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CROWN CASTLE
 CROWN CASTLE
 695 RIVER OAKS PARKWAY
 SAN JOSE, CA 95134

RECORD DRAWINGS ISSUE DATE: 08.22.19



Shift Companies, LLC
 3334 N. 20TH ST.
 PHOENIX, ARIZONA 85016
 ph: 480.264.0829
 fax: 480.264.0163

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RELEASE	
DATE	SUBMITTAL
08.22.19	1ST SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT

PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

SF36XC052

SHIFT JOB NUMBER IN HOUSE

150601 DRAWN BY: MB
 CHECKED BY: RA

SHEET TITLE

TITLE SHEET

SHEET NUMBER PAGE

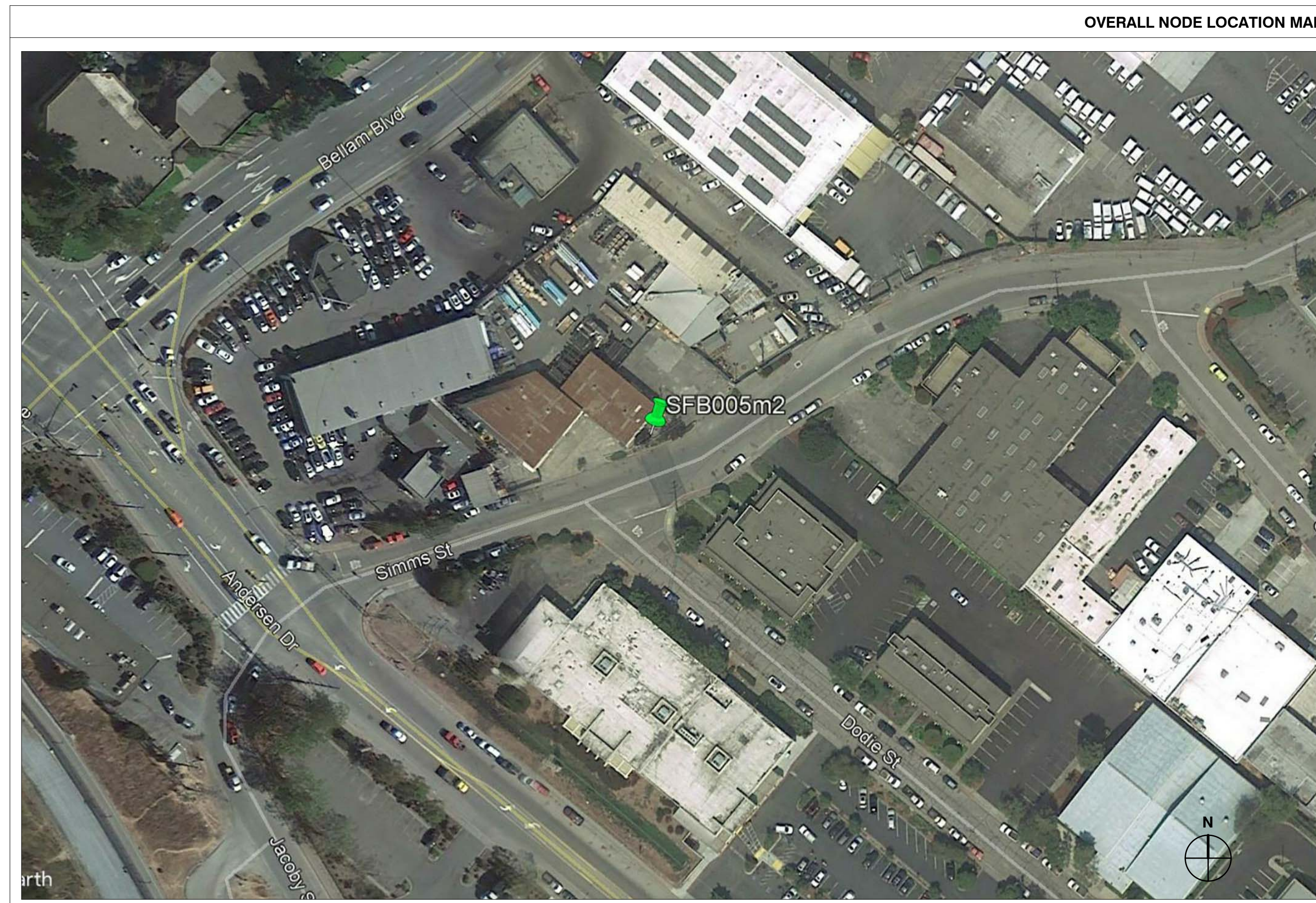
T1.1 1 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PROJECT NAME: SAN FRANCISCO BAY EXPANSION - 58 SITES
PROJECT ADDRESS: 44 SIMMS ST., SAN RAFAEL, CA 94901
PROJECT TYPE: EXIST. PG&E-OWNED WOOD JPA POLE
CUSTOMER NODE ID#: SF90XS2H0
NODE #(s): **SFB005m2**
HUB AREA: SF36XC052
COORDINATES: LAT: 37.95789, LONG: -122.506809
CROWN CASTLE BILLING / SCU#: 479646

PROJECT TEAM	
ARCHITECT	OWNER INFO
Company: SHIFT CONSULTING Address: 3334 N. 20TH ST. PHOENIX, AZ 85016 Phone Number: 480.264.0829 Fax Number: 480.264.0163 Contact: CHRIS MYERS	Company: CROWN CASTLE Address: 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134 Phone Number: 707.756.2030 Fax Number: Contact: JOHN GRIFFITHS
STRUCTURAL	RF ENGINEER
Company: STRUKTUR STUDIO, LLC Address: 1525 N. GRANITE REEF RD., STE. 9 SCOTTSDALE, AZ 85257 Phone Number: 480.425.2250 Fax Number: 480.425.2225 Contact: DAVID LUNENG	Company: CROWN CASTLE Address: 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134 Phone Number: 408.468.5546 Fax Number: Contact: ERNESTO FIGUEROA

PROJECT SUMMARY	
JURISDICTION: SAN RAFAEL PUBLIC WORKS 111 MORPHEW ST. SAN RAFAEL, CA 94901 PH: 415.485.3355	APPLICANT: CROWN CASTLE 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134
HANDICAPPED REQUIREMENTS: -FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.	CODES: GENERAL ORDER (GO) 95, RULE 94 2012 INTERNATIONAL BUILDING CODE (IBC) 2014 NATIONAL ELECTRICAL CODE (NEC)
-HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED.	PLUMBING REQUIREMENTS: FACILITY HAS NO PLUMBING
	POWER COMPANY: PACIFIC GAS AND ELECTRIC (PG&E)



PROJECT DESCRIPTION
THIS PROJECT WILL CONSIST OF ADDING A NEW POLE-TOP CANISTER ANTENNA AND A SIDE-MOUNTED EQUIPMENT CHASSIS TO THE EXISTING POLE. THE EQUIPMENT CHASSIS WILL CONTAIN THE FOLLOWING: (1) NEW RADIO UNIT (1) FIBER ENCLOSURE BOX (1) ELECTRICAL LOAD CENTER / DISTRIBUTION PANEL (1) ELECTRICAL POWER METER

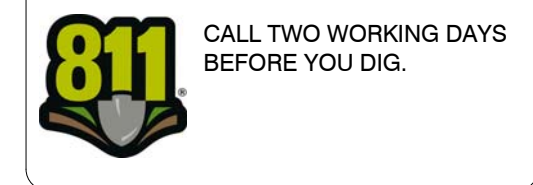
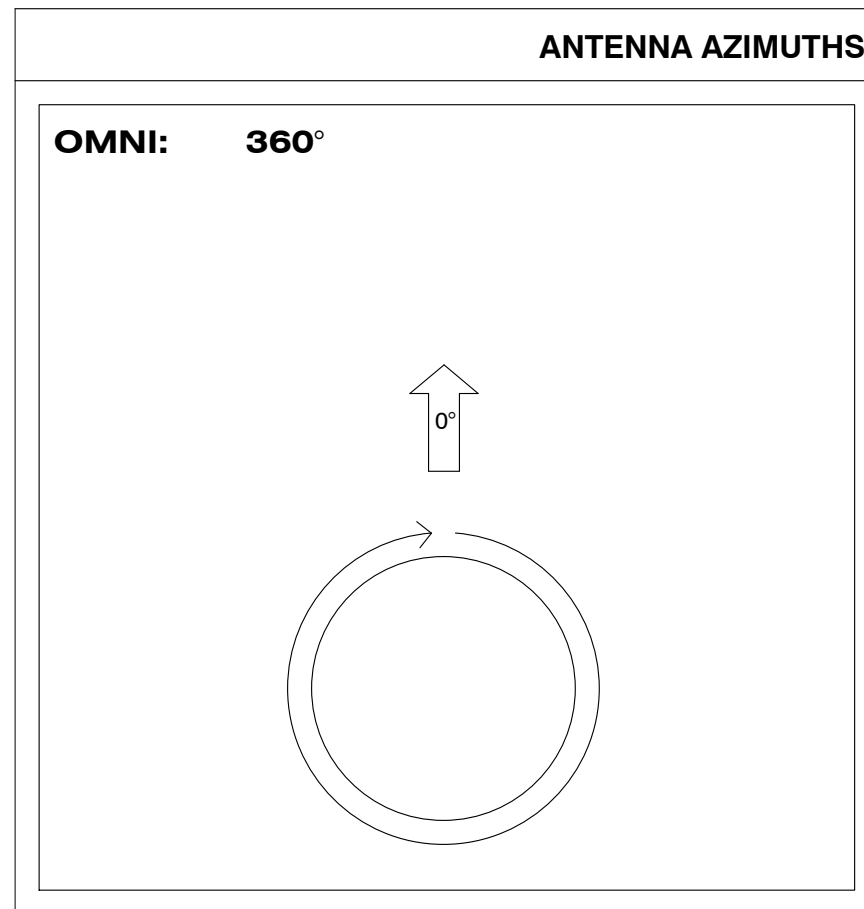
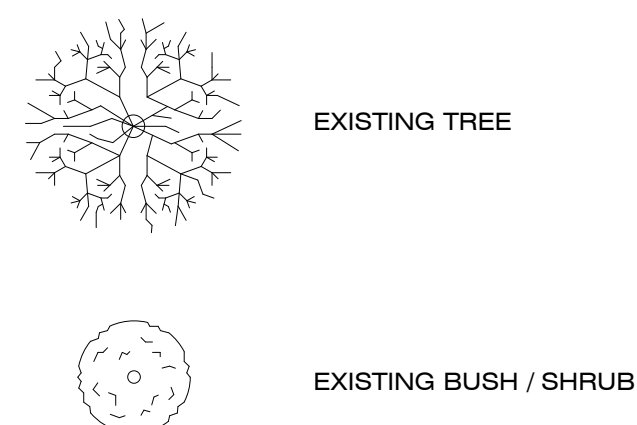
PLAN CHECK #

CASE #

- RIGHT-OF-WAY USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
- ALL WORK TO BE CONDUCTED IN CITY RIGHT OF WAY, U.N.O.
- ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
- ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNAGE WILL BE PLACED.
- TEMPORARY LIGHTING WILL BE COORDINATED WITH CITY AND PROVIDED WHENEVER EXISTING LIGHTING IS REMOVED OR UNAVAILABLE AS REQUIRED.
- NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
- CLEANUP OF THE WORK AREA WILL BE COMPLETED EACH EVENING AND THE PROJECT AREA WILL BE RETURNED TO EXISTING CONDITION AT THE COMPLETION OF CONSTRUCTION AT EACH NODE LOCATION.
- ALL WORK TO COMPLY WITH OSHA AND CITY GUIDELINES.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND REPLACE, AT THEIR COST, ANY AND ALL DAMAGED PAVEMENT, SIDEWALK, CURB AND GUTTER OUTSIDE THE PAY LIMIT, DAMAGE DUE TO THEIR ACTIVITIES ON THE PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO THE REMOVAL AND REPLACEMENT OF NEWLY CRACKED, THE REMOVAL AND REPLACEMENT OF EXISTING CRACKS WHERE THE CRACKS HAVE BEEN ENLARGED DUE TO THE CONTRACTORS OPERATIONS, THE REMOVAL AND REPLACEMENT OF DEFORMED PAVEMENT, CURB AND GUTTER, SIDEWALK, ETC. ALL SAW CUTS USED FOR THE REMOVAL OF THESE ITEMS SHALL BE PERPENDICULAR AND PARALLEL TO THE CENTERLINE CONTROLLING THAT ITEM, OR AT THE DISCRETION OF THE CITY INSPECTOR.

- CENTER LINE
 --- PROPERTY LINE
 --- RIGHT-OF-WAY
 - F - F - FIBER
 - G - G - GAS
 - P - P - POWER
 - S - S - SANITARY SEWER
 - SD - SD - STORM DRAIN
 - W - W - WATER
 - P - P - LIGHT CIRCUIT POWER
 - OHE - OHE - OVERHEAD POWER LINE

- 3 REVISION
 A01 KEY NOTE
 1 A1 DETAIL REFERENCE
 8 A-2 ELEVATION REFERENCE
 17 A-3 SECTION REFERENCE
 ELEVATION MARKER
 A5 PHOTOSIM REFERENCE
 # # ANTENNA AZIMUTH



SUBJECT POLE: SFB005m2
 GPS COORDINATES:
 LAT: 37.95789
 LONG: -122.506809
 POLE TYPE: EXIST. PG&E-OWNED WOOD JPA POLE
 POLE ID #: 102233324
 ANTENNA RAD CENTER: 26' - 9" A.F.G.
 SUBJECT POLE IS LOCATED IN:
CITY OF SAN RAFAEL R.O.W.



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 SAN JOSE, CA 95134

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PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

SF36XC052

SHIFT JOB NUMBER **150601** IN HOUSE

DRAWN BY: MB
 CHECKED BY: RA

SHEET TITLE

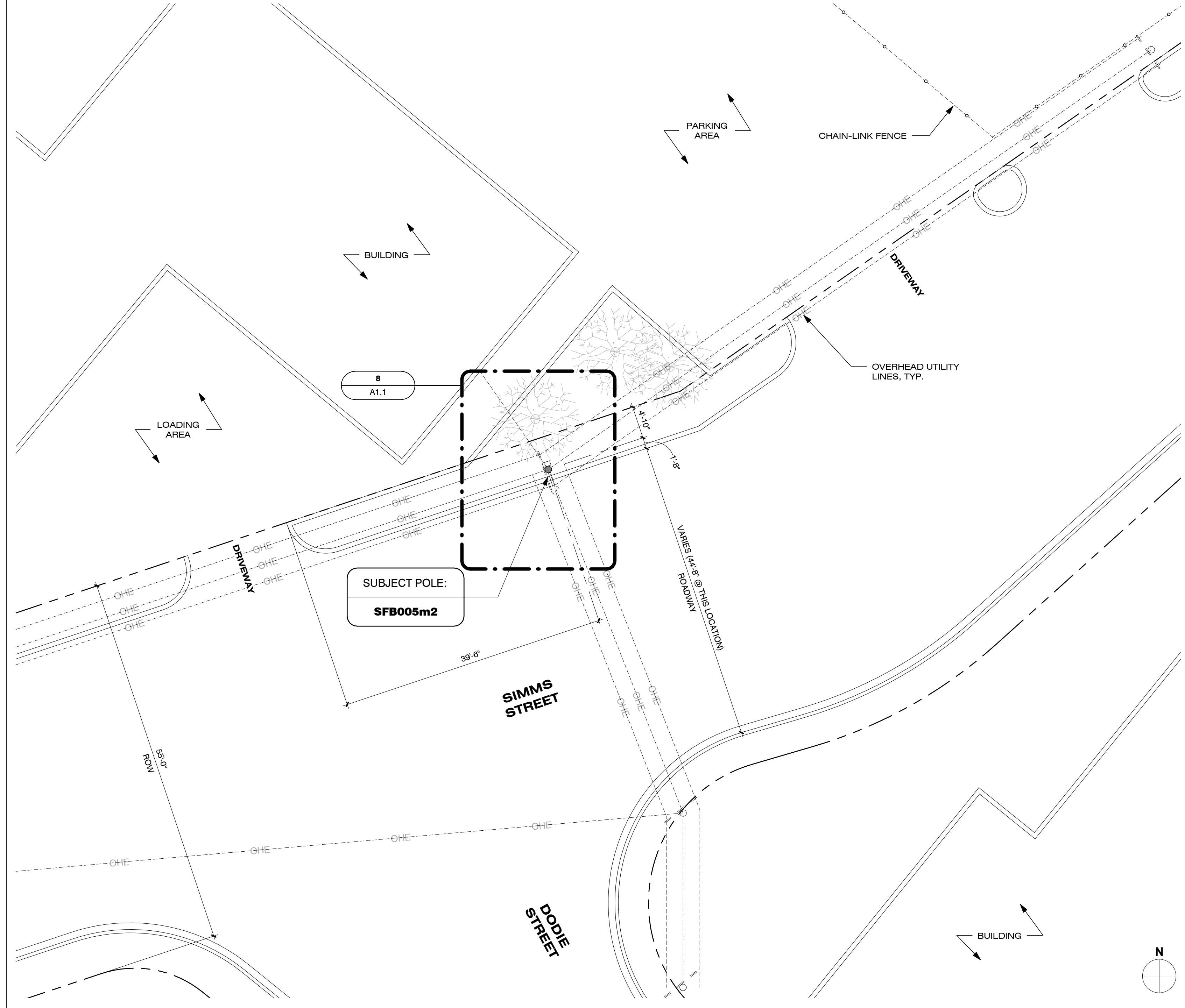
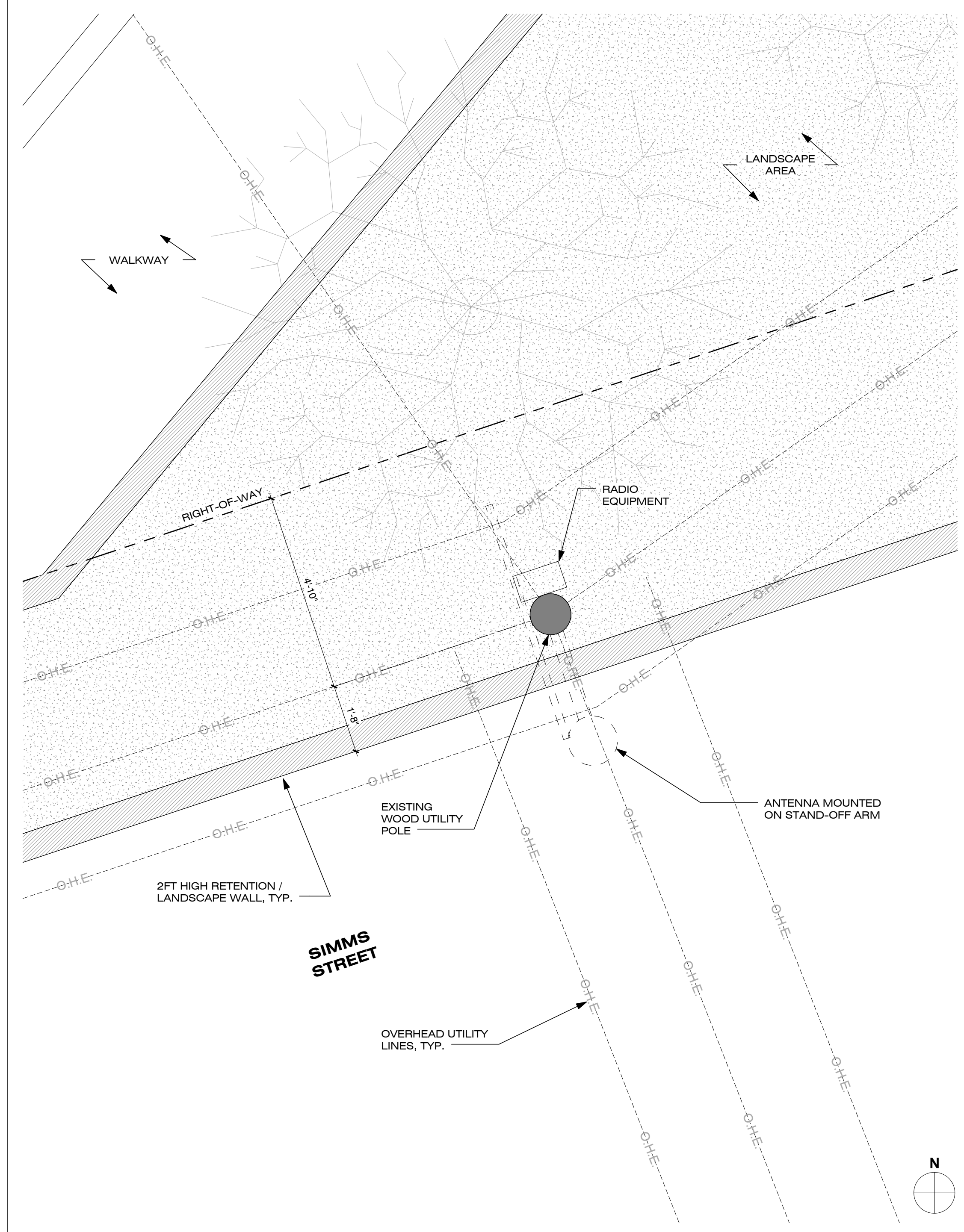
SITE PLAN

SHEET NUMBER **A1.1** PAGE **2 OF 9**

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

GENERAL PROJECT NOTES SCALE: NTS 1

ABBREVIATIONS AND SYMBOLS SCALE: NTS 9



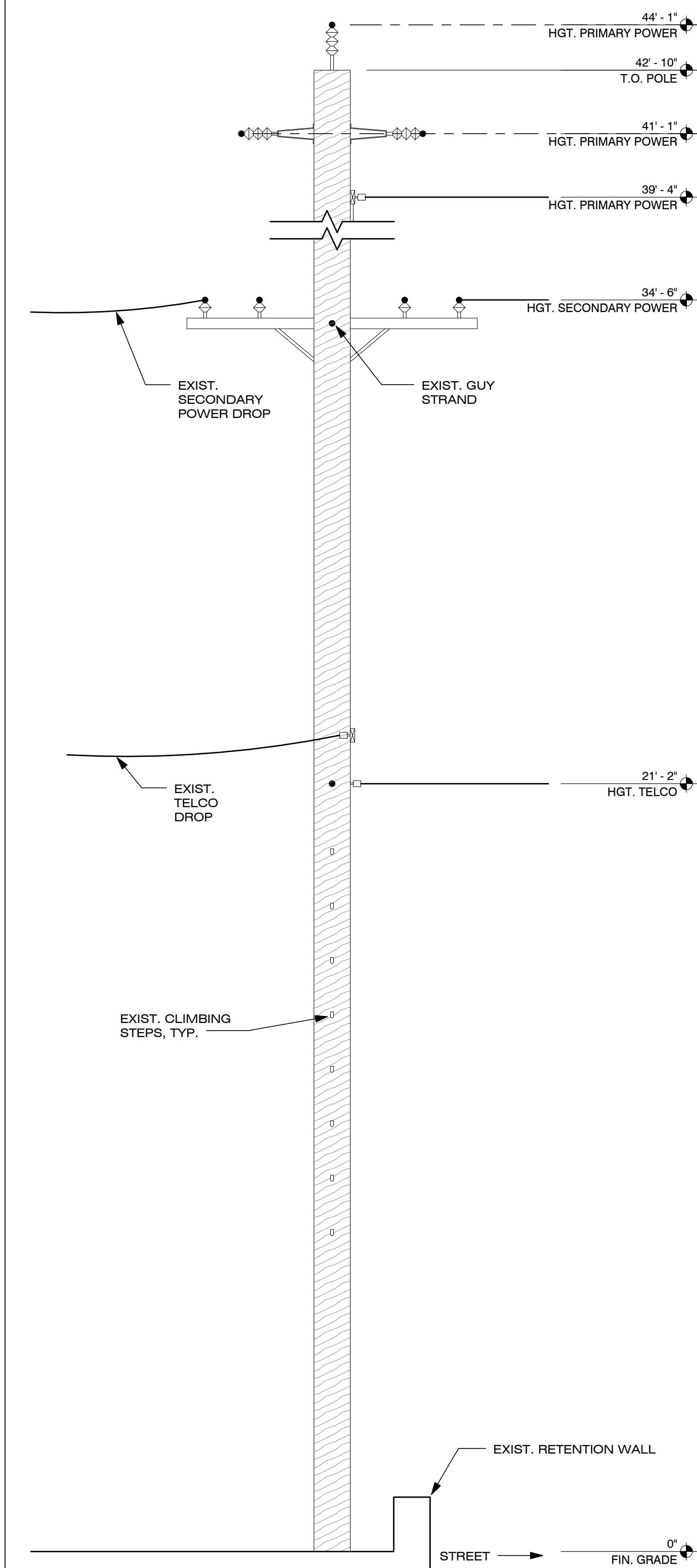
EQUIPMENT AND ANTENNA PLAN 1/2" = 1'-0" 8

OVERALL SITE PLAN 1" = 10'-0" 9

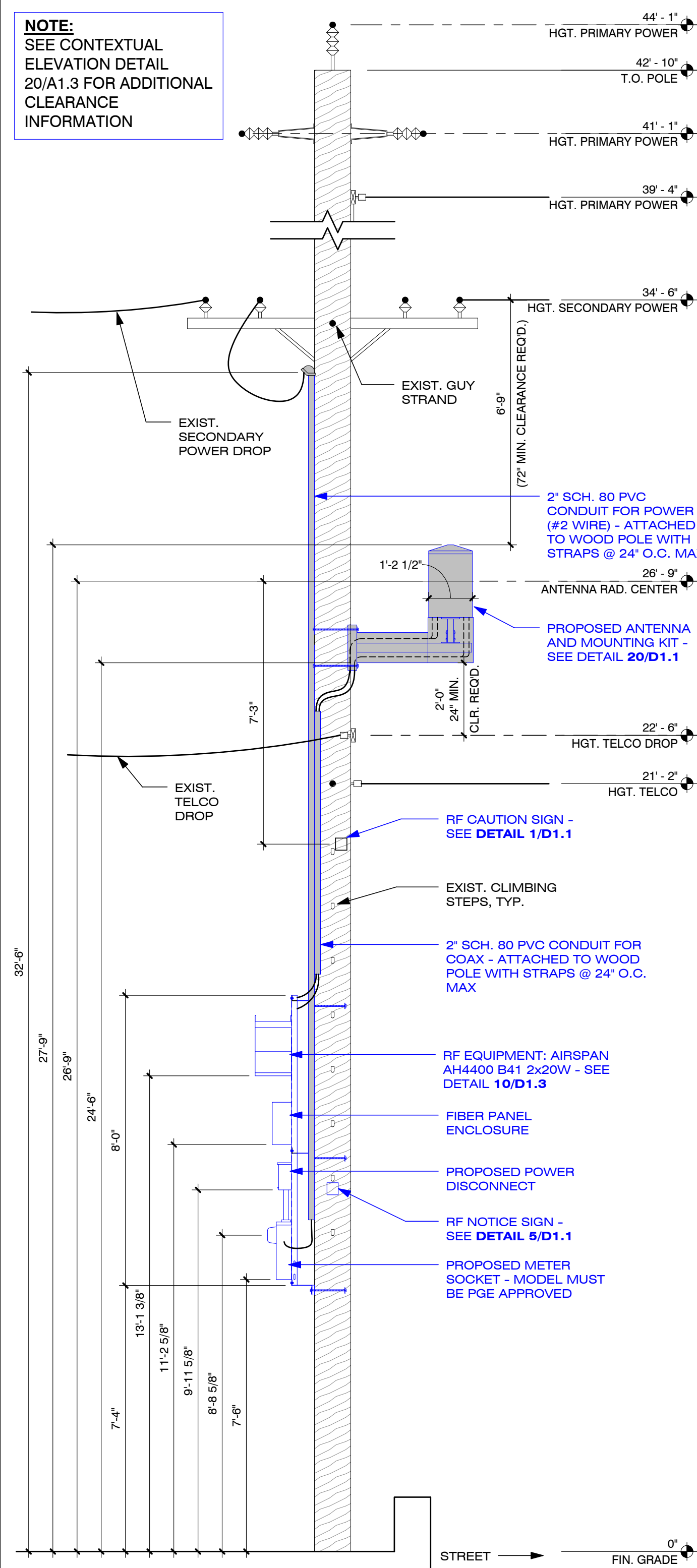
PLAN CHECK #
 CASE #

EXISTING POLE TYPE = EXIST. PG&E-OWNED WOOD JPA POLE
 EXISTING POLE CLASS = 4
 EXISTING POLE WIDTH = TOP: 10" DIA., BOTTOM: 1' - 2" DIA.
 EXISTING POLE HEIGHT = 42' - 10"
 EXISTING POLE OWNER = PG&E

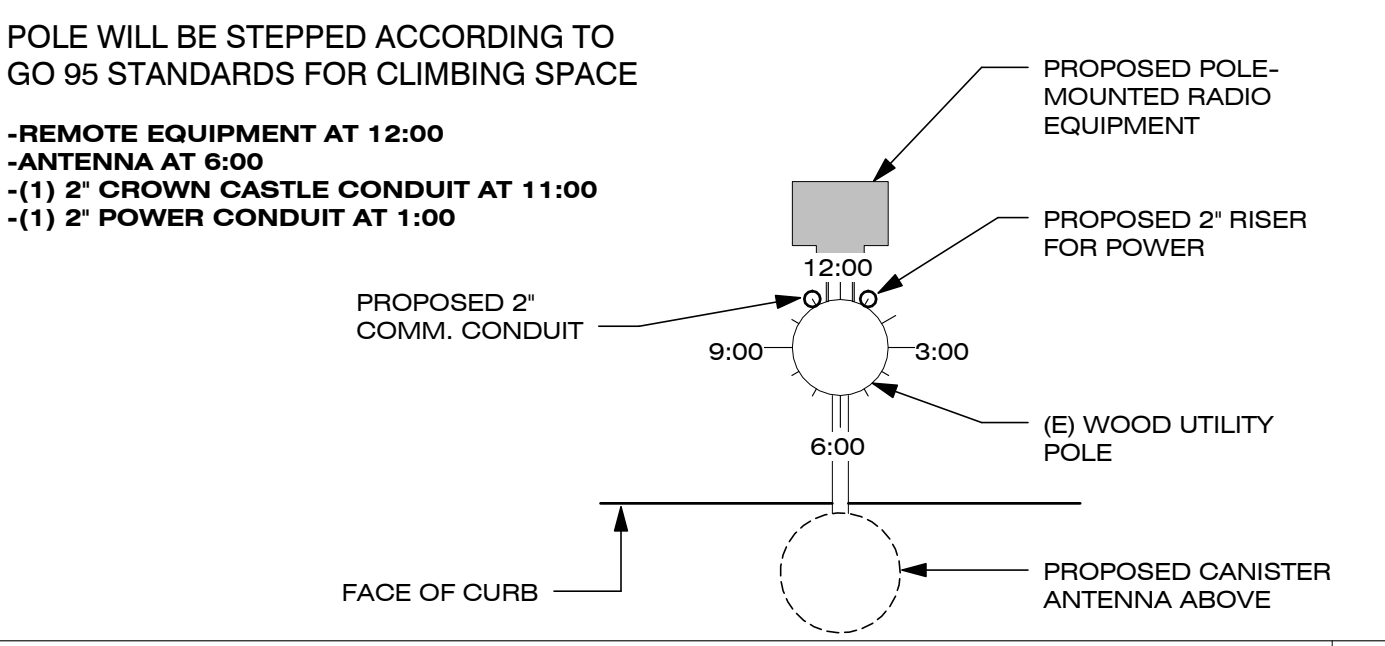
POLE INFORMATION SCALE: N.T.S. 1



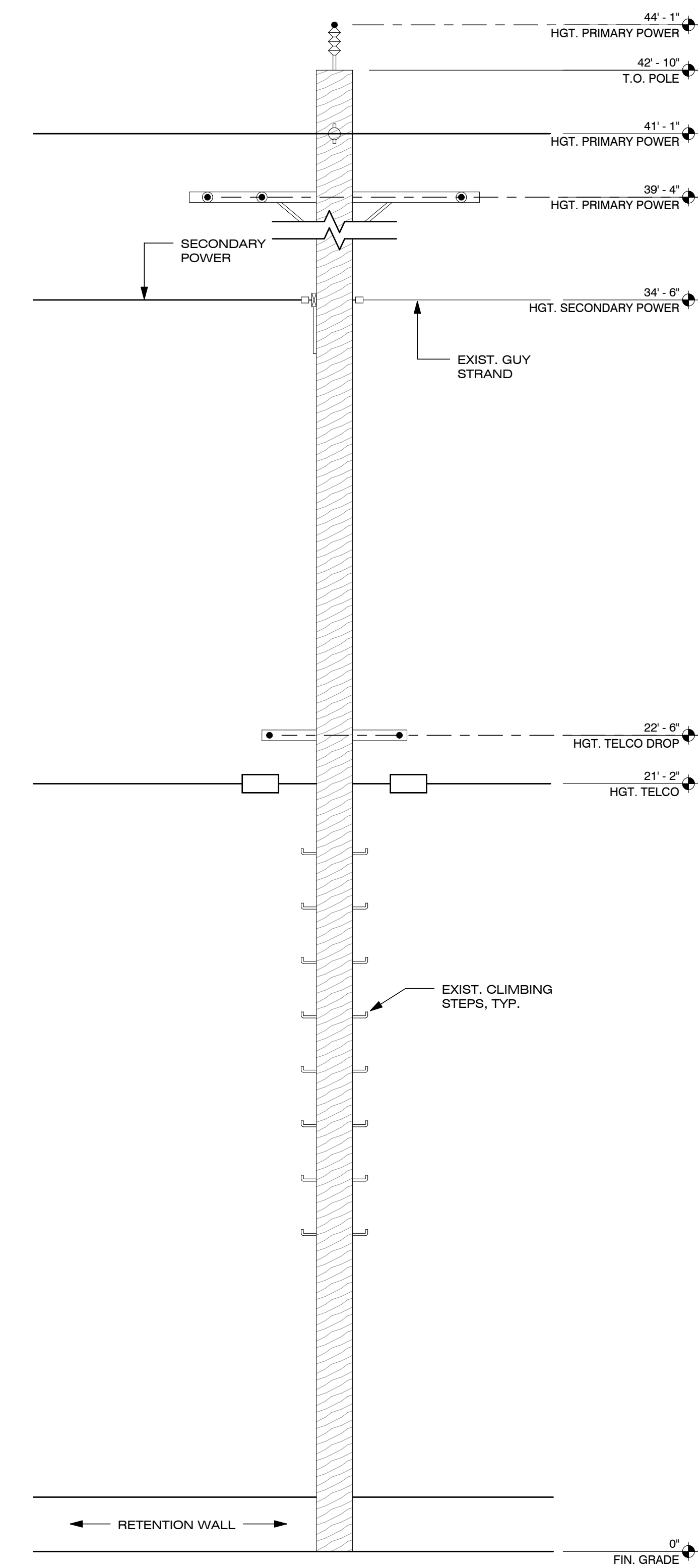
POLE ELEVATION - EXISTING (LOOKING EAST) SCALE: 3/8" = 1'-0" 16



POLE ELEVATION - PROPOSED (LOOKING EAST) SCALE: 3/8" = 1'-0" 16

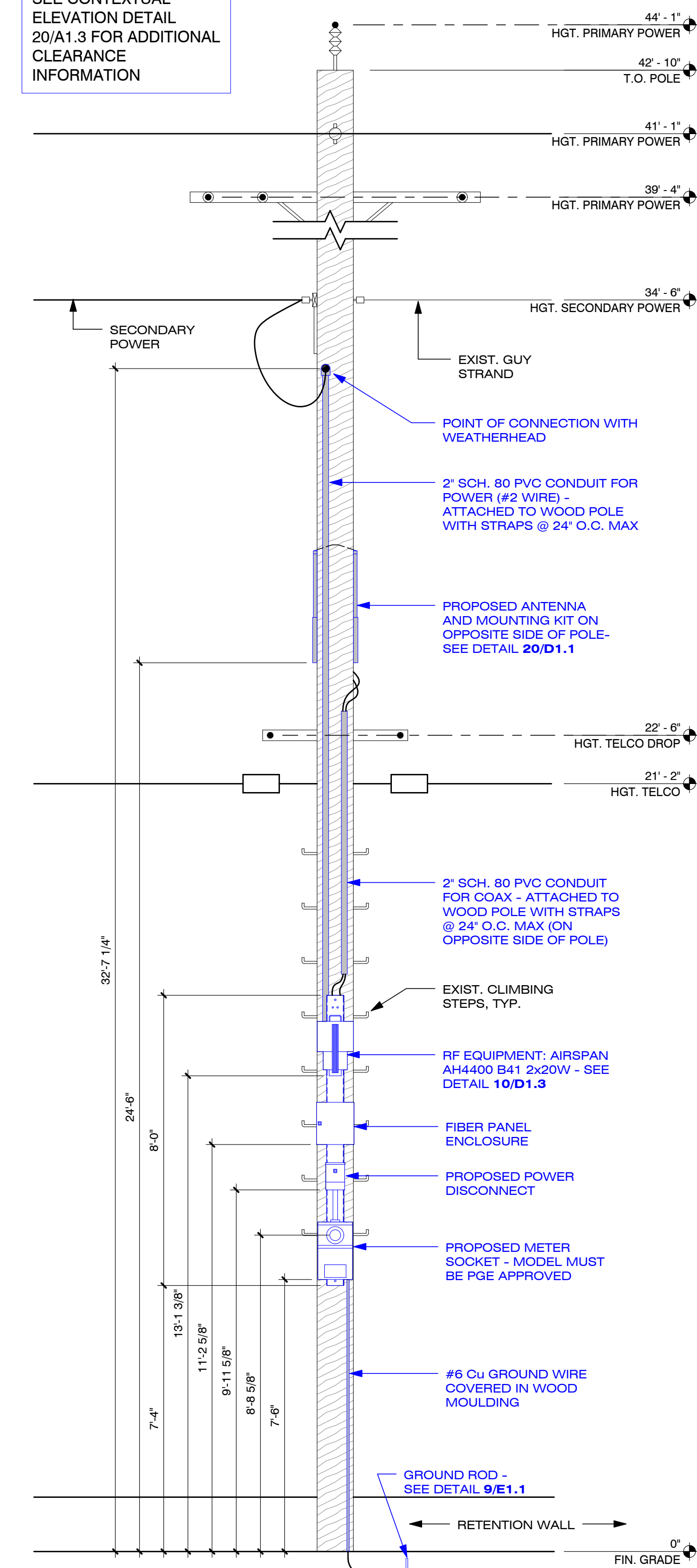


POLE RISER PLAN SCALE: N.T.S. 5



POLE ELEVATION - EXISTING (LOOKING SOUTH) SCALE: 3/8" = 1'-0" 16

NOTE: SEE CONTEXTUAL ELEVATION DETAIL 20/A1.3 FOR ADDITIONAL CLEARANCE INFORMATION



POLE ELEVATION - PROPOSED (LOOKING SOUTH) SCALE: 3/8" = 1'-0" 20



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PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

SF36XC052

SHIFT JOB NUMBER IN HOUSE

150601 DRAWN BY: MB CHECKED BY: RA

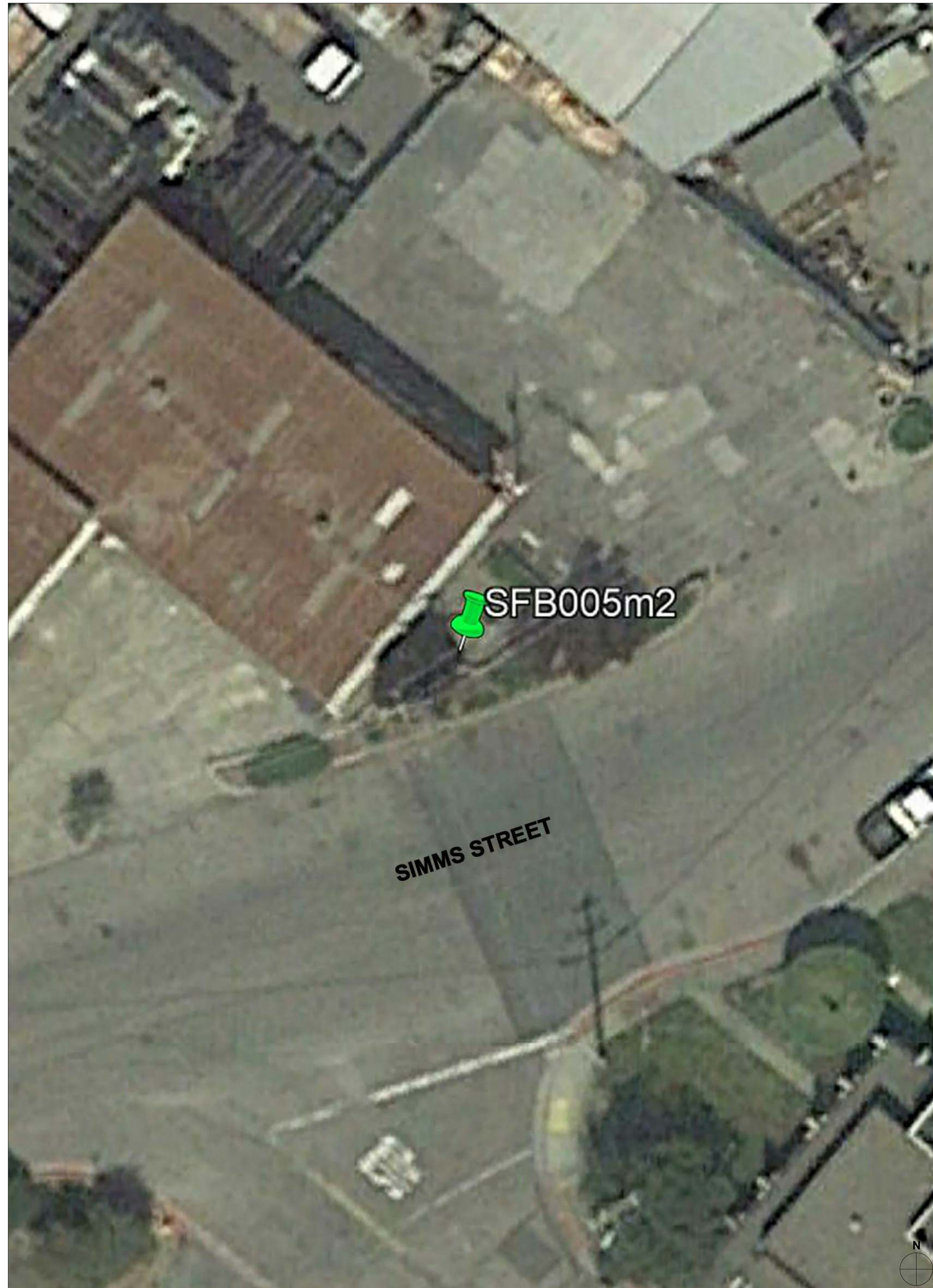
SHEET TITLE

POLE ELEVATIONS / PHOTO SIMS, PROPOSED

SHEET NUMBER PAGE

A1.2 3 OF 9

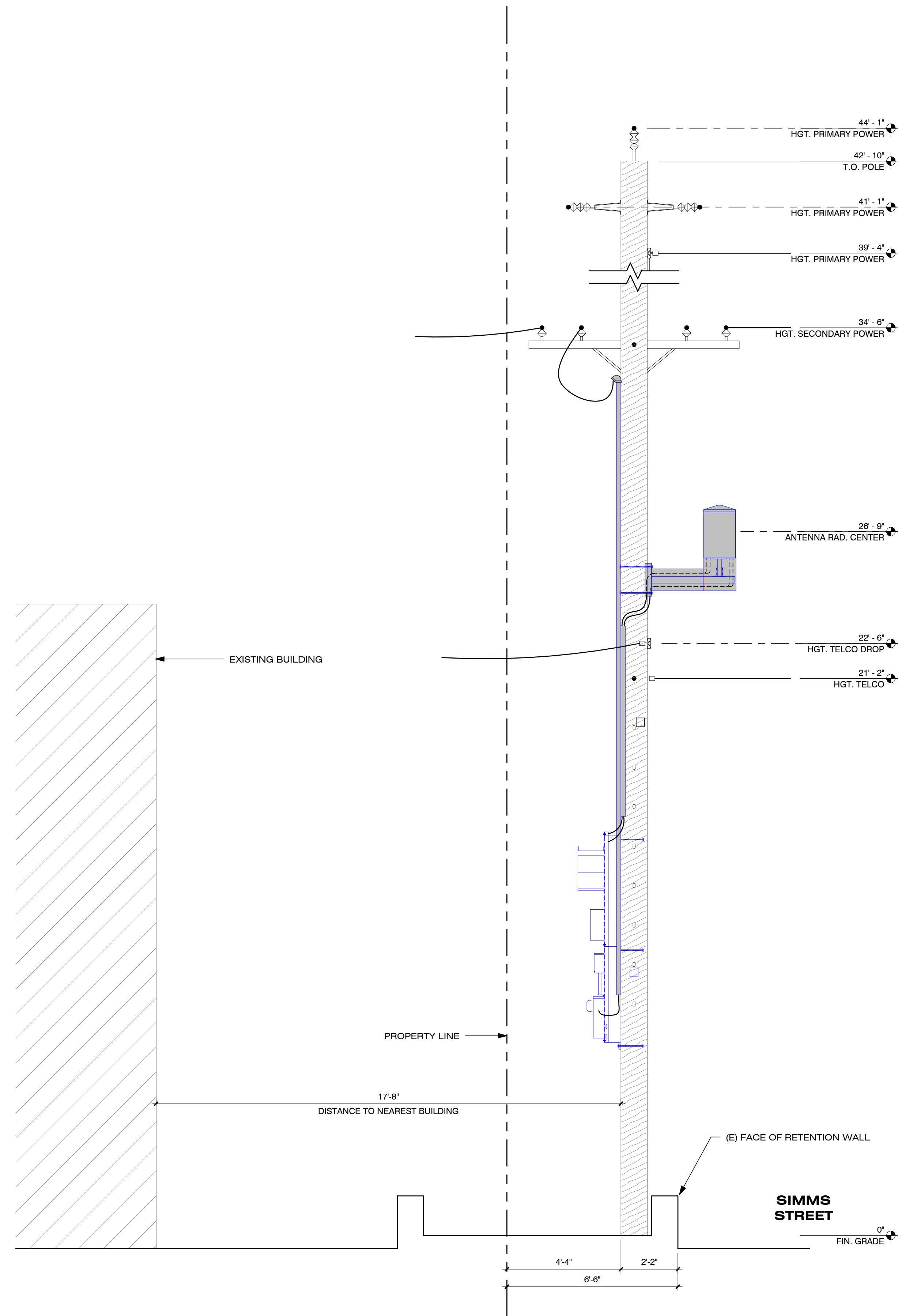
PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"



AERIAL VIEW

1" = 10'-0" 0 5 10 20 12

CONTEXTUAL ELEVATION OF EXISTING POLE WITH PROPOSED EQUIPMENT

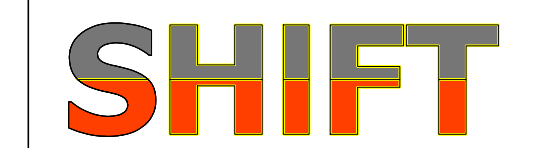


3/8" = 1'-0" 0 1' 2' 4' 20



CROWN CASTLE
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PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

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SHIFT JOB NUMBER IN HOUSE

150601 DRAWN BY: MB CHECKED BY: RA

SHEET TITLE

UTILITY POLE SITE SURVEY

SHEET NUMBER PAGE

A1.3 4 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PLAN CHECK #

CASE #



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SHIFT JOB NUMBER IN HOUSE

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 CHECKED BY: RA

SHEET TITLE

PHOTO SIMULATIONS

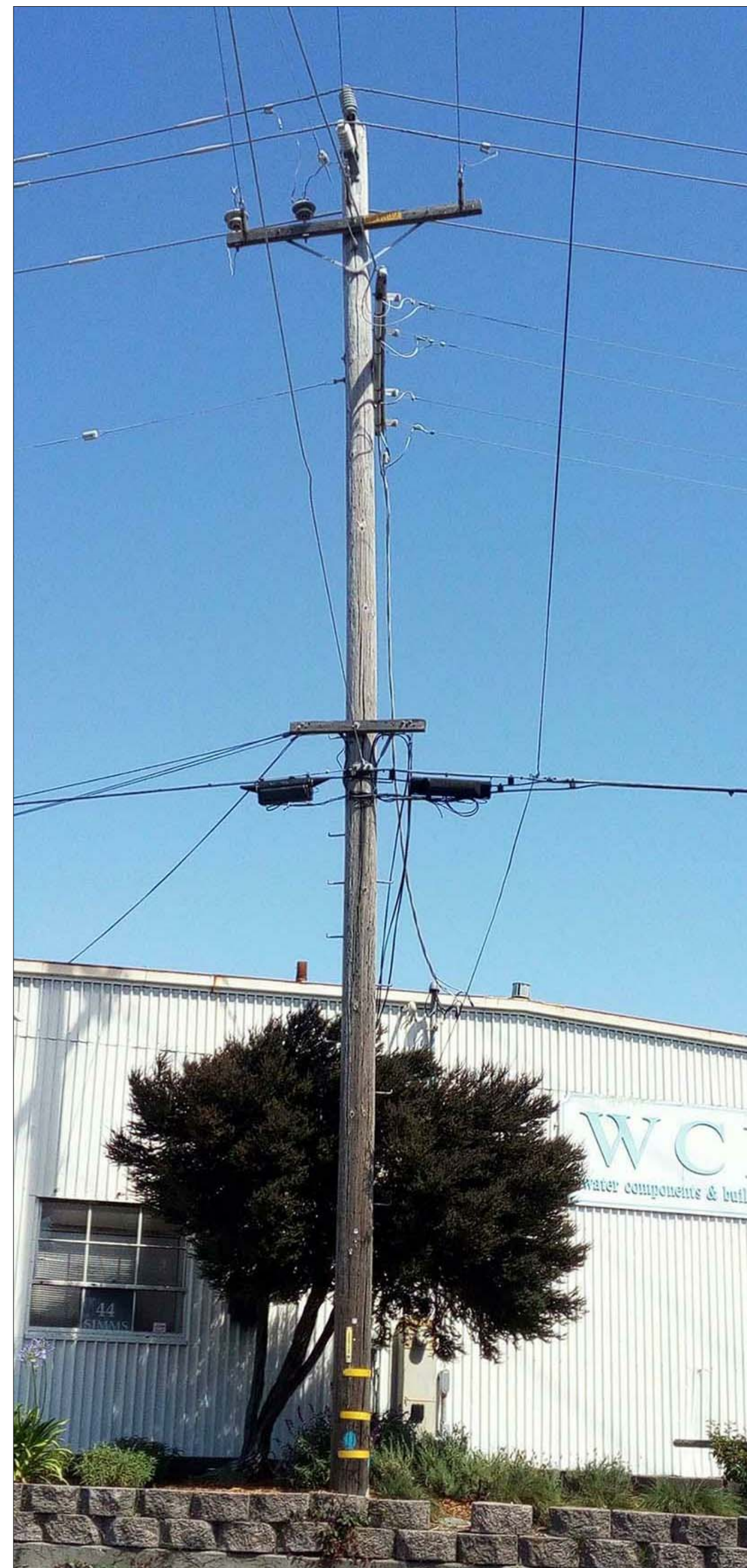
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A1.4 **5** OF **9**

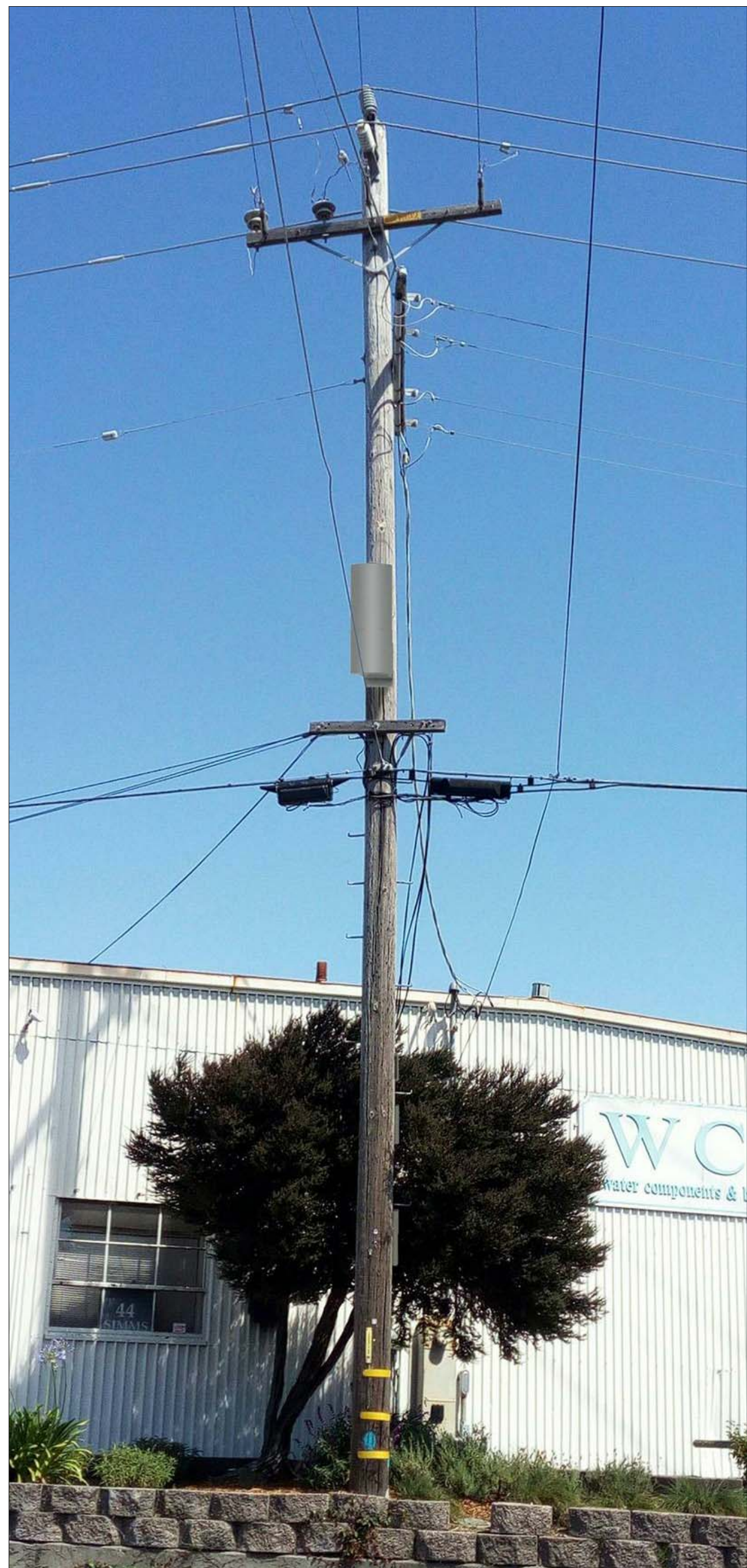
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PLAN CHECK #

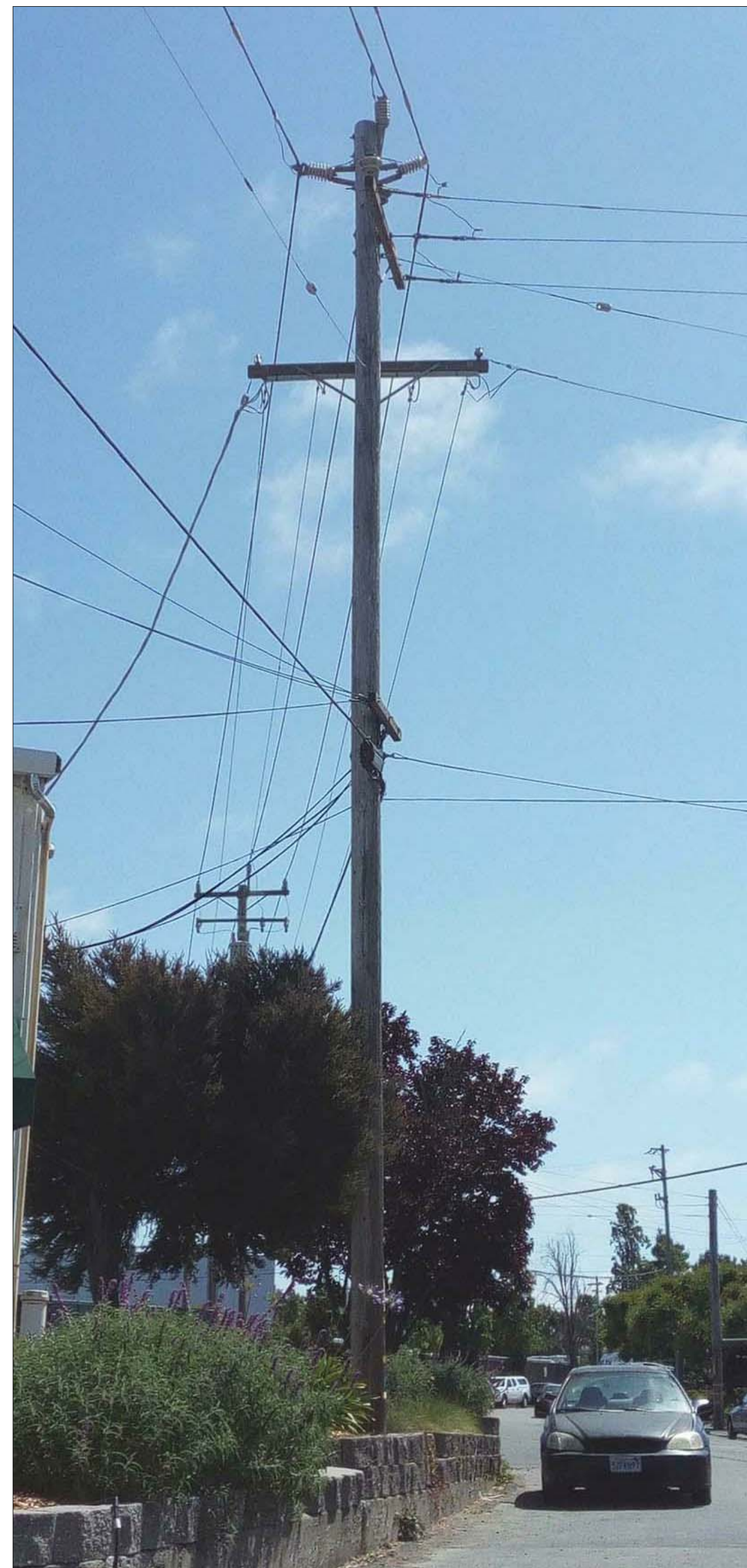
CASE #



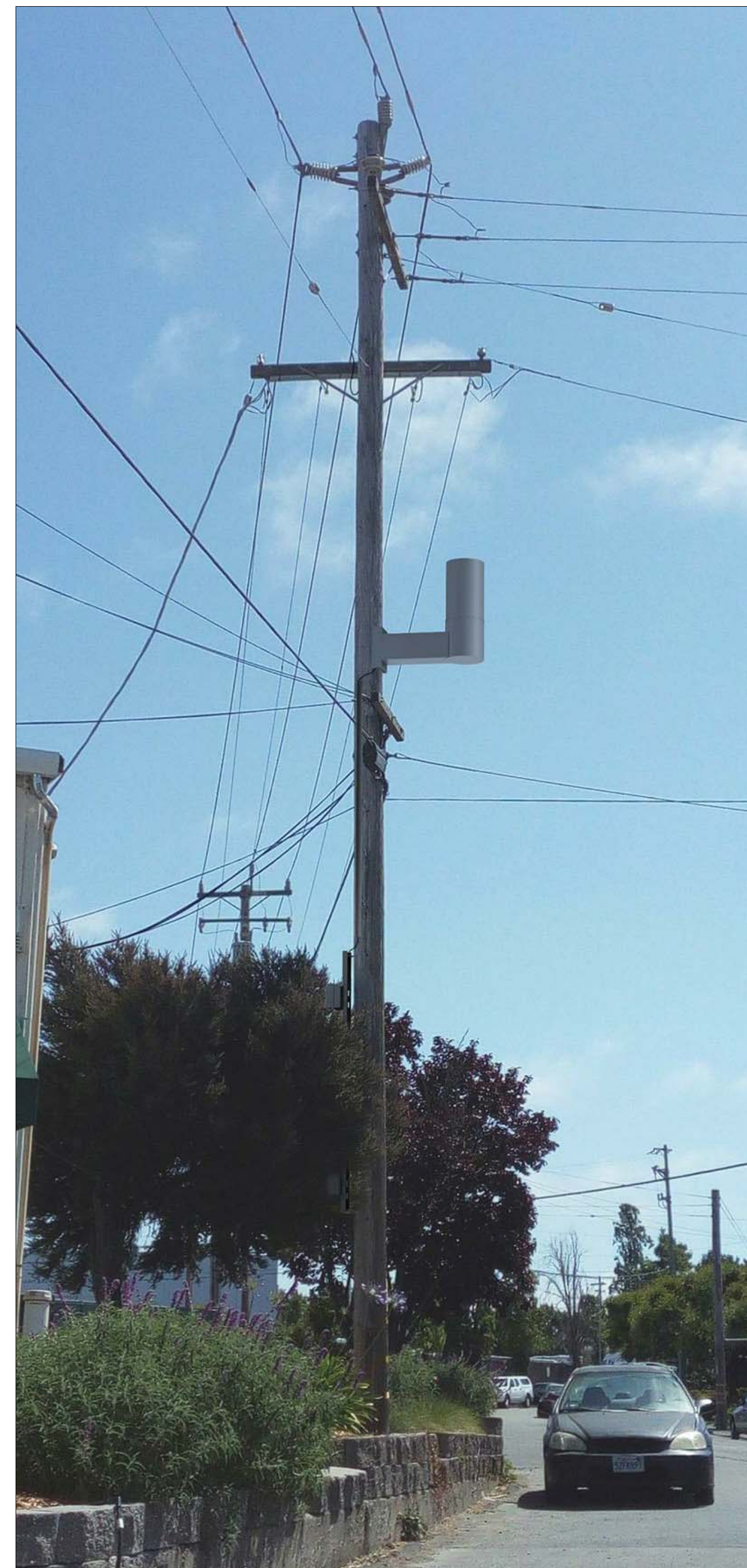
POLE PHOTO - LOOKING NORTH(EXISTING) SCALE: N.T.S. 4



POLE PHOTO SIMULATION - LOOKING NORTH(PROPOSED) SCALE: N.T.S. 8



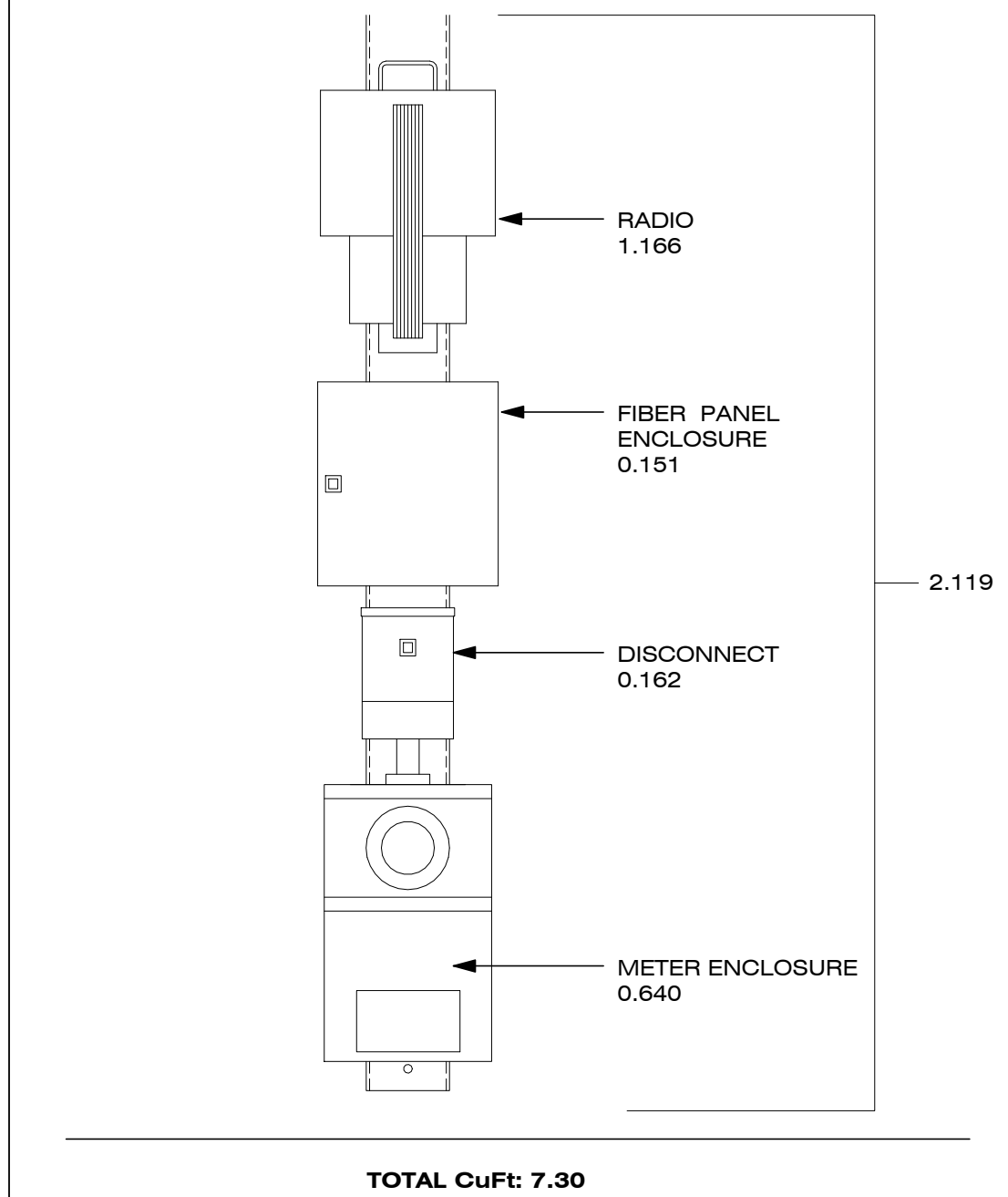
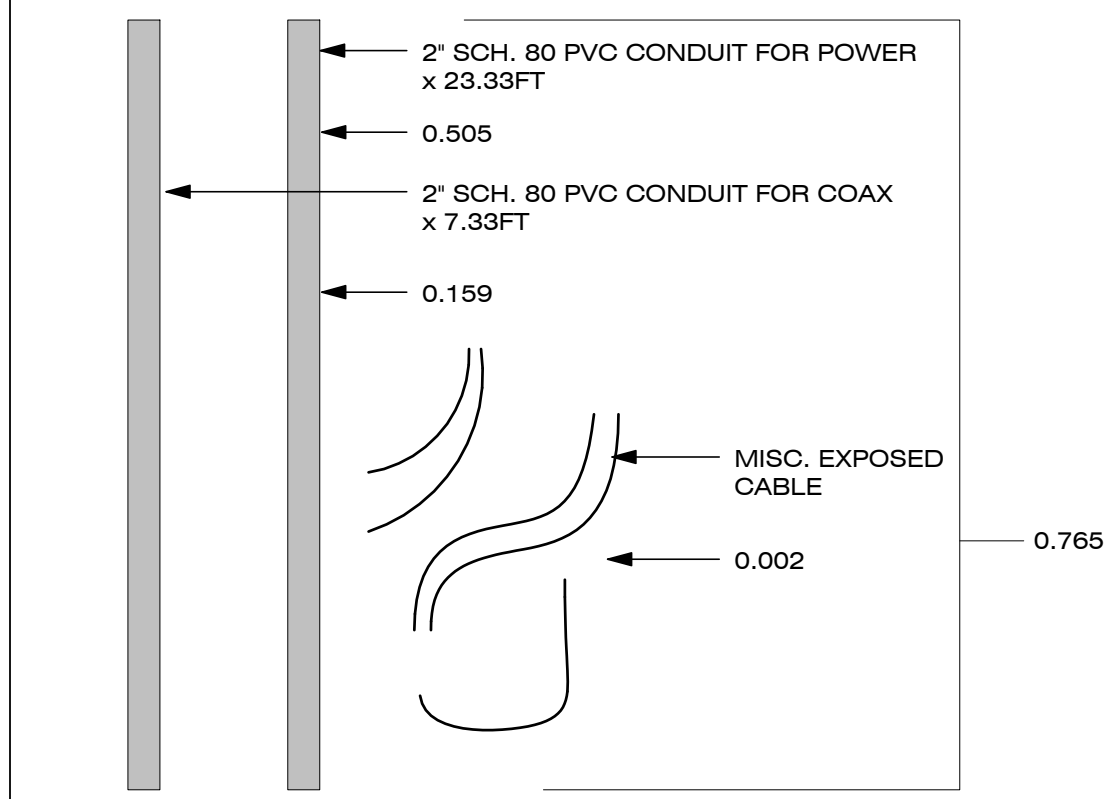
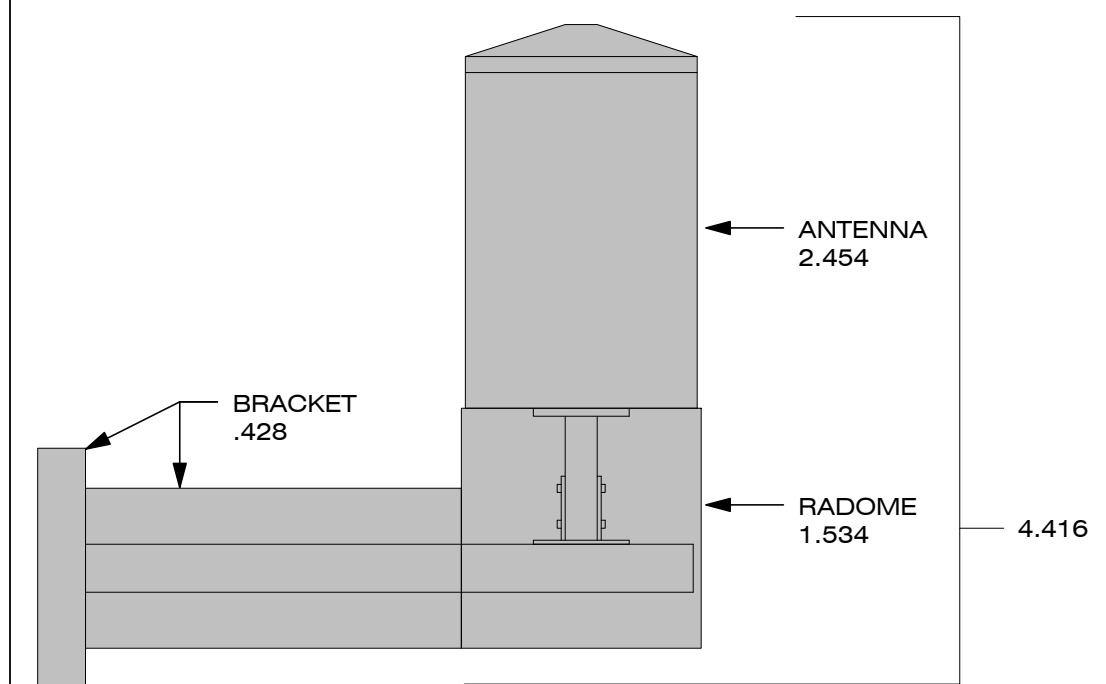
POLE PHOTO - LOOKING EAST(EXISTING) SCALE: N.T.S. 16



POLE PHOTO SIMULATION - LOOKING EAST(PROPOSED) SCALE: N.T.S. 20

CAUTION
 Keep Back **5 FT** From this Antenna. FCC RF Public Exposure Limits May Be Exceeded Within This Distance. Call 888-632-0931 for Instructions. Qualified Workers: FCC Occupational Limits May Be Exceeded Within This Distance.
 Site ID # _____

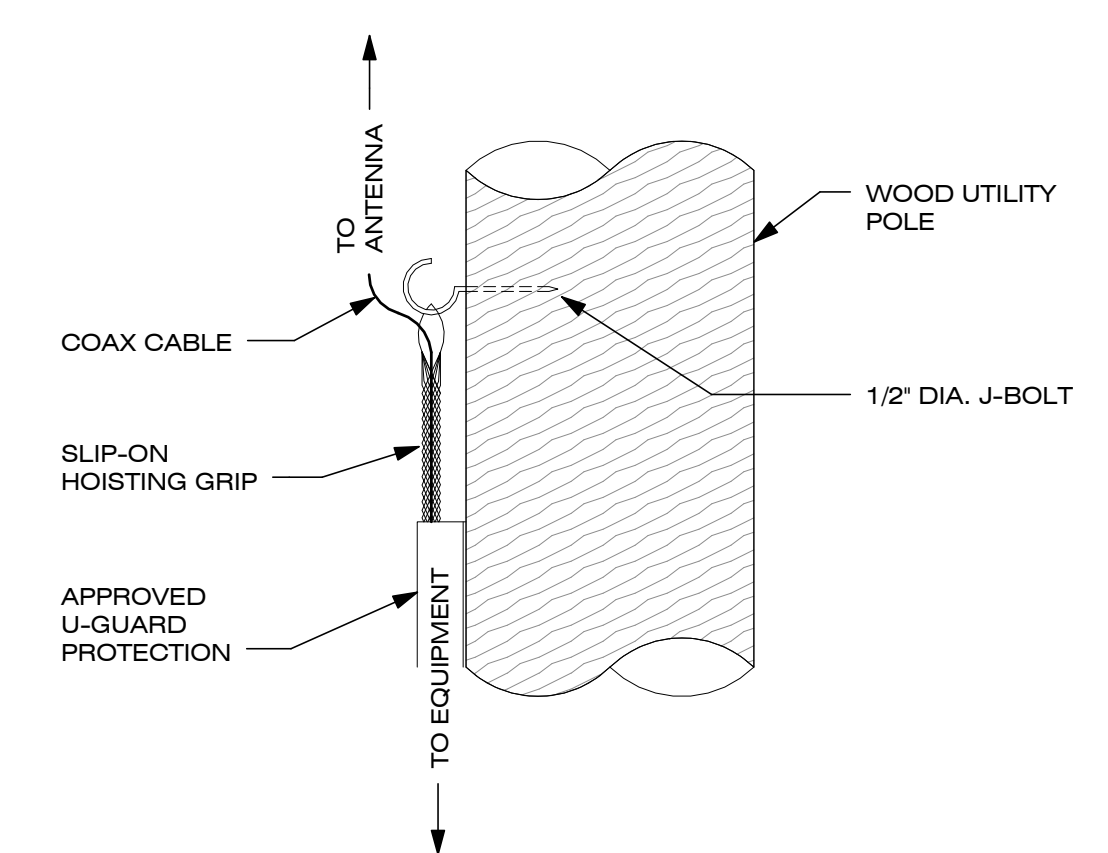
RF WARNING SIGNAGE SCALE: N.T.S. 1



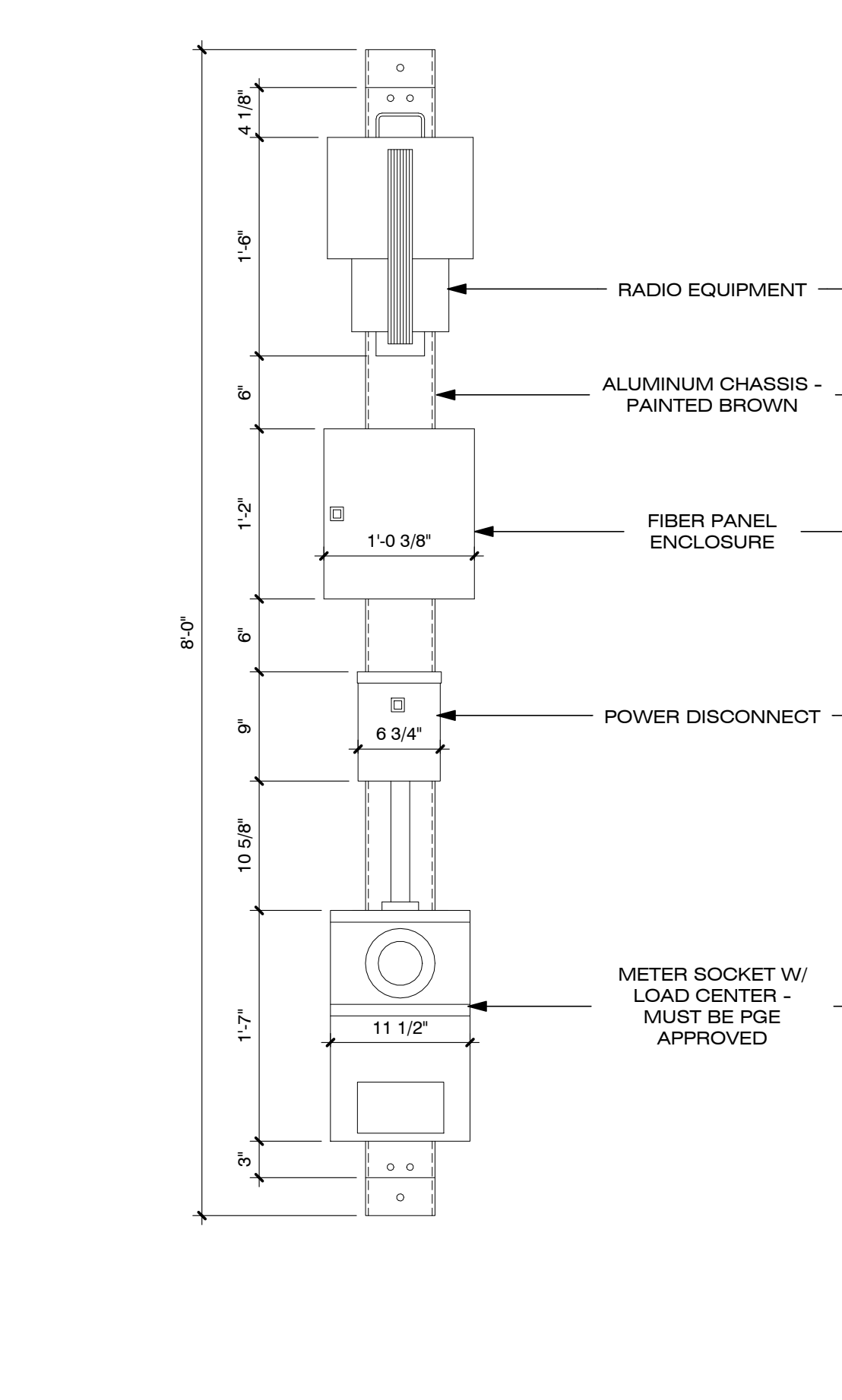
ANTENNA VOLUME DETAIL SCALE: 1"=1'-0" 12

NOTICE
POLE WORKERS
 There is an antenna operation high on this pole. Please follow guidance on signs near the antenna or call the number below.
 Site ID # _____
 CROWN CASTLE 888-632-0931 Rev. A

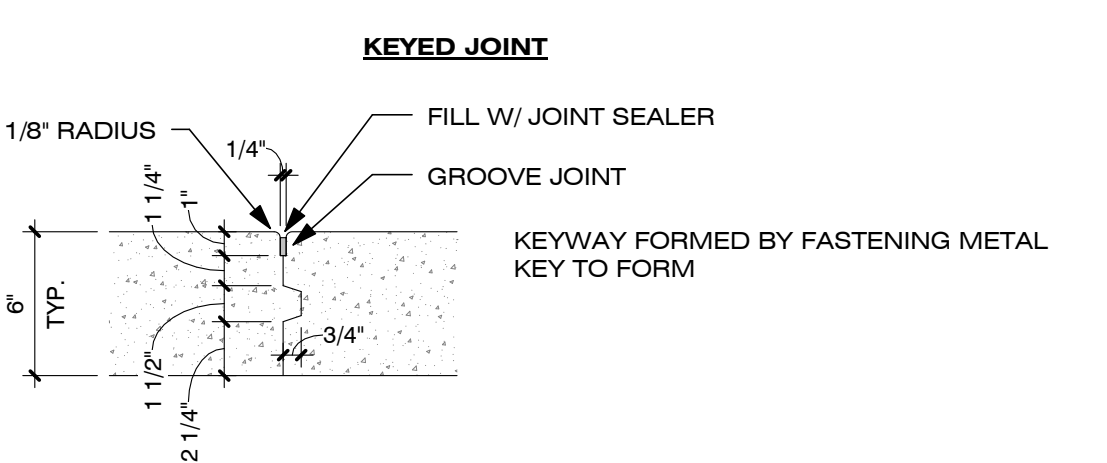
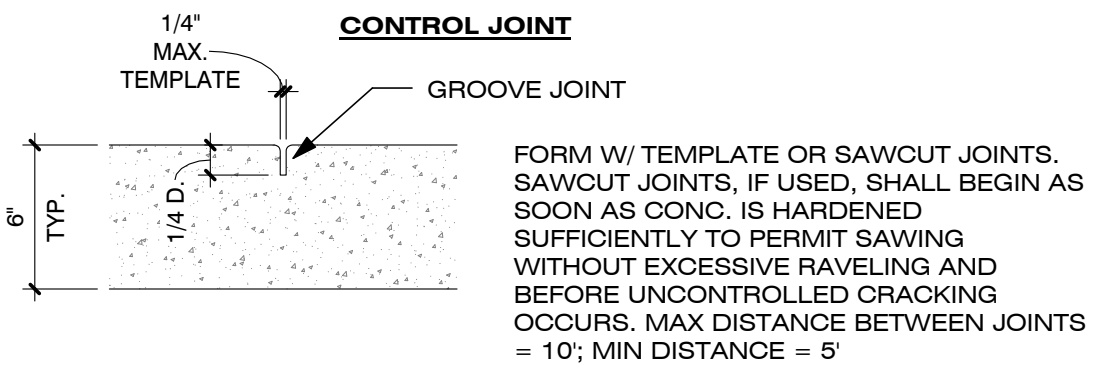
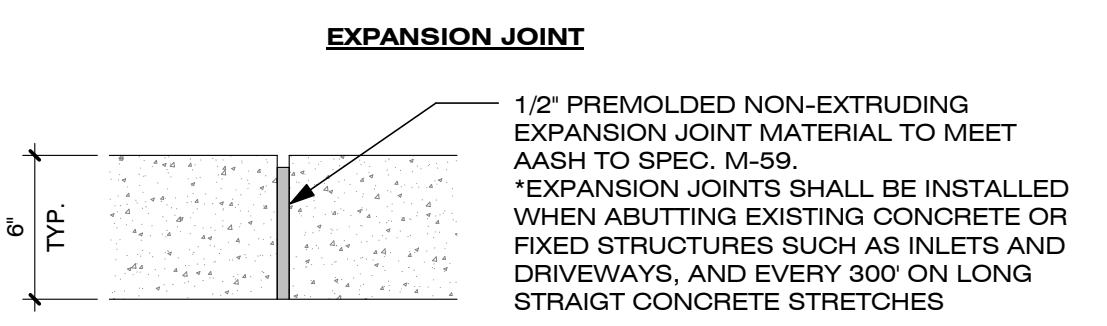
RF WARNING SIGNAGE SCALE: N.T.S. 5



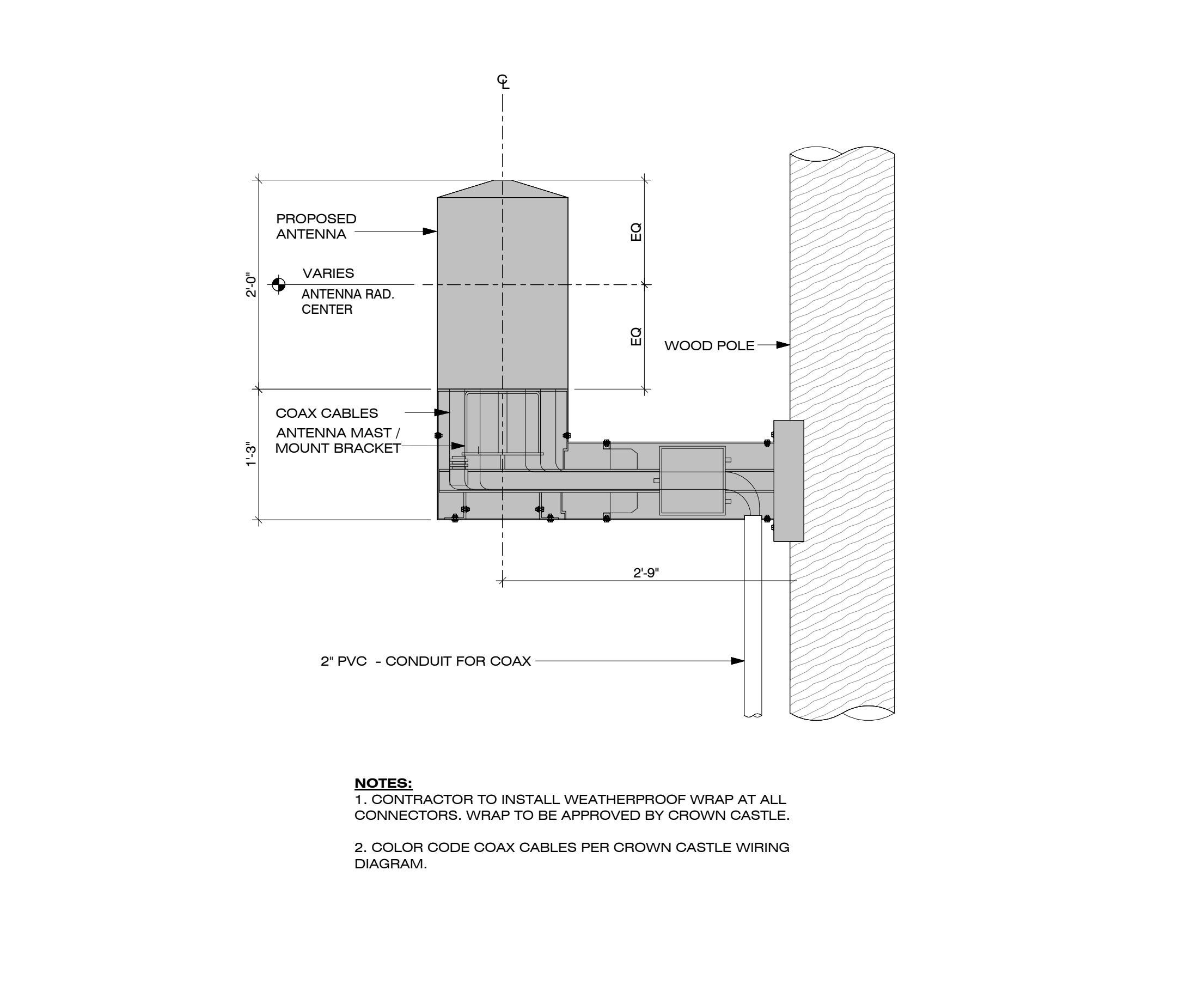
COAX HANGER DETAIL SCALE: N.T.S. 6



EQUIPMENT MOUNTING CHASSIS DETAIL SCALE: 1"=1'-0" 12



CONCRETE JOINT DETAILS SCALE: N.T.S. 10



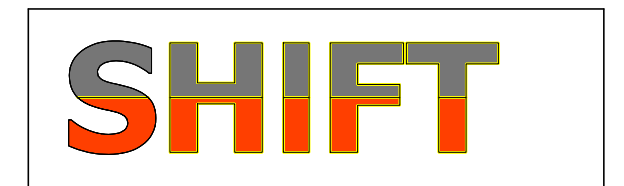
POLE-TOP EXTENSION / ANTENNA DETAIL SCALE: 1"=1'-0" 20

NOTES:
 1. CONTRACTOR TO INSTALL WEATHERPROOF WRAP AT ALL CONNECTORS. WRAP TO BE APPROVED BY CROWN CASTLE.
 2. COLOR CODE COAX CABLES PER CROWN CASTLE WIRING DIAGRAM.



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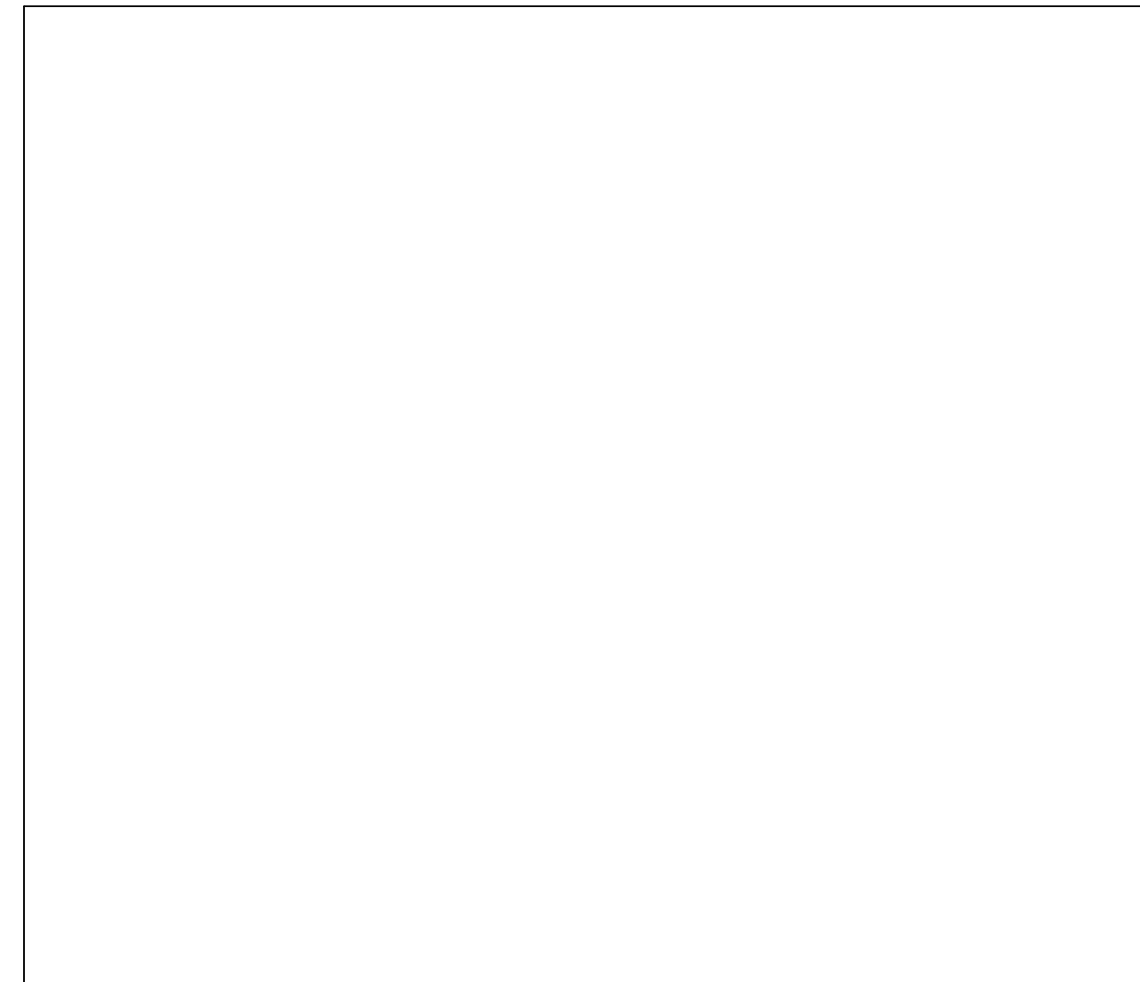
CONSTRUCTION DETAILS

SHEET NUMBER PAGE

D1.1 6 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PLAN CHECK # CASE #



FOR ALL COAX WATERPROOFING INSTALLATIONS, SEE INSTALLATION INSTRUCTIONS FOR

JMA WIRELESS 'JMA WEATHER PROTECTION SYSTEM'

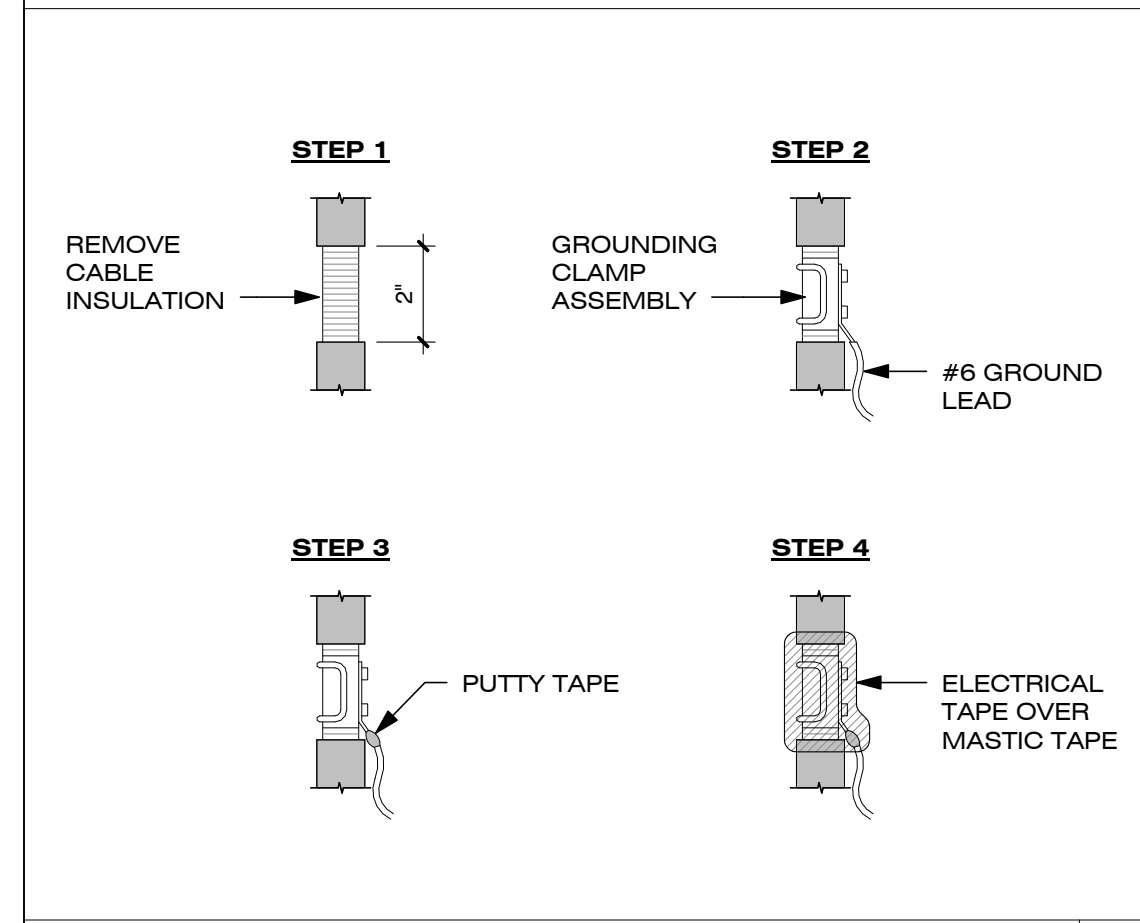
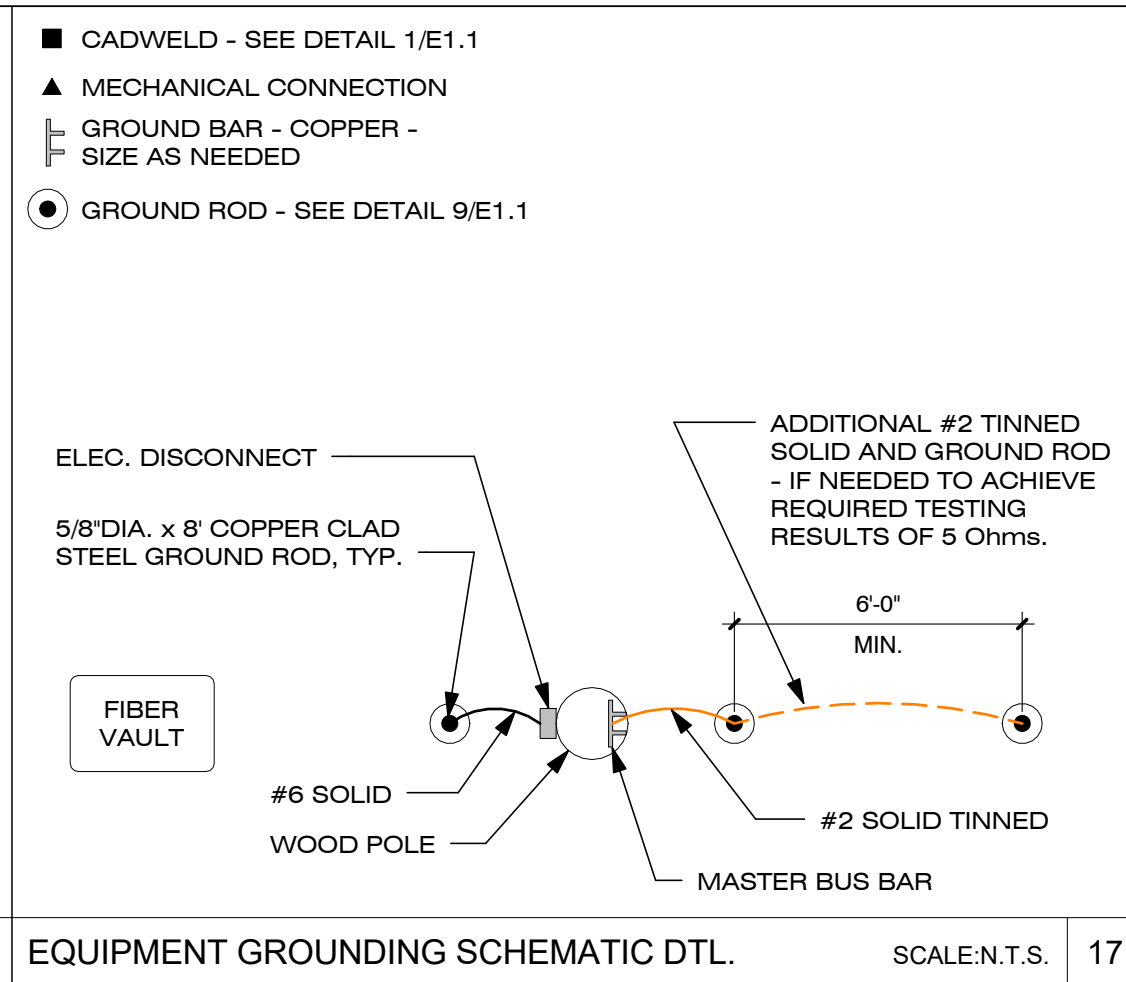
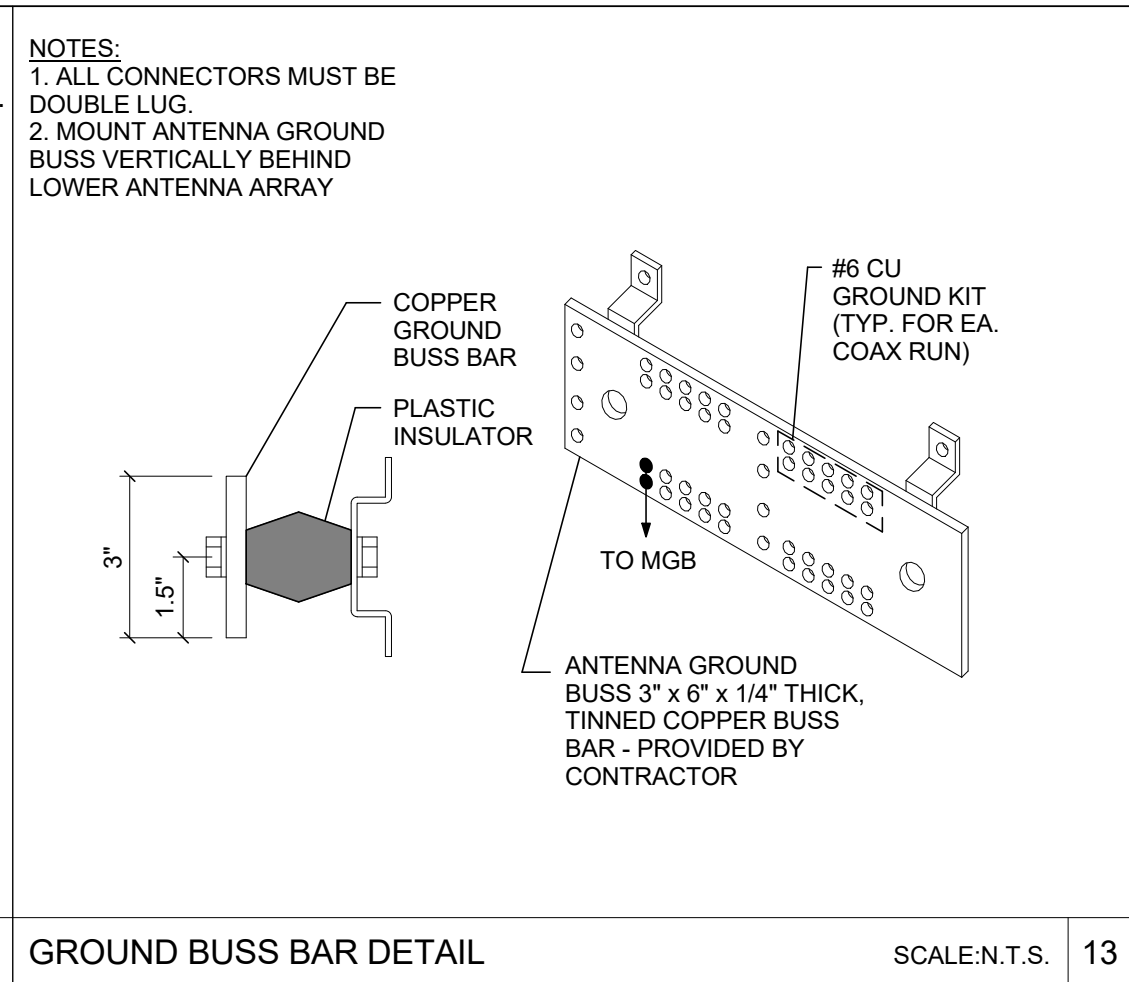
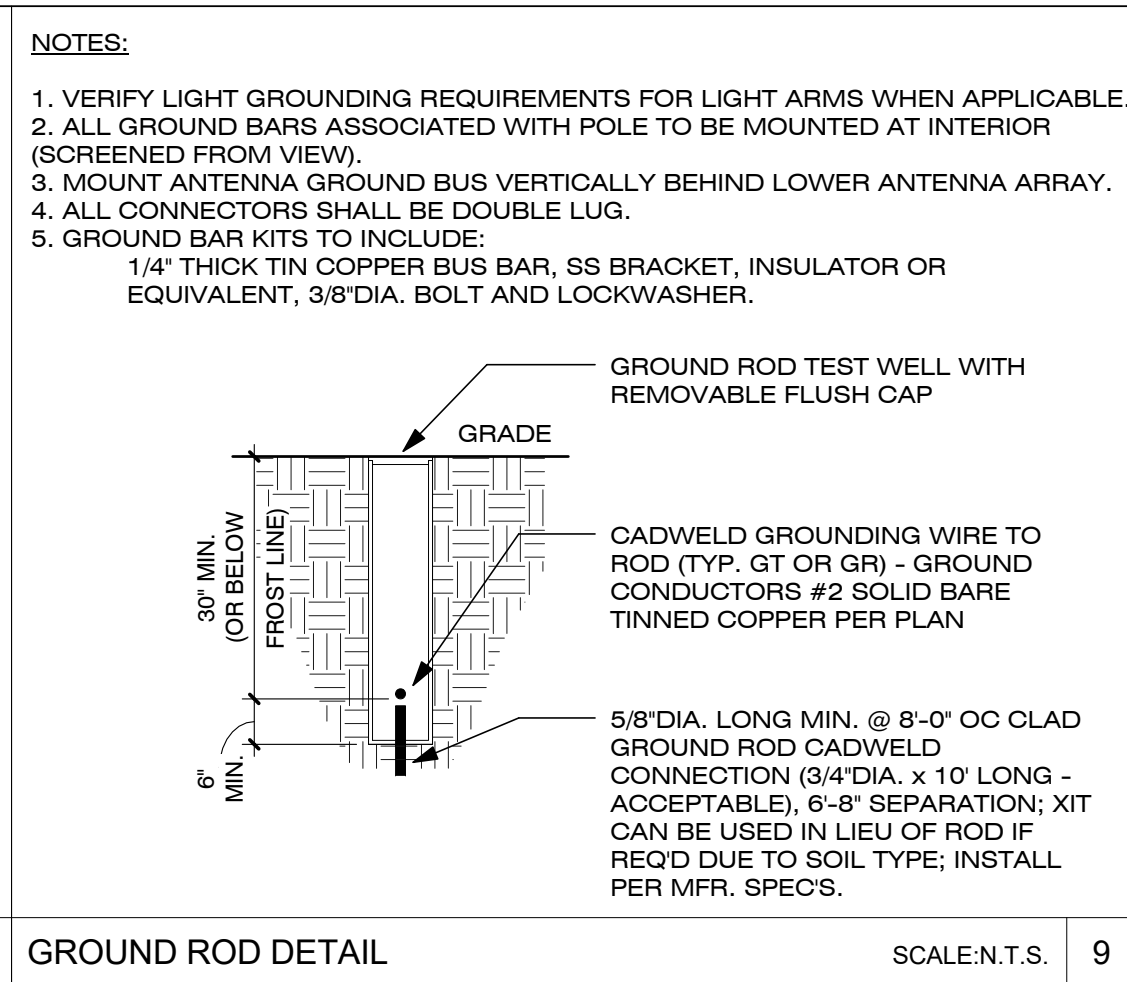
1) FOR 1/2" CONNECTIONS TO ANTENNA OR DEVICE

2) FOR 1/2" CONNECTIONS TO ANTENNA OR DEVICE USING WPS-DF-CUTTER

3) FOR WPS-N, 1/2" NM CONNECTOR TO PORT

4) FOR WPS-DRA, MALE TO PORT

5) FOR 1/4" CONNECTIONS TO ANTENNA OR DEVICE



1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL OTHER APPLICABLE LOCAL CODES.

2. CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL PERMIT FEES, AND SCHEDULE ALL REQUIRED INSPECTIONS. CONTRACTOR SHALL OBTAIN LOCAL POWER COMPANY APPROVAL AND COORDINATE SERVICE ENTRANCE REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY SERVICE LOCATIONS AND CONTACT PROJECT MANAGER WITH DISCREPANCIES FROM PLAN.

4. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL DESCRIBED ON THIS DRAWING, AND ALL ITEMS INCIDENTAL TO COMPLETING AND PRESENTING THIS PROJECT AS FULLY OPERATIONAL. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED.

5. CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40 CONDUIT (UNDERGROUND) AND IMC OR SCH 80 PVC CONDUIT ABOVE GROUND.

6. PROVIDE 2" OR 2 1/2" SCHEDULE 40 PVC UNDERGROUND CONDUIT WITH PULL WIRE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND APS JUNCTION BOX. CONTRACTOR SHALL DETERMINE REQUIRED NUMBER AND LOCATION OF JUNCTION BOXES PER UTILITY STANDARDS.

7. USE 1" SCHEDULE 40 PVC CONDUIT AND APPROPRIATE FITTINGS TO ENTER NGR LOAD CENTER.

8. CONTRACTOR TO NOTIFY ALL APPROPRIATE PARTIES PRIOR TO CONSTRUCTION AND SHALL PROVIDE AND MAINTAIN A TRAFFIC CONTROL PLAN PER NDOT REQUIREMENTS.

9. CONTRACTOR TO LOCATE ALL UTILITIES IN PROJECT AREA PRIOR TO CONSTRUCTION THROUGH BLUE STAKE.

10. CONTRACTOR TO LOCATE ALL UTILITIES IN PROJECT AREA PRIOR TO CONSTRUCTION THROUGH BLUE STAKE.

11. VERIFY DEPTH OF EXISTING UTILITY CROSSING POINTS VIA APPROVED POTHOLING METHODS AND NOTE ON PLAN SETS FOR AS-BUILT CLOSE OUT.

12. NOTE DEPTH AND LOCATIONS OF ALL INSTALLED UTILITIES ON AS-BUILT REDLINE DRAWINGS.

13. IF EXISTING PRIGATION LINES ARE ENCOUNTERED, CONTRACTOR SHALL NOTIFY OWNER PRIOR TO DISTURBING OR MODIFYING.

14. CONTRACTOR SHALL NOT RELOCATE PROPOSED EQUIPMENT OR POLE LOCATIONS WITHOUT WRITTEN APPROVAL FROM CROWN CASTLE AND PROJECT ENGINEERS.

15. MATERIAL SUBSTITUTIONS ARE SUBJECT TO CROWN CASTLE AND ENGINEERING REVIEW PRIOR TO CONSTRUCTION.

PANEL A

FED FROM TRANSFORMER NEMA 3R VOLTS 240/120V 2P 3W BUS AMPS 60 NEUTRAL 100% AIC (REFER TO FAULT CALC) MAIN BKR 60 LUGS STANDARD

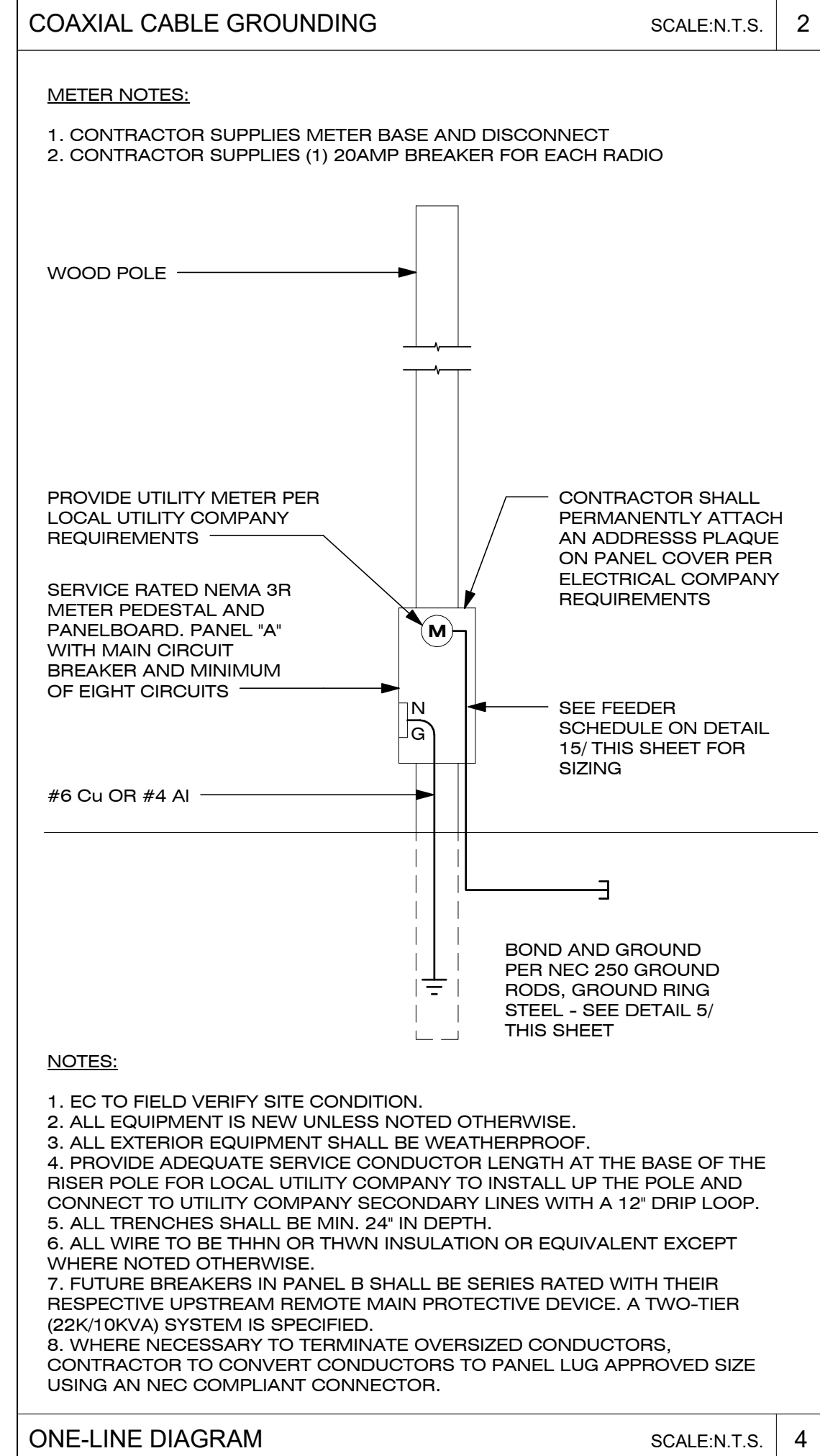
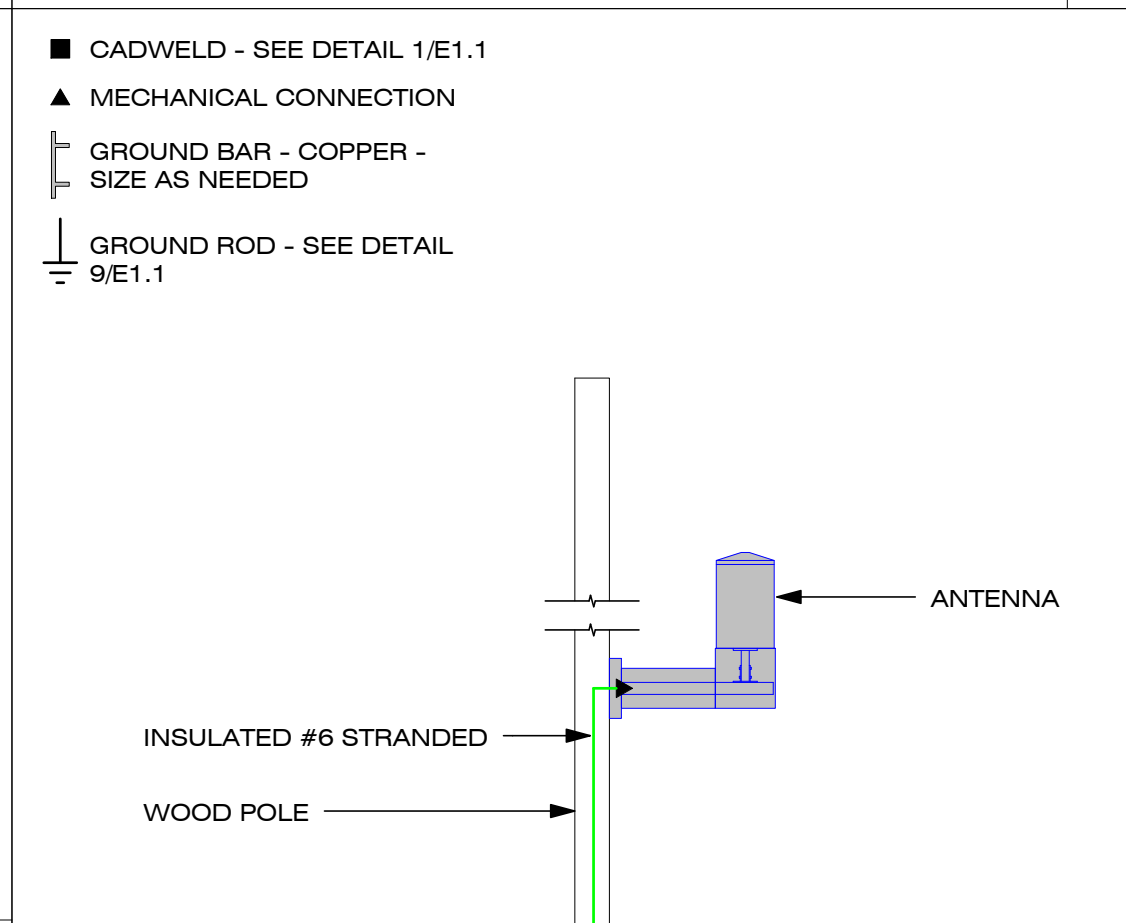
NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD		NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD	
			A	B				A	B
1	60/1	MAIN	0.00		2	20/1	RADIO EQUIPMENT	1.05	
3	60/1	MAIN		0.00	4	20/1	RADIO EQUIPMENT		1.05
5	-	SPACE	0.00		6	20/1	SPACE	0.00	
7	-	SPACE		0.00	8	-	SPACE		0.00
TOTAL CONNECTED KVA BY PHASE					TOTAL CONNECTED KVA BY PHASE			1.05	1.05
TOTAL CONNECTED AMPS BY PHASE					TOTAL CONNECTED AMPS BY PHASE			11.8	11.8

	CONN. KVA	CALC KVA	
LIGHTING	0	0 (125%)	
LARGEST MOTOR	0	0 (125%)	
OTHER MOTORS	0	0 (125%)	
RECEPTACLES	0	0	
CONTINUOUS	0	0 (125%)	
HEATING	0	0 (100%)	
NONCONTINUOUS	2.1	2.1 (100%)	
TOTAL KVA	2.82	2.82	

PER NEC 210.4(B) PROVIDE COMMON TRIP HANDLES FOR ALL MULTI-CIRCUIT CONDUIT RUNS.

POWER FEEDER SCHEDULE

LENGTH	SIZE (AWG/KCMIL)	GROUND SIZE	CONDUIT SIZE
320'	2	6	2"
380'	1	4	2"
470'	1/0	2	2"
550'	2/0	2	2"
680'	3/0	2	2"
800'	4/0	1	2"
920'	250	1/0	2-1/4"
1050'	300	2/0	2-1/2"



ELECTRICAL NOTES

PART 2 - EXECUTION

2.1 EXECUTION

A. Provide (1) main ground from the antenna mounting bracket at the top of the pole, to the main ground bus bar (TMGB) (location defined below). Main vertical ground shall consist of a # 2 solid bare copper cable. Said ground shall be protected by a PVC U-Guard to the top of the pole and stapled every 24" with corrosion resistant (dipped galvanized) staples.

B. #2 solid bare copper cable is highly susceptible to theft and may be a bit excessive to run to top of pole. #2 tin coated is recommended by Ops. As it's cheaper and less likely to be stolen. Bus Bars may also be tin coated to make them less susceptible to theft.

C. Provide (1) main ground from the main ground bus bar (TMGB) (location defined below) to a ground rod at the pole base. Main ground vertical shall consist of a # 2 solid bare copper cable. Said ground shall be protected by a PVC U-Guard to the bottom of the pole and stapled every 24" with corrosion resistant (dipped galvanized) staples.

D. Ground rod shall be 8" in depth minimum and copper clad.

E. Ground rod shall be placed per NEC code with regards to depth and distance from wood pole.

F. Ground rod shall be buried minimum of 30" below grade.

G. # 2 ground shall be attached directly to the ground rod via Cad Weld.

H. Main ground vertical shall be attached directly to a ground bus bar (TMGB) mounted to the face of the utility pole. Method of contact shall be 2 hole slotted lug (Brown) to the main ground bus (TMGB) on the left or top slot depending on the orientation of the TMGB.

I. Main ground vertical to the Antenna mounting bracket shall be attached directly to the Antenna Bracket via a self-tapping bolt or screw. A washer must be added to the thru bolt or screw to avoid damage to the lug while maintaining a secure bond.

J. TMGB shall be mounted above the RRRH standoff, directly to the wood pole structure.

K. All pole mounted devices, including but not limited to: (antenna mounts and antennas, mounting brackets, cabinets) shall be connected to the TMGB with a #6 copper stranded cable UV coated and green in color.

L. All pole mounted devices, including but not limited to: (antenna mounts and antennas, mounting brackets, cabinets) shall be connected to the TMGB using compression type, 2 hole connector lugs.

1. Connector lugs must attach to the bus bar with two holes facing up and out with the bolt heads are on the back side of the bus bar.

2. Stacking of connector lugs is prohibited.

3. Placement of connector lugs on front and rear face of grounding bar is permitted.

4. Any modifications to the connector lugs is prohibited, including but not limited to grinding, cutting or bending.

5. Connector lugs must be placed with even spacing and must not come in contact with another connector lug.

6. Slotted side of the connector lug should be placed on the slotted side of the bus bar.

7. All connector lugs shall have two (2) compressions per lug.

8. All connector lugs must have NO-OX applied to any sides which contact another metal to retard oxidation including and especially the conductor in the compression end.

9. All connector lugs must be properly sealed from weather with heat shrink.

10. All connector lugs must be attached using 3/8" hardware x 2 per each lug and in the following manner:

a. Flat Washer on the backside of the lug

b. Bolt thru the lug hole facing outward.

c. Flat Washer on the front side of the lug.

d. Lock Washer on the front side of the flat washer

e. Nut on the bolt, turned to "three threads showing at maximum torque"

f. All nuts on connector bolts must be tightened so that the lock washers are completely compressed.

g. All nuts on connector bolts must be tightened so that the lock washers are completely compressed.

M. No mechanical connections are acceptable except in the event of mechanical fittings being an integral part of the product from the factory. ie: Charles cabinet # 6 ground lugs on each side of the cabinet.

N. Excess welds on CadWelds must be ground off to a safe taper.

O. All cad welds must be coated with Zinc-it or like product to prevent oxidation.

P. All exposed metallic surfaces must be sprayed with a protective coating such as Zinc-it.

Q. All fittings exposed to environment must be sealed with shrink wrap.

1. Exposed "shiners" conductors are prohibited if in excess of 1/16th of an inch.

PART 3 - TESTING AND DOCUMENTATION

3.1 TESTING

A. 5 Ohms to ground is required for acceptance. If 5 Ohms cannot be met with above requirements, additional ground rods will be added to the field until 5 Ohms is achieved.

3.2 DOCUMENTATION

A. Photos of the tests are required as well as test results in formal document format. Submit result of test to CC Construction Manager prior to final walkthrough. Submit all photos and tests with closeout package per Section 017700 - Closeout Procedures and Required Documents.

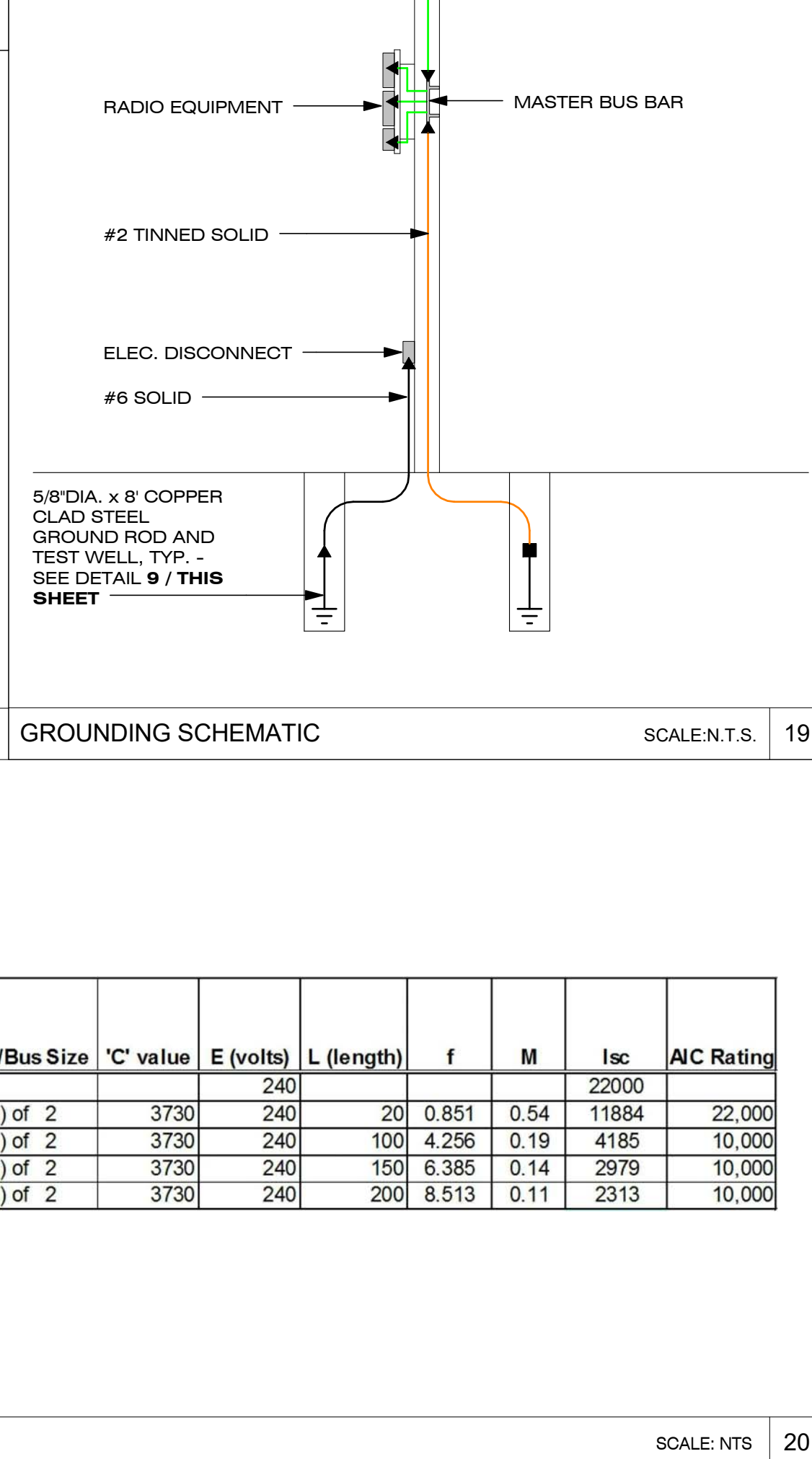
ELECTRICAL PANEL SCHEDULES

SCALE: NTS

FEEDER SCHEDULE

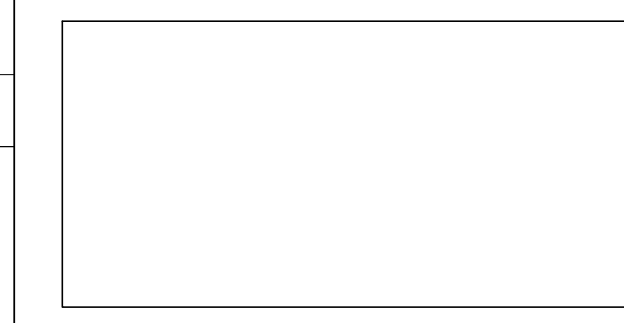
SCALE: NTS

Fault Point	Panel Transformer	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	'C' value	E (volts)	L (length)	f	M	Isc	AIC Rating
1	UTILITY XFMR/FRYS PEDESTAL		22000				240				22000	
2	Panel-A @ 20'	1	22000	NM	1 Set(s) of 2	3730	240	20	0.851	0.54	11884	22,000
3	Panel-A @ 100'	1	22000	NM	1 Set(s) of 2	3730	240	100	4.256	0.19	4185	10,000
3	Panel-A @ 150'	1	22000	NM	1 Set(s) of 2	3730	240	150	6.385	0.14	2979	10,000
4	Panel-A @ 200'	1	22000	NM	1 Set(s) of 2	3730	240	200	8.513	0.11	2313	10,000



CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134

RECORD DRAWINGS ISSUE DATE: 08.22.19



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3334 N. 20TH ST.
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RELEASE

DATE	SUBMITTAL
08.22.19	1ST SUBMITTAL

REVISIONS

NO.	DATE	COMMENT
-----	------	---------

PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

SF36XC052

SHIFT JOB NUMBER

150601

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

7 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PLAN CHECK #

CASE #

High Capacity Outdoor LTE-Advanced eNodeB

AirHarmony 4400 is part of Airspan's carrier-class LTE Advanced small cell eNodeB family. AirHarmony 4400 is a Macro-class product that supports 3GPP's Long Term Evolution (LTE) eNodeB specifications...



Release 10 LTE-Advanced

AirHarmony 4400 supports 3GPP LTE Broadband access technologies. Airspan's 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces...

The Power of HETNETS

As operators struggle to cope with growing customer demand for higher throughput, they are discovering that layering small base stations into a macro cell coverage area, enables a significant increase in network capacity...

Broadband Access

AirHarmony 4400 supports 3GPP LTE Broadband access technologies. Airspan's 3GPP LTE implementation is compliant with the 3GPP standards and has interoperable S1 and X2 interfaces...

Integrated Backhaul

AirHarmony also supports tight integration with iBridge or Relay, Airspan's small cell backhaul product. AirHarmony plus iRelay creates a single install process for LTE Access and Backhaul...

Physical Dimensions

Table with 2 columns: Variant, Dimensions (H x W x D). Rows include Main Unit w/o filters, Main Unit with external filters, and Cavity Filter Set.

Weight

Table with 2 columns: Variant, Weight. Rows include Main Unit w/o filters / duplexers, Main Unit with filter set, Universal mounting bracket, and Quadruple Filter Set (B41).

Operational Tolerances

Table with 3 columns: Type, Details, Standard Compliance. Rows include Operating temperature, Operating humidity, Storage temperature, Storage humidity, Rain and dust ingress protection, Operational altitude, and Solar radiation.



Charles Industries CFTT-2424 Series Fiber Enclosure General Description and Installation

1. GENERAL INTRODUCTION

1.1 Document Purpose

This document provides installation instructions for the Charles Industries' CFTT-2424 series fiber enclosures. Figure 1 shows the front view of the CFTT-2424.

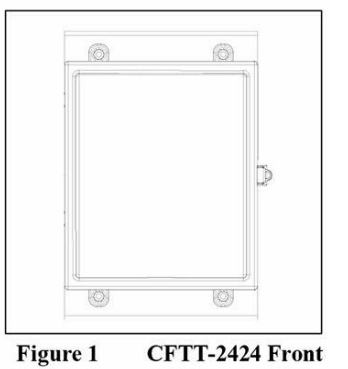


Figure 1 CFTT-2424 Front

1.2 Product Purpose

The CFTT-2424 provides a means of managing fiber optics service cable. The enclosure houses 24 fiber adapter ports. Feed and drop fibers enter the enclosure and are connected to these ports. The CFTT-2424 is designed for mounting on a pole or wall.

2. INSTALLATION

2.1 Warnings and Precautions

- Follow all national safety codes, OSHA requirements, and local environmental, workplace and company codes, safety procedures and practices. Only authorized trained personnel shall install the unit.

2.2 Mounting the CFTT-2424 on a Pole

The CFTT-2424 ships with the enclosure attached to the pole mounting bracket. To mount the unit, first remove the enclosure from the bracket by removing the hardware from the four attachment points as shown in Figure 2. Save this hardware.

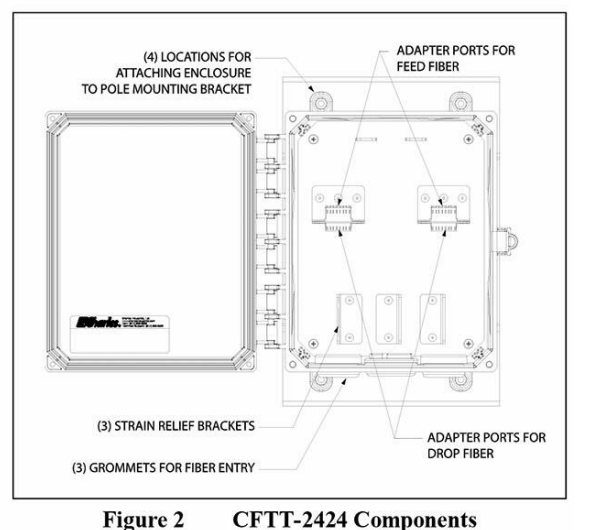


Figure 2 CFTT-2424 Components

The bracket has two mounting options.

- Option 1: use the two holes in the center of the bracket to mount a pair of lag bolts into the pole. Option 2: use the four obround slots at the sides of the bracket to mount to the pole using straps.

See Figure 3 for locations of mounting holes and slots. Use local practices for mounting the bracket to the pole. All hardware for mounting to the pole is customer supplied.

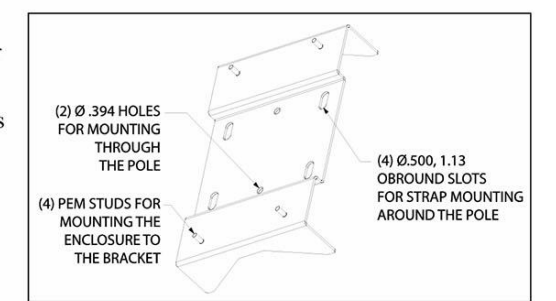


Figure 3 Pole Mount Bracket

Once the bracket is securely on the pole, re-attach the enclosure onto the PEM studs using the hardware removed previously.



2.3 Routing Cable into the Unit

Twenty-four adapter ports are provided inside the enclosure. These ports open to the top and bottom and are numbered (1 through 24).

Grommets on the bottom of the enclosure allow fiber routing (Figure 4). An optional conduit kit is available that provides protection for fibers as they enter the enclosure (97-000012-A, sold separately). For kit mounting instructions, see the documentation that ships with the kit.

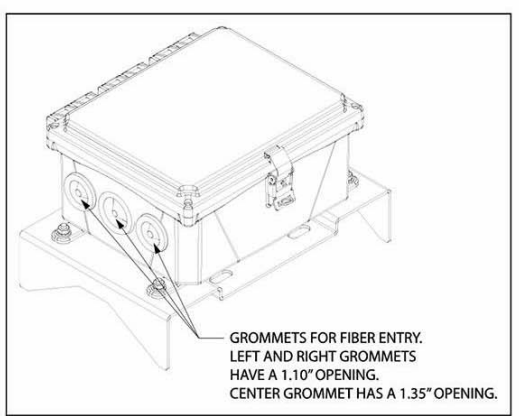


Figure 4 CFTT-2424 Grommets

2.3.1 Feed Cable

- 1. Insert the connectorized feed cable into the CFTT-2424 through the center grommet. 2. Use local practice for securing cable. Three strain relief brackets are provided. 3. Connect the fibers to the adapter ports that face the top of the CFTT-2424.

2.3.2 Drop Cable

- 1. Insert the first 12 connectorized drop cables into the CFTT-2424 through the left-most grommet. Use the right-most grommet to route fibers to ports 13-24. 2. Use local practice for securing cable. Three strain relief brackets are provided. 3. Connect the fibers to the adapter ports that face the bottom of the CFTT-2424. Check the numbering to ensure that the fibers are connected to the correct ports.

3. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500 techserv@charlesindustries.com (email) http://www.charlesindustries.com/techserv.htm

4. WARRANTY & CUSTOMER SERVICE

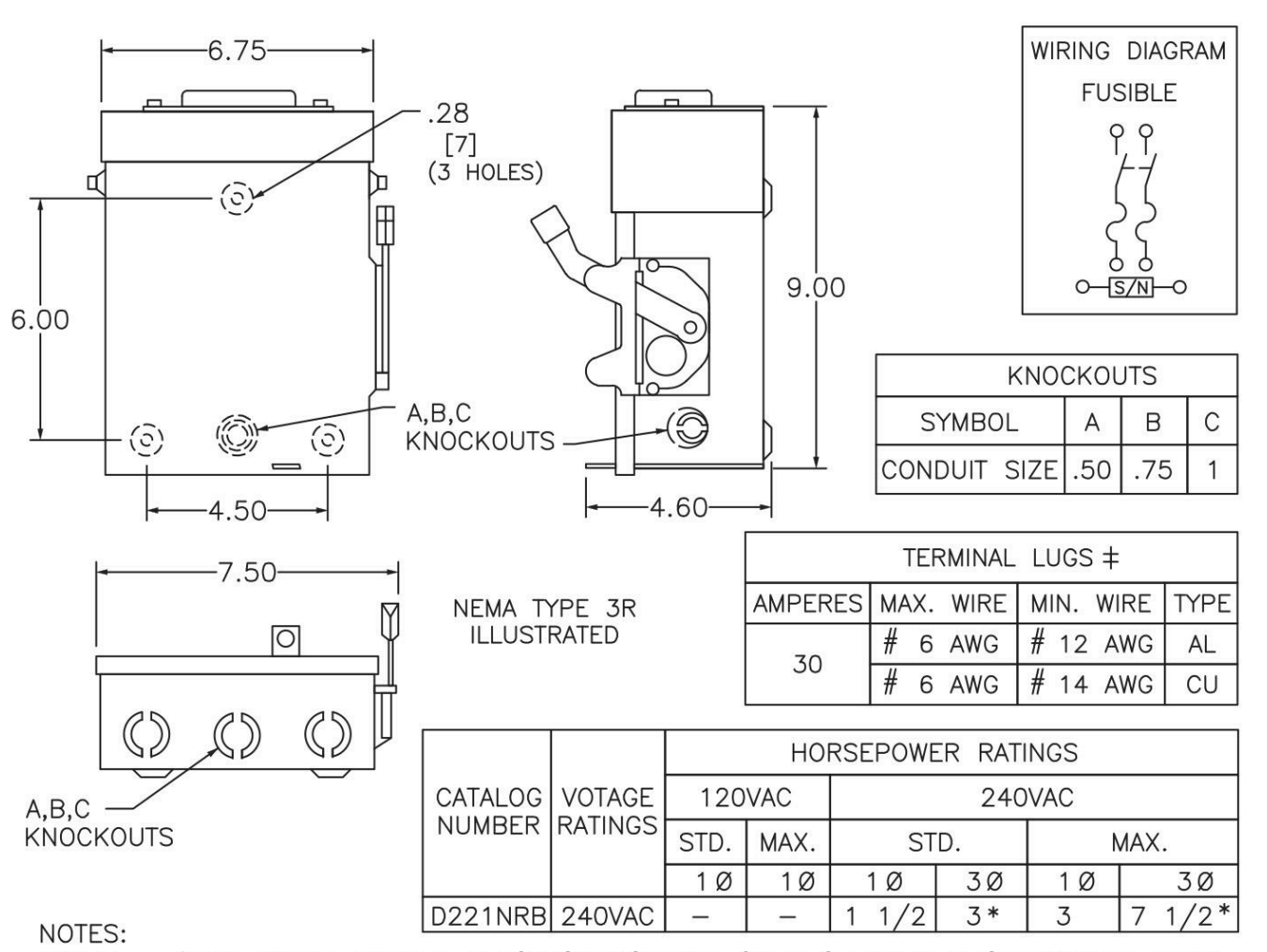
Charles Industries, Ltd. offers a one-year warranty on the housing and a one-year warranty on the optical components. The Charles warranty is limited to the operation of the hardware as described in this documentation and does not cover equipment which may be integrated by a third party.

847-806-6300 mkises@charlesindustries.com (email) http://www.charlesindustries.com/main/telecom_sales_support.htm

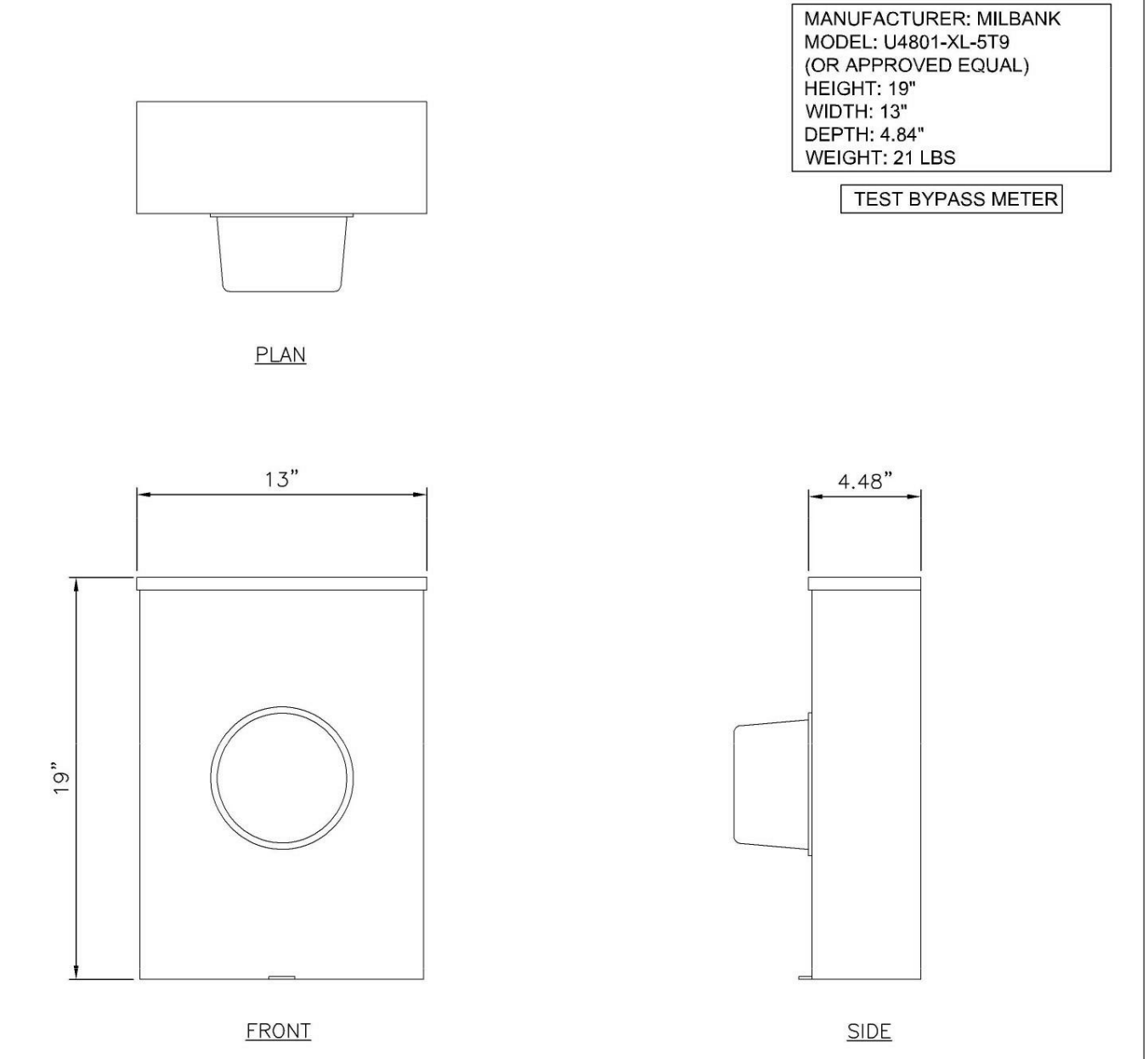
5. SPECIFICATIONS

Table with 2 columns: Physical and Kits and Replacement Parts. Rows include Weight, Available Colors, Fiber Conduit Adapter Kit.

DISCONNECT SWITCH



NOTES: FINISH - GRAY BAKED ENAMEL ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL. UL LISTED - FILE E-2875. ALL NEUTRALS - INSULATED GROUNDBLE SUITABLE FOR USE AS SERVICE EQUIPMENT.



2C4U3MT360X06F04s0 MULTI BAND | OMNI | CANISTER ANTENNA | X-POL | FIXED TILT | 610 MM (24.0 IN)

- Features: Omni configuration with 18 connectors, Ideal for Small Cell / DAS applications, This antenna meets the requirements of the U-NII, Available for order with a grey, brown or black radome.

Connector Description table with columns for Band, Connector, Frequency, and Gender. Lists connectors R1, R2, Y1, Y2, Y3, Y4, P1, P2, O1.

Electrical Characteristics table with columns for Frequency Bands, Polarization, Horizontal Beamwidth, Vertical Beamwidth, Gain, Electrical Downtilt, Impedance, VSWR, Upper Sidelobe Suppression, Isolation, M3, Input Power, U-NII Compliant, Diplexed, Number of Sectors, Lightning Protection.

Mechanical Characteristics table with columns for Antenna Dimensions, Weight, Antenna Volume, Survival Wind Speed, Wind Area, Wind Load.



CROWN CASTLE 695 RIVER OAKS PARKWAY SAN JOSE, CA 95134

RECORD DRAWINGS ISSUE DATE: 08.22.19



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RELEASE table with columns: DATE, SUBMITTAL. Row: 08.22.19, 1ST SUBMITTAL.

REVISIONS table with columns: NO., DATE, COMMENT.

PROJECT NAME

SAN FRANCISCO BAY EXPANSION - 58 SITES

NODE NUMBER

SFB005m2

NODE ADDRESS

44 SIMMS ST., SAN RAFAEL, CA 94901

HUB AREA

SF36XC052

SHIFT JOB NUMBER IN HOUSE

150601 DRAWN BY: MB CHECKED BY: RA

SHEET TITLE

EQUIPMENT SPECIFICATIONS

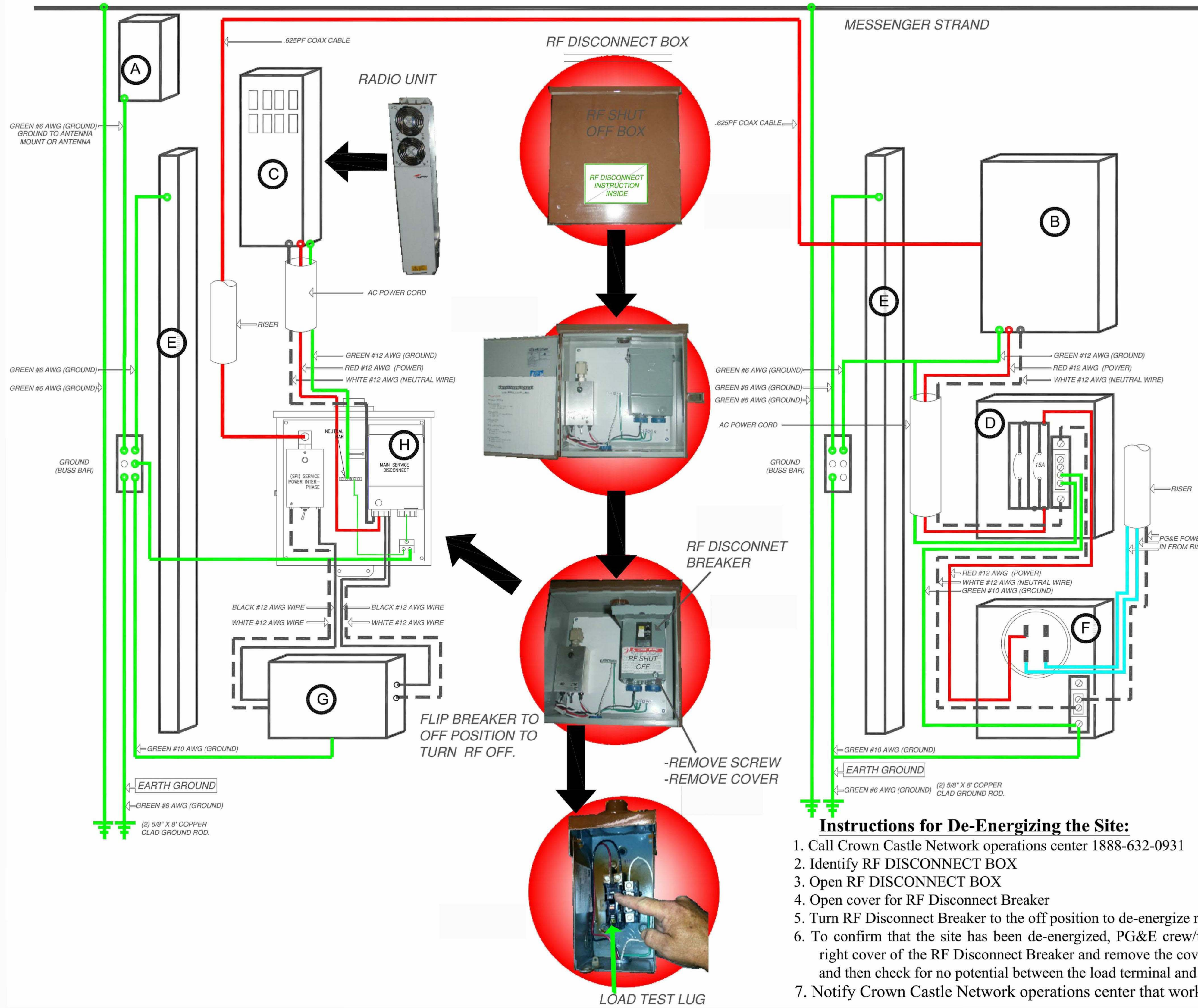
SHEET NUMBER PAGE

D1.3 8 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

METERED SITE & BBU ON THE SAME POLE, NODE & ANTENNAS ADJACENT TO THE METER POLE

(DRAWING #3)



- A) ANTENNA AND MOUNTING BRACKET
- B) BATTERY BACKUP
- C) NODE EQUIPMENT
- D) SQUARE-D (DISCONNECT BREAKER)
- E) POLE MOUNTING CHANNEL
- F) B-LINE 114TB METER SOCKET
- G) DONGAN TRANSFORMER
- H) RF DISCONNECT BOX

COLOR KEY	
RED (POWER)	
GREEN (GROUND)	
BLUE (PG&E POWER)	
BLACK / DASHED (NEUTRAL)	

Instructions for De-Energizing the Site:

1. Call Crown Castle Network operations center 1888-632-0931
2. Identify RF DISCONNECT BOX
3. Open RF DISCONNECT BOX
4. Open cover for RF Disconnect Breaker
5. Turn RF Disconnect Breaker to the off position to de-energize node
6. To confirm that the site has been de-energized, PG&E crew/technician can remove the single screw on the bottom right cover of the RF Disconnect Breaker and remove the cover to expose the source and load terminals on the switch and then check for no potential between the load terminal and ground to verify that no RF signal can be generated.
7. Notify Crown Castle Network operations center that work is complete



CROWN CASTLE
 CROWN CASTLE
 695 RIVER OAKS PARKWAY
 SAN JOSE, CA 95134

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REVISIONS		
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150601 DRAWN BY: MB CHECKED BY: RA

SHEET TITLE

PGE EQUIPMENT SHUT-DOWN PROCEDURE

SHEET NUMBER PAGE

D1.4 9 OF 9

PLOT SCALE: 1:1 @ 24"x36"; 1:2 @ 11"x17"

PLAN CHECK #

CASE #