	296 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C1-C2-Node 8-Node 7 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	263 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C2-C3-Node 9-Node 8 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	263 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C3-C4-A4-Node 9 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	296 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 4	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 4	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### North-South Bottom Steel Table

#### North-South Bottom Steel in Panel Node 6-Node 16-B4-A4 - Level 1

From 1.000 West to 1.250 m East of member 13	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of member 13	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK

### North-South Bottom Steel Table

#### North-South Bottom Steel in Panel Node 16-Node 26-C4-B4 - Level 1

From 1.000 West to 1.250 m East of member 18	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of member 18	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK

Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions		Scale	Drawing No. & Title	
				No.	Description	Date	1:25	JAZEERA
 Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)					Date	Sheet No.	
	Client					12-03-2026	A1	Project No: P178032
Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						Drawn By	Designed By	Approved By.
						J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

From 1.250 to 3.750 m along Member 20 (B2-C2)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ B2 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 556 mm <sup>2</sup> 393 mm <sup>2</sup> > 278 mm <sup>2</sup>	OK OK
From 1.250 to 3.750 m along Member 15	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre Middle ½ of Column Strip @ Node 8 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 693 mm <sup>2</sup> 393 mm <sup>2</sup> > 347 mm <sup>2</sup>	OK OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C3-Node 9 - Level 1

From 0.225 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ C3 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 759 mm <sup>2</sup> 393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK OK
From 1.250 to 3.750 m along Member 21 (B3-C3)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ B3 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 651 mm <sup>2</sup> 393 mm <sup>2</sup> > 325 mm <sup>2</sup>	OK OK
From 1.250 to 3.750 m along Member 16	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre Middle ½ of Column Strip @ Node 9 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 759 mm <sup>2</sup> 393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C4-A4 - Level 1

From 0.225 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ C4 Outer ½ of Column Strip	T10@200 + T12@300 T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup> 770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK OK
From 0.838 to 4.163 m along Member 22 (B4-C4)	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 0.838 North to 0.838 m South of Column Centre Middle ½ of Column Strip @ B4 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 471 mm <sup>2</sup> 393 mm <sup>2</sup> > 353 mm <sup>2</sup>	OK OK
From 0.838 to 4.163 m along Member 17 (A4-B4)	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre Middle ½ of Column Strip @ A4 Outer ½ of Column Strip	T10@200 + T12@300 T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup> 770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK OK

From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 3 From 1.250 to 3.750 m East of grid line 3	T10@200 T10@200	393 mm <sup>2</sup> > 315 mm <sup>2</sup> 393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm <sup>2</sup> > 267 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line Node 26-Node 6 - Level 1

From 0.225 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ Node 26 Outer ½ of Column Strip	T10@200 + T12@300 T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup> 770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK OK
From 0.838 to 4.163 m along Member 18	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 0.838 North to 0.838 m South of Column Centre Middle ½ of Column Strip @ Node 16 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 471 mm <sup>2</sup> 393 mm <sup>2</sup> > 353 mm <sup>2</sup>	OK OK
From 0.838 to 4.163 m along Member 13	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre Middle ½ of Column Strip @ Node 6 Outer ½ of Column Strip	T10@200 + T12@300 T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup> 770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C1-Node 7 - Level 1

From 0.225 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ C1 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 759 mm <sup>2</sup> 393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK OK
From 1.250 to 3.750 m along Member 19 (B1-C1)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ B1 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 651 mm <sup>2</sup> 393 mm <sup>2</sup> > 325 mm <sup>2</sup>	OK OK
From 1.250 to 3.750 m along Member 14	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre Middle ½ of Column Strip @ Node 7 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 759 mm <sup>2</sup> 393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C2-Node 8 - Level 1

From 0.225 North to 1.250 m South of Column Centre Middle ½ of Column Strip @ C2 Outer ½ of Column Strip	T10@200 + T12@300 T10@200	770 mm <sup>2</sup> > 693 mm <sup>2</sup> 393 mm <sup>2</sup> > 347 mm <sup>2</sup>	OK OK
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 Somali Sustainable Fisheries Development Project	<b>Architects</b> Project Title <b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>		Scale <b>1:25</b>	Drawing No. & Title <b>JAZEERA Preliminary Calculations</b>												
	<b>Client</b> Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia			<table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	No.	Description	Date												
No.	Description	Date																	
NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.				Drawn By <b>J.A. Sciortino</b>	Designed By <b>Mohamed Abdi Ahmed Saahid</b>	Approved By.													

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 6-A4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 1				
	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 2				
	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 3				
	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 4				
	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 16-B4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK
From 1.250 to 3.750 m along Member 5				
	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 6 (B1-B2)				
	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 7 (B2-B3)				
	T10@200	393 mm² >	260 mm²	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm² >	724 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	362 mm²	OK
From 1.250 to 3.750 m along Member 8 (B3-B4)				
	T10@200	393 mm² >	260 mm²	OK

From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ B4	T10@200 + T12@250	845 mm² >	831 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	415 mm²	OK

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 26-C4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK
From 0.838 to 4.163 m along Member 9				
	T10@200	393 mm² >	279 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 10 (C1-C2)				
	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.163 m along Member 11 (C2-C3)				
	T10@200	393 mm² >	260 mm²	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm² >	492 mm²	OK
Outer ½ of Column Strip	T10@200	393 mm² >	369 mm²	OK
From 0.838 to 4.162 m along Member 12 (C3-C4)				
	T10@200	393 mm² >	279 mm²	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm² >	631 mm²	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm² >	473 mm²	OK

	Architects	Project Title			Revisions			Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA	Preliminary Calculations
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia				Date	12-03-2026	A1	Project No: P178032	
						Drawn By	J.A. Sciortino	Designed By	Mohamed Abdi Ahmed Saahid	Approved By.

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C2-C3-Node 9-Node 8 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	263 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C3-C4-A4-Node 9 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	296 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 4	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 4	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### North-South Bottom Steel Table

#### North-South Bottom Steel in Panel Node 6-Node 16-B4-A4 - Level 1

From 1.000 West to 1.250 m East of member 13	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of member 13	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK

### North-South Bottom Steel Table

#### North-South Bottom Steel in Panel Node 16-Node 26-C4-B4 - Level 1

From 1.000 West to 1.250 m East of member 18	T10@200	393 mm <sup>2</sup> >	267 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of member 18	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 2	T10@200	393 mm <sup>2</sup> >	315 mm <sup>2</sup>	OK

### MasterFrame : Flat Slab Design Moments

Member Number	Elastic Moments		Effective Column Head		Limiting Moment	Reduced Moments		Positive Moment
	End 1	End 2	End 1	End 2		End 1	End 2	
1	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
2	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
3	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
4	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
5	98.66	156.34	0.508	0.508	183.60	62.34	114.39	95.24
6	146.67	138.06	0.508	0.508	183.60	105.49	97.75	84.72
7	138.06	146.68	0.508	0.508	183.60	97.75	105.49	84.72
8	156.34	98.67	0.508	0.508	183.60	114.38	62.34	95.24
9	87.09	107.30	0.508	0.508	132.17	64.54	83.12	58.34
10	102.58	100.81	0.508	0.508	132.17	77.52	75.90	55.46
11	100.81	102.59	0.508	0.508	132.17	75.89	77.52	55.46
12	107.30	87.10	0.508	0.508	132.17	83.11	64.55	58.34
13	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
14	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
15	97.27	161.49	0.508	0.508	183.60	60.47	118.28	94.23
16	97.23	161.52	0.508	0.508	183.60	60.46	118.35	94.19
17	86.77	108.37	0.508	0.508	132.17	64.14	83.98	58.11
18	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11
19	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
20	161.48	97.27	0.508	0.508	183.60	118.28	60.47	94.23
21	161.52	97.23	0.508	0.508	183.60	118.35	60.47	94.19
22	108.37	86.78	0.508	0.508	132.17	83.97	64.14	58.11

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel Node 26-C1-Node 7-Node 6 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	296 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 1	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

### East-West Bottom Steel Table

#### East-West Bottom Steel in Panel C1-C2-Node 8-Node 7 - Level 1

From 1.000 North to 1.250 m South of grid line C	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of grid line B	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of grid line B	T10@200	393 mm <sup>2</sup> >	263 mm <sup>2</sup>	OK
From 1.250 to 3.750 m North of member 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 North to 1.000 m South of member 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

	Architects	Project Title			Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia				Date	12-03-2026	A1	Project No: P178032
						Drawn By	J.A. Sciortino	Designed By	Mohamed Abdi Ahmed Saahid
						<small>                 NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.                  2. The contractor must check and verify all levels and dimensions before commencing any work.             </small>		Approved By.	

From 1.250 to 3.750 m along Member 20 (B2-C2)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm <sup>2</sup> > 556 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 278 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 15	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre			
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm <sup>2</sup> > 693 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 347 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C3-Node 9 - Level 1

From 0.225 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm <sup>2</sup> > 759 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 21 (B3-C3)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm <sup>2</sup> > 651 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 325 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 16	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre			
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm <sup>2</sup> > 759 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C4-A4 - Level 1

From 0.225 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 22 (B4-C4)	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 0.838 North to 0.838 m South of Column Centre			
Middle ½ of Column Strip @ B4	T10@200 + T12@300	770 mm <sup>2</sup> > 471 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 353 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 17 (A4-B4)	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre			
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK

From 1.250 to 3.750 m East of grid line 2	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of grid line 3	T10@200	393 mm <sup>2</sup> > 315 mm <sup>2</sup>	OK
From 1.250 to 3.750 m East of grid line 3	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 West to 1.000 m East of grid line 4	T10@200	393 mm <sup>2</sup> > 267 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line Node 26-Node 6 - Level 1

From 0.225 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 18	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 0.838 North to 0.838 m South of Column Centre			
Middle ½ of Column Strip @ Node 16	T10@200 + T12@300	770 mm <sup>2</sup> > 471 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 353 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 13	T10@200	393 mm <sup>2</sup> > 261 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre			
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm <sup>2</sup> > 589 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> > 442 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C1-Node 7 - Level 1

From 0.225 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm <sup>2</sup> > 759 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 19 (B1-C1)	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm <sup>2</sup> > 651 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 325 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 14	T10@200	393 mm <sup>2</sup> > 260 mm <sup>2</sup>	OK
From 1.250 North to 0.225 m South of Column Centre			
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm <sup>2</sup> > 759 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 379 mm <sup>2</sup>	OK

### East-West Top Steel Table

#### East-West Top Steel along Grid Line C2-Node 8 - Level 1

From 0.225 North to 1.250 m South of Column Centre			
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm <sup>2</sup> > 693 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> > 347 mm <sup>2</sup>	OK

	Architects	Project Title			Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

From 1.250 West to 0.225 m East of Column Centre	T10@200 + T12@250	845 mm <sup>2</sup> >	831 mm <sup>2</sup>	OK
Middle ½ of Column Strip @ B4				
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	415 mm <sup>2</sup>	OK

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 26-C4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 26	T10@200 + T12@300	770 mm <sup>2</sup> >	631 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	473 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 9	T10@200	393 mm <sup>2</sup> >	279 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C1	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 10 (C1-C2)	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C2	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 11 (C2-C3)	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ C3	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.162 m along Member 12 (C3-C4)	T10@200	393 mm <sup>2</sup> >	279 mm <sup>2</sup>	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ C4	T10@200 + T12@300	770 mm <sup>2</sup> >	631 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	473 mm <sup>2</sup>	OK

### Steel Design In the Region of East-West Member 1 @ Level 1

#### East-West Column Strip Along Member 1 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m
Design for Column Strip Positive Moment along Member 1 @ Level 1		
Area Covered	From 1.250 North to 1.000 m South of member 1	2.250 m
Steel Provided	T10@200	393 mm <sup>2</sup>
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15

#### North-South Middle Strip At Right Angle to Member 1 @ Level 1 (Top Steel)

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 86.774 kN.m)	1.675 m
Middle Strip Moment	1.000x64.139/3.500	18.325 kN.m/m

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 6-A4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 6	T10@200 + T12@300	770 mm <sup>2</sup> >	631 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	473 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 1	T10@200	393 mm <sup>2</sup> >	279 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 7	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 2	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 8	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.163 m along Member 3	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 0.838 West to 0.838 m East of Column Centre				
Middle ½ of Column Strip @ Node 9	T10@200 + T12@300	770 mm <sup>2</sup> >	492 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	369 mm <sup>2</sup>	OK
From 0.838 to 4.162 m along Member 4	T10@200	393 mm <sup>2</sup> >	279 mm <sup>2</sup>	OK
From 1.250 West to 0.225 m East of Column Centre				
Middle ½ of Column Strip @ A4	T10@200 + T12@300	770 mm <sup>2</sup> >	631 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	473 mm <sup>2</sup>	OK

### North-South Top Steel Table

#### North-South Top Steel along Grid Line Node 16-B4 - Level 1

From 0.225 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ Node 16	T10@200 + T12@250	845 mm <sup>2</sup> >	831 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200 + T12@300	770 mm <sup>2</sup> >	415 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 5	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B1	T10@200 + T12@300	770 mm <sup>2</sup> >	724 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	362 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 6 (B1-B2)	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B2	T10@200 + T12@300	770 mm <sup>2</sup> >	724 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	362 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 7 (B2-B3)	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK
From 1.250 West to 1.250 m East of Column Centre				
Middle ½ of Column Strip @ B3	T10@200 + T12@300	770 mm <sup>2</sup> >	724 mm <sup>2</sup>	OK
Outer ½ of Column Strip	T10@200	393 mm <sup>2</sup> >	362 mm <sup>2</sup>	OK
From 1.250 to 3.750 m along Member 8 (B3-B4)	T10@200	393 mm <sup>2</sup> >	260 mm <sup>2</sup>	OK

<b>Architects</b>	<b>Project Title</b>		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>		Scale	Drawing No. & Title		
 Somali Sustainable Fisheries Development Project	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	Description	Date	<b>1:25</b>	<b>JAZEERA Preliminary Detailed Calculations</b>	
	<b>Client</b>						Date	Sheet No.	
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>						<b>12-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		Drawn By	Designed By	Approved By.	
						<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>		

Middle Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Middle Strip Width for Member 6	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
<b>Design for Middle Strip Positive Moment North of Member 2</b>			
Area Covered	From 1.250 to 3.750 m North of member 2	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### Steel Design In the Region of East-West Member 3 @ Level 1

#### East-West Column Strip Along Member 3 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
<b>Design for Column Strip Positive Moment along Member 3 @ Level 1</b>			
Area Covered	From 1.250 North to 1.000 m South of member 3	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

#### North-South Middle Strip At Right Angle to Member 3 @ Level 1 (Top Steel)

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.471/5.000	12.094 kN.m/m	
Column Strip Width @ Node 9	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
<b>Design for Negative Moment Over Support Member 3</b>			
Area Covered	From 0.838 to 4.163 m along Member 3	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 12.094, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

#### Middle Strip Between Members 3 and 7 (B2-B3) @ Level 1 (Bottom Steel)

Column Strip Width for Member 3	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Middle Strip Width for Member 7	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
<b>Design for Middle Strip Positive Moment North of Member 3</b>			
Area Covered	From 1.250 to 3.750 m North of member 3	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
<b>Design for Negative Moment Over Support Member 1</b>			
Area Covered	From 0.838 to 4.163 m along Member 1	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.325, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm <sup>2</sup>	OK

#### Middle Strip Between Members 1 and 5 @ Level 1 (Bottom Steel)

Column Strip Width for Member 1	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Middle Strip Width for Member 5	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
<b>Design for Middle Strip Positive Moment North of Member 1</b>			
Area Covered	From 1.250 to 3.750 m North of member 1	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### Steel Design In the Region of East-West Member 2 @ Level 1

#### East-West Column Strip Along Member 2 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
<b>Design for Column Strip Positive Moment along Member 2 @ Level 1</b>			
Area Covered	From 1.250 North to 1.000 m South of member 2	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

#### North-South Middle Strip At Right Angle to Member 2 @ Level 1 (Top Steel)

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.464/5.000	12.093 kN.m/m	
Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.471/5.000	12.094 kN.m/m	
<b>Design for Negative Moment Over Support Member 2</b>			
Area Covered	From 0.838 to 4.163 m along Member 2	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 12.094, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

#### Middle Strip Between Members 2 and 6 (B1-B2) @ Level 1 (Bottom Steel)

Column Strip Width for Member 2	Panel Width 3.5 m	2.250 m	
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	Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)				No.	Description	Date	1:25
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

NB:  
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### North-South Middle Strip At Right Angle to Member 5 @ Level 1 (Top Steel)

Column Strip Width @ Node 16 Middle Strip Moment	Panel Width 3.5 m (Full 108.37 kN.m) 0.500x83.976/3.500	2.250 m 11.997 kN.m/m	
Column Strip Width @ B1 Middle Strip Moment	Panel Width 5 m (Full 161.52 kN.m) 0.500x118.35/5.000	2.500 m 11.835 kN.m/m	
Design for Negative Moment Over Support Member 5			
Area Covered	From 1.250 to 3.750 m along Member 5	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.997, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

### Middle Strip Between Members 5 and 9 @ Level 1 (Bottom Steel)

Column Strip Width for Member 5 Middle Strip Moment	Panel Width 5 m 0.9x95.238/5.000	2.500 m 17.143 kN.m/m	
Middle Strip Width for Member 9 Column Strip Moment	Panel Width 3.5 m 0.9x58.342/3.500	2.250 m 15.002 kN.m/m	
Design for Middle Strip Positive Moment North of Member 5			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

## Steel Design In the Region of East-West Member 6 (B1-B2) @ Level 1

### East-West Column Strip Along Member 6 (B1-B2) @ Level 1 (Bottom Steel)

Column Strip Width Column Strip Moment	Panel Width 5 m 0.9x84.719/5.000+0.1x84.719/2.500	2.500 m 18.638 kN.m/m	
Design for Column Strip Positive Moment along Member 6 (B1-B2) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.638, h 200, d 170, fcu 35, fy 460, x/d 0.05	263 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 6 (B1-B2) @ Level 1 (Top Steel)

Column Strip Width @ B1 Middle Strip Moment	Panel Width 5 m (Full 161.52 kN.m) 0.500x118.35/5.000	2.500 m 11.835 kN.m/m	
Column Strip Width @ B2 Middle Strip Moment	Panel Width 5 m (Full 161.49 kN.m) 0.500x118.28/5.000	2.500 m 11.828 kN.m/m	
Design for Negative Moment Over Support Member 6			
Area Covered	From 1.250 to 3.750 m along Member 6 (B1-B2)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.835, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

## Steel Design In the Region of East-West Member 4 @ Level 1

### East-West Column Strip Along Member 4 @ Level 1 (Bottom Steel)

Column Strip Width Column Strip Moment	Panel Width 3.5 m 0.9x58.342/3.500+0.1x58.342/2.250	2.250 m 17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 4 @ Level 1			
Area Covered	From 1.250 North to 1.000 m South of member 4	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 4 @ Level 1 (Top Steel)

Column Strip Width @ Node 9 Middle Strip Moment	Panel Width 5 m (Full 97.227 kN.m) 1.000x60.464/5.000	1.675 m 12.093 kN.m/m	
Column Strip Width @ A4 Middle Strip Moment	Panel Width 3.5 m (Full 86.774 kN.m) 1.000x64.139/3.500	1.675 m 18.326 kN.m/m	
Design for Negative Moment Over Support Member 4			
Area Covered	From 0.838 to 4.162 m along Member 4	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm <sup>2</sup>	OK

### Middle Strip Between Members 4 and 8 (B3-B4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 4 Middle Strip Moment	Panel Width 3.5 m 0.9x58.342/3.500	2.250 m 15.002 kN.m/m	
Middle Strip Width for Member 8 Column Strip Moment	Panel Width 5 m 0.9x95.238/5.000	2.500 m 17.143 kN.m/m	
Design for Middle Strip Positive Moment North of Member 4			
Area Covered	From 1.250 to 3.750 m North of member 4	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

## Steel Design In the Region of East-West Member 5 @ Level 1

### East-West Column Strip Along Member 5 @ Level 1 (Bottom Steel)

Column Strip Width Column Strip Moment	Panel Width 5 m 0.9x95.238/5.000+0.1x95.238/2.500	2.500 m 20.952 kN.m/m	
Design for Column Strip Positive Moment along Member 5 @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.952, h 200, d 170, fcu 35, fy 460, x/d 0.06	296 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x1.81x1.07	45.42	OK

	Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)				No.	Description	Date	1:25
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciorfino	Mohamed Abdi Ahmed Saahid	

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Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### Steel Design In the Region of East-West Member 8 (B3-B4) @ Level 1

#### East-West Column Strip Along Member 8 (B3-B4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x95.238/5.000+0.1x95.238/2.500	20.952 kN.m/m	
Design for Column Strip Positive Moment along Member 8 (B3-B4) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.952, h 200, d 170, fcu 35, fy 460, x/d 0.06	296 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x1.81x1.07	45.42	OK

#### North-South Middle Strip At Right Angle to Member 8 (B3-B4) @ Level 1 (Top Steel)

Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Column Strip Width @ B4	Panel Width 3.5 m (Full 108.37 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.976/3.500	11.997 kN.m/m	
Design for Negative Moment Over Support Member 8			
Area Covered	From 1.250 to 3.750 m along Member 8 (B3-B4)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.997, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

#### Middle Strip Between Members 8 (B3-B4) and 12 (C3-C4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 8	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x95.238/5.000	17.143 kN.m/m	
Middle Strip Width for Member 12	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500	15.002 kN.m/m	
Design for Middle Strip Positive Moment North of Member 8			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.143, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### Steel Design In the Region of East-West Member 9 @ Level 1

#### East-West Column Strip Along Member 9 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 9 @ Level 1			

### Middle Strip Between Members 6 (B1-B2) and 10 (C1-C2) @ Level 1 (Bottom Steel)

Column Strip Width for Member 6	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Middle Strip Width for Member 10	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	

Design for Middle Strip Positive Moment North of Member 6			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 15.249, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### Steel Design In the Region of East-West Member 7 (B2-B3) @ Level 1

#### East-West Column Strip Along Member 7 (B2-B3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x84.719/5.000+0.1x84.719/2.500	18.638 kN.m/m	
Design for Column Strip Positive Moment along Member 7 (B2-B3) @ Level 1			
Area Covered	From 1.250 North to 1.250 m South of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.638, h 200, d 170, fcu 35, fy 460, x/d 0.05	263 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

#### North-South Middle Strip At Right Angle to Member 7 (B2-B3) @ Level 1 (Top Steel)

Column Strip Width @ B2	Panel Width 5 m (Full 161.49 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.28/5.000	11.828 kN.m/m	
Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Middle Strip Moment	0.500x118.35/5.000	11.835 kN.m/m	
Design for Negative Moment Over Support Member 7			
Area Covered	From 1.250 to 3.750 m along Member 7 (B2-B3)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.835, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

#### Middle Strip Between Members 7 (B2-B3) and 11 (C2-C3) @ Level 1 (Bottom Steel)

Column Strip Width for Member 7	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x84.719/5.000	15.249 kN.m/m	
Middle Strip Width for Member 11	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500	14.262 kN.m/m	
Design for Middle Strip Positive Moment North of Member 7			
Area Covered	From 1.250 to 3.750 m North of grid line B	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	

	Architects	Project Title			Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

## Steel Design In the Region of East-West Member 11 (C2-C3) @ Level 1

### East-West Column Strip Along Member 11 (C2-C3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 11 (C2-C3) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 11 (C2-C3) @ Level 1 (Top Steel)

Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.473/5.000	12.095 kN.m/m	
Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 11			
Area Covered	From 0.838 to 4.163 m along Member 11 (C2-C3)	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 12.095, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

## Steel Design In the Region of East-West Member 12 (C3-C4) @ Level 1

### East-West Column Strip Along Member 12 (C3-C4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.342/3.500+0.1x58.342/2.250	17.595 kN.m/m	
Design for Column Strip Positive Moment along Member 12 (C3-C4) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 12 (C3-C4) @ Level 1 (Top Steel)

Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Column Strip Width @ C4	Panel Width 3.5 m (Full 86.778 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.142/3.500	18.326 kN.m/m	
Design for Negative Moment Over Support Member 12			
Area Covered	From 0.838 to 4.162 m along Member 12 (C3-C4)	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm <sup>2</sup>	OK

Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.595, h 200, d 170, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 9 @ Level 1 (Top Steel)

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 86.78 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.143/3.500	18.326 kN.m/m	
Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Design for Negative Moment Over Support Member 9			
Area Covered	From 0.838 to 4.163 m along Member 9	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.326, h 200, d 158, fcu 35, fy 460, x/d 0.06	279 mm <sup>2</sup>	OK

## Steel Design In the Region of East-West Member 10 (C1-C2) @ Level 1

### East-West Column Strip Along Member 10 (C1-C2) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x55.464/3.500+0.1x55.464/2.250	16.727 kN.m/m	
Design for Column Strip Positive Moment along Member 10 (C1-C2) @ Level 1			
Area Covered	From 1.000 North to 1.250 m South of grid line C	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.727, h 200, d 170, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/170=29.41, Allowed=26x0.90x2.00x1.07	50.15	OK

### North-South Middle Strip At Right Angle to Member 10 (C1-C2) @ Level 1 (Top Steel)

Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.466/5.000	12.093 kN.m/m	
Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Middle Strip Moment	1.000x60.473/5.000	12.095 kN.m/m	
Design for Negative Moment Over Support Member 10			
Area Covered	From 0.838 to 4.163 m along Member 10 (C1-C2)	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 12.095, h 200, d 158, fcu 35, fy 460, x/d 0.04	260 mm <sup>2</sup>	OK

	Architects	Project Title			Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
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							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

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## Steel Design In the Region of North-South Member 13 @ Level 1

### North-South Column Strip Along Member 13 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 13 @ Level 1			
Area Covered	From 1.000 West to 1.250 m East of member 13	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

### East-West Middle Strip At Right Angle to Member 13 @ Level 1 (Top Steel)

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 87.094 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.544/3.500	18.441 kN.m/m	
Column Strip Width @ Node 16	Panel Width 5 m (Full 98.663 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.339/5.000	12.468 kN.m/m	
Design for Negative Moment Over Support Member 13			
Area Covered	From 0.838 to 4.163 m along Member 13	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.441, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm <sup>2</sup>	OK

### Middle Strip Between Members 13 and 14 @ Level 1 (Bottom Steel)

Column Strip Width for Member 13	Panel Width 3.5 m	2.250 m	
Middle Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Middle Strip Width for Member 14	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Design for Middle Strip Positive Moment East of Member 13			
Area Covered	From 1.250 to 3.750 m East of member 13	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

## Steel Design In the Region of North-South Member 14 @ Level 1

### North-South Column Strip Along Member 14 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 14 @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

### East-West Middle Strip At Right Angle to Member 14 @ Level 1 (Top Steel)

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.115/3.500	11.874 kN.m/m	
Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.39/5.000	11.439 kN.m/m	
Design for Negative Moment Over Support Member 14			
Area Covered	From 1.250 to 3.750 m along Member 14	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.874, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm <sup>2</sup>	OK

### Middle Strip Between Members 14 and 15 @ Level 1 (Bottom Steel)

Column Strip Width for Member 14	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 15	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000	16.961 kN.m/m	
Design for Middle Strip Positive Moment East of Member 14			
Area Covered	From 1.250 to 3.750 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

## Steel Design In the Region of North-South Member 15 @ Level 1

### North-South Column Strip Along Member 15 @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.226/5.000+0.1x94.226/2.500	20.730 kN.m/m	
Design for Column Strip Positive Moment along Member 15 @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.73, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.90	OK

### East-West Middle Strip At Right Angle to Member 15 @ Level 1 (Top Steel)

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	2.250 m	
Middle Strip Moment	0.500x75.897/3.500	10.842 kN.m/m	
Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m	
Middle Strip Moment	0.500x97.75/5.000	9.775 kN.m/m	
Design for Negative Moment Over Support Member 15			
Area Covered	From 1.250 to 3.750 m along Member 15	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	

<b>Architects</b>	<b>Project Title</b>		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>	Scale	<b>Drawing No. &amp; Title</b>
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	<b>1:25</b>	<b>JAZEERA Preliminary Detailed Calculations</b>
	<b>Client</b>			Description	Date	Sheet No.
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>					<b>12-03-2026</b>
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.		Drawn By
					<b>J.A. Sciortino</b>	Designed By
						<b>Mohamed Abdi Ahmed Saahid</b>
						Approved By.

Steel Required M 10.842, h 200, d 170, fcu 35, fy 460, x/d 0.03 260 mm<sup>2</sup> OK

**Middle Strip Between Members 15 and 16 @ Level 1 (Bottom Steel)**

Column Strip Width for Member 15 Panel Width 5 m 2.500 m  
Middle Strip Moment 0.9x94.226/5.000 16.961 kN.m/m

Middle Strip Width for Member 16 Panel Width 5 m 2.500 m  
Column Strip Moment 0.9x94.194/5.000 16.955 kN.m/m

Design for Middle Strip Positive Moment East of Member 15  
Area Covered From 1.250 to 3.750 m East of grid line 2 2.500 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05 260 mm<sup>2</sup> OK  
Span/effective depth ratio Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08 50.29 OK

**Steel Design In the Region of North-South Member 16 @ Level 1**

**North-South Column Strip Along Member 16 @ Level 1 (Bottom Steel)**

Column Strip Width Panel Width 5 m 2.500 m  
Column Strip Moment 0.9x94.194/5.000+0.1x94.194/2.500 20.723 kN.m/m

Design for Column Strip Positive Moment along Member 16 @ Level 1  
Area Covered From 1.250 West to 1.250 m East of grid line 3 2.500 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06 315 mm<sup>2</sup> OK  
Span/effective depth ratio Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08 41.91 OK

**East-West Middle Strip At Right Angle to Member 16 @ Level 1 (Top Steel)**

Column Strip Width @ Node 9 Panel Width 3.5 m (Full 107.3 kN.m) 2.250 m  
Middle Strip Moment 0.500x83.112/3.500 11.873 kN.m/m

Column Strip Width @ B3 Panel Width 5 m (Full 156.34 kN.m) 2.500 m  
Middle Strip Moment 0.500x114.38/5.000 11.438 kN.m/m

Design for Negative Moment Over Support Member 16  
Area Covered From 1.250 to 3.750 m along Member 16 2.500 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 11.873, h 200, d 170, fcu 35, fy 460, x/d 0.03 260 mm<sup>2</sup> OK

**Middle Strip Between Members 16 and 17 (A4-B4) @ Level 1 (Bottom Steel)**

Column Strip Width for Member 16 Panel Width 5 m 2.500 m  
Middle Strip Moment 0.9x94.194/5.000 16.955 kN.m/m

Middle Strip Width for Member 17 Panel Width 3.5 m 2.250 m  
Column Strip Moment 0.9x58.114/3.500 14.944 kN.m/m

Design for Middle Strip Positive Moment East of Member 16  
Area Covered From 1.250 to 3.750 m East of grid line 3 2.500 m

Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05 260 mm<sup>2</sup> OK  
Span/effective depth ratio Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08 50.29 OK

**Steel Design In the Region of North-South Member 17 (A4-B4) @ Level 1**

**North-South Column Strip Along Member 17 (A4-B4) @ Level 1 (Bottom Steel)**

Column Strip Width Panel Width 3.5 m 2.250 m  
Column Strip Moment 0.9x58.114/3.500+0.1x58.114/2.250 17.526 kN.m/m

Design for Column Strip Positive Moment along Member 17 (A4-B4) @ Level 1  
Area Covered From 1.250 West to 1.000 m East of grid line 4 2.250 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05 267 mm<sup>2</sup> OK  
Span/effective depth ratio Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08 49.06 OK

**East-West Middle Strip At Right Angle to Member 17 (A4-B4) @ Level 1 (Top Steel)**

Column Strip Width @ A4 Panel Width 3.5 m (Full 87.095 kN.m) 1.675 m  
Middle Strip Moment 1.000x64.547/3.500 18.442 kN.m/m

Column Strip Width @ B4 Panel Width 5 m (Full 98.668 kN.m) 1.675 m  
Middle Strip Moment 1.000x62.343/5.000 12.469 kN.m/m

Design for Negative Moment Over Support Member 17  
Area Covered From 0.838 to 4.163 m along Member 17 (A4-B4) 3.325 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 18.442, h 200, d 170, fcu 35, fy 460, x/d 0.05 261 mm<sup>2</sup> OK

**Steel Design In the Region of North-South Member 18 @ Level 1**

**North-South Column Strip Along Member 18 @ Level 1 (Bottom Steel)**

Column Strip Width Panel Width 3.5 m 2.250 m  
Column Strip Moment 0.9x58.114/3.500+0.1x58.114/2.250 17.526 kN.m/m

Design for Column Strip Positive Moment along Member 18 @ Level 1  
Area Covered From 1.000 West to 1.250 m East of member 18 2.250 m  
Steel Provided T10@200 393 mm<sup>2</sup>  
Steel Required M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05 267 mm<sup>2</sup> OK  
Span/effective depth ratio Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08 49.06 OK

**East-West Middle Strip At Right Angle to Member 18 @ Level 1 (Top Steel)**

Column Strip Width @ Node 16 Panel Width 5 m (Full 98.663 kN.m) 1.675 m  
Middle Strip Moment 1.000x62.339/5.000 12.468 kN.m/m

Column Strip Width @ Node 26 Panel Width 3.5 m (Full 87.094 kN.m) 1.675 m  
Middle Strip Moment 1.000x64.544/3.500 18.441 kN.m/m

<b>Architects</b>	<b>Project Title</b>	 	<b>Revisions</b>	Scale	Drawing No. & Title		
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>		No.	Description	Date	<b>1:25</b>	<b>JAZEERA Preliminary Detailed Calculations</b>
	<b>Client</b>					Date	Sheet No.
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>					<b>12-03-2026</b>	<b>A1</b>
			<small>                 NB:                  1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.                  2. The contractor must check and verify all levels and dimensions before commencing any work.             </small>	Drawn By	Designed By	Approved By.	
				<b>J.A. Sciorfino</b>	<b>Mohamed Abdi Ahmed Saahid</b>		

Design for Negative Moment Over Support Member 18

Area Covered	From 0.838 to 4.163 m along Member 18	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.441, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm <sup>2</sup>	OK

**Middle Strip Between Members 18 and 19 (B1-C1) @ Level 1 (Bottom Steel)**

Column Strip Width for Member 18	Panel Width 3.5 m	2.250 m
Middle Strip Moment	0.9x58.114/3.500	14.944 kN.m/m

Middle Strip Width for Member 19	Panel Width 5 m	2.500 m
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m

Design for Middle Strip Positive Moment East of Member 18

Area Covered	From 1.250 to 3.750 m East of member 18	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

**Steel Design In the Region of North-South Member 19 (B1-C1) @ Level 1**

**North-South Column Strip Along Member 19 (B1-C1) @ Level 1 (Bottom Steel)**

Column Strip Width	Panel Width 5 m	2.500 m
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m

Design for Column Strip Positive Moment along Member 19 (B1-C1) @ Level 1

Area Covered	From 1.250 West to 1.250 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

**East-West Middle Strip At Right Angle to Member 19 (B1-C1) @ Level 1 (Top Steel)**

Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m
Middle Strip Moment	0.500x114.39/5.000	11.439 kN.m/m

Column Strip Width @ C1	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m
Middle Strip Moment	0.500x83.115/3.500	11.874 kN.m/m

Design for Negative Moment Over Support Member 19

Area Covered	From 1.250 to 3.750 m along Member 19 (B1-C1)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.874, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm <sup>2</sup>	OK

**Middle Strip Between Members 19 (B1-C1) and 20 (B2-C2) @ Level 1 (Bottom Steel)**

Column Strip Width for Member 19	Panel Width 5 m	2.500 m
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m

Middle Strip Width for Member 20	Panel Width 5 m	2.500 m
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Column Strip Moment	0.9x94.226/5.000	16.961 kN.m/m
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Design for Middle Strip Positive Moment East of Member 19

Area Covered	From 1.250 to 3.750 m East of grid line 1	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

**Steel Design In the Region of North-South Member 20 (B2-C2) @ Level 1**

**North-South Column Strip Along Member 20 (B2-C2) @ Level 1 (Bottom Steel)**

Column Strip Width	Panel Width 5 m	2.500 m
Column Strip Moment	0.9x94.226/5.000+0.1x94.226/2.500	20.730 kN.m/m

Design for Column Strip Positive Moment along Member 20 (B2-C2) @ Level 1

Area Covered	From 1.250 West to 1.250 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.73, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.90	OK

**East-West Middle Strip At Right Angle to Member 20 (B2-C2) @ Level 1 (Top Steel)**

Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m
Middle Strip Moment	0.500x97.75/5.000	9.775 kN.m/m

Column Strip Width @ C2	Panel Width 3.5 m (Full 100.81 kN.m)	2.250 m
Middle Strip Moment	0.500x75.897/3.500	10.842 kN.m/m

Design for Negative Moment Over Support Member 20

Area Covered	From 1.250 to 3.750 m along Member 20 (B2-C2)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 10.842, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm <sup>2</sup>	OK

**Middle Strip Between Members 20 (B2-C2) and 21 (B3-C3) @ Level 1 (Bottom Steel)**

Column Strip Width for Member 20	Panel Width 5 m	2.500 m
Middle Strip Moment	0.9x94.226/5.000	16.961 kN.m/m

Middle Strip Width for Member 21	Panel Width 5 m	2.500 m
Column Strip Moment	0.9x94.194/5.000	16.955 kN.m/m

Design for Middle Strip Positive Moment East of Member 20

Area Covered	From 1.250 to 3.750 m East of grid line 2	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.961, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

## Steel Design In the Region of North-South Member 21 (B3-C3) @ Level 1

### North-South Column Strip Along Member 21 (B3-C3) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 5 m	2.500 m	
Column Strip Moment	0.9x94.194/5.000+0.1x94.194/2.500	20.723 kN.m/m	
Design for Column Strip Positive Moment along Member 21 (B3-C3) @ Level 1			
Area Covered	From 1.250 West to 1.250 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 20.723, h 200, d 158, fcu 35, fy 460, x/d 0.06	315 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.66x1.08	41.91	OK

### East-West Middle Strip At Right Angle to Member 21 (B3-C3) @ Level 1 (Top Steel)

Column Strip Width @ B3	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Middle Strip Moment	0.500x114.38/5.000	11.438 kN.m/m	
Column Strip Width @ C3	Panel Width 3.5 m (Full 107.3 kN.m)	2.250 m	
Middle Strip Moment	0.500x83.112/3.500	11.873 kN.m/m	
Design for Negative Moment Over Support Member 21			
Area Covered	From 1.250 to 3.750 m along Member 21 (B3-C3)	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 11.873, h 200, d 170, fcu 35, fy 460, x/d 0.03	260 mm <sup>2</sup>	OK

### Middle Strip Between Members 21 (B3-C3) and 22 (B4-C4) @ Level 1 (Bottom Steel)

Column Strip Width for Member 21	Panel Width 5 m	2.500 m	
Middle Strip Moment	0.9x94.194/5.000	16.955 kN.m/m	
Middle Strip Width for Member 22	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500	14.944 kN.m/m	
Design for Middle Strip Positive Moment East of Member 21			
Area Covered	From 1.250 to 3.750 m East of grid line 3	2.500 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 16.955, h 200, d 158, fcu 35, fy 460, x/d 0.05	260 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x2.00x1.08	50.29	OK

## Steel Design In the Region of North-South Member 22 (B4-C4) @ Level 1

### North-South Column Strip Along Member 22 (B4-C4) @ Level 1 (Bottom Steel)

Column Strip Width	Panel Width 3.5 m	2.250 m	
Column Strip Moment	0.9x58.114/3.500+0.1x58.114/2.250	17.526 kN.m/m	
Design for Column Strip Positive Moment along Member 22 (B4-C4) @ Level 1			
Area Covered	From 1.250 West to 1.000 m East of grid line 4	2.250 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 17.526, h 200, d 158, fcu 35, fy 460, x/d 0.05	267 mm <sup>2</sup>	OK
Span/effective depth ratio	Actual=5000/158=31.65, Allowed=26x0.90x1.95x1.08	49.06	OK

## East-West Middle Strip At Right Angle to Member 22 (B4-C4) @ Level 1 (Top Steel)

Column Strip Width @ B4	Panel Width 5 m (Full 98.668 kN.m)	1.675 m	
Middle Strip Moment	1.000x62.343/5.000	12.469 kN.m/m	
Column Strip Width @ C4	Panel Width 3.5 m (Full 87.096 kN.m)	1.675 m	
Middle Strip Moment	1.000x64.547/3.500	18.442 kN.m/m	
Design for Negative Moment Over Support Member 22			
Area Covered	From 0.838 to 4.163 m along Member 22 (B4-C4)	3.325 m	
Steel Provided	T10@200	393 mm <sup>2</sup>	
Steel Required	M 18.442, h 200, d 170, fcu 35, fy 460, x/d 0.05	261 mm <sup>2</sup>	OK

## Steel Design Around Column Head @ Node 6 - Level 1

### East-West Steel Over Column Head (Top Steel) @ Node 6 - Level 1

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 87.094 kN.m)	1.475 m	
Column Strip Moment	0.5x64.544/1.475+0.5x64.544/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.100 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.1, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ Node 6 - Level 1

Column Strip Width @ Node 6	Panel Width 3.5 m (Full 86.774 kN.m)	1.475 m	
Column Strip Moment	0.5x64.139/1.475+0.5x64.139/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.905 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.905, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ Node 6 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN	
North-South Frame in Case 5	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN	

	Architects	Project Title			Revisions		Scale	Drawing No. & Title	
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.	
							12-03-2026	A1	Project No: P178032
							Drawn By	Designed By	Approved By.
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid	

NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
2. The contractor must check and verify all levels and dimensions before commencing any work.

01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

### Steel Design Around Column Head @ Node 8 - Level 1

#### East-West Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### North-South Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.471/1.675+0.5x60.471/5.000	24.098 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.098, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### Punching Shear Around Column Head @ Node 8 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN	
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>	

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK

Permissible Shear Stress As 770 mm<sup>2</sup>/m, d 163 mm, fcu 35 N/mm<sup>2</sup> 0.69 N/mm<sup>2</sup>

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

### Steel Design Around Column Head @ Node 7 - Level 1

#### East-West Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### North-South Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### Punching Shear Around Column Head @ Node 7 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN	
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>	

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK

<b>Architects</b>	<b>Project Title</b>		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	<b>Revisions</b>	Scale	Drawing No. & Title			
 Somali Sustainable Fisheries Development Project	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	Description	Date	<b>1:25</b>	<b>JAZEERA Preliminary Detailed Calculations</b>	
	<b>Client</b>						Date	Sheet No.	
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>						<b>12-03-2026</b>	<b>A1</b>	<b>Project No: P178032</b>
				Drawn By	Designed By	Approved By.			
				<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>				

1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

### Steel Design Around Column Head @ Node 8 - Level 1

#### East-West Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### North-South Steel Over Column Head (Top Steel) @ Node 8 - Level 1

Column Strip Width @ Node 8	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.471/1.675+0.5x60.471/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.098 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.098, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### Punching Shear Around Column Head @ Node 8 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN	
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>	

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK

Permissible Shear Stress As 770 mm<sup>2</sup>/m, d 163 mm, fcu 35 N/mm<sup>2</sup> 0.69 N/mm<sup>2</sup>

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

### Steel Design Around Column Head @ Node 7 - Level 1

#### East-West Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### North-South Steel Over Column Head (Top Steel) @ Node 7 - Level 1

Column Strip Width @ Node 7	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

#### Punching Shear Around Column Head @ Node 7 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN	
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>	

#### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK

## Steel Design Around Column Head @ A4 - Level 1

### East-West Steel Over Column Head (Top Steel) @ A4 - Level 1

Column Strip Width @ A4	Panel Width 3.5 m (Full 87.095 kN.m)	1.475 m	
Column Strip Moment	0.5x64.547/1.475+0.5x64.547/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.101 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.101, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ A4 - Level 1

Column Strip Width @ A4	Panel Width 3.5 m (Full 86.774 kN.m)	1.475 m	
Column Strip Moment	0.5x64.139/1.475+0.5x64.139/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.905 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 0.225 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.905, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ A4 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN
North-South Frame in Case 5	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN
Permissible Shear Stress	As 770 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.69 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

## Steel Design Around Column Head @ Node 9 - Level 1

### East-West Steel Over Column Head (Top Steel) @ Node 9 - Level 1

Column Strip Width @ Node 9	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.112/1.475+0.5x83.112/3.500	40.047 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 0.225 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.047, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ Node 9 - Level 1

Column Strip Width @ Node 9	Panel Width 5 m (Full 97.227 kN.m)	1.675 m	
Column Strip Moment	0.5x60.464/1.675+0.5x60.464/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.095 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.095, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ Node 9 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN
North-South Frame in Case 5	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

	Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions			Scale	Drawing No. & Title		
		Somali Sustainable Fisheries Development Project (BADMAAL)				No.	Description	Date	1:25	JAZEERA Preliminary Detailed Calculations	
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.			
							12-03-2026	A1	Project No: P178032		
							Drawn By	Designed By	Approved By.		
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid			

NB:  
 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing.  
 2. The contractor must check and verify all levels and dimensions before commencing any work.

## Steel Design Around Column Head @ B1 - Level 1

### East-West Steel Over Column Head (Top Steel) @ B1 - Level 1

Column Strip Width @ B1	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Column Strip Moment	0.5x114.39/2.500+0.5x114.39/5.000	34.316 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 34.316, h 200, d 169, fcu 35, fy 460, x/d 0.09	488 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	651 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	325 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ B1 - Level 1

Column Strip Width @ B1	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Column Strip Moment	0.5x118.35/2.500+0.5x118.35/5.000	35.505 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.505, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ B1 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 49.7 kN.m, Vt 262.8 kN, x 0.450 m	378.7 kN
North-South Frame in Case 5	Mt 45.2 kN.m, Vt 273.2 kN, x 0.450 m	378.6 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.7	375.9	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	365.9	359.3	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

## Steel Design Around Column Head @ Node 16 - Level 1

### East-West Steel Over Column Head (Top Steel) @ Node 16 - Level 1

Column Strip Width @ Node 16	Panel Width 5 m (Full 98.663 kN.m)	1.675 m	
Column Strip Moment	0.5x62.339/1.675+0.5x62.339/5.000 be 1.675 m, Mt.max 251.2 kN.m	24.843 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.838 North to 0.838 m South of Column Centre	1.675 m	
Steel Required (Average)	M 24.843, h 200, d 169, fcu 35, fy 460, x/d 0.07	353 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	471 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	353 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ Node 16 - Level 1

Column Strip Width @ Node 16	Panel Width 3.5 m (Full 108.37 kN.m)	1.475 m	
Column Strip Moment	0.5x83.976/1.475+0.5x83.976/3.500	40.463 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 40.463, h 200, d 157, fcu 35, fy 460, x/d 0.13	623 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	831 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@250	845 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	415 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ Node 16 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 95.3 kN.m, Vt 160.5 kN, x 0.450 m	200.6 kN
North-South Frame in Case 6	Mt 42.5 kN.m, Vt 190.0 kN, x 0.450 m	336.6 kN
Permissible Shear Stress	As 695 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.67 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	336.6	333.8	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	314.9	308.4	2.778	163	0.68	1.33	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.67	OK

Architects	Project Title		 <b>THE WORLD BANK</b> IBRD • IDA   WORLD BANK GROUP	Revisions	Scale	Drawing No. & Title			
 Somali Sustainable Fisheries Development Project	Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA	Preliminary Detailed Calculations
	Client						Date	Sheet No.	
	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia						12-03-2026	A1	Project No: P178032
				Drawn By	Designed By	Approved By.			
				J.A. Sciortino	Mohamed Abdi Ahmed Saahid				

## Steel Design Around Column Head @ C3 - Level 1

### East-West Steel Over Column Head (Top Steel) @ C3 - Level 1

Column Strip Width @ C3	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.112/1.475+0.5x83.112/3.500	40.047 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.047, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ C3 - Level 1

Column Strip Width @ C3	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Column Strip Moment	0.5x60.466/1.675+0.5x60.466/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.096 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.096, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ C3 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

## Steel Design Around Column Head @ C2 - Level 1

### East-West Steel Over Column Head (Top Steel) @ C2 - Level 1

Column Strip Width @ C2	Panel Width 3.5 m (Full 100.81 kN.m)	1.475 m	
Column Strip Moment	0.5x75.897/1.475+0.5x75.897/3.500	36.570 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 36.57, h 200, d 169, fcu 35, fy 460, x/d 0.10	520 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	693 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	347 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ C2 - Level 1

Column Strip Width @ C2	Panel Width 5 m (Full 97.27 kN.m)	1.675 m	
Column Strip Moment	0.5x60.473/1.675+0.5x60.473/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.099 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.099, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ C2 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 2	Mt 37.4 kN.m, Vt 183.0 kN, x 0.450 m	315.9 kN
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	315.9	313.2	1.800	163	1.07	4.73	OK
01	0.122	0.695	0.695	303.3	296.7	2.778	163	0.66	1.26	OK
02	0.245	0.939	0.939	303.3	291.3	3.756	163	0.48	0.63	OK

	Architects	Project Title			Revisions			Scale	Drawing No. & Title		
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA Preliminary Detailed Calculations		
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.			
							12-03-2026	A1	Project No: P178032		
							Drawn By	Designed By	Approved By.		
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid			

## Steel Design Around Column Head @ B3 - Level 1

### East-West Steel Over Column Head (Top Steel) @ B3 - Level 1

Column Strip Width @ B3	Panel Width 5 m (Full 156.34 kN.m)	2.500 m	
Column Strip Moment	0.5x114.38/2.500+0.5x114.38/5.000	34.315 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 34.315, h 200, d 169, fcu 35, fy 460, x/d 0.09	488 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	651 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	325 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ B3 - Level 1

Column Strip Width @ B3	Panel Width 5 m (Full 161.52 kN.m)	2.500 m	
Column Strip Moment	0.5x118.35/2.500+0.5x118.35/5.000	35.505 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.505, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ B3 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 3	Mt 49.7 kN.m, Vt 262.8 kN, x 0.450 m	378.7 kN
North-South Frame in Case 5	Mt 45.2 kN.m, Vt 273.2 kN, x 0.450 m	378.6 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.7	375.9	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	365.9	359.3	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

## Steel Design Around Column Head @ B2 - Level 1

### East-West Steel Over Column Head (Top Steel) @ B2 - Level 1

Column Strip Width @ B2	Panel Width 5 m (Full 138.06 kN.m)	2.500 m	
Column Strip Moment	0.5x97.75/2.500+0.5x97.75/5.000	29.325 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 1.250 North to 1.250 m South of Column Centre	2.500 m	
Steel Required (Average)	M 29.325, h 200, d 169, fcu 35, fy 460, x/d 0.08	417 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	556 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	278 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ B2 - Level 1

Column Strip Width @ B2	Panel Width 5 m (Full 161.49 kN.m)	2.500 m	
Column Strip Moment	0.5x118.28/2.500+0.5x118.28/5.000	35.484 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 1.250 m East of Column Centre	2.500 m	
Steel Required (Average)	M 35.484, h 200, d 157, fcu 35, fy 460, x/d 0.11	543 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	724 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	362 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ B2 - Level 1

Maximum Effective Shear Force		
East-West Frame in Case 1	Mt 0.0 kN.m, Vt 334.6 kN, x 0.450 m	334.6 kN
North-South Frame in Case 5	Mt 44.9 kN.m, Vt 273.1 kN, x 0.450 m	378.0 kN
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	378.0	375.3	1.800	163	1.28	4.73	OK
01	0.122	0.695	0.695	363.7	357.2	2.778	163	0.79	1.26	OK
02	0.245	0.939	0.939	363.7	351.8	3.756	163	0.57	0.63	OK

## Steel Design Around Column Head @ Node 26 - Level 1

### East-West Steel Over Column Head (Top Steel) @ Node 26 - Level 1

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 87.094 kN.m)	1.475 m	
Column Strip Moment	0.5x64.544/1.475+0.5x64.544/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.100 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.1, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ Node 26 - Level 1

Column Strip Width @ Node 26	Panel Width 3.5 m (Full 86.78 kN.m)	1.475 m	
Column Strip Moment	0.5x64.143/1.475+0.5x64.143/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.907 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.225 West to 1.250 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.907, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ Node 26 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN	
North-South Frame in Case 6	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN	
Permissible Shear Stress	As 770 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.69 N/mm <sup>2</sup>	

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

## Steel Design Around Column Head @ C1 - Level 1

### East-West Steel Over Column Head (Top Steel) @ C1 - Level 1

Column Strip Width @ C1	Panel Width 3.5 m (Full 107.3 kN.m)	1.475 m	
Column Strip Moment	0.5x83.115/1.475+0.5x83.115/3.500	40.048 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 40.048, h 200, d 169, fcu 35, fy 460, x/d 0.11	569 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	759 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	0.67 Average Steel Required	379 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ C1 - Level 1

Column Strip Width @ C1	Panel Width 5 m (Full 97.228 kN.m)	1.675 m	
Column Strip Moment	0.5x60.466/1.675+0.5x60.466/5.000 be 1.675 m, Mt.max 216.8 kN.m	24.096 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 0.838 West to 0.838 m East of Column Centre	1.675 m	
Steel Required (Average)	M 24.096, h 200, d 157, fcu 35, fy 460, x/d 0.07	369 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	492 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	369 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200	393 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ C1 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 2	Mt 44.7 kN.m, Vt 186.2 kN, x 0.450 m	337.2 kN	
North-South Frame in Case 6	Mt 91.9 kN.m, Vt 158.6 kN, x 0.450 m	198.3 kN	
Permissible Shear Stress	As 582 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.63 N/mm <sup>2</sup>	

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	Veff	Vapp	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	337.2	334.4	1.800	163	1.14	4.73	OK
01	0.122	0.695	0.695	316.8	310.3	2.778	163	0.69	1.26	OK
02	0.245	0.939	0.939	314.9	303.0	3.756	163	0.49	0.63	OK

	Architects	Project Title			Revisions			Scale	Drawing No. & Title		
		Somali Sustainable Fisheries Development Project (BADMAAL)			No.	Description	Date	1:25	JAZEERA Preliminary Detailed Calculations		
	Client	Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia					Date	Sheet No.			
							12-03-2026	A1	Project No: P178032		
							Drawn By	Designed By	Approved By.		
							J.A. Sciortino	Mohamed Abdi Ahmed Saahid			

## Steel Design Around Column Head @ C4 - Level 1

### East-West Steel Over Column Head (Top Steel) @ C4 - Level 1

Column Strip Width @ C4	Panel Width 3.5 m (Full 87.096 kN.m)	1.475 m	
Column Strip Moment	0.5x64.547/1.475+0.5x64.547/3.500 be 1.675 m, Mt.max 251.2 kN.m	31.101 kN.m/m	OK
Design for East-West Top Steel			
Area Covered	From 0.225 North to 1.250 m South of Column Centre	1.475 m	
Steel Required (Average)	M 31.101, h 200, d 169, fcu 35, fy 460, x/d 0.08	442 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	589 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	442 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### North-South Steel Over Column Head (Top Steel) @ C4 - Level 1

Column Strip Width @ C4	Panel Width 3.5 m (Full 86.778 kN.m)	1.475 m	
Column Strip Moment	0.5x64.142/1.475+0.5x64.142/3.500 be 1.675 m, Mt.max 216.8 kN.m	30.906 kN.m/m	OK
Design for North-South Top Steel			
Area Covered	From 1.250 West to 0.225 m East of Column Centre	1.475 m	
Steel Required (Average)	M 30.906, h 200, d 157, fcu 35, fy 460, x/d 0.10	473 mm <sup>2</sup>	
Steel Required (Middle ½)	1.33 Average Steel Required	631 mm <sup>2</sup>	
Steel Provided (Middle ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK
Steel Required (Outer ½)	1.00 Average Steel Required	473 mm <sup>2</sup>	
Steel Provided (Outer ½)	T10@200 + T12@300	770 mm <sup>2</sup>	OK

### Punching Shear Around Column Head @ C4 - Level 1

Maximum Effective Shear Force			
East-West Frame in Case 3	Mt 86.6 kN.m, Vt 118.8 kN, x 0.450 m	148.5 kN	
North-South Frame in Case 6	Mt 85.2 kN.m, Vt 118.1 kN, x 0.450 m	147.6 kN	
Permissible Shear Stress	As 770 mm <sup>2</sup> /m, d 163 mm, fcu 35 N/mm <sup>2</sup>	0.69 N/mm <sup>2</sup>	

### Shear @ Failure Zones (No Shear Reinforcement is Required)

Zone	X (m)	x-EW	x-NS	V <sub>eff</sub>	V <sub>app</sub>	u (m)	d (mm)	v	vc	
00	0.000	0.450	0.450	148.5	145.7	0.900	163	0.99	4.73	OK
01	0.122	0.695	0.695	148.5	142.0	1.389	163	0.63	1.38	OK
02	0.245	0.939	0.939	148.5	136.6	1.878	163	0.45	0.69	OK

<b>Architects</b>	<b>Project Title</b>			<b>Revisions</b>	Scale	Drawing No. & Title	
	<b>Somali Sustainable Fisheries Development Project (BADMAAL)</b>			No.	<b>1:25</b>	<b>JAZEERA Preliminary Detailed Calculations</b>	
	<b>Client</b>			Description	Date	Sheet No.	
	<b>Ministry of Fisheries and Blue Economy (MFBE) Federal Republic of Somalia</b>					<b>12-03-2026</b>	<b>A1</b> <span style="float: right;">Project No: P178032</span>
					Drawn By	Designed By	
					<b>J.A. Sciortino</b>	<b>Mohamed Abdi Ahmed Saahid</b>	
				NB: 1. All measurements are shown in millimeters. Measurements should not be scaled off the drawing. 2. The contractor must check and verify all levels and dimensions before commencing any work.			Approved By.