Northeast Site Solutions
Victoria Masse
420 Main St Unit 1 Box 2
Sturbridge, MA 01566
victoria@northeastsitesolutions.com

May 16, 2023

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
1725 Stafford Road, Storrs Mansfield, CT 06268
Latitude: 41.835953 N
Longitude: -72.307847 W
Site#: BOBDL00020A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 1725 Stafford Road, Storrs Mansfield, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 119-foot level of the existing 170-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Foresite, dated May 1, 2023, Exhibit C. Also included is a structural analysis prepared by American Tower, May 10, 2023, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Mansfield on January 25, 2002, PZC file 1182. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Antonia Moran, Mayor and Jennifer Kaufman, Director of Planning/Inland Wetlands Agent for the Town of Mansfield, as well as the property owner and tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 170-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 119-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 10.42% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole in Mansfield. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 119-foot level of the existing 170-foot tower would have an insignificant visual impact on the area around the monopole. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Mansfield.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Antonia Moran, Mayor- Property Owner
4 S Eagleville Road
Audrey P. Beck Building
Storrs-Mansfield, CT 06268

Jennifer Kaufman, Director of Planning/Inland Wetlands
4 S Eagleville Road
Audrey P. Beck Building
Storrs-Mansfield, CT 06268

American Tower Corporation- Tower Owners
116 Huntington Ave, 11th Floor
Boston, MA 02116

Exhibit A

Original Facility Approval

PLANNING AND ZONING COMMISSION
TOWN OF MANSFIELD
7099 3220 0000 8446 0796
AUDREY P. BECK BUILDING
FOUR SOUTH EAGLEVILLE ROAD
STORRS, CONNECTICUT 06268
(203) 429-3330

January 25, 2002

Wendell G. Davis, Esq.
SBM Properties, Inc.
80 Eastern Boulevard
Glastonbury, CT 06033

Re: Special permit application for telecommunication tower at 1725 Stafford Rd., Mansfield, Connecticut, PZC file 1182

Dear Mr. Davis:

At a regular meeting held on January 22, 2002, the Mansfield Planning and Zoning Commission adopted the following motion:

"to approve with conditions the special permit application (file 1182) of SBA Properties, LLC and the Town of Mansfield for a telecommunication tower and related facilities on property located at 1725 Stafford Road in a Neighborhood Business-1 zone, as submitted to the Commission and shown on plans revised to 12/11/01 and as presented at a Public Hearing on 1/7/02. This approval is granted because the application as hereby approved is considered to be in compliance with Article V, Section B, Article X, Section R and other provisions of the Mansfield Zoning Regulations, and is granted with the following conditions:

1. This approval is based on submitted plans and project descriptions. Any change in plans or the proposed use of the site shall require further review and approval as per Mansfield's Zoning Regulations. The applicant shall be responsible for meeting Building Permit requirements and complying with all applicable State and Federal regulations pertaining to the subject telecommunication use.
2. Prior to any use of the telecommunication facilities and the issuance of a Certificate of Compliance, all site work shall be satisfactorily completed. Based on the provisions of Article V, Section B.7.c, a variation of this condition may be authorized by the Commission where public health and safety components of the project have been satisfactorily completed.
3. The final plans shall eliminate the current references to "Mansfield Center."
4. Whereas a $20,000 bond has been incorporated into the Town's lease arrangement with SBA Properties, LLC, to address removal of telecommunications facilities, a separate bond pursuant to Art. X, Sec. R.6 of the Zoning Regulations shall not be required. If this lease provision is deleted, a separate bond to address the abandonment provisions of the Zoning Regulations shall be required.
5. This permit shall not become valid until the applicant obtains the permit form from the Planning Office and files it on the Land Records."

(over)

If you have any questions regarding this action, you may contact the Planning Office, 429-3330. It is suggested that you call the Planning Office in advance, to make sure the permit form is ready for filing.

Very truly yours,

Katherine K. Holt, Secretary
Mansfield Planning and Zoning Commission

blind copy to T.M. 1/28/02.

Exhibit B

Property Card

Property Location 1725 STAFFORD RD | Map ID 1/ 2/ 2/ / | Bldg Name | State Use 901
Vision ID 17 | Account # 1 2 2 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 1 | Print Date 09-06-2022 12:37:52

CURRENT OWNER	TOPO	UTILITIES	STRT / ROAD	LOCATION
MANSFIELD TOWN OF				
BUS GARAGE				
4 SO EAGLEVILLE RD				
STORRS MANS CT 06268				

SUPPLEMENTAL DATA

Alt Prcl ID
Census
Devel. Lot
GIS ID 1.2.2
Assoc Pid#

CURRENT ASSESSMENT

Description	Code	Appraised	Assessed
Ex C Land	21	122,100	85,500
Ex C Bldg	22	208,600	146,100
Ex Com OB	25	10,100	7,100
Ind Land	3-1	129,600	90,700
Total		470,400	329,400

6078

MANSFIELD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE		SALE DATE	Q/U	V/I	SALE PRICE	VC
MANSFIELD TOWN OF	391	486	10-17-1997	U	I	0	00
SMYTH RICHARD E	362	498	06-22-1995	U	I	55,817	
SMYTH RICHARD E &	359	389	03-13-1995	U	I	0	
PROBATE CERTIFICATE	350	479	05-06-1994	U	I	0	
SMYTH F EDWIN RHODA G+RICHARD	173	9	07-23-1979	U	I	0	

PREVIOUS ASSESSMENTS (HISTORY)

Year	Code	Assessed	Year	Code	Assessed	Year	Code	Assessed
2021	21	85,500	2020	21	85,500	2019	21	85,500
	22	146,100		22	146,100		22	146,100
	25	7,100		25	7,100		25	7,100
	3-1	90,700		3-1	90,700		3-1	90,700
	Total	329,400		Total	329,400		Total	329,400

EXEMPTIONS

Year	Code	Description	Amount
		Total	0.00

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm Int

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

Nbhd	Nbhd Name	B	Tracing	Batch
0001				

NOTES

SURVEY V3 P113 4BAY BUS GARAGE
RHODA G SMITH&DAVID G PYTLIK,TRUSTEES OF
THE F.EDWARD SMYTH RESIDUARY TRUST
09/25/2003-BP#03-04-224 TCP COMMUN TOWER
7/16/2004-CO#03-04-704VERIZON ANTNA&SHED
08/22/2011-APPVL#10-11-80ADD ENTRY DOOR
04/05/2012CO#11-12-203ADD ANTENNA&GROUND
EQUIPMT-METRO PCS GTP-TOWER OWNER
3/1/2013-INSP-NO CELL EQP BLDS TOWN OWND
02/03/2016-APRVL#15-16-98VERIZON3ANTENNA

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	203,500
Appraised Xf (B) Value (Bldg)	5,100
Appraised Ob (B) Value (Bldg)	10,100
Appraised Land Value (Bldg)	251,700
Special Land Value	0
Total Appraised Parcel Value	470,400
Valuation Method	C
Total Appraised Parcel Value	470,400

BUILDING PERMIT RECORD

Permit Id	Issue Date	Type	Description	Amount	Insp Date	% Comp	Date Comp	Comments
22-23-0019	07-13-2022	EL	Electric	10,500		0		MANSFIELD BUS LOT -ELEC
21-22-0811	06-30-2022	GN	Generator	50,000		0		GENERATOR FOR AMERICA
21-22-0761	06-22-2022	CM	Commercial	14,000		100	08-09-2022	CAR EXHAUST EVACUATION
21-22-0405	12-27-2021	HEAT	Heat	500		0		REPLACE HEATER UNIT AT
21-22-0337	11-23-2021	CM	Commercial	15,000		0		REPLACE 9 ANTENNAS, 6 R
20-21-0623	03-17-2021	FRN	Furnace	4,515		0		OIL FURNACE AT BUS GARA
19-20-0717	06-03-2020	CM	Commercial	20,000		100	07-24-2020	ANTENNAS

VISIT / CHANGE HISTORY

Date	Id	Type	Is	Cd	Purpost/Result
09-06-2022	MT		7	36	Building Permit Data Entry
07-13-2022	MT		7	36	Building Permit Data Entry
07-07-2022	MT		7	36	Building Permit Data Entry
06-23-2022	MT		7	36	Building Permit Data Entry
05-28-2019	WG			35	Field Review

LAND LINE VALUATION SECTION

B	Use Code	Description	Zone	Land Type	Land Units		Unit Price	I. Factor	Site Index	Cond.	Nbhd.	Nhbd Adj	Notes	Location Adjustment		Adj Unit Pric	Land Value
1	901	Town MDL-Com	NB1		1.000	AC	135,000.00	1.00000	5	1.00	C090	0.900			0	121,500	121,500
1	9AC2	Excess Front			0.100	AC	6,000.00	1.00000	0	1.00		1.000			0	6,000	600
1	350	Cell Tower			1.000	BL	129,600.00	1.00000	0	1.00		1.000	CELL SITE		0	129,600	129,600
		Total Card Land Units			1.10	AC	Parcel Total Land Area:		1.10							Total Land Value	251,700

Property Location 1725 STAFFORD RD | Map ID 1/ 2/ 2/ / | Bldg Name | State Use 901
Vision ID 17 | Account # 1 2 2 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 1 | Print Date 09-06-2022 12:37:52

CONSTRUCTION DETAIL

Element	Cd	Description
Style:	61	Commercial Garage
Model	96	Ind/Comm
Grade	06	C-
Stories:	1	
Occupancy	1.00	
Exterior Wall 1	27	Pre-finsh Metl
Exterior Wall 2		
Roof Structure	03	Gable
Roof Cover	01	Metal/Tin
Interior Wall 1	01	Minimum
Interior Wall 2		
Interior Floor 1	04	Concr Abv Grad
Interior Floor 2		
Heating Fuel	09	Typical
Heating Type	04	Forced Air
AC Type	01	None/partial
Bldg Use	901	Town MDL-Com
Heat/AC	00	HEAT ONLY
Frame Type	05	STEEL
Baths/Plumbing	02	AVERAGE
Ceiling/Wall	02	CEILING ONLY
Rooms/Prtns	02	AVERAGE
Wall Height	14.00	
1st Floor Use:		

CONSTRUCTION DETAIL (CONTINUED)

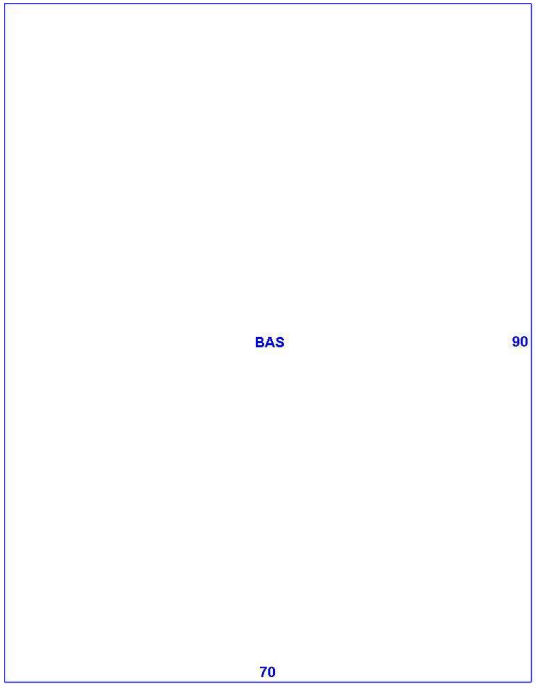
Element	Cd	Description

MIXED USE

Code	Description	Percentage
901	Town MDL-Com	100
		0
		0

COST / MARKET VALUATION

RCN	
Year Built	1980
Effective Year Built	
Depreciation Code	A
Remodel Rating	
Year Remodeled	
Depreciation %	29
Functional Obsol	
Economic Obsol	
Trend Factor	1
Condition	
Condition %	
Percent Good	71
RCNLD	203,500
Dep % Ovr	
Dep Ovr Comment	
Misc Imp Ovr	
Misc Imp Ovr Comment	
Cost to Cure Ovr	
Cost to Cure Ovr Comment	



OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)

Code	Description	L/B	Units	Unit Price	Yr Blt	Cond. Cd	% Good	Grade	Grade Adj	Appr. Value
PAV1	Paving	L	8,000	1.80	1980	A	70		0	10,100
MEZ3	Mezz-Part Fin	B	400	18.00	1988		71.00		0	5,100

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undeprec Value
BAS	First Floor	6,300	6,300		45.50	286,622
	Ttl Gross Liv / Lease Area	6,300	6,300			286,622

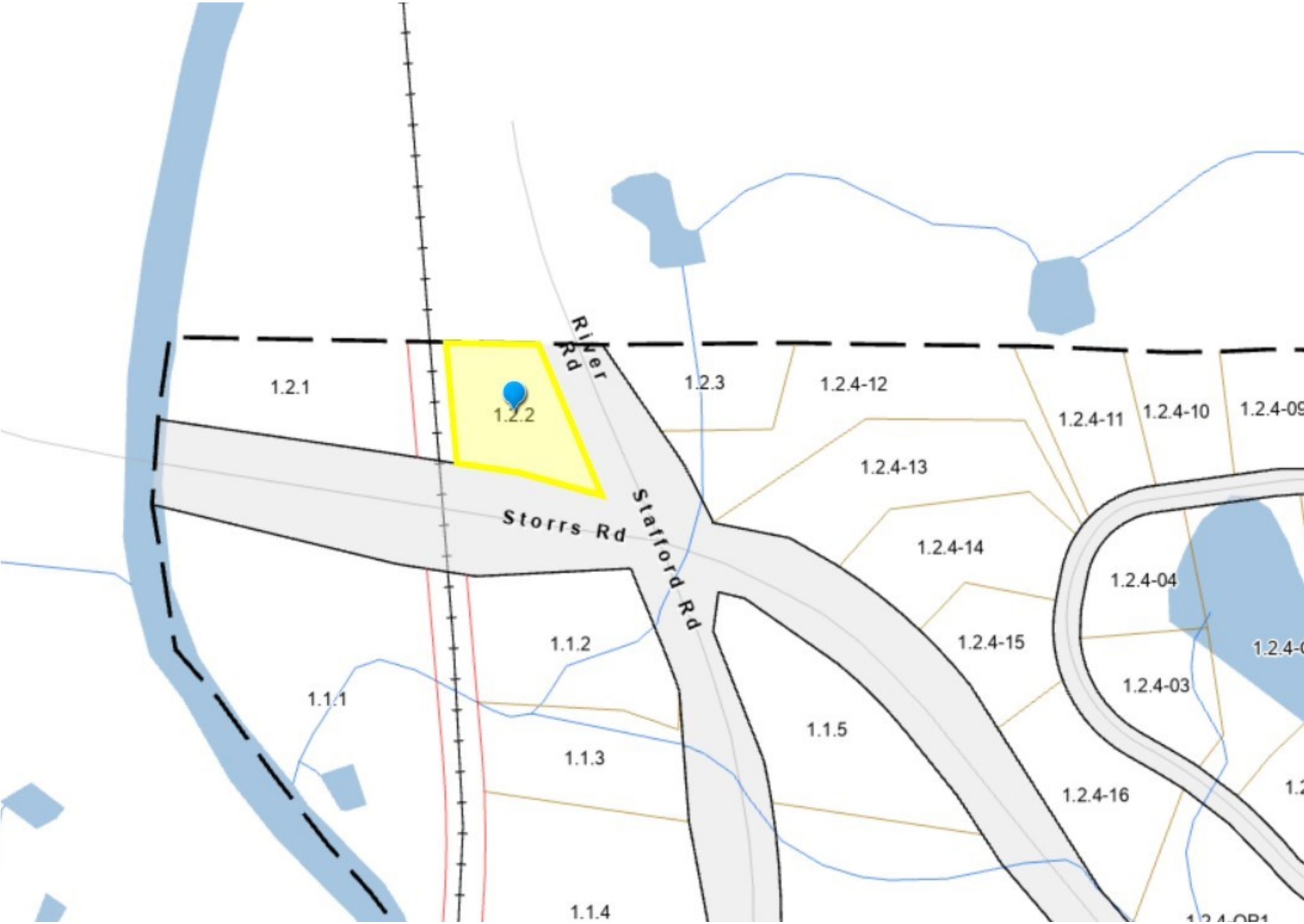

1.2.1
1.2.2
1.2.3
1.2.4-12
1.2.4-11
1.2.4-10
1.2.4-09
1.2.4-13
1.2.4-14
1.2.4-04
1.2.4-15
1.2.4-03
1.2.4-16
1.1.1
1.1.2
1.1.3
1.1.4
1.1.5
River Rd
Storrs Rd
Stafford Rd

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00020A

DISH Wireless L.L.C. SITE ADDRESS:

1725 STAFFORD ROAD
STORRS MANSFIELD, CT 06268

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

CONNECTICUT STATE BUILDING CODE (CSBC).
ANSI/TIA–222–H STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
NFPA – NATIONAL FIRE PROTECTION ASSOCIATION.

SHEET INDEX

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:
- 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

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

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.

SITE INFORMATION

PROPERTY OWNER:	MANSFIELD TOWN OF BUS GARAGE
ADDRESS:	4 SO EAGLEVILLE RD STORRS MANSFIELD, CT 06268
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	ATC / 376047
TOWER APP NUMBER:	N/A
COUNTY:	TOLLAND
LATITUDE (NAD 83):	41° 50' 9.456" N
LONGITUDE (NAD 83):	72° 18' 28.224" W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	NB1
PARCEL NUMBER:	1.2.2
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II–B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	CROWN CASTLE

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	AMERICAN TOWER CORPORATION 116 HUNTINGTON AVE. 11TH FLOOR BOSTON, MA 02116
SITE DESIGNER:	FORESITE LLC 462 WALNUT STREET, SUITE 1 NEWTON, MA 02460 617–212–3123 SMOSSAVAT@FORESITELLC.COM
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM
CONSTRUCTION MANAGER:	CHAD WILCOX CHAD.WILCOX@DISH.COM
RF ENGINEER:	DIPESH PARIKH DIPESH.PARIKH@DISH.COM

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT TO 1725 STAFFORD RD, STORRS, CT 06268
37 MIN (33.1 MILES) VIA I–84 E

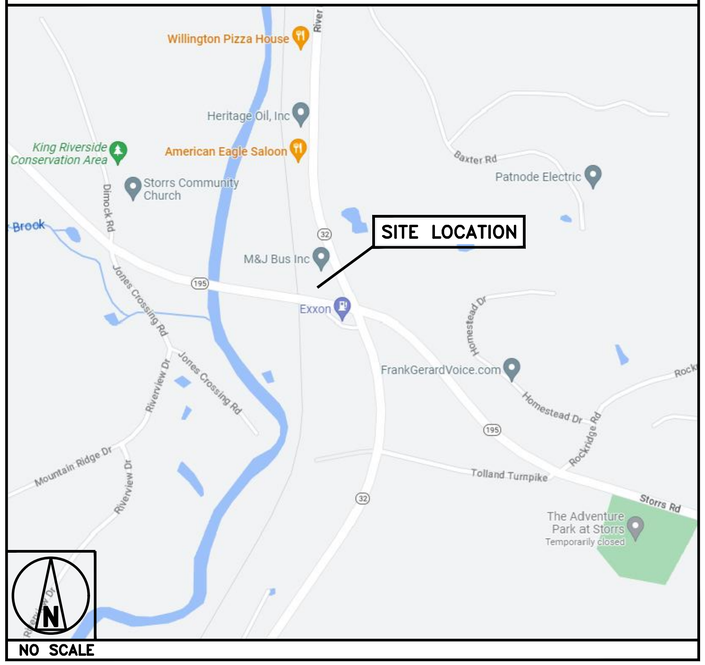
GET ON BRADLEY INTERNATIONAL AIRPORT CON FROM BRADLEY INTERNATIONAL AIRPORT 4 MIN (0.9 MI).

TAKE I–91 S, I–291 E AND I–84 E TO CT–195 S IN TOLLAND. TAKE EXIT 68 FROM I–84 E 27 MIN (28.7 MI).

FOLLOW CT–195 S TO CT–32 N IN MANSFIELD 5 MIN (3.5 MI).

1725 STAFFORD RD, STORRS, CT 06268.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
PH: 203–275–6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET, SUITE 1
NEWTON, MA 02446

STATE OF CONNECTICUT · JOSEPH ANDREW · NO. ARL. 11198 · LICENSED ARCHITECT

DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/14/23	ISSUED FOR REVIEW
B	03/30/23	REVISED PER COMMENTS
0	05/01/23	REVISED PER COMMENTS

A&E PROJECT NUMBER

BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

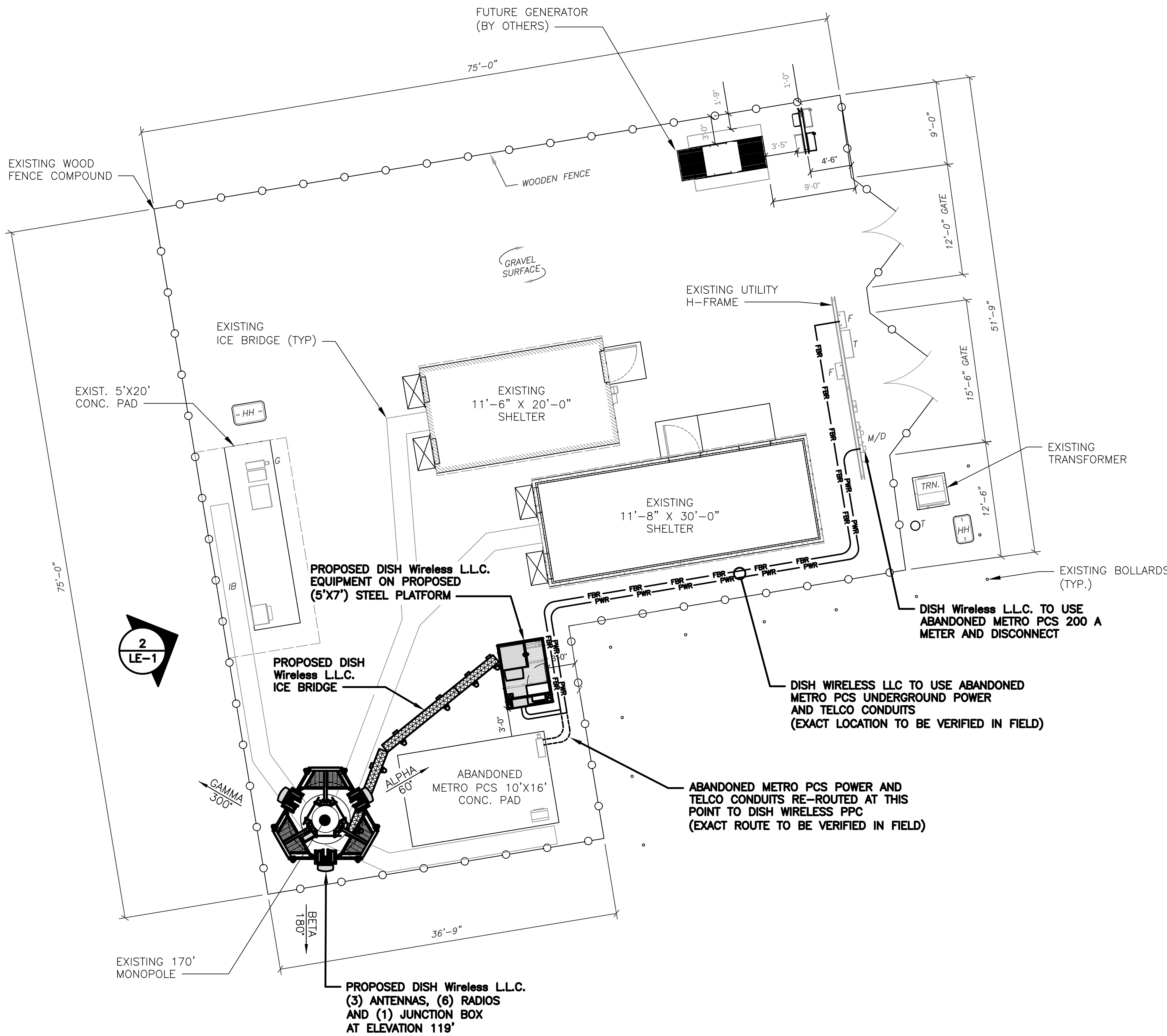
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

TITLE SHEET

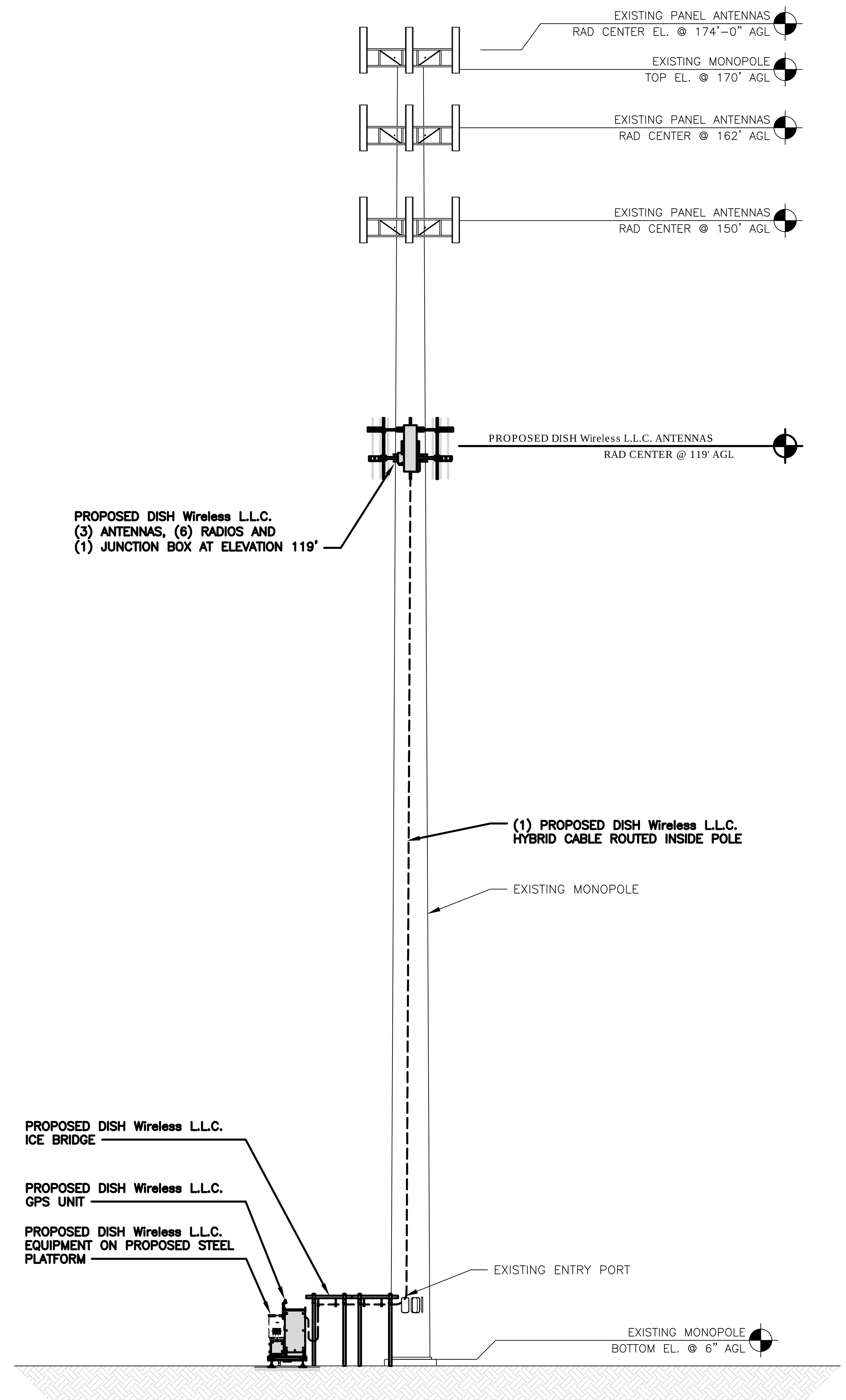
SHEET NUMBER

T-1



ENLARGED SITE PLAN

1/8"=1'-0" — 1



PROPOSED NORTH ELEVATION

3/32"=1'-0" — 2

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
PH: 203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET, SUITE 1
NEWTON, MA 02446

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:
JK	SM	HV

RFDS REV #: 1

PRELIMINARY DOCUMENTS

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REV	DATE	DESCRIPTION
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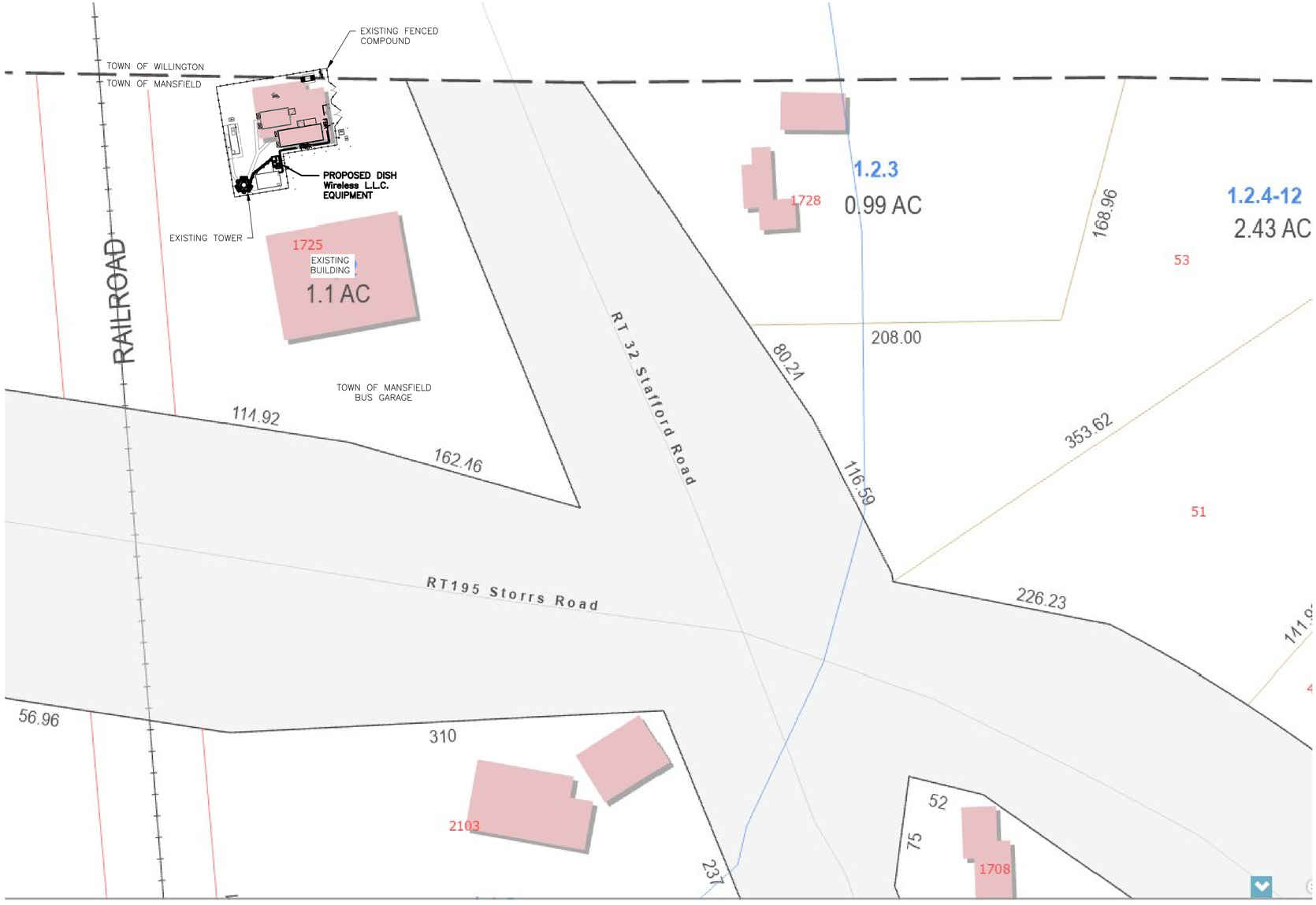
A&E PROJECT NUMBER
BOBDL00020A

DISH Wireless L.L.C. PROJECT INFORMATION
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
PLAN AND ELEVATION

SHEET NUMBER
LE-1



TAX MAP PLOT PLAN

40' 20' 0 40' 80'
1"=40'

1

DISH Wireless L.L.C. TEMPLATE VERSION 54 – 01/20/2023

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
PH: 203–275–6669

CONSULTANT:
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Architects . Engineers . Surveyors
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NEWTON, MA 02446

DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

PRELIMINARY DOCUMENTS

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BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

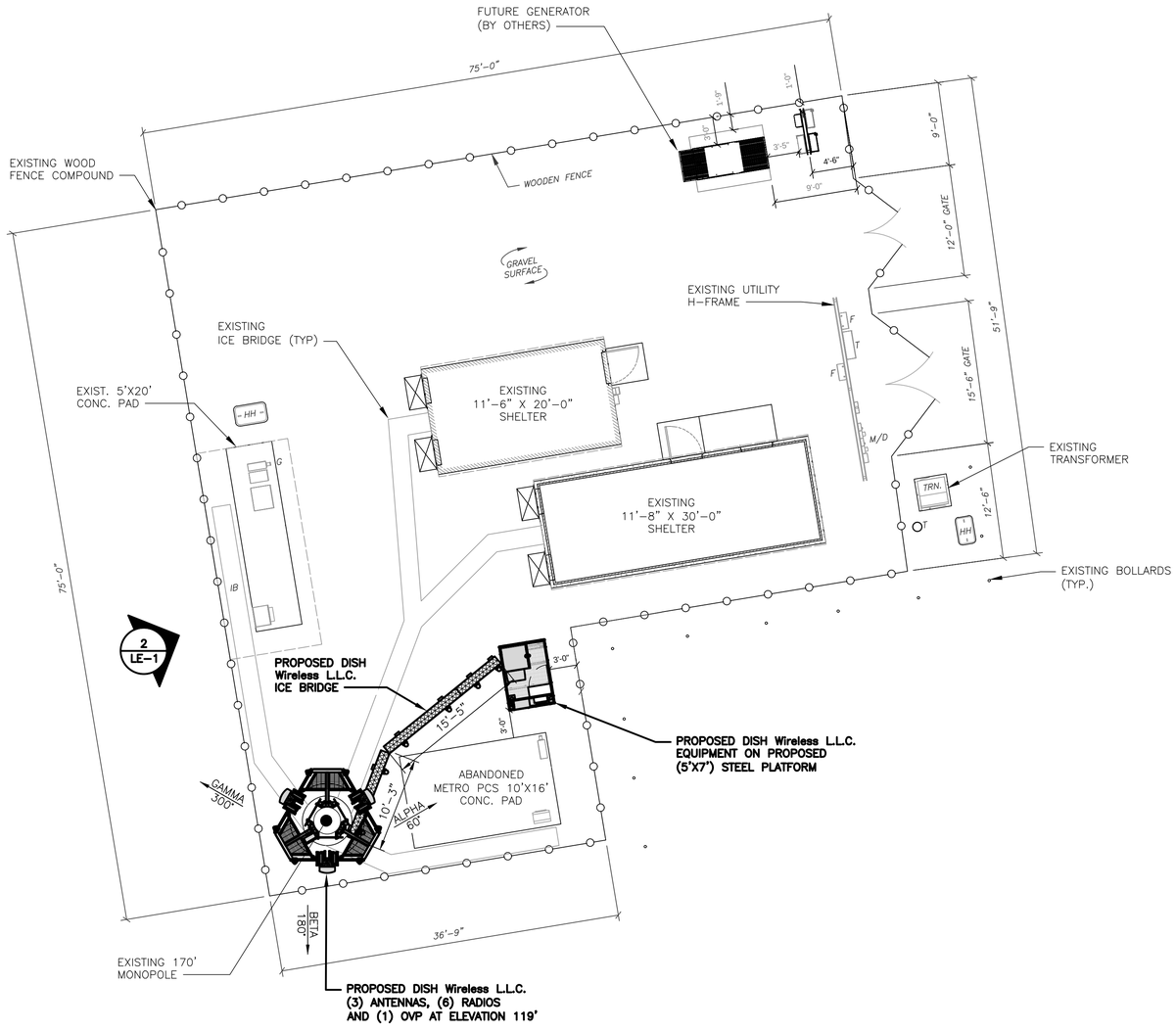
PLOT PLAN

SHEET NUMBER

PP-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.



N

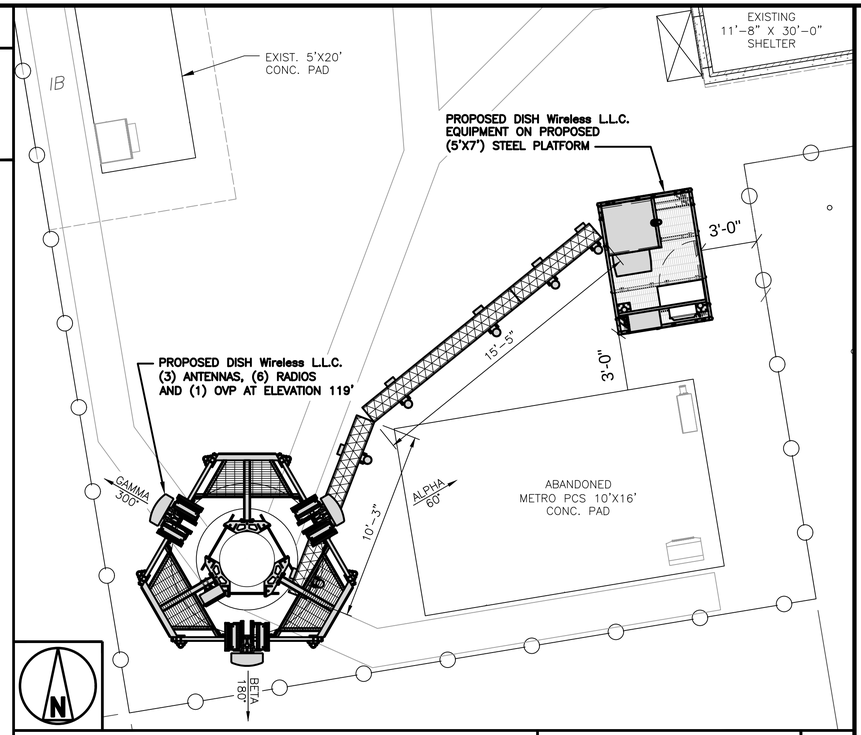
OVERALL SITE PLAN

16' 12' 8' 4' 0 16' 32'
1/16"=1'-0"

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.



N

ENLARGED SITE PLAN

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

2

N

AERIAL PHOTO

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:
NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
www.northeastsitesolutions.com
420 MAIN STREET, BLDG 4
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PH: 203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET, SUITE 1
NEWTON, MA 02446

STATE OF CONNECTICUT
JOSEPH MICHAEL
NO. ARC. 11125
LICENSED ARCHITECT

DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

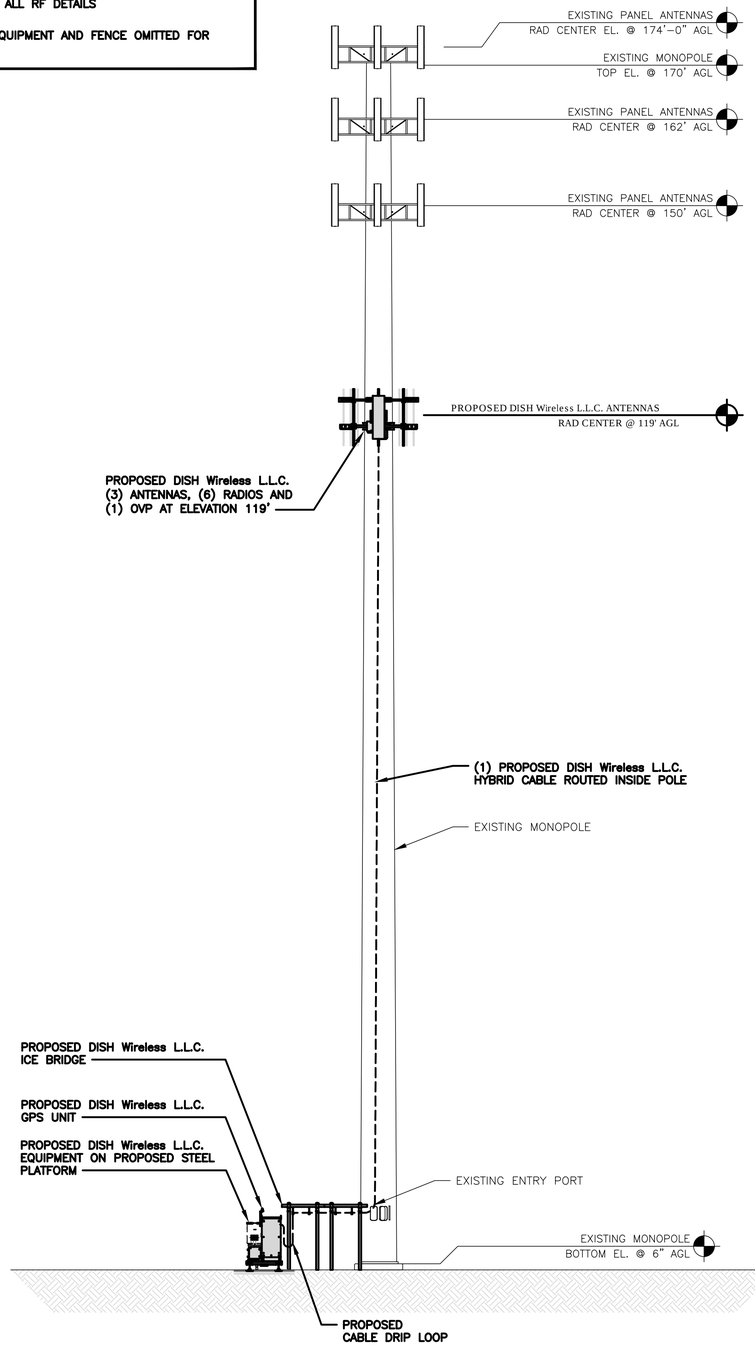
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

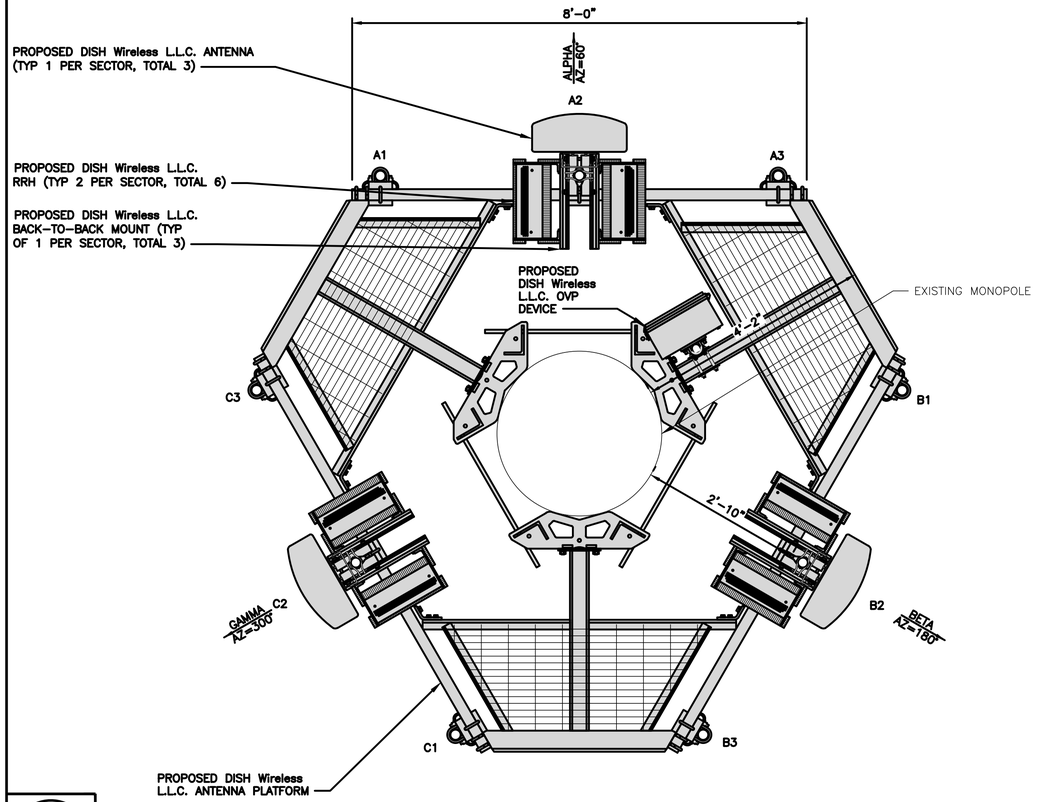
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

32' 24'16' 8' 0 32' 64'
1/32"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (160'± LONG)	FUJITSU – TA08025-B605	5G	A2	Raycap – RDIDC-9181-PF-48
A2	PROPOSED	JMA – MX08FRO665-21	5G	60°	119'-0"		FUJITSU – TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA – MX08FRO665-21	5G	180°	119'-0"		FUJITSU – TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA – MX08FRO665-21	5G	300°	119'-0"		FUJITSU – TA08025-B604	5G	C2	
C3	--	--	--	--	--		--	--	--	

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.

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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DISH Wireless L.L.C.
PROJECT INFORMATION

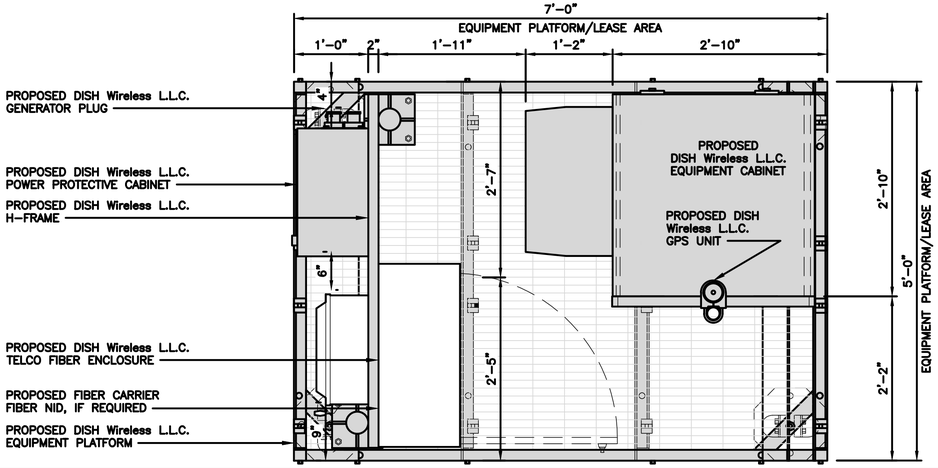
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



PLATFORM EQUIPMENT PLAN

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

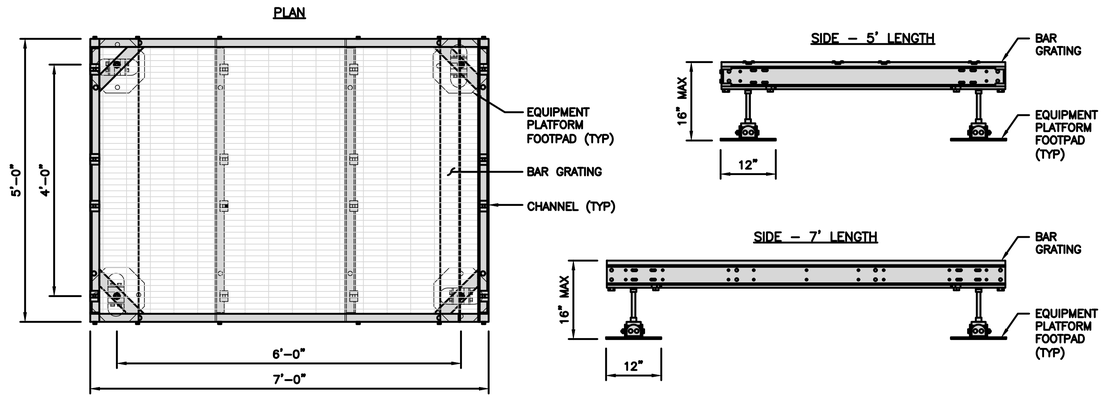
1

NOTES

1. INSTALL POSTS BASES TO GRATING JUST INSIDE PLATFORM FRAME. NO DRILLING REQUIRED.
2. GPS MAY BE MOVED TO ICE BRIDGE OR H-FRAME.
3. ALL CONDUIT TO BE ROUTED THROUGH PLATFORM GRATING USING LIQUIDTIGHT, EMT, RIGID OR PVC COUPLERS. CONDUIT QUANTITY AND SIZES ARE PER ONE-LINE DIAGRAM ON E-3 SHEET OF CDS. (DC PLANT DEPENDENT.)
4. CONTRACTOR MAY FIELD INSTALL CONDUIT HOLES IN BOTTOM OF PPC CABINET TO MATCH CONDUIT SIZES. (SEAL TO PPC MANUFACTURER SPECIFICATIONS).
5. H-FRAME POSTS ARE STAGGERED TO ALLOW FIBER NID BOXES TO BE INSTALLED CLOSE TO PERIMETER FRAME OF PLATFORM.
6. CONDUITS FROM PPC/FIBER DEMARK CABINETS TO EQUIPMENT CABINET (BBU) SHALL BE INSTALLED INSIDE PERIMETER OF PLATFORM AND UNDER GRATING.

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

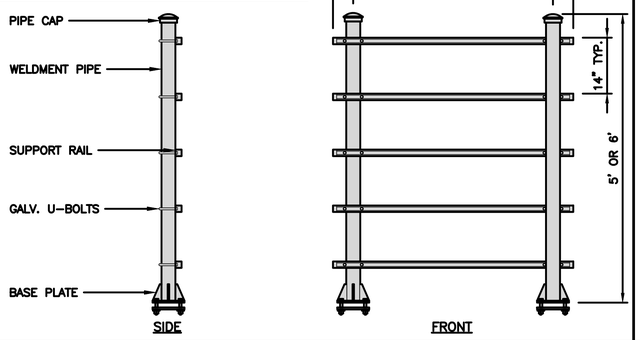
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL | NO SCALE | 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

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

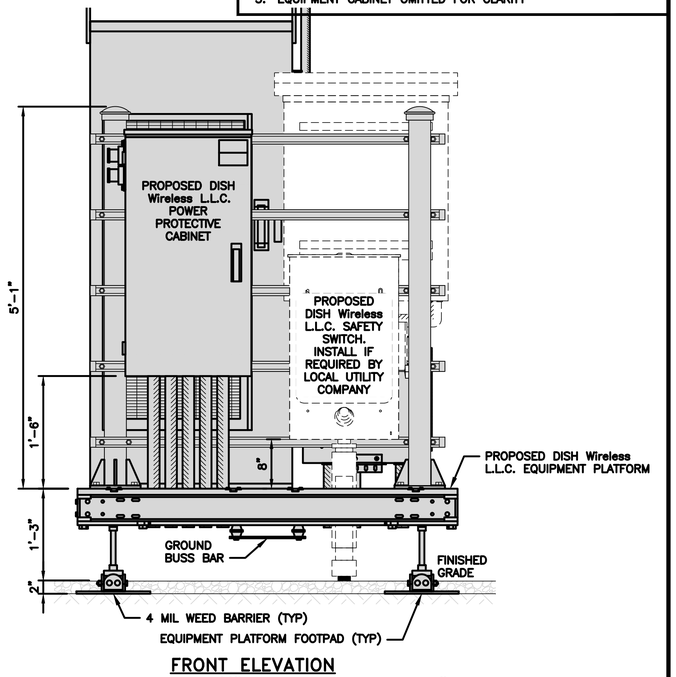


H-FRAME DETAIL | NO SCALE | 3

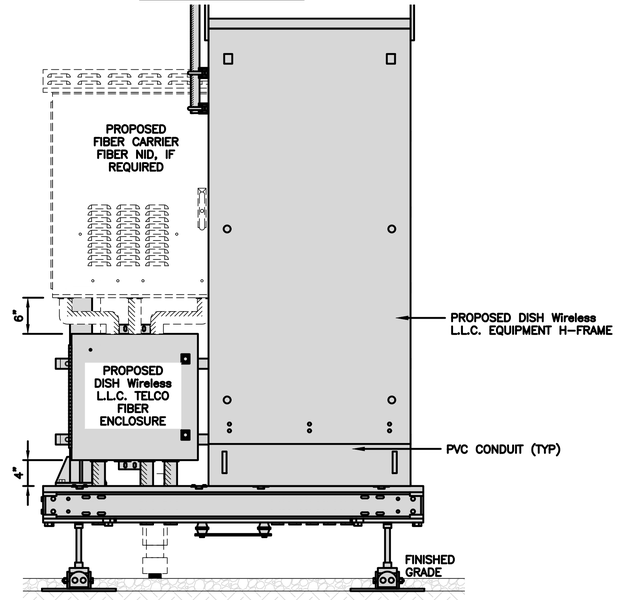
NOT USED | NO SCALE | 4

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

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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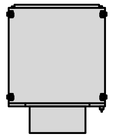
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

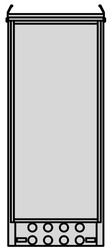
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

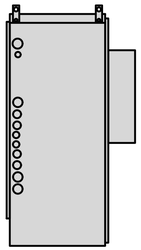
ENERSYS HVAC 2000005995	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HVAC	600W
TOTAL WEIGHT (EMPTY)	371 lbs



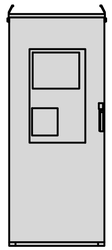
PLAN



BACK



SIDE

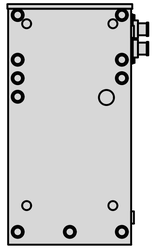


FRONT

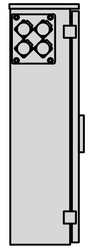
CABINET DETAIL | NO SCALE | 1

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

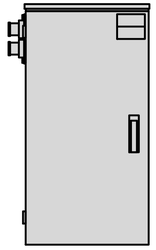
TOP



BACK



SIDE



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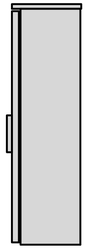
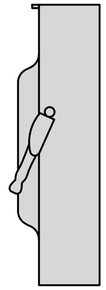


SIDE

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

TOP



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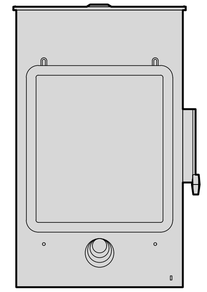


FRONT

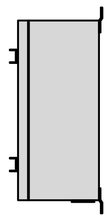
SAFETY SWITCH DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

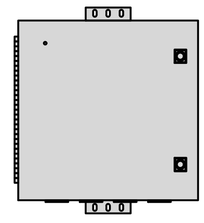
CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4

FRONT



SIDE

BACK

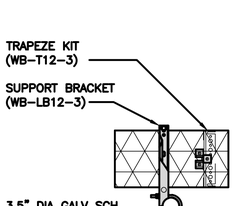


FRONT

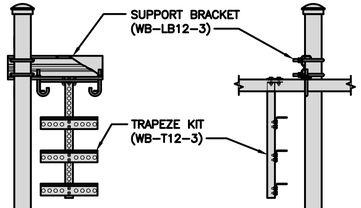
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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"



PLAN



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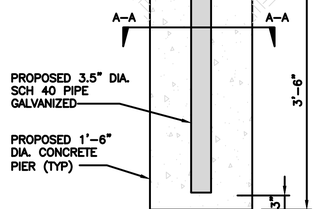
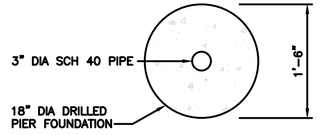


SIDE

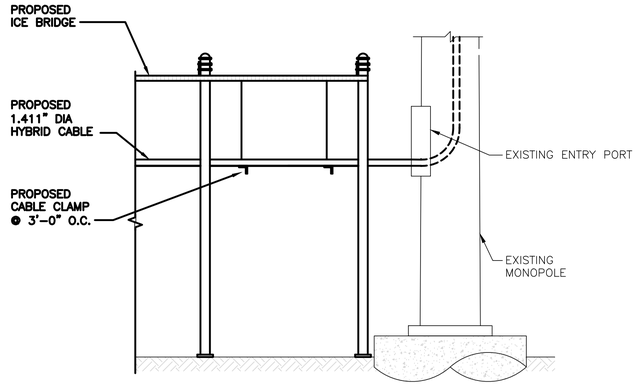
ICE BRIDGE DETAIL | NO SCALE | 7

CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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MANSFIELD, CT 06268

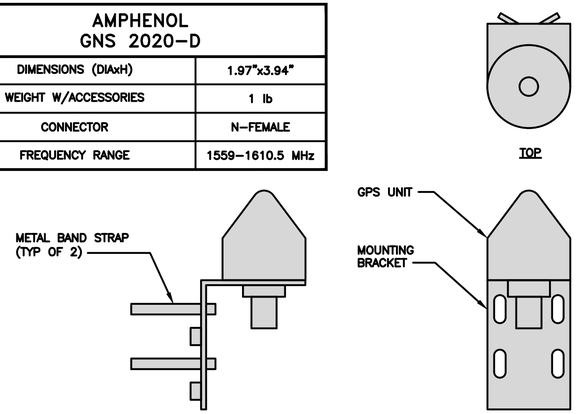
SHEET TITLE

EQUIPMENT DETAILS

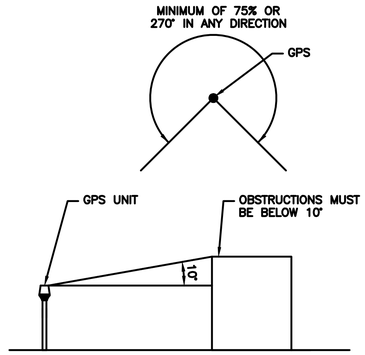
SHEET NUMBER

A-4

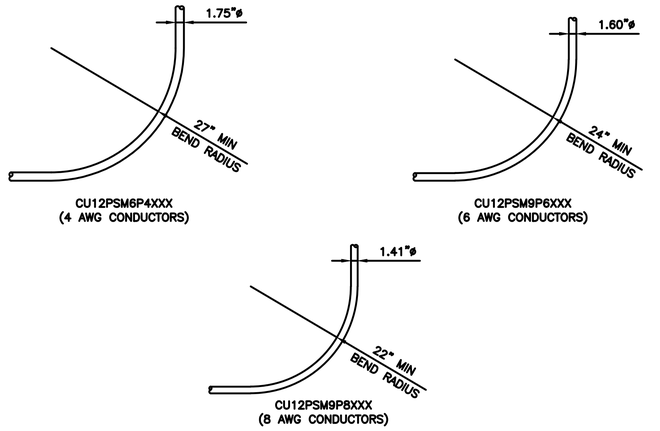
AMPHENOL GNS 2020-D	
DIMENSIONS (DIAxH)	1.97"x3.94"
WEIGHT W/ACCESSORIES	1 lb
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559-1610.5 MHz



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.

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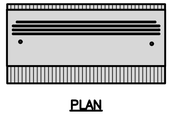
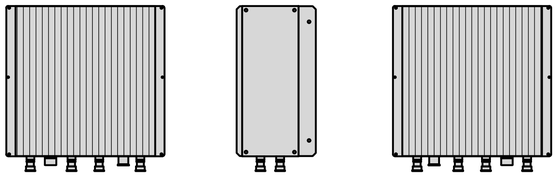
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

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



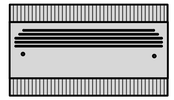
PLAN



BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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



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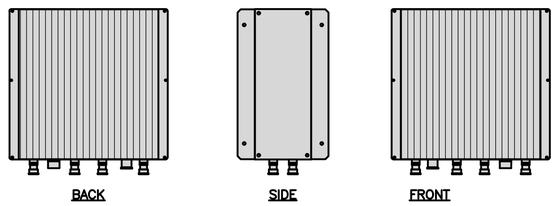
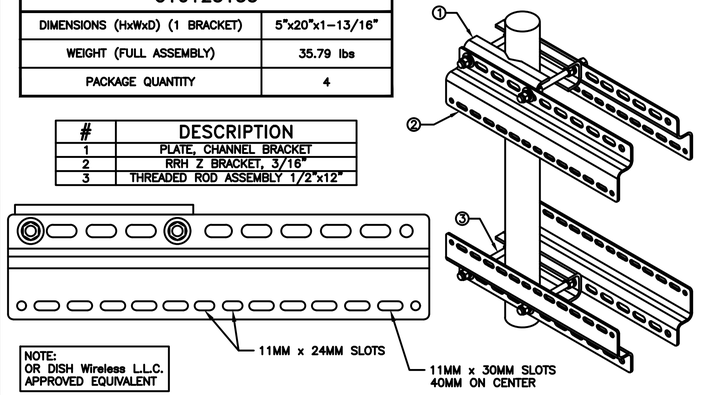


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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"

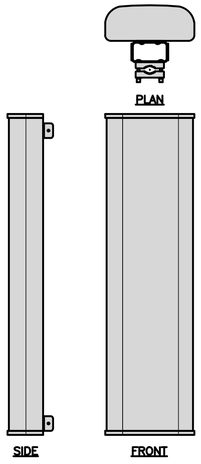


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20"x8"
ANTENNA WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



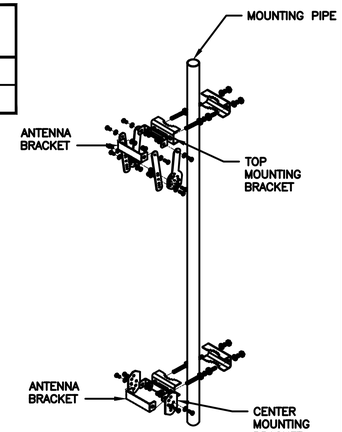
PLAN SIDE FRONT

ANTENNA DETAIL | NO SCALE | 5

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

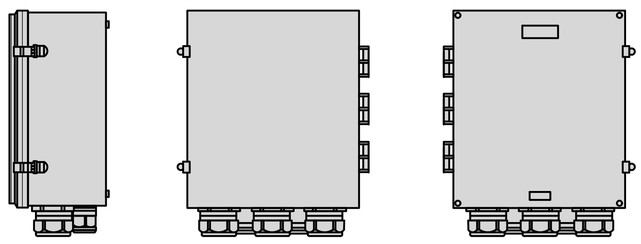


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET 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

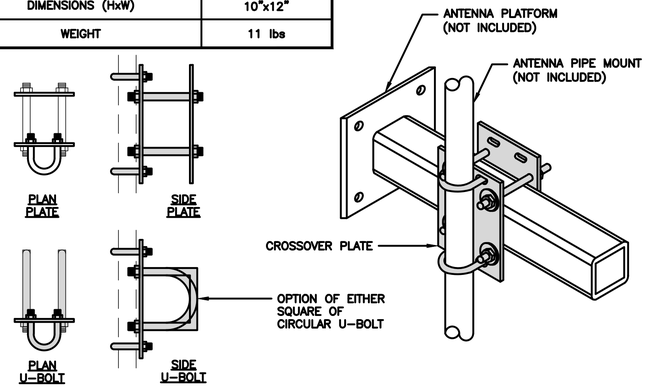


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

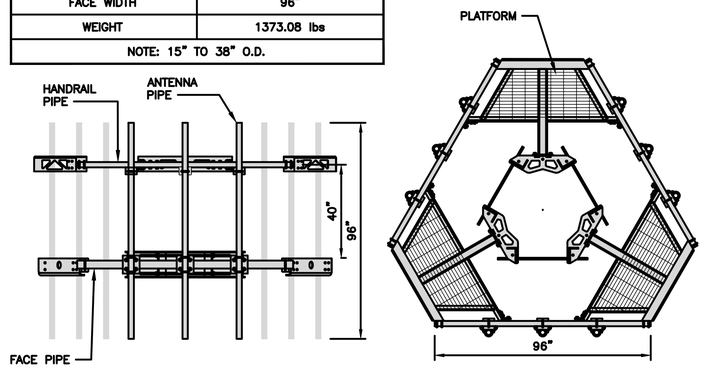
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

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A&E PROJECT NUMBER

BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

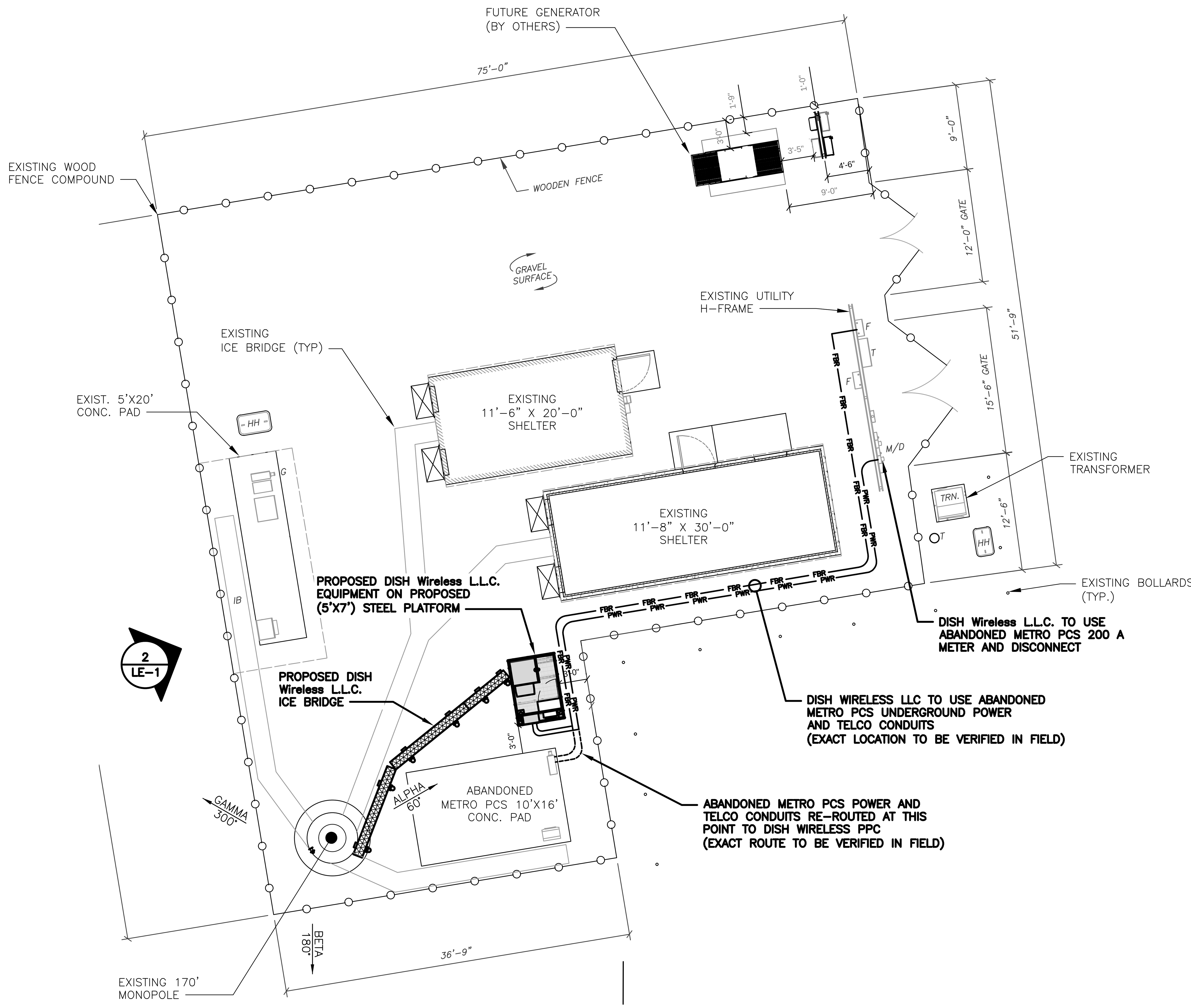
EQUIPMENT DETAILS

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 PROPETY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 AND SAID VARIANCE IS NOT NOTED ON CDs, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



NOTE

KEEP UTILITY ALIGNMENTS UNTIL FIBER AND POWER DESIGNS ARE COMPLETED, THEN VERIFY AND MODIFY AS NECESSARY.

6' 4' 2' 0 5' 10'
3/16"=1'-0"

UTILITY ROUTE PLAN — 1

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

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STATE OF CONNECTICUT LICENSED ARCHITECT NO. ARI. 11182

DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

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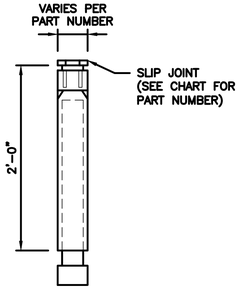
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

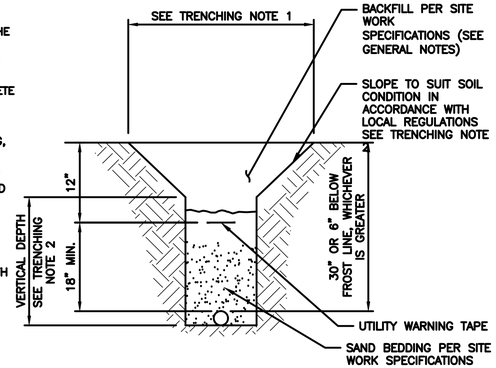


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

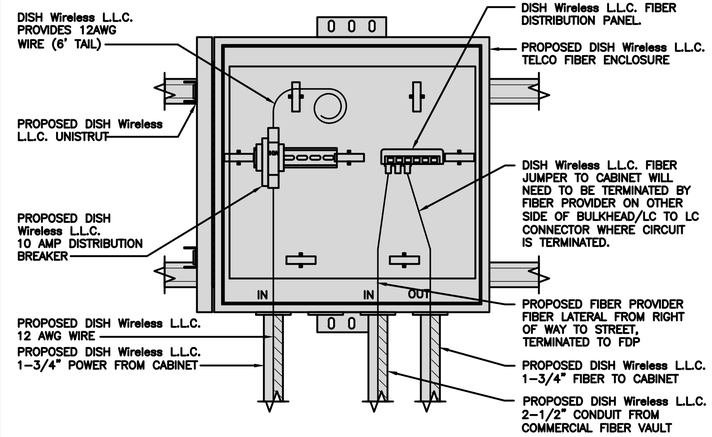
TRENCHING NOTES

1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.

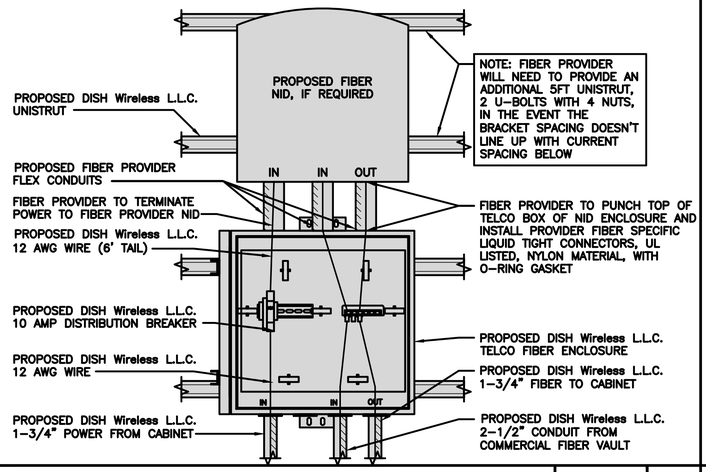


IMPORTANT: UNDERGROUND WARNING/MARKING TAPE SHALL BE BURIED AT A DEPTH OF 12 IN (30 CM) OR LESS BELOW GRADE. THE MINIMUM DISTANCE FROM THE TOP OF THE PIPELINE SHOULD BE 12 IN (30 CM). REQUIRED DEPTH OF PIPELINE SHALL BE 30" BELOW GRADE OR 6" BELOW FROSTLINE, WHICHEVER IS GREATER. EACH RUN OF UNDERGROUND WARNING/MARKING TAPE MUST BE OVERLAPPED BY A MINIMUM OF 20 FT (6 M) OR MUST BE JOINED.

TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | 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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PROJECT INFORMATION

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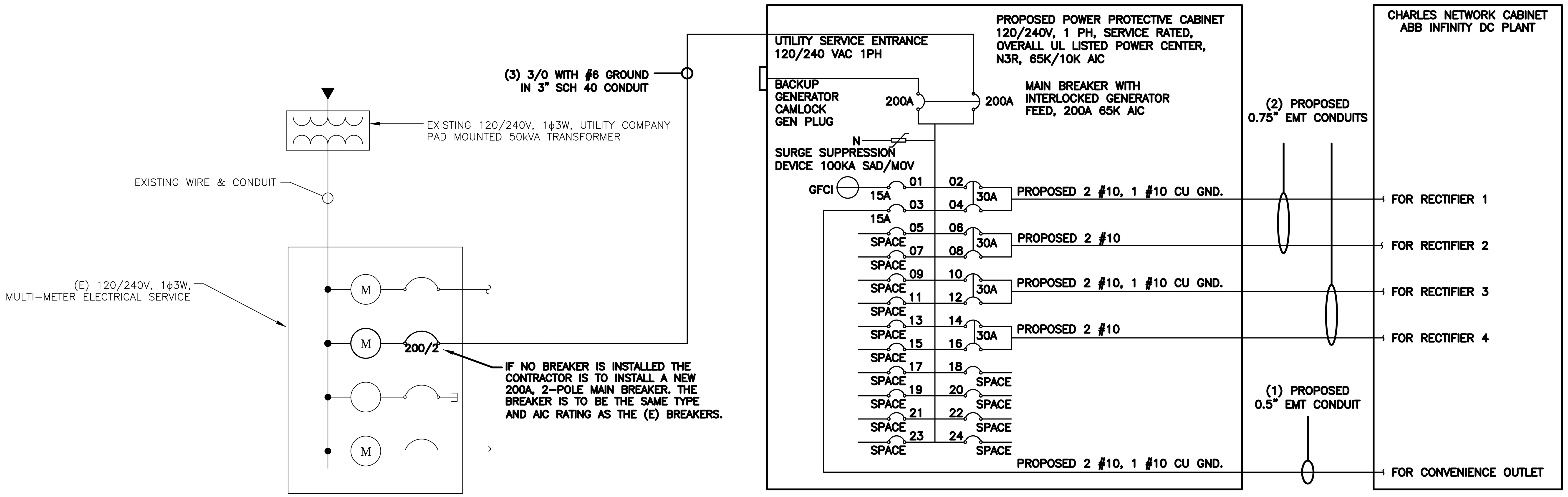
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



SERVICE/FEEDER CONDUCTOR LENGTH TABLE (BASED ON INDUSTRY STANDARD 3% VOLTAGE DROP AND 5% NEC ALLOWABLE LIMIT)						
	CONDUCTOR SIZES					
DESIGN LOADS	250 kcmil AL	300 kcmil AL	3/0 CU	4/0 CU	250 kcmil CU	300 kcmil CU
DISH Wireless L.L.C. MAXIMUM CONTINUOUS LOAD (160A) (NEC ARTICLE 220 & 230 3% VOLTAGE DROP)	130'	155'	145'	180'	215'	255'
DISH Wireless L.L.C. MAXIMUM CONTINUOUS LOAD (160A) (NEC ARTICLE 220 & 230 5% VOLTAGE DROP)	220'	260'	240'	300'	360'	425'

NOTES:
1. 250 MCM/KCMIL AL + #2 AL GRD MAY BE USED AS A REPLACEMENT FOR 3/0 CU + #6 CU GRD SERVICE CONDUCTOR FROM THE DISH Wireless L.L.C. FIRST MEANS OF DISCONNECT/UTILITY COMPANY MEET-ME POINT. REFER TO VALUES ABOVE TO LIMIT VOLTAGE DROP TO 3%.
2. ALUMINUM/COPPER CONDUCTORS MUST BE RATED 75°C.
3. ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS
4. PPC MAIN DISCONNECT CIRCUIT BREAKERS ACCEPT #4 – 300KCMIL AL OR CU CONDUCTORS.
5. VOLTAGE DROP FOR SINGLE METER ENCLOSURE FED FROM TRANSFORMER WITH MULTIPLE CUSTOMERS IS CALCULATED FROM THE TRANSFORMER TO PPC. (SERVICE AND FEEDER CONDUCTOR LENGTH)
6. VOLTAGE DROP FOR MULTI-METER ENCLOSURE IS CALCULATED FROM THE METER TO PPC. (FEEDER CONDUCTOR LENGTH)
7. VOLTAGE DROP CALCULATIONS ARE BASED ON A POWER FACTOR OF 1, A LINE TO GROUND VOLTAGE PER CONDUCTOR OF 120V, NO CORRECTION FACTOR FOR AMBIENT TEMPERATURE OR ADJUSTMENT FACTOR FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A SINGLE CONDUCT OR RACEWAY. A POWER FACTOR LESS THAN 1 OR VOLTAGE LESS THAN 120 WILL RESULT IN SHORTER DISTANCES THAN SHOWN IN TABLE.

NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(2) 15A, 1P BREAKER – SQUARE D P/N:QO115

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

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 – 0.0266 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.

(1) PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, AL.

250kcmil AL – 0.3970 SQ. IN X 3 = 1.191 SQ. IN
#4 AL – 0.0824 SQ. IN X 1 = 0.0824 SQ.IN <GROUND
TOTAL = 1.2734 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) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
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

SHORT CIRCUIT CALCULATIONS — NO SCALE — 3

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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:
JK	SM	HV

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/14/23	ISSUED FOR REVIEW
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0	05/01/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
BOBDL00020A

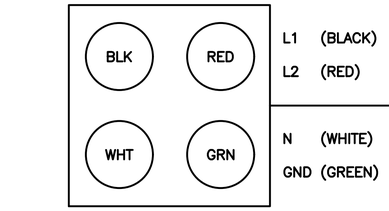
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

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

SHEET NUMBER
E-3

NOTES:

1. HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE.
2. 100 OR 200 AMP, 240 VOLTS, SINGLE PHASE ALTERNATING CURRENT CIRCUIT ONLY
3. GENERATOR SHORT CIRCUIT RATING: 10,000 / 20,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
4. UTILITY SHORT CIRCUIT RATING: 65,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
5. SUITABLE FOR USE AS SERVICE EQUIPMENT
6. SUITABLE FOR USE IN ACCORDANCE WITH ARTICLE 702 OF THE NATIONAL ELECTRIC CODE ANSI/NFPA 70
7. BONDED NEUTRAL WHEN INSTALLED AS SHOWN IN WIRING DIAGRAM
8. RAIN PROOF TYPE 3R
9. USE CU–AL WIRE 60–75 °C
10. EQUIPPED WITH SLIDE BAR MECHANICAL INTERLOCK
11. INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
12. EQUIPPED WITH SQUARE D BREAKERS OR ALTERNATIVE MANUFACTURER EQUIVALENT
13. WHEN REPLACE LOAD CENTER BREAKERS, USE ONLY SQUARE D (QO TYPE) OF THE SAME RATING OR EQUIVALENT
14. WHEN RESETTING BREAKERS TURN TO OFF POSITION, THEN TO ON POSITION
15. WARNING: MAKE CONTINUITY CHECK WITH OHM METER TO VERIFY CORRECT PHASING AND GROUNDING CONNECTIONS BEFORE POWER UP
16. VERIFY PIN OUT CONFIGURATION OF GENERATOR PRIOR TO USE.
17. RISK OF ELECTRIC SHOCK, BOTH ENDS OF DISCONNECTING MEANS MAY BE ENERGIZED. TEST BEFORE SERVICING
18. THIS SWITCH BOARD MAY CONTAIN A TAP ON THE SERVICE SIDE OF THE MAIN POWER DISCONNECT FOR REMOTE MONITORING OF UTILITY/STANDBY POWER
19. THE NORMAL AC POWER MONITORING CIRCUIT MUST UTILIZE A DISCONNECTING MEANS WITH A SHORT CIRCUIT RATING GREATER THAN THE AVAILABLE INTERRUPTING CURRENT
20. A RED PUSH–TO–TRIP BUTTON PROVIDES A MEANS TO MECHANICALLY TRIP THE CIRCUIT BREAKER. THIS ACTION EXERCISES THE TRIPPING PORTION OF THE MECHANISM AND ALLOWS MAINTENANCE CHECK ON THE BREAKER



CAM–LOCK GENERATOR RECEPTACLE

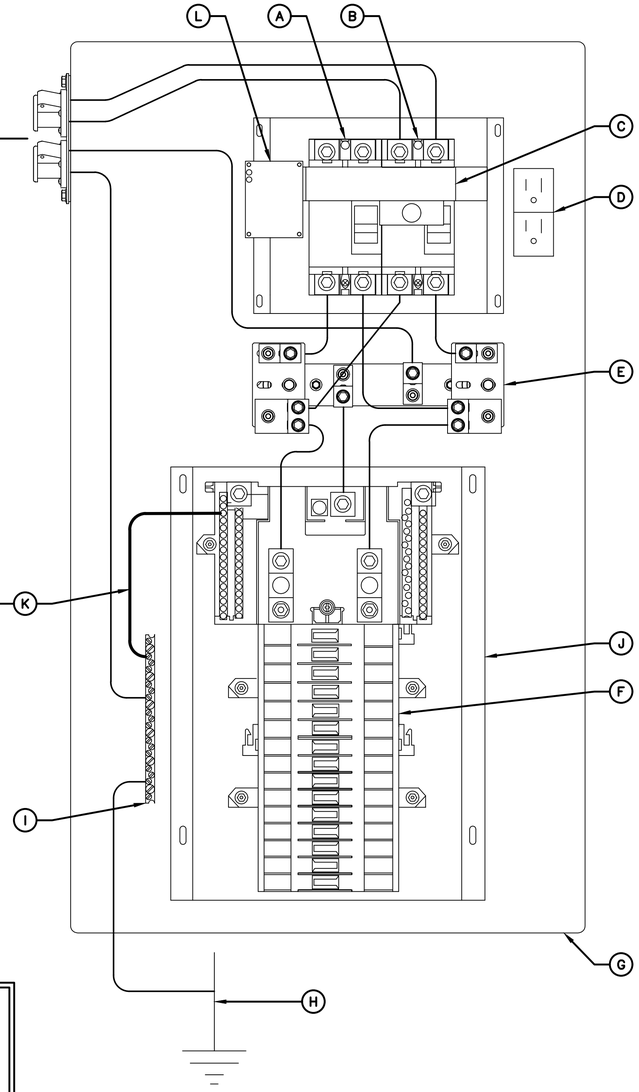
(AS VIEWED FROM OUTSIDE OF ENCLOSURE)
USE LINE UP PIN AS REFERENCE

REFER TO RECEPTACLE FOR MODEL NUMBER

DANGER:

HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE.

RAYCAP CUSTOMER SERVICE
(800) 890–2569



SUITABLE FOR USE AS SERVICE EQUIPMENT

ELECTRICAL RATING 120/240 VOLTS SINGLE PHASE 60 Hz	
NORMAL AC POWER 100A☐ 200A☐	GENERATOR POWER 100A☐ 200A☐

CAUTION:

- THE OPERATING HANDLE ASSUMES A CENTER POSITION WHEN THE CIRCUIT BREAKER IS TRIPPED
- THE BREAKER CAN BE RESET BY OPERATING THE HANDLE TO THE EXTREME OFF POSITION AND THEN TO ON
- SLIDE BAR MECHANICAL INTERLOCK TRANSFERS NORMAL AC POWER TO GENERATOR POWER. THE SLIDE BAR MECHANICAL INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
- TO TRANSFER FROM ON POWER SOURCE TO THE OTHER POWER SOURCE, SWITCH ON BREAKER TO THE OFF POSITION, MOVE THE SLIDE BAR TO THE OTHER SIDE AND THE SWITCH THE OTHER BREAKER TO THE ON POSITION

THIS SWITCHBOARD UTILITY MAN BREAKER IS SUITABLE FOR USE ON CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 65,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A UTILITY FEED

LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ–D	QO	1 2	15–100A	SQ–D	QGL	200A	65,000A	240V	2

THIS SWITCHBOARD GENERATOR POWER CIRCUIT IS SUITABLE FOR USE ON A CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 10,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A GENERATOR FEED

LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ–D	QO	1 2	15–100A	SQ–D	QGL	200A	65,000A	240V	2

MAXIMUM CONTINUOUS LOADS NOT TO EXCEED 80% OF THE OVER–CURRENT PROTECTIVE DEVICE (CIRCUIT BREAKER AND FUSES) RATINGS EMPLOYED IN OTHER THAN MOTOR CIRCUITS, EXCEPT FOR THOSE CIRCUITS EMPLOYING CIRCUIT BREAKERS MARKED AS SUITABLE FOR CONTINUOUS OPERATION AT 100% OF THEIR RATINGS. CONDUCTORS ARE NOT TO ENTER OR LEAVE THE ENCLOSURE DIRECTLY OPPOSITE THE WIRING TERMINAL

NEUTRAL–TO–GROUND NOTES:

- WHEN THE PPC IS USED AS THE SERVICE ENTRANCE DEVICE, THE NEUTRAL TO GROUND BOND NEEDS TO BE ESTABLISHED IN THE PPC.
- WHEN THE SERVICE ENTRY DEVICE IS A MULTI–METER CENTER OR A PRE–PPC DISCONNECT IS USED AND HAS "NEUTRAL TO GROUND" ACCOMMODATIONS, THE NEUTRAL TO GROUND WIRE IN THE PPC IS NOT REQUIRED.
- THE GREEN #6 WIRE IS PROVIDED WITH THE PPC CABINET AS A SEPARATE UNINSTALLED PART TO BE INSTALLED BY CONTRACTOR IF NEEDED.

NEUTRAL–TO–GROUND CONDING JUMPER

INSTALLTION INSTRUCTIONS:

- IF REQUIRED, THE N–G BONDING KIT SHOULD BE INSTALLED BY QUALIFIED PERSONNEL
- ENSURE THE MAIN BREAKERS ARE OFF
- USE THE GREEN #6 WIRE PROVIDED WITH THE PPC
- INSTALL THE JUMPER AS SHOWN IN THE WIRING DIAGRAM
- TIGHTEN TERMINALS TO TORQUE VALUE SHOWN IN TORQUE TABLE
- PLACE THE PROVIDED "SERVICE" LABEL IN THE SPACE BELOW THE WORDS "AC POWER" LOCATED ABODE THE MAIN CIRCUIT BREAKER IN THE UPPER PORTION OF THE DEAD FRONT

LEGEND:

A. UTILITY DISCONNECT (SERVICE RATED)
B. GENERATOR DISCONNECT
C. MAIN DISCONNECT CIRCUIT BREAKERS W/ MECHANICAL INTERLOCK
D. GFCI RECEPTACLE 15A
E. SPD STRIKESORB KELVIN CONNECTION (TYP OF 2)
F. BREAKER PANEL – 24 POSITION (CONTRACTOR TO ADD APPROPRIATE BREAKER PER ONE–LINE DIAGRAM PANEL SCHEDULE)
G. POWER PROTECTION CABINET (PPC) (FULLY ASSEMBLED FROM MANUFACTURER)
H. CONTRACTOR TO ATTACH TO UNDERGROUND GROUNDING HALO OR INSTALL GROUND ROD WHEN REQUIRED BY CODE
I. GROUND BAR
J. SQUARE D Q SERIES LOAD CENTER
K. NETURAL–TO–GROUND (N–G) BONDING JUMPER (CONTRACTOR INSTALLED IF REQUIRED)
L. OPTIONAL SPD STATUS INDICATORS

RAYCAP POWER PROTECTION CABINET – RDIAC–2465–P–240–MTS (NEUTRAL–TO–GROUND)

NO SCALE | 1

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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DISH Wireless L.L.C.
PROJECT INFORMATION

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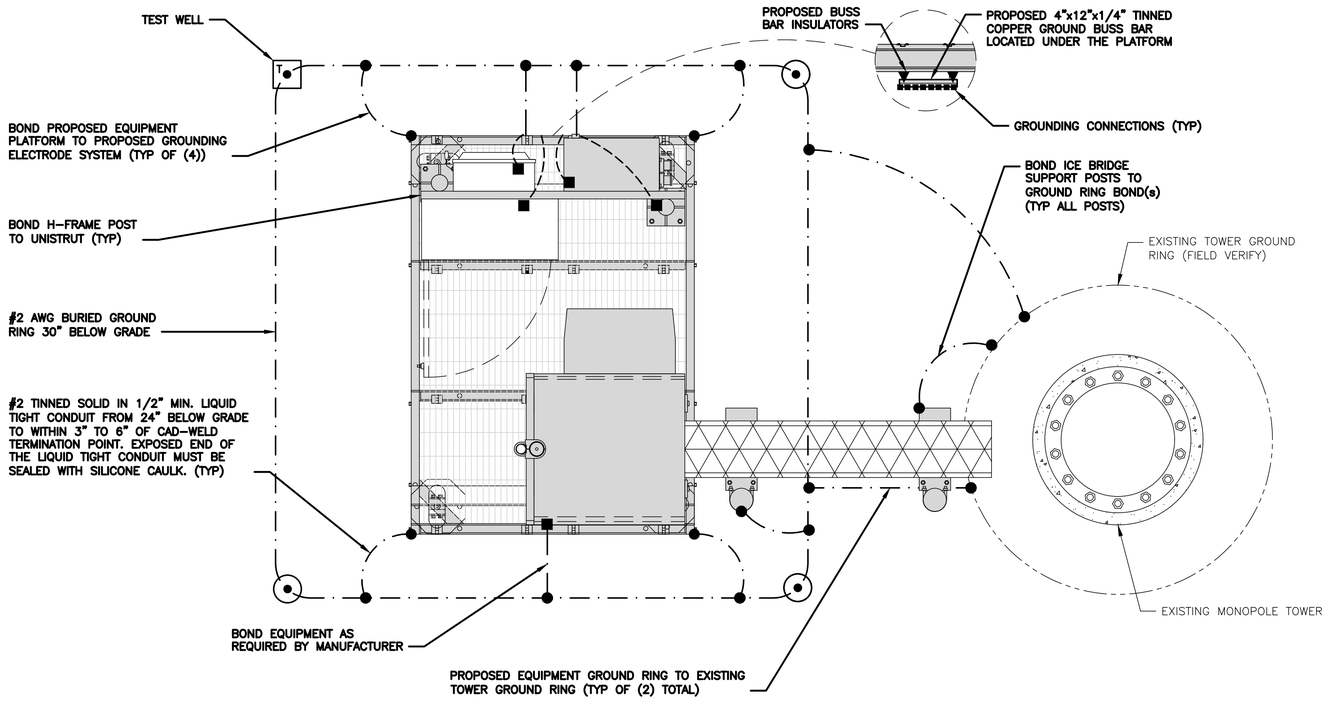
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

PPC NEUTRAL–TO–GROUND SCHEMATIC

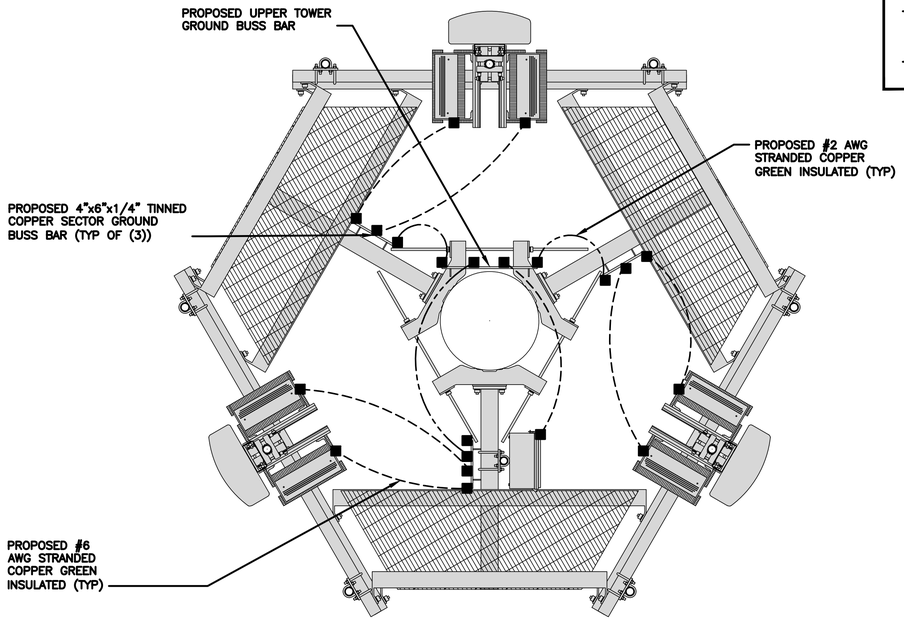
SHEET NUMBER

E-4



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

- ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY
- UPPER TOWER BUSSBAR SHALL BE INSTALLED WITHOUT INSULATORS

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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

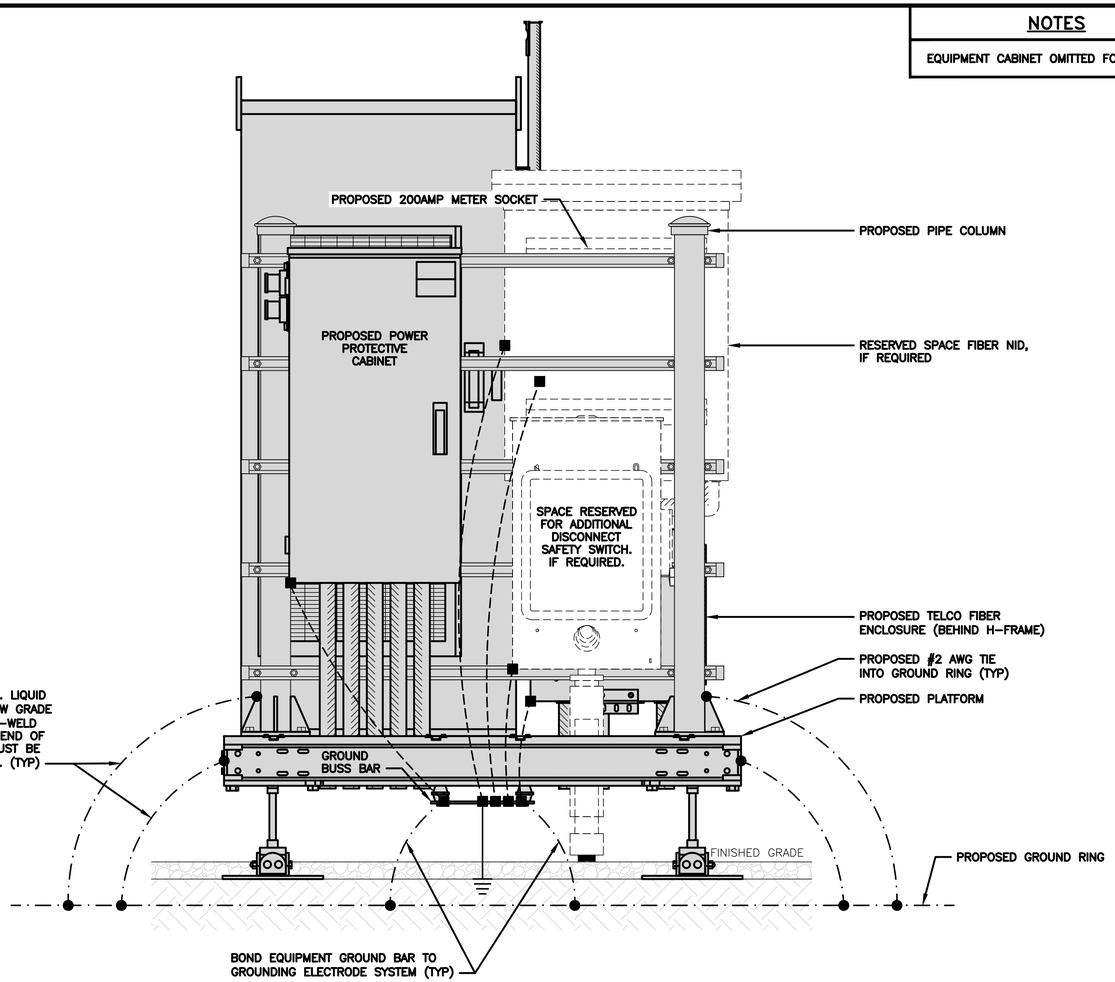
BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
GROUNDING PLANS AND NOTES

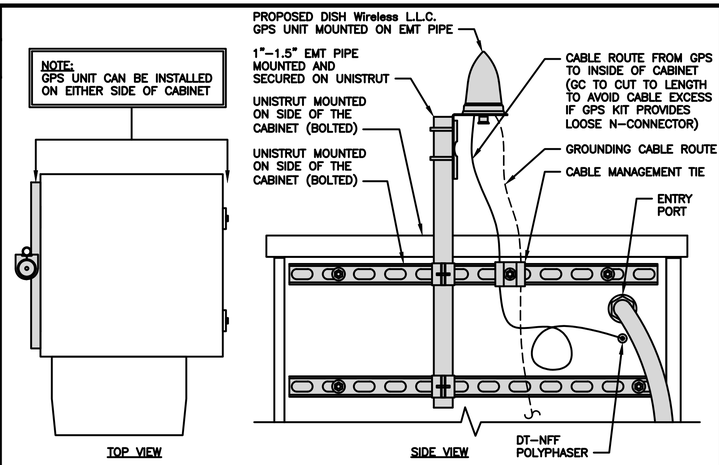
SHEET NUMBER
G-1

NOTES

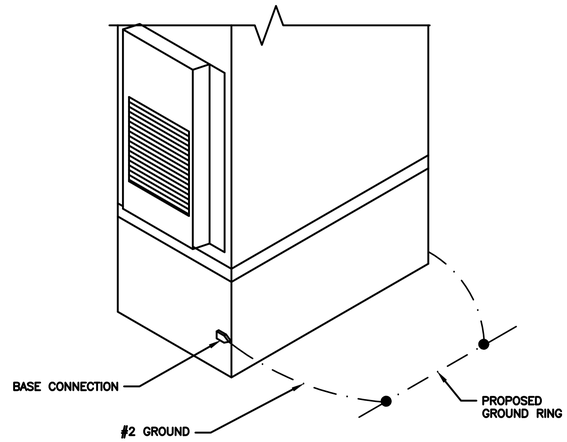
EQUIPMENT CABINET OMITTED FOR CLARITY



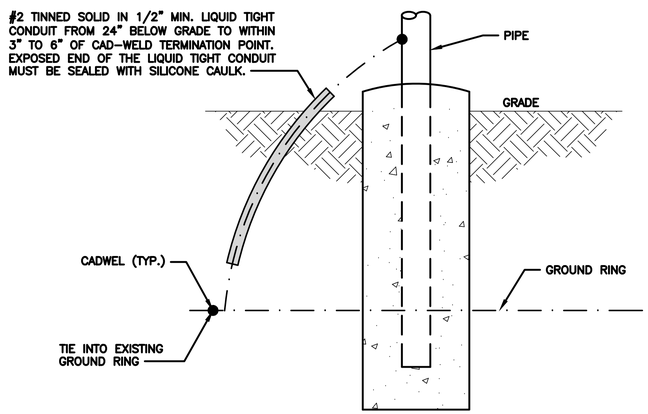
H-FRAME GROUNDING DETAIL | NO SCALE | 1



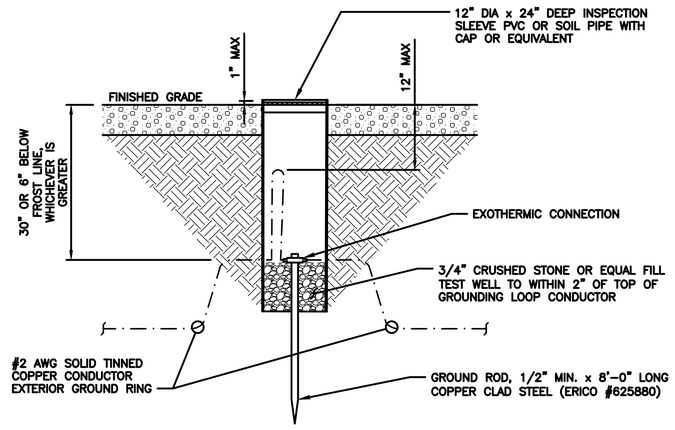
TYPICAL PCTEL GPS UNIT GROUNDING | NO SCALE | 2



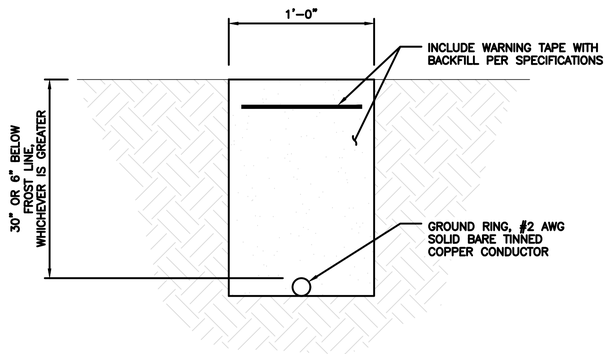
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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PROJECT INFORMATION

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1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

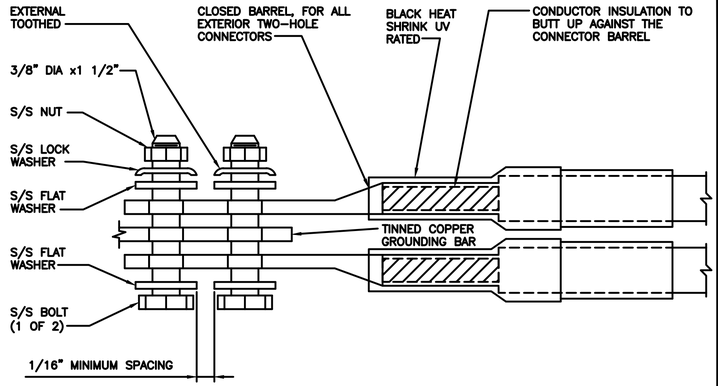
GROUNDING DETAILS

SHEET NUMBER

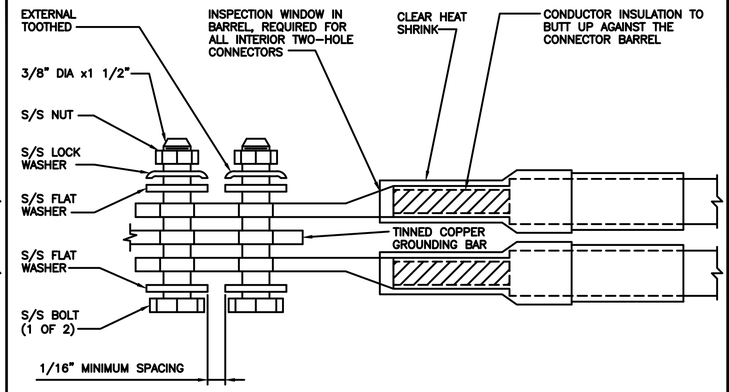
G-2

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.
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.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI–OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

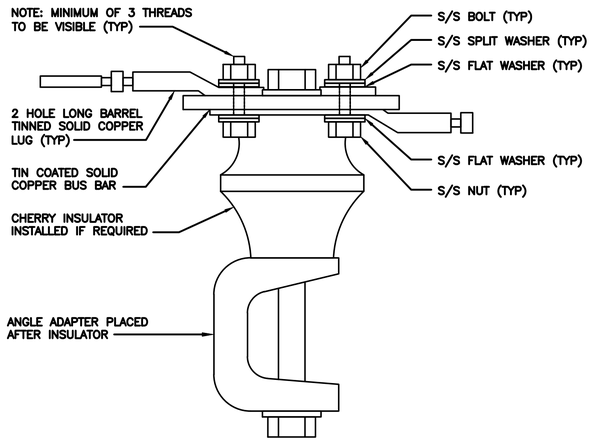
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



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

dish wireless.

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MANSFIELD, CT 06268

SHEET TITLE
GROUNDING DETAILS

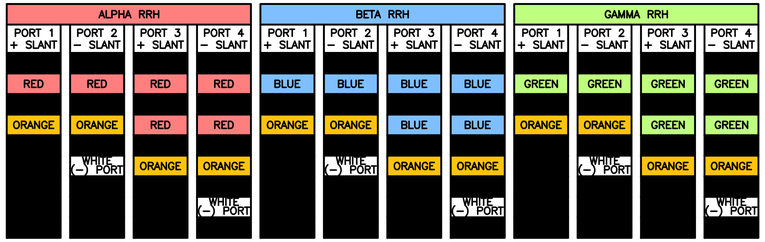
SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

3/4" TAPE WIDTHS WITH 3/4" SPACING

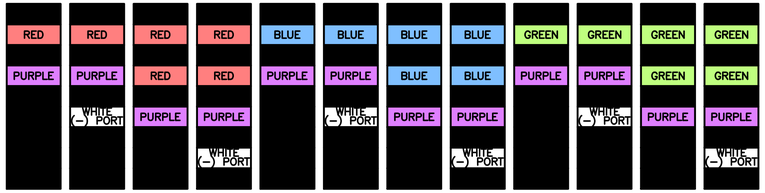
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID–BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



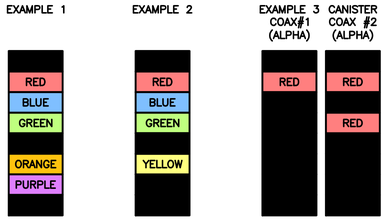
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS.

EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.

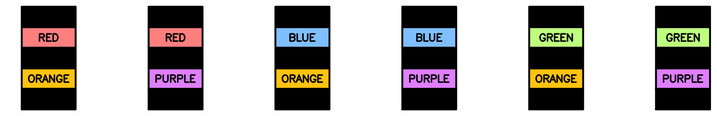


FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

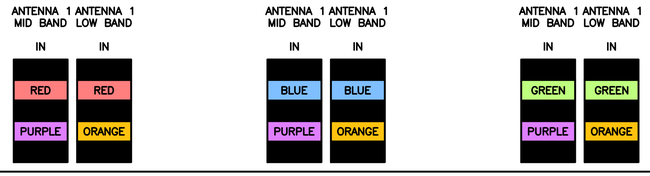
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID–BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

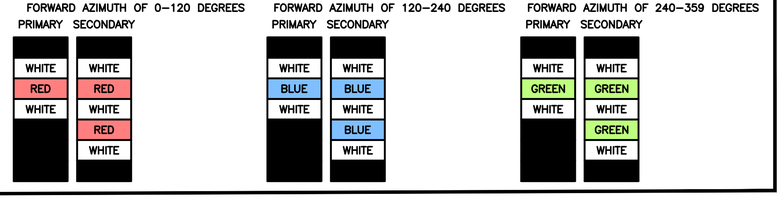
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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.

MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



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

NOT USED

dish wireless.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

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A&E PROJECT NUMBER

BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

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	T
EXOTHERMIC WITH INSPECTION SLEEVE	
GROUNDING BAR	
GROUND ROD	
TEST GROUND ROD WITH INSPECTION SLEEVE	T
SINGLE POLE SWITCH	$
DUPLEX RECEPTACLE	
DUPLEX GFCI RECEPTACLE	GFI
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8	F
SMOKE DETECTION (DC)	SD
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD	
CHAIN LINK FENCE	— x — x — x — x —
WOOD/WROUGHT IRON FENCE	
WALL STRUCTURE	
LEASE AREA	
PROPERTY LINE (PL)	
SETBACKS	
ICE BRIDGE	
CABLE TRAY	
WATER LINE	— W — W — W — W — W —
UNDERGROUND POWER	— UGP — UGP — UGP — UGP — UGP —
UNDERGROUND TELCO	— UGT — UGT — UGT — UGT — UGT —
OVERHEAD POWER	— OHP — OHP — OHP — OHP —
OVERHEAD TELCO	— OHT — OHT — OHT — OHT —
UNDERGROUND TELCO/POWER	— UGT/P — UGT/P — UGT/P — UGT/P —
ABOVE GROUND POWER	— AGP — AGP — AGP — AGP — AGP —
ABOVE GROUND TELCO	— AGT — AGT — AGT — AGT — AGT —
ABOVE GROUND TELCO/POWER	— AGT/P — AGT/P — AGT/P — AGT/P —
WORKPOINT	W.P.
SECTION REFERENCE	XX X-X
DETAIL REFERENCE	XX X-X

LEGEND

AB	ANCHOR BOLT	IN	INCH
ABV	ABOVE	INT	INTERIOR
AC	ALTERNATING CURRENT	LB(S)	POUND(S)
ADDL	ADDITIONAL	LF	LINEAR FEET
AFF	ABOVE FINISHED FLOOR	LTE	LONG TERM EVOLUTION
AFG	ABOVE FINISHED GRADE	MAS	MASONRY
AGL	ABOVE GROUND LEVEL	MAX	MAXIMUM
AIC	AMPERAGE INTERRUPTION CAPACITY	MB	MACHINE BOLT
ALUM	ALUMINUM	MECH	MECHANICAL
ALT	ALTERNATE	MFR	MANUFACTURER
ANT	ANTENNA	MGB	MASTER GROUND BAR
APPROX	APPROXIMATE	MIN	MINIMUM
ARCH	ARCHITECTURAL	MISC	MISCELLANEOUS
ATS	AUTOMATIC TRANSFER SWITCH	MTL	METAL
AWG	AMERICAN WIRE GAUGE	MTS	MANUAL TRANSFER SWITCH
BATT	BATTERY	MW	MICROWAVE
BLDG	BUILDING	NEC	NATIONAL ELECTRIC CODE
BLK	BLOCK	NM	NEWTON METERS
BLKG	BLOCKING	NO.	NUMBER
BM	BEAM	#	NUMBER
BTC	BARE TINNED COPPER CONDUCTOR	NTS	NOT TO SCALE
BOF	BOTTOM OF FOOTING	OC	ON-CENTER
CAB	CABINET	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CANT	CANTILEVERED	OPNG	OPENING
CHG	CHARGING	P/C	PRECAST CONCRETE
CLG	CEILING	PCS	PERSONAL COMMUNICATION SERVICES
CLR	CLEAR	PCU	PRIMARY CONTROL UNIT
COL	COLUMN	PRC	PRIMARY RADIO CABINET
COMM	COMMON	PP	POLARIZING PRESERVING
CONC	CONCRETE	PSF	POUNDS PER SQUARE FOOT
CONSTR	CONSTRUCTION	PSI	POUNDS PER SQUARE INCH
DBL	DOUBLE	PT	PRESSURE TREATED
DC	DIRECT CURRENT	PWR	POWER CABINET
DEPT	DEPARTMENT	QTY	QUANTITY
DF	DOUGLAS FIR	RAD	RADIUS
DIA	DIAMETER	RECT	RECTIFIER
DIAG	DIAGONAL	REF	REFERENCE
DIM	DIMENSION	REINF	REINFORCEMENT
DWG	DRAWING	REQ'D	REQUIRED
DWL	DOWEL	RET	REMOTE ELECTRIC TILT
EA	EACH	RF	RADIO FREQUENCY
EC	ELECTRICAL CONDUCTOR	RMC	RIGID METALLIC CONDUIT
EL.	ELEVATION	RRH	REMOTE RADIO HEAD
ELEC	ELECTRICAL	RRU	REMOTE RADIO UNIT
EMT	ELECTRICAL METALLIC TUBING	RWY	RACEWAY
ENG	ENGINEER	SCH	SCHEDULE
EQ	EQUAL	SHT	SHEET
EXP	EXPANSION	SIAD	SMART INTEGRATED ACCESS DEVICE
EXT	EXTERIOR	SIM	SIMILAR
EW	EACH WAY	SPEC	SPECIFICATION
FAB	FABRICATION	SQ	SQUARE
FF	FINISH FLOOR	SS	STAINLESS STEEL
FG	FINISH GRADE	STD	STANDARD
FIF	FACILITY INTERFACE FRAME	STL	STEEL
FIN	FINISH(ED)	TEMP	TEMPORARY
FLR	FLOOR	THK	THICKNESS
FDN	FOUNDATION	TMA	TOWER MOUNTED AMPLIFIER
FOC	FACE OF CONCRETE	TN	TOE NAIL
FOM	FACE OF MASONRY	TOA	TOP OF ANTENNA
FOS	FACE OF STUD	TOC	TOP OF CURB
FOW	FACE OF WALL	TOF	TOP OF FOUNDATION
FS	FINISH SURFACE	TOP	TOP OF PLATE (PARAPET)
FT	FOOT	TOS	TOP OF STEEL
FTG	FOOTING	TOW	TOP OF WALL
GA	GAUGE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
GEN	GENERATOR	TYP	TYPICAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UG	UNDERGROUND
GLB	GLUE LAMINATED BEAM	UL	UNDERWRITERS LABORATORY
GLV	GALVANIZED	UNO	UNLESS NOTED OTHERWISE
GPS	GLOBAL POSITIONING SYSTEM	UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
GND	GROUND	UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
GSM	GLOBAL SYSTEM FOR MOBILE	VIF	VERIFIED IN FIELD
HDG	HOT DIPPED GALVANIZED	W	WIDE
HDR	HEADER	W/	WITH
HGR	HANGER	WD	WOOD
HVAC	HEAT/VENTILATION/AIR CONDITIONING	WP	WEATHERPROOF
HT	HEIGHT	WT	WEIGHT
IGR	INTERIOR GROUND RING		

ABBREVIATIONS

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
PH: 203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

462 WALNUT STREET, SUITE 1
NEWTON, MA 02446

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:
JK	SM	HV

RFDS REV #: 1

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	"INFORMATIONAL SIGN" TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	"NOTICE BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	"CAUTION BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	"WARNING BEYOND THIS POINT" RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ CAUTION

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

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dish

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⚠ WARNING

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Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE

DISH Wireless L.L.C. TEMPLATE VERSION 54 – 01/20/2023

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

PROJECT MANAGER:
NORTHEAST SITE SOLUTIONS
420 MAIN STREET, BLDG 4
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CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET, SUITE 1
NEWTON, MA 02446

STATE OF CONNECTICUT — JOSEPH MICHAEL — NO. ARI.0160 — LICENSED ARCHITECT

DRAWN BY:	CHECKED BY:	APPROVED BY:
JK	SM	HV

RFDS REV #: 1

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

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.

dish wireless.

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DISH Wireless L.L.C.
PROJECT INFORMATION

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1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

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.

dish wireless.

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JK	SM	HV

RFDS REV #: 1

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A&E PROJECT NUMBER

BOBDL00020A

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00020A
1725 STAFFORD ROAD
MANSFIELD, CT 06268

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

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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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit D

Structural Analysis Report

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	170 ft Monopole
ATC Asset Name	:	MANSFIELD CENTER 2 CT
ATC Asset Number	:	376047
Engineering Number	:	OAA784409_C3_03
Proposed Carrier	:	DISH WIRELESS L.L.C.
Carrier Site Name	:	BOBDL00020A
Carrier Site Number	:	BOBDL00020A
Site Location	:	1725 Stafford Road STORRS MANSFIELD, CT 06268-1138 41.836° N, 72.3078° W
County	:	Tolland
Date	:	May 10, 2023
Max Usage	:	51%
Analysis Result	:	Pass

Created By:

Aviskar Ghansam
Structural Engineer I

Aviskar Ghansam

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 170 ft Monopole tower to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower:	PennSummit Order #19122, dated December 9, 2002
Foundation:	PennSummit, PJF Job #29202-0365, dated December 17, 2002
Geotechnical:	GEOServices Project #31-151383K, dated December 21, 2015

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	119 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower Engineering via email at **Engineering@americantower.com.** Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

Structure Usages

Structural Component	Usage	Control	Result
Pole Shaft	50.9%	1.2D + 1.0W	Pass
Base Plate @ 0.0 ft	49.1%	Rods	Pass
Pier	42.4%	Axial [Soil]	Pass

Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Shear (k)
Monopole Base	3,649.3	66.2	30.1

Reactions shown reflect the results from the Load Case with maximum Moment

Structure base reactions were analyzed using available geotechnical and foundation information.

DISH WIRELESS L.L.C. Final Loading

Elev (ft)	Qty	Equipment	Lines
119.0	1	Commscope MC-PK8-DSH	(1) 1.41" (35.8mm) Hybrid
	1	Raycap RDIDC-9181-PF-48 (19")	
	3	Fujitsu TA08025-B604	
	3	Fujitsu TA08025-B605	
	3	JMA Wireless MX08FRO665-21	

Install proposed lines inside the pole shaft.

Other Existing/Reserved Loading

Elev (ft)	Qty	Equipment	Lines	Carrier
174.0	2	Raycap RVZDC-6627-PF-48	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Amphenol Antel BXA-70080-4BF-EDIN-X		
	3	Samsung B2/B66A RRH-BR049		
	3	Samsung B5/B13 RRH-BR04C		
	3	Samsung MT6407-77A		
	6	Commscope NHH-65B-R2B		
170.0	1	Low Profile Platform	-	VERIZON
162.0	3	Andrew HBX-6516DS-VTM	(6) 1 5/8" Coax (1) 3/8" (0.38"- 9.5mm) RET Control Cable	METRO PCS INC
	1	PerfectVision PV-LPP12M-HR-12-96 Platform w/ PVPKBK-M Kicker Kit	(1) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	T-MOBILE
	3	Andrew ATSBT-BOTTOM-MF		
	3	Commscope LNX-6515DS-VTM		
	3	Ericsson KRY 112 144/1		
	3	Ericsson KRY 112 489/2		
	3	Ericsson Radio 4449 B12,B71		
	3	RCU (Remote Control Unit)		
	3	RFS APXV18-203219-C (54.1" x 11.3")		
	3	RFS APXVAARR24_43-U-NA20		
150.0	1	Powerwave Allgon P65-17-XLH-RR	(12) 1 5/8" Coax (12) 1/2" Coax (2) 3" conduit	AT&T MOBILITY
	2	KMW AM-X-CD-16-65-00T-RET		
	6	Ericsson RRUS 11 (Band 12)		
	6	Powerwave Allgon 7770.00		
	6	Powerwave Allgon LGP21401		
	6	Powerwave Allgon LGP21901		
148.0	1	Low Profile Platform	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	1	SSB (27lb)		
130.0	1	Low Profile Platform	(3) 1 1/4" Hybriflex Cable (1) 1 5/8" Hybriflex	SPRINT NEXTEL
	3	Alcatel-Lucent 800MHz RRH		
	3	Alcatel-Lucent RRH 1900 MHz		
	3	Alcatel-Lucent TD-RRH8x20-25		
	3	RFS APXV9ERR18-C (62 lbs)		
	3	RFS APXV9TM14-ALU-I20		

(If table breaks across pages, please see previous page for data in merged cells)

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts, and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

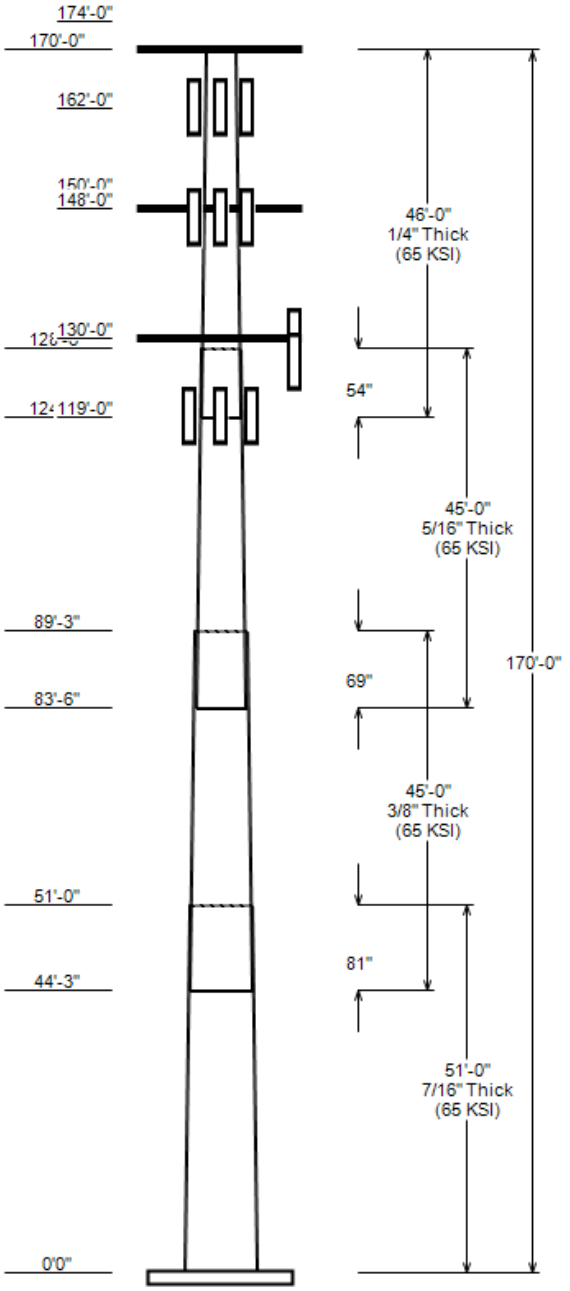
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Nominal Wind:	119 mph	**Ice Wind:**	50 mph w/ 1.5" ice	**Service Wind:**	60 mph
Risk Category:	II	**Exposure:**	B	**S_s:** 0.184	**S_1:** 0.055
Topo Category:	1	**Topo Factor:**	Method 1	**Topo Feature:**	
Structure Height:	170 ft	**Base Elevation:**	0.00 ft	**Structure Type:**	Taper
Base Diameter:	64.11 in	**Base Rotation:**	0°	**Taper:**	0.2470 (in/ft)

POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in) Top	Flat Diameter (in) Bottom	Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
1	51.000	51.52	64.11	0.438		0.000	18 Sides	65
2	45.000	42.82	53.93	0.375	Slip Joint	81.000	18 Sides	65
3	45.000	33.75	44.86	0.312	Slip Joint	69.000	18 Sides	65
4	46.000	24.00	35.36	0.250	Slip Joint	54.000	18 Sides	65



DISCRETE APPURTENANCE

Elev (ft)	Description
174.0	(3) Samsung B2/B66A RRH-BR049
174.0	(3) Samsung B5/B13 RRH-BR04C
174.0	(3) Amphenol Antel BXA-70080-4BF-E
174.0	(2) Raycap RVZDC-6627-PF-48
174.0	(3) Samsung MT6407-77A
174.0	(6) Commscope NHH-65B-R2B
170.0	(1) Generic Flat Low Profile Platf
162.0	(3) Generic RCU (Remote Control Un
162.0	(3) Andrew ATSBT-BOTTOM-MF
162.0	(3) Ericsson KRY 112 144/1
162.0	(3) Ericsson KRY 112 489/2
162.0	(3) Ericsson Radio 4449 B12,B71
162.0	(3) Andrew HBX-6516DS-VTM
162.0	(3) RFS APXV18-203219-C (54.1" x 1
162.0	(3) RFS APXV18-203219-C (54.1" x 1
162.0	(3) Commscope LNX-6515DS-VTM
162.0	(3) RFS APXVAARR24_43-U-NA20
162.0	(1) PerfectVision PV-LPP12M-HR-12
150.0	(6) Powerwave Allgon LGP21901
150.0	(6) Powerwave Allgon LGP21401
150.0	(6) Ericsson RRUS 11 (Band 12)
150.0	(6) Powerwave Allgon 7770.00
150.0	(2) KMW AM-X-CD-16-65-00T-RET
150.0	(1) Powerwave Allgon P65-17-XLH-RR
148.0	(1) Generic SSB (27lb)
148.0	(1) Generic Flat Low Profile Platf
130.0	(3) Alcatel-Lucent RRH 1900 MHz
130.0	(3) Alcatel-Lucent 800MHz RRH
130.0	(3) Alcatel-Lucent TD-RRH8x20-25
130.0	(3) RFS APXV9TM14-ALU-I20
130.0	(3) RFS APXV9ERR18-C (62 lbs)
130.0	(1) Generic Flat Low Profile Platf
119.0	(3) Fujitsu TA08025-B604
119.0	(3) Fujitsu TA08025-B605
119.0	(1) Raycap RDIDC-9181-PF-48 (19")
119.0	(3) JMA Wireless MX08FRO665-21
119.0	(1) Commscope MC-PK8-DSH

LINEAR APPURTENANCE

Elev To (ft)	Description
174.0	(6) 1 5/8" Coax
174.0	(2) 1 5/8" Hybriflex
162.0	(12) 1 5/8" Coax
162.0	(1) 1 5/8" (1.63"-41.3mm) Fiber
162.0	(1) 3/8" (0.38"- 9.5mm) RET Control Cabl
162.0	(6) 1 5/8" Coax
150.0	(2) 3" conduit
150.0	(12) 1/2" Coax
150.0	(12) 1 5/8" Coax
148.0	(2) 0.78" (19.7mm) 8 AWG 6
148.0	(1) 0.39" (10mm) Fiber Trunk
130.0	(1) 1 5/8" Hybriflex
130.0	(3) 1 1/4" Hybriflex Cable
119.0	(1) 1.41" (35.8mm) Hybrid

GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	3649.30	66.25	30.11
0.9D + 1.0W	3606.69	49.68	30.10
1.2D + 1.0Di + 1.0Wi	1055.07	94.61	8.65
1.2D + 1.0Ev + 1.0Eh	232.24	66.53	1.66
0.9D - 1.0Ev + 1.0Eh	228.85	46.21	1.66
1.0D + 1.0W	824.07	55.23	6.85

ANALYSIS PARAMETERS

Location:	Tolland County,CT	**Height:**	170 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	64.11 in
Manufacturer:	Undetermined	**Top Diameter:**	24.00 in
K_d (non-service):	0.95	**Taper:**	0.2470 in/ft
K_e:	0.99	**Rotation:**	0.000º

ICE & WIND PARAMETERS

Risk Category:	II	**Design Wind Speed:**	119 mph
Exposure Category:	B	**Design Wind Speed w/ Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Design Ice Thickness:**	1.50 in
Topographic Category:	1	**Service Wind Speed:**	60 mph
Crest Height:	0 ft	**HMSL:**	368.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil		**Period Based on Rayleigh Method (sec):**		2.51
T_L (sec):	6	**P:**	1	**$C_{s:}$**	0.030
$S_{s:}$	0.184	**$S_{1:}$**	0.055	**C_s Max:**	0.030
$F_{a:}$	1.600	**$F_{v:}$**	2.400	**C_s Min:**	0.030
$S_{ds:}$	0.196	**$S_{d1:}$**	0.088		

LOAD CASES

1.2D + 1.0W	119 mph Wind with No Ice
0.9D + 1.0W	119 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1.5" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

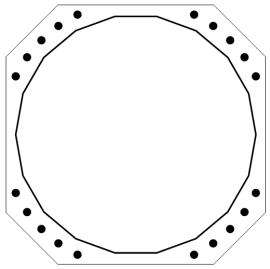
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
3649.3	66.25	30.11

PLATE PARAMETERS (ID# 23544)

Width:	70	in
Shape:	Square	
Thickness:	3.25	in
Grade:	A572-55	
Yield Strength:	55	ksi
Tensile Strength:	70	ksi
Clip Length:	14	in
Rod Detail Type:	d	
Clear Distance	3.125	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	225	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F_y (ksi)	F_u (ksi)	Spacing (in)	Offset (°)
Original [ID#24160]	Cluster	20	2.25	72	A615-75	75	100	6	-

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	64.11"ø x 0.4375" (18 Sides)	87.0708	-	-	44130.76	-
Bolt Group	Original (20) 2.25"ø	3.9761	3.2477	0.8393	39093.72	4.5

REACTION DISTRIBUTION

Component	ID	Moment M_u (k-ft)	Axial Load P_u (k)	Shear V_u (k)	Moment Factor
Pole	64.11"ø x 0.4375" (18 Sides)	3649.3	66.25	30.11	1.000
Bolt Group	Original (20) 2.25"ø	3649.3	-	30.11	1.000

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	64.24	in	Flat Width:	11.326	in	Neutral Axis:	225	°
Point-to-Point Diameter:	65.23	in	Flat Radians:	0.349	rad			
Orientation Offset:	-	°						

PLATE PROPERTIES

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment M_u (k-in)	Moment Capacity ΦM_n (k-in)	Flexure Result $M_u/\Phi M_n$
Flats	34.760	0.00	91.788	1028.6	4543.5	22.6%
Corners	33.769	0.00	89.171	716.4	4414.0	16.2%

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Interaction Result
Original	20	2.25	114.5	2.6	243.6	49.1%

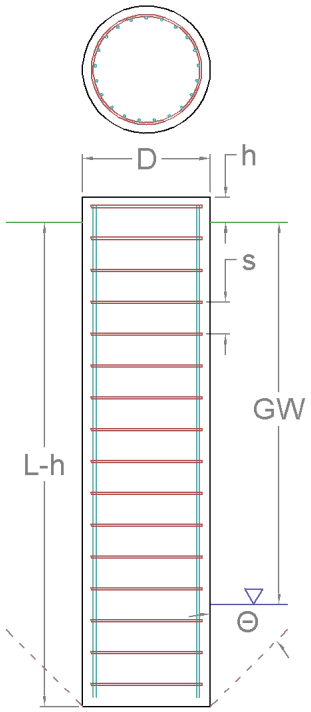
PIER FOUNDATION ANALYSIS

GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
3,649.30	66.25	30.11

FOUNDATION PARAMETERS

Pier Diameter:	D	8.00	ft
Pier Embedment Depth:	L-h	34.0	ft
Pier Height above Grade:	h	0.50	ft
Concrete Compressive Strength:		3,000	psi
Vertical Rebar:		(36) #11 bars [60 ksi]	
Tie Rebar:	s	#5 bars @ 18.0" c/c [40 ksi]	
Rebar Clear Cover:		4.00	in



SOIL PARAMETERS

Water Table Depth [BGL]: GW - ft

Layer Depth (ft) Top	Layer Depth (ft) Bottom	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (°)	Ultimate Skin Friction (psf)	Ultimate Net Bearing (psf)
0	4.5	105	0	0	0	0
4.5	7	125	0	28	140	0
7	29	125	0	32	224	0
29	35	125	0	32	464	3,900

SOIL STRENGTH ANALYSIS

Volume of Concrete (ft^3)	Buoyant Weight of Concrete (k)	Skin Friction Resistance (k)	Inflection Point [BGL] (ft)
1,734.16	260.12	190.96	24.42

SOIL MOMENT ANALYSIS

Total Lateral Resistance (k)	Moment at Inflection Point, M_u (k-ft)	Additional Resistance (k-ft)	Nominal Moment Capacity, ΦM_n (k-ft)	Soil Moment Usage, $M_u / \Phi M_n$
4,532.10	4,399.71	0.00	21,434.01	**20.5%**

SOIL COMPRESSION ANALYSIS

Compressive Bearing Resistance (k)	Compressive Force, P_u (k)	Additional Resistance (k)	Nominal Compressive Capacity, ΦP_n (k)	Soil Compressive Usage, $P_u / \Phi P_n$
196.04	122.95	0.00	290.25	**42.4%**

REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
85.34	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u/\Phi_b M_n$
3,666.21	10,546.89	0.01	**34.8%**

PIER REINFORCING COMPRESSION ANALYSIS

Buoyant Weight of Concrete (k)	Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
260.12	122.95	11,275.62	**1.1%**

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
279.16	676.76	**41.2%**

Exhibit E

Mount Analysis

MOUNT STRUCTURAL ANALYSIS REPORT
MONOPOLE

FORESITE LLC
•Architects •Engineers •Surveyors
Complete A&E services for wireless telecommunications industry

Prepared for:

dish WIRELESS

5701 South Santa Fe Drive
Littleton, CO 80120

Site ID: BOBDL00020A
Address:
1725 STAFFORD ROAD
STORRS MANSFIELD, CT 06268

Date: 03/28/2023
Submitted by:
Foresite LLC.
462 Walnut Street, Suite 1
Newton, MA 02460
Phone: 617-5273031

Date: 2/15/2023

To: Dish Wireless LLC
5701 South Santa Fe Drive
Littleton, CO 80120

Subject: **Mount Structural Analysis Report**

Dish Wireless LLC Designation: **Site ID:** BOBDL00020A

EFI Designation: **Project Number:** 049.04085 - 2375003

Site Data: **1725 Stafford Road, Storrs Mansfield, CT 06268**
Latitude 41.835953°, Longitude -72.307847°

EFI Global, Inc. is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mounts utilized by Dish Wireless LLC at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by Dish Wireless LLC under the following load case we have determined the mounts to have:

Proposed Equipment **Adequate Capacity (38.9%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with TIA-222-H Standard and the 2022 Connecticut State Building Code (2018 IBC).

We at *EFI Global, Inc.* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Sincerely,
EFI Global, Inc.
License No: PEC0001245

2/15/2023

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (470) 990-6593

1) ANALYSIS CRITERIA

The analysis was performed for the proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	119’
Structure Type	Monopole
Exposure Category	B
Ultimate Wind Speed	119 mph
Ultimate Ice Loading	1.50” with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Proposed and Final Appurtenance Configuration

Qty	Model
3	JMA MX08FRO665-21 – Antennas
3	Fujitsu TA08025-B605 – RRUs*
3	Fujitsu TA08025-B604 – RRUs*
1	Raycap RDIDC-9181-PF-48 – Junction Box*
1	Commscope Low Profile Platform (P/N: MC-PK8-DSH)

***To be mounted behind antennas.**

Table 1.2 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (470) 990-6593

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
Structural Analysis Report	ATC	1/19/2023
RFDS	Dish Wireless	6/14/2021

2.1) Analysis Method

Risa-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendix.

2.2) Analysis Conditions and Assumptions

1) The mount was built and installed in accordance with the manufacturer's specifications.
2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
3) The configuration of antennas is as specified in "1) Analysis Criteria".
4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
8) Member sizes per available mount specifications and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
9) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

EFI Global, Inc. (EFI), must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Platform Base Standoff Tube	38.9	Pass
Platform Base Corner Plate	<20.0	Pass
Connecting Plate	<20.0	Pass
Platform Base Face Pipe	<20.0	Pass
Platform Base Bracing Channel	38.8	Pass
Grating Angle	29.5	Pass
Support Rail Pipe	<20.0	Pass
Support Rail Corner Angle	<20.0	Pass
Mount Pipe	<20.0	Pass

Platform Mount: The proposed platform mount has **adequate** capacity for the proposed changes by Dish Wireless LLC. For the code specified load combinations and as a maximum, the mount members are stressed to **38.9%** of their structural capacity.

Note: EFI Global, Inc. has assumed that Commscope Low Profile Platform (P/N: MC-PK8-DSH, Specs attached) will be installed at this site prior to the equipment installation proposed in this analysis. The analysis also assumes the following:

- **The antenna RAD centerline is at the platform base level at 119'' A.G.L.**
- **The Support Rail is installed 42" above the base of the platform.**
- **(3) equally spaced 96'' long 2.5 STD mount pipes are installed at each side.**

APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
MOUNT SPECS

EFI Global, Inc.
1117 Perimeter Center West, Suite E500, Atlanta GA 30338 - Tel: (470) 990-6593

CLIENT: Foresite LLC

PROJECT: BOBDL00020A

SUBJECT: Antenna Loads - TIA 222 H Standard

Tower Height	170.00	ft	Type of Mount	Platform
Ultimate Wind Speed, V	119	mph		
Basic Wind Speed w/ Ice, V_i	50	mph		
Maintanence Load Factor, L_{FM}	0.0636	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)		
Ultimate Ice Thickness, t_i	1.5	inches		

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II	1	1	1	1

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
B	1200	7	0.7	0.9	0.55

Ground elevation factor, Ke

Zs	358.93	**ft**
Ke	0.99	

Table 2-5 Topographic Categories

Kzt 1.000

Figure 2-2 Rooftop Wind Speed-Up Factor

Ks 1.00

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
Monopole	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
Monopole	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Monopole	0.90	DOES NOT CHANGE

Seismic Factors

Ss	0.184	
S1	0.055	
Fa	1.6	
Fv	2.4	
R	2	Truss or Pole

CLIENT: Foresite LLC

PROJECT: BOBDL00020A

SUBJECT: Antenna Loads - TIA 222 H Standard

Rad Center 119.00 ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos.1 Alpha	119.00	JMA MX08FRO665-21	1	64.5	72.0	20.0	8.0	0.90	10.00	4.00	3.60	9.00	1.25	1.47	1.039	35.3	396.8	186.4	64.5	397	302	225	11	9
	119.00	Fujitsu TA08025-B605	1	75.0	15.0	N/A	9.1	0.90	-	0.94	-	1.65	-	1.20	1.039	35.3	0.0	35.9	74.95					
	119.00	Fujitsu TA08025-B604	1	63.9	15.0	N/A	7.9	0.90	-	0.82	-	1.90	-	1.20	1.039	35.3	0.0	31.2	63.93					
	119.00	Raycap RDIDC-9181-PF-48	1	21.9	19.0	N/A	9.6	0.90	-	1.27	-	1.97	-	1.20	1.039	35.3	0.0	48.4	21.85					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				199	151	113	5	4
Pos.1 Beta&Gamma	119.00	JMA MX08FRO665-21	1	64.5	72.0	20.0	8.0	0.90	10.00	4.00	3.60	9.00	1.25	1.47	1.039	35.3	396.8	186.4	64.5	397	253	203	10	8
	119.00	Fujitsu TA08025-B605	1	75.0	15.0	N/A	9.1	0.90	-	0.94	-	1.65	-	1.20	1.039	35.3	0.0	35.9	74.95					
	119.00	Fujitsu TA08025-B604	1	63.9	15.0	N/A	7.9	0.90	-	0.82	-	1.90	-	1.20	1.039	35.3	0.0	31.2	63.93					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				199	127	102	5	4

* Enter N/A in the W column for front sheilded apurtanances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL #REF!

Mount	Height (ft)	Member	*L (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	119.00	3 STD Pipe	12.00	3.50	0.00	1.20	1.039	31.8	11	-	-
	119.00	2.5 STD Pipe	12.00	2.88	0.00	1.20	1.039	31.8	9	-	-
	119.00	2.0 STD Pipe	0.00	2.38	0.00	-	-	-	-	-	-
	119.00	1/2" SR	0.00	0.50	0.00	-	-	-	-	-	-
	119.00	(L4x4x5)	0.00	4.00	4.00	-	-	-	-	-	-
	119.00	(L6.6X4.46)	12.00	6.60	2.50	2.00	1.039	31.8	35	-	-
	119.00	(L2X2)	12.00	2.00	2.00	2.00	1.039	31.8	11	-	-
	119.00	PL2.375X0.5	12.00	2.38	0.38	2.00	1.039	31.8	13	-	-
	119.00	Plate (PL6.5x3/8)	12.00	6.50	0.50	2.00	1.039	31.8	34	-	-
	119.00	HSS4X4X4	12.00	4.00	4.00	2.00	1.039	31.8	21	-	-
	119.00	Double Angle (LL2.5x2.5x3x3)	0.00	5.00	2.50	-	-	-	-	-	-
	119.00	Channel (C3.38x2.06)	12.00	3.38	5.00	2.00	1.039	31.8	18	-	-
	119.00	Channel (2.75x2)	0.00	2.75	2.00	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: Foresite LLC

PROJECT: BOBDL00020A

SUBJECT: Antenna Loads - TIA 222 H Standard

ti (in) 1.705276 Kiz 1.1368504 reduction 0.17654

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos.1 Alpha	**119.00**	JMA MX08FRO665-21	1	72.0	20.0	8.0	0.90	2.26	1.98	4.99	279.49	0.72	0.79	1.039	6.2	9.1	8.8	79.1	41.7	279	79	70	511
	119.00	Fujitsu TA08025-B605	1	15.0	15.8	9.1	0.90	-	0.65	1.30	73.07	0.70	0.70	1.039	6.2	0.0	2.6	0.0	8.9	73			
	119.00	Fujitsu TA08025-B604	1	15.0	15.8	7.9	0.90	-	0.62	1.22	68.58	0.70	0.70	1.039	6.2	0.0	2.4	0.0	7.9	69			
	119.00	Raycap RDIDC-9181-PF-48	1	19.0	16.2	9.6	0.90	-	0.76	1.60	89.62	0.70	0.70	1.039	6.2	0.0	3.0	0.0	11.5	90			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					40	**36**	**256**
Pos.1 Beta&Gamma	**119.00**	JMA MX08FRO665-21	1	72.0	20.0	8.0	0.90	2.26	1.98	4.99	279.49	0.72	0.79	1.039	6.2	9.1	8.8	79.1	41.7	279	79	59	421
	119.00	Fujitsu TA08025-B605	1	15.0	15.8	9.1	0.90	-	0.65	1.30	73.07	0.70	0.70	1.039	6.2	0.0	2.6	0.0	8.9	73			
	119.00	Fujitsu TA08025-B604	1	15.0	15.8	7.9	0.90	-	0.62	1.22	68.58	0.70	0.70	1.039	6.2	0.0	2.4	0.0	7.9	69			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					40	**30**	**211**

* A_N ,A_T, Volume Ice and Weight Ice are calculated per unit

** Ca will equal 1.2 for all ice load calculations

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	119.00	3 STD Pipe	12.00	3.50	0.00	0.45	0.19	10.84	1.20	1.039	5.6	3.0	5.0	11
	119.00	2.5 STD Pipe	12.00	2.88	0.00	0.43	0.17	9.54	1.20	1.039	5.6	2.9	4.5	10
	119.00	2.0 STD Pipe	0.00	2.38	0.00	-	-	-	-	-	-	-	-	-
	119.00	1/2" SR	0.00	0.50	0.00	-	-	-	-	-	-	-	-	-
	119.00	(L4x4x5)	0.00	4.00	4.00	-	-	-	-	-	-	-	-	-
	119.00	(L6.6X4.46)	12.00	6.60	2.50	0.52	0.22	12.07	1.20	1.039	5.6	3.5	9.7	12
	119.00	(L2X2)	12.00	2.00	2.00	0.41	0.09	5.31	1.20	1.039	5.6	2.8	4.6	5
	119.00	PL2.375X0.5	12.00	2.38	0.38	0.42	0.19	10.59	1.20	1.039	5.6	2.8	5.1	11
	119.00	Plate (PL6.5x3/8)	12.00	6.50	0.50	0.52	0.32	18.09	1.20	1.039	5.6	3.5	9.6	18
	119.00	HSS4X4X4	12.00	4.00	4.00	0.46	0.38	21.20	1.20	1.039	5.6	3.1	6.8	21
	119.00	Double Angle (LL2.5x2.5x3x3)	0.00	5.00	2.50	-	-	-	-	-	-	-	-	-
	119.00	Channel (C3.38x2.06)	12.00	3.38	5.00	0.45	0.28	15.60	1.20	1.039	5.6	3.0	6.2	16
	119.00	Channel (2.75x2)	0.00	2.75	2.00	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** A_N is the area of ice built up on the LW plane

**** Ca will equal 1.2 for all ice load calculations

NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

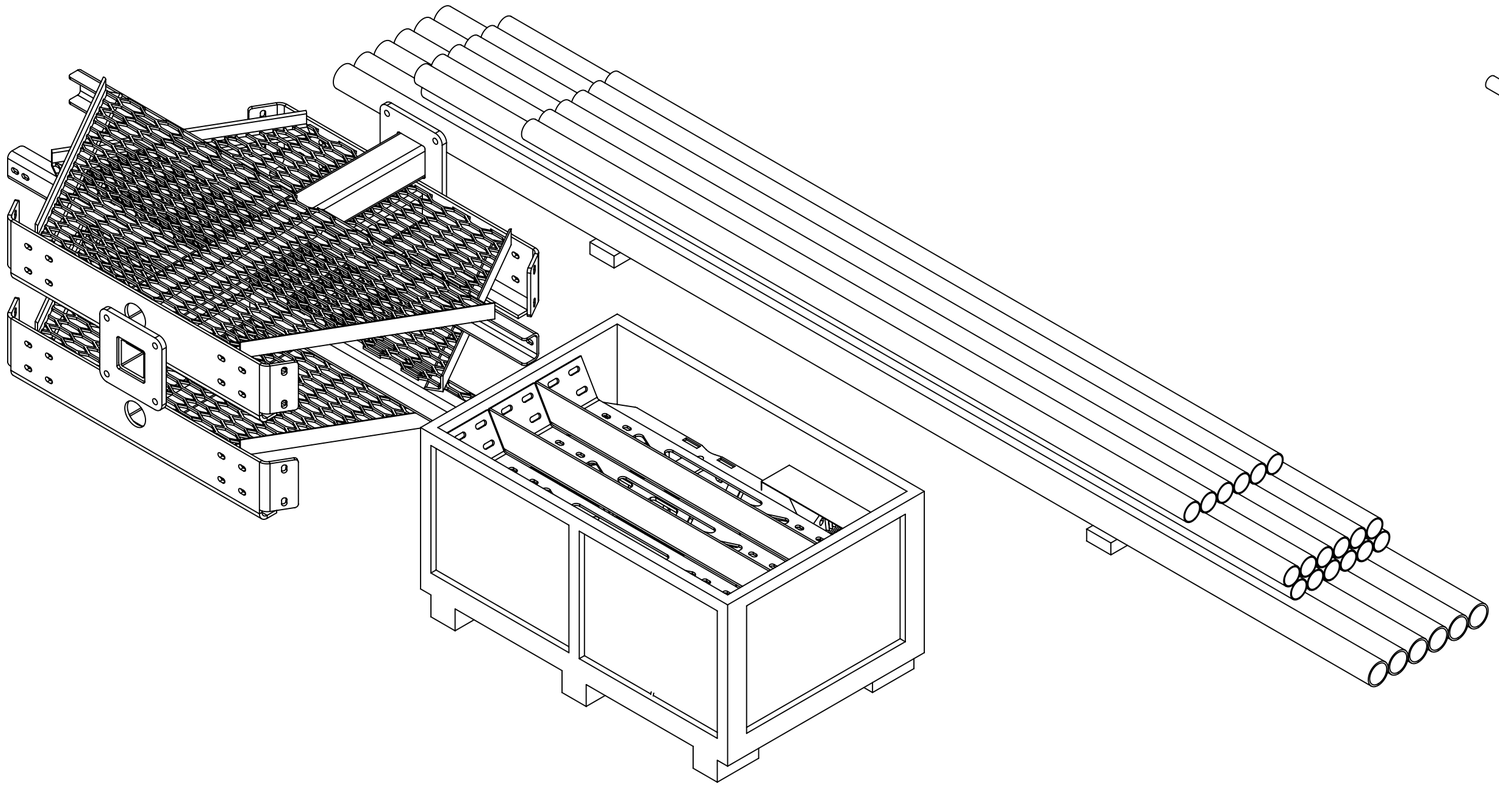
2.0 DESIGN NOTES
- 2.1 TIGHTEN ALL BOLTS SECURING FLAT PLATES BY THE TURN-OF-NUT METHOD. TIGHTEN ALL U-BOLTS USING TURN-OF-NUT METHOD WITH ATTENTION TO LEAVE EQUAL DISTANCE AND EQUAL FORCE ON EACH LEG OF THE U-BOLT.

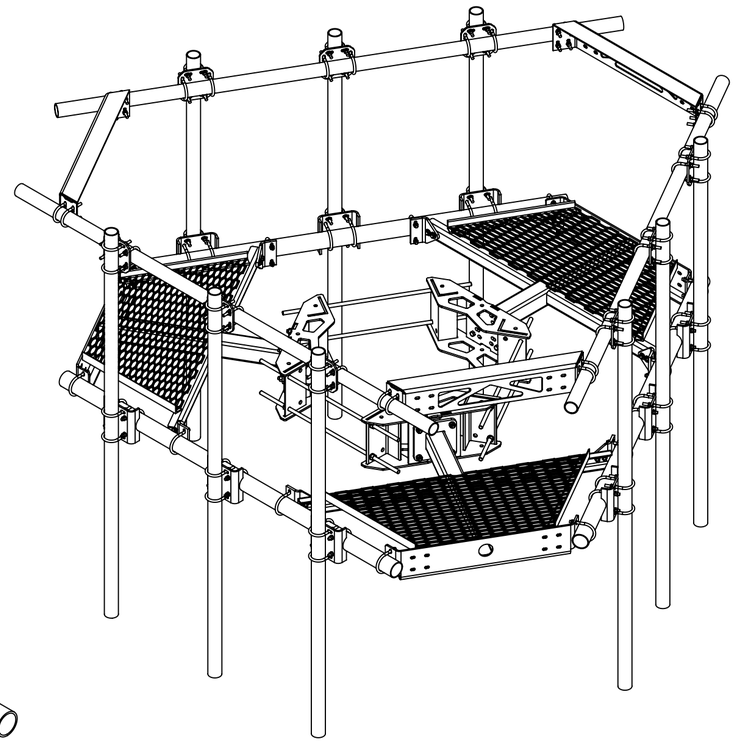
3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING
- 5.1 PACKAGING SHALL MEET COMMSCOPE REQUIREMENTS PER DOCUMENT IS-PL-3005.
- 5.2 PRINTED DOCUMENT TO BE PLACED INSIDE POLYBAG AND THEN IN SHIPPING CONTAINER.
- 5.3 EXTRA HARDWARE MAYBE SUPPLIED, BAGGED AND SHIPPED.

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021
B	14762	SHEET 1: UPDATED NOTE 2.1 & ADDED NOTE 5.1 TO 5.2 SHEET2: REPOSITION ANTENNA PIPES; CHANGED HAND RAIL DISTANCE FORM PLATFORM: 42" WAS 40" IN ZONE B3; DIM ∅12 WAS ∅15 IN ZONE D3; UPDATED ITEM 4: GB-0522A WAS GB-0520A	JL1183	09/10/2021
c	40139639CMO	ADDED WEIGHT AND MASS INFORMATION	LL1090	12/07/2021





PATENT PENDING

DENSITY		lbs/in³
MASS	1801.56	lbs
VOLUME	6362.00	in³
SURFACE AREA	55884.77	in²
HEIGHT	96"	
LENGTH	46"	
WIDTH	29'	

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
1 PLACE .X ± .25 | 3 PLACE .XXX ± 0.06
2 PLACE .XX ± 0.12 | ANGLES ± 2°

SAP MATERIAL MASTER: MC-PK8-DSH

FINISH: GALV A123

MATERIAL: SEE SEPARATE BILLS OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994

	NAME	DATE
CE	MRC	02/17/20
RW	LL1090	12/07/2021
AD	VCORTEZ1	12/09/2021
RE	VCORTEZ1	12/09/2021

ECN 40139639CMO

TITLE: **LOW PROFILE PLATFORM FACE**

SCALE: 1:32

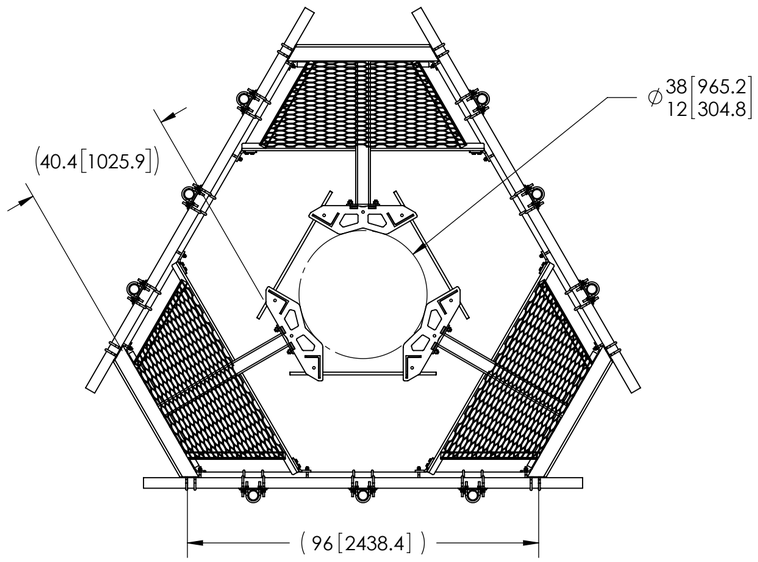
DOCUMENT NO.: MC-PK8-DSH

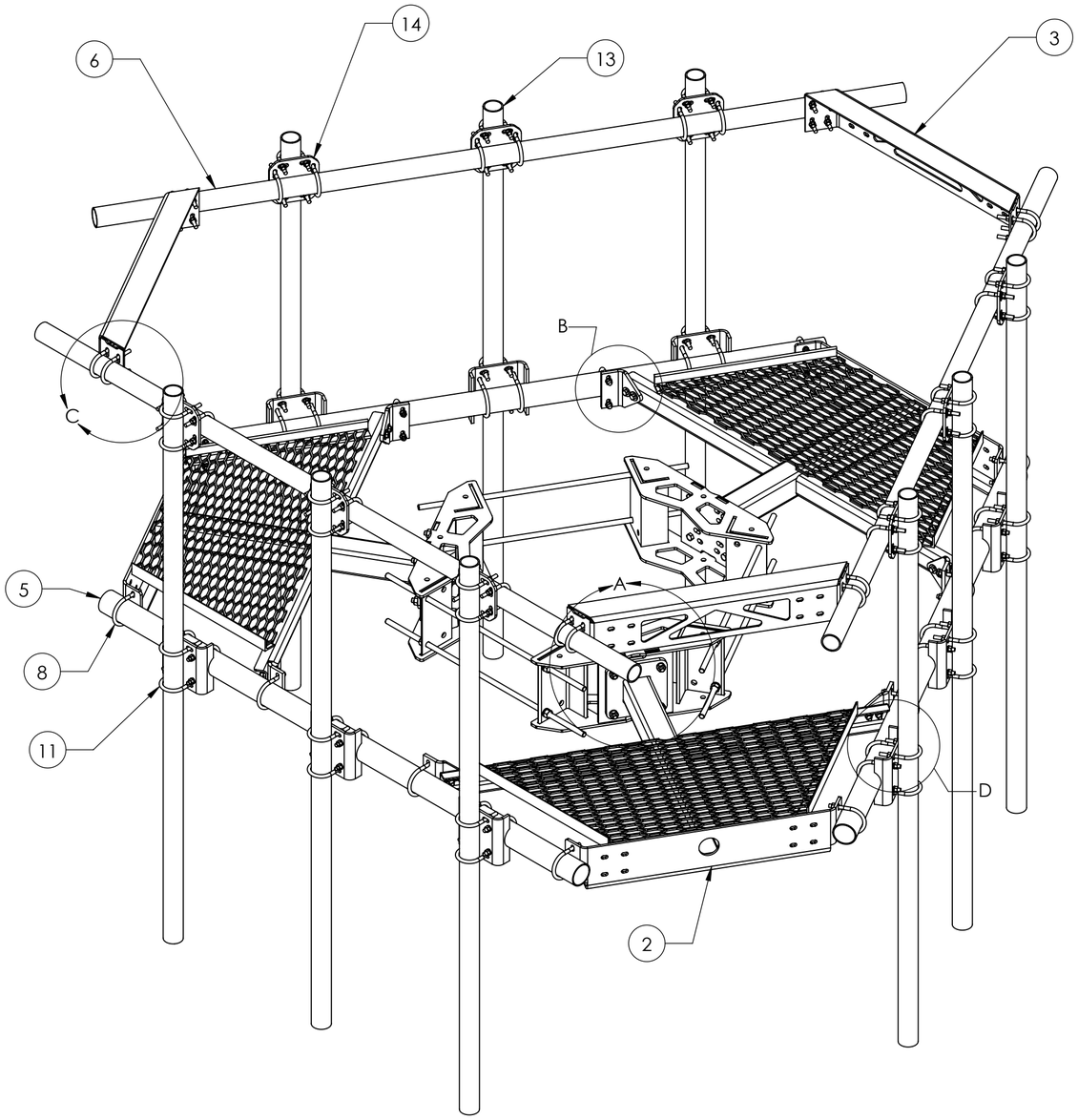
SIZE: C

Auth Group: INSL

MODEL			DRAWING			SHEET
VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
03	RE	B	02	RE	C	1 OF 3

NOTES:





BOM IS FOR REFERENCE ONLY, PART NUMBER SUBSTITUTIONS MAY BE MADE

ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0522A	5/8" X 2-1/4" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD CLAMP BRACKET ASSY	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	∅2.875" O.D. X 96 PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

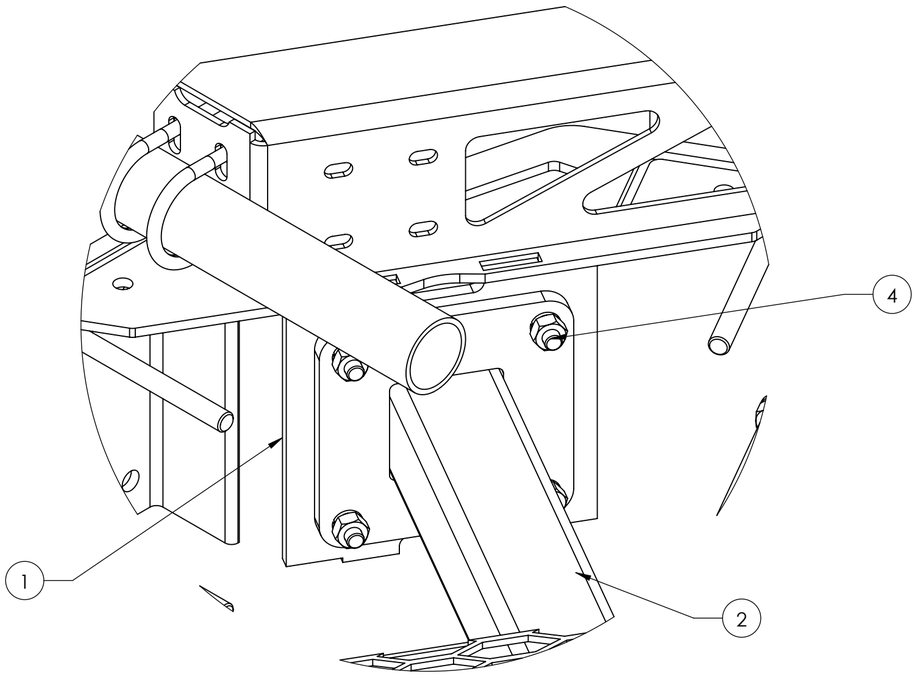
COMMSCOPE, INC. OF NORTH CAROLINA

TITLE

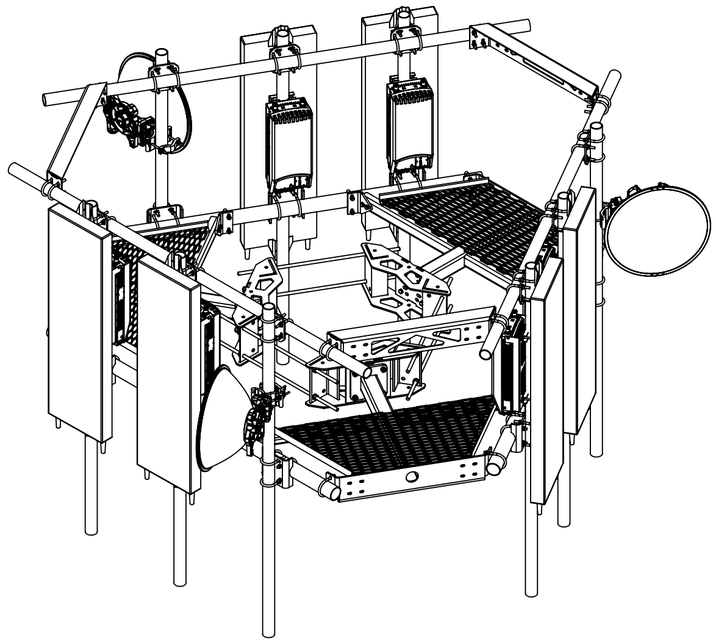
LOW PROFILE PLATFORM FACE

SIZE	SCALE	DOCUMENT NO.			
C	1:32	MC-PK8-DSH			
		DRAWING			SHEET
		VERSION	STATUS	REVISION	
		02	RE	C	

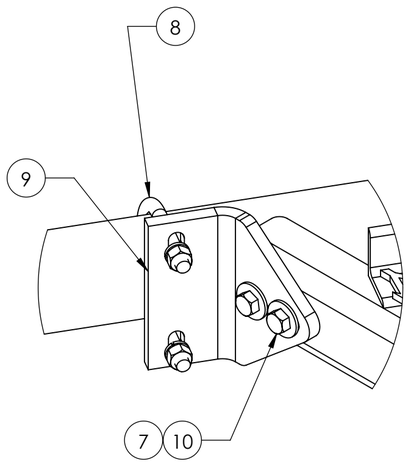
NOTES:



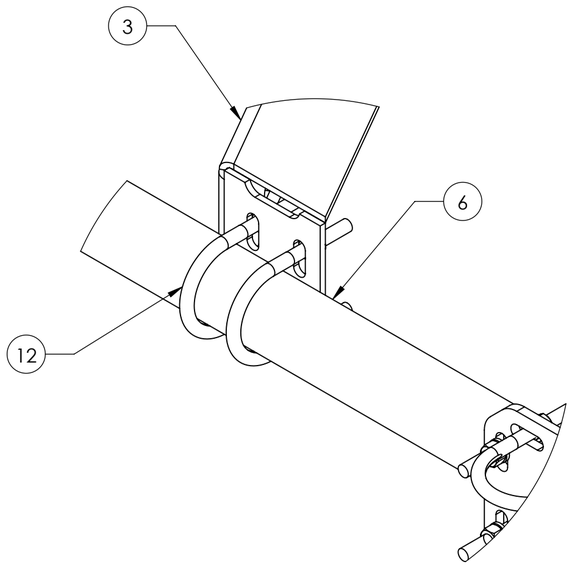
DETAIL A
SCALE 1 : 4



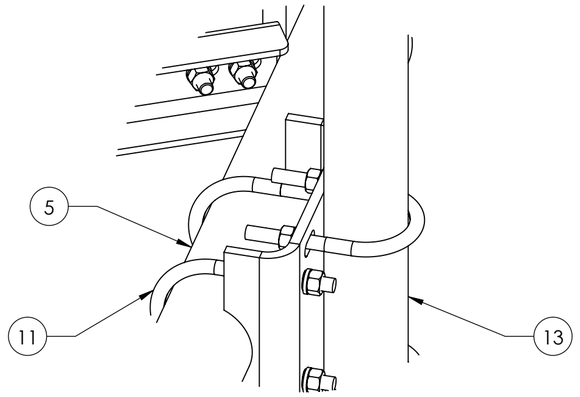
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: LOW PROFILE PLATFORM FACE			
SIZE: C	SCALE: 1:24	DOCUMENT NO.: MC-PK8-DSH	
		DRAWING: VERSION 02 / STATUS RE / REVISION C	SHEET: 3 OF 3

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOBDL00020A

1725 Stafford Road
Storrs / Mansfield, CT 06268

April 27, 2023

Fox Hill Telecom Project Number: 230400

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**10.42 %**

Fox Hill Telecom

April 27, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00020A**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **1725 Stafford Road, Storrs / Mansfield, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 600 MHz band is approximately 400 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the Dish Wireless antenna facility located at **1725 Stafford Road, Storrs / Mansfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4\ ERP}{R^2}$$

S = Power Density (in μw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.

For each Dish sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following **Dish** antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from Dish regarding anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	119
B	1	JMA MX08FRO665-21	119
C	1	JMA MX08FRO665-21	119

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.66
						Sector A Composite MPE%	**2.66**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.66
						Sector B Composite MPE%	**2.66**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.66
						Sector C Composite MPE%	**2.66**

Table 3: Dish Emissions Levels

The Following table (*Table 4*) shows all additional carriers on site and their emissions contribution estimates, along with the newly calculated **Dish** far field emissions contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas the highest recorded sector value be used for composite site emissions values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results for all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite emissions value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**2.66 %**
Verizon Wireless	2.73 %
T-Mobile	1.91 %
AT&T	3.12 %
Site Total MPE %:	**10.42 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	2.66 %
Dish Sector B Total:	2.66 %
Dish Sector C Total:	2.66 %
Site Total:	10.42 %

Table 5: Site MPE Summary

Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results for all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	119	7.04	n71 (600 MHz)	400	1.76%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	119	4.50	n70 (AWS-4 / 1995-2020)	1000	0.45%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	119	4.50	n66 (AWS-4 / 2180-2200)	1000	0.45%
						Total:	**2.66 %**

Table 6: Dish Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Sector	Power Density Value (%)
Sector A:	2.66 %
Sector B:	2.66 %
Sector C:	2.66 %
Dish Maximum Total (per sector):	2.66 %
Site Total:	10.42 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **10.42 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

Exhibit G

Letter of Authorization

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION FOR PERMITTING

ATC SITE#/NAME/PROJECT: 376047 / MANSFIELD CENTER 2 CT / OAA784409
SITE ADDRESS: 1725 STAFFORD RD, STORRS MANSFIELD, CT 06268
APN: MANS M:1 B:2 L:2
LICENSEE: DISH WIRELESS L.L.C. dba DISH WIRELESS L.L.C.

I, Margaret Robinson, Vice President, UST Legal for American Tower*, owner/operator of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize **DISH WIRELESS L.L.C. dba DISH WIRELESS L.L.C.** their successors and assigns, and/or their agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use, building, or electrical permit application(s) as may be required by the applicable permitting authorities for **DISH WIRELESS L.L.C.** telecommunications' installation on the Tower Facility.

I understand that these applications may approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

Signature:

Print Name: Margaret Robinson
Vice President, UST Legal
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Vice President, UST Legal for American Tower*, personally known to me (or proved to me based on satisfactory evidence of identification) to be the person whose name is signed on the preceding or attached document and acknowledged to me that they signed it voluntarily for its stated purpose.

WITNESS my hand and official seal, this 13th day of April, 2023

NOTARY SEAL

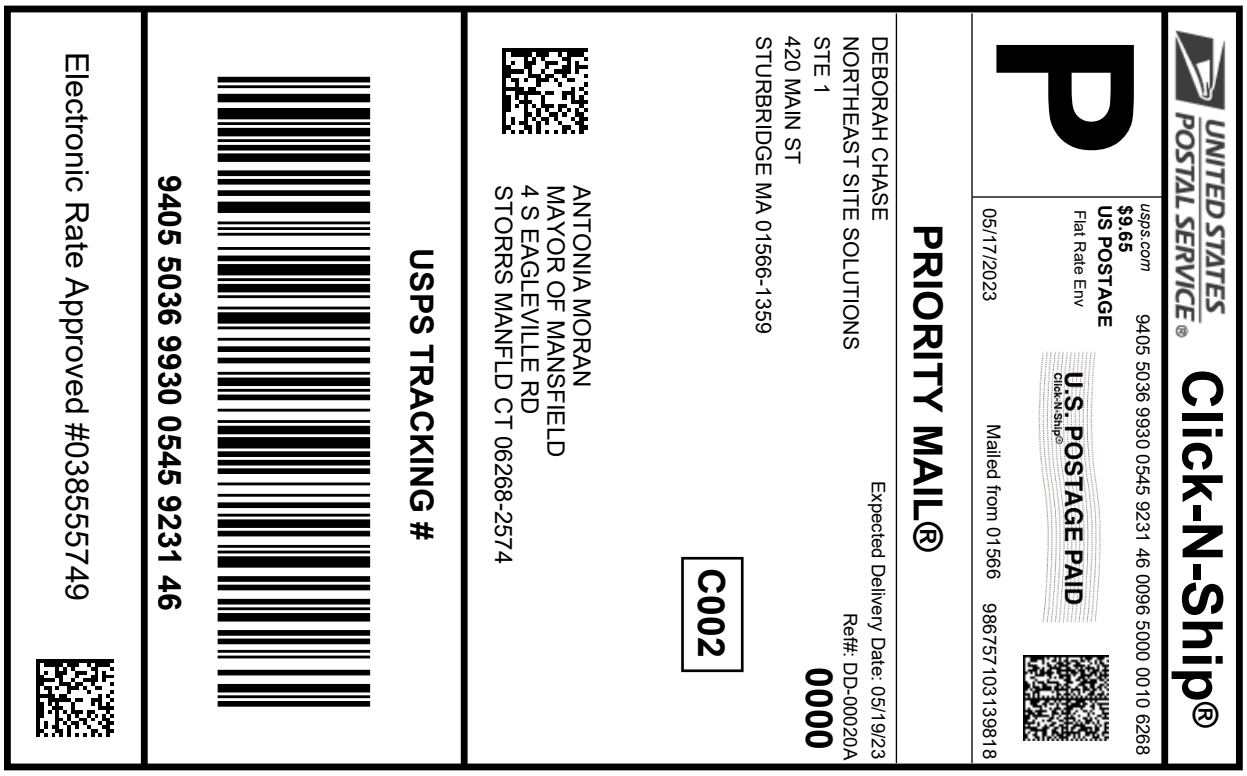
MELISSA ANN METZLER
Notary Public
Commonwealth of Massachusetts
My Commission Expires March 14, 2025

Notary Public
My Commission Expires: March 14, 2025

* American Tower is defined as American Tower Corporation and any of its affiliates or subsidiaries.

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0545 9231 46

Trans. #:	588524692
Print Date:	05/17/2023
Ship Date:	05/17/2023
Expected Delivery Date:	05/19/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

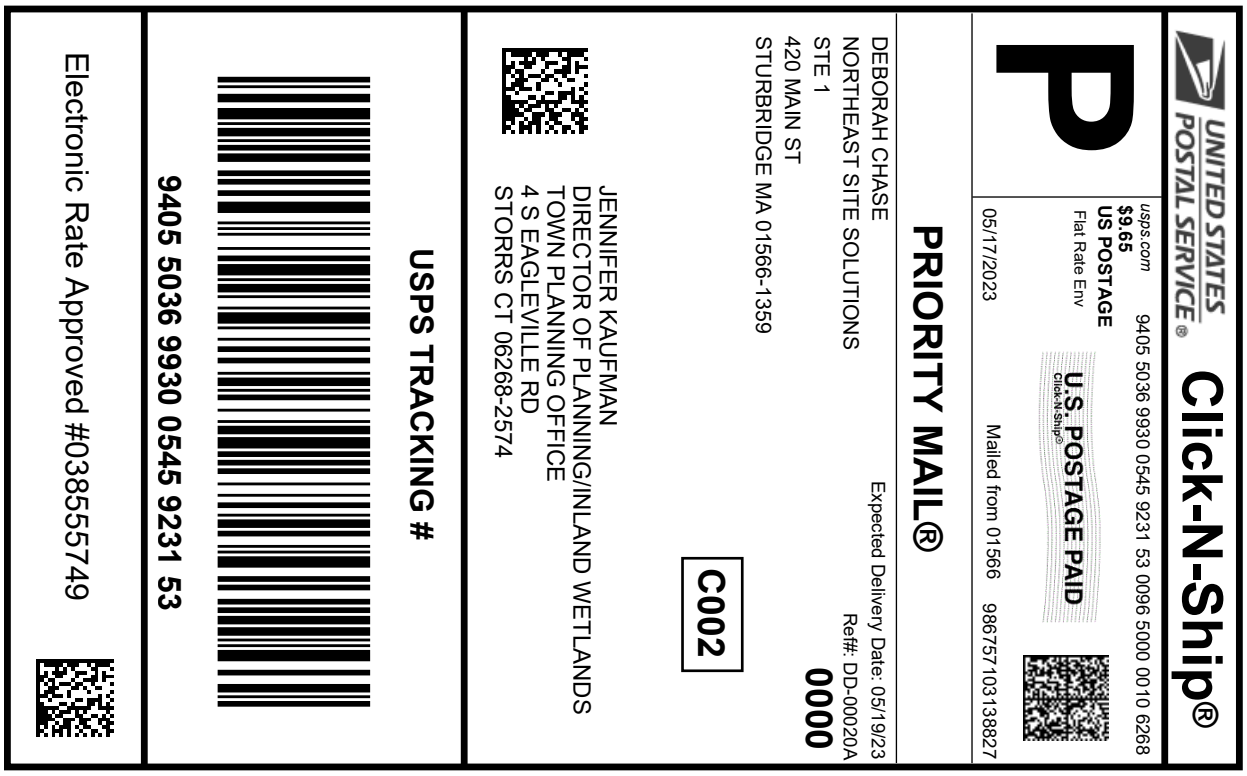
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DD-00020A

To: ANTONIA MORAN
MAYOR OF MANSFIELD
4 S EAGLEVILLE RD
STORRS MANFLD CT 06268-2574

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0545 9231 53

Trans. #:	588524692
Print Date:	05/17/2023
Ship Date:	05/17/2023
Expected Delivery Date:	05/19/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

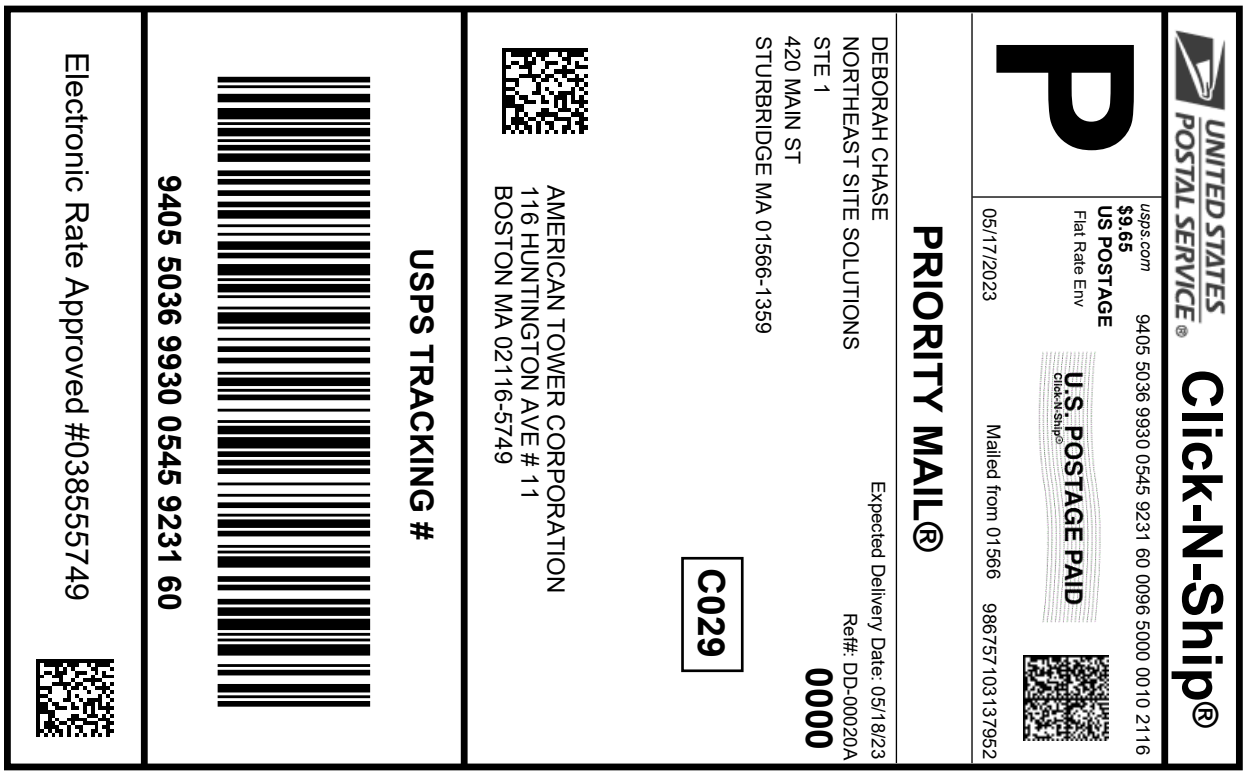
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DD-00020A

To: JENNIFER KAUFMAN
DIRECTOR OF PLANNING/INLAND WETLANDS AGENT
TOWN PLANNING OFFICE
4 S EAGLEVILLE RD
STORRS CT 06268-2574

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0545 9231 60

Trans. #:	588524692
Print Date:	05/17/2023
Ship Date:	05/17/2023
Expected Delivery Date:	05/18/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DD-00020A

To: AMERICAN TOWER CORPORATION
116 HUNTINGTON AVE # 11
BOSTON MA 02116-5749

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE.

FISKDALE
458 MAIN ST
FISKDALE, MA 01518-9998
(800)275-8777

05/17/2023 12:45 PM

Product	Qty	Unit Price	Price
Prepaid Mail Storrs Mansfield, CT 06268 Weight: 0 lb 13.20 oz Acceptance Date: Wed 05/17/2023 Tracking #: 9405 5036 9930 0545 9231 46	1		$0.00
Prepaid Mail Storrs Mansfield, CT 06268 Weight: 0 lb 13.30 oz Acceptance Date: Wed 05/17/2023 Tracking #: 9405 5036 9930 0545 9231 53	1		$0.00
Prepaid Mail Boston, MA 02116 Weight: 0 lb 13.20 oz Acceptance Date: Wed 05/17/2023 Tracking #: 9405 5036 9930 0545 9231 60	1		$0.00
Grand Total:			$0.00

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

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Track your Packages
Sign up for FREE @
https://informeddelivery.usps.com

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

Tell us about your experience.
Go to: https://postalexperience.com/Pos
or scan this code with your mobile device,

or call 1-800-410-7420.

UFN: 242703-0518
Receipt #: 840-50180227-2-3168981-1
Clerk: 5