

PROPOSED DESIGN  
OF  
GGPS RAIKA MAIRA  
RAWALPINDI



**PLANNERS CONSULTANTS ENGINEERS (PCE)**

97-K Industrial Estate, Hayatabad Peshawar Pakistan  
Ph: 0092-91-5816017, 5891661-4, Fax: 5891845  
E-Mail: pce.pesh@yahoo.com

## LIST OF DRAWINGS

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**CLIENT:**



The UN Refugee Agency

**CONSULTANTS:**



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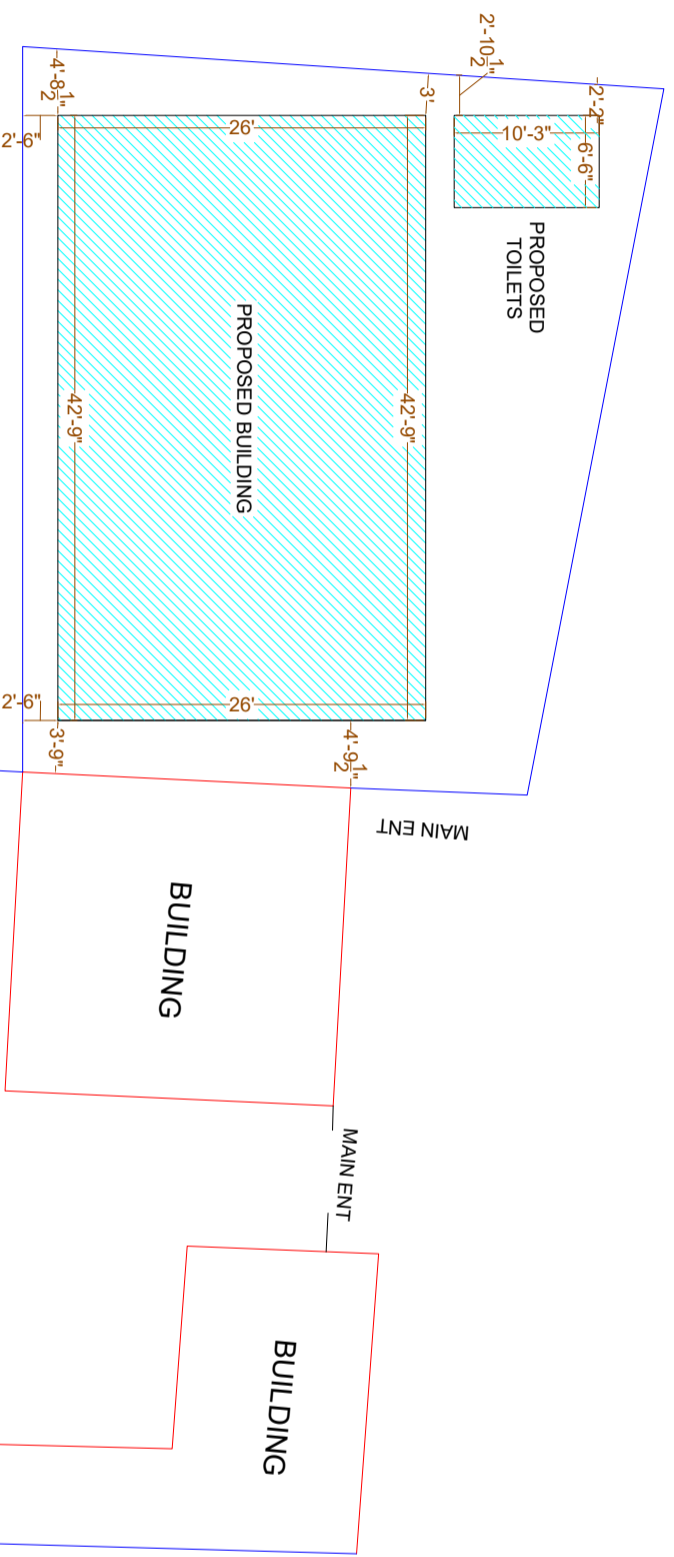
**SCHOOL NAME**  
 GGPS RAIKA MAIRA RAWALPINDI

Date of Revision	Prepared By	FARID KHAN KHAN HANIDER	
	Designed By	ARCHITECT	
	Checked By	MARWAT KHAN OKAZMI (B.Arch, D.C.E.T Karachi) (M.Arch, UET, Lahore)	
	Approved By		

**PROJECT:**  
 PREPARATION OF DESIGN DRAWINGS & BOOK FOR CONSTRUCTION/REHABILITATION OF SITES

**TITLE:**  
 LIST OF DRAWINGS

**DATE:** SEP 2023      **SCALE:**      **DRG.NO.:** A-00



# SITE PLAN

**CLIENT:**



The UN Refugee Agency

**CONSULTANTS:**



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Date of Revision	Prepared By	ARCHITECT
	Designed By	MARWAT KHAN ORAKZAI (B.Arch.D, C.E.T Karachi) (M.Arch, UET, Lahore)
	Checked By	
	Approved By	

**PROJECT:**

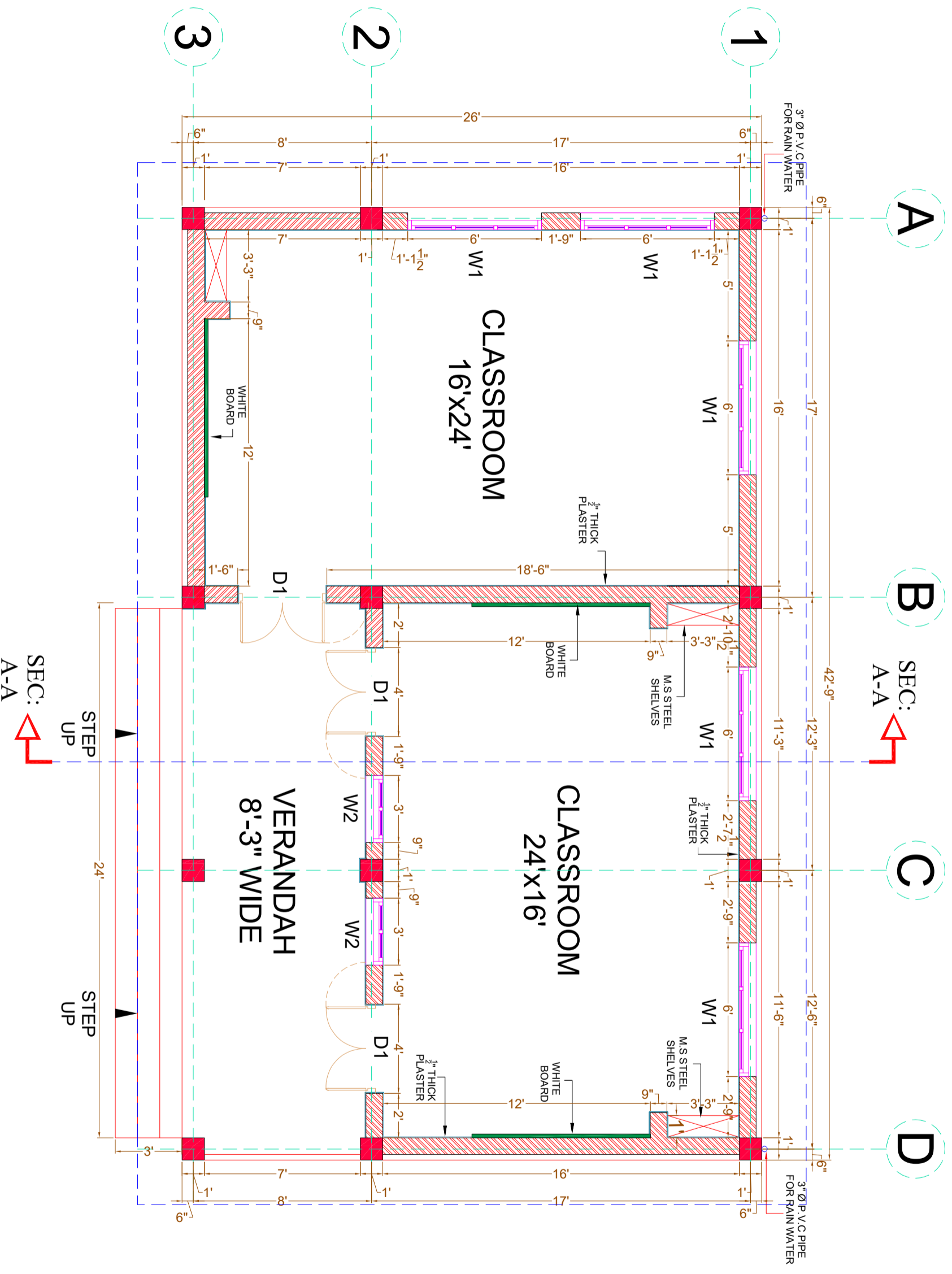
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/ REHABILITATION OF SITES

**TITLE:** SITE PLAN

**DATE:** SEP 2023

**SCALE:**

**DRG. NO.:** A-01



# GROUND FLOOR PLAN

CLIENT:



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	Checked By	
	Approved By	

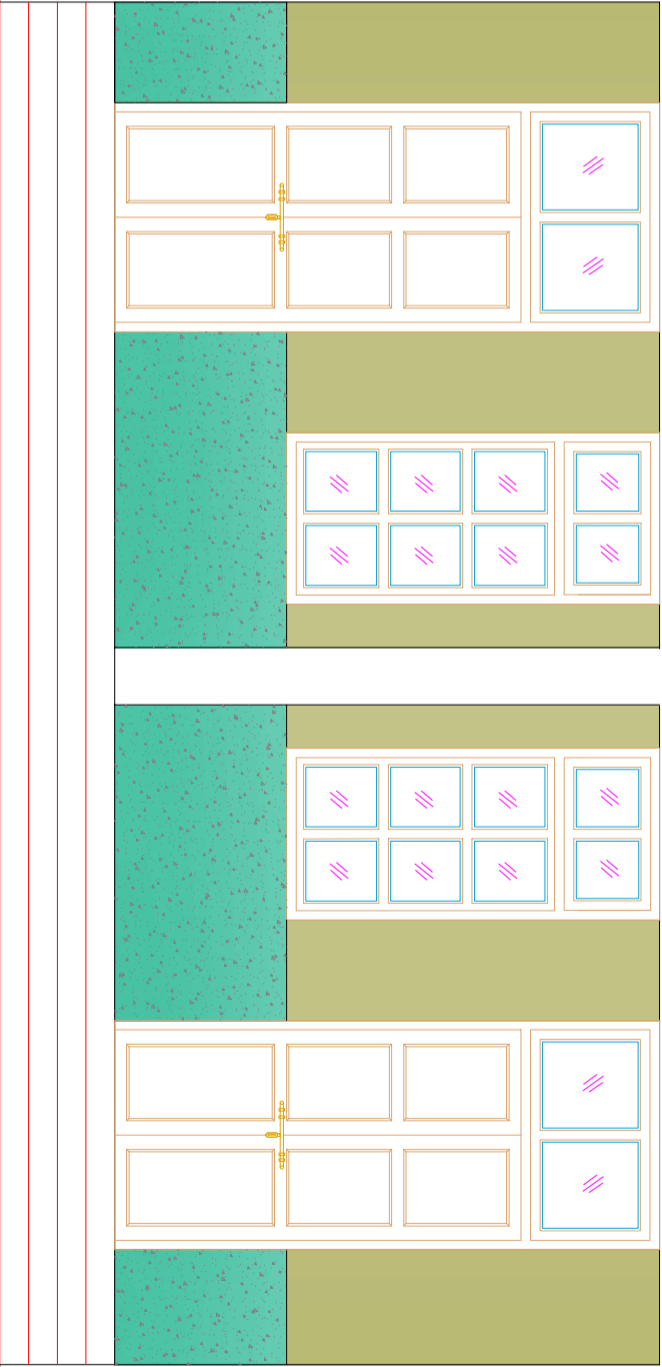
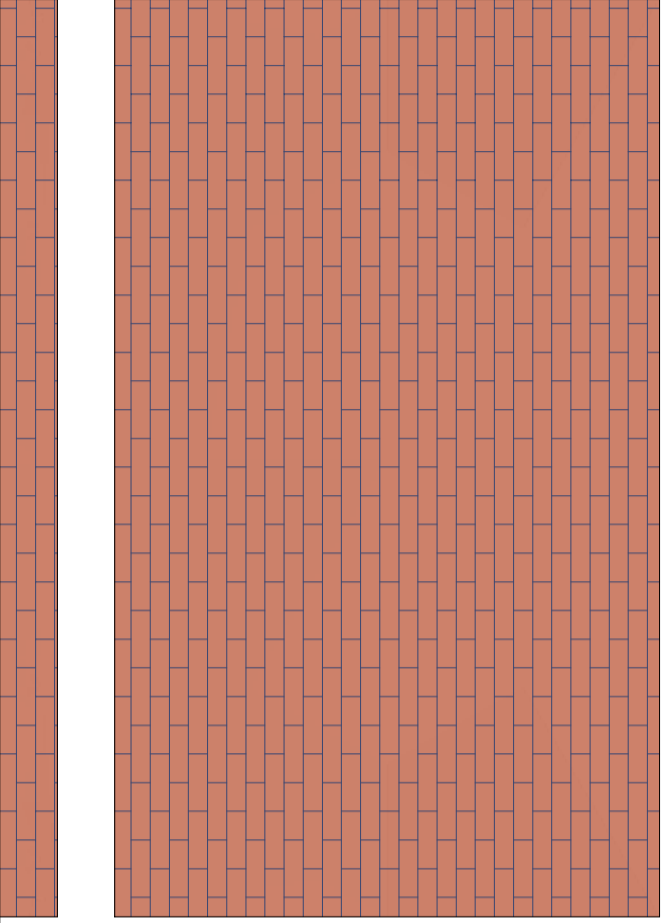
PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:  
GROUND FLOOR PLAN

DATE	SCALE	DRG.NO.
SEP 2023		A-02

G.L



G.L

# FRONT ELEVATION

CLIENT:



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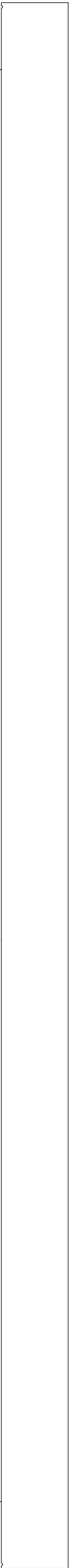
CONSULTANTS:

SCHOOL NAME

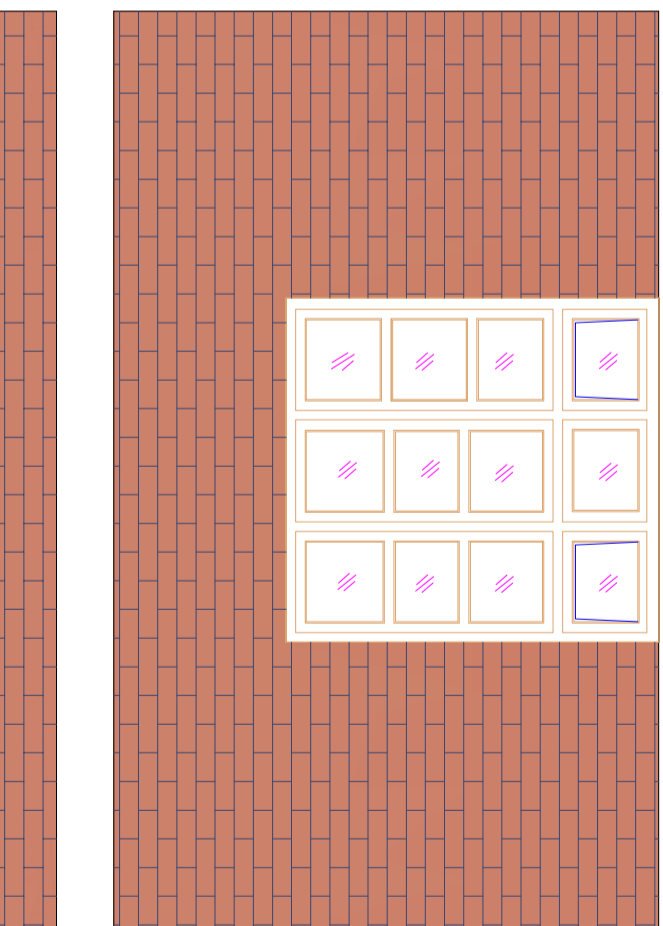
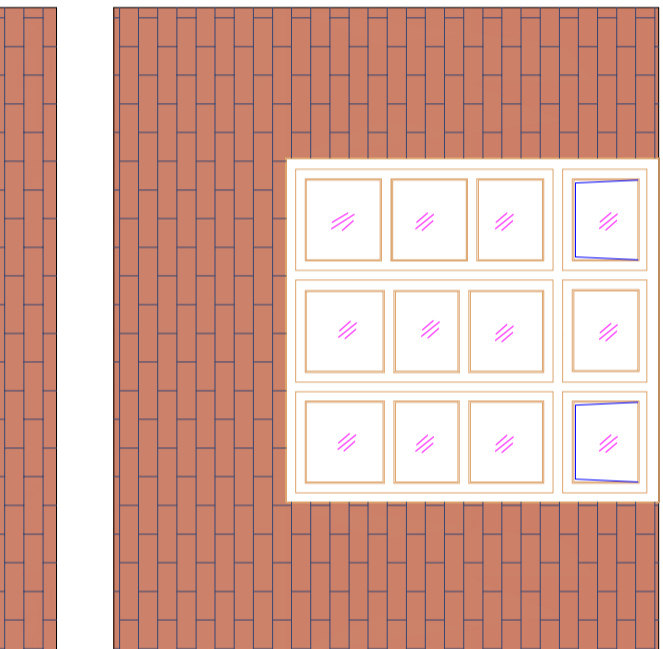
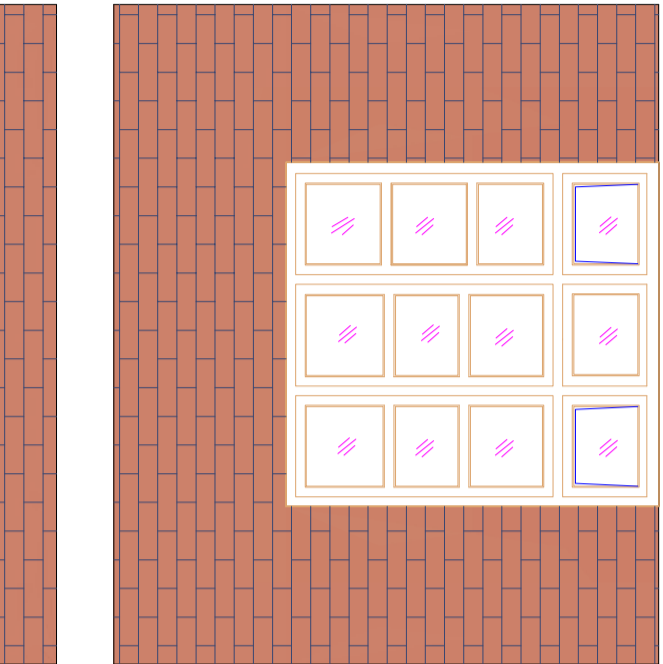
GGPS RAIKA MAIRA RAWALPINDI

Date of Revision	Prepared By	FARID KHAN KHAN HANIDER	PROJECT: PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
	Designed By	MARWAT KHAN ORAKZAI (B.Arch/DCET Karachi) (M.Arch/DET Lahore)	
	Checked By		
	Approved By		DATE: <i>SEP 2023</i>
			SCALE
			DRG.NO. A-03

TITLE:  
FRONT ELEVATION



G.L



G.L

# REAR ELEVATION

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SCHOOL NAME

GGPS RAIKA MAIRA RAWALPINDI

Date of Revision

Prepared By

FARID KHAN  
KHANHAIDR

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS  
FOR CONSTRUCTION/REHABILITATION OF SITES

ARCHITECT

MARWAT KHAN ORAKZAI  
(B.Arch, DCE, Karachi)  
(M.Arch, UET, Lahore)

TITLE:

REAR ELEVATION

Designed By

Checked By

Approved By

DATE

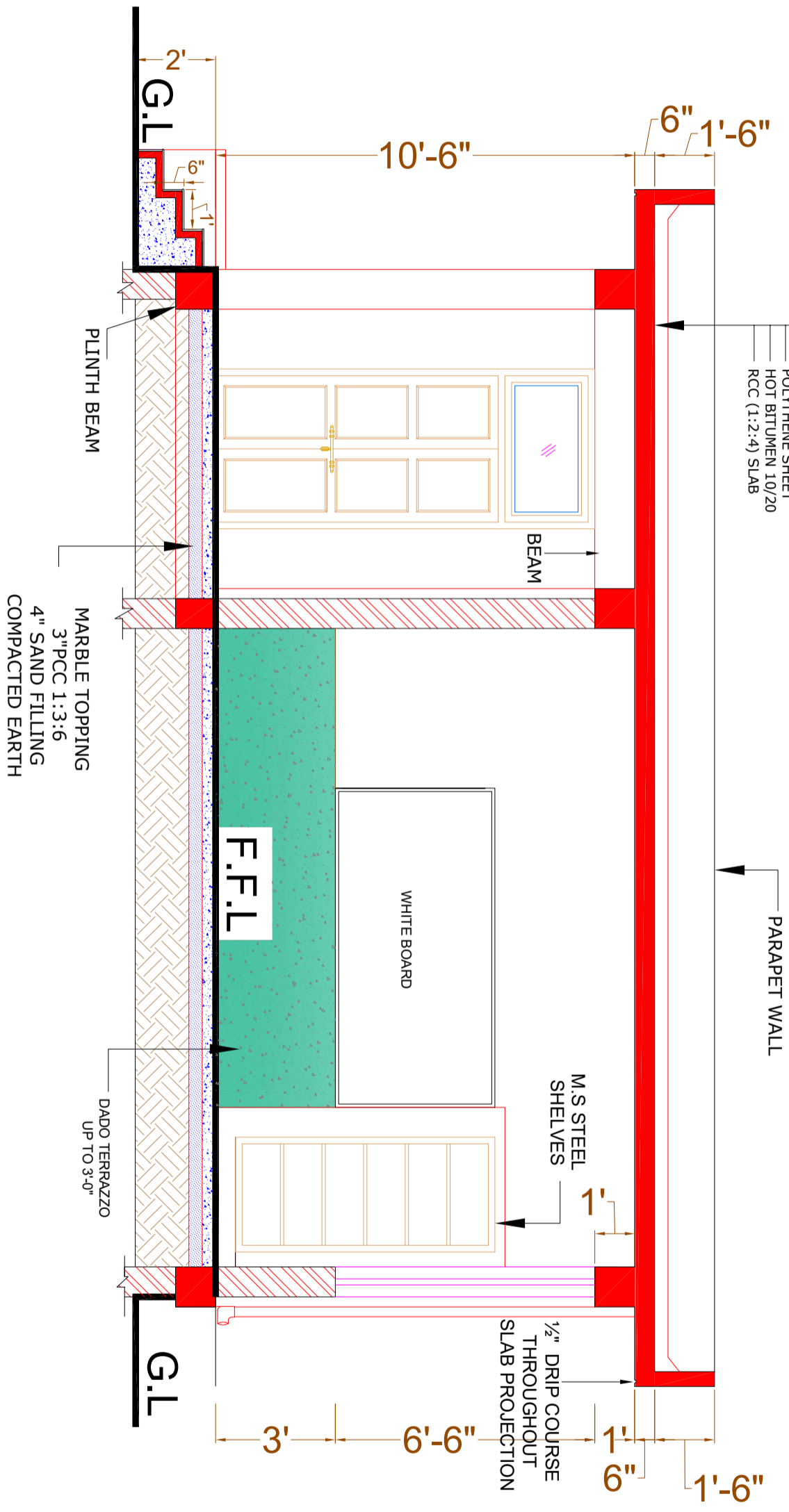
SEP 2023

SCALE

DRG.NO.

A-04

- 1.25" TH BRICK TILES
- SET & GROUTED IN C/S (1:2)
- 4" TH. AVG. MUD FILLING.
- POLYTHENE SHEET
- HOT BITUMEN 10/20
- RCC (1:2:4) SLAB



# SECTION AT A-A

CLIENT:



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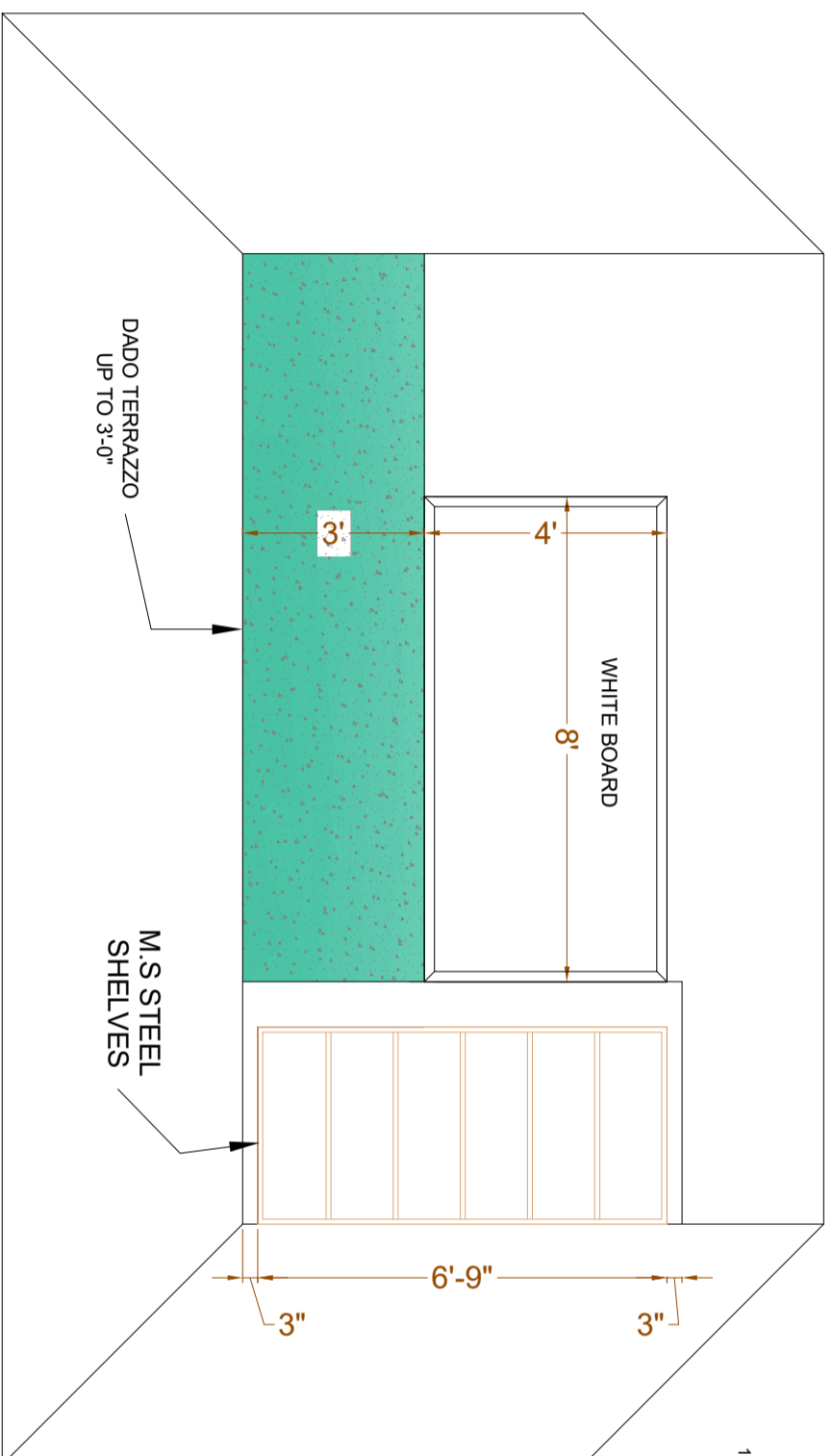
SCHOOL NAME

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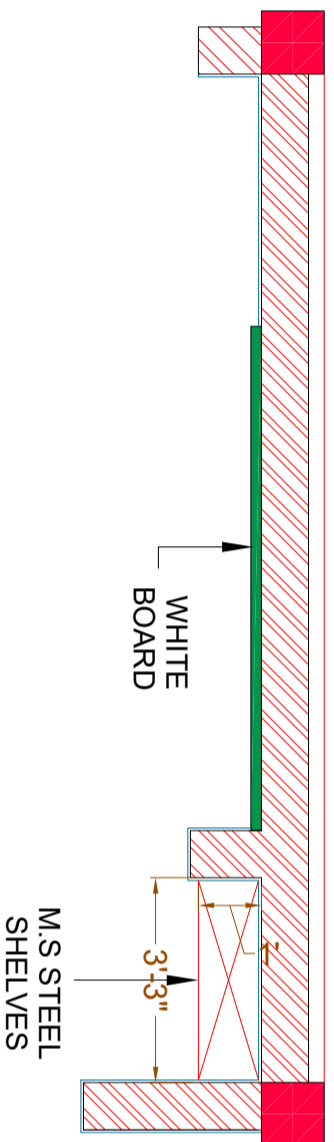
Date of Revision	Prepared By	ARCHITECT	PROJECT:
	Designed By	MARWAT KHAN ORAKZAI (B.Arch, D.C.E.T, Karachi) (M.Arch, UET, Lahore)	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
	Checked By		TITLE:
	Approved By		SECTION AT AA
			DATE
			SEP 2023
			SCALE
			SECTION AT AA
			DRG. NO.
			A-05



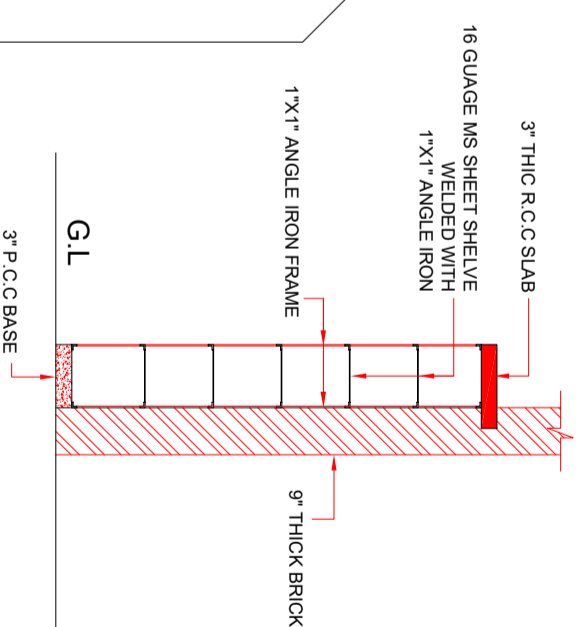




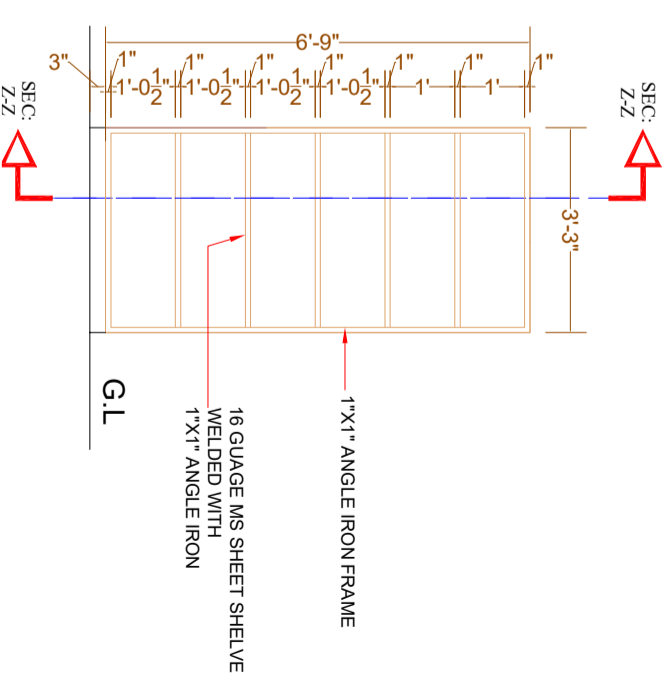
ELEVATION OF WHITE BOARD & CUPBOARD



PLAN OF WHITE BOARD & M.S STEEL SHELVES



SHELVES SECTION AT Z-Z



SHELVES ELEVATION

CLIENT:



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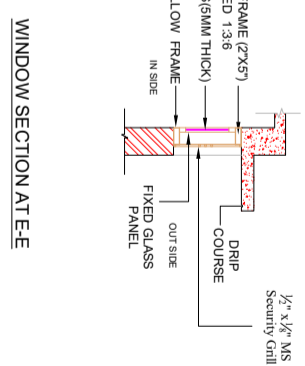
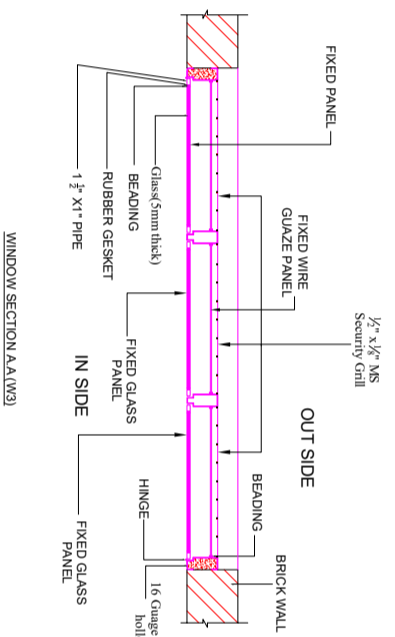
SCHOOL NAME

GGPS RAIKA MAIRA RAWWALPINDI

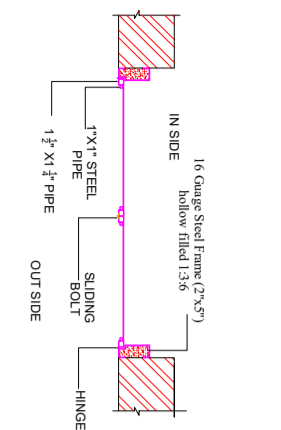
Date of Revision	Prepared By	ARCHITECT
	Designed By	MARWAT KHAN ORAKZAI (B.Arch, D.C.E.T Karachi) (M.Arch, UET Lahore)
	Checked By	
	Approved By	

PROJECT:		
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES		
TITLE: PLAN OF WHITE BOARD & M.S STEEL SHELVES		
DATE	SCALE	DRG.NO.
SEP 2023		A-07

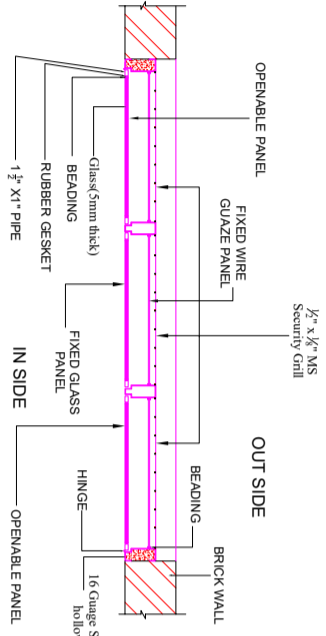
SCHEDULE OF OPENING			
TYPE	SIZE	S-LEVEL	DESCRIPTION
D1	4'-0" X 9'-6"	0'-0"	STEEL
W1	6'-0" X 6'-6"	3'-0"	STEEL
W2	3'-0" X 6'-6"	3'-0"	STEEL



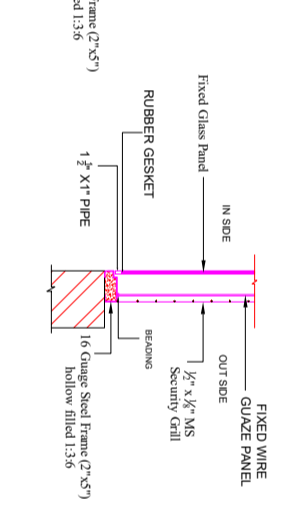
WINDOW SECTION AT E-E



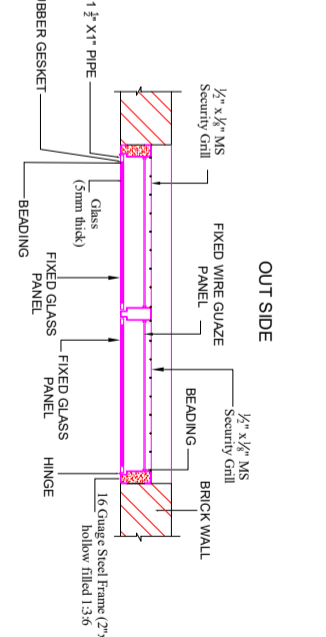
DOOR SECTION BB



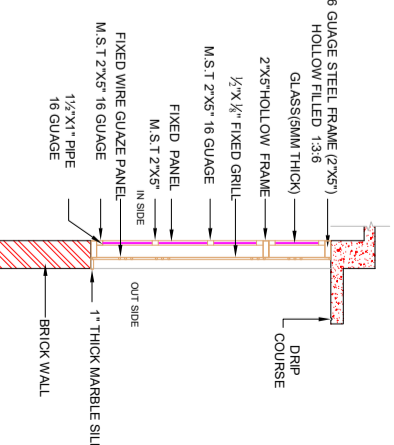
WINDOW SECTION AT AA (W1)



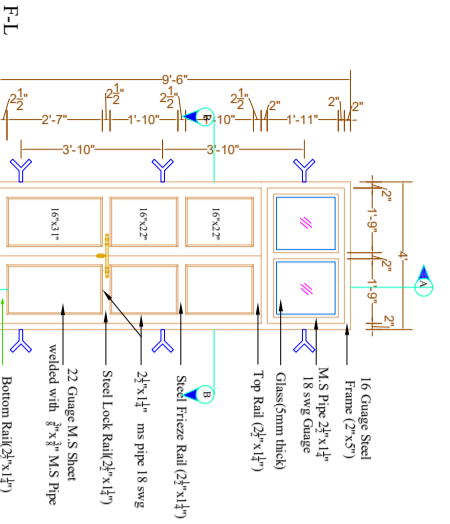
WINDOW SECTION AT C-C



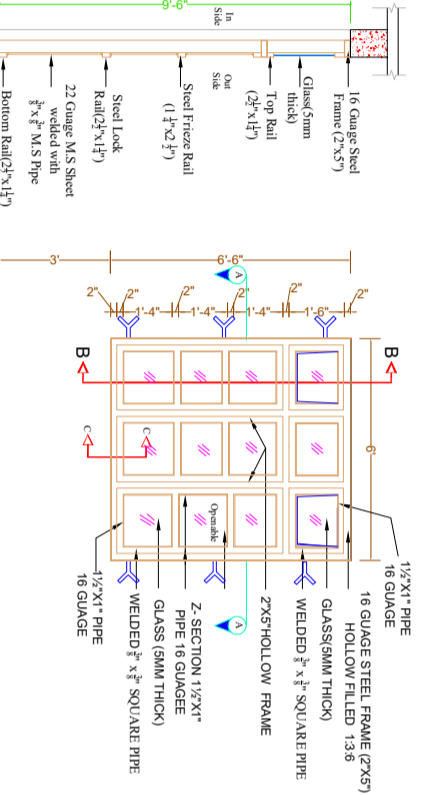
WINDOW SECTION AA (W2)



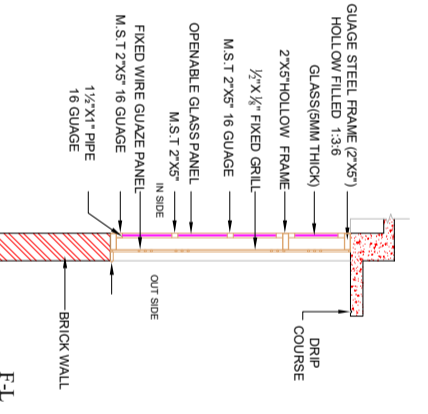
WINDOW SECTION AT D-D



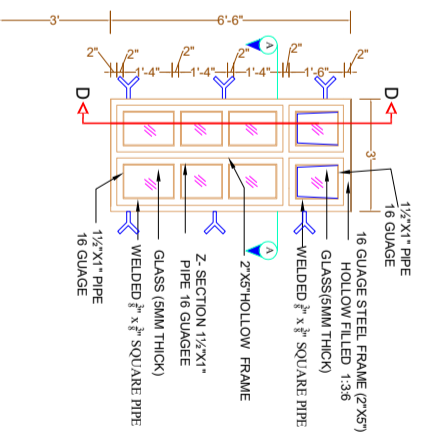
DOOR ELEVATION (D)



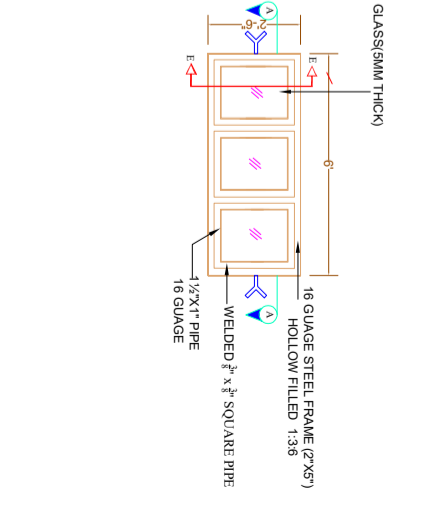
DOOR SECTION AT A-A



WINDOW SECTION AT B-B



WINDOW ELEVATION (W2)



WINDOW ELEVATION (W3)

CLIENT:



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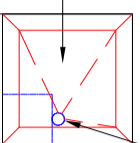
SCHOOL NAME

GGPS RAIKA MAIRA RAWALPINDI

Date of Revision	Prepared By	ARCHITECT	PROJECT:
	Designed By	MARWAT KHAN ORAKZAI (B.Arch, D.C.E.T. Karachi)	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
	Checked By	(M.Arch, D.E.T. Lahore)	TITLE: DOOR, WINDOW DETAILS
	Approved By		DATE: SEP 2023
			SCALE: DRG. NO. A-08

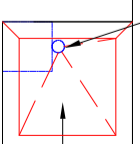
3" Ø P.V.C PIPE  
FOR RAIN WATER  
DISPOSAL

KHURAH  
2'-6"X2'-6"



3" Ø P.V.C PIPE  
FOR RAIN WATER  
DISPOSAL

KHURAH  
2'-6"X2'-6"



SLOP

SLOP

SLOP

SLOP

# TOP ROOF PLAN

CLIENT:



UNHCR  
The UN Refugee Agency

CONSULTANTS:



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	Checked By	(M.Arch, UET Lahore)
	Approved By	

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOOK  
FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

TOP ROOF PLAN

DATE  
SEP 2023

SCALE

DRG. NO.  
A-9

PROPOSED STRUCTURAL DESIGN  
OF  
GGPS RAIKA MAIRA  
RAWALPINDI



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## 1. GENERAL

1. READ ALL DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL, GEOTECHNICAL, PLUMBING, MECHANICAL, ELECTRICAL & ANY OTHER RELEVANT DRAWINGS. NOTES GIVEN IN THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS UNLESS MENTIONED OTHERWISE. NOTES WRITTEN ON A DRAWING, SHALL BE APPLICABLE TO THAT PARTICULAR DRAWING ONLY UNLESS OTHERWISE CROSS-REFERRED. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE SPECIFICATIONS OF THE CONTRACT DOCUMENTS. IN ABSENCE OF ANY SPECIFICATIONS, ALL MATERIALS & WORKMANSHIP SHALL CONFORM TO RELEVANT AC/BRITISH CODES AND SHALL BE SUBJECTED TO APPROVAL OF THE ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURES DURING CONSTRUCTION. HE SHALL ALSO VERIFY ALL DIMENSIONS AND LEVELS BEFORE EXECUTION OF WORK. ANY DISCREPANCY, ERROR OR OMISSION, IF FOUND, SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR CORRECTION AND APPROVAL.
3. THE CONTRACTOR SHALL CO-ORDINATE WITH VARIOUS SERVICES DRAWINGS FOR SIZES & LOCATION OF ALL STRUCTURAL MEMBERS, FLOORS, WALLS, OPENINGS, FLOOR FINISHES, PIPES ETC.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXECUTION OF DEWATERING SYSTEM WHERE SO REQUIRED DURING CONSTRUCTION.
5. ALL DIMENSIONS & LEVELS ARE IN FEET & INCHES. DO NOT SCALE THE DRAWINGS. DIMENSIONS, GIVEN ON THE DRAWING, SHALL GOVERN.
6. ALL FABRICATION, PAINTING, ERECTION AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST APPLICABLE AC/BRITISH SPECIFICATIONS.
7. BACKFILLING AROUND FOUNDATIONS AND WALLS SHALL BE WELL COMPACTED LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS.
8. IT IS STRONGLY RECOMMENDED TO RECONFIRM THE SITE PLAN BEFORE START OF EXECUTION AT SITE. THE SITE SHOULD BE EXAMINED FOR CLEARANCE WITH RESPECT TO LOCAL/SEISMIC HAZARDS.
9. THE CONTRACTOR SHALL INFORM THE ENGINEER ABOUT ANTICIPATED CONSTRUCTION LOADS IN THE STRUCTURE AND OBTAIN ENGINEER'S APPROVAL THEREOF BEFORE COMMENCING THE WORK.
10. THE CONTRACTOR SHALL VERIFY LAYOUT, CONFIGURATION, ALL DIMENSIONS AND LEVELS PERTAINING TO EXISTING WORKS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL ADOPT ADEQUATE AND APPROPRIATE MEASURES SO AS NOT TO DAMAGE THE EXISTING WORKS.
11. THE CONTRACTOR SHALL EXERCISE UTMOST CARE AND PRECAUTION DURING THE WORKS, AGAINST ANY MISHAPS OR ACCIDENTS, FOR WHICH THE CONTRACTOR SHALL BE WHOLLY AND SOLELY RESPONSIBLE. THE CONTRACTOR SHALL INDEMNIFY THE OWNER AGAINST ANY ACCIDENTS AND ANY LOSSES THEREFROM AND SHALL REPAIR AND RECTIFY THEM AT HIS OWN COST AND TIME.
12. ANY DEPARTURES/DEVIATIONS DESIRED FROM THE DESIGN OR SPECIFICATIONS, OR SOLUTIONS TO ANY PROBLEMS ENCOUNTERED, SHALL BE GOT APPROVED FROM THE ENGINEER PRIOR TO IMPLEMENTATION. UNAPPROVED DEPARTURES/DEVIATIONS MAY LEAD TO REJECTION/REPLACEMENT OF THE ENTIRE WORK AT THE CONTRACTOR'S COST.
13. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS AND BAR BENDING SCHEDULES. THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE APPROVAL BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACCURACY OF SHOP DRAWINGS AND BAR BENDING SCHEDULES FOR ENGINEER'S APPROVAL AND OBTAIN HIS CONTRACTOR FROM HIS RESPONSIBILITY.
- 14.
- 15.
- 16.

STRUCTURAL ELEMENT	COVER (INCHES)
FOOTINGS	2"
BEAMS	1½"
COLUMNS	1½"
SLABS	3/4"
WALLS	3/4"

## 2. REINFORCED CONCRETE

1. STRUCTURAL DESIGN IS BASED ON THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE OF AMERICAN CONCRETE INSTITUTE (ACI 318).
  2. ALL STRUCTURAL CONCRETE SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE (ACI) REQUIREMENTS.
  3. CONCRETE MIX TO BE DESIGNED ON THE BASIS OF ACI 211 OR EQUIVALENT. TRIAL STRENGTH RESULTS TO BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BEFORE CONCRETING.
  4. NO CONCRETING SHALL BE CARRIED OUT UNTIL PERMISSION IS GIVEN IN WRITING OR APPROVED BY STRUCTURE ENGINEER.
  5. ALL CONCRETE SHALL BE TESTED IN ACCORDANCE WITH ASTM STANDARDS C31, C39, C172 & AS WRITTEN IN SPECIFICATIONS AND THE MINIMUM CYLINDER CRUSHING STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS. TESTING OF CLASS D & E CONCRETE SHALL BE PERFORMED IF SO DIRECTED BY THE ENGINEER.
- | CLASS | MIN. CYLINDER CRUSHING STRENGTH AT 28 DAYS (psi) |
|-------|--|
| A     | 4000   |
| B     | 3000   |
| C     | 2400   |
| D     | 1200   |
| E     | 800  |
6. CLASS OF CONCRETE FOR DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE AS FOLLOWS UNLESS NOTED OTHER WISE:  

COMPONENT	CONCRETE CLASS
COLUMNS	CLASS 'B'
SLABS, BEAMS, FOUNDATION RCC WALLS & )	CLASS 'B'
RCC STEPS	CLASS 'D'
LEAN / BLINDING CONCRETE	CLASS 'E'
  7. ORDINARY PORTLAND CEMENT SHALL BE USED FOR ALL CONCRETE WORKS.
  8. AN INTEGRAL WATER PROOFING AGENT SHALL BE USED IN CONCRETE THAT IS CONSTANTLY OR INTERMITTENTLY IN CONTACT WITH WATER AS PER MANUFACTURER'S RECOMMENDATIONS (GENCON GENPROUF RMC OR PENETRON ADMIX OR EQUIVALENT).
  9. ALL DETAILING SHALL BE DONE AS PER ACI STANDARDS ACI-315, ACI-318 & ACI-308R.
- ### 3. SHORING AND BRACING
1. SHORE & BRACE ALL PARTS OF THE STRUCTURE DURING CONSTRUCTION, TO THE EXTENT NECESSARY TO ENSURE COMPLETE SAFETY, STRENGTH & SERVICEABILITY OF ALL STRUCTURAL ELEMENTS UNDER ALL CONDITIONS OF LOADS WHICH MAY OCCUR DURING CONSTRUCTION. SUCH SHORING & BRACING IS THE CONTRACTOR'S SOLE RESPONSIBILITY AND IS NOT SHOWN ON STRUCTURAL DRAWINGS OR SPECIFIED IN THE PROJECT.
  2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE SLOPES AND SHALL PROVIDE SHORING AND BRACING DURING EXCAVATION AND CONSTRUCTION, WHEREVER AND WHENEVER REQUIRED.
  3. SEQUENCE OF REMOVAL OF FORMWORK SHALL BE APPROVED BY THE ENGINEER. AT LEAST ONE LOWER FLOOR SHALL REMAIN PROPPED UNTILL THE UPPER FLOOR IS CAST AND CURED.
  - 4.

### 4. REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM-A615 GRADE 60 HAVING A MINIMUM YIELD STRENGTH OF 60,000 PSI. FOR STIRRUPS, TIES AND #3 BARS USE ASTM A615, GRADE 60 HAVING MINIMUM YIELD STRENGTH OF 60,000 PSI.
2. THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED STRENGTH BY MORE THAN 18,000 PSI (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3000 PSI)
3. THE RATIO OF THE ACTUAL ULTIMATE TENSILE STRENGTH TO THE ACTUAL TENSILE YIELD STRENGTH IS NOT LESS THAN 1.25
4. CLEAR COVER TO REINFORCEMENT SHALL BE: (inches)  
L-GREATER CLEAR SPAN, db-DIAMETER OF BAR, d-EFFECTIVE DEPTH  
THE FIRST HOOP SHALL BE LOCATED NOT MORE THAN 2" FROM THE WHERE:  
FACE OF THE SUPPORTING MEMBER.

7. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN THE FORMS AND HELD FIRMLY IN PLACE BEFORE & DURING THE PLACEMENT OF CONCRETE, BY MEANS OF WIRE AND SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION. LINTELS ARE EXTENDED AT 9 (INCHES) FROM BOTH SIDES OF OPENING. PROVIDE 135° HOOK IN ADJACENT STIRRUPS ON ALTERNATE SIDES.

### 5. CONCRETE CONSTRUCTION

1. ALL STRUCTURAL SURFACES, AGAINST WHICH EARTH IS TO BE FILLED, SHALL BE COATED WITH TWO COATS OF HOT BITUMEN OF 10/20 GRADE AT THE RATE OF 0.2 lbs/ft<sup>2</sup>/coat.
2. PROVIDE POLYETHENE SHEET OVER TWO COATS OF HOT BITUMEN AT TOP OF PLINTH BEAM/DPC FOR EXTERIOR WALLS.
3. BEFORE CASTING OF ANY STRUCTURAL MEMBER, THE CONTRACTOR SHALL ENSURE THAT ALL EMBEDDED ITEMS FOR ELECTRICAL, MECHANICAL, HVAC, PLUMBING, STRUCTURAL STEEL AND OTHER WORKS ARE PROPERLY LOCATED AND FIRMLY SECURED IN PLACE. DURING CONSTRUCTION, STACKING OF CONSTRUCTION MATERIALS, BLOCKS, etc. SHOULD BE AVOIDED ON SLAB PANELS.
- 4.

### 6. BRICK WORK

1. ALL BRICK WORK SHALL CONFORM TO SPECIFICATIONS GIVEN IN THE CONTRACT DOCUMENT.
2. ALL BRICK SHALL BE SOUND, HARD, WELL BURNT AND OF UNIFORM SIZE, COLOUR AND TEXTURE. DIMENSIONAL VARIATION IN SIZES SHALL NOT EXCEED 1/8". BRICKS SHOULD BE IN ACCORDANCE WITH SPECIFICATIONS AND SHOULD CONFORM TO ASTM C62.
3. ALL BRICK WORK SHALL BE ERECTED PLUMB AND TRUE TO LINE AND LEVEL. THE MAXIMUM VARIATION IN ANY STOREY HEIGHT OR ANY LENGTH OF WALL SHALL BE 1/8" IN 10'-0".
4. MORTAR USED IN MASONRY CONSTRUCTION SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF NOT LESS THAN 12 MPa (1800Psi) AND SHALL CONFORM TO ASTM C270.
5. COMPRESSIVE STRENGTH OF BRICK MASONRY AVERAGE OF 5 UNITS, AT 28 DAYS SHALL NOT BE LESS THAN AS SPECIFIED IN SPECIFICATION AND SHALL CONFORM TO RELEVANT ASTM STANDARD.
6. ALL DESIGN, DETAILING, MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH RELEVANT ACI, ASTM, AND UBC CODES AND STANDARDS.
7. BRICK SHALL BE LAID "FROG" UPWARD WITH MORTAR JOINT AND IN ENGLISH FLEMISH BOND OR AS DIRECTED BY THE ENGINEER.
8. BRICKS SHOULD BE SOAKED WITH WATER PROPERLY BEFORE USE.
9. VERTICAL JOINTS SHOULD BE STAGGERED.
10. ALL MASONRY WALLS SHALL BE ANCHORED TO STRUCTURAL FRAME WORK AS INDICATED ON THE DRAWINGS

### 7. CONSTRUCTION JOINTS

1. JOINTS, NOT SHOWN ON THE DRAWING, SHALL BE SO MADE AND LOCATED AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND SHALL NEED PRIOR APPROVAL OF THE ENGINEER. THEY SHALL BE LOCATED NEAR THE MIDDLE OF THE SPANS OF SLAB & BEAMS. JOINTS IN WALLS & COLUMNS SHALL BE AT THE UNDER-SIDE OF FLOORS, SLABS OR BEAMS AND AT THE TOP OF FOOTINGS OR FLOOR SLABS.
2. JOINTS SHALL BE PERPENDICULAR TO MAIN REINFORCEMENT. ALL REINFORCING STEEL SHALL BE CONTINUED ACROSS THE JOINTS.
3. JOINTS IN BASE SLAB & WALLS AND ROOF SLAB, IN ADDITION TO THOSE SHOWN ON THE DRAWINGS SHALL BE BORNE BY THE CONTRACTOR. BEAMS & BRACKETS SHALL BE PLACED AT THE SAME TIME AS SLABS.

CLIENT:



The UN Refugee Agency

CONSULTANTS:

SCHOOL NAME

**PLANNERS CONSULTANTS ENGINEERS (PCE)**

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GGPS RAIKA MAIRA RAWALPINDI

Date of Revision	Prepared By	ENGINEER	PROJECT:
	Designed By	HUMZA AHMAD	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
	Checked By		TITLE: GENERAL DESIGN & TECHNICAL SPECIFICATIONS
	Approved By		DATE: SEP 2023 SCALE: DRG. NO. S-01

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 4,000$ psi	$f_y = 60,000$ psi
3/8"	18	7.5
1/2"	24	9.5
3/4"	30	14.5
1"	48	19

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

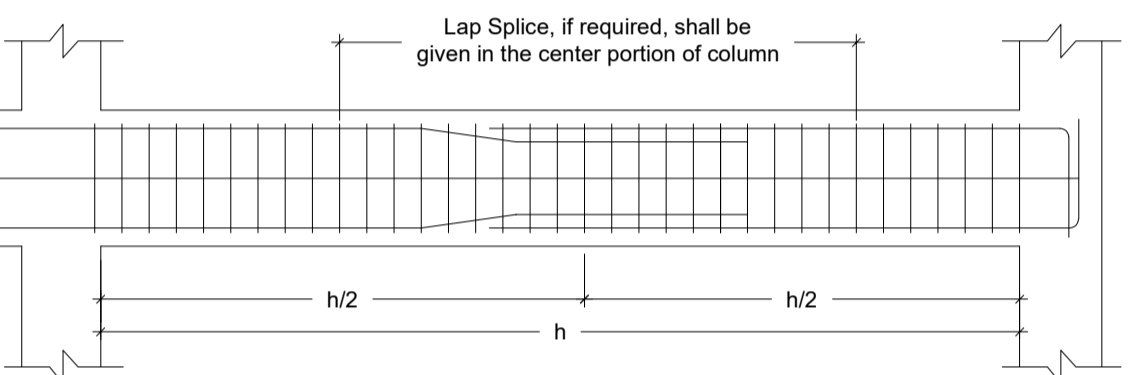
BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 60,000$ psi
1/2"	22	11"
5/8"	30	14"
3/4"	34	17"
1"	55	22"

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

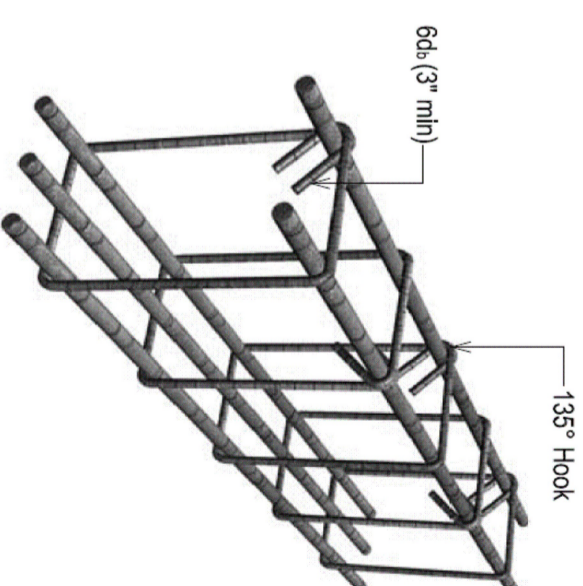
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 40,000$ psi
3/8"	15	-
1/2"	20	9
3/4"	30	15
1"	48	18

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

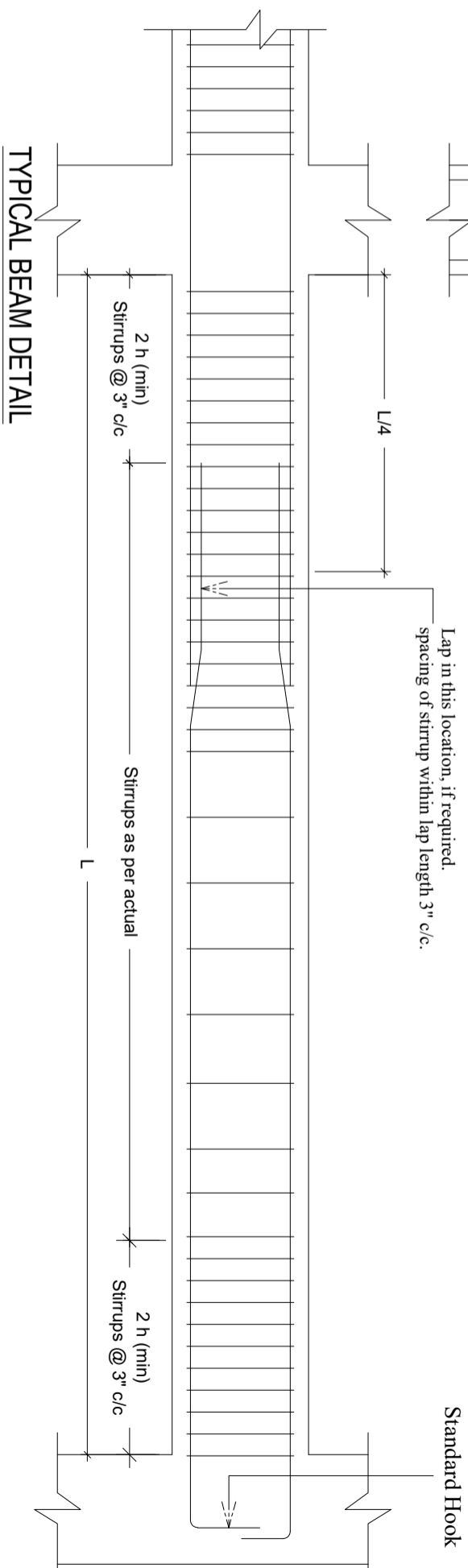
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 60,000$ psi
1/2"	25	35
5/8"	-	44
3/4"	-	55
1"	-	70



TYPICAL COLUMN DETAIL



SEISMIC HOOK DETAILS



TYPICAL BEAM DETAIL

CLIENT:



UNHCR  
The UN Refugee Agency

CONSULTANTS:



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SCHOOL NAME

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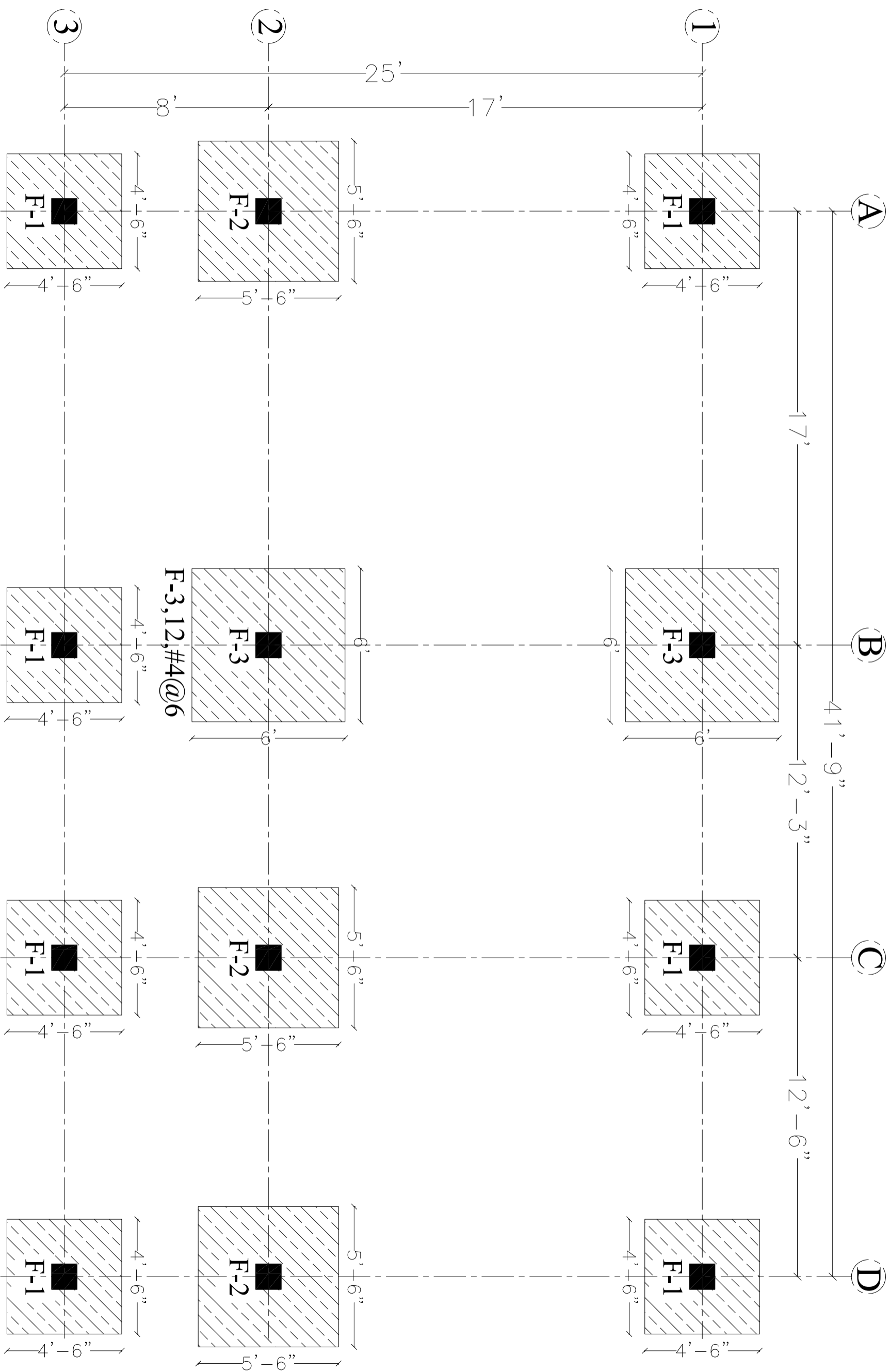
Date of Revision	Prepared By	ENGINEER
	Designed By	HUMZA AHMAD
	Checked By	
	Approved By	

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS  
FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE: GENERAL DESIGN & TECHNICAL SPECIFICATIONS

DATE	SCALE	DRG. NO.
SEP 2023		S-02



**FOUNDATION LAYOUT PLAN**

CLIENT:



CONSULTANTS:



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SCHOOL NAME

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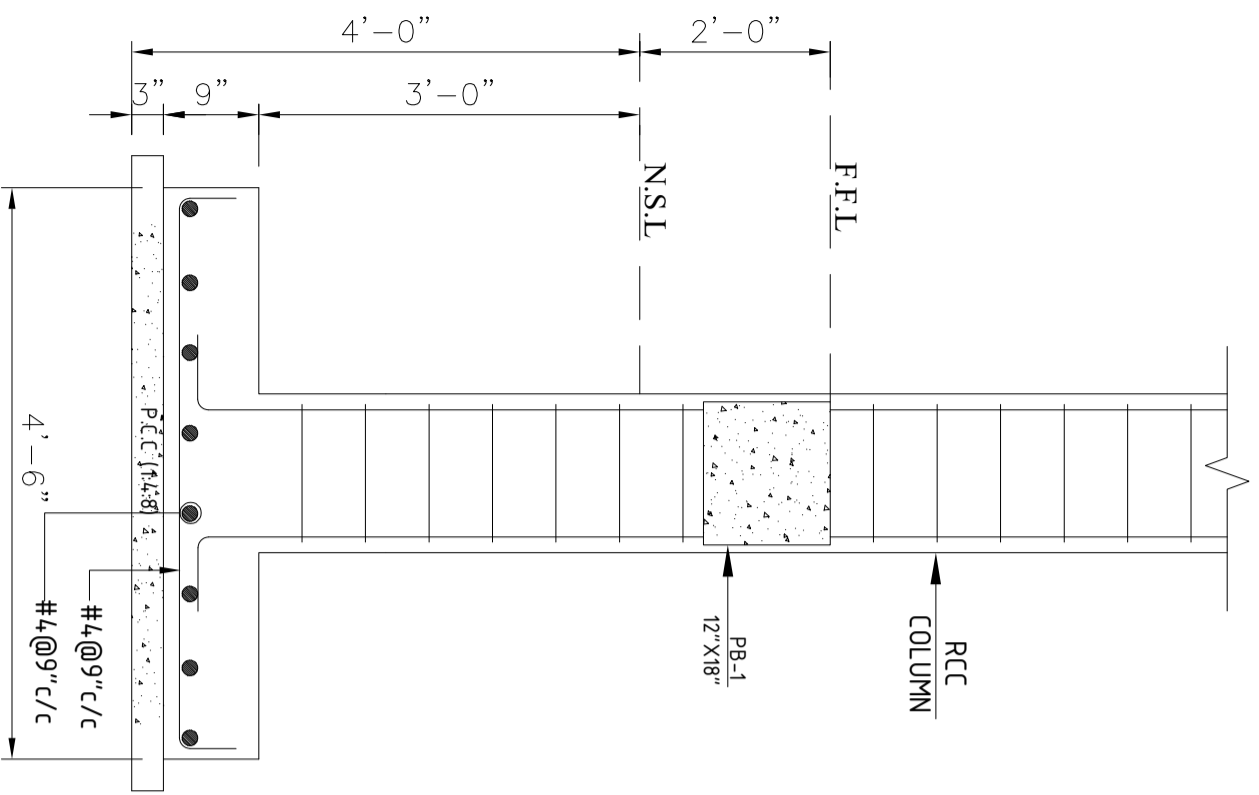
Date of Revision	Prepared By	SYED BASHIR MUHAMMAD ENGINEER
	Designed By	HUMZA AHMAD
	Checked By	
	Approved By	

PROJECT:

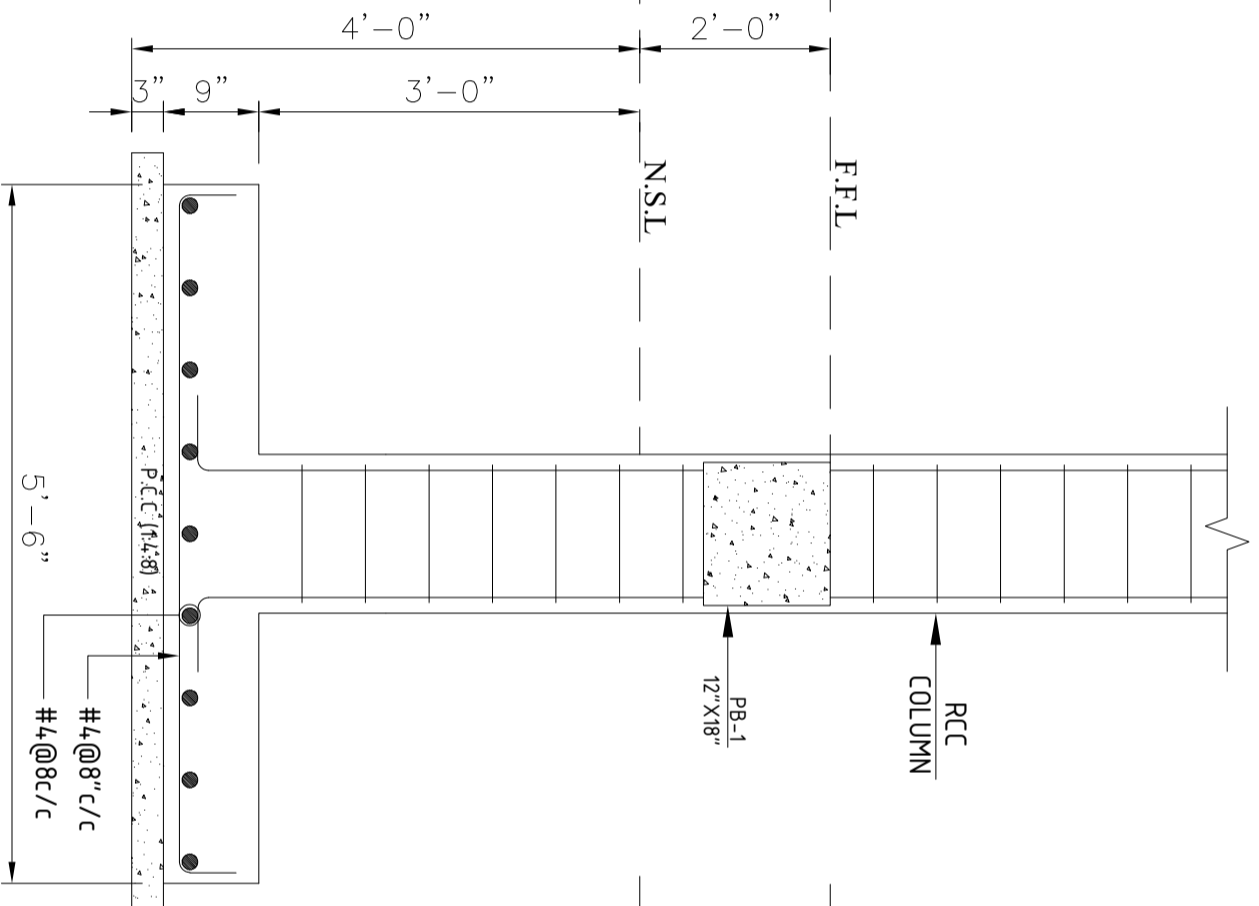
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE: FOUNDATION LAYOUT PLAN

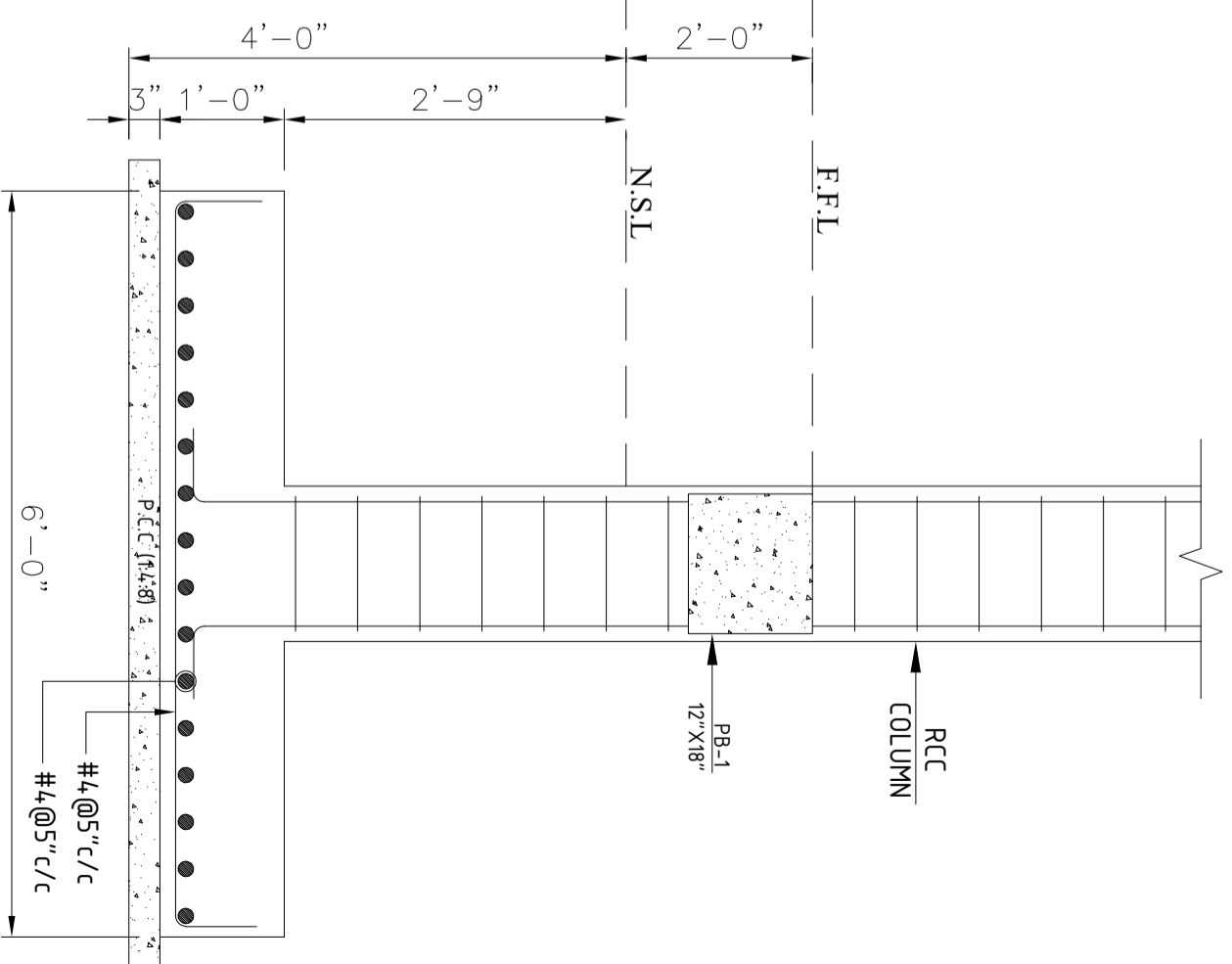
DATE	SCALE	DRG. NO.
SEP 2023		S-03



F-1 FOOTING DETAIL



F-2 FOOTING DETAIL



F-3 FOOTING DETAIL

CLIENT:



CONSULTANTS:



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Date of Revision	Prepared By	SYED BASHIR MUHAMMAD
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	Approved By	

PROJECT:

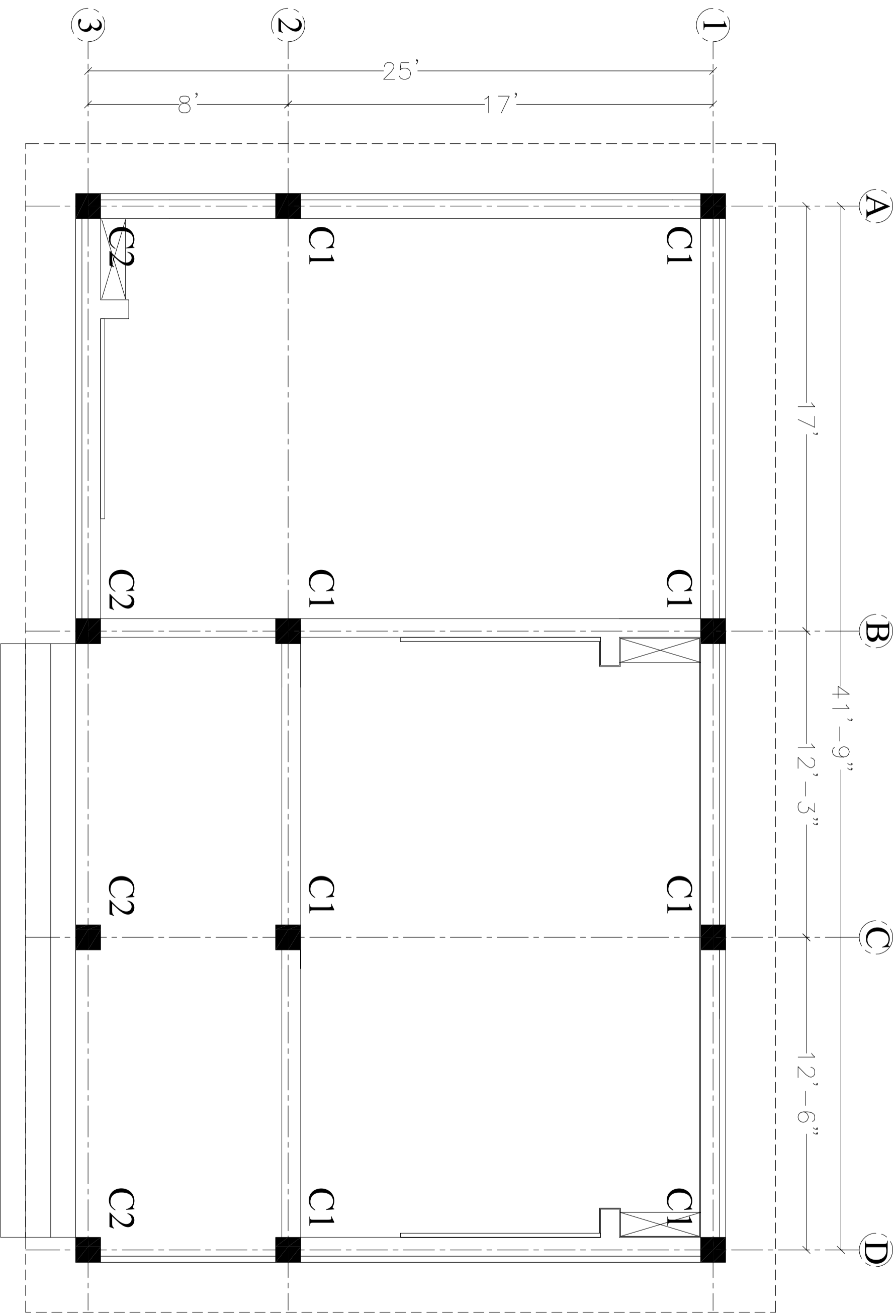
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

FOUNDATION SECTIONAL DETAIL

DATE	SCALE	DRG.NO.
SEP 2023		S-04





# COLUMN LAYOUT PLAN

CLIENT:



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Date of Revision	Prepared By	STED BASHIR MUHAMMAD
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	Checked By	
	Approved By	

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOOKS  
 FOR CONSTRUCTION/ REHABILITATION OF SITES

TITLE:

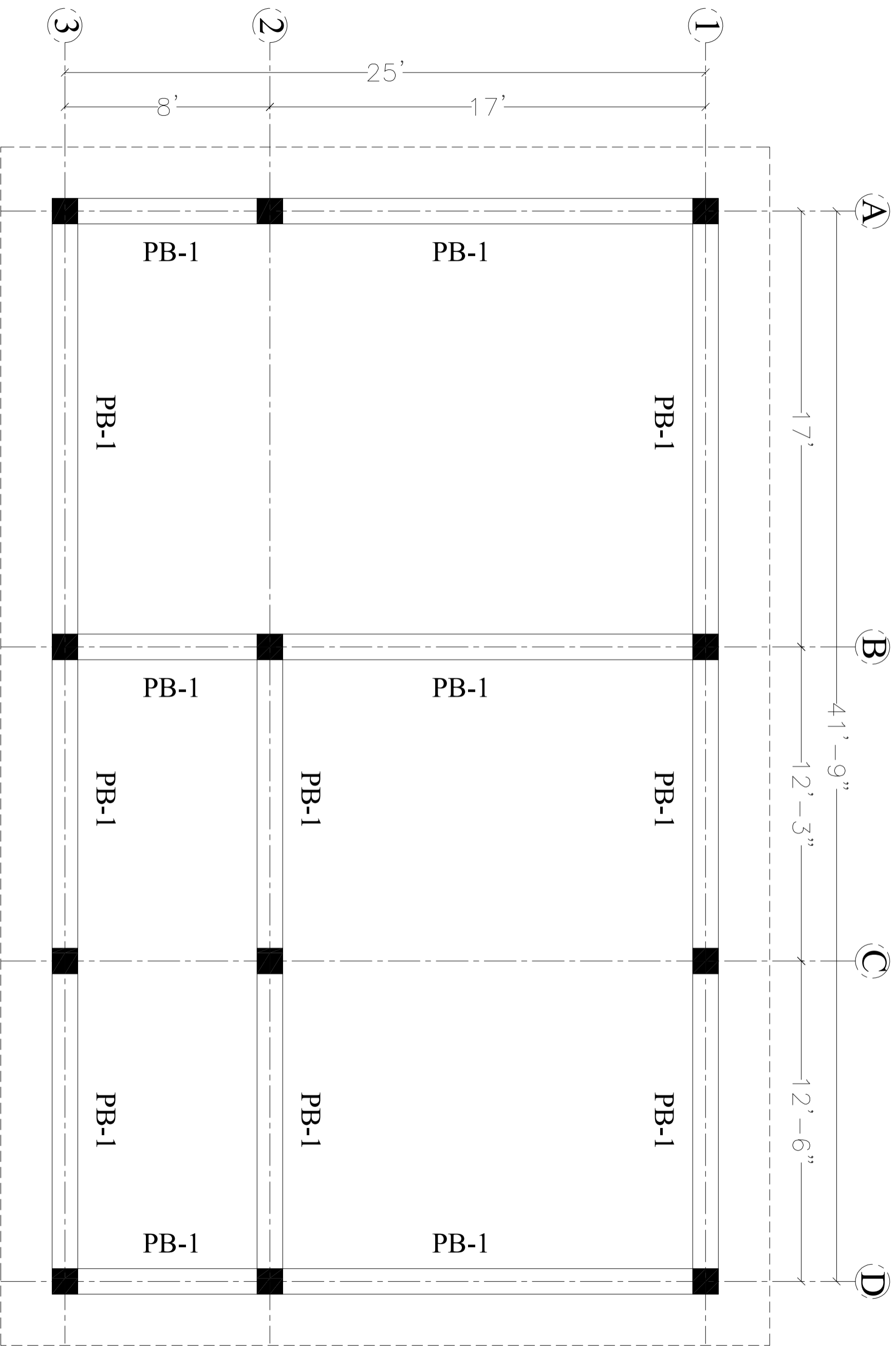
COLUMN LAYOUT PLAN

DATE  
SEP 2023

SCALE

DRG.NO.

S-05



**PLINTH BEAM LAYOUT PLAN**

CLIENT:



CONSULTANTS:



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	Approved By	

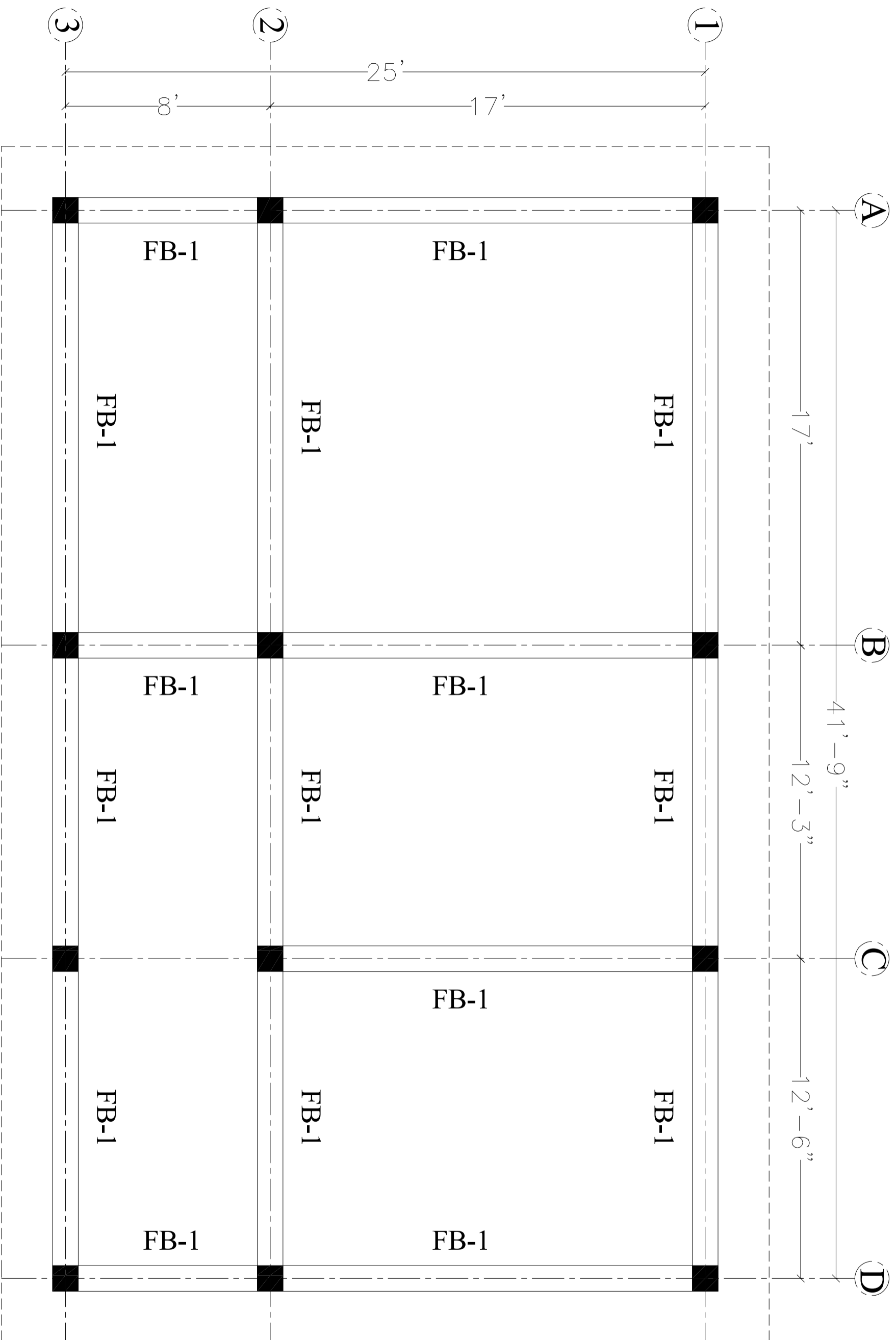
PROJECT:

PREPARATION OF DESIGN DRAWINGS & HOODS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

PLINTH BEAM LAYOUT PLAN

DATE	SCALE	DRG. NO.
SEP 2023		S-06



# GROUND FLOOR SLAB BEAM KEY PLAN

CLIENT:



CONSULTANTS:



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PROJECT:

PREPARATION OF DESIGN, DRA WINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

GROUND FLOOR BEAM KEY PLAN

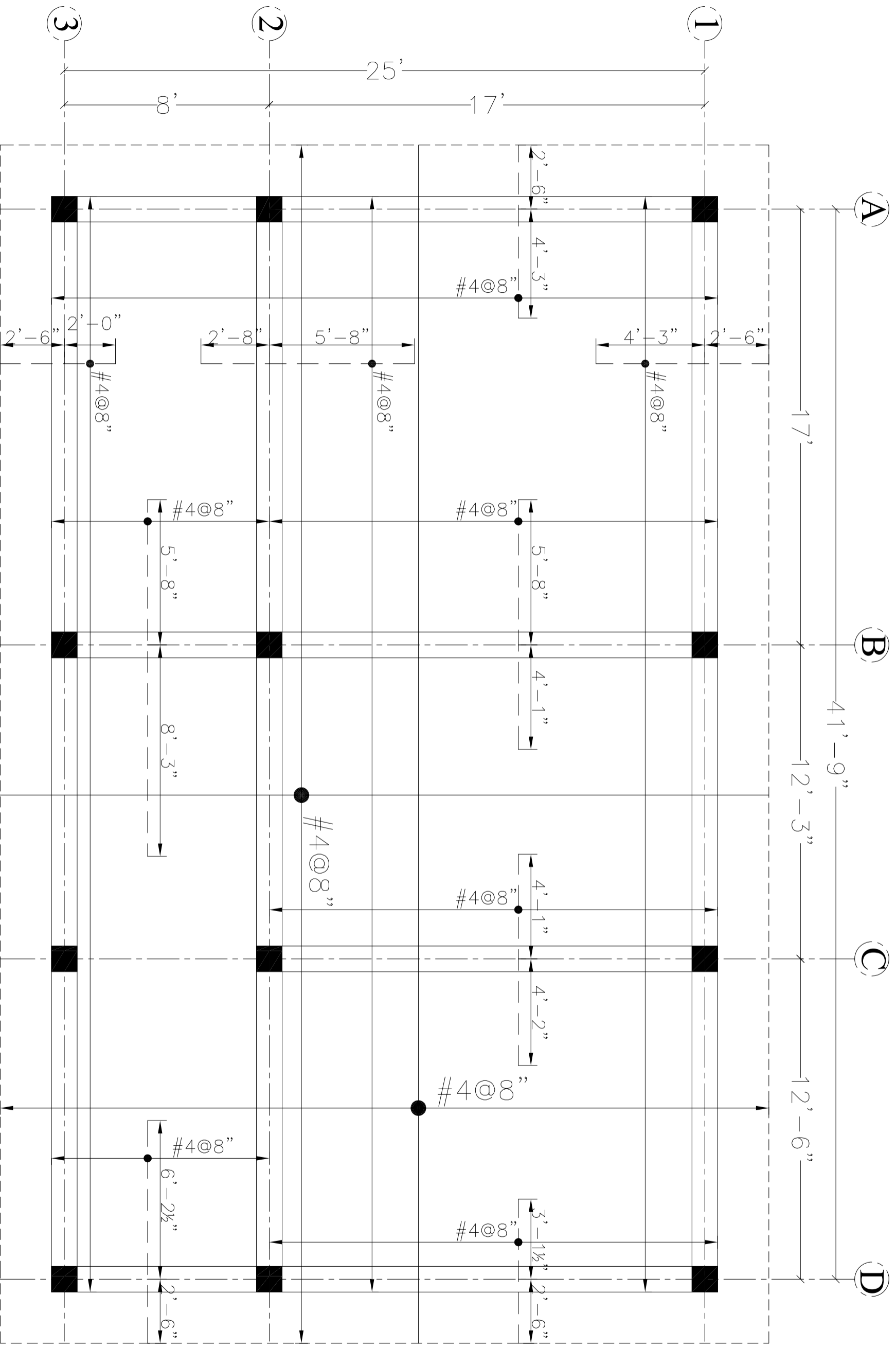
DATE

SEP 2023

SCALE

DRG. NO.

S-07



# GROUND FLOOR SLAB REINFORCEMENT PLAN

CLIENT:



CONSULTANTS:



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Date of Revision	Prepared By	ENGINEER
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PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

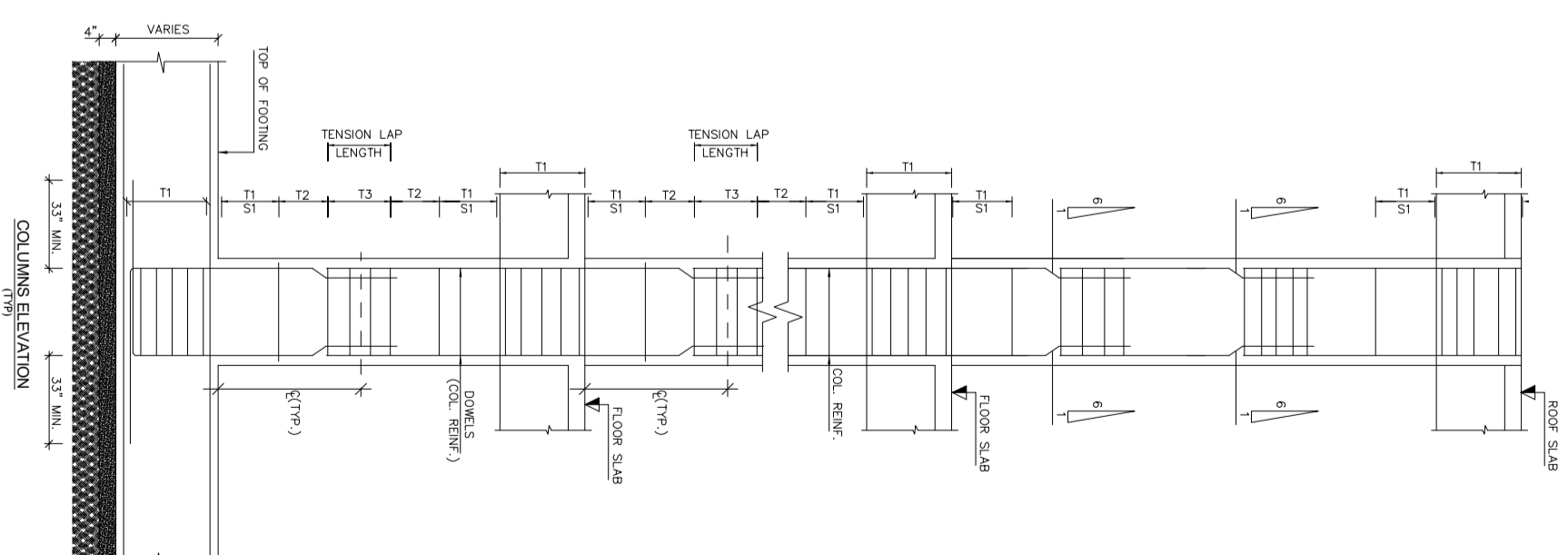
TITLE:

GROUND FLOOR SLAB REINFORCEMENT PLAN

DATE	SCALE	DRG.NO.
SEP 2023		S-08

## SCHEDULE OF COLUMNS

COLUMN TYPE	COL C-1	COL C-2												
GROUND FLOOR														
TIES	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">1</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> <tr> <td style="width: 50%; text-align: center;">2</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> <tr> <td style="width: 50%; text-align: center;">3</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> </table>	1	# 3 @ 6" C/C	2	# 3 @ 6" C/C	3	# 3 @ 6" C/C	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">1</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> <tr> <td style="width: 50%; text-align: center;">2</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> <tr> <td style="width: 50%; text-align: center;">3</td> <td style="width: 50%; text-align: center;"># 3 @ 6" C/C</td> </tr> </table>	1	# 3 @ 6" C/C	2	# 3 @ 6" C/C	3	# 3 @ 6" C/C
1	# 3 @ 6" C/C													
2	# 3 @ 6" C/C													
3	# 3 @ 6" C/C													
1	# 3 @ 6" C/C													
2	# 3 @ 6" C/C													
3	# 3 @ 6" C/C													



CLIENT:



CONSULTANTS:



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GGPS RAIKA MAIRA RAWALPINDI

Date of Revision

Prepared By

SYED BASHIR MUHAMMAD  
ENGINEER

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

COLUMNS SECTIONAL DETAIL

Designed By

HUMZA AHMAD

Checked By

Approved By

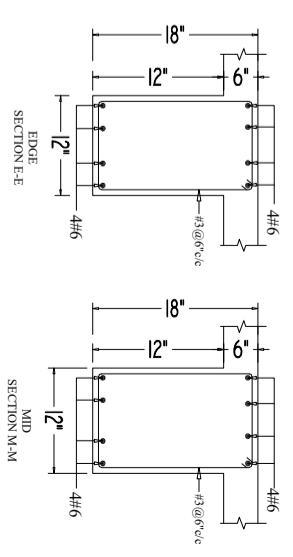
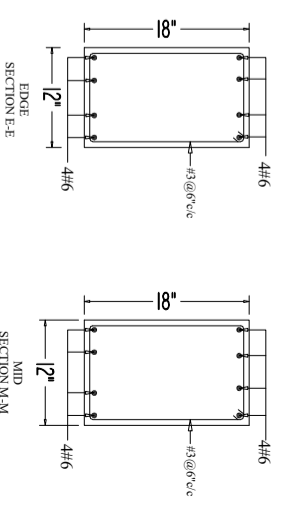
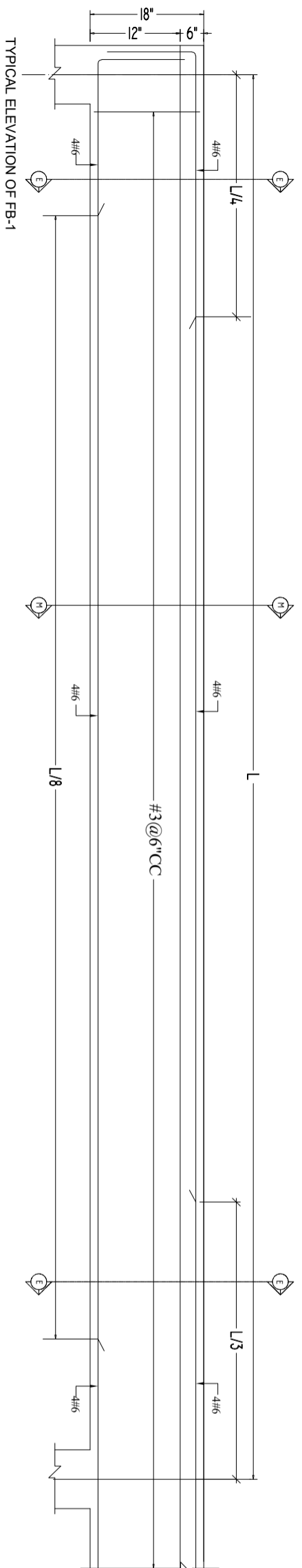
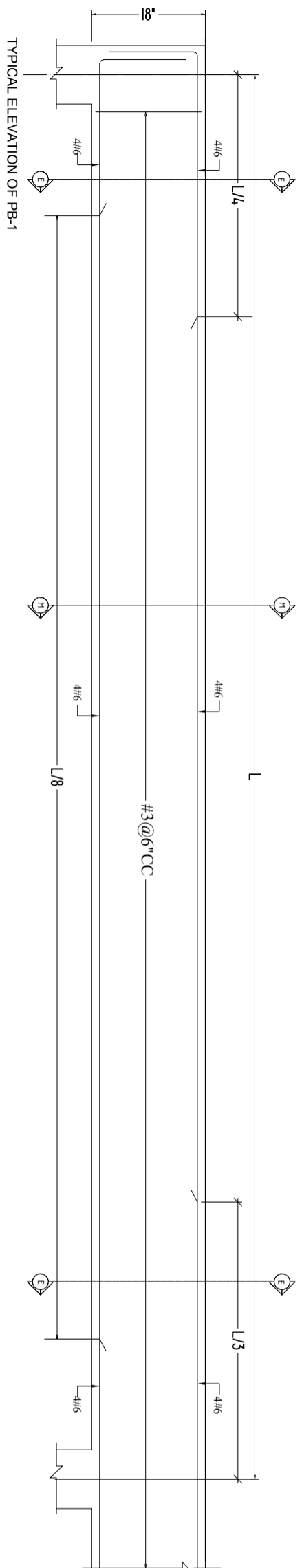
DATE

SEP 2023

SCALE

DRG.NO.

S-09




CLIENT:



The UN Refugee Agency

CONSULTANTS:



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	Designed By	HUMZA AHMAD
	Checked By	
	Approved By	

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

BEAMS SECTIONAL DETAIL

DATE: SEP 2023

SCALE:

DRG.NO: S-10

**ELECTRIFICATION DRAWINGS**  
**OF**  
**GGPS RAIKA MAIRA RAWALPINDI**

<b>ELECTRICAL DRAWINGS</b>		
1	GENERAL NOTES	E-01
2	APPROVED MANUFACTURE LIST	E-02
3	LEGEND	E-03
4	GROUND FLOOR PLAN	E-04
5	GROUND FLOOR DIMENSION PLAN	E-05
6	SECTION	E-06
7	EARTHING DETAIL PLAN	E-07
8	MAIN DISTRIBUTION BOARD	E-08
9	LOAD CALCULATION	E-09

CLIENT:



CONSULTANTS:

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SCHOOL NAME

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Date of Revision

Prepared By

FARID KHAN  
 KHAN HAIDER  
 ELECTRICAL ENGINEER

Designed By

Engr. HAMMAD AHMAD

Checked By

Approved By

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

LIST OF DRAWINGS

DATE

SEP 2023

SCALE

DRG.NO.

E-00



## ELECTRICAL SYSTEMS

FOLLOWING NOTES SHALL IN GENERAL APPLY TO ALL ELECTRICAL DRAWINGS. THE INSTRUCTIONS IN THESE NOTES SHALL BE FOLLOWED UNLESS STATED OTHERWISE.

1. THESE NOTES SHALL BE APPLICABLE TO THE ENTIRE ELECTRICAL WORKS THE SITE CONDITIONS NECESSITATE ALTERATION OR DEVIATION OF THE DIRECTIONS OF THE ENGINEER SHALL BE OBSERVED AS FINAL INSTRUCTIONS.
2. DIMENSIONS / MLASURLMENTS IS GIVEN IN LAYOUT AND DETAILED DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATE THE ACTUAL DIMENSIONS ACCORDING TO STRUCTURAL AND ARCHITECTURAL DRAWINGS.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH ALL RELEVANT DETAILS TO THE ENGINEER FOR APPROVAL ACCORDING TO THE GENERAL CONDITION OF CONTRACT WELL IN TIME BEFORE COMMENCEMENT OF THAT WORK.
4. PROPER CO-ORDINATION OF ELECTRICAL WORKS WITH OTHER SERVICES SHALL BE CARRIED OUT AT SITE.
5. ALL NON CURRENT CARRYING PARTS i.e OUTER CASINGS OF EQUIPMENT SUCH AS H.T & LT PANELS, DISTRIBUTION BOARDS, CABLE TRAYS, AUXILIARY CONSTRUCTION FOR EQUIPMENT ETC. SHALL BE CONNECTED TO THE GROUND-EARTHING SYSTEM AT REQUIRED NUMBER OF POINTS WITH SPECIFIED SIZES OF CONDUCTORS. WATER PIPES ALONG ELECTRICAL LINE SHALL BE BONDED TO THE EARTHING SYSTEM WITH TO 10MM<sup>2</sup>sq SINGLE CORE COPPER CONDUCTOR PVC CABLE.
6. ELECTRICAL POINTS FOR EQUIPMENT SHALL BE INSTALLED IN CO-ORDINATION WITH THE RELEVANT DRAWINGS OF OTHER SERVICES, SUCH AS COMMUNICATION SYSTEMS, HVAC, PLUMBING ETC. THE LOCATION ON ELECTRICAL DRAWINGS IS ONLY INDICATIVE.
7. ARRANGEMENT OF ELECTRICAL EQUIPMENTS ON ELECTRICAL DRAWINGS ARE TENTATIVE EXACT ARRANGMENT OF EQUIPMENT SHALL BE VADE IN VIEW OF ITS PHYSICAL DIMENTIONS AND EASY OF MAINTENANCE.
8. LOAD ON ALL PHASES SHALL BE MAXIMUM BALANCED AT THE TIME OF COMMISSIONING STAGE. IT IS RESPONSIBILITY OF CONTRACTOR.
9. CONDUIT RUN UNDER FLOOR SHALL HAVE A MINIMUM COVER OF TWO INCHES FROM TOP TO CONDUIT TO FINISH FLOOR LEVEL.
10. ALL WIRING SHOULD BE CARRYOUT ACCORDING TO THE PHASES RED, YELLOW, BLUE CABLE COLOUR ARE AS PER PHASE DISTRIBUTION IN BUILDING.

11. RUN GREEN OR WHITE SINGLE CORE PVC INSULATED COPPER CONDUCTOR CABLE OF SPECIFIED SIZE AS PROTECTIVE EARTH CONDUCTOR (LCC) ALL ALONG LIGHT AND POWER WIRING WHEREVER THE SIZE IS NOT SPECIFIED THE FOLLOWING OR LERIA SHELL BE OBSERVED TO DETERMINE MINIMUM CROSS SECTIONAL AREA OF EARTH CONTINUITY CONDUCTOR (ECC) IN RELATION TO THE AREA OFFICE PHASE CONDUCTORS RUN SEPARATE ECC FOR EACH CIRCUIT.

- ECC 2 PHASE CONDUCTOR OF SAME SIZE FOR UPTO AND INCLUDING 16 MMSQ CABLES
- FOR CABLES OF 50 MM SQ AND ABOVE SIZES IS HALF SIZE OF PHASE CONDUCTOR
- MINIMUM SIZE ECC IS 70MM SQ.

12. ALL WIRING FOR CONTROLS SHELL BE CARRIED OUT WITH 1 CORE FLEXIBLE PVC CABLES OF SPECIFIED VOLTAGE GRADE AND SIZES.

13. THE MAXIMUM CAPACITY OF PVC CONDUITS FOR SIMAL TONCOUS DRAWING OF PVC INSULATED CABLES SHALL BE DETERMINED AS PIN BS 4607. THE FOLLOWING TABLE SHALL BE USED TO DETERMINE THE MAXIMUM NUMBER OF CABLES

NUMBER OF CABLE IN (CONDUIT)	SIZE OF CABLE		
NEW STANDER SIZE MM <sup>2</sup> sq	25 MM (1")	20 MM (¾")	15 MM (½")
1.5 MM sq	13	8	5
2.5 MM sq	10	6	4
4 MM sq	7	4	3
6 MM sq	5	3	2
10 MM sq	3	2	1

14. NORMAL & EMERGENCY CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS.

15. THE WIRING SHELL BE CONTINUOUS LOOPING-IN TYPE AND NO JOINT IN WIRES SHELL BE ALLOWED.

16. THE WIRING SYSTEM SHELL BE CARRIED OUT ONLY AFTER THE CONDUIT SYSTEM IS COMPLETELY INSTALLED AND ALL OUTLET BOXES, ETC ARE FIXED IN POSITION.

17. MOUNTING HEIGHTS OF ELECTRICAL FITTINGS WHEN MEASURED FROM FINISHED FLOOR LEVEL (ECC) TO THE BOTTOM OF FITTINGS SHELL BE AS UNDER UNLESS OTHER WISE SHOWN OR INSTRUCTED

- > SWITCH BOARD 48 INCHES
- > EXHAUST FAN REF TO ARCH DRAWING 56 INCHES
- > DISTRIBUTION BOARD 48 INCHES
- > CONTROL PANEL 48 INCHES
- > ON/OFF PUSH BUTTON STATION 48 INCHES
- > DIMMER CONTROL UNIT 48 INCHES
- > LIGHT CONTROL SWITCH (ONE WAY/TWO WAY) 12 INCHES
- > 5 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 15 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 20 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 16 AMP SOCKET OUTLETS IN KITCHEN (ABOVE COUNTER) 10 INCHES
- > 16 AMP TP SPIN INDUSTRIAL SOCKET OUTLETS IN LABS 12 INCHES
- > CEILING FAN ON SLAB 12 INCHES
- > WALL BRACKET FAN 90 INCHES

CLIENT:



### CONSULTANTS: PLANNERS CONSULTANTS ENGINEERS (PCE)

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### SCHOOL NAME

GGPS RAIKAMAIRA RAWALPINDI

Date of Revision	Prepared By	Checked By	Approved By
	Engr. HAMMAD AHMAD		



PROJECT: PREPARATION OF DESIGN, DRAWINGS & BOOK FOR CONSTRUCTION/ REHABILITATION OF SITES







TITLE: GENERAL NOTES

DATE: SEP 2023 SCALE: DRG. NO. E-01

APPROVED MANUFACTURE LIST

S NO.	ITEM OR ACCESSORIES	BRAND
01	WIRING CABLE	PAKISTAN,NEW AGE,FAST, GM, COPPERGAT CABLE
02	POWER CABLE	PAKISTAN,NEW AGE,FAST, GM, COPPERGAT CABLE
03	LIGHT FIXTURES	PHILIPS,PIERLITE,CLIPSAL, OSAKA, FAST LIGHT
04	CEILING FAN	PAK, GFC, ROYAL, LAHORE FAN
05	PVC CONDUIT	POLO,BETA,POPULAR, GM, ADAMJEE
06	SWITCHES	PPL
07	LT SWITCHGEAR	SCHNEIDER, ABB, PEL,ELECTRECH
08	MOULDED CASE CIRCUIT BREAKER	SCHNEIDER, CHINT, LS, ABB
9	MINIATURE CIRCUIT BREAKER	SCHNEIDER, CHINT, LS, ABB

<b>CLIENT:</b> 			
<b>CONSULTANTS:</b> <b>PLANNERS CONSULTANTS ENGINEERS (PCE)</b> 97-K Industrial Estate, Hayatabad Peshawar Pakistan Ph: 0092-91-5816017, 5891661-4, Fax: 5891845 E-Mail:pce.pesh@yahoo.com		<b>SCHOOL NAME</b> GGPS RAIKAMAIRA RAWALPINDI	
Date of Revision Prepared By Designed By Checked By Approved By		FARID KHAN KHAN HADDER ELECTRICAL ENGINEER: Engr. HAMMAD AHMAD	
<b>PROJECT:</b> PREPARATION OF DESIGN DRAWINGS & BOOK FOR CONSTRUCTION/REHABILITATION OF SITES		<b>TITLE:</b> APPROVED MANUFACTURE LIST	
DATE	SCALE	DRG.NO.	E-02
SEP 2023			

SYMBOL	DESCRIPTION	INSTALLATION HEIGHT
	SURFACE MOUNTED DOWN LIGHT WITH 17 WATT ENERGY SAVER	CEILING MOUNTED
	TMS 136	SLAB MOUNTED
	56" SWEEP CEILING FAN	SLAB MOUNTED
	SWITCH BOARD	56" FROM FFL
	DISTRIBUTION UNIT	60" FROM FFL
	EXHAUST FAN POINT	

CLIENT:



UNHCR  
The UN Refugee Agency

CONSULTANTS:



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SCHOOL NAME

GGPS RAIKAMAIRA RAWALPINDI

Date of Revision	Prepared By	Engr. KHAN KHAN KHAN ELECTRICAL ENGINEER
	Designed By	Engr. HAMMAD AHMAD
	Checked By	
	Approved By	

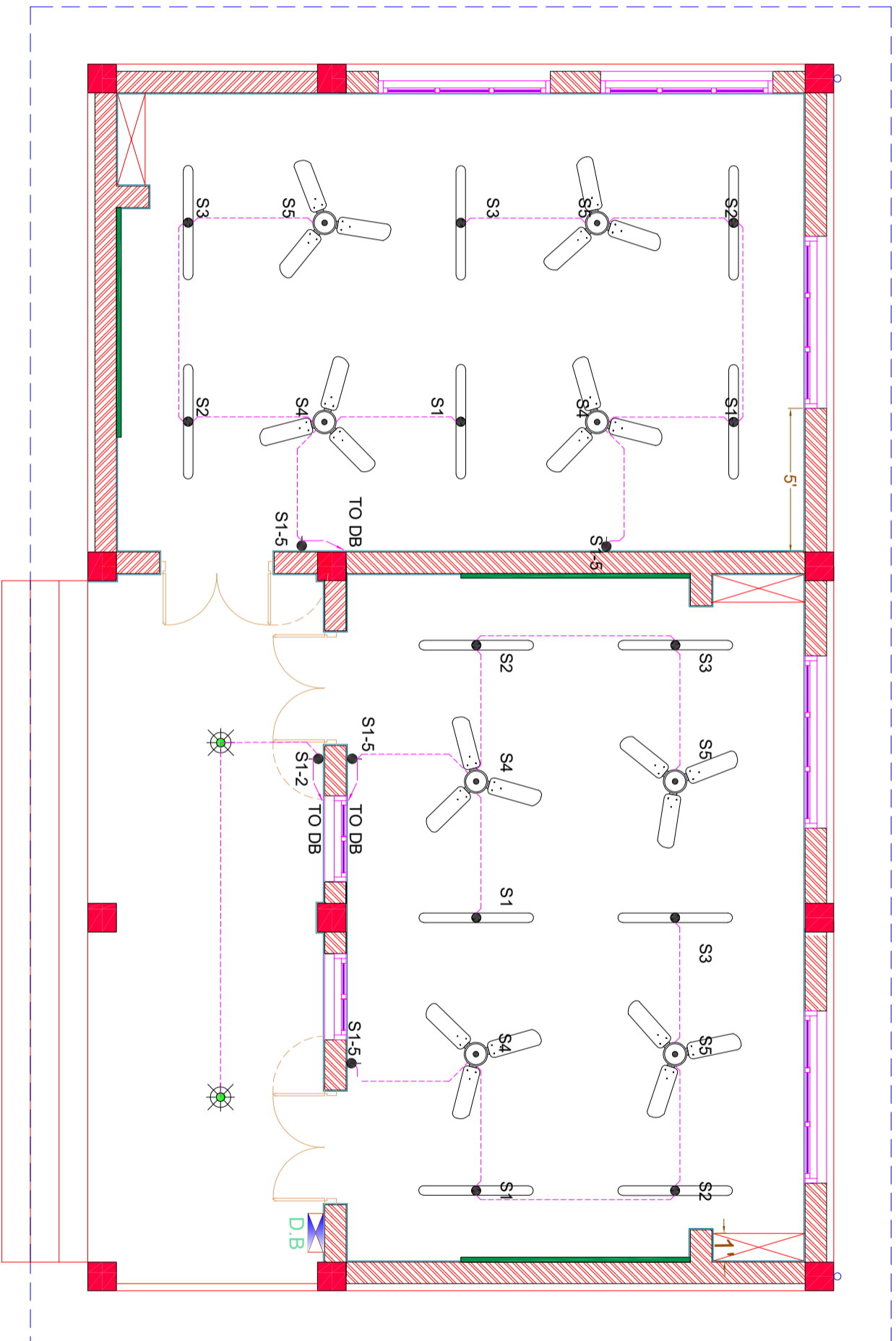
PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS  
FOR CONSTRUCTION/REHABILITATION OF SITS

TITLE:

LEGEND

DATE	SCALE	DRG.NO.
SEP 2023		E-03



# GROUND FLOOR PLAN

CLIENT:



CONSULTANTS:



**PLANNERS CONSULTANTS ENGINEERS (PCE)**

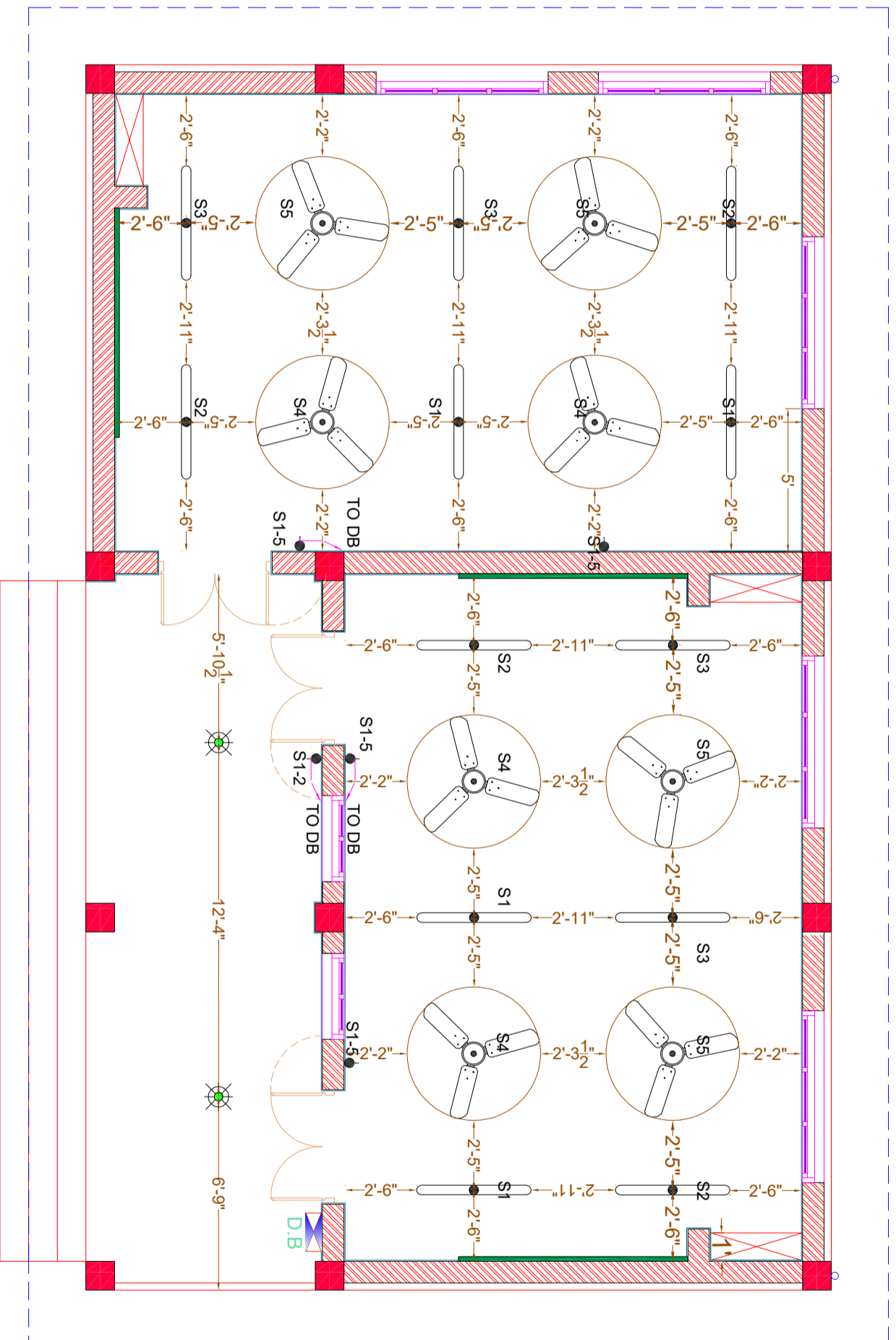
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SCHOOL NAME

GGPS RAIKA MAIRA RAWALPINDI

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	FARID KHAN KHAAN HANIDER ELECTRICAL ENGINEER	Eng. HAMMAD AHMAD	
	Designed By	Checked By	Approved By

PROJECT:	DATE	SCALE	DRG.NO.
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES	SEP 2023		E-04
TITLE:			
GROUND FLOOR PLAN			



# GROUND FLOOR DIMENSION PLAN

CLIENT:



CONSULTANTS:  
**PLANNERS CONSULTANTS ENGINEERS (PCE)**

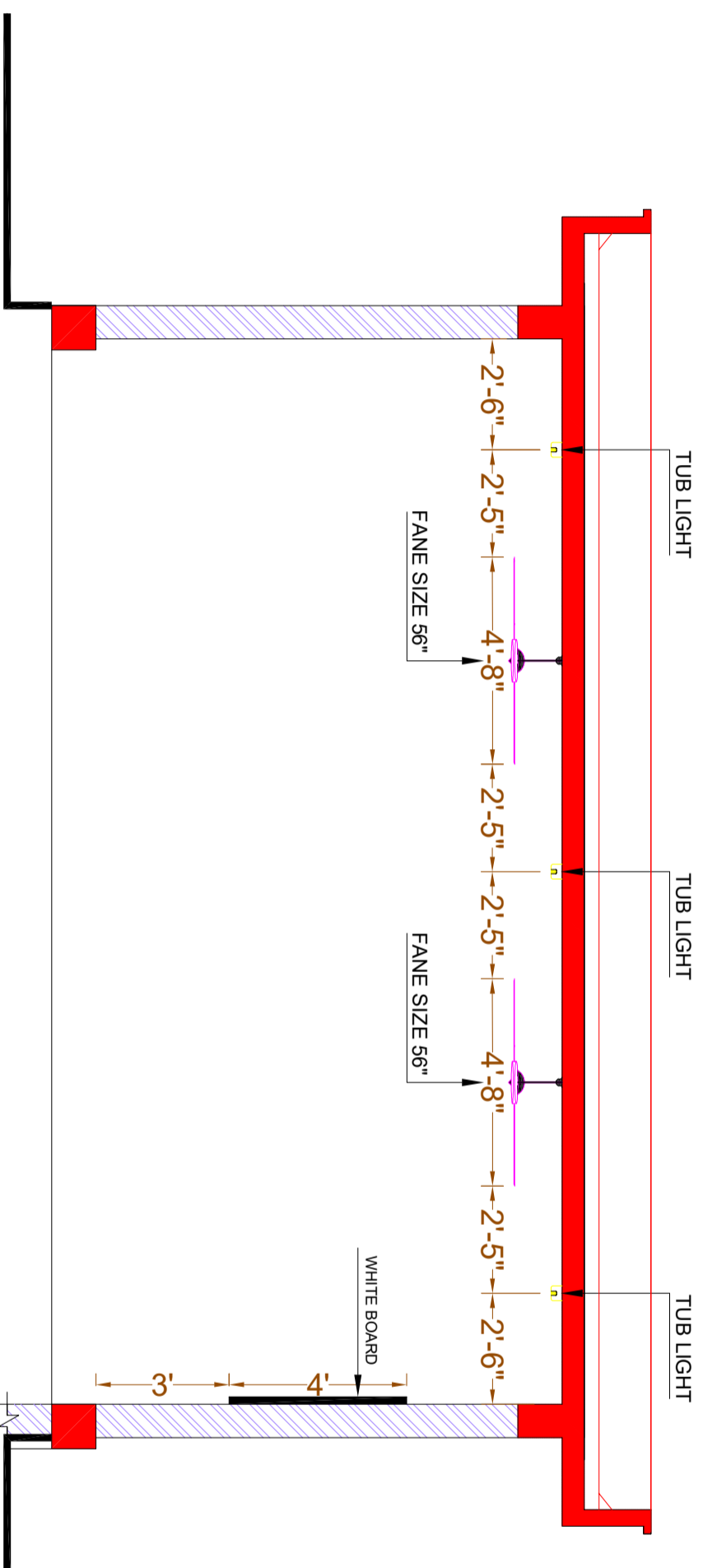
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SCHOOL NAME

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	Checked By	
	Approved By	

PROJECT:	DATE	SCALE	DRG.NO.
PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES	SEP 2023		E-05
TITLE:			
GROUND FLOOR DIMENSION PLAN			



# SECTION

CLIENT:



CONSULTANTS:  
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SCHOOL NAME  
 GGPS NO.1 FATEH JANG  
 DISTRICT ATTOCK

Date of Revision	Prepared By	FARID KHAN KHANI IANJIR ELECTRICAL ENGINEER
	Designed By	Engr. HAMMAD AHMAD
	Checked By	
	Approved By	

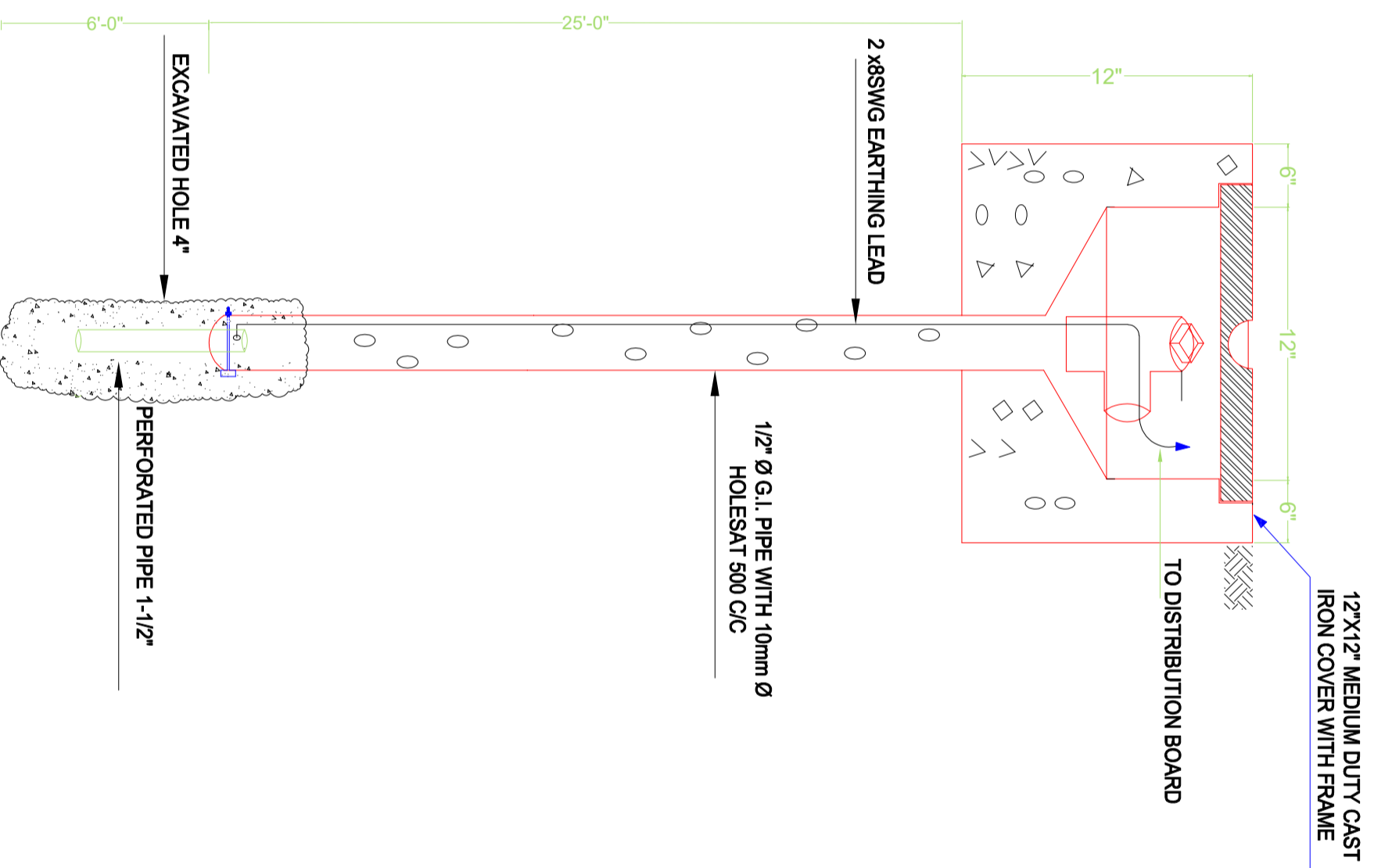
PROJECT:  
 PREPARATION OF DESIGN, DRAWINGS & BOQS  
 FOR CONSTRUCTION/ REHABILITATION OF SITES

TITLE:  
 SECTION

DATE: SEP 2023

SCALE

DRG. NO. E-06



CLIENT:



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CONSULTANTS:

SCHOOL NAME

GGPS NO.1 FATEH JANG DISTRICT ATTOCK

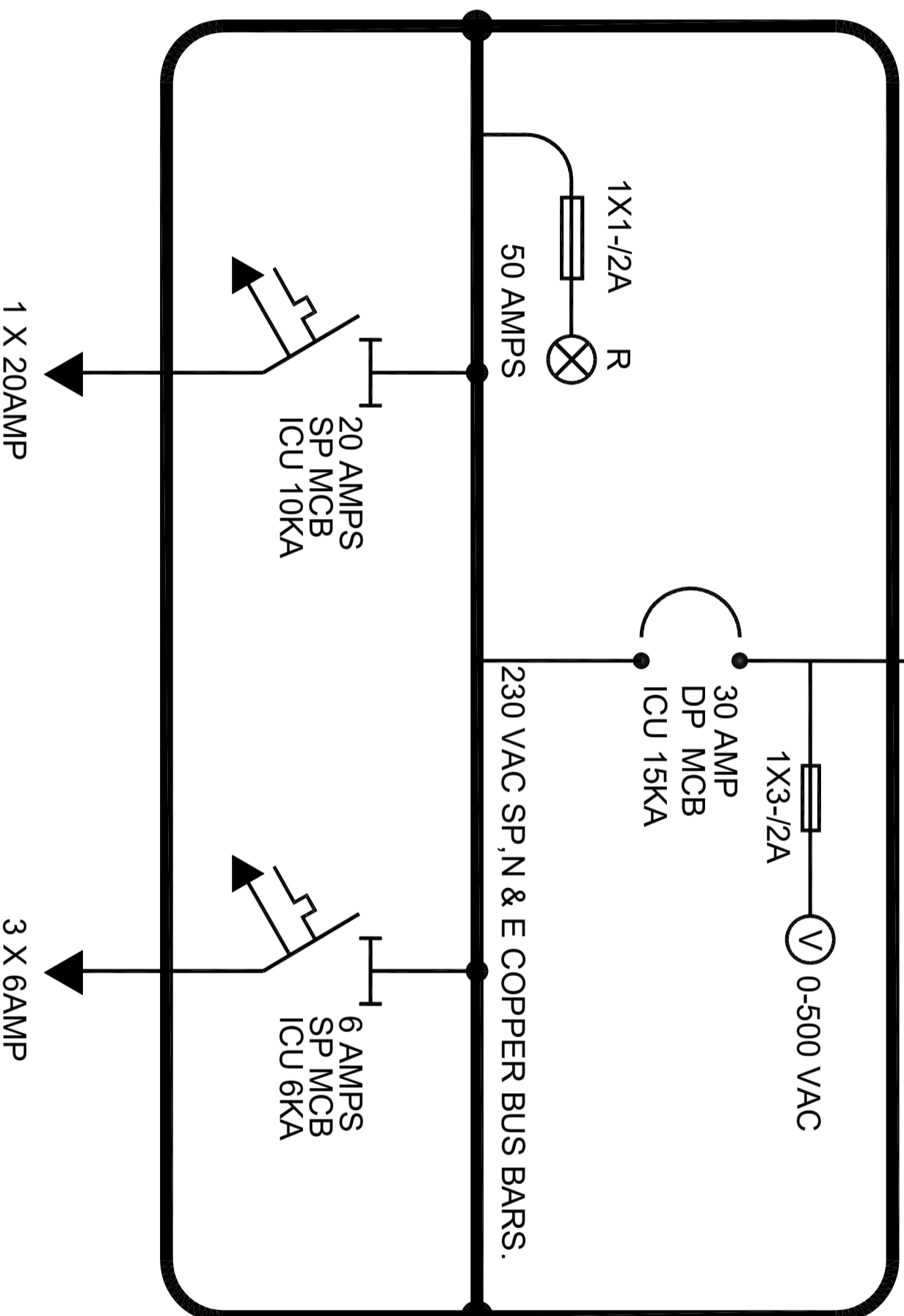
Date of Revision	Prepared By	FARID KHAN KHAN HAIDER
	Designed By	Engr. HAMMAD AHMAD
	Checked By	
	Approved By	

PROJECT:		
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES		
TITLE:		
EARTHING DETAIL PLAN		
DATE	SCALE	DRG.NO.
SEP 2023		E-07

# DISTRIBUTION BOARD

INCOMING FROM MAIN  
DISTRIBUTION BOARD  
2 X 7/0.044" SINGL CORE  
1X7/0.044" SINGL CORE AS EARTH

16 SWG SHEET STEEL POWDER  
PAINTED RECESSED IN WALL.



CLIENT:



CONSULTANTS:  
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SCHOOL NAME  
GGPS NO.1 FATEH JANG  
DISTRICT ATTOCK

Date of Revision	Prepared By	Electrical Engineer:
	Designed By	Engr. HAMMAD AHMAD
	Checked By	
	Approved By	

PROJECT:		
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES		
TITLE:	MAIN DISTRIBUTION BOARD	
DATE	SCALE	DRG.NO.
SEP 2023		E-08



# LOAD CALCULATION

LOAD (W)	786
PEAK DEMAND LOAD (W)	786
25% FUTURE LOAD PROVISION (W)	960
TOTAL LOAD (W)	1067
CABLE SIZE (MM sq)	1.5

CLIENT:



CONSULTANTS:



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SCHOOL NAME

GGPS NO.1 FATEH JANG  
DISTRICT ATTOCK

Date of Revision	Prepared By	FARID KHAN KHAN HANIDER ELECTRICAL ENGINEER:
	Designed By	Engr. HAMMAD AHMAD
	Checked By	
	Approved By	

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS  
FOR CONSTRUCTION/ REHABILITATION OF SITES

TITLE:

LOAD CALCULATION

DATE

SEP 2023

SCALE

DRG. NO.

E-09

PROPOSED DESIGN  
OF  
REHAB WORKS  
AT  
GGPS RAIKA MAIRA  
RAWWALPINDI



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## LIST OF DRAWINGS

ARCHITECTURAL DRAWINGS		PLUMBING DRAWINGS			
SR.NO	DESCRIPTION	DRG. NO.	SR.NO	DESCRIPTION	DRG. NO.
1	GROUND FLOOR PLAN	A-01	15	GENERAL NOTES	P-01
2	FRONT ELEVATION	A-02	16	GROUND FLOOR PLUMBING PLAN	P-02
3	SECTION AT B-B	A-03	17	SEPTIC TANK PLAN	P-03
4	SCHEDULE OF OPENING	A-04	WATER SUPPLY DRAWINGS		
5	VENTILATOR, PROJECTION , DRIP COURSE & RAILING DETAILS	A-05	18	LEGEND	WS-01
6	P.C.C FLOORING	A-06	19	GROUND FLOOR WATER SUPPLY PLAN	WS-02
STRUCTURAL DRAWINGS					
7	GENERAL NOTES	S-01	ELECTRICAL DRAWINGS		
8	GENERAL NOTES	S-02	20	GENERAL NOTES	E-01
9	FOUNDATION PLAN	S-03	21	APPROVED MANUFACTURE LIST	E-02
10	FOUNDATION SECTION DETAIL	S-04	22	LEGEND	E-03
11	GROUND FLOOR LINTEL BEAM PLAN	S-05	23	GROUND FLOOR PLAN	E-04
12	GROUND FLOOR SLAB BOTTOM REINFORCEMENT PLAN	S-06	24	GROUND FLOOR DIMENSION PLAN	E-05
13	GROUND FLOOR SLAB TOP REINFORCEMENT PLAN	S-07			
14	LINTEL BEAM DETAIL	S-08			

CLIENT:



**UNHCR**  
The UN Refugee Agency

CONSULTANTS:



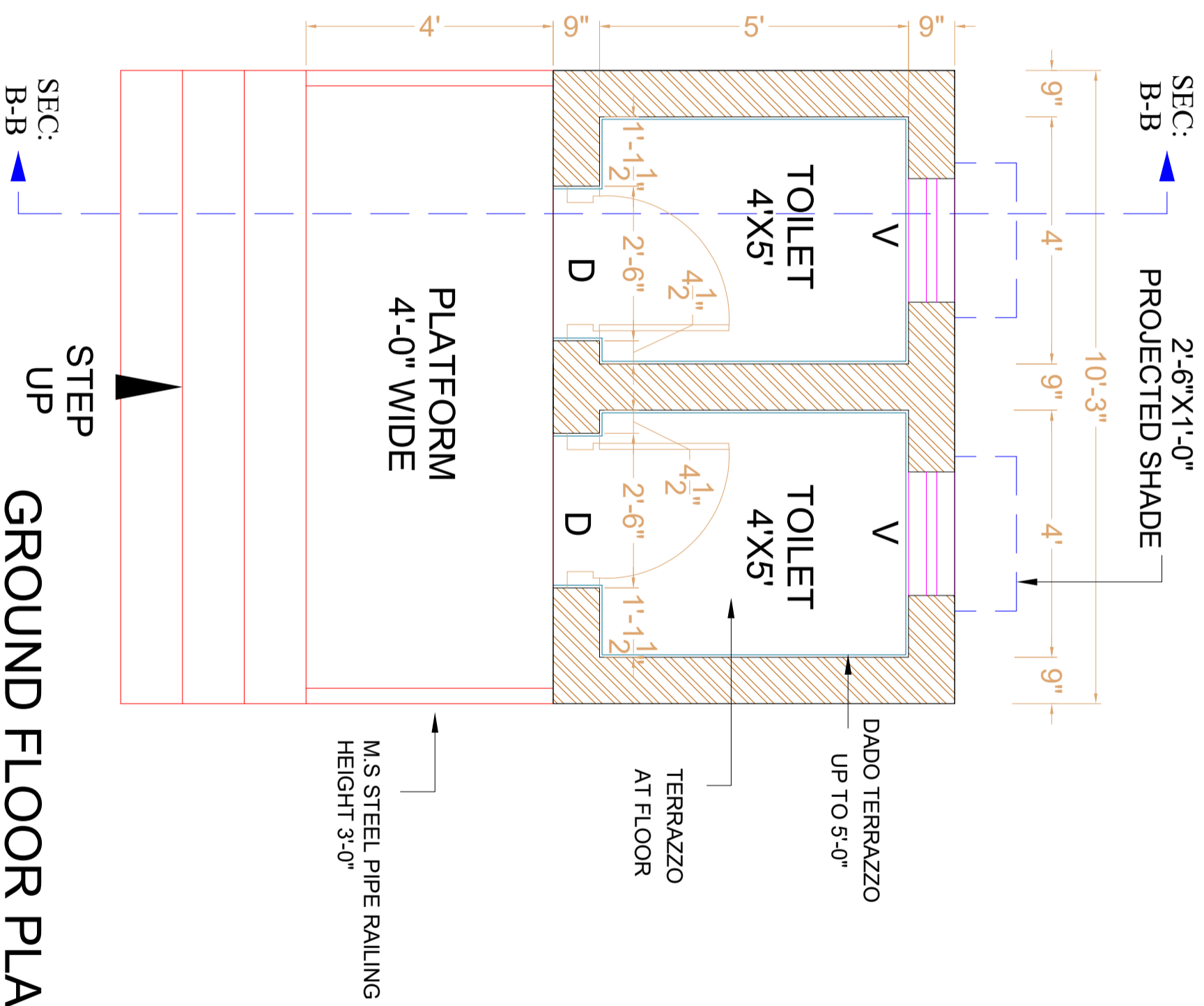
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SCHOOL NAME

REHAB WORKS OF  
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RAWALPINDI

Date of Revision	Prepared By	ARCHITECT
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	Checked By	
	Approved By	

PROJECT:			
PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES			
TITLE: LIST OF DRAWINGS			
DATE	SCALE	DRG.NO.	
SEP 2023		A-00	



# GROUND FLOOR PLAN

CLIENT:



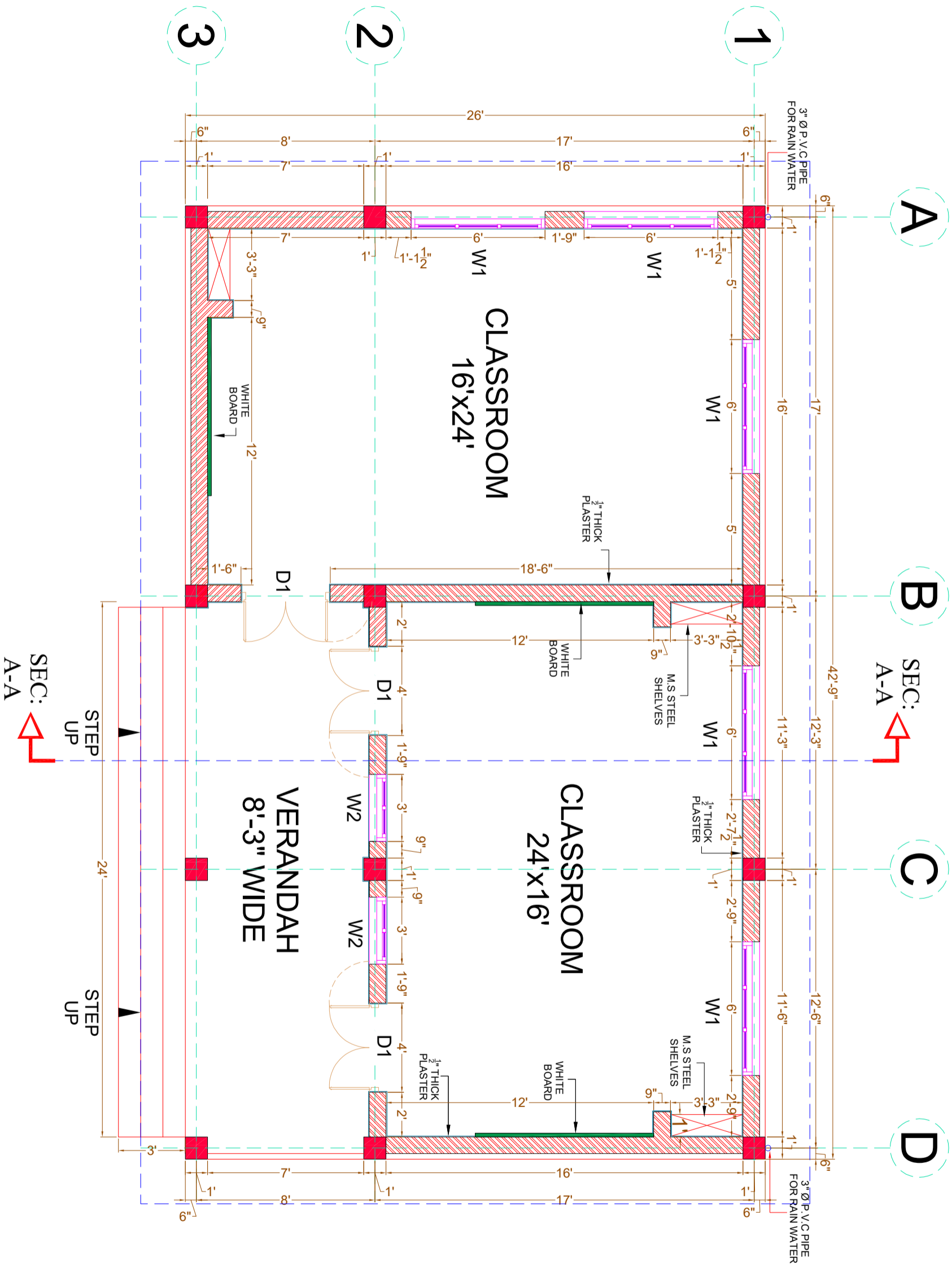
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Date of Revision	Prepared By	ARCHITECT	PROJECT:
	Designed By	MARWAT KHAN ORAKZAI (B.Arch, D.C.E.T Karachi) (M.Arch UET Lahore)	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES
	Checked By		GROUND FLOOR PLAN
	Approved By		DATE: SEP 2023
			SCALE
			DRG. NO. A-01



# GROUND FLOOR PLAN

CLIENT:



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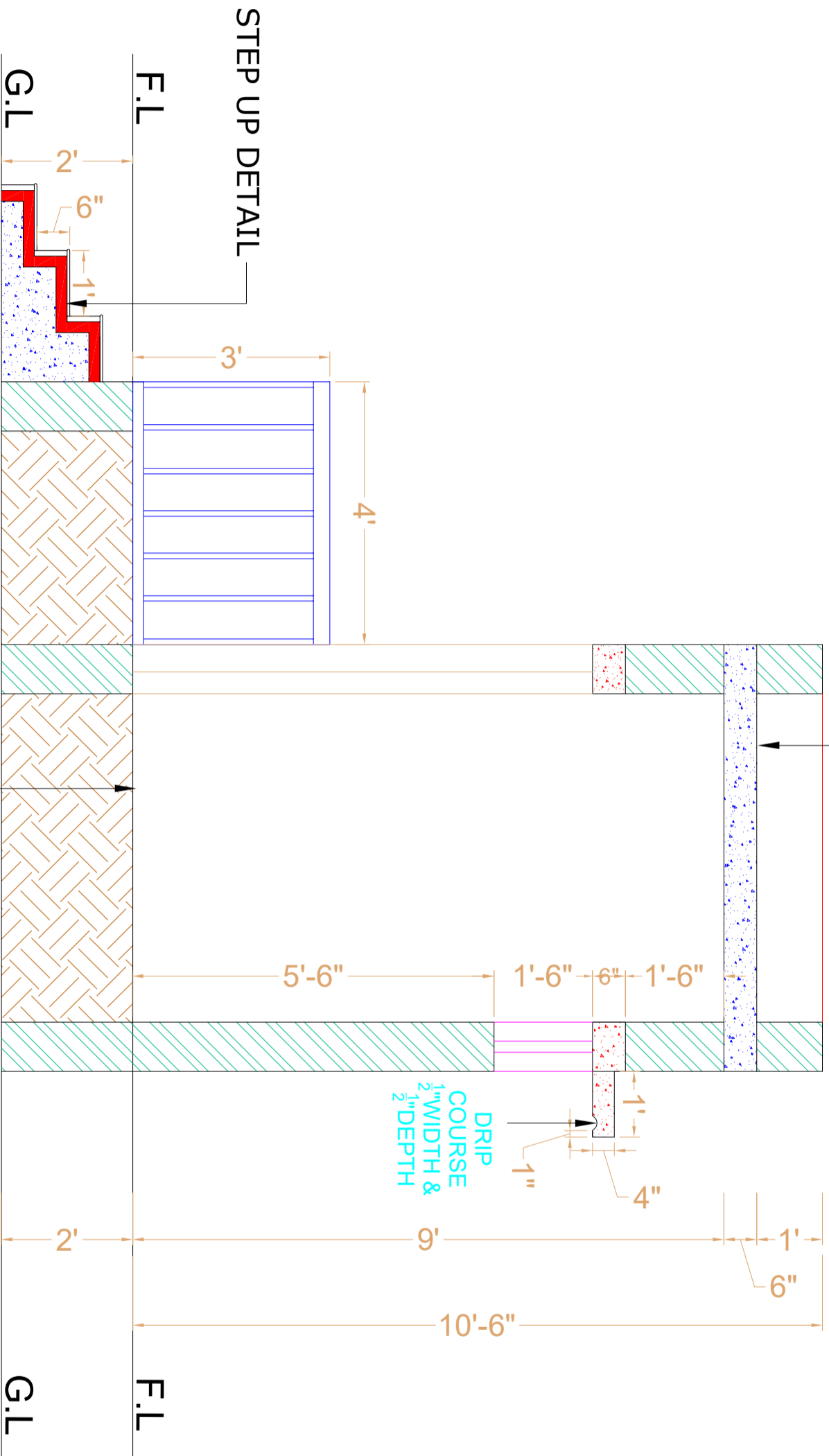
SCHOOL NAME

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Date of Revision	Prepared By	ARCHITECT
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	Approved By	

PROJECT:	DATE	SCALE	DRG.NO.
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES	SEP 2023		A-02
TITLE:			
GROUND FLOOR PLAN			

- 1.25" TH. BRICK TILES
- SET & GROUTED IN C/S (1:2)
- 4" TH. AVG. MUD FILLING.
- POLYTHENE SHEET
- HOT BITUMEN 10/20
- RCC (1:2:4) SLAB



# SECTION AT B.B

MARBLE TOPPING  
3" PCC 1:3:6  
4" SAND FILLING  
COMPACTED EARTH

CLIENT:



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Date of Revision

Prepared By

DESIGNED BY  
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KHAIV HANIDER  
ARCHITECT

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOOKS  
FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

SECTION AT B.B

DATE

SEP 2023

SCALE

DRG. NO.

A-03

# SCHEDULE OF OPENING

TYPE	SIZE	S-LEVEL	DESCRIPTION
D	2'-6" X 7'-0"	0"-0"	STEEL
V	2'-0" X 1'-6"	5'-6"	STEEL

CLIENT:



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SCHOOL NAME

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Date of Revision

Prepared By

FARID KHAN  
KHANHADR

Designed By

MARWAT KHAN ORAKZAI  
(B.Ashad C.E.T Karachi)  
(M.Arch(ITEC. Lahore)

Checked By

Approved By

PROJECT:

REPARATION OF DESIGN, DRAWINGS & BOQS  
FOR CONSTRUCTION/ REHABILITATION OF SITES

TITLE:

SCHEDULE OF OPENING

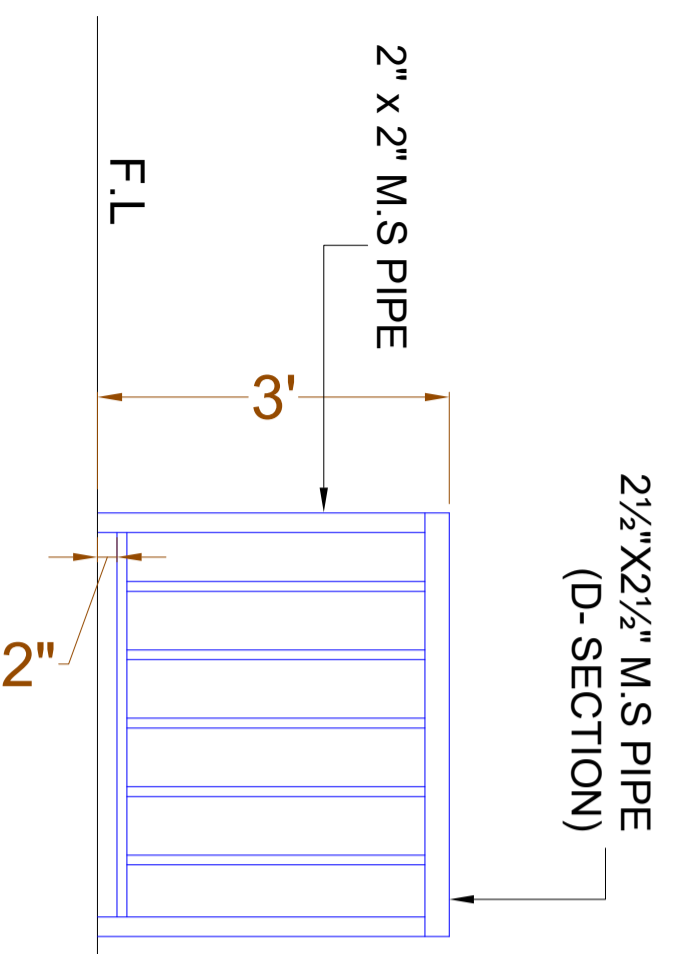
DATE

SEP 2023

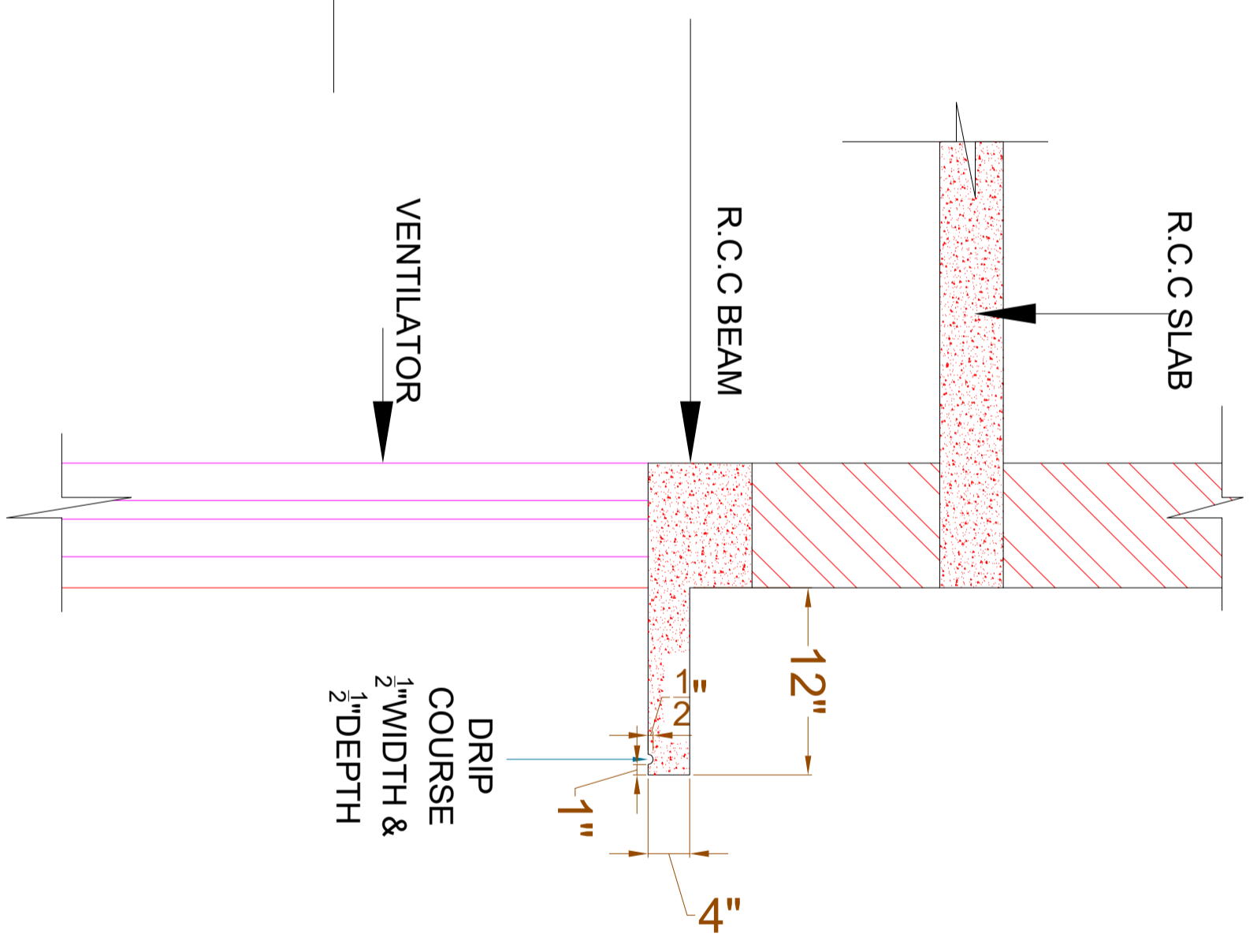
SCALE

DRG. NO.

A-04



**RAILING DETAILS**



**VENTILATOR PROJECTION & DRIP COURSE DETAIL**

CLIENT:



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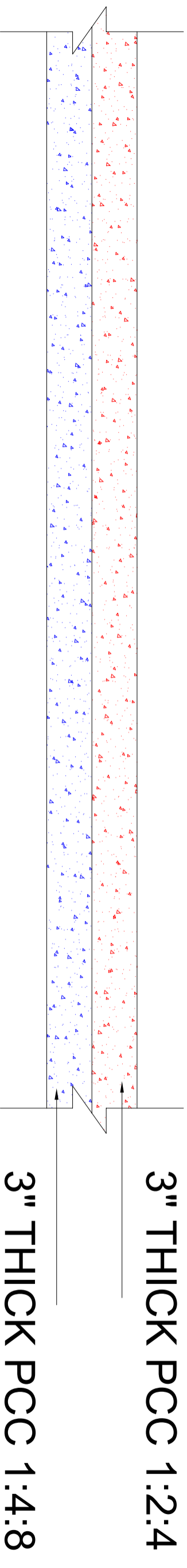
SCHOOL NAME

REHAB WORKS OF  
 GGFS RAIKA MAIRA  
 RAWALPINDI

Date of Revision	Prepared By	ARCHITECT
	Designed By	MARKAT KHAN ORAKZAI (Peshawar, Pakistan) (M.Arch, UET, Lahore)
	Checked By	
	Approved By	

PROJECT:	
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES	
TITLE:	VENTILATOR, PROJECTION, DRIP COURSE AND RAILING DETAILS
DATE	SEP 2023
SCALE	
DRG. NO.	A-05





# P.C.C FLOORING

## 1000.SFT

CLIENT:



CONSULTANTS:



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SCHOOL NAME

REHAB WORKS OF  
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Date of Revision	Prepared By	ARCHITECT	PROJECT:
	Designed By	MARWAT KHAN ORAKZAI (B.Arch, D.C.E.T Karachi) (M.Arch, UET, Lahore)	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
	Checked By		TITLE: P.C.C FLOORING
	Approved By		DATE: SEP 2023
			SCALE
			DRG.NO. A-06

**STRUCTURE DRAWING  
OF  
REHAB WORKS AT  
GGPS RAIKA MAIRA  
RAWALPINDI**

## 1. GENERAL

1. READ ALL DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL, GEOTECHNICAL, PLUMBING, MECHANICAL, ELECTRICAL & ANY OTHER RELEVANT DRAWINGS.
2. NOTES GIVEN IN THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS UNLESS MENTIONED OTHERWISE. NOTES WRITTEN ON A DRAWING, SHALL BE APPLICABLE TO THAT PARTICULAR DRAWING ONLY UNLESS OTHERWISE CROSS-REFERRED.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE SPECIFICATIONS OF THE CONTRACT DOCUMENTS. IN ABSENCE OF ANY SPECIFICATIONS, ALL MATERIALS & WORKMANSHIP SHALL CONFORM TO RELEVANT ACIBRITISH CODES AND SHALL BE SUBJECTED TO APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURES DURING CONSTRUCTION. HE SHALL ALSO VERIFY ALL DIMENSIONS AND LEVELS BEFORE EXECUTION OF WORK. ANY DISCREPANCY, ERROR OR OMISSION, IF FOUND, SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR CORRECTION AND APPROVAL.
5. THE CONTRACTOR SHALL CO-ORDINATE WITH VARIOUS SERVICES DRAWINGS FOR SIZES & LOCATION OF ALL STRUCTURAL MEMBERS, FLOORS, WALLS, OPENINGS, FLOOR FINISHES, PIPES ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXECUTION OF DEWATERING SYSTEM WHERE SO REQUIRED DURING CONSTRUCTION.
7. ALL DIMENSIONS & LEVELS ARE IN FEET & INCHES.
8. DO NOT SCALE THE DRAWINGS. DIMENSIONS, GIVEN ON THE DRAWING, SHALL GOVERN.
9. ALL FABRICATION, PAINTING, ERECTION AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST APPLICABLE ACI/BRITISH SPECIFICATIONS.
10. BACKFILLING AROUND FOUNDATIONS AND WALLS SHALL BE WELL COMPACTED LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS.
11. IT IS STRONGLY RECOMMENDED TO RECONFIRM THE SITE PLAN BEFORE START OF EXECUTION AT SITE. THE SITE SHOULD BE EXAMINED FOR CLEARANCE WITH RESPECT TO LOCAL/SEISMIC HAZARDS.
12. THE CONTRACTOR SHALL INFORM THE ENGINEER ABOUT ANTICIPATED CONSTRUCTION LOADS IN THE STRUCTURE AND OBTAIN ENGINEER'S APPROVAL THEREOF BEFORE COMMENCING THE WORK.
13. THE CONTRACTOR SHALL VERIFY LAYOUT, CONFIGURATION, ALL DIMENSIONS AND LEVELS PERTAINING TO EXISTING WORKS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL ADOPT ADEQUATE AND APPROPRIATE MEASURES SO AS NOT TO DAMAGE THE EXISTING WORKS.
14. THE CONTRACTOR SHALL EXERCISE UTMOST CARE AND PRECAUTION DURING THE WORKS, AGAINST ANY MISHAPS OR ACCIDENTS, FOR WHICH THE CONTRACTOR SHALL BE WHOLLY AND SOLELY RESPONSIBLE. THE CONTRACTOR SHALL INDEMNIFY THE OWNER AGAINST ANY ACCIDENTS AND ANY LOSSES THEREFROM AND SHALL REPAIR AND RECTIFY THEM AT HIS OWN COST AND TIME.
15. ANY DEPARTURES/DEVIATIONS DESIRED FROM THE DESIGN OR SPECIFICATIONS, OR SOLUTIONS TO ANY PROBLEMS ENCOUNTERED, SHALL BE GOT APPROVED FROM THE ENGINEER PRIOR TO IMPLEMENTATION. UNAPPROVED DEPARTURES/DEVIATIONS MAY LEAD TO REJECTION/REPLACEMENT OF THE ENTIRE WORK AT THE CONTRACTOR'S COST.
16. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS AND BAR BENDING SCHEDULES. THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE APPROVAL BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACCURACY OF SHOP DRAWINGS AND BAR BENDING SCHEDULES FOR ENGINEER'S APPROVAL AND OBTAIN HIS CONTRACTOR FROM HIS RESPONSIBILITY.
17. The allowable bearing capacity of soil should be 1st.

## 2. SHORING AND BRACING

1. SHORE & BRACE ALL PARTS OF THE STRUCTURE DURING CONSTRUCTION, TO THE EXTENT NECESSARY TO ENSURE COMPLETE SAFETY, STRENGTH & SERVICEABILITY OF ALL STRUCTURAL ELEMENTS UNDER ALL CONDITIONS OF LOADS WHICH MAY OCCUR DURING CONSTRUCTION. SUCH SHORING & BRACING IS THE CONTRACTOR'S SOLE RESPONSIBILITY AND IS NOT SHOWN ON STRUCTURAL DRAWINGS OR SPECIFIED IN THE PROJECT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE SLOPES AND SHALL PROVIDE SHORING AND BRACING DURING EXCAVATION AND CONSTRUCTION, WHEREVER AND WHENEVER REQUIRED.
3. SEQUENCE OF REMOVAL OF FORMWORK SHALL BE APPROVED BY THE ENGINEER.
4. AT LEAST ONE LOWER FLOOR SHALL REMAIN PROPPED UNTILL THE UPPER FLOOR IS CAST AND CURED.

## 3. REINFORCED CONCRETE

1. STRUCTURAL DESIGN IS BASED ON THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE OF AMERICAN CONCRETE INSTITUTE (ACI 318).
2. ALL STRUCTURAL CONCRETE SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE (ACI) REQUIREMENTS.
3. CONCRETE MIX TO BE DESIGNED ON THE BASIS OF ACI 211 OR EQUIVALENT. TRIAL STRENGTH RESULTS TO BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BEFORE CONCRETING.
4. NO CONCRETING SHALL BE CARRIED OUT UNTIL PERMISSION IS GIVEN IN WRITING OR, APPROVED BY STRUCTURE ENGINEER.
5. ALL CONCRETE SHALL BE TESTED IN ACCORDANCE WITH ASTM STANDARDS C31, C39, C172 & AS WRITTEN IN SPECIFICATIONS AND THE MINIMUM CYLINDER CRUSHING STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS. TESTING OF CLASS D & E CONCRETE SHALL BE PERFORMED IF SO SHAHEED CHAWK EXACT, NEAR ALFALAH FURNITURE LOWER DIRECTED BY THE ENGINEER.

CLASS MIN. CYLINDER CRUSHING STRENGTH AT 28 DAYS (psi).

A	4000
B	3000
C	2400
D	1200
E	800

6. CLASS OF CONCRETE FOR DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE AS FOLLOWS UNLESS NOTED OTHER WISE:

COMPONENT	CONCRETE CLASS
COLUMNS	CLASS 'A'
SLABS, BEAMS, FOUNDATION	CLASS 'B'
RCC WALLS	CLASS 'D'
PCC STEPS, . . . . .	CLASS 'E'
LEAN / BLINDING CONCRETE . . . . .	CLASS 'E'

7. ORDINARY PORTLAND CEMENT SHALL BE USED FOR ALL CONCRETE WORKS.
8. AN INTEGRAL WATER PROOFING AGENT SHALL BE USED IN CONCRETE THAT IS IN CONTACT WITH WATER AS PER MANUFACTURER'S RECOMMENDATIONS (GENCON GENPROUF RMC OR PENETRON ADMIX OR EQUIVALENT).
9. ALL DETAILING SHALL BE DONE AS PER ACI STANDARDS ACI-315, ACI-318 & ACI-308.

STRUCTURAL ELEMENT	COVER (INCHES)
FOOTINGS	2"
BEAMS	1 1/2"
COLUMNS	1 1/2"
SLABS	3/4"
WALLS	3/4"

## 4. REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM-A615 GRADE 60 HAVING A MINIMUM YIELD STRENGTH OF 60,000 PSI. FOR STIRRUPS, TIES AND #3 BARS USE ASTM A615, GRADE 60 HAVING MINIMUM YIELD STRENGTH OF 60,000 PSI.
  2. THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED STRENGTH BY MORE THAN 18,000 PSI (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3000 PSI)
  3. THE RATIO OF THE ACTUAL ULTIMATE TENSILE STRENGTH TO THE ACTUAL TENSILE YIELD STRENGTH IS NOT LESS THAN 1.25
  4. CLEAR COVER TO REINFORCEMENT SHALL BE: (inches)  
L-GREATER CLEAR SPAN, db-DIAMETER OF BAR, d-EFFECTIVE DEPTH
- THE FIRST HOOP SHALL BE LOCATED NOT MORE THAN 2" FROM THE FACE OF THE SUPPORTING MEMBER.
- WHERE:

7. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN THE FORMS AND HELD FIRMLY IN PLACE BEFORE & DURING THE PLACEMENT OF CONCRETE. BY MEANS OF WIRE AND SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION.
8. LINTELS ARE EXTENDED AT 9 (INCHES) FROM BOTH SIDES OF OPENING.
9. PROVIDE 135° HOOK IN ADJACENT STIRRUPS ON ALTERNATE SIDES.

## 5. CONCRETE CONSTRUCTION

1. ALL STRUCTURAL SURFACES, AGAINST WHICH EARTH IS TO BE FILLED, SHALL BE COATED WITH TWO COATS OF HOT BITUMEN OF 10/20 GRADE AT THE RATE OF 0.2 lbs/ft<sup>2</sup>/coat.
2. PROVIDE POLYTHENE SHEET OVER TWO COATS OF HOT BITUMEN AT TOP OF PLINTH BEAM/DPC FOR EXTERIOR WALLS.
3. BEFORE CASTING OF ANY STRUCTURAL MEMBER, THE CONTRACTOR SHALL ENSURE THAT ALL EMBEDDED ITEMS FOR ELECTRICAL, MECHANICAL, HVAC, PLUMBING, STRUCTURAL STEEL AND OTHER WORKS ARE PROPERLY LOCATED AND FIRMLY SECURED IN PLACE. DURING CONSTRUCTION, STACKING OF CONSTRUCTION MATERIALS, BLOCKS, etc. SHOULD BE AVOIDED ON SLAB PANELS.

## 6. BRICK WORK

1. ALL BRICK WORK SHALL CONFORM TO SPECIFICATIONS GIVEN IN THE CONTRACT DOCUMENT.
2. ALL BRICK SHALL BE SOUND, HARD, WELL BURNED AND OF UNIFORM SIZE, COLOR AND TEXTURE. DIMENSIONAL VARIATION IN SIZES SHALL NOT EXCEED 1/8". BRICKS SHOULD BE IN ACCORDANCE WITH SPECIFICATIONS AND SHOULD CONFORM TO ASTM C62.
3. ALL BRICK WORK SHALL BE ERECTED PLUMB AND TRUE TO LINE AND LEVEL. THE MAXIMUM VARIATION IN ANY STOREY HEIGHT OR ANY LENGTH OF WALL SHALL BE 1/8" IN 10'-0".
4. MORTAR USED IN MASONRY CONSTRUCTION SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF NOT LESS THAN 12 MPa (1800PSI) AND SHALL CONFORM TO ASTM C270.
5. COMPRESSIVE STRENGTH OF BRICK MASONRY AVERAGE OF 5 UNITS AT 28 DAYS SHALL NOT BE LESS THAN AS SPECIFIED IN SPECIFICATION AND SHALL CONFORM TO RELEVANT ASTM STANDARD. ALL DESIGN, DETAILING, MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH RELEVANT ACI, ASTM AND UBC CODES AND STANDARDS.
7. BRICK SHALL BE LAID "FRONT" UPWARD WITH MORTAR JOINT AND IN ENGLISH FLEMISH BOND OR AS SHAHEED CHAWK EXACT, NEAR ALFALAH FURNITURE LOWER DIRECTED BY THE ENGINEER.
8. BRICKS SHOULD BE SOAKED WITH WATER PROPERLY BEFORE USE.
9. VERTICAL JOINTS SHOULD BE STAGGERED.
10. ALL MASONRY WALLS SHALL BE ANCHORED TO STRUCTURAL FRAME WORK AS INDICATED ON THE DRAWINGS

CLIENT:



The UN Refugee Agency

CONSULTANTS:



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SCHOOL NAME

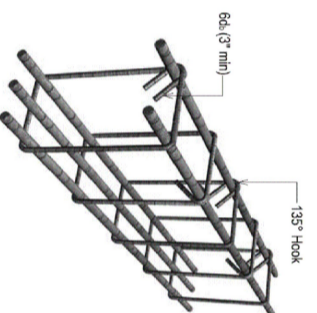
REHAB WORKS AT  
GGPS RAIKA MAIRA  
RAWALPINDI

Date of Revision	Prepared By	FIELD MAN KHAJANHAIDER
	Designed By	Engr. HUMZA AHMAD
	Checked By	
	Approved By	

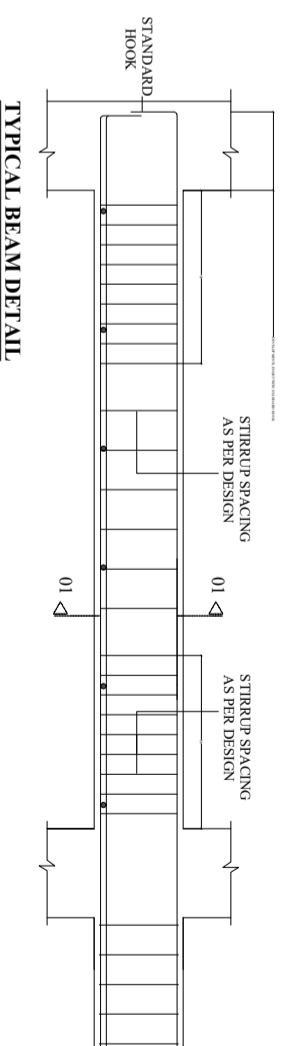
PROJECT:		
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES		
TITLE:	GENERAL NOTES	
DATE	SCALE	DRG.NO.
SEP 2023		S-01

## 7. CONSTRUCTION JOINTS

1. JOINTS, NOT SHOWN ON THE DRAWING, SHALL BE SO MADE AND LOCATED AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND SHALL NEED PRIOR APPROVAL OF THE ENGINEER. THEY SHALL BE LOCATED NEAR THE MIDDLE OF THE SPANS OF SLAB & BEAMS. JOINTS IN WALLS & COLUMNS SHALL BE AT THE UNDER-SIDE OF FLOORS, SLABS OR BEAMS AND AT THE TOP OF FOOTINGS OR FLOOR SLABS.
2. JOINTS SHALL BE PERPENDICULAR TO MAIN REINFORCEMENT. ALL REINFORCING STEEL SHALL BE CONTINUED ACROSS THE JOINTS.
3. JOINTS IN BASE SLAB & WALLS AND ROOF SLAB, IN ADDITION TO THOSE SHOWN ON THE DRAWINGS SHALL BE BORNE BY THE CONTRACTOR. BEAMS & BRACKETS SHALL BE PLACED AT THE SAME TIME AS SLABS.



SEISMIC HOOK DETAILS



TYPICAL BEAM DETAIL

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 4,000$ psi	$f_y = 60,000$ psi
3/8"	18	7.5
1/2"	24	9.5
3/4"	30	14.5
1"	48	19

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

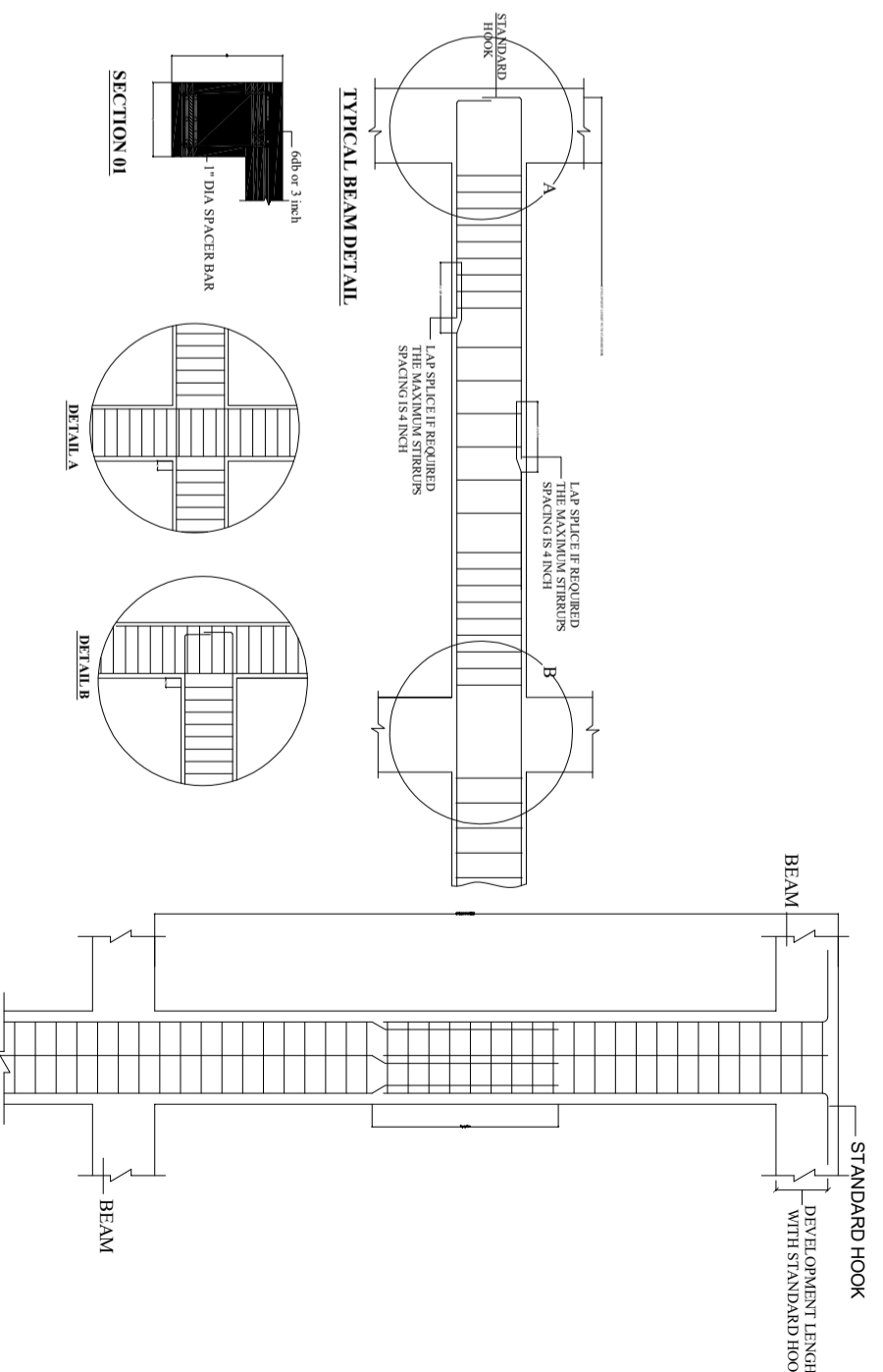
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 40,000$ psi
3/8"	15	-
1/2"	20	9
3/4"	30	15
1"	48	18

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

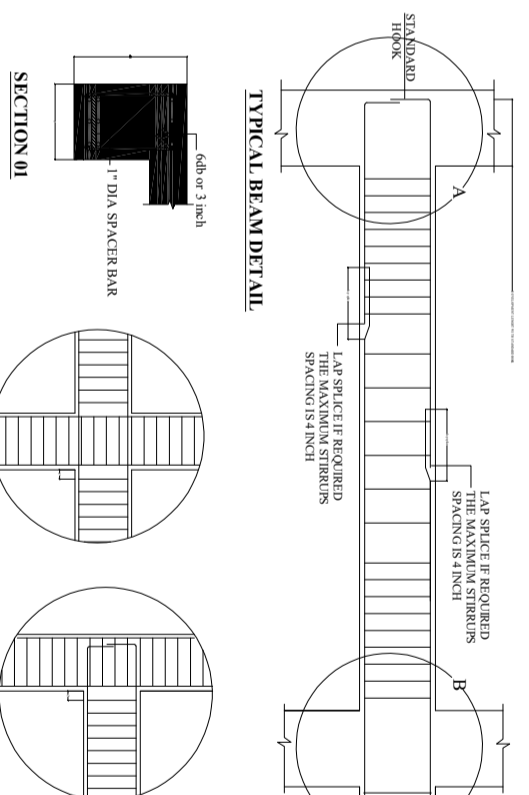
BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 60,000$ psi
1/2"	22	11"
5/8"	30	14"
3/4"	34	17"
1"	55	22"

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

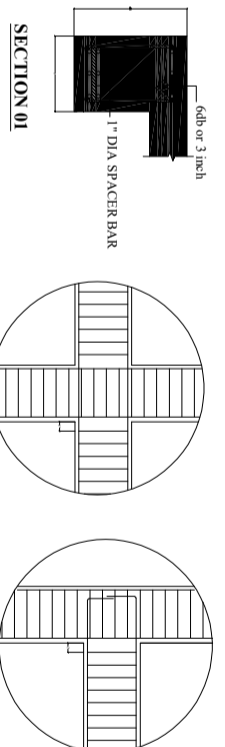
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 60,000$ psi
1/2"	25	35
5/8"	-	44
3/4"	-	55
1"	-	70



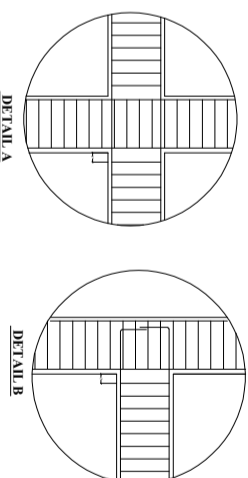
TYPICAL COLUMN DETAIL



TYPICAL BEAM DETAIL



SECTION 01



DETAIL A

DETAIL B

CLIENT:



The UN Refugee Agency

CONSULTANTS:



**PLANNERS CONSULTANTS ENGINEERS (PCE)**

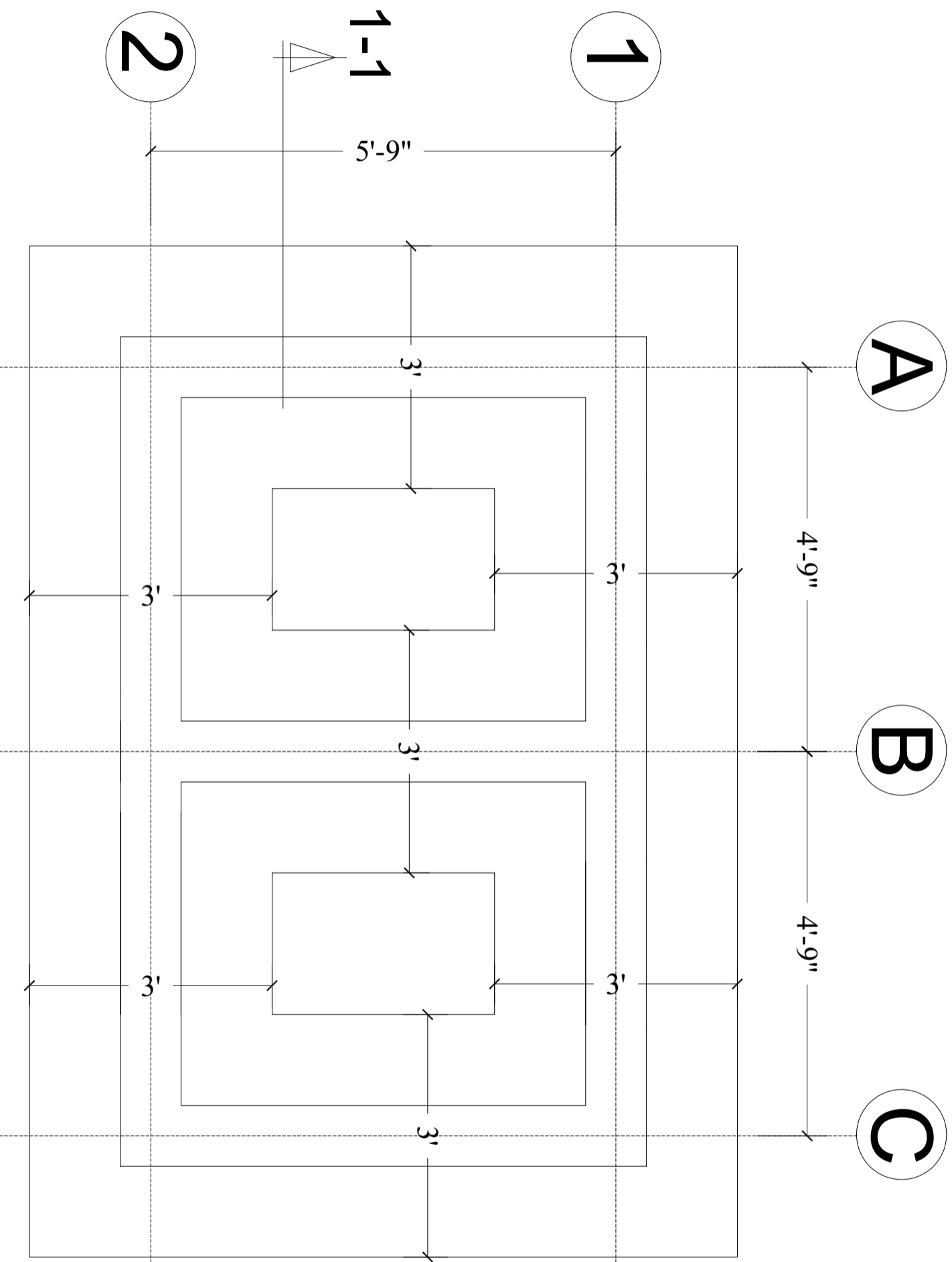
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RAWALPINDI

Date of Revision	Prepared By	Structure Engineer:
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	Checked By	
	Approved By	

PROJECT:	
DATE	SEP 2023
SCALE	GENERAL NOTES
DRG. NO.	S-02



# FOUNDATION PLAN

CLIENT:



CONSULTANTS:



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Prepared By

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 STRUCTURE ENGINEER:

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

FOUNDATION PLAN

Designed By  
 Checked By  
 Approved By

Engr. HUNZA AHMAD

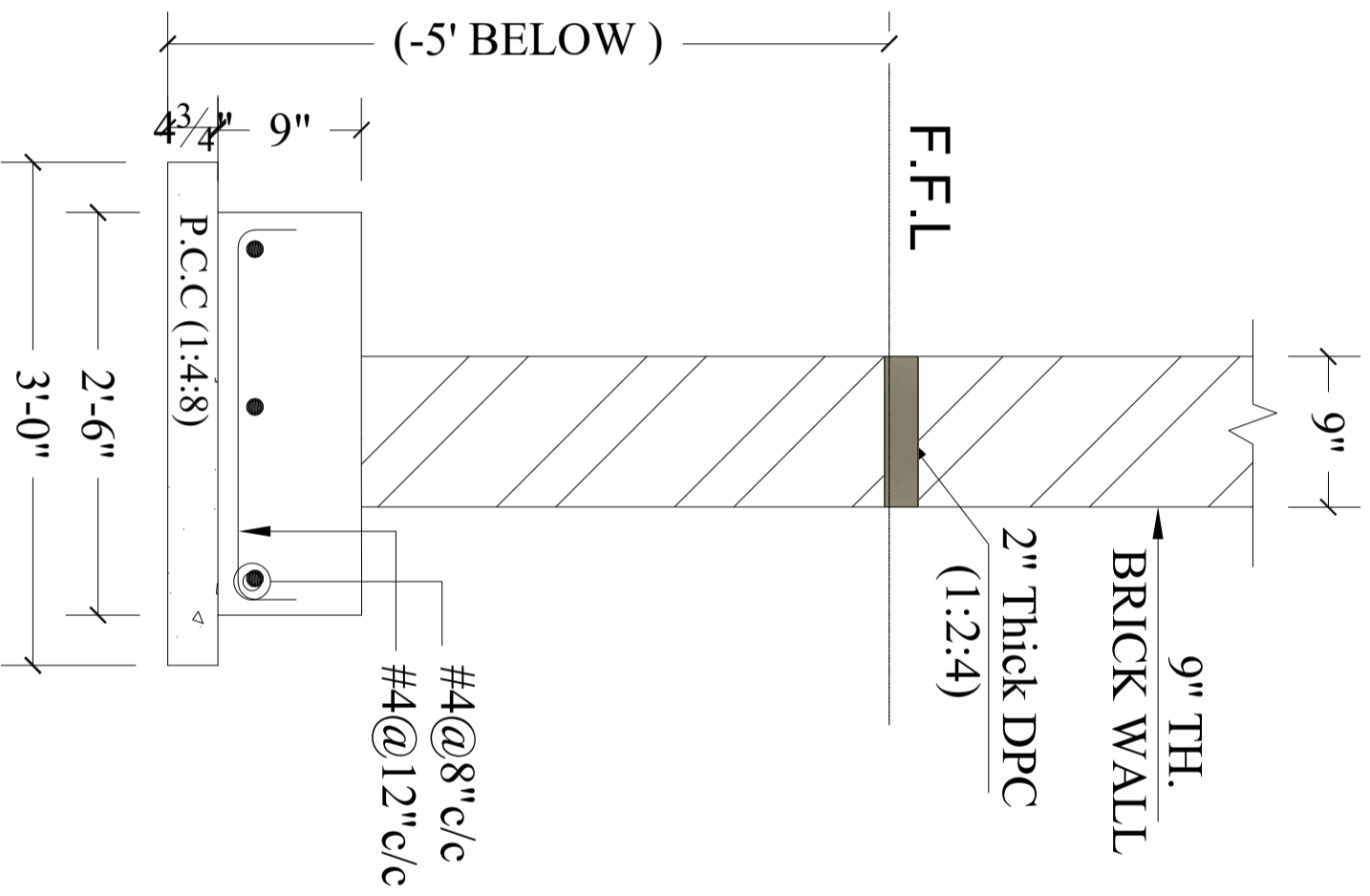
DATE

SEP 2023

SCALE

DRG.NO.

S-03



**SECTION 1-1**

CLIENT:



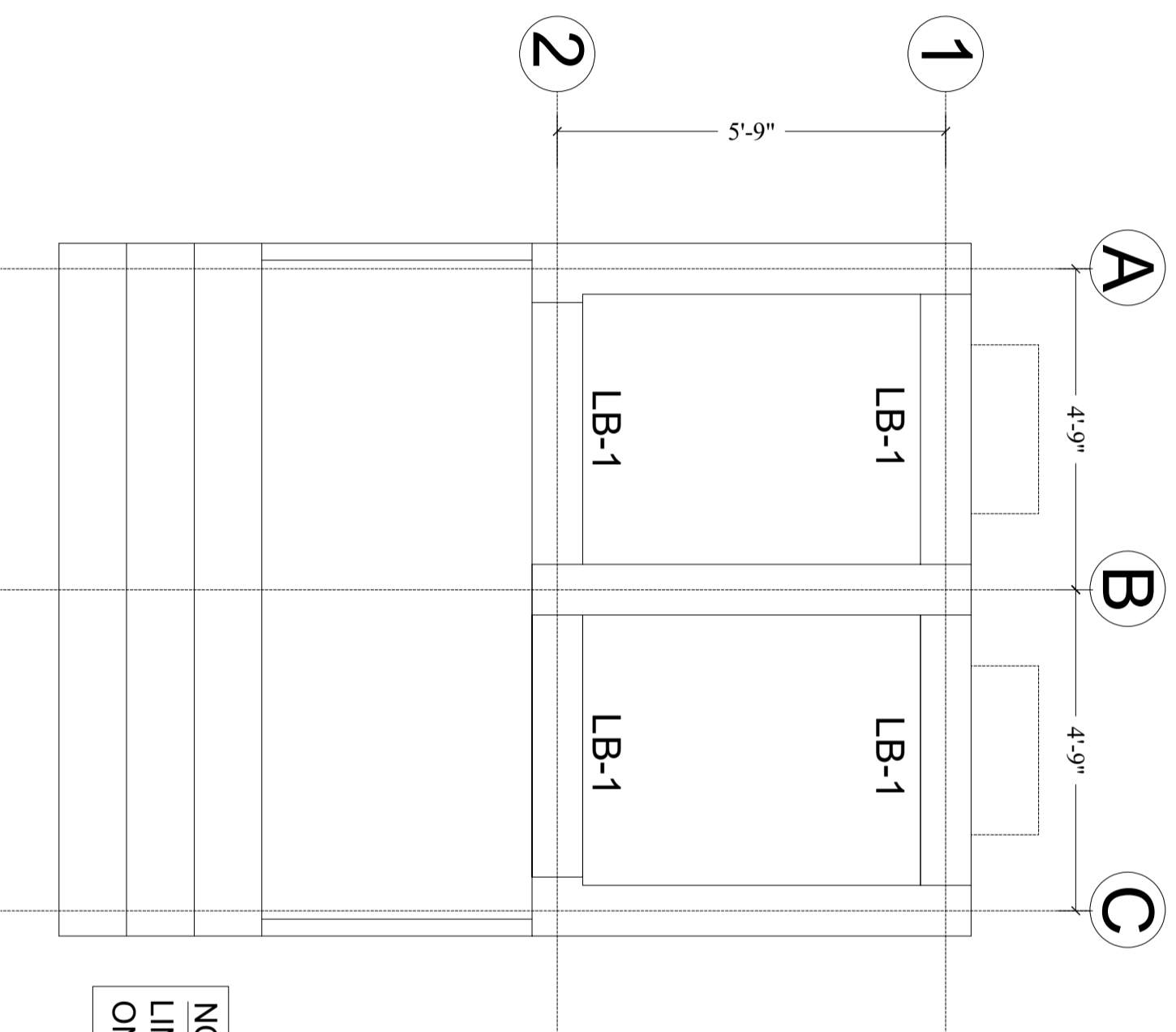
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	Checked By	
	Approved By	

PROJECT: PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES		
TITLE: FOUNDATION SECTION DETAIL		
DATE SEPT 2023	SCALE	DRG.NO. S-04



**NOTE**  
 LINTEL BEAM WILL BE EXTEND  
 ON BOTH SIDE UP TO 1'

## GROUND FLOOR LINTEL BEAM PLAN

CLIENT:

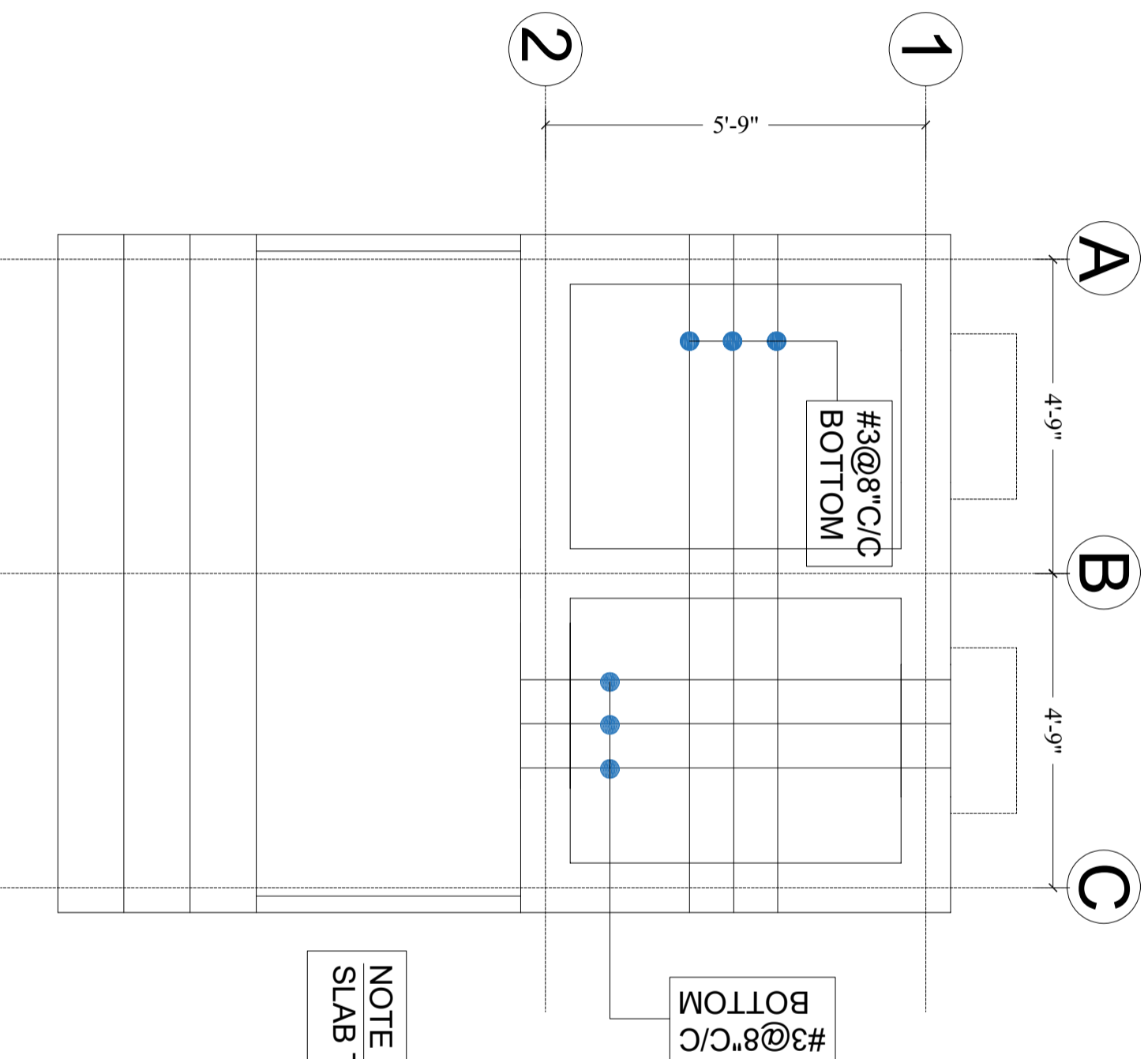


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	Designed By	Engr. HUMZA AHMAD	PREPARATION OF DESIGN DRAWINGS & BOOKS FOR CONSTRUCTION/ REHABILITATION OF SITES
	Checked By		TITLE: GROUND FLOOR LINTEL BEAM PLAN
	Approved By		DATE: <i>SEP 2023</i> SCALE: DRG.NO. S-05



# GROUND FLOOR SLAB BOTTOM REINFORCEMENT PLAN

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Date of Revision	Prepared By	Designed By	Checked By	Approved By

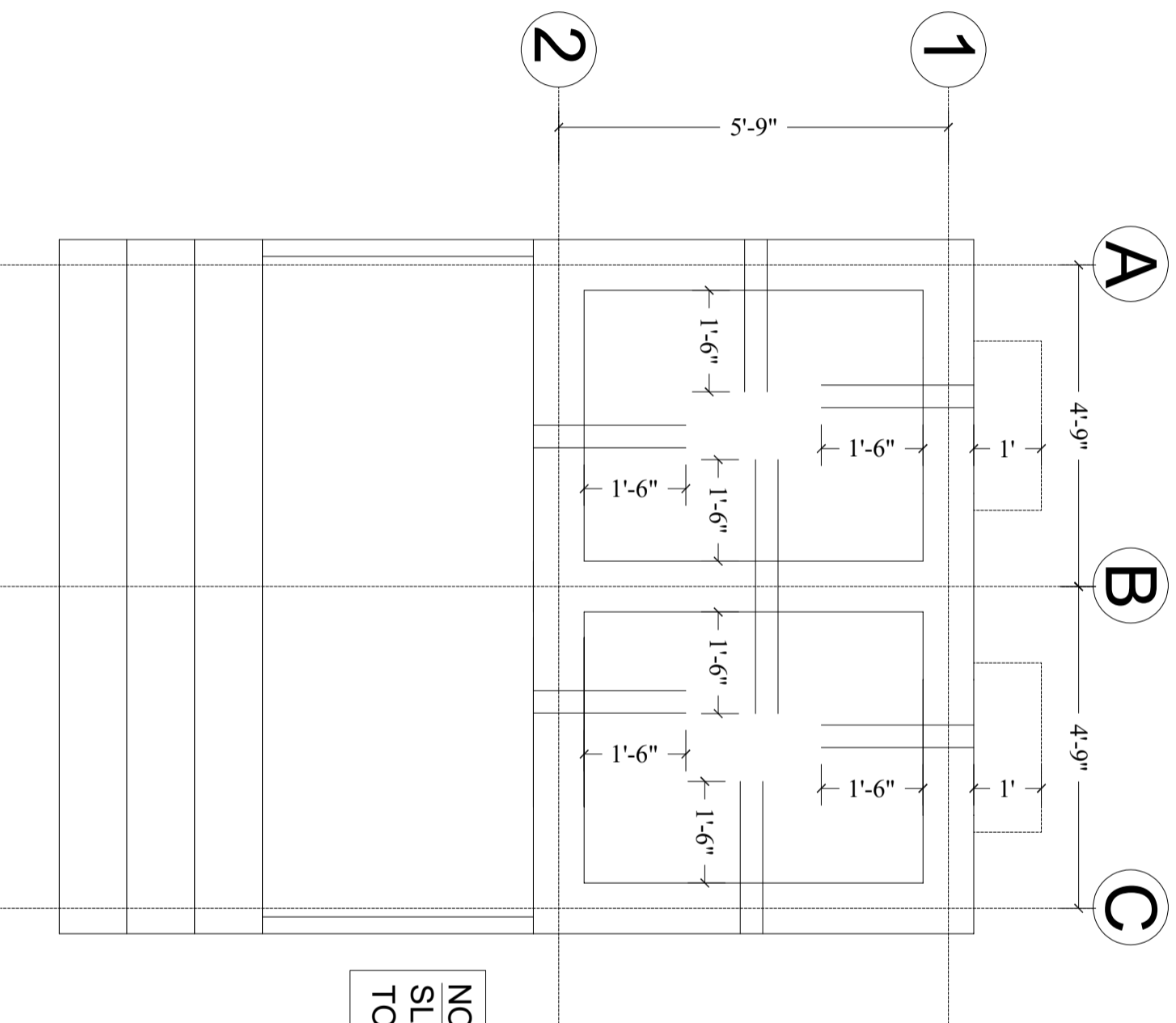
  

FARID KHAN KHAN HADDER STRUCTURE ENGINEER	Engr. HUMZA AHMAD
---	-------------------

PROJECT: PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES	DATE: <b>SEP 2023</b>
TITLE: GROUND FLOOR SLAB BOTTOM REINFORCEMENT PLAN	SCALE:
DRG. NO.	S-06





**NOTE :**  
 SLAB THICKNESS = 5"  
 TOP REINFORCEMENT = #4@8"C/C

## GROUND FLOOR SLAB TOP REINFORCEMENT PLAN

CLIENT:



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Designed By

Engr. HUMZA AHMAD

Checked By

Approved By

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQs  
 FOR CONSTRUCTION/ REHABILITATION OF SITES

TITLE:

GROUND FLOOR SLAB TOP  
 REINFORCEMENT PLAN

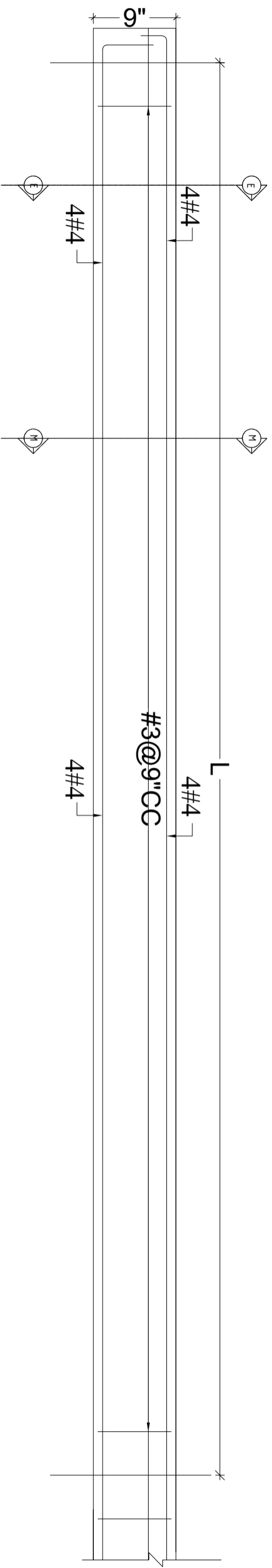
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SEP 2023

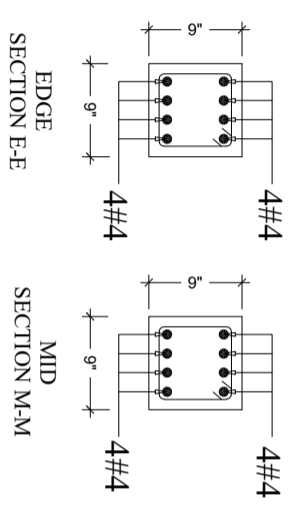
SCALE

DRG.NO.

S-07



TYPICAL ELEVATION OF LB-1



EDGE SECTION E-E

MID SECTION M-M

CLIENT:



CONSULTANTS:



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PROJECT:	PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES
TITLE:	INTEL BEAM DETAIL
DATE	SFP 2023
SCALE	
DRG.NO.	S-08

# PLUMBING DRAWING





GENERAL NOTES

ALL UNDER GROUND SEWAGE PIPES SHALL HAVE A MINIMUM SLOPE OF 1%.  
 ISOLATING VALVES SHALL BE PROVIDED TO SEPARATE THE INDIVIDUAL TOILETS, GATE VALVES SHALL BE PROVIDED TO/ FROM WATER HEATERS  
 EXACT LOCATION OF WATER PIPE WORK SHALL BE DETERMINED ON SITE.  
 PROVIDE ISOLATING VALVE ON ALL MAIN AND BRANCH LINES FOR MAINTENANCE.  
 IN PLUMBING WATER SUPPLY SYSTEM THE PIPE DIAMETER INDICATED ARE NET FLOW AREAS (i.e. INTERNAL DIAMETERS) AND THE CONTRACTOR SHALL USE ADEQUATE PIPES SIZE, SPECIALLY WHEN USING PLASTIC PIPES TO ACCOUNT FOR PIPE WALL THICKNESS.  
 CONTRACTOR TO PROVIDE OVERFLOW, TEST PIPE, WARNING LEVEL AND DRAIN CONNECTION.

FOR COLD WATER SUPPLY PPR PN-20 PIPES SHALL BE USED.  
 ALL EXPOSED COLD AND HOT WATER PIPING SHALL BE PPR.  
 ALL HOT WATER PIPES SHALL BE PPR PN-20.  
 ALL HOT WATER PIPES SHALL BE INSULATED.  
 PPR PIPE INTERNAL CLEAR DIA.  
 ALL SUI GAS PIPE SHALL BE G.I PIPE BEST QUALITY

**LEGEND FOR PLUMBING**

1	MAIN HOLE
2	2" Ø u.P.V.C VENT PIPE ABOVE

LEGEND	
	CW COLD WATER SUPPLY & MAKEUP WATER
	HW HOT WATER SUPPLY
	WMH WASTE WATER MANHOLE
	SMH SOIL WATER MANHOLE
	HWG HOT WATER GEYSER
	W.C WATER CLOSET (ENGLISH)
	W.C WATER CLOSET (INDIAN)
	W.B WASH BASIN
	F.T FLOW TRAP
	T.R TOWEL RAIL (ROD)
	SH SHOWER
	TAP
	OHWT OVER HEAD WATER TANK
	UGWT UNDER GROUND WATER TANK

CLIENT:



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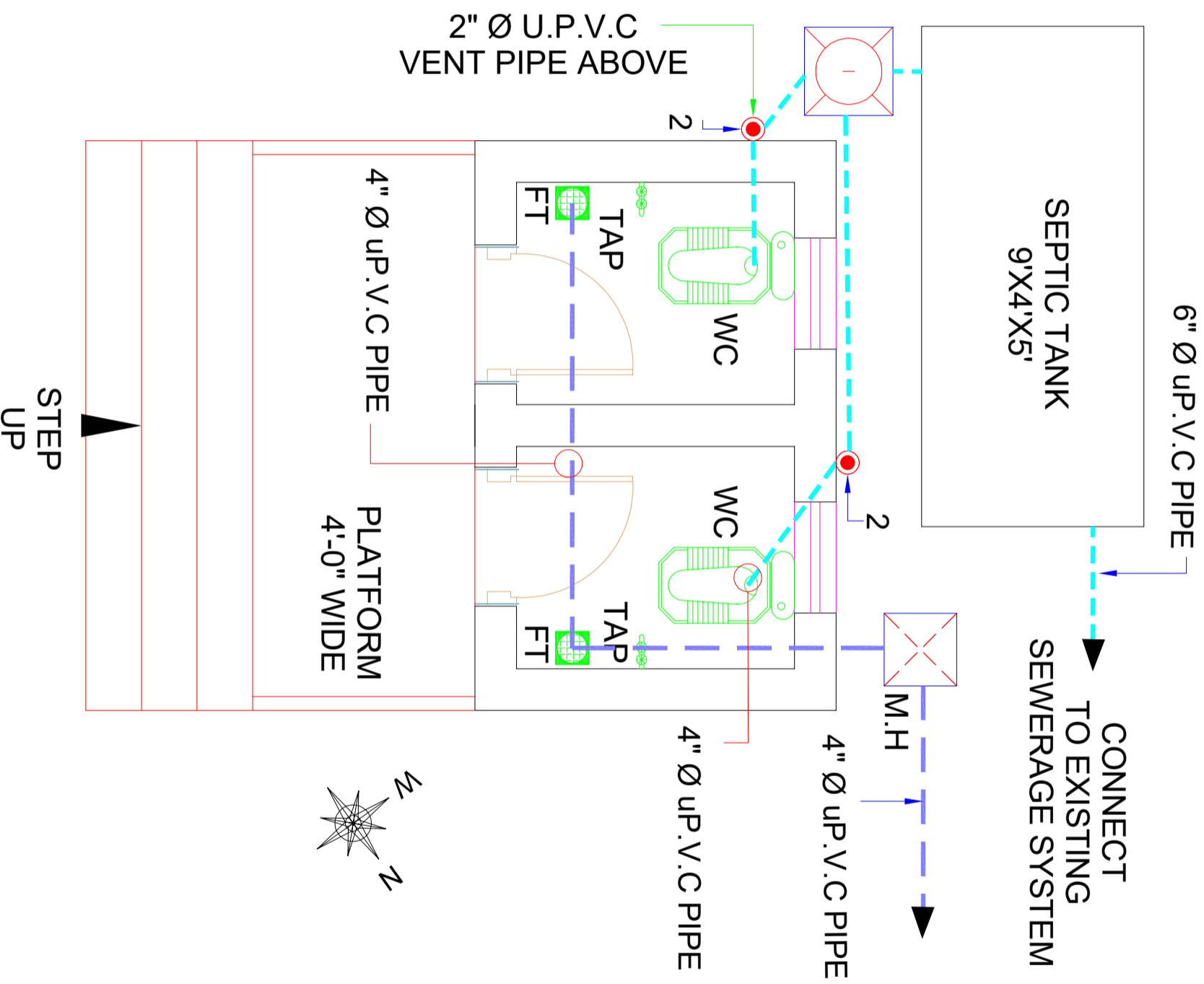
CONSULTANTS:

SCHOOL NAME

REHAB WORKS OF  
 GGPS RAIKA MAIRA  
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	Approved By	

PROJECT:		
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES		
TITLE:	GENERAL NOTES	
DATE	SCALE	DRG.NO.
SEP 2023		P-01



# GROUND FLOOR PLUMBING PLAN

CLIENT:



CONSULTANTS:

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Prepared By

ARCHITECT  
FARID KHAN  
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PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOQS  
FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

GROUND FLOOR PLUMBING PLAN

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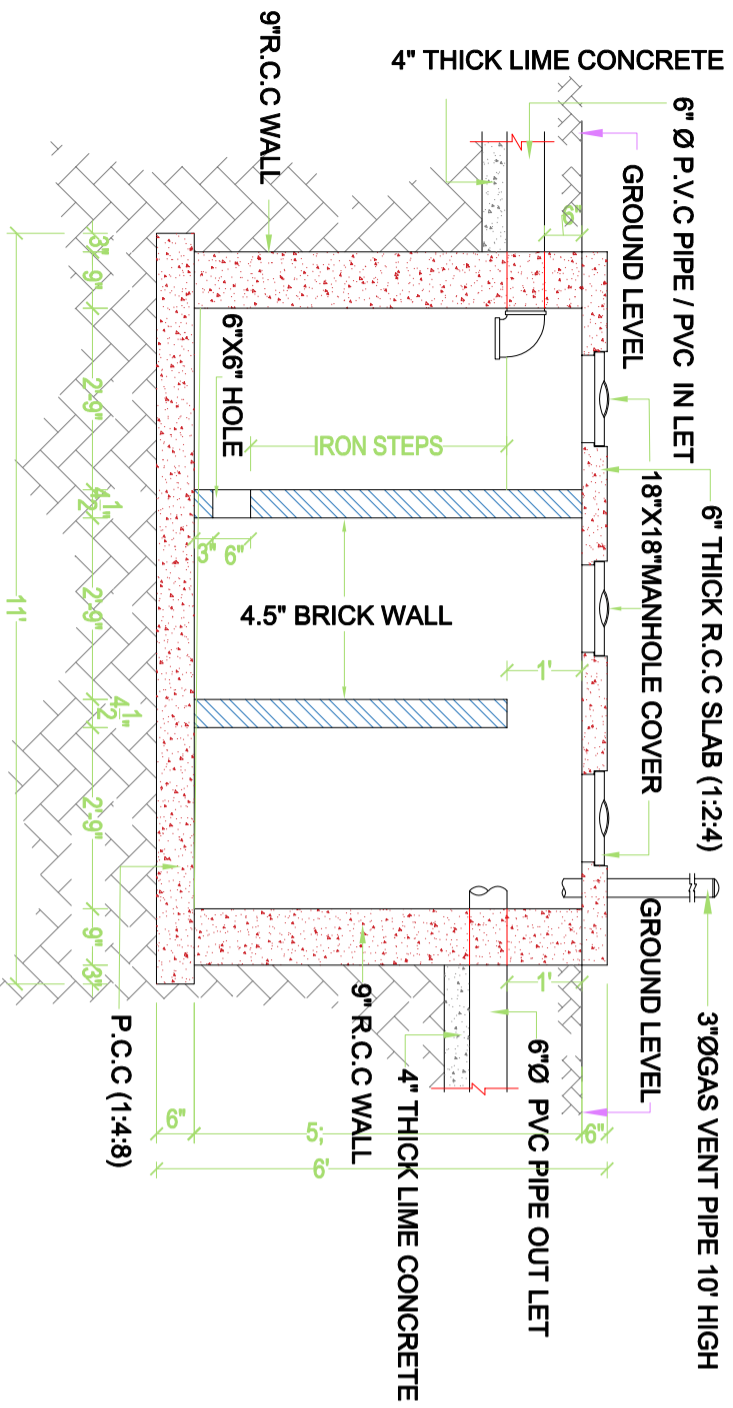
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SEP 2023

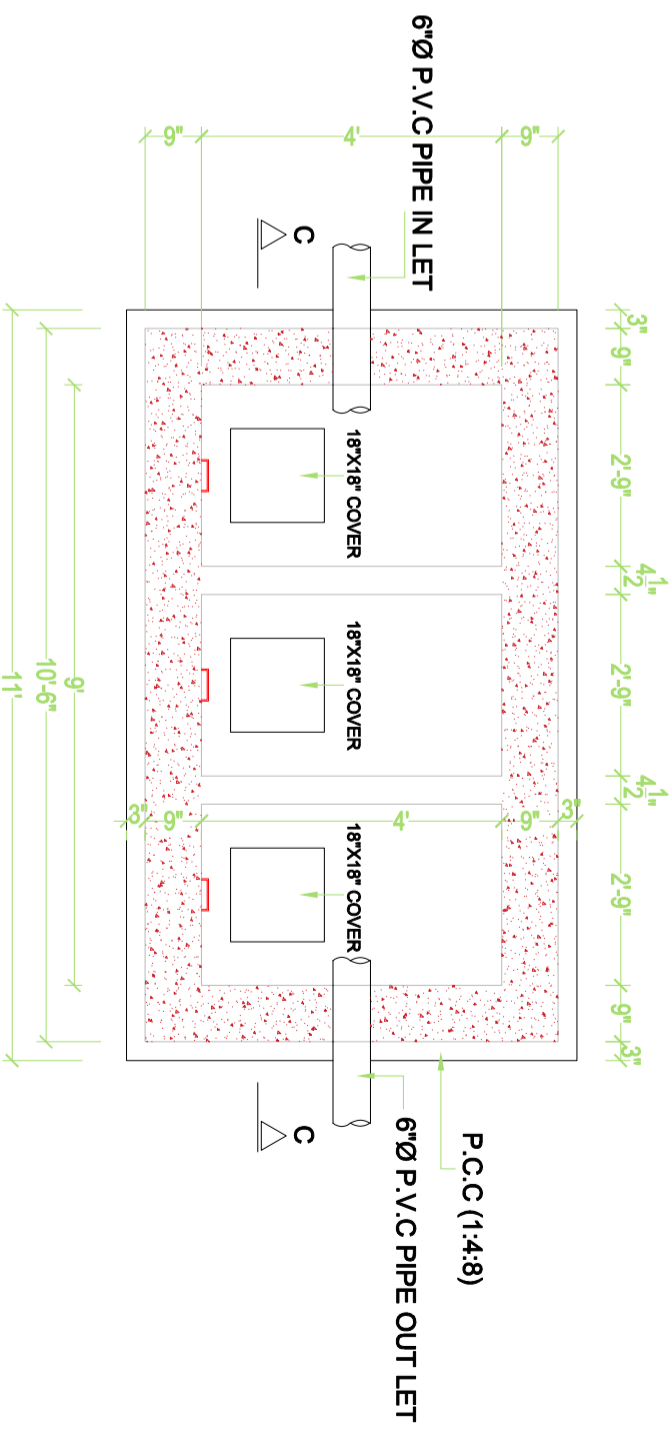
SCALE

DRG. NO.





**SEPTIC TANK SECTION**



**SEPTIC TANK PLAN**

CLIENT:



CONSULTANTS:

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 ARCHITECT

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOQS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

SEPTIC TANK PLAN

DATE

SEP 2023

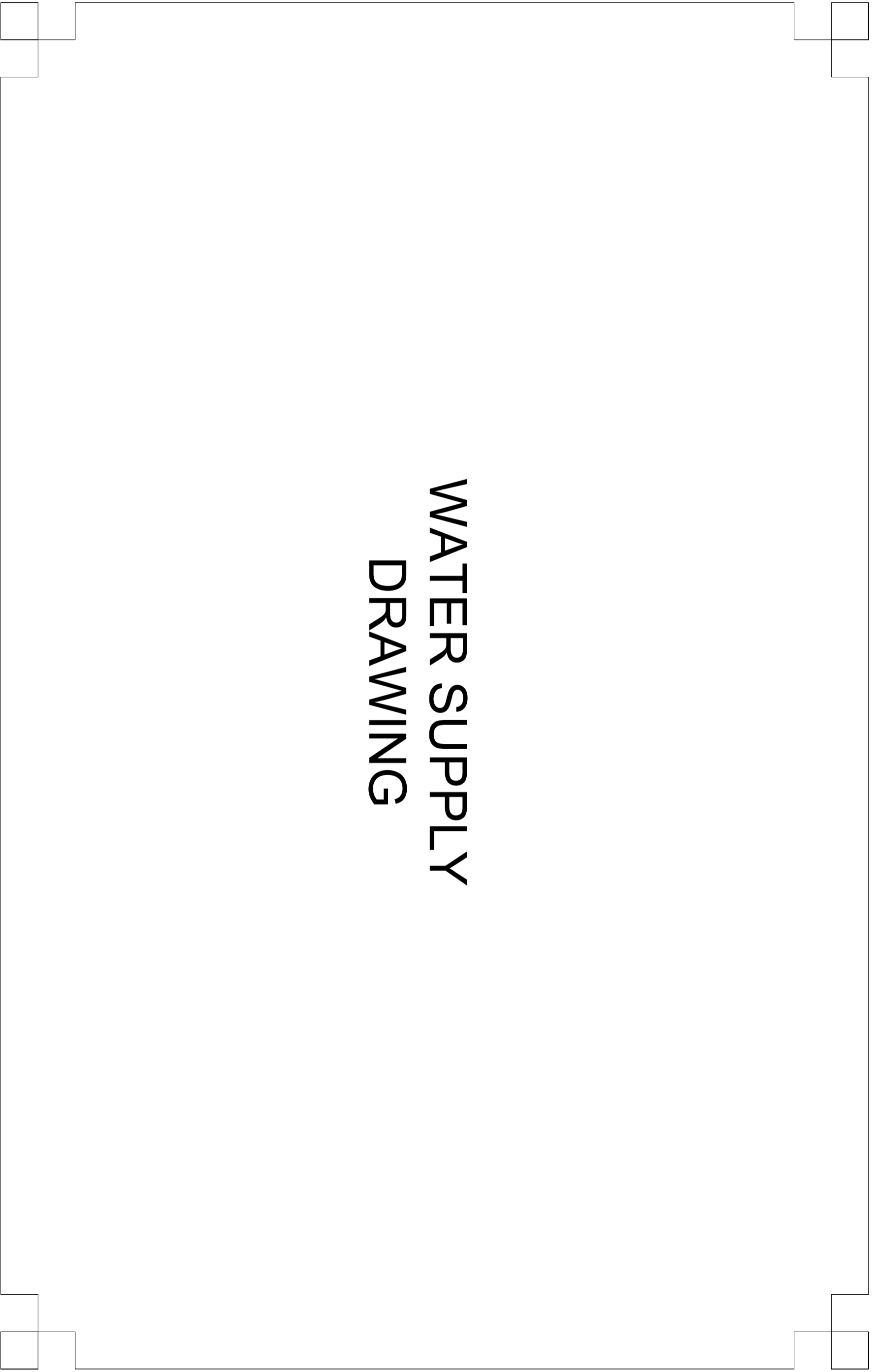
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







P-03



# WATER SUPPLY DRAWING



**LEGEND**

	<b>CW</b>	<b>COLD WATER SUPPLY &amp; MAKEUP WATER</b>
	<b>HW</b>	<b>HOT WATER SUPPLY</b>
	<b>WMH</b>	<b>WASTE WATER MANHOLE</b>
	<b>SMH</b>	<b>SOIL WATER MANHOLE</b>
	<b>HWG</b>	<b>HOT WATER GEYSER</b>
	<b>W.C</b>	<b>WATER CLOSET (ENGLISH)</b>
	<b>W.C</b>	<b>WATER CLOSET (INDIAN)</b>
	<b>W.B</b>	<b>WASH BASIN</b>
	<b>F.T</b>	<b>FLOW TRAP</b>
	<b>T.R</b>	<b>TOWEL RAIL (ROD)</b>
	<b>SH</b>	<b>SHOWER</b>
	<b>TAP</b>	
	<b>OHWT</b>	<b>OVER HEAD WATER TANK</b>
	<b>UGWT</b>	<b>UNDER GROUND WATER TANK</b>

CLIENT:



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CONSULTANTS:

SCHOOL NAME

REHAB WORKS OF  
 GGPS RAIKA MAIRA  
 RAWALPINDI

Date of Revision

Prepared By

ARCHITECT

PROJECT:

PREPARATION OF DESIGN DRAWINGS & BOOKS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

LEGEND

Designed By

MARWAT KHAN ORAKZAI  
 (As Architect Karachi)  
 (ARCHITECT, LICENSE)

Checked By

Approved By

DATE

SEP 2023

SCALE

DRG. NO.

WS-01





**ELECTRIFICATION DRAWINGS  
OF  
REHAB WORKS  
AT  
GGPS RAIKA MAIRA  
RAWALPINDI**

<b>ELECTRICAL DRAWINGS</b>		
1	GENERAL NOTES	E-01
2	APPROVED MANUFACTURE LIST	E-02
3	LEGEND	E-03
4	GROUND FLOOR PLAN	E-04
5	GROUND FLOOR DIMENSION PLAN	E-05

CLIENT:



CONSULTANTS:



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	Approved By	

PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOOS  
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LIST OF DRAWINGS

DATE  
 SEP 2023

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E-00

## ELECTRICAL SYSTEMS

FOLLOWING NOTES SHALL IN GENERAL APPLY TO ALL ELECTRICAL DRAWINGS. THE INSTRUCTIONS IN THESE NOTES SHALL BE FOLLOWED UNLESS STATED OTHERWISE.

1. THESE NOTES SHALL BE APPLICABLE TO THE ENTIRE ELECTRICAL WORKS. THE SITE CONDITIONS NECESSITATE ALTERATION OR DEVIATION OF THE DIRECTIONS OF THE ENGINEER SHALL BE OBSERVED AS FINAL INSTRUCTIONS.
2. DIMENSIONS / MLASURMENTS IS GIVEN IN LAYOUT AND DETAILED DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATE THE ACTUAL DIMENSIONS ACCORDING TO STRUCTURAL AND ARCHITECTURAL DRAWINGS.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH ALL RELEVANT DETAILS TO THE ENGINEER FOR APPROVAL ACCORDING TO THE GENERAL CONDITION OF CONTRACT WELL IN TIME BEFORE COMMENCEMENT OF THAT WORK.
4. PROPER CO-ORDINATION OF ELECTRICAL WORKS WITH OTHER SERVICES SHALL BE CARRIED OUT AT SITE.
5. ALL NON CURRENT CARRYING PARTS, i.e OUTER CASINGS OF EQUIPMENT SUCH AS H.T & IT PANELS, DISTRIBUTION BOARDS, CABLE TRAYS, AUXILIARY CONSTRUCTION FOR EQUIPMENT ETC. SHALL BE CONNECTED TO THE GROUND-EARTHING SYSTEM AT REQUIRED NUMBER OF POINTS WITH SPECIFIED SIZES OF CONDUCTORS. WATER PIPES ALONG ELECTRICAL LINE SHALL BE BONDED TO THE EARTHING SYSTEM WITH TO 10MMsq SINGLE CORE COPPER CONDUCTOR PVC CABLE.
6. ELECTRICAL POINTS FOR EQUIPMENT SHALL BE INSTALLED IN CO-ORDINATION WITH THE RELEVANT DRAWINGS OF OTHER SERVICES, SUCH AS COMMUNICATION SYSTEMS, HVAC, PLUMBING ETC. THE LOCATION ON ELECTRICAL DRAWINGS IS ONLY INDICATIVE.
7. ARRANGMENT OF ELECTRICAL EQUIPMENTS ON ELECTRICAL DRAWINGS ARE TENTATIVE EXACT ARRANGMENT OF EQUIPMENT SHALL BE VADE IN VIEW OF ITS PHYSICAL DIMENTIONS AND EASY OF MAINTENANCE.
8. LOAD ON ALL PHASES SHALL BE MAXIMUM BALANCED AT THE TIME OF COMMISSIONING STAGE. IT IS RESPONSIBILITY OF CONTRACTOR.
9. CONDUIT RUN UNDER FLOOR SHALL HAVE A MINIMUM COVER OF TWO INCHES FROM TOP TO CONDUIT TO FINISH FLOOR LEVEL.
10. ALL WIRING SHOULD BE CARRYOUT ACCORDING TO THE PHASES RED, YELLOW, BLUE CABLE COLOUR ARE AS PER PHASE DISTRIBUTION IN BUILDING.
11. RUN GREEN OR WHITE SINGLE CORE PVC INSULATED COPPER CONDUCTOR CABLE OF SPECIFIED SIZE AS PROTECTIVE EARTH CONDUCTOR (LCC) ALL ALONG LIGHT AND POWER WIRING WHEREVER THE SIZE IS NOT SPECIFIED THE FOLLOWING OR LITERIA SHALL BE OBSERVED TO DETERMINE MINIMUM CROSS SECTIONAL AREA OF EARTH CONTINUITY CONDUCTOR (ECC) IN RELATION TO THE AREA OFFICE PHASE CONDUCTORS RUN SEPARATE ECC FOR EACH CIRCUIT.
  - ECC 2 PHASE CONDUCTOR OF SAVE SIZE FOR UPTO AND INCLUDING 16 MMSQ CABLES
  - FOR CABLES OF 50 MM SQ AND ABOVE SIZES IS HALF SIZE OF PHASE CONDUCTOR
  - MINIMUM SIZE ECC IS 70MM SQ.
12. ALL WIRING FOR CONTROLS SHALL BE CARRIED OUT WITH 1 CORE FLEXIBLE PVC CABLES OF SPECIFIED VOLTAGE GRADE AND SIZES.
13. THE MAXIMUM CAPACITY OF PVC CONDUITS FOR SIMAL TONCOUS DRAWING OF PVC INSULATED CABLES SHALL BE DETERMINED AS PIN BS 4607. THE FOLLOWING TABLE SHALL BE USED TO DETERMINE THE MAXIMUM NUMBER OF CABLES

NUMBER OF CABLE IN (CONDUIT)	SIZE OF CABLE		
	25 MM (1")	20 MM (3/4")	15 MM (3/8")
NEW STANDER SIZE MM sq <sup>r</sup>			
1.5 MM sq	13	8	5
2.5 MM sq	10	6	4
4 MM sq	7	4	3
6 MM sq	5	3	2
10 MM sq	3	2	1

14. NORMAL & EMERGENCY CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS.

15. THE WIRING SHELL BE CONTINUOUS LOOPING-IN TYPE AND NO JOINT IN WIRES SHELL BE ALLOWED.

16. THE WIRING SYSTEM SHELL BE CARRIED OUT ONLY AFTER THE CONDUIT SYSTEM IS COMPLETELY INSTALLED AND ALL OUTLET BOXES, ETC. ARE FIXED IN POSITION.

17. MOUNTING HEIGHTS OF ELECTRICAL FITTINGS WHEN MEASURED FROM FINISHED FLOOR LEVEL (ECC) TO THE BOTTOM OF FITTINGS SHELL BE AS UNDER UNLESS OTHER WISE SHOWN OR INSTRUCTED

- > SWITCH BOARD 48 INCHES
- > EXHAUST FAN REF TO ARCH DRAWING
- > DISTRIBUTION BOARD 56 INCHES
- > CONTROL PANEL 48 INCHES
- > ON/OFF PUSH BUTTON STATION 48 INCHES
- > DIMMER CONTROL UNIT 48 INCHES
- > LIGHT CONTROL SWITCH (ONE WAY/TWO WAY) 48 INCHES
- > 5 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 15 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 20 AMP SOCKET OUTLETS IN GENERAL AREAS 12 INCHES
- > 16 AMP SOCKET OUTLETS IN KITCHEN (ABOVE COUNTER) 10 INCHES
- > 16 AMP TP SPIN INDUSTRIAL SOCKET OUTLETS IN LABS 12 INCHES
- > CEILING FAN ON SLAB
- > WALL BRACKET FAN 90 INCHES

CLIENT:



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**SCHOOL NAME**

REHAB WORKS OF  
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	Designed By	Checked By	
	Approved By		

**PROJECT:**

PREPARATION OF DESIGN, DRAWINGS & BOOK FOR CONSTRUCTION/ REHABILITATION OF SITES

**TITLE:**

GENERAL NOTES

**DATE** SEP 2023 **SCALE** **DRG.NO.** E-01

## APPROVED MANUFACTURE LIST

S NO.	ITEM OR ACCESSORIES	BRAND
01	WIRING CABLE	PAKISTAN,NEW AGE,FAST, GM, COPPERGAT CABLE
02	POWER CABLE	PAKISTAN,NEW AGE,FAST, GM, COPPERGAT CABLE
03	LIGHT FIXTURES	PHILIPS,PIERLITE,CLIPSAL, OSAKA, FAST LIGHT
04	CEILING FAN	PAK, GFC, ROYAL, LAHORE FAN
05	PVC CONDUIT	POLO,BETA,POPULAR, GM, ADAMJEE
06	SWITCHES	PPL
07	LT SWITCHGEAR	SCHNEIDER, ABB, PEL,ELECTRECH
08	MOULDED CASE CIRCUIT BREAKER	SCHNEIDER, CHINT, LS, ABB
9	MINIATURE CIRCUIT BREAKER	SCHNEIDER, CHINT, LS, ABB

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PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOOKS  
FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

APPROVED MANUFACTURE LIST

Designed By

Engr. HAMMAD AHMAD

Checked By

Approved By

DATE

SEP 2023

SCALE

DRG. NO.

E-02

SYMBOL	DESCRIPTION	INSTALLATION HEIGHT
	SURFACE MOUNTED DOWN LIGHT WITH 17 WATT ENERGY SAVER	CEILING MOUNTED
	TMS 136	SLAB MOUNTED
	56" SWEEP CEILING FAN	SLAB MOUNTED
	SWITCH BOARD	56" FROM FFL
	DISTRIBUTION UNIT	60" FROM FFL
	EXHAUST FAN POINT	

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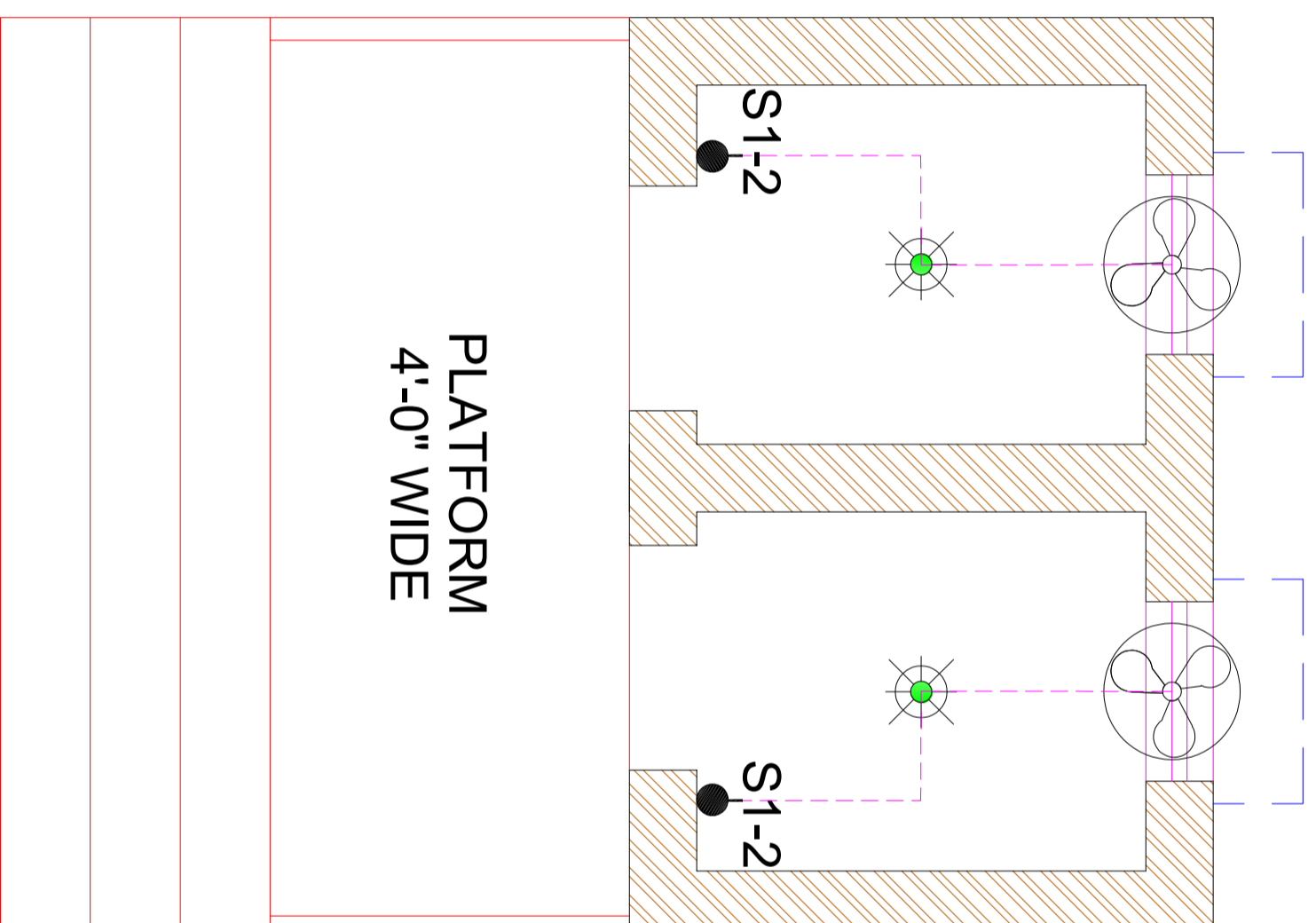
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	Approved By	

PROJECT:	DATE	SCALE	DRG.NO.
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES	SEP 2023		E-03
TITLE:		LEGEND	



# GROUND FLOOR PLAN

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PREPARATION OF DESIGN, DRAWINGS & BOQS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

GROUND FLOOR PLAN

Designed By

Engr. HAMMAD AHMAD

Checked By

Approved By

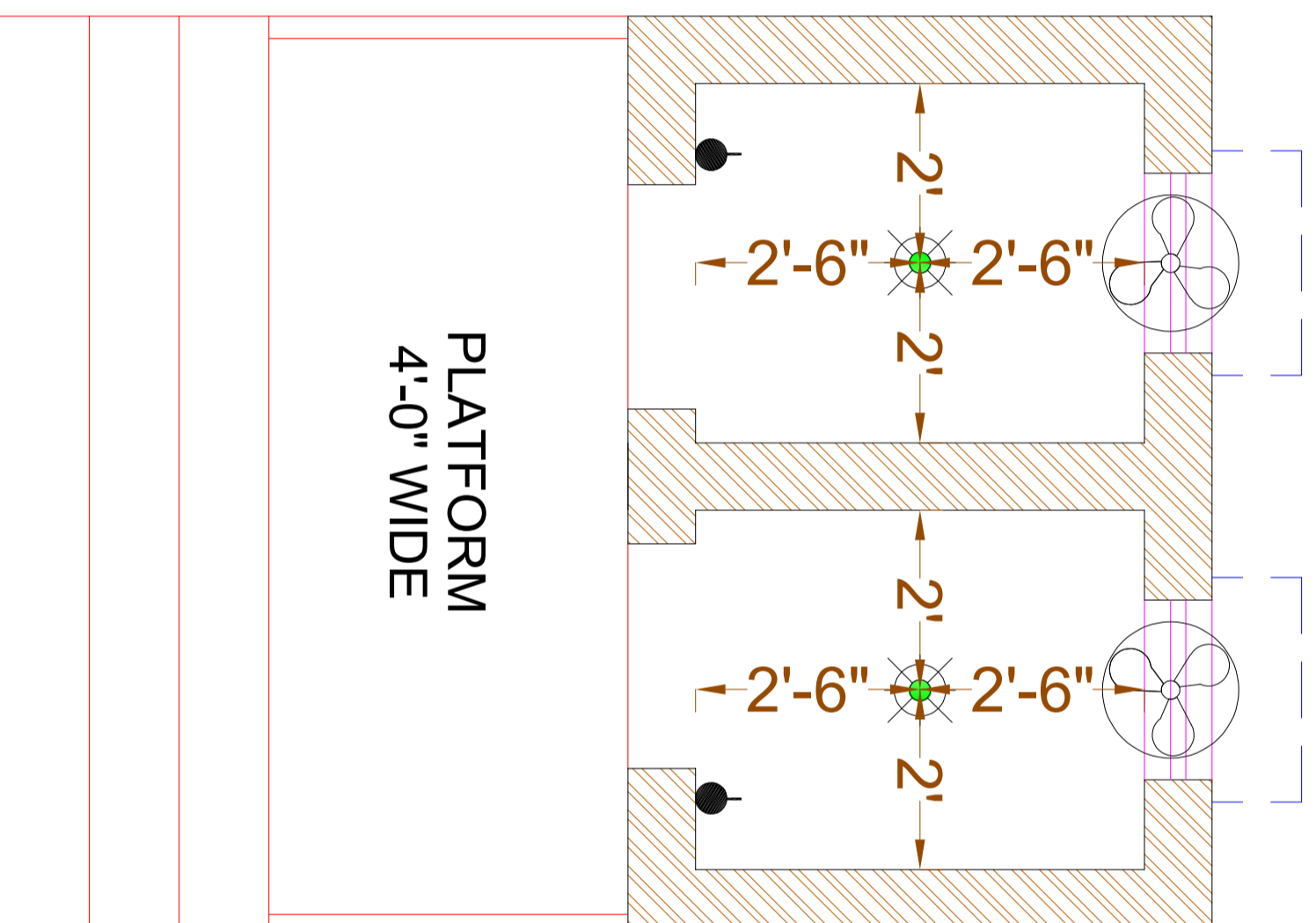
DATE

SEP 2023

SCALE

DRG.NO.

E-04



# GROUND FLOOR PLAN

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<b>PROJECT:</b>		
PREPARATION OF DESIGN, DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES		
<b>TITLE:</b>		
GROUND FLOOR DIMENSION PLAN		
<b>DATE</b>	<b>SCALE</b>	<b>DRG.NO.</b>
SEP 2023		E-05



**PROPOSED DESIGN OF  
(BOUNDARY WALL)  
GGPS RAIKA MAIRA  
RAWWALPINDI**



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## LIST OF DRAWINGS

ARCHITECTURAL DRAWINGS			STRUCTURAL DRAWINGS		
SR.NO	DESCRIPTION	DRG. NO.	SR.NO	DESCRIPTION	DRG. NO.
1	PLAN OF BOUNDARY WALL	A-01	5	GENERAL NOTES	S-01
2	FRONT ELEVATION OF BOUNDARY WALL	A-02	6	GENERAL NOTES	S-02
3	SECTION AT A.A	A-03	7	FOUNDATION PLAN	S-03
4	DETAIL B.B	A-04	8	COLUMN LAYOUT PLAN	S-04
			9	COLUMN SECTION DETAIL	S-05

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PROJECT:

PREPARATION OF DESIGN, DRAWINGS & BOOKS  
 FOR CONSTRUCTION/REHABILITATION OF SITES

TITLE:

LIST OF DRAWINGS

Designed By

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Checked By

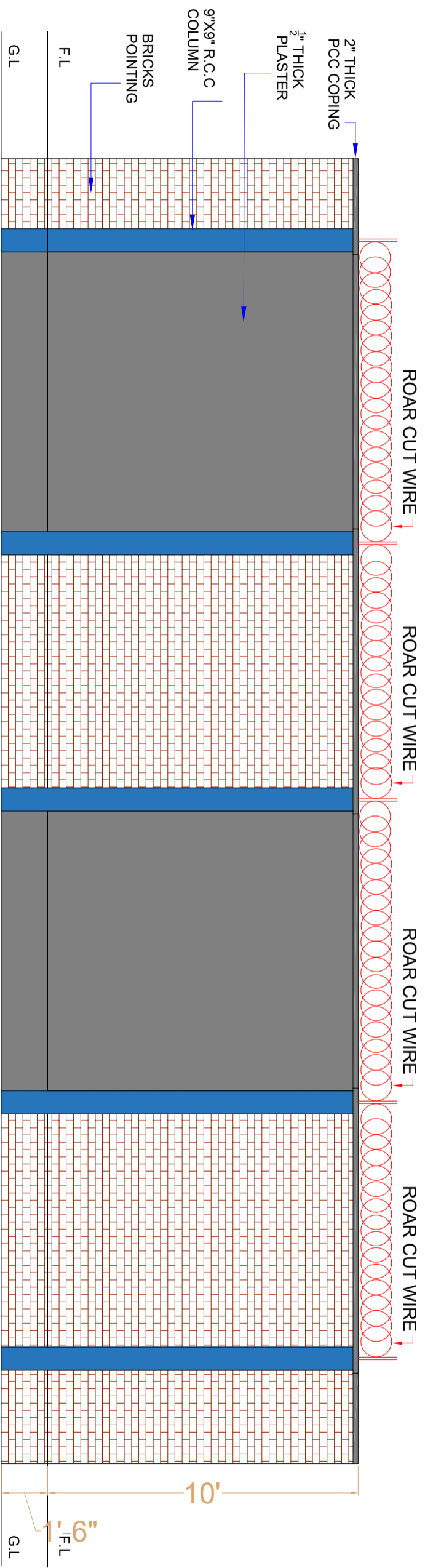
Approved By

DATE  
 SEP 2023

SCALE

DRG.NO.





## FRONT ELEVATION OF BOUNDARY WALL

CLIENT:



**PLANNERS CONSULTANTS ENGINEERS (PCE)**

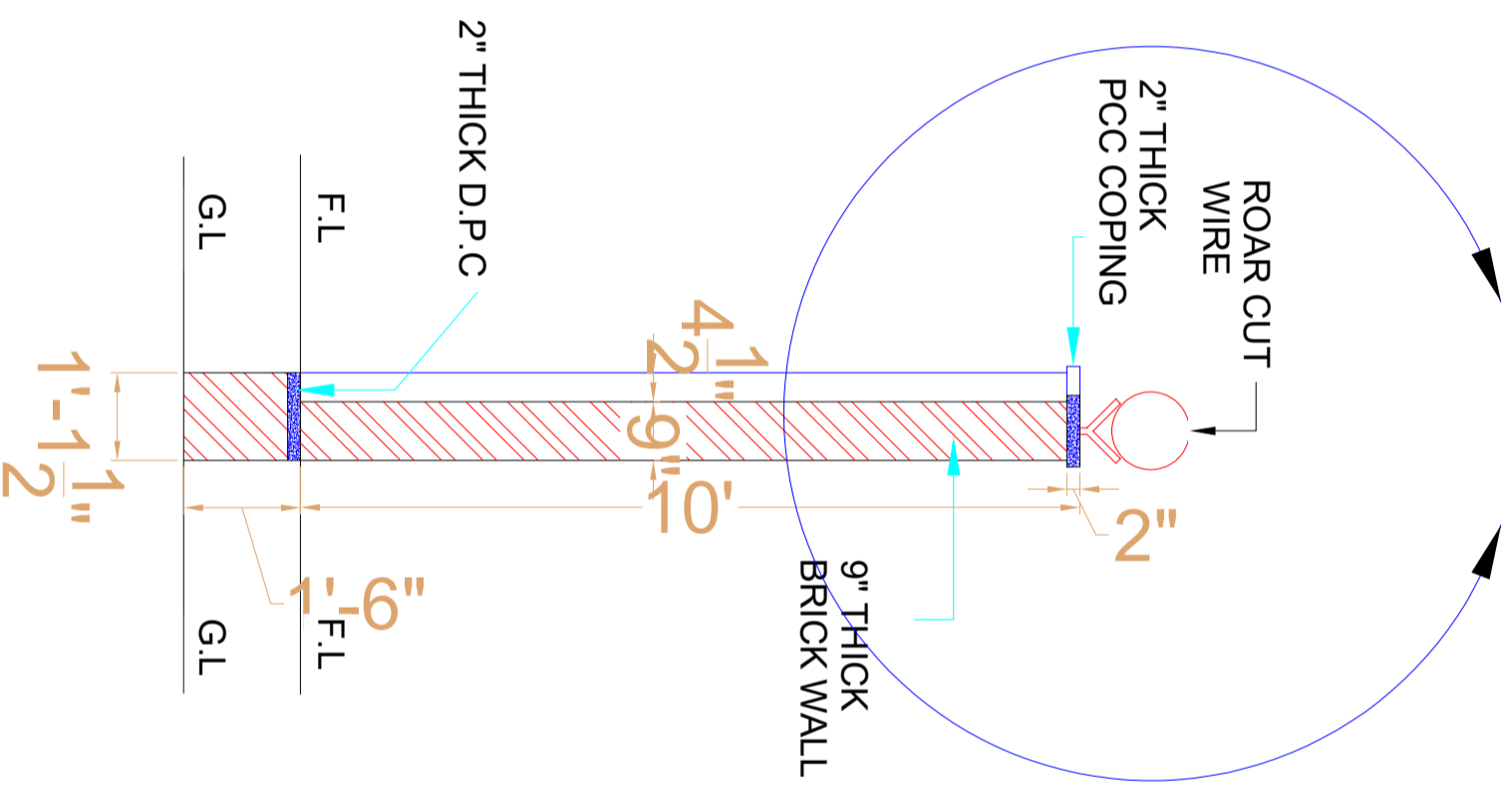
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	Designed By		TITLE:
	Checked By		FRONT ELEVATION OF BOUNDARY WALL
	Approved By		DATE
			SEP 2023
			SCALE
			DRG.NO.
			A-02



# SECTION AT A.A

CLIENT:



CONSULTANTS:

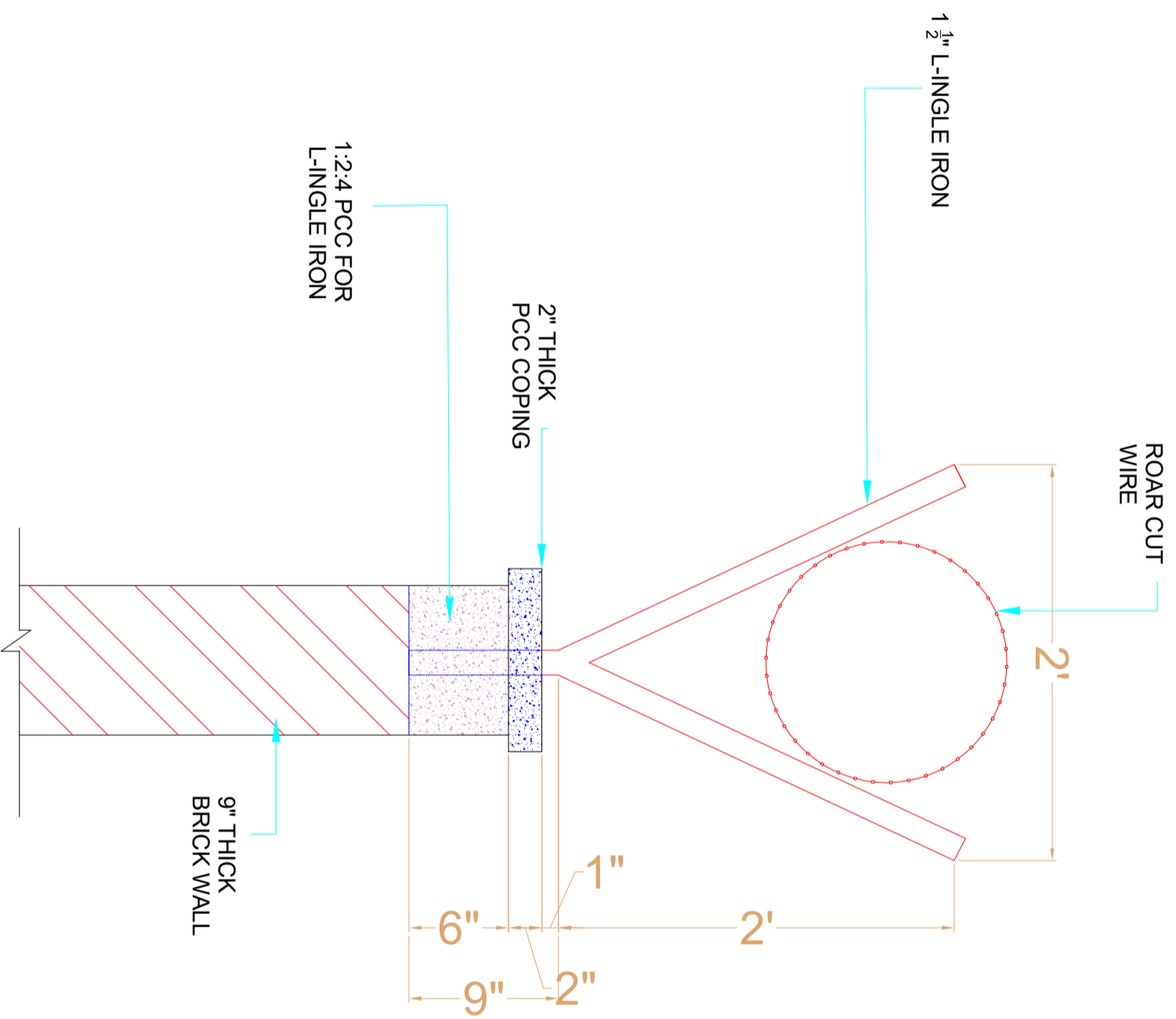


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DATE	SCALE	DRG.NO.	
SEP 2023		A-03	



# DETAIL B.B

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Date of Revision	Prepared By	ARCHITECT
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PROJECT:			
PREPARATION OF DESIGN, DRAWINGS & BOOKS FOR CONSTRUCTION/REHABILITATION OF SITES			
TITLE:		DETAIL B.B	
DATE	SCALE	DRG. NO.	
SEP 2023		A-04	

**STRUCTURE DRAWINGS OF  
(BOUNDARY WALL)  
GGPS RAIKA MAIRA  
RAWALPINDI**

## 1. GENERAL

1. READ ALL DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL, GEOTECHNICAL, PLUMBING, MECHANICAL, ELECTRICAL & ANY OTHER RELEVANT DRAWINGS.
2. NOTES GIVEN IN THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS UNLESS MENTIONED OTHERWISE. NOTES WRITTEN ON A DRAWING, SHALL BE APPLICABLE TO THAT PARTICULAR DRAWING ONLY UNLESS OTHERWISE CROSS-REFERRED.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE SPECIFICATIONS OF THE CONTRACT DOCUMENTS, IN ABSENCE OF ANY SPECIFICATIONS, ALL MATERIALS & WORKMANSHIP SHALL CONFORM TO RELEVANT AC/BRITISH CODES AND SHALL BE SUBJECTED TO APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURES DURING CONSTRUCTION. HE SHALL ALSO VERIFY ALL DIMENSIONS AND LEVELS BEFORE EXECUTION OF WORK. ANY DISCREPANCY, ERROR OR OMISSION, IF FOUND, SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR CORRECTION AND APPROVAL.
5. THE CONTRACTOR SHALL CO-ORDINATE WITH VARIOUS SERVICES DRAWINGS FOR SIZES & LOCATION OF ALL STRUCTURAL MEMBERS, FLOORS, WALLS, OPENINGS, FLOOR FINISHES, PIPES ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXECUTION OF DEWATERING SYSTEM WHERE SO REQUIRED DURING CONSTRUCTION.
7. ALL DIMENSIONS & LEVELS ARE IN FEET & INCHES.
8. DO NOT SCALE THE DRAWINGS. DIMENSIONS AND QUALITY CONTROL IS TO BE DONE IN ACCORDANCE WITH THE LATEST APPLICABLE AC/BRITISH SPECIFICATIONS.
9. BACKFILLING AROUND FOUNDATIONS AND WALLS SHALL BE WELL COMPACTED LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS.
10. IT IS STRONGLY RECOMMENDED TO RECONFIRM THE SITE PLAN BEFORE START OF EXECUTION AT SITE. THE SITE SHOULD BE EXAMINED FOR CLEARANCE WITH RESPECT TO LOCAL/SEISMIC HAZARDS.
11. THE CONTRACTOR SHALL INFORM THE ENGINEER ABOUT ANTICIPATED CONSTRUCTION LOADS IN THE STRUCTURE AND OBTAIN ENGINEER'S APPROVAL THEREOF BEFORE COMMENCING THE WORK.
12. THE CONTRACTOR SHALL VERIFY LAYOUT, CONFIGURATION, ALL DIMENSIONS AND LEVELS PERTAINING TO EXISTING WORKS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL ADOPT ADEQUATE AND APPROPRIATE MEASURES SO AS NOT TO DAMAGE THE EXISTING WORKS.
13. THE CONTRACTOR SHALL EXERCISE UTMOST CARE AND PRECAUTION DURING THE WORKS, AGAINST ANY MISHAPS OR ACCIDENTS, FOR WHICH THE CONTRACTOR SHALL BE WHOLLY AND SOLELY RESPONSIBLE. THE CONTRACTOR SHALL INDEMNIFY THE OWNER AGAINST ANY ACCIDENTS AND ANY LOSSES THEREFROM AND SHALL REPAIR AND RECTIFY THEM AT HIS OWN COST AND TIME.
14. ANY DEPARTURES/DEVIATIONS DESIRED FROM THE DESIGN OR SPECIFICATIONS, OR SOLUTIONS TO ANY PROBLEMS ENCOUNTERED, SHALL BE GOT APPROVED FROM THE ENGINEER PRIOR TO IMPLEMENTATION. UNAPPROVED DEPARTURES/DEVIATIONS MAY LEAD TO REJECTION/REPLACEMENT OF THE ENTIRE WORK AT THE CONTRACTOR'S COST.
15. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS AND BAR BENDING SCHEDULES. THE ENGINEER'S APPROVAL SHALL NOT RELIEVE THE APPROVAL BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ACCURACY OF SHOP DRAWINGS AND BAR BENDING SCHEDULES. FOR ENGINEERS APPROVAL AND OBTAIN HIS CONTRACTOR FROM HIS RESPONSIBILITY.
16. The allowable bearing capacity of soil should be 1stf.

## 2. SHORING AND BRACING

1. SHORE & BRACE ALL PARTS OF THE STRUCTURE DURING CONSTRUCTION, TO THE EXTENT NECESSARY TO ENSURE COMPLETE SAFETY, STRENGTH & SERVICEABILITY OF ALL STRUCTURAL ELEMENTS UNDER ALL CONDITIONS OF LOADS WHICH MAY OCCUR DURING CONSTRUCTION. SUCH SHORING & BRACING IS THE CONTRACTOR'S SOLE RESPONSIBILITY AND IS NOT SHOWN ON STRUCTURAL DRAWINGS OR SPECIFIED IN THE PROJECT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE SLOPES AND SHALL PROVIDE SHORING AND BRACING DURING EXCAVATION AND CONSTRUCTION, WHEREVER AND WHENEVER REQUIRED.
3. SEQUENCE OF REMOVAL OF FORMWORK SHALL BE APPROVED BY THE ENGINEER. AT LEAST ONE LOWER FLOOR SHALL REMAIN PROPPED UNTILL THE UPPER FLOOR IS CAST AND CURED.

## 3. REINFORCED CONCRETE

1. STRUCTURAL DESIGN IS BASED ON THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE OF AMERICAN CONCRETE INSTITUTE (ACI 318).
2. ALL STRUCTURAL CONCRETE SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE REQUIREMENTS.
3. CONCRETE MIX TO BE DESIGNED ON THE BASIS OF ACI 211 OR EQUIVALENT. TRIAL STRENGTH RESULTS TO BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BEFORE CONCRETING.
4. NO CONCRETING SHALL BE CARRIED OUT UNTIL PERMISSION IS GIVEN IN WRITING OR, APPROVED BY STRUCTURE ENGINEER.
5. ALL CONCRETE SHALL BE TESTED IN ACCORDANCE WITH ASTM STANDARDS C31, C39, C172 & AS WRITTEN IN SPECIFICATIONS AND THE MINIMUM CYLINDER CRUSHING STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS. TESTING OF CLASS D & CONCRETE SHALL BE PERFORMED IF SO SHAHEED CHAWK EXACT. NEAR ALFALAH FURNITURE LOWER DIRECTED BY THE ENGINEER.

CLASS \_\_\_\_\_ MIN. CYLINDER CRUSHING STRENGTH  
AT 28 DAYS (psi).

A \_\_\_\_\_ 4000  
B \_\_\_\_\_ 3000  
C \_\_\_\_\_ 2400  
D \_\_\_\_\_ 1200  
E \_\_\_\_\_ 800

6. CLASS OF CONCRETE FOR DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE AS FOLLOWS UNLESS NOTED OTHER WISE:

COMPONENT	CONCRETE CLASS
COLUMNS	CLASS 'B'
FOUNDATION	CLASS 'B'
LEAN / BLINDING CONCRETE	CLASS 'E'

7. ORDINARY PORTLAND CEMENT SHALL BE USED FOR ALL CONCRETE WORKS.
8. AN INTEGRAL WATER PROOFING AGENT SHALL BE USED IN CONCRETE THAT IS CONSTANTLY OR INTERMITTENTLY IN CONTACT WITH WATER AS PER MANUFACTURER'S RECOMMENDATIONS (GENCON GEMPRUF RMC OR PENETRON ADMIX OR EQUIVALENT).
9. ALL DETAILING SHALL BE DONE AS PER ACI STANDARDS ACI-315, ACI-318 & ACI-308.

STRUCTURAL ELEMENT	COVER (INCHES)
FOOTINGS	2"
BEAMS	1 1/2"
COLUMNS	1 1/2"
SLABS	3/4"
WALLS	3/4"

## 4. REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60 HAVING A MINIMUM YIELD STRENGTH OF 60,000 PSI. FOR STIRRUPS, TIES AND #3 BARS USE ASTM A615, GRADE 60 HAVING MINIMUM YIELD STRENGTH OF 60,000 PSI.
2. THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED STRENGTH BY MORE THAN 18,000 PSI (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3000 PSI)
3. ACTUAL TENSILE YIELD STRENGTH IS NOT LESS THAN 1.25 CLEAR COVER TO REINFORCEMENT SHALL BE: (inches)
4. L-GREATER CLEAR SPAN, db-DIAMETER OF BAR, d-EFFECTIVE DEPTH THE FIRST HOOP SHALL BE LOCATED NOT MORE THAN 2" FROM THE FACE OF THE SUPPORTING MEMBER.

WHERE:

7. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN THE FORMS AND HELD FIRMLY IN PLACE BEFORE & DURING THE PLACEMENT OF CONCRETE, BY MEANS OF WIRE AND SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION.
8. LINTELS ARE EXTENDED AT 9 (INCHES) FROM BOTH SIDES OF OPENING.
9. PROVIDE 135° HOOK IN ADJACENT STIRRUPS ON ALTERNATE SIDES.

## 5. CONCRETE CONSTRUCTION

1. ALL STRUCTURAL SURFACES, AGAINST WHICH EARTH IS TO BE FILLED, SHALL BE COATED WITH TWO COATS OF HOT BITUMEN OF 10/20 GRADE AT THE RATE OF 0.2 lbs/ft<sup>2</sup>/coat.
2. PROVIDE POLYETHENE SHEET OVER TWO COATS OF HOT BITUMEN AT TOP OF PLINTH BEAM/DPC FOR EXTERIOR WALLS.
3. BEFORE CASTING OF ANY STRUCTURAL MEMBER, THE CONTRACTOR SHALL ENSURE THAT ALL EMBEDDED ITEMS FOR ELECTRICAL, MECHANICAL, HVAC, PLUMBING, STRUCTURAL STEEL AND OTHER WORKS ARE PROPERLY LOCATED AND FIRMLY SECURED IN PLACE. DURING CONSTRUCTION, STACKING OF CONSTRUCTION MATERIALS, BLOCKS, etc. SHOULD BE AVOIDED ON SLAB PANELS.

## 6. BRICK WORK

1. ALL BRICK WORK SHALL CONFORM TO SPECIFICATIONS GIVEN IN THE CONTRACT DOCUMENT.
2. ALL BRICK SHALL BE SOUND, HARD, WELL BURNED AND OF UNIFORM SIZE, COLOUR AND TEXTURE. DIMENSIONAL VARIATION IN SIZES SHALL NOT EXCEED 1/8". BRICKS SHOULD BE IN ACCORDANCE WITH SPECIFICATIONS AND SHOULD CONFORM TO ASTM C62.
3. ALL BRICK WORK SHALL BE ERECTED PLUMB AND TRUE TO LINE AND LEVEL. THE MAXIMUM VARIATION IN ANY STOREY HEIGHT OR ANY LENGTH OF WALL SHALL BE 1/8" IN 10'-0".
4. MORTAR USED IN MASONRY CONSTRUCTION SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF NOT LESS THAN 12 MPa (1800Psi) AND SHALL CONFORM TO ASTM C270.
5. COMPRESSIVE STRENGTH OF BRICK MASONRY AVERAGE OF 5 UNITS AT 28 DAYS SHALL NOT BE LESS THAN AS SPECIFIED IN SPECIFICATION AND SHALL CONFORM TO RELEVANT ASTM STANDARD.
6. ALL DESIGN, DETAILING, MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH RELEVANT ACI, ASTM, AND UBC CODES AND STANDARDS.
7. BRICK SHALL BE LAID "FROG" UPWARD WITH MORTAR JOINT AND IN ENGLISH FLEMISH BOND OR AS SHAHEED CHAWK EXACT. NEAR ALFALAH FURNITURE LOWER DIRECTED BY THE ENGINEER.
8. BRICKS SHOULD BE SOAKED WITH WATER PROPERLY BEFORE USE.
9. VERTICAL JOINTS SHOULD BE STAGGERED.
10. ALL MASONRY WALLS SHALL BE ANCHORED TO STRUCTURAL FRAME WORK AS INDICATED ON THE DRAWINGS

CLIENT:



CONSULTANTS:

**PLANNERS CONSULTANTS ENGINEERS (PCE)**

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SCHOOL NAME

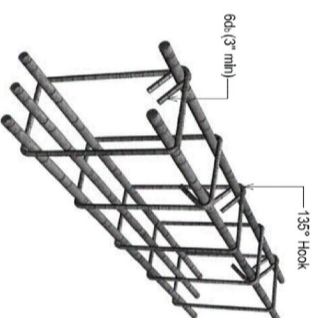
GGPS RAIKA MAIRA  
RAWALPINDI

Date of Revision	Prepared By	STRUCTURE ENGINEER:	PROJECT:
	Designed By	Engr. HUMZA AHMAD	PREPARATION OF DESIGN, DRAWINGS & BOOK FOR CONSTRUCTION/REHABILITATION OF SITES
	Checked By		TITLE: GENERAL NOTES
	Approved By		DATE: SEP 2023
			SCALE
			DRG. NO. S-01

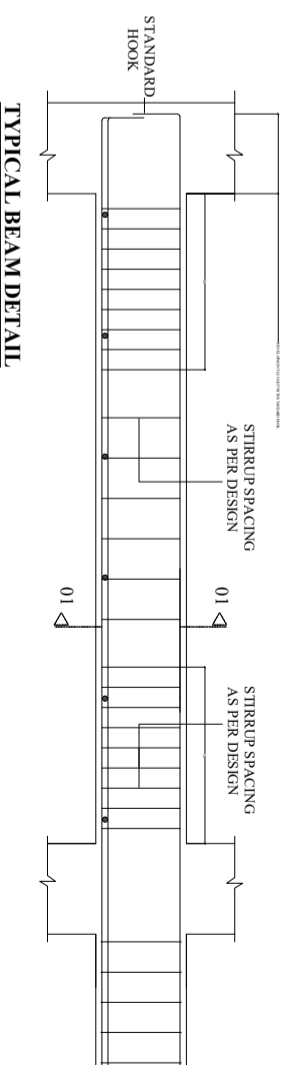


## 7. CONSTRUCTION JOINTS

1. JOINTS, NOT SHOWN ON THE DRAWING, SHALL BE SO MADE AND LOCATED AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND SHALL NEED PRIOR APPROVAL OF THE ENGINEER. THEY SHALL BE LOCATED NEAR THE MIDDLE OF THE SPANS OF SLAB & BEAMS. JOINTS IN WALLS & COLUMNS SHALL BE AT THE UNDER-SIDE OF FLOORS, SLABS OR BEAMS AND AT THE TOP OF FOOTINGS OR FLOOR SLABS.
2. JOINTS SHALL BE PERPENDICULAR TO MAIN REINFORCEMENT. ALL REINFORCING STEEL SHALL BE CONTINUED ACROSS THE JOINTS.
3. JOINTS IN BASE SLAB & WALLS AND ROOF SLAB, IN ADDITION TO THOSE SHOWN ON THE DRAWINGS SHALL BE BORNE BY THE CONTRACTOR. BEAMS & BRACKETS SHALL BE PLACED AT THE SAME TIME AS SLABS.



SEISMIC HOOK DETAILS



TYPICAL BEAM DETAIL

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 4,000$ psi	$f_y = 60,000$ psi
3/8"	18	7.5
1/2"	24	9.5
3/4"	30	14.5
1"	48	19

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

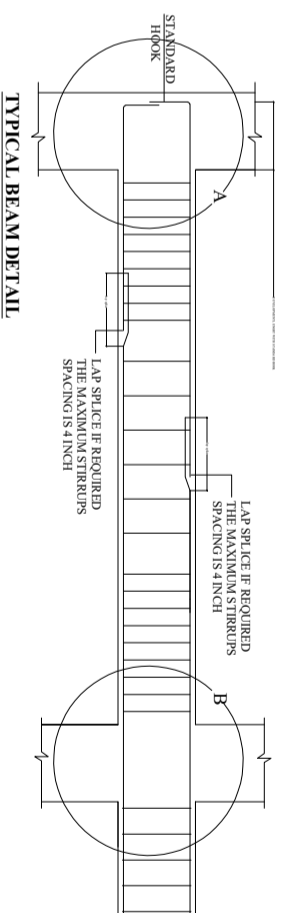
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	TENSION $f_c' = 3,000$ psi	COMPRESSION $f_y = 40,000$ psi
3/8"	15	-
1/2"	20	9
3/4"	30	15
1"	48	18

DEVELOPMENT LENGTH IN TENSION (ACI 21.5.4.1)

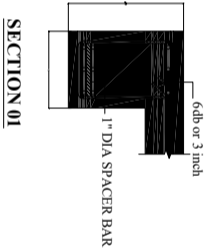
BAR DIA	DEVELOPMENT LENGTH (INCHES)	
	$f_c' = 3,000$ psi	$f_y = 60,000$ psi
1/2"	22	11"
5/8"	30	14"
3/4"	34	17"
1"	55	22"

SPLICE LENGTH (ACI 21.3.2.4, Class B Splice)

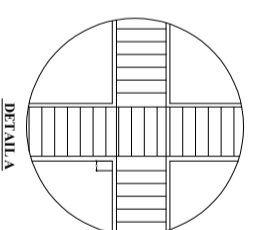
BAR DIA	MINIMUM SPLICE LAP LENGTH (INCHES)	
	SLAB $f_c' = 3,000$ psi	BEAM / COLUMN $f_y = 60,000$ psi
1/2"	25	35
5/8"	-	44
3/4"	-	55
1"	-	70



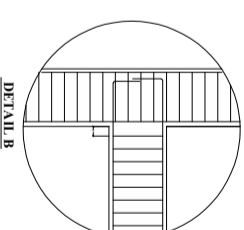
TYPICAL BEAM DETAIL



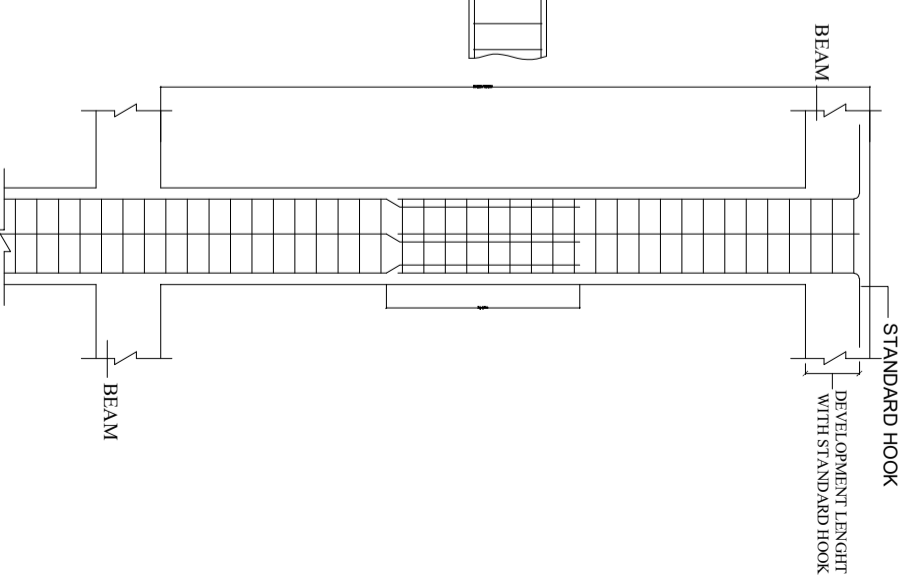
SECTION 01



DETAIL A



DETAIL B



TYPICAL COLUMN DETAIL

CLIENT:



The UN Refugee Agency

CONSULTANTS:



**PLANNERS CONSULTANTS ENGINEERS (PCE)**

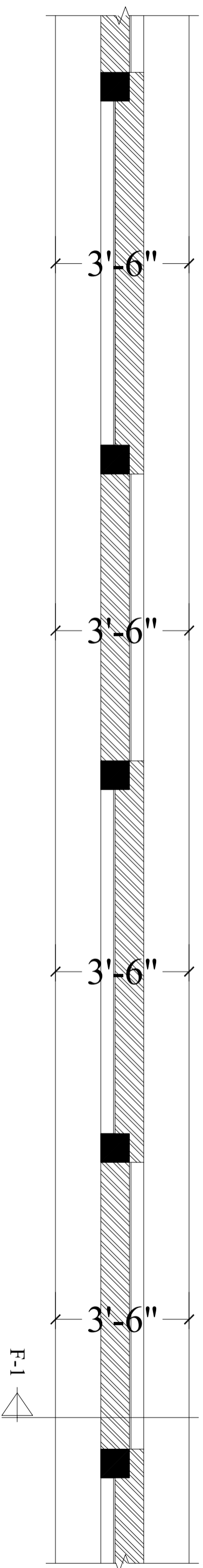
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SCHOOL NAME



GGPS RAIKA MAIRA  
RAWALPINDI

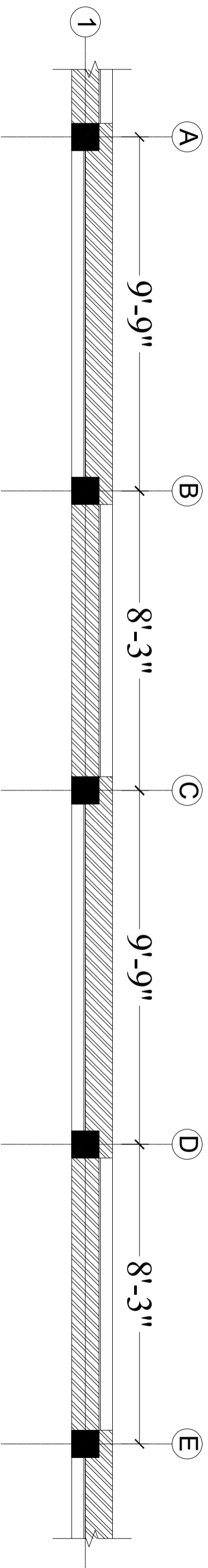
Date of Revision	Prepared By	Checked By	Approved By
	FAHAD KHAN KHAJANJAKIR STRUCTURE ENGINEER	Engr. HUMZA AHMAD	

PROJECT:	TITLE:	DATE	SCALE	DRG. NO.
PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES	GENERAL NOTES	SEP 2023		S-02





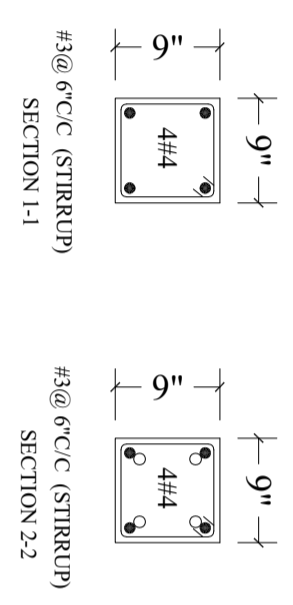
**FOUNDATION PLAN**

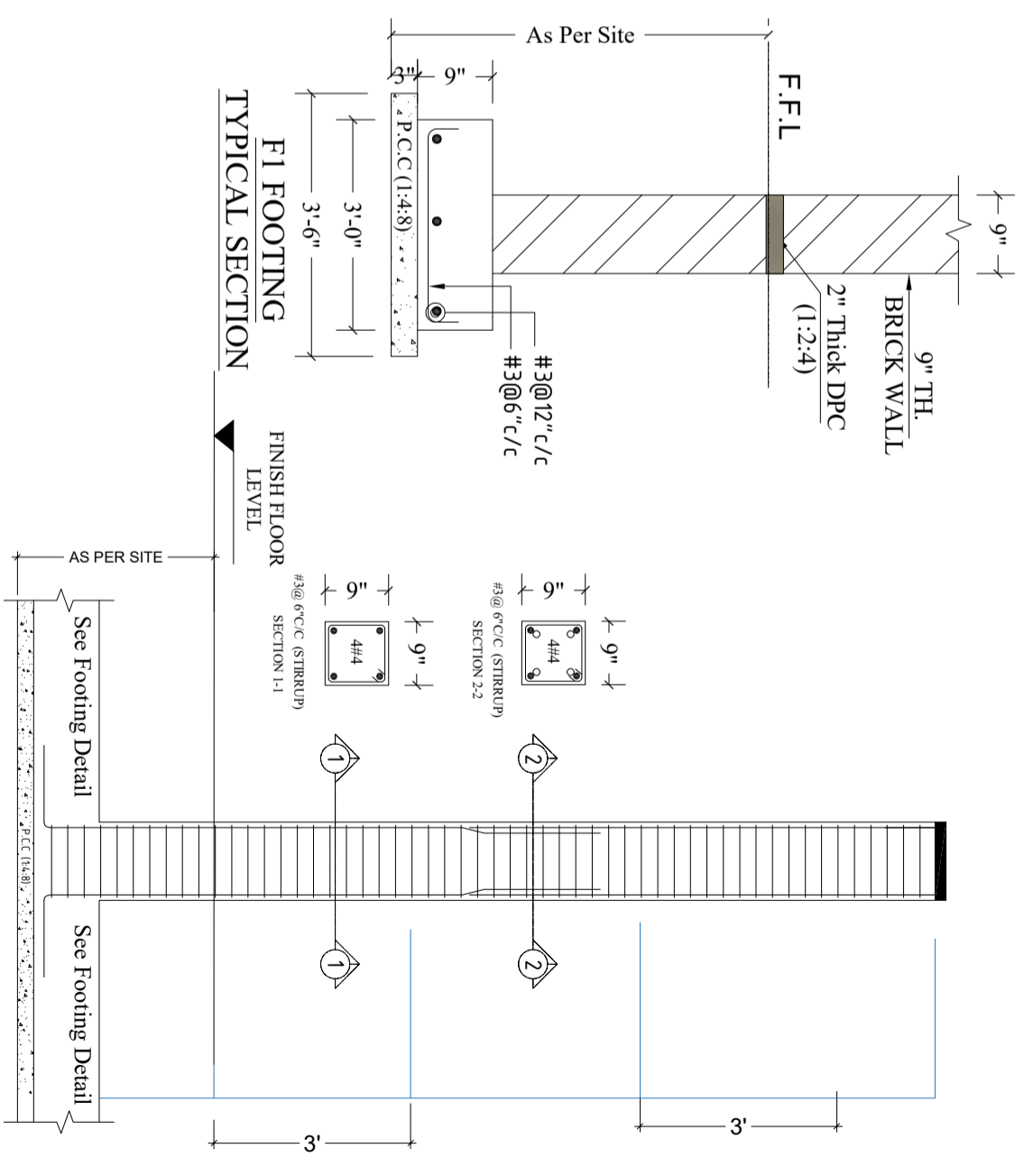
<b>CLIENT:</b>  The UN Refugee Agency		<b>CONSULTANTS:</b>  <b>PLANNERS CONSULTANTS ENGINEERS (PCE)</b> 97-K Industrial Estate, Hayatabad Peshawar Pakistan Ph: 0092-91-5816017, 5891661-4, Fax: 5891845 E-Mail: pce.pesh@yahoo.com		<b>SCHOOL NAME</b> GGPS RAIKA MAIRA RAWALPINDI	
Date of Revision	Prepared By	FARID KILAN KILAN HAIDER STRUCTURE ENGINEER		<b>PROJECT:</b> PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/ REHABILITATION OF SITES	
	Designed By	Engr. HUMZA AHMAD		<b>TITLE:</b> FOUNDATION PLAN	
	Checked By			DATE	SEP 2023
	Approved By			SCALE	
				DRG. NO.	S-03





**COLUMN LAYOUT PLAN**

<b>CLIENT:</b> 		<b>CONSULTANTS:</b> 	
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Date of Revision	Prepared By	FARID KHAN KHAN HAIDER STRUCTURE ENGINEER	<b>PROJECT:</b> PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES <b>TITLE:</b> COLUMN LAYOUT PLAN
	Designed By	Engr. HUMZA AHMAD	
	Checked By		
	Approved By		<b>DATE</b> SEP 2023 <b>SCALE</b> <b>DRG.NO.</b> S-04

<b>SCHEDULE OF COLUMNS</b>	
<b>COLUMN TYPES</b>	<b>COL. C-1</b>
<b>GROUND FLOOR LEVEL</b>	



**COLUMN LONG SECTION C-1**

<b>CLIENT:</b>		<b>CONSULTANTS:</b>		<b>SCHOOL NAME</b>		<b>PROJECT:</b>	
 The UN Refugee Agency		 <b>PLANNERS CONSULTANTS ENGINEERS (PCE)</b> 97-K Industrial Estate, Hayatabad Peshawar Pakistan Ph: 0092-91-5816017, 5891661-4, Fax: 5891845 E-Mail: pce.pesh@yahoo.com		<b>GGPS RAIKA MAIRA</b> <b>RAWALPINDI</b>		PREPARATION OF DESIGN DRAWINGS & BOQS FOR CONSTRUCTION/REHABILITATION OF SITES	
Date of Revision		Prepared By		Engr. FARID KHAN KIHAN HADIR STRUCTURE ENGINEER		TITLE:	
		Designed By		Engr. HUMAZA AHMAD		COLUMN SECTIONS DETAIL	
		Checked By				DATE	
		Approved By				SEP 2023	
						SCALE	
						DRG. NO.	
						S-05	