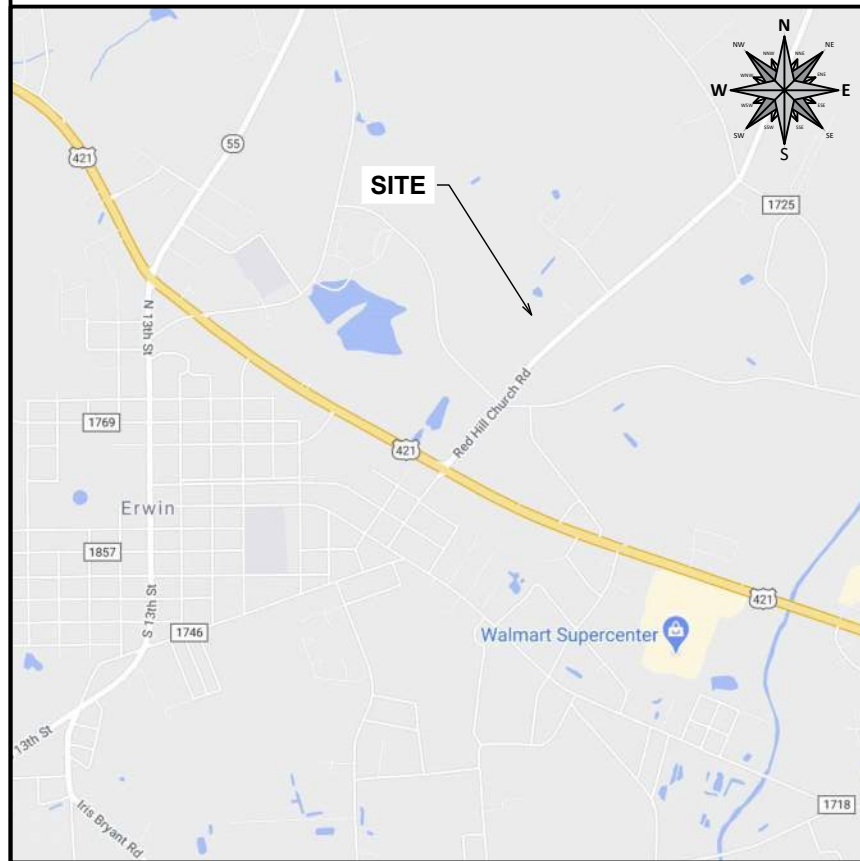


REGIONAL MAP



GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, THEREFORE HANDICAP ACCESS IS NOT REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SCOPE OF WORK

PROPOSED SCOPE OF WORK INCLUDES INSTALLATION OF A NEW 65'X55' COMPOUND WITH A NEW 300' SELF SUPPORT TOWER, NEW 13'X25' PREFABRICATED SHELTER, A NEW GENERATOR AND A NEW FUEL TANK.

CODE COMPLIANCE

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 FOLLOWING CODES:

- 2018 N.C BUILDING CODE (2015 IBC WITH N.C. AMENDMENTS)
- 2018 N.C FIRE CODE (2015 IFC WITH N.C. AMENDMENTS)
- 2018 N.C FUEL GAS CODE (2015 IFGC WITH N.C. AMENDMENTS)
- 2018 N.C MECHANICAL CODE (2015 IMC WITH N.C. AMENDMENTS)
- 2018 INTERNATIONAL PLUMBING CODE (2015 IPC WITH N.C. AMENDMENTS)
- 2018 INTERNATIONAL EXISTING BUILDING CODE (2015 IEBC WITH N.C. AMENDMENTS)
- 2017 N.C ELECTRICAL CODE (2017 NEC)



SITE NAME:
ERWIN RADIO BLDG
SITE NUMBER:
NCDUN017
SITE ADDRESS:
465 RED HILL CHURCH ROAD
DUNN, NC 28334
LATITUDE & LONGITUDE:
N 35° 20' 06.22", W 78° 39' 20.77"

INDEX OF SHEETS

SHEET #'S	SHEET TITLES
T-1	TITLE PAGE
1 OF 1	SURVEY
GN-1 : GN-3	GENERAL NOTES SHEETS
GN-4 : GN-7	NC APPENDIX B SHEETS
C-1.0	OVERALL SITE PLAN
C-1.1	TEMPORARY SITE PLAN
C-1.2	FINAL SITE PLAN
C-1.3	DETAILED SITE PLAN
C-1.4	DIMENSIONED SITE PLAN
C-2	TOWER ELEVATION
C-3.1	ANTENNA SCHEDULE
C-3.2	TRANSMISSION LINE SCHEDULE
C-3.3	ANTENNA LAYOUTS
C-3.4	ANTENNA LAYOUTS
C-4.1	SHELTER DETAILS
C-4.2	SHELTER FOUNDATION DETAILS
C-4.3	GENERATOR DETAILS
C-4.4	PROPANE TANK DETAILS
C-4.5	ICE BRIDGE DETAILS
C-4.6	FENCE DETAILS
E-1	ELECTRICAL NOTES
E-2	SHELTER PANEL SCHEDULE
E-3	ELECTRICAL PLAN
E-4	ONE-LINE DIAGRAM
E-5	ALARM WIRING DETAILS
E-6	FIBER ROUTING PLAN
G-1	GROUNDING PLANS
G-2	GROUNDING DETAILS I
G-3	GROUNDING DETAILS II
G-4	GROUNDING DETAILS III

SITE PHOTO



NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.

APPROVED
Limited building only review
Permit holder responsible for full compliance with the code

01/28/2021

SITE SUMMARY

SITE TYPE:	NEW CONSTRUCTION
STRUCTURE TYPE:	SELF SUPPORT
STRUCTURE OWNER:	DUKE ENERGY
ANTENNA SITE REG. NO.:	1310171
STRUCTURE HEIGHT (AGL):	308' ±
OCCUPANCY TYPE:	UTILITY & MISCELLANEOUS (U)
STRUCTURE LATITUDE:	N 35° 20' 06.22" (35.335061)
STRUCTURE LONGITUDE:	W 78° 39' 20.77" (-78.655769)
JURISDICTION:	HARNETT COUNTY
COUNTY:	HARNETT
PARCEL ID:	021507 9002
GROUND ELEV. (AMSL):	204'
POWER PROVIDER:	DUKE ENERGY
TELCO PROVIDER	TBD

PREPARED BY:



PREPARED FOR:



SITE NAME:

ERWIN RADIO BLDG

SITE NUMBER:

NCDUN017

SITE ADDRESS:
465 RED HILL CHURCH ROAD
DUNN, NC 28334

LATITUDE/LONGITUDE:
35.335061, -78.655769

SEAL:

FIRM #: P-1016



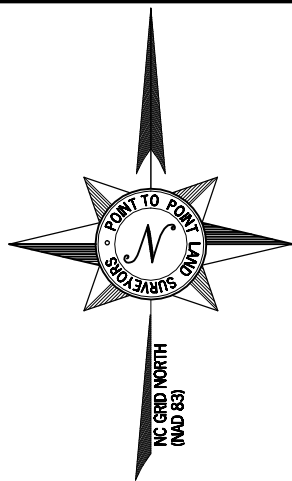
REV	DATE	DETAILS
0	11/05/2020	CONSTRUCTION
1	12/14/2020	CLIENT COMMENTS

DRAWN BY: HA CHECKED BY: AD

SHEET TITLE:

TITLE PAGE

SHEET # **T-1** CURRENT REV #: 1
ETS #: 204581.AE.02



PARENT PARCEL

OWNER: CAROLINA POWER AND LIGHT COMPANY (PER TAX ASSESSOR)
 SITE ADDRESS: 465 RED HILL CHURCH RD, DUNN, NC 28334
 PARCEL ID: 021507 9002
 AREA: 38.63 ACRES (PER TAX ASSESSOR)
 ZONED: M1 - INDUSTRIAL
 ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS

GPS NOTES

THE FOLLOWING GPS STATISTICS UPON WHICH THIS SURVEY IS BASED HAVE BEEN PRODUCED AT THE 95% CONFIDENCE LEVEL:
 POSITIONAL ACCURACY: 0.00 FEET (HORZ) 0.20 FEET (VERT)
 TYPE OF EQUIPMENT: GEOMAX ZENITH35 PRO BASE AND ROVER, DUAL FREQUENCY
 TYPE OF GPS FIELD PROCEDURE: ONLINE POSITION USER INTERFACE
 DATES OF SURVEY: 10/30/2020
 DATUM / EPOCH: NAD_83(2011)EPOCH:2010.0000
 PUBLISHED / FIXED CONTROL USE: N/A
 GEOID MODEL: 18
 COMBINED GRID FACTOR(S): 0.99986935
 CONVERGENCE ANGLE: 0.19912500"
 BENCHMARKS USED: DR4334, DK5550, AM7024

SITE INFORMATION

LATITUDE = 35°20'06.32" (NAD 83) (35.335089°)
 LONGITUDE = -78°39'20.74" (NAD 83) (-78.655761°)
 AT CENTER PROPOSED TOWER
 ELEVATION AT CENTER OF PROPOSED TOWER = 204.6' A.M.S.L.



VICINITY MAP
 NOT TO SCALE

GENERAL NOTES

* THIS SPECIFIC PURPOSE SURVEY WAS PREPARED FOR THE EXCLUSIVE USE OF ENGINEERED TOWER SOLUTIONS, PLLC. BOUNDARY INFORMATION SHOWN HEREON HAS BEEN COMPILED FROM TAX MAPS AND DEED DESCRIPTIONS ONLY. NO BOUNDARY SURVEY OF THE PARENT PARCEL WAS PERFORMED.

THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.

THIS SPECIFIC PURPOSE SURVEY WAS PREPARED WITHOUT BENEFIT OF A TITLE REPORT WHICH MAY REVEAL ADDITIONAL CONVEYANCES, EASEMENTS, OR RIGHTS-OF-WAY NOT SHOWN HEREON.

EQUIPMENT USED FOR ANGULAR & LINEAR MEASUREMENTS: LEICA TPS 1200 ROBOTIC & GEOMAX ZENITH 35. (DATE OF LAST FIELD VISIT: 10/30/2020)

THE 1' CONTOURS AND SPOT ELEVATIONS SHOWN ON THIS SPECIFIC PURPOSE SURVEY ARE ADJUSTED TO NAVD 88 DATUM (COMPUTED USING GEOID18) AND HAVE A VERTICAL ACCURACY OF ± 0.5'. CONTOURS OUTSIDE THE IMMEDIATE SITE AREA ARE APPROXIMATE.

BEARINGS SHOWN ON THIS SPECIFIC PURPOSE SURVEY ARE BASED ON NC GRID NORTH (NAD 83) NORTH CAROLINA ZONE.

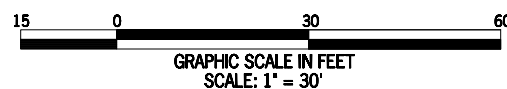
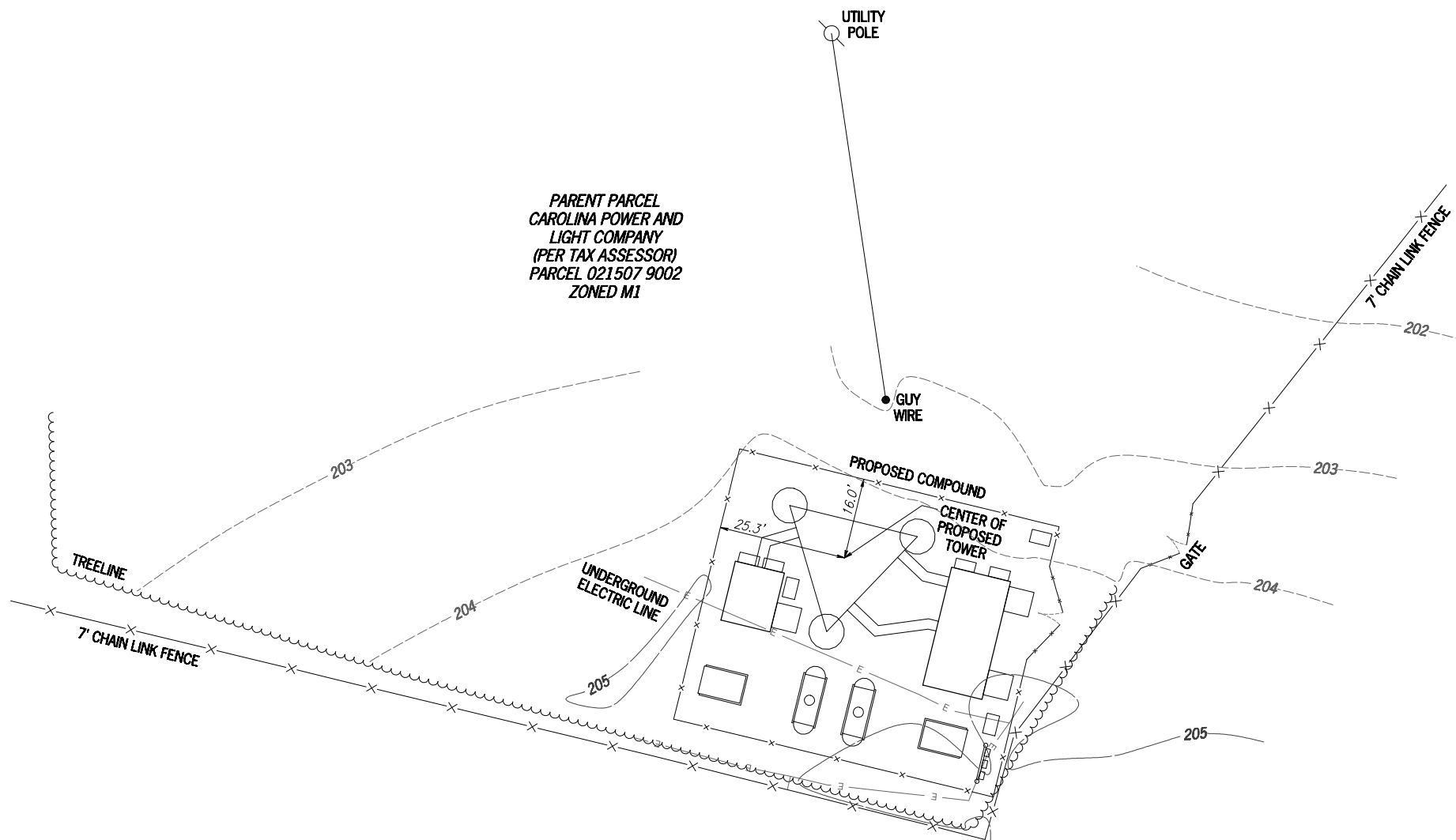
PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE X (AREA OF MINIMAL FLOOD HAZARD). COMMUNITY PANEL NO. : 3720150600J DATED: 10/03/2006

NO WETLAND AREAS HAVE BEEN INVESTIGATED BY THIS SPECIFIC PURPOSE SURVEY.

ALL ZONING INFORMATION SHOULD BE VERIFIED WITH THE PROPER ZONING OFFICIALS.

ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM ABOVE GROUND FIELD SURVEY INFORMATION. THE SURVEYOR MAKES NO GUARANTEES THAT ANY UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT ANY UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED ANY UNDERGROUND UTILITIES.

PARENT PARCEL
 CAROLINA POWER AND
 LIGHT COMPANY
 (PER TAX ASSESSOR)
 PARCEL 021507 9002
 ZONED M1



SURVEYOR CERTIFICATION

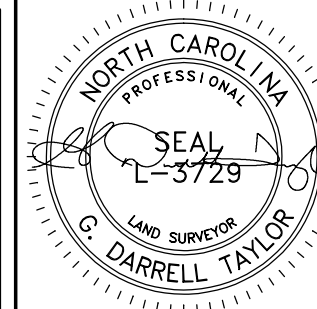
I HEREBY CERTIFY THAT THIS MAP IS CORRECT AND WAS DRAWN UNDER MY DIRECT SUPERVISION. ANY VISIBLE ENCROACHMENTS ARE SHOWN HEREON.

G. Darrell Taylor DATE: 11/05/2020
 G. DARRELL TAYLOR, NORTH CAROLINA PROFESSIONAL LAND SURVEYOR #L-3729
 POINT TO POINT LAND SURVEYORS, INC.

THIS MAP MAY NOT BE A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS AND HAS NOT BEEN REVIEWED FOR COMPLIANCE WITH RECORDING REQUIREMENTS FOR PLATS.

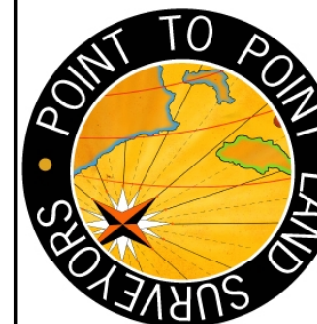


**Know what's below.
 Call before you dig.**



NO.	DATE	REVISION

* SPECIFIC PURPOSE SURVEY PREPARED BY:
POINT TO POINT LAND SURVEYORS
 Firm License Number: C-4145
 100 Governors' Trace, Ste. 103
 Peachtree City, GA 30269
 (p) 678.565.4440 (f) 678.565.4497
 (w) p2pls.com



SPECIFIC PURPOSE SURVEY PREPARED FOR:



ENGINEERED TOWER SOLUTIONS, PLLC
 8774 YATES DRIVE, SUITE 150
 WESTMINSTER, CO 80031

ERWIN

TOWNSHIP OF DUKE,
 HARNETT COUNTY, NORTH CAROLINA

DRAWN BY: AJT

CHECKED BY: JKL

APPROVED: D. MILLER

DATE: NOVEMBER 5, 2020

P2P JOB #: 201892NC

SHEET:

1

OF 1

E:\Databases\Point To Point\P2P Current Jobs\2020\201892NC-ERWIN\201892NC.dwg

GENERAL NOTES

1. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND CARRIER PROJECT SPECIFICATIONS.
2. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND SHALL CONFIRM THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED IN THESE DRAWINGS.
6. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISHED SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN IN THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
9. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
10. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
11. ERECTION SHALL BE DONE IN WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED IN THE DRAWINGS.
12. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
13. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK.
15. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
16. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
17. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
18. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
19. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
20. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NO LESS THAN 2-A OR 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.

GENERAL NOTES

21. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
22. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
23. THE AREAS OF THE OWNER'S 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.
24. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
25. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
26. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
27. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
28. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
29. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
30. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
31. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
32. STRUCTURE IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY CARRIER TECHNICIANS.
33. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
34. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST CARRIER GROUNDING STANDARD. IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
35. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
36. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
37. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
38. ALL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSITIA-222 OR APPLICABLE LOCAL CODES.
 41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
 42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
 43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
 44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
 45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
 46. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
- ### TORQUE REQUIREMENTS
47. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
 48. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
 - B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
 49. ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
 50. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
 51. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
 52. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4-29.8 NM).
 53. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7-2.3 NM).

PREPARED BY:



3227 WELLINGTON COURT
RALEIGH, NC 27615
o: 919-782-2710, f: 919-435-0631
www.engineeredtowersolutions.com

PREPARED FOR:




SITE NAME:
ERWIN RADIO BLDG

SITE NUMBER:
NCDUN017

SITE ADDRESS:
465 RED HILL CHURCH ROAD
DUNN, NC 28334

LATITUDE/LONGITUDE:
35.335061° -78.685769°

SEAL: FIRM #: P-1016



12/14/2020

REV	DATE	DETAILS
0	11/05/2020	CONSTRUCTION
1	12/14/2020	CLIENT COMMENTS

DRAWN BY: HA CHECKED BY: AD

SHEET TITLE:
GENERAL NOTES I

SHEET # **GN-1** CURRENT REV #: 1
ETS #: 204581.AE.02

DESIGN LOADS: **STRUCTURAL DESIGN**

Importance Factors: Wind (I_w) 1
 Snow (I_s) 1
 Seismic (I_E) 1

Live Loads: Roof 94 psf
 Mezzanine N/A psf
 Floor 196 psf

Snow Load: 111 psf

Wind Load: Basic Wind Speed 128 mph (ASCE-7-98)
 Exposure Category C
 Wind Base Shears (for MWFRS) $V_x = 77.39$ k $V_y = 0$ k

SEISMIC DESIGN CATEGORY A
 Compliance with Section 1616.4 only? Yes No

SEISMIC DESIGN CATEGORY B, C, & D
 Provide the following Seismic Design Parameters:
Seismic Use Group III
Spectral Response Acceleration S_{MS} 0.141 %g S_{M1} 0.103 %g
Site Classification B
Basic structural system (check one)
 Bearing Wall Dual w/Special Moment Frame
 Building Frame Dual w/Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum
Seismic base shear $V_x =$ N/A $V_y =$ N/A
Analysis Procedure Simplified Equivalent Lateral Force Modal
Architectural, Mechanical, Components anchored? N/A

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:
 Field Test (provide copy of test report) T.B.D psf
 Presumptive Bearing capacity T.B.D. psf
 Pile size, type, and capacity T.B.D.

PLUMBING FIXTURE REQUIREMENTS

OCCUPANCY	WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
	MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE

ACCESSIBLE PARKING

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
TOTAL					

NC Administration and Enforcement

33

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SBCCI, ICC, etc., describe below)

ENERGY SUMMARY

ENERGY REQUIREMENTS:
 The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If energy cost budget method, state the annual energy cost budget vs allowable annual energy cost budget.

THERMAL ENVELOPE

Method of Compliance:
 Prescriptive Performance Energy Cost Budget

Roof/ceiling Assembly (each assembly)
 Description of assembly **CONCRETE + PANELING & INSULATION**
 U-Value of total assembly **0.059**
 R-Value of insulation **16.901**
 Skylights in each assembly
 U-Value of skylight
 total square footage of skylights in each assembly

Exterior Walls (each assembly)
 Description of assembly **CONCRETE + PANELING & INSULATION**
 U-Value of total assembly **0.075**
 R-Value of insulation **13.266**
 Openings (windows or doors with glazing)
 U-Value of assembly
 shading coefficient
 projection factor
 low e required, if applicable
 Door R-Values **6.250**

Walls adjacent to unconditioned space (each assembly)
 Description of assembly
 U-Value of total assembly
 R-Value of insulation
 Openings (windows or doors with glazing)
 U-Value of assembly
 Low e required, if applicable
 Door R-Values

Walls below grade (each assembly)
 Description of assembly
 U-Value of total assembly
 R-Value of insulation

NC Administration and Enforcement

34

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 ENGINEERED TOWER
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 3227 WELLINGTON COURT
 RALEIGH, NC 27615
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 www.engineeredtowersolutions.com

PREPARED FOR:



SITE NAME:
ERWIN RADIO BLDG

SITE NUMBER:
NCDUN017

SITE ADDRESS:
 465 RED HILL CHURCH ROAD
 DUNN, NC 28334

LATITUDE/LONGITUDE:
 35.335061°, 78.655769°

SEAL: FIRM #: P-1016



12/14/2020

REV	DATE	DETAILS
0	11/05/2020	CONSTRUCTION
1	12/14/2020	CLIENT COMMENTS

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SHEET TITLE:
NC APPENDIX B III

SHEET # **GN-6** CURRENT REV #: 1
 ETS #: 204581.AE.02

Floors over unconditioned space (each assembly)

Description of assembly
U-Value of total assembly
R-Value of insulation

Floors slab on grade

Description of assembly **CONCRETE + TILE**
U-Value of total assembly **0.191**
R-Value of insulation **5.237**
Horizontal/vertical requirement
slab heated

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:

Prescriptive Performance Energy Cost Budget

Lighting schedule

lamp type required in fixture 32W FL
number of lamps in fixture 2
ballast type used in the fixture ELEC
number of ballasts in fixture 2
total wattage per fixture 60
total interior wattage specified vs allowed 600 VS 331 (ONLY LIT WHEN OCCUPIED)
total exterior wattage specified vs allowed

Equipment schedules with motors (not used for mechanical systems)

motor horsepower
number of phases
minimum efficiency
motor type
of poles

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Method of Compliance

Prescriptive Energy Cost Budget

Thermal Zone

winter dry bulb
summer dry bulb

Interior design conditions

winter dry bulb
summer dry bulb
relative humidity

NC Administration and E forceme

35

Building heating load

Building cooling load

Mechanical Spacing Conditioning System

Unitary
description of unit MARVAIR: AVPA48ACA050NU-100
heating efficiency
cooling efficiency 11.75 EER
heat output of unit
cooling output of unit 11,000-72,000 BTUH

Boiler
total boiler output. If oversized, state reason.
Chiller
total chiller capacity. If oversized, state reason.

List equipment efficiencies

Equipment schedules with motors (mechanical systems)

motor horsepower
number of phases SINGLE
minimum efficiency
motor type RECIPROCATING
of poles 2

NC Administration and Enforcement

36

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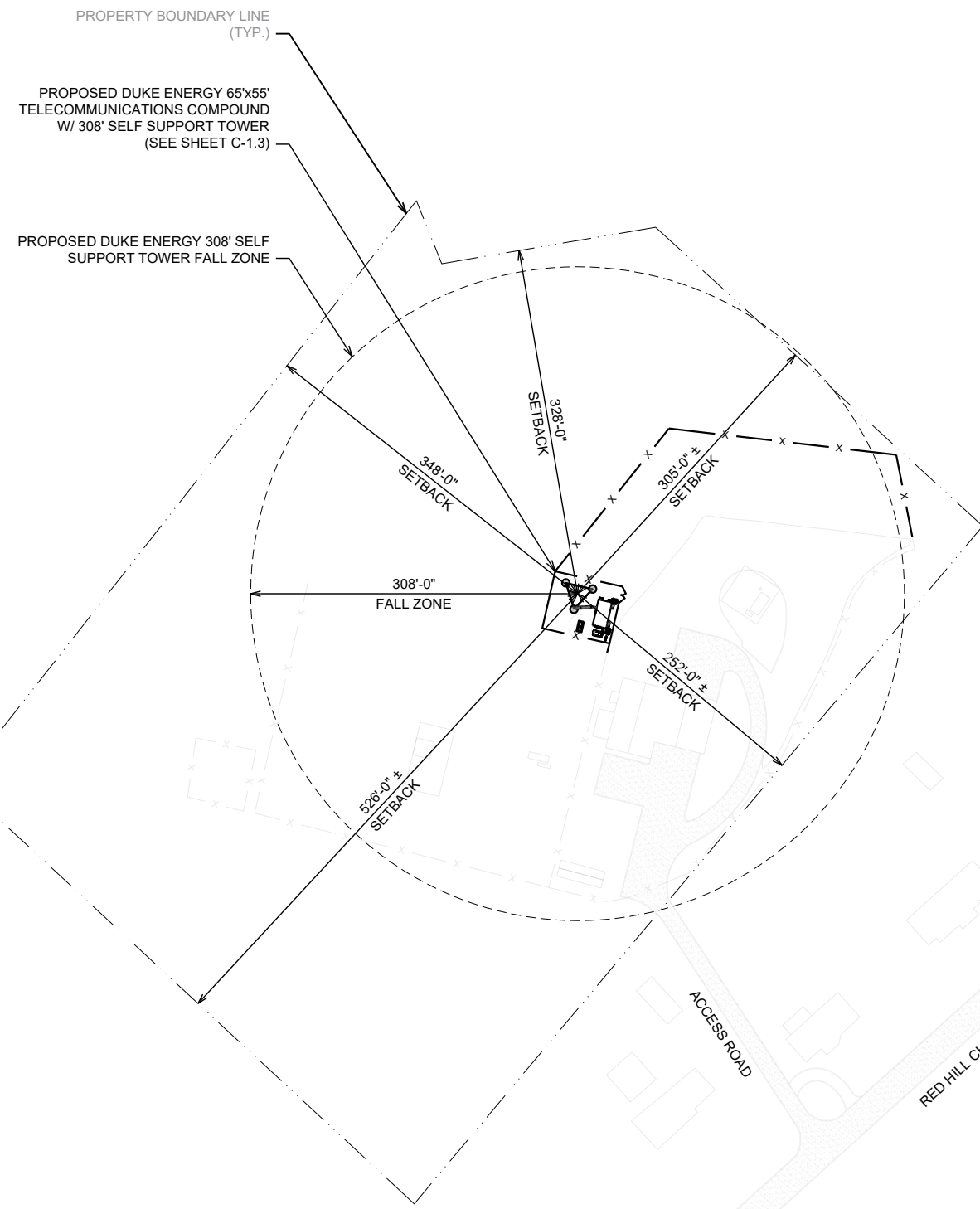
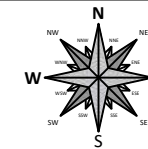
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1	12/14/2020	CLIENT COMMENTS

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SHEET TITLE:

NC APPENDIX B IV

SHEET # **GN-7** CURRENT REV #: 1
ETS #: 204581.AE.02



PROPERTY BOUNDARY LINE (TYP.)

PROPOSED DUKE ENERGY 65'x55' TELECOMMUNICATIONS COMPOUND W/ 308' SELF SUPPORT TOWER (SEE SHEET C-1.3)

PROPOSED DUKE ENERGY 308' SELF SUPPORT TOWER FALL ZONE

PROPOSED TOWER SETBACKS	
PROPERTY BOUNDARY LINE	DISTANCE
NORTH	328'-0" ±
NORTHEAST	305'-0" ±
SOUTHEAST	252'-0" ±
SOUTHWEST	526'-0" ±
NORTHWEST	348'-0" ±

OVERALL SITE PLAN
1" = 150'-0"

PREPARED BY:



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LATITUDE/LONGITUDE:
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SEAL:  FIRM #: P-1016
12/14/2020

REV	DATE	DETAILS
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SHEET TITLE:
OVERALL SITE PLAN

SHEET # **C-1.0** CURRENT REV #: 1
ETS #: 204581.AE.02

CONTRACTOR NOTES

- CONTRACTOR SHALL MAINTAIN UNINTERRUPTED ACCESS TO ALL DRIVEWAYS, SIDE STREETS, AND WALKWAYS AT ALL TIMES UNLESS OTHERWISE PERMITTED.
- CONTRACTOR SHALL PREPARE A MAINTENANCE OF TRAFFIC (M.O.T.) PLAN FOR PEDESTRIAN TRAFFIC AND WORK WITHIN THE PUBLIC RIGHT-OF-WAY, INCLUDING VEHICLE PARKING AND EQUIPMENT STAGING.
- CONTRACTOR SHALL RESTORE ANY DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER.
- PRIOR TO INSTALLATION THE CONTRACTOR SHALL VERIFY THE PROPOSED WORK IS LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR RESOLUTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION AND REPAIR OF ANY CONSTRUCTION PERFORMED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
- UNDERGROUND LOCATION AND FIELD VERIFICATION OF EXISTING UTILITIES SHALL BE COMPLETED PRIOR TO STARTING CONSTRUCTION.

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PREPARED FOR:

DUKE ENERGY

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SEAL: FIRM #: P-1016

12/14/2020

SITE MAP

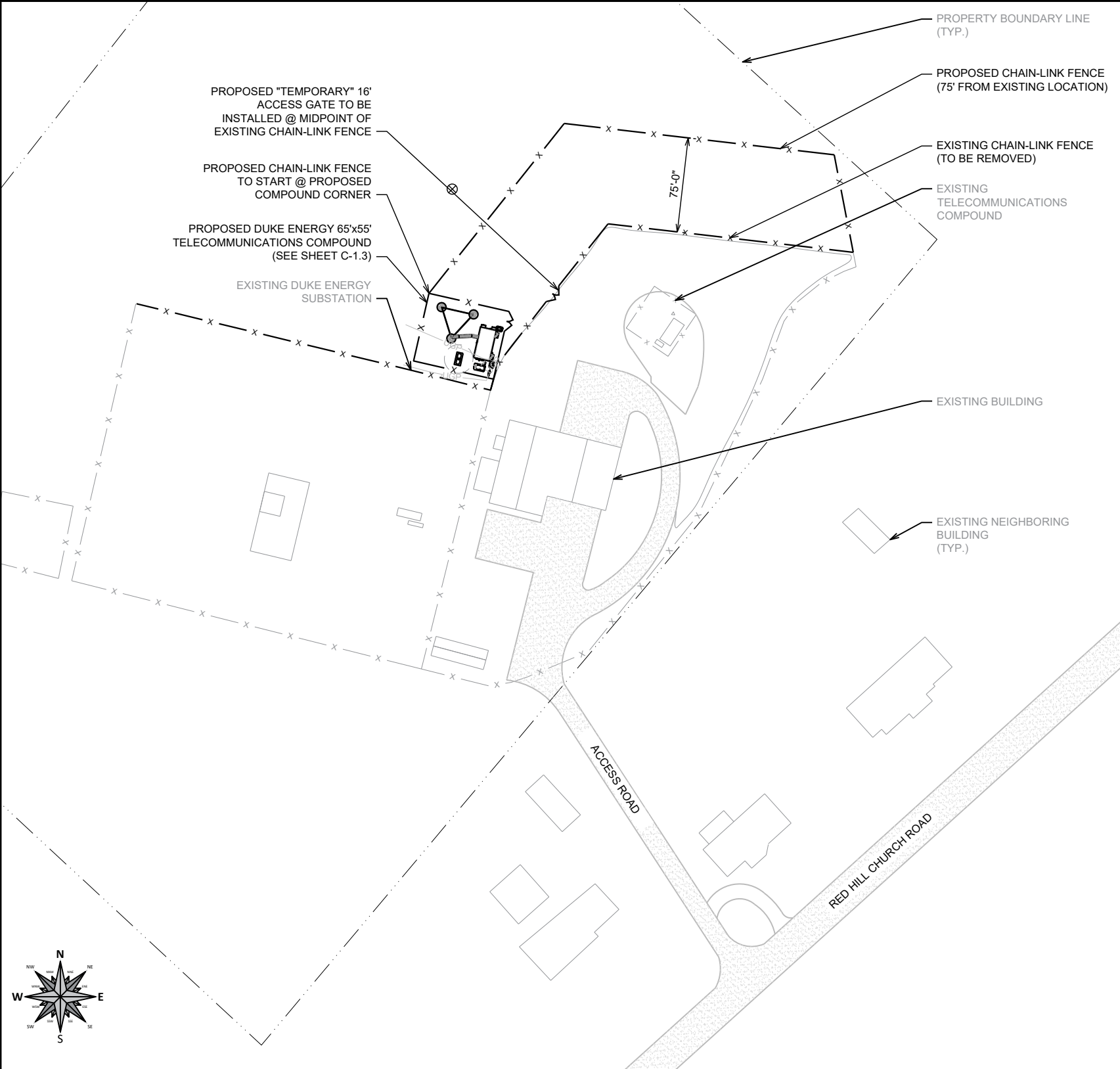


LEGEND

- | | |
|---|---|
| <p>--- EASEMENT</p> <p>..... PROPERTY LINE</p> <p>— GAS — UNDERGROUND GAS LINE</p> <p>—UGP— UNDERGROUND POWER</p> <p>—UGF— UNDERGROUND FIBER</p> <p>— □ — WOODEN FENCE</p> <p>— x — METAL FENCE</p> | <p> MAN-HOLE</p> <p> HYDRANT</p> <p> EXISTING UTILITY POLE</p> <p> PROPOSED UTILITY POLE</p> <p> EXISTING TRAFFIC LIGHT</p> <p> EXISTING LIGHT POLE</p> |
|---|---|

NOTES

SITE PLAN BASED ON SURVEY COMPLETED BY POINT TO POINT LAND SURVEYING.



TEMPORARY SITE PLAN

1" = 100'-0"

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1	12/14/2020	CLIENT COMMENTS

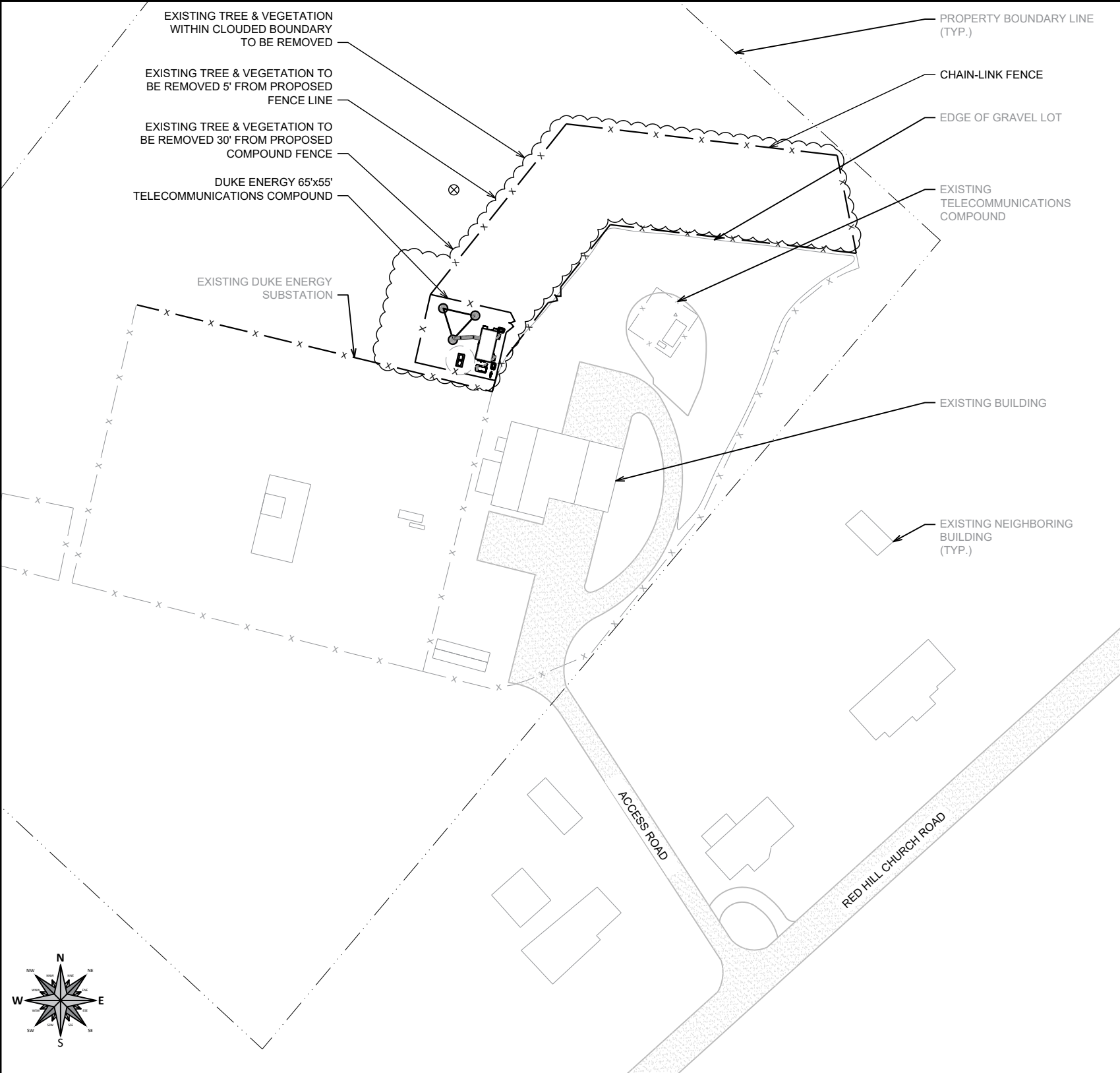
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SHEET TITLE:
TEMPORARY SITE PLAN

SHEET # **C-1.1** CURRENT REV #: 1
ETS #: 204581.AE.02

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FINAL SITE PLAN

1" = 100'-0"

SITE MAP



LEGEND

- - - - - EASEMENT
- PROPERTY LINE
- GAS — UNDERGROUND GAS LINE
- UGP — UNDERGROUND POWER
- UGF — UNDERGROUND FIBER
- □ — WOODEN FENCE
- x — METAL FENCE
- ⊗ MAN-HOLE
- ⊕ HYDRANT
- ⊗ EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- Ⓣ EXISTING TRAFFIC LIGHT
- Ⓛ EXISTING LIGHT POLE

NOTES

SITE PLAN BASED ON SURVEY COMPLETED BY POINT TO POINT LAND SURVEYING.

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PREPARED FOR:



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LATITUDE/LONGITUDE:
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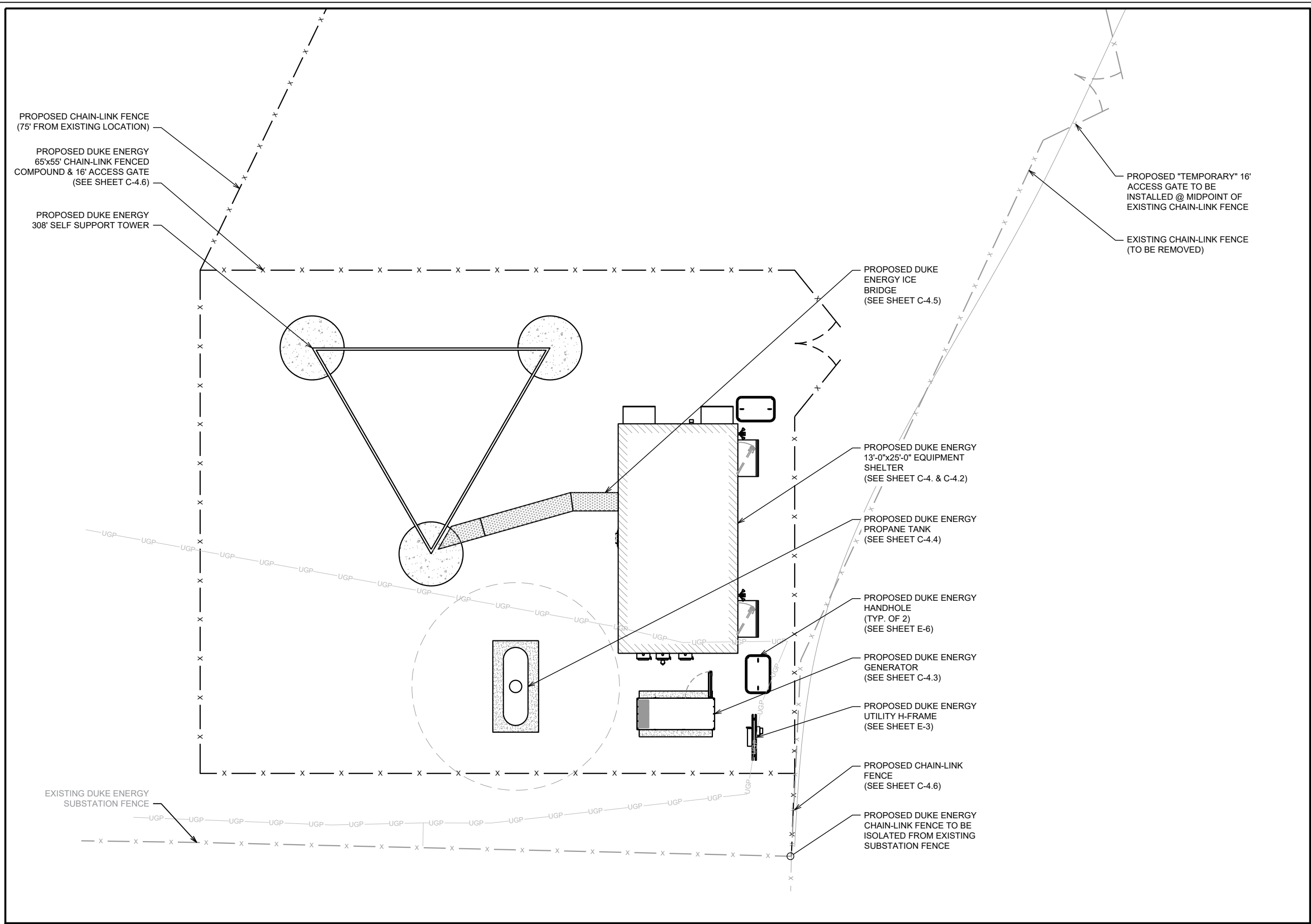
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SHEET TITLE:

FINAL SITE PLAN

SHEET # **C-1.2** | CURRENT REV #: 1
ETS #: 204581.AE.02



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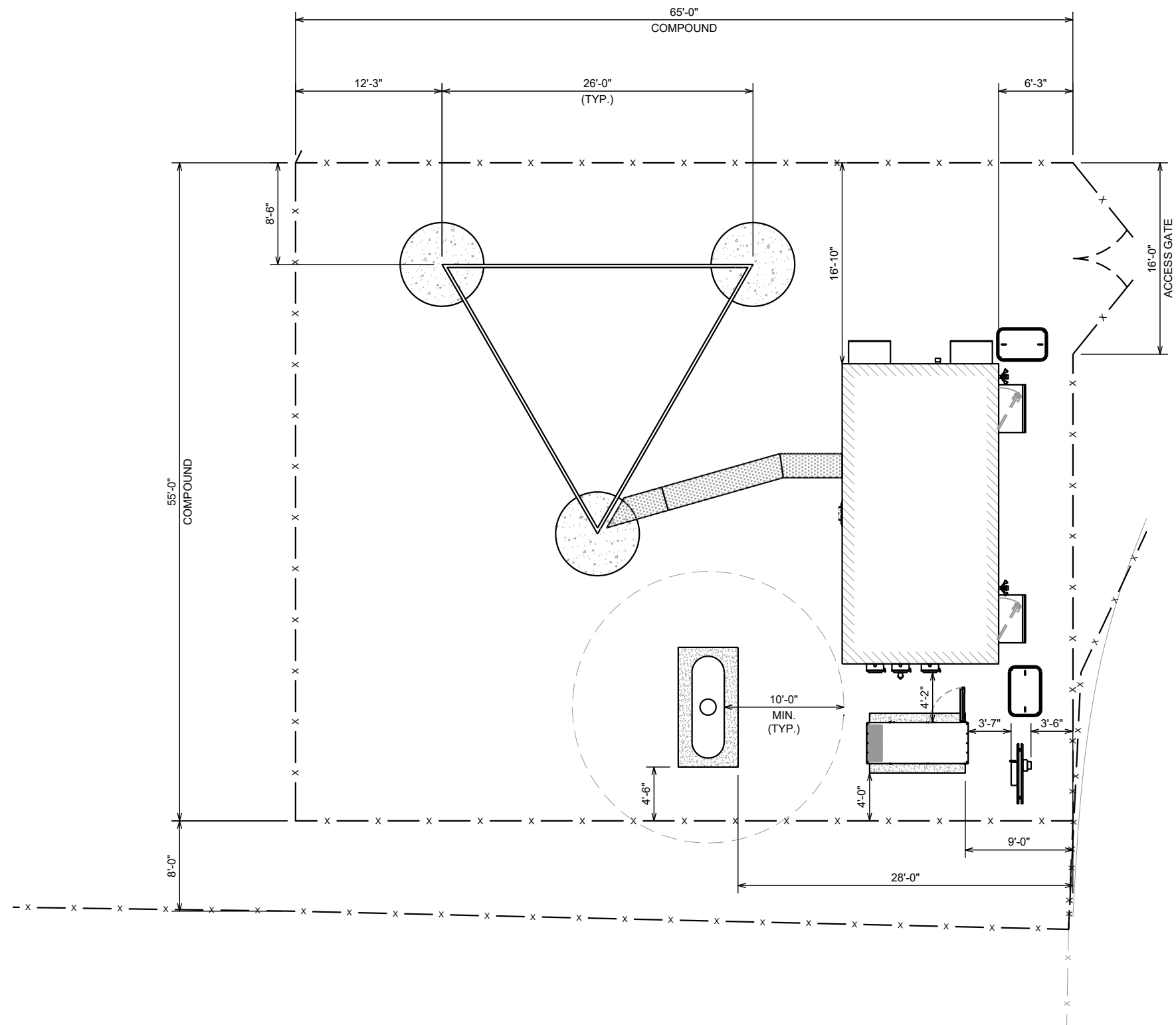
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SHEET TITLE:
DETAILED SITE PLAN

SHEET # **C-1.3** CURRENT REV #: 1
 ETS #: 204581.AE.02

DETAILED SITE PLAN
 3/32" = 1'-0"



DIMENSIONED SITE PLAN

3/32" = 1'-0"

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PREPARED FOR:



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ERWIN RADIO BLDG

SITE NUMBER:

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SITE ADDRESS:

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LATITUDE/LONGITUDE:

35.335061°, -76.657769°

SEAL:

FIRM #: P-1016



REV	DATE	DETAILS
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SHEET TITLE:
DIMENSIONED SITE PLAN

SHEET # **C-1.4** CURRENT REV #: 1
ETS #: 204581.AE.02

PROPOSED ANTENNA SCHEDULE

OWNER	SYSTEM	SIZE (FT)	TYPE	MANUFACTURE	PART #	ELEV. (FT)	LOC.	AZ.	FREQ.	FCC LICENSE	TRANSMIT POWER	MOUNT
DUKE	AIR TERMINAL	10	--	--	--	308	--	--	--	--	--	PIPE
DUKE	LIGHTING	--	FLASHHEAD	FLASH TECH.	FH370D	308	TOP	--	--	--	--	--
DUKE	800 MHz P25 (RX)	14.5	OMNI	DBSPECTRA	DS8A10P36U-D	292	B	--	806-869	NEW	--	6' SIDE ARM
DUKE	800 MHz P25	2	TTA	DBSPECTRA	DS7TMD17C	292	B	--	--	--	--	LEG
DUKE	900 MHz WAN TRUNKING (RX)	14.7	OMNI	DBSPECTRA	DS9A10P36U-D	292	C	--	896-900	--	--	6' SIDE ARM
DUKE	900MHz WAN TRUNKING (RX)	2	TTA	DBSPECTRA	DS9TMD5C	292	C	--	--	--	--	LEG
DUKE	VHF PAGING	21	FOLDED DIPOLE	COMMSCOPE	DB224-A	255	A	--	150-160	--	--	6' SIDE ARM
DUKE	800 MHz P25 (TX)	14.5	OMNI	DBSPECTRA	DS8A10P36U-D	255	B	--	806-869	NEW	--	6' SIDE ARM
DUKE	900 MHz WAN TRUNKING (TX)	14.7	OMNI	DBSPECTRA	DS9A10P36U-D	255	C	--	935-939	-	100	6' SIDE ARM
NCSHP	PUBLIC SAFETY 800MHz (RX)	15	OMNI	RFI	CC807-11	225	B	--	--	--	--	6' SIDE ARM
NCSHP	PUBLIC SAFETY 800MHz (TTA)	2	TTA	TXRX	--	225	B	--	--	--	--	LEG
DUKE	CAMBIUM RADIO	2	INTEGRATED HIGH GAIN	CAMBIUM	(2) PMP 450m	220	A	90°, 180°	5 GHz	--	--	2' STANDOFF
DUKE	CAMBIUM RADIO	2	INTEGRATED HIGH GAIN	CAMBIUM	(2) PMP 450m	220	C	0°, 270°	5 GHz	--	--	2' STANDOFF
NCSHP	PUBLIC SAFETY 800MHz (TX)	15	OMNI	RFI	CC807-11	200	B	--	--	--	--	6' SIDE ARM
--	FUTURE	6	DISH	RFS	PADX6-W57AC	195	A	--	6	--	--	PIPE
--	FUTURE	6	DISH	RFS	PADX6-W57AC	195	B	--	6	--	--	PIPE
--	FUTURE	6	DISH	RFS	PADX6-W57AC	195	C	--	6	--	--	PIPE
--	FUTURE LTE	8	4 PANEL, 3 SEC	CSS	VARIOUS	185	A,B,C	--	--	--	--	--
--	FUTURE LTE	8	4 PANEL, 3 SEC	CSS	VARIOUS	160	A,B,C	--	--	--	--	--
DUKE	LIGHTING	--	MARKER	FLASH TECH.	L-810 MARKER	150	A	--	--	--	--	--
DUKE	LIGHTING	--	MARKER	FLASH TECH.	L-810 MARKER	150	B	--	--	--	--	--
DUKE	LIGHTING	--	MARKER	FLASH TECH.	L-810 MARKER	150	C	--	--	--	--	--
NCSHP	FUTURE MW	6	DISH	RFS	PAD6-65B	140	A	63.32	--	--	--	--
NCSHP	PUBLIC SAFETY MICROWAVE	6	DISH	ANDREW	PL6-65-PXA	130	B	234.8	--	--	--	--
DUKE	MOSCAD HARRIS SIREN CONTROL	2	YAGI	DECIBEL	DB436	98	C	303	451-457	--	5	LEG

- NOTES:
- VERIFY FINAL DESIGN AND LOADING WITH DUKE ENERGY PRIOR TO CONSTRUCTION
 - VERIFY FINAL DESIGN AND LOADING WITH STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTION

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SITE NAME:
ERWIN RADIO BLDG

SITE NUMBER:
NCDUN017

SITE ADDRESS:
465 RED HILL CHURCH ROAD
DUNN, NC 28334

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12/14/2020

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SHEET TITLE:
ANTENNA SCHEDULE

SHEET # **C-3.1** CURRENT REV #: 1
ETS #: 204581.AE.02

PROPOSED TRANSMISSION LINE SCHEDULE

OWNER	LOCATION	SIZE	DIELECTRIC	MANUFACTURE	PART #
DUKE	--	--	--	--	--
DUKE	--	2/C #6 AWG	--	FLASH TECH.	TEK90
DUKE	--	(1) 1/2" JUMPER TO TTA	FOAM	EUPEN	EC4-50
DUKE	--	(1) 7/8" (1) 1/2"	FOAM	EUPEN	EC5-50A EC4-50
DUKE	AB	(1) 1/2" JUMPER TO TTA	FOAM	EUPEN	EC4-50A
DUKE	AB	(1) 7/8" (1) 1/2"	FOAM	EUPEN	EC5-50A EC4-50
DUKE	--	(1) 7/8"	FOAM	EUPEN	EC5-50A
DUKE	--	(1) 1-5/8"	FOAM	EUPEN	EC7-50A
DUKE	AB	(1) 1-5/8"	FOAM	EUPEN	EC7-50A
NCSHP	--	(1) 7/8"	FOAM	EUPEN	EC5-50A
NCSHP	--	(1) 7/8" (1) 1/2"	FOAM	EUPEN	EC5-50A EC4-50A
DUKE	--	(2) CAT 5E	COPPER	SUPERIOR ESSEX	CAT5E
DUKE	--	(2) CAT 5E	COPPER	SUPERIOR ESSEX	CAT5E
NCSHP	--	(1) 1-5/8"	FOAM	EUPEN	EC7-50A
FUTURE	--	(2) EU63	AIR	EUPEN	EU63
FUTURE	--	(2) EU63	AIR	EUPEN	EU63
FUTURE	--	(2) EU63	AIR	EUPEN	EU63
FUTURE	--	(15) 1-5/8"	FOAM	EUPEN	EC7-50A
FUTURE	--	(15) 1-5/8"	FOAM	EUPEN	EC7-50A
DUKE	--	2/C #6 AWG	--	FLASH TECH.	TEK90
DUKE	--	2/C #6 AWG	--	FLASH TECH.	TEK90
DUKE	--	2/C #6 AWG	--	FLASH TECH.	TEK90
NCSHP - FUTURE	--	--	--	--	--
NCSHP	--	(1) EW63	AIR	ANDREW	EW63
DUKE	--	(1) 1/2"	FOAM	EUPEN	EC4-50A

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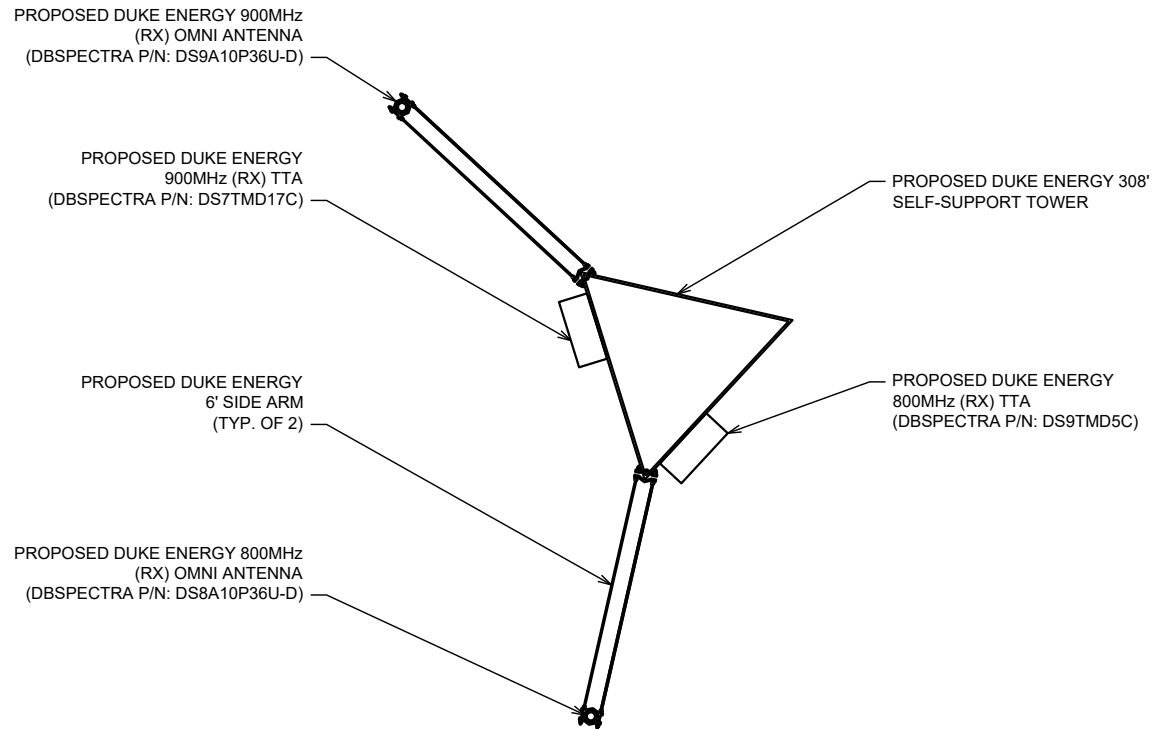
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SHEET TITLE:
TRANSMISSION LINE SCHEDULE

SHEET # **C-3.2** CURRENT REV #: 1
ETS #: 204581.AE.02

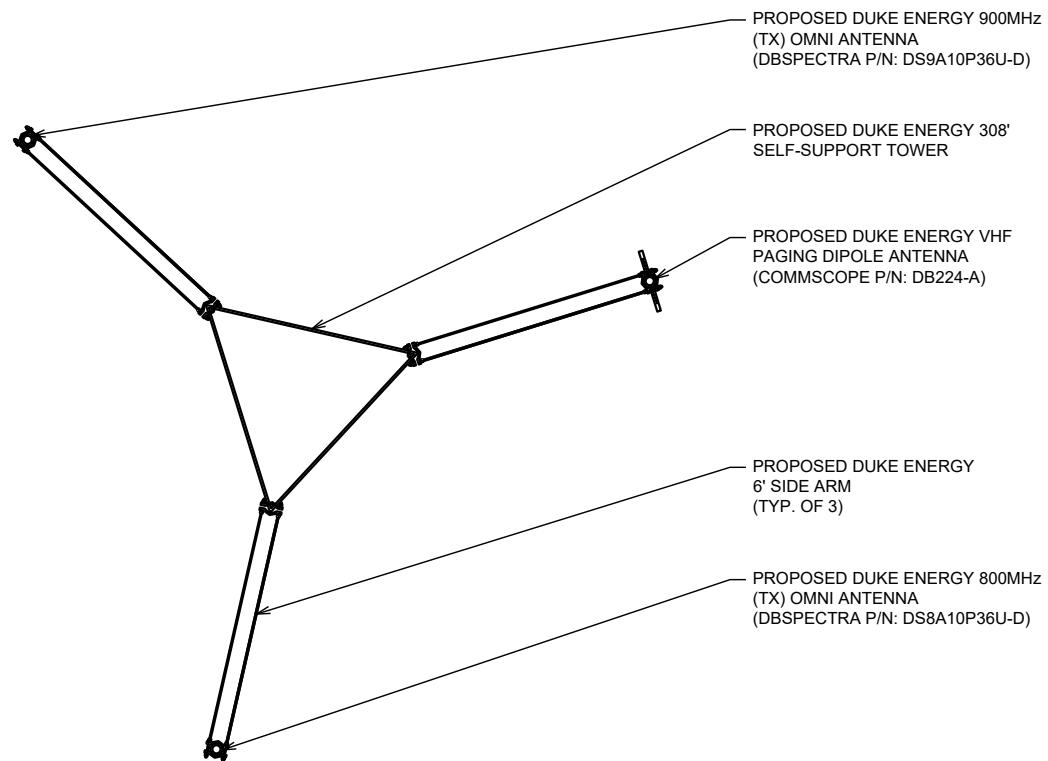
NOTES:

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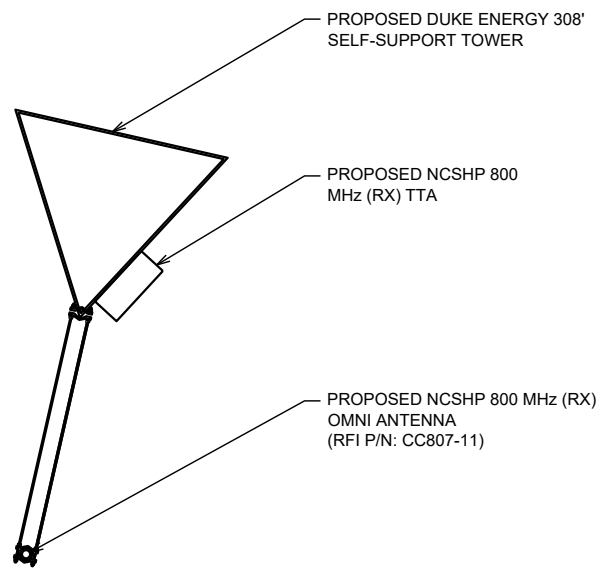
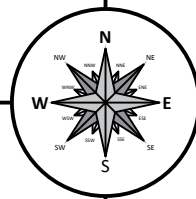
ANTENNA LAYOUT @ 292'

1/4" = 1'-0"



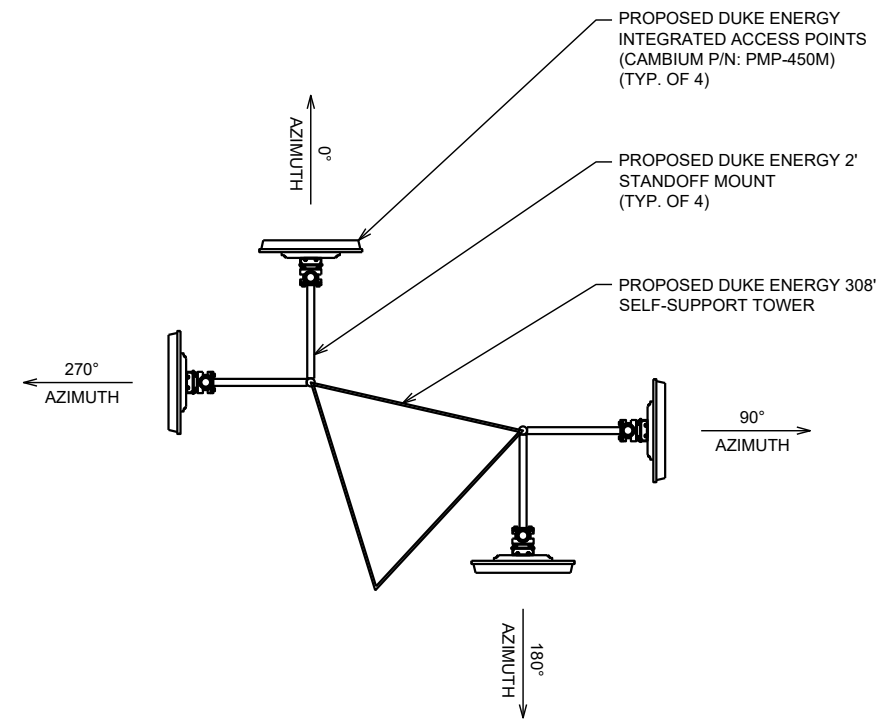
ANTENNA LAYOUT @ 255'

1/4" = 1'-0"



ANTENNA LAYOUT @ 225'

1/4" = 1'-0"



ANTENNA LAYOUT @ 220'

1/4" = 1'-0"

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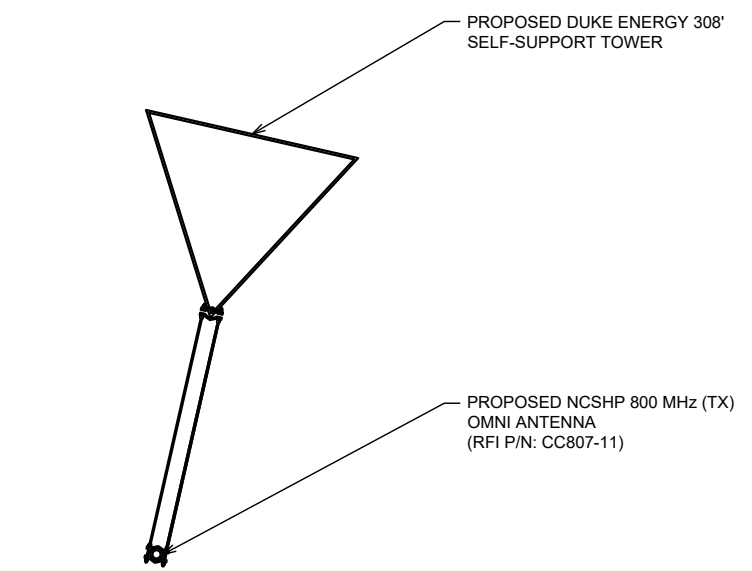
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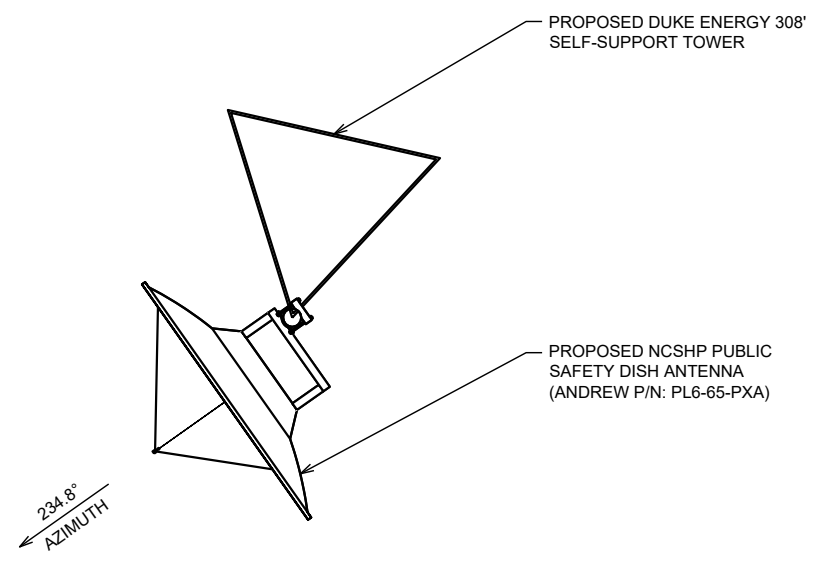
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SHEET TITLE:
ANTENNA LAYOUTS

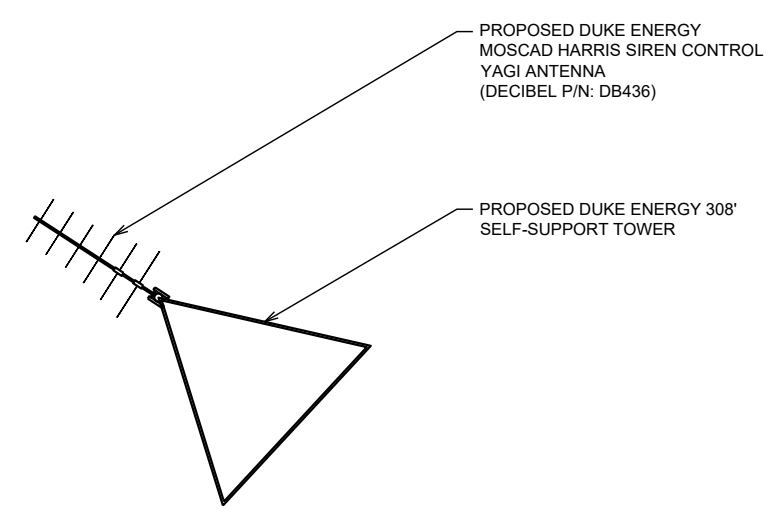
SHEET # **C-3.3** | CURRENT REV #: 1
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ANTENNA LAYOUT @ 200'
1/4" = 1'-0"

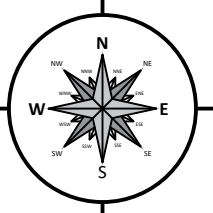


ANTENNA LAYOUT @ 130'
1/4" = 1'-0"



ANTENNA LAYOUT @ 98'
1/4" = 1'-0"

NOT USED
N.T.S.



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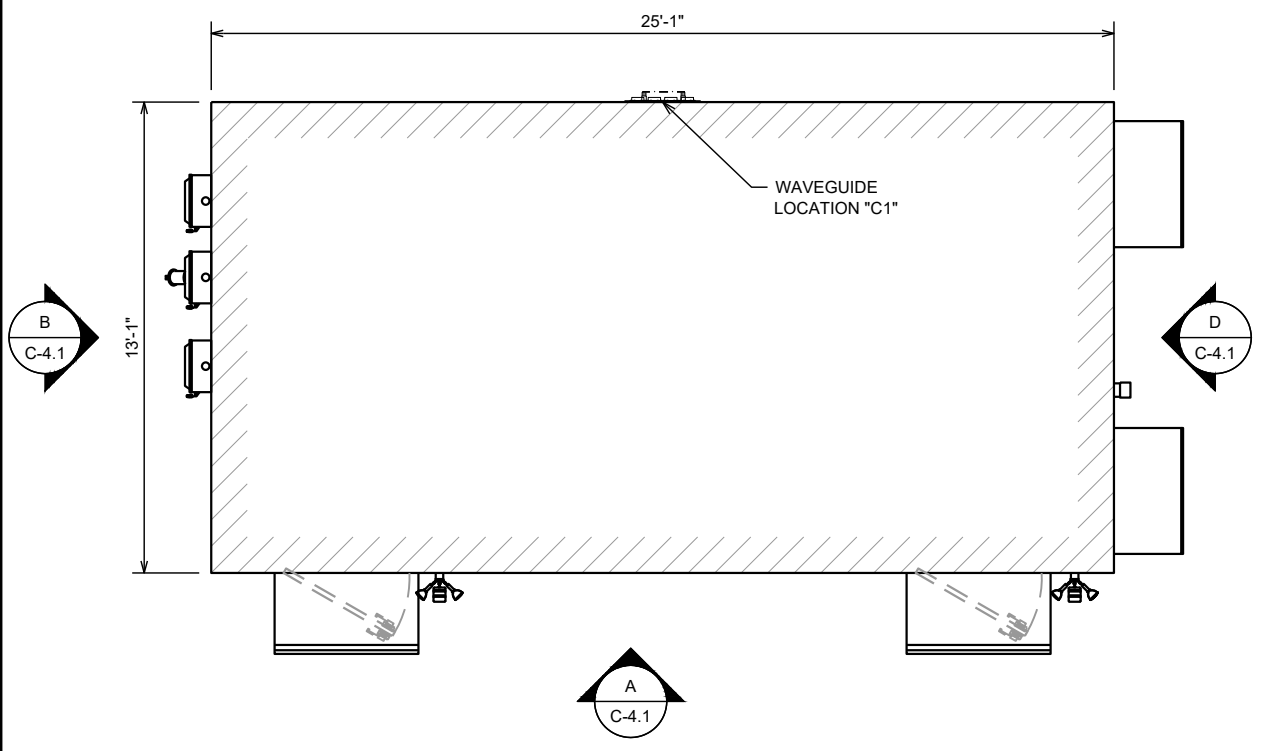
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1	12/14/2020	CLIENT COMMENTS

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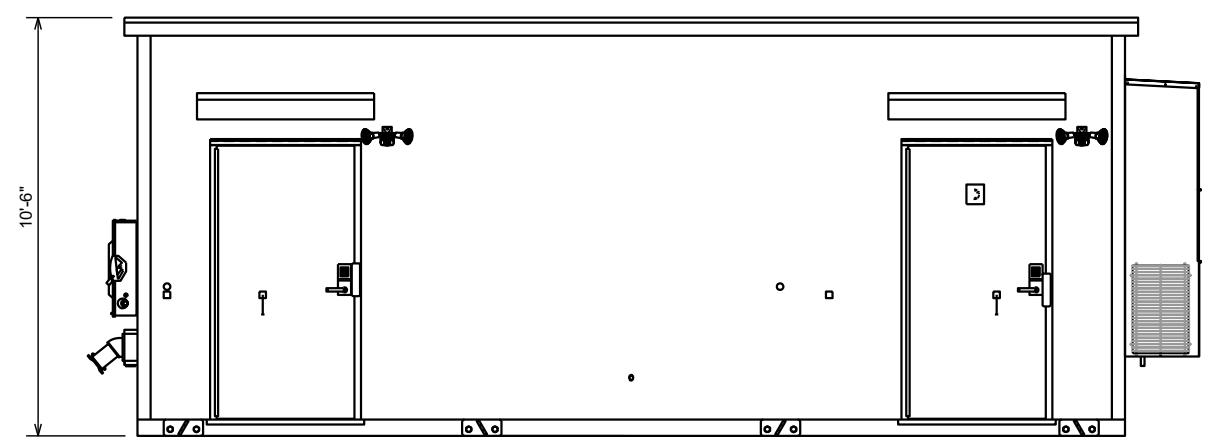
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ANTENNA LAYOUTS

SHEET # **C-3.4** CURRENT REV #: 1
 ETS #: 204581.AE.02

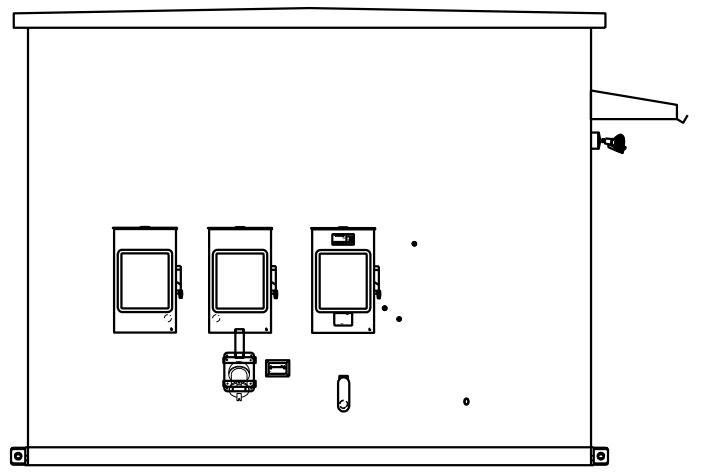
SABRE INDUSTRIES - SDUK13
 • PREFABRICATED SHELTER
 • WAVEGUIDE LOCATION "C1"



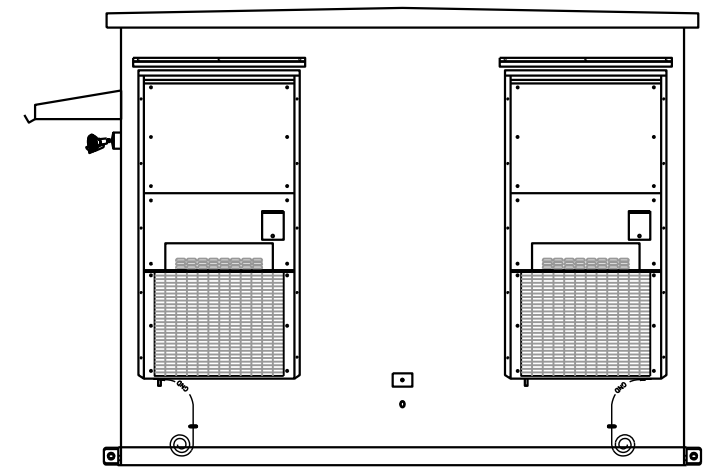
PLAN VIEW
N.T.S.



ELEVATION A
N.T.S.



ELEVATION B
N.T.S.



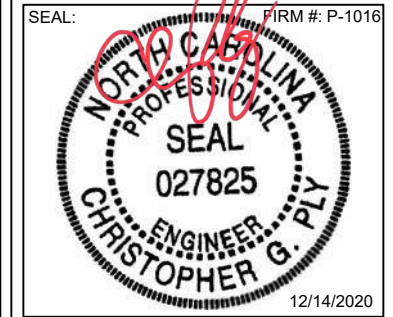
ELEVATION D
N.T.S.

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 RALEIGH, NC 27615
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 www.engineeredtowersolutions.com

PREPARED FOR:


SITE NAME:
ERWIN RADIO BLDG
 SITE NUMBER:
NCDUN017
 SITE ADDRESS:
 465 RED HILL CHURCH ROAD
 DUNN, NC 28334
 LATITUDE/LONGITUDE:
 35.335061° -78.635769°



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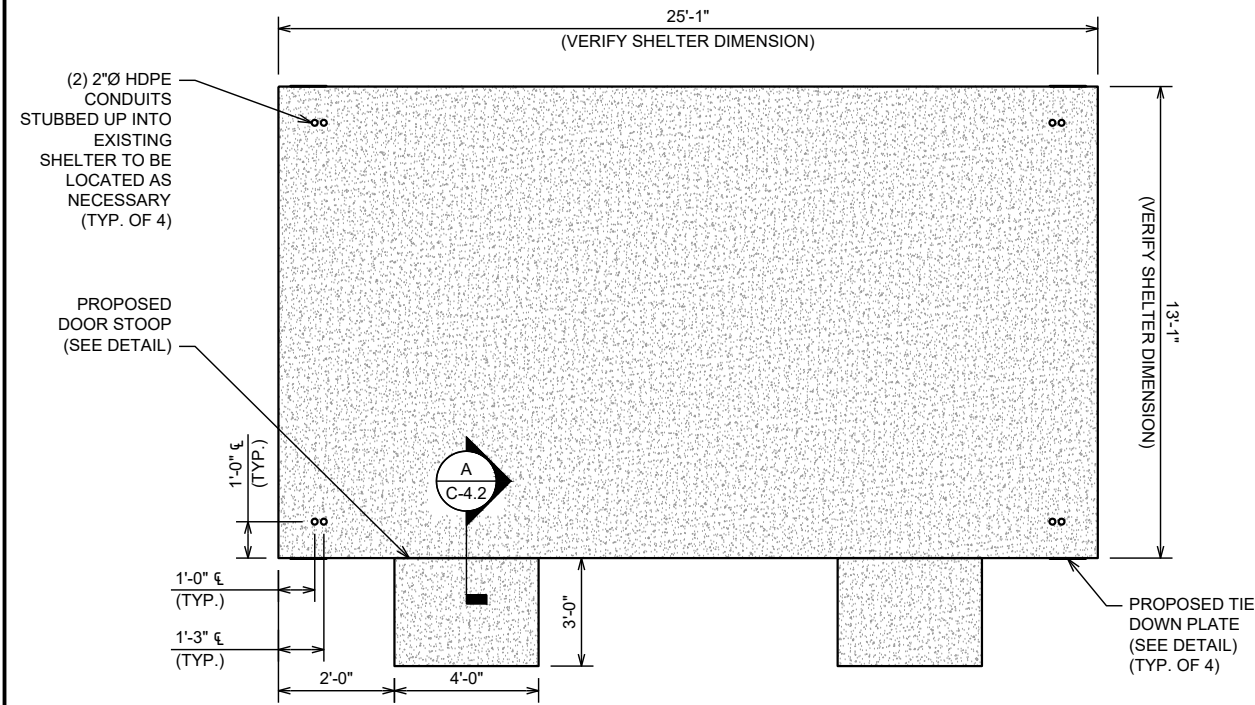
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SHEET TITLE:
SHELTER DETAILS

SHEET # **C-4.1** CURRENT REV #: 1
 ETS #: 204581.AE.02

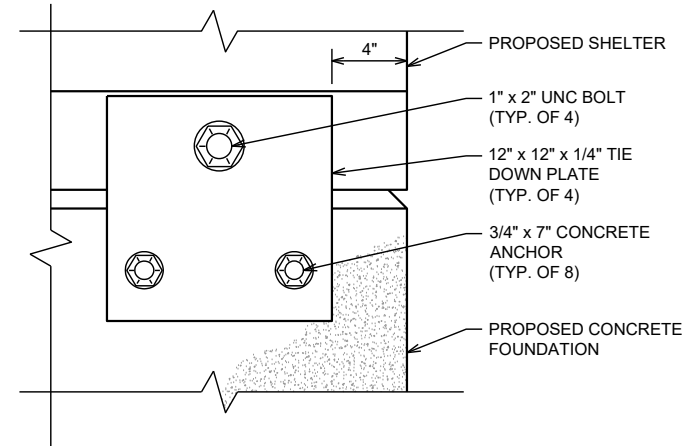
NOTES

- SURFACE OF FINISHED SLAB SHALL BE LEVEL AND FLAT WITHIN 1/4"
- CONTRACTOR TO VERIFY WITH MANUFACTURER ACTUAL DIMENSIONS OF SHELTER PRIOR TO LAYING FOUNDATION
- SEE SHEET GN-3 FOR CONCRETE AND FOUNDATION NOTES



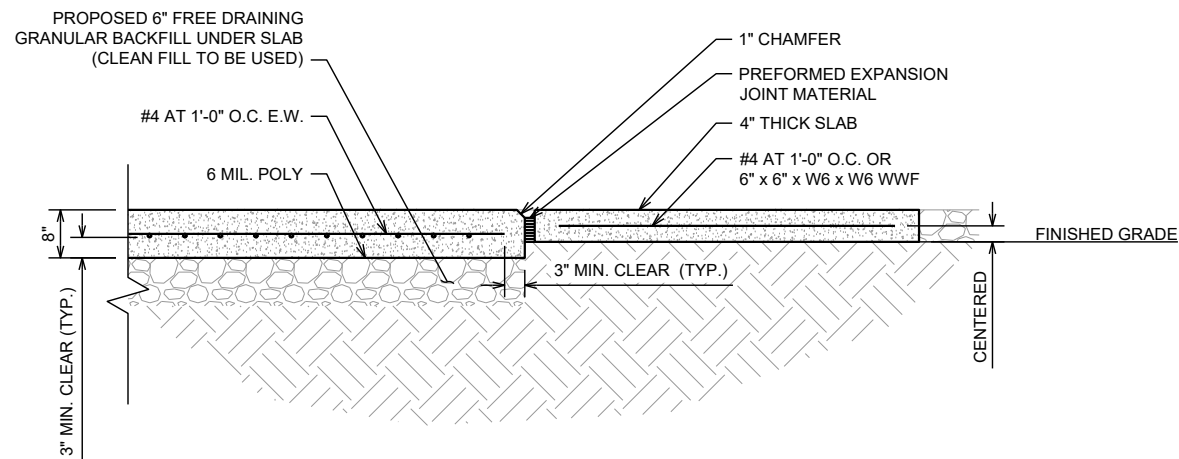
SHELTER CONCRETE FOUNDATION PLAN

N.T.S.



SHELTER TIE DOWN PLATE DETAIL

N.T.S.



SECTION A DETAIL

N.T.S.

PREPARED BY:



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SITE NAME:

ERWIN RADIO BLDG

SITE NUMBER:

NCDUN017

SITE ADDRESS:

465 RED HILL CHURCH ROAD
DUNN, NC 28334

LATITUDE/LONGITUDE:
35.335061° - 78.655769°

SEAL:

FIRM #: P-1016



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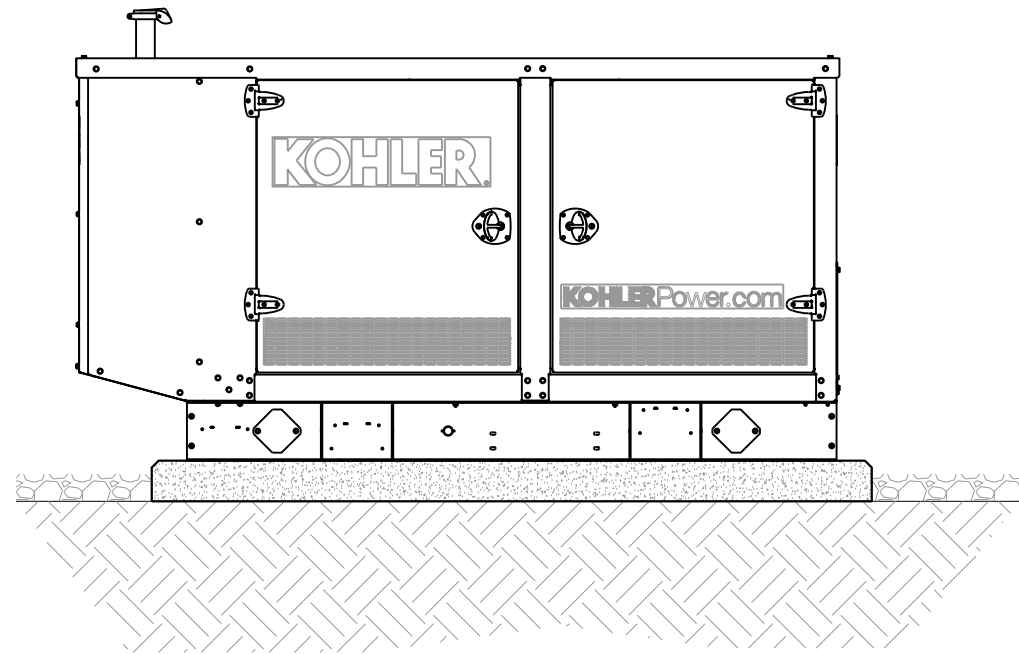
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SHEET TITLE:
SHELTER FOUNDATION DETAILS

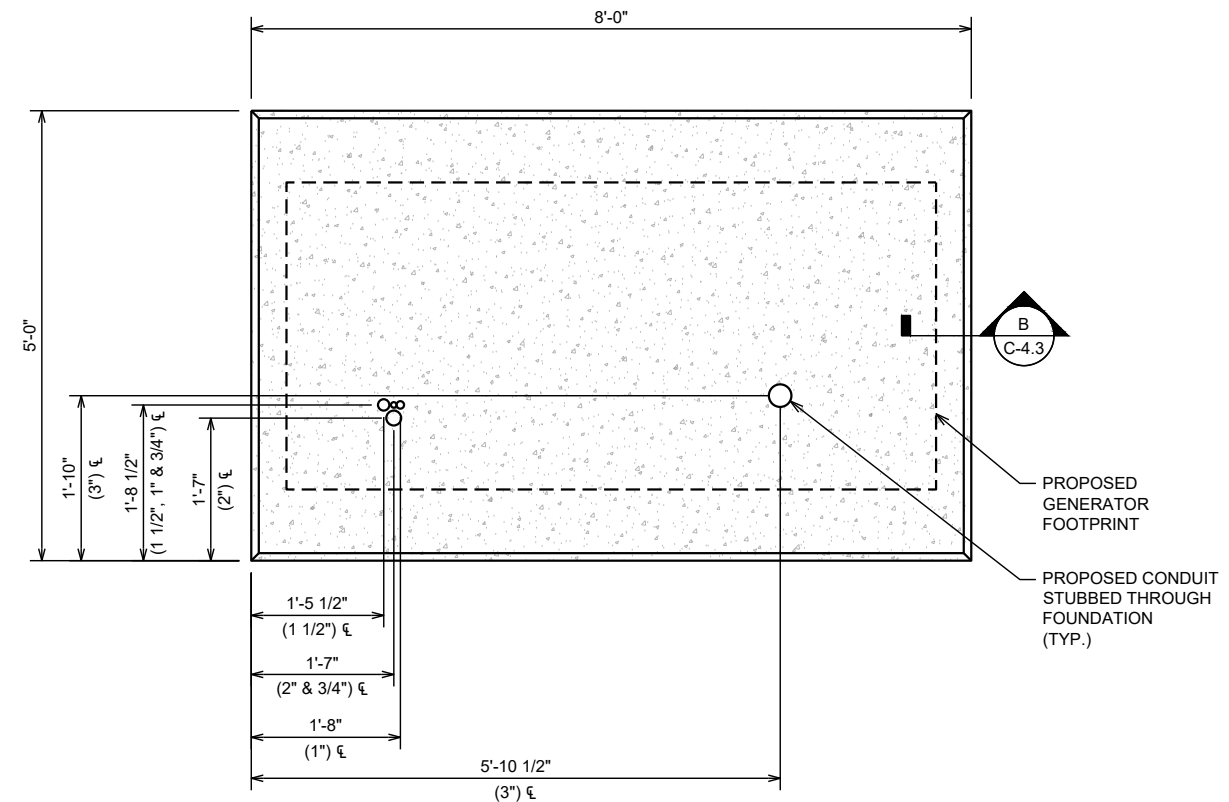
SHEET # **C-4.2** CURRENT REV #: 1
ETS #: 204581.AE.02

KOHLER MODEL - KG50
 • LP GENERATOR
 • 4P8X ALTERNATOR

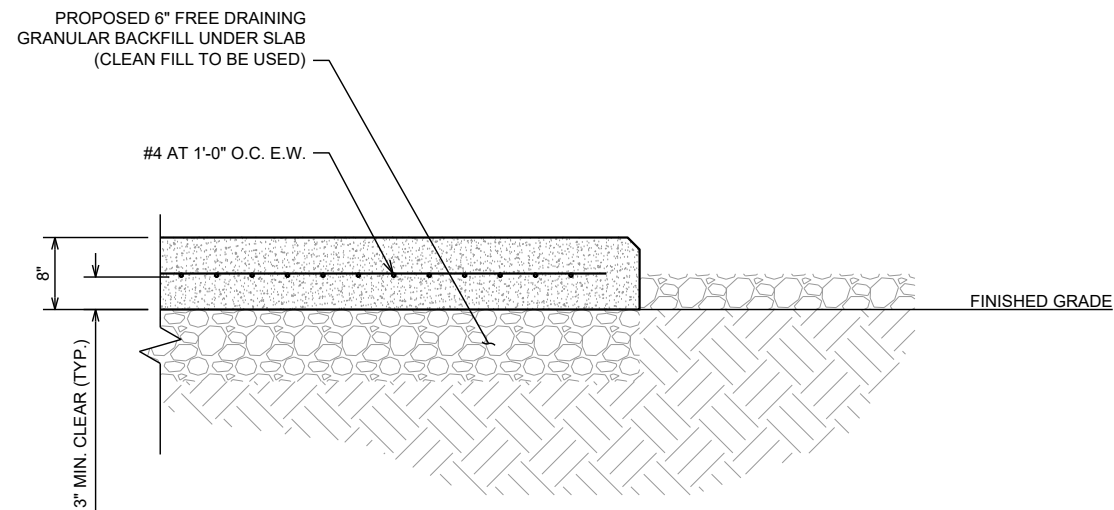
HEIGHT	WIDTH	DEPTH	WEIGHT
46.1"	40.9"	86.6"	1900 LBS



GENERATOR PAD ELEVATION
 N.T.S.



GENERATOR PAD PLAN
 N.T.S.



SECTION B DETAIL
 N.T.S.

NOT USED
 N.T.S.

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DUKE ENERGY

SITE NAME:
ERWIN RADIO BLDG
 SITE NUMBER:
NCDUN017
 SITE ADDRESS:
 465 RED HILL CHURCH ROAD
 DUNN, NC 28334
 LATITUDE/LONGITUDE:
 35.335061°, -78.655769°

SEAL:  FIRM #: P-1016
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 027825
 ENGINEER G. PLY
 CHRISTOPHER G. PLY
 12/14/2020

REV	DATE	DETAILS
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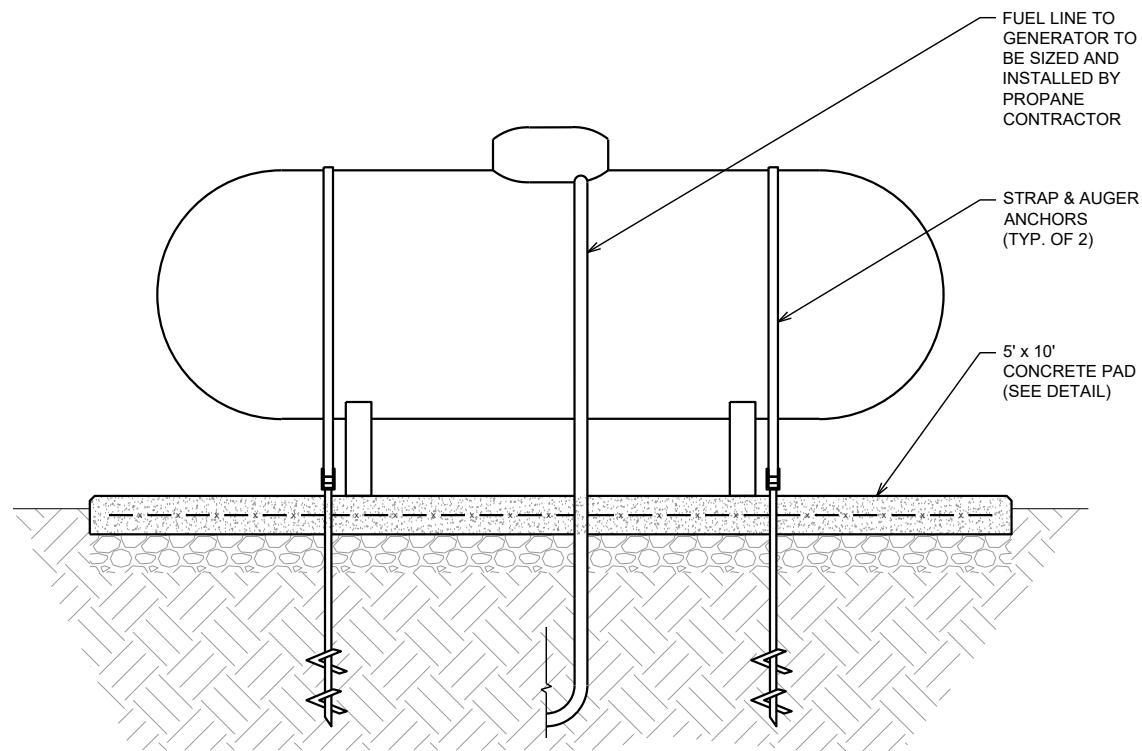
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SHEET TITLE:
**GENERATOR
 DETAILS**

SHEET # **C-4.3** CURRENT REV #: 1
 ETS #: 204581.AE.02

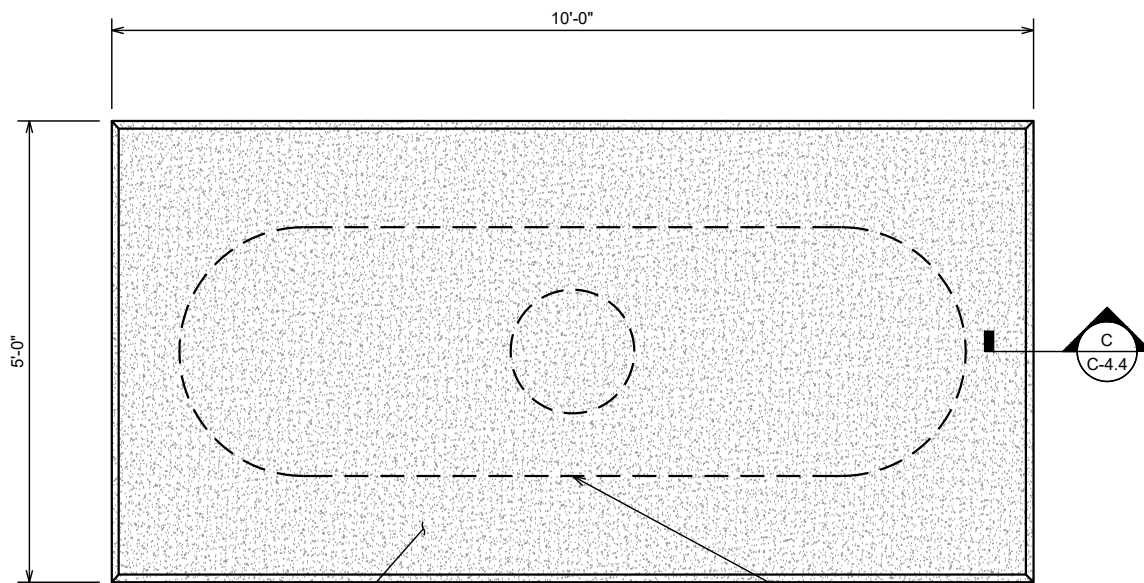
NOTES

- INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA-58 LP GAS CODE
- CONNECT GROUNDING CONDUCTOR TO FUEL TANK BY CLAMPING IT TO THE FILLER PIPE.



PROPANE TANK PAD ELEVATION

N.T.S.

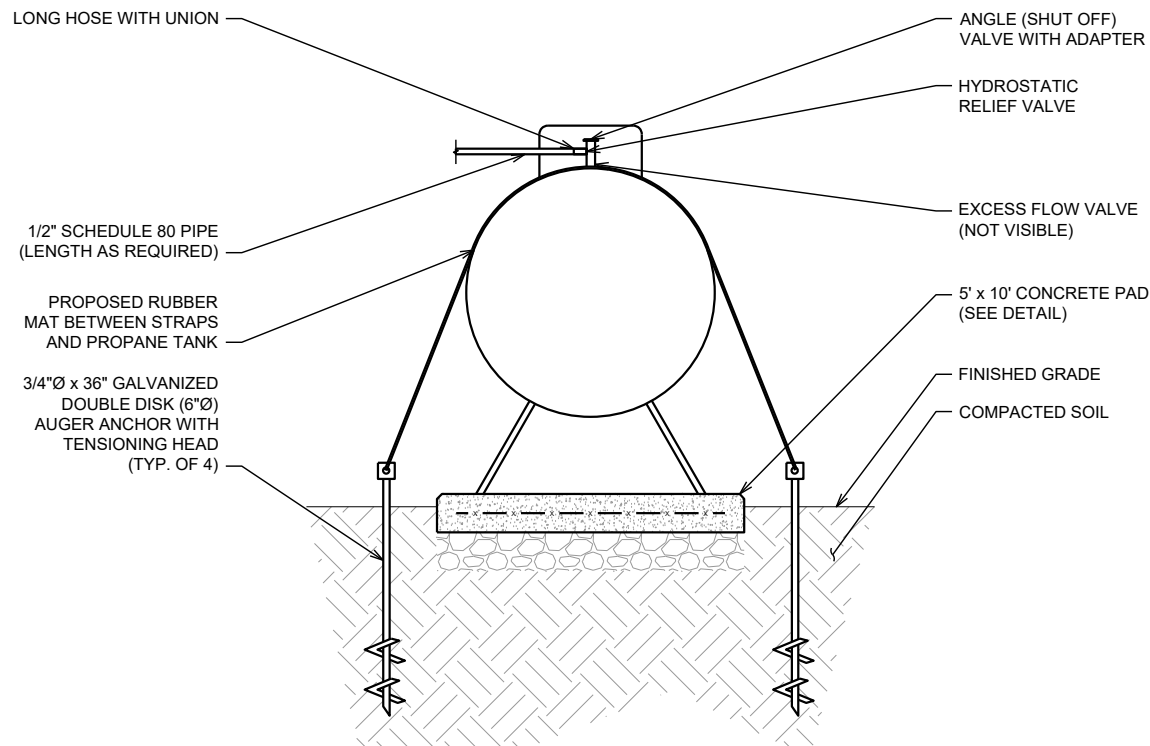


PROPANE TANK PAD PLAN

N.T.S.

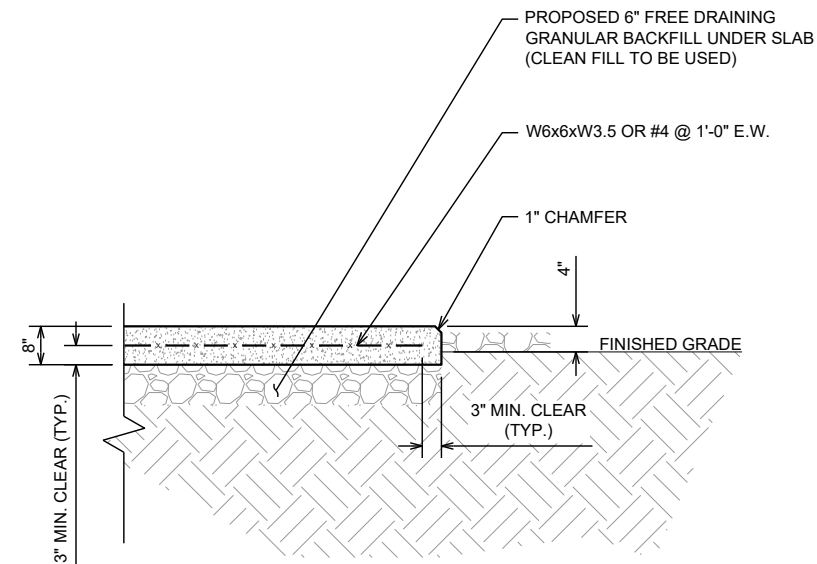
6" CONCRETE SLAB WITH WELDED WIRE MESH REINFORCEMENT W6x6xW3.5 OR #4 @ 1'-0" E.W.

PROPANE TANK OUTLINE



PROPANE TANK PAD ELEVATION

N.T.S.



SECTION C DETAIL

N.T.S.

PREPARED BY:



PREPARED FOR:



SITE NAME:

ERWIN RADIO BLDG

SITE NUMBER:

NCDUN017

SITE ADDRESS:

465 RED HILL CHURCH ROAD
DUNN, NC 28334

LATITUDE/LONGITUDE:
35.335061°, -78.655769°

SEAL:

FIRM #: P-1016



REV	DATE	DETAILS
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SHEET TITLE:

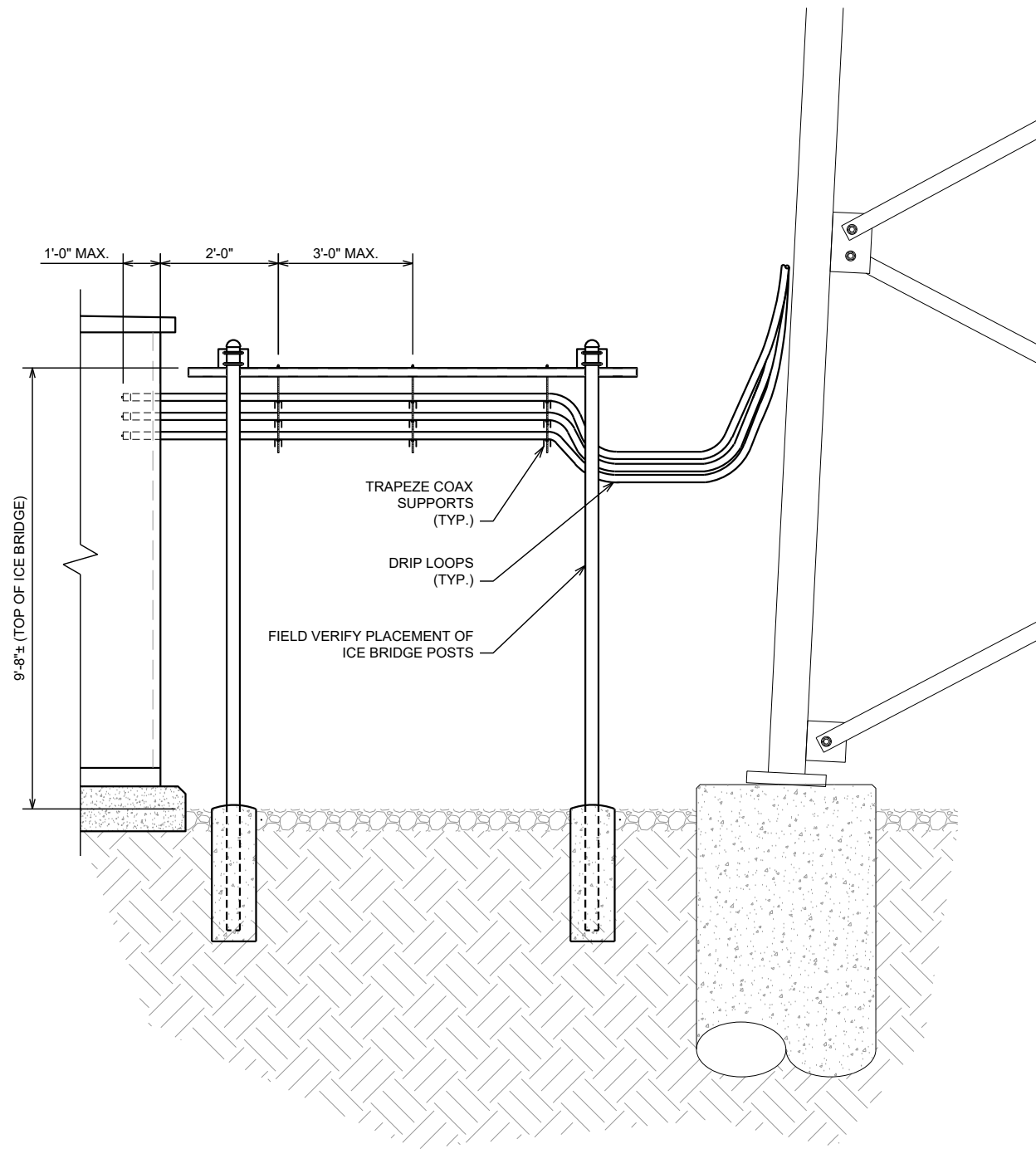
**PROPANE TANK
DETAILS**

SHEET # **C-4.4**

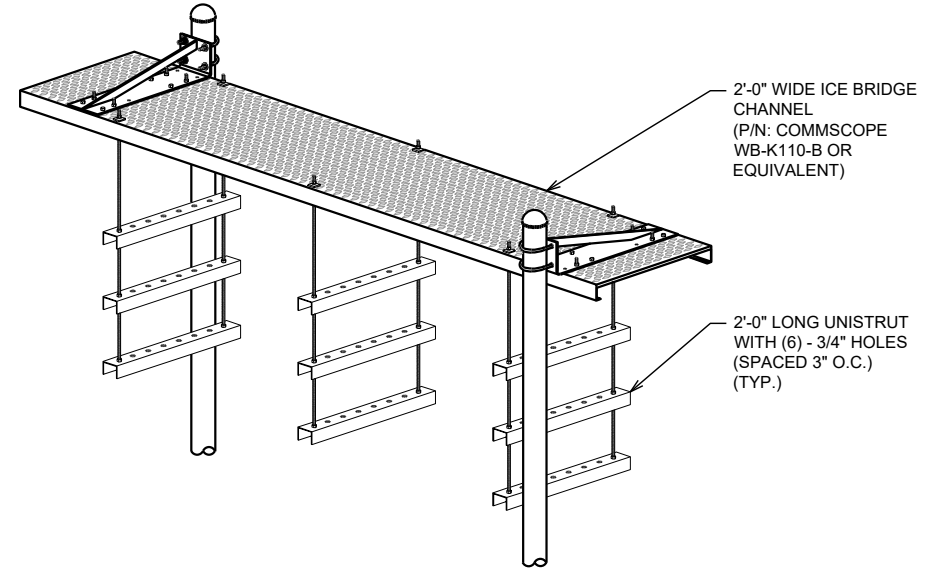
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ETS #: 204581.AE.02

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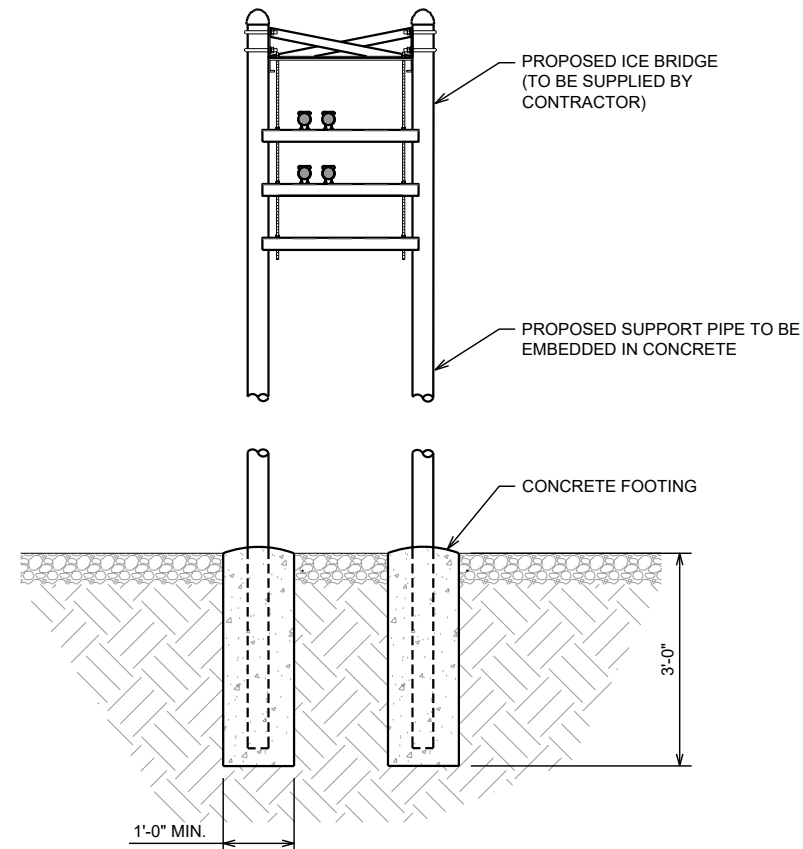
- COAX MUST COME OFF TOWER AT AN ELEVATION LOWER THAN RF ENTRY PORT TO PREVENT WATER MIGRATING TOWARDS SHELTER
- ZIP TIES ARE NOT TO BE PERMANENT BUT MAY BE USED FOR TEMPORARY CONSTRUCTION



ICE BRIDGE DETAIL
N.T.S.



ISOMETRIC VIEW
N.T.S.



SIDE VIEW
N.T.S.

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12/14/2020

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SHEET TITLE:
ICE BRIDGE DETAILS

SHEET # **C-4.5** CURRENT REV #: 1
ETS #: 204581.AE.02

ELECTRICAL NOTES

SCOPE

- SHALL INCLUDE ALL LABOR, MATERIALS AND APPLIANCES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR OPERATION OF ALL WORK SHOWN ON THE DRAWING AS SPECIFIED HEREIN:
 - ELECTRIC SERVICE
 - CONDUIT AND RACEWAY
 - CONDUCTORS
 - MISCELLANEOUS MATERIALS
 - TELEPHONE CONDUITS
 - LIGHTNING ARRESTING SYSTEM

CODES

- THE INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL INSTALLATION IN EFFECT WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE AND THE ICC 2012, ADMINISTRATIVE RULES WITH THE NATIONAL ELECTRIC CODE, AND ANY LOCAL CODES AND ORDINANCES WITH THE REGULATION OF THE SERVING UTILITY COMPANY. ALL PERMITS REQUIRED SHALL BE OBTAINED AND, AFTER COMPLETION OF WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF FINAL INSPECTION AND APPROVAL.

TESTING

- UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST ALL EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. ALL TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

GURANTEE

- IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HEREIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER. WITHOUT EXPENSE TO THE OWNER ALL WARRANTY CERTIFICATES & GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

COORDINATION

- CONTRACTOR SHALL COORDINATE ALL WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH ALL SERVICE REQUIREMENTS OF EACH UTILITY COMPANY, IF REQUIRED.

EXAMINATION OF SITE

- PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS PARAGRAPH WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

CUTTING, PATCHING AND EXCAVATION

- COORDINATION OF ALL SLEEVES, CHASES, ETC., WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. ALL CUTTING AND PATCHING OF WALLS, PARTITIONS, FLOORS, AND CHASES IN CONCRETE, WOOD, STEEL OR MASONRY SHALL BE DONE AS PROVIDED ON THE DRAWINGS.
- ALL NECESSARY EXCAVATIONS AND BACKFILLING INCIDENTAL TO THE WORK UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWING SHALL BE PROVIDED BY THIS CONTRACTOR.
- SEAL ALL PENETRATION THROUGH WALL AND FLOORS WITH APPROVED GROUT.

RACEWAYS

- ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL BE RIGID STEEL EMT OR SCH40 PVC. AS INDICATED ON THE DRAWINGS.
- WHERE INSTALLED ON EXTERIORS AND EXPOSED TO DAMAGE, ALL CONDUIT SHALL BE RIGID STEEL. ALUMINUM CONDUIT SHALL NOT BE ALLOWED.
- CONCEALED CONDUIT IN WALLS OR INTERIOR SPACES ABOVE GRADE MAY BE EMT.
- UNDERGROUND CONDUITS SHALL BE RIGID STEEL OR SCHEDULE 40 PVC AS INDICATED ON THE DRAWINGS.
- ALL CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS. PROVIDE INSULATED BUSHING FOR ALL CONDUIT TERMINATIONS. ALL CONDUIT RUNS IN A WET LOCATION SHALL HAVE WATERPROOF FITTINGS.
- PROVIDE SUPPORTS FOR ALL CONDUITS IN ACCORDANCE WITH NEC REQUIREMENTS. ALL CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.
- BURIAL DEPTH OF ALL CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION.
- CONDUIT ROUTES ARE SCHEMATIC. CONTRACTOR SHALL FIELD VERIFY BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND BUILDING OWNER.

ELECTRICAL NOTES

EXTERIOR CONDUIT

- ALL EXPOSED CONDUIT SHALL BE NEATLY INSTALLED AND RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. SUPPORTS AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED STEEL.

EQUIPMENT

- ALL DISCONNECT SWITCHES SHALL BE SERVICE ENTRANCE RATED, HEAVY DUTY TYPE.
- NEW CIRCUIT BREAKERS SHALL BE RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT AS DETERMINED BY THE LOCAL UTILITY. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT, AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK.

CONDUCTORS

- FURNISH AND INSTALL CONDUCTORS CALLED FOR IN THE DRAWINGS. ALL CONDUCTORS SHALL HAVE TYPE THWN (MIN) (75 DEGREE) INSULATION, RATED FOR 600 VOLTS.
- ALL CONDUCTORS SHALL BE UL LISTED AND SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
 - MINIMUM WIRE SIZE SHALL BE #12 AWG.
 - ALL CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND SMALLER MAY BE SOLID OR STRANDED.
 - CONNECTION FOR #10 AWG AND SMALLER SHALL BE BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE NUT CONNECTIONS.
 - CONNECTION FOR #8 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP-ON SLEEVES WITH NYLON INSULATOR.
- ALL CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.
- THE RACEWAY SYSTEM SHALL BE COMPLETE BEFORE INSTALLING CONDUCTORS

PENETRATIONS



- CONTRACTOR SHALL COMPLY WITH UL PENETRATION DETAILS FOR PENETRATIONS OF ALL RATED WALLS, ROOF, ETC.

GROUNDING

- ALL ELECTRICAL NEUTRALS, RACEWAYS AND NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUCTORS, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSSES, ETC. THE NEUTRAL CONDUCTOR FOR EACH SYSTEM SHALL BE GROUNDED BY ONE POINT ONLY.
- PROVIDE GROUND CONDUCTOR IN ALL RACEWAYS.
- PROVIDE BONDING AND GROUND TO MEET NFPA 780 - LIGHTNING PROTECTION AS A MINIMUM.
- ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH MOTOROLA R-56 GUIDELINES, SECTION 4.

ABBREVIATIONS

A	AMPERE	NEC	NATIONAL ELECTRIC CODE
AFG	ABOVE FINISHED GRADE	PH	PHASE
ATS	AUTOMATIC TRANSFER SWITCH	PNL	PANEL
AWG	AMERICAN WIRE GAUGE	PNLBD	PANELBOARD
BCW	BARE COPPER WIRE	PVC	SCH 40 RIGID NON-METALLIC CONDUIT
BFG	BELOW FINISHED GRADE	RGS	RIGID GALVANIZED STEEL CONDUIT
BKR	BREAKER	SW	SWITCH
C	CONDUIT	TGB	TOWER GROUND BAR
CKT	CIRCUIT	UL	UNDERWRITERS LABORATORIES
DISC	DISCONNECT	V	VOLTAGE
EGR	EXTERNAL GROUND RING	W	WATTS
EMT	ELECTRIC METALLIC TUBING	XFMR	TRANSFORMER
FSC	FLEXIBLE STEEL CONDUIT	XMTR	TRANSMITTER
GEN	GENERATOR		
GPS	GLOBAL POSITIONING SYSTEM		
GRD	GROUND		
IGB	ISOLATED GROUND BAR		
IGR	INTERIOR GROUND RING (HALO)		
KW	KILOWATTS		

— E —	UNDERGROUND ELECTRICAL CONDUIT
— T —	UNDERGROUND TELEPHONE CONDUIT
	KILOWATT-HOUR METER
-----	UNDERGROUND BONDING AND GROUNDING CONDUCTOR
	GROUND ROD
	GROUND ROD WITH INSPECTION WELL
●	CADWELD (EXOTHERMIC)
■	MECHANICAL

PREPARED BY:



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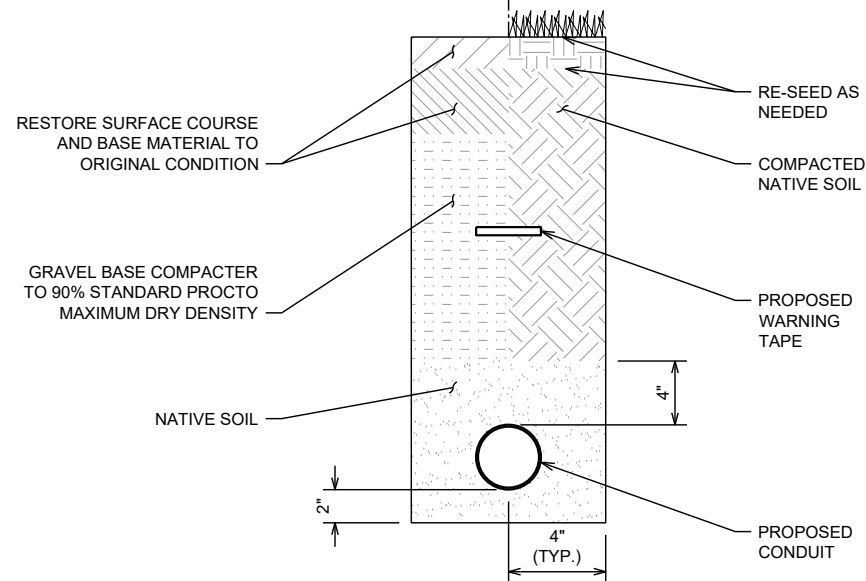
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SHEET TITLE:
ELECTRICAL NOTES

SHEET # **E-1** CURRENT REV #: 1
ETS #: 204581.AE.02

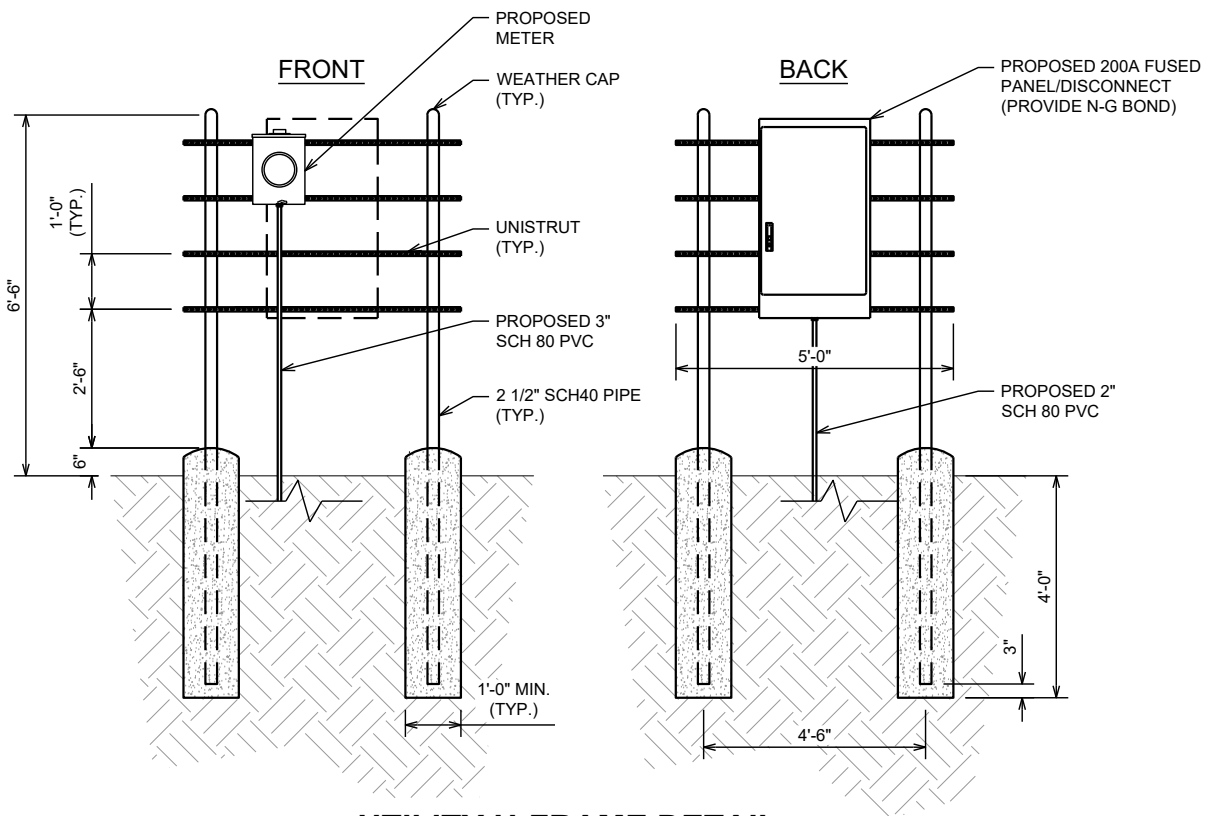
SECTION FOR USE UNDER PAVEMENT OR VEHICLE TRAFFIC AREAS

SECTION FOR USE UNDER GRASS OR BARE GROUND AREAS



TRENCH DETAIL

N.T.S.

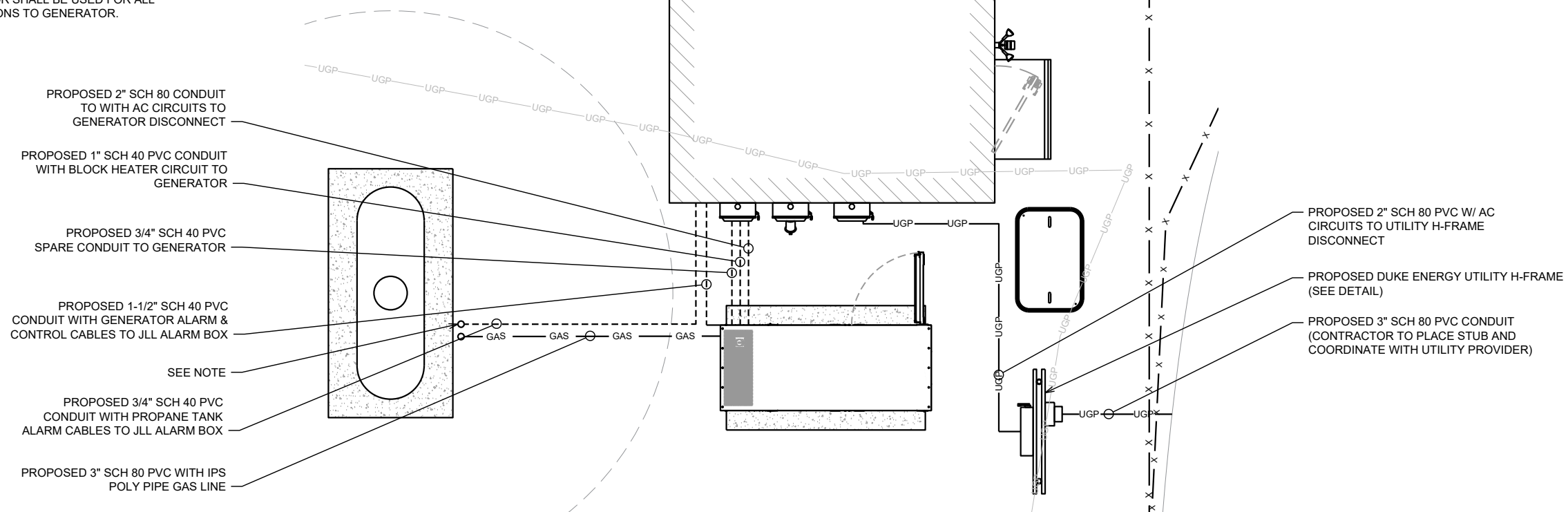


UTILITY H-FRAME DETAIL

N.T.S.

NOTE

1. STUB CONDUITS 6" ABOVE FINISHED GRADE. FINISH CONNECTION PER GENERATOR MANUFACTURER'S SPECIFICATIONS. ONLY STRANDED CONDUCTOR SHALL BE USED FOR ALL CONNECTIONS TO GENERATOR.



ELECTRICAL PLAN

3/16" = 1'-0"

PREPARED BY:



PREPARED FOR:



SITE NAME:

ERWIN RADIO BLDG

SITE NUMBER:

NCDUN017

SITE ADDRESS:

465 RED HILL CHURCH ROAD
DUNN, NC 28334

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SHEET TITLE:

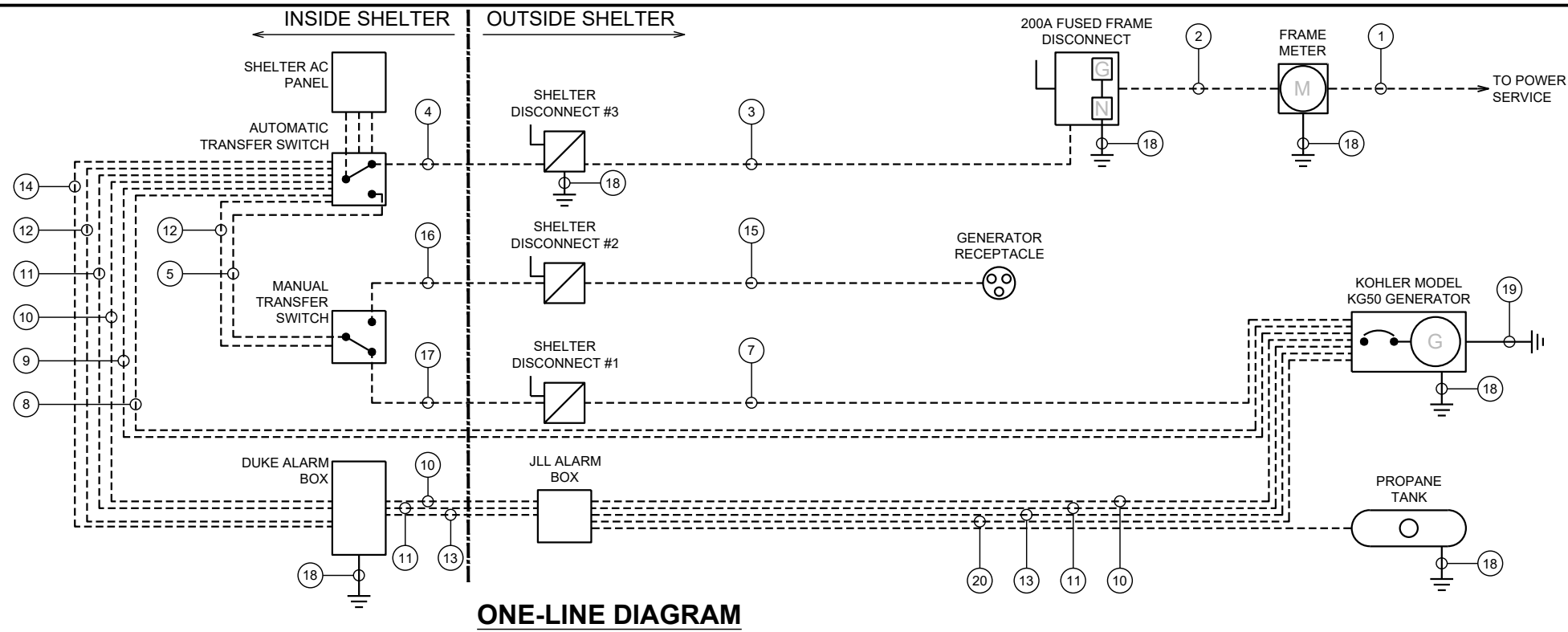
ELECTRICAL PLAN

SHEET # **E-3**

CURRENT REV #: 1
ETS #: 204581.AE.02

NOTES:

- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE
- ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR A NORTH CAROLINA APPROVED THIRD PARTY TESTING AGENCY
- SUBCONTRACTOR TO LEAVE EXTRA PULL TAPE FOR FUTURE CABLE INSTALL BY OTHERS
- OTHERS WILL BE ROUTING CABLE FROM THE JLL BOX THROUGH CONDUIT TO THE PROPANE TANK FOR LPG LEVEL MONITORING ONLY CONTROL AND ALARM CABLES (ITEMS #10-13) WITH EITHER PASS THROUGH OR LAND IN THE DUKE ENERGY ALARM BOX. AC CABLES (ITEMS #8-9) WILL BE ROUTED FROM AUTOMATIC TRANSFER SWITCH TO GENERATOR IN ITS OWN DEDICATED 1" CONDUIT
- SEE SHEET E-2 FOR SHELTER PANEL SCHEDULE
- SEE SHEET E-3 FOR ROUTE DETAILS



ONE-LINE DIAGRAM

CIRCUIT SCHEDULE

	FROM	TO	CONDUCTOR	RACEWAY	BY	FUNCTION	NOTES
1	SOURCE	METER	(3) 3/0 (1) #4 G	3" SCH 80 PVC	LOCAL UTILITY	POWER SOURCE	2 1/2" SCH 80 PVC RISER TO METER, 3" SCH 80 PVC UNDERGROUND
2	METER	FRAME DISCONNECT SWITCH	(3) 3/0 (1) #4 G	2" SCH 80 PVC	SUBCONTRACTOR	METER DISCONNECT	
3	FRAME DISCONNECT SWITCH	#3 SHELTER DISCONNECT SWITCH	(3) 3/0 (1) #4 G	2" SCH 80 PVC	SUBCONTRACTOR	MAIN DISCONNECT	
4	#3 SHELTER DISCONNECT SWITCH	AUTOMATIC TRANSFER SWITCH	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	SERVICE ENTRANCE	
5	AUTOMATIC TRANSFER SWITCH	MANUAL TRANSFER SWITCH	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	TEMPORARY EMERGENCY POWER	
6	AUTOMATIC TRANSFER SWITCH	AC POWER PANEL	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	AC POWER TO BREAKERS	
7	STANDBY GENERATOR	#1 SHELTER DISCONNECT SWITCH	(3) 3/0 (1) #4 G	2" SCH 80 PVC	SUBCONTRACTOR	AUTO EMERGENCY POWER	
8	AC POWER PANEL	STANDBY GENERATOR CONTROL BOARD	(2) #12	1" SCH 40 PVC	SUBCONTRACTOR	BATTERY CHARGER	ROUTE CABLES THROUGH AUTOMATIC TRANSFER SWITCH TO GENERATOR USING DEDICATED 1" CONDUITS
9	AC POWER PANEL	STANDBY GENERATOR CONTROL BOARD	(2) #12 (1) #12 G	1" SCH 40 PVC	SUBCONTRACTOR	ENGINE HTR/COOLANT	
10	STANDBY GENERATOR CONTROL BOARD	AUTOMATIC TRANSFER SWITCH	(2) #14 (DC)	1-1/2" SCH 40 PVC	SUBCONTRACTOR	CONTROL	ROUTE VIA DUKE ENERGY ALARM BOX. CABLE WILL BE ROUTED THROUGH 2 SEPARATE CONDUITS. AUTOMATIC TRANSFER SWITCH TO DUKE ENERGY ALARM BOX AND THEN JLL ALARM BOX TO GENERATOR
11	STANDBY GENERATOR CONTROL BOARD	AUTOMATIC TRANSFER SWITCH	2-WIRE RS485	1-1/2" SCH 40 PVC	SUBCONTRACTOR	CONTROL	
12	MANUAL TRANSFER SWITCH	DUKE ENERGY ALARM BOX	(4) #18	1" PVC	SUBCONTRACTOR	MANUAL TRANSFER SWITCH ALARM	ROUTE VIA AUTOMATIC TRANSFER SWITCH. SEE E-## ON WHERE TO LAND CABLES IN DUKE ENERGY ALARM BOX. CABLE PART #: BELDEN 83351E
13	STANDBY GENERATOR CONTROL BOARD	DUKE ENERGY ALARM BOX	(15) #18	1-1/2" SCH 40 PVC	SUBCONTRACTOR	GENERATOR ALARMS	SEE E-5 ON WHERE TO TERMINATE CABLES WITHIN DUKE ENERGY ALARM BOX CABLE PART #: BELDEN 8874MN
14	AUTOMATIC TRANSFER SWITCH	DUKE ENERGY ALARM BOX	(8) #18	1" PVC	SUBCONTRACTOR	AUTOMATIC TRANSFER SWITCH ALARMS	SEE E-5 ON WHERE TO TERMINATE CABLES WITHIN DUKE ENERGY ALARM BOX CABLE PART #: BELDEN 8448
15	PORTABLE GENERATOR RECEPTACLE	#2 SHELTER DISCONNECT SWITCH	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	PORTABLE EMERGENCY POWER	
16	#2 SHELTER DISCONNECT SWITCH	MANUAL TRANSFER SWITCH	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	PORTABLE EMERGENCY POWER	
17	#1 SHELTER DISCONNECT SWITCH	MANUAL TRANSFER SWITCH	(3) 3/0 (1) #4 G	2" RGSC	SHELTER MANUFACTURER	AUTO EMERGENCY POWER	
18	EQUIPMENT	GROUND RING	#2 THHN	NONE	SUBCONTRACTOR	GROUND CONNECTION	
19	GENERATOR	GROUND RING	2/0 BCW	NONE	SUBCONTRACTOR	GROUND CONNECTION	
20	STANDBY GENERATOR CONTROL BOARD	JLL ALARM BOX	(10) #18	1-1/2" SCH 40 PVC	SUBCONTRACTOR	GENERATOR ALARMS	LEAVE CABLE 20 IN JLL ALARM BOX, CABLE PART #: BELDEN 5308UE

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SITE NUMBER:
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SITE ADDRESS:
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DUNN, NC 28334

LATITUDE/LONGITUDE:
35.335061°, -78.655769°

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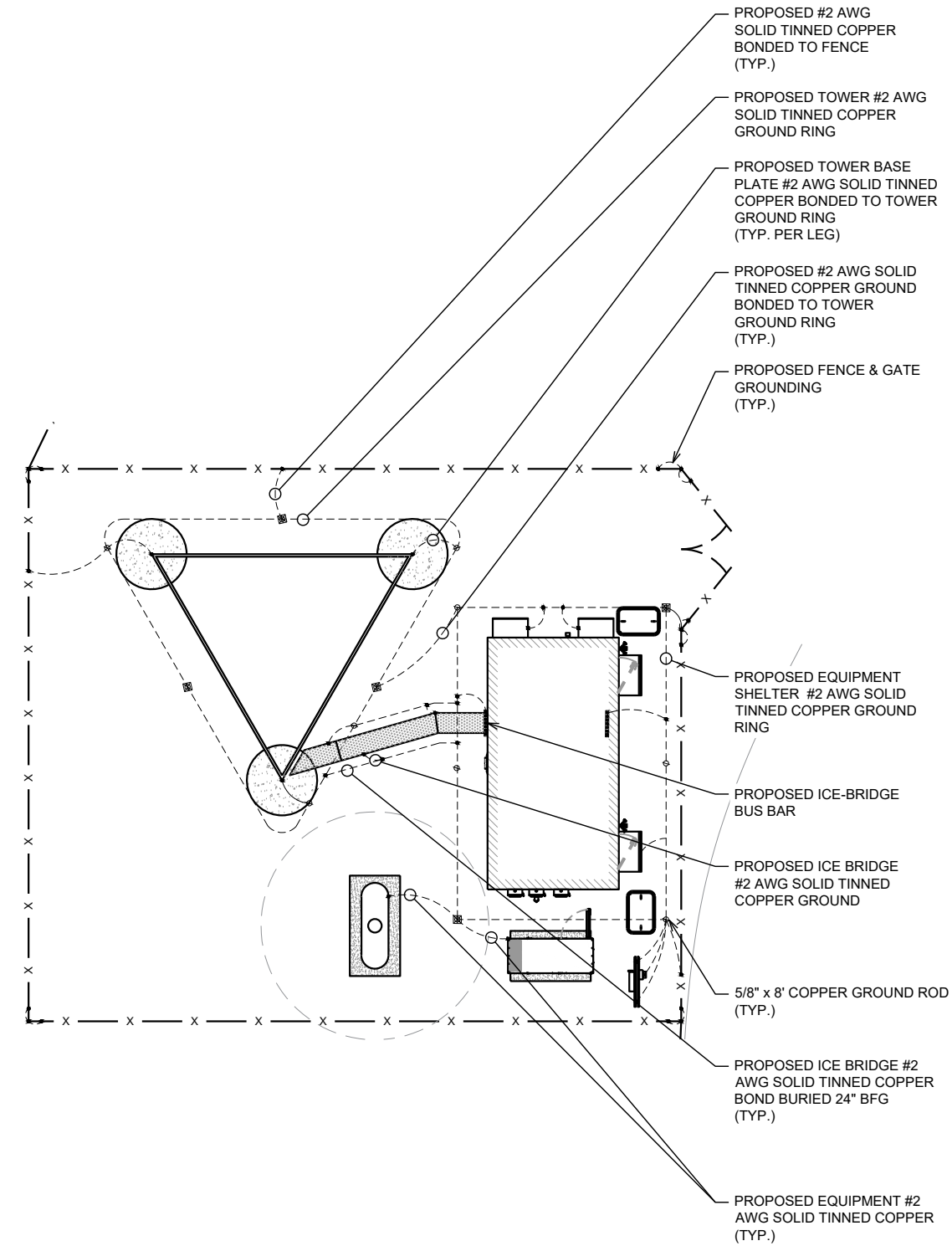
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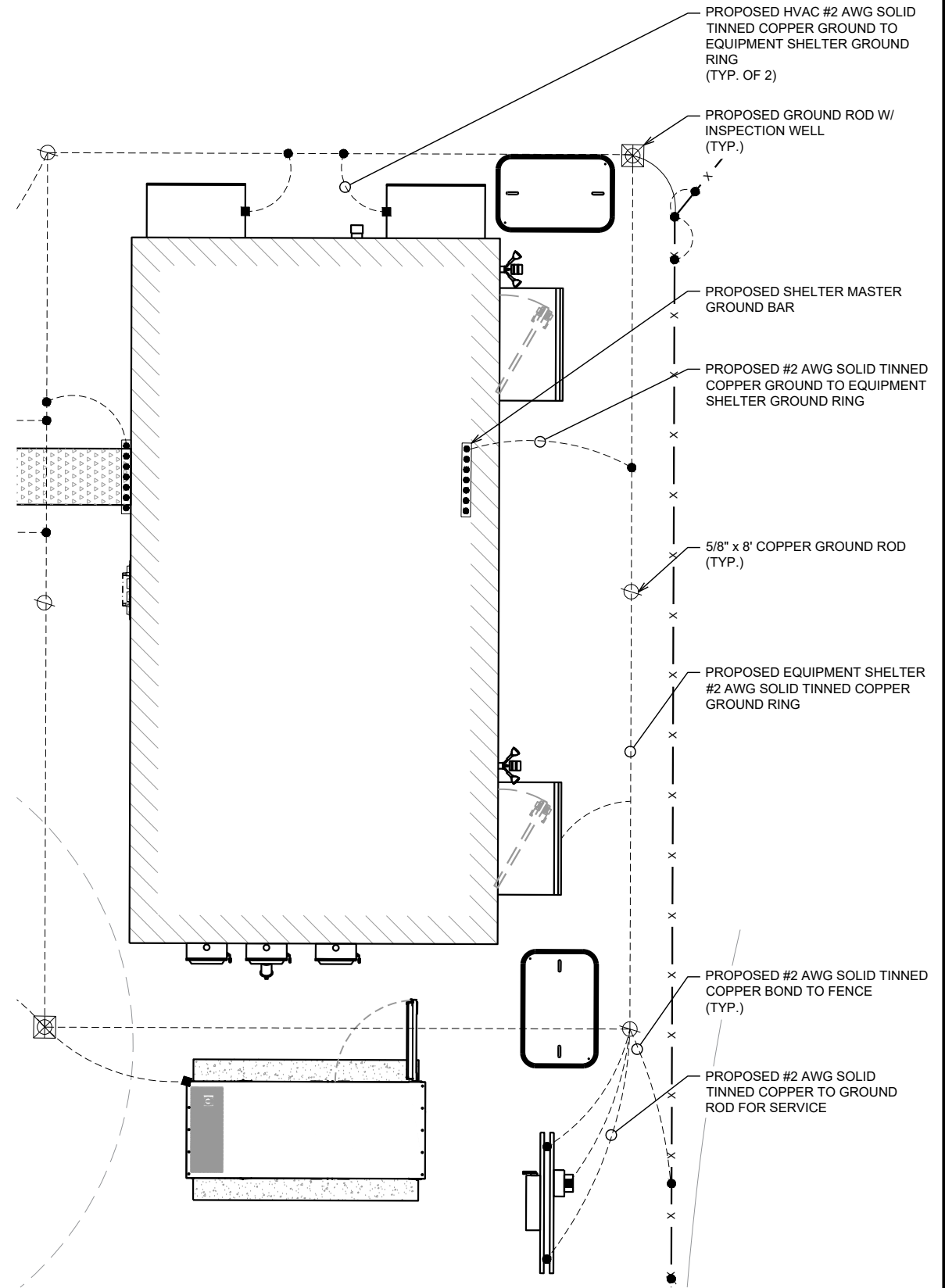
SHEET TITLE:
ONE-LINE DIAGRAM

SHEET # **E-4** CURRENT REV #: 1
ETS #: 204581.AE.02



- GROUNDING SYMBOLS:**
- ⊕ GROUND ROD
 - ⊗ GROUND ROD W/ INSPECTION WELL
 - CADWELD
 - MECHANICAL

GROUNDING PLAN
1/16" = 1'-0"



PROPOSED SHELTER GROUNDING PLAN
3/16" = 1'-0"


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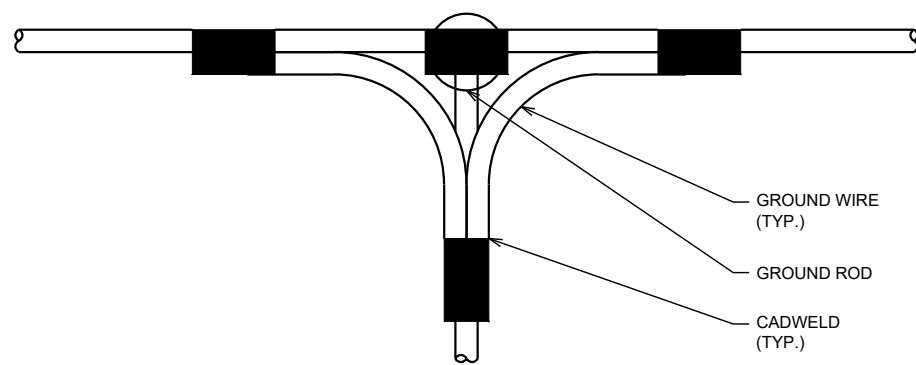
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SHEET TITLE:
GROUNDING PLANS

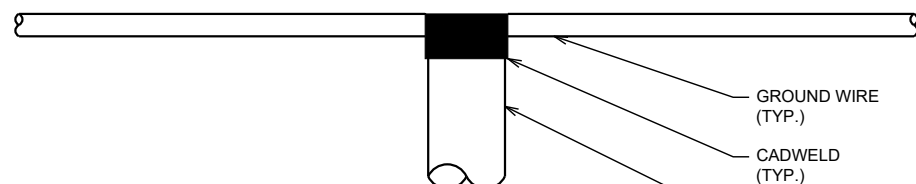
SHEET # **G-1** CURRENT REV #: 1
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NOTES:

- MINIMUM SPACING OF 1'-0" BETWEEN ALL CADWELDS



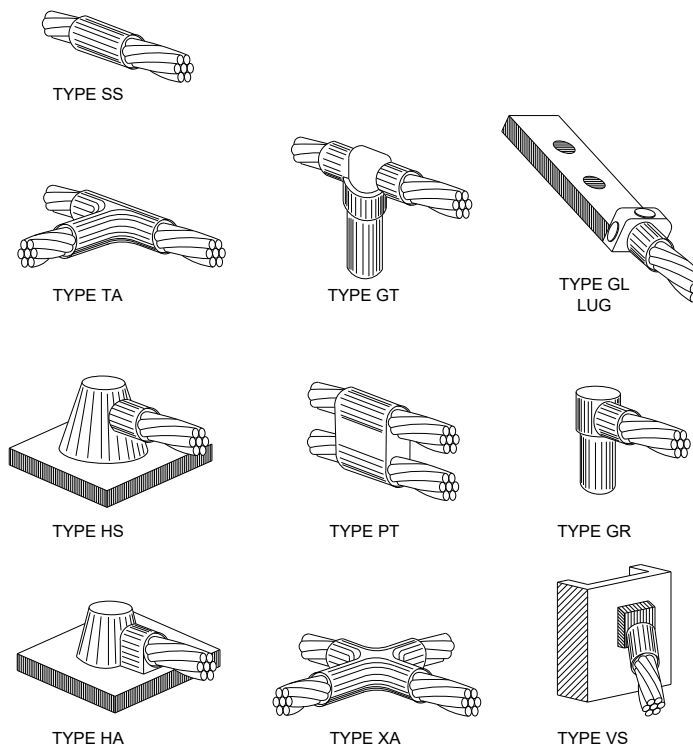
TOP VIEW



SIDE VIEW

CADWELD GROUNDING DETAIL

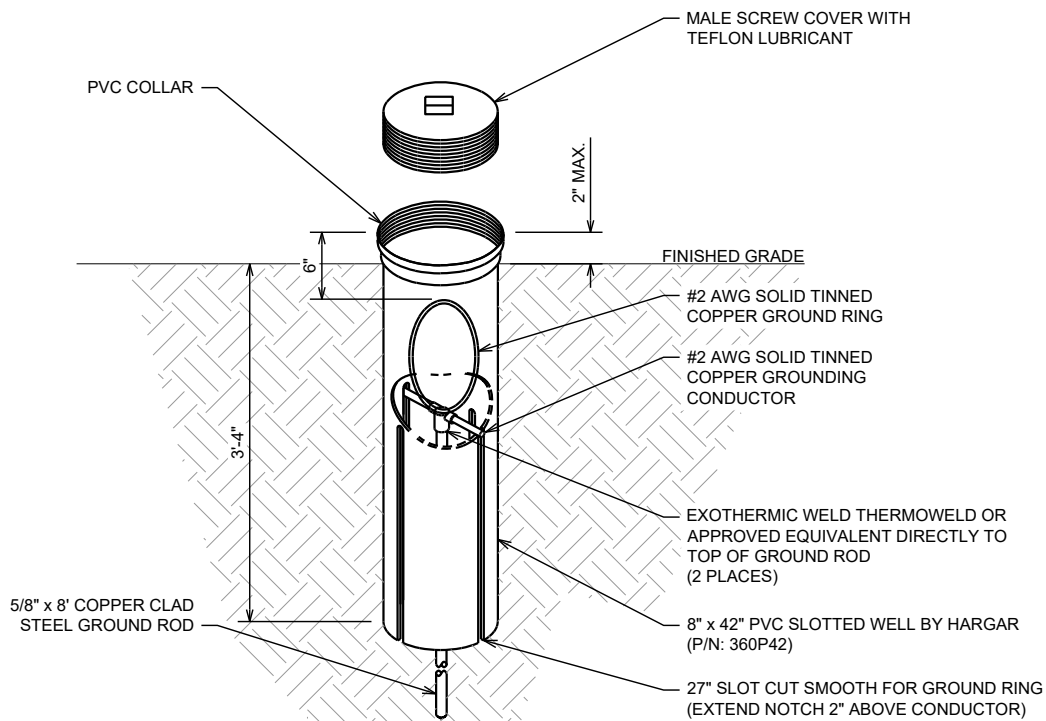
N.T.S.



STANDARD CADWELD DETAILS

N.T.S.

- GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG SOLID TINNED BARE WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30 INCHES BELOW FINISHED GRADE OR BELOW FROST LINE; WHICHEVER IS GREATER. GROUNDING ELECTRODES SHALL BE INSTALLED A MINIMUM SPACING OF 16'-0"
- BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250.30
- CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
- GROUND RINGS SHALL BE INSTALLED IN DIRECT CONTACT WITH THE EARTH AT A DEPTH OF 30 INCHES BELOW THE EARTH'S SURFACE WHEREVER POSSIBLE, OR BELOW THE FROST LINE, WHICHEVER IS DEEPER (ANSI T1.334-2002, SECTION 5.3.1 AND NFPA 70-2005, ARTICLE 250.53)
 - BUILDING GROUND RINGS SHALL BE INSTALLED AT LEAST 3 FEET FROM THE BUILDING FOUNDATION AND SHOULD BE INSTALLED BEYOND THE DRIP LINE OF THE ROOF. IT IS RECOMMENDED THAT THE BUILDING GROUND RING AND GROUND RODS BE POSITIONED 2 FEET TO 6 FEET OUTSIDE OF THE DRIP LINE OF THE BUILDING OR STRUCTURE TO ENSURE THAT PRECIPITATION WETS THE EARTH AROUND THE GROUND RING AND RODS (MIL-HDBK-419A AND MIL-STD-188-124B)
 - TOWER GROUND RINGS SHALL BE INSTALLED AT LEAST 2 FEET FROM THE TOWER FOUNDATION (ANSI T1.334-2002, SECTION 5.3.1)
- BOND PPC AND EQUIPMENT ENCLOSURES TO BURIED GROUNDING CONDUCTOR. USE A NEMA DRILLED TWO-HOLE CONNECTOR FOR BONDS TO EQUIPMENT ENCLOSURES; USE AN APPROVED CONDUIT CLAMP FOR CONNECTIONS TO SERVICE CONDUITS. EXOTHERMICALLY WELD CONNECTIONS TO GROUNDING CONDUCTOR.
- 5/8" x 8'-0" LONG GROUND ROD. SPACING BETWEEN RODS, AS SHOWN (NON-LINEAR). PROVIDE TEE TYPE EXOTHERMIC WELD TO BOND GROUND ROD TO BURIED GROUND RING. TYPICAL FOR ALL GROUND RODS SHOWN AROUND TOWER. SEE GROUND ROD INSPECTION SLEEVE DETAIL.
- BOND ALL EXTERIOR CONDUITS, PIPES AND CYLINDRICAL METALLIC OBJECTS WITH A PENN-UNION GT SERIES CLAMP, BLACKBURN GUV SERIES CLAMP OR A BURNDY GAR 3900BU SERIES CLAMP.
- BEFORE AND AFTER INSTALLATION IS COMPLETED IN CONFORMANCE WITH THESE DRAWINGS AND THE STANDARD SPECIFICATIONS, THE CONTRACTOR SHALL CONFIRM THE IMPEDANCE (GROUND RESISTANCE) TO EARTH AND BETWEEN GROUNDING CIRCUITS. THE GROUNDING SYSTEM IS EXPECTED TO PROVIDE FOR A MAXIMUM EARTH RESISTANCE OF 5 OHMS. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO ALL TESTING AND SHALL FURTHER NOTIFY THE OWNER IN THE EVENT THE EARTH RESISTANCE IS GREATER THAN 10 OHMS. USE 3 POINT FALL OF POTENTIAL METHOD.
- ALL GROUNDING CONNECTIONS SHALL BE MADE WITH CADWELDS U.N.O.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES. HAND DIG IN THIS VICINITY TO PROTECT FROM DAMAGE.
- ALL BENDS ON THE GROUND CONDUCTOR TO BE MADE WITH A MINIMUM 8" RADIUS. BENDS ARE NOT TO EXCEED 90° PER NFPA 780-2004, SECTION 4.9.5 AND ANSI T1.313-2003.
- GROUNDING SHALL BE IN ACCORDANCE WITH THE FOLLOWING MOTOROLA R56 STANDARD PRACTICES (AS REQUIRED): (GENERAL CONTRACTOR SHALL CONFIRM LATEST STANDARDS)
 - SSEO 3.018.02.004 BONDING, GROUNDING AND TRANSIENT PROTECTION
 - SSEO 3.018.10.002 SITE RESISTANCE TO EARTH TESTING
 - REFER TO DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS
- CONTRACTOR SHALL TEST EXISTING GROUND RING FOR TOWER BEFORE START OF AND AFTER COMPLETION OF CONSTRUCTION TO VERIFY LESS THAN 5 OHMS RESISTANCE.



GROUND ROD WITH INSPECTION WELL

N.T.S.

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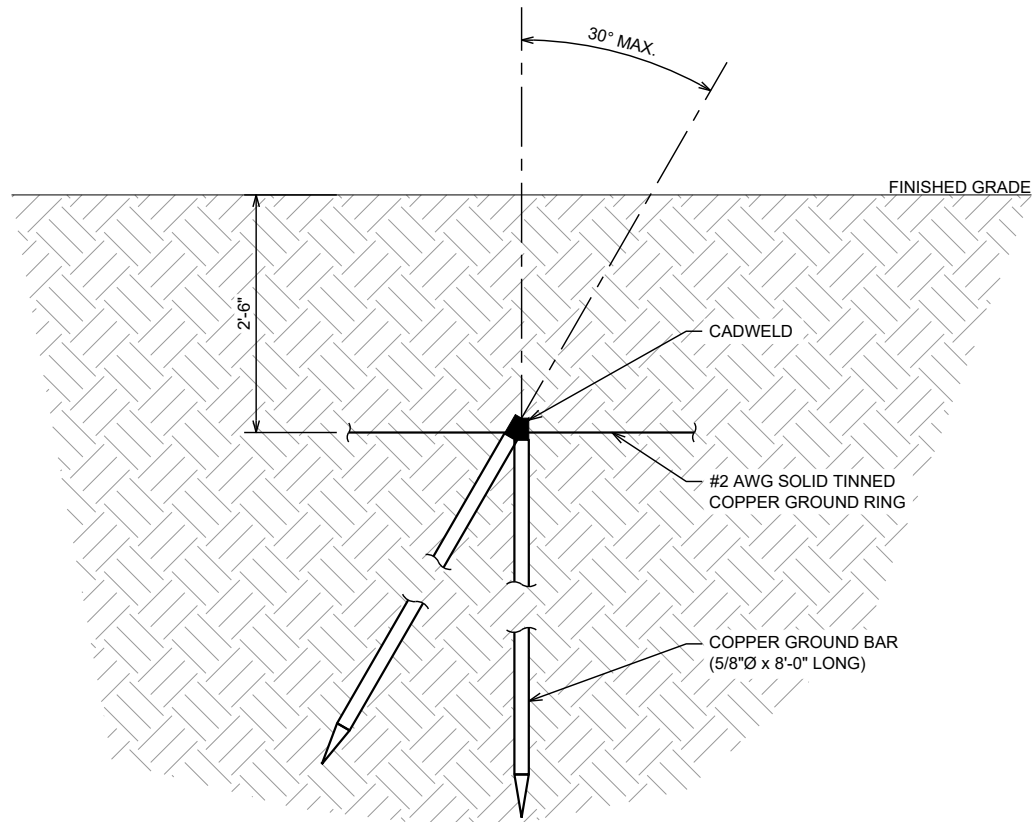
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SHEET TITLE:
GROUNDING DETAILS I

SHEET # **G-2** CURRENT REV #: 1
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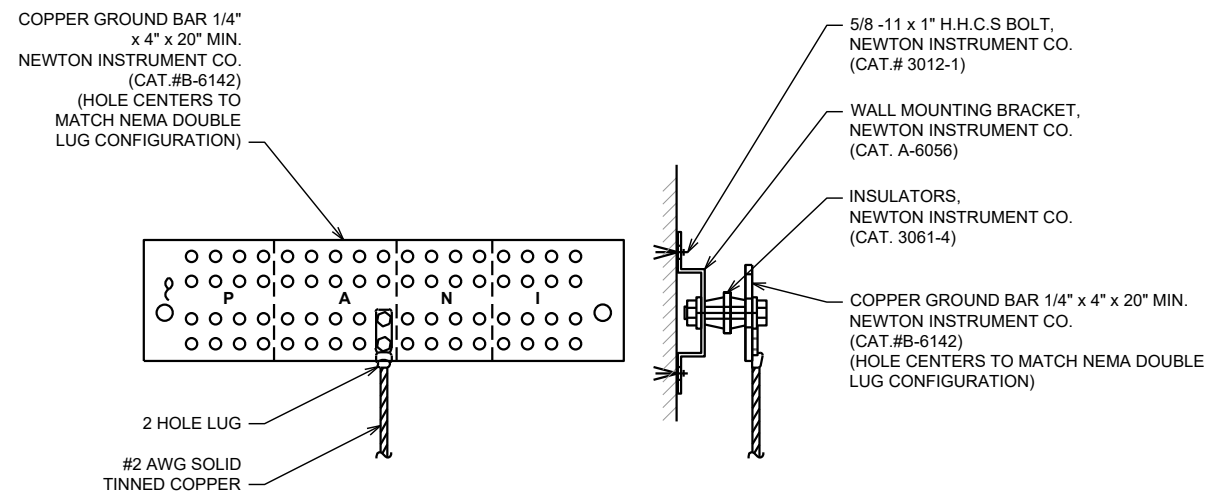


COPPER-CLAD STEEL GROUND ROD

N.T.S.

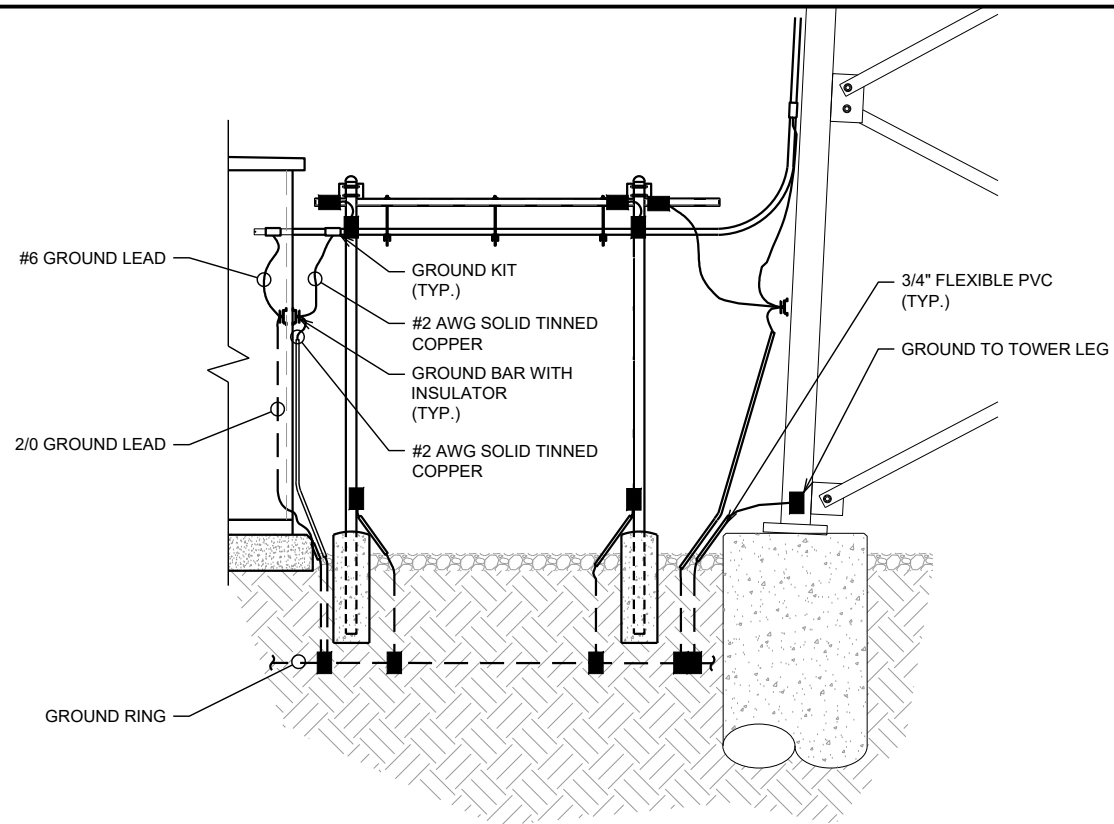
NOTES:

- COPPER BUS BAR (17 RUNS, 0.75", 0.815" OR 1" VARIABLE SPACING) WITH 2 HOLE LUG AND #2 AWG SOLID TINNED COPPER PIGTAIL
- TWO HOLE LUGS SHALL BE USED
- FOR MASTER GROUND BAR (INSIDE SHELTER), USE #2 AWG SOLID TINNED COPPER (GREEN) CONDUCTOR
- ALL EXTERNAL GROUND BARS SHALL BE TINNED
- PANI SCHEME ONLY APPLIES TO MASTER GROUND BAR



STANDARD GROUND BAR DETAIL

N.T.S.

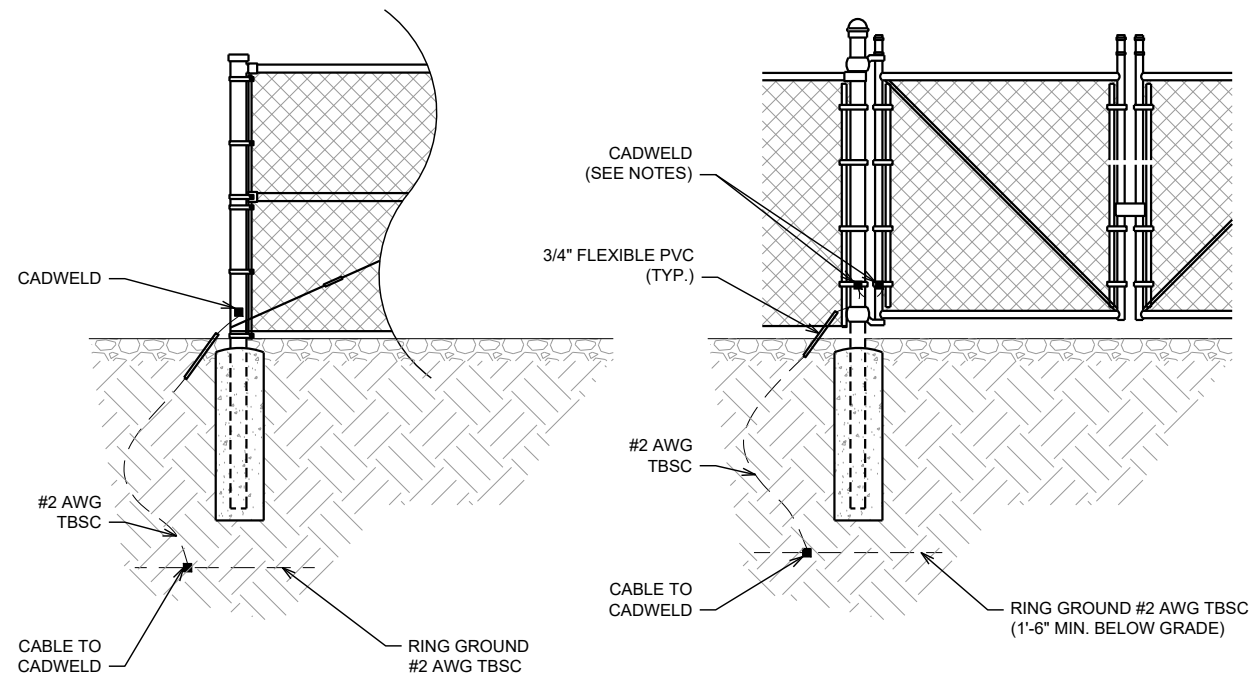


ICE BRIDGE/COAX/GROUNDING BAR ELEVATION

N.T.S.

NOTES:

- VERTICAL POSTS SHALL BE BONDED TO THE GROUND RING AT EACH CORNER AND AT EACH GATE POST. AT MINIMUM, ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 - FOOT STRAIGHT RUN OF FENCE.
- THE #2 AWG TBSC, FROM THE GROUND RING SHALL BE CADWELDED TO THE POST ABOVE GROUND.
- GATE JUMPER SHALL BE #4/0 AWG WELDING CABLE OR FLEXIBLE COPPER BRAIDED FLAT STRAP WITH SLEEVES ON EACH END DESIGNED FOR EXOTHERMIC WELDING
- GATE JUMPER SHALL BE INSTALLED SO THAT IT WILL NOT BE SUBJECTED TO DAMAGING STRAIN WHEN GATE IS FULL OPEN IN EITHER DIRECTION



FENCE GROUNDING DETAILS

N.T.S.

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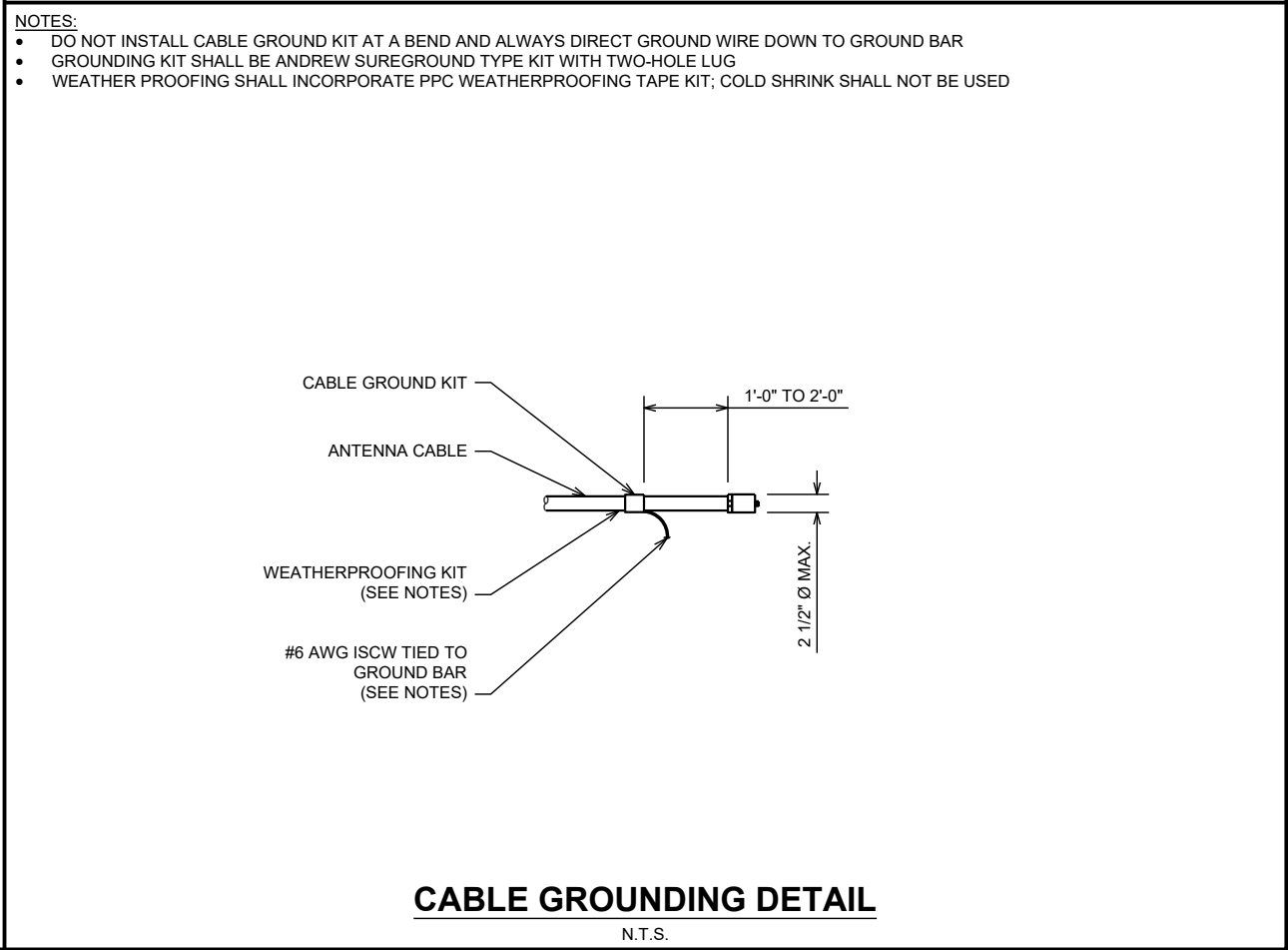
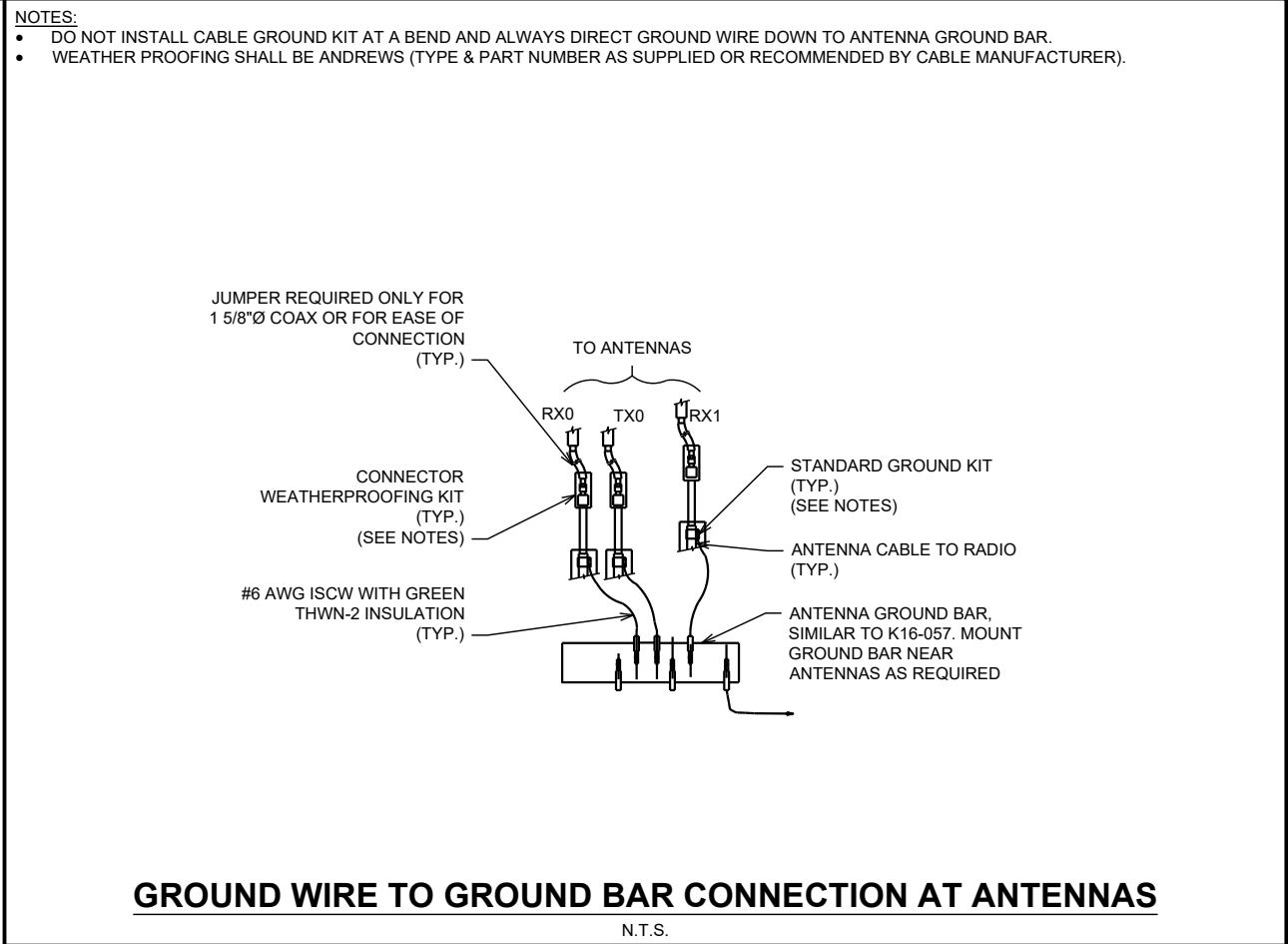
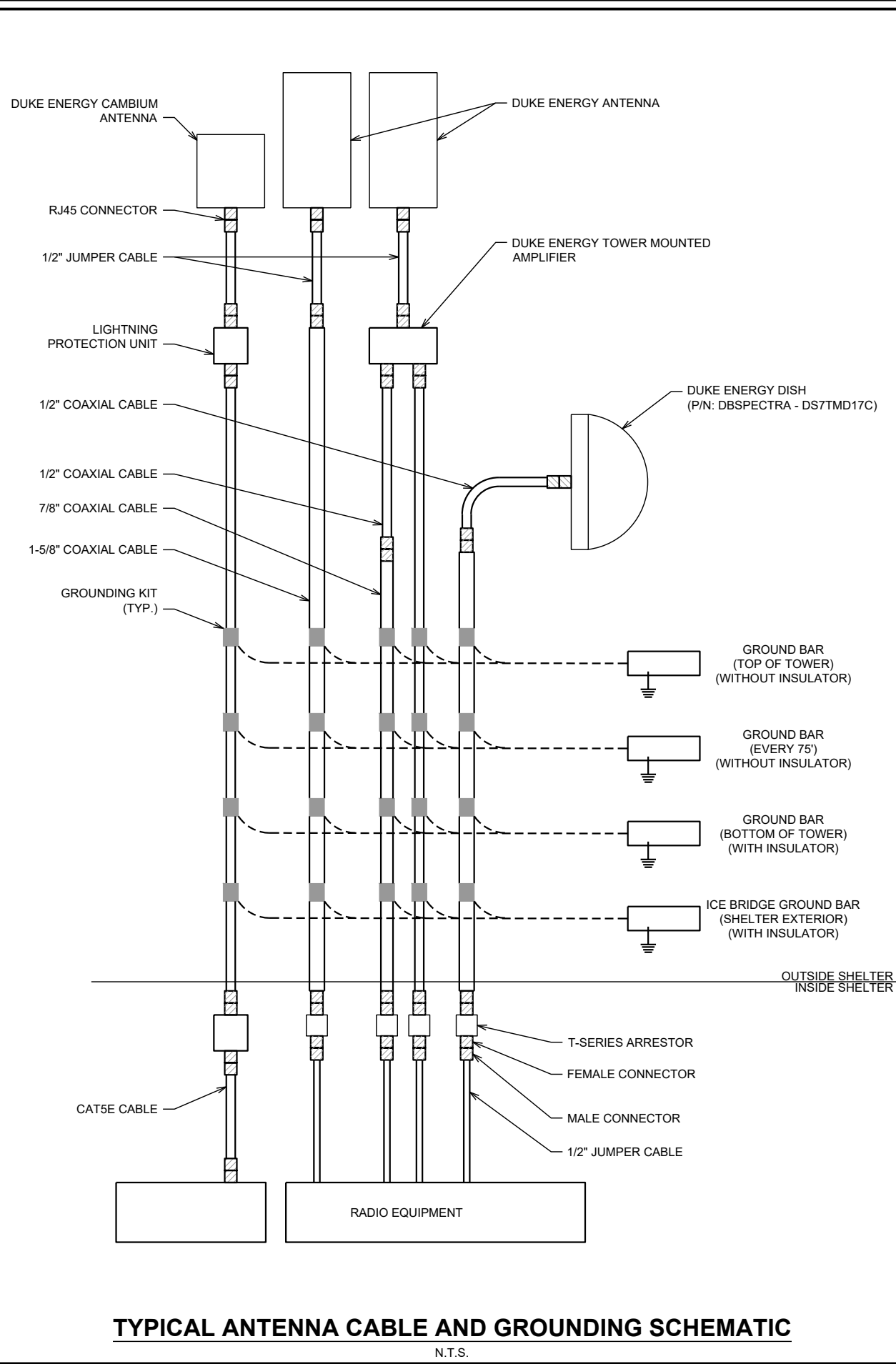
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SHEET TITLE:
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SHEET TITLE:
GROUNDING DETAILS III

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