



DISH Wireless L.L.C. SITE ID:

KCMCI00265C

DISH Wireless L.L.C. SITE ADDRESS:

900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

### MISSOURI CODE OF 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
MECHANICAL	2018 IMC
ELECTRICAL	2017 NEC

### SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	PARCEL PLAN
A-1	COMPOUND AND EQUIPMENT PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM 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
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GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

### 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
  - INSTALL PROPOSED JUMPERS
  - INSTALL (6) PROPOSED RRU'S (2 PER SECTOR)
  - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
  - INSTALL (1) PROPOSED HYBRID CABLE

- GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
  - 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

### SITE PHOTO



MISSOURI ONE CALL SYSTEM  
UTILITY NOTIFICATION CENTER OF MISSOURI  
(800) 344-7483  
WWW.MO1CALL.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.

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

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.

### SITE INFORMATION

PROPERTY OWNER: INSITE TOWERS DEVELOPMENT LLC  
ADDRESS: 900 NW BLUE PKWY  
LEES SUMMIT - MO - 64086

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 209106

TOWER APP NUMBER: 13689205\_D2

COUNTY: JACKSON

LATITUDE (NAD 83): 38° 54' 36.720" N  
38.91020005

LONGITUDE (NAD 83): 94° 23' 28.580" W  
-94.39127213

ZONING JURISDICTION: TBD

ZONING DISTRICT: TBD

PARCEL NUMBER: 61-420-02-43-00-0-0-000

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERGY

TELEPHONE COMPANY: VERIZON

### PROJECT DIRECTORY

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

TOWER OWNER: AMERICAN TOWER  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801

SITE DESIGNER: PETER LICHOMSKI, AIA  
49030 PONTIAC TRAIL, SUITE 400  
WIXOM, MI 48393  
PH: (248) 705-9212

SITE ACQUISITION: BRIAN VAN ASTEN

CONSTRUCTION MANAGER: DERRICK CARTER

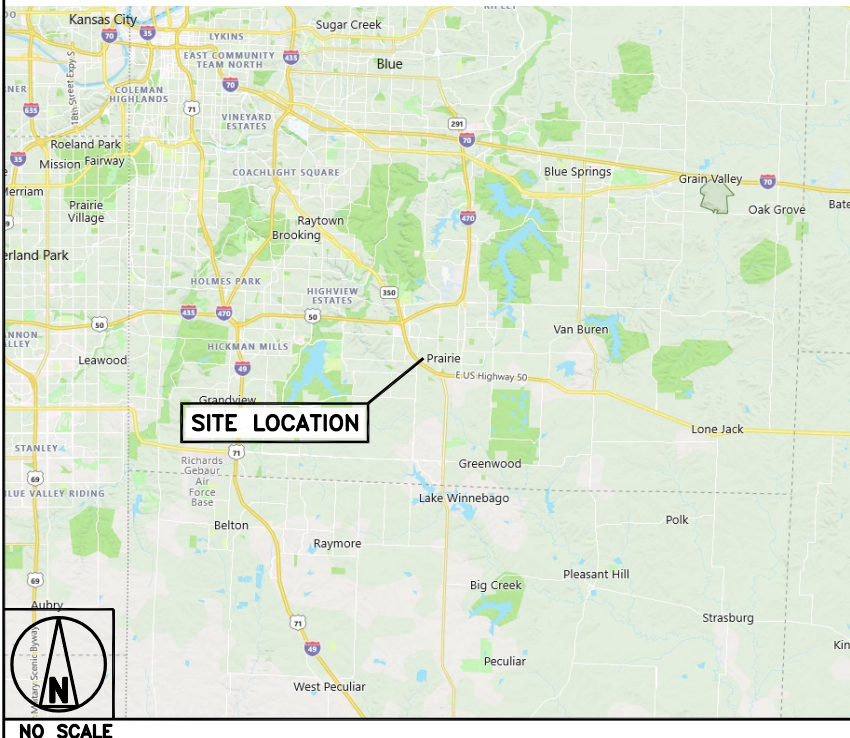
RF ENGINEER: DAVID O'HANLON

### DIRECTIONS

#### DIRECTIONS FROM LEE'S SUMMIT MUNICIPAL AIRPORT :

HEAD SOUTH ON NE DOUGLAS ST TOWARD NW LEES SUMMIT RD, TURN LEFT ONTO NW LEES SUMMIT RD, ROAD NAME CHANGES TO NE DOUGLAS ST, TAKE THE RAMP ON THE RIGHT AND FOLLOW SIGNS FOR I-470 WEST, AT EXIT 7A, HEAD RIGHT ON THE RAMP FOR MO-350 E TOWARD SEDALIA, ROAD NAME CHANGES TO US-50 E / E US HIGHWAY 50, TAKE THE RAMP ON THE RIGHT AND FOLLOW SIGNS FOR 3RD ST, TURN LEFT ONTO SW 3RD ST, TURN RIGHT ONTO SW BLUE PKWY, ARRIVE AT 900 SOUTHWEST BLUE PARKWAY, LEE'S SUMMIT, MO 64063

### VICINITY MAP



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212



*Peter P. Lichomski*

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:

RC

PL

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RFDS REV #:

N/A

### CONSTRUCTION DOCUMENTS

#### SUBMITTALS

REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION

KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
TITLE SHEET

SHEET NUMBER

T-1

MO016 LEES SUMMIT  
PART OF THE NW 1/4, SECTION 7, T47N, R31W,  
IN JACKSON COUNTY, MISSOURI

Property information shown hereon was provided by Old Republic National Title Insurance Company, Commitment No. 01-15003485-01T, effective January 14, 2015 at 7:00 a.m.

Schedule B-II information affecting Lease Area is noted unless shown hereon.

Schedule B-II information not shown hereon:

1.-6. General exceptions, not the type to be depicted hereon.

7. Minor Plat of COLT & GARRETT, FIRST PLAT as Inst. No. 2011E0116455. (Shown hereon.)

8. Agreement in Doc. No. 2011E0116457. (Not the type to be depicted hereon.)

9. Memorandum of Lease as Inst. No. 2013E0001692. (Shown hereon.)

Notes:

Bearings shown hereon are based on Missouri State Plane Coordinate System of 1983 (NAD 83).

Coordinates were derived using GPS Static Survey methods and post processed data with Magellan/Ashtech receivers and "Locus System" processor software.

The utilities as shown on this drawing were developed from the information available (existing utility maps, aboveground observations and/or surface markings placed on the ground by the utility company or a representative thereof). This company has made no attempt to excavate or go below surface to locate utilities and does not extend or imply a guaranty or warranty as to the exact location of or complete inventory of utilities in this area. It shall be the contractors responsibility to verify the location and depth of all utilities (whether shown or not) prior to excavation or construction and to protect said utilities from damage.

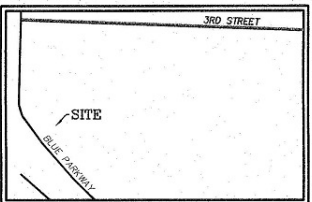
PROPERTY DESCRIPTION: Parent Parcel as Provided

LOT 2 ACCORDING TO THE MINOR PLAT OF COLT & GARRETT, FIRST PLAT RECORDED AT 2011E0116455 IN THE JACKSON COUNTY RECORDER OF DEEDS.

TAX I.D. NUMBER: 61-420-02-43-00-0-00-000

BEING A PORTION OF PROPERTY CONVEYED TO COLT & GARRETT, LLC, A MISSOURI LIMITED LIABILITY COMPANY, GRANTEE, FROM SINCLAIR MARKETING, INC., A WYOMING CORPORATION, SUCCESSOR BY MERGER OF SINCLAIR MARKETING, INC., A DELAWARE CORPORATION, GRANTOR, BY DEED RECORDED 06/19/2007, AS INSTRUMENT NO. 2007E0081102 OF THE COUNTY RECORDS.

LEGEND	
POWER POLE	PP
TELEPHONE PEDESTAL	Tel. Ped.
ANCHOR	ANCHOR
RIGHT-OF-WAY MARKER	R/W Mkr.
FIBER OPTIC MARKER	F/O Mkr.
BENCHMARK	B.M.
CONTROL POINT	CP
GATE POST	GP
GROUND WIRE	GW
MANHOLE (SAN., STORM, TEL.)	M.H.
MONOPOLE TOWER	MT
TREE (DIA.)	T
FENCE	F
OVERHEAD POWER LINE	OP
PROPERTY CORNER	PC
PLATTED	P



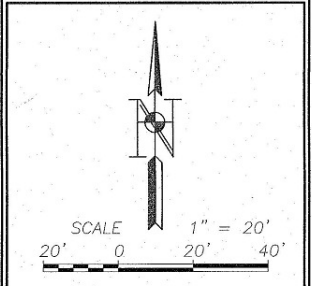
**GEOLINE SURVEYING, INC.**  
13430 NW 104th Terrace,  
Suite A  
Alachua, FL 32615  
Office: (386) 418-0500  
Fax: (386) 462-9986  
WWW.GEOLINEINC.COM

**LOVELACE & ASSOCIATES**  
Land Surveying - Land Planning  
Telecommunications Surveys  
929 SE 3rd Street Lee's Summit, Missouri 64063  
Phone: (816) 347-9997 Fax: (816) 347-9979

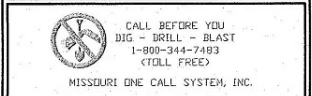
**SURVEY COORDINATED BY:**  
GEOLINE SURVEYING, INC.  
13430 NW 104TH TERRACE,  
SUITE A  
ALACHUA, FL 32615  
TELEPHONE: 386-418-0500

**SURVEY PROVIDED BY:**  
LOVELACE AND ASSOCIATES, LLC  
P.O. BOX 68,  
LEE'S SUMMIT, MO 64063  
TELEPHONE: 816-347-9997  
FAX: 816-347-9979

**SURVEY PROVIDED FOR:**  
INSITE WIRELESS GROUP, LLC  
1199 N. FAIRFAX STREET,  
SUITE 700,  
ALEXANDRIA, VA 22314



**FLOOD NOTE:**  
According to my interpretations of Community Panel No. 29095C029F of the Flood Hazard Boundary Map for Jackson County, Missouri, dated September 29, 2006, the subject property is in Flood Zone "X", i.e. Areas determined to be Outside the 0.2% annual floodplain."



**SITE I.D.:** MO016  
**SITE NAME:** LEES SUMMIT  
**SITE LOCATION:** 902 SW BLUE PKWY, LEES SUMMIT, MO  
**LA PROJECT NO.:** 15043  
**DRAWN BY:** A.C.T.  
**CHECKED BY:** J.B.L.  
**DATE:** 01-23-15  
**FIELDWORK DATE:** 01-23-15

**SHEET NUMBER**  
1 OF 1

02-03-15: REV. PER COMMENTS  
01-27-15: ADDED TITLE

**TOWER LOCATION INFORMATION**  
FAA TOWER CERTIFICATION  
Date: January 26, 2015  
Re: Site Name: MO016 LEES SUMMIT Site Address: 902 SW Blue Parkway, Lee's Summit, MO, Jackson County

**EXISTING MONOPOLE TOWER**  
I hereby certify that the following Latitude and Longitude values for the center of the above-referenced tower are accurate to within +/- 20 feet horizontally, and that the following tower site elevation is accurate to within +/- 3 feet vertically.

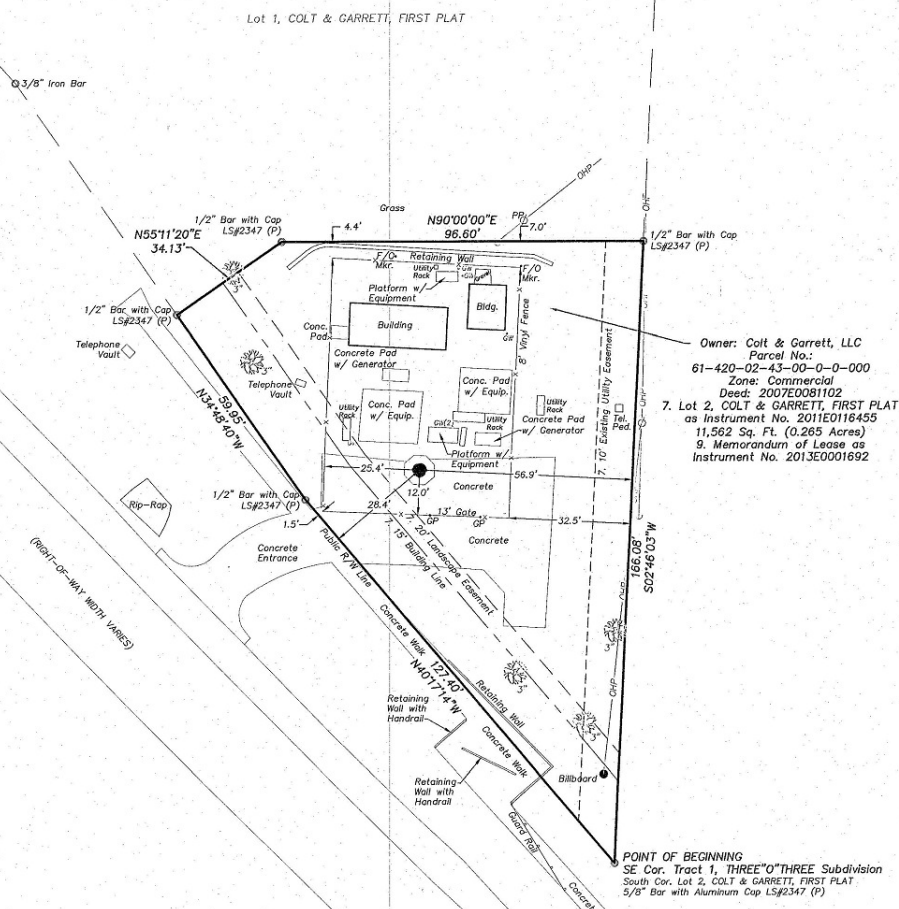
NAD 83  
Latitude: 38° 54' 36.620"N.  
Longitude: 94° 23' 28.532"W.

Ground Elevation at Base of Tower: 1017.9' Feet NAVD, 1988

149.9' +/- 1' metal tower on top of 0.7' tall concrete caissons

Top of tower height above ground: 150.6' +/- 1'  
Elevation of top of Tower: 1168.5' +/- 3'  
NAVD 1988

Highest Appurtenance: Antenna Rack 1.8' +/- 1' above top of tower.  
Elevation of top of Highest Appurtenance: 1170.3' +/- 3' NAVD 1988

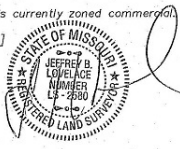


I, Jeffrey B. Lovelace, do hereby certify to InSite Towers, LLC, a Delaware limited liability company with its headquarters address at 1199 N. Fairfax Street, Suite 700, Alexandria, VA 22314, InSite Towers Development, LLC, a Delaware limited liability company, InSite Towers, LLC, a Delaware limited liability company, Vanguard Wireless, LLC, a Delaware limited liability company, InSite Wireless Group, LLC, a Delaware limited liability company, ("InSite Towers"), the Federal Aviation Administration, \*\*\*\*Title Company per title report forwarded\*\*\*\*, Goldman Sachs Specialty Lending Group L.P., Deutsche Bank Trust Company Americas, a New York banking corporation, Latham & Watkins LLP, Stewart Title Guaranty Company, Fidelity National Title Insurance Company, Old Republic National Title Insurance Company and the successors and assigns of each of the foregoing, that this survey was made on the ground under my personal supervision and that this plat is a true, correct and accurate representation of the facts as found at the time of the survey, and more specifically,

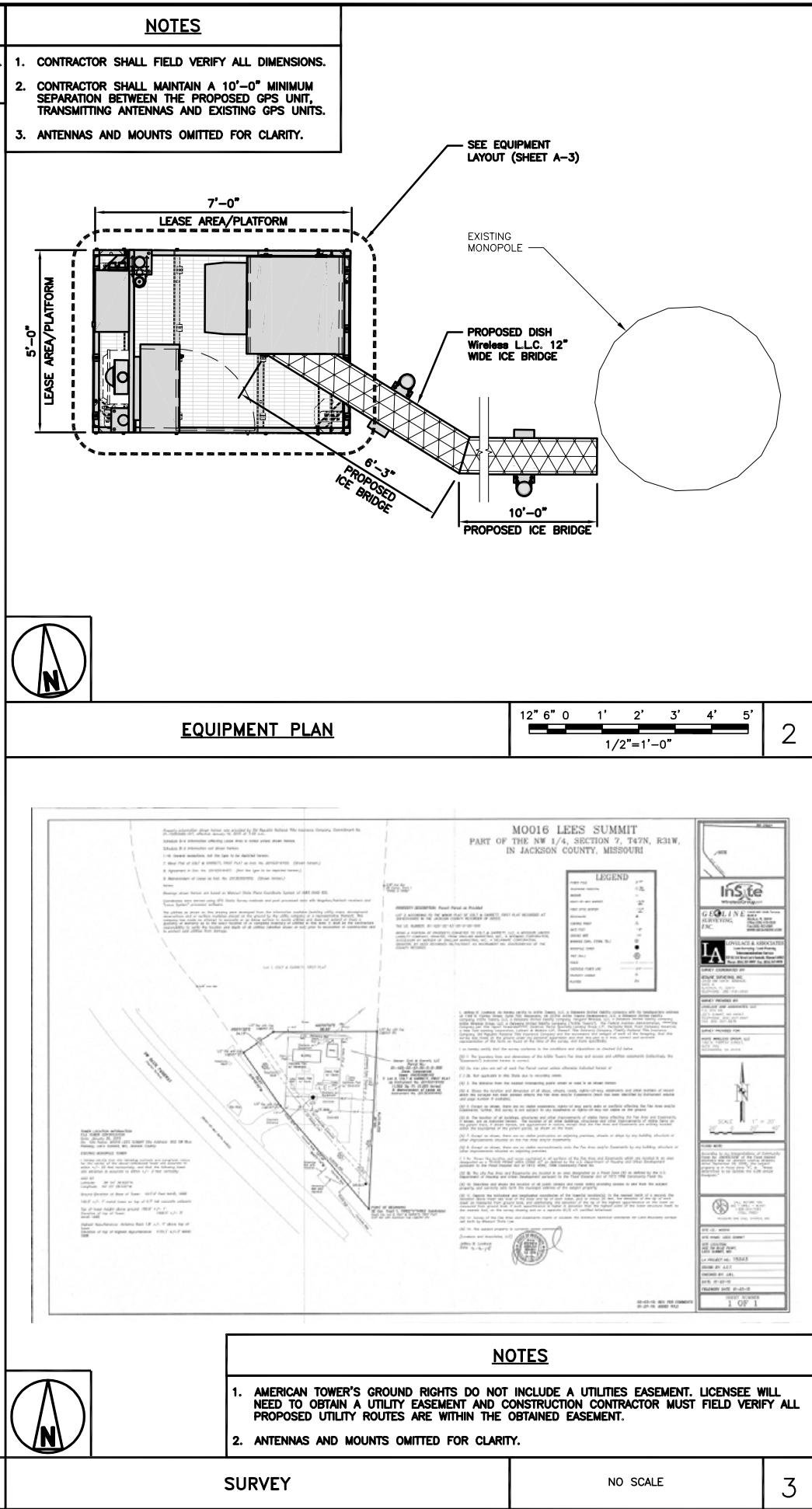
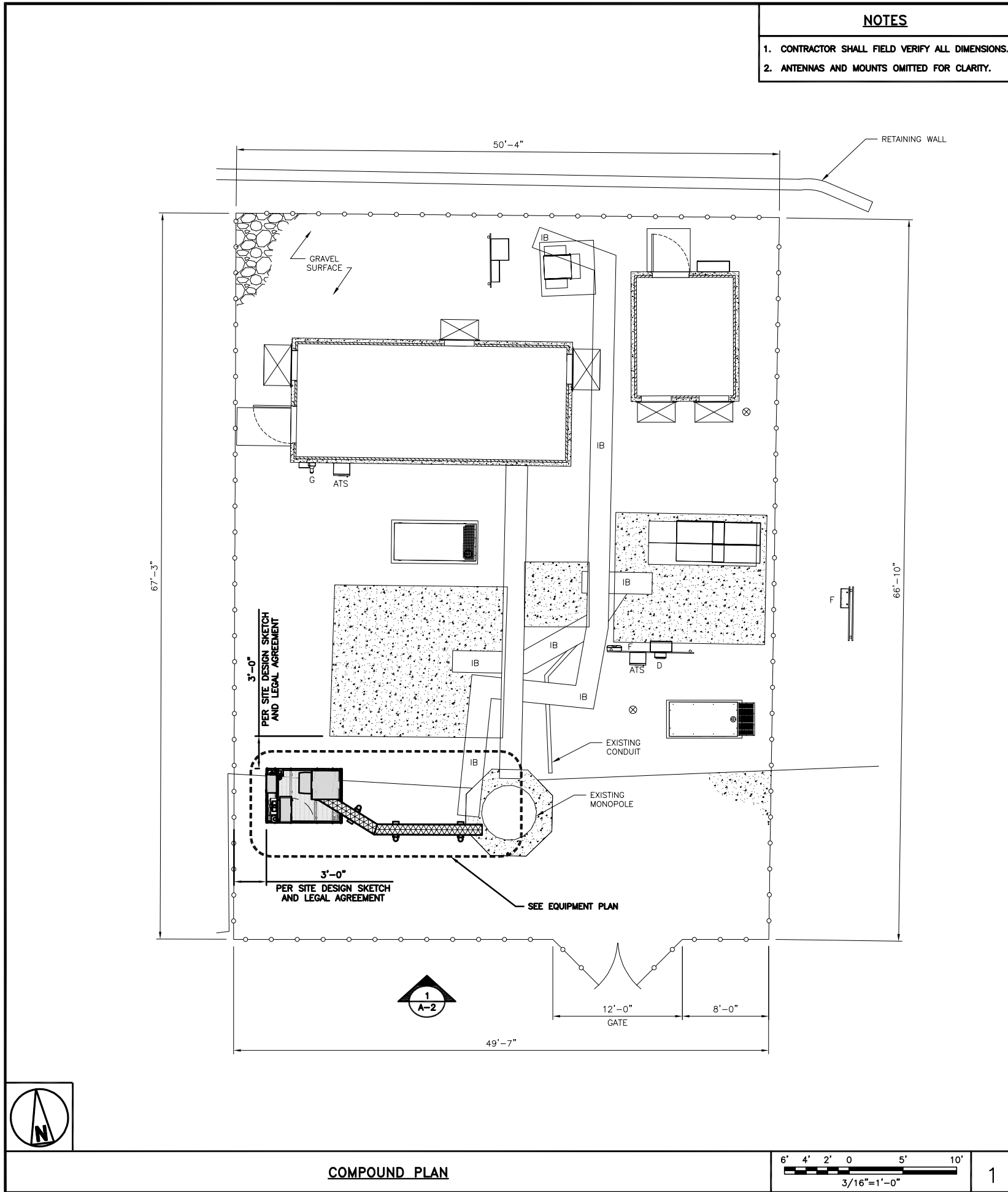
I so hereby certify that the survey conforms to the conditions and stipulations as checked (x) below.

- (X) 1. The boundary lines and dimensions of the InSite Towers Fee Area and access and utilities easements (collectively, the "Easements") indicated hereon is correct.
- (X) 2a. Iron pins are set at each Fee Parcel corner unless otherwise indicated hereon or
- ( ) 2b. Not applicable in this State due to recording needs.
- (X) 3. The distance from the nearest intersecting public street or road is as shown hereon.
- (X) 4. Shows the location and dimension of all alleys, streets, roads, rights-of-way, easements and other matters of record which the surveyor has been advised affects the Fee Area and/or Easements (each has been identified by instrument volume and page number if available).
- (X) 5. Except as shown, there are no visible easements, rights-of-way, party walls or conflicts affecting the Fee Area and/or Easements; further, this survey is not subject to any easements or rights-of-way not visible on the ground.
- (X) 6. The location of all buildings, structures and other improvements of visible items affecting the Fee Area and Easements, if shown, are as indicated hereon. The location of all other buildings, structures and other improvements of visible items on the parent tract, if shown hereon, are approximate in nature, except that the Fee Area and Easements are entirely located within the boundaries of the parent parcel, as shown on the inset.
- (X) 7. Except as shown, there are no visible protrusions on adjoining premises, streets or alleys by any building, structure or other improvements situated on the Fee Area and/or Easements.
- (X) 8. Except as shown, there are no visible encroachments onto the Fee Area and/or Easements by any building, structure or other improvements situated on adjoining premises.
- ( ) 9a. Shows the location and acres contained in all portions of the Fee Area and Easements which are located in an area designated as a "FLOOD PRONE AREA (ZONE A)" as defined by the U.S. Department of Housing and Urban Development pursuant to the Flood Disaster Act of 1973; NONE, FIRM Community Panel No.
- (X) 9b. The site Fee Area and Easements are located in an area designated as a Flood Zone (X) as defined by the U.S. Department of Housing and Urban Development pursuant to the Flood Disaster Act of 1973 FIRM Community Panel No.
- (X) 10. Describes and shows the location of all public streets and roads visibly providing access to and from the subject property, and correctly sets forth the municipal address of the subject property.
- (X) 11. Depicts the latitudinal and longitudinal coordinates of the tower(s) location(s), to the nearest tenth of a second, the elevation above mean sea level of the base and tip of each tower, plus or minus 20 feet, the elevation of the tip of each tower as measured from ground level, and additionally, the elevation of the tip of the highest appurtenance on the tower as measured from ground level, if such appurtenance is higher in elevation than the highest point of the tower structure itself, to the nearest foot, on the survey drawing and on a separate 8 1/2 x 11 certified letterhead.
- (X) 12. Survey of the Fee Area and Easements meets or exceeds the minimum technical standards for Land Boundary surveys set forth by Missouri State Law.
- (X) 14. The subject property is currently zoned commercial

[Lovelace and Associates, LLC]  
Jeffrey B. Lovelace  
Date: 2-3-15







**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



**LAB**  
49030 Pontiac Trail, Suite 400  
Wykom, Michigan 48393  
PHONE: (248) 705-9212



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TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

RC PL ---

RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
209106

DISH Wireless L.L.C.  
PROJECT INFORMATION  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

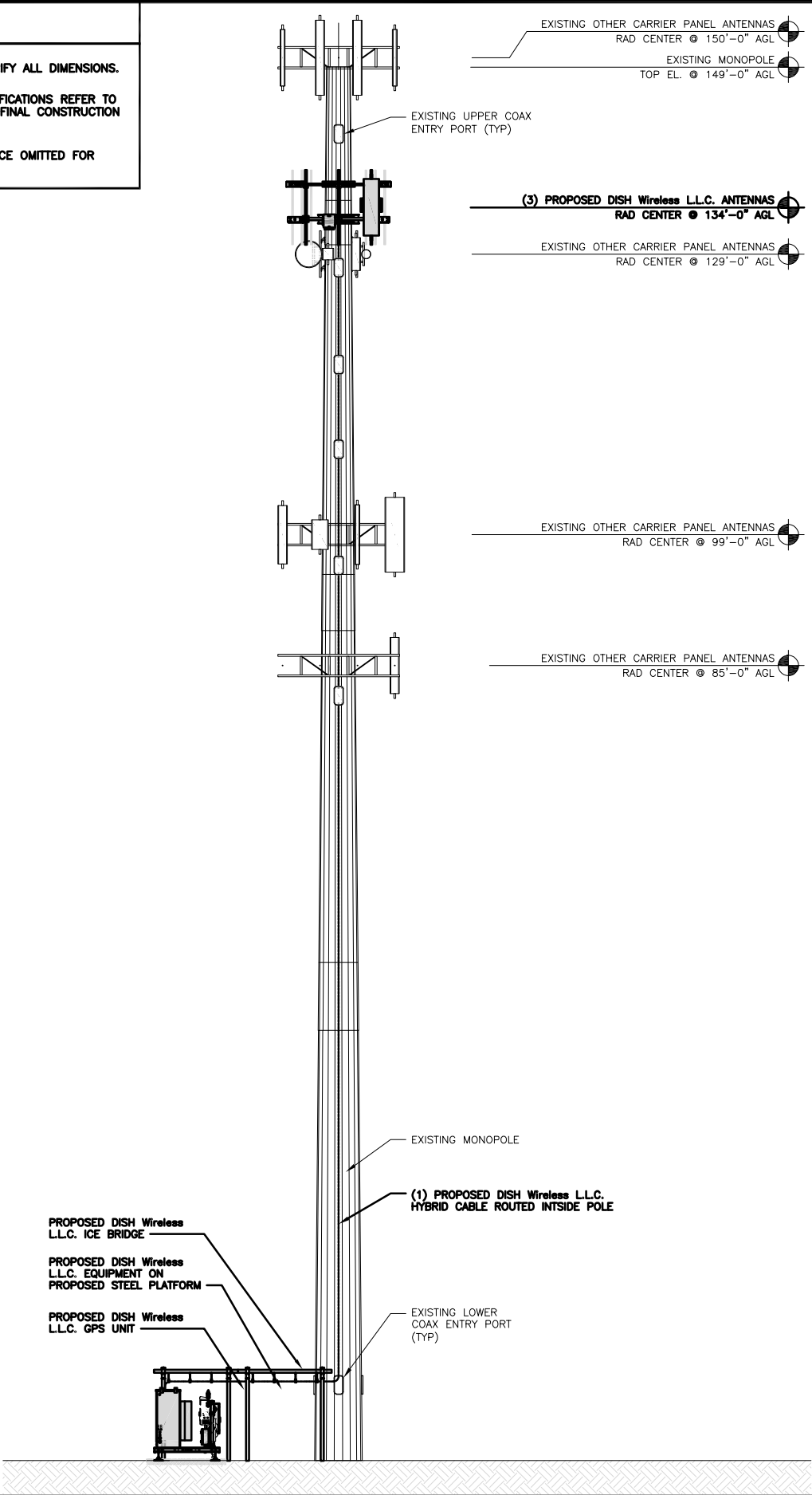
SHEET TITLE  
COMPOUND AND  
EQUIPMENT PLAN

SHEET NUMBER  
**A-1**

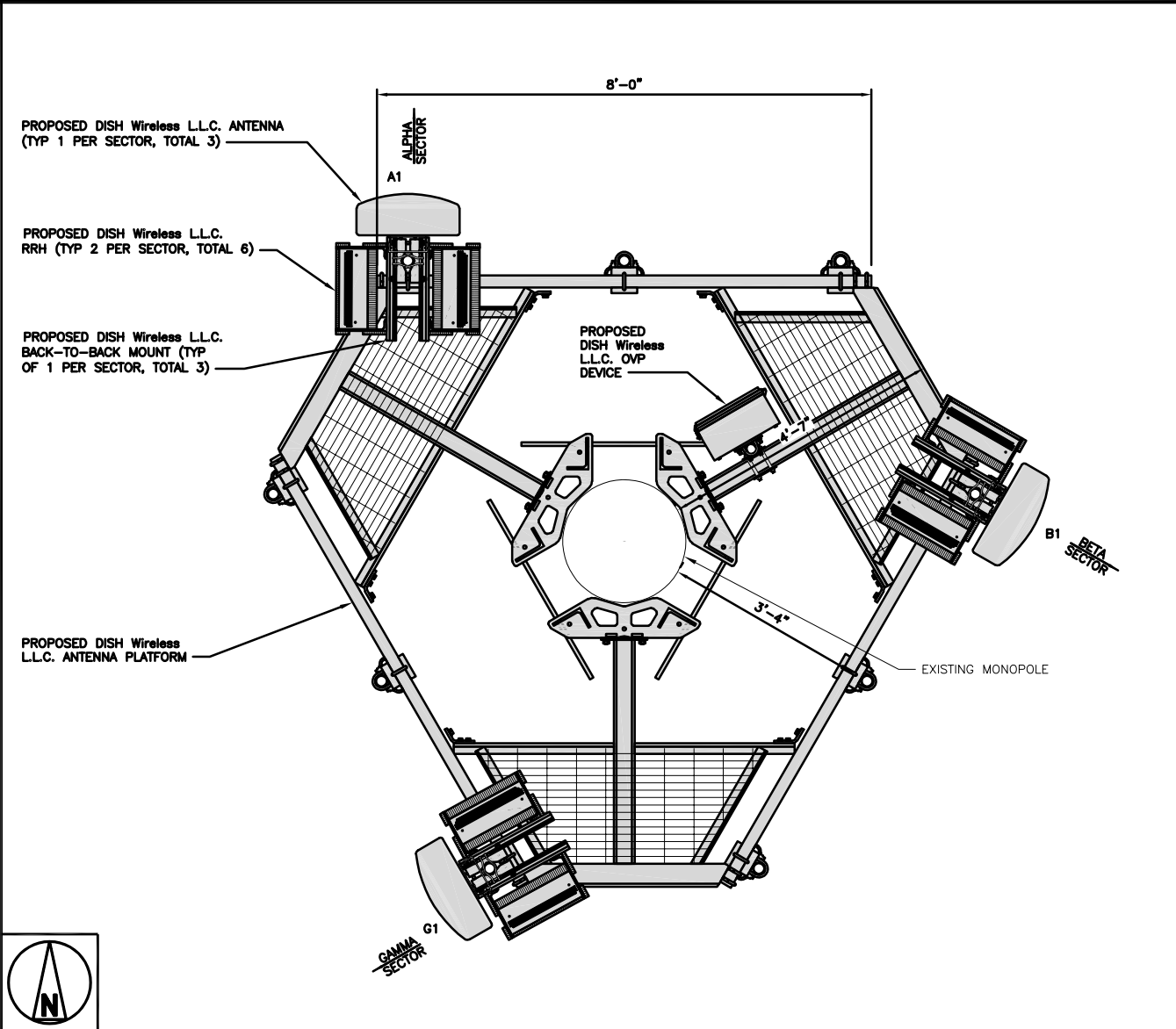
- NOTES
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

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 SOUTH ELEVATION



ANTENNA LAYOUT

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER		TECHNOLOGY	SIZE (HxW)	AZMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FR0665–21		5G	72.0" x 20.0"	0°	134'–0"	(1) HIGH-CAPACITY HYBRID CABLE (CUI12PSM9P6–175) (175' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FR0665–21		5G	72.0" x 20.0"	120°	134'–0"	
GAMMA	G1	PROPOSED	JMA WIRELESS – MX08FR0665–21		5G	72.0" x 20.0"	240°	134'–0"	
SECTOR	POSITION	RRH		NOTES  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.					
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY						
ALPHA	A1	FUJITSU – TA08025–B604	N66, N70						
	A1	FUJITSU – TA08025–B605	N29, N71						
BETA	B1	FUJITSU – TA08025–B604	N66, N70						
	B1	FUJITSU – TA08025–B605	N29, N71						
GAMMA	G1	FUJITSU – TA08025–B604	N66, N70						
	G1	FUJITSU – TA08025–B605	N29, N71						

ANTENNA SCHEDULE

dish  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

AMERICAN TOWER®

LAB

49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212

PETER P. LICHOWSKI  
NUMBER A-2015003113  
ARCHITECT

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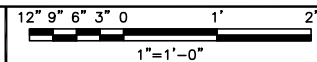
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
ELEVATION, ANTENNA  
LAYOUT AND SCHEDULE

SHEET NUMBER  
A-2

NO SCALE



**PLAN**

5'-0"

4'-0"

EQUIPMENT PLATFORM FOOTPAD (TYP)

BAR GRATING

CHANNEL (TYP)

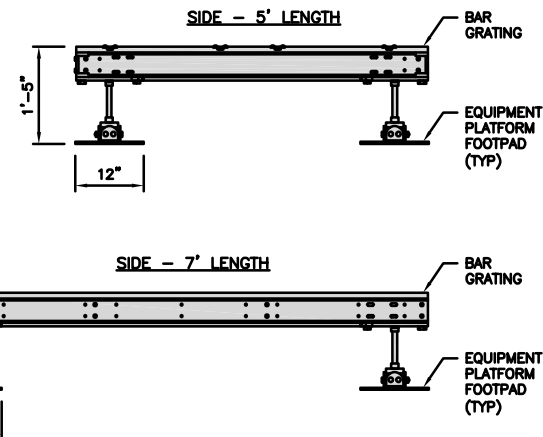
6'-0"

7'-0"

1'-5"

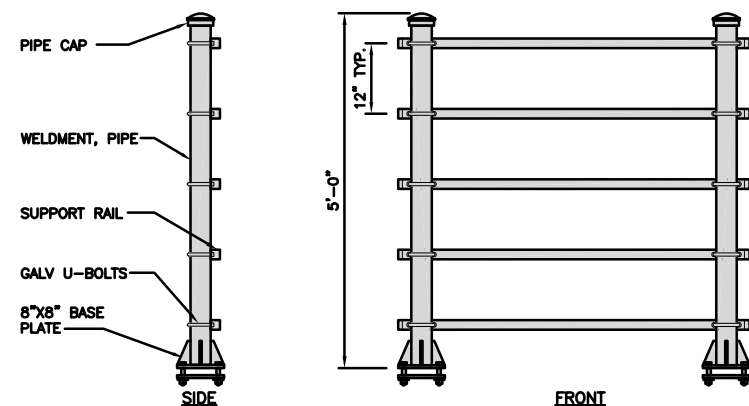
6'-0"

The plan view shows a rectangular equipment platform. The overall width is 5'-0" and the overall length is 7'-0". The platform is composed of a central 4'-0" wide section and two 1'-5" wide side sections. The central section is covered with bar grating. The side sections are covered with equipment platform footpads. The platform is supported by channels. The plan view also shows the layout of the bar grating and the equipment platform footpads.



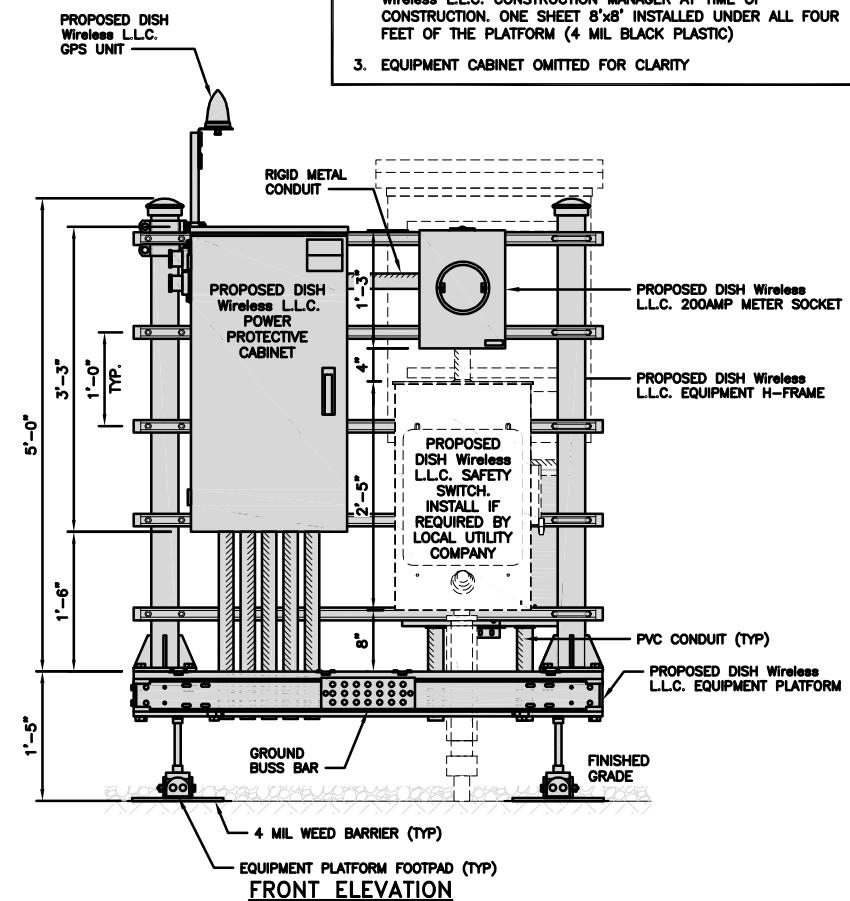
NO SCALE	2
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Diagram illustrating the plan view of the beam. The total length is 60 inches, and the distance between the supports is 52 inches.



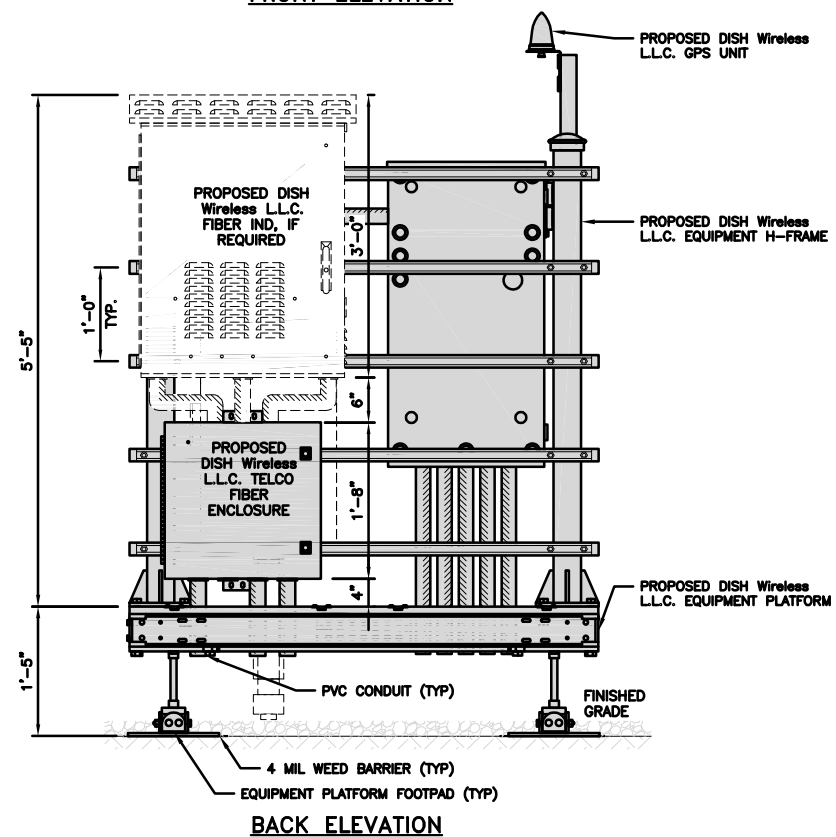
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NO SCALE	4
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12" 9" 6" 3" 0 1' 2'

1"=1'-0"



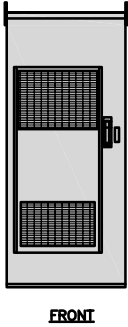
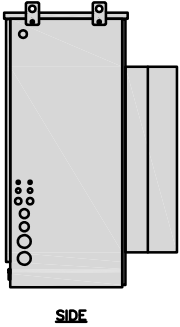
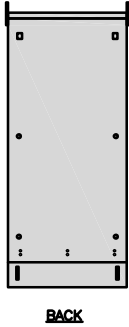
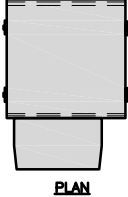
12" 9" 6" 3" 0 1' 2'

1"=1'-0"

- A-3**



CHARLES INDUSTRY HEX CUBE-PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs

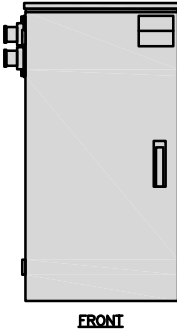
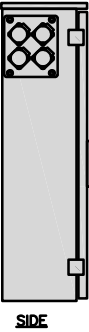
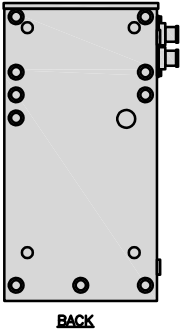
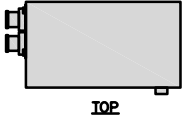


CABINET DETAIL

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

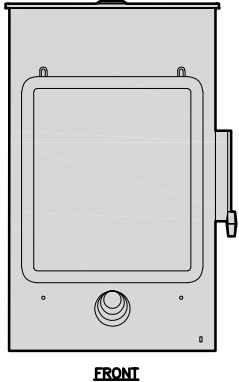
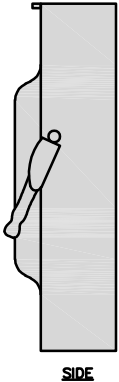
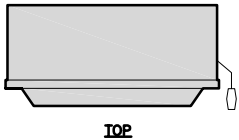


POWER PROTECTION CABINET (PPC) DETAIL

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

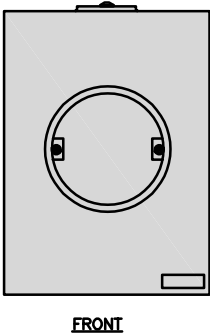
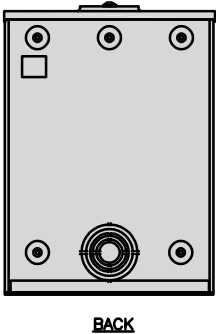
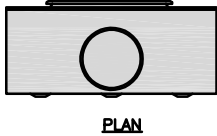


SAFETY SWITCH DETAIL

NO SCALE

3

EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS

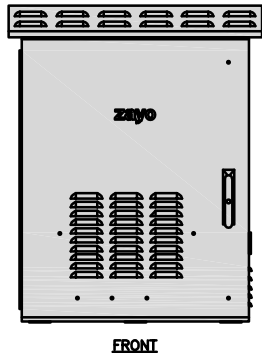
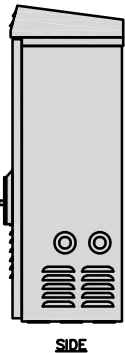
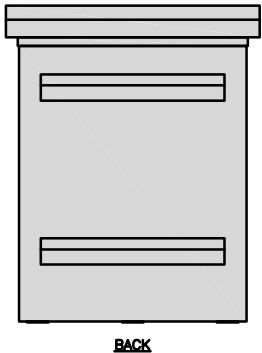
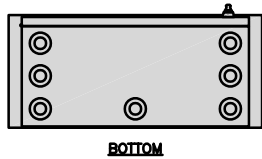


METER SOCKET DETAIL

NO SCALE

4

ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

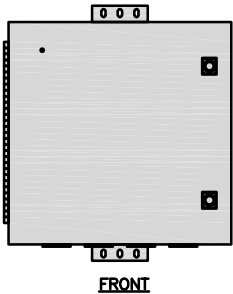
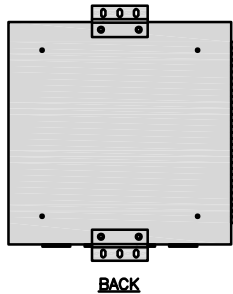
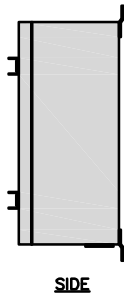


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



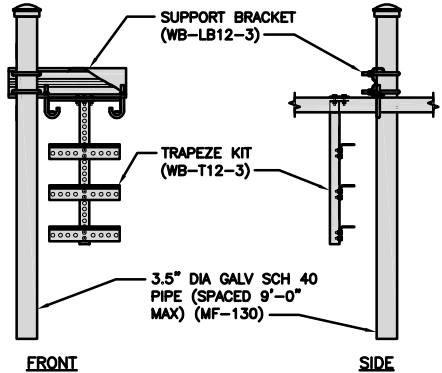
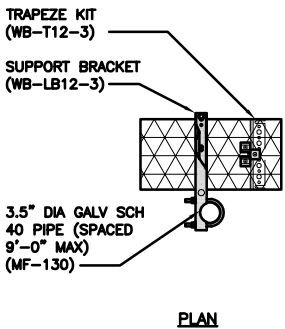
FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10"
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

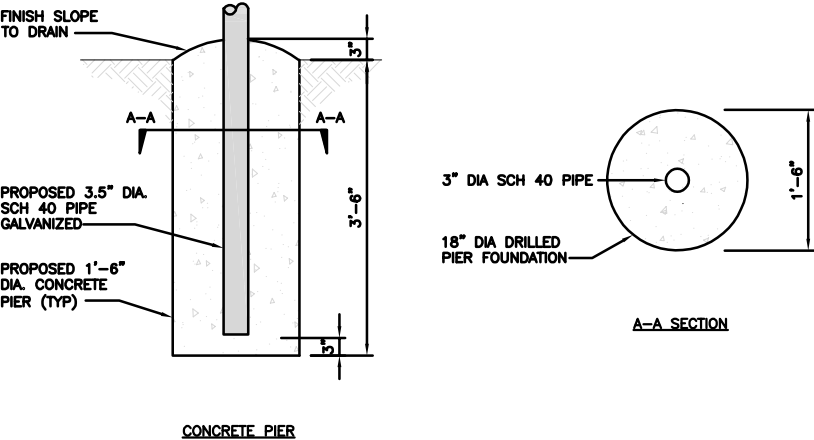
INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



ICE BRIDGE DETAIL

NO SCALE

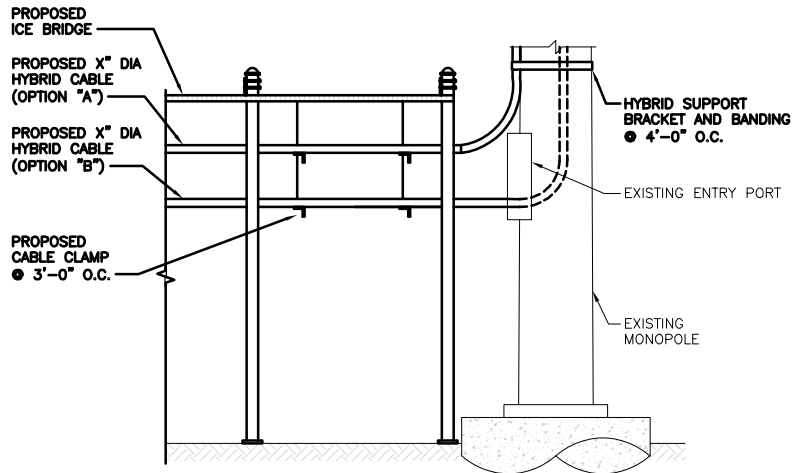
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

dish  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



LAB

49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212



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DRAWN BY: CHECKED BY: APPROVED BY:

RC

PL

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RFDS REV #: N/A

## CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

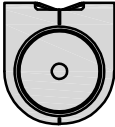
DISH Wireless L.L.C.  
PROJECT INFORMATION  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
EQUIPMENT DETAILS

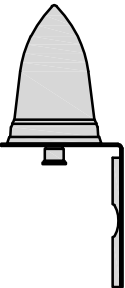
SHEET NUMBER

A-4

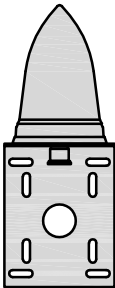
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



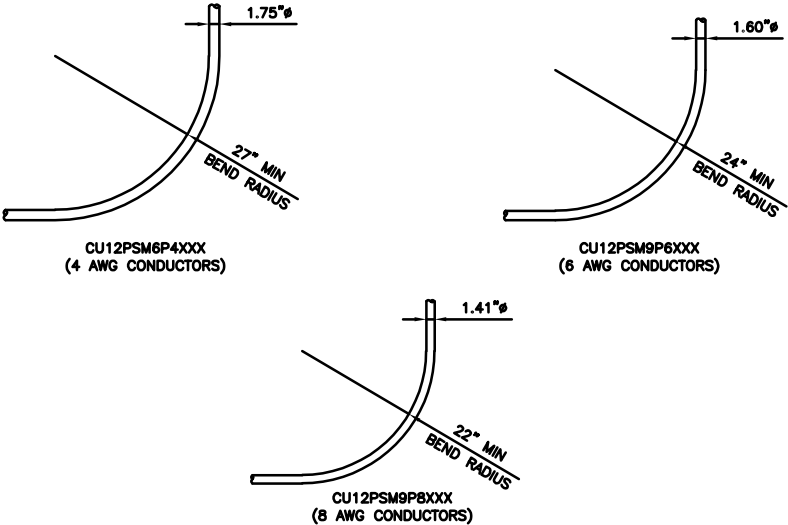
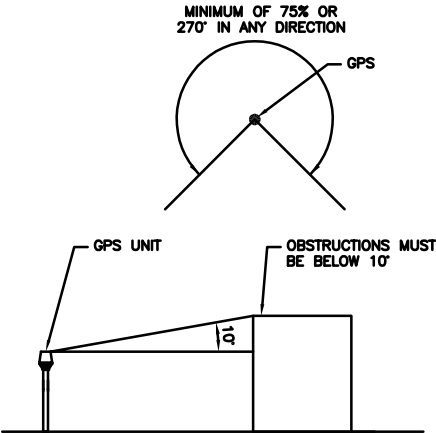
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

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

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



**LAB**

49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212



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RFDS REV #: N/A

CONSTRUCTION  
DOCUMENTS

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A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

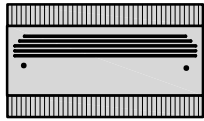
A&E PROJECT NUMBER  
209106

DISH Wireless L.L.C.  
PROJECT INFORMATION  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

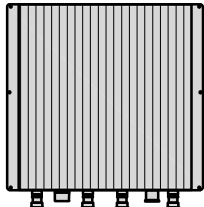
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-5**

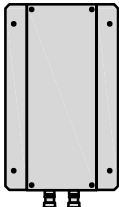
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



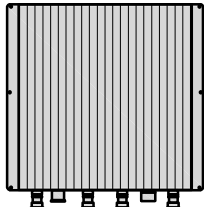
PLAN



BACK

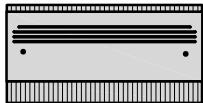


SIDE

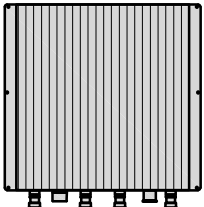


FRONT

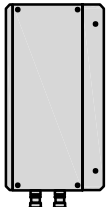
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



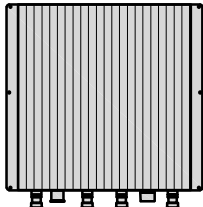
PLAN



BACK



SIDE



FRONT

NOTES

FINAL RRH SPECIFICATIONS  
TO BE CONFIRMED BY GC

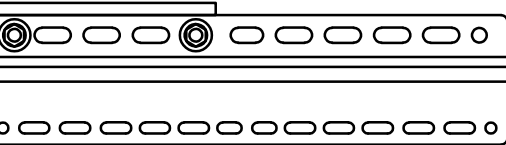
BACK

SIDE

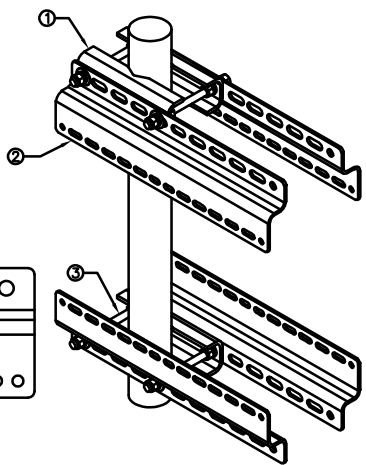
FRONT

SABRE DOUBLE Z-BRACKET C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

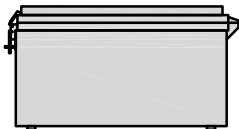


RRH DETAIL

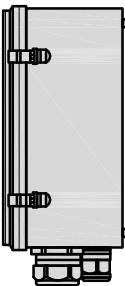
NO SCALE

1

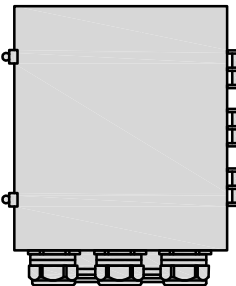
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



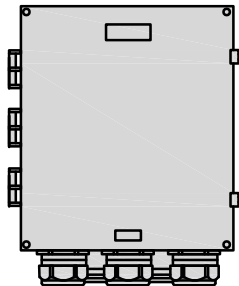
PLAN



SIDE

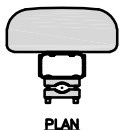


BACK

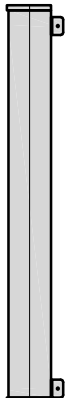


FRONT

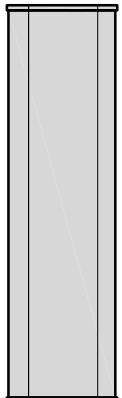
JMA MX08FR0665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

NOTES

FINAL ANTENNA SPECIFICATIONS  
TO BE CONFIRMED BY GC

BACK

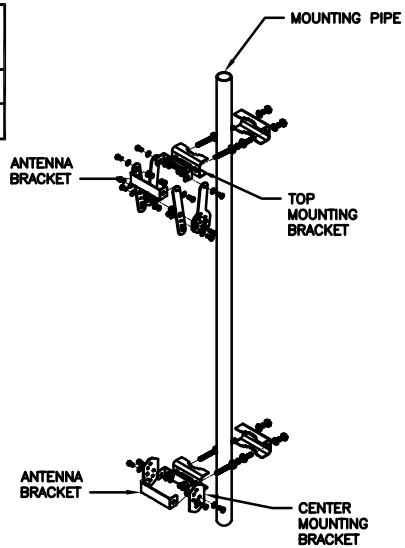
SIDE

FRONT

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:  
KIT #91900318: TOP AND BOTTOM BRACKETS  
FOR 4-, 6-, AND 8-FOOT ANTENNAS  
ANTENNA BRACKET NOT PART OF KIT

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



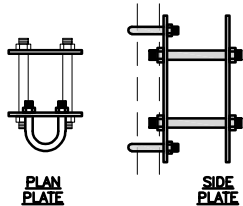
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

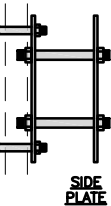
4

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

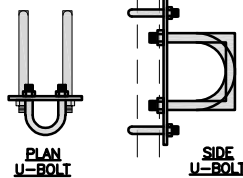
NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT



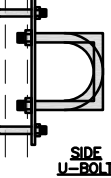
PLAN  
PLATE



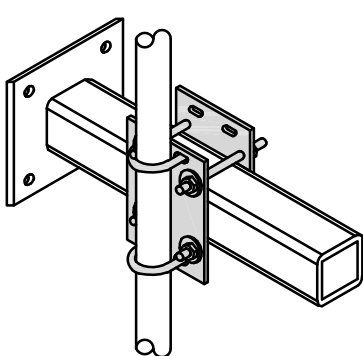
SIDE  
PLATE



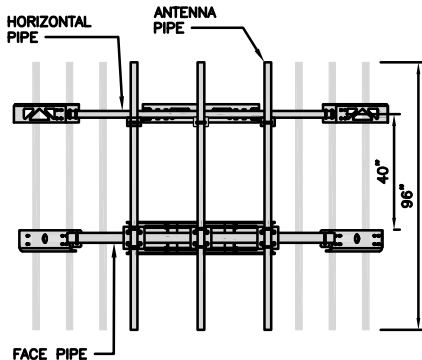
PLAN  
U-BOLT



SIDE  
U-BOLT



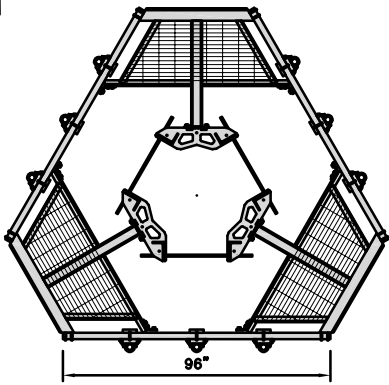
COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	



FACE PIPE

HORIZONTAL PIPE

ANTENNA PIPE



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

ANTENNA DETAIL

NO SCALE

5

ANTENNA BRACKET DETAIL

NO SCALE

6

RRH/OVP MOUNT DETAIL

NO SCALE

7

ANTENNA PLATFORM DETAIL

NO SCALE

8

NOT USED

NO SCALE

9

dish  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



LAB

49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212



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RFDS REV #: N/A

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REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION

KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

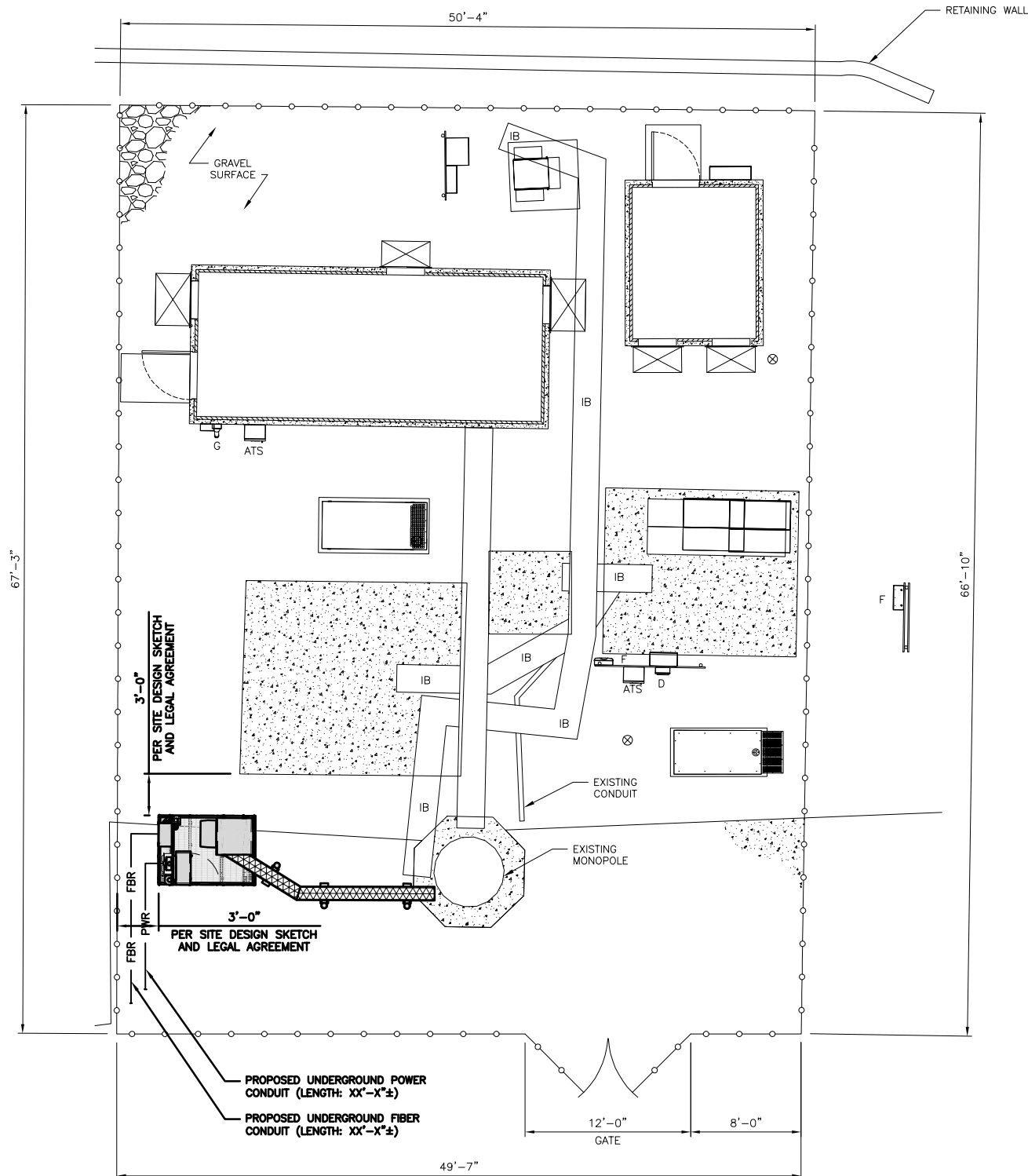
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

A-6



VERIFY POWER AND FIBER ROUTING  
PRIOR TO CONSTRUCTION START



#### NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

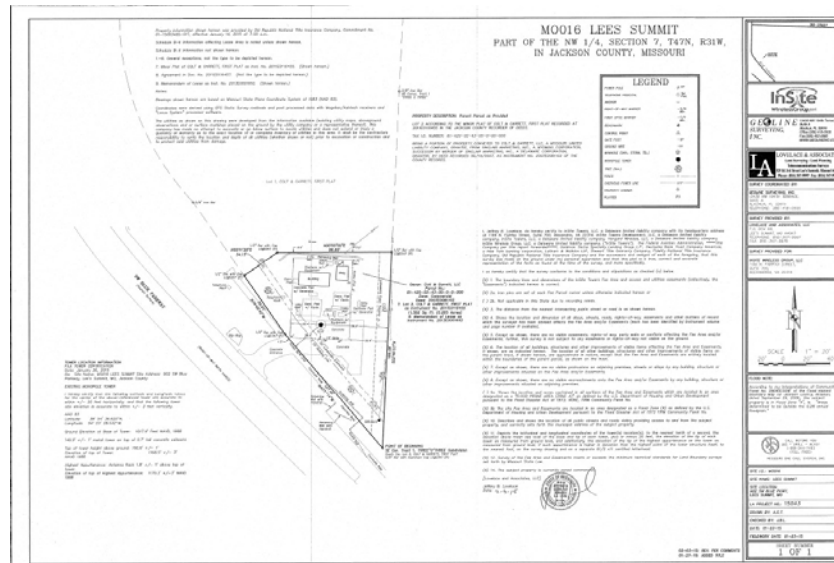
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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



#### NOTES

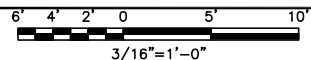
1. AMERICAN TOWER'S GROUND RIGHTS DO NOT INCLUDE A UTILITIES EASEMENT. LICENSEE WILL NEED TO OBTAIN A UTILITY EASEMENT AND CONSTRUCTION CONTRACTOR MUST FIELD VERIFY ALL PROPOSED UTILITY ROUTES ARE WITHIN THE OBTAINED EASEMENT.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

SURVEY

NO SCALE

3

UTILITY ROUTE PLAN



1

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



**LAB**  
49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212



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RC PL ---

RFDS REV #: N/A

#### CONSTRUCTION DOCUMENTS

##### SUBMITTALS

REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION

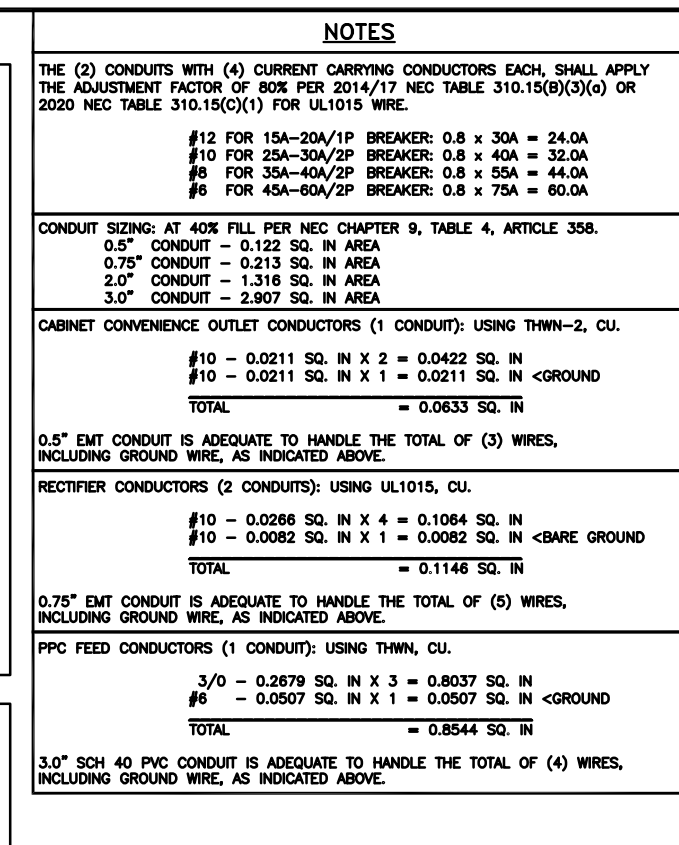
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

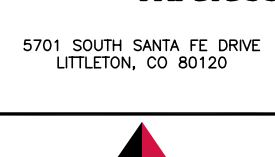

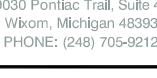

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

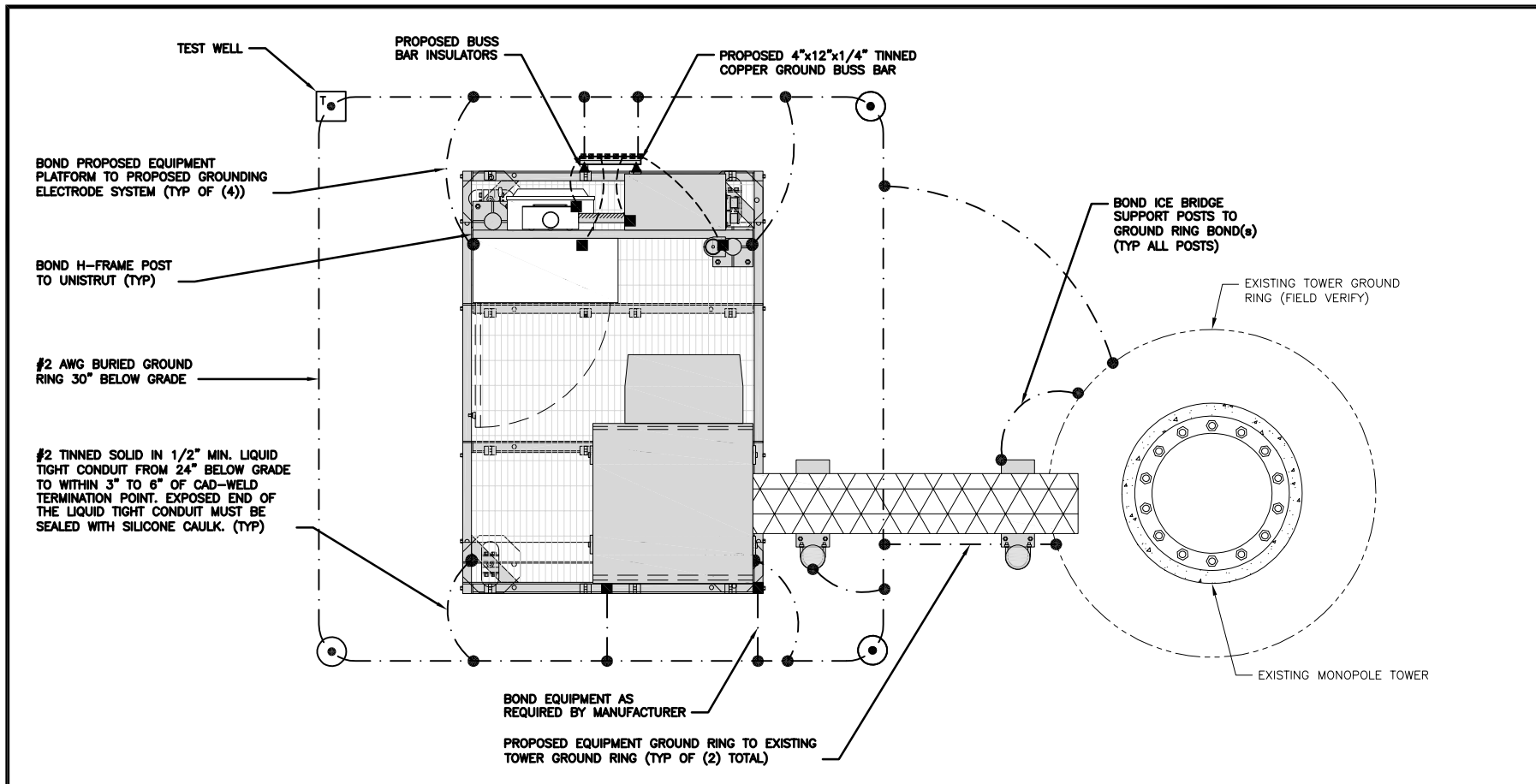
E-1





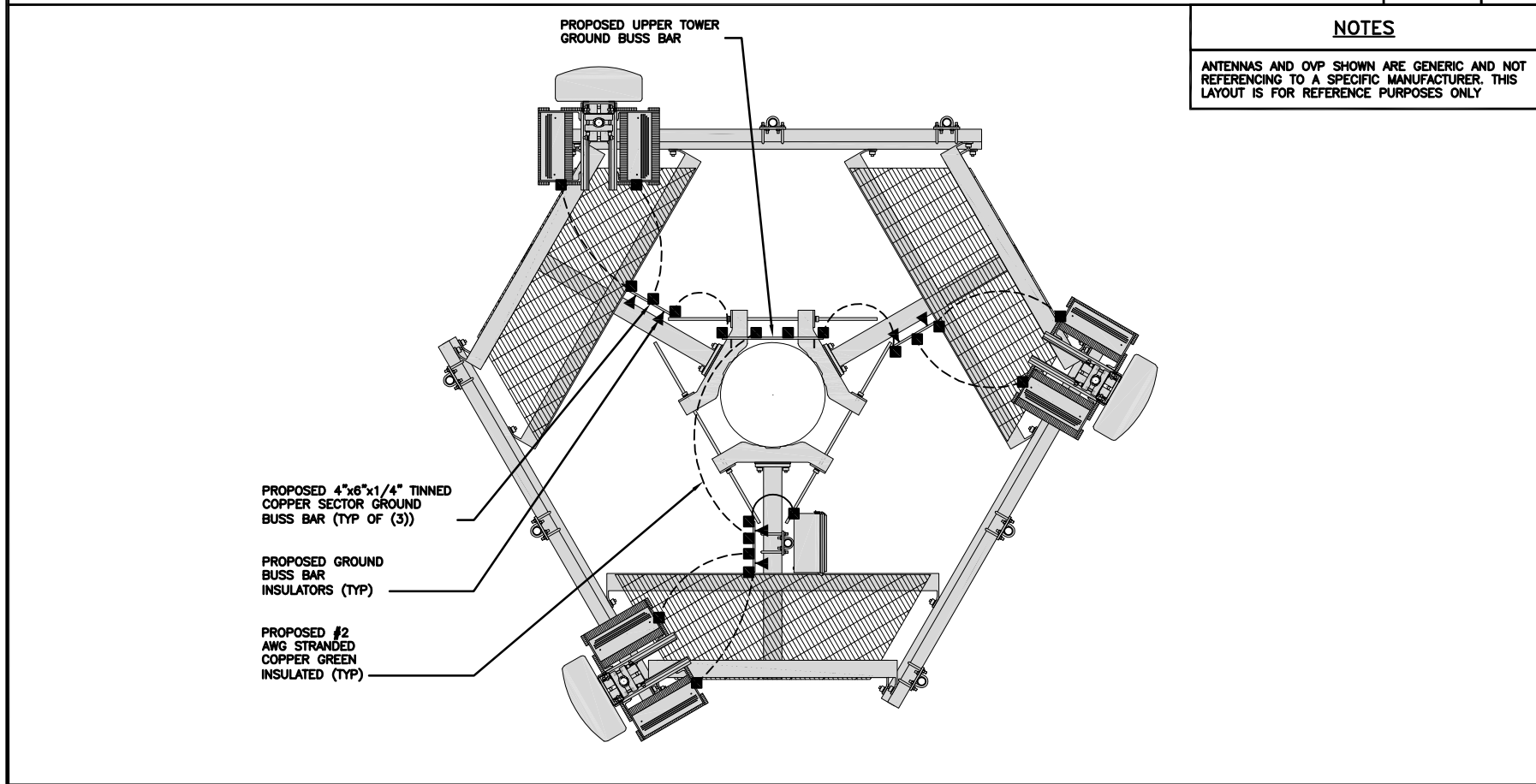
		
5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120		
		
 <p>49030 Pontiac Trail, Suite 400          Wixom, Michigan 48393          PHONE: (248) 705-9212</p>		
		
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RC	PL	---
RFDS REV #:		N/A
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REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER <h3 style="margin: 0;">209106</h3>		
DISH Wireless L.L.C. PROJECT INFORMATION  <h3 style="margin: 0;">KCMCI00265C</h3> 900 SOUTHWEST BLUE PARKWAY LEE'S SUMMIT, MO 64063		
SHEET TITLE <h2 style="margin: 0;">ELECTRICAL ONE-LINE, FAULT CALCS &amp; PANEL SCHEDULE</h2>		
SHEET NUMBER <h1 style="margin: 0;">E-3</h1>		





TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

● EXOTHERMIC CONNECTION

■ MECHANICAL CONNECTION

GROUND BUS BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

----- #6 AWG STRANDED & INSULATED

- - - - - #2 AWG SOLID COPPER TINNED

BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.

2. 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.

3. 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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PL

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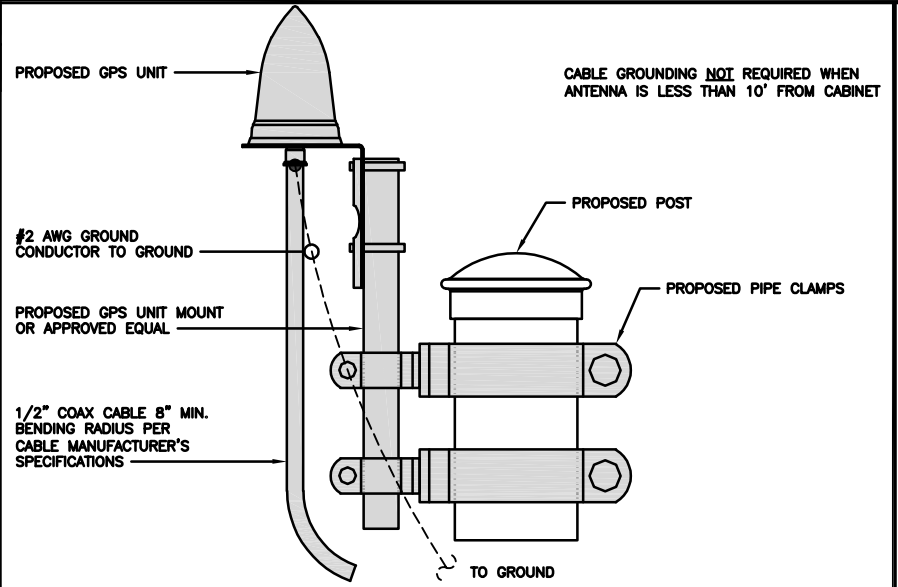
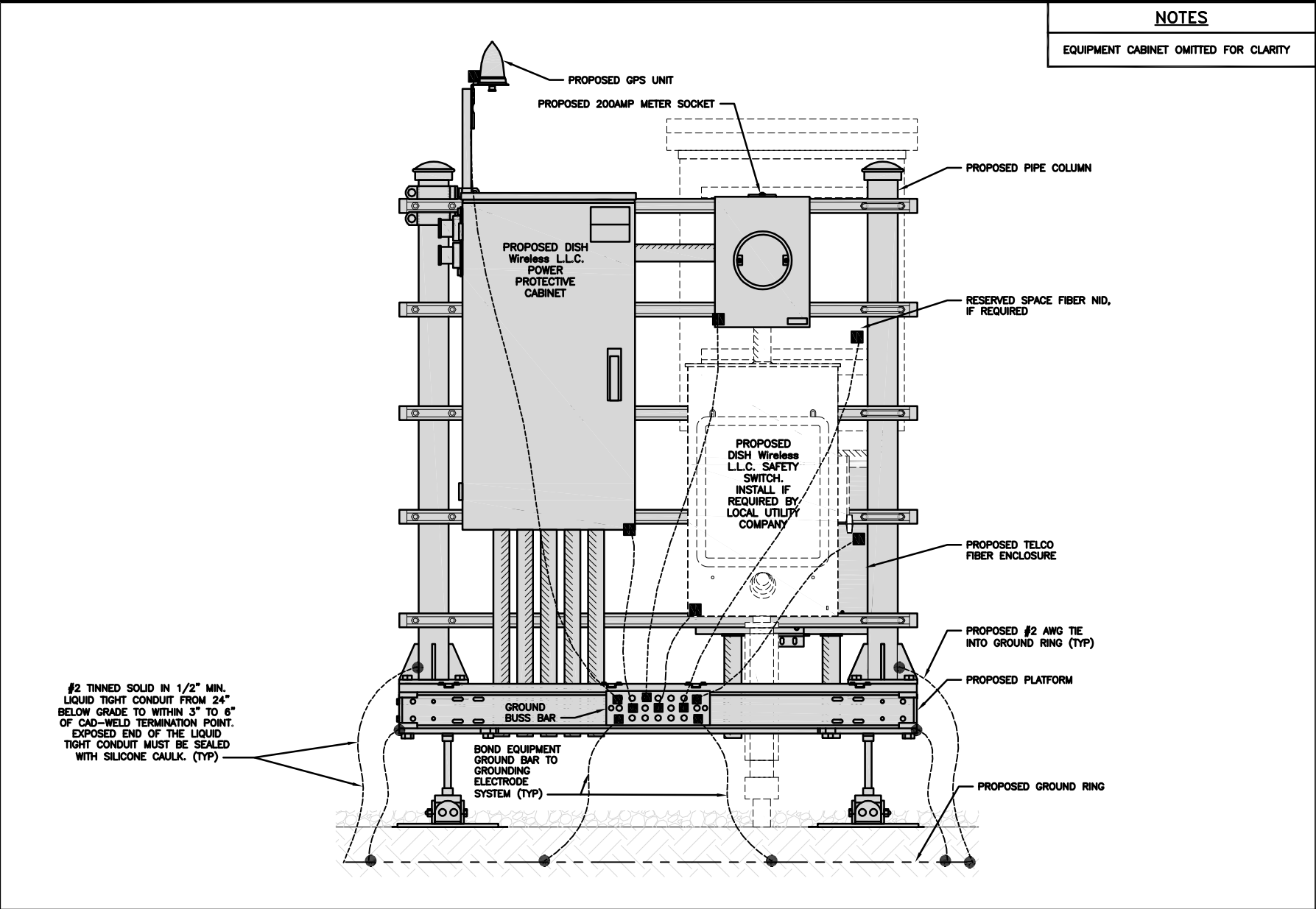
DISH Wireless L.L.C.  
PROJECT INFORMATION

KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

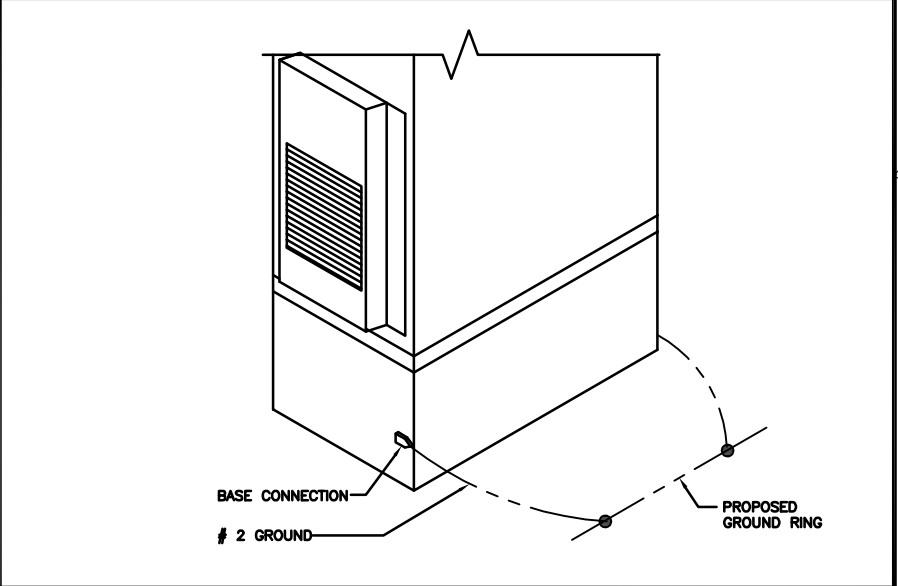
G-1



TYPICAL GPS UNIT GROUNDING

NO SCALE

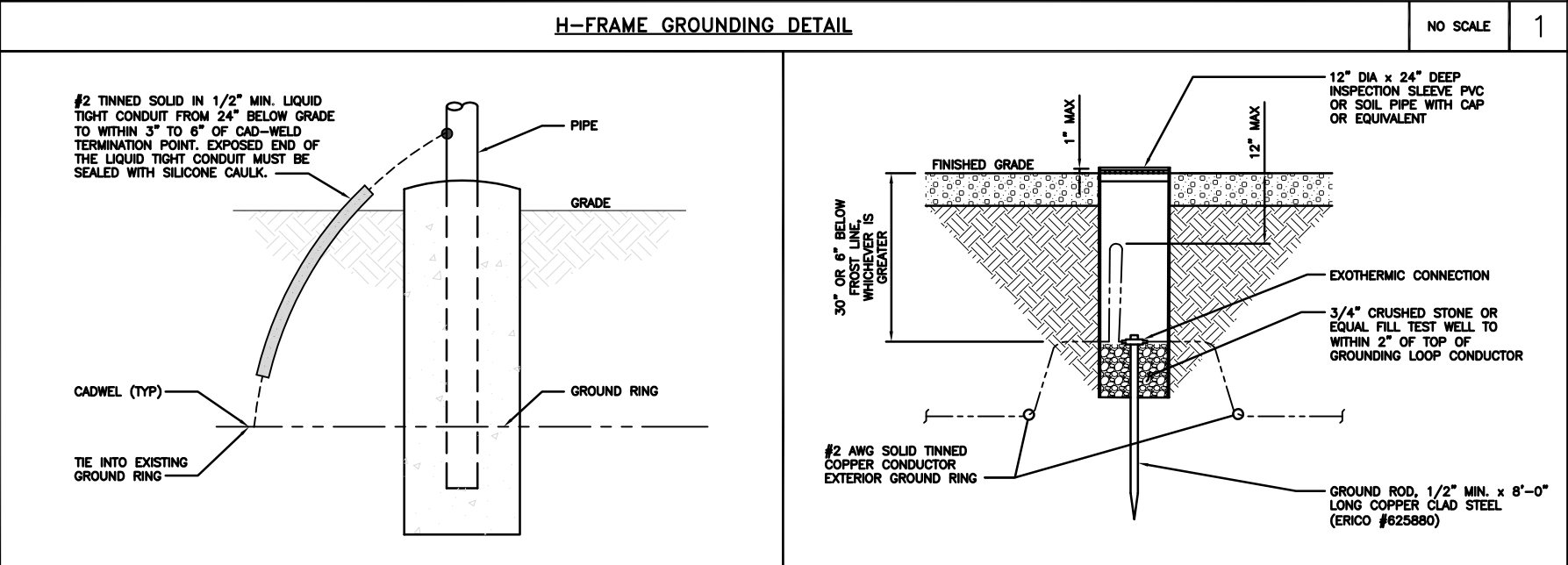
2



OUTDOOR CABINET GROUNDING

NO SCALE

3



TRANSITIONING GROUND DETAIL

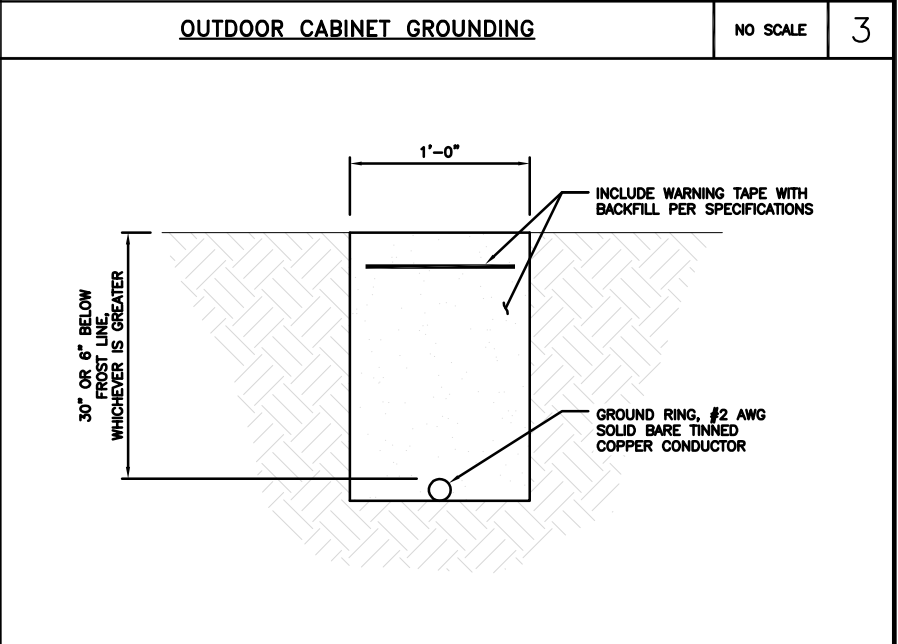
NO SCALE

4

TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

5



TYPICAL GROUND RING TRENCH

NO SCALE

6

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**AMERICAN TOWER**

**LAB**  
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STATE OF MISSOURI  
PETER P. LICHOMSKI  
NUMBER  
A-2015003113  
ARCHITECT

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DISH Wireless L.L.C.  
PROJECT INFORMATION

KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-2**







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	ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)	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			WHITE (–) PORT	
MID-BAND RRH – (AWS BANDS N66+N70)	ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)	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				WHITE (–) PORT		
HYBRID/DISCREET CABLES		EXAMPLE 1	EXAMPLE 2	EXAMPLE 3												
INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS	RED	RED	RED													
	BLUE	BLUE	BLUE													
	GREEN	GREEN		ORANGE												
	ORANGE		YELLOW	PURPLE												
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS																
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS																
FIBER JUMPERS TO RRHs		LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH			
LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY	RED	RED	BLUE	BLUE	GREEN	GREEN										
		PURPLE		PURPLE		PURPLE										
POWER CABLES TO RRHs		LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH			
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY	RED	RED	BLUE	BLUE	GREEN	GREEN										
		PURPLE		PURPLE		PURPLE										
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"	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	BLUE	BLUE	GREEN	GREEN										
		PURPLE		PURPLE		PURPLE										
MICROWAVE RADIO LINKS		FORWARD AZIMUTH OF 0–120 DEGREES				FORWARD AZIMUTH OF 120–240 DEGREES				FORWARD AZIMUTH OF 240–360 DEGREES						
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.	PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY				
	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE				
	RED	RED	BLUE	BLUE	GREEN	GREEN	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE				
	WHITE	WHITE	WHITE	WHITE	BLUE	BLUE	GREEN	GREEN	WHITE	WHITE	WHITE	WHITE				
MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S		RED														
		WHITE														
		RED														
		WHITE														


LOW BANDS (N71+N26) OPTIONAL – (N29)		AWS (N66+N70+H–BLOCK)	
ORANGE		PURPLE	
CBRS TECH (3 GHz)		NEGATIVE SLANT PORT ON ANT/RRH	
YELLOW		WHITE	
ALPHA SECTOR		BETA SECTOR	
RED		BLUE	
		GREEN	
COLOR IDENTIFIER		NO SCALE	
		2	
NOT USED		NO SCALE	
		3	
NOT USED		NO SCALE	
		4	

RF CABLE COLOR CODES		NO SCALE	
		1	

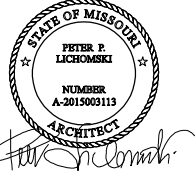


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RFDS REV #: N/A

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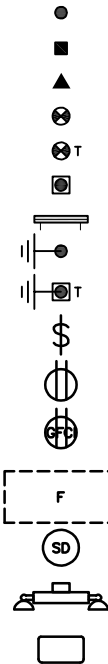
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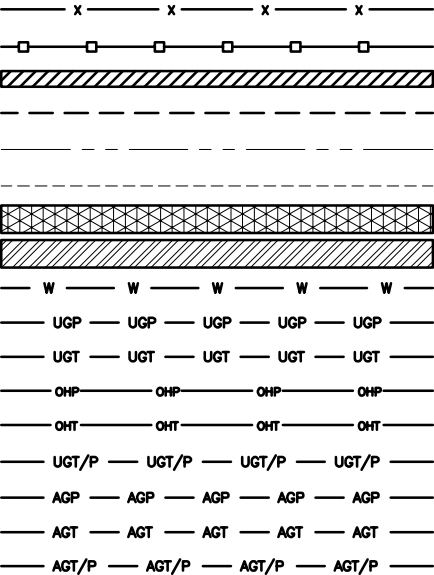
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RF  
PLUMBING DIAGRAM

SHEET NUMBER  
RF-1

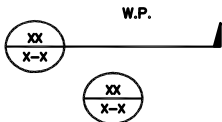
EXOTHERMIC CONNECTION  
MECHANICAL CONNECTION  
BUSS BAR INSULATOR  
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
EXOTHERMIC WITH INSPECTION SLEEVE  
GROUNDING BAR  
GROUND ROD  
TEST GROUND ROD WITH INSPECTION SLEEVE  
  
SINGLE POLE SWITCH  
  
DUPLEX RECEPTACLE  
  
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



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



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UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

RC

PL

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RFDS REV #: N/A

## CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION  
  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE'S SUMMIT, MO 64063

SHEET TITLE  
LEGEND AND  
ABBREVIATIONS

SHEET NUMBER

GN-1

## LEGEND

## ABBREVIATIONS

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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*Handwritten signature of Peter P. Lichomski*

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DRAWN BY: CHECKED BY: APPROVED BY:

RC	PL	---
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RFDS REV #: N/A

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REV	DATE	DESCRIPTION
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0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION  
  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE’S SUMMIT, MO 64063

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, 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.
- 
- 5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120
- 
- 
- 49030 Pontiac Trail, Suite 400  
Wyom, Michigan 48393  
PHONE: (248) 705-9212
- 
- Handwritten signature of Peter P. Lichowski*
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- DRAWN BY: CHECKED BY: APPROVED BY:
- |    |    |     |
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| RC | PL | --- |
|----|----|-----|
- RFDS REV #: N/A
- CONSTRUCTION DOCUMENTS
- | SUBMITTALS |            |                         |
|------------|------------|-------------------------|
| REV        | DATE       | DESCRIPTION             |
| A          | 08/19/2021 | ISSUED FOR REVIEW       |
| 0          | 08/18/2021 | ISSUED FOR CONSTRUCTION |
|            |            |                         |
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|            |            |                         |
- A&E PROJECT NUMBER  
209106
- DISH Wireless L.L.C.  
PROJECT INFORMATION  
  
KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE’S SUMMIT, MO 64063
- SHEET TITLE  
GENERAL NOTES
- SHEET NUMBER  
GN-3

GROUNDING NOTES:

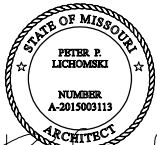
1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (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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*Handwritten signature of Peter P. Lichowski*

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:

RC

PL

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RFDS REV #: N/A

CONSTRUCTION  
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/19/2021	ISSUED FOR REVIEW
0	08/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

209106

DISH Wireless L.L.C.  
PROJECT INFORMATION

KCMCI00265C  
900 SOUTHWEST BLUE PARKWAY  
LEE’S SUMMIT, MO 64063

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER

GN-4