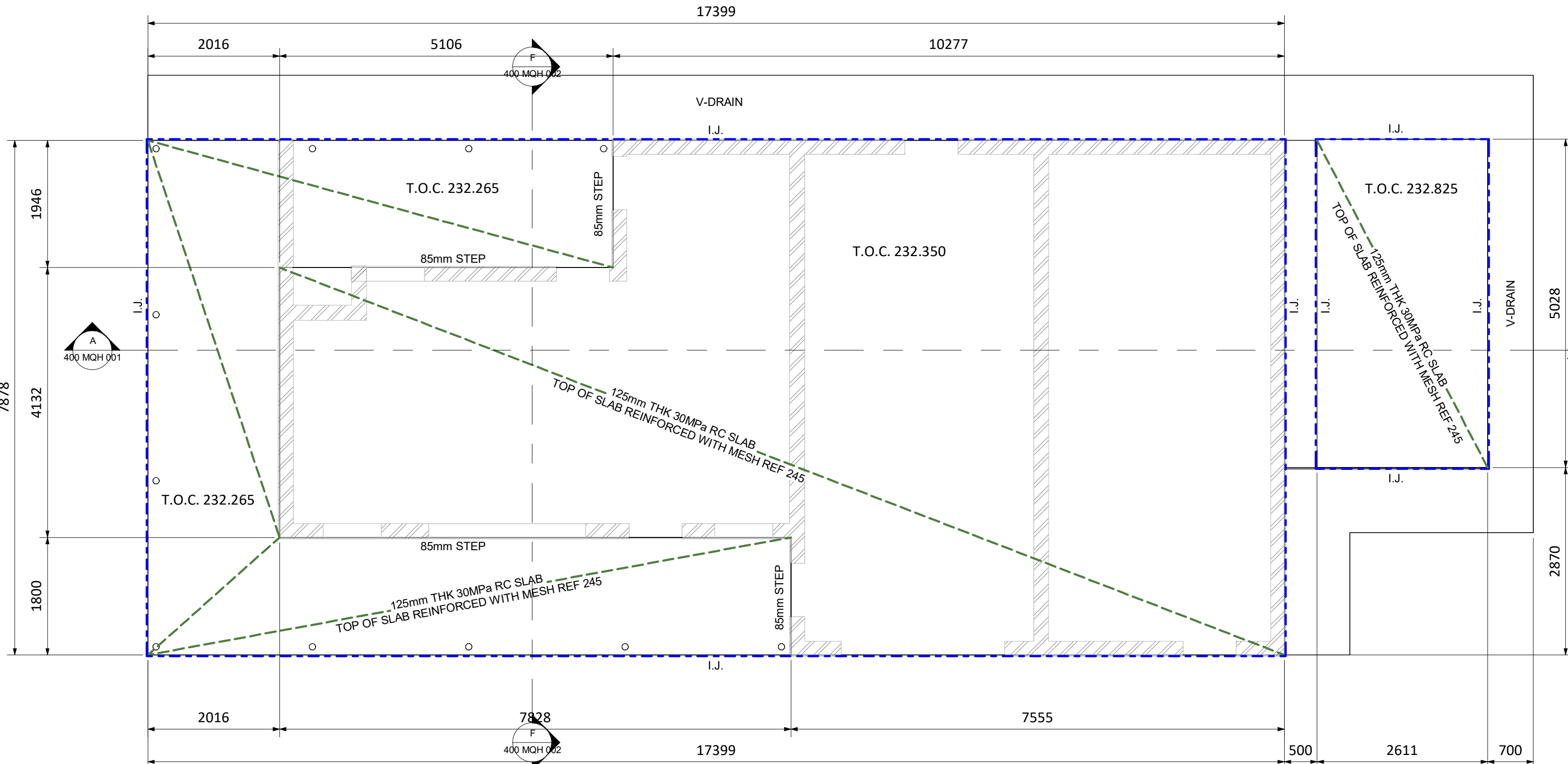


NOTE:

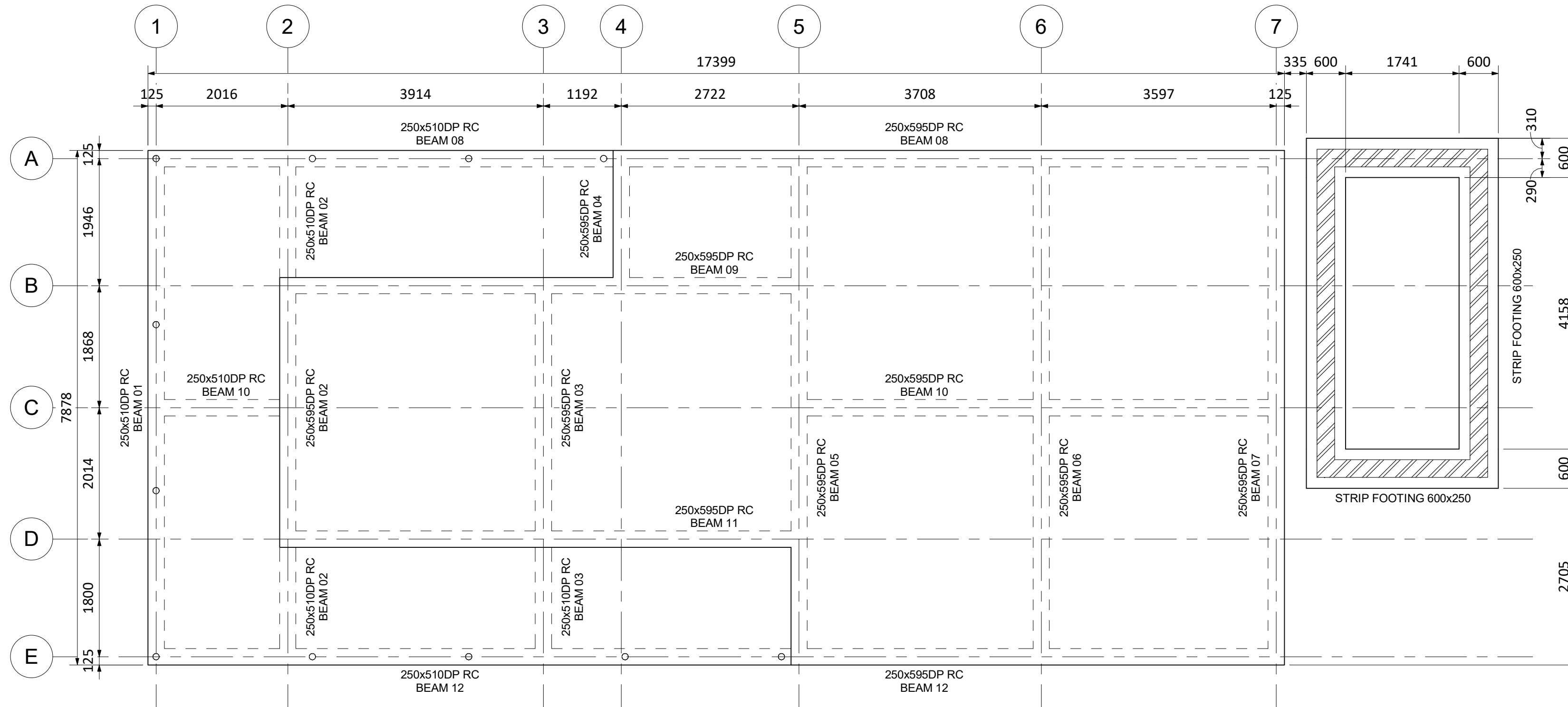
V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

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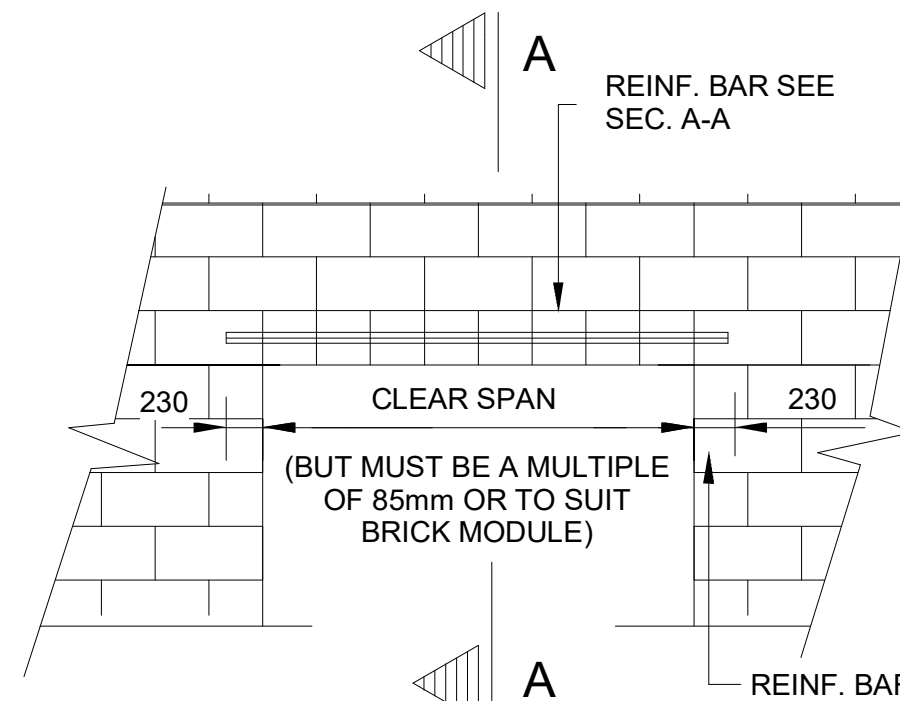
IF ANY INFORMATION IS  
UNCLEAR ON THE DRAWINGS  
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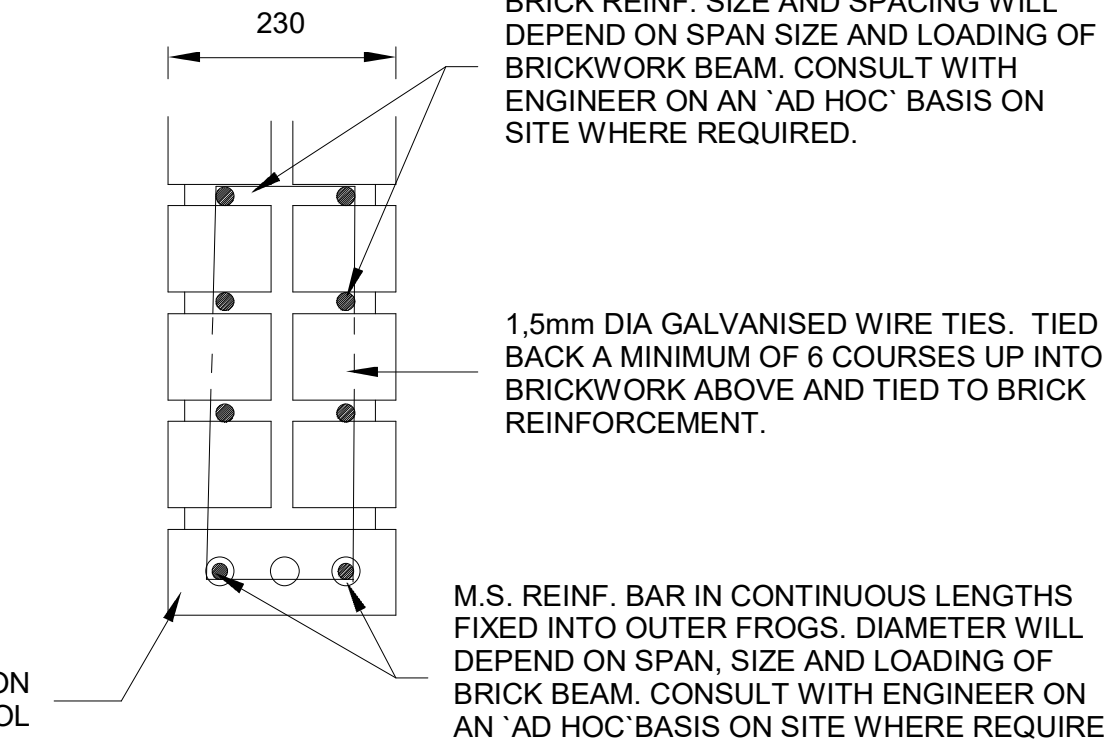
GROUND SLAB LAYOUT  
SCALE 1:50



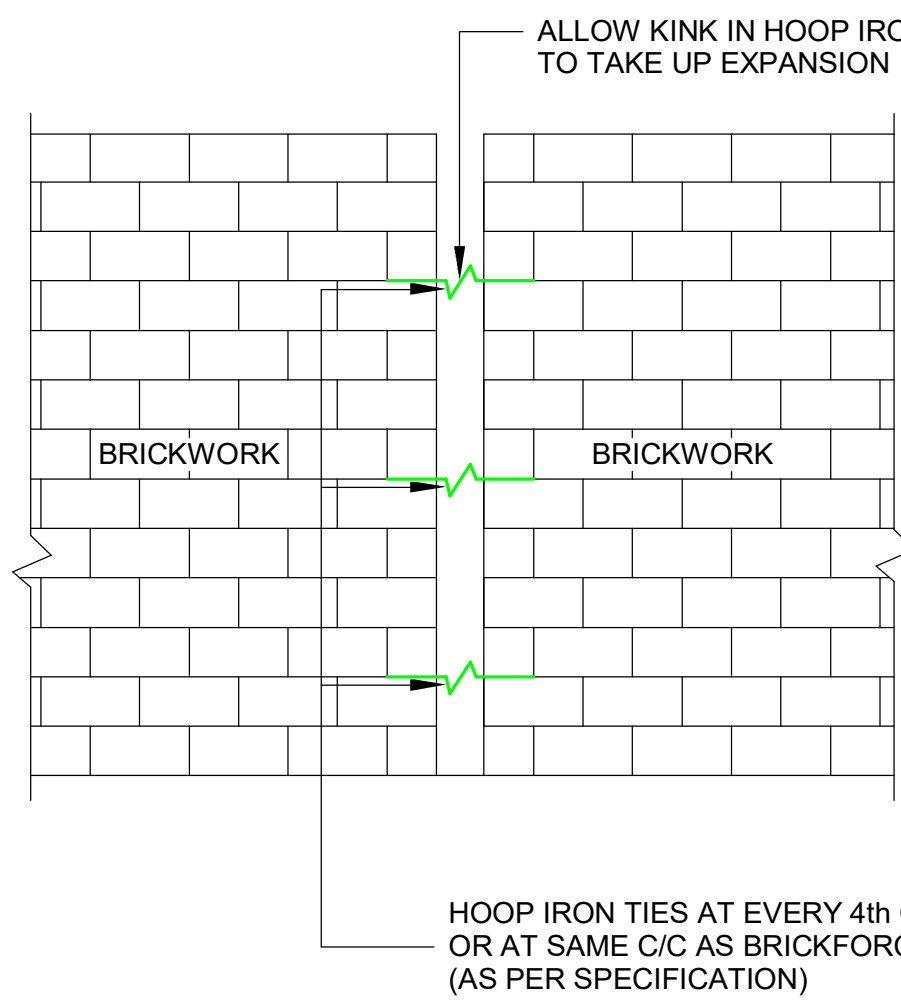
GROUND RAFT FOUNDATION LAYOUT  
SCALE 1:50



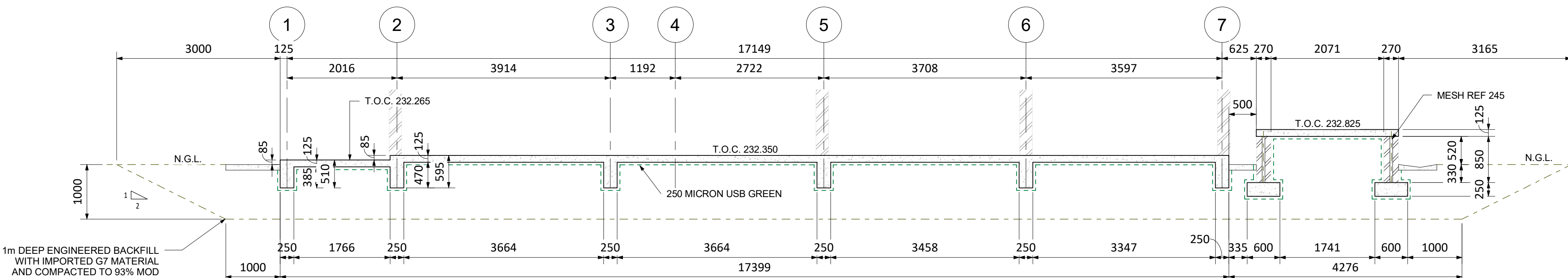
ELEVATION



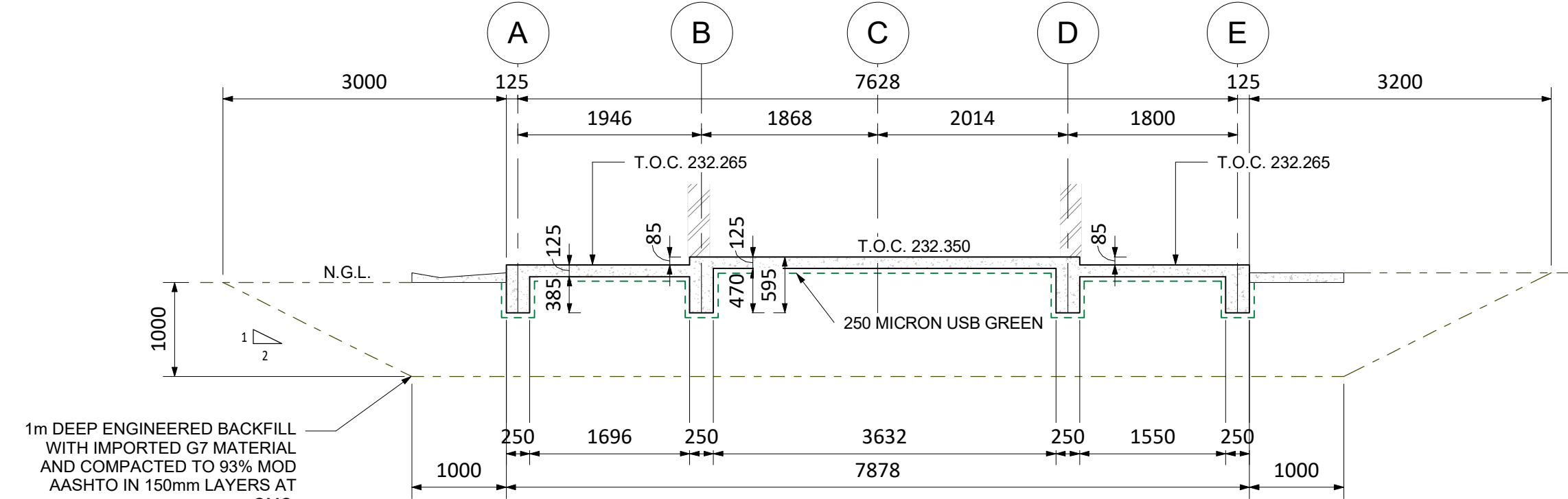
SECTION A - A  
FACE BRICK ON EDGE  
LINTOLS



CONCRETE AND BRICKWORK JOINT  
NTS



SECTION A-A  
SCALE 1:50



SECTION B-B  
SCALE 1:50

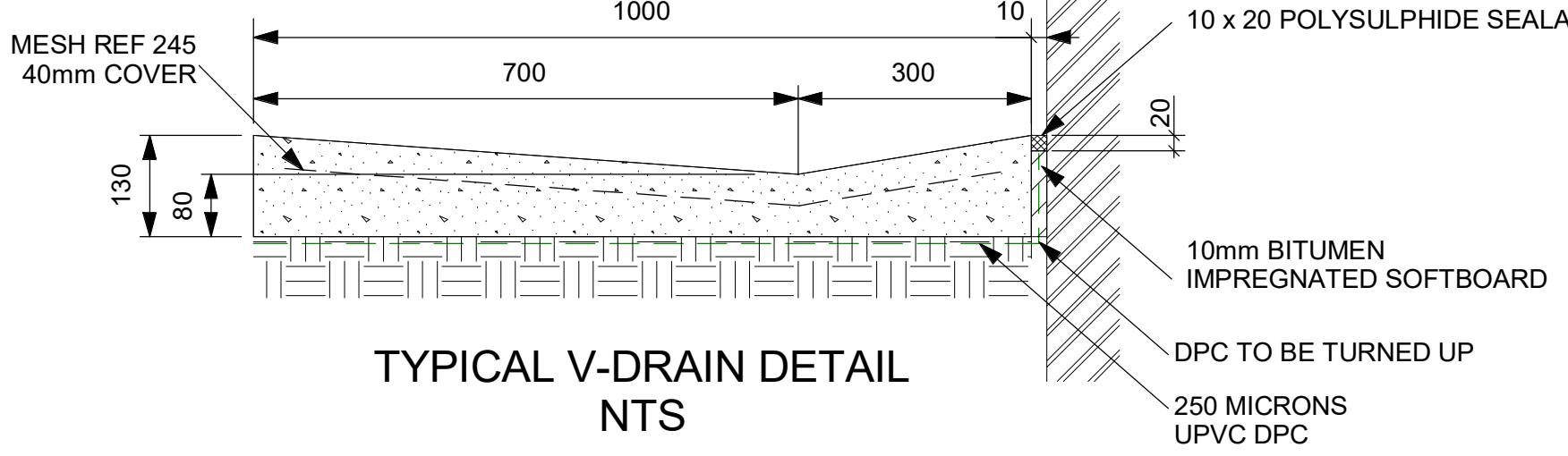
NOTE:  
UNREINFORCED BRICK  
ON EDGE LINTOLS WILL  
NOT BE ACCEPTABLE TO  
ENGINEER

REINFORCED BRICK  
ON EDGE LINTOLS WILL  
NOT BE ACCEPTABLE TO  
ENGINEER

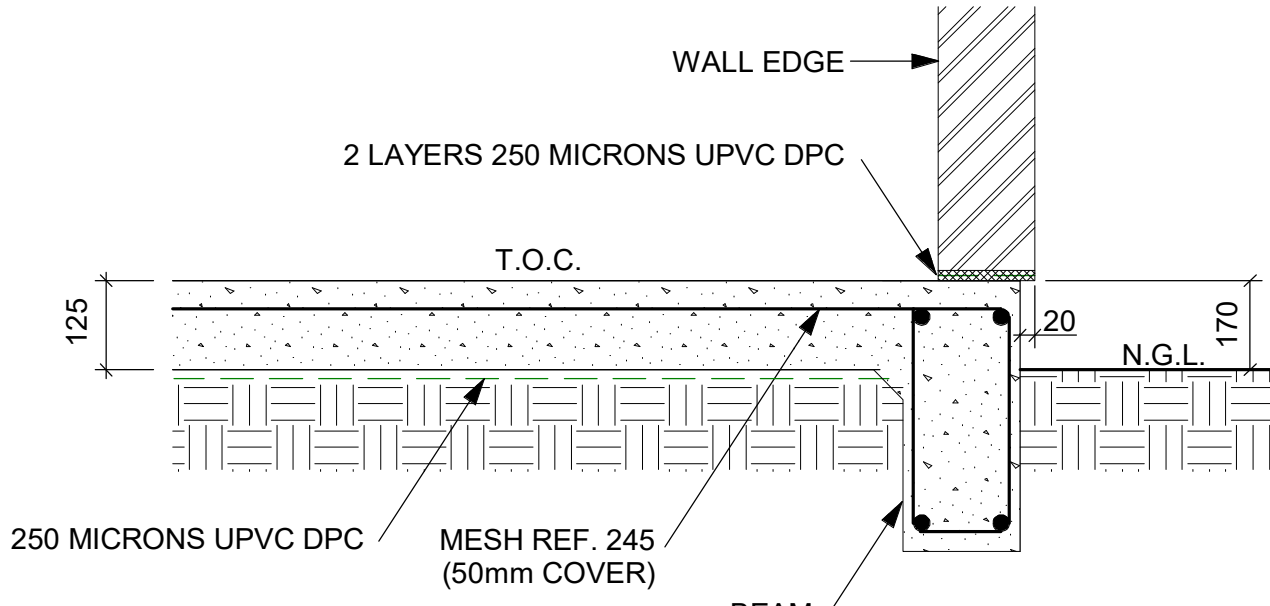
BRICK REINFORCING SIZE AND SPACING WILL  
DEPEND ON SPAN SIZE AND LOADING OF  
BRICKWORK BEAM. CONSULT WITH  
ENGINEER ON AN 'AD HOC' BASIS ON  
SITE WHERE REQUIRED.

1.5mm DIA GALVANISED WIRE TIES. TIED  
BACK A MINIMUM OF 6 COURSES UP INTO  
BRICKWORK ABOVE AND TIED TO BRICK  
REINFORCEMENT.

M.S. REINFORCING BAR IN CONTINUOUS LENGTHS  
FIXED INTO OUTER FROGS. DIAMETER WILL  
DEPEND ON SPAN, SIZE AND LOADING OF  
BRICK BEAM. CONSULT WITH ENGINEER ON  
AN 'AD HOC' BASIS ON SITE WHERE REQUIRED.



TYPICAL V-DRAIN DETAIL  
NTS



TYPICAL EDGE BEAM  
NTS

MASONRY NOTES

1. THESE NOTES ARE READ IN CONJUNCTION WITH THE SPECIFICATIONS. THE NOTES TAKE PRECEDENCE SHOULD A DISCREPANCY ARISE WHICH IS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. ALL DIMENSIONS AND SETTING OUT INFORMATION ARE CHECKED PRIOR TO THE COMMENCEMENT OF THE SETTING OUT OF THE WORKS.
3. ALL LEVELS ARE ABOVE MEAN SEA LEVEL (AMSL).
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWING AND ALL DIMENSIONS VERIFIED.
5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL BUILDING REGULATIONS AND THE REGULATIONS AS SET OUT BY THE NH&RC.
6. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND THE CONSTRUCTION REGULATIONS.
7. SUBCONTRACTING OF ANY PORTION OF THE WORK DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AND LIABILITIES IN TERMS OF THE CONTRACT AND THE REGULATIONS NOTED IN 6.
8. ALL WET SERVICES ARE TO HAVE FLEXIBLE JOINTS AGAINST THE BUILDING.
9. STORMWATER IS TO BE ADEQUATELY ROUTED AWAY FROM THE STRUCTURE.
10. PONDING OF WATER DURING AND AFTER CONSTRUCTION IS NOT PERMITTED.
11. FOUNDATION CONDITIONS AS RECOMMENDED IN THE GEOTECHNICAL REPORT BY THE GEOTECHNICAL ENGINEER.

CONCRETE NOTES:

1. CONCRETE CHARACTERISTIC 28-DAY STRENGTH:  
BUILDING ..... 15 MPa  
FOUNDATIONS ..... 30 MPa  
COLUMNS ..... 30 MPa  
SUSPENDED SLABS & BEAMS ..... 30 MPa  
GROUND SLABS ..... 30 MPa  
2. MINIMUM CONCRETE AGGREGATE SIZE ..... 19mm  
3. ALL CONCRETE TO BE PROPERLY CURED BY KEEPING SURFACES CONTINUOUSLY DAMP FOR AT LEAST 7 DAYS AFTER CASTING.  
4. ALL CONCRETE WORK MUST CONFORM WITH THE SPECIFICATIONS OF SANS 2001-CC1.  
5. A SET OF THREE (3) TEST CUBES SHALL BE MADE FOR EVERY 50M<sup>3</sup> OR PORTION THEREOF FOR EVERY GRADE OF CONCRETE CAST ON A PARTICULAR DAY. CUBES SHALL BE CURED IN ACCORDANCE WITH THE SANS SPECIFICATIONS AND TESTED ON THE REQUISITE DAYS BY AN APPROVED TESTING LABORATORY AS APPROVED BY THE ENGINEER. TEST RESULTS TO BE TIMELESSLY SUBMITTED TO ENGINEER FOR APPROVAL.  
6. NO CONCRETE SHALL BE CAST WITHOUT THE ENGINEER HAVING INSPECTED THE REINFORCING. CONCRETE SHALL BE CAST ON WRITTEN APPROVAL OF THE ENGINEER.  
7. BREAKS IN CONCRETE AND CONSTRUCTION JOINTS ARE ONLY TO BE MADE WITH THE APPROVAL OF THE ENGINEER.  
8. THE USE OF KICKERS FOR WALL AND COLUMN CONSTRUCTION IS NOT PERMITTED.  
9. SHOULD THERE BE A BREAK IN EXCESS OF 45MM, AT ANY STAGE DURING A CONCRETE POUR, THE ENGINEER IS IMMEDIATELY NOTIFIED THEREOF.  
10. CONCRETE SLABS ARE NOT TO BE USED FOR THE STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.  
11. SHUTTERING AND FORMWORK MAY ONLY BE STRUCK ONCE THE FOLLOWING MINIMUM PERIODS HAVE ELAPSED, OR UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER. DESIGN OF FALSEWORK AND FORMWORK ARE THE CONTRACTOR'S RESPONSIBILITY.

POSITION OF SHUTTER/PROPS

- | POSITION OF SHUTTER/PROPS                                                                                                                                          | TIME         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1. MINIMUM COVER TO REINFORCING:                                                                                                                                   |              |
| 2. FOUNDATIONS                                                                                                                                                     | 40mm         |
| 3. COLUMNS                                                                                                                                                         | 40mm         |
| 4. SUSPENDED SLABS & BEAMS                                                                                                                                         | 30mm         |
| 5. WALLS, RETAINING WALLS                                                                                                                                          | 40mm         |
| 6. 2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.                                          |              |
| 7. 3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE. |              |
| 8. 4. CONCRETE FINISHES:                                                                                                                                           |              |
| 9. SUSPENDED SLABS                                                                                                                                                 | WOOD FLOAT   |
| 10. COLUMNS & WALLS                                                                                                                                                | WOOD SHUTTER |
| 11. BEAMS                                                                                                                                                          | WOOD SHUTTER |
| 12. SLAB SOFFIT                                                                                                                                                    | WOOD SHUTTER |

ABBREVIATIONS

T.O.C. = TOP OF CONCRETE  
N.G.L. = NATURAL GROUND LEVEL

REFERENCE DRAWINGS	
BLOCK M REINFORCEMENT DETAILS	400 MQH 002
BLOCK M STRUCTURAL GA	400 MQH 003

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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FOR TENDER	
DESIGNED BY:	NAME: SB
REVIEWED BY:	NAME: NZ
APPROVED BY:	NAME: SB

Civpro Engineering JV	
Musgrave Centre 8th Floor, Musgrave Rd, Durban, Tel: (031) 000 0449 Fax: (086) 673 3964 www.civproeng.co.za	

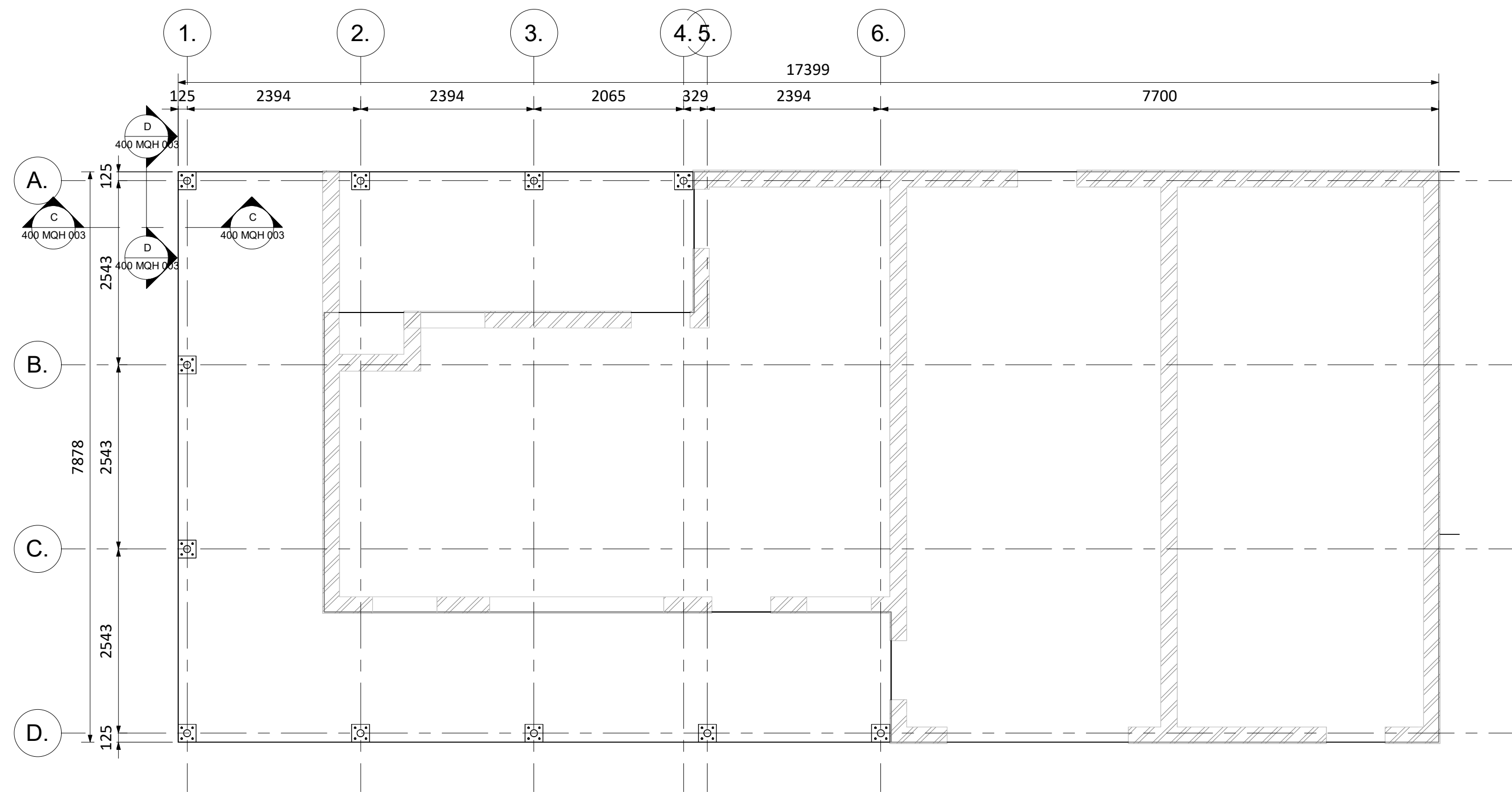
CLIENT:	
education Department of Education D&SA	

PROJECT: UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL	
TITLE: NSNP BLOCK M CONCRETE LAYOUT	
SCALE: 1:50	DATE: 14/11/2022
PROJECT NO: D19001	DRAWING NO: 400-MQH-001

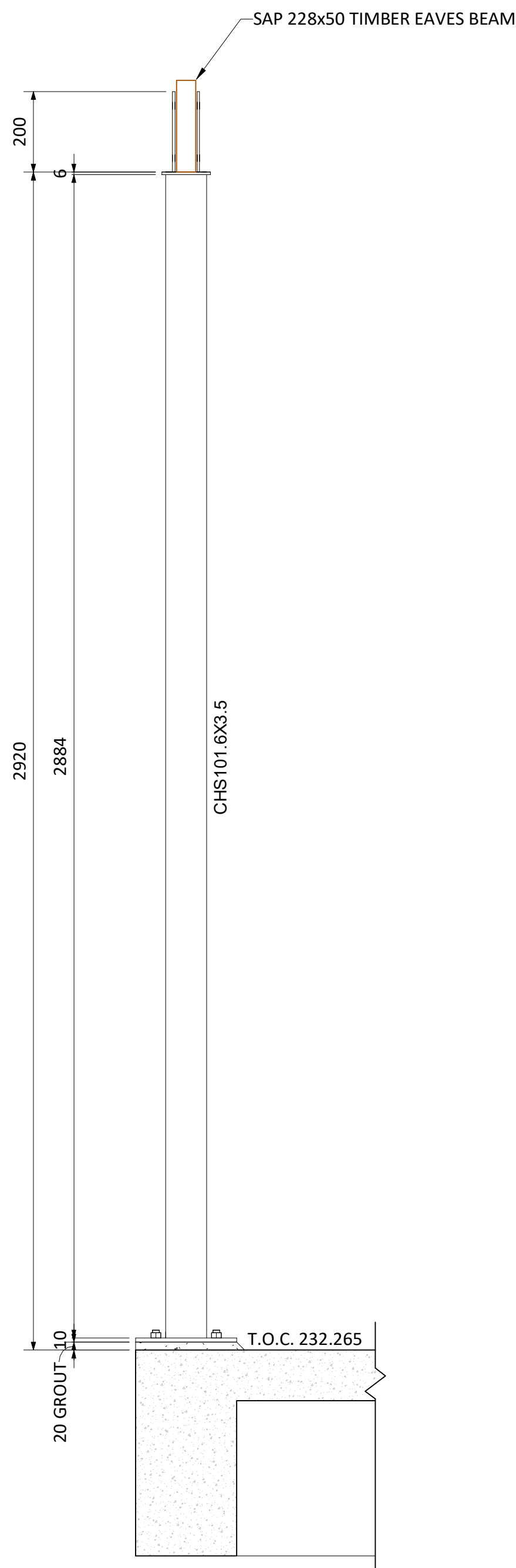




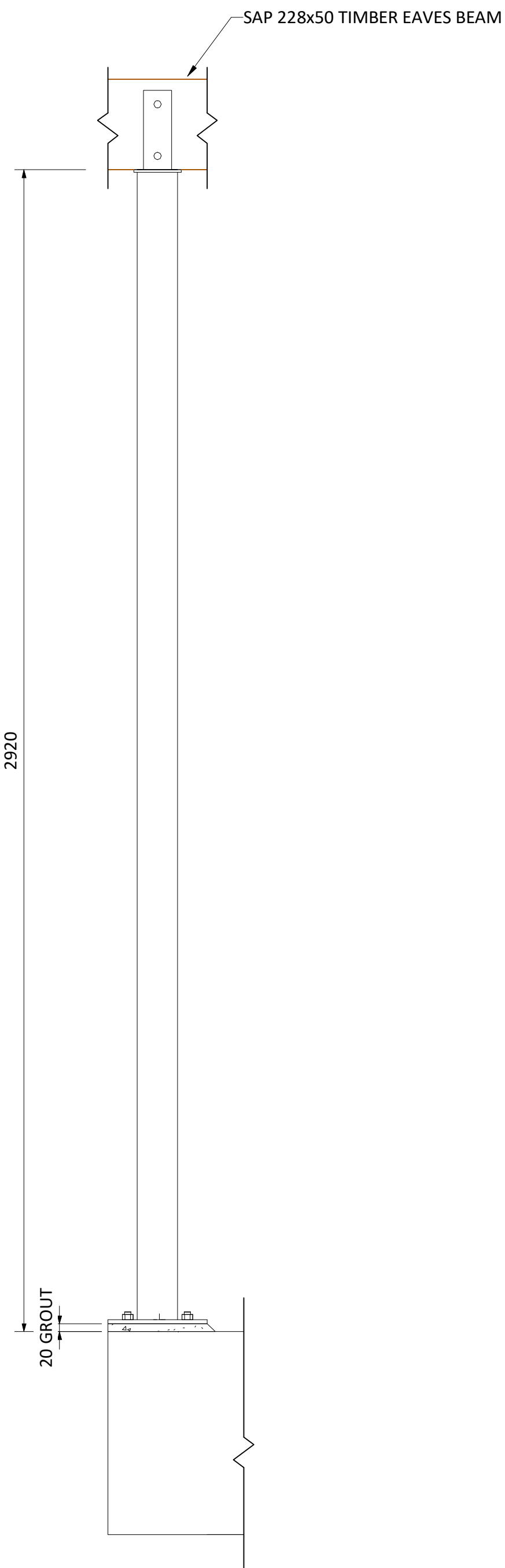




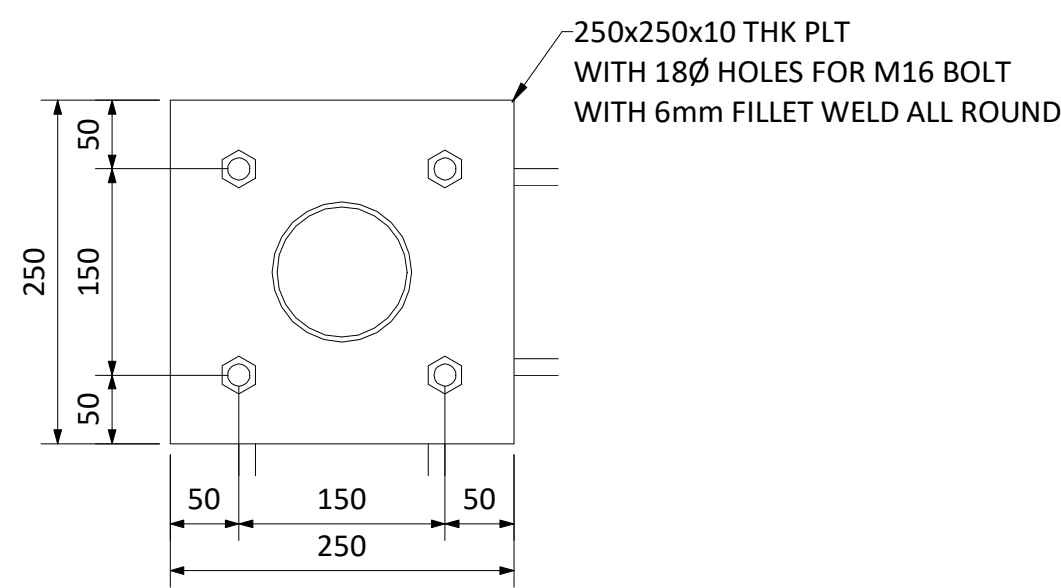
PLAN VIEW  
SCALE 1 : 50



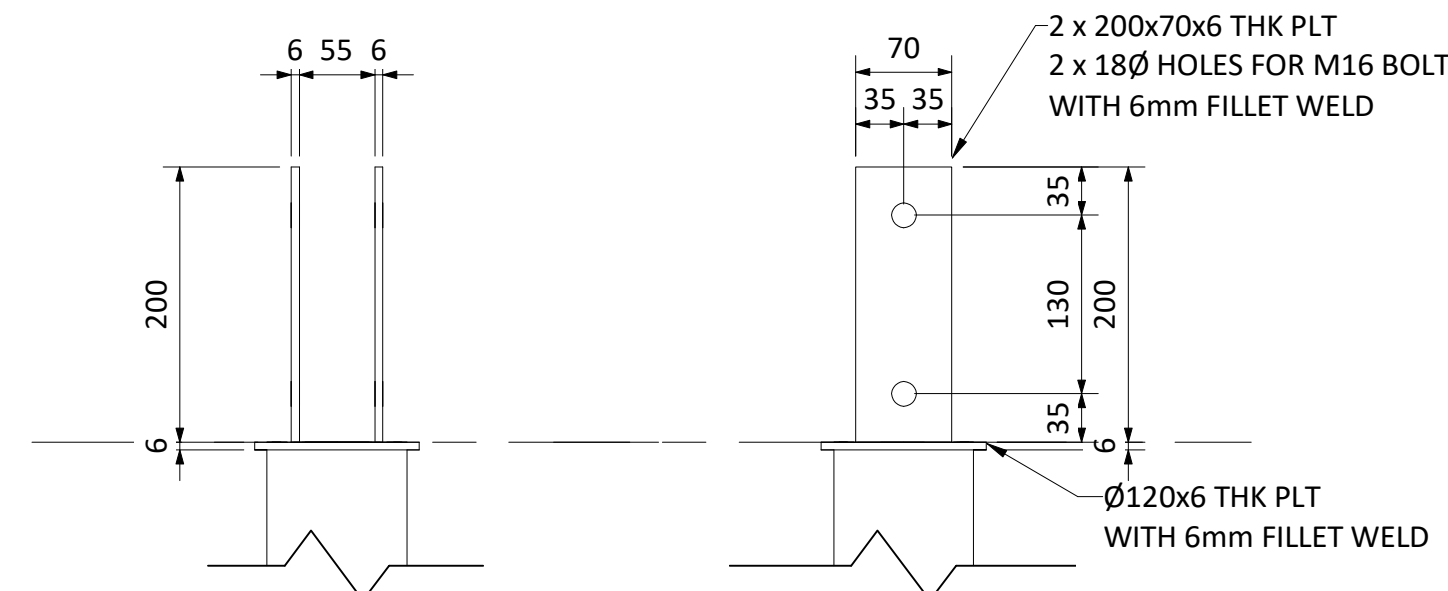
SECTION C-C  
SCALE 1 : 10



SECTION D-D  
SCALE 1 : 10



BASE PLT DETAIL 01  
SCALE 1 : 5



CAP PLT DETAIL 02  
SCALE 1 : 5

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEELWORK DESIGN, FABRICATION, SURFACE PREPARATION, PAINTING ETC. SHALL CONFORM TO THE PROJECT SPECIFICATION, SANS 10162, SANS 10013-1.
2. STRUCTURAL STEELWORK TO BE GRADE S355JR IN ACCORDANCE WITH SANS 10025.
3. ALL WELDS SHALL BE 5MM CONTINUOUS FILLET WELDS UNLESS OTHERWISE NOTED.
4. ALL WELDS SHALL BE SHOP WELDED.
5. ALL HOLES SHALL BE 22 DIA. FOR 20 DIA. BLACK BOLTS UNLESS OTHERWISE NOTED. HOLES FOR FASTENERS SHALL NOT BE MORE THAN 2MM GREATER THAN THE DIAMETER OF THE FASTENER OF DIAMETER UP TO 24MM AND NOT MORE THAN 3MM GREATER FOR FASTENERS OF DIAMETER OVER 24MM.
6. HOLES FOR FASTENERS AND DISTANCES BETWEEN HOLES AND EDGES SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF SANS 10162 OR AS DETAILED ON THE DRAWINGS.
7. HOLES FOR FASTENERS SHALL BE DRILLED. HOLES FOR FASTENERS, PINS AND HOLDING BOLTS SHALL NOT BE FORMED BY FLAME CUTTING.
8. ALL BURRS SHALL BE REMOVED FROM HOLES BEFORE ASSEMBLY.
9. ALL BOLTS AND NUTS (OTHER THAN FRICTION GRIP) SHALL BE HEXAGONAL HEADED AND SHALL COMPLY WITH SANS 1700 OR SANS 1243 AS APPLICABLE.
10. ALL BEAM AND BRACING CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS.
11. BEAM END PLATES SHALL HAVE A MINIMUM THICKNESS OF 10MM.
12. ALL GUSSET PLATES SHALL BE 8 MM THICK UNLESS OTHERWISE NOTED.
13. ALL CONNECTIONS SHALL BE FULL STRENGTH TO SANS AND AWS D1.1. NO ECCENTRIC CONNECTIONS ARE ALLOWED.
14. COLD ROLLED SECTIONS SHALL HAVE A MINIMUM GUARANTEED YIELD STRESS OF 250 MPa.
15. ALL PACKERS USED FOR ADJUSTMENT SHALL BE FROM LAMINATED OFF-CUTS AND USED ONLY WHERE REQUIRED.
16. ALL SHOP DETAIL DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE COMMENCEMENT OF ANY FABRICATION TAKES PLACE.
10. SURFACE PREPARATION SHALL BE TO ISO 8501-1 SA 2½. WELD SEAMS, BURNED AND RUSTY AREAS BLAST-CLEANED TO ISO 8501-1 SA 2½.
11. ALL STRUCTURAL STEELWORK TO BE COATED IN ACCORDANCE WITH THE PROJECT SPECIFICATION.

IF ANY INFORMATION IS  
UNCLEAR ON THE DRAWINGS  
CONTACT CIVPRO

FOR INFORMATION ONLY  
NOT TO BE USED FOR  
CONSTRUCTION

REFERENCE DRAWINGS	
BLOCK M CONCRETE LAYOUT	400 MQH 001
BLOCK M REINFORCEMENT LAYOUT	400 MQH 002

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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STATUS				
FOR TENDER				
DESIGNED BY:	NAME:	SIGNATURE:	ICSA REG. NO.:	DATE:
REVIEWED BY:	NZ			
APPROVED BY:	SB			

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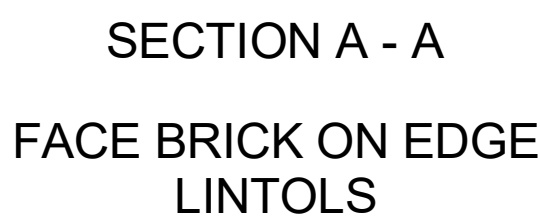
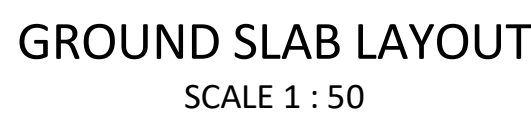
CLIENT:  

PROJECT :			
UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE: NSNP BLOCK M STRUCTURAL STEEL COLUMNS			
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
As indicated	14/11/2022	K.W.	N.Z.
PROJECT NO:	DRAWING NO:	REVISION:	
D19001	400-MQH-003	A	

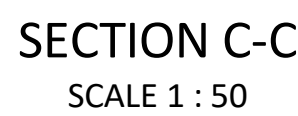


V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

IF ANY INFORMATION IS  
UNCLEAR ON THE DRAWINGS  
CONTACT CIVPRO



NOTE:  
UNREINFORCED  
ON EDGE L  
NOT BE AC  
ENGINEER



1. WIRE TIES TO DOUBLE SINK AND CAVITY WALLS AS PER SPECIFICATION.
2. DO NOT USE STEEL NAILS WITH STAINLESS STEEL OR GALVANIZED IRON NAILS.
3. BANSKANS 1046-2011, CODE OF PRACTICE FOR UNREINFORCED MASONRY WALLING. PART 1: USED FOR THE DESIGN OF BANSKANS.
4. BS 5828 PART 2: 2000. CODE OF PRACTICE FOR THE USE OF MASONRY STRUCTURAL USE OF REINFORCED AND STRESS MASONRY.
5. LOAD-BEARING BRICKWORK MASONRY AS FOLLOWS IS:
  - 5.1. 100KG/1201 (P3).
  - 5.2. 100KG/1201 (P3).
  - 5.3. MORTAR CLASS II.
  - 5.4. MOVEMENT JOINTS AT MAXIMUM SPACING OF 10.0 M.
6. BRICKWORK AT EVERY 3RD COURSE AND FOR 3 COURSES ABOVE AND BELOW CONCRETE SLABS. MINIMUM LAP TO BE 150 MM.
7. HOOP IRON TIES USE 2 MM X 38 MM X 750 MM LAP HOOP IRON TIES AT SAME SPACING AS BRICKWORK WALLS AND BUILT INTO BROWCHING.
8. WIRE TIES TO CAVITY WALLS SHALL BE 25 MM DIAMETER GALVANIZED IRON TIES. "BUTTERFLY" OR "MODIFIED PWIT" TYPE REQUESTED AT THE FOLLOWING SPACING:
  - A) 150MM - 300 PWS PER M<sup>2</sup>
  - B) CAVITY > 150MM - 3.5 TIES PER M<sup>2</sup>

THESE NOTES ARE NOT IN CONJUNCTION WITH THE SPECIFICATIONS. THE NOTES TAKE PRECEDENCE SHOULD A CONFLICT OCCUR WHICH IS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

1. ALL DIMENSIONS AND SETTING OUT INFORMATION ARE CHECKED FOR THE CONFORMANCE OF THE SETTING OUT OF THE WORKS.

2. ALL LEVELS ARE ABOVE MEAN SEA LEVEL (AMSL).

3. ALL WORKING TO BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWING AND ALL DIMENSIONS VERIFIED.

4. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL BUILDING REGULATIONS AND THE REGULATIONS AS SET OUT BY THE FOLLOWING REGULATIONS AND THE REGULATIONS AS SET OUT BY THE FOLLOWING REGULATIONS.

5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND THE REGULATIONS THEREUNDER.

6. SUBSTRUCTURING OF ANY PORTION OF THE WORKS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AND LIABILITIES UNDER THE BUILDING ACT AND THE REGULATIONS THEREUNDER.

7. ALL SERVICES ARE TO HAVE FLEXIBLE JOINTS AGAINST THE BUILDING.

8. STORMWATER IS TO BE ADEQUATELY ROUTED AWAY FROM THE STRUCTURE.

9. PONDING OF WATER DURING AND AFTER CONSTRUCTION IS NOT PERMITTED.

**CONCRETE NOTES**

1. ALL DIMENSIONS FOR FOUNDATIONS TO BE APPROVED BY THE ENGINEER AND GEOTECHNICAL ENGINEER PRIOR TO THE CONCRETE BEING PLACED.

2. ALL FOUNDATIONS TO BE BUILT ON FIRM NATURAL SOIL (NOT ON FILL).

3. ALL FOUNDING CONDITIONS AS RECOMMENDED IN THE GEOTECHNICAL REPORT BY THE GEOTECHNICAL ENGINEER.

1. EXCAVATIONS FOR FOUNDATIONS TO BE APPROVED BY THE ENGINEER AND GEOTECHNICAL ENGINEER PRIOR TO THE CONCRETE BEING CAST THEREFORE FOUNDING LEVELS ARE SUBJECT TO CHANGE.
2. ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU SOIL (NOT ON FILL).
3. FOUNDING CONDITIONS AS RECOMMENDED IN THE GEOTECHNICAL REPORT BY THE GEOTECHNICAL ENGINEER.

1. CONCRETE CHARACTERISTIC 28-DAY STRENGTH	
BUILDING .....	15 MPa
FOUNDATIONS .....	30 MPa
COLUMNS .....	30 MPa
SUSPENDED SLABS & BEAMS .....	30 MPa
GROUND SLABS .....	30 MPa
2. MINIMUM CONCRETE AGGREGATE SIZE .....	19mm
3. ALL CONCRETE TO BE PROPERLY CURED BY KEEPING SURFACES	

10. HOOP IRON TIES TO TRUSSES CROSS CENTRES TO SUIT TR  
TIES REQUESTED AS FOLLOWS:  
A) 1.6 MM GALVANISED HOOP IRON TIES X 38 MM X 1 500  
LONG BUILT INTO BRICKWORK OR EMBEDDED IN CONCRETE

1. BRICK WALLS WILL BE GENERALLY IN ACCORDANCE WITH SANS 1004-2011.
2. BRICK WALLS:
  - a. STANDARD BRICK COURSE - 85 MM.
  - b. SINGLE SUNK - 115 MM THICK.
  - c. DOUBLE SUNK (NO CAVITY) - 230 MM THICK.
3. NO HOLES OR CHASES ALLOWED UNLESS APPROVED BY ENGINEER.
4. MINIMUM CONCRETE AGGREGATE SIZE - 19mm
5. ALL CONCRETE TO BE PROPERLY CURED BY KEEPING SURFACES CONTINUOUSLY DAMP FOR AT LEAST 5 DAYS AFTER CASTING.
6. ALL CONCRETE WORK MUST CONFORM WITH THE SPECIFICATIONS OF SANS 2001-CE1.
7. A SET OF THREE (3) TEST CUBES SHALL BE MADE FOR EVERY 50M<sup>3</sup> OR PORTION THEREOF FOR EVERY GRADE OF CONCRETE SUNK ON A PARTICULAR DAY. CUBES SHALL BE CURED IN ACCORDANCE WITH THE SPECIFICATIONS AND TESTED AT THE REQUESTED DAYS BY AN APPROVED TESTING LABORATORY AS APPROVED BY THE ENGINEER.

14. ALL BRICKWORK TO BE COMPLETED ON ONE FLOOR BEFORE PROCEEDING WITH BRICKWORK ON THE FLOOR ABOVE, UNLESS OTHERWISE APPROVED.

15. ALL INDICATED LOAD BEARING BRICK WALLS TO BE CONSTRUCTED PRIOR TO CASTING OF SLABS.

16. BRICK FORCE AT EVERY COURSE BETWEEN FOUNDATION AND GROUND FLOOR SLAB.

1. MEMBRANES MUST BE PLACED UNDER ALL SLABS INCLUDING THICKENINGS.	CONSTRUCTION MATERIALS AND EQUIPMENT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
2. LAPPING OF MEMBRANES SHALL NOT BE LESS THAN 200MM.	11. SHUTTERING AND FORMWORK MAY ONLY BE STRUCK ONCE THE FOLLOWING MINIMUM PERIODS HAVE ELAPSED, OR UNLESS OTHERWISE AUTHORISED IN WRITING BY THE ENGINEER. DESIGN OF FALSEWORK AND FORMWORK ARE THE CONTRACTOR'S RESPONSIBILITY.
3. PENETRATIONS BY PIPES, PLUMBING FITTINGS OR PUNCTURES SHALL BE TAPED WITH A PRESSURE SENSITIVE ADHESIVE TAPE.	

4. IN THE CASE OF FLOOR SLABS THE MEMBRANE SHALL BE TURNED UP AROUND THE PERIMETER OF THE FLOOR SLAB BY AT THE THICKNESS OF THE SLAB.

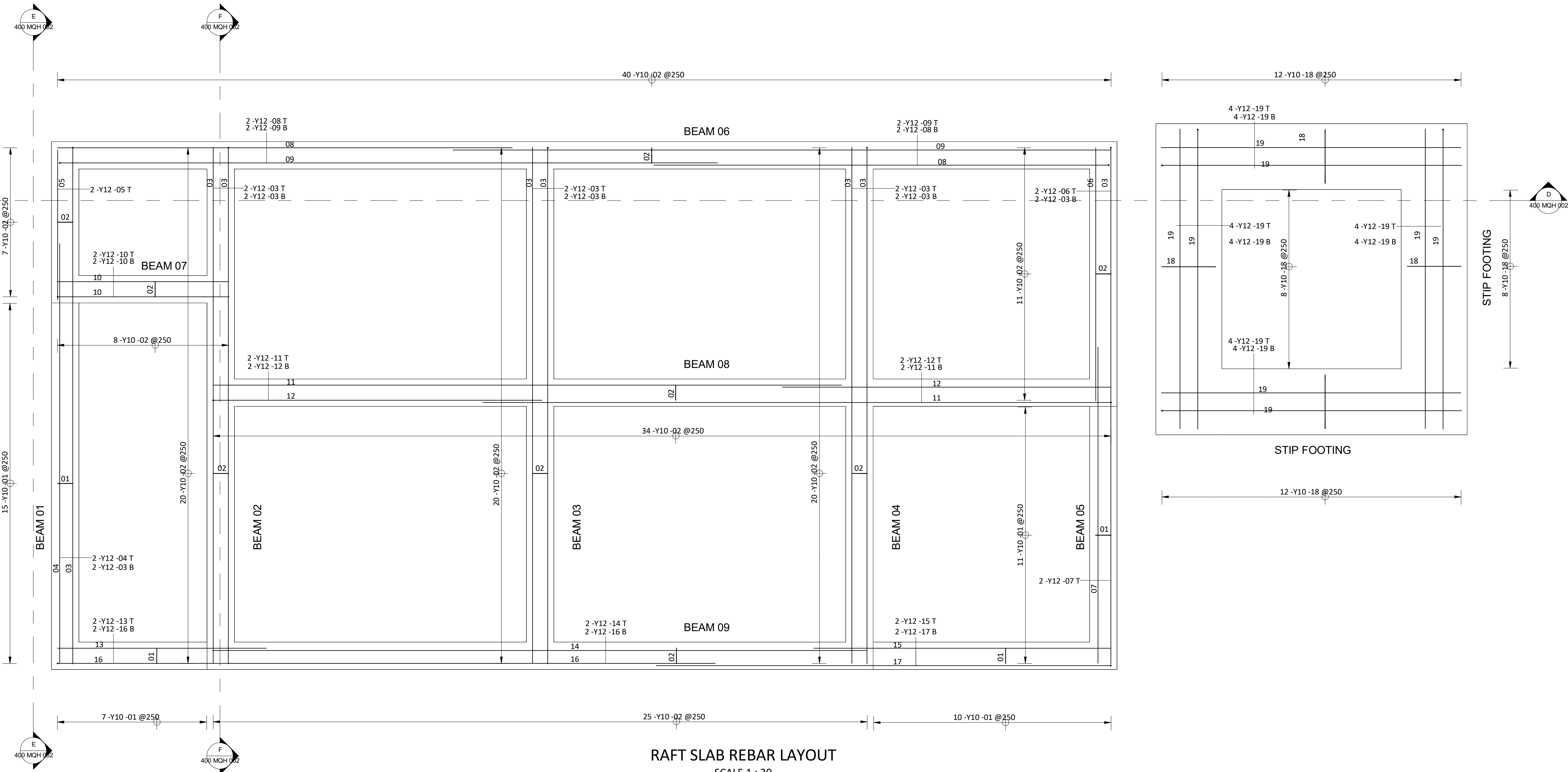
ABBREVIATIONS

T.O.C. = TOP OF CONCRETE  
N.G.L. = NATURAL GROUND LEVEL

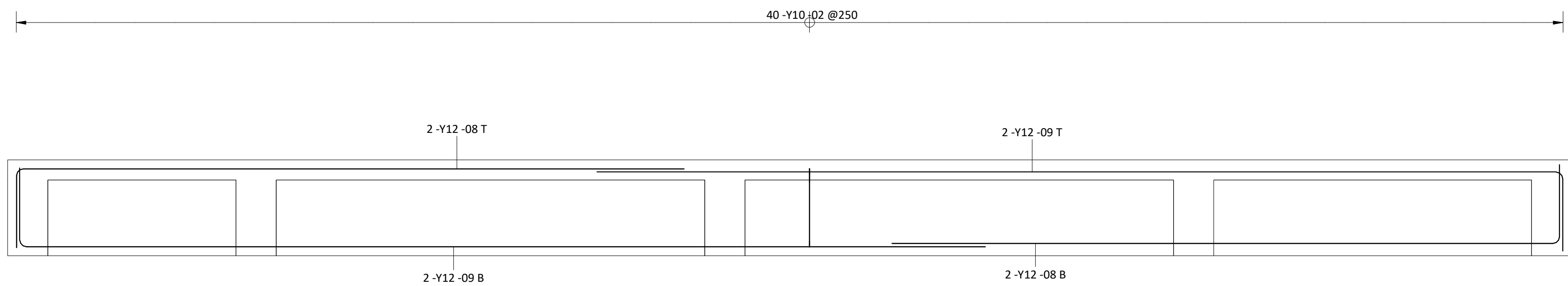
COLUMNS	2
SLAB SOFFITS WITHOUT REMOVAL OF PROPS	4
BEAM SOFFITS WITHOUT REMOVAL OF PROPS	7
PROPS - UNLOADED SLABS	14
PROPS - UNLOADED BEAMS	21

1. MINIMUM COVER TO REINFORCING:
2. FOUNDATIONS .....40mm
3. COLUMNS .....40mm
4. SUSPENDED SLABS & BEAMS .....30mm
5. WALLS, RETAINING WALLS .....40mm
6. 2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.
7. 3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
8. 4. CONCRETE FINISHES:
9. SUSPENDED SLABS ..... WOOD FLOAT
10. COLUMNS & WALLS ..... OFF SHUTTER
11. BEAMS ..... OFF SHUTTER
12. SLAB SOFFIT ..... OFF SHUTTER

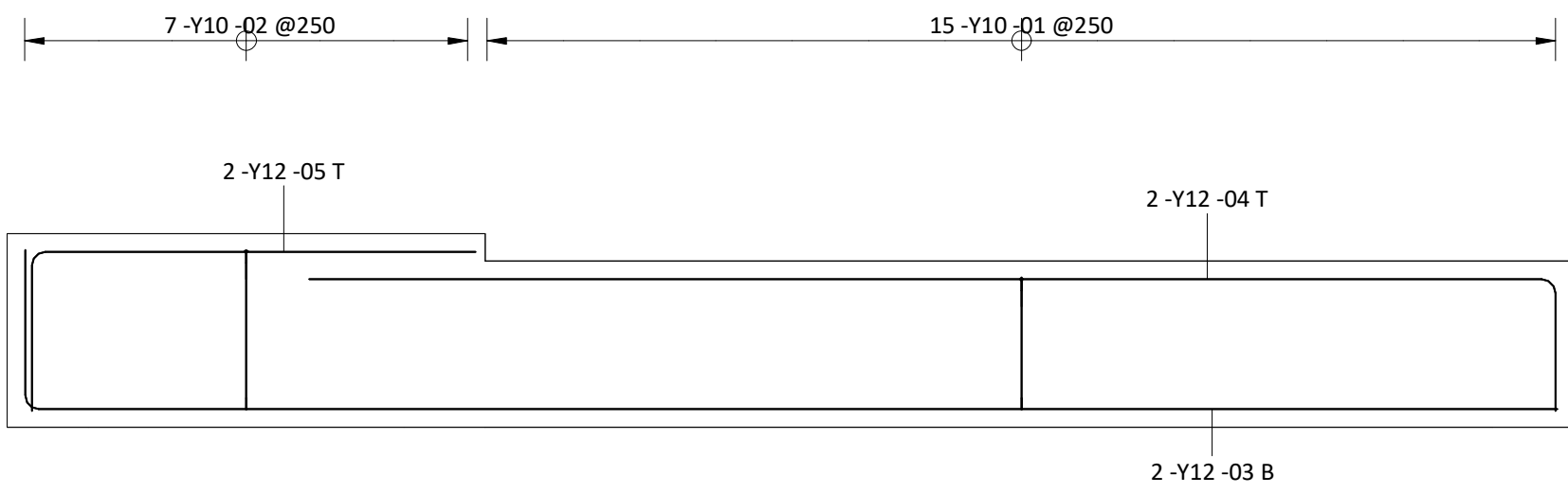




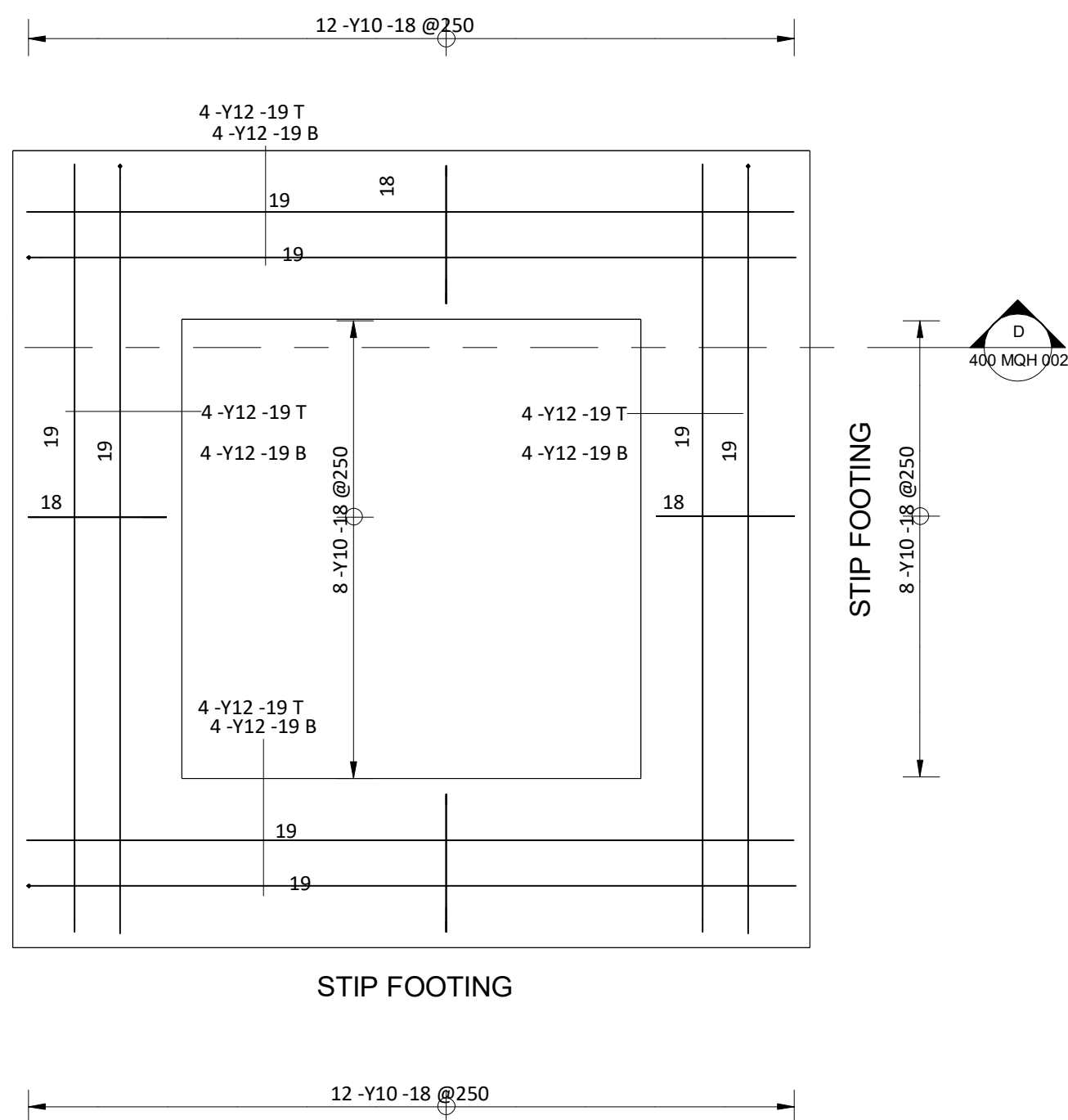
RAFT SLAB REBAR LAYOUT  
SCALE 1 : 30



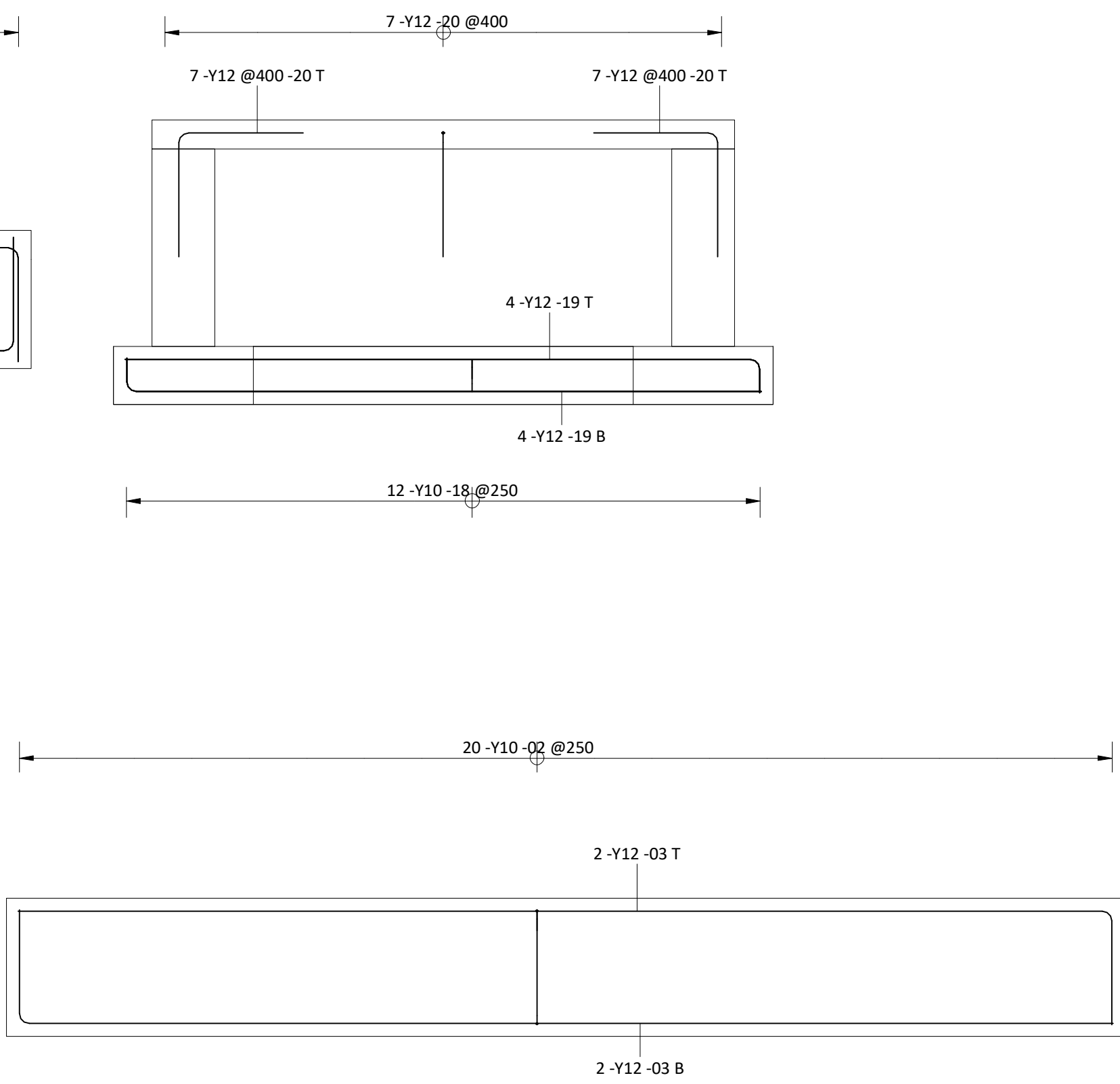
SECTION D-D  
SCALE 1 : 20



SECTION E-E  
SCALE 1 : 20



STIP FOOTING



SECTION F-F  
SCALE 1 : 20

Reinforcement Schedule											
Member	No. Of	Bars Per Memb	Dia	Length	Total Number	Mark	S	C	A	B	C
BEAM 01	1	15	Y10	1150 mm	15	01	60	400 mm	150 mm	0 mm	0 mm
BEAM 01	1	7	Y10	1350 mm	7	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 01	1	2	Y12	5150 mm	2	03	37	500 mm	4700 mm	0 mm	0 mm
BEAM 01	1	2	Y12	4200 mm	2	04	37	400 mm	3850 mm	0 mm	0 mm
BEAM 01	1	2	Y12	1850 mm	2	05	37	1350 mm	500 mm	0 mm	0 mm
BEAM 02	1	20	Y10	1350 mm	20	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 02	2	2	Y12	5150 mm	4	03	37	500 mm	4700 mm	0 mm	0 mm
BEAM 03	1	20	Y10	1350 mm	20	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 03	2	2	Y12	5150 mm	4	03	37	500 mm	4700 mm	0 mm	0 mm
BEAM 04	1	20	Y10	1350 mm	20	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 04	2	2	Y12	5150 mm	4	03	37	500 mm	4700 mm	0 mm	0 mm
BEAM 05	1	11	Y10	1150 mm	11	01	60	400 mm	150 mm	0 mm	0 mm
BEAM 05	1	11	Y10	1350 mm	11	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 05	1	2	Y12	5150 mm	2	03	37	500 mm	4700 mm	0 mm	0 mm
BEAM 05	1	2	Y12	2800 mm	2	06	37	500 mm	2300 mm	0 mm	0 mm
BEAM 05	1	2	Y12	3250 mm	2	07	37	400 mm	2900 mm	0 mm	0 mm
BEAM 06	1	40	Y10	1350 mm	40	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 06	2	2	Y12	4600 mm	4	08	37	500 mm	4150 mm	0 mm	0 mm
BEAM 07	1	8	Y10	1350 mm	8	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 07	2	2	Y12	2950 mm	4	10	37	500 mm	1550 mm	0 mm	0 mm
BEAM 08	1	34	Y10	1350 mm	34	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 08	2	2	Y12	6200 mm	4	11	37	500 mm	5750 mm	0 mm	0 mm
BEAM 09	2	2	Y12	3450 mm	4	12	37	500 mm	3000 mm	0 mm	0 mm
BEAM 09	2	<varies>	Y10	1150 mm	17	01	60	400 mm	150 mm	0 mm	0 mm
BEAM 09	1	25	Y10	1350 mm	25	02	60	500 mm	150 mm	0 mm	0 mm
BEAM 09	1	2	Y12	2300 mm	2	13	37	400 mm	1900 mm	0 mm	0 mm
BEAM 09	1	2	Y12	6450 mm	2	14	37	500 mm	5950 mm	0 mm	0 mm
BEAM 09	1	2	Y12	3100 mm	2	15	37	400 mm	2700 mm	0 mm	0 mm
BEAM 09	1	2	Y12	6400 mm	2	16	37	400 mm	6000 mm	0 mm	0 mm
BEAM 09	1	2	Y12	4550 mm	2	17	37	400 mm	4150 mm	0 mm	0 mm
STRIP FOOTING	4	<varies>	Y10	1350 mm	40	18	60	150 mm	2750 mm	0 mm	0 mm
STRIP FOOTING	8	4	Y12	2850 mm	32	19	37	500 mm	550 mm	0 mm	0 mm
STRIP FOOTING	4	7	Y12	1550 mm	28	20	37	550 mm	550 mm	0 mm	0 mm

NOTE:  
RAFT SLAB REINFORCEMENT  
COVER 50mm

- REINFORCEMENT**
1. ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.
2. LAP LENGTHS TO REINFORCING TO BE MIN. 45 X SMALLER DIAMETER, UNLESS OTHERWISE NOTED.
3. REINFORCING YIELD STRENGTH:  
HIGH TENSILE 'Y' .....450 MPA  
MILD STEEL 'R' .....250 MPA  
WELDED STEEL WIRE MESH .....485 MPA
4. STANDARD SANS ABBREVIATIONS:-  
ABR=ALTERNATE BARS REVERSED  
ALT=ALTERNATE  
B=BOTTOM  
BL=LOWEST OF THE BOTTOM LAYERS  
B2=SECOND LOWEST OF THE BOTTOM LAYERS  
EF=EACH FACE  
EW=EACH WAY  
FF=FACE  
HOR=HORIZONTAL  
NF=NEAR FACE  
STG=STAGGERED  
T=TOP  
T1=HIGHEST OF THE TOP LAYERS  
T2=SECOND HIGHEST OF THE TOP LAYERS  
TOG=TOGETHER  
VERT=VERTICAL
1. MINIMUM COVER TO REINFORCING:  
FOUNDATIONS .....40mm  
COLUMNS .....40mm  
SUSPENDED SLABS &  
BEAMS .....30mm  
WALLS, RETAINING  
WALLS .....40mm
2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.
3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
4. CONCRETE FINISHES:  
SUSPENDED  
SLABS .....WOOD FLOAT  
COLUMNS & WALLS .....OFF SHUTTER  
BEAMS .....OFF SHUTTER  
SLAB SOFFIT .....OFF SHUTTER
5. STANDARD SANS ABBREVIATIONS:-  
ABR=ALTERNATE BARS REVERSED  
ALT=ALTERNATE  
B=BOTTOM  
BL=LOWEST OF THE BOTTOM LAYERS  
B2=SECOND LOWEST OF THE BOTTOM LAYERS  
EF=EACH FACE  
EW=EACH WAY  
FF=FACE  
HOR=HORIZONTAL  
NF=NEAR FACE  
STG=STAGGERED  
T=TOP  
T1=HIGHEST OF THE TOP LAYERS  
T2=SECOND HIGHEST OF THE TOP LAYERS  
TOG=TOGETHER  
VERT=VERTICAL

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REFERENCE DRAWINGS	
BLOCK'S CONCRETE LAYOUT	400 MQH 001

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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DESIGNED BY:	NAME	SIGNATURE	ICSA REG. NO.
REVIEWED BY:	NZ		
APPROVED BY:	SB		

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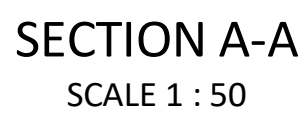
**DDBSA**

PROJECT : UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE : ABLUTIONS BLOCK'S REINFORCEMENT LAYOUT			
SCALE : 1 : 20	DATE : 12/13/22	DRAWN BY : Author	CHECKED BY : Checker
PROJECT NO : D19001	DRAWING NO : 400-MQH-005	REVISION : A	

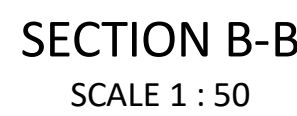


V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

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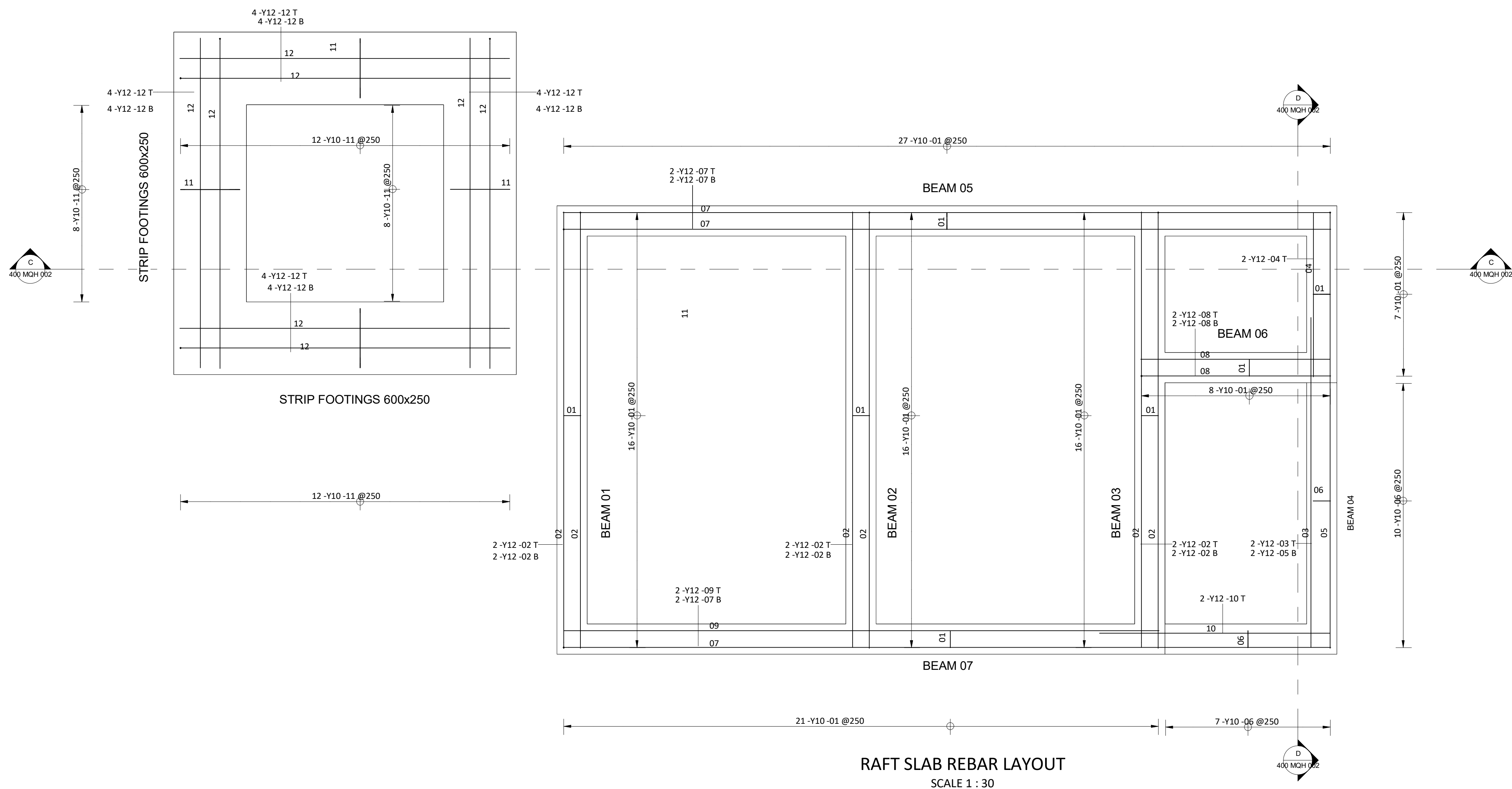
SECTION A - A  
FACE BRICK ON EDGE  
LINTOLS



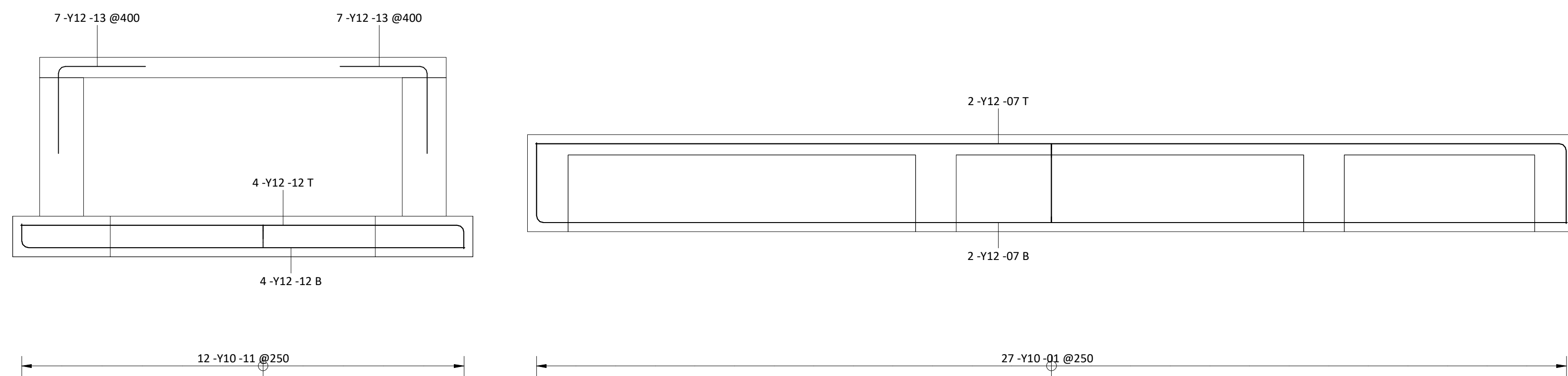
1. MINIMUM COVER TO REINFORCING:	
2. FOUNDATIONS	40mm
3. COLUMNS	40mm
4. SUSPENDED SLABS & BEAMS	30mm
5. WALLS, RETAINING WALLS	40mm
6. 2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.	
7. 3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.	
4. CONCRETE FINISHES:	
9. SUSPENDED SLABS	WOOD FLOAT
10. COLUMNS & WALLS	OFF SHUTTER
11. BEAMS	OFF SHUTTER
12. SLAB SOFFIT	OFF SHUTTER

PROJECT: UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE: ABLUTIONS BLOCK T CONCRETE LAYOUT			
SCALE: 1 : 50	DATE: 21/11/2022	DRAWN BY: KW	CHECKED BY: NZ
PROJECT NO: D19001	DRAWING NO: 400-MQH-006	REVISION: A	





RAFT SLAB REBAR LAYOUT  
SCALE 1 : 30



SECTION C-C  
SCALE 1 : 20



SECTION D-D  
SCALE 1 : 20

Reinforcement Schedule										
Member	No. Of	Bars Per Memb	Dia	Length	Total Number	Mark	S C	A	B	C
BEAM 01	1	16	Y10	1350 mm	16	01	60	500 mm	150 mm	0 mm
BEAM 01	2	2	Y12	4050 mm	4	02	37	500 mm	3600 mm	0 mm
BEAM 02	1	16	Y10	1350 mm	16	01	60	500 mm	150 mm	0 mm
BEAM 02	2	2	Y12	4050 mm	4	02	37	500 mm	3600 mm	0 mm
BEAM 03	1	16	Y10	1350 mm	16	01	60	500 mm	150 mm	0 mm
BEAM 03	2	2	Y12	4050 mm	4	02	37	500 mm	3600 mm	0 mm
BEAM 04	1	7	Y10	1350 mm	7	01	60	500 mm	150 mm	0 mm
BEAM 04	1	2	Y12	3100 mm	2	03	37	400 mm	2750 mm	0 mm
BEAM 04	1	2	Y12	1850 mm	2	04	37	500 mm	1350 mm	0 mm
BEAM 04	1	2	Y12	4000 mm	2	05	37	400 mm	3600 mm	0 mm
BEAM 04	1	10	Y10	1150 mm	10	06	60	400 mm	150 mm	0 mm
BEAM 05	1	27	Y10	1350 mm	27	01	60	500 mm	150 mm	0 mm
BEAM 05	2	2	Y12	6800 mm	4	07	37	500 mm	6350 mm	0 mm
BEAM 06	1	8	Y10	1350 mm	8	01	60	500 mm	150 mm	0 mm
BEAM 06	2	2	Y12	2950 mm	4	08	37	500 mm	1550 mm	0 mm
BEAM 07	1	21	Y10	1350 mm	21	01	60	500 mm	150 mm	0 mm
BEAM 07	1	7	Y10	1150 mm	7	06	60	400 mm	150 mm	0 mm
BEAM 07	1	2	Y12	6800 mm	2	07	37	500 mm	6350 mm	0 mm
BEAM 07	1	2	Y12	5400 mm	2	09	37	500 mm	4900 mm	0 mm
BEAM 07	1	2	Y12	2300 mm	2	10	37	400 mm	1900 mm	0 mm
STRIP FOOTING	4	<varies>	Y10	1350 mm	40	11	60	150 mm	500 mm	0 mm
STRIP FOOTING	8	4	Y12	2850 mm	32	12	37	150 mm	2750 mm	0 mm
STRIP FOOTING	4	7	Y12	1050 mm	28	13	37	550 mm	550 mm	0 mm

NOTE:  
RAFT SLAB REINFORCEMENT  
COVER 50mm

REINFORCEMENT

1. ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.

2. LAP LENGTHS TO REINFORCING TO BE MIN. 45 X SMALLER DIAMETER, UNLESS OTHERWISE NOTED.

3. REINFORCING YIELD STRENGTH:

HIGH TENSILE 'Y' .....450 MPA

MILD STEEL 'R' .....250 MPA

WELDED STEEL WIRE MESH .....485 MPA

4. STANDARD SANS ABBREVIATIONS:-

ABR-ALTERNATE BARS REVERSED

ALT-ALTERNATE

B-BOTTOM

B1-LOWEST OF THE BOTTOM LAYERS

B2-SECOND LOWEST OF THE BOTTOM LAYERS

EF-EACH FACE

EW-EACH WAY

FF-FAR FACE

HOR-HORIZONTAL

NF-NEAR FACE

STG-STAGGERED

T-TOP

T1-HIGHEST OF THE TOP LAYERS

T2-SECOND HIGHEST OF THE TOP LAYERS

TOG-TOGETHER

VER-VERTICAL

1. MINIMUM COVER TO REINFORCING:

FOUNDATIONS .....40mm

COLUMNS .....40mm

SUSPENDED SLABS & BEAMS .....30mm

WALLS, RETAINING WALLS .....40mm

2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.

3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.

4. CONCRETE FINISHES:

SUSPENDED .....WOOD FLOAT

SLABS .....WOOD FLOAT

COLUMNS & WALLS .....OFF SHUTTER

BEAMS .....OFF SHUTTER

SLAB SOFFIT .....OFF SHUTTER

5. STANDARD SANS ABBREVIATIONS:-

ABR-ALTERNATE BARS REVERSED

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HOR-HORIZONTAL

NF-NEAR FACE

STG-STAGGERED

T-TOP

T1-HIGHEST OF THE TOP LAYERS

T2-SECOND HIGHEST OF THE TOP LAYERS

TOG-TOGETHER

VER-VERTICAL

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REFERENCE DRAWINGS	
BLOCK T CONCRETE LAYOUT	400 MQH 001

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
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REV	DESCRIPTION	DATE

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**D&SA**

PROJECT:			
UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE:			
AB UCTIONS BLOCK T REINFORCEMENT LAYOUT			
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
1 : 20	12/13/22	KW	RB
PROJECT NO.:	DRAWING NO.:	REVISION:	
D19001	400-MQH-007	A	

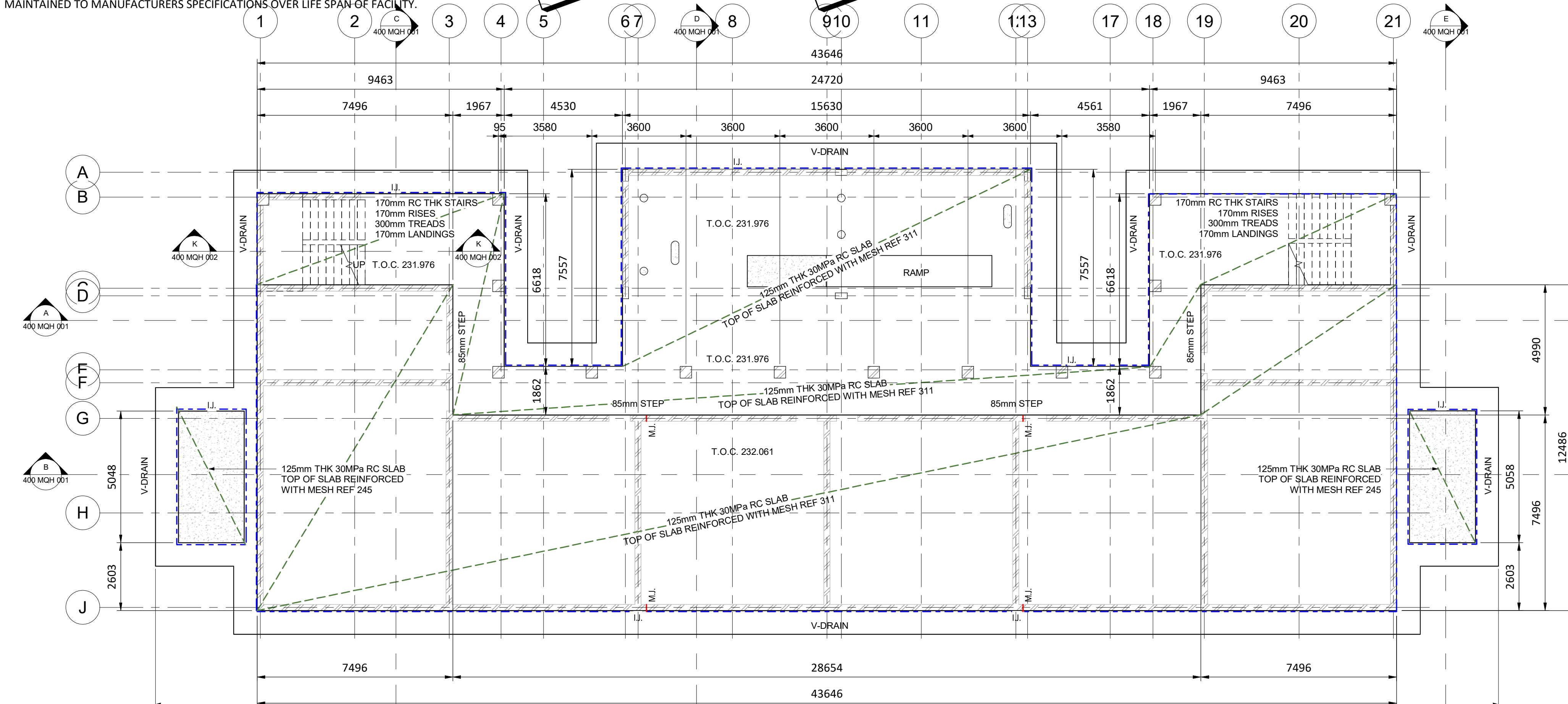


## NOTE:

V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM JOINTS SEALED WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

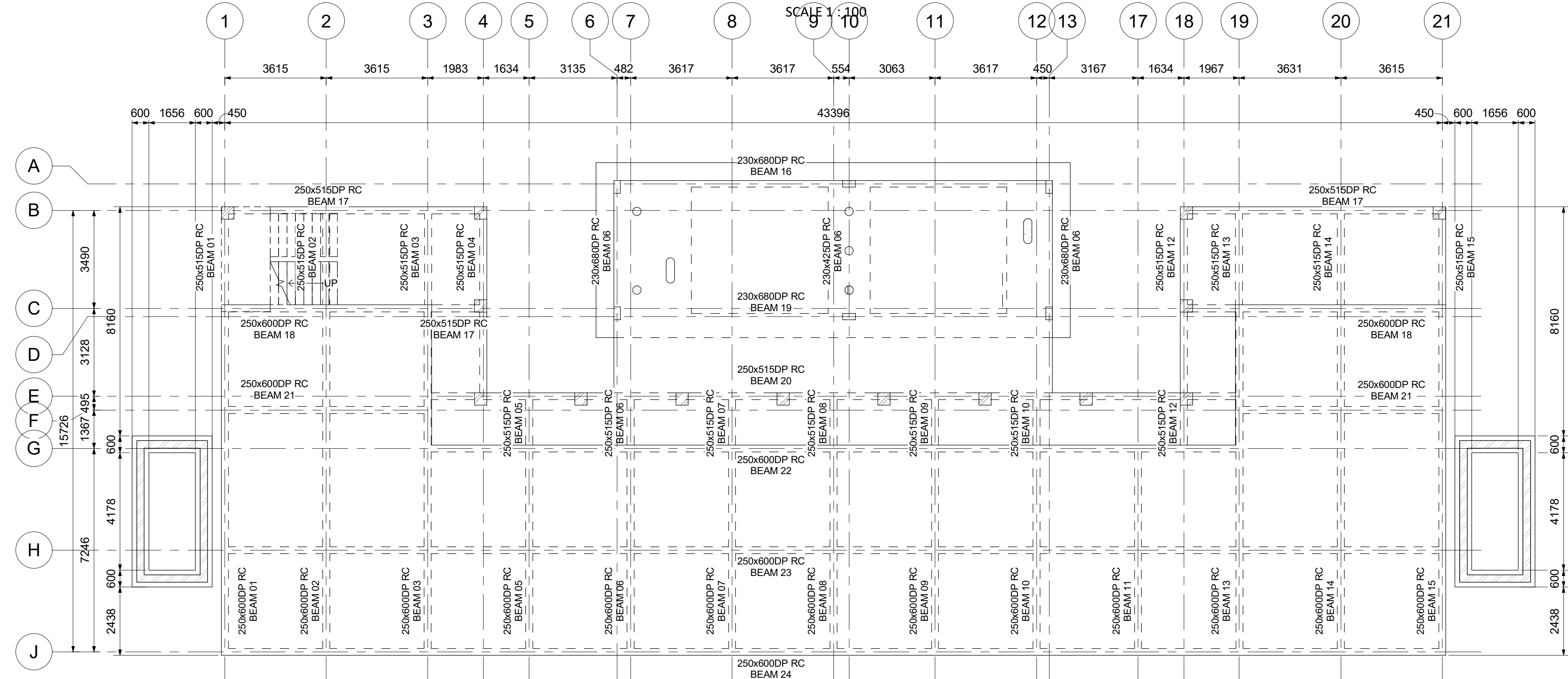
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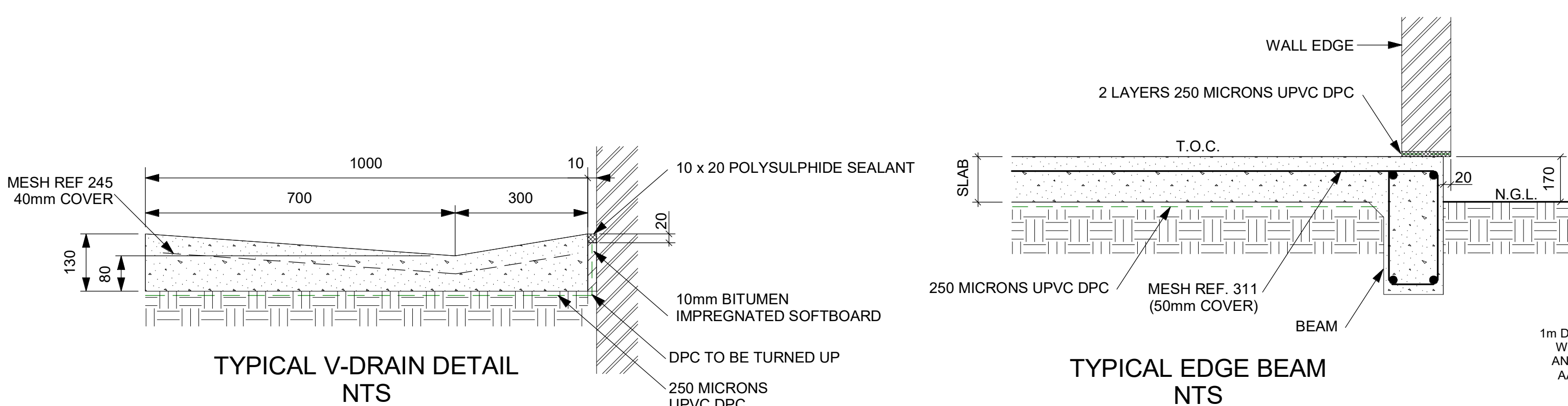
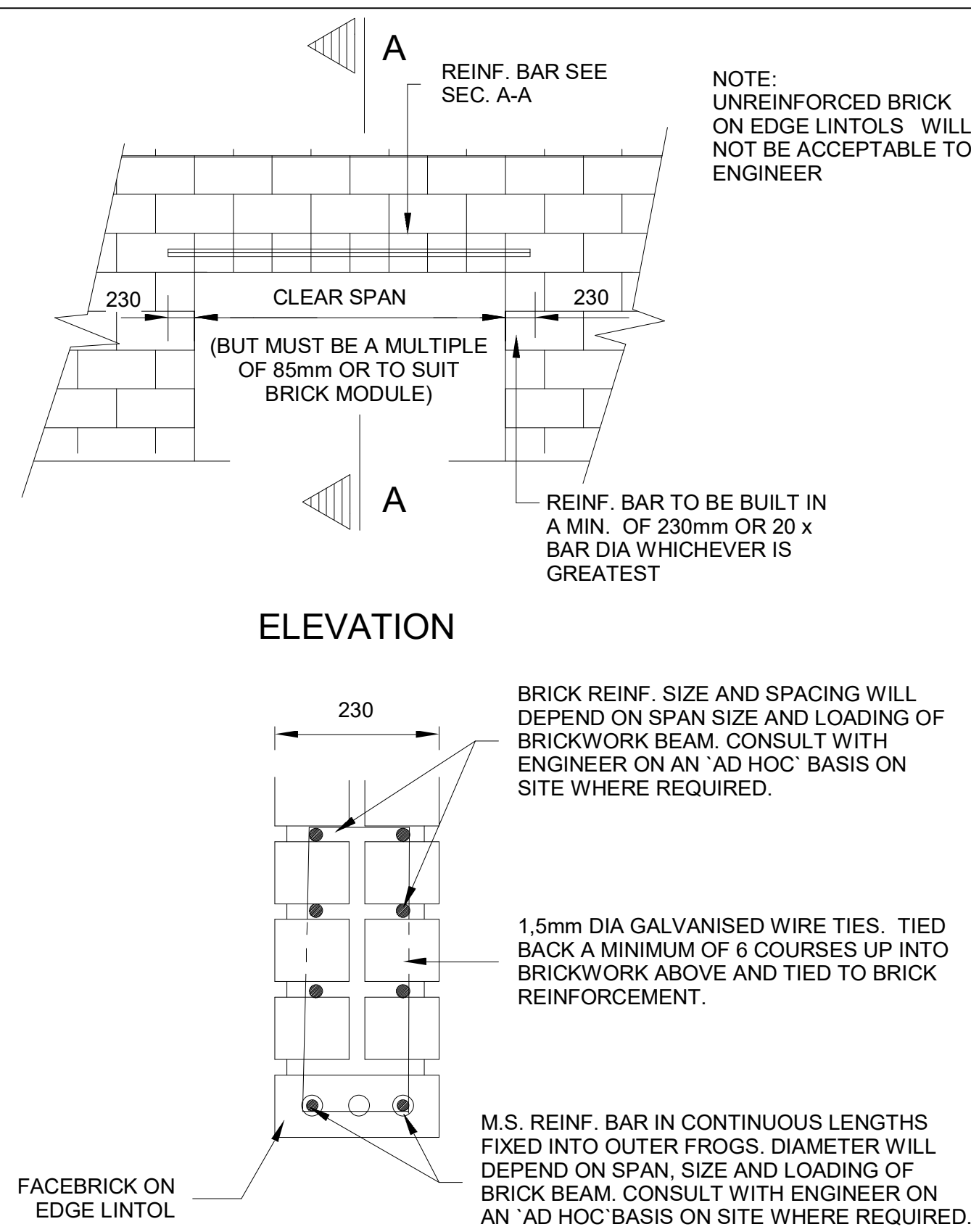
GROUND SLAB LAYOUT

SCALE 1 : 100



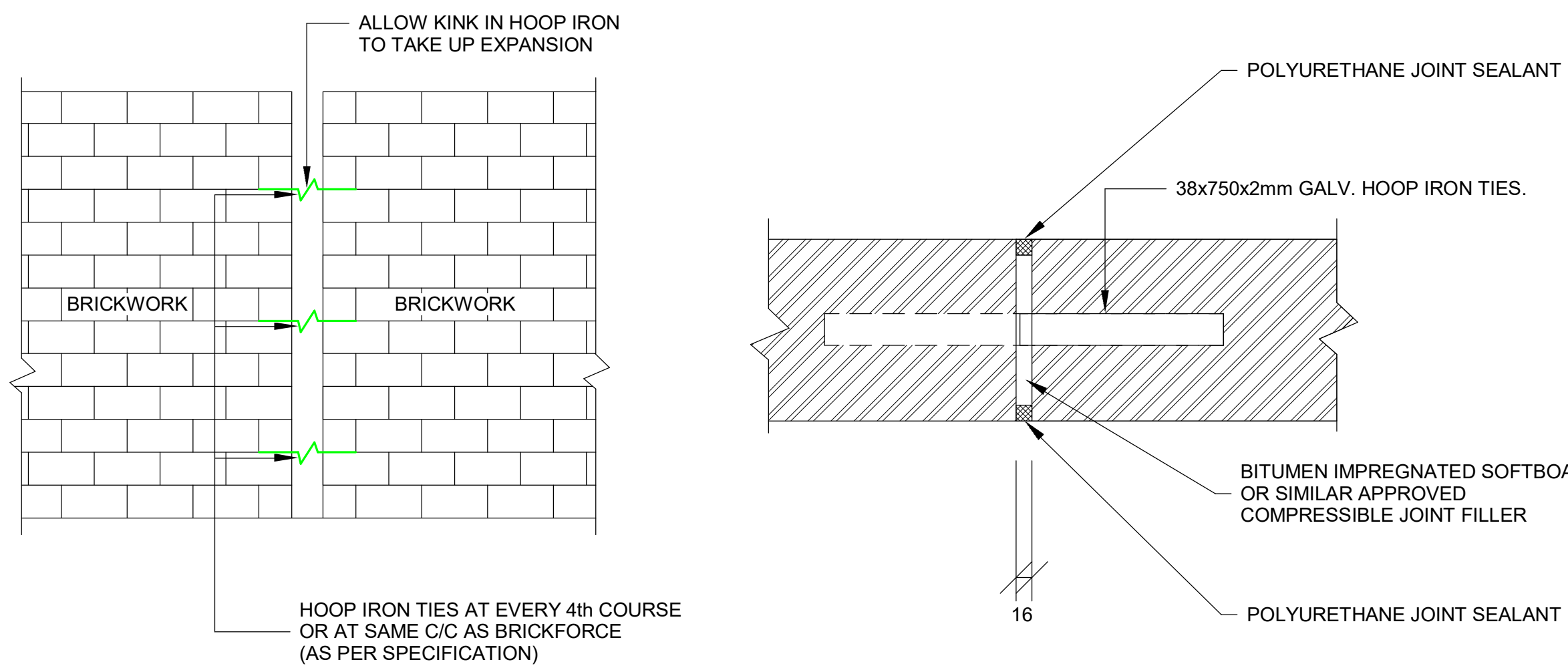
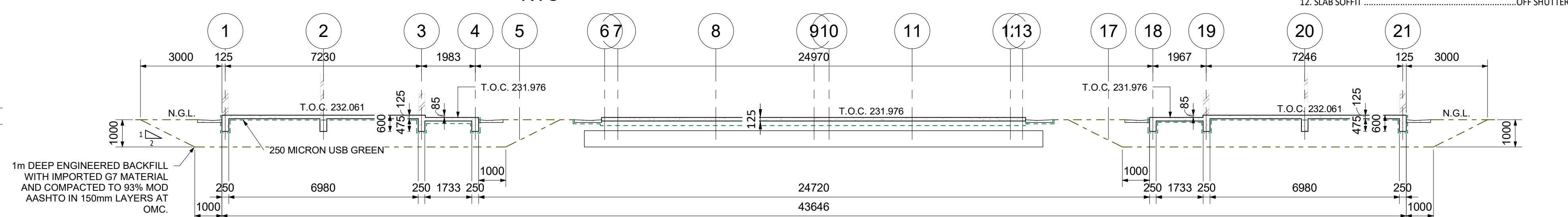
GROUND RAFT FOUNDATION LAYOUT

SCALE 1 : 100

TYPICAL V-DRAIN DETAIL  
NTSTYPICAL EDGE BEAM  
NTS

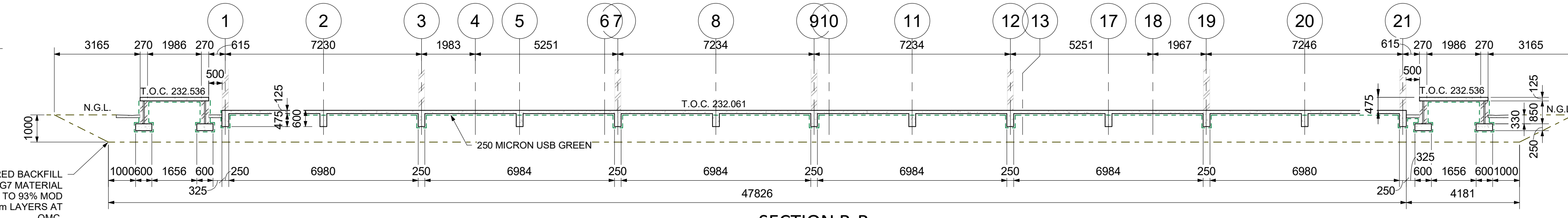
ELEVATION

SECTION A - A

FACE BRICK ON EDGE  
LINTOLSCONCRETE AND BRICKWORK JOINT  
NTS

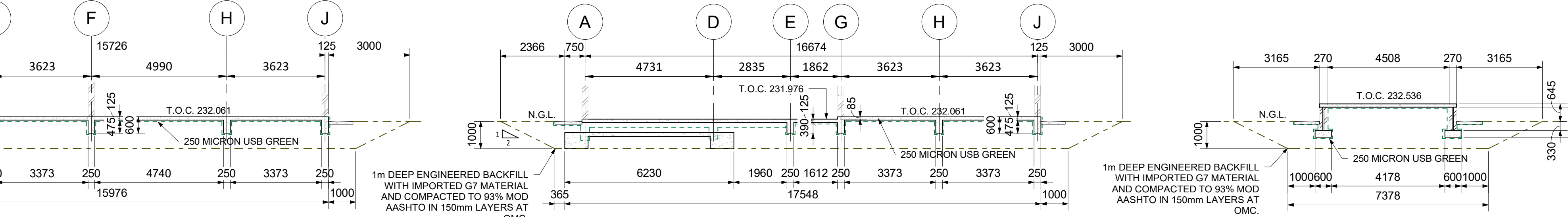
SECTION A-A

SCALE 1 : 100



SECTION B-B

SCALE 1 : 100



SECTION C-C

SCALE 1 : 100



SECTION D-D

SCALE 1 : 100



SECTION E-E

SCALE 1 : 100

REFERENCE DRAWINGS	
BLOCK U 1st FLOOR CONCRETE DETAILS	400 MQH 002
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 003
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 004
BLOCK U RAMP CONCRETE LAYOUT	400 MQH 005
BLOCK U RAMP REINFORCEMENT DETAILS	400 MQH 006

REFERENCE DRAWINGS	
BLOCK U 1st FLOOR CONCRETE DETAILS	400 MQH 002
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 003
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 004
BLOCK U RAMP CONCRETE LAYOUT	400 MQH 005
BLOCK U RAMP REINFORCEMENT DETAILS	400 MQH 006

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A	ISSUED FOR TENDER	06/08/2023

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REVIEWED BY:	NZ
APPROVED BY:	SB

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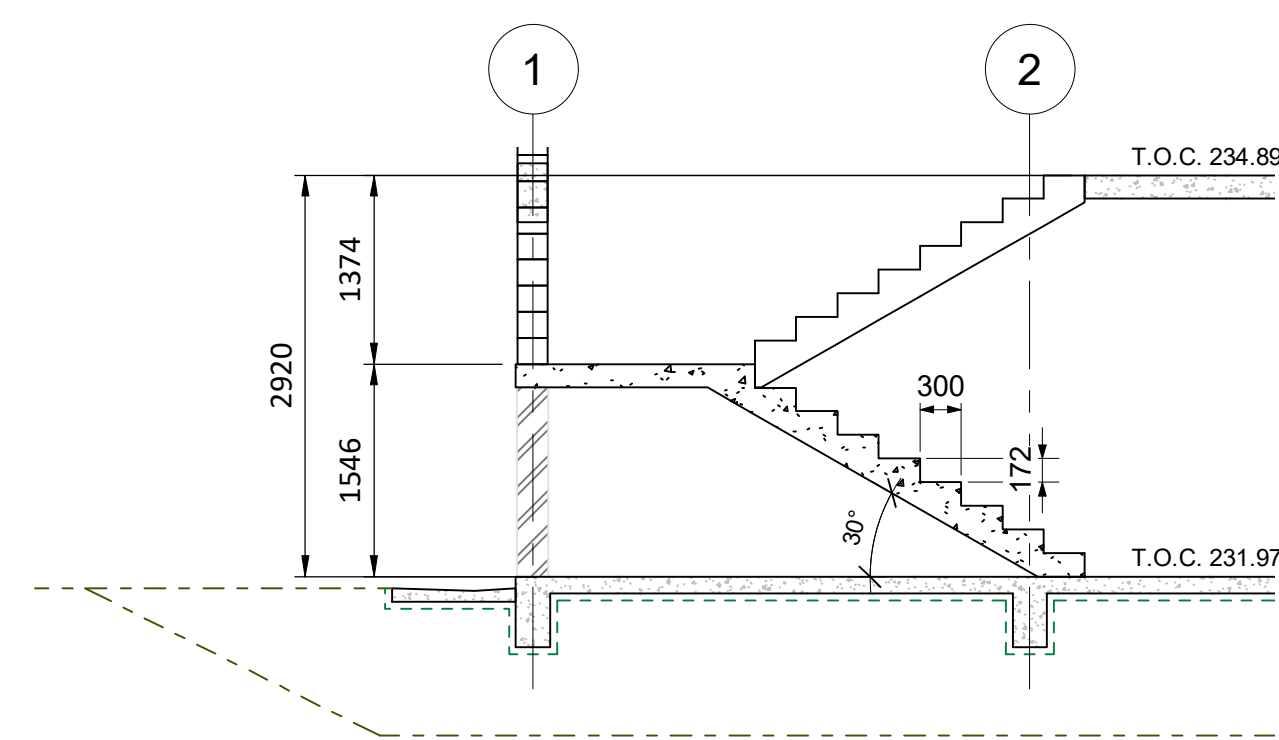
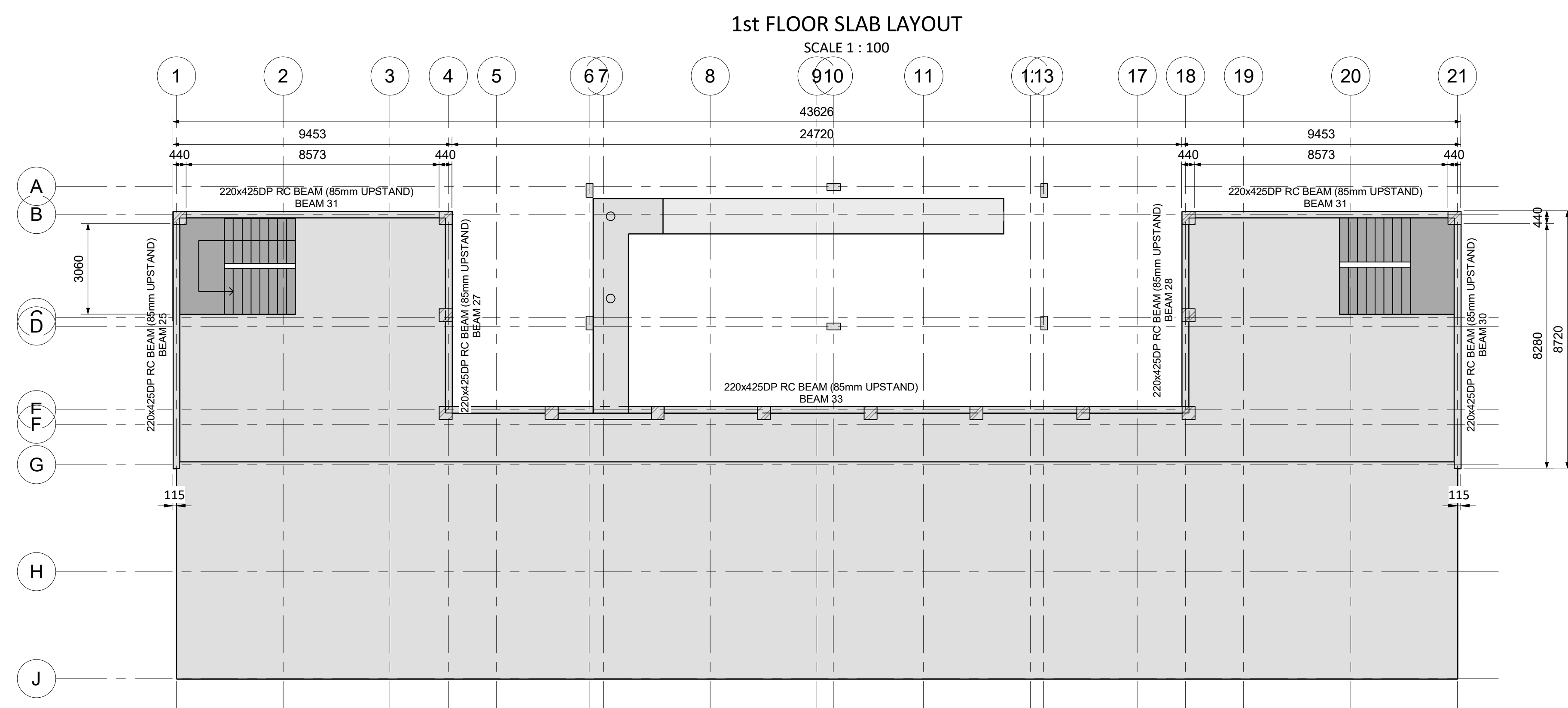
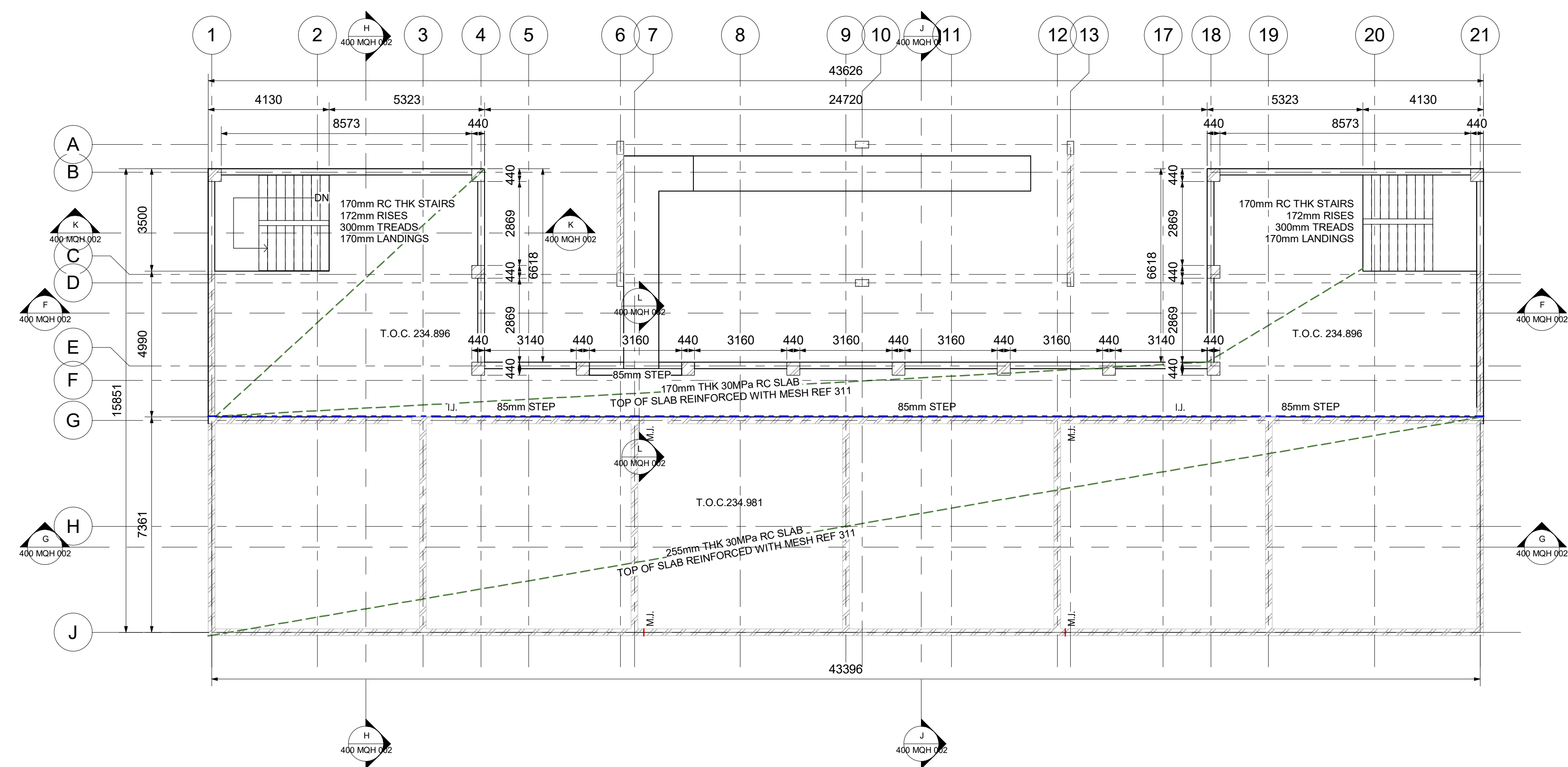
CLIENT:	
	

PROJECT:	
UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL	
TITLE:	CLASSROOM BLOCK U GROUND FLOOR CONCRETE LAYOUT
SCALE:	1 : 100
DATE:	14/11/2022
DRAWN BY:	KW
CHECKED BY:	NZ
PROJECT NO:	D19001
400-MQH-008	
REVISION:	A

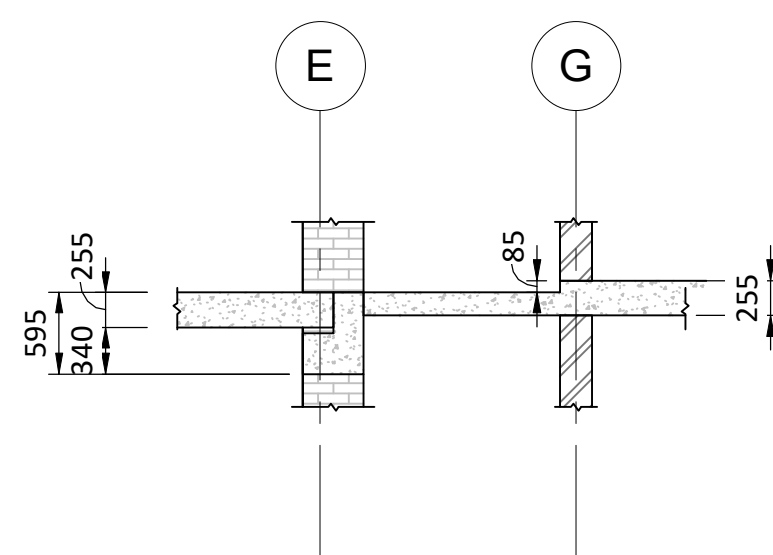


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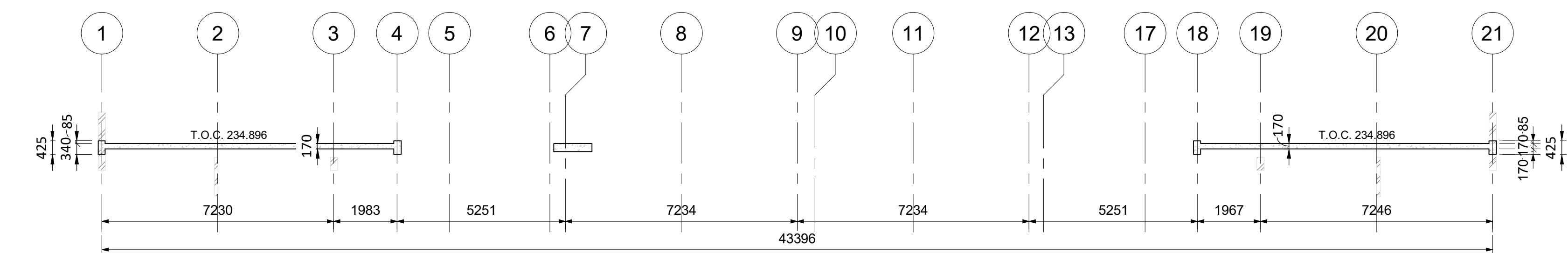
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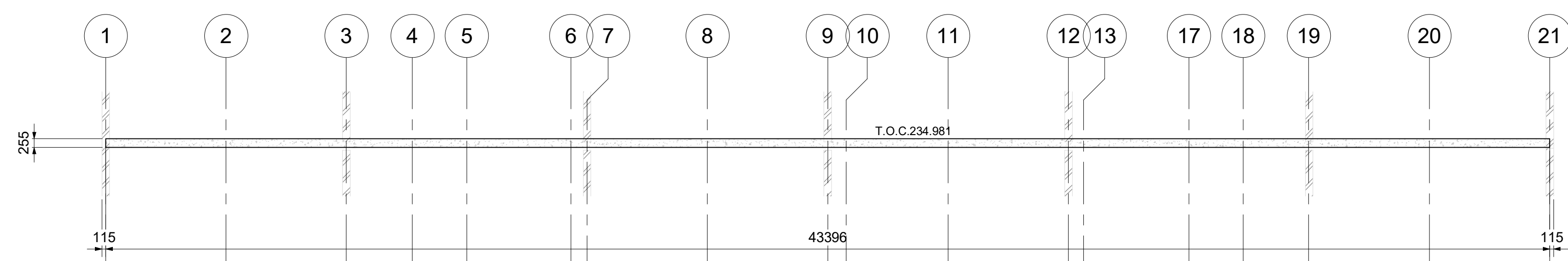
SECTION K-K  
SCALE 1 : 50  
TYPICAL STAIRCASE



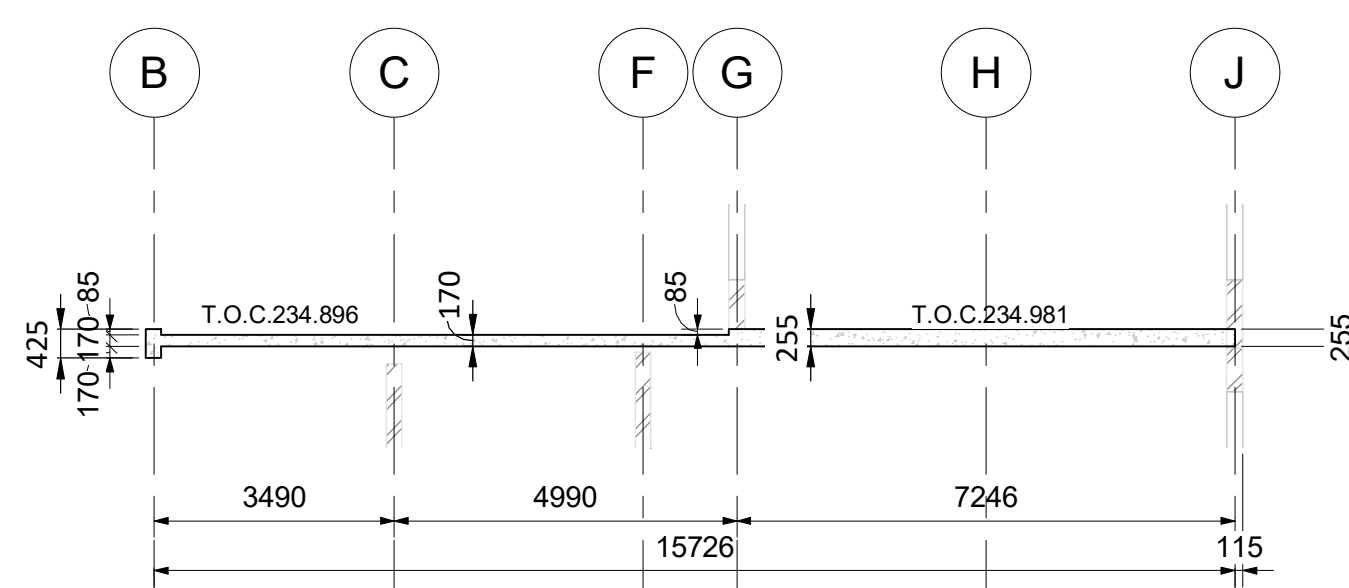
SECTION L-L  
SCALE 1 : 50  
RAMP 1st FLOOR INTERFACE



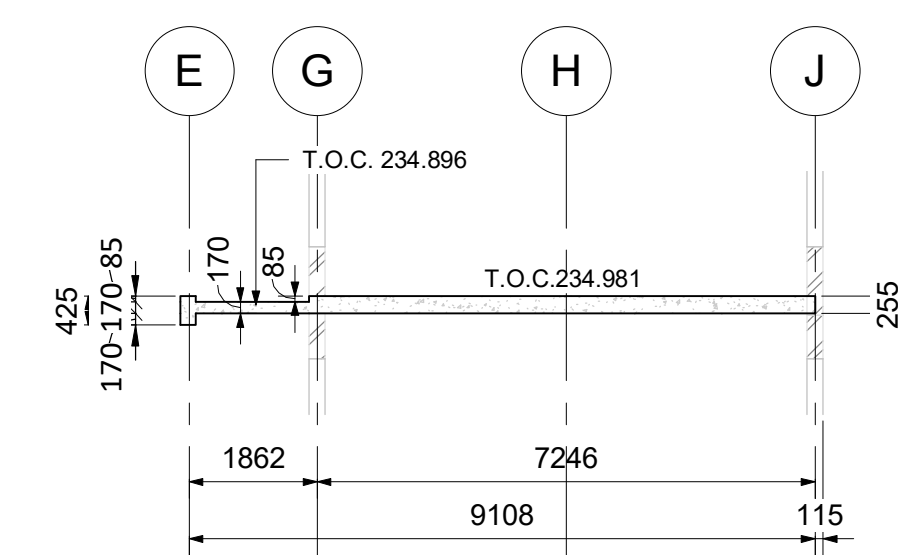
SECTION F-F  
SCALE 1 : 100



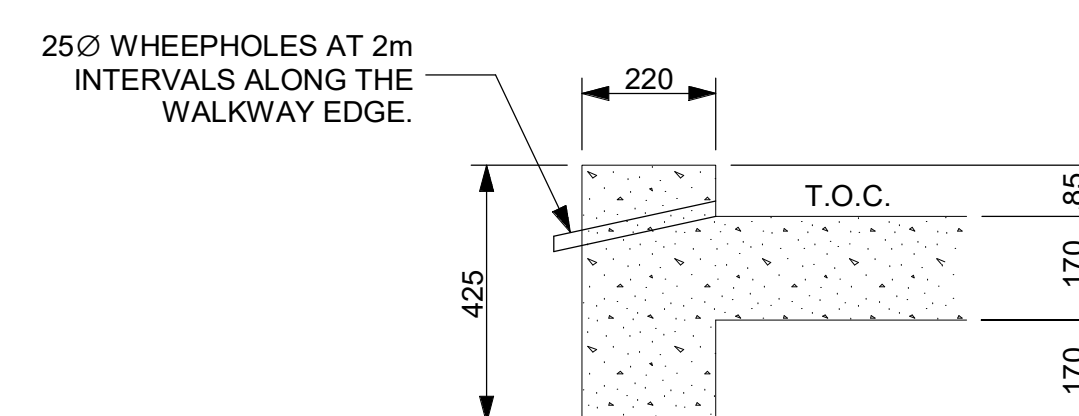
SECTION G-G  
SCALE 1 : 100



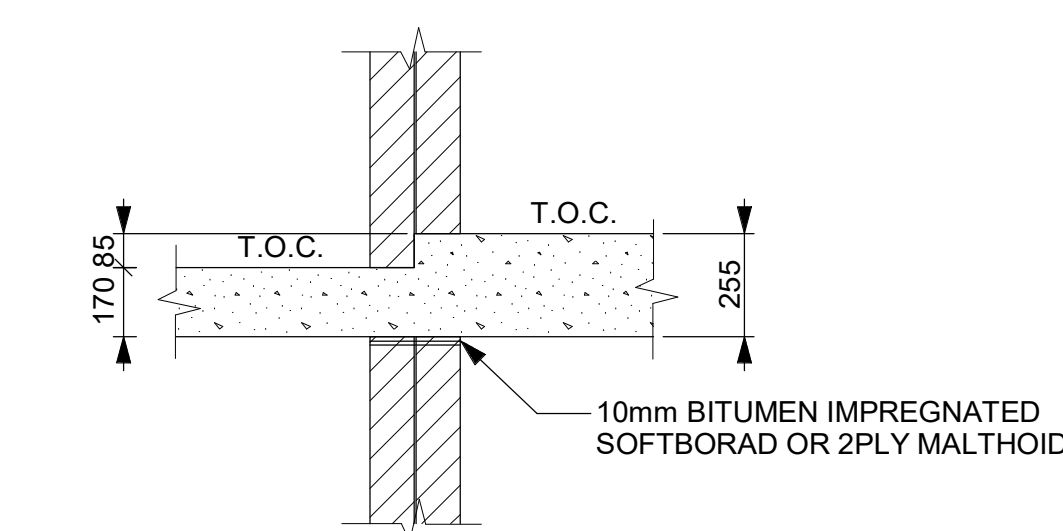
SECTION H-H  
SCALE 1 : 100



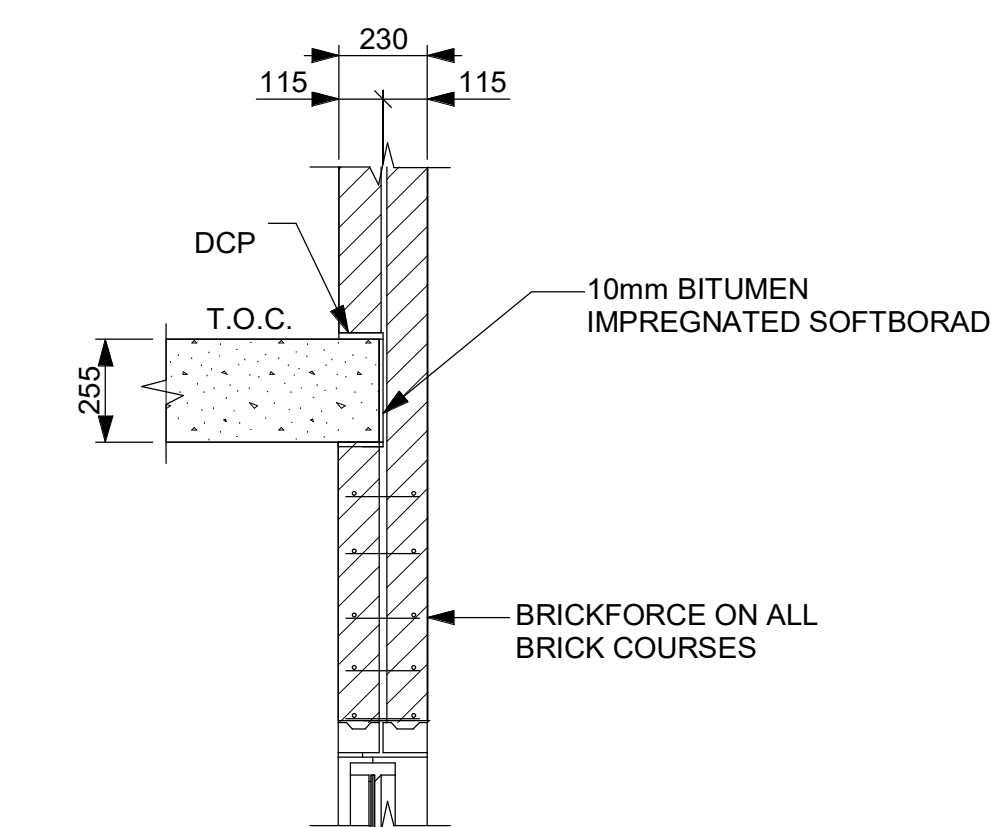
SECTION J-J  
SCALE 1 : 100



TYP WALKWAY EDGE BEAM  
NTS



TYP WALKWAY EDGE BEAM  
NTS



TYP SLAB EDGE SUPPORT  
NTS

REFERENCE DRAWINGS	
BLOCK U GROUND FLOOR CONCRETE DETAILS	400 MQH 001
BLOCK U GROUND REINFORCEMENT DETAILS	400 MQH 003
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 004
BLOCK U RAMP CONCRETE LAYOUT	400 MQH 005
BLOCK U RAMP REINFORCEMENT DETAILS	400 MQH 006

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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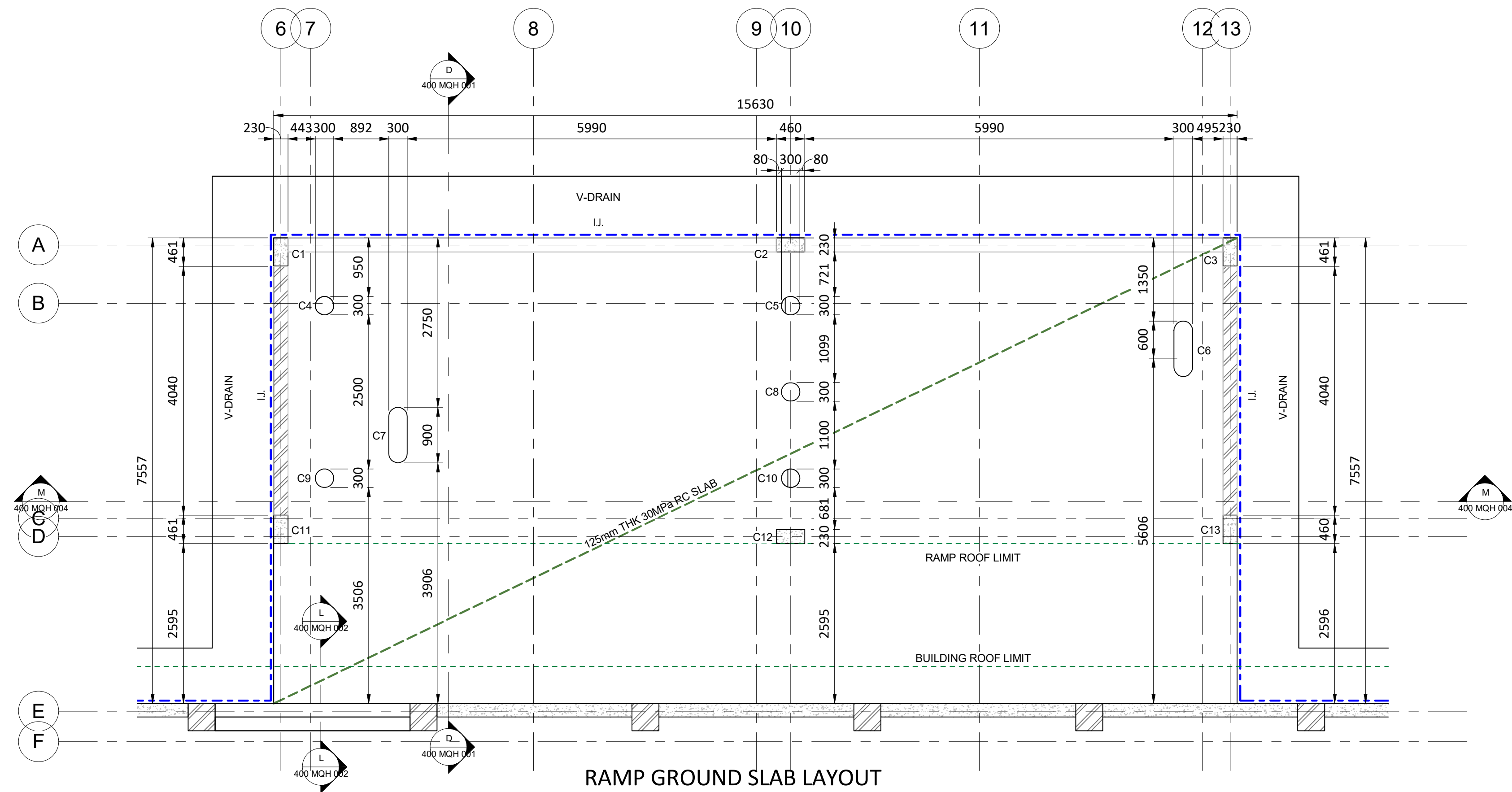
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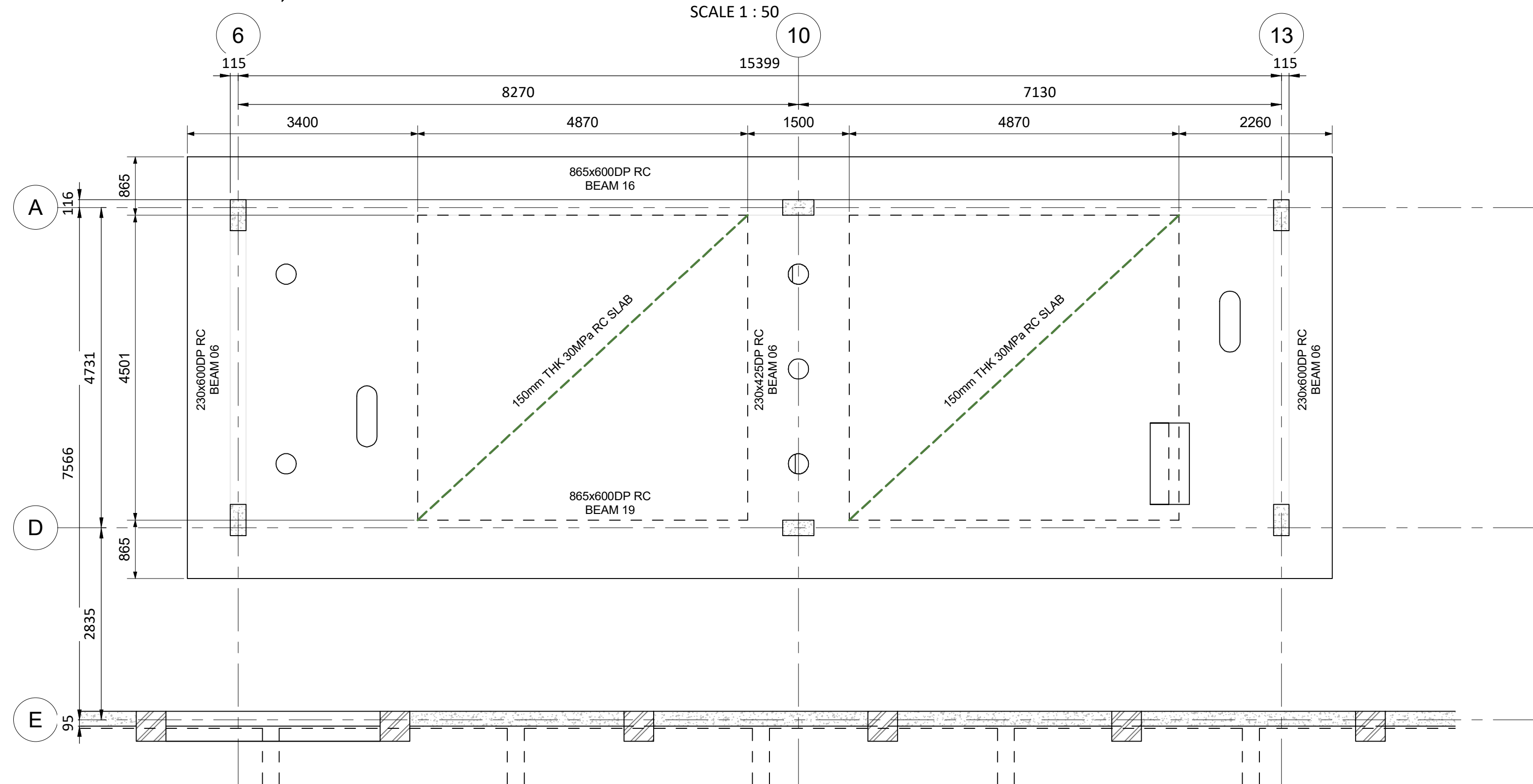
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PROJECT:	UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL
TITLE:	CLASSROOM BLOCK U 1st FLOOR CONCRETE LAYOUT
SCALE:	As indicated
DATE:	14/11/2022
DRAWN BY:	KW
CHECKED BY:	NZ
PRODUCT NO:	D19001
DRAWING NO:	400-MQH-009
REVISION:	A

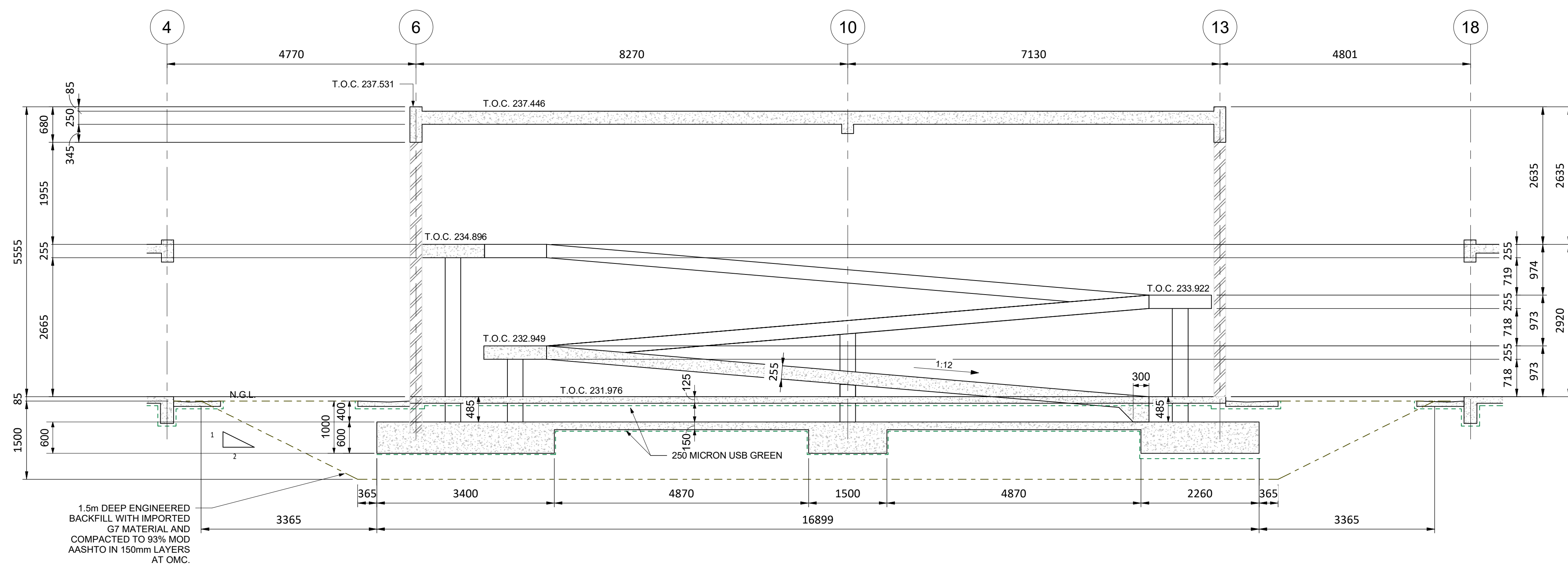




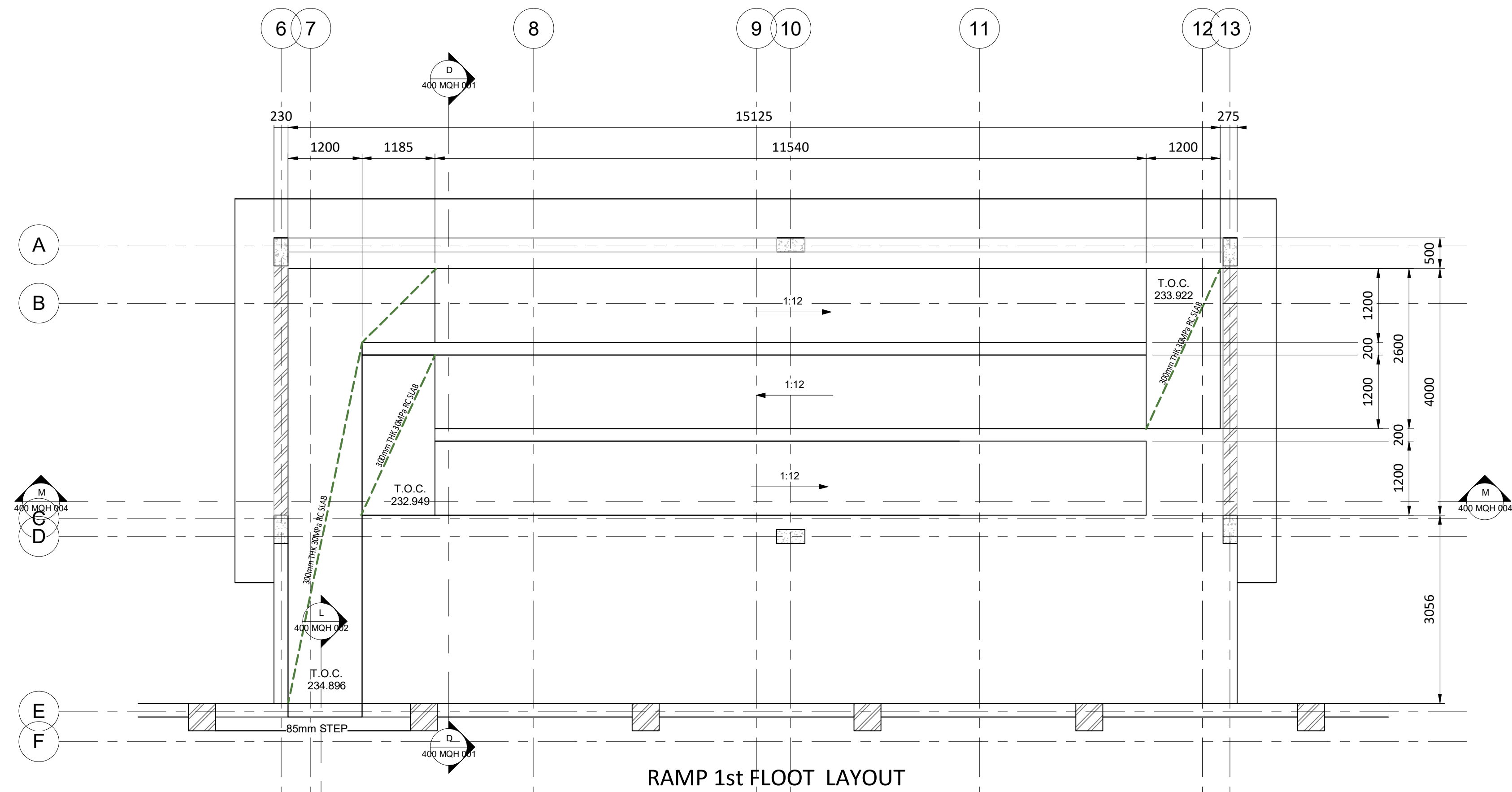
RAMP GROUND SLAB LAYOUT  
SCALE 1 : 50



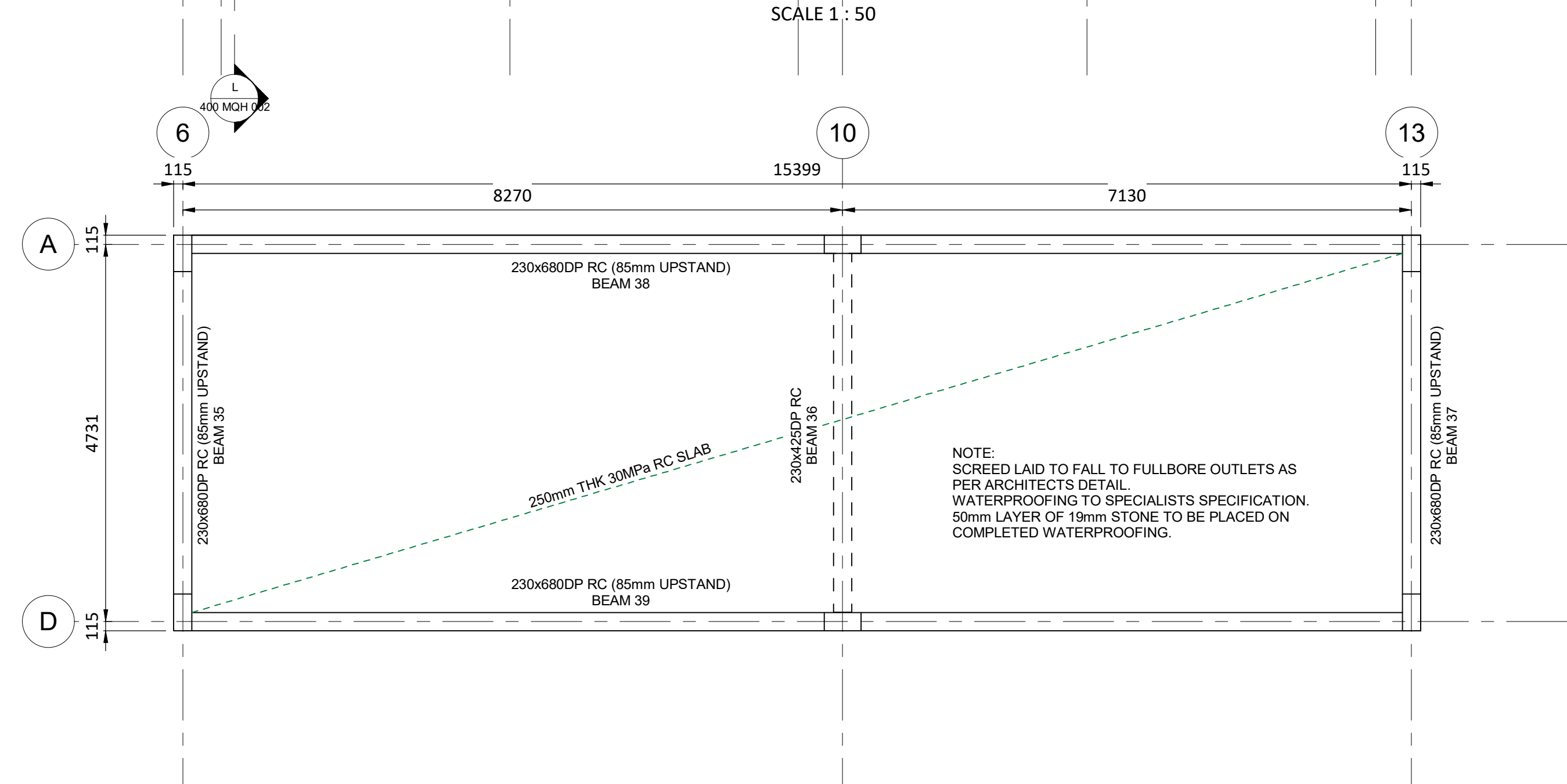
RAMP GROUND RAFT LAYOUT  
SCALE 1 : 50



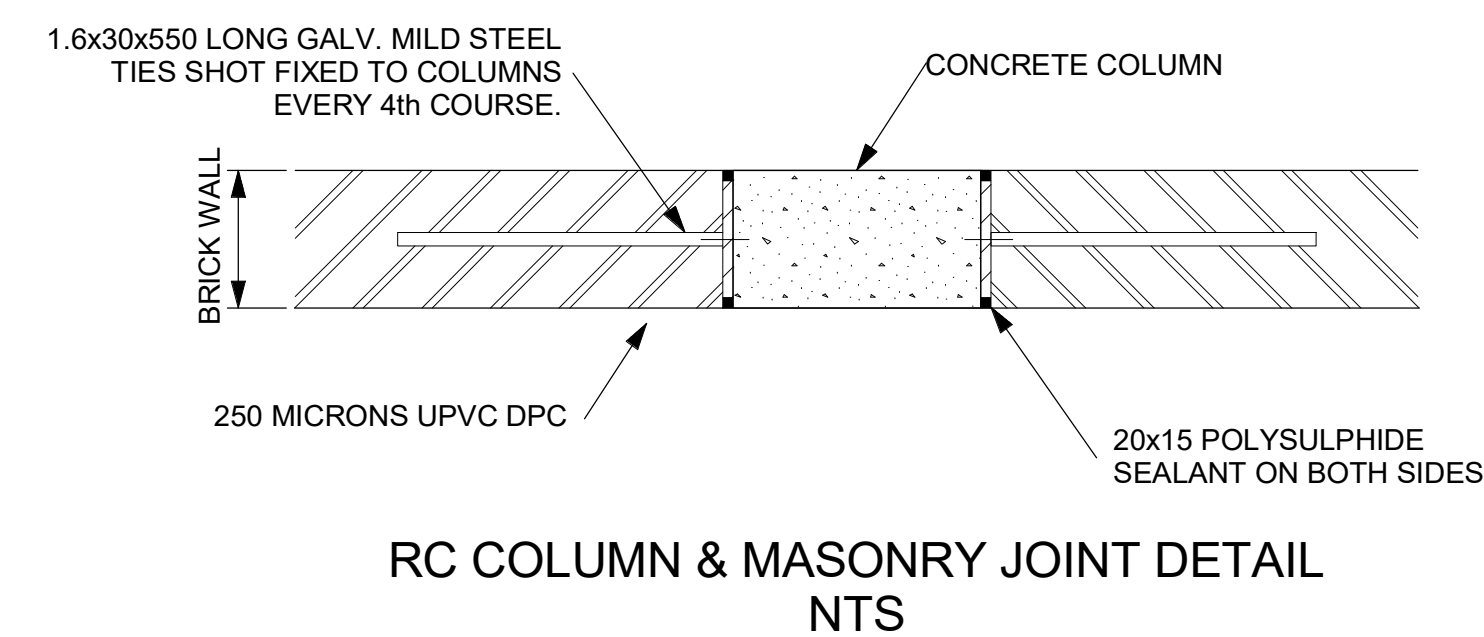
SECTION M-M  
SCALE 1 : 50



RAMP 1st FLOOR LAYOUT  
SCALE 1 : 50



RAMP ROOF RAFT LAYOUT  
SCALE 1 : 50



RC COLUMN & MASONRY JOINT DETAIL  
NTS

REFERENCE DRAWINGS	
BLOCK U GROUND FLOOR CONCRETE DETAILS	400 MQH 001
BLOCK U 1st FLOOR CONCRETE DETAILS	400 MQH 002
BLOCK U GROUND REINFORCEMENT DETAILS	400 MQH 003
BLOCK U 1st FLOOR REINFORCEMENT DETAILS	400 MQH 004
BLOCK U RAMP REINFORCEMENT DETAILS	400 MQH 005

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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DESIGNED BY:	NAME	SIGNATURE	DATE
REVIEWED BY:	NZ		
APPROVED BY:	SB		

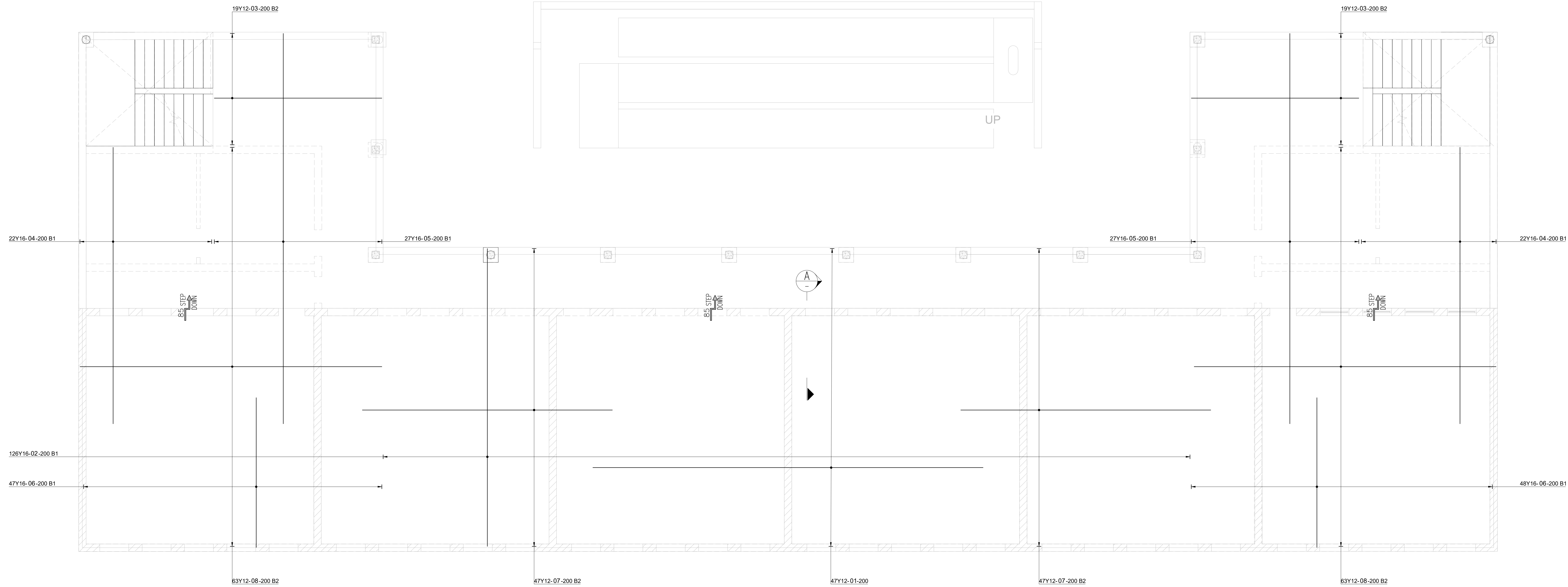
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PROJECT: UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE: CLASSROOM BLOCK U RAMP LAYOUT			
SCALE: 1 : 50	DATE: 14/11/2022	DRAWN BY: KW	CHECKED BY: NZ
PRODUCT NO: D19001	DRAWING NO: 400-MQH-010	REVISION: A	

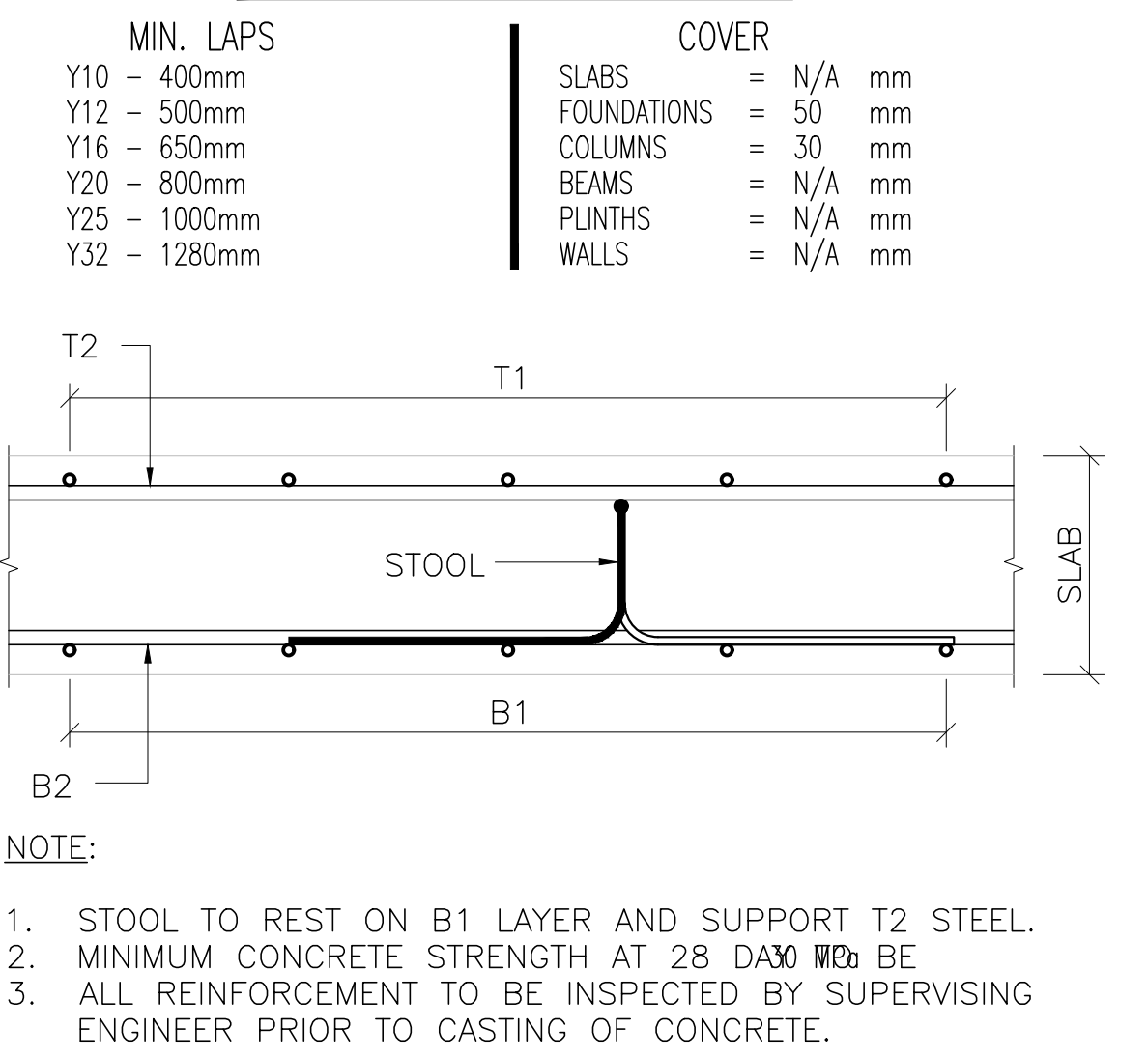




BOTTOM REINFORCEMENT LAYOUT  
SCALE 1 : 50

REINFORCEMENT NOTES

- ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE CASTING CONCRETE.
  - THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
  - REINFORCEMENT
    - STEEL TO COMPLY WITH SABS 920
    - HIGH TENSILE STEEL (Y-BAR) – 450 MPa
    - MILD STEEL (R-BAR) – 250 MPa
- ABBREVIATIONS
- |                              |                                    |
|------------------------------|------------------------------------|
| T = TOP                      | STG = STAGGERED                    |
| B = BOTTOM                   | AS = ALTERNATE BAR                 |
| FF = FAR FACE                | TW = TOGETHER WITH                 |
| NF = NEAR FACE               | M = MIDDLE                         |
| EF = EACH FACE               | AS = AS SHOWN                      |
| OF = OUTSIDE FACE            | EW = EACH WAY                      |
| IF = INSIDE FACE             | T1 = 1st LAYER FROM TOP ...        |
| ALT. = ALTERNATE             | T2 = 2nd LAYER FROM TOP ... ETC    |
| ABR = ALTERNATE BAR REVERSED | B1 = 1st LAYER FROM BOTTOM ...     |
|                              | B2 = 2nd LAYER FROM BOTTOM ... ETC |



MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
1st FL Bottom	1	47	Y12	12000	47	01	20	[12000]					501
	1	126	Y16	9150	126	02	20	[9150]					1820
	1	38	Y12	5150	38	03	20	[5150]					174
	1	44	Y16	8500	44	04	20	[8490]					590
	1	54	Y16	12000	54	05	20	[12000]					1023
	1	95	Y16	4600	95	06	20	[4600]					690
	1	94	Y12	7700	94	07	20	[7680]					643
	1	126	Y12	9300	126	08	20	[9280]					1040
	6	8	10	12	16	20	25	32	40	TOTAL			
R					2357	4122							6480
Y													
TOTAL					2357	4122							6480

REFERENCE DRAWINGS	

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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REVIEWED BY: S.BUHLUNGU		201370309	22/05/2023
APPROVED BY:			

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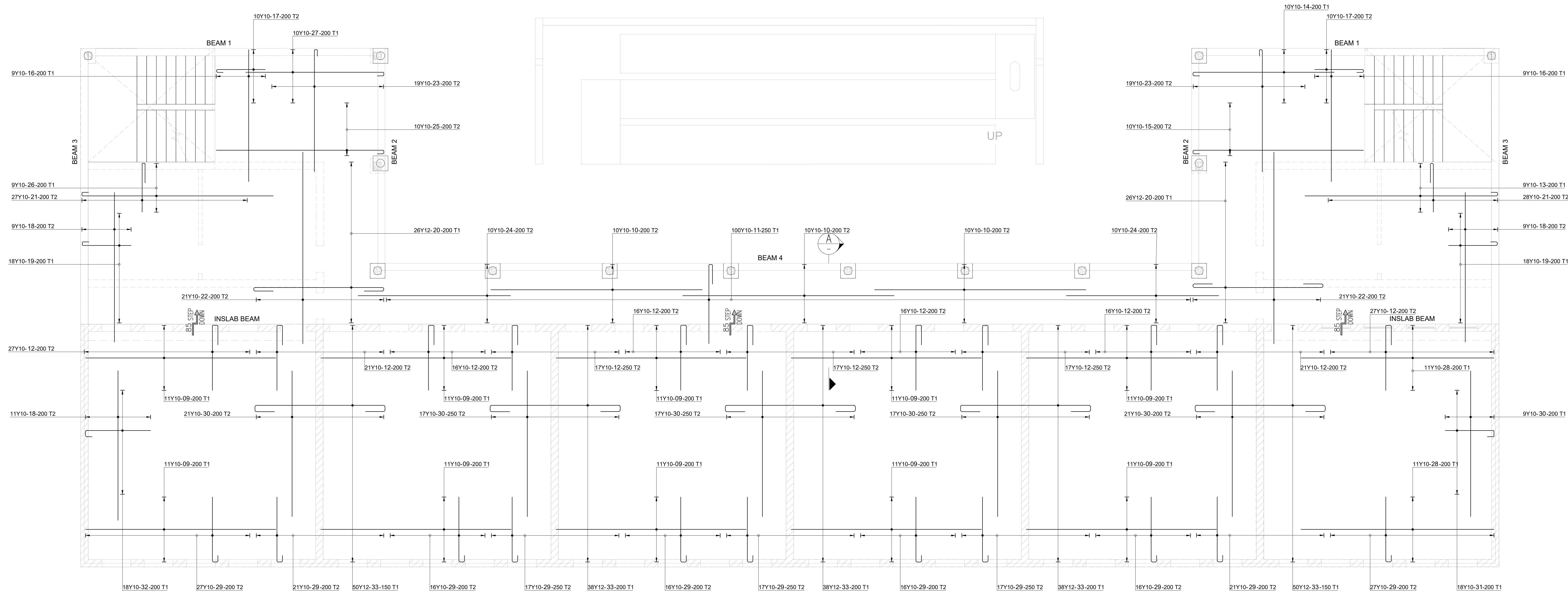
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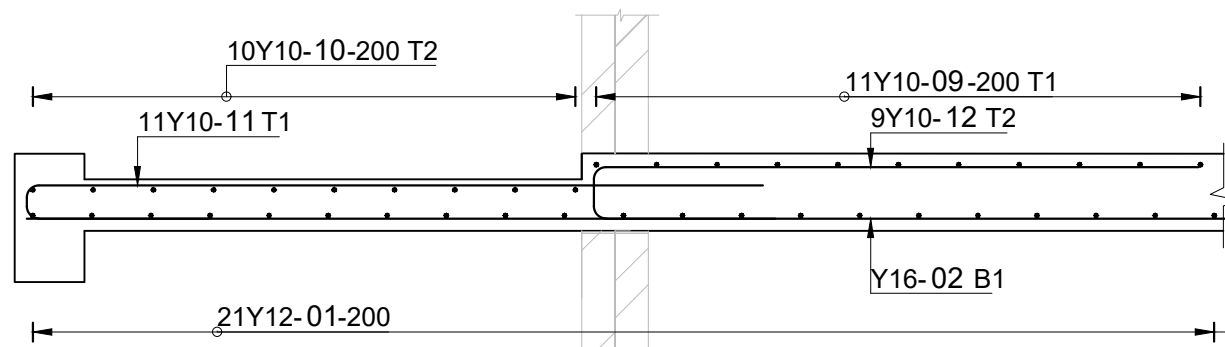
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PROVINCE OF KWAZULU-NATAL

PROJECT: UPGRADES AND ADDITIONS MQHWE SECONDARY SCHOOL			
TITLE: BLOCK U FIRST FLOOR BOTTOM REINFORCEMENT LAYOUT & DETAILS			
SCALE: As indicated	DATE: 22/05/2023	DRAWN BY: SNM	CHECKED BY: S.B
PROJECT NO: D19001	DRAWING NO: 400-MQH-011	REVISION:	A





TOP REINFORCEMENT LAYOUT  
SCALE 1 : 50



SECTION A-A  
SCALE 1:25

REINFORCEMENT NOTES

- ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE CASTING CONCRETE.
- THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
- REINFORCEMENT
  - STEEL TO COMPLY WITH SABS 920
  - HIGH TENSILE STEEL (Y-BAR) – 450 MPa
  - MILD STEEL (R-BAR) – 250 MPa

ABBREVIATIONS

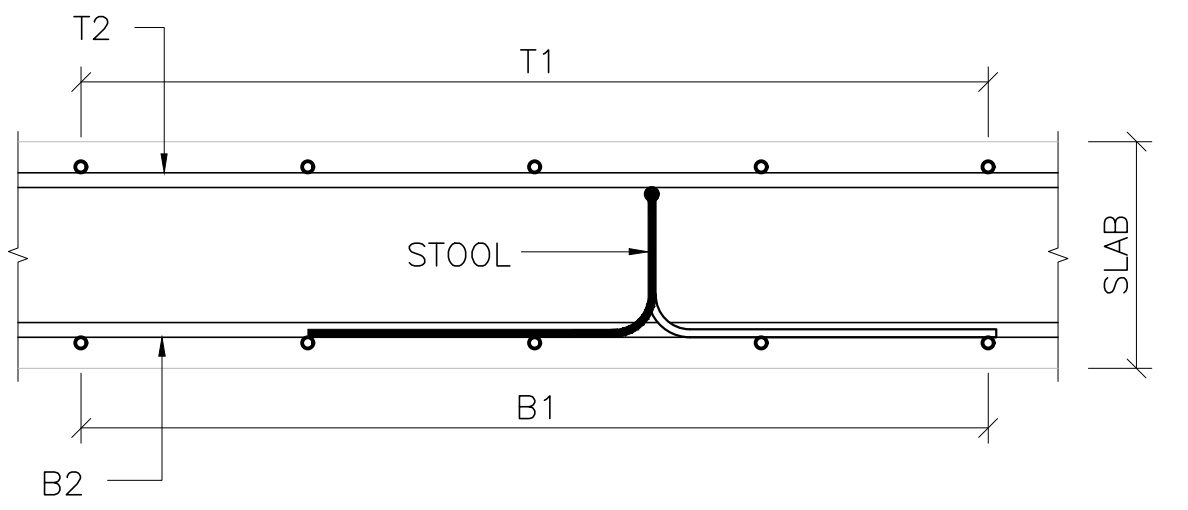
T	=	TOP	STG	=	STAGGERED
B	=	BOTTOM	AS	=	ALTERNATE BAR STAGGERED
FF	=	FAR FACE	TW	=	TOGETHER WITH
NF	=	NEAR FACE	M	=	MIDDLE
EF	=	EACH FACE	AS	=	AS SHOWN
OF	=	OUTSIDE FACE	EW	=	EACH WAY
IF	=	INSIDE FACE	T1	=	1st LAYER FROM TOP ... ETC
ALT.	=	ALTERNATE	T2	=	2nd LAYER FROM TOP ... ETC
ABR	=	ALTERNATE BAR REVERSED	B1	=	1st LAYER FROM BOTTOM ... ETC
			B2	=	2nd LAYER FROM BOTTOM ... ETC

MIN. LAPS

Y10	–	400mm
Y12	–	500mm
Y16	–	650mm
Y20	–	800mm
Y25	–	1000mm
Y32	–	1280mm

COVER

SLABS	=	N/A	mm
FOUNDATIONS	=	50	mm
COLUMNS	=	30	mm
BEAMS	=	N/A	mm
PUNTHS	=	N/A	mm
WALLS	=	N/A	mm



NOTE:

- STUOL TO REST ON B1 LAYER AND SUPPORT T2 STEEL.
- MINIMUM CONCRETE STRENGTH AT 28 DAY TO BE 30 MPa
- ALL REINFORCEMENT TO BE INSPECTED BY SUPERVISING ENGINEER PRIOR TO CASTING OF CONCRETE.

MEMBER	NO OF BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg	
1st FL Top	1	110	Y10	5850	110	09	20	[5850]				397	
	1	30	Y10	6500	30	10	20	[6500]				120	
	1	100	Y10	3100	100	11	38	2430	110	[600]		191	
	1	211	Y10	2750	211	12	38	2000	170	[600]		358	
	1	9	Y10	6200	9	13	38	5920	110	[200]		34	
	1	10	Y10	4600	10	14	38	4340	110	[200]		28	
	1	10	Y10	5500	10	15	38	5240	110	[200]		34	
	1	18	Y10	4050	18	16	20	[4060]				45	
	1	20	Y10	1750	20	17	38	1500	90	[200]		22	
	1	29	Y10	4600	29	18	20	[4600]				82	
	1	36	Y10	1750	36	19	38	1500	110	[200]		39	
	1	52	Y12	5300	52	20	55	600	110	4000	110	[600]	245
	1	55	Y10	2150	55	21	38	1500	90	[600]		73	
	1	42	Y10	5900	42	22	20	[5890]				153	
	1	38	Y10	4000	38	23	38	3750	90	[200]		94	
	1	20	Y10	4700	20	24	20	[4680]				58	
	1	10	Y10	5400	10	25	38	5150	110	[200]		33	
	1	9	Y10	6150	9	26	38	5880	110	[200]		34	
	1	10	Y10	4500	10	27	38	4240	110	[200]		28	
	1	22	Y10	5950	22	28	20	[5930]				81	
	1	211	Y10	2350	211	29	38	2000	170	[200]		306	
	1	102	Y10	4500	102	30	20	[4480]				283	
	1	18	Y10	1850	18	31	38	1500	190	[200]		21	
	1	18	Y10	2350	18	32	38	2000	190	[200]		26	
	1	214	Y12	5450	214	33	55	600	190	4000	190	[600]	1035

	6	8	10	12	16	20	25	32	40	TOTAL
R										
Y			2539	1280						3819
TOTAL			2539	1280						3819

REFERENCE DRAWINGS

REFERENCE DRAWINGS

REV	DESCRIPTION	DATE
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REVIEWED BY: S.BUHLUNGU		201370309	22/05/2023
APPROVED BY:			

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CLIENT: **DBSA**

education  
Department of Education  
PROVINCE OF KWAZULU-NATAL

PROJECT : UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE : BLOCK U FIRST FLOOR TOP REINFORCEMENT LAYOUT & DETAILS			
SCALE : As indicated	DATE : 22/05/2023	DRAWN BY : SNM	CHECKED BY : S.B
PROJECT NO : D19001	DRAWING NO : 400-MQH-012	REVISION : A	



1. ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE CASTING CONCRETE.
2. THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.

3.1 STEEL TO COMPLY WITH SABS 920  
3.2 HIGH TENSILE STEEL (Y-BAR) - 450 MPa  
3.3 MILD STEEL (R-BAR) - 250 MPa

B	=	TOP	STG	=	STAGGERED
B	=	BOTTOM	ABS	=	ALTERNATE BAR STAGGERED
BF	=	FAR FACE	TW	=	TOGETHER WITH
NF	=	NEAR FACE	M	=	MIDDLE
EF	=	EACH FACE	AS	=	AS SHOWN
OF	=	OUTSIDE FACE	EW	=	EACH WAY
IF	=	INSIDE FACE	T1	=	1st LAYER FROM TOP
ALT.	=	ALTERNATE	T2	=	2nd LAYER FROM TOP ... ETC
ABR	=	ALTERNATE BAR REVERSED	B1	=	1st LAYER FROM BOTTOM
			B2	=	2nd LAYER FROM BOTTOM ... ETC

Y10 - 400mm  
Y12 - 500mm  
Y16 - 650mm  
Y20 - 800mm  
Y25 - 1000mm  
Y32 - 1280mm

SLABS	=	N/A	mm
FOUNDATIONS	=	50	mm
COLUMNS	=	30	mm
BEAMS	=	N/A	mm
PLINTHS	=	N/A	mm
WALLS	=	N/A	mm



1. STOOL TO REST ON B1 LAYER AND SUPPORT T2 STEEL.
2. MINIMUM CONCRETE STRENGTH AT 28 DAYS ~~WILL~~ BE
3. ALL REINFORCEMENT TO BE INSPECTED BY SUPERVISING  
ENGINEER PRIOR TO CASTING OF CONCRETE.



SCALE 1 : 25



SCALE 1:25

	6	8	10	12	16	20	25	32	40	TOTAL
R										
Y			37	221						258
TOTAL			37	221						258

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Department:  
Education  
PROVINCE OF KWAZULU-NATAL

MQHAWE SECONDARY SCHOOL

STAIRCASE REINFORCEMENT LAYOUT &amp; DETAILS

SCALE :	DATE :	DRAWN BY :	CHECKED BY :
As indicated	22/05/2022	SNMA	C.D.

As Indicated	22/05/2023	SNM	S.B
PROJECT NO.:	DRAWING NO.:	REVISION:	

D19001	400-MOH-013	A
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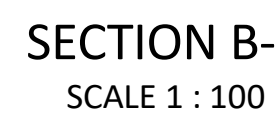
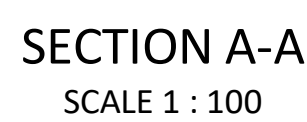
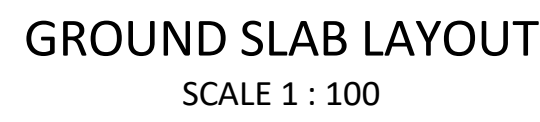


PROJECT :			
UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE : BLOCK U FIRST FLOOR BEAMS REINFORCEMENT LAYOUT & DETAILS			
SCALE :	DATE :	DRAWN BY :	CHECKED BY :
As indicated	22/05/2023	SNM	S.B
PROJECT NO :		REVISION :	
D19001		400-MQH-014 A	



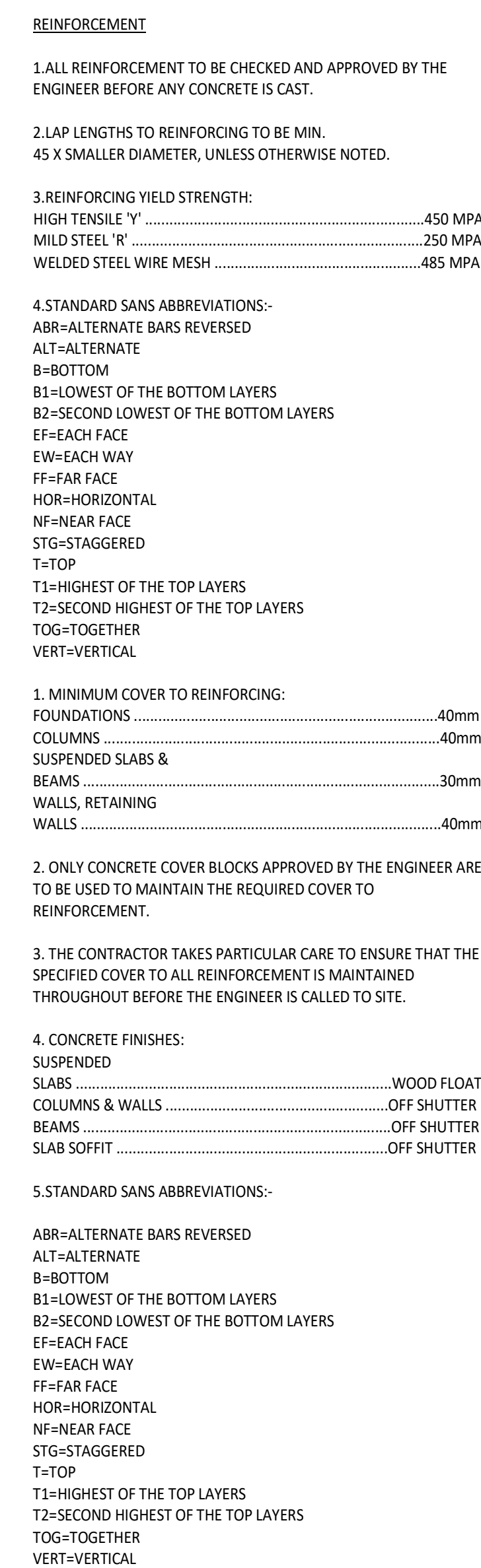
V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

IF ANY INFORMATION IS  
UNCLEAR ON THE DRAWINGS  
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PROJECT : UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE : CLASSROOM BLOCK V CONCRETE LAYOUT			
SCALE : 1 : 100	DATE : 15/11/2022	DRAWN BY : KW	CHECKED BY : NZ
PROJECT NO : D19001	DRAWING NO : 400-MQH-015	REVISION : A	





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ISSUED FOR  
CONSTRUCTION



PROJECT : UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE : CLASSROOM BLOCK V REINFORCEMENT LAYOUT			
SCALE : 1 : 50	DATE : 12/14/22	DRAWN BY : Author	CHECKED BY : Checker
PROJECT NO : D19001	DRAWING NO : 400-MQH-016	REVISION : A	



V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

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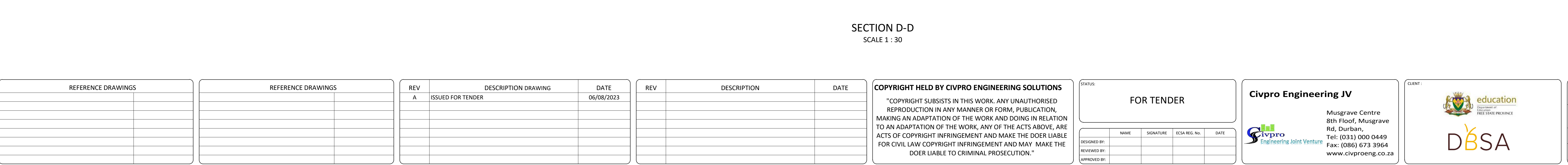
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STATUS:																								
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DESIGNED BY:	SB																							
REVIEWED BY:	NZ																							
APPROVED BY:	SB																							

PROJECT :				UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE :				CLASSROOM BLOCK W CONCRETE LAYOUT			
SCALE :		DATE :		DRAWN BY :		CHECKED BY :	
1 : 100		22/11/2022		KW		NZ	
PROJECT NO :				DRAWING NO :		REVISION :	
D19001		400-MQH-017				A	



SECTION C-C  
SCALE 1 : 30

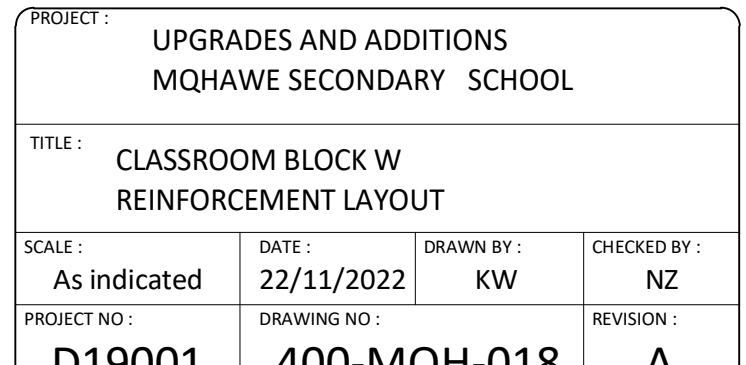


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## REINFORCEMENT

1. ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.

2. LAP LENGTHS TO REINFORCING TO BE MIN. 45" SMALLER DIAMETER, UNLESS OTHERWISE NOTED.

3. REINFORCING WELD LENGTH:

HIGH TENSILE "Y"	450 MPa
MILD STEEL "Y"	250 MPa
WELDED STEEL WIRE MESH	485 MPa

4. STANDARD SANS ABBREVIATIONS:

ABR-ALTERNATE DASH REVERSED

ALT-ALTERNATE

B-BOTTOM

B1-LOWEST OF THE BOTTOM LAYERS

B2-SECOND LOWEST OF THE BOTTOM LAYERS

EF-FLANGE

EW-SCISSOR WAY

FF-FAIR FACE

HK-HORIZONTAL

INF-INFANT FACE

STG-STAGGERED

T-TOP

T1-HIGHEST OF THE TOP LAYERS

T2-SECOND HIGHEST OF THE TOP LAYERS

TOO-TOP

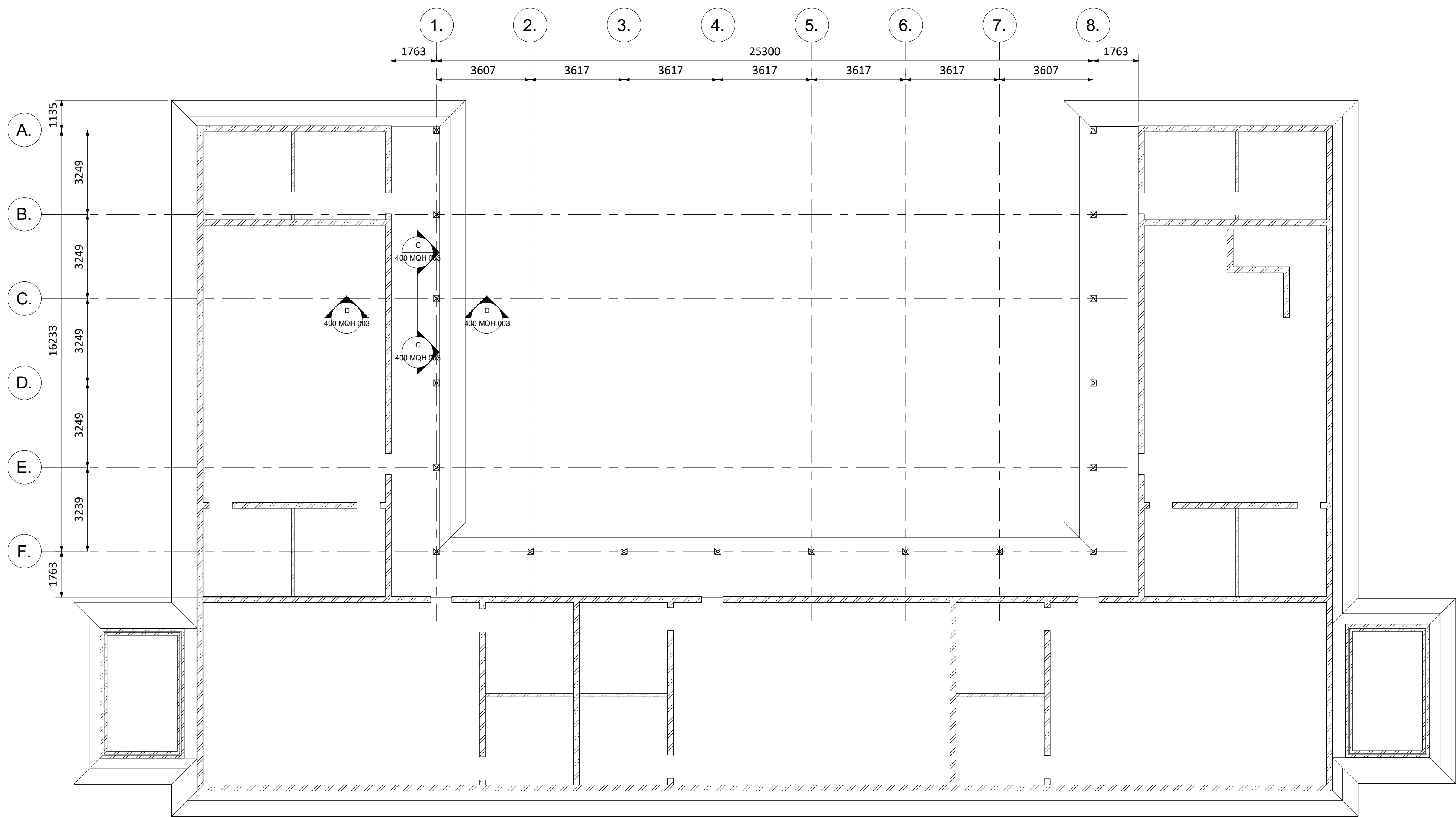
VERT-VERTICAL

5. STANDARD SANS ABBREVIATIONS:-

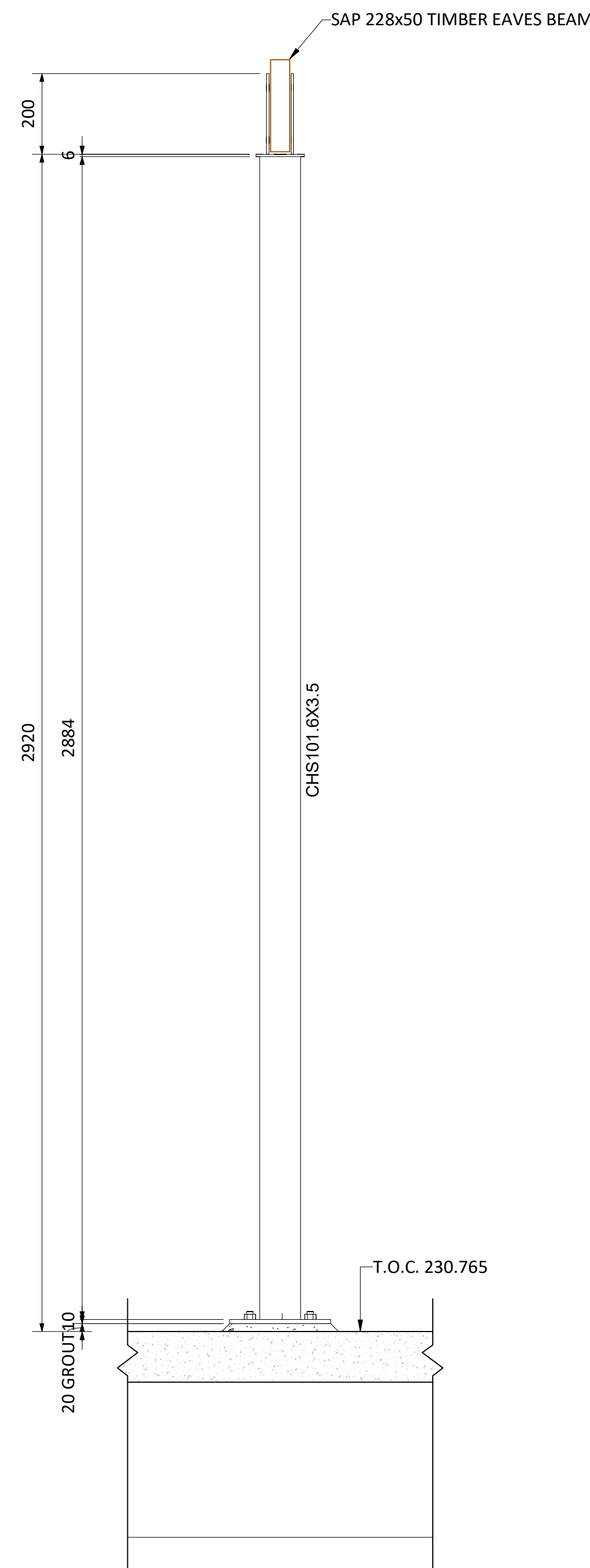
ABR=ALTERNATE BARS REVERSED  
ALT=ALTERNATE  
B=BOTTOM  
B1=LOWEST OF THE BOTTOM LAYERS  
B2=SECOND LOWEST OF THE BOTTOM LAYERS  
EF=EACH FACE  
EW=EACH WAY  
FF=FACE FACE  
HOR=HORIZONTAL  
NF=NEAR FACE  
STG=STAGGERED  
T=TOP  
T1=HIGHEST OF THE TOP LAYERS  
T2=SECOND HIGHEST OF THE TOP LAYERS  
TOG=TOGETHER  
VERT=VERTICAL

NOTE:  
RAFT SLAB REINFORCEMENT  
COVER 50mm

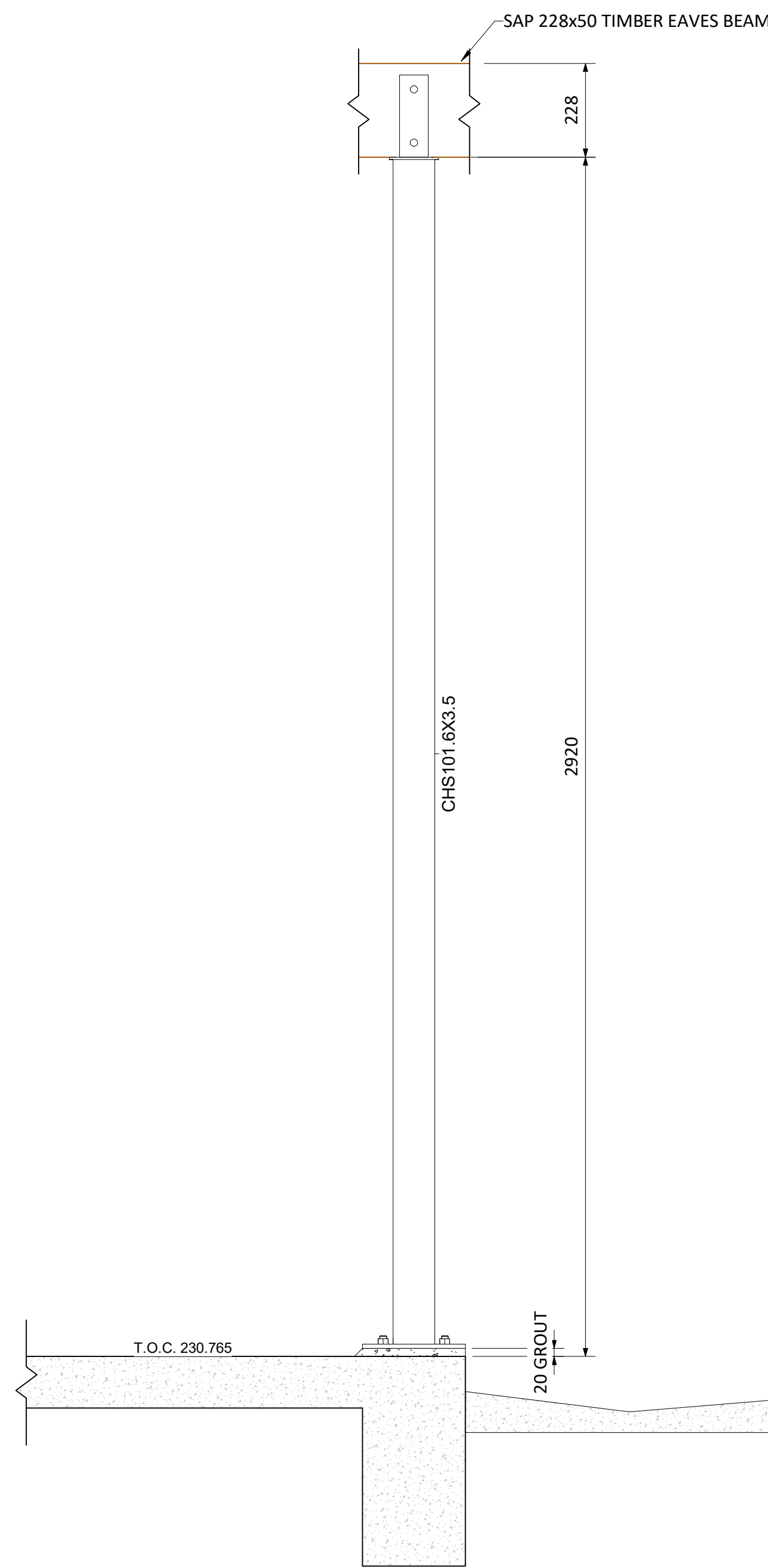




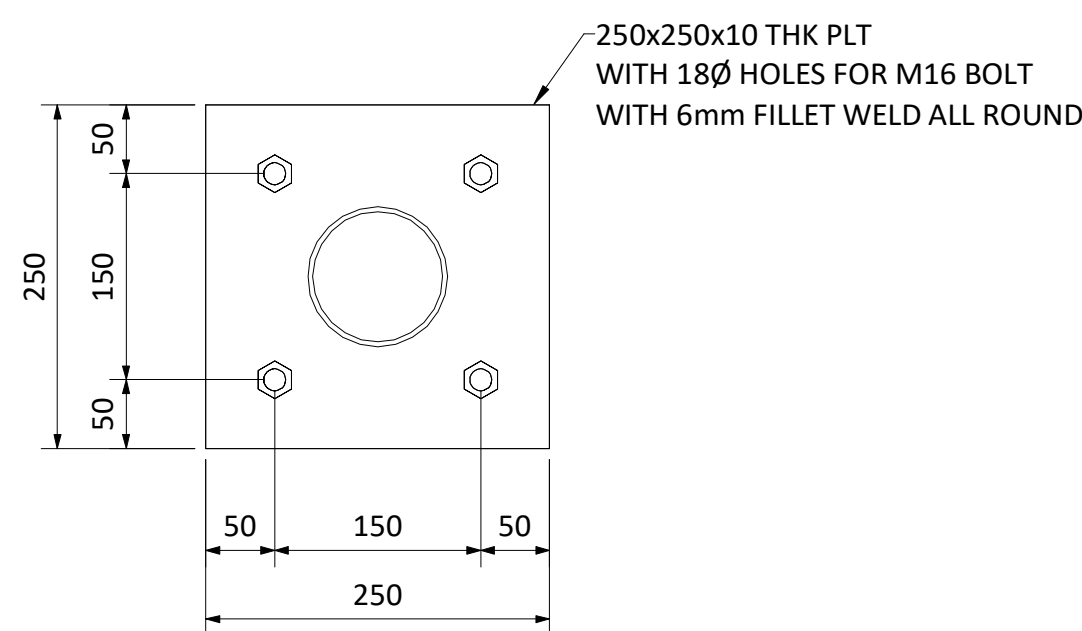
PLAN VIEW  
SCALE 1 : 100



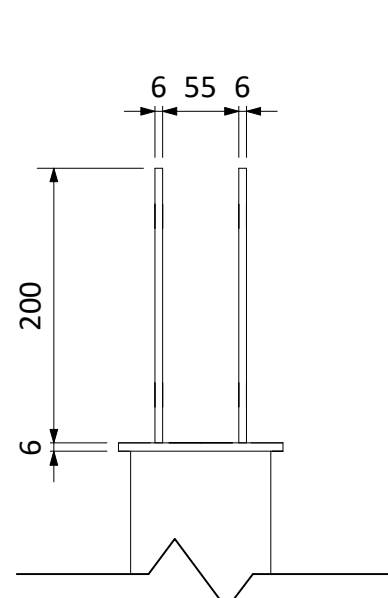
SECTION C-C  
SCALE 1 : 10



SECTION D-D  
SCALE 1 : 10



BASE PLT DETAIL 01  
SCALE 1 : 5



CAP PLT DETAIL 02  
SCALE 1 : 5

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEELWORK DESIGN, FABRICATION, SURFACE PREPARATION, PAINTING ETC. SHALL CONFORM TO THE PROJECT SPECIFICATION, SANS 10162, SANS 2003 & SANS 10025.
2. STRUCTURAL STEELWORK TO BE GRADE S355JR IN ACCORDANCE WITH SANS 10025.
3. ALL WELDS SHALL BE 5MM CONTINUOUS FILLET WELDS UNLESS OTHERWISE NOTED.
4. ALL WELDS SHALL BE SHOP WELDED.
5. ALL HOLES SHALL BE 22 DIA. FOR 20 DIA. BLACK BOLTS UNLESS OTHERWISE NOTED. HOLES FOR FASTENERS SHALL NOT BE MORE THAN 2MM GREATER THAN THE DIAMETER OF THE FASTENER UP TO 3MM AND NOT MORE THAN 3MM GREATER FOR FASTENERS OF DIAMETER OVER 3MM.
6. HOLES FOR FASTENERS AND DISTANCES BETWEEN HOLES AND EDGES SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF SANS 10162 OR AS DETAILED ON THE DRAWINGS.
7. HOLES FOR FASTENERS SHALL BE DRILLED. HOLES FOR FASTENERS, PINS AND HOLDING BOLTS SHALL NOT BE FORMED BY FLAME CUTTING.
8. ALL BURRS SHALL BE REMOVED FROM HOLES BEFORE ASSEMBLY.
9. ALL BOLTS AND NUTS (OTHER THAN FRICTION GRIP) SHALL BE HEXAGONAL HEADED AND SHALL COMPLY WITH SANS 1700 OR SANS 1143 AS APPLICABLE.
10. ALL BEAM AND BRACING CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS.
11. BEAM END PLATES SHALL HAVE A MINIMUM THICKNESS OF 10MM.
12. ALL GUSSET PLATES SHALL BE 8 MM THICK UNLESS OTHERWISE NOTED.
13. ALL CONNECTIONS SHALL BE FULL STRENGTH TO SANS AND AWS D1.1. NO ECCENTRIC CONNECTIONS ARE ALLOWED.
14. COLD ROLLED SECTIONS SHALL HAVE A MINIMUM GUARANTEED YIELD STRESS OF 250 MPA.
15. ALL PACKERS USED FOR ADJUSTMENT SHALL BE FROM LAMINATED OFF-CUTS AND USED ONLY WHERE REQUIRED.
16. ALL SHOP DETAIL DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE COMMENCEMENT OF ANY FABRICATION TAKES PLACE.
17. SURFACE PREPARATION SHALL BE TO ISO 8501-1 SA 2½. WELD SEAMS, BURNED AND RUSTY AREAS BLAST CLEANED TO ISO 8501-1 SA 2½.
18. ALL STRUCTURAL STEELWORK TO BE COATED IN ACCORDANCE WITH THE PROJECT SPECIFICATION.

IF ANY INFORMATION IS  
UNCLEAR ON THE DRAWINGS  
CONTACT CIVPRO

FOR INFORMATION ONLY  
NOT TO BE USED FOR  
CONSTRUCTION

REFERENCE DRAWINGS	
BLOCK W CONCRETE LAYOUT	400 MQH 001
BLOCK W REINFORCEMENT DETAILS	400 MQH 002

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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FOR TENDER				
DESIGNED BY:	NAME:	SIGNATURE:	ICSA REG. NO.:	DATE:
REVIEWED BY:	NZ			
APPROVED BY:	SB			

**Civpro Engineering JV**

Musgrave Centre  
8th Floor, Musgrave  
Rd, Durban,  
Tel: (031) 000 0449  
Fax: (086) 673 3964  
www.civproeng.co.za

CLIENT:

  
**D&SA**

PROJECT: UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE: CLASSROOM BLOCK W STRUCTURAL STEEL COLUMN			
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
As indicated	22/11/2022	KW	NZ
PROJECT NO:	DRAWING NO:	REVISION:	
D19001	400 MQH 019	A	

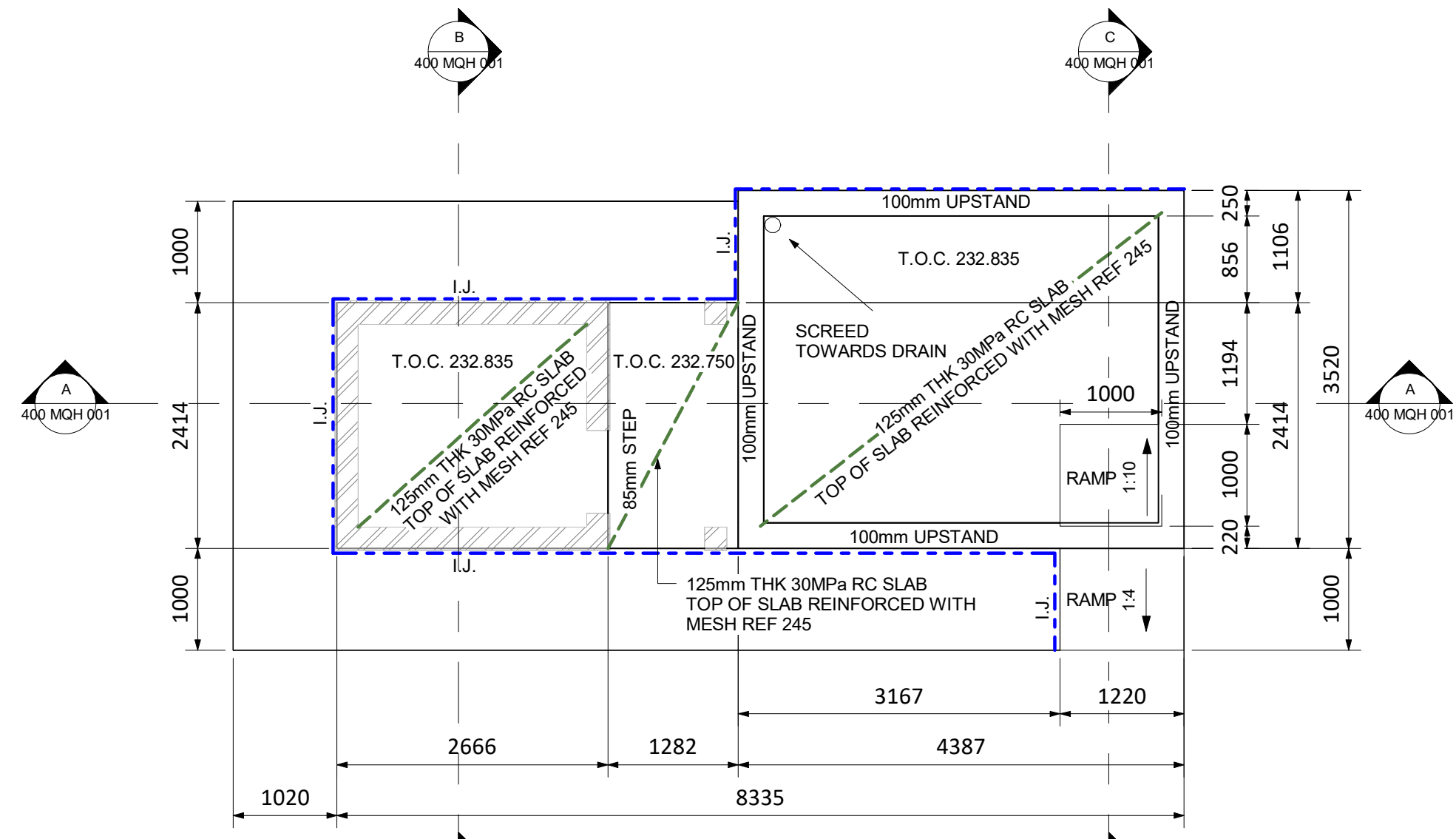


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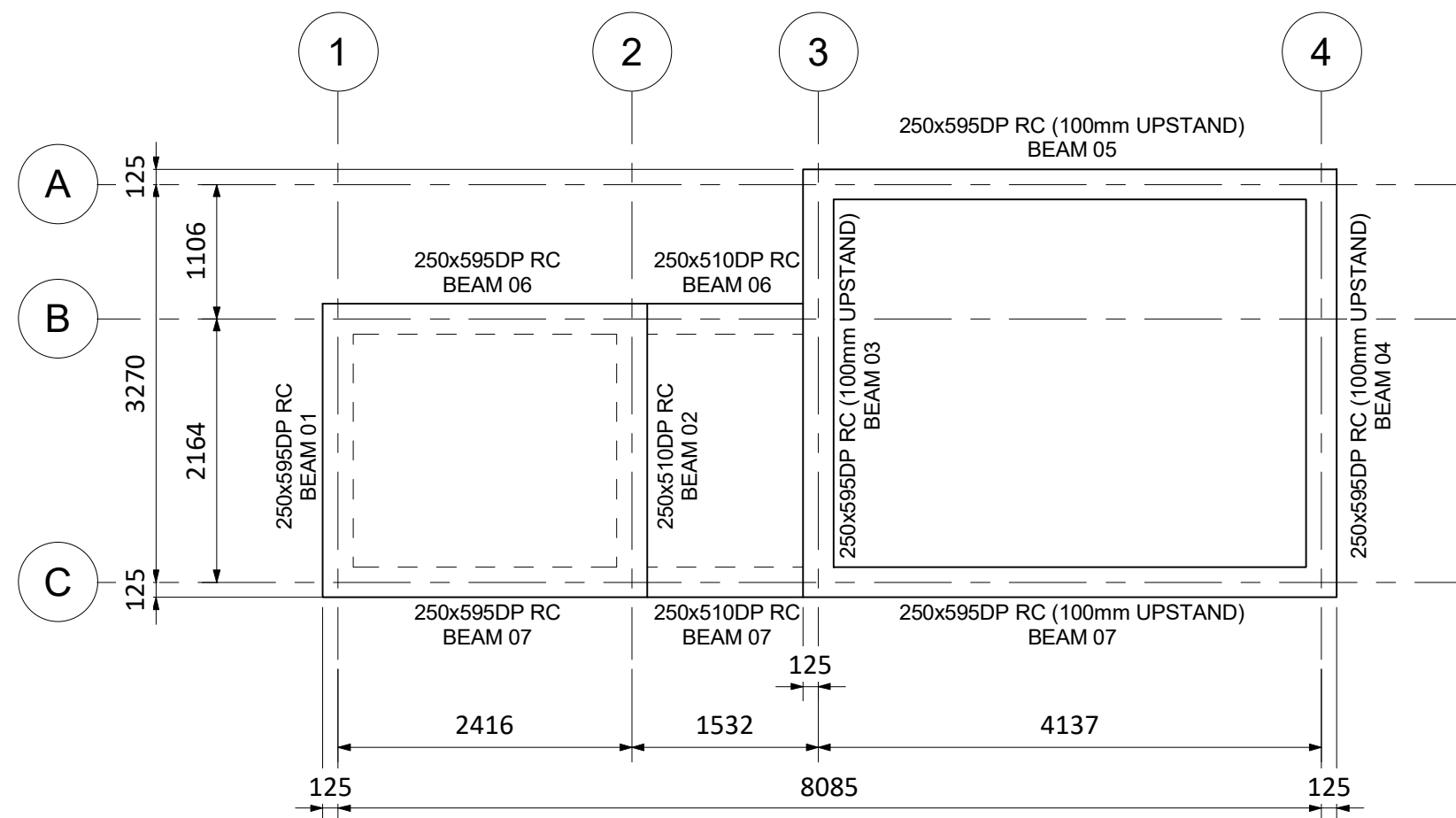
V-DRAIN TO BE CAST IN ALTERNATE PANELS NOT EXCEEDING 2000MM IN LENGTH. ALL JOINTS BETWEEN CONCRETE DRAIN PANELS AND BETWEEN CONCRETE DRAIN AND THE RAFT SLAB ARE TO BE 10MM JOINTS WITH 10MM THICK BITUMEN IMPREGNATED SOFTBOARD SEALED WITH POLYURETHANE JOINT SEALANT. 2000MM PANELS WITH 10MM SOFTBOARD JOINTS WITH POLYURETHANE JOINT SEALANT. JOINT SEALANT TO BE MAINTAINED TO MANUFACTURERS SPECIFICATIONS OVER LIFE SPAN OF FACILITY.

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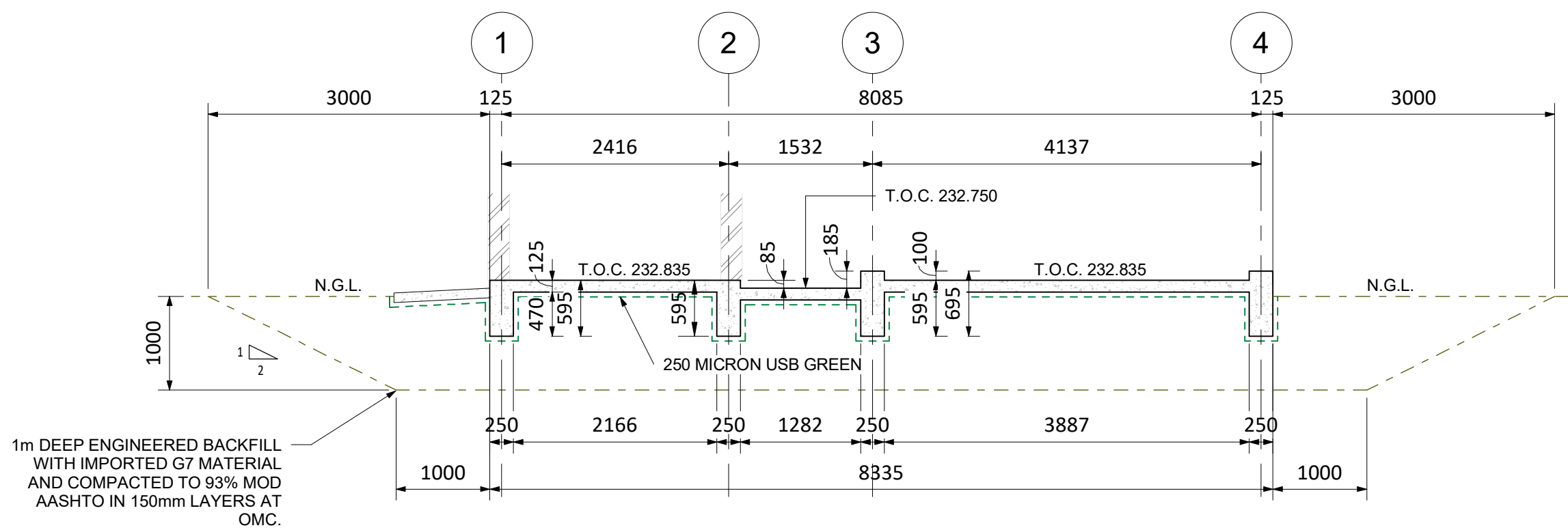
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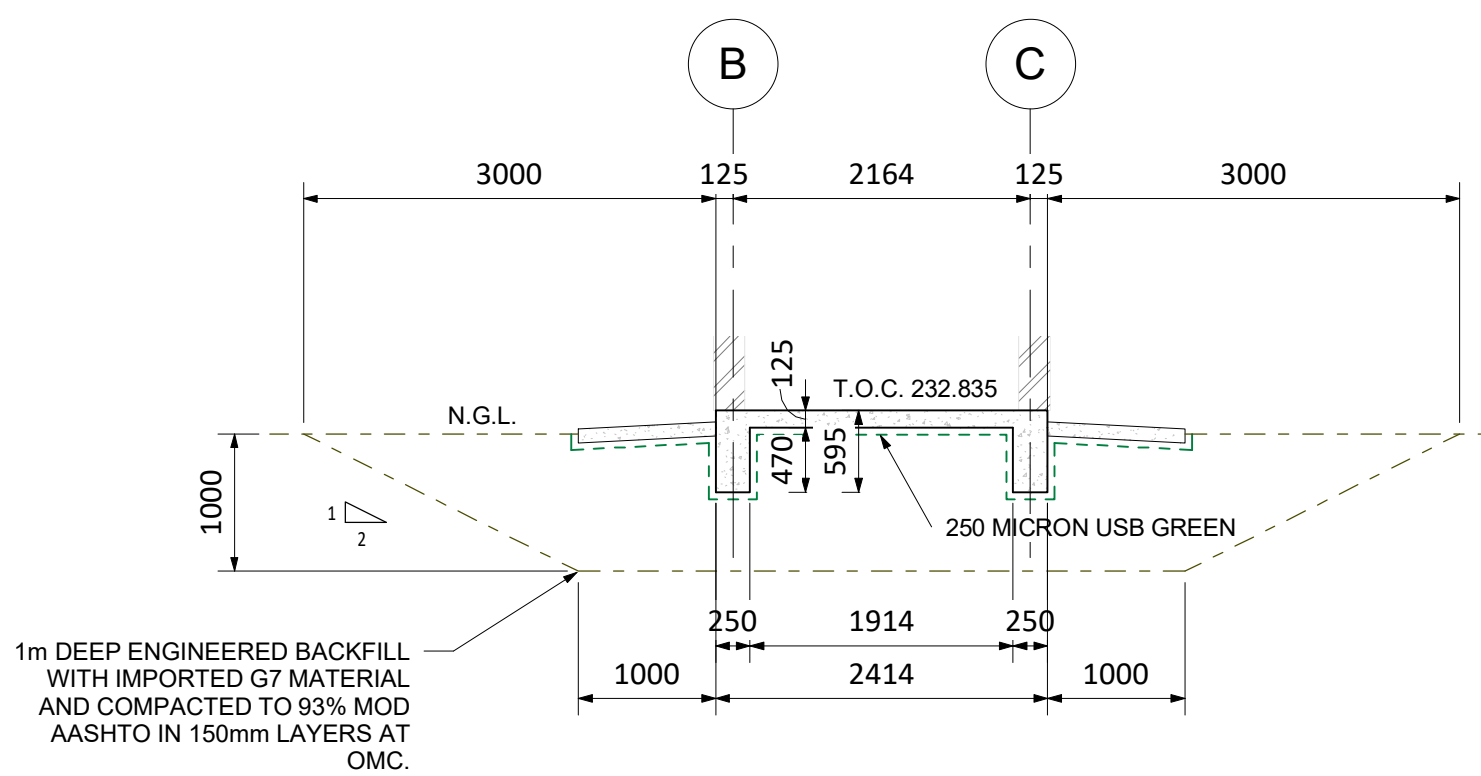
GROUND SLAB LAYOUT  
SCALE 1 : 50



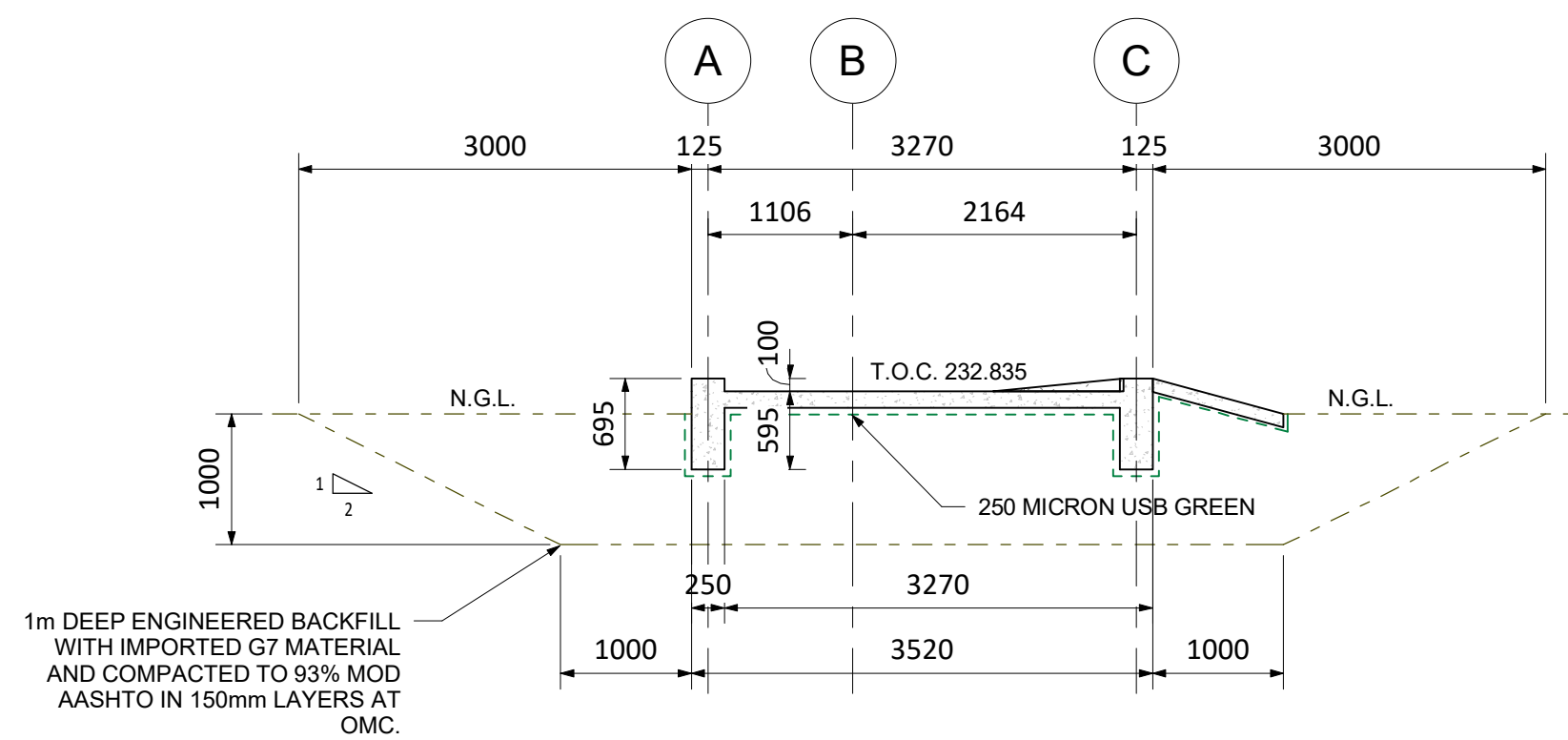
GROUND RAFT FOUNDATION LAYOUT  
SCALE 1 : 50



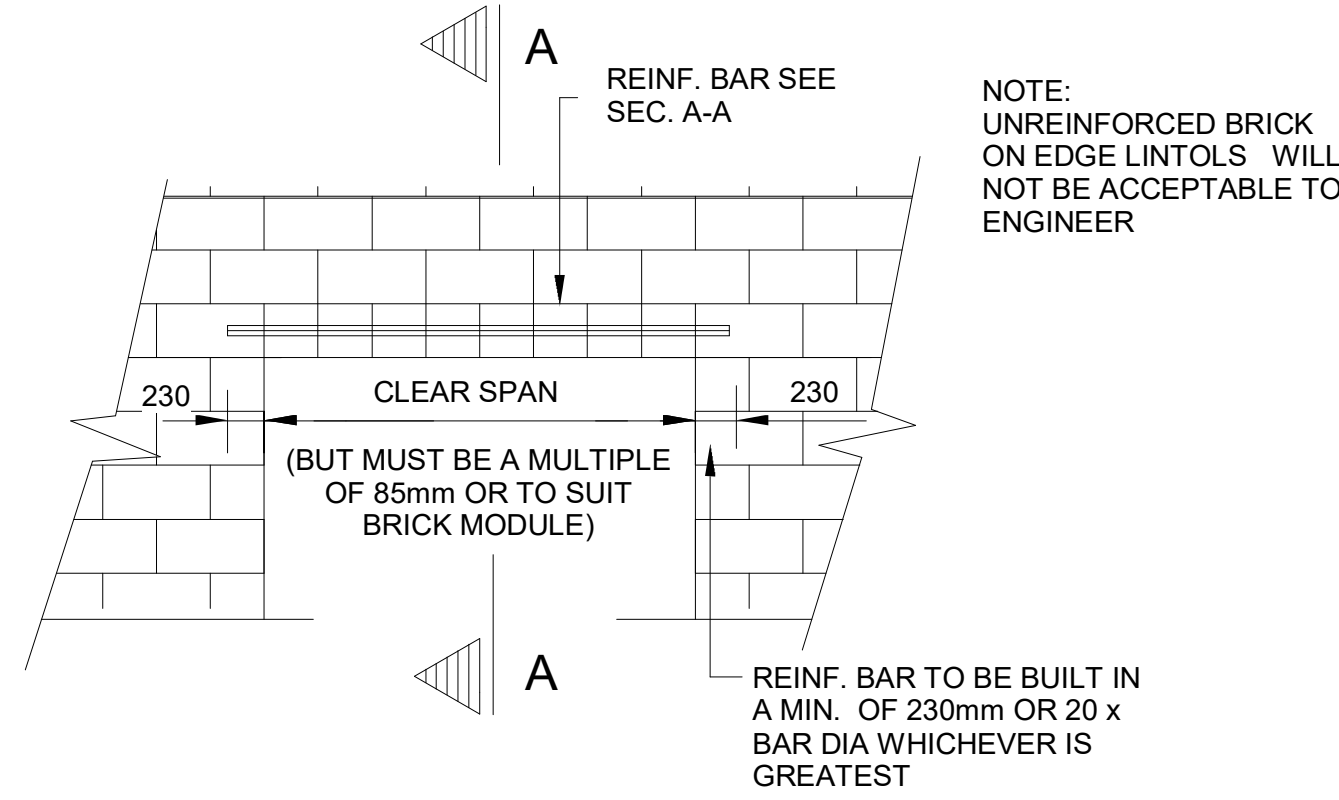
SECTION A-A  
SCALE 1 : 50



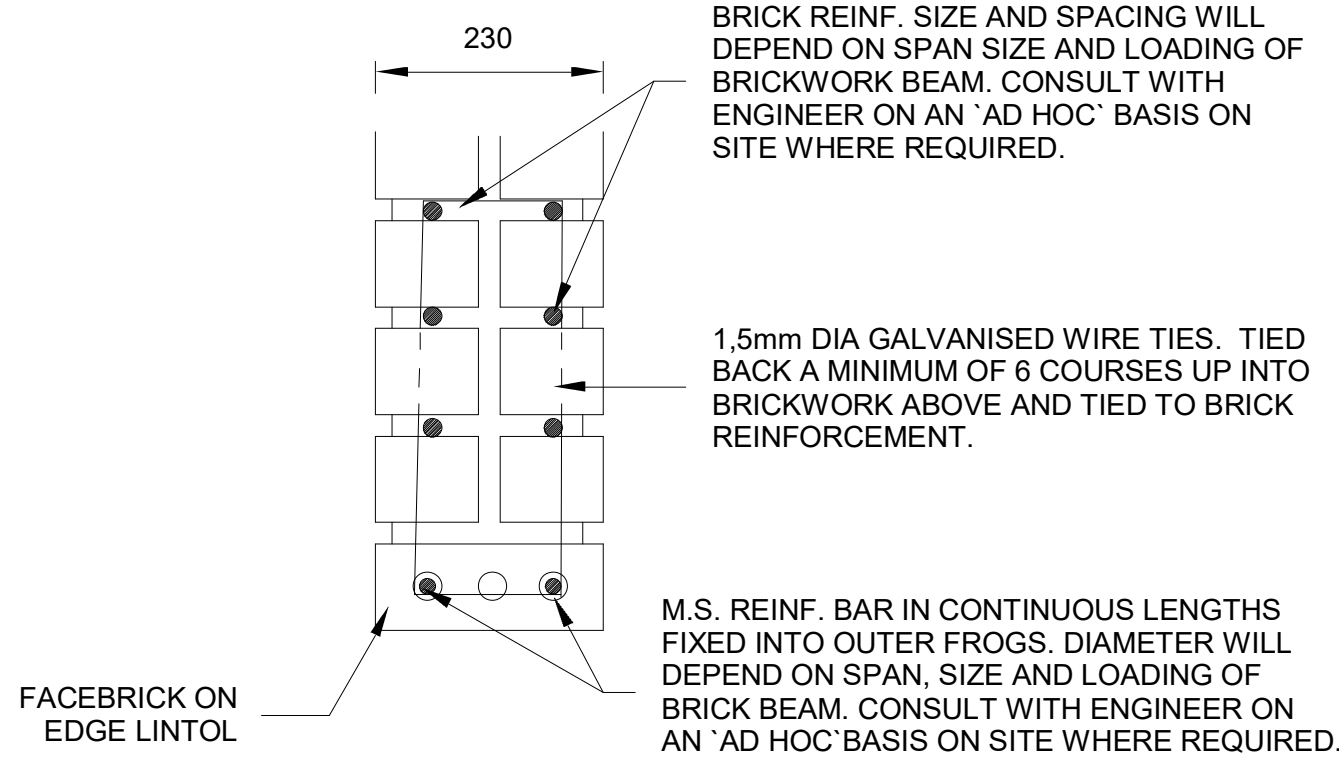
SECTION B-B  
SCALE 1 : 50



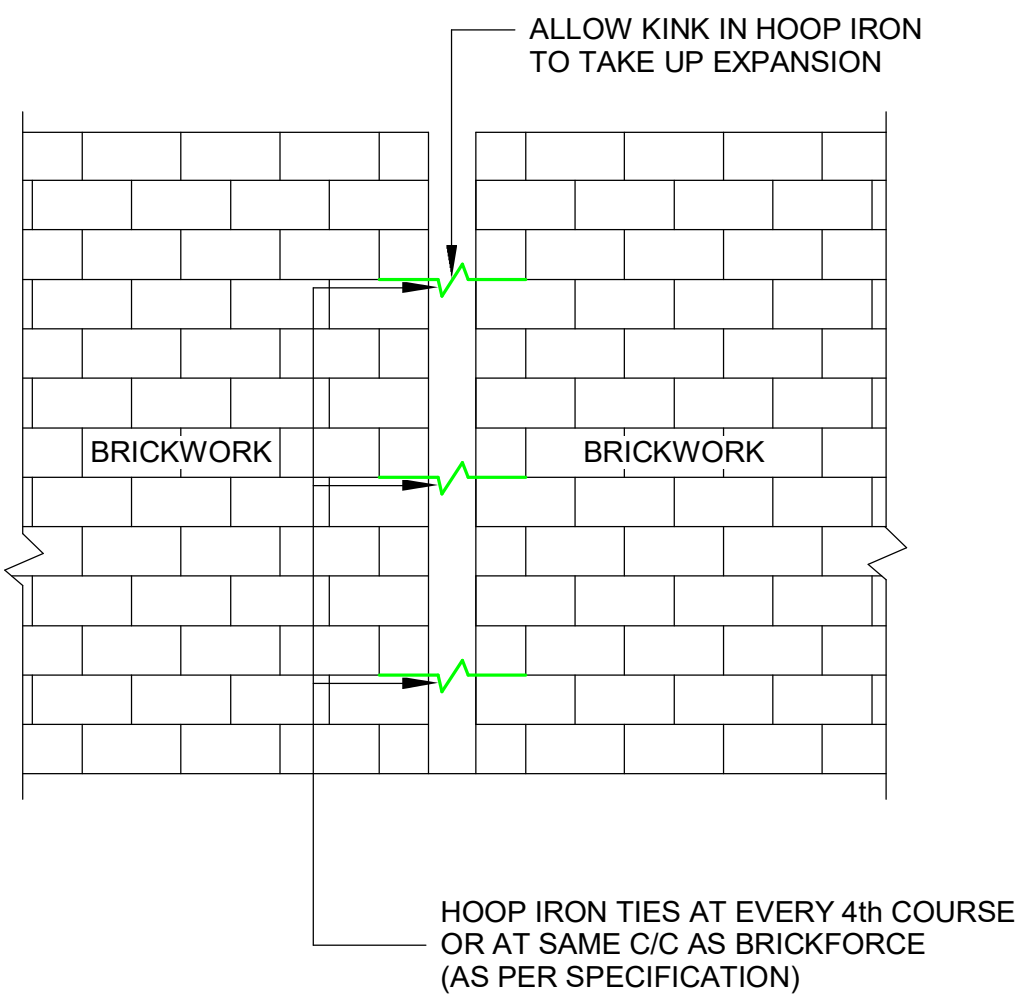
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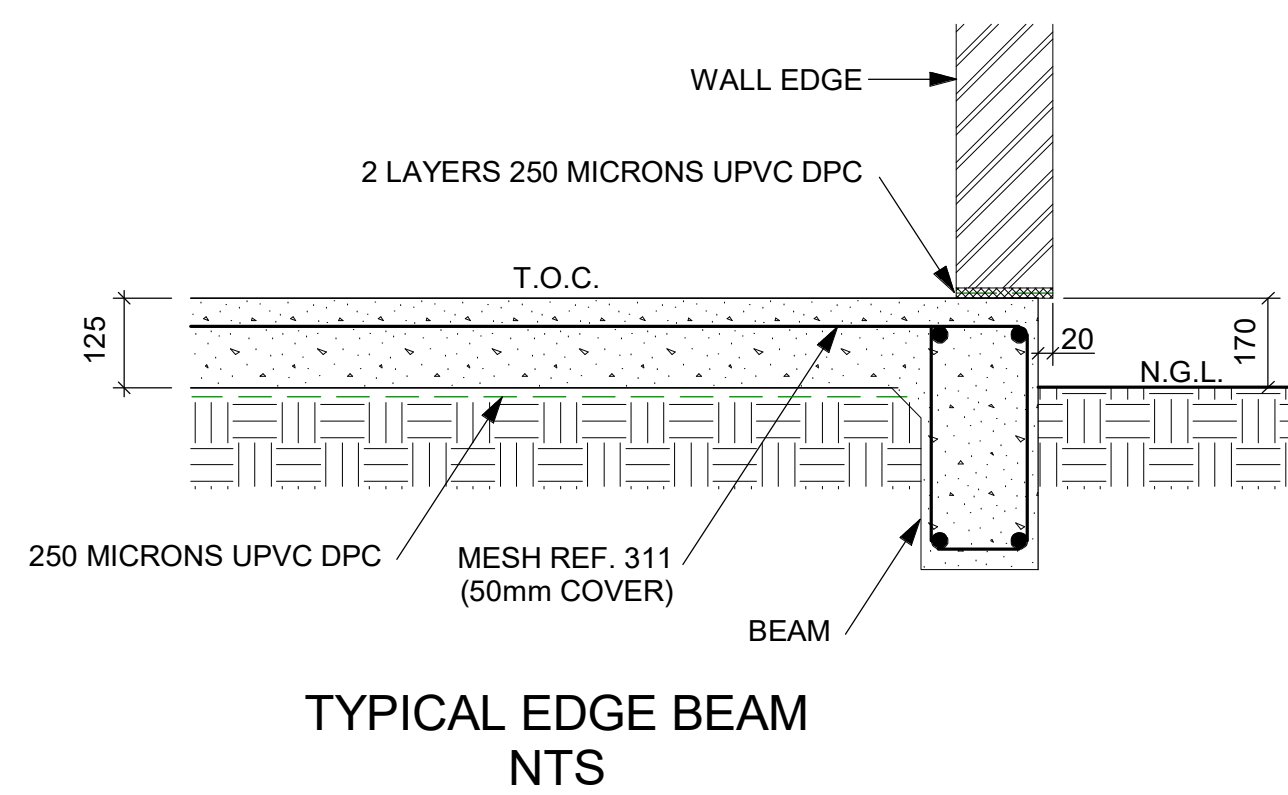
ELEVATION



SECTION A - A  
FACE BRICK ON EDGE  
LINTOLS



CONCRETE AND BRICKWORK JOINT  
NTS



TYPICAL EDGE BEAM  
NTS

MASONRY NOTES

1. WIRE TIES TO DOUBLE SKIN AND CAVITY WALLS AS PER SPECIFICATION.
2. DO NOT USE STEEL NAILS WITH STAINLESS STEEL TIES OR GALVANISED IRON TIES.
3. SANS 10164-2011 - CODE OF PRACTICE FOR UNREINFORCED MASONRY WALLING, PART 1, USED FOR THE DESIGN OF BRICKWORK.
4. BS 5628: PART 2: 2000 - CODE OF PRACTICE FOR THE USE OF MASONRY - STRUCTURAL USE OF REINFORCED AND PRE-STRESSED MASONRY.
5. LOAD BEARING BRICKWORK STRENGTHS AS FOLLOWS (SEE SANS 10400-2011, P77).
6. BRICKFORCE AT EVERY 3RD COURSE AND FOR 3 COURSES ABOVE AND BELOW CONCRETE SLABS. MINIMUM LAP TO BE 150 MM.
7. HOOP IRON TIES: USE 2 MM X 38 MM X 750 MM LONG GALVANISED HOOP IRON TIES AT SAME SPACING AS BRICKFORCE NAILED TO CONCRETE AND BUILT INTO BRICKWORK.
8. WIRE TIES TO CAVITY SOLID WALLS 3.15 MM DIAMETER GALVANISED IRON WIRE TIES - "BUTTERFLY" OR "MODIFIED PWD" TYPE REQUESTED AT THE FOLLOWING SPACING:  
A) CAVITY < 75MM - 3.0 TIES PER 1 M  
B) CAVITY > 75MM - 3.5 TIES PER 1 M
9. WIRE TIES TO 2 SKIN SOLID WALLS REQUIRED AS FOLLOWS: 3.15 MM DIAMETER GALVANISED IRON SINGLE WIRE TIES AT 3.0 TIES 2 PER 1M.
10. HOOP IRON TIES TO TRUSSES CROSS CENTRES TO SUIT TRUSSES TIES REQUESTED AS FOLLOWS:  
A) 1.6 MM GALVANISED HOOP IRON TIES X 38 MM X 1 500 MM LONG BUILT INTO BRICKWORK OR EMBEDDED IN CONCRETE.
11. BRICK WALLS WILL BE GENERALLY IN ACCORDANCE WITH SANS 10400 - 2011.
12. BRICK WALLS:  
A) STANDARD BRICK COURSE - 85 MM.  
B) SINGLE SKIN - 115 MM THICK  
C) DOUBLE SKIN (NO CAVITY) - 230 MM THICK
13. NO HOLES OR CHASES ALLOWED UNLESS APPROVED BY ENGINEER.
14. ALL BRICKWORK TO BE COMPLETED ON ONE FLOOR BEFORE PROCEEDING WITH BRICKWORK ON THE FLOOR ABOVE, UNLESS OTHERWISE APPROVED.
15. ALL INDICATED LOAD BEARING BRICK WALLS TO BE CONSTRUCTED PRIOR TO CASTING OF SLABS.
16. BRICK FORCE AT EVERY COURSE BETWEEN FOUNDATION AND GROUND FLOOR SLAB.

1. THESE NOTES ARE READ IN CONJUNCTION WITH THE SPECIFICATIONS. THE NOTES TAKE PRECEDENCE SHOULD A DISCREPANCY ARISE WHICH IS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. ALL DIMENSIONS AND SETTING OUT INFORMATION ARE CHECKED PRIOR TO THE COMMENCEMENT OF THE SETTING OUT OF THE WORKS.
3. ALL LEVELS ARE ABOVE MEAN SEA LEVEL (AMS).
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWING AND ALL DIMENSIONS VERIFIED.
5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE NATIONAL BUILDING REGULATIONS AND THE REGULATIONS AS SET OUT BY THE NH&RC.
6. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND THE CONSTRUCTION REGULATIONS.
7. SUBCONTRACTING OF ANY PORTION OF THE WORKS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AND LIABILITIES IN TERMS OF THE CONTRACT AND THE REGULATIONS NOTED IN 6.
8. ALL WET SERVICES ARE TO HAVE FLEXIBLE JOINTS AGAINST THE BUILDING.
9. STORMWATER IS TO BE ADEQUATELY ROUTED AWAY FROM THE STRUCTURE.
10. PONDING OF WATER DURING AND AFTER CONSTRUCTION IS NOT BE PERMITTED.

CONCRETE NOTES:

FOUNDATIONS

1. EXCAVATIONS FOR FOUNDATIONS TO BE APPROVED BY THE ENGINEER AND GEOTECHNICAL ENGINEER PRIOR TO THE CONCRETE BEING CAST THEREFORE FOUNDING LEVELS ARE SUBJECT TO CHANGE.
2. ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU SOIL (NOT ON FILL).
3. FOUNDING CONDITIONS AS RECOMMENDED IN THE GEOTECHNICAL REPORT BY THE GEOTECHNICAL ENGINEER.

CONCRETE

1. CONCRETE CHARACTERISTIC 28-DAY STRENGTH:  
BUILDING ..... 15 MPa  
FOUNDATIONS ..... 30 MPa  
COLUMNS ..... 30 MPa  
SUSPENDED SLABS & BEAMS ..... 30 MPa  
GROUND SLABS ..... 30 MPa
2. MINIMUM CONCRETE AGGREGATE SIZE ..... 19mm
3. ALL CONCRETE TO BE PROPERLY CURED BY KEEPING SURFACES CONTINUOUSLY DAMP FOR AT LEAST 5 DAYS AFTER CASTING.
4. ALL CONCRETE WORK MUST CONFORM WITH THE SPECIFICATIONS OF SANS 2001 (CC).
5. A SET OF THREE (3) TEST CUBES SHALL BE MADE FOR EVERY 50M<sup>3</sup> OR PORTION THEREOF FOR EVERY GRADE OF CONCRETE CAST ON A PARTICULAR DAY. CUBES SHALL BE CURED IN ACCORDANCE WITH THE SANS SPECIFICATIONS AND TESTED ON THE REQUISITE DAYS BY AN APPROVED TESTING LABORATORY AS APPROVED BY THE ENGINEER. TEST RESULTS TO BE TIMELY SUBMITTED TO ENGINEER FOR APPROVAL.
6. NO CONCRETE SHALL BE CAST WITHOUT THE ENGINEER HAVING INSPECTED THE REINFORCING. CONCRETE SHALL BE CAST ON WRITTEN APPROVAL OF THE ENGINEER.
7. BREAKS IN CONCRETE AND CONSTRUCTION JOINTS ARE ONLY TO BE MADE WITH THE APPROVAL OF THE ENGINEER.
8. THE USE OF KICKERS FOR WALL AND COLUMN CONSTRUCTION IS NOT PERMITTED.
9. SHOULD THERE BE A BREAK IN EXCESS OF 45MM, AT ANY STAGE DURING A CONCRETE POUR, THE ENGINEER IS IMMEDIATELY NOTIFIED THEREOF.
10. CONCRETE SLABS ARE NOT TO BE USED FOR THE STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
11. SHUTTERING AND FORMWORK MAY ONLY BE STRUCK ONCE THE FOLLOWING MINIMUM PERIODS HAVE ELAPSED, OR UNLESS OTHERWISE AUTHORISED IN WRITING BY THE ENGINEER. DESIGN OF FALSEWORK AND FORMWORK ARE THE CONTRACTOR'S RESPONSIBILITY.

POSITION OF SHUTTER/PROPS/STRIKE TIME

- |                                       |    |
|---------------------------------------|----|
| BEAM SIDES, WALLS, & UNLOADED COLUMNS | 2  |
| SLAB SOFFITS WITHOUT REMOVAL OF PROPS | 4  |
| BEAM SOFFITS WITHOUT REMOVAL OF PROPS | 7  |
| PROPS - UNLOADED SLABS                | 14 |
| PROPS - UNLOADED BEAMS                | 21 |

1. MINIMUM COVER TO REINFORCING:  
2. FOUNDATIONS ..... 40mm  
3. COLUMNS ..... 40mm  
4. SUSPENDED SLABS & BEAMS ..... 30mm  
5. WALLS, RETAINING WALLS ..... 40mm
6. 2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.
7. 3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
8. 4. CONCRETE FINISHES:  
9. SUSPENDED SLABS ..... WOOD FLOAT  
10. COLUMNS & WALLS ..... OFF SHUTTER  
11. BEAMS ..... OFF SHUTTER  
12. SLAB SOFFIT ..... OFF SHUTTER

ABBREVIATIONS

- T.O.C. = TOP OF CONCRETE  
N.G.L. = NATURAL GROUND LEVEL

REFERENCE DRAWINGS	
BLOCK X REINFORCEMENT DETAILS	400 MQH 002

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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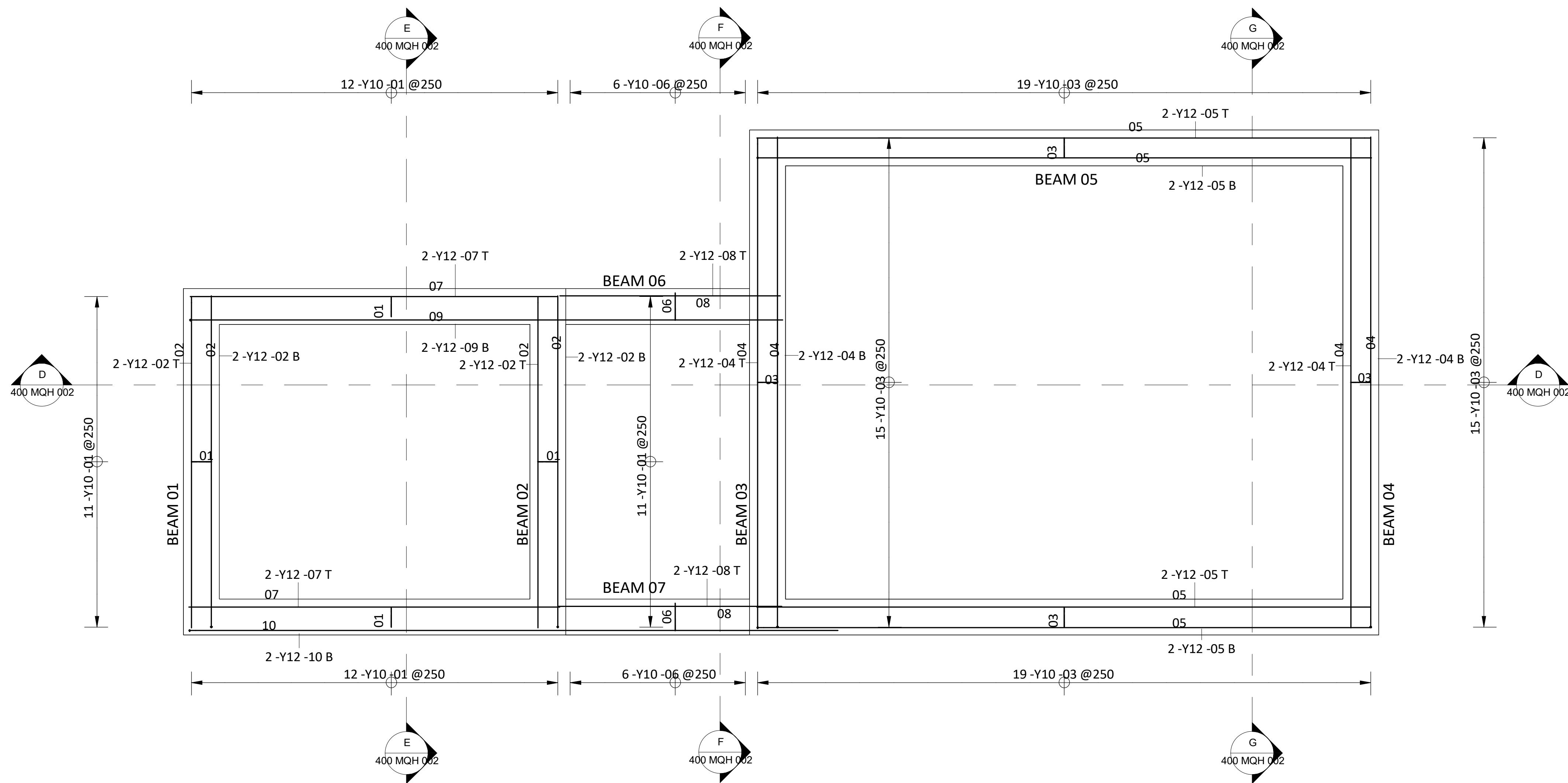
FOR TENDER	
DESIGNED BY:	NAME: SB
REVIEWED BY:	NZ
APPROVED BY:	SB
SIGNATURE	SIGNATURE
ICSA REG. NO.	ICSA REG. NO.
DATE	DATE

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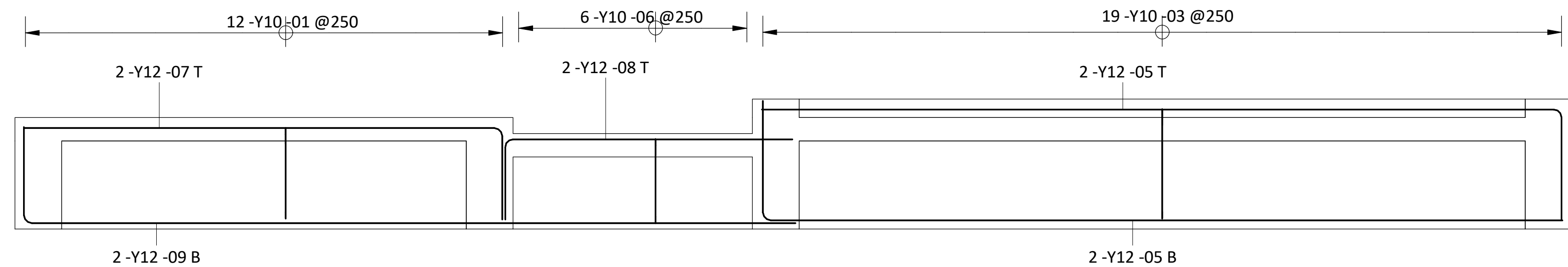
CLIENT:	
education DEPARTMENT OF FREE STATE PROVINCE D&SA	

PROJECT:	
UPGRADES AND ADDITIONS MOHAWE SECONDARY SCHOOL	
TITLE: CLASSROOM BLOCK X CONCRETE LAYOUT	
SCALE: 1: 50	DATE: 11/17/22
PROJECT NO: D19001	DRAWING NO: 400-MQH-020
CHECKED BY: NZ	REVISION: A

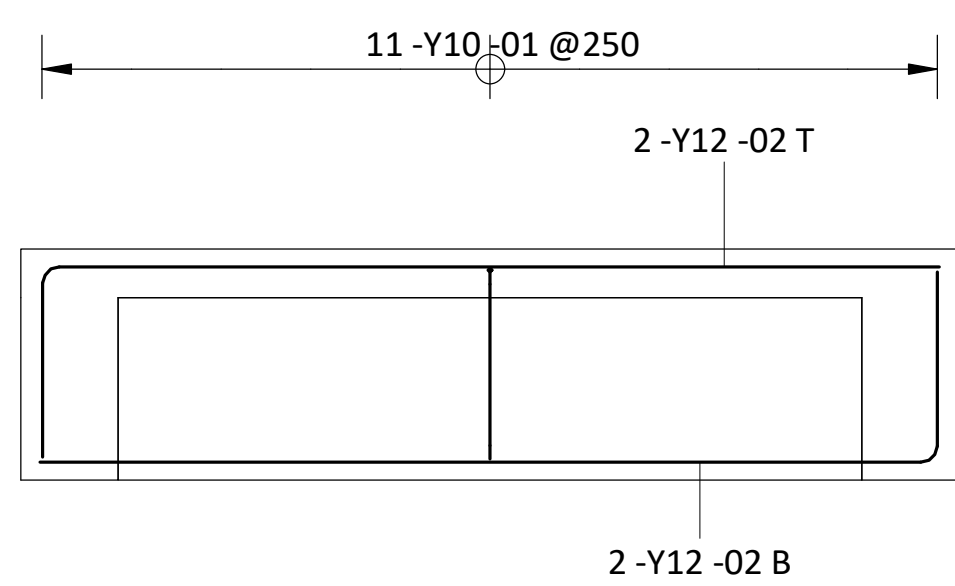




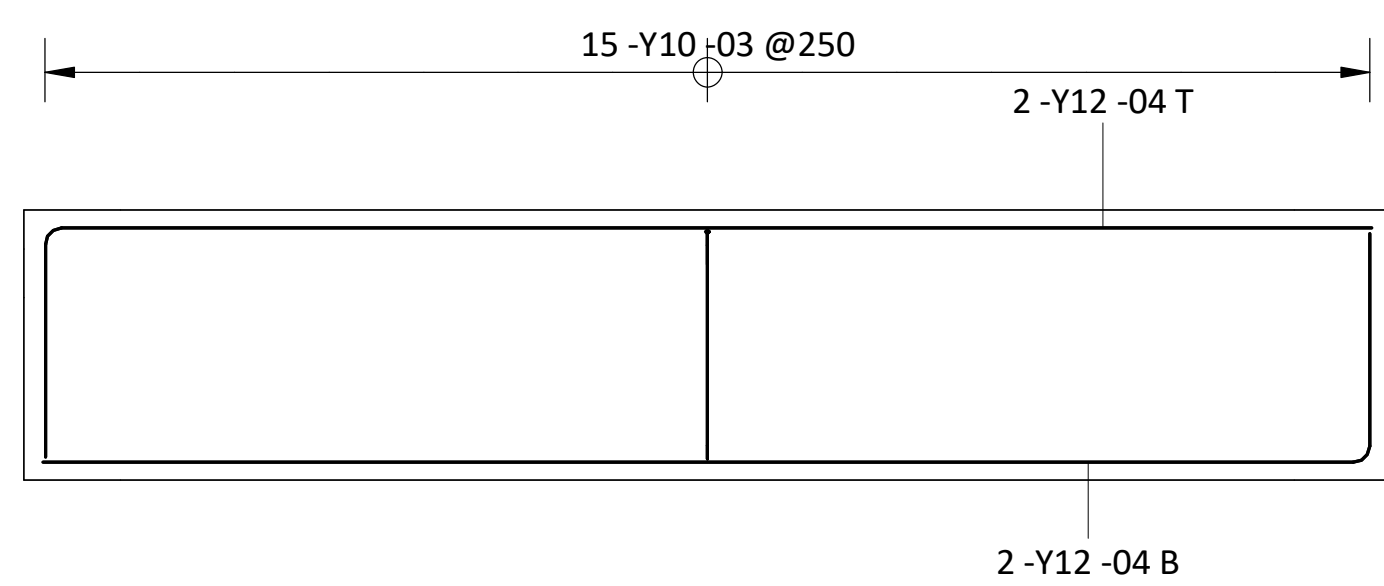
RAFT SLAB REBAR LAYOUT  
SCALE 1 : 25



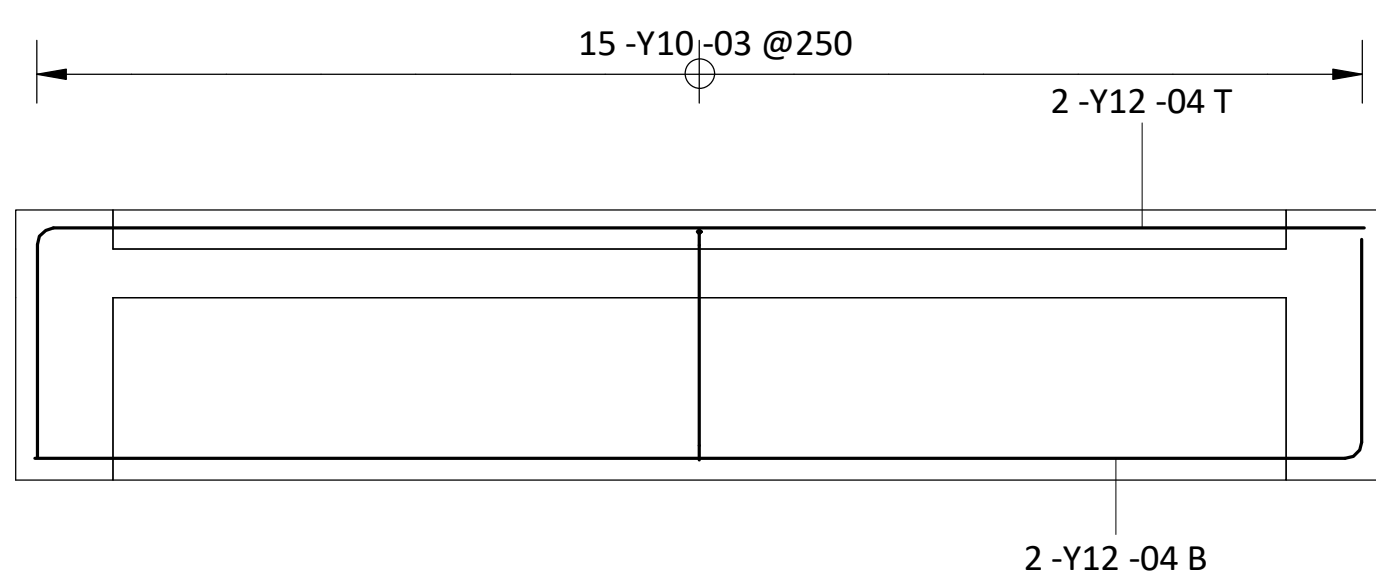
SECTION D-D  
SCALE 1 : 25



SECTION E-E  
SCALE 1 : 25



SECTION F-F  
SCALE 1 : 25



SECTION G-G  
SCALE 1 : 25

### Reinforcement Schedule

Member	No. Of	Bars Per Memb	Dia	Length	Total Number	Mark	S	C	A	B	C
BEAM 01	1	11	Y10	1340 mm	11	01	60	500 mm	150 mm	0 mm	0 mm
BEAM 01	2	2	Y12	2780 mm	4	02	37	500 mm	2310 mm	0 mm	0 mm
BEAM 02	1	11	Y10	1340 mm	11	01	60	500 mm	150 mm	0 mm	0 mm
BEAM 02	2	2	Y12	2780 mm	4	02	37	500 mm	2310 mm	0 mm	0 mm
BEAM 03	1	15	Y10	1540 mm	15	03	60	600 mm	150 mm	0 mm	0 mm
BEAM 03	2	2	Y12	3980 mm	4	04	37	600 mm	3420 mm	0 mm	0 mm
BEAM 04	1	15	Y10	1540 mm	15	03	60	600 mm	150 mm	0 mm	0 mm
BEAM 04	2	2	Y12	<varies>	4	04	37	<varies>	3420 mm	0 mm	0 mm
BEAM 05	1	19	Y10	1540 mm	19	03	60	600 mm	150 mm	0 mm	0 mm
BEAM 05	2	2	Y12	<varies>	4	05	37	<varies>	4290 mm	0 mm	0 mm
BEAM 06	1	12	Y10	1340 mm	12	01	60	500 mm	150 mm	0 mm	0 mm
BEAM 06	1	6	Y10	1370 mm	6	06	60	460 mm	200 mm	0 mm	0 mm
BEAM 06	1	2	Y12	3030 mm	2	07	37	500 mm	2570 mm	0 mm	0 mm
BEAM 06	1	2	Y12	1950 mm	2	08	37	440 mm	1540 mm	0 mm	0 mm
BEAM 06	1	2	Y12	4630 mm	2	09	37	520 mm	4140 mm	0 mm	0 mm
BEAM 07	1	12	Y10	1340 mm	12	01	60	500 mm	150 mm	0 mm	0 mm
BEAM 07	1	19	Y10	1540 mm	19	03	60	600 mm	150 mm	0 mm	0 mm
BEAM 07	2	2	Y12	4850 mm	4	05	37	600 mm	4290 mm	0 mm	0 mm
BEAM 07	1	6	Y10	1370 mm	6	06	60	460 mm	200 mm	0 mm	0 mm
BEAM 07	1	2	Y12	3060 mm	2	07	37	500 mm	2590 mm	0 mm	0 mm
BEAM 07	1	2	Y12	1970 mm	2	08	37	440 mm	1570 mm	0 mm	0 mm
BEAM 07	1	2	Y12	5020 mm	2	10	37	520 mm	4530 mm	0 mm	0 mm

NOTE:  
RAFT SLAB REINFORCEMENT  
COVER 50mm

### REINFORCEMENT

- 1.ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.
- 2.LAP LENGTHS TO REINFORCING TO BE MIN.  
45 X SMALLER DIAMETER, UNLESS OTHERWISE NOTED.
- 3.REINFORCING YIELD STRENGTH:  
HIGH TENSILE 'Y' .....450 MPA  
MILD STEEL 'R' .....250 MPA  
WELDED STEEL WIRE MESH .....485 MPA

- 4.STANDARD SANS ABBREVIATIONS:-  
ABR=ALTERNATE BARS REVERSED  
ALT=ALTERNATE  
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B1=LOWEST OF THE BOTTOM LAYERS  
B2=SECOND LOWEST OF THE BOTTOM LAYERS  
EF=EACH FACE  
EW=EACH WAY  
FF=FACE  
HOR=HORIZONTAL  
NF=NEAR FACE  
STG=STAGGERED  
T=TOP  
T1=HIGHEST OF THE TOP LAYERS  
T2=SECOND HIGHEST OF THE TOP LAYERS  
TOG=TOGETHER  
VERT=VERTICAL

1. MINIMUM COVER TO REINFORCING:  
FOUNDATIONS .....40mm  
COLUMNS .....40mm  
SUSPENDED SLABS &  
BEAMS .....30mm  
WALLS, RETAINING  
WALLS .....40mm
2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.
3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
4. CONCRETE FINISHES:  
SUSPENDED  
SLABS .....WOOD FLOAT  
COLUMNS & WALLS .....OFF SHUTTER  
BEAMS .....OFF SHUTTER  
SLAB SOFFIT .....OFF SHUTTER

- 5.STANDARD SANS ABBREVIATIONS:-  
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ISSUED FOR  
CONSTRUCTION

REFERENCE DRAWINGS	
BLOCK X CONCRETE LAYOUT	400 MQH 001

REV	DESCRIPTION DRAWING	DATE
A	ISSUED FOR TENDER	06/08/2023

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STATUS:				
FOR TENDER				
DESIGNED BY:	NAME	SIGNATURE	ECSA REG. No.	DATE
REVIEWED BY:	NZ			
APPROVED BY:	SB			

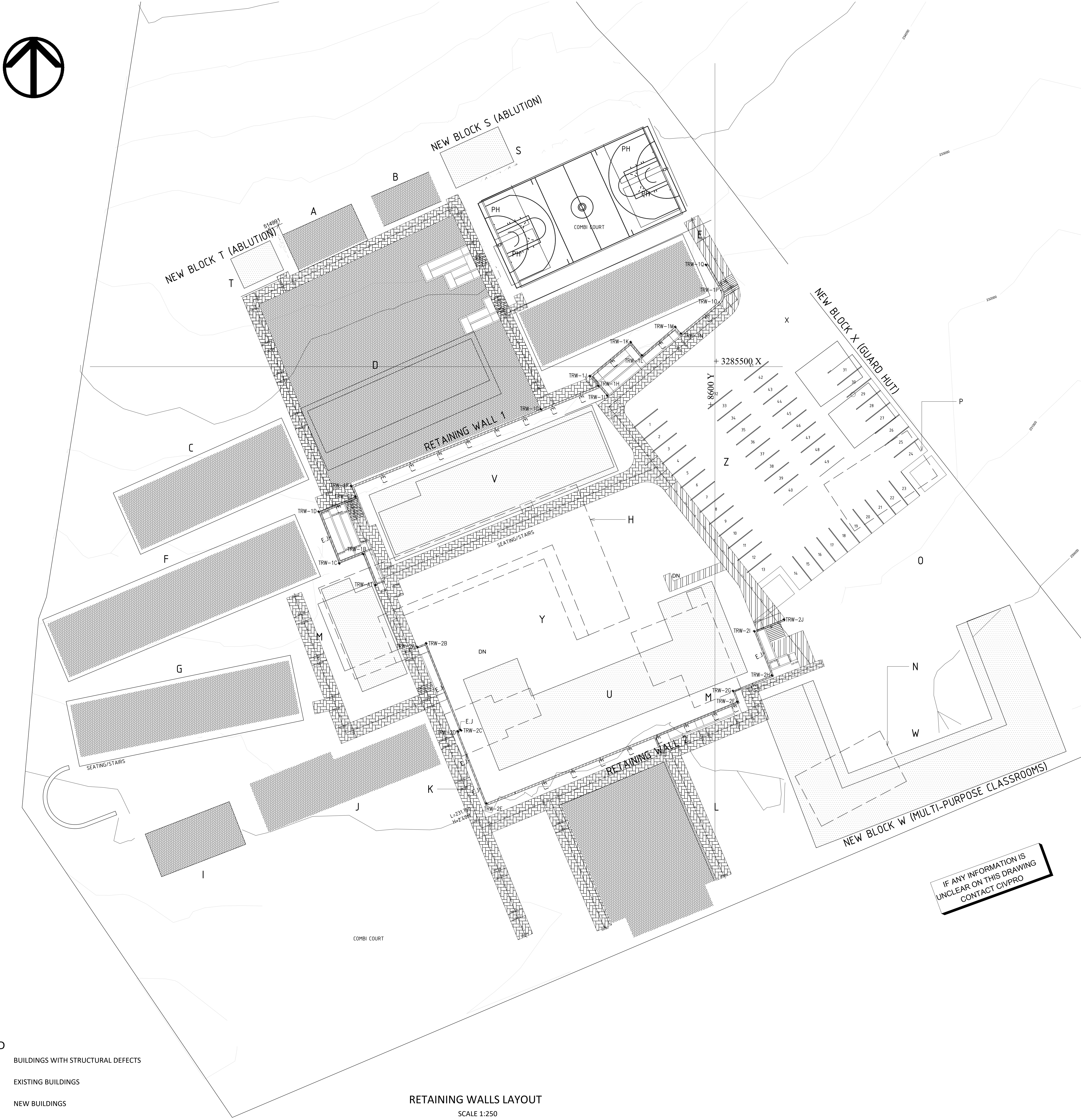
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CLIENT :	
 	

PROJECT : UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL		
TITLE : CLASSROOM BLOCK X REINFORCEMENT DETAILS		
SCALE : 1 : 25	DATE : 11/17/22	CHECKED BY : NZ
PROJECT NO : D19001	DRAWING NO : 400-MQH-021	REVISION : B





BUILDINGS WITH STRUCTURAL DEFECTS

EXISTING BUILDINGS

NEW BUILDINGS

BUILDINGS TO BE DEMOLISHED

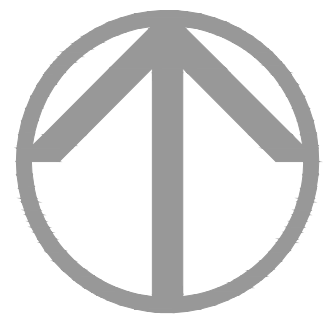
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DĚSA

1. MINIMUM COVER TO REINFORCING:	
2. FOUNDATIONS .....	40mm
3. COLUMNS .....	40mm
4. SUSPENDED SLABS & BEAMS .....	30mm
5. WALLS, RETAINING WALLS .....	40mm
6. 2. ONLY CONCRETE COVER BLOCKS APPROVED BY THE ENGINEER ARE TO BE USED TO MAINTAIN THE REQUIRED COVER TO REINFORCEMENT.	
7. 3. THE CONTRACTOR TAKES PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT IS MAINTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.	
8. 4. CONCRETE FINISHES:	
9. SUSPENDED SLABS .....	WOOD FLOAT
10. COLUMNS & WALLS .....	OFF SHUTTER
11. BEAMS .....	OFF SHUTTER
12. SLAB SOFFIT .....	OFF SHUTTER





#### LEGEND

- BUILDINGS WITH STRUCTURAL DEFECTS
- EXISTING BUILDINGS
- NEW BUILDINGS
- BUILDINGS TO BE DEMOLISHED
- UNDERPINNING POSITIONS SPACED AT 2m (OPTION - A)
- UNDERPINNING POSITIONS SPACED AT 2m (OPTION - B)

#### STRUCTURAL REPAIRS LAYOUT

SCALE 1:250

REFERENCE DRAWINGS	

REFERENCE DRAWINGS	

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	06/08/2023

REV	DESCRIPTION	DATE

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FOR TENDER				
DESIGNED BY:	N.Z.	SIGNATURE	ECSA REG. NO.	DATE
REVIEWED BY:	S.B.		200270177	
APPROVED BY:	S.B.		200270177	

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DBSA

CLIENT:  
  
education  
Department of  
FREE STATE PROVINCE

PROJECT: UPGRADES AND ADDITIONS MQHAWE SECONDARY SCHOOL			
TITLE: STRUCTURAL REPAIRS DETAILS			
SCALE: AS SHOWN	DATE: 26/05/2023	DRAWN BY: KW	CHECKED BY: SB
PROJECT NO: D19001	DRAWING NO: 400-MQH-030	REVISION: A	

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- ALL LEVELS ARE ABOVE MEAN SEA LEVEL (AMSL).
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#### NOTE - A

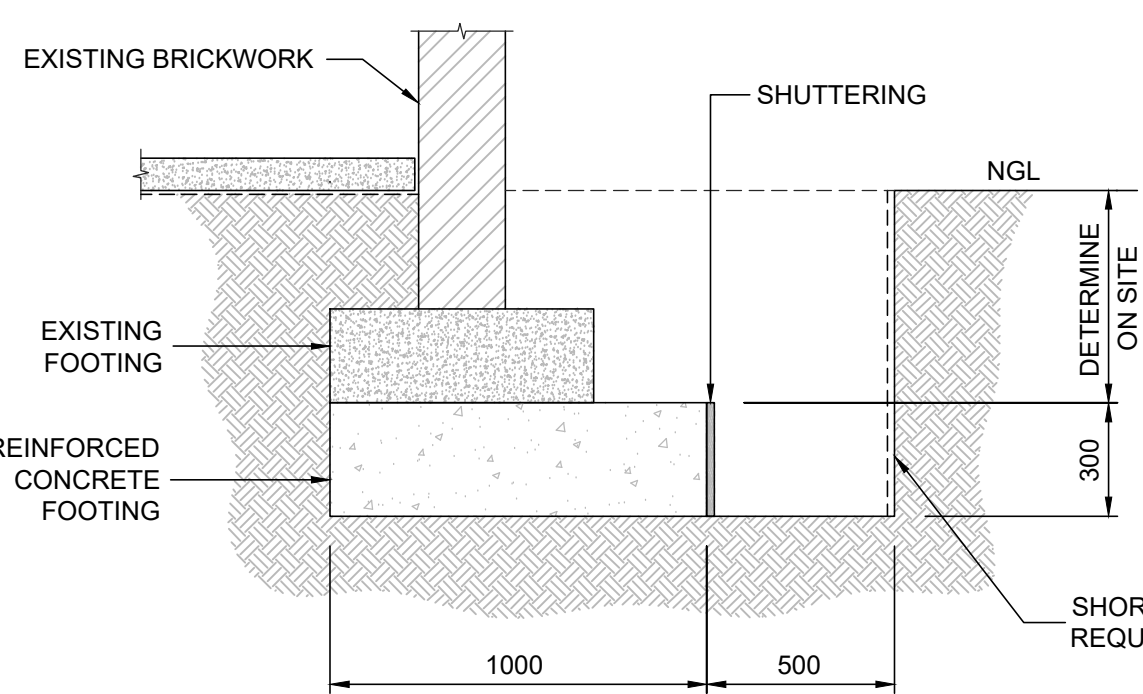
##### CONCRETE CRACK REPAIR METHODOLOGY

- BREAK OUT ALL RAVELED EDGES OF THE CRACK FOR THE FULL EXTENT OF THE CRACK AND FORM A "V" SHAPED GROOVE.
- REMOVE ALL DEBRIS FROM CRACK USING WIRE BRUSH OR HIGH PRESSURE WASHER OR COMPRESSED AIR TO CLEAN OUT CRACK.
- FILL CRACK WITH AN APPROVED NON-SHRINK GROUT ENSURING THAT GROUT PENETRATES THE FULL DEPTH OF A CRACK.
- USE WOOD FLOAT OR STEEL FLOAT TO THE SURFACE TO ACHIEVE TEXTURE TO MATCH EXISTING.
- LET THE GROUT CURE AS PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.

#### UNDERPINNING NOTES:

- THIS INVOLVES AN INITIAL EXCAVATION OF A NARROW PIT ALONGSIDE THE EXISTING FOUNDATION IN LIMITED LENGTHS (PREFERABLY 1000mm LONG). THIS PIT MUST BE EXCAVATED DOWN TO THE ANTICIPATED NEW FOUNDING LEVEL AND SHALL BE LARGE ENOUGH TO ALLOW REASONABLE WORKING SPACE.
- SHORING TO BE PROVIDED IF THE DEPTH OF EXCAVATION EXCEEDS 1.5m OR IN CASE OF COLLAPSIBLE MATERIAL.
- A NARROW TRENCH IS THEN EXCAVATED FROM THE PIT EXTENDING UNDER THE EXISTING FOUNDATION AND DOWN TO THE FOUNDING STRATUM. THE BASE OF THE EXCAVATION IS THEN CLEANED UP AND 30MPa MASS CONCRETE FOOTING IS CAST.
- EXCAVATION SHOULD START AT CORNERS AND THEN WORK INWARDS.

THE FINAL OPERATION IS THE BACKFILLING OF THE PIT.

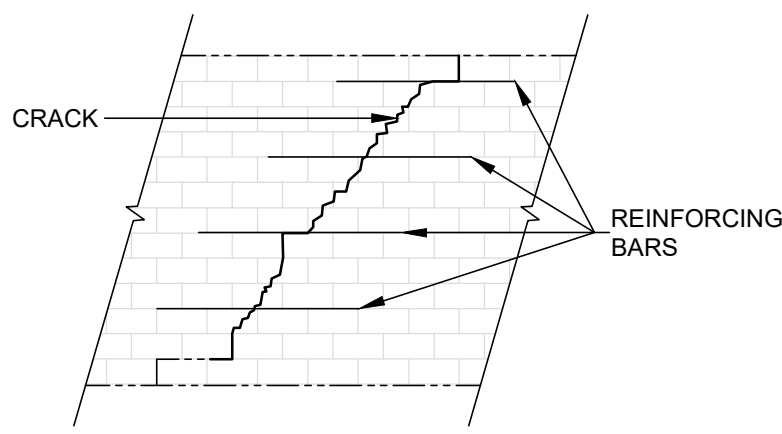


PROPOSED UNDERPINNING  
DETAIL A - OPTION - B

#### METAL STITCHING METHODOLOGY

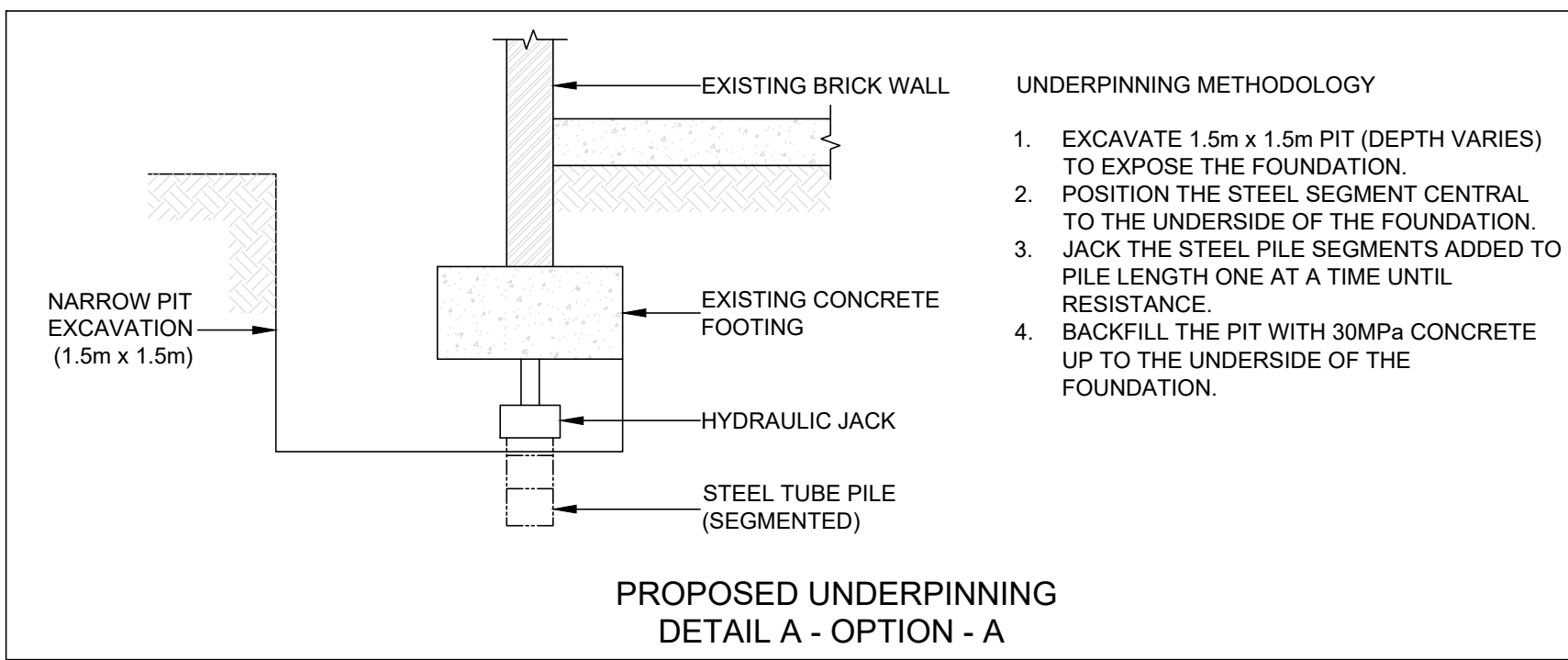
THE STRUCTURAL CRACKS ARE TO BE METAL STITCHED USING 1000MM LONG THORHELICAL OR SIMILAR APPROVED 9MM DIAMETER HELICAL BARS WHICH ARE TO BE INSTALLED AT EVERY 4TH COURSE FOR THE LENGTH OF THE CRACK BEING REPAIRED AS INDICATED THE DETAIL AND IN THE FOLLOWING STEPS:

- GRIND OUT MORTAR BED JOINT TO A DEPTH OF 40mm x 500mm LONG EITHER SIDE OF THE CRACK.
- CLEAR DEBRIS FROM THE SLOT AND THOROUGHLY FLUSH OUT WITH WATER OR BLAST WITH COMPRESSED AIR.
- APPLY A BED OF 30MPa GROUT TO THE BACK OF THE SLOT TO APPROXIMATELY 10mm FROM THE SURFACE.
- PUSH THE THORHELICAL BAR BACK INTO THE GROUT FILLED SLOT, TROWEL BACK THE DISPLACED GROUT.
- FINISH FACE BRICK GROUT JOINT INLINE WITH EXISTING.



PROPOSED METAL STITCHING  
DETAIL C

IF ANY INFORMATION IS  
UNCLEAR ON THIS DRAWING  
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#### UNDERPINNING METHODOLOGY

- EXCAVATE 1.5m x 1.5m PIT (DEPTH VARIES) TO EXPOSE THE FOUNDATION.
- POSITION THE STEEL SEGMENT CENTRAL TO THE UNDERSIDE OF THE FOUNDATION.
- JACK THE STEEL PILE SEGMENTS ADDED TO PILE LENGTH ONE AT A TIME UNTIL RESISTANCE.
- BACKFILL THE PIT WITH 30MPa CONCRETE UP TO THE UNDERSIDE OF THE FOUNDATION.

#### BRICKWALL (RECONSTRUCTION) METHODOLOGY

- PARTIALLY DEMOLITION BRICKWORK WITH DESTABILISED OR DISLODGED BRICKS UP TO UNDISTURBED SECTIONS OF THE WALL.
- BLAST CLEAN TO REMOVE ALL DEBRIS AND LOOSE MATERIAL.
- RECONSTRUCT WALL USING SIMILAR BRICKS AND APPROPRIATE BRICKFORCE.

