

**GENERATOR FUEL STORAGE  
ROOF FRAMING PLAN**

1  
S-102

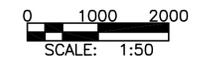
SCALE: 1:50

**ROOF FRAMING PLAN NOTES:**

1. REFER TO SHEET S-001 FOR STRUCTURAL NOTES AND BASIS OF DESIGN.
2. TOP OF ROOF SLAB ELEVATION = 4300 UNLESS NOTED OTHERWISE.
3. ROOF SLAB IS 200 WITH #16 @ 300 OC EW T&B.
4. ROOF BEAM INDICATED BY RB# ON PLAN. REFER TO BEAM SCHEDULE ON SHEET S-601.
5. COLD-FORMED METAL OVERBUILD ROOF FRAMING NOT SHOWN FOR CLARITY. SEE OVERBUILD ROOF FRAMING DETAILS AND SECTIONS ON SHEET S-701.
6. OVERHANG AREAS OF ROOF SLAB CONTAINS ROOF VENT PENETRATIONS.

**ROOF FRAMING PLAN KEY NOTES:** (X)

1. CONC ROOF SLAB (BELOW ROOF OVERBUILD)
2. REINF CONC COLUMN (BELOW CONC ROOF SLAB)



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

APPROVED:

*Chris M... [Signature]*

A/E PRINCIPLE

SEAL:



U.S. ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT

Rev.	Date	Description	Appr.	Date
0	2/23/10	Design file no.		
		Drawing code:		
		File name: ANAFPCDS-102RFR		
		Plot date: 2/23/2010		
		Plot scale: X:X		

Designed by:	KMP/AMMY	Checked by:	CWW
Dwn by:	RCG	Reviewed by:	LHM
Submitted by:	BAKER		

U.S. ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT  
APO AE 96338  
Michael Baker, Jr., Inc.  
A unit of Michael Baker Corporation  
Arlide Business Park  
100 Arside Drive, PA  
15108  
www.mbakercorp.com

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN  
ELECTRICAL POWER GENERATION AND DISTRIBUTION  
GENERATOR FUEL STORAGE  
ROOF FRAMING PLAN

Sheet reference number:  
**S-102**





US ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT

Rev.	Date	Description
0	2/23/10	

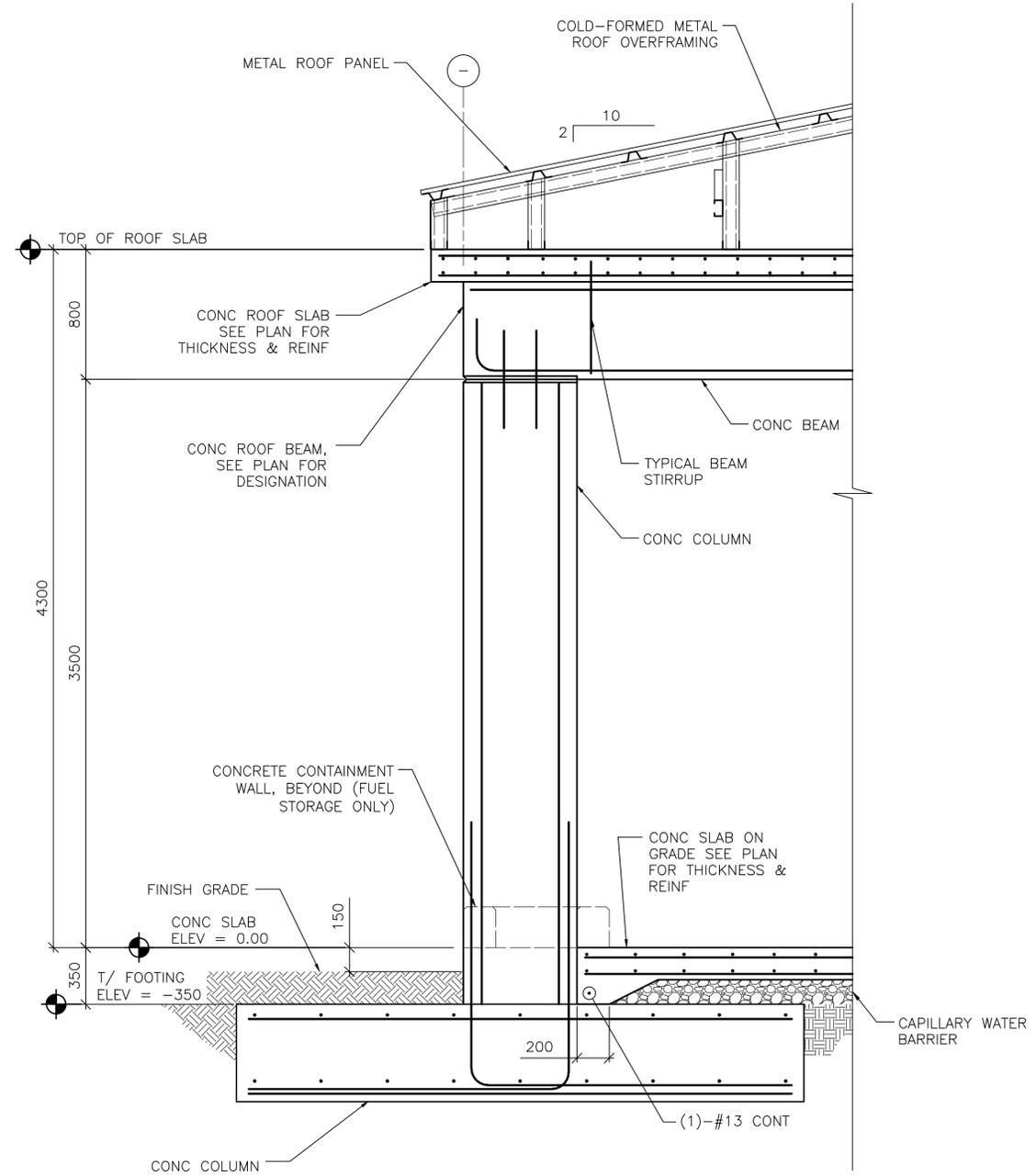
Designed by: KMP/MMY	Checked by: RCG	Reviewed by: LHM	Submitted by: BAKER
Dwn by: RCG	Design file no.:	Drawing code: ANAFPCDS-4018S	File name: ANAFPCDS-4018S
		Plot date: 2/23/2010	Plot scale: 1:20

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN

ELECTRICAL POWER GENERATION AND DISTRIBUTION

SECTIONS

Sheet reference number:  
**S-401**



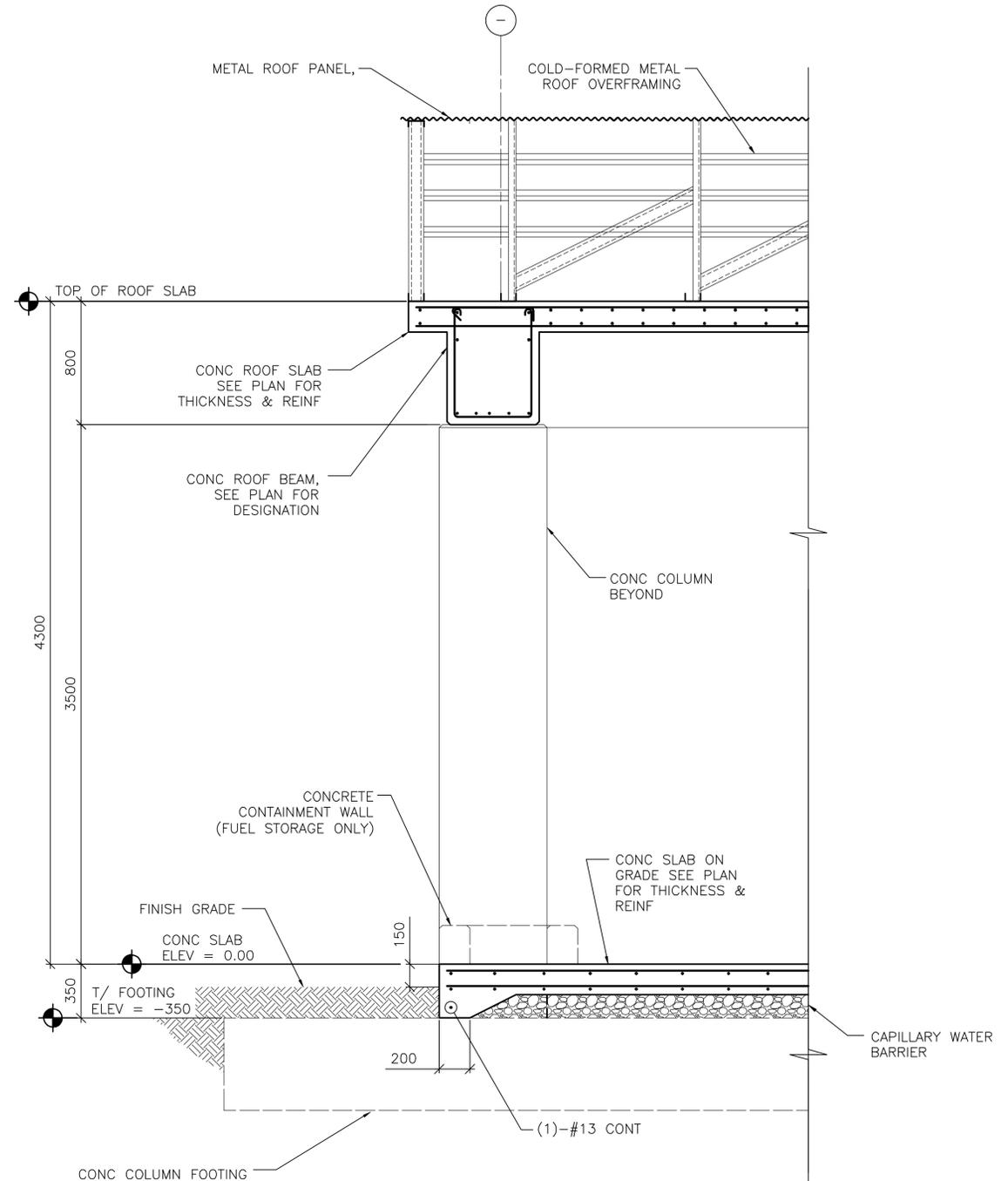
1  
S-101

1  
S-102

1  
S-103

**TYPICAL SECTION AT EAVE**

SCALE: 1:20



2  
S-101

2  
S-102

2  
S-103

**TYPICAL SECTION AT GABLE END**

SCALE: 1:20



UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

APPROVED:  
*Chris White*  
A/E PRINCIPLE



D

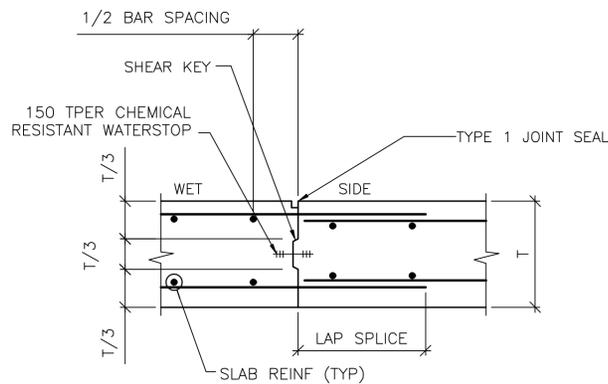
C

B

A



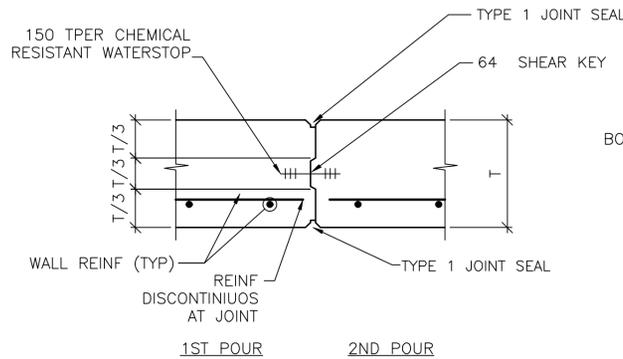




**DETAIL NOTES:**  
 1. MAXIMUM SPACING BETWEEN JOINTS = 36T  
 UNLESS OTHERWISE NOTED ON THE PLANS.

**CONST JOINT DETAIL AT SPILL CONTAINMENT STRUCTURE BASE SLAB**

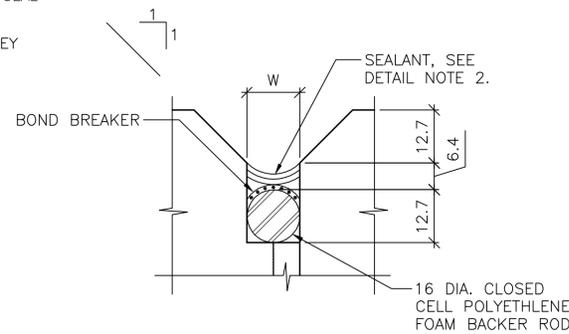
1  
S-701  
SCALE: NTS



**DETAIL NOTES:**  
 1. MAXIMUM SPACING BETWEEN JOINTS = 50S5 OC  
 2. LAP SPLICE BAR TO MATCH WALL HORIZ REINF EXCEPT #10 SIZE

**WALL CONST JOINT DETAIL AT SPILL CONTAINMENT WALL**

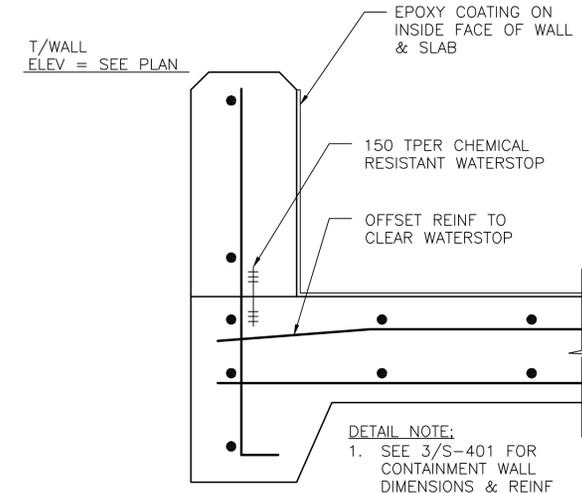
2  
S-701  
SCALE: NTS



**DETAIL NOTES:**  
 1. USE THIS DETAIL AT CONSTRUCTION AND CONTROL JOINTS.  
 2. USE TWO-COMPONENT POLYURETHANE SEALANT FOR SUBMERGED AND NONSUBMERGED APPLICATIONS.  
 3. UNLESS OTHERWISE NOTED W= 12.7

**TYPE 1 JOINT SEAL DETAIL (EXPOSED TO PUBLIC VIEW)**

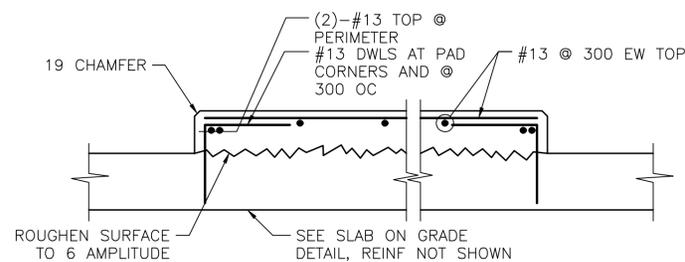
3  
S-701  
SCALE: NTS



**DETAIL NOTE:**  
 1. SEE 3/S-401 FOR CONTAINMENT WALL DIMENSIONS & REINF

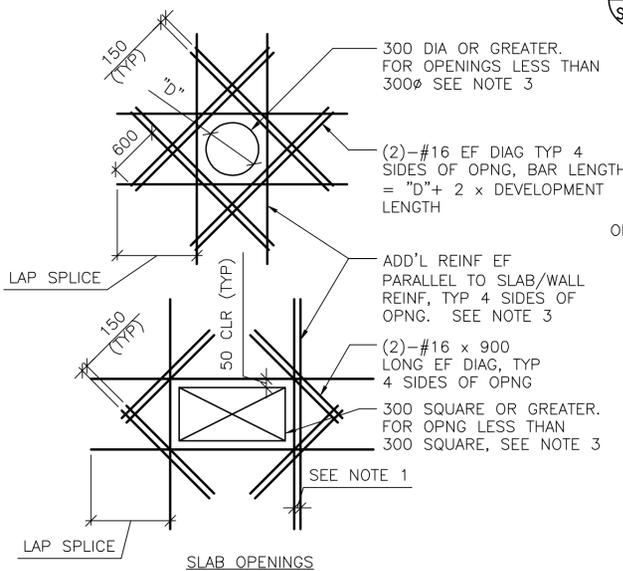
**WATERSTOP DETAIL AT BASE OF SPILL CONTAINMENT WALL**

4  
S-701  
SCALE: NTS



**EQUIPMENT PAD DETAIL**

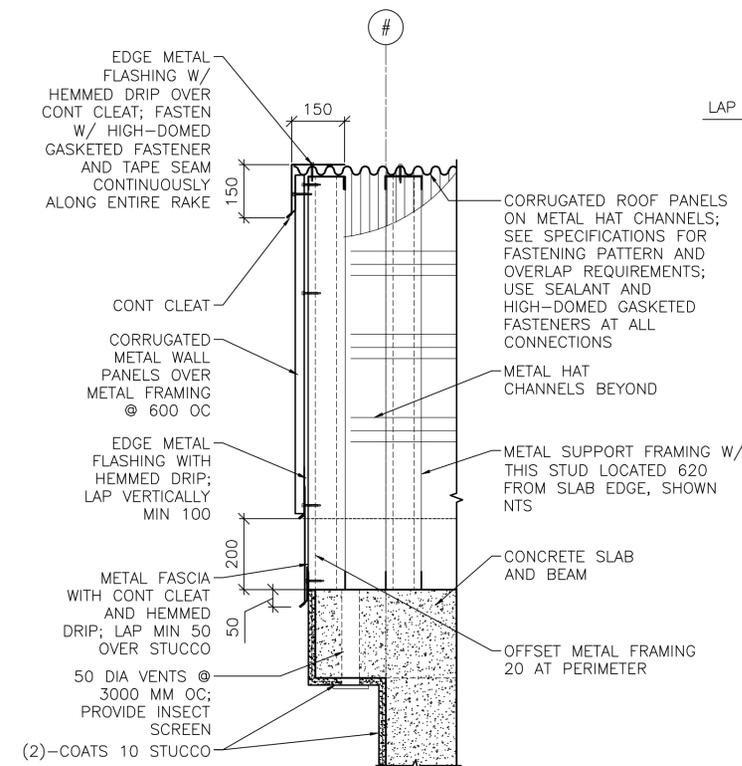
5  
S-701  
SCALE: NTS



**DETAIL NOTES:**  
 1. WHERE MORE THAN ONE ADDITIONAL BAR IS REQUIRED PARALLEL TO THE EXISTING SLAB/WALL REINFORCING THE ADDITIONAL REINFORCING BARS SHALL BE SPACED AT 100 ON CENTER.  
 2. ADDITIONAL REINFORCING PARALLEL TO THE SLAB/WALL REINFORCING SHALL BE #16 BARS THAT PROVIDE A STEEL AREA ON EACH SIDE OF THE OPENING EQUAL TO 1/2 THE AREA OF THE REINFORCING CUT BY THE OPENING.  
 3. FOR OPENINGS WITH SIDES OR DIAMETERS LESS THAN 300 SPREAD THE SLAB/WALL REINFORCING TO CLEAR THE OPENING.

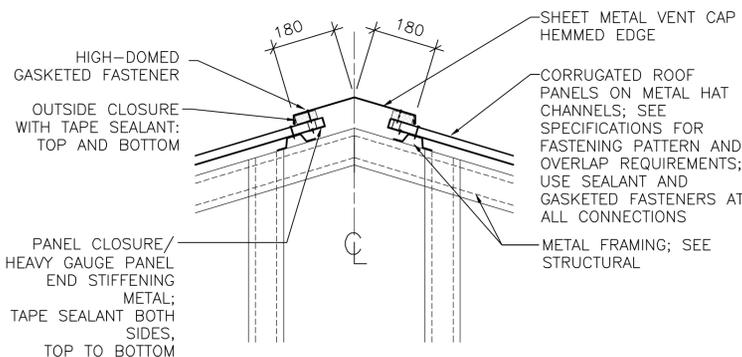
**ADD'L CONCRETE REINFORCEMENT DETAILS**

6  
S-701  
SCALE: NTS



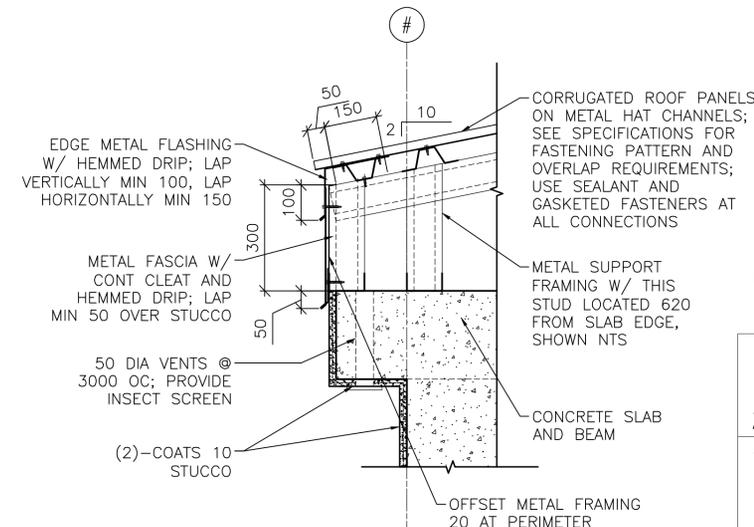
**RAKE/EAVE DETAIL**

8  
S-701  
SCALE: NTS



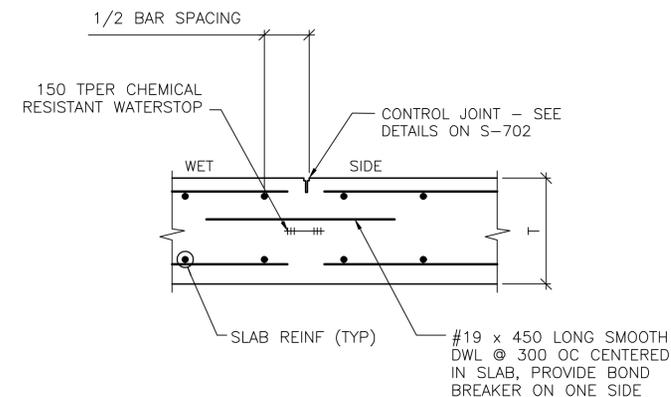
**RIDGE VENT DETAIL**

9  
S-701  
SCALE: NTS



**EAVE DETAIL**

10  
S-701  
SCALE: NTS



**DETAIL NOTES:**  
 1. MAXIMUM SPACING BETWEEN JOINTS = 36T  
 UNLESS OTHERWISE NOTED ON THE PLANS.

**CONTROL JOINT DETAIL AT SPILL CONTAINMENT STRUCTURE BASE SLAB**

7  
S-701  
SCALE: NTS

UNLESS OTHERWISE NOTED, LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETERS (mm)

APPROVED:

*Chin Minto*  
A/E PRINCIPLE

SEAL:



US ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT

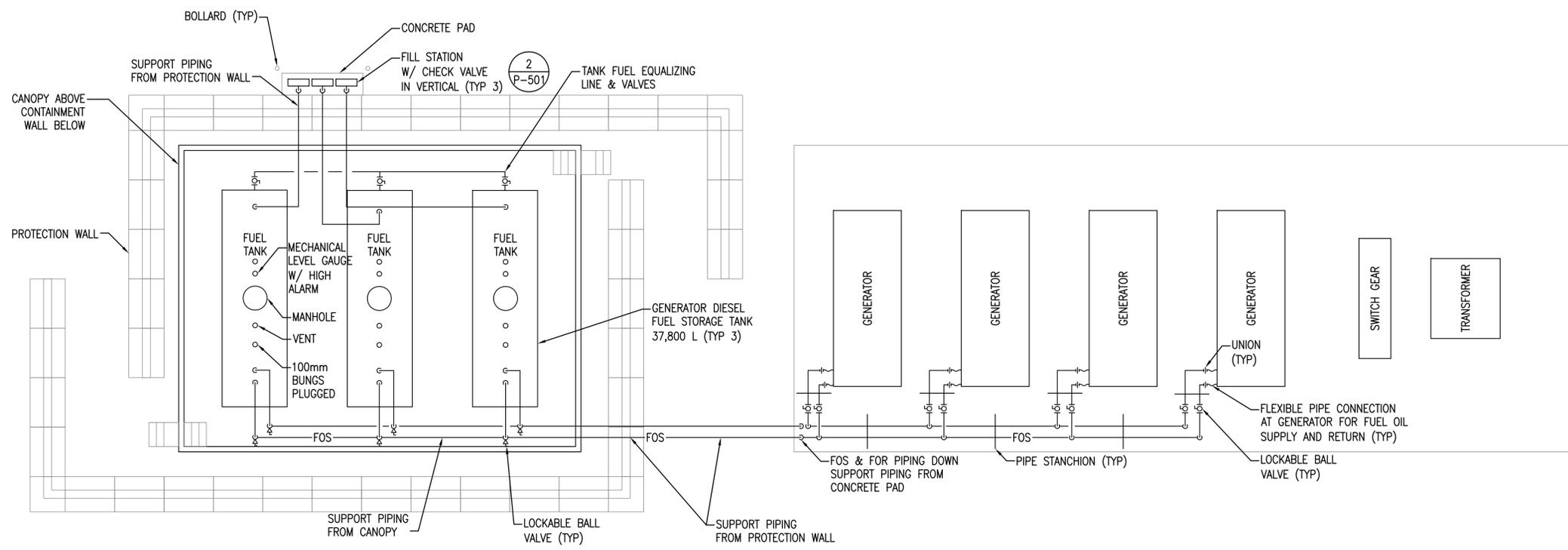
Date	Rev.	Description	Mark	Date	Appr.

Designed by: JAC	Reviewed by: LHM	Submitted by: BAKER
Dwn by: RCG	Design file no.:	File name: ANAFPOS701TDT
Cal by: CWV	Drawing code: LHM	Plot date: 2/22/2010
Rev: 0	Date: 2/23/10	Plot scale: XX

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN  
ELECTRICAL POWER GENERATION AND DISTRIBUTION  
TYPICAL DETAILS

Sheet reference number:  
**S-701**

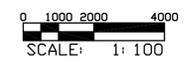




1  
P-101

## FUEL SYSTEM

SCALE: 1:100



APPROVED:

*[Signature]*

A/E DESIGNER OF RECORD

SEAL:

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN

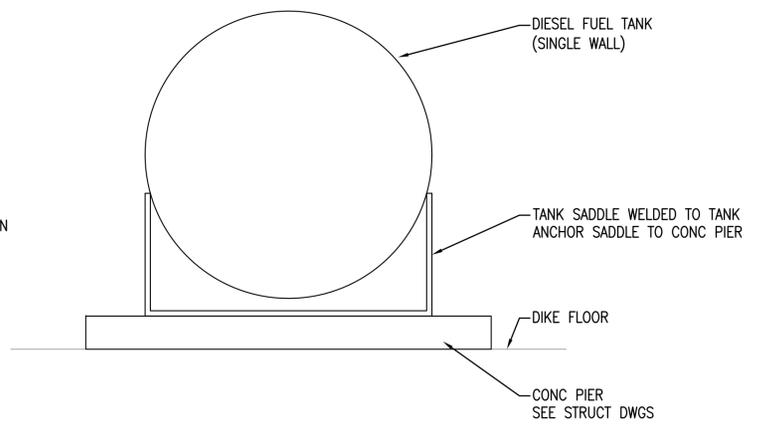
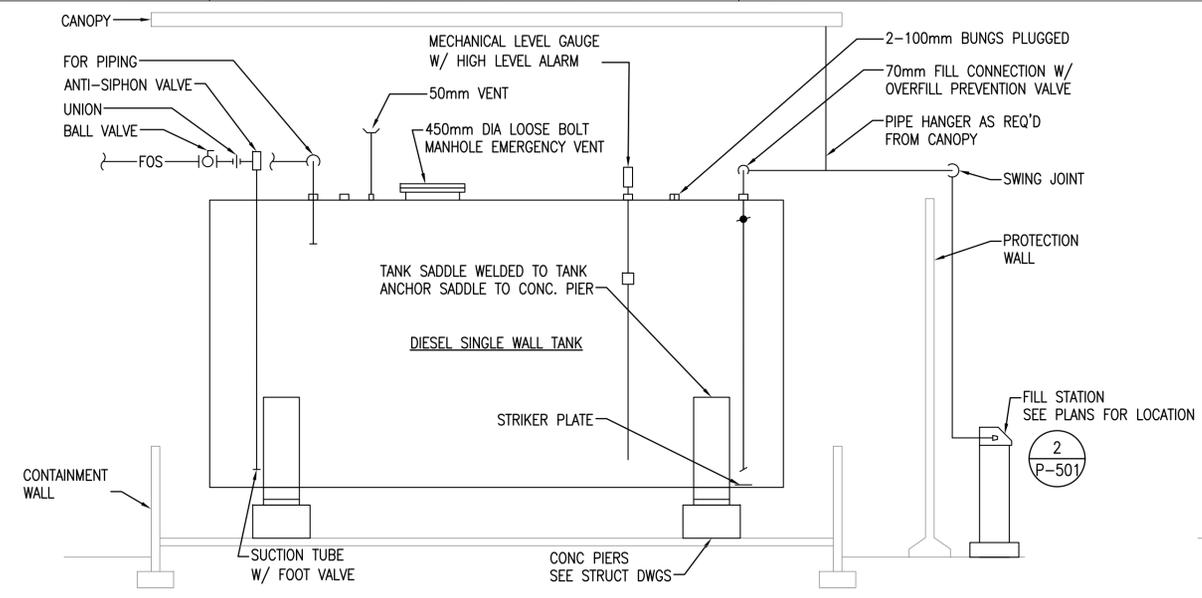
ELECTRIC POWER GENERATION AND DISTRIBUTION

PLAN

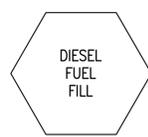
Sheet reference number:  
P-101

Designed by: RCP	Checked by: LHM	Date: 2/23/2010	Rev: 10
Dwn by: JTP	Reviewed by: LHM	Design file no. P-101	
Submitted by: BAKER		Drawing code:	File name: ANAFGDP-101XXX
			Plot date: 2/23/2010
			Plot scale: 1:20

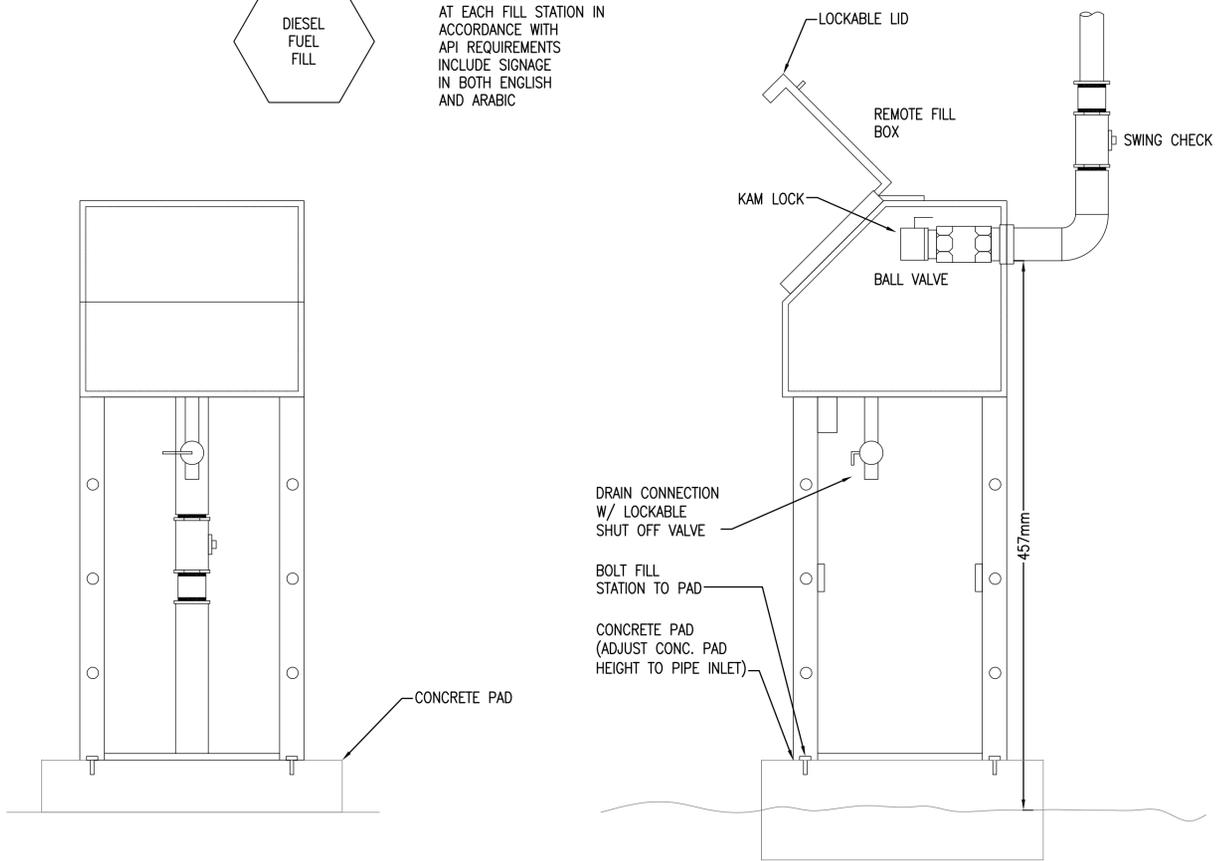
Rev.	Date	Description	Mark	Appr.



**1**  
P-501  
**DIESEL FUEL TANK DETAIL**  
SCALE: NONE



PROVIDE SIGNAGE AT EACH FILL STATION IN ACCORDANCE WITH API REQUIREMENTS INCLUDE SIGNAGE IN BOTH ENGLISH AND ARABIC



**2**  
P-501  
**FILL STATION DETAIL**  
SCALE: NONE

AMERICAN PETROLEUM INSTITUTE (API) FILL PORT COLOR CODES AND SYMBOLS

FILL PORT COLOR CODES

PRODUCT	COLOR
DIESEL	YELLOW

SYMBOLS

PRODUCTS	SYMBOL
OTHER DISTILLATES	HEXAGON
FUEL PRODUCTS CONTAINING EXTENDERS SUCH AS ALCOHOL	BORDER (BLACK AROUND WHITE AND WHITE AROUND ALL OTHERS)

EXAMPLES

SYMBOL & COLOR	PRODUCT
	DIESEL



Rev.	Date	Description	Mark	Date	Appr.

Designed by: RCP	Cal by: LHM	Reviewed by: LHM	Submitted by: BAKER
Dwn by: JTP			
Date: 2/23/2010	Design file no. P-501	Drawing code: P-501	File name: ANAFGP-P-501.XXX
			Plot date: 2/23/2010
			Plot scale: 1:1

AFGHAN NATIONAL ARMY REGIONAL MILITARY TRAINING CENTER STANDARD DESIGN  
ELECTRIC POWER GENERATION AND DISTRIBUTION  
FUELING DETAILS

APPROVED:

A/E DESIGNER OF RECORD

SEAL:

Sheet reference number: P-501

**LIGHTNING PROTECTION**

AIR TERMINAL 20mm O.D. X 450mm SOLID COPPER, NICKEL PLATED ON ADHESIVE BASE

GROUND ROD

**LIGHTING**

LIGHTING FIXTURE - SEE FIXTURE SCHEDULE FOR MORE INFORMATION

**MISCELLANEOUS**

BRANCH CIRCUIT WIRING, SURFACE MOUNTED ON WALLS

HOME RUN BACK TO PANEL

**POWER**

JUNCTION BOX

FUSIBLE SAFETY SWITCH

DUPLEX 20A TYPE CEE 7/7 "SCHUKO STYLE" UNSWITCHED TYPE WITH WEATHERPROOF COVER - 10mA GROUND FAULT INTERRUPTER TYPE

SINGLE POLE SWITCH - 20A RATED

**GENERAL PROJECT NOTES:**

G1. UNLESS OTHERWISE NOTED, PROVIDE ALL EQUIPMENT SHOWN ON THE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL SYMBOLS SHOWN ON THE PLANS WITH THE SYMBOL LIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INTENT OF ANY SYMBOL THAT IS SHOWN ON THE PLANS AND NOT INDICATED ON THE SYMBOL LIST WITH THE ENGINEER PRIOR TO BID.

G2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE CONSTRUCTION AREA THREE (3) WORKING DAYS NOTICE BEFORE COMMENCING DIGGING. NOTIFY THE LOCAL AUTHORITY HAVING JURISDICTION AND WAIT THE REQUIRED TIME BEFORE COMMENCING TO DIG.

G3. THE CONTRACTOR SHALL COORDINATE CONDUIT RUNS, LIGHTING FIXTURES AND OTHER EQUIPMENT LOCATIONS WITH THE OTHER TRADE CONTRACTORS TO AVOID CONFLICTS.

**GENERAL PROJECT NOTES (CONT.):**

G4. WHERE VOLTAGES AND FREQUENCIES ON THE DRAWINGS AND IN THE SPECIFICATIONS DIFFER FROM THE LOCAL ONES, ALL WORK SHALL BE PERFORMED USING THE LOCAL VOLTAGES AND FREQUENCIES.

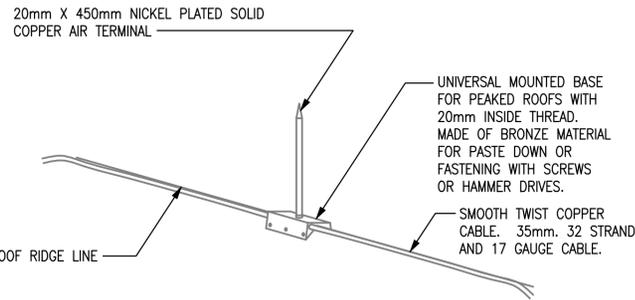
G5. THE MINIMUM WIRE SIZE ON THE PROJECT SHALL BE 4mm<sup>2</sup>. THE MINIMUM CONDUIT SIZE SHALL BE 20mm. THE MINIMUM BREAKER SIZE SHALL BE 20 AMPS.

G6. THE CONTRACTOR SHALL PUT A MAXIMUM OF 6 DUPLEX RECEPTACLES ON A 20A SINGLE POLE CIRCUIT.

G7. WHERE THE 1010 SCOPE REVIEW, 1015 TECHNICAL REVIEW, DRAWINGS, AND SPECIFICATIONS DIFFER FROM AMERICAN CODES OR STANDARDS, THE 1010, 1015, DRAWINGS, AND SPECIFICATIONS SHALL RULE.

G8. ALL CONDUIT AND DEVICES SHALL BE SURFACE MOUNTED UNLESS OTHERWISE INDICATED.

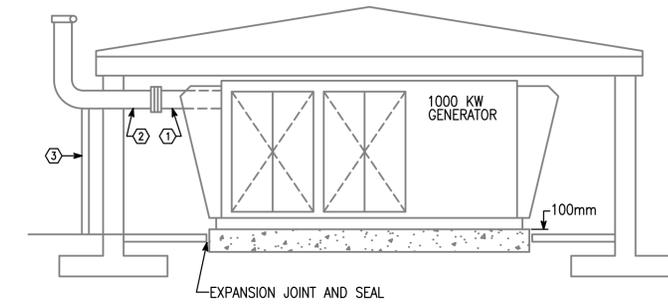
G9. CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES TO ENSURE ALL WORK IS COMPLETED IN A PROFESSIONAL, WORKMAN-LIKE MANNER.



1 LIGHTNING PROTECTION AIR TERMINAL DETAIL  
SCALE: N.T.S.

**NUMBERED NOTES:**

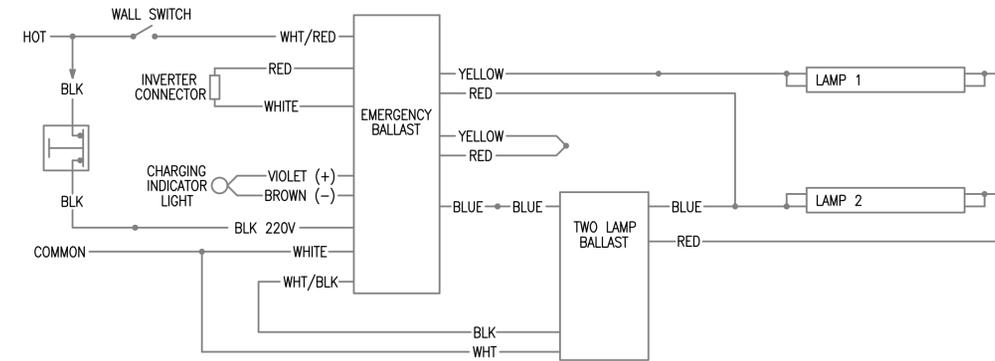
- ① GENERATOR MANUFACTURER EXTEND EXHAUST PIPE WITH FLANGE TO OUTSIDE OF ENCLOSURE.
- ② FIELD INSTALLED EXHAUST PIPE.
- ③ EXHAUST SUPPORT.



2 GENERATOR CANOPY SECTION VIEW  
SCALE: N.T.S.

PANELBOARD EPGD SURFACE MOUNTED																			
AMP. MAIN LUGS (OR) 225 AMP. MAIN BREAKER W/ 225 AMP. TRIP																			
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 225 AMP. BUS																			
CIRCUIT NO.	TRIP AMPS	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. OF POLES	TRIP AMPS	CIRCUIT NO.		
						A0	B0	C0	A0	B0	C0								
1	100	2	50.0	10.0	32	GENERATOR LOAD CENTER	2.5			2.5			32	10.0	50.0	2	100	2	
3						GENERATOR LOAD CENTER		2.5		2.5			32					4	
5	100	2	50.0	10.0	32	GENERATOR LOAD CENTER	2.5		2.5				32	10.0	50.0	2	100	6	
7						GENERATOR LOAD CENTER			2.5				32					8	
9	20	1	4.0	4.0	20	FUEL PUMP		4.5		4.5			20	4.0	4.0	1	20	10	
11	20	1	4.0	4.0	20	FUEL PUMP			4.5		4.5		20	4.0	4.0	1	20	12	
13	20	1	4.0	4.0	20	HEATER	2.5			2.5			20	4.0	4.0	1	20	14	
15	20	1	4.0	4.0	20	HEATER		2.5		2.5			20	4.0	4.0	1	20	16	
17	20	1	4.0	4.0	20	HEATER			2.5		2.5		20	4.0	4.0	1	20	18	
19	20	1	4.0	4.0	20	CANOPY RECEPTACLES	0.5			0.5			20	4.0	4.0	1	20	20	
21						SPARE					1.6		20	4.0	4.0	1	20	22	
23						SPARE							20	4.0	4.0	1	20	24	
						TOTAL CONN. LOAD PER PHASE (KVA):													
						A0 16.0 B0 20.6 C0 19.0													
TOTAL CONN. LOAD 55.6 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 39.0																			

\* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE



3 EMERGENCY FIXTURE WIRING DIAGRAM  
SCALE: N.T.S.

**LIGHT FIXTURE SCHEDULE**

FIXTURE MARK	STYLE NUMBER AND TYPE	NUMBER AND TYPE OF LAMPS	VOLTAGE	MOUNTING	NOTES
B	WET LOCATION WRAP AROUND SURFACE/PENDANT MOUNTED FLUORESCENT FIXTURE WITH PRISMATIC ACRYLIC LENS AND ELECTRONIC BALLAST	(2) 32W 3500K	220V - 1ϕ 50HZ	SURFACE MOUNTED	FURNISHED WITH LOW TEMPERATURE ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS.
B2	SAME AS FIXTURE 'B' WITH EMERGENCY BALLAST	(2) 32W 3500K	220V - 1ϕ 50HZ	SURFACE MOUNTED	FURNISHED WITH LOW TEMPERATURE ELECTRONIC BALLAST, VIRGIN ACRYLIC WRAP AROUND LENS. EMERGENCY BALLAST WITH SELF TEST SWITCH.
J	EXPLOSION-PROOF (2) LAMP FIXTURE PROVIDED WITH LAMPS. COPPER FREE, ALUMINUM HOUSING, TEMPERED BOROSILICATE GLASS, AND BIAx LAMPS WITH WIRE GUARD	(2) 40W 3500K BIAx FLUORESCENT LAMPS	220V - 1ϕ 50HZ	PENDANT MOUNTED FROM CEILINGS	FURNISHED WITH LOW TEMPERATURE BALLASTS, LAMPS, AND WIRE GUARD
J2	SAME AS FIXTURE 'J' WITH EMERGENCY BALLAST	(2) 40W 3500K BIAx FLUORESCENT LAMPS	220V - 1ϕ 50HZ	PENDANT MOUNTED FROM CEILINGS	FURNISHED WITH LOW TEMPERATURE BALLASTS, LAMPS, EMERGENCY BALLAST WITH SELF TEST SWITCH AND WIRE GUARD

APPROVED:

A/E DESIGNER OF RECORD

SEAL:



Rev.	Date	Description
0	2/08/10	Design file no.

Designed by: JRG  
 Drawn by: BUB  
 Checked by: JRG  
 Reviewed by: JRG  
 Submitted by: BAKER

U.S. ARMY CORPS OF ENGINEERS  
 AFGHANISTAN ENGINEER DISTRICT  
 APO AE 96338  
 Michael Baker, Jr., Inc.  
 A Unit of Michael Baker Corporation  
 Airside Business Park  
 Moon Township, PA 15108  
 www.mbakercorp.com

AFGHAN NATIONAL ARMY  
 REGIONAL MILITARY TRAINING CENTER  
 STANDARD DESIGN

ELECTRIC POWER GENERATION AND DISTRIBUTION  
 ELECTRICAL SYMBOLS, SCHEDULES, AND  
 DETAILS

Sheet reference number:  
**E-001**

- GENERAL NOTES:**
- REFER TO DRAWING #E-001 FOR THE ELECTRICAL SYMBOLS LIST.
  - REFER TO DRAWING #E-001 FOR THE LIGHTING FIXTURE SCHEDULE.
  - REFER TO SITE ELECTRICAL PACKAGE FOR THE POWER RISER.
  - REFER TO DRAWING #E-001 FOR PANEL SCHEDULES.
  - LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A BATTERY BACKUP BALLAST. SEE WIRING DIAGRAM DETAIL 3, DRAWING #E-001.

- NUMBERED NOTES**
- 1,500 KVA TRANSFORMER
  - 300 KVA TRANSFORMER
  - SWITCHGEAR 'SDS'
  - GENERATOR SWITCHGEAR
  - DISTRIBUTION PANELBOARD #1
  - PANELBOARD 'EPGD'
  - 0.19KW DAY TANK PUMP
  - TO 100A 2P BREAKER IN PANEL EPGD. SEE THE PANEL SCHEDULE ON DRAWING #E-001 FOR MORE INFORMATION.
  - NO POWER DEVICES ARE TO BE INSTALLED AT THIS FUEL STORAGE CANOPY.
  - ALL PANELS, DEVICES, EQUIPMENT, ETC. SHALL BE EXPLOSION-PROOF OR SHALL BE PROVIDED WITH AN EXPLOSION-PROOF ENCLOSURE. ALL WORK IN THIS AREA SHALL BE IN ACCORDANCE WITH NEC ARTICLE 511. EXPLOSION-PROOF EQUIPMENT SHALL BE USED FOR ALL FIXTURES AND DEVICES. PROVIDE CONDUIT SEALS WHERE REQUIRED. ALL WIRING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 501 FOR CLASS I LOCATIONS.

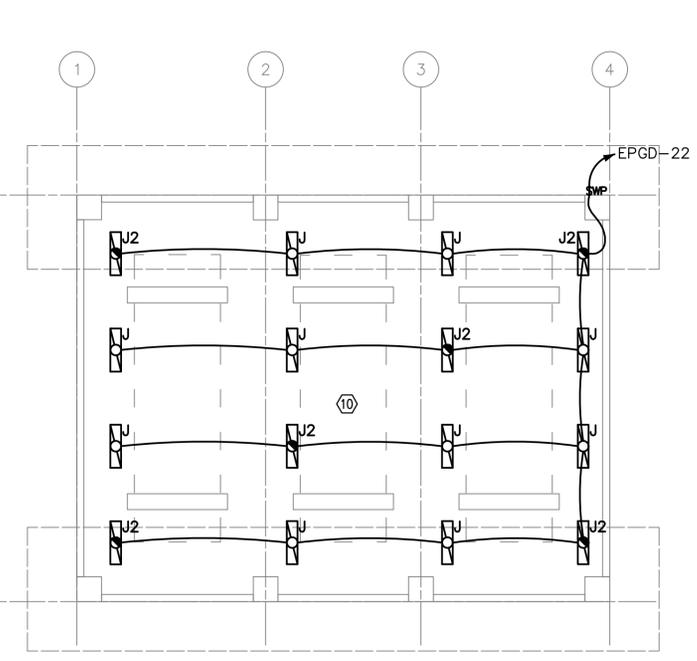


Rev.	Date	Description
0	2/08/10	Design file no.
		Drawing code:
		File name:
		Plot date:
		Plot scale:

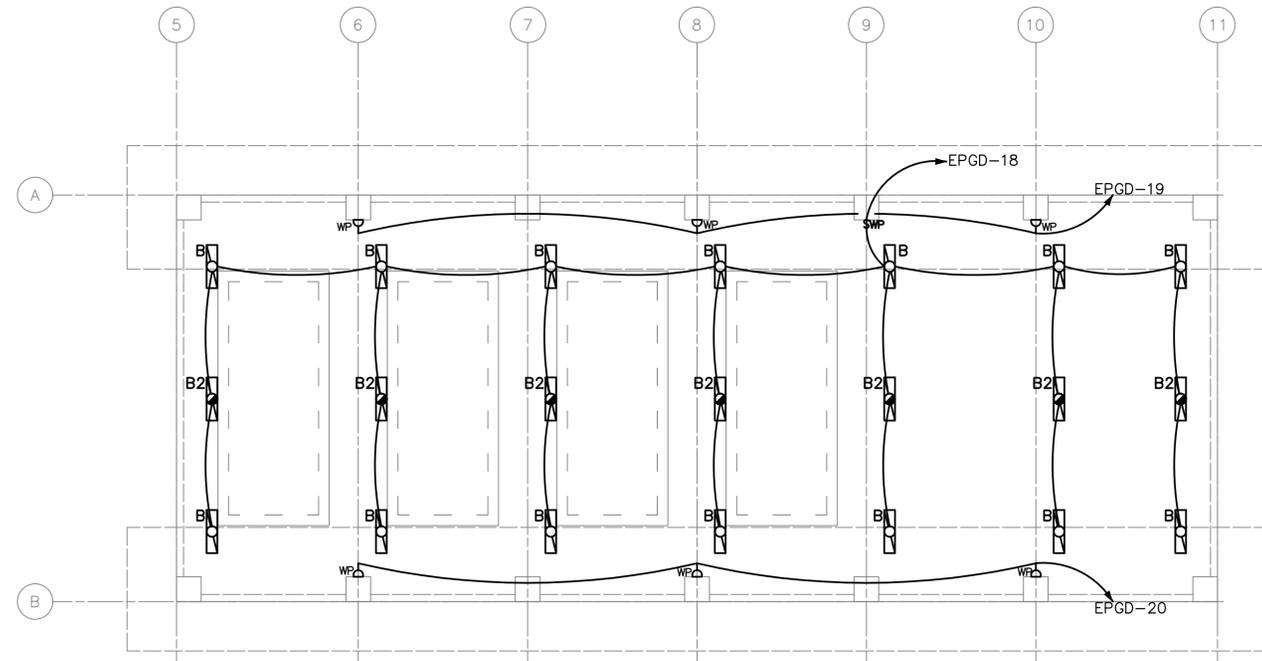
Designed by: JRG	Checked by: JRG	Reviewed by: JRG	Submitted by: BAKER
U.S. ARMY CORPS OF ENGINEERS AFGHANISTAN ENGINEER DISTRICT APO AE 96338 Michael Baker Jr., Inc A unit of Michael Baker Corporation Arlide Business Park Moon Township, PA 15108 www.mbakercorp.com			

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN  
ELECTRIC POWER GENERATION AND DISTRIBUTION  
ELECTRICAL LIGHTING AND POWER PLAN

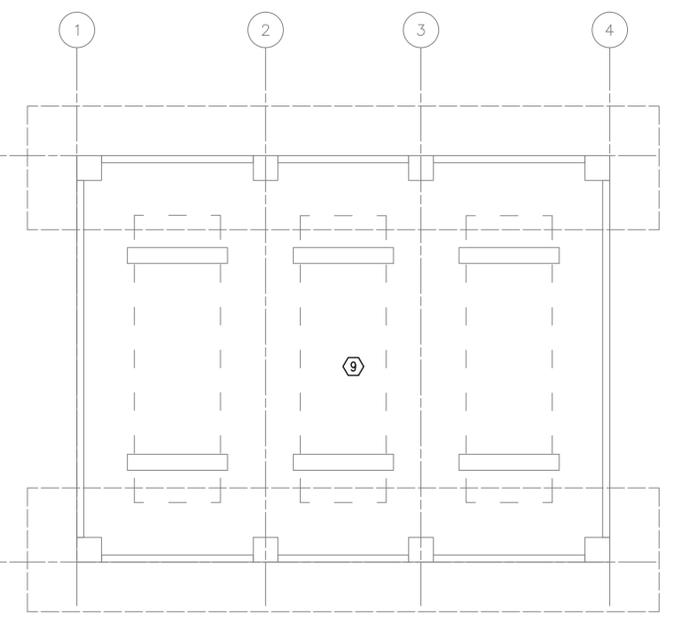
Sheet reference number:  
E-101



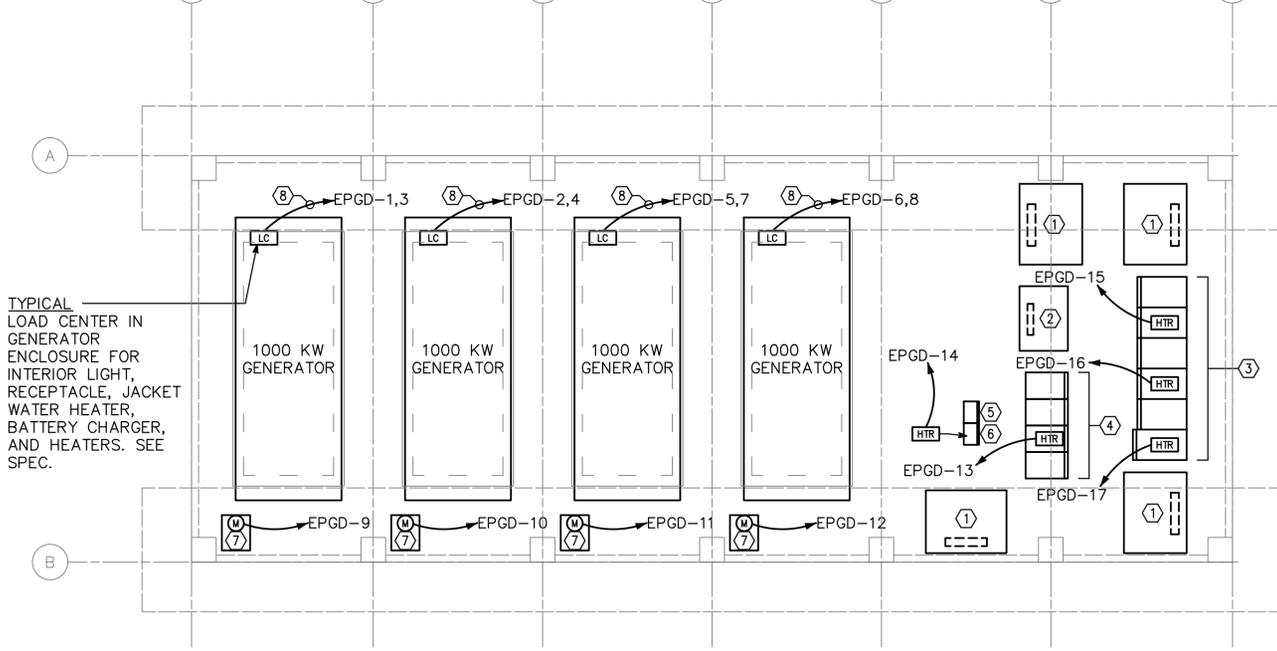
**1**  
E-101  
SCALE: 1:100  
**ELECTRICAL POWER GENERATION AND DISTRIBUTION FUEL CANOPY LIGHTING PLAN**



**2**  
E-101  
SCALE: 1:100  
**ELECTRICAL POWER GENERATION AND DISTRIBUTION LIGHTING PLAN**

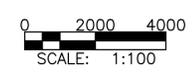


**3**  
E-101  
SCALE: 1:100  
**ELECTRICAL POWER GENERATION AND DISTRIBUTION FUEL CANOPY POWER PLAN**



**4**  
E-101  
SCALE: 1:100  
**ELECTRICAL POWER GENERATION AND DISTRIBUTION POWER PLAN**

TYPICAL LOAD CENTER IN GENERATOR ENCLOSURE FOR INTERIOR LIGHT, RECEPTACLE, JACKET WATER HEATER, BATTERY CHARGER, AND HEATERS. SEE SPEC.



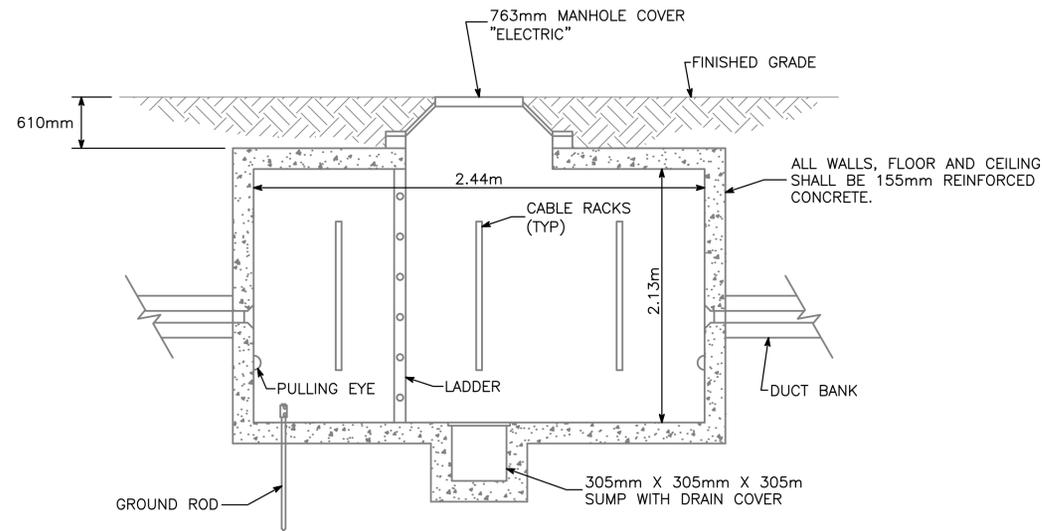
APPROVED:

A/E DESIGNER OF RECORD

SEAL:

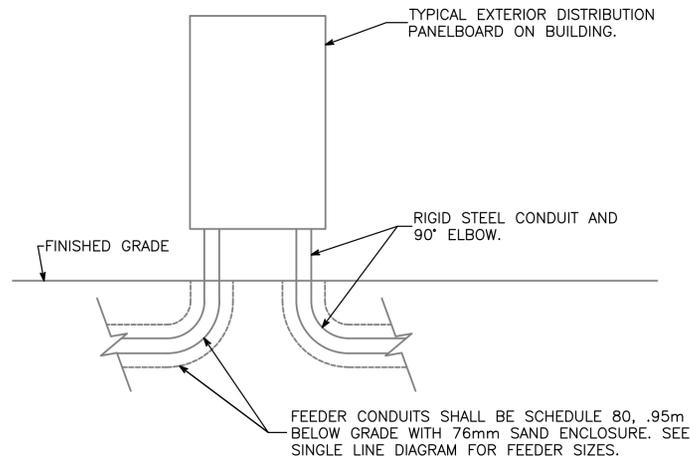




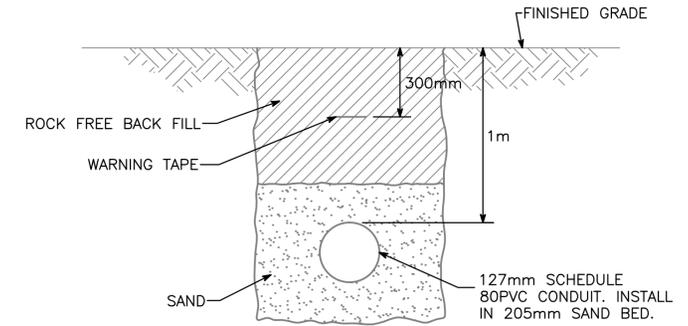


NOTE: GROUND ALL METAL IN MANHOLE TO GROUND ROD

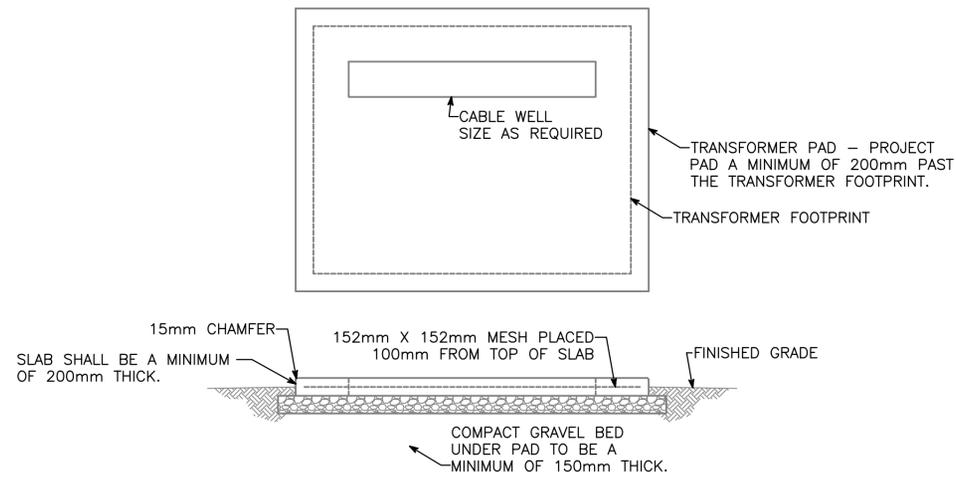
1 TYPICAL MANHOLE DETAIL  
E-501 SCALE: NO SCALE



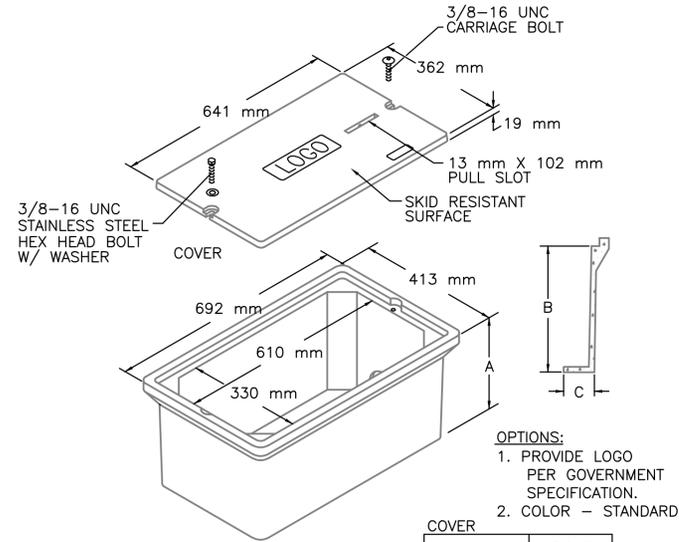
2 TYPICAL CONDUIT TERMINATION AT DISTRIBUTION PANELBOARD DETAIL  
E-501 SCALE: NO SCALE



3 SECTION 'A-A'  
E-501 SCALE: NO SCALE



4 TRANSFORMER PAD DETAIL  
E-501 SCALE: NO SCALE



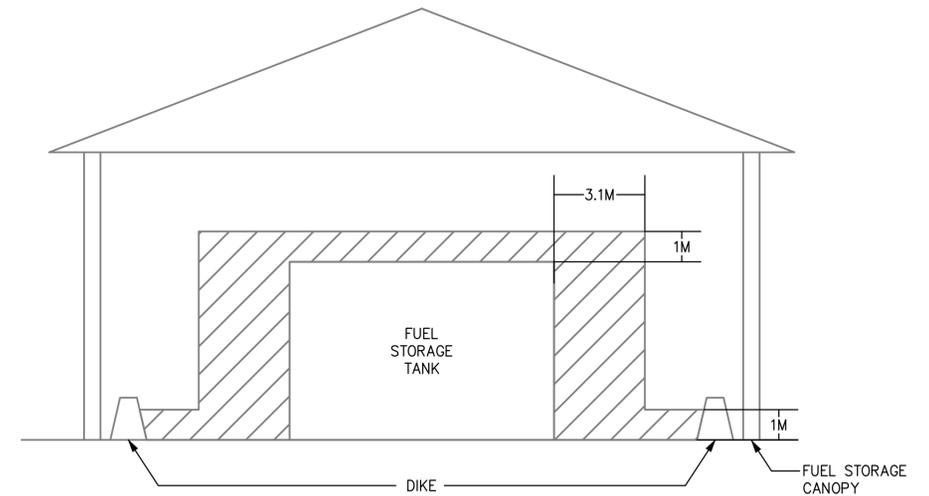
- OPTIONS:  
1. PROVIDE LOGO PER GOVERNMENT SPECIFICATION.  
2. COLOR - STANDARD

COVER		DIMENSIONS		
DESCRIPTION	WEIGHT	A	B	C
Heavy Duty W/ 2 Bolts	13.6 kg			

BOXES		DIMENSIONS		
DESCRIPTION	WEIGHT	A	B	C
W/ Base	29.0 kg	318 mm	298 mm	N/A

5 QUAZITE PULLBOX DETAIL  
E-501 SCALE: NO SCALE



6 EXTENT OF CLASS 1 LOCATION AT FUEL STORAGE CANOPY  
E-501 SCALE: N.T.S.

Rev.	Date	Design file no.	Drawn by	Checked by	Reviewed by	Submitted by	File name	Plot date	Plot scale
0	2/23/10		BUB	FW	JRG				

U.S. ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT  
APO AE 96338  
Michael Baker, Jr., Inc.  
A unit of Michael Baker Corporation  
Arlide Business Park  
Moon Township, PA 15108  
www.mbakercorp.com

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN  
ELECTRICAL POWER GENERATION AND DISTRIBUTION  
POWER DISTRIBUTION SYSTEM DETAILS

Sheet reference number:  
E-501

APPROVED:

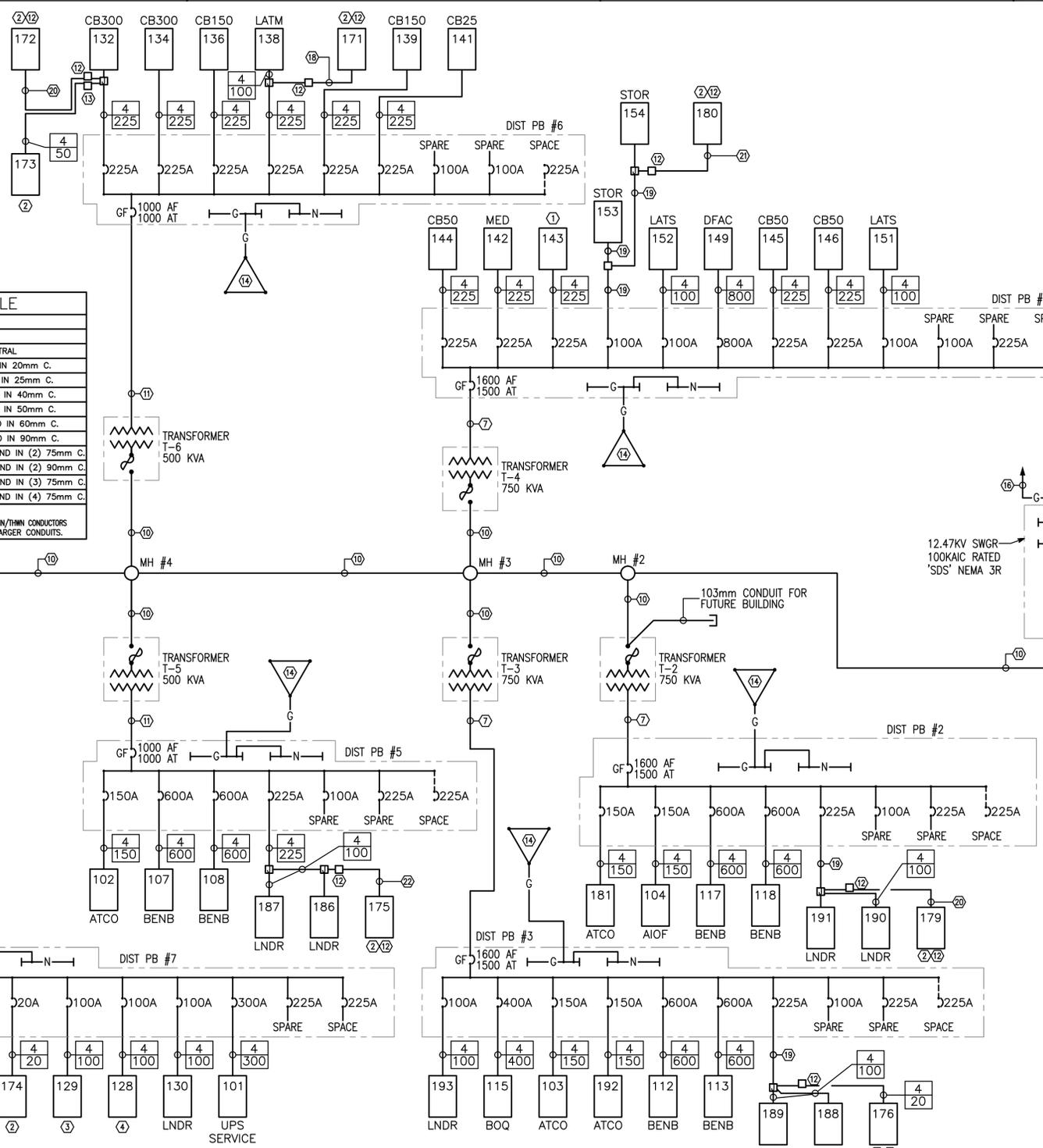
A/E DESIGNER OF RECORD

SEAL:

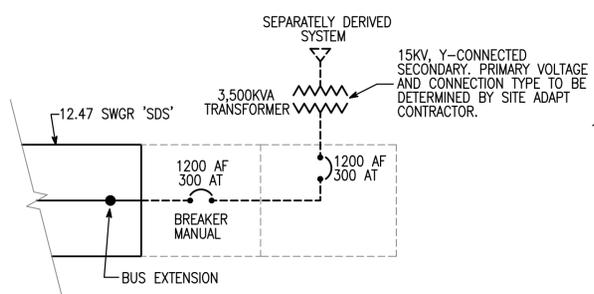
TRANSFORMER SCHEDULE	
T-1	1500KVA 380V (Δ) TO 12.47KV (Y) SECONDARY (4 REOD)
T-2	750KVA 12.47V (Δ) TO 380/220V (Y)
T-3	750KVA 12.47V (Δ) TO 380/220V (Y)
T-4	750KVA 12.47V (Δ) TO 380/220V (Y)
T-5	500KVA 12.47V (Δ) TO 380/220V (Y)
T-6	500KVA 12.47V (Δ) TO 380/220V (Y)
T-7	500KVA 12.47V (Δ) TO 380/220V (Y)
T-8	300KVA 12.47V (Δ) TO 380/220V (Y)

FEEDER SCHEDULE	
TYPE 4	
3φ-4W & GND	
THREE POLE W/ NEUTRAL	
20	(4) 4mm <sup>2</sup> & (1) 4mm <sup>2</sup> GND IN 20mm C.
50	(4) 16mm <sup>2</sup> & (1) 6mm <sup>2</sup> GND IN 25mm C.
100	(4) 50mm <sup>2</sup> & (1) 10mm <sup>2</sup> GND IN 40mm C.
150	(4) 70mm <sup>2</sup> & (1) 16mm <sup>2</sup> GND IN 50mm C.
225	(4) 120mm <sup>2</sup> & (1) 25mm <sup>2</sup> GND IN 60mm C.
400	(4) 300mm <sup>2</sup> & (1) 25mm <sup>2</sup> GND IN 90mm C.
600	2 SETS (4) 185mm <sup>2</sup> & (1) 50mm <sup>2</sup> GND IN (2) 75mm C.
800	2 SETS (4) 300mm <sup>2</sup> & (1) 50mm <sup>2</sup> GND IN (2) 90mm C.
1000	3 SETS (4) 300mm <sup>2</sup> & (1) 70mm <sup>2</sup> GND IN (3) 75mm C.
1200	4 SETS (4) 185mm <sup>2</sup> & (1) 95mm <sup>2</sup> GND IN (4) 75mm C.

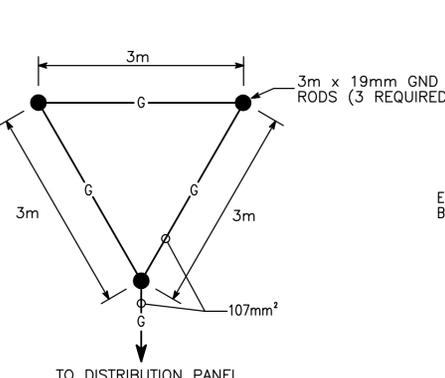
NOTES:  
CONDUIT SIZES ARE BASED ON SCH. 80 PVC FOR TYPE THHN/THWN CONDUCTORS ONLY. OTHER CONDUCTOR TYPES MAY REQUIRE LARGER CONDUITS.



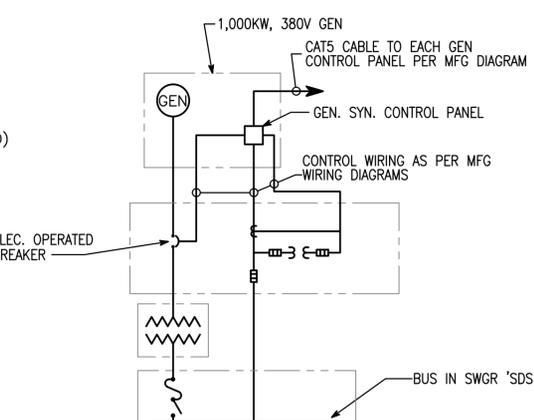
1 SINGLE LINE DIAGRAM POWER DISTRIBUTION SYSTEM  
SCALE: NO SCALE



2 SEPARATELY DERIVED SYSTEM CONNECTION DETAIL  
SCALE: NO SCALE



3 TYPICAL GROUNDING TRIPOD DETAIL  
SCALE: NO SCALE



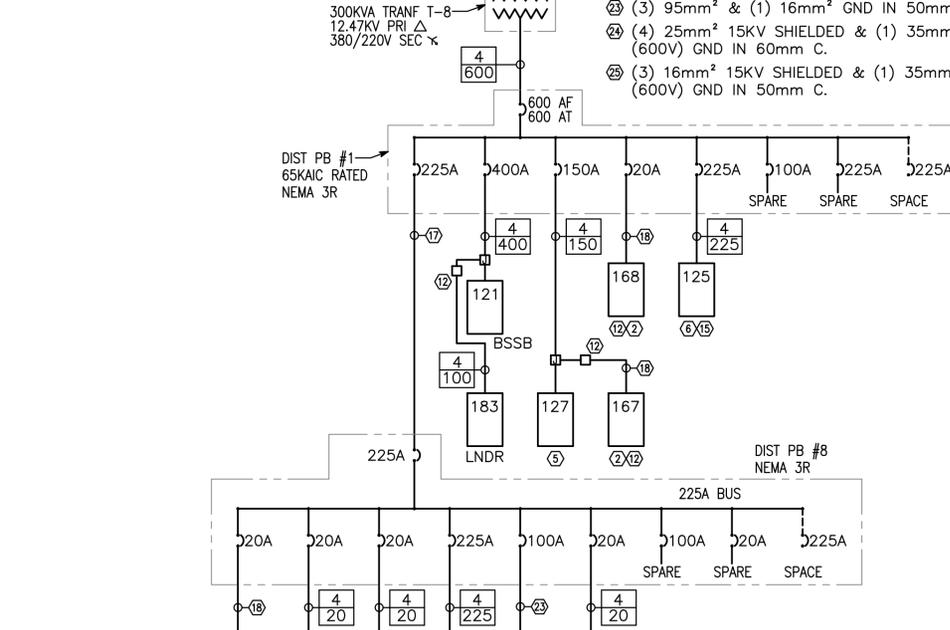
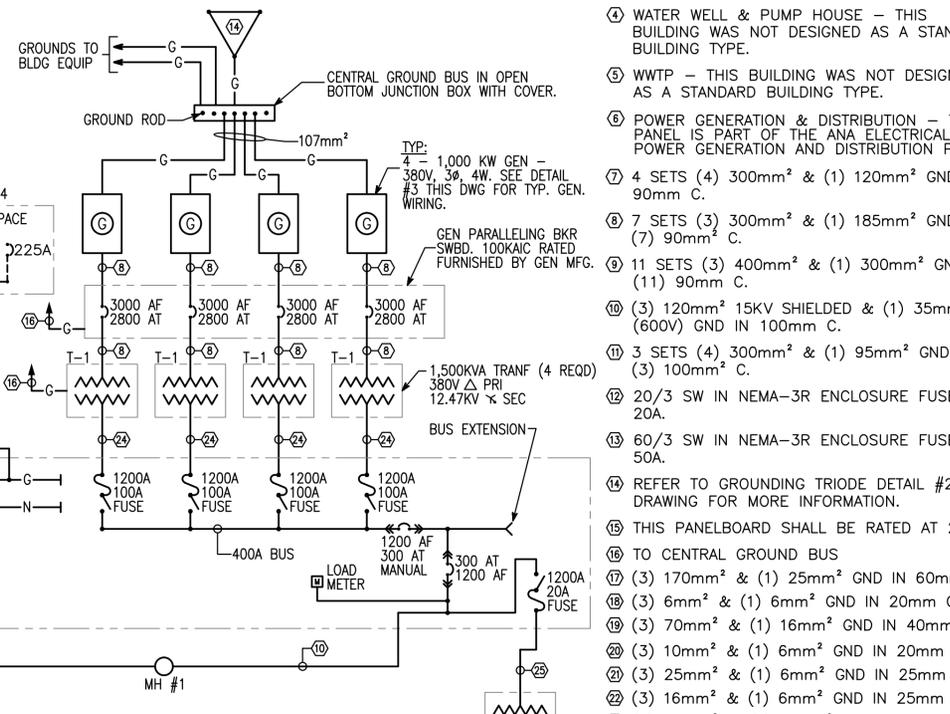
4 TYPICAL GENERATOR WIRING DIAGRAM  
SCALE: NO SCALE

GENERAL NOTES

- ALL CIRCUIT BREAKERS ARE 3 POLE UNLESS OTHERWISE NOTED.
- REFERENCE SHALL BE MADE TO RISER DIAGRAMS FOR DISTRIBUTION IN EACH BUILDING.
- ALL PANELBOARDS SHALL BE RATED AT 18KAIC UNLESS OTHERWISE NOTED.

NUMBERED NOTES

- MOSQUE - THIS BUILDING WAS NOT DESIGNED AS A STANDARD BUILDING TYPE.
- GUARD TOWER - THIS BUILDING WAS NOT DESIGNED AS A STANDARD BUILDING TYPE.
- WATER TREATMENT PLANT - THIS BUILDING WAS NOT DESIGNED AS A STANDARD BUILDING TYPE.
- WATER WELL & PUMP HOUSE - THIS BUILDING WAS NOT DESIGNED AS A STANDARD BUILDING TYPE.
- WWTP - THIS BUILDING WAS NOT DESIGNED AS A STANDARD BUILDING TYPE.
- POWER GENERATION & DISTRIBUTION - THIS PANEL IS PART OF THE ANA ELECTRICAL POWER GENERATION AND DISTRIBUTION PACKAGE.
- 4 SETS (4) 300mm<sup>2</sup> & (1) 120mm<sup>2</sup> GND IN 90mm C.
- 7 SETS (3) 300mm<sup>2</sup> & (1) 185mm<sup>2</sup> GND IN (7) 90mm C.
- 11 SETS (3) 400mm<sup>2</sup> & (1) 300mm<sup>2</sup> GND IN (11) 90mm C.
- (3) 120mm<sup>2</sup> 15KV SHIELDED & (1) 35mm<sup>2</sup> (600V) GND IN 100mm C.
- 3 SETS (4) 300mm<sup>2</sup> & (1) 95mm<sup>2</sup> GND IN (3) 100mm<sup>2</sup> C.
- 20/3 SW IN NEMA-3R ENCLOSURE FUSED AT 20A.
- 60/3 SW IN NEMA-3R ENCLOSURE FUSED AT 50A.
- REFER TO GROUNDING TRIODE DETAIL #2 THIS DRAWING FOR MORE INFORMATION.
- THIS PANELBOARD SHALL BE RATED AT 25KAIC.
- TO CENTRAL GROUND BUS
- (3) 170mm<sup>2</sup> & (1) 25mm<sup>2</sup> GND IN 60mm C.
- (3) 6mm<sup>2</sup> & (1) 6mm<sup>2</sup> GND IN 20mm C.
- (3) 70mm<sup>2</sup> & (1) 16mm<sup>2</sup> GND IN 40mm C.
- (3) 10mm<sup>2</sup> & (1) 6mm<sup>2</sup> GND IN 20mm C.
- (3) 25mm<sup>2</sup> & (1) 6mm<sup>2</sup> GND IN 25mm C.
- (3) 16mm<sup>2</sup> & (1) 6mm<sup>2</sup> GND IN 25mm C.
- (3) 95mm<sup>2</sup> & (1) 16mm<sup>2</sup> GND IN 50mm C.
- (4) 25mm<sup>2</sup> 15KV SHIELDED & (1) 35mm<sup>2</sup> (600V) GND IN 60mm C.
- (3) 16mm<sup>2</sup> 15KV SHIELDED & (1) 35mm<sup>2</sup> (600V) GND IN 50mm C.



APPROVED:

A/E DESIGNER OF RECORD

SEAL:

US ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT

U.S. ARMY CORPS OF ENGINEERS  
AFGHANISTAN ENGINEER DISTRICT  
APO AE 96338

Michael Baker, Jr., Inc.  
A Unit of Michael Baker Corporation  
Arlide Business Park  
Moon Township, PA 15108  
www.mbakercorp.com

AFGHAN NATIONAL ARMY  
REGIONAL MILITARY TRAINING CENTER  
STANDARD DESIGN

ELECTRICAL POWER GENERATION AND DISTRIBUTION  
SINGLE LINE DIAGRAM POWER  
DISTRIBUTION SYSTEM

Sheet reference number:  
E-601



PANELBOARD DISTRIB. PANEL #5 SURFACE MOUNTED																		
AMP. MAIN LUGS (OR) 1000 AMP. MAIN BREAKER W/ 1000 AMP. TRIP																		
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 1000 AMP. BUS																		
CCT. NO.	TRIP AMPS	NO. POLES	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. POLES	TRIP AMPS	CCT. NO.
							A0	B0	C0	A0	B0	C0						
1							20.0			133.6								2
3	150	3	SEE SINGLE LINE DIAGRAM			BUILDING #102		16.4			130.1				SEE SINGLE LINE DIAGRAM	3	800	4
5									20.8			104.1						6
7							133.6			14.6								8
9	800	3	SEE SINGLE LINE DIAGRAM			BUILDING #108		130.1			14.6				SEE SINGLE LINE DIAGRAM	3	225	10
11									104.1			14.6						12
13																		14
15	100	3				SPARE											3	225
17																		18
19																		20
21	225	3				SPACE												22
23																		24
25																		26
27						BLANK												28
29																		30
31																		32
33						BLANK												34
35																		36
37																		38
39						BLANK												40
41																		42
							153.6	146.5	124.9	148.2	144.7	118.7	TOTAL CONN. LOAD PER PHASE (KVA): A0 301.8 B0 291.2 C0 243.6					
TOTAL CONN. LOAD 836.6 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 585.62																		

\* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE.  
 \*\* PANEL SHALL HAVE A NEMA 3R ENCLOSURE.

PANELBOARD DISTRIB. PANEL #6 SURFACE MOUNTED																		
AMP. MAIN LUGS (OR) 1000 AMP. MAIN BREAKER W/ 1000 AMP. TRIP																		
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 1000 AMP. BUS																		
CCT. NO.	TRIP AMPS	NO. POLES	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. POLES	TRIP AMPS	CCT. NO.
							A0	B0	C0	A0	B0	C0						
1							31.3			31.3								2
3	225	3	SEE SINGLE LINE DIAGRAM			BUILDING #132		28.6			28.6				SEE SINGLE LINE DIAGRAM	3	225	4
5									29.8			29.8						6
7							30.2			24.9								8
9	225	3	SEE SINGLE LINE DIAGRAM			BUILDING #136		36.0			4.6				SEE SINGLE LINE DIAGRAM	3	225	10
11									30.7			15.3						12
13							30.2			29.6								14
15	225	3	SEE SINGLE LINE DIAGRAM			BUILDING #139		36.0			27.7				SEE SINGLE LINE DIAGRAM	3	225	16
17									30.7			24.6						18
19																		20
21	100	3				SPARE											3	100
23																		24
25																		26
27	225	3				SPACE												28
29																		30
31																		32
33						BLANK												34
35																		36
37																		38
39						BLANK												40
41																		42
							91.7	100.6	91.2	85.8	60.9	69.7	TOTAL CONN. LOAD PER PHASE (KVA): A0 177.5 B0 161.5 C0 160.9					
TOTAL CONN. LOAD 499.9 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 349.93																		

\* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE.  
 \*\* PANEL SHALL HAVE A NEMA 3R ENCLOSURE.

PANELBOARD DISTRIB. PANEL #7 SURFACE MOUNTED																		
AMP. MAIN LUGS (OR) 1000 AMP. MAIN BREAKER W/ 1000 AMP. TRIP																		
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 1000 AMP. BUS																		
CCT. NO.	TRIP AMPS	NO. POLES	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. POLES	TRIP AMPS	CCT. NO.
							A0	B0	C0	A0	B0	C0						
1							11.7			46.3								2
3	100	3	SEE SINGLE LINE DIAGRAM			BUILDING #185		10.1			45.4				SEE SINGLE LINE DIAGRAM	3	300	4
5									7.2			42.2						6
7							41.0			1.3								8
9	400	3	SEE SINGLE LINE DIAGRAM			BUILDING #105		43.4			1.3				SEE SINGLE LINE DIAGRAM	3	20	10
11									47.8			1.3						12
13							16.7			10.0								14
15	100	3	SEE SINGLE LINE DIAGRAM			BUILDING #129		16.7			10.0				SEE SINGLE LINE DIAGRAM	3	100	16
17									16.7			10.0						18
19							6.4			15.4								20
21	100	3	SEE SINGLE LINE DIAGRAM			BUILDING #130		6.9			15.4				SEE SINGLE LINE DIAGRAM	3	300	22
23									6.6			15.4						24
25																		26
27	225	3				SPACE											3	225
29																		30
31																		32
33						BLANK												34
35																		36
37																		38
39						BLANK												40
41																		42
							75.8	77.1	78.3	57.6	56.7	53.5	TOTAL CONN. LOAD PER PHASE (KVA): A0 133.4 B0 133.8 C0 131.8					
TOTAL CONN. LOAD 399.0 KVA. 70 % DEMAND = ESTIMATED DEMAND LOAD 279.3																		

\* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE.  
 \*\* PANEL SHALL HAVE A NEMA 3R ENCLOSURE.

PANELBOARD DISTRIB. PANEL #8 SURFACE MOUNTED																		
AMP. MAIN LUGS (OR) 225 AMP. MAIN BREAKER W/ 225 AMP. TRIP																		
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 225 AMP. BUS																		
CCT. NO.	TRIP AMPS	NO. POLES	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. POLES	TRIP AMPS	CCT. NO.
							A0	B0	C0	A0	B0	C0						
1							1.7			1.0								2
3	20	3	SEE SINGLE LINE DIAGRAM			BUILDING #165		1.7			1.9				SEE SINGLE LINE DIAGRAM	3	20	4
5									1.7			1.7						6
7							1.3			14.9								8
9	20	3	SEE SINGLE LINE DIAGRAM			BUILDING #163		1.5			12.8				SEE SINGLE LINE DIAGRAM	3	225	10
11									0.0			14.3						12
13							16.6			0.7								14
15	100	3	SEE SINGLE LINE DIAGRAM			DISTRIBUTION PANELBOARD #9		13.9			0.7				SEE SINGLE LINE DIAGRAM	3	20	16
17									15.3			0.7						18
19																		20
21	100	3				SPARE											3	100
23																		24
25																		26
27	225	3				SPACE												28
29																		30
31																		32
33						BLANK												34
35																		36
37																		38
39						BLANK												

PANELBOARD DISTRIB. PANEL #9 SURFACE MOUNTED																		
AMP. MAIN LUGS (OR) 100 AMP. MAIN BREAKER W/ 100 AMP. TRIP																		
CIRCUIT BREAKER TYPE 380/220 VOLTS 3 PHASE 4 WIRE 50 HZ 100 AMP. BUS																		
CKT. NO.	TRIP AMPS	TRIP NO.	WIRE MM <sup>2</sup>	GND MM <sup>2</sup>	CONDUIT MM	LOAD SERVED	LOAD-KVA			LOAD-KVA			CONDUIT MM	GND MM <sup>2</sup>	WIRE MM <sup>2</sup>	NO. POLES	TRIP AMPS	CKT. NO.
							A0	B0	C0	A0	B0	C0						
1							1.3			1.3								2
3	20	3	SEE SINGLE LINE DIAGRAM			BUILDING #170		1.3			1.3							4
5									1.3			1.3						6
7							7.2			6.8								8
9	50	3	SEE SINGLE LINE DIAGRAM			BUILDING #158		5.3			6.0							10
11									7.0			5.7						12
13																		14
15	100	3				SPARE												16
17																		18
19																		20
21	225	3				SPACE												22
23																		24
25																		26
27						BLANK												28
29																		30
31																		32
33						BLANK												34
35																		36
37																		38
39						BLANK												40
41																		42
							8.6	6.6	8.3	8.1	7.3	7.0						
TOTAL CONN. LOAD							PER PHASE (KVA):											
45.8							KVA. 70			% DEMAND = ESTIMATED DEMAND LOAD			32.06					
							A0 16.6			B0 13.9			C0 15.3					

\* MAIN BREAKER SHALL BE 3P EARTH GROUND TYPE.  
 \*\* PANEL SHALL HAVE A NEMA 3R ENCLOSURE.

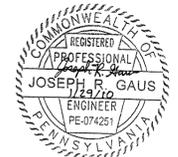


Rev.	Date	Description
0	2/23/10	

Designed by: FW	Checked by: BJB	Reviewed by: JRG	Submitted by:
Date: 2/23/10	Design file no.:	Drawing code:	File name: Plot date: Plot scale:

U.S. ARMY CORPS OF ENGINEERS  
 AFGHANISTAN ENGINEER DISTRICT  
 APO AE 96338  
 Michael Baker Jr., Inc.  
 A unit of Michael Baker Corporation  
 Airside Business Park  
 Moon Township, PA 15108  
 www.mbakercorp.com

AFGHAN NATIONAL ARMY  
 REGIONAL MILITARY TRAINING CENTER  
 STANDARD DESIGN  
 ELECTRICAL POWER GENERATION AND DISTRIBUTION  
 DISTRIBUTION PANEL SCHEDULES III

APPROVED: \_\_\_\_\_  
 A/E DESIGNER OF RECORD  
 SEAL:  


Sheet reference number:  
 604