

NOTE:  
 FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION. NO AERIAL OBSTRUCTIONS UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES, ARE ALLOWED ALONG SAID CRANE ROUTE.



# SKAALEN

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**CIVIL ENGINEER**  
 LANDTECH PROFESSIONAL  
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 1275 MCGREGOR WAY  
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 PHONE: (231) 943-0050

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 1275 MCGREGOR WAY  
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## PROJECT INFORMATION

**SCOPE OF WORK:**  
 UNMANNED TELECOMMUNICATIONS FACILITY

**TYPE OF CONSTRUCTION**  
 PROJECT TYPE: PROPOSED 195' SELF SUPPORT

**SITE ADDRESS:**  
 1576 SPRING ROAD,  
 STOUGHTON, WI 53589

**TOWER INFORMATION:**  
 (LATITUDE & LONGITUDE BASED ON NAD1983)  
 LATITUDE: 42° 55' 56.81"N  
 LONGITUDE: 89° 11' 05.74"W  
 PROPOSED RAD CENTER HEIGHT: 195' AGL.

**SQUARE FOOTAGE:**  
 PROPOSED LEASE AREA: 3,600 SQ. FT.

**PROPERTY OWNERS:**  
 BRETT LUNDE  
 1576 SPRING ROAD,  
 STOUGHTON, WI 53589

**PARCEL NUMBER (TAX I.D.):**  
 026/0511-032-8100-0

**OCCUPANT LOAD:**  
 UNOCCUPIED

**PARKING REQUIREMENTS:**  
 ADDITIONAL PARKING REQUIRED: NONE  
 EXISTING PARKING MODIFICATIONS: NONE REQUIRED

**DIRECTIONS TO SITE:**

FROM STOUGHTON, WI, PROCEED EAST ON US-51 [CR-A] (EAST), APPROXIMATELY 1.0 MILES; TURN LEFT (NORTH) ONTO SPRING RD. AND PROCEED 1.1 MILES; TURN RIGHT (EAST) ONTO ACCESS DRIVE.



**VICINITY MAP**  
 NOT TO SCALE



*Matthew T. Mokanyk*  
 Matthew T. Mokanyk, P.S., P.E.  
 Wisconsin P.S. No. 3078-8  
 Date: 03/22/22



TOWER KING  
 23434 ELLIOTT ROAD,  
 DEFIANCE, OH 43512  
 PH: (419) 782-8591

SKAALEN  
 1576 SPRING RD.,  
 STOUGHTON, WI 53589

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/29/22	REV'D ZONING, REM'D FAA LIGHTING PER CLIENT	TLR	MM	MM
1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM
SCALE: AS SHOWN			DESIGNED BY: MM		DRAWN BY: TLR

SHEET T-1

TITLE SHEET

DRAWING NUMBER

22359002

**LATITUDE & LONGITUDE**

LATITUDE AND LONGITUDE OF SITE ARE BASED ON NAD 83.  
 LATITUDE: 42° 55' 56.81"N  
 LONGITUDE: 89° 11' 05.74"W  
 GROUND ELEVATION AT TOWER BASE: 889' AMSL  
 ELEVATIONS ARE BASED ON NGVD88

**SITE INFORMATION**

PROPERTY OWNER:  
 BRETT LUNDE  
 1576 SPRING ROAD,  
 STOUGHTON, WI 53589

**ZONING INFORMATION**

SUBJECT SITE ZONING: RURAL RESIDENTIAL  
 ADJACENT ZONING:  
 NORTH: FARMLAND PRESERVATION  
 SOUTH: FARMLAND PRESERVATION  
 EAST: FARMLAND PRESERVATION  
 WEST: FARMLAND PRESERVATION

**TOWER SETBACKS:**

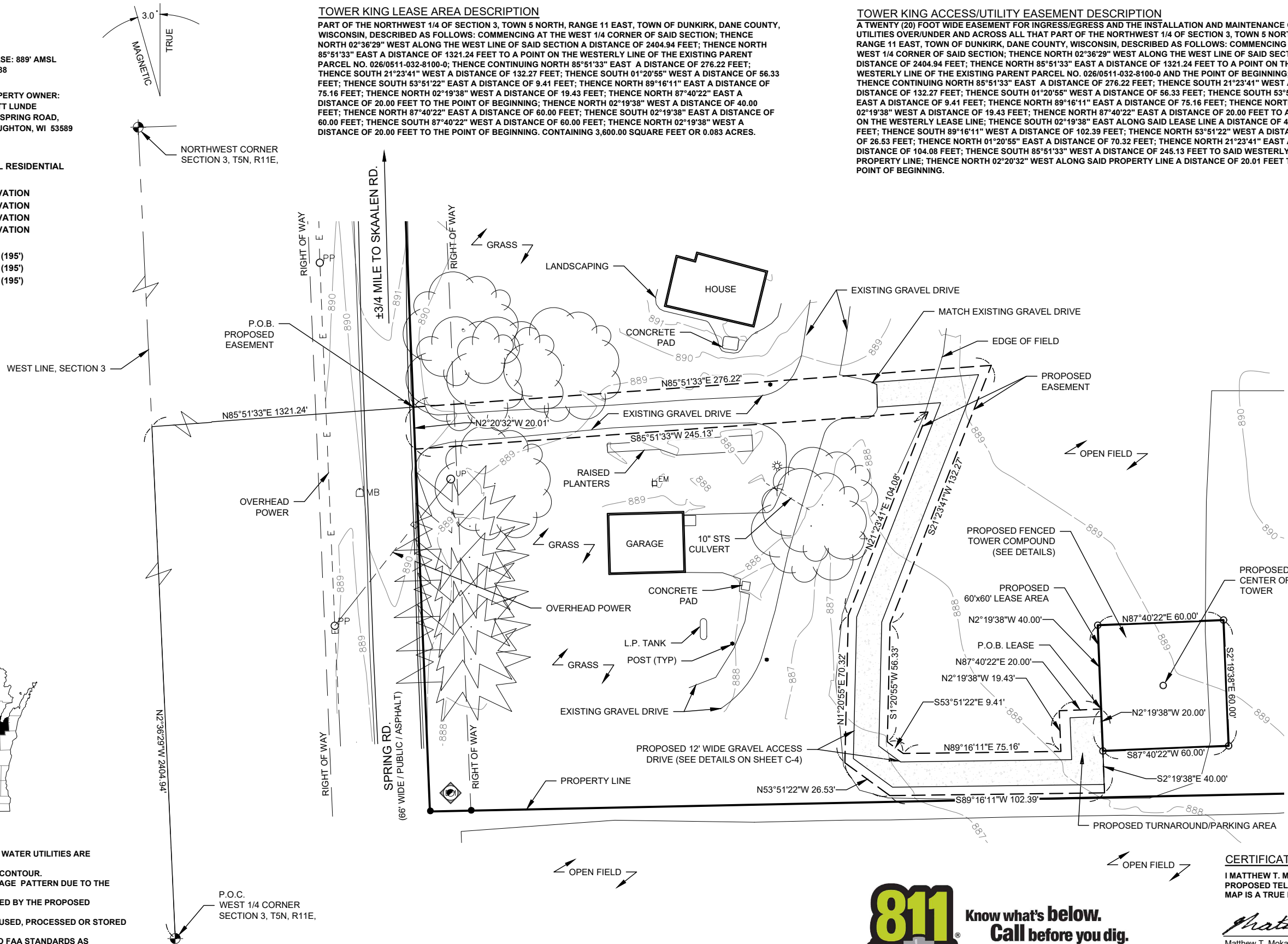
FRONT: 100% TOWER HEIGHT (195')  
 REAR: 100% TOWER HEIGHT (195')  
 SIDES: 100% TOWER HEIGHT (195')

**TOWER KING LEASE AREA DESCRIPTION**

PART OF THE NORTHWEST 1/4 OF SECTION 3, TOWN 5 NORTH, RANGE 11 EAST, TOWN OF DUNKIRK, DANE COUNTY, WISCONSIN, DESCRIBED AS FOLLOWS: COMMENCING AT THE WEST 1/4 CORNER OF SAID SECTION; THENCE NORTH 02°36'29" WEST ALONG THE WEST LINE OF SAID SECTION A DISTANCE OF 2404.94 FEET; THENCE NORTH 85°51'33" EAST A DISTANCE OF 1321.24 FEET TO A POINT ON THE WESTERLY LINE OF THE EXISTING PARENT PARCEL NO. 026/0511-032-8100-0; THENCE CONTINUING NORTH 85°51'33" EAST A DISTANCE OF 276.22 FEET; THENCE SOUTH 21°23'41" WEST A DISTANCE OF 132.27 FEET; THENCE SOUTH 01°20'55" WEST A DISTANCE OF 56.33 FEET; THENCE SOUTH 53°51'22" EAST A DISTANCE OF 9.41 FEET; THENCE NORTH 89°16'11" EAST A DISTANCE OF 75.16 FEET; THENCE NORTH 02°19'38" WEST A DISTANCE OF 19.43 FEET; THENCE NORTH 87°40'22" EAST A DISTANCE OF 40.00 FEET; THENCE NORTH 87°40'22" EAST A DISTANCE OF 60.00 FEET; THENCE SOUTH 02°19'38" EAST A DISTANCE OF 60.00 FEET; THENCE SOUTH 87°40'22" WEST A DISTANCE OF 60.00 FEET; THENCE NORTH 02°19'38" WEST A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING. CONTAINING 3,600.00 SQUARE FEET OR 0.083 ACRES.

**TOWER KING ACCESS/UTILITY EASEMENT DESCRIPTION**

A TWENTY (20) FOOT WIDE EASEMENT FOR INGRESS/EGRESS AND THE INSTALLATION AND MAINTENANCE OF UTILITIES OVER/UNDER AND ACROSS ALL THAT PART OF THE NORTHWEST 1/4 OF SECTION 3, TOWN 5 NORTH, RANGE 11 EAST, TOWN OF DUNKIRK, DANE COUNTY, WISCONSIN, DESCRIBED AS FOLLOWS: COMMENCING AT THE WEST 1/4 CORNER OF SAID SECTION; THENCE NORTH 02°36'29" WEST ALONG THE WEST LINE OF SAID SECTION A DISTANCE OF 2404.94 FEET; THENCE NORTH 85°51'33" EAST A DISTANCE OF 1321.24 FEET TO A POINT ON THE WESTERLY LINE OF THE EXISTING PARENT PARCEL NO. 026/0511-032-8100-0 AND THE POINT OF BEGINNING; THENCE CONTINUING NORTH 85°51'33" EAST A DISTANCE OF 276.22 FEET; THENCE SOUTH 21°23'41" WEST A DISTANCE OF 132.27 FEET; THENCE SOUTH 01°20'55" WEST A DISTANCE OF 56.33 FEET; THENCE SOUTH 53°51'22" EAST A DISTANCE OF 9.41 FEET; THENCE NORTH 89°16'11" EAST A DISTANCE OF 75.16 FEET; THENCE NORTH 02°19'38" WEST A DISTANCE OF 19.43 FEET; THENCE NORTH 87°40'22" EAST A DISTANCE OF 20.00 FEET TO A POINT ON THE WESTERLY LEASE LINE; THENCE SOUTH 02°19'38" EAST ALONG SAID LEASE LINE A DISTANCE OF 40.00 FEET; THENCE SOUTH 89°16'11" WEST A DISTANCE OF 102.39 FEET; THENCE NORTH 53°51'22" WEST A DISTANCE OF 26.53 FEET; THENCE NORTH 01°20'55" EAST A DISTANCE OF 70.32 FEET; THENCE NORTH 21°23'41" EAST A DISTANCE OF 104.08 FEET; THENCE SOUTH 85°51'33" WEST A DISTANCE OF 245.13 FEET TO SAID WESTERLY PROPERTY LINE; THENCE NORTH 02°20'32" WEST ALONG SAID PROPERTY LINE A DISTANCE OF 20.01 FEET TO THE POINT OF BEGINNING.



- IRON FOUND
- IRON SET
- ▲ P.K. NAIL FOUND
- ▲ P.K. NAIL SET
- ⊙ GPS MONUMENT
- ⊙ MONUMENT BOX FOUND
- ⊙ MONUMENT FOUND
- ⊙ MONUMENT SET
- (R) RECORD
- (M) MEASURED
- ⊙ STS STORM MANHOLE
- ⊙ CATCH BASIN
- ⊙ SQUARE CATCH BASIN
- ⊙ SANITARY MANHOLE
- ⊙ SANITARY CLEAN-OUT
- ⊙ MONITOR WELL
- ⊙ TELCO. MANHOLE
- PP POWER POLE
- GUY GUY
- ☼ LIGHT POLE
- ⊞ ELECTRIC TRANSFORMER
- EM ELECTRIC METER
- EHH ELECTRIC HANDHOLE
- WV WATER VALVE
- HYDRANT
- GAS METER
- GAS MARKER
- GV GAS VALVE
- TP TELEPHONE PEDESTAL
- SP SIGN POST
- FL FENCE LINE
- BM BENCHMARK
- POST

**LEGEND**

ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.



**SURVEY PLAN**

SCALE: 1"=50'



**GENERAL NOTES**

NO PROPOSED MUNICIPAL SEWER OR WATER UTILITIES ARE REQUIRED FOR THIS SITE.  
 FINISH GRADE WILL MATCH EXISTING CONTOUR.  
 THERE WILL BE NO CHANGE IN DRAINAGE PATTERN DUE TO THE PROPOSED INSTALLATION.  
 NO SIGNIFICANT RUNOFF IS GENERATED BY THE PROPOSED INSTALLATION.  
 NO HAZARDOUS MATERIALS WILL BE USED, PROCESSED OR STORED AT THE SITE.  
 TOWER LIGHTING SHALL CONFORM TO FAA STANDARDS AS REQUIRED.  
 ALL WORK SHALL CONFORM TO FAA & FCC REGULATIONS.

**CERTIFICATION:**

I MATTHEW T. MOKANYK CERTIFY THAT I HAVE SURVEYED AND MARKED THE PROPOSED TELECOM INSTALLATION AND EXISTING FEATURES AND THAT THIS MAP IS A TRUE REPRESENTATION THEREOF.

*Matthew T. Mokanyk*  
 Matthew T. Mokanyk, P.S., P.E.  
 Wisconsin P.S. No. 3078-8

02/17/20  
 Date

BEARING BASIS: WISCONSIN STATE PLANE COORDINATES, SOUTH ZONE. NAD 83.

**LANDTECH**  
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 231-943-0050 ph 231-943-0051 fax 877-520-LAND toll free  
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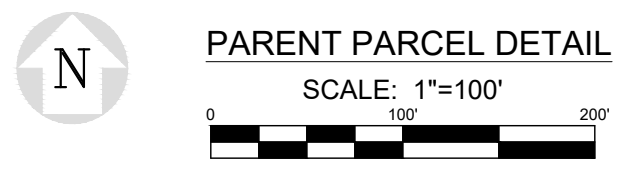
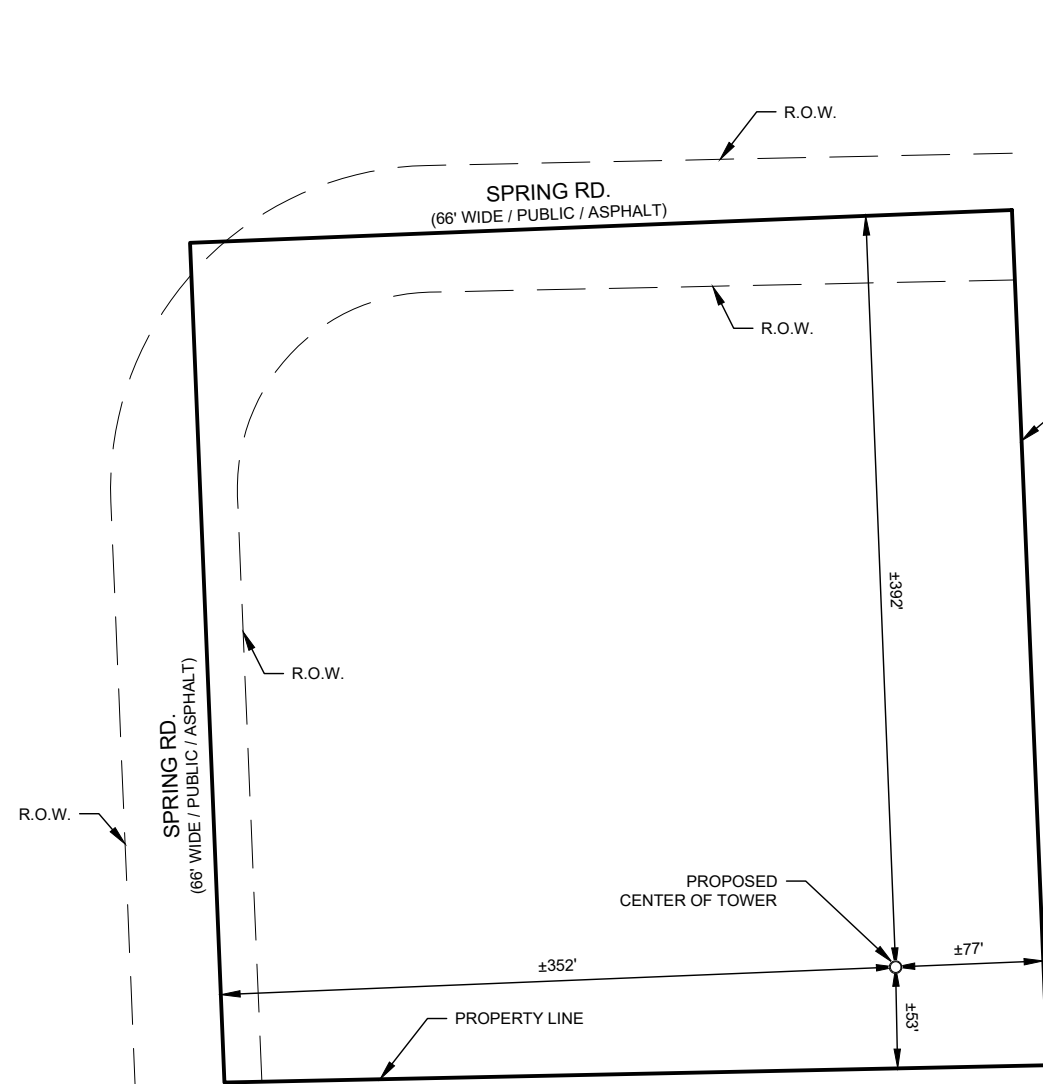
**811** Know what's below.  
 Call before you dig.

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/29/22	REV'D ZONING, REM'D FAA LIGHTING PER CLIENT	TLR	MM	MM
1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM
SCALE: AS SHOWN			DESIGNED BY: MM		DRAWN BY: TLR

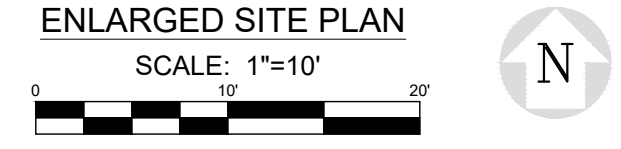
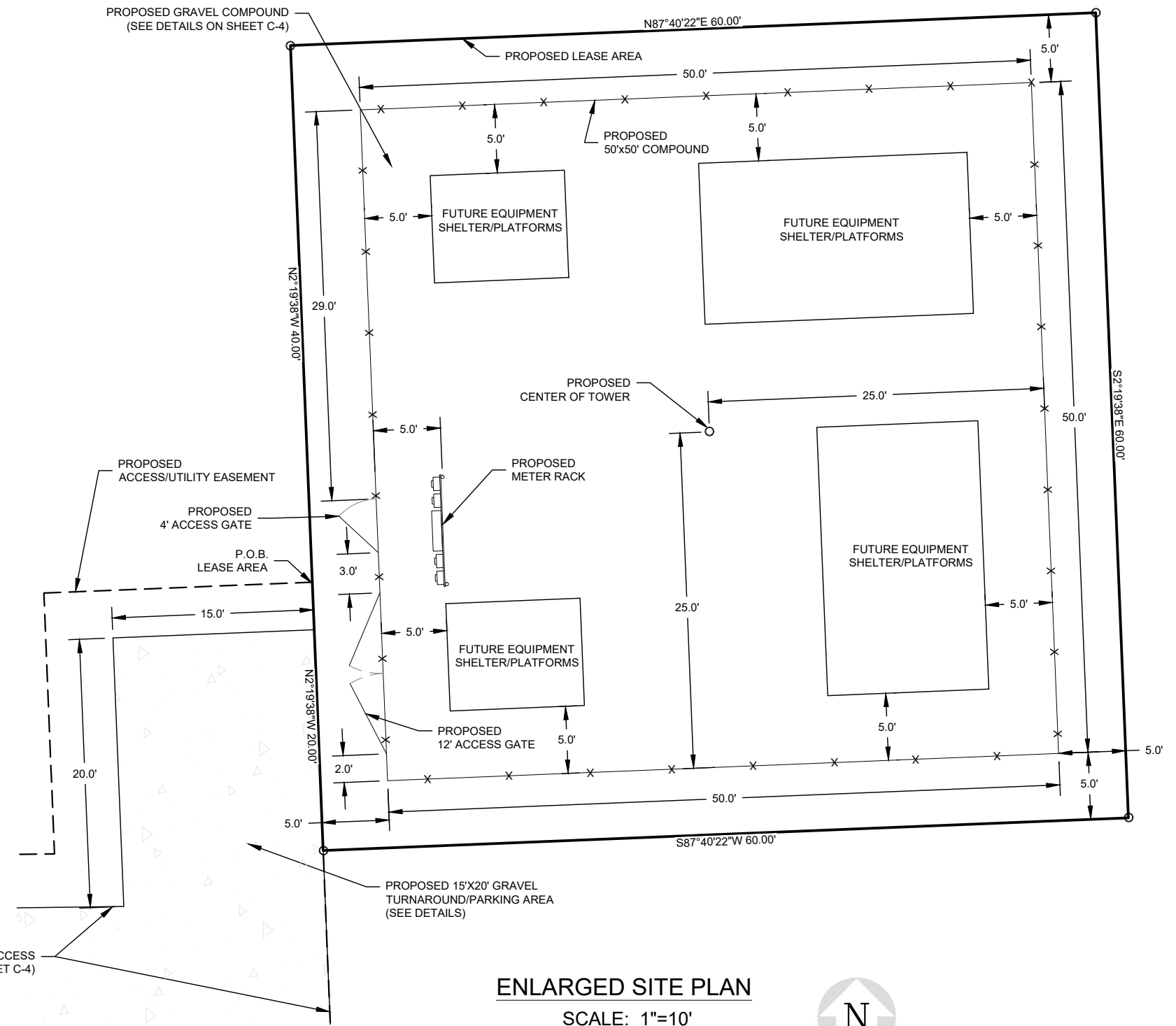
SHEET S-1
SURVEY PLAN
DRAWING NUMBER
22359002

**GENERAL NOTES**

1. NO PROPOSED MUNICIPAL SEWER OR WATER UTILITIES ARE REQUIRED FOR THIS SITE. FINISH GRADE WILL MATCH EXISTING CONTOURS.
2. THERE WILL BE NO CHANGE IN DRAINAGE PATTERN DUE TO THE PROPOSED INSTALLATION. NO SIGNIFICANT RUNOFF IS GENERATED BY THE PROPOSED INSTALLATION.
3. NO HAZARDOUS MATERIALS WILL BE USED, PROCESSED OR STORED AT THE SITE.
4. ALL WORK SHALL CONFORM TO FAA & FCC REGULATIONS.



**PARENT PARCEL DESCRIPTION (AS PROVIDED)**  
 LOT 1 CERTIFIED SURVEY MAP 11696, RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR DANE COUNTY, WISCONSIN, IN VOLUME 71 OF CERTIFIED SURVEY MAPS, PAGE 271 AS DOCUMENT NO. 4170081, LOCATED IN THE TOWN OF DUNKIRK, DANE COUNTY WISCONSIN.  
 TAX KEY NO. 026/0511-032-8100-0  
 ADDRESS: 1576 SPRING ROAD



NOTE:  
 ACTUAL EQUIPMENT SIZE, TYPE AND LOCATION WITHIN COMPOUND WILL VARY PER CARRIER.

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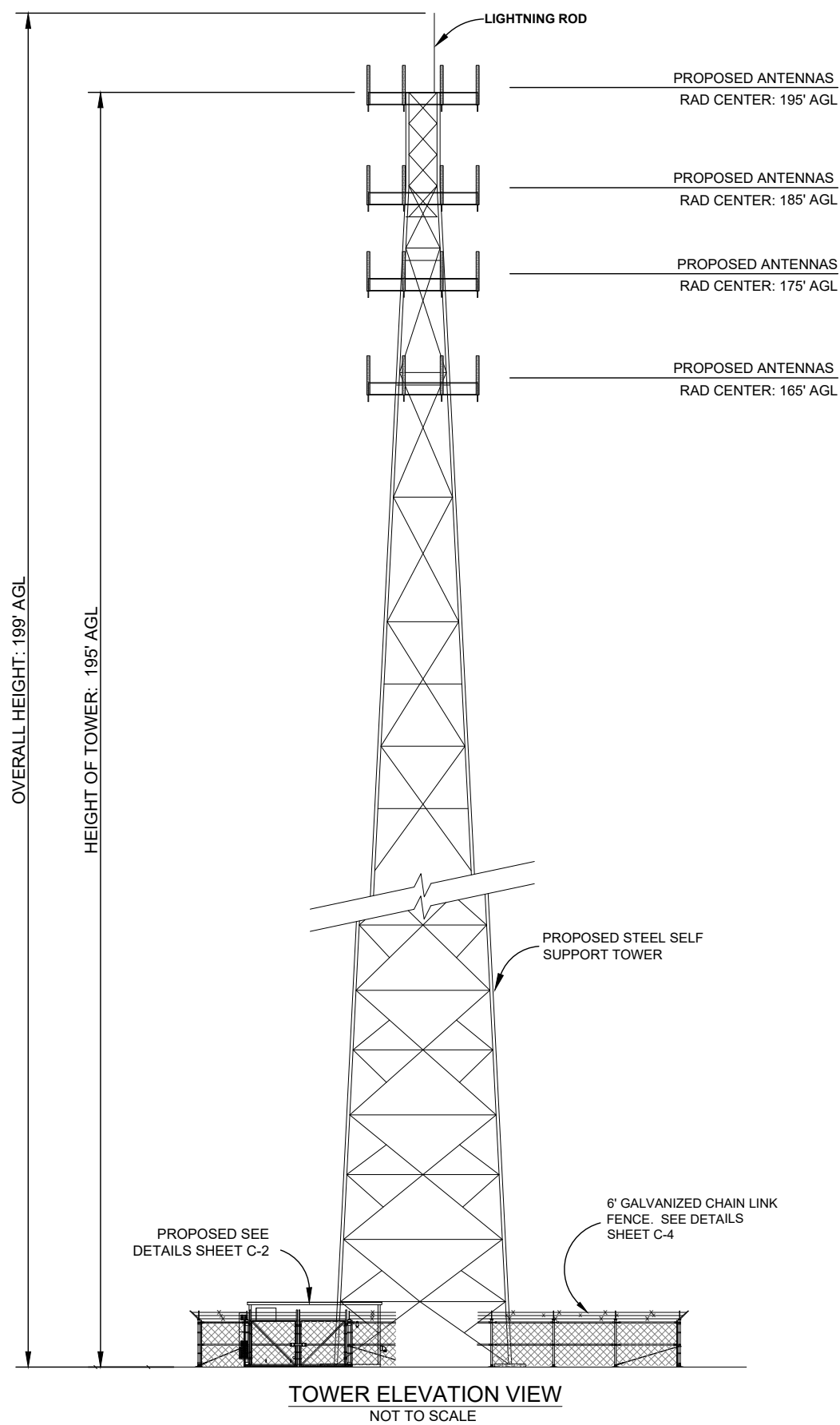
SKAALEN  
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1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM

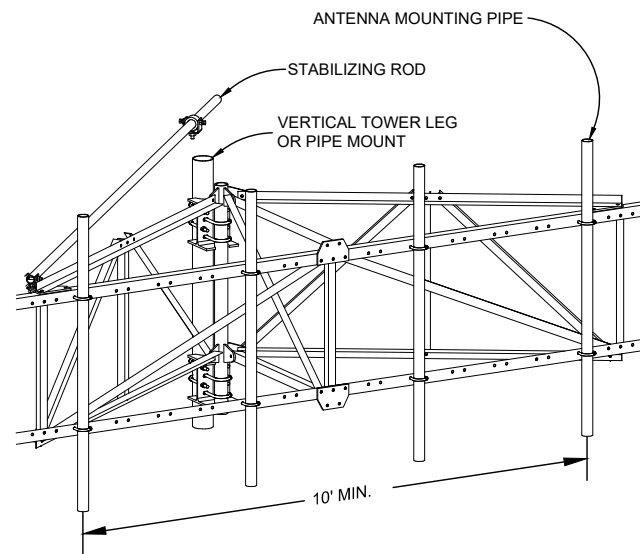
SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR

**SHEET S-2**  
**ENLARGED SITE PLAN**  
 DRAWING NUMBER  
**22359002**

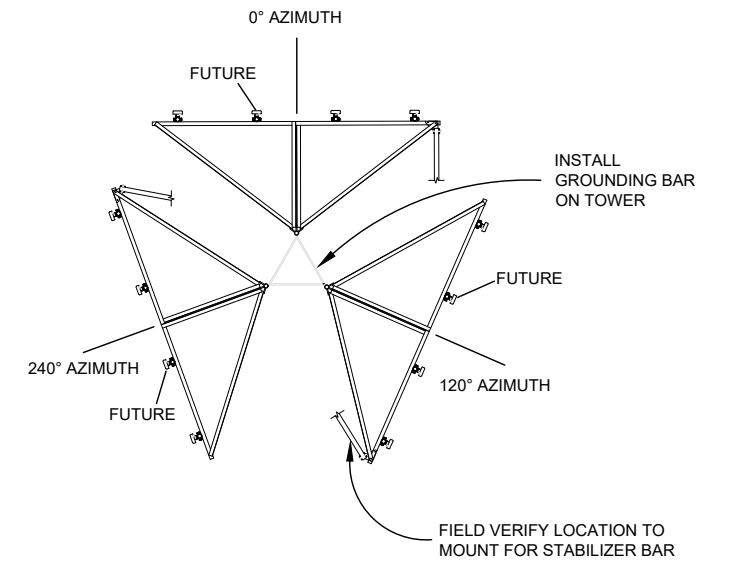




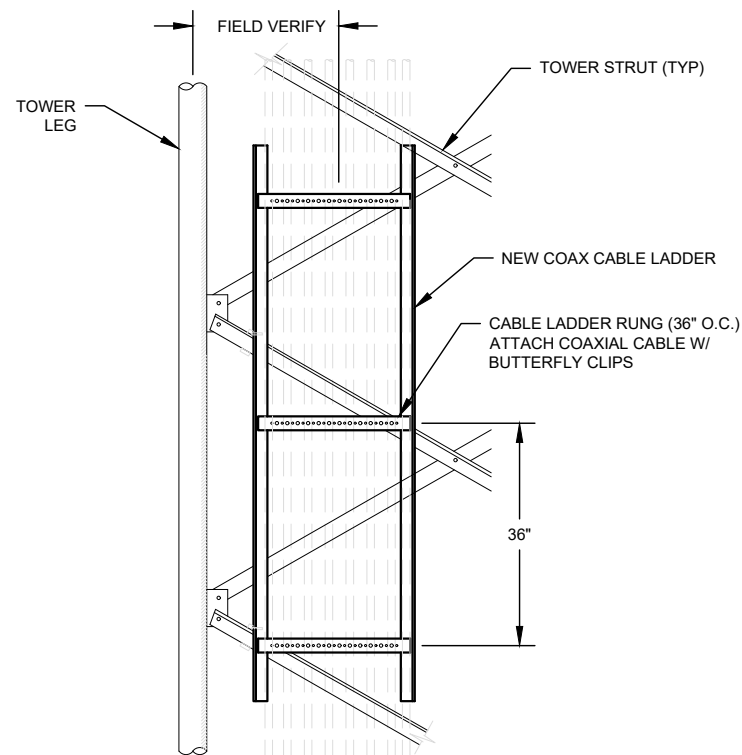
**TOWER ELEVATION VIEW**  
NOT TO SCALE



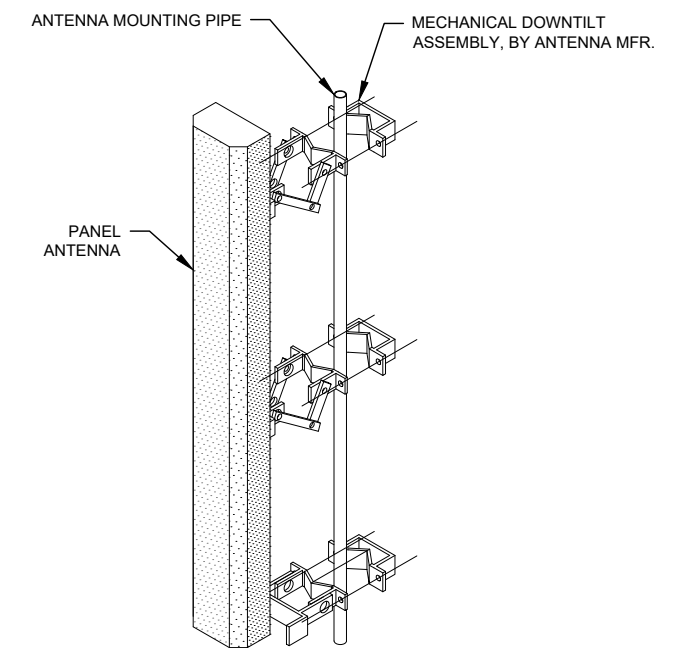
**STANDOFF WIRELESS FRAME**  
NOT TO SCALE



**TYPICAL SECTORIZED ANTENNA CONFIGURATION**  
NOT TO SCALE



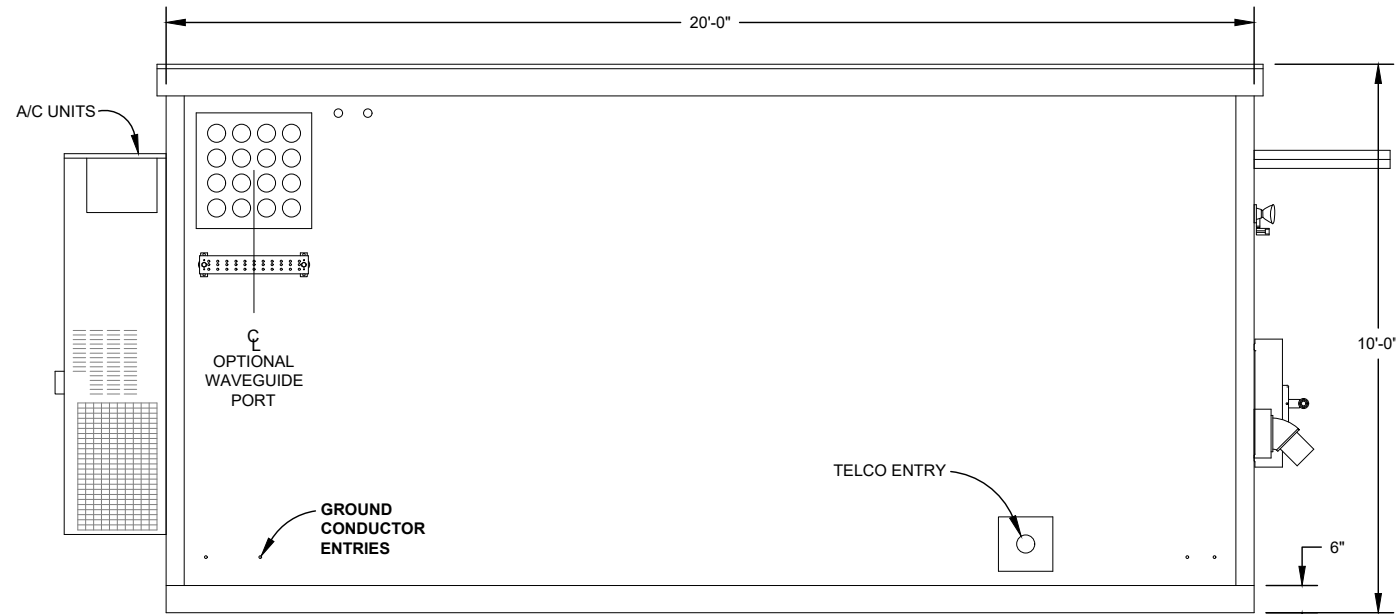
**CABLE LADDER DETAIL**  
NOT TO SCALE



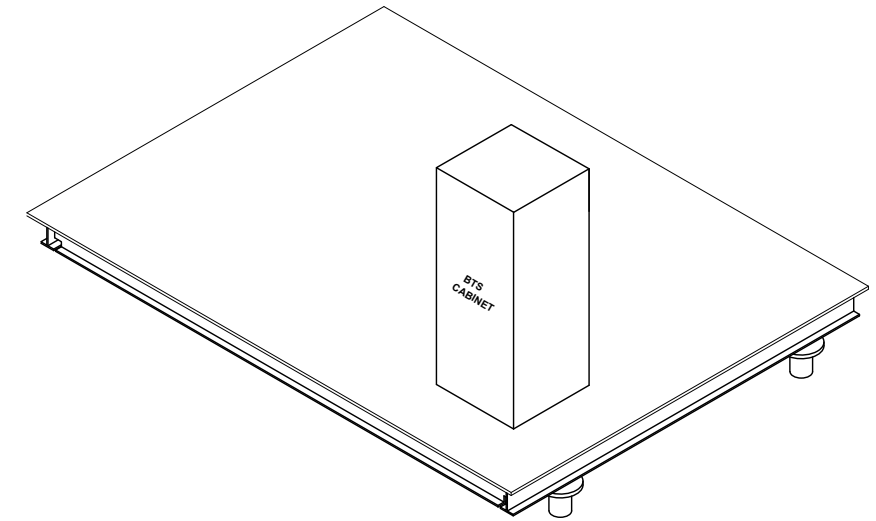
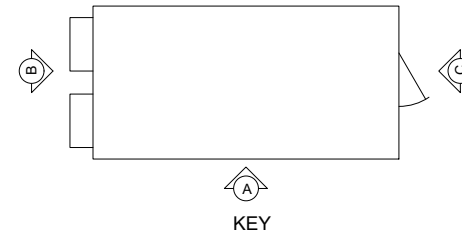
**ANTENNA MOUNTING DETAIL**  
NOT TO SCALE

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1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: MM	DRAWN BY: TLR		

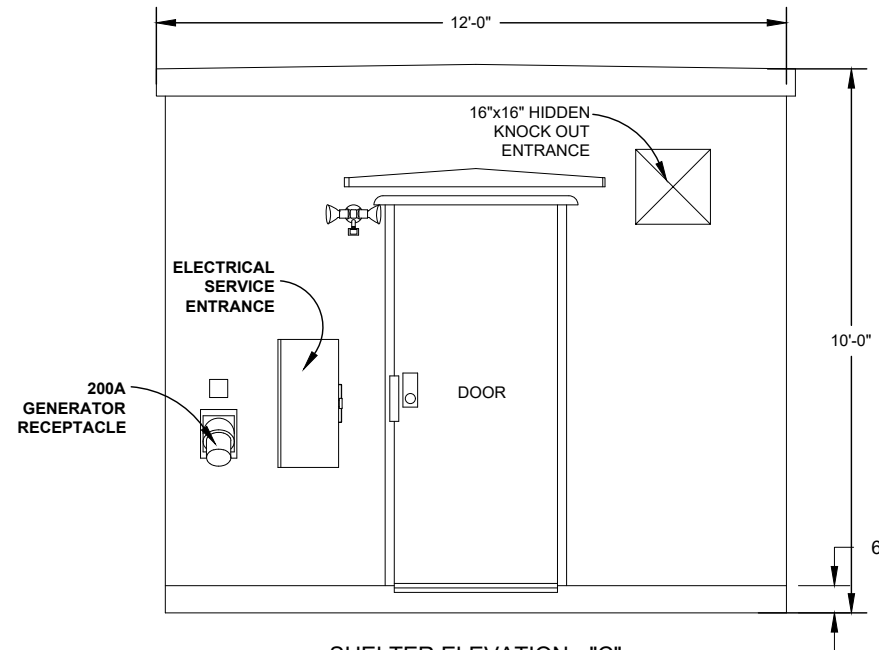
NOTE: SHELTER AND PLATFORM SHOWN ARE TYPICAL OF COMMUNICATION EQUIPMENT INSTALLATIONS AND ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. INDIVIDUAL EQUIPMENT PROVIDED BY CARRIERS MAY VARY FROM THESE DRAWINGS. DESIGN OF SUCH EQUIPMENT INSTALLATIONS AND THEIR FOUNDATIONS ARE BY OTHERS.



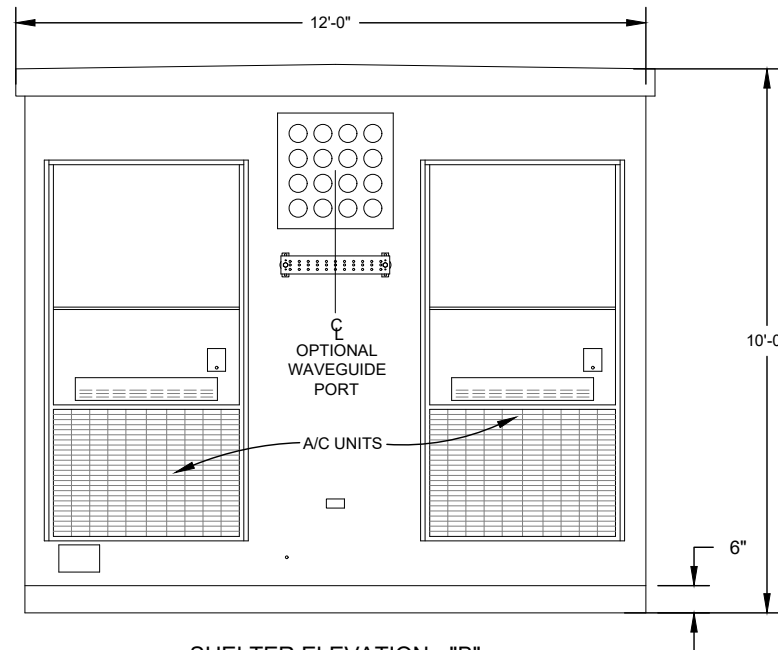
SHELTER ELEVATION - "A"  
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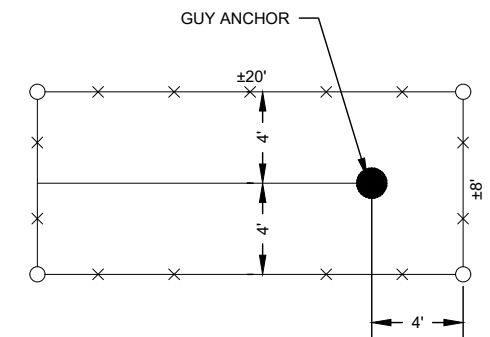
TYPICAL EQUIPMENT PLATFORM  
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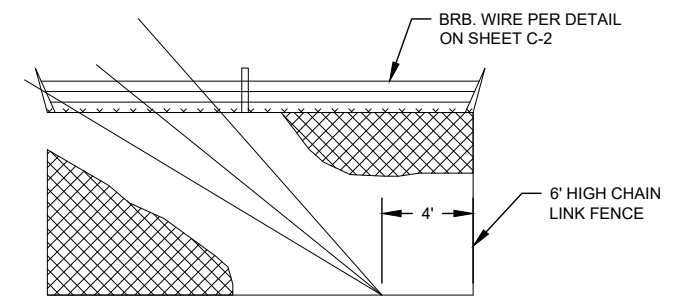
SHELTER ELEVATION - "C"  
NOT TO SCALE



SHELTER ELEVATION - "B"  
NOT TO SCALE



PLAN VIEW

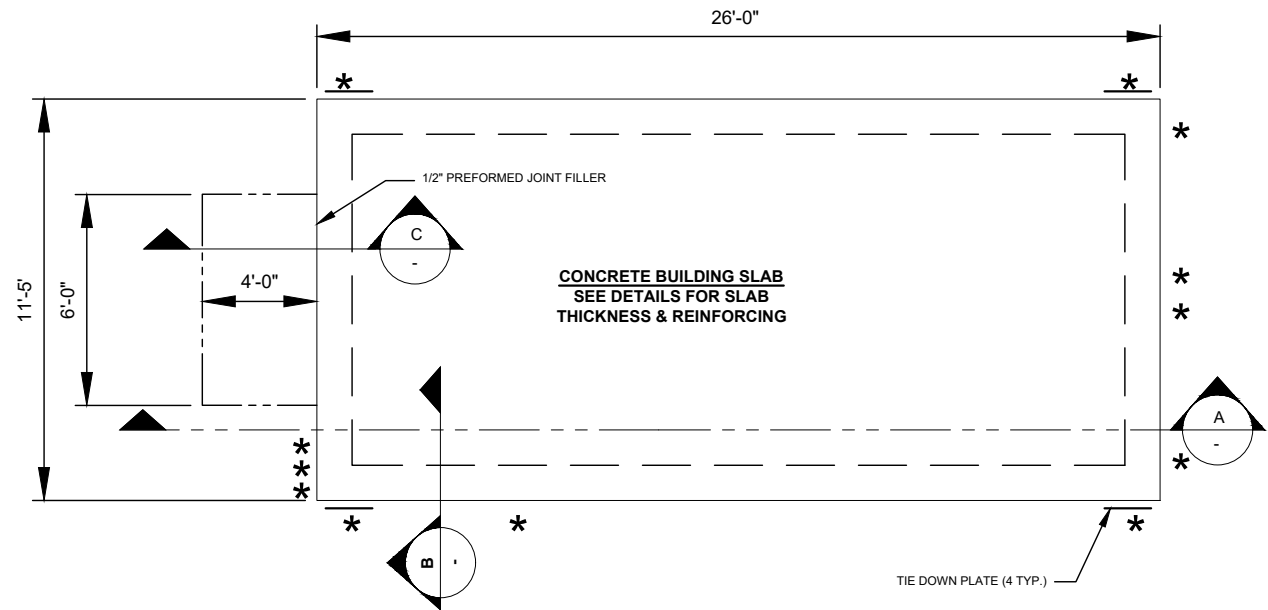


PROFILE

TYPICAL GUY ANCHOR ENCLOSURE  
NOT TO SCALE

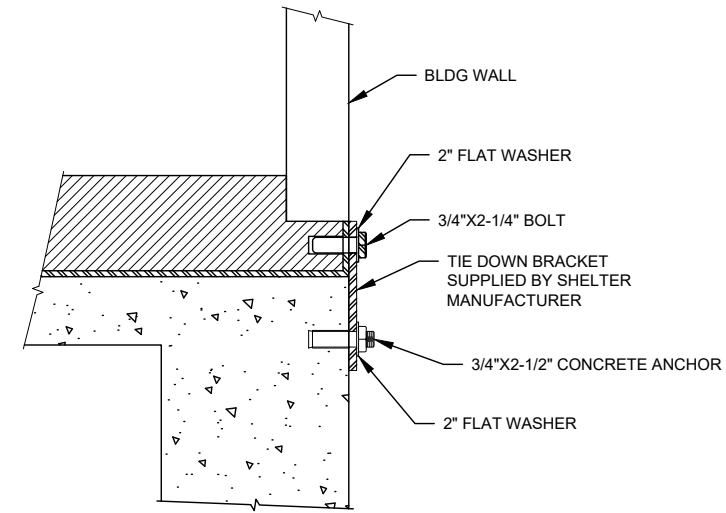
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SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR



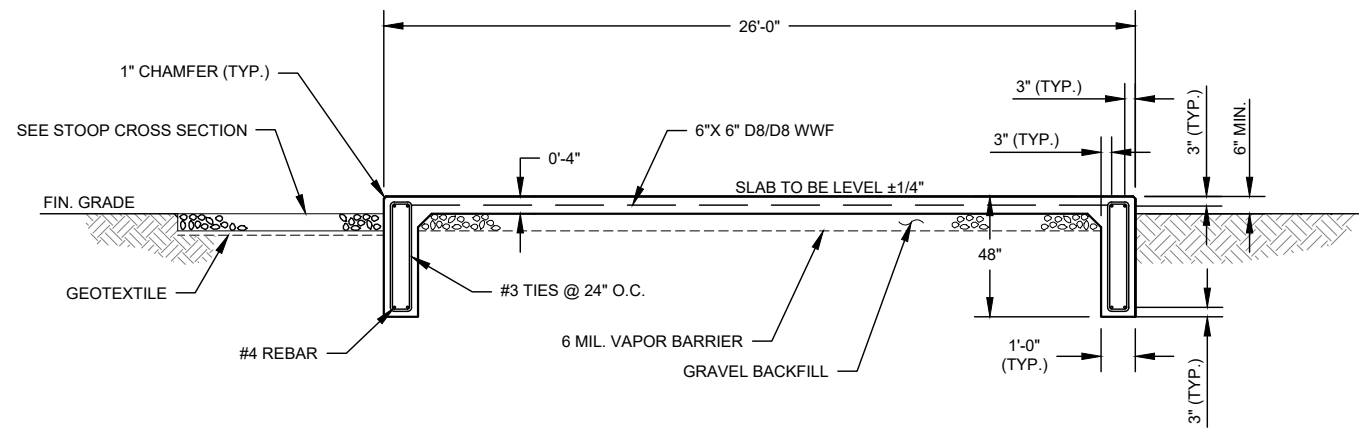
**SHELTER FOUNDATION PLAN**  
NOT TO SCALE

**NOTE:**  
\* #2 GROUND PIG TAIL LOCATIONS  
SEE GROUNDING PLAN



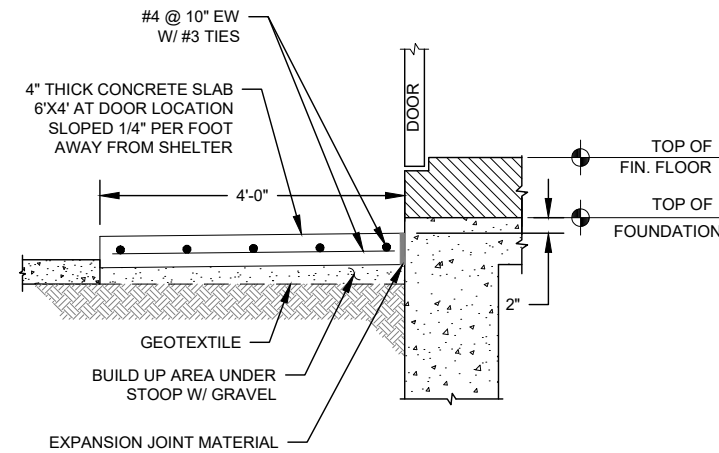
**BLDG/FND ATTACHMENT DETAIL B-B**  
NOT TO SCALE

- FOUNDATION GENERAL NOTES:**
1. THE SITE SHALL BE STRIPPED OF ALL VEGETATION PRIOR TO FILL OR CONSTRUCTION OF THE FOUNDATION PAD.
  2. ALL FILL SAND SHALL BE 0-15 P.I. WITH A COMPACTION TEST RUN ON EACH 6" LIFT - COMPACTED TO 90% MODIFIED PROCTOR.
  3. ANY SOFT AREAS (TREE STUMP HOLES, ETC.) SHALL BE CUT OUT AND RECOMPACTED TO SAID PROCTOR.
  4. THE SUBCONTRACTOR SHALL KEEP THE SITE SO IT WILL HAVE POSITIVE DRAINAGE AT ALL TIMES.
  5. ALL EXCAVATIONS SHALL BE FREE OF WATER BEFORE POURING CONCRETE.
  6. MINIMUM SOIL BEARING CAPACITY OF 2,000 PSF IN ALL FOUNDATION AND SLAB AREAS.



**BLDG/FND ATTACHMENT SECTION A-A**  
NOT TO SCALE

- NOTES:**
1. CONCRETE FINISH TO BE CLASS A TOLERANCE.
  2. TEST FOR 3000 PSI AT 7, 14, & 28 DAYS PER POUR BY INDEPENDENT LAB.
  3. ALL CONCRETE TO BE SIX SACK MIX.
  4. PERFORM CONCRETE SLUMP TEST (4" MAX). NO WATER TO BE ADDED TO CONCRETE MIX AFTER 4" SLUMP HAS BEEN ESTABLISHED.

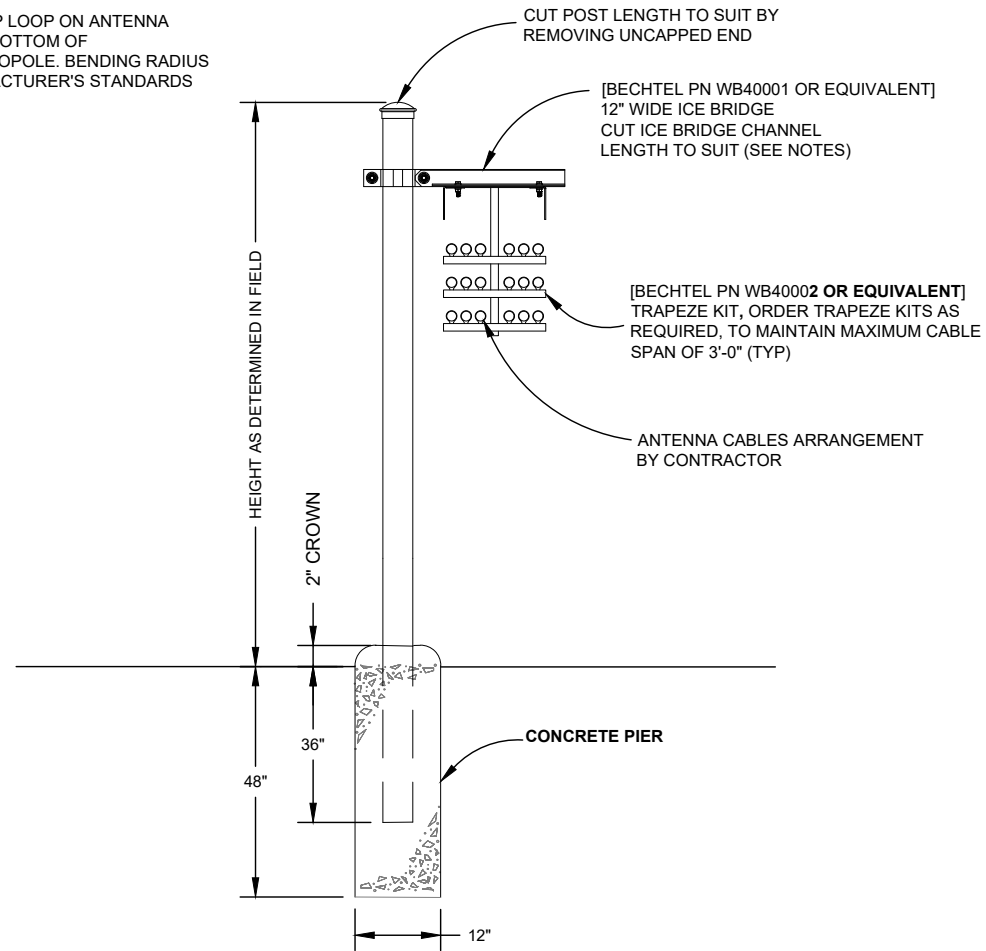


**STOOP DETAIL C-C**  
NOT TO SCALE

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1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM

SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR

\* INSTALL DRIP LOOP ON ANTENNA CABLES AT BOTTOM OF TOWER/MONOPOLE. BENDING RADIUS PER MANUFACTURER'S STANDARDS

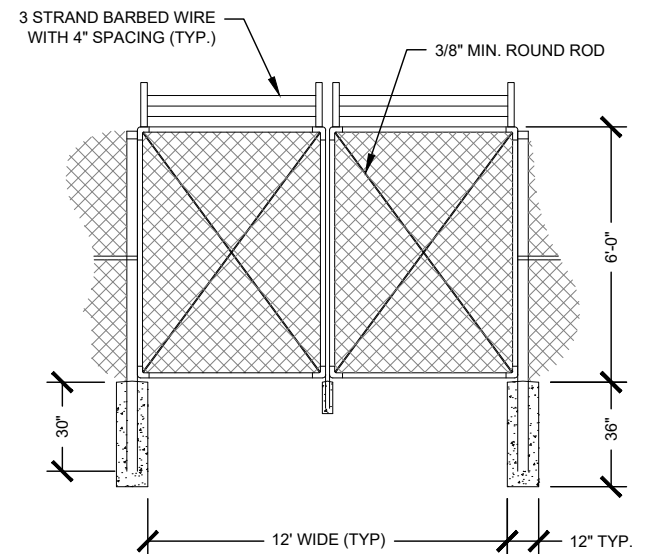
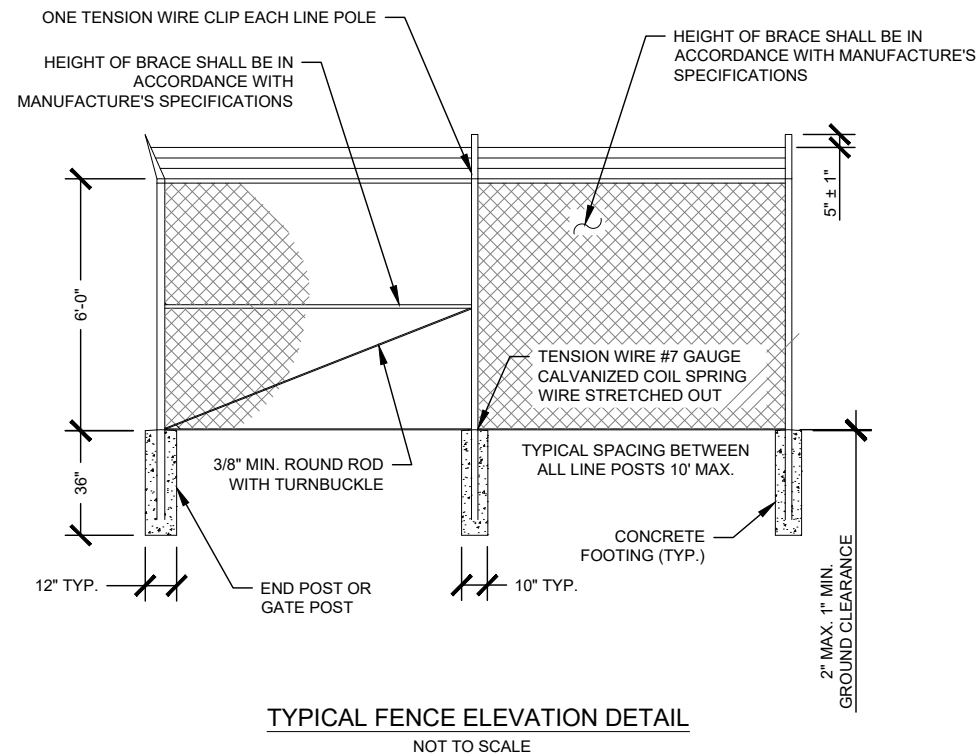
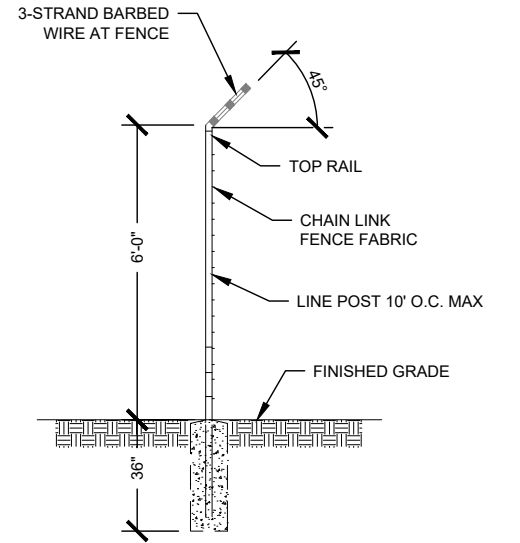
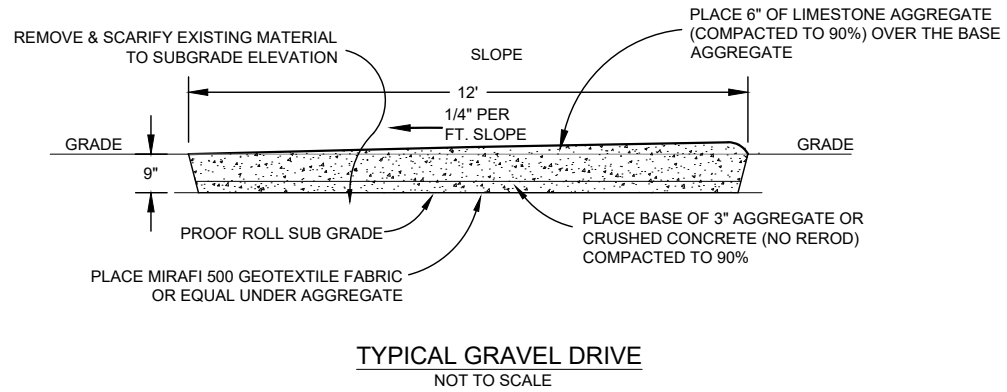
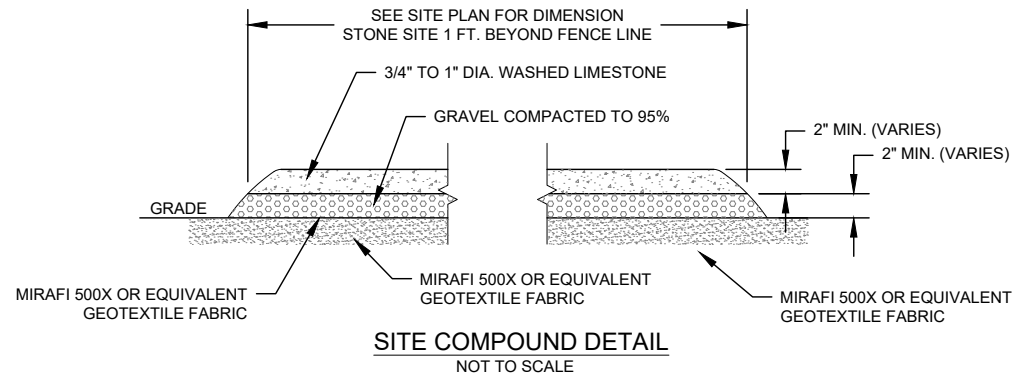


BECHTEL SC:	ROHN PN:	MTS PN:
WB40001		WB-K110-B
WB40002		WB-T12-3

**NOTES:**

1. WHEN USING COMPONENTS AS SHOWN IN STANDARD DETAILS, MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 9 FEET FOR 10 FEET BRIDGE CHANNEL.
2. WHEN USING COMPONENTS FOR SPLICING BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
3. WHEN USING COMPONENTS, SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF ICE BRIDGES, WITH A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE ICE BRIDGE.
4. CUT BRIDGE CHANNEL SECTIONS SHALL HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THESE EDGES TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.
5. ICE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM OTHER MANUFACTURERS, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
6. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
7. DEVIATIONS FROM ICE BRIDGE FOUNDATIONS REQUIRE ENGINEERING APPROVAL.

**TYPICAL ICE BRIDGE DETAIL**  
NOT TO SCALE



**NOTE:**  
FENCING ELEVATIONS ARE ONLY EXAMPLES.  
FOLLOW CONSTRUCTION CONTRACT.

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/29/22	REV'D ZONING, REM'D FAA LIGHTING PER CLIENT	TLR	MM	MM
1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM

SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR



**SITE WORK GENERAL NOTES:**

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. 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.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

**STRUCTURAL STEEL NOTES:**

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

**CONCRETE AND REINFORCING STEEL NOTES:**

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
  - CONCRETE CAST AGAINST EARTH.....3 IN.
  - CONCRETE EXPOSED TO EARTH OR WEATHER:
    - #6 AND LARGER .....2 IN.
    - #5 AND SMALLER & WWF .....1 1/2 IN.
  - CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
    - SLAB AND WALL .....3/4 IN.
    - BEAMS AND COLUMNS .....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

**GENERAL NOTES:**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
  - CONTRACTOR -
  - SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
  - OWNER -
  - OEM - ORIGINAL EQUIPMENT MANUFACTURE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE RFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING.
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT UBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

**APPLICABLE BUILDING CODES AND STANDARDS:**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES:

1. INTERNATIONAL BUILDING CODE
2. INTERNATIONAL MECHANICAL CODE
3. INTERNATIONAL RESIDENTIAL CODE
4. UNIFORM PLUMBING CODE
5. NATIONAL ELECTRICAL CODE
6. LOCAL BUILDING CODE
7. STATE BUILDING CODE
8. CITY/COUNTY ORDINANCES

UnderWriter Laboratories Approved Electrical Products  
Life Safety Code NFPA - 101

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING:

AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD,

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) EIA-222-F, STRUCTURAL STANDARD FOR STRUCTURAL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES.

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM.

IEEE 1100 (2005) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC.

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TIA 607 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELCORDIA GR-1503 COAXIAL CABLE CONNECTIONS













FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS AND SYMBOLS**

**ABBREVIATIONS**

- AGL ABOVE GRADE LEVEL
- BTS BASE TRANSCIEVER STATION
- (E) EXISTING
- MIN MINIMUM
- N.T.S. NOT TO SCALE
- REF REFERENCE
- RF RADIO FREQUENCY
- T.B.D. TO BE DETERMINED
- T.B.R. TO BE RESOLVED
- TYP TYPICAL
- REQ REQUIRED
- EGR EQUIPMENT GROUND RING
- AWG AMERICAN WIRE GAUGE
- MGB MASTER GROUND BUS
- EG EQUIPMENT GROUND
- BCW BARE COPPER WIRE
- SIAD SMART INTEGRATED ACCESS DEVICE
- GEN GENERATOR
- IGR INTERIOR GROUND RING (HALO)
- RBS RADIO BASE STATION

**SYMBOLS**

-  SOLID GROUND BUS BAR
-  SOLID NEUTRAL BUS BAR
-  SUPPLEMENTAL GROUND CONDUCTOR
-  2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
-  SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
-  CHEMICAL GROUND ROD
-  GROUND ROD
-  DISCONNECT SWITCH
-  METER
-  CADWELD TYPE CONNECTION
-  COMPRESSION TYPE CONNECTION
-  GROUNDING WIRE



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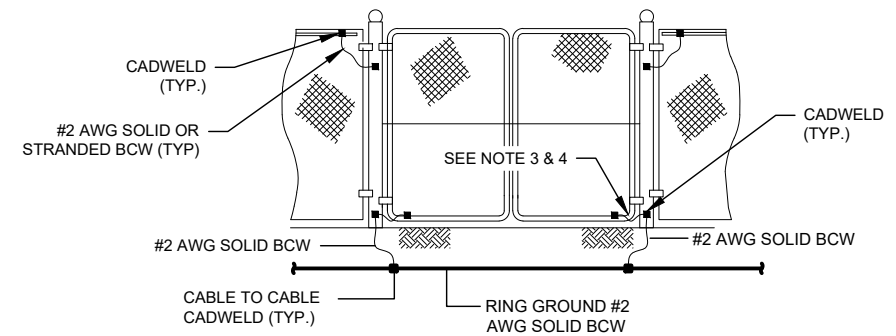
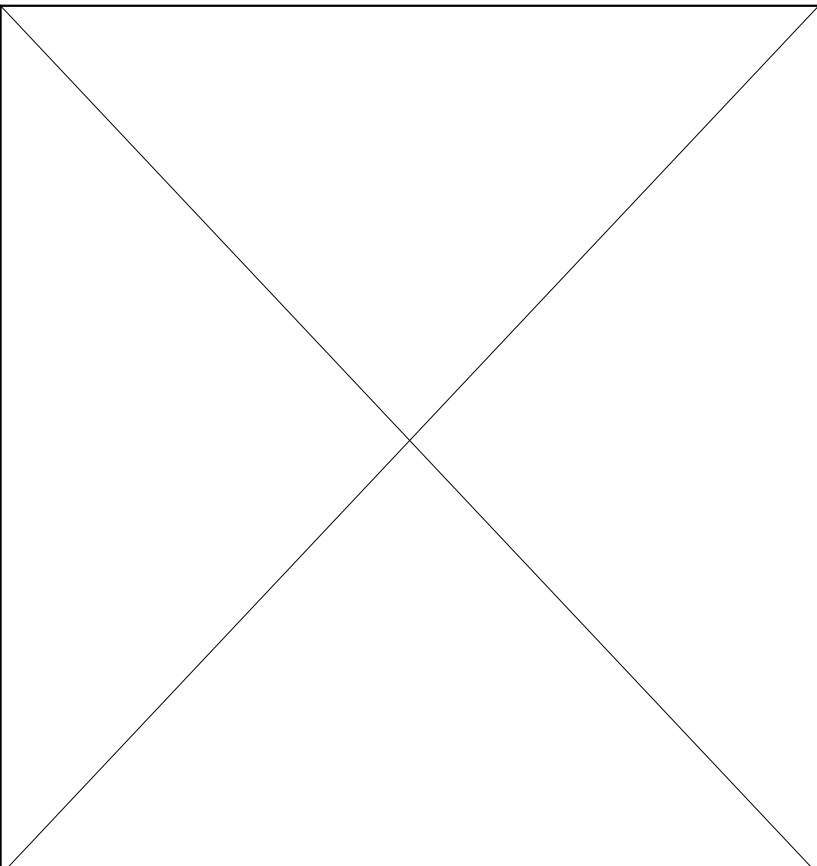
2	09/29/22	REV'D ZONING, REM'D FAA LIGHTING PER CLIENT	TLR	MM	MM
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SCALE: AS SHOWN		DESIGNED BY: MM	DRAWN BY: TLR		

SHEET C-5  
GENERAL NOTES  
DRAWING NUMBER  
22359002



**ELECTRICAL INSTALLATION NOTES**

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSII/IEEE, AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
18. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
19. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
20. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
21. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSII/IEEE, AND NEC.
22. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.



**NOTES:**

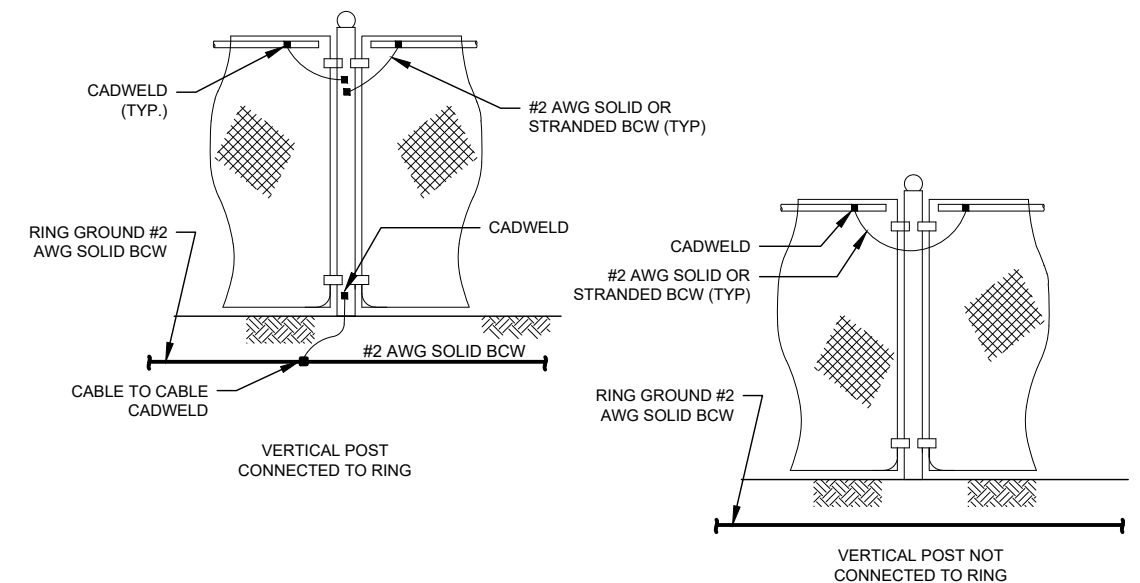
1. THE #2 AWG, BCW, FROM THE RING GROUND SHALL BE CADWELDED TO THE POST ABOVE GRADE.
2. BOND EACH HORIZONTAL POLE/BRACE TO EACH OTHER AND TO EACH VERTICAL POLE BONDED TO THE EXTERIOR GROUND RING.
3. GATE JUMPER SHALL BE #4/0 AWG WELDING CABLE OR FLEXIBLE COPPER BRAID BURNDY TYPE B WITH SLEEVES ON EACH 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.

**FENCE GATE GROUNDING DETAIL**

NOT TO SCALE

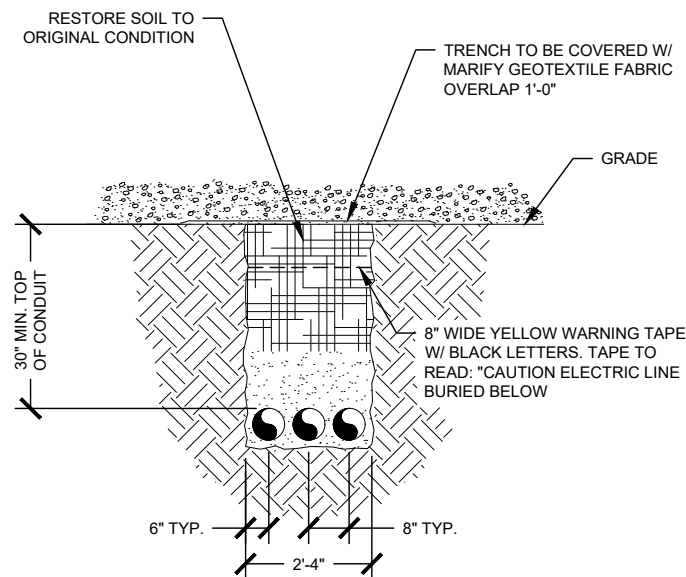
**NOTES:**

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



**FENCE GROUNDING DETAIL**

NOT TO SCALE



**TYPICAL TRENCH DETAIL**

NOT TO SCALE

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SHEET E-1

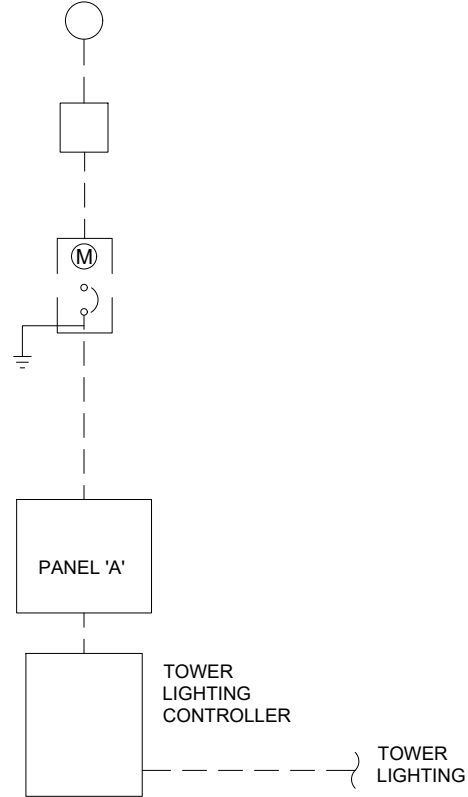
ELECTRICAL NOTES & DETAILS

DRAWING NUMBER

22359002

**ELECTRICAL NOTES:**

1. SUBCONTRACTOR SHALL PROVIDE 200AMP, SINGLE PHASE, 120/240 VAC, 60HZ SERVICE FOR SITE.
2. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
3. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY PANEL MANUFACTURER.
4. SUBCONTRACTOR SHALL INSTALL SUFFICIENT LENGTHS OF LFMC INCLUDING ALL CONDUIT FITTINGS (NUTS, REDUCING BUSHINGS, ELBOWS, COUPLINGS, ETC) NECESSARY FOR CONNECTION FROM IMC CONDUIT TO THE INTERIOR OF THE BTS CABINET.
5. SUBCONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
6. CUT, COIL AND TAPE A 3 FOOT PIGTAIL FROM END OF LFMC FOR TERMINATING BY BTS EQUIPMENT MANUFACTURER.
7. SUBCONTRACTOR SHALL VERIFY THAT THE MAIN BONDING JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY WHEN PANEL IS SERVICE ENTRANCE EQUIPMENT.

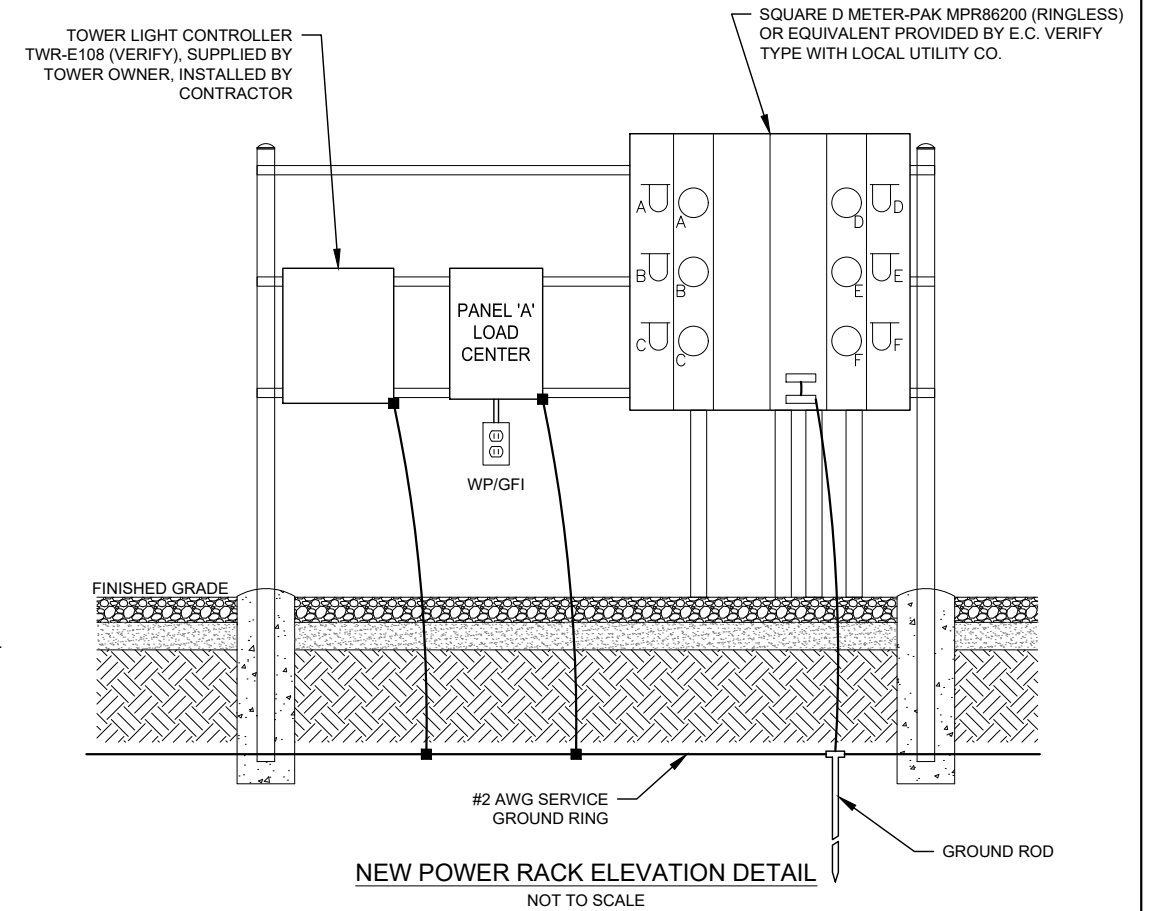


**100 AMP SINGLE LINE DIAGRAM**  
NOT TO SCALE

PANEL 'A' SCHEDULE

POS.	SERVING	BREAKER	WIRE SIZE AND TYPE	LOAD		POS.	SERVING	BREAKER	WIRE SIZE AND TYPE	LOAD	
				A	B					A	B
1	TOWER LIGHTING CONTROLLER	30A/2P	2-#10 / #10 GND, 2" C.		2400	2	EQUIP. RACK RECEPT.	15A/1P	2-#10 / #10 GND, 3/4" C.	180	
3						4					
5	TELCO BOX RECEPT.	15A/1P	2-#10 / #10 GND, 3/4" C.	180		6					
7						8					
9						10					
11	BLANK					12					
				TOTAL	360	2400					
				TOTAL AMPS							11.5

1. FROM TAP BOX: THE TWO (2) FOUR-INCH (4") CONDUIT WILL RETURN TO THE LOCATION DETERMINED BY "DETROIT EDISON" AND EXTEND OUT OF THE FINISHED GRADE 12" AND 36" RESPECTIVELY (SEE DETAIL). BOTH CONDUITS SHALL BE INSTALLED WITH PULL-STRINGS AND WATERPROOF CAPS.
2. CABINET AND CONDUCTORS FURNISHED & INSTALLED BY CUSTOMER. 350 KCMIL SERVICE CONDUCTORS FURNISHED & INSTALLED BY UTILITY.
3. EQUIPMENT ASSEMBLY DRAWINGS AND RISER DIAGRAMS MUST BE SUBMITTED TO A UTILITY PLANNER FOR ACCEPTANCE PRIOR TO INSTALLATION.
4. CABINETS AND CONDUITS SHOWN SHALL CONTAIN ONLY UNMETERED LINE CONDUCTORS. CABINET SHALL BE SEALABLE WITH ACCEPTABLE SEALING HASP.
5. TRANSMISSION TOWER SERVICES WILL UTILIZE A STANDARD 200 AMP SERVICE W/ CONTINUOUS CONDUIT TO THE SOURCE.
6. SUBSTATION CELLULAR SERVICES WILL BE A SINGLE 200-AMP SERVICE OR BUILT TO THIS SPECIFICATION. NO SERVICE SHALL BE TAKEN OUT OF THE SUBSTATION HOUSE SERVICE.
7. ALL CONDUIT AND NIPPLE ENTRIES TO CABINET AND METER BOXES WILL BE MADE WITH WEATHERPROOF HUBS, CONNECTORS OR LOCKNUTS LISTED FOR THE APPLICATIONS. NON-METALLIC BUSHINGS.
8. FOR INACCESSIBLE LOCATIONS CONSULT WITH METER ENGINEERING FOR POSSIBLE ERT METER INSTALLATION.
9. ONLY ONE SERVICE ALLOWED PER LUG. ALL GROUNDING AND BONDING MUST COMPLY WITH NEC 250 REQUIRED.

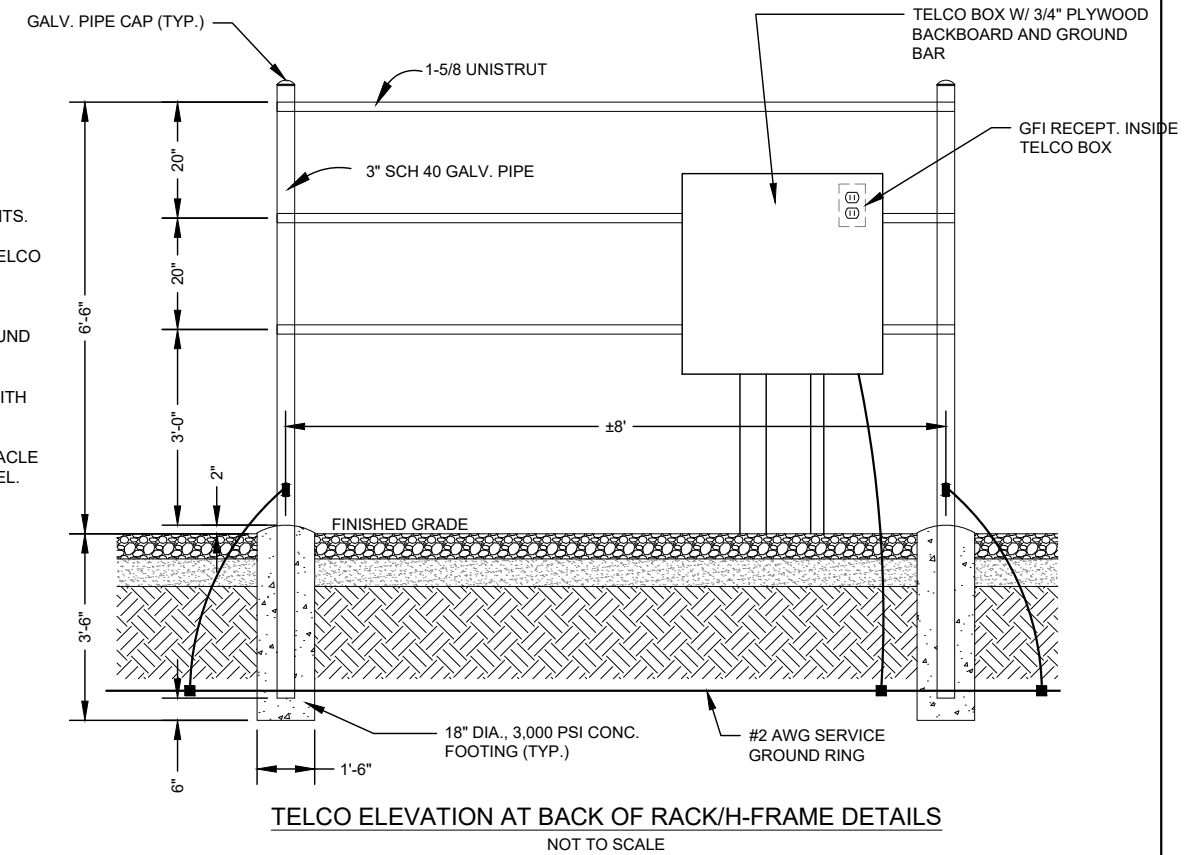


**NOTES:**

1. COORDINATE WITH LOCAL TELCO UTILITY PRIOR TO PROCURING AND INSTALLATION OF BOX AND COMPONENTS.
  2. ALL MATERIAL SHALL MEET REQUIREMENTS OF LOCAL TELCO UTILITY.
  3. ITEM #4 SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR. BOND SURGE PROTECTION UNIT TO GROUND BAR WITH #6 AWG INSULATED WIRE.
  4. COORDINATE SIZE, TYPE AND QUANTITY OF ITEM(S) #5 WITH LOCAL UTILITY.
- INSTALL ITEM #6 ONLY IF REQUIRED BY UTILITY. RECEPTACLE POWERED FROM SPARE BREAKER IN DISTRIBUTION PANEL.

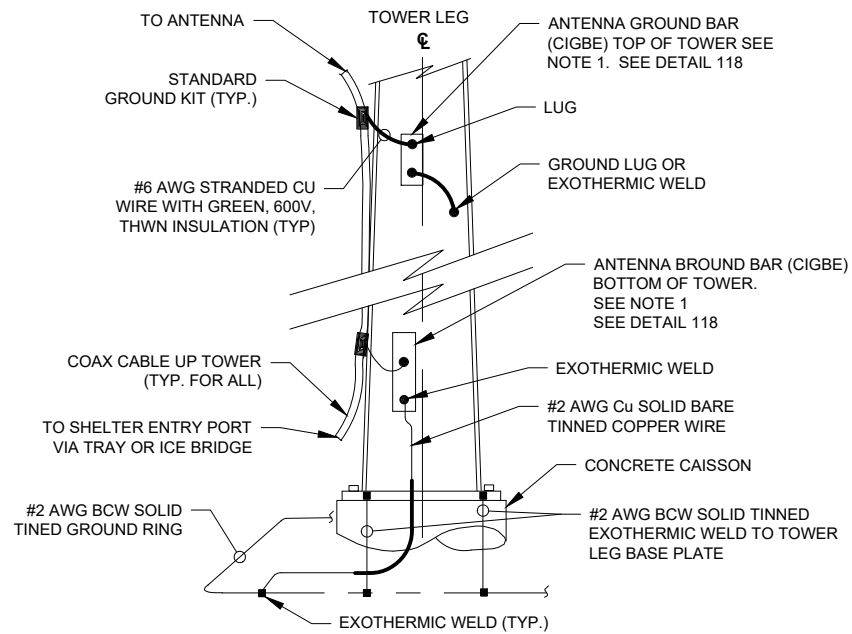
**MATERIAL LIST:**

- ① 36" X 36" X 10" NEMA 3R ENCLOSURE (HOFFMAN A36R3610HCR OR SIMILAR)

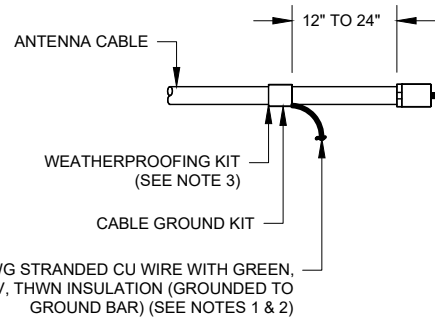


NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/29/22	REV'D ZONING, REM'D FAA LIGHTING PER CLIENT	TLR	MM	MM
1	08/18/22	OVERALL TOWER HEIGHT	RJH	MM	MM
0	03/22/20	ISSUED FOR REVIEW	TLR	MM	MM

SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR

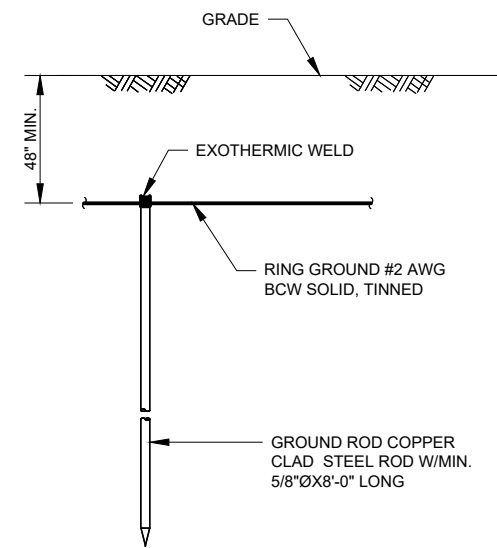


**ANTENNA CABLE GROUNDING DETAIL - SST**  
NOT TO SCALE



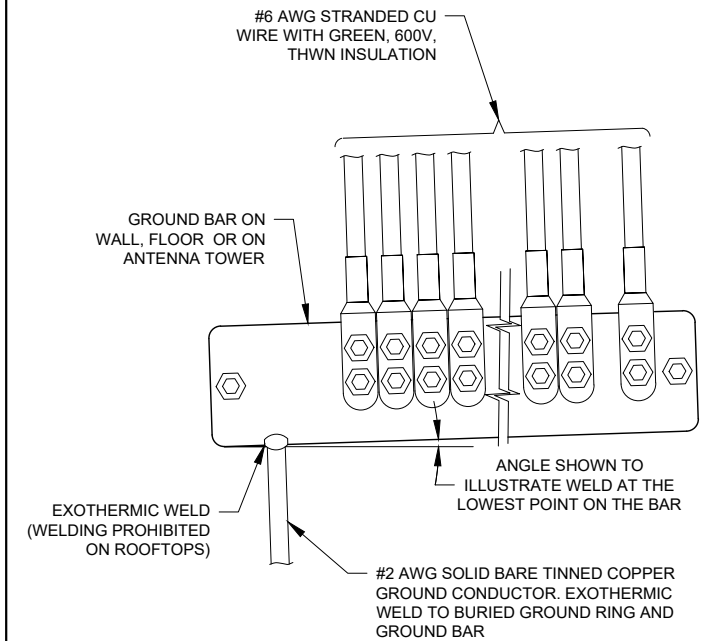
- NOTES:
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
  - WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.)

**CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE DETAIL**  
NOT TO SCALE



- NOTES:
- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.

**GROUND ROD DETAIL**  
NOT TO SCALE



**INSTALLATION OF GROUND WIRE TO COAX CABLE GROUND BAR DETAIL**  
NOT TO SCALE

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PROTECTORS**

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR (#2)
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES
- COAX SUPPRESSION

**SECTION "A" - SURGE ABSORBERS**

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

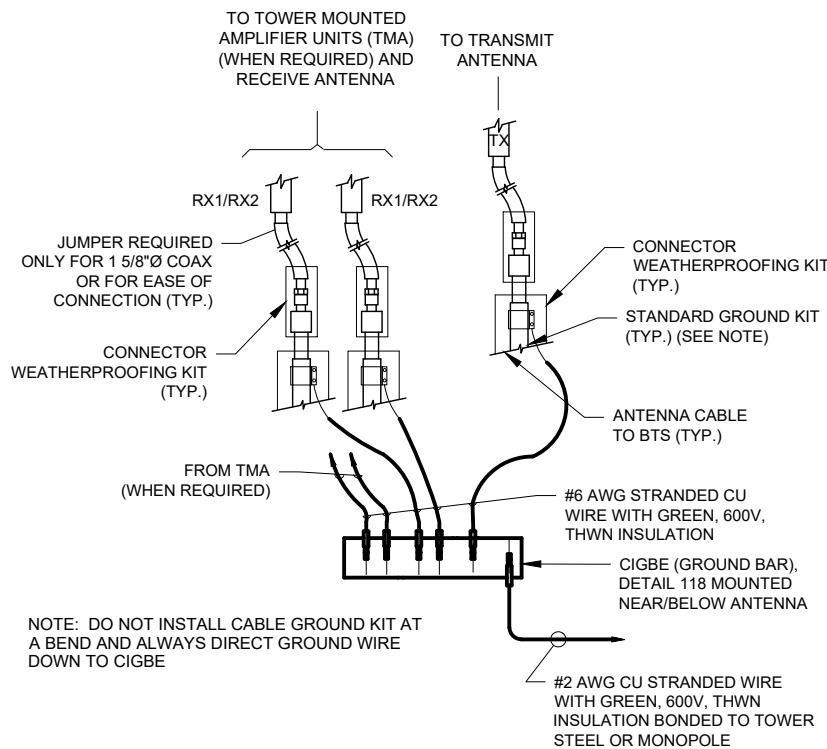
**SECTION "I" - ISOLATED GROUND ZONE**

- ALL COMMUNICATIONS EQUIPMENT FRAMES
- ISOLATED GROUND BAR - IGB (#2)

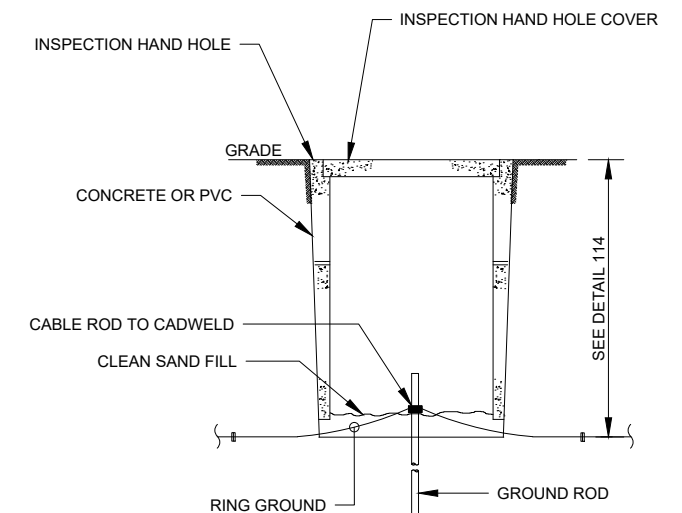
**DETAIL NOTES:**

- EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.

**(RGB) REFERENCE GROUND BAR DETAIL**  
NOT TO SCALE

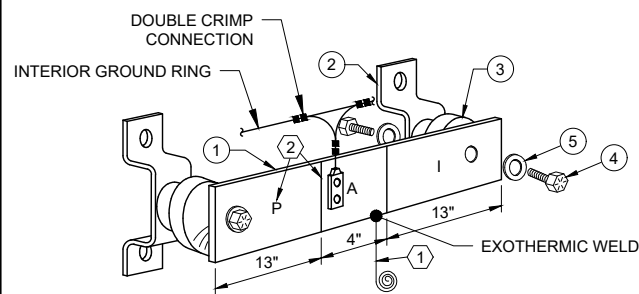


**CONNECTION OF GROUND WIRE TO GROUNDING BAR (CIGBE) TOWER / MONOPOLE / ROOFTOP**  
NOT TO SCALE



**GROUND ROD WITH ACCESS AREA DETAIL**  
NOT TO SCALE

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO.	REQ.	PART NO.	DESCRIPTION
①	1	1/4"x4"x30"	SOLID GND. BAR
②	2	A-6056	WALL MTG. BRKT.
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11x1" H.H.C.S.
⑤	4	3015-8	5/8 LOCKWASHER



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SCALE: AS SHOWN      DESIGNED BY: MM      DRAWN BY: TLR

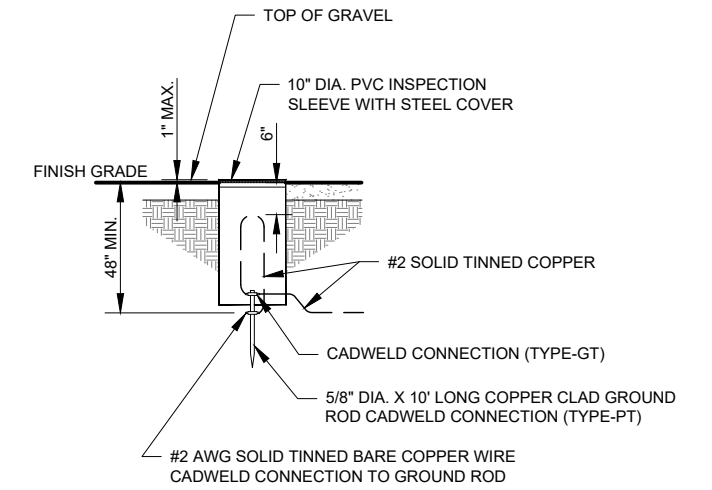
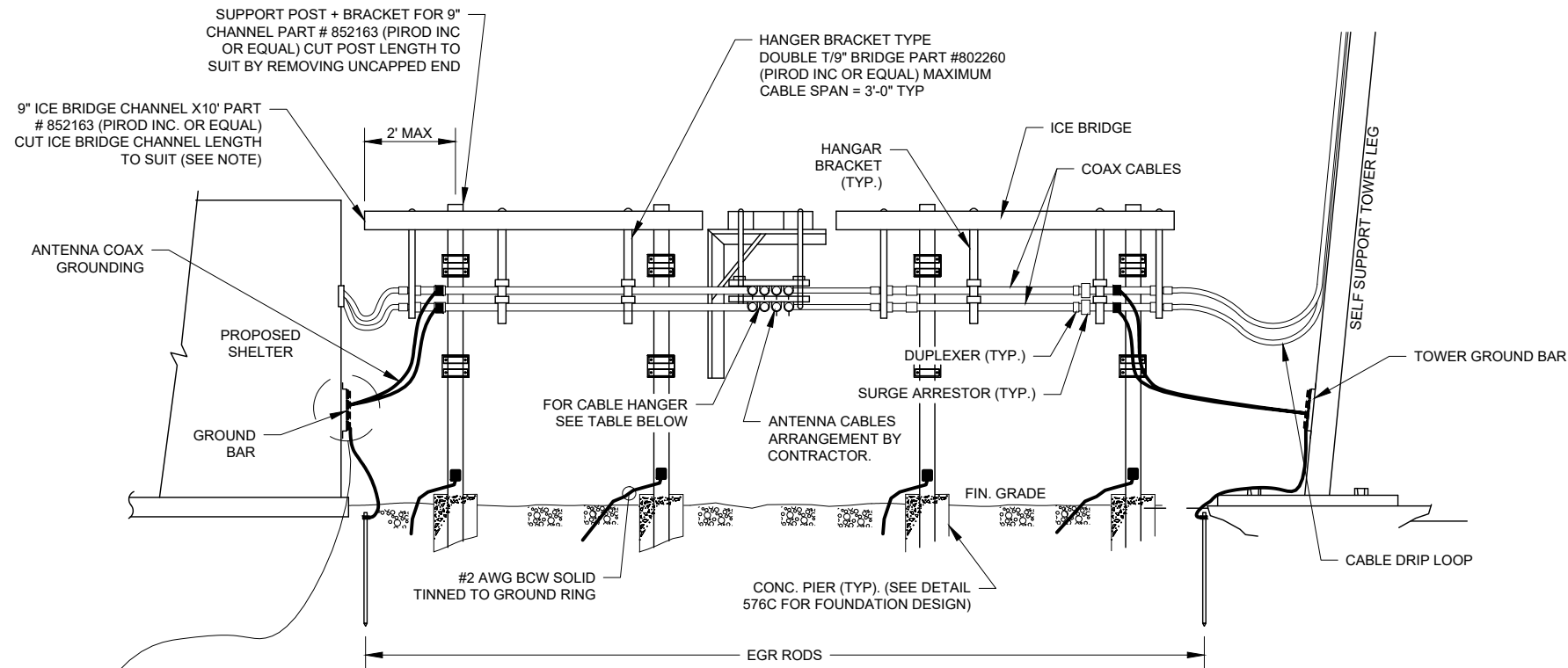
SHEET E-3

GROUNDING DETAILS

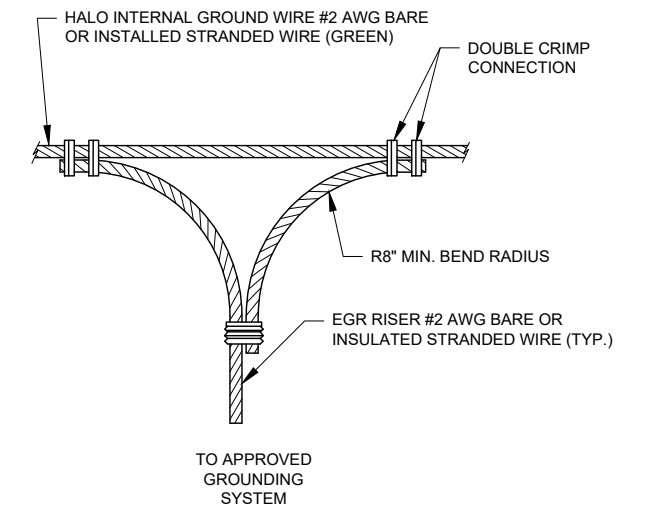
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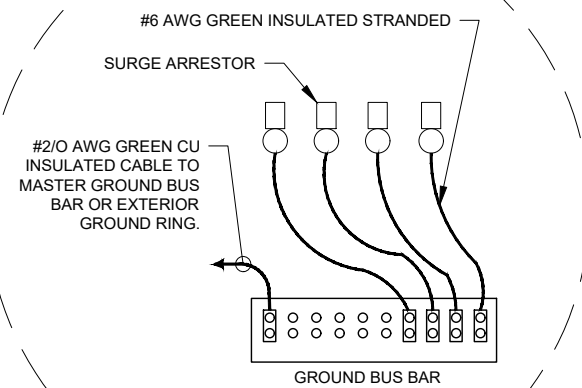




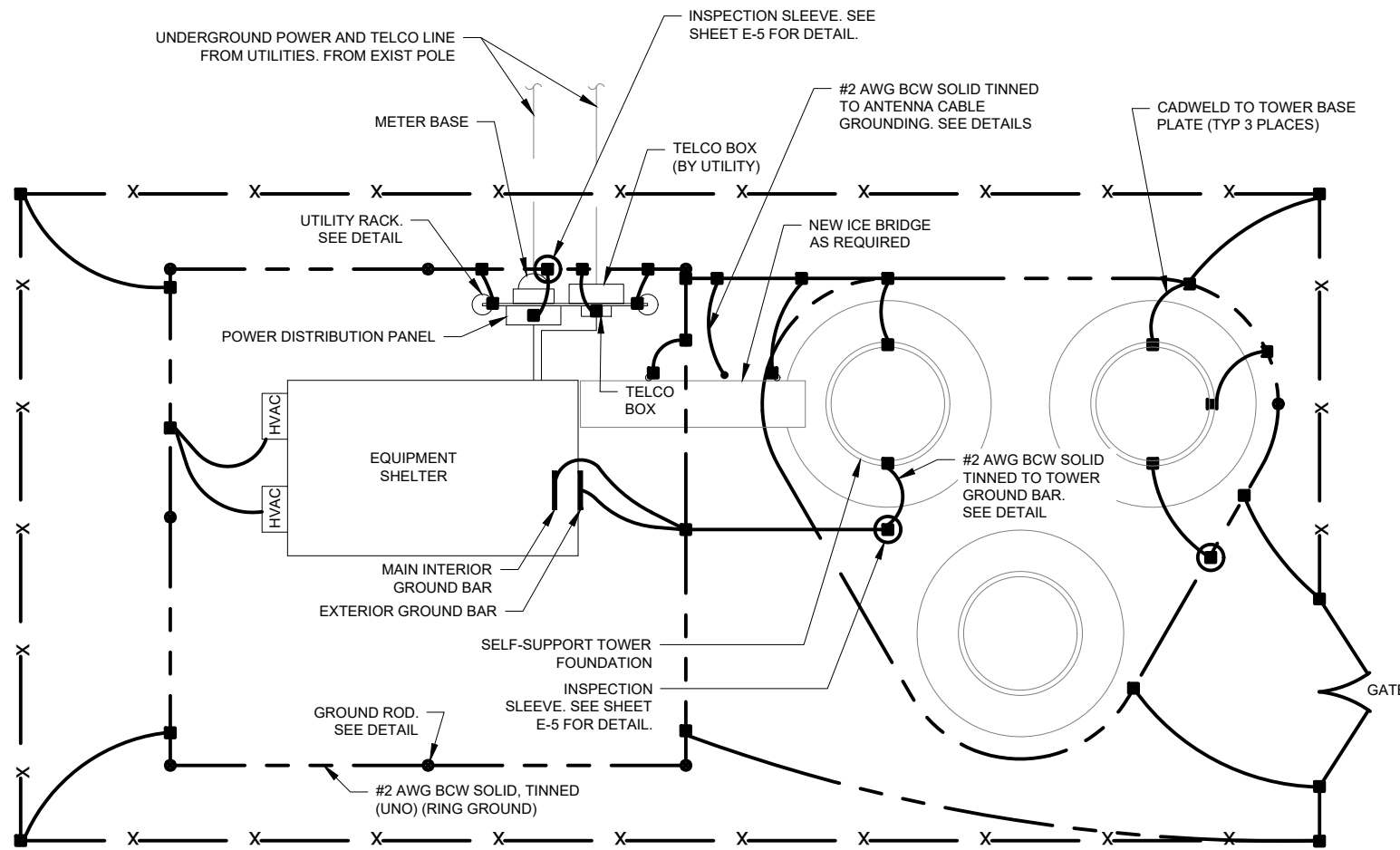
**INSPECTION SLEEVE DETAIL**  
NOT TO SCALE



**HALO NON-DIRECTIONAL GROUND RING SPLICE DETAIL**  
NOT TO SCALE



NOMINAL CABLE SIZE	CABLE TYPE NUMBER	CABLE HANGER TYPE NUMBER	MANUF. MIN. BEND RADIUS	MAX NO. OF CABLES/CND
1/2"	LDF4-50A	206706-1	5"	9
1/2"	FSJ4-50B	206706-1	1.25"	9
7/8"	LDF5-50A	206706-2	10"	3
1 1/4"	LDF6-50	206706-3	15"	1
1 5/8"	LDF7-50A	206706-4	20"	1



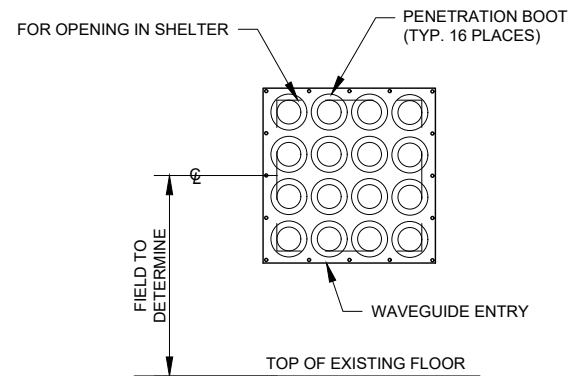
NOTE:  
THIS GROUNDING PLAN IS TYPICAL. SEE SHEET S-2 FOR ACTUAL EQUIPMENT LAYOUT.

**TYPICAL SELF-SUPPORT SITE GROUNDING PLAN**

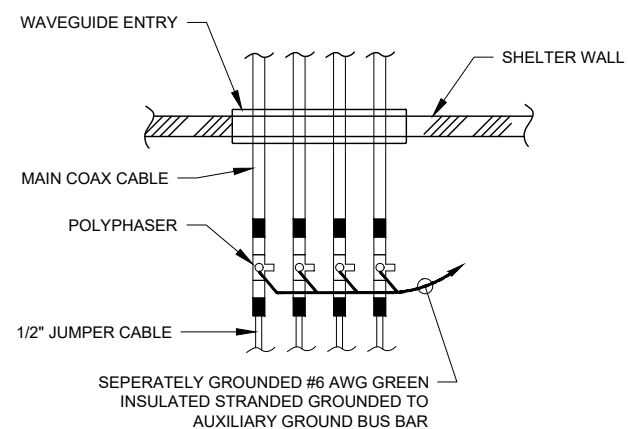
NOT TO SCALE

**GROUNDING NOTES**

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 10 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. INSTALL GROUND RODS FOR THE NEW GROUND RING. SEPARATION BETWEEN GROUND RODS SHOULD NOT BE LESS THAN THE LENGTH OF THE RODS NOR BE MORE THAN ONE AND ONE-HALF TIMES THE LENGTH OF THE RODS. CONNECT THE NEW RING TO EXISTING GROUND RING IN AT LEAST TWO SEPARATE PLACES.



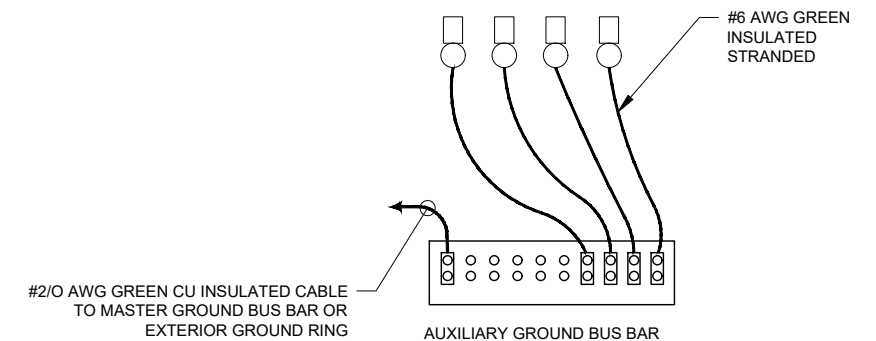
**ELEVATION**



**PLAN**

**POLYPHASER GROUNDING INSIDE SHELTER**

NOT TO SCALE



NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN			DESIGNED BY: MM		DRAWN BY: TLR