



ALI AL SALEM AB, KUWAIT
KMOD – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITES
KU-509974-2

VOLUME 13 - FACILITY O - FIRE WATER PUMP HOUSE



SOLICITATION NO.: W912ER26RA016

CONTRACT NO.:

ISSUE DATE: JULY 2026

VOLUME 13 OF 14

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6	FACILITY F - GUARD HOUSE
7	FACILITY G1 - SUNSHADES - SINGLE
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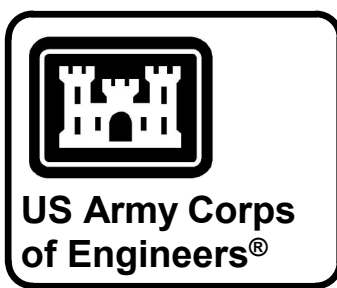
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U.S. DISTRICT COURT DISTRICT OF SOUTHERN DISTRICT OF NEW YORK	201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	C. O'BANNON MIDDLE EAST DISTRICT	JULY 2026	SOLICITATION NO.: W912ER2RA016	FILED DATE: 7/15/2026 2:39:53 PM	FILE NAME: KU-509974-20-G1001	ISO A1
				CONTRACT NO.:			
				CHECKED BY:			
				E. STILLMAN			
				D. RACKMALES			

KUWAIT APACHE ALERT FACILITIES
KU-509974-2

FIRE WATER PUMP HOUSE
FACILITY COVER SHEET

SHEET ID
O
GI001

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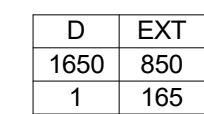
U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22802	DESIGNED BY: C. O'BANNON	ISSUE DATE: July 2026
	DRAWN BY: C. O'BANNON	SOLICITATION NO.: W912ER26RA016
	CHECKED BY: E. STILLMAN	CONTRACT NO.:
	SUBMITTED BY: D. RACKMALES	PLOT DATE: 7/15/2026 2:39:53 PM
	SIZE:	FILE NAME: KU-509974-20-G011
	ISO A1	

AL TAL SALEH AB, KUWAIT
KMOO – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-508974-2

FIRE WATER PUMP HOUSE
INDEX OF DRAWINGS

SHEET ID
O
GI011

OCCUPANT LOAD					
ROOM NO.	ROOM NAME	USE GROUP	AREA	OLF [m² / PERSON]	OCCUPANT LOAD
100	PUMP ROOM	INDUSTRIAL	119 m²	28	5
101	PANEL CLOSET	ACCESSORY	1 m²		0
TOTAL OCCUPANT LOAD					



D	EXT
1650	850
1	165

D	EXT
1650	850
1	165

D	EXT
1650	850
1	165

D	EXT
1650	850
1	165

1 LIFE SAFETY PLAN - GROUND FLOOR
1:50

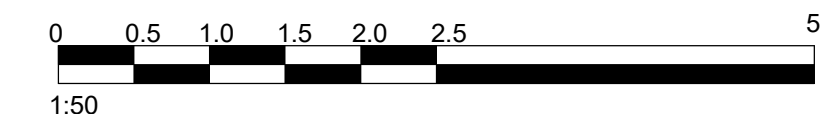
1 : 50

1. CONTRACTOR AWARDED THIS PROJECT IS REQUIRED TO COMPLY WITH KUWAIT REGULATIONS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
2. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REQUIREMENTS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS. DURING WORKING DESIGN AND INSTALLATION OF SPRINKLERS AND FIRE ALARM, ENSURE SPRINKLERS AND FIRE ALARM DEVICES ARE NOT OBSTRUCTED BY BUILDING COMPONENTS OR ANY OTHER SERVICE COMPONENTS (E.G., PIPES, SEWAGE, ELECTRICAL, ETC.)
3. FOR APACHE ALERT MISSION COMPLEX EXTINGUISHING SYSTEMS, FIRE PROTECTION, FIRE ALARM, LIFE SAFETY AND SUPPRESSION SYSTEM STANDARD DETAILS, LEGENDS, AND SYMBOLS SEE STANDARD DETAILS SHEETS SF001, F002, F003, SF501, SF502, AND SPECIFIC FACILITY DRAWINGS.
4. FOR EXIT AND EMERGENCY LIGHTS REFER TO THE ELECTRICAL DRAWINGS.
5. PORTABLE FIRE EXTINGUISHER LOCATIONS ARE SHOWN FOR REFERENCE ONLY. ACTUAL LOCATIONS MUST BE COORDINATED BY THE INSTALLING CONTRACTOR AND COMPLY WITH KFF REGULATIONS.
6. ITEMS ANTICIPATED TO BE STORED: DIESEL FUEL.
7. HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSIBLE CAPACITY.

Diagram illustrating the components and labels of a fire extinguisher cabinet:

- TRAVEL DISTANCE (TD)**: Indicated by an arrow pointing to the right.
- 6KG DRY POWDER FIRE EXTINGUISHER IN CABINET**: Indicated by an icon of a fire extinguisher labeled "FEC".
- EGRESS CAPACITY TAG**: A tag with the following information:

COMPONENT:		EXIT TYPE:	
DOOR	(D)	INTERIOR	(INT)
STAIRWAY	(S)	EXTERIOR	(EXT)
ACTUAL CLEAR WIDTH	0	EXT	0
ACTUAL EGRESS	80	100	EGRESS CAPACITY



UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.

[illegible]

MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	M. MOORE DRAWN BY: M. MOORE CHECKED BY: R. DIPERT QUANTITY BY: A. FREEMAN	SOLICITATION NO.: W912ER29R016 CONTRACT NO.: PLOT DATE: 7/02/2026 2:56:47 PM FILE NAME: KU-508974-20-G1101
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FIRE WATER PUMP HOUSE
LIFE SAFETY PLAN - GROUND FLOOR

SHEET ID
O
GI101

UFC 1-200-01	DOD BUILDING CODE WITH CHANGE 3, 26 FEBRUARY 2024
UFC 3-301-01	STRUCTURAL ENGINEERING, CHANGE 1, 2 OCTOBER 2023
UFC 3-320-06A	CONCRETE FLOOR SLABS ON GRADE SUBJECTED TO HEAVY LOADS, 1 MARCH 2005
IBC 2021	INTERNATIONAL BUILDING CODE, 2021
ASCE 7-16	MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
AISC-325	AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL- 15TH EDITION
AISC 341-16	SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS
ACI 318-19	BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2014
TMS 402/602-16	BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES
AWS D1.1	STRUCTURAL WELDING CODE - STEEL, 2015
AWS D1.8	STRUCTURAL WELDING CODE - SEISMIC SUPPLEMENT, 2016

RISK CATEGORY :	IV
ROOF DEAD LOAD :	SELF WIEGHT + 2.1 kPa
ROOF LIVE LOAD :	1.0 kPa MINIMUM
CORRIDOR LIVE LOAD - FIRST FLOOR:	4.8 kPa
LATRINES:	3.6 kPa
MECH/ELEC/COMM:	6.0 kPa
STAIRS AND LANDINGS LIVE LOAD :	4.8 kPa
SLAB ON GRADE (TYPICAL, UNO) :	4.8 kPa

SNOW LOAD: N/A

SEISMIC LOAD:
SITE CLASS: C
IMPORTANT FACTOR, I_e : 1.5

SPECTRAL RESPONSE ACCELERATIONS:
 SHORT PERIOD, S_s: 0.410g
 ONE SECOND PERIOD, S₁: 0.110g

DESIGN SPECTRAL RESPONSE ACCELERATIONS:
SHORT PERIOD, SDS: 0.355g
ONE SECOND PERIOD, SD1: 0.110g

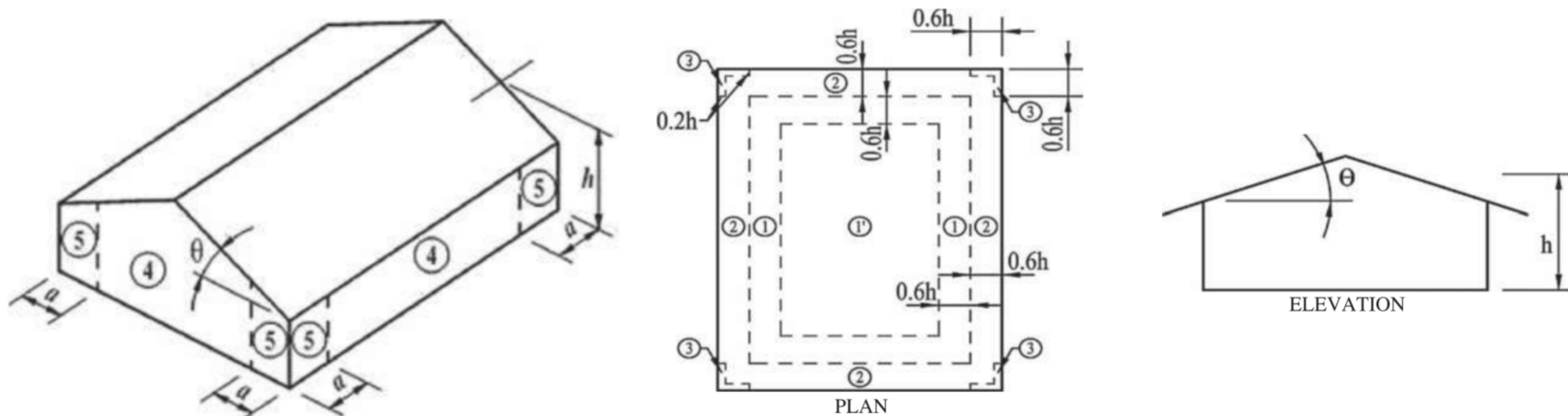
SEISMIC DESIGN CATEGORY:	D
SEISMIC ANALYTICAL PROCEDURE:	EQUIVALENT LATERAL FORCE PROCEDURE
LATERAL FORCE RESISTING SYSTEM :	STEEL ORDINARY MOMENT FRAME
RESPONSE MODIFICATION FACTOR, R:	3.5
SYSTEM OVERSTRENGTH FACTOR:	3.0
DEFLECTION AMPLIFICATION FACTOR, Cd:	3.0
SEISMIC RESPONSE COEFFICIENT, Cs:	0.152
DESIGN BASESHEAR, V:	0.152W (W = SEISMIC WEIGHT)

WIND LOAD:	
BASIC WIND SPEED, V :	174 KPH
EXPOSURE CATEGORY:	C
IMPORTANT FACTOR, I_w :	1.00
INTERNAL PRESSURE COEFFICIENT, GC_{pi} :	+/-0.18
TOPOGRAPHIC FACTOR, K_{zt} :	1.0
DIRECTIONALITY FACTOR, K_d :	0.85

FOUNDATION DESIGN CRITERIA:
SEE SS001 FOR ADDITIONAL INFORMATION.

A. FOUNDATION DESIGN IS BASED UPON THE FOLLOWING SOIL PARAMETERS:

A. CONTINUOUS FOOTING	144 kPa
B. ISOLATED FOOTING	168 kPa
B. LATERAL EARTH PRESSURE PARAMETERS:	
1. SOIL DENSITY (MOIST)	19.6 kN/m ³
2. COEFFICIENT OF ACTIVE PRESSURE (Ka) =	0.31
3. COEFFICIENT OF AT-REST PRESSURE (Ko) =	0.47
4. COEFFICIENT OF PASSIVE EARTH PRESSURE (Kp) =	3.25
5. ANGLE OF INTERNAL FRICTION (phi) =	32 DEGREE
6. COEFFICIENT OF FRICTION (mu) =	0.40
7. MODULUS OF SUB-GRADE REACTION (Ks) FOR SOG =	54 MN/m ³



1. ALL EXTERIOR WALLS, WINDOWS, DOORS, MECH. LOUVERS, ROOFING COMPONENTS, AND ALL OTHER ASSEMBLIES OR OPENINGS WITHIN THE BUILDING ENVELOPE SHALL BE DESIGNED FOR THE C&C DESIGN WIND PRESSURES AS SHOWN BY ZONE.
2. LOCATION OF ZONES IS PROVIDED PER ASCE7-16, FIG. 30.3-1 & 30.3-2
3. DISTANCE (a) = 900mm, 0.2h = 840mm AND 0.6h = 2520mm.
4. THE CONTRACTOR SHALL USE COMPONENT AND CLADDING WIND PRESSURE TO DESIGN ALL ELEMENTS ATTACHED TO THE BUILDING.

C&C WALL WIND PRESSURE (kPa)				
ZONE	EFFECTIVE AREA, M²	POSITIVE PRESSURE	NEGATIVE PRESSURE	NOTES
4	0.93	1.11	-1.21	
4	9.30	0.95	-1.04	
4	18.60	0.90	-0.99	
4	46.45	0.83	-0.93	
5	0.93	1.11	-1.48	
5	9.30	0.95	-1.16	
5	18.60	0.90	-1.06	
5	46.45	0.83	-0.93	
C&C ROOF WIND PRESSURE (kPa)				
ZONE	EFFECTIVE AREA, M²	POSITIVE PRESSURE	NEGATIVE PRESSURE	NOTES
1	0.93	0.77	-1.94	
1	1.86	0.77	-1.81	
1	4.65	0.77	-1.51	
1	9.30	0.77	-1.22	
1'	0.93	0.77	-1.63	
1'	1.86	0.77	-1.47	
1'	4.65	0.77	-0.60	
1'	9.30	0.77	-0.60	
2	0.93	0.77	-2.55	
2	1.86	0.77	-2.39	
2	4.65	0.77	-2.01	
2	9.30	0.77	-1.63	
3	0.93	0.77	-3.48	
3	1.86	0.77	-3.15	
3	4.65	0.77	-2.39	
3	9.30	0.77	-1.63	

**UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.**



1. REFER TO STRUCTURAL STANDARD DETAILS AND NOTES ON SHEETS SS001 AND SS002 FOR ADDITIONAL STRUCTURAL NOTES AND FOUNDATION REQUIREMENTS.
2. COORDINATE WITH ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, AND ELECTRICAL DRAWINGS FOR LOCATIONS AND SIZES OF OPENINGS, FLOOR DRAIN, AND PENETRATION AND ALL EQUIPMENT PROVIDED.
3. ROOF METAL PANELS TO BE DESIGNED BY SUPPLIER.
4. (+XXXX) INDICATES TOP OF STEEL BEAM ELEVATION, UNO.
5. PROVIDE SINGLE-PLATE CONNECTION AT BEAM TO GIRDER CONNECTION, REFER TO 1 / SF502
6. PROVIDE DOUBLE ANGLE CONNECTION AT BEAM TO COLUMN OR GIRDER TO GIRDER CONNECTIONS AND AT RIDGE BEAMS TO GIRDER CONNECTION, REFER TO 2 / SF502

- 1 DOUBLE ANGLE LL75X75X10 HORIZONTAL BRACING AT ELEVATION 3810MM. REFER TO 1/S-503 FOR BRACING CONNECTIONS TO BEAMS. REFER TO DETAILS 3 & 5/S-502 FOR ADDITIONAL HORIZONTAL BRACING CONNECTIONS.
- 2 DOUBLE ANGLE LL76X76X9.5x19 VERTICAL KNEE-BRACING AT ELEVATION. REFER TO DETAILS 4/S-502 FOR TYPICAL VERTICAL BRACING CONNECTIONS.
- 3 COLD-FORMED JOISTS DESIGNED BY SUPPLIER.

PLAN NORTH

0 0.5 1.0 1.5 2.0 2.5 5
1:50

**UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS**



[illegible]

U.S. ARMY CORPS OF ENGINEERS PHILADELPHIA DISTRICT 1650 ARCH STREET, PHILADELPHIA, PA 19103	DRAWN BY: M.AJUBOORI	SOLICITATION NO: W912ER26RA016
	CHECKED BY: A.KOLLAS	CONTRACT NO.:
	SUBMITTED BY: C.CHASTEN	PILOT DATE: 7/8/2026 2:10:59 PM
	SIZE:	FILE NAME:
	ISO A1	KU-509974-20-SF201

KUWAIT APACHE ALERT FACILITIES
KU-509974-2

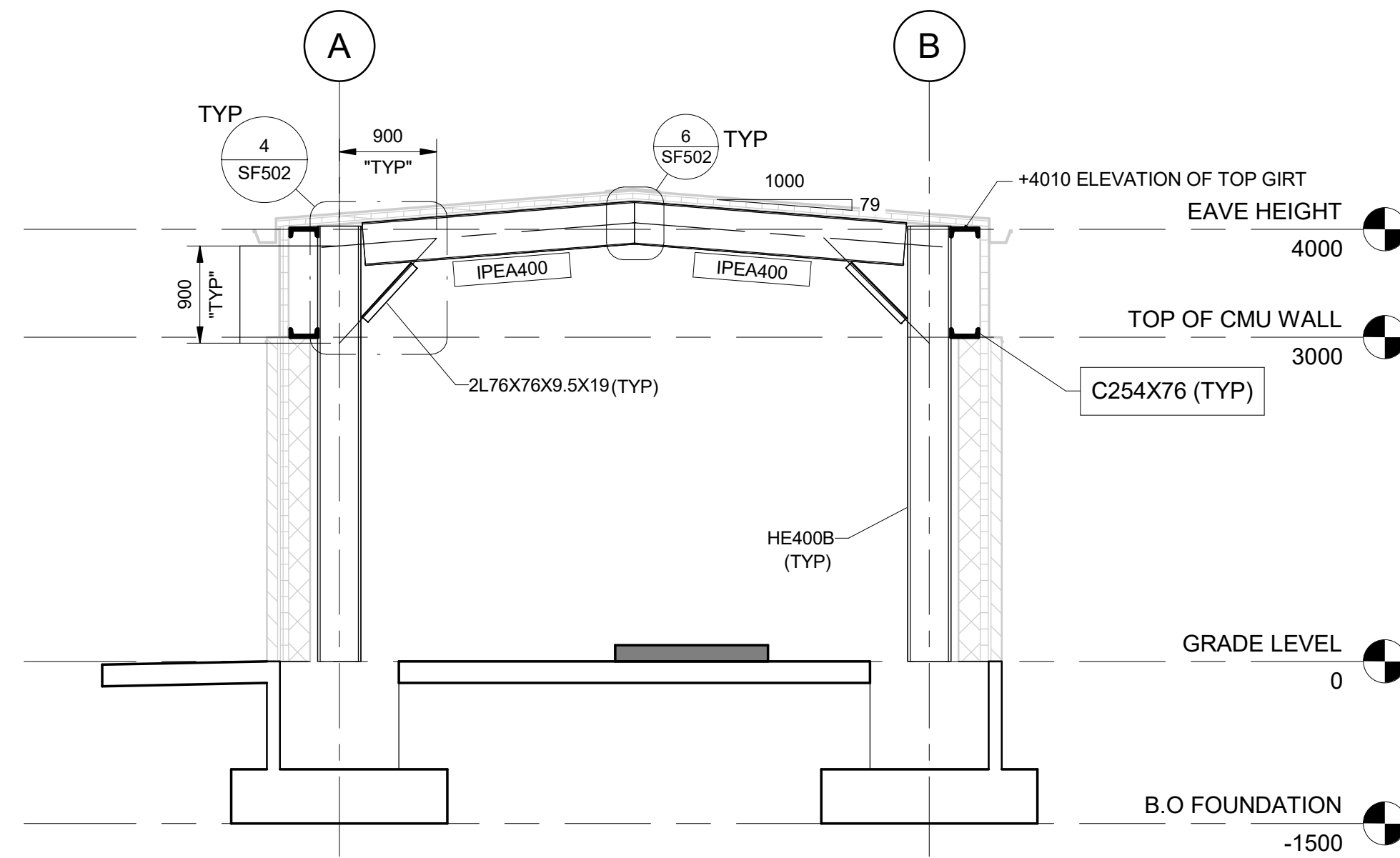
STRUCTURAL ELEVATIONS

SHEET ID

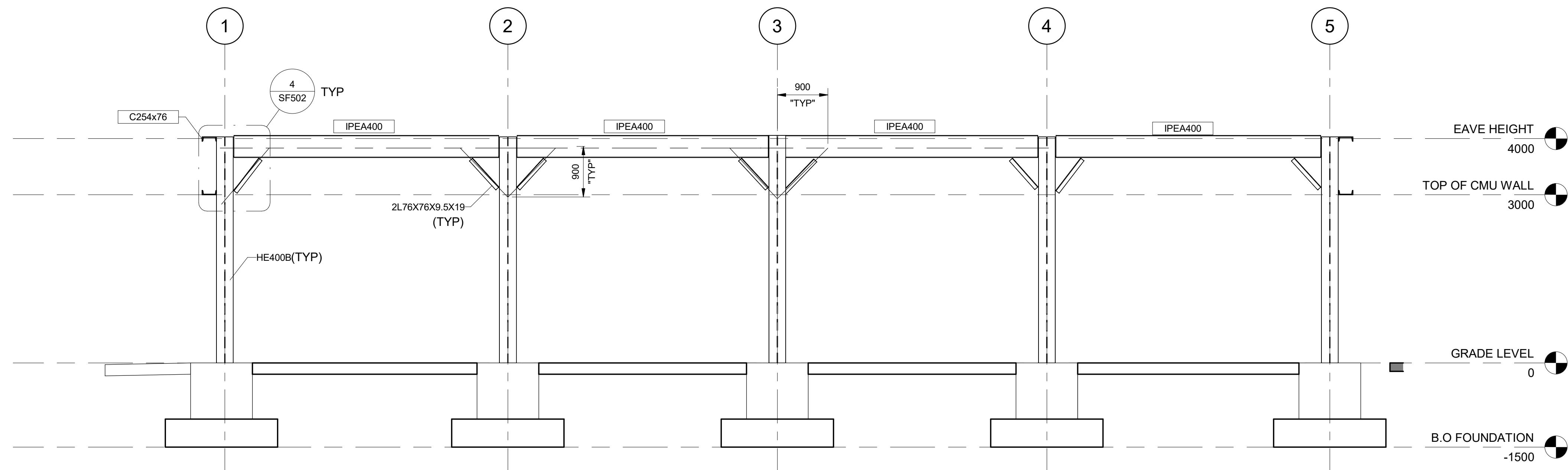
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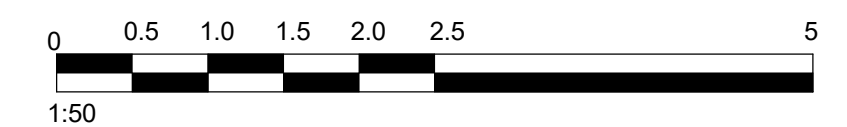


2 TRANSVERSE ELEVATION



1 LONGITUDINAL ELEVATION

GRAPHIC SCALE



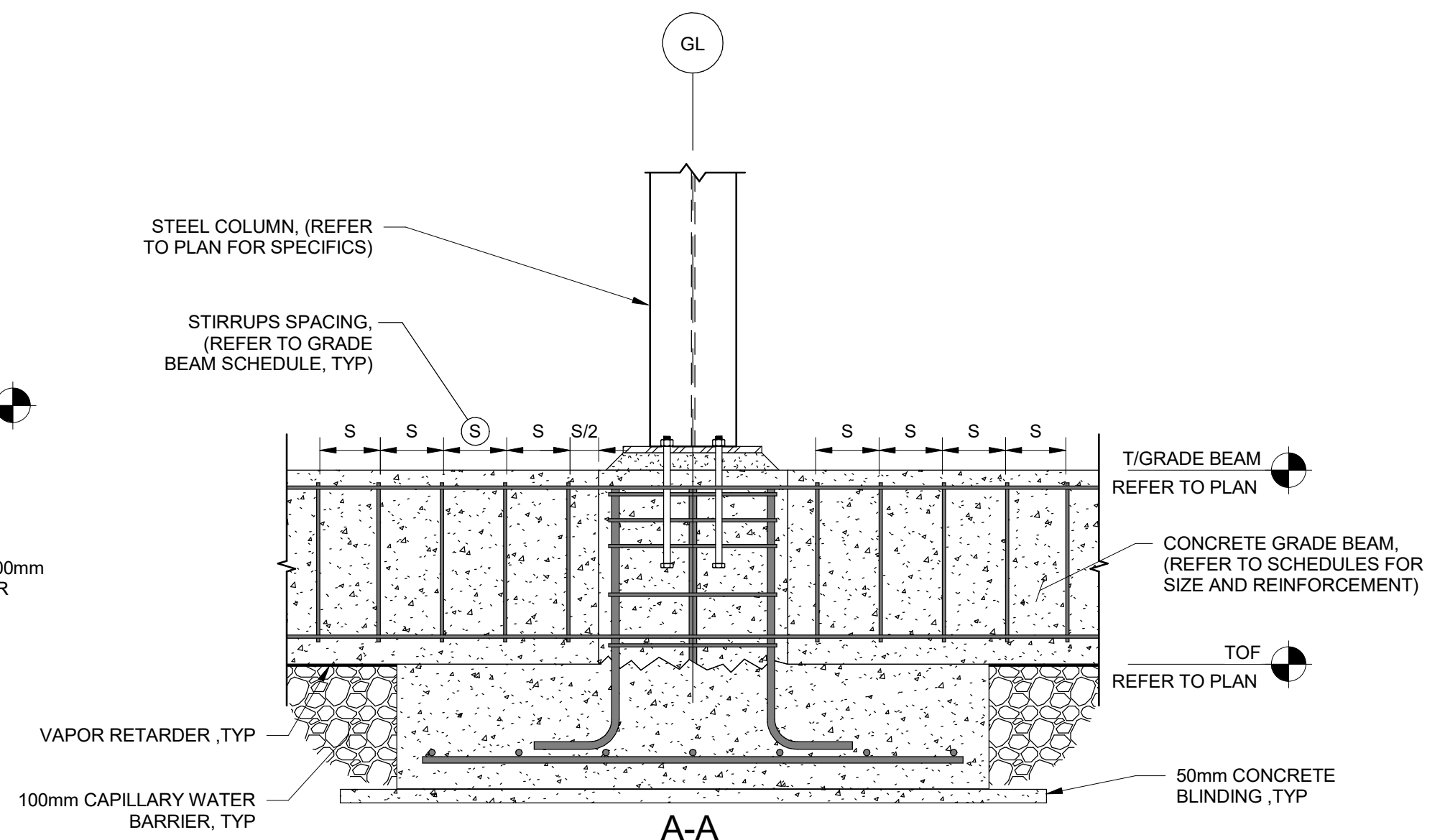
UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.

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201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	DRAWN BY: M AL JUBOORI CHECKED BY: A KOLLAS SUBMITTED BY: C CHASTEN PLOT DATE: 7/8/2026 2:11:00 PM FILE NAME: ISO A1 KU-509974/20-SF501
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FIRE WATER PUMP HOUSE
FOUNDATION DETAILS

SHEET ID
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SF501



UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.

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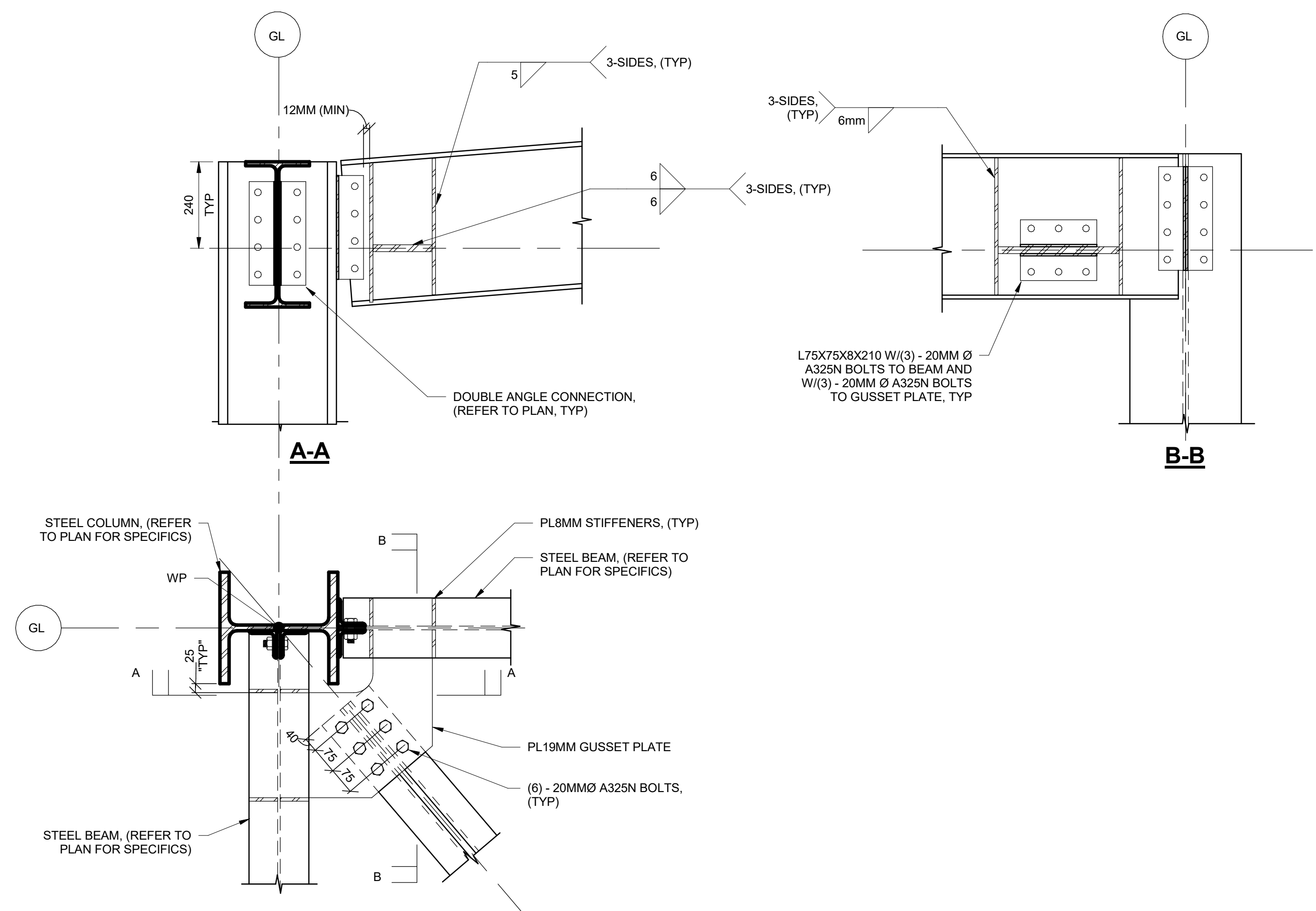
U.S. ARMY CORPS OF ENGINEERS PHILADELPHIA DISTRICT 1650 ARCH STREET, PHILADELPHIA, PA 19103	DRAWN BY: M.A.LJUBOORI	SOLICITATION NO: W912ER26RA016
	CHECKED BY: A.KOLLAS	CONTRACT NO.: 7/8/2026 2:11:01 PM
SUBMITTED BY: C.CHASTEN		FILE NAME: ISO A1
201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602		KU-509974-20-SF503

KUWAIT APACHE ALERT FACILITIES
KU-509974-2

STRUCTURAL STEEL DETAILS

SHEET ID
O
F503

CDC



1 HORIZONTAL BRACING - CORNER

GRAPHIC SCALE



UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.

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DRAWN BY: M ALJUBOORI CHECKED BY: A KOLLIAS	SOLICITATION NO.: W912ER26RA016 CONTRACT NO.:
SUBMITTED BY: C.C.HASTEN SIZE: ISO A1	PLOT DATE: 7/8/2026 2:11:02 PM FILE NAME: KU-509974-20-SF505

U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA DISTRICT
1650 ARCH STREET
PHILADELPHIA, PA 19103

MINOR - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

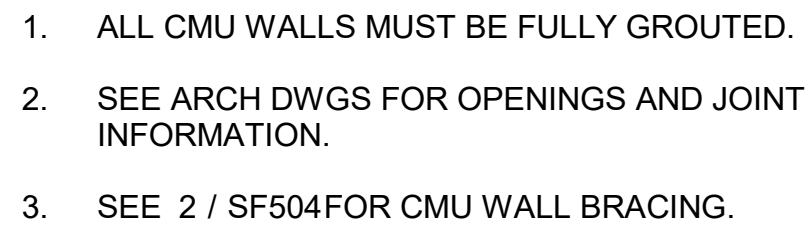
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SF505



1. REFER TO ARCH FOR OPENING SIZES AND LOCATIONS.
2. REFER TO ARCH FOR CONTRL JOINT INFORMATION.
3. REFER TO SCHEDULES FOR BOND BEAMS REINFORCEMENT
4. REFER TO SCHEDULES FOR BOND BEAMS BEARING ABOVE OPENINGS, UNO.
5. REFER TO ARCH DRAWINGS FOR TOP OF WALL ELEVATIONS OF INTERIOR WALLS.
6. PROVIDE MASONRY CONTROL JOINTS AT ALL INTERSECTIONS, AT ALL WALL CORNERS AND INTERSECTIONS, WHERE CONNECTING WALL(S) ARE LONGER THAN 9000mm, PROVIDE A MASONRY CONTROL JOINT LOCATED 400mm OR 600mm IN THE CONNECTING WALL(S) FROM THE NEAREST WALL CORNER FACE, UNO. PROVIDE MASONRY CONTROL JOINTS AT SPACING PER MASONRY NOTE M-9/SS001 OR AT A MAXIMUM SPACING OF 1.5 TIMES THE WALL HEIGHT, WHICHEVER IS LESS. REFER TO ARCH DWGS FOR ADDITIONAL INFO.

3 TYPICAL MASONRY WALL DETAIL

CMU LINTEL SCHEDULE						
OPENING CLEAR SPAN	BEAM WIDTH	BEAM DEPTH	BEARING WIDTH	BOTTOM REINFORCEMENT	TOP REINFORCEMENT	STIRRUPS
UP TO 1500mm	WALL THICKNESS	410mm	200mm	(1) -D16	-	D10 @ 200mm OC
UP TO 2400mm	WALL THICKNESS	410mm	400mm	(1) -D16	(1) - D16	D10 @ 200mm OC



- NOTES:
1. EXTEND HORIZ REINF 40 BAR DIA BEYOND JAMB FACE EA SIDE (600MM MIN)
 2. PROVIDE STEEL LINTEL WHERE A WALL CONTROL JOINT TRANSECTS THE LINTEL.

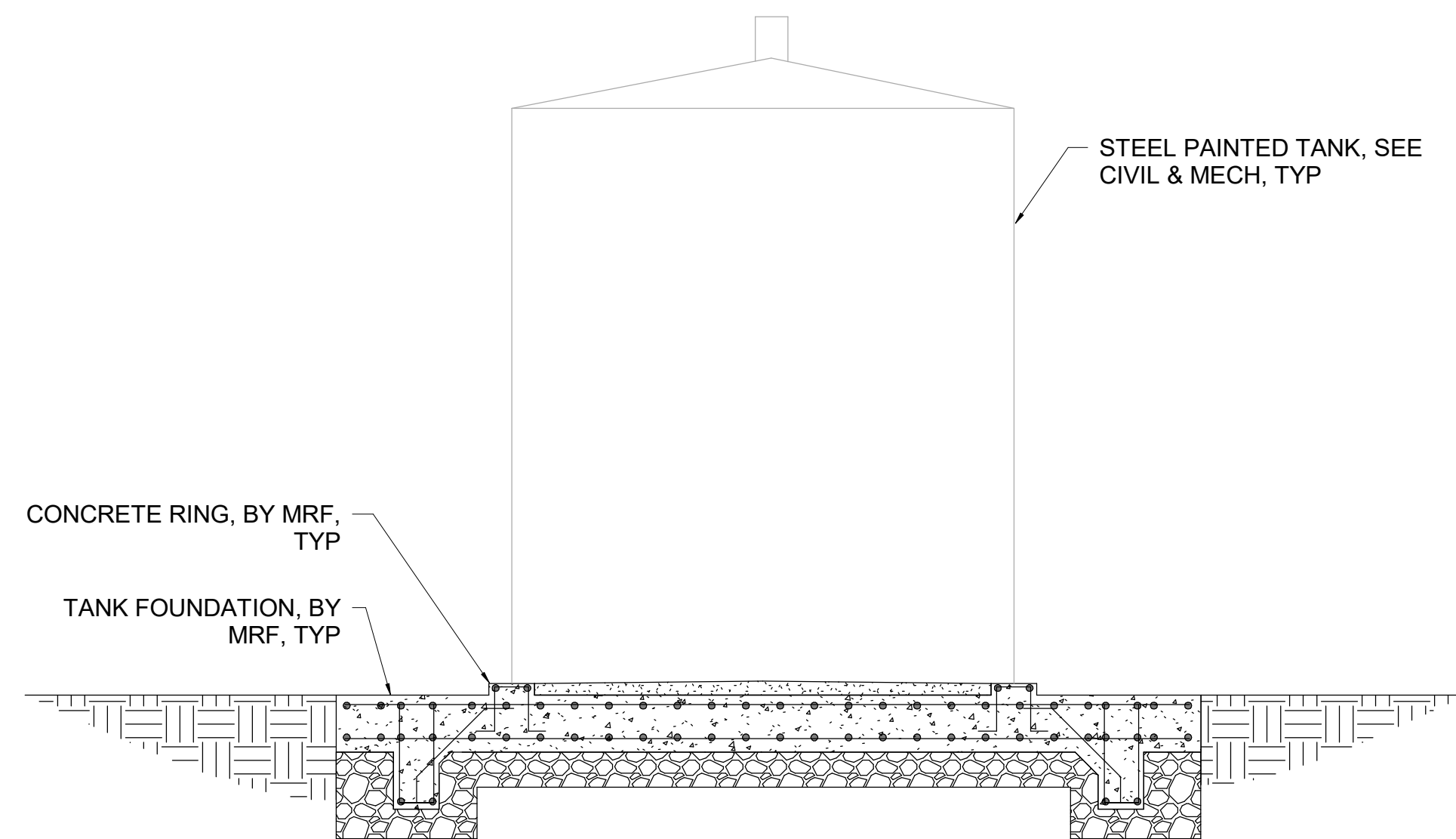
1 CMU LINTEL DETAIL

MISCELLANEOUS LOOSE LINTEL SCHEDULE		
THICKNESS	SPAN	LOOSE LINTEL
200MM	UP TO 1200MM	L102X89X7.9
200MM	1200MM - 1800MM	L127X89X7.9
200MM	1800MM - 2400MM	L152X89X7.9

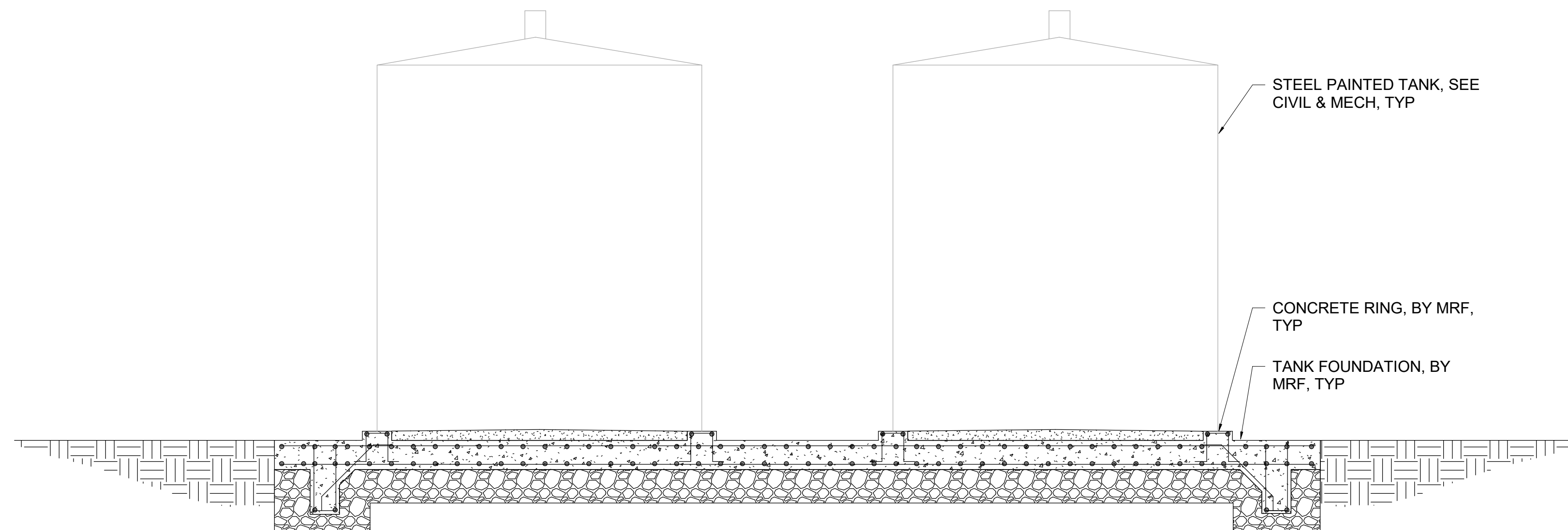
- NOTES:**
1. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS.
 2. CONNECT ALL ANGLES TO ALL 2 AND 3 ANGLE LINTELS BACK TO BACK AT 400MM OC MAX.
 3. ALL ANGLES LONG LEG VERTICAL, UNLESS OTHERWISE NOTED.
 4. BEARING END OF STEEL LINTEL AT CONTROL JOINT SHALL BE WRAPPED WITH BUILDING PAPER.
 5. PROVIDE MINIMUM 200MM BEARING ON BRICK OR SOLID CONCRETE BLOCK.
 6. PROVIDE MINIMUM 2000MM x WALL THICKNESS x 200MM HIGH GROUTED CMU OR BRICK BEARING PAD UNDER ALL LINTELS. UNO. GROUT JAMBS OF MASONRY OPENINGS 1800MM AND LARGER FULL HEIGHT FOR 200MM MINIMUM WIDTH.
 7. CONNECT LINTEL TO COLUMN IF MASONRY OPENING IS ADJACENT TO COLUMN AND LINTEL HAS LESS THAN 200MM BEARING ON CMU BEYOND COLUMN FLANGES.
 8. STEEL LINTELS IN EXTERIOR WALLS ARE TO BE GALVANIZED.

2 TYPICAL MASONRY DETAIL

UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.



2 GROUND STORAGE WATER TANK SECTION



1 GROUND STORAGE WATER TANK SECTION (TYP)
1:10

GENERAL NOTES

1. THIS DRAWING IS A CONCEPTUAL DRAWING ONLY. CONTRACTOR MUST BE RESPONSIBLE ENTIRELY FOR THE DESIGN OF THE WATER TANK, THE TANK CONNECTION TO THE FOUNDATION AND THE TANK FOUNDATION. SEE SPECIFICATIONS.
2. CONCEPTUAL FOUNDATION HAS BEEN DESIGNED TO ACCEPT A PRE-FABRICATED WATER TANK. ONLY METAL TANKS MUST BE PERMITTED. FULL DETAILS OF THE PROPOSED TANK, TANK CONNECTION TO THE FOUNDATION, AND THE TANK FOUNDATION MUST BE SUBMITTED FOR APPROVAL. FOUNDATION WILL BE DESIGNED USING A MODULUS OF SUBGRADE REACTION (K) VALUE OF 11.9MN/M² AND A BEARING CAPACITY OF 96KPA. SEE PROJECT SOIL REPORT. WHERE ROCK IS ENCOUNTERED WITHIN 0.5 METERS BELOW FINISHED GRADE, PLACE FOUNDATION ON ROCK. SEE SECTION 31 00 00 FOR SITE SOIL DESCRIPTION AND PREPARATION REQUIREMENTS.

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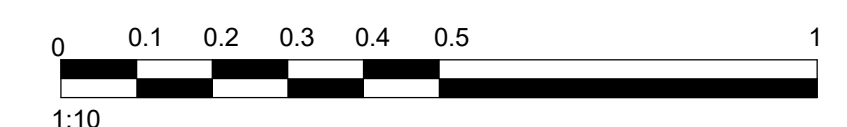
U.S. ARMY CORPS OF ENGINEERS PHILADELPHIA DISTRICT 1650 ARCH STREET PHILADELPHIA, PA 19103	201 MIDDLE EAST DISTRICT WINCHESTER, VA 22602	MAJ. ALJUBORI W912ER3GRA018 CONTRACT NO.: W912ER3GRA018 CONTRACT NO.: W912ER3GRA018	ISO A1	CU-509974-ZO-SF506	7/8/2002 2:11:02 PM
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KMOD - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

KM00 – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

FIRE WATER PUMP HOUSE
WATER TANK PAD DETAILS

SHEET ID
O
F506



UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.

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G

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D

C

B

A

COLUMN FOOTING SCHEDULE

MARK	DIMENSIONS			LONGITUDINAL REINFORCEMENT		TRANSVERSE REINFORCEMENT		REMARKS
	LENGTH (L)	WIDTH (W)	THICKNESS	QTY	SIZE	QTY	SIZE	
CF20	2000	2000	500	8	D22	8	D22	

RECTANGULAR CONCRETE PIER SCHEDULE

MARK	DIMENSIONS		REINFORCEMENT				REMARKS
	WIDTHS	DEPTHS	LONGITUDINAL		TIES		
			REBAR SIZE	QUANTITY	REBAR SIZE	SPACING	
CP1	1100	1100	D25	24	D12	250	DETAIL A

CONCRETE GRADE BEAM SCHEDULE

MARK	DIMENSIONS		TOP REINFORCEMENT		BOTTOM REINFORCEMENT		STIRRUPS		REMARKS
	WIDTH	DEPTH	REBAR SIZE	QUANTITY	REBAR SIZE	QUANTITY	END OF BEAM (K)	MIDDLE OF BEAM (RG)	
GB1	400	600	D19	4	D19	4	(10) - D12 AT 150	D12 AT 200	

BASE PLATE SCHEDULE

KEY NAME	THICKNESS (t)	ANCHOR DIA	ANCHOR EMBED	DETAIL	"A"	"B"	"C"	"D"	"E"	"F"	COMMENTS
BP1	20	19	300	DETAIL A	300	100	100	500	100	100	

ANCHOR ROD HOLE SCHEDULE

ANCHOR ROD HOLE SCHEDULE	
ROD SIZE	HOLE SIZE
12 AB	27 DIA
16 AB	30 DIA
19 AB	34 DIA
22 AB	40 DIA
25 AB	48 DIA
32 AB	54 DIA
38 AB	60 DIA
>50 AB	db + 32"

2 STANDARD ANCHOR BOLT

SEE ANCHOR ROD HOLE SCHEDULE

1 SF601

PLATE WASHER

BASE PLATE

6MM LEVELING WASHER

GROUT

ANCHOR EMBED.

2"

NUT W/ WASHER

NTS

1 ANCHOR BOLT w/ WELDED WASHER

SEE ANCHOR ROD

6MM PLATE WASHER W/ STD HOLE

BASE PLATE

NTS

PIER TIES, (REFER TO SCHEDULES)

PIER LONGITUDINAL REINFORCEMENT, (REFER TO SCHEDULES)

CLR

REFER TO SCHEDULE

REFER TO SCHEDULE

TYPE A PIER

TOP REINFORCEMENT, SEE SCHEDULE

STIRRUPS, SEE SCHEDULE

SKIN REINFORCEMENT TO MATCH TOP AND BOTTOM REINFORCEMENT AT 250MM O/C, TYP.

BOTTOM REINFORCEMENT, SEE SCHEDULE

US Army Corps of Engineers®

DESIGNED BY: M.A.LJUBOORI

DRAWN BY: M.A.LJUBOORI

CHECKED BY: A.KOLLAS

SUBMITTED BY: C.CHASTEN

ISSUE DATE: JULY 2026

SOLICITATION NO.: W812ER26RAD16

CONTRACT NO.:

PLOT DATE: 7/8/2026 2:11:02 PM

FILE NAME: KU-50974-20-SF601

ISO A1

U.S. ARMY CORPS OF ENGINEERS

MIDDLE EAST DISTRICT

201 PRINCE FREDERICK DRIVE,

WINCHESTER, VA 22602

U.S. ARMY CORPS OF ENGINEERS

PHILADELPHIA DISTRICT

1650 ARCH STREET

PHILADELPHIA, PA 19103

ALI AL SALEM AB, KUWAIT

KMOB - KUWAIT AIR FORCE

KUWAIT APACHE ALERT FACILITIES

KU-50974-2

FIRE WATER PUMP HOUSE

STRUCTURAL SCHEDULES

SHEET ID

O

SF601

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS.

CDC

**US Army Corps
of Engineers®**

[illegible]

ISSUE DATE:	JULY 2026
SOLICITATION NO.:	W912ER26RA016
CONTRACT NO.:	
PLOT DATE:	7/10/2026 3:35:24 PM
DESIGNED BY:	M.PIERSON
DRAWN BY:	M.PIERSON
CHECKED BY:	C.GORDON
SUBMITTED BY:	A.FREEMAN
FILE NAME:	KU-505974-20-A-001
ISO:	ISO A1

U.S. ARMY CORPS OF ENGINEERS
MIDDLE EAST DISTRICT
201 PRINCE FREDERICK DRIVE.

ALI AL SALEH AB, KUWAIT
KMOB – KUWAIT AIR FORCE
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KU-50974-2

SHEET ID
O
A-001

CCD

A LABEL	CLASS A DOOR	E LABEL	CLASS E DOOR	MACH RM	MACHINE ROOM	S	SPLASH BLOCK
A/C	AIR CONDITION	EA	EACH	MATL	MATERIAL	SCHED	SCHEDULE
A/C UNIT	AIR CONDITIONING UNIT	EF	EACH FACE	MAX	MAXIMUM	SD	SMOKE DETECTOR
A/E	ARCHITECT/ENGINEER	EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	MC	MOISTURE CONTENT	SF	SQUARE FOOT (FEET)
AB	ANCHOR BOLT	ME	METAL DECK	MD	METAL DECK	SFTWD	SOFTWOOD
ACC	ACCESSIBLE	EJ	EXPANSION JOINT	MECH	MECHANICAL	SGL	SINGLE
ACS	AUTOMATIC CONTROL SYSTEM	ES	EACH SIDE	MECH RM	MECHANICAL ROOM	SHTHG	SHEATHING
ACS DR	ACCESS DOOR	ELEV	ELEVATION	MEMB	MEMBRANE	SHV	SHELVING
ACS PNL	ACCESS PANEL	ELEV	ELEVATOR	MF	MILL FINISH	SM	SIMILAR
ACT	ACOUSTICAL CEILING TILE	ENTR	ENTRANCE	MFR	MANUFACTURER	SJ	SCORED JOINT
ADA	AMERICANS WITH DISABILITIES	EPS	EXPANDED POLYSTYRENE BOARD (INSULATION)	MID	MIDDLE	SKLT	SKYLIGHT
		EQ	EQUAL	MIL STD	MILITARY STANDARD	SLNT	SLANT
ADMIN	ADMINISTRATION	EWC	ELECTRIC WATER COOLER	MIN	MINIMUM, MINUTE	SMK	SMOKE
AFC	ABOVE FINISHED COUNTER	EXP	EXPOSED	MIRR	MIRROR	SMLS	SEAMLESS
AFF	ABOVE FINISHED FLOOR	EXT	EXTERIOR	MISC	MISCELLANEOUS	SP EL	SPOT ELEVATION
AFG	ABOVE FINISHED GRADE	EXT	EXTINGUISHER	MLDG	MOLDING (MOULDING)	SPEC	SPECIFICATION
AFS	ABOVE FINISHED SLAB	EXT GR	EXTERIOR GRADE	MOD	MASONRY OPENING	SO	SQUARE
AGGR	AGGREGATE			MODIF	MODIFY	SO IN	SQUARE INCH
AHU	AIR HANDLING UNIT			MB	MOISTURE BARRIER	SO YD	SQUARE YARD
AIB	AIR INFILTRATION BARRIER	F		MTG	MOUNTING	SST	STAINLESS STEEL
ALT	ALTERNATE	FA	FIRE ALARM	MTL	METAL	ST	STAIRS
ALUM	ALUMINUM	FAAP	FIRE ALARM ANNUNCIATOR PANEL	MVBL	MOVABLE	STD	STANDARD
ANOD	ANODIZE	FAS BD	FASCIA BOARD	MWP	MEMBRANE WATERPROOFING	STL	STEEL
APC	ACCOUSTICAL PANEL CEILING	FC BRK	FACE BRICK			STL JST	STEEL JOIST
APPROX	APPROXIMATE	FCO	FLOOR CLEANOUT	N	NORTH	STL RF DK	STEEL ROOF DECK
AR	AS REQUIRED	FD	FLOOR DRAIN	NA	NOT APPLICABLE	STOR	STORAGE
ARCH	ARCHITECT	FDTN	FOUNDATION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	STR	STRINGERS
ASC	ABOVE SUSPENDED CEILING	FE	FIRE EXTINGUISHER	NIC	NOT IN CONTRACT	STRB/HRN	STROBE/HORN
ASSY	ASSEMBLY	FEC	FIRE EXTINGUISHER CABINET	NOM	NOMINAL	SUB FL	SUBFLOOR
ATC	ACOUSTICAL TILE CEILING	FED	FEDERAL	NP	NO PAINT	SW	SHEET VINYL SIDEWALK
AVG	AVERAGE	FF	FINISH FACE	NRC	NOISE REDUCTION		
AW	ARCHITECTURAL WOODWORK	FF EL	FINISH FLOOR ELEVATION	O		T	TREAD
AWT	ACOUSTICAL WALL TREATMENT	FF INSUL	FOIL BACKED INSULATION	OA	OVERALL	T/S	TUB/SHOWER
		FGL	FIBERGLASS	OC	ON CENTER	TC	TERRA COTTA
B		FHP	FULL HEIGHT PARTITION	OD	OUTSIDE DIAMETER	TD	TRENCH DRAIN
B LABEL	CLASS B DOOR	FIN	FINISH	OFD	OVERFLOW DRAIN	TEL	TELEPHONE
BALCN	BALCONY	FIN BS	FINISH BOTH SIDES	OFF	OFFICE	TEMP	TEMPORARY
BB	BASEBOARD	FIN FLR	FINISH FLOOR	OGL	OBSCURE GLASS	TER	TERRAZZO
BC	BOOKCASE	FIN GR	FINISH GRADE	OPH	OPPOSITE HAND	TF	TOP OF FINISH FLOOR
BD	BOARD	FIXT	FIXTURE	OPNG	OPENING	THK	THICKNESS
BDRY	BOUNDARY	FLDG	FOLDING	OPP	OPPOSITE	TK BD	TACKBOARD
BFF	BELOW FINISH FLOOR	FLEX	FLEXIBLE	OPQ	OPAQUE	TMPD GL	TEMPERED GLASS
BHMA	BUILDER'S HARDWARE MANUFACTURER'S ASSOCIATION	FLASH	FLASHING	OPR	OPEN WEB STEEL JOIST	TN	TRUE NORTH
		FLG	FLOORING	OPRJ	OPERABLE	TO	TOP OF
BLDG	BUILDING	FLMT	FLUSH MOUNT	ORD	OVERFLOW ROOF DRAIN	TOF	TOP OF FOOTING
BLKG	BLOCKING	FLR	FLOOR	ORIG	ORIGINAL	TOM	TOP OF MASONRY
BLT IN	BUILT-IN	FR	FACTORY MUTUAL			TOP	TOP OF PARAPET
BN	BULLNOSE	FRC	FACE OF CONCRETE			TOPO	TOPOGRAPHY
BO	BOTTOM OF	FOM	FACE OF MASONRY			TOS	TOP OF SLAB
BOS	BOTTOM OF STEEL	FR	FIRE RESISTANT			TRANS	TRANSOM
BOT	BOTTOM	FRG	FIBER REINFORCED GYPSUM			TRD	TREATED
BP	BUILDING PAPER	FRMG	FRAMING			TV	TELEVISION
BRKT	BRACKET	FRP	FIBERGLASS REINFORCED PLASTIC	PA	PUBLIC ADDRESS		
BSMT	BASEMENT			PAR	PARAPET	UBC	UNIFORM BUILDING CODE
BTWN	BETWEEN	FRTW	FIRE RETARDANT TREATED WOOD	PAT	PATTERN	UG	UNDERGROUND
BUR	BUILT-UP ROOFING	FS	FEDERAL SPECIFICATION	PB	PULL BOX	UNO	UNLESS OTHERWISE NOTED
		FSTNR	FASTENER	PBD	PARTICLEBOARD	UPS	UNINTERRUPTABLE POWER SUPPLY
C		FT	FEET	PCC	PRECAST CONCRETE	UTIL	UTILITY
C CONC	CAST CONCRETE	FTG	FOOTING	PCF	POUNDS PER CUBIC FOOT		
C LABEL	CLASS C DOOR	FWC	FABRIC WALLCOVERING	PCT	PERCENT		
CAB	CABINET			PERF	PERFORATED		
CATWK	CATWALK			PERIM	PERIMETER		
CAV	CAVITY	G	NATURAL GAS			V	
CBB	CEMENTITIOUS (BACKER) BOARD	GALV	GALVANIZED	PIL	PILASTER	VB	VALVE BOX
CD	CONSTRUCTION DOCUMENTS	GB	GRAB BAR	PL	PROPERTY LINE	VC	VERTICAL CURVE
CDW	CHILLED DRINKING WATER	GFCI	GOVERNMENT FURNISHED	PL GL	PLATE GLASS	VCT	VINYL COMPOSITION TILE
CEM PLAS	CEMENT PLASTER	GFGI	CONTRACTOR INSTALLED	PLAM	PLASTIC LAMINATE	VEH	VEHICLE
CER	CERAMIC		GOVERNMENT INSTALLED	PLAS	PLASTER	VEL	VELOCITY
CF	CONTRACTOR FURNISHED	GFRG	GLASS-FIBER-REINFORCED GYPSUM	PLBG	PLUMBING	VERT	VERTICAL
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED	GLZ	GLAZING	PLG	PLING	VEST	VESTIBULE
CFE	EQUIPMENT	GR FL	GLAZING FLOOR	PLYWD	PLYWOOD	VIF	VERIFY IN FIELD
		GUT	GUTTER	PNL	PANEL	VIN	VINYL
CFLG	COUNTERFLASHING	GYP BD	GYPSUM BOARD	PP PL	PUSH/PULL PLATE	VGYP	VINYL COATED GYPSUM BOARD
CFM	CUBIC FEET PER MINUTE	GYP PLAS	GYPSUM PLASTER	PR	PAIR	VYP	VERY IMPORTANT PERON
CFMF	COLD-FORMED METAL FRAMING			PRCST	PRECAST	VWB	VINYL WALL BASE
CFS	CUBIC FEET PER SECOND	H		PRKG	PARKING		
CG	CORNER GUARD	HB	HOSE BIBB	PS CONC	PRESTRESSED CONCRETE	W	
CI	CAST IRON	HDPE	HIGH DENSITY POLYETHYLENE	PSF	POUNDS PER SQUARE FOOT	W	WEST OR WIDE
CIP	CAST-IN-PLACE	HDW	HARDWARE	PSI	POUNDS PER SQUARE INC	WC	WATER CLOSET
CJ	CONTROL JOINT	HDWD	HARDWOOD	PT	PRESSURE TREATED	WD	WOOD
CL	CENL LINE	HEPA	HIGH EFFICIENCY PARTICULATE AIR (FILTER)	PTD	PAPER TOWEL DISPENSER	WM	WIRE MESH PARTITION
CLG	CEILING	HM	HOLLOW METAL	PTDR	PAPER TOWEL DISPENSER AND RECEPTACLE	WSP	WELDED STEEL PIPE
CLG DIFF	CEILING DIFFUSER	HMD	HOLLOW METAL DOOR	PTN	PARTITION	WT	WEIGHT
CLG HT	CEILING HEIGHT	HORIZ	HORIZONTAL	PWR	POWER	W/O	WITHOUT
CLL	COLUMN LINE	HT	HEIGHT			W/	WITH
CLO	CLOSET	HYDR	HYDRAULIC	Q		WWF	WELDED WIRE FABRIC
CLR	COLOR			QT	QUARRY TILE		
CLRM	CLASSROOM	I		QTY	QUANTITY		
CMU	CONCRETE MASONRY UNIT	IBC	INTERNATIONAL BUILDING CODE	R			
CNDS	CONDENSATE	INSUL	INSULATION	RAF	RAISED ACCESS FLOORING		
CDR	CARD READER	ILO	INTERIOR IN LIEU OF	RB	RESILIENT BASE		
CO	CLEANOUT	J		RBM	REINFORCED BRICK MASONRY		
COL	COLUMN	JAN	JANITOR	RBR	RUBBER		
COMM	COMMUNICATION			RC	REINFORCED CONCRETE		
CONC	CONCRETE			RCP	REFLECTED CEILING PLAN		
CONC FLR	CONCRETE FLOOR			RD	ROOF DRAIN		
CONF	CONFERENCE			RDG INS	RIGID INSULATION, SOLID		
CONT	CONTINUE			REC	RECESSED		
COORD	COORDINATE			REC RM	RECREATION ROOM		
COR	CONTRACTOR OF RECORD			REF	REFERENCE		
CORR	CORRIDOR			REM	REMOVABLE		
CP	CONCRETE PIPE			REP	REPAIR		
CPT	CARPET			REPL	REPLACE		
CR	CONTROL ROOM			REQ	REQUIRE		
CS	CAST STONE			REQD	REQUIRED		
CSWK	CASEWORK			RESIL	RESILIENT		
CT	CERAMIC TILE			REST	RESTROOM		
CTB	CERAMIC TILE BASE			RF	RESILIENT FLOORING		
CTF	CERAMIC TILE FLOOR			RFG	ROOFING		
CTR	CENTER			RH	ROOF HATCH		
CU FT	CUBIC FEET			RHR	RIGHT HAND REVERSE		
CW	CASEMENT WINDOW			RL	ROOF LEADER		
				RLG	RAILING		
D				RM	ROOM		
D	DEPTH			RO	ROUGH OPENING		
D LABEL	CLASS D DOOR			RSD	ROLLING STEEL DOOR		
DBL	DOUBLE			RV	ROOF VENT		
DEMO	DEMOLITION			RVL	REVEAL		
DEPT	DEPARTMENT						
DET	DETAIL						
DIA	DIAMETER						
DIR	DIRECTION						
DIST	DISTANCE						
DOC	DOCUMENT						
DOR	DESIGNER OF RECORD						
DR	DOOR						
DS	DOWNSPOUT						

NUMBERING SYSTEM

DISCIPLINE:

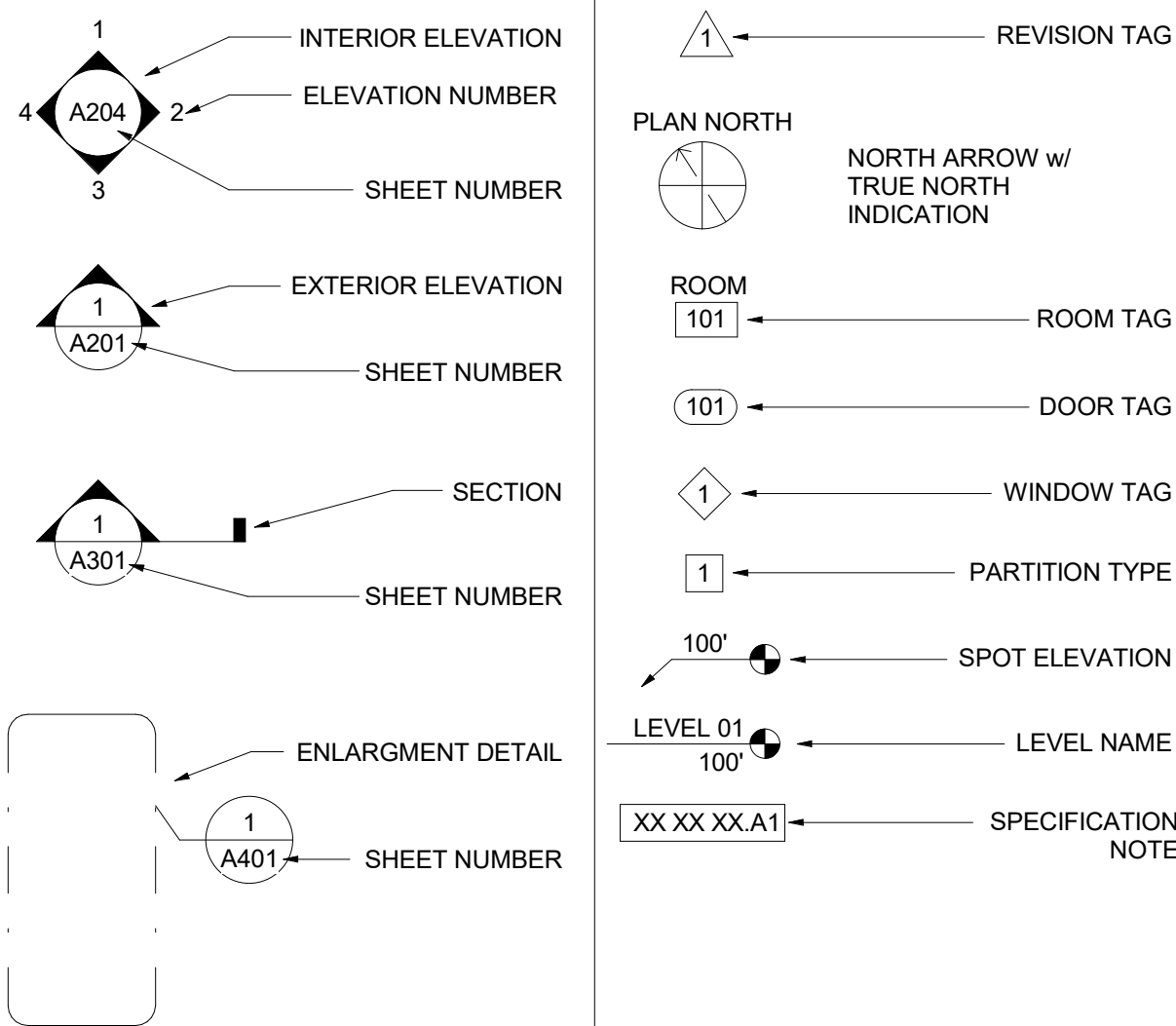
C - CIVIL
L - LANDSCAPE
A - ARCHITECTURE
M - MECHANICAL
E - ELECTRICAL
P - PLUMBING
S - STRUCTURAL
K - FOOD SERVICE

DISCIPLINE MODIFIER

SHEET NUMBER WITHIN SERIES

REFER TO A/E/C CAD STANDARD FOR
SHEET NUMBERING STANDARDS

ANNOTATION CALLOUTS/DRAWING SYMBOLS



REFER DRAWING SA521 AND SA522 FOR SIGNAGE DETAILS

NUMBER	NAME	AREA
100	PUMP ROOM	119 m ²
101	PANEL CLOSET	1 m ²

NAME	AREA
GROUND FLOOR	142 m ²

1. CONSTRUCTION SHALL BE AS INDICATED IN DRAWINGS IN TANDEM WITH CONTRACT SPECIFICATIONS.
2. REFER TO SHEET AE600 SERIES FOR DOOR AND WINDOW SCHEDULES.
3. REFER TO GI SERIES FOR CODE ANALYSIS AND LIFE SAFETY PLANS.
4. DIMENSIONS ARE TO FACE OF BLOCK OR FACE OF METAL STUD WALL.
5. NOTIFY COR FOR ALL DISCREPANCIES AND CONFLICTS.
6. ROUGH OPENINGS SHALL BE VERIFIED PRIOR TO ORDER AND MANUFACTURE OF DOORS AND WINDOWS.
7. REFER TO CIVIL DRAWINGS FOR BUILDING LOCATION AND TRUE NORTH.

1. COORDINATE ALL ROOF PENETRATIONS WITH STRUCTURAL, MECHANICAL AND PLUMBING WORK.
2. REFERENCE DRAWING SA504 FOR ROOF DETAILS.
3. PROVIDE FALL PROTECTION ANCHORS AS SPECIFIED BY THE PEMB MFR., REFER TO SPECIFICATION SECTION 13 34 19

1. REFLECTED CEILING PLAN SHOWN FOR LAYOUT AND COORDINATION PURPOSES ONLY. COORDINATE MECHANICAL EQUIPMENT, ELECTRICAL, PIPING, AND FIRE PROTECTION WITH RESPECTIVE DRAWINGS.
2. FUTURE LEGENDS- SEE EACH DISCIPLINE DRAWINGS.
3. STRUCTURAL FRAMING COMPONENTS SHALL BE SHOP PRIMED AND FINISHED PER SPEC.
4. REFERENCE ROOM FINISH SCHEDULE FOR ADDITIONAL CEILING FINISH INFORMATION.

03 30 00.B4	CONCRETE STOOP, TYP; SEE SA506
03 30 00.B5	CONCRETE PAD.
03 30 00.B7	CONCRETE SPLASH BLOCK, TYPICAL
07 41 63.B1	FABRICATED ROOF PANEL
07 41 63.D1	RIDGE CAP
07 60 00.G1	FASCIA
07 60 00.H1	GUTTER, TYP
07 60 00.I1	DOWNSPOUT, TYP
10 44 16.B1	FIRE EXTINGUISHER - RECESSED TYPE
21 00 00.A1	FIRE SUPPRESSION EQUIPMENT; SEE FIRE PROTECTION
22 00 00.B1	FLOOR DRAIN; SEE PUMBLING
23 00 00.A1	MECHANICAL EQUIPMENT; SEE MECHANICAL
23 30 00.A1	EXHAUST FAN; SEE MECHANICAL
23 30 00.C1	MECHANICAL LOUVER; SEE MECHANICAL
26 00 00.A1	ELECTRICAL EQUIPMENT; SEE ELECTRICAL
26 51 00.A1	INTERIOR LIGHTING FIXTURES; SEE ELECTRICAL

1. SIGNS ARE MOUNTED 150mm - 220mm FROM LATCH SIDE OF DOOR FRAME OR OPENING AND MOUNTED PERPENDICULAR TO THE LATCH SIDE OR DOOR OPENING WHERE WALL SPACED DOES NOT ALLOW. CENTERLINE OF SIGNS TO BE MOUNTED AT 150mm FROM FINISHED FLOOR. REFER TO SHEETS SA521 AND SA522 FOR ADDITIONAL INFORMATION.
2. SIGNS ARE DUAL LANGUAGE WITH PRIMARY TEXT IN ARABIC AND SECONDARY TEXT IN ENGLISH. PRIMARY TEXT SIZES, IN ARABIC, ARE AS NOTED IN SIGNAGE DETAILS. SECONDARY TEXT SIZES, IN ENGLISH, ARE 15mm AND 25mm FOR EGRESS SIGNAGE. SIGN SIZES SHOWN MAY INCREASE TO ACCOMMODATE REQUIRED AND APPROVED FINAL MESSAGES. TEXT LOCATIONS SHOULD BEST FIT SIGN TYPES.
3. SIGNS MOUNTED ON GLASS HAVE MATCHING BACKER PLATE, AS NECESSARY.
4. SIGNS MOUNTED ON THE EXTERIOR MUST BE CONSTRUCTED OF DURABLE FACTORY-FINISHED BAKED ENAMEL WITH REFLECTIVE SHEETING. FASTENERS SHALL BE CONCEALED AND RUST PROOF.
5. PROVIDE REQUIRED MOUNTINGS / HANGING MECHANISMS FOR SPECIFIED SIGNS PER MANUFACTURERS RECOMMENDATIONS FOR LOAD.
6. SURFACE APPLIED VINYL LETTERS OR GRAPHICS THAT CAN BE RUBBED OFF OR DAMAGED BY WEATHER OR OTHER EXTERNALS, OR INHERITED CONTRACTOR TO PROVIDE SOFTWARE, ADDITIONAL MESSAGE SLOTS FOR FUTURE INSERTS & ATTIC STOCK FOR SIGNS AND BLANK PAPER; COORDINATE WITH CONTRACTING OFFICER.
8. UNLESS NOTED OTHERWISE, TEXT ON SIGNS ARE UPPER CASE.
9. FINAL ROOM NUMBERS AND NAMES ARE COORDINATED WITH CONTRACTING OFFICER.
10. EXTERIOR SIGNS CONFORM TO MANUFACTURER RECOMMENDATIONS FOR APPLICATION AND ARE APPROVED BY CONTRACTING OFFICER.
11. EXTERIOR BUILDING NUMBER IDENTIFICATION SIGNS - TYPE A (NOT LOCATED ON PLAN), FOR EMERGENCY VEHICLES, ARE LOCATED ON SITE FOR VISIBILITY BY SECURITY AND FIRE PERSONNEL. COORDINATE LOCATION AND QUANTITIES WITH CONTRACTING OFFICER AND CONTRACTOR. SIGN CONTAINS ARABIC AND ENGLISH CHARACTERS. CONTRACTOR PROVIDES FLAG SIGNS INDICATING FIRE EXTINGUISHER LOCATION, MOUNTED ABOVE EACH EXTINGUISHER.
12. SEE TELECOMM & SECURITY DRAWINGS FOR DEVICE RELATED SIGNAGE.
14. COLORS FOR SIGNAGE TO BE BLACK BACKGROUNDS WITH WHITE CHARACTERS & PICTURES. EXTERIOR SIGNAGE FINISH TO MATCH BASE STANDARD, CONFIRM FINISHES WITH CONTRACTING OFFICER.
15. ENGLISH CHARACTERS ARE HELVETICA NEUE.

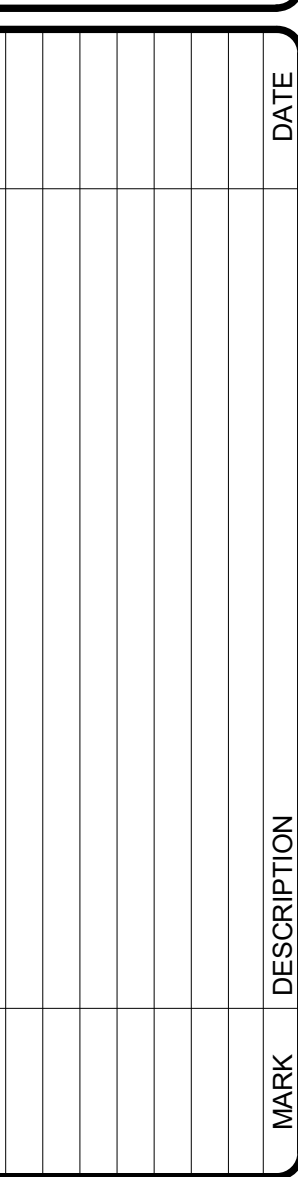
	"OTS" OPEN TO STRUCTURE
	PAINTED PLASTER CEILING, 2750MM HEIGHT TYP.
##	CEILING HEIGHT

PLAN NORTH

0 1 2 3 4 5 10

1:100

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS.



M. PIERSON	JULY 2026
DRAWN BY:	SOLICITATION NO.:
M. PIERSON	W912ER26RA016
CHECKED BY:	CONTRACT NO.:
C. GORDON	
SUBMITTED BY:	PLOT DATE:
A. FREEMAN	7/10/2026 3:35:25 PM
SIZE:	FILE NAME:
ISO A1	KU-5099374-20-AE101

MIDDLE EAST DISTRICT
201 PRINCE FREDERICK DRIVE,
WINCHESTER, VA 22602

KIMOD – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

SHEET ID
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AE101

File Path: X:\REVIT PROJECTS\SIKUWAIT\2023\KU-509974-2 - APACHE ALERT MISSION FACILITIES\IO - FIRE WATER PUMP HOUSE\KU-509974-2O-DM-A-FWPH_RVT25.rvt
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DOORS SCHEDULE

DOOR NO.	DOOR SIZE			UNDER CUT	ASSEMBLY FIRE RATING	FRAME		DETAILS			STC RATING	HARDWARE	COMMENTS:	
	TYPE	WIDTH	HEIGHT			FINISH	TYPE	MATERIAL	HEAD	JAMB				THRESHOLD
101	F	1200	2150	STL	-	-	F1	STL	06/SA509	05/SA509	04/SA509	-	HW-I-3	
102	DF	2298	2150	STL	-	-	F2	STL	09/SA509	08/SA509	07/SA509	-	HW-E-3	
103	DF	2298	2150	STL	-	-	F2	STL	09/SA509	08/SA509	07/SA509	-	HW-E-3	
104	DF	2298	2150	STL	-	-	F2	STL	09/SA509	08/SA509	07/SA509	-	HW-E-3	
105	DF	2298	2150	STL	-	-	F2	STL	09/SA509	08/SA509	07/SA509	-	HW-E-3	
106	DF	2298	2150	STL	-	-	F2	STL	09/SA509	08/SA509	07/SA509	-	HW-E-3	

FINISH SCHEDULE

Number	Name	WALL FINISH				BASE FINISH				FLOOR		CEILING	NOTES AND REMARKS
		NORTH	EAST	SOUTH	WEST	NORTH	EAST	SOUTH	WEST	MAT	FIN		
100	PUMP ROOM	P-1	P-1	P-1	P-1	RWB-3	RWB-3	RWB-3	RWB-3	HPF-1	SLIP-RESISTANT	EXPOSED TO STRUCTURE/P-7	
101	PANEL CLOSET	P-1	P-1	P-1	P-1	RWB-3	RWB-3	RWB-3	RWB-3	HPF-1	SLIP-RESISTANT	EXPOSED TO STRUCTURE/P-7	

MATERIAL FINISH LEGEND

ABBREVIATION	DESCRIPTION	MANUFACTURER	STYLE	COLOR	FINISH	DIMENSIONS	RAL / RGB	FINISH NOTES
HPF-1	HIGH PERFORMANCE FLOORING	SHERWIN WILLIAMS OR EQUAL	3-COAT RESINOUS FLOORING	CONCRETE GRAY	SLIP-RESISTENT		RAL 1019 / RGB 162, 143, 122	
P-1	WALL PAINT	SHERWIN WILLIAMS OR EQUAL	SW6105 / 266-C4	DIVINE WHITE	EGGSHELL		RAL9016 / RGB 240, 241, 234	
P-7	CEILING PAINT	SHERWIN WILLIAMS OR EQUAL	SW7040 / 249 C6	SMOKEHOUSE	EGGSHELL		RAL7006 / RGB 117, 106, 94	
P-8	STEEL / HOLLOW METAL PAINT	SHERWIN WILLIAMS OR EQUAL	SW7047 / 245 C	PORPOISE	SEMI-GLOSS		RAL706 / RGB 117, 108, 94	
RWB-3	RUBBER WALL BASE	JOHNSONITE OR EQUAL	TRADITIONAL WALLBASE	BLACK 40	MATTE	102mm	RAL 9011 / RGB 39, 41, 43	

HW-E-3 DOUBLE HM EXTERIOR DOOR - ENTRY/EXIT

DOORS	HARDWARE ITEM	QTY	DESCRIPTION	FINISH
102, 103, 104, 105, 106	HINGE, FULL MORTISE, HVY WT	6	A5111 4-1/2" X 4-1/2" NRP AT OUTSWING DOORS	630
	FLUSH BOLT (SELF LATCHING)	1	TYPE27	626
	DUST PROOF STRIKE	1	L04021	626
	STOREROOM/ CLOSET LOCK	1	07 X FREE WHEELING TRIM X LFIC CONSTRUCTION CORE	689
	CORE	1	LFIC 6PIN	619
	SURFACE OVERHEAD STOP	1	C02541	689
	SURFACE CLOSER W/ STOP	1	C02021	689
	KICK PLATE	2	J102 8" X WIDTH	630
	THRESHOLD	1	J36120 WIDTH	
	GASKETING	1	R0Y154 1WIDTH X 2HEIGHT	
	OVERHEAD RAIN DRIP	1	R0Y976 WIDTH	
	SWEEP W/ RAIN DRIP	1	R0Y536 WIDTH	
	ASTRAGAL (STILE SEALS)	1	R0Y034	

HW-I-3 SINGLE HM INTERIOR DOOR - STOREROOM

DOORS	HARDWARE ITEM	QTY	DESCRIPTION	FINISH
101	HINGE, FULL MORTISE, HVY WT	3	A5111 4-1/2" X 4-1/2" NRP AT OUTSWING DOORS	630
	STOREROOM/ CLOSET LOCK	1	F07 X FREE WHEELLING TRIM X LFIC CONSTRUCTION CORE	626
	CORE	1	LFIC 6PIN	619
	SURFACE OVERHEAD STOP	1	C02541	689
	SURFACE CLOSER	1	C02021	689

GENERAL SHEET NOTES

1. SEE 08 71 00 FOR DOOR HARDWARE. SEE AE600 SERIES FOR HARDWARE SETS.
2. SEE SA508 FOR WINDOW AND DOOR TYPES.
3. SEE SA509 FOR DOOR OPENING DETAILS.
4. SEE SA510 FOR WINDOW DETAILS.
5. SEE SA511 FOR TRANSLUCENT PANEL DETAILS.
6. SEE SA512 FOR OVERHEAD DOOR DETAILS.

NOTES - FINISHES

GENERAL

1. SEE TECHNICAL SPECIFICATIONS & INTERIOR FINISH SCHEDULES FOR INTERIOR FINISH INFORMATION.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
3. ACCEPTABLE ALTERNATE MANUFACTURERS. COLORS MUST CLOSELY MATCH BASIS OF DESIGN AND BE SUBMITTED FOR APPROVAL.
4. ALL EXTERIOR FINISHES ARE SPECIFIED ELSEWHERE. VERIFY WITH ARCHITECT ALL EXTERIOR FINISHES BEFORE PROCEEDING.
PAINTS & COATINGS
5. ALL EXPOSED CONCRETE FLOORS SHALL BE PROPERLY PREPARED AND SEALED
6. ALL INTERIOR METAL DOORS, DOOR FRAMES AND WINDOW FRAMES SCHEDULED TO RECEIVE PAINT SHALL BE PAINTED P-8.
7. ALL METAL GRILLES, DIFFUSERS, PANEL BOXES, REGISTERS, ETC. SCHEDULED TO RECEIVE PAINT SHALL BE PAINTED TO MATCH THE ADJACENT WALL FINISH.
8. EXPOSED HVAC SHALL BE PAINTED P-8.

LEGEND - DOOR MATERIAL TYPES

STL - STEEL

US Army Corps of Engineers®

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MARK

DESCRIPTION

DESIGNED BY:
M.PIERSON

DRAWN BY:
M.PIERSON

CHECKED BY:
C.GORDON

SUBMITTED BY:
A.FREEMAN

ISO 151

ISSUE DATE:
JULY 2026

SOLICITATION NO.:
W912ER26RAD16

CONTRACT NO.:

PLOT DATE:
7/10/2026 3:35:29 PM

FILE NAME:
KU-509974-2O-AE601

U.S. ARMY CORPS OF ENGINEERS
MIDDLE EAST DISTRICT
201 PRINCE FREDERICK DRIVE,
WINCHESTER, VA 22602

ALI AL SALEM AB, KUWAIT
KMOO - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

FIRE WATER PUMP HOUSE
FINISHES SCHEDULE AND DOOR SCHEDULE

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File Path: X:\REVIT PROJECTS\KUWAIT\2023\KU-509974-2 - APACHE ALERT MISSION FACILITIES\O - FIRE WATER PUMP HOUSE\KU-509974-2O-DM-A-FWPH_RVT25.rvt
Plot Date: 7/10/2026 3:35:29 PM

CDC



1. CONTRACTOR AWARDED THIS PROJECT IS REQUIRED TO COMPLY WITH KUWAIT REGULATIONS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
2. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR WORKING DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REQUIREMENTS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS. DURING WORKING DESIGN AND INSTALLATION OF FIRE ALARM DEVICES, ENSURE FIRE ALARM DEVICES ARE NOT IN CONFLICT WITH BUILDING COMPONENTS OR ANY OTHER SERVICE COMPONENTS (E.G., LIGHTS, OTHER ELECTRICAL, PIPES, ETC.)
- I. PROVIDE A FIRE ALARM SYSTEM THROUGHOUT IN ACCORDANCE WITH KUWAIT FIRE FORCES (KFF) REGULATIONS AND NATIONAL FIRE PROTECTION (NFPA) STANDARDS.
3. FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502 AND OTHER FACILITY DRAWINGS.
4. ADDRESSABLE INPUT MODULES (AIM) FOR EACH DIESEL FIRE PUMP CONTROLLER, JOCKEY PUMP CONTROLLER, AND FIRE WATER STORAGE TANKS
5. FIRE ALARM CONTROL UNIT (FACU) LOCATED IN PANEL CLOSET TO ENSURE IT IS LOCATED IN AN ACCESSIBLE ENVIRONMENTALLY CONTROLLED LOCATION.
6. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRIME FREDERICK DRIVE, WINCHESTER, VA 22602	DESIGNED BY: M. MOORE	ISSUE DATE: JULY 2026
	DRAWN BY: M. MOORE	SOLICITATION NO.: W912ER26RA016
	CHECKED BY:	CONTRACT NO.:
	R. DIPERT	PLOT DATE:
	APPROVED BY: A. FREEMAN	7/9/2026 2:57:12 PM
	SIZE:	FILE NAME:
	ISO A1	KUL509974-QO-A101

SHEET ID
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FA101

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**UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.**

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FIRE ALARM CONTROL UNIT (FACU)
SEQUENCE OF OPERATIONS (SOO) MATRIX

		FIRE ALARM SYSTEM OUTPUT									
		ANNUNCIATION AT LOCAL PANEL			NOTIFICATION			AUXILIARY FUNCTIONS			
		AUDIO-VISUAL ALARM INDICATION	AUDIO-VISUAL TROUBLE INDICATION	AUDIO-VISUAL SUPERVISORY INDICATION	INITIATE VISUAL ALARM NOTIFICATION LOCAL	INITIATE GENERAL FIRE ALARM AUDIBLE NOTIFICATION	INITIATE VISUAL ALARM SIGNAL TO RECEIVING STATION (FUTURE)	INITIATE VISUAL TROUBLE SIGNAL TO RECEIVING STATION (FUTURE)	INITIATE VISUAL SUPERVISORY SIGNAL TO RECEIVING STATION (FUTURE)	ACTIVATE EXHAUST FAN 2 (EF-2)	BLANK (FOR FUTURE USE)
		ALARM CONDITIONS	FIRE ALARM PULL STATION	x			x	x	x		
SMOKE DETECTOR	x				x	x	x				
WATER FLOW: WET-PIPE SPRINKLER	x				x	x	x			x	
DIESEL PUMP CONTROLLER MONITORING: FIRE PUMP RUNNING	x				x	x	x			x	
TROUBLE CONDITIONS	FA POWER FAILURE		x					x			
	FA LOW BATTERY		x					x			
	OPEN CIRCUIT		x					x			
	GROUND FAULT		x					x			
SUPERVISORY CONDITIONS	SPRINKLER CONTROL VALVES: WET-PIPE SPRINKLER			x					x		
	FIRE PUMP CONTROL VALVES			x					x		
	DIESEL PUMP CONTROLLER MONITORING: DIESEL FUEL LEVEL LOW			x					x		
	DIESEL PUMP CONTROLLER MONITORING: FIRE PUMP FAILURE			x					x		
	JOCKEY PUMP CONTROLLER MONITORING: JOCKEY PUMP FAILURE			x					x		
	WATER STORAGE TANK MONITORING: LOW WATER LEVEL			x					x		

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FIRE ALARM SOO INPUT/OUTPUT MATRIX

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CELLULAR OR RADIO FREQUENCY (RF)

FUTURE FIRE ALARM REPORTING SYSTEM

UNDERGROUND: FIBER/ETHERNET FOR DIGITAL PHONE LINES OR VOICE OVER INTERNET PROTOCOL (VOIP) CONNECTIONS

FIRE ALARM CONTROL UNIT (FACU)

ROOF

TYPICAL INITIATING DEVICE CIRCUIT (IDC)

TYPICAL NOTIFICATION APPLIANCE CIRCUIT (NAC)

DEDICATED ELECTRICAL CIRCUIT: ROOM 100, ELECTRICAL PANEL MDPO, CIRCUIT 6

1

FIRE ALARM RISER DETAILS

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GENERAL DISCIPLINE NOTES

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3. FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502 AND OTHER FACILITY DRAWINGS.

4. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

US Army Corps of Engineers®

ISSUE DATE: JULY 2026

SOLICITATION NO.: W912ER26RAD16

CONTRACT NO.:

PLOT DATE: 7/9/2026 2:57:13 PM

FILE NAME: KU-509974-20-FA601

U.S. ARMY CORPS OF ENGINEERS

MIDDLE EAST DISTRICT

201 PRINCE FREDERICK DRIVE,

WINCHESTER, VA 22602

ALI AL SALEM AB, KUWAIT

KMOD - KUWAIT AIR FORCE

KUWAIT APACHE ALERT FACILITIES

KU-509974-2

FIRE WATER PUMP HOUSE

FIRE ALARM RISER AND MATRIX

SHEET ID

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FA601

FILE PATH: X:\REVIT PROJECTS\KUWAIT\2023\KU-509974-2 - APACHE ALERT MISSION FACILITIES\O - FIRE WATER PUMP HOUSE\KU-509974-20-DM-FP-FWPH_RVT25.rvt

PLOT DATE: 7/9/2026 2:57:13 PM

CDC



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3. FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502 AND OTHER FACILITY DRAWINGS.
4. HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSIBLE CAPACITY.
5. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

WET PIPE SPRINKLER
HAZARD CLASSIFICATION: EXTRA HAZARD
GROUP 2
HAZARD DENSITY: 16.3 LPM/M²
AREA: 230 M²
INTERIOR HOSE ALLOWANCE: 140 LPM
WATER SUPPLY DURATION: 90 MIN
MAX COVERAGE PER SPRINKLER: 9 M²
MAX CEILING HEIGHT: 9.1 M
SPRINKLER TYPE: STANDARD RESPONSE
MIN. K-FACTOR = 115

NOTE: MINIMUM REMOTE AREA FOR EXTRA
HAZARD GROUP 2 IS 230 M² WHICH IS
GREATER THAN TOTAL BUILDING AREA.
TOTAL AREA OF 230 M² USED FOR A
CONSERVATIVE ESTIMATE OF THE PRESSURE
AND FLOW REQUIRED.

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UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS

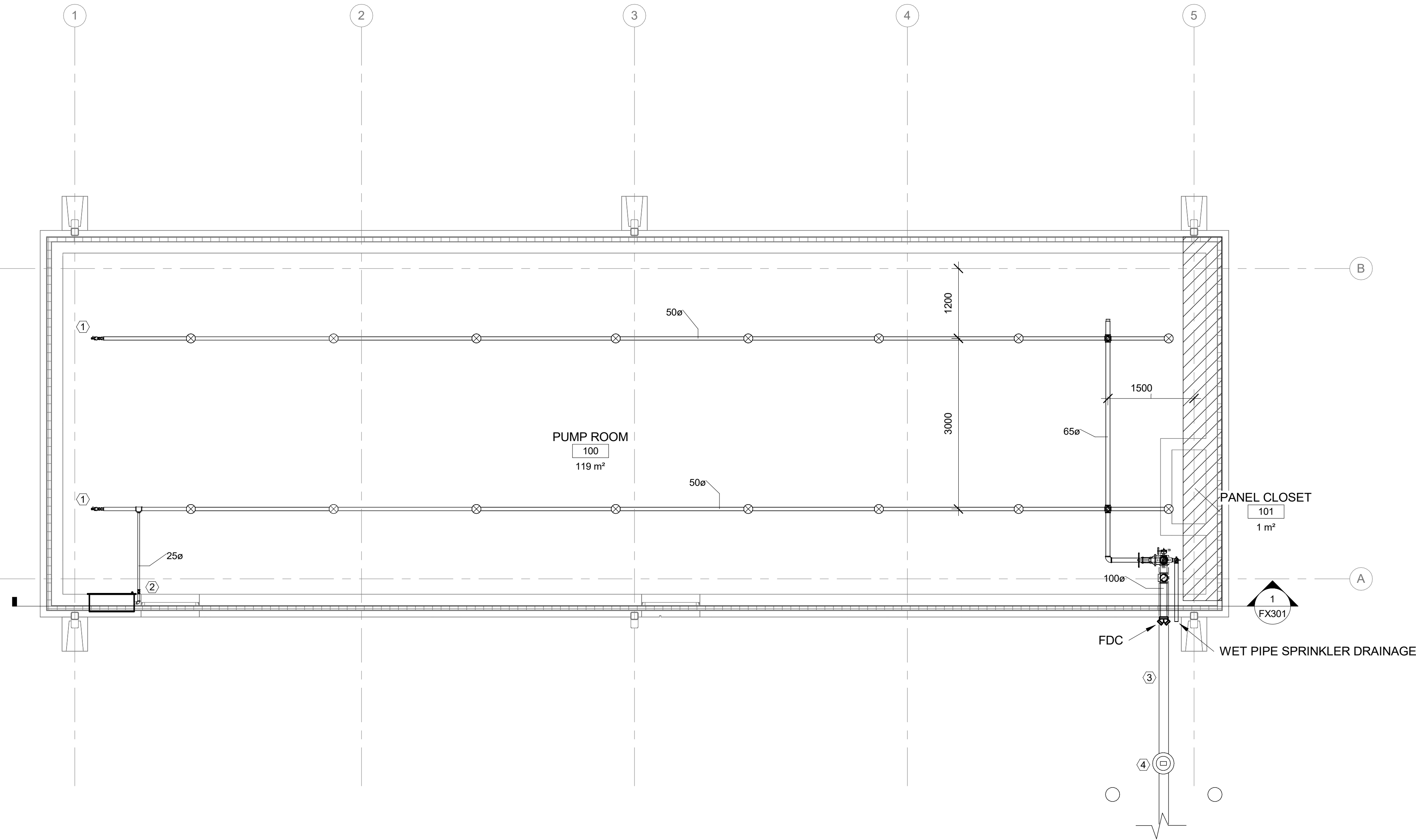
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Design Requirements:					
General Design Parameters:			Minimum Remote Area Shape:		
Hazard Classification =	Extra Hazard		Length Parallel to the Branch = 1.2 x SQRT (Area)	18.20	M
Sprinkler Design Density (D) =	16.30	LPM/M	Width Perpendicular to the Branch=	13.00	M
Remote Area (A) =	230.00	SM	Minimum Number of Sprinkler on a Branch Line:		
Sprinkler K-Factor =	115.00		Sprinkler Spacing (S) =	3.00	M
Sprinkler Spacing (S x L) =	3 X 3	M	# Sprinkler on Branch Line = 1.2 x SQRT	7.00	Sprinklers
Sprinkler Coverage Area (As) =	9.00	SM	Minimum Sprinkler System Pressure Required		
Inside Hose Stream =	140	LPM	Starting Sprinkler Pressure	1.63	BAR
Outside Hose Stream =	0.00	LPM	Starting Hose Reel Pressure	2.00	
Pipe Material Inside Building =	Steel Schedule 40		Pressure loss in pipes P	3.57	BAR
C Factor=	120.00			7.19	BAR
Pipe Material Outside Building =	Ductile Iron, C=100		Minimum Sprinkler System Flow Required		
			Combined Sprinkler and Hose	5014	LPM

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NTS

SPRINKLER DESIGN REQUIREMENTS - FIRE WATER PUMP HOUSE



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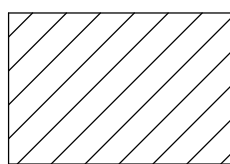
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FIRE SUPPRESSION FLOOR PLAN - GROUND FLOOR - WET PIPE SPRINKLER SYSTEM

GENERAL NOTES

- CONTRACTOR AWARDED THIS PROJECT IS REQUIRED TO COMPLY WITH KUWAIT REGULATIONS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
- ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR WORKING DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REQUIREMENTS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS. DURING WORKING DESIGN AND INSTALLATION OF SPRINKLERS, ENSURE SPRINKLERS ARE NOT OBSTRUCTED BY BUILDING COMPONENTS OR ANY OTHER SERVICE COMPONENTS (E.G., PIPES, SEWAGE, ELECTRICAL, ETC.)
- FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502 AND OTHER FACILITY DRAWINGS.
- HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSABLE CAPACITY.
- MIN K-FACTOR 80 UPRIGHT HEADS SPACED EVENLY ACROSS FLOOR AREA WITH DEFLECTORS PLACED AT OR BELOW THE BOTTOM OF STRUCTURAL BEAMS TO AVOID OBSTRUCTION OF SPRAY PATTERN FROM THE SPRINKLER HEADS.

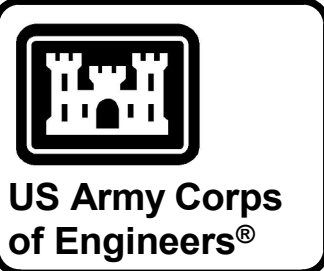
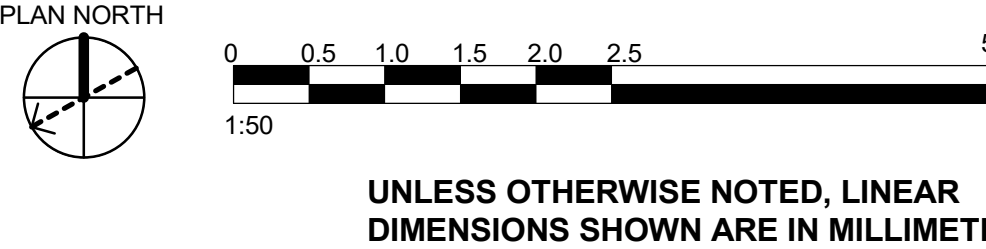
LEGEND

-  REMOTE AREA
NOTE: REMOTE AREA INCLUDES ENTIRE INTERNAL AREA, ~120 SQUARE METERS, USING MINIMUM FIRE AREA OF 230 SQUARE METERS IAW KFF VOL 2 CURVE 4/1-1
-  POST INDICATING VALVE (PIV)
-  BOLLARDS

SHEET KEY NOTES

- AUTOMATIC AIR VENTING VALVE AT HIGHEST POINT OF SPRINKLER PIPING SYSTEM IN ACCORDANCE WITH NFPA 13
- 25 MM RUBBER HOSE CABINET CONNECTED TO WET PIPE SPRINKLER SYSTEM AS REQUIRED BY KFF VOL 6 CHAPTER 7
- UNDERGROUND 150 MM WET PIPE SPRINKLER RISER SUPPLY PIPING FROM FIRE WATER NETWORK. SEE VOLUME 1 - GENERAL SHEETS AND SITE PLANS, SHEET FS128 FOR PIPING CONTINUATION FROM FIRE WATER NETWORK.
- PIV AND BOLLARDS LOCATIONS SHOWN FOR REFERENCE ONLY. ACTUAL LOCATIONS MUST BE COORDINATED BY INSTALLING CONTRACTOR AND COMPLY WITH KFF REQUIREMENTS. WHEN NOT ADDRESSED BY KFF, NFPA 24 REQUIREMENTS SHALL APPLY.
- ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

GRAPHIC SCALE & NORTH ARROW

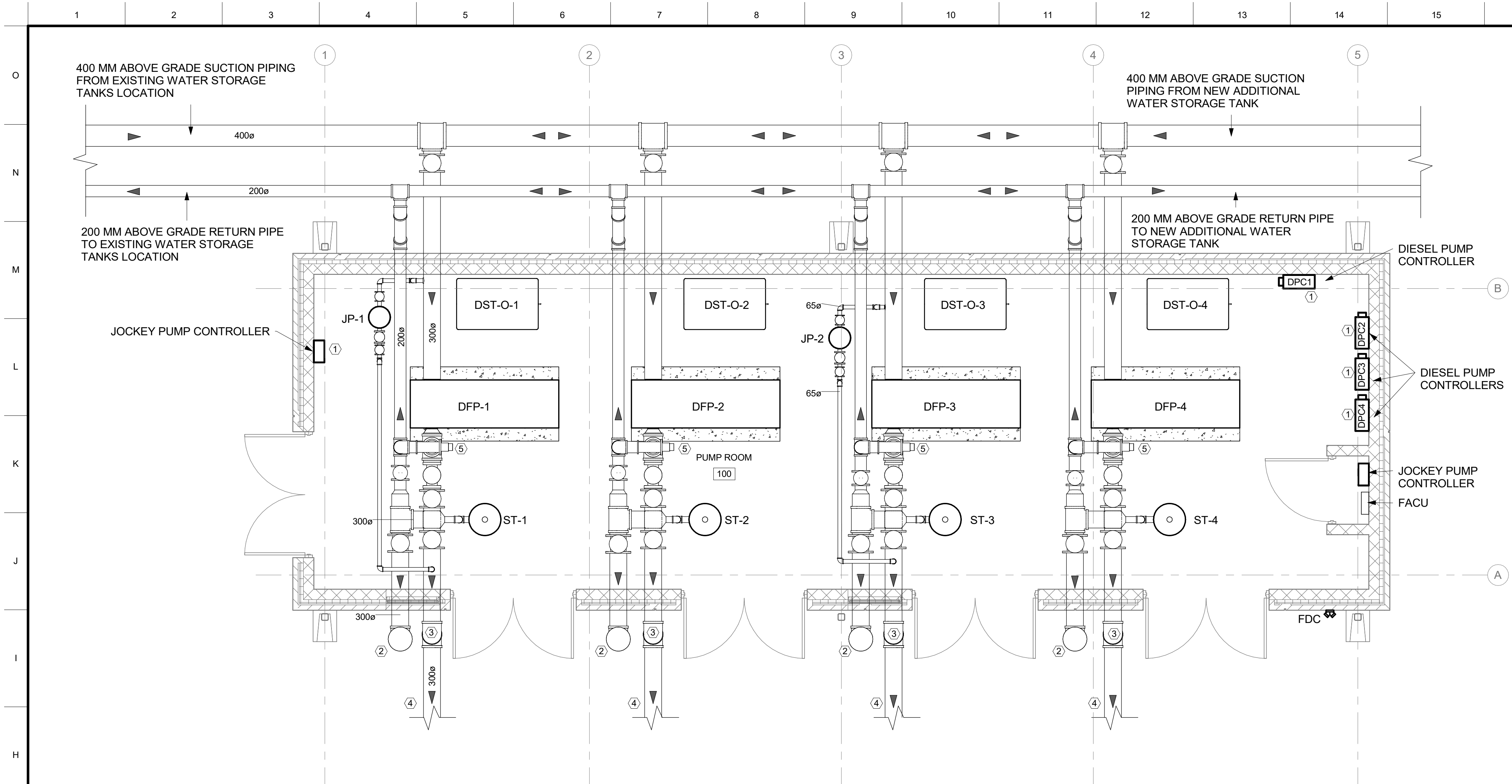


DATE	DESCRIPTION	MARK

DESIGNED BY: M. MOORE	ISSUE DATE: JULY 2026
DRAWN BY: M. MOORE	SOLICITATION NO.: W912ER6RAD16
CHECKED BY: R. DIPERT	CONTRACT NO.:
SUBMITTED BY: A. FREEMAN	PLOT DATE: 7/9/2026 2:57:14 PM
FILE NAME: ISO 11	FILE NAME: KU-509974-20-FX102

U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	ALI AL SALEM AB, KUWAIT KMOD - KUWAIT AIR FORCE KUWAIT APACHE ALERT FACILITIES KU-509974-2
FIRE WATER PUMP HOUSE FIRE SUPPRESSION FLOOR PLAN - GROUND FLOOR - WET PIPE SPRINKLER SYSTEM	

SHEET ID O FX102



1 FIRE PUMP PIPING FLOOR PLAN - GROUND FLOOR 1 : 50

DIESEL FIRE PUMP SCHEDULE					
EQUIPMENT	LOCATION	HP	PRESSURE (BAR)	HEAD (M)	FLOW RATE (LPM)
DFP-1	100 PUMP ROOM	373	11.4	381	11355
DFP-2	100 PUMP ROOM	373	11.4	381	11355
DFP-3	100 PUMP ROOM	373	11.4	381	11355
DFP-4	100 PUMP ROOM	373	11.4	381	11355

NOTE: FIRE PUMP DESIGN DATA IS BASED ON ESTIMATED HYDRAULIC CALCULATIONS FOR ANTICIPATED FIRE FLOW AND SPRINKLER DEMANDS AND IS FOR INFORMATION ONLY. FIRE PUMP DATA MUST BE VERIFIED BY THE CONTRACTOR ONCE HYDRAULIC CALCULATIONS AND SHOP DRAWINGS ARE FINALIZED.

JOCKEY PUMP SCHEDULE							
EQUIPMENT	LOCATION	HP	MIN. PRESSURE (BAR)	MIN. FLOW RATE (LPM)	VOLTS	PHASE	HERTZ
JP-1	100 PUMP ROOM	30	11.9 bar	568	415	3	50
JP-2	100 PUMP ROOM	30	11.9 bar	568	415	3	50

NOTE: JOCKEY PUMP MUST BE SIZED WITH A CAPACITY NO LESS THAN 5% OF THE APPROVED FIRE PUMP CAPACITY AND PRESSURE 0.5 BAR HIGHER THAN THAT OF THE APPROVED FIRE PUMP PRESSURE IAW KFF VOL. 2 SECTION 2/27/12

DIESEL FUEL STORAGE TANK SCHEDULE			
EQUIPMENT	LOCATION	TANK CONSTRUCTION	MIN VOLUME (L)
DST-O-1	100 PUMP ROOM	STEEL, DOUBLE WALLED	577
DST-O-2	100 PUMP ROOM	STEEL, DOUBLE WALLED	577
DST-O-3	100 PUMP ROOM	STEEL, DOUBLE WALLED	577
DST-O-4	100 PUMP ROOM	STEEL, DOUBLE WALLED	577

NOTE: DIESEL TANK MINIMUM STORAGE VOLUME BASED ON FUEL CONSUMPTION RATE OF 65.5 L/HOUR FOR 8 HOURS AT MAXIMUM LOAD IAW KFF VOL 2. SECTION 2/2/5/6 (B).16 PLUS 5% VOLUME FOR EXPANSION AND 5% VOLUME FOR SUMP. STORAGE VOLUME MUST BE VERIFIED BASED ON APPROVED DIESEL FIRE PUMP AND DRIVER FUEL CONSUMPTION AT MAXIMUM LOAD. TOTAL VOLUME OF ALL 4 TANKS MUST NOT BE GREATER THAN 2999 L.

SURGE SUPPRESSION TANK SCHEDULE		
EQUIPMENT	LOCATION	VOLUME (L)
ST-1	100 PUMP ROOM	378
ST-2	100 PUMP ROOM	378
ST-3	100 PUMP ROOM	378
ST-4	100 PUMP ROOM	378

NOTE: SURGE SUPPRESSION TANK SIZING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND APPROVED FIRE PUMP DATA.

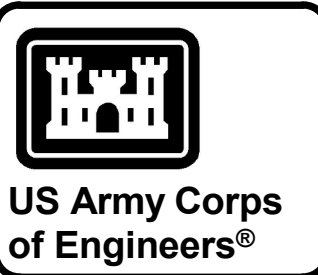
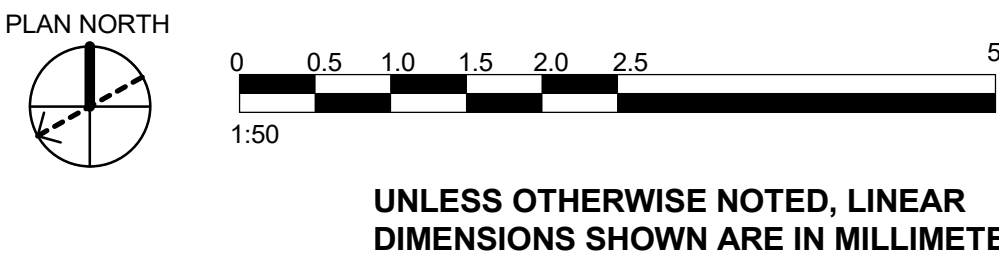
GENERAL NOTES

- CONTRACTOR AWARDED THIS PROJECT IS REQUIRED TO COMPLY WITH KUWAIT REGULATIONS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
- ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR WORKING DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REQUIREMENTS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS. DURING WORKING DESIGN AND INSTALLATION OF SPRINKLERS, ENSURE SPRINKLERS ARE NOT OBSTRUCTED BY BUILDING COMPONENTS OR ANY OTHER SERVICE COMPONENTS (E.G., PIPES, SEWAGE, ELECTRICAL, ETC.)
- FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS F001, F002, F003, F501, F502, AND OTHER FACILITY DRAWINGS.
- HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSABLE CAPACITY.
- SHEET ABBREVIATIONS: DFP - DIESEL FIRE PUMP, JP - JOCKEY PUMP, DST - DIESEL STORAGE TANK, ST - SURGE SUPPRESSION TANK
- EXHAUST PIPING FOR DIESEL ENGINE DRIVERS WILL PENETRATE ROOF, TURN 90 DEGREES TO AVOID ANY WATER ENTERING THE EXHAUST SYSTEM AND TERMINATE AT A SAFE POINT OUTSIDE THE BUILDING WHERE THEY WILL NOT AFFECT PERSONS OR ENDANGER BUILDINGS IAW NFPA 20 11.5.2 AND 11.5.3. ENSURE EXHAUST SIZE MEETS MANUFACTURER'S RECOMMENDATION AND INCLUDE SUFFICIENT SOUND DAMPENING AND THERMAL INSULATION IAW KFF VOL. 2.
- DIESEL STORAGE TANKS MUST BE EQUIPPED WITH FUEL LEVEL GAUGE AND FILTER IAW KFF VOL. 2. DIESEL FUEL LEVEL WILL BE MONITORED BY THE ASSOCIATED DIESEL FIRE PUMP CONTROLLER. LOW DIESEL FUEL LEVEL DETECTION WILL TRIGGER SUPERVISORY SIGNAL AT FACU.

SHEET KEY NOTES

- ALL PUMP CONTROLLERS LOCATED OUTSIDE OF CONDITIONED SPACE MUST HAVE MAXIMUM AMBIENT OPERATING TEMPERATURE RATING OF AT LEAST 55 DEGREES CELSIUS TO REMAIN OPERABLE DURING PUMP OPERATION AND RAISED AMBIENT TEMPERATURE OF THE SPACE.
- FLOW TEST HEADERS WITH TWELVE 65MM HOSE CONNECTIONS LOCATED OUTSIDE BUILDING FOR EACH PUMP. TEST HEADERS MUST BE PROPERLY SECURED TO AVOID ANY VERTICAL, HORIZONTAL, OR ROTATIONAL MOVEMENT WHEN OPERATING PUMPS AND HOSE CONNECTIONS.
- DISCHARGE PIPING TO LEAVE PUMP HOUSE BUILDING ABOVE GRADE BEFORE ELBOW DOWN BELOW GRADE TO CONNECT TO EXISTING FIRE WATER NETWORK.
- 300 MM BELOW GRADE DISCHARGE PIPING CONNECTING TO EXISTING FIRE WATER NETWORK. SEE VOLUME 1 - GENERAL SHEETS AND SITE PLANS, SHEET FS128 FOR CONTINUATION OF FIRE WATER PIPING.
- PRESSURE RELIEF VALVE CONNECTED TO RETURN PIPING TO FIRE WATER STORAGE TANKS.
- ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

GRAPHIC SCALE & NORTH ARROW



DATE	DESCRIPTION	MARK

ISSUE DATE: JULY 2026	SOLICITATION NO.: W912ER26RAD16	CONTRACT NO.: 	PLOT DATE: 7/9/2026 2:57:15 PM
DESIGNED BY: M. MOORE	DRAWN BY: M. MOORE	CHECKED BY: R. DIPERT	SUBMITTED BY: A. FREEMAN
U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602		FILE NAME: ISO 11 KU-509974-20-FX103	

ALI AL SALEM AB, KUWAIT KN00 - KUWAIT AIR FORCE KUWAIT APACHE ALERT FACILITIES KU-509974-2	FIRE WATER PUMP HOUSE FIRE PUMP PIPING FLOOR PLAN - GROUND FLOOR
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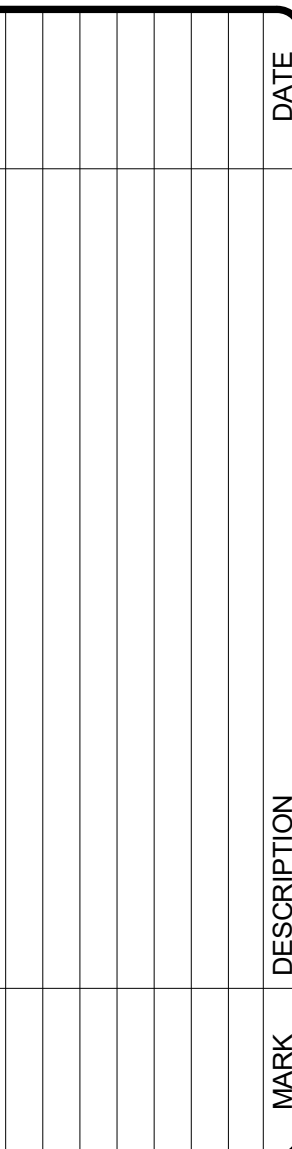
SHEET ID O FX103



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3. FOR GENERAL NOTES, LEGENDS, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502, AND OTHER FACILITY DRAWINGS.
4. HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSABLE CAPACITY.
5. MIN K-FACTOR 5.6 (80) UPRIGHT HEADS SPACED EVENLY ACROSS FLOOR AREA WITH DEFLECTORS PLACED AT OR BELOW THE BOTTOM OF STRUCTURAL BEAMS TO AVOID OBSTRUCTION OF SPRAY PATTERN FROM THE SPRINKLER HEADS.
6. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

1. AUTOMATIC AIR VENTING VALVE AT HIGHEST POINT OF SPRINKLER PIPING SYSTEM IN ACCORDANCE WITH NFPA 13.
2. 25 MM RUBBER HOSE CABINET CONNECTED TO WET PIPE SPRINKLER SYSTEM AS REQUIRED BY KFF VOL 6 CHAPTER 7

UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.



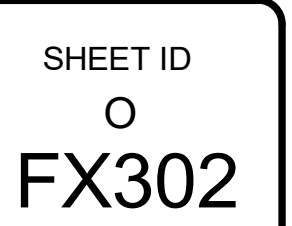
201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	M. MOORE	SOLICITATION NO.: W912ER26RA016	JULY 2026
	M. MOORE		
	R. DIPERT	CHECKED BY:	
	CONTROLLED BY: A. FREEMAN	CONTRACT NO.:	
		PLAT DATE:	7/9/2026 2:57:16 PM
	SIZE:	FILE NAME:	
	ISO A1	KU-509874-20-FX301	

KMOB – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

SHEET ID
O
FX301



GRAPHIC SCALE





1. CONTRACTOR AWARDED THIS PROJECT IS REQUIRED TO COMPLY WITH KUWAIT REGULATIONS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
2. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REQUIREMENTS AND ALL OTHER APPLICABLE CODES, STANDARDS, AND REQUIREMENTS.
3. FOR GENERAL NOTES, SYMBOLS, AND ADDITIONAL OTHER DETAILS SEE STANDARD DRAWINGS SF001, SF002, SF003, SF501, SF502 AND OTHER FACILITY DRAWINGS.
4. HAZARDOUS MATERIALS STORAGE SHALL REMAIN BELOW MAXIMUM PERMISSABLE CAPACITY.
5. ALL FIRE AND LIFE SAFETY DRAWING ARE CONCEPTUAL IN NATURE. CONTRACTOR DESIGN "SHOP" DRAWINGS MUST COMPLY WITH KUWAIT REGULATIONS AND MUST BE SUBMITTED AND APPROVED BY KFF.

[illegible]

U.S. ARMY CORPS OF ENGINEERS 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	DESIGNED BY:	M. MOORE	ISSUE DATE:	JULY 2026
	DRAWN BY:	M. MOORE	SOLICITATION NO.:	W912ER26R4016
	CHECKED BY:	R. DIPERT	CONTRACT NO.:	
	SUBMITTED BY:	A. FREEMAN	PLOT DATE:	7/9/2026 2:57:17 PM
	SIZE:	ISO A1	FILE NAME:	KU-509974-2C-FX501

ALI AL SALEM AB, KUWAIT
KMOD – KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

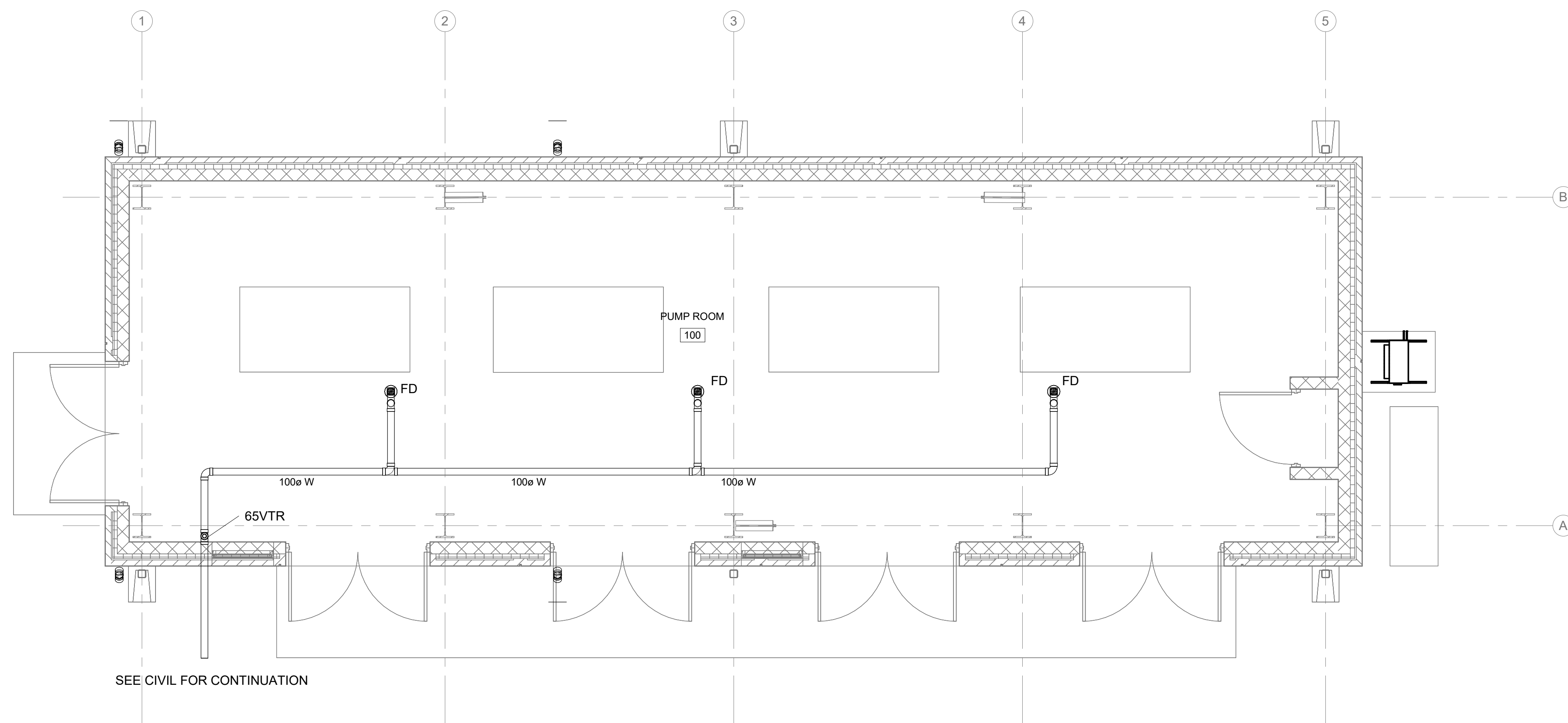
FIRE WATER PUMP HOUSE
FUEL FILLING STATION DETAIL

SHEET ID
O
FX501

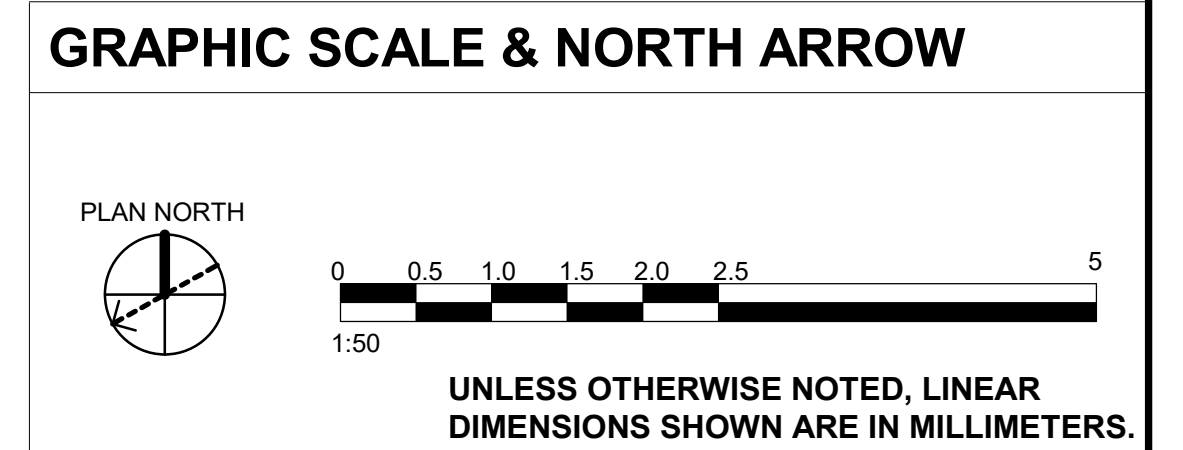
STANDBY PUMP #4 START STARTS IF FIRE PUMP #1, 2, OR 3 DOES NOT START AS THE NEXT PUMP IN ORDER OF PRESSURE REQUIREMENTS



FX601



1 SANITARY FLOOR PLAN
1 : 50

[illegible]

201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	DRAWN BY: A. SANDATE	SOLICITATION NO. NO.:
	CHECKED BY: C. BURBRINK	CONTRACT NO.:
	SUBMITTED BY: A. FREEMAN	PLOT DATE: 7/10/2028 9:52:32 AM
	FILE NAME: ISO A1	KU-509974-20-PL101

KUWAIT APACHE ALERT FACILITIES
KU-509974-2

SANITARY FLOOR PLAN

HEET ID
O
L101

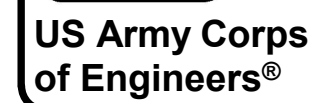


NOTES:

1. EQUIPMENT MUST BE ABLE TO OPERATE IN OUTDOOR AMBIENT TEMP OF KUWAIT YEAR ROUND.
2. VERIFY LINE SIZES WITH MANUFACTURER. PROVIDE AS REQUIRED TO CERTIFY PERFORMANCE.
3. MCA VALUE ONLY CONSIDERS CONDENSING UNIT.
4. PROVIDE SINGLE POINT OF ELECTRICAL CONNECTION.
5. ALL AC UNITS SHALL CONTINUE TO OPERATE AT HIGHER AMBIENT TEMPERATURES UP TO 125°F WITHOUT TRIPPING.

NOTES:
1. INTERLOCK WITH DFP-1/2/3
2. PROVIDE SWITCH ON THE WALL TO CONTROL FAN. FAN IS INTENDED TO RUN CONTINUOUSLY FOR BUILDING VENTILATION

1. FLUE EXHAUST INFORMATION REGARDING THE DIESEL FIRE PUMPS, SEE FX103

[illegible]

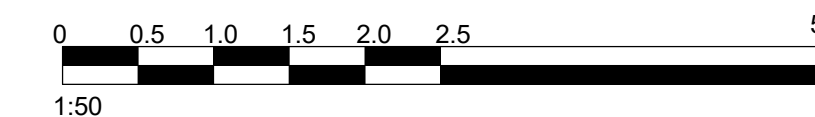
U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 10000 WILSON AVENUE, WINCHESTER, IA 22602	DESIGNED BY: A. FREEMAN CHECKED BY: C. BURBRINK SUBMITTED BY: A. FREEMAN	ISSUE DATE: JULY 1966 SOLICITATION NO.: W912ER26620416 CONTRACT NO.: PLOT DATE: 7/10/2026 9:49:09 AM	FILE NAME: ISO A1 KL-509574-2C-MH101
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ALI AL SALEH AB. KUWAIT
KMOB – KUWAIT AIR FORCE
KUWAIT APACHE/ALERT FACILITIES
KU-508974-2

FIRE WATER PUMP HOUSE
MECHANICAL FLOOR PLAN

SHEET ID
O
MH101

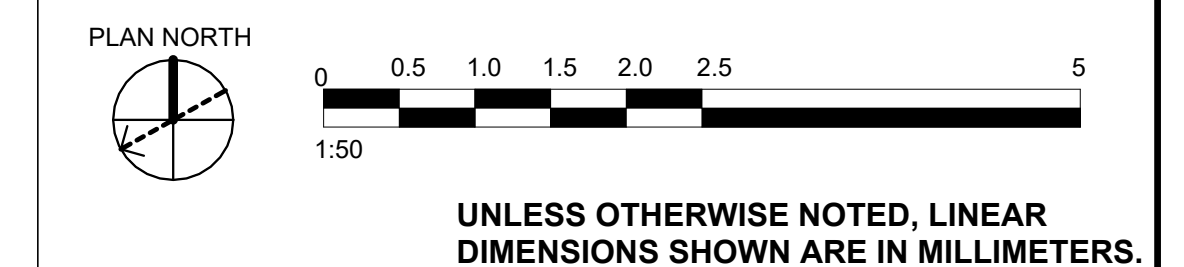
PLAN NORTH



UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.



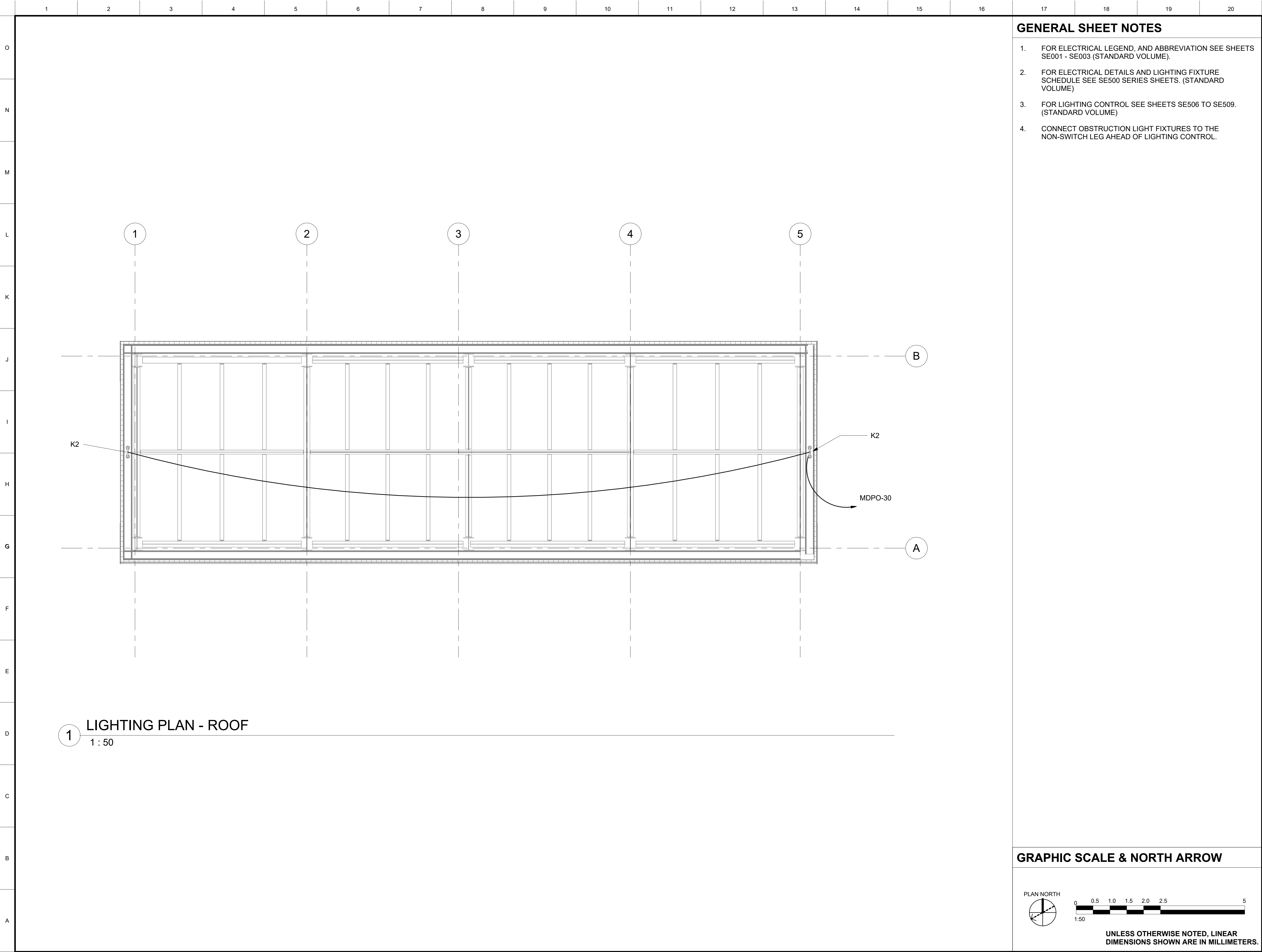
1. FOR ELECTRICAL LEGEND, AND ABBREVIATION SEE SHEETS SE001 - SE003 (STANDARD VOLUME).
2. CONNECT EXIT SIGNS TO THE NON-SWITCH LEG AHEAD OF LIGHTING CONTROL TO THE AREA.
3. ALL EXTERIOR EXIT LIGHTS TO BE MOUNTED 500 mm ABOVE DOOR FRAME.
4. FOR ELECTRICAL DETAILS AND LIGHTING FIXTURE SCHEDULE SEE SE500 SERIES SHEETS (STANDARD VOLUME).
5. FOR LIGHTING CONTROL SEE SHEETS SE506 TO SE509. (STANDARD VOLUME)
6. LIGHT FIXTURES WITH DESIGNATION "E" ARE EMERGENCY LIGHTS WITH BATTERY BACK, MIN. 3 HOURS RUN TIME, CONNECT TO THE NON-SWITCH LEG AHEAD OF LIGHTING CONTROL TO THE AREA.
7. COORDINATE LOCATION AND HEIGHT OF ALL ELECTRICAL EQUIPMENT AND FIXTURES WITH ALL OTHER TRADES. MAKE PROPER FIELD ADJUSTMENT TO AVOID CONFLICT.
8. PROVIDE SURFACE MOUNTED RACEWAY FOR ALL INTERIOR ELECTRICAL DISTRIBUTION, UNLESS NOTED OTHERWISE.

[illegible]

U.S. ARMY CORPS OF ENGINEERS 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	DESIGNED BY:	ISSUE DATE:
	N. HANNA	JULY 2026
	DRAWN BY:	SOLICITATION NO.:
	J. JENKINS	W912ER26R4016
	CHECKED BY:	CONTRACT NO.:
	N. CORBIN	
	SUBMITTED BY:	PLOT DATE:
	A. FREEMAN	7/10/2026 3:01:21 PM
	FILE NAME:	
	SIZE:	ISO A1
		KU-509974-20-EL101

AL TAL SALEH AB, KUWAIT
KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-503974-2

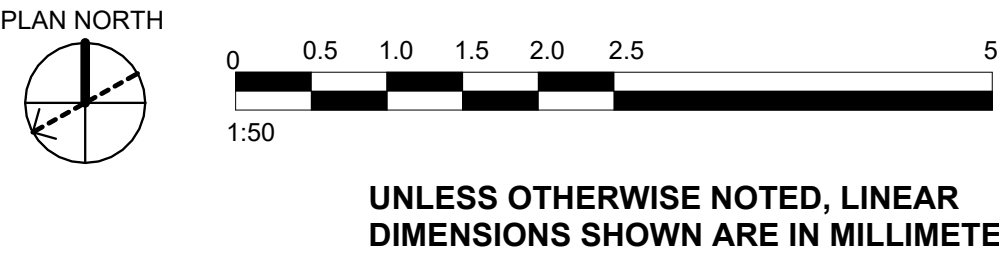
SHEET ID
O
EL101



GENERAL SHEET NOTES

- FOR ELECTRICAL LEGEND, AND ABBREVIATION SEE SHEETS SE001 - SE003 (STANDARD VOLUME).
- FOR ELECTRICAL DETAILS AND LIGHTING FIXTURE SCHEDULE SEE SE500 SERIES SHEETS. (STANDARD VOLUME)
- FOR LIGHTING CONTROL SEE SHEETS SE506 TO SE509. (STANDARD VOLUME)
- CONNECT OBSTRUCTION LIGHT FIXTURES TO THE NON-SWITCH LEG AHEAD OF LIGHTING CONTROL.

GRAPHIC SCALE & NORTH ARROW



**US Army Corps
of Engineers®**

MARK	DESCRIPTION	DATE

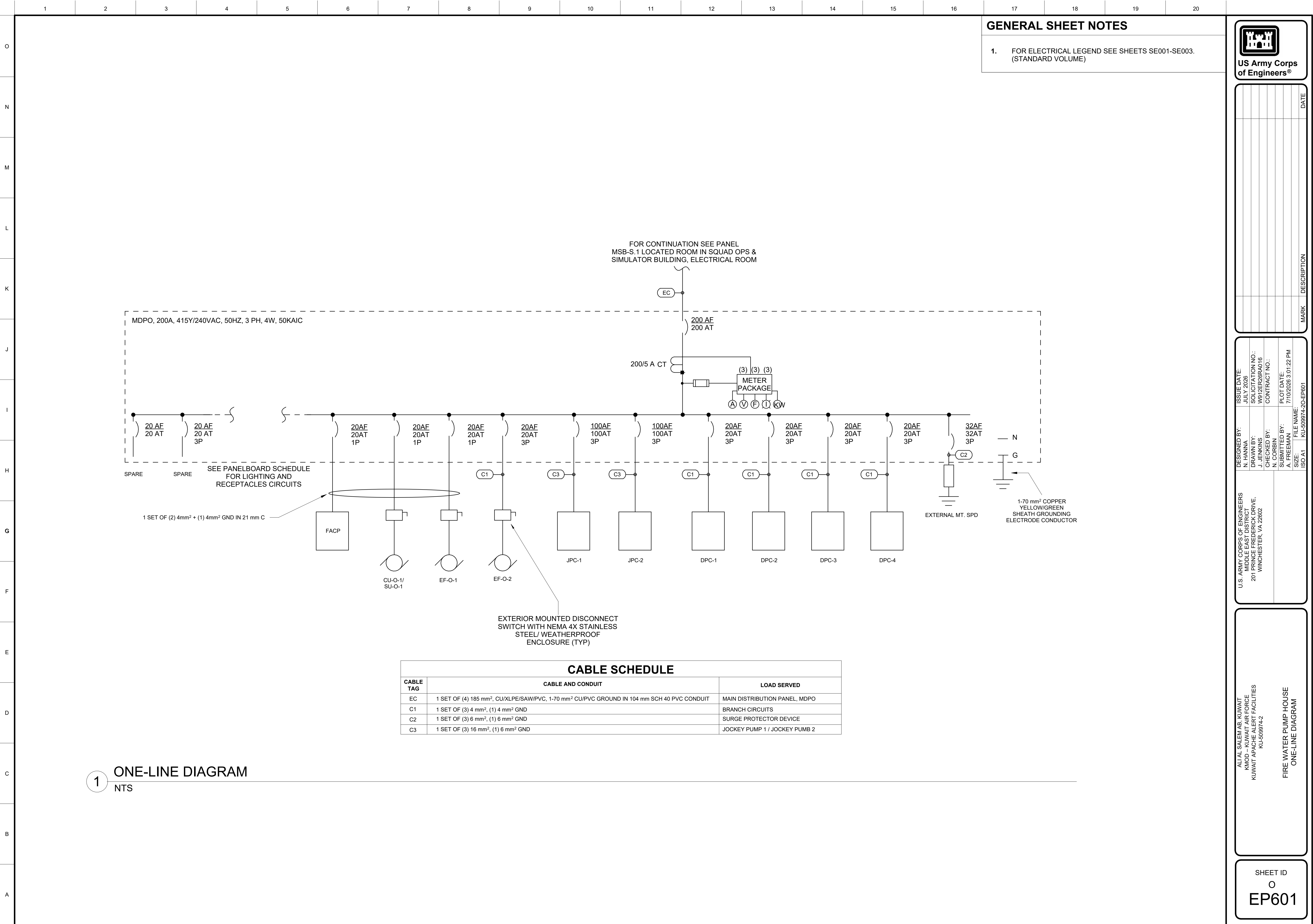
U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	DESIGNED BY: N. HANNA	ISSUE DATE: JULY 2026
	DRAWN BY: J. JENKINS	SOLICITATION NO.: W912ER26RAD16
	CHECKED BY: N. CORBIN	CONTRACT NO.:
	SUBMITTED BY: A. FREEMAN	PLOT DATE: 7/10/2026 3:01:21 PM
FILE NAME: ISO A1		FILE NAME: KU-509974-20-EL111

ALI AL SALEM AB, KUWAIT
KMOD - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

FIRE WATER PUMP HOUSE
LIGHTING PLAN - ROOF

SHEET ID
O
EL111





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D

C

B

A

Branch Panel: MDPO

Location: FIRE PUMP HOUSE

Supply From: MSB-S.1 LOCATED IN SQUAD OPS & SIMULATOR BUILDING

Mounting: Surface

Enclosure: IP54

Volts: 415/240V

Phases: 3

Wires: 4

Frequency: 50 Hz

A.I.C. Rating: 50 kA

Mains Type: MCCB

Mains Rating: 200 A

MCB Rating: 200 A

CKT	Circuit Description	Cond mm2	Gnd mm2	Conduit mm	Trip	Poles	R	Y	B	R	Y	B	Poles	Trip	Conduit mm	Gnd mm2	Cond mm2	Circuit Description	CKT
1							0 VA			911 VA			1	20 A	21	4	4	LIGHTS	2
3	SPD	6	6	27	32 A	3		0 VA			2200 VA		1	20 A	21	6	6	CU-O-1	4
5									0 VA			1000 VA	1	20 A	21	4	4	FACU	6
7	RECEPTACLES	4	4	21	20 A	1	720 VA			11020 VA									8
9	RECEPTACLES	4	4	21	20 A	1		1080 VA			11020 VA								10
11	RECEPTACLES	4	4	21	20 A	1			1080 VA			11020 VA	3	100 A	35	6	16	JPC-1	12
13	DPC-1 CONTROLLER	4	4	21	20 A	1	1600 VA			11020 VA									14
15	DPC-2 CONTROLLER	4	4	21	20 A	1		1600 VA			11020 VA								16
17	DPC-3 CONTROLLER	4	4	21	20 A	1			1600 VA			11020 VA	3	100 A	35	6	16	JPC-2	18
19	DPC-4 CONTROLLER	4	4	21	20 A	1	1600 VA			960 VA									20
21								0 VA			960 VA		3	20 A	21	4	4	EF-O-2	22
23	Spare				20 A	3			0 VA		960 VA								24
25							0 VA			531 VA			1	20 A	21	4	4	RECEPTACLES	26
27	EF-O-1	4	4	21	20 A	1		1200 VA			0 VA		1	20 A	21	4	4	Spare	28
29	Spare				20 A	1			0 VA			400 VA	1	20 A	21	4	4	OBSTRUCTION LIGHT	30
31	Spare				20 A	1	0 VA			0 VA			1	20 A				Spare	32
33																			34
35																			36
Total Load:							28219 VA		28976 VA		26976 VA								
Total Amps:							118 A		122 A		112 A								
Load Classification							Connected Load		Demand Factor		Estimated Demand		Panel Totals						
Equipment							73520 VA		80.00%		58816 VA								
HVAC							6280 VA		100.00%		6280 VA		Total Conn. Load: 84169 VA						
Lighting - Exterior							200 VA		100.00%		200 VA		Total Est. Demand: 69469 VA						
Other							600 VA		100.00%		600 VA		Total Conn.: 117 A						
Receptacle							3411 VA		100.00%		3411 VA		Total Est. Demand: 97 A						
Lighting							520 VA		100.00%		520 VA								

Notes:
CONTRACTOR TO VERIFY CIRCUIT BREAKER, WIRE SIZE AND DISCONNECT SWITCH SIZE AND RATING FOR ALL MECHANICAL EQUIPMENT AND ADJUST AND RESIZE ACCORDING TO ACTUAL INSTALLED EQUIPMENT.

GENERAL SHEET NOTES

1.

FOR ELECTRICAL LEGEND, AND ABBREVIATION SEE SHEETS SE001 - SE003 (STANDARD VOLUME).

2.

PROVIDE LOCKABLE BREAKER FOR ALL SPECIAL SYSTEMS EQUIPMENT. (IDS, ACS, CCTV AND FACP)

3.

DEGREE OF PROTECTION AGAINST EARTH LEAKAGE THROUGHOUT THE ELECTRICAL INSTALLATION SHALL BE OF THE FOLLOWING:

- MAXIMUM 30 mA TRIP RATING - FOR UNDER WATER LIGHTING.
- MAXIMUM 30 mA TRIP RATING - ALL SOCKET OUTLETS AND DOMESTIC APPARATUS.
- 300 mA TRIP RATING - LIGHTING CIRCUITS AND ALL OTHER APPARATUS AND EQUIPMENT INCLUDING HVAC, MOTORS AND PUMPS.

DATE

DESCRIPTION

MARK

U.S. ARMY CORPS OF ENGINEERS
MIDDLE EAST DISTRICT
201 PRINCE FREDERICK DRIVE,
WINCHESTER, VA 22602

DESIGNED BY:
N. HAINA
DRAWN BY:
J. JENKINS
CHECKED BY:
N. CORBIN
SUBMITTED BY:
A. FREEMAN
SIZE:
ISO A1

ISSUE DATE:
JULY 2026
SOLICITATION NO.:
W912ER26RAD16
CONTRACT NO.:
PLOT DATE:
7/10/2026 3:01:22 PM
FILE NAME:
KU-509974-20-EP602

ALI AL SALEM AB, KUWAIT
KMOB - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

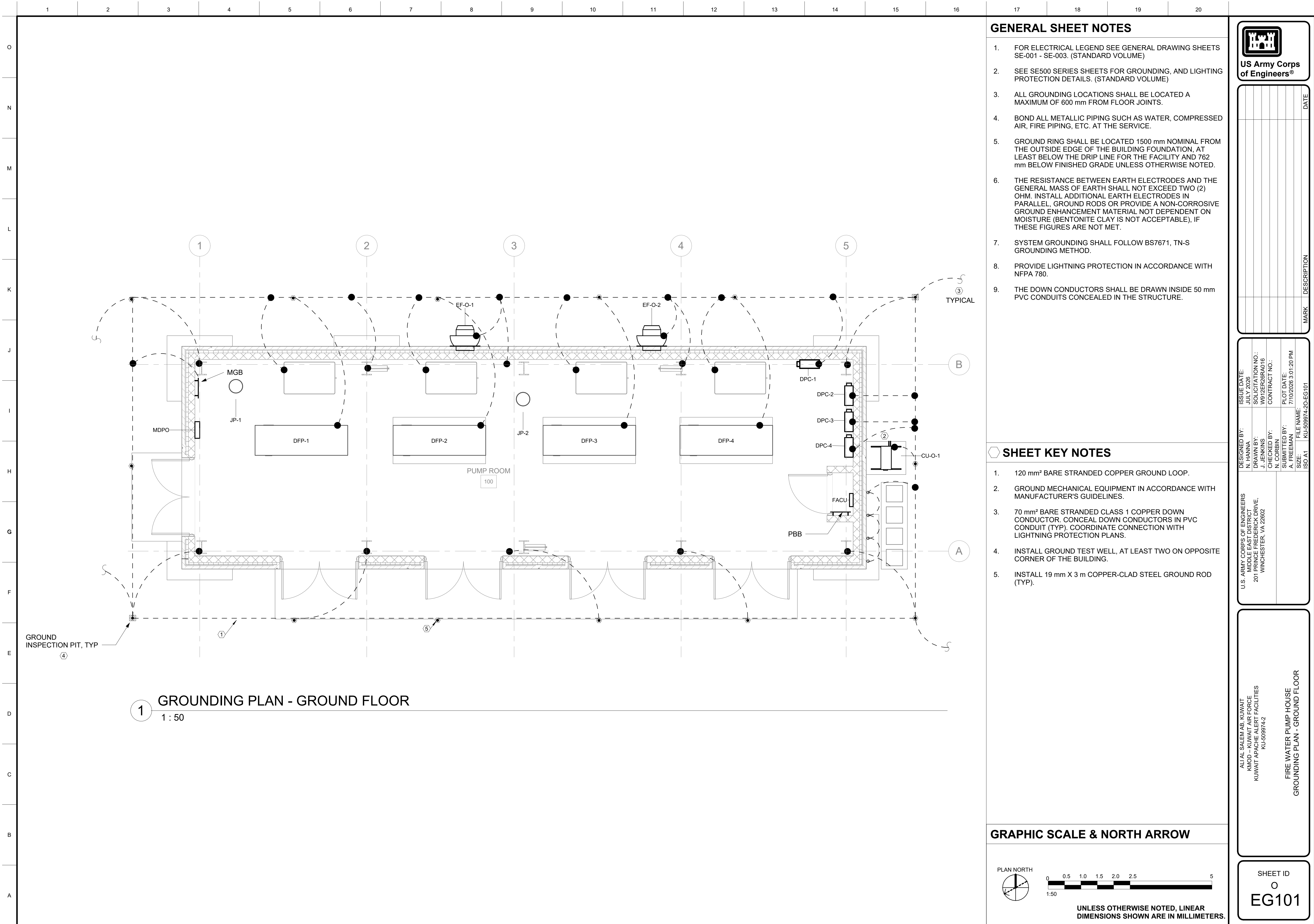
FIRE WATER PUMP HOUSE
PANEL SCHEDULE

SHEET ID
O
EP602

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Plot Date: 7/10/2026 3:01:22 PM

CDC



1 GROUNDING PLAN - GROUND FLOOR
1 : 50

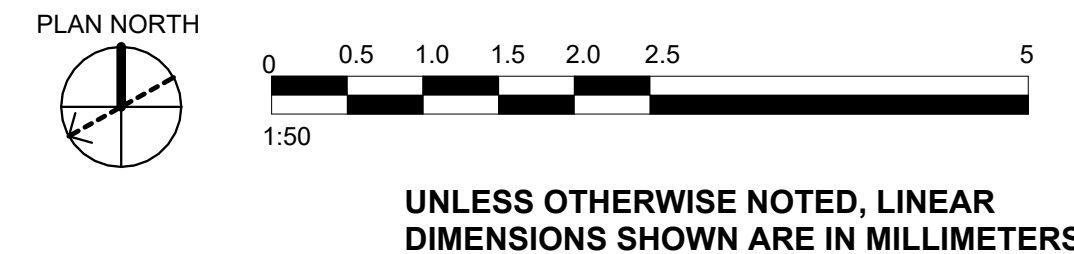
GENERAL SHEET NOTES

- FOR ELECTRICAL LEGEND SEE GENERAL DRAWING SHEETS SE-001 - SE-003. (STANDARD VOLUME)
- SEE SE500 SERIES SHEETS FOR GROUNDING, AND LIGHTING PROTECTION DETAILS. (STANDARD VOLUME)
- ALL GROUNDING LOCATIONS SHALL BE LOCATED A MAXIMUM OF 600 mm FROM FLOOR JOINTS.
- BOND ALL METALLIC PIPING SUCH AS WATER, COMPRESSED AIR, FIRE PIPING, ETC. AT THE SERVICE.
- GROUND RING SHALL BE LOCATED 1500 mm NOMINAL FROM THE OUTSIDE EDGE OF THE BUILDING FOUNDATION, AT LEAST BELOW THE DRIP LINE FOR THE FACILITY AND 762 mm BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
- THE RESISTANCE BETWEEN EARTH ELECTRODES AND THE GENERAL MASS OF EARTH SHALL NOT EXCEED TWO (2) OHM. INSTALL ADDITIONAL EARTH ELECTRODES IN PARALLEL. GROUND RODS OR PROVIDE A NON-CORROSIVE GROUND ENHANCEMENT MATERIAL NOT DEPENDENT ON MOISTURE (BENTONITE CLAY IS NOT ACCEPTABLE), IF THESE FIGURES ARE NOT MET.
- SYSTEM GROUNDING SHALL FOLLOW BS7671, TN-S GROUNDING METHOD.
- PROVIDE LIGHTNING PROTECTION IN ACCORDANCE WITH NFPA 780.
- THE DOWN CONDUCTORS SHALL BE DRAWN INSIDE 50 mm PVC CONDUITS CONCEALED IN THE STRUCTURE.

SHEET KEY NOTES

- 120 mm² BARE STRANDED COPPER GROUND LOOP.
- GROUND MECHANICAL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
- 70 mm² BARE STRANDED CLASS 1 COPPER DOWN CONDUCTOR. CONCEAL DOWN CONDUCTORS IN PVC CONDUIT (TYP). COORDINATE CONNECTION WITH LIGHTNING PROTECTION PLANS.
- INSTALL GROUND TEST WELL, AT LEAST TWO ON OPPOSITE CORNER OF THE BUILDING.
- INSTALL 19 mm X 3 m COPPER-CLAD STEEL GROUND ROD (TYP).

GRAPHIC SCALE & NORTH ARROW



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: N. HANNA	ISSUE DATE: JULY 2026
DRAWN BY: J. JENKINS	SOLICITATION NO.: W912ER26RAD16
CHECKED BY: N. CORBIN	CONTRACT NO.:
SUBMITTED BY: A. FREEMAN	PLOT DATE: 7/10/2026 3:01:20 PM
SIZE: ISO A1	FILE NAME: KU-509974-2O-EG101

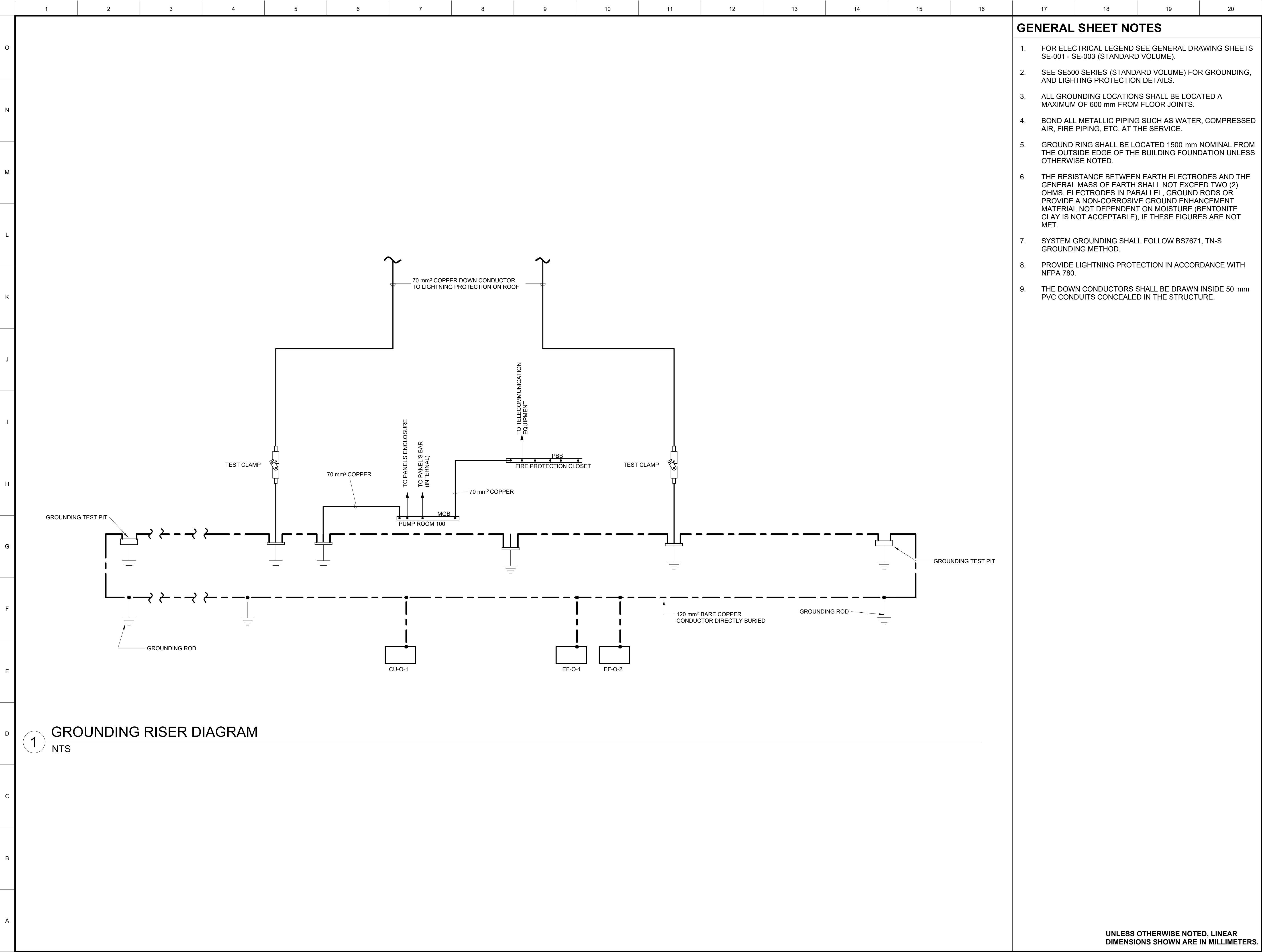
U.S. ARMY CORPS OF ENGINEERS
MIDDLE EAST DISTRICT
201 PRINCE FREDERICK DRIVE,
WINCHESTER, VA 22602

ALI AL SALEM AB, KUWAIT
KNOD - KUWAIT AIR FORCE
KUWAIT APACHE ALERT FACILITIES
KU-509974-2

FIRE WATER PUMP HOUSE
GROUNDING PLAN - GROUND FLOOR

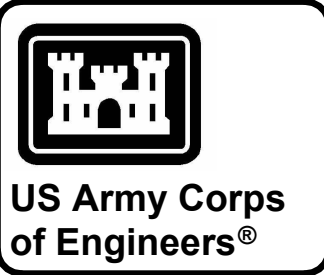
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EG101





GENERAL SHEET NOTES

- FOR ELECTRICAL LEGEND SEE GENERAL DRAWING SHEETS SE-001 - SE-003 (STANDARD VOLUME).
- SEE SE500 SERIES (STANDARD VOLUME) FOR GROUNDING, AND LIGHTING PROTECTION DETAILS.
- ALL GROUNDING LOCATIONS SHALL BE LOCATED A MAXIMUM OF 600 mm FROM FLOOR JOINTS.
- BOND ALL METALLIC PIPING SUCH AS WATER, COMPRESSED AIR, FIRE PIPING, ETC. AT THE SERVICE.
- GROUND RING SHALL BE LOCATED 1500 mm NOMINAL FROM THE OUTSIDE EDGE OF THE BUILDING FOUNDATION UNLESS OTHERWISE NOTED.
- THE RESISTANCE BETWEEN EARTH ELECTRODES AND THE GENERAL MASS OF EARTH SHALL NOT EXCEED TWO (2) OHMS. ELECTRODES IN PARALLEL, GROUND RODS OR PROVIDE A NON-CORROSIVE GROUND ENHANCEMENT MATERIAL NOT DEPENDENT ON MOISTURE (BENTONITE CLAY IS NOT ACCEPTABLE), IF THESE FIGURES ARE NOT MET.
- SYSTEM GROUNDING SHALL FOLLOW BS7671, TN-S GROUNDING METHOD.
- PROVIDE LIGHTNING PROTECTION IN ACCORDANCE WITH NFPA 780.
- THE DOWN CONDUCTORS SHALL BE DRAWN INSIDE 50 mm PVC CONDUITS CONCEALED IN THE STRUCTURE.



MARK	DESCRIPTION	DATE

DESIGNED BY: N. HANNA	ISSUE DATE: JULY 2026
DRAWN BY: J. JENKINS	SOLICITATION NO.: W912ER26RA016
CHECKED BY: N. CORBIN	CONTRACT NO.:
SUBMITTED BY: A. FREEMAN	PLOT DATE: 7/10/2026 3:01:21 PM
SIZE: ISO A1	FILE NAME: KU-509974-20-EG601

U.S. ARMY CORPS OF ENGINEERS MIDDLE EAST DISTRICT 201 PRINCE FREDERICK DRIVE, WINCHESTER, VA 22602	ALI AL SALEM AB, KUWAIT KMOB - KUWAIT AIR FORCE KUWAIT APACHE ALERT FACILITIES KU-509974-2
FIRE WATER PUMP HOUSE GROUNDING RISER DIAGRAM	

SHEET ID O EG601

UNLESS OTHERWISE NOTED, LINEAR
DIMENSIONS SHOWN ARE IN MILLIMETERS.