



Clatsop County Community Development
 800 Exchange Street, Suite 100
 Astoria, Oregon 97103
 Phone 503 325-8611 Fax 503 338-3606

Email: comdev@clatsopcounty.gov Website: www.clatsopcounty.gov

<input type="checkbox"/> Development Permit	Fee \$85	<input type="checkbox"/> Flood Review	Fee \$110	<input type="checkbox"/> Geologic Hazard Review	Fee \$85
		<input type="checkbox"/> Flood Renewal	Fee \$50		
<input checked="" type="checkbox"/> Grading, Drainage, Erosion Control	Fee \$150	<input type="checkbox"/> Road Approach	Fee \$0	<input type="checkbox"/> Address Fee \$225	<input type="checkbox"/> Road Name Fee \$265
<input type="checkbox"/> Other – Description	Fee \$	Total Due \$			

All owners of record, per Clatsop County Assessment records, **must sign the application**.

Representatives of public agencies, corporations, trusts, etc. must provide documentation of signing authority (Power of Attorney, Trust Document, etc.).

INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED

Project Description: Replace existing cell tower with new taller tower for collocation of additional carriers.

Property Address 2329 Royal View Dr., Seaside, OR 97110

Owner: City of Seaside
 Address: 989 BROADWAY
 Phone: 503/738-5511

Email: skyle@cityofseaside.us
 City/State/Zip: Seaside, OR 97138
 Phone: _____
 Date: 8/12/2024 | 3:47:54 PM PDT

Signature: 

Owner: Crown Castle
 Address: _____
 Phone: _____

Email: _____
 City/State/Zip: _____
 Phone: _____
 Date: _____

Signature: _____

Applicant/Other: Zach Phillips w/Crown Castle
 Address: 1842 SW Lobelia St.
 Phone: 503/-708-9200

Email: zach.phillips@crowncastle.com
 City/State/Zip: Portland, OR 97219
 Phone: _____
 Date: 4/8/24

Signature: 

OFFICE USE ONLY

Base Zone(s): F-80 Overlay(s): GHO

Map ID(s): 61011CC00101 Acres: 4.29

Contiguous Properties in same ownership: _____

Existing Structures: CELL TOWER



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Grading, Drainage & Erosion Control Plan Review

Fee: \$150 for First Hour; \$100 per additional hour - Permit # _____

Required for land disturbing activities that include any of the following conditions or project components:

- Steep Slopes >20% within the disturbed area
- Retaining Walls >30 inches
- Removal/Fill >30 cubic yards, either imported, removed or relocated on site.
- Wetland Fill >50 cubic yards require a permit from the Oregon Department of State Lands.
- > 3,000 square feet of disturbed area. >one (1) acre of disturbed area requires a 1200-C permit from Oregon DEQ.
- Any new, realigned or relocated roads/culverts for any proposed development. Road Approach Permit # _____
- Proximity to Sensitive areas:
 - Wellheads within 100 feet
 - Streams within 50 feet
 - Proposed Slopes >3:1 and >6 feet in height of fill
 - Any Commercial/Industrial Development
 - Septic drain fields (primary & reserve) within 10 feet
 - Wetlands, mapped or known within 50 feet

Erosion Control Schedule of activities:

Maximum of 45 CY removed from Proposed tower location

Maximum of 28 CY fill/gravel placed on Proposed tower location

- Property owner Builder/Contractor/Developer is responsible for placement, monitoring and maintenance of temporary and permanent erosion control measures.

All land clearing, construction, or development involving the movement of earth shall conform to the plan as approved by the Clatsop County Engineer on permit # _____

All transport or materials is via (list roads) _____

All activities will be completed by date: _____

All Contractors/Builders/Developers must sign this application. Representatives of public agencies, corporations, trusts, etc. must provide documentation of signing authority.

CONTRACTOR(s): Summit Solutions (CCB#: 160656)

Mail Address: PO Box 2676 City/State/Zip Battle Ground, WA 98604

Contact Phone: 360/360-0330 Email: _____

Signature:  w/ Crown Castle Date: 1/3/25

BUILDER/DEVELOPER(s): _____

Mail Address: _____ City/State/Zip _____

Contact Phone: _____ Email: _____

Signature: _____ Date: _____

OFFICE USE ONLY

Property Description – Map ID: 61011CC00101 Site Address: 2329 ROYAL VIEW DR

Project Description: REPLACEMENT CELL TOWER

Zoning: F-80 Overlay District(s): GHO

Plan Elements

A. Site Map drawn to scale and depicting accurate size and distances for the following elements:

1. A scale and north arrow.
2. The location of the development site in relation to the property boundaries.
3. The location of all internal or adjacent roadways and access easements.
4. The location and size of all existing and proposed structures >200 square ft.
5. The location of any lakes, rivers, streams, wetlands, channels, ditches or other watercourses on or near the development site.
6. The direction of surface water flow.

B. Erosion Control Plan containing the following elements:

1. A scale and north arrow.
2. The location of existing vegetation adjacent to any watercourse.
3. Areas where vegetative cover will be retained and the type and location of measures taken to protect vegetation from damage.
4. Areas where vegetative cover will be removed and the location of temporary and permanent erosion control measures to be used including, but not limited to: silt fencing, straw bales, graveling, mulching, seeding, and sodding.
5. Indication of slope steepness, by degree, percentage or ratio. Include gradient of surface water flow.
6. The general slope or terrain characteristics of adjacent property.
7. Location of the construction access driveway(s) and vehicle parking area(s).
8. Location of soil/fill stockpiles.
9. Location of existing and proposed buildings, including locations of downspouts.

Public Works Reviewer Signature: _____

Name: _____ Date: _____

Approved Approved with Conditions Denied

Inspection Required prior to Building Codes Final: YES NO

SITE TYPE: MONOPOLE
TOWER HEIGHT: 50'
SITE CLASS: MONOPOLE

BUSINESS UNIT #: 827657
SITE ADDRESS: 2329 ROYAL VIEW DRIVE
COUNTY: SEASIDE, OR 97110
JURISDICTION: CLATSOP COUNTY

BU #: 827657
SEASIDE NORTH
2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
AND SWAP

GPD JOB #: 2022724.90.827657.01

SITE INFORMATION

CROWN CASTLE USA INC. SEASIDE NORTH
SITE NAME:
SITE ADDRESS: 2329 ROYAL VIEW DRIVE
SEASIDE, OR 97110

COUNTY: CLATSOP
MAP/PARCEL #: 61011CC00101
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 46° 00' 45.8"
LONGITUDE: -123° 53' 44.9"
LAT/LONG TYPE: NAD83
GROUND ELEVATION: 180.0' (AMSL)
CURRENT ZONING: FOREST F-80
JURISDICTION: CLATSOP COUNTY
OCCUPANCY CLASSIFICATION: U
TYPE OF CONSTRUCTION: IIB
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR
HUMAN HABITATION

PROPERTY OWNER: CITY OF SEASIDE
989 BROADWAY
SEASIDE, OR 97138

TOWER OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

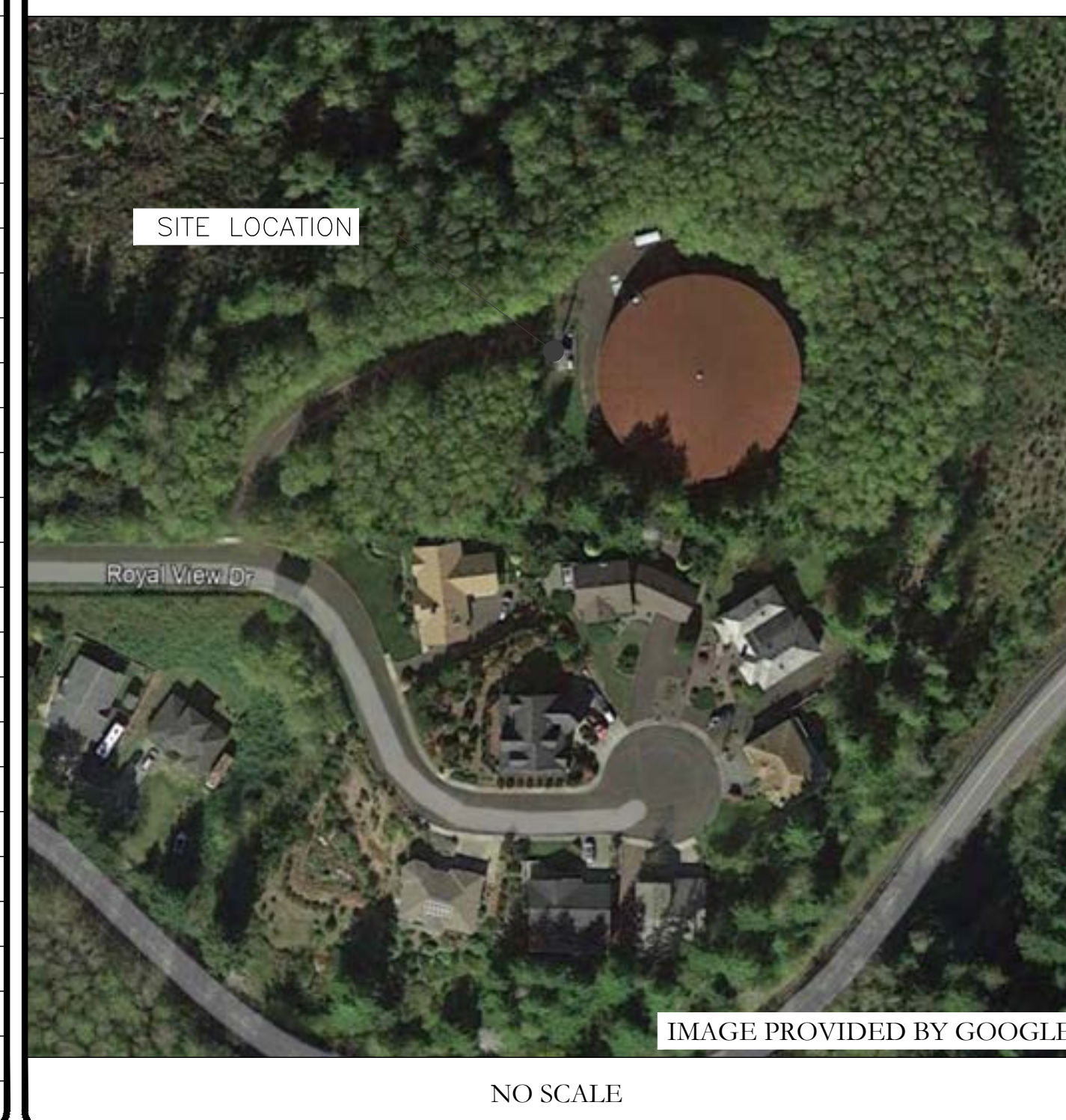
ELECTRIC PROVIDER: PACIFICORP

TELCO PROVIDER: CENTURYLINK

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
T-3	GENERAL NOTES
T-4	GENERAL NOTES
C-1	EXISTING OVERALL SITE PLAN
C-1.1	PROPOSED OVERALL SITE PLAN
C-2	EXISTING COMPOUND PLAN
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C-2.2	EROSION CONTROL PLAN
C-2.3	EXISTING SIGNAGE
C-3	TOWER ELEVATIONS
C-4	ANTENNA PLANS
C-5	EQUIPMENT DETAILS
C-6	EQUIPMENT DETAILS
C-7	EQUIPMENT DETAILS
G-1	SITE GROUNDING PLAN
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
G-4	GROUNDING DETAILS
G-5	ANTENNA GROUNDING PLAN

LOCATION MAP



SITE PHOTO



ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	08/05/2022	JA	PRELIMINARY	BML
B	08/10/2022	JA	REVISED TOWER LOCATION	BML
C	10/28/2022	JA	ADDED CARRIER EQUIPMENT	BML
0	09/13/2024	JA	ISSUED FOR CONST.	BML

NOTES

- GROUND SCOPE OF WORK IS LOCATED ON C-2.1.
- TOWER SCOPE OF WORK IS LOCATED ON C-3.
- ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES:

CODE TYPE	CODE
BUILDING	2022 OREGON STRUCTURAL SPECIALTY CODE (OSSC)
MECHANICAL	2022 OREGON MECHANICAL SPECIALTY CODE (OMSC)
ELECTRICAL	2023 OREGON ELECTRICAL SPECIALTY CODE (OESC)

PROJECT TEAM

A&E FIRM: GPD ENGINEERING AND ARCHITECTURE
PROFESSIONAL CORPORATION
520 SOUTH MAIN STREET, SUITE 2531
AKRON, OH 44311
(330) 572-2100

CROWN CASTLE USA INC. DISTRICT CONTACTS:
370 MALLORY STATION RD., SUITE 305
FRANKLIN, TN 37067
RYAN QUINTEL - PROJECT MANAGER
RYAN.QUINTEL@CROWNCastle.COM



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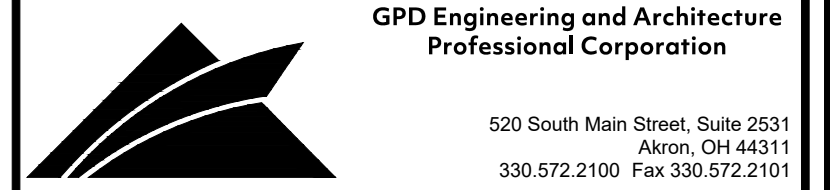
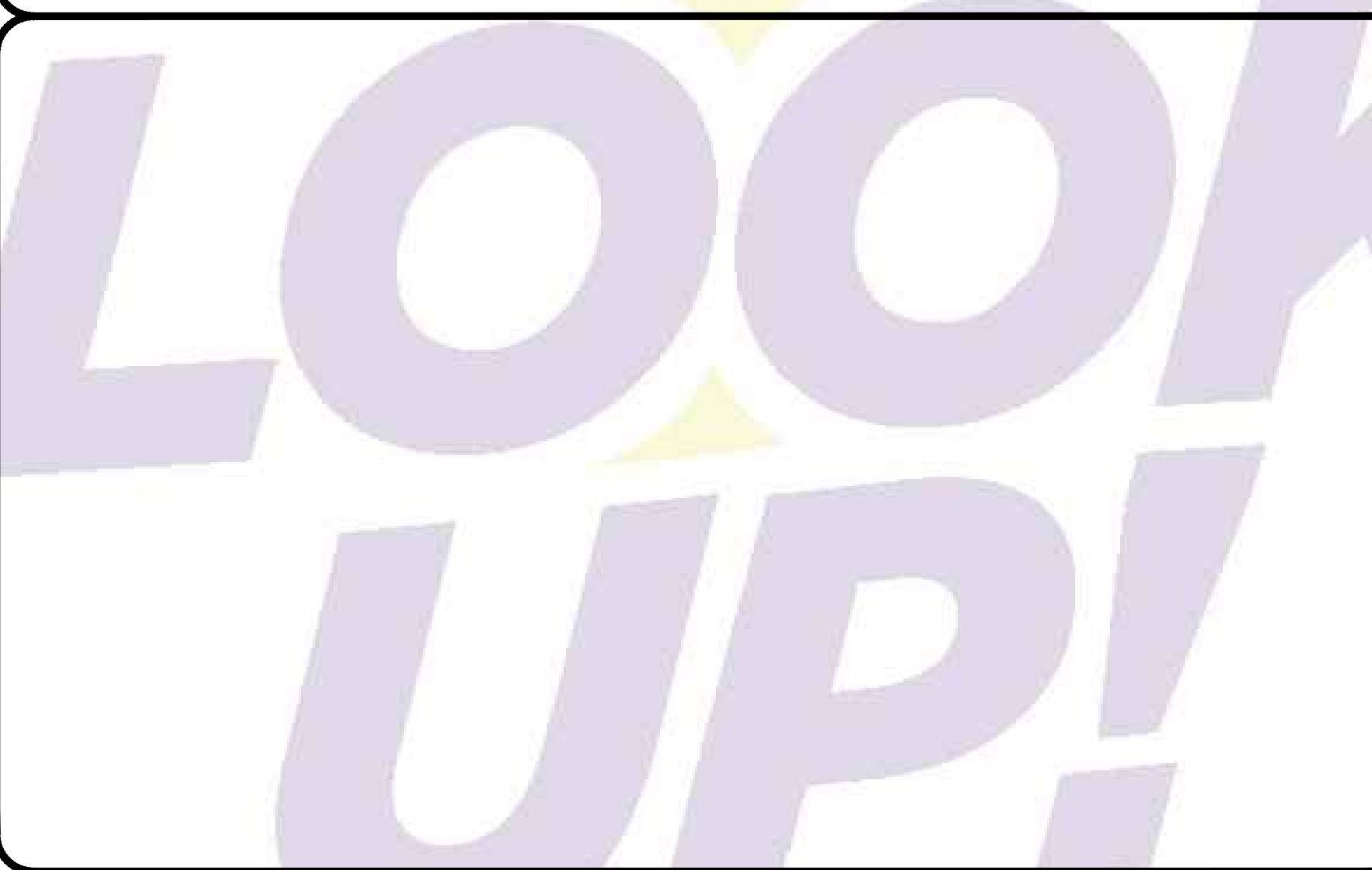
SHEET NUMBER: T-1
REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS." IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. 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 THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. 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 CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR 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 AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS. LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. 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, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. 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 ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR 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.
19. 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 OWNER.
20. CONTRACTOR 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.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. 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.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: T-MOBILE
TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. 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 THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. 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 CROWN CASTLE USA INC.
13. CONTRACTOR 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.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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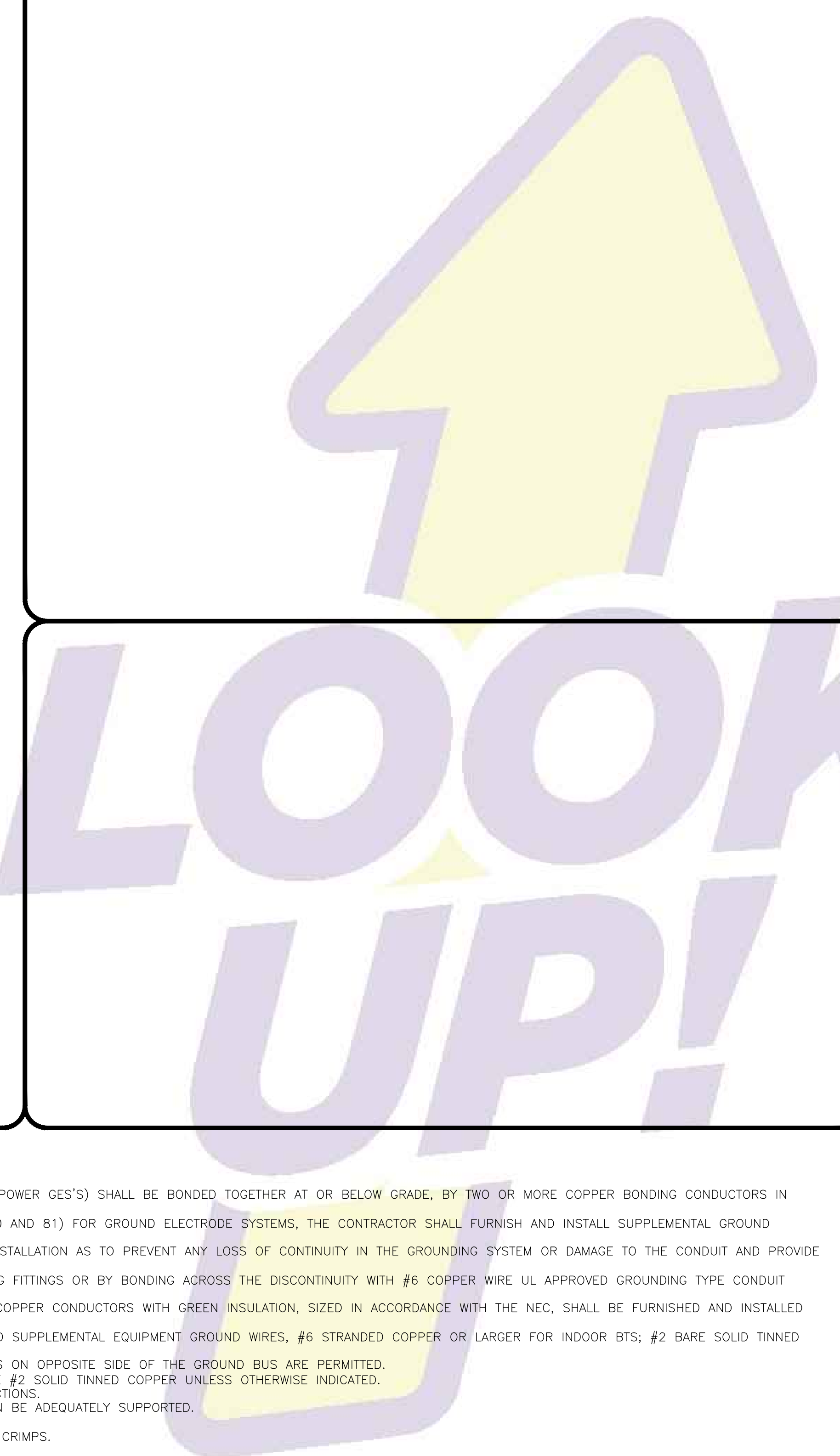
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SHEET NUMBER: **T-2** REVISION: **0**



ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT 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, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. 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 BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
120/208V, 3Ø	GROUND	GREEN
	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
277/480V, 3Ø	NEUTRAL	WHITE
	GROUND	GREEN
	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
DC VOLTAGE	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
 ** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

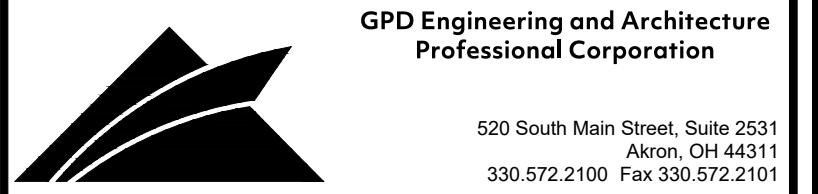
- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- GREEN SEWERS AND DRAIN LINES

ABBREVIATIONS:

- ANT ANTENNA
- (E) EXISTING
- FIF FACILITY INTERFACE FRAME
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- GSM GLOBAL SYSTEM FOR MOBILE
- LTE LONG TERM EVOLUTION
- MGB MASTER GROUND BAR
- MW MICROWAVE
- (N) NEW
- NEC NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLANT
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RET REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMA TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT

GREENFIELD 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 CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR 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 AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 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 CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 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 AND 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 ANTI-OXIDANT 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 RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING 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 CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).



**BU #: 827657
SEASIDE NORTH**

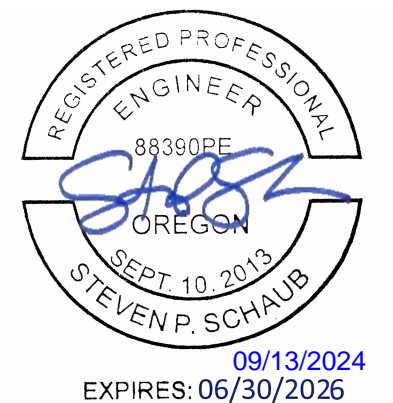
2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
AND SWAP

GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	08/05/2022	JA	PRELIMINARY	BML
B	08/10/2022	JA	REVISED TOWER LOCATION	BML
C	10/28/2022	JA	ADDED CARRIER EQUIPMENT	BML
0	09/13/2024	JA	ISSUED FOR CONST.	BML



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SHEET NUMBER:
T-3

REVISION:
0

**BU #: 827657
 SEASIDE NORTH**

2329 ROYAL VIEW DR
 SEASIDE, OR 97110

50' MONOPOLE DROP
 AND SWAP

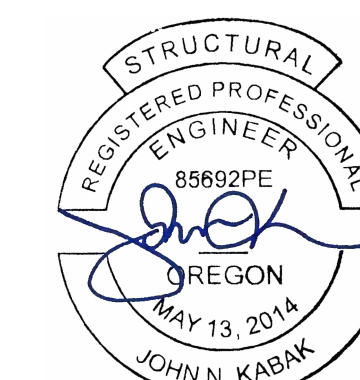
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CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- 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.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'_c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (w/c) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (F_y) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 #4 BARS AND SMALLER..... 40 ksi
 #5 BARS AND LARGER..... 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH..... 3"
 CONCRETE EXPOSED TO EARTH OR WEATHER:
 #6 BARS AND LARGER..... 2"
 #5 BARS AND SMALLER..... 1-1/2"
 CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 SLAB AND WALLS..... 3/4"
 BEAMS AND COLUMNS..... 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.



09/13/2024
 EXPIRES: 06/30/25

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SHEET NUMBER: REVISION:

T-4 0

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CROWN CASTLE
 1500 CORPORATE DRIVE
 CANONSBURG, PA 15317

GPD Engineering and Architecture Professional Corporation
 520 South Main Street, Suite 2531
 Akron, OH 44311
 330.572.2100 Fax 330.572.2101

**BU #: 827657
 SEASIDE NORTH**
 2329 ROYAL VIEW DR
 SEASIDE, OR 97110

50' MONOPOLE DROP AND SWAP

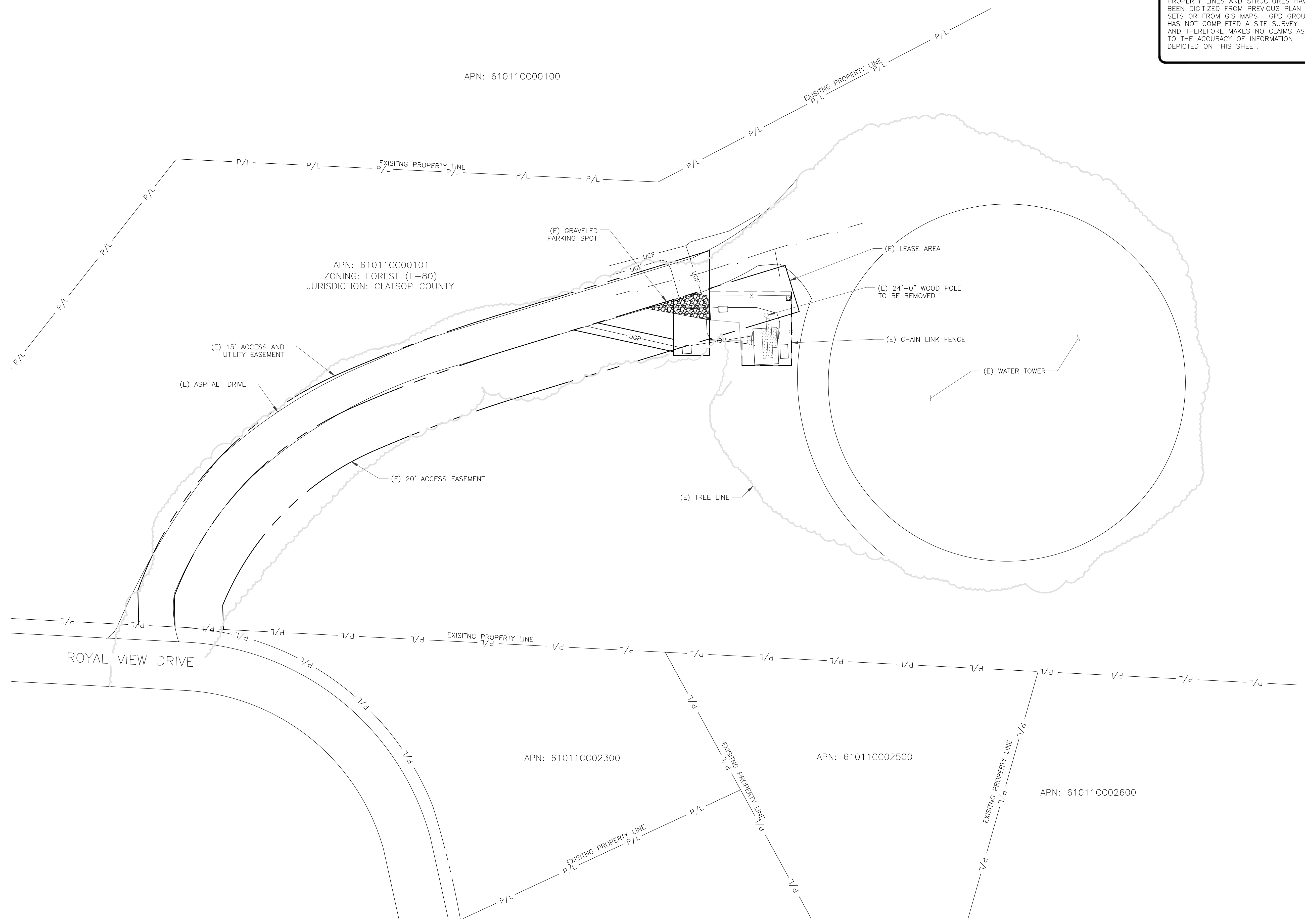
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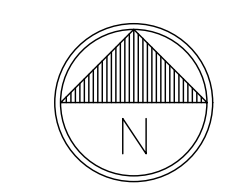
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REGISTERED PROFESSIONAL ENGINEER
 90401PE
Christopher J. Scheks
 OREGON
 SEP 8, 2015
 CHRISTOPHER J. SCHEKS
 09/13/2024
 EXPIRES: 06/30/2026

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1 EXISTING OVERALL SITE PLAN
 SCALE: 1"=20'-0" (FULL SIZE)
 1"=40'-0" (11x17)



SHEET NUMBER: **C-1** REVISION: **0**

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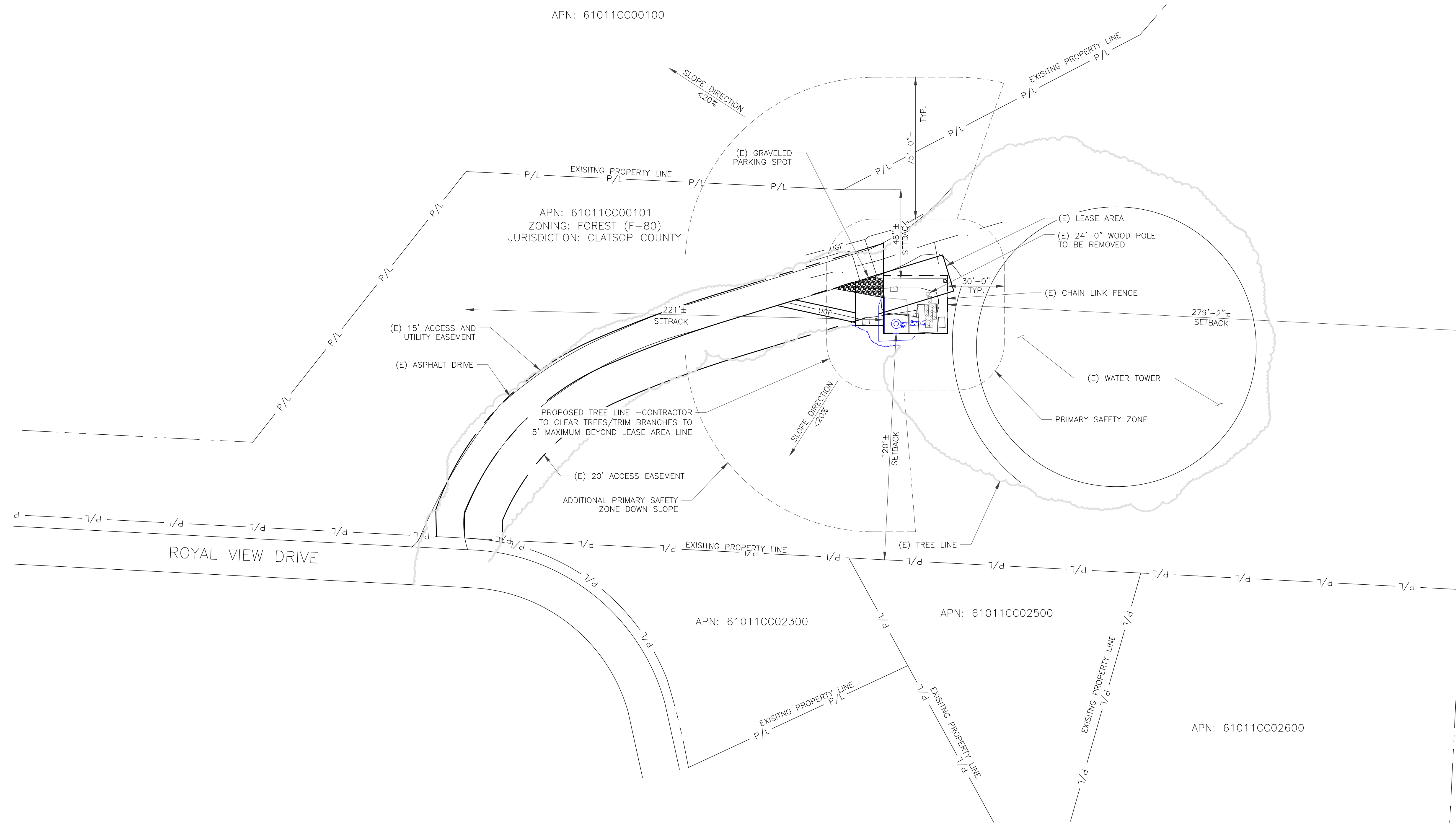
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BU #: 827657
SEASIDE NORTH
 2329 ROYAL VIEW DR
 SEASIDE, OR 97110
 50' MONOPOLE DROP AND SWAP
 GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

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1 PROPOSED OVERALL SITE PLAN
 SCALE: 1"=30'-0" (FULL SIZE)
 1"=60'-0" (11x17)



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SHEET NUMBER: C-1.1 **REVISION: 0**

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BU #: 827657
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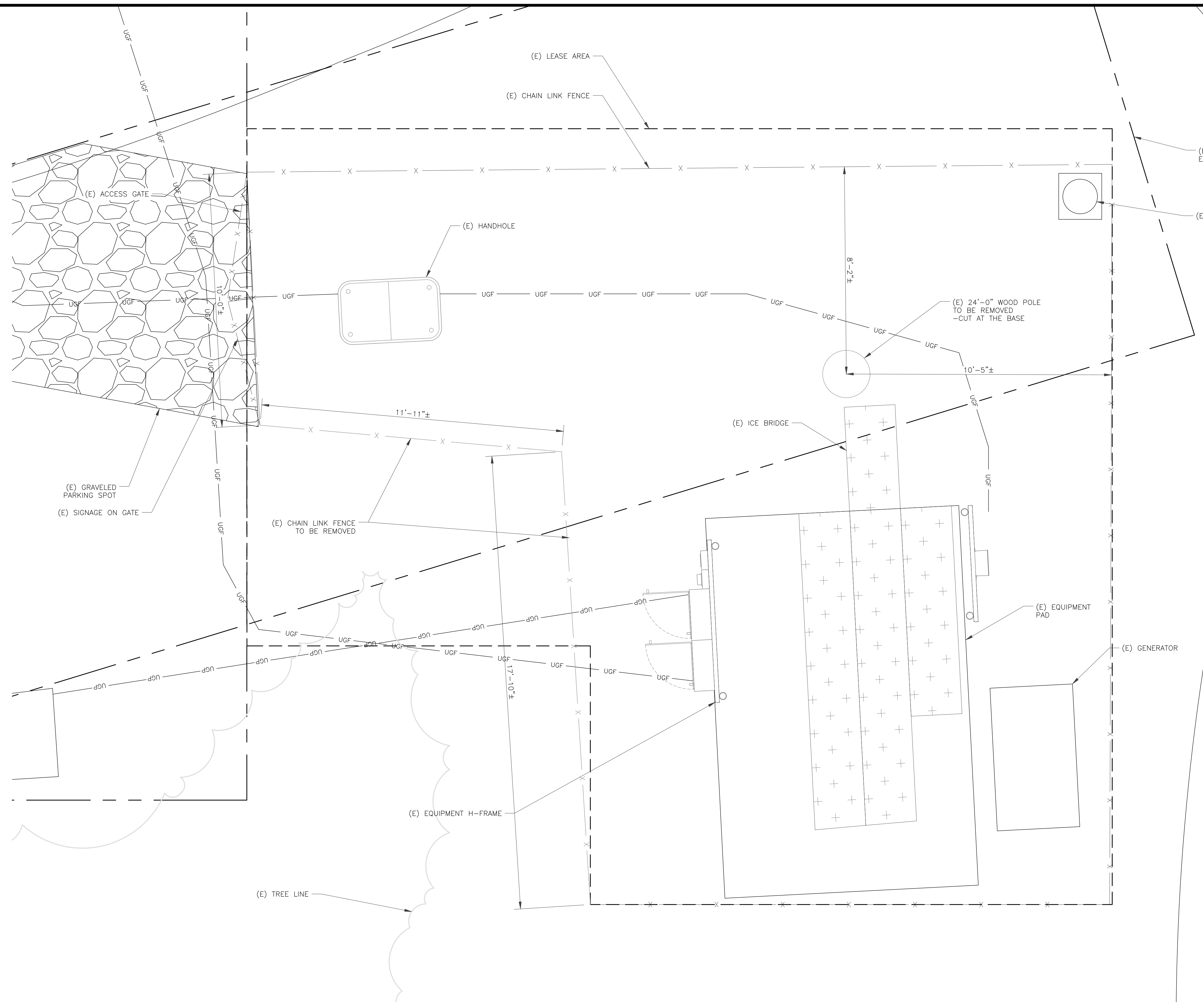
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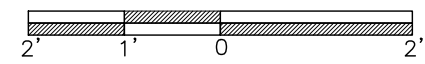
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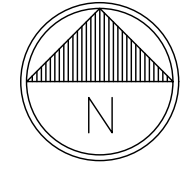


REGISTERED PROFESSIONAL ENGINEER
 90401PE
 Christopher J. Scheks
 OREGON
 SEP 8, 2015
 CHRISTOPHER J. SCHEKS
 09/13/2024
 EXPIRES: 06/30/2026

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1 EXISTING COMPOUND PLAN
 SCALE:  1/2"=1'-0" (FULL SIZE)
 1/4"=1'-0" (11x17)



SHEET NUMBER:
C-2

REVISION:
0

**BU #: 827657
 SEASIDE NORTH**

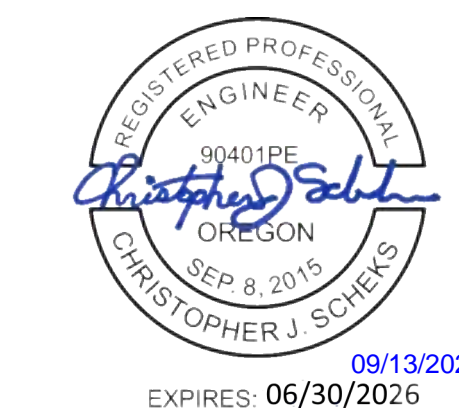
2329 ROYAL VIEW DR
 SEASIDE, OR 97110

50' MONOPOLE DROP
 AND SWAP

GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

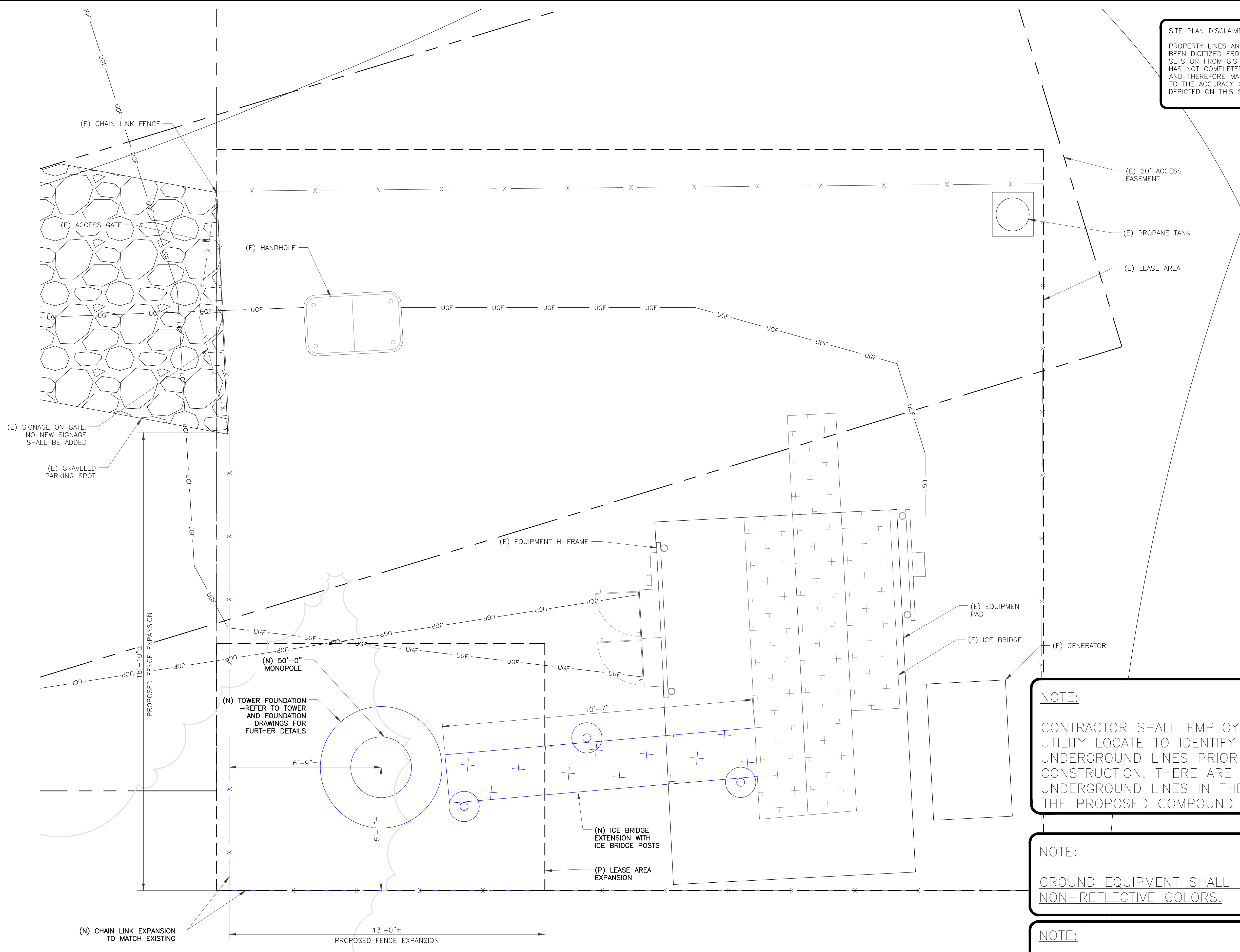
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SHEET NUMBER: C-2.1
REVISION: 0

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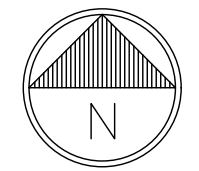


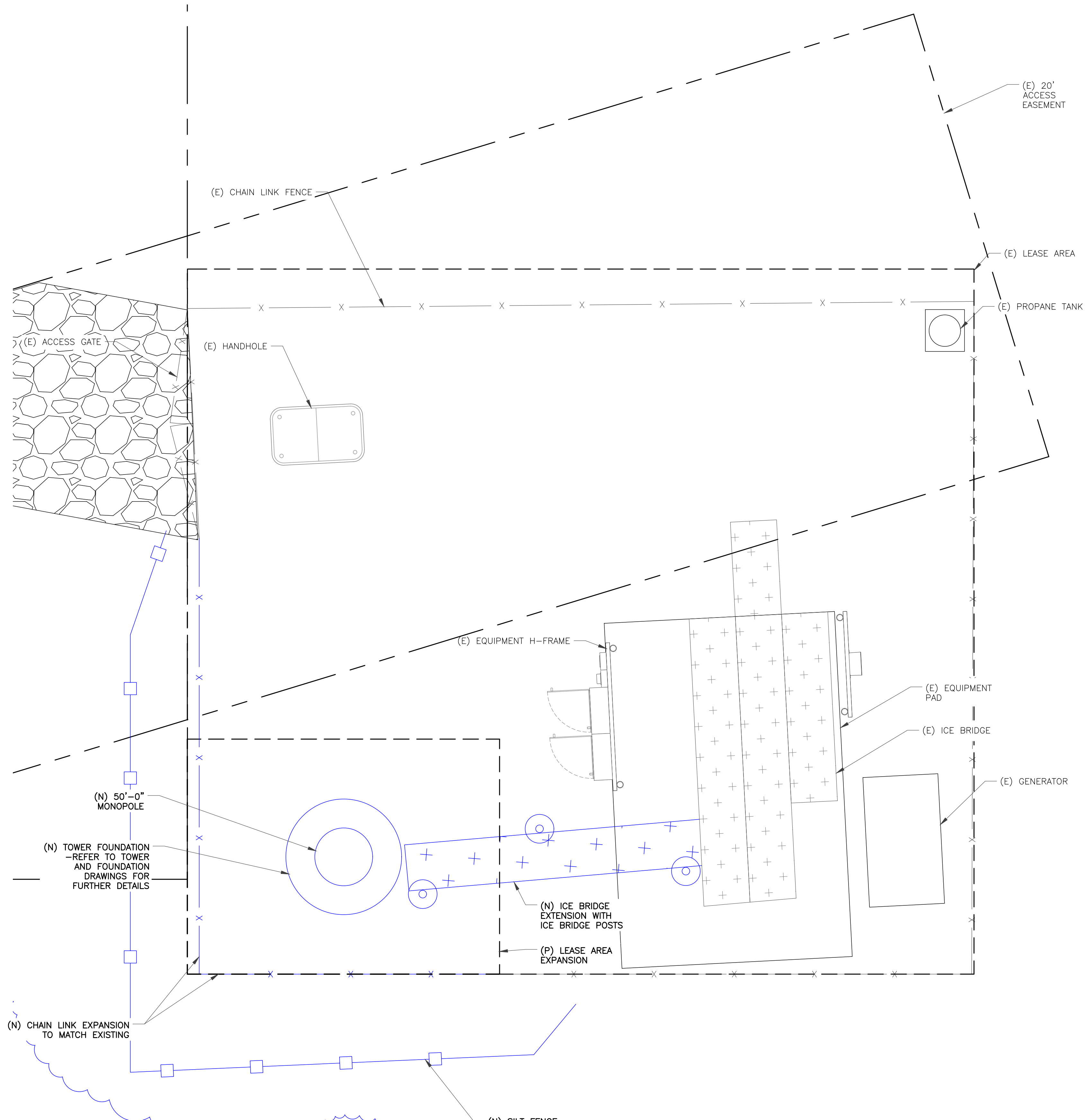
NOTE:
 CONTRACTOR SHALL EMPLOY A PRIVATE UTILITY LOCATE TO IDENTIFY EXISTING UNDERGROUND LINES PRIOR TO ANY CONSTRUCTION. THERE ARE SEVERAL UNDERGROUND LINES IN THE VICINITY OF THE PROPOSED COMPOUND EXPANSION.

NOTE:
 GROUND EQUIPMENT SHALL BE NON-REFLECTIVE COLORS.

NOTE:
 PROPOSED TOWER FOUNDATION TO BE DRILLED PIER ONLY.

1 PROPOSED COMPOUND PLAN
 SCALE: 1/2"=1'-0" (FULL SIZE)
 1/4"=1'-0" (11x17)



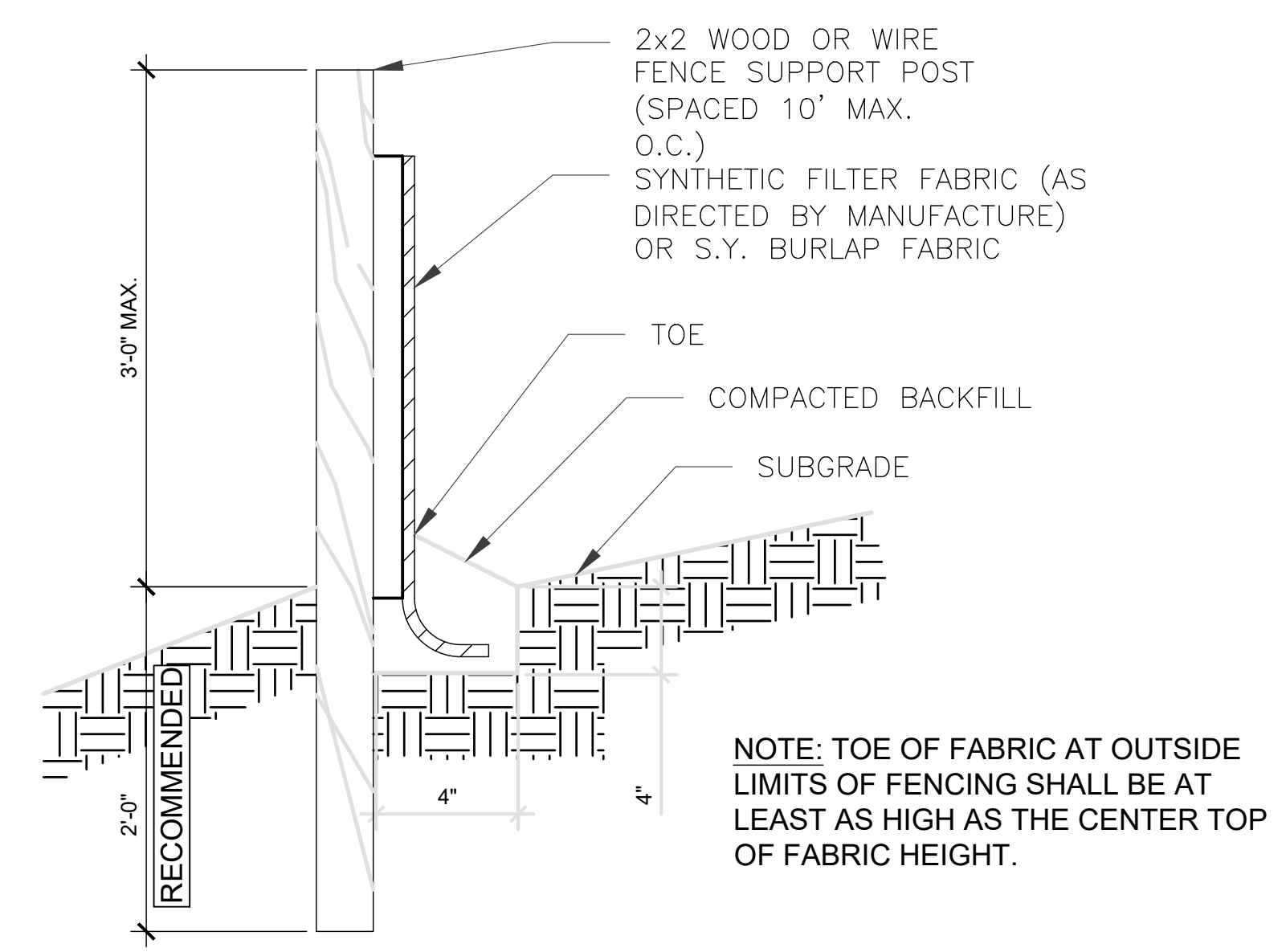


NOTE:
GROUND EQUIPMENT SHALL BE NON-REFLECTIVE COLORS.

NOTE:
PROPOSED TOWER FOUNDATION TO BE DRILLED PIER ONLY.

1 EROSION CONTROL PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)

SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM GIS MAPS. GPD GROUP HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



NOTES:

1. THE HEIGHT OF THE SILT FENCE SHALL NOT EXCEED 36 INCHES.
2. THE FILTER FABRIC SHALL BE WOVEN FABRIC AND SHALL BE PURCHASED IN A CONTINUOUS ROLL TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO THE EXISTING TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER FABRIC.
9. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
10. SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
11. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
12. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
13. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

2 SILT FENCE DETAIL
SCALE: NOT TO SCALE



BU #: 827657
SEASIDE NORTH
2329 ROYAL VIEW DR
SEASIDE, OR 97110
50' MONOPOLE DROP
AND SWAP
GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	08/05/2022	JA	PRELIMINARY	BML
B	08/10/2022	JA	REVISED TOWER LOCATION	BML
C	10/28/2022	JA	ADDED CARRIER EQUIPMENT	BML
0	09/13/2024	JA	ISSUED FOR CONST.	BML

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SHEET NUMBER: **C-2.2** REVISION: **0**

**BU #: 827657
 SEASIDE NORTH**

2329 ROYAL VIEW DR
 SEASIDE, OR 97110

50' MONOPOLE DROP
 AND SWAP

GPD JOB #: 2022724.90.827657.01

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REGISTERED PROFESSIONAL
 ENGINEER
 90401PE
Christopher J. Scheks
 OREGON
 SEP 8, 2015
 CHRISTOPHER J. SCHEKS
 09/13/2024
 EXPIRES: 06/30/2026

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SHEET NUMBER: **C-2.3** REVISION: **0**



EXISTING SIGNAGE ON
 GATE TO REMAIN. NO NEW
 SIGNAGE SHALL BE ADDED

12/08/2021

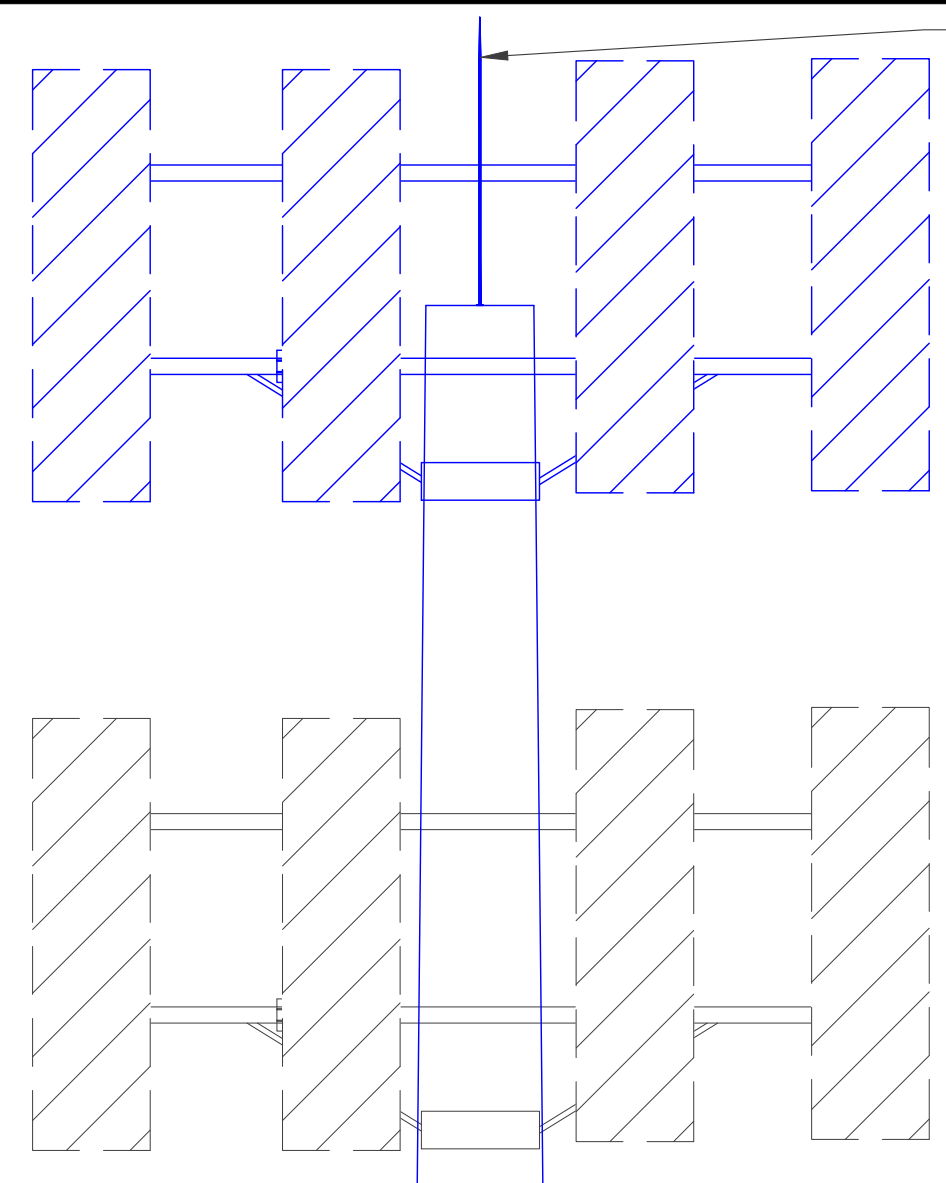
(N) STRUCTURE W/ APPURTENANCE
ELEV. = 55'-0" AGL

(N) HEIGHT OF STRUCTURE
ELEV. = 50'-0" AGL

(N) T-MOBILE RAD CENTER
ELEV. = 50'-0" AGL

FUTURE CARRIER ANTENNA
ELEV. = 41'-0" AGL

(N) PROPOSED LIGHTNING ROD 5' MAX.



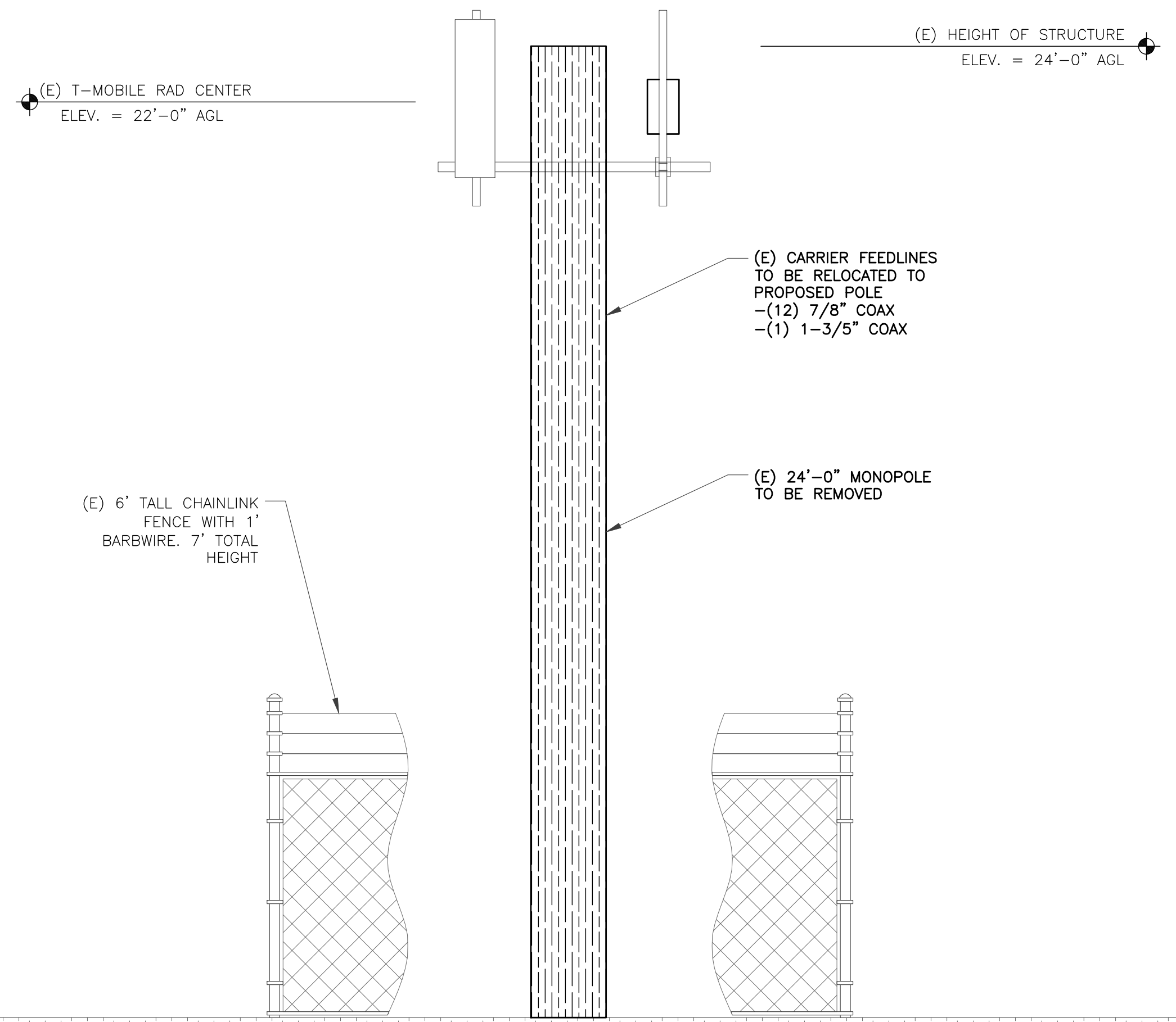
"LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

NOTE:
PROPOSED TOWER IS UNLIT

(N) 50'-0" MONOPOLE

NOTE:
TOWER AND TOWER-MOUNTED EQUIPMENT SHALL BE NON-REFLECTIVE COLORS. TOWER SHALL BE NON-REFLECTIVE GRAY



(N) 6' TALL CHAINLINK FENCE WITH 1' BARBWIRE. 7' TOTAL HEIGHT

(E) 6' TALL CHAINLINK FENCE WITH 1' BARBWIRE. 7' TOTAL HEIGHT

1 EXISTING ELEVATION
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)

2 FINAL ELEVATION
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



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SEASIDE NORTH

2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
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GPD JOB #: 2022724.90.827657.01

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09/13/2024
EXPIRES: 06/30/2026

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SHEET NUMBER: C-3
REVISION: 0

BU #: 827657
SEASIDE NORTH

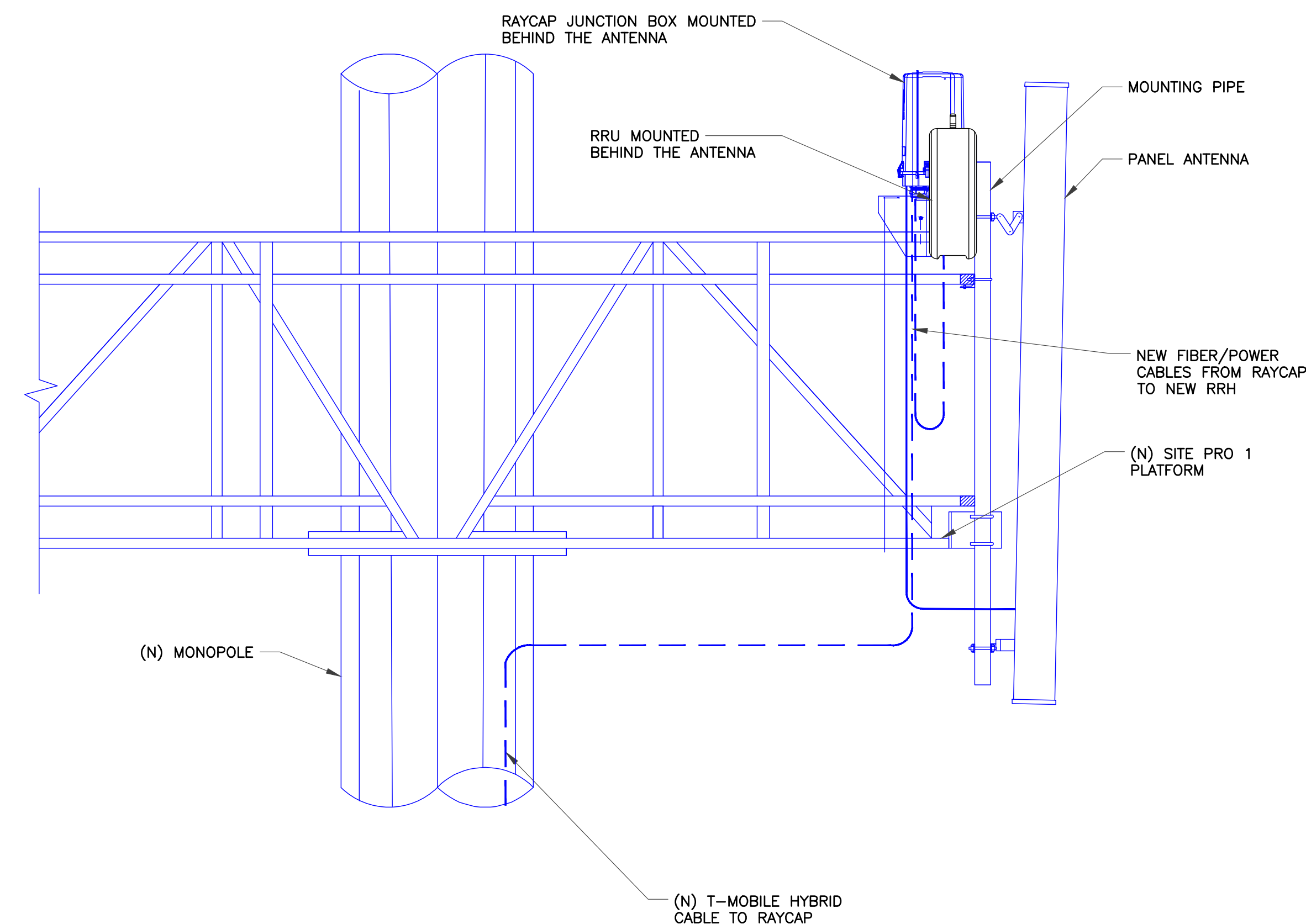
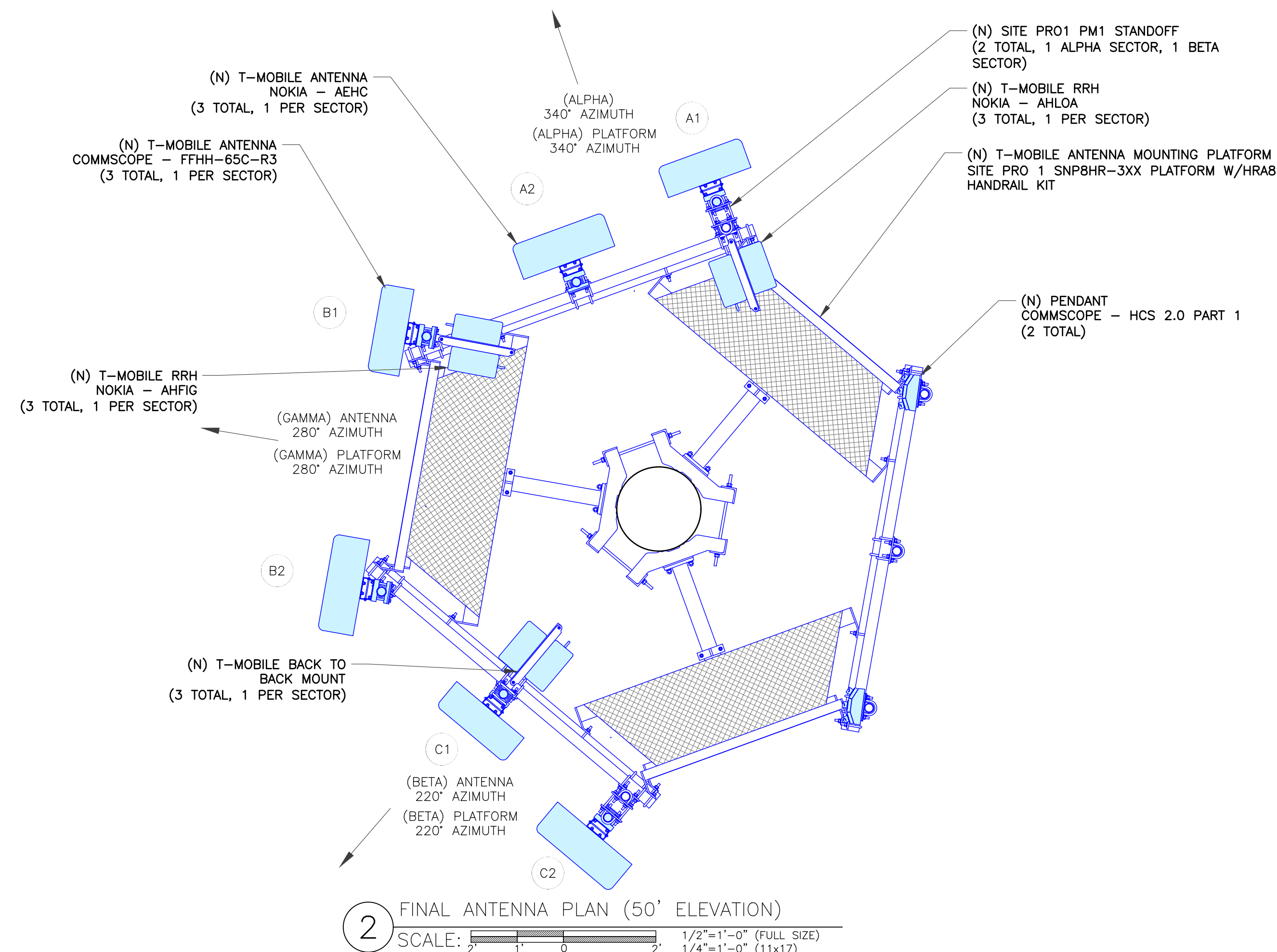
2329 ROYAL VIEW DR
 SEASIDE, OR 97110

50' MONOPOLE DROP
 AND SWAP

GPD JOB #: 202274.90.827657.01

FINAL EQUIPMENT SCHEDULE														
ALPHA	POSITION	ANTENNA					TOWER MOUNTED EQUIPMENT			CABLES				
		TECHNOLOGY	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	MECH. TILT	ELEC. TILT	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS/TYPE	SIZE	LENGTH
A1		N600/L600/L700/G1900/ N1900/L1900/L2100	(N) COMMSCOPE FFHH-65C-R3	340°	50'-0"	0°	-	1	(N) NOKIA - AHFIG	TOWER	1	NOKIA HCS 2.0 PART 3	1.5"	80'-0"
								1	(N) NOKIA - AHLOA	TOWER				
A2		N2500	(N) NOKIA - AEHC	340°	50'-0"	0°	-	1	(N) HCS 2.0 PART 1	TOWER	-	-	-	-
BETA														
B1		N600/L600/L700/G1900/ N1900/L1900/L2100	(N) COMMSCOPE FFHH-65C-R3	220°	50'-0"	0°	-	1	(N) NOKIA - AHFIG	TOWER	1	NOKIA HCS 2.0 PART 3	1.5"	80'-0"
								1	(N) NOKIA - AHLOA	TOWER				
B2		N2500	(N) NOKIA - AEHC	220°	50'-0"	0°	-	1	(N) HCS 2.0 PART 1	TOWER	-	-	-	-
GAMMA														
C1		N600/L600/L700/G1900/ N1900/L1900/L2100	(N) COMMSCOPE FFHH-65C-R3	280°	50'-0"	0°	-	1	(N) NOKIA - AHFIG	TOWER	-	-	-	-
								1	(N) NOKIA - AHLOA	TOWER				
C2		N2500	(N) NOKIA - AEHC	280°	50'-0"	0°	-	-	-	-	-	-	-	-

1 ANTENNA SCHEDULE
 SCALE: NOT TO SCALE



3 RAYCAP/RRH/ANTENNA DETAIL
 SCALE: NOT TO SCALE

ISSUED FOR:

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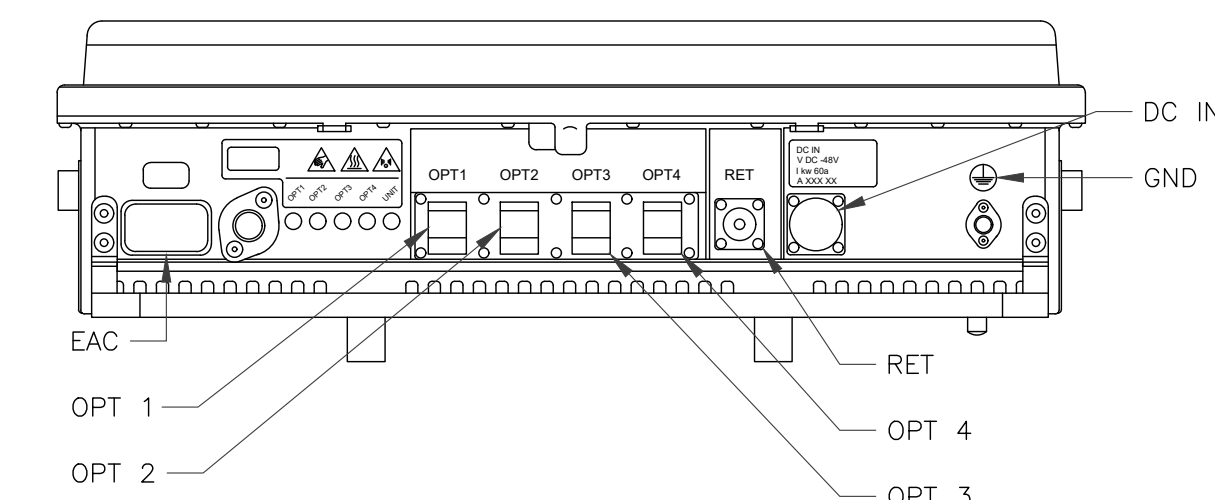
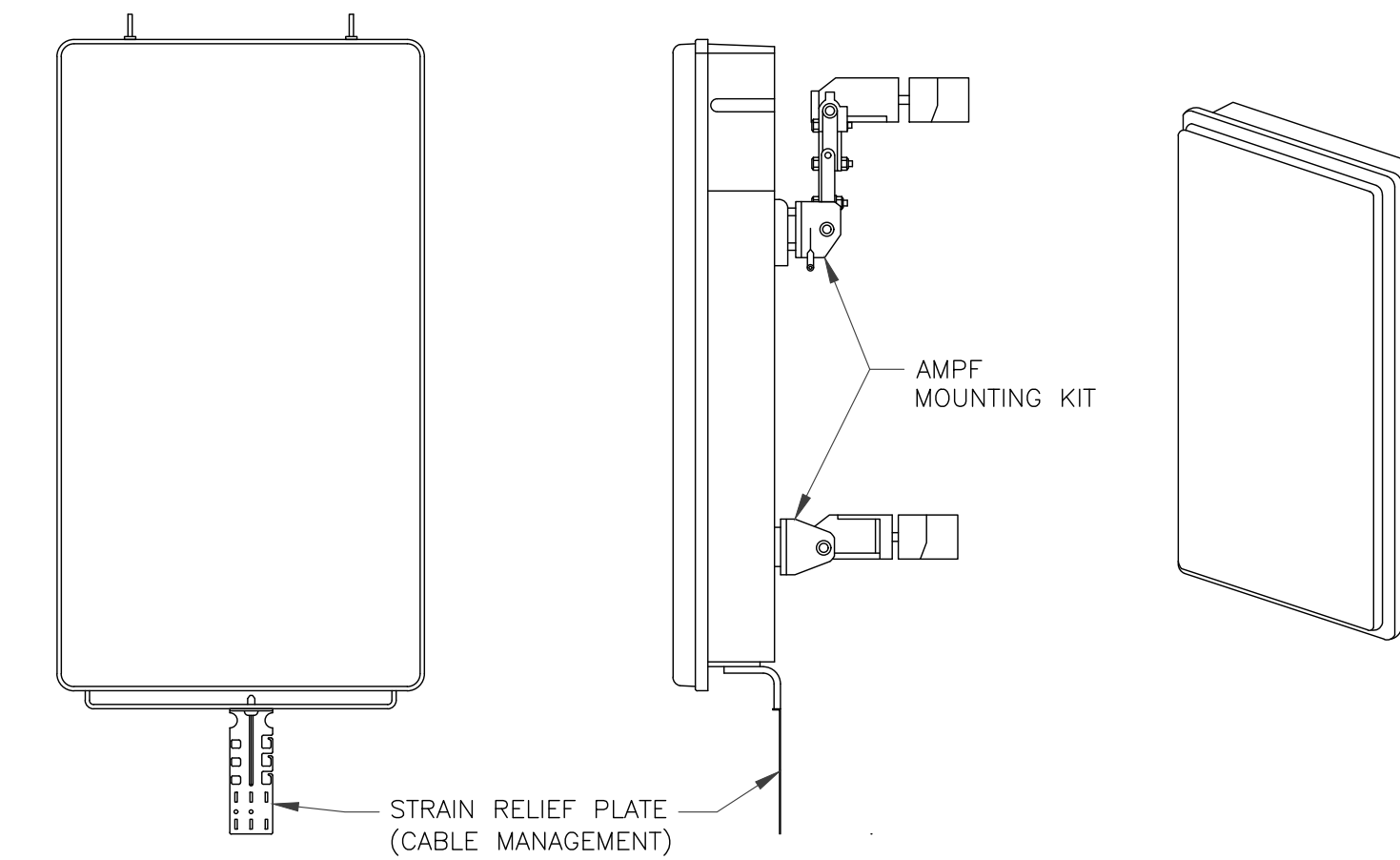
REGISTERED PROFESSIONAL ENGINEER
 99401PE
 Christopher J. Scheks
 OREGON
 SEP 8, 2015
 CHRISTOPHER J. SCHEKS
 09/13/2024
 EXPIRES: 06/30/2026

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SHEET NUMBER: **C-4** REVISION: **0**

MANUFACTURER:	NOKIA
MODEL:	AEHC
DIMENSIONS (HxWxD):	37.95"x21.42"x5.91"
WEIGHT:	108 LBS
BAND:	B41/n41
MOUNTING KIT:	AMPF (475188A) (NOT INCLUDED)

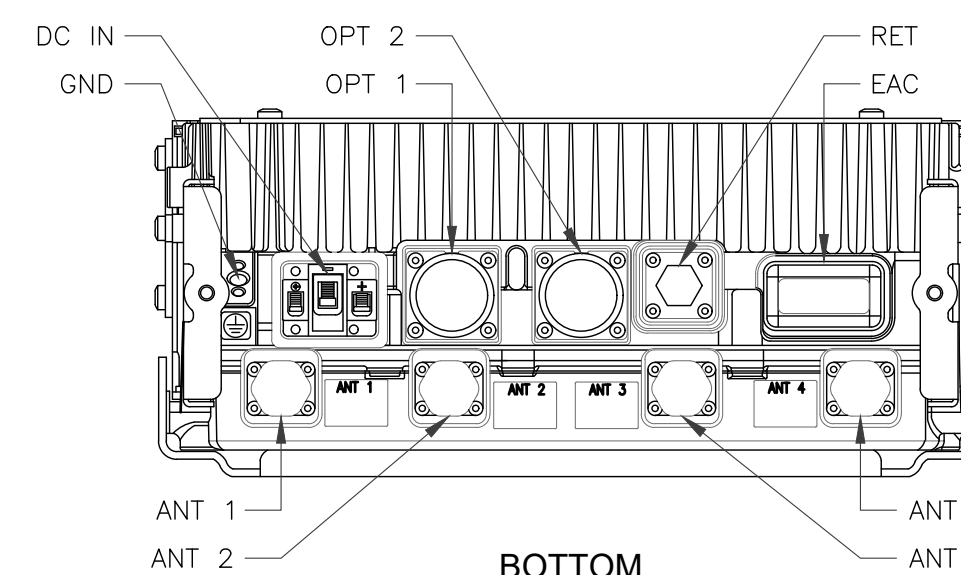
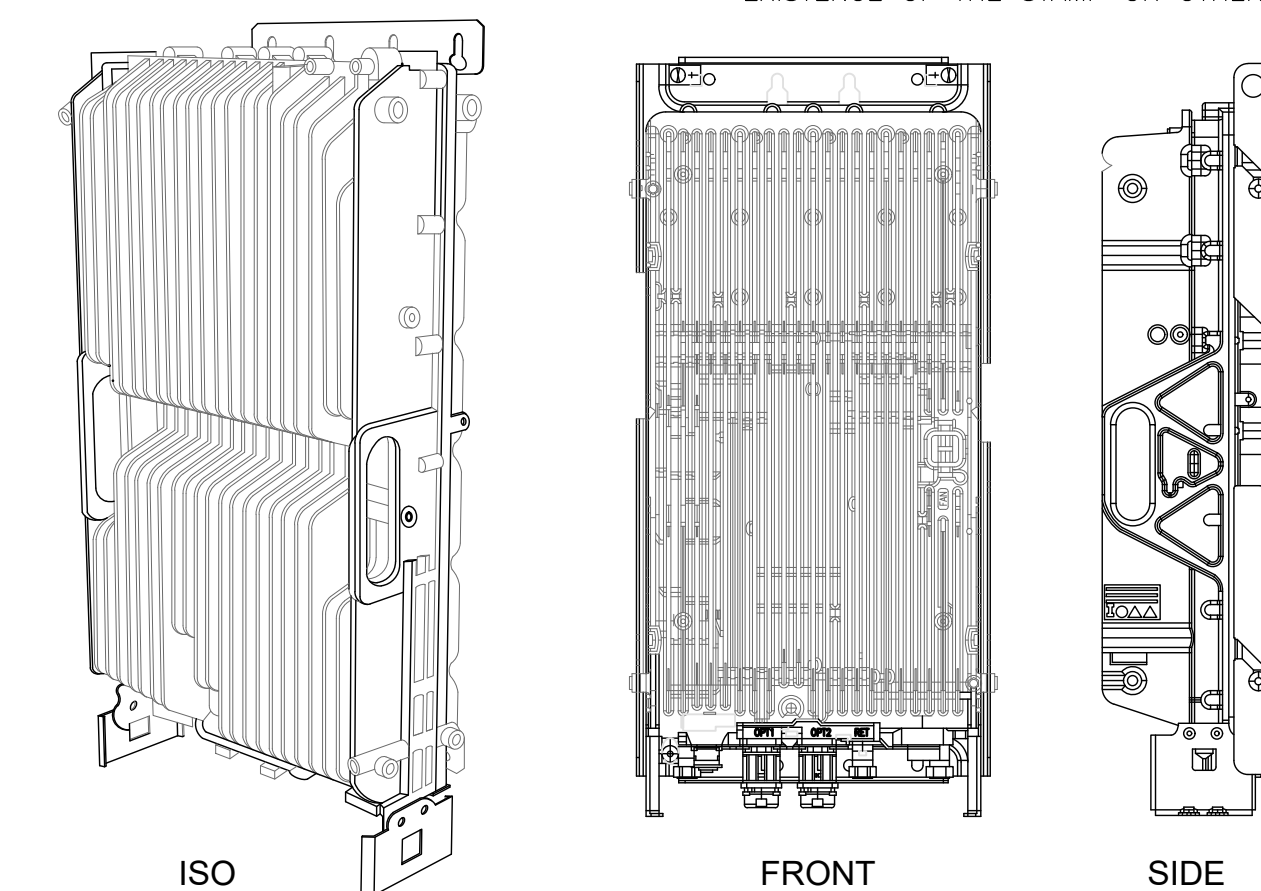
THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFOR, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. THIS DETAIL IS FOR REFERENCE ONLY. ANY RELIANCE ON THIS DETAIL SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE.



3 NOKIA AEHC ANTENNA SPEC
SCALE: NOT TO SCALE

MANUFACTURER:	NOKIA
MODEL:	AHLOA
DIMENSIONS (HxWxD):	22.1"x12.1"x7.4"
WEIGHT:	83.5 LBS

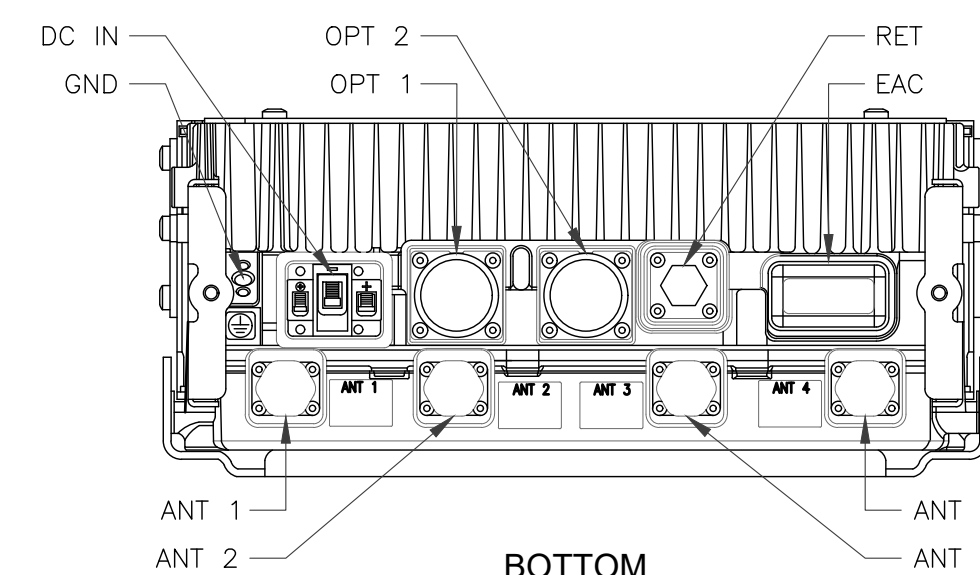
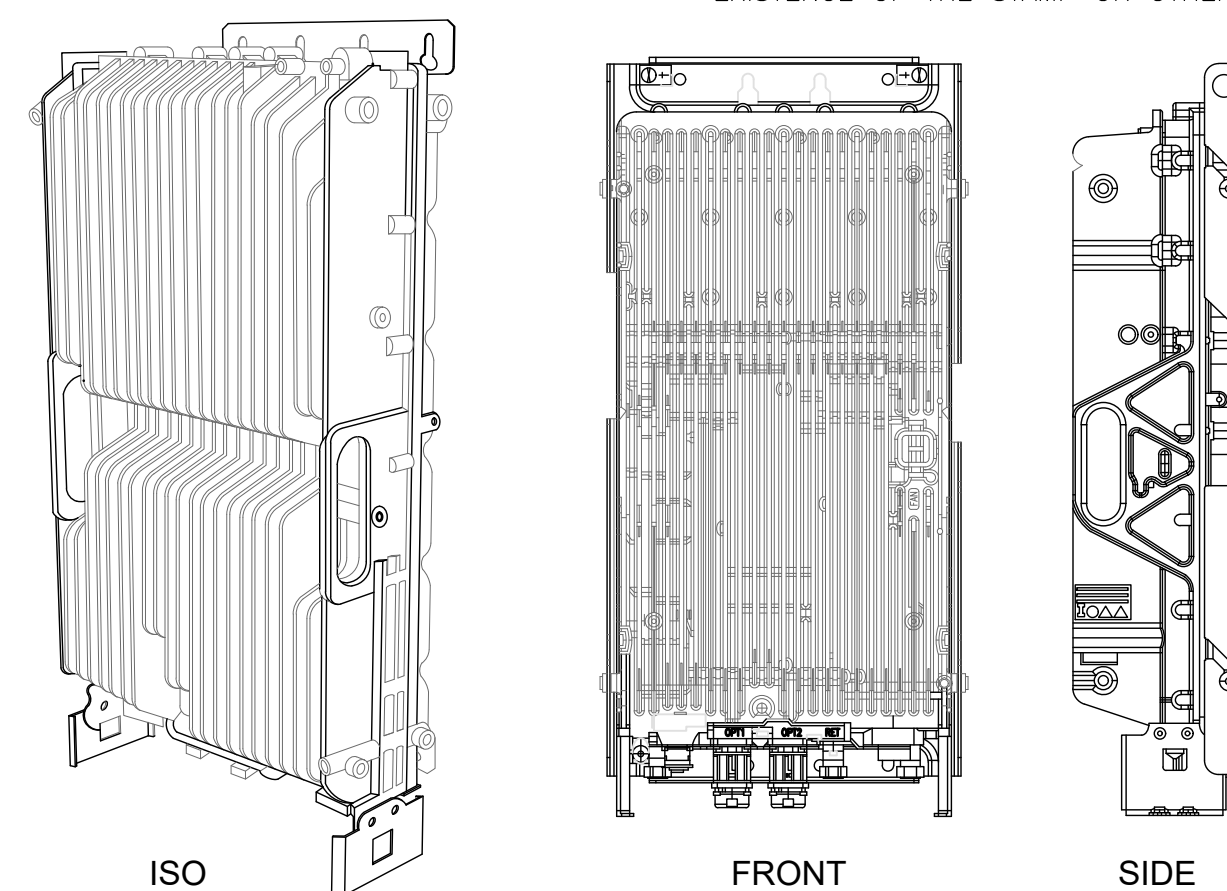
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6 NOKIA AHLOA RRH
SCALE: NOT TO SCALE

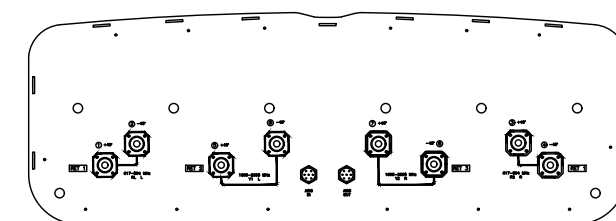
MANUFACTURER:	NOKIA
MODEL:	AHFIG
DIMENSIONS (HxWxD):	28.7"x12.9"x5.6"
WEIGHT:	70.5 LBS

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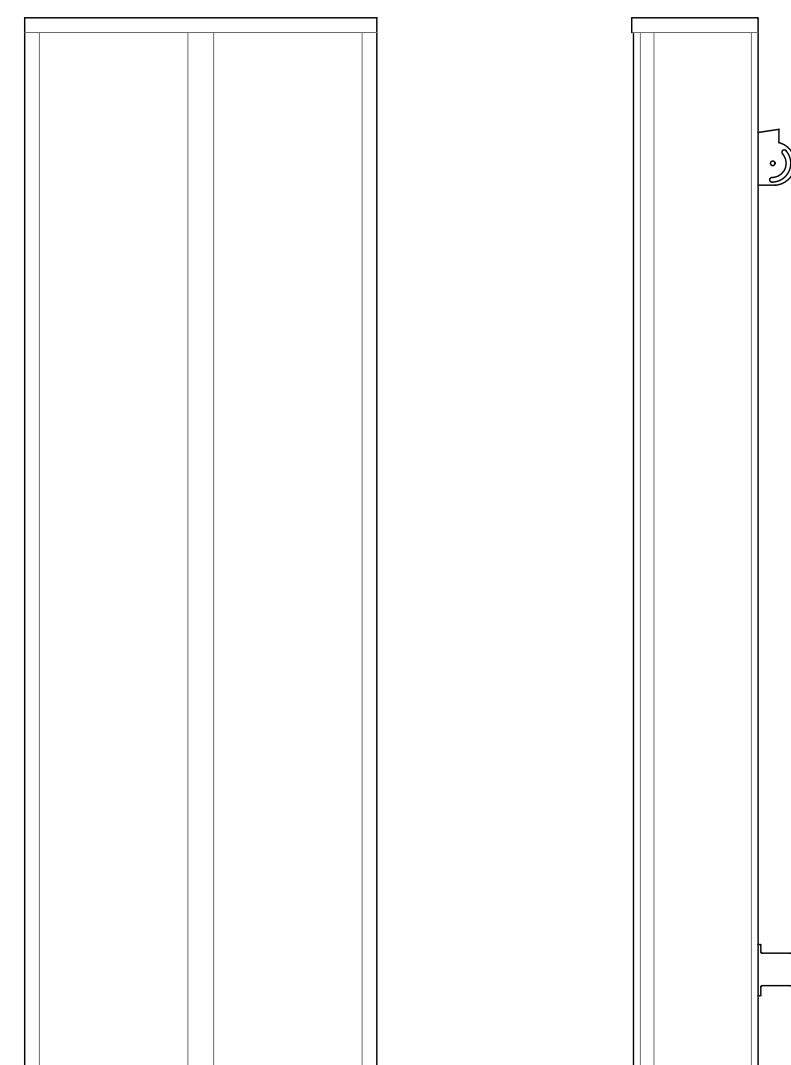


5 NOKIA AHFIG RRH
SCALE: NOT TO SCALE

MANUFACTURER:	COMMSCOPE
MODEL:	FFHH-65C-R3
DIMENSIONS (HxWxD):	95.95"x25.19"x9.3"
WEIGHT:	127.65 LBS
BAND:	MULTIBAND
MOUNTING KIT:	BSAMNT-4 (INCLUDED)



NOTE:
RF CONNECTORS (4.3-10 FEMALE)

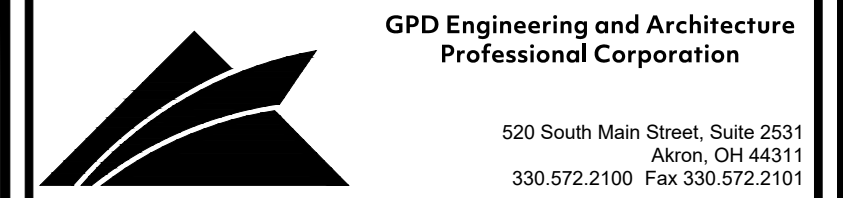


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4 COMMSCOPE FFHH-65C-R3 ANTENNA
SCALE: NOT TO SCALE

1 DETAIL NOT USED
SCALE: NOT TO SCALE

2 DETAIL NOT USED
SCALE: NOT TO SCALE



BU #: 827657
SEASIDE NORTH

2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
AND SWAP

GPD JOB #: 202274.90.827657.01

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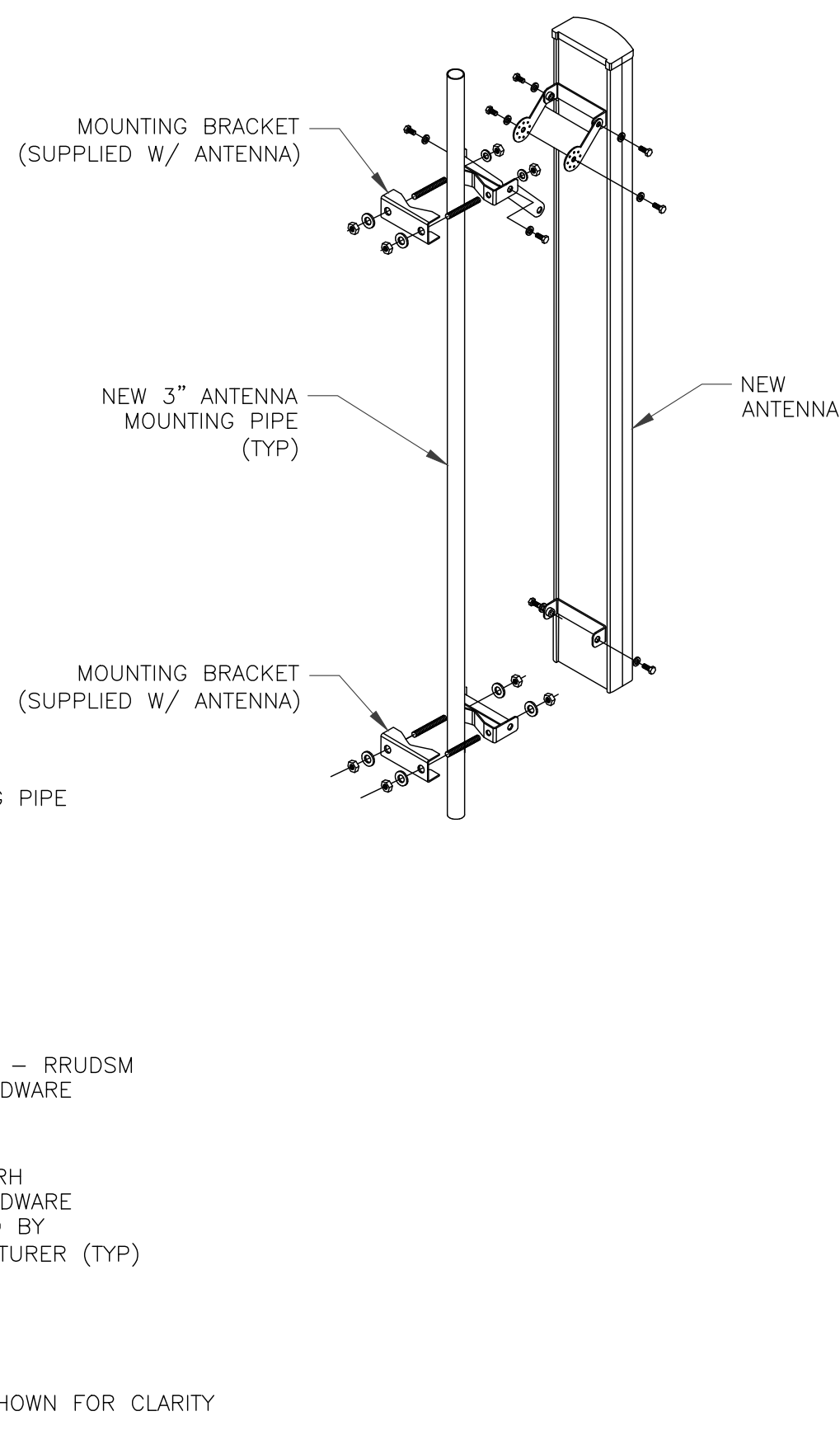
C-5

REVISION:

0

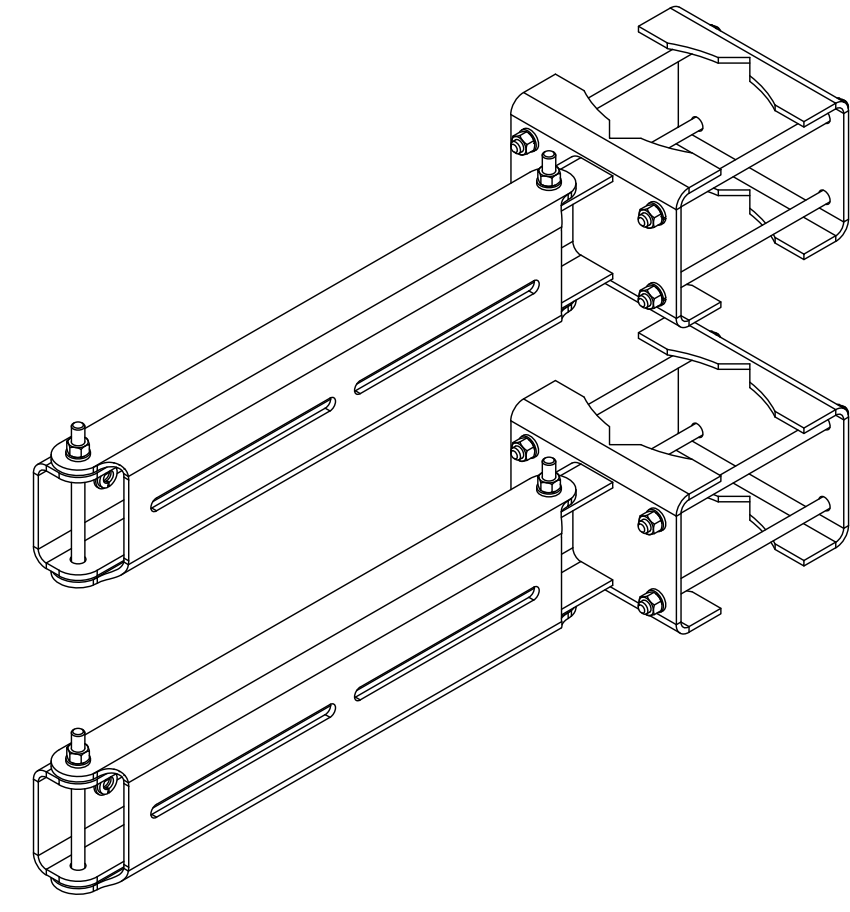
INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

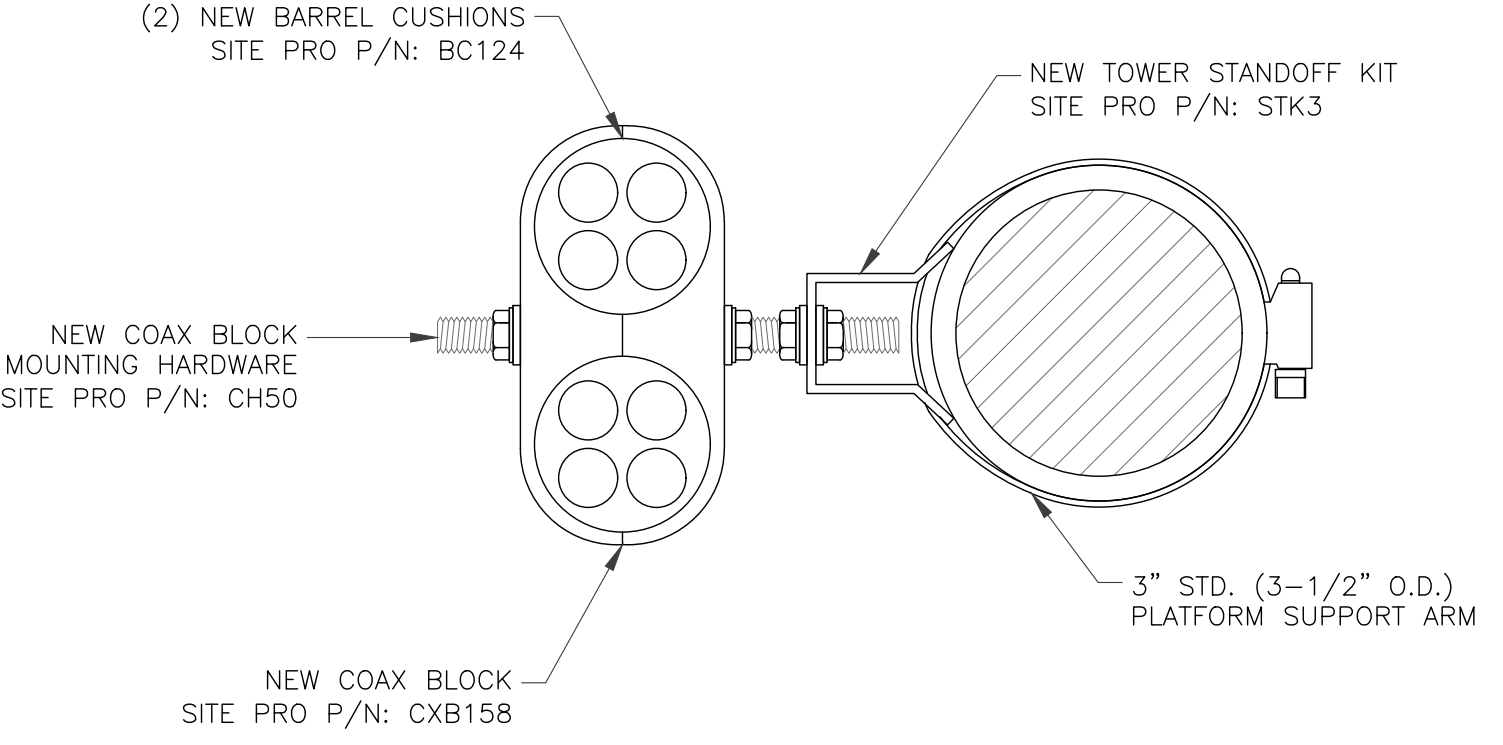


1 MOUNTING DETAIL
SCALE: NOT TO SCALE

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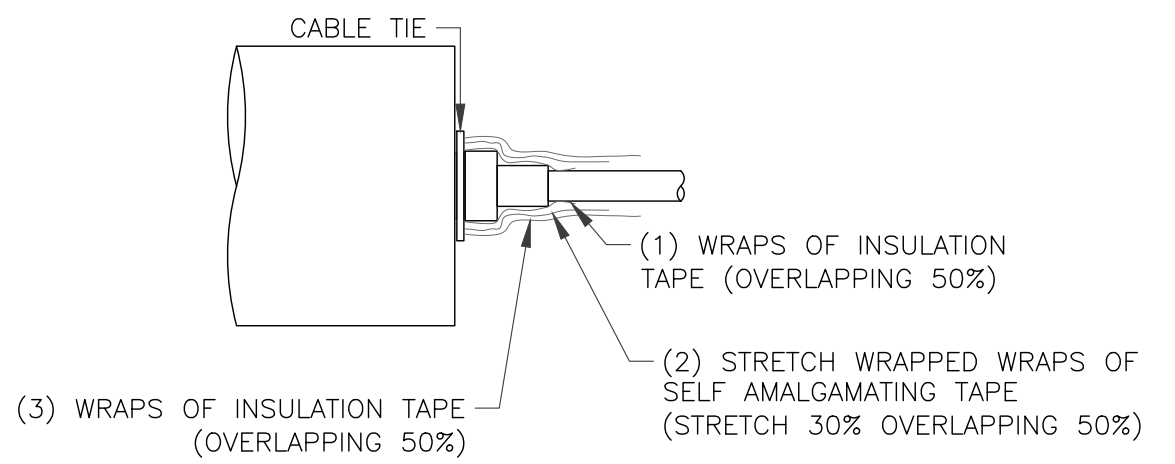


2 RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

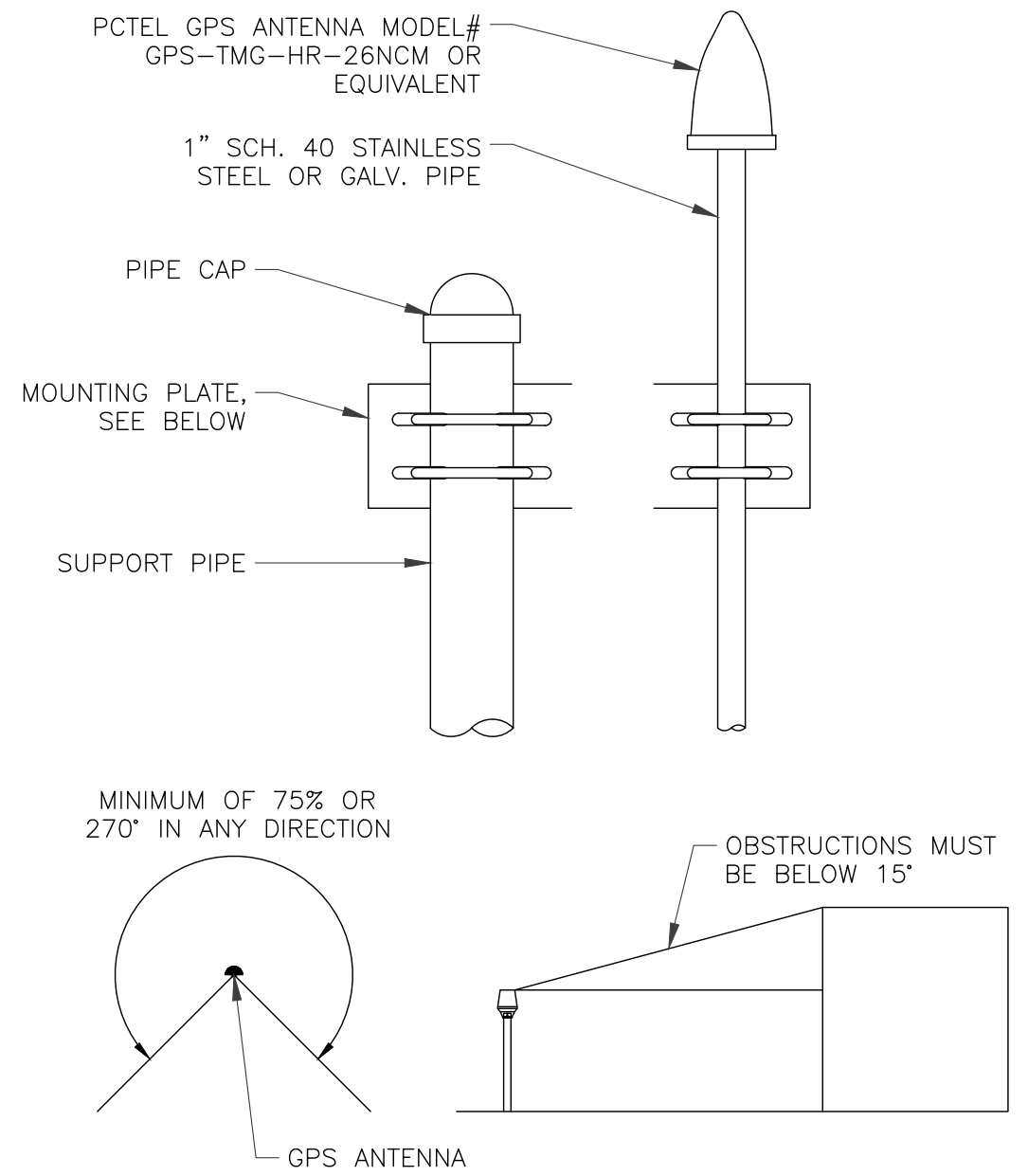


3 RF JUMPER DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:
JUMPERS TO BE TORQUED TO 221.27 IN/LBS



4 RF JUMPER CONNECTION
SCALE: NOT TO SCALE



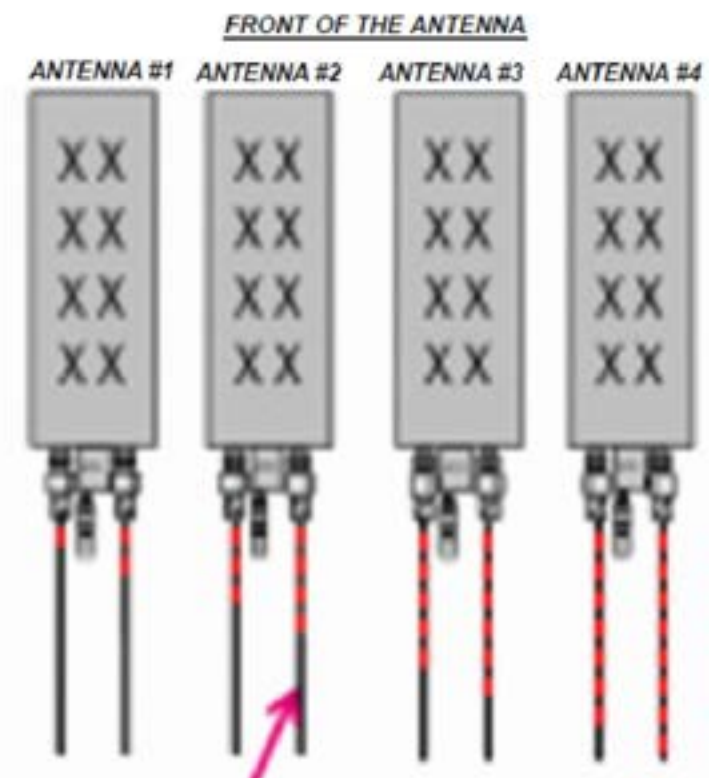
- NOTES:**
1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
 2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" O.D. SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MIN. OF 18 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBARRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
 3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
 4. DO NOT SWEEP TEST GPS ANTENNA.

5 GPS ANTENNA DETAIL
SCALE: NOT TO SCALE

Coax Color Coding

- Antennas will be labeled (back of antenna view) right to left: X ports
- Coax/jumper lines will be identified by sector color and by number of bands around the coax/jumper

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN + SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T-1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER



EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

- COLOR CODING NOTES:**
- color GSM
 - color UMTS 1900
 - color UMTS AWS
 - color LTE
 - color FIBER CABLE
- METALLIC TAG NOTES:**
1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET
 2. CABLE LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE
 3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
 4. STANDARDIZED METALLIC TAG KIT WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMMODATE ALL CONFIGURATIONS.
- ANTENNA AND COAXIAL CABLE SCHEDULE**
1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
 2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.



6 COAX COLOR CODING
SCALE: NOT TO SCALE

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

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STRUCTURAL REGISTERED PROFESSIONAL ENGINEER
85692PE
John N. Kabak
OREGON
MAY 13, 2014
JOHN N. KABAK
09/13/2024
EXPIRES: 06/30/25

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SHEET NUMBER: C-6
REVISION: 0

**BU #: 827657
 SEASIDE NORTH**

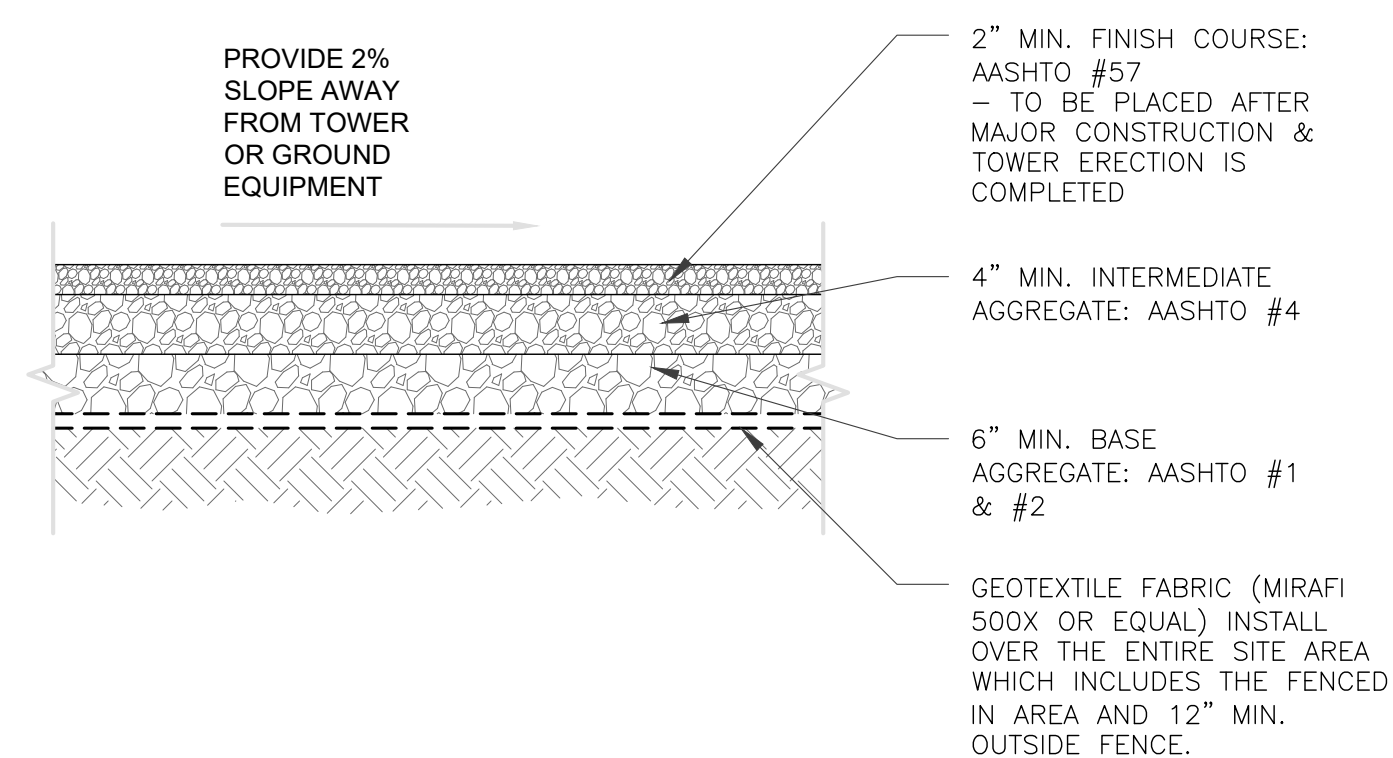
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C	10/28/2022	JA	ADDED CARRIER EQUIPMENT	BML
0	09/13/2024	JA	ISSUED FOR CONST.	BML

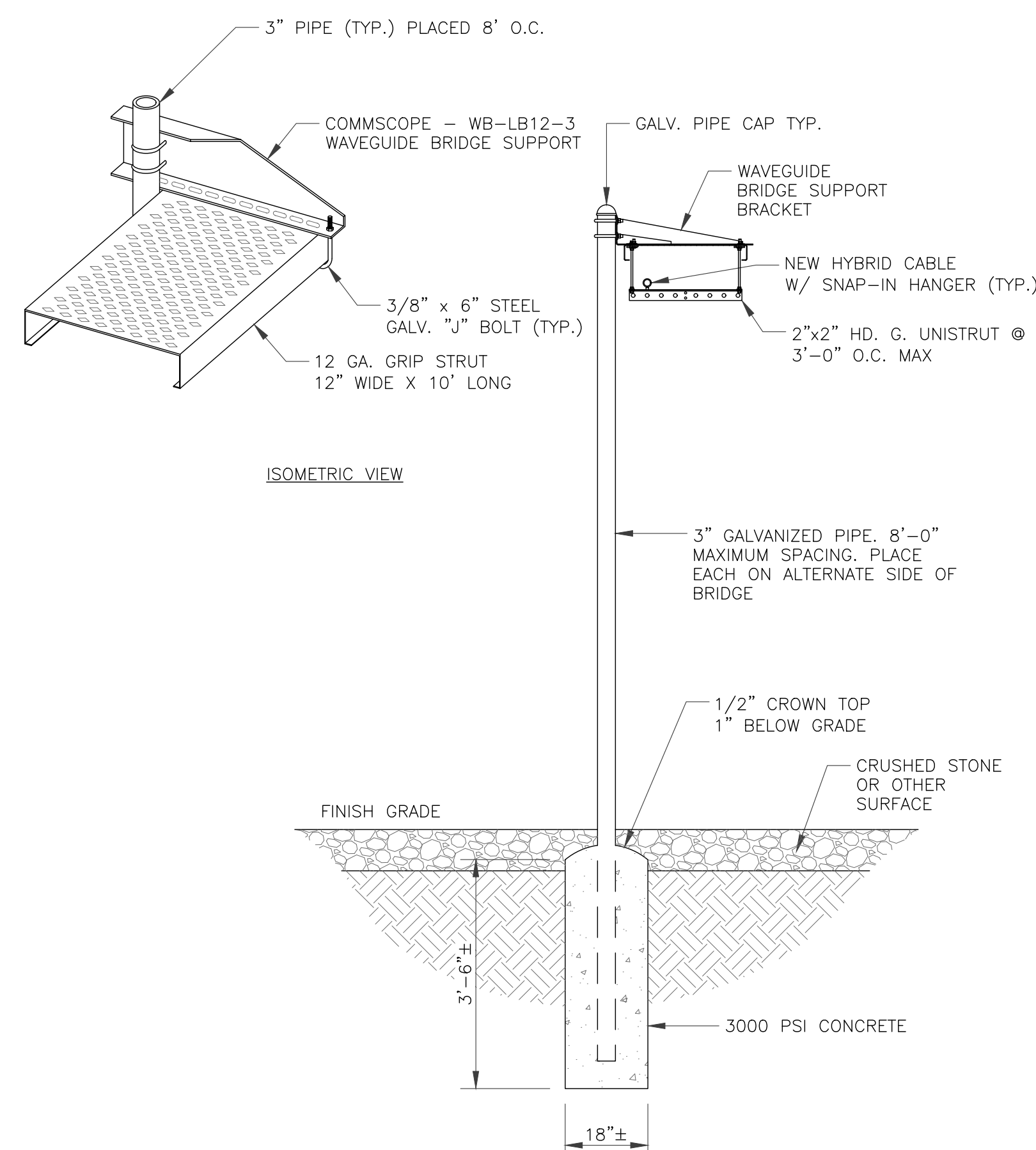


NOTE: PREPARE SUBGRADE PER RECOMMENDATION OF GEOTECHNICAL ENGINEER

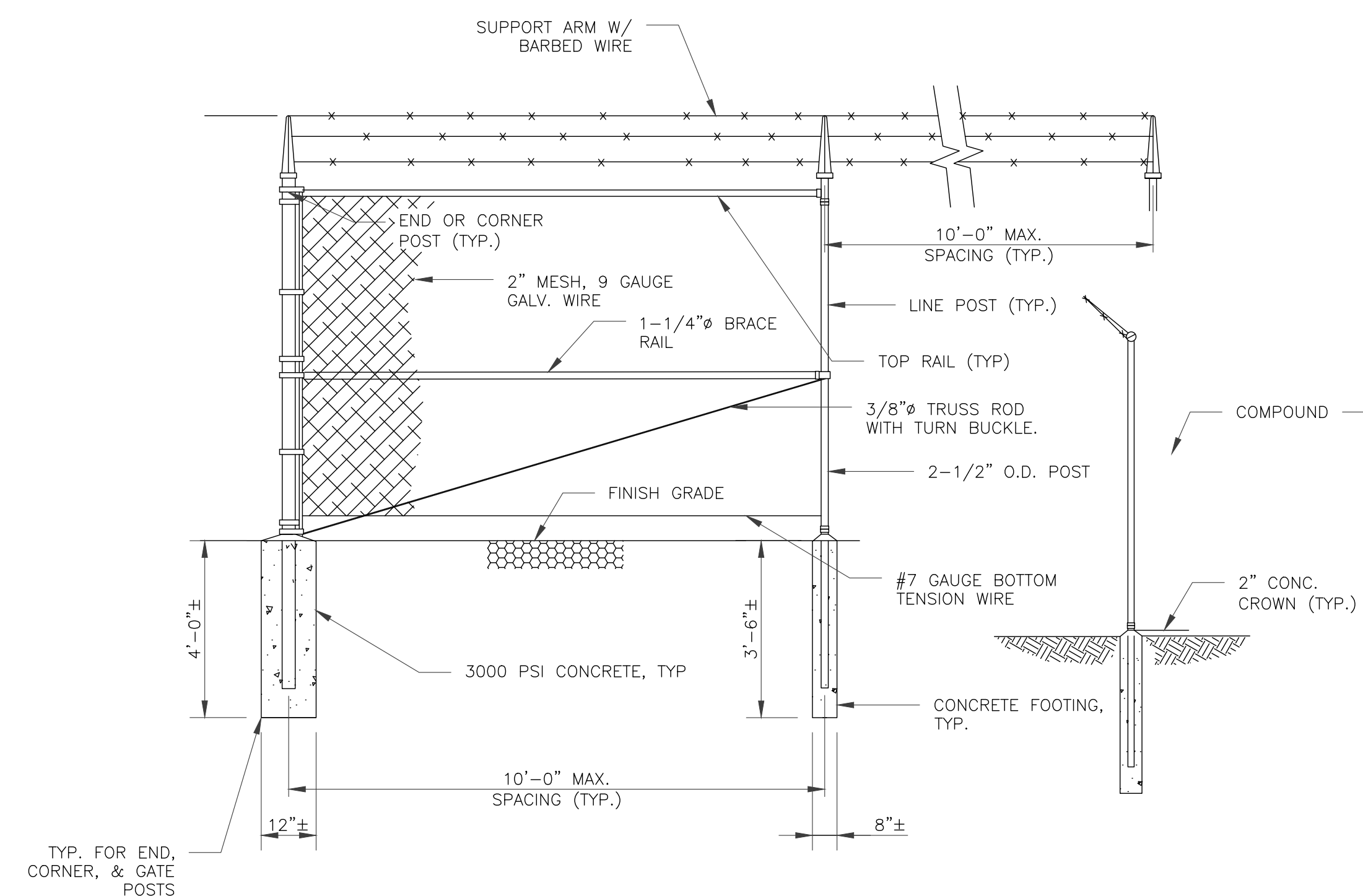
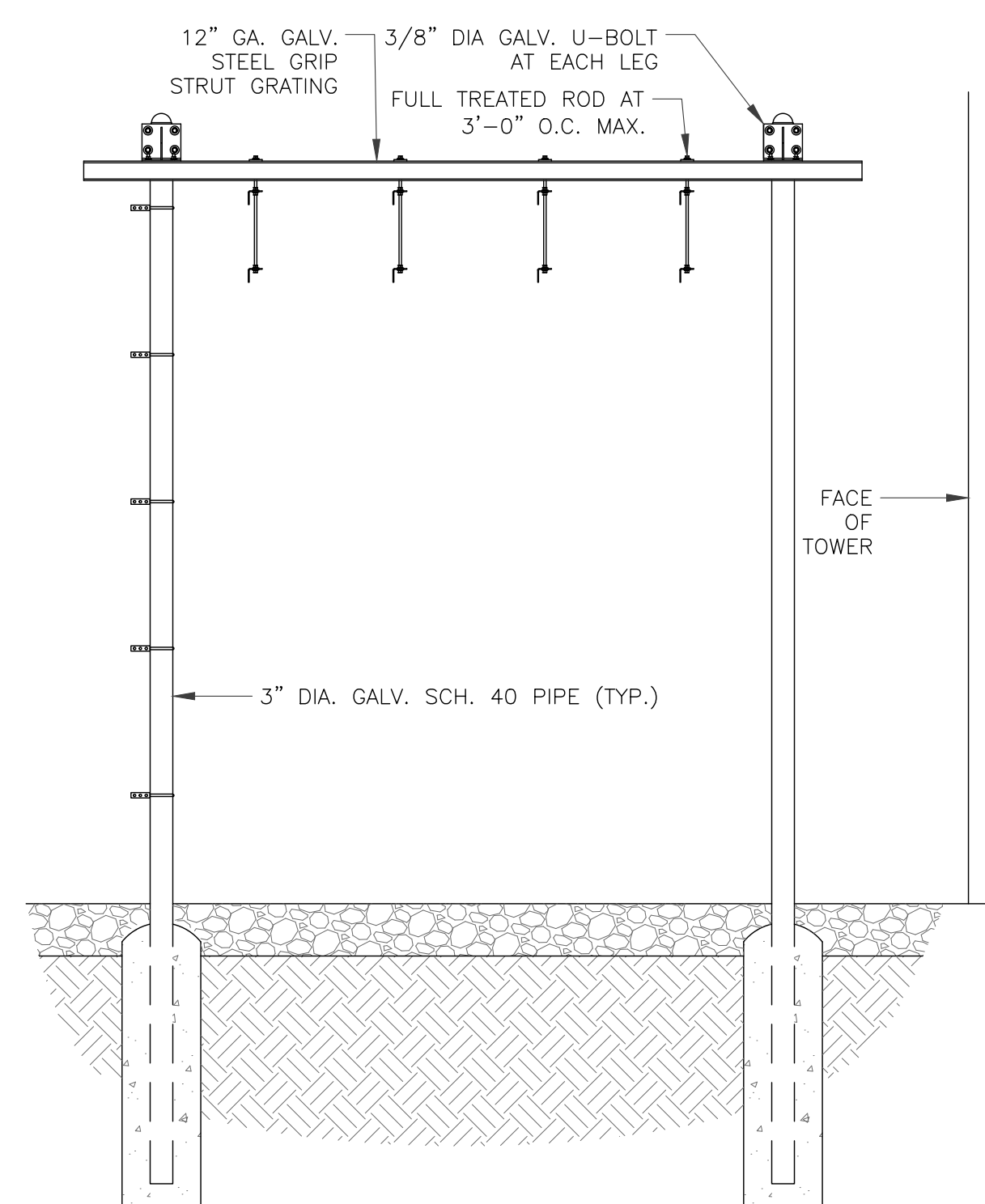
1 TYPICAL GRAVEL COMPOUND SECTION
 SCALE: NOT TO SCALE

2 DETAIL NOT USED
 SCALE: NOT TO SCALE

3 DETAIL NOT USED
 SCALE: NOT TO SCALE



4 ICE BRIDGE DETAIL
 SCALE: NOT TO SCALE



5 CHAIN LINK FENCE DETAIL
 SCALE: NOT TO SCALE



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SHEET NUMBER: **C-7** REVISION: **0**

- KEYED NOTES**
- PROPOSED TOWER GROUND RING: 2/0 BARE TINNED STRANDED COPPER GROUND WIRE, 2' FROM FOUNDATION, 30" BELOW GRADE OR 8" BELOW FROST DEPTH (WHICHEVER IS GREATER)
 - PROPOSED INSPECTION SLEEVE WITH TEST LOOP. SEE DETAIL 3, SHEET G-2.
 - CADWELD (TYP), SEE DETAIL 1, SHEET G-3.
 - TOWER BASEPLATE GROUND: 2/0 AWG BARE TINNED STRANDED COPPER GROUND WIRE FROM TOWER BASEPLATE TO GROUND RING. SEE DETAIL 2, SHEET G-3.
 - NOT USED
 - GROUND NEW TOWER GROUND RING TO EXISTING TOWER & SHELTER GROUND RINGS AND NEARBY EXISTING GROUND LEADS (FIELD VERIFY), 2/0 BARE TINNED STRANDED COPPER GROUND WIRE.
 - EXISTING GROUND WIRE (FIELD VERIFY)

NOTE:
IF ROCK IS ENCOUNTERED THEN AN ALTERNATIVE GROUNDING DESIGN SUCH AS COPPER PLATES AND GEM CAN BE USED

NOTE: ACTUAL RESISTANCE MUST BE MEASURED PRIOR TO CONNECTION TO THE POWER GRID. GROUND RODS SHALL BE BETWEEN 10' AND 20' APART, AND INSPECTION SLEEVES SHALL BE NO FURTHER THAN 45' APART.

- LEGEND**
- PROPOSED GROUND WIRE
 - ASSUMED EXISTING GROUND WIRE
 - EXISTING FENCE LINE
 - INSPECTION WELL W/ TEST LOOP
 - 5/8" x 10' COPPER CLAD GROUND ROD SPACED AT 10' TO 20' O.C.
 - GTC-381T FOR 2 AWG, #90 SHOT
 - GTC-382G FOR 2/0 AWG, #115 SHOT
 - CADWELD CONNECTION
 - PCC-111T FOR 2 AWG TO 2 AWG, #65 SHOT
 - PCC-2G1T FOR 2/0 AWG TO 2 AWG, #90 SHOT
 - MECHANICAL CONNECTION
 - PCC-111T FOR 2 AWG TO 2 AWG, #65 SHOT
 - PCC-2G1T FOR 2/0 AWG TO 2 AWG, #90 SHOT

GROUNDING NOTES:

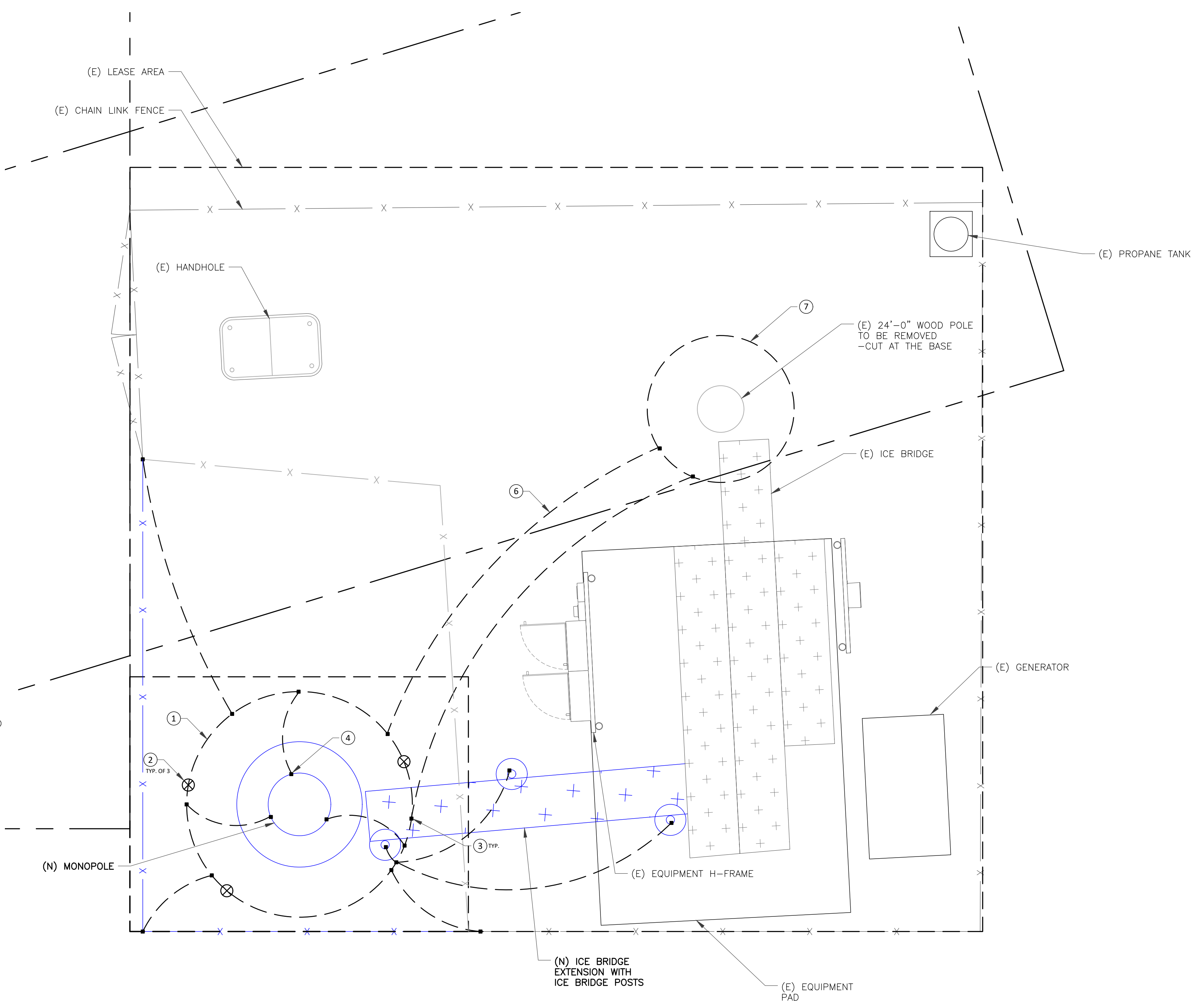
- CONTRACTOR SHALL INSTALL THE MINIMUM NUMBER OF GROUND RODS AS INDICATED ON DRAWING. GROUND RODS SHALL BE 5/8"x10' FOOT COPPER CLAD GROUND RODS AND SHALL BE SPACED AT 15 FOOT APART. SEE GROUNDING PLAN FOR APPROXIMATE LOCATIONS; CONTRACTOR SHALL PLAN FOR INSTALLING ADDITIONAL GROUNDING AS REQUIRED TO ACHIEVE 5-OHMS OR LESS TO GROUND.
 - ALL BURIED GROUND WIRES INTERCONNECTING GROUND RODS, TOWER STEEL, SHELTER, AND EQUIPMENT_EXTERNAL GROUND RINGS (EGR) SHALL BE 2/0 AWG BARE TINNED CU STRANDED WIRE.
 - ALL FENCE POST LEADS, ICE BRIDGE LEADS AND UTILITY RACK LEADS SHALL BE ROUTED AS TO NOT INTERFERE WITH FUTURE CUSTOMER EQUIPMENT PADS, SHELTER, OR ICE BRIDGES.
- ALL GROUNDING WIRE AND LEADS SHALL FLOW (IN A SMOOTH CLOCKWISE (CW) PATH FROM THE TOWER TO THE GROUND RING, ALL GROUNDING WIRE AND LEADS SHALL FLOW IN A SMOOTH CLOCKWISE (CW) PATH FROM THE TOWER RING TO THE CUSTOMER RING, AND ALL GROUNDING WIRE AND LEADS SHALL FLOW IN A SMOOTH COUNTER CLOCKWISE (CCW) PATH FROM THE TOWER GROUND RING TO THE FENCE POSTS) WITH NO KINKS OR SHARP BENDS. ALL BELOW GRADE CONNECTIONS SHALL BE EXOTHERMIC WELDS (CADWELD). TEE CONNECTORS ARE NOT PERMITTED ABOVE OR BELOW GRADE ON CROWN SITES.
 - TO PREVENT TRIPPING HAZARDS, STUB-UP ALL GROUNDING LEADS ON THE INTERIOR SIDE OF SELF-SUPPORT TOWER FOUNDATION PIERS WHENEVER POSSIBLE.
 - ALL TOWERS SHALL HAVE THREE SEPARATE GROUND WIRES FROM THE GROUND RING AND EXOTHERMICALLY WELDED TO TOWER STEEL BASE PLATES.
 - FOR SELF SUPPORT AND GUY TOWERS:
 - INSTALL SIX ADDITIONAL GROUND LEADS, TWO LEADS PER LEG AROUND THE TOWER FOR FUTURE CARRIER'S USAGE. ONE OF THE TWO SPARE LEADS IS FOR THE CARRIER'S GROUND BAR WHICH IS LOCATED ON THE TOWER BELOW THE ICE BRIDGE FOR GROUNDING THE OUTER COAX SHEATH THAT GOES FROM THE TOWER VIA THE ICE BRIDGE.
 - FOR MONOPOLES:
 - INSTALL SIX ADDITIONAL GROUND LEADS, 2 LEADS PER LOCATION AT 120' AROUND THE TOWER FOR FUTURE CARRIER'S USAGE (NEAR THE ATTACHED TOWER LEADS)
 - ALL SPARE GROUND LEADS FROM THE TOWER GROUND RING SHALL BE CUT OFF AT 12" ABOVE GRADE AND ZIP TIED OR TAPED TO THE ATTACHED TOWER LEAD.
- GROUND LEADS TO MONOPOLE SHALL ONLY BE CADWELDED TO MANUFACTURER'S GROUNDING TAB OR THE BASEPLATES. "NEVER CADWELD, BRAZE OR WELD TO THE TOWER STRUCTURE SECTION".
- ALL EXOTHERMIC WELDS TO ABOVE GRADE STEEL STRUCTURES MUST BE COLD GALVANIZED AND SPRAYED WITH MATCHING RUST INHIBITOR PAINT.

GROUND TEST PROCEDURES:

- CCUSA STANDARD REQUIREMENT FOR RESISTIVITY TO EARTH ON ALL SITES IS 5-OHMS OR LESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE SUCH REQUIREMENT IS ACHIEVED. REVIEW OF THE SOIL RESISTIVITY TEST PRIOR TO INSTALLATION OF THE SITE GROUNDING SYSTEM WILL GREATLY ASSIST IN DETERMINING THE TYPE OF GROUNDING INSTALLATION, NUMBER AND TYPE OF GROUND ROD(S). A READING OF 5-OHMS OR LESS SHALL BE ACHIEVED WITH THE CARRIERS GROUNDING SYSTEM PRIOR TO & INDEPENDENT OF CONNECTION TO THE TOWER GROUND RING.
- PERFORM THREE POINT FALL OF POTENTIAL GROUNDING (MEGGER) TEST UTILIZING THE "AEMC 4500" TEST INSTRUMENT FROM A MINIMUM OF TWO SEPARATE POINTS IN TWO SEPARATE DIRECTIONS FROM THE POINT OF CONTACT.
- PERFORM GROUND TESTING ONLY IF NO RAINFALL HAS OCCURRED WITHIN THREE DAYS, AND THERE IS NO STANDING WATER IN THE GROUND WIRE TRENCHES.
- THE CONTRACTOR SHALL DOCUMENT MEGGER TEST RESULTS FOR THE LOCATION OF ALL UNDERGROUND GROUNDING COMPONENTS AND PHOTOGRAPH WITH A DIGITAL CAMERA THE ENTIRE NEWLY INSTALLED GROUNDING SYSTEM PRIOR TO BACKFILLING ANY OPEN TRENCHES.
- FORWARD THE MEGGER TEST DOCUMENTATION TO THE REGIONAL CCUS REPRESENTATIVE (AS PART OF THE FINAL SITE ACCEPTANCE DOCUMENTATION).

SPECIAL NOTE:

- ANY EXCEPTIONS TO THIS BASIC GROUNDING DESIGN GUIDELINE, ROUTING DESIGN, OR MODIFICATIONS SHALL BE DOCUMENTED AND DIMENSIONED BY WAY OF RED LINE DRAWINGS. IT IS THE RESPONSIBILITY OF THE SELECTED CONTRACTOR TO INSURE THE NEWLY INSTALLED GROUNDING SYSTEM AND INTERCONNECTION TO EXISTING GROUNDING SYSTEM MEETS THE CROWN/CASTLE STANDARD OF 5 OHMS OR LESS.



1 SITE GROUNDING PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)



BU #: 827657
SEASIDE NORTH
2329 ROYAL VIEW DR
SEASIDE, OR 97110
50' MONOPOLE DROP
AND SWAP
GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

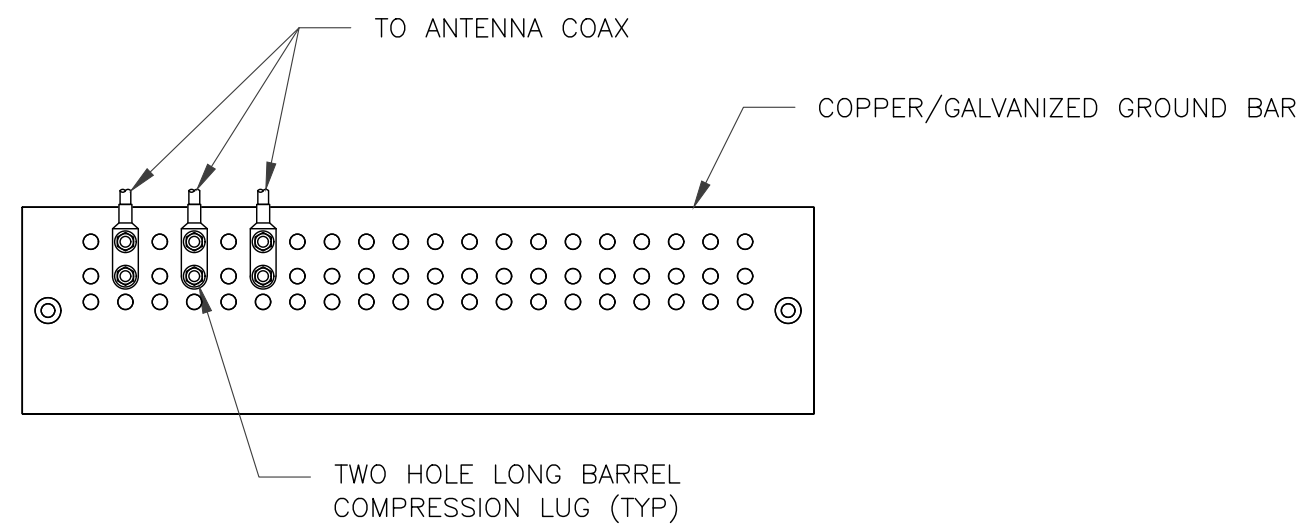
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0	09/13/2024	JA	ISSUED FOR CONST.	BML

09/13/2024
EXPIRES: 06/30/2026

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SHEET NUMBER:
G-1

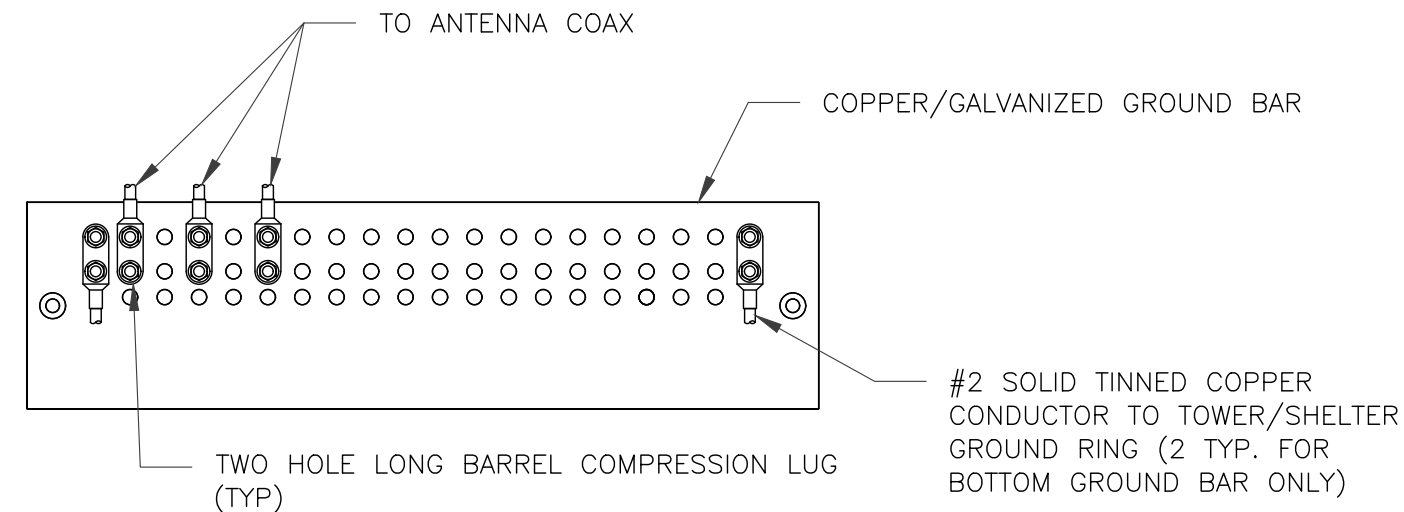
REVISION:
0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

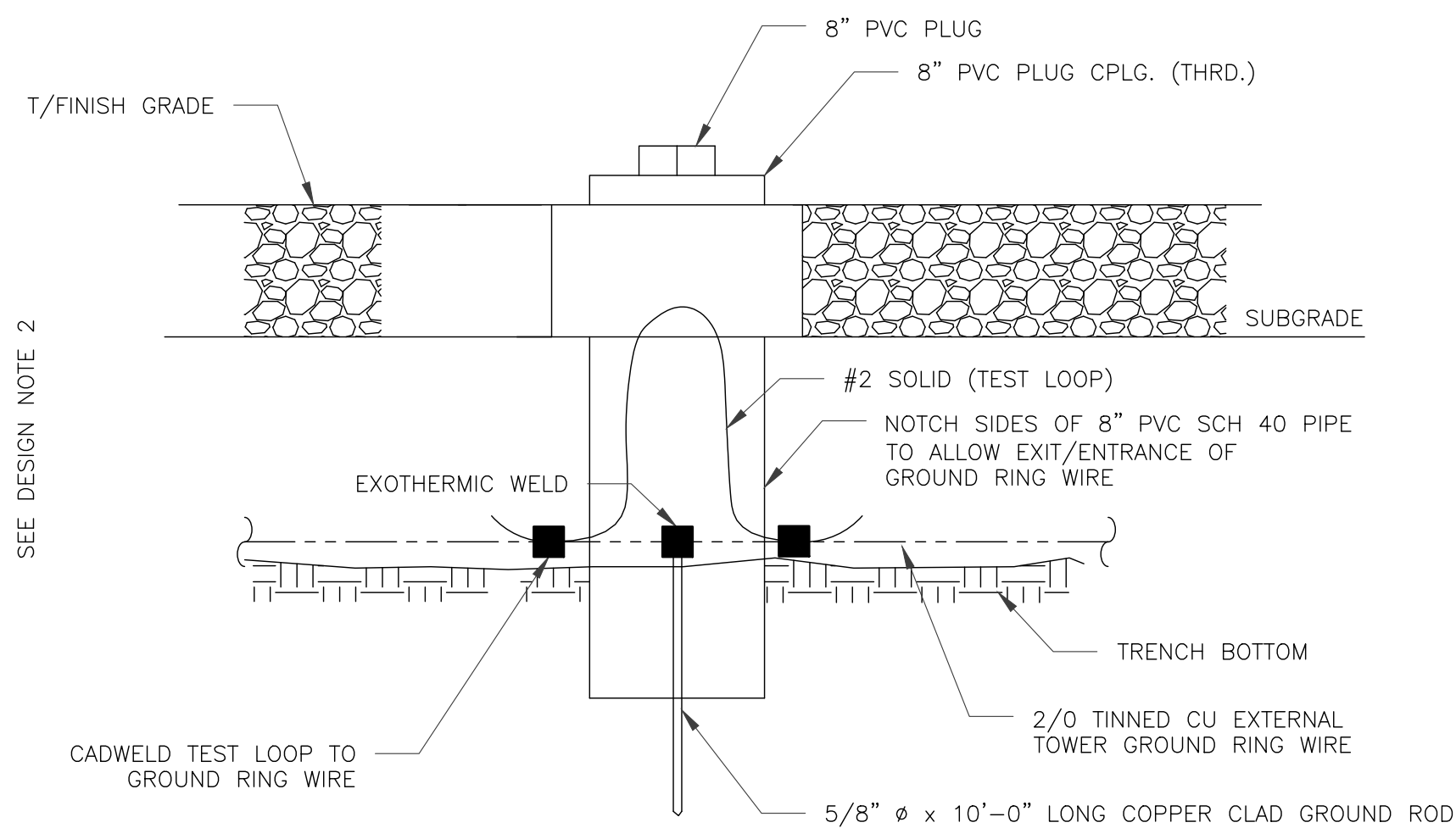
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

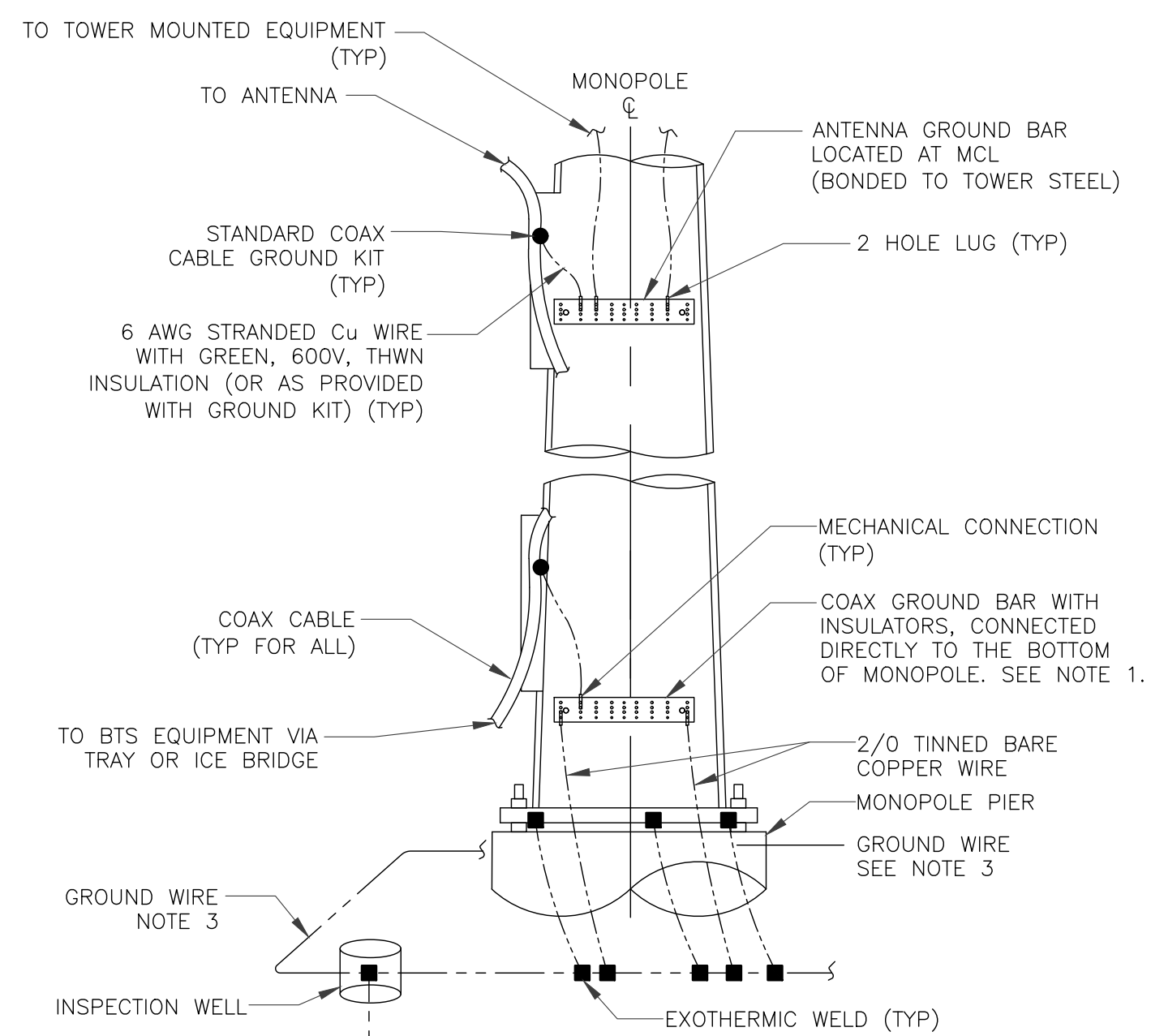
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

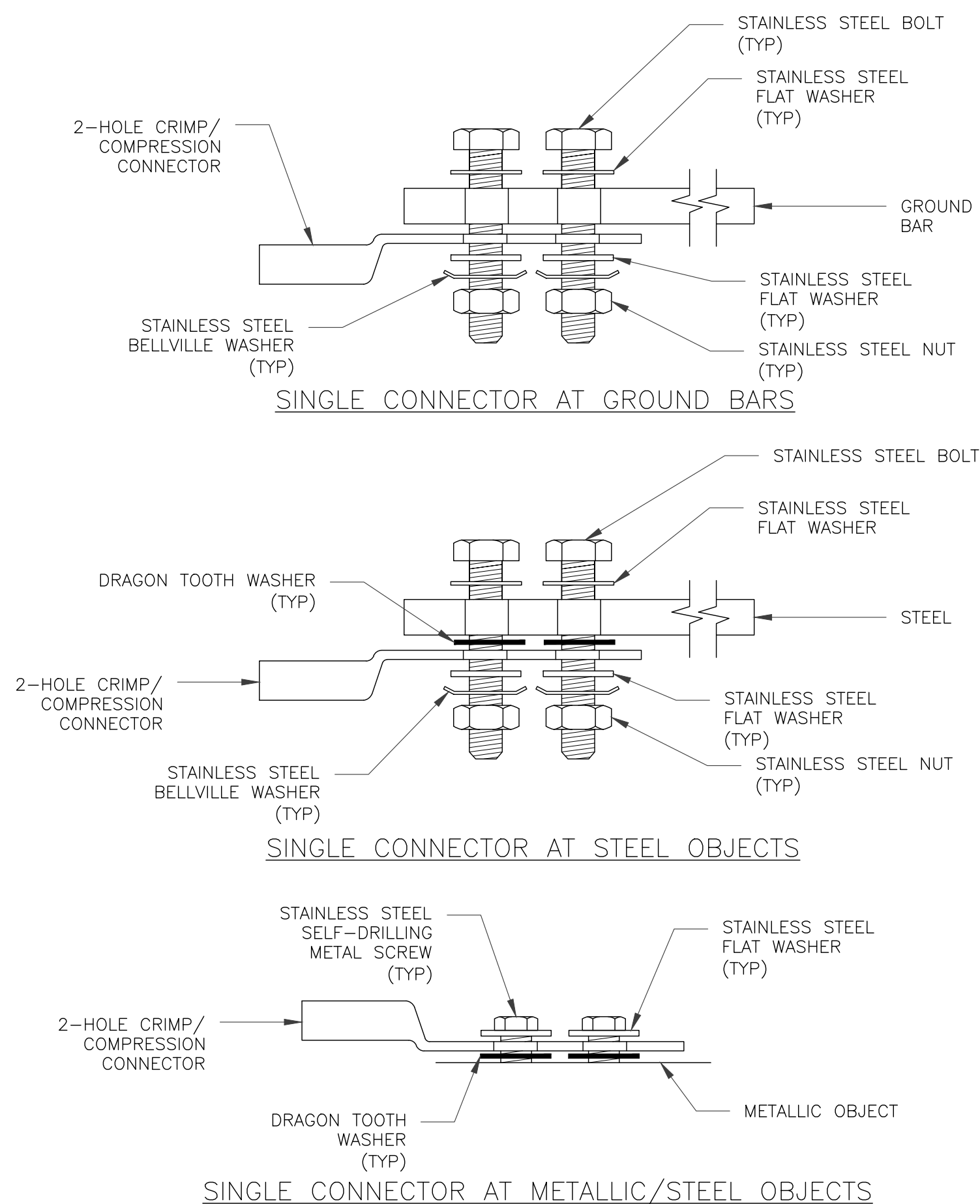
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



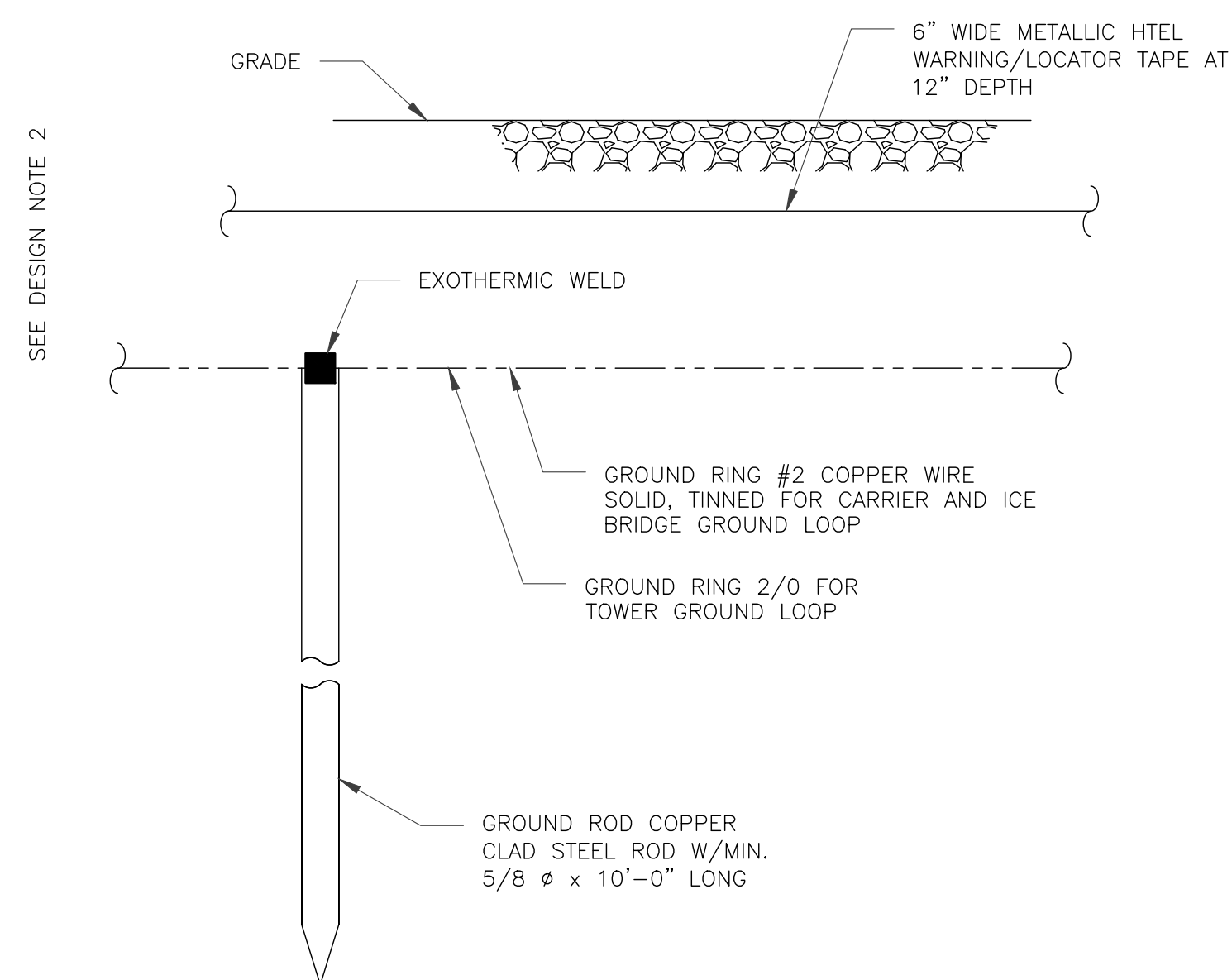
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

BU #: 827657
SEASIDE NORTH

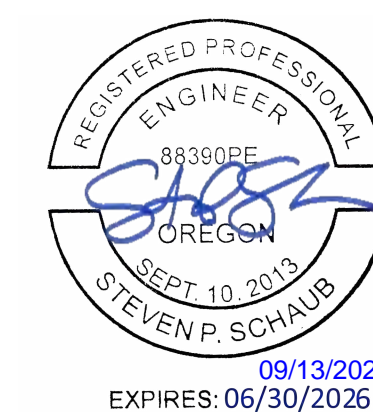
2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
AND SWAP

GPD JOB #: 2022724.90.827657.01

ISSUED FOR:

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**BU #: 827657
 SEASIDE NORTH**

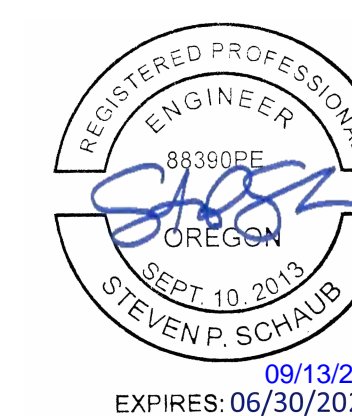
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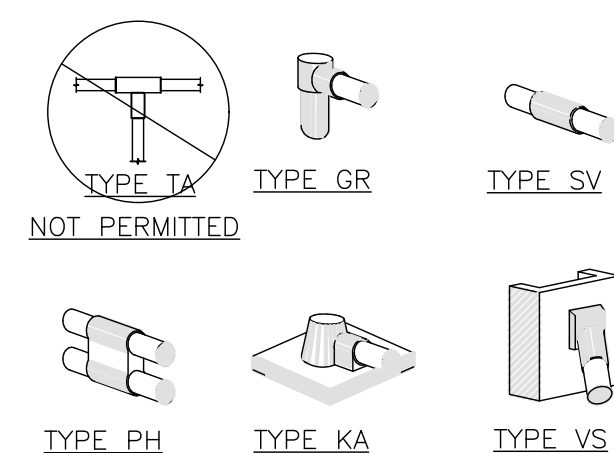
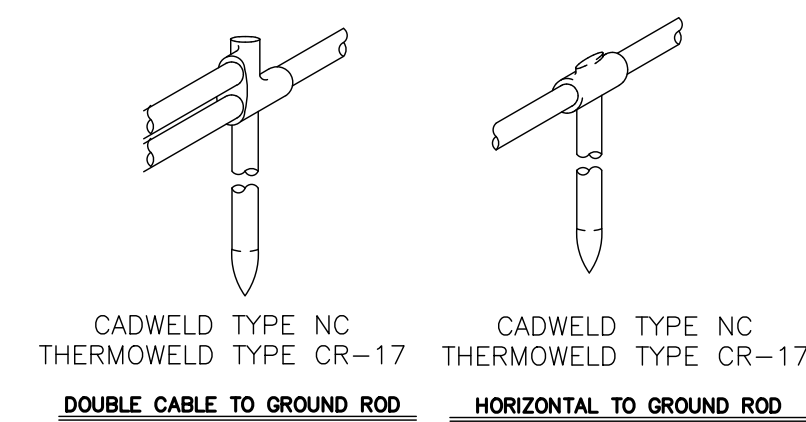
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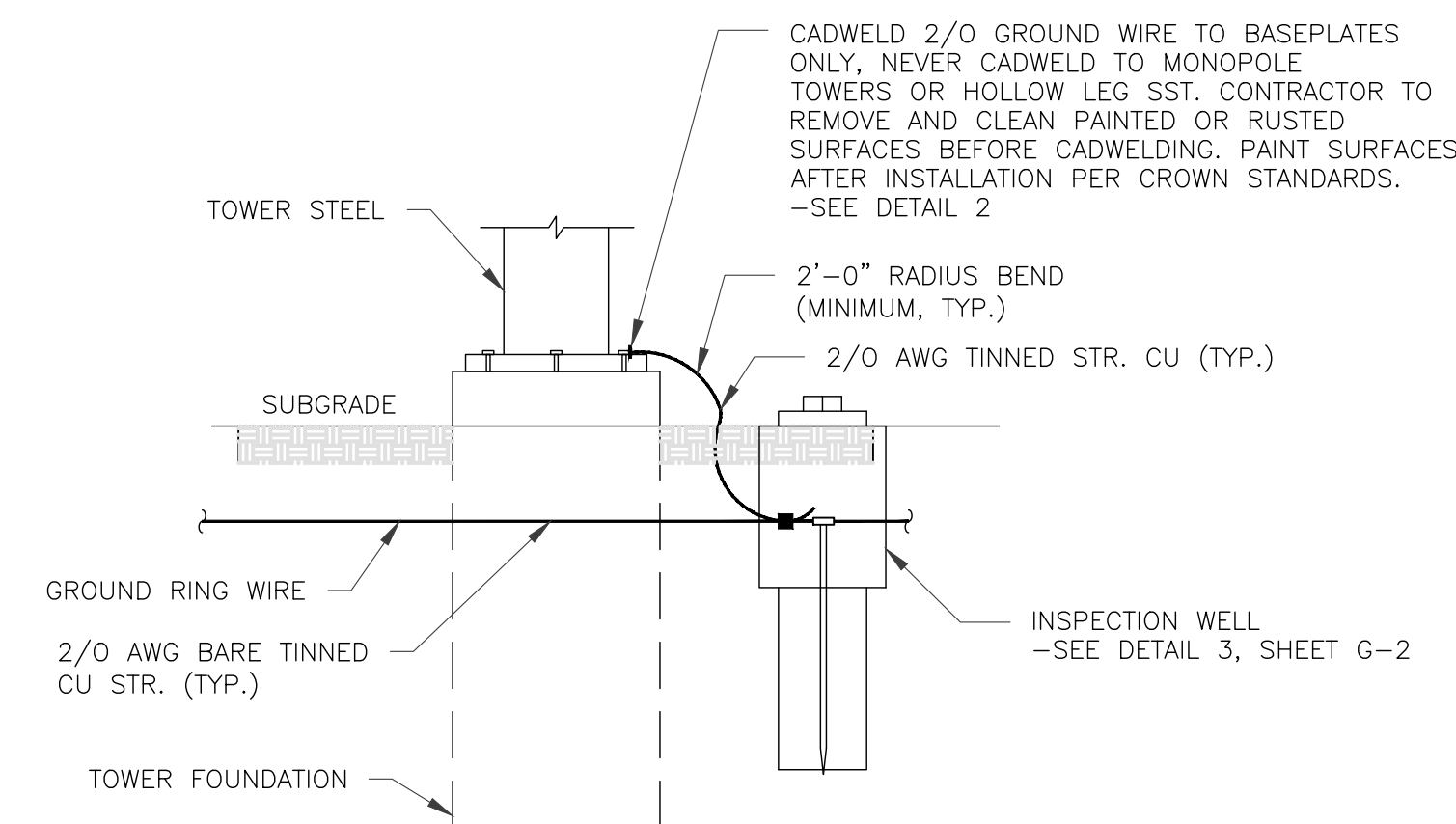
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SHEET NUMBER: G-3 **REVISION: 0**



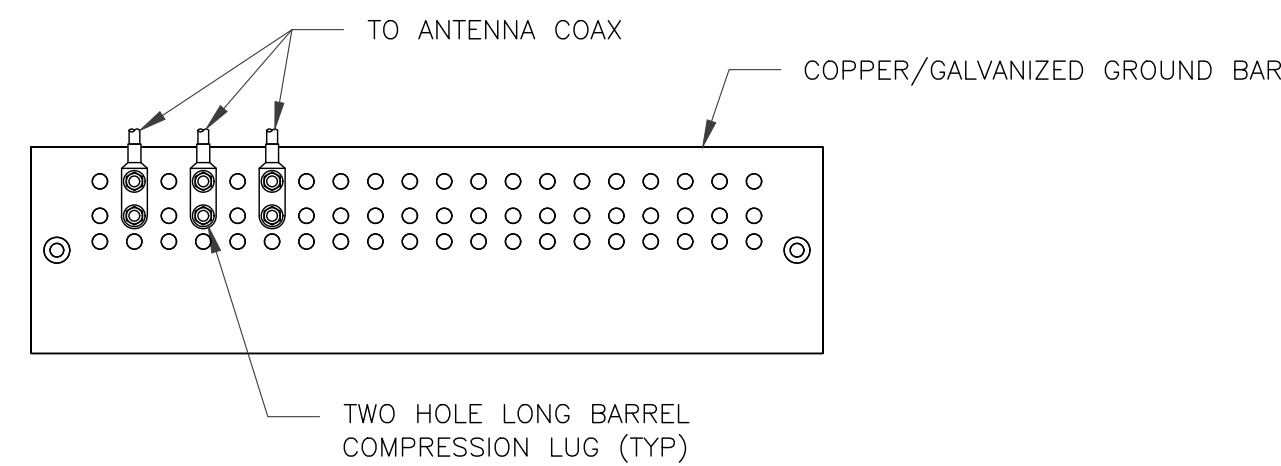
1 CADWELD DETAILS
 SCALE: NOT TO SCALE

3 DETAIL NOT USED
 SCALE: NOT TO SCALE



2 TOWER GROUND DETAIL
 SCALE: NOT TO SCALE

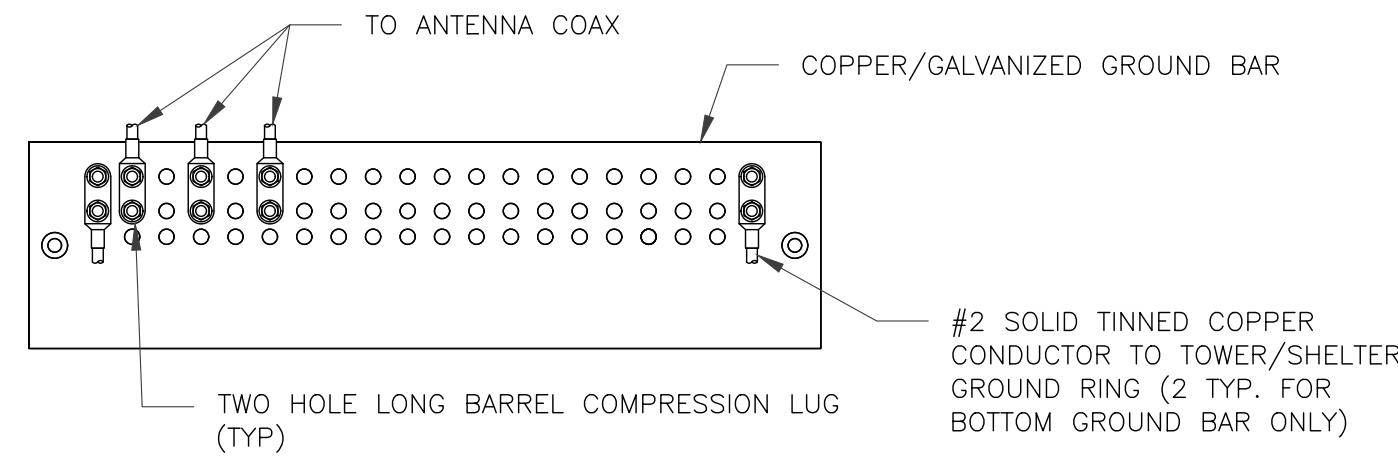
4 DETAIL NOT USED
 SCALE: NOT TO SCALE



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

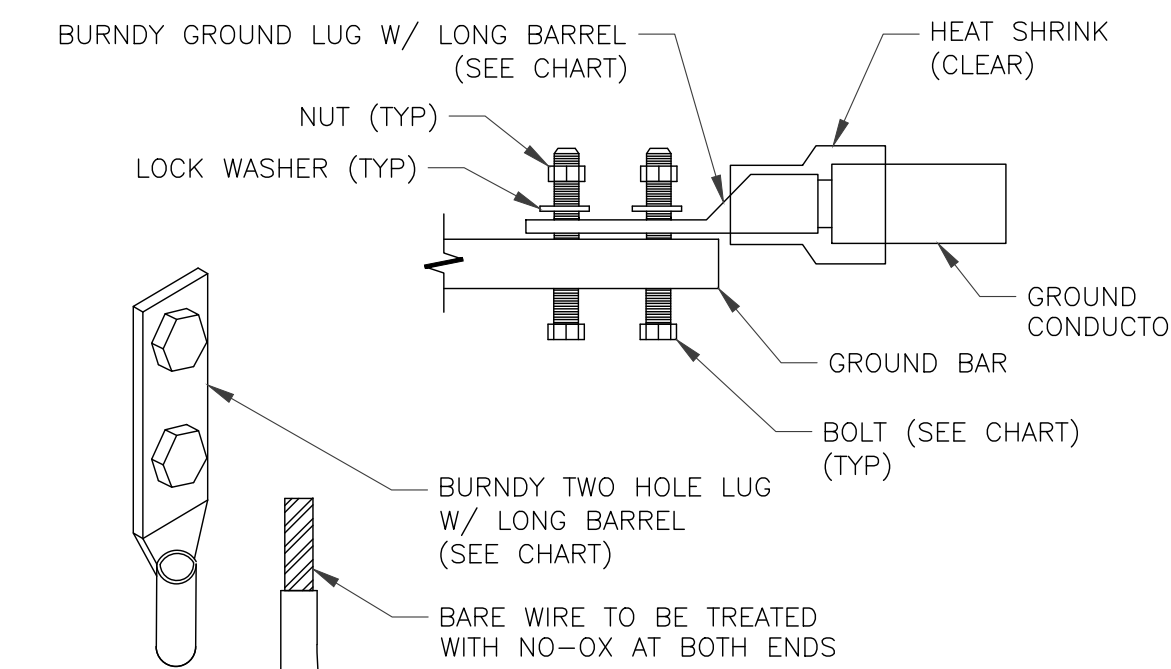


NOTES:

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2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

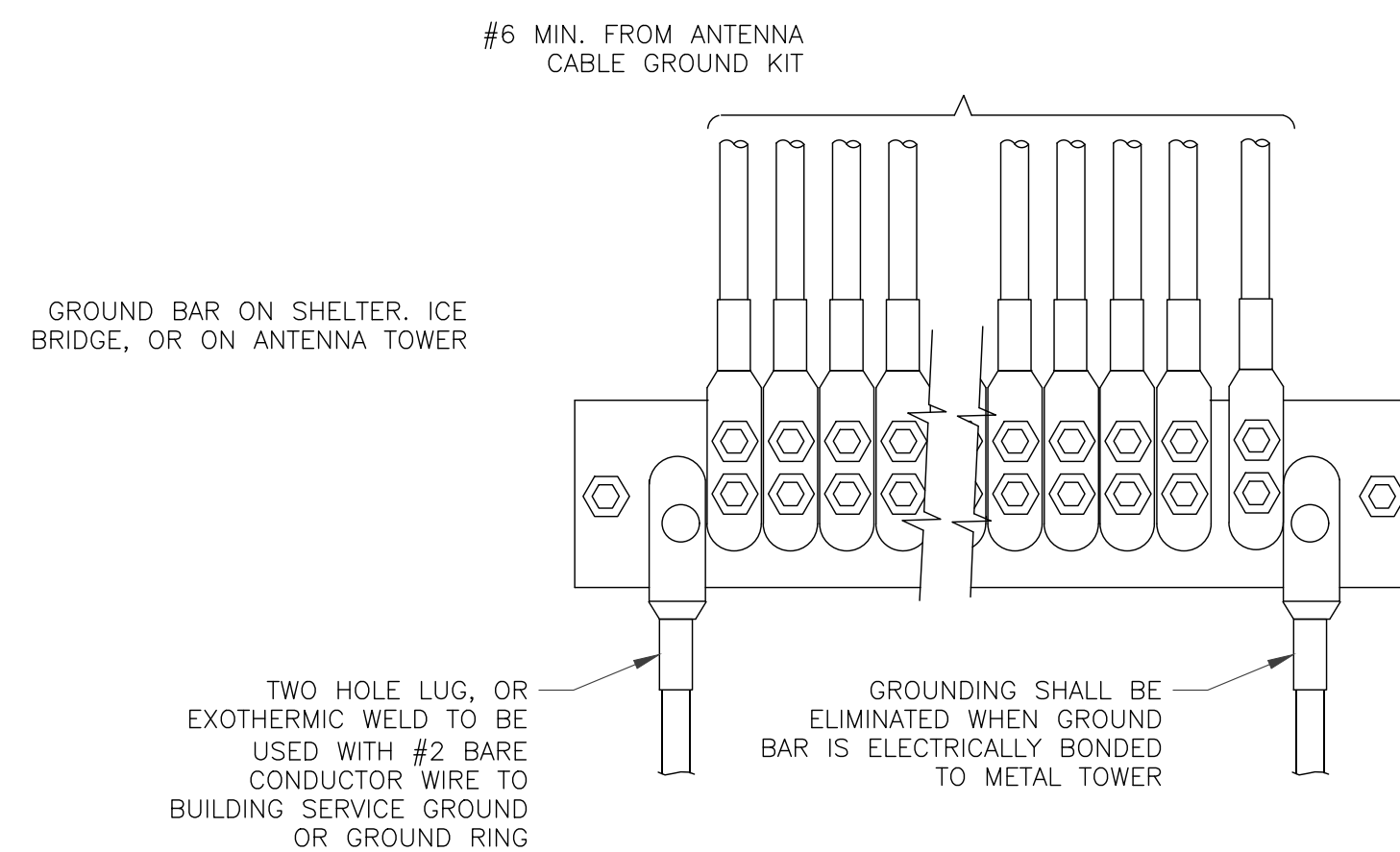
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



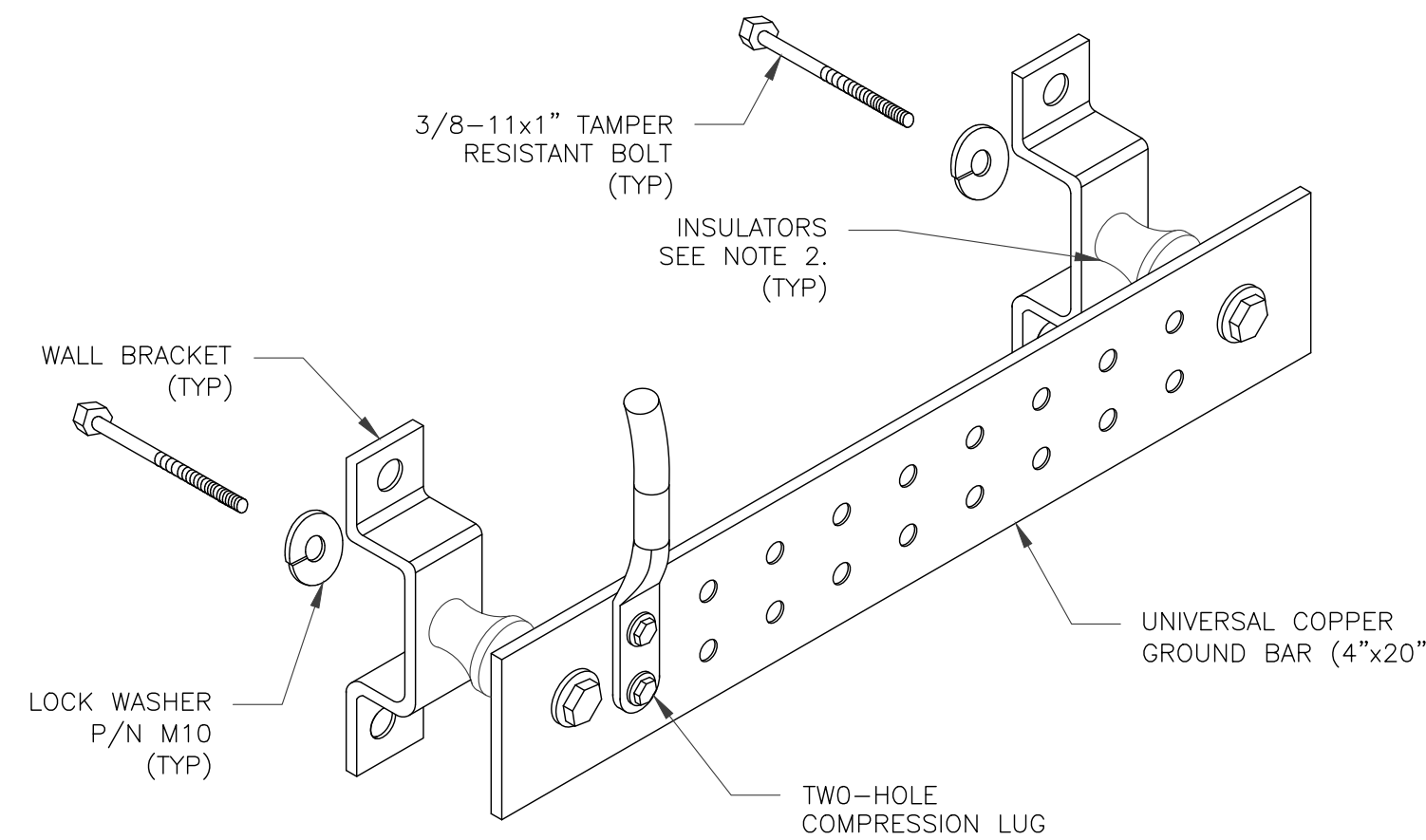
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



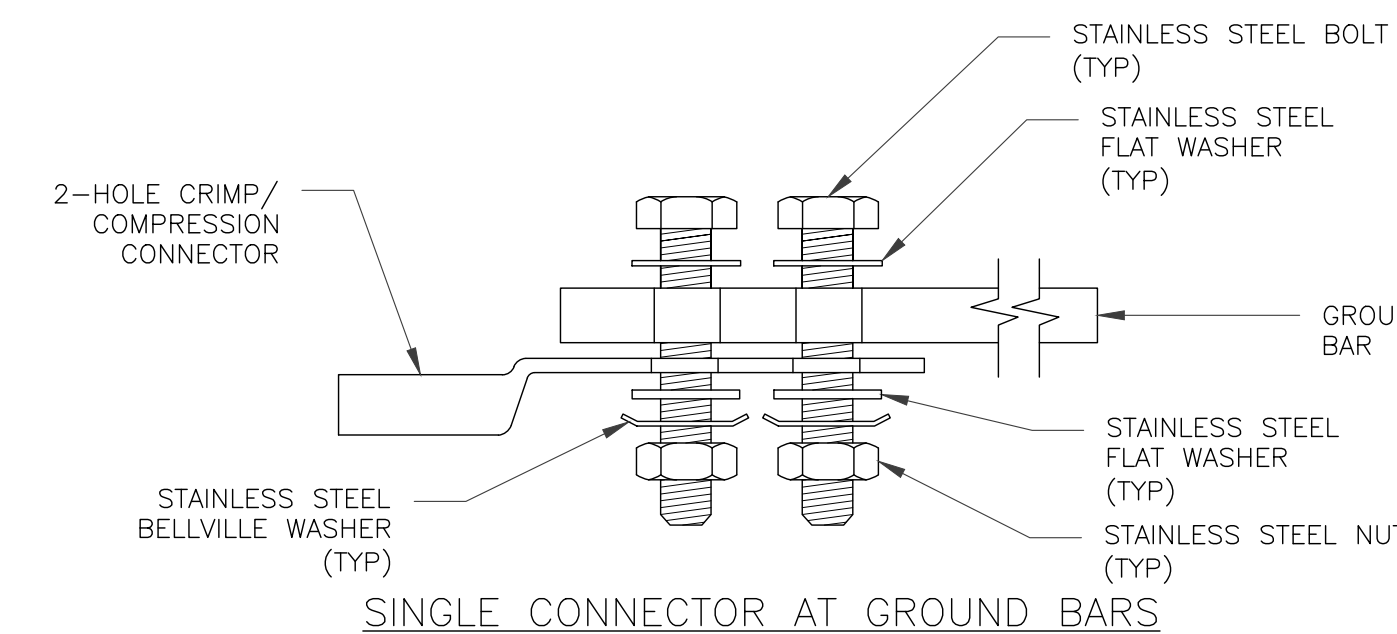
4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



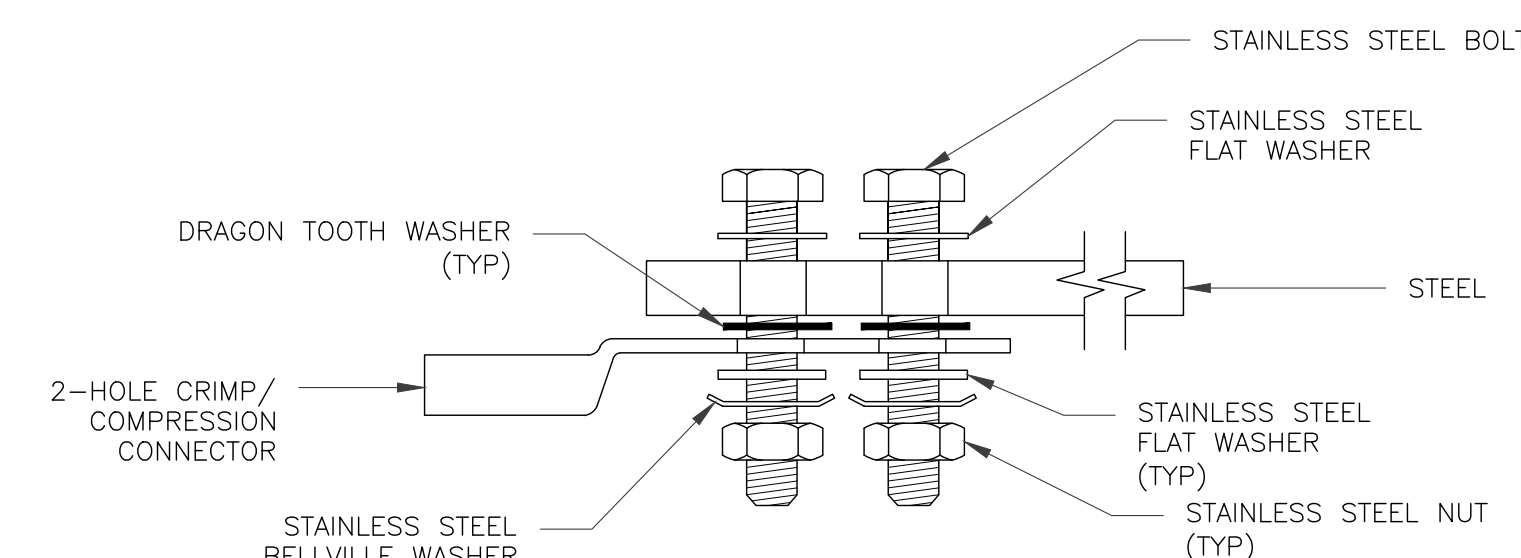
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

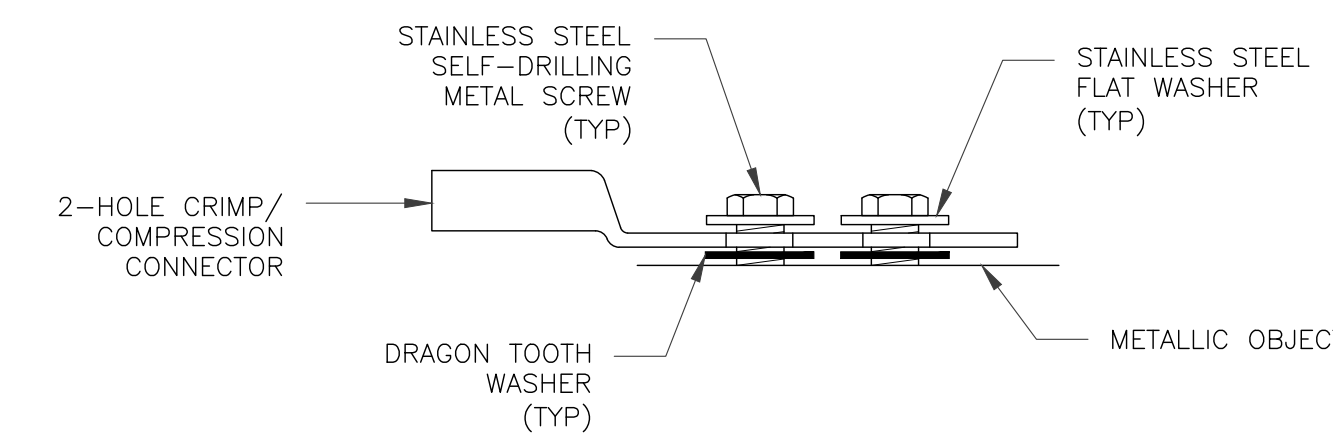
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

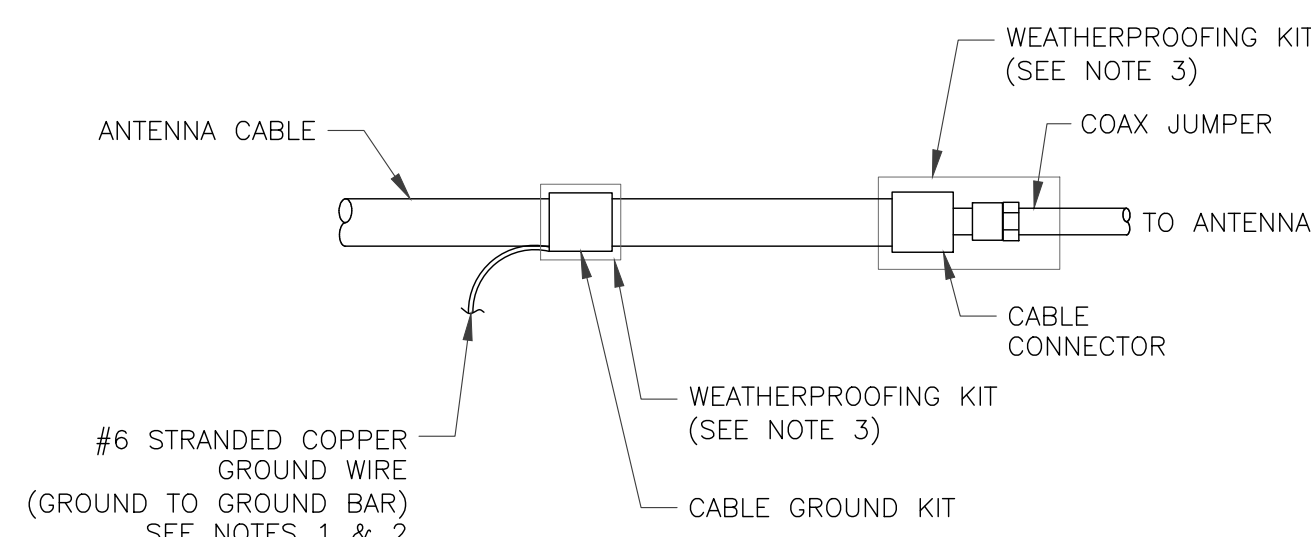


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

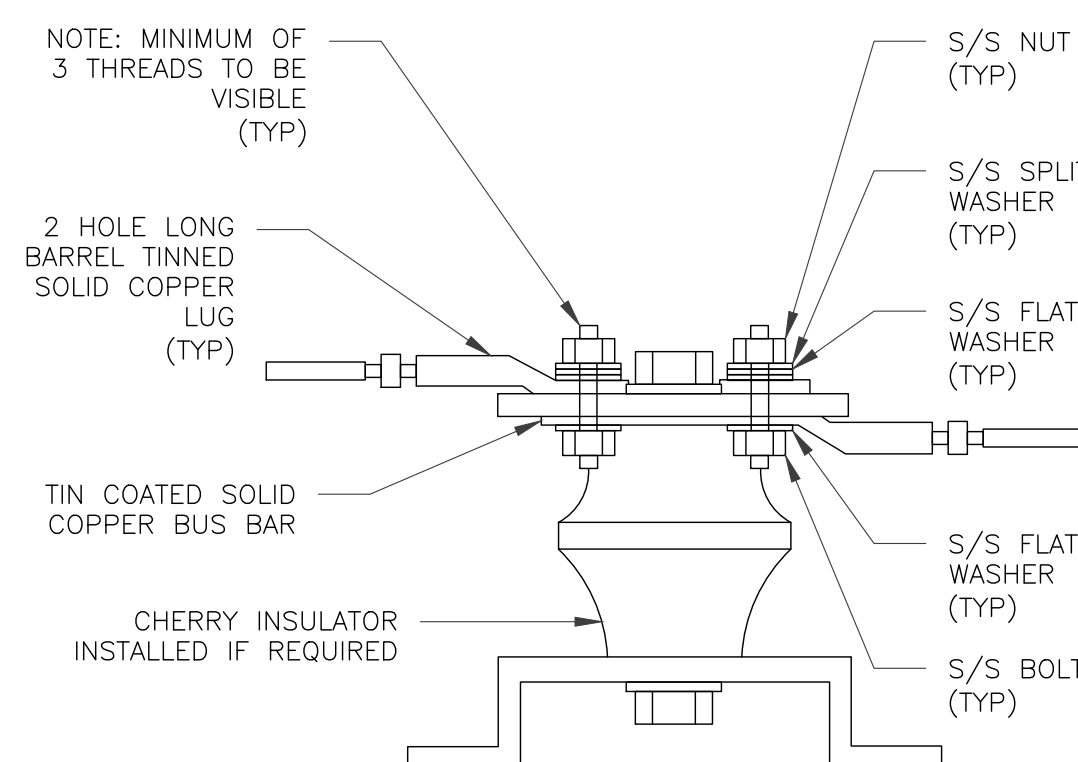
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



BU #: 827657
SEASIDE NORTH

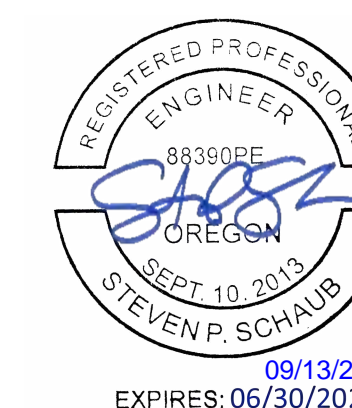
2329 ROYAL VIEW DR
SEASIDE, OR 97110

50' MONOPOLE DROP
AND SWAP

GPD JOB #: 2022724.90.827657.01

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SHEET NUMBER: **G-4** REVISION: **0**

**BU #: 827657
 SEASIDE NORTH**

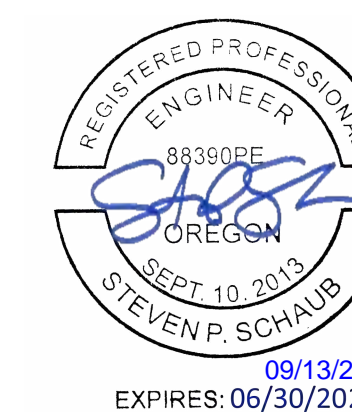
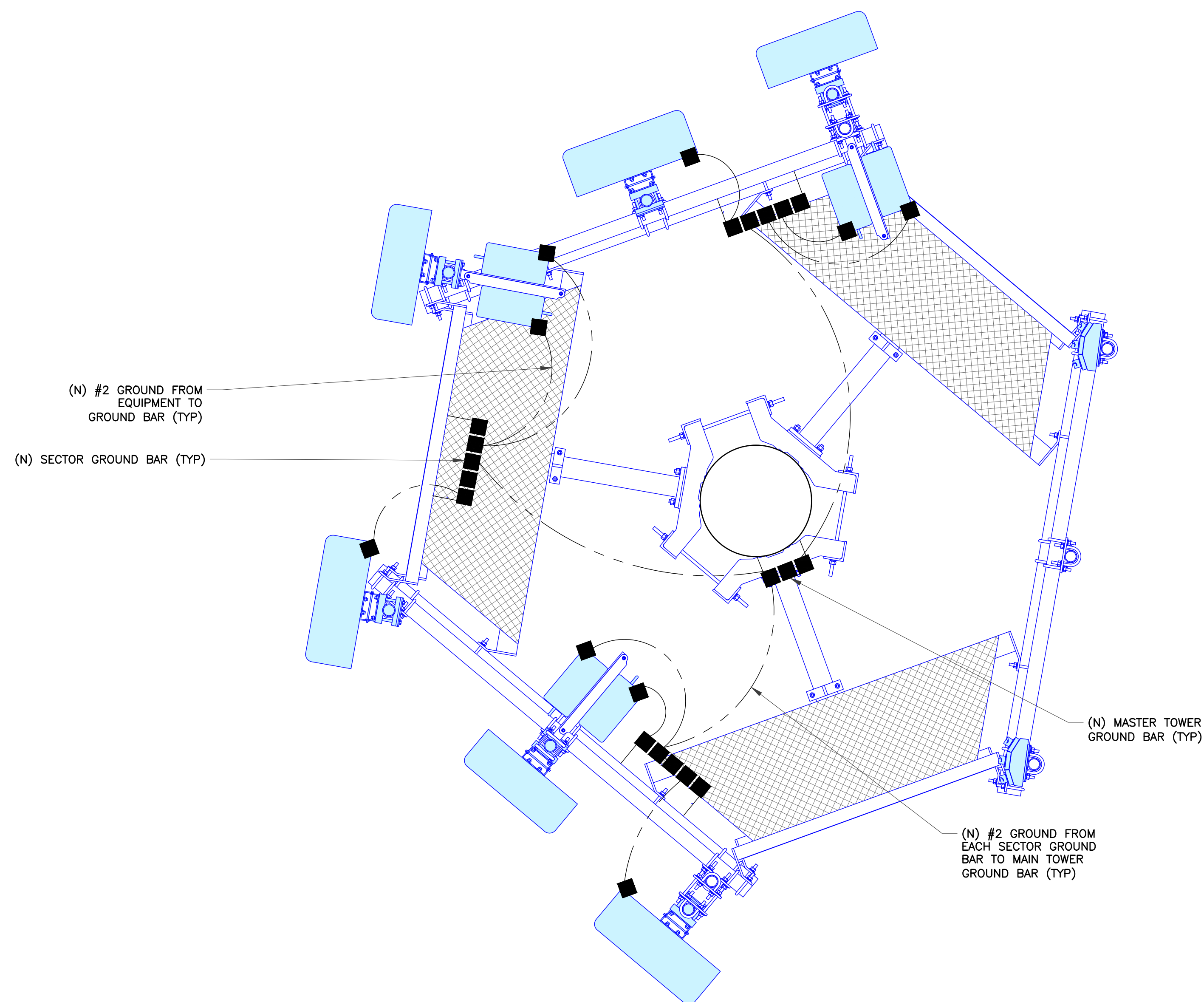
2329 ROYAL VIEW DR
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50' MONOPOLE DROP
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1 ANTENNA GROUNDING PLAN (ELEV. 50')
 SCALE: NOT TO SCALE

SHEET NUMBER: **G-5** REVISION: **0**

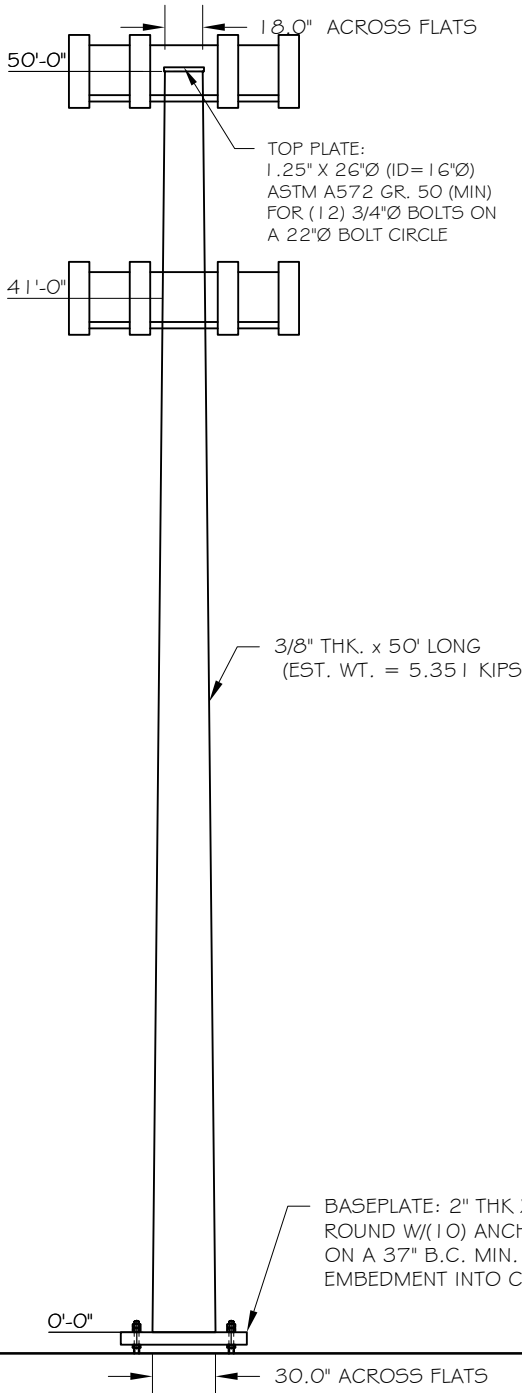
Page 1 of 2	Job Number: 23522-232
Eng: MFP	Customer Ref: TP-20978
	Date: 11/4/2024
Structure: 50-FT MONOPOLE	
Site: 827657 SEASIDE NORTH	
Location: CLATSOP CO., OR / 46°0'46", -123°53'44.6"	
Owner: CROWN CASTLE	
Revision No.: Revision Date:	

DESIGN			
Building Code: 2022 OREGON STRUCTURAL SPECIALTY CODE / IBC 2021			
Design Standard: TIA-222-H			
Wind Speed Load Cases: ASCE-7-16 WIND SPEED			
Load Case #1: 145 MPH Design Wind Speed			
Load Case #2: 30 MPH Wind with 0.5" Ice Accumulation			
Load Case #3: 60 MPH Service Wind Speed			
Structure Class Risk Category IV	Exposure Cat. C	Topography Cat. 5	Crest Height 164'

EQUIPMENT LIST	
Elev.	Description
50	(12) ANTENNAS + MOUNTING (EPA 225 FT2)
50	GENERIC ANTENNA MOUNT
41	(12) ANTENNAS + MOUNTING (EPA 175 FT2)
41	GENERIC ANTENNA MOUNT

ANTENNA FEED LINES ROUTED ON THE INSIDE OF THE POLE

STRUCTURE PROPERTIES					
Cross-Section: 18-Sided			Taper: 0.24000 in/ft		
Shaft Steel: ASTM A572 GR 65			Baseplate Steel: ASTM A572 GR 55		
Anchor Rods: 2.25 in. A615 GR. 75 X 7'-0"					
Sect.	Length (ft)	Thickness (in)	Splice (ft)	Top Dia. (in)	Bot Dia. (in)
1	50.00	0.3750	0.00	18.00	30.00



EXP 12/31/2026

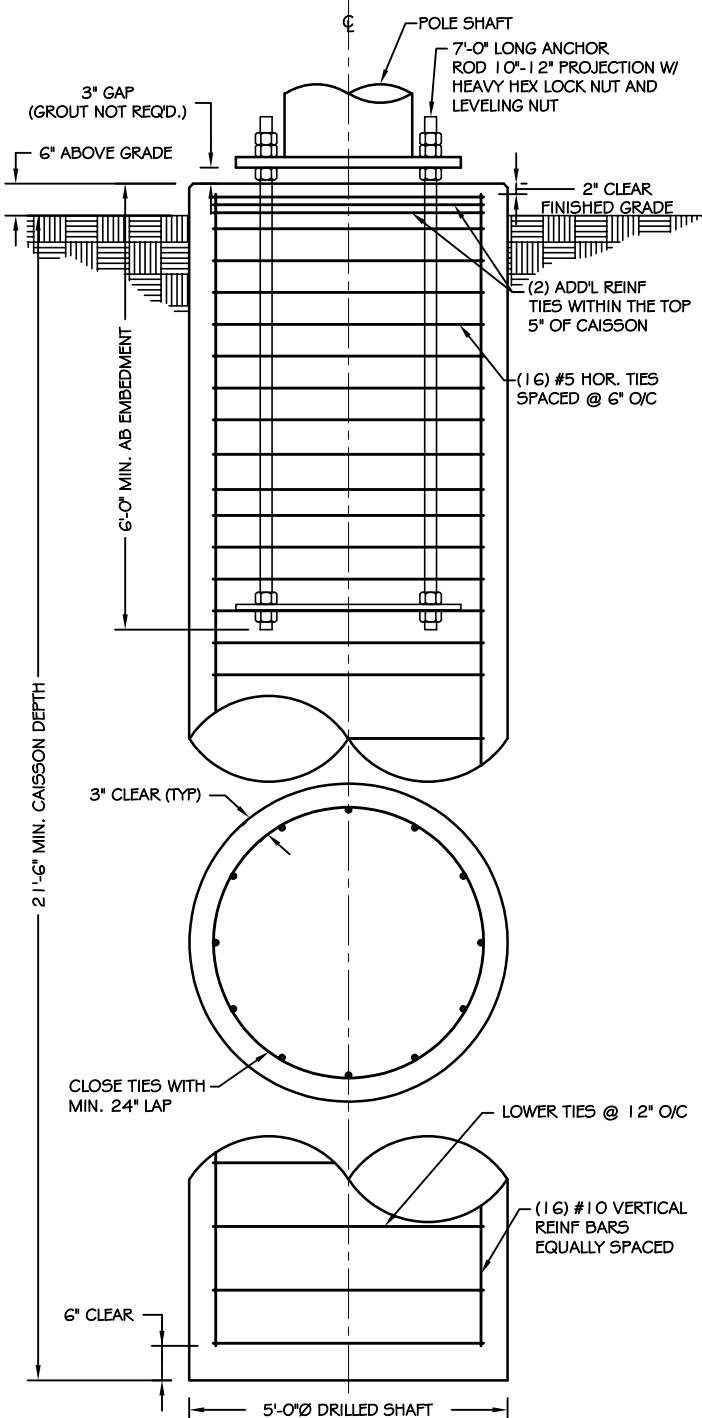
BASE REACTIONS FOR FOUNDATION DESIGN

Moment: 1570 ft-kip
Shear: 36 kip
Axial: 16 kip

Page 2 of 2	Job Number: 23522-232
Eng: MFP	Customer Ref: TP-20978
	Date: 11/4/2024
Structure: 50-FT MONOPOLE	
Site: 827657 SEASIDE NORTH	
Location: CLATSOP CO., OR / 46°0'46", -123°53'44.6"	
Owner: CROWN CASTLE	
Revision No.: Revision Date:	

FOUNDATION NOTES:

1. ALL FOUNDATION CONCRETE SHALL USE TYPE II CEMENT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45. IN AREAS OF POTENTIAL FREEZING, CONCRETE SHALL BE AIR ENTRAINED 6% (± 1.5%). ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
3. CAISSON FOUNDATION INSTALLATION SHALL BE IN ACCORDANCE WITH ACI 336, "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF DRILLED PIERS", LATEST EDITION.
4. THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS TO SUPPORT THE EXCAVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND SHALL CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.
5. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:
 ENGINEER: GPD GROUP
 REPORT NO.: 2022724.827657.01 (DATED 6/28/22)
6. ESTIMATED CONCRETE VOLUME = 16 CUBIC YARDS.
7. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:
 MOMENT: 1570 FT*KIPS
 SHEAR: 36 KIPS
 AXIAL: 16 KIPS
8. GEOTECHNICAL REPORT INDICATES GROUNDWATER MAY BE ENCOUNTERED AT 6'-0" BELOW GRADE.



CAISSON FOUNDATION

NOT TO SCALE



EXP 12/31/2026

tnxTower Michael Plahovinsak, P.E. 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	Job 50-ft Monopole - MFP #23522-232 r1	Page 1 of 4
	Project 827657 Seaside North	Date 06:44:01 10/26/24
	Client TP-20978	Designed by JC

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower base elevation above sea level: 178.00 ft.

Basic wind speed of 145 mph.

Risk Category IV.

Exposure Category C.

Crest Height: 164.00 ft.

Rigorous Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Feature: Flat Topped Hill.

Slope Distance L: 580.00 ft.

Distance from Crest x: 250.00 ft.

Horizontal Distance Downwind: No.

Nominal ice thickness of 0.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 30 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	50.00-0.00	50.00		18	18.0000	30.0000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	18.2198 30.4049	20.9782 35.2612	823.3093 3909.7656	6.2569 10.5169	9.1440 15.2400	90.0382 256.5463	1647.7019 7824.6757	10.4911 17.6339	2.5080 4.6200	6.688 12.32

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 50.00-0.00				1	1	1			

tnxTower Michael Plahovinsak, P.E. 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	Job 50-ft Monopole - MFP #23522-232 r1	Page 2 of 4
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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
1 5/8"	C	No	Yes	Inside Pole	44.00 - 0.00	12	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	41.00 - 0.00	12	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	50.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.94

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	50.00-0.00	A	0.677	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.94

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Antenna + Mounting (EPA 225 ft ²)	C	None		0.0000	50.00	No Ice	225.00	225.00	4.00
						1/2" Ice	240.00	240.00	4.20
Antenna + Mounting (EPA 175 ft ²)	C	None		0.0000	41.00	No Ice	175.00	175.00	4.00
						1/2" Ice	185.00	185.00	4.50

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 90 deg - No Ice
5	0.9 Dead+1.0 Wind 90 deg - No Ice
6	1.2 Dead+1.0 Wind 180 deg - No Ice
7	0.9 Dead+1.0 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp

tnxTower Michael Plahovinsak, P.E. 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	Job	50-ft Monopole - MFP #23522-232 r1	Page	3 of 4
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Comb. No.	Description
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	50 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-18.50	0.00	0.00
			Max. Mx	4	-16.37	-1554.41	0.00
			Max. My	2	-16.37	0.00	1554.41
			Max. Vy	4	35.55	-1554.41	0.00
			Max. Vx	2	-35.55	0.00	1554.41

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	50 - 0	4.063	12	0.6365	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
50.00	Antenna + Mounting (EPA 225 ft2)	12	4.063	0.6365	0.0000	Inf
41.00	Antenna + Mounting (EPA 175 ft2)	12	3.332	0.5220	0.0000	Inf

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	50 - 0	26.547	2	4.1614	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
50.00	Antenna + Mounting (EPA 225 ft2)	2	26.547	4.1614	0.0000	Inf
41.00	Antenna + Mounting (EPA 175 ft2)	2	21.769	3.4123	0.0000	Inf

tnxTower Michael Plahovinsak, P.E. 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	Job 50-ft Monopole - MFP #23522-232 r1	Page 4 of 4
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Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	50 - 0 (1)	TP30x18x0.375	50.00	0.00	0.0	35.2612	-16.37	2062.78	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	50 - 0 (1)	TP30x18x0.375	1554.41	1588.34	0.979	0.00	1588.34	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	φT _n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	50 - 0 (1)	TP30x18x0.375	35.55	618.83	0.057	0.00	1605.51	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	50 - 0 (1)	0.008	0.979	0.000	0.057	0.000	0.990	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail	
L1	50 - 0	Pole	TP30x18x0.375	1	-16.37	2062.78	99.0	Pass	
							Summary		
							Pole (L1)	99.0	Pass
							RATING =	99.0	Pass

Michael F. Plahovinsak, P.E. 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 email: mike@mfpeng.com	Job 50-ft monopole - MFP #23522-232	Page BP & AB Calc
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Anchor Rod and Base Plate Calculation

TIA-222-H

Factored Base Reactions:	Pole Shape:	Anchor Rods:	Base Plate:
Moment: 1554 ft-kips	18-Sided	(10) 2.25 in. A615 GR. 75	2 in. x 43 in. Round
Shear: 36 kips	Pole Dia. (D_f):	Anchor Rods Evenly Spaced	$f_y = 55$ ksi
Axial: 16 kips	30.00 in	On a 37 in Bolt Circle	

Anchor Rod Calculation According to TIA-222-H section 4.9.9

- $\phi_t, \phi_v = 0.75$ TIA 4.9.6
- $I_{bolts} = 1711.25 \text{ in}^2$ Momet of Inertia
- $P_u = 203 \text{ kips}$ Compr Force
- $V_u = 3.6 \text{ kips}$ Shear Force
- $R_{nt} = 325.00 \text{ kips}$ Nominal Tensile Strength
- $R_{nv} = 198.80 \text{ kips}$ (0.5 x f_u x a_g)
- Stress Rating = 84.0%** Satisfies TIA-H 4.9.9

Base Plate Calculation According to TIA-222-H

- $\phi = 0.90$ TIA 4.7
 - $M_{PL} = 436.6 \text{ in-kip}$ Plate Moment
 - $L = 9.4 \text{ in}$ Section Length
 - $Z = 9.4$ Plastic Section Modulus
 - $M_P = 518.4 \text{ in-kip}$ Plastic Moment
 - $\phi M_n = 466.5 \text{ in-kip}$ Factored Resistance
- Calculated Moment vs Factored Resistance*
- $436.60 \text{ in-kip} \leq 467 \text{ in-kip}$
- Stress Rating = 93.6%**

Anchor Rods Are Adequate	84.0% <input checked="" type="checkbox"/>
Base Plate is Adequate	93.6% <input checked="" type="checkbox"/>

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Caisson Calculation

According to TIA-222-H

1. Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
2. Cohesion strength for the upper 15 ft has been reduced by 50%
3. An additional load factor of 1.3 has been applied to the reinforcement design
4. Foundation has been designed with applied loads per TIA-222-H
5. Design water table = 6 ft below grade

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.50 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 5.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
	1	S	5.00	0.00	100.0		1.000	-0.00
	2	S	1.00	5.00	110.0		2.770	28.00
	3	S	7.00	6.00	48.0		2.770	28.00
	4	S	10.00	13.00	53.0		3.000	30.00
	5	S	5.00	23.00	53.0		3.255	32.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 1570.0 VERTICAL (k) = 16.0 SHEAR (k) = 36.0
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

*** CALCULATED PIER LENGTH (ft) = 22.000

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
S	0.50	5.00	100.0		1.000	18.75	3.83
S	5.50	1.00	110.0		2.770	23.06	6.02
S	6.50	7.00	48.0		2.770	226.28	10.25
S	13.50	2.51	53.0		3.000	114.37	14.78
S	16.01	5.99	53.0		3.000	-333.63	19.13

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR			WITHOUT ADDITIONAL SAFETY FACTOR		
	SHEAR (k)	MOMENT (ft-k)		SHEAR (k)	MOMENT (ft-k)	
0.00	48.8	2162.3		36.6	1621.7	
2.20	46.7	2268.5		35.0	1701.4	
4.40	37.4	2362.3		28.1	1771.8	
6.60	4.5	2419.1		3.4	1814.4	
8.80	-56.5	2363.6		-42.4	1772.7	
11.00	-127.2	2163.2		-95.4	1622.4	
13.20	-207.6	1796.7		-155.7	1347.6	
15.40	-304.4	1236.5		-228.3	927.4	
17.60	-253.4	574.5		-190.1	430.9	
19.80	-132.5	147.8		-99.4	110.9	
22.00	-0.0	0.0		-0.0	0.0	

*** TOTAL REINFORCEMENT PCT = 0.60 REINFORCEMENT AREA (in²) = 16.96

*** USABLE AXIAL CAP. (k) = 16.0 USABLE MOMENT CAP. (ft-k) = 1831.4

For Design:

5-ft Diameter caisson x 22-ft long (21.5-ft Embedded with 0.5-ft above grade)
Concrete strength = 4500 PSI @ 28 days. Estimated Concrete Volume = 16 CY3.
(16) #10 Vertical Rebar. Steel Cross-Section = 20.32 in²