REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS & HIGHWAYS

NATIONAL CAPITAL REGION

METRO MANILA 1st DISTRICT ENGINEERING OFFICE

WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

C.Y. 2025 PROJECT

DETAILED ENGINEERING DESIGN PLAN FOR

CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)

LOCATION : BRGY. WESTERN BICUTAN, TAGUIG CITY

TOTAL FLOOR AREA: 1,308.04 SQ.M

SUBMITTED:

ELINO V. CASTRO
CHIEF, PLANNING AND DESIGN SECTION

DATE :

RECOMMENDED:

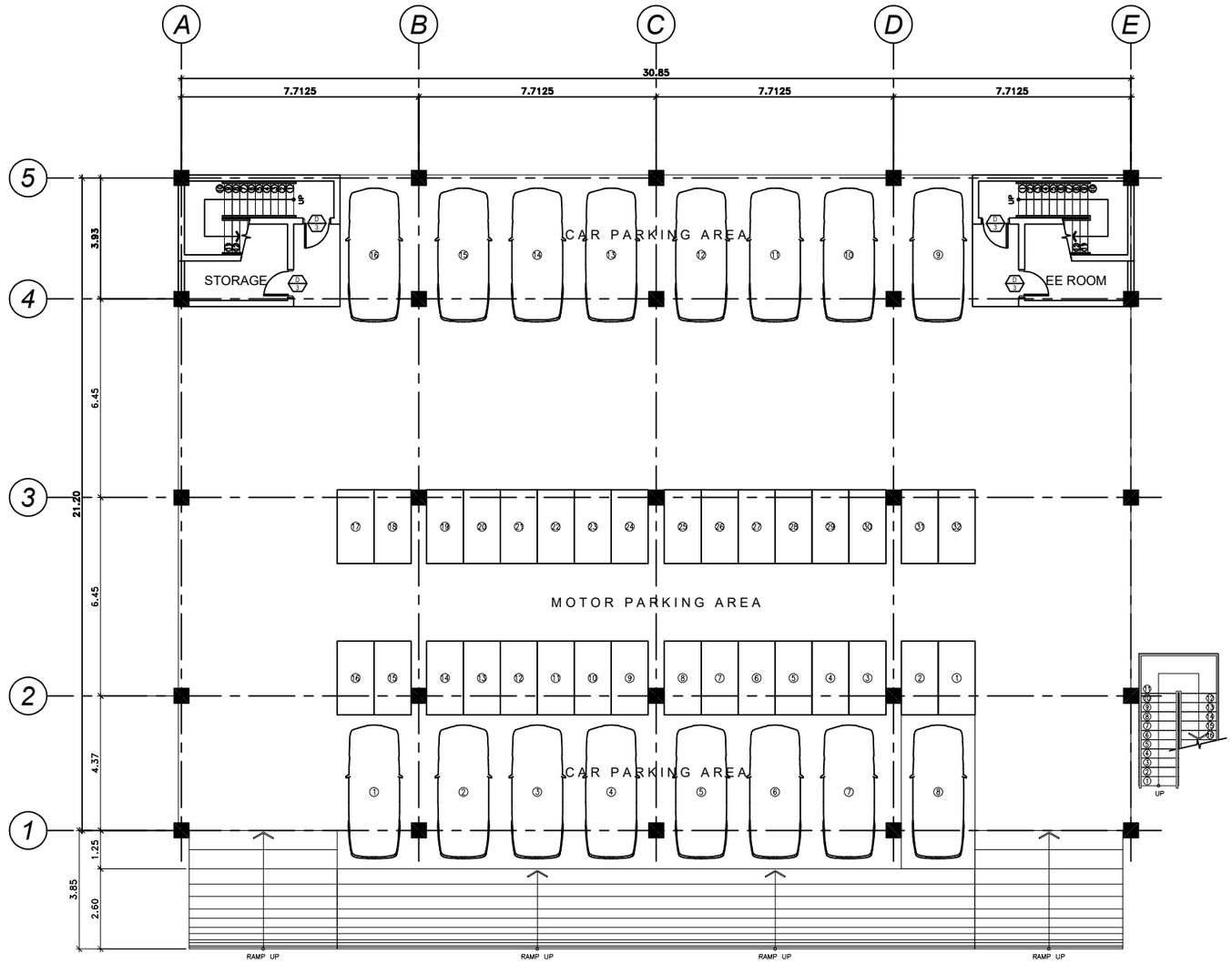
EDUARDO B. DEL ROSARIO
OIC - ASSISTANT DISTRICT ENGINEER

DATE :

APPROVED:

ARISTOTLE B. RAMOS
DISTRICT ENGINEER

DATE:



GROUND FLOOR PLAN

SCALE : 1 : 100 M.

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WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

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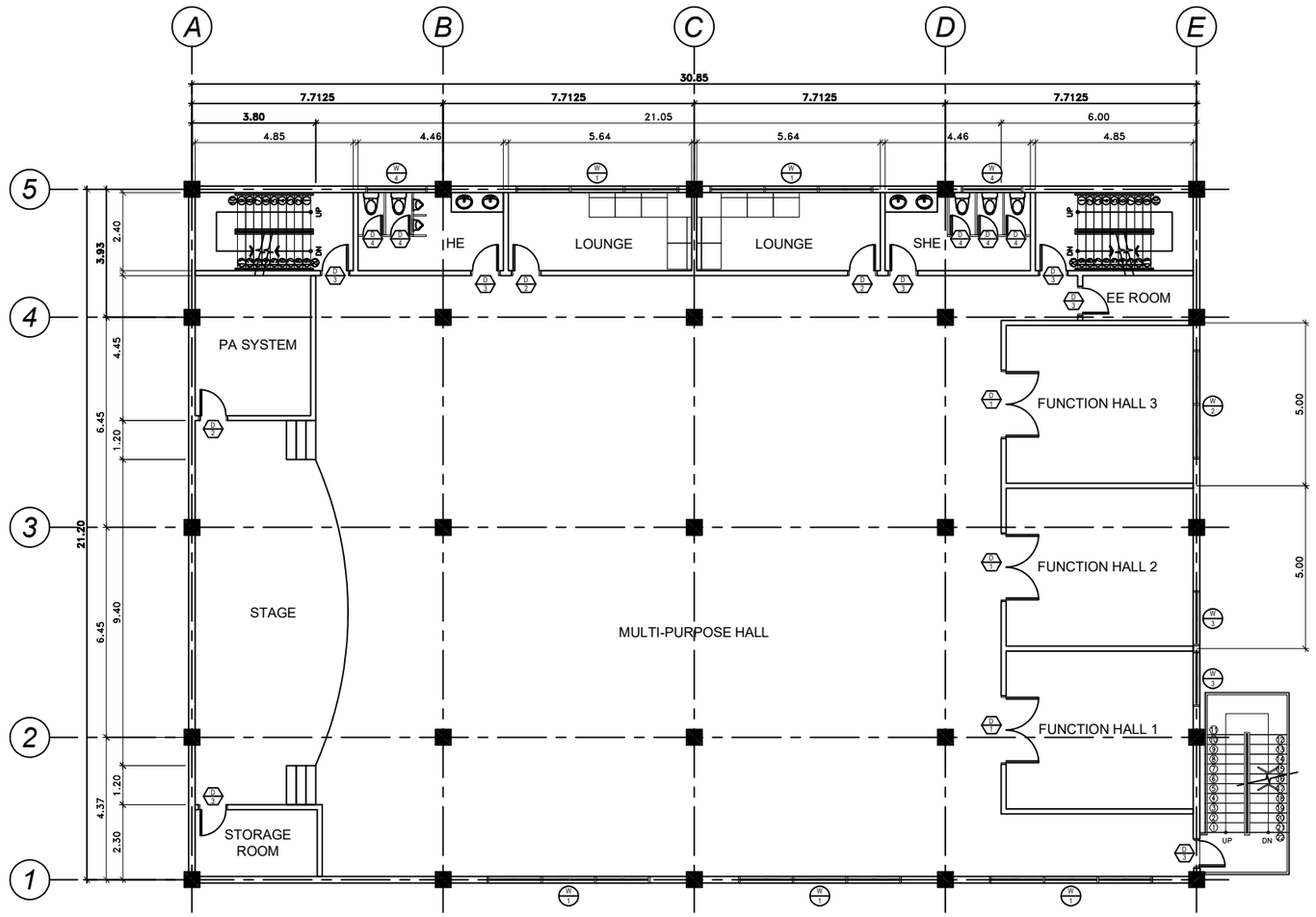
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	AS SHOWN	FRITZIE ROSE UY ARCHITECT II PREPARED: CRISTINA L. JOSE ARCHITECT II	MARY JESSICA P. HONRADE ENGINEER II DATE:	ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION DATE:	EDUARDO B. DEL ROSARIO OIC - ASSISTANT DISTRICT ENGINEER DATE:	ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	A-01	01 32



SECOND FLOOR PLAN

SCALE : 1 : 100 M.

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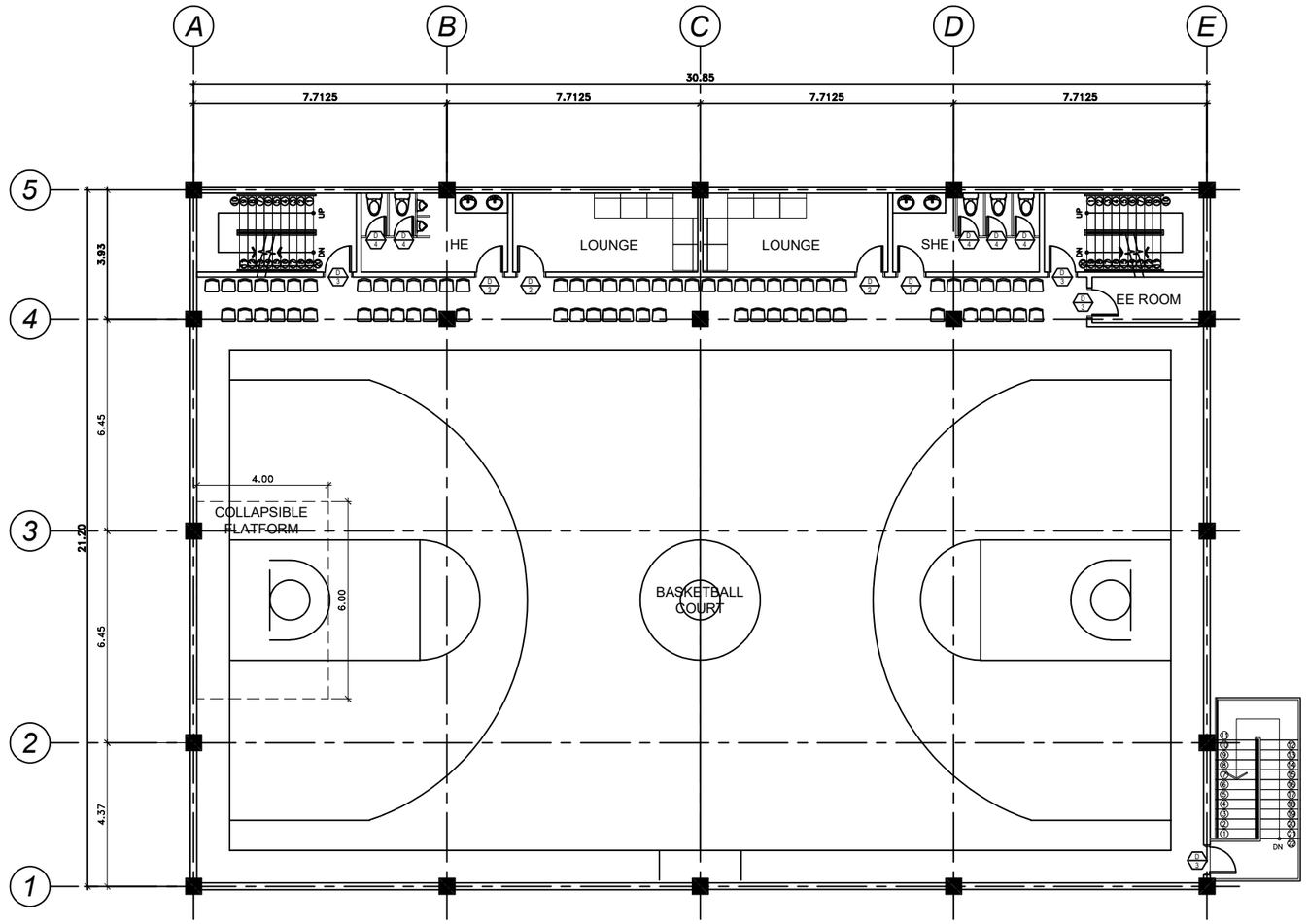

THIRD FLOOR PLAN

SCALE : 1 : 100 M.

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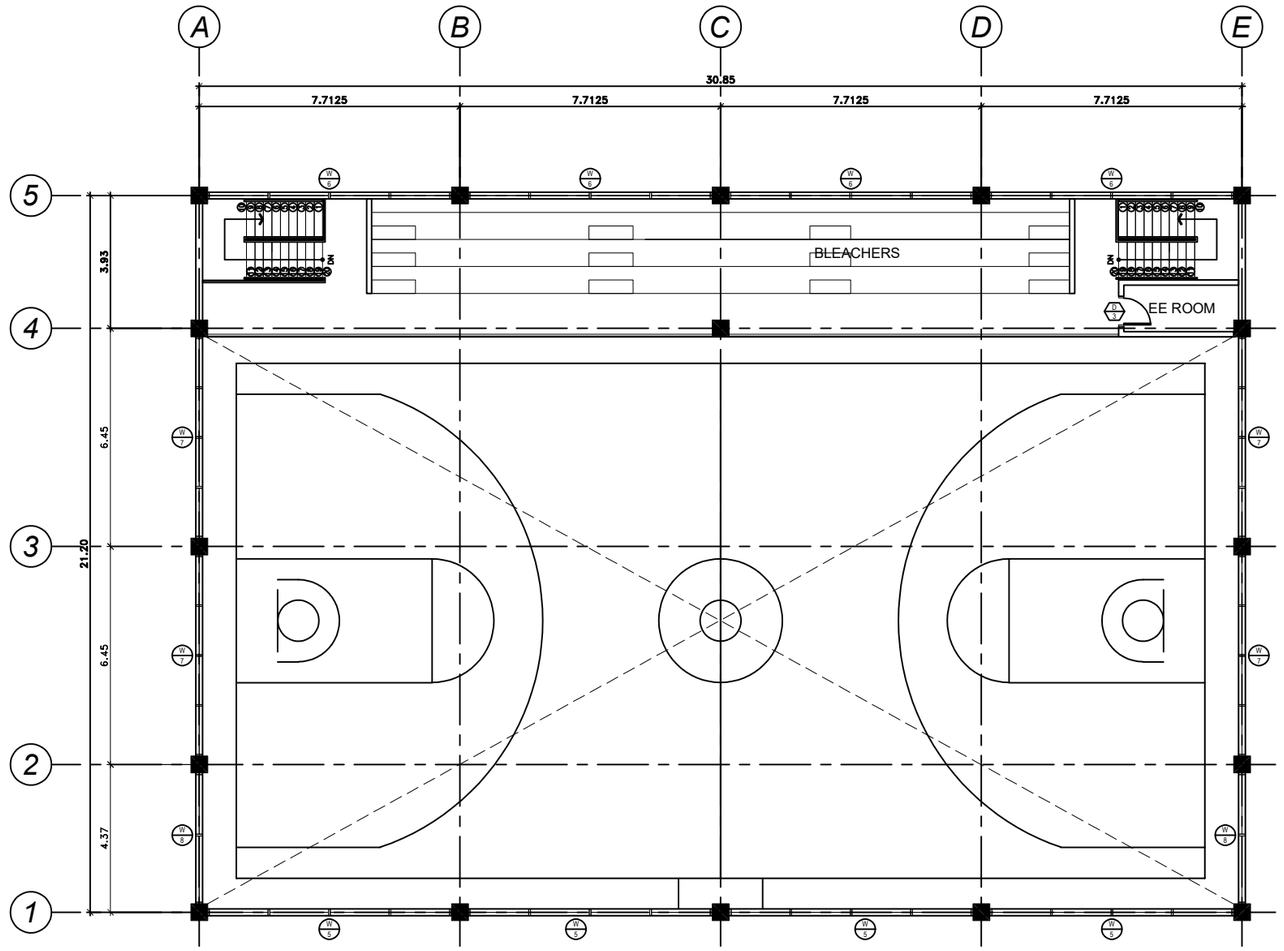

MEZZANINE FLOOR PLAN

SCALE : 1 : 100 M.

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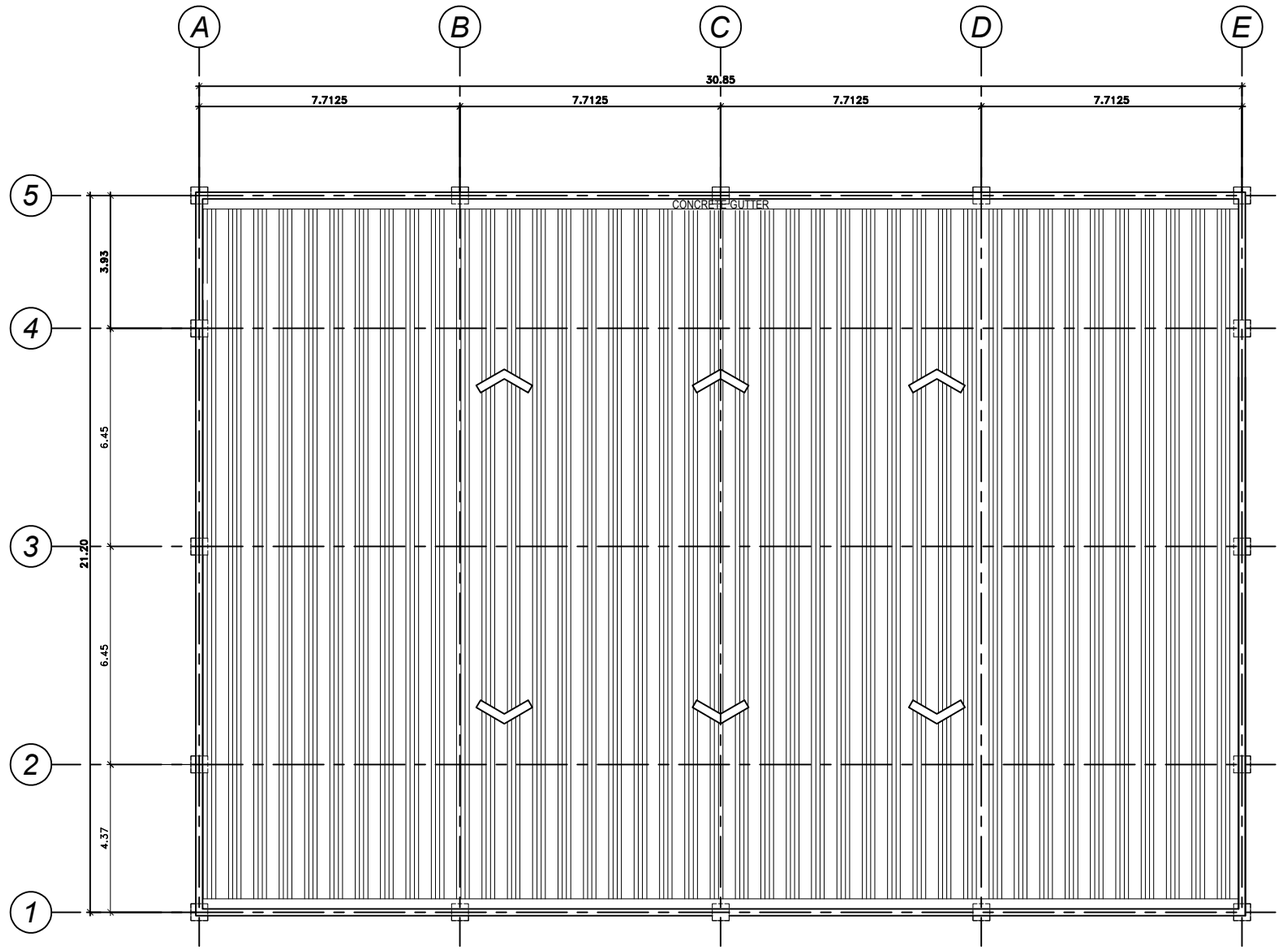

ROOF DECK FLOOR PLAN

SCALE : 1 : 100 M.

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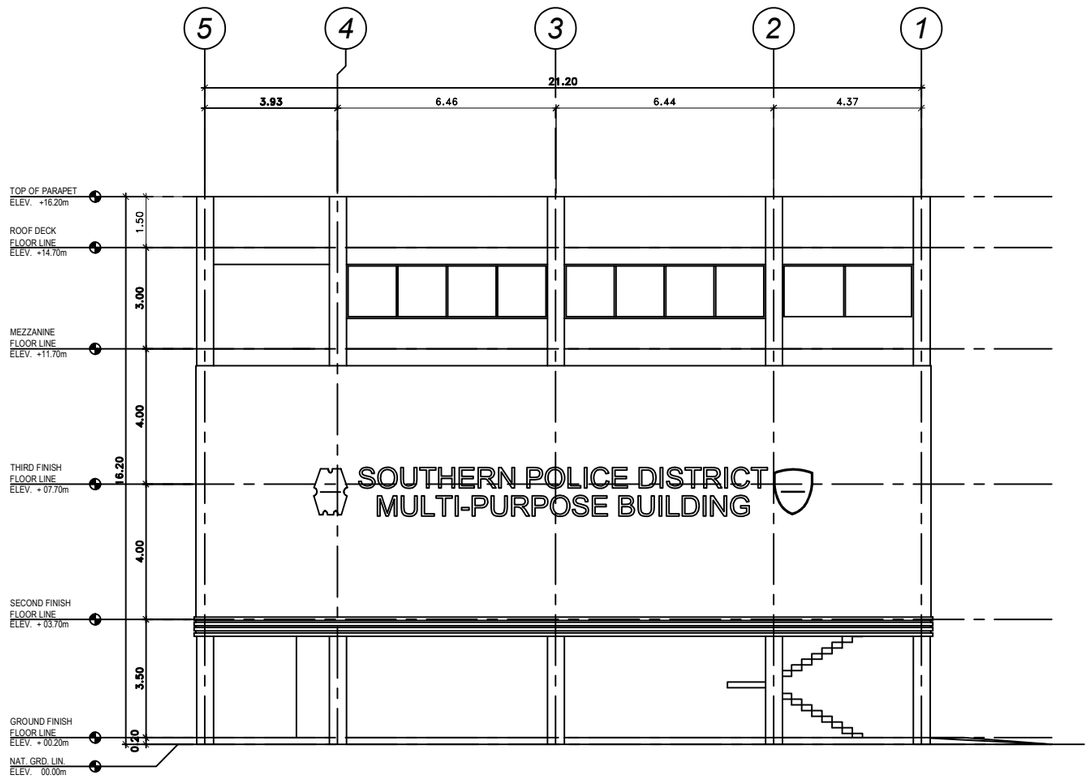
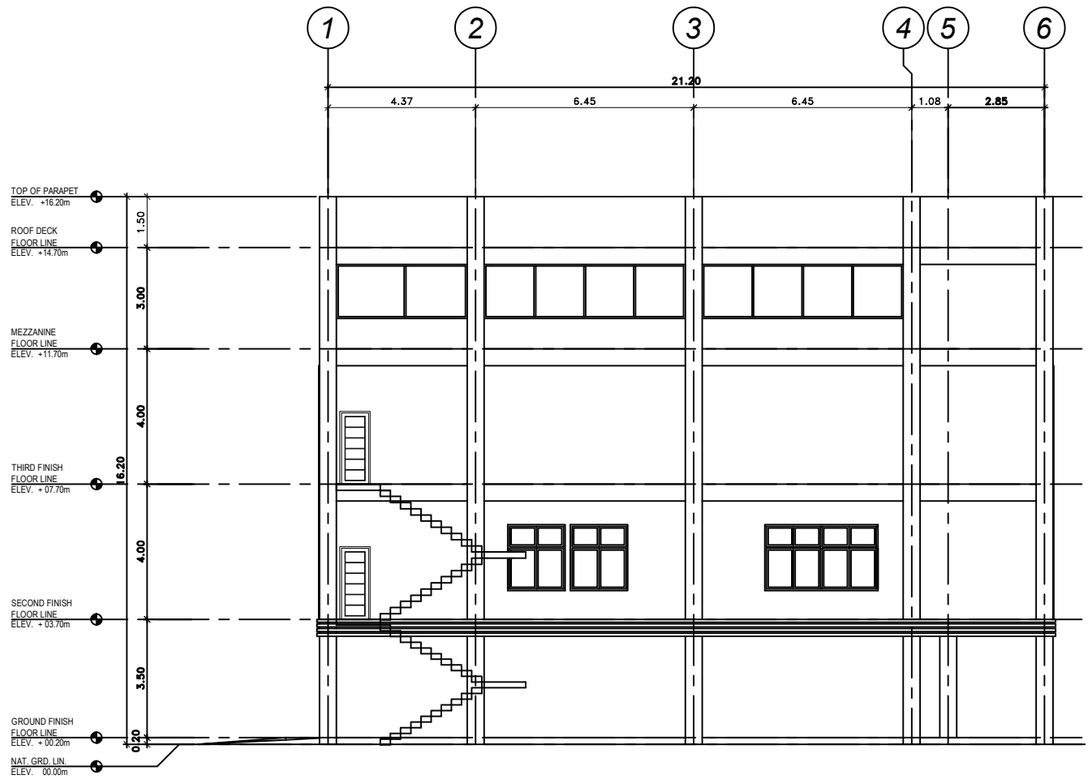


FRONT ELEVATION

SCALE : 1 : 100 M.



REAR ELEVATION

SCALE : 1 : 100 M.

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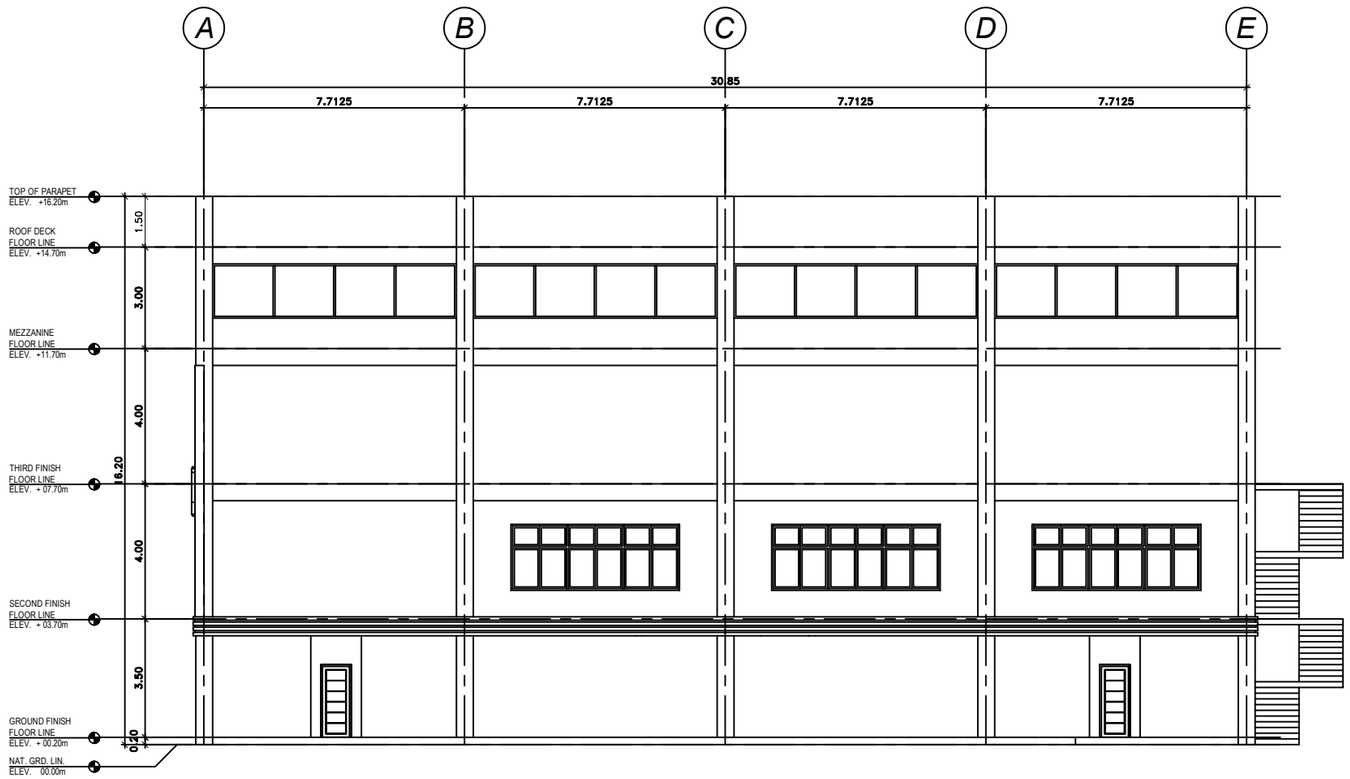

RIGHT SIDE ELEVATION

SCALE : 1 : 100 M.

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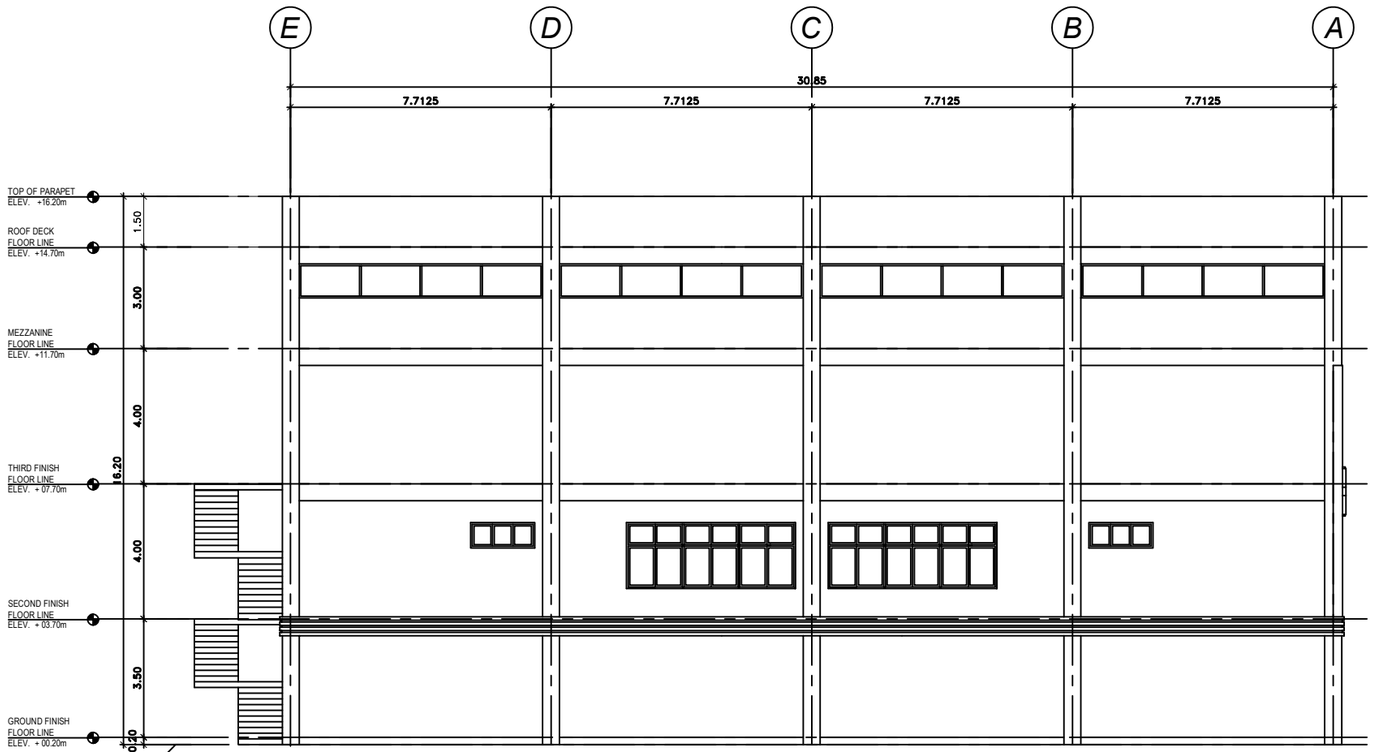

LEFT SIDE ELEVATION

SCALE : 1 : 100 M.

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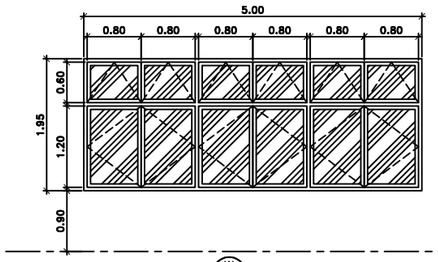
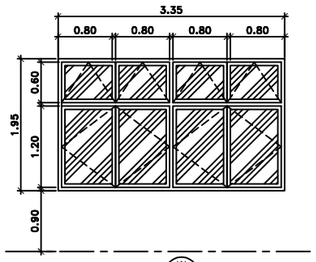
SCHEDULE OF DOORS & WINDOWS

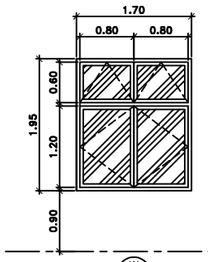
SCALE 1:50M



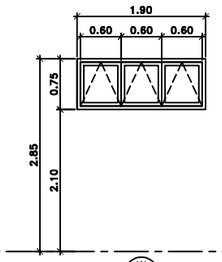
TYPE	COMBINATION WINDOW
SIZE (W X H)	5000mm X 1950mm
LOCATION	SECOND FLOOR
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	6



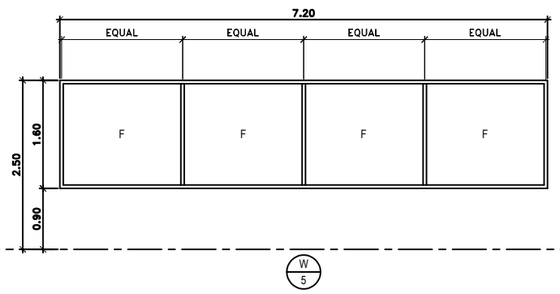
TYPE	COMBINATION WINDOW
SIZE (W X H)	3350mm X 1950mm
LOCATION	SECOND FLOOR
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	1



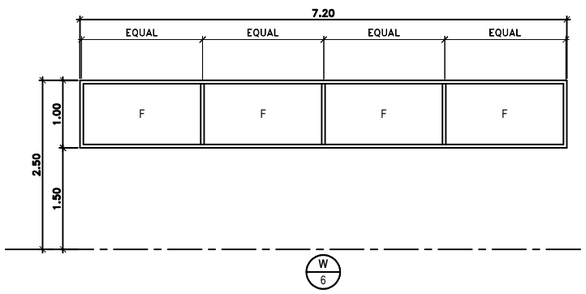
TYPE	COMBINATION WINDOW
SIZE (W X H)	1700mm X 1950mm
LOCATION	SECOND FLOOR
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	2



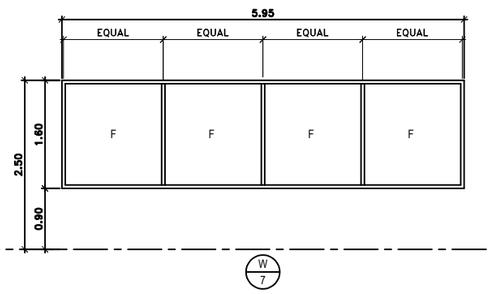
TYPE	AWNING WINDOW
SIZE (W X H)	1900mm X 750mm
LOCATION	SECOND FLOOR COMFORT ROOM
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	2



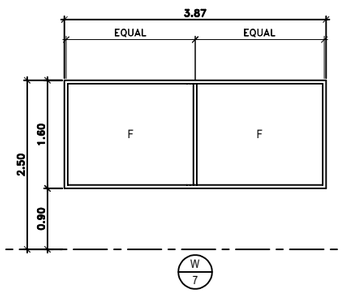
TYPE	FIXED WINDOW
SIZE (W X H)	7200mm X 1600mm
LOCATION	MEZZANINE
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	4



TYPE	FIXED WINDOW
SIZE (W X H)	7200mm X 1000mm
LOCATION	MEZZANINE
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	2



TYPE	FIXED WINDOW
SIZE (W X H)	5950mm X 1600mm
LOCATION	MEZZANINE
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	4



TYPE	FIXED WINDOW
SIZE (W X H)	3870mm X 1600mm
LOCATION	MEZZANINE
MATERIAL	6mm THK. TE CLEAR GLASS ON 50mm X 100mm ALUMINUM FRAME
NO. OF SET/S	2

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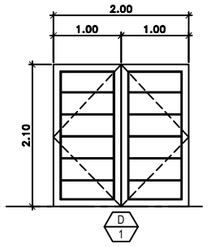
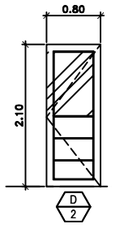
SCHEDULE OF DOORS

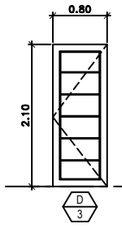
SCALE 1:50M



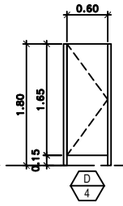
TYPE	SINGLE SWING PANEL DOOR
SIZE (W X H)	2000mm X 2100mm
LOCATION	FUNCTION HALL
MATERIAL	50mm THK STANDARD WOOD (TANGUILE)
JAMB	STANDARD WOOD JAMB
NO. OF SET/S	3



TYPE	SINGLE SWING GLASS PANEL DOOR
SIZE (W X H)	800mm X 2100mm
LOCATION	LOUNGE & PA SYSTEM
MATERIAL	6mm THK. CLEAR GLASS ON 50mm THK SOLID WOOD (TANGUILE)
JAMB	STANDARD WOOD JAMB
NO. OF SET/S	5



TYPE	SINGLE SWING PANEL DOOR
SIZE (W X H)	800mm X 2100mm
LOCATION	ALL FLOORS
MATERIAL	50mm THK STANDARD WOOD (TANGUILE)
JAMB	STANDARD WOOD JAMB
NO. OF SET/S	16



TYPE	SINGLE SWING FLUSH TYPE CUBICLE DOORS
SIZE (W X H)	600mm X 2100mm
LOCATION	COMFORT ROOM CUBICLE
MATERIAL	¾" MARINE PLYWOOD WITH SOLID WOOD DOOR FRAME IN DUCCO PAINTED FINISH
JAMB	MANUFACTURER'S SPECIFICATION
NO. OF SET/S	10

FINISH FLOOR LINE

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GENERAL CONSTRUCTION NOTES & TYPICAL DETAILS

GENERAL NOTES

1. IN THE INTERPRETATION OF THE DRAWING, INDICATED DIMENSIONS SHALL GOVERN AND DISTANCES AND SIZES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
2. IN REFERENCE TO OTHER DRAWINGS, SEE ARCHITECTURAL DRAWINGS FOR DEPRESSIONS IN FLOOR SLABS, OPENINGS IN THE WALLS AND SLABS, INTERIOR PARTIONS, LOCATION OF DRAINS ETC.
3. IN CASE OF DISCREPANCIES AS TO THE LAYOUT, DIMENSIONS, AND ELEVATIONS BETWEEN THE STRUCTURAL PLANS, AND ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL NOTIFY BOTH THE STRUCTURAL ENGINEER AND THE ARCHITECT.
4. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE ACI.318 _95_ BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND ALL STRUCTURAL STEEL WORK ACCORDING WITH AISC SPECIFICATION (9th EDITION) IN SO FAR AS THEY DO NOT CONFLICT WITH THE LOCAL BUILDING CODE REQUIREMENT.
5. ACI REFERS TO AMERICAN CONCRETE INSTITUTE, AISC TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND ASTM TO AMERICAN SOCIETY FOR TESTING MATERIALS.
6. CONSTRUCTION NOTES AND TYPICAL DETAILS APPLY TO ALL DRAWINGS UNLESS OTHERWISE SHOWN OR NOTED. MODIFY TYPICAL DETAILS AS DIRECTED TO MEET SPECIAL CONDITIONS.
7. SHOP DRAWINGS WITH ERECTION AND PLACING DIAGRAMS OF ALL STRUCTURAL STEELS, MISCELLANEOUS IRON, PRE-CAST CONCRETE, ETC. SHALL BE SUBMITTED FOR ENGINEERS APPROVAL BEFORE FABRICATION.
8. CONTRACTOR SHALL NOTE AND PROVIDE ALL MISCELLANEOUS CURBS, SILLS, STOOLS, EQUIPMENT'S AND MECHANICAL BASES THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS.
9. ALL RESULTS OF MATERIAL TESTING FOR CONCRETE, REINFORCING BARS, & STRUCTURAL STEEL MUST BE NOTED & APPROVED BY THE STRUCTURAL DESIGNER.

NOTES ON CONCRETE MIXES & PLACING

1. ALL CONCRETE SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS W/ CORRESPONDING MAXIMUM SIZE AGGREGATE & SLUMPS AS FOLLOWS.

LOCATION	28 DAYS STRENGTH	MAX. SIZE OF AGGREGATE	MAX. SLUMP
ALL OTHERS, INCLUDING SUSPENDED SLABS,	5000 PSI (34.4 MPa)	20mm	100mm
COLUMNS	5000 PSI (34.4 MPa)	20mm	100mm
BEAMS, SLABS	5000 PSI (34.4 MPa)	20mm	100mm
SLAB ON FILL	3000 PSI (20.7 MPa)	20mm	100mm

2. MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS.
   - SUSPENDED SLABS ---------- 20mm
   - SLAB ON GRADE ---------- 40mm
   - WALLS ABOVE GRADE ---------- 25mm
   - BEAM STIRRUPS AND COLUMN TIES ---------- 40mm
   - WHERE CONCRETE IS EXPOSED TO EARTH BUT POURED AGAINST FORMS ---------- 50mm
   - WHERE CONCRETE IS DEPOSITED DIRECTLY AGAINST EARTH ---------- 75mm
3. CONCTRETE SHALL BE DEPOSITED IN ITS FINAL POSITION WITHOUT SEGREGATION. RE-HAND LING OR PLACING SHALL BE DONE PREFERABLY WITH BUGGIES, BUCKETS OR WHEELBARROWS, NO CHUTES WILL BE ALLOWED EXCEPT TO TRANSFER CONCRETE FROM HOPPERS TO BUGGIES, WHEELBARROWS OR BUCKETS IN WHICH CASE THEY SHALL NOT EXCEED SIX (6) METERS IN AGGREGATE LENGTH.
4. NO DEPOSITING OF CONCRETE SHALL BE ALLOWED WITHOUT THE USE OF VIBRATORS UNLESS AUTHORIZED IN WRITING BY THE DESIGNERS AND ONLY FOR UNUSUAL CONDITIONS WHERE VIBRATIONS ARE EXTREMELY DIFFICULT TO ACCOMPLISH.
5. ALL ANCHOR BOLTS, DOWELS, AND OTHER INSERTS, SHALL BE PROPERLY POSITIONED & SECURED IN PLACE PRIOR TO PLACING OF CONCRETE.
6. ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP, FOG SPRAYING, CURING COMPOUNDS OR OTHER APPROVED METHODS.
7. STRIPPING OF FORMS AND SHORES:
   - FOUNDATION ---------- 24 HRS.
   - SUSPENDED SLAB EXCEPT WHEN ADDITIONAL LOADS ARE IMPOSED ---------- 8 DAYS
   - WALLS ---------- 21 DAYS
   - BEAMS ---------- 14 DAYS
   - COLUMNS ---------- 21 DAYS
8. THE CONTRACTOR SHALL SUBMIT THE SCHEDULE OF POURING AND THE LOCATION OF THE CONSTRUCTION JOINTS TO THE STRUCTURAL ENGINEER AT LEAST (4) DAYS PRIOR TO THE POURING FOR APPROVAL.
9. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE FORMS AND SHORINGS UNTIL THE CONCRETE MEMBERS HAVE ATTAINED THEIR WORKING CONDITION AND STRENGTH.

NOTES ON FOUNDATION

1. FOUNDATION ARE DESIGNED BASED ON THE RECOMMENDATIONS PROVIDED BY GARBIA GEOTECHNICAL AND STRUCTURAL SOLUTIONS GEOTEHCNICAL REPORT NO. GSGS-SE-0024-24
2. FOOTING SHALL REST AT LEAST 2000mm BELOW NATURAL GRADE LINE UNLESS OTHERWISE INDICATED IN PLANS. NO FOOTING SHALL REST ON FILL.
3. MINIMUM CONCRETE PROTECTION FOR REINFORCEMENTS SHALL BE 75mm CLEAR FOR CONCRETE DEPOSITED THE GROUND AND 50mm FOR CONCRETE DEPOSITED AGAINST A FORMWORK.

NOTES ON REINFORCEMENT

1. UNLESS OTHERWISE NOTED IN PLANS, THE YIELD STRENGTH OF REINFORCING BARS SHALL BE:
   A. FOR ø12MM AND SMALLER DIAMETER BARS ------ fy = 275 MPa (40,000 psi)
   B. FOR ø16M AND HIGHER DIAMETER BARS ---------fy = 414 MPa (60,000 psi)
2. ALL REINFORCING BARS SIZE 10mm OR LARGER SHALL BE DEFORMED IN ACCORDANCE WITH ASTM A 706. BARS SMALLER THAN 10mm MAY BE PLAIN.
3. SPLICES SHALL BE SECURELY WIRED TOGETHER & SHALL LAP OR EXTEND IN ACCORDANCE W/ TABLE A & TABLE B (TABLE OF LAP SPLICE & ANCHORAGE LENGTH) UNLESS OTHERWISE SHOWN ON DRAWINGS, SPLICES SHALL BE STAGGERED WHENEVER POSSIBLE.

TABLE 'A'
TENSION BARS
EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS

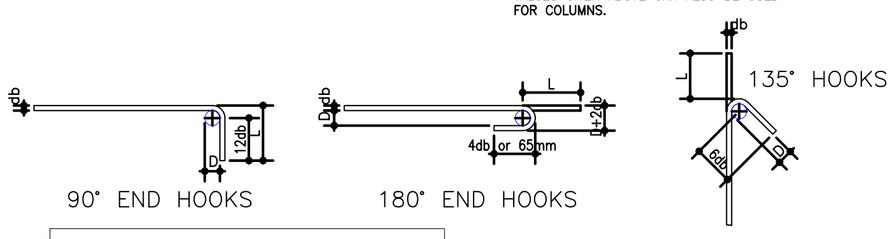
BAR SIZE (DEFORMED)	fc'= 20.7MPa(3000psi)		fc'= 27.6MPa(4000psi)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm ø	300	300	300	300
12mm ø	300	300	300	300
16mm ø	300	400	300	400
20mm ø	400	550	350	500
25mm ø	600	800	550	750
28mm ø	750	1000	650	850
32mm ø	950	1300	850	1100

NOTE : TOP PLAIN BARS , MULTIPLY VALUE BY 2

TABLE 'B'
COMPRESSION BARS
EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS

BAR SIZE (DEFORMED)	fc'= 20.7MPa(3000psi)		fc'= 27.6MPa(4000psi)	
	EMBEDMENT	LAPPED	EMBEDMENT	LAPPED
10mm ø	225	300	200	300
12mm ø	275	300	250	300
16mm ø	350	400	325	400
20mm ø	450	500	475	500
25mm ø	550	625	550	625
28mm ø	625	675	625	675
32mm ø	700	775	700	775

NOTE : TOP PLAIN BARS , MULTIPLY VALUE BY 2
VALUES GIVEN ABOVE CAN ALSO BE USED FOR COLUMNS.



MAIN BAR END HOOKS
(ALL GRADES)

BAR SIZE (DEFORMED)	DIAMETER (mm)	180° HOOK		90° HOOK
		D+2db	L	L
10mm ø	60	75	125	150
12mm ø	75	100	150	200
16mm ø	95	125	175	250
20mm ø	115	150	200	300
25mm ø	150	200	230	450
28mm ø	240	300	350	550

STIRRUP AND TIE HOOKS
(ALL GRADES)

BAR SIZE (DEFORMED)	DIAMETER (mm)	180° HOOK		90° HOOK
		D+2db	L	L
10mm ø	40	125	85	100
12mm ø	50	165	115	115
16mm ø	65	200	140	150
20mm ø	115	250	165	300
25mm ø	150	365	230	405

NOTES ON CONCRETE HOLLOW BLOCK WALLS

1. UNLESS OTHERWISE SHOWN IN PLANS ALL CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCKS SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCK REINFORCEMENT.
2. PROVIDE 150mm x 300mm STIFFENER COLUMN REINFORCED WITH 4-12mm WITH 6mmø TIES AT 150mm ON CENTER WHERE CONCRETE HOLLOW BLOCK TERMINATES AND AT EVERY 3.0M LENGTH OF CONCRETE HOLLOW BLOCK WALLS UNLESS NOTED IN STRUCTURAL PLANS.

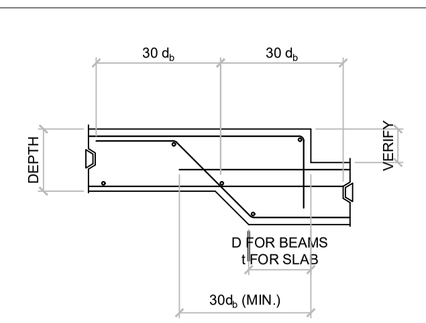
SCHEDULE OF CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK REINFORCEMENT

BLOCK THICKNESS	REINFORCEMENT		NOTES
	HORIZONTAL	VERTICAL	
75 mm	10mmø @ 600mm O.C.	10mmø @ 600mm O.C.	A. MINIMUM LAPS AT SPLICE = 0.25M B. PROVIDE RIGHT ANGLED REINFORCEMENT AT CORNERS 0.92M LONG C. WHERE CHB OR CER. BLK. WALL DOWELS JOIN COL. R.C. BEAMS AND WALL DOWELS WITH THE SAME SIZE AS VERT. OR HOR. REINFORCEMENTS SHALL BE PROVIDED
125 mm	10mmø @ 600mm O.C.	10mmø @ 600mm O.C.	
150 mm	10mmø @ 600mm O.C.	10mmø @ 600mm O.C.	
200 mm	12mmø @ 600mm O.C.	12mmø @ 600mm O.C.	

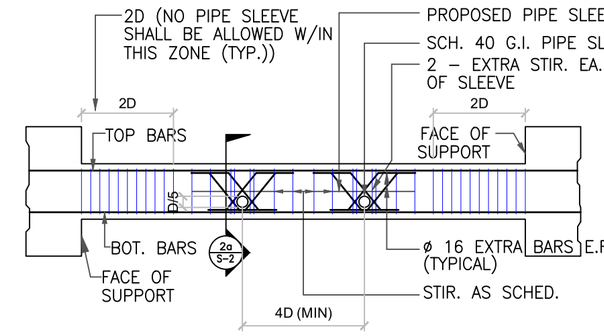
REINFORCING CONCRETE LINTEL BEAM IN CONCRETE BLOCK WALLS

LINTELS IN BLOCK WALLS

CLEAR SPAN ("L")	TOTAL LENGTH (L+0.40M)	MIN. fc' (MPa)	HEIGHT OF LINTEL (MM)	REINFORCEMENT		
				BOTTOM	TOP	STIRRUPS
1.20M	1.60M	14.0	200	1-ø10	1-ø10	ø6mm @ 200mm
150M	1.90M		200	1-ø10	1-ø10	ø6mm @ 200mm
1.80M	2.20M		200	1-ø12	1-ø10	ø6mm @ 200mm
2.10M	2.50M	17.0	250	1-ø12	1-ø10	ø6mm @ 200mm
2.40M	2.90M		250	1-ø12	1-ø10	ø6mm @ 200mm
2.70M	3.10M		250	1-ø16	1-ø12	ø10mm @ 200mm
3.00	3.40M	20.0	300	1-ø16	1-ø12	ø10mm @ 200mm
3.30	3.70M		300	1-ø16	1-ø12	ø10mm @ 200mm
3.60	4.00		300	1-ø20	1-ø12	ø10mm @ 200mm



1 S-1 TYPICAL DETAIL FOR BEAM OR SLAB CHANGE SOFFIT

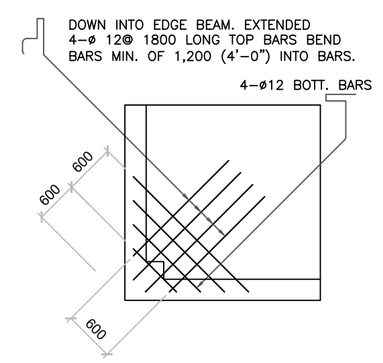


2 S-1 PIPE SLEEVE THRU BEAM DETAIL

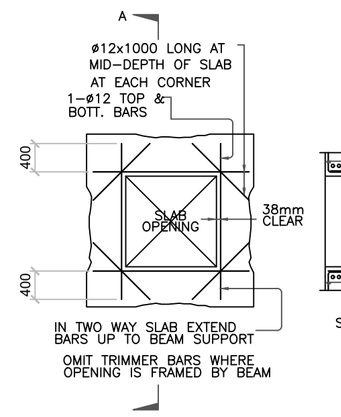
NOTES:
1. SEEK STRUCT'L ENGINEER'S APPROVAL FOR PIPE SLEEVES W/ DIAMETERS BIGGER THAN THE MAXIMUM STIPULATED.
2. PIPE SLEEVES SHALL BE LOCATED WITHIN TENSION ZONES OF BEAM.
3. NO PIPE SLEEVE SHALL BE ALLOWED AT TWICE THE BEAM DEPTH (2D) FROM THE SUPPORT.

LEGEND:
1. D = DEPTH OF BEAM/GIRDER
2. d = PIPE SLEEVE DIAMETER

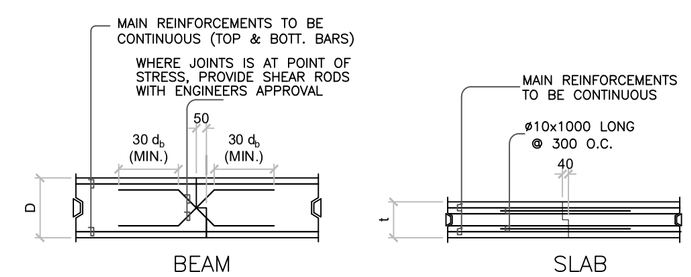
PIPE SLEEVE MAXIMUM DIAMETER IS : (LEAST GOVERNS)
A) 1/5 OF BEAM DEPTH
B) 100 MM



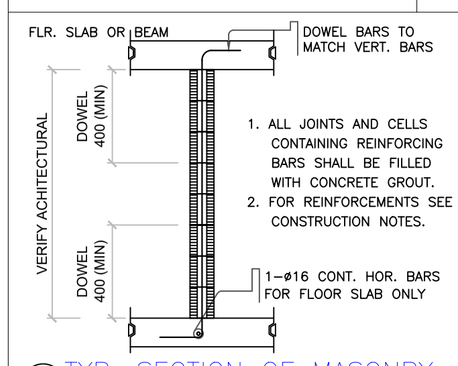
3 S-1 TYPICAL CORNER SLAB DETAIL



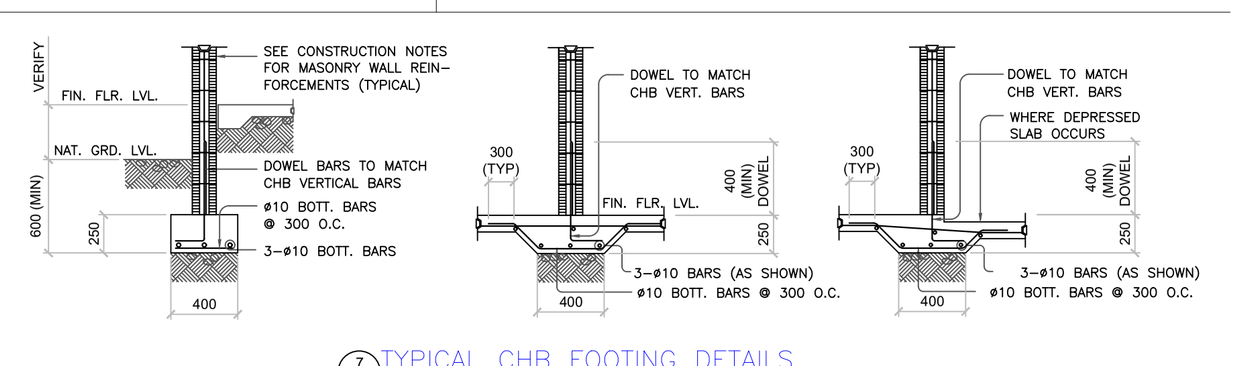
4 S-1 TYPICAL SLAB OPENING DET.



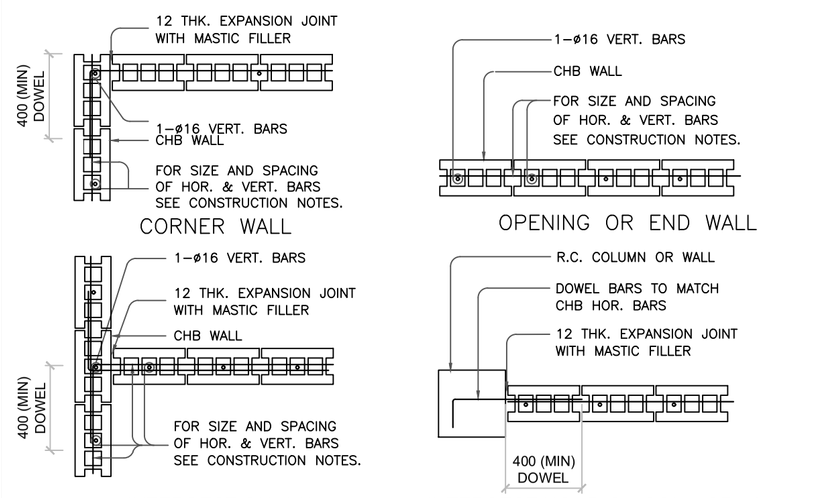
5 S-1 TYPICAL SLAB & BEAM CONSTRUCTION JOINT DET.



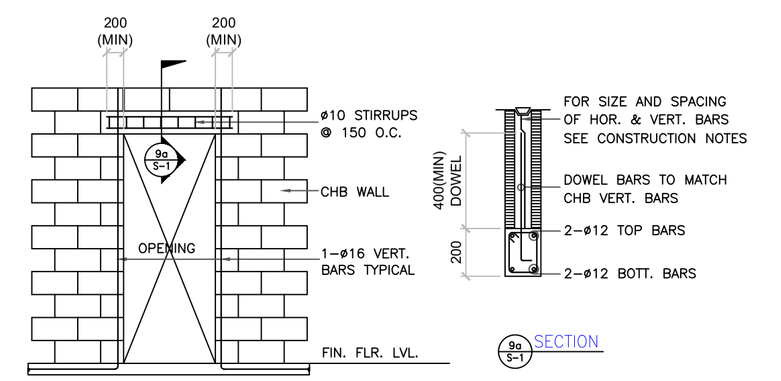
6 S-1 TYP. SECTION OF MASONRY PARTITION REINFORCEMENTS



7 S-1 TYPICAL CHB FOOTING DETAILS (WHERE APPLICABLE)



8 S-1 TYPICAL CONNECTION DETAIL OF MASONRY WALL



9 S-1 TYP. DET. OF LINTEL BEAM AT CHB WALL OPENING

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WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

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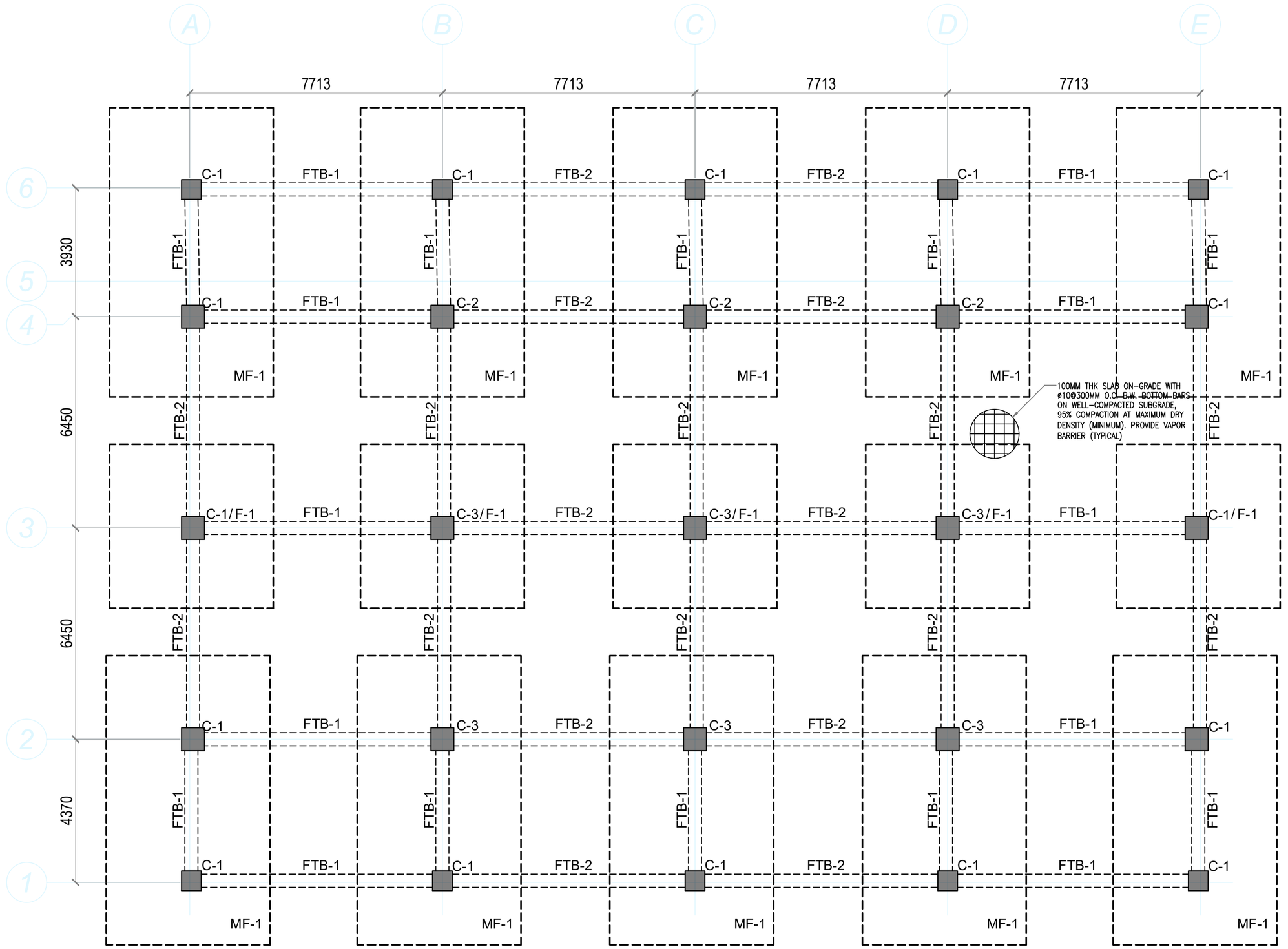
		P.I. or DESIGNER ENGINEER II PREPARED: FAUSTO F. FAUSTO ENGINEER II	MARY JESSICA P. HONRADE ENGINEER II DATE:	ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION ENGINEER III DATE:	EDUARDO B. DEL ROSARIO OIC - ASSISTANT DISTRICT ENGINEER DATE:	ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	S-1	NO. OF SHEET TOTAL SHEETS



1/S-2 FOUNDATION PLAN

SCALE: 1:100

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
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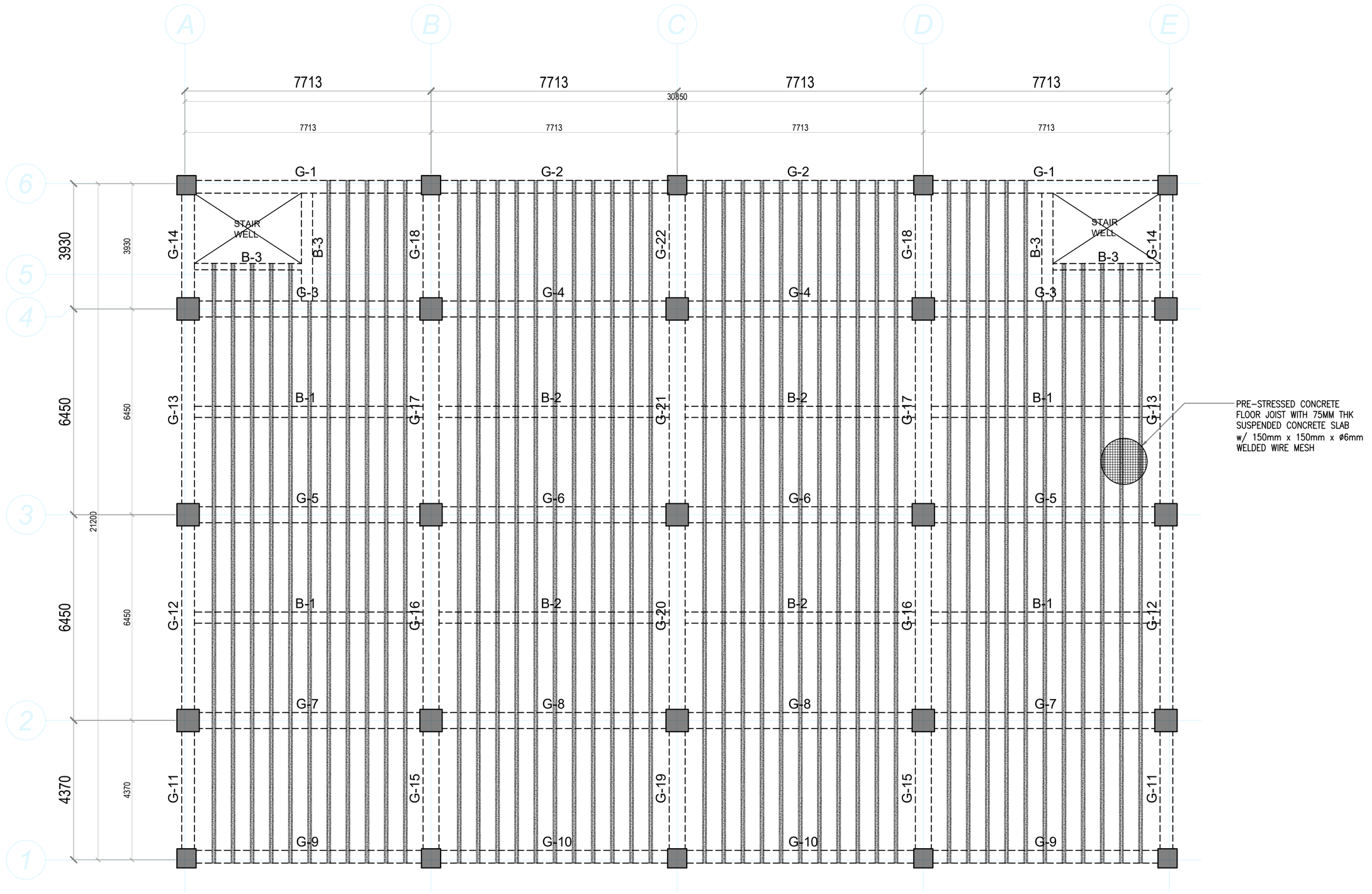

1
S-3

TYP. 2ND & 3RD FLOOR FRAMING PLAN

SCALE: 1:100

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

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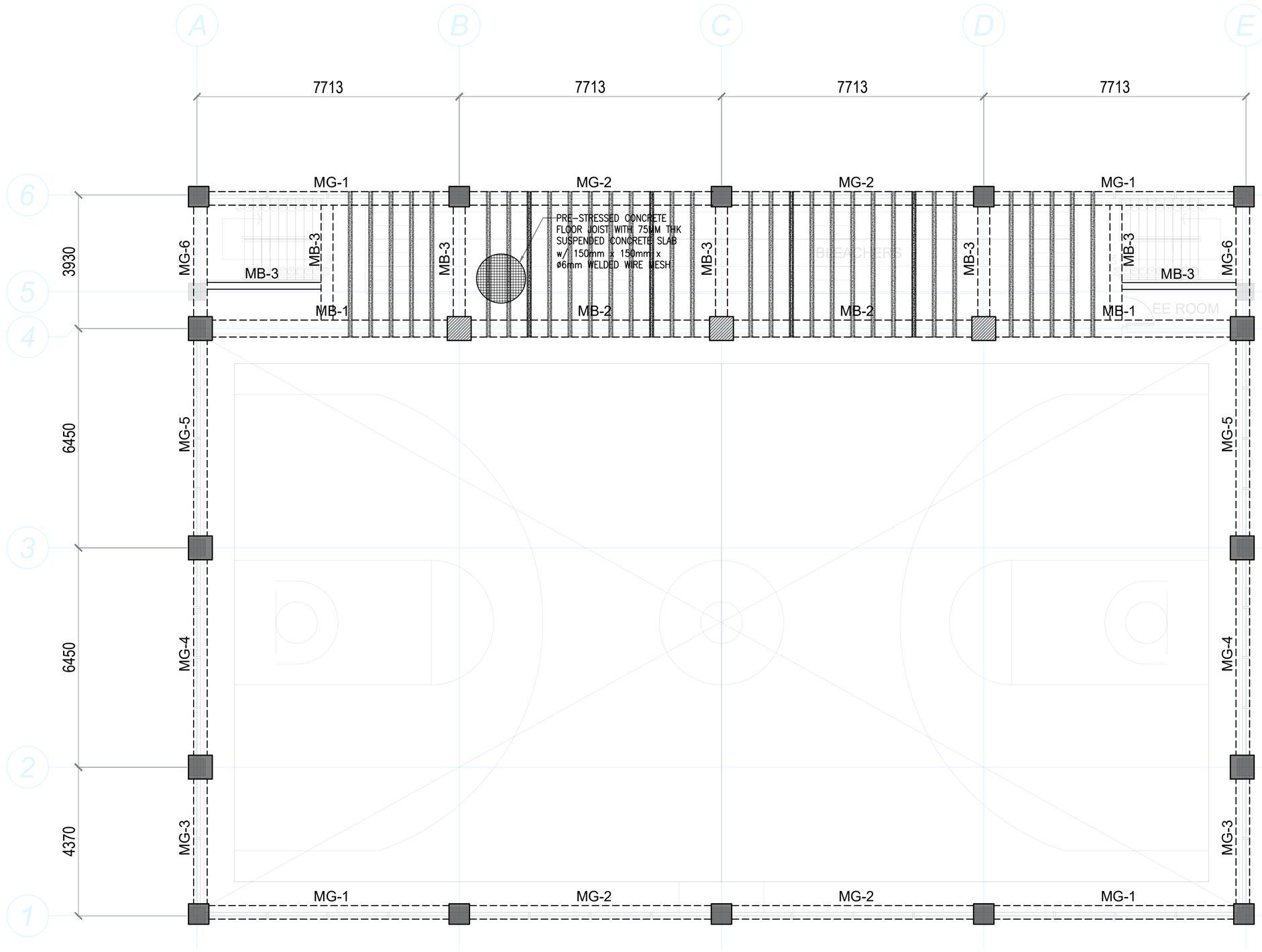
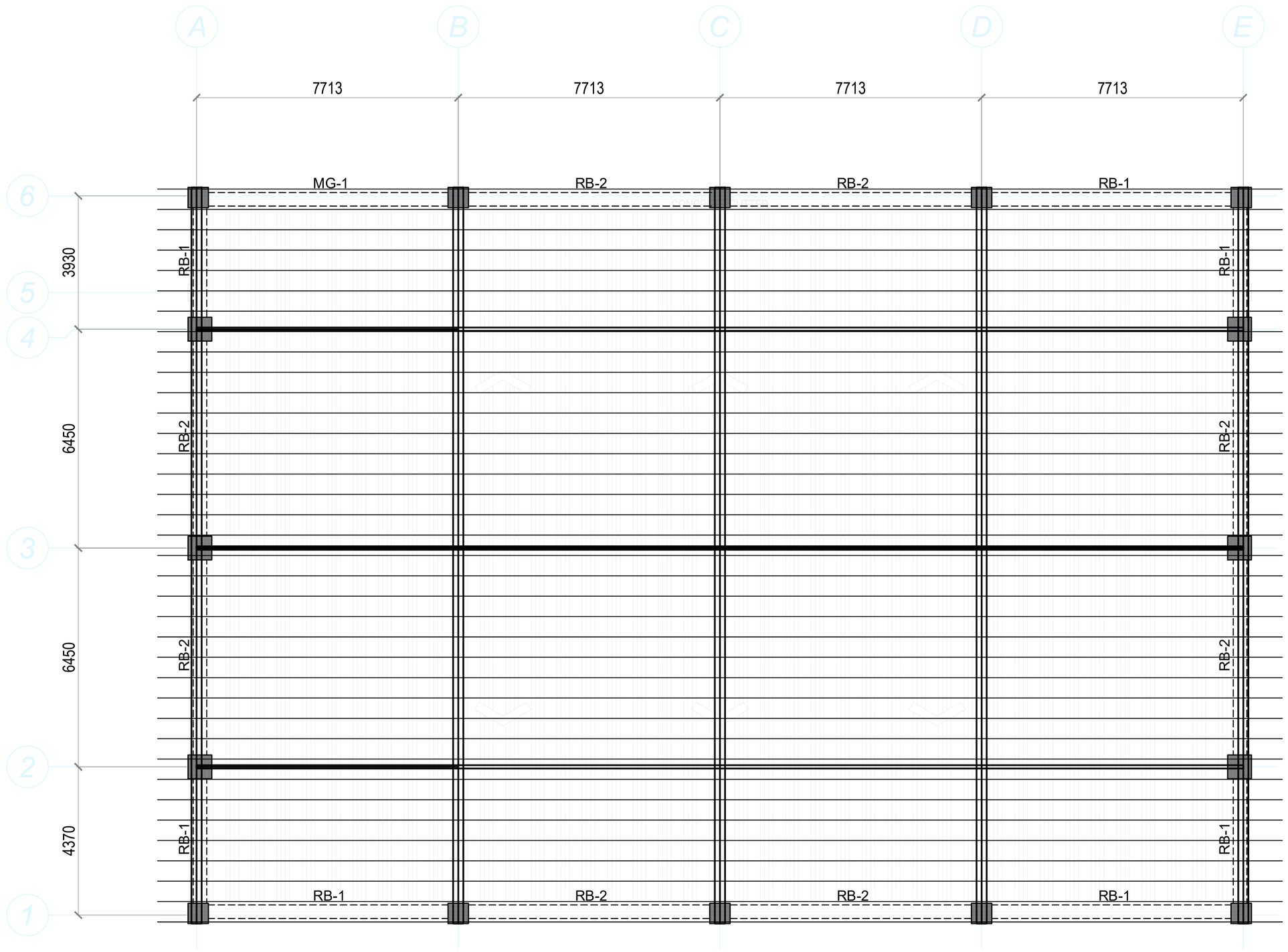


1 / S-4 MEZZANINE FRAMING FLOOR PLAN

SCALE: 1:100

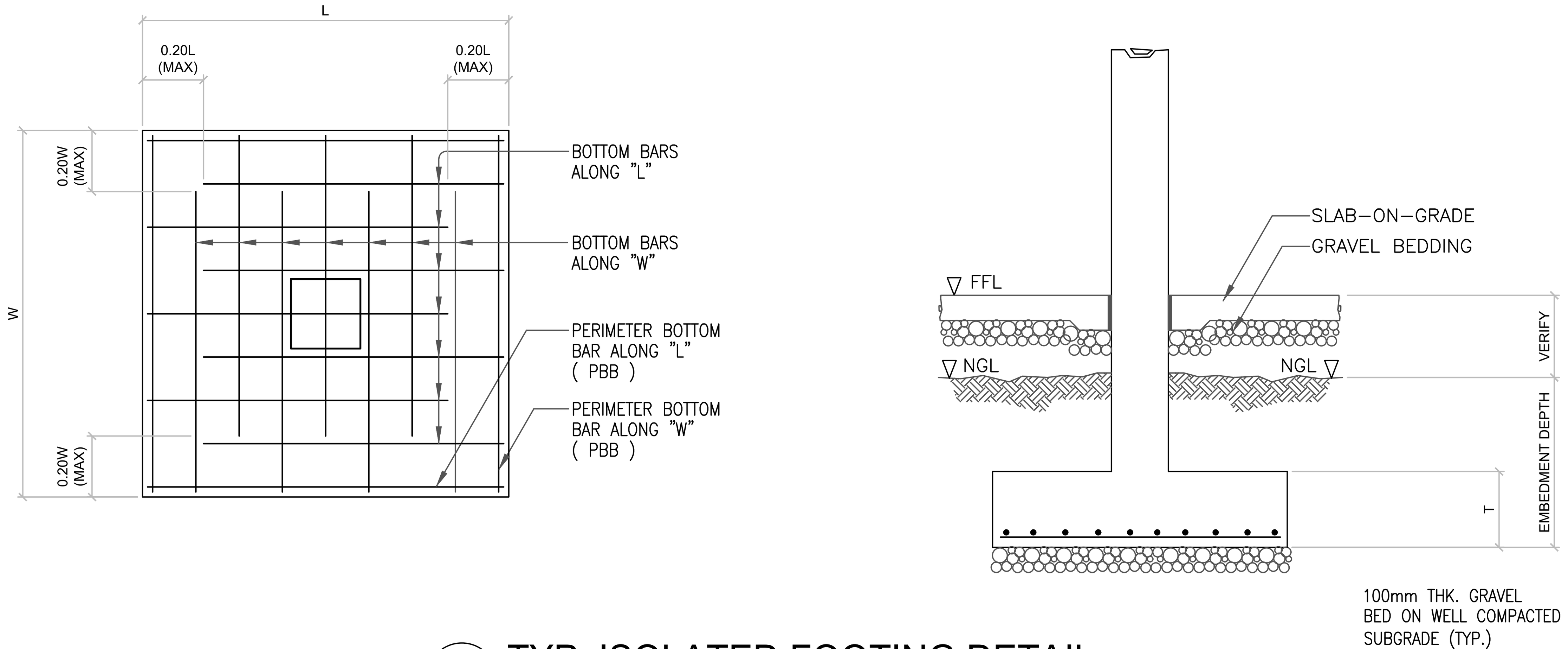
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS NATIONAL CAPITAL REGION METRO MANILA 1st DISTRICT ENGINEERING OFFICE WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	PROJECT TITLE / LOCATION:	SHEET CONTENTS:	DRAFTED: P.I. or DESIGNER ENGINEER II PREPARED: FAUSTO F. FAUSTO ENGINEER II	REVIEWED: MARY JESSICA P. HONRADE ENGINEER II DATE:	SUBMITTED : ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION ENGINEER III DATE:	RECOMMENDED; EDUARDO B. DEL ROSARIO OIC - ASSISTANT DISTRICT ENGINEER DATE:	APPROVED : ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	SET NO.: S-4	SHEET NO.: NO. OF SHEET TOTAL SHEETS



1 / s-5 MEZZANINE FRAMING FLOOR PLAN

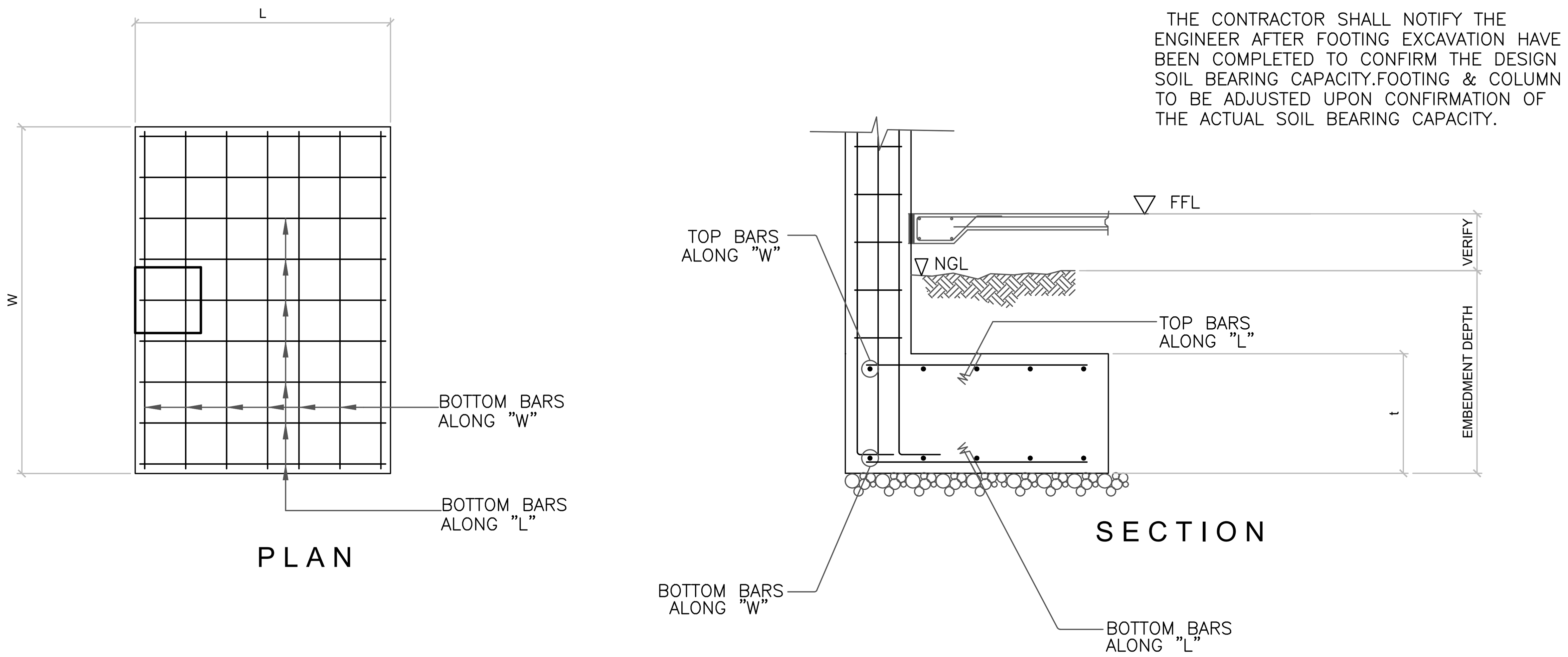
SCALE: 1:100

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS NATIONAL CAPITAL REGION METRO MANILA 1st DISTRICT ENGINEERING OFFICE WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	PROJECT TITLE / LOCATION:	SHEET CONTENTS:	DRAFTED: P.I. or DESIGNER ENGINEER II PREPARED: FAUSTO F. FAUSTO ENGINEER II	REVIEWED: MARY JESSICA P. HONRADE ENGINEER II DATE:	SUBMITTED : ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION ENGINEER III DATE:	RECOMMENDED; EDUARDO B. DEL ROSARIO OIC - ASSISTANT DISTRICT ENGINEER DATE:	APPROVED : ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	SET NO.: s-5	SHEET NO.: NO. OF SHEET TOTAL SHEETS



1 / S-6 TYP. ISOLATED FOOTING DETAIL
SCALE NTS

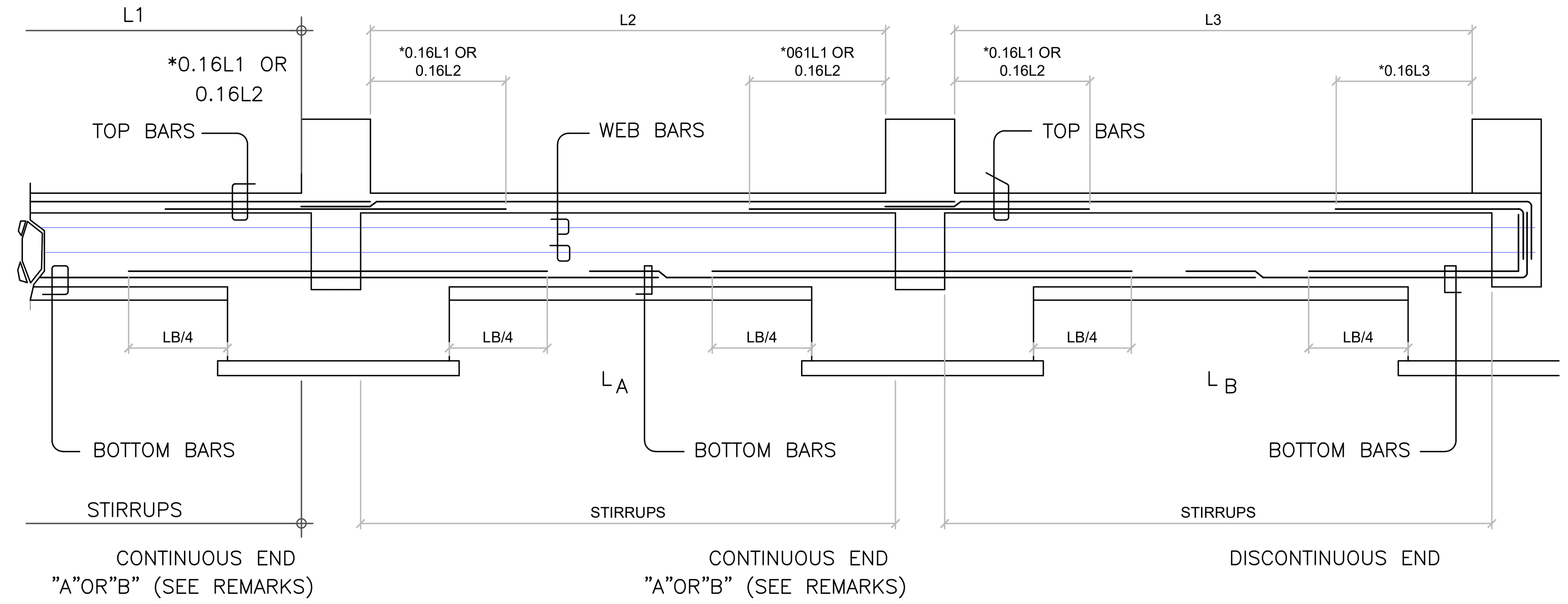
THE CONTRACTOR SHALL NOTIFY THE ENGINEER AFTER FOOTING EXCAVATION HAVE BEEN COMPLETED TO CONFIRM THE DESIGN SOIL BEARING CAPACITY.FOOTING & COLUMN TO BE ADJUSTED UPON CONFIRMATION OF THE ACTUAL SOIL BEARING CAPACITY.

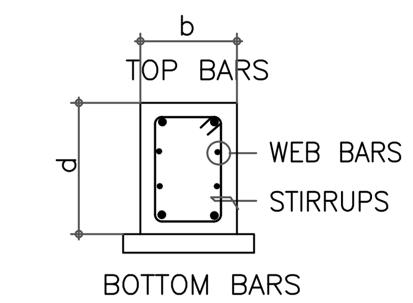


2 / S-6 TYP. CANTILEVER FOOTING DETAIL
SCALE NTS

SCHEDULE OF R.C. FOOTING

MARK	DIMENSION (mm.)			TOP BARS		BOTTOM BARS		DEPTH OF EMBEDMENT (MM)	REMARKS
	L	W	T	ALONG "L"	ALONG "W"	ALONG "L"	ALONG "W"		
F-1	5000	5000	500	–	–	26-ø20	26-ø20	1300	ISOLATED
MF-1	5000	8850	500	52-ø20	26-ø20	52-ø20	26-ø20	1300	COMBINED





1 / S-6 TYP. FOOTING TIE BEAM DETAIL
SCALE NTS

STRUCTURAL NOTES :
1. SEE TABLE OF LAP SPLICE & ANCHORAGE LENGTHS SHOWN ON SHEET S-1.
2. LAP SPLICE SHALL BE LOCATED ONLY WITHIN THE LAP SPLICE ZONE.
3. BOTTOM BAR LAP SPLICE SHALL BE 1.30 TIMES THE LAP SPLICE REQUIREMENT.
4. TOP & BOTTOM BARS MAY BE LAP ONLY SPLICED ONE LOCATION FOR EACH STRING OF BEAMS.
5. CLOSED HOOPS WITH A 135° BEND SHALL BE SPACED AT 100 O.C. MAXIMUM AT A DISTANCE 2D FROM THE FACE OF THE SUPPORT. FIRST STIRRUP SHALL 5D FROM THE FACE OF THE SUPPORT.
6. CLOSED HOOPS SHALL BE PROVIDED WITHIN THE LAP SPLICE LENGTH AT 100 O.C. MAXIMUM SPACING.

SCHEDULE OF R.C. TIE BEAMS

FLOOR LEVEL LOCATION	BEAM MARK	SECTION		BAR ø		LONGITUDINAL REINFORCEMENTS					WEB BARS EACH FACE	STIRRUPS NO./SET	STIRRUPS ø	STIRRUP SPACING	REMARKS
		WIDTH	DEPTH			DISCONT. 'A'	CONT. 'A'	MIDSPAN	CONT. 'B'	DISCONT. 'B'					
	FTB-1	500	700	ø20	TB	6		6	6		1-ø10	1	ø10	1@50, 7@100, REST@300 TO CL	
					BB	6		6	6						
	FTB-2	500	700	ø20	TB		6	6	6		1-ø10	1	ø10	1@50, 7@100, REST@300 TO CL	
					BB		6	6	6						
					TB										
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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

PROJECT TITLE / LOCATION:

SHEET CONTENTS:

DRAFTED:
P.I. or DESIGNER
ENGINEER II
PREPARED:
FAUSTO F. FAUSTO
ENGINEER II

REVIEWED:
MARY JESSICA P. HONRADE
ENGINEER II
DATE:

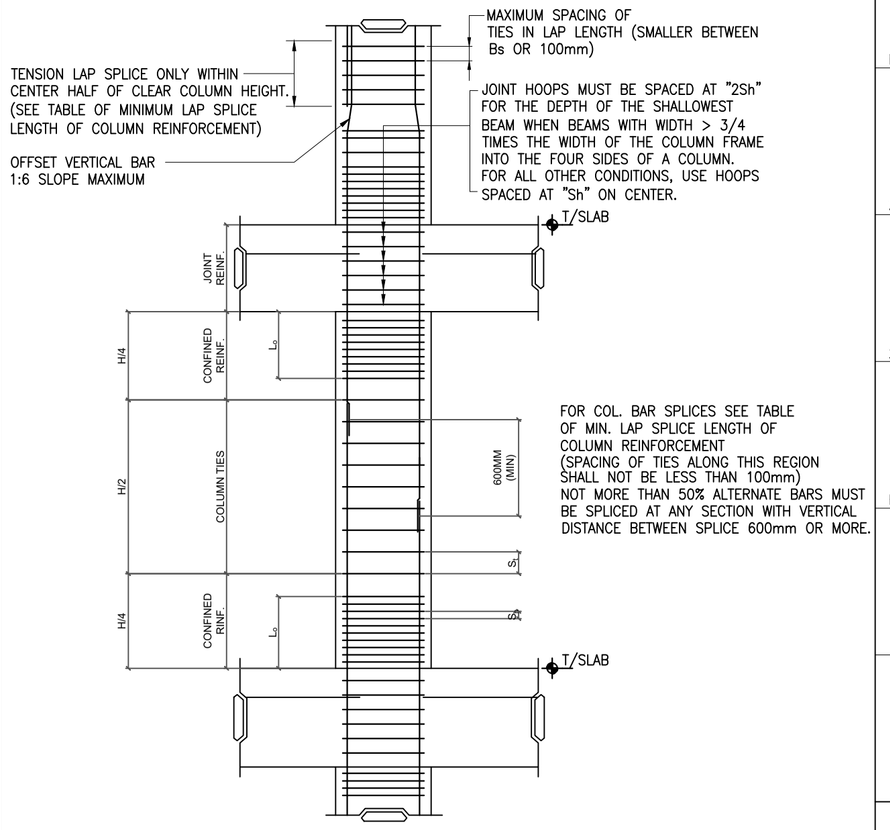
SUBMITTED :
ELINO V. CASTRO
CHIEF, PLANNING AND DESIGN SECTION
ENGINEER III
DATE:

RECOMMENDED;
EDUARDO B. DEL ROSARIO
OIC - ASSISTANT DISTRICT ENGINEER
DATE:

APPROVED :
ARISTOTLE B. RAMOS
DISTRICT ENGINEER
DATE:

SET NO.: S-6

SHEET NO.: NO. OF SHEET / TOTAL SHEETS



FOR COL. BAR SPLICES SEE TABLE OF MIN. LAP SPLICE LENGTH OF COLUMN REINFORCEMENT (SPACING OF TIES ALONG THIS REGION SHALL NOT BE LESS THAN 100mm) NOT MORE THAN 50% ALTERNATE BARS MUST BE SPLICED AT ANY SECTION WITH VERTICAL DISTANCE BETWEEN SPLICE 600mm OR MORE.

NOTES:
Sh = HOOP AND SUPPLEMENTARY CROSSTIE SPACING NOT TO EXCEED Bs/4 OR 100m.
St = COLUMN TIE SPACING, NOT TO EXCEED 16db OF VERTICALS, 48db OF TIES, Bs OR 150mm, WHICHEVER IS LESSER.
Bs = SMALLER DIMENSION OF COLUMN CROSS SECTION.
Lo = LARGEST COLUMN DIMENSION, 1/6 OF CLEAR HEIGHT OR 450mm, WHICHEVER IS GREATER.
H = CLEAR HEIGHT OF COLUMN.

NOTES ON COLUMNS

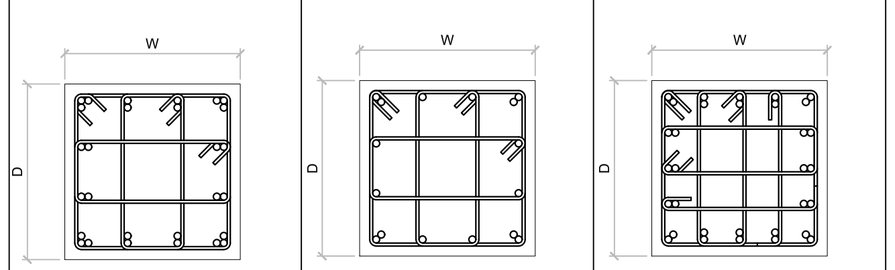
1. PROVIDE EXTRA SETS OF TIES AT 100mm O.C. FOR TIED COLUMN REINFORCEMENT ABOVE AND BELOW BEAM-COLUMN CONNECTIONS FOR A DISTANCE FROM FACE OF CONNECTION EQUAL TO THE GREATER OF THE OVERALL THICKNESS OF COLUMN, 1/6 THE CLEAR HEIGHT OF COLUMN OR 450mm.
2. COLUMN TIES SHALL BE PROTECTED EVERYWHERE BY A COVERING OF CONCRETE CAST MONOLITHICALLY WITH THE CORE WITH THE MINIMUM THICKNESS OF 40mm AND NOT LESS THAN 40 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE IN MILLIMETERS.
3. WHERE COLUMNS CHANGE IN SIZE, VERTICAL REINFORCEMENTS SHALL SHALL BE OFFSET AT A SLOPE OF NOT MORE THAN 1 IN 6 AND EXTRA 10mm TIES AT 100mm SHALL BE PROVIDED THRU OUT THE OFFSET REGION.
4. UNLESS OTHERWISE INDICATED IN THE PLANS, LAP SPLICES FOR VERTICAL COLUMN REINFORCEMENT SHALL BE MADE WITHIN THE CENTER HALF OF COLUMN HEIGHT, AND THE SPLICE LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS. WELDING OR APPROVED MECHANICAL DEVICES MAY BE USED PROVIDED THAT NOT MORE THAN ALTERNATE BARS ARE WELDED OR MECHANICALLY SPLICED AT ANY LEVEL AND THE VERTICAL DISTANCES BETWEEN THESE WELDS OR SPLICES OF ADJACENT BARS IS NOT LESS THAN 600mm.

2 S-7 TYP. R.C. COLUMN DETAIL
SCALE NTS

SCHEDULE OF R.C. COLUMNS

LEVEL		C-1	C-2	C-3	C-4
ROOF BEAM	W x D	600 x 600			
	VERT. BARS	16-ø28			
	TIES	ø12 @ 150			
	CONF. REINF.	ø12 @ 100			
	JOINT REINF.	ø12 @ 100			
MEZZANINE	TYPE	TYPE B			
	W x D	600 x 600	600 x 600		
	VERT. BARS	16-ø28	16-ø28		
	TIES	ø12 @ 150	ø12 @ 150		
	CONF. REINF.	ø12 @ 100	ø12 @ 100		
	JOINT REINF.	ø12 @ 100	ø12 @ 100		
3F LEVEL	TYPE	TYPE B	TYPE B		
	W x D	700 x 700	800 x 800	800 x 800	
	VERT. BARS	28-ø28	32-ø32	32-ø32	
	TIES	ø12 @ 150	ø12 @ 150	ø12 @ 150	
	CONF. REINF.	ø12 @ 100	ø12 @ 100	ø12 @ 100	
	JOINT REINF.	ø12 @ 100	ø12 @ 100	ø12 @ 100	
2F LEVEL	TYPE	TYPE A	TYPE C	TYPE C	
	W x D	700 x 700	800 x 800	800 x 800	
	VERT. BARS	28-ø28	32-ø32	32-ø32	
	TIES	ø12 @ 150	ø12 @ 150	ø12 @ 150	
	CONF. REINF.	ø12 @ 100	ø12 @ 100	ø12 @ 100	
	JOINT REINF.	ø12 @ 100	ø12 @ 100	ø12 @ 100	
FOUNDATION	TYPE	TYPE A	TYPE C	TYPE C	
	W x D				
	VERT. BARS				
	TIES				
	CONF. REINF.				
	JOINT REINF.				
	TYPE				
	W x D				
	VERT. BARS				
	TIES				
	CONF. REINF.				
	JOINT REINF.				
	TYPE				

COLUMN TYPES



COLUMN TYPE	TYPE A	COLUMN TYPE	TYPE B	COLUMN TYPE	TYPE C
VERT. BARS	28 BARS	VERT. BARS	16 BARS	VERT. BARS	32 BARS
LATERAL TIES	3 SET TIES	LATERAL TIES	3 SET TIES	LATERAL TIES	5 SET TIES
COLUMN TYPE		COLUMN TYPE		COLUMN TYPE	
VERT. BARS		VERT. BARS		VERT. BARS	
LATERAL TIES		LATERAL TIES		LATERAL TIES	

SCHEDULE OF PRE-STRESSED CONCRETE JOIST (PCJ)

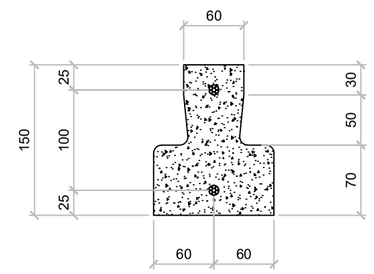
NOTES ON PRE-CAST CONCRETE FLOOR JOIST (PCJ)

TECHNICAL DATA:
- 41.40 MPa (6000 PSI) AT 28 DAY STRENGTH
- 24.20 MPa (3500 PSI) TRANSFER STRENGTH
- 32.00 KGS PER LINEAR METER SELF WEIGHT

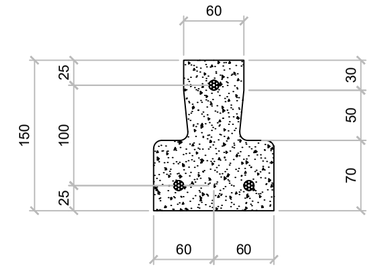
STRUCTURAL CONCRETE TOPPING
- 20.70 MPa (3000 PSI) DESIGN STRENGTH
- SAND, PEA, GRAVEL, PORTLAND CEMENT CONCRETE
- 50MM TO 75MM THICKNESS
- ø6MM TEMP BARS SPACED AT 150MM O.C. OR EQUIVALENT

MATERIAL DESIGN
- SHORING SHALL BE REQUIRED FOR 6M LENGTH
- NO SHORING IS REQUIRED FOR 3M LENGTH
- 2 HOURS FIRE RATING
- MINIMUM REQUIRED BEARING LENGTH IS 75MM

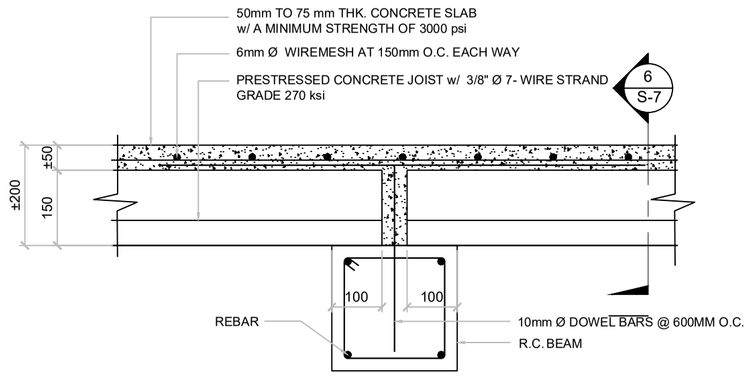
WIRE STRAND
- 7-WIRE STRAND, ø9.53MM CONFORMING TO ASTM A416
- LOW RELAXATION, PLAIN TYPE
- YIELD STRESS, FY = 1,6474 MPA (243,000 PSI)
- UTIMATE STRESS, Fpu - 1,860 MPa (270,500 PSI)



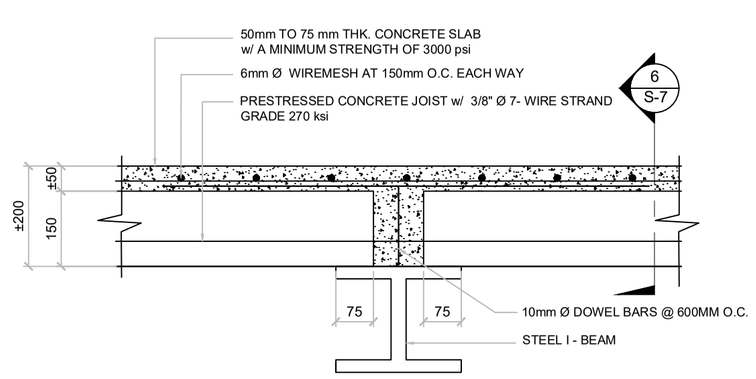
2 STRANDS
1 S-7 TYP PCJ SECTION DETAILS
SCALE NTS



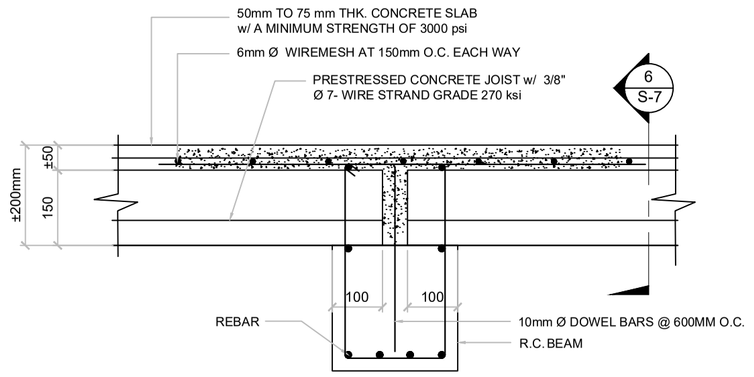
3 STRANDS
2 S-7 TYP PCJ SECTION DETAILS
SCALE NTS



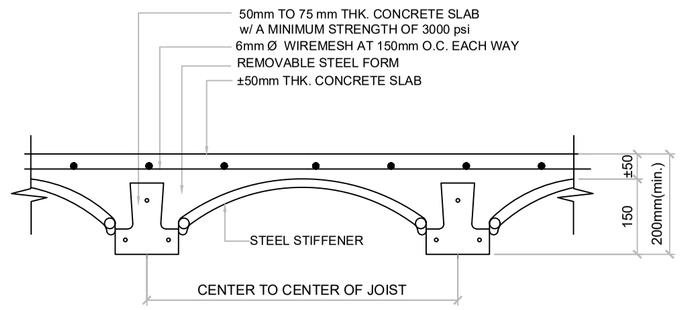
JOIST ON TOP OF R.C. BEAM
3 S-7 TYP. PCJ CONNECTION DETAIL
SCALE NTS



JOIST ON STEEL BEAMS
5 S-7 TYP. PCJ CONNECTION DETAIL
SCALE NTS



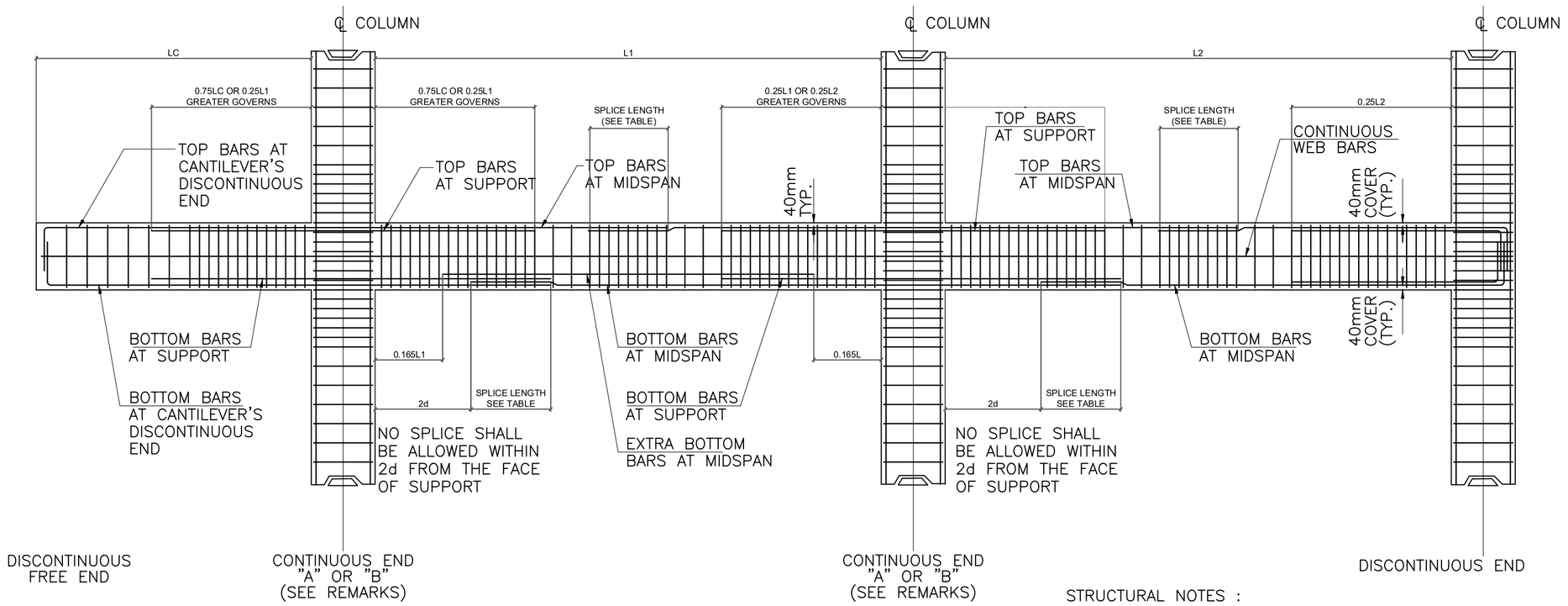
JOIST INTEGRATED WITH R.C. BEAM
4 S-7 TYP. PCJ CONNECTION DETAIL
SCALE NTS



6 S-7 TYP. PCJ SECTION DETAIL
SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

PROJECT TITLE / LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED :	RECOMMENDED;	APPROVED :	SET NO.:	SHEET NO.:
		P.I. or DESIGNER, ENGINEER II PREPARED: FAUSTO F. FAUSTO, ENGINEER II	MARY JESSICA P. HONRADE, ENGINEER II DATE:	ELINO V. CASTRO, CHIEF, PLANNING AND DESIGN SECTION, ENGINEER III DATE:	EDUARDO B. DEL ROSARIO, OIC - ASSISTANT DISTRICT ENGINEER DATE:	ARISTOTLE B. RAMOS, DISTRICT ENGINEER DATE:	S-7	NO. OF SHEET / TOTAL SHEETS



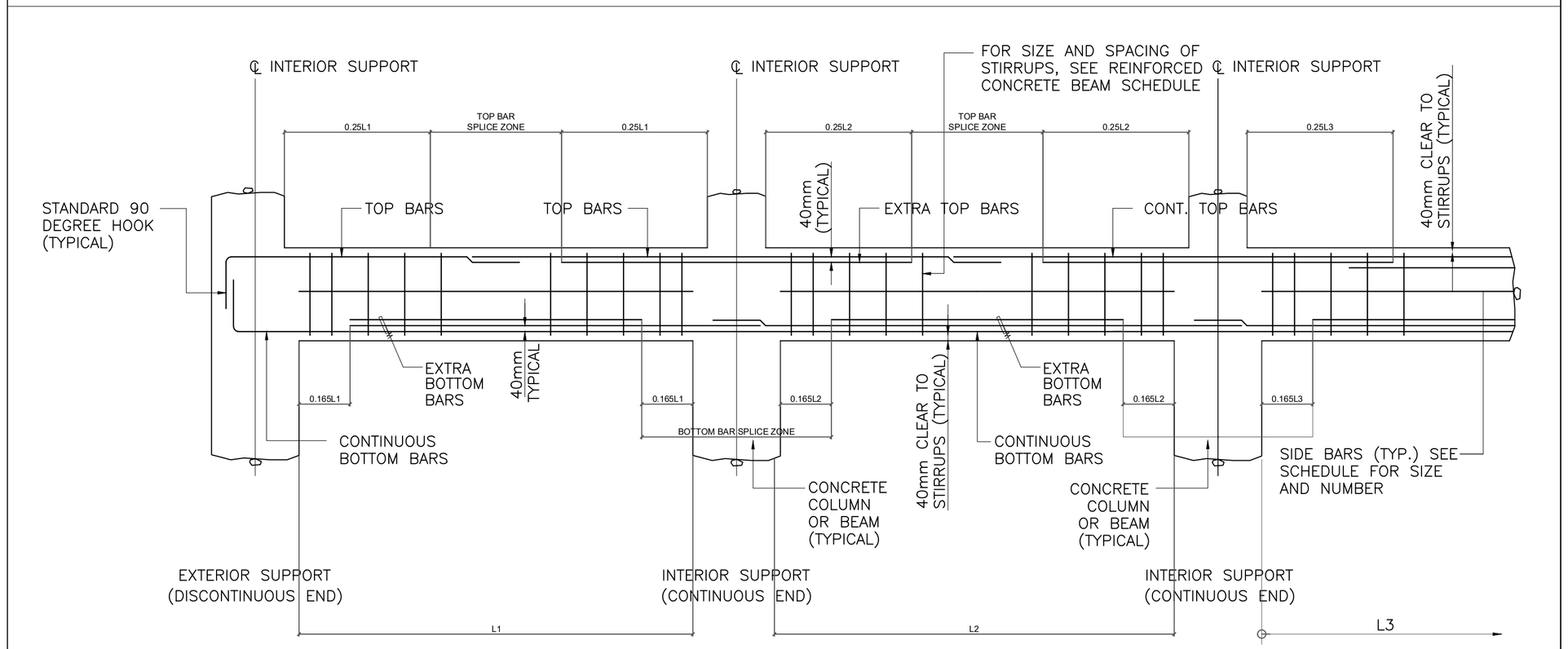
NOTE: AT INTERIOR SUPPORT (CONTINUOUS END) PROVIDE LARGER SIZE AND NUMBER OF TOP AND BOTTOM BARS FROM ADJACENT SPAN.

1 / S-8 TYP. R.C. GIRDER DETAIL
SCALE NTS

STRUCTURAL NOTES :

1. SEE TABLE OF LAP SPLICE & ANCHORAGE LENGTHS SHOWN ON SHEET
2. LAP SPLICE SHALL BE LOCATED ONLY WITHIN THE LAP SPLICE ZONE.

   ONLY ON ONE LOCATION FOR EACH STRING OF BEAMS.
4. CLOSED HOOPS WITH A 135° BEND SHALL BE SPACED AT 100 O.C. MAXIMUM AT A DISTANCE 2D FROM THE FACE OF THE SUPPORT. FIRST STIRRUP SHALL 5D FROM THE FACE OF THE SUPPORT.



2 / S-8 TYP. R.C. BEAM DETAIL
SCALE NTS

STRUCTURAL NOTES:
1. LC1, LC2 = LENGTH OF CLEAR SPANS 1, 2 (FACE OF SUPPORT TO FACE OF SUPPORT)
2. L = THE GREATER LENGTH OF CLEARSPAN LC1 OR LC2
3. AT INTERIOR SUPPORT (CONTINUOUS END) PROVIDE LARGER SIZE AND NUMBER OF TOP BARS FROM ADJACENT SPANS.
4. EXTERIOR AND INTERIOR SUPPORT REINFORCEMENT NOT SHOWN FOR CLARITY

SCHEDULE OF R.C. BEAMS & GIRDERS

FLOOR LEVEL LOCATION	BEAM MARK (G : R.C. GIRDERS, B : R.C. BEAMS)	BEAM SECTION WIDTH (MM)	BEAM SECTION DEPTH (MM)	BAR ø (MM)		LONGITUDINAL REINFORCEMENTS DISCONT. LEFT	CONT. LEFT	MID	CONT. RIGHT	DISCONT. RIGHT	WEB BARS EACH FACE	STIRRUPS NO./SET	STIRRUPS ø	STIRRUP SPACING	REMARKS
TYP. 2ND & 3RD FLR LEVEL (f'c=5000psi)	G-1	600	800	ø28	TB	9		3	10		2-ø10	2	ø10	1@50, 16@100, 4@275 REST@300 TO C.L.	
					BB	8		3	7						
	G-2	600	800	ø28	TB		10	3	9		2-ø10	2	ø10	1@50, 16@100, REST@300 TO C.L.	
					BB		7	3	6						
	G-3	600	800	ø28	TB	10		3	11		2-ø10	2	ø10	1@50, 16@100, 5@225 4@275, REST@300 TO C.L.	
					BB	8		3	8						
	G-4	600	800	ø28	TB		11	3	10		2-ø10	2	ø10	1@50, 16@100, 5@225 4@275, REST@300 TO C.L.	
					BB		8	3	8						
	G-5	600	800	ø28	TB	9		3	11		2-ø10	2	ø10	1@50, 16@100, 5@225 4@275, REST@300 TO C.L.	
					BB	8		3	7						
	G-6	600	800	ø28	TB		11	3	10		2-ø10	2	ø10	1@50, 16@100, 4@250 REST@300 TO C.L.	
					BB		7	3	7						
	G-7	600	800	ø28	TB	9		3	11		2-ø10	2	ø10	1@50, 16@100, 5@225 4@275, REST@300 TO C.L.	
					BB	8		3	7						
	G-8	600	800	ø28	TB		11	3	10		2-ø10	2	ø10	1@50, 16@100, 4@250 REST@300 TO C.L.	
					BB		7	3	8						
	G-9	600	800	ø28	TB	8		3	10		2-ø10	2	ø10	1@50, 16@100, REST@300 TO C.L.	
					BB	7		3	9						
	G-10	600	800	ø28	TB		10	3	8		2-ø10	2	ø10	1@50, 16@100, REST@300 TO C.L.	
					BB		9	3	6						
	G-11	600	800	ø28	TB	9		3	10		2-ø10	2	ø16	1@50, 16@100, 4@250 REST@300 TO C.L.	
					BB	9		3	9						
	G-12	600	800	ø28	TB		10	3	8		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		9	3	6						
	G-13	600	800	ø28	TB		8	3	11		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		6	3	9						
	G-14	600	800	ø28	TB		11	3		10	2-ø10	2	ø16	1@50, 16@100, REST@200 TO C.L.	
					BB		9	3		10					
	G-15	600	800	ø28	TB	11		3	12		2-ø10	2	ø16	1@50, 16@100, REST@200 TO C.L.	
					BB	11		3	10						
	G-16	600	800	ø28	TB		12	3	11		2-ø10	1	ø16	1@50, 16@100, 10@200 REST@225 TO C.L.	
					BB		10	3	8						
	G-17	600	800	ø28	TB		11	3	12		2-ø10	1	ø16	1@50, 16@100, 5@200 REST@225 TO C.L.	
					BB		8	3	11						
	G-18	600	800	ø28	TB		12	3		11	2-ø10	2	ø16	1@50, 16@100, REST@150 TO C.L.	
					BB		11	3		11					
	G-19	600	800	ø28	TB	11		3	11		2-ø10	2	ø16	1@50, 16@100, 5@200 REST@225 TO C.L.	
					BB	11		3	10						
	G-20	600	800	ø28	TB		11	3	9		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		10	3	8						
	G-21	600	800	ø28	TB		9	3	12		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		8	3	11						
	G-22	600	800	ø28	TB		12	3		11	2-ø10	2	ø16	1@50, 16@100, REST@175 TO C.L.	
					BB		11	3		11					
					TB										
					BB										
	B-1	300	500	ø20	TB	2		2	5			1	ø10	1@50, 5@100, 8@125 REST@200 TO C.L.	
					BB	5		7	2						
	B-2	300	500	ø20	TB		5	2	2			1	ø10	1@50, 5@100, REST@200 TO C.L.	
					BB		2	2	2						
					TB										
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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
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ROSARIO, PASIG CITY

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SCHEDULE OF R.C. BEAMS & GIRDERS

FLOOR LEVEL LOCATION	BEAM MARK (G : R.C. GIRDERS, B : R.C. BEAMS)	BEAM SECTION WIDTH (MM)	BEAM SECTION DEPTH (MM)	BAR ø (MM)		LONGITUDINAL REINFORCEMENTS DISCONT. LEFT	CONT. LEFT	MID	CONT. RIGHT	DISCONT. RIGHT	WEB BARS EACH FACE	STIRRUPS NO./SET	STIRRUPS ø	STIRRUP SPACING	REMARKS
MEZZANINE LEVEL (f'c=5000psi)	MG-1	600	800	ø28	TB	9		3	10		2-ø10	1	ø16	1@50, 16@100, 4@275 REST@300 TO C.L.	
					BB	8		3	7						
	MG-2	600	800	ø28	TB		10	3	9		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		7	3	6						
	MG-3	600	800	ø28	TB	9		3	10		2-ø10	1	ø16	1@50, 16@100, 4@250 REST@300 TO C.L.	
					BB	9		3	9						
	MG-4	600	800	ø28	TB		10	3	8		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		9	3	6						
	MG-5	600	800	ø28	TB		8	3	11		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		6	3	9						
	MG-6	600	800	ø28	TB		11	3		10	2-ø10	1	ø16	1@50, 16@100, REST@200 TO C.L.	
					BB		9	3		10					
					TB										
					BB										
	MB-1	300	500	ø20	TB	2		2	5			1	ø10	1@50, 5@100, 8@125 REST@200 TO C.L.	
					BB	5		7	2						
	MB-2	300	500	ø20	TB		5	2	2			1	ø10	1@50, 5@100, REST@200 TO C.L.	
					BB		2	2	2						
	MB-3	300	500	ø20	TB	2		2		2		1	ø10	1@50, 4@100, REST@150 TO C.L.	
					BB	2		2		2					
					TB										
					BB										
MEZZANINE LEVEL (f'c=5000psi)	RG-1	600	800	ø28	TB	9		3	10		2-ø10	1	ø16	1@50, 16@100, 4@275 REST@300 TO C.L.	
					BB	8		3	7						
	RG-2	600	800	ø28	TB		10	3	9		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		7	3	6						
	RG-3	600	800	ø28	TB	9		3	10		2-ø10	1	ø16	1@50, 16@100, 4@250 REST@300 TO C.L.	
					BB	9		3	9						
	RG-4	600	800	ø28	TB		10	3	8		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		9	3	6						
	RG-5	600	800	ø28	TB		8	3	11		2-ø10	1	ø16	1@50, 16@100, REST@300 TO C.L.	
					BB		6	3	9						
	RG-6	600	800	ø28	TB		11	3		10	2-ø10	1	ø16	1@50, 16@100, REST@200 TO C.L.	
					BB		9	3		10					
					TB										
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SCHEDULE OF R.C. BEAMS & GIRDERS

FLOOR LEVEL LOCATION	BEAM MARK (G : R.C. GIRDERS, B : R.C. BEAMS)	BEAM SECTION WIDTH (MM)	BEAM SECTION DEPTH (MM)	BAR ø (MM)		LONGITUDINAL REINFORCEMENTS DISCONT. LEFT	CONT. LEFT	MID	CONT. RIGHT	DISCONT. RIGHT	WEB BARS EACH FACE	STIRRUPS NO./SET	STIRRUPS ø	STIRRUP SPACING	REMARKS
					TB										
					BB										
					TB										
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REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
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ROSARIO, PASIG CITY

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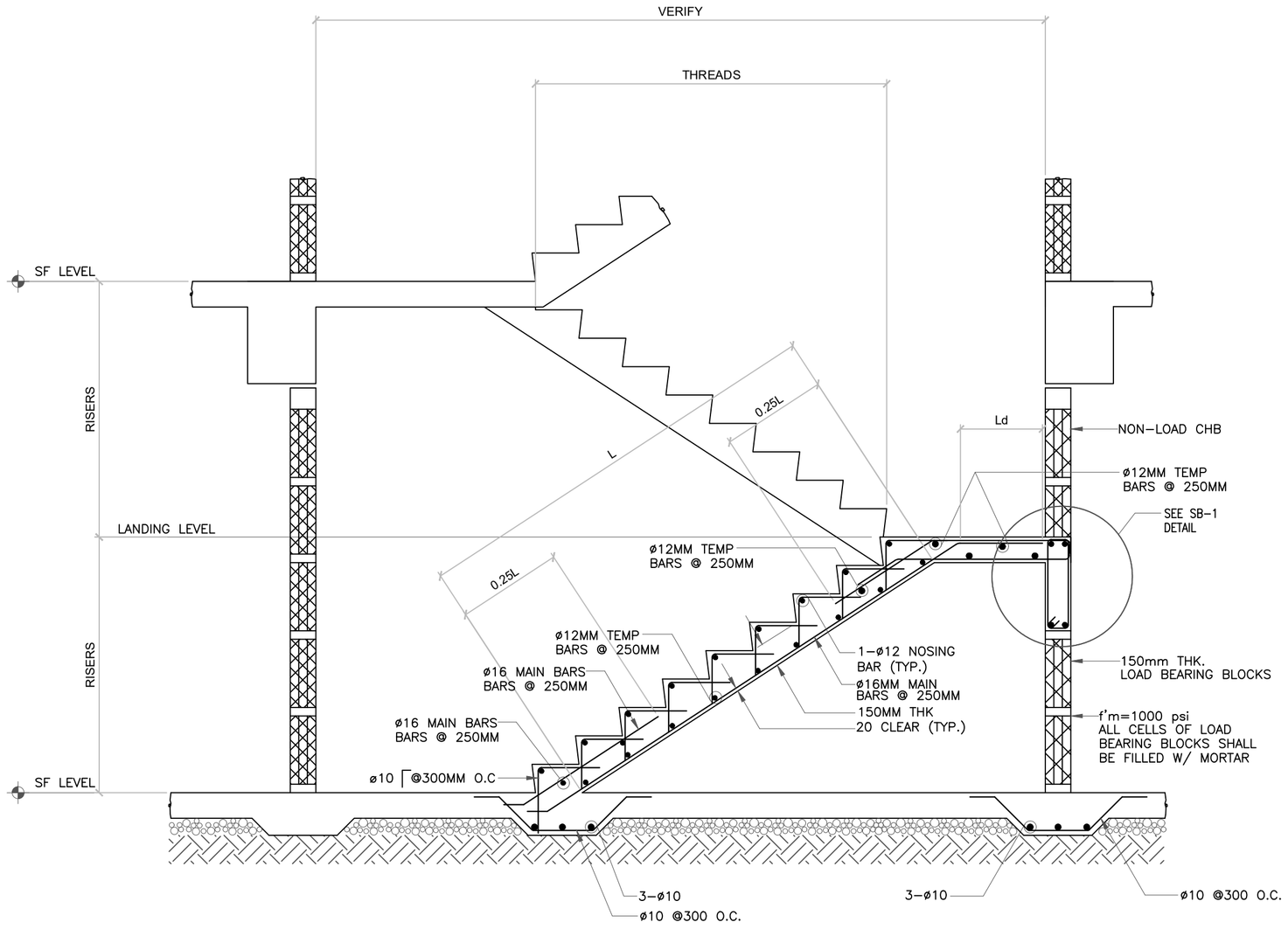
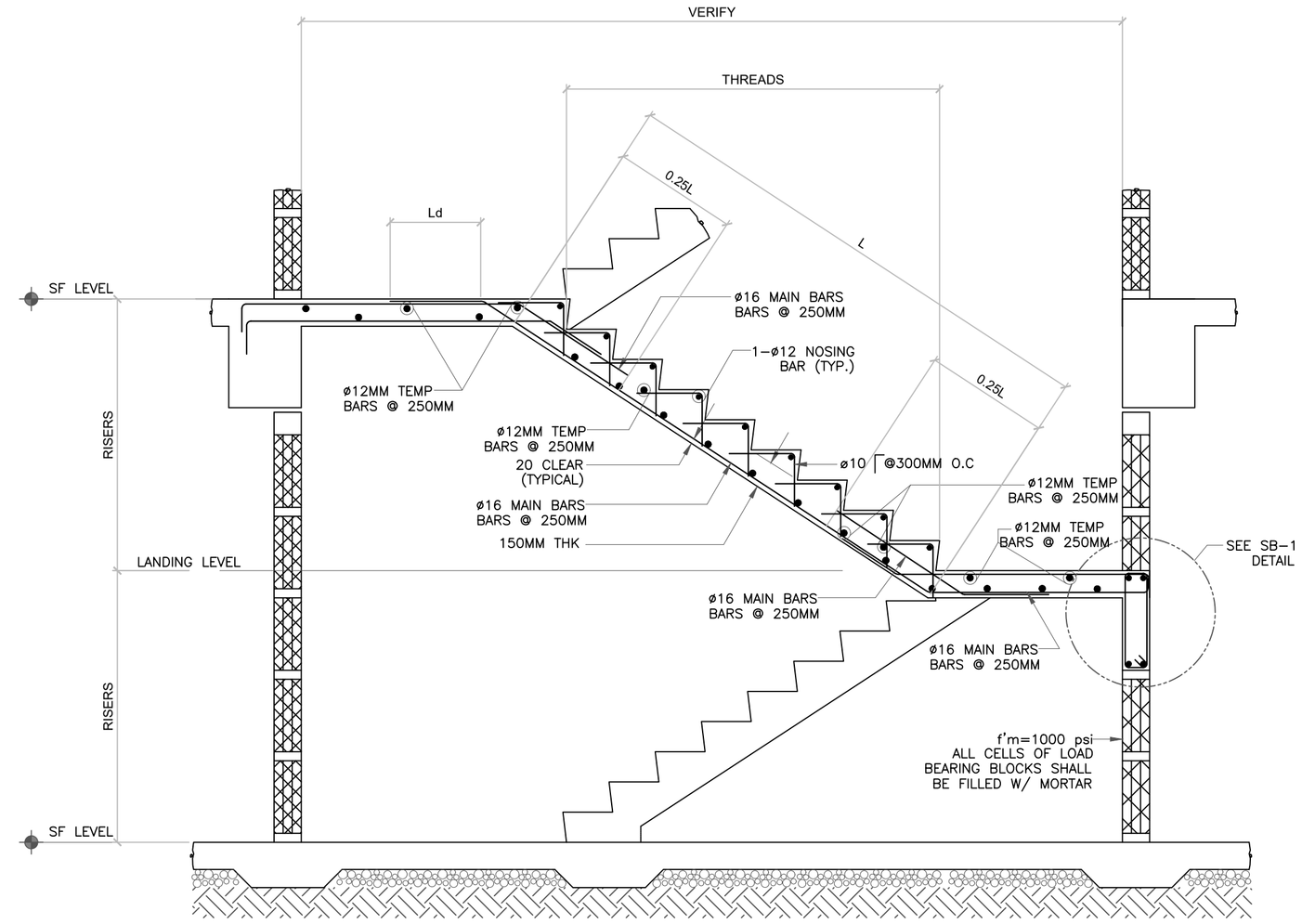
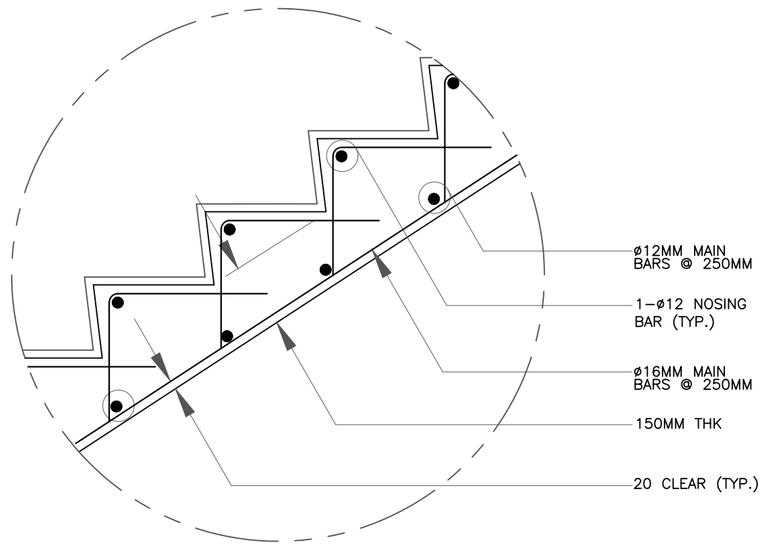


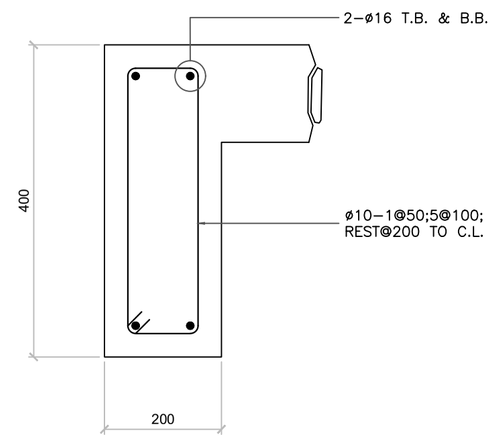
1 S-10 TYP. STAIR DETAIL - 1
SCALE NTS



2 S-10 TYP. STAIR DETAIL - 2
SCALE NTS



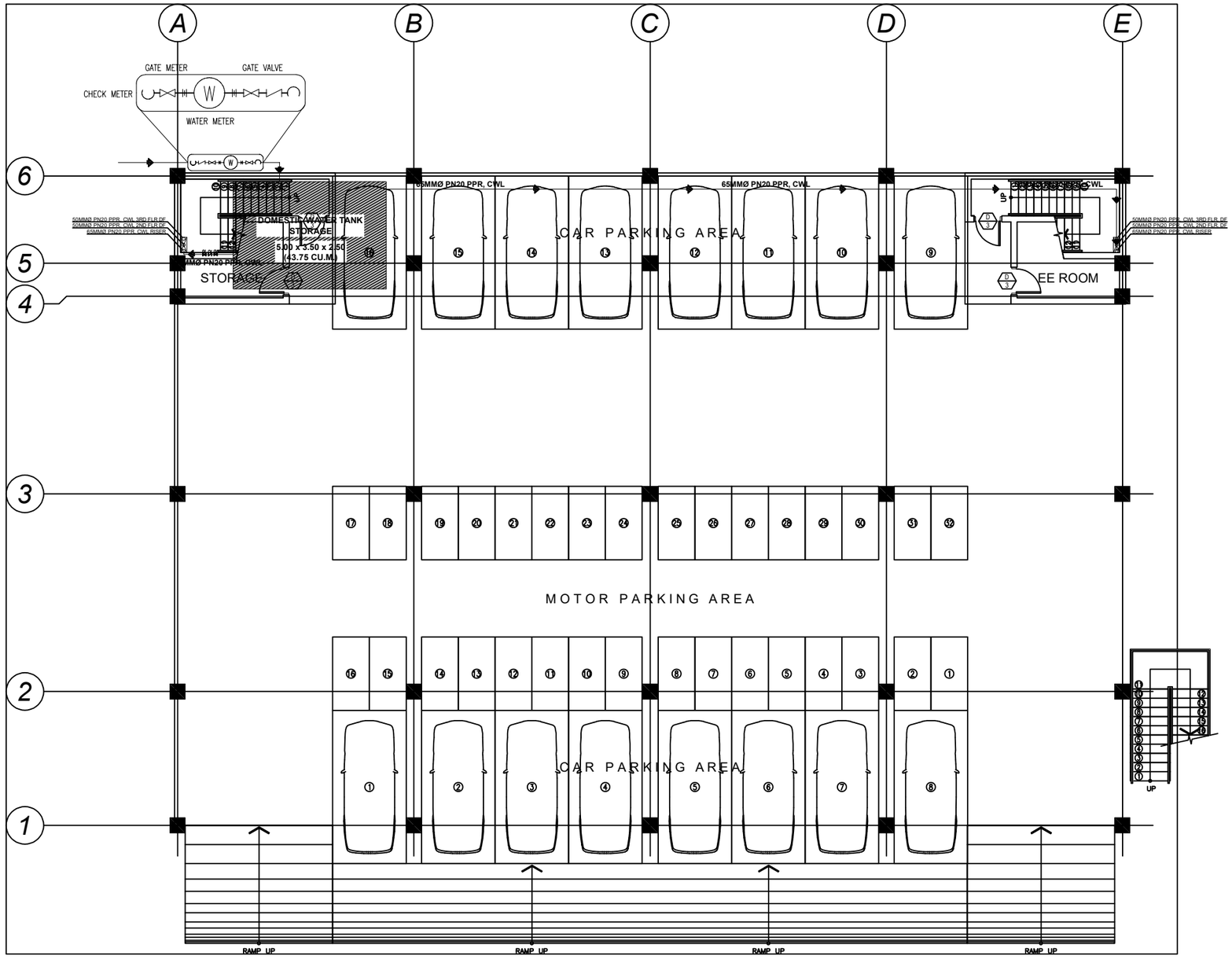
3 S-10 BLOW-UP STAIR DETAIL
SCALE NTS



4 S-10 SB-1 DETAIL
SCALE NTS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA 1st DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

PROJECT TITLE / LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED :	RECOMMENDED;	APPROVED :	SET NO.:	SHEET NO.:
		P.I. or DESIGNER ENGINEER II PREPARED: FAUSTO F. FAUSTO ENGINEER II	MARY JESSICA P. HONRADE ENGINEER II DATE:	ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION ENGINEER III DATE:	EDUARDO B. DEL ROSARIO OIC - ASSISTANT DISTRICT ENGINEER DATE:	ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	S-10	NO. OF SHEET TOTAL SHEETS

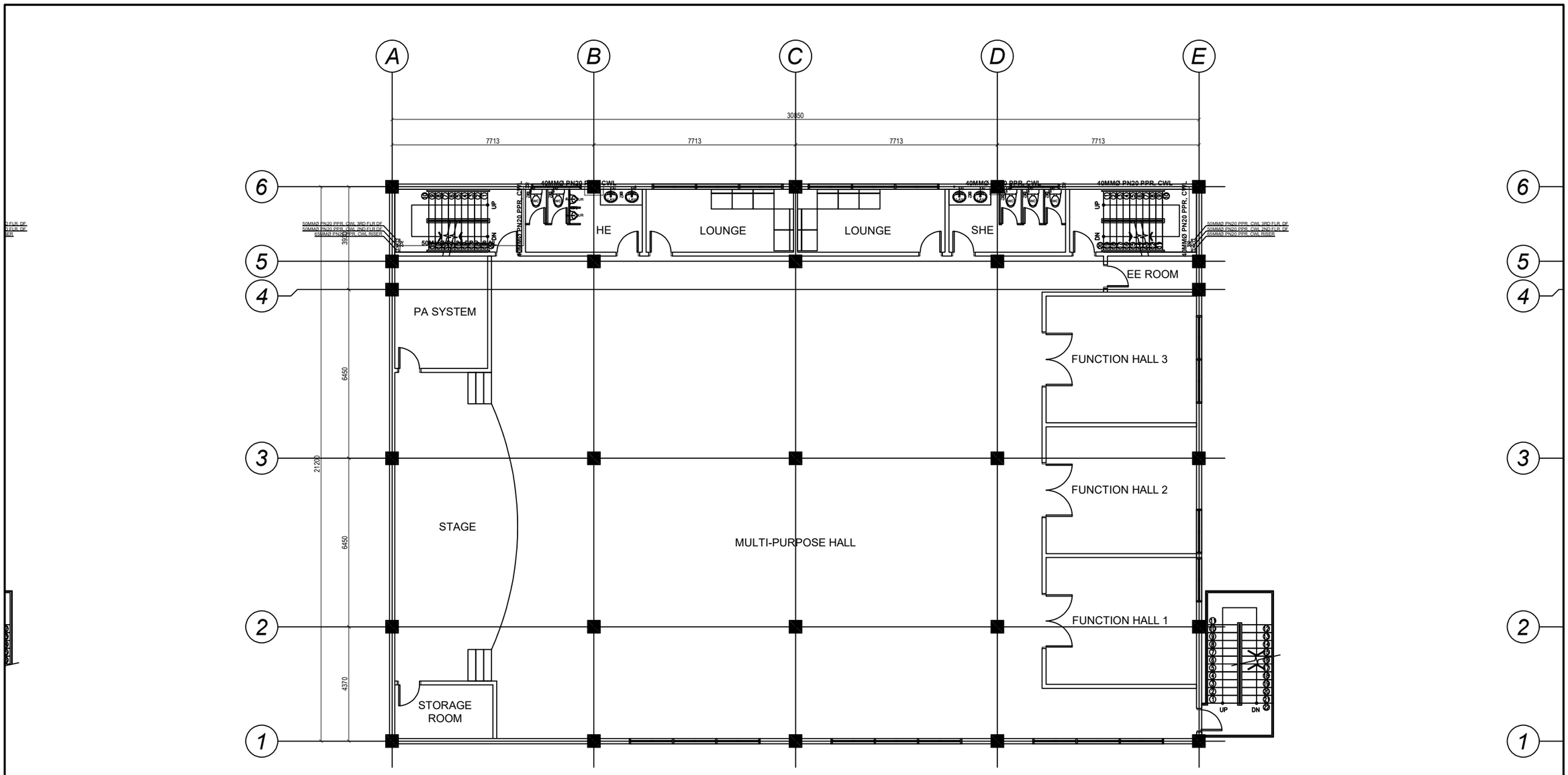


GROUND FLOOR COLD WATER LINE LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA FIRST DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

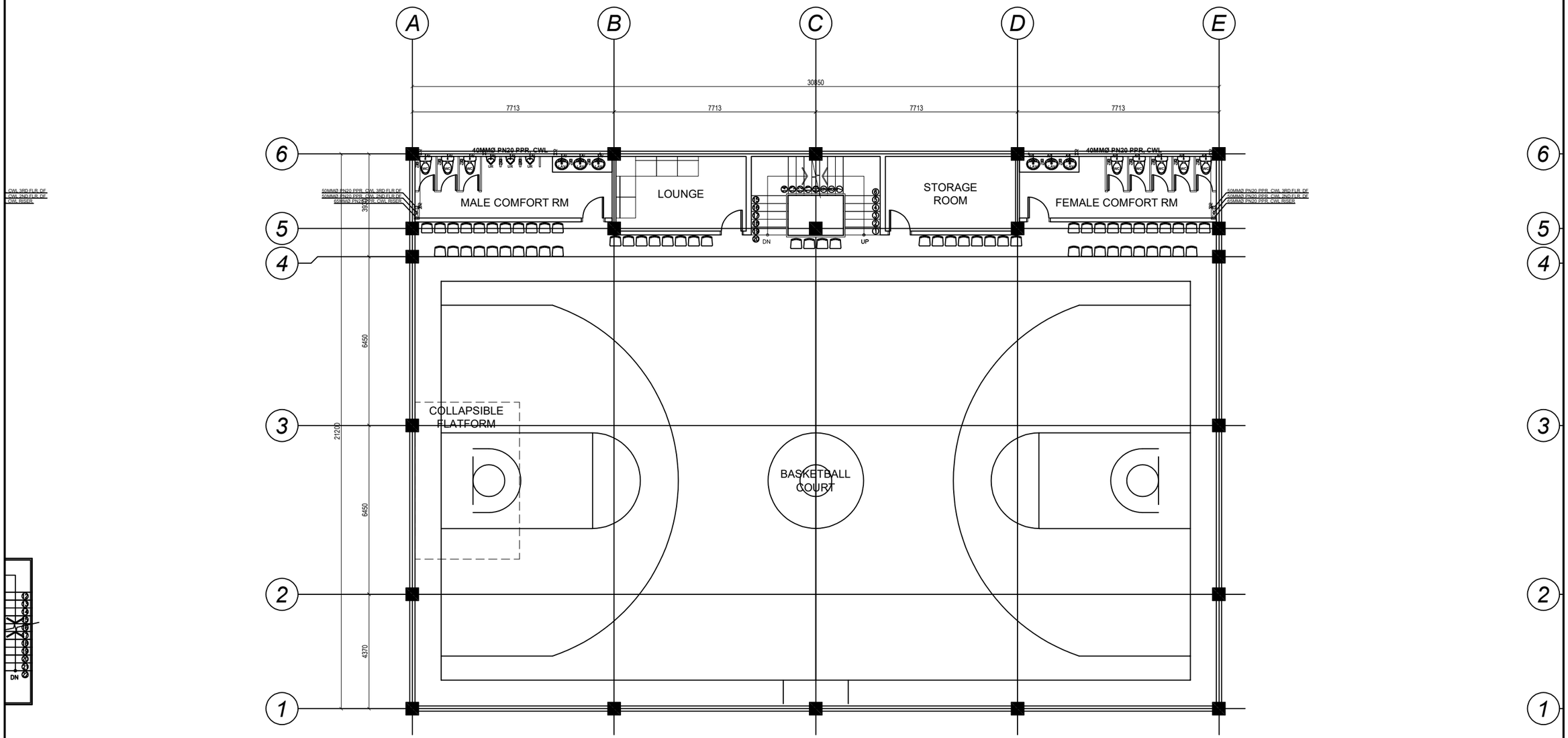
PROJECT NAME AND LOCATION:	SHEET CONTENTS:	DRAFTED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**AS SHOWN**	**KYLINE KYTE D. SY** ENGINEER II PREPARED: **KRIZZEL D. EMBREBE** ENGINEER II	**MARY JESSICA P. HONRADE** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**LAMBERTO C. DE LEON** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	P-01	



SECOND FLOOR COLD WATER LINE LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:** CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SHEET CONTENTS:** **AS SHOWN**	**DRAFTED:** **KYLINE KYTE D. SY** ENGINEER II **PREPARED:** **KRIZZEL D. EMBREBE** ENGINEER II	**REVIEWED:** **MARY JESSICA P. HONRADE** ENGINEER II DATE:	**SUBMITTED:** **ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**RECOMMENDED:** **LAMBERTO C. DE LEON** ASSISTANT DISTRICT ENGINEER DATE:	**APPROVED:** **ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	**SET NO.** P-02	**SHEET NO.**



THIRD FLOOR COLD WATER LINE LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA FIRST DISTRICT ENGINEERING OFFICE
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ROSARIO, PASIG CITY

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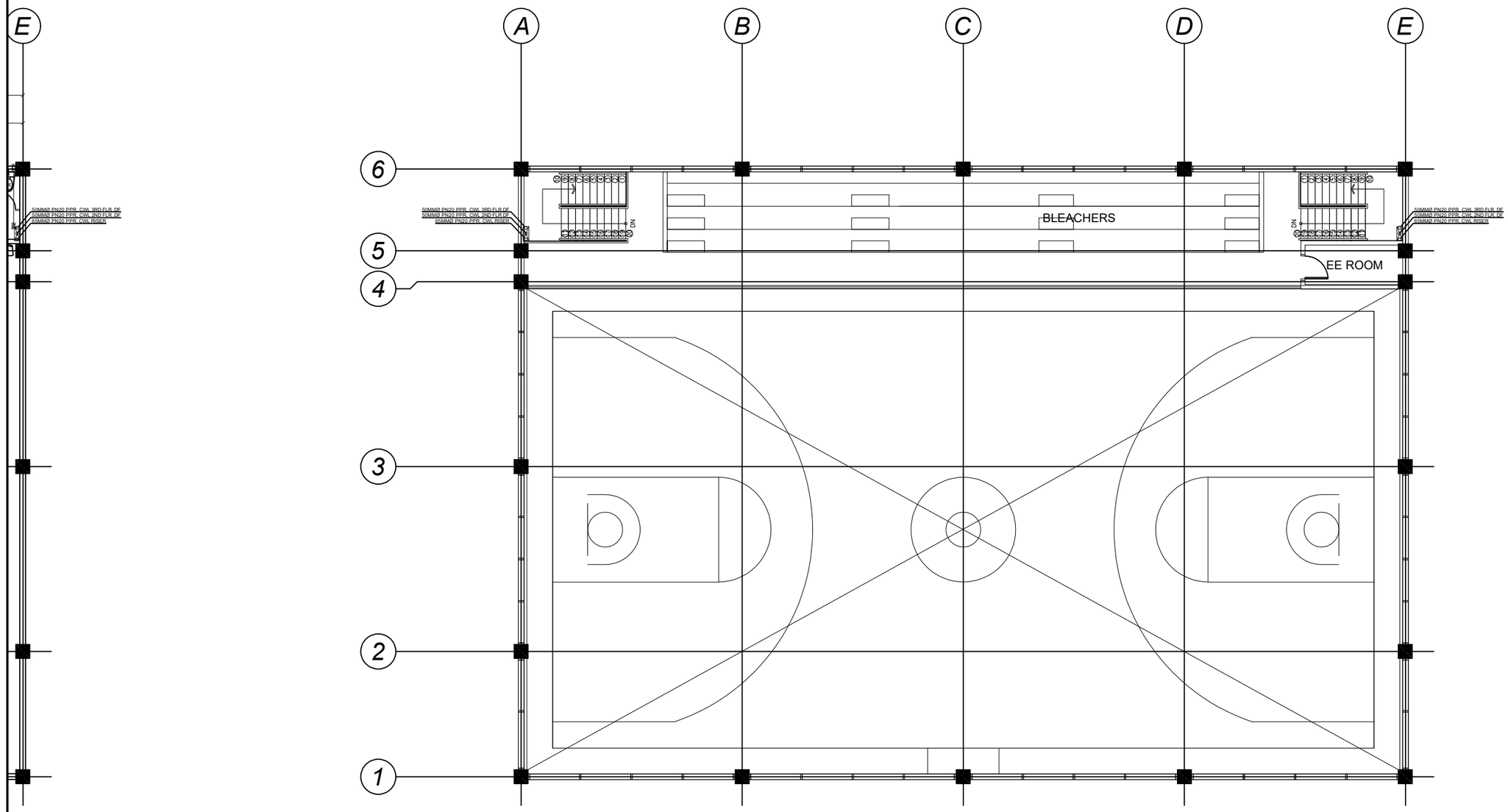
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**AS SHOWN**	**KYLINE KYTE D. SY** ENGINEER II PREPARED: **KRIZZEL D. EMBREBE** ENGINEER II	**MARY JESSICA P. HONRADE** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**LAMBERTO C. DE LEON** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	P-03	



MEZZANINE FLOOR COLD WATER LINE LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
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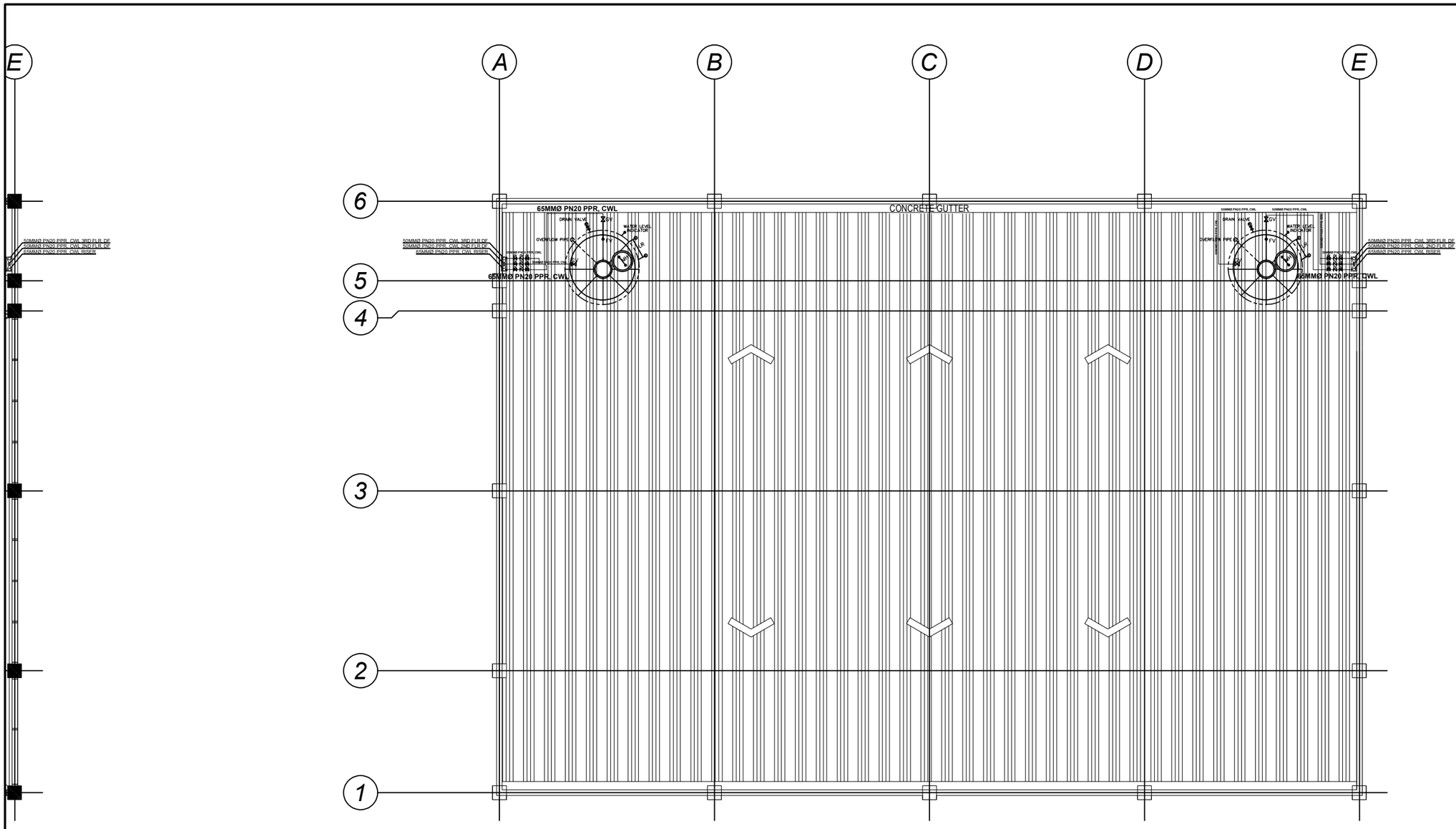
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	AS SHOWN	KYLINE KYTE D. SY ENGINEER II PREPARED: KRIZZEL D. EMBREBE ENGINEER II	MARY JESSICA P. HONRADE ENGINEER II DATE:	ELINO V. CASTRO CHIEF, PLANNING AND DESIGN SECTION DATE:	LAMBERTO C. DE LEON ASSISTANT DISTRICT ENGINEER DATE:	ARISTOTLE B. RAMOS DISTRICT ENGINEER DATE:	P-04	



ROOF PLAN COLD WATER LINE LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
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METRO MANILA FIRST DISTRICT ENGINEERING OFFICE
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ROSARIO, PASIG CITY

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CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**AS SHOWN**	**KYLINE KYTE D. SY** ENGINEER II PREPARED: **KRIZZEL D. EMBREBE** ENGINEER II	**MARY JESSICA P. HONRADE** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**LAMBERTO C. DE LEON** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	P-05	

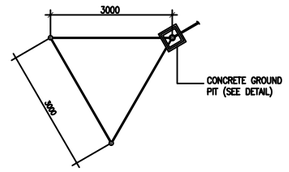
LEGEND

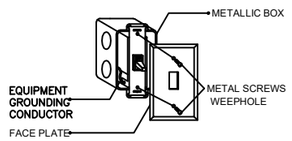
SYMBOL	MOUNTING HEIGHT	DESCRIPTION
	RECESSED	20W RECESSED ROUND PIN LIGHTS
	RECESSED	60W LED 120X60 SQUARE PANEL LIGHT
	SURFACED	T-8, 2-20W FLOURESCENT LAMP, WEATHERPROOF
	SURFACED	200W LED FLOODLIGHT
	RECESSED	40W LED 60X60 SQUARE PANEL LIGHT
SACU 1.0		ACU SPLIT TYPE INVERTER, 1.0HP, 230V, 1Ø, 60HZ
SACU 2.5		ACU SPLIT TYPE INVERTER, 2.5HP, 230V, 1Ø, 60HZ
SACU 5.0		ACU SPLIT TYPE INVERTER, 5.0HP, 230V, 1Ø, 60HZ
SACU 6.0		ACU SPLIT TYPE INVERTER, 6.0HP, 230V, 1Ø, 60HZ
FCU	VERIFY	AIRCON INDOOR UNIT
S_A	1200mm AFF	LIGHT FIXTURE SWITCH, 15A, 220V, 1P, SUBSCRIPT DENOTES FIXTURE CONTROLLED
S_{AB}	1200mm AFF	- DITTO - EXCEPT 2-GANG
S_{ABC}	1200mm AFF	- DITTO - EXCEPT 3-GANG
3WS	1200mm AFF	- DITTO - EXCEPT 3-WAY
	300mm AFF	DUPLEX RECEPTACLE OUTLET, 20A, 250V GROUNDING TYPE /Ground Fault Circuit Interrupter/Counter Top
		GROUND ROD, COPPER CLAD STEEL, 3.048mL x 20mmØ, UL LISTED
		HOMERUN TO PANELBOARD, LETTER AND NUMBER INDICATES CIRCUIT DESIGNATION
	1830mm AFF	PANELBOARD, SHADED PORTION INDICATES FRONT OF PANELBOARD
		ELECTRICAL WIRING IN CONDUIT CONCEALED IN CEILING OR WALL
		INCOMING POWER SUPPLY SERVICE DROP, 230V, 3Ø, 60Hz
		KILOWATT-HOUR METER, CLASS 100
OR		GROUND ROD, 20mmØ x 3048mm LONG, COPPER CLAD STEEL, UL LISTED
	SURFACED	EMERGENCY LIGHTS (Rechargeable Twin Head)
EXIT		EXIT SIGN
CF A		360 Degrees Oscillating Fan (18 Inches, 150 Watts, 230 Volts, 60 Hertz)
	SURFACED	INDUSTRIAL WALL FAN 24" 200W
	RECESSED	WALL EXHAUST FAN
	RECESSED	CEILING EXHAUST FAN

GENERAL NOTES

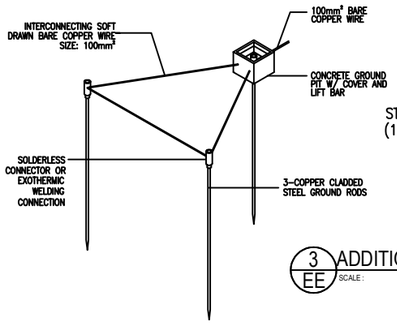
1. ALL ELECTRICAL WORKS HEREIN SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE. WHERE LOCAL CODE EXIST, ALL ELECTRICAL WORKS IN WHOLE OR IN PART SHALL BE GOVERNED BY SUCH CODE.
2. ALL ELECTRICAL WORK SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A DULY LICENSED ELECTRICAL ENGINEER.
3. ALL CONSTRUCTION MATERIALS MUST BE BRAND NEW AND OF THE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE IT IS INTENDED.
4. ALL WIRES, CONDUITS, BREAKERS, SWITCHES, WIRING DEVICES AND OTHERS, MUST BE UL LISTED OR IEC APPROVED TYPE.
5. ALL WIRES SHALL BE COPPER; SIZE SHALL BE AS INDICATED AND TYPE THHN/THWN-2
6. UNLESS OTHERWISE SPECIFIED, THE MINIMUM SIZE OF WIRE AND CONDUIT FOR LIGHTING AND GENERAL PURPOSE OUTLET SHALL BE 2-3.5mm² THHN/THWN-2 AND 20mmØ PVC, RESPECTIVELY.
7. POWER SERVICE ENTRANCE SHALL BE THREE PHASE, 230 VOLTS, 3WIRE(LINE) + 1WIRE (GROUND).
8. PULL BOXES OF CODE 1.61mm (GAUGE 16) MINIMUM SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER NECESSARY TO FACILITATE WIRE PULLING EVEN IF THESE ITEMS ARE NOT SHOWN IN THE PLAN.
9. THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF THE SERVICE ENTRANCE FOR CONNECTION TO POWER SUPPLY AND OTHER UTILITIES INCLUDED IN THE PLAN.
10. UNPROTECTED CONDUIT RISERS AND EXPOSED CONDUIT RUNS SHALL BE INTERMEDIATE METALLIC CONDUIT.
11. MACHINE BOLT SHOULD BE 0.8m FROM THE TOP OF THE PEDESTAL.
12. CLAMPS FOR THE RSC/IMC GOING TO THE ECB ON THE PEDESTAL SHOULD HAVE LESS THAN 1m SPACING.

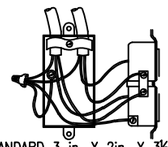
1 EE — LEGENDS AND GENERAL NOTES
SCALE : NTS





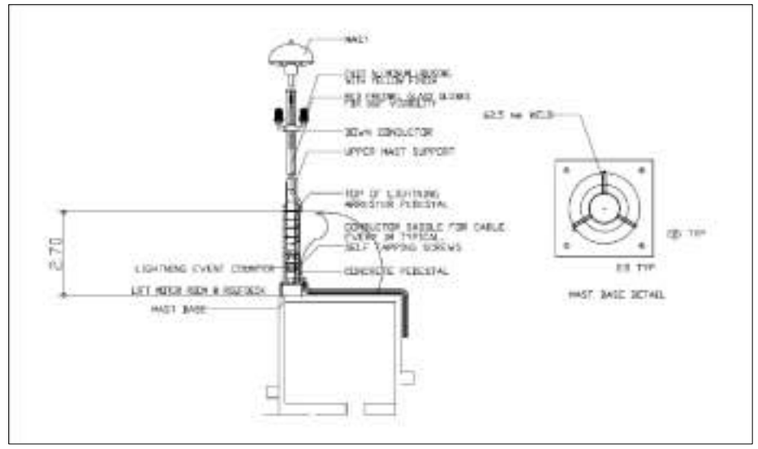
METAL FACEPLATE GROUNDING DETAIL

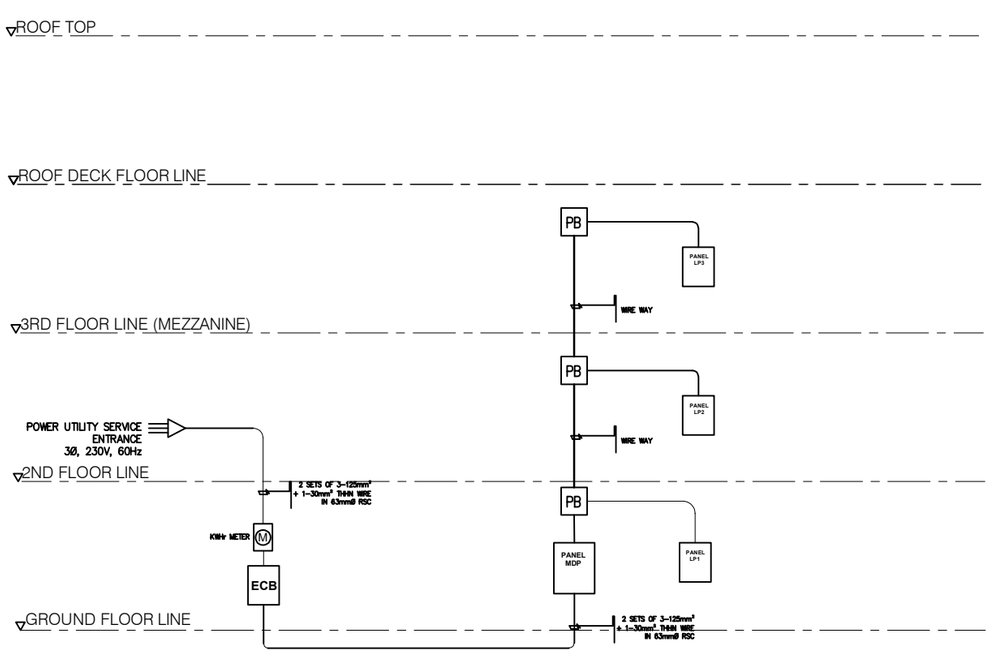




STANDARD 3 in. X 2in. X 3½ DEVICE BOX (18in.³)DEVICE BOX

3 EE — ADDITIONAL NOTES
SCALE : NTS





2 EE — POWER SINGLE LINE DIAGRAM
SCALE : NTS

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ROSARIO, PASIG CITY

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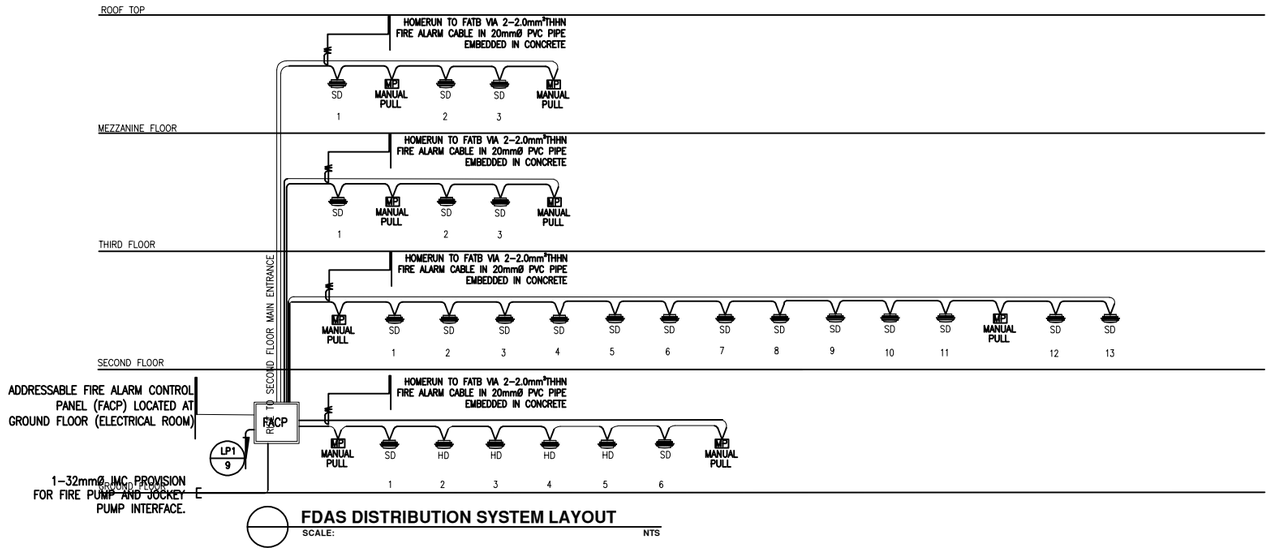
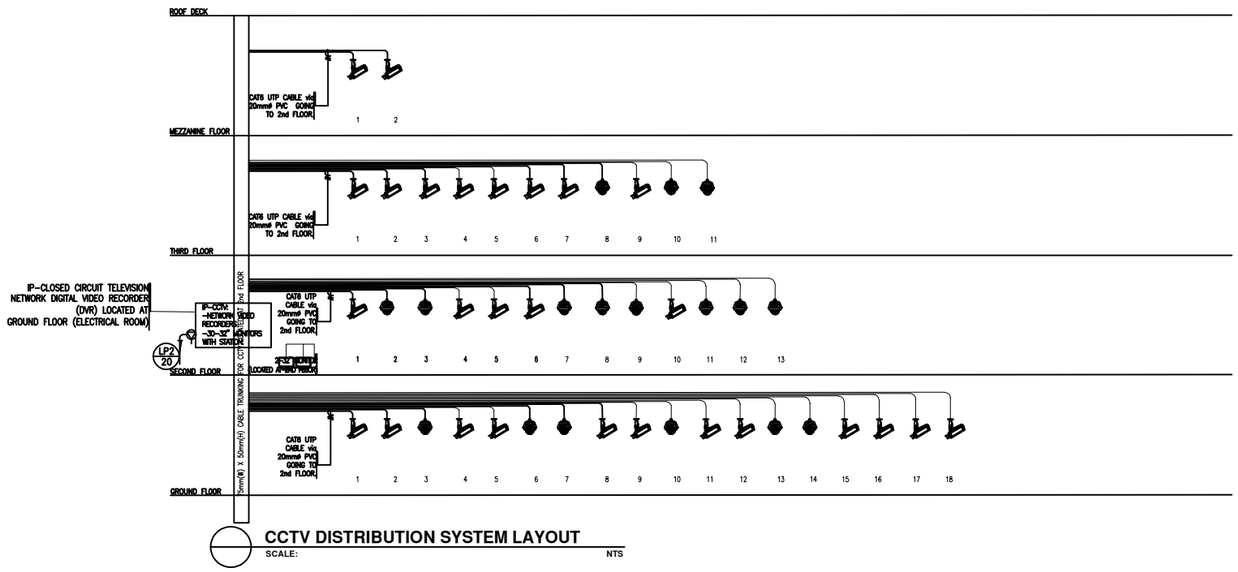
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**GENERAL NOTES, LEGEND AND SYMBOLS, POWER SINGLE LINE DIAGRAM**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		1 / 15



FDAS DISTRIBUTION SYSTEM LAYOUT

SCALE: NTS



CCTV DISTRIBUTION SYSTEM LAYOUT

SCALE: NTS

GENERAL NOTES(EC)

CCTV SYSTEM NOTES:

1. THIS DRAWING IS SCHEMATIC REPRESENTATION OF SYSTEM ONLY. TENDERS TO DETAIL COMPLIANT OFFER BASED ON MANUFACTURER'S SYSTEM & WIRING METHODS RECOMMENDATION.
2. MINIMUM SIZE OF CONDUIT SHALL BE 15mmØC
3. ALL CIRCUIT HOMERUN FROM CCTV CAMERA TO THE CONTROL CONSOLE SHALL NOT BE COMBINED WITH NEITHER CONTROL SIGNAL WIRE NOR CAMERA POWER SUPPLY
4. TYPICAL WIRING FOR ALL CAMERA:
   A. VIDEO SIGNAL – CAT6

FDAS NOTES:

1.) THIS DRAWING IS SCHEMATIC REPRESENTATION OF SYSTEM ONLY. TENDERS TO DETAIL COMPLIANT OFFER BASED ON MANUFACTURER'S SYSTEM & WIRING METHODS RECOMMENDATION.
2.) SPRINKLER ALARM CONTROL PANEL SHALL BE INTERFACED TO FIRE ALARM SYSTEM
3.) PROVIDE CONTROL MODULE ON EACH FLOOR.
4.) CONDUIT USED SHALL BE 20mmØ PVC MINIMUM.
5.) PROVIDE VISUAL ALARM SIGNAL (STROBE LIGHT) BESIDE EACH FIRE ALARM HORN.
6.) QUANTITY OF DETECTORS MUST BE BASED ON PLAN

LEGEND AND SYMBOLS

FACP	ADDRESSABLE, ANALOGUE-TYPE FIRE ALARM CONTROL PANEL.
FATB	FIRE ALARM TERMINAL BLOCK.
FARP	FIRE ALARM REPEATER PANEL.
	MANUAL PULL STATION WITH FIRE ALARM BELL.
S	ADDRESSABLE PHOTOELECTRIC-TYPE SMOKE DETECTOR.
H	ADDRESSABLE RATE-OF-RISE-TYPE HEAT DETECTOR.
CCTB	CCTV SYSTEM TERMINAL BLOCK.
	FIXED-TYPE, DOME-TYPE IP-CCTV CAMERA.
	FIXED-TYPE, BULLET-TYPE IP-CCTV CAMERA.
PB	PULLBOX

Where : t = 0.65mmØ/3C

CONDUIT CAPACITY:

NO. OF WIRES		TYPE OF WIRE
25mm ø	20mm ø	
5t–7t	1t–4t	CAT6 DATAGRADE CABLE

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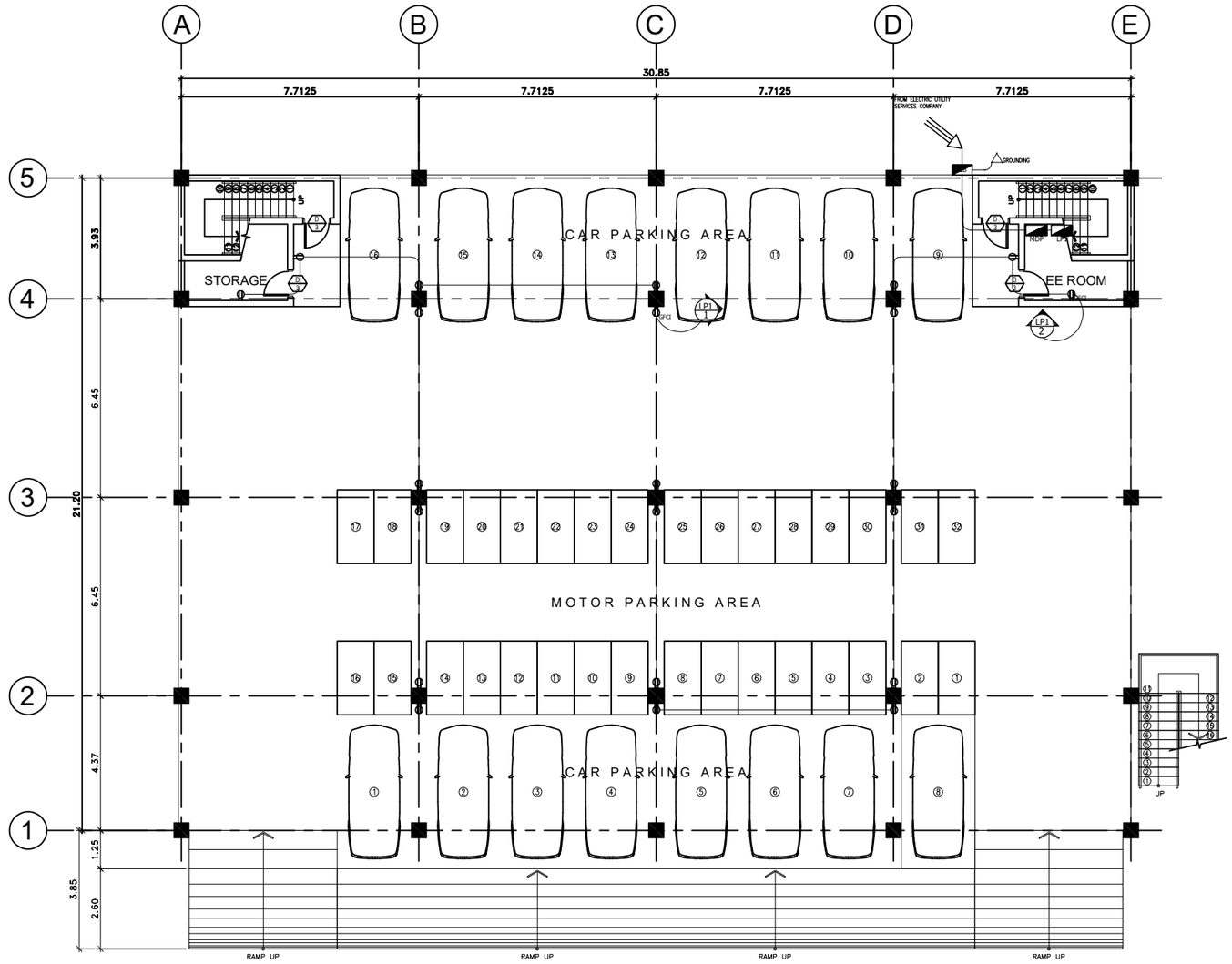
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**GENERAL NOTES, LEGENDS AND SYMBOLS, FDAS DISTRIBUTION SYSTEM LAYOUT, CCTV DISTRIBUTION SYSTEM LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		1 / 14



GROUND FLOOR POWER LAYOUT

SCALE : 1 : 100 M.

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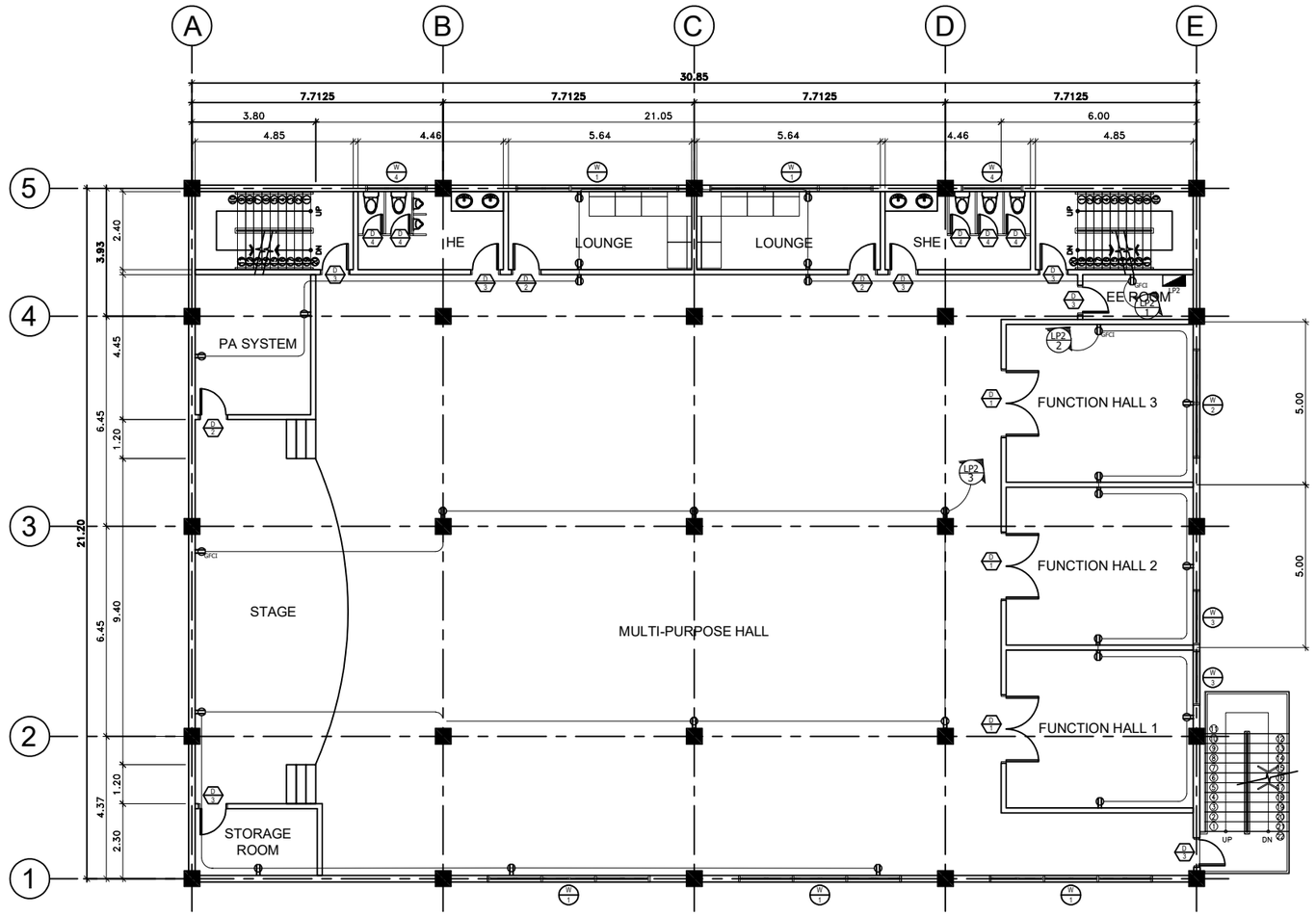
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**GROUND FLOOR POWER LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. AMGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		4 15



SECOND FLOOR POWER LAYOUT

SCALE : 1 : 100 M.

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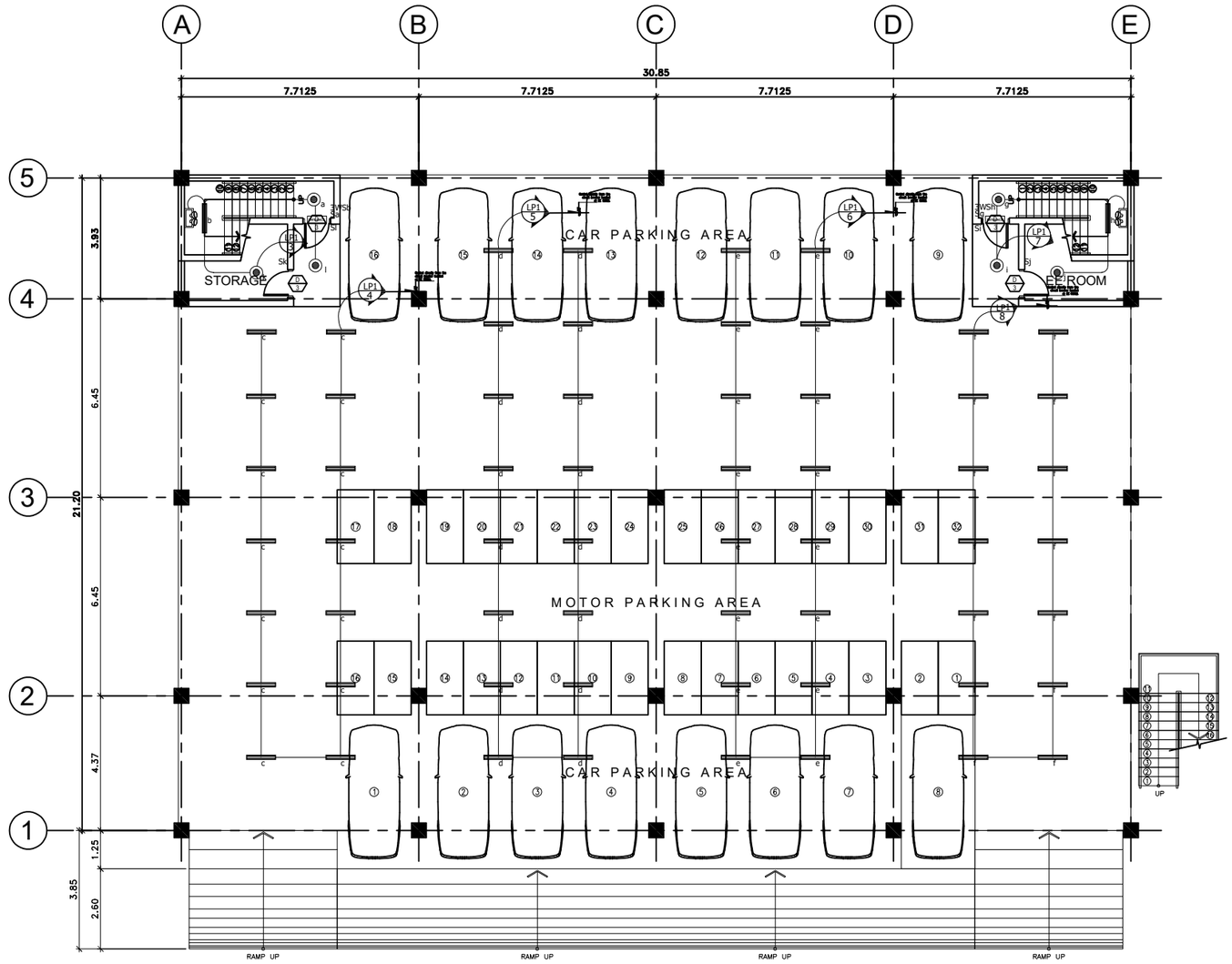
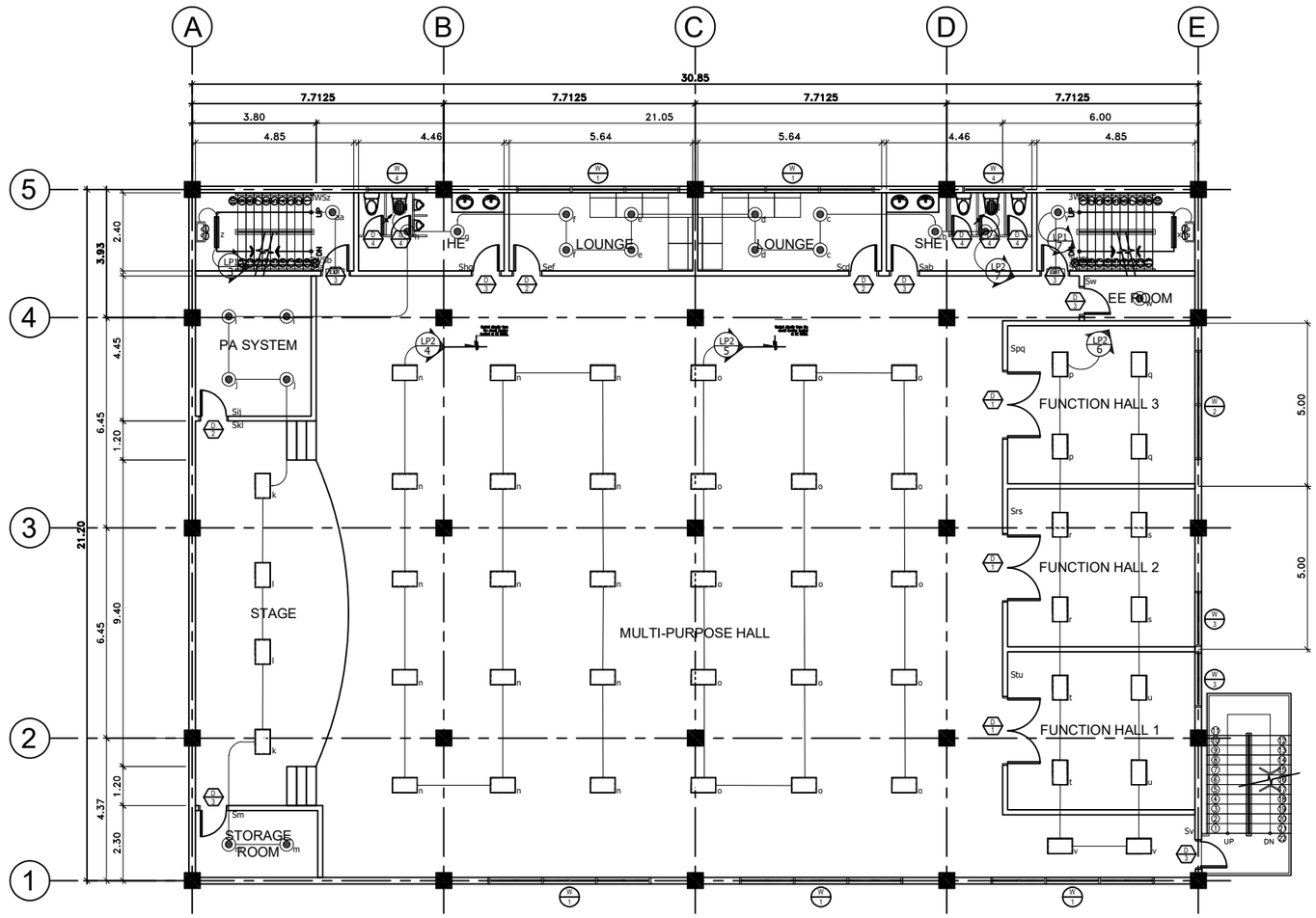
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SECOND FLOOR POWER LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		5 15



GROUND FLOOR LIGHTING LAYOUT

SCALE : 1 : 100 M.

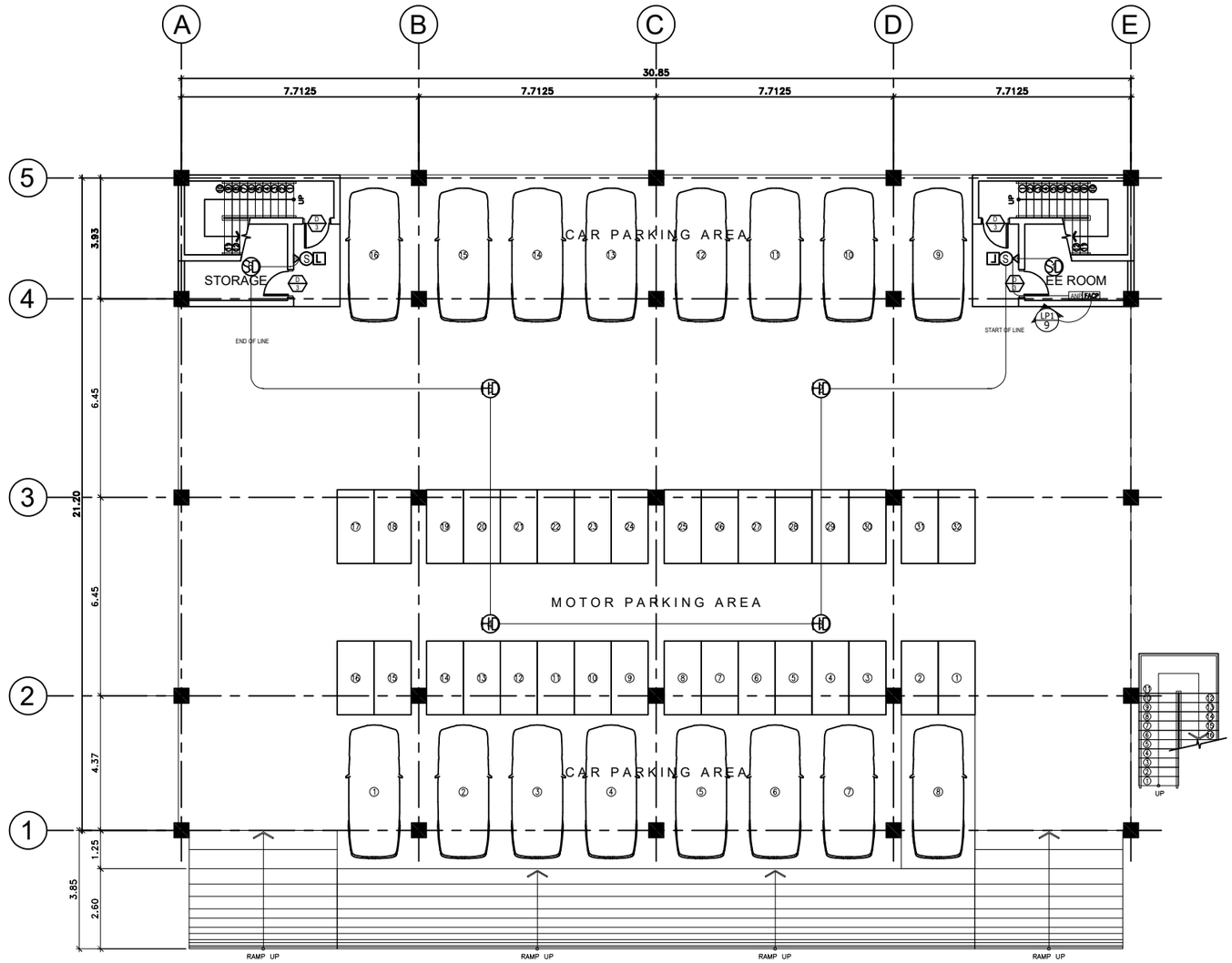
REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:** CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SHEET CONTENTS:** **GROUND FLOOR LIGHTING LAYOUT**	**PREPARED:** **FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**REVIEWED:** **JOENEL A. ANGCAJAS** **ENGINEER II** DATE:	**SUBMITTED:** **ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**RECOMMENDED:** **EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**APPROVED:** **ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	**SET NO.**	**SHEET NO.** 8 15



SECOND FLOOR LIGHTING LAYOUT

SCALE : 1 : 100 M.

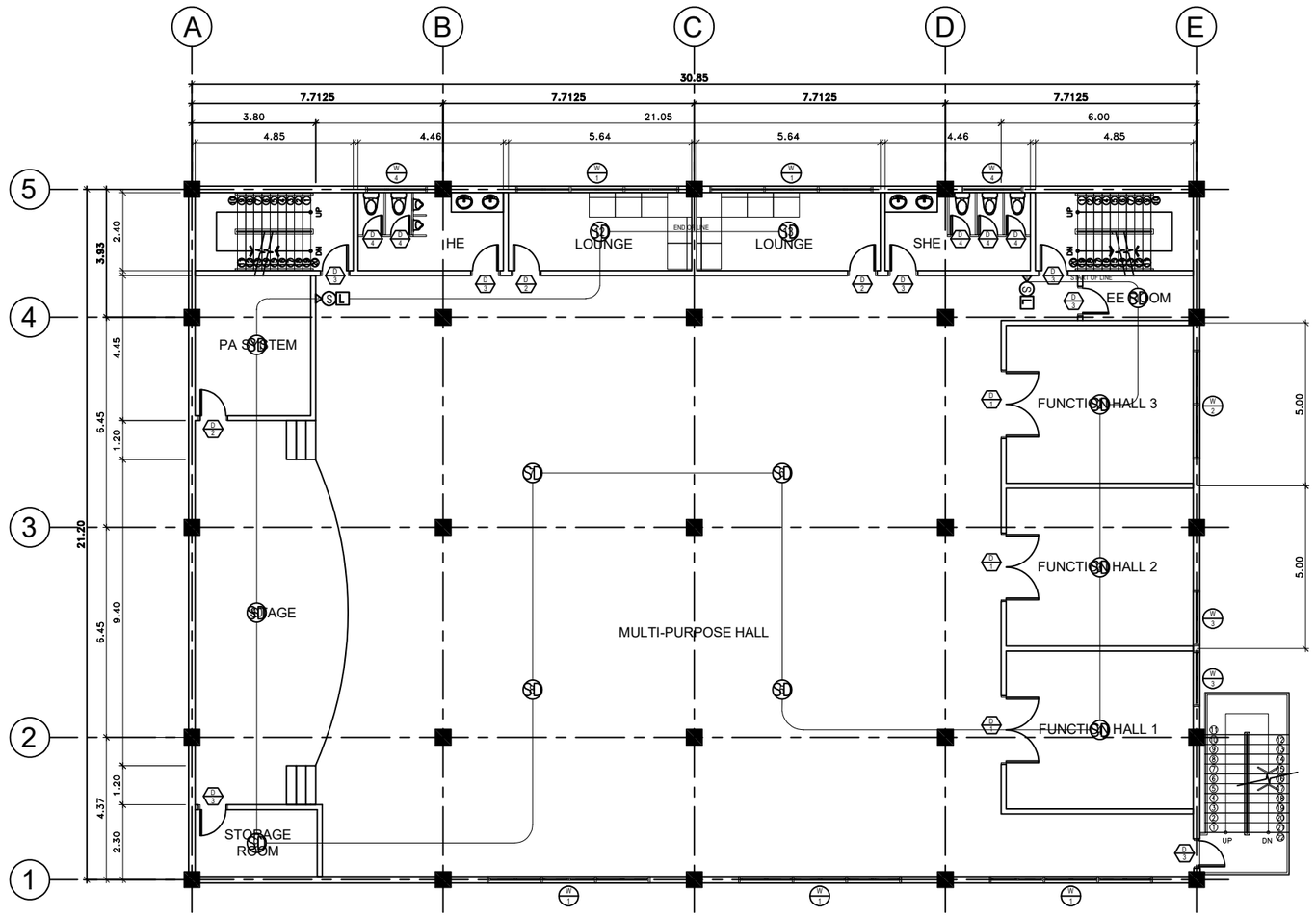
REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:** CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SHEET CONTENTS:** **SECOND FLOOR LIGHTING LAYOUT**	**PREPARED:** **FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**REVIEWED:** **JOENEL A. ANGCAJAS** ENGINEER II DATE:	**SUBMITTED:** **ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**RECOMMENDED:** **EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**APPROVED:** **ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	**SET NO.**	**SHEET NO.** 9 15



GROUND FLOOR FDAS LAYOUT

SCALE : 1 : 100 M.

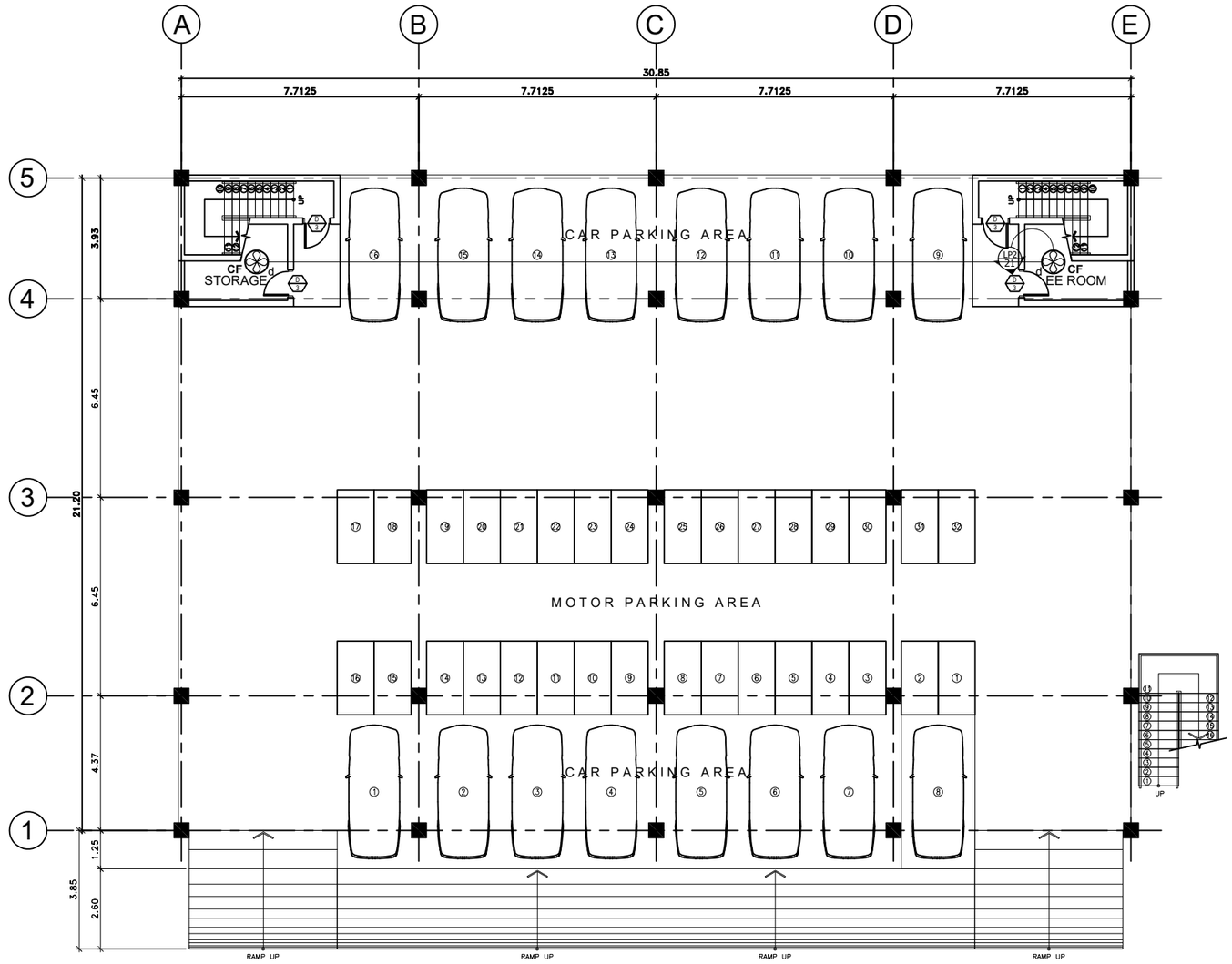
REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:** CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SHEET CONTENTS:** **GROUND FLOOR FDAS LAYOUT**	**PREPARED:** **FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**REVIEWED:** **JOENEL A. ANGCAJAS** ENGINEER II DATE:	**SUBMITTED:** **ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**RECOMMENDED:** **EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**APPROVED:** **ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:	**SET NO.**	**SHEET NO.** 3 14



SECOND FLOOR FDAS LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:**	**SHEET CONTENTS:**	**PREPARED:**	**REVIEWED:**	**SUBMITTED:**	**RECOMMENDED:**	**APPROVED:**	**SET NO.**	**SHEET NO.**
	CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SECOND FLOOR FDAS LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		4 14

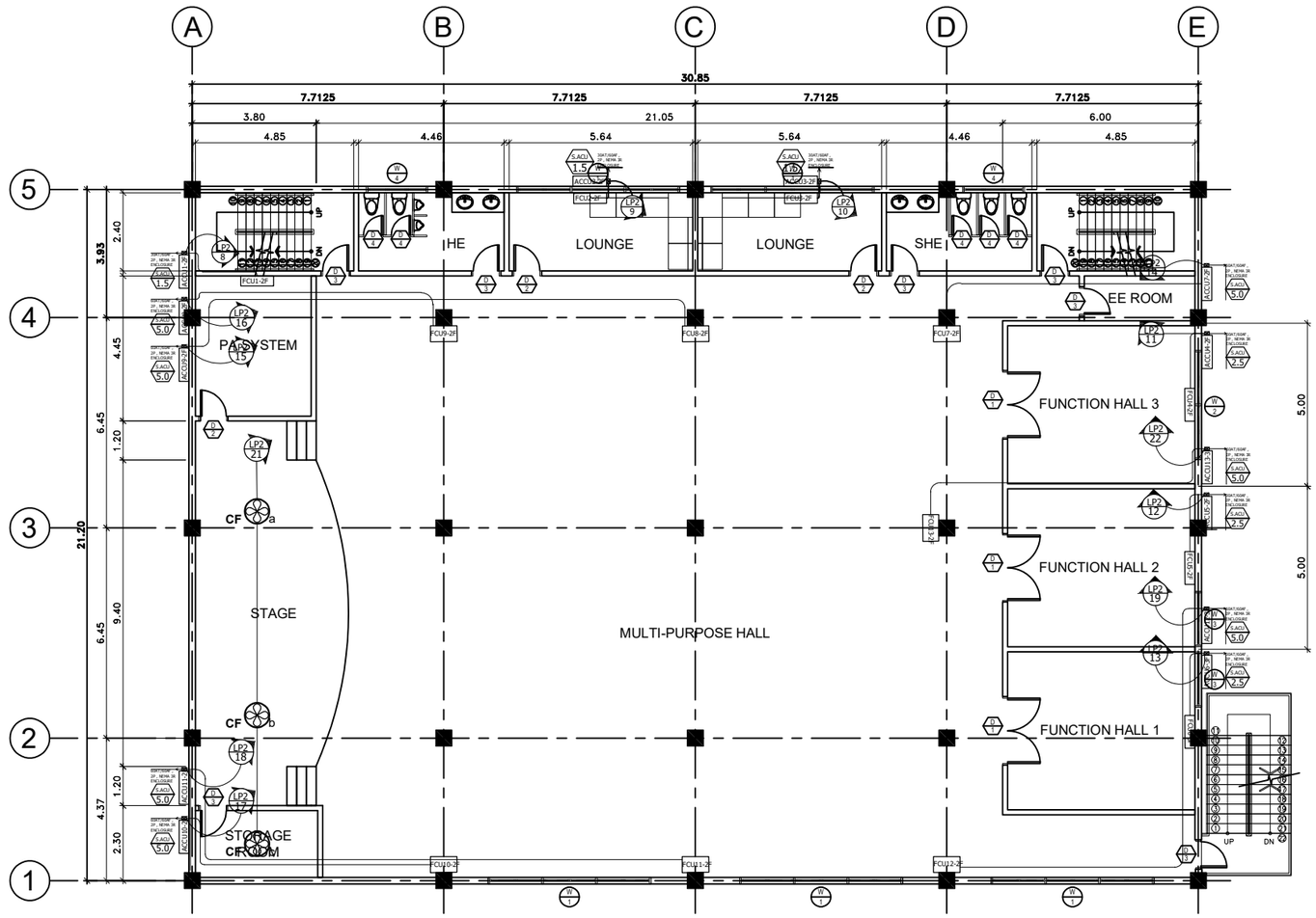


GROUND FLOOR VENTILATION (POWER) LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
NATIONAL CAPITAL REGION
METRO MANILA FIRST DISTRICT ENGINEERING OFFICE
WEST BANK ROAD, MANGGAHAN FLOODWAY
ROSARIO, PASIG CITY

PROJECT NAME AND LOCATION:	SHEET CONTENTS:	PREPARED:	REVIEWED:	SUBMITTED:	RECOMMENDED:	APPROVED:	SET NO.	SHEET NO.
CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**GROUND FLOOR VENTILATION (POWER) LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		12 15



SECOND FLOOR VENTILATION (POWER) LAYOUT

SCALE : 1 : 100 M.

REPUBLIC OF THE PHILIPPINES **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS** NATIONAL CAPITAL REGION **METRO MANILA FIRST DISTRICT ENGINEERING OFFICE** WEST BANK ROAD, MANGGAHAN FLOODWAY ROSARIO, PASIG CITY	**PROJECT NAME AND LOCATION:**	**SHEET CONTENTS:**	**PREPARED:**	**REVIEWED:**	**SUBMITTED:**	**RECOMMENDED:**	**APPROVED:**	**SET NO.**	**SHEET NO.**
	CONSTRUCTION OF MULTI-PURPOSE BUILDING, SPD COMPOUND, LAWTON AVE., BARANGAY WESTERN BICUTAN, TAGUIG CITY (PHASE 1)	**SECOND FLOOR VENTILATION (POWER) LAYOUT**	**FLORENDO S. SALVADOR JR.** ENGINEER II DATE:	**JOENEL A. ANGCAJAS** ENGINEER II DATE:	**ELINO V. CASTRO** CHIEF, PLANNING AND DESIGN SECTION DATE:	**EDUARDO B. DEL ROSARIO** ASSISTANT DISTRICT ENGINEER DATE:	**ARISTOTLE B. RAMOS** DISTRICT ENGINEER DATE:		13 15