

W:\23308\127-23308-10010\CAD\SheetFiles\ASD03_KAND\02_Civil\AF1081--CS001GN.dwg 12/1/2010 5:08:08 PM Barrett, Patrick

GENERAL NOTES:

1. INFORMATION REGARDING APPROXIMATE SITE LIMITS, ADJACENT ROAD AND WALKWAYS AND LOCATIONS OF EXISTING IMPROVEMENTS PROVIDED BY USACE-MED ON JULY 16, 2010 VIA ELECTRONIC TRANSMISSION. THIS IS NOT INTENDED TO BE AS-BUILT INFORMATION AND IS TO BE VERIFIED BY THE CONTRACTOR.
2. CONTRACTOR SHALL PERFORM SITE SURVEY AND GEOTECHNICAL INVESTIGATION PRIOR TO STARTING CONSTRUCTION IN ACCORDANCE WITH SPECIFICATION SECTION 02 21 00 AND 02 33 00.
3. CONTRACTOR SHALL SUBMIT SITE GRADING AND DRAINAGE PLANS TO CONTRACTING OFFICER FOR APPROVAL FOLLOWING SITE SURVEY AND GEOTECHNICAL REPORT PRIOR TO COMMENCING CONSTRUCTION. THE DRAINAGE PLANS SHALL BE DESIGNED FOR THE 10 YEAR DESIGN STORM IN ACCORDANCE WITH UFC 3-230-17FA DRAINAGE IN AREAS OTHER THAN AIRFIELDS. REFER TO SPECIFICATION SECTION 31 00 00 FOR ADDITIONAL INFORMATION.
4. APPROXIMATE SITE LIMITS HAVE BEEN PROVIDED BY USACE-MED. ALL LAYOUT DIMENSIONS TO THE SITE LIMITS SHALL BE CONFIRMED BY THE CONTRACTOR BASED ON THE SITE SURVEY AND THROUGH COORDINATION WITH CONTRACTING OFFICER.
5. ALL BUILDING LAYOUT DIMENSIONS ARE TO THE OUTSIDE EDGE OF THE BUILDING WALL.
6. ALL CONCRETE PAD LAYOUT DIMENSIONS SHOWN ON THE SITE PLAN ARE REPRESENTATIVE OF SPECIFIC EQUIPMENT INSTALLATION SELECTED DURING THE DESIGN PROCESS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL CONCRETE PAD DIMENSIONS BASED ON THE SELECTED AND APPROVED EQUIPMENT INSTALLATION.
7. ALL SUN SHADES AND MISC. ENCLOSURES SHALL BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIFICATION 05 50 13. A MINIMUM OF 1 METER CLEARANCE ON ALL SIDES AND ABOVE THE TALLEST ELEMENT OF EACH UNIT SHALL BE PROVIDED. ALL DIMENSIONS SHOWN ON THE SITE PLAN ARE REPRESENTATIVE OF SPECIFIC EQUIPMENT INSTALLATION SELECTED DURING THE DESIGN PROCESS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL CONCRETE PAD DIMENSIONS BASED ON THE SELECTED AND APPROVED EQUIPMENT INSTALLATION. SUNSHADE FOUNDATION DESIGN SHALL BE PERFORMED BY THE MANUFACTURERS ENGINEER.
8. REFER TO CONCRETE SPECIFICATIONS 03 31 00.00.10 FOR CONCRETE STRENGTH REQUIREMENTS.
9. ALL SITE PLAN DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
10. SET FINISH FLOOR ELEVATION AT 150mm ABOVE FINISH GRADE. PLACE 100mm OF NATIVE COMPACTED CRUSHED STONE WITHIN THE SITE LIMITS SLOPED AWAY FROM BUILDING.
11. SIDEWALKS SHALL BE INSTALLED BETWEEN BUILDINGS AND EXISTING WALKWAYS AS SHOWN ON PLAN. SIDEWALK MATERIAL FOR BASE BID SHALL BE 150mm THICK COMPACTED GRAVEL; BID OPTION SHALL BE CONCRETE PER DETAIL SHEETS FOR MORE INFORMATION.
12. ALL WORK DONE OUTSIDE SITE LIMIT ASSOCIATED WITH SITE ENTRANCE TO BE DONE BY OTHERS.
13. FINISH FLOOR ELEVATION IS BASED ON AN ASSUMED DATUM. REFER TO ARCHITECTURAL DRAWINGS FOR FINISH FLOOR ELEVATION.
14. CONCRETE BARRIER WALLS SHOULD BE DESIGNED AS APPROPRIATE TO ALLOW FOR SHIPMENT AND HANDLING BY COMMONLY AVAILABLE MEANS. HOWEVER, TO PROVIDE NECESSARY WEAPON PROTECTION, IN NO CASE SHOULD THE CONCRETE BARRIERS BE LESS THAN 300mm THICK AND 2000mm HIGH. WITH REGARDS TO PLACEMENT, WALLS MUST BE CONNECTED TO ADJACENT SECTIONS TO MINIMIZE OVERTURNING.
15. REFER TO ELECTRICAL DRAWINGS FOR GENERATOR AND OTHER SITE ELECTRICAL INFORMATION.
16. REFER TO PLUMBING DRAWINGS FOR DIESEL FUEL STORAGE TANK AND ASSOCIATED PIPING INFORMATION WITHIN APPROXIMATE SITE LIMITS.
17. REFER TO SPECIFICATION 05 50 13 FOR WATER BOOSTER PUMP ENCLOSURE INFORMATION.
18. INFORMATION REGARDING EXISTING CONTROL POINTS PROVIDED BY USACE-AES ON SEPTEMBER 12, 2010 VIA ELECTRONIC TRANSMISSION. REFERENCED CONTROL POINT DATUM IS WGS 84/UTM 41. THIS IS NOT INTENDED TO BE AS-BUILT INFORMATION AND IS TO BE VERIFIED BY THE CONTRACTOR.
19. BUILDING FOUNDATIONS TO BE PARALLEL AND PERPENDICULAR TO THE NORTHWEST PARCEL LINE.

UTILITY NOTES:

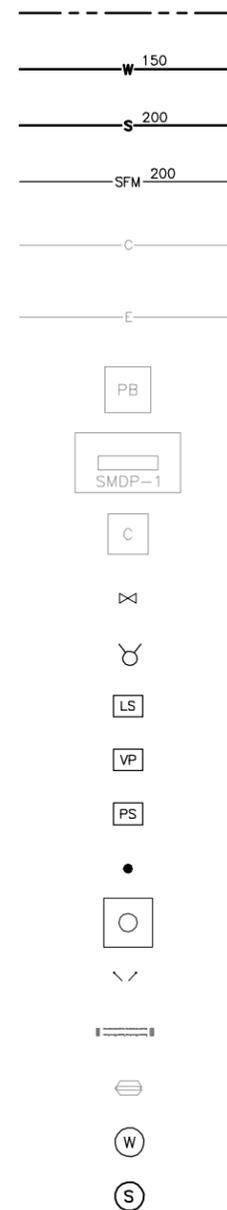
1. INFORMATION REGARDING LOCATIONS OF EXISTING AND FUTURE BASE UTILITIES (WATER DISTRIBUTION AND SEWER SYSTEM) PROVIDED BY USACE-MED ON MAY 14TH 2010 AND THE FIRST OF JUNE 2010 VIA ELECTRONIC TRANSMISSION. IF EITHER OR BOTH UTILITY CONNECTION BID OPTIONS ARE SELECTED, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE CONNECTION LOCATIONS.
2. CONTRACTOR TO PROVIDE A 150mm DIAMETER SEWER LATERAL SLOPED AT A MINIMUM OF 1.0% FROM THE BUILDING REFER TO PLUMBING DRAWINGS FOR CONNECTION POINT.
3. CONTRACTOR TO PROVIDE A 200mm SEWER MAIN SLOPED AT A MINIMUM OF 0.5% FROM SMH #1 TO SEWER LIFT STATION.
4. UNDERGROUND PRESSURE PIPING SHALL BE SCH-80 PVC UNLESS OTHERWISE NOTED
5. ALL ABOVE GROUND PIPE INCLUDING ALL PIPING IN THE SEWAGE LIFT STATION AND VALVE PIT SHALL BE SCH 80 GALVANIZED STEEL OR DUCTILE IRON UNLESS OTHERWISE NOTED AND PAINTED BLUE IN ACCORDANCE WITH SPECIFICATION 09 90 00.

UTILITY NOTES (CONT'D)

6. PIPING RESTRAINTS TO BE THRUST BLOCKS, MECHANICAL RESTRAINT OR APPROVED EQUAL. CONTRACTOR TO PROVIDE SUPPORT DOCUMENTATION FOR PIPE RESTRAINTS ON ALL PIPING UNDER PRESSURE.
7. DOMESTIC WATER STORAGE TANK AND THE WASTEWATER STORAGE TANKS VOLUMES LISTED ON THE APPROPRIATE DRAWINGS ARE MINIMUM USABLE VOLUMES WHICH MUST EXIST ABOVE THE OUTLET AND A MINIMUM OF 150mm BELOW THE OVERFLOW. CONTRACTOR MAY PROVIDE EITHER A CIRCULAR OR RECTANGULAR STEEL BOLTED TANK FOR THE DOMESTIC WATER STORAGE TANK AND THE WASTEWATER STORAGE TANK.
8. INSTALLATION OF WATER AND SEWER SERVICES TO THE BUILDINGS SHALL BE PERFORMED BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE THE TYPE, SIZE, AND MATERIAL FOR CONNECTION TO THE BUILDING SERVICE CONNECTION.
9. ELEVATION OF TANK PENETRATIONS AND TANK FILL AND OUTLET PIPES TO BE COORDINATED WITH TANK MANUFACTURER'S REQUIREMENTS.
10. THE CONTRACTOR SHALL COORDINATE WITH THE CONTRACTING OFFICER THE SIZE AND TYPE OF PIPE CONNECTION REQUIRED FOR THE REMOTE DOMESTIC WATER FILL POINT AND SEWER TANK SUCTION POINT TO ENSURE COMPATIBILITY WITH TANKER TRUCKS. PROVIDE LOCKABLE CAP AND BRASS CHAIN AT FILL AND SUCTION POINTS. SIZE TO BE COORDINATED WITH FIELD CONTRACTING OFFICER.
11. FLEXIBLE COUPLINGS ARE REQUIRED BETWEEN THE TRANSITION OF UNDERGROUND AND ABOVE GROUND PIPING AT THE CONNECTION TO THE BUILDING PIPING, OR AS SHOWN ON THE DRAWINGS. FLEXIBLE COUPLING WILL BE NEOPRENE TUBE REINFORCED WITH MULTIPLE PLYS OF NYLON TIRE CORD WITH A NEOPRENE COVER. FLEXIBLE COUPLINGS 600mm ID OR LESS SHALL BE SINGLE SPHERE FURNISHED WITH A SET OF FLOATING GALVANIZED STEEL FLANGES WITH RECESSED GROOVE TO INTERLOCK WITH RUBBER CONNECTOR'S RAISED FACE FLANGE BEAD. FLANGE BEAD WILL BE WIRE REINFORCED. FLANGES WILL BE DRILLED 125/150# ANSI. FLEXIBLE EXPANSION FITTINGS TO ACCOMMODATE APPROXIMATELY 38mm TO 50mm OF SETTLEMENT. FITTING TO BE RESISTANT TO UV EXPOSURE AND COMPLY WITH PIPE TESTING REQUIREMENTS AS STATED IN SPECIFICATIONS.
12. ALL PIPE SIZES ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
13. CONTRACTOR TO PERFORM BUOYANCY CALCULATIONS ON ALL UNDERGROUND STRUCTURES BASED ON GEOTECHNICAL REPORT RECORDED HIGH WATER ELEVATION.
14. CONTRACTOR SHALL PROVIDE FOR FUTURE CONNECTION TO BASE SUPPLIED ELECTRIC, COMMUNICATIONS, WATER AND SEWER PURSUANT TO THE APPLICABLE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
15. ALL VALVES ABOVE GRADE SHALL BE FLANGE MOUNTED DUCTILE IRON. VALVES SHALL BE MADE TAMPER PROOF BY PASSING A HEAVY DUTY CHAIN THROUGH HAND WHEEL AND AROUND VALVE BODY AS TO NOT ALLOW HAND WHEEL TO ROTATE MORE THAN 1/4 TURN AND LOCKING ENDS TOGETHER WITH A WEATHER PROOF LOCK.
16. CONTRACTOR TO INSTALL PIPE SUPPORTS FOR ALL ABOVE-GRADE PIPING. REFER TO C-301 FOR PIPE SUPPORT DETAILS AND MINIMUM SPACING REQUIREMENTS.
17. CONTRACTOR TO INSTALL 100mm VENT PIPE WITH MINIMUM 600mm COVER. ALL EXPOSED PIPING TO BE PAINTED BLUE IN ACCORDANCE WITH SPECIFICATION 09 90 00.

LEGEND

PROPOSED



DESCRIPTION

- PARCEL LINE/SITE BOUNDARY
- DOMESTIC WATER LINE (W/SIZE)
- GRAVITY SEWER (W/SIZE)
- SEWER FORCE MAIN (W/SIZE)
- COMMUNICATION DUCT BANK, REFER TO COMMUNICATION SITE PLANS FOR MORE INFORMATION
- ELECTRICAL DUCT BANK, REFER TO ELECTRICAL SITE PLANS FOR MORE INFORMATION
- ELECTRIC PULL BOX, REFER TO ELECTRICAL SITE PLANS FOR MORE INFORMATION
- ELECTRIC DISTRIBUTION PANEL, REFER TO ELECTRICAL SITE PLANS FOR MORE INFORMATION
- COMMUNICATION MANHOLE, REFER TO COMMUNICATION SITE PLANS FOR MORE INFORMATION
- GATE VALVE
- FIRE HYDRANT
- SEWAGE LIFT STATION
- SEWAGE VALVE PIT
- PUMP STATION
- BOLLARD
- SEWER MANHOLE
- SWING GATE
- BUNKER WITH T-WALL (CONTRACTOR OPTION)
- CONCRETE BARRIER WALL (ALASKA BARRIER)
- WATER STORAGE TANK
- WASTEWATER STORAGE TANK

ABBREVIATIONS

- CONC CONCRETE
- CPVC CHLORINATED POLYVINYL CHLORIDE
- EW EACH WAY
- FM FORCE MAIN
- GV GATE VALVE
- MJ MECHANICAL JOINT
- NIC NOT IN CONTRACT
- PB PULL BOX
- PN PROJECT NUMBER
- PS PUMP STATION
- PVC POLYVINYL CHLORIDE
- R&D REMOVE & DISPOSE
- S SEWER
- SFM SEWER FORCE MAIN
- SMDP SITE MAIN DISTRIBUTION PANEL
- T TRANSFORMER
- T&B TOP & BOTTOM
- TYP TYPICAL
- UNO UNLESS NOTED OTHERWISE
- W/ WITH
- W WATER
- LS LIFT STATION
- NZL NOZZLE

CORRECTED FINAL DESIGN RE-ISSUED

DATE	DESCRIPTION	SYMB
12/02/10	CORRECTED FINAL DESIGN RE-ISSUED	D
10/19/10	CORRECTED FINAL DESIGN SUBMITTAL	O
10/05/10	FINAL DESIGN SUBMITTAL	B
08/31/10	MID-POINT DESIGN SUBMITTAL	A

DESIGNED BY: PUB	DATE: 12/02/10
DRAWN BY: PUB	SUBMITTED BY: TETRA TECH
CHECKED BY: SER	FILE NO.: AF1081--CS001GN

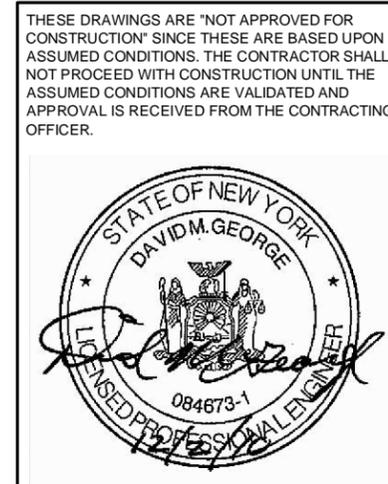
US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

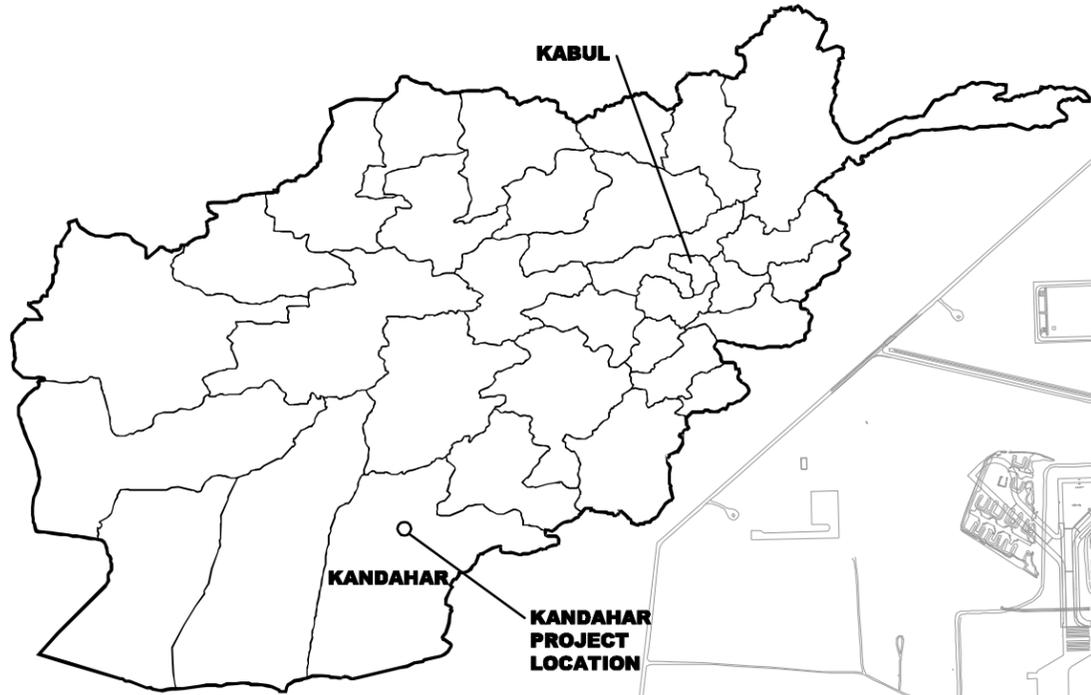
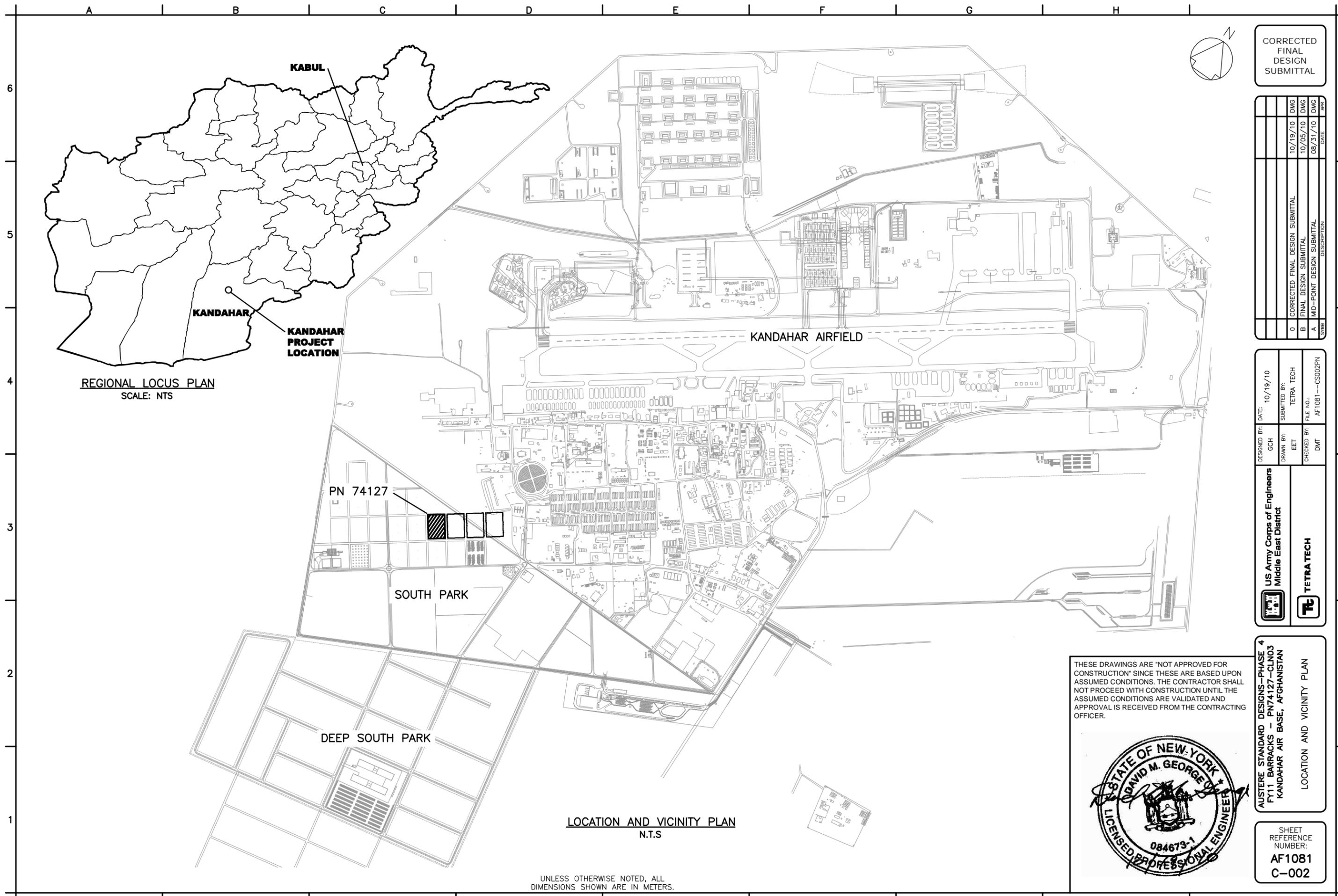
CIVIL GENERAL NOTES,
LEGEND AND ABBREVIATIONS

SHEET REFERENCE NUMBER:
**AF1081
C-001**

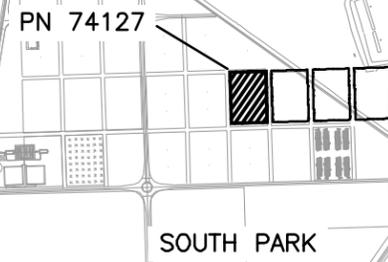


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REGIONAL LOCUS PLAN
SCALE: NTS



LOCATION AND VICINITY PLAN
N.T.S

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.



CORRECTED
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DESIGN
SUBMITTAL

SYMB	DESCRIPTION	DATE	PR
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	DMG
B	FINAL DESIGN SUBMITTAL	10/05/10	DMG
A	MID-POINT DESIGN SUBMITTAL	08/31/10	DMG

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DRAWN BY:	EET	SUBMITTED BY:	TETRA TECH
CHECKED BY:	DMT	FILE NO.:	AF1081--CS002PN

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

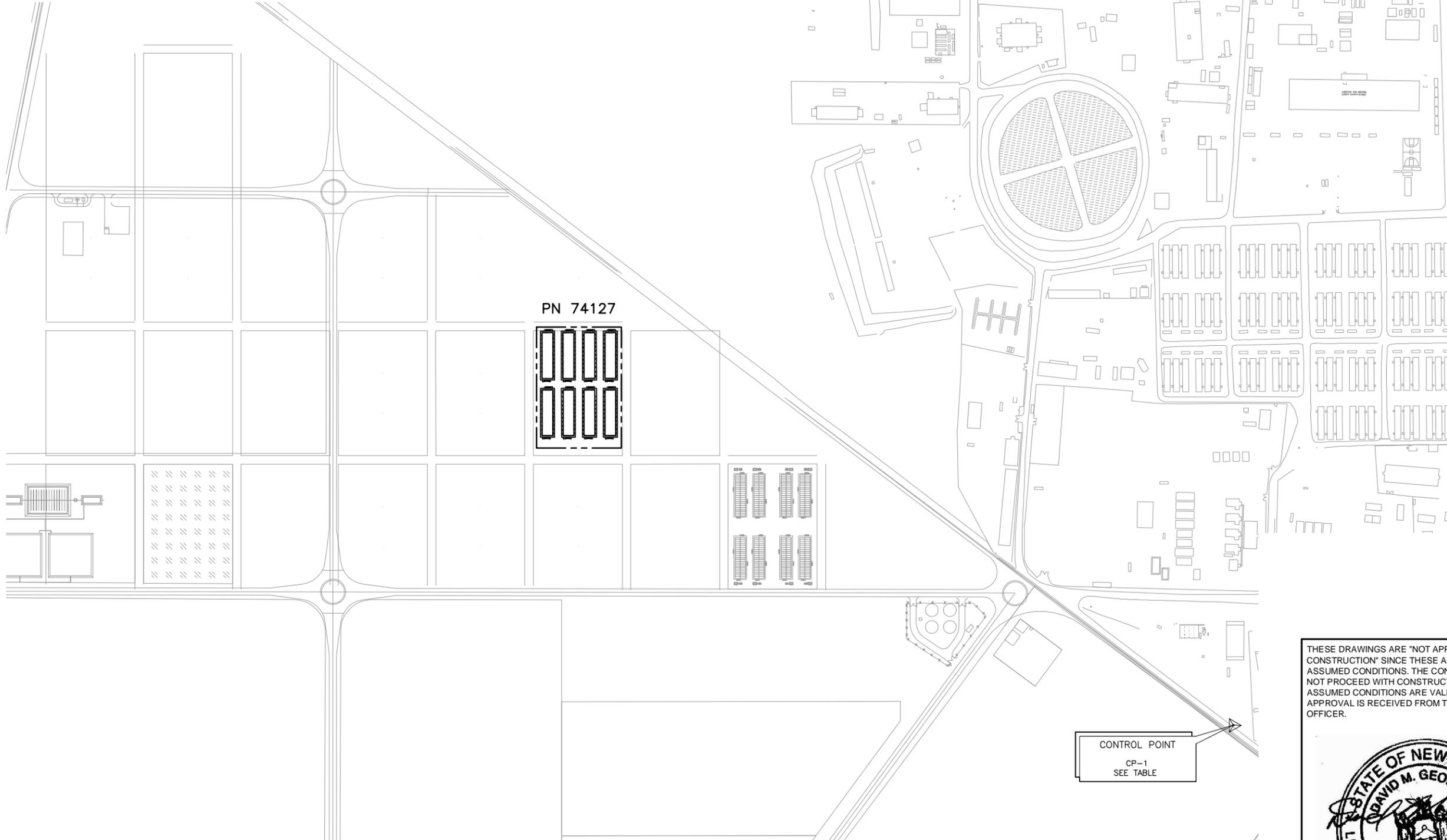
LOCATION AND VICINITY PLAN

SHEET
REFERENCE
NUMBER:
**AF1081
C-002**

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CONTROL POINT SCHEDULE					
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION	DATUM
CP-1	3487132.776	770169.132	1007.75	CONCRETE COLUMN	*
CP-2	3487668.257	769226.491	1006.35	CONCRETE COLUMN	*

* SEE GENERAL NOTE 18 ON SHEET C-001 FOR DATUM INFORMATION



OVERALL SITE LOCATION PLAN
SCALE: 1:2500

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.

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SYMBOL	DESCRIPTION	DATE	PREPARED BY
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	DMG
A	FINAL DESIGN SUBMITTAL	10/05/10	DMG

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CHECKED BY:	DMT	FILE NO.:	AF1081--CS003PN

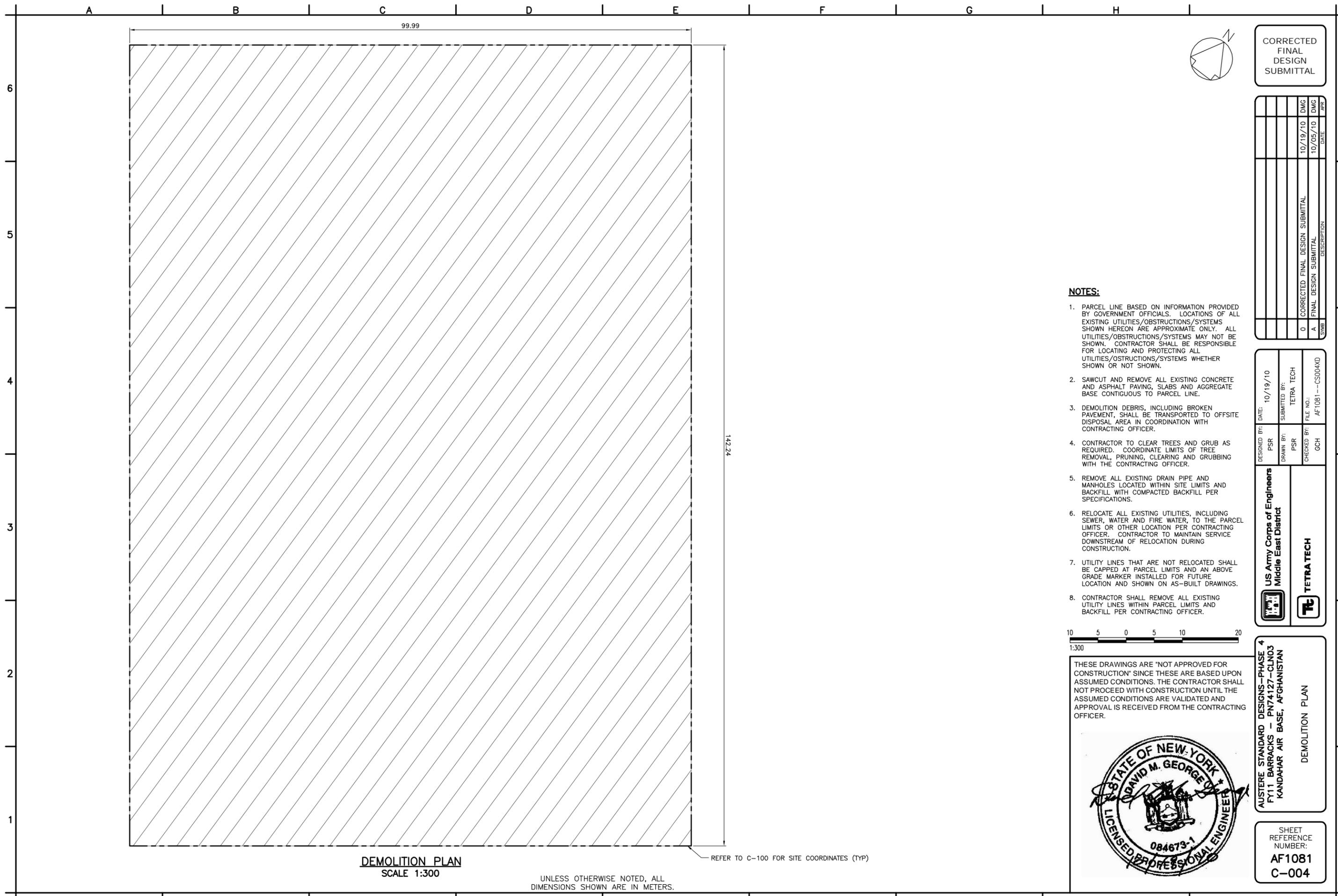
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AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN
 OVERALL SITE LOCATION PLAN

SHEET REFERENCE NUMBER:
 AF1081
 C-003

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DEMOLITION PLAN
SCALE 1:300

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.

REFER TO C-100 FOR SITE COORDINATES (TYP)

NOTES:

1. PARCEL LINE BASED ON INFORMATION PROVIDED BY GOVERNMENT OFFICIALS. LOCATIONS OF ALL EXISTING UTILITIES/OBSTRUCTIONS/SYSTEMS SHOWN HEREON ARE APPROXIMATE ONLY. ALL UTILITIES/OBSTRUCTIONS/SYSTEMS MAY NOT BE SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES/OBSTRUCTIONS/SYSTEMS WHETHER SHOWN OR NOT SHOWN.
2. SAWCUT AND REMOVE ALL EXISTING CONCRETE AND ASPHALT PAVING, SLABS AND AGGREGATE BASE CONTIGUOUS TO PARCEL LINE.
3. DEMOLITION DEBRIS, INCLUDING BROKEN PAVEMENT, SHALL BE TRANSPORTED TO OFFSITE DISPOSAL AREA IN COORDINATION WITH CONTRACTING OFFICER.
4. CONTRACTOR TO CLEAR TREES AND GRUB AS REQUIRED. COORDINATE LIMITS OF TREE REMOVAL, PRUNING, CLEARING AND GRUBBING WITH THE CONTRACTING OFFICER.
5. REMOVE ALL EXISTING DRAIN PIPE AND MANHOLES LOCATED WITHIN SITE LIMITS AND BACKFILL WITH COMPACTED BACKFILL PER SPECIFICATIONS.
6. RELOCATE ALL EXISTING UTILITIES, INCLUDING SEWER, WATER AND FIRE WATER, TO THE PARCEL LIMITS OR OTHER LOCATION PER CONTRACTING OFFICER. CONTRACTOR TO MAINTAIN SERVICE DOWNSTREAM OF RELOCATION DURING CONSTRUCTION.
7. UTILITY LINES THAT ARE NOT RELOCATED SHALL BE CAPPED AT PARCEL LIMITS AND AN ABOVE GRADE MARKER INSTALLED FOR FUTURE LOCATION AND SHOWN ON AS-BUILT DRAWINGS.
8. CONTRACTOR SHALL REMOVE ALL EXISTING UTILITY LINES WITHIN PARCEL LIMITS AND BACKFILL PER CONTRACTING OFFICER.



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SYMBOL	DESCRIPTION	DATE	BY
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	DMG
A	FINAL DESIGN SUBMITTAL	10/05/10	DMG

DESIGNED BY: PSR	DATE: 10/19/10
DRAWN BY: PSR	SUBMITTED BY: TETRA TECH
CHECKED BY: GCH	FILE NO.: AF1081--CS004XD

US Army Corps of Engineers
Middle East District

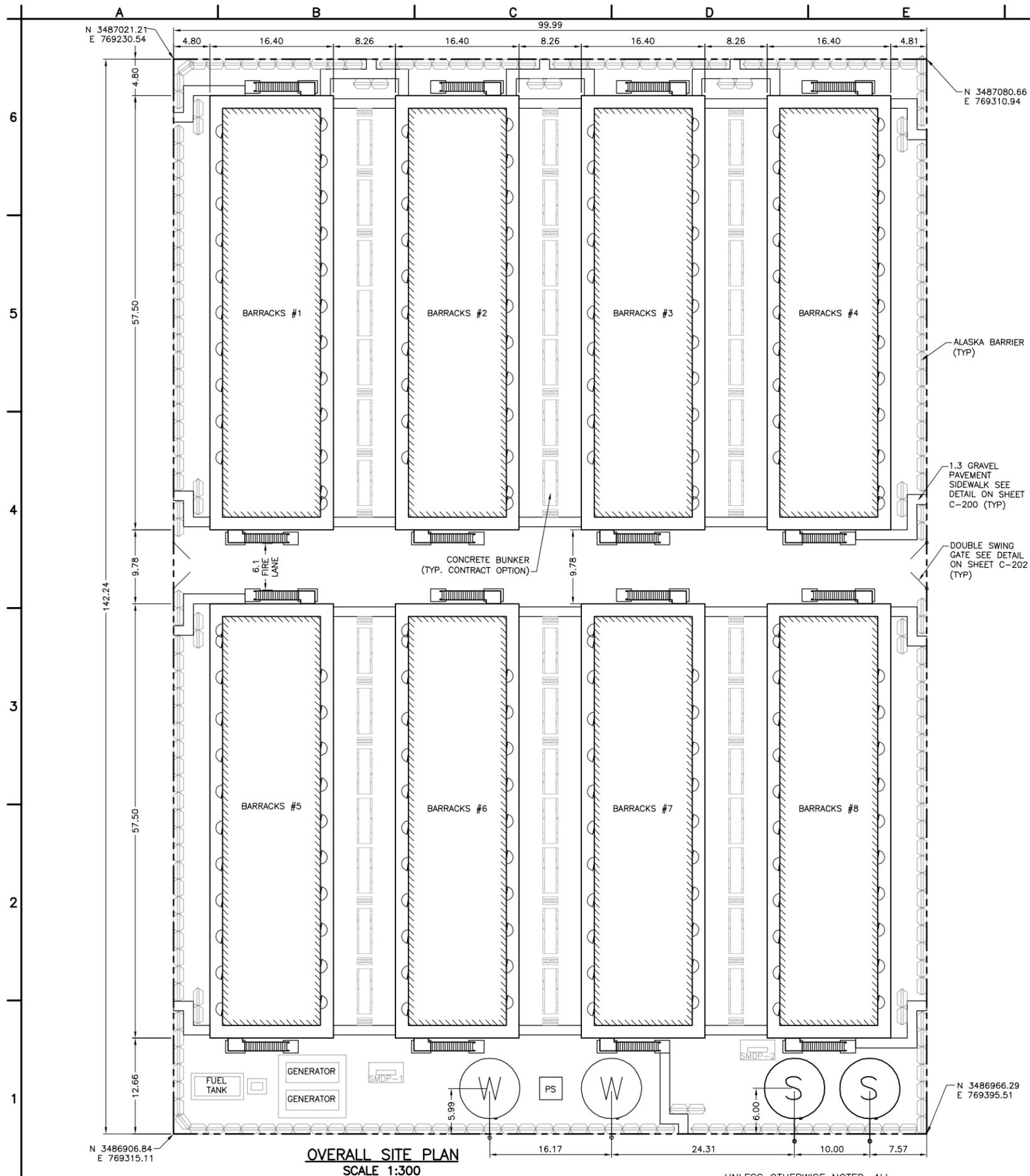
TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

DEMOLITION PLAN

SHEET REFERENCE NUMBER:
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OVERALL SITE PLAN
SCALE 1:300

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PSR	SUBMITTED BY:	TETRA TECH
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PSR	GCH	

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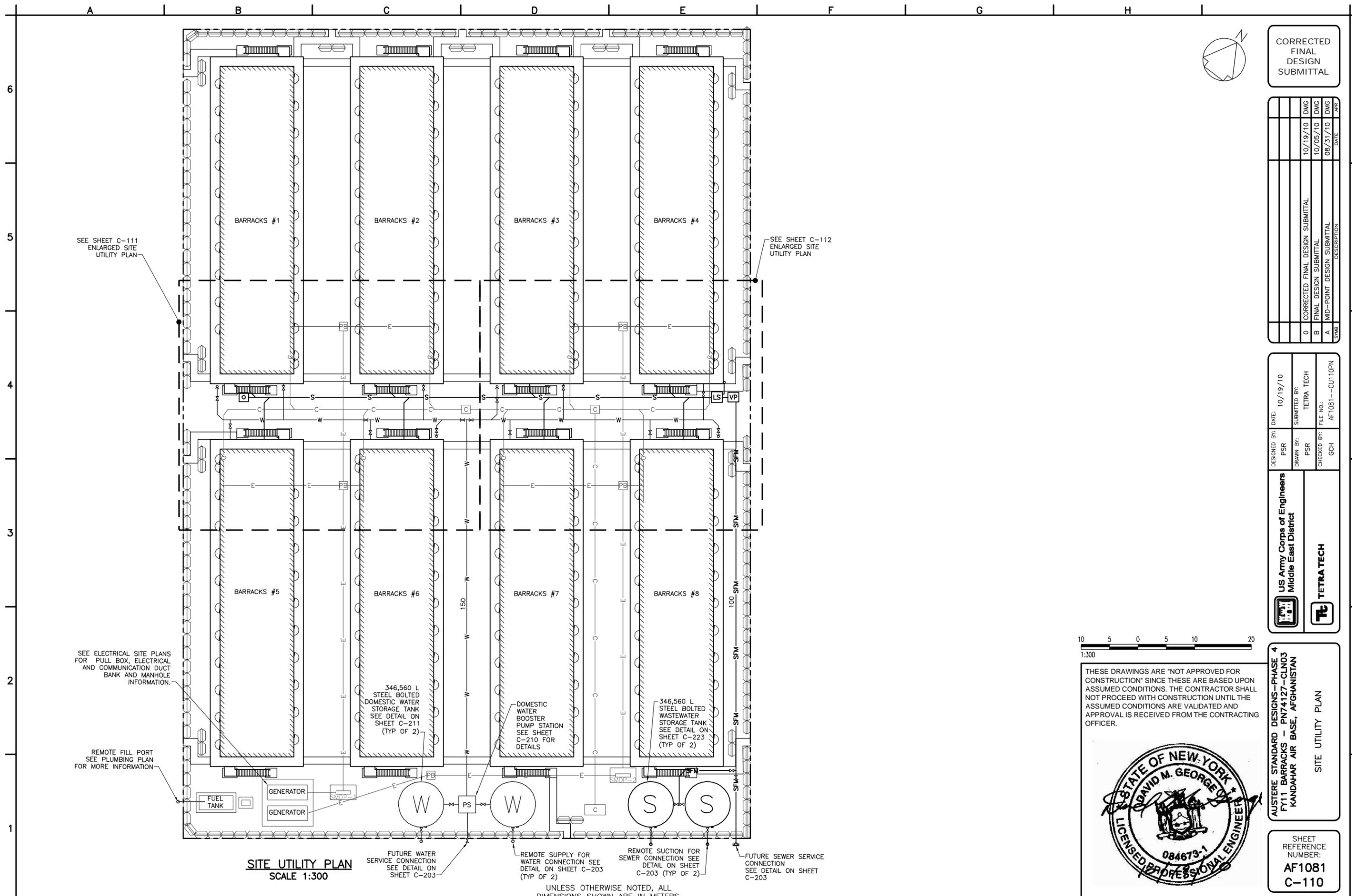


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

OVERALL SITE PLAN

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SEE SHEET C-111 ENLARGED SITE UTILITY PLAN

SEE SHEET C-112 ENLARGED SITE UTILITY PLAN

SEE ELECTRICAL SITE PLANS FOR PULL BOX, ELECTRICAL AND COMMUNICATION DUCT BANK AND MANHOLE INFORMATION.

REMOTE FILL PORT SEE PLUMBING PLAN FOR MORE INFORMATION

SITE UTILITY PLAN SCALE 1:300

FUTURE WATER SERVICE CONNECTION SEE DETAIL ON SHEET C-203

REMOTE SUPPLY FOR WATER CONNECTION SEE DETAIL ON SHEET C-203 (TYP OF 2)

REMOTE SUCTION FOR SEWER CONNECTION SEE DETAIL ON SHEET C-203 (TYP OF 2)

FUTURE SEWER SERVICE CONNECTION SEE DETAIL ON SHEET C-203

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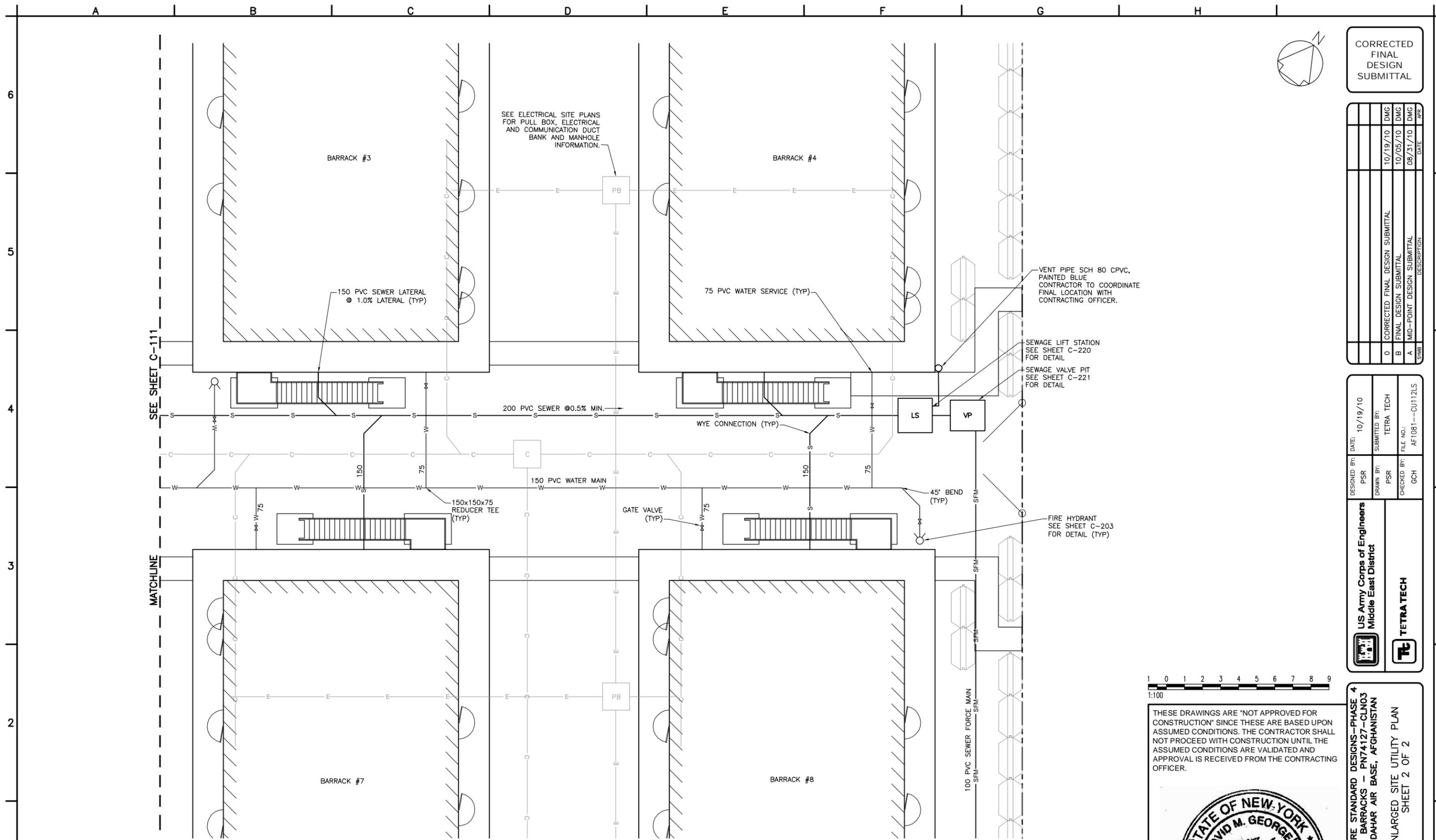


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

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SITE UTILITY PLAN

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ENLARGED SITE UTILITY PLAN
SCALE 1:100

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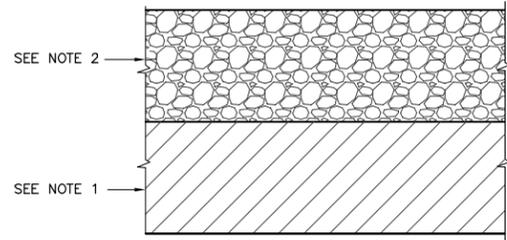


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

ENLARGED SITE UTILITY PLAN
SHEET 2 OF 2

SHEET REFERENCE NUMBER:
AF1081 C-112

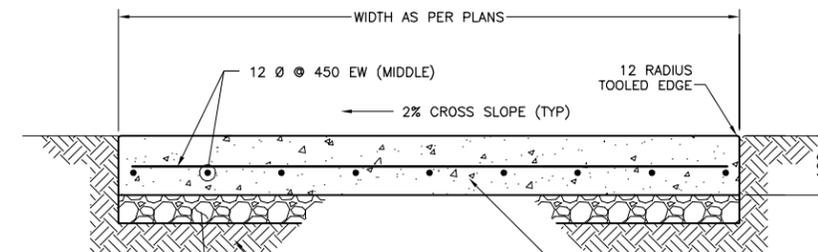
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NOTES:

1. SUB-GRADE SHALL BE UNDISTURBED NATIVE MATERIAL OR MINIMUM 150 OF COMPACTED (95%) SUBGRADE CONSISTING OF NATIVE MATERIAL WHERE FILL IS REQUIRED. PROOF ROLL PER GEOTECH REPORT.
2. 150 SURFACE COURSE FOR TRAFFICKED AREAS, 100 FOR NON-TRAFFICKED AREAS, TO BE COARSE AGGREGATE PER SPECIFICATION SECTION 32 15 00.
3. SIDEWALKS SHALL BE INSTALLED BETWEEN BUILDINGS AND EXISTING WALKWAYS AS SHOWN ON PLAN. SIDEWALK MATERIAL FOR BASE BID SHALL BE 150mm THICK COMPACTED GRAVEL; BID OPTION SHALL BE CONCRETE PER DETAIL.

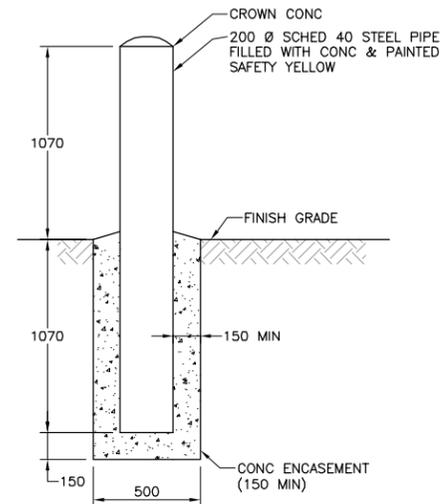
GRAVEL PAVEMENT SIDEWALK SECTION
N.T.S.



NOTES:

1. CONTROL JOINTS ARE TO BE AT 1800 INTERVALS, EXPANSION JOINTS EVERY 5400.
2. REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION AND CONTROL JOINTS ONLY.
3. REFER TO C-300 FOR CONCRETE AND REINFORCING NOTES.

CONCRETE SIDEWALK DETAIL (BID OPTION)
N.T.S.



NOTE:

REFER TO C-300 FOR CONCRETE NOTES.

BOLLARD DETAIL
N.T.S.

CORRECTED
FINAL
DESIGN
SUBMITTAL

SYMB	DESCRIPTION	DATE	PR
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	DMG
B	FINAL DESIGN SUBMITTAL	10/05/10	DMG
A	MID-POINT DESIGN SUBMITTAL	08/31/10	DMG

DESIGNED BY:	DATE:	10/19/10
PSR	SUBMITTED BY:	TETRA TECH
DRAWN BY:	FILE NO.:	AF1081--CS2000T
PSR	GCH	

US Army Corps of Engineers
Middle East District

TETRA TECH

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TYPICAL SITE LAYOUT DETAILS
SHEET 1 OF 3

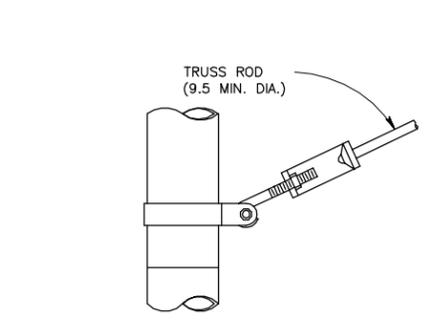
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AF1081
C-200

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

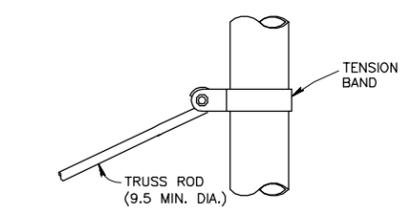
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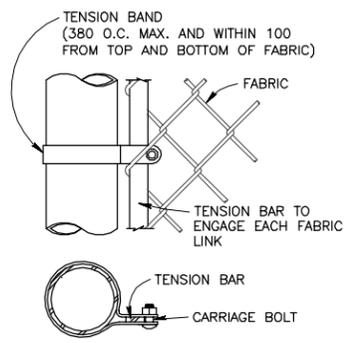
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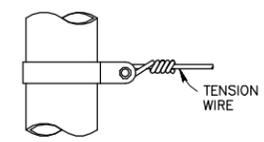
TRUSS ROD AND BAND



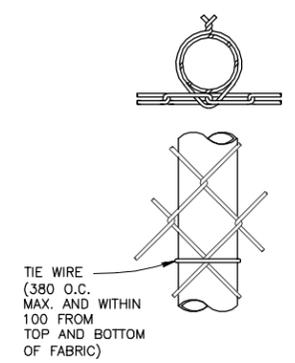
**ROUND POST
TRUSS ROD CONNECTION DETAIL**



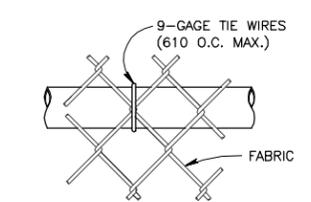
END OR GATE POST DETAIL



TENSION BAND DETAIL



ROUND POST ATTACHMENT



TOP OR BRACE RAIL ATTACHMENT

**FABRIC CONNECTION DETAILS
N.T.S.**

NOTES:

1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
2. WIRE TIES, RAILS, POSTS AND BRACES SHALL BE CONSTRUCTED ON THE ENCLOSED SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE OPPOSITE SIDE OF THE ENCLOSED AREA.
3. CHAIN LINK FENCE AND MATERIALS SHALL BE GALVANIZED STEEL.
4. THE FENCE SHALL BE IN ACCORDANCE WITH ASTM F567, F626 AND F1043.

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DRAWN BY:	PSR	FILE NO.:
GCH	GCH	AF1081--CS201DT

US Army Corps of Engineers
Middle East District

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TYPICAL SITE LAYOUT DETAILS
SHEET 2 OF 3

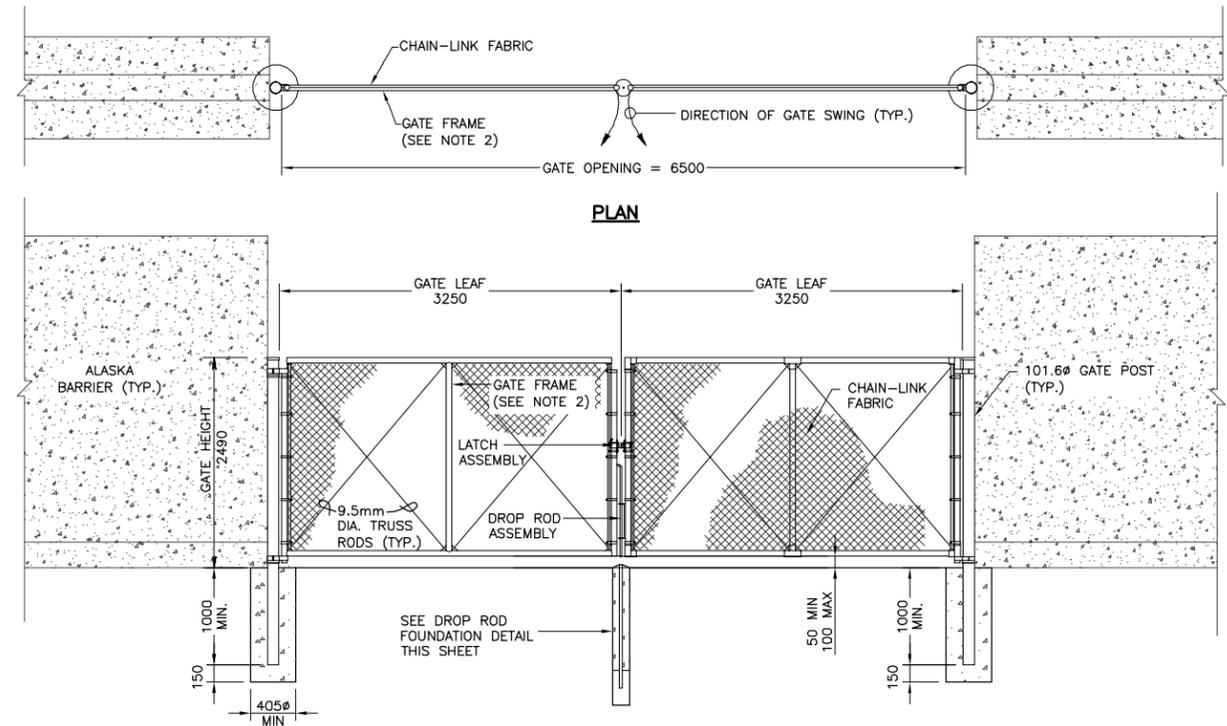
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REFERENCE
NUMBER:
**AF1081
C-201**

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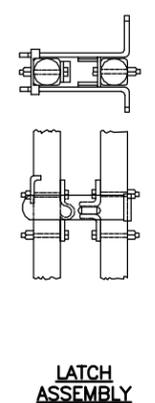
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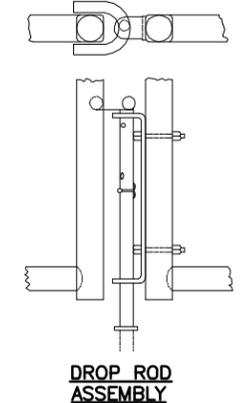
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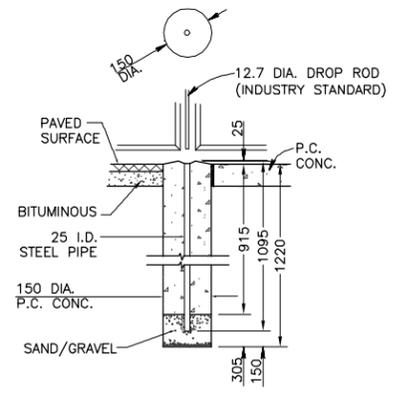
ELEVATION
DOUBLE SWING GATE
N.T.S.



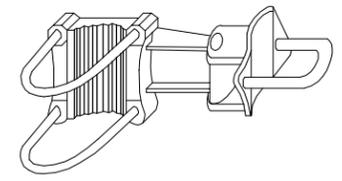
LATCH ASSEMBLY



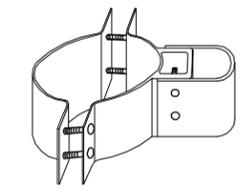
DROP ROD ASSEMBLY



DROP ROD FOUNDATION



OFFSET HINGE



STANDARD HINGE

SWING GATE DETAILS
N.T.S.

NOTES:

1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
2. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY, AND GATE KEEPERS EXCEPT AS NOTED.
3. ALL GATE FRAMES SHALL BE A MINIMUM 48.2 NOMINAL (ROUND) OR 50.8 NOMINAL (SQUARE). GATE FRAMES SHALL BE OF WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT THE CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.
4. CHAIN-LINK FABRIC AND MATERIALS SHALL BE PER THE SPECIFICATION.
5. REFER TO SHEET C-201 FOR FABRIC CONNECTION DETAILS.
6. REFER TO C-300 FOR CONCRETE NOTES.
7. CONTRACTOR SHALL VERIFY FOUNDATION DESIGN BASED ON GEOTECHNICAL INVESTIGATION AND ACTUAL FENCE SELECTED.

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DESIGN
SUBMITTAL

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DESIGNED BY:	PSR	DATE:	10/19/10
DRAWN BY:	PSR	SUBMITTED BY:	TETRA TECH
CHECKED BY:	GCH	FILE NO.:	AF1081--CS2020T

US Army Corps of Engineers
Middle East District

TETRA TECH

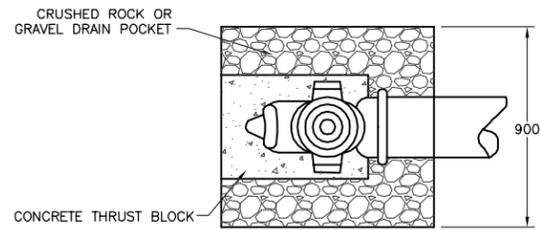
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TYPICAL SITE LAYOUT DETAILS
SHEET 3 OF 3

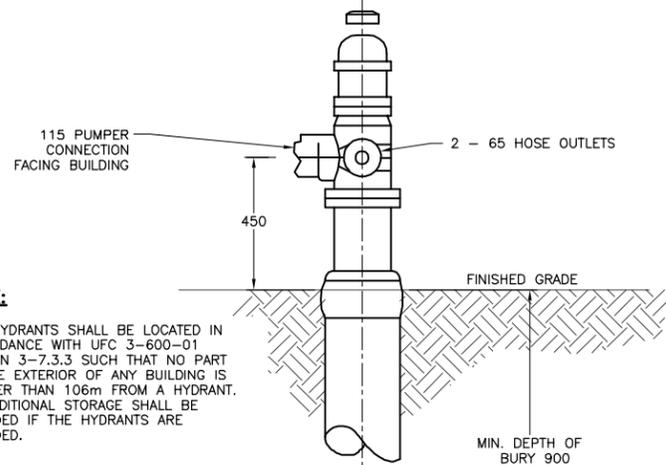
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AF1081 C-202

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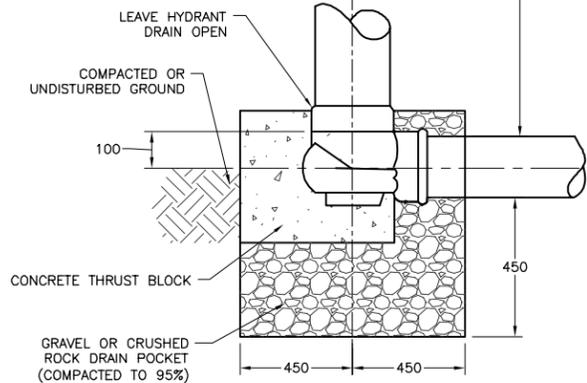


PLAN

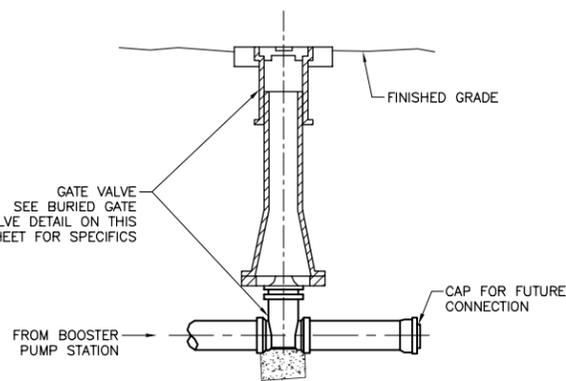


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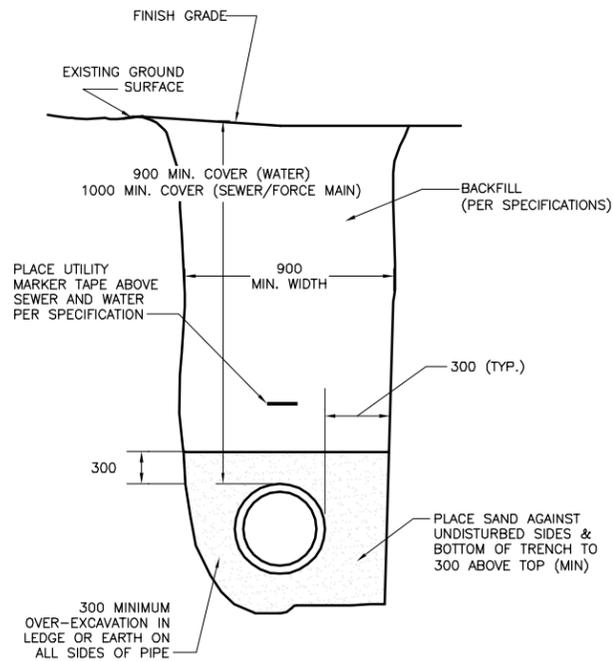
FIRE HYDRANTS SHALL BE LOCATED IN ACCORDANCE WITH UFC 3-600-01 SECTION 3-7.3.3 SUCH THAT NO PART OF THE EXTERIOR OF ANY BUILDING IS GREATER THAN 106m FROM A HYDRANT. NO ADDITIONAL STORAGE SHALL BE PROVIDED IF THE HYDRANTS ARE INCLUDED.



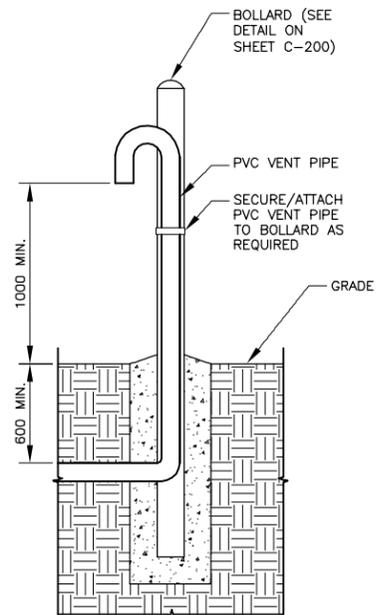
**FIRE HYDRANT
N.T.S.**



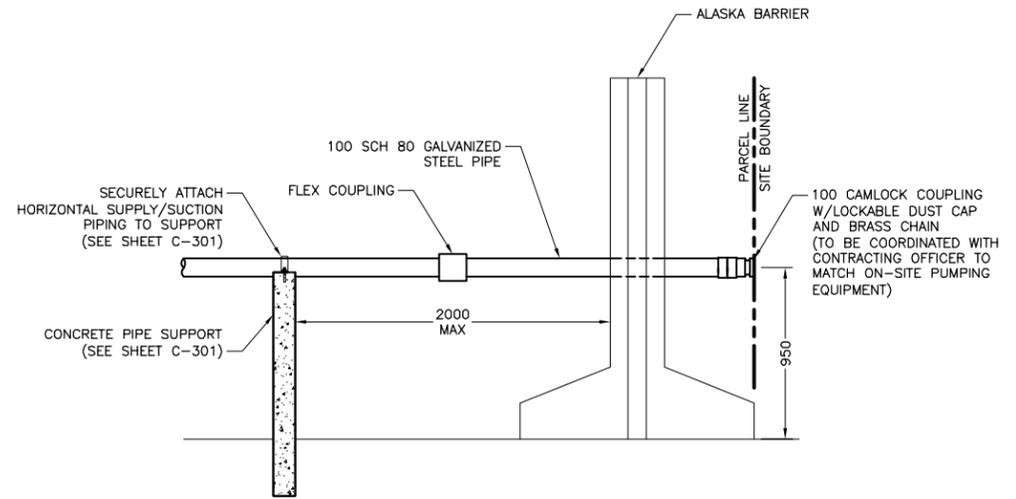
**FUTURE WATER
SERVICE CONNECTION
N.T.S.**



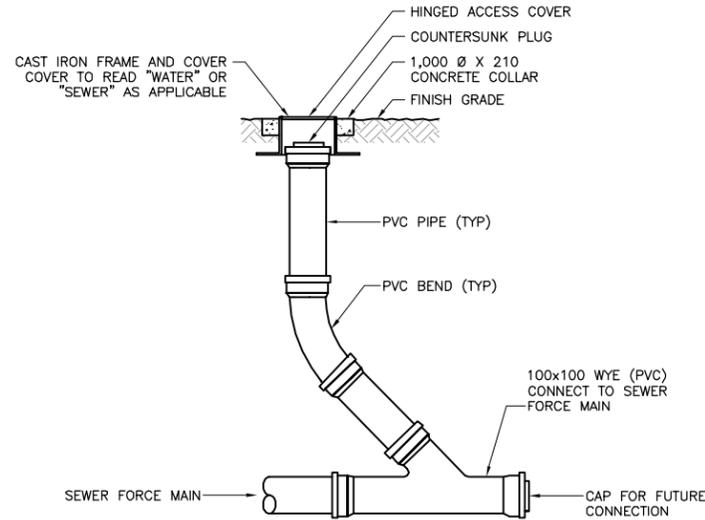
**PIPE TRENCH DETAIL
N.T.S.**



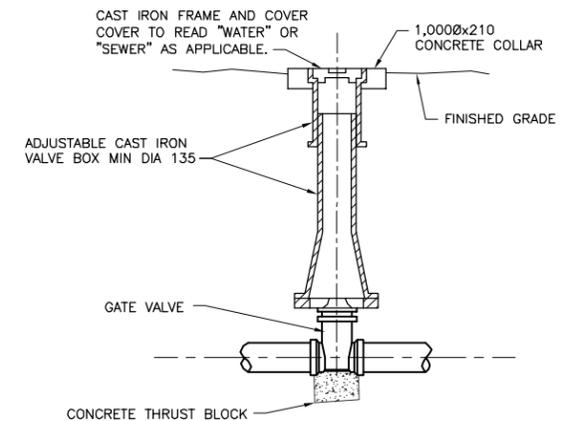
**VENT PIPE DETAIL
ATTACHED TO BOLLARD
N.T.S.**



**REMOTE SUPPLY/SUCTION FOR
WATER AND SEWER CONNECTIONS DETAIL
N.T.S.**



**IN-LINE
FUTURE SEWER
SERVICE CONNECTION
N.T.S.**



**BURIED GATE VALVE
N.T.S.**

NOTE:

1. REFER TO C-300 FOR CONCRETE NOTES.

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DRAWN BY:	PSR	
CHECKED BY:	GCH	
FILE NO.:	AF1081--CU2030T	

US Army Corps of Engineers
Middle East District

TETRA TECH

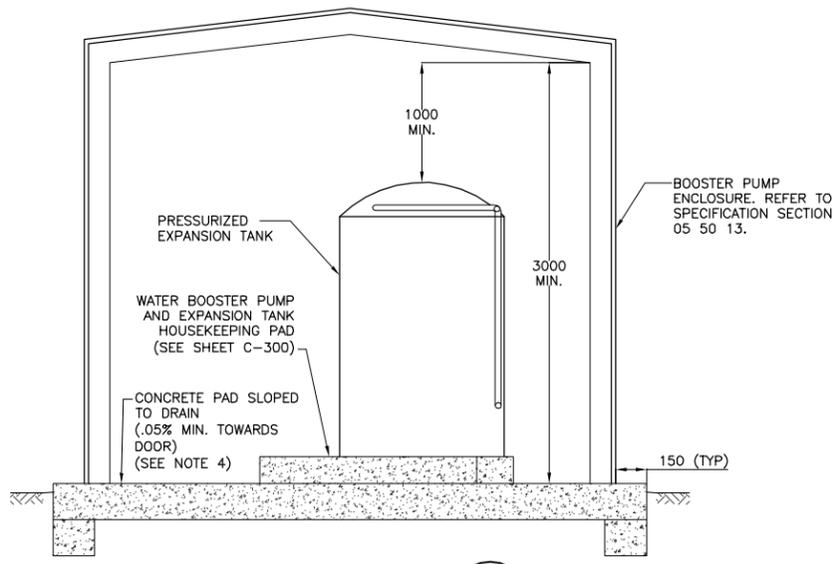
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TYPICAL SITE UTILITY DETAILS

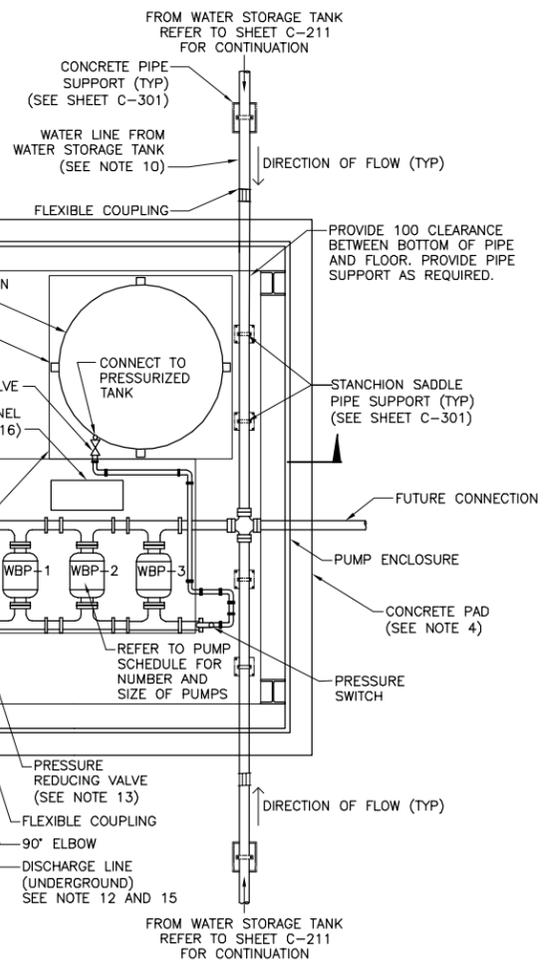
SHEET REFERENCE NUMBER:
**AF1081
C-203**

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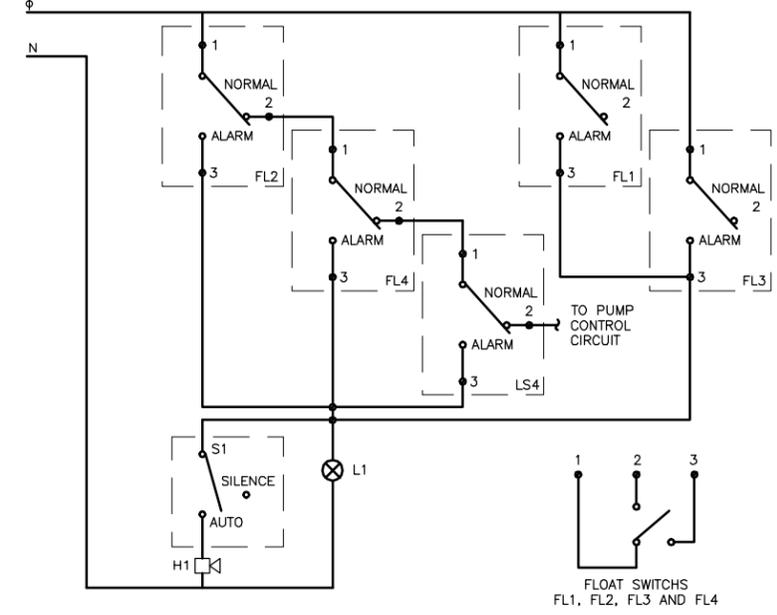
SECTION A
N.T.S. C-210 C-210



BOOSTER PUMP STATION PLAN
N.T.S.

CONTROL PANEL ALARM REPORTING

- FL1 - LOW LEVEL ALARM FLOAT SWITCH IN WATER STORAGE TANK
- FL2 - LOW LEVEL DOMESTIC SHUT OFF FLOAT SWITCH IN WATER STORAGE TANK
- FL3 - HIGH LEVEL ALARM FLOAT SWITCH IN WASTEWATER STORAGE TANK
- FL4 - HIGH LEVEL DOMESTIC PUMP SHUT OFF FLOAT SWITCH IN WASTEWATER STORAGE TANK
- LS4 - HIGH WATER ALARM/LAG PUMP ON FLOAT SWITCH IN SEWAGE LIFT STATION
- L1 - HIGH SEWAGE LEVEL/LOW WATER LEVEL INDICATOR LAMP (X) (MOUNTED TO EXTERIOR WALL OF BOOSTER PUMP STATION)
- H1 - HIGH SEWAGE LEVEL/LOW WATER LEVEL AUDIBLE ALARM (K) (MOUNTED TO EXTERIOR WALL OF BOOSTER PUMP STATION)
- S1 - AUTO/SILENCE SWITCH



ALARM FLOAT/SIGNALING SCHEMATIC DIAGRAM
N.T.S.

DOMESTIC WATER BOOSTER PUMP SCHEDULE								
NUMBER OF PUMPS	TYPE	RATING POINT PER PUMP				DISCH. SIZE	SUCT. SIZE	TYPE SEAL
		CAP. FLOW L/M	G/M	MIN. HEAD M.	MIN. HEAD FT.			
3	VER/CENT OR APPROVED EQUAL	946	250	36.1	118.5	150mm	SEE NOTE 10	MECH.

BOOSTER PUMP SYSTEM SEQUENCE OF OPERATIONS

- A. THE HAND/OFF/AUTO (HOA) SWITCHES FOR ALL PUMPS SHOULD BE MAINTAINED IN THE "AUTO" POSITION.
- B. WHEN THE WATER PRESSURE IN THE PRESSURIZED EXPANSION TANK DROPS BELOW THE "CUT-IN" SET POINT OF PRESSURE SWITCH PS-1, IT CLOSSES AND LOAD SHARING RELAY MCR CAUSES THE FIRST BOOSTER PUMP TO RUN AND THE "PUMP RUN" INDICATION LAMP FOR THAT PUMP TO ILLUMINATE.
- C. WHEN PRESSURE SWITCH PS-1 SENSES THAT THE PRESSURE IN THE TANK HAS REACHED ITS "CUT-OUT" PRESSURE, THE SWITCH OPENS AND LOAD SHARING RELAY MCR SHUTS DOWN THE PUMP AND THE "PUMP RUN" LAMP EXTINGUISHES.
- D. FOR EACH CLOSURE OF PRESSURE SWITCH PS-1, THE LOAD SHARING RELAY WILL ELECTRONICALLY ALTERNATE WHICH PUMP STARTS FIRST (LEAD PUMP).
- E. IF THE WATER PRESSURE IN THE PRESSURIZED TANK CONTINUES TO DROPS BELOW THE "CUT-IN" SET POINT OF PS-1, PRESSURE SWITCH PS-2 CLOSSES AT ITS "CUT-IN" SET POINT AND LOAD SHARING RELAY MCR CAUSES THE SECOND BOOSTER PUMP TO ALSO RUN AND THE "PUMP RUN" INDICATION LAMP FOR THAT PUMP TO ILLUMINATE.
- F. WHEN PRESSURE SWITCH PS-2 SENSES THAT THE PRESSURE IN THE TANK HAS REACHED ITS "CUT-OUT" PRESSURE, THE SWITCH OPENS AND LOAD SHARING RELAY MCR SHUTS DOWN THE PUMP AND THE "PUMP RUN" LAMP EXTINGUISHES, WHILE THE FIRST PUMP CONTINUES TO RUN UNTIL PS-1 IS SATISFIED.
- G. IF THE FLOAT SWITCH FL1 IN THE WATER STORAGE TANK SENSES A LOW WATER LEVEL CONDITION, IT SHUTS DOWN BOTH BOOSTER PUMPS BY INTERRUPTING THE CONTROL CIRCUIT AND CAUSES THE "LOW LEVEL" INDICATION LAMP TO ILLUMINATE AND AUDIBLE ALARM TO SOUND. WHEN THE WATER LEVEL RISES TO A SAFE LEVEL, FLOAT SWITCH FL1 CLOSSES THE CONTROL CIRCUIT, ALLOWING NORMAL OPERATION TO RESUME.
- H. IF THE FLOAT SWITCH FL2 IN THE WASTEWATER STORAGE TANK SENSES A HIGH LEVEL CONDITION, IT SHUTS DOWN BOTH BOOSTER PUMPS BY INTERRUPTING THE CONTROL CIRCUIT AND CAUSES THE "HIGH SEWAGE LEVEL" INDICATION LAMP TO ILLUMINATE AND THE AUDIBLE ALARM TO SOUND. WHEN THE LEVEL IN THE WASTEWATER STORAGE TANK RETURNS TO A SAFE LEVEL, FLOAT SWITCH FL2 CLOSSES THE CONTROL CIRCUIT, ALLOWING NORMAL OPERATION TO RESUME.
- I. IF EITHER PUMP OVERLOAD RELAY, OL-1 OR OL-2 SENSES AN OVERLOAD CONDITION IN THE PUMP IT PROTECTS, IT WILL OPEN THE APPROPRIATE CONTROL CIRCUIT CAUSING THAT PUMP TO SHUT DOWN. THE "PUMP TRIP" INDICATION LAMP WILL ILLUMINATE. THE PUMP WILL REMAIN OFF UNTIL THE OVERLOAD RELAY IS MANUALLY RESET, RESTORING THE CONTROL CIRCUIT AND EXTINGUISHING THE INDICATION LAMP.
- J. IF FLOAT SWITCH FL1 SENSES A LOW WATER LEVEL CONDITION IT SOUNDS THE REMOTE ALARM LOCATED IN THE BOOSTER PUMP STATION. SWITCH S1 ALLOWS THE ALARM TO BE SILENCED.
- K. PROVIDE REMOTE HORN IN LINE TO REPORT FL1 AND FL2 ALARM CONDITION.

NOTES:

1. DELIVERY AT BUILDING REQUIRES A FLOW OF 15.8 LPS (250 GPM) AT A PRESSURE OF 345 kPa (50 PSI).
2. PUMPS, PUMP CONTROLS, ETC. SHALL BE DESIGNED TO ACCOMMODATE ANY ENVIRONMENTAL CONDITIONS THAT THE SITE WILL BE EXPECTED TO EXPERIENCE. THIS INCLUDES PROVIDING A HEATED ENCLOSURE WITH VENTILATION IF NECESSARY. CONTRACTOR TO PROVIDE HEATING AND VENTILATION AS PER CLIMATIC DATA AND INTERIOR DESIGN CONDITIONS DESCRIBED IN GENERAL NOTES ON SHEET M-001.
3. CONTRACTOR SHALL PROVIDE CERTIFICATION FROM THE PUMP MANUFACTURER THAT THE PUMP AND MOTOR SELECTED WILL OPERATE AS DESIGNED UNDER THE EXTREMES OF THE ENVIRONMENTAL CONDITIONS (POTENTIAL TEMPERATURES EXCEEDING 50°C AT THE SITE).
4. CONTRACTOR TO PROVIDE FINAL DESIGN OF CONCRETE SUPPORT SLAB BASED ON PROVIDED PUMP SKID, EXPANSION TANK, ENCLOSURE DIMENSIONS, SUPPORT REQUIREMENTS AND SITE SPECIFIC GEOTECHNICAL REPORT. CONCRETE SLAB IS TO BE SLOPED IN THE DIRECTION OF THE DOOR OPENING TO ENSURE POSITIVE DRAINAGE. FOR APPROXIMATE PAD SIZE AND REINFORCEMENT, SEE SHEET C-300.
5. THE VOLUME OF THE PRESSURIZED EXPANSION TANK AND OPERATING PRESSURE RANGE WILL BE SIZED BY THE PACKAGED WATER BOOSTER PUMP MANUFACTURER TO BE CONSISTENT WITH THE PUMP OPERATIONAL CONTROL SETTINGS.
6. ALL COMPONENTS OF WATER BOOSTER PUMP SYSTEM, INCLUDING PUMPS, PRESSURE EXPANSION TANK AND CONTROL PANEL, SHALL BE COMPATIBLE WITH ONE ANOTHER. ISOLATION VALVES SHALL BE PROVIDED TO FACILITATE PUMP MAINTENANCE.
7. CONTRACTOR SHALL COORDINATE THE BOOSTER PUMP MOTOR DESIGN WITH THE AVAILABLE ELECTRIC POWER SUPPLY.
8. FOR ALL ELECTRICAL SYSTEMS SEE ELECTRICAL DRAWINGS.
9. COORDINATE ALL SLAB PENETRATIONS PRIOR TO POURING SLAB.
10. CONTRACTOR TO ENSURE SUCTION LINE SIZE IS CAPABLE OF SUPPLYING WATER USAGE AS REQUIRED FOR PUMPS AS STIPULATED IN THE DOMESTIC WATER BOOSTER PUMP SCHEDULE.
11. DOMESTIC WATER PUMPS TO TERMINATE WHEN EITHER WASTEWATER STORAGE TANK OR SEWER LIFT STATION HIGH LEVEL FLOAT IS ACTIVATED OR WHEN DOMESTIC WATER STORAGE TANK LOW LEVEL ALARM IS ACTIVATED.
12. ALL PIPING ABOVE GRADE SHALL BE GALVANIZED STEEL OR DUCTILE IRON AND ALL PIPE JOINTS ABOVE GRADE TO BE PER SPECIFICATIONS. ALL PIPE JOINTS BELOW GRADE TO BE MECHANICALLY RESTRAINED OR THRUST BLOCKS WILL BE PROVIDED.
13. A PRESSURE REDUCING VALVE SHALL BE PROVIDED BY THE CONTRACTOR BASED ON THE RECOMMENDATIONS OF THE PUMP MANUFACTURER AND THE SERVICE PRESSURE REQUIREMENTS OF THE RECEIVING FACILITY. REFER TO SPECIFICATIONS SECTION 33 11 00 FOR ADDITIONAL INFORMATION.
14. ALL VALVES ABOVE GRADE SHALL BE DUCTILE IRON, FLANGED JOINT.
15. CONTRACTOR SHALL ENSURE THAT TOP OF FOOTING IS A MINIMUM OF 150 BELOW BOTTOM OF PIPE. CONTRACTOR SHALL STEP FOOTING IF REQUIRED.
16. MAINTAIN 1000mm CLEARANCE IN FRONT OF CONTROL PANEL.

CORRECTED FINAL DESIGN RE-ISSUED

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0	CORRECTED FINAL DESIGN RE-ISSUED	12/02/10	DMG
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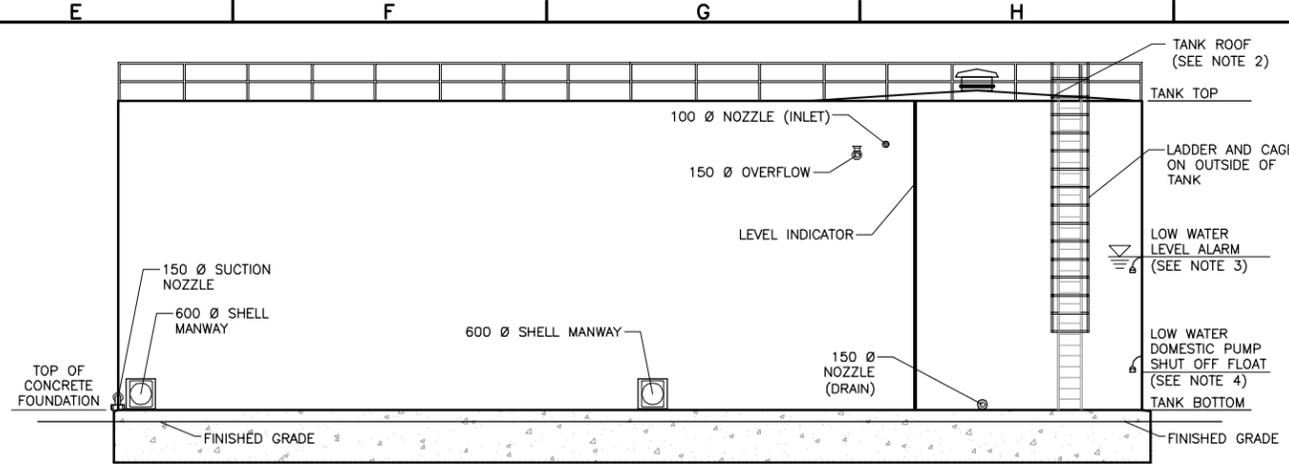
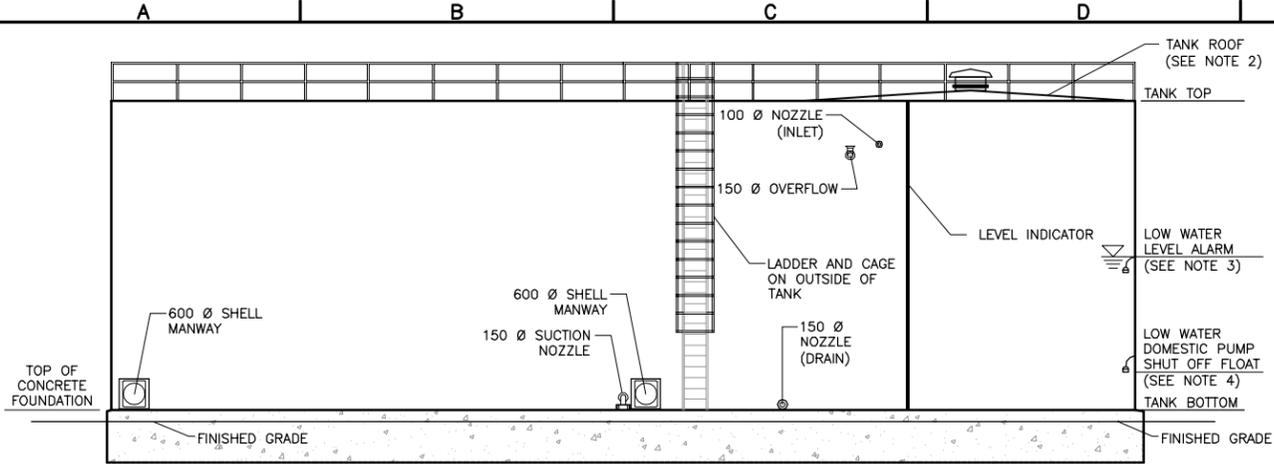
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

WATER BOOSTER PUMP STATION
PLAN, SECTION AND DETAILS

SHEET REFERENCE NUMBER:
AF1081 C-210

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

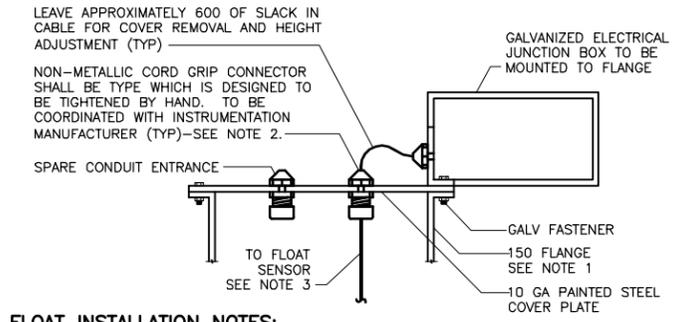
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- NOTES:**
- CONTRACTOR TO ENSURE SUCTION LINE SIZE IS CAPABLE OF SUPPLYING WATER USAGE AS REQUIRED FOR PUMPS AS STIPULATED IN THE DOMESTIC WATER BOOSTER PUMP SCHEDULE.
 - ALL EXPOSED PIPE SURFACES TO BE PROTECTED WITH PAINT. FINISH COAT TO BE BLUE.
 - CONTRACTOR SHALL SET LOW WATER LEVEL ALARM TO PROVIDE 2 HOURS OF USABLE VOLUME (28,880 LITERS).
 - CONTRACTOR SHALL SET LOW WATER DOMESTIC PUMP SHUT OFF FLOAT 150 ABOVE SUCTION PIPE.
 - TANK SIZES ARE BASED ON PERSON USAGE NOT FIRE PROTECTION.

TANK 1 TYPICAL ROLLOUT
(SHOWN FROM INSIDE OF TANK LOOKING OUT)
N.T.S.

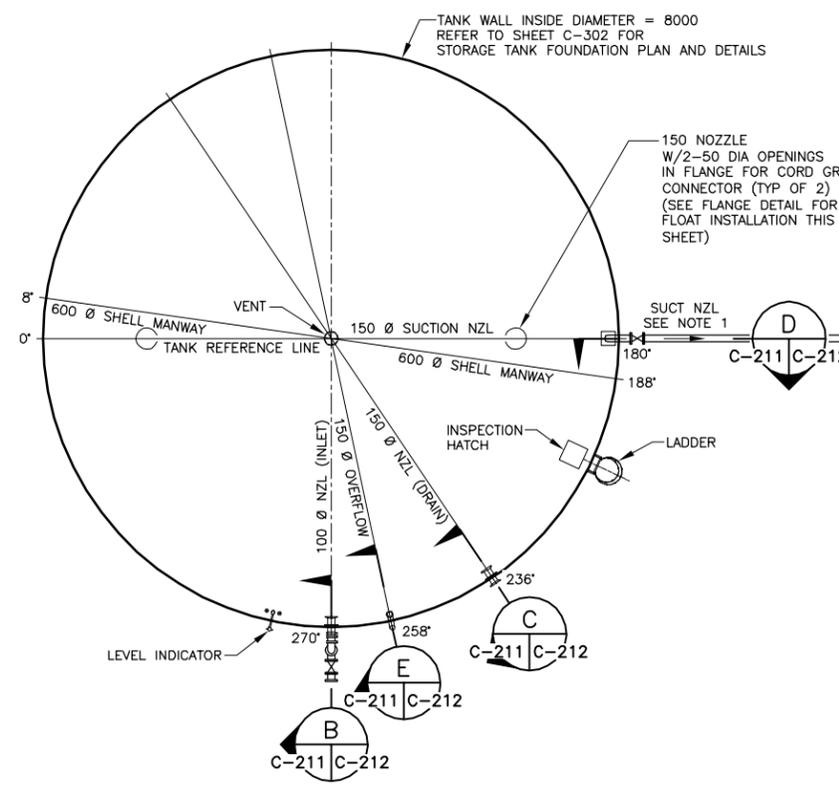
TANK 2 TYPICAL ROLLOUT
(SHOWN FROM INSIDE OF TANK LOOKING OUT)
N.T.S.



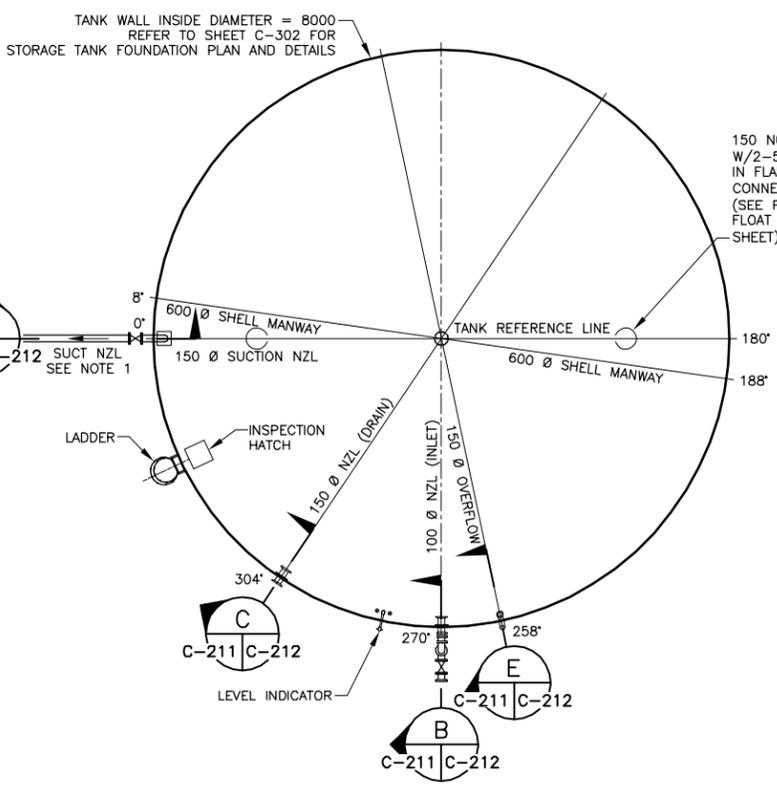
FLOAT INSTALLATION NOTES:

- COORDINATE MOUNTING REQUIREMENTS WITH TANK MANUFACTURERS RECOMMENDATIONS.
- LAYOUT SHOWN IS REPRESENTATIVE OF A SUBMERSIBLE PRESSURE SENSOR CONFIGURATION. INSTALLATION OF AN ULTRA SONIC PRESSURE SENSOR CONFIGURATION IS ALSO ACCEPTABLE.
- PROVIDE SUFFICIENT CABLE LENGTH TO ACCOMMODATE FLOAT ADJUSTMENT TO THE BOTTOM OF TANKS IF NECESSARY.

FLANGE DETAIL FOR FLOAT INSTALLATION
N.T.S.



346,560 L (91,551 GALLON)
WATER STORAGE TANK 1
N.T.S.



346,560 L (91,551 GALLON)
WATER STORAGE TANK 2
N.T.S.

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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NO.	DESCRIPTION	DATE	BY
0	CORRECTED FINAL DESIGN RE-ISSUED	12/02/10	DMG
1	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	DMG
2	FINAL DESIGN SUBMITTAL	10/05/10	DMG
3	MID-POINT DESIGN SUBMITTAL	08/31/10	DMG

DESIGNED BY:	DATE:	12/02/10
DRAWN BY:	PSR	
CHECKED BY:	PSR	
FILE NO.:	AF1081--CU211DT	
DATE:	12/02/10	
SUBMITTED BY:	TETRA TECH	
CHECKED BY:	GCH	

US Army Corps of Engineers
Middle East District

TETRA TECH

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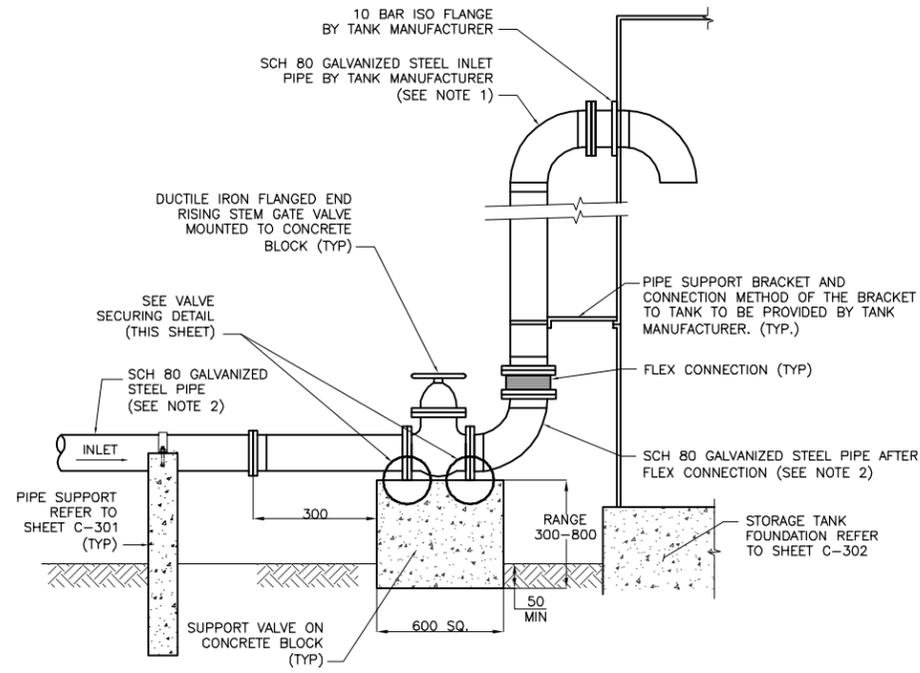


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

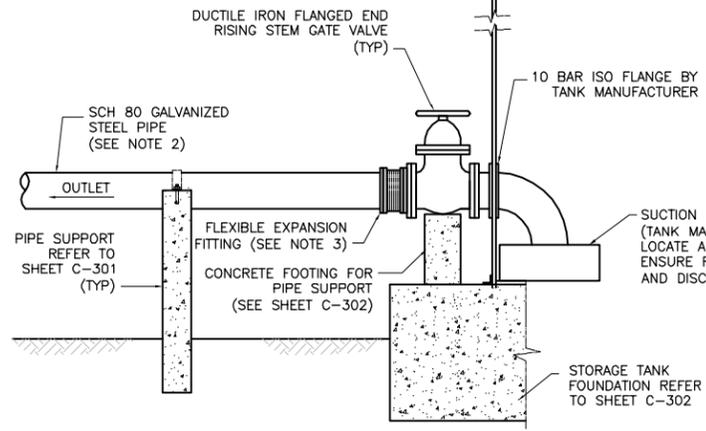
WATER STORAGE TANK
PLAN AND DETAILS

SHEET REFERENCE NUMBER:
AF1081
C-211

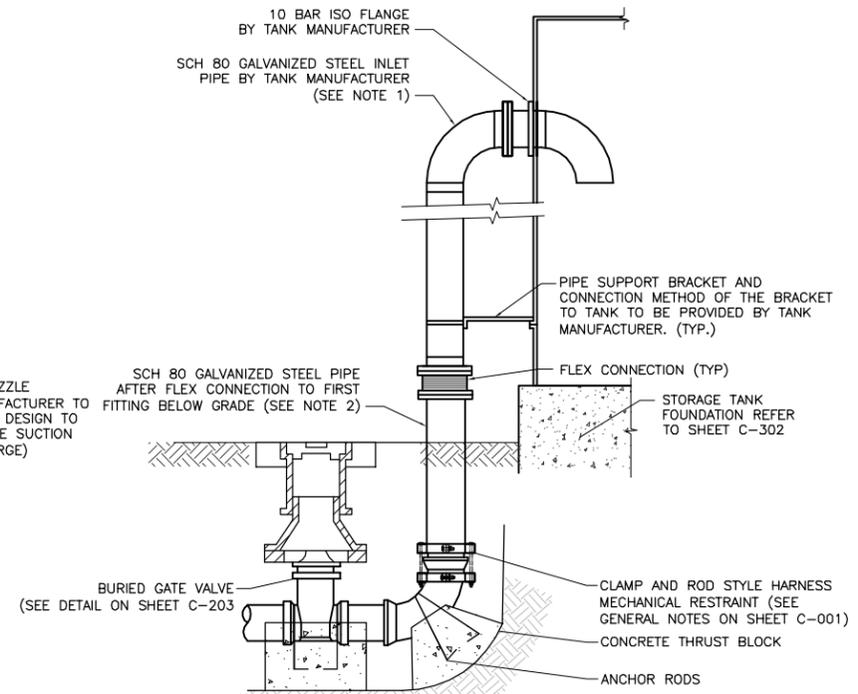
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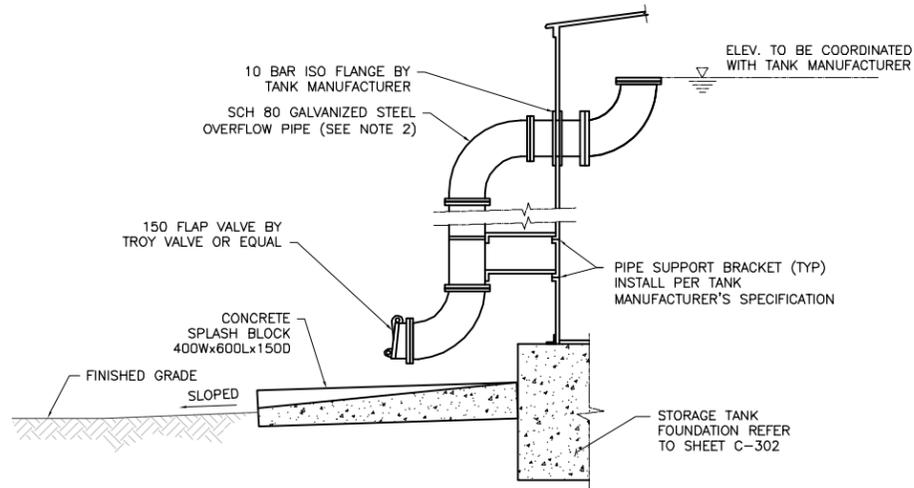
WATER TANK INLET DETAIL (B)
N.T.S. C-211, C-212



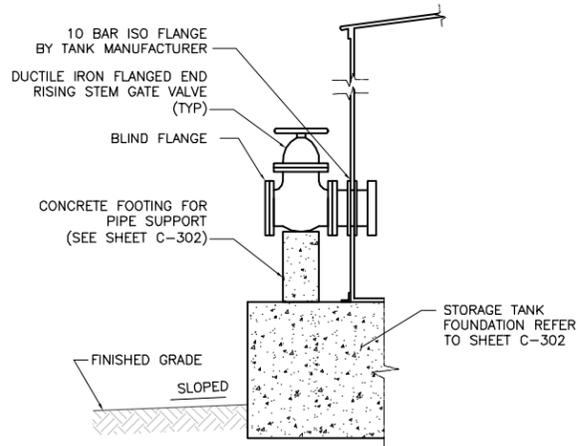
TANK SUCTION DETAIL (D)
N.T.S. C-211, 223, C-212



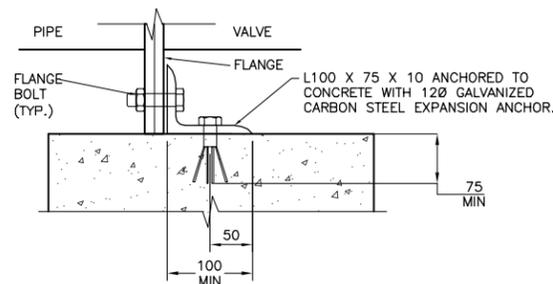
WASTEWATER TANK INLET DETAIL (A)
N.T.S. C-223, C-212



TANK OVERFLOW DETAIL (E)
N.T.S. C-211, 223, C-212



TANK DRAIN DETAIL (C)
N.T.S. C-211, 223, C-212



VALVE SECURING DETAIL
N.T.S.

- NOTES:**
- ELEVATION OF TANK PENETRATIONS AND TANK FILL AND OUTLET PIPES TO BE COORDINATED WITH TANK MANUFACTURER'S REQUIREMENTS.
 - ALL EXPOSED PIPE TO BE PROTECTED WITH PAINT. FINISH COAT TO BE BLUE.
 - PROVIDE FLEXIBLE EXPANSION FITTING TO ACCOMMODATE APPROXIMATELY 38 TO 50 OF SETTLEMENT. FITTING TO BE RESISTANT TO UV EXPOSURE AND COMPLY WITH PIPE TESTING REQUIREMENTS AS STATED IN SPECIFICATIONS.
 - VICTAULIC TYPE FITTINGS MAY BE SUBSTITUTED FOR FLANGED CONNECTIONS.
 - ELEVATIONS OF ALL TANK APPURTENANCES ARE CENTERLINE OF FIXTURE. LOCATIONS TO BE COORDINATED WITH THE TANK MANUFACTURER.
 - REFER TO SHEETS C-110, C-111, AND C-112 FOR PIPING LAYOUT.



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4	DESIGN		PSR

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PSR	SUBMITTED BY:	TETRA TECH
DRAWN BY:	PSR	FILE NO.:
AF1081-1-CU212DT	GCH	

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

WATER AND WASTEWATER STORAGE TANK PIPE DETAILS

SHEET REFERENCE NUMBER:
AF1081 C-212

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CHECKED BY:	GCH	FILE NO.:	AF1081--CU220SE

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

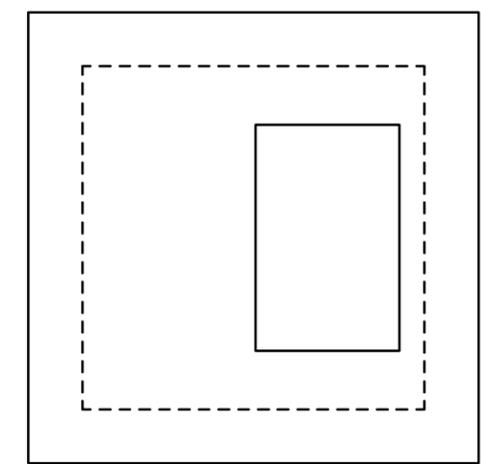
SEWAGE LIFT STATION
PLAN AND SECTIONS

SHEET
REFERENCE
NUMBER:
**AF1081
C-220**

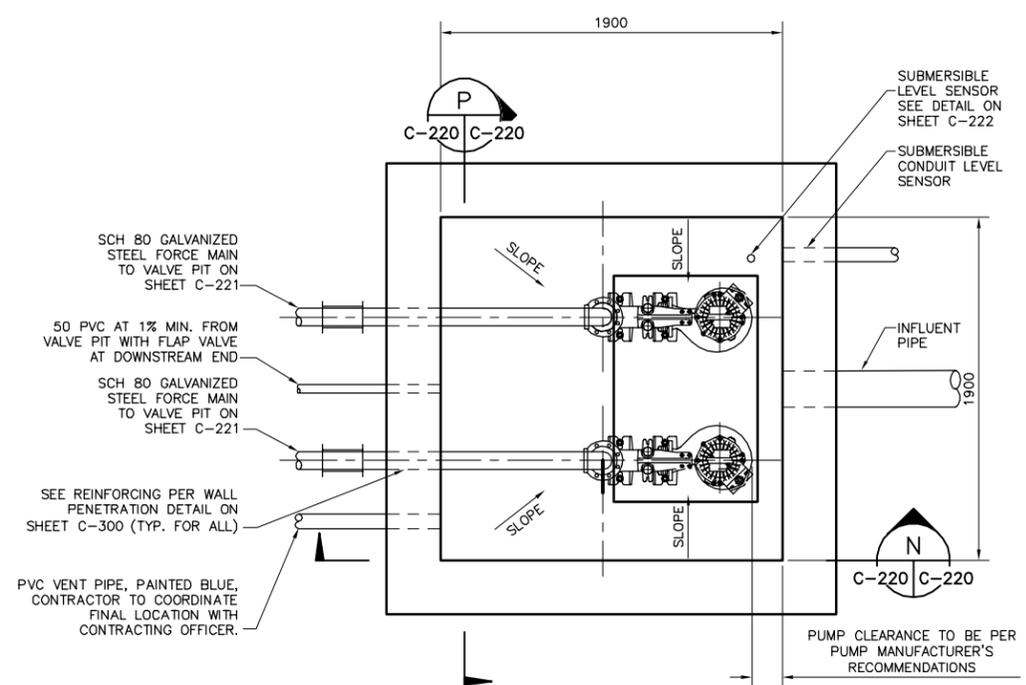
NO. REQ.D	TYPE	RATING POINT		MIN. DISCH SIZE	TYPE SEAL
		CAP. l/s (GPM)	MIN. HEAD m (FT.)		
2	GRINDER	16.2 (257)	20.5 (67.25)	100	TANDEM MECH.

- NOTES:**
- SEE SHEET C-303 FOR STRUCTURAL DETAILS.
 - ALL PIPES AND FITTINGS INSIDE STATION TO BE SCH 80 GALVANIZED STEEL WITH THREADED JOINTS.
 - CONTRACTOR SHALL INSTALL PUMPS AND PIPING TO ALLOW SUFFICIENT CLEARANCE FOR REMOVAL OF PUMPS THROUGH ACCESS HATCH.
 - PIPE HANGERS, SUPPORTS, CLAMPS OR OTHER MISCELLANEOUS METAL COMPONENTS INSTALLED WITHIN THE PUMP STATION SHALL BE MANUFACTURED OF CORROSIVE RESISTANT METAL AND PER MANUFACTURERS RECOMMENDATIONS.
 - CONTRACTOR TO PERFORM BUOYANCY CALCULATIONS ON ALL UNDERGROUND TANKS BASED ON GEOTECHNICAL REPORT RECOMMENDED HIGH GROUND WATER ELEVATION.
 - PUMP STATION DEPTH AND CONTROL SETTINGS TO BE DETERMINED BY CONTRACTOR.

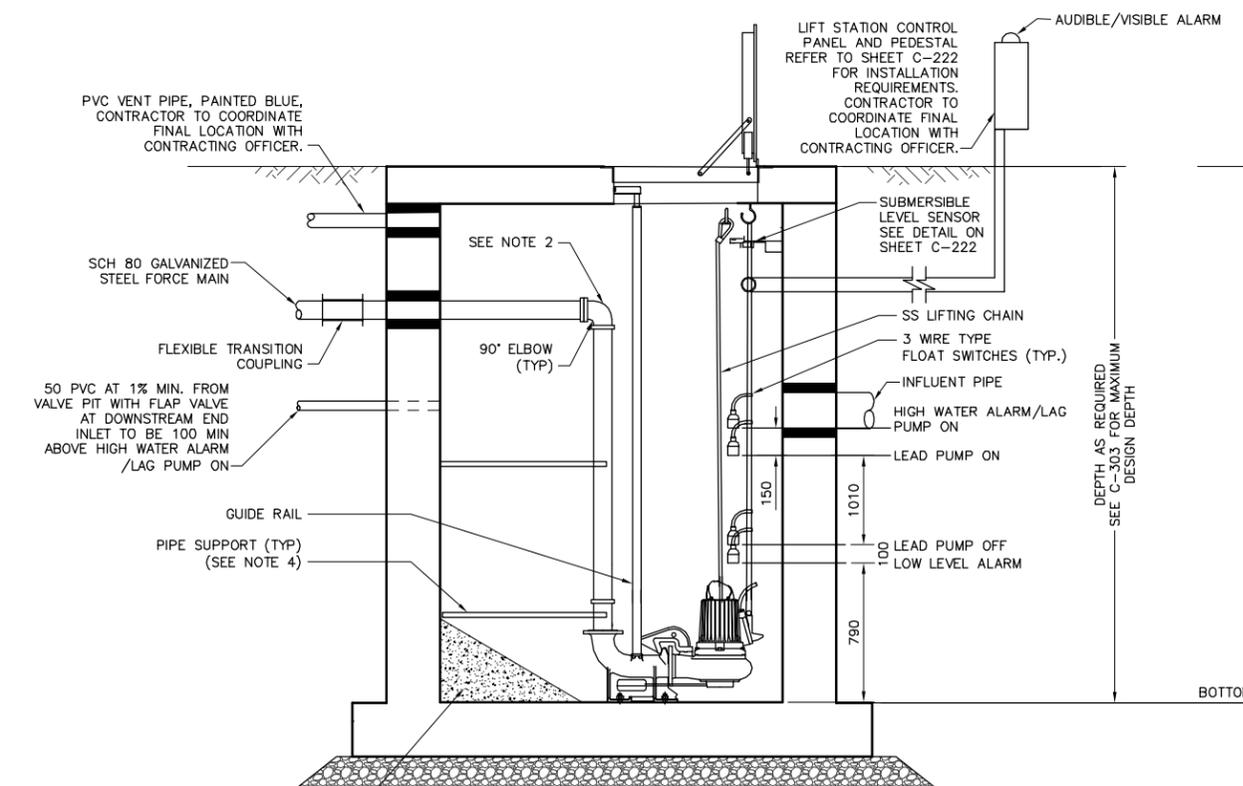
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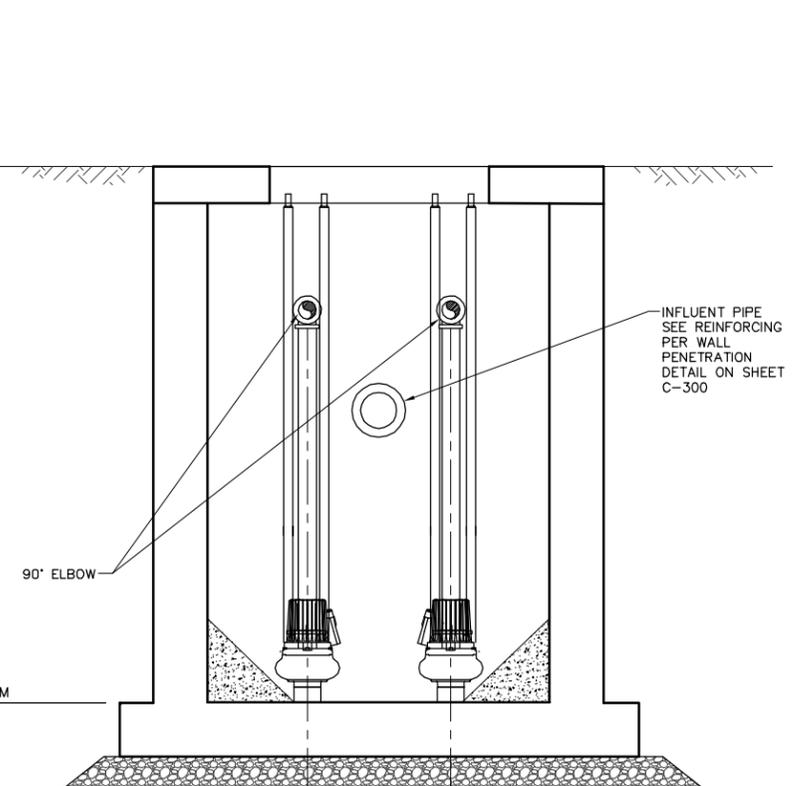
TOP SLAB PLAN
N.T.S.



SEWAGE LIFT STATION PLAN
N.T.S.



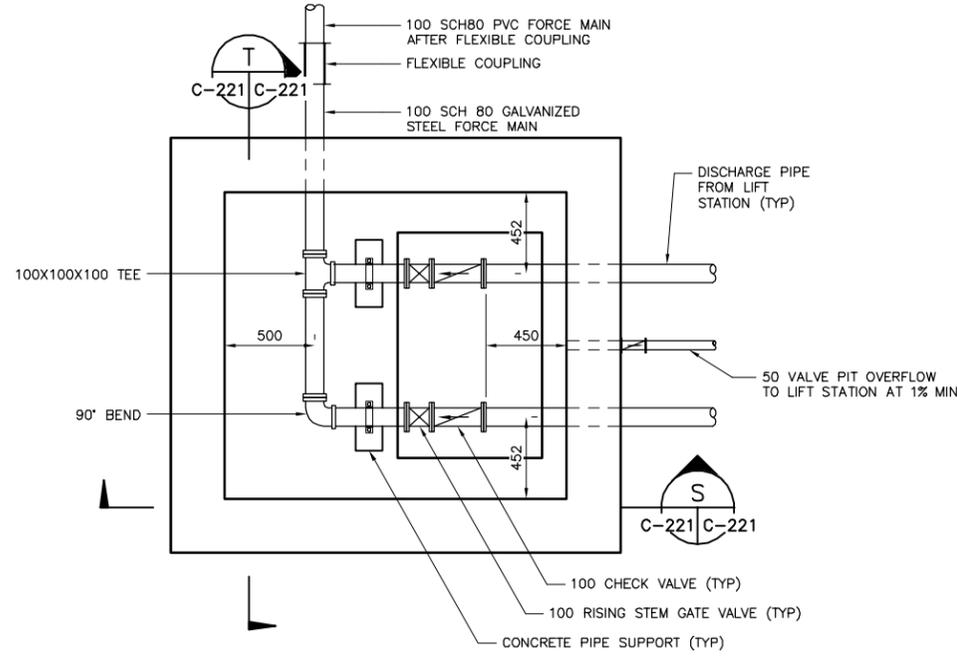
SECTION N.T.S.
C-220 C-220



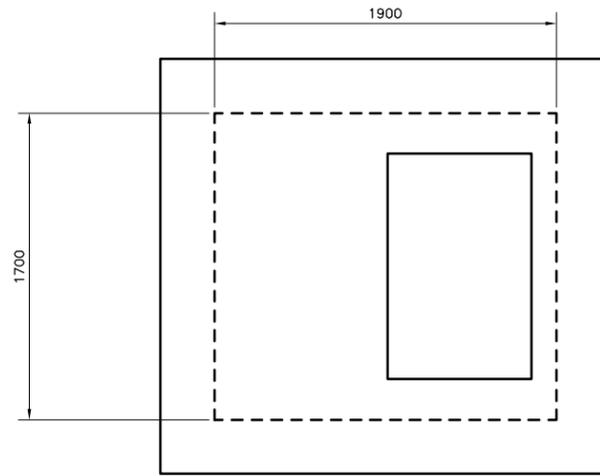
SECTION P N.T.S.
C-220 C-220

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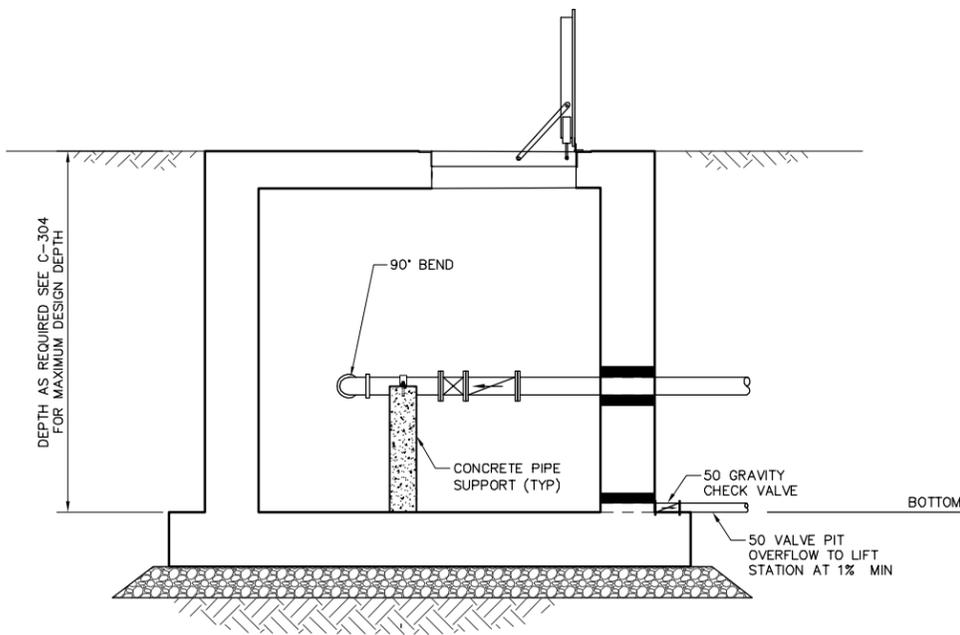
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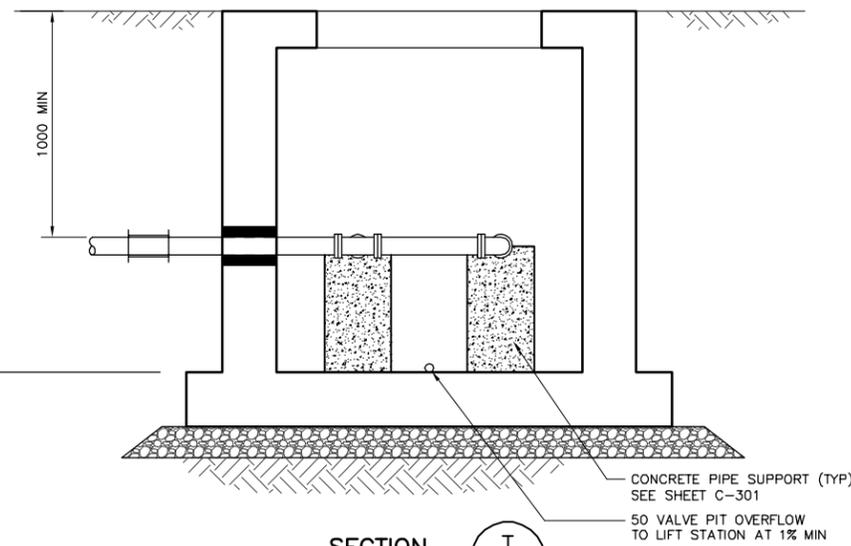
VALVE PIT PLAN
N.T.S.



TOP SLAB PLAN
N.T.S.



SECTION S
N.T.S. C-221 C-221



SECTION T
N.T.S. C-221 C-221

NOTES:

1. REFER TO C-300 FOR CONCRETE NOTES.
2. SEE C-304 FOR CONCRETE VALVE PIT AND STEEL REINFORCEMENT DETAILS.

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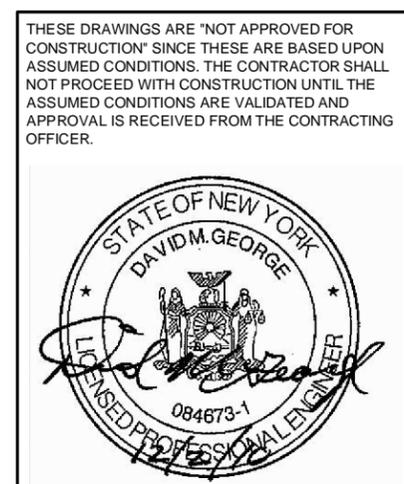
DESIGNED BY:	PSR	DATE:	12/02/10
DRAWN BY:	PSR	SUBMITTED BY:	TETRA TECH
CHECKED BY:	GCH	FILE NO.:	AF1081--CU221SE

US Army Corps of Engineers
Middle East District

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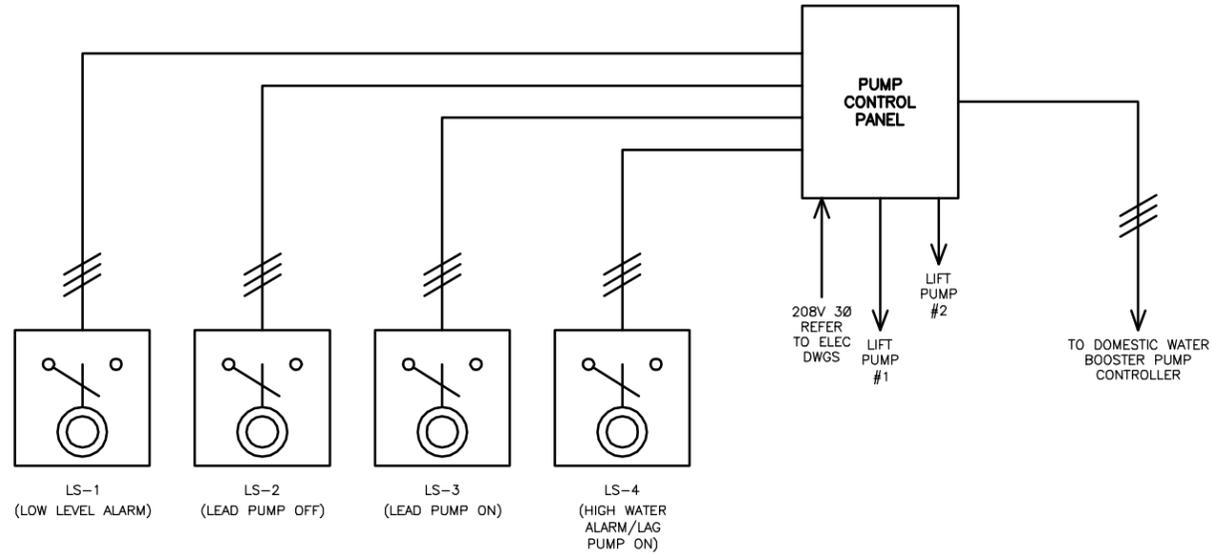
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

SEWAGE LIFT STATION
VALVE PIT PLAN AND SECTIONS

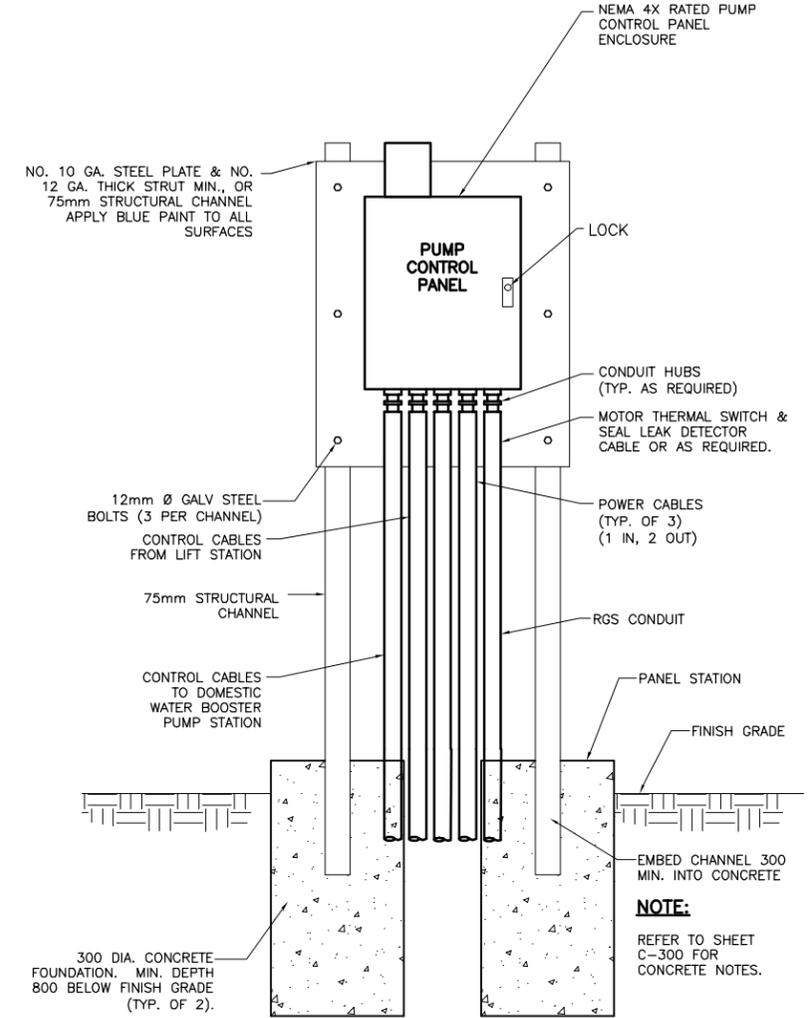


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NUMBER:
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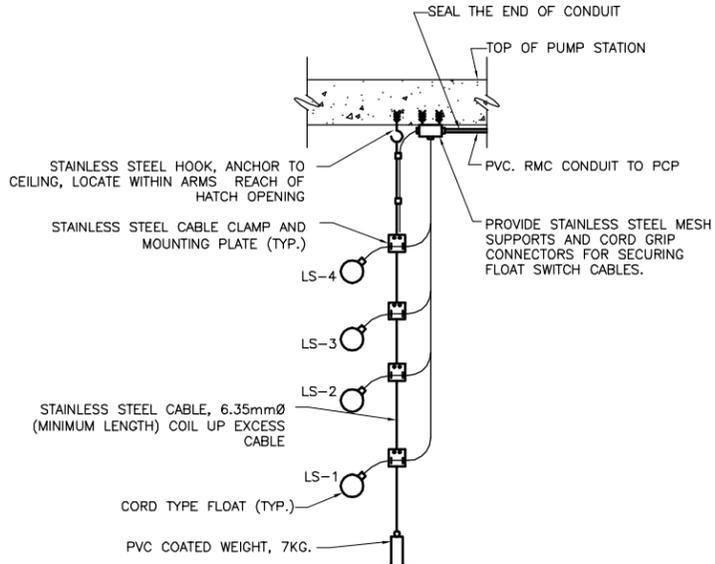
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LIFT STATION SCHEMATIC WIRING DIAGRAM
N.T.S.



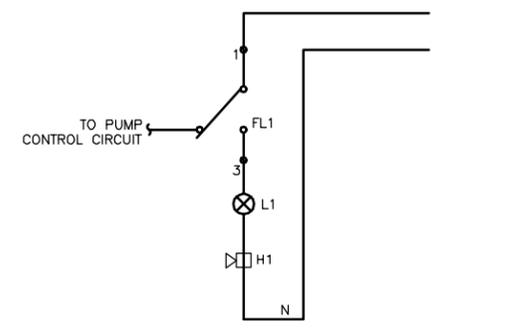
LIFT STATION CONTROL PANEL MOUNTING DETAIL
N.T.S.



SUBMERSIBLE LEVEL SENSOR DETAIL
N.T.S.

LIFT STATION SYSTEM SEQUENCE OF OPERATIONS

- THE HAND/OFF/AUTO (HOA) SWITCHES FOR BOTH PUMPS SHOULD BE MAINTAINED IN THE "AUTO" POSITION.
- WHEN THE LIQUID LEVEL RISES ABOVE THE SET POINT OF THE FLOAT LS-3, THE LEAD PUMP WILL START AND RUN UNTIL THE LEVEL DROPS BELOW THE SET POINT FOR LS-2.
- IF THE LIQUID LEVEL CONTINUES TO RISE TO THE LEVEL OF THE SET POINT FOR LS-4, THE LAG PUMP WILL ALSO START, THE LOCAL ALARM WILL SOUND AND A SIGNAL WILL BE SENT TO THE DOMESTIC WATER BOOSTER PUMP CONTROL STATION INDICATING "HIGH LEVEL" AND THE DOMESTIC WATER BOOSTER PUMPS WILL SHUT DOWN. SEE DRAWING C-210 FOR CONNECTION TO DOMESTIC WATER BOOSTER PUMP CONTROL.
- WHEN THE LIQUID LEVEL DROPS BELOW THE SET POINT FOR LS-2, BOTH PUMPS WILL STOP.
- IF THE LIQUID LEVEL DROPS BELOW THE SET POINT OF LS-1, BOTH PUMPS WILL AGAIN STOP AND THE LOCAL ALARM WILL SOUND INDICATING "LOW LEVEL".
- IF EITHER PUMP OVERLOAD RELAY SENSES AN OVERLOAD CONDITION IN THE PUMP IT PROTECTS, IT WILL OPEN THE APPROPRIATE CONTROL CIRCUIT CAUSING THAT PUMP TO SHUT DOWN. THE "PUMP TRIP" INDICATOR LAMP WILL ILLUMINATE. THE PUMP WILL REMAIN OFF UNTIL THE OVERLOAD RELAY IS MANUALLY RESET, RESTORING THE CONTROL CIRCUIT AND EXTINGUISHING THE INDICATION LAMP.
- PUMP CONTROL PANEL SHALL BE A STEEL CABINET, IP54, CONTAINING MAIN SWITCH, ALL REQUIRED FUSES, SWITCHING EQUIPMENT, AND MICROPROCESSOR CONTROLLER.



- FL1 - HIGH LEVEL FLOAT SWITCH IN SEWAGE TANK
- L1 - HIGH SEWAGE LEVEL INDICATOR LAMP (⊗)
- H1 - HIGH SEWAGE LEVEL AUDIBLE ALARM

IF FL1 REACHES "HIGH LEVEL" IT OPENS PUMP CONTROL POWER AND ILLUMINATES L1 AND SOUNDS H1.

LEVEL ALARM SCHEMATIC DIAGRAM
N.T.S.

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PSR	FILE NO.:	AF1081-CU222DI
GCH	CHECKED BY:	

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Middle East District

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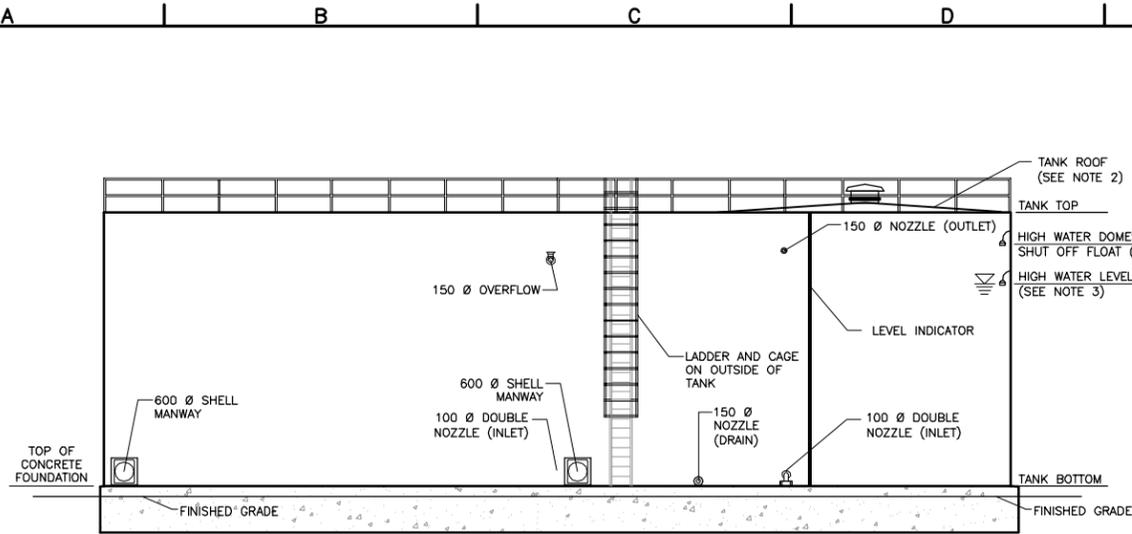


AUSTERE STANDARD DESIGNS - PHASE 4
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KANDAHAR AIR BASE, AFGHANISTAN

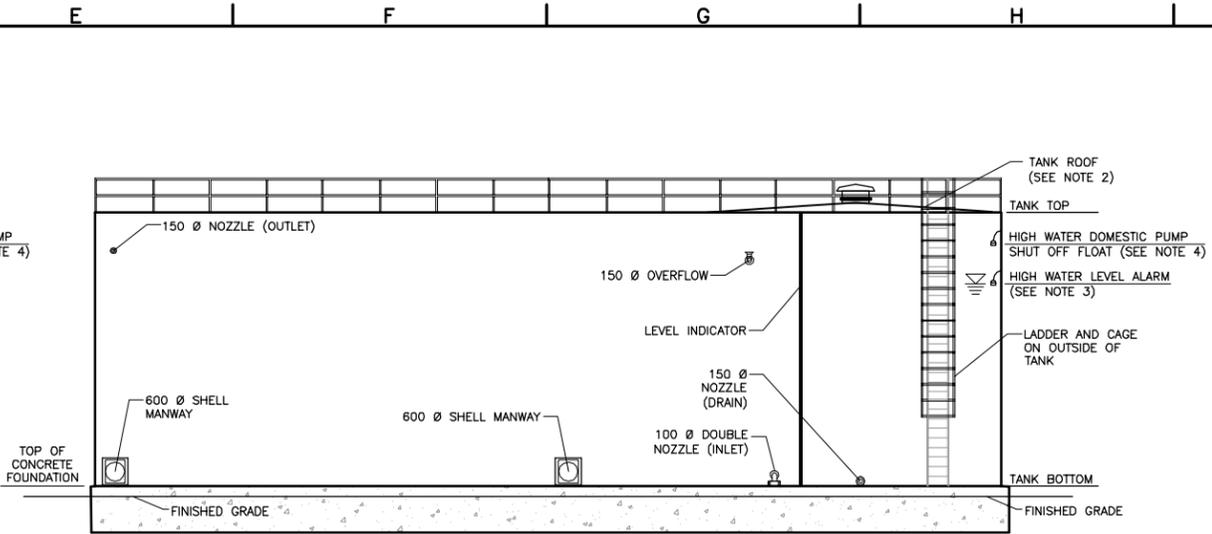
SEWAGE LIFT STATION CONTROL PANEL DIAGRAMS AND DETAILS

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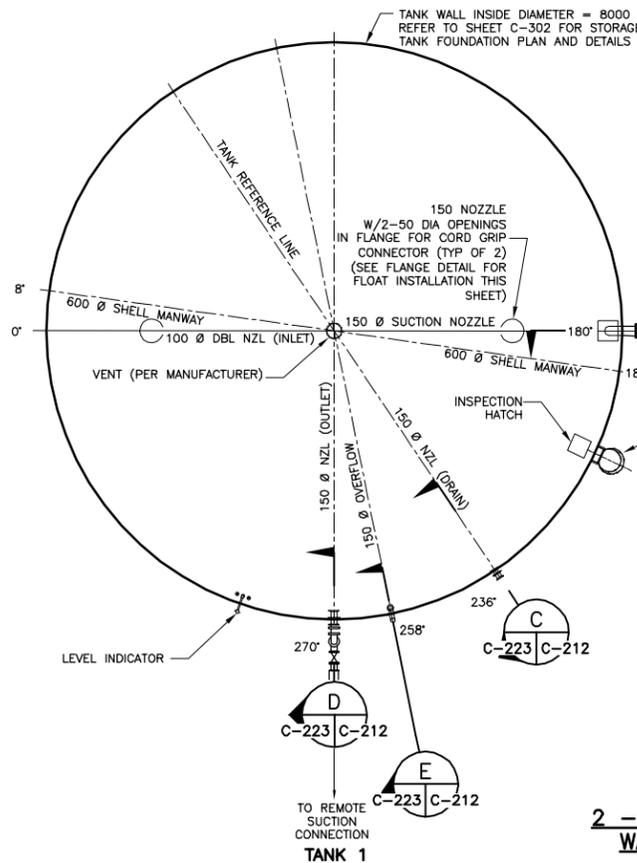
TANK 1 TYPICAL ROLL OUT
SHOWN FROM INSIDE OF TANK LOOKING OUT



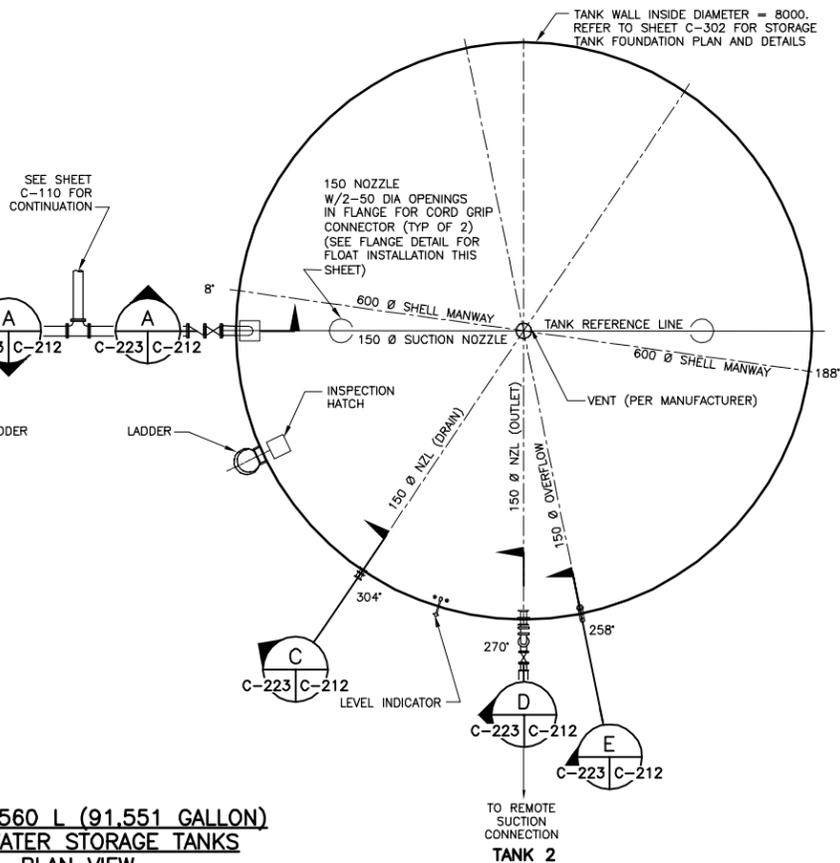
TANK 2 TYPICAL ROLL OUT
SHOWN FROM INSIDE OF TANK LOOKING OUT

NOTES:

1. CONTRACTOR TO ENSURE SUCTION LINE SIZE IS COMPATIBLE WITH BASE COLLECTION TRUCKS.
2. ALL EXPOSED PIPE SURFACES TO BE PROTECTED WITH PAINT. FINISH COAT TO BE BLUE.
3. CONTRACTOR SHALL SET HIGH WATER LEVEL ALARM TO PROVIDE 2 HOURS OF ADDITIONAL STORAGE VOLUME (28,800 LITERS).
4. CONTRACTOR SHALL SET HIGH WATER SANITARY PUMP SHUT OFF FLOAT 150 BELOW OVERFLOW PIPE.

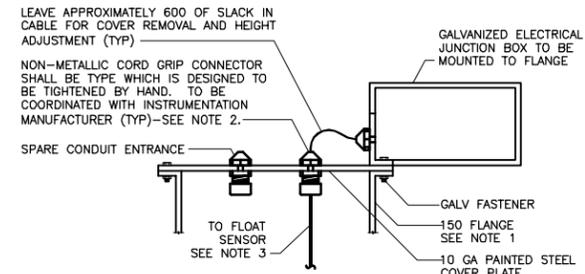


TANK 1



TANK 2

2 - 346,560 L (91,551 GALLON)
WASTEWATER STORAGE TANKS
PLAN VIEW
N.T.S.



FLANGE DETAIL FOR FLOAT INSTALLATION
N.T.S.

- FLANGE DETAIL FOR FLOAT INSTALLATION:**
1. COORDINATE MOUNTING REQUIREMENTS WITH TANK MANUFACTURERS RECOMMENDATIONS.
 2. LAYOUT SHOWN IS REPRESENTATIVE OF A SUBMERSIBLE PRESSURE SENSOR CONFIGURATION. INSTALLATION OF AN ULTRA SONIC PRESSURE SENSOR CONFIGURATION IS ALSO ACCEPTABLE.
 3. PROVIDE SUFFICIENT CABLE LENGTH TO ACCOMMODATE FLOAT ADJUSTMENT TO THE BOTTOM OF TANKS IF NECESSARY.

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DRAWN BY:	FILE NO.:	AF1081--CU223DT
PSR	GCH	

US Army Corps of Engineers
Middle East District

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

WASTEWATER STORAGE TANK
PLAN AND DETAILS

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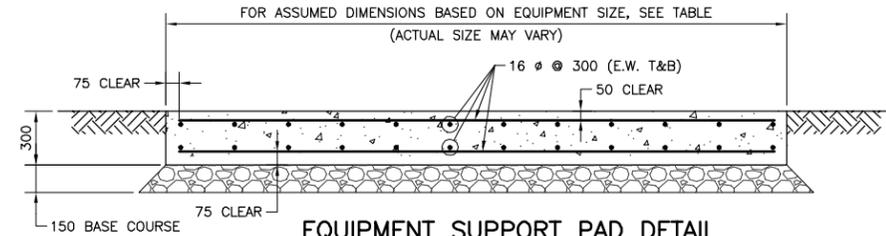
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NOTES:

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS.
- THE SITE INFRASTRUCTURE STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH:
 - INTERNATIONAL BUILDING CODE (IBC), 2009.
 - ACI318-08 SPECIFICATION
 - ACI350-06 SPECIFICATION
 - SEISMIC DESIGN AND HS-20 LOADING PER 2002 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS WITH CURRENT INTERIM SPECIFICATIONS (AASHTO).
 - PCA RECTANGULAR CONCRETE TANK, REVISED 5th EDITION.
 - ASCE 7-05, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
- LOADING:
 - SEE DETAIL SHEETS FOR ADDITIONAL LOADING INFORMATION.
 - LIVE LOAD: (AS APPLICABLE BASED ON STRUCTURE TYPE)
 - UNIFORM: 100 PSF
 - VEHICULAR: HS-20 AASHTO TRUCK
 - EQUIPMENT LOADS: AS NOTED ON THE DRAWINGS
 - WIND LOAD: CALCULATED AS PER ASCE 7-05 USING A "3-SECOND GUST" WIND SPEED OF 125 km/hr (78 mph), EXPOSURE C, IMPORTANCE FACTOR 1.5
 - SEISMIC: $S_p = 1.65G$
 $S_s = 0.75G$
OCCUPANCY CATEGORY I
SITE CLASS D
IMPORTANCE FACTOR I = 1.0
- THE FOLLOWING GEOTECHNICAL PROPERTIES WERE ASSUMED FOR DESIGN. THE CONTRACTOR SHALL VERIFY THE GEOTECHNICAL PROPERTIES LISTED BELOW AND FOR CONSTRUCTING FOUNDATIONS, PAVEMENTS, MATERIALS, EARTHWORK AND OTHER GEOTECHNICAL RELATED ITEMS CONTAINED IN THIS PROJECT.
 - UNIT WEIGHT OF SOIL 1922 kg/m³ [120PCF]
 - NET ALLOWABLE BEARING PRESSURE:
 - TYPICAL (U.N.O.) 72 kPa [1500 PSF]
 - WATER / WASTEWATER STORAGE TANKS: 96 kPa [2000 PSF] (SEE NOTE 6)
 - SUBGRADE MODULUS k: 27.145 Mpa/m [100 PSI/IN]
 - ACTIVE EARTH PRESSURE COEFFICIENT: $K_a = 0.33$
 - PASSIVE EARTH PRESSURE COEFFICIENT: $K_p = 3.0$
 - AT REST EARTH PRESSURE COEFFICIENT: $K_0 = 0.55$
 - FRICTION ANGLE OF BACKFILL: 30 DEGREES
 - MAXIMUM GROUND WATER IS ASSUMED TO BE 1.5m BELOW GRADE. CONTRACTOR SHALL VERIFY THAT THE WATER TABLE IS NOT ABOVE THIS LEVEL.
- THE STORAGE TANK RING FOUNDATION NET ALLOWABLE BEARING PRESSURE REQUIRES THAT THE CONTRACTOR SCARIFIES THE TOP 150mm [6"] OF NATIVE MATERIAL AND RE-COMPACTS IT TO 100% OF MODIFIED PROCTOR DENSITY. IF CONSTRUCTION REPRESENTATIVE IDENTIFIES THE SCARIFIED MATERIAL TO BE INADEQUATE, IT WILL BE REQUIRED TO BE MOVED AND REPLACED WITH GOOD MATERIAL.
- THE FOUNDATIONS SHALL BE PLACED ON SCARIFIED EARTH AND 150mm COMPACTED SELECT FILL PREPARED AS FOLLOWS:
 - REMOVE UNSATISFACTORY MATERIAL BELOW THE BOTTOM SLAB AND REPLACE WITH COMPACTED SELECT FILL TO A DEPTH WHERE NATURAL SOIL AND OR COMPACT FILL IS ENCOUNTERED.
 - FILL MATERIAL MUST BE PLACED IN LIFTS UP TO A MAXIMUM OF 150mm IN THICKNESS. EACH LIFT COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.
- SUBGRADE PREPARATION SHALL BE PERFORMED IN THE DRY. DEWATERING MAY BE REQUIRED FOR CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE ENGINEER FOR REVIEW.
- ALL UNSATISFACTORY MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE STRUCTURE. REMOVAL OF UNSATISFACTORY MATERIAL REQUIRED TO A MINIMUM DEPTH OF 1/2 THE WIDTH OF THE STRUCTURE OR UNTIL SATISFACTORY MATERIAL IS REACHED WITHIN A PLAN AREA OF 1.5m BEYOND THE EDGE OF FOUNDATIONS.
- MAINTAIN LEVEL OF BACKFILL WITHIN 300mm ON THE OPPOSITE SIDE OF THE TANK WHILE BACKFILLING.
- ALL PVC WATERSTOPS TO BE 150mm PVC TIP, TYPE 0, 5mm THICK (3 RIBS). SEE DETAIL THIS SHEET. THE WATERSTOPS FOR THE FUEL STORAGE CONTAINMENT SHALL BE FUEL RESISTANT MATERIAL.

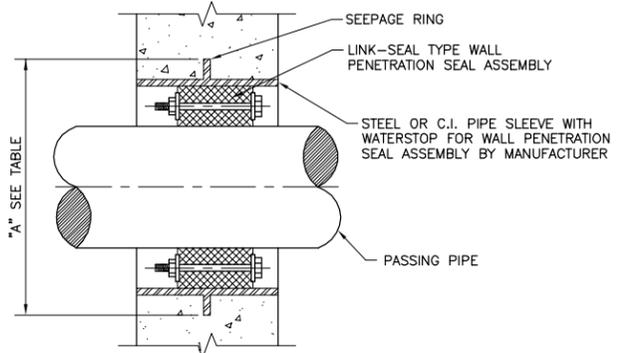
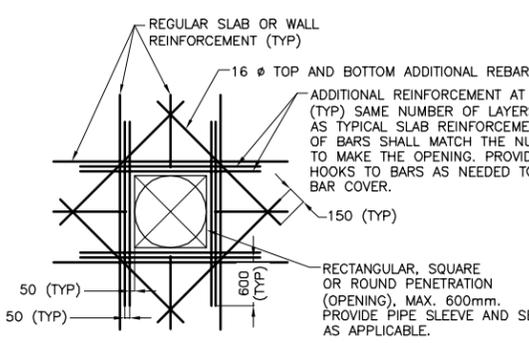
CONCRETE NOTES:

- STRUCTURAL CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 27.5 MPa (4000 PSI) AT 28 DAYS. TYPE II OR TYPE V PORTLAND CEMENT SHALL BE USED.
- CONCRETE SHALL BE CONTROLLED NORMAL WEIGHT CONCRETE, PROPORTIONED, MIXED AND PLACED UNDER THE SUPERVISION OF AN APPROVED QUALITY CONTROL ENGINEER.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60. SEE SPLICE TABLE FOR LAP LENGTHS. MINIMUM YIELD STRENGTH $F_y = 4218 \text{ kg/cm}^2$.
- STANDARD REINFORCEMENT BENDING DETAILS SHALL BE IN ACCORDANCE WITH ACI STANDARDS.
- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 25mm CHAMFER.
- MINIMUM PROTECTIVE CONCRETE COVER FOR REINFORCEMENT:
 - CONCRETE PLACED AGAINST EARTH, 75mm.
 - ALL OTHERS = 50mm MINIMUM
- DO NOT WELD OR BEND REINFORCEMENT IN FIELD UNLESS SPECIFICALLY SHOWN OR APPROVED BY ENGINEER.
- REINFORCING BARS EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 300mm BEYOND BEND U.N.O.
- NO BARS SHALL BE CUT OR OMITTED IN THE FIELD BECAUSE OF PIPE PENETRATIONS, SLAB OPENINGS, ETC. BARS MAY BE MOVED ASIDE WITHOUT CHANGE IN LEVEL WITH THE APPROVAL OF THE QUALITY CONTROL ENGINEER.
- REINFORCEMENT STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS. ALL CONSTRUCTION JOINTS SHALL BE KEYS U.N.O. PER DETAILS. ALL KEYS SHALL BE 50mm BY 100mm NOMINAL U.N.O.
- DETAILING, FABRICATION AND ERECTION OF REINFORCEMENT SHALL CONFORM TO ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL, CONCRETE, ACI 318 DETAILS AND DETAILING OF CONCRETE REINFORCEMENT, AND CRSI MANUAL OF STANDARD PRACTICE.
- CONTRACTOR SHALL COORDINATE LOCATIONS OF PIPING, CONDUITS, SLEEVES, INSERTS, ETC. WITH CONCRETE CONSTRUCTION. NO PIPES SHALL PASS THROUGH CONCRETE WITHOUT THE PERMISSION OF THE CONTRACTING OFFICER. STEEL PIPE SLEEVES SHALL BE PROVIDED AND SPACED A MINIMUM OF THREE PIPE DIAMETERS ON CENTER. CONDUIT AND OTHER EMBEDDED ITEMS SHALL BE CLEAN AND FREE OF OIL AND OTHER FOREIGN MATTER SUCH AS LOOSE COATING OR RUST, PAINT AND SCALE.
- ALL EMBEDDED ITEMS TO BE PLACED AND SECURED BEFORE CONCRETE PLACEMENT. NO "WET SETTING" OF EMBEDDED ITEMS WILL BE ALLOWED.
- PROVIDE ALL NECESSARY CHAIRS, CHAIR BARS, SPACERS, ETC., WIRED SECURELY TO HOLD REINFORCEMENT IN POSITION.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWING SHOWING REINFORCING STEEL PLACEMENT, SCHEDULES, SIZES, GRADES AND SPLICING AND BENDING DETAILS. DRAWINGS SHALL SHOW SUPPORT DETAILS INCLUDING TYPES, SIZES AND SPACING.
- REINFORCEMENT SHALL BE STORED OFF THE GROUND ON PLATFORMS, SKIDS OR OTHER SUPPORTS.
- SEE SPECIFICATIONS FOR TRANSPORTING, PLACING AND CURING CAST-IN-PLACE CONCRETE.

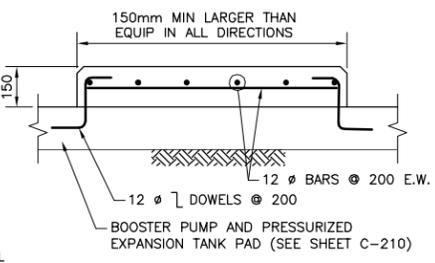
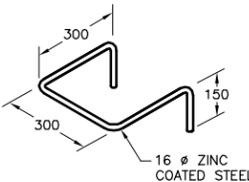
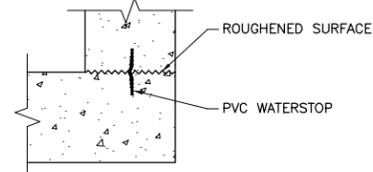
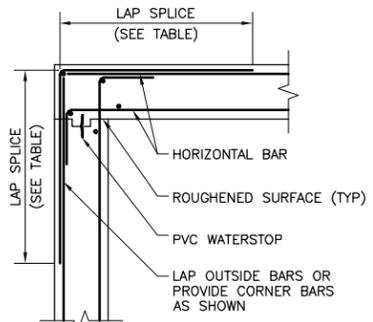


EQUIPMENT SUPPORT PAD GEOMETRY TABLE		
LOCATION	APPROX. GEOMETRY (W x L)	APPROX. WEIGHT (kg)
GENERATOR	2950 x 9650	16,012
BOOSTER PUMP	3000 x 3000	363
TRANSFER PUMP	1100 x 900	68

NOTE: PAD GEOMETRY BASED ON ASSUMED EQUIPMENT SIZE. FOR BOOSTER PUMP, PAD SIZE TO LIMITS OF SUNSHADE. SUNSHADE FOUNDATION TO BE DESIGNED BY CONTRACTOR. ACTUAL PAD SIZE MAY VARY.



PIPE SIZE	NOMINAL SLEEVE DIAMETER	"A"
50	100	150
65	100	200
80	150	200
100	150	250
150	250	350
200	300	400
250	350	450
300	400	500
350	450	550
400	500	600
450	600	650
500	600	700
600	750	800



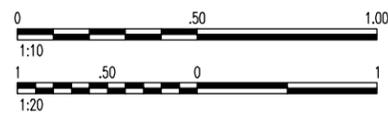
MINIMUM RE-BAR SPLICE LENGTHS mm		
$f_y = 4218 \text{ kg/cm}^2$ $f'_c = 27.5 \text{ MPa}$		
BAR SIZE ϕ mm	TOP BARS	OTHER BARS
10	650	500
12	815	635
16	1016	788
20	1590	1220
22	1755	1350
25	2032	1550

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO:
 - AISC - CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES, 13TH EDITION.
 - AISC - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
 - AWS D1.1-06 - STRUCTURAL WELDING CODE - STEEL.
 - AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
- STRUCTURAL STEEL SHALL CONFORM TO:
 - PLATES AND BARS SHALL CONFORM TO ASTM A36, MIN. YIELD STRENGTH = 2531 kg/cm² (36 KSI).
 - STRUCTURAL STEEL TUBE (HSS) SHALL CONFORM TO ELECTRIC RESISTANCE WELDED OR SEAMLESS PER DIN, BS, AISC OR EN STANDARDS, WITH MINIMUM YIELD STRENGTH OF 290 MPa.
 - CONNECTION BOLTS SHALL CONFORM TO ASTM A325 OR A490.
 - ANCHOR BOLTS SHALL CONFORM TO ASTM A307 USING A36 STEEL.
- ALL WELDING SHALL BE DONE BY APPROVED WELDERS WITH E70XX ELECTRODES. WELDS SHALL DEVELOP THE FULL STRENGTH OF THE MATERIALS BEING WELDED. U.N.O. MINIMUM FILLET WELD SHALL BE 5mm.
- NON-SHRINK GROUT SHALL BE USED BELOW THE BEARING PLATES.
- ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED PER ASTM A123. ALL BOLTS EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED PER ASTM A153.

SPLICE NOTES:

- BASED ON NORMAL WEIGHT CONCRETE, UNCOATED BARS, CLEAR SPACING NOT LESS THAN FOUR BAR DIAMETERS, AND CLEAR COVER NOT LESS THAN 40mm.
- WHERE SPACING BETWEEN BARS IS LESS THAN FOUR BAR DIAMETERS, OR CLEAR COVER IS LESS THAN TWO BAR DIAMETERS, INCREASE SPLICE LENGTHS SHOWN BY 50%.
- BARS ARE CONSIDERED TO BE TOP BARS WHERE MORE THAN 300mm [12"] OF CONCRETE IS CAST BELOW THE BAR. WALL HORIZONTAL BARS UNIFORMLY SPACED IN A VERTICAL PLANE AT 300mm [12"] MAXIMUM SPACING ARE NOT CONSIDERED TOP BARS.
- BAR SPLICE LOCATION INDICATED MAY BE ADJUSTED TO MEET FIELD CONDITIONS.



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DATE	DESCRIPTION	SYMB
10/19/10	SGW	
10/19/10	SGW	
10/05/10	SGW	
08/31/10	SGW	

DESIGNED BY: ALH
DRAWN BY: RM
CHECKED BY: APL
DATE: 10/19/10
SUBMITTED BY: TETRA TECH
FILE NO.: AF1081--CU300GN

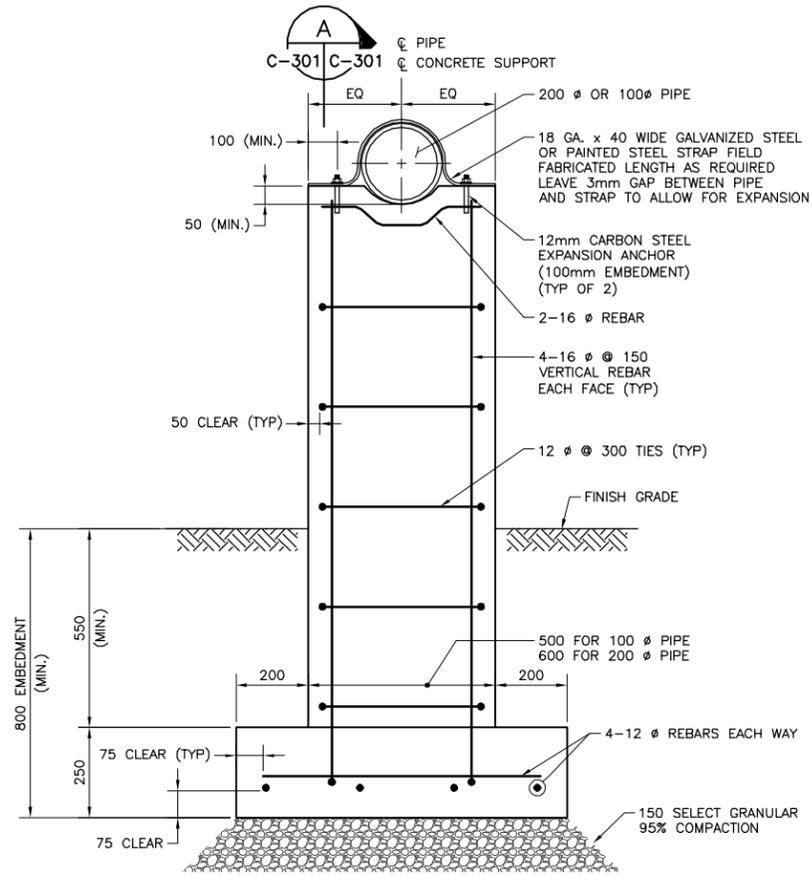
US Army Corps of Engineers
Middle East District
TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
SITE INFRASTRUCTURE
GENERAL NOTES AND
TYPICAL DETAILS

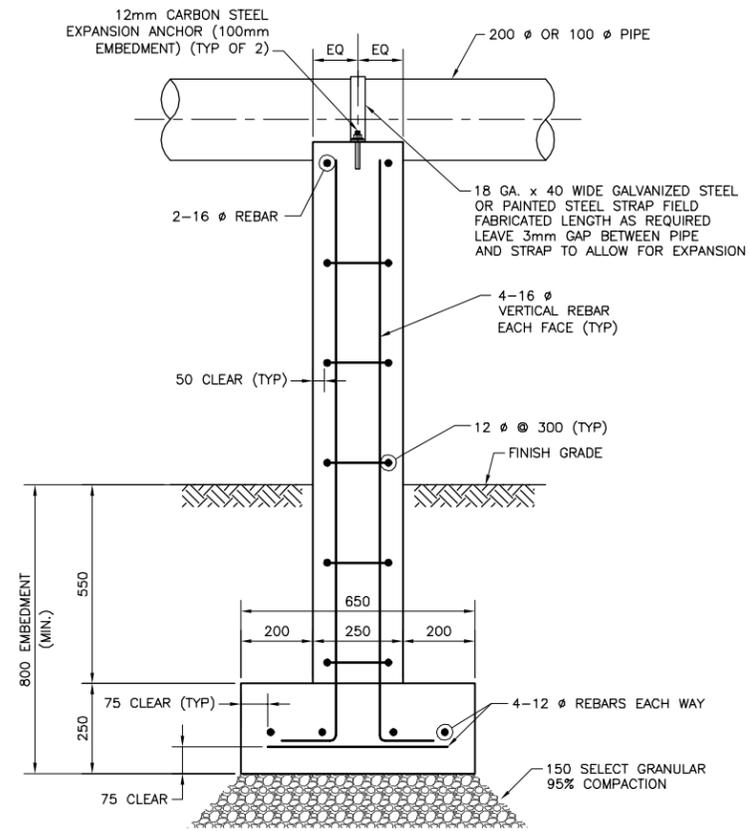
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AF1081 C-300

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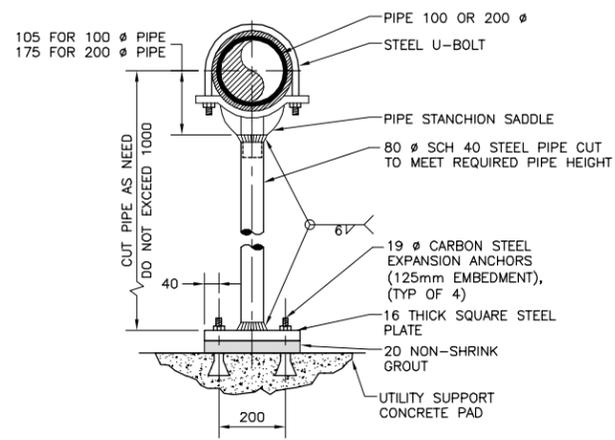
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**TYPICAL CAST-IN-PLACE
CONCRETE PIPE SUPPORT**
SCALE 1:10



SECTION A
SCALE 1:10 C-301 C-301



PIPE SUPPORT - STANCHION SADDLE
N.T.S.

UNLESS OTHERWISE NOTED, ALL
DIMENSIONS SHOWN ARE IN MILLIMETERS.

NOTES:

- SEE CONCRETE NOTES ON SHEET C-300.
- INSTALL PIPE SUPPORTS AT ALL LOCATIONS WHERE PIPING IS ABOVE GROUND WITH MINIMUM SPACING OF 2.75 METERS ON CENTER WITH FLEXIBLE COUPLING INSTALLED BETWEEN EVERY PIPE SUPPORT.



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DESIGNED BY:	ALH	DATE:	10/19/10
DRAWN BY:	GRV	SUBMITTED BY:	TETRA TECH
CHECKED BY:	APL	FILE NO.:	AF1081--CU301DT

US Army Corps of Engineers
Middle East District

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

PIPE SUPPORT DETAILS

SHEET
REFERENCE
NUMBER:
**AF1081
C-301**

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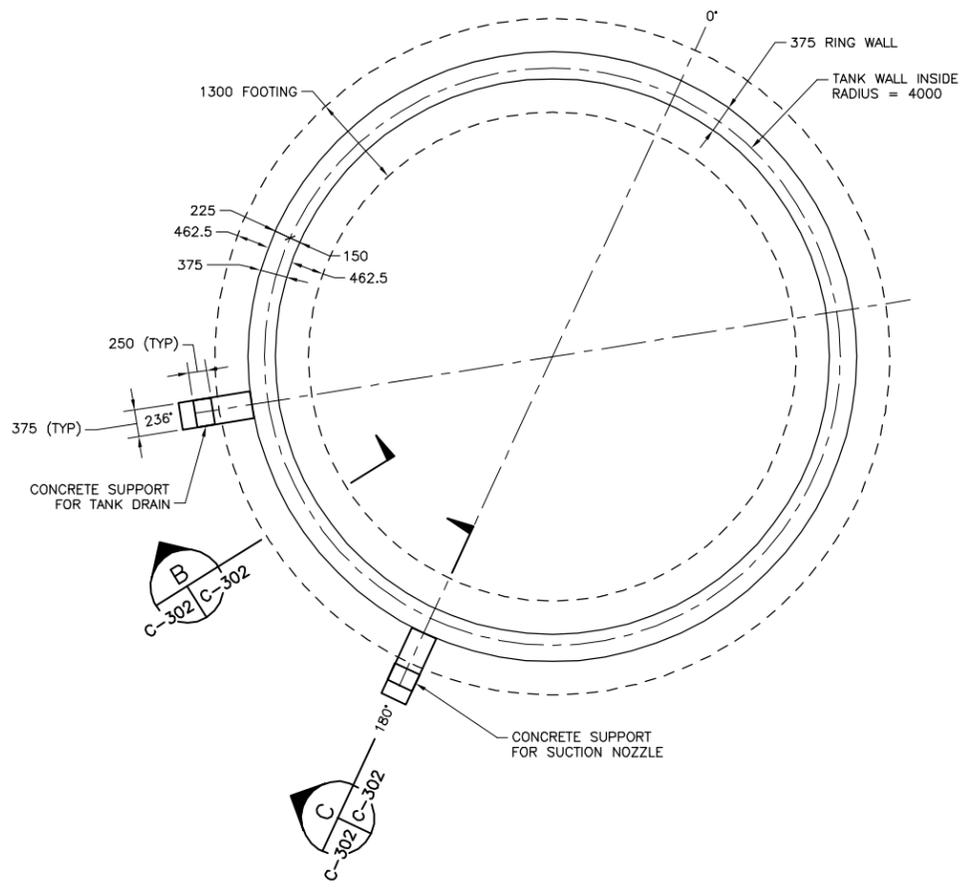
US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

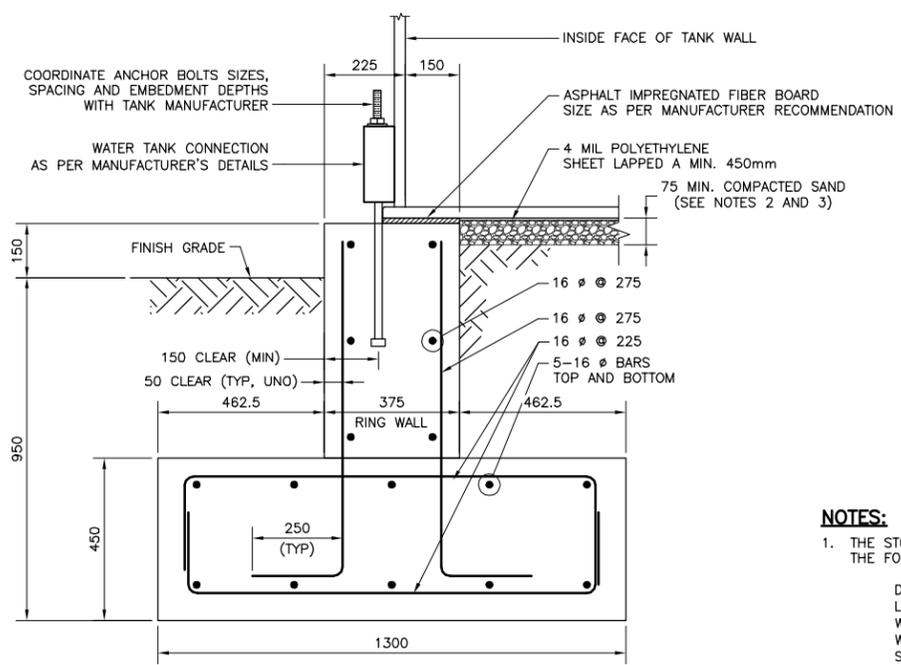
STORAGE TANK
FOUNDATION PLAN AND SECTIONS

SHEET
REFERENCE
NUMBER:
AF1081
C-302



NOTE: TANK DRAIN SUPPORT CONFIGURATION SHOWN FOR TANK 1 ON C-211. TANK 2 ON C-211 SIMILAR.

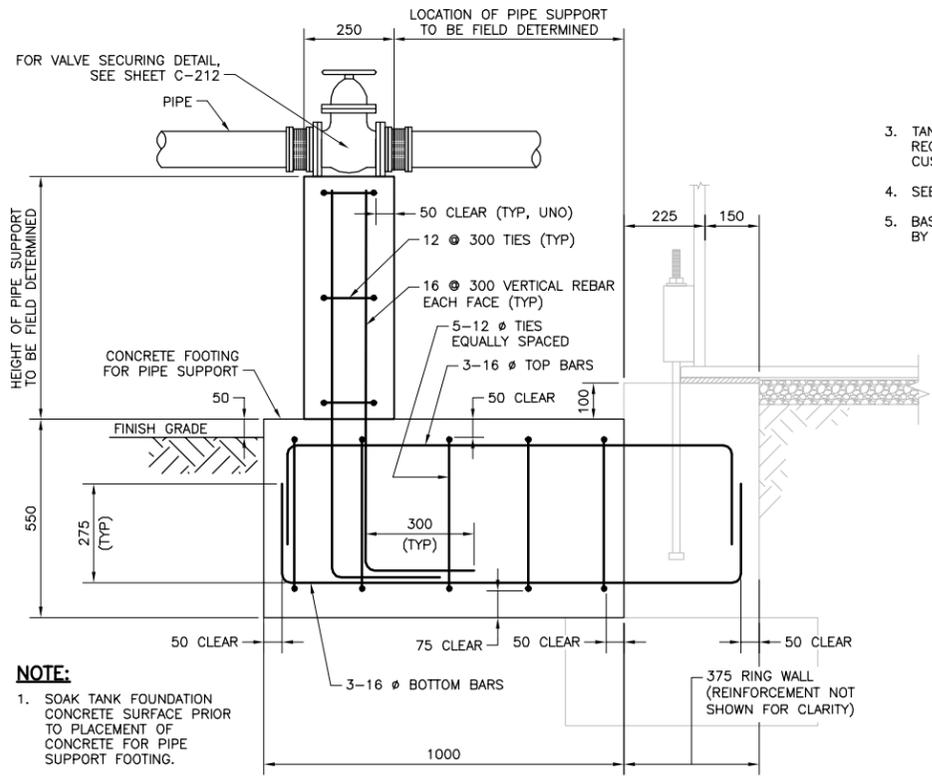
346,560 LITER WATER/WASTEWATER STORAGE TANK FOUNDATION PLAN
SCALE 1:50



DESIGN BEARING PRESSURE
SEISMIC/WIND: 45.50 kPa [0.95 ksf]

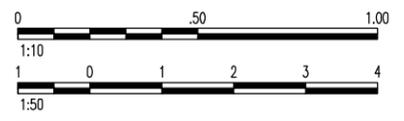
STORAGE TANK FOUNDATION SECTION
SCALE 1:10

- NOTES:**
- THE STORAGE TANK RING FOUNDATION HAS BEEN DESIGNED FOR THE FOLLOWING TANK REACTIONS:
 - DL = 207 kg/m [139 LB/FT]
 - LL = 260 kg/m [175 LB/FT]
 - WS = 2958 kg [6522 LB]
 - WM = 10561 kg-m [76366 FT-LB]
 - SS = 80765 kg [178056 LB]
 - SM = 198049 kg-m [1432494 FT-LB]
 - UPLIFT = 3467 kg/m [2330 LB/FT]
 - FOOTINGS AND THE 75mm COMPACTED SAND UNDER THE TANK SHALL BE PLACED ON NATURAL UNDISTURBED SOIL OR ON COMPACTED SELECT GRANULAR MATERIAL FILL PREPARED AS FOLLOWS:
 - REMOVE UNSUITABLE MATERIAL BELOW THE FOOTING AND REPLACE WITH COMPACTED SELECT GRANULAR MATERIAL FILL TO A DEPTH WHERE NATURAL SOIL AND OR COMPACT FILL IS ENCOUNTERED.
 - FILL MATERIAL MUST BE PLACED IN LIFTS UP TO A MAXIMUM OF 150mm IN THICKNESS. EACH LIFT COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 AT MOISTURE CONTENT WITHIN MINUS 1% TO PLUS 2% OF THE OPTIMUM.
 - TANK'S SUBGRADE SHALL BE SLOPED AS PER MANUFACTURER'S RECOMMENDATION WITH A MINIMUM 75mm COMPACTED SAND CUSHION.
 - SEE GEOTECHNICAL & CONCRETE NOTES ON SHEET C-300.
 - BASE PLATE AND CONNECTIONS SHALL BE SIZED AND DETAILED BY THE TANK MANUFACTURER.



CONCRETE FOOTING FOR PIPE SUPPORT SECTION
SCALE 1:10

NOTE:
1. SOAK TANK FOUNDATION CONCRETE SURFACE PRIOR TO PLACEMENT OF CONCRETE FOR PIPE SUPPORT FOOTING.

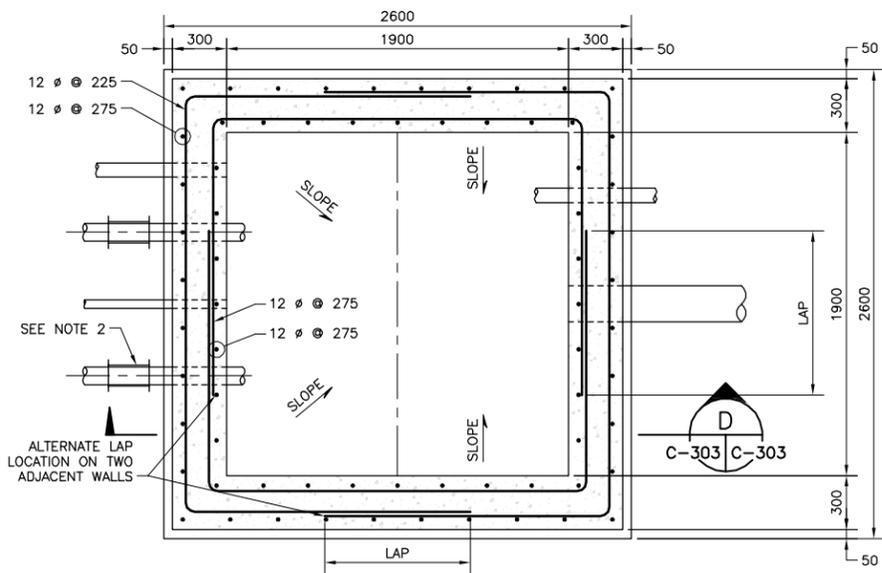


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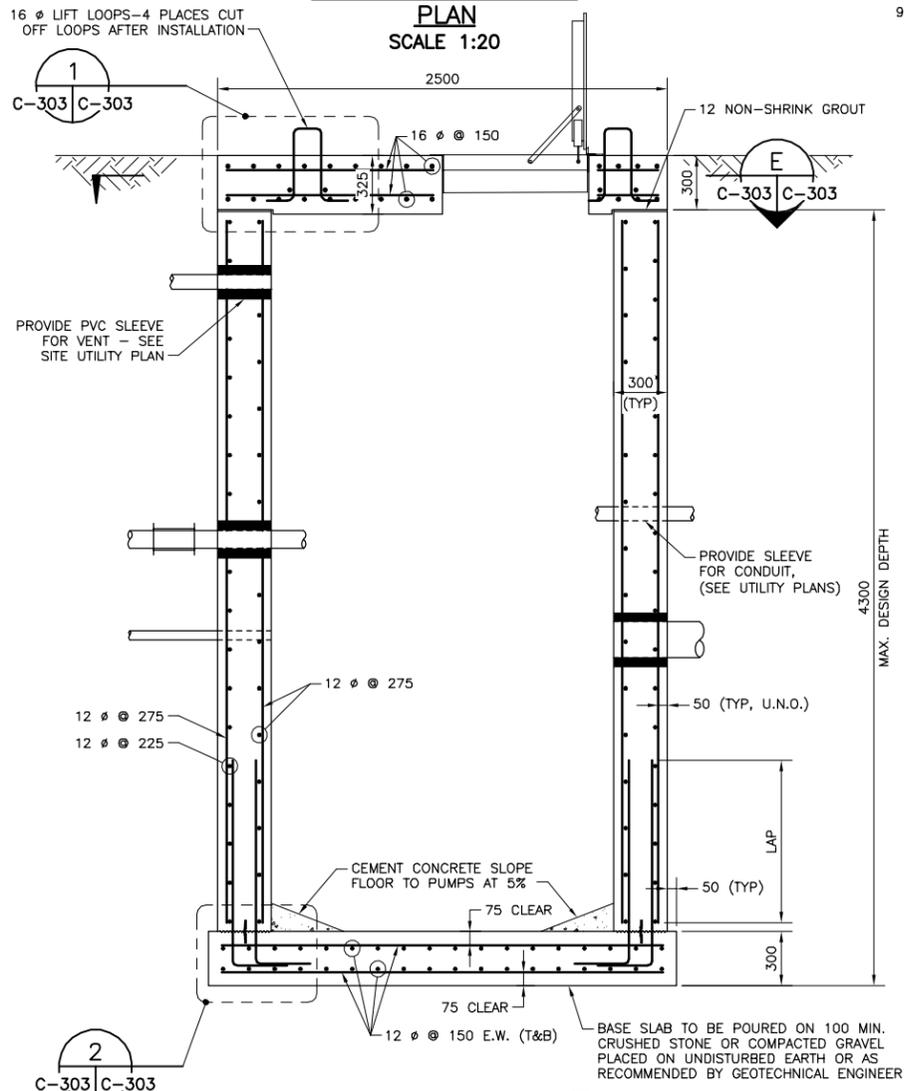


UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

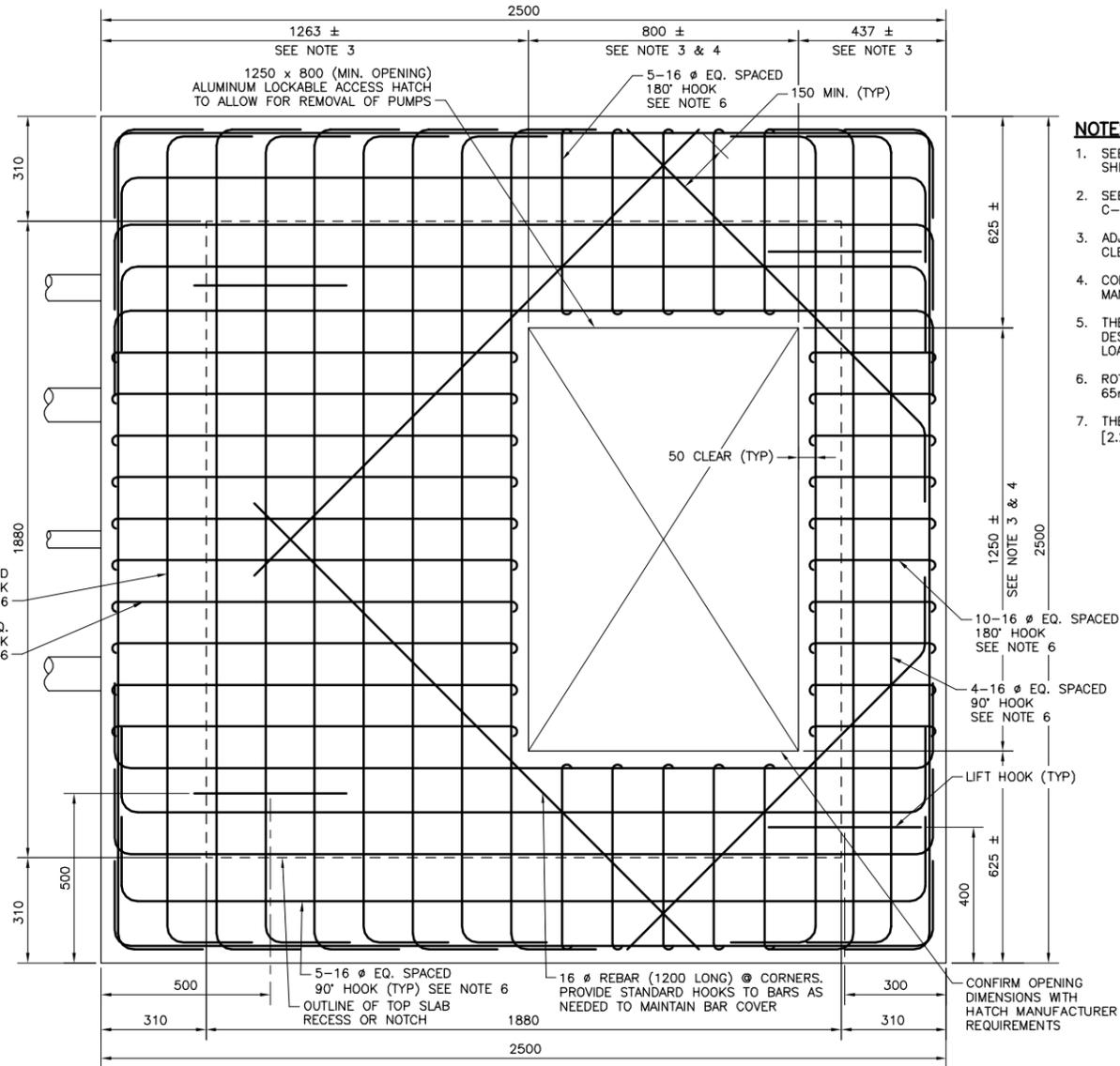
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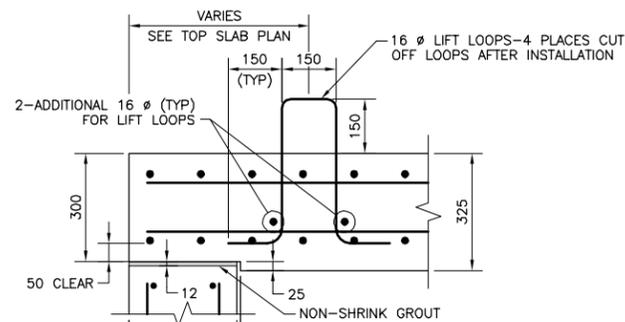
SEWAGE LIFT STATION PLAN
SCALE 1:20



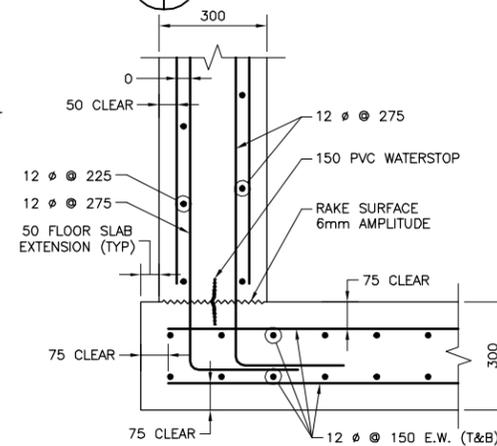
SECTION
SCALE 1:20



TOP SLAB REINFORCEMENT PLAN
SCALE 1:10

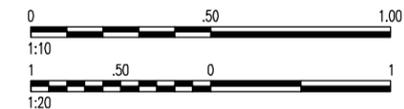


DETAIL 1
SCALE 1:10



DETAIL 2
SCALE 1:10

- NOTES:**
- SEE GENERAL AND CONCRETE NOTES ON SHEET C-300.
 - SEE SHEETS C-110, C-111, C-112 AND C-220 FOR PIPE SIZES & LOCATION.
 - ADJUST OPENING AS REQUIRED TO PROVIDE CLEAR ACCESS TO PUMPS.
 - CONFIRM OPENING DIMENSIONS WITH HATCH MANUFACTURER REQUIREMENTS.
 - THE SEWAGE LIFT STATION HAS BEEN DESIGNED FOR AASHTO HS20 VEHICULAR LOADING.
 - ROTATE ALL HOOKS AS NEEDED TO PROVIDE 65mm MIN COVER.
 - THE DESIGN BEARING PRESSURE IS 106.3 kPa [2.22 ksf] (NON-WIND OR SEISMIC).



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DESIGNED BY:	DATE:	10/19/10
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DRAWN BY:	RM	
CHECKED BY:	APL	
	FILE NO.:	AF1081--CU3030T

US Army Corps of Engineers
Middle East District

TETRA TECH

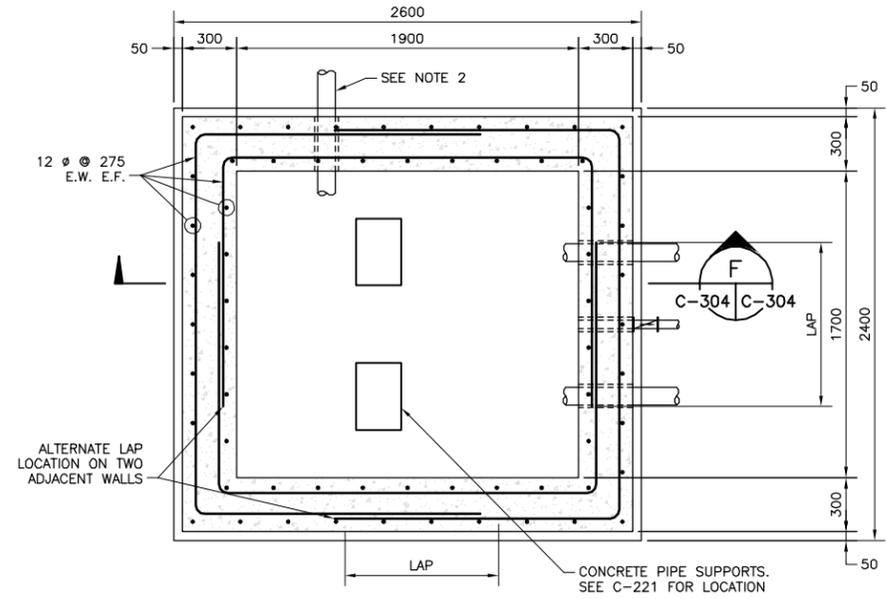
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

SEWAGE LIFT STATION DETAILS

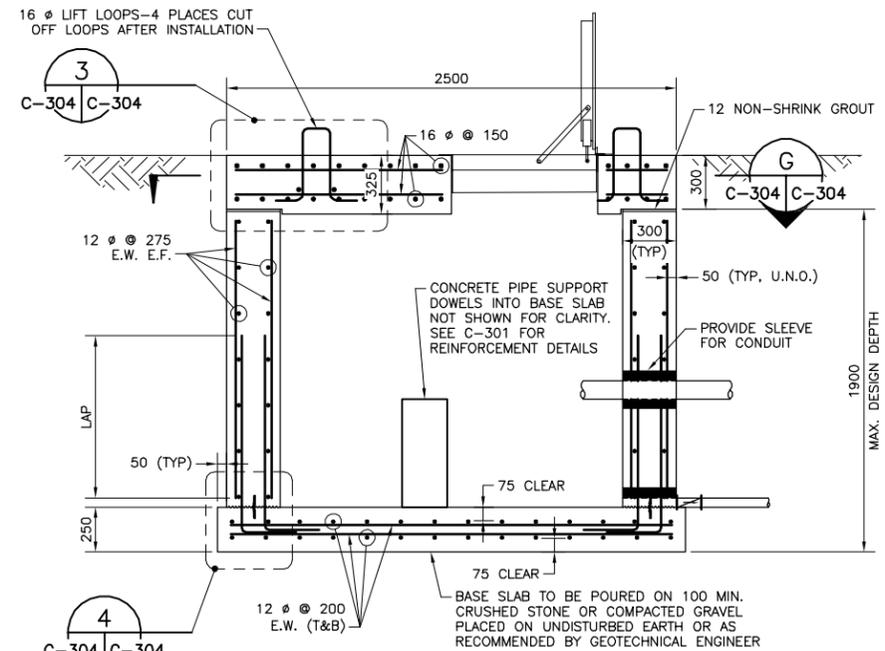
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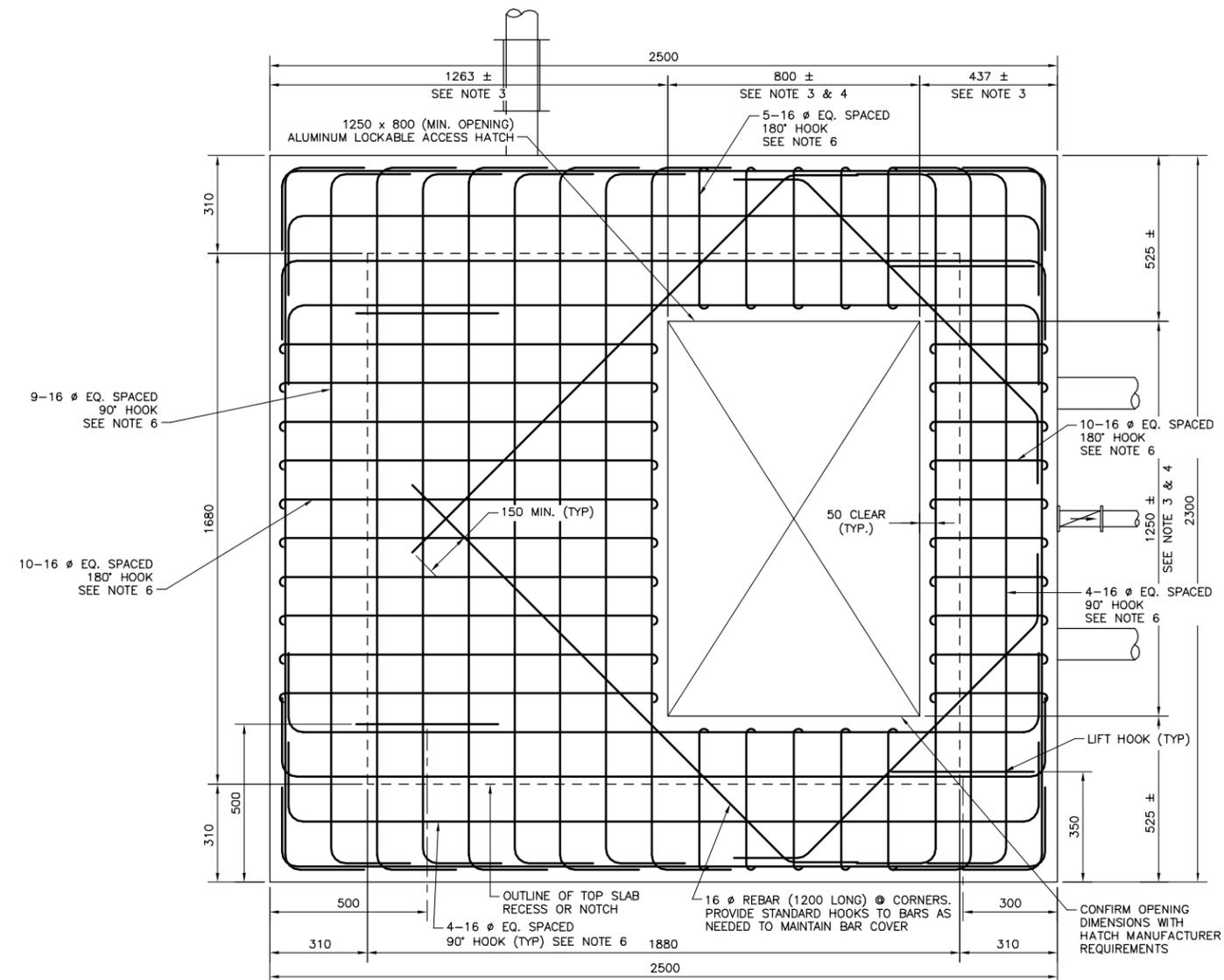


VALVE PIT PLAN
SCALE 1:20

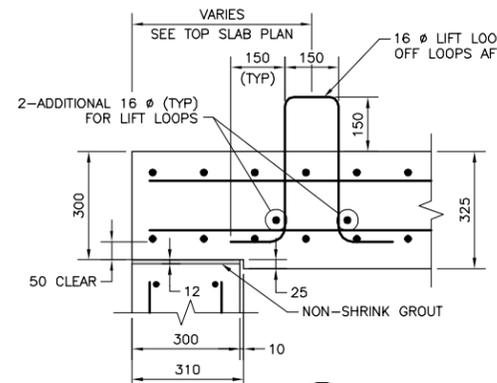


SECTION F-F
SCALE 1:20

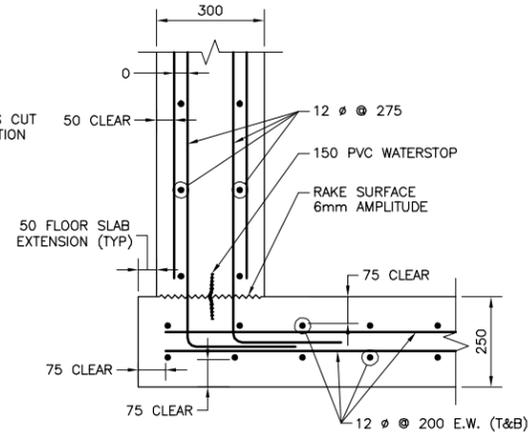
- NOTES:**
- SEE GENERAL AND CONCRETE NOTES ON SHEET C-300.
 - SEE SHEETS C-110, C-111, C-112 AND C-221 FOR PIPE SIZES & LOCATION.
 - ADJUST OPENING AS REQUIRED TO PROVIDE CLEAR ACCESS TO PUMPS.
 - CONFIRM OPENING DIMENSIONS WITH HATCH MANUFACTURER REQUIREMENTS.
 - THE SEWAGE LIFT STATION HAS BEEN DESIGNED FOR AASHTO HS20 VEHICULAR LOADING.
 - ROTATE ALL HOOKS AS NEEDED TO PROVIDE 65mm MIN COVER.
 - THE DESIGN BEARING PRESSURE IS 63.20 kPa [1.32 ksf] (NON-WIND OR SEISMIC).



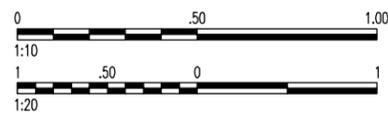
TOP SLAB REINFORCEMENT PLAN
SCALE 1:10



DETAIL 3
SCALE 1:10



DETAIL 4
SCALE 1:10



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CHECKED BY:	FILE NO.:	AF1081--CU304DT
APL		

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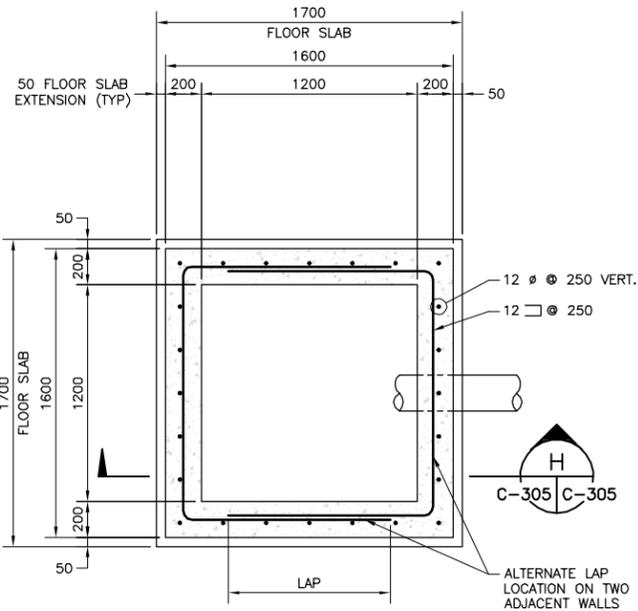
AUSTERE STANDARD DESIGNS--PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

SEWAGE LIFT STATION
VALVE PIT DETAILS

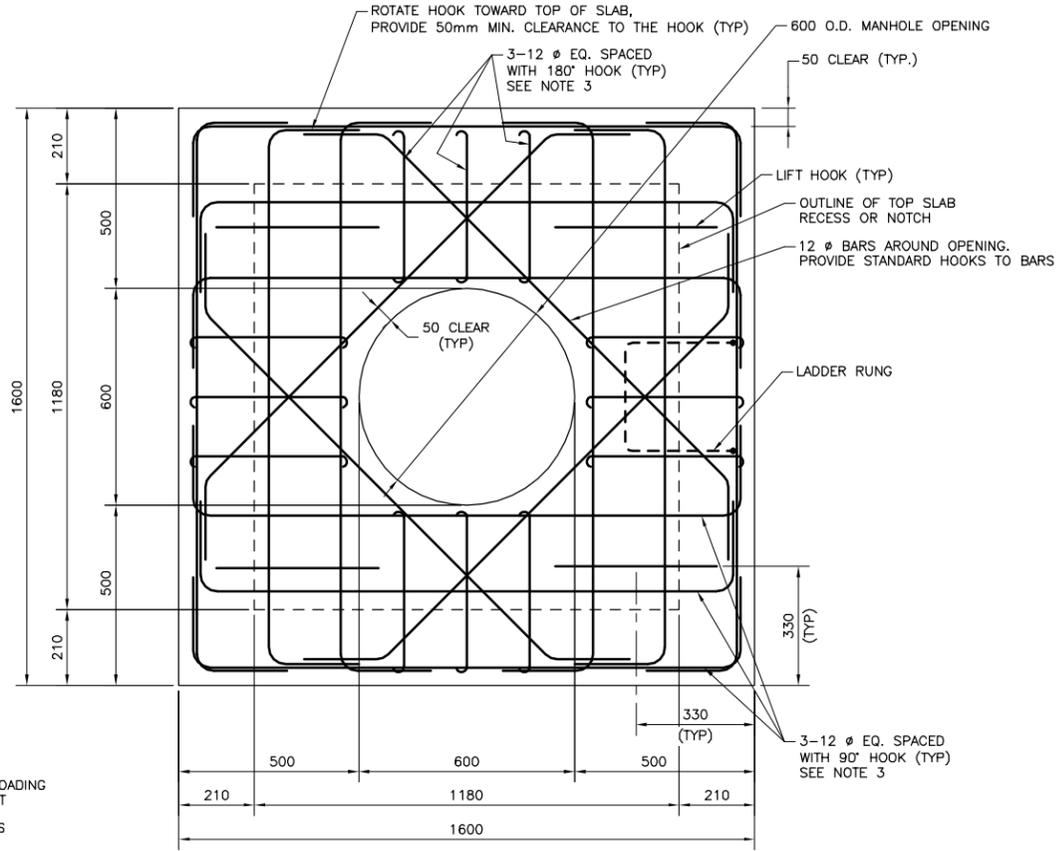
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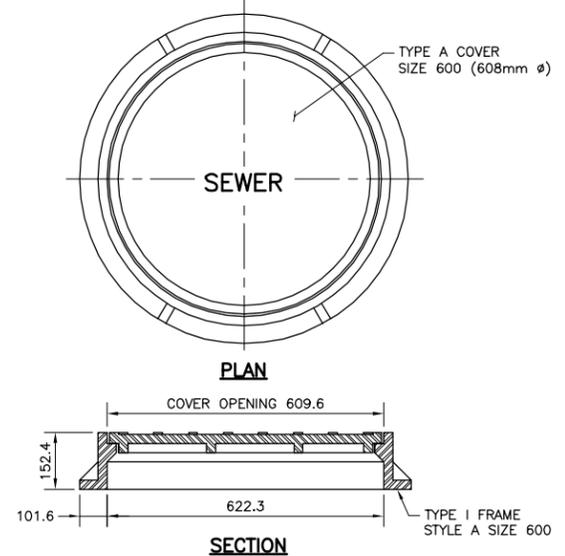
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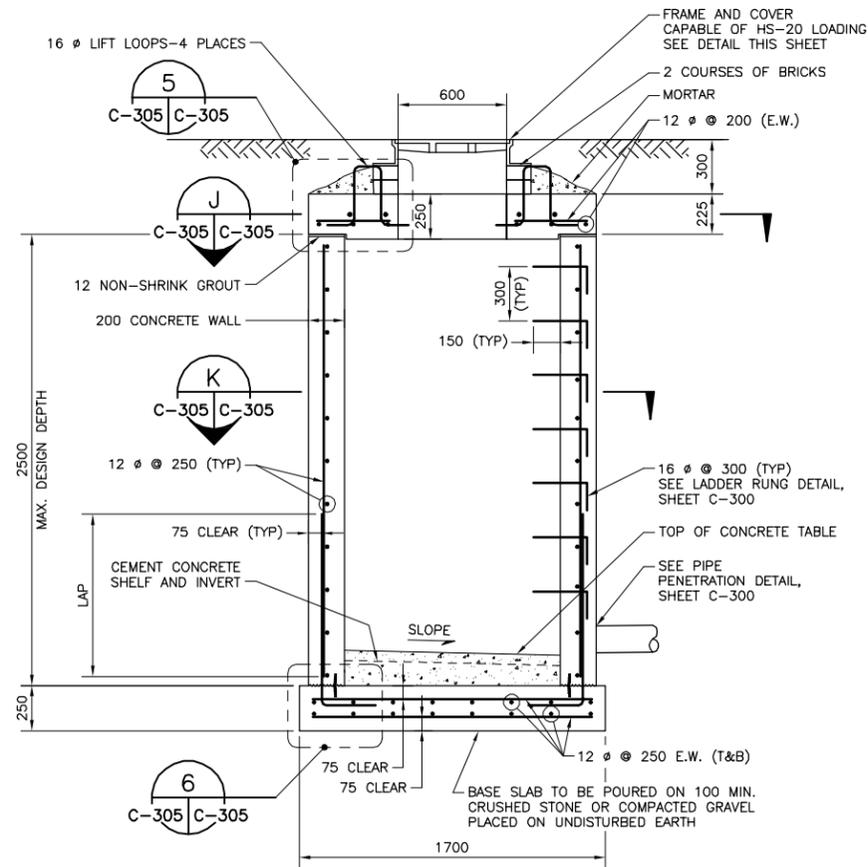
PLAN VIEW
SCALE 1:20
C-305 C-305



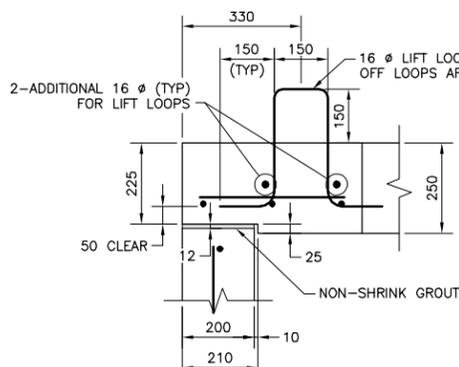
TOP SLAB REINFORCEMENT PLAN
SCALE 1:10
C-305 C-305



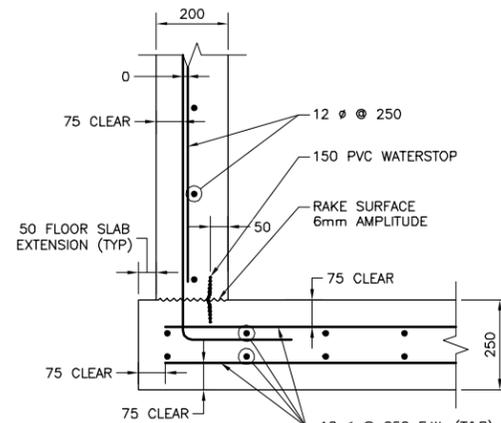
FRAME & COVER DETAIL
N.T.S.



SECTION
SCALE 1:20
C-305 C-305



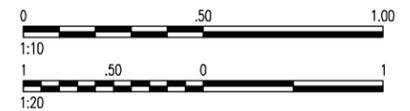
DETAIL 5
SCALE 1:10
C-305 C-305



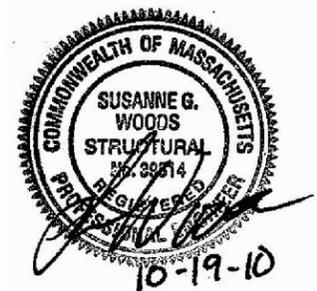
DETAIL 6
SCALE 1:10
C-305 C-305

NOTES:

1. SEE GENERAL AND CONCRETE NOTES ON SHEET C-300.
2. THE MANHOLE HAS BEEN DESIGNED FOR HS-20 VEHICULAR LOADING.
3. ROTATE ALL HOOKS AS NEEDED TO PROVIDE 65mm MIN COVER.
4. THE DESIGN BEARING PRESSURE IS 87.60 kPa [1.83 ksi] (NON-WIND OR SEISMIC).



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CORRECTED FINAL DESIGN SUBMITTAL

NO.	DESCRIPTION	DATE	PREP.
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	SGW
B	FINAL DESIGN SUBMITTAL	10/05/10	SGW
A	MID-POINT DESIGN SUBMITTAL	08/31/10	SGW

DESIGNED BY:	DATE:	10/19/10
NAV	SUBMITTED BY:	TETRA TECH
DRAWN BY:	GRN	
CHECKED BY:	FILE NO.:	AF1081--CU3050T
APL		

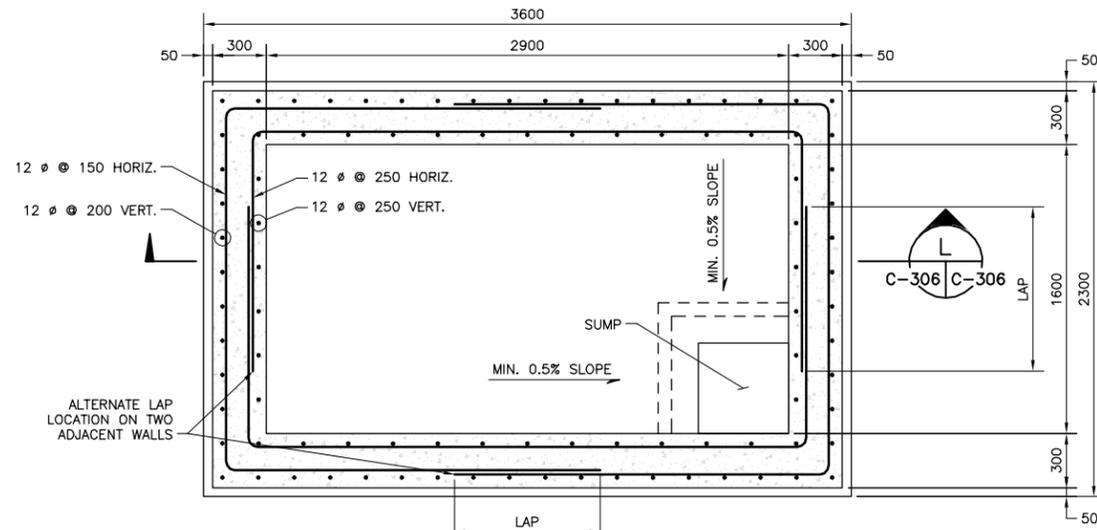
US Army Corps of Engineers
Middle East District
TETRA TECH

AUSTERE STANDARD DESIGNS-PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
SEWER MANHOLE DETAILS

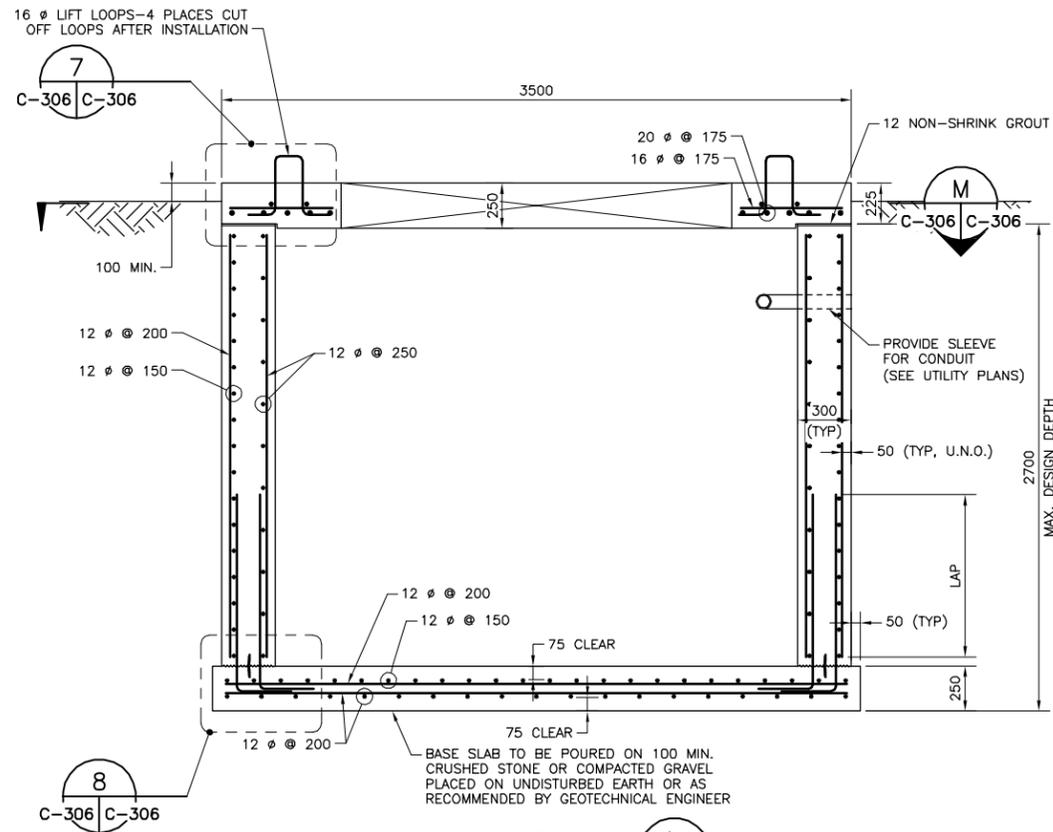
SHEET REFERENCE NUMBER:
AF1081
C-305

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

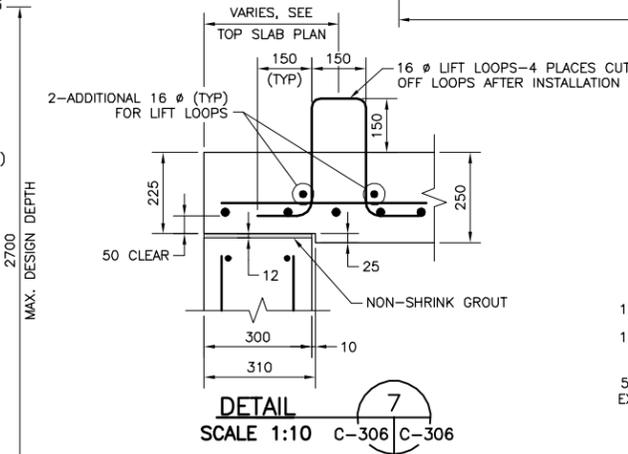
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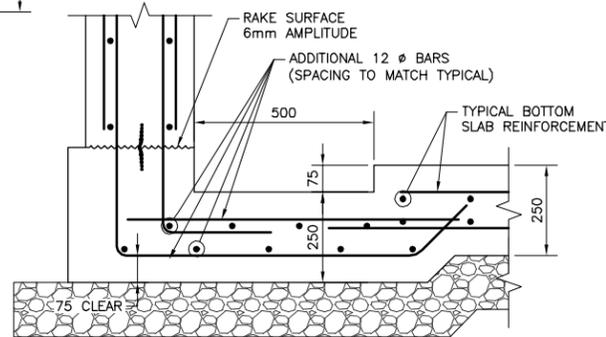
ELECTRIC VAULT PLAN
SCALE 1:20



SECTION
SCALE 1:20

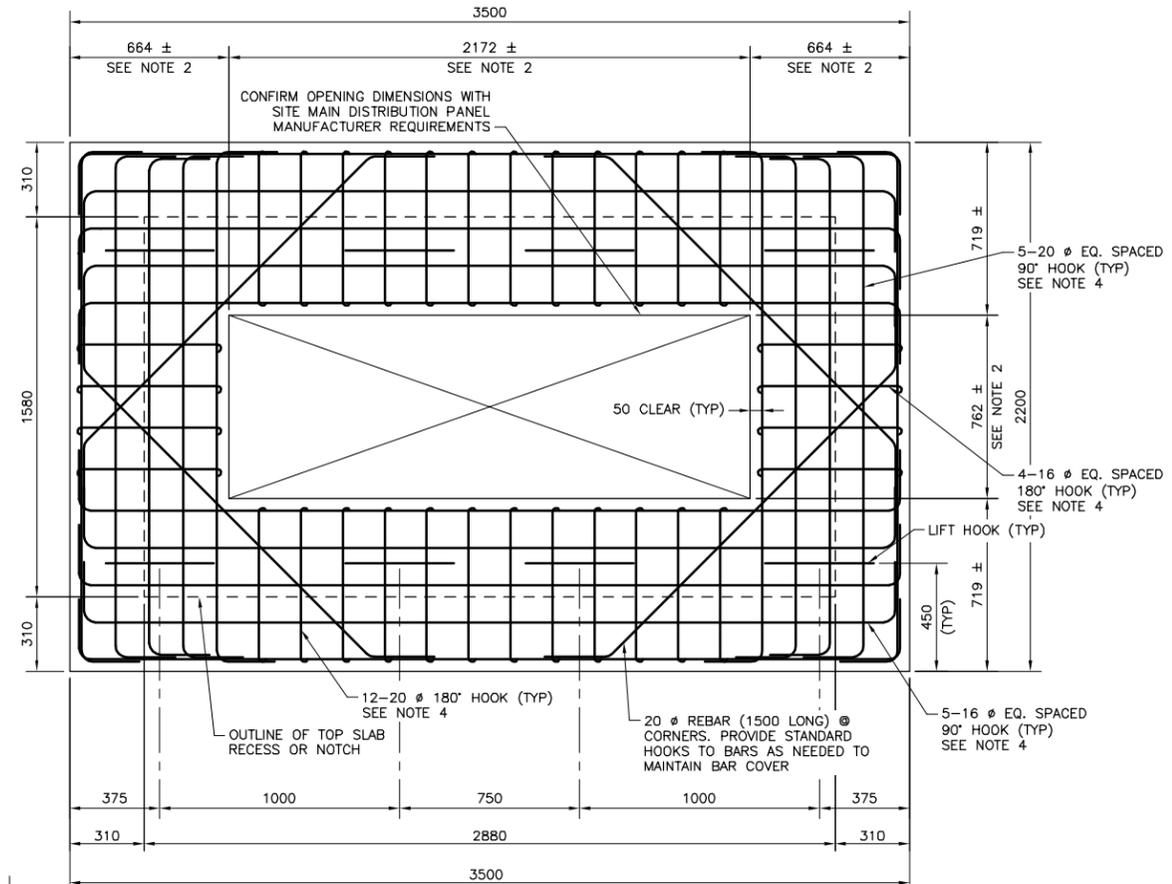


DETAIL
SCALE 1:10

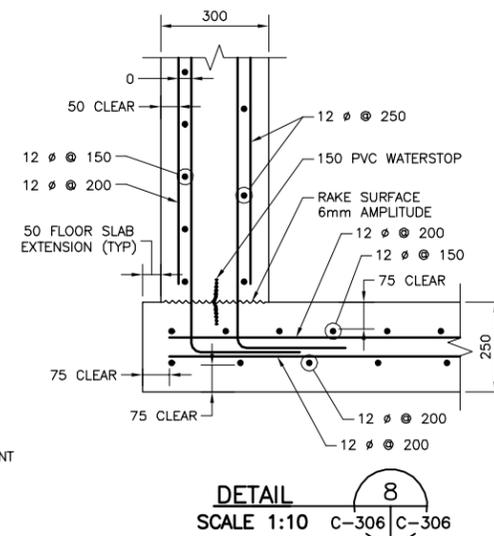


SUMP REINFORCEMENT DETAIL
SCALE 1:10

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.



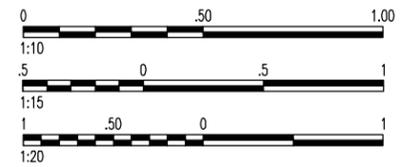
TOP SLAB REINFORCEMENT PLAN
SCALE 1:15



DETAIL
SCALE 1:10

NOTES:

- SEE GENERAL AND CONCRETE NOTES ON SHEET C-300.
- CONFIRM OPENING DIMENSIONS WITH SITE MAIN DISTRIBUTION PANEL MANUFACTURER REQUIREMENTS.
- FOR THE PURPOSE OF DESIGN, THE ASSUMED WEIGHT OF THE SITE MAIN DISTRIBUTION PANEL IS 1000 KG (2205 LBS).
- ROTATE ALL HOOKS AS NEEDED TO PROVIDE 65mm MIN COVER.
- THE DESIGN BEARING PRESSURE IS 47.90 kPa [1.00 ksf] (NON-WIND OR SEISMIC).



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REV	DESCRIPTION	DATE	BY
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A	MID-POINT DESIGN SUBMITTAL	08/31/10	SGW

DESIGNED BY:	DATE:	10/19/10
BRO:	SUBMITTED BY:	TETRA TECH
DRAWN BY:	GPV	
CHECKED BY:	APL	AF1081--CU3060T

US Army Corps of Engineers
Middle East District
TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
ELECTRIC VAULT DETAILS

SHEET REFERENCE NUMBER:
AF1081
C-306

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FINAL
DESIGN
SUBMITTAL

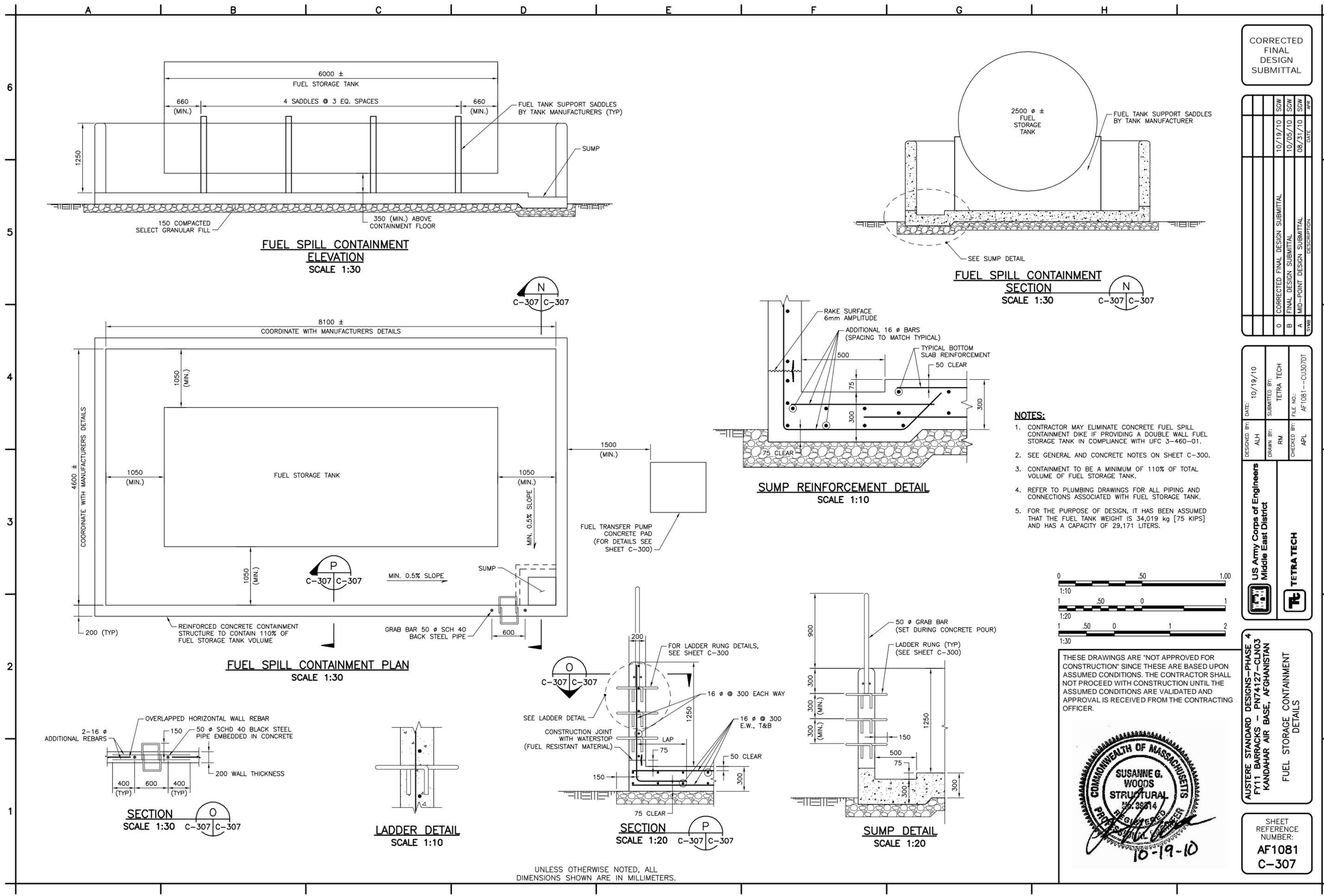
SYMB	DESCRIPTION	DATE	PREP
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B	FINAL DESIGN SUBMITTAL	10/05/10	SGW
A	MID-POINT DESIGN SUBMITTAL	08/31/10	SGW

DESIGNED BY:	DATE:	10/19/10
ALH	10/19/10	
DRAWN BY: <td>RM</td> <td></td>	RM	
CHECKED BY: <td>APL</td> <td></td>	APL	
FILE NO.: <td>AF1081--CU30701</td> <td></td>	AF1081--CU30701	
TETRA TECH		

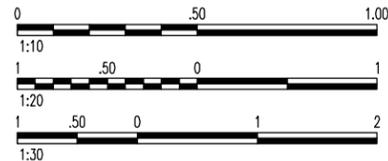
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

FUEL STORAGE CONTAINMENT
DETAILS

SHEET
REFERENCE
NUMBER:
**AF1081
C-307**



- NOTES:**
- CONTRACTOR MAY ELIMINATE CONCRETE FUEL SPILL CONTAINMENT DIKE IF PROVIDING A DOUBLE WALL FUEL STORAGE TANK IN COMPLIANCE WITH UFC 3-460-01.
 - SEE GENERAL AND CONCRETE NOTES ON SHEET C-300.
 - CONTAINMENT TO BE A MINIMUM OF 110% OF TOTAL VOLUME OF FUEL STORAGE TANK.
 - REFER TO PLUMBING DRAWINGS FOR ALL PIPING AND CONNECTIONS ASSOCIATED WITH FUEL STORAGE TANK.
 - FOR THE PURPOSE OF DESIGN, IT HAS BEEN ASSUMED THAT THE FUEL TANK WEIGHT IS 34,019 kg [75 KIPS] AND HAS A CAPACITY OF 29,171 LITERS.



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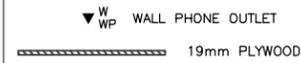
METRIC COPPER CONDUCTOR CONVERSION CHART		
AWG KCMIL	COMPUTER CONVERSION mm ²	ADVISED CROSS SECTION mm ²
24	.2	0.25
20	.5	0.75
18	.8	1
16	1.3	1.5
14	2.1	2.5
12	3.3	4
10	5.27	6
8	8.4	10
6	13.3	16
4	21.2	25
3	26.7	25
2	33.6	35
1	42.4	50
1/0	53.4	50
2/0	67.5	70
3/0	85.0	95
4/0	107.2	120

EQUIVALENT CONDUIT SIZE	
mm	INCH
20	3/4
25	1
32	1 1/4
38	1 1/2
50	2
64	2 1/2
76	3
90	3 1/2
100	4

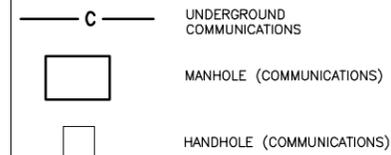
GENERAL NOTES:

- ALL CONDUIT PENETRATIONS THRU WALLS OR CEILINGS SHALL BE SEALED/FIRESTOPPED.
- FOR ELECTRICAL INSTALLATION SEISMIC REQUIREMENTS, SEE SPECIFICATION 26 05 48 00.10.

PLAN LEGEND (TELECOM)



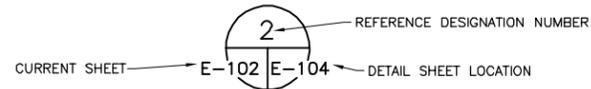
PLAN LEGEND (SITE)



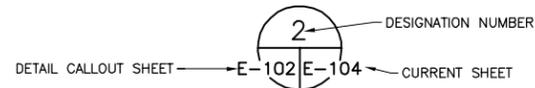
ABBREVIATIONS

- AFG ABOVE FINISHED GRADE
- AFF ABOVE FINISHED FLOOR
- A AMPERE
- AIC AMPERE INTERRUPTING CAPACITY
- BFG BELOW FINISHED GRADE
- BLDG BUILDING
- CKT CIRCUIT
- C CONDUIT
- CND CONDUCTOR
- EC CONTRACTOR RESPONSIBLE FOR ELECTRICAL WORK
- FOC FIBER OPTIC CABLE
- GFE GOVERNMENT FURNISHED CONTRACTOR INSTALLED
- GFGI GOVERNMENT FURNISHED GOVERNMENT INSTALLED
- GFI GROUND FAULT INTERRUPTING
- GRS GALVANIZED RIGID STEEL CONDUIT
- HZ HERTZ
- M METERS
- mm MILLIMETERS
- MH MANHOLE
- MTD MOUNTED
- OSP OUTSIDE PLANT
- PET PROTECTED ENTRANCE TERMINATION
- PP PATCH PANEL
- RM ROOM
- SM SINGLEMODE
- TC CONTRACTOR RESPONSIBLE FOR TELECOMMUNICATIONS WORK
- TMGB TELECOMMUNICATIONS MAIN GROUNDING BUS
- TR TELECOMMUNICATIONS ROOM
- UTP UNSHIELDED TWISTED PAIR
- WM WALL MOUNTED
- WP WEATHER-PROOF

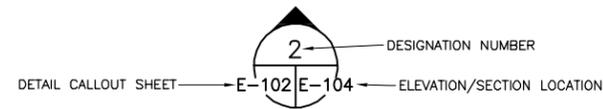
DETAIL CALLOUT



DETAIL TITLE



ELEVATION/SECTION CALLOUT



UNLESS NOTED ELSEWHERE ON THE CONTRACT DOCUMENTS, THE FOLLOWING LIST REPRESENTS THE TYPICAL MOUNTING HEIGHTS FOR THE DEVICES SHOWN:
 a. WALL(W) TELE. AND/OR CALL SWITCHES 1,219mm (TO TOP)

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

CORRECTED
FINAL
DESIGN
SUBMITTAL

REV	DESCRIPTION	DATE	KCT	APR
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10		

DESIGNED BY: JLB	DATE: 10/19/10
DRAWN BY: SES	SUBMITTED BY: TETRA TECH
CHECKED BY: RSM	FILE NO.: AF1081-1-XT001GN

US Army Corps of Engineers
Middle East District

TETRA TECH

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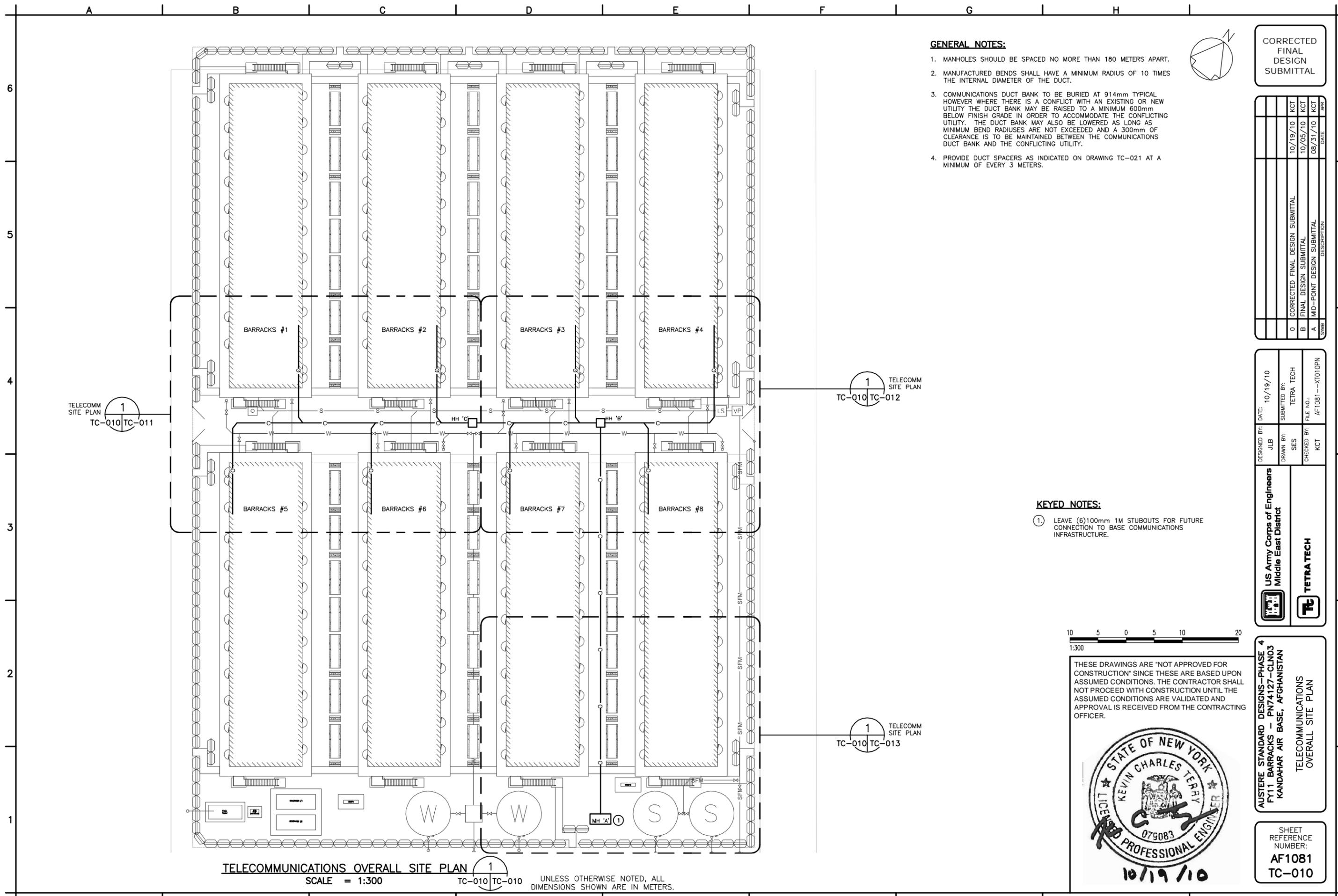


AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS
 LEGEND, ABBREVIATIONS,
 SYMBOLS AND GENERAL NOTES

SHEET REFERENCE NUMBER:
AF1081
TC-001

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GENERAL NOTES:

1. MANHOLES SHOULD BE SPACED NO MORE THAN 180 METERS APART.
2. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 10 TIMES THE INTERNAL DIAMETER OF THE DUCT.
3. COMMUNICATIONS DUCT BANK TO BE BURIED AT 914mm TYPICAL HOWEVER WHERE THERE IS A CONFLICT WITH AN EXISTING OR NEW UTILITY THE DUCT BANK MAY BE RAISED TO A MINIMUM 600mm BELOW FINISH GRADE IN ORDER TO ACCOMMODATE THE CONFLICTING UTILITY. THE DUCT BANK MAY ALSO BE LOWERED AS LONG AS MINIMUM BEND RADIUS ARE NOT EXCEEDED AND A 300mm OF CLEARANCE IS TO BE MAINTAINED BETWEEN THE COMMUNICATIONS DUCT BANK AND THE CONFLICTING UTILITY.
4. PROVIDE DUCT SPACERS AS INDICATED ON DRAWING TC-021 AT A MINIMUM OF EVERY 3 METERS.



CORRECTED FINAL DESIGN SUBMITTAL

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0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT
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A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--XT010PN

US Army Corps of Engineers
Middle East District

TETRA TECH

KEYED NOTES:

1. LEAVE (6)100mm 1M STUBOUTS FOR FUTURE CONNECTION TO BASE COMMUNICATIONS INFRASTRUCTURE.



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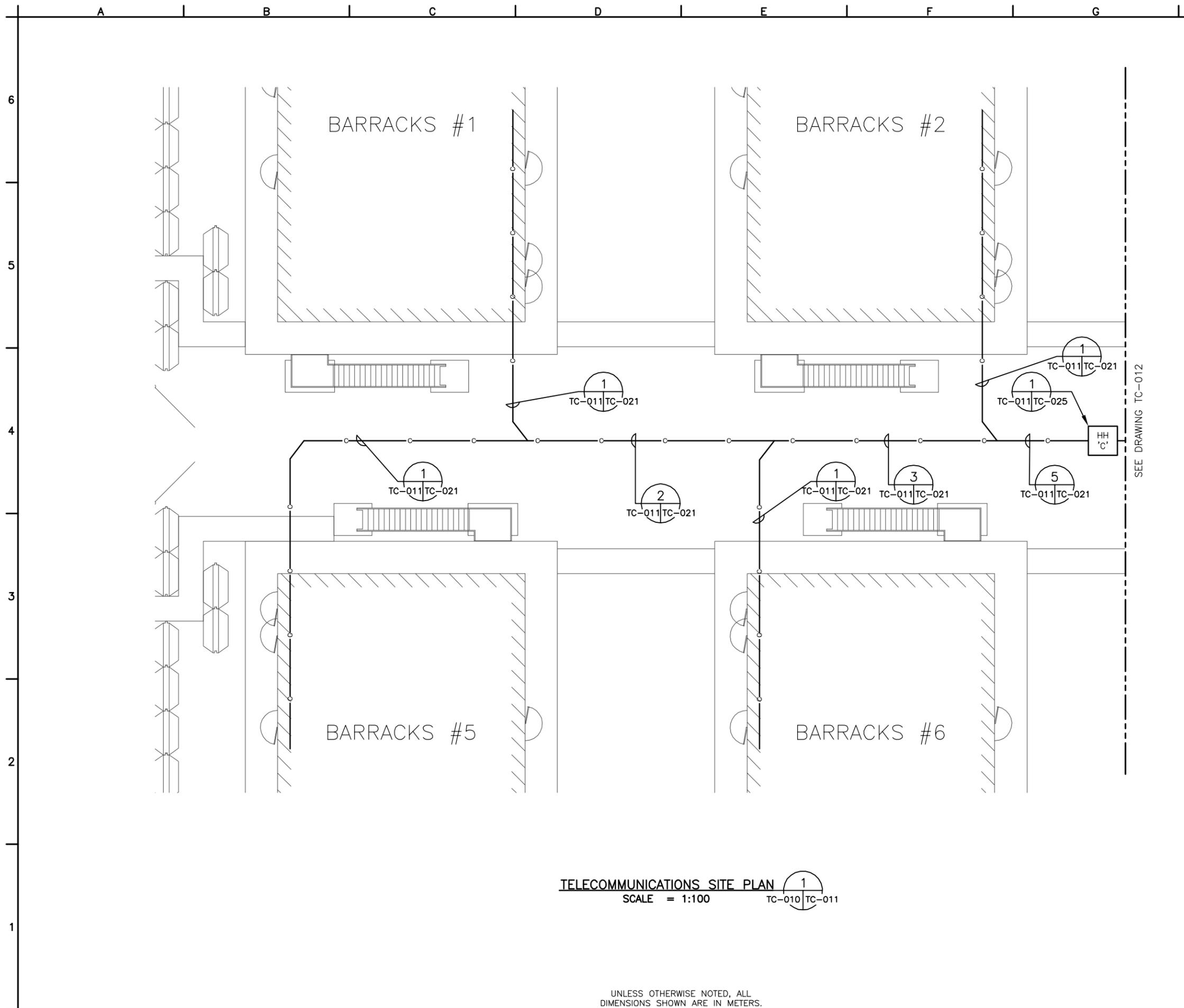
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
TELECOMMUNICATIONS OVERALL SITE PLAN

SHEET REFERENCE NUMBER:
AF1081 TC-010

TELECOMMUNICATIONS OVERALL SITE PLAN
SCALE = 1:300
TC-010 TC-011 TC-012 TC-013

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.

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TELECOMMUNICATIONS SITE PLAN 
 SCALE = 1:100 TC-010|TC-011

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.



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DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
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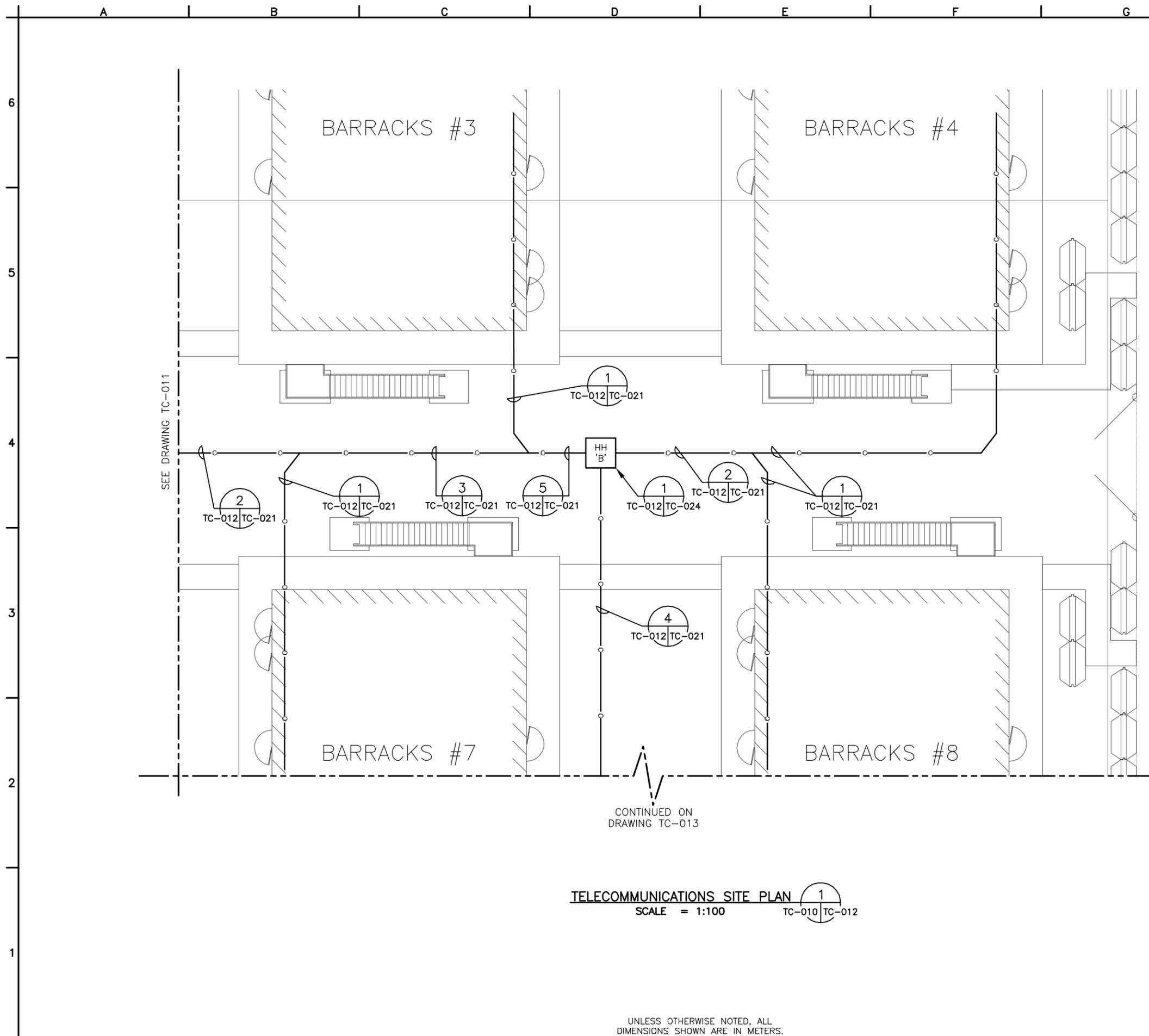
US Army Corps of Engineers
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AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN
 TELECOMMUNICATIONS SITE PLAN
 SHEET 1 OF 3

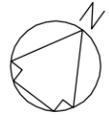
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TELECOMMUNICATIONS SITE PLAN 1
SCALE = 1:100 TC-010 | TC-012

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.



CORRECTED
FINAL
DESIGN
SUBMITTAL

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DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--XT012LS

US Army Corps of Engineers
Middle East District



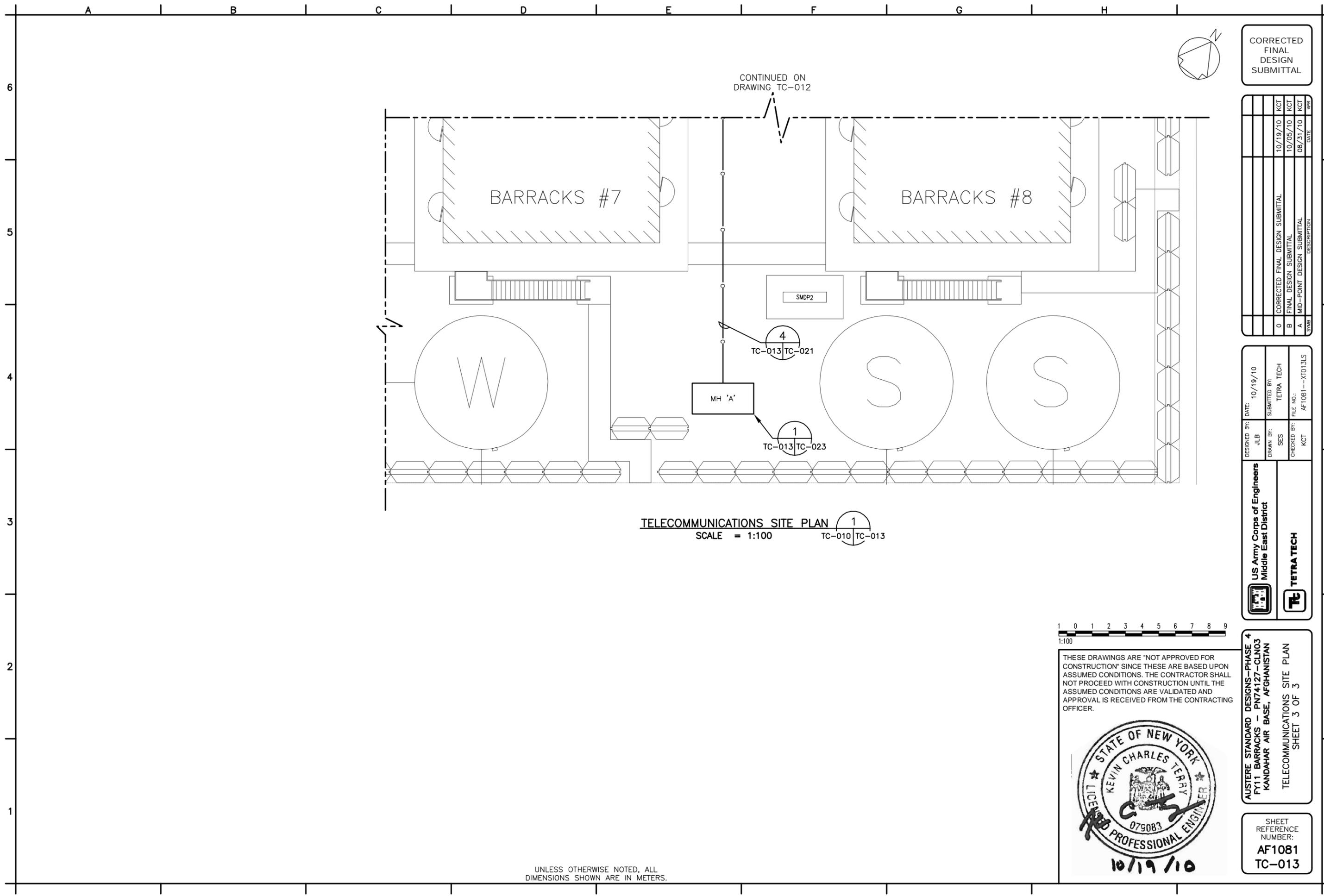
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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN
TELECOMMUNICATIONS SITE PLAN
SHEET 2 OF 3

SHEET REFERENCE NUMBER:
**AF1081
TC-012**

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TELECOMMUNICATIONS SITE PLAN 1
SCALE = 1:100 TC-010 TC-013



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DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--XT013LS

US Army Corps of Engineers
Middle East District

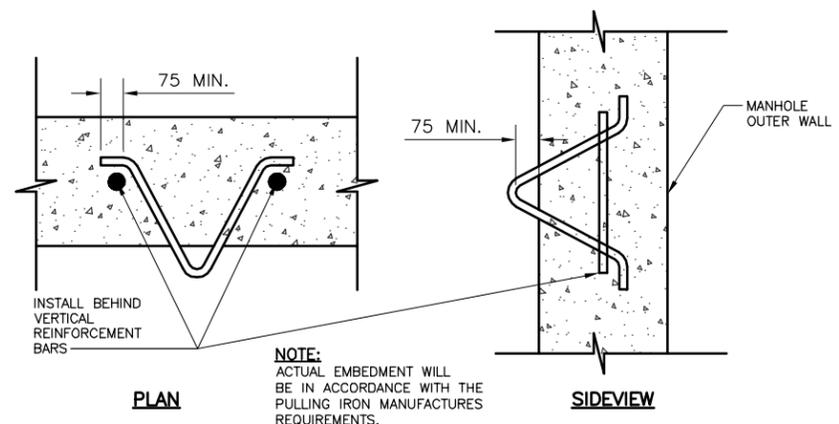
TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

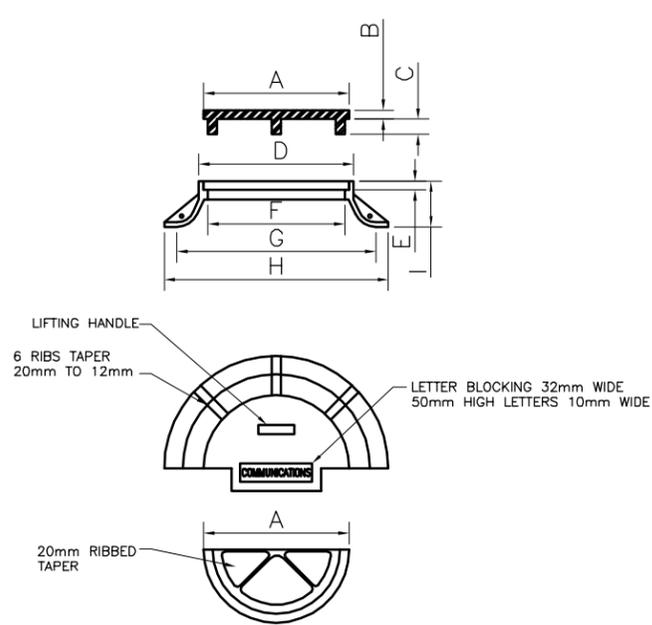
TELECOMMUNICATIONS SITE PLAN
SHEET 3 OF 3

SHEET REFERENCE NUMBER:
AF1081
TC-013

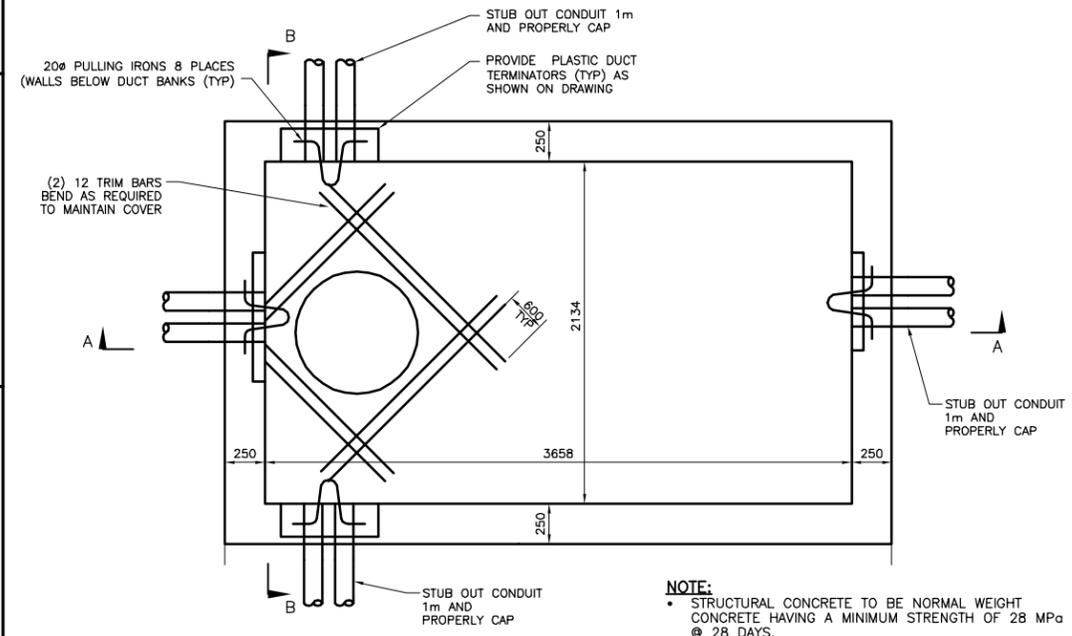
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**TYPICAL PULLING-IN IRON
DETAIL A
N.T.S.**



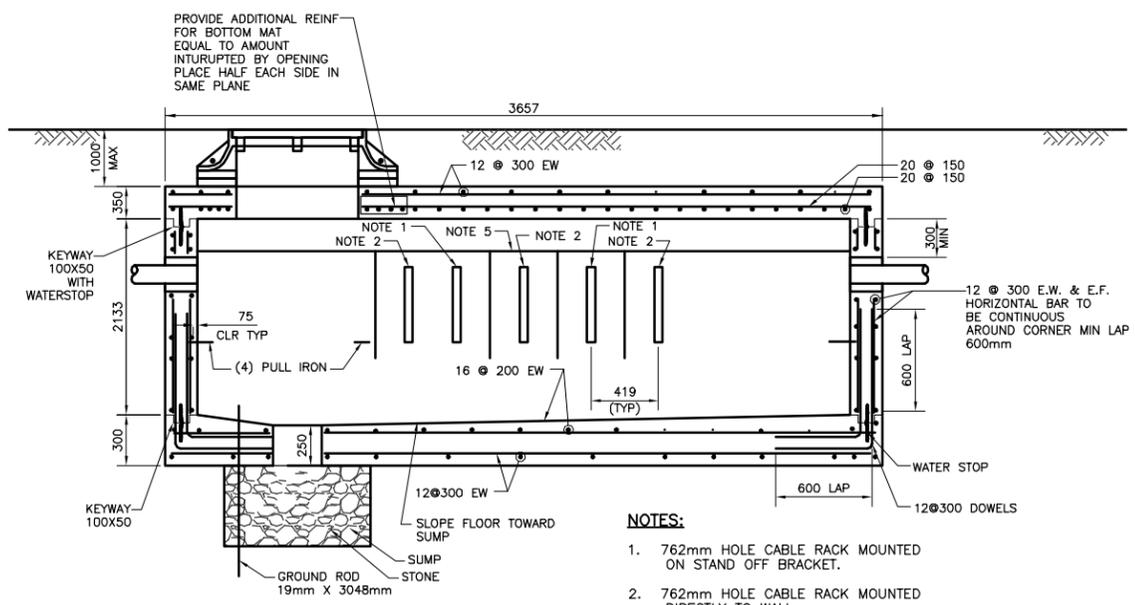
	A	B	C	D	E	F	G	H	I
MANHOLE	810mm	51mm	83mm	813mm	51mm	762mm	1041mm	1245mm	245mm



**COMMUNICATIONS MANHOLE - TRAFFIC RATED
N.T.S.**

NOTE:

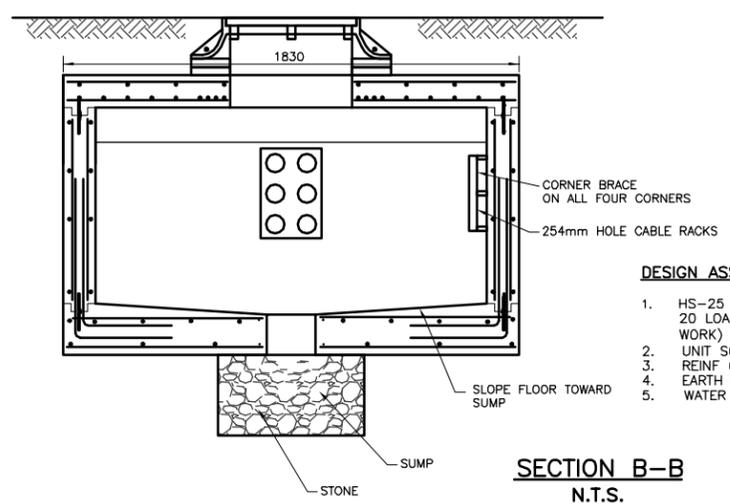
- STRUCTURAL CONCRETE TO BE NORMAL WEIGHT CONCRETE HAVING A MINIMUM STRENGTH OF 28 MPa @ 28 DAYS.
- REINFORCING STEEL ASTM A615 GR. 60 YIELD STRENGTH = 4218 kg/cm²
- ALLOW CONCRETE TO CURE 3 DAYS PRIOR TO BACKFILL
- CONCRETE MUST REACH FULL 28 DAY COMPRESSIVE STRENGTH PRIOR TO TRAFFIC LOADING



**SECTION A-A
N.T.S.**

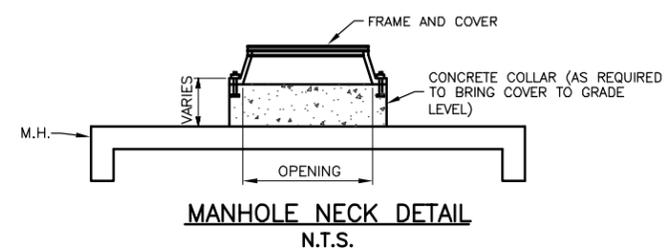
- NOTES:**
- 762mm HOLE CABLE RACK MOUNTED ON STAND OFF BRACKET.
 - 762mm HOLE CABLE RACK MOUNTED DIRECTLY TO WALL
 - PROVIDE 42 EACH 254mm CABLE HOOK
 - PROVIDE 42 INSOLATORS
 - GROUND WIRE BOND
 - PROVIDE 20 GROUND WIRE FARGO CONNECTERS

NOTE:
REFER TO SITE DRAWINGS FOR LOCATIONS OF MANHOLES.



**SECTION B-B
N.T.S.**

- DESIGN ASSUMPTIONS:**
- HS-25 LOADING (THIS EXCEEDS THE HS 20 LOAD RATING REQUIRED BY THE SCOPE OF WORK)
 - UNIT SOIL WEIGHT = 1920kg/m³
 - REINF COVER = 75mm TYP UNO
 - EARTH COVER = 0.0m TO 1.0m
 - WATER TABLE - AT GRADE



UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--XT0200T

**US Army Corps of Engineers
Middle East District**

TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

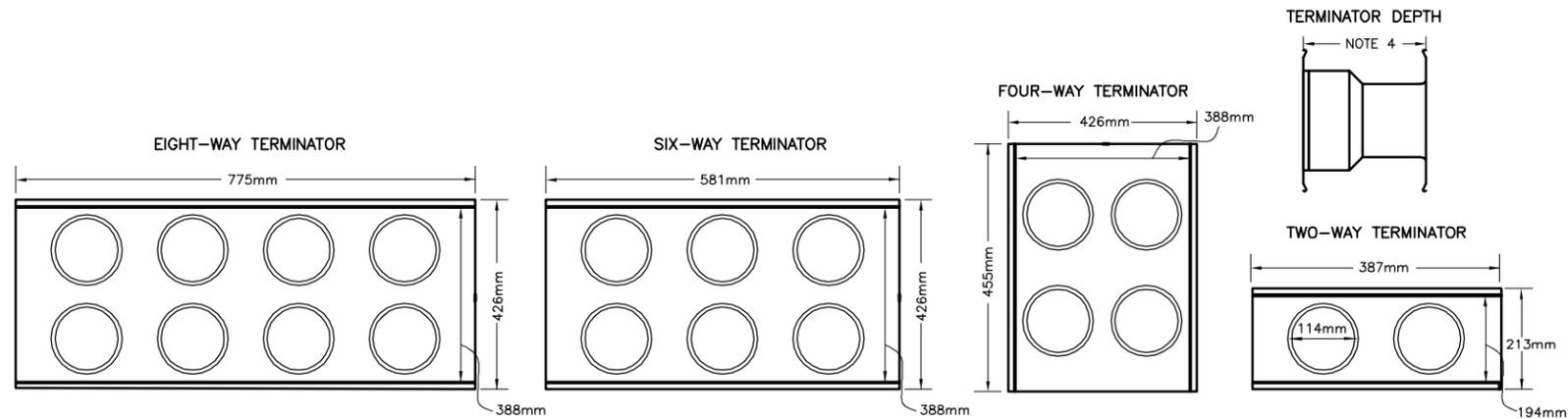
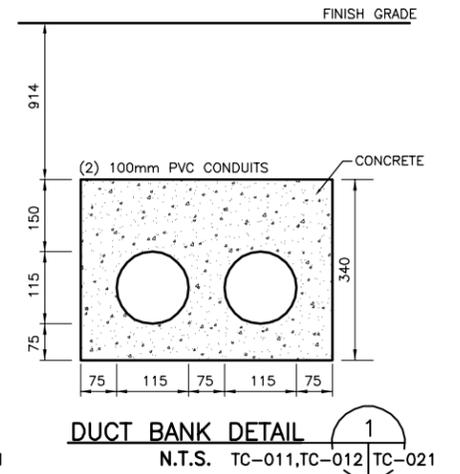
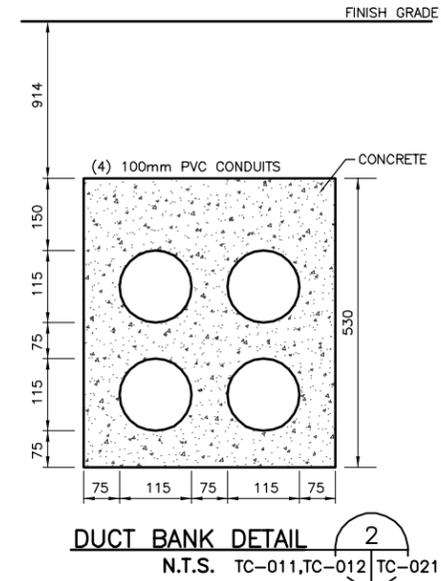
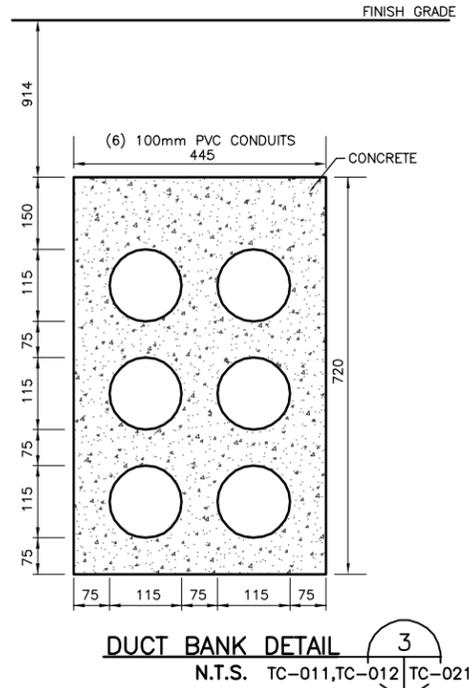
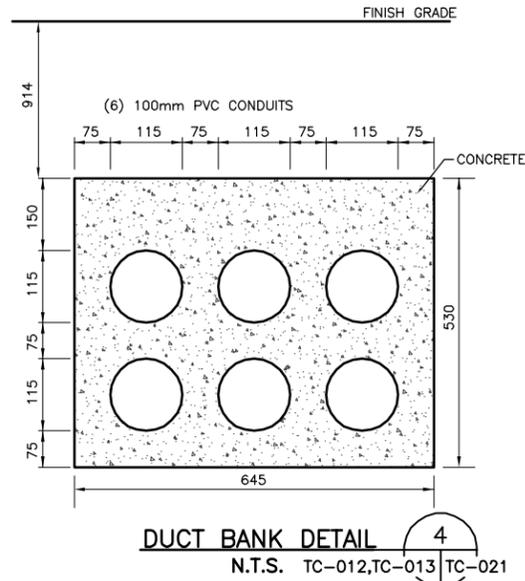
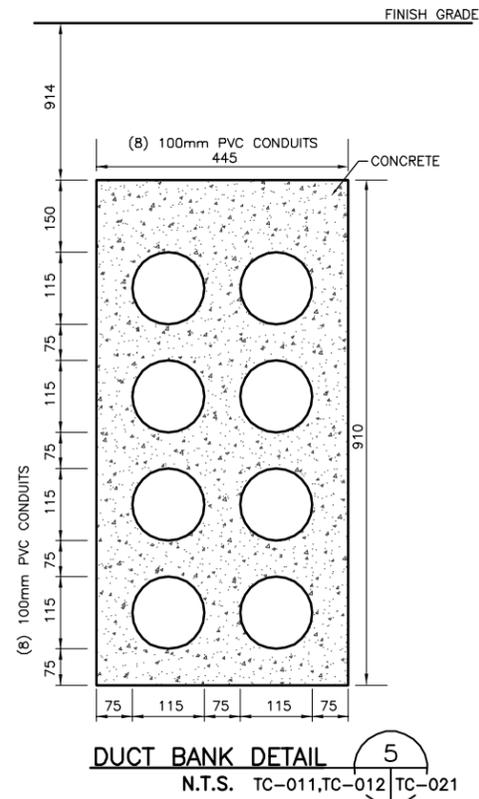
TELECOMMUNICATIONS DETAILS
SHEET 1 OF 6

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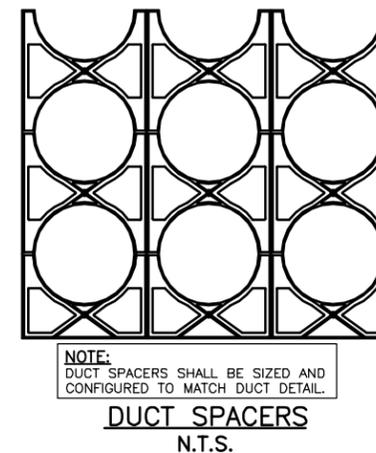
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SHEET REFERENCE NUMBER:
**AF1081
TC-020**

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- GENERAL NOTES:**
1. TERMINATORS SHALL BE CONNECTED ("INTERLOCKED") TO FORM PANELS AS REQUIRED BY DUCT CONFIGURATION.
 2. REINFORCING BARS WILL BE INSTALLED BETWEEN THE TERMINATORS.
 3. DUCT TERMINATORS WILL BE SIZED FOR 114mm OUTER DIAMETER (4.5 INCH OD).
 4. TERMINATOR DEPTH VARIES DEPENDENT ON MH/HH WALL THICKNESS.



NOTE:
DUCT SPACERS SHALL BE SIZED AND CONFIGURED TO MATCH DUCT DETAIL.

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

CORRECTED FINAL DESIGN SUBMITTAL

SYMB	DESCRIPTION	DATE	APP
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT
B	FINAL DESIGN SUBMITTAL	10/05/10	KCT
A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

DESIGNED BY:	DATE:	10/19/10
DRAWN BY:	DESIGNED BY:	JLB
CHECKED BY:	DESIGNED BY:	SES
	DESIGNED BY:	TETRA TECH
	FILE NO.:	AF1081--XT021DT

US Army Corps of Engineers
Middle East District

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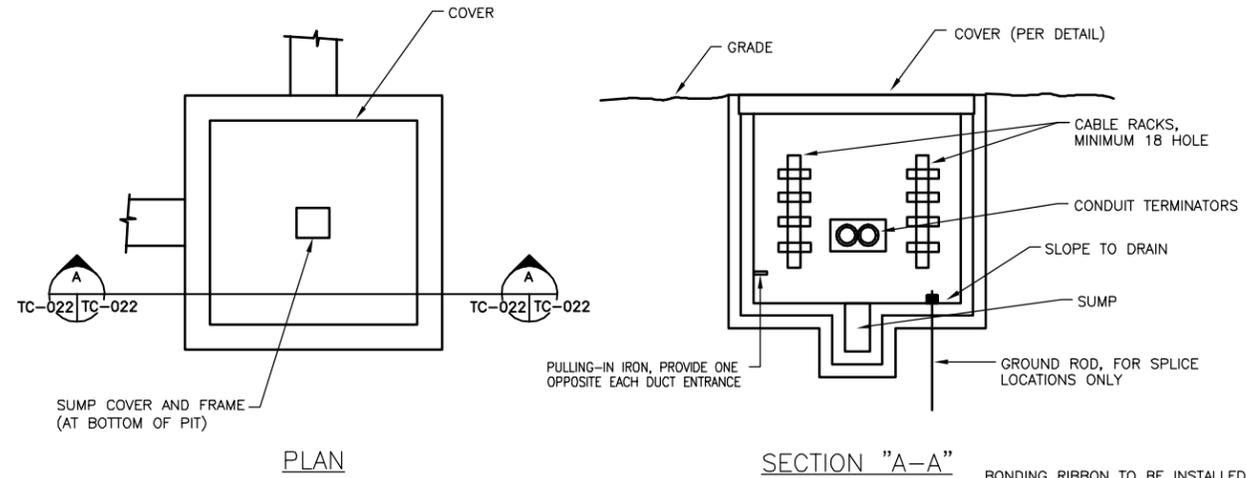


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS
SHEET 2 OF 6

SHEET REFERENCE NUMBER:
AF1081 TC-021

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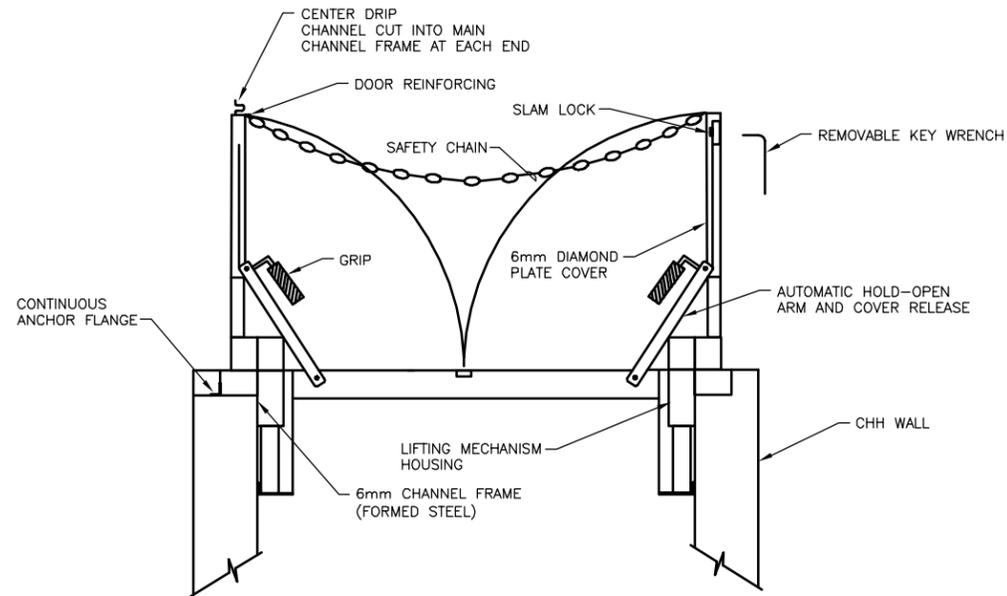
MINIMUM CONCRETE THICKNESS	
HANDHOLE WALLS AND FLOOR	203mm

CONSTRUCTION REQUIREMENTS				
MINIMUM REQUIREMENTS				
TYPE	HEIGHT	LENGTH	WIDTH	SUMP DEPTH
THH	NOTE 1	1.2m	1.2m	.25m

NOTE:
1. HEIGHT REQUIRED FOR MINIMUM CONDUIT DEPTHS INDICATED

MINIMUM REINFORCING
1. BARS WILL BE A MINIMUM OF 13 Ø ROUND DEFORMED.
2. WALLS AND FLOOR WILL HAVE BARS AT 200mm MAXIMUM ON CENTERS WITH A MINIMUM 300 mm HOOK AT CORNERS AND INTERSECTIONS.
3. THE TOP SHALL HAVE BARS INSTALLED AS SHOWN AT A MINIMUM OF 50mm FROM THE OPENING AND WITH A MINIMUM 100mm SPACING BETWEEN BARS.

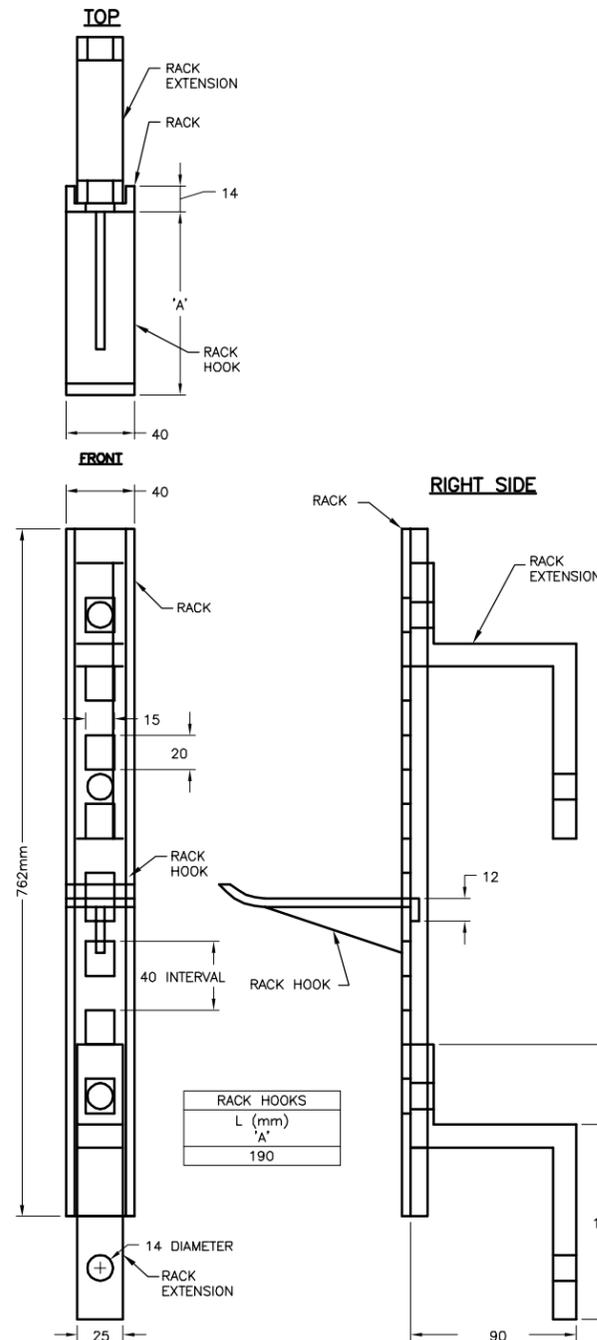
HANDHOLE DETAIL
N.T.S.



HANDHOLE COVER
N.T.S.

COVER DESIGNED TO WITHSTAND H20 WHEEL LOADING SUITABLE FOR USE IN OFF STREET LOCATIONS WHERE NOT SUBJECTED TO HIGH DENSITY TRAFFIC.

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.



MANHOLE CABLE RACKS
N.T.S.

CORRECTED FINAL DESIGN SUBMITTAL

REV	DATE	DESCRIPTION
0	10/19/10	KCT CORRECTED FINAL DESIGN SUBMITTAL
B	10/05/10	KCT FINAL DESIGN SUBMITTAL
A	08/31/10	KCT MID-POINT DESIGN SUBMITTAL

DESIGNED BY: JLB	DATE: 10/19/10
DRAWN BY: SES	SUBMITTED BY: TETRA TECH
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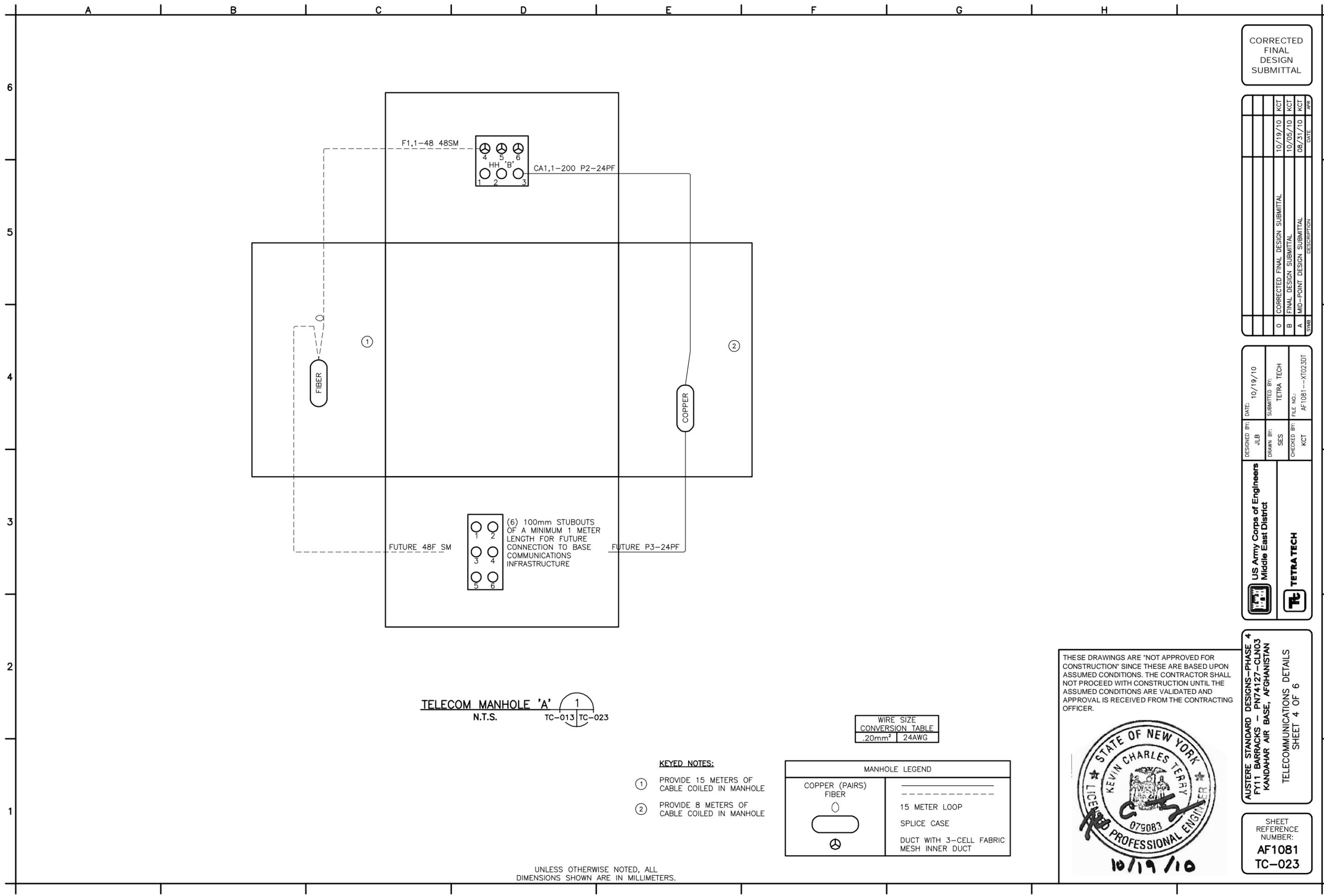


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS
SHEET 3 OF 6

SHEET REFERENCE NUMBER:
AF1081 TC-022

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TELECOM MANHOLE 'A'
N.T.S. TC-013 TC-023

WIRE SIZE CONVERSION TABLE	
.20mm ²	24AWG

- KEYED NOTES:**
- ① PROVIDE 15 METERS OF CABLE COILED IN MANHOLE
 - ② PROVIDE 8 METERS OF CABLE COILED IN MANHOLE

MANHOLE LEGEND	
COPPER (PAIRS)	-----
FIBER	-----
	15 METER LOOP
	SPLICE CASE
	DUCT WITH 3-CELL FABRIC MESH INNER DUCT

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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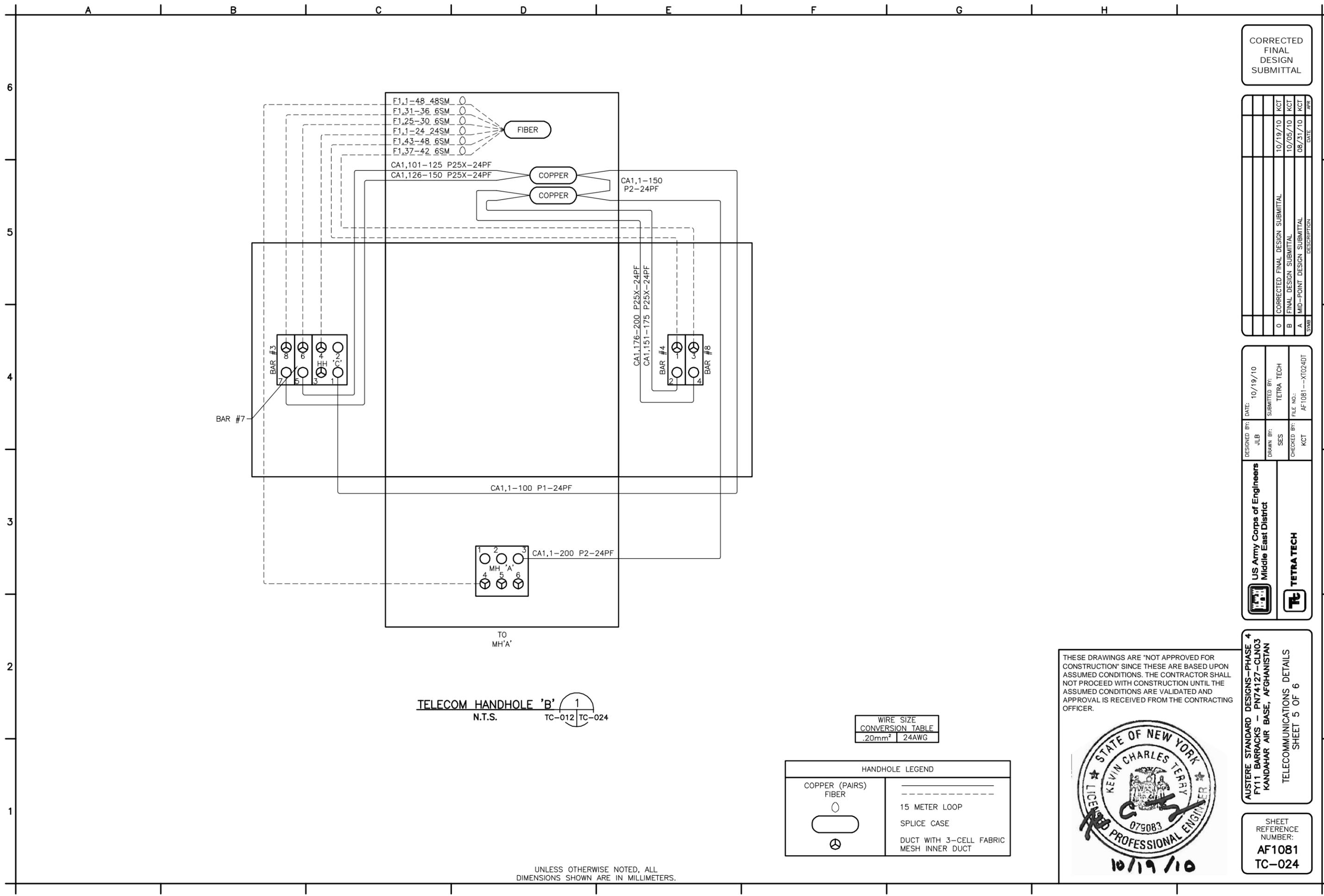
TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS
SHEET 4 OF 6

SHEET REFERENCE NUMBER:
AF1081 TC-023

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TELECOM HANDHOLE 'B'
N.T.S. TC-012 TC-024

WIRE SIZE CONVERSION TABLE	
.20mm ²	24AWG

HANDHOLE LEGEND	
COPPER (PAIRS)	-----
FIBER	-----
	15 METER LOOP
	SPLICE CASE
	DUCT WITH 3-CELL FABRIC MESH INNER DUCT

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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SYMB	DESCRIPTION	DATE	APP
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B	FINAL DESIGN SUBMITTAL	10/05/10	KCT
A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

DESIGNED BY:	JLB	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--XT024DT

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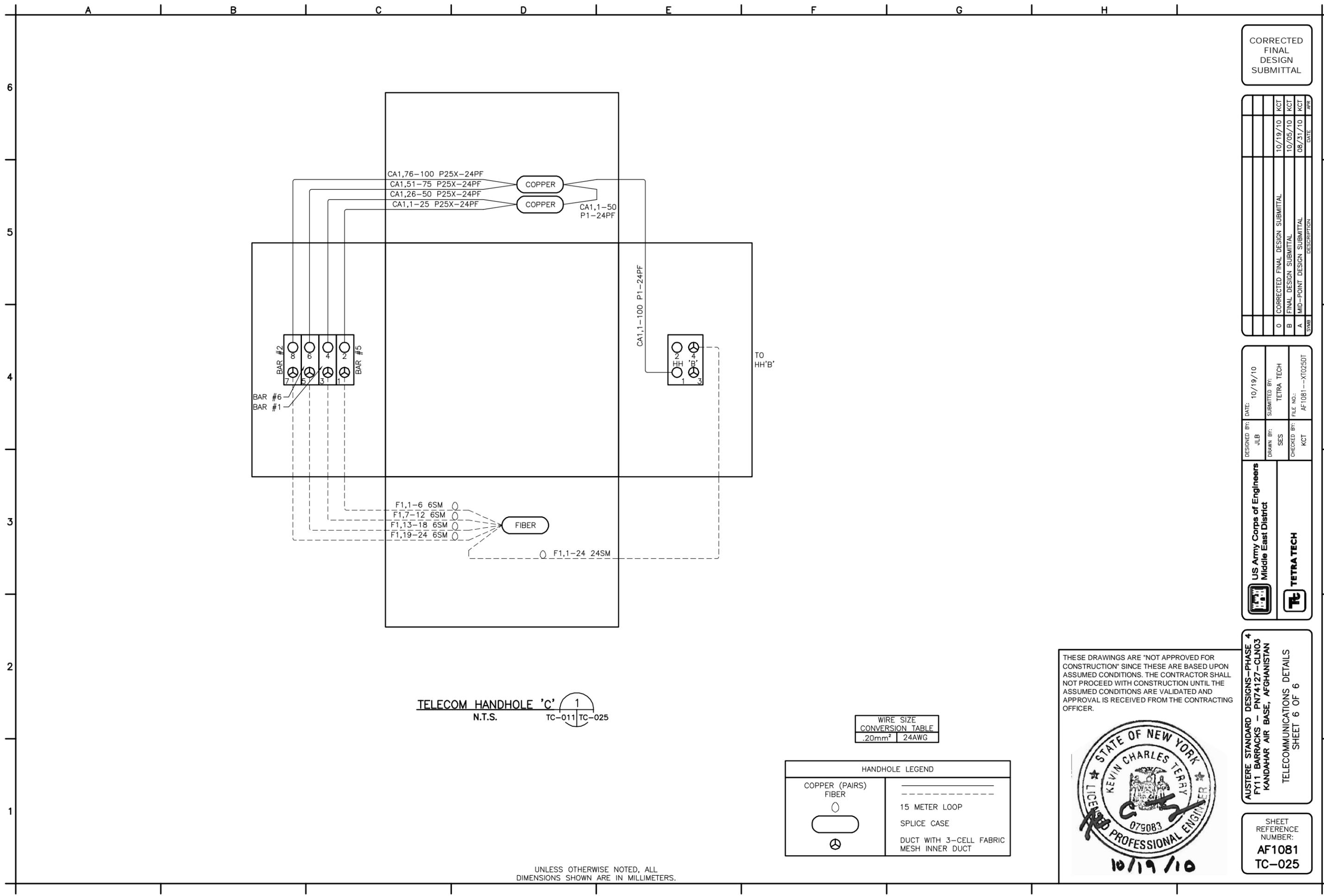


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS
SHEET 5 OF 6

SHEET REFERENCE NUMBER:
AF1081 TC-024

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CORRECTED
FINAL
DESIGN
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SYMB	DESCRIPTION	DATE	APP
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A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

TELECOMMUNICATIONS DETAILS
SHEET 6 OF 6

SHEET REFERENCE NUMBER:
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TC-025**

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PLAN LEGEND (LIGHTING)

FOR LIGHT FIXTURE SYMBOLS
REFER TO LIGHT FIXTURE SCHEDULE
ON DRAWING E-200

SWITCH
 3-WAY SWITCH
 4-WAY SWITCH
 HOMERUN TO PANELBOARD. SYMBOL SHOWN INDICATES CIRCUIT NO. 2 PANEL LPB1. REFER TO PANELBOARD SCHEDULE FOR FURTHER INFORMATION.

PLAN LEGEND (POWER)

PANELBOARD
 MOTOR XXX-## = PANEL AND CIRCUIT NUMBER. ## = MOTOR NUMBER IN MOTOR CONNECTION SCHEDULE.
 GFI 20A, 120V, 60 Hz DUPLEX RECEPTACLE GFI SUBSCRIPT INDICATES GROUND FAULT INTERRUPTER. LABEL RECEPTACLE WITH VOLTAGE, FREQUENCY & BRANCH CIRCUIT CONNECTED.
 20A, 120V, 60 Hz DOUBLE DUPLEX RECEPTACLE LABEL RECEPTACLE WITH VOLTAGE, FREQUENCY & BRANCH CIRCUIT CONNECTED.
 TRANSFORMER - # DENOTES DESIGNATION
 DISCONNECT SWITCH
 EQUIPMENT CONNECTION - TYPE AS INDICATED.
 MDP
 LIGHTNING PROTECTION AIR TERMINAL

ONE-LINE AND CONTROL SCHEMATIC LEGEND

GENERATOR
 CIRCUIT BREAKER
 TRANSFORMER
 HIGH VOLTAGE FUSE
 HIGH VOLTAGE SWITCH
 FUSED DISCONNECT SWITCH

PLAN LEGEND (SITE)

SITE MAIN DISTRIBUTION PANEL # DENOTES DESIGNATION (PAD MOUNTED)
 TRANSFORMER (PAD MOUNTED)
 PULLBOX
 ELECTRIC MANHOLE
 NEW UNDERGROUND ELECTRIC

ALLOWABLE AMPACITIES OF CONDUCTORS		
NOT MORE THAN 3 CURRENT-CARRYING CONDUCTORS IN RACEWAY/CABLE/EARTH (30°C)		
SIZE		
AWG (CU)	mm ²	AMPACITY
12	4	20*
10	6	30*
8	10	40*
6	16	55*
4	25	70*
3	35	85*
2	35	89**
1	50	108**
1/0	70	136**
2/0	70	136**
3/0	95	164**
4/0	120	188**
250	150	216**
300	150	216**
350	185	245**
400	240	286**
500	300	328**
600	300	328**

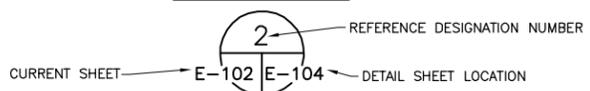
MINIMUM INSIDE DIAMETER EQUIVALENT CONDUIT SIZE	
mm	INCH
20	3/4
25	1
32	1 1/4
38	1 1/2
50	2
64	2 1/2
76	3
90	3 1/2
100	4

*BASED ON NEC TABLE 310.16
**BASED ON IEC 60364-5-52 TABLE A.52-4

UNLESS NOTED ELSEWHERE ON THE CONTRACT DOCUMENTS, THE FOLLOWING LIST REPRESENTS THE TYPICAL MOUNTING HEIGHTS FOR THE DEVICES SHOWN:

- a. SWITCHES 1,220 mm (TO TOP)
- b. RECEPTACLES 500 mm (TO BOTTOM)
- c. POWER PANELS 1,830 mm (TO TOP)
- d. DISCONNECT SWITCHES 1,520 mm (TO TOP)
- e. MOTOR STARTERS 1,520 mm (TO TOP)

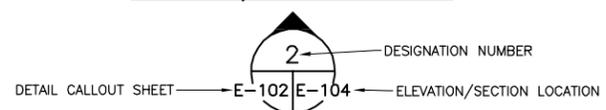
DETAIL CALLOUT



DETAIL TITLE



ELEVATION/SECTION CALLOUT



GENERAL NOTES:

1. ALL CIRCUITS SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER N.E.C.
2. ALL SERVICE ENTRANCE CONDUITS/DUCTS WITH CABLES SHALL BE SEALED AT BOTH ENDS WITH APPROPRIATE SEALER. EMPTY CONDUITS SHALL BE CLEANED AND CAPPED.
3. ALL PANELBOARD DIRECTORIES SHALL BE TYPEWRITTEN AND COMPLETE IN ENGLISH.
4. ALL CONDUIT PENETRATIONS THRU 1 HOUR FIRE RATED WALLS SHALL BE SEALED/FIRESTOPPED. SEE SHEET E-204 FOR DETAILS.
5. ALL LIGHT SWITCHES SHALL BE RATED 20 AMPERES UNLESS OTHERWISE NOTED.
6. FOR ELECTRICAL INSTALLATION SEISMIC REQUIREMENTS, SEE SPECIFICATION SEISMIC PROTECTION FOR ELECTRICAL EQUIPMENT, SECTIONS 26 05 48. 0010.
7. FOR ABOVE GRADE FLOOR/WALL PENETRATION DETAILS REFER TO APPROPRIATE DETAILS.
8. ALL RACEWAYS CONTAINING CONDUCTORS 25mm² OR LARGER SHALL HAVE AN INSULATED BUSHING INSTALLED ON EACH END WHERE ENTERING A CABINET, BOX OR ENCLOSURE, PER NEC 300.4(G) AND 312.16(C).
9. ALL ABOVE GRADE RACEWAYS SHALL BE SURFACED MOUNTED.

ABBREVIATIONS

- | | |
|--|---|
| AFG ABOVE FINISHED GRADE
AFF ABOVE FINISHED FLOOR
ACCU AIR COOLED CONDENSING UNIT
A AMPERE
AHU AIR HANDLING UNIT
AIC AMPERE INTERRUPTING CAPACITY
BFG BELOW FINISHED GRADE
BLDG BUILDING
CATV CABLE TELEVISION
CC COMMUNICATIONS CABINET
CKT CIRCUIT
C CONDUIT
CE CONCRETE ENCASED
CND CONDUCTOR
COR CONTRACTING OFFICERS REPRESENTATIVE
DC DIRECT CURRENT
ECP ENTRY CONTROL POINT
EDC ELECTRIC DUCT HEATER
EF EXHAUST FAN
EP EXPLOSION PROOF
EPO EMERGENCY POWER OFF
ESS ELECTRONIC SECURITY SYSTEM
EWH ELECTRIC WATER HEATER
FACP FIRE ALARM CONTROL PANEL
FO FIBER OPTIC
FPP FIRE PUMP PANEL
GFI GROUND FAULT INTERRUPTING
GFE GOVERNMENT FURNISHED CONTRACTOR INSTALLED
GND GROUND
GR GROUND ROD
GRS GALVANIZED RIGID STEEL CONDUIT
HH HANDHOLE
HP HORSEPOWER
HPS HIGH PRESSURE SODIUM
HZ HERTZ
IDS INTRUSION DETECTION SYSTEM
KV KILOVOLT
KW KILOWATT
KVA KILOVOLT-AMPERE
M METERS
MM MULTIMODE
MILIMETER
MH MANHOLE
MDP MAIN DISTRIBUTION PANEL
MTD MOUNTED
NL NIGHT LIGHT
OSP OUTSIDE PLANT
PH, φ PHASE
P POLE
PVC POLYVINYL CHLORIDE
RM ROOM
SM SINGLEMODE
SN SOLID NEUTRAL
TBB TELEPHONE BACKBOARD
TTC TELEPHONE TERMINAL CABINET
TYP. TYPICAL
UNO UNLESS NOTED OTHERWISE
V VOLT
W WIRE
WP WEATHERPROOF
W/ WITH
W/O WITHOUT
XFMR, T TRANSFORMER | ABOVE FINISHED GRADE
ABOVE FINISHED FLOOR
AIR COOLED CONDENSING UNIT
AMPERE
AIR HANDLING UNIT
AMPERE INTERRUPTING CAPACITY
BELOW FINISHED GRADE
BUILDING
CABLE TELEVISION
COMMUNICATIONS CABINET
CIRCUIT
CONDUIT
CONCRETE ENCASED
CONDUCTOR
CONTRACTING OFFICERS REPRESENTATIVE
DIRECT CURRENT
ENTRY CONTROL POINT
ELECTRIC DUCT HEATER
EXHAUST FAN
EXPLOSION PROOF
EMERGENCY POWER OFF
ELECTRONIC SECURITY SYSTEM
ELECTRIC WATER HEATER
FIRE ALARM CONTROL PANEL
FIBER OPTIC
FIRE PUMP PANEL
GROUND FAULT INTERRUPTING
GOVERNMENT FURNISHED CONTRACTOR INSTALLED
GROUND
GROUND ROD
GALVANIZED RIGID STEEL CONDUIT
HANDHOLE
HORSEPOWER
HIGH PRESSURE SODIUM
HERTZ
INTRUSION DETECTION SYSTEM
KILOVOLT
KILOWATT
KILOVOLT-AMPERE
METERS
MULTIMODE
MILIMETER
MANHOLE
MAIN DISTRIBUTION PANEL
MOUNTED
NIGHT LIGHT
OUTSIDE PLANT
PHASE
POLE
POLYVINYL CHLORIDE
ROOM
SINGLEMODE
SOLID NEUTRAL
TELEPHONE BACKBOARD
TELEPHONE TERMINAL CABINET
TYPICAL
UNLESS NOTED OTHERWISE
VOLT
WIRE
WEATHERPROOF
WITH
WITHOUT
TRANSFORMER |
|--|---|

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FINAL
DESIGN
SUBMITTAL

0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT	ZPS
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT	ZPS

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 DRAWN BY: SES SUBMITTED BY: TETRA TECH
 CHECKED BY: KCT FILE NO.: AF1081--ES001GN

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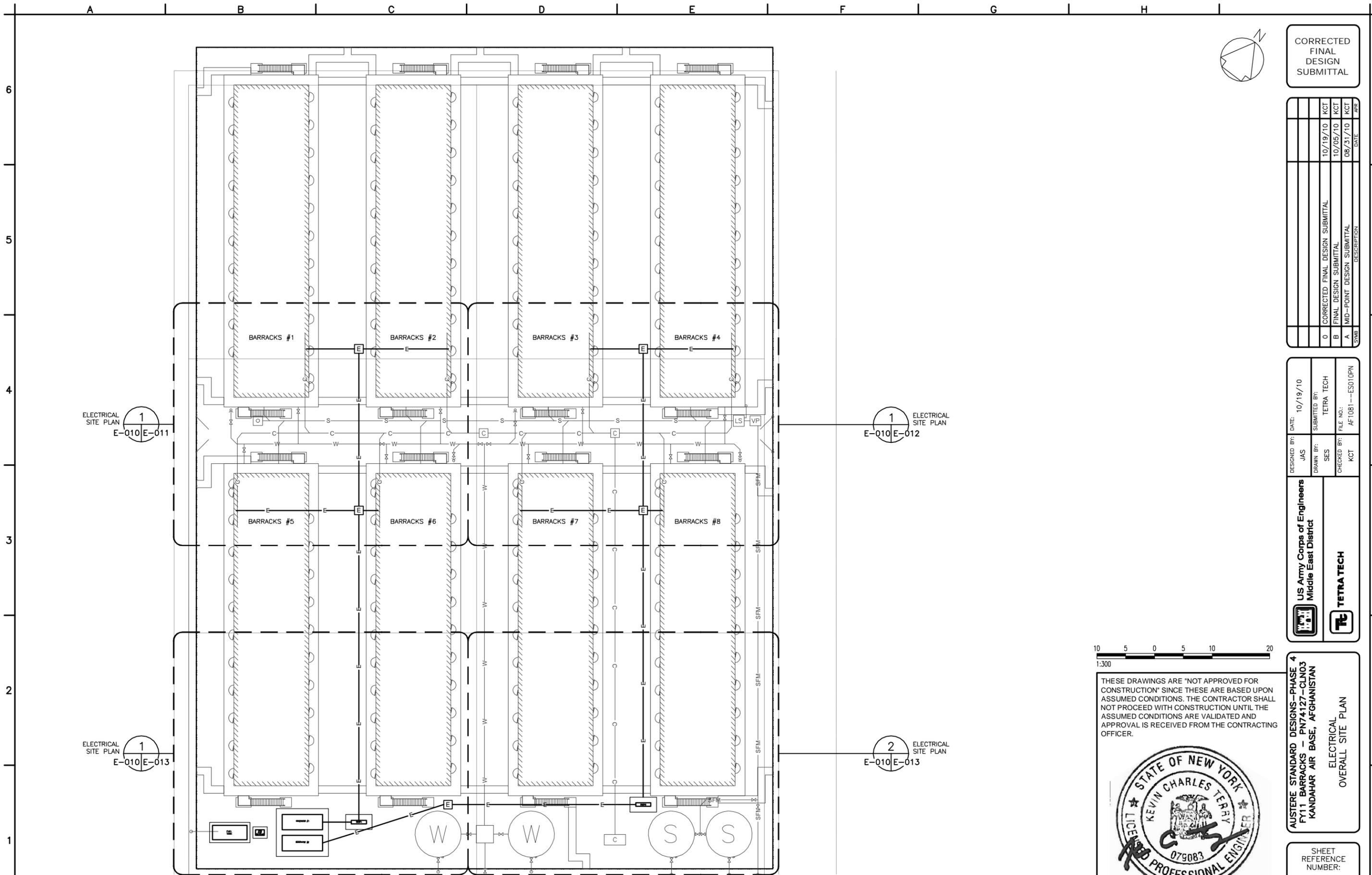


AUSTERE STANDARD DESIGNS-PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN
 ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES

SHEET REFERENCE NUMBER:
AF1081 E-001

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ELECTRICAL OVERALL SITE PLAN
 SCALE = 1:300
 1
 E-010 E-010

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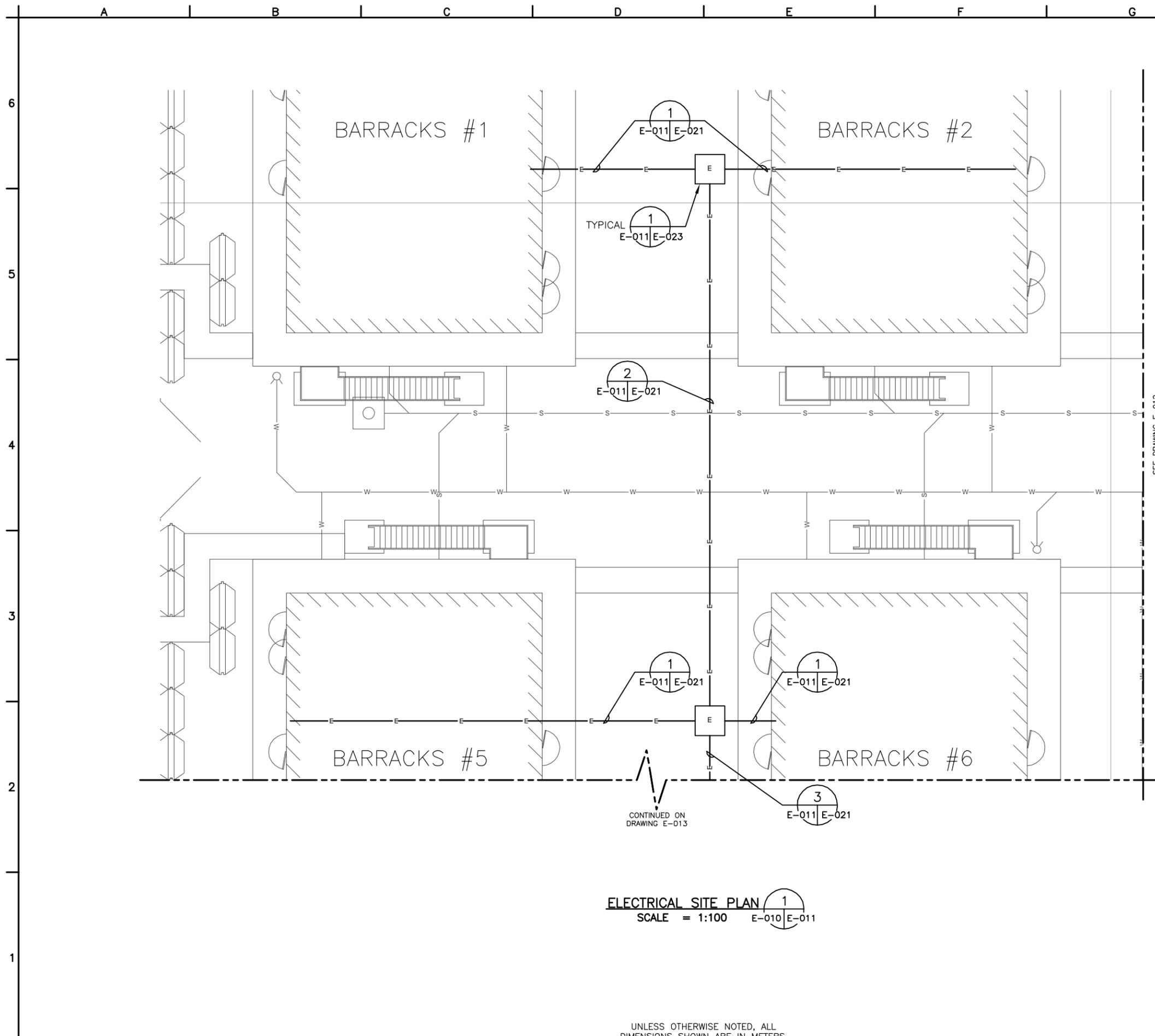
10/19/10

AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN

ELECTRICAL
 OVERALL SITE PLAN

SHEET
 REFERENCE
 NUMBER:
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 E-010**

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ELECTRICAL SITE PLAN 1
 SCALE = 1:100 E-010 | E-011

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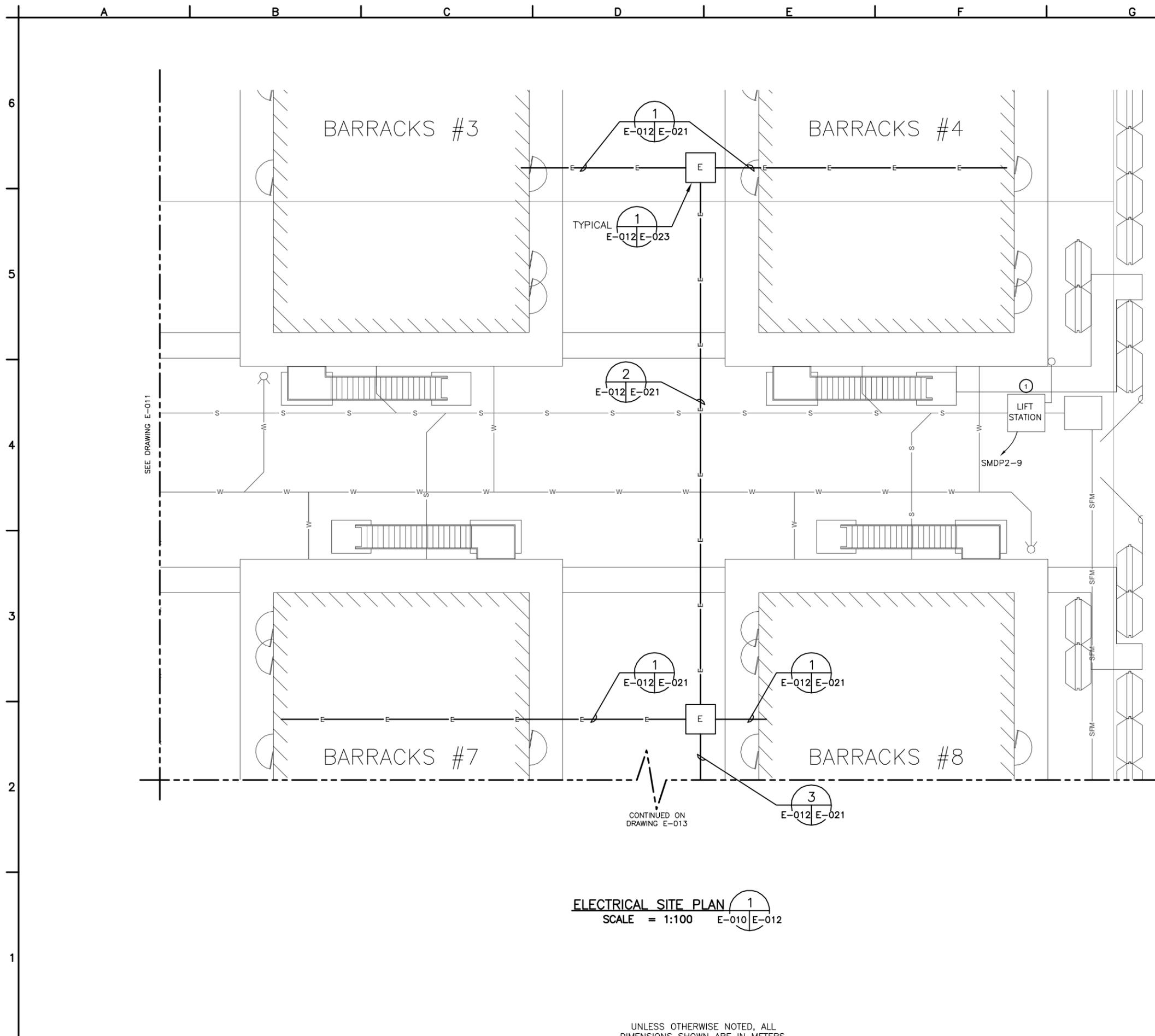


AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127-CLN03
 KANDAHAR AIR BASE, AFGHANISTAN

ELECTRICAL SITE PLAN
 SHEET 1 OF 3

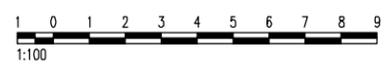
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AF1081
E-011

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NOTE:
PROVIDE APPROPRIATE SEALING FITTING IN ALL CONDUITS LEAVING THE LIFT STATION CONTROL PANEL AND ENTERING THE LIFT STATION PIT.

KEYED NOTES:
① RUN (4) 2.5mm² AND (1) 2.5mm² GROUND TO BOOSTER PUMP CONTROL PANEL IN 25mm PVC CONDUIT. SEE TRENCH DETAIL 5 ON E-021 AND PULL BOX DETAIL 2 ON E-023.



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SYMB	DESCRIPTION	DATE	PREP
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT
B	FINAL DESIGN SUBMITTAL	10/05/10	KCT
A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

DESIGNED BY:	JAS	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--ES012LS

US Army Corps of Engineers
Middle East District

TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

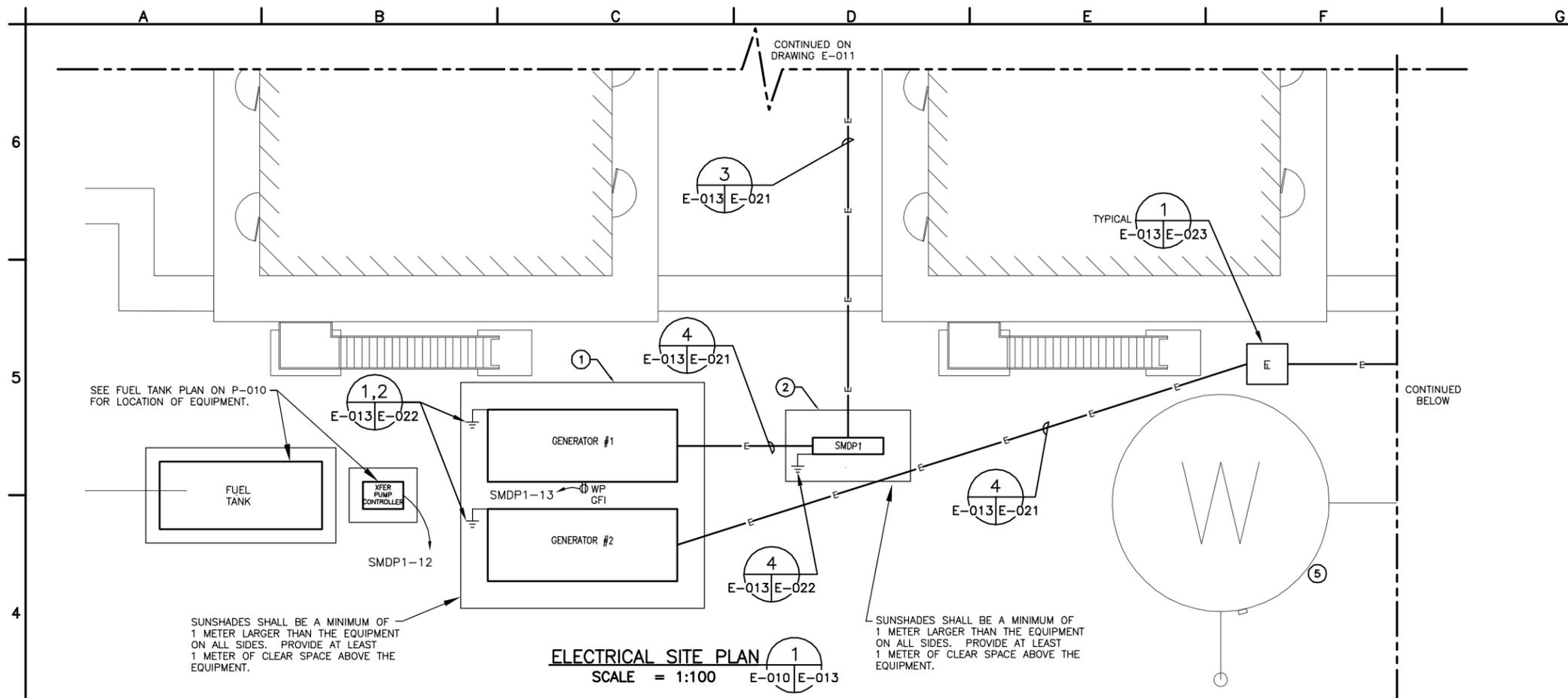
ELECTRICAL SITE PLAN
SHEET 2 OF 3

SHEET REFERENCE NUMBER:
AF1081 E-012

ELECTRICAL SITE PLAN ①
SCALE = 1:100 E-010 | E-012

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.

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- KEYED NOTES:**
- PROVIDE (4) TYPE 2 FIXTURES AND WEATHERPROOF SWITCH UNDER GENERATOR SUNSHADE. CIRCUIT TO SMDP1-13. REFER TO CONDUIT TRENCH DETAIL 5 ON DRAWING E-021.
 - PROVIDE (2) TYPE 2 FIXTURES, WEATHERPROOF SWITCH AND GFI RECEPTACLE UNDER SMDP1 SUNSHADE. CIRCUIT TO SMDP1-13. REFER TO CONDUIT TRENCH DETAIL 5 ON DRAWING E-021.
 - PROVIDE (1) TYPE 2 FIXTURE, WEATHERPROOF SWITCH AND GFI RECEPTACLE IN DOMESTIC WATER BOOSTER PUMP ENCLOSURE. CIRCUIT TO SMDP1-13. REFER TO CONDUIT TRENCH DETAIL 5 ON DRAWING E-021.
 - PROVIDE (2) TYPE 2 FIXTURES, WEATHERPROOF SWITCH AND GFI RECEPTACLE UNDER SMDP2 SUNSHADE. CIRCUIT TO SMDP2-13. REFER TO CONDUIT TRENCH DETAIL 5 ON DRAWING E-021.
 - RUN (4) 2.5mm² AND (1) 2.5mm² GROUND TO BOOSTER PUMP CONTROL PANEL IN 25mm PVC CONDUIT. SEE TRENCH DETAIL 5 ON E-021 AND PULL BOX DETAIL 2 ON E-023.



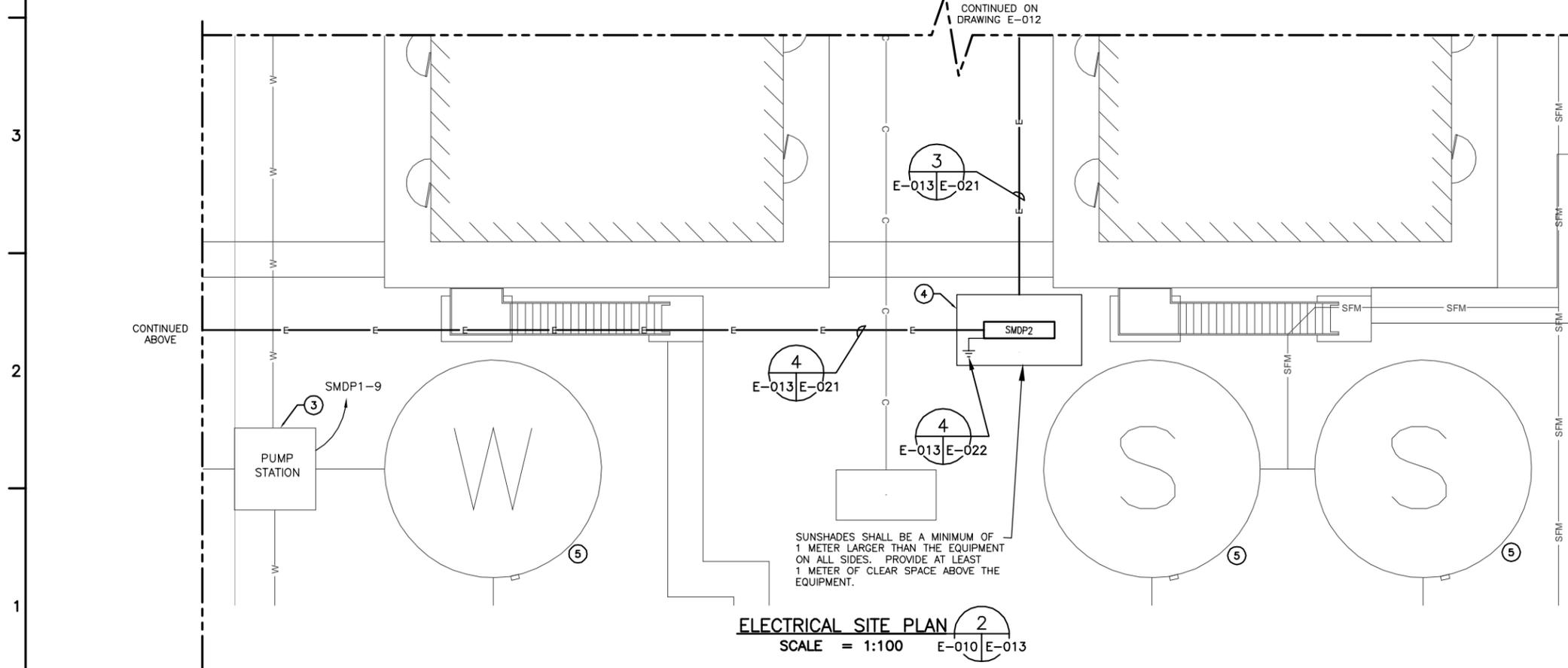
CORRECTED
FINAL
DESIGN
SUBMITTAL

SYMB	DESCRIPTION	DATE	APP
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10/19/10

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

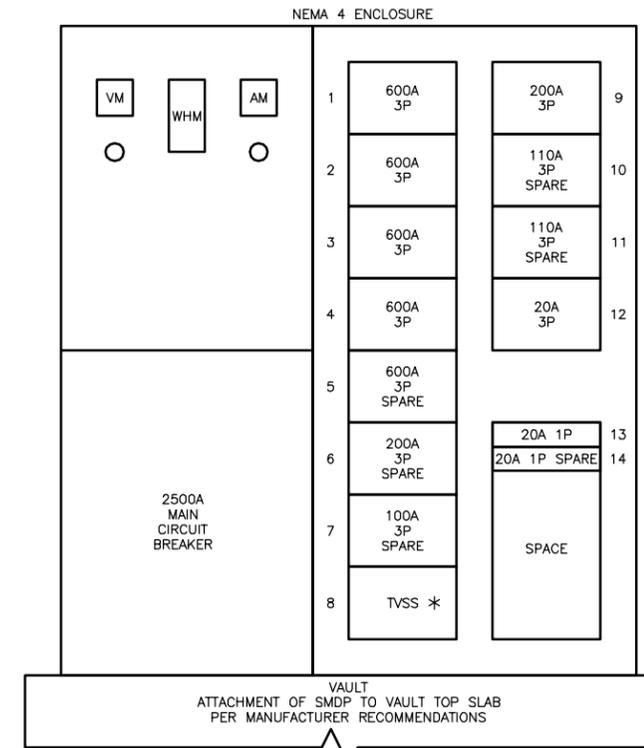
ELECTRICAL SITE PLAN
SHEET 3 OF 3

SHEET REFERENCE NUMBER:
AF1081 E-013

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN METERS.

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LOAD SUMMARY					
BUILDING	EQUIPMENT	QUANTITY	VA	CONNECTED LOAD (KVA)	ESTIMATED DEMAND (KVA)
SITE	BARRACKS	4 LS	254,800.0	1,019.2	691.0
SMDP1	LIGHTING AND MISC SITE LOADS	1 LS	1,072.0	1.1	0.6
GENERATOR 1	SEWER LIFT STATION	0 EA	11,096.0	0.0	0.0
	WATER BOOSTER PUMPS	3 EA	16,644.0	49.9	25.0
	TOTAL:			1,070.2	716.6
	25% SPARE CAPACITY			267.6	179.2
	GRAND TOTAL:			1,337.8	895.8
	GENERATOR (KVA)				863



SMDP 1
N.T.S. E-020 E-020

NOTE:
*SIZE TVSS PER MANUFACTURER'S RECOMMENDATION

CORRECTED FINAL DESIGN SUBMITTAL

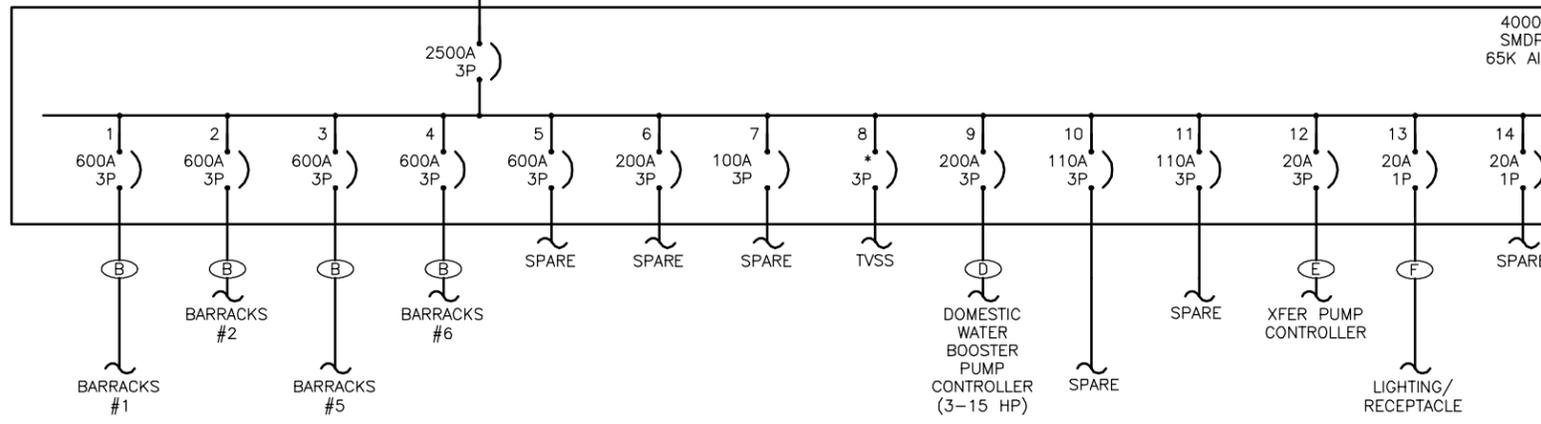
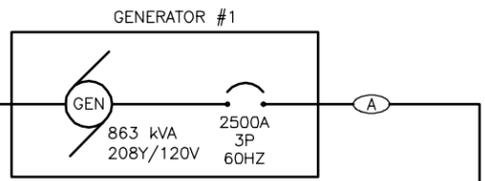
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CHECKED BY:	KCT	FILE NO.:	AF1081--ES020DI

US Army Corps of Engineers
Middle East District
TETRA TECH

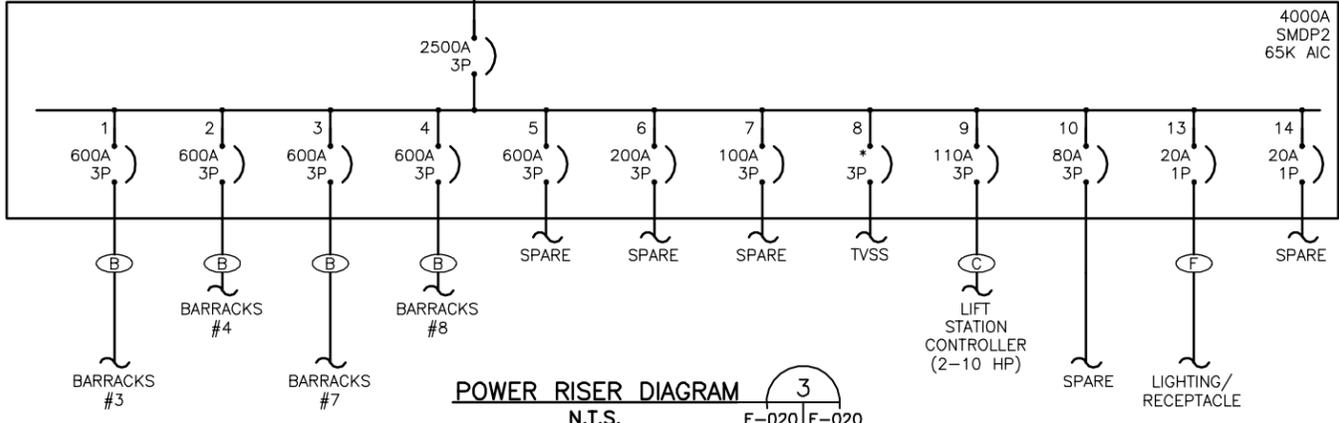
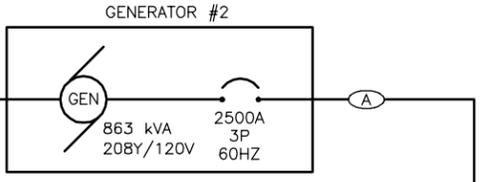
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN
ELECTRICAL SITE ONE-LINE DIAGRAM

SHEET REFERENCE NUMBER:
AF1081 E-020



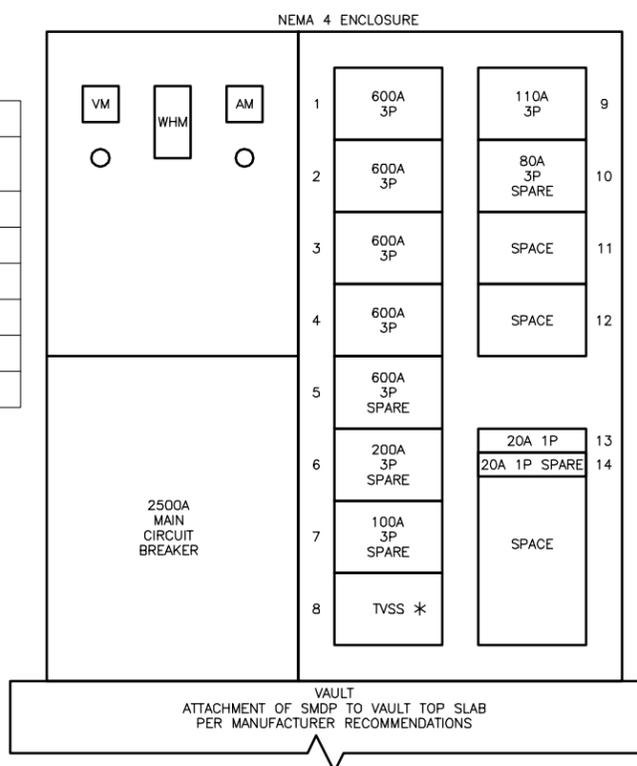
LOAD SUMMARY					
BUILDING	EQUIPMENT	QUANTITY	VA	CONNECTED LOAD (KVA)	ESTIMATED DEMAND (KVA)
SITE	BARRACKS	4 LS	254,800.0	1,019.2	691.0
SMDP2	LIGHTING AND MISC SITE LOADS	1 LS	1,072.0	1.1	0.6
GENERATOR 2	SEWER LIFT STATION	2 EA	11,096.0	22.2	11.1
	WATER BOOSTER PUMPS	0 EA	16,644.0	0.0	0.0
	TOTAL:			1,042.5	702.7
	25% SPARE CAPACITY			260.6	175.7
	GRAND TOTAL:			1,303.1	878.4
	GENERATOR (KVA)				863

FEEDER SIZE TABLE							
FEEDER ID	AMPS	SETS PARALLEL CONDUCTORS AND RACEWAYS	PHASE CONDUCTOR	NEUTRAL	GROUND	RACEWAY SIZE	NOTES
(A)	2500	8	(3)300mm ²	(1)300mm ²	(1)185mm ²	100mm PVC	CONCRETE ENCASED
(B)	600	3	(3)300mm ²	(1)300mm ²	(1)70mm ²	100mm PVC	CONCRETE ENCASED
(C)	110	1	(3)70mm ²	(1)70mm ²	(1)16mm ²	64mm PVC	--
(D)	200	1	(3)95mm ²	(1)95mm ²	(1)16mm ²	64mm PVC	--
(E)	20	1	(3)4mm ²	(1)4mm ²	(1)4mm ²	25mm PVC	--
(F)	20	1	(1)4mm ²	(1)4mm ²	(1)4mm ²	25mm PVC	--



SMDP 2
N.T.S. E-020 E-020

NOTE:
*SIZE TVSS PER MANUFACTURER'S RECOMMENDATION



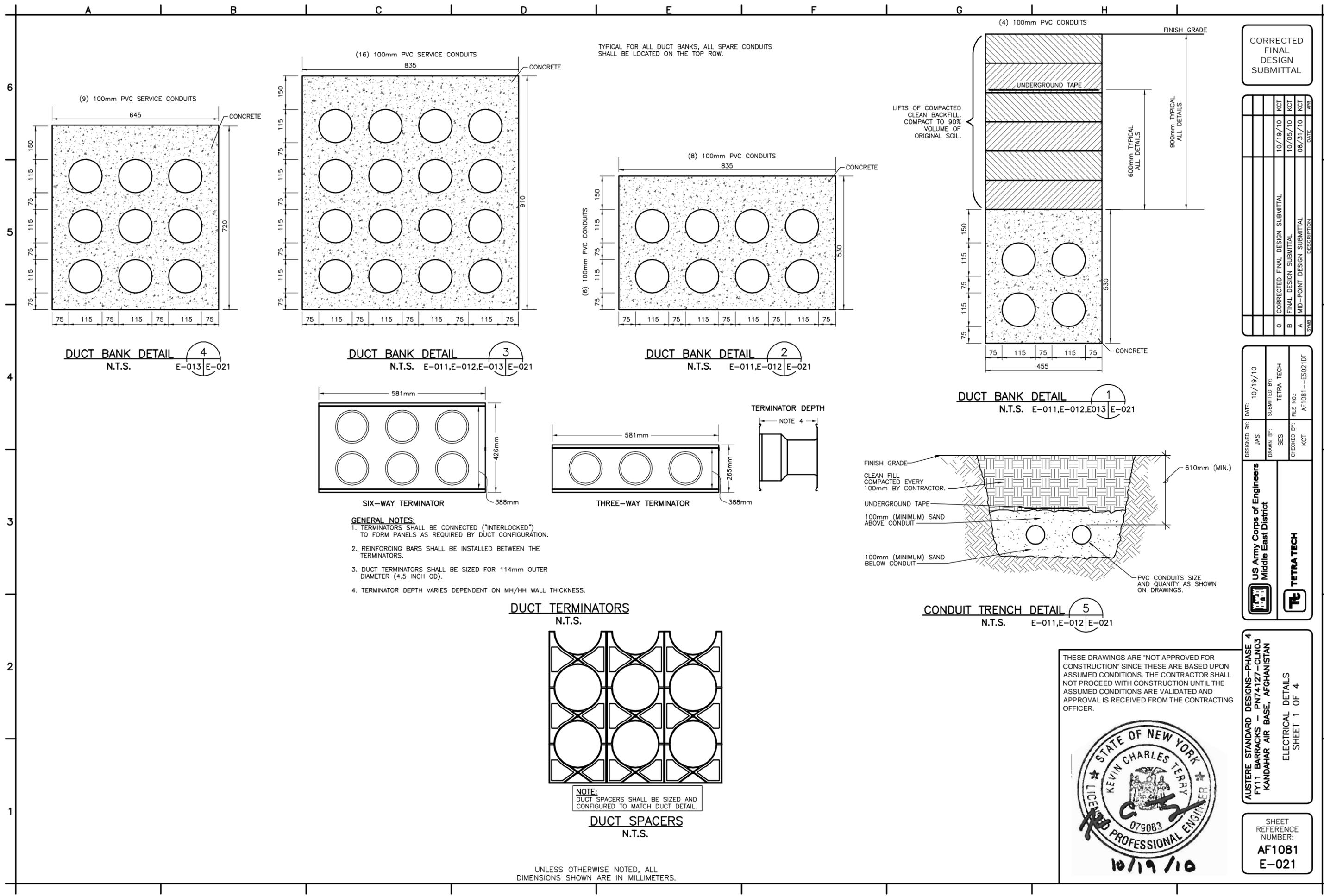
SMDP 2
N.T.S. E-020 E-020

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SYMB	DESCRIPTION	DATE	APP
0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT
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A	MID-POINT DESIGN SUBMITTAL	08/31/10	KCT

DESIGNED BY:	JAS	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--ES021DT

US Army Corps of Engineers
Middle East District

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

ELECTRICAL DETAILS
SHEET 1 OF 4

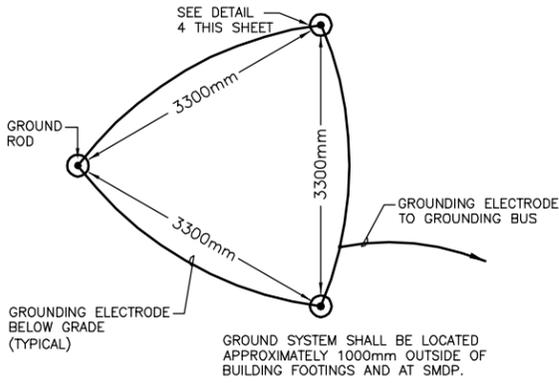
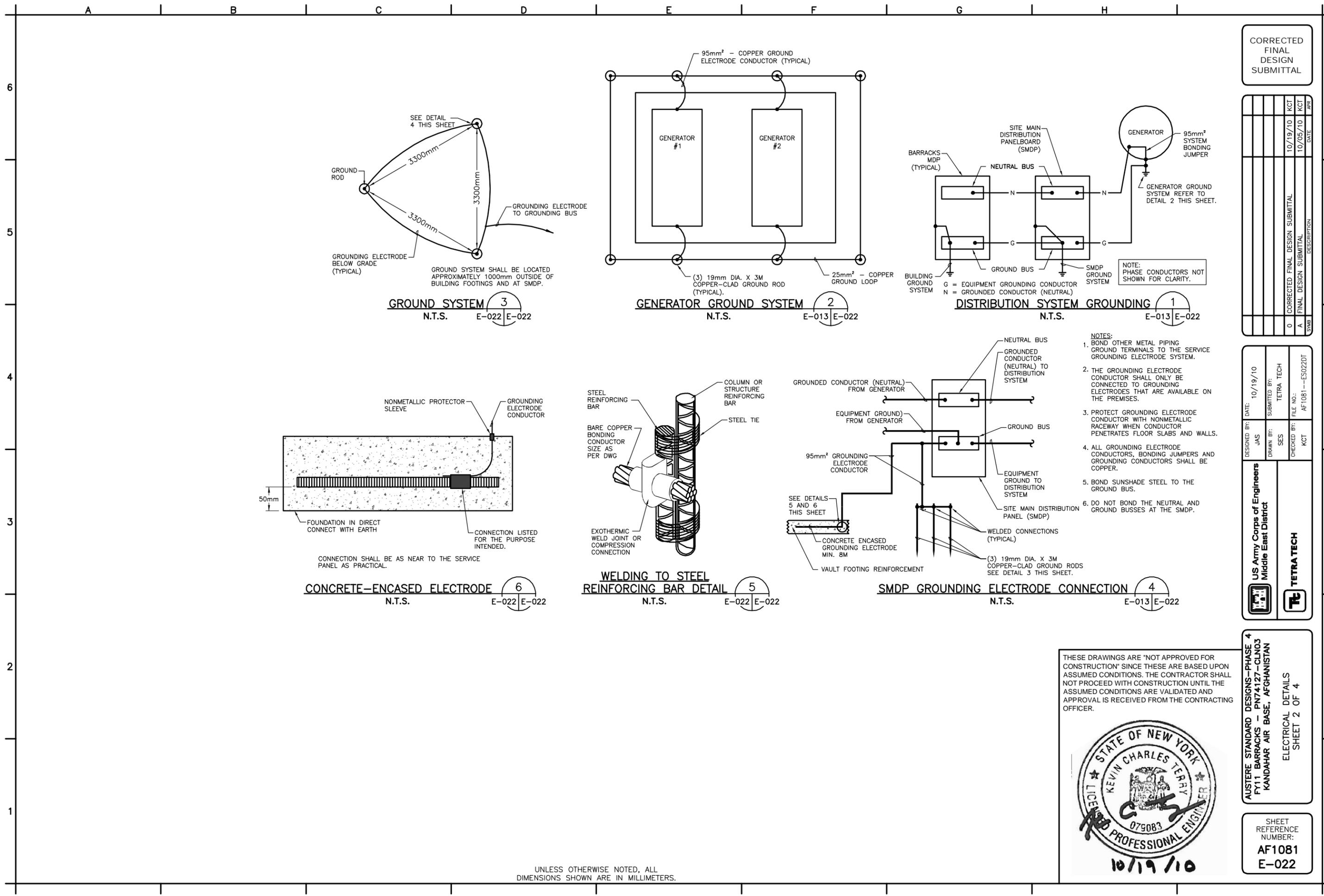
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AF1081
E-021

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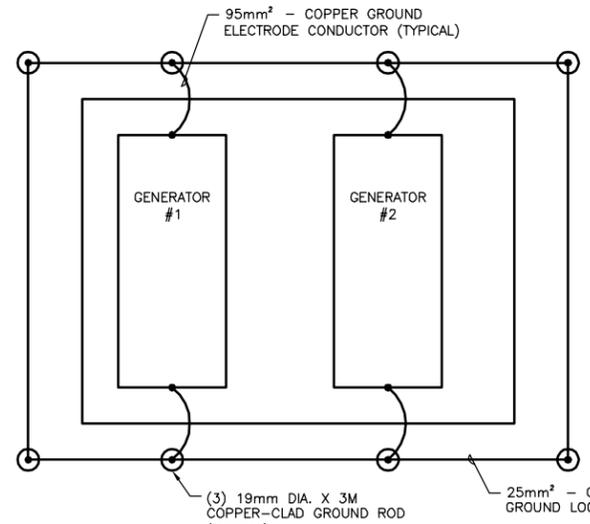
10/19/10

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

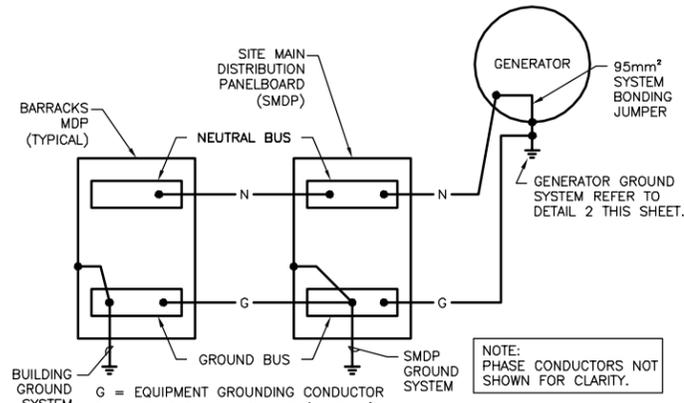
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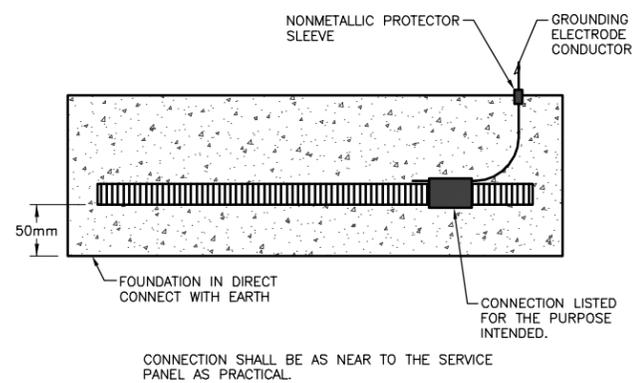
GROUND SYSTEM (3)
N.T.S. E-022 E-022



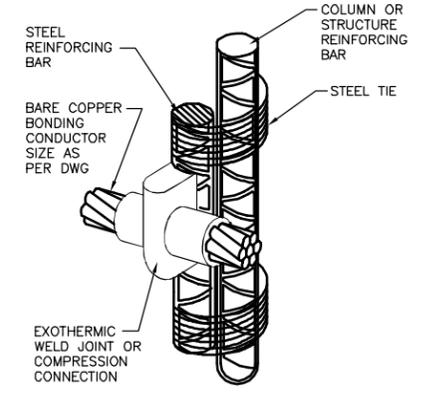
GENERATOR GROUND SYSTEM (2)
N.T.S. E-013 E-022



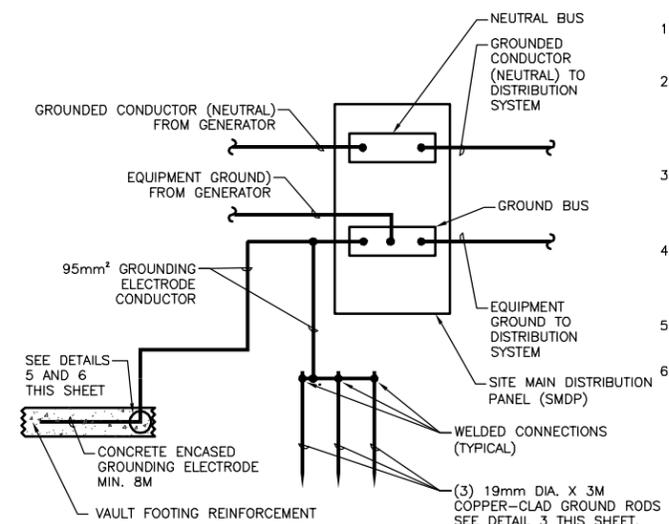
DISTRIBUTION SYSTEM GROUNDING (1)
N.T.S. E-013 E-022



CONCRETE-ENCASED ELECTRODE (6)
N.T.S. E-022 E-022



WELDING TO STEEL REINFORCING BAR DETAIL (5)
N.T.S. E-022 E-022



SMDP GROUNDING ELECTRODE CONNECTION (4)
N.T.S. E-013 E-022

- NOTES:**
- BOND OTHER METAL PIPING GROUND TERMINALS TO THE SERVICE GROUNDING ELECTRODE SYSTEM.
 - THE GROUNDING ELECTRODE CONDUCTOR SHALL ONLY BE CONNECTED TO GROUNDING ELECTRODES THAT ARE AVAILABLE ON THE PREMISES.
 - PROTECT GROUNDING ELECTRODE CONDUCTOR WITH NONMETALLIC RACEWAY WHEN CONDUCTOR PENETRATES FLOOR SLABS AND WALLS.
 - ALL GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS AND GROUNDING CONDUCTORS SHALL BE COPPER.
 - BOND SUNSHADE STEEL TO THE GROUND BUS.
 - DO NOT BOND THE NEUTRAL AND GROUND BUSES AT THE SMDP.

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DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--ES022DT

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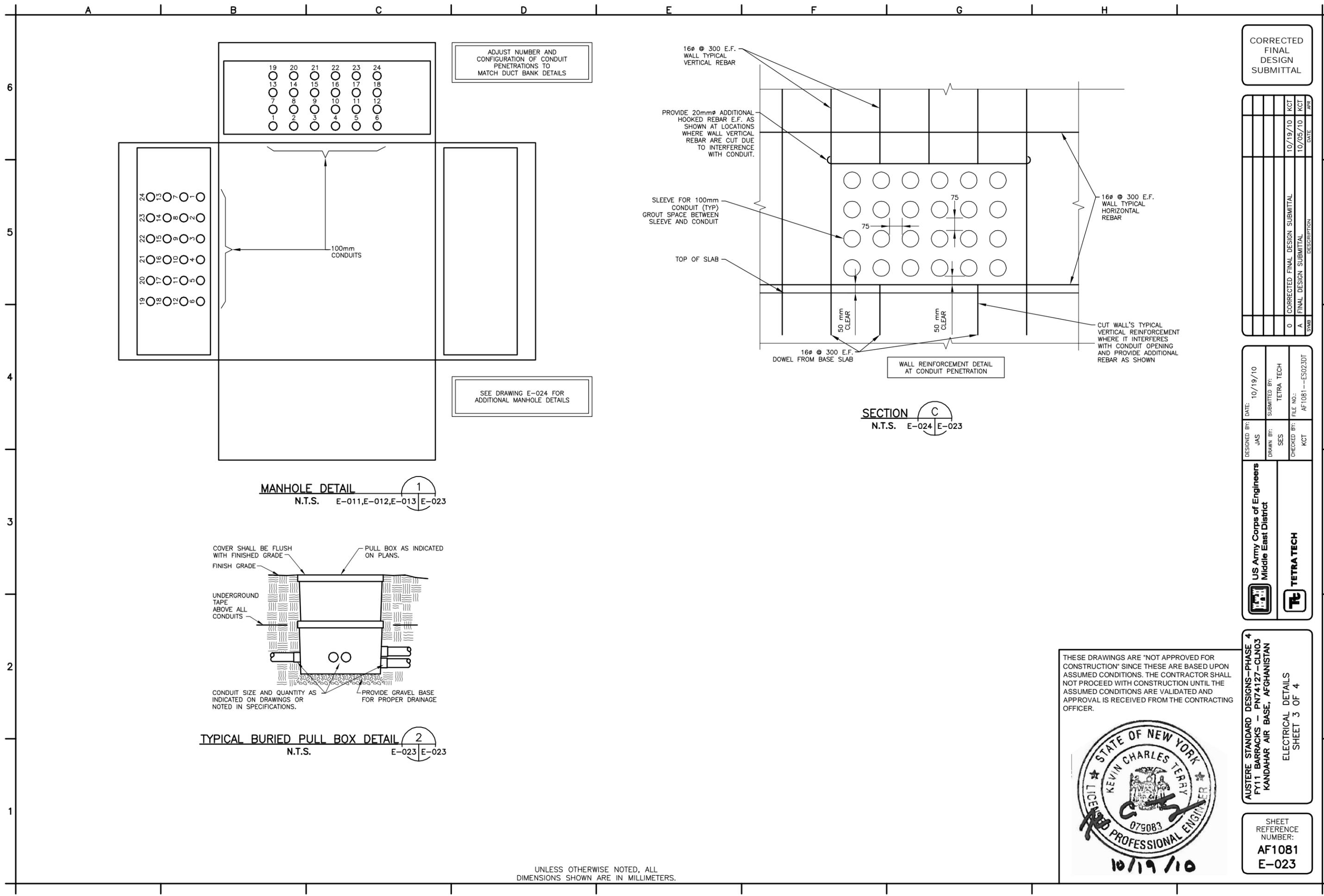
AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

ELECTRICAL DETAILS
SHEET 2 OF 4

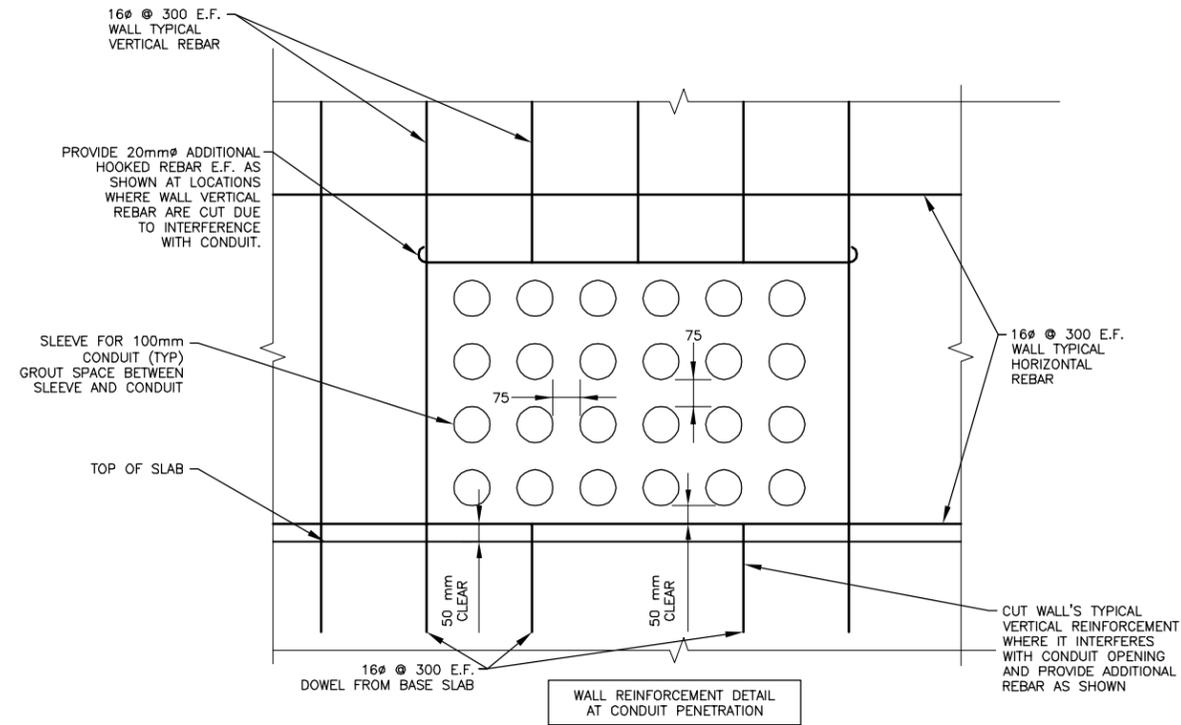
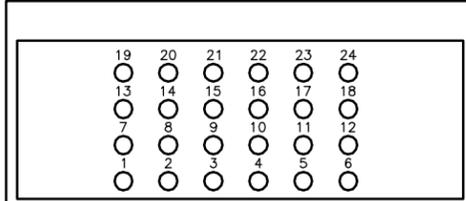
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AF1081 E-022

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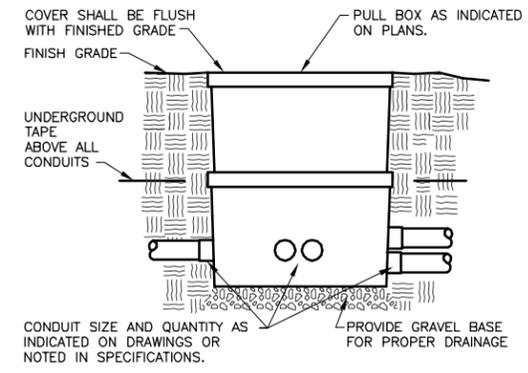


ADJUST NUMBER AND CONFIGURATION OF CONDUIT PENETRATIONS TO MATCH DUCT BANK DETAILS



SECTION C
N.T.S. E-024 | E-023

MANHOLE DETAIL
N.T.S. E-011, E-012, E-013 | E-023



TYPICAL BURIED PULL BOX DETAIL
N.T.S. E-023 | E-023

SEE DRAWING E-024 FOR ADDITIONAL MANHOLE DETAILS

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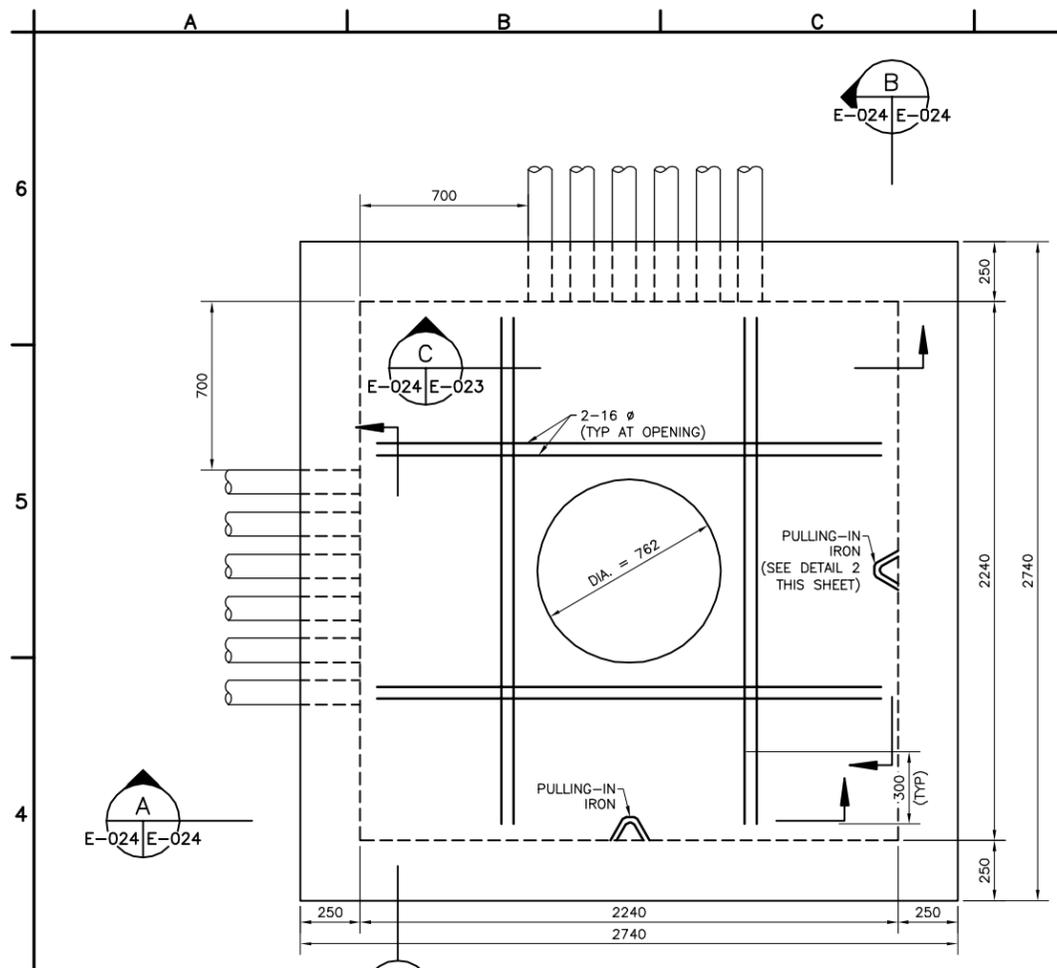


AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

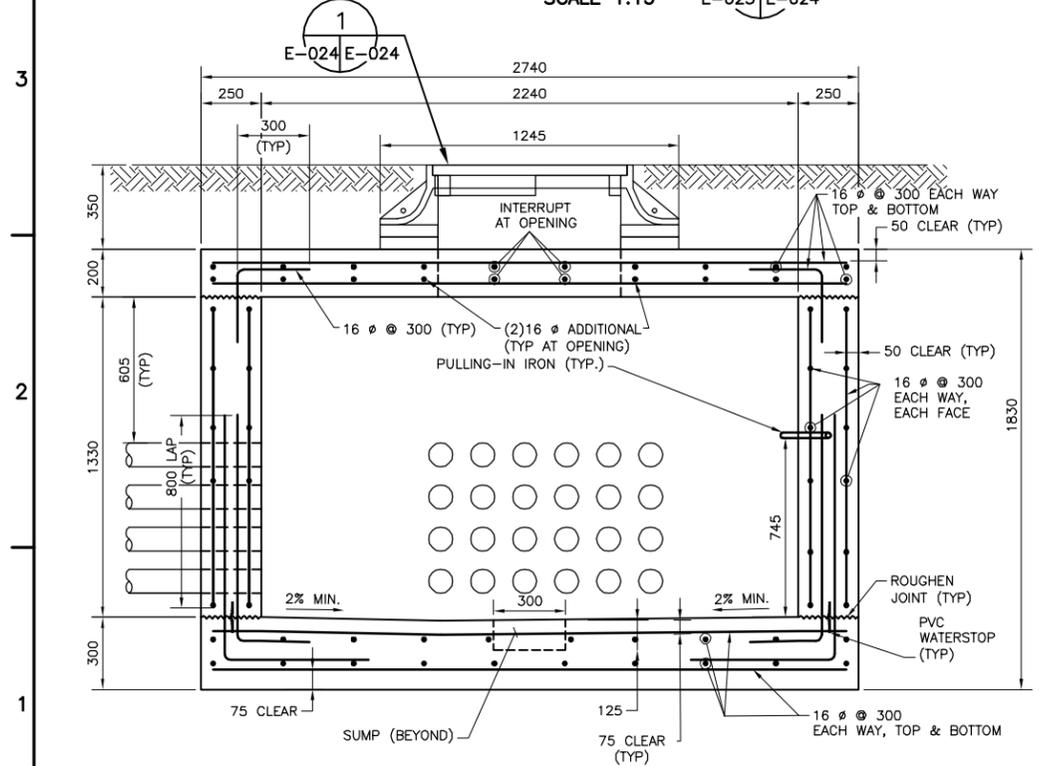
ELECTRICAL DETAILS
SHEET 3 OF 4

SHEET REFERENCE NUMBER:
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E-023

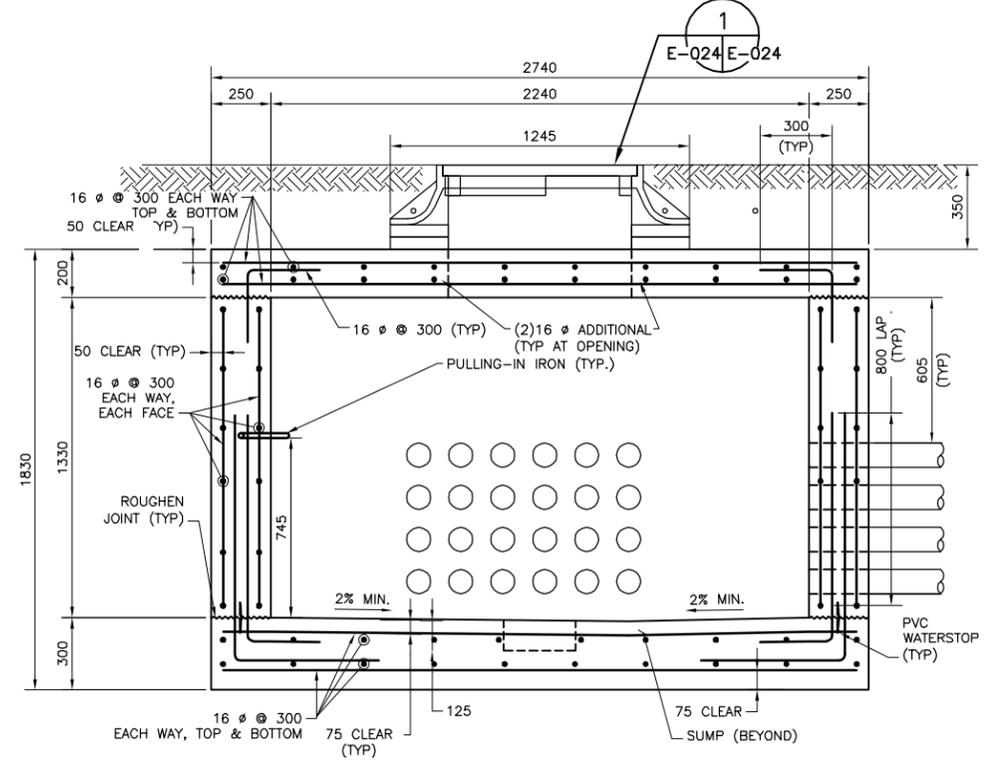
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PLAN - TOP SLAB
SCALE 1:15
E-024 E-023 E-023 E-024

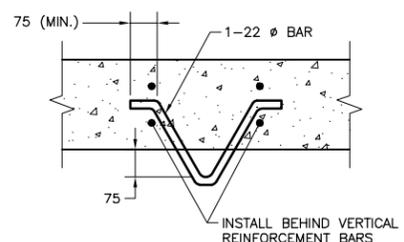


SECTION A
SCALE 1:15
E-024 E-024



SECTION B
SCALE 1:15
E-024 E-024

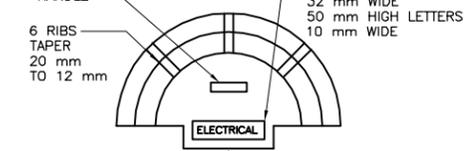
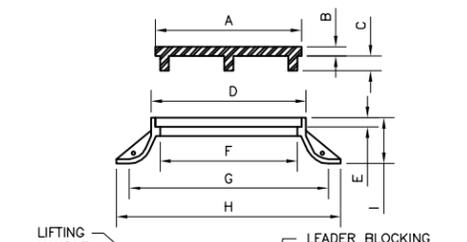
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TYPICAL PULLING-IN IRON DETAIL
N.T.S
E-024 E-024

NOTES:
GENERAL

- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
- THE ELECTRICAL MANHOLE BASE FLOOR SLAB SHALL BE PLACED ON NATURAL UNDISTURBED SOIL OR ON COMPACTED SELECT FILL PREPARED AS FOLLOWS:
 - A. REMOVE UNSUITABLE MATERIAL BELOW THE SLAB AND REPLACE WITH COMPACTED SELECT FILL TO A DEPTH WHERE NATURAL SOIL AND OR COMPACT FILL IS ENCOUNTERED.
 - B. FILL MATERIAL MUST BE PLACED IN LIFTS UP TO A MAXIMUM OF 150mm IN THICKNESS. EACH LIFT COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.
- ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE STRUCTURE.
- ALL PVC WATERSTOPS TO BE 150mm PVC TYP. TYPE 5mm THICK (3 RIBS)
- BACKFILL OF EXCAVATION SHALL START AFTER BOTTOM OF THE SLAB IS IN PLACE AND CURED FOR 7 DAYS.
- CONTRACTOR SHALL PROVIDE A SUITABLE RACK SYSTEM TO SUPPORT AND SEPERATE CABLES PASSING THROUGH MANHOLES. A RACK SHALL BE PROVIDED FOR EACH LEVEL OF CONDUIT ENTERING OR LEAVING THE MANHOLE. THE RACK SHALL BE CONSTRUCTED FROM A GALVANIZED STEEL STRUCTURAL FRAMING SYSTEM AND BE CAPABLE OF CARRYING THE WEIGHT OF ALL CONDUCTORS PASSING THROUGH THE MANHOLE AT ITS GIVEN LEVEL.



	A	B	C	D	E
MANHOLE	810mm	51mm	83mm	813mm	51mm
	F	G	H	I	
MANHOLE	762mm	1041mm	1245mm	245mm	

TYPE III MANHOLE FRAME AND TYPE B COVER DETAIL
SCALE: 1:20
E-024 E-024

CONCRETE

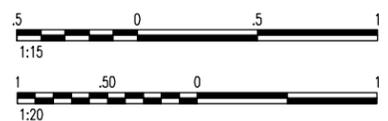
- REFER TO SPECIFICATIONS FOR COMPLETE CONCRETE AND REINFORCING STEEL. SPECIFICATION REQUIREMENTS.
 - STRUCTURAL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE HAVING A MINIMUM STRENGTH OF 280 kg/cm² (4000 PSI) AT 28 DAYS.
 - REINFORCING BARS, IN SLABS, SHALL BE LAPPED IN ACCORDANCE WITH ACI CODE REQUIREMENT OR AS DETAILED ON THE DRAWING. REINFORCING BARS LAP SPLICES SHALL BE AS FOLLOWS:
 - 16 # BARS LAP 790mm, UNO.
 - PROTECTIVE CONCRETE COVER FOR REINFORCEMENT:
 - A. CONCRETE PLACED AGAINST EARTH, 75mm.
 - B. PROVIDE 50mm CONCRETE COVER UNLESS NOTED OTHERWISE.
- ALL EMBEDDED ITEMS TO BE PLACED AND SECURED BEFORE CONCRETE PLACEMENT. NO "WET SETTING" OF EMBEDDED ITEMS WILL BE ALLOWED.

CORRECTED FINAL DESIGN SUBMITTAL

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0	CORRECTED FINAL DESIGN SUBMITTAL	10/19/10	KCT
1	FINAL DESIGN SUBMITTAL	10/05/10	KCT

DESIGNED BY:	JAS	DATE:	10/19/10
DRAWN BY:	SES	SUBMITTED BY:	TETRA TECH
CHECKED BY:	KCT	FILE NO.:	AF1081--ES024DT

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Middle East District
TETRA TECH



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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN
ELECTRICAL DETAILS
SHEET 4 OF 4

SHEET REFERENCE NUMBER:
AF1081
E-024

10/19/10

POSTED 12/02/10

PN 74127
Troop Housing - Phase 4
Kandahar, Afghanistan
December 2, 2010



US Army Corps of Engineers
Middle East District



TETRA TECH

Solicitation
W912ER-10-X-XXXX

INDEX OF DRAWINGS - 8 BARRACKS COMPLEX

PN# 74127 - PHASE 4

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FINAL
DESIGN
RE-ISSUED

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
GENERAL DRAWINGS			
AF1081-G-000	REV 0	12/02/10	TITLE SHEET
AF1081-G-001	REV 0	12/02/10	INDEX OF DRAWINGS SHEET 1 OF 3
AF1081-G-002	REV 0	10/19/10	INDEX OF DRAWINGS SHEET 2 OF 3
AF1081-G-003	REV 0	10/19/10	INDEX OF DRAWINGS SHEET 3 OF 3
SITE CIVIL DRAWINGS			
AF1081-C-001	REV 0	12/02/10	CIVIL GENERAL NOTES, LEGEND AND ABBREVIATIONS
AF1081-C-002	REV 0	10/19/10	LOCATION AND VICINITY PLAN
AF1081-C-003	REV 0	10/19/10	OVERALL SITE LOCATION PLAN
AF1081-C-004	REV 0	10/19/10	DEMOLITION PLAN
AF1081-C-100	REV 0	10/19/10	OVERALL SITE PLAN
AF1081-C-110	REV 0	10/19/10	SITE UTILITY PLAN
AF1081-C-111	REV 0	10/19/10	ENLARGED SITE UTILITY PLAN SHEET 1 OF 2
AF1081-C-112	REV 0	10/19/10	ENLARGED SITE UTILITY PLAN SHEET 2 OF 2
AF1081-C-200	REV 0	10/19/10	TYPICAL SITE LAYOUT DETAILS SHEET 1 OF 3
AF1081-C-201	REV 0	10/19/10	TYPICAL SITE LAYOUT DETAILS SHEET 2 OF 3
AF1081-C-202	REV 0	10/19/10	TYPICAL SITE LAYOUT DETAILS SHEET 3 OF 3
AF1081-C-203	REV 0	12/02/10	TYPICAL SITE UTILITY DETAILS
AF1081-C-210	REV 0	12/02/10	WATER BOOSTER PUMP STATION PLAN, SECTION AND DETAILS
AF1081-C-211	REV 0	12/02/10	WATER STORAGE TANK PLAN AND DETAILS
AF1081-C-212	REV 0	12/02/10	WATER AND WASTEWATER STORAGE TANK PIPE DETAILS
AF1081-C-220	REV 0	12/02/10	SEWAGE LIFT STATION PLAN AND SECTIONS

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
AF1081-C-221	REV 0	12/02/10	SEWAGE LIFT STATION VALVE PIT PLAN AND SECTIONS
AF1081-C-222	REV 0	10/19/10	SEWAGE LIFT STATION CONTROL PANEL DIAGRAMS AND DETAILS
AF1081-C-223	REV 0	12/02/10	WASTEWATER STORAGE TANK PLAN AND DETAILS
AF1081-C-300	REV 0	10/19/10	SITE INFRASTRUCTURE GENERAL NOTES AND TYPICAL DETAILS
AF1081-C-301	REV 0	10/19/10	PIPE SUPPORT DETAILS
AF1081-C-302	REV 0	10/19/10	STORAGE TANK FOUNDATION PLAN AND SECTIONS
AF1081-C-303	REV 0	10/19/10	SEWAGE LIFT STATION DETAILS
AF1081-C-304	REV 0	10/19/10	SEWAGE LIFT STATION VALVE PIT DETAILS
AF1081-C-305	REV 0	10/19/10	SEWER MANHOLE DETAILS
AF1081-C-306	REV 0	10/19/10	ELECTRIC VAULT DETAILS
AF1081-C-307	REV 0	10/19/10	FUEL STORAGE CONTAINMENT DETAILS
SITE PLUMBING DRAWINGS			
AF1081-P-001	REV 0	10/19/10	PLUMBING LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
AF1081-P-010	REV 0	10/19/10	FUEL TANK PLAN AND SCHEMATIC
SITE ELECTRICAL DRAWINGS			
AF1081-E-001	REV 0	10/19/10	ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
AF1081-E-010	REV 0	10/19/10	ELECTRICAL OVERALL SITE PLAN
AF1081-E-011	REV 0	10/19/10	ELECTRICAL SITE PLAN SHEET 1 OF 3
AF1081-E-012	REV 0	10/19/10	ELECTRICAL SITE PLAN SHEET 2 OF 3
AF1081-E-013	REV 0	10/19/10	ELECTRICAL SITE PLAN SHEET 3 OF 3
AF1081-E-020	REV 0	10/19/10	ELECTRICAL SITE ONE-LINE DIAGRAM

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
AF1081-E-021	REV 0	10/19/10	ELECTRICAL DETAILS SHEET 1 OF 4
AF1081-E-022	REV 0	10/19/10	ELECTRICAL DETAILS SHEET 2 OF 4
AF1081-E-023	REV 0	10/19/10	ELECTRICAL DETAILS SHEET 3 OF 4
AF1081-E-024	REV 0	10/19/10	ELECTRICAL DETAILS SHEET 4 OF 4
SITE TELECOM DRAWINGS			
AF1081-TC-001	REV 0	10/19/10	TELECOMMUNICATIONS LEGEND, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
AF1081-TC-010	REV 0	10/19/10	TELECOMMUNICATIONS OVERALL SITE PLAN
AF1081-TC-011	REV 0	10/19/10	TELECOMMUNICATIONS SITE PLAN SHEET 1 OF 3
AF1081-TC-012	REV 0	10/19/10	TELECOMMUNICATIONS SITE PLAN SHEET 2 OF 3
AF1081-TC-013	REV 0	10/19/10	TELECOMMUNICATIONS SITE PLAN SHEET 3 OF 3
AF1081-TC-020	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 1 OF 6
AF1081-TC-021	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 2 OF 6
AF1081-TC-022	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 3 OF 6
AF1081-TC-023	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 4 OF 6
AF1081-TC-024	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 5 OF 6
AF1081-TC-025	REV 0	10/19/10	TELECOMMUNICATIONS DETAILS SHEET 6 OF 6

SYMB	DATE	DESCRIPTION
0	12/02/10	CORRECTED FINAL DESIGN RE-ISSUED
0	10/19/10	CORRECTED FINAL DESIGN SUBMITTAL
B	10/05/10	FINAL DESIGN SUBMITTAL
A	08/31/10	MID-POINT DESIGN SUBMITTAL

DESIGNED BY:	DATE:
PJB	12/02/10
DRAWN BY:	SUBMITTED BY:
PJB	TECH
CHECKED BY:	FILE NO.:
PDC	AF1081-GI-001GN

US Army Corps of Engineers
Middle East District

TETRA TECH

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AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127 - CLN03
KANDAHAR AIR BASE, AFGHANISTAN

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SHEET 1 OF 3

SHEET REFERENCE NUMBER:
AF1081 G-001

INDEX OF DRAWINGS - 8 BARRACKS COMPLEX PN# 74127 - PHASE 4

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DESIGN
SUBMITTAL

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
ARCHITECTURAL DRAWINGS			
AF1081A-A-001	REV 0	09/15/10	ARCHITECTURAL SYMBOLS AND ABBREVIATIONS, BUILDING CODE AND CONSTRUCTION DATA
AF1081A-A-100	REV 0	09/15/10	GROUND FLOOR PLAN
AF1081A-A-101	REV 0	09/15/10	FIRST FLOOR PLAN
AF1081A-A-102	REV 0	09/15/10	GROUND FLOOR REFLECTED CEILING PLAN
AF1081A-A-103	REV 0	09/15/10	FIRST FLOOR REFLECTED CEILING PLAN
AF1081A-A-104	REV 0	09/15/10	ROOF PLAN
AF1081A-A-105	REV 0	09/15/10	EXTERIOR ELEVATIONS SHEET 1 OF 2
AF1081A-A-106	REV 0	09/15/10	EXTERIOR ELEVATIONS SHEET 2 OF 2
AF1081A-A-107	REV 0	09/15/10	BUILDING SECTIONS
AF1081A-A-200	REV 0	09/15/10	WALL SECTIONS SHEET 1 OF 2
AF1081A-A-201	REV 0	09/15/10	WALL SECTIONS SHEET 2 OF 2
AF1081A-A-202	REV 0	09/15/10	MISCELLANEOUS DETAILS SHEET 1 OF 2
AF1081A-A-203	REV 0	09/15/10	MISCELLANEOUS DETAILS SHEET 2 OF 2
AF1081A-A-204	REV 0	09/15/10	DOOR DETAILS, DOOR AND FINISH SCHEDULES
AF1081A-A-205	REV 0	09/15/10	ENLARGED STAIR PLANS AND SECTIONS
AF1081A-A-206	REV 0	09/15/10	STAIR DETAILS
AF1081A-A-300	REV 0	09/15/10	ENLARGED FLOOR PLAN, INTERIOR ELEVATIONS AND ACCESSORY SCHEDULE
AF1081A-A-303	REV 0	09/15/10	SIGNAGE DETAILS
STRUCTURAL DRAWINGS			
AF1081A-S-001	REV 0	09/15/10	STRUCTURAL GENERAL NOTES SHEET 1 OF 2
AF1081A-S-002	REV 0	09/15/10	STRUCTURAL GENERAL NOTES SHEET 2 OF 2

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
AF1081A-S-100	REV 0	09/15/10	FOUNDATION MAT LAYOUT PLAN
AF1081A-S-101	REV 0	09/15/10	GROUND FLOOR WALL LAYOUT PLAN
AF1081A-S-102	REV 0	09/15/10	FIRST FLOOR SLAB/BEAM FRAMING PLAN
AF1081A-S-103	REV 0	09/15/10	FIRST FLOOR WALL LAYOUT PLAN
AF1081A-S-104	REV 0	09/15/10	ROOF SLAB/BEAM FRAMING PLAN
AF1081A-S-105	REV 0	09/15/10	ENLARGED SLAB PLAN LATRINE AREA
AF1081A-S-200	REV 0	09/15/10	SHEARWALL ELEVATIONS
AF1081A-S-300	REV 0	09/15/10	MAT SLAB DETAILS SHEET 1 OF 2
AF1081A-S-301	REV 0	09/15/10	MAT SLAB DETAILS SHEET 2 OF 2
AF1081A-S-310	REV 0	09/15/10	CONCRETE BEAM AND COLUMN DETAILS SHEET 1 OF 3
AF1081A-S-311	REV 0	09/15/10	CONCRETE BEAM AND COLUMN DETAILS SHEET 2 OF 3
AF1081A-S-312	REV 0	09/15/10	CONCRETE BEAM AND COLUMN DETAILS SHEET 3 OF 3
AF1081A-S-313	REV 0	09/15/10	SHEARWALL SECTIONS SHEET 1 OF 2
AF1081A-S-314	REV 0	09/15/10	SHEARWALL SECTIONS SHEET 2 OF 2
AF1081A-S-320	REV 0	09/15/10	MASONRY DETAILS SHEET 1 OF 4
AF1081A-S-321	REV 0	09/15/10	MASONRY DETAILS SHEET 2 OF 4
AF1081A-S-322	REV 0	09/15/10	MASONRY DETAILS SHEET 3 OF 4
AF1081A-S-323	REV 0	09/15/10	MASONRY DETAILS SHEET 4 OF 4
AF1081A-S-330	REV 0	09/15/10	STEEL STAIR DETAILS SHEET 1 OF 2
AF1081A-S-331	REV 0	09/15/10	STEEL STAIR DETAILS SHEET 2 OF 2
AF1081A-S-332	REV 0	09/15/10	RCU SUPPORT PLAN, SECTIONS AND DETAILS

SHEET REFERENCE NUMBER	ISSUE STATUS	DATE OF ISSUE	DRAWING TITLE
MECHANICAL DRAWINGS			
AF1081A-M-001	REV 0	09/15/10	MECHANICAL SYMBOLS, ABBREVIATIONS, LEGEND AND GENERAL NOTES
AF1081A-M-100	REV 0	09/15/10	GROUND FLOOR MECHANICAL PLAN
AF1081A-M-101	REV 0	09/15/10	FIRST FLOOR MECHANICAL PLAN
AF1081A-M-102	REV 0	09/15/10	ROOF MECHANICAL PLAN
AF1081A-M-103	REV 0	09/15/10	ENLARGED MECHANICAL PLANS LATRINE AREA
AF1081A-M-200	REV 0	09/15/10	MECHANICAL SECTIONS AND ELEVATIONS
AF1081A-M-201	REV 0	09/15/10	MECHANICAL DETAILS SHEET 1 OF 2
AF1081A-M-202	REV 0	09/15/10	MECHANICAL DETAILS SHEET 2 OF 2
AF1081A-M-203	REV 0	09/15/10	MECHANICAL CONTROL SCHEMATICS
AF1081A-M-204	REV 0	09/15/10	MECHANICAL SCHEDULES
PLUMBING DRAWINGS			
AF1081A-P-001	REV 0	09/15/10	PLUMBING LEGEND, ABBREVIATIONS SYMBOLS AND GENERAL NOTES
AF1081A-P-100	REV 0	09/15/10	GROUND FLOOR AND FOUNDATION PLANS
AF1081A-P-101	REV 0	09/15/10	FIRST FLOOR AND FIRST FLOOR SANITARY PLANS
AF1081A-P-102	REV 0	09/15/10	SANITARY AND VENT ISOMETRIC PLANS
AF1081A-P-103	REV 0	09/15/10	PLUMBING WATER RISER DIAGRAM
AF1081A-P-104	REV 0	09/15/10	PLUMBING DETAILS

DATE	10/19/10
DESCRIPTION	CORRECTED FINAL DESIGN SUBMITTAL
DATE	10/05/10
DESCRIPTION	FINAL DESIGN SUBMITTAL
DATE	
DESCRIPTION	

DESIGNED BY: DATE: 10/19/10
 PJB
 DRAWN BY: SUBMITTED BY: TETRA TECH
 PJB
 CHECKED BY: FILE NO.: AF1081-GI-002GN
 PDC

US Army Corps of Engineers
Middle East District

TETRA TECH

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AUSTERE STANDARD DESIGNS - PHASE 4
 FY11 BARRACKS - PN74127 - CLN03
 KANDAHAR AIR BASE, AFGHANISTAN

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SHEET REFERENCE NUMBER:
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MATERIAL SPECIFICATIONS

FUEL STORAGE TANK: UL 142 STEEL PRIMARY TANK WITH MINIMUM OF 3 FACTORY SUPPLIED TANK SADDLES, INTERNAL AND EXTERNAL LADDERS, IMPACT PLATES LOCATED UNDER ALL OPENINGS, 29,171 LITER CAPACITY.

MANHOLE: UL LISTED STEEL COVER WITH GASKET. SEE PLANS FOR SIZES

TANK VENT: ALUMINUM BODY WITH BRASS SCREEN UPDRAFT VENT

TANK EMERGENCY VENT: UL LISTED ALUMINUM EMERGENCY VENT TESTED WITH ASME PTC25.3-1988 SETTINGS. CAPACITY TO MATCH TANK SIZE

FILL BOX: 75mm FILL BOX AND SPILL CONTAINER WITH 18.9 LITER LIQUID CAPACITY, QUICK OPENING COVER, HIGH SPEED INTERNAL DRAIN, INNER CAP AND CAST ALUMINUM COVER, QUICK DETACHABLE COUPLING WITH CHECK VALVE AND SHUTOFF BALL VALVE.

FUEL TRANSFER PUMPS: DUPLEX PUMP SET WITH EACH PUMP DELIVERING 200 LPH AT 345KPA. PUMP TO BE ENCLOSED IN WEATHER PROOF ENCLOSURE.

OVERFILL PREVENTION VALVE: UL LISTED VALVE WITH CAST ALUMINUM BODY AND POPPET, NITRILE FLOAT DESIGNED TO CLOSE OFF FILL PORT AS TANK NEARS FULL CAPACITY.

ALL ABOVE GROUND FUEL PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH THREADED FITTINGS WITH INSULATION AND ALUMINUM JACKETING.

CONTRACTOR SHALL PROVIDE A FULL SUPPLY OF FUEL TO EACH DAY TANK AND BULK STORAGE TANK AT THE TIME OF TURNOVER TO THE OWNER.

ABBREVIATIONS

APPROX ASME	APPROXIMATELY AMERICAN SOCIETY OF MECHANICAL ENGINEERS
CONC CONN DWGS	CONCRETE CONNECTION DRAWINGS
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
HP	HORSEPOWER
KPa	KILO PASCALS
LPH	LITERS PER HOUR
MIN	MINIMUM
MM	MILLIMETER
NO	NORMALLY OPEN/NUMBER
Ø	DIAMETER
PSI	POUNDS PER SQUARE INCH
%	PERCENT
RPM	REVOLUTIONS PER MINUTE
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORIES

LEGEND

	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	SOLENOID VALVE
	EMERGENCY VALVE
	CHECK VALVE
	CIRC PUMP
	D.V. DRAIN VALVE
	UNION
	CAPPED / PLUGGED CONNECTION
	REDUCER - INCREASER
	PIPE TURNING DOWN
	PIPE TURNING DOWN WITH SHUT-OFF
	PIPE TURNING UP
	SUPPORT LOCATION

CORRECTED FINAL DESIGN SUBMITTAL

NO.	DATE	DESCRIPTION
0	10/19/10	KCT CORRECTED FINAL DESIGN SUBMITTAL
B	10/05/10	KCT FINAL DESIGN SUBMITTAL
A	08/31/10	KCT MID-POINT DESIGN SUBMITTAL

DESIGNED BY:	DATE:	10/19/10
DRAWN BY:	DCG	
CHECKED BY:	BCL	
FILE NO.:	AF1081--PS010PN	
US Army Corps of Engineers Middle East District	DESIGNED BY:	DATE:
TETRA TECH	DRAWN BY:	DCG
	CHECKED BY:	BCL
	FILE NO.:	AF1081--PS010PN

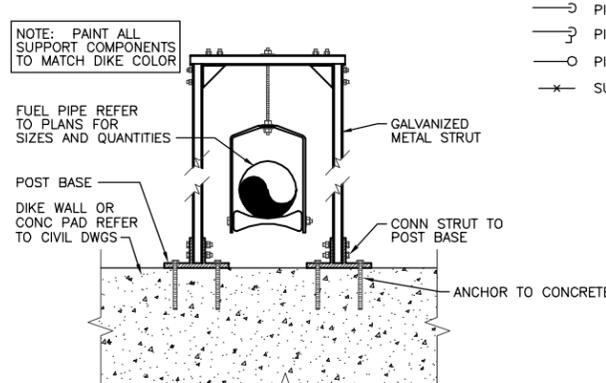
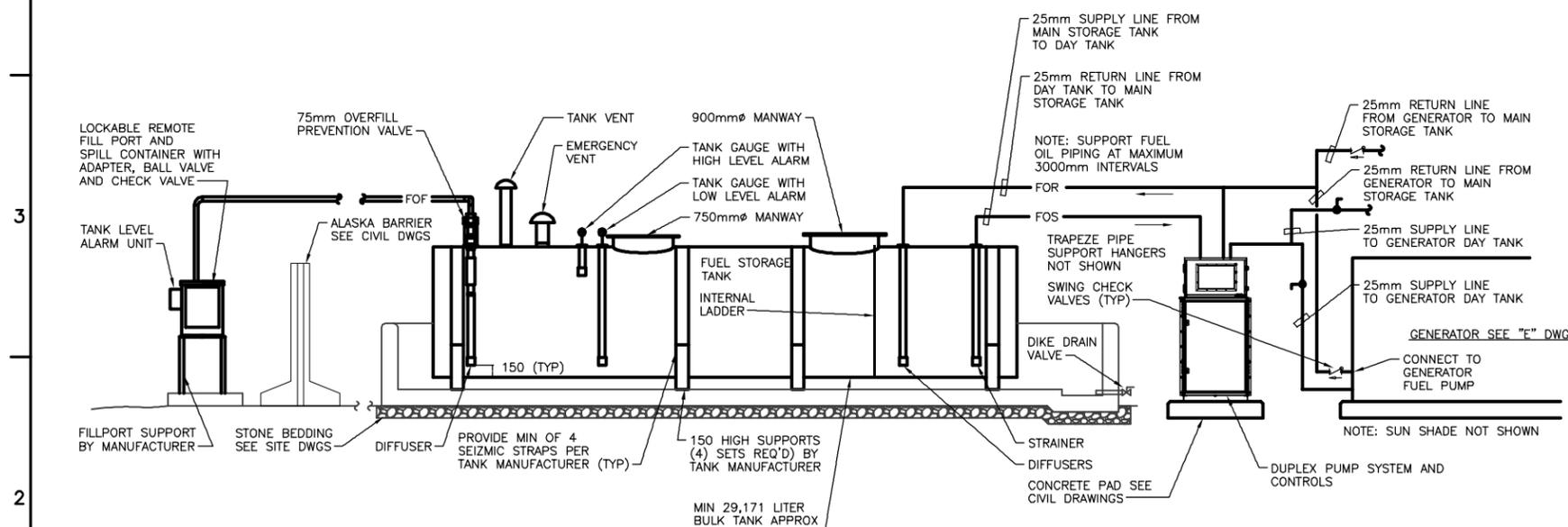
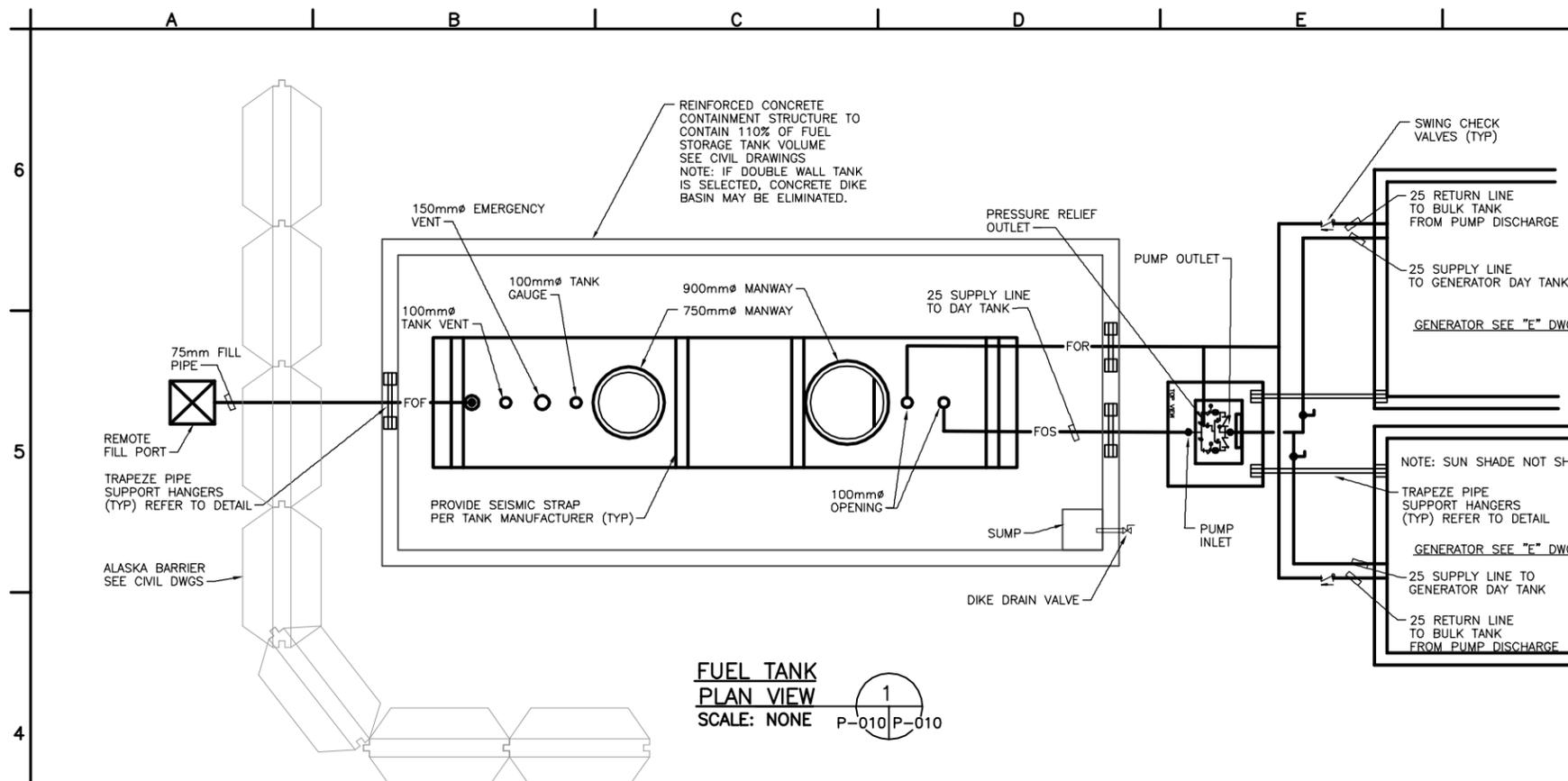
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TETRA TECH

AUSTERE STANDARD DESIGNS - PHASE 4
FY11 BARRACKS - PN74127-CLN03
KANDAHAR AIR BASE, AFGHANISTAN

FUEL TANK PLAN AND SCHEMATIC

SHEET REFERENCE NUMBER:
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P-010



FUEL PUMP SCHEDULE

DESIGNATION	NO. REQUIRED	FLOW RATE (LPH) EACH PUMP	PRESSURE KPa (PSI) EACH PUMP	ELECTRIC LOAD (H-P)	VOLTS	PHASE	HERTZ	RPM	LOCATION	DRAWING NO.
FUEL PUMP	2	200	345 (50)	1/3	208	3	60	1725	FUEL TANK	P-010

NOTE: EACH PUMP IS TO OPERATE 100% LOAD. PUMP SET TO OPERATE AS A LEAD-LEG ARRANGEMENT.

- #### GENERAL NOTES:
- ALL DIMENSIONS HERE ON PLANS ARE IN mm UNLESS OTHERWISE INDICATED.
 - MANUFACTURER BRAND NAMES AND MODEL NUMBERS GIVEN ON PLANS ARE FOR INFORMATION PURPOSES ONLY. THESE AND SIMILAR PRODUCTS FROM OTHER MANUFACTURERS THAT MEET THE SPECIFICATIONS WILL BE APPROVED AS AN ACCEPTABLE ALTERNATIVE.
 - SEE CIVIL DRAWINGS FOR EXACT LOCATIONS OF TANK AND EQUIPMENT.

— FOS — FUEL OIL SUPPLY
— FOR — FUEL OIL RETURN
— FOF — FUEL OIL FILL

UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

DETAIL TITLE

