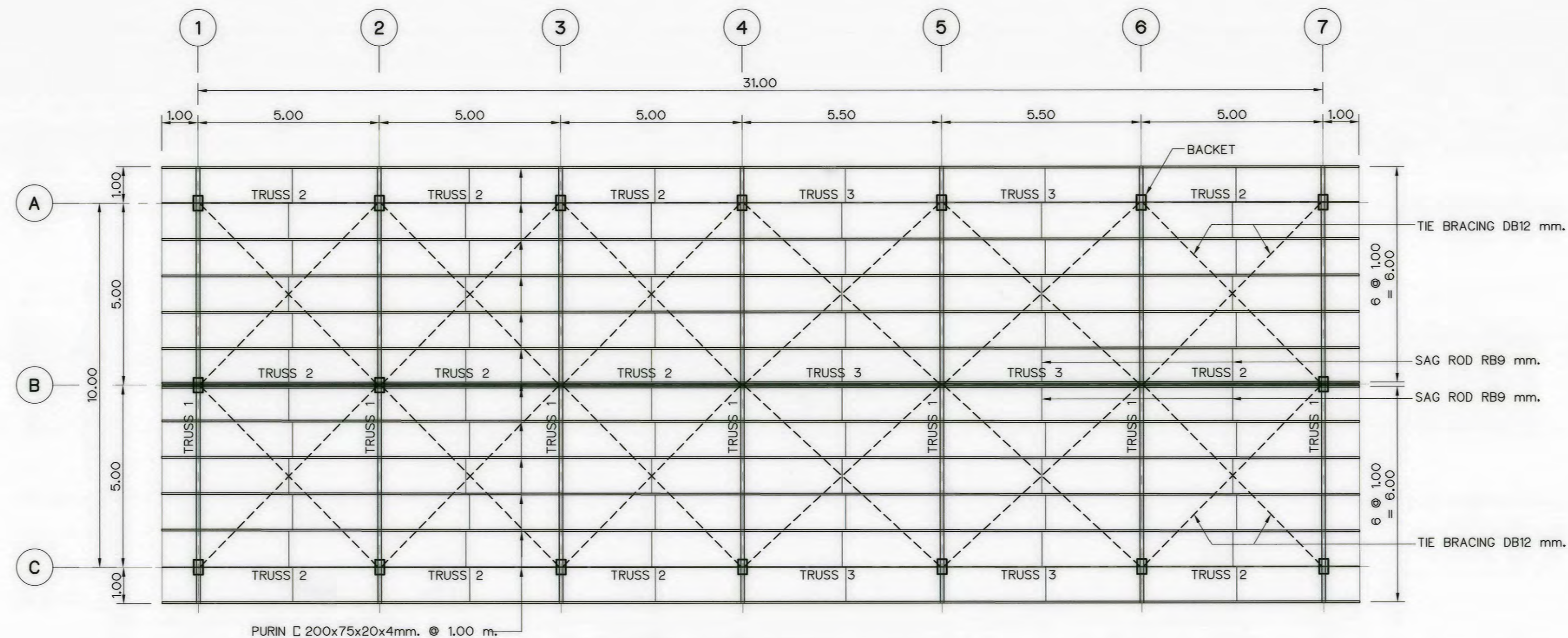
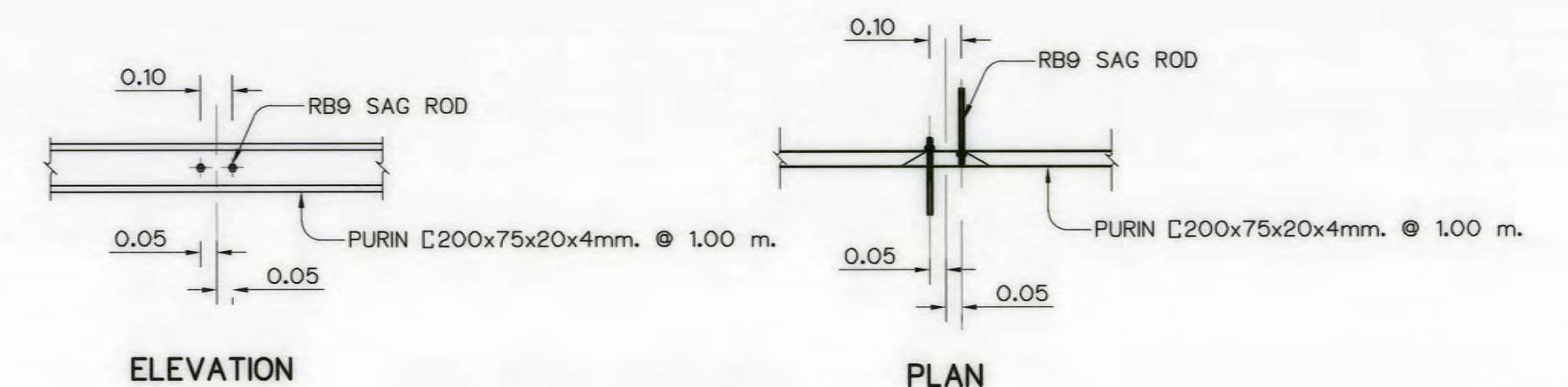
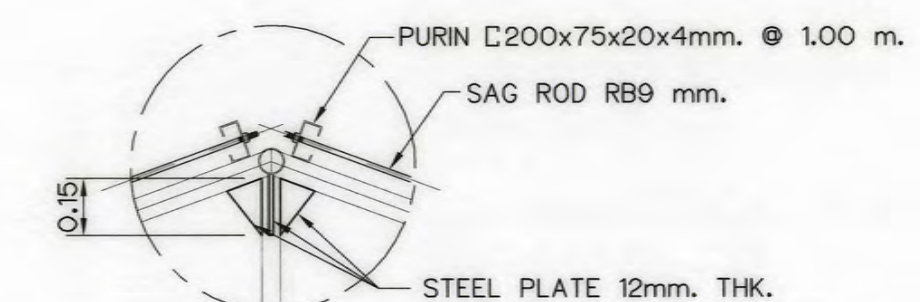




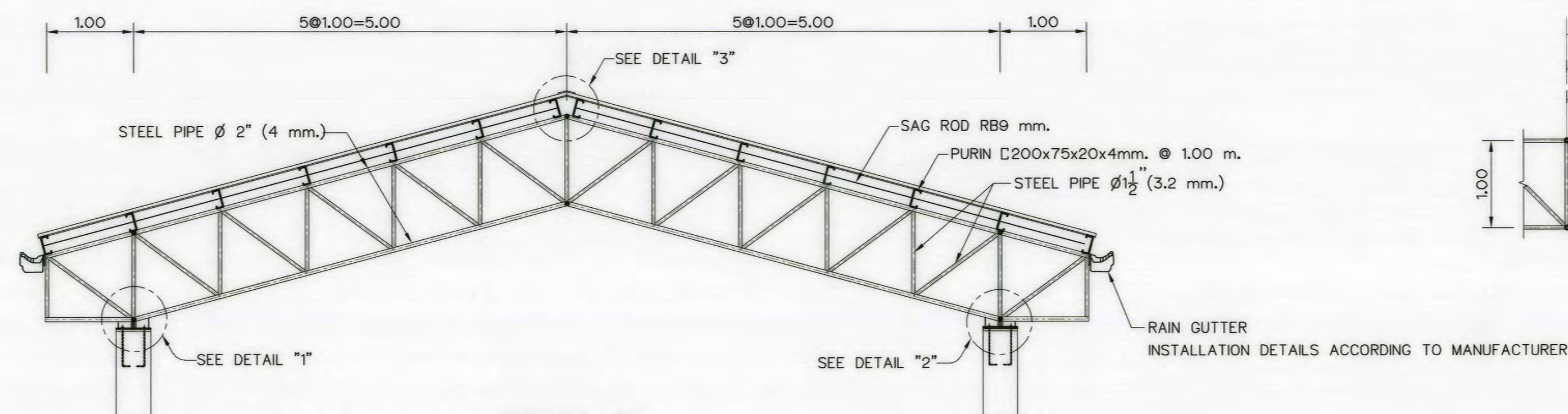
ROOF STRUCTURE PLAN
SCALE 1:100



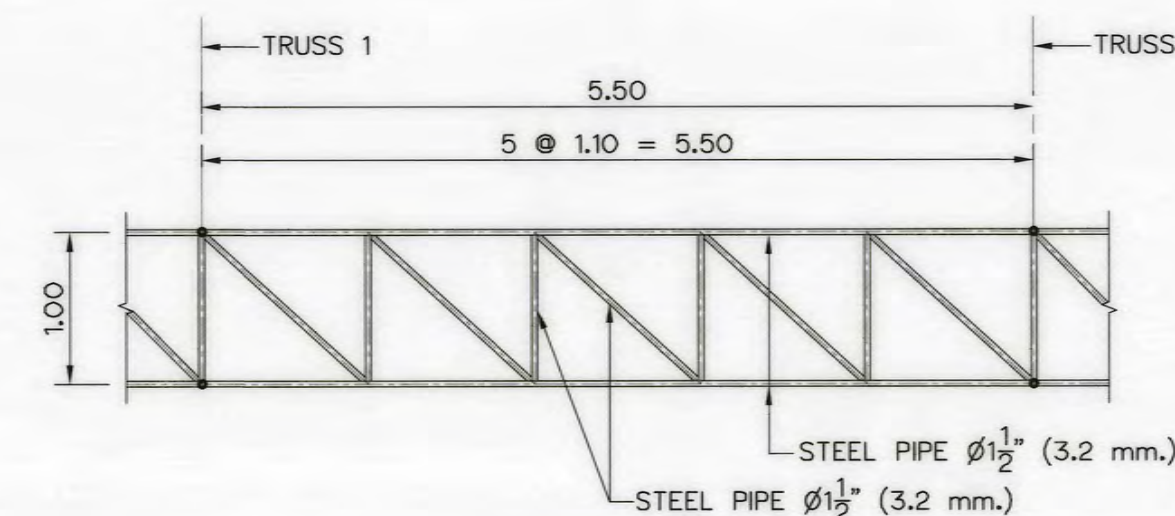
SAG ROD DETAILS
SCALE 1:20



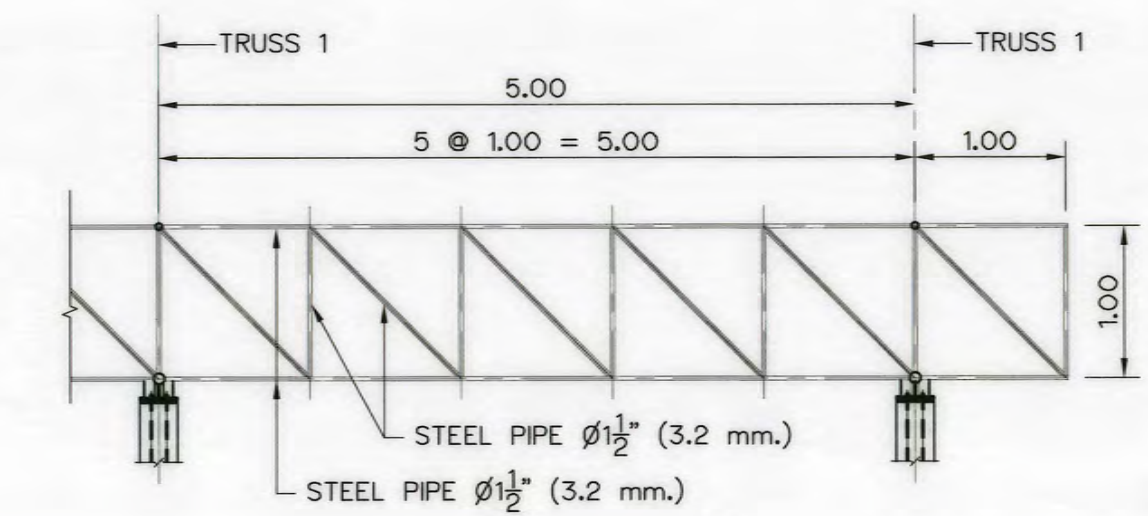
DETAIL "3"
SCALE 1:20



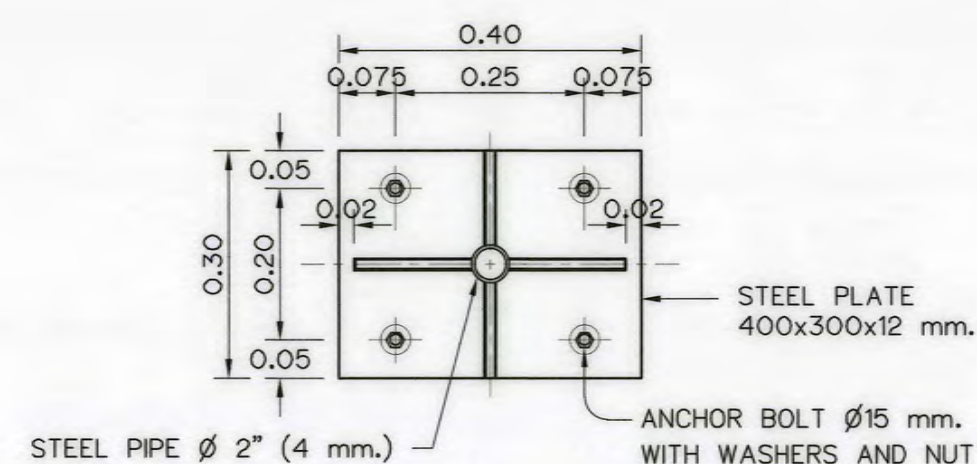
TRUSS T1
SCALE 1:50



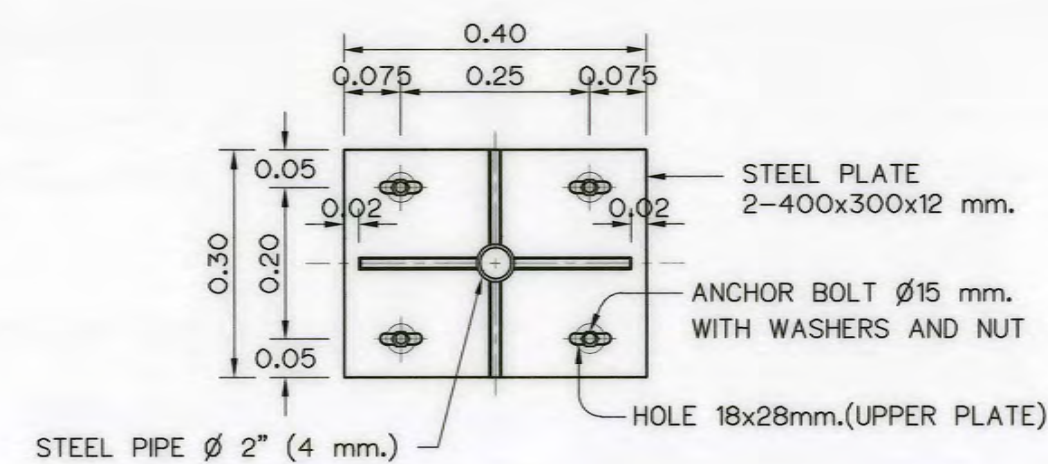
TRUSS T3
SCALE 1:50



TRUSS T2
SCALE 1:50



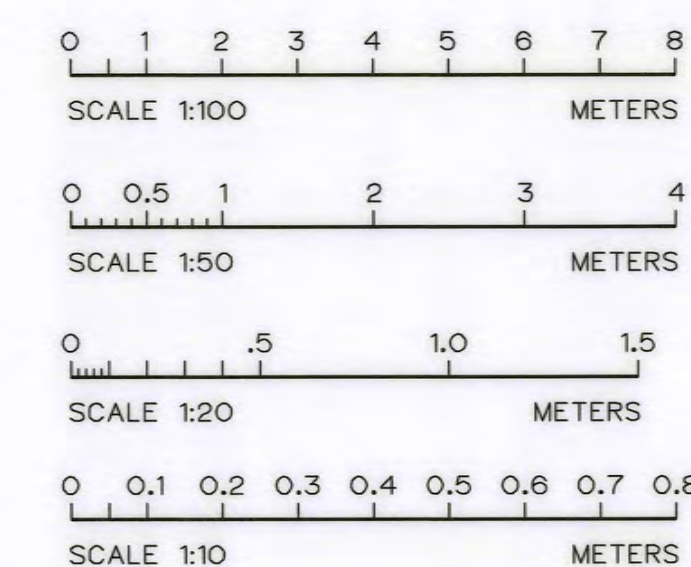
DETAIL "1"
FIXED END SUPPORT
SCALE 1:10



DETAIL "2"
FREE END SUPPORT
SCALE 1:10

- NOTES :
1. ALL DIMENSIONS ARE IN METRES
 2. REINFORCEMENT BARS ARE IN MILLIMETRES, UNLESS OTHERWISE SHOWN.
 3. ALL WELDING CONNECTIONS USE 6 mm. E60
 4. STEEL SHALL BE IN ACCORDANCE WITH ASTM A36-81 a. OR TIS. 1227-2539 SS400
 5. BOLT AND CONNECTOR SHALL CONFORM TO ASTM 325 OR TIS.171-2530 CLASS 8.8, HEX NUT SHALL CONFORM TO TIS.672-2530 TYPE1 CLASS A OR CLASS B, SPRING WASHER SHALL CONFORM TO TIS.259-2531, ANCHOR BOLT, CONNECTOR, HEX NUT AND SPRING WASHER USED HOT DIP GALVANIZED 305 g/m² THK. SHALL CONFORM TO ASTM-A 153

- REFERENCES :
1. POWERHOUSE, SECTIONS
- AKP-PH-04



3				
2				
1				
NO.	DATE	REVISIONS	CHECKED	APPROVED

KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE POWERHOUSE TRUSS SECTIONS AND DETAILS	
P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	REVIEWED DESIGNED DRAWN CHECKED PROJECT MANAGER
28/10/2021 DATE	SUBMITTED RECOMMENDED APPROVED DRAWING NO. SHEET NO.
DEDE	70 OF 129

FOOTING PLAN

SECTION C-C

SECTION B-B
SCALE 1:50

SECTION A-A
SCALE 1:50

SECTION D-D

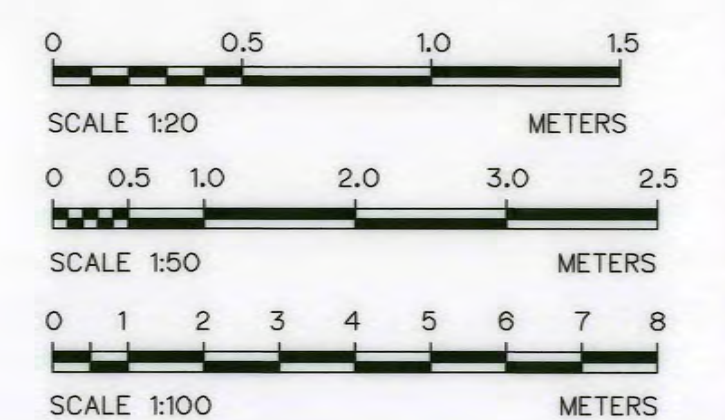
SECTION E-E
SCALE 1:25

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS,
UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03

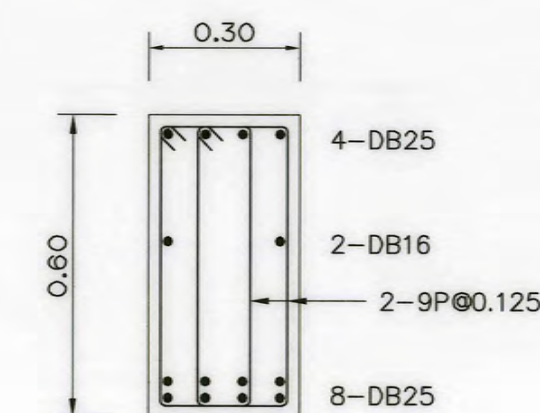
REFERENCE DRAWINGS :

- | | |
|-------------------------|-----------|
| 1. POWERHOUSE, PLAN | AKP-PH-02 |
| 2. POWERHOUSE, SECTIONS | AKP-PH-04 |

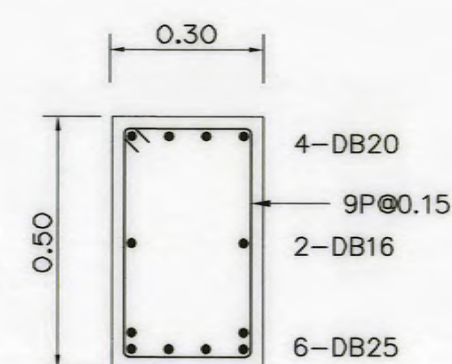


FOOTING (F)

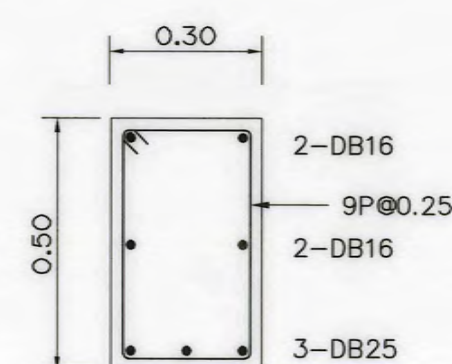
3					 SPT CONSULTANTS CO., LTD. DESIGNED <i>Wm</i> JIB.29074 <i>GR</i> 28.9482 DRAWN <i>GR</i> CHECKED <i>GR</i> 28.8231	REVIEWED <i>GR</i> SUBMITTED <i>GR</i> RECOMMENDED <i>GR</i> APPROVED <i>Wm</i>	MINISTRY OF ENERGY SHEET NO. 71 of 129	
2								
1								
NO.	DATE	REVISIONS	CHECKED	APPROVED				
CONSULTANTS					DEDE	28/10/2021 PROJECT MANAGER DATE	DRAWING NO. AKP-PH-09	



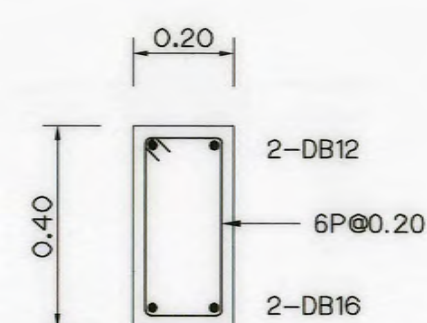
BEAM B1
SCALE 1:15



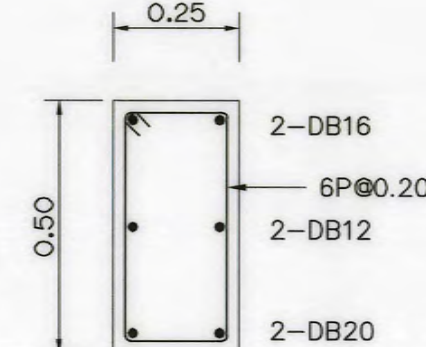
BEAM B3
SCALE 1:15



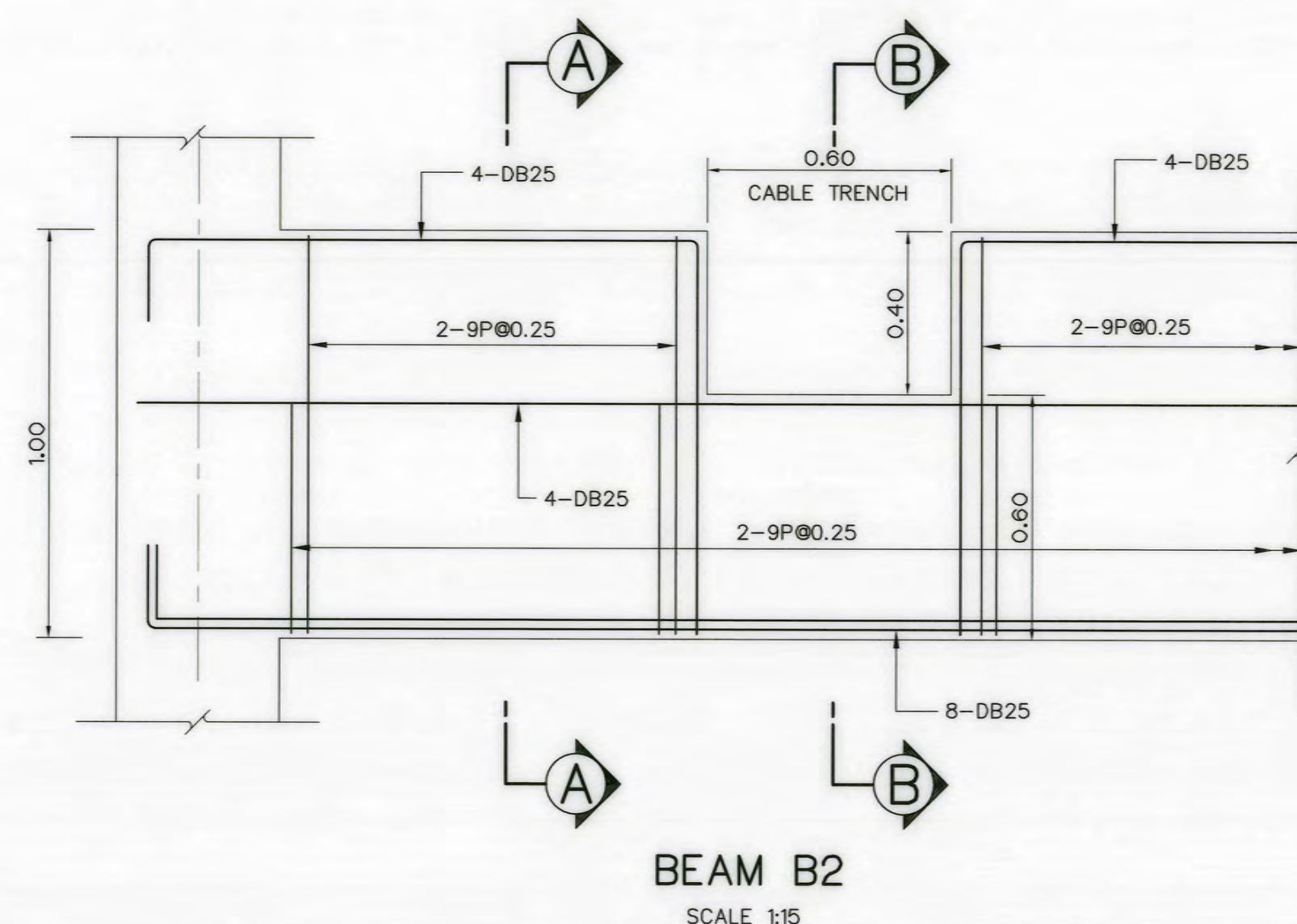
BEAM B5
SCALE 1:15



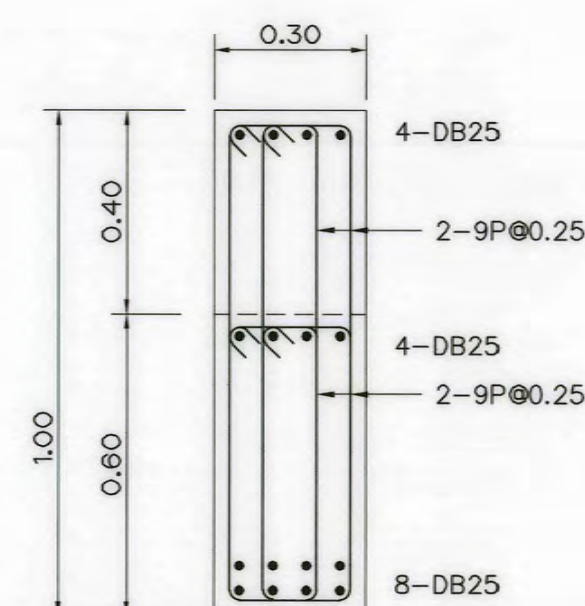
BEAM B6
SCALE 1:15



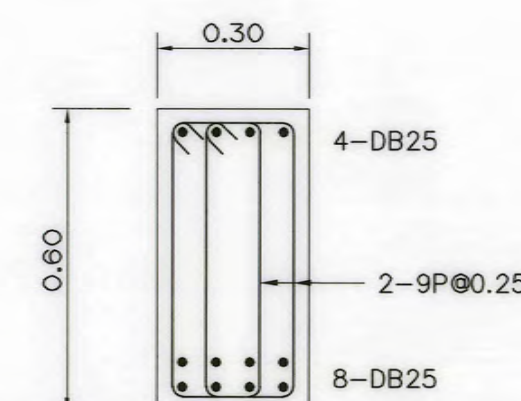
BEAM B7
SCALE 1:15



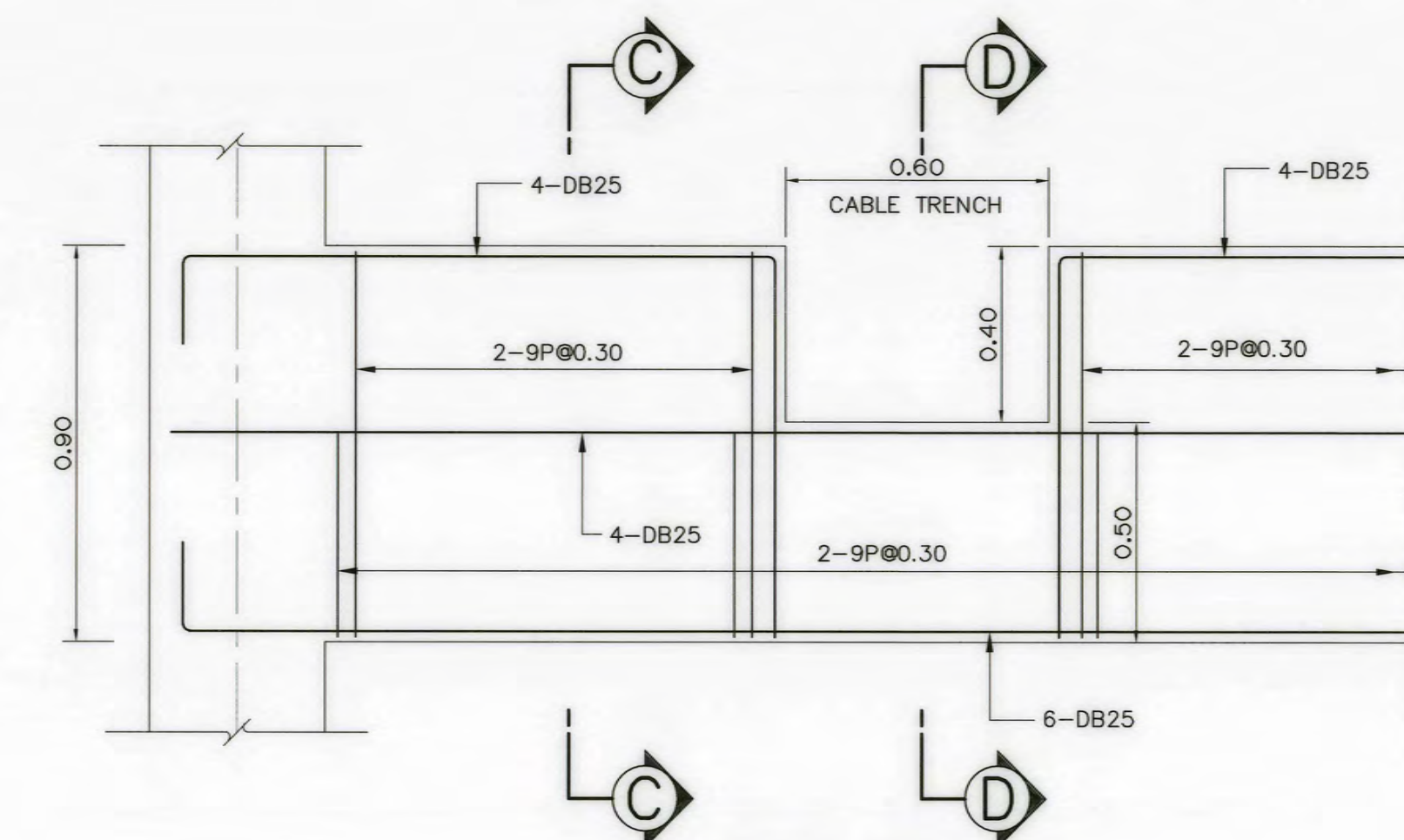
BEAM B2
SCALE 1:15



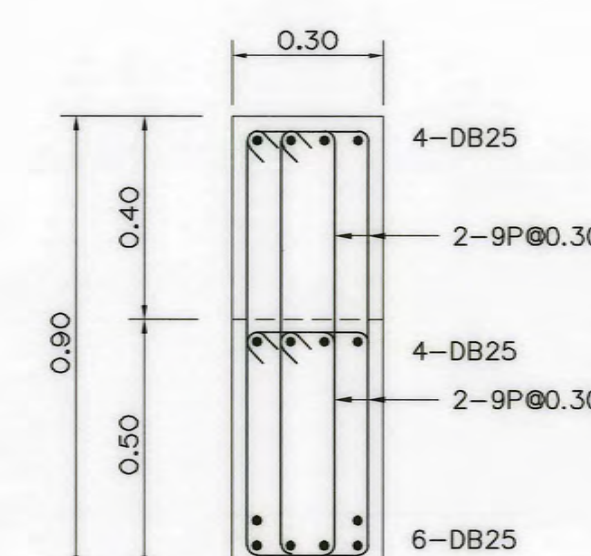
SECTION A-A
SCALE 1:15



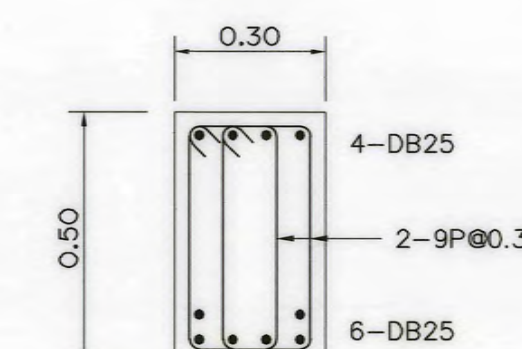
SECTION B-B
SCALE 1:15



BEAM B4
SCALE 1:15

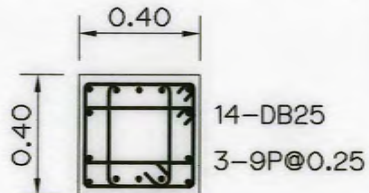
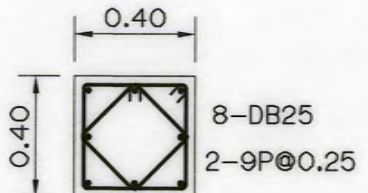
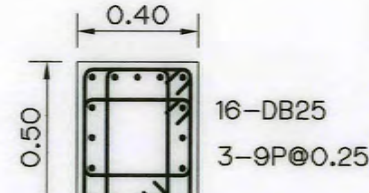
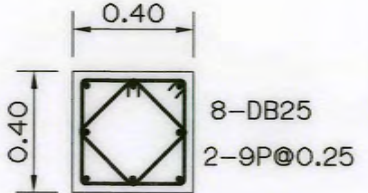
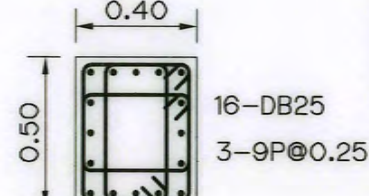
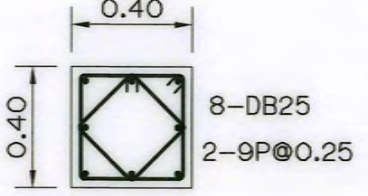


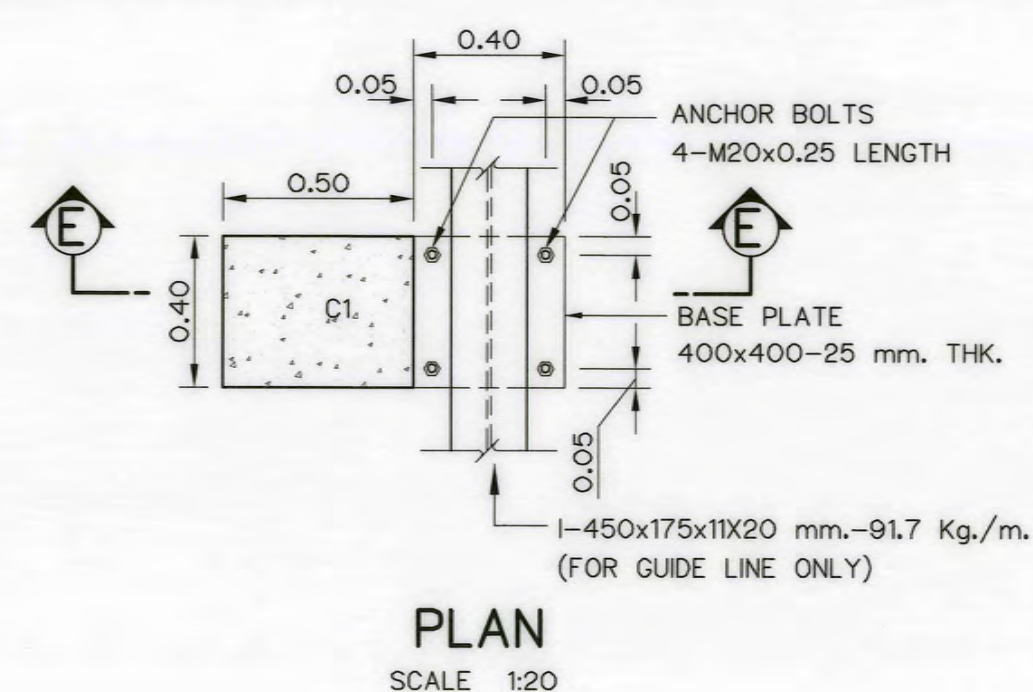
SECTION C-C
SCALE 1:15



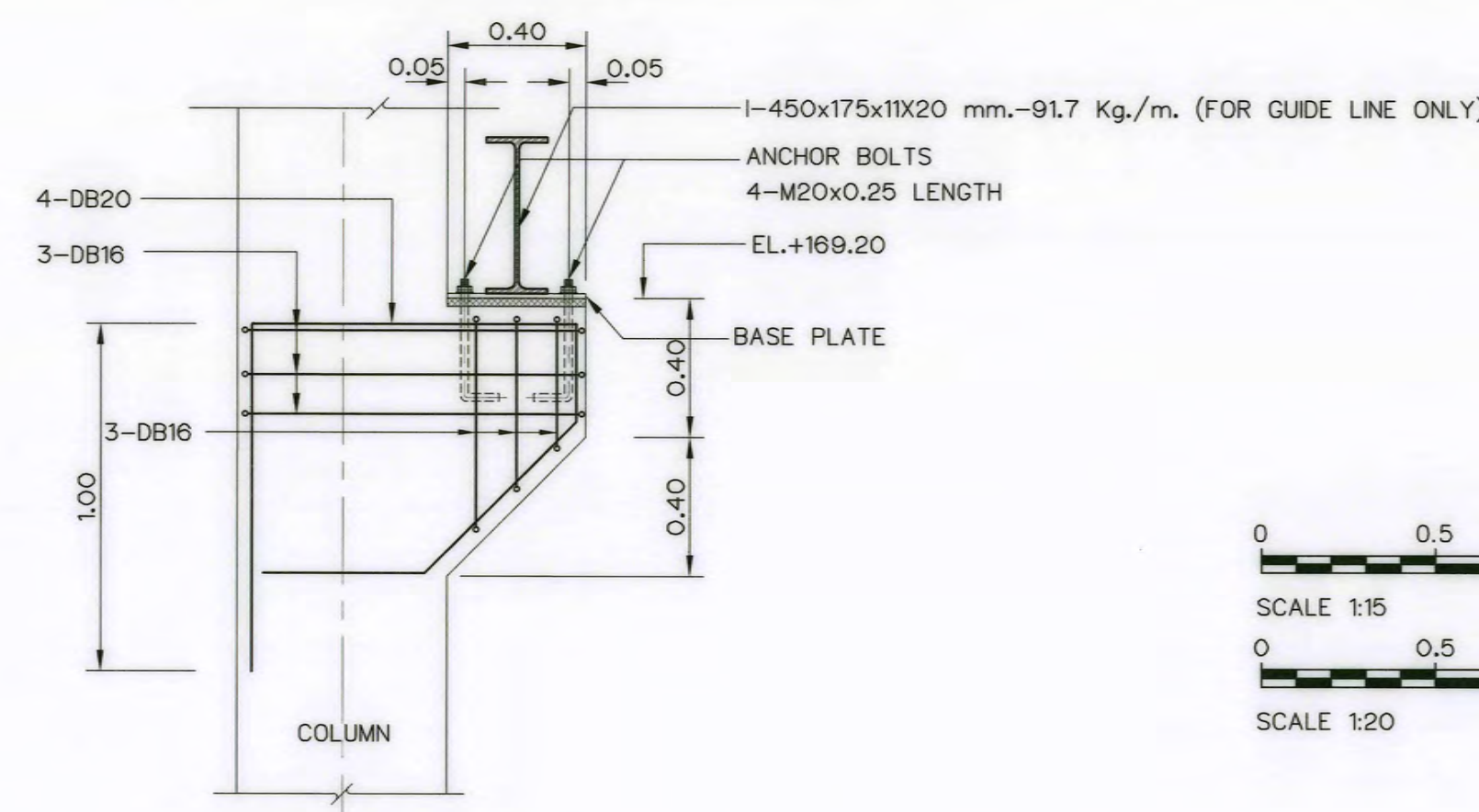
SECTION D-D
SCALE 1:15

COLUMN SCHEDULE

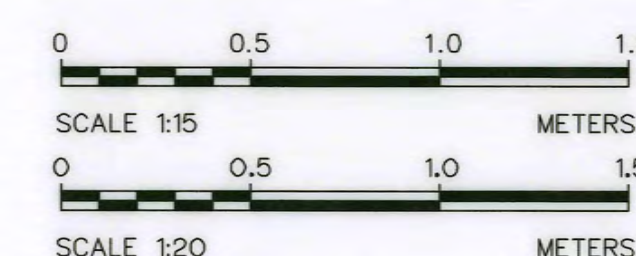
COLUMNS	C1	C2	C3
FLOOR			
ROOF (EL.+171.20)			
2nd FLOOR (EL.+167.20)			
2nd FLOOR (EL.+167.20)			LANDING (EL.+165.85)
GROUND FLOOR (EL.+163.20)			GROUND FLOOR (EL.+163.10)
GROUND FLOOR (EL.+163.20)			
FOOTING (EL.+161.20)			



PLAN
SCALE 1:20



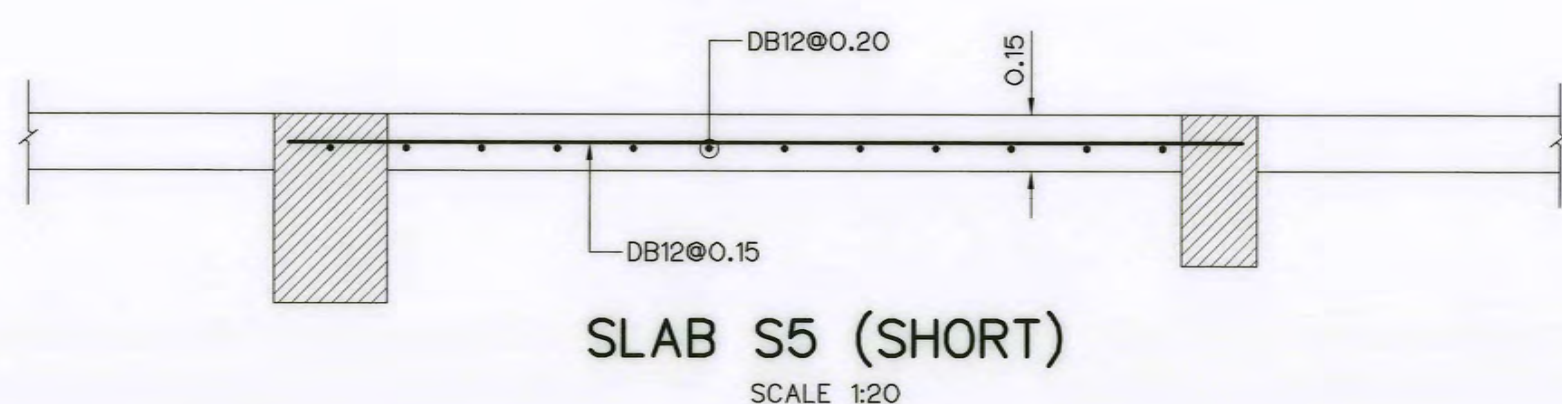
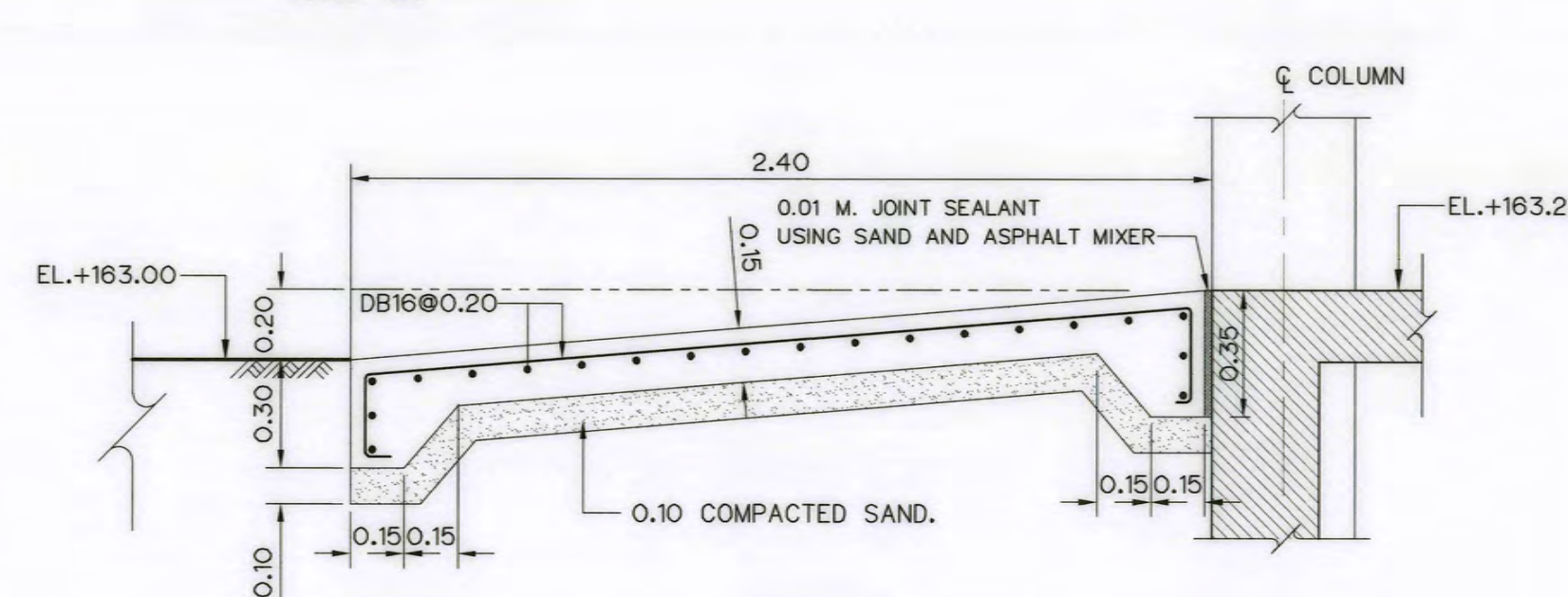
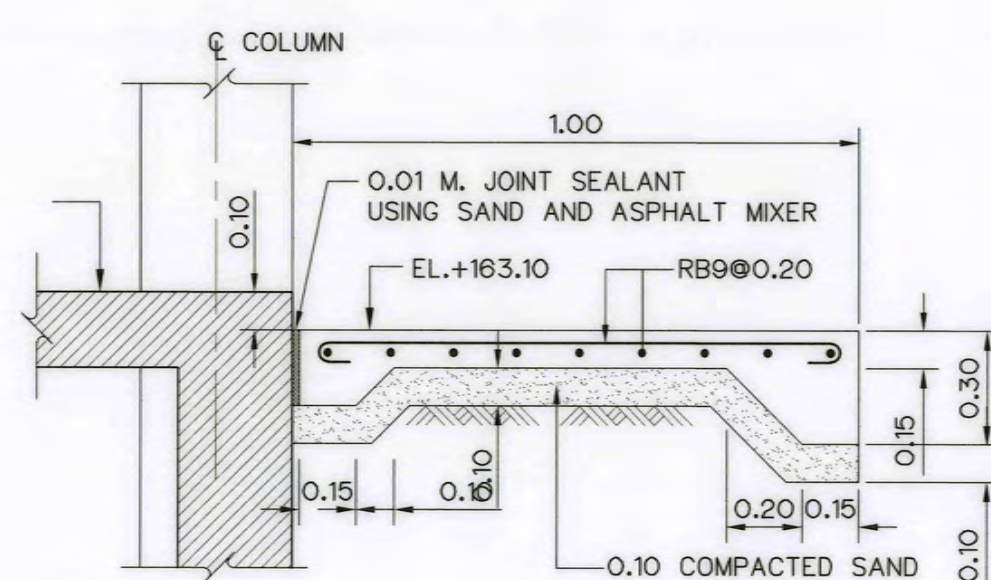
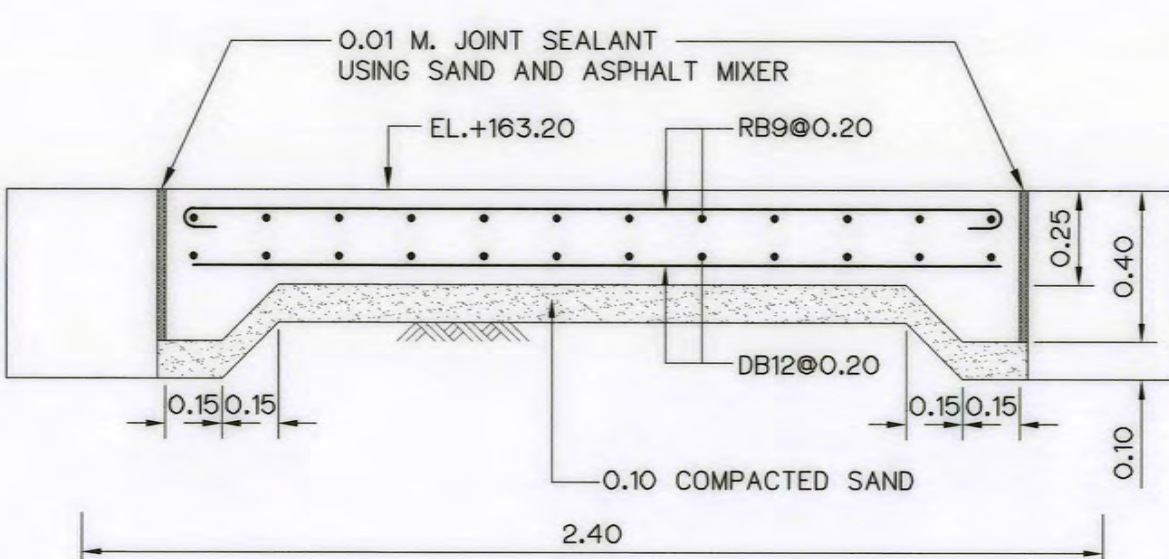
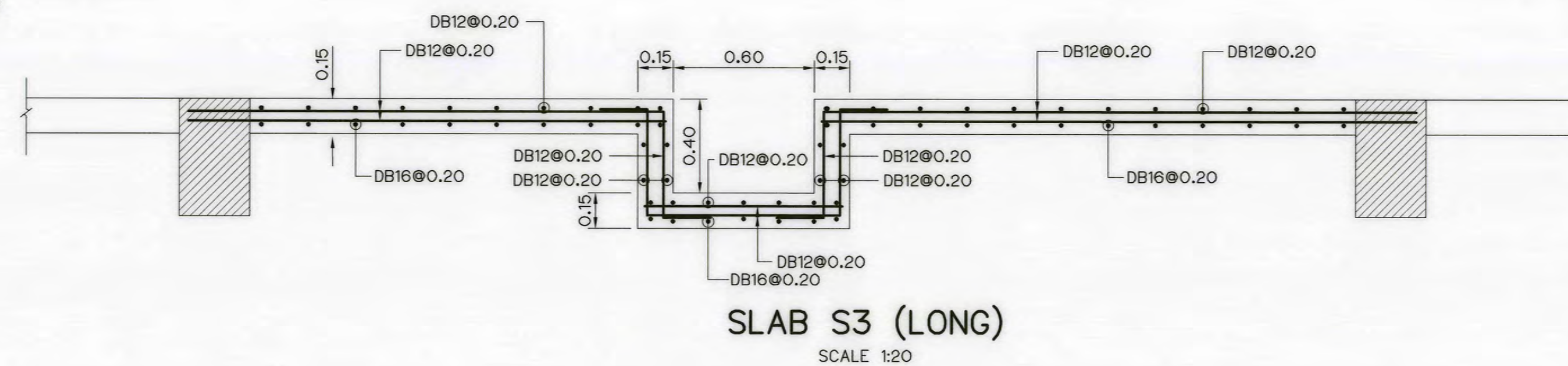
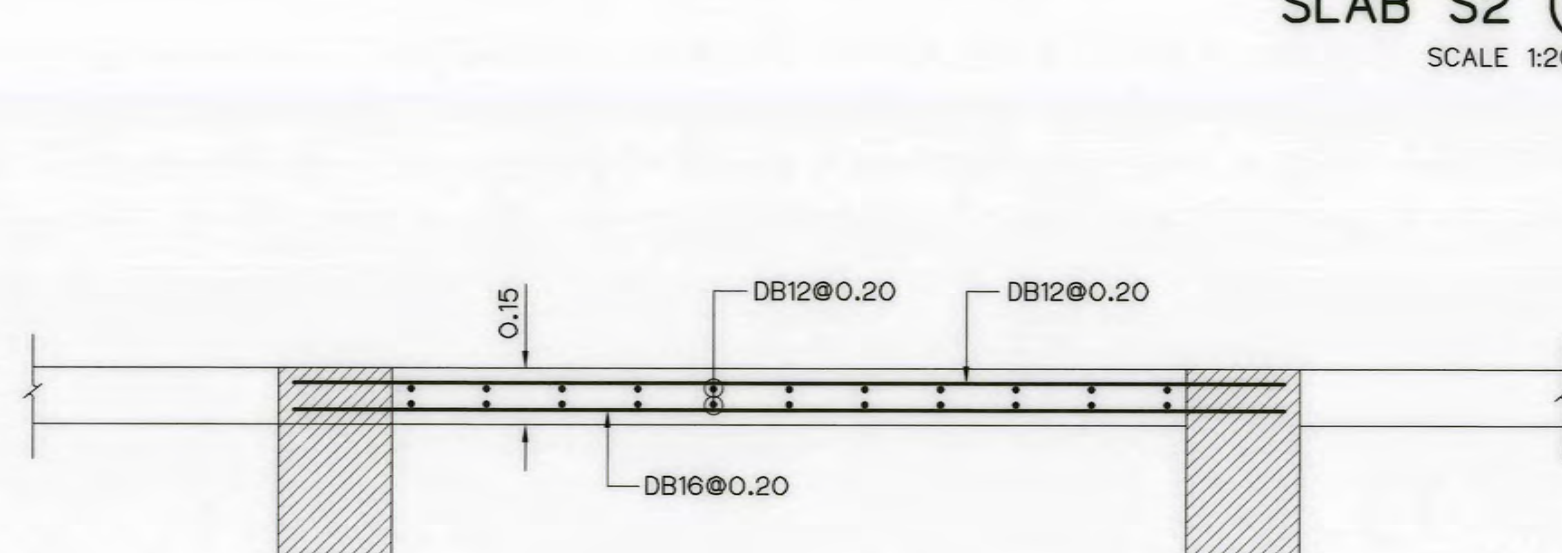
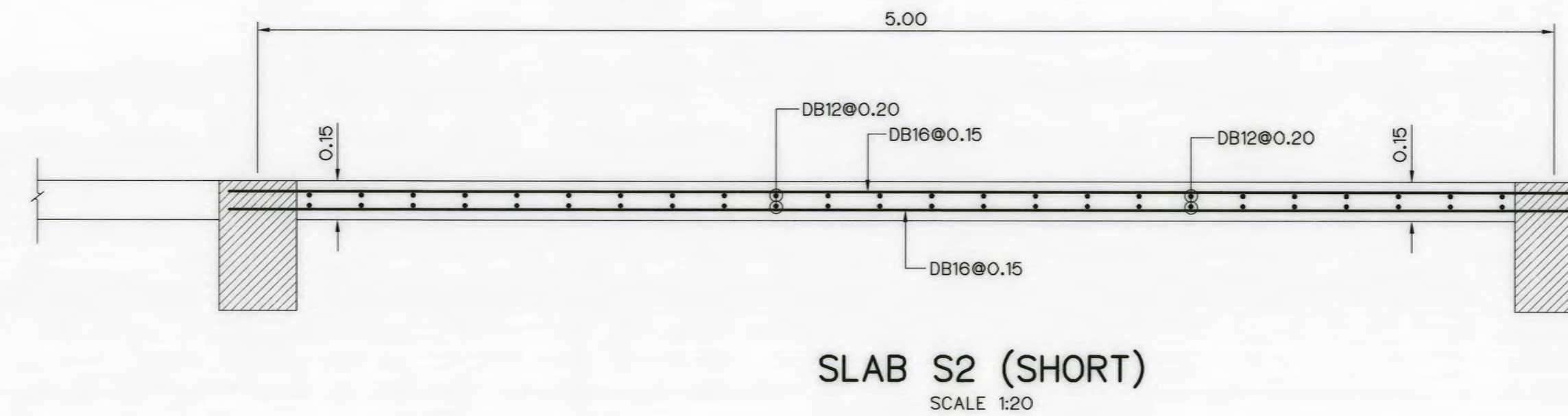
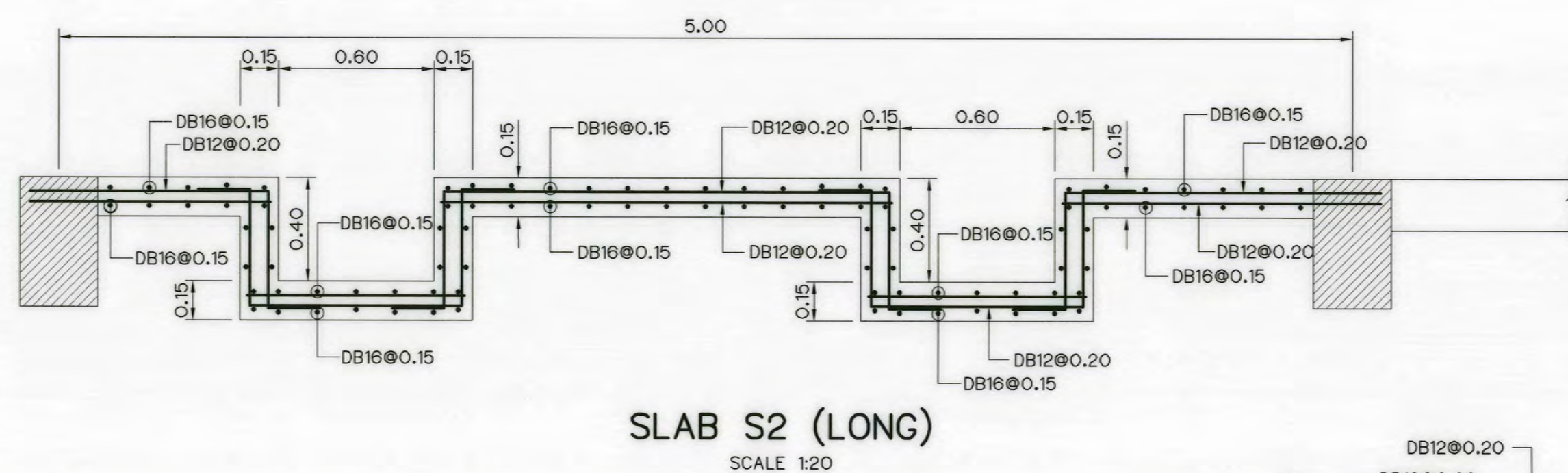
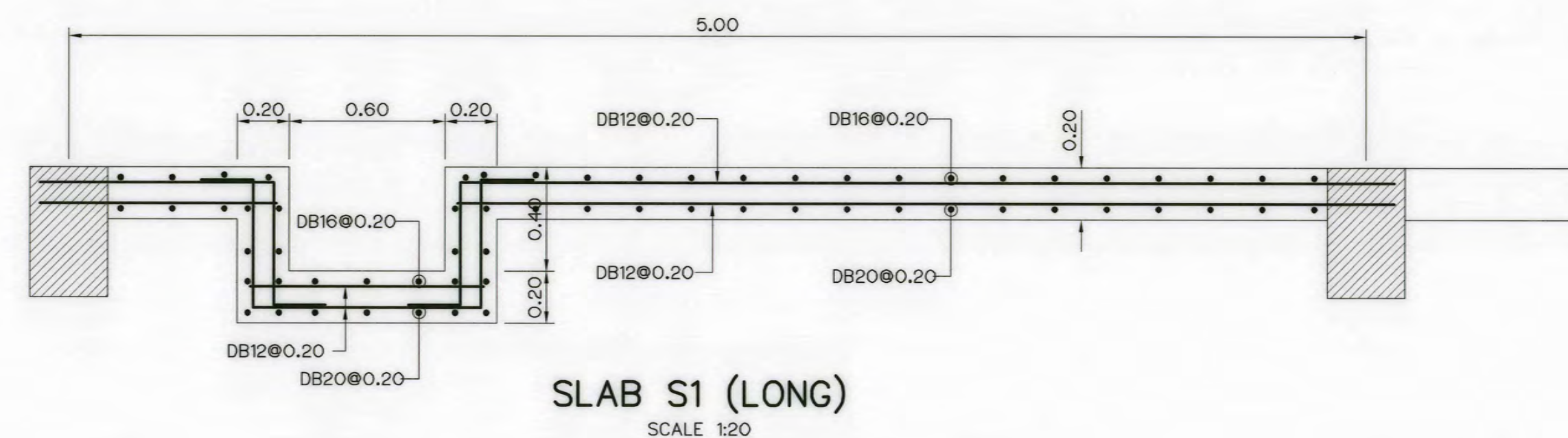
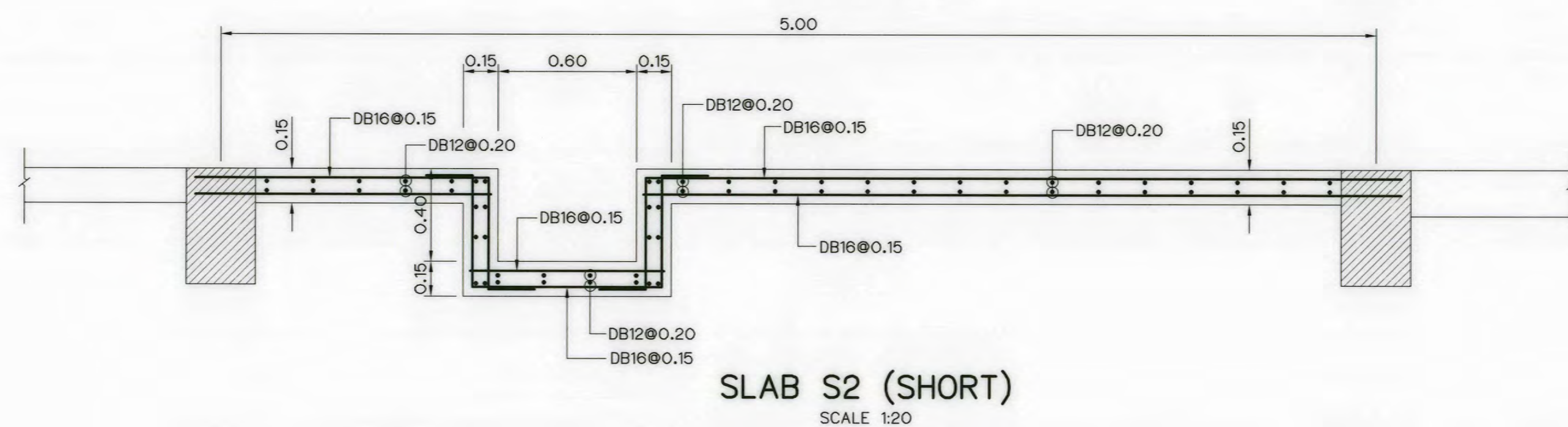
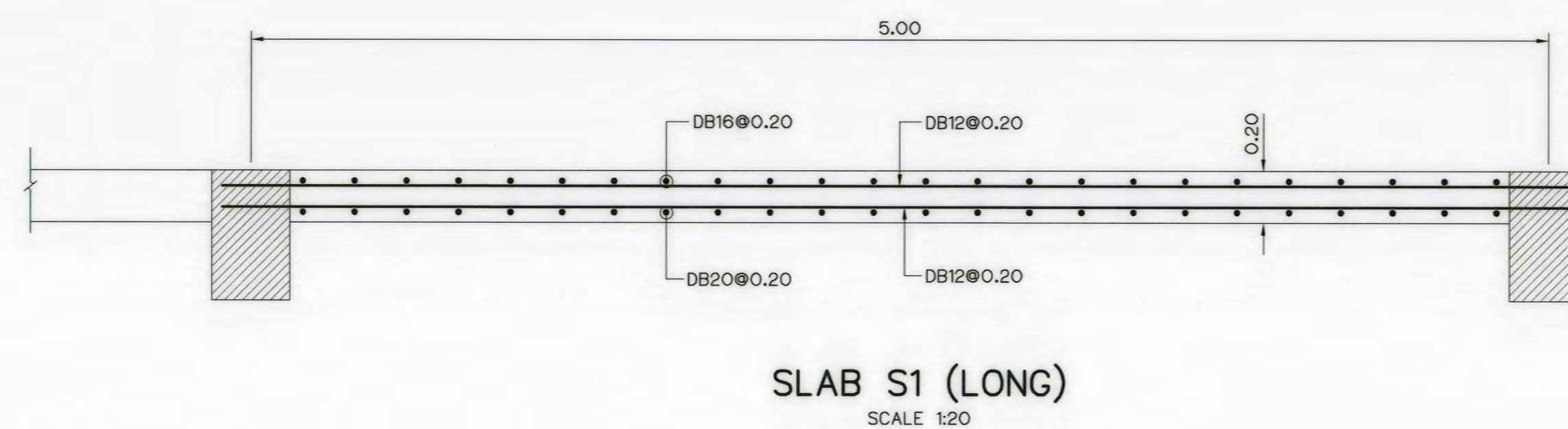
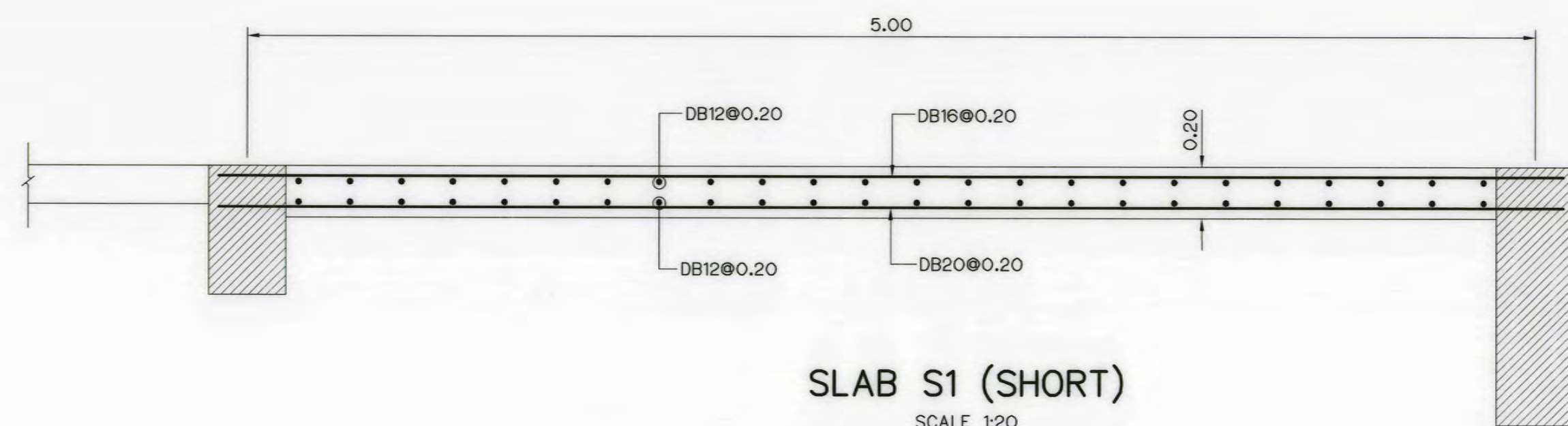
SECTION E-E
SCALE 1:20



- NOTES :
- ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, REINFORCEMENT BARS ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
 - SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03.

- REFERENCE DRAWINGS :
- POWERHOUSE, GROUND FLOOR PLAN, PLAN OF BEAM AND SLAB AND ROOF BEAM PLAN, POWERHOUSE, FOOTING PLAN AND SECTIONS

KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE POWERHOUSE BEAM AND COLUMN REINFORCEMENT DETAILS	
DESIGNED: <i>[Signature]</i> 28/10/2021 DRAWN: <i>[Signature]</i> CHECKED: <i>[Signature]</i> 28/10/2021 PROJECT MANAGER: <i>[Signature]</i>	REVIEWED: <i>[Signature]</i> SUBMITTED: <i>[Signature]</i> RECOMMENDED: <i>[Signature]</i> APPROVED: <i>[Signature]</i> DATE: 28/10/2021 SHEET NO. 72 OF 120



NOTES :

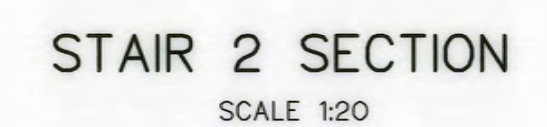
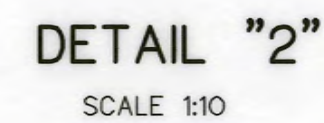
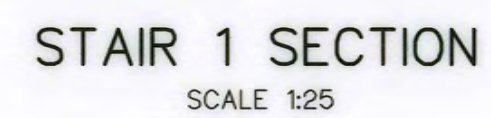
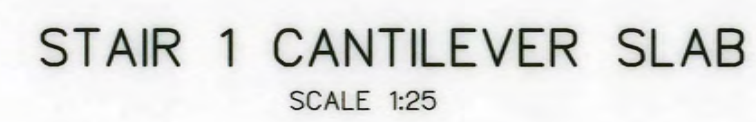
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, REINFORCEMENT BARS ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03.

REFERENCE DRAWINGS :

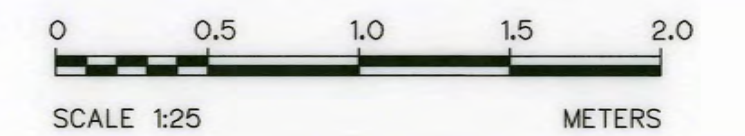
1. POWERHOUSE, GROUND FLOOR PLAN, AKP-PH-07
- PLAN OF BEAM AND SLAB AND ROOF BEAM PLAN



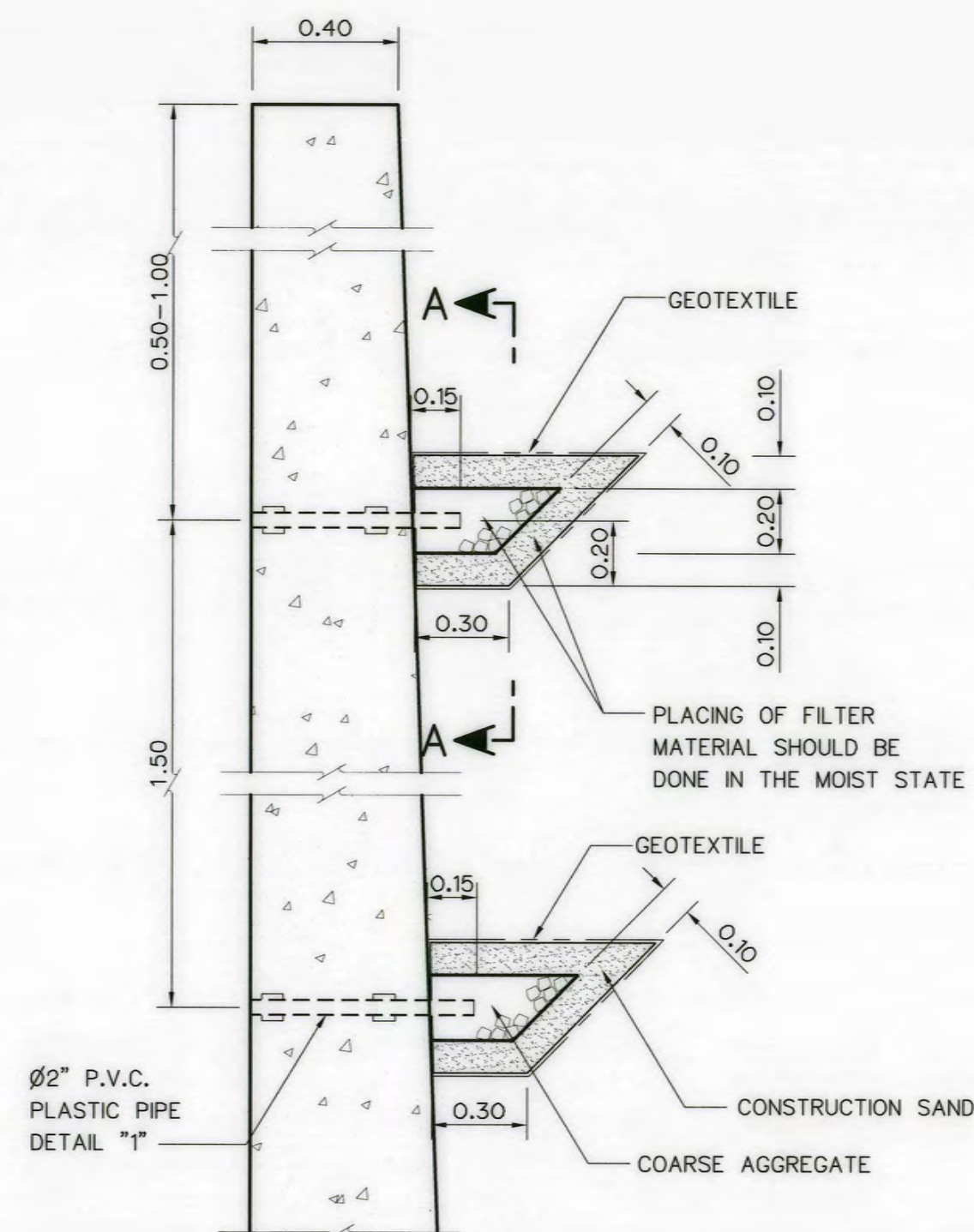
KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY			
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT			
PART : 1 CIVIL WORKS AND TRANSMISSION LINE POWERHOUSE SLAB REINFORCEMENT DETAILS			
P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	DESIGNED <i>[Signature]</i> 28/9/2021 DRAWN <i>[Signature]</i> CHECKED <i>[Signature]</i> 28/10/2021 PROJECT MANAGER	REVIEWED <i>[Signature]</i> SUBMITTED <i>[Signature]</i> RECOMMENDED <i>[Signature]</i> APPROVED <i>[Signature]</i> 28/10/2021 DATE	SHEET NO. 73 OF 129



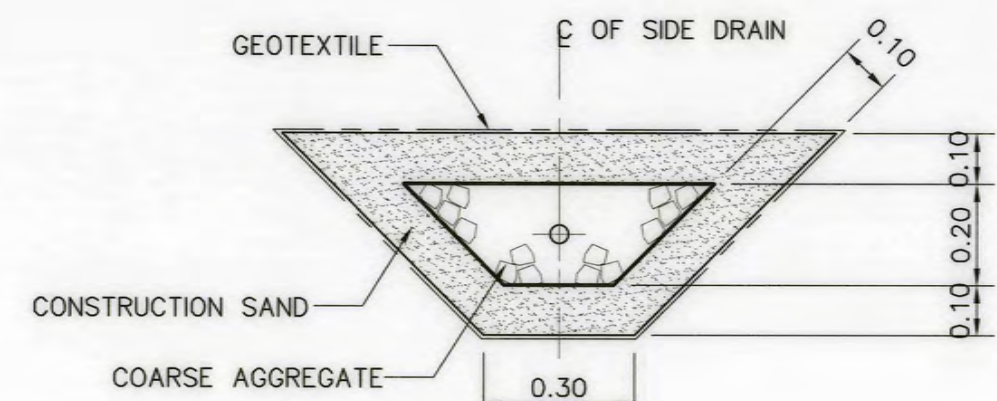
- REFERENCE DRAWINGS :
- | | |
|---------------------|-----------|
| 1. POWERHOUSE, PLAN | AKP-PH-02 |
|---------------------|-----------|



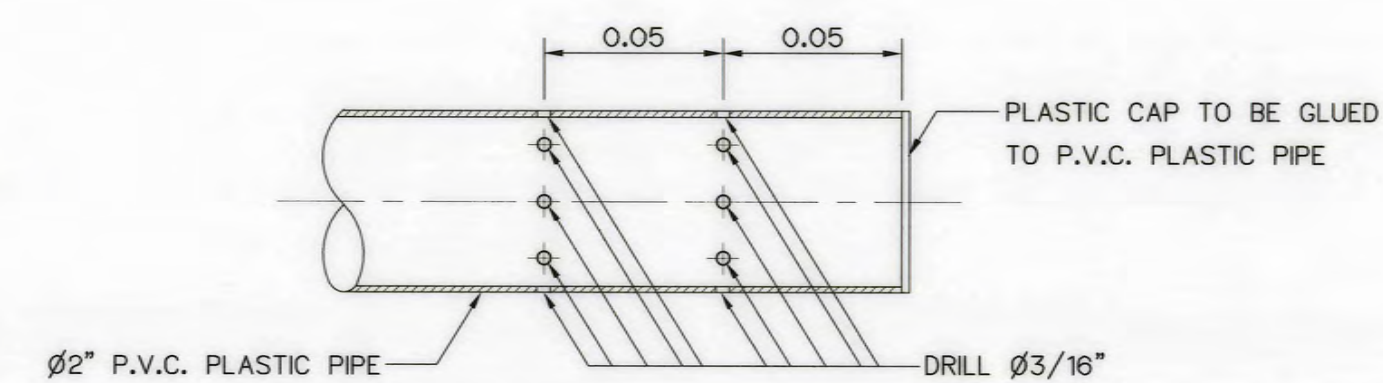
3					 SPT CONSULTANTS CO., LTD.	MINISTRY OF ENERGY REVIEWED <i>OK</i>		
2						DESIGNED <i>Wan</i> 18.29074 <i>OK</i> 18.9462	SUBMITTED <i>Wan</i>	
1						DRAWN <i>Wan</i>	RECOMMENDED <i>Wan</i>	
NO.	DATE	REVISIONS	CHECKED	APPROVED	CHECKED <i>Wan</i> 18.8231	APPROVED <i>Wan</i>		
CONSULTANTS					DEDE	28/10/2021 PROJECT MANAGER	DRAWING NO. AKP-PH-12	SHEET NO. 74 of 129



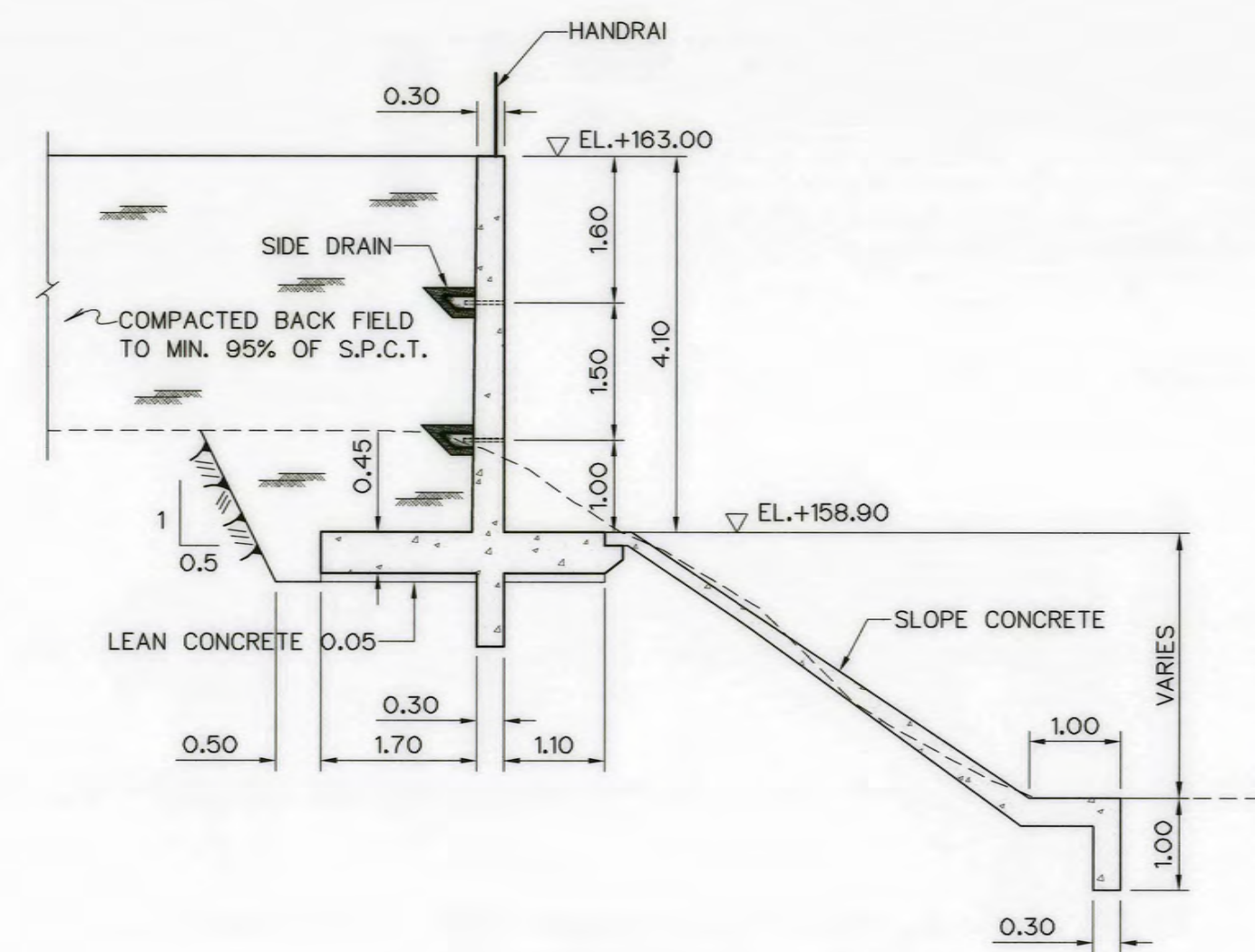
DETAIL OF SIDE DRAIN
NOT TO SCALE



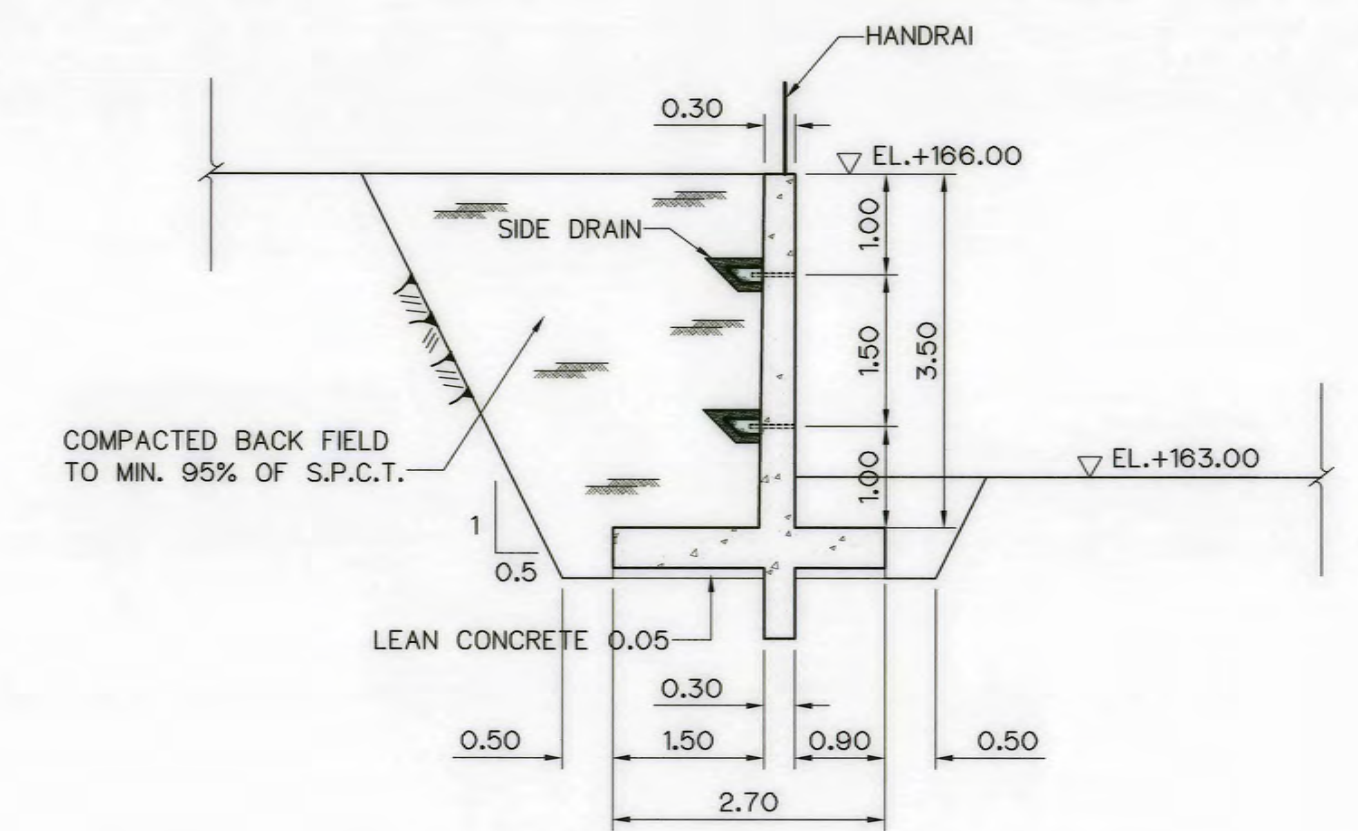
SECTION A-A
SCALE 1:15



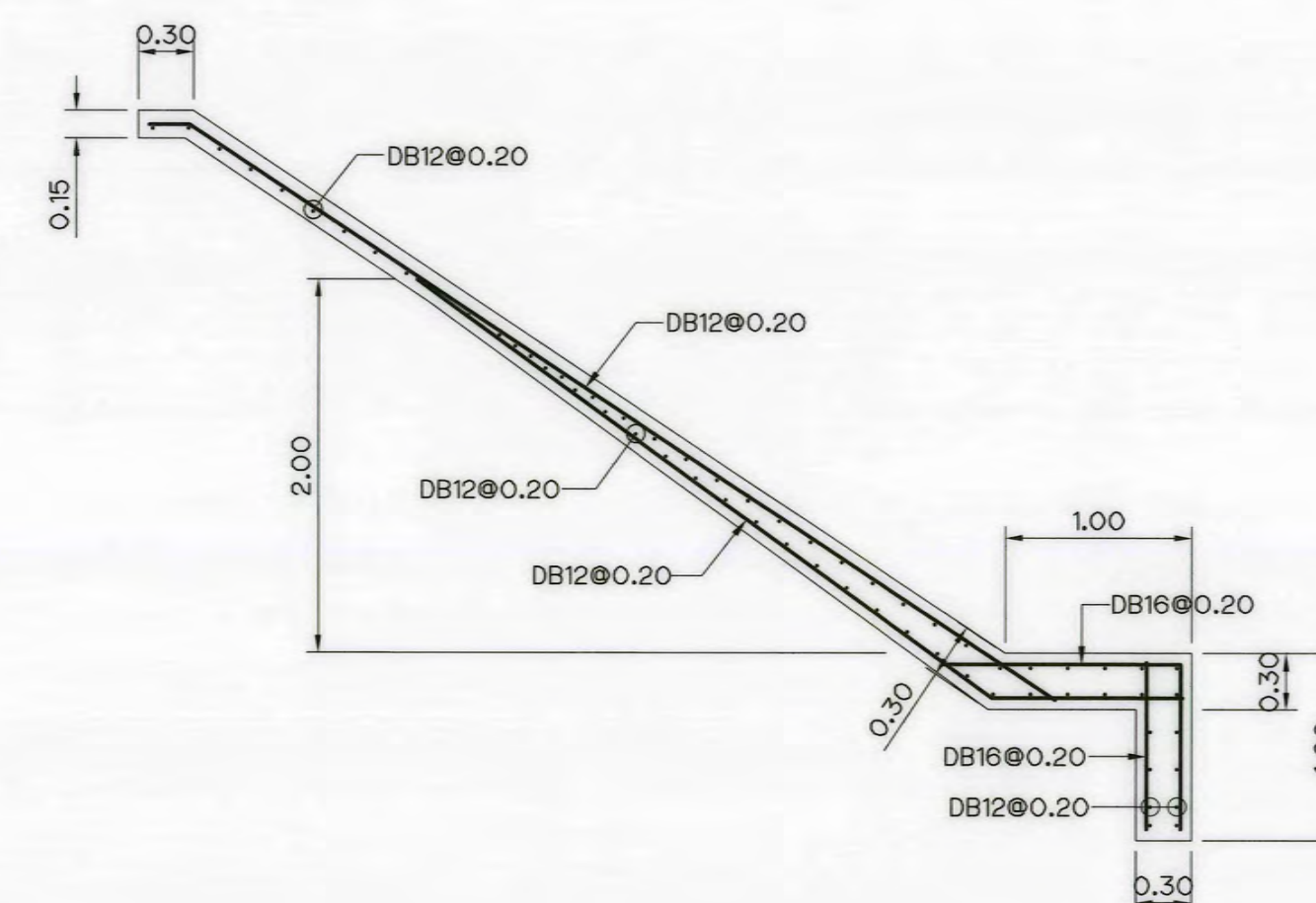
DETAIL "1"
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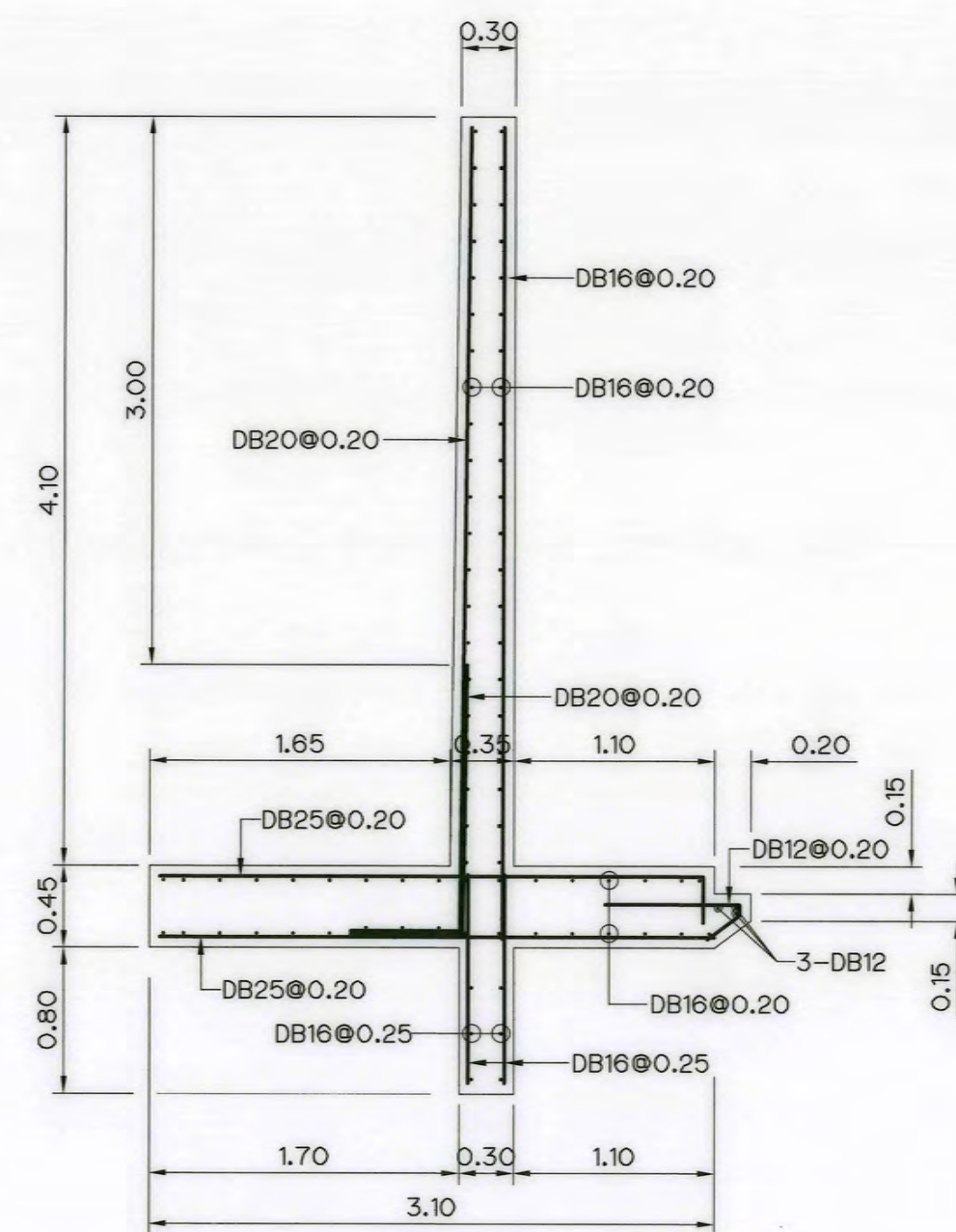
RETAININGWALL NO.1
SCALE 1:75



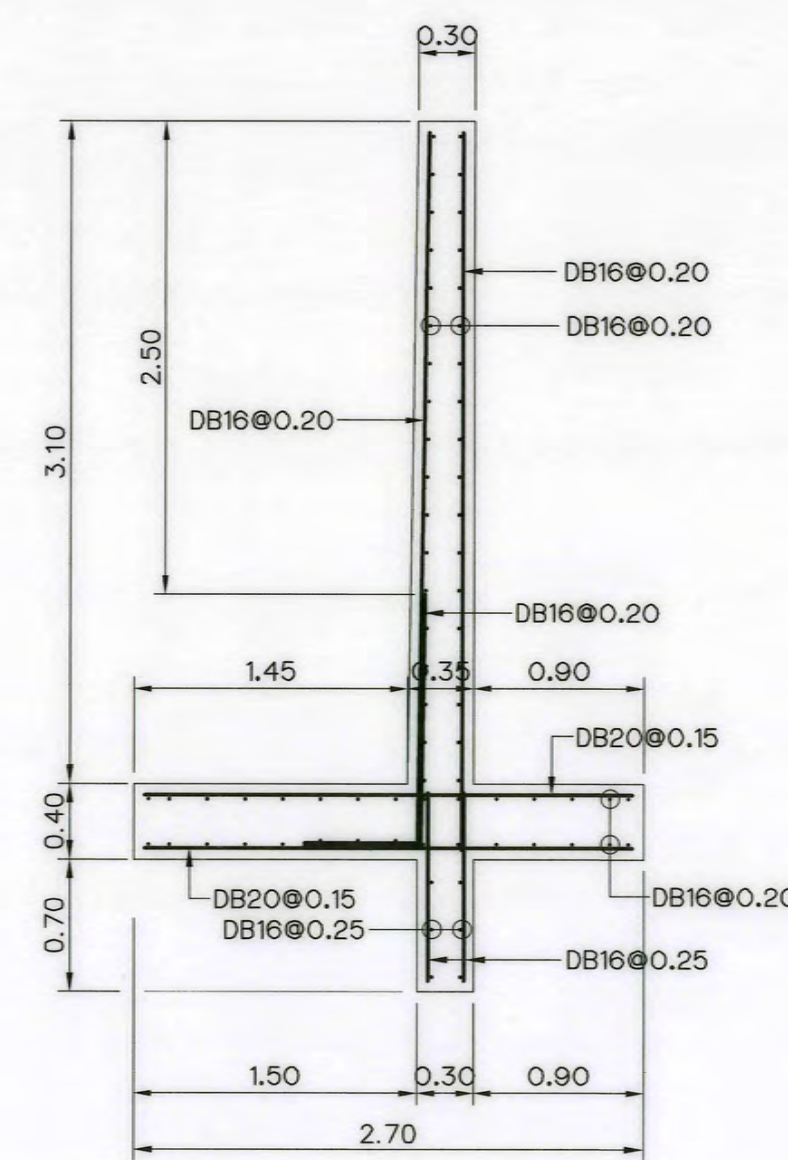
RETAININGWALL NO.2
SCALE 1:75



CONCRETE SLOPE REINFORCEMENT
SCALE 1:20



RETAININGWALL NO.1 (Reinforcement)
SCALE 1:40



RETAININGWALL NO.2 (Reinforcement)
SCALE 1:40

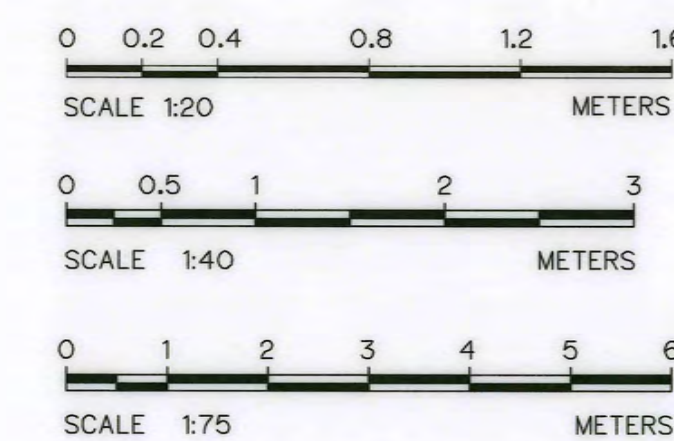
NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS, UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03

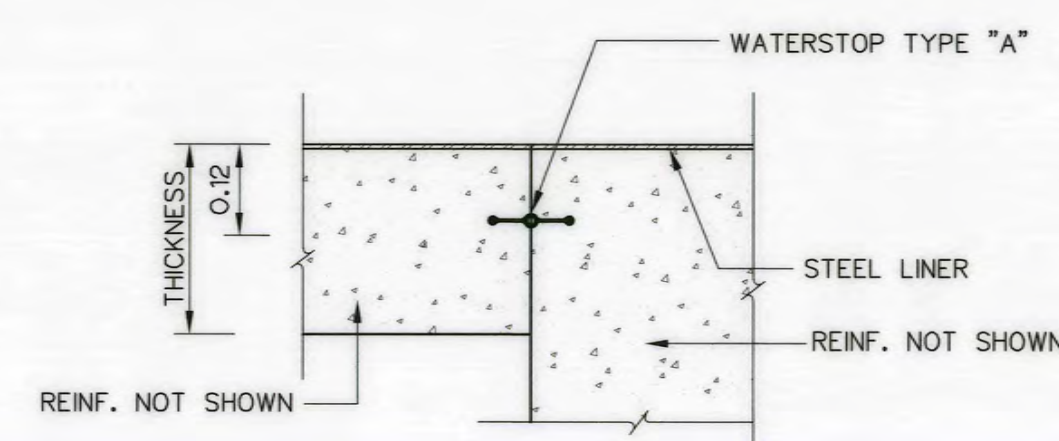
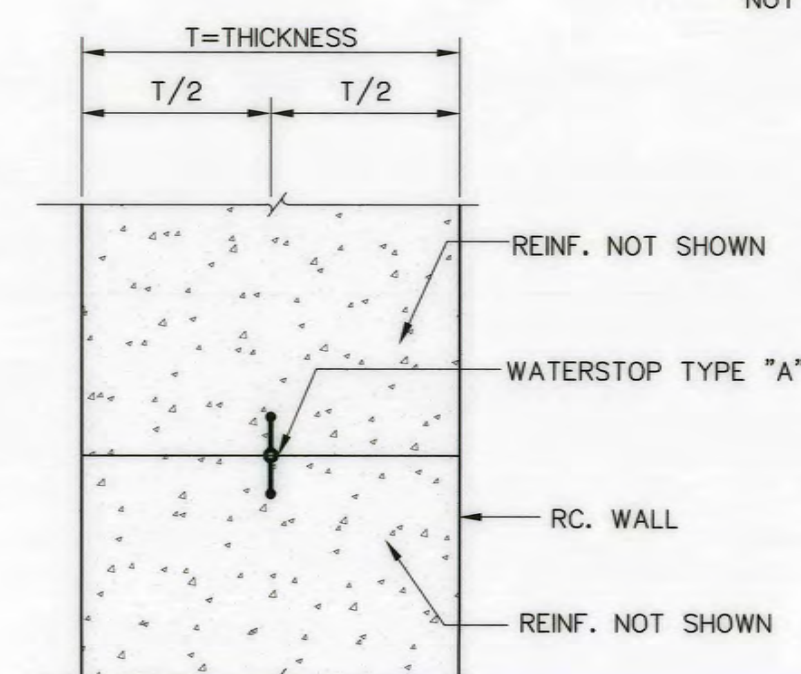
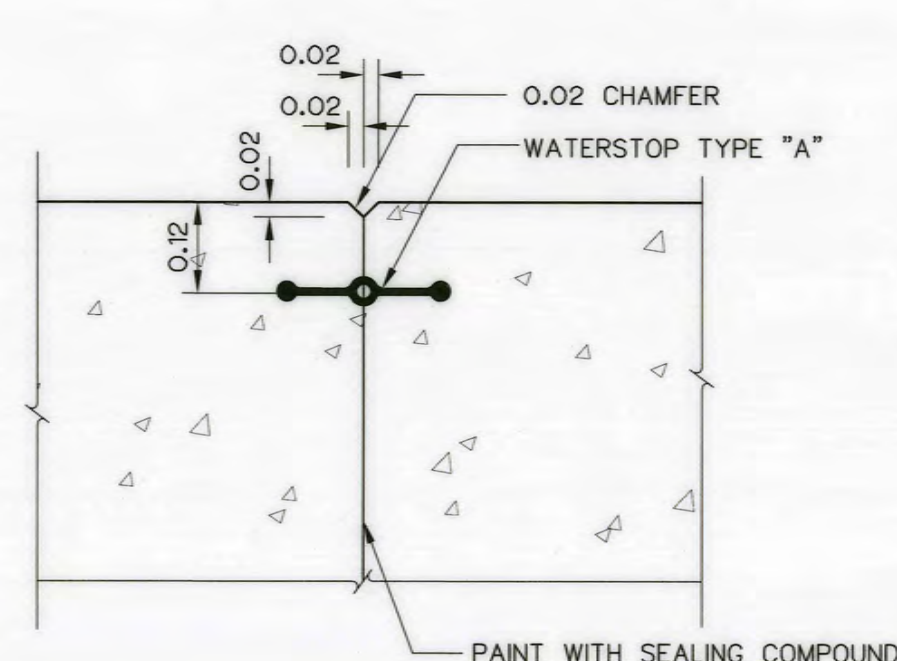
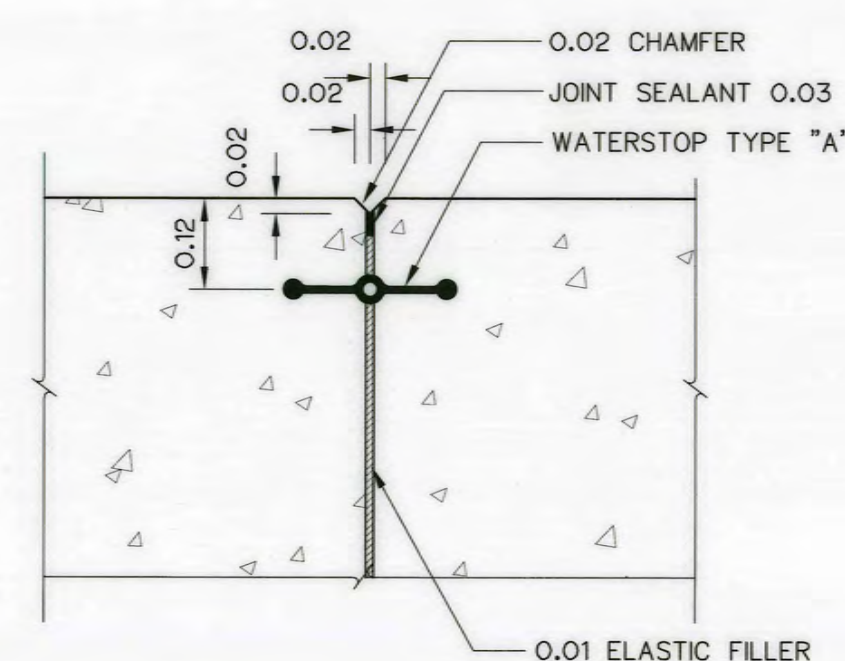
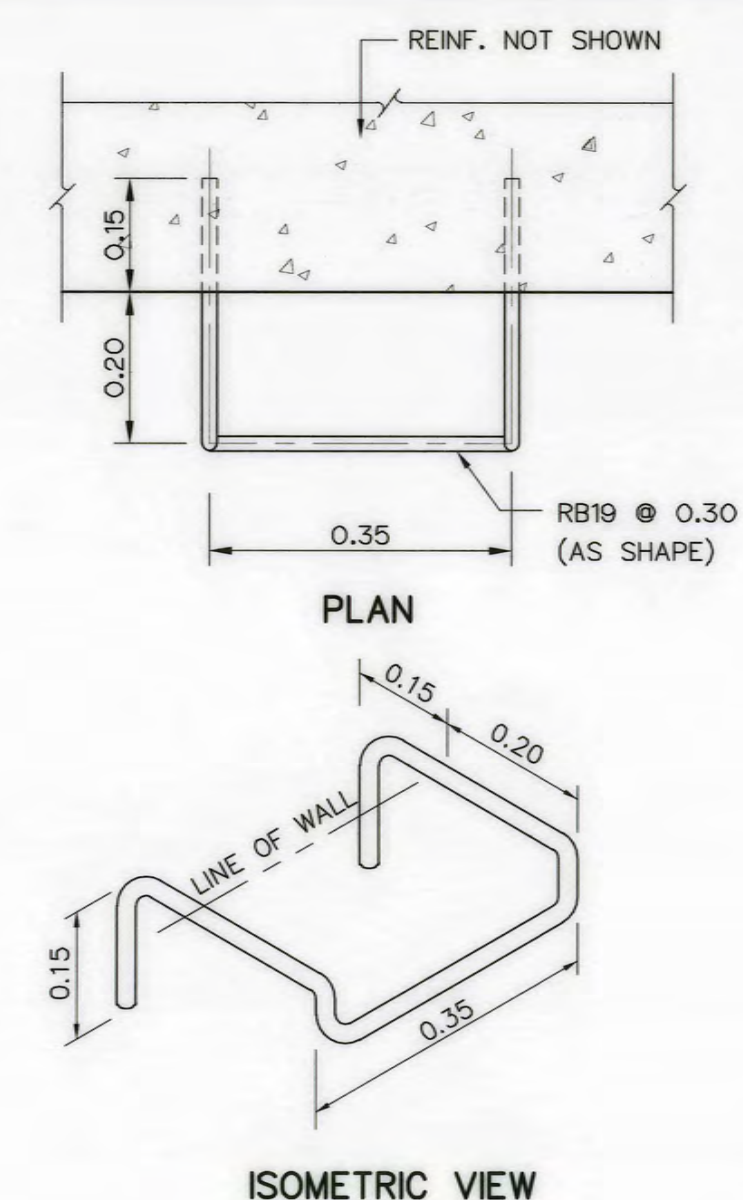
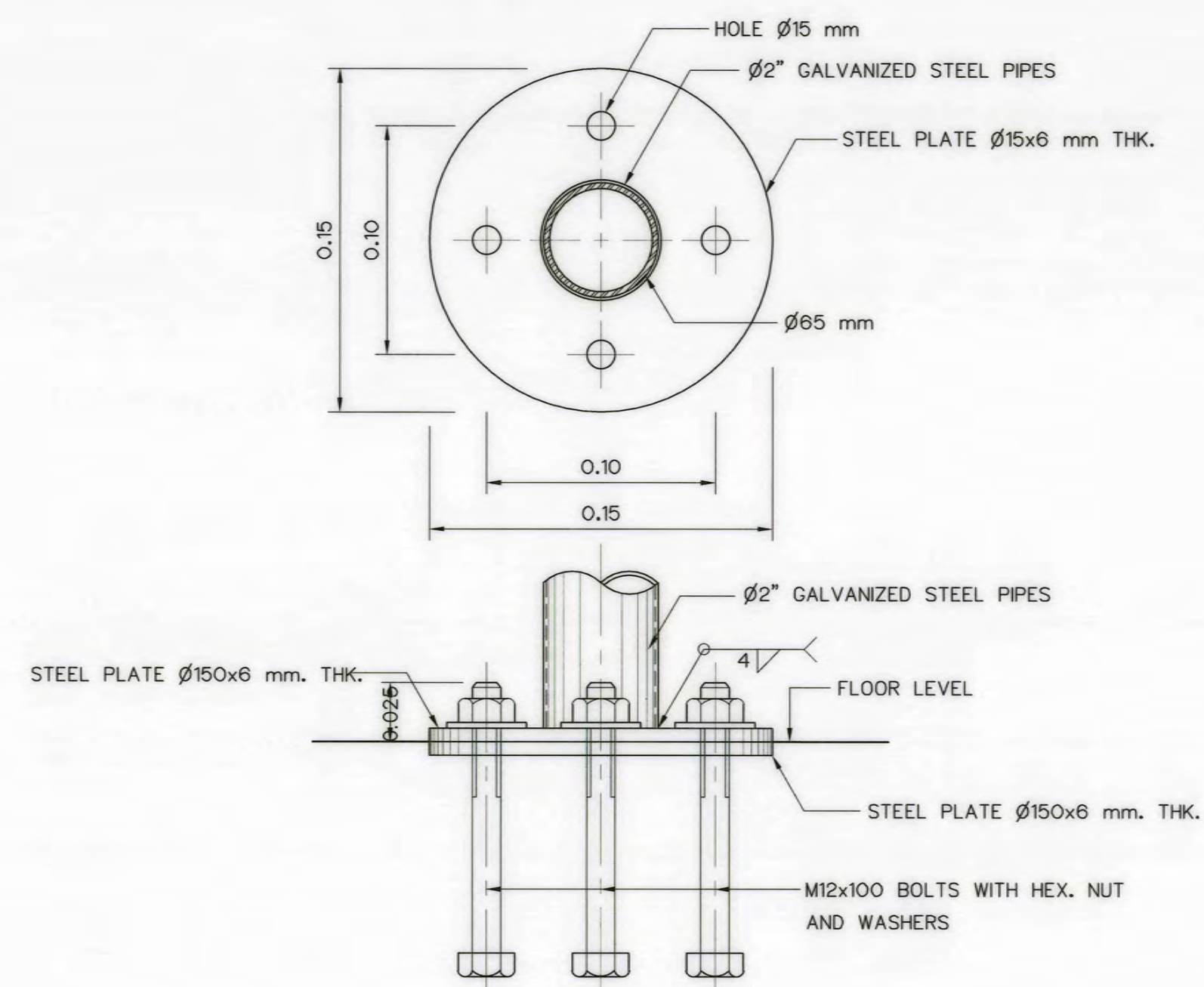
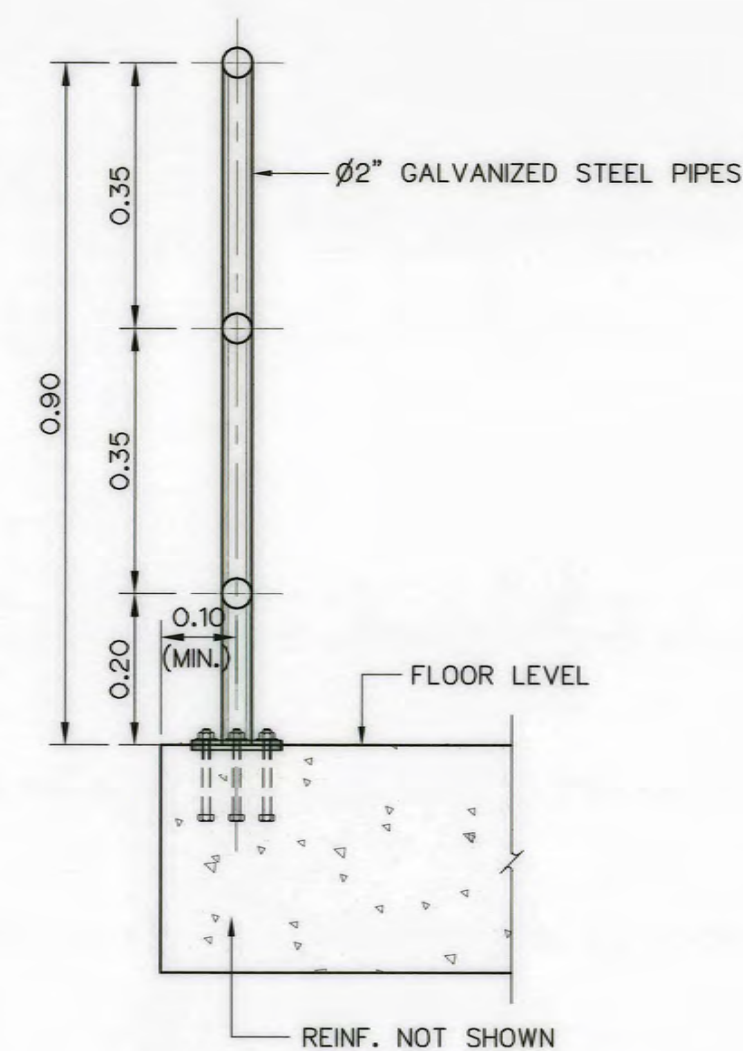
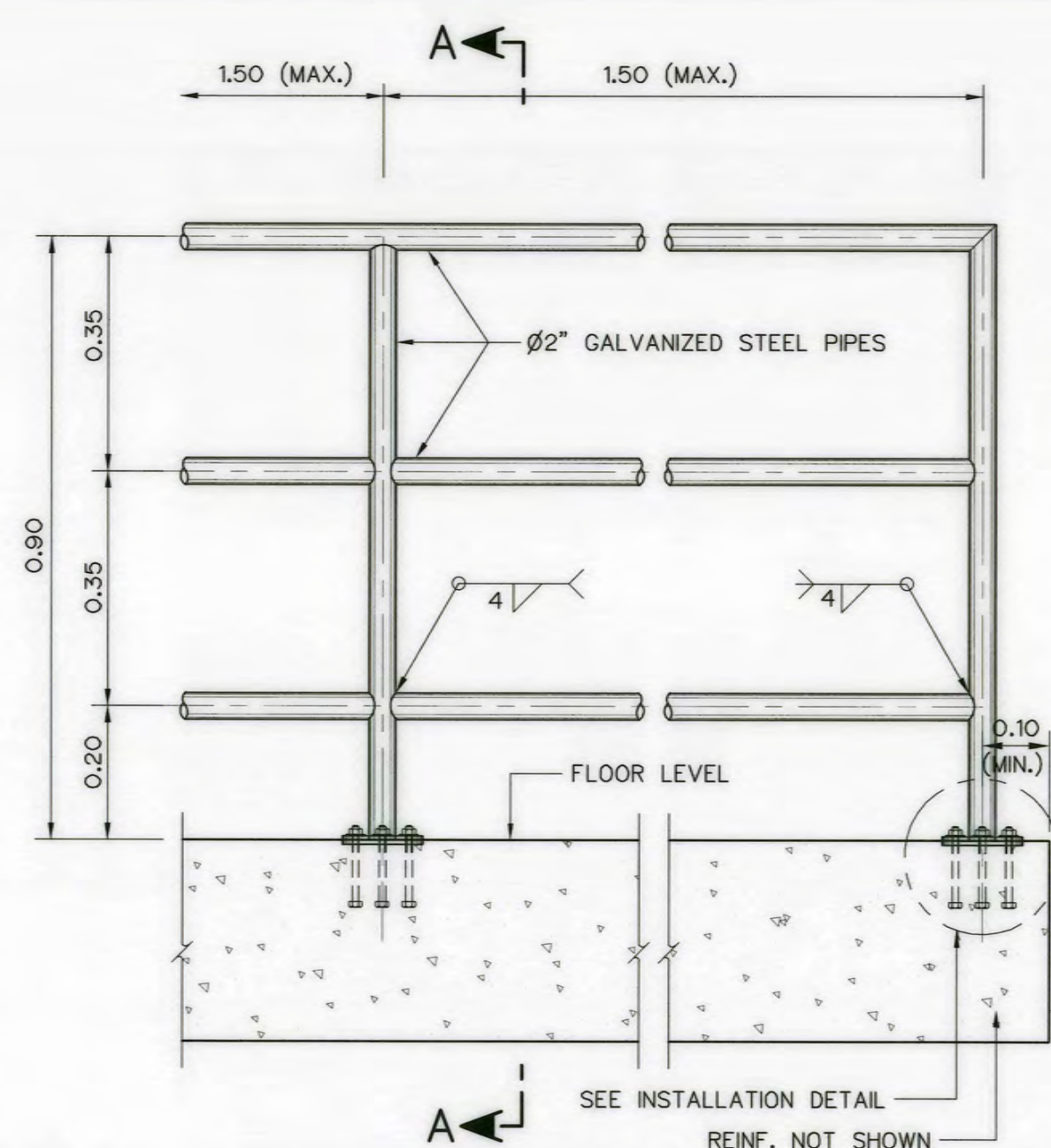
REFERENCE DRAWINGS :

1. POWERHOUSE, GENERAL LAYOUT

AKP-PH-01



KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE POWERHOUSE RETAININGWALL REINFORCEMENT DETAILS	
PCM P&C MANAGEMENT CO., LTD. SPT CONSULTANTS CO., LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED <i>[Signature]</i> 28/29074 28/19462	REVIEWED <i>[Signature]</i>
DRAWN <i>[Signature]</i>	RECOMMENDED <i>[Signature]</i>
CHECKED <i>[Signature]</i> 28/18231	APPROVED <i>[Signature]</i>
PROJECT MANAGER	DRAWING NO. 28/10/2021 DATE
CONSULTANTS	DEDE
AKP-PH-13	SHEET NO. 75 OF 129

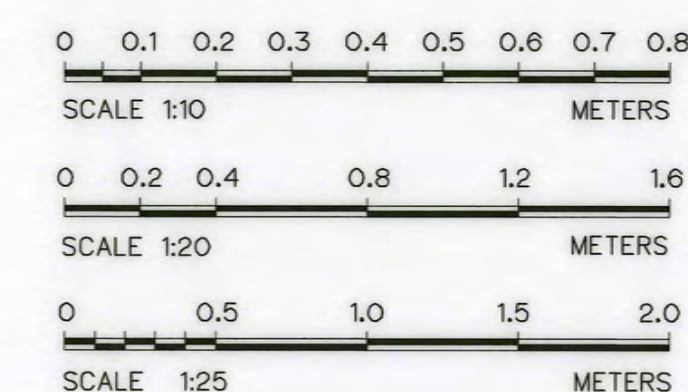
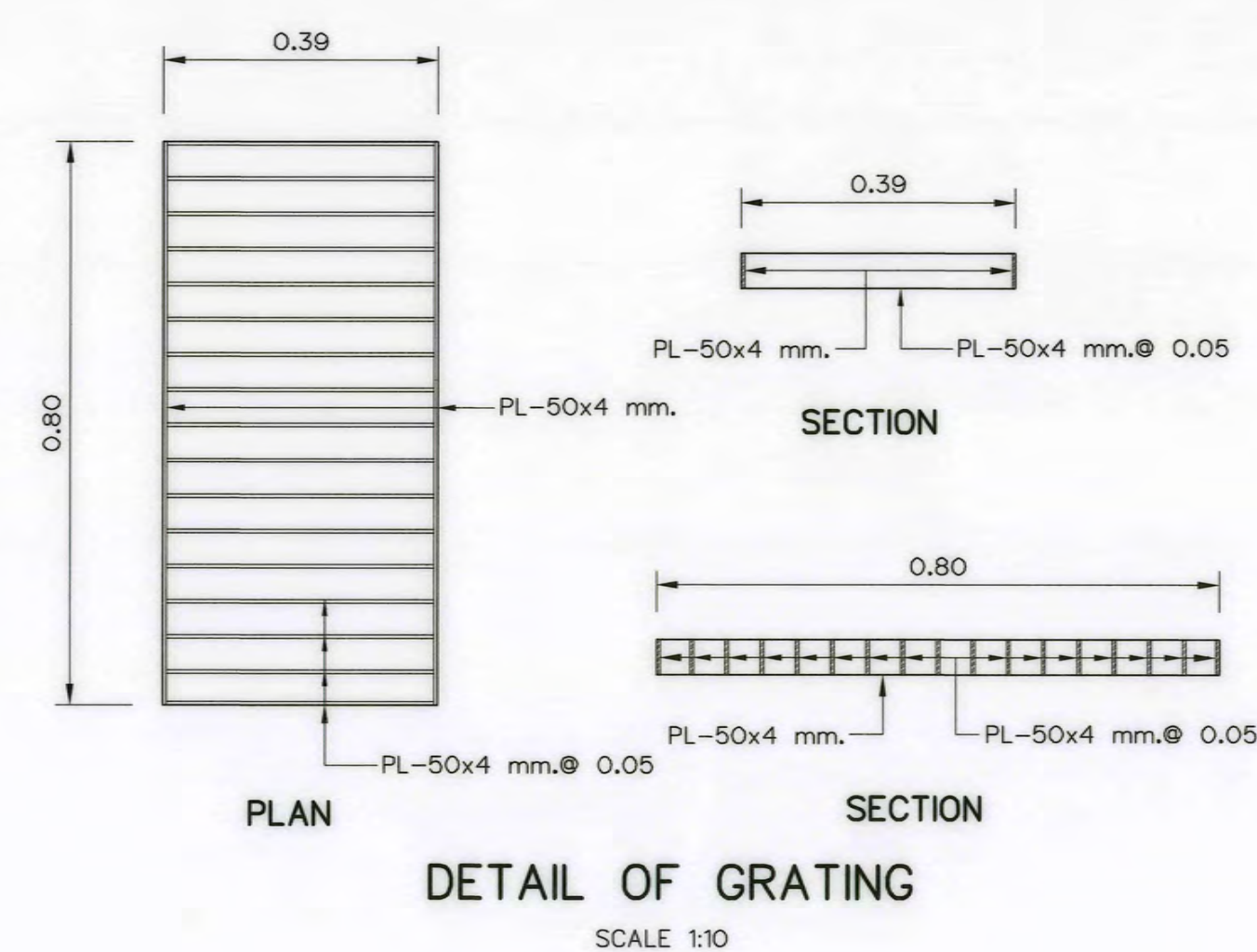
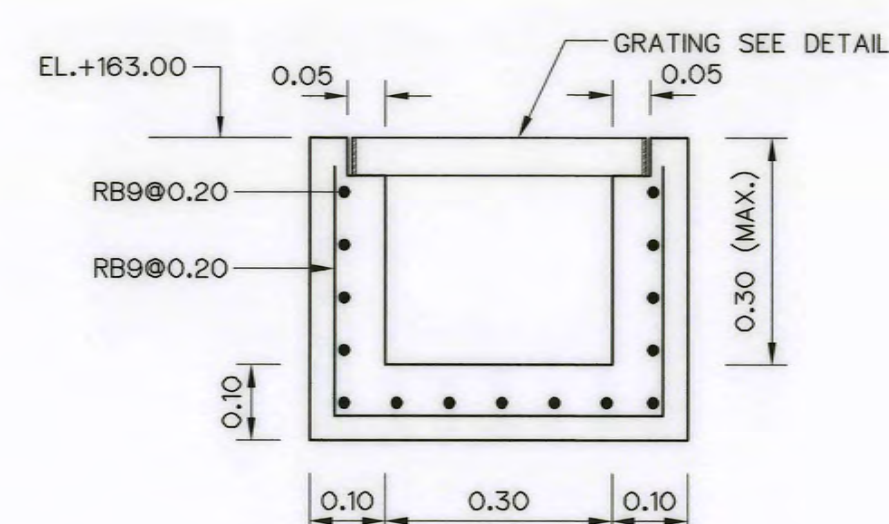
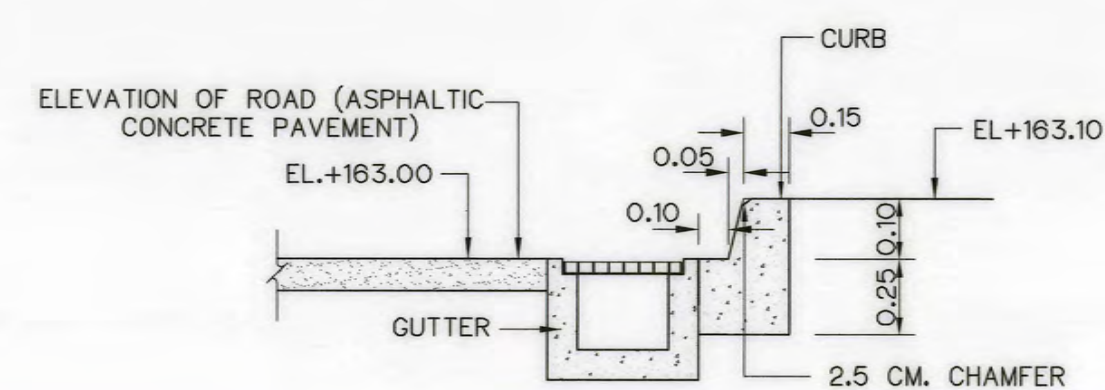
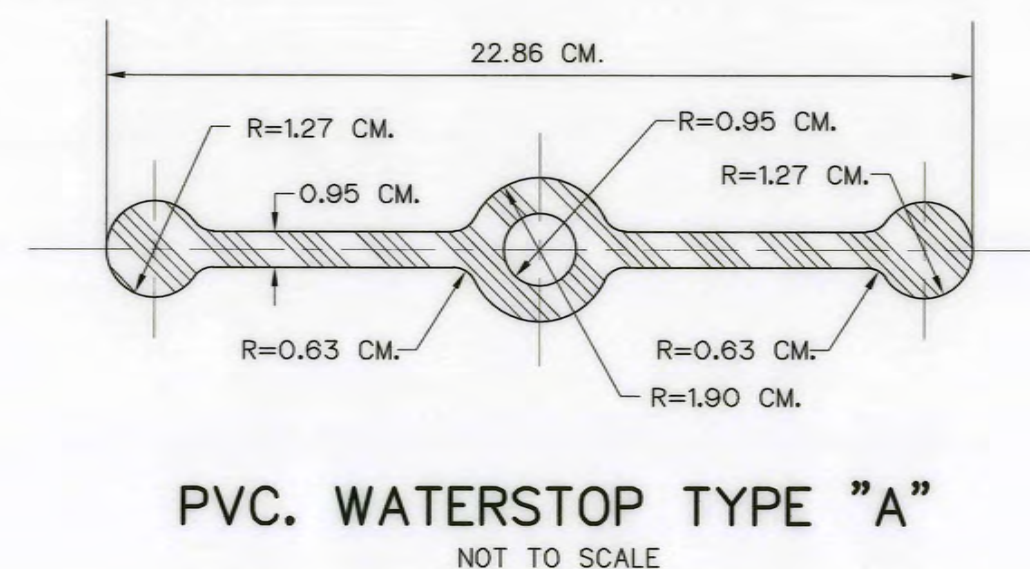


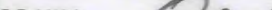
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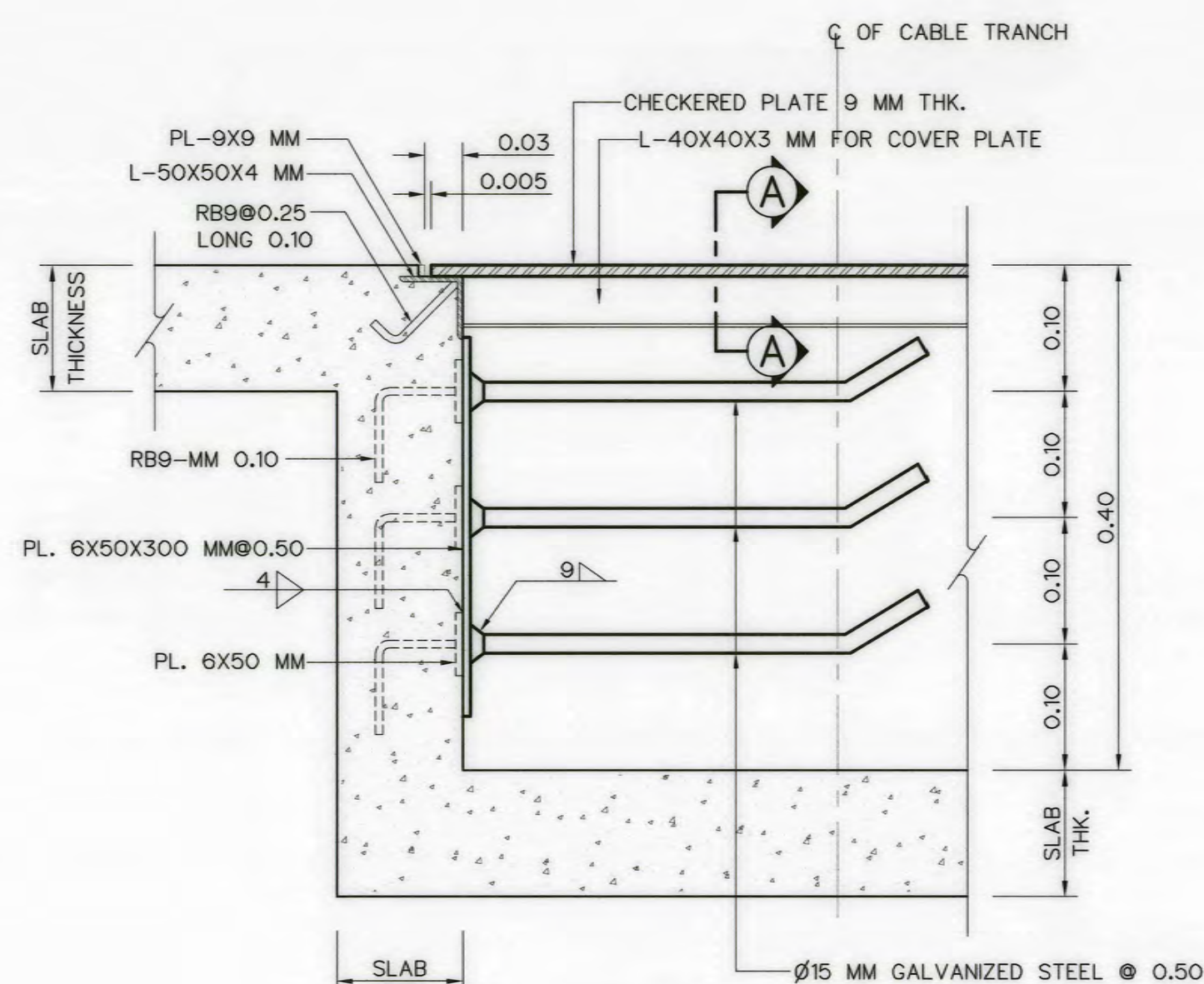
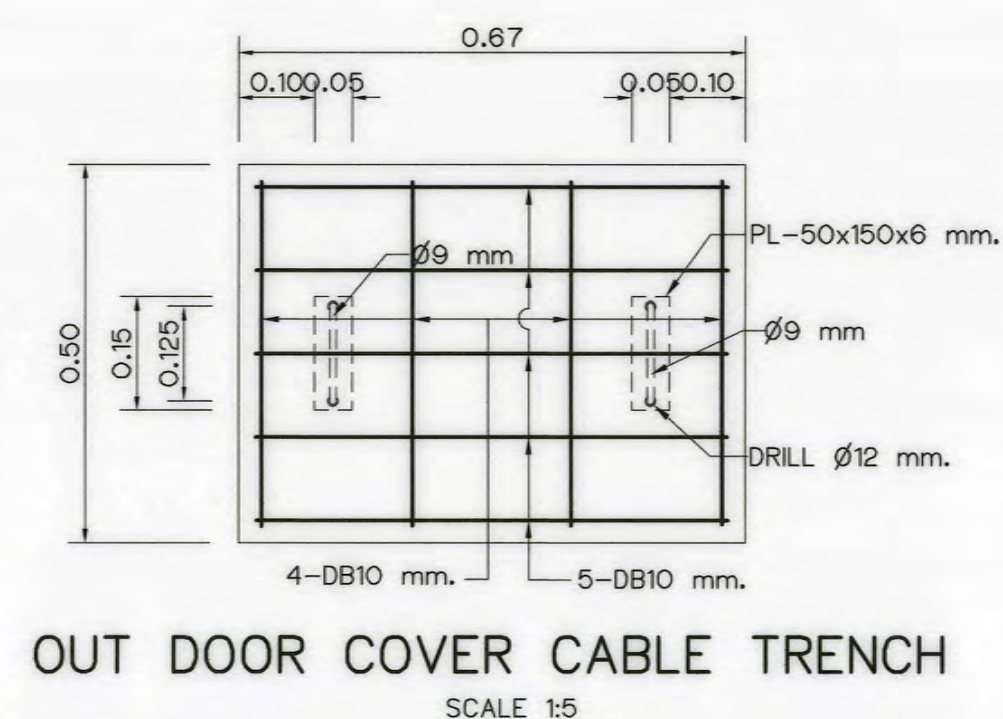
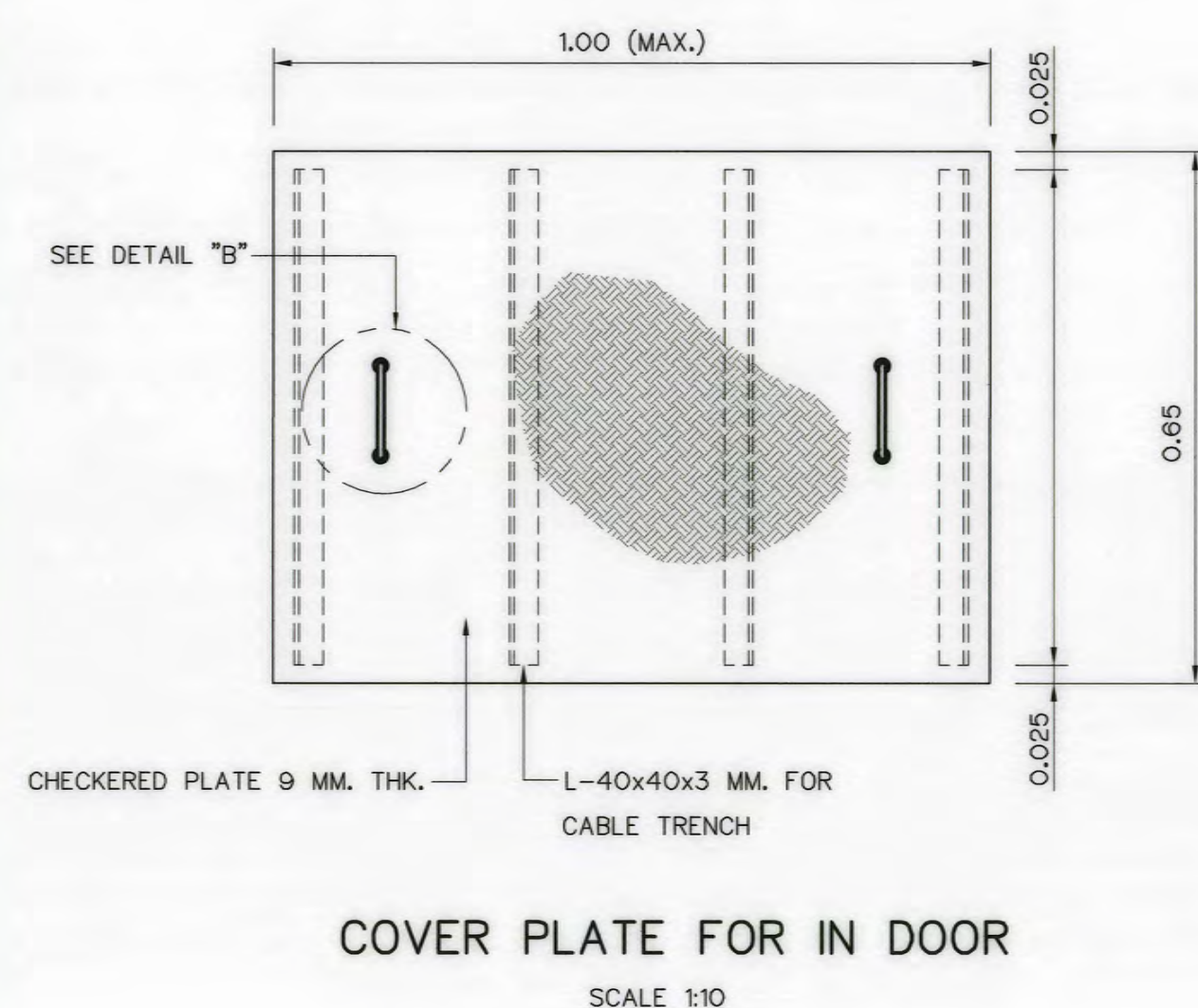
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS,
REINFORCEMENT BARS ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03.
3. WELDING CONNECTION USE 4 MM. UNLESS OTHERWISE SHOWN.

REFERENCE DRAWINGS :

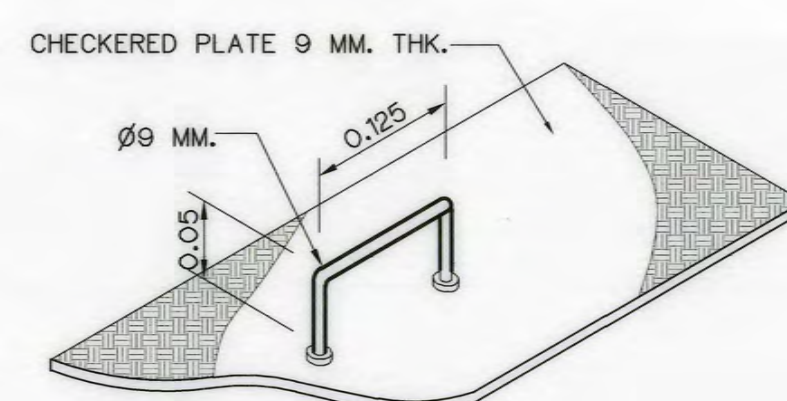
- | | |
|-------------------------------|-----------|
| 1. POWERHOUSE, GENERAL LAYOUT | AKP-PH-01 |
| 2. TAILRACE, SECTIONS | AKP-TR-02 |



3					 SPT CONSULTANTS CO., LTD.	 MINISTRY OF ENERGY	
2						DESIGNED <i>M. M. M. 18.12.2017</i> <i>Ed</i> 28.9.462	REVIEWED <i>Ed</i>
1						DRAWN <i>Ed</i>	SUBMITTED <i>Ed</i>
NO.	DATE	REVISIONS	CHECKED	APPROVED	CHECKED <i>Ed</i> 28.8.231	APPROVED <i>Ed</i>	
	CONSULTANTS		DEDE		 28/10/2021 PROJECT MANAGER DATE	DRAWING NO. AKP-PH-14	SHEET NO. 76 OF 129

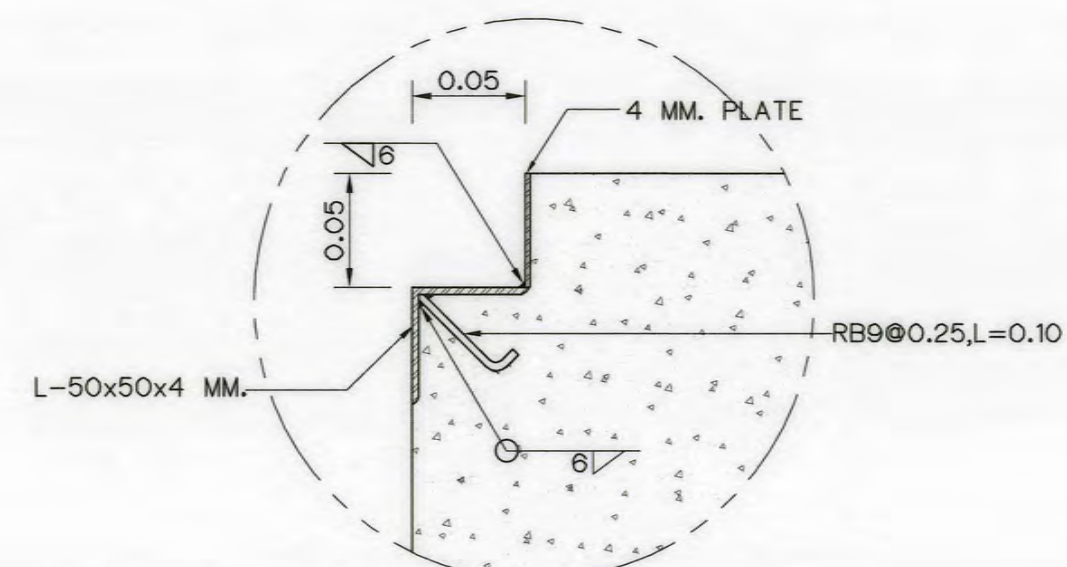


DETAIL "A"
SCALE 1:5

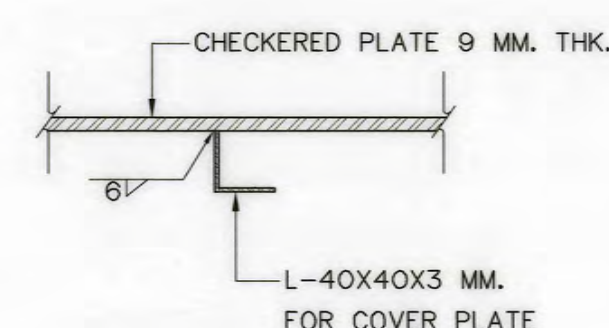


DETAIL "B"

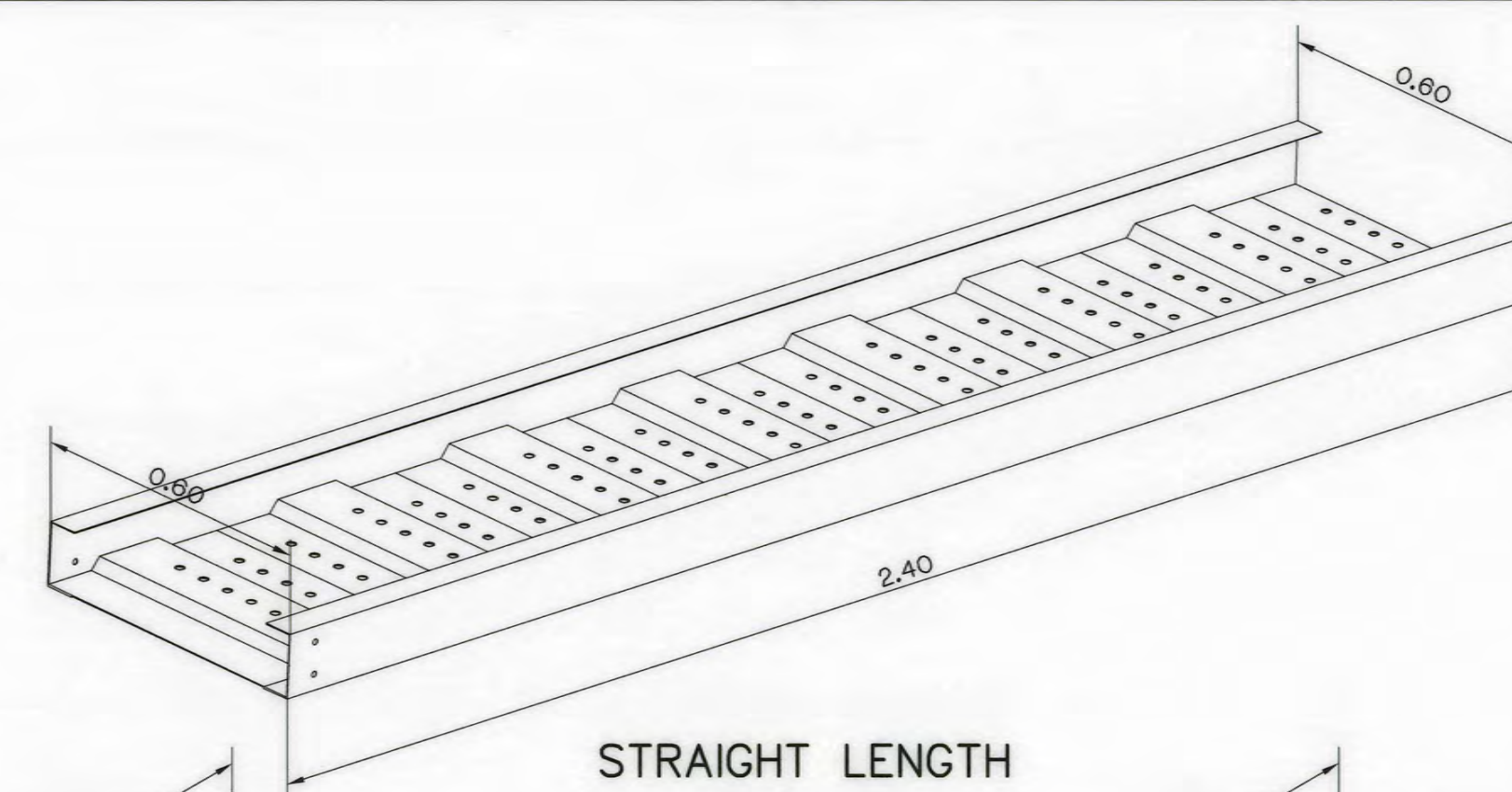
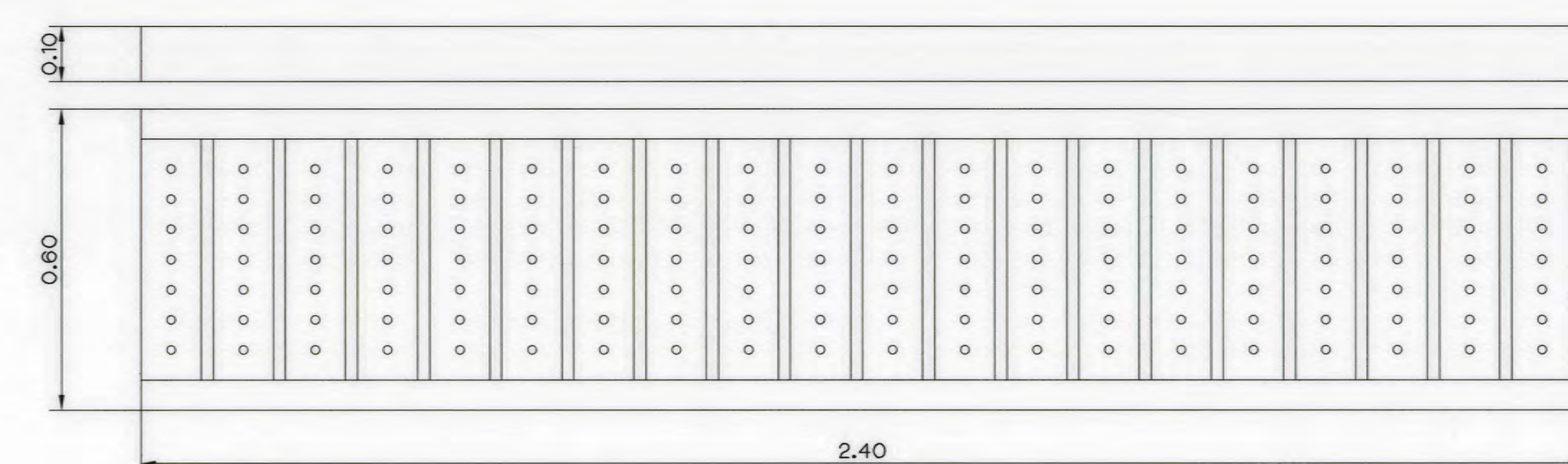
NOT TO SCALE



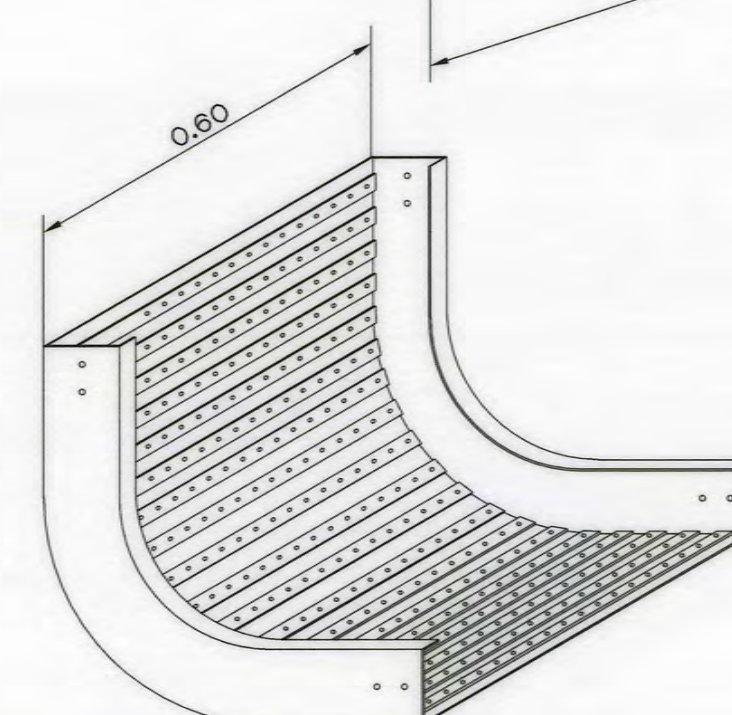
DETAIL "C"
NOT TO SCALE



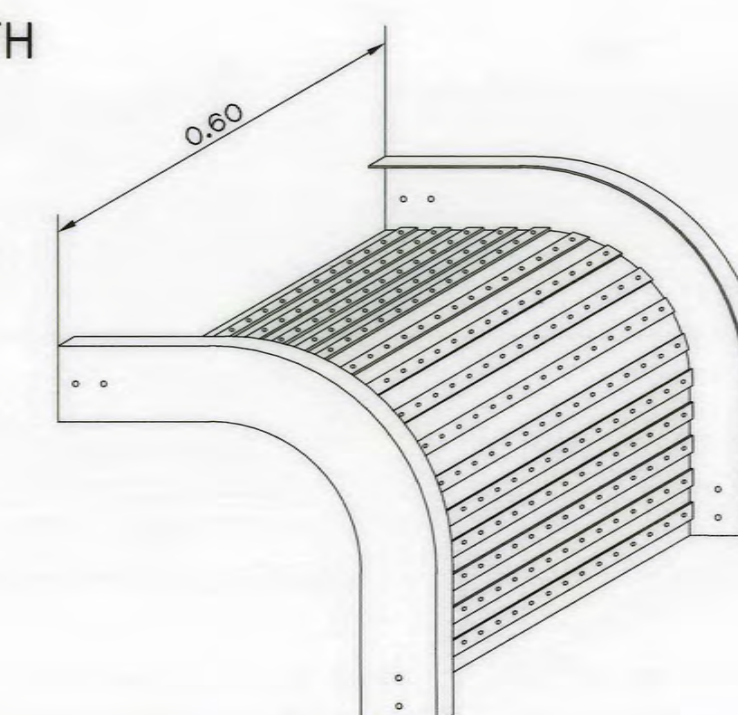
SECTION A-A
NOT TO SCALE



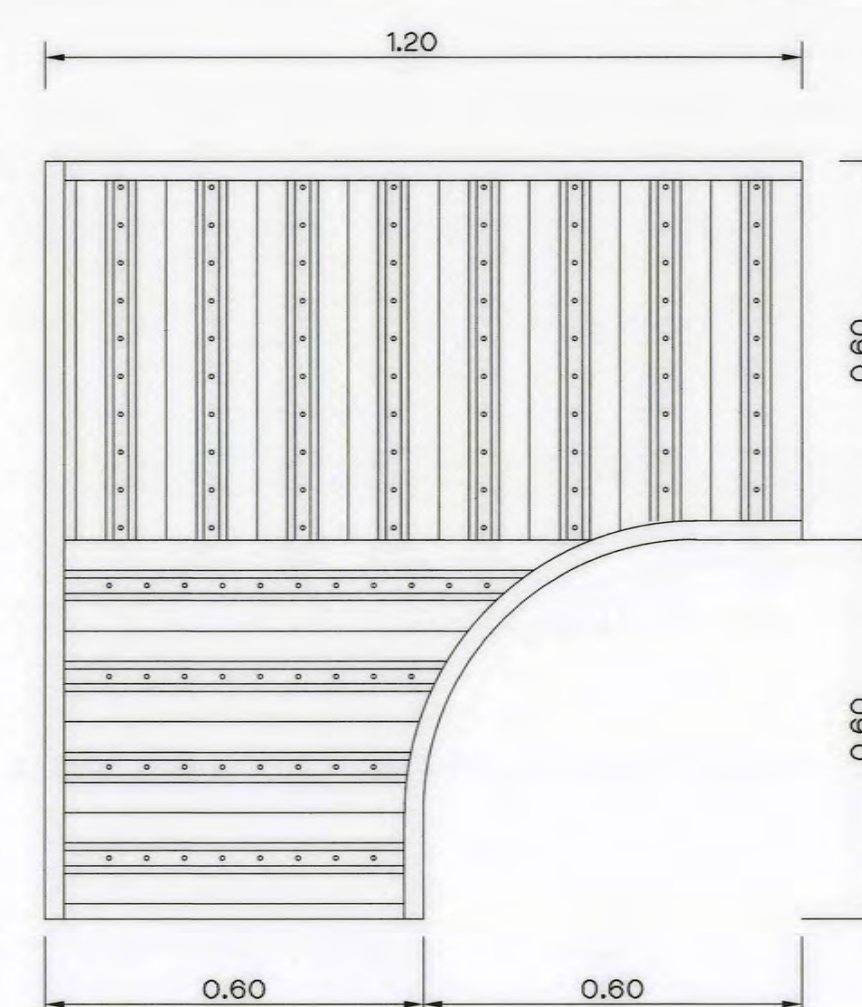
STRAIGHT LENGTH
NOT TO SCALE



OUTSIDE VERTICAL RISERS
NOT TO SCALE



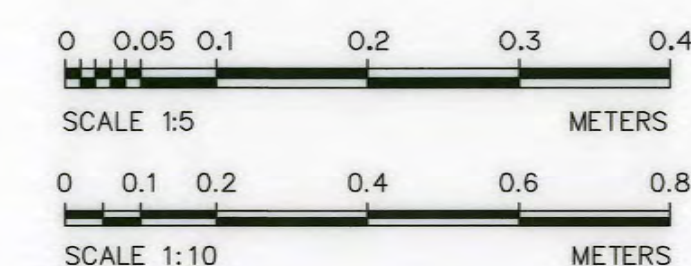
INSIDE VERTICAL RISERS
NOT TO SCALE



HORIZONTAL 90 ELBOWS

NOT TO SCALE

MATERIALS :SHEET STEEL 1.5MM.
SURFACE FINISH :POWDER
COATED IN TEXTURED RAL
7032 OR HOT-DIP GALVANIZED
(UPON YOU REQUIREMENTS)
ASSEMBLY :WELDING METHOD
APPLICATION : USING FOR INDOOR & OUTDOOR INSTALLATION WORK



NOTES :

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, REINFORCEMENT BARS ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. AKP-GN-03.
3. STEEL COVER FOR IN DOOR TRENCH SHALL BE COATED WITH NON BLEEDING TYPE COAL TAR EPOXY.

REFERENCE DRAWINGS :
1. POWERHOUSE, PLAN

AKP-PH-02

3				
2				
1				
NO.	DATE	REVISIONS	CHECKED	APPROVED
	CONSULTANTS		DEDE	

 KINGDOM OF THAILAND Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
AI KA PO HYDROPOWER PROJECT TAMBON PHUKHAO THONG AMPHOE SUKHIRIN CHANGWAT NARATHIWAT	
PART : 1 CIVIL WORKS AND TRANSMISSION LINE POWERHOUSE CABLE TRENCH DETAILS	
 P&C MANAGEMENT CO., LTD.  SPT CONSULTANTS CO., LTD.	 Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED <i>ph and jil</i> 28.10/2021 <i>ph</i> 28.10/2021	REVIEWED <i>ph</i>
DRAWN <i>ph</i>	SUBMITTED <i>ph</i>
CHECKED <i>ph</i> 28.10/2021	RECOMMENDED <i>ph</i>
28.10/2021	APPROVED <i>ph</i>
PROJECT MANAGER	DRAWING NO. AKP-PH-15
DATE	SHEET NO. 77 OF 128