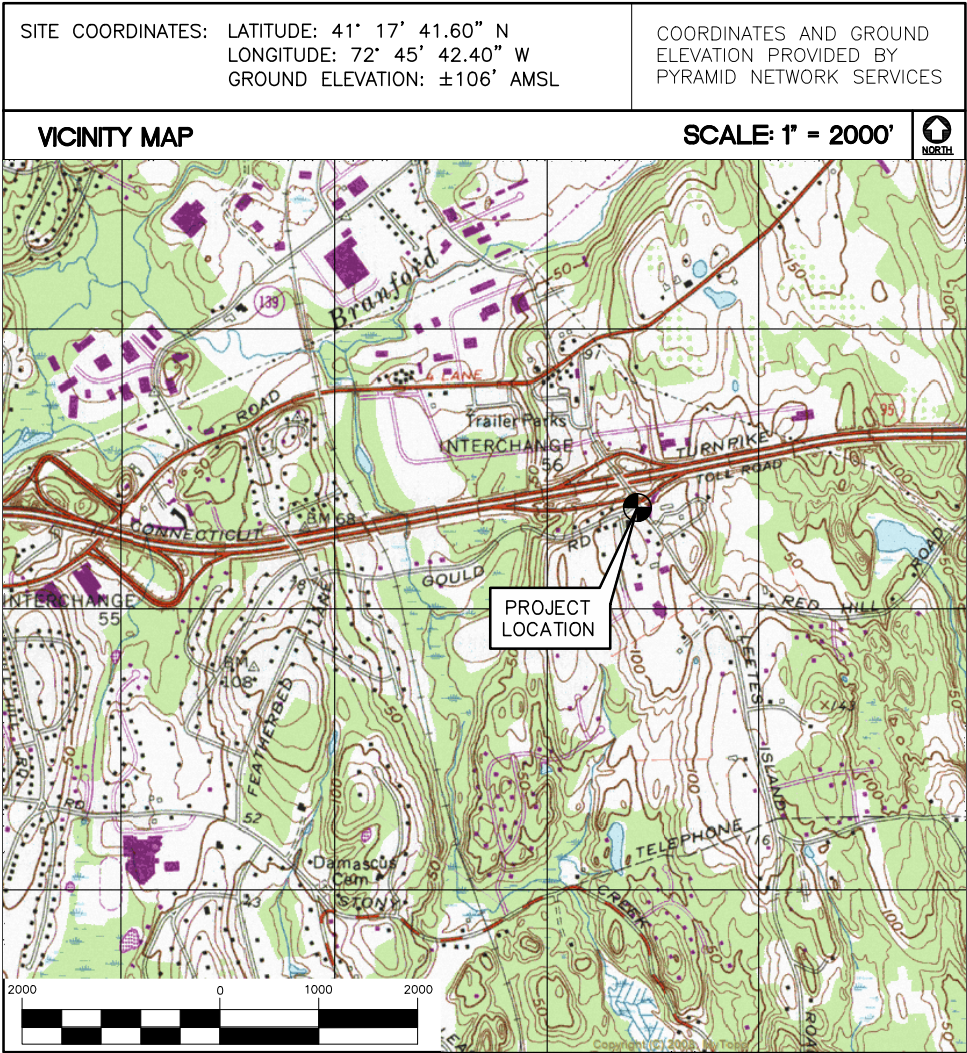


CONNECTICUT DEPARTMENT OF EMERGENCY
SERVICES AND PUBLIC PROTECTION (DESPP)
COMMUNICATIONS UPGRADE PROJECT
BRANFORD DOT FACILITY

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PROJECT SCOPE

1. INSTALL (1) NEW TX ANTENNA
2. INSTALL (2) NEW RX ANTENNA
3. INSTALL (1) TOWER TOP AMPLIFIER
4. INSTALL (3) NEW SIDE ARM MOUNTS
5. A PROPOSED ±12'x34' PREFABRICATED EQUIPMENT SHELTER WITH INDOOR GENERATOR ROOM
6. INSTALL (1) NEW COAX CABLE ICE BRIDGE
7. INSTALL (1) 1000 GAL. UNDERGROUND PROPANE TANK
8. INSTALL (1) NEW 4" PVC INTERCONNECT CONDUIT
9. NEW ±50'x50' EQUIPMENT COMPOUND FENCED IN WITH ±8' TALL BARBED WIRE CHAINLINK FENCE
10. TWO (2) GPS ANTENNAS MOUNTED ON A PROPOSED CABLE ICE BRIDGE
11. PROPOSED NEW 400 AMP UNDERGROUND ELECTRICAL SERVICE TO NEW ELECTRIC METER AND DISCONNECT MOUNTED ON THE PROPOSED EQUIPMENT SHELTER.
12. A NEW SINGLE PHASE UNINTERRUPTIBLE POWER SUPPLY (10 TO 20 KVA), UPS CHARGER AND 100 AMP DISCONNECT SWITCH WILL BE INSTALLED WITHIN THE PROPOSED EQUIPMENT SHELTER.

PROJECT SUMMARY

SITE NAME:	BRANFORD DOT FACILITY
SITE ADDRESS:	LEETES ISLAND RD BRANFORD, CT 06405
PROPERTY OWNER:	STATE OF CONNECTICUT LEETES ISLAND RD BRANFORD, CT 06405
CUSTOMER CONTACT:	CONNECTICUT DEPARTMENT OF EMERGENCY SERVICES AND PUBLIC PROTECTION (DESPP) (860) 685-8090
PROJECT MANAGER:	MOTOROLA SOLUTIONS GARY FLEISCH (203) 231-1397 PYRAMID NETWORK SERVICES, LLC ROB MCCABE (315) 373-3040
PROJECT ENGINEER:	MOTOROLA SOLUTIONS ROB CADY (860) 456-4091
ENGINEER OF RECORD:	CEN TEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT 06405
CEN TEK CONTACT:	CARLO F. CENTORE, P.E. (203) 433-7511 EXT 122



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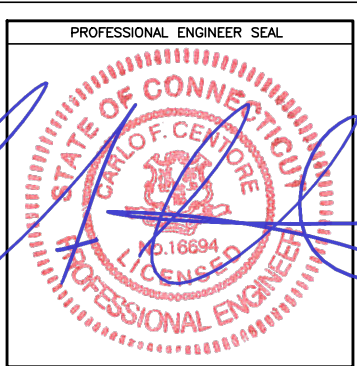
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NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:
- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 115 MPH (3 SECOND GUST)

• RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)

• NOMINAL DESIGN SPEED (OTHER STRUCTURE): 101 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7–10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.

• SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2018 CONNECTICUT FIRE SAFETY CODE AND 2017 NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.

9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE SITE OWNER'S CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "DIG SAFE" (DIAL 811) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.

5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
9. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

EARTHWORK NOTES

1. COMPACTED GRAVEL FILL SHALL BE FURNISHED AND PLACED AS A FOUNDATION FOR STRUCTURES, WHERE SHOWN ON THE CONTRACT DRAWINGS OR DIRECTED BY THE ENGINEER.
2. CRUSHED STONE FILL SHALL BE PLACED IN 12" MAX. LIFTS AND CONSOLIDATED USING A HAND OPERATED VIBRATORY PLATE COMPACTOR WITH A MINIMUM OF 2 PAQSSES OF COMPACTOR PER LIFT.
3. COMPACTED GRAVEL FILL TO BE WELL GRADED BANK RUN GRAVEL MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1 ½"	100
No. 4	40–70
No. 100	5–20
No. 200	4–8

4. CRUSHED STONE TO BE UNIFORMLY GRADED, CLEAN, HARD PROCESS AGGREGATE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1"	100
¾"	90–100
½"	0–15
⅜"	0–5

5. SELECT BACKFILL FOR FOUNDATION WALLS SHALL BE FREE OF ORGANIC MATERIAL, TOPSOIL, DEBRIS AND BOULDERS LARGER THAN 6".
6. GRAVEL AND GRANULAR FILL SHALL BE INSTALLED IN 8" MAX. LIFTS. COMPACTED TO 95% MIN. AT MAX. DRY DENSITY.
7. NON WOVEN GEOTEXTILE FOR SEPARATION PURPOSES SHALL BE MIRAFI 140N, OR ENGINEER APPROVED EQUAL.



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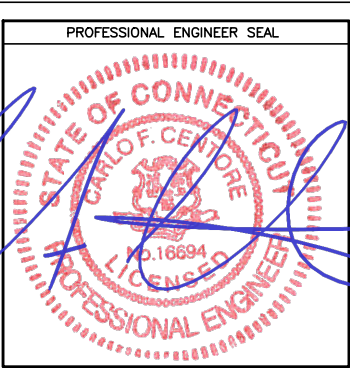
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Centek Project No.: 19160.04
Drawing Title: NOTES AND SPECIFICATIONS

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NOTES AND SPECIFICATIONS

SLAB ON GRADE CONSTRUCTION:

1. PLACE AND COMPACT GRAVEL FILL IN LAYERS NOT TO EXCEED 10” BEFORE COMPACTION. DETERMINE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557 AND MAKE ONE (1) FIELD DENSITY TEST IN ACCORDANCE WITH ASTM D2167 FOR EACH 50 CUBIC YARDS OF COMPACTED FILL, BUT NOT LESS THAN ONE (1) PER LAYER, TO ENSURE COMPACTION TO 95% OF MAXIMUM DRY DENSITY.
2. SAW CUT CONTROL JOINTS 1 /8” WIDE AND TO A DEPTH EQUAL TO 1 /4 OF THE SLAB THICKNESS. CONSTRUCTION JOINTS AS REQUIRED SHALL BE KEYED AND LOCATED AT CONTROL JOINT INTERVALS. ALL CONTROL JOINTS SHALL BE FILLED WITH EUCO EPOXY #600 EPOXY JOINT FILLER AS MANUFACTURED BY EUCLID CHEMICAL CO. OR APPROVED EQUAL.
3. SAW CUT CONTROL JOINTS AT 20’–0” ON CENTER MAXIMUM WITHIN 12 HOURS OF CONCRETE PLACEMENT.
4. SLABS ON GRADE FINISHES: STEEL TROWEL FINISH AS DEFINED IN ACI 301. CURE SLAB WITH SONNEBORN KURE–N–SEAL WB OR APPROVED EQUAL, APPLIED AS RECOMMENDED BY MANUFACTURER.
5. CONSTRUCTION JOINT SPACING IN FOUNDATION WALLS SHALL NOT EXCEED 40 FEET NOR 20 FEET FROM ANY CORNER. JOINTS SHALL BE KEYED AND HORIZONTAL BARS SHALL EXTEND THRU JOINT AND BE 48 BAR DIAMETER SPLICED.
6. IN REINFORCED CONCRETE WALLS AND FOOTINGS, PROVIDE CORNER DOWELS OF THE SAME SIZE AND AT THE SAME SPACING AS HORIZONTAL REINFORCING. DOWELS SHALL HAVE A 48 BAR DIAMETER SPLICE WITH HORIZONTAL REINFORCING EACH DIRECTION.
7. WHERE FOOTINGS ARE IN CLOSE PROXIMITY TO SUBSURFACE PIPING, TOP OF FOOTING SHALL BE LOWERED TO PROVIDE A MINIMUM OF 8” BELOW INVERT ELEVATION OF PIPING.
8. CONCRETE PIERS (IF PROVIDED): PLACE CONCRETE PIERS AND WALLS TOGETHER, SET PIER STEEL AND EXTEND WALL STEEL THROUGH PIER VERTICAL BARS. PROVIDE DOWELS WITH STANDARD HOOK FROM FOOTINGS AT ALL PIERS. SIZE AND QUANTITY OF DOWELS TO MATCH VERTICAL PIER REINFORCING.
9. PROVIDE CORROSION RESISTANT ACCESSORIES IN ALL EXPOSED CONCRETE.
10. RUB ALL EXPOSED CONCRETE SURFACES SMOOTH AND FINISH WITH CEMENT GROUT.
11. PROVIDE AIR ENTRAINMENT IN ALL EXTERIOR CONCRETE AS WELL AS GARAGE AND PORCH SLABS THAT WILL BE EXPOSED TO DEICING SALTS.

FOUNDATION CONSTRUCTION NOTES

1. ALL FOOTINGS SHALL BE PLACED ON SUITABLE, COMPACTED SOIL HAVING ADEQUATE BEARING CAPACITY AND FREE OF ORGANIC CONTENT, CLAY, OR OTHER UNSUITABLE MATERIAL. ADDITIONAL EXCAVATION MAY BE REQUIRED BELOW FOOTING ELEVATIONS INDICATED IF UNSUITABLE MATERIAL IS ENCOUNTERED.
2. SUBGRADE PREPARATION: IF UNSUITABLE SOIL IS ENCOUNTERED, REMOVE ALL UNSUITABLE MATERIALS FROM BELOW PROPOSED STRUCTURE FOUNDATIONS AND COMPACT EXPOSED SOIL SURFACES. PLACE AND COMPACT APPROVED GRAVEL FILL. PLACEMENT OF ALL COMPACTED FILL MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY. FILL SHALL BE COMPACTED IN LAYERS NOT TO EXCEED 10” BEFORE COMPACTION. DETERMINE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557–70 AND MAKE ONE (1) FIELD DENSITY TEST IN ACCORDANCE WITH ASTM D2167–66 FOR EACH 50 CUBIC YARDS OF COMPACTED FILL. BUT NOT LESS THAN ONE (1) PER LAYER, TO INSURE COMPACTION TO 95% OF MAX. DRY DENSITY.
3. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE KEPT REASONABLY DRY AND PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
4. WHERE GROUNDWATER IS ENCOUNTERED, DEWATERING SHALL BE ACCOMPLISHED CONTINUOUSLY AND COMPLETELY DURING FOUNDATION CONSTRUCTION. PROVIDE CRUSHED STONE AS REQUIRED TO STABILIZE FOOTING SUBGRADE.
5. ALL FOOTINGS ARE TO REST ON FIRM SOIL, REGARDLESS OF ELEVATIONS SHOWN ON THE DRAWINGS, BUT IN NO CASE MAY FOOTING ELEVATIONS BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.
6. FOUNDATION WATERPROOFING AND DAMPPROOFING SHALL COMPLY WITH BUILDING CODE REQUIREMENTS UNLESS A MORE SUBSTANTIAL SYSTEM IS INDICATED OR SPECIFIED.



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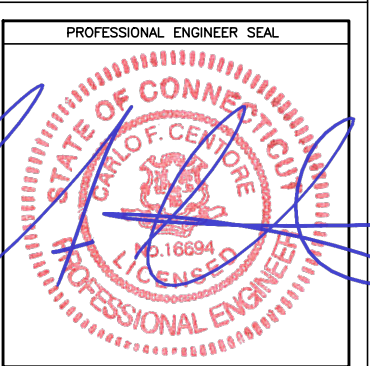
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1
C-0

SITE LOCATION MAP

SCALE: 1" = 250'


NORTH

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Drawing Title: SITE LOCATION MAP

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1
C-3

1
C-2

PROPOSED 120/240 V, 400A,
SINGLE PHASE UNDERGROUND
ELECTRICAL SERVICE

PROPOSED ±12' WIDE GRAVEL
ACCESS DRIVE

EXISTING UTILITY POLE

LEETES ISLAND ROAD

EXISTING CT DOT BUILDING

SALT
SHED

CHD
(FND)

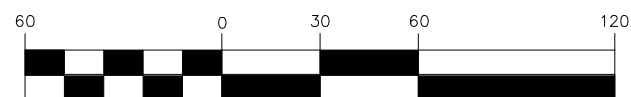
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C-1

SITE PLAN - PROPOSED

SCALE: 1" = 60'- 0"



GRAPHIC SCALE



(IN FEET)
1 inch = 60 ft.

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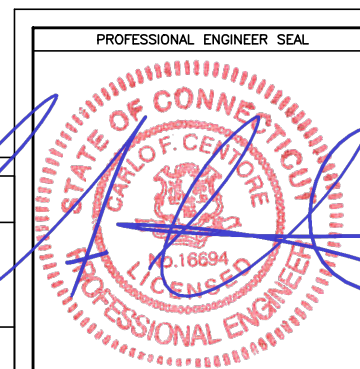
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PROPOSED ±12'x34' EQUIPMENT
SHELTER WITH GENERATOR ROOM

PROPOSED UPS BYPASS PANEL

PROPOSED ELECTRIC METER AND
DISCONNECT

PROPOSED UPS CABINET

PROPOSED UTILITY TRANSFORMER
PROVIDED BY UTILITY COMPANY

UNDERGROUND UTILITY CONDUIT
ROUTED FROM EXISTING UTILITY
POLE

PROPOSED (1) 4"Ø TELCO
CONDUIT

PROPOSED UNDERGROUND UTILITY CONDUIT
WITH 400 AMP SERVICE TO NEW METER
AND DISCONNECT MOUNT ON PROPOSED
SHELTER

PROPOSED UPS CHARGER AND
DISCONNECT SWITCH

PROPOSED 12' DOUBLE SWING GATE

PROPOSED 1000 GAL. UNDERGROUND
PROPANE TANK

PROPOSED ±50'x50' FENCED COMPOUND
WITH ±8' BARBED WIRE FENCE

PROPOSED COAX CABLE ICE BRIDGE WITH
(2) GPS ANTENNAS

CT DESPP CABLE ENTRY PORT

PROPOSED RACK, TYP. OF (6)

PROPOSED ±100' SELF SUPPORTING
LATTICE TOWER

1
C-2

COMPOUND PLAN - PROPOSED

SCALE: 1/8" = 1' - 0"



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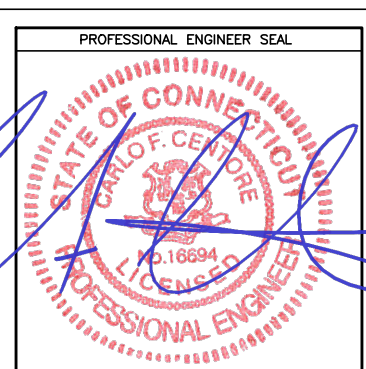
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Drawing Title: PARTIAL SITE PLAN

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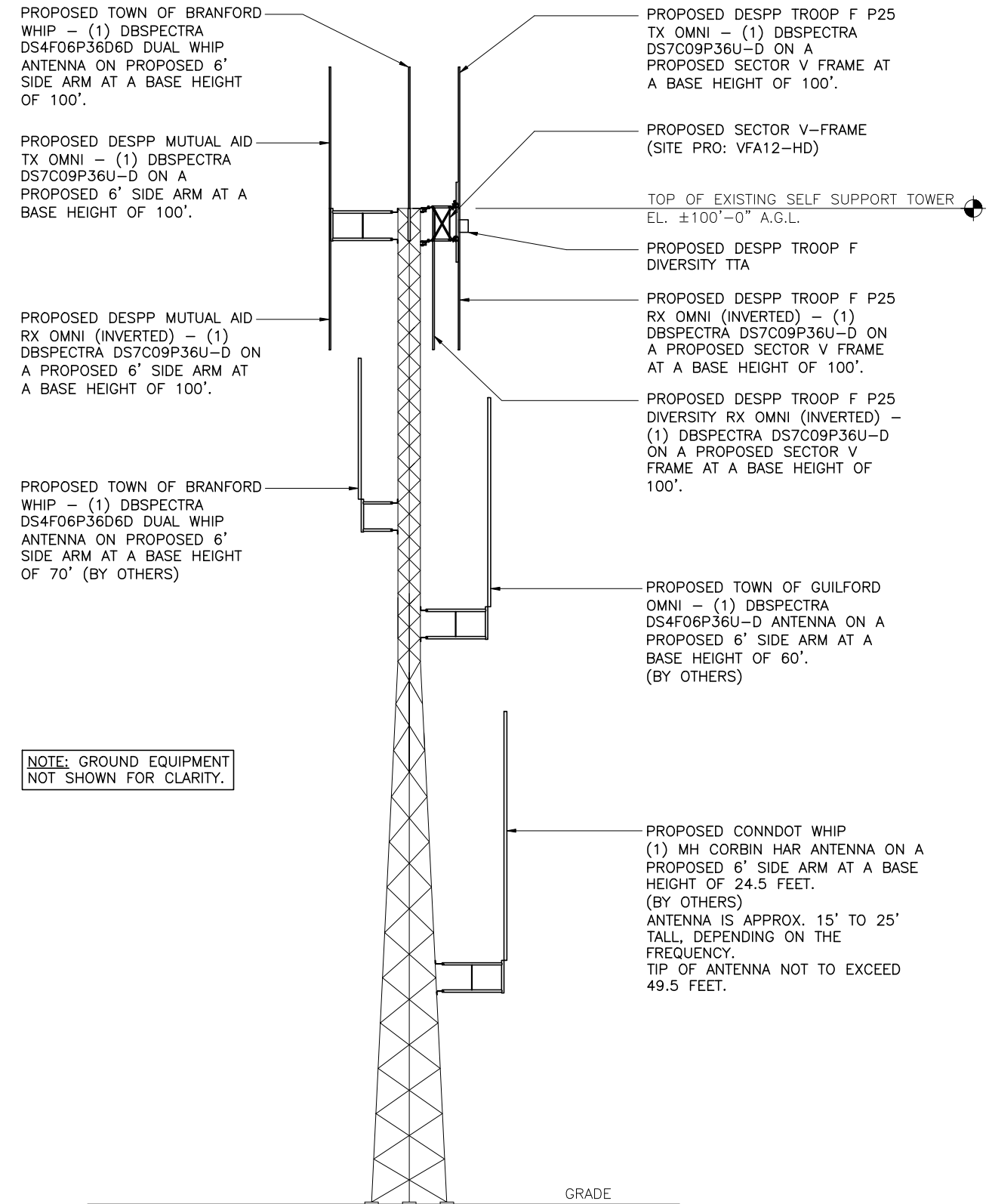
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ANTENNA MODEL	BASE HEIGHT	ANTENNA SIZE	ANTENNA TYPE	QUANTITY	LINE TYPE	LINE SIZE
DBSPECTRA DS7C09P36U-D	100'	14.2'L x 3"ø	DESPP TROOP F P25 TX OMNI	1	AVA TRANSMISSION	(1) 1-5/8"
DBSPECTRA DS7C09P36U-D	100'	14.2'L x 3"ø	DESPP TROOP F P25 RX OMNI (INVERTED)	1	AVA TRANSMISSION	(1) 1-5/8"
DBSPECTRA DS7C09P36U-D	100'	14.2'L x 3"ø	DESPP TROOP F P25 DIVERSITY RX (INVERTED)	1	AVA TRANSMISSION	(1) 1-5/8"
TX/RX 432F-83W-01-T	100'	15"LX12"WX7.5"D	DESPP TROOP F DIVERSITY TTA	1	LDF TRANSMISSION	(1) 1/2"
DBSPECTRA DS7C09P36U-D	100'	14.2'L x 3"ø	DESPP MUTUAL AID RX OMNI (INVERTED)	1	AVA TRANSMISSION	(1) 1-5/8"
DBSPECTRA DS7C09P36U-D	100'	14.2'L x 3"ø	DESPP MUTUAL AID TX OMNI	1	AVA TRANSMISSION	(1) 1-5/8"
DBSPECTRA DS4F06P36U-D	60'	14.2'L x 3"ø	TOWN OF GUILFORD OMNI	1	AVA TRANSMISSION	(1) 1-5/8"
DBSPECTRA DS4F06P36D6D	70'	14.2'L x 3"ø	TOWN OF BRANFORD DUAL WHIP	1	AVA TRANSMISSION	(2) 1-5/8"
DBSPECTRA DS4F06P36D6D	100'	14.2'L x 3"ø	TOWN OF BRANFORD DUAL WHIP	1	AVA TRANSMISSION	(2) 1-5/8"
MH CORBIN HAR	24.5'	15'-25' DEPENDING ON FREQUENCY	CONNDOT WHIP	1	LDF4-50A	(1) 1/2"

NOTES:

- 1) INSTALL APPROXIMATELY 150' OF 1-5/8" AVA TRANSMISSION LINE, CONNECTED TO THE DESPP TROOP F P25 TX OMNI ANTENNA AND A SURGE PROTECTOR IN THE EQUIPMENT SHELTER.
- 2) CONNECT DESPP TROOP F P25 RX OMNI ANTENNA TO NEW TTA. INSTALL APPROXIMATELY 150' OF 1-5/8" AVA TRANSMISSION LINE CONNECTED TO THE TTA RF DOWN A CONNECTOR AND A SURGE PROTECTOR IN EQUIPMENT SHELTER.
- 3) CONNECT DESPP TROOP F P25 DIVERSITY RX OMNI ANTENNA TO NEW TTA. INSTALL APPROXIMATELY 150' OF 1-5/8" AVA TRANSMISSION LINE CONNECTED TO THE TTA RF DOWN B CONNECTOR AND A SURGE PROTECTOR IN EQUIPMENT SHELTER.
- 4) INSTALL APPROXIMATELY 150' OF 1/2" LDF TRANSMISSION LINE, CONNECTED TO THE TTA TEST CONNECTOR AND A SURGE PROTECTOR IN EQUIPMENT SHELTER.
- 5) INSTALL APPROXIMATELY 150' OF 1-5/8" AVA TRANSMISSION LINE, CONNECTED TO THE DESPP MUTUAL AID RX OMNI ANTENNA AND SURGE PROTECTOR IN THE EQUIPMENT SHELTER.
- 6) INSTALL APPROXIMATELY 150' OF 1-5/8" AVA TRANSMISSION LINE, CONNECTED TO THE DESPP MUTUAL AID TX OMNI ANTENNA AND SURGE PROTECTOR IN THE EQUIPMENT SHELTER.



NOTE: GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

1
C-3 PROPOSED TOWER ELEVATION
SCALE: 1" = 15'- 0"

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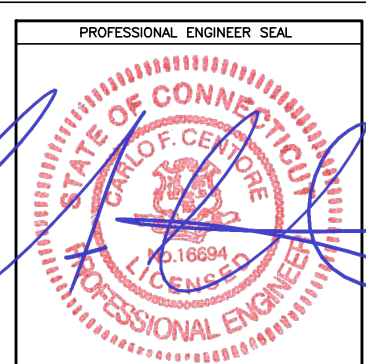
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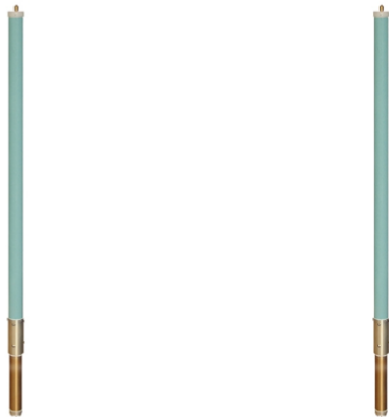
Centek Project No.: 19160.04

Drawing Title: TOWER ELEVATION

Dwg. No.: C - 3

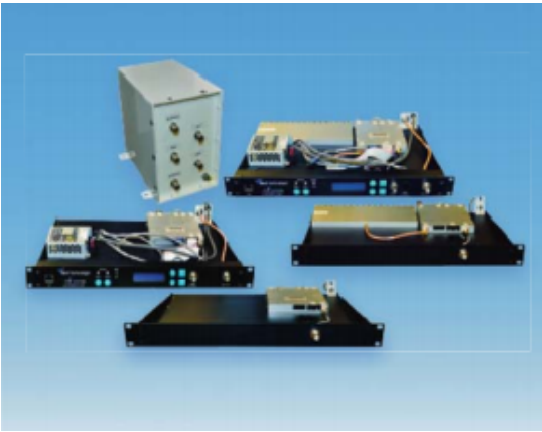
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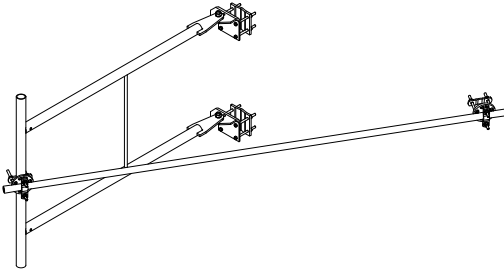


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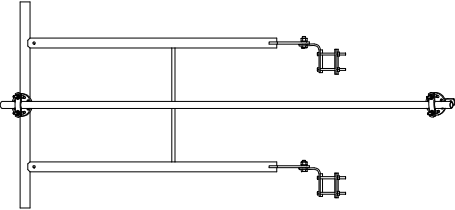
DB SPECTRA: DSC09P36U-D



PROPOSED TX/RX AMPLIFIER			
EQUIPMENT		DIMENSIONS	WEIGHT
MAKE:	TX/RX	11.3"L x 7"W X 10.2"D	25 LBS.
MODEL:	432F-83W-01-T		



SITEPRO: (P/N: PSA6)

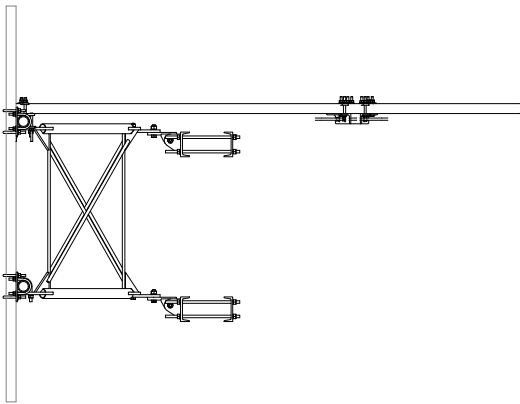
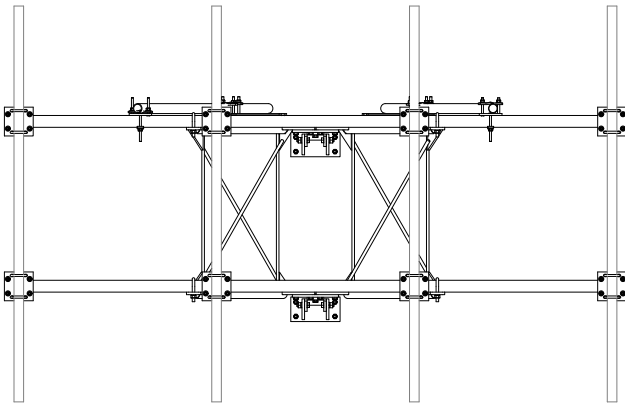


PROPOSED ANTENNAS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: DB SPECTRA MODEL: DS7C09P36U-D	14.2'L x 2.5"Ø	66 LBS.
MAKE: DB SPECTRA MODEL: DS4F06P36D-6D	21.0'L x 3.5"Ø	65 LBS.

1 ANTENNA DETAILS
C-4 SCALE: NOT TO SCALE

2 TX/RX AMPLIFIER DETAIL
C-4 SCALE: NOT TO SCALE

3 6' SIDE ARM MOUNT DETAIL
C-4 SCALE: NOT TO SCALE



SITEPRO: (P/N: VFA12-HD)

4 V-FRAME MOUNT DETAIL
C-4 SCALE: NOT TO SCALE



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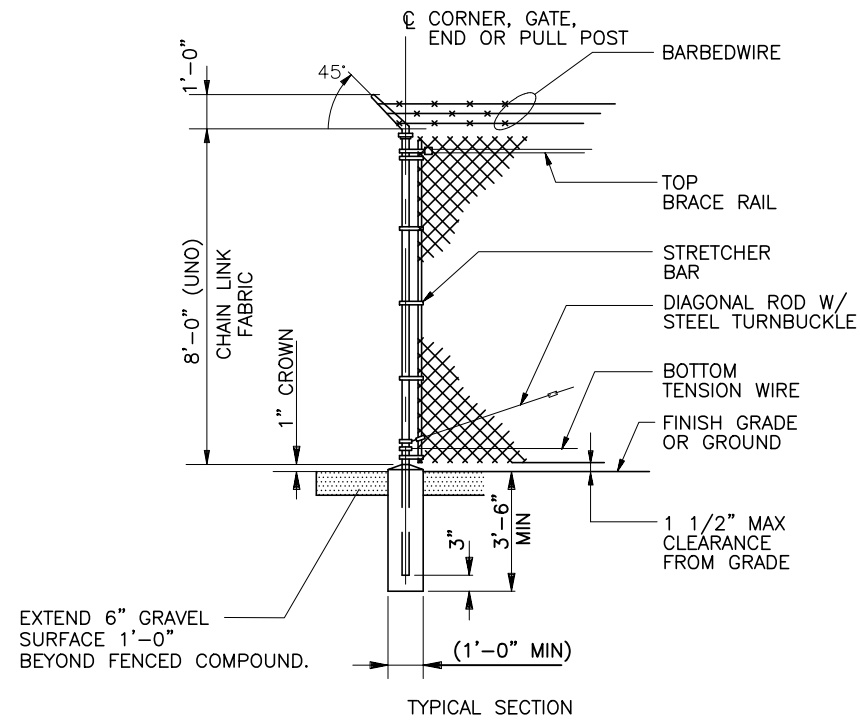
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Drawing Title: TYPICAL DETAILS

Dwg. No.: C - 4

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1
C-5

WOVEN WIRE FENCE DETAIL
NOT TO SCALE

WOVEN WIRE FENCE NOTES:

1. GATE POST, CORNER, TERMINAL OR PULL POST 2 1/2"Ø SCHEDULE 40 PIPE FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F1083.
2. LINE POST: 2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.
3. GATE FRAME: 1 1/2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.
4. TOP RAIL & BRACE RAIL: 1 1/2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.
5. FABRIC: 12 GA. CORE WIRE SIZE 1 1/4" MESH, CONFORMING TO ASTM-A392.
6. TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS. A SINGLE WRAP OF FABRIC TIE AND TENSION WIRE BY HOG RINGS SPACED 24" INTERVALS.
7. TENSION WIRE: 7 GA. GALVANIZED STEEL.
8. GATE LATCH: DROP DOWN LOCKABLE FORK HATCH AND LOCK, KEYED TO OWNER'S REQUIREMENTS.
9. HEIGHT TO MATCH EXISTING.

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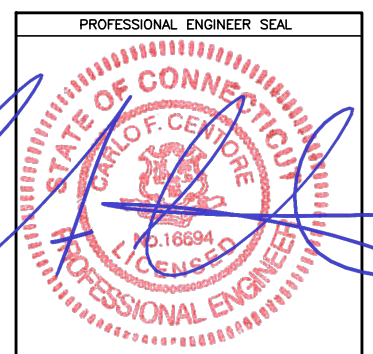
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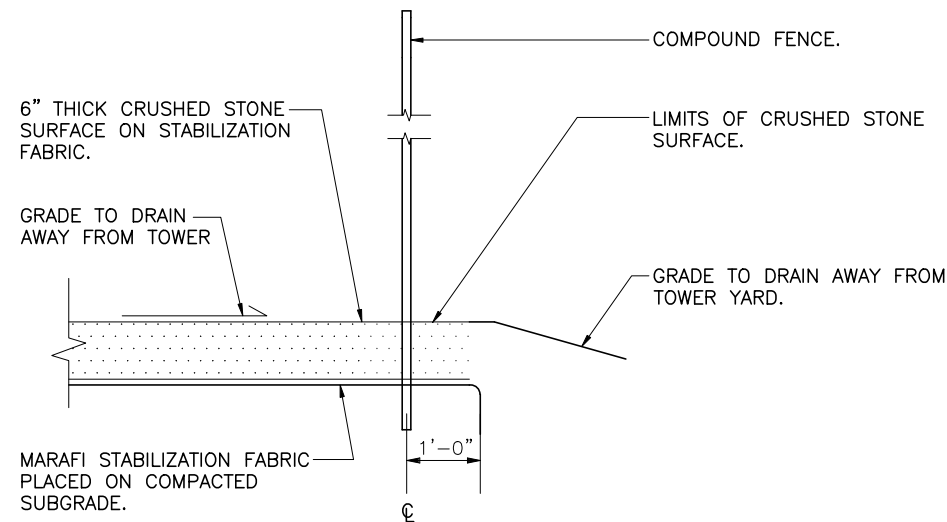
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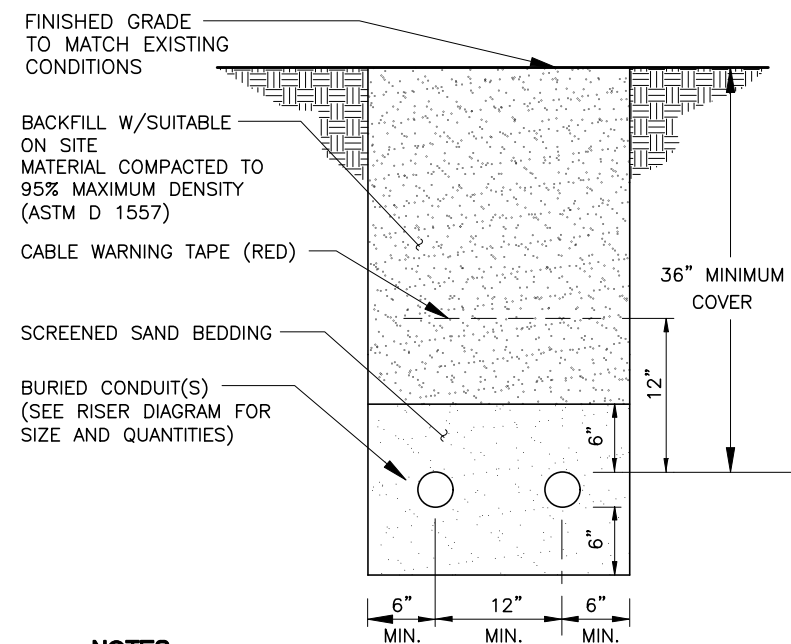
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1 COMPOUND SURFACING DETAIL
C-6 NOT TO SCALE



NOTES:

1. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
2. WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
3. COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

3 TYPICAL ELECTRICAL TRENCH DETAIL
C-6 NOT TO SCALE

SITE PRO UNIVERSAL CANTILEVER
P/N HHD24-K & GRIP STRUT
BRIDGE CHANNEL P/N GRS24
CUT TO LENGTH

SITE PRO UNIVERSAL VERTICAL
TRAPEZE KIT (P/N VT12). MAXIMUM
CABLE SPAN = 3'-0". TYPICAL.

ANTENNA CABLES. ARRANGEMENT
BY CONTRACTOR.

ICE BRIDGE SUPPORT POST
(SITE PRO PIPE COLUMN P/N P3216).
CUT POST LENGTH IN FIELD BY
REMOVING UNCAPPED END. REFER TO
SITE PRO FOR RECOMMENDED POST
SPACING & SPECIFICATIONS.

1" CHAMFER (TYP.)

FIN. GRADE

(6) #4 REBAR VERT.

1 1/2" MIN.

#3 REBAR TIES
@ 8" o.c.

12" CONC. FOUNDATION
(TYP.)

2 SINGLE-POST ICE BRIDGE DETAIL
C-6 NOT TO SCALE

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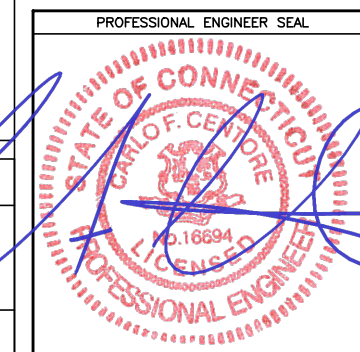
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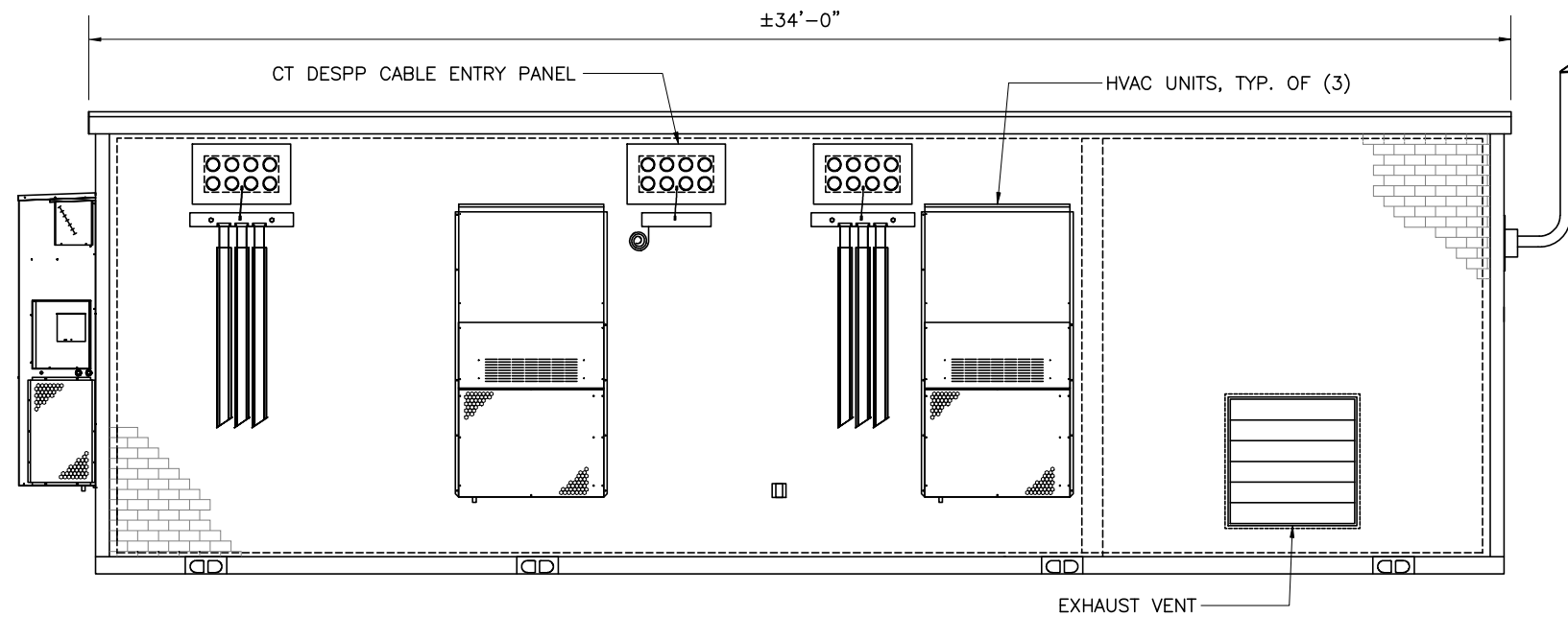
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Drawing Title: TYPICAL DETAILS

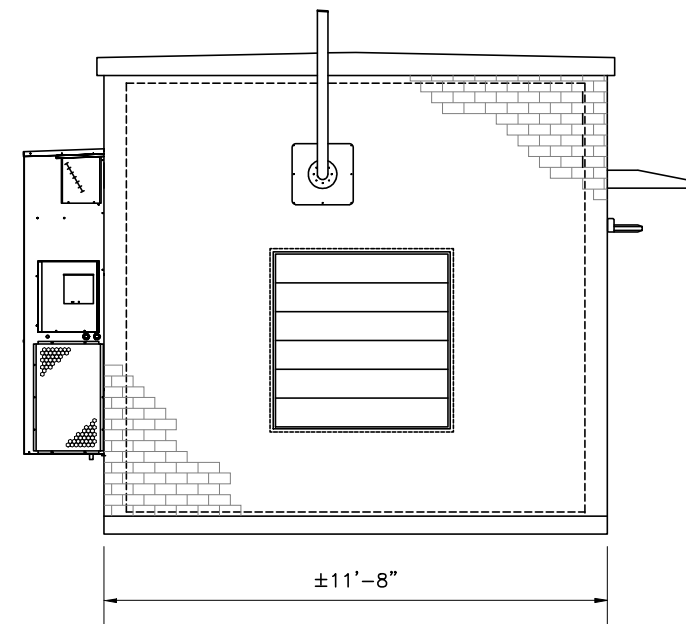
Dwg. No.: C - 6

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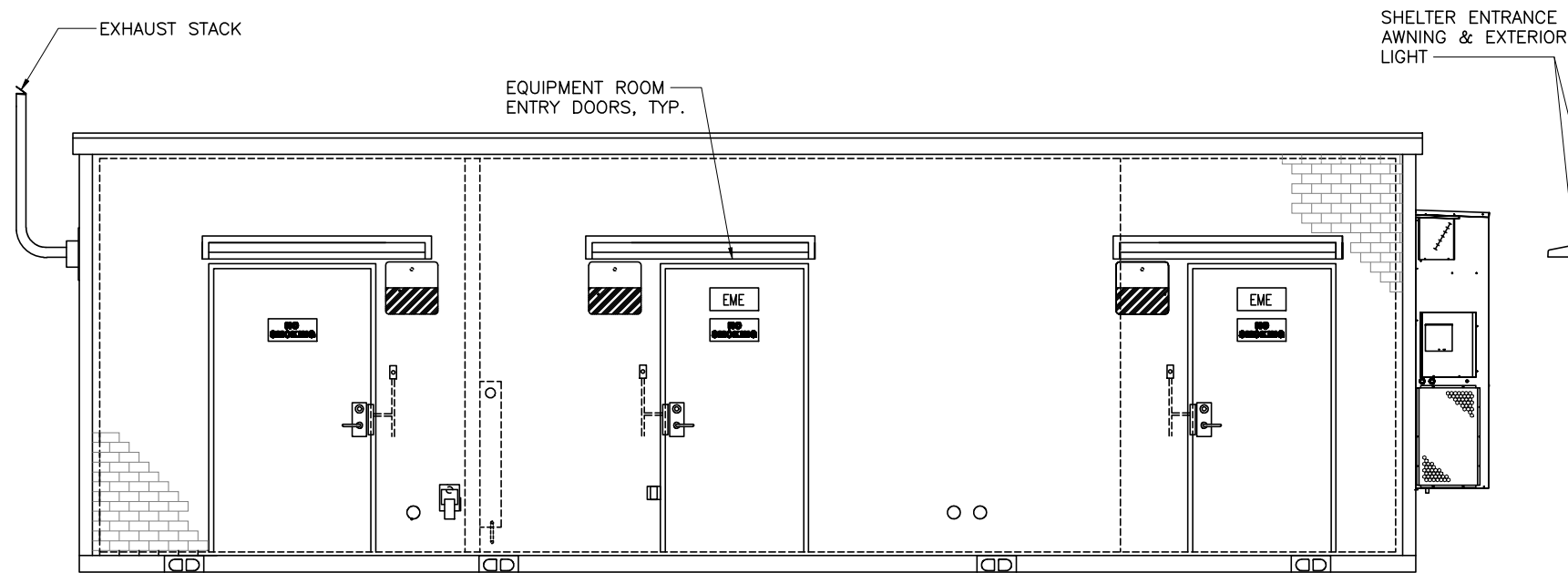




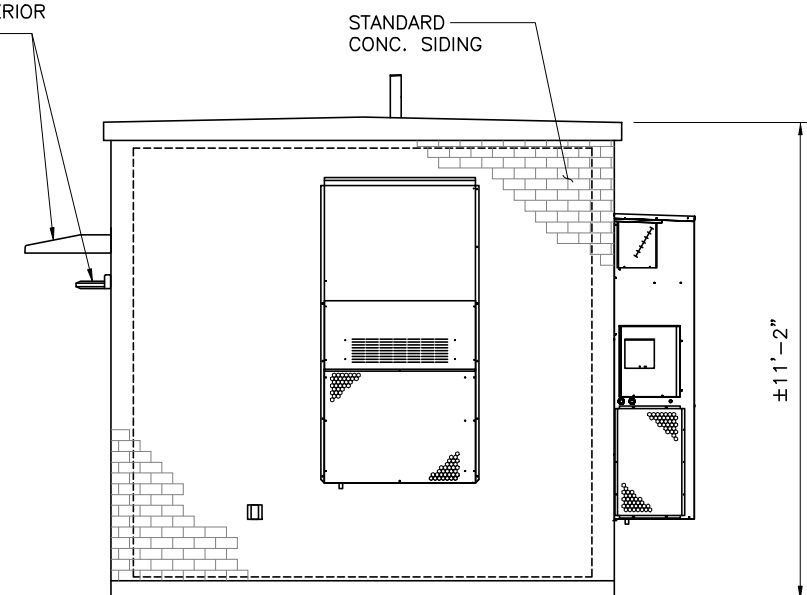
REAR WALL ELEVATION



LEFT WALL ELEVATION



FRONT WALL ELEVATION



RIGHT WALL ELEVATION

1 EQUIPMENT SHELTER ELEVATIONS
C-7 SCALE: NOT TO SCALE



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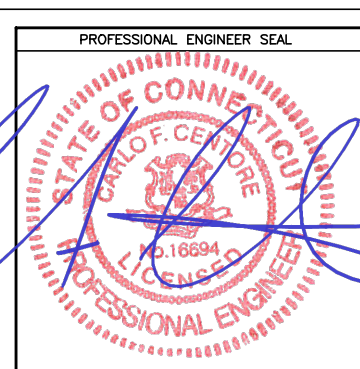
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Drawing Title: EQUIPMENT SHELTER ELEVATIONS

Dwg. No.: C - 7

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FLOOR OR WALL	MIN. THICK.	MAX. PIPE DIA.	MIN. ANNULAR SPACE	MAX. ANNULAR SPACE	MIN. FILL MAT. THICK.	MIN. FORM. MAT. THICK.	F RATING
F	3 3/4"	1 1/2"	3/8"	2 1/8"	1"	2 3/4"	2
F	3 3/4"	6"	3/8"	3/4"	1"	2 3/4"	2
F	3 3/4"	6"	3/8"	1"	2"	1 3/4"	2
F	4 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
F	4 1/2"	6"	3/8"	3/4"	1"	3 1/2"	3
F	4 1/2"	6"	3/8"	1"	2"	2 1/2"	3
W	5 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
W	5 1/2"	6"	3/8"	3/4"	1"	3 1/2"	3
W	6 1/2"	1 1/2"	3/8"	2 1/8"	2"	2 1/2"	3
W	6 1/2"	6"	3/8"	1"	2"	2 1/2"	3

THROUGH PENETRANTS

ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL.

FORMING MATERIAL SHALL BE A MIN. OF 1 1/2" THICK OF MIN. 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED IN OPENING, USG INTERIORS-TYPE SAF

THICKNESS OF SEALANT APPLIED FLUSH W/THE TOP SURFACE OF BOTH SIDES OF FLOOR/WALL (SEE TABLE), USG INTERIORS-TYPE SS

UL SYSTEM NUMBER: CAJ1020

F RATING - 3 HR.

PIPE AND CONDUIT PENETRATION

DETAIL IN CONCRETE OR MASONRY

4

C-8

N.T.S.

MAX. DIA. OF THROUGH PENETRANT	NOMINAL ANNULAR SPACE IN.	FILL MATERIAL TYPE
1"	1/2"	FSP 1100 PUTTY
2"	1"	FS 1900 SEALANT

ONE 2"Ø SCHEDULE 40 PVC PIPE TO BE CENTERED WITHIN FIRESTOP SYSTEM. PIPE SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL/FLOOR ASSEMBLY

SEALANT, MIN. OF 1 1/4" THICK, FLUSH WITH BOTH SURFACES OF WALL FOR 2 HR. ASSEMBLY, 5/8" THICK FOF 1 HR. ASSEMBLY. A 5/8" CROWN AROUND CONDUIT WITH A 1" MIN. LAP AROUND OPENING SEALANT: INTERNAT'L PROTECTIVE COATINGS CORP-FSP 110 PUTTY OR FS1900 SEALANT

UL SYSTEM NUMBER: WL2038
F RATING - 1 & 2 HR.

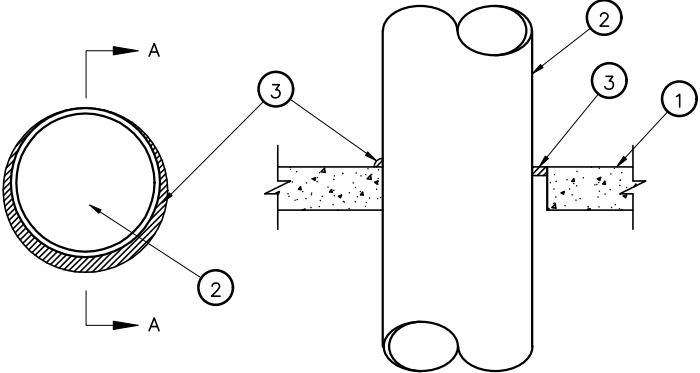
PVC CONDUIT PENETRATION

DETAIL IN GYPSUM WALLBOARD

5

C-8

N.T.S.



UL SYSTEM NUMBER: C-AJ-1291
F RATING - 2-HR

SECTION A-A

METAL PIPE THROUGH CONCRETE

FLOOR/ WALL OR BLOCK WALL

3

C-8

N.T.S.

NOTES:

1. FLOOR OR WALL ASSEMBLY - MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 30-7/8 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

A. STEEL FLOOR UNIT/FLOOR ASSEMBLY (NOT SHOWN) - AS AN ALTERNATE TO ITEM 1, THE FLOOR ASSEMBLY MAY CONSIST OF A FLUTED STEEL FLOOR UNIT/ CONCRETE FLOOR ASSEMBLY. THE FLOOR ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL FLOOR CEILING DESIGN IN THE FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

B. CONCRETE - MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT ON NORMAL WEIGHT (100-150 PCF) CONCRETE, AS MEASURED FROM THE TOP PLANE OF THE FLOOR UNITS.

C. STEEL FLOOR AND FORM UNITS* - COMPOSITE OR NON-COMPOSITE 1-1/2 TO 3 IN. DEEP FLUTED GALV STEEL UNITS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 30-7/8 IN.

2. THROUGH-PENETRANT - ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. TO MAX 7/8 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:

A. STEEL PIPE NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

B. IRON PIPE NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

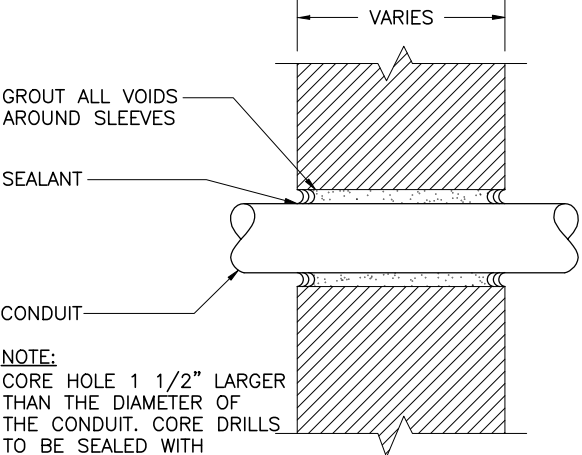
C. COPPER PIPE NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

D. COPPER TUBING NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

E. CONDUIT NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT.

F. CONDUIT NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).

3. FILL, VOID OR CAVITY MATERIAL* - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/4 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL.



NOTE:
CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT.

PIPE AND CONDUIT PENETRATION

DETAIL IN NON-RATED PARTITION

1

C-8

N.T.S.

PIPE OR CONDUIT	ANNULAR SPACE IN.	MIN. FILL MATERIAL THICKNESS	F RATING HR
PIPE	3/4"	1 1/4"	2
CONDUIT	3/4"	3/4"	1

ONE 2"Ø METALLIC PIPE OR CONDUIT TO BE CENTERED WITHIN FIRESTOP SYSTEM. PIPE SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL/FLOOR ASSEMBLY

FILL VOID WITH CAULK, FLUSH WITH BOTH SURFACES OF WALL (SEE TABLE) SEALANT: TREMCO INC, TREMSTOP-WBM

UL SYSTEM NUMBER: WL1051
F RATING - 1 & 2 HR.

PIPE AND CONDUIT PENETRATION

DETAIL IN GYPSUM WALLBOARD

2

C-8

N.T.S.

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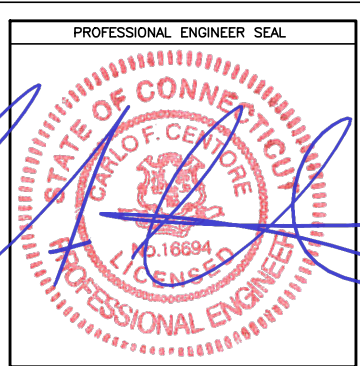
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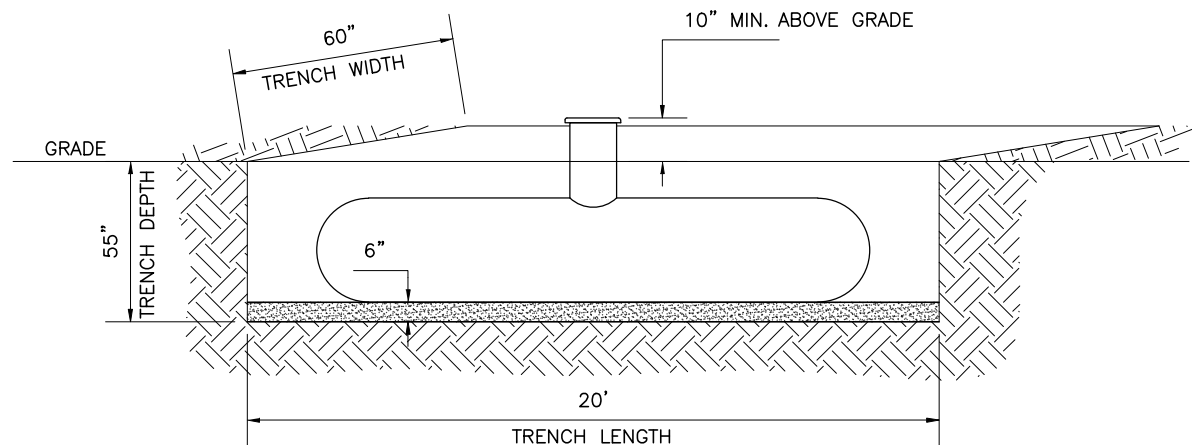
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Drawing Title: CONDUIT PENETRATION DETAILS

Dwg. No.: C - 8

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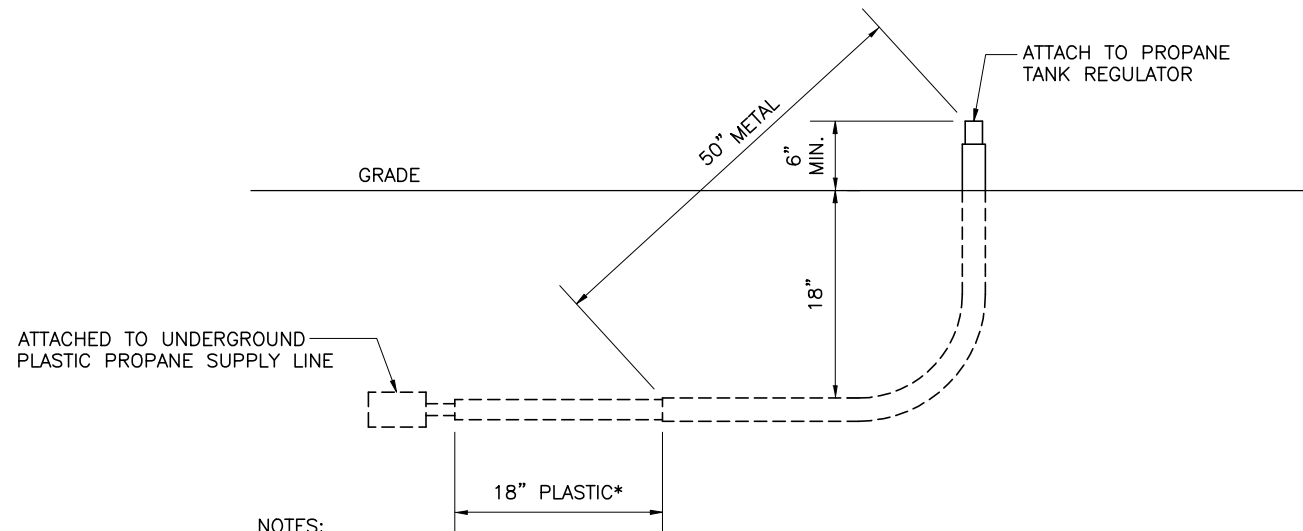


1000 GAL. UNDERGROUND ASME TANK WITH 24" RISER

NOTES:

1. THE TOP OF THE 24" DOME MUST BE A MINIMUM OF 10 TO 12" ABOVE GRADE LEVEL.
2. THE TANK MUST BE BURIED IN ACCORDANCE WITH THE NFPA 58 & 54 AND LOCAL GUIDELINES.
3. TWO ANODE BAGS ARE NEEDED.
4. 6" OF SCREENED SAND MUST BE INSTALLED AROUND THE ENTIRE TANK BEFORE ANY OTHER FILL CAN BE PUT ONTO THE TANK.
5. TRENCH FOR THE GAS LINE NEEDS TO BE 24" DEEP WITH 6" OF SAND FROM THE TANK TO THE 2ND STAGE REGULATOR. ANY LESS THAN DEPTH, THE GAS LINE MUST BE INSTALLED IN CONDUIT.
6. REFER TO TANK MANUFACTURER FOR ANY/ALL INSTALLATION REQUIREMENT AND SPECIFICATIONS..

1 TYP. PROPANE TANK INSTALL. DETAIL
C-9 NOT TO SCALE



NOTES:

1. *PLASTIC PROPANE SUPPLY LINE MUST BE PROTECTED WITH CONDUIT IF IT CAN NOT BE BURIED 18" OR MORE DEEP WITH SAND TO PROTECT IT (AT LEAST 1" OF SAND AROUND THE PIPE REQUIRED FOR PLASTIC)
2. POLYETHYLENE PIPE AND TUBING AND THERMOPLASTIC COMPRESSION-TYPE MECHANICAL FITTINGS SHALL BE INSTALLED OUTSIDE UNDERGROUND WITH A MINIMUM 18 IN. (460mm) OF COVER. THE COVER SHALL BE PERMITTED TO BE REDUCED TO 12 IN. (300mm) IF EXTERNAL DAMAGE TO THE PIPE OR TUBING IS NOT LIKELY TO RESULT. IF A MINIMUM OF 12 IN. (300mm) OF COVER CANNOT BE MAINTAINED, THE PIPING SHALL BE INSTALLED IN CONDUIT OR BRIDGED (SHIELDED). UNDERGROUND POLYETHYLENE PIPING SYSTEMS SHALL REQUIRE ASSEMBLED ANODELESS RISERS TO TERMINATE ABOVE GROUND. THE HORIZONTAL PORTION OF RISERS SHALL BE BURIED AT LEAST 12 IN. (300mm) BELOW GRADE AND THE CASING MATERIAL USED FOR THE RISERS SHALL BE PROTECTED AGAINST CORROSION.

2 PROPANE SUPPLY LINE DETAIL
C-9 SCALE: 1" = 1'- 0"



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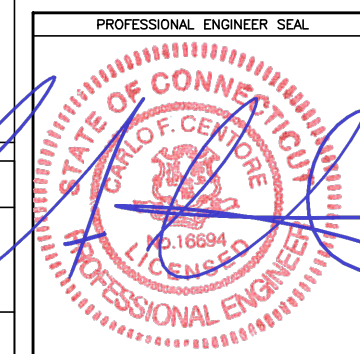
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Drawing Title: TYPICAL DETAILS

Dwg. No.: C - 9

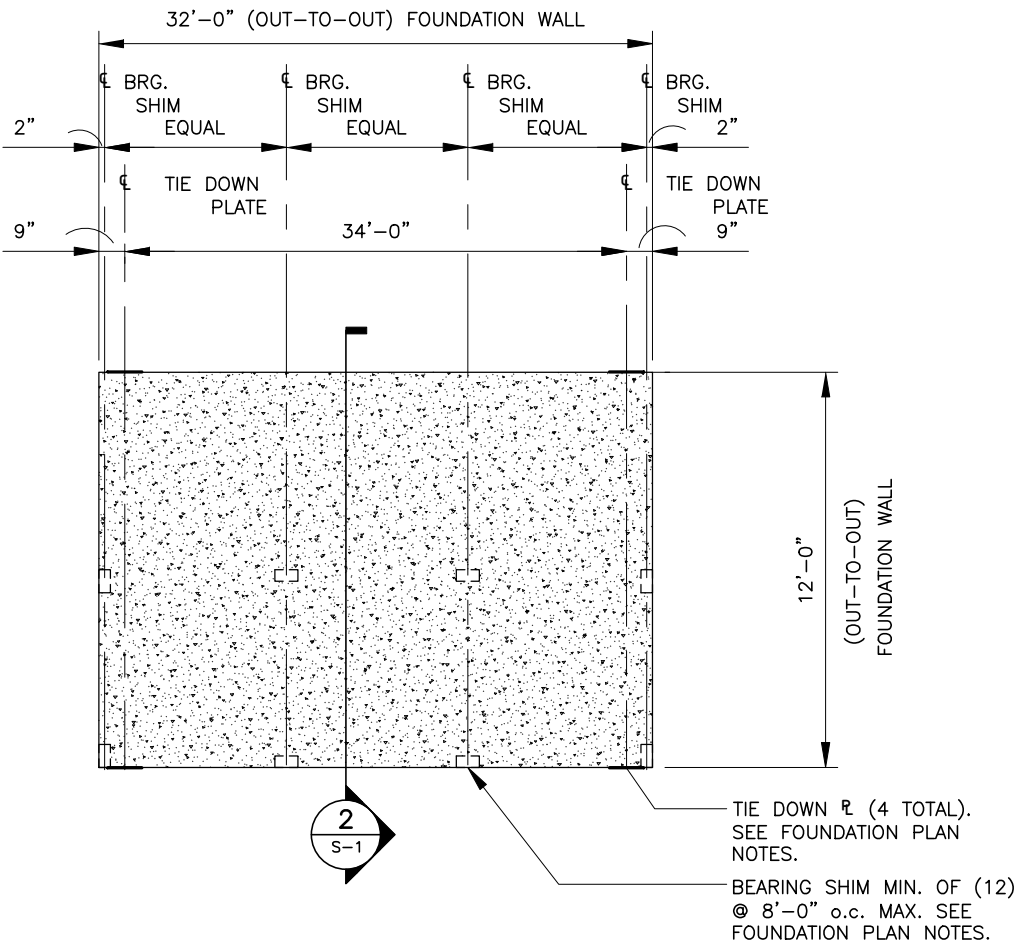
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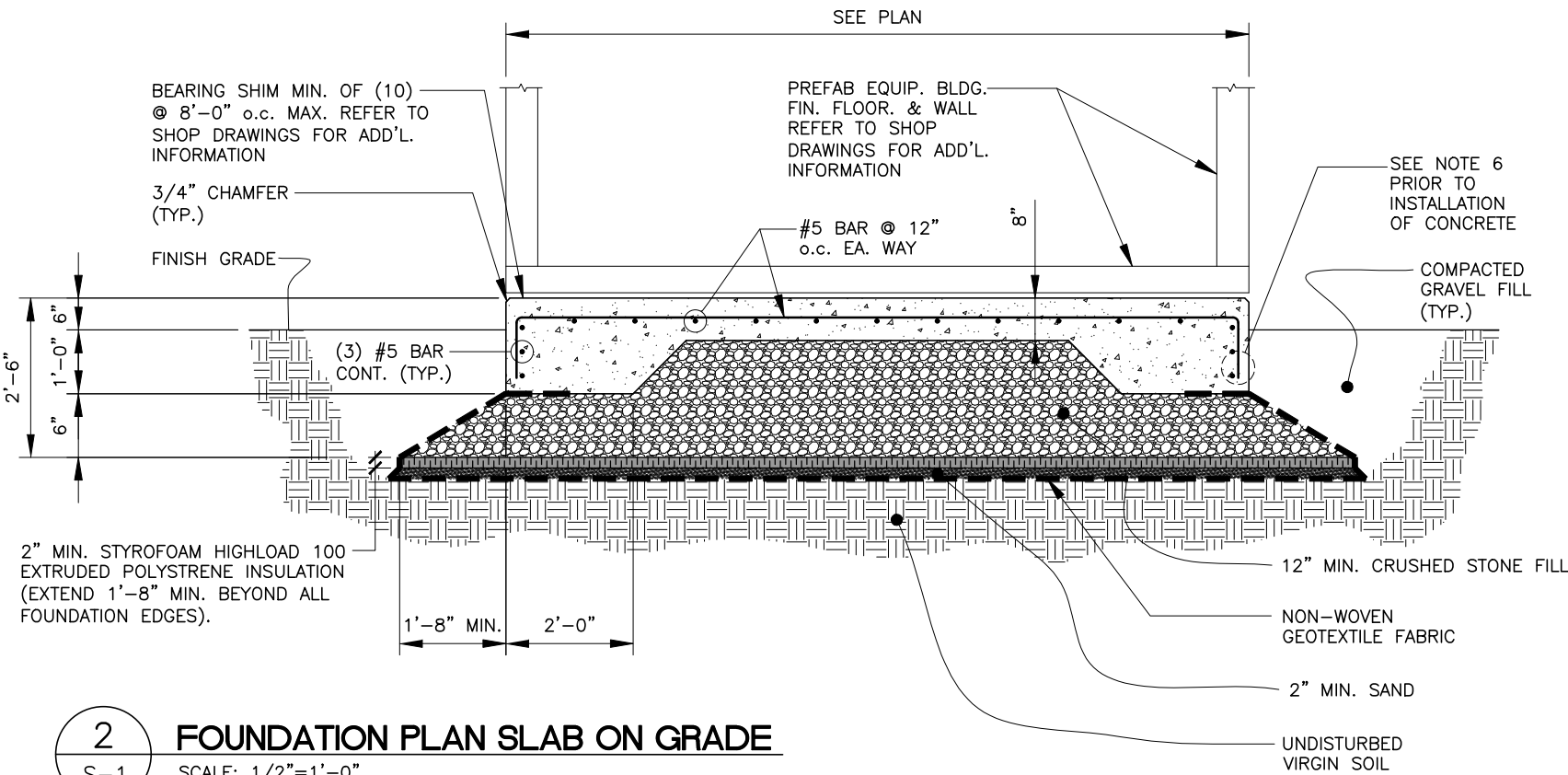
EQUIPMENT SHELTER BY OTHERS. VERIFY ALL SHELTER DIMENSIONS, EQUIPMENT DIMENSIONS, EQUIPMENT LOCATIONS AND UTILITY OPENINGS WITH BUILDING SHOP DRAWINGS PRIOR TO COMMENCEMENT OF WORK.

FOUNDATION PLAN NOTES:

1. BEARING SHIMS, TIE-DOWN PLATES AND ASSOCIATED INSTALLATION ANCHORS PROVIDED BY SHELTER MANUFACTURER. CONTRACTOR SHALL VERIFY ALL SHIM & TIE-DOWN QUANTITIES AND LOCATIONS WITH MANUFACTURER PRIOR TO PERFORMING FOUNDATION WORK.
2. SLAB/ TOP OF WALL TOLERANCE IS $1/4"$ ±
3. TOP 8" OF FOUNDATION SIDES MUST BE FORMED FLAT TO ACCEPT TIE-DOWN PLATES.
4. REFER TO NOTES ON N-2 FOR ADDITIONAL REQUIREMENTS.
5. PER NEC REQUIREMENTS, THE REBAR IN FOUNDATION AND FOOTING SHALL BE BONDED TO GROUND RING WITH A #2 AWG SOLID CONDUCTOR USING LISTED AND APPROVED METHODS.
6. PROVIDE PVC SLEEVES FOR UTILITY CONDUIT PASSAGE THROUGH FOUNDATION OR CAST CONDUITS IN PLACE. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT SIZES AND QUANTITIES.



1 FOUNDATION PLAN
SCALE: NTS



2 FOUNDATION PLAN SLAB ON GRADE
SCALE: 1/2"=1'-0"

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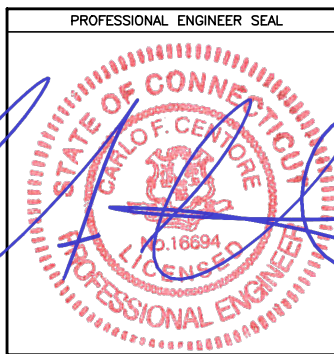
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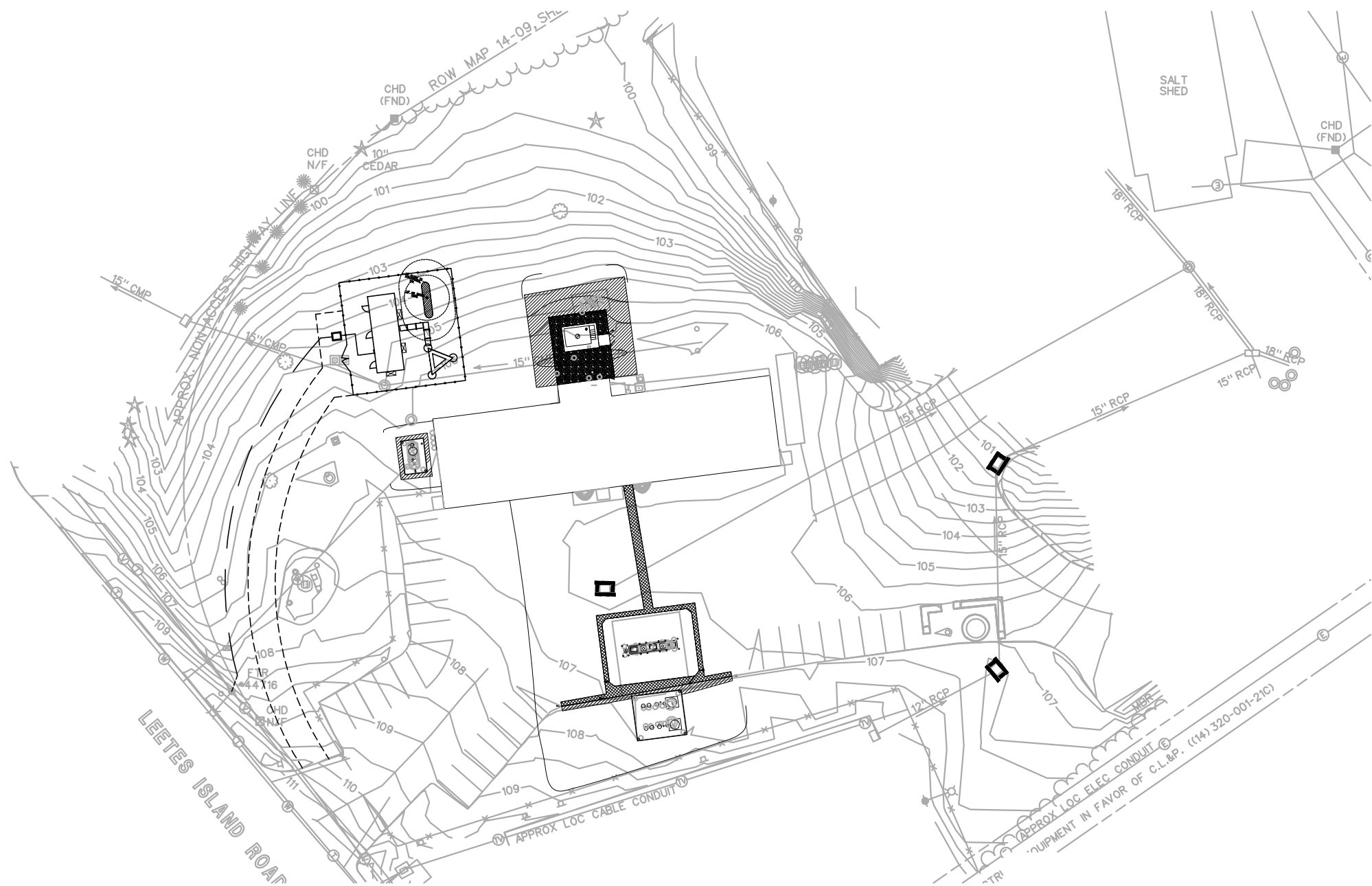
Centek Project No.: 19160.04

Drawing Title: FOUNDATION PLAN AND NOTES

Dwg. No.: S - 1

Sheet 14 of 23





1
E-1

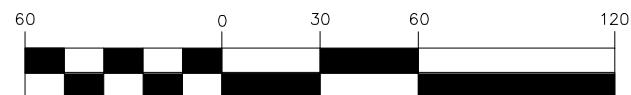
SITE PLAN - PROPOSED

SCALE: 1" = 60'- 0"



APPROXIMATE
NORTH

GRAPHIC SCALE



(IN FEET)
1 inch = 60 ft.

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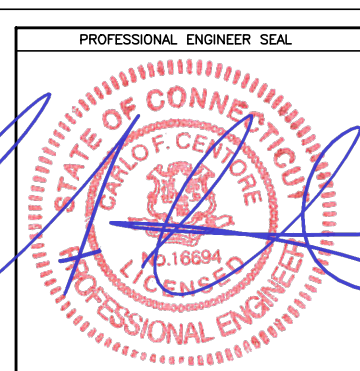
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Drawing Title: SITE PLAN

Dwg. No: E - 1

Sheet 15 of 23



PROPOSED ±12'x34' EQUIPMENT
SHELTER WITH GENERATOR ROOM

PROPOSED UPS BYPASS PANEL

PROPOSED ELECTRIC METER AND
DISCONNECT

PROPOSED UPS CABINET

PROPOSED UTILITY TRANSFORMER
PROVIDED BY UTILITY COMPANY

UNDERGROUND UTILITY CONDUIT
ROUTED FROM EXISTING UTILITY
POLE

PROPOSED (1) 4"Ø TELCO
CONDUIT

PROPOSED UNDERGROUND UTILITY CONDUIT
WITH 400 AMP SERVICE TO NEW METER
AND DISCONNECT MOUNT ON PROPOSED
SHELTER

PROPOSED UPS CHARGER AND
DISCONNECT SWITCH

PROPOSED 12' DOUBLE SWING GATE

PROPOSED 1000 GAL. UNDERGROUND
PROPANE TANK

PROPOSED ±50'x50' FENCED COMPOUND
WITH ±8' BARBED WIRE FENCE

PROPOSED COAX CABLE ICE BRIDGE WITH
(2) GPS ANTENNAS

CT DESPP CABLE ENTRY PORT

PROPOSED RACK, TYP. OF (6)

PROPOSED ±100' SELF SUPPORTING
LATTICE TOWER

1

E-2

COMPOUND PLAN - PROPOSED

SCALE: 1/8" = 1' - 0"



APPROXIMATE
NORTH

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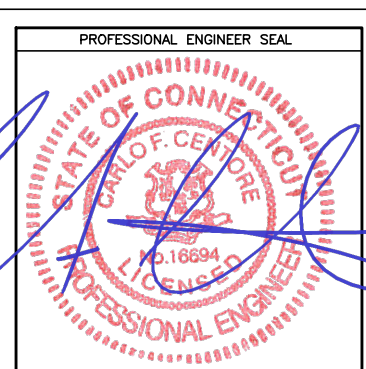
Location:
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Centek Project No.: 19160.04

Drawing Title: COMPOUND PLAN

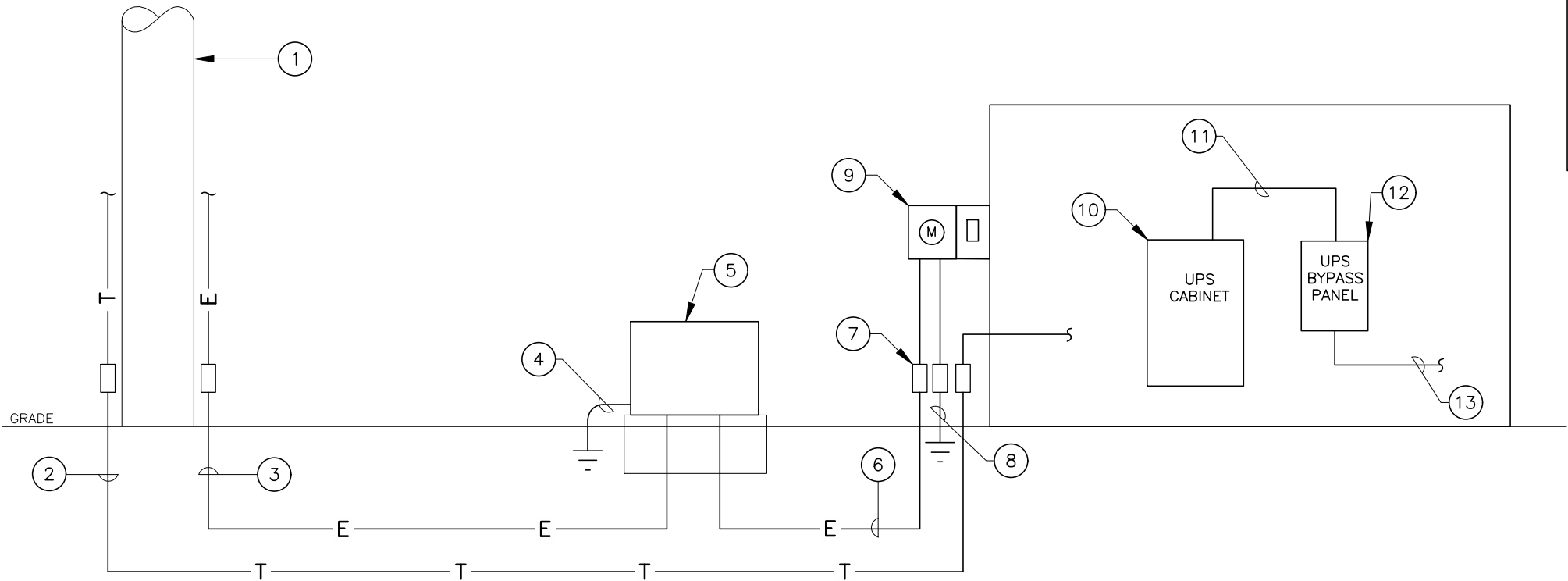
Dwg. No.: E - 2

Sheet 16 of 23



GROUNDING PLAN NOTES

- 1 EXISTING UTILITY POLE TO BE USED. REFER TO SITE SURVEY AND UTILITY PLAN.
- 2 ONE 4" CONDUIT WITH PULL ROPE FOR TELEPHONE COMPANY CONDUCTORS. CONDUCTORS PROVIDED BY TELEPHONE COMPANY FROM UTILITY POLE TO TELCO BACKBOARD IN EQUIPMENT SHELTER. PROVIDE ALL COUPLINGS, ADAPTERS, SWEEPS, AND ASSOCIATED HARDWARE. MATERIAL SHALL BE PER TELEPHONE COMPANY SPECIFICATIONS.
- 3 3" CONDUIT FOR PRIMARY ELECTRIC CONDUCTORS. CONDUCTORS PROVIDED BY UTILITY COMPANY FROM UTILITY POLE TO TRANSFORMER. PROVIDE ALL COUPLINGS, ADAPTERS, SWEEPS, AND ASSOCIATED HARDWARE. MATERIAL SHALL BE PER UTILITY COMPANY SPECIFICATIONS
- 4 PROVIDE TRANSFORMER GROUNDING PER NEC AND UTILITY COMPANY SPECIFICATIONS.
- 5 TRANSFORMER PROVIDED BY UTILITY COMPANY. TRANSFORMER VAULT, HOUSING, AND GROUND GRID BY ELECTRICAL CONTRACTOR, PER UTILITY COMPANY SPECIFICATIONS. COORDINATE LOCATION IN FIELD WITH UTILITY COMPANY
- 6 (3) 600 KCMIL, 4"C.
- 7 EXPANSION COUPLING TYP.
- 8 #1/0 AWG GROUNDING CONDUCTOR IN 3/4" PVC CONDUIT.
- 9 400A, SINGLE PHASE, 120/240V, UTILITY METER DISCONNECT WITH 400A 2 POLE CIRCUIT BREAKER.ALL EQUIPMENT MUST BE UTILITY COMPANY APPROVED.
- 10 20 KVA, 120/240V, SINGLE PHASE, UPS CABINET
- 11 (3) #1 AWG, (1) #8 AWG GROUND, 1-1/2"C
- 12 100A, 120/240V, SINGLE PHASE, UPS BYPASS PANEL
- 13 UPS CONNECTION TO OWNERS EQUIPMENT. COORDINATE REQUIREMENTS WITH CONSTRUCTION MANAGER.



1 ELECTRICAL RISER DIAGRAM
E-3 SCALE: NOT TO SCALE

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Drawing Title: ELECTRICAL RISER DIAGRAM

Dwg. No.: E - 3

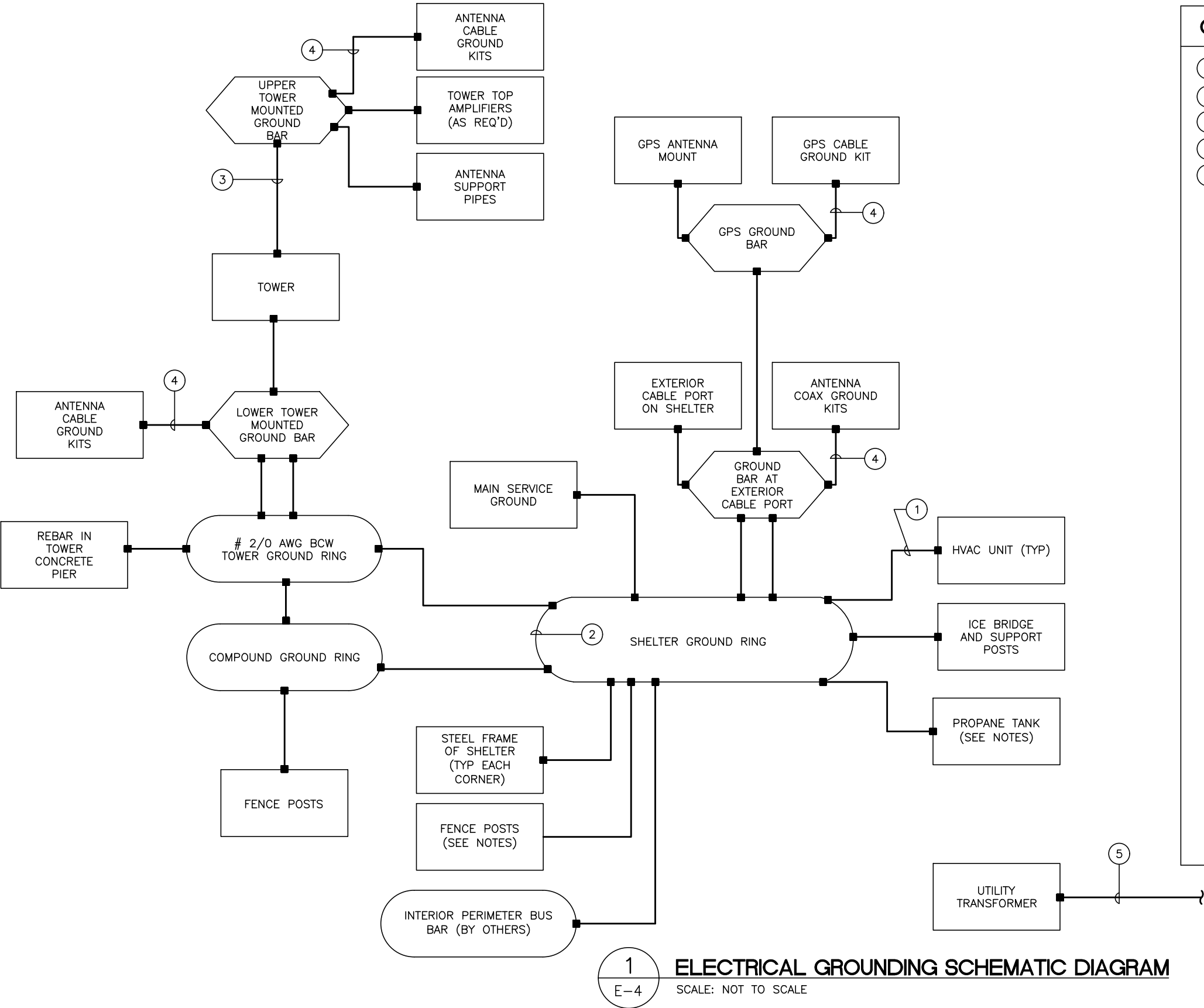
Sheet 17 of 23



GROUNDING SCHEMATIC NOTES

- 1 #2 AWG GREEN INSULATED
- 2 GROUND RING, #2 AWG BCW
- 3 #2/0 GREEN INSULATED
- 4 #6 AWG
- 5 TRANSFORMER GROUNDING PER NEC AND UTILITY COMPANY STANDARDS

- GENERAL NOTES:
- UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
 - BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
 - ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
 - ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
 - REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
 - REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
 - COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
 - ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER’S SPECIFICATIONS.
 - ALL FENCE POSTS WITHIN 6’ OF EQUIPMENT SHELTER SHALL BE BONDED TO GROUND RING.
 - ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER’S REQUIREMENTS.
 - ALL EXPOSED METAL OBJECTS IN SHELTER SHALL BE BONDED TO THE HALO GROUND WITHIN THAT ROOM.
 - REFER TO RISER DIAGRAM FOR SPECIFICATIONS OF SERVICE GROUND AND TRANSFORMER GROUND.
 - BOND PROPANE TANK TO GROUND RING PER NEC AND MANUFACTURERS SPECIFICATIONS. COORDINATE WITH TANK MANUFACTURER FOR REQUIREMENTS PRIOR TO INSTALLATION.



ELECTRICAL GROUNDING SCHEMATIC DIAGRAM

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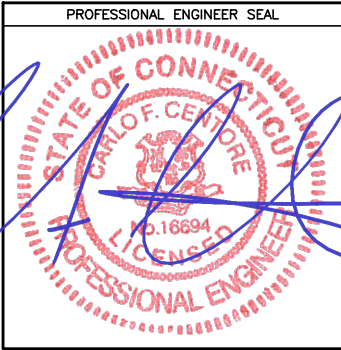
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DIAGRAM

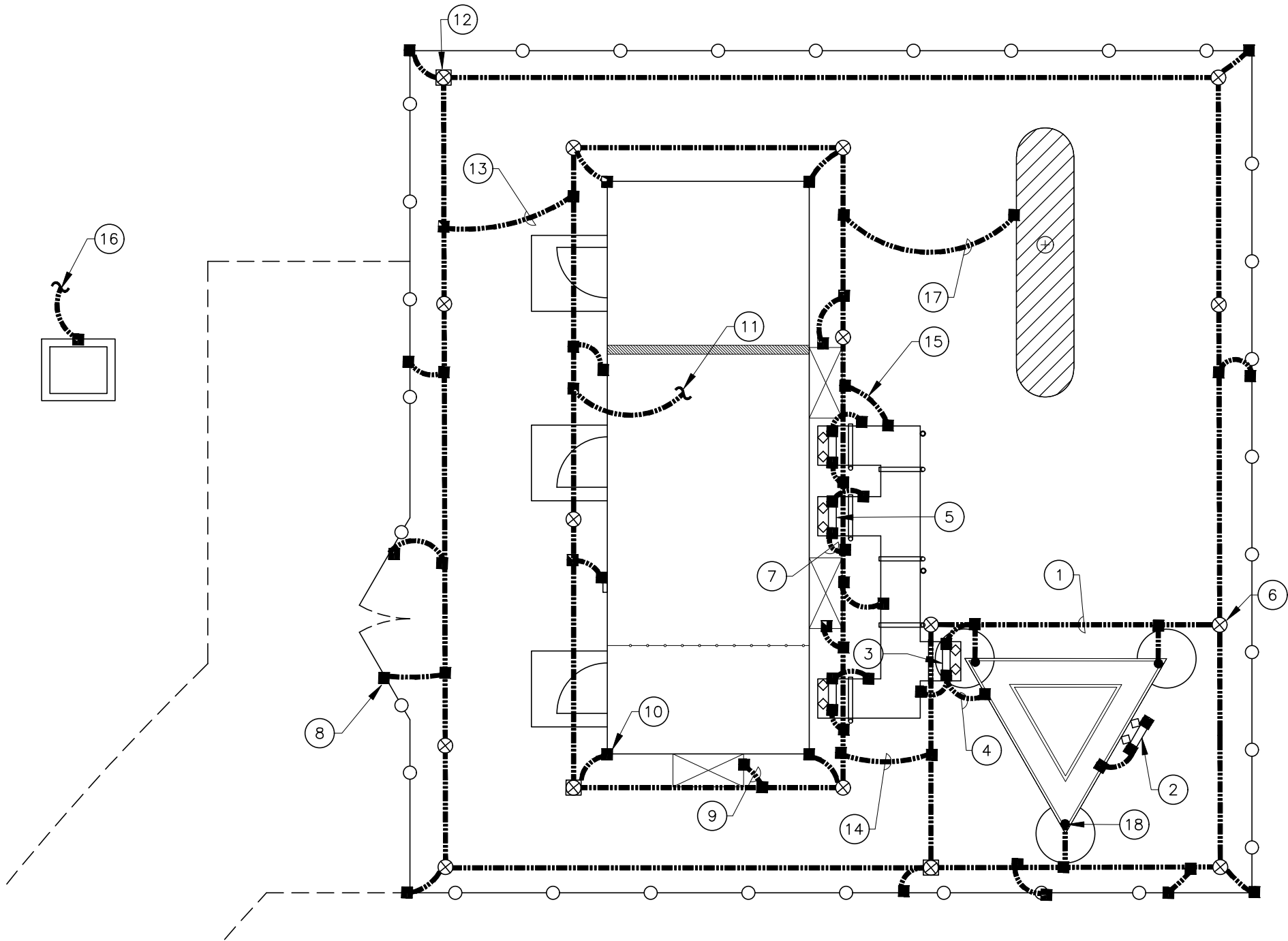
Dwg. No.: E - 4

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GROUNDING PLAN NOTES

- 1 #2 SOLID TINNED BCW GROUND RING (3'-0" FROM OUTSIDE EDGE OF EQUIPMENT FOUNDATION) (TYP.)
- 2 UPPER TOWER MOUNTED GROUND BAR.
- 3 LOWER TOWER MOUNTED GROUND BAR.
- 4 BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER STEEL.
- 5 GROUND BAR TYP.
- 6 GROUNDING ROD (TYP.).
- 7 BOND GROUND BAR TO EQUIPMENT SHELTER GROUND RING TYP.
- 8 BOND TO FENCE AND FENCE GATES PER DETAIL. (TYPICAL ALL FENCE POSTS WITHIN 6' OF EQUIPMENT).
- 9 BOND HVAC EQUIPMENT TO EQUIPMENT SHELTER GROUND RING WITH #2 AWG BCW.
- 10 EXOTHERMIC WELD EQUIPMENT SHELTER TO GROUND RING (TYP. EACH CORNER).
- 11 EXTEND GROUND RING PIGTAIL THROUGH SHELTER AND BOND TO HALO GROUND DOWNLEAD. (TYP. OF 1)
- 12 GROUNDING ROD WITH ACCESS (TYP.)
- 13 BOND EQUIPMENT SHELTER GROUND RING TO COMPOUND GROUND RING WITH #2 AWG BCW.
- 14 BOND EQUIPMENT SHELTER GROUND RING TO TOWER GROUND RING WITH #2 AWG BCW.
- 15 ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO GROUND RING PER DETAIL.
- 16 GROUND TRANSFORMER PER NEC AND UTILITY COMPANY REQUIREMENTS.
- 17 BOND PROPANE TANK TO GROUND RING PER NEC AND MANUFACTURERS SPECIFICATIONS
- 18 CONNECT TOWER BASE TO TOWER GROUND RING. TYPICAL (3) PLACES. EXOTHERMIC WELD TO TOWER BASE PLATE OR GROUNDING LUG PROVIDE BY TOWER MANUFACTURER. DO NOT CADWELD TO TOWER.



1 ELECTRICAL GROUNDING PLAN
E-5 SCALE: NOT TO SCALE

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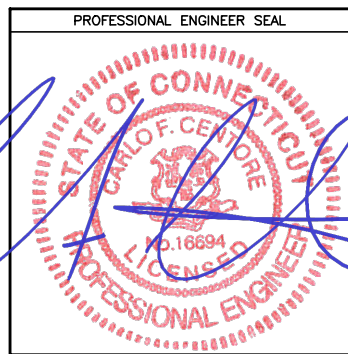
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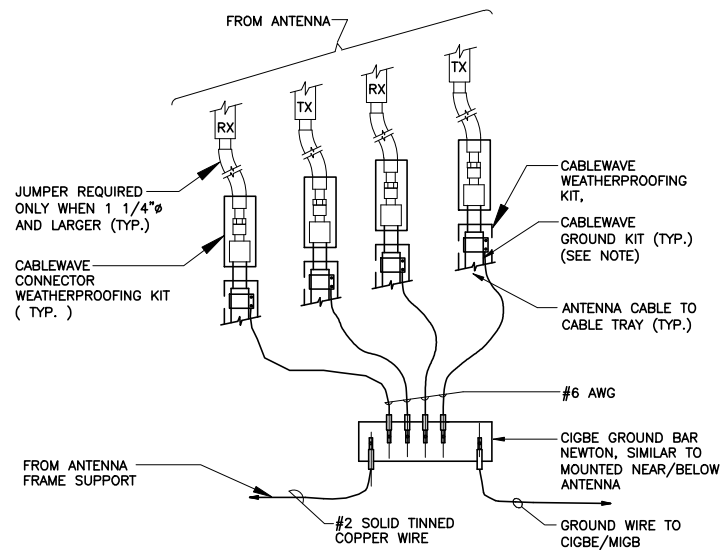
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Drawing Title: ELECTRICAL GROUNDING PLAN

Dwg. No.: E - 5

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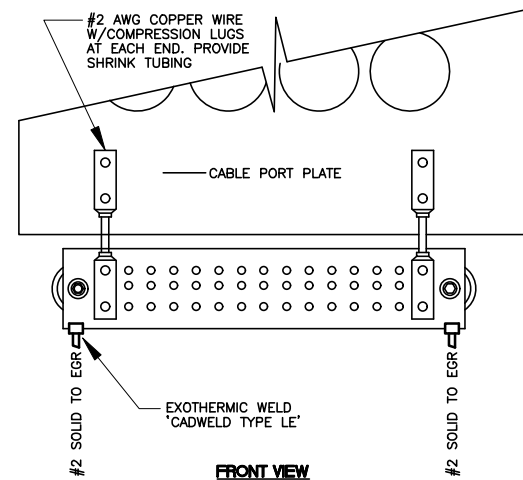




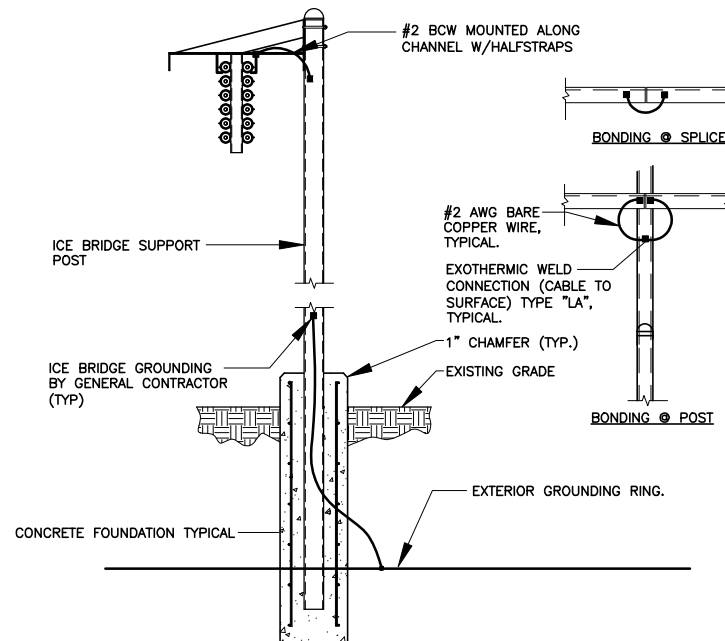
NOTES:

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

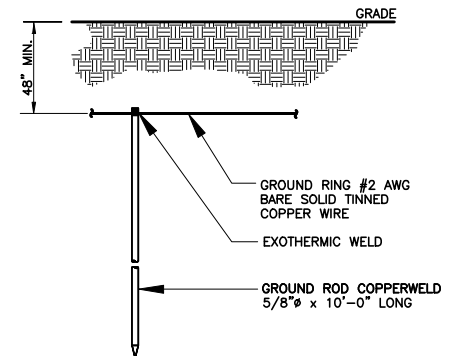
1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-6 NOT TO SCALE



2 CABLEPORT GROUND BAR LUG CONNECTION
E-6 NOT TO SCALE



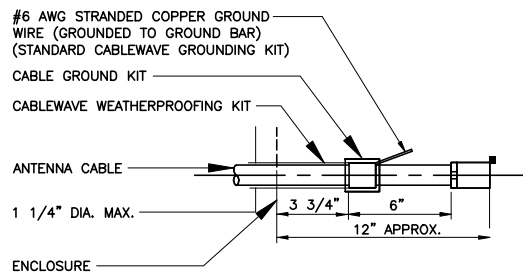
3 ICE BRIDGE BONDING DETAIL
E-6 NOT TO SCALE



NOTES:

- USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

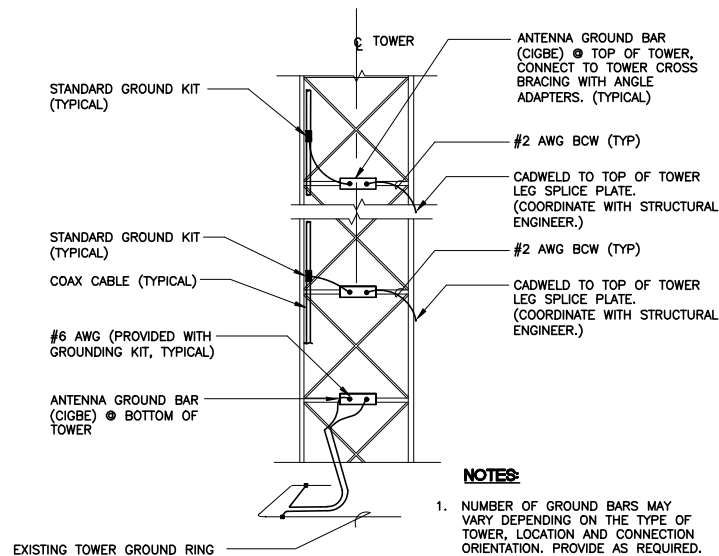
4 GROUND ROD DETAIL
E-6 NOT TO SCALE



NOTES:

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

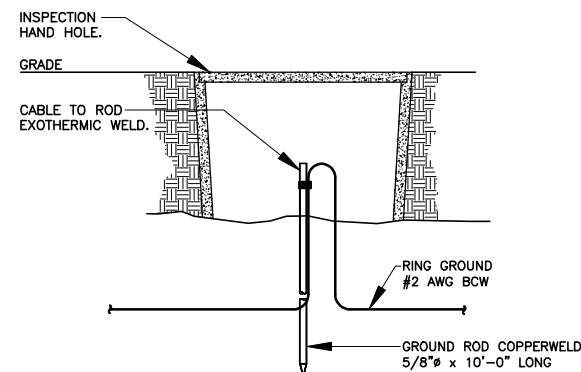
5 ANTENNA CABLE GROUNDING DETAIL
E-6 NOT TO SCALE



NOTES:

- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

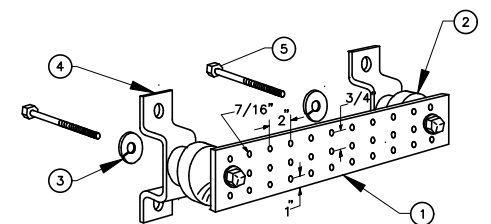
6 ANTENNA CABLE GROUNDING - LATTICE TOWER
E-6 NOT TO SCALE



NOTES:

- INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA x 18" DEEP.

7 GROUND ROD WITH ACCESS DETAIL
E-6 NOT TO SCALE



NOTES

- TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- NOT USED
- 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056.
- 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

8 GROUND BAR DETAIL
E-7 NOT TO SCALE

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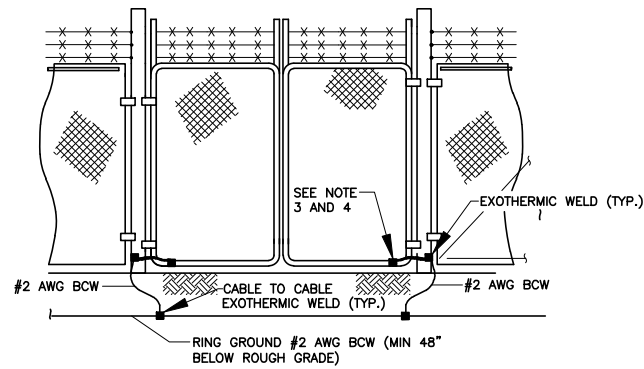
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Drawing Title: ELECTRICAL DETAILS

Dwg. No: E - 6

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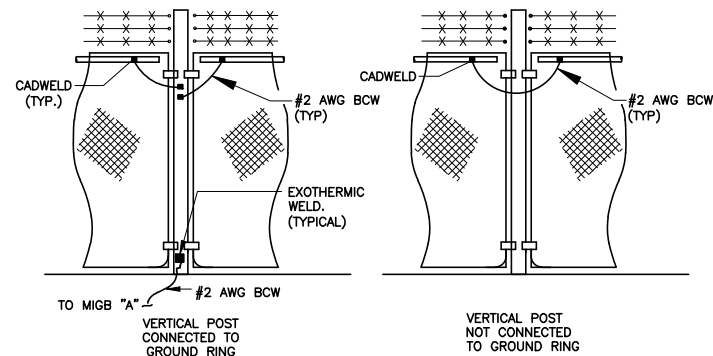




NOTES:

1. THE #2 AWG, BCW, FROM THE RING GROUND SHALL BE CADWELDED TO THE POST, ABOVE GRADE.
2. BOND EACH HORIZONTAL POLE/BRACE TO EACH OTHER AND TO EACH VERTICAL POLE BONDED TO THE EXTERIOR GROUND RING.
3. GATE JUMPER SHALL BE #4/0 AWG WELDING CABLE OR FLEXIBLE COPPER BRAID BURNDY TYPE B WITH SLEEVES ON EACH END DESIGNED FOR EXOTHERMIC WELDING.
4. GATE JUMPER SHALL BE INSTALLED SO THAT IT WILL NOT BE SUBJECTED TO DAMAGING STRAIN WHEN GATE IS FULLY OPEN IN EITHER DIRECTION.

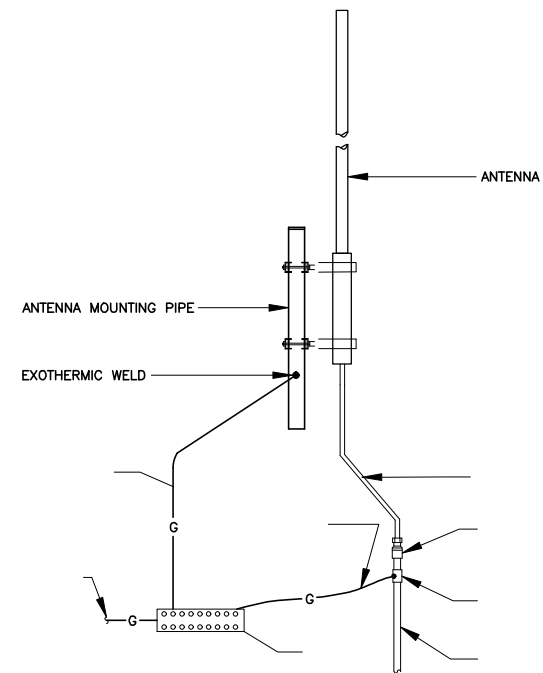
1 FENCE GATE GROUNDING
E-7 NOT TO SCALE



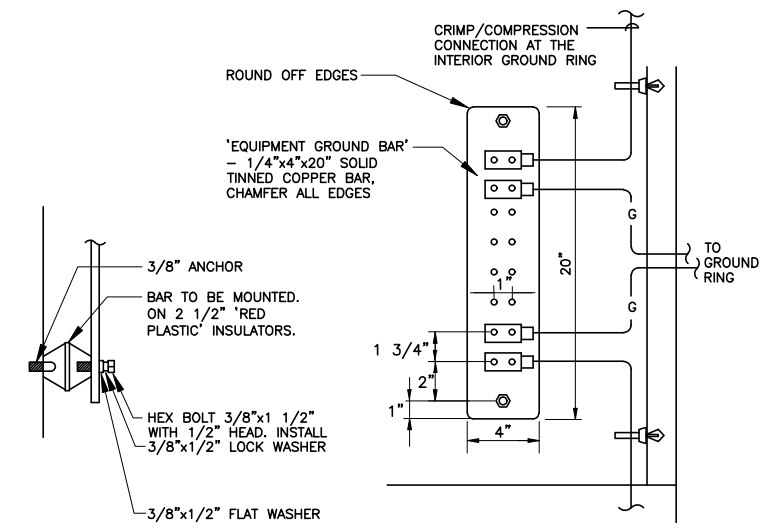
NOTES:

1. VERTICAL POSTS SHALL BE BONDED TO THE RING AT EACH CORNER AND AT EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 FOOT STRAIGHT RUN OF FENCE.
2. HORIZONTAL POLES SHALL BE BONDED TO EACH OTHER.
3. BOND EACH HORIZONTAL POLE / BRACE TO EACH OTHER AND TO EACH VERTICAL POST THAT IS BONDED TO THE EXTERIOR GROUND RING.

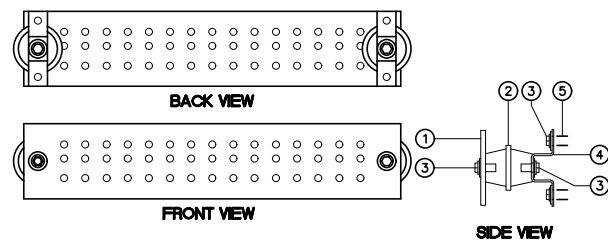
2 GROUND-STD. DETAIL FENCE GROUNDING
E-7 NOT TO SCALE



3 TYPICAL ANTENNA GROUNDING DETAIL
E-7 NOT TO SCALE

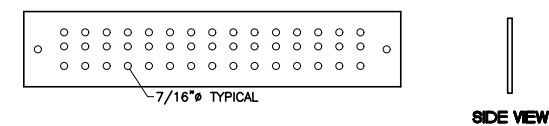


4 EQUIPMENT GROUND BAR DETAIL
E-7 NOT TO SCALE

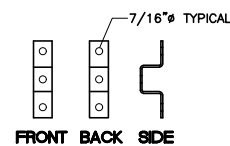


TYPICAL GROUND BAR ASSEMBLY
N.T.S.

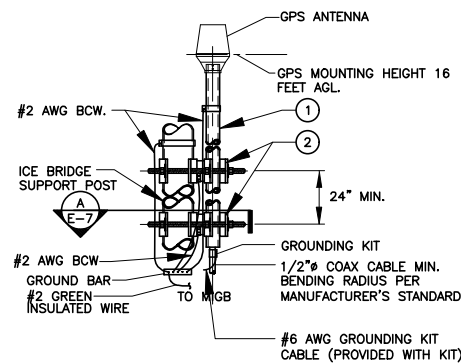
- #### NOTES
1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
 2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
 3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
 4. 1"Wx1/8" T STAINLESS STEEL TYPE 304 BRACKET.
 5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8" EXPANSION BOLT FOR CONCRETE.



TYPICAL GROUND BAR - DIMENSIONS
N.T.S.

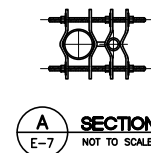


BRACKET FOR GROUND BAR-DIMENSIONS
N.T.S.



GPS ANTENNA MOUNTING BRACKET

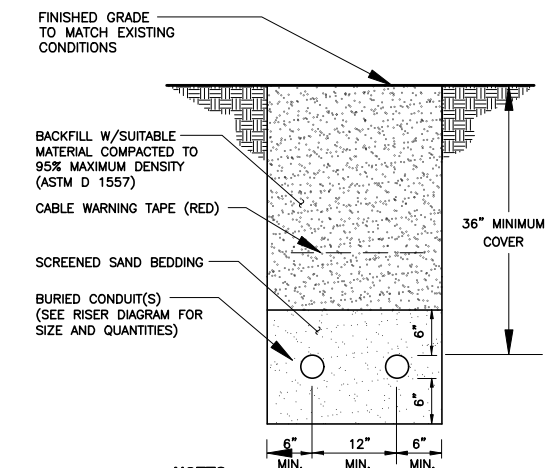
BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
1	2-1/2" SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
2	UNIVERSAL CLAMP SET.	2



NOTES

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2-1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

6 GPS GROUNDING/MOUNTING BRACKET DETAIL
E-7 NOT TO SCALE



NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
4. COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

7 TYPICAL ELECTRICAL TRENCH DETAIL
E-7 NOT TO SCALE

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BRANFORD DOT FACILITY

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LEETES ISLAND RD
BRANFORD, CT 06405

Centek Project No.: 19160.04

Drawing Title: ELECTRICAL DETAILS

Dwg. No.: E - 7

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ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

- A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
1. INSTALL, TRANSFORMER AND NEW 400A, 240/120V, SINGLE PHASE UTILITY METER DISCONNECT WITH 400A 2 POLE CIRCUIT BREAKER FOR OWNER AND ASSOCIATED DISTRIBUTION EQUIPMENT. (AS REQUIRED BY UTILITY CO.)
 2. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
 3. FEEDERS AND BRANCH CIRCUIT WIRING TO PANELS, AND EQUIPMENT AS INDICATED OR NOTED ON PLANS.
 4. GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, GROUND BARS, ETC.
 5. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.
 6. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.
- B. LOCAL UTILITY COMPANIES SHALL PROVIDE THE FOLLOWING:
1. TELEPHONE CABLES.
 2. SHUTDOWN OF SERVICE (COORDINATE WITH OWNER).
- C. CONTRACTOR SHALL CONFER WITH LOCAL UTILITY COMPANIES TO ASCERTAIN THE LIMITS OF THEIR WORK AND SHALL INCLUDE IN BID ANY CHARGES OR FEES MADE BY THE UTILITY COMPANIES FOR THEIR PORTION OF THE WORK AND SHALL PROVIDE AND INSTALL ALL ITEMS REQUIRED, BUT NOT PROVIDED BY UTILITY COMPANY.
- D. ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL INSTALLATION WITH ELECTRIC UTILITY CO. PRIOR TO INSTALLATION.
- E. CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR LOCATION OF TELEPHONE SERVICE AND TO DETERMINE ANY REQUIRED EQUIPMENT TO BE INSTALLED BY CONTRACTOR.

1.02. GENERAL REQUIREMENTS

- A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
- B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
- E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.
- F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.
- G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

- H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
- I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.
- J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
- K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.
- L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.
- M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.
- N. SHOP DRAWINGS:
1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
 2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.
- O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

- A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4" CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

CONDUIT MATERIAL SHALL BE AS FOLLOWS:

1. ELECTRIC METALLIC TUBING (EMT) – BRANCH CIRCUITS INSIDE EQUIPMENT ROOM
2. GALVANIZED RIGID CONDUIT (GRC) – FEEDERS AND CIRCUITS EXPOSED TO EXTERIOR & UNDERGROUND.
3. LIQUID TIGHT FLEXIBLE METAL CONDUIT – FOR SHORT LENGTHS (MAX. 3'-0") WIRING TO VIBRATING EQUIPMENT (HVAC UNITS, MOTORS, ETC.) IN WET LOCATIONS.
4. FLEXIBLE METAL CONDUIT – FOR SHORT LENGTHS (MAX. 3'-0") WIRING TO VIBRATING EQUIPMENT IN DRY LOCATIONS.
5. PVC CONDUIT – WHERE SHOWN ON GROUNDING DETAILS.

SECTION 16123

1.01. CONDUCTORS

- A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
- | | | |
|------|------------------|--------------------------|
| | 120/208/240V | 277/480V |
| LINE | COLOR | COLOR |
| A | BLACK | BROWN |
| B | RED | ORANGE |
| C | BLUE | YELLOW |
| N | CONTINUOUS WHITE | GREY |
| G | CONTINUOUS GREEN | GREEN WITH YELLOW STRIPE |
- B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16170

1.01. DISCONNECT SWITCHES

- A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

- A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.
- B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.
- C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.
- D. PROVIDE NAMEPLATE FOR PORTABLE ENGINE/GENERATOR CONNECTION SHOWING VOLTAGE KVA/KW RATING, # PHASE, AND # OF WIRES. PLATE TO BE PLASTIC ENGRAVED, RED WITH WHITE LETTERS.
- E. ALL RECEPTACLES, SWITCHES, DISCONNECT SWITCHES, ETC. SHALL BE LABELED WITH THE CORRECT BRANCH CIRCUIT NUMBER SERVED BY MEANS OF PERMANENT PRESSED TYPE BLACK 1/4" TRANSFER LETTERING. (FOR EXAMPLE: "MDP-5", ETC.).
- F. PROVIDE A NAMEPLATE AT THE SERVICE EQUIPMENT INDICATING THE TYPE AND LOCATION OF THE ON SITE GENERATOR.



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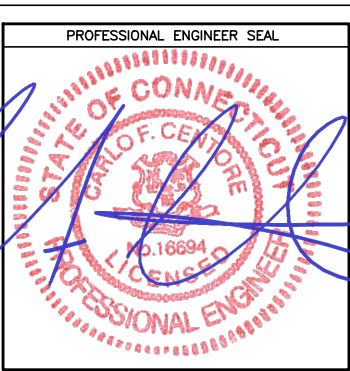
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ELECTRICAL SPECIFICATIONS

SECTION 16450

1.01. GROUNDING

- A. GROUNDING SHALL CONFORM WITH THE MOTOROLA R56 STANDARD LATEST VERSION AND ALL FEDERAL, STATE, AND LOCAL CODES. IN THE EVENT OF A CONFLICT, MEET THE MOST STRINGENT REQUIREMENT.
- B. ALL NON–CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
- C. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
- D. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER’S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD’S EQUIPMENT GROUND BAR KIT(S).
- E. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250–122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).
- F. GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3–POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS

2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).

3. ANTENNA GROUND CONNECTIONS AND PLATES.

G. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER’S WIRELESS PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

H. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER’S SPECIFICATIONS.
- SECTION 16470
- 1.01. DISTRIBUTION EQUIPMENT
- A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.
- SECTION 16960
- 1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM
- A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER’S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM’S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.
- SECTION 16961
- 1.01. TESTS BY CONTRACTOR
- A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER’S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.
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