



**NSS** **NORTHEAST**  
SITE SOLUTIONS

*Turnkey Wireless Development*

Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

February 16, 2023

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

RE: Tower Share Application  
30 Old Country Road, Stafford Springs CT 06076  
Latitude: 41.94003  
Longitude: -72.2374  
Site #: CT03111-S\_BOBOS00875A\_SBA\_DISH

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 30 Old Country Road, Stafford Springs, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas at the 135-foot level of the existing 180-foot monopole tower, one (1) coax cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated January 26, 2023, Exhibit C. Also included is a structural analysis prepared by TES, dated January 27, 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 Stafford's Planning and Zoning Commission on August 9, 2000. 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 Town of Stafford's First Selectman, Salverio P. Titus, and Zoning Enforcement Officer, David Perkins, as well as to the property 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 modification will not result in an increase in the height of the existing structure. The top of the existing tower is 180-feet and the Dish Wireless LLC antennas will be located at a center line height of 135-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



3. The proposed modifications will not increase 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 negligible.

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. The combined site operations will result in a total power density of 7.00% as evidenced by Exhibit F.

Connecticut General Statutes 16-50aa 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 submits 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 as 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 tower in Stafford Springs. 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 135-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. 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 sharing 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 Stafford Springs.

Sincerely,

*Denise Sabo*

Denise Sabo  
Mobile: 203-435-3640  
Fax: 413-521-0558  
Office: 4 Angela's Way, Burlington CT 06013  
Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
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Attachments

Cc: Salverio P. Titus, First Selectman  
Town of Stafford  
Warren Memorial Town Hall  
1 Main Street, Stafford Springs, CT 06076

David Perkins, Zoning Enforcement Officer  
Town of Stafford  
Warren Memorial Town Hall  
1 Main Street, Stafford Springs, CT 06076

Lisa J. Harrison / L&M Property Holdings, LLC – Property Owner  
7 Doratzak Road  
Willington CT 06279

SBA - Tower Owner

# Exhibit A

## **Original Facility Approval**



*cover First-Class postage, certified mail services (See front),  
stick the gummed stub to the right of  
the article at a post office  
and present the receipt and mail the article  
(no extra charge).  
stick the gummed stub to the  
postmark, and retain the receipt and mail the article  
detach, and retain the receipt and mail the article  
the certified mail number and your name at  
1, and attach it to the front of the article by means  
Otherwise, affix to back of article. Endorse front  
ID adjacent to the number.  
to an authorized agent  
to the addressee, or to an authorized agent  
to the addressee, or to an authorized agent  
**FED DELIVERY** on the front of the article.  
s requested in the appropriate spaces on the  
tested, check the applicable blocks in Item 1 of  
with it you make an inquiry.*



# Town of Stafford The Stafford Planning & Zoning Commission

Warren Memorial Town Hall  
1 Main Street • Stafford Springs, CT 06076

(860) 684-7444  
FAX 684-9845

August 9, 2000

## CERTIFIED MAIL

Attorney Wendell G. Davis, Jr.  
Cranmore, Fitzgerald & Meaney  
Attorneys At Law  
49 Wethersfield Avenue  
Hartford, CT 06114-1104

Dear Attorney Davis:

At a regular meeting of the Planning & Zoning Commission August 8, 2000, the Board unanimously approved the Special Use Permit application of SBA, Inc. for a wireless telecommunications tower to be located at 30 Old County Road, with the condition that the property owner grant a fall zone easement in favor of SBA, Inc., as depicted on the site plan dated December 21, 1999.

Very truly yours,

Wendell Avery  
Zoning Enforcement Officer

WA/mjl

# THE STAFFORD PLANNING & ZONING COMMISSION

Warren Memorial Town Hall  
Stafford Springs, CT

## Special Use Permit Application

Please Print

SUP No. 10-8-8

1. APPLICANT: SBA, Inc. Phone 860-659-9101  
Address 80 Eastern Blvd. Glastonbury, CT 06033
2. PROPERTY ADDRESS: 30 Old County Road, Stafford Springs
3. PROPERTY OWNER: Joseph Mihaliak Phone 860-684-3383  
Address 145 Mihaliak Road, Willington, CT 06279
4. ENGINEER: Gesick & Associates Phone 860-669-7799  
Address 19 Cedar Island Ave., Clinton, CT 06413
5. ZONE: Residential AAA
6. SPECIAL USE PERMIT for: \_\_\_\_\_  
Brief Explanation Construction of a wireless telecommunications tower facility,  
180 foot monopole on 70 ft X 70 ft fenced compound.

7. Names and Address of Abutting Property Owners: \_\_\_\_\_  
A. Elaine Lunt, Box 794, Southwest Harbor, Maine 04679  
B. Bruce & Barbara Posocco, Box 348, Stafford Springs, CT  
C. William Mihaliak, 154 Mihaliak Road, Willington, CT 06279  
D. Joseph Mihaliak, owner of 30 Old County Road, address same as in line 3
8. I have provided a Site Plan and copies as required in Sec. 6.11 of the Stafford Planning & Zoning Regulations \_\_\_\_\_  
Yes  No
9. I have examined and familiarized myself with all Planning and Zoning Regulations. Yes  No
10. The approximate cost of the entire project is \$235,000
11. I have paid fee \$110 as required in Sec. 6.70. Yes  No

Signature of Applicant: [Signature] Steven L. Levine  
Date: 6-20-2000 on behalf of applicant  
Signature Owner: Joseph Mihaliak  
Date: 6-20-2000

12. Date of Public Hearing: ~~July 25, 2000~~ August 8, 2000
13. Commission has received letter of APPROVAL from the Town Sanitarian. Yes \_\_\_\_\_ No N/A
14. Commission has received letter of APPROVAL from the Inland Wetlands Commission. Yes OK No Not Done
15. Additional Requirements or Comments: \_\_\_\_\_

16. This SPECIAL USE PERMIT is APPROVED  DISAPPROVED \_\_\_\_\_ DATE 8-8-00

Signature of Commissioners: [Signature]

# Exhibit B

## Property Card

# 30 OLD COUNTY RD

**Location** 30 OLD COUNTY RD

**Mblu** 76 / / 6 / /

**Acct#** 00502500

**Owner** L+M PROPERTY HOLDINGS  
LLC

**Assessment** \$181,510

**Appraisal** \$259,300

**PID** 5640

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$6,300	\$253,000	\$259,300

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$4,410	\$177,100	\$181,510

## Owner of Record

**Owner** L+M PROPERTY HOLDINGS LLC

**Sale Price** \$0

**Co-Owner**

**Certificate**

**Address** 7 DORATZAK RD  
WILLINGTON, CT 06279

**Book & Page** 664/ 591

**Sale Date** 10/02/2018

**Instrument** 01

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
L+M PROPERTY HOLDINGS LLC	\$0		664/ 591	01	10/02/2018
HARRISON LISA J	\$0		652/ 355	02	07/17/2017
KENDERDINE LISA H	\$0	1	468/ 635		06/16/2004
MIHALIAK JOSEPH EST	\$0	2	392/ 556		03/16/2001
MIHALIAK JOSEPH	\$0	3	127/ 639		07/08/1968

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

**Replacement Cost:** \$0

**Building Percent****Good:****Replacement Cost****Less Depreciation:** \$0

Building Attributes	
Field	Description
Style	Vacant Ind
Model	
Grade:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplaces	
Extra Openings	
Prefab Fpl(s)	
Attic Type	
Bsmt Type	
Bsmt Garage(s)	
Fin Bsmnt	
Fn. Bmt. Qual.	
Unfin Area	

**Building Photo**

(<http://images.vgsi.com/photos2/StaffordCTPhotos//\00\01\25\8>)

**Building Layout**

(<http://images.vgsi.com/photos2/StaffordCTPhotos//Sketches/56>)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

**Extra Features**

Extra Features	Legend

No Data for Extra Features

**Land**

**Land Use**

**Use Code** 300  
**Description** Ind Land  
**Zone** AAA  
**Neighborhood** 502  
**Alt Land Appr Category** No

**Land Line Valuation**

**Size (Acres)** 7.5  
**Frontage**  
**Depth**  
**Assessed Value** \$177,100  
**Appraised Value** \$253,000

**Outbuildings**

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN3	FENCE-6' CHAIN			300 L.F.	\$1,400	1
PAV2	Paving Concrete			160 S.F.	\$200	1
SHD1	Shed	MS	Masonry	360 S.F.	\$2,900	1
SHD3	Metal Shed			360 S.F.	\$1,800	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$6,300	\$253,000	\$259,300
2016	\$6,300	\$253,000	\$259,300
2014	\$6,300	\$253,000	\$259,300

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$4,410	\$177,100	\$181,510
2016	\$4,410	\$177,100	\$181,510
2014	\$4,410	\$177,100	\$181,510

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# Google Maps 30 Old County Rd



Map data ©2019 200 ft



## 30 Old County Rd

Stafford Springs, CT 06076



Directions



Save



Nearby



Send to your phone



Share



WQR6+G3 Stafford, Connecticut

### Photos





# Exhibit C

## **Construction Drawings**



DISH Wireless L.L.C. SITE ID:

**BOBOS00875A**

DISH Wireless L.L.C. SITE ADDRESS:

**30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT 06076**



**By sroth at 5:33:01 PM, 1/26/2023**

**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 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 FIBER NID (IF REQUIRED)

**SITE INFORMATION**

PROPERTY OWNER: L+M PROPERTY HOLDINGS LLC  
 ADDRESS: 7 DORATZAK RD  
 WILLINGTON, CT 06279

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: CT03111-S

TOWER APP NUMBER: 168271

COUNTY: TOLLAND

LATITUDE (NAD 83): 41° 56' 24.12" N  
 41.94003300

LONGITUDE (NAD 83): 72° 14' 14.86" W  
 -72.23746078

ZONING JURISDICTION: STAFFORD CITY

ZONING DISTRICT: AAA

PARCEL NUMBER: 09013134-76/6

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: CONNECTICUT LIGHT & POWER

TELEPHONE COMPANY: AT&T

**PROJECT DIRECTORY**

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

TOWER OWNER: SBA COMMUNICATAIONS CORP.  
 8051 CONGRESS AVENUE  
 BOCA RATON, FL 33487  
 (800) 487-7483

SITE DESIGNER: B+T GROUP  
 1717 S. BOULDER AVE, SUITE 300  
 TULSA, OK 74119  
 (918) 587-4630

SITE ACQUISITION: RYAN LYNCH  
 Ryan.lynych@dish.com

CONST. MANAGER: JAVIER SOTO  
 Javier.soto@dish.com

RF ENGINEER: DIPESH PARIKH  
 dipesh.parikh@dish.com



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

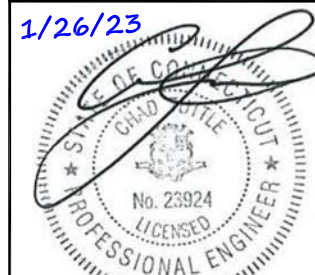


8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
PH: (918) 587-4630  
www.btgrp.com

1/26/23



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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: ANS  
CHECKED BY: MRE  
APPROVED BY: BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	12/8/21	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION
1	5/4/22	ISSUED FOR CONSTRUCTION
2	1/26/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158932.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT 06076

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

**CONNECTICUT CODE OF COMPLIANCE**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

CODE TYPE	CODE
BUILDING	2022 CT STATE BUILDING CODE/2021 IBC W/ CT AMENDMENTS
MECHANICAL	2022 CT STATE BUILDING CODE/2021 IMC W/ CT AMENDMENTS
ELECTRICAL	2022 CT STATE BUILDING CODE/2020 NEC W/ CT AMENDMENTS

**SITE PHOTO**



**DIRECTIONS**

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

CONTINUE TO EAST GRANBY, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, CONTINUE STRAIGHT, TAKE I-91 S, I-291 E AND I-84 E TO CT-320 N IN WILLINGTON. TAKE EXIT 71 FROM I-84 E, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD TAKE EXIT 35A FOR I-291 TOWARD MANCHESTER, CONTINUE ONTO I-291 E, USE THE LEFT LANE TO MERGE WITH I-84 E TOWARD BOSTON, TAKE EXIT 71 TOWARD CT-320 N, TAKE MIHALIAK RD TO POTTER SCHOOL RD TURN LEFT ONTO CT-320 N, TURN LEFT TO STAY ON CT-320 N, TURN RIGHT ONTO CT-320 N/MIHALIAK RD CONTINUE TO FOLLOW MIHALIAK RD, CONTINUE ONTO OLD COUNTRY RD, TURN RIGHT ONTO POTTER SCHOOL RD, AND ARRIVE AT BOBOS00875A.

**VICINITY MAP**



**SHEET INDEX**

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
LS1	SITE SURVEY
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT CONCRETE PAD AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES



**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

**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.

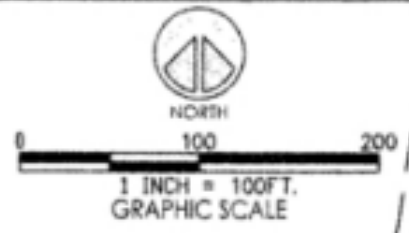
**11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED**

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.

**SYMBOL LEGEND**

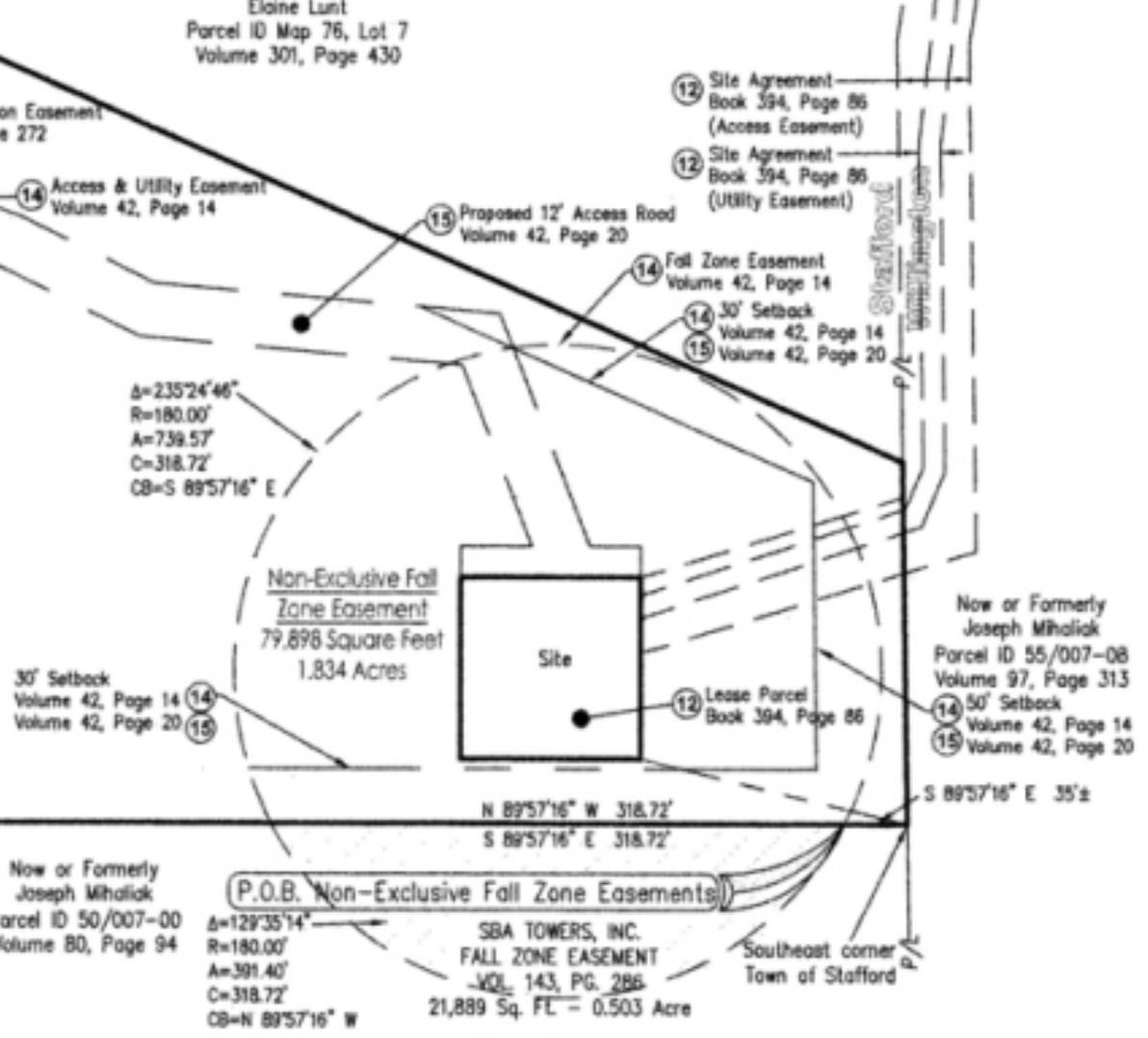
- P.O.B. - Place/Point of Beginning
- P.O.C. - Place/Point of Commencement
- (X) - Schedule B-Section II Item
- - Wall (As Noted)
- ⊕ - Utility Pole
- |— - Guy Wire
- X- - Fence (As Noted)
- ou - Overhead Utilities
- ▭ - Concrete Area
- ▨ - Building Area

**Old County Road**  
Public Right-of-Way  
Asphalt



Now or Formerly  
Elaine Lunt  
Parcel ID Map 76, Lot 7  
Volume 301, Page 430

Parent Parcel  
Lisa J. Harrison  
Book 468, Page 635  
Tax ID #STAF-000076-000006



**NON-EXCLUSIVE FALL ZONE EASEMENT (AS SURVEYED)**

Situated in the Town of Stafford, County of Tolland and State of Connecticut. Known as being a 79,898 square foot Non-Exclusive Fall Zone Easement over and upon a parcel of land now or formerly conveyed to Lisa J. Harrison as recorded in Book 468, Page 635 of Town of Stafford Records and being more particularly described as follows:  
Beginning at a point from which a Southeast corner of the Town of Stafford bears South 89°57'16" East a distance of 35± from the Point of Beginning;

thence North 89°57'16" West a distance of 318.72 feet; thence a distance of 739.57 feet along the arc of a curve deflecting to the right having a radius of 180.00 feet, a central angle of 235°24'46"; and a chord which bears South 89°57'16" East a chord distance of 318.72 feet to the Point of Beginning and containing 1.834 acres (79,898 square feet) of land, more or less.

**NON-EXCLUSIVE FALL ZONE EASEMENT (AS SURVEYED)**

Situated in the Town of Willington, County of Tolland and State of Connecticut. Known as being a 21,889 square foot Fall Zone Easement as recorded in Volume 143, Page 286 of Town of Willington Records and being more particularly described as follows:  
Beginning at a point from which a Southeast corner of the Town of Stafford bears South 89°57'16" East a distance of 35± From the Point of Beginning;

thence a distance of 391.40 feet along the arc of a curve deflecting to the right having a radius of 180.00 feet, a central angle of 129°35'14"; and a chord which bears North 89°57'16" West a chord distance of 318.72 feet; thence South 89°57'16" East a distance of 318.72 feet to the Point of Beginning and containing 0.503 acres (21,889 square feet) of land, more or less.

Note: This survey does not represent a boundary survey of the parent parcel.

Drawn By: PK Scale: 1"=100'  
Date: 06.04.16 Sheet: 2 of 4  
Certa Project No. 1032

**AS-BUILT SURVEY**  
30 Old County Road  
Stafford Springs, CT, 06076-4502

SITE ID#: CT03111-S  
SITE NAME: Stafford Springs

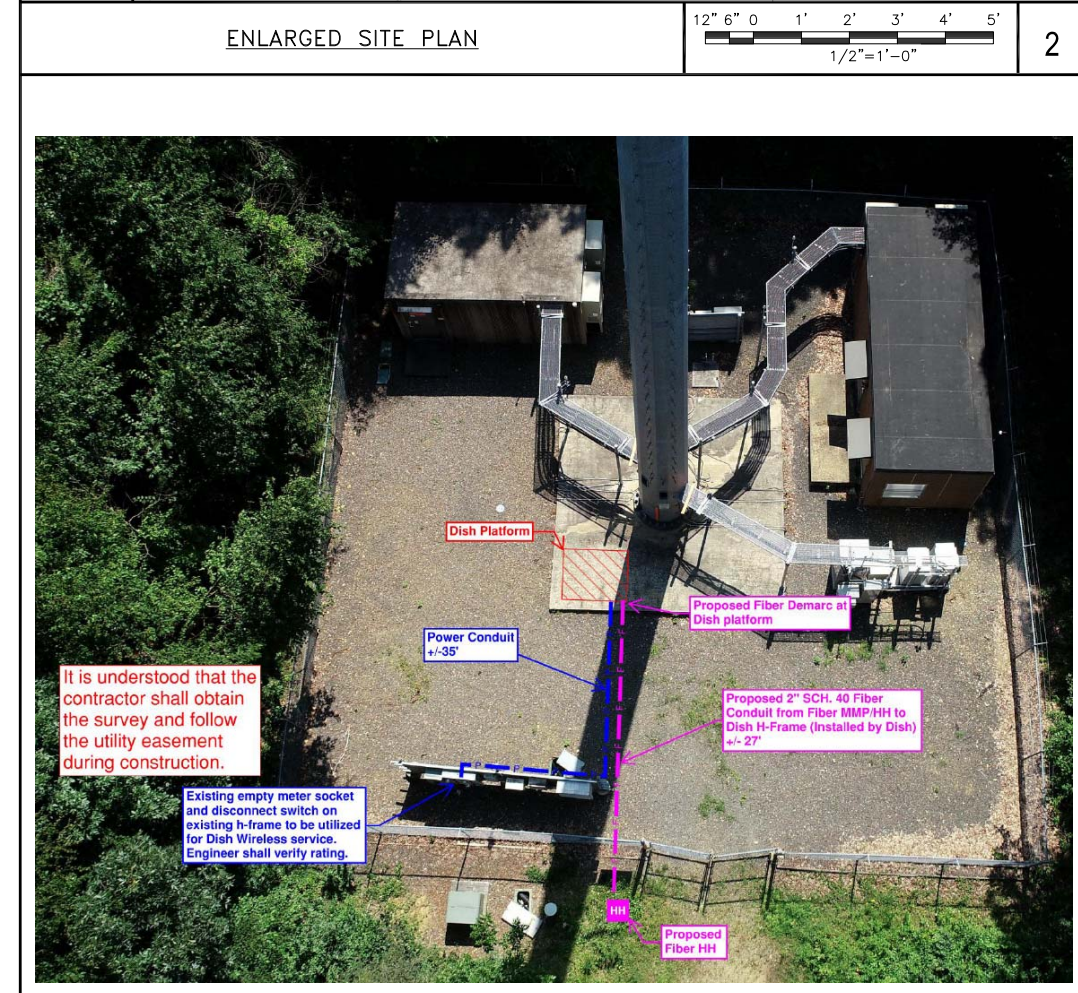
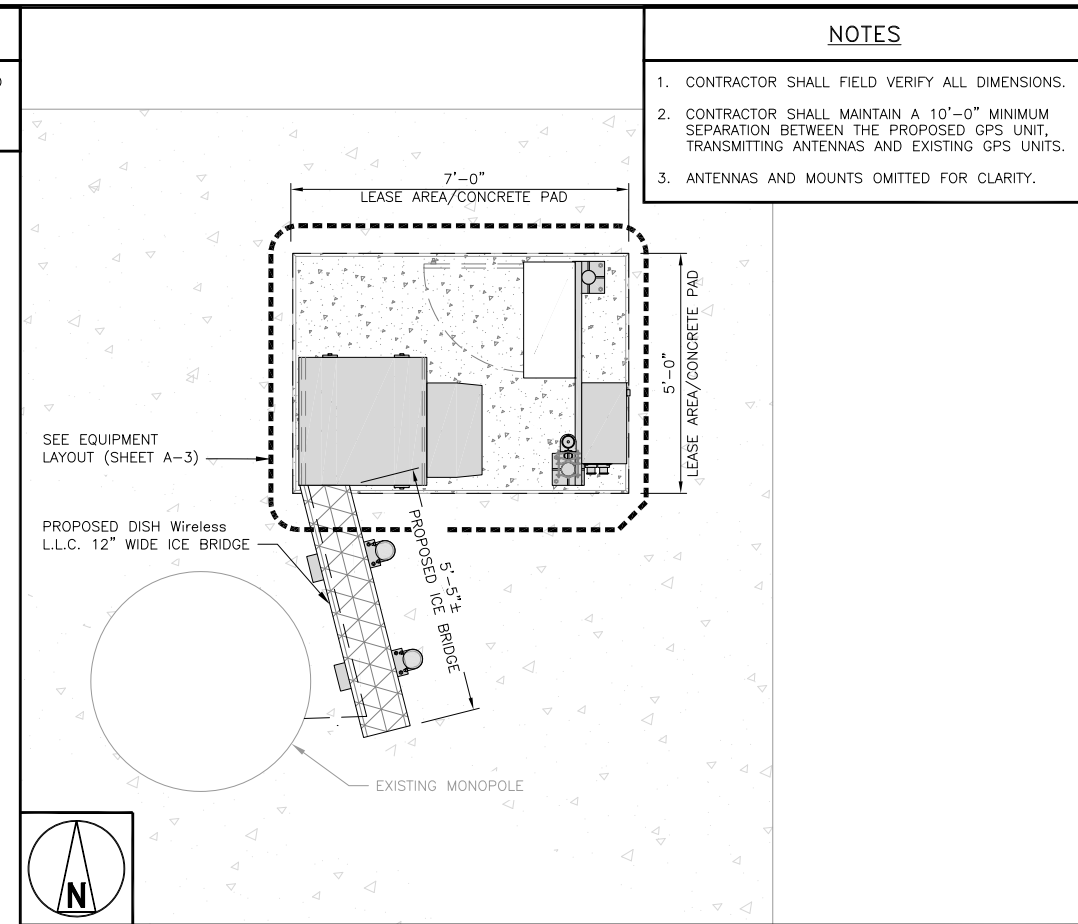
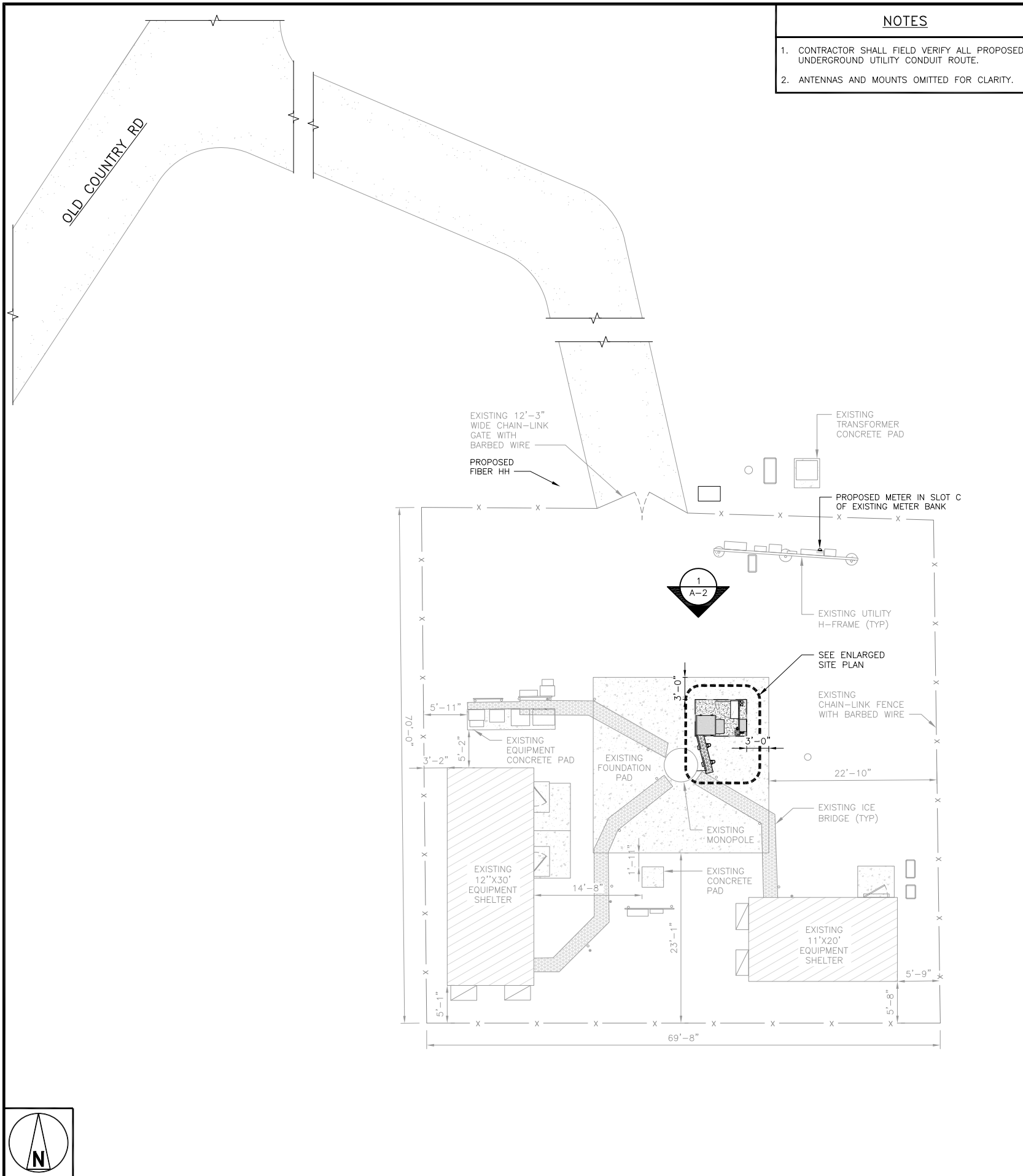
**SBA**  
SBA Network Services, LLC  
8051 Congress Avenue  
Boca Raton, FL 33487-1307

**Certa Tower Services LLC**  
P.O. Box 3659  
Cuyahoga Falls, Ohio  
44223-2551  
orders@certatower.com  
tel (330) 701-5850

**Alfred W. DiOrto, RLS, Inc.**  
Professional Land Surveyors •  
Certified Professional Erosion Control Specialists  
Licensed OWTIS Designers • Installers  
Inspectors • Soil Evaluators • Land Use Consultants  
Hopkinton, Rhode Island







**dish wireless.**

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**SBA**

8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

**B+T GRP**

1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
PH: (918) 587-4630  
www.blgrp.com

1/26/23

**PROFESSIONAL ENGINEER**  
No. 23924  
LICENSED

MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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: ANS    CHECKED BY: MRE    APPROVED BY: BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	12/8/21	ISSUED FOR REVIEW
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A&E PROJECT NUMBER  
**158932.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT 06076

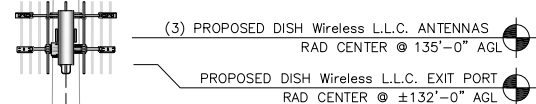
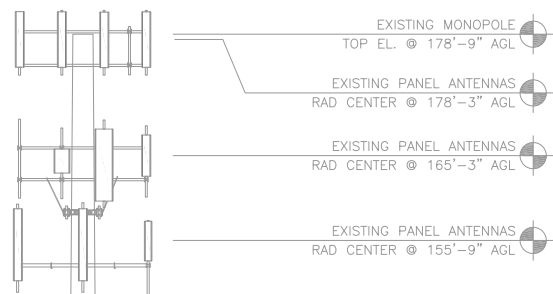
SHEET TITLE  
**OVERALL AND ENLARGED SITE PLAN**

SHEET NUMBER  
**A-1**

**NOTES**

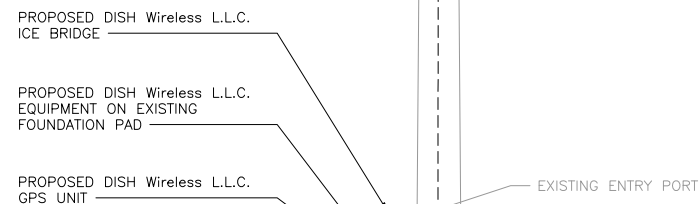
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.

NOTE: STRUCTURAL ANALYSIS NOT AVAILABLE AT TIME OF THIS DRAWING'S CREATION.

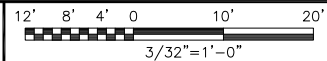


(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ROUTED INSIDE POLE

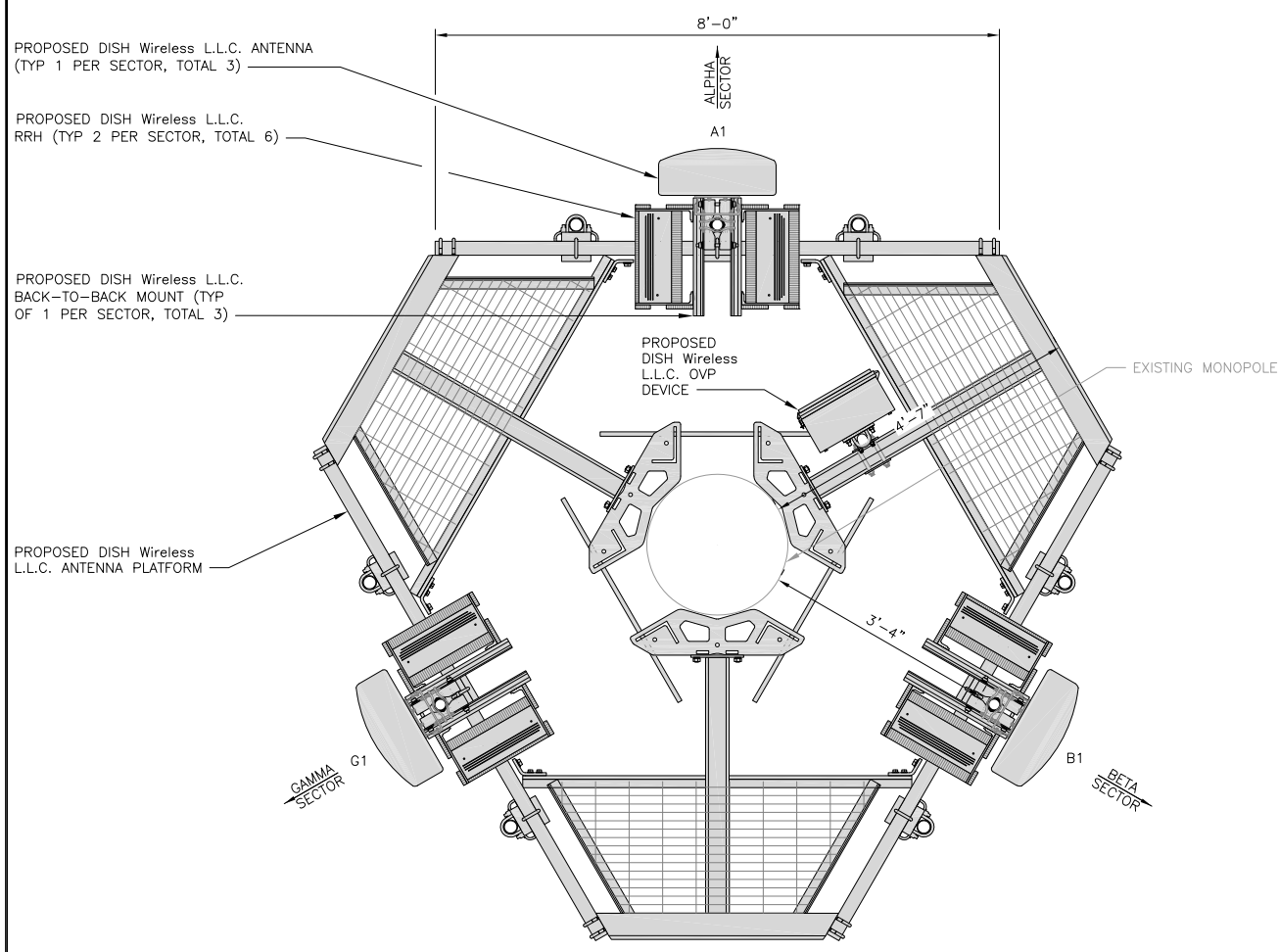
EXISTING MONOPOLE



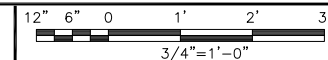
**PROPOSED NORTH ELEVATION**



1



**ANTENNA LAYOUT**



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20"	0°	135'-0"	(1) HIGH-CAPACITY HYBRID CABLE (165' LONG)
BETA	B1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20"	120°	135'-0"	
GAMMA	G1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20"	240°	135'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU - TA08025-B605	5G	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
	A1	FUJITSU - TA08025-B604	5G	
BETA	B1	FUJITSU - TA08025-B605	5G	
	B1	FUJITSU - TA08025-B604	5G	
GAMMA	G1	FUJITSU - TA08025-B605	5G	
	G1	FUJITSU - TA08025-B604	5G	

**ANTENNA SCHEDULE**

NO SCALE

3



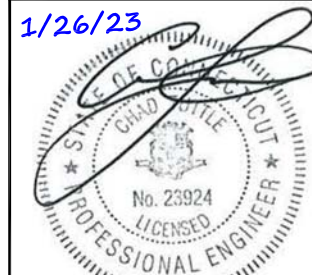
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



1/26/23



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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DRAWN BY: CHECKED BY: APPROVED BY:

ANS MRE BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
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BOBOS00875A  
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STAFFORD SPRINGS, CT 06076

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

**A-2**





5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
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30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

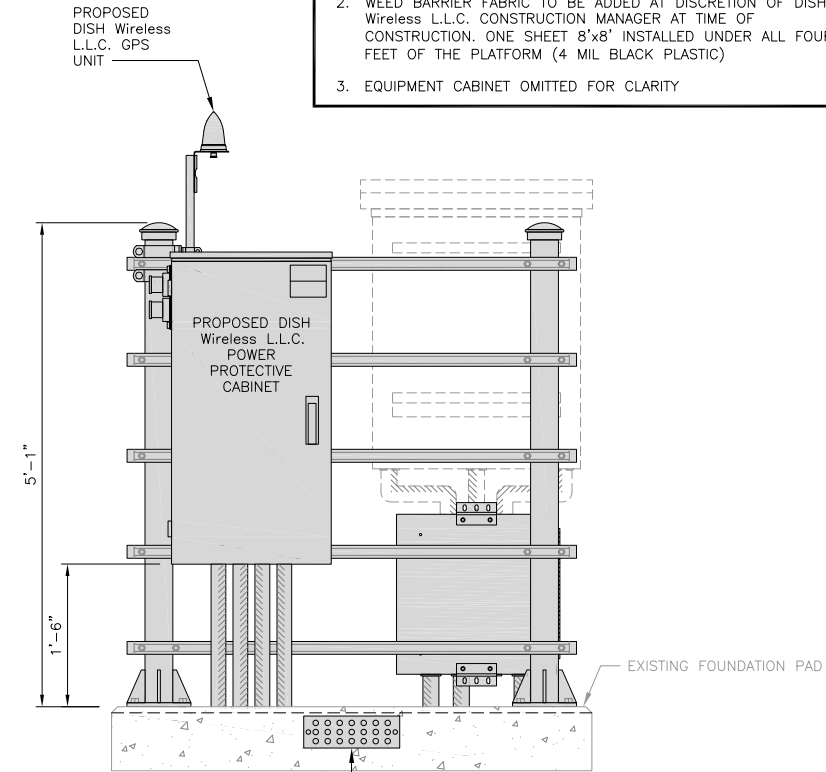
SHEET TITLE  
EQUIPMENT PAD AND  
H-FRAME DETAILS

SHEET NUMBER

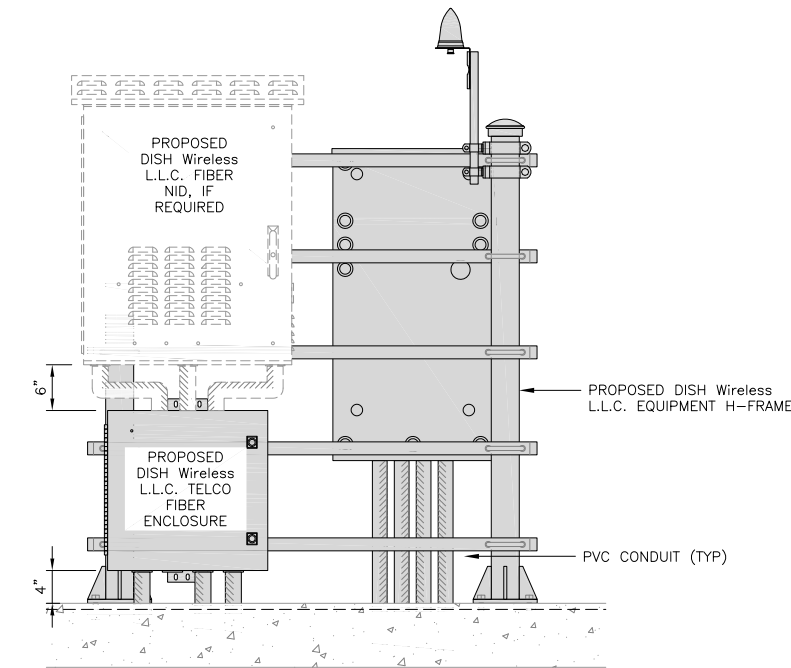
**A-3**

NOTES

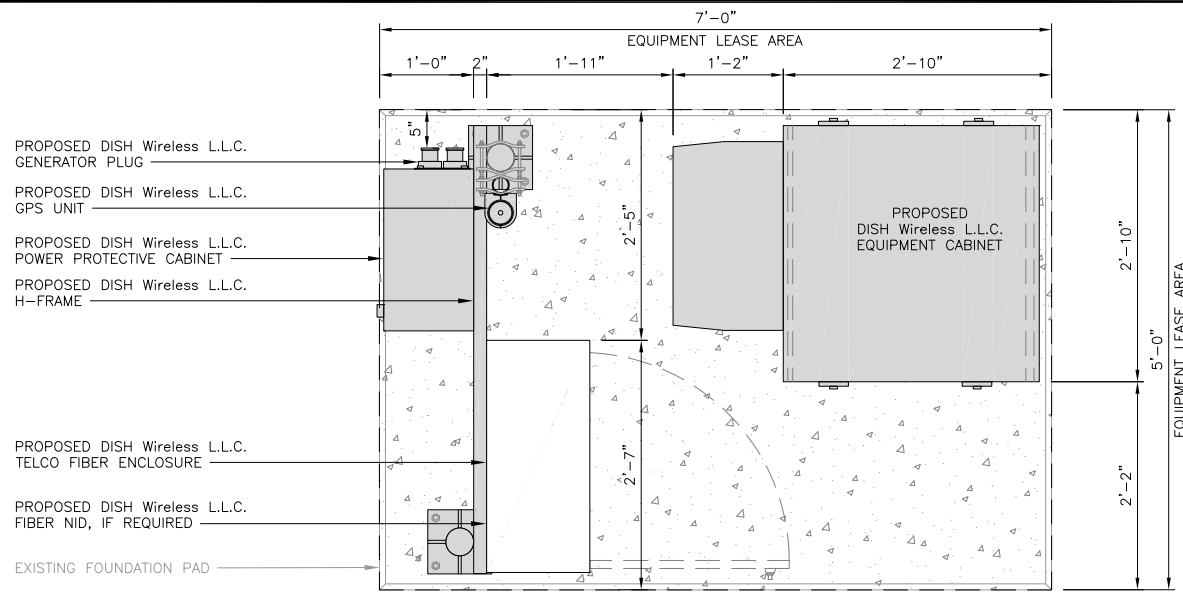
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
- EQUIPMENT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



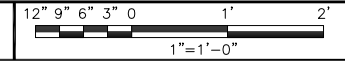
FRONT ELEVATION



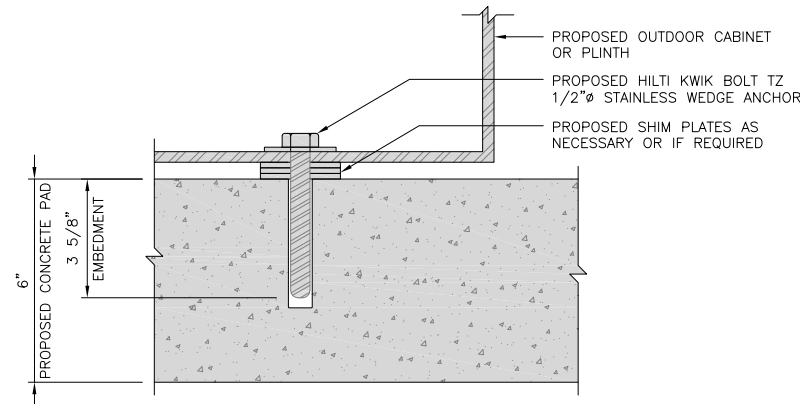
BACK ELEVATION



CONCRETE PAD EQUIPMENT PLAN

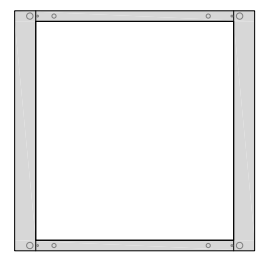
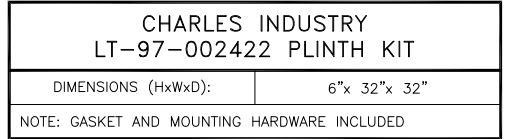


1



TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE

NO SCALE 2



PLAN



FRONT/BACK



SIDE

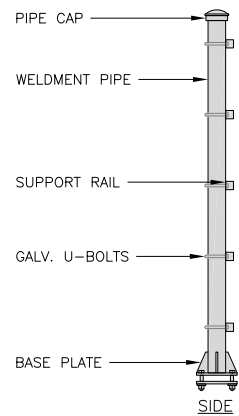
PLINTH DETAIL

NO SCALE 4

NOT USED

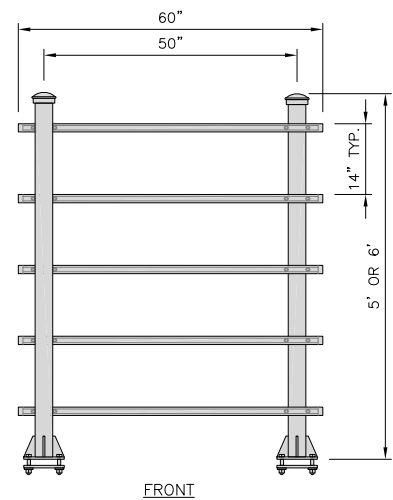
COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

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



H-FRAME DETAIL

NO SCALE 3

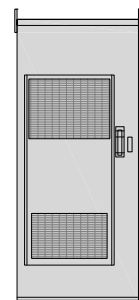
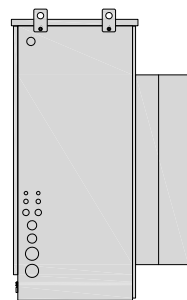
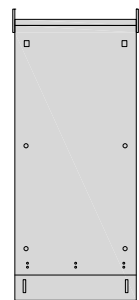
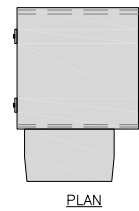


FRONT

PLINTH DETAIL

NO SCALE 4

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

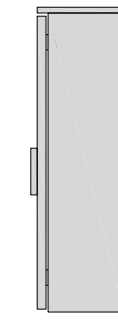
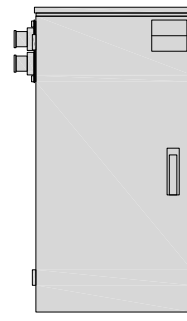
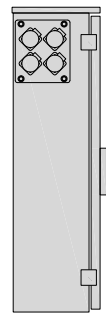
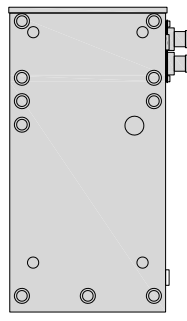
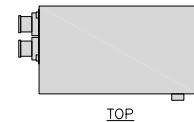


CABINET DETAIL

NO SCALE

1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

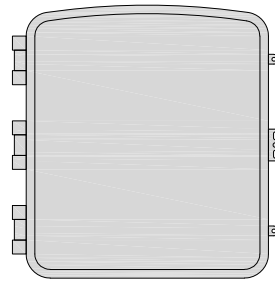
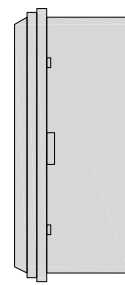
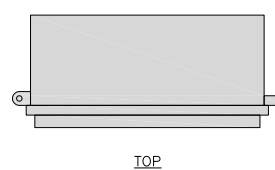
2

NOT USED

NO SCALE

3

CIENA 3931 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs

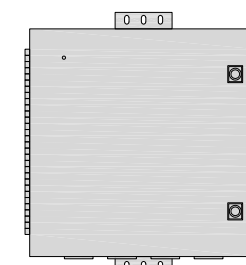
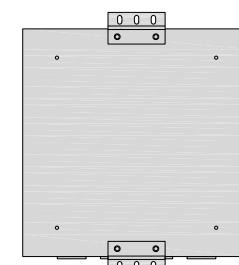
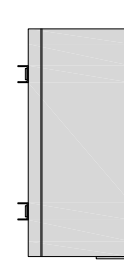
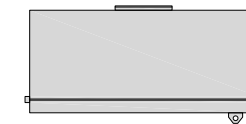


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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

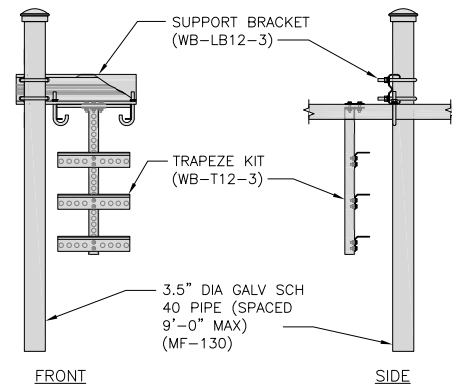
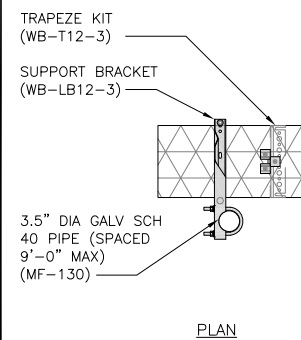


FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS: WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
DIMENSIONS (HxL)	160"x10'	
WEIGHT/ VOLUME	325.0 LBS	
CABLE RUN (QTY)	12	

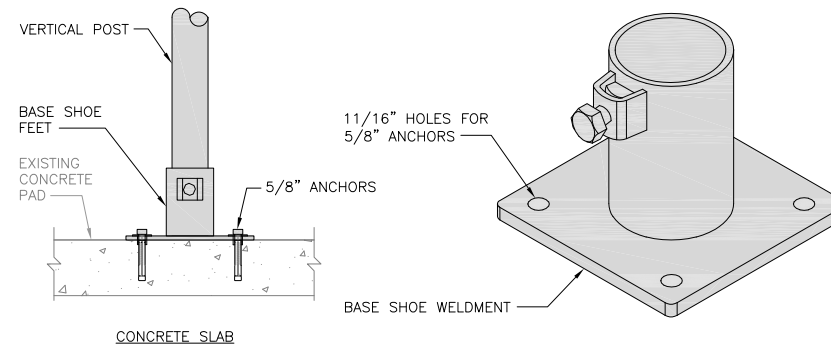


ICE BRIDGE DETAIL

NO SCALE

7

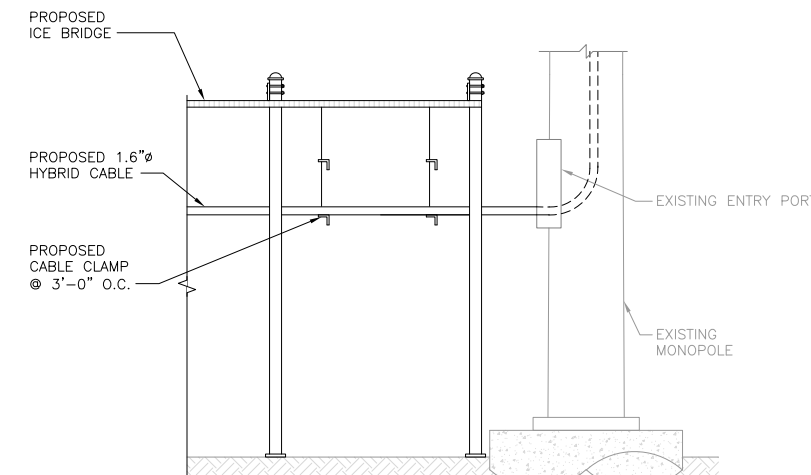
SITEPRO1 BSF35 BASE SHOE FEET	
DIMENSIONS (HxWxL)	8"x8"x1/2"
WEIGHT	15.0 LBS
POST SIZE:	2-7/8" OR 3-1/2"



ICE BRIDGE PIPE MOUNT DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

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wireless.

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LITTLETON, CO 80120

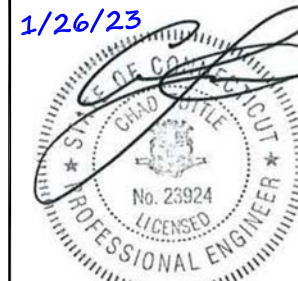


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1/26/23



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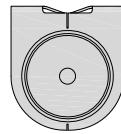
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SHEET TITLE  
EQUIPMENT DETAILS

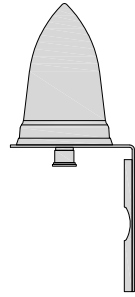
SHEET NUMBER

**A-4**

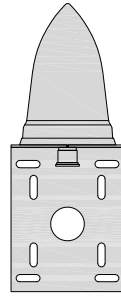
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



TOP



BACK

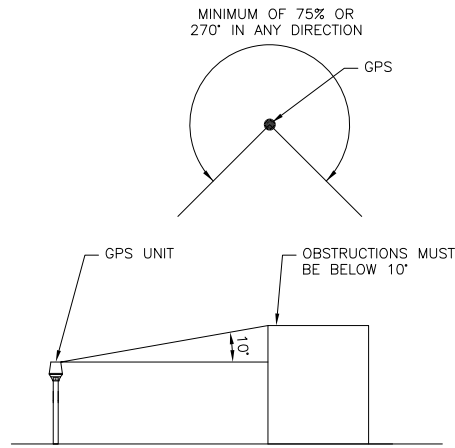


SIDE

GPS DETAIL

NO SCALE

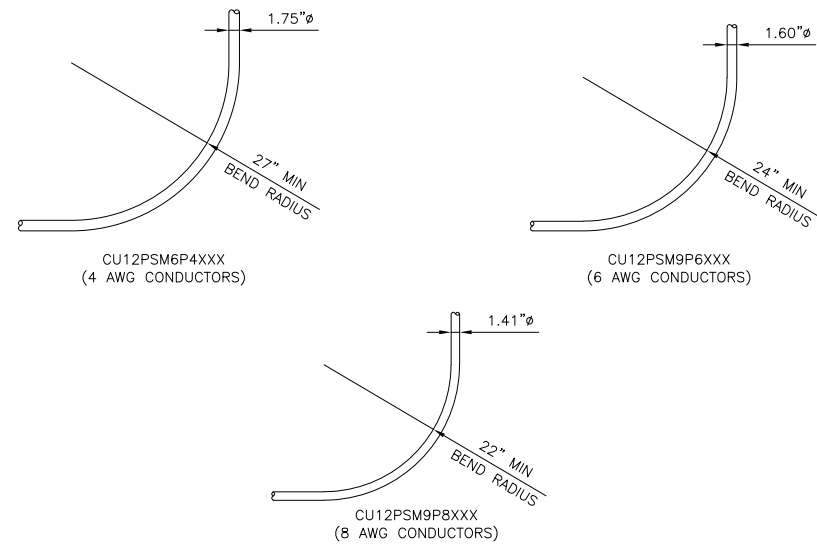
1



GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2



CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

**dish**  
wireless.

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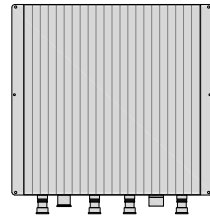
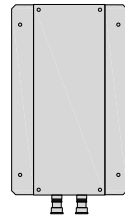
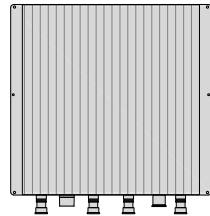
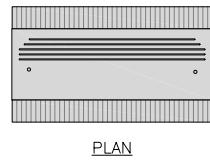
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

**A-5**



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



BACK

SIDE

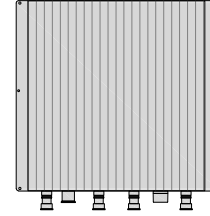
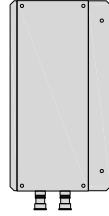
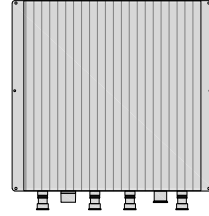
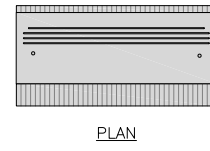
FRONT

RRH DETAIL

NO SCALE

1

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



BACK

SIDE

FRONT

RRH DETAIL

NO SCALE

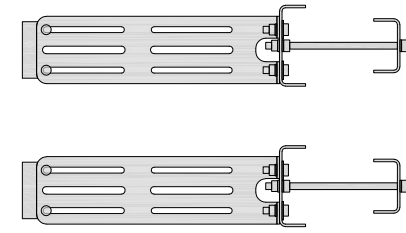
2

COMMSCOPE RR-FA2 LARGE STABILIZER	
DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

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



PLAN



SIDE

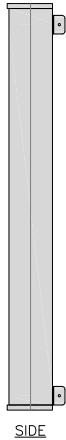
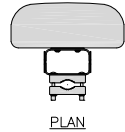
NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

RRH MOUNT DETAIL

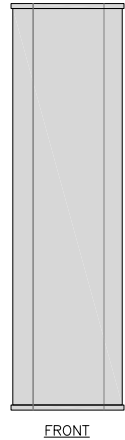
NO SCALE

3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



SIDE



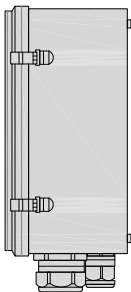
FRONT

ANTENNA DETAIL

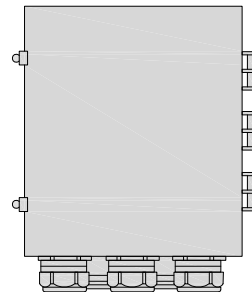
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4

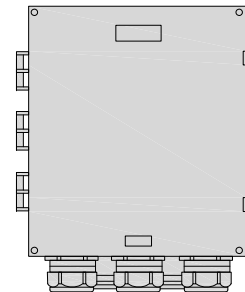
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SIDE



BACK



FRONT

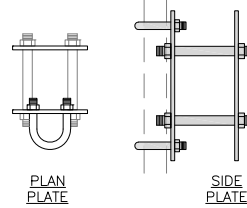
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

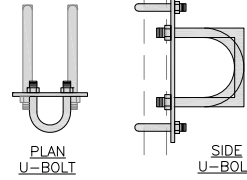
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



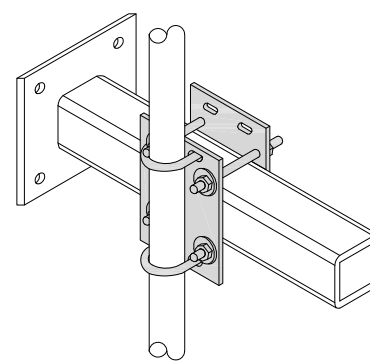
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

SIDE U-BOLT



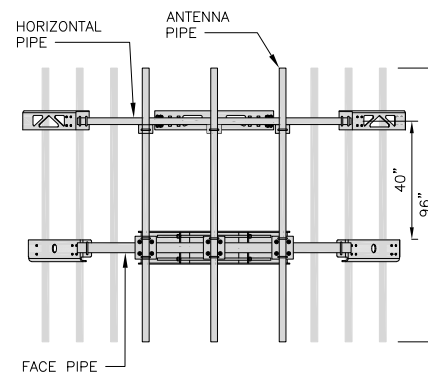
RRH/OVP MOUNT DETAIL

NO SCALE

8

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

NOTE:  
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APPROVED EQUIVALENT



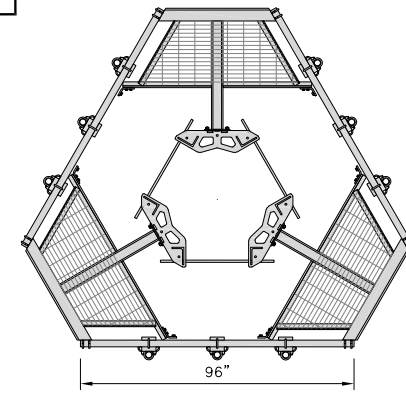
FACE PIPE

HORIZONTAL PIPE

ANTENNA PIPE

40"

96"



96"

ANTENNA PLATFORM DETAIL

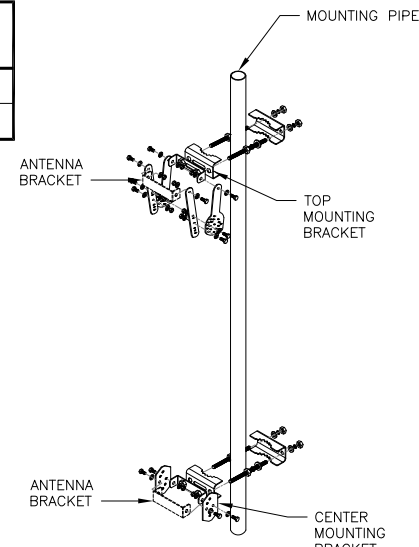
NO SCALE

9

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



MOUNTING PIPE

ANTENNA BRACKET

TOP MOUNTING BRACKET

ANTENNA BRACKET

CENTER MOUNTING BRACKET

ANTENNA BRACKET DETAIL

NO SCALE

6



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DISH Wireless L.L.C.  
PROJECT INFORMATION  
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30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

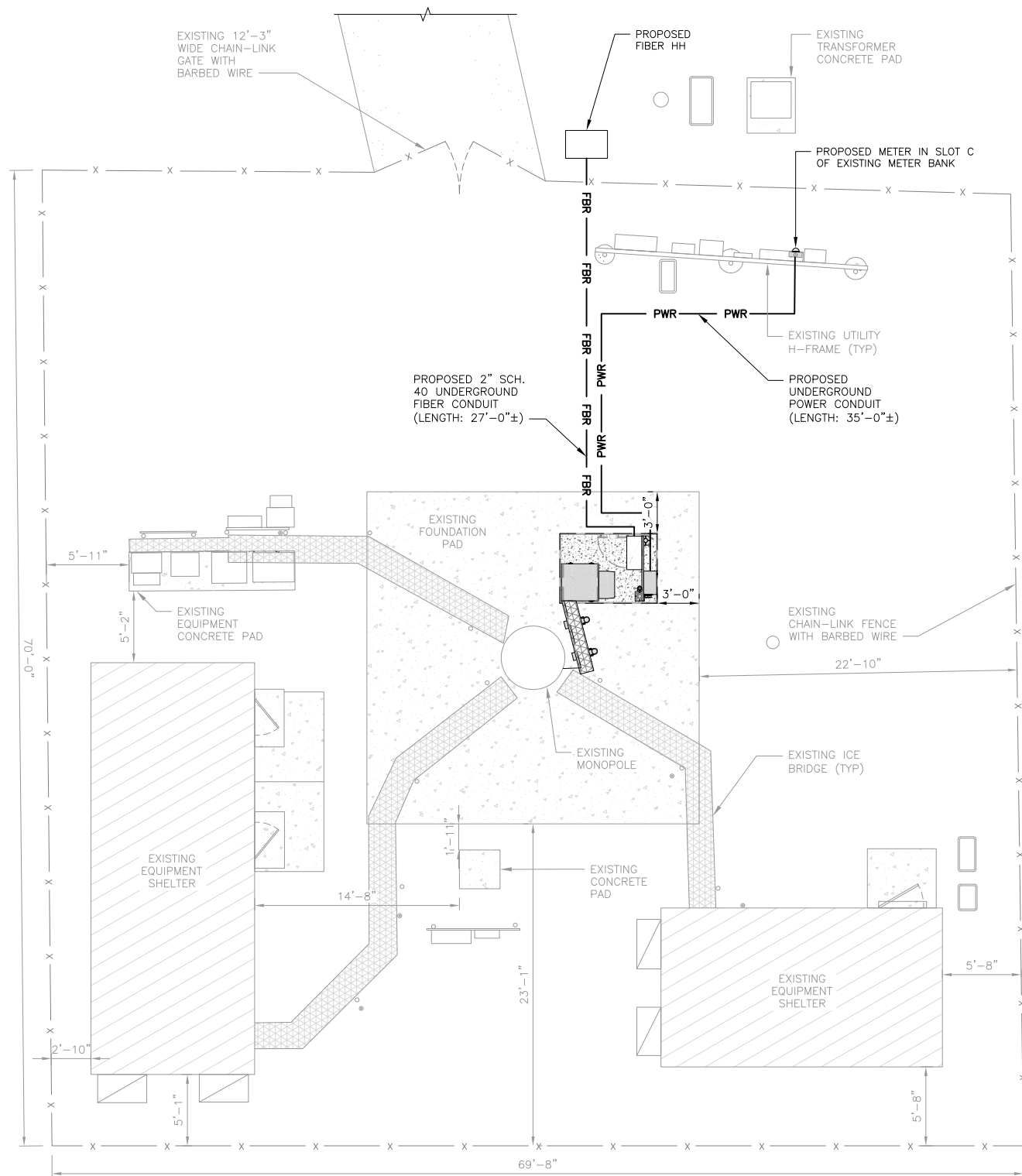
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

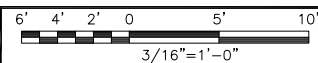
A-6

**NOTES**

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



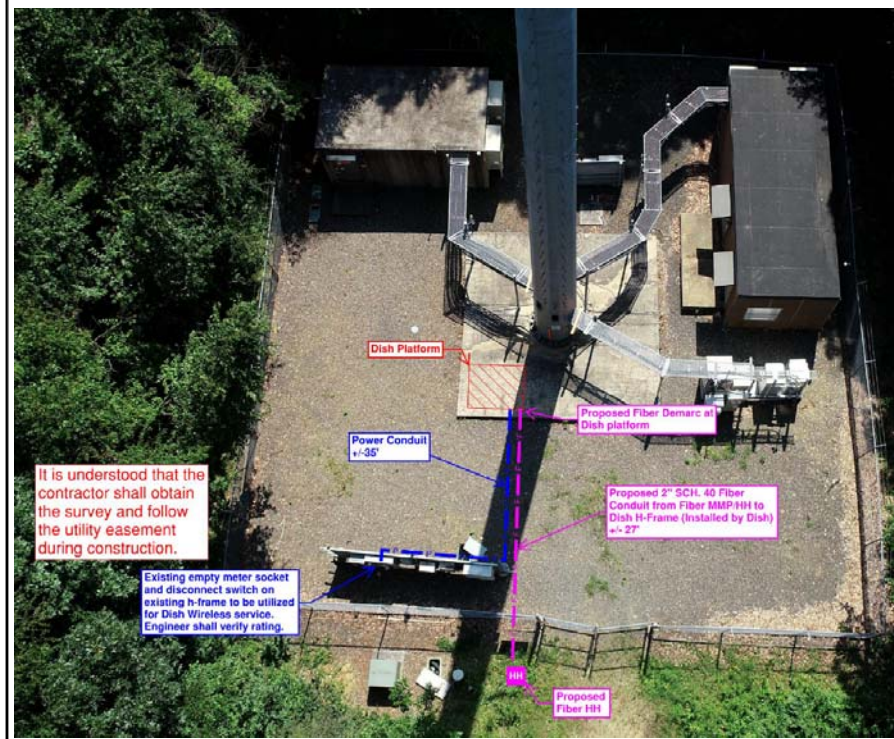
UTILITY ROUTE PLAN



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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DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00875A  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

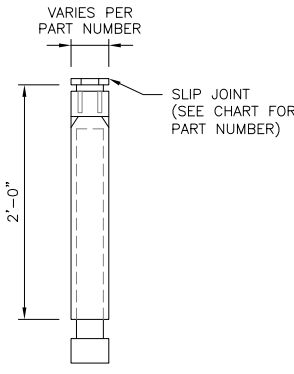
SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER  
**E-1**



### CARLON EXPANSION FITTINGS

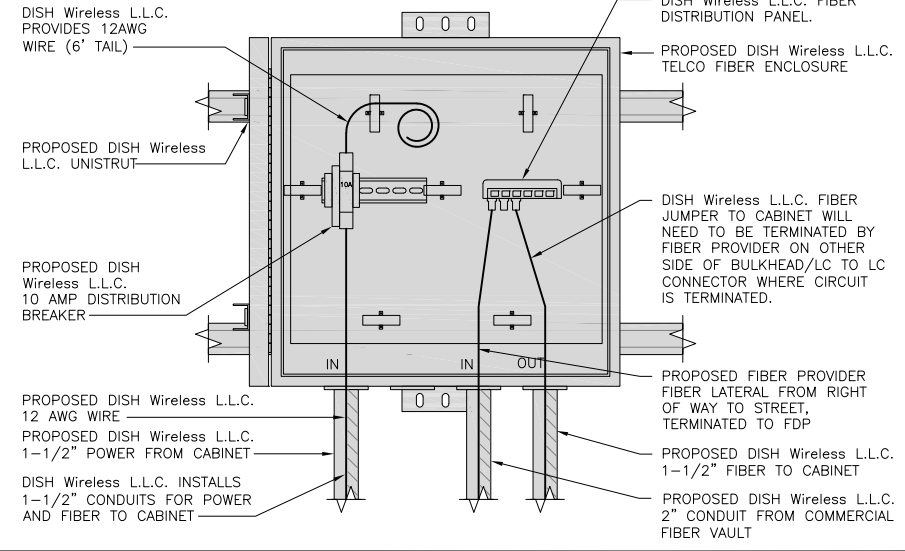
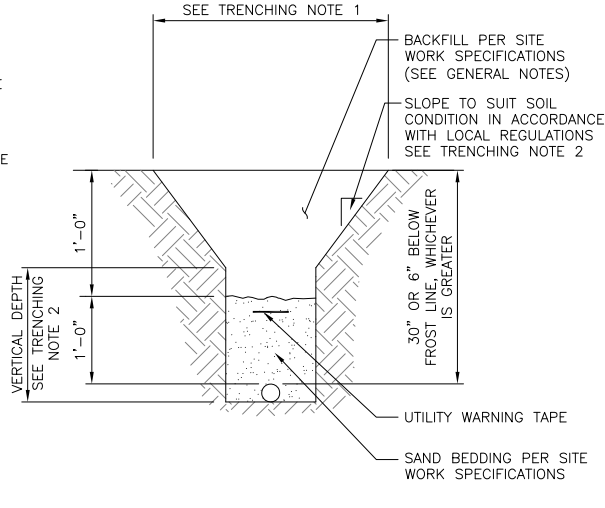
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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

### TRENCHING NOTES

- 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.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- 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.



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RFDS REV #:	0	

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30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E-2**

EXPANSION JOINT DETAIL

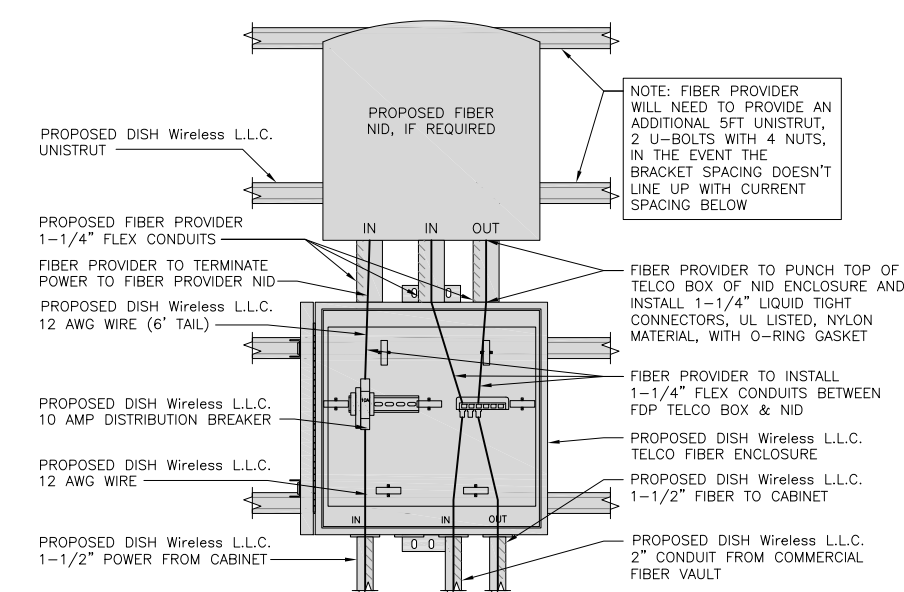
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

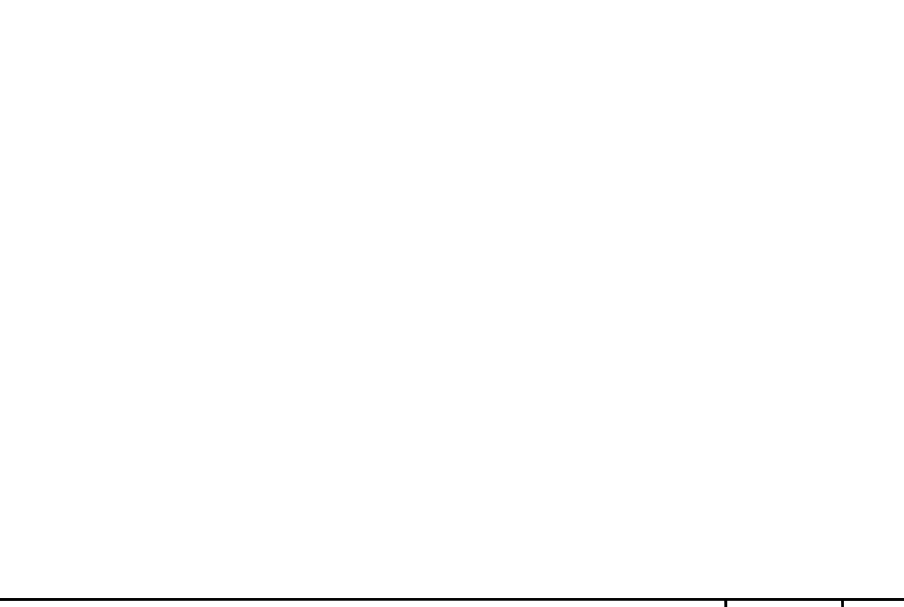
NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6



NOT USED

NO SCALE 7



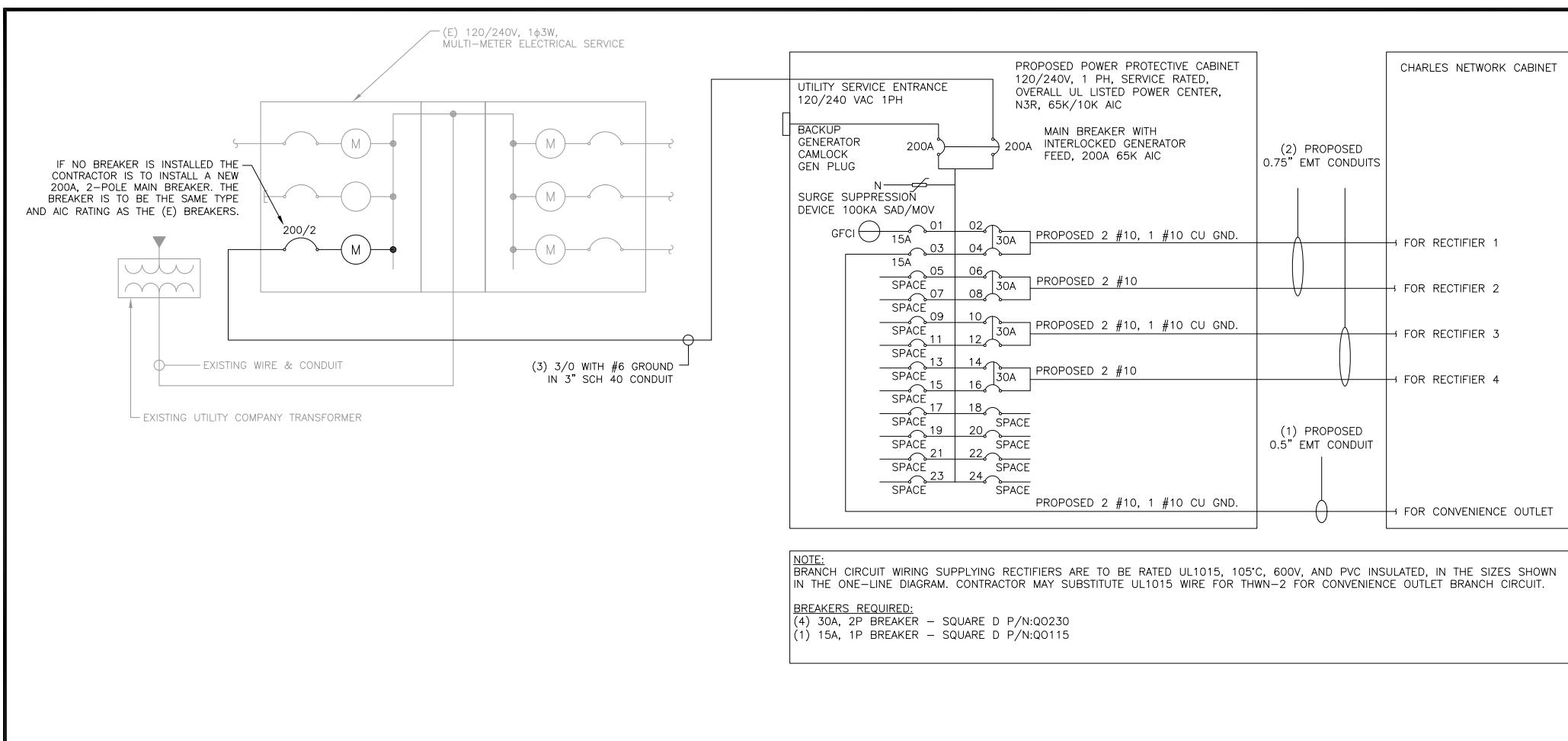
NOT USED

NO SCALE 8



NOT USED

NO SCALE 9



**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.

**dish wireless.**

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STATE OF CONNECTICUT  
PROFESSIONAL ENGINEER  
No. 23924  
LICENSED

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STAFFORD SPRINGS, CT  
06076

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

SHEET NUMBER  
**E-3**

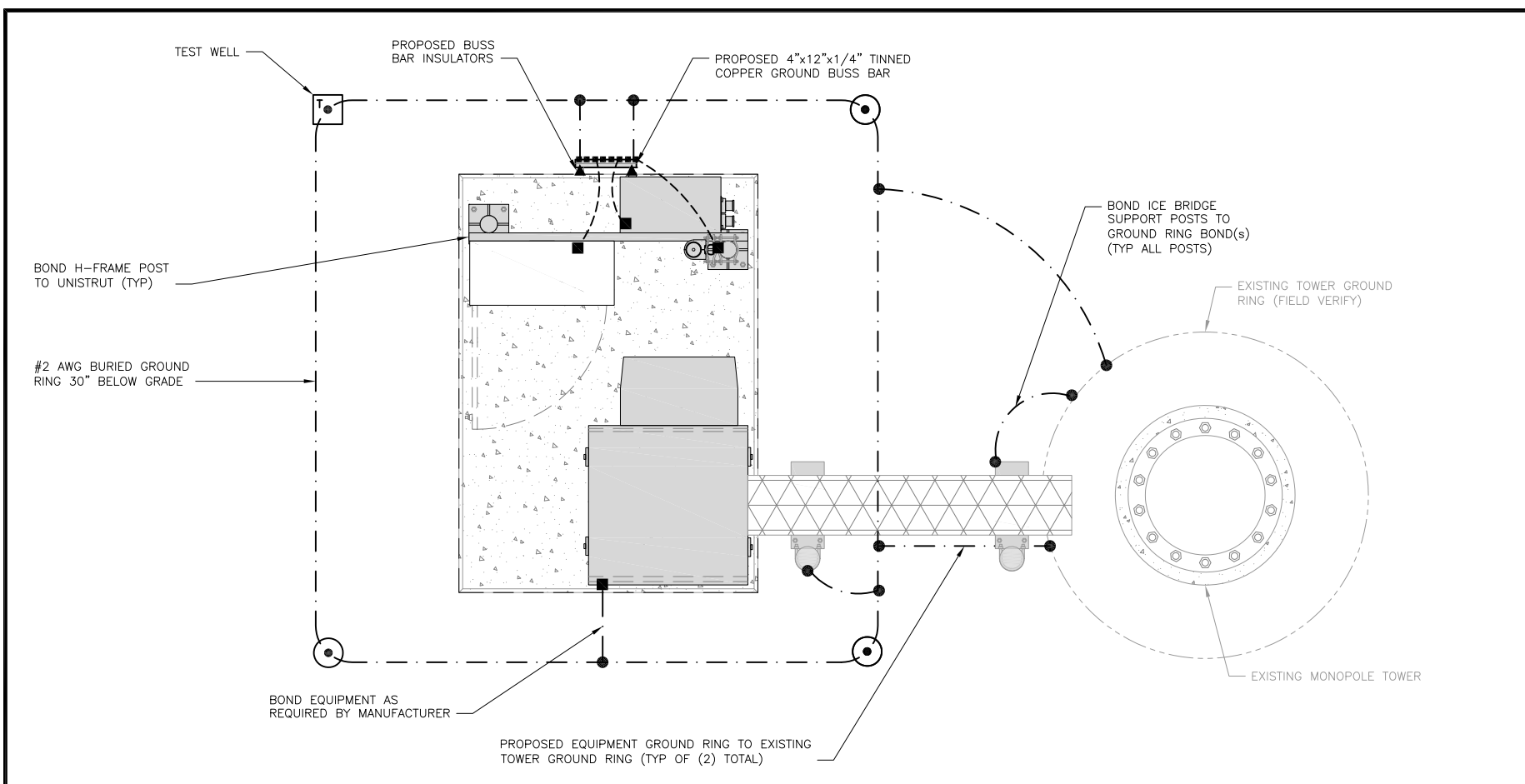
PPC ONE-LINE DIAGRAM NO SCALE 1

**PROPOSED CHARLES PANEL SCHEDULE**

LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
--SPACE--				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
--SPACE--				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
--SPACE--				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
--SPACE--				11	B	12	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
--SPACE--				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
--SPACE--				15	B	16	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
--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					
				98	98					VOLTAGE AMPS
										AMPS
										MAX AMPS
										MAX 125%

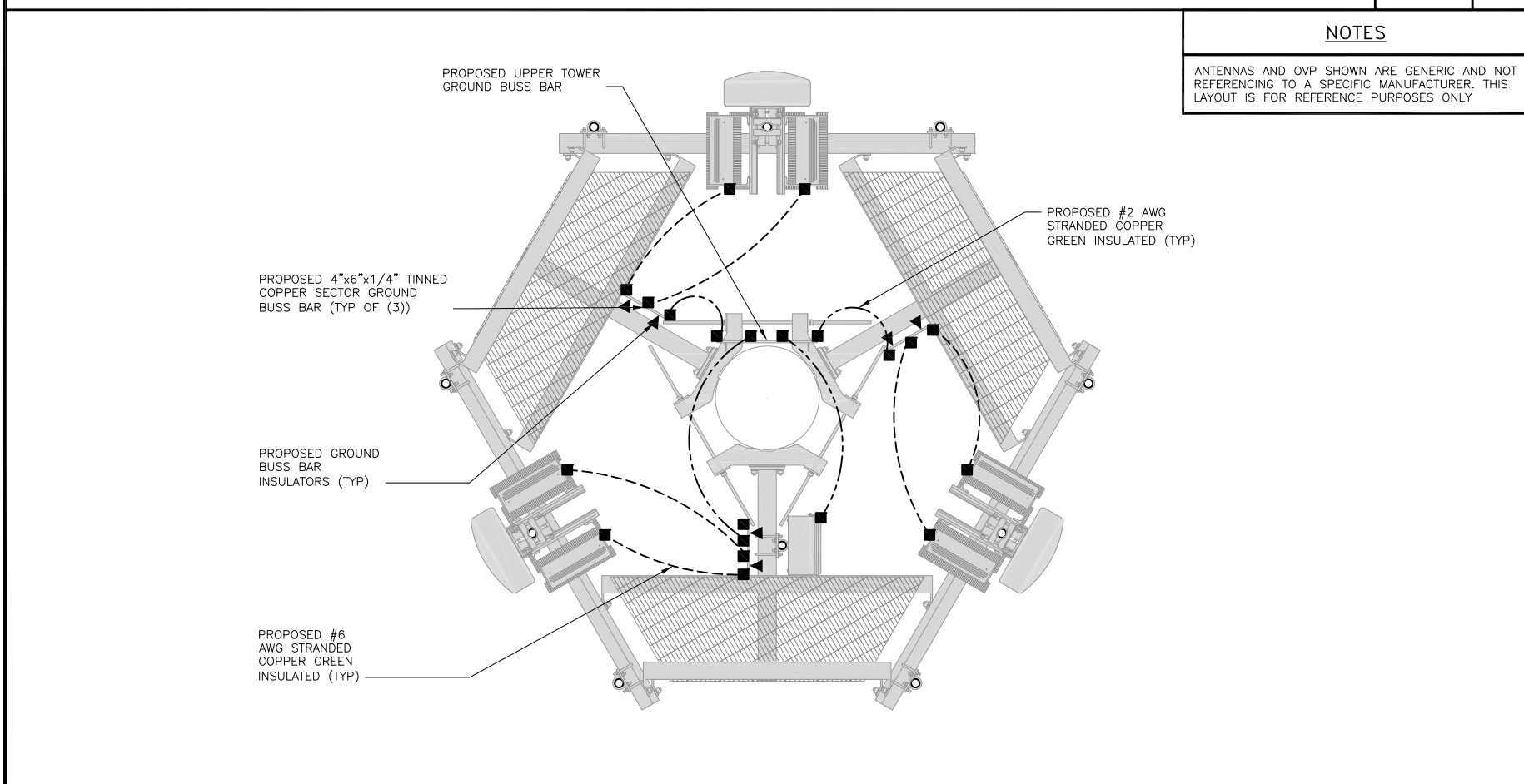
PANEL SCHEDULE NO SCALE 2

NOT USED NO SCALE 3



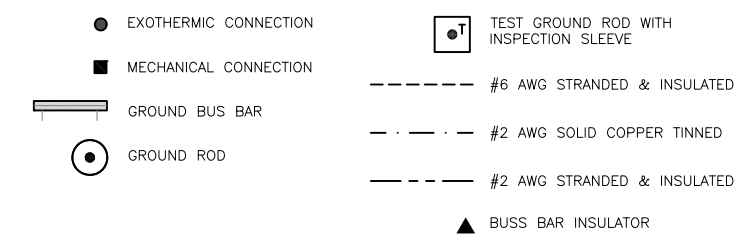
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

GROUNDING KEY NOTES

NO SCALE 3



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BER:2386985  
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ANS	MRE	BEH

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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A&E PROJECT NUMBER  
158932.001.01

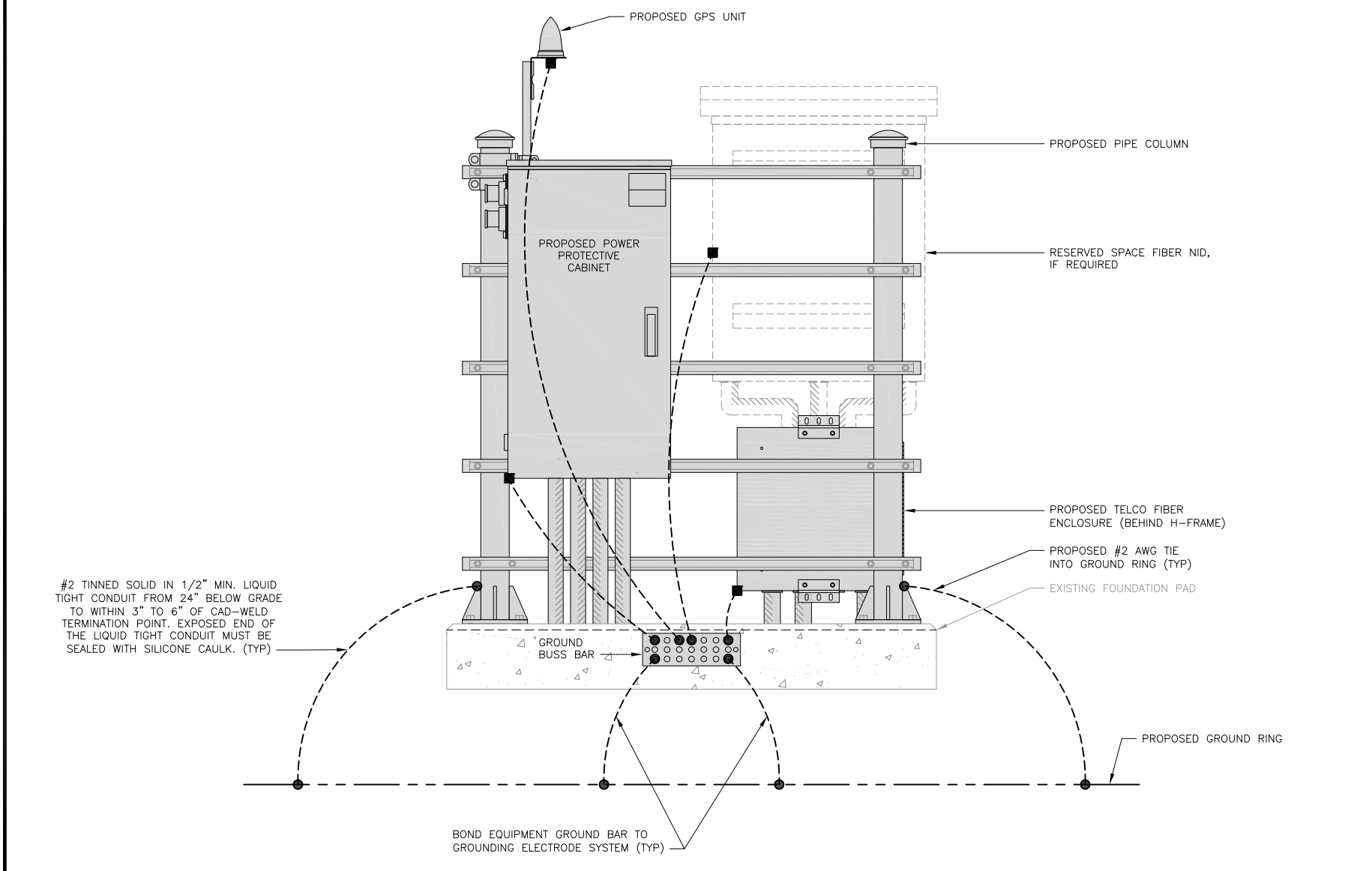
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00875A  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

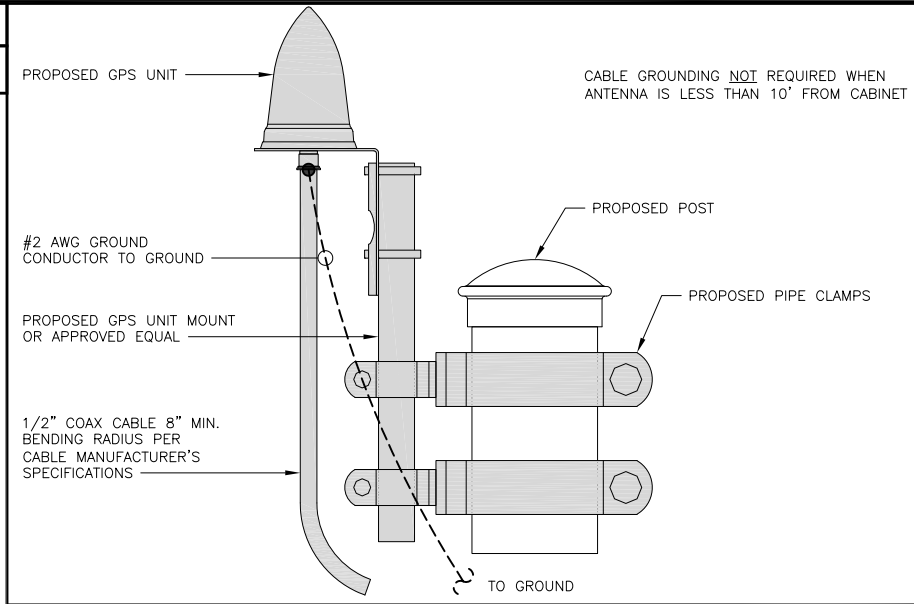
SHEET NUMBER  
**G-1**



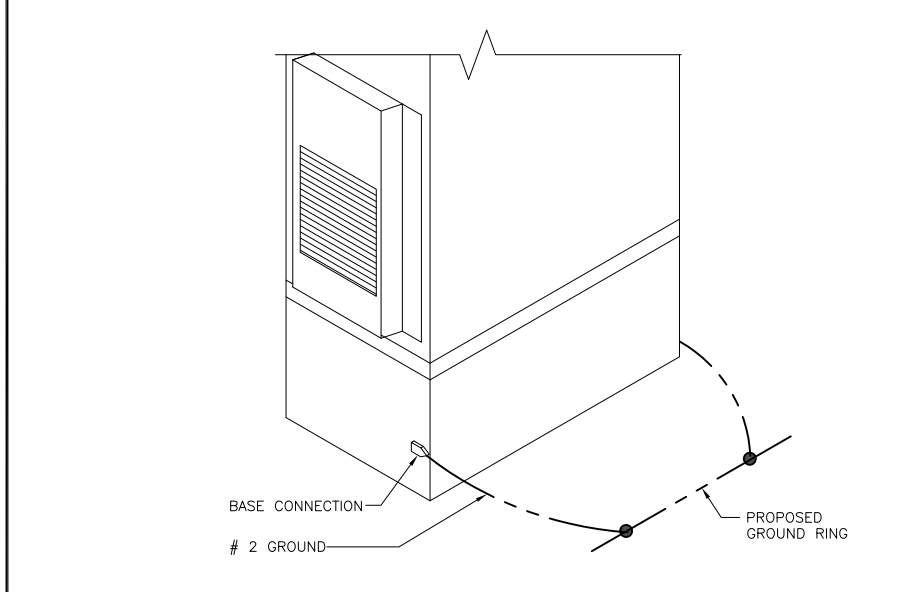
**NOTES**  
EQUIPMENT CABINET OMITTED FOR CLARITY



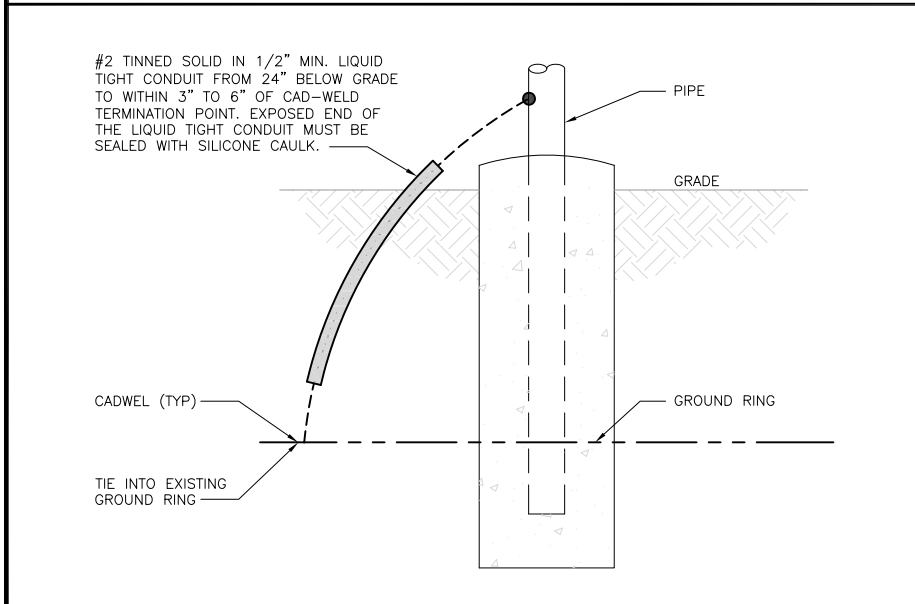
**H-FRAME GROUNDING DETAIL** NO SCALE **1**



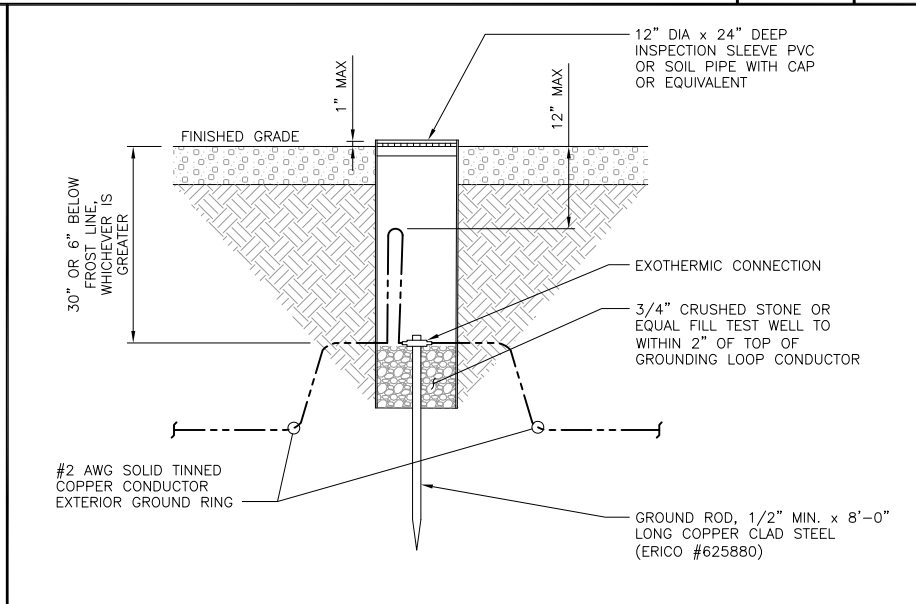
**TYPICAL GPS UNIT GROUNDING** NO SCALE **2**



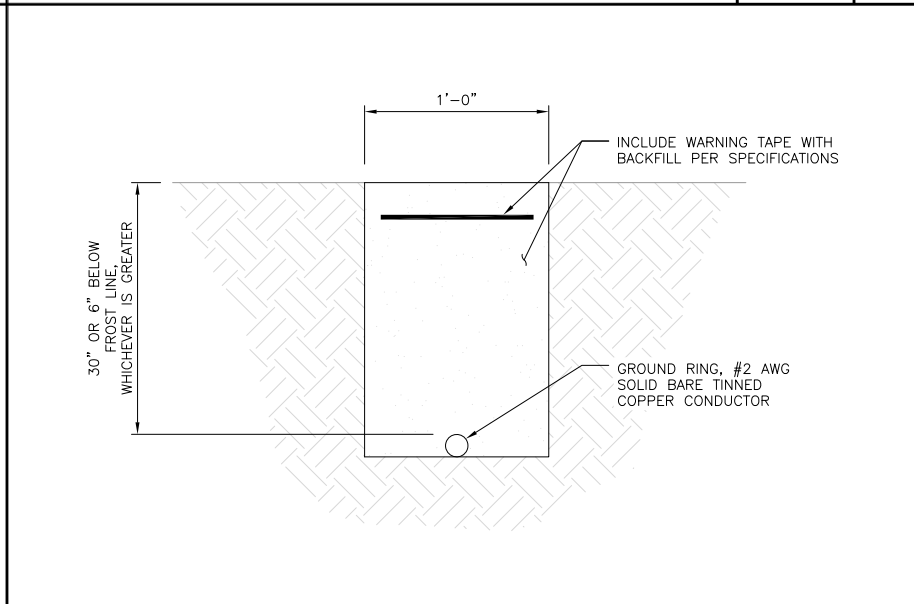
**OUTDOOR CABINET GROUNDING** NO SCALE **3**



**TRANSITIONING GROUND DETAIL** NO SCALE **4**



**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE** NO SCALE **5**



**TYPICAL GROUND RING TRENCH** NO SCALE **6**



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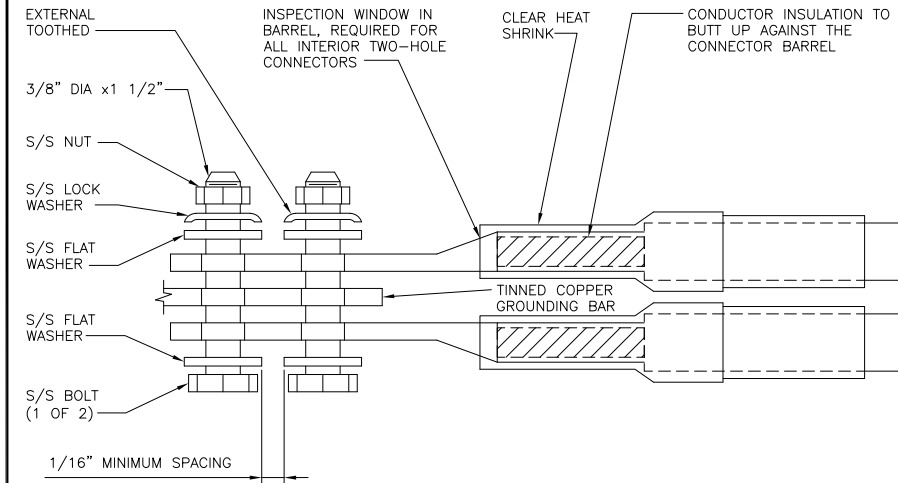
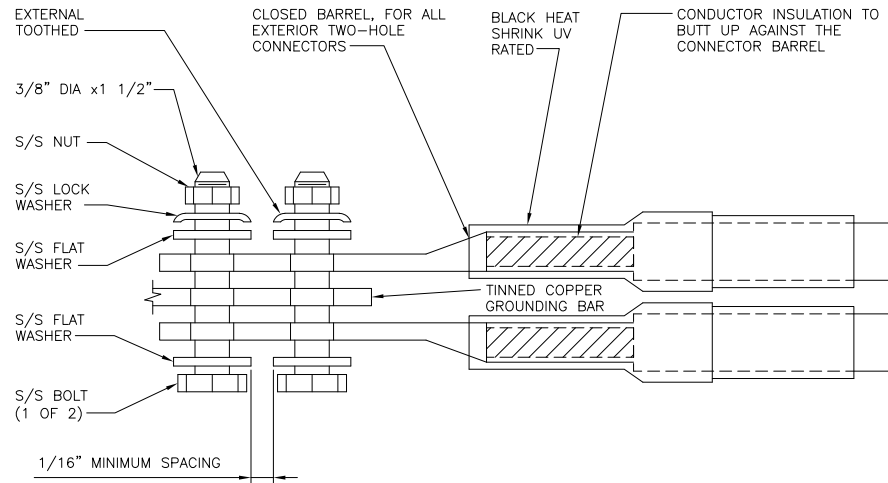
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

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

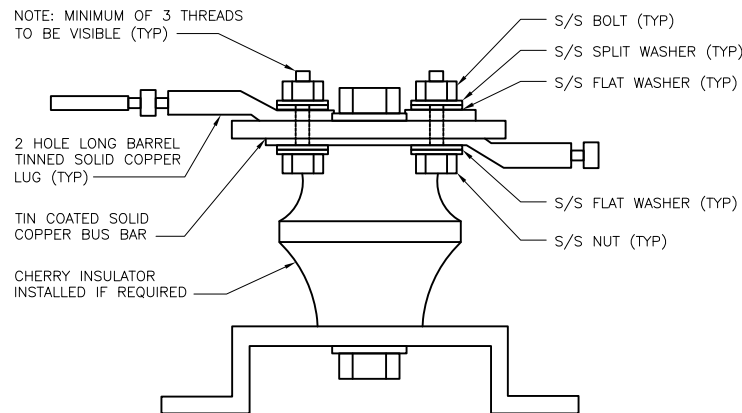
NO SCALE

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



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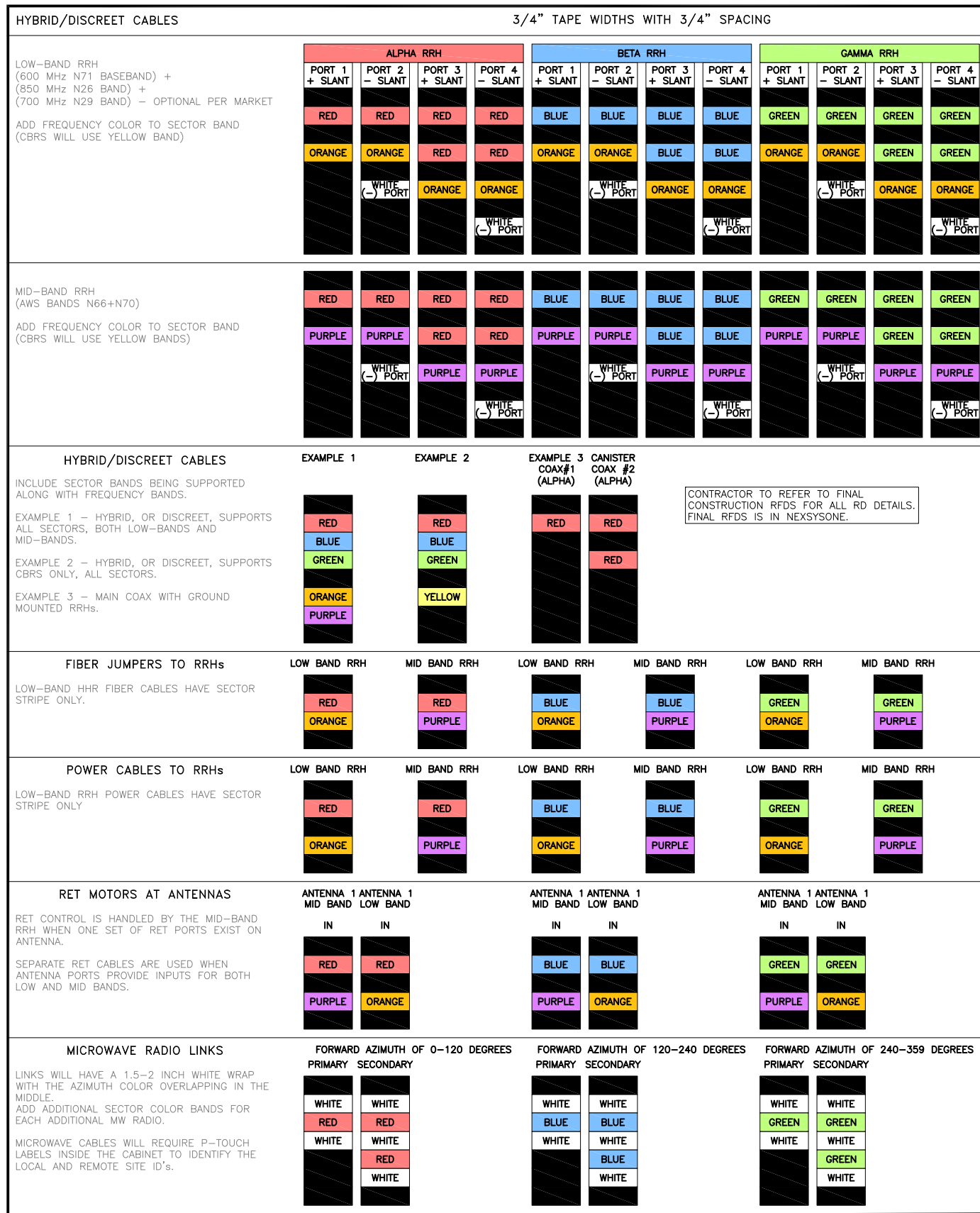
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06076

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

G-3



RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)  
OPTIONAL - (N29)

ORANGE

CBRS TECH  
(3 GHz)

YELLOW

ALPHA SECTOR

RED

COLOR IDENTIFIER

AWS  
(N66+N70+H-BLOCK)

PURPLE

NEGATIVE SLANT PORT  
ON ANT/RRH

WHITE

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4

dish  
wireless.

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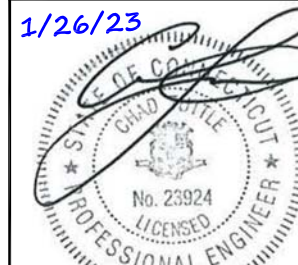


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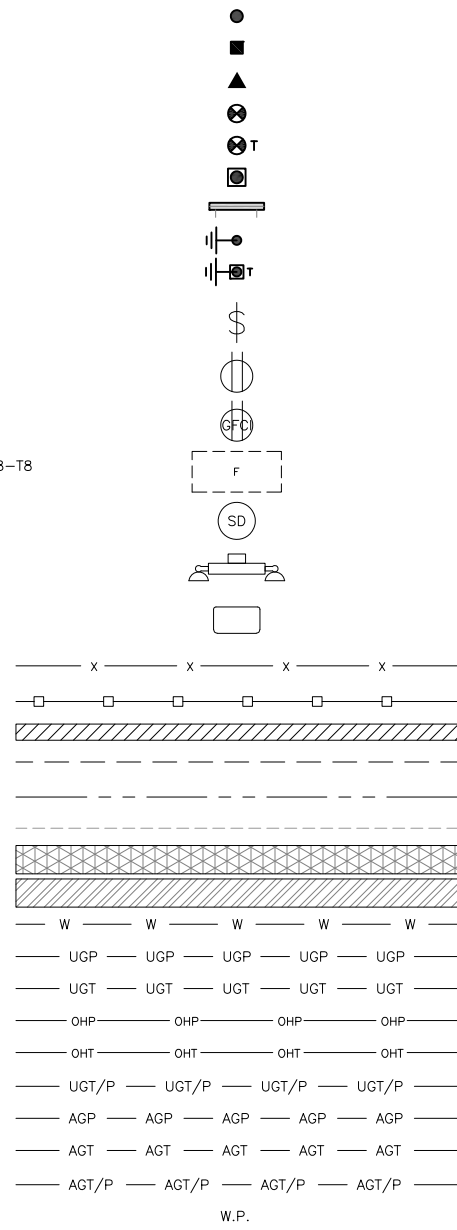
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SHEET TITLE  
RF  
CABLE COLOR CODES

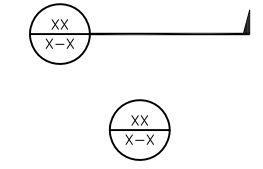
SHEET NUMBER  
RF-1



EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 BUSS BAR INSULATOR  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 EXOTHERMIC WITH INSPECTION SLEEVE  
 GROUNDING BAR  
 GROUND ROD  
 TEST GROUND ROD WITH INSPECTION SLEEVE  
 SINGLE POLE SWITCH  
 DUPLEX RECEPTACLE  
 DUPLEX GFCI RECEPTACLE  
 FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8  
 SMOKE DETECTION (DC)  
 EMERGENCY LIGHTING (DC)  
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
 LED-1-25A400/51K-SR4-120-PE-DDBTXD  
 CHAIN LINK FENCE  
 WOOD/WROUGHT IRON FENCE  
 WALL STRUCTURE  
 LEASE AREA  
 PROPERTY LINE (PL)  
 SETBACKS  
 ICE BRIDGE  
 CABLE TRAY  
 WATER LINE  
 UNDERGROUND POWER  
 UNDERGROUND TELCO  
 OVERHEAD POWER  
 OVERHEAD TELCO  
 UNDERGROUND TELCO/POWER  
 ABOVE GROUND POWER  
 ABOVE GROUND TELCO  
 ABOVE GROUND TELCO/POWER  
 WORKPOINT



SECTION REFERENCE  
 DETAIL REFERENCE



**LEGEND**

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

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

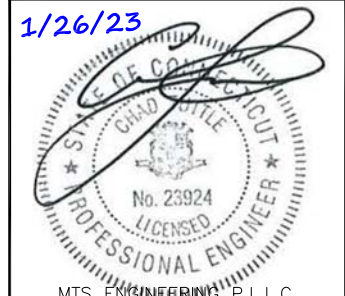
**ABBREVIATIONS**



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 30 OLD COUNTRY ROAD  
 STAFFORD SPRINGS, CT  
 06076

SHEET TITLE  
**LEGEND AND ABBREVIATIONS**

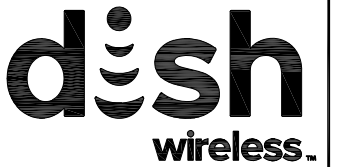
SHEET NUMBER  
**GN-1**

SITE ACTIVITY REQUIREMENTS:

- 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.
- "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.
- 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.
- 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).
- 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."
- 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- 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.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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:

- 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
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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1/26/23



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	MRE	BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	12/8/21	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION
1	5/4/22	ISSUED FOR CONSTRUCTION
2	1/26/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158932.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-2**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:  
 #4 BARS AND SMALLER 40 ksi  
 #5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
  - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
  - CONCRETE EXPOSED TO EARTH OR WEATHER:
    - #6 BARS AND LARGER 2"
    - #5 BARS AND SMALLER 1-1/2"
  - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
    - SLAB AND WALLS 3/4"
    - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
  - ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
  - 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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1/26/23



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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ANS	MRE	BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

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A&E PROJECT NUMBER  
**158932.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

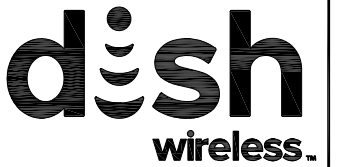
SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-3**



**GROUNDING NOTES:**

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
PH: (918) 587-4630  
www.btgrp.com

1/26/23



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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:

ANS MRE BEH

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	12/8/21	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION
1	5/4/22	ISSUED FOR CONSTRUCTION
2	1/26/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158932.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBOS00875A**  
30 OLD COUNTRY ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-4**

# Exhibit D

## **Structural Analysis Report**



**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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## Structural Analysis Report

**Existing 180 ft Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT03111-S**

**Customer Site Name: Stafford Springs**

**Carrier Name: Dish Wireless (App#: 168271, V1)**

**Carrier Site ID / Name: BOBOS00875A / 0**

**Site Location: 30 Old Country Road**

**Stafford Springs, Connecticut**

**Tolland County**

**Latitude: 41.940033**

**Longitude: -72.237461**

**Analysis Result:**

**Max Structural Usage: 75.5% [Pass]**

**Max Foundation Usage: 66.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Praveen Shrestha**





**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
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**Max Foundation Usage: 66.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Praveen Shrestha**

## Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Valmont Microflex (Order No. 12303-00) Communication Pole Design Calculations dated August 16, 2000.
<b>Foundation Drawing</b>	Valmont Microflex (Order No. 12303-00) Communication Pole Design Calculations dated August 16, 2000.
<b>Geotechnical Report</b>	Valmont Microflex (Drawing No. 3304-F) foundation design dated August 29, 2000.
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	N/A

## Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

<b>Wind Speed Used in the Analysis:</b>	120.0 mph (3-Sec. Gust) (Ultimate wind speed)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 1"1/2 radial ice concurrent
<b>Service Load Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Risk Category:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_5 = 0.176$ , $S_1 = 0.055$

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.



## **Existing Antennas, Mounts and Transmission Lines**

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	177.0	6	LNx-6514DS-A1M - Panel	Platform w/ Handrail	(12) 1 5/8" (2) 1 5/8" Fiber	Verizon
2		6	HBXX-6517DS-A2M - Panel			
3		3	Alcatel Lucent RRH2x60-AWS			
4		3	Alcatel Lucent RRH2x60-PCS			
5		1	RFS DB-B1-6C-8AB-OZ			
6	167.0	3	RFS APX16DWV-16DWVS-E-A20 Panel	(1) Low profile platform with HRK (Sitepro RMQP-4096-HRK)	(3) 1 5/8" Coax (3) 1 5/8" Fiber	T-Mobile
7		3	RFS APXVAALL24-43-U-NA20 Panel			
8		3	Ericsson AIR6449 B41 RRU			
9		3	Ericsson 4449 B71 + B85 RRU			
10		3	Ericsson 4424 B25 RRU			
11	157.0	3	Ericsson 4415 B66A RRU	Low Profile Platform	(12) 1 5/8"	AT&T
12		9	P65-17-XLH – Panel			
13		3	AM-X-CW-16-6500T - Panel			
14		3	ADC Cleargain TMAs			
15		3	CCI DTMAPB 7819VG12A			
16		6	Kathrein 860 10025 TMA			
17		6	Ericsson RRUS-11 RRU			
18		3	Powerwave LGP13519 TMA			
19	3	CSS DBC-750				

## **Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines**

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
20	135.0	3	JMA Wireless - MX08FRO665-21 - Panel	(1) Commscope- MC-PK8-DSH- low-profile platform w/HRK	(1) 1.6" Hybrid	Dish Wireless
21		3	Fujitsu- TA08025-B605- RRU			
22		3	Fujitsu- TA08025-B604- RRU			
23		1	Raycap- RDIDC-9181-PF-48- OVP			

The proposed transmission lines can be installed inside or outside of the pole shafts. If installed outside, the lines shall be strapped tightly to the face of the pole shafts. Stacking lines is not allowed.

## **Analysis Results**

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	<b>75.5%</b>	<b>64.3%</b>	<b>45.9%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	5467.6	42.2	65.8

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

## **Service Load Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.2241 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 75.55% at 98.0ft

**Structure:** CT03111-S-SBA  
**Site Name:** Stafford Springs  
**Height:** 180.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-H  
**Exposure:** C  
**Gh:** 1.1

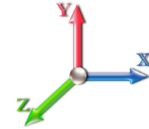
1/27/2023



Page: 1

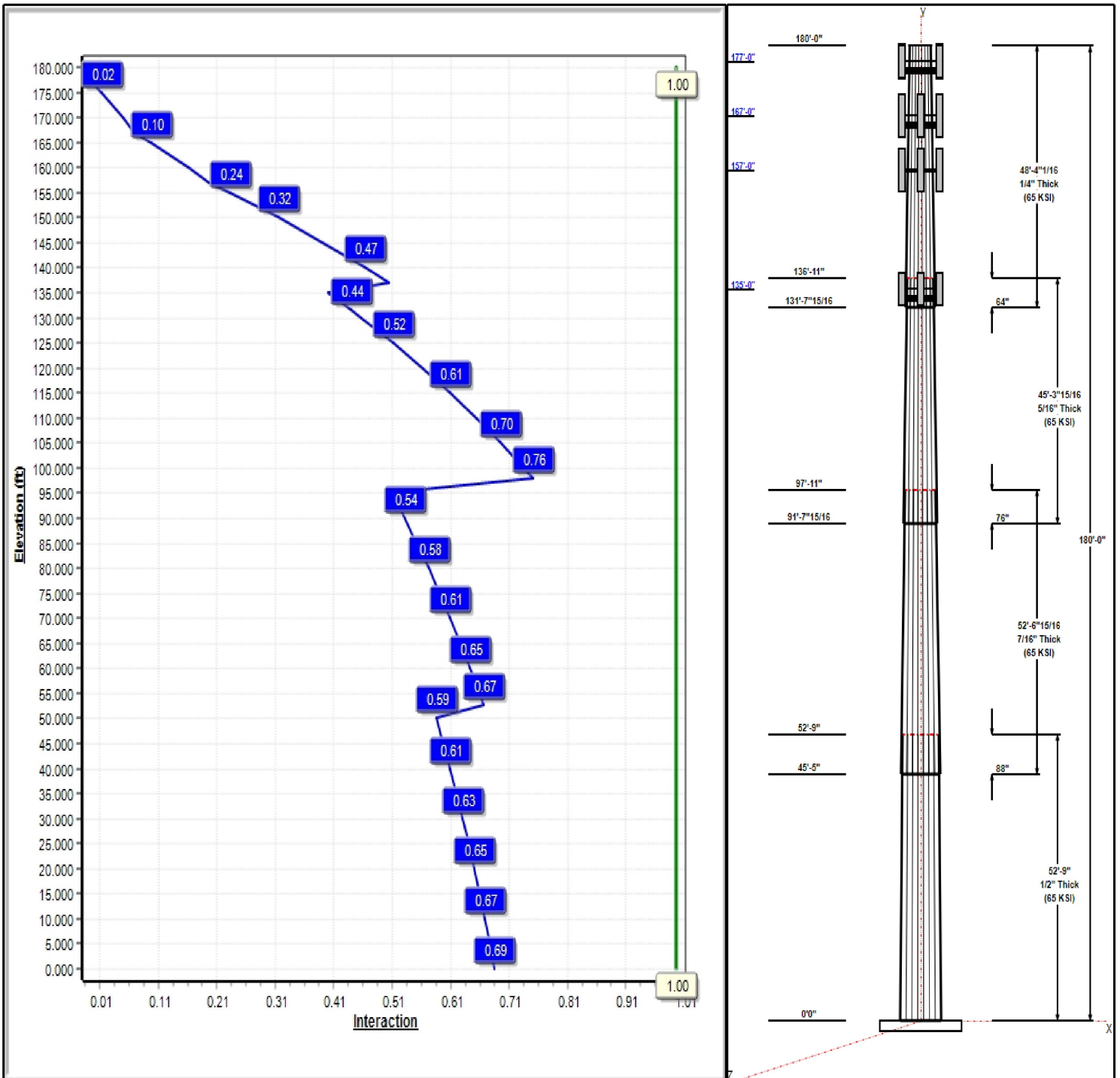
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.00

**Load Case : 1.2D + 1.0W 120 mph Wind**



**Iterations:** 25

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## Structure: CT03111-S-SBA

**Type:** Tapered  
**Site Name:** Stafford Springs  
**Height:** 180.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 16 Sided  
**Taper:** 0.19500

1/27/2023

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.75	49.71	60.00	0.500		0.19500	65
2	52.58	41.77	52.02	0.438	Slip	0.19500	65
3	45.33	34.79	43.63	0.313	Slip	0.19500	65
4	48.34	26.90	36.33	0.250	Slip	0.19500	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
177.00	177.00	6	LNX-6514DS-A1M	Verizon
177.00	177.00	6	HBXX-6517DS-A2M	Verizon
177.00	177.00	3	Alcatel Lucent	Verizon
177.00	177.00	3	Alcatel Lucent	Verizon
177.00	177.00	1	RFS DB-B1-6C-8AB-0Z	Verizon
177.00	177.00	1	Platform w/ Hand Rail	Verizon
167.00	167.00	3	APX16DWV-16DWVS-C-A	T-Mobile
167.00	167.00	3	AIR6449 B41	T-Mobile
167.00	167.00	3	RRUS 4424 B25	T-Mobile
167.00	167.00	3	4415 B66A	T-Mobile
167.00	167.00	3	APXVAALL24-43-U-NA20	T-Mobile
167.00	167.00	3	Ericsson Radio 4449	T-Mobile
167.00	167.00	1	RMQP-4096-HK	T-Mobile
157.00	157.00	3	ADC Cleargain TMAs	AT&T
157.00	157.00	3	CCI DTMAPB 7819VG12A	AT&T
157.00	157.00	6	Kathrein 860 10025	AT&T
157.00	157.00	6	Ericsson RRUS-11	AT&T
157.00	157.00	3	Powerwave LGP13519	AT&T
157.00	157.00	3	CSS DBC-750	AT&T
157.00	157.00	1	Low Profile Platform	AT&T
157.00	157.00	9	P65-17-XLH	AT&T
157.00	157.00	3	AM-X-CW-16-6500T	AT&T
135.00	135.00	3	MX08FRO665-21	Dish Wireless
135.00	135.00	1	MC-PK8-DSH	Dish Wireless
135.00	135.00	3	Fujitsu- TA08025-B605-	Dish Wireless
135.00	135.00	3	Fujitsu- TA08025-B604-	Dish Wireless
135.00	135.00	1	RDIDC-9181-PF-48	Dish Wireless

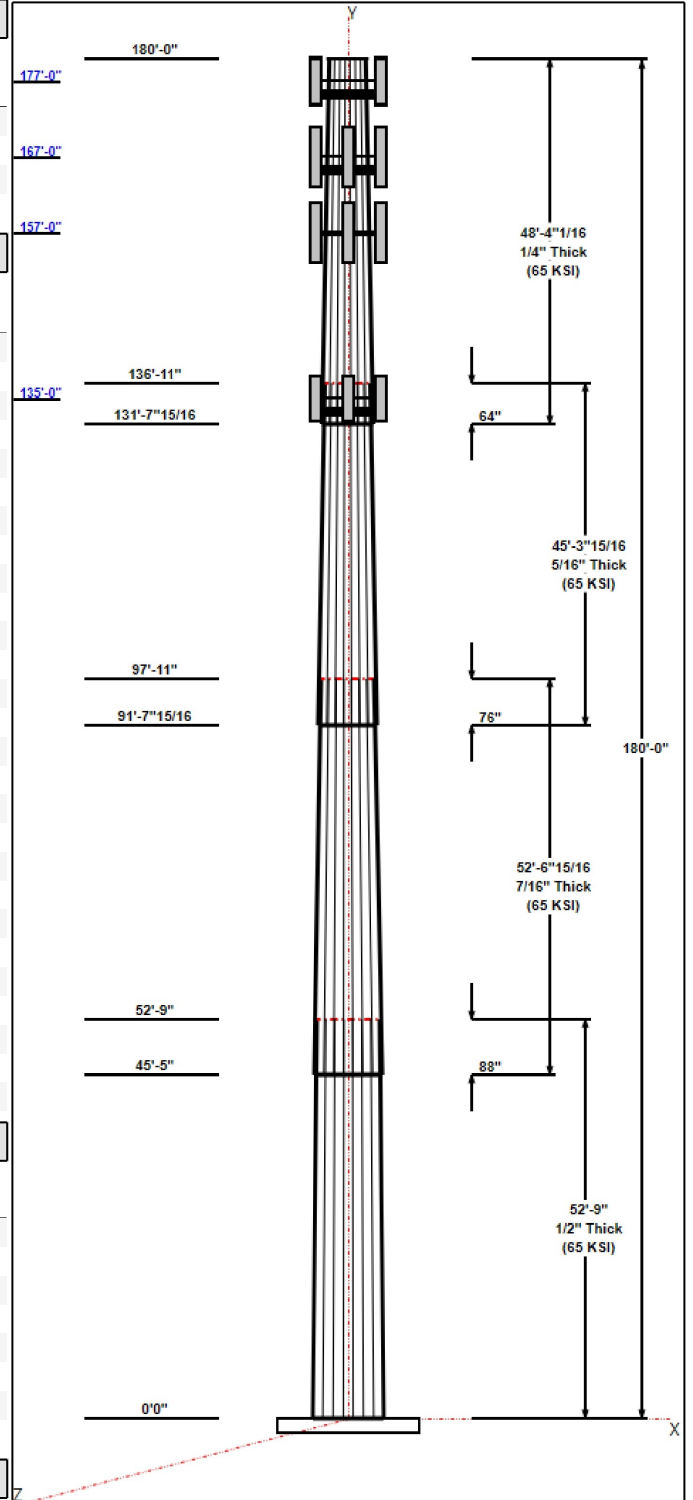
### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	177.00	Inside	1 5/8" Coax	Verizon
0.00	177.00	Inside	1 5/8" Fiber	Verizon
0.00	167.00	Inside	1 5/8" Coax	T-Mobile
0.00	167.00	Inside	1 5/8" Fiber	T-Mobile
0.00	167.00	Outside	Safety Cable	
0.00	167.00	Outside	Step bolts (ladder)	
0.00	157.00	Inside	1 5/8" Coax	AT&T
0.00	135.00	Outside	1.6" Hybrid	Dish Wireless

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Radial

### Base Plate



**Structure: CT03111-S-SBA**

**Type:** Tapered  
**Site Name:** Stafford Springs  
**Height:** 180.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 16 Sided  
**Taper:** 0.19500

1/27/2023

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Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	74.6	60.0	Round

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 120 mph Wind	5467.6	42.2	65.8
0.9D + 1.0W 120 mph Wind	5401.8	42.2	49.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1568.6	11.9	98.0
1.2D + 1.0Ev + 1.0Eh	137.8	0.9	68.0
0.9D + 1.0Ev + 1.0Eh	136.6	0.9	51.5
1.0D + 1.0W 60 mph Wind	1215.2	9.4	54.9

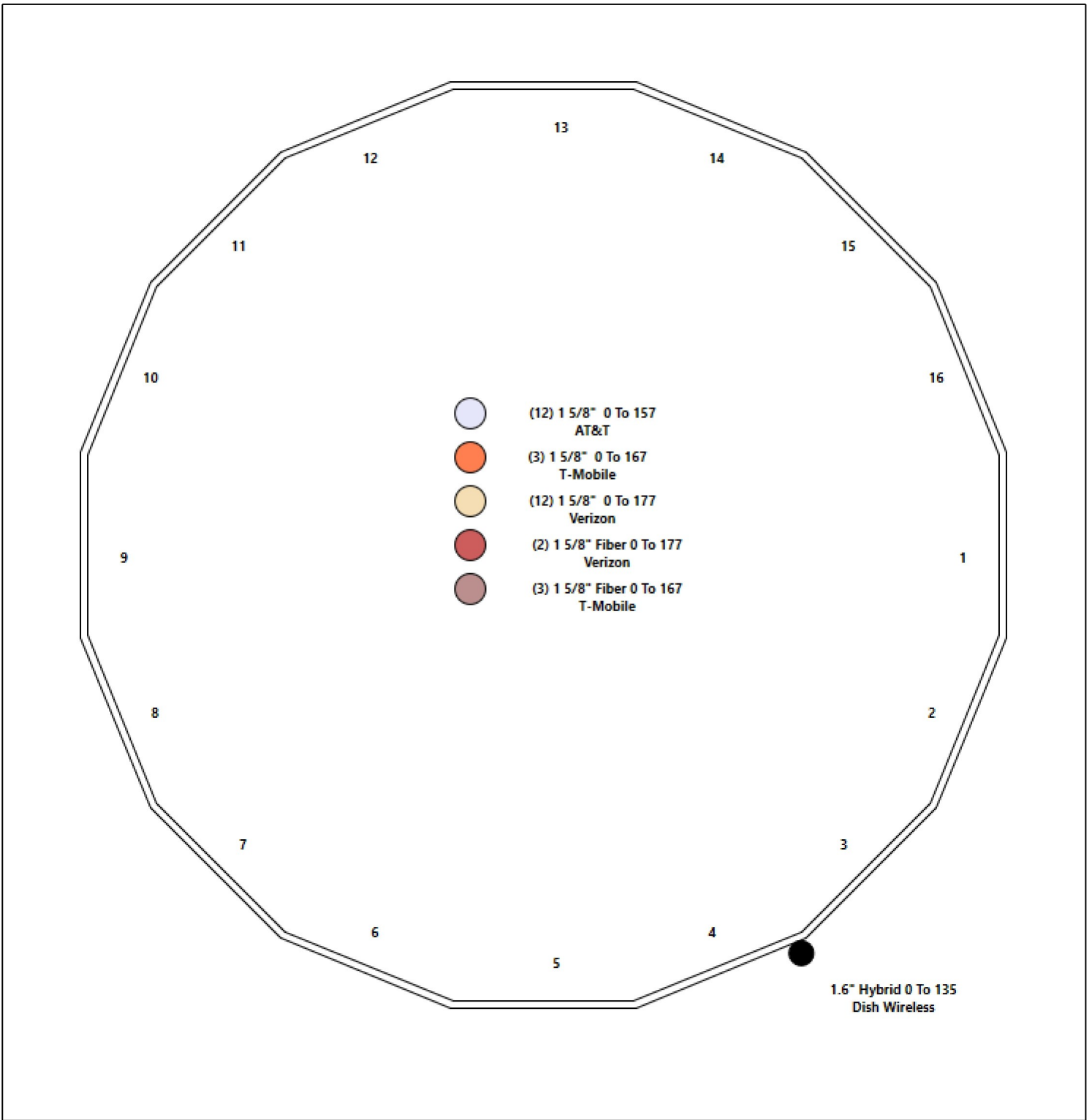
# Structure: CT03111-S-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** Stafford Springs  
**Height:** 180.00 (ft)

1/27/2023



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## Final Analysis Summary

<b>Structure:</b> CT03111-S-SBA	<b>Code:</b> TIA-222-H	1/27/2023
<b>Site Name:</b> Stafford Springs	<b>Exposure:</b> C	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 120 mph Wind	42.2	0.00	65.84	0.00	0.00	5467.56
0.9D + 1.0W 120 mph Wind	42.2	0.00	49.37	0.00	0.00	5401.82
1.2D + 1.0Di + 1.0Wi 50 mph Wind	11.9	0.00	97.98	0.00	0.00	1568.61
1.2D + 1.0Ev + 1.0Eh	0.9	0.00	68.02	0.00	0.00	137.79
0.9D + 1.0Ev + 1.0Eh	0.9	0.00	51.47	0.00	0.00	136.63
1.0D + 1.0W 60 mph Wind	9.4	0.00	54.92	0.00	0.00	1215.21

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 120 mph Wind	-25.75	-31.35	0.00	-1790.0	0.00	-1790.0	2787.65	736.16	2573.28	2404.47	98.00	0.756
0.9D + 1.0W 120 mph Wind	-18.84	-30.86	0.00	-1757.7	0.00	-1757.7	2787.65	736.16	2573.28	2404.47	98.00	0.740
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-48.62	-9.09	0.00	-517.33	0.00	-517.33	2787.65	736.16	2573.28	2404.47	98.00	0.233
1.2D + 1.0Ev + 1.0Eh	-28.70	-0.84	0.00	-51.45	0.00	-51.45	2787.65	736.16	2573.28	2404.47	98.00	0.032
0.9D + 1.0Ev + 1.0Eh	-21.72	-0.83	0.00	-51.07	0.00	-51.07	2787.65	736.16	2573.28	2404.47	98.00	0.029
1.0D + 1.0W 60 mph Wind	-23.07	-6.95	0.00	-397.11	0.00	-397.11	2787.65	736.16	2573.28	2404.47	98.00	0.174

## Base Plate Summary

<b>Structure:</b> CT03111-S-SB	<b>Code:</b> TIA-222-H	1/27/2023
<b>Site Name:</b> Stafford Springs	<b>Exposure:</b> C	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 53



Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 60.00	<b>Bolt Circle:</b> 68.62
<b>Moment (kip-ft):</b> 5785.00	<b>Width (in):</b> 74.62	<b>Number Bolts:</b> 24.00
<b>Axial (kip):</b> 0.00	<b>Style:</b> Round	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 45.20	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis (1.2D + 1.0W)	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 5467.56	<b>Effective Len (in):</b> 12.53	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 65.84	<b>Moment (kip-in):</b> 698.66	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 42.24	<b>Allow Stress (ksi):</b> 81.00	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 37.26	<b>Start Angle (deg):</b> 0.00
	<b>Stress Ratio:</b> 0.46	<b>Compression</b>
		<b>Force (kip):</b> 162.10
		<b>Allowable (kip):</b> 268.39
		<b>Ratio:</b> 0.60
		<b>Tension</b>
		<b>Force (kip):</b> 156.61
		<b>Allowable (kip):</b> 243.75
		<b>Ratio:</b> 0.64



# Monopole Mat Foundation Design

Date	1/10/2023
TIA Standard:	TIA-222-H
Structure Height (Ft.):	52
Engineer Name:	S. Hesselbeir
Engineer Login ID:	

Customer Name:	
Site Name:	
Site Number:	CT03111-S-SBA
Engr. Number:	138139

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

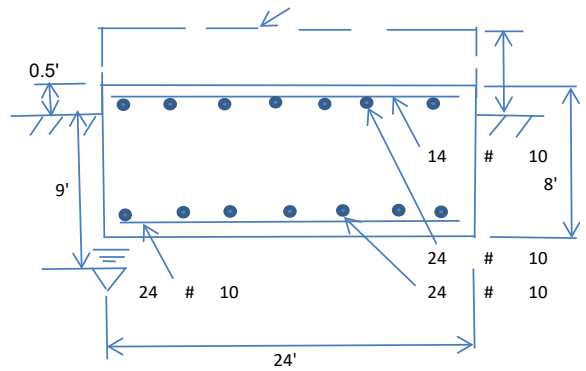
Axial Load (Kips):	65.8	Shear Force (Kips):	42.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5467.6

Allowable overstress %: 5.0%

**Foundation Geometries:**

Anchor Bolt Circle (ft.):	5.72	Depth of Base BG (ft.):	7.50
Thickness of Pad (ft.):	8.00	Width of Pad (ft.):	24
Length of Pad (ft.):	24	Width of Pad (ft.):	24

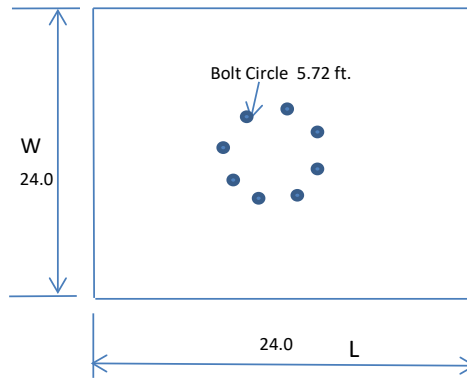
Final Length of pad (ft) 24.0 Final width of pad (ft): 24.0



**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	10			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	14	Qty. of Rebar in Pad (W):	14	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24	

Apply 1.35 factor for e/w Per G: 1.35



**Soil Design Parameters:**

Water Table B.G.S. (ft):	9.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	16000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	4608.00	Total Dry Concrete Weight (Kips):	691.20
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	691.20	Total Vertical Load on Base (Kips):	757.00

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	5038	<	Allowable Factored Soil Bearing (psf):	12000	0.42	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	8254.6	>	Design Factored Momnt (kips-ft):	5429	0.66	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.52					OK!

Load/  
Capacity  
Ratio

**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

**Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	2185.7	>	One-Way Factored Shear (L-D. Kips):	104.7	0.05	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	2185.7	>	One-Way Factored Shear (W-D., Kips)	104.7	0.05	OK!
One-Way Design Shear Capacity (Corner-Corner, Kips):	2524.6	>	One-Way Factored Shear (C-C, Kips):	919.9	0.36	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0007	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0007		
Lower Steel Pad Moment Capacity (L-Direction, Kips-ft):	7332.8	>	Moment at Bottom ( L-Direct. K-Ft):	62.4	0.01	OK!
Lower Steel Pad Moment Capacity (W-Direction, Kips-ft):	7332.8	>	Moment at Bottom ( W-Direct. K-Ft):	62.4	0.01	OK!
Lower Steel Pad Moment Capacity (Corner-Corner, K-ft):	10351.7	>	Moment at Bottom ( C-C Dir. K-Ft):	88.3	0.01	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0011	OK!	Upper Steel Reinf. Ratio (W-Direct. ):	0.0011		
Upper Steel Pad Moment Capacity (L-Direction, Kips-ft):	12499.4	>	Moment at the top ( L-Dir Kips-Ft):	477.9	0.04	OK!
Upper Steel Pad Moment Capacity (W-Direction, Kips-ft):	12499.4	>	Moment at the top ( W-Dir Kips-Ft):	477.9	0.04	OK!
Upper Steel Pad Moment Capacity (Corner-Corner, K-ft):	17622.6	>	Moment at the top (C-C Direc. K-Ft):	700.6	0.04	OK!

# Exhibit E

## **Mount Analysis**





January 23, 2023

Sherri Knapik  
SBA Network Services, LLC.  
134 Flanders Road, Suite 125  
Westborough, MA 01581  
(508) 251-0720 x 3805

MTS Engineering P.L.L.C.  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587- 4630  
btwo@btgrp.com

**Subject:** **Appurtenance Mount Analysis Report**

**Carrier Designation:** **Dish Co-Locate**  
**Site Number:** BOBOS00875A  
**Site Name:** N/A

**SBA Network Services Designation:** **Site Number:** CT03111-S  
**Site Name:** Stafford Springs  
**Application Number:** 168271, v1

**Engineering Firm Designation:** **Project Number:** 158932.004.01

**Site Data:** **30 Old Country Road, Stafford Springs, CT, 06076, Tolland County**  
**Latitude 41.94003°, Longitude -72.2374°**  
**Monopole**  
**8 ft. Platform Mount**

Dear Mr. Knapik,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment	<b>Sufficient Capacity</b>
Note: See Table 1 for the final loading configuration	<b>(Passing at 54.9%)</b>

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

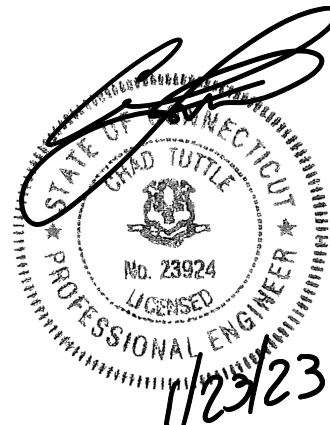
All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and SBA Network Services, LLC. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Daniel Hast, E.I.

Respectfully submitted by: B&T Engineering, Inc.  
COA: BER:2386985 Expires: 03/31/2023

Chad E. Tuttle, P.E.



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## 1) INTRODUCTION

The appurtenance mount consists of platform mount designed by Commscope (Part #MC-PK8-DSH) at 135 ft., attached to monopole at 30 Old Country Road, Stafford Springs, CT, 06076, Tolland County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 118 mph with no ice and 50 mph with 1.5-inch escalated ice thickness. Exposure Category C & Topographic Category 1 and Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

**Table 1 – Proposed Equipment Information**

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	135	1	3	JMA Wireless MX08FRO665-21	1
			3	FUJITSU TA08025-B605	2
			3	FUJITSU TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:

- (1) Proposed Antenna to be installed on the Proposed Mount Pipe.
- (2) Proposed Equipment to be installed directly behind the Antenna.
- (3) Proposed Equipment to be installed on the mount.

**Table 2 – Documents Provided**

Documents	Remarks	Reference	Source
RFDS	Proposed Loading	Date: 07/22/2021	SBA Network Services, LLC.
Collo App		Date: 08/04/2021	

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

### 3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount area and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. 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.
9. The following material grades were assumed (Unless Noted Otherwise):
  - a) Connection Bolts : ASTM A325
  - b) Steel Pipe : ASTM A53 (GR. 35)
  - c) HSS (Round) : ASTM 500 (GR. B-42)
  - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - e) Channel : ASTM A36 (GR. 36)
  - f) Steel Solid Rod : ASTM A36 (GR. 36)
  - g) Steel Plate : ASTM A36 (GR. 36)
  - h) Steel Angle : ASTM A36 (GR. 36)
  - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

#### 4) ANALYSIS RESULTS

**Table 3 – Mount Component Stresses vs. Capacity**

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	135	7.7	Pass
-	Support Rails	135	14.3	Pass
-	Support Tubes	135	54.9	Pass
-	Support Channels	135	43.1	Pass
-	Support Angles	135	29.1	Pass
-	Mount Pipes	135	38.3	Pass
-	Connection Plates	135	23.9	Pass
-	Connection Angles	135	24.2	Pass

#### 5) RECOMMENDATIONS

The Commscope platform mount, Part #MC-PK8-DSH has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

# Exhibit F

## **Power Density/RF Emissions Report**





# Radio Frequency Emissions Analysis Report



**Site ID: BOBOS00875A**

SBA - Old Country Road  
30 Old Country Road  
Stafford Springs, CT 06076

**January 6, 2023**

**Fox Hill Telecom Project Number: 222137**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>7.00 %</b>

January 6, 2023

Dish Wireless  
5701 South Santa Fe Drive  
Littleton, CO 80120

### Emissions Analysis for Site: **BOBOS00875A – SBA - Old Country Road**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **30 Old Country Road, Stafford Springs, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 600 MHz band is approximately  $400 \mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent 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 **30 Old Country Road, Stafford Springs, 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

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

S = Power Density (in  $\mu\text{w}/\text{cm}^2$ )

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	135
B	1	JMA MX08FRO665-21	135
C	1	JMA MX08FRO665-21	135

*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)	12.15 / 15.95 / 16.25	12	566	17,079.80	2.05
Sector A Composite MPE%							<b>2.05</b>
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	2.05
Sector B Composite MPE%							<b>2.05</b>
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	2.05
Sector C Composite MPE%							<b>2.05</b>

*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 that 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 on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite emissions value for the site.

<b>Site Composite MPE%</b>	
Carrier	MPE%
Dish – Max Per Sector Value	<b>2.05 %</b>
Verizon Wireless	1.41 %
T-Mobile	1.08 %
AT&T	2.46 %
<b>Site Total MPE %:</b>	<b>7.00 %</b>

*Table 4: All Carrier MPE Contributions*

Dish Sector A Total:	2.05 %
Dish Sector B Total:	2.05 %
Dish Sector C Total:	2.05 %
Site Total:	7.00 %

*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 on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish n71 (600 MHz) 5G	4	1,008.96	135	5.40	n71 (600 MHz)	400	1.35%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,574.20	135	3.50	n70 (AWS-4 / 1995-2020)	1000	0.35%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,686.79	135	3.50	n66 (AWS-4 / 2180-2200)	1000	0.35%
						<b>Total:</b>	<b>2.05 %</b>

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:	2.05 %
Sector B:	2.05 %
Sector C:	2.05 %
Dish Maximum Total (per sector):	2.05 %
Site Total:	7.00 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite emissions value for this site, assuming all carriers present, is **7.00 %** 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**

## SBA Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Melanie A. Bachman

Executive Director

Connecticut Siting Council

10 Franklin Square

New Britain, CT 06051

Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

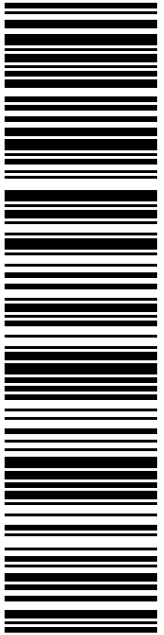
SBA COMMUNICATIONS CORPORATION

134 Flanders Road, Suite 125

Westboro, MA 01581

# Exhibit H


## Recipient Mailings



**USPS TRACKING #**

**9405 5036 9930 0482 2335 68**

Electronic Rate Approved #038555749




SAL P TITUS  
FIRST SELECTMAN  
# 2  
1 MAIN ST  
STAFFORD SPGS CT 06076-1412

**C002**

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

Expected Delivery Date: 02/18/23  
Ref#: SBDS-00875  
**0000**



**Click-N-Ship®**

**P**

usps.com 9405 5036 9930 0482 2335 68 0096 5000 0020 6076  
**\$9.65**  
**US POSTAGE**  
 Flat Rate Env  
**U.S. POSTAGE PAID**  
 Click-N-Ship®

Mailed from 01566 986765595952895



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### Instructions

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**9405 5036 9930 0482 2335 68**

Trans. #: 582814243	Priority Mail® Postage: <b>\$9.65</b>
Print Date: 02/16/2023	Total: <b>\$9.65</b>
Ship Date: 02/16/2023	
Expected Delivery Date: 02/18/2023	


**From:** DEBORAH CHASE      Ref#: SBDS-00875  
 NORTHEAST SITE SOLUTIONS  
 STE 1  
 420 MAIN ST  
 STURBRIDGE MA 01566-1359

**To:** SAL P TITUS  
 FIRST SELECTMAN  
 # 2  
 1 MAIN ST  
 STAFFORD SPGS CT 06076-1412

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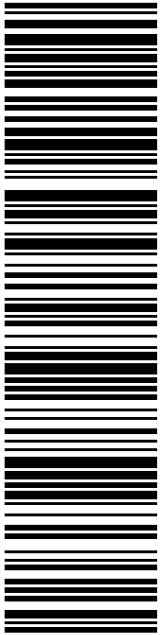


Thank you for shipping with the United States Postal Service!  
 Check the status of your shipment on the USPS Tracking® page at usps.com



DAVID PERKINS  
ZONING ENFORCEMENT OFFICER  
# 2  
1 MAIN ST  
STAFFORD SPGS CT 06076-1412

**USPS TRACKING #**



**9405 5036 9930 0482 2335 75**

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

Expected Delivery Date: 02/18/23  
Ref#: SBDS-00875  
**0000**


**C002**

**P**

USPS.com 9405 5036 9930 0482 2335 75 0096 5000 0020 6076  
US POSTAGE \$9.65  
Flat Rate Env  
U.S. POSTAGE PAID  
Click-N-Ship®


02/16/2023 Mailed from 01566 986765595952197

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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 0482 2335 75**

Trans. #: 582814243	Priority Mail® Postage: <b>\$9.65</b>
Print Date: 02/16/2023	Total: <b>\$9.65</b>
Ship Date: 02/16/2023	
Expected Delivery Date: 02/18/2023	

**From:** DEBORAH CHASE Ref#: SBDS-00875  
NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359


**To:** DAVID PERKINS  
ZONING ENFORCEMENT OFFICER  
# 2  
1 MAIN ST  
STAFFORD SPGS CT 06076-1412

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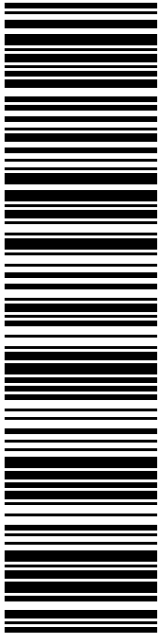
Thank you for shipping with the United States Postal Service!  
Check the status of your shipment on the USPS Tracking® page at usps.com





SBA COMMUNICATIONS CORPORATION  
STE 125  
13 FLANDERS RD  
WESTBOROUGH MA 01581

**USPS TRACKING #**




**9405 5036 9930 0482 2335 82**

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

**PRIORITY MAIL®**

Expected Delivery Date: 02/17/23  
Ref#: SBDS-00875  
**0000**

**R005**




**Click-N-Ship®**

usps.com 9405 5036 9930 0482 2335 82 0096 5000 0010 1581  
US POSTAGE \$9.65  
Flat Rate Envoy

U.S. POSTAGE PAID  
Click-N-Ship®

Mailed from 01566 986765595951580

02/16/2023





Cut on dotted line.

## Instructions


- 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.
- Place your label so it does not wrap around the edge of the package.
- 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.
- 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.
- Mail your package on the "Ship Date" you selected when creating this label.

## Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0482 2335 82</b>	
Trans. #: 582814243	Priority Mail® Postage: <b>\$9.65</b>
Print Date: 02/16/2023	Total: <b>\$9.65</b>
Ship Date: 02/16/2023	
Expected Delivery Date: 02/17/2023	
<b>From:</b> DEBORAH CHASE Ref#: SBDS-00875	
NORTHEAST SITE SOLUTIONS	
STE 1	
420 MAIN ST	
STURBRIDGE MA 01566-1359	
<b>To:</b> SBA COMMUNICATIONS CORPORATION	
STE 125	
13 FLANDERS RD	
WESTBOROUGH MA 01581	
* 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.	

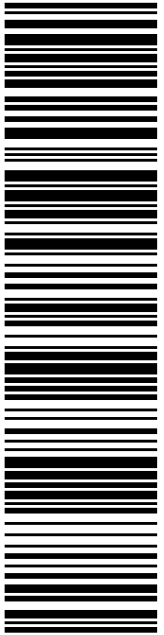


Thank you for shipping with the United States Postal Service!  
Check the status of your shipment on the USPS Tracking® page at usps.com



LISA HARRISON  
L&M PROPERTY HOLDINGS, LLC  
7 DORATZAK RD  
WILLINGTON CT 06279-2405

**USPS TRACKING #**



**9405 5036 9930 0482 2336 05**

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

**PRIORITY MAIL®**

Expected Delivery Date: 02/18/23  
Ref#: SBDS-00875  
**0000**


**R024**

**P**

USPS.com 9405 5036 9930 0482 2336 05 0096 5000 0010 6279  
US POSTAGE \$9.65  
Flat Rate Env  
U.S. POSTAGE PAID  
Click-N-Ship®


Mailed from 01566 986765595949933

**Click-N-Ship®**



UNITED STATES POSTAL SERVICE®

Electronic Rate Approved #038555749





Cut on dotted line.

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## Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0482 2336 05**

Trans. #:	582814243	Priority Mail® Postage:	<b>\$9.65</b>
Print Date:	02/16/2023	Total:	<b>\$9.65</b>
Ship Date:	02/16/2023		
Expected			
Delivery Date:	02/18/2023		

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

**To:** LISA HARRISON  
L&M PROPERTY HOLDINGS, LLC  
7 DORATZAK RD  
WILLINGTON CT 06279-2405

Ref#: SBDS-00875

\* 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.



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Check the status of your shipment on the USPS Tracking® page at usps.com

(Stafford Springs) SBA  
BOBOS0087SA DISH  
BOBOS00004 - GROTON



LINCOLN MALL  
560 LINCOLN ST STE 8  
WORCESTER, MA 01605-1925  
(800)275-8777

02/17/2023 10:56 AM

Product	Qty	Unit Price	Price
Prepaid Mail Wilmington, CT 06279 Weight: 0 lb 12.30 oz Acceptance Date: Fri 02/17/2023 Tracking #: 9405 5036 9930 0482 2336 05	1		\$0.00
Prepaid Mail Stafford Springs, CT 06076 Weight: 0 lb 12.20 oz Acceptance Date: Fri 02/17/2023 Tracking #: 9405 5036 9930 0482 2335 68	1		\$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 1.90 oz Acceptance Date: Fri 02/17/2023 Tracking #: 9405 5036 9930 0482 2335 82	1		\$0.00
Prepaid Mail Stafford Springs, CT 06076 Weight: 0 lb 12.20 oz Acceptance Date: Fri 02/17/2023 Tracking #: 9405 5036 9930 0482 2335 75	1		\$0.00