NORTHEAST SITE SOLUTIONS
*Turnkey Wireless Development*

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

March 9, 2022

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

RE: Tower Share Application
1055 Wintergreen Avenue, Hamden, CT 06541
Latitude: 41.349741
Longitude: -72.97258822
Site #: CT22107-A_BOHVN00181A_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 1055 Wintergreen Avenue, Hamden, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 130-foot level of the existing 195-foot self-support tower, one (1) Fiber 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 6, 2023, Exhibit C. Also included is a structural analysis prepared by TES, dated January 6, 2023, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. As previously documented by the tower owner (SBA), the facility was approved by the Town of Hamden, Special Permit # 01-939 on October 9th, 2001 although a copy of the decision was not available. 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 Mayor Lauren Garrett and Eugene Livshits, Acting Town Planner for the Town of Hamden, as well as the tower owner (MCM Acquisitions 2017 LLC / SBA) and property owner (West Rock LLC).

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 195-feet and the Dish Wireless LLC antennas will be located at a center line height of 130-feet.

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

NORTHEAST SITE SOLUTIONS
*Turnkey Wireless Development*

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 negligent.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 8.22% 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 tower 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 tower in Hamden. 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 130-foot level of the existing 195-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 Hamden.

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

NORTHEAST SITE SOLUTIONS
*Turnkey Wireless Development*

Attachments

Cc: Mayor Lauren Garrett
Town of Hamden
2750 Dixwell Avenue
Hamden, CT 06518

Eugene Livshits, Town Planner
Town of Hamden
2750 Dixwell Avenue
3rd Floor, Government Center
Hamden, CT 06518

West Rock LLC – Property Owner
8051 Congress Ave
Boca Raton, FL 33487

SBA - Tower Owner

# Exhibit A

## Original Facility Approval

*Filed by:*
*Kri Pelletier, Property Specialist - SBA Communications*
*134 Flanders Rd., Suite 125, Westborough, MA 01581*
*508.251.0720 x 3804 - kpelletier@sbasite.com*

December 18, 2017

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

**Notice of Exempt Modification**
**1055 Wintergreen Ave., Hamden, CT**
**41 20 58.7900 N**
**72 58 20.9900 W**
**Sprint #: CT52XC069_DO Macro Upgrade**

Dear Ms. Bachman:

Sprint (Clearwire) currently maintains antennas at the 140-foot level of the existing 197-foot Self Support Tower at 1055 Wintergreen Avenue, Hamden, CT. The property and tower are owned by MCM Acquisition 2017, an SBA entity. Sprint now intends to remove (3) existing cell antennas and replace with (3) newer technology cell antennas at the 140-foot level of the tower. The proposed full scope of work is as follows:

Remove:
( 2 ) 2-1/4" lines
( 3 ) (Clearwire) 20"x14"x7" RRHs
( 1 ) (Clearwire) 18"X18"X7" Junction Box

Remove and Replace:
Remove: ( 3 ) (Clearwire) Argus LLPX310R-V1 Panel Antennas at 138'
Replace with: ( 3 ) KMW ETCR-654L12H6 Panel Antennas at 140'
*Ground: (No change to existing compound – cabinet swap on existing pad)*
Remove: ( 1 ) (Clearwire) equipment cabinet
Replace with: ( 1 ) new equipment cabinet

Install:
( 3 ) ALU 1900 Mhz RRU/RRHs
( 6 ) ALU 800 Mhz RRU/RRHs
( 3 ) ALU TD-RRH8x20-25 RRU/RRHs
( 6 ) Back-to-back pipe mounts
( 9 ) SCH40 pipes
( 6 ) 36" standoff arms
( 1 ) ½" line
( 4 ) 1-¼" lines
*Ground: (No change to compound – H-frame on existing concrete pad)*

( 1 ) H-Frame
( 1 ) PPC cabinet on H-frame
( 1 ) telco cabinet on H-frame

Existing Equipment to Remain (Including entitlements):
( 3 ) Dragonwave A-ANT-23G-2.5-C Dishes (1 is entitlement only)
( 2 ) ½" lines

This facility was approved prior to the Council's jurisdiction by Special Permit on 10/9/01. Approval was given under Case 01-939 for a 195' tower. Conditions set included the placement of bollards around propane tanks and north pads, that a removal bond be posted, and that the tower be built within 3 years' time. A Minor Amendment to the Special Permit approved whips to be mounted for utility and first responder beepers/pagers and that the access road be moved further from the ledge. It is SBA's opinion that the proposed modification complies with all known tower conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town's Mayor, Curt B. Leng, and Zoning Enforcement Officer, Holly Masi. (Separate notice is not being sent to the property or tower owner, as they are SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T - 508.366.2610 + F - kpelletier@sbasite.com
Attachments
cc: Curt B. Leng, Mayor / with attachments
*Town of Hamden, Office of the Mayor, 2750 Dixwell Avenue, Hamden, CT 06518*
Holly Masi, Zoning Enforcement Officer / with attachments
*Town of Hamden, Planning & Zoning Dept., 2750 Dixwell Avenue, Hamden, CT 06518*

# Exhibit B

## Property Card

# Town of Hamden, CT

## Property Listing Report

| Map Block Lot | 2220-001-00-0000 | Building # | 1 | PID | 20299 | Account | |
|---|---|---|---|---|---|---|---|

## Property Information

| | |
|---|---|
| Property Location | 1055 WINTERGREEN AVE |
| Owner | WEST ROCK LLC |
| Co-Owner | % M C M ACQUISITIONS 2017 LLC |
| Mailing Address | 8051 CONGRESS AVE<br>BOCA RATON FL 33487 |
| Land Use | 4330 RAD/TV TR M96 |
| Land Class | I |
| Zoning Code | R1 |
| Census Tract | |

| | |
|---|---|
| Neighborhood | 75 |
| Acreage | 1.03 |
| Utilities | Well,Septic |
| Lot Setting/Desc | Rural Above Street,Steep |
| Book / Page | 2405/0030 |
| Additional Info | |

## Photo

## Sketch


## Primary Construction Details

| | |
|---|---|
| Year Built | 1962 |
| Building Desc. | RAD/TV TR M96 |
| Building Style | Warehouse |
| Building Grade | C |
| Stories | 1 |
| Occupancy | 1.00 |
| Exterior Walls | Concr/Cinder |
| Exterior Walls 2 | NA |
| Roof Style | Shed |
| Roof Cover | Metal/Tin |
| Interior Walls | Minim/Masonry |
| Interior Walls 2 | NA |
| Interior Floors 1 | Concr-Finished |
| Interior Floors 2 | NA |

| | |
|---|---|
| Heating Fuel | Coal or Wood |
| Heating Type | None |
| AC Type | None |
| Bedrooms | 0 |
| Full Bathrooms | 0 |
| Half Bathrooms | 0 |
| Extra Fixtures | 0 |
| Total Rooms | 0 |
| Bath Style | NA |
| Kitchen Style | NA |
| Fin Bsmt Area | |
| Fin Bsmt Quality | |
| Bsmt Gar | 0 |
| Fireplaces | 0 |

(*Industrial / Commercial Details)

| | |
|---|---|
| Building Use | Ind/Comm |
| Building Condition | A |
| Sprinkler % | NA |
| Heat / AC | NONE |
| Frame Type | MASONRY |
| Baths / Plumbing | NONE |
| Ceiling / Wall | NONE |
| Rooms / Prtns | LIGHT |
| Wall Height | |
| First Floor Use | NA |
| Foundation | NA |

Report Created On 6/29/2022

# Town of Hamden, CT

**Property Listing Report** | Map Block Lot **2220-001-00-0000** | Building # **1** | PID **20299** | Account

## Valuation Summary (Assessed value = 70% of Appraised Value)

| Item | Appraised | Assessed |
|---|---|---|
| Buildings | | 35000 |
| Extras | 0 | 0 |
| Improvements | | |
| Outbuildings | 20700 | 14490 |
| Land | 285000 | 210000 |
| Total | 355700 | 259490 |

## Outbuilding and Extra Features

| Type | Description |
|---|---|
| COMM GOOD | 192 S.F. |
| COMM GOOD | 96 S.F. |
| FENCE-8' CHAIN | 384 L.F. |
| COMM GOOD | 220 S.F. |
| | |
| | |
| | |
| | |
| | |
| | |

## Sub Areas

| Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
|---|---|---|
| First Floor | 617 | 617 |
| Slab | 617 | 0 |
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| | | |
| Total Area | 1234 | 617 |

## Sales History

| Owner of Record | Book/ Page | Sale Date | Sale Price |
|---|---|---|---|
| WEST ROCK LLC | 2405/0030 | 2003-02-27 | 0 |
| ZACHS ERIC 50% INTEREST & | 1338/0061 | 1993-07-20 | 100000 |
| ZACHS HENRY M ETAL TRUSTEES | 0614/0181 | 1976-05-12 | 0 |

Report Created On **6/29/2022**

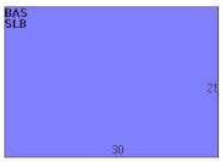
# Town of Hamden, CT

Property Listing Report | Map Block Lot 2220-001-00-0000 | Building # 2 | PID 20299 | Account

Photo

2220-001-00-0000 10/24/2015

Sketch




## Primary Construction Details

| | |
|---|---|
| Year Built | 1987 |
| Building Desc. | Ind/Comm |
| Building Style | Warehouse |
| Building Grade | C |
| Stories | 1 |
| Occupancy | 1.00 |
| Exterior Walls | Concr/Cinder |
| Exterior Walls 2 | NA |
| Roof Style | Flat |
| Roof Cover | T&G/Rubber |
| Interior Walls | Minim/Masonry |
| Interior Walls 2 | NA |
| Interior Floors 1 | Concr-Finished |
| Interior Floors 2 | NA |

| | |
|---|---|
| Heating Fuel | Coal or Wood |
| Heating Type | None |
| AC Type | None |
| Bedrooms | 0 |
| Full Bathrooms | 0 |
| Half Bathrooms | 0 |
| Extra Fixtures | 0 |
| Total Rooms | 0 |
| Bath Style | NA |
| Kitchen Style | NA |
| Fin Bsmt Area | |
| Fin Bsmt Quality | |
| Bsmt Gar | 0 |
| Fireplaces | 0 |

(*Industrial / Commercial Details)

| | |
|---|---|
| Building Use | RAD/TV TR M96 |
| Building Condition | A |
| Sprinkler % | NA |
| Heat / AC | NONE |
| Frame Type | MASONRY |
| Baths / Plumbing | NONE |
| Ceiling / Wall | CEILING ONLY |
| Rooms / Prtns | LIGHT |
| Wall Height | 9.00 |
| First Floor Use | NA |
| Foundation | NA |

## Sub Areas

| Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
|---|---|---|
| First Floor | 630 | 630 |
| Slab | 630 | 0 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
|---|---|---|
| | | |
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| | | |
| | | |
| | | |
| Total Area | 1260 | 630 |

Report Created On 6/29/2022

# Town of Hamden

Geographic Information System (GIS)

Date Printed: 6/29/2022


**MAP DISCLAIMER - NOTICE OF LIABILITY**

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Hamden and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 200 feet

0 200 Feet

N W E S

# Exhibit C

**Construction Drawings**

SBA APPROVED

*By sroth at 5:44:47 AM, 1/27/2023*

DISH Wireless L.L.C. SITE ID:

# BOHVN00181A

DISH Wireless L.L.C. SITE ADDRESS:

# 1055 WINTERGREEN AVE
# HAMDEN, CT 06514

## 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:
- REMOVE EXISTING ANTENNAS, MOUNT AND FEEDLINES FROM 179'-0" LEVEL
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED SECTOR FRAMES
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

## SITE INFORMATION

| | |
|---|---|
| PROPERTY OWNER: | WEST ROCK LLC |
| ADDRESS: | 8051 CONGRESS AVE<br>BOCA RATON, FL 33487 |
| TOWER TYPE: | SELF-SUPPORT TOWER |
| TOWER CO SITE ID: | CT-SBA-T-CT22107A |
| TOWER APP NUMBER: | T.B.D |
| COUNTY: | NEW HAVEN |
| LATITUDE (NAD 83): | 41° 20' 59.1" N<br>41.349741 |
| LONGITUDE (NAD 83): | 72° 58' 21.3" W<br>-72.97258822 |
| ZONING JURISDICTION: | NEW HAVEN COUNTY |
| ZONING DISTRICT: | RESIDENTIAL |
| PARCEL NUMBER: | 2220-001-00-0000 |
| OCCUPANCY GROUP: | U |
| CONSTRUCTION TYPE: | II-B |
| POWER COMPANY: | EVERSOURCE |
| TELEPHONE COMPANY: | AT&T |

## PROJECT DIRECTORY

| | |
|---|---|
| APPLICANT: | DISH Wireless L.L.C.<br>5701 SOUTH SANTA FE DRIVE<br>LITTLETON, CO 80120 |
| TOWER OWNER: | SBA COMMUNICATAIONS CORP.<br>8051 CONGRESS AVENUE<br>BOCA RATON, FL 33487<br>(800) 487-7483 |
| SITE DESIGNER: | B+T GROUP<br>1717 S. BOULDER AVE, SUITE 300<br>TULSA, OK 74119<br>(918) 587-4630 |
| SITE ACQUISITION: | RYAN LYNCH<br>ryan.lynch@dish.com |
| CONST. MANAGER: | JAVIER SOTO<br>javier.soto@dish.com |
| RF ENGINEER: | SYED ZAIDI<br>syed.zaidi@dish.com |

## 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 | 2021 IBC |
| MECHANICAL | 2021 IMC |
| ELECTRICAL | 2020 NEC |

## SITE PHOTO

## DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT:

TAKE FORT HALE RD TO TOWNSEND AVE, HEAD SOUTHWEST, TURN LEFT, CONTINUE ONTO FORT HALE RD, CONTINUE ON TOWNSEND AVE. TAKE I-95 S AND CT-122 N TO BRADLEY RD IN WOODBRIDGE, TURN RIGHT ONTO TOWNSEND AVE TURN LEFT ONTO MAIN ST/MAIN STREET ANX, USE THE RIGHT 2 LANES TO TAKE THE RAMP ONTO I-95 S, TAKE EXIT 43 FOR CT-122/1ST AVE, TURN RIGHT ONTO CT-122 N/1ST AVE, CONTINUE TO FOLLOW CT-122 N, PASS BY 7-ELEVEN (ON THE LEFT IN 0.5 MI), TURN LEFT ONTO FOUNTAIN ST, TURN RIGHT ONTO DAYTON ST, TURN LEFT ONTO WHALLEY AVE PASS BY BURGER KING (ON THE RIGHT IN 0.3 MI), SLIGHT RIGHT ONTO CT-69 N/WHALLEY AVE, CONTINUE TO FOLLOW CT-69 DRIVE TO BRADLEY RD, TURN RIGHT ONTO BRADLEY RD TURN LEFT TO STAY ON BRADLEY RD.

## SHEET INDEX

| SHEET NO. | SHEET TITLE |
|---|---|
| T-1 | TITLE SHEET |
| | |
| LS1 | SITE SURVEY |
| LS2 | SITE SURVEY |
| LS3 | SITE SURVEY |
| | |
| A-1 | OVERALL AND ENLARGED SITE PLAN |
| A-2 | ELEVATION, ANTENNA LAYOUT AND SCHEDULE |
| A-3 | EQUIPMENT PLATFORM AND H-FRAME DETAILS |
| | |
| A-4 | EQUIPMENT DETAILS |
| A-5 | EQUIPMENT DETAILS |
| A-6 | EQUIPMENT DETAILS |
| | |
| E-1 | ELECTRICAL/FIBER ROUTE PLAN AND NOTES |
| E-2 | ELECTRICAL DETAILS |
| E-3 | ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE |
| | |
| G-1 | GROUNDING PLANS AND NOTES |
| G-2 | GROUNDING DETAILS |
| G-3 | GROUNDING DETAILS |
| | |
| RF-1 | RF CABLE COLOR CODE |
| | |
| GN-1 | LEGEND AND ABBREVIATIONS |
| GN-2 | RF SIGNAGE |
| GN-3 | GENERAL NOTES |
| GN-4 | GENERAL NOTES |
| GN-5 | 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

811

## GENERAL NOTES

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

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

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

## VICINITY MAP


NO SCALE


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.btgrp.com


STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
01/06/23


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




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|---|---|---|
| 0 | 6/29/22 | ISSUED FOR CONSTRUCTION |
| 1 | 7/1/22 | ISSUED FOR CONSTRUCTION |
| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

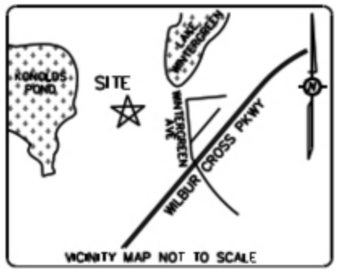
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**




## FAA 2-C INFORMATION

(CT-30)
LATITUDE: 41° 20' 58.79" N
LONGITUDE: 72° 58' 20.99" W
GROUND ELEVATION AT BASE OF TOWER
428.3' +/- 3.0' NAVD88

(CT-30A)
LATITUDE: 41° 20' 59.07" N
LONGITUDE: 72° 58' 21.32" W
GROUND ELEVATION AT BASE OF TOWER
435.4' +/- 3.0' NAVD88

(CT-30B)
LATITUDE: 41° 20' 59.30" N
LONGITUDE: 72° 58' 21.67" W
GROUND ELEVATION AT BASE OF TOWER
439.8' +/- 3.0' NAVD88

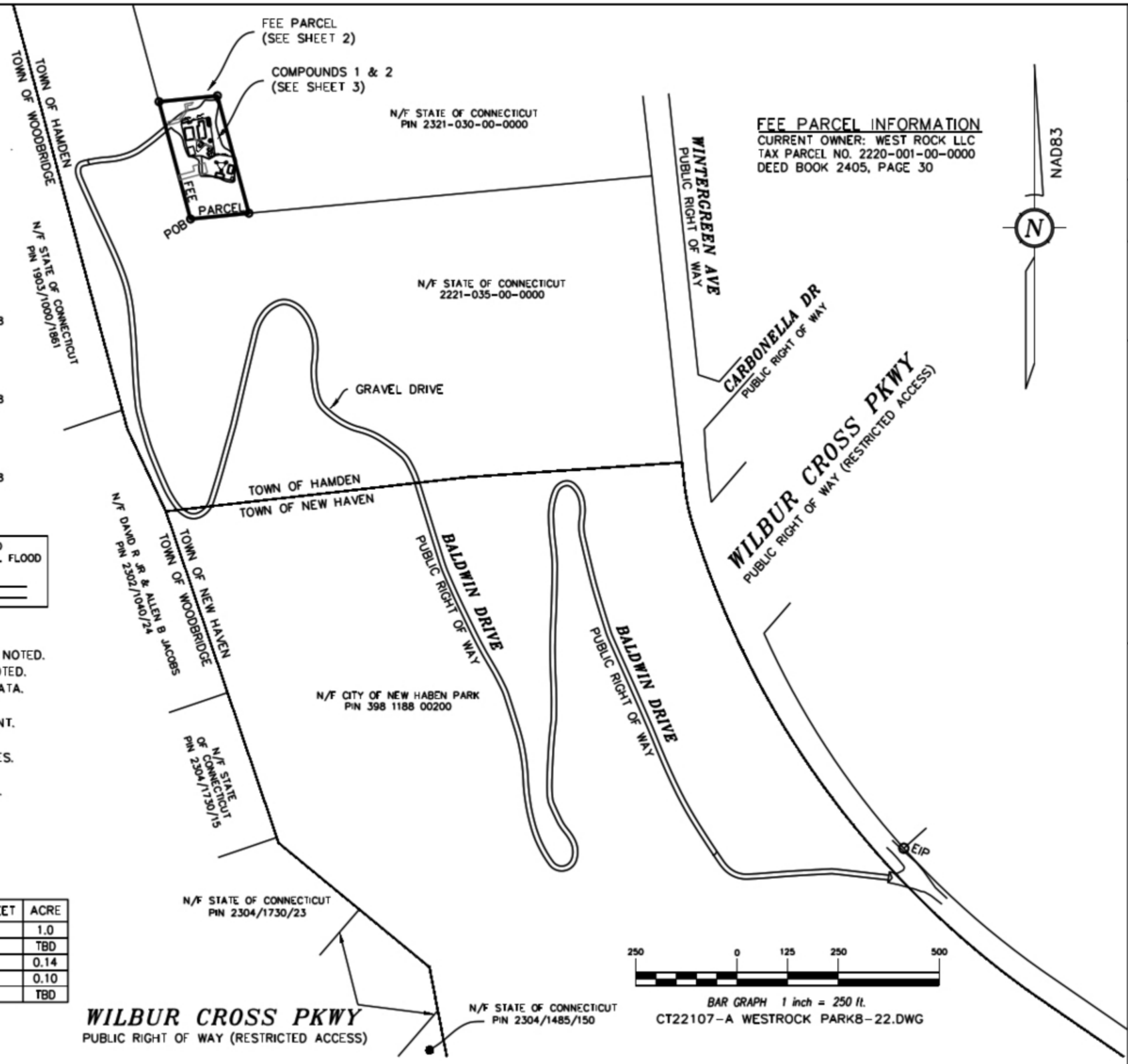
ZONING: R1 (RESIDENTIAL)

THIS PARCEL OF LAND LIES WITHIN FLOOD ZONE X WHICH IS NOT A SPECIAL FLOOD HAZARD AREA AS PER F.I.R.M. PANEL NUMBER: 09009C0426H
EFFECTIVE DATE: 12/17/2010

### LEGEND

- ○ : FOUND 1/2" REBAR AS NOTED.
- ● : SET 1/2" REBAR AS NOTED.
- (---) : RECORD DESCRIPTION DATA.
- P.O.B. : POINT OF BEGINNING.
- P.O.C. : POINT OF COMMENCEMENT.
- —o— : FENCE AS NOTED.
- —OH— : OVER HEAD UTILITY LINES.
- : WOOD UTILITY POLE.
- E : ELECTRIC TRANSFORMER.
- T : TELCO PEDESTAL.
- WM : WATER METER.
- ⊠ : POWER BOX
- HH : HAND HOLE
- N/A : NOT AVAILABLE

| AREA | SQUARE FEET | ACRE |
|---|---|---|
| FEE PARCEL | 42926 | 1.0 |
| LEASE AREA | TBD | TBD |
| COMPOUND AREA 1 | 6208 | 0.14 |
| COMPOUND AREA 2 | 4203 | 0.10 |
| ACCESS/UTILITY EASEMENT | TBD | TBD |




## FEE PARCEL INFORMATION

CURRENT OWNER: WEST ROCK LLC
TAX PARCEL NO. 2220-001-00-0000
DEED BOOK 2405, PAGE 30

# AS-BUILT SURVEY

PREPARED FOR

SBA

**SITE: Westrock Park**
**ID: CT22107-A**
**ADDRESS: 1055 Wintergreen Ave**
**Hamden CT 06514**
**New Haven County**

MACH Wireless

**SURVEY WORK PERFORMED BY:**

JONATHAN MURPHY
Professional Land Surveying
10505 Leafwood Place (919) 280-8189
Raleigh NC 27613 FAX 995-9616
E-MAIL : raleigh@murphygeomatics.com FIRM C-2757

## SURVEYOR'S NOTES

1. BASIS OF BEARING: CT GRID NAD83

2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE PER OBSERVED EVIDENCE ONLY.

3. THIS SURVEY DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL.

4. ALL VISIBLE TOWER EQUIPMENT AND IMPROVEMENTS ARE CONTAINED WITH IN THE DESCRIBED AREA.

5. AT THE TIME OF THE SURVEY THERE WERE NO VISIBLE ENCROACHMENT ONTO OR BEYOND THE SUBJECT PROPERTY

## SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY TO:
SBA TOWERS IX, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND FIDELITY NATIONAL TITLE INSURANCE COMPANY.
MURPHY GEOMATICS

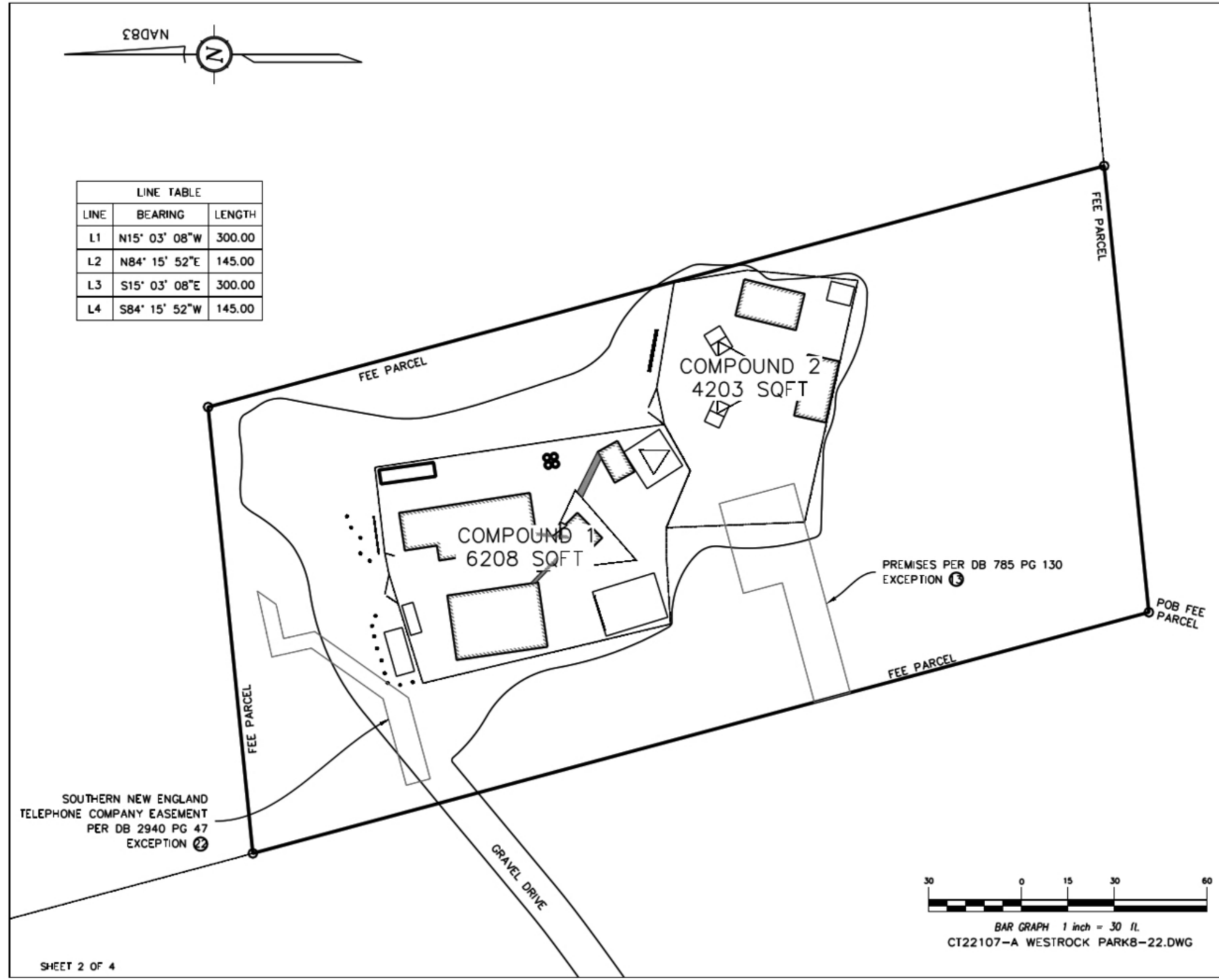
LAND SURVEYOR –
DATE: 4/10/2010

STATE OF CONNECTICUT WILLIAM J. NAGLE, JR. No. 70280 LICENSED LAND SURVEYOR

NOTE: THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED UPON THEIR BEST KNOWLEDGE AND BELIEF AND DOES NOT CONSTITUTE A GUARANTEE OR WARRANTY.

NAD83

| LINE TABLE | | |
|---|---|---|
| LINE | BEARING | LENGTH |
| L1 | N15° 03' 08"W | 300.00 |
| L2 | N84° 15' 52"E | 145.00 |
| L3 | S15° 03' 08"E | 300.00 |
| L4 | S84° 15' 52"W | 145.00 |




CT22107-A WESTROCK PARK8-22.DWG

SHEET 2 OF 4

# AS-BUILT SURVEY

PREPARED FOR

SBA

**SITE: Westrock Park**
**ID: CT22107-A**
**ADDRESS: 1055 Wintergreen Ave**
**Hamden CT 06514**
**New Haven County**

MACH Wireless

**SURVEY WORK PERFORMED BY:**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Professional Land Surveying
10505 Leafwood Place (919) 280-8189
Raleigh NC 27613 FAX 995-9616
E-MAIL : raleigh@murphygeomatics.com FIRM C-2757


## SURVEYOR'S NOTES

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CT GRID NAD83

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## SURVEYOR'S CERTIFICATION

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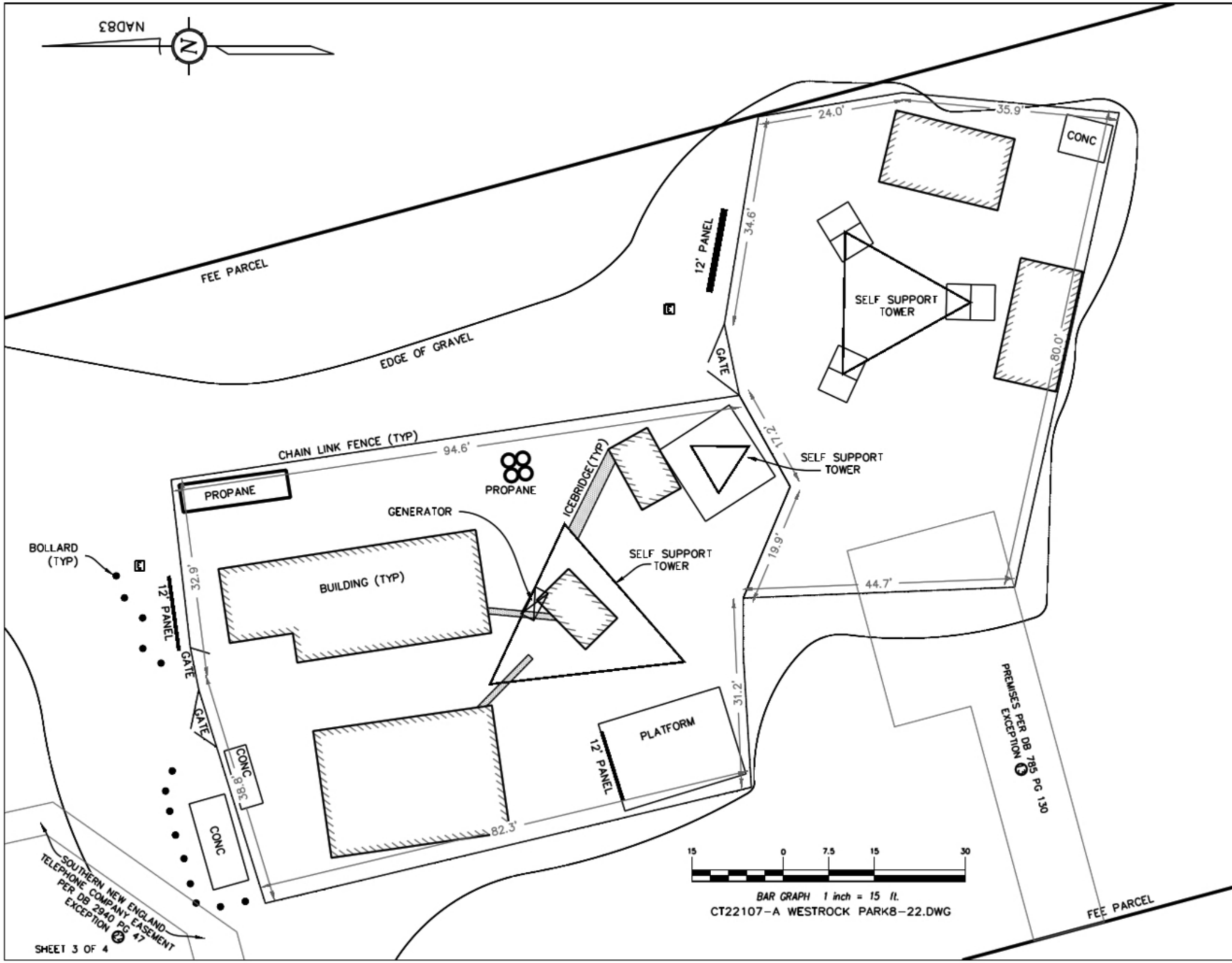
SBA TOWERS IX, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND FIDELITY NATIONAL TITLE INSURANCE COMPANY.
MURPHY GEOMATICS

LAND SURVEYOR –
DATE: 4/10/2010

STATE OF CONNECTICUT
WILLIAM J. NAGLE, JR.
No. 70269
LICENSED
LAND SURVEYOR

NOTE: THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED UPON THEIR BEST KNOWLEDGE AND BELIEF AND DOES NOT CONSTITUTE A GUARANTEE OR WARRANTY.




# AS-BUILT SURVEY

PREPARED FOR

SBA

**SITE: Westrock Park**
**ID: CT22107-A**
**ADDRESS: 1055 Wintergreen Ave**
**Hamden CT 06514**
**New Haven County**

MACH Wireless

**SURVEY WORK PERFORMED BY:**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Professional Land Surveying
10505 Leafwood Place (919) 280-8189
Raleigh NC 27613 FAX 995-9616
E-MAIL : raleigh@murphygeomatics.com FIRM C-2757


## SURVEYOR'S NOTES

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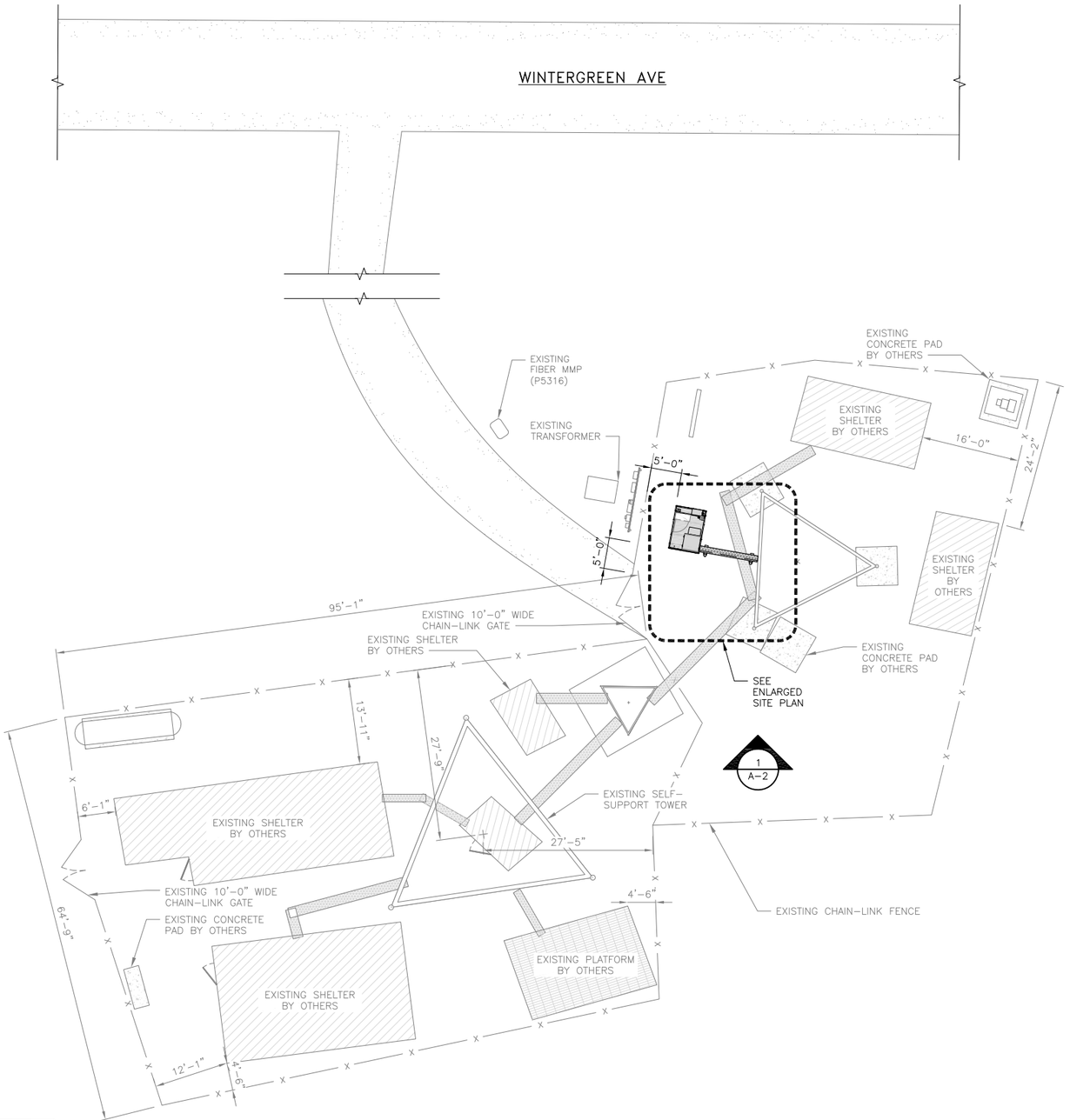
I HEREBY CERTIFY TO:
SBA TOWERS IX, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND FIDELITY NATIONAL TITLE INSURANCE COMPANY.
MURPHY GEOMATICS

LAND SURVEYOR –
DATE: 4/10/2010

STATE OF CONNECTICUT
WILLIAM J. NAGLE, JR.
No. 70280
LICENSED LAND SURVEYOR

NOTE: THE WORD "CERTIFY" IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE LAND SURVEYOR WHICH IS BASED UPON THEIR BEST KNOWLEDGE AND BELIEF AND DOES NOT CONSTITUTE A GUARANTEE OR WARRANTY.



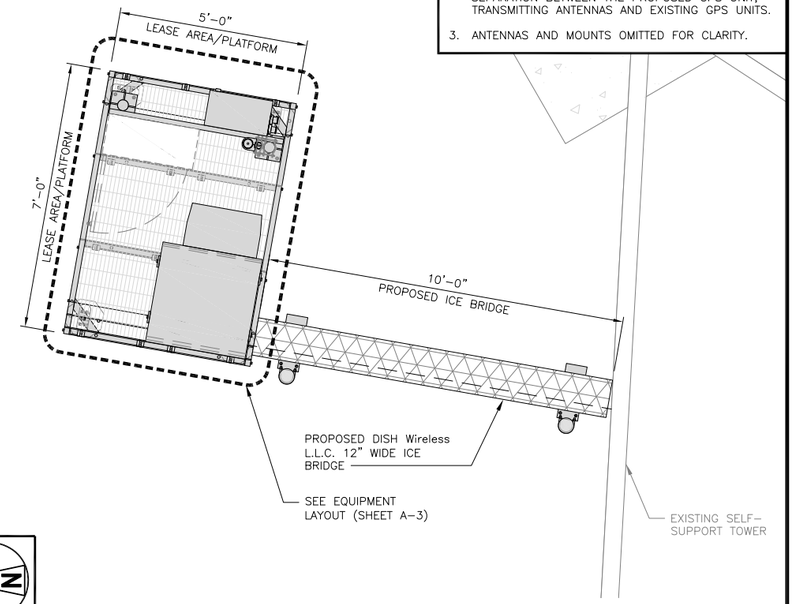

OVERALL SITE PLAN

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1

## NOTES

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




ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2

NOT USED

NO SCALE

3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SUITE 300
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www.btgrp.com


STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
01/06/23


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




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|---|---|---|
| 0 | 6/29/22 | ISSUED FOR CONSTRUCTION |
| 1 | 7/1/22 | ISSUED FOR CONSTRUCTION |
| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

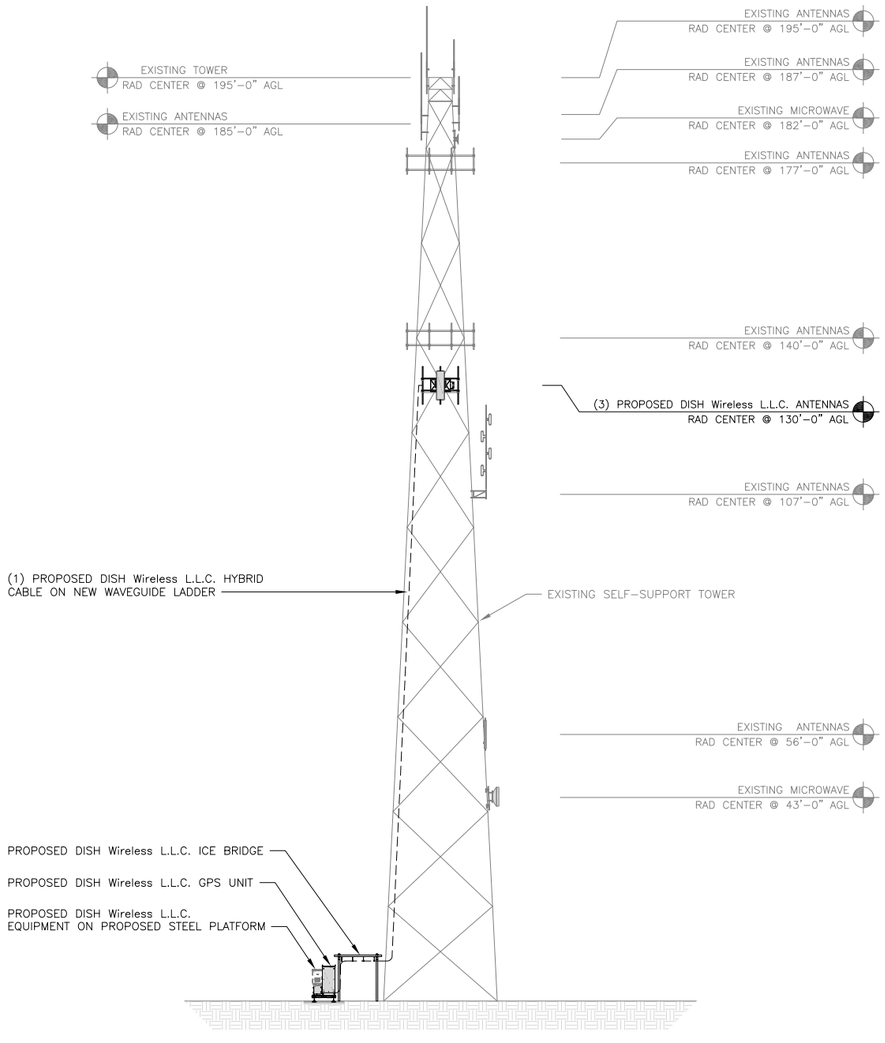
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

## NOTES

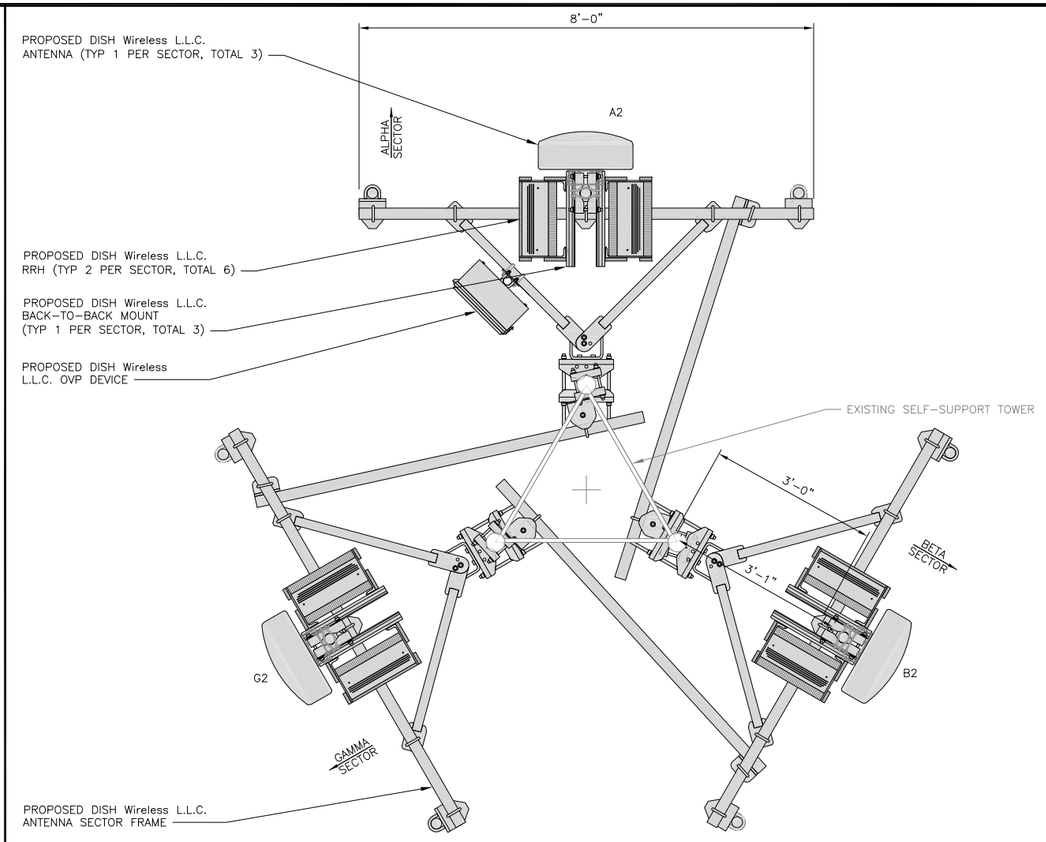
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.




## PROPOSED SOUTH ELEVATION

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

1




N

WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE

## ANTENNA LAYOUT

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

2

| SECTOR POS. | ANTENNA | | | | | TRANSMISSION CABLE | RRH | | | OVP |
|---|---|---|---|---|---|---|---|---|---|---|
| | EXISTING OR PROPOSED | MANUFACTURER – MODEL NUMBER | TECH | AZIMUTH | RAD CENTER | FEED LINE TYPE AND LENGTH | MANUFACTURER – MODEL NUMBER | TECH | POS. | MANUFACTURER MODEL |
| A1 | -- | -- | -- | -- | -- | (1) HIGH-CAPACITY HYBRID CABLE (160' LONG) | FUJITSU – TA08025-B605 | 5G | A2 | RAYCAP – RDIDC-9181 -PF-48 |
| A2 | PROPOSED | JMA WIRELESS – MX08FRO665-21 | 5G | 0° | 130'-0" | | FUJITSU – TA08025-B604 | 5G | A2 | |
| A3 | -- | -- | -- | -- | -- | | -- | -- | -- | |
| B1 | -- | -- | -- | -- | -- | SHARED W/ALPHA | FUJITSU – TA08025-B605 | 5G | B2 | SHARED W/ALPHA |
| B2 | PROPOSED | JMA WIRELESS – MX08FRO665-21 | 5G | 120° | 130'-0" | | FUJITSU – TA08025-B604 | 5G | B2 | |
| B3 | -- | -- | -- | -- | -- | | -- | -- | -- | |
| C1 | -- | -- | -- | -- | -- | SHARED W/ALPHA | FUJITSU – TA08025-B605 | 5G | C2 | SHARED W/ALPHA |
| C2 | PROPOSED | JMA WIRELESS – MX08FRO665-21 | 5G | 240° | 130'-0" | | FUJITSU – TA08025-B604 | 5G | C2 | |
| C3 | -- | -- | -- | -- | -- | | -- | -- | -- | |

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

## ANTENNA SCHEDULE

NO SCALE

3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| MEH | RMC | RMC |

RFDS REV #: 1

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A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

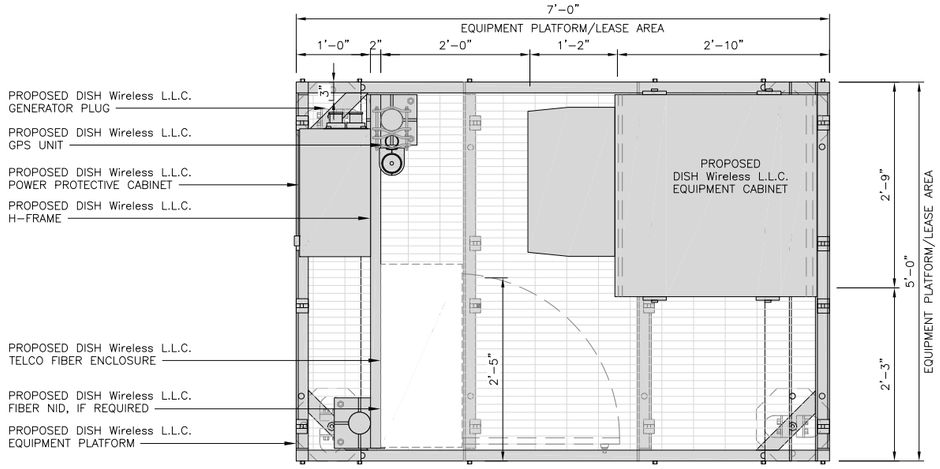
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

**A-2**



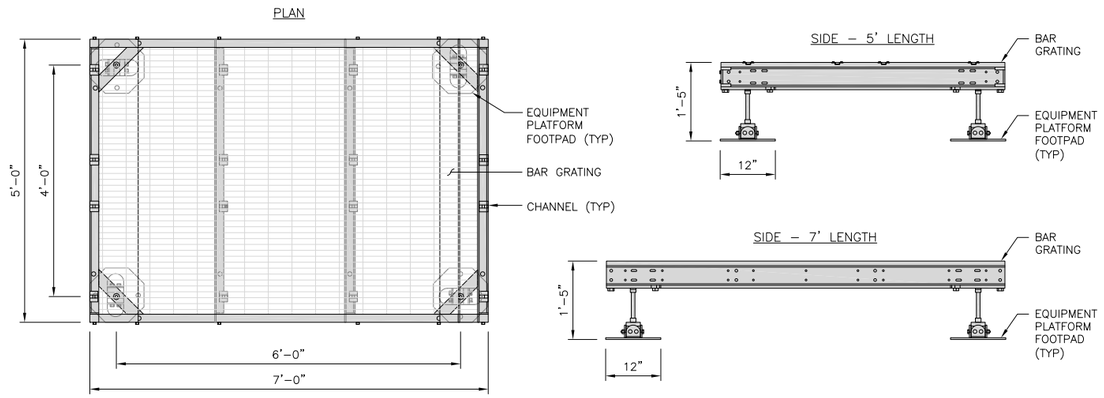

PLATFORM EQUIPMENT PLAN

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

1

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

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

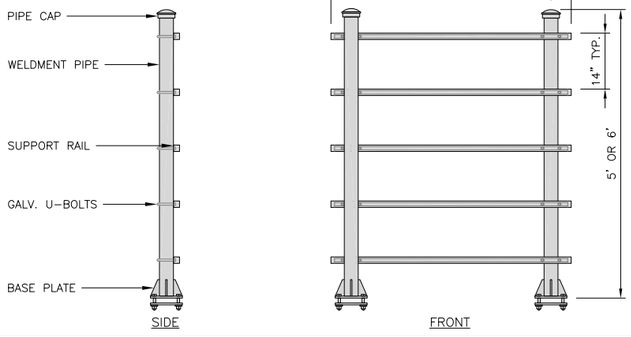



PLATFORM DETAIL

NO SCALE

2

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




H-FRAME DETAIL

NO SCALE

3

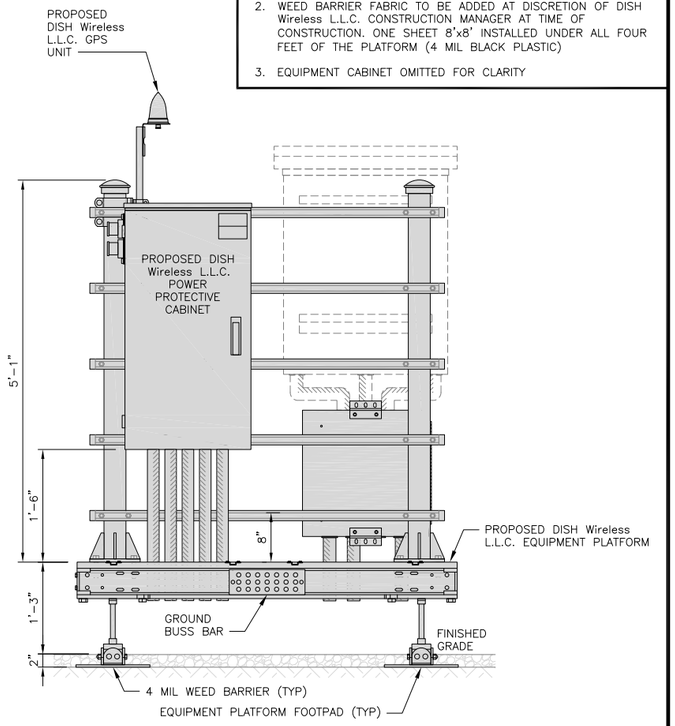
NOT USED

NO SCALE

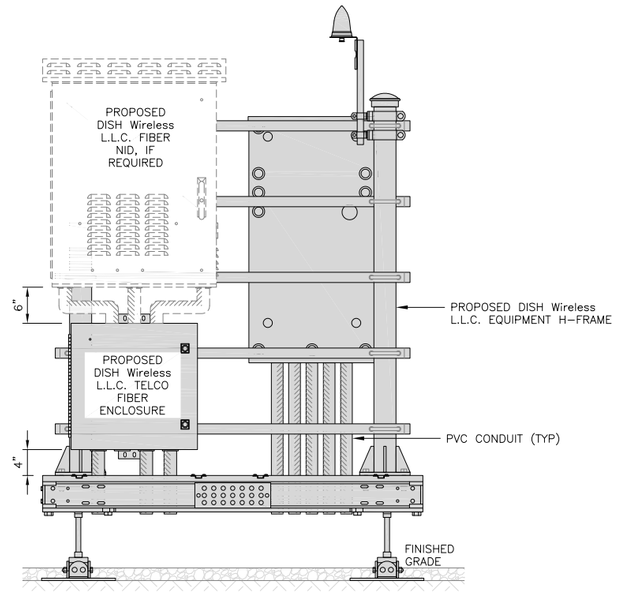
4

## NOTES

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




FRONT ELEVATION




BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5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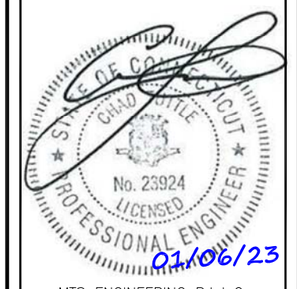



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23




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A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

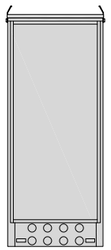
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

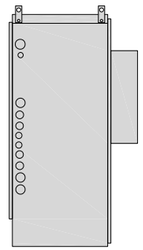
**A-3**

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

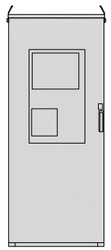
PLAN



BACK



SIDE

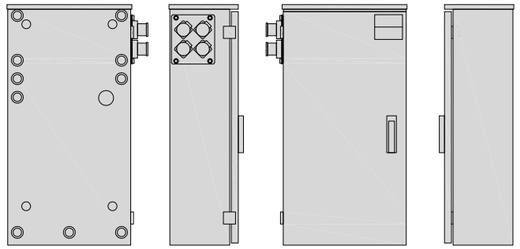


FRONT

CABINET DETAIL | NO SCALE | 1

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

TOP



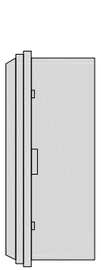
BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

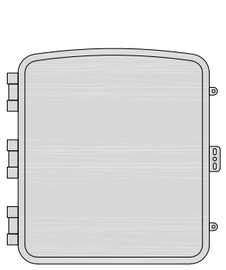
NOT USED | NO SCALE | 3

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

TOP



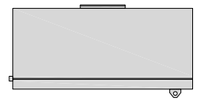
SIDE



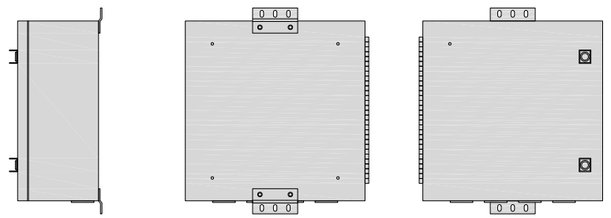
FRONT

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 |



FRONT

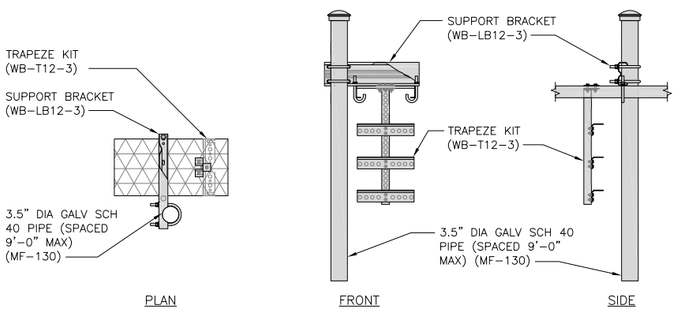


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

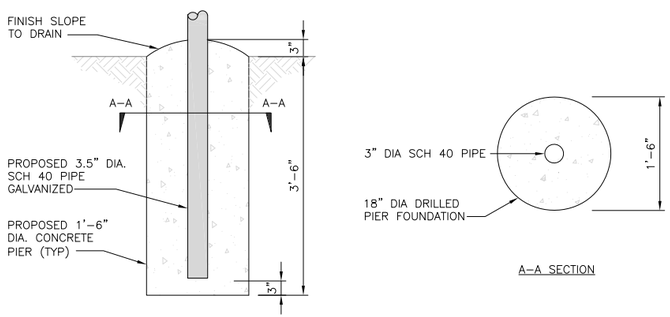
| COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT | |
|---|---|
| DIMENSIONS (HxL) | 160"x10' |
| WEIGHT/ VOLUME | 325.0 LBS |
| CABLE RUN (QTY) | 12 |

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



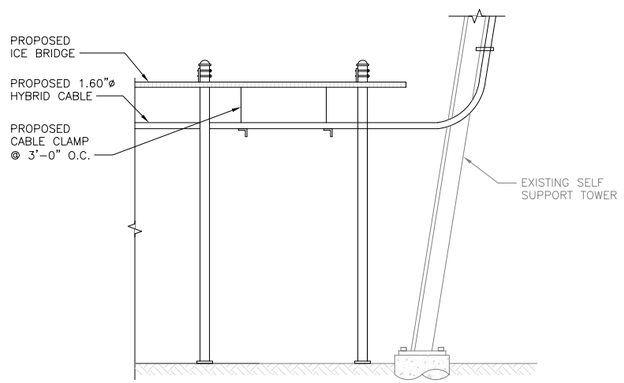

PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7




CONCRETE PIER A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8




HYBRID CABLE RUN | NO SCALE | 9


dish wireless.

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STATE OF CONNECTICUT
CHAD TITLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
01/06/23


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




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
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| 1 | 7/1/22 | ISSUED FOR CONSTRUCTION |
| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

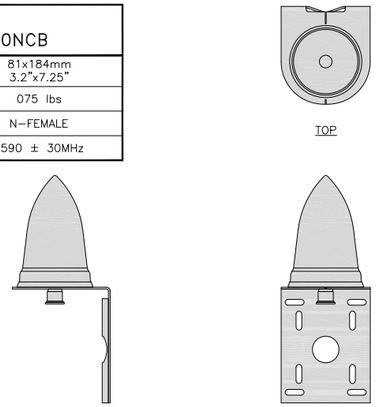
SHEET TITLE

EQUIPMENT DETAILS

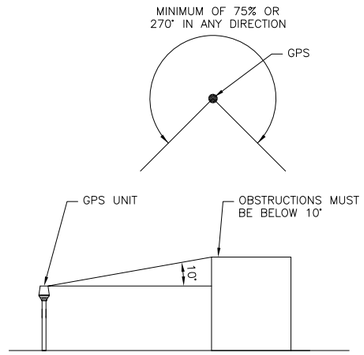
SHEET NUMBER

A-4

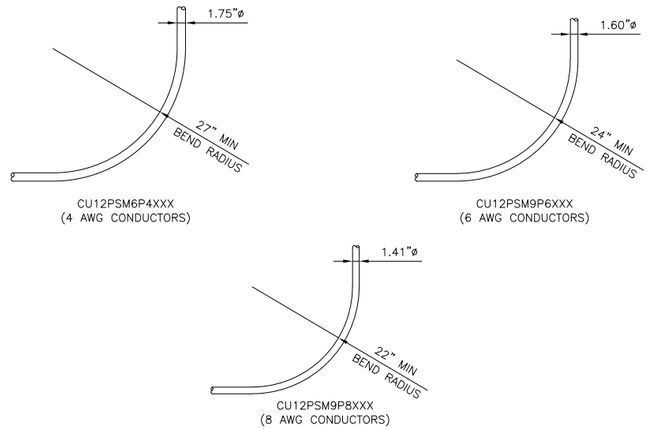
| PCTEL GPSGL-TMG-SPI-40NCB | |
|---|---|
| DIMENSIONS (DIAxH) MM/INCH | 81x184mm 3.2"x7.25" |
| WEIGHT W/ACCESSORIES | 075 lbs |
| CONNECTOR | N-FEMALE |
| FREQUENCY RANGE | 1590 ± 30MHz |




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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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

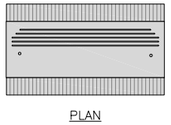
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

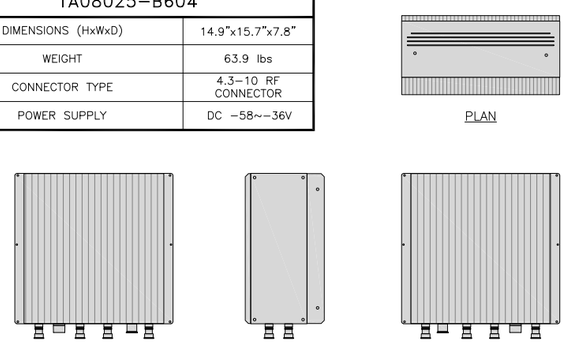
**A-5**

| 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 |




RRH DETAIL | NO SCALE | 1

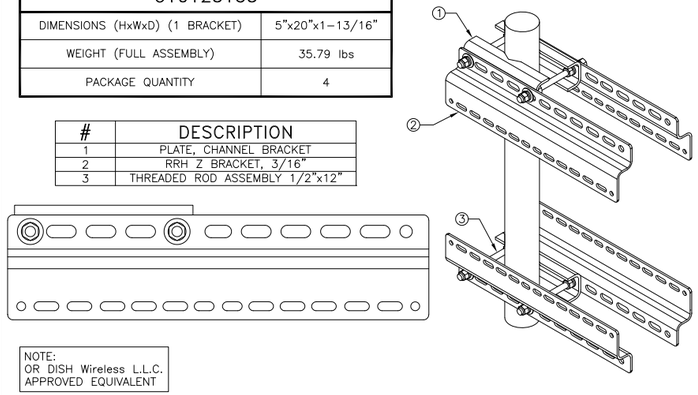
| FUJITSU DUAL BAND TA08025-B604 | |
|---|---|
| DIMENSIONS (HxWxD) | 14.9"x15.7"x7.8" |
| WEIGHT | 63.9 lbs |
| CONNECTOR TYPE | 4.3-10 RF CONNECTOR |
| POWER SUPPLY | DC -58~-36V |




RRH DETAIL | NO SCALE | 2

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

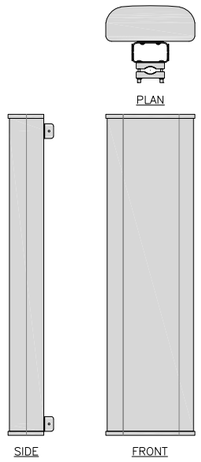
| # | DESCRIPTION |
|---|---|
| 1 | PLATE, CHANNEL BRACKET |
| 2 | RRH Z BRACKET, 3/16" |
| 3 | THREADED ROD ASSEMBLY 1/2"x12" |




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

RRH MOUNT DETAIL | NO SCALE | 3

| 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 |




ANTENNA DETAIL | NO SCALE | 4

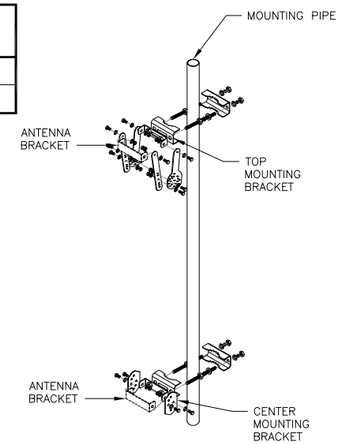
NOT USED | NO SCALE | 5

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

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

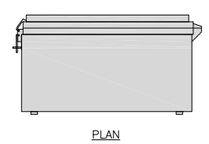
ANTENNA BRACKET NOT PART OF KIT

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



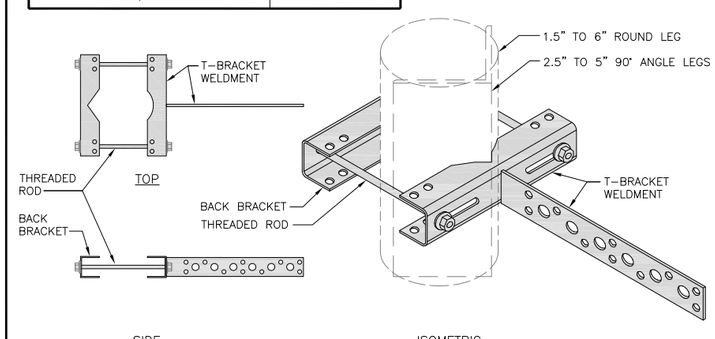

ANTENNA BRACKET DETAIL | NO SCALE | 6

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




SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

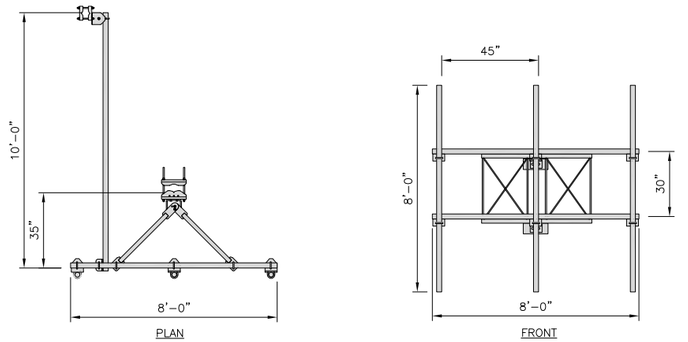
| SITEPRO1 T600 UNIVERSAL T-BRACKET | |
|---|---|
| DIMENSIONS (HxWxL) | 2.25"x10.0"x15.25" |
| WEIGHT/ VOLUME | 5.60 LBS |




VERTICAL CABLE SUPPORT DETAIL | NO SCALE | 8

| COMMSCOPE V-FRAME MTC3975083 | |
|---|---|
| FACE SIZE | 8'-0" |
| WEIGHT | 352.136 lbs |

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




ANTENNA FRAME DETAIL | NO SCALE | 9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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

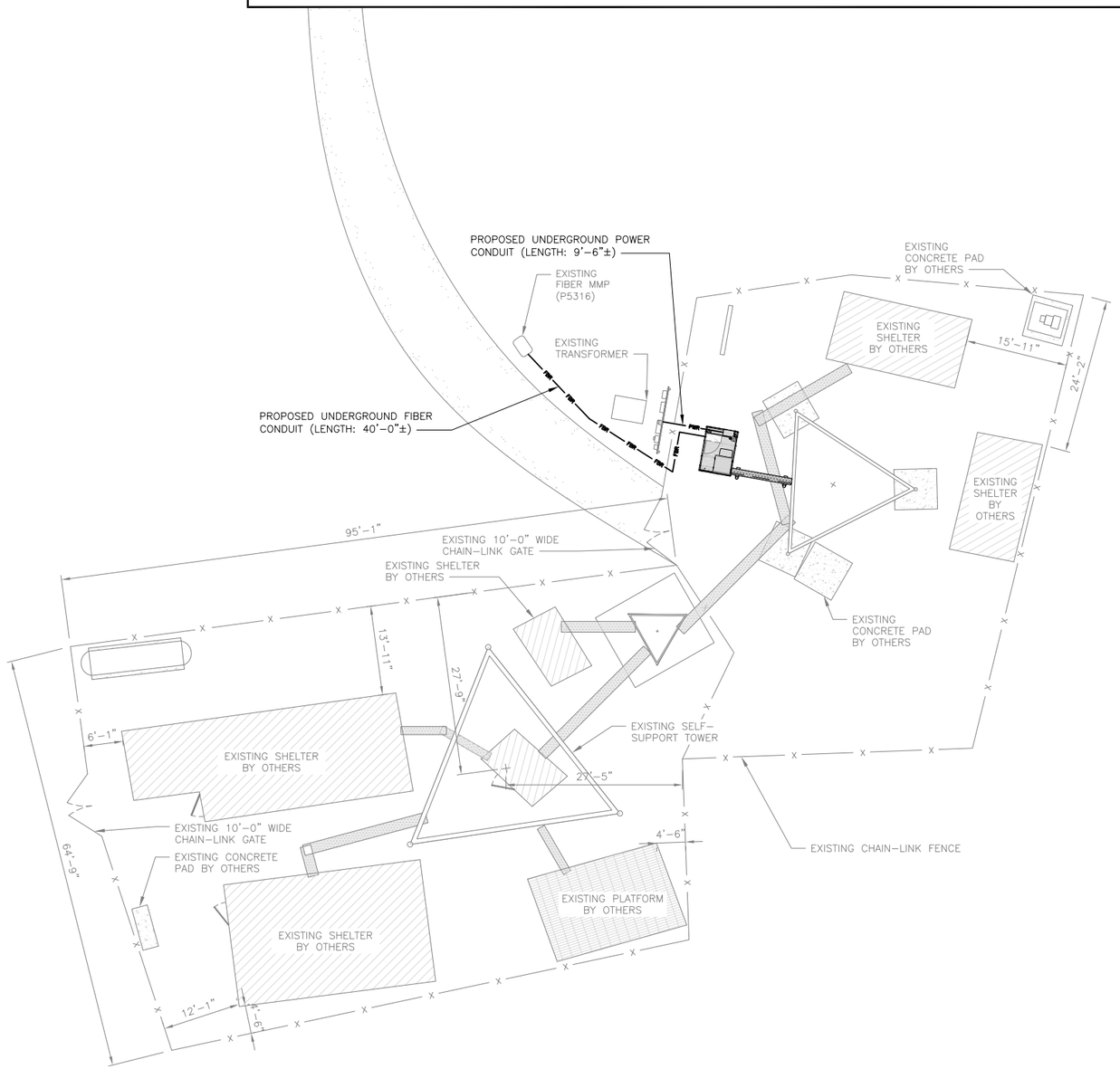
EQUIPMENT DETAILS

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.




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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A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

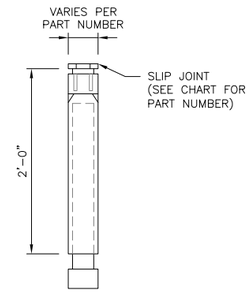
SHEET NUMBER

**E-1**

UTILITY ROUTE PLAN | 12' 8' 4' 0 10' 20' (3/32"=1'-0") | 1 | ELECTRICAL NOTES | NO SCALE | 2

## CARLON EXPANSION FITTINGS

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

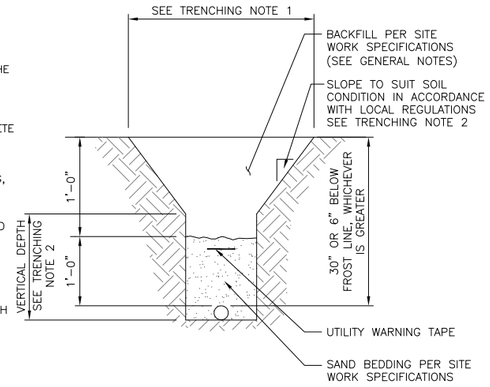



NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

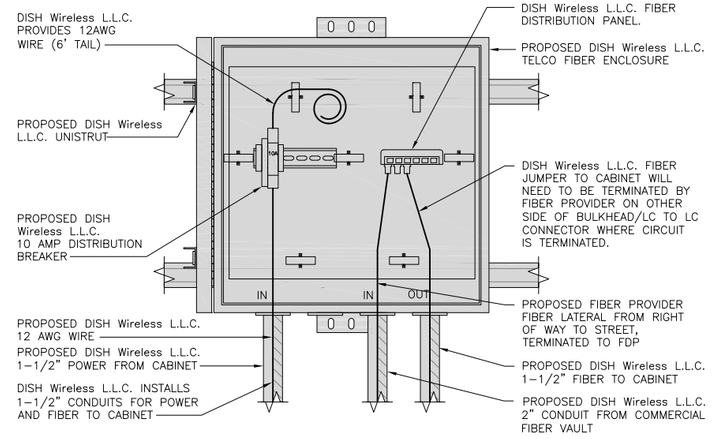
EXPANSION JOINT DETAIL | NO SCALE | 1

## TRENCHING NOTES

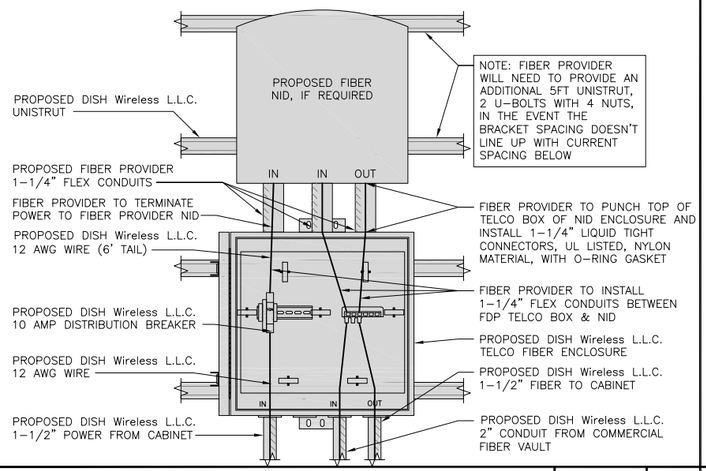
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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




TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2




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




LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9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PROJECT INFORMATION

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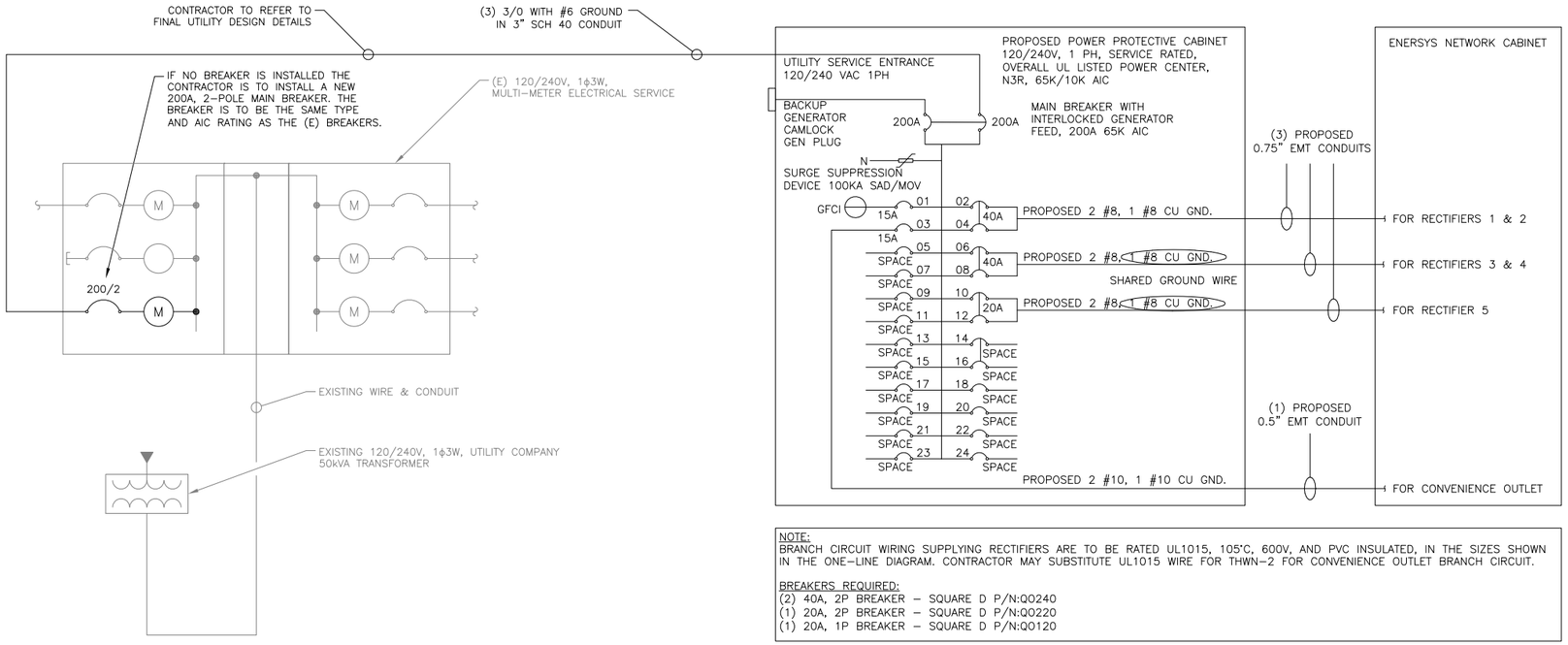
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

**E-2**




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

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER - SQUARE D P/N:QO240
(1) 20A, 2P BREAKER - SQUARE D P/N:QO220
(1) 20A, 1P BREAKER - SQUARE D P/N:QO120

## 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.

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 (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

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

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

## PPC ONE-LINE DIAGRAM

NO SCALE | 1

## PROPOSED ENERSYS PANEL SCHEDULE

| LOAD SERVED | VOLT AMPS (WATTS) L1 | VOLT AMPS (WATTS) L2 | TRIP | CKT # | PHASE | CKT # | TRIP | VOLT AMPS (WATTS) L1 | VOLT AMPS (WATTS) L2 | LOAD SERVED |
|---|---|---|---|---|---|---|---|---|---|---|
| PPC GFCI OUTLET | 180 | | 15A | 1 | A | 2 | 40A | 3840 | | ENERSYS ALPHA CORDEX |
| ENERSYS GFCI OUTLET | | 180 | 15A | 3 | B | 4 | | | 3840 | RECTIFIERS 1 & 2 |
| -SPACE- | | | | 5 | A | 6 | 40A | 3840 | | ENERSYS ALPHA CORDEX |
| -SPACE- | | | | 7 | B | 8 | | | 3840 | RECTIFIER 3 & 4 |
| -SPACE- | | | | 9 | A | 10 | 20A | 1920 | | ENERSYS ALPHA CORDEX |
| -SPACE- | | | | 11 | B | 12 | | | 1920 | RECTIFIER 5 |
| -SPACE- | | | | 13 | A | 14 | | | | -SPACE- |
| -SPACE- | | | | 15 | B | 16 | | | | -SPACE- |
| -SPACE- | | | | 17 | A | 18 | | | | -SPACE- |
| -SPACE- | | | | 19 | B | 20 | | | | -SPACE- |
| -SPACE- | | | | 21 | A | 22 | | | | -SPACE- |
| -SPACE- | | | | 23 | B | 24 | | | | -SPACE- |
| VOLTAGE AMPS | 180 | 180 | | | | | | 9500 | 9500 | |
| 200A MCB, 1ϕ, 24 SPACE, 120/240V | | | L1 | | L2 | | | | | |
| MB RATING: 65,000 AIC | | | 9680 | | 9680 | | VOLTAGE AMPS | | | |
| | | | 81 | | 81 | | AMPS | | | |
| | | | 81 | | | | MAX AMPS | | | |
| | | | 102 | | | | MAX 125% | | | |

## PANEL SCHEDULE

NO SCALE | 2

## NOT USED

NO SCALE | 3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GARO MATTE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
01/06/23


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




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

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| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

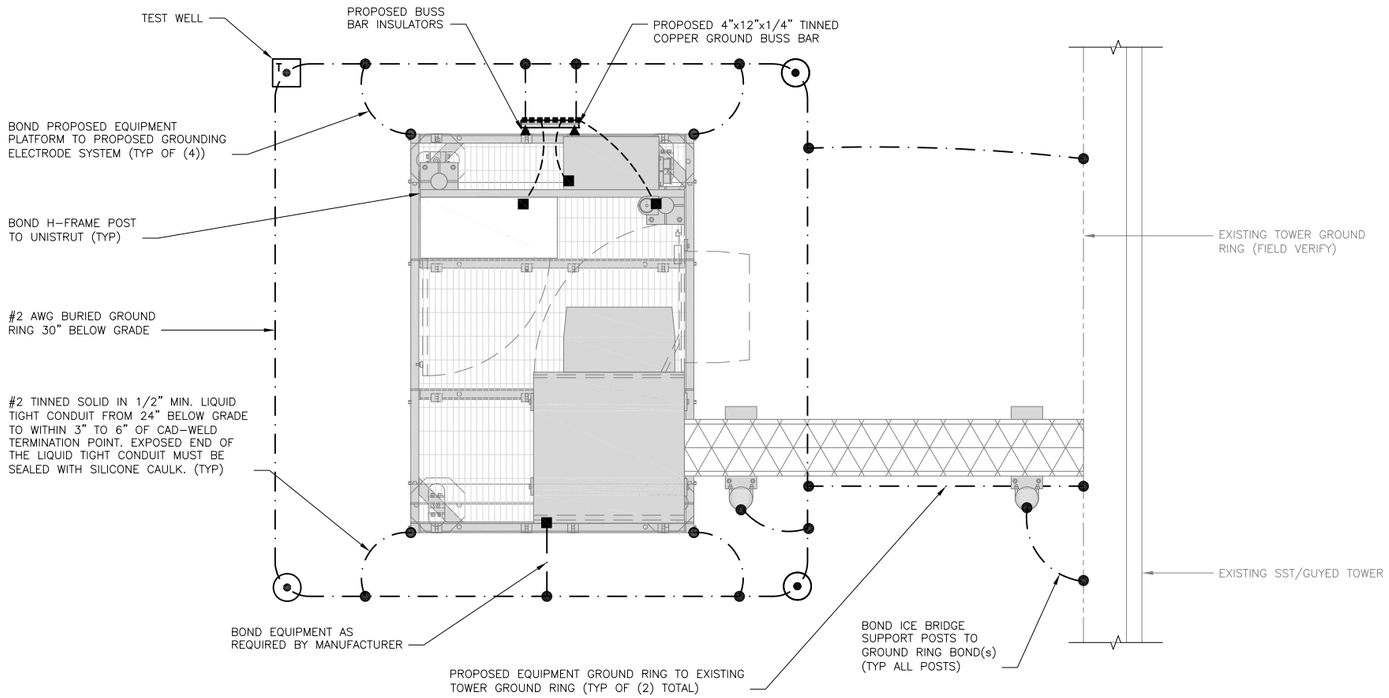
BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

**E-3**

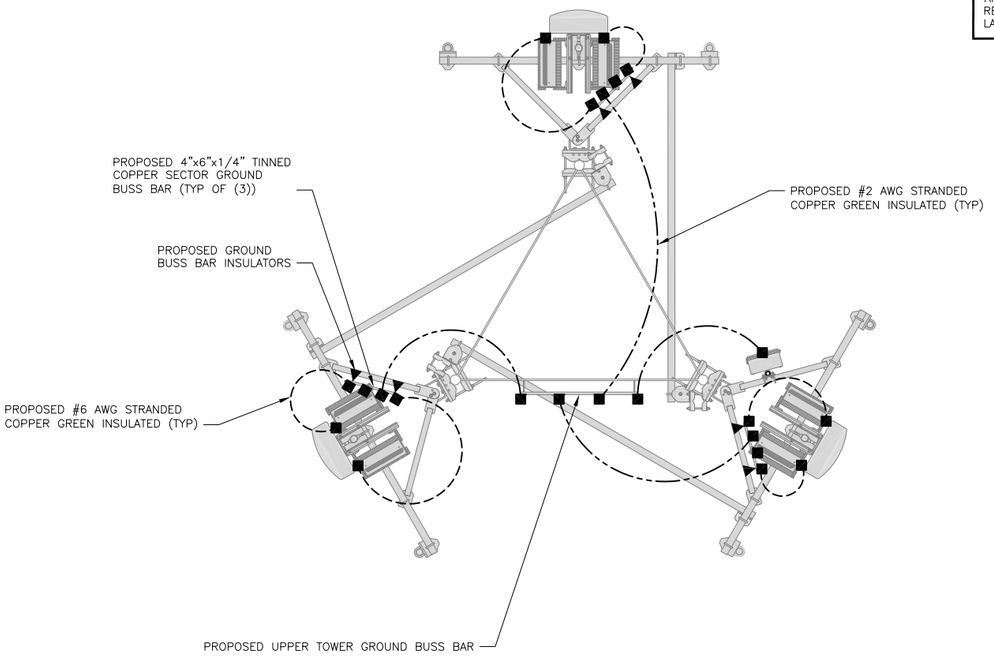



## TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

## NOTES

ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY




## TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

## GROUNDING LEGEND

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

## GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

## GROUNDING KEY NOTES

NO SCALE | 3

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149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

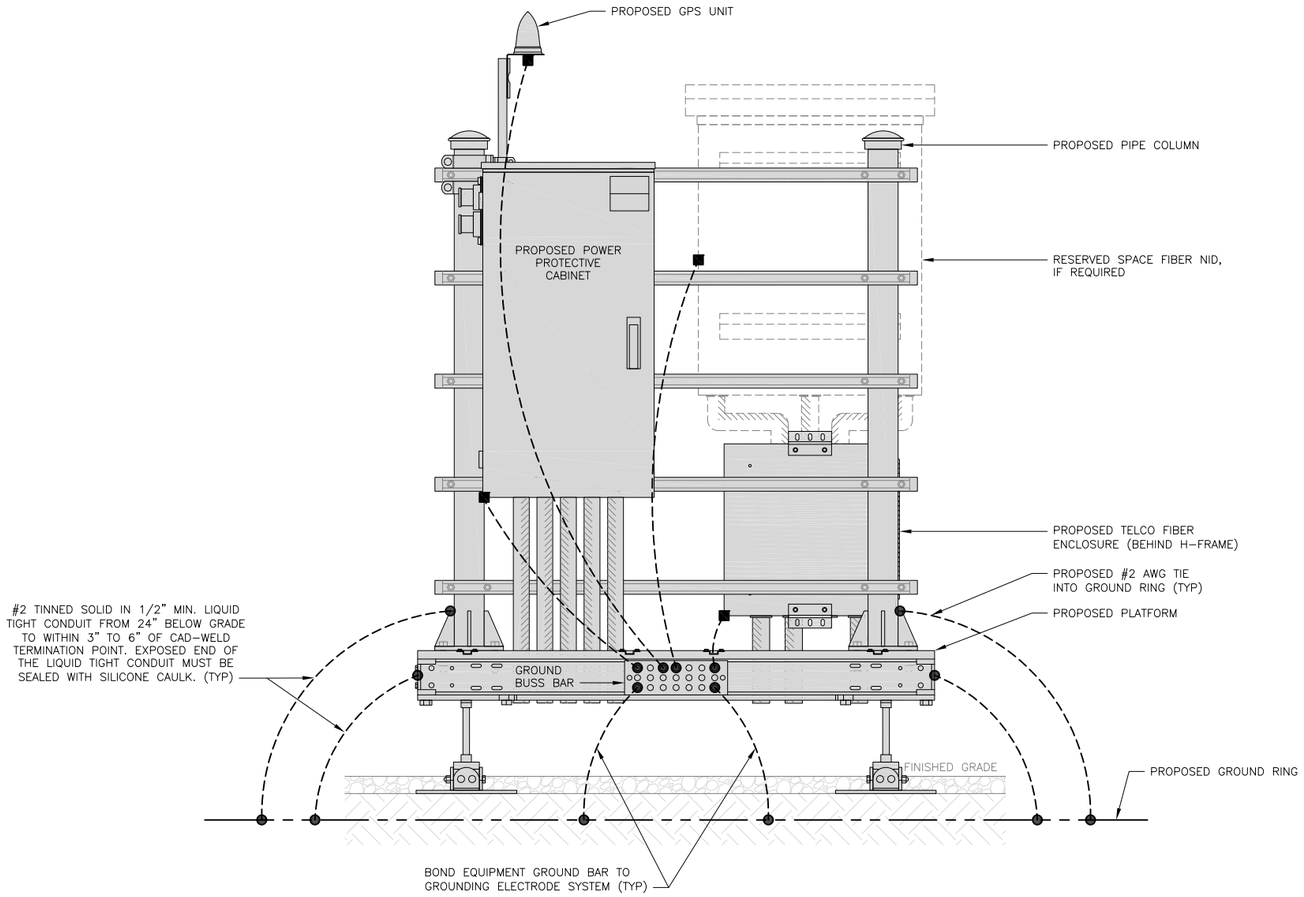
GROUNDING PLANS AND NOTES

SHEET NUMBER

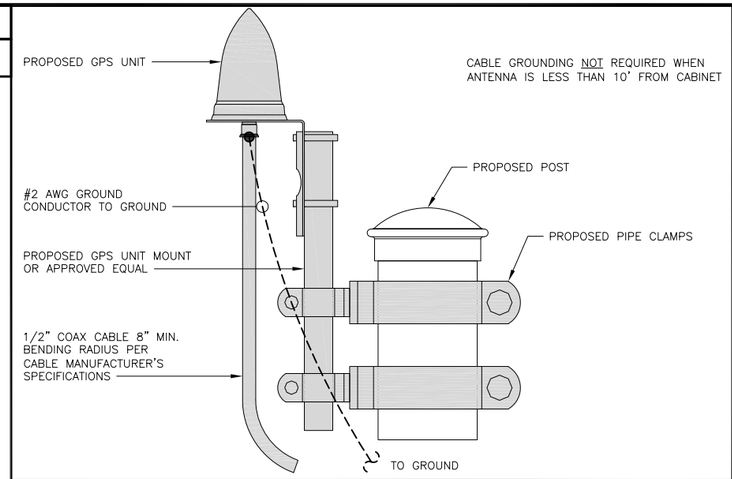
**G-1**

## NOTES

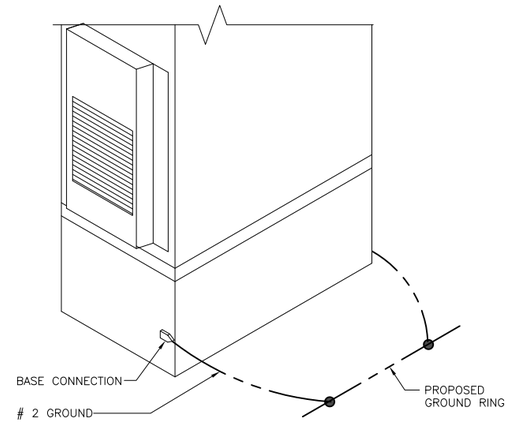
EQUIPMENT CABINET OMITTED FOR CLARITY



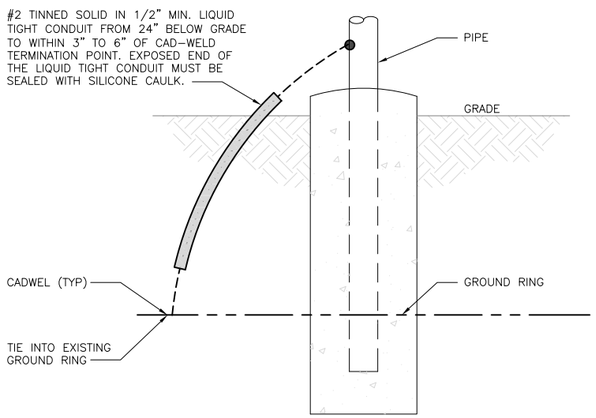

H-FRAME GROUNDING DETAIL | NO SCALE | 1



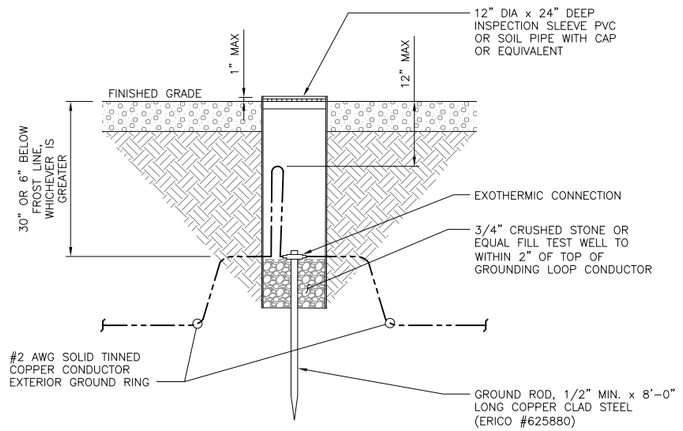

TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



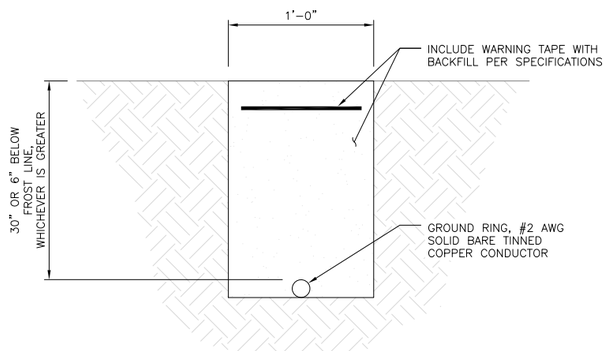

OUTDOOR CABINET GROUNDING | NO SCALE | 3




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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SHEET TITLE

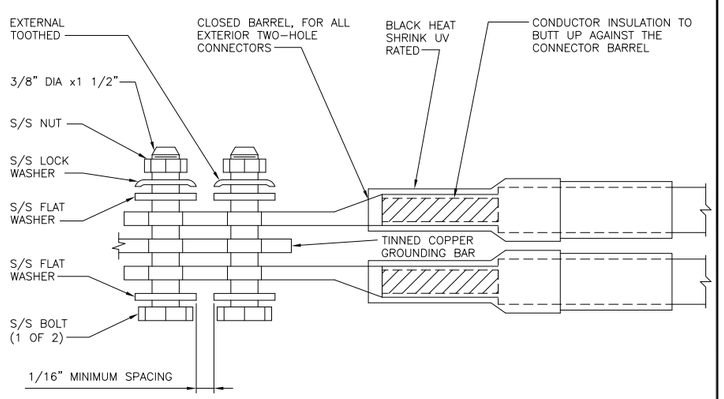
GROUNDING DETAILS

SHEET NUMBER

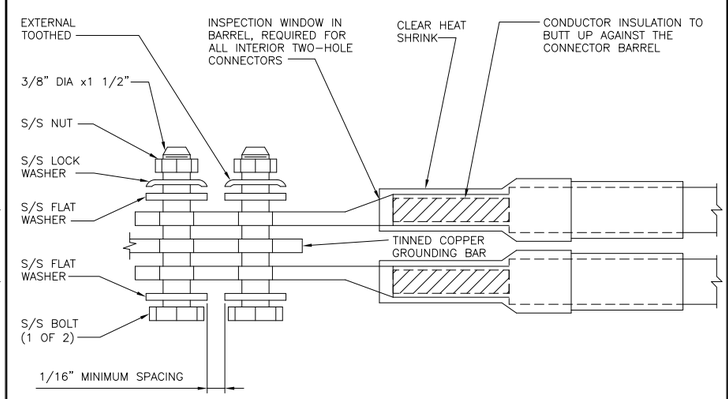
**G-2**

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).

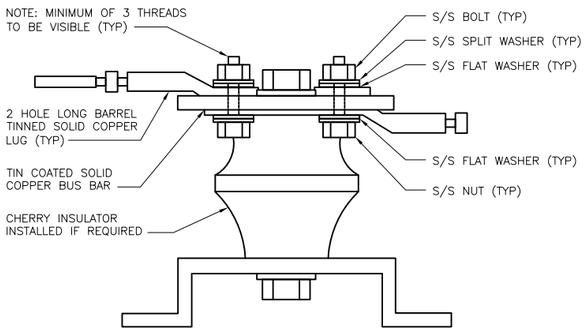
TYPICAL GROUNDING NOTES | NO SCALE | 1




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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SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

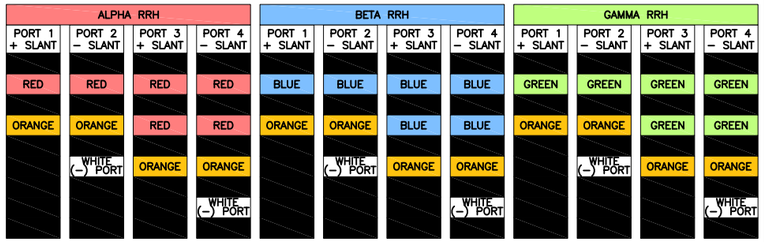
G-3

## HYBRID/DISCREET CABLES

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

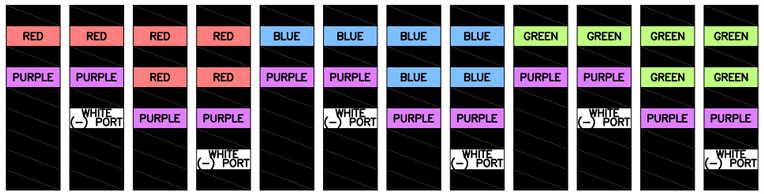
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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




MID–BAND RRH
(AWS BANDS N66+N70)

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



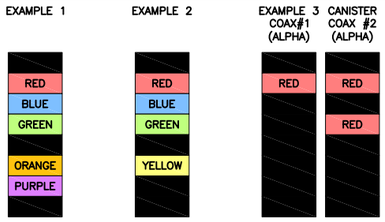

## HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

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

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.




CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

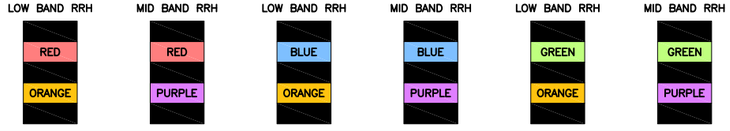
## FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.




## POWER CABLES TO RRHs

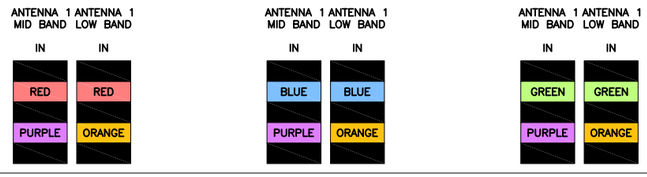
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY




## RET MOTORS AT ANTENNAS

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

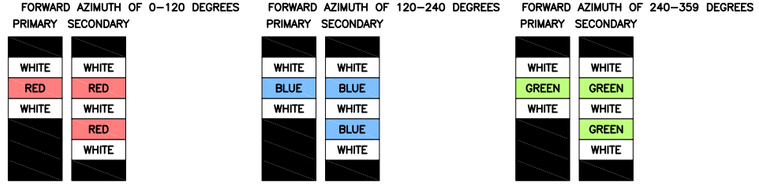
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.




## MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

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




RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4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HAMDEN, CT 06514

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
**RF-1**

## LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

UNDERGROUND TELCO/POWER — UGT/P UGT/P UGT/P UGT/P

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

ABOVE GROUND TELCO/POWER — AGT/P AGT/P AGT/P AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

## ABBREVIATIONS

| | |
|---|---|
| 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 | UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT) |
| VIF | VERIFIED IN FIELD |
| W | WIDE |
| W/ | WITH |
| WD | WOOD |
| WP | WEATHERPROOF |
| WT | WEIGHT |


dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

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SUITE 300
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PH: (918) 587-4630
www.btgrp.com


STATE OF CONNECTICUT — CHAD TUTTLE — No. 23924 LICENSED PROFESSIONAL ENGINEER

01/06/23


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




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|---|---|---|
| 0 | 6/29/22 | ISSUED FOR CONSTRUCTION |
| 1 | 7/1/22 | ISSUED FOR CONSTRUCTION |
| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

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

SIGN PLACEMENT:

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

NOTES:

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

# INFORMATION

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

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

**Site ID:** _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

# NOTICE

**Transmitting Antenna(s)**

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

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

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

**Site ID:** _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

# CAUTION

**Transmitting Antenna(s)**

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

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

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

**Site ID:** _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

# WARNING

**Transmitting Antenna(s)**

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

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

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

**Site ID:** _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE


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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
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RFDS REV #: 1

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A&E PROJECT NUMBER
149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE
RF SIGNAGE ABBREVIATIONS

SHEET NUMBER
**GN-2**

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.


dish wireless.

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BER:2386985
Expires 3/31/23




| DRAWN BY: | CHECKED BY: | APPROVED BY: |
|---|---|---|
| MEH | RMC | RMC |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

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| 0 | 6/29/22 | ISSUED FOR CONSTRUCTION |
| 1 | 7/1/22 | ISSUED FOR CONSTRUCTION |
| 2 | 01/06/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

149544.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

**GN-3**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.


dish wireless.

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STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
01/06/23


MTS ENGINEERING P.L.L.C.
BER:2386985
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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

**GN-4**

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.


dish wireless.

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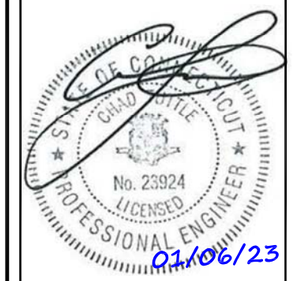


01/06/23


MTS ENGINEERING P.L.L.C.
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RFDS REV #: 1

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PROJECT INFORMATION

BOHVN00181A
1055 WINTERGREEN AVE
HAMDEN, CT 06514

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

**GN-5**

# Exhibit D

## Structural Analysis Report

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

# Structural Analysis Report

**Existing 195 ft Valmont Self Supporting Tower**
**Customer Name: SBA Communications Corp**
**Customer Site Number: CT22107-A**
**Customer Site Name: Westrock Park**
**Carrier Name: Dish Wireless (App#: 169200, v2)**
**Carrier Site ID / Name: BOHVN00181A / 0**
**Site Location: 1055 Wintergreen Ave**
**Hamden, Connecticut**
**NEW HAVEN County**
**Latitude: 41.34966389**
**Longitude: -72.97249722**


**Analysis Result:**

**Max Structural Usage: 59.1% [Pass]**
**Max Foundation Usage: 57.9% [Pass]**
**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Cesar Rojas**

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

# Structural Analysis Report

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

**Report Prepared By: Cesar Rojas**

## Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Valmont Self Supporting Tower 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

| | |
|---|---|
| **Tower Drawings** | Valmont, Dwg # 184028, dated 7/29/2004 |
| **Foundation Drawing** | Tectonic, work order # 3997.02, dated 9/21/2004 |
| **Geotechnical Report** | BL Companies, Project # 00C827/C-3053, dated 11/12/2001 |
| **Mount Analysis** | 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 **TESTowers,** 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.

| | |
|---|---|
| **Wind Speed Used in the Analysis:** | 125.0 mph (3-Sec. Gust) (Ultimate wind speed) |
| **Wind Speed with Ice:** | 50 mph (3-Sec. Gust) with 1" radial ice concurrent |
| **Service Load Wind Speed:** | 60 mph + 0" Radial ice |
| **Standard/Codes:** | TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code |
| **Exposure Category:** | C |
| **Risk Category:** | II |
| **Topographic Category:** | 4 |
| **Crest Height:** | 402 ft |
| **Seismic Parameters:** | $S_S$ = 0.201, $S_1$ = 0.054 |

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 | 195.0 | 2 | 15' Omni - Whip | Leg | (2) 1 1/4" | Building B |
| 2 | 195.0 | 4 | 8' Yagi* | Pipe | - | Building C |
| 3 | 187.0 | 1 | 8' Yagi | (1) Stand-Off | (1) 1/2" | |
| 4 | 185.0 | 2 | 18' Omni | (1) Stand-Off | (1) 7/8" | |
| 5 | 182.0 | 1 | 1 ft Dish | Pipe | (1) 1/4" | |
| 6 | 177.0 | 1 | 12' Omni | (2) Sector Frame* | (2) 1/2"<br>(2) 7/8" | |
| 7 | | 2 | 15' Omni (Inverted) | | | |
| 8 | | 1 | 5' Out Broadcast | | | |
| 9 | 140.0 | 3 | NNVV-65B-R4 - Panel | (3) VFA10-HD + BCAM-HDLL | (3) 1 1/4"<br>(1) 1.689" Hybrid<br>(3) 1/2" | Sprint Nextel |
| 10 | | 3 | AAHC - Panel | | | |
| 11 | | 3 | A-ANT-23G-2.5-C - Dish | | | |
| 12 | | 3 | ALU 1900 Mhz RRU/RRH | | | |
| 13 | | 3 | ALU 800 MHz RRU | | | |
| 14 | 137.5 | 1 | 18" x 18" x 7" Junction Box | Leg | - | |
| 19 | 107.0 | 1 | 10' Omni | (3) Sector Frame | (2) 1/2"<br>(1) 7/8" | Building C |
| 20 | | 1 | 5' Omni | | | |
| 21 | | 1 | T09170P1000690 - Panel | | | |
| 22 | 56.3 | 1 | 12' Omni | (1) Stand-Off | (2) 1 1/4" | |
| 23 | 43.0 | 1 | 3 ft Channel Master Dish | Pipe | (1) 1/4" | |

*Based on recent photos.

## 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 |
|---|---|---|---|---|---|---|
| 15 | 130.0 | 3 | JMA Wireless MX08FRO665-21 - Panel | Commscope (3) MTC3975083 | (1) 1.75" Hybrid | Dish Wireless |
| 16 | | 3 | Fujitsu TA08025-B604 | | | |
| 17 | | 3 | Fujitsu TA08025-B605 | | | |
| 18 | | 1 | Raycap RDIDC-9181-PF-48 | | | |

See the attached coax layout for the line placement considered in the analysis.

## 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:

| Tower Component | Legs | Diagonals | Horizontals |
|---|---|---|---|
| Max. Usage: | **52.5%** | **59.1%** | **54.2%** |
| Pass/Fail | **Pass** | **Pass** | **Pass** |

## Foundations

| | Compression (Kips) | Uplift (Kips) | Shear (Kips) |
|---|---|---|---|
| Analysis Reactions | 436.4 | 368.6 | 48.9 |

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 0.1165 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.

# Structure: CT22107-A-SBA

| | | | | | | |
|---|---|---|---|---|---|---|
| **Site Name:** | Westrock Park | | | **Code:** | TIA-222-H | 1/6/2023 |
| **Type:** | Self Support | **Base Shape:** | Triangle | **Basic WS:** | 125.00 | |
| **Height:** | 195.00 (ft) | **Base Width:** | 24.00 | **Basic Ice WS:** | 50.00 | |
| **Base Elev:** | 0.00 (ft) | **Top Width:** | 4.88 | **Operational WS:** | 60.00 | Page: 1 |

IES Tower Engineering Solutions

## Section Properties

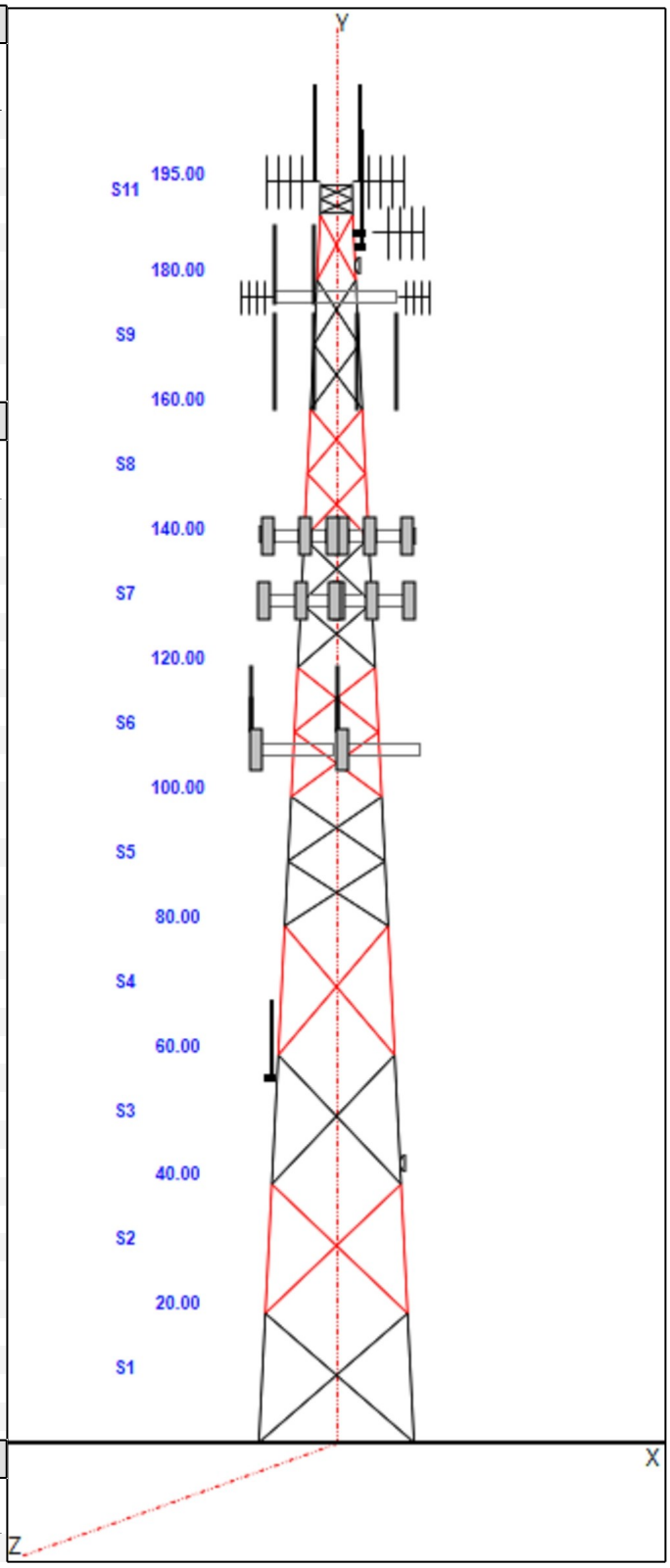
| Sect | Leg Members | Diagonal Members | Horizontal Members |
|---|---|---|---|
| 1 | 18B 18"BD 3.00" | DAE 3.5X3.5X0.3125 | |
| 2 | 18B 18"BD 2.75" | DAE 3.5X3.5X0.3125 | |
| 3-4 | 18B 18"BD 2.5" | DAE 3.5X3.5X0.3125 | |
| 5 | 12B 12"BD 2.25" | SAE 3.5X3.5X0.3125 | |
| 6 | 12B 12"BD 2" | SAE 3.5X3.5X0.3125 | |
| 7 | 12B 12"BD 2" | SAE 3X3X0.3125 | |
| 8 | 12B 12"BD 1.75" | SAE 3X3X0.1875 | |
| 9 | 12B 12"BD 1.5" | SAE 3X3X0.1875 | |
| 10 | 12B 12"BD 1.5" | SAE 2.5X2.5X0.1875 | |
| 11 | SOL 2 1/2" SOLID | SOL 1" SOLID | SOL 7/8" SOLID |

## Discrete Appurtenances

| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
|---|---|---|---|
| 195.00 | 202.50 | 2 | 15' Omni |
| 195.00 | 200.00 | 4 | 8' Yagi |
| 195.00 | 195.00 | 2 | Pipe Mount |
| 187.00 | 187.00 | 1 | Stand-Off |
| 187.00 | 187.00 | 1 | 8' Yagi |
| 185.00 | 194.00 | 2 | 18' Omni |
| 185.00 | 185.00 | 1 | Stand-Off |
| 182.00 | 182.00 | 1 | 1 ft Dish |
| 177.00 | 177.00 | 2 | Sector Frame |
| 177.00 | 182.00 | 1 | 12' Omni |
| 177.00 | 167.00 | 2 | 15' Omni (Inverted) |
| 177.00 | 177.00 | 1 | 5' Out Broadcast |
| 140.00 | 140.00 | 3 | VFA10-HD + BCAM-HDLL |
| 140.00 | 140.00 | 3 | Stabilizer Kit |
| 140.00 | 140.00 | 3 | NNVV-65B-R4 |
| 140.00 | 140.00 | 3 | AAHC |
| 140.00 | 140.00 | 3 | A-ANT-23G-2.5-C |
| 140.00 | 140.00 | 3 | ALU 1900 Mhz RRU/RRH |
| 140.00 | 140.00 | 3 | ALU 800 MHz RRU |
| 137.50 | 137.50 | 1 | 18" x 18" x 7" Junction Box |
| 130.00 | 130.00 | 3 | MX08FRO665-21 |
| 130.00 | 130.00 | 3 | TA08025-B604 |
| 130.00 | 130.00 | 3 | TA08025-B605 |
| 130.00 | 130.00 | 1 | RDIDC-9181-PF-48 |
| 130.00 | 130.00 | 1 | (3) MTC3975083 |
| 107.00 | 107.00 | 3 | Sector Frame |
| 107.00 | 115.00 | 1 | 10' Omni |
| 107.00 | 112.50 | 1 | 5' Omni |
| 107.00 | 107.00 | 1 | T09170P1000690 |
| 56.30 | 56.30 | 1 | Stand-Off |
| 56.30 | 62.30 | 1 | 12' Omni |
| 43.00 | 43.00 | 1 | 3 ft Channel Master Dish |
| 43.00 | 43.00 | 1 | Pipe Mount |

## Linear Appurtenances

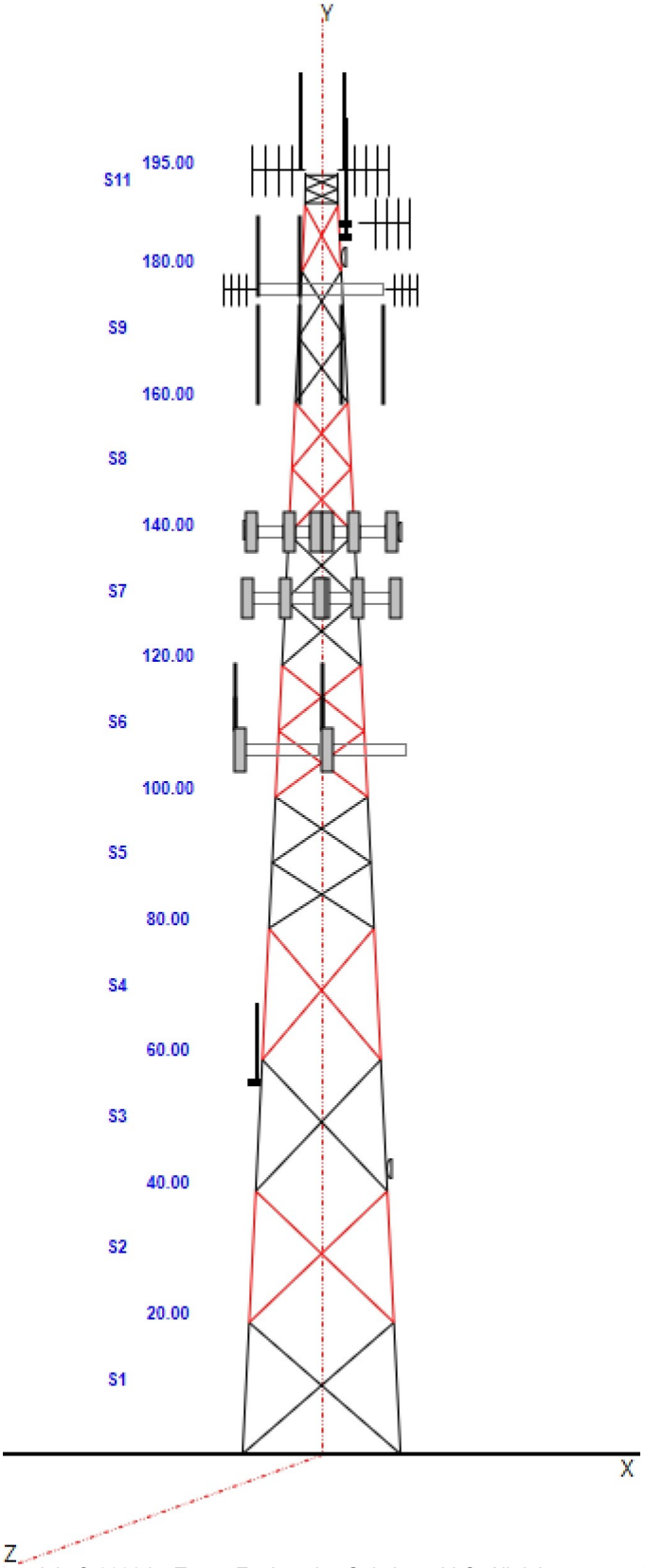
| Elev From (ft) | Elev To (ft) | Qty | Description |
|---|---|---|---|
| 0.00 | 195.00 | 2 | 1 1/4" Coax |
| 0.00 | 195.00 | 1 | Safety Cable |
| 0.00 | 187.00 | 1 | 1/2" Coax |

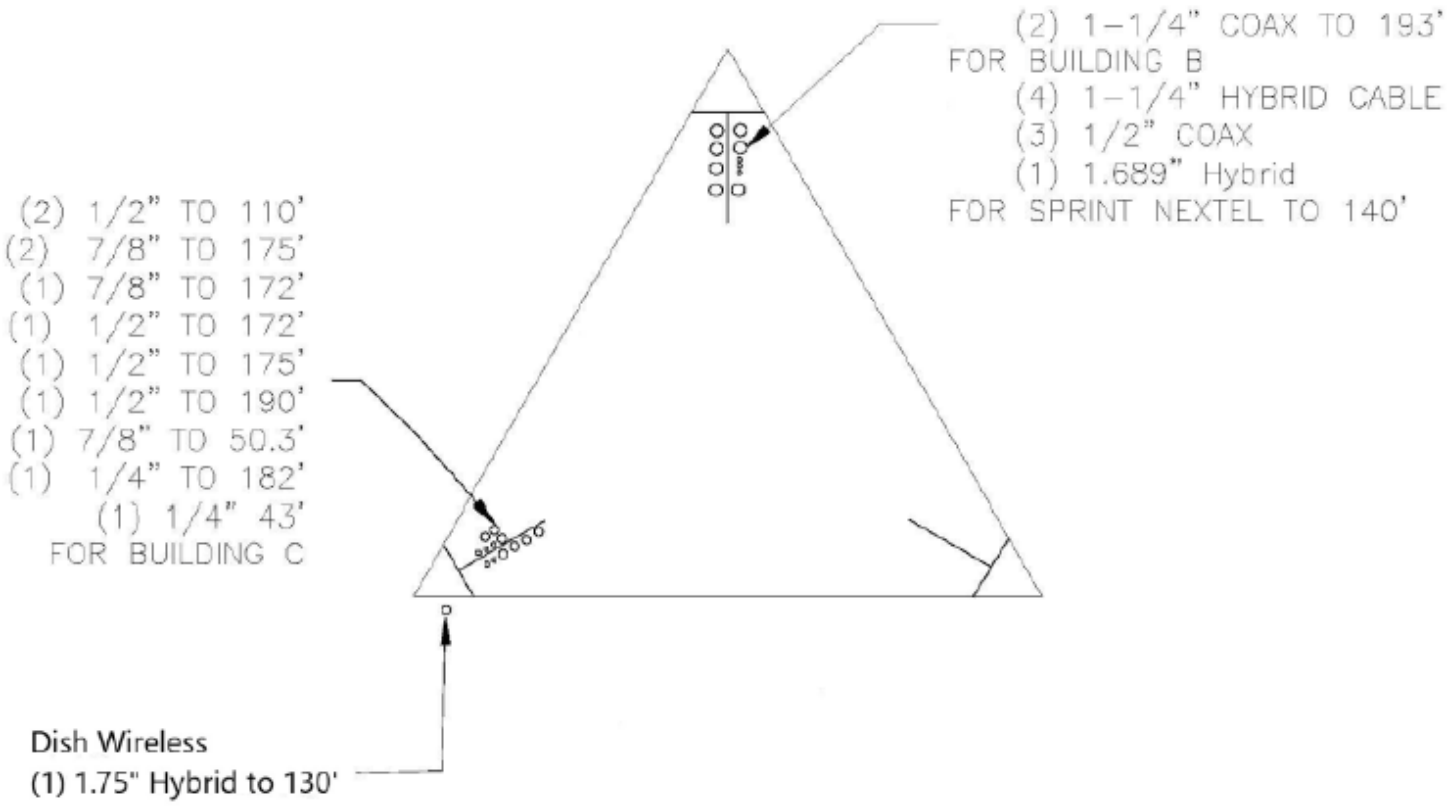


| | | | |
|---|---|---|---|
| 0.00 | 185.00 | 1 | 7/8" Coax |
| 0.00 | 182.00 | 1 | 1/4" Coax |
| 0.00 | 177.00 | 2 | 1/2" Coax |
| 0.00 | 177.00 | 2 | 7/8" Coax |
| 0.00 | 140.00 | 3 | 1 1/4" Coax |
| 0.00 | 140.00 | 1 | 1.689" Hybrid |
| 0.00 | 140.00 | 3 | 1/2" Coax |
| 0.00 | 130.00 | 1 | 1.75" Hybrid |
| 0.00 | 107.00 | 2 | 1/2" Coax |
| 0.00 | 107.00 | 1 | 7/8" Coax |
| 0.00 | 56.30 | 2 | 1 1/4" Coax |
| 0.00 | 43.00 | 1 | 1/4" Coax |

## Base Reactions

| Leg | | Overturning | |
|---|---|---|---|
| Max Uplift: | -368.58 (kips | Moment: | 8566.00 (ft-kips) |
| Max Down: | 436.41 (kips | Total Down: | 72.82 (kips) |
| Max Shear: | 48.89 (kips | Total Shear: | 76.65 (kips) |





# Loading Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT22107-A-SBA | | **Code:** | TIA-222-H | 1/6/2023 |
| **Site Name:** | Westrock Park | | **Exposure:** | C | |
| **Height:** | 195.00 (ft) | | **Crest Height:** | 402.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 0.85 | **Topography:** 4 | **Struct Class:** | II | Page: 5 |

Tower Engineering Solutions

## Discrete Appurtenances Properties

| Attach Elev (ft) | Description | Qty | No Ice Weight (lb) | No Ice CaAa (sf) | Ice Weight (lb) | Ice CaAa (sf) | Len (in) | Width (in) | Depth (in) | Ka | Orientation Factor | Vert Ecc (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 195.00 | 15' Omni | 2 | 40.00 | 4.500 | 131.05 | 8.799 | 180.000 | 3.000 | 3.000 | 1.00 | 1.00 | 7.500 |
| 195.00 | 8' Yagi | 4 | 30.00 | 12.000 | 302.58 | 38.879 | 96.000 | 60.000 | 3.000 | 1.00 | 1.00 | 5.000 |
| 195.00 | Pipe Mount | 2 | 100.00 | 4.000 | 167.28 | 6.243 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 187.00 | Stand-Off | 1 | 120.00 | 4.500 | 204.02 | 8.710 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 187.00 | 8' Yagi | 1 | 30.00 | 12.000 | 302.31 | 38.853 | 96.000 | 60.000 | 3.000 | 1.00 | 1.00 | 0.000 |
| 185.00 | 18' Omni | 2 | 55.00 | 5.400 | 163.69 | 10.524 | 216.000 | 3.000 | 3.000 | 1.00 | 1.00 | 9.000 |
| 185.00 | Stand-Off | 1 | 120.00 | 4.500 | 203.83 | 8.700 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 182.00 | 1 ft Dish | 1 | 20.00 | 1.000 | 75.89 | 1.559 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 177.00 | Sector Frame | 2 | 450.00 | 14.000 | 731.67 | 19.633 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 177.00 | 12' Omni | 1 | 40.00 | 3.600 | 112.83 | 7.046 | 144.000 | 3.000 | 3.000 | 1.00 | 1.00 | 5.000 |
| 177.00 | 15' Omni (Inverted) | 2 | 40.00 | 4.500 | 130.76 | 8.785 | 180.000 | 3.000 | 3.000 | 1.00 | 1.00 | -10.00 |
| 177.00 | 5' Out Broadcast | 1 | 96.00 | 9.780 | 410.35 | 14.923 | 60.000 | 24.000 | 7.000 | 1.00 | 1.00 | 0.000 |
| 140.00 | VFA10-HD + BCAM-HDLL | 3 | 616.00 | 16.200 | 1093.49 | 32.345 | 0.000 | 0.000 | 0.000 | 0.75 | 0.75 | 0.000 |
| 140.00 | Stabilizer Kit | 3 | 60.00 | 2.400 | 119.80 | 4.393 | 0.000 | 0.000 | 0.000 | 0.75 | 0.75 | 0.000 |
| 140.00 | NNVV-65B-R4 | 3 | 77.40 | 12.270 | 303.89 | 13.425 | 72.000 | 19.600 | 7.800 | 0.80 | 0.74 | 0.000 |
| 140.00 | AAHC | 3 | 104.00 | 4.200 | 202.59 | 4.849 | 25.600 | 19.700 | 9.600 | 0.80 | 0.75 | 0.000 |
| 140.00 | A-ANT-23G-2.5-C | 3 | 47.60 | 8.430 | 184.52 | 9.784 | 35.000 | 35.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 140.00 | ALU 1900 Mhz RRU/RRH | 3 | 19.50 | 1.510 | 64.23 | 1.936 | 20.100 | 9.000 | 7.200 | 0.80 | 0.67 | 0.000 |
| 140.00 | ALU 800 MHz RRU | 3 | 53.00 | 2.490 | 111.66 | 3.397 | 19.700 | 13.000 | 10.800 | 0.80 | 0.67 | 0.000 |
| 137.50 | 18" x 18" x 7" Junction Box | 1 | 22.00 | 2.700 | 87.13 | 3.773 | 18.000 | 12.000 | 8.000 | 1.00 | 1.00 | 0.000 |
| 130.00 | MX08FRO665-21 | 3 | 64.50 | 12.490 | 295.20 | 13.652 | 72.000 | 20.000 | 8.000 | 0.80 | 0.74 | 0.000 |
| 130.00 | TA08025-B604 | 3 | 63.90 | 1.960 | 104.06 | 2.405 | 15.800 | 15.000 | 7.900 | 0.80 | 0.67 | 0.000 |
| 130.00 | TA08025-B605 | 3 | 75.00 | 1.960 | 116.48 | 2.405 | 15.800 | 15.000 | 9.100 | 0.80 | 0.67 | 0.000 |
| 130.00 | RDIDC-9181-PF-48 | 1 | 21.90 | 2.010 | 64.13 | 2.461 | 16.600 | 14.600 | 8.500 | 1.00 | 1.00 | 0.000 |
| 130.00 | (3) MTC3975083 | 1 | 1242.0 | 28.050 | 2204.74 | 56.005 | 0.000 | 0.000 | 0.000 | 0.75 | 1.00 | 0.000 |
| 107.00 | Sector Frame | 3 | 450.00 | 14.000 | 727.00 | 19.540 | 0.000 | 0.000 | 0.000 | 0.75 | 0.75 | 0.000 |
| 107.00 | 10' Omni | 1 | 25.00 | 3.000 | 84.88 | 5.839 | 120.000 | 3.000 | 3.000 | 1.00 | 1.00 | 8.000 |
| 107.00 | 5' Omni | 1 | 10.00 | 1.000 | 31.61 | 2.080 | 60.000 | 2.000 | 2.000 | 1.00 | 1.00 | 5.500 |
| 107.00 | T09170P1000690 | 1 | 13.00 | 5.910 | 89.36 | 7.943 | 79.000 | 7.000 | 2.500 | 1.00 | 1.00 | 0.000 |
| 56.30 | Stand-Off | 1 | 50.00 | 2.000 | 82.73 | 3.749 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 56.30 | 12' Omni | 1 | 40.00 | 3.600 | 108.24 | 6.829 | 144.000 | 3.000 | 3.000 | 1.00 | 1.00 | 6.000 |
| 43.00 | 3 ft Channel Master Dish | 1 | 100.00 | 11.760 | 225.76 | 13.535 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| 43.00 | Pipe Mount | 1 | 50.00 | 2.000 | 80.18 | 3.006 | 0.000 | 0.000 | 0.000 | 1.00 | 1.00 | 0.000 |
| | **Totals:** | **63** | **8,382.60** | | **18,195.96** | | | | | | **Number of Appurtenances :** | **33** |

# Loading Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT22107-A-SBA | | **Code:** | TIA-222-H | 1/6/2023 |
| **Site Name:** | Westrock Park | | **Exposure:** | C | |
| **Height:** | 195.00 (ft) | | **Crest Height:** | 402.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 0.85 | **Topography:** 4 | **Struct Class:** | II | Page: 6 |

Tower Engineering Solutions

## Linear Appurtenances Properties

| Elev. From (ft) | Elev. To (ft) | Description | Qty | Width (in) | Weight (lb/ft) | Pct In Block | Spread On Faces | Bundling Arrangement | Cluster Dia (in) | Out of Zone | Spacing (in) | Orientation Factor | Ka Override |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 195.00 | 1 1/4" Coax | 2 | 1.55 | 0.66 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 195.00 | Safety Cable | 1 | 0.38 | 0.27 | 100.00 | 1 | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 187.00 | 1/2" Coax | 1 | 0.65 | 0.16 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 185.00 | 7/8" Coax | 1 | 1.11 | 0.52 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 182.00 | 1/4" Coax | 1 | 0.25 | 0.04 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 177.00 | 1/2" Coax | 2 | 0.65 | 0.16 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 177.00 | 7/8" Coax | 2 | 1.11 | 0.52 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 140.00 | 1 1/4" Coax | 3 | 1.55 | 0.66 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 140.00 | 1.689" Hybrid | 1 | 1.69 | 1.00 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 140.00 | 1/2" Coax | 3 | 0.65 | 0.16 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 130.00 | 1.75" Hybrid | 1 | 1.75 | 1.99 | 100.00 | 1 | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 107.00 | 1/2" Coax | 2 | 0.65 | 0.16 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 107.00 | 7/8" Coax | 1 | 1.11 | 0.52 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 56.30 | 1 1/4" Coax | 2 | 1.55 | 0.66 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |
| 0.00 | 43.00 | 1/4" Coax | 1 | 0.25 | 0.04 | 100.00 | | Individual NR | | N | 1.00 | 1.00 | |

# Exhibit E

## Mount Analysis

January 9, 2023

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

B+T Group
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:** | BOHVN00181A |
| | **Site Name:** | N/A |
| ***SBA Network Services Designation:*** | **Site Number:** | CT22107-A |
| | **Site Name:** | Westrock Park |
| | **Application Number:** | 169200, v1 |
| ***Engineering Firm Designation:*** | **Project Number:** | 149544.003.01 Rev 1 |
| ***Site Data:*** | **1055 Wintergreen Ave, Hamden, CT, 06514, New Haven County**<br>**Latitude *41.34966389*°, Longitude *-72.97249722*°**<br>**Self-Support Tower**<br>**(3) 8 ft. Sector 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<br>Note: See Table 1 for the final loading configuration | **Sufficient Capacity**<br>**(Passing at 47.8%)** |

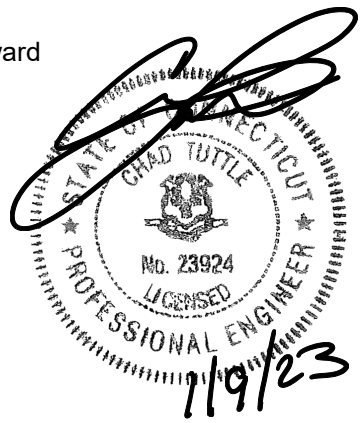
This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

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: Austin Steward

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 2/1/2023




Chad E. Tuttle, P.E.

## TABLE OF CONTENTS

## 1) INTRODUCTION

The appurtenance mount consists of sector mount designed by Commscope (Part #MTC3975083) at 130 ft., attached to self-support tower at 1055 Wintergreen Ave, Hamden, CT, 06514, New Haven 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 119 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C & Topographic Category 5 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 30º 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 | 130 | 2 | 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: 07/23/2021 | SBA Network Services, LLC. |
| Collo App | | Date: 08/11/2021 | |

## 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 |
|---|---|---|---|---|
| - | Face Horizontals | 130 | 15.2 | Pass |
| - | Support Arms | 130 | 27.0 | Pass |
| - | Diagonals | 130 | 26.6 | Pass |
| - | Connection Plates | 130 | 22.0 | Pass |
| - | Verticals | 130 | 47.8 | Pass |
| - | Tiebacks | 130 | 10.8 | Pass |
| - | Mount Pipes | 130 | 30.9 | Pass |

## 5) RECOMMENDATIONS

The Commscope sector mount, Part #MTC3975083 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).

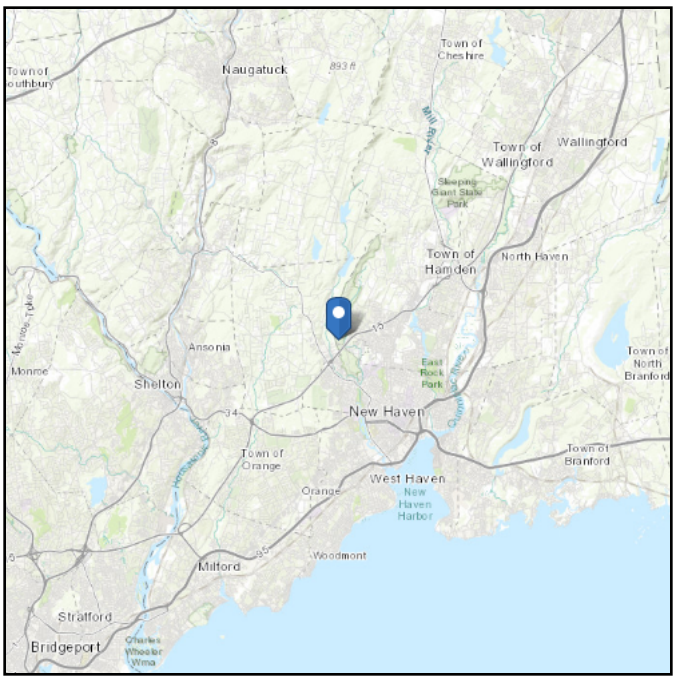
# APPENDIX B
Additional Calculations

# ASCE 7 Hazards Report

**Address:**
No Address at This Location

**Standard:** ASCE/SEI 7-16
**Risk Category:** II
**Soil Class:** D - Default (see Section 11.4.3)

**Elevation:** 417.13 ft (NAVD 88)
**Latitude:** 41.34966389
**Longitude:** -72.97249722


## Wind

**Results:**

| | |
|---|---|
| Wind Speed | 119 Vmph |
| 10-year MRI | 75 Vmph |
| 25-year MRI | 85 Vmph |
| 50-year MRI | 90 Vmph |
| 100-year MRI | 98 Vmph |

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Jan 12 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

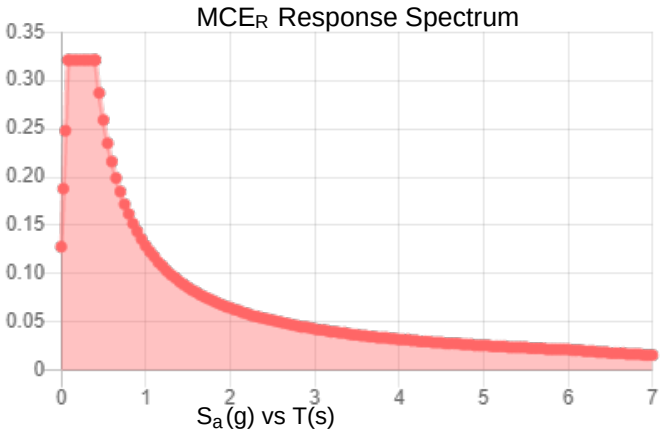
# Seismic

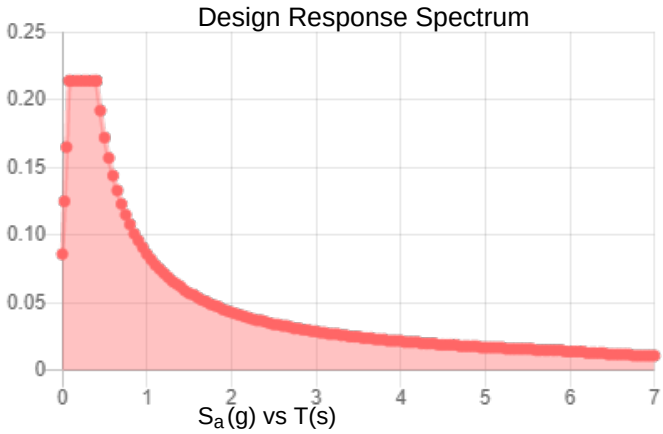
**Site Soil Class:** D - Default (see Section 11.4.3)

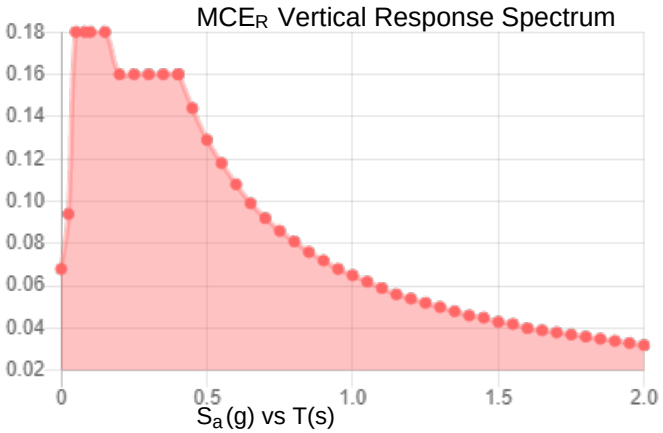
**Results:**

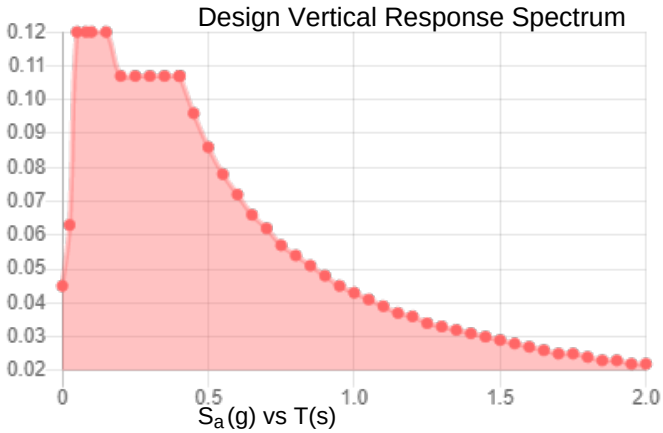
| | | | |
|---|---|---|---|
| $S_S$ : | 0.201 | $S_{D1}$ : | 0.086 |
| $S_1$ : | 0.054 | $T_L$ : | 6 |
| $F_a$ : | 1.6 | PGA : | 0.112 |
| $F_v$ : | 2.4 | $PGA_M$ : | 0.177 |
| $S_{MS}$ : | 0.321 | $F_{PGA}$ : | 1.576 |
| $S_{M1}$ : | 0.129 | $I_e$ : | 1 |
| $S_{DS}$ : | 0.214 | $C_v$ : | 0.701 |

**Seismic Design Category** B




**Data Accessed:** **Wed Jan 12 2022**

**Date Source:**

**USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.**

# Ice

**Results:**

| | |
|---|---|
| Ice Thickness: | 1.00 in. |
| Concurrent Temperature: | 15 F |
| Gust Speed | 50 mph |
| **Data Source:** | Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8 |
| **Date Accessed:** | Wed Jan 12 2022 |

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

| | | | |
|---|---|---|---|
| PROJECT | **149544.003.01 - Westrock Pa** | | **KSC** |
| SUBJECT | **Sector Mount Analysis** | | |
| DATE | **01/13/22** | PAGE | OF |

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

| | | | | | |
|---|---|---|---|---|---|
| Tower Type | | : | SST | | |
| Ground Elevation | $z_s$ | : | 417 | ft | [ASCE7 Hazard Tool] |
| Tower Height | | : | 250.00 | ft | |
| Mount Elevation | | : | 180.00 | ft | |
| Antenna Elevation | | : | 180.00 | ft | |
| Crest Height | | : | 199 | ft | |
| Risk Category | | : | II | | [Table 2-1 ] |
| Exposure Category | | : | C | | [Sec. 2.6.5.1.2] |
| Topography Category | | : | 5.00 | | [Sec. 2.6.6.2] |
| Wind Velocity | V | : | 119 | mph | [ASCE7 Hazard Tool] |
| Ice wind Velocity | $V_i$ | : | 50 | mph | [ASCE7 Hazard Tool] |
| Service Velocity | $V_s$ | : | 30 | mph | [ASCE7 Hazard Tool] |
| Base Ice thickness | $t_i$ | : | 1.00 | in | [ASCE7 Hazard Tool] |
| Seismic Design Cat. | | : | B | | [ASCE7 Hazard Tool] |
| | $S_S$ | : | 0.20 | | |
| | $S_1$ | : | 0.05 | | |
| | $S_{DS}$ | : | 0.21 | | |
| | $S_{D1}$ | : | 0.09 | | |
| Gust Factor | $G_h$ | : | 1.00 | | [Sec. 16.6] |
| Pressure Coefficient | $K_z$ | : | 1.43 | | [Sec. 2.6.5.2] |
| Topography Factor | $K_{zt}$ | : | 2.18 | | [Sec. 2.6.6] |
| Elevation Factor | $K_e$ | : | 0.99 | | [Sec. 2.6.8] |
| Directionality Factor | $K_d$ | : | 0.95 | | [Sec. 16.6] |
| Shielding Factor | $K_a$ | : | 0.90 | | [Sec. 16.6] |
| Design Ice Thickness | $t_{iz}$ | : | 1.56 | in | [Sec. 2.6.10] |
| Importance Factor | $I_e$ | : | 1 | | [Table 2-3 ] |
| Response Coefficient | $C_s$ | : | 0.107 | | [Sec. 2.7.7.1] |
| Amplification | $A_s$ | : | 1.88 | | [Sec. 16.7] |
| | $q_z$ | : | 105.88 | psf | |

| PROJECT | 149544.003.01 - Westrock Pa | | KSC |
|---|---|---|---|
| SUBJECT | Sector Mount Analysis | | |
| DATE | 01/13/22 | PAGE | OF |

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

| Manufacturer | Model | Qty | Aspect Ratio | $C_a$ flat/round | $EPA_N$ ($ft^2$) | $EPA_T$ ($ft^2$) | $EPA_{N\text{-}Ice}$ ($ft^2$) | $EPA_{T\text{-}Ice}$ ($ft^2$) | $F_{A\ No\ Ice\ (N)}$ | $F_{A\ No\ Ice\ (T)}$ | $F_{A\ Ice\ (N)}$ | $F_{A\ Ice\ (T)}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JMA WIRELESS | MX08FRO665-21 | 0.5 | 3.60 | 1.25 | 4.01 | 1.61 | 4.53 | 2.06 | 0.42 | 0.17 | 0.08 | 0.04 |
| JMA WIRELESS | MX08FRO665-21 | 0.5 | 3.60 | 1.25 | 4.01 | 1.61 | 4.53 | 2.06 | 0.42 | 0.17 | 0.08 | 0.04 |
| FUJITSU | TA08025-B605 | 1 | 1.05 | 1.20 | 1.64 | 0.99 | 2.37 | 1.59 | 0.19 | 0.11 | 0.03 | 0.02 |
| FUJITSU | TA08025-B604 | 1 | 1.05 | 1.20 | 1.64 | 0.86 | 2.37 | 1.44 | 0.19 | 0.10 | 0.03 | 0.02 |
| RAYCAP | RDIDC-9181-PF-48 | 1 | 1.14 | 1.20 | 1.68 | 0.94 | 2.42 | 1.54 | 0.19 | 0.11 | 0.03 | 0.02 |

# Exhibit F

## Power Density/RF Emissions Report

Fox Hill Telecom

# Radio Frequency Emissions Analysis Report

## Site ID: BOHVN00181A

SBA - Hamden CT
1055 Wintergreen Avenue
Hamden, CT 06514

**December 15, 2022**

**Fox Hill Telecom Project Number: 222030**

| Site Compliance Summary | |
|---|---|
| Compliance Status: | **COMPLIANT** |
| Site total MPE% of FCC general population allowable limit: | **8.22 %** |

Fox Hill Telecom

December 15, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00181A – SBA - Hamden CT**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **1055 Wintergreen Avenue, Hamden, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 600 MHz band is approximately 400 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report 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** antenna facility located at **1055 Wintergreen Avenue, Hamden, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

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

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

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

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

Equation 9 per FCC OET65 for Far Field Modeling

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

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

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

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

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

*Table 1: Channel Data Table*

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

| Sector | Antenna Number | Antenna Make / Model | Antenna Centerline (ft) |
|---|---|---|---|
| A | 1 | JMA MX08FRO665-21 | 130 |
| B | 1 | JMA MX08FRO665-21 | 130 |
| C | 1 | JMA MX08FRO665-21 | 130 |

*Table 2: Antenna Data*

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

## RESULTS

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

| Antenna ID | Antenna Make / Model | Frequency Bands | Antenna Gain (dBd) | Channel Count | Total TX Power (W) | ERP (W) | MPE % |
|---|---|---|---|---|---|---|---|
| Antenna A1 | JMA MX08FRO665-21 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 11.45 / 16.15 / 16.65 | 12 | 566 | 17,426.72 | 1.12 |
| | | | | | | Sector A Composite MPE% | **1.12** |
| Antenna B1 | JMA MX08FRO665-21 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 11.45 / 16.15 / 16.65 | 12 | 566 | 17,426.72 | 1.12 |
| | | | | | | Sector B Composite MPE% | **1.12** |
| Antenna C1 | JMA MX08FRO665-21 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 11.45 / 16.15 / 16.65 | 12 | 566 | 17,426.72 | 1.12 |
| | | | | | | Sector C Composite MPE% | **1.12** |

*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.

| **Site Composite MPE%** | |
|---|---|
| **Carrier** | **MPE%** |
| Dish – Max Per Sector Value | **1.12 %** |
| Mobile Comm | 0.03 % |
| Page America | 0.02 % |
| Tri State Radio | 0.09 % |
| Skytel | 0.10 % |
| Utility Comm | 0.59 % |
| Marcus/VoiceLink | 0.02 % |
| Destineer | 0.11 % |
| Pronet | 0.03 % |
| Airtouch | 2.47 % |
| Metrocall | 0.13 % |
| United Illum. | 0.39 % |
| PageNet | 0.24 % |
| Tri State Radio | 0.18 % |
| United Illum. | 0.31 % |
| ProNET | 0.07 % |
| Emergency Medical | 0.13 % |
| Arch CT paging | 0.66 % |
| Teligent | 0.00 % |
| Verizon Wireless | 1.53 % |
| **Site Total MPE %:** | **8.22 %** |

*Table 4: All Carrier MPE Contributions*

| | |
|---|---|
| Dish Sector A Total: | 1.12 % |
| Dish Sector B Total: | 1.12 % |
| Dish Sector C Total: | 1.12 % |
| | |
| Site Total: | 8.22 % |

*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 ($\mu W/cm^2$) | Frequency (MHz) | Allowable MPE ($\mu W/cm^2$) | Calculated % MPE |
|---|---|---|---|---|---|---|---|
| Dish n71 (600 MHz) 5G | 4 | 858.77 | 130 | 2.96 | n71 (600 MHz) | 400 | 0.74% |
| Dish n70 (AWS-4 / 1995-2020) 5G | 4 | 1,648.39 | 130 | 1.90 | n70 (AWS-4 / 1995-2020) | 1000 | 0.19% |
| Dish n66 (AWS-4 / 2180-2200) 5G | 4 | 1,849.52 | 130 | 1.90 | n66 (AWS-4 / 2180-2200) | 1000 | 0.19% |
| | | | | | | **Total:** | **1.12%** |

*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: | 1.12 % |
| Sector B: | 1.12 % |
| Sector C: | 1.12 % |
| Dish Maximum Total (per sector): | 1.12 % |
| | |
| Site Total: | 8.22 % |
| | |
| Site Compliance Status: | **COMPLIANT** |

The anticipated composite emissions value for this site, assuming all carriers present, is **8.22 %** 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

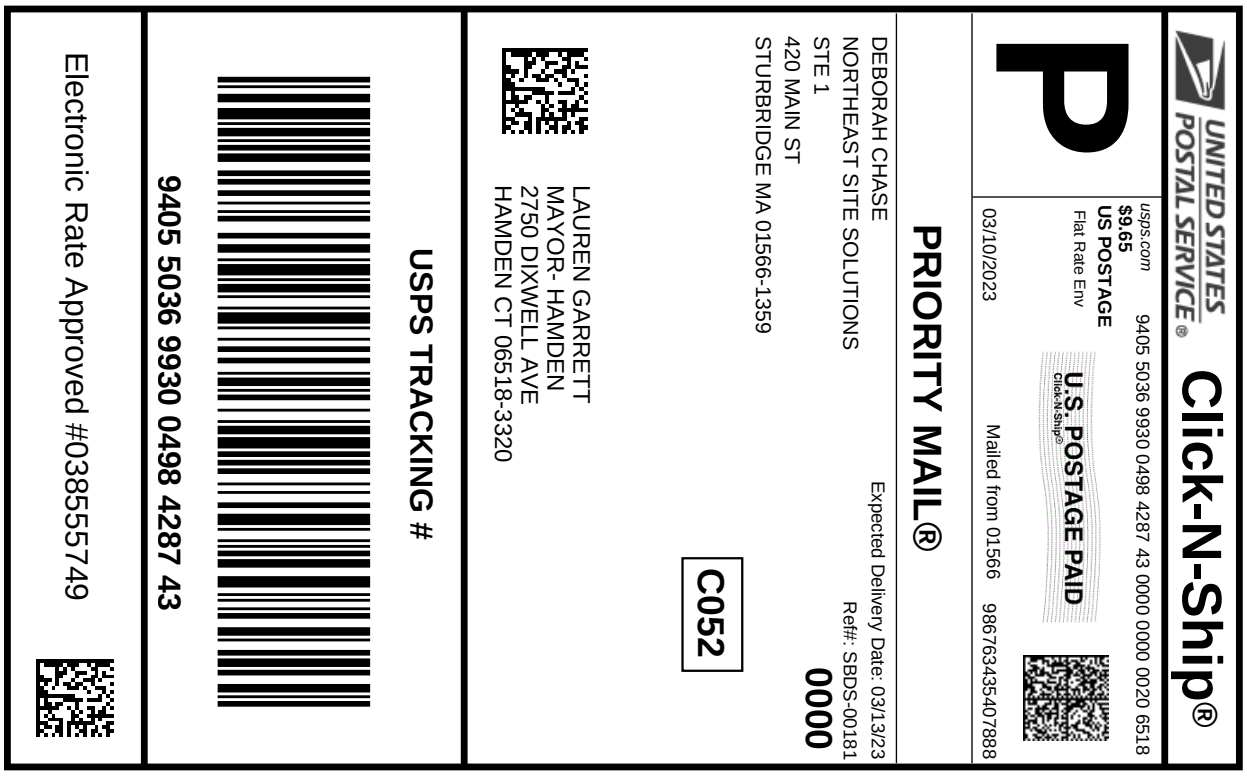
Re: Tower Share Application

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**

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

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**USPS TRACKING # :**
**9405 5036 9930 0498 4287 43**

| | |
|---|---|
| Trans. #: | 584273964 |
| Print Date: | 03/10/2023 |
| Ship Date: | 03/10/2023 |
| Expected Delivery Date: | 03/13/2023 |

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

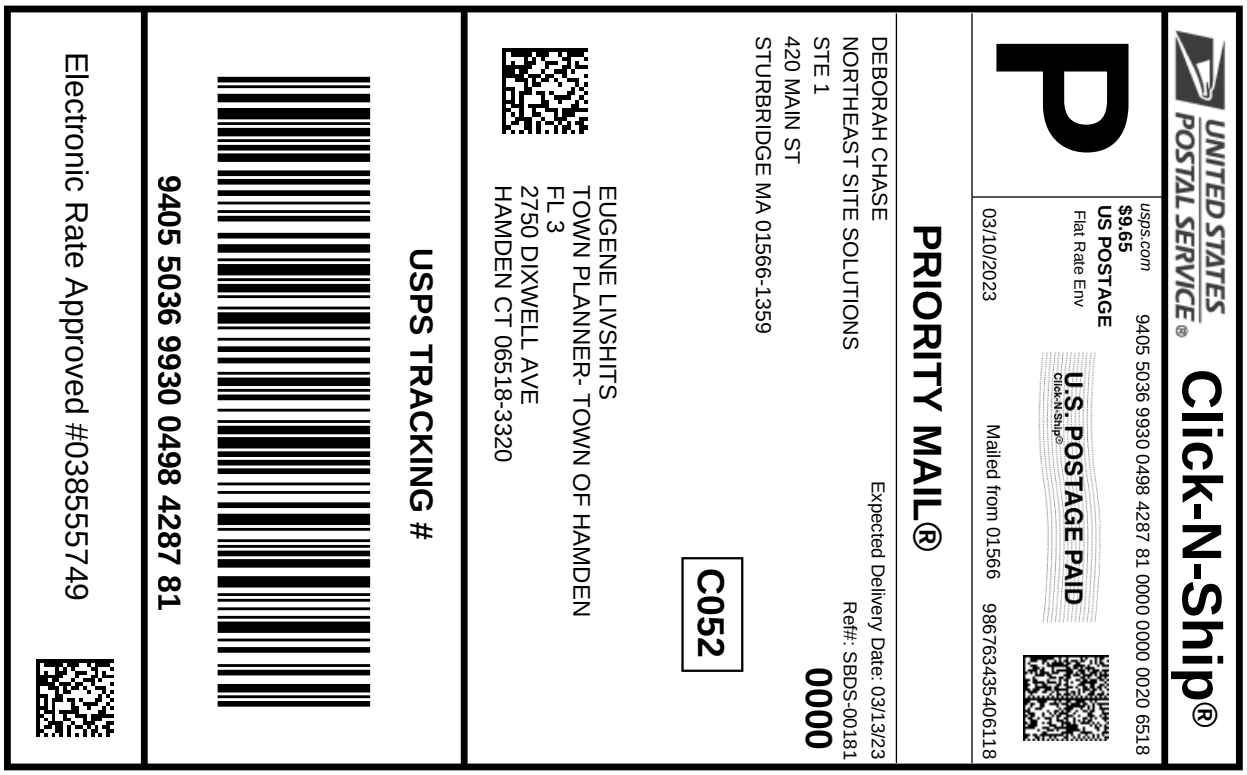
**From:** DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-00181

**To:** LAUREN GARRETT
MAYOR- HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

* 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*

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|---|---|
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| Print Date: | 03/10/2023 |
| Ship Date: | 03/10/2023 |
| Expected Delivery Date: | 03/13/2023 |

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

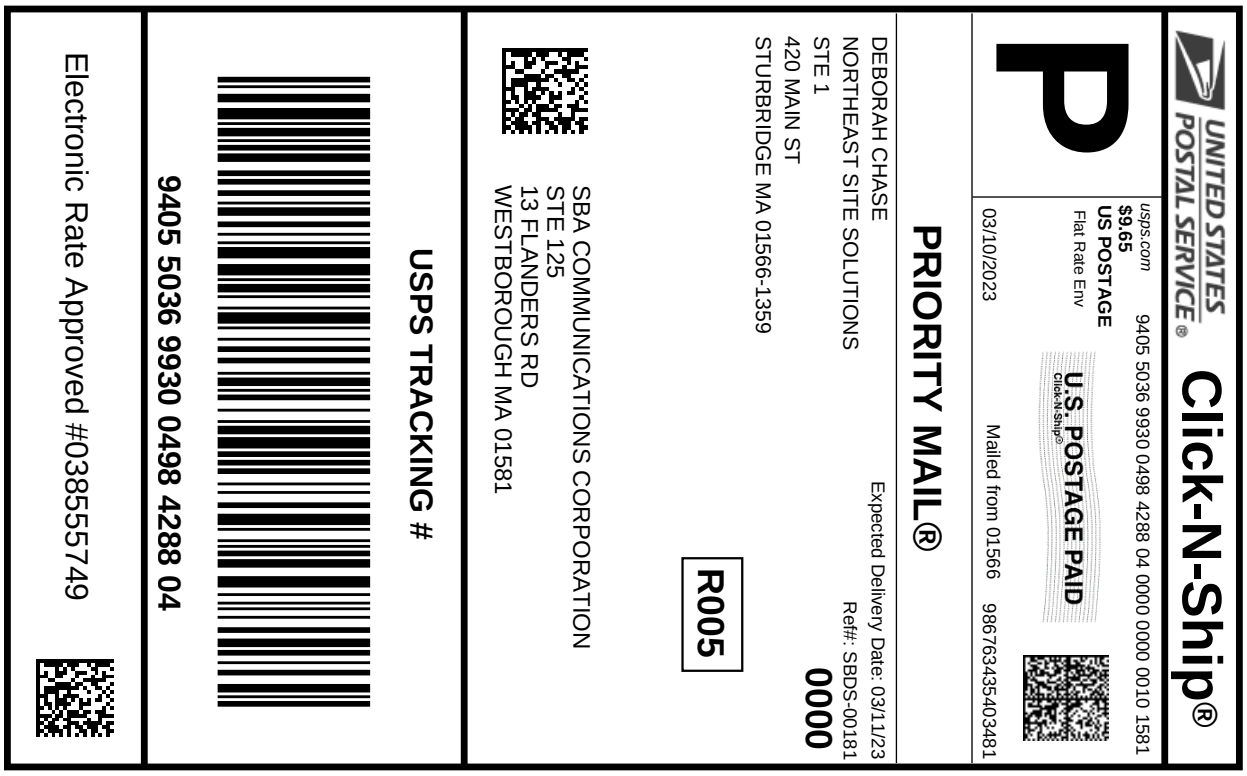
**From:** DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-00181

**To:** EUGENE LIVSHITS
TOWN PLANNER- TOWN OF HAMDEN
FL 3
2750 DIXWELL AVE
HAMDEN CT 06518-3320

* 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*

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**USPS TRACKING # :**
**9405 5036 9930 0498 4288 04**

| | |
|---|---|
| Trans. #: | 584273964 |
| Print Date: | 03/10/2023 |
| Ship Date: | 03/10/2023 |
| Expected Delivery Date: | 03/11/2023 |

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

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

Ref#: SBDS-00181

**To:** 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!*
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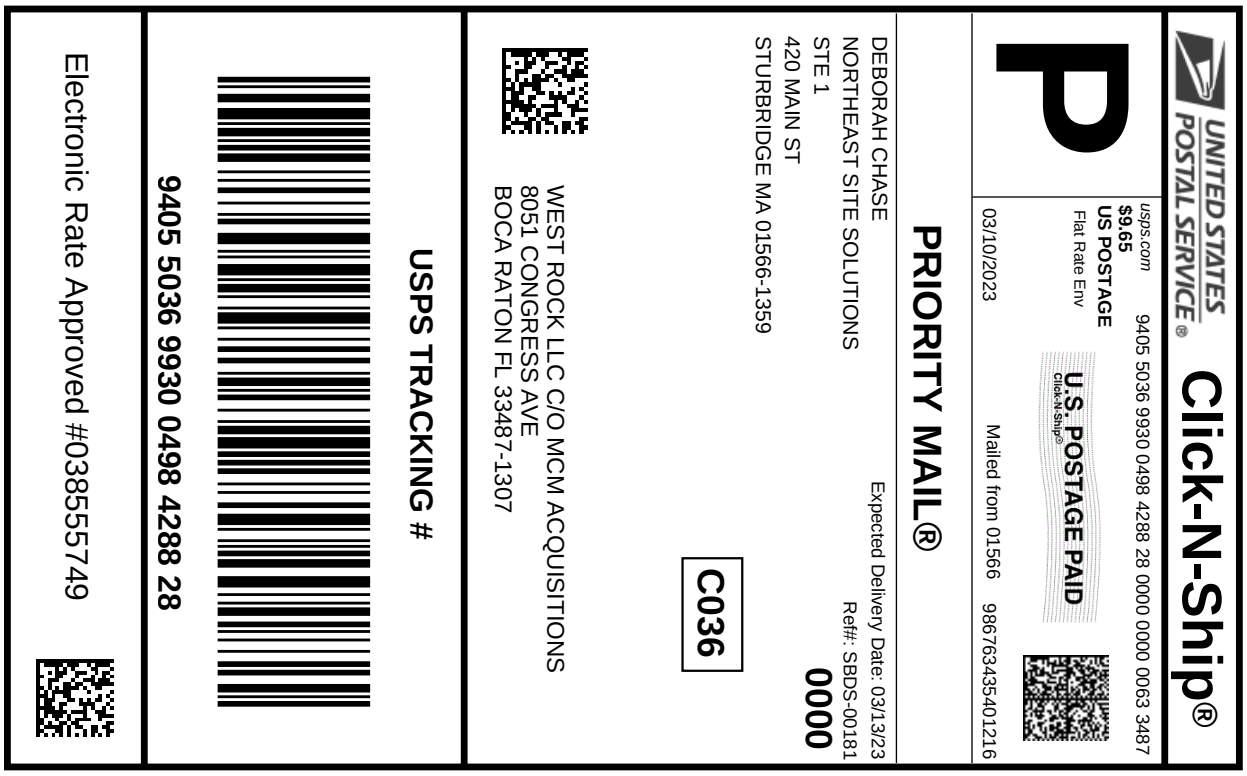


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5. **Mail your package on the "Ship Date" you selected when creating this label.**

## Click-N-Ship® Label Record

**USPS TRACKING # :**
**9405 5036 9930 0498 4288 28**

| | |
|---|---|
| Trans. #: | 584273964 |
| Print Date: | 03/10/2023 |
| Ship Date: | 03/10/2023 |
| Expected Delivery Date: | 03/13/2023 |

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

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

Ref#: SBDS-00181

**To:** WEST ROCK LLC C/O MCM ACQUISITIONS
8051 CONGRESS AVE
BOCA RATON FL 33487-1307

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| Product | Qty | Unit Price | Price |
|---|---|---|---|
| Prepaid Mail<br>Boca Raton, FL 33487<br>Weight: 0 lb 13.10 oz<br>Acceptance Date:<br>Mon 03/13/2023<br>Tracking #:<br>9405 5036 9930 0498 4288 28 | 1 | | $0.00 |
| Prepaid Mail<br>Hamden, CT 06518<br>Weight: 0 lb 13.10 oz<br>Acceptance Date:<br>Mon 03/13/2023<br>Tracking #:<br>9405 5036 9930 0498 4287 81 | 1 | | $0.00 |
| Prepaid Mail<br>Westborough, MA 01581<br>Weight: 0 lb 2.00 oz<br>Acceptance Date:<br>Mon 03/13/2023<br>Tracking #:<br>9405 5036 9930 0498 4288 04 | 1 | | $0.00 |
| Prepaid Mail<br>Hamden, CT 06518<br>Weight: 0 lb 13.10 oz<br>Acceptance Date:<br>Mon 03/13/2023<br>Tracking #:<br>9405 5036 9930 0498 4287 43 | 1 | | $0.00 |
| Grand Total: | | | $0.00 |