



DISH Wireless L.L.C. SITE ID:

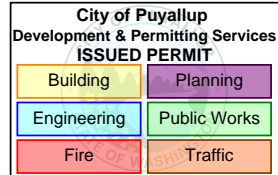
SESEA00401B

DISH Wireless L.L.C. SITE ADDRESS:

**3150 S MERIDIAN
PUYALLUP, WA 98373**

City of Puyallup
Building
Reviewed
FOR
COMPLIANCE

BSnowden
12/07/2023
8:17:21 AM



SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:

- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:

- EXISTING H-FRAME AND BOLLARD TO BE REMOVED
- INSTALL PROPOSED CEDAR FENCE AND GATES
- INSTALL (1) PROPOSED CONCRETE PAD
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

City of Puyallup
Planning
Division
APPROVED

See permit
conditions.

RNBrown
12/06/2023
1:44:25 PM



SITE INFORMATION

PROPERTY OWNER: WASHINGTON STATE DOT (1)
ADDRESS: P.O. BOX 47339
DEPARTMENT OF TRANSPORTATION
ATTN: CASHIER
OLYMPIA, WA 98504-7339

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 880329

TOWER APP NUMBER: 564913

COUNTY: PIERCE

LATITUDE (NAD 83): 47° 9' 43.46" N
47.162072

LONGITUDE (NAD 83): 122° 17' 40.04" W
-122.294556

ZONING JURISDICTION: CITY OF PUYALLUP, WA

ZONING DISTRICT: TBD

PARCEL NUMBER: 041904-4084

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: PSE

TELEPHONE COMPANY: CENTURYLINK

PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

TOWER OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(724) 416-2000

SITE DESIGNER: PM&A
1000 HOLCOMB WOODS PKWY
SUITE 210
ROSWELL, GA 30076
(678) 2802325

SITE ACQUISITION: ANDREW MAGOON
(602) 845-1783

CONSTRUCTION MANAGER: JOHN DORROUGH
(480) 251-9031

RF ENGINEER: DOUGLAS MARTINEZ
DOUGLAS.MARTINEZ@DISH.COM

WASHINGTON CODE COMPLIANCE

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	2018 IBC W/ W.A.C. AMENDMENTS
MECHANICAL	2018 IMC W/ W.A.C. AMENDMENTS
ELECTRICAL	2020 NEC W/ W.A.C. AMENDMENTS

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL SITE PLAN
A-1.1	COMPOUND AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	CONCRETE PAD AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

SITE PHOTO



UNDERGROUND SERVICE ALERT - WASHINGTON 811
UTILITY NOTIFICATION CENTER OF WASHINGTON
(800) 424-5555
WWW.WASHINGTON811.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



GENERAL NOTES

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

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

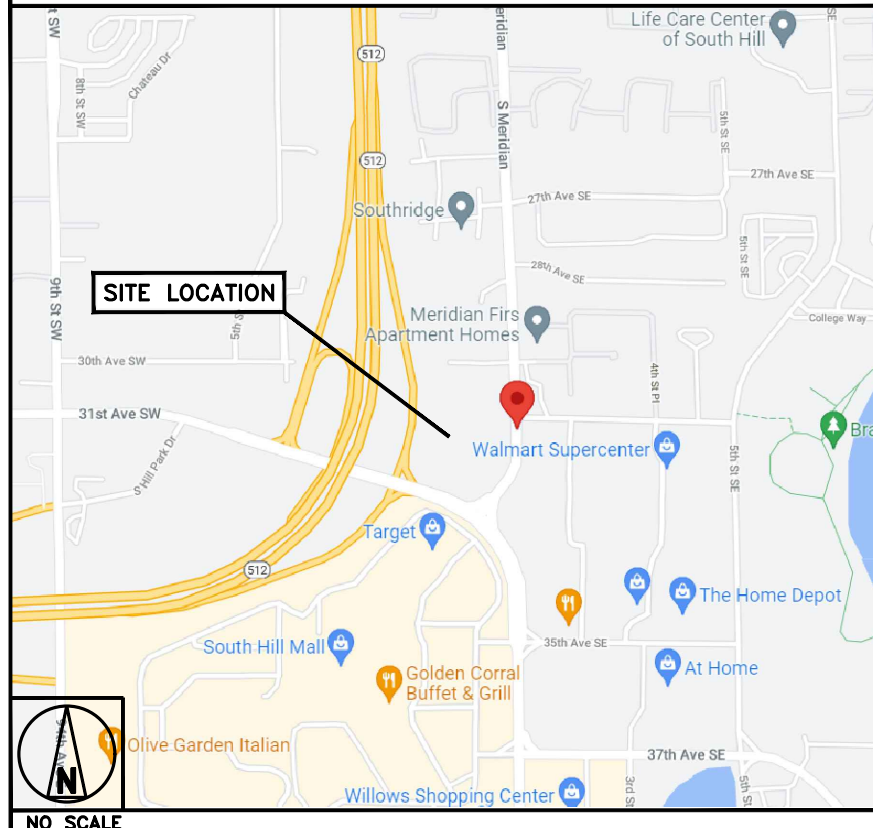
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

DIRECTIONS

DIRECTIONS FROM SEATTLE-TACOMA INTERNATIONAL AIRPORT:

GET ON WA-518 E IN TUKWILA FROM AIRPORT EXPRESSWAY 4 MIN (2.1 MI) DRIVE FROM WA-167 S TO PUYALLUP. TAKE THE EXIT TOWARD MERIDIAN ST S FROM WA-161 S/WA-512 W. 26 MIN (25.6 MI) FOLLOW S MERIDIAN TO YOUR DESTINATION 4 MIN (1.3 MI)

VICINITY MAP

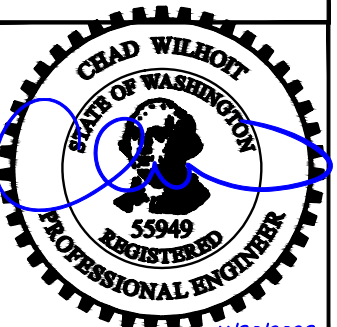


5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488



1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325



11/30/2023
JBI NUMBER: 604-106-184

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
LTH	DM	MSB

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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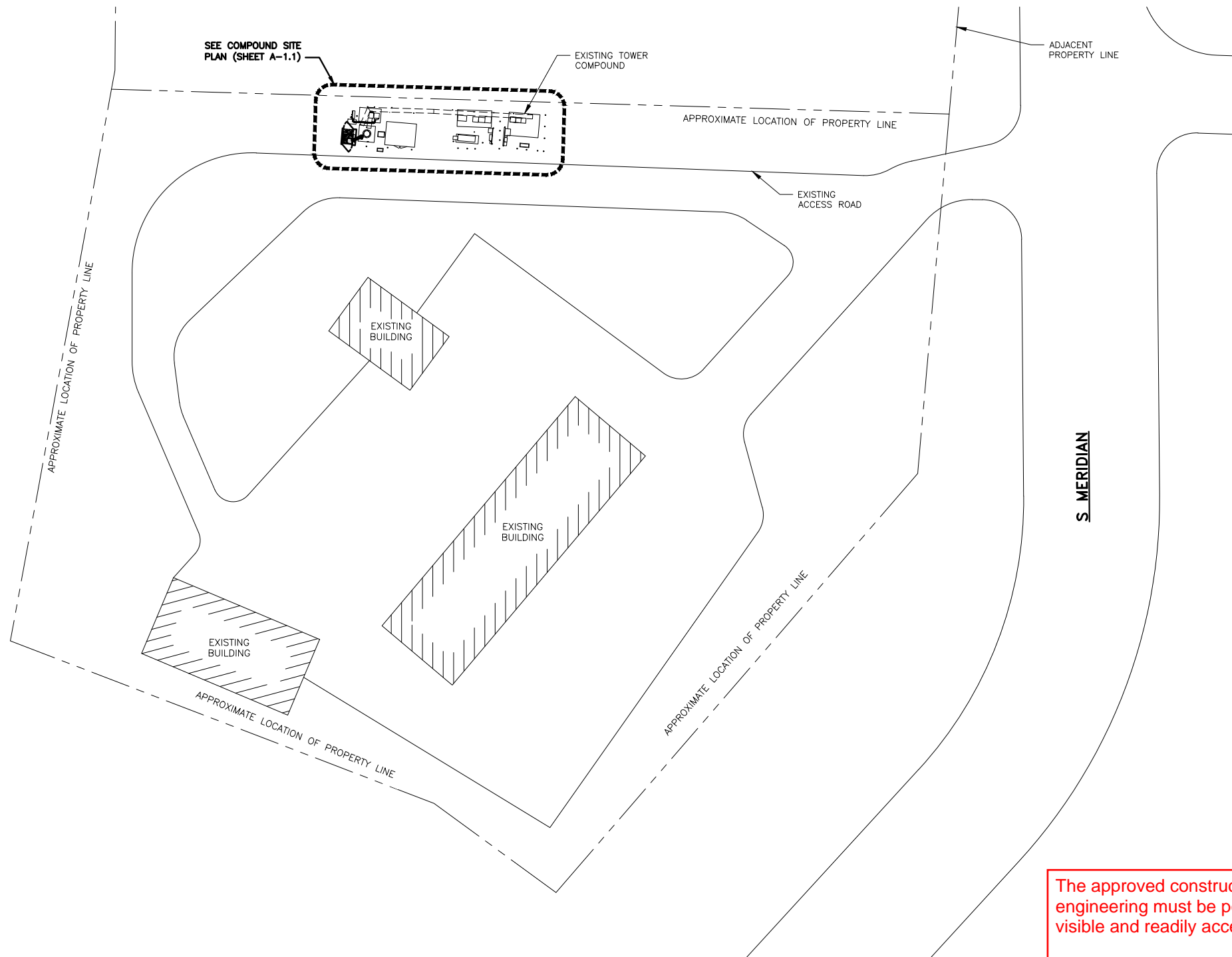
A&E PROJECT NUMBER
21CCD5N-0057

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



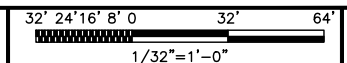
City of Puyallup Development & Permitting Services ISSUED PERMIT	
Building	Planning
Engineering	Public Works
Fire	Traffic

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permittee on site for inspection.

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

OVERALL SITE PLAN



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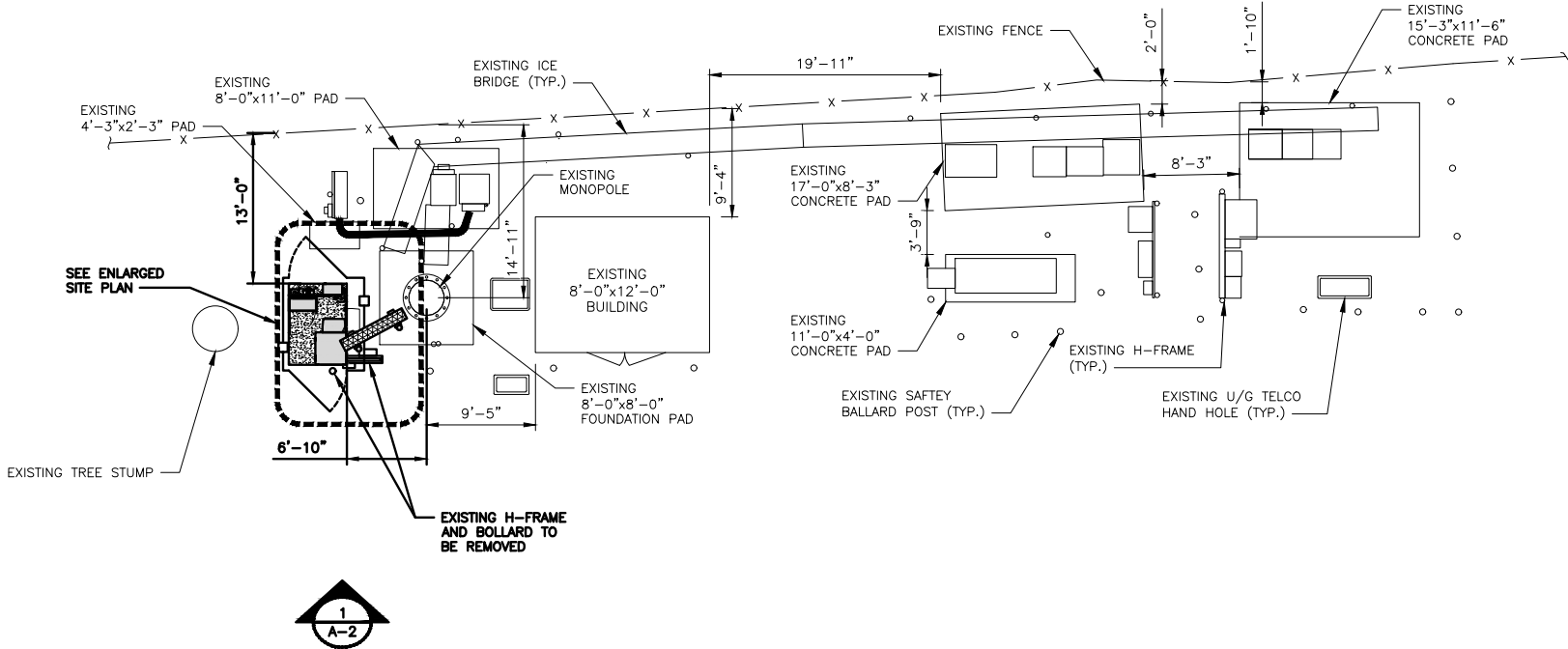
SHEET TITLE
OVERALL
SITE PLAN

SHEET NUMBER

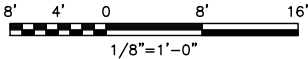
A-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



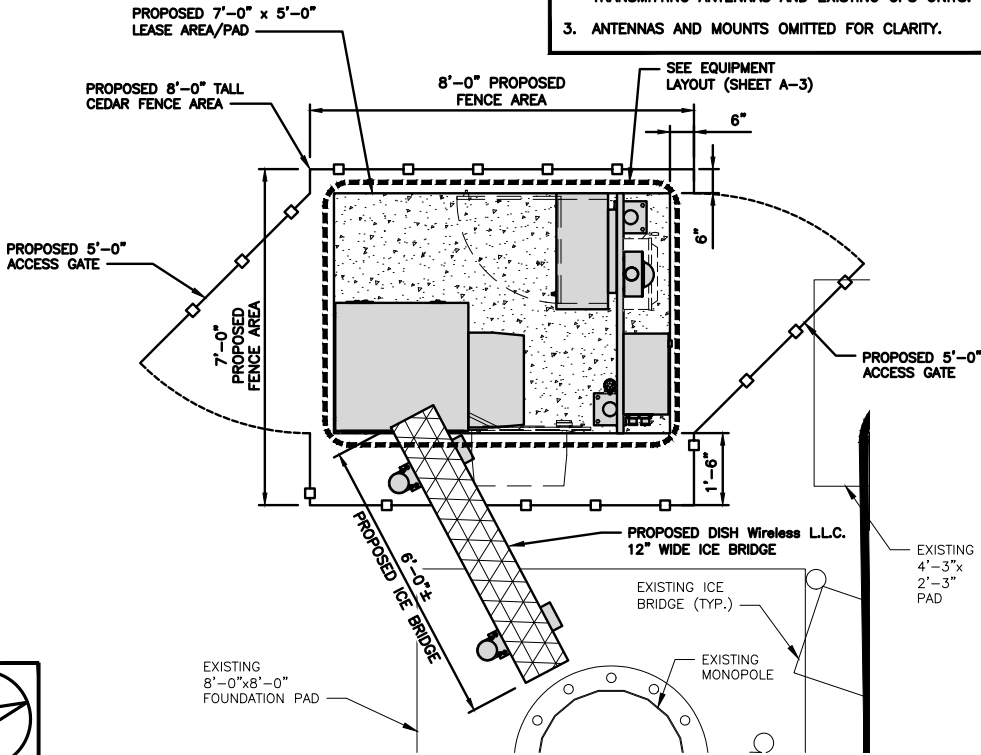
COMPOUND SITE PLAN



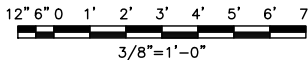
1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN



2

NOT USED

NO SCALE

3

dish
wireless.

5701 SOUTH SANTA FE DRIVE
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PM&A

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COMPOUND AND ENLARGED
SITE PLAN

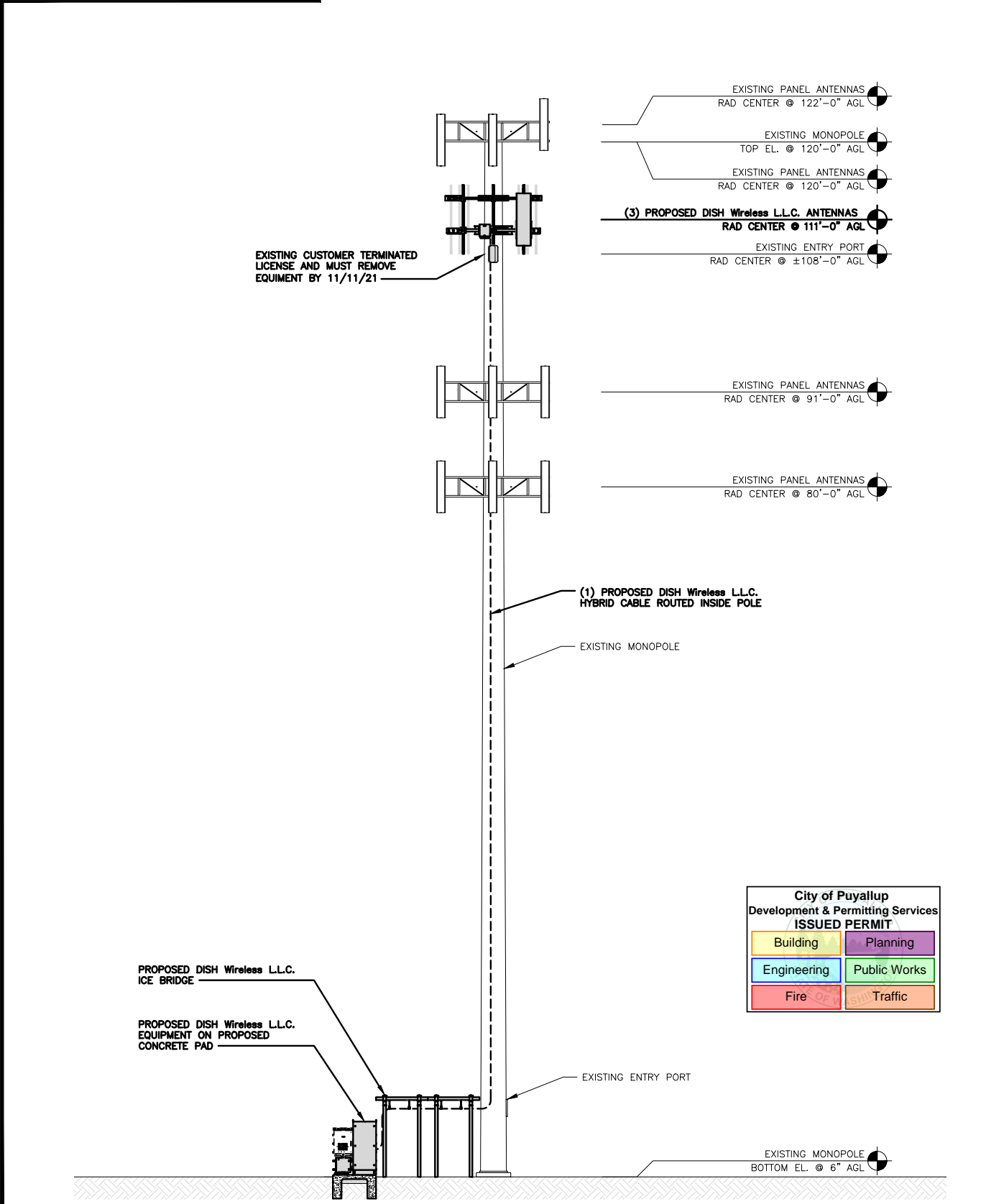
SHEET NUMBER

A-1.1

- NOTES
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS

3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.

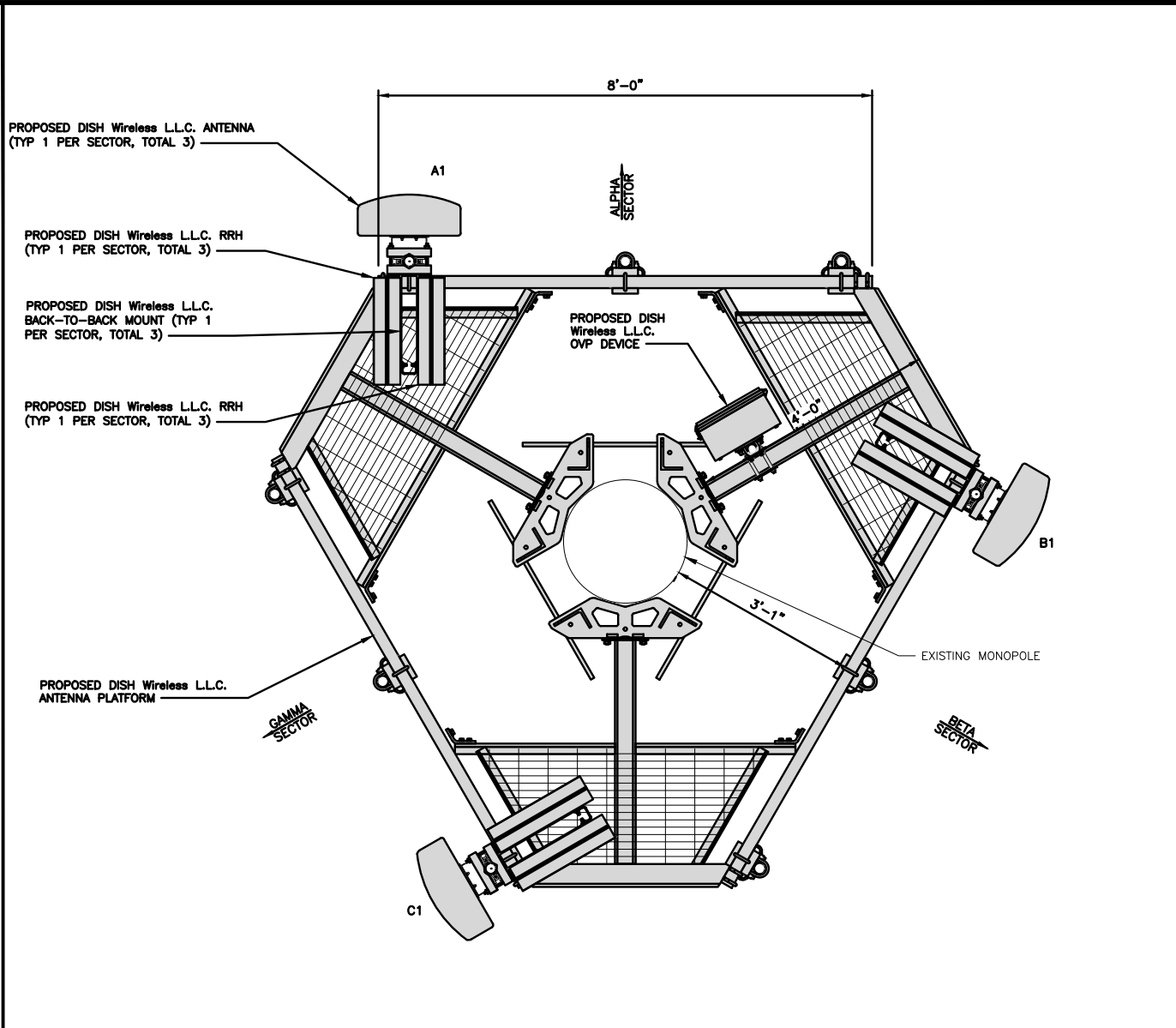


PROPOSED NORTH ELEVATION

8' 4' 0 8' 16'

1/8"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'

3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						FEED LINE TYPE AND LENGTH
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	JMA MX08FR0665-21	5G	72.0" x 20.0"	0°	111'-0"	(1) HIGH-CAPACITY HYBRID CABLE (160' LONG)
BETA	B1	PROPOSED	JMA MX08FR0665-21	5G	72.0" x 20.0"	120°	111'-0"	
GAMMA	C1	PROPOSED	JMA MX08FR0665-21	5G	72.0" x 20.0"	240°	111'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU TA08025-B604	5G	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
	A1	FUJITSU TA08025-B605	5G	
BETA	B1	FUJITSU TA08025-B604	5G	
	B1	FUJITSU TA08025-B605	5G	
GAMMA	C1	FUJITSU TA08025-B604	5G	
	C1	FUJITSU TA08025-B605	5G	

ANTENNA SCHEDULE

NO SCALE

3

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PRCTI20231488

PM&A

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SUITE 210
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678-280-2325

CHAD WILHOIT

STATE OF WASHINGTON

REGISTERED PROFESSIONAL ENGINEER

55949

11/30/2023

UBI NUMBER: 604-106-184

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CHECKED BY: DM
APPROVED BY: MSB

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

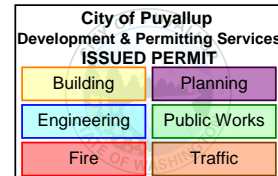
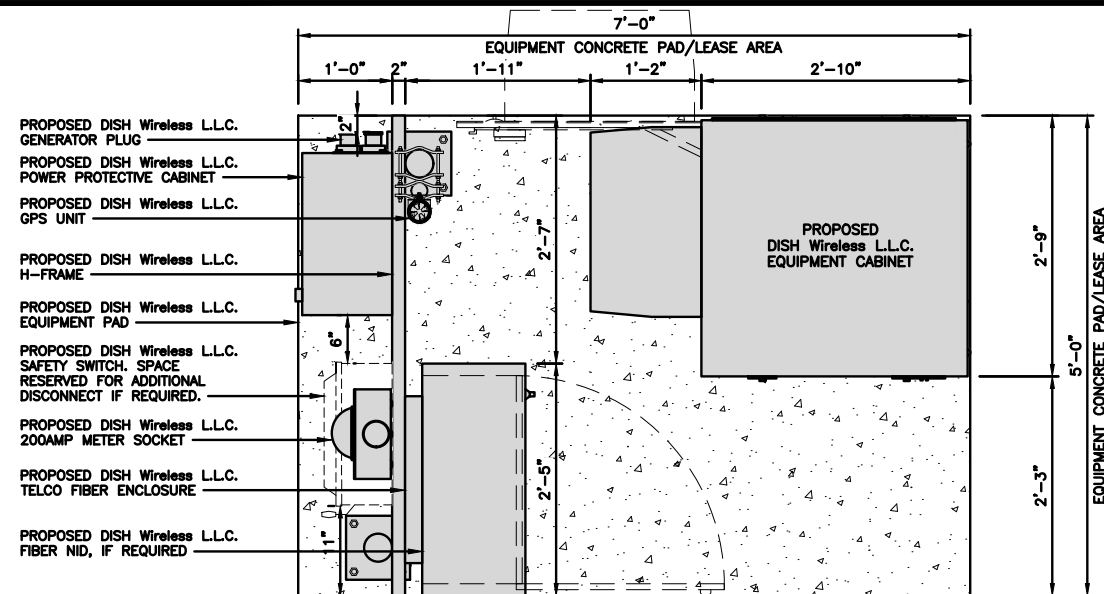
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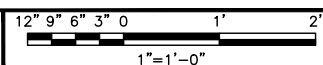
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PROJECT INFORMATION
SESEA00401B
3150 S MERIDIAN
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SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

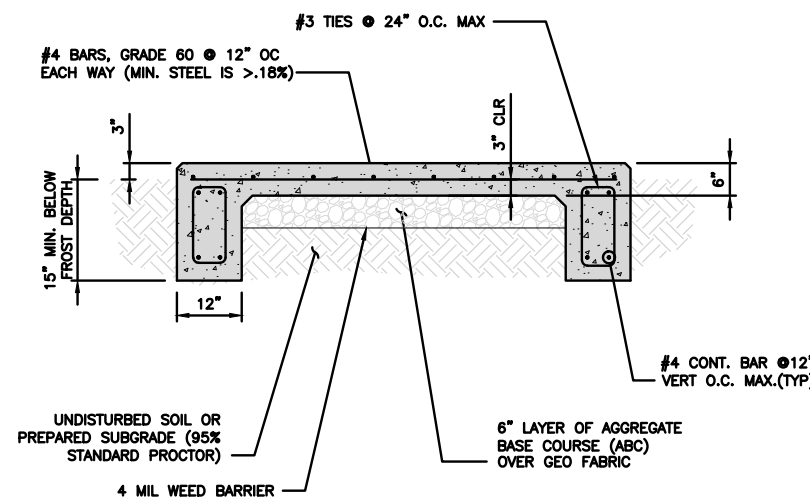
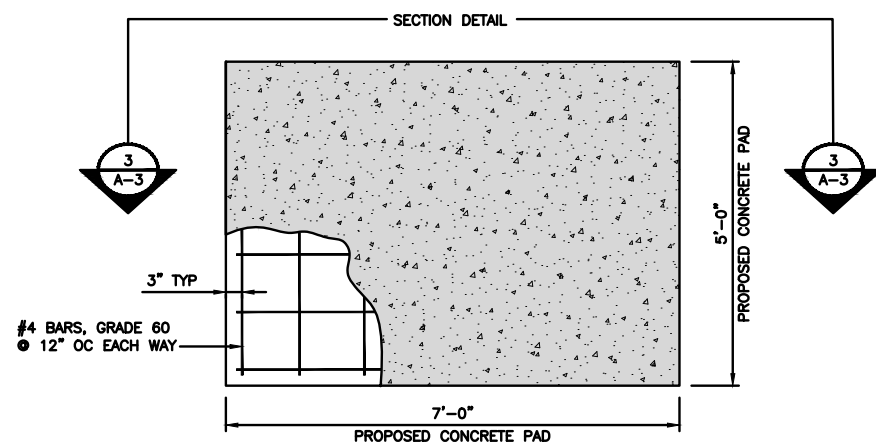
SHEET NUMBER
A-2



EQUIPMENT PLAN



1



TYPICAL CONCRETE PAD DETAIL

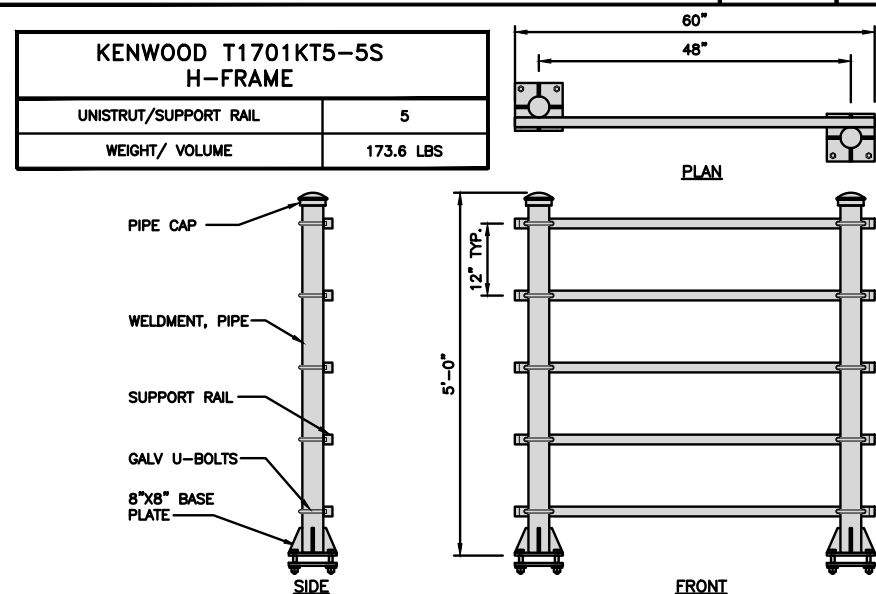
NO SCALE

2

TYPICAL CONCRETE SECTION DETAIL

NO SCALE

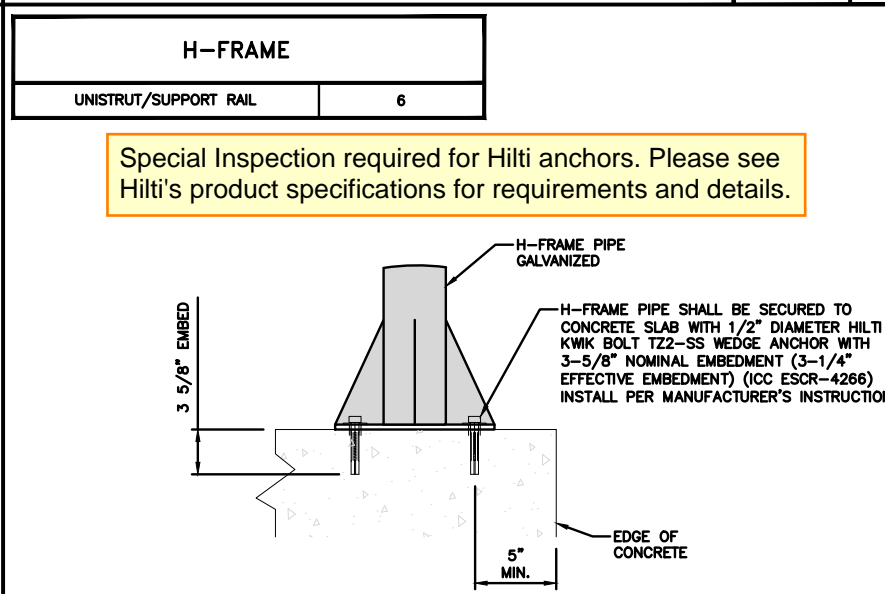
3



H-FRAME DETAIL

NO SCALE

4



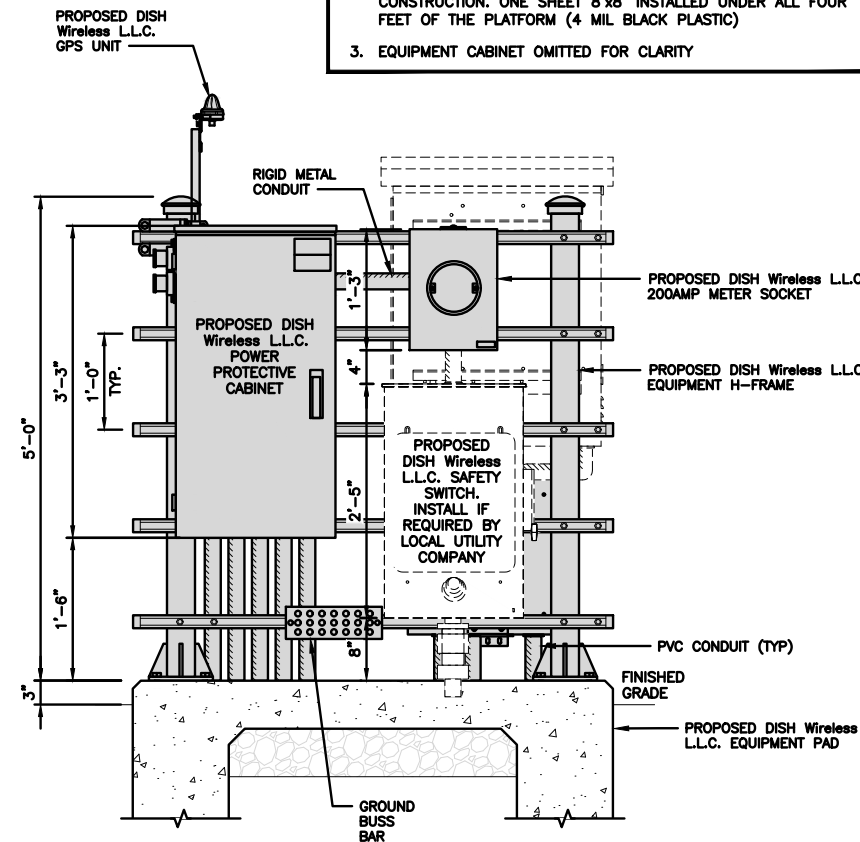
H-FRAME CONCRETE SLAB INSTALLATION DETAIL

NO SCALE

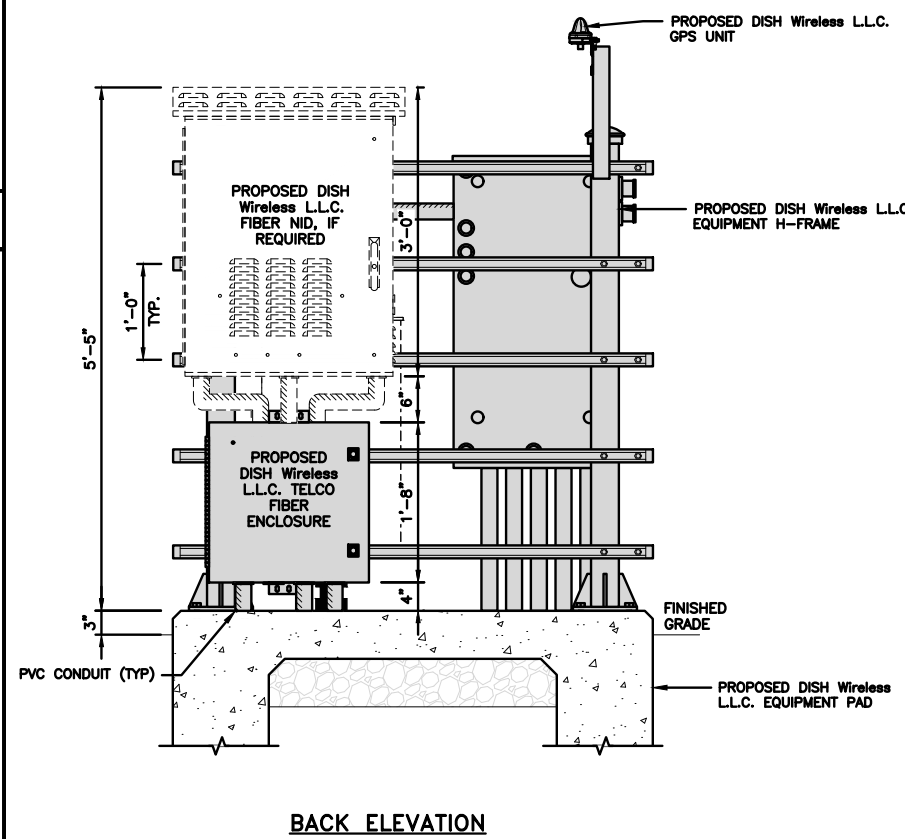
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NOTES

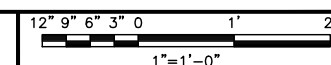
1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION



6

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wireless.

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PRCTI20231488

PM&A

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3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
CONCRETE PAD AND
H-FRAME DETAILS

SHEET NUMBER

A-3

CHARLES INDUSTRY HEX
CUBE-PM639155N4

DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS

CABINET DETAIL

NO SCALE

1

RAYCAP PPC
RDIAC-2465-P-240-MTS

ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

2

SQUARE D SAFETY SWITCHES
D224NRB

ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875

SAFETY SWITCH DETAIL

NO SCALE

3

EATON METER SOCKET
UNRRS213BEUSE

METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS

METER SOCKET DETAIL

NO SCALE

4

ZAYO 5RU CABINET
LEFT SWING DOOR ("LIT" SITES)

DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, -48VDC

NETWORK INTERFACE UNIT DETAIL

NO SCALE

5

CHARLES CFIT-PF2020DSH1
FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4

FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B
WAVEGUIDE BRIDGE KIT

DIMENSIONS (HxL)	160"x10"
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:

WB-T12-3 TRAPEZE KIT,
3 RUNGS

WB-LB12-3 SUPPORT BRACKET

MF-130 DIRECT BURIAL PIPE
COLUMN, 13'-4"

ICE BRIDGE DETAIL

NO SCALE

7

FINISH SLOPE
TO DRAIN

CONCRETE PIER

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8

HYBRID CABLE RUN

HYBRID CABLE RUN

NO SCALE

9

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SHEET TITLE
EQUIPMENT DETAILS

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A-4

ROSENBERGER

GPSGLONASS-36-N-S

DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz

GPS UNIT

GROUNDING KIT

MOUNTING BRACKET

GPS UNIT

GROUNDING KIT

MOUNTING BRACKET

GPS ANTENNA DETAIL

NO SCALE

1

CHARLES INDUSTRY

LT-97-002422 PLINTH KIT

DIMENSIONS (HxWxD):	6"x 32"x 32"
---------------------	--------------

NOTE: GASKET AND MOUNTING HARDWARE INCLUDED

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building

Planning

Engineering

Public Works

Fire

Traffic

FRONT/BACK

SIDE

CABINET DETAIL

NO SCALE

4

Special Inspection
required for Hilti anchors.
Please see Hilti's product
specifications for
requirements and details.

PROPOSED 1/2" DIAMETER, HILTI KWIK BOLT TZ2 - SS 304 WEDGE ANCHOR WITH 3-3/4" NOMINAL EMBEDMENT (ICC ESR-4266) INSTALLED A MINIMUM OF (1) IN EACH CORNER OF CABINET AND (4) AT EACH H-FRAME LEG. SEE MANUFACTURER'S EQUIPMENT INSTALLATION MANUAL FOR ANCHOR LOCATIONS. IT IS ASSUMED THAT CABINET ANCHOR LOCATIONS HAVE BEEN DESIGNED/REINFORCED BY THE MANUFACTURER TO WITHSTAND SHEAR AND UPLIFT FORCES AS CALCULATED IN THIS DESIGN.

PROPOSED OUTDOOR CABINET OR PLINTH

PROPOSED SHIM PLATES AS NECESSARY OR IF REQUIRED

EDGE OF CONCRETE

3" MIN. EDGE DISTANCE

3 3/4" EMBEDMENT

TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE

NO SCALE

5

4"x4" SQUARE CEDAR POSTS (TYP.)

8'-0" MAX

1" x 6" CEDAR DOG EAR PICKETS

2" x 4" CEDAR RAILS (3 PER SECTION)

ATTACH RAILS W/ALUMINUM SCREW-TYPE NAILS (3 PER PICKET)

FINISHED GRADE

3'-0"

8'-0"

TYPICAL FENCE SECTION DETAIL

NO SCALE

7

4" x 8" GALV. STEEL HINGE. FASTEN W/(7) 1-7/8" SCREWS (TYP. EACH HINGE)

5'-0" GATE OPENING

1" x 6" CEDAR DOG EAR PICKETS

ATTACH BACKERS W/ALUMINUM SCREW-TYPE NAILS (3 PER EACH BRACE END)

4" x 4" SQUARE CEDAR POST (TYP.)

INSTALL REVERSABLE HINGE LOCK PLATE W/PADLOCK

2" x 4" CEDAR BACKER. BOX FRAME AND CROSS BRACE EACH GATE SECTION. MITRE BRACE ENDS TO SNUG FIT

12"

72"

12"

3'-0"

8'-0"

TYPICAL MAN-GATE ELEVATION DETAIL

NO SCALE

8

CU12PSM6P4XXX (4 AWG CONDUCTORS)

CU12PSM9P6XXX (6 AWG CONDUCTORS)

CU12PSM9P8XXX (8 AWG CONDUCTORS)

1.75"ø

1.60"ø

1.41"ø

27" MIN BEND RADIUS

24" MIN BEND RADIUS

22" MIN BEND RADIUS

CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES

NO SCALE

3

4" WOOD POST

4-#4 EQ SPACED

#3 TIES @ 18" OC

DRILLED PIER FOUNDATION

FINISH SLOPE TO DRAIN

A-A SECTION

CORNER, END, AND BRACE POST FOOTING (3000 PSI-MIN) (TYP.)

18"ø

3'-6"

CONCRETE PIER SECTION

NO SCALE

9

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488

1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325

11/30/2023
JBI NUMBER: 604-106-184

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LTH DM MSB

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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2	03/21/2022	REVISED PER JDX COMMENTS
3	11/30/23	ADDED DETAIL 9/A-5

A&E PROJECT NUMBER
21CCD5N-0057

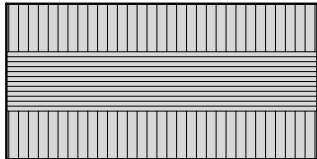
DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
EQUIPMENT DETAILS

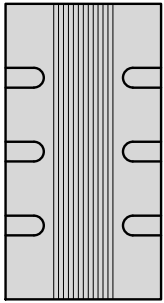
SHEET NUMBER
A-5

FUJITSU
TA08025-B604 RRH

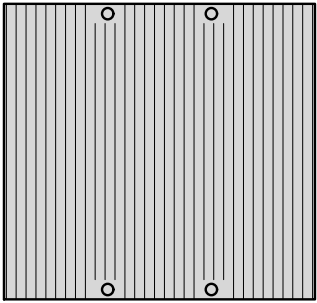
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

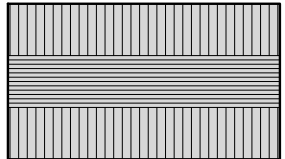
REMOTE RADIO HEAD DETAIL

NO SCALE

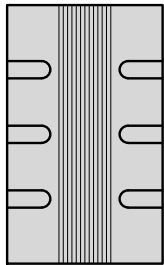
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FUJITSU
TA08025-B605 RRH

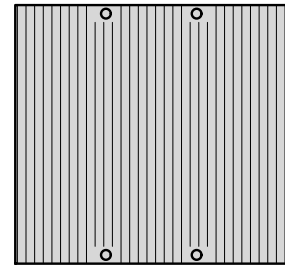
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

REMOTE RADIO HEAD DETAIL

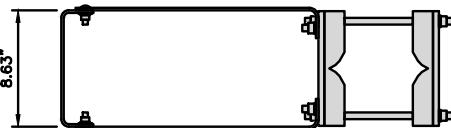
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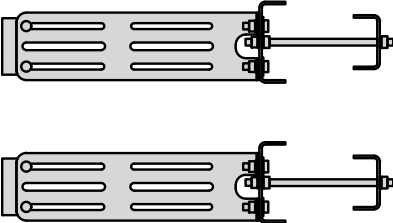
COMMSCOPE
RR-FA2 LARGE STABILIZER

DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:
MOUNT WILL FIT LEGS UP TO:
- 5.6" ROUND
- 6.0" 60° ANGLE
- 4.5" 90° ANGLE



PLAN



SIDE

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL

NO SCALE

3

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building

Planning

Engineering

Public Works

Fire

Police

Traffic

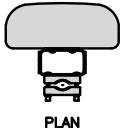
NOT USED

NO SCALE

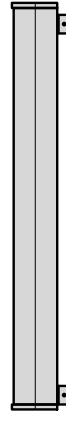
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JMA
MX08FRO665-21

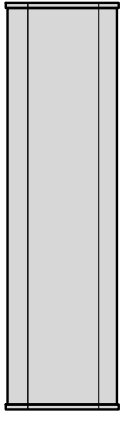
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

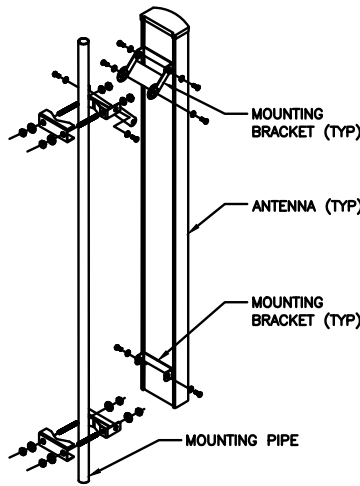
ANTENNA DETAIL

NO SCALE

5

M04 MOUNTING BRACKET
HPA-33R-BUU-H4-K

WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	8" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN



MOUNTING BRACKET (TYP)

ANTENNA (TYP)

MOUNTING BRACKET (TYP)

MOUNTING PIPE


ANTENNA MOUNTING DETAIL

NO SCALE

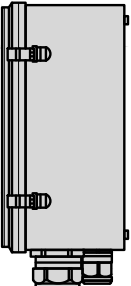
6

RAYCAP RDIDC-9181-PF-48
DC SURGE PROTECTION (OVP)

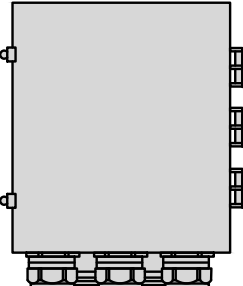
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



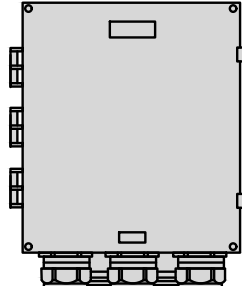
PLAN



SIDE



BACK



FRONT

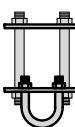
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

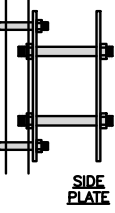
7

COMMSCOPE XP-2040
CROSSOVER PLATE

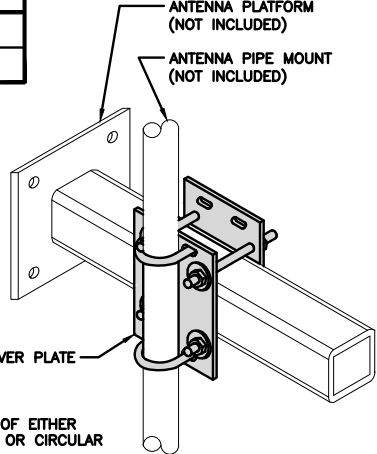
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



PLAN U-BOLT



SIDE U-BOLT



ANTENNA PLATFORM (NOT INCLUDED)

ANTENNA PIPE MOUNT (NOT INCLUDED)

CROSSOVER PLATE

OPTION OF EITHER SQUARE OR CIRCULAR U-BOLT

RRH/OVP MOUNT DETAIL

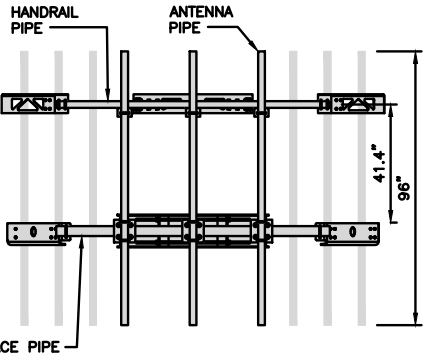
NO SCALE

8

COMMSCOPE
MC-PK8-DSH

FACE WIDTH	96"
WEIGHT	1373.08 lbs

NOTE: 15" TO 38" O.D.



FACE PIPE

ANTENNA PIPE

PLATFORM

ANTENNA PLATFORM DETAIL

NO SCALE

9

dish
wireless.

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PRCTI20231488

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678-280-2325

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A&E PROJECT NUMBER
21CCD5N-0057

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. 'PWR' AND 'FBR' PATH DEPICTED ON A-1 AND E-1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH THE 'PWR' AND 'FBR' PATH DEPICTED ON A-1 AND E-1 AND SAID VARIANCE IS NOT NOTED ON CDS, PLEASE NOTIFY CROWN CASTLE REAL ESTATE AS FURTHER COORDINATION MAY BE NEEDED.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

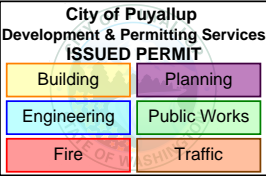
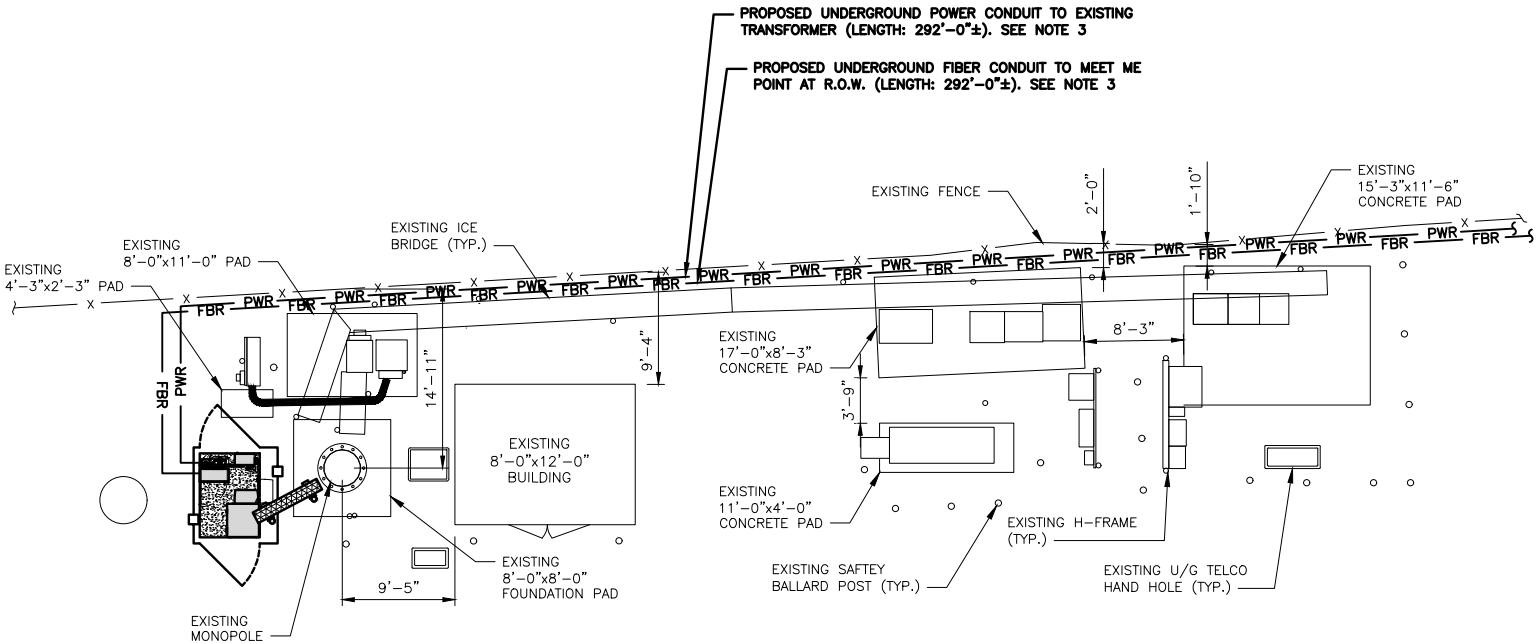
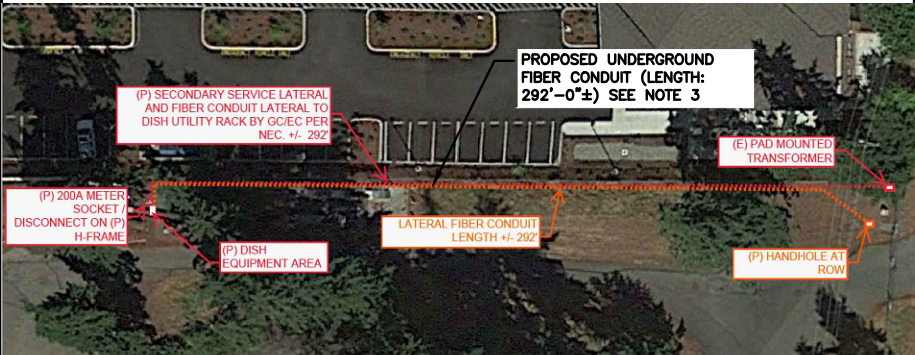
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

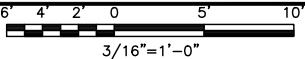
2

NOTE:
LEGAL DESCRIPTION OF EASEMENTS NOT PROVIDED. CONTRACTOR TO COORDINATE AND ROUTE UTILITIES WITHIN EXISTING UTILITY EASEMENT. DISH WIRELESS L.L.C. SHALL BE RESPONSIBLE FOR OBTAINING EASEMENT RIGHTS AS REQUIRED FOR INSTALLATION OF ALL UTILITIES.



Separate Electrical Permit is required with the Washington State Department of Labor & Industries.
<https://lni.wa.gov/licensing-permits/electrical/electrical-permits-fees-and-inspections>
or call for Licensing Information: 1-800-647-0982

UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

3

dish
wireless.

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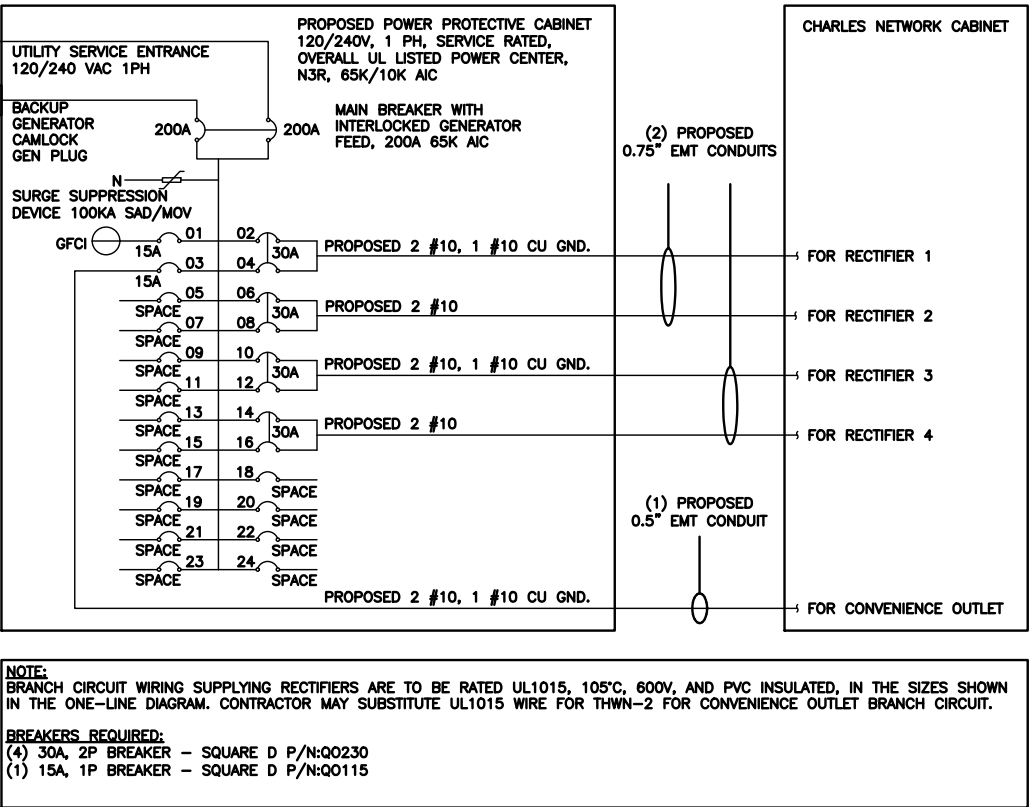
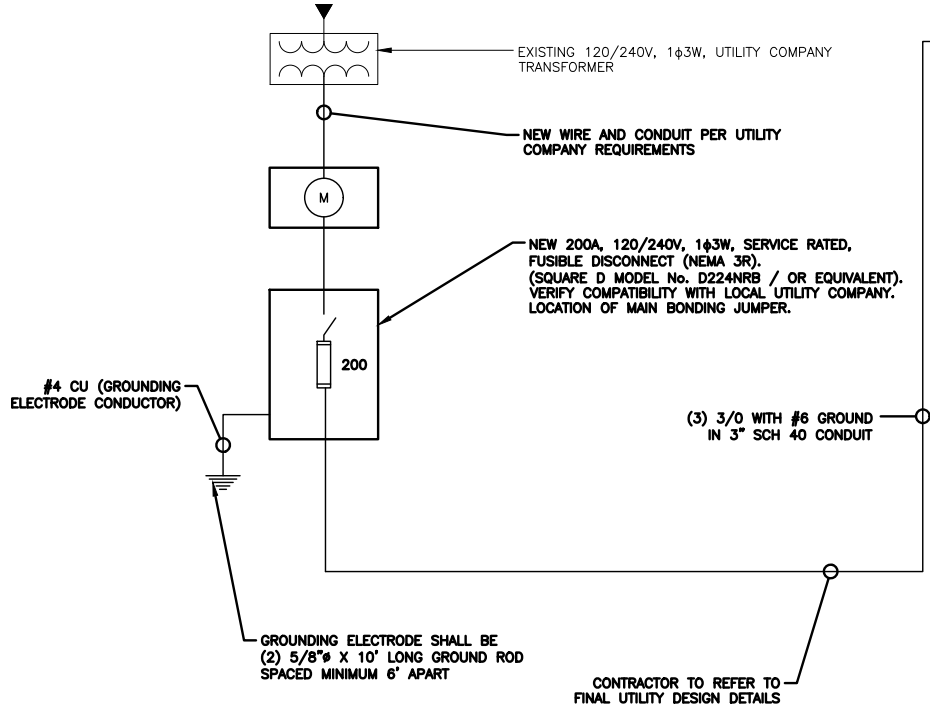
DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1



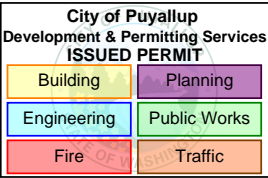
NOTES	
THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.	
#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A	
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A	
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A	
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A	
CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.	
0.5" CONDUIT - 0.122 SQ. IN AREA	
0.75" CONDUIT - 0.213 SQ. IN AREA	
2.0" CONDUIT - 1.316 SQ. IN AREA	
3.0" CONDUIT - 2.907 SQ. IN AREA	
CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.	
#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN	
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND	
TOTAL = 0.0633 SQ. IN	
0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.	
RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.	
#10 - 0.0286 SQ. IN X 4 = 0.1064 SQ. IN	
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND	
TOTAL = 0.1146 SQ. IN	
0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.	
PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.	
3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN	
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND	
TOTAL = 0.8544 SQ. IN	
3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.	

PPC ONE-LINE DIAGRAM

NO SCALE

1

PROPOSED CHARLES PANEL SCHEDULE											
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
CHARLES GFCI OUTLET		180	15A	3	B	4					
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
-SPACE-				7	B	8					
-SPACE-				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3	
-SPACE-				11	B	12					
-SPACE-				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
-SPACE-				15	B	16					
-SPACE-				17	A	18					
-SPACE-				19	B	20					
-SPACE-				21	A	22					
-SPACE-				23	B	24					
VOLTAGE AMPS	180	180						11520	11520		
200A MCB, 1φ, 24 SPACE, 120/240V				L1	L2						
MB RATING: 65,000 AIC				11700	11700			VOLTAGE AMPS			
				98	98			AMPS			
					98			MAX AMPS			
					123			MAX 125%			



PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488



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3	11/30/23	ADDED DETAIL 9/A-5

A&E PROJECT NUMBER
21CCD5N-0057

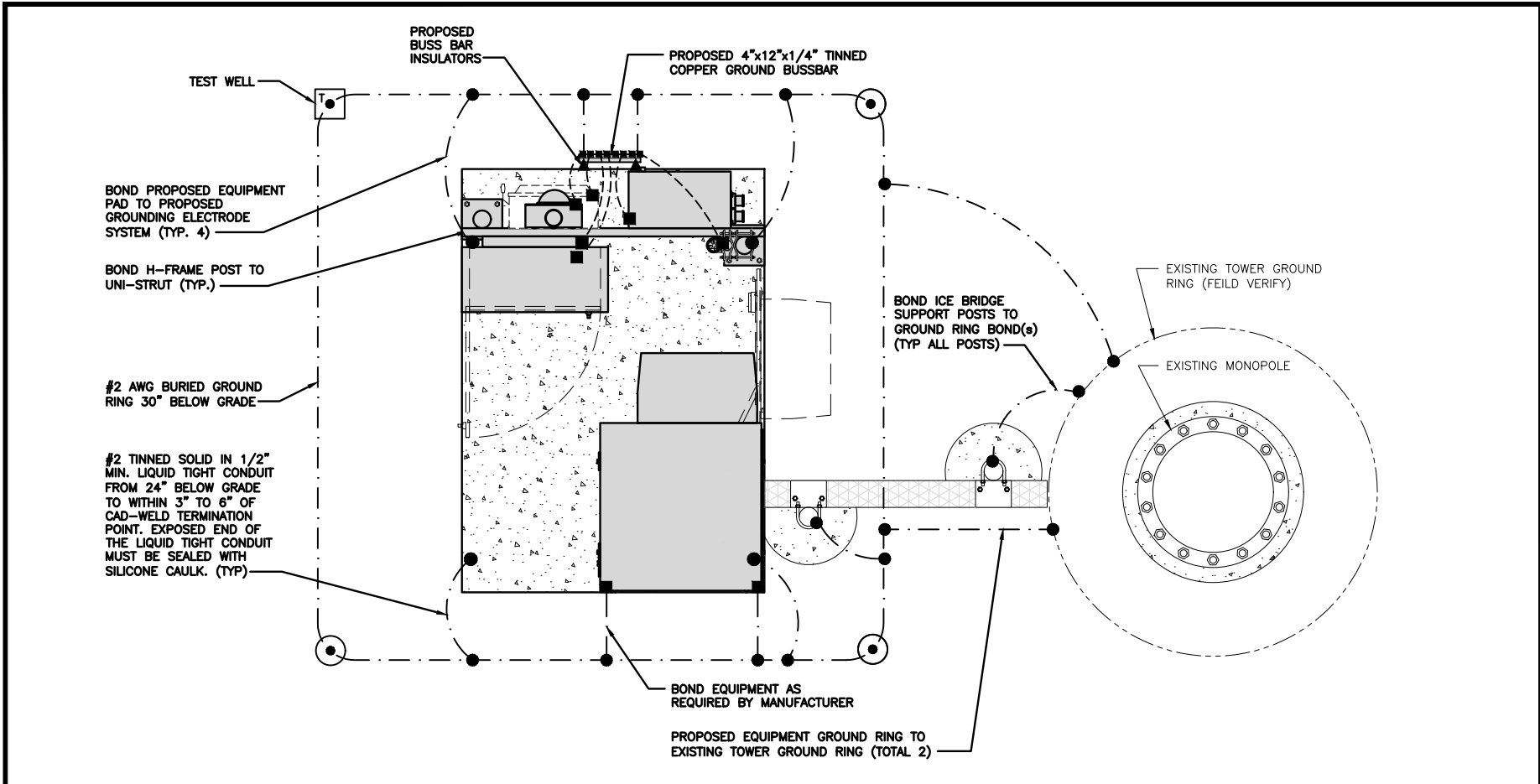
DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER

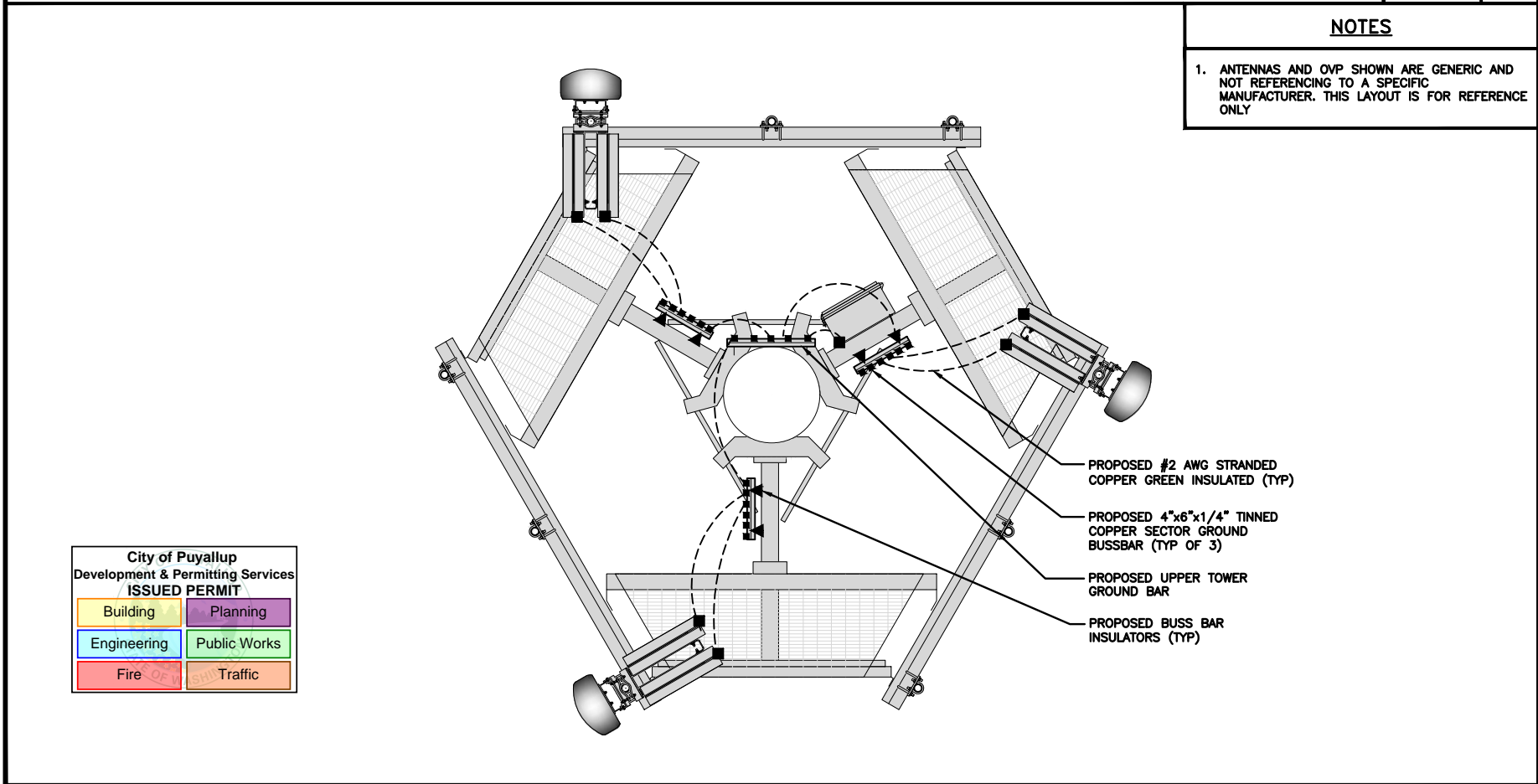
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- ▲ BUSS BAR INSULATOR
- ⊙ TEST GROUND ROD WITH INSPECTION SLEEVE
- GROUND BUS BAR
- ⊙ GROUND ROD

GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- (A) **EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) **TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) **INTERIOR GROUND RING:** #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) **BOND TO INTERIOR GROUND RING:** #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) **GROUND ROD:** UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) **CELL REFERENCE GROUND BAR:** POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE. STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) **HATCH PLATE GROUND BAR:** BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) **EXTERIOR CABLE ENTRY PORT GROUND BARS:** LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) **TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) **FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) **INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) **FENCE AND GATE GROUNDING:** METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) **EXTERIOR UNIT BONDS:** METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE.
- (N) **ICE BRIDGE SUPPORTS:** EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) **DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR.**
- (P) **TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.**

GROUNDING KEY NOTES

NO SCALE

3

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488

PM&A

1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325



11/30/2023
JBI NUMBER: 604-106-184

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LTH DM MSB

RFDS REV #: ---

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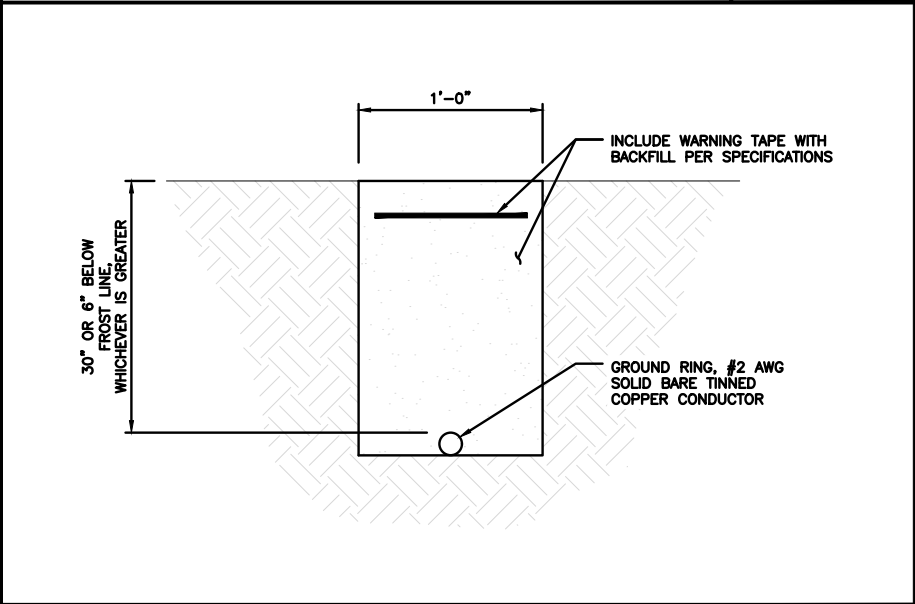
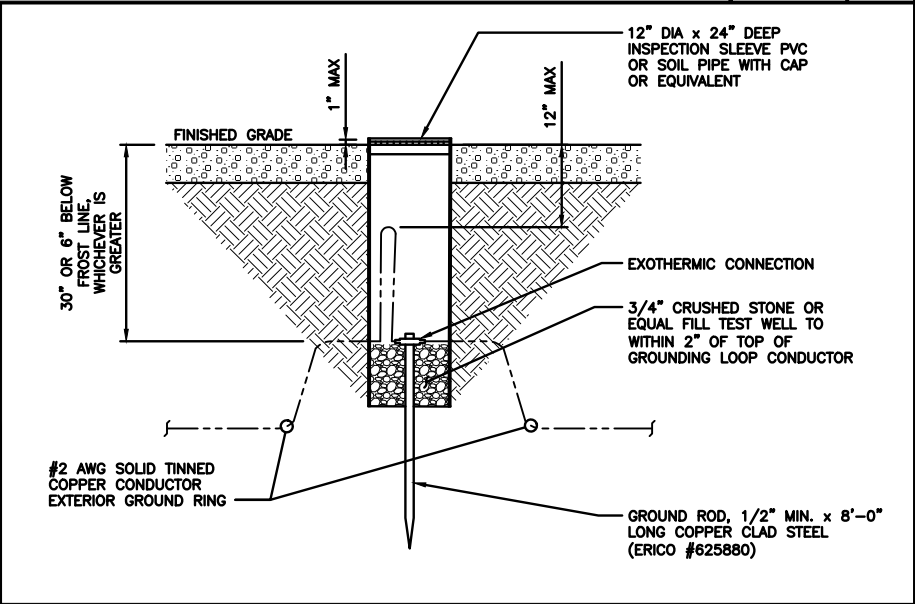
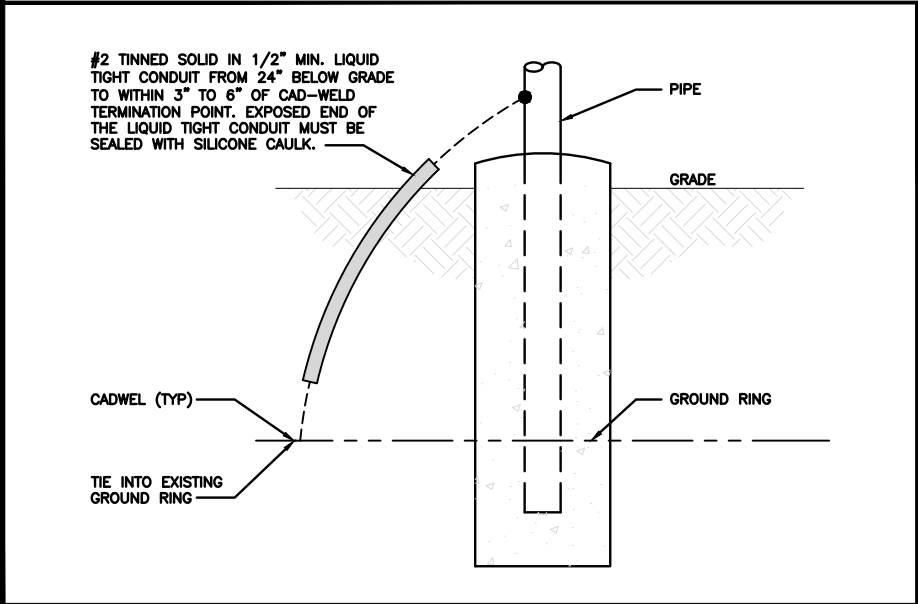
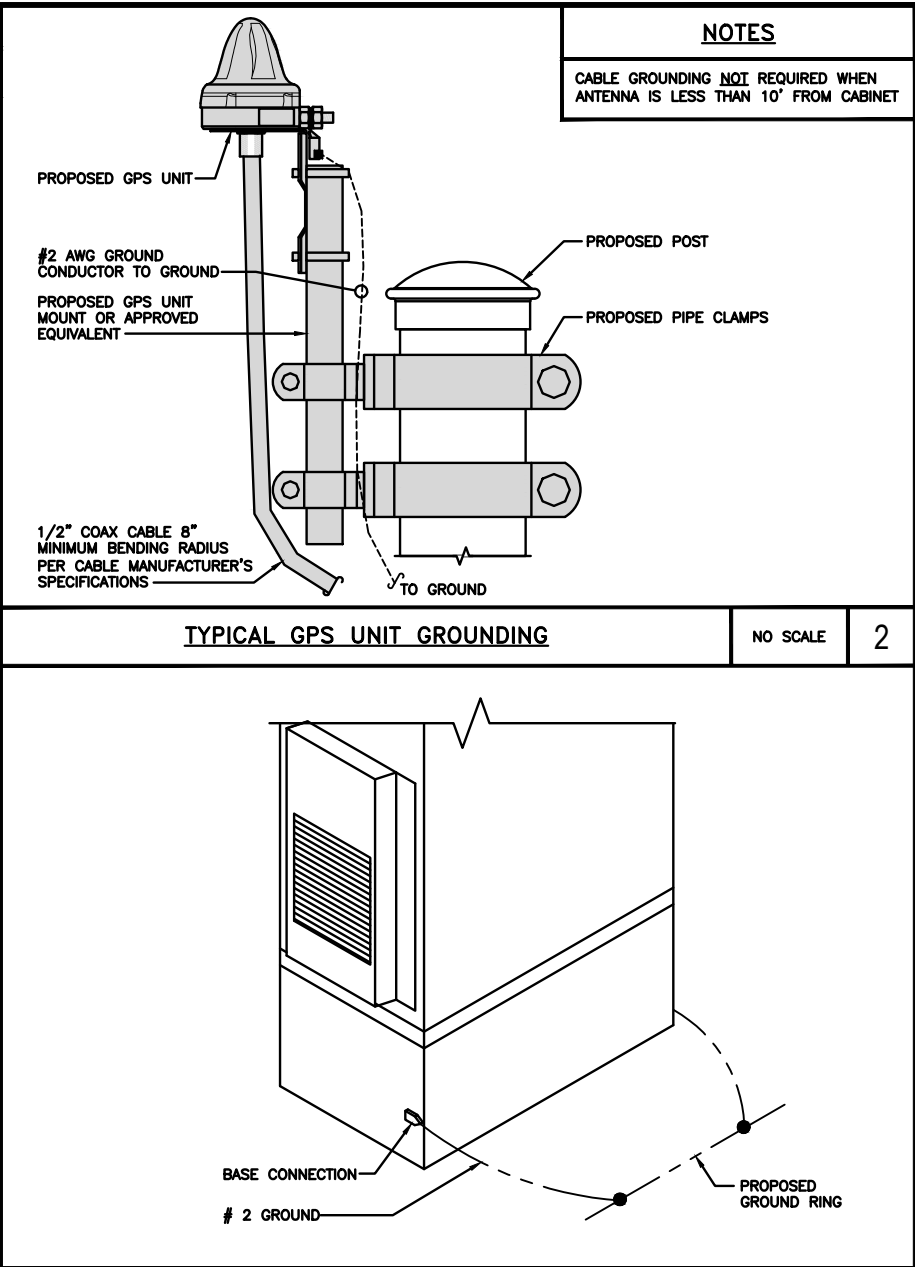
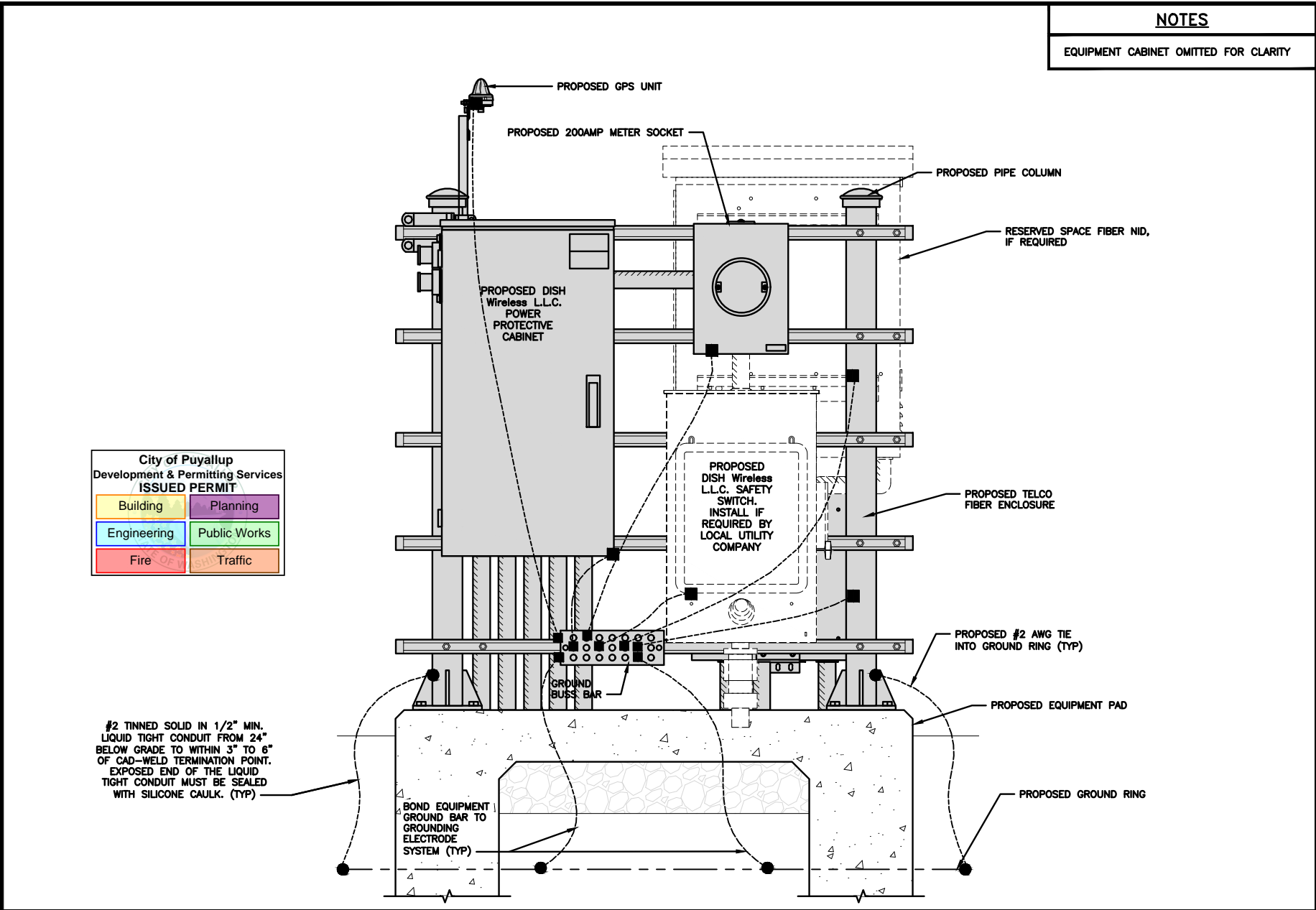
DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1



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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488

PM&A

1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325

CHAD WILHOIT
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
55949
11/30/2023
JBI NUMBER: 604-106-184

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DOCUMENTS

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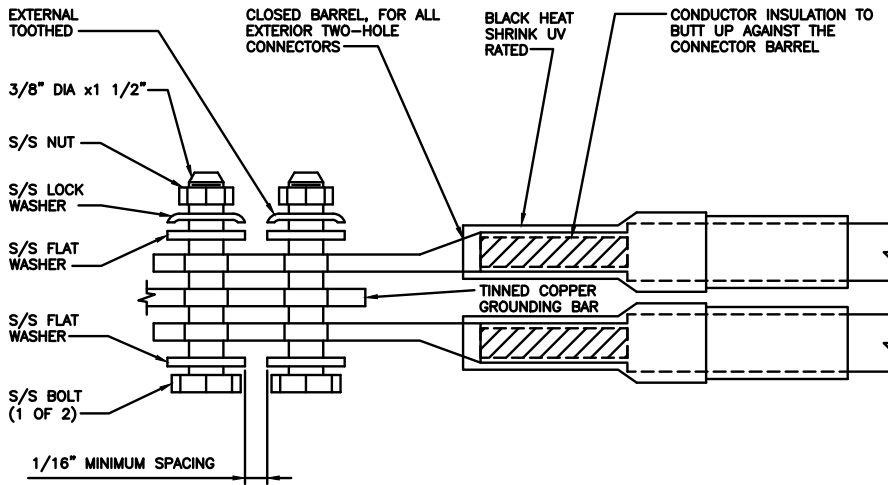
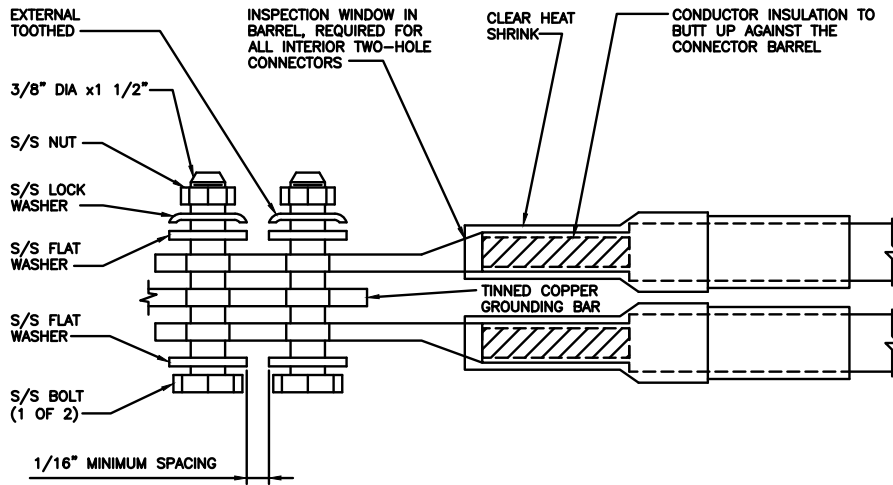
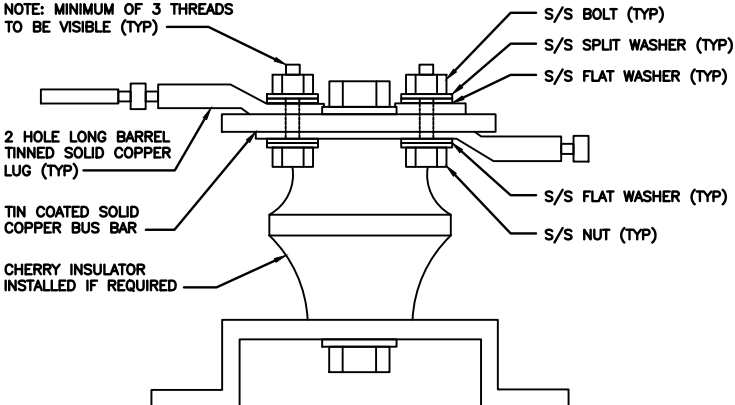
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DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

<div>1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.</div> <div>2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.</div> <div>3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.</div> <div>4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.</div> <div>5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.</div> <div>6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.</div> <div>7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.</div> <div>8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).</div>														
TYPICAL GROUNDING NOTES			NO SCALE	1	TYPICAL EXTERIOR TWO HOLE LUG			NO SCALE	2	TYPICAL INTERIOR TWO HOLE LUG			NO SCALE	3
			<div>City of Puyallup Development & Permitting Services ISSUED PERMIT</div> <div>Building</div> <div>Planning</div> <div>Engineering</div> <div>Public Works</div> <div>Fire</div> <div>Traffic</div>											
LUG DETAIL			NO SCALE	4	NOT USED			NO SCALE	5	NOT USED			NO SCALE	6
NOT USED			NO SCALE	7	NOT USED			NO SCALE	8	NOT USED			NO SCALE	9

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SUITE 210
ROSWELL, GA 30076
678-280-2325

CHAD WILHOIT

STATE OF WASHINGTON

55949

REGISTERED PROFESSIONAL ENGINEER

11/30/2023

UBI NUMBER: 604-106-184

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DISH Wireless L.L.C.
PROJECT INFORMATION
SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF JUMPER COLOR CODING				3/4" TAPE WIDTHS WITH 3/4" SPACING														
LOW-BAND RRH – (600MHz N71 BASEBAND) + (850MHz N26 BAND) + (700MHz N29 BAND) – OPTIONAL PER MARKET	ALPHA RRH				BETA RRH				GAMMA RRH									
	PORT 1 + SLANT	PORT 2 – SLANT	PORT 3 + SLANT	PORT 4 – SLANT	PORT 1 + SLANT	PORT 2 – SLANT	PORT 3 + SLANT	PORT 4 – SLANT	PORT 1 + SLANT	PORT 2 – SLANT	PORT 3 + SLANT	PORT 4 – SLANT						
	RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN						
	ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN						
		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE						
MID-BAND RRH – (AWS BANDS N66+N70)	RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN						
	PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN						
		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE						
				WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT						
HYBRID/DISCREET CABLES																		
INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS	EXAMPLE 1			EXAMPLE 2			EXAMPLE 3											
	RED	RED	RED	RED	RED	RED	RED	RED	RED									
	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE	BLUE									
	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN									
	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE									
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE	PURPLE									
FIBER JUMPERS TO RRHs																		
LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY	LOW BAND RRH			HIGH BAND RRH			LOW BAND RRH			HIGH BAND RRH			LOW BAND RRH			HIGH BAND RRH		
	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED		
POWER CABLES TO RRHs																		
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY	LOW BAND RRH			HIGH BAND RRH			LOW BAND RRH			HIGH BAND RRH			LOW BAND RRH			HIGH BAND RRH		
	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED		
RET MOTORS AT ANTENNAS																		
	ANTENNA 1 LOW BAND/ "IN"		ANTENNA 1 HIGH BAND/ "IN"		ANTENNA 1 LOW BAND/ "IN"		ANTENNA 1 HIGH BAND/ "IN"		ANTENNA 1 LOW BAND/ "IN"		ANTENNA 1 HIGH BAND/ "IN"							
	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED						
MICROWAVE RADIO LINKS																		
LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.	FORWARD AZIMUTH OF 0–120 DEGREES								FORWARD AZIMUTH OF 120–240 DEGREES				FORWARD AZIMUTH OF 240–360 DEGREES					
	PRIMARY		SECONDARY		PRIMARY		SECONDARY		PRIMARY		SECONDARY		PRIMARY		SECONDARY			
	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE		
	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED		
	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE		
MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S																		

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)
OPTIONAL – (N29)

ORANGE

AWS
(N66+N70+H-BLOCK)

PURPLE

CBRS TECH
(3 GHz)

YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

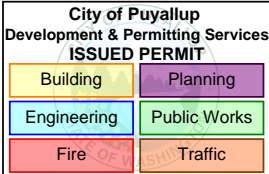
GAMMA SECTOR

GREEN

COLOR IDENTIFIER

NO SCALE

2



NOT USED

NO SCALE

3

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488

PM&A

1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325



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LTH

DM

MSB

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DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION
BUSS BAR INSULATOR
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
EXOTHERMIC WITH INSPECTION SLEEVE
GROUNDING BAR
GROUND ROD
TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48-T8

SMOKE DETECTION (DC)

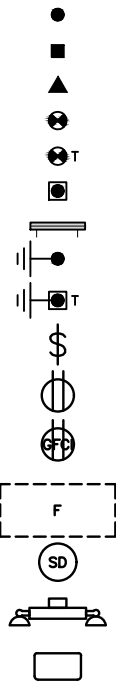
EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
LED-1-25A400/51K-SR4-120-PE-DDBTXD

CHAIN LINK FENCE
WOOD/WROUGHT IRON FENCE
WALL STRUCTURE
LEASE AREA
PROPERTY LINE (PL)
SETBACKS
ICE BRIDGE
CABLE TRAY
WATER LINE
UNDERGROUND POWER
UNDERGROUND TELCO
OVERHEAD POWER
OVERHEAD TELCO
UNDERGROUND TELCO/POWER
ABOVE GROUND POWER
ABOVE GROUND TELCO
ABOVE GROUND TELCO/POWER
WORKPOINT

SECTION REFERENCE

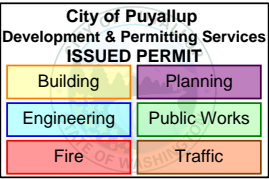
DETAIL REFERENCE



LEGEND

AB ANCHOR BOLT
ABV ABOVE
AC ALTERNATING CURRENT
ADDL ADDITIONAL
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AGL ABOVE GROUND LEVEL
AIC AMPERAGE INTERRUPTION CAPACITY
ALUM ALUMINUM
ALT ALTERNATE
ANT ANTENNA
APPROX APPROXIMATE
ARCH ARCHITECTURAL
ATS AUTOMATIC TRANSFER SWITCH
AWG AMERICAN WIRE GAUGE
BATT BATTERY
BLDG BUILDING
BLK BLOCK
BLKG BLOCKING
BM BEAM
BTC BARE TINNED COPPER CONDUCTOR
BOF BOTTOM OF FOOTING
CAB CABINET
CANT CANTILEVERED
CHG CHARGING
CLG CEILING
CLR CLEAR
COL COLUMN
COMM COMMON
CONC CONCRETE
CONSTR CONSTRUCTION
DBL DOUBLE
DC DIRECT CURRENT
DEPT DEPARTMENT
DF DOUGLAS FIR
DIA DIAMETER
DIAG DIAGONAL
DIM DIMENSION
DWG DRAWING
DWL DOWEL
EA EACH
EC ELECTRICAL CONDUCTOR
EL ELEVATION
ELEC ELECTRICAL
EMT ELECTRICAL METALLIC TUBING
ENG ENGINEER
EQ EQUAL
EXP EXPANSION
EXT EXTERIOR
EW EACH WAY
FAB FABRICATION
FF FINISH FLOOR
FG FINISH GRADE
FIF FACILITY INTERFACE FRAME
FIN FINISH(ED)
FLR FLOOR
FDN FOUNDATION
FOC FACE OF CONCRETE
FOM FACE OF MASONRY
FOS FACE OF STUD
FOW FACE OF WALL
FS FINISH SURFACE
FT FOOT
FTG FOOTING
GA GAUGE
GEN GENERATOR
GFCI GROUND FAULT CIRCUIT INTERRUPTER
GLB GLUE LAMINATED BEAM
GLV GALVANIZED
GPS GLOBAL POSITIONING SYSTEM
GND GROUND
GSM GLOBAL SYSTEM FOR MOBILE
HDG HOT DIPPED GALVANIZED
HDR HEADER
HGR HANGER
HVAC HEAT/VENTILATION/AIR CONDITIONING
HT HEIGHT
IGR INTERIOR GROUND RING

IN INCH
INT INTERIOR
LB(S) POUND(S)
LF LINEAR FEET
LTE LONG TERM EVOLUTION
MAS MASONRY
MAX MAXIMUM
MB MACHINE BOLT
MECH MECHANICAL
MFR MANUFACTURER
MGB MASTER GROUND BAR
MIN MINIMUM
MISC MISCELLANEOUS
MTL METAL
MTS MANUAL TRANSFER SWITCH
MW MICROWAVE
NEC NATIONAL ELECTRIC CODE
NM NEWTON METERS
NO. NUMBER
NUMBER
NTS NOT TO SCALE
OC ON-CENTER
OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG OPENING
P/C PRECAST CONCRETE
PCS PERSONAL COMMUNICATION SERVICES
PCU PRIMARY CONTROL UNIT
PRC PRIMARY RADIO CABINET
PP POLARIZING PRESERVING
PSF POUNDS PER SQUARE FOOT
PSI POUNDS PER SQUARE INCH
PT PRESSURE TREATED
PWR POWER CABINET
QTY QUANTITY
RAD RADIUS
RECT RECTIFIER
REF REFERENCE
REINF REINFORCEMENT
REQ'D REQUIRED
RET REMOTE ELECTRIC TILT
RF RADIO FREQUENCY
RMC RIGID METALLIC CONDUIT
RRH REMOTE RADIO HEAD
RRU REMOTE RADIO UNIT
RWY RACEWAY
SCH SCHEDULE
SHT SHEET
SIAD SMART INTEGRATED ACCESS DEVICE
SIM SIMILAR
SPEC SPECIFICATION
SQ SQUARE
SS STAINLESS STEEL
STD STANDARD
STL STEEL
TEMP TEMPORARY
THK THICKNESS
TMA TOWER MOUNTED AMPLIFIER
TN TOE NAIL
TOA TOP OF ANTENNA
TOC TOP OF CURB
TOF TOP OF FOUNDATION
TOP TOP OF PLATE (PARAPET)
TOS TOP OF STEEL
TOW TOP OF WALL
TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP TYPICAL
UG UNDERGROUND
UL UNDERWRITERS LABORATORY
UNO UNLESS NOTED OTHERWISE
UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF VERIFIED IN FIELD
W WIDE
W/ WITH
WD WOOD
WP WEATHERPROOF
WT WEIGHT



ABBREVIATIONS

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PRCTI20231488

PM&A

1000 HOLCOMB WOODS PKWY,
SUITE 210
ROSWELL, GA 30076
678-280-2325



UJI NUMBER: 604-106-184

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UNLESS THEY ARE ACTING UNDER THE DIRECTION
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TO ALTER THIS DOCUMENT.

DRAWN BY: LTH
CHECKED BY: DM
APPROVED BY: MSB

RFDS REV #: ---

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/20/2021	ISSUED FOR REVIEW
0	08/28/2021	ISSUED FOR CONSTRUCTION
1	10/26/2021	REVISED PER COMMENTS
2	03/21/2022	REVISED PER JDX COMMENTS
3	11/30/23	ADDED DETAIL 9/A-5

A&E PROJECT NUMBER
21CCD5N-0057

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
LEGEND AND
ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, 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 DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER 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 INCLUDING PRIVATE LOCATES 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 DISH 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 DISH Wireless L.L.C. AND TOWER OWNER, 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 AND RADIOS 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.

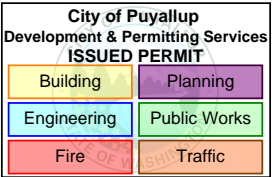
GENERAL NOTES:

- 1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER
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 CARRIER POC AND TOWER OWNER.
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 TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, 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 DISH Wireless L.L.C. AND TOWER OWNER
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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PRCTI20231488



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UBI NUMBER: 604–106–184

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DRAWN BY:	CHECKED BY:	APPROVED BY:
LTH	DM	MSB

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	09/20/2021	ISSUED FOR REVIEW
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1	10/26/2021	REVISED PER COMMENTS
2	03/21/2022	REVISED PER JDX COMMENTS
3	11/30/23	ADDED DETAIL 9/A–5

A&E PROJECT NUMBER
21CCD5N–0057

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS (THE CONCRETE HAS BEEN DESIGNED BASED ON 2500 PSI), 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.
4. 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.
5. 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 (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. 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"

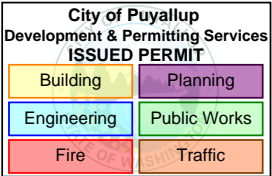
• BEAMS AND COLUMNS 1–1/2"

7. 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.

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. TIE WRAPS ARE NOT ALLOWED.
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 3 (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 DISH Wireless L.L.C. AND TOWER OWNER 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 "DISH Wireless L.L.C.".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

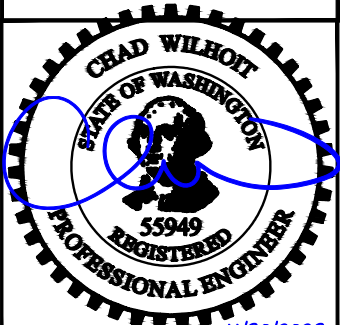


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LTH DM MSB

RFDS REV #: ---

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/20/2021	ISSUED FOR REVIEW
0	08/28/2021	ISSUED FOR CONSTRUCTION
1	10/26/2021	REVISED PER COMMENTS
2	03/21/2022	REVISED PER JDX COMMENTS
3	11/30/23	ADDED DETAIL 9/A–5

A&E PROJECT NUMBER

21CCD5N–0057

DISH Wireless L.L.C.
PROJECT INFORMATION

SESEA00401B
3150 S MERIDIAN
PUYALLUP, WA 98373

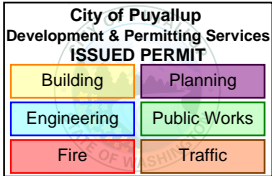
SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-3

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 ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND 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). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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11/30/2023

UJI NUMBER: 604–106–184

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

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