

MOROUJ SILOS PROJECT PORTSUDAN - SUDAN

STRUCTURAL DRAWING

FEB 2021

Owner:



MOROUJ

Address: Commercial & Industrial in Khartoum North, Khartoum, Sudan
Tel.: + 249 156 782 000
e-mail: info@morouj.net, website: www.morouj.net



TECHNOCON ENGINEERING GROUP
ENGINEERING CONSULTANTS

P.O. Box :165, Khartoum-Sudan, Street 60 Al Riyadh,
Block No. 17, Square 18, Tel.: +249 183 586384/7/8,
e-mail: info@teg-sdn.com, technocone@gmail.com

STRUCTURAL DRAWING INDEX

DRAWING TITLE	DRAWING NO.
GENERAL NOTES	TEG-DD-ST-GEN-03
GRAIN SILOS GENERAL LAYOUT	TEG-DD-ST-FDN-01
GRAIN SILOS RAMP & RETAINING WALL	TEG-DD-ST-FDN-01'
GRAIN SILO LAYOUT DETAIL	TEG-DD-ST-FDN-02
GRAIN SILO 01 LAYOUT DETAIL	TEG-DD-ST-FDN-02'
GRAIN SILO 02 LAYOUT DETAIL	TEG-DD-ST-FDN-02"
GRAIN SILO SECTIONS STRUCTURAL DETAIL	TEG-DD-ST-FDN-03
TRENCHES SECTIONS STRUCTURAL DETAIL	TEG-DD-ST-FDN-04
TRENCHES & STAIRS SECTIONS STRUCTURAL DETAIL 01	TEG-DD-ST-FDN-05
TRENCHES & STAIRS SECTIONS STRUCTURAL DETAIL 02	TEG-DD-ST-FDN-05'
INTAKE HOPPER & ELEVATOR PIT LAYOUT DETAIL	TEG-DD-ST-FDN-06
INTAKE HOPPER & ELEVATOR PIT SECTIONS DETAIL	TEG-DD-ST-FDN-07
ELEVATOR PIT SECTION STRUCTURAL DETAIL	TEG-DD-ST-FDN-08
INTAKE HOPPER SECTIONS STRUCTURAL DETAIL	TEG-DD-ST-FDN-09
INTAKE HOPPER SECTIONS STRUCTURAL DETAIL	TEG-DD-ST-FDN-10
BASE PLATES & GENERAL DETAIL	TEG-DD-ST-FDN-11
ELEVATOR TOWER ANCHORAGE LAYOUT DETAIL	TEG-DD-ST-FDN-11'
SLAB ON GRADE JOINTS LAYOUT DETAIL	TEG-DD-ST-FDN-12
JOINTS IN SLAB ON GRADE SECTIONS DETAIL	TEG-DD-ST-FDN-13



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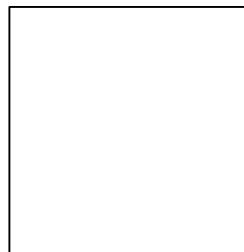
ENGINEERING CONSULTANTS

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e-mail: info@teq-sdn.com, technocone@qmail.com

GENERAL NOTES:

- 1- Steel f_y not less than 460 N/mm².
 - 2- Concrete f_{cu} should not be less than 35N/mm² for 28days strength.
 - 3-Max-Aggregate size 20mm for beams & col.s and 30mm for found.s.
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 - 11-The minimum strength should be in the order of 35 MPa.
 - 12-Minimum concrete cover shall be at least 75mm.
 - 13-Bearing Capacity = 220 kN/m² for Grain Silo.
 - 14-Bearing Capacity = 180 kN/m² for Admin & Store Building.

KEY PLAN:



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Project name:

Address: Commercial & Industrial In Khartoum North, Khartoum, Sudan
Tel.: + 249 156 782 000
E-mail: info@commercial-and-industrial.com

MOKOSS SITE PROJECT

Location: SUDAN Town Area: PORTSUDAN

Plot: No: Block:

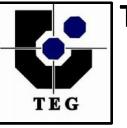
DRAWING INDEX

DRAWING TITLE

Scale:	Project No.:
N.T.S	TEG/.....-

Date: FEB/2022 Project status: DESIGN STAGE

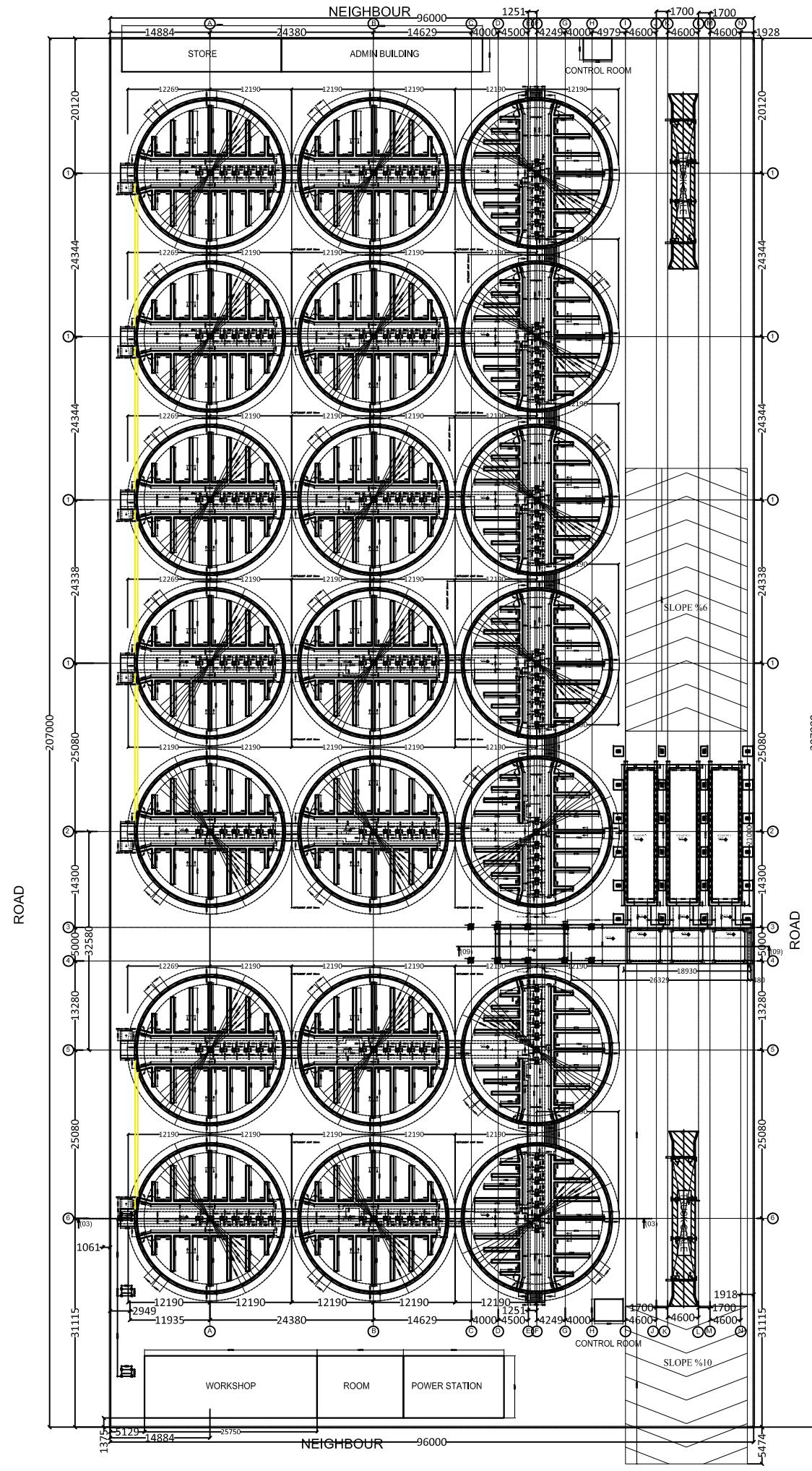
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MOROUJ SILO'S PROJECT

Location: SUDAN Town Area: PORTSUDAN

Sheet title:
GRAIN SILOS
GENERAL LAYOUT

scale: Project No.:
N.T.S TEG/.....-....

ate:	Project status:
FEB/2022	DESIGN STAGE

sheet No:

TEG-DD-ST - FND-01-R.00



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KEY PLAN:



wner:

MOROUJ

ess: Commercial & Industrial In Khartoum North, Khartoum, Sudan
+ 249 156 782 000
it info@maravi.net website www.maravi.net

object name:
MOROLU SILO'S PROJECT

SECTION SUDAN T A PORTSUDAN

Mr. _____ Mrs. _____ Mr. _____

sheet title: **GRAIN SILO AYOUT DETAIL**

ale: Project No.:
N.T.S TEG/.....

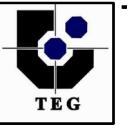
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FEB/2022	DESIGN STAGE

Sheet No:

TEG-DD-ST- FND-02-R.00

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Flat Bottom Silo Foundation Plan



TECHNOCON ENGINEERING GROUP

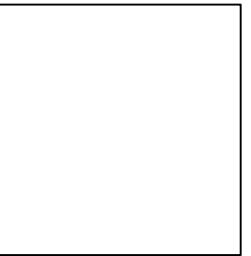
ENGINEERING CONSULTANTS

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KEY PLAN:



Owner:

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Commercial & Industrial in Khartoum North, Khartoum, Sudan
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project name: **MOROUJ SILO'S PROJECT**

Location: SUDAN Town Area: PORTSUDAN

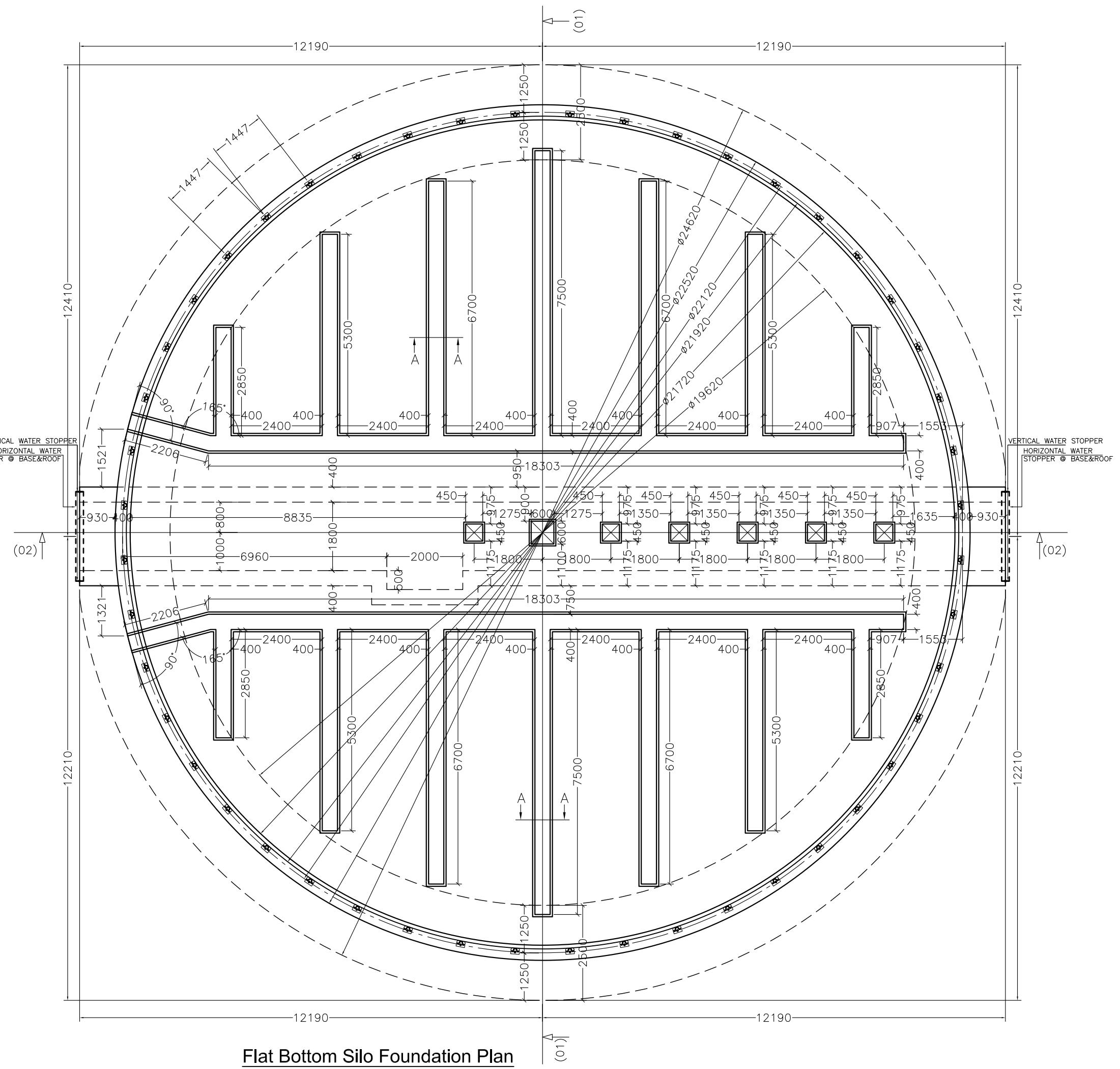
Table 1. Summary of the main characteristics of the four groups of patients.

sheet title:
GRAIN SILO 01
LAYOUT DETAIL

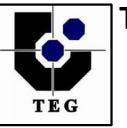
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ate:	Project status:
EEB/2022	DESIGN STAGE

Sheet No:



Flat Bottom Silo Foundation Plans



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Email: info@moroui.net **website:** www.moroui.net

object name: **MORONI SILO'S PROJECT**

THE SUDAN TRAVEL PORTSUDAN

lot: No: Block: No:

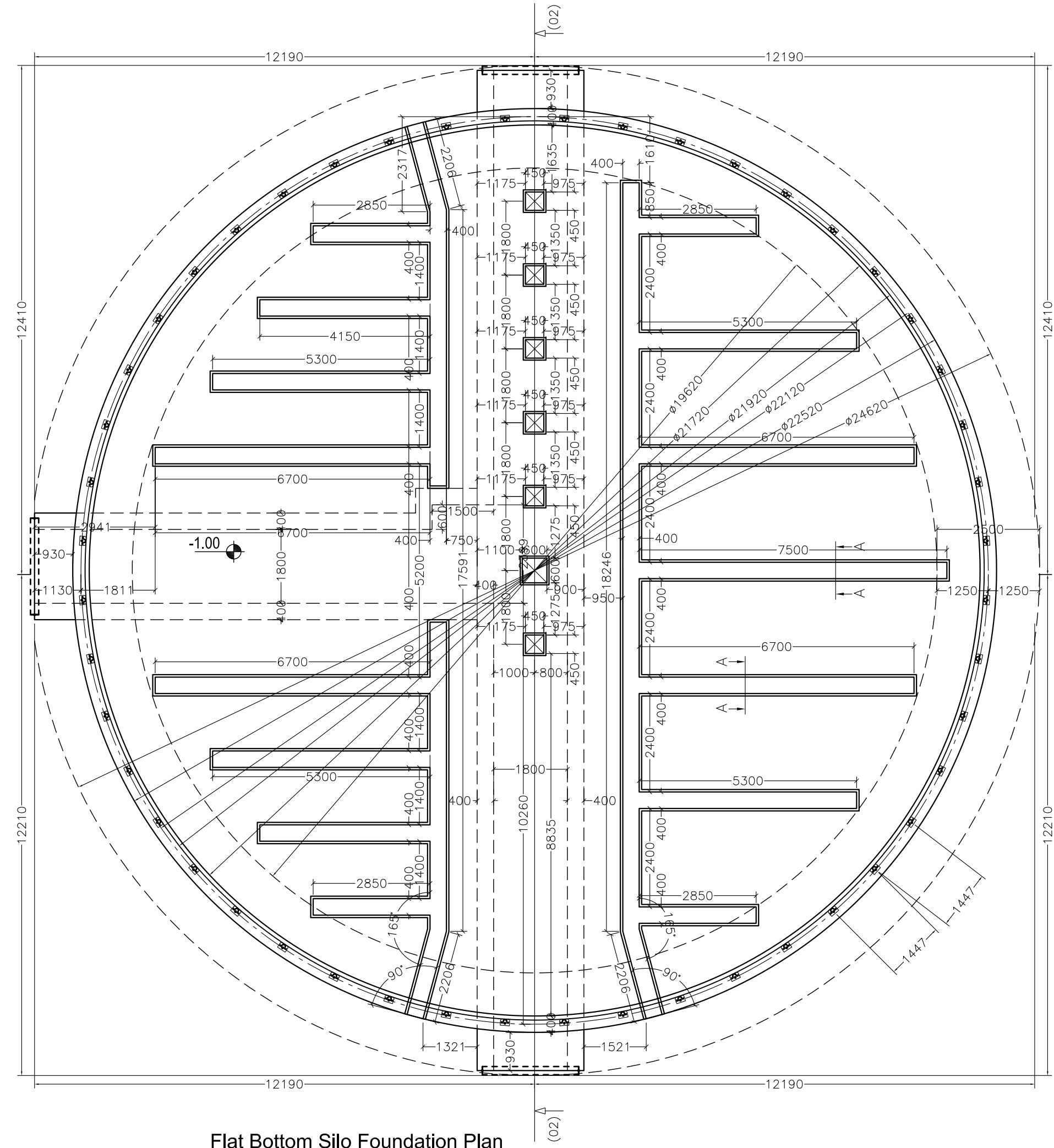
GRAIN SILO 01 LAYOUT DETAIL

scale: Project No.:
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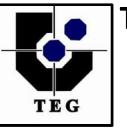
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FEB/2022	DESIGN STAGE

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TEG-DD-ST- FND-02'-R.00

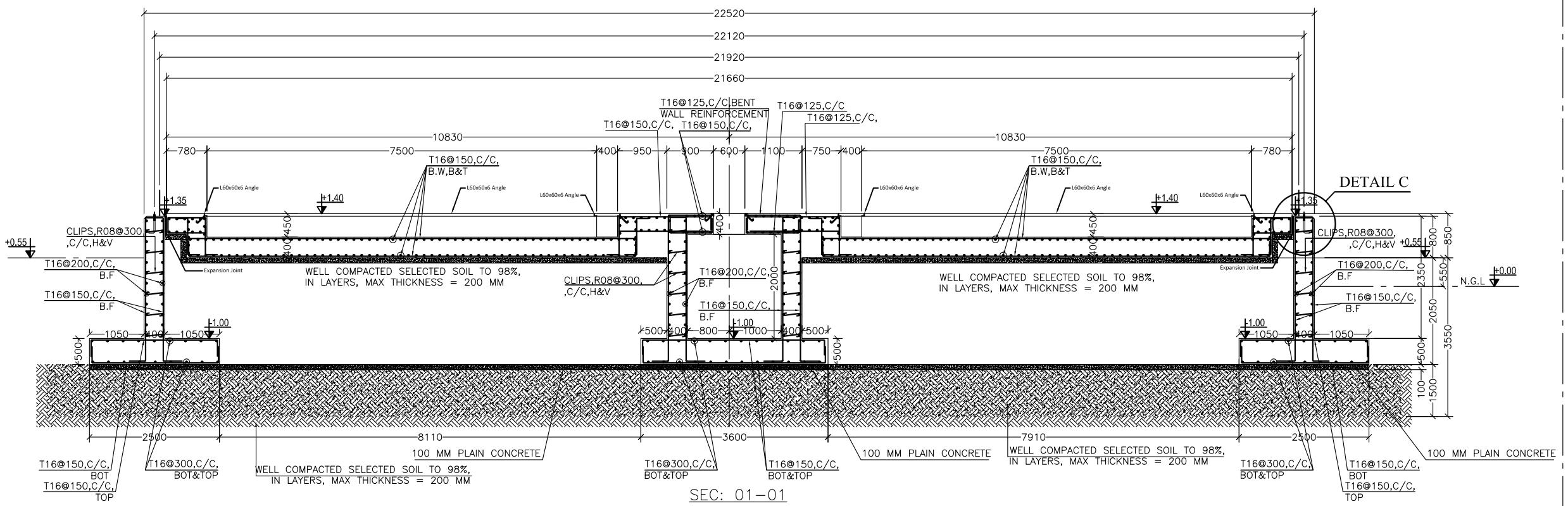


Flat Bottom Silo Foundation Plan

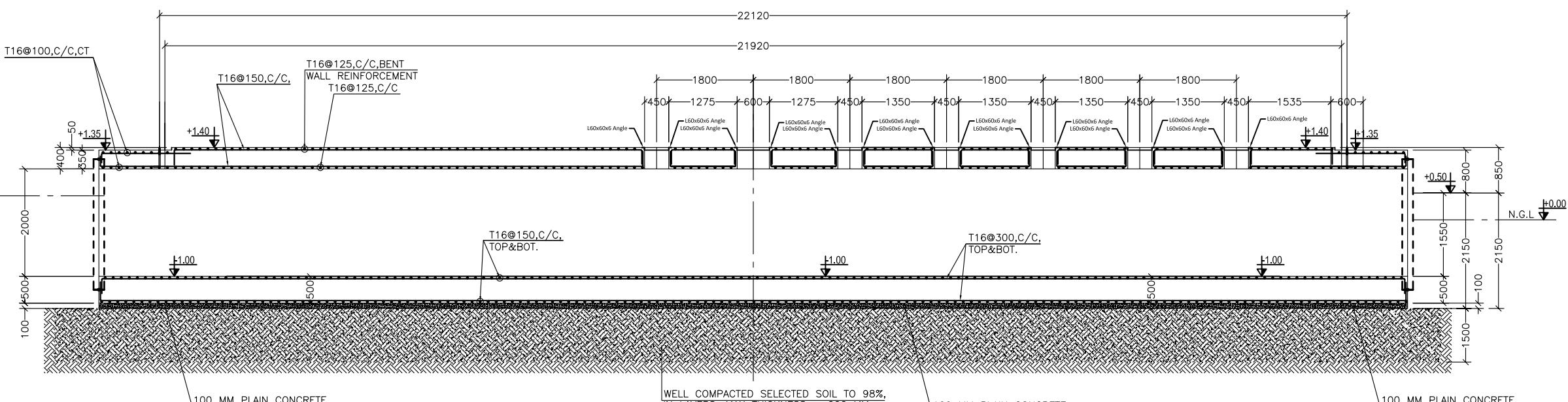


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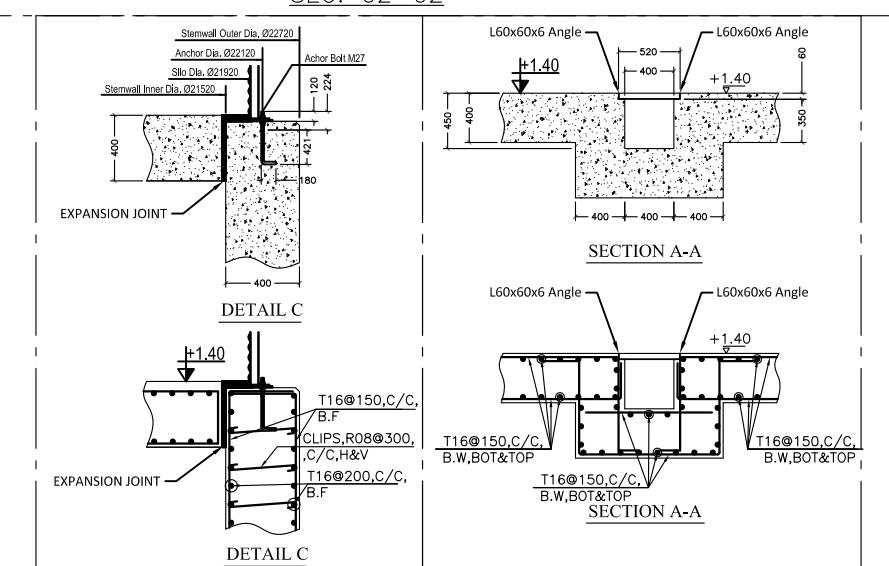
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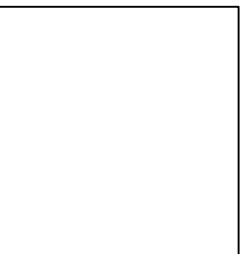
SEC: 01-01



SFC: 02-02



KEY PLAN:



Owner:

MOROLLI

ress: Commercial & Industrial In Khartoum North, Khartoum, Sudan
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■ Info@marco.net, www.marco.net

Project name:
MOROUJ SILO'S PROJECT

Location: SUDAN Town Area: PORTSUDAN

Lat. _____ No. _____ Blot. _____ No. _____

sheet title: **GRAIN SILO SECTIONS STRUCTURAL DETAIL**

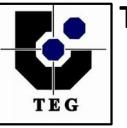
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EEB /2022 DESIGN STAGE

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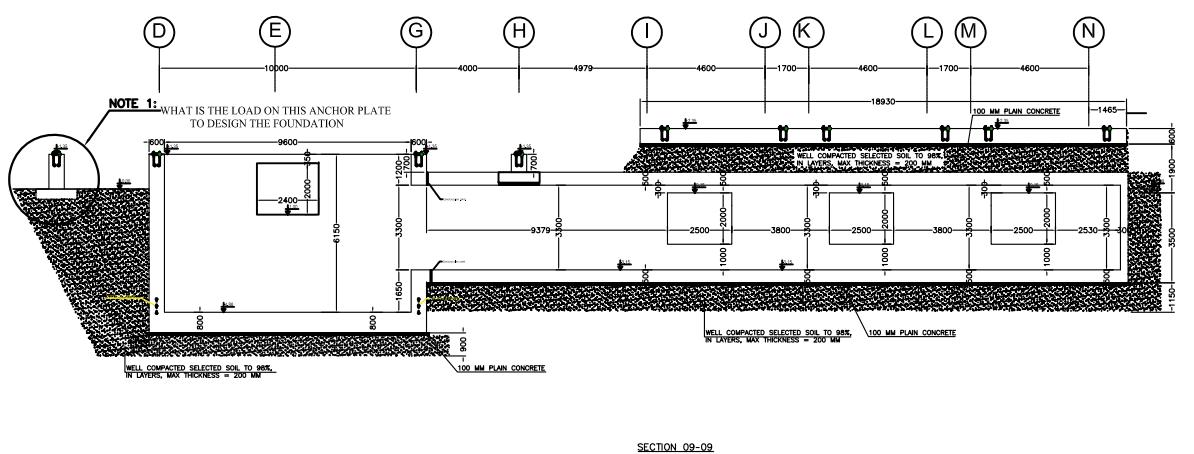
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHECK



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SECTION 3-3



KEY PLAN:



Owner:



MOROUJ
ress: Commercial & Industrial in Khartoum North, Khartoum, Sudan
+ 249 156 782 000

Project name:
MORQUJ SII Q'S PROJECT

Section: SUDAN **Town: Area: PORTSUDAN**

Lot: No: Block: No:

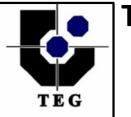
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scale: Project No.:
N.T.S TEG/.....

ate:	Project status:
EEB/2022	DESIGN STAGE

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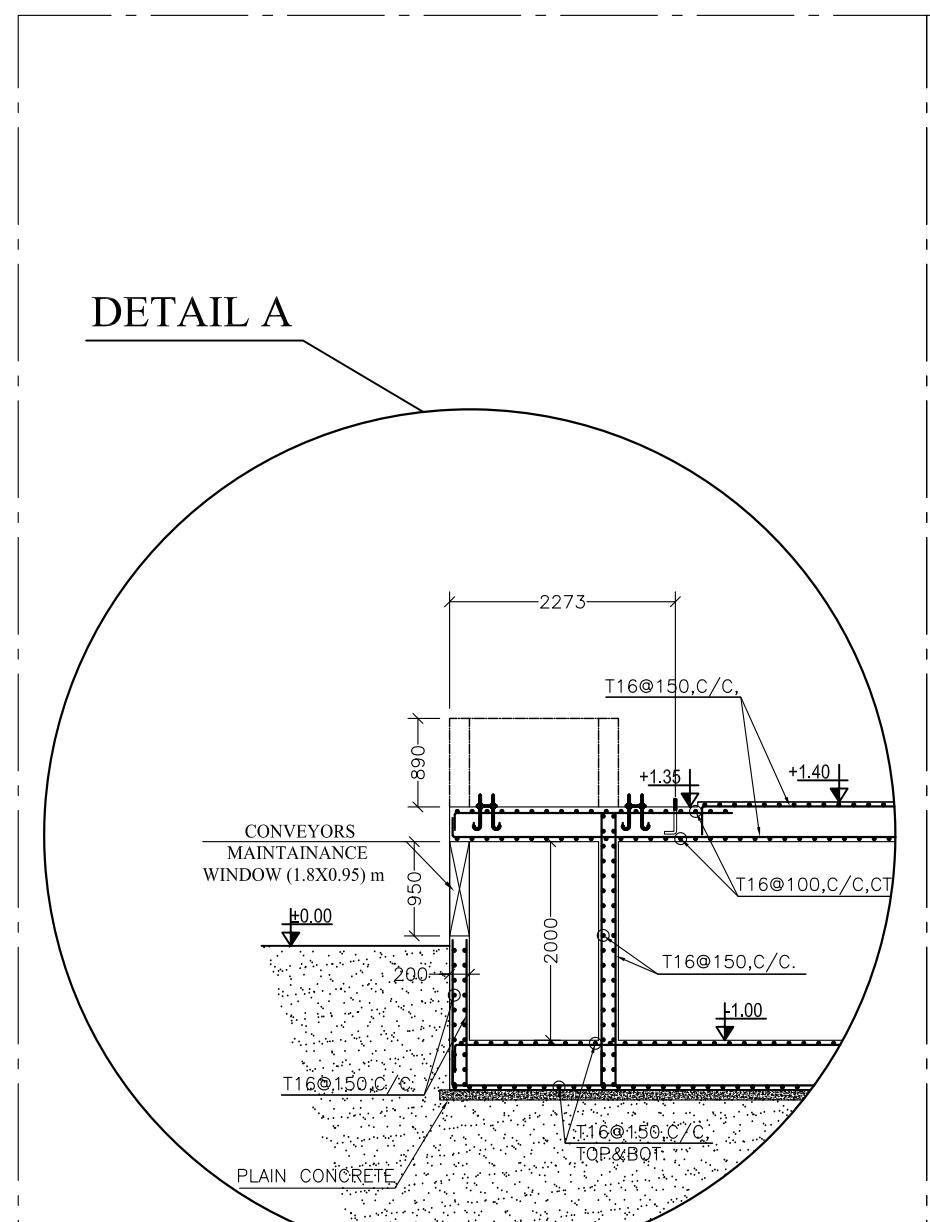
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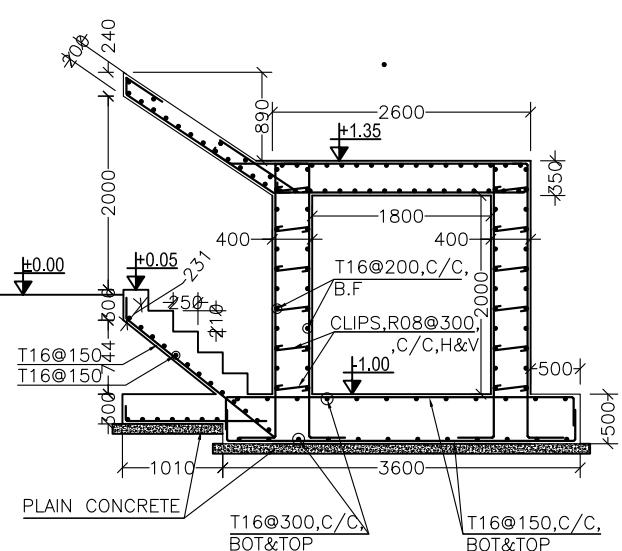
DETAIL A



STAIR DETAIL (A)

See Silos layout for Staircase plan

PART PLAN

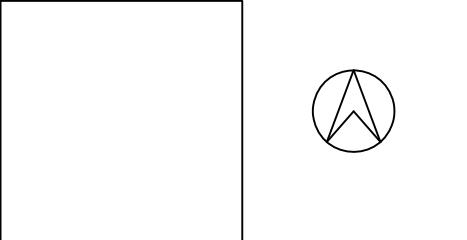


SECTION 06-06

GENERAL NOTES:

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Project name:

MORQUJ SII Q'S PROJECT

Location: SUDAN Town , Area: PORTSUDAN

Scale: N.T.S Project No.: TEG/.....-

Date:	Project Status:
01/2023	DESIGN STAGE

Sheet No:

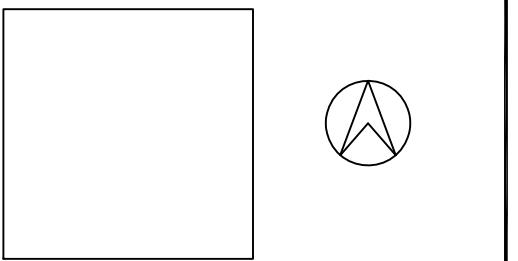
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Project name: **MOROILI SILLO'S PROJECT**

Volume 10 No. 10 October 1984 SUDAN TIMES A PORTUGUESE JOURNAL

Table 1. Summary of the main characteristics of the four groups of patients.

Sheet title:
TRENCHES & STAIRS SECTIONS
STRUCTURAL DETAIL 02

Scale:

Project No.:

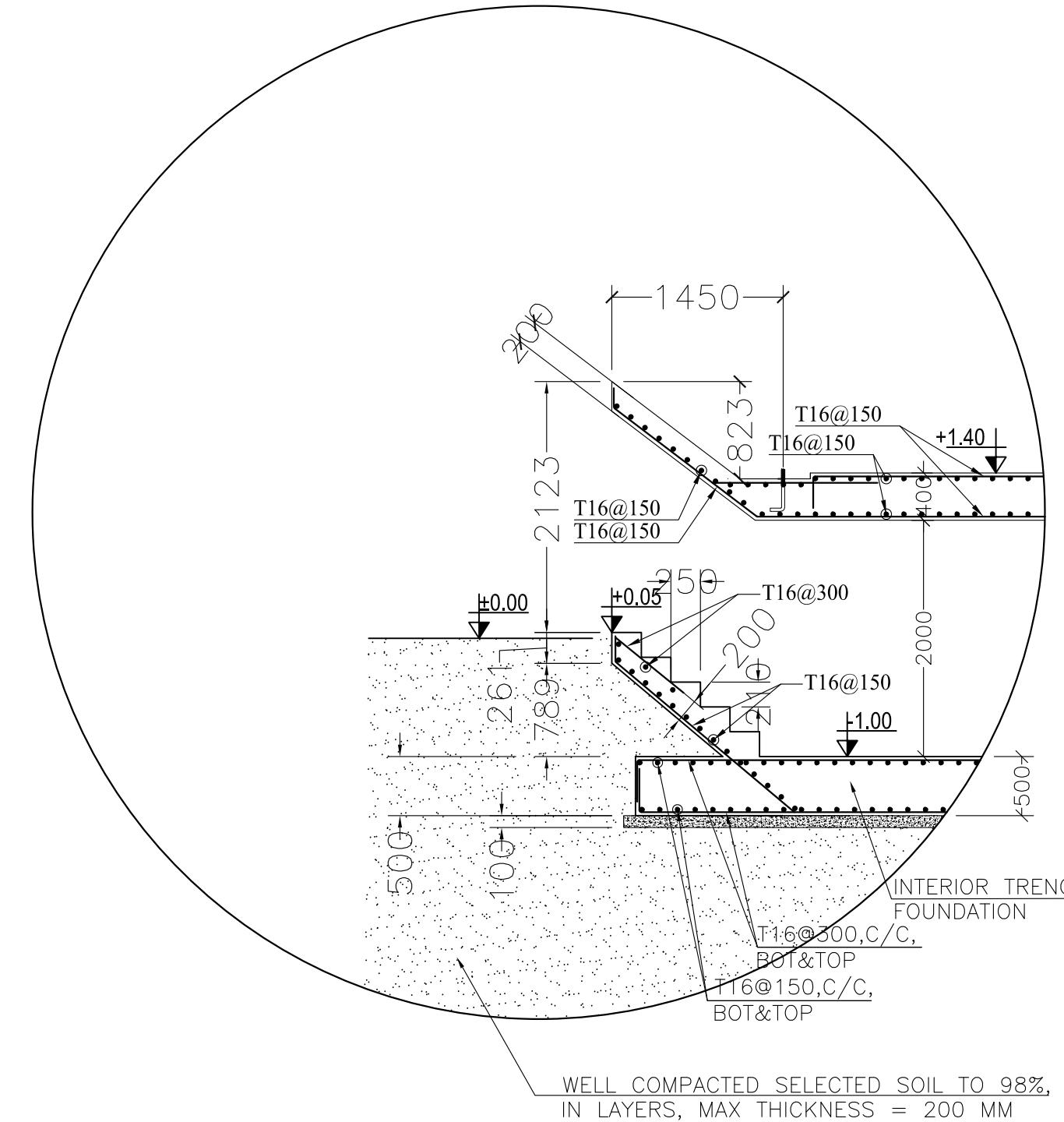
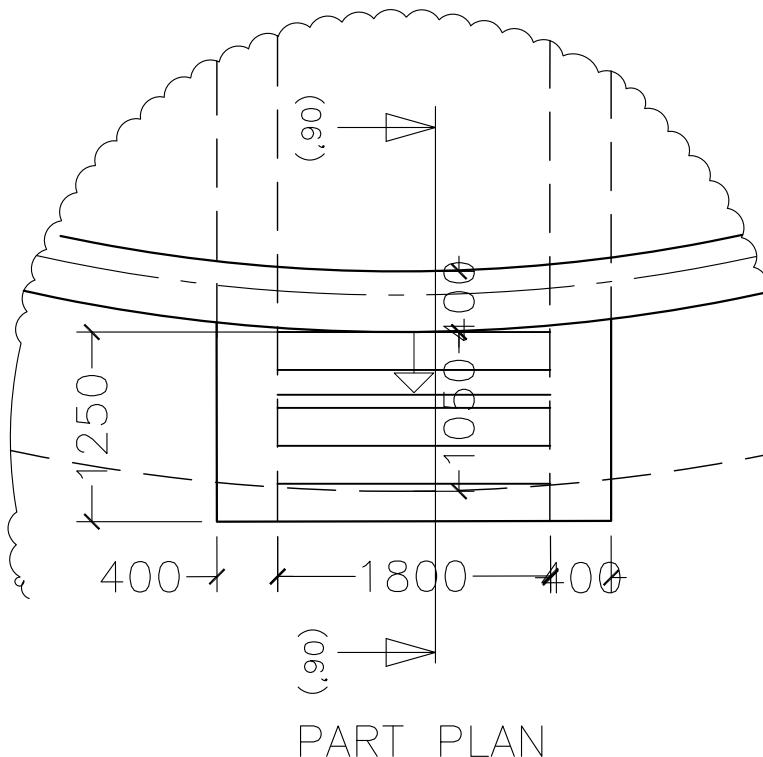
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TEG/.....

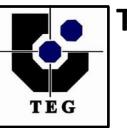
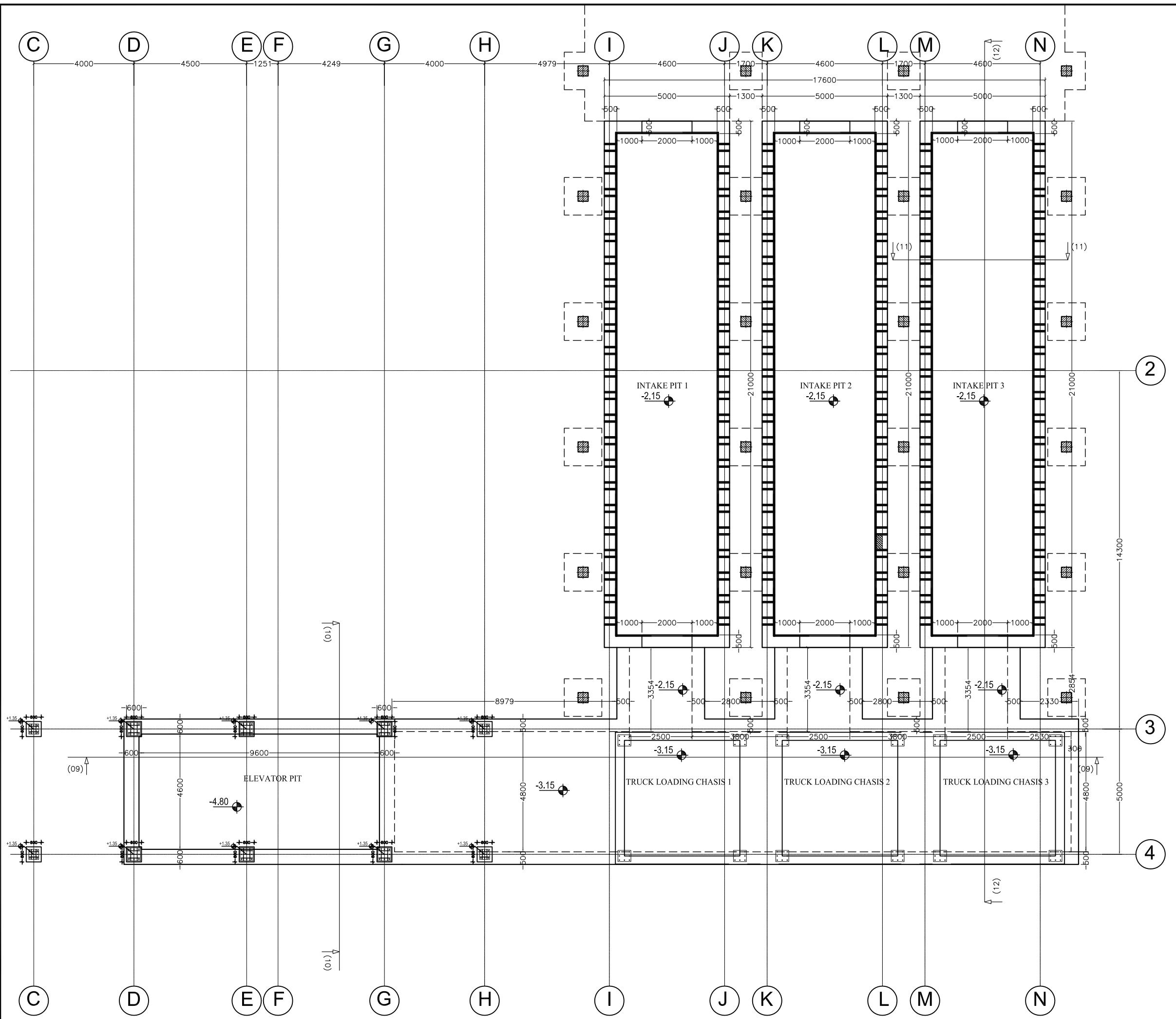
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SECTION 06'-06'



ECHNOCON ENGINEERING GROUP

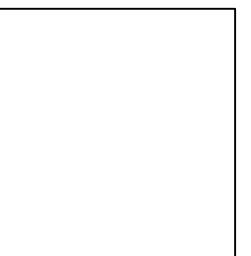
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WIRG

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156 782 000
www.marsan.net

object name: **MOROLLI SILO'S PROJECT**

1000 QUESTIONS ON ENGLISH GRAMMAR AND PRACTICAL WRITING

Location: SUDAN Town , Area: PORTSUDAN

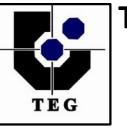
ot: No: Block: No:

INTAKE HOPPER & ELEVATOR SIT LAYOUT DETAIL

ale: Project No.:
N.T.S TEG/.....

Project status: DESIGN STAGE

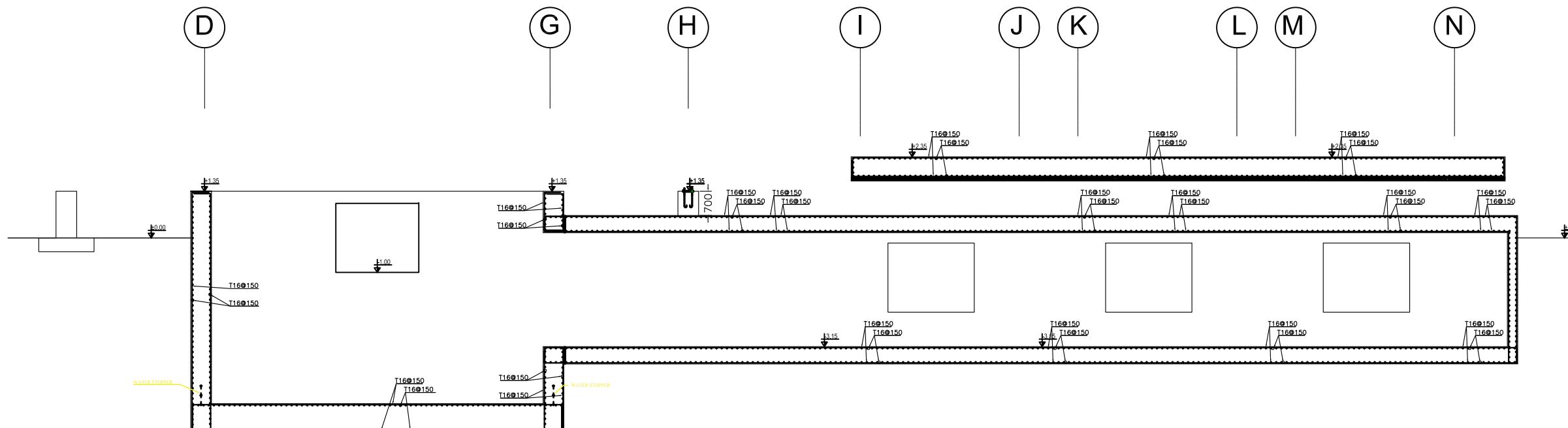
Sheet No:



Detailed description of the diagram:

- Vertical Labels:** D, E, G, H, I, J, K, L, M, N.
- Horizontal Dimensions:**
 - Column D: 10000
 - Column E: 4000
 - Column G: 4979
 - Column H: 4600
 - Column I: 1700
 - Column J: 4600
 - Column K: 1700
 - Column L: 4600
 - Column M: 1465
 - Column N: 1465
- Structural Elements:**
 - Vertical columns with dimensions: 600, 9600, 600, 600, 700, 2500, 300, 300, 300, 300, 300, 300, 300, 300.
 - Horizontal blocks with dimensions: 2400, 2000, 1200, 700, 2500, 2000, 2500, 2000, 2500, 2000.
 - Labels: 'Construction joint' appears twice.
 - Notes: 'WELL COMPACTED SELECTED SOIL TO 98%, IN LAYERS, MAX THICKNESS = 200 MM' and '100 MM PLAIN CONCRETE' are present.
- Soil Layers:**
 - Top layer: 100 MM PLAIN CONCRETE.
 - Second layer: WELL COMPACTED SELECTED SOIL TO 98%, IN LAYERS, MAX THICKNESS = 200 MM.
 - Third layer: WELL COMPACTED SELECTED SOIL TO 98%, IN LAYERS, MAX THICKNESS = 200 MM.
 - Bottom layer: WELL COMPACTED SELECTED SOIL TO 98%, IN LAYERS, MAX THICKNESS = 200 MM.

SECTION 09-09



SECTION 09-09

KEY PLAN:

Owner:

MOROUJ

Address: Commercial & Industrial Ln Khartoum North, Khartoum, Sudan
Tel: + 249 156 782 000
E-mail: info@mercuri.net, webmaster@www.mercuri.net

Project name:

MOROUJ SILO'S PROJECT

Location: SUDAN Town / Area: PORTSUDAN

<http://www.w3.org/2001/sw/wiki/>

Meet title:

sheet title:
**INTAKE HOPPER & ELEVATOR
PIT SECTIONS DETAIL**

scale:

N.T.S

Project No.:

TEG/

rate:

rate:

Project status:

Project status:

Sheet No:

TEG-DD-ST- FND-07-R.00



TECHNOCON ENGINEERING GROUP

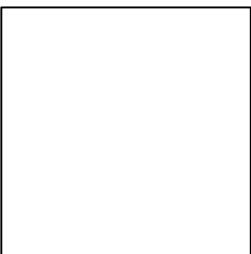
ENGINEERING CONSULTANTS

P.O. Box :165, Khartoum-Sudan, Street 60 Al Riyad,
Block No. 17, Square 18, Tel.: +249 183 5863847/8,
e-mail: Info@teg-sdn.com, technoconeg@gmail.com

GENERAL NOTES:

- 1- Steel f_y not less than 460 N/mm^2 .
 - 2- Concrete f_{cu} should not be less than 35 N/mm^2 for 28days strength.
 - 3-Max-Aggregate size 20mm for beams & cols and 30mm for found.s.
 - 4- Concrete cover for reinforcement should not be less than 25mm for beams & columns and 75mm for foundations.
 - 5- Over laps of steel should not be less than 50 times larger bar size &should always be located within concrete being under compression.
 - 6- Construction joints shall be located at one fifth of span of slabs.
 - 7- All Dimensions are in mm.
 - 8-At least Sulphate Resistance Cement, SRC (type V plus pozzolan) should be used.
 - 9-The maximum water-cementitious materials ratio should be as 0.40.
 - 10-The minimum cementitious materials content should not be less than 370 kg/m^3
 - 11-The minimum strength should be in the order of 35 MPa.
 - 12-Minimum concrete cover shall be at least 75mm.
 - 13-Bearing Capacity = 220 kN/m^2 for Grain Silo.
 - 14-Bearing Capacity = 180 kN/m^2 for Admin & Store Building.

KEY PLAN:



Owner:

MOROUJ

Address: Commercial & Industrial In Khartoum North, Khartoum, Sudan
Tel.: + 249 156 782 000
E-mail: info@mercos.net, website: www.merco.net

Project name:

Project name: **MOROLU SILO'S PROJECT**

Journal of Business Ethics (2014) 120:1–16
DOI 10.1007/s10551-013-1100-0

Location: SOUTHWEST TOWNSHIP, ALLEGHENY COUNTY

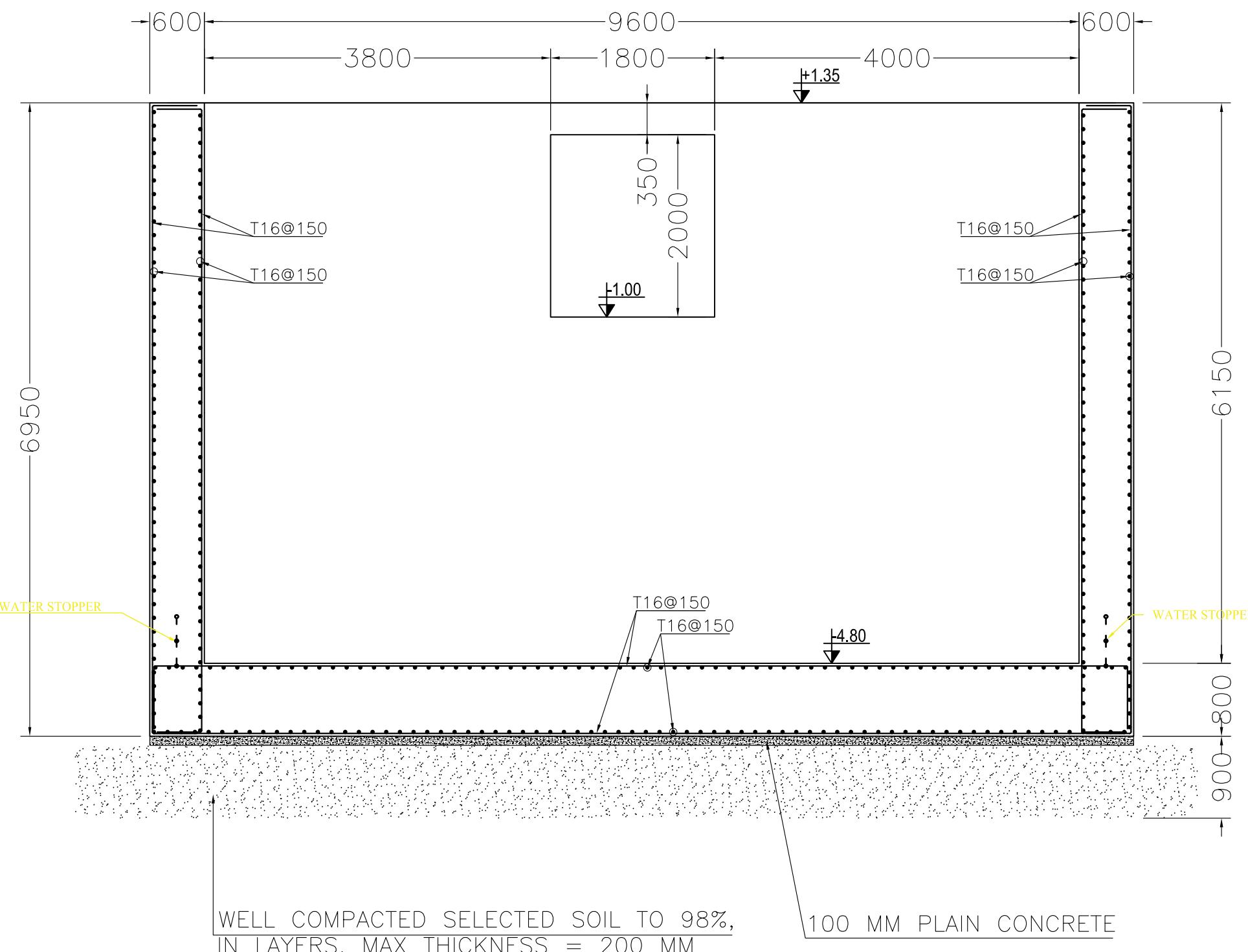
Sheet title:
**ELEVATOR PIT SECTION
STRUCTURAL DETAIL**

Scale: Project No.:
N.T.S TEG/.....-

Date: Project status:

Sheet No:

TEG-DD-ST- FND-08-R.00

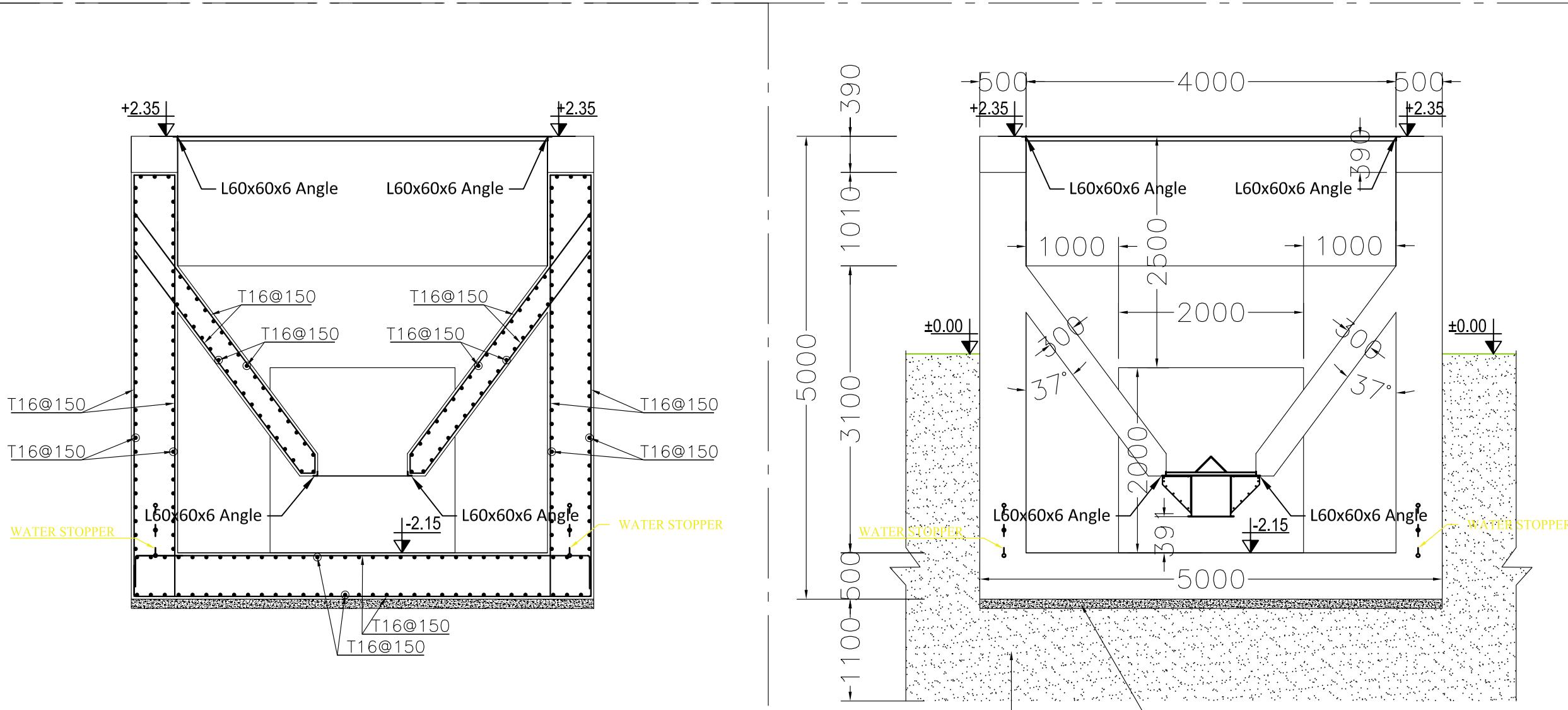


SECTION 10-10

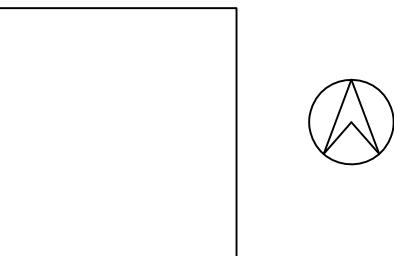


GENERAL NOTES:

- 1- Steel f_y not less than 460 N/mm².
- 2- Concrete f_{cu} should not be less than 35N/mm² for 28days strength.
- 3-Max-Aggregate size 20mm for beams & col.s and 30mm for found.s.
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- 14-Bearing Capacity = 180 kN/m² for Admin & Store Building.



KEY PLAN:



Owner:

MOROUJ
Address: Commercial & Industrial In Khartoum North, Khartoum, Sudan
Tel: + 249 156 782 000
e-mail: Info@morouj.net, website: www.morouj.net

Project name:
MOROUJ SILO'S PROJECT

Location: SUDAN Town , Area: PORTSUDAN

Plot: No: Block: No:

Sheet title:
INTAKE HOPPER SECTIONS STRUCTURAL DETAIL

Scale:	N.T.S	Project No.:	TEG/.....-
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Date:	FEB/2022	Project status:	DESIGN STAGE
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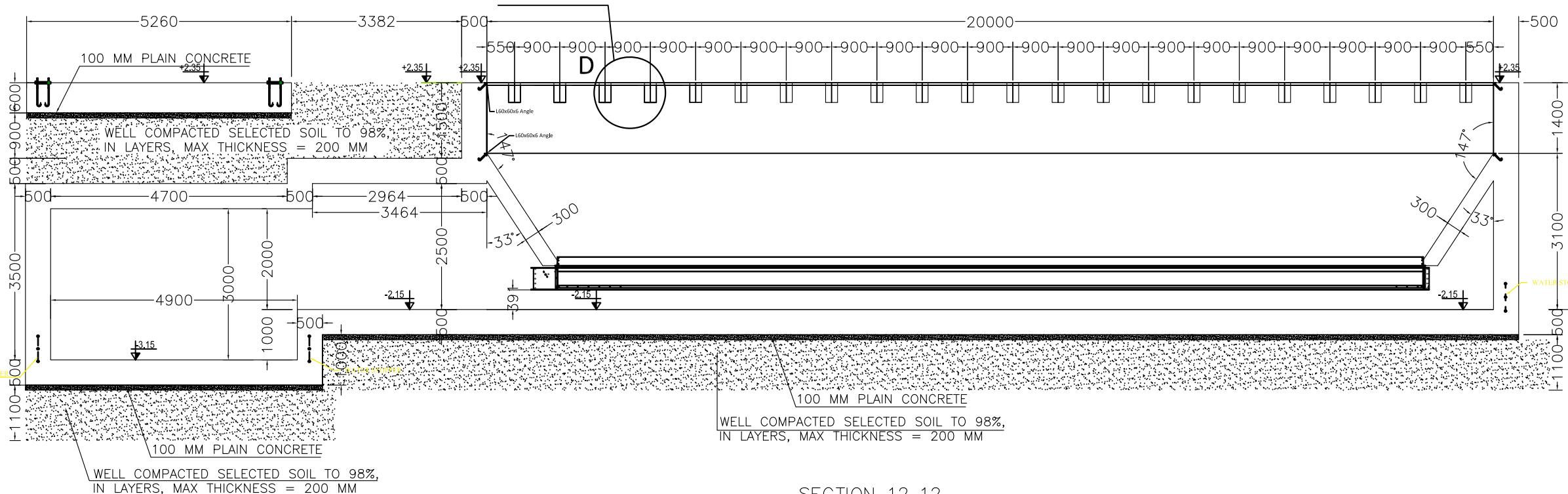
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TEG-DD-ST- FND-09-R.00

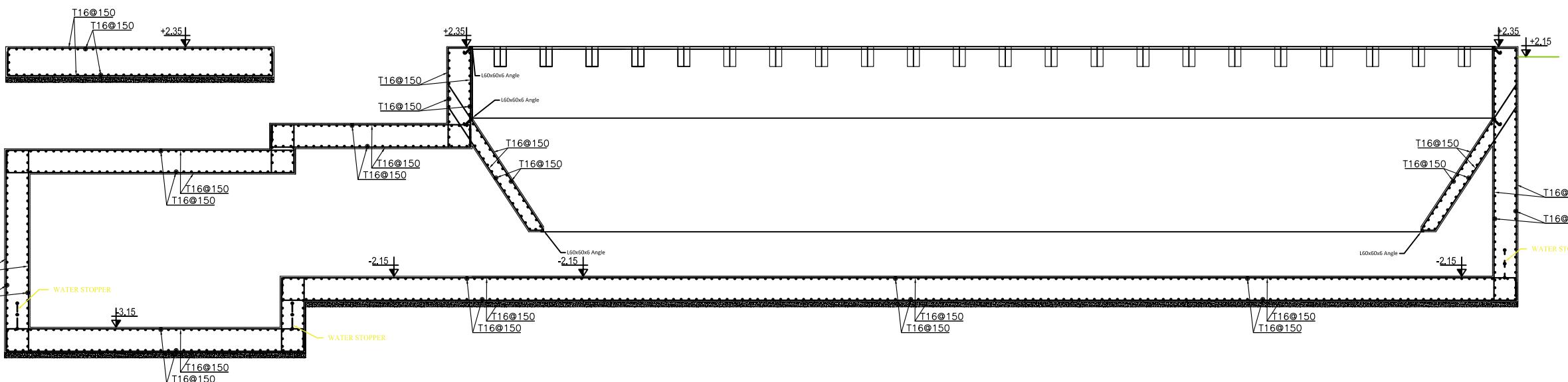
REV.	DATE	DESCRIPTION	DESIGN	DRAWN	CHECK
00	20/04/14	Design Stage	S.A.S.	S.A.S.	A.W.

P.O. Box :165, Khartoum-Sudan, Street 60 Al Riyadh,
Block No. 17, Square 18, Tel.: +249 183 586384/7/8,
e-mail: info@teg-sdn.com, technoconeg@gmail.com

DETAIL D



SECTION 12-12



SECTION 12-12

KEY PLAN:



1

Owner:



MOROLU

ress: Commercial & Industrial In Khartoum North, Khartoum, Sudan
+ 249 156 782 000

Project name:
MOROULL SIIQ'S PROJECT

THE CHINESE ECONOMY IN THE 21ST CENTURY

Plot: No: Block: No:

www.nature.com/scientificreports/ | (2022) 12:1036 | Article number: 1036

TAKE HOPPER SECTIONS

STRUCTURAL DETAIL

Project No.:

N.T.S | TEG/.....-.....

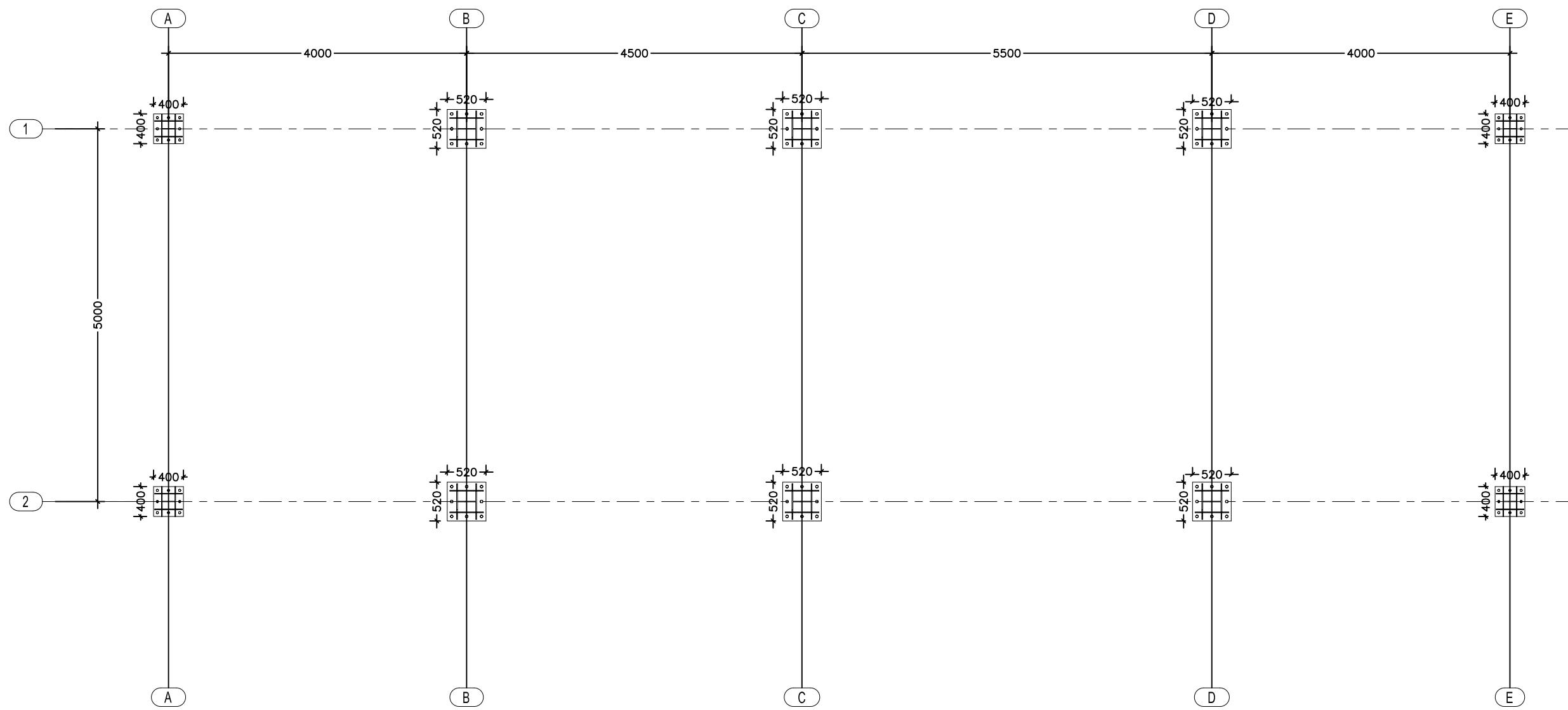
Project status:

FEB/2022 | DESIGN STAGE

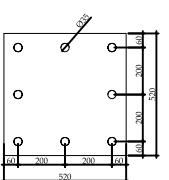
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TEG-DD-ST- FND-10-R.00

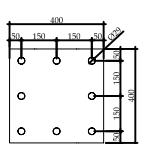
P.O. Box :165, Khartoum-Sudan, Street 60 Al Riyadh,
Block No. 17, Square 18, Tel.: +249 183 586384/7/8,
e-mail: Info@teg-sdn.com, technoconeg@gmail.com



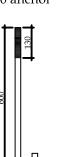
ELEVATOR TOWER ANCHORAGE LAYOUT



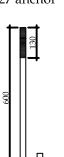
t : 4 mm base plate



t : 4 mm base plate



0 anchor

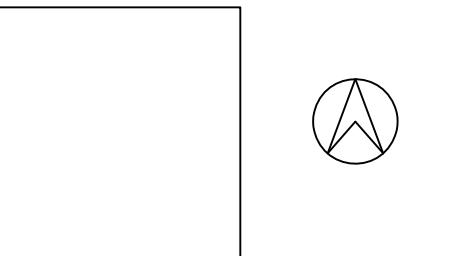


27 anchor

Page 1

- Steel f_y not less than 460 N/mm^2 .
 - Concrete f_{cu} should not be less than 35 N/mm^2 for 28 days strength.
 - Max-Aggregate size 20mm for beams & col.s and 30mm for rounds.
 - Concrete cover for reinforcement should not be less than 25mm for beams & columns and 75mm for foundations.
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 - Construction joints shall be located at one fifth of span of slabs.
 - All Dimensions are in mm.
 - At least Sulphate Resistance Cement, SRC (type V plus pozzolan) should be used.
 - The maximum water-cementitious materials ratio should be as 140.
 - The minimum cementitious materials content should not be less than 370 kg/m^3
 - The minimum strength should be in the order of 35 MPa.
 - Minimum concrete cover shall be at least 75mm.
 - Bearing Capacity = 220 kN/m^2 for Grain Silo.
 - Bearing Capacity = 180 kN/m^2 for Admin & Store Building.

KEY PLAN:



Owner:



MOROUJ SILO'S PROJECT

Location: SUDAN Town Area: PORTSUDAN

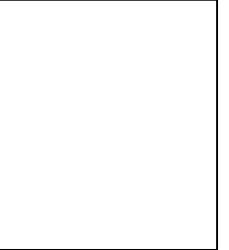
Sheet title:
**LEVATOR TOWER
ANCHORAGE LAYOUT DETAIL**

scale:	Project No.:
N.T.S	TEG/.....-
ate:	Project status:
FEB/2022	DESIGN STAGE



This architectural site plan illustrates a layout for a silo facility, featuring a central cluster of nine circular silos arranged in a 3x3 grid. Each silo is labeled 'SILO' and has a small rectangular opening at the top. The silos are interconnected by a network of horizontal and vertical pipes. To the right of the silos is a tall, cylindrical structure labeled 'ADMIN BUILDING'. Below the silos, there is a workshop area labeled 'WORKSHOP & STORE BUILDING' and a 'POWER STATION' building. A 'ROOM' is also indicated near the bottom center. On the far right, there is an 'ELEVATOR PIT' and a 'TRENCHER / TRUCK LOADING CHASSIS' area. The plan includes various types of joints along the foundation walls, such as 'EXPANSION JOINT (EDGE)', 'CONTRACTION J.', and 'CONTROL JOINT'. Foundation details include 'THK=100mm. MESH R106200(T) JOINTS @5 M BOTH WAY' and 'THK=200mm. MESH R126200(Tab)'. The plan is bounded by 'ROAD' on the left and right sides, with specific coordinates like 96000, 794, 6982, 137, 5179, 25750, 61750, 2750, 25247, 10754, 4500, 3794, 6000, 5000, 29253, and 207000 marked along the perimeter.

PLAN:



er:



MOROUJ

Address: Commercial & Industrial In Khartoum North, Khartoum, Sudan
Phone: +249 156 782 000
E-mail: Info@moroui.net, **website:** www.moroui.net

Project name: **MOROUJ SILO'S PROJECT**

Town Area: PORT SUDAN

No: _____ Block: _____ No: _____

STAB ON GRADE POINTS LAYOUT DETAIL

Project No.:
N.T.S TEG/.....-

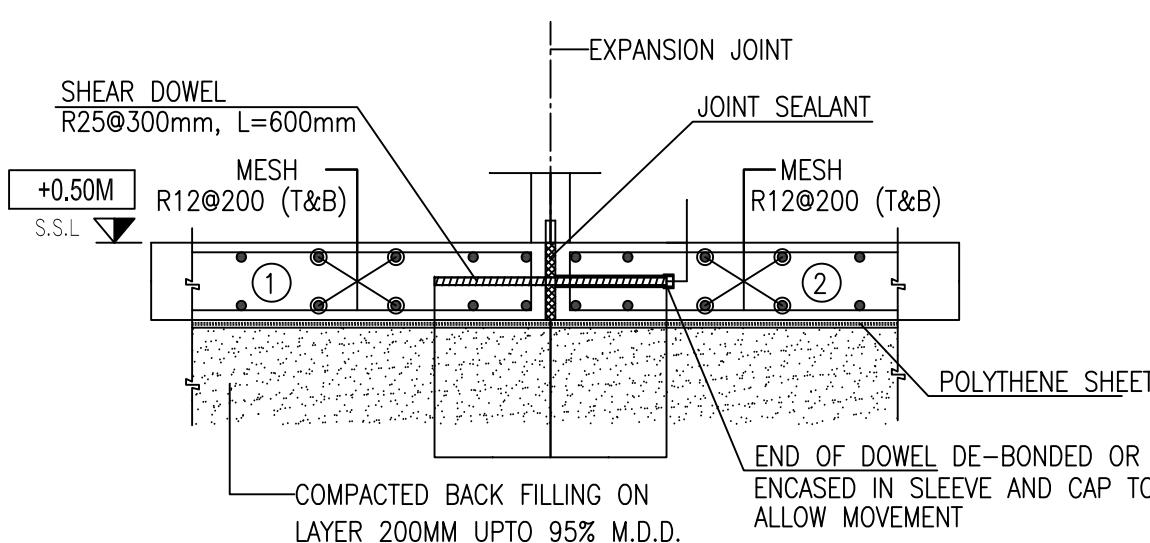
Project status:

TEG-DD-ST- FND-12-R.00

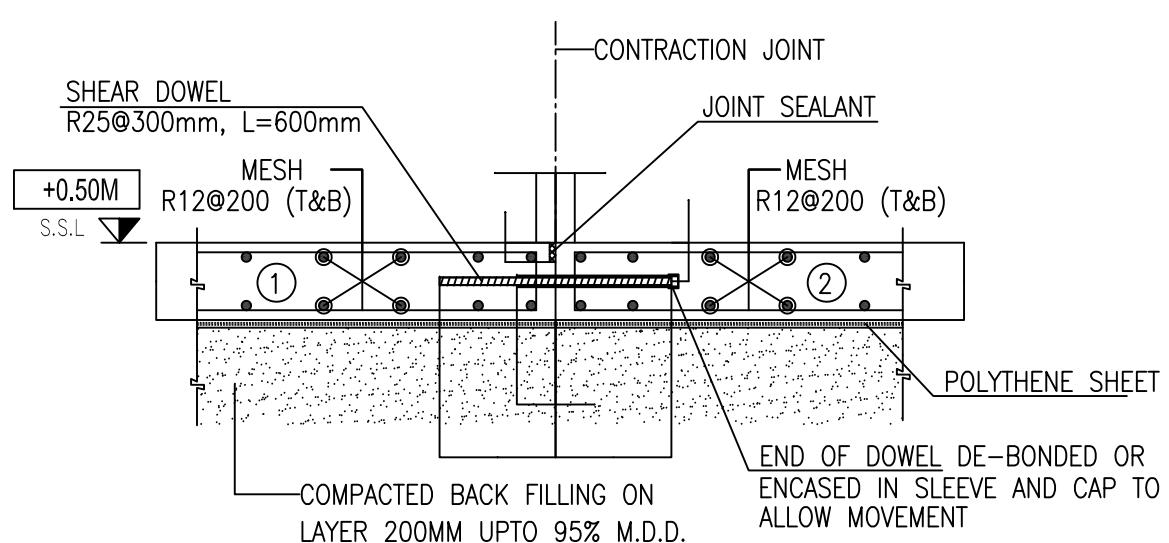


GENERAL NOTES:

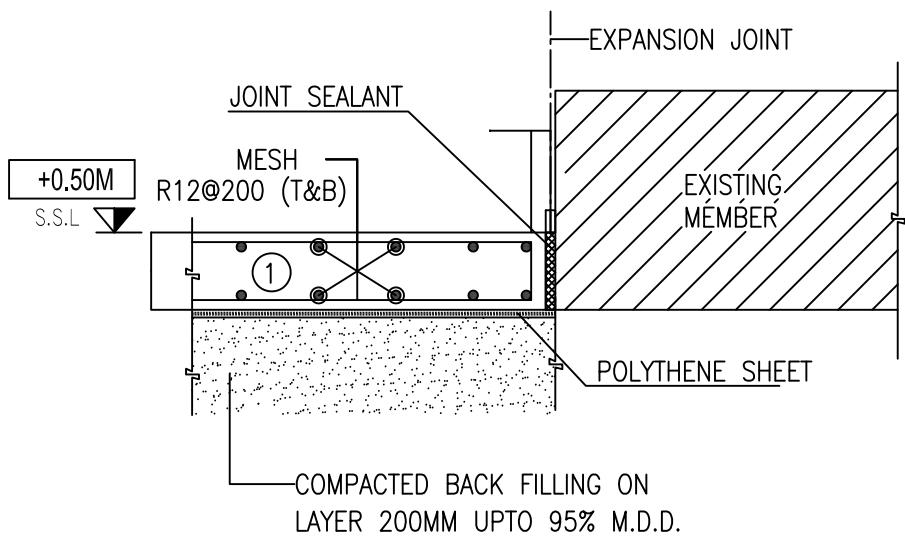
- 1- Steel f_y not less than 460 N/mm².
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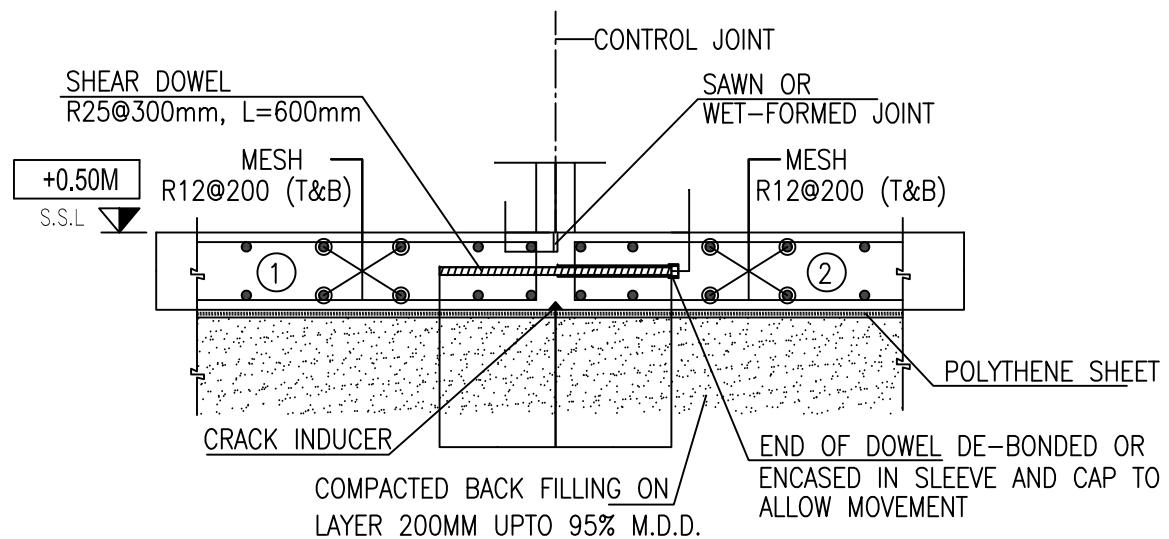
TYPICAL EXPANSION JOINT (CENTER) DETAIL



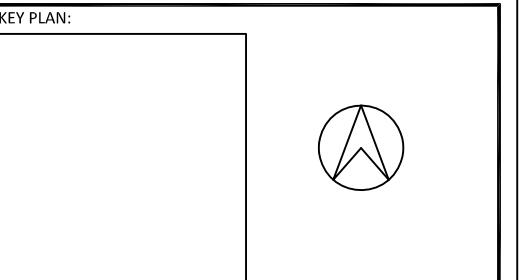
TYPICAL CONTRACTION JOINT DETAIL



TYPICAL EXPANSION JOINT (EDGE) DETAIL



TYPICAL CONTROL JOINT DETAIL



MOROUJ

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e-mail: Info@morouj.net website: www.morouj.net

Project name: **MOROLUJI SILO'S PROJECT**

THE SUDAN ECONOMIC PORTFOLIO

sheet title:
**POINTS IN SLAB ON GRADE
SECTIONS DETAIL**

scale:	Project No.:
N.T.S	TEG/.....-....

Sheet No:

TEG-DD-ST- FND-13-R.00