Filed by:
John Morrison Site Development Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3808 - JoMorrison@sbasite.com

March 31 2023

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
111 Stone Hill Rd, Voluntown, CT 063842
Latitude: 41.606411
Longitude:- -71.851133
Dish Wireless Site# BOBOS00052A

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 111 Stone Hill Rd, Voluntown, CT.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 143-foot level of the existing 180-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7' x 5' lease area. Included are plans by B+T Group, March 8, Exhibit 10. Also included is a structural analysis prepared by TES, dated November 18, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment, attached as Exhibit 8. Although the original zoning approval could not be located, this facility was approved by the Town of Voluntown's Department of Building Inspection via a Certificate of Occupancy December 1, 2001, Certificate #01-CO-23 and Building Permit #002511 for construction of a 180-foot telecommunications tower. Additionally, the Town of Voluntown approved an Application for Driveway Construction Permit #01-09 on October 2001 and approved by the Board of Selectman November 2001.. Please see attached Exhibit 6.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Town of Voluntown's First Selectman, Tracey Hanson, Planning & Zoning Chair, Scott B. Davidson, and to the property owners, Thomas M. & Patricia A. Sweet. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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 tower is 180-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 143-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 5.71% as evidenced by Exhibit 7.

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 indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit 8.

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 self-support tower in Voluntown. 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 2, 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 143-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit 7, 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 self-support 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 Voluntown.

Sincerely,

John Morrison
SDS Specialist I

SBA Communications Corporation
134 Flanders Road
Suite 125
Westborough, MA 01581

x3808 + **T**
508.768.7960 + **C**
JoMorrison@sbasite.com

Your Signal Starts Here.

Attachments:

cc:
Tracey Hanson, First Selectman / with attachments
Voluntown Town Hall, 115 Main St., P.O. Box 96 Voluntown, CT 06384

Scott B. Davidson, Planning & Zoning Chair / with attachments
Voluntown Town Hall, 115 Main St., P.O. Box 96 Voluntown, CT 06384

Thomas M. & Patricia A. Sweet / with attachments
497 Ekonk Hill Rd., Voluntown, CT 06384 (SBA record on file)

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town of Voluntown (10/01, 12/01)
Exhibit 7	EME Report	EBI Consulting 1/6/23
Exhibit 8	Structural Analysis	TES 11/18/21
Exhibit 9	Mount Analysis	B & T Group 1/24/23
Exhibit 10	Construction Drawings	B+T Group 3/8/22

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

March 21 2023

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

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **111 Stone Hill Rd, Voluntown, CT 063842**
Dish Wireless Site No: **BOBOS00052A**
Site No: **CT10024A**

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish Wireless' shared use of the existing SBA telecommunications site at 111 Stone Hill Rd, Voluntown, CT 063842.

SBA Towers II, LLC ("Owner") and Dish Wireless LLC ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 100' for antennas and associated equipment.

Thank you,

John Morrison
SDS Specialist I

SBA Communications Corporation
134 Flanders Road
Suite 125
Westborough, MA 01581

x3808 + **T**
508.768.7960 + **C**
JoMorrison@sbasite.com

Your Signal Starts Here.

EXHIBIT 3

Fedex Labels

DELIVERED

Wednesday

4/12/2023 at 12:20 pm

Signed for by: M.PAM

Obtain Proof of delivery

DELIVERY STATUS

Delivered

TRACKING ID

771652937225

FROM
John Morrison
134 Flanders Suite 125
WESTBOROUGH, MA US
01581
5087687960

Label Created
3/24/2023 9:50 AM

PACKAGE RECEIVED BY FEDEX
FRAMINGHAM, MA
4/10/2023 4:43 PM

IN TRANSIT
NORWICH, CT
4/12/2023 8:49 AM

OUT FOR DELIVERY
NORWICH, CT
4/12/2023 9:18 AM

DELIVERED
Voluntown Town Hall
Att: Scott Davidson P& Z Chair
115 MAIN ST
VOLUNTOWN, CT US 06384
8603764089

Delivered
4/12/2023 at 12:20 PM

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL

SUBMIT

MORE OPTIONS

Manage Delivery

After
1. Use
2. Fol
3. Pla

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DELIVERED

Wednesday

4/12/2023 at 12:20 pm

Signed for by: M.PAM

Obtain Proof of delivery

How was your delivery?

DELIVERY STATUS

Delivered

TRACKING ID

771652904922

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL

SUBMIT

MORE OPTIONS

Manage Delivery

FROM
John Morrison
134 Flanders Suite 125
WESTBOROUGH, MA US
01581
5087687960

Label Created
3/24/2023 9:48 AM

PACKAGE RECEIVED BY FEDEX
FRAMINGHAM, MA
4/10/2023 4:42 PM

IN TRANSIT
NORWICH, CT
4/12/2023 8:49 AM

OUT FOR DELIVERY
NORWICH, CT
4/12/2023 9:18 AM

DELIVERED
Voluntown Town Hall
Att: Tracey Hanson, First Selectman
115 MAIN ST
VOLUNTOWN, CT US 06384
8603764089

Delivered
4/12/2023 at 12:20 PM

ORIGIN ID:BBFA (508) 768-7960
JOHN MORRISON
134 FLANDERS
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 24MAR23
ACTWGT: 1.00 LB
CAD: 255382542/INET4580

BILL SENDER

TO THOMAS M. & PATRICIA A. SWEET
497 EKONK HILL RD
VOLUNTOWN CT 06384
(860) 564-2033
INV:
PO:
REF: 10-56-92009-6089
DEPT:

581J7/9982/FE2D

J231023011101uv

FedEx Express

TRK# 0201 7716 5432 8775

WED - 29 MAR 4:30P
EXPRESS SAVER

SE GONA

06384
BDL
CT-US

DELIVERED

Wednesday

4/12/2023 at 12:54 pm

Signature not required
Package delivered to recipient address

Obtain Proof of delivery

How was your delivery?

DELIVERY STATUS

Delivered

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL

SUBMIT

MORE OPTIONS

Manage Delivery

TRACKING ID

771654328775

FROM
John Morrison
134 Flanders Suite 125
WESTBOROUGH, MA US
01581
5087687960

Label Created
3/24/2023 11:16 AM

PACKAGE RECEIVED BY FEDEX
FRAMINGHAM, MA
4/10/2023 4:43 PM

IN TRANSIT
NORWICH, CT
4/12/2023 8:48 AM

OUT FOR DELIVERY
NORWICH, CT
4/12/2023 9:10 AM

DELIVERED
Thomas M. & Patricia A. Sweet
497 Ekonk Hill Rd
VOLUNTOWN, CT US 06384
8605642033

Delivered
4/12/2023 at 12:54 PM

FedEx®

Transaction Record

04/10/2023 12:04 PM

Thank you for using FedEx.

KEEP THIS FOR YOUR RECORDS
DO NOT ATTACH TO SHIPMENT

The following shipment(s) were scanned:

771652937225
771652904922
771654328775

At FedEx Office:

1 Oak St
Westborough, MA 01581
Location: AYEK Device ID: AYEK-ROSA898

Let us know how we did:

fedex.com/welisten

Part # 156297-435 RRDB2 EXP 02/24

This receipt was created at a self-service kiosk at FedEx. See invoice for shipping charges. Visit us at fedex.com or call 1.800.GoFedEx. See FedEx Service Guide at fedex.com for terms and conditions governing your shipment.

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

EXHIBIT 4

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.

Voluntown Town Hall

115 Main Street, Voluntown CT

Information on the Property Records for the Municipality of Voluntown was last updated on 6/3/2021.

Parcel Information

Location:	111 STONE HILL RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	RP-00696	Map Block Lot:	043 006-00 0111	Acres:	2.00
490 Acres:	0.00	Zone:	VD	Volume / Page:	0060/0733
Developers Map / Lot:		Census:	7081		

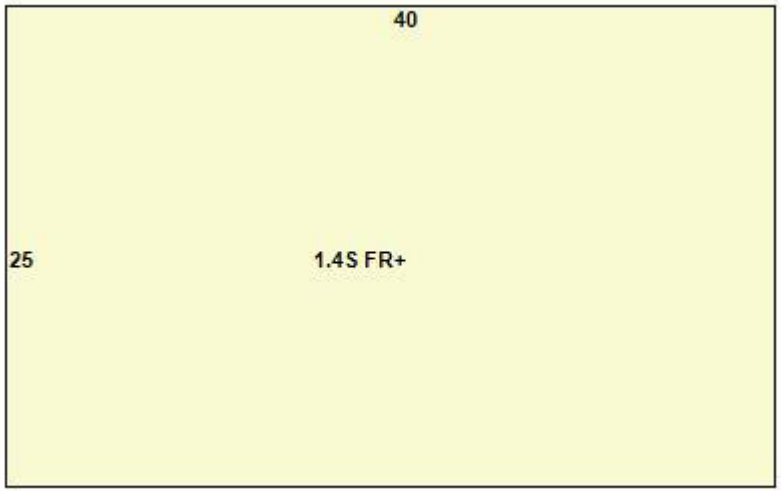
Value Information

	Appraised Value	Assessed Value
Land	55,480	38,830
Buildings	120,450	84,320
Detached Outbuildings	0	0
Total	175,930	123,150

Owner's Information

Owner's Data
SWEET THOMAS M & PATRICIA A 497 EKONK HILL RD VOLUNTOWN, CT 06384

Building 1



Building Use:	Single Family	Style:	Cape	Living Area:	1,400
Stories:	1.40	Construction:	Wood Frame	Year Built:	1974
Total Rooms:	6	Bedrooms:	2	Full Baths:	1

Half Baths:	0	Fireplaces:	0	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	0	Basement Area:	1,000
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:			

Special Features

Basement Sink	1
Generator	1
Laundry Sink	1

Attached Components

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
SWEET THOMAS M & PATRICIA A	0060	0733			No	$0

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
4107	Perrmit	08/21/2018		Closed	REPLACE EXISTING ANTENNAS ON CELL TOWER
2560	Unknown	04/25/2006		Closed	200 AMP NDERGD
2546	Unknown	03/10/2006		Closed	CING-EQUIP-SHEL
2530	Unknown	06/14/2001		Closed	4 METERS

EXHIBIT 5

Property Map

Google Maps 111 Stone Hill Rd

Map data ©2021 200 ft

111 Stone Hill Rd

Directions Save Nearby Send to your phone Share

111 Stone Hill Rd, Voluntown, CT 06384

J44W+H8 Voluntown, Connecticut

Photos

EXHIBIT 6

Zoning Approval

SITE NAME: Voluntown SITE ID: CT10024-A

Transaction: Mariner Tower Jill

ZONING/PERMITTING COMPLETION FORM

Address: 111 Stone Hill Road, Voluntown, CT

Landlord/Parcel ID:

Jurisdiction: Connecticut Siting Council Zoning District:

Zoning Approval Type: Special Exception – Town of Voluntown Case #:

Approval Date: 12/13/2000 Approved Height: 180 Tower Build Date:

Conditions of Approval:		Yes	No	N/A
Removal Bond	$5K	☒	☐	☐
Site Plan Submittal		☐	☒	☐
Fall Zone		☐	☒	☐
Periodic Inspections		☐	☒	☐
Periodic Reporting		☐	☒	☐
Approval Renewal		☐	☒	☐
Additional Conditions		☐	☒	☐

Approvals obtained by town. Cell towers currently fall under complete jurisdiction of Connecticut Siting Council (CSC). No CSC Review on this tower/no Certificate of Environmental Compatibility & Public Need issued. CSC is aware of of this tower. Any modifications/collocations must go through CSC Review.

JURISDICTION POC/DEPT.

Planning/Zoning: Carriann Mulcahy (CSC)

Phone: 860-827-2940 Fax:

Bldg./Code Enforcement: Peter Zvingilas or Barbara

Phone: 860-376-3867 Fax:

Submitted by: Patricia Coates Date: 4/25/07
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	PE
Ordinance Attached (required)	☐	☒	☐	
Building Permit Attached (required) 2511	☒	☐	☐	Date Recd 4/28/01
Certificate of Occupancy or Compliance (CO) attached (required)	☒	☐	☐	12/1/01

Zoning Manager Approval: Diane E. Borchardt Date 4/25/2007
Diane E. Borchardt, AICP

Voluntown Planning and Zoning Commission
December 13, 2000

The regular meeting of the Voluntown Planning and Zoning Commission was called to order at 7:05 P.M. on December 13, 2000 at the Voluntown Town Hall, Voluntown, CT. Members present were Ken Hollister, Ken Weseman, and Dwayne Davis. Alternates present were David Nieminen and Dawn Maldonado. They will both serve as full voting members. Also present was Peter Zvingilas, Zoning Enforcement Officer.

The minutes of the November 8, 2000 meeting were read. With no additions or deletions, Ken Weseman made a motion to accept the minutes as read. Dwayne Davis seconded it and all were in favor.

Peter Zvingilas, Z.E.O., reported things were quiet. He has not spoken with Nathan Lazourack concerning the Paint Ball Facility. SNET did speak to Peter. This was discussed. Ken Weseman moved that the Z.E.O. not issue any zoning permits until SNET comes back before the Planning & Zoning Board. David Nieminen seconded it and all were in favor. The Paint Ball Facility mylar was signed and filed in the Town records. The Chairman will take care of the Special Exception and put the notice in the paper to start the 15 day appeal period. There was some discussion as to the possibility of a cell tower being placed on Sand Hill Road. Nothing had come before the Board yet.

Old Business: As stated, the Paint Ball Facility mylar was signed, the Special Exception will be signed and the legal notice will be put in the paper.

Correspondence: A letter dated November 2000 was received from the Town Clerk requesting a 2001 meeting schedule. Ken Weseman made a motion to continue on the second Wednesday each month when an agenda exists to be held at 7:00 P.M. at the Town Hall, Voluntown, CT and also move that, if no opposition, the Chairman and Secretary remain the same. Ken Hollister seconded it and all were in favor. A letter dated 12-7-00 was received from the Siting Council stating there was a judgment on jurisdiction. The Siting Council has jurisdiction with assistance from the Town. More information will follow in 60 days. A letter dated 12-13-00 was received from Atty. Kepple, which the Chairman read. In Atty. Kepple's opinion a telecommunication tower was a type of public utility, which is an exception to the one use per lot regulation.

First on the Agenda: Telecommunication Tower, Stone Hill Road and Route 49 North. Mike Roman had nothing new, other than Sprint and SNET would like to go on the tower. The Chairman went over the telecommunication tower regulation and site plan requirements. Users were discussed; they will need to go to the Z.E.O. on their own to set up. The ruling per the letter from the Siting Council was discussed. Ken Weseman stated that Mr. Roman needed to be aware that if something comes down from the Siting Council, if the tower is granted, it would be his problem. Bonding, per zoning regulation 9.5.14 was discussed. Ken Hollister made a motion to have a bond for $5000, for demolition purposes, as a stipulation in the Special Exception. Ken Weseman seconded it and all were in favor. Ken Weseman made a motion to accept the application proposed before the board with the stipulation a $5000 bond be put on the tower per

P & Z Meeting of December 13, 2000 continued

Regulation 9.5.14 part f: abandonment and the site plan be signed and the Special Exception signed when the satisfactory bond is presented to the Chairman. Dwayne Davis seconded it and all were in favor. A mylar and four copies of the print will be needed. The Special Exception will be taken care of and a notice will be published in the paper to start the 15 day appeal period.

Second on the Agenda: Richard Serra, Council of Governments. The Board and Richard discussed the Siting Council issue. Mr. Liska and Mr. Medrychowski were present with questions concerning cell towers and the regulations. Since the Board was updating regulations, they could submit possible additions to the cell tower regulations to be looked at by the Board. These would need to be in writing by the next meeting. The Board was thanked for their time. Richard Serra handed out the subdivision regulation draft and the Board went over all the changes. A draft of the Road Ordinance was passed out. Richard then handed out the Zoning Regulation draft. The changes were gone over, including the new zoning maps and especially the new commercial overlay district. There were a few minor changes and the Commission is to look them over. Ken Weseman made a motion to hold the Public Hearing in January 2001. Dwayne Davis seconded it and all were in favor.

For the Board's the Chairman had heard from Atty. Kepple that Patrick Reynaud's road may be a county road. His surveyor may have found info concerning this.

Ken Weseman made a motion to adjourn the meeting at 8:36 P.M. Ken Hollister seconded it and all were in favor.

Respectfully submitted,

Ken Weseman, Chairman

Copy to ZBO
Copy to Z.B.A.

COPY

Pete

69

Voluntown Planning and Zoning Commission
April 11, 2001

The regular meeting of the Voluntown Planning and Zoning Commission was called to order at 7:00 P.M. at the Voluntown Town Hall, Voluntown, CT. Members present were Ken Hollister, Flo Harman, Ken Weseman, and Dwayne Davis. Alternate David Nieminen was present and will be a full voting member.

The minutes of the March 14, 2001 meeting were read. With no additions or deletions, Ken Weseman made a motion to accept the minutes as read. Dwayne Davis seconded it and all were in favor.

Zoning Enforcement Officer was not present.

Old Business: There were verbiage changes between Earthgro and the Zoning Board of Appeals. Nothing that changed the intent of the letter. Dwayne Davis stated that the Selectmen had not signed off on the letter, as of the last Board meeting, because of a few discrepancies. A letter dated April 2, 2001 was received from Attorney Kepple requesting all the information on the approved cell tower located on Tom Sweet's property and the pending tower on Route 138, be sent to his office. Crown Atlantic Verizon has convinced the Siting Council to reopen the meeting and it will be held on April 26, 2001 at 3:00 P.M. in New Britain. Mrs. Reynaud was present and wanted to give the board some paperwork. The Chairman stated that the matter with the road needed to be settled. A complete subdivision map needs to be done and they need to contact Mr. Mullen to do this. The Board would like to see this subdivision completed, but it needs to meet all regulations. Mrs. Reynaud needs to have Mr. Mullin or Attorney Duda take care of the matter.

First on the Agenda: Vivian Roode, Brown Road. This is still pending . A request for a 65 day extension will be needed by the next meeting. A letter will be sent to Mrs. Roode reminding her of this, if they are not ready.

Second on the Agenda: Telecommunication Tower, Rockville Road. No one present. Ken Weseman made a motion to table until next month's meeting. Dwayne Davis seconded it and all were in favor.

Third on the Agenda: SPAFAS, Charles River Laboratories, Pendleton Hill Road. The application and $60 fee was received. Mr. Richard Lawrence of Lawrence Associates presented the site plan. Also present was John Sabrowski, Project Manager and Robert Sirpenski. The SPAFAS facility in Voluntown is on 11 acres. They have been before Inland Wetlands and received approval, there is no disturbance of wetlands. The new building would be 40 x 248, approximately the same size as the existing building. Mr. Lawrence stated everything complies with zoning. Ken Weseman state the application falls between agriculture and commercial and it is a major development zone. They are making a change to an existing site plan and are enlarging a permitted use. The Chairman was not sure if a Public Hearing is needed and will check with the Town Attorney. The new entrance to the back of the building over Fish Kill Road was discussed. It was questioned if they had contacted the State about this access, it would probably be D.E.P. not D.O.T. The Board would like something from the State acknowledging this. The building set up and design was discussed. Dwayne Davis questioned if they were working with the Fire Marshal and they are. One set of prints were left, in case the access road

P & Z Meeting of April 11, 2001 continued

needed to be changed. The Board has no problem with what was submitted, but needs an answer from the Attorney concerning the Public Hearing issue and something from D.E.P. If a Public Hearing is needed and the Attorney gets back soon enough, it will be set up for May 16th. The regular meeting is being moved down a week to May 16, 2001. The Chairman will be in contact with them.

Mike Roman arrived late and requested to withdraw the application for the Telecommunication Tower on Rockville Road. Mr. Roman is looking at a site down the road in Rhode Island, instead. Mr. Roman wanted to discuss the $5,000 bond for the Stone Hill Road tower. He questioned why the bond was needed, since the Town would be on the tower. The Chairman explained that it was a zoning regulation and that Planning and Zoning makes and enforces the regulations. The other option would be to go to Z.B.A. and ask to vary the regulation. Mr. Roman will comply, if he has to.

Fourth on the Agenda: Non-residential zoning permits. There were two changes of uses in the Riverside Mall. A floor covering shop and a paintball shop. The Z.E.O. was suppose to leave paperwork and the Chairman did not know the status of this.

Ken Weseman made a motion to adjourn the meeting at 8:18 P.M. Ken Hollister seconded it and all were in favor.

Respectfully submitted,

Flo Harman, Secretary

Copy to Z.E.O.
Copy to Z.B.A.

482 BUILDING
9.60 STATE EDUCATION
$491.60

BUILDING PERMIT

PERMIT FEE

No 002511

TOWN OF VOLUNTOWN

Voluntown, Connecticut

APPLICATION FOR
BUILDING PERMIT OR MAJOR REPAIR
EXCEEDING $200.00

Applicant or taxpayer's name: Coastal Towers LLC Phone 376-1069
860 684 3060

HOME ADDRESS: 1050 Buckley Highway, Union CT

Date of application: 04/28/01

PERMIT

No 002511

Exact location of work to be done: Stone Hill Rd, Voluntown
Tom Sweet Property

Work to be done and its estimated cost: Build 180 ft. communication tower
(Please give detailed description) Est Value $60,000

Signed _____
Applicant or Agent

PASSED ☒

REJECTED ☐

Date: 04/28/01

Reason: _____

Signed: Daniel P. Kitchel
Building Inspector

TOWN OF VOLUNTOWN
CONNECTICUT
DEPARTMENT OF BUILDING INSPECTION

CERTIFICATE OF OCCUPANCY

DATE OF CERTIFICATE OF OCCUPANCY:	2001-DEC-01
CERTIFICATE OF OCCUPANCY NUMBER:	01-CO-23
BUILDING PERMIT NUMBER:	002511
ZONE:	R
CITY OR CCD:	N/A
APPLICANTS NAME:	COASTAL TOWERS, LLC
APPLICANTS ADDRESS:	1050 BUCKLEY DRIVE
PHONE NUMBER:	376-1069
ARCHITECT NAME/ADDRESS:	N/A
BUILDER NAME/ADDRESS:	COASTAL TOWERS LLC
THIS IS TO CERTIFY THE LAND/BUILDING AT:	111 STONE HILL ROAD

CONFORMS SUBSTANTIALLY TO THE REQUIREMENTS OF THE BUILDING CODE AND THE ZONING ORDINANCE OF THE TOWN OF VOLUNTOWN AND IS HEREBY APPROVED FOR OCCUPANCY AS INDICATED BELOW. ANY CHANGE OR EXTENSION OF THE USE HEREIN APPROVED REQUIRES A NEW CERTIFICATE OF OCCUPANCY.

APPROVED FOR OCCUPANCY AS: 180 FT COMMUNICATIONS TOWER

PETE ZVINGILAS
ZONING OFFICER
TOWN OF VOLUNTOWN

DANIEL P. KITCHEL
BUILDING OFFICIAL
TOWN OF VOLUNTOWN

TOWN OF VOLUNTOWN, CT

APPLICATION FOR DRIVEWAY CONSTRUCTION PERMIT

Date 6/13/01 Fee _____

1. Applicant TOM SWEET
2. Address 491 EXONK HILL RD. VOLUNTOWN CT
3. Location of proposed driveway:
   a. Street name STONE HILL RD.
   b. (N S E W) side of street EAST
   c. Closest intersection RT-49
   d. Closest utility pole # 852 CL&P
4. Interest in property:
   Owner TOM SWEET Agent _____
   Lessee _____ Other _____
5. Dimension of lot: Frontage _____
6. Tax Assessor Map #: Block#: 43 Lot : 5
7. Reason for Driveway Construction Permit
   a. One Residential Unit (non-shared driveway) _____
   b. Two Residential Units(shared driveway) _____
   c. Three Residential Unites (shared driveway) _____
   d. Business/Commercial Building _____
   e. Industrial Building _____
   f. Other COMMUNICATION'S TOWER ON EXISTING DRIVEWAY
8. Maintenance agreement attached _____ Construction agreement attached _____
9. Date Application was received by the Board _____

SIGNATURE OF OWNER Thomas Sweet and/or
SIGNATURE OF AGENT _____
MAILING ADDRESS 491 EXONK HILL RD PHONE 564-2552

Complete Application
Received by the Board on _____
Application Number (#) _____

DATE ISSUED 10/01 DATE DENIED _____ DATE WITHDRAWN _____

BOND AMOUNT _____ BOND DUE DATE _____
Western Surety Bond
APPLICATION NUMBER (#) 01-09

Approved 10/01
Board of Selectmen

Any person violating any provision of this ordinance shall be fined not more than one hundred dollars ($100.00) for each offense. Each day of any such violation shall constitute a separate offense and be subjected to separate punishment.

STRUCTURAL ANALYSIS

1. Rohn Structural Analysis Summary for 180 ft Model SSV Self Supporting Tower Analysis, prepared by UNR-ROHN, 11 Pgs., dated 4-24-01.

It is our opinion that the tower's structural system complies with the minimum structural requirements of the Connecticut State Building Code as required under P.A. 89-255.

Please call if you should have any questions.

Very truly yours,

Thomas K. Gillespie, P.E.

STATE OF CONNECTICUT
THOMAS K GILLESPIE
No. 15228
LICENSED
PROFESSIONAL ENGINEER

cc: W. Kemp, New England Site Management (684-3060)

EXHIBIT 7

EME Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOBOS00052A

SBA - Stone Hill Road
111 Stone Hill Road
Voluntown, CT 06384

January 6, 2023

Fox Hill Telecom Project Number: 222133

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**5.71 %**

Fox Hill Telecom

January 6, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBOS00052A – SBA - Stone Hill Road**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **111 Stone Hill Road, Voluntown, 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 Wireless antenna facility located at **111 Stone Hill Road, Voluntown, 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	Commscope FFVV-65B-R2	143
B	1	Commscope FFVV-65B-R2	143
C	1	Commscope FFVV-65B-R2	143

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	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.82
						Sector A Composite MPE%	**1.82**
Antenna B1	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.82
						Sector B Composite MPE%	**1.82**
Antenna C1	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.82
						Sector C Composite MPE%	**1.82**

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	**1.82 %**
T-Mobile / Sprint	0.98 %
AT&T	1.34 %
Verizon Wireless	1.57 %
Site Total MPE %:	**5.71 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	1.82 %
Dish Sector B Total:	1.82 %
Dish Sector C Total:	1.82 %
Site Total:	5.71 %

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	1,008.96	143	4.80	n71 (600 MHz)	400	1.20%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,574.20	143	3.10	n70 (AWS-4 / 1995-2020)	1000	0.31%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,686.79	143	3.10	n66 (AWS-4 / 2180-2200)	1000	0.31%
						Total:	**1.82 %**

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:	1.82 %
Sector B:	1.82 %
Sector C:	1.82 %
Dish Maximum Total (per sector):	1.82 %
Site Total:	5.71 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **5.71 %** 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 8

Structural Analysis

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

Structural Analysis Report

Existing 180 ft Rohn Self Supporting Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT10024-A
Customer Site Name: Voluntown
Carrier Name: Dish Wireless (App#: 178862-1)
Carrier Site ID / Name: BOBOS00052A / 0
Site Location: 111 Stone Hill Road
Voluntown, Connecticut
New London County
Latitude: 41.606411
Longitude: -71.851133

11/18/21

Analysis Result:

Max Structural Usage: 80.1% [Pass]
Max Foundation Usage: 63.0% [Pass]
Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Tawfeeq Alajaj

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

Structural Analysis Report

Existing 180 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10024-A

Customer Site Name: Voluntown

Carrier Name: Dish Wireless (App#: 178862-1)

Carrier Site ID / Name: BOBOS00052A / 0

Site Location: 111 Stone Hill Road

Voluntown, Connecticut

New London County

Latitude: 41.606411

Longitude: -71.851133

Analysis Result:

Max Structural Usage: 80.1% [Pass]

Max Foundation Usage: 63.0% [Pass]

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

Report Prepared By : Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Rohn 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	Rohn, Dwg # A000853, dated 4/3/2000
Foundation Drawing	Rohn, Dwg # AC10521-1, dated 3/21/2001
Geotechnical Report	DR. Clawrence Welti, dated 3/5/2001
Mount Analysis	TES, Project # 107413, dated 4/29/2021

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** 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:	Ultimate Design Wind Speed V_{ult} = 135 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 105 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

This structural analysis is based upon the tower being classified as a Structure Class 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	175.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Site Pro (3) VFA12-HD w/ Stiff Arms	(3) 1.99" Hybrid - 6x24	T-Mobile Sprint
2		3	RFS APXVAALL24-43-U-NA20 - Panel			
3		3	Ericsson AIR6449 B41 - Panel			
4		3	Ericsson 4415 B66A			
5		3	Ericsson 4424 B25			
6		3	Ericsson 4449 B71 + B85			
7	165.0	6	7770 - Panel	(3) Sector Frames	(12) 1 5/8" (2) 1/2" Fiber (4) 3/4" DC	AT&T
8		3	HPA-65R-BU8AA - Panel			
9		3	800 10966 - Panel			
10		6	LGP21401 TMA			
11		6	LGP21903			
12		3	RRUS 8843 B2 B66A			
13		3	4449 B5/B12			
14		3	DBCT108F1V92-1			
15		1	DC6-48-60-18-8F			
16		1	DC6-48-60-18-8C			
17	153.0	6	Antel BXA-70063-6CF - Panel	(3) Sector Frames	(12) 1 5/8"	Verizon
18		6	BXA-171063-12CF - Panel			
19		2	DB-T1-6Z-8AB-0Z			
20		3	RRH2x40-AWS			
21		3	RRH2x40-07			

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
22	143.0	3	Commscope - FFVV-65B-R2 - Panel	(3) MTC3975083	(1) 1.60" Hybrid	Dish Wireless
23		3	Fujitsu TA08025-B605 -			
24		3	Fujitsu TA08025-B604 -			
25		1	Raycap RDIDC-9181-PF-48 - OVP			

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:	**80.1%**	**78.4%**	**4.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	380.6	336.4	38.8

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

Operational 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 0.2166 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: CT10024-A-SBA

Site Name:	Voluntown			**Code:**	EIA/TIA-222-G	11/18/2021
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	180.00 (ft)	**Base Width:**	21.12	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	4.58	**Operational WS:**	60.00	Page: 1

Tower Engineering Solutions

Section Properties

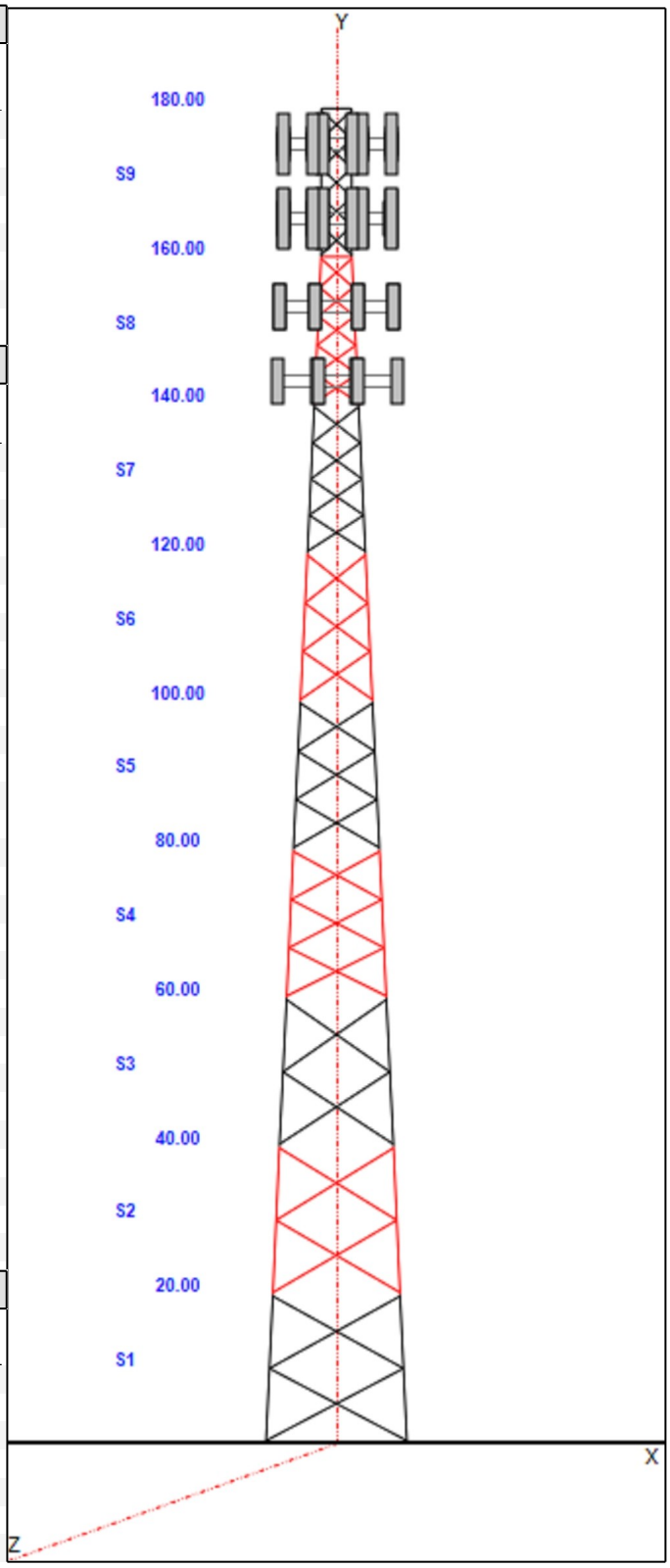
Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	PX 8" DIA PIPE	SAE 4X4X0.25	
3	PSP ROHN 8 EHS	SAE 3.5X3.5X0.25	
4	PX 6" DIA PIPE	SAE 3X3X0.25	
5	PSP ROHN 6 EHS	SAE 2.5X2.5X0.25	
6	PX 5" DIA PIPE	SAE 2.5X2.5X0.25	
7	PX 4" DIA PIPE	SAE 2X2X0.25	
8	PX 3" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25
9	PST 2-1/2" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
175.00	175.00	3	APX16DWV-16DWVS-E-A20
175.00	175.00	3	VFA12-HD w/ Stiff Arms
175.00	175.00	3	APXVAALL24-43-U-NA20
175.00	175.00	3	4415 B66A
175.00	175.00	3	4424 B25
175.00	175.00	3	4449 B71 + B85
175.00	175.00	3	AIR6449 B41
165.00	165.00	3	800 10966
165.00	165.00	3	DBCT108F1V92-1
165.00	165.00	3	4449 B5/B12
165.00	165.00	1	DC6-48-60-18-8C
165.00	165.00	3	Sector Frames
165.00	165.00	6	7770.00
165.00	165.00	3	HPA-65R-BU8AA
165.00	165.00	6	LGP21401 TMA
165.00	165.00	6	LGP21903
165.00	165.00	3	RRUS 8843 B2 B66A
165.00	165.00	1	DC6-48-60-18-8F
153.00	153.00	3	Sector Frames
153.00	153.00	6	Antel BXA-70063-6CF
153.00	153.00	6	BXA-171063-12CF
153.00	153.00	2	DB-T1-6Z-8AB-0Z
153.00	153.00	3	RRH2x40-AWS
153.00	153.00	3	RRH2x40-07
143.00	143.00	3	FFVV-65B-R2
143.00	143.00	3	Fujitsu TA08025-B605
143.00	143.00	3	Fujitsu TA08025-B604
143.00	143.00	1	Raycap RDIDC-9181-PF-48
143.00	143.00	1	(3) MTC3975083

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	180.00	1	Safety Cable
0.00	180.00	1	Step bolts (ladder)
0.00	175.00	3	1.99" Hybrid - 6x24
0.00	175.00	1	W/G Ladder
0.00	165.00	12	1 5/8" Coax
0.00	165.00	2	1/2" Fiber
0.00	165.00	4	3/4" DC
0.00	165.00	1	W/G Ladder
0.00	160.00	1	W/G Ladder



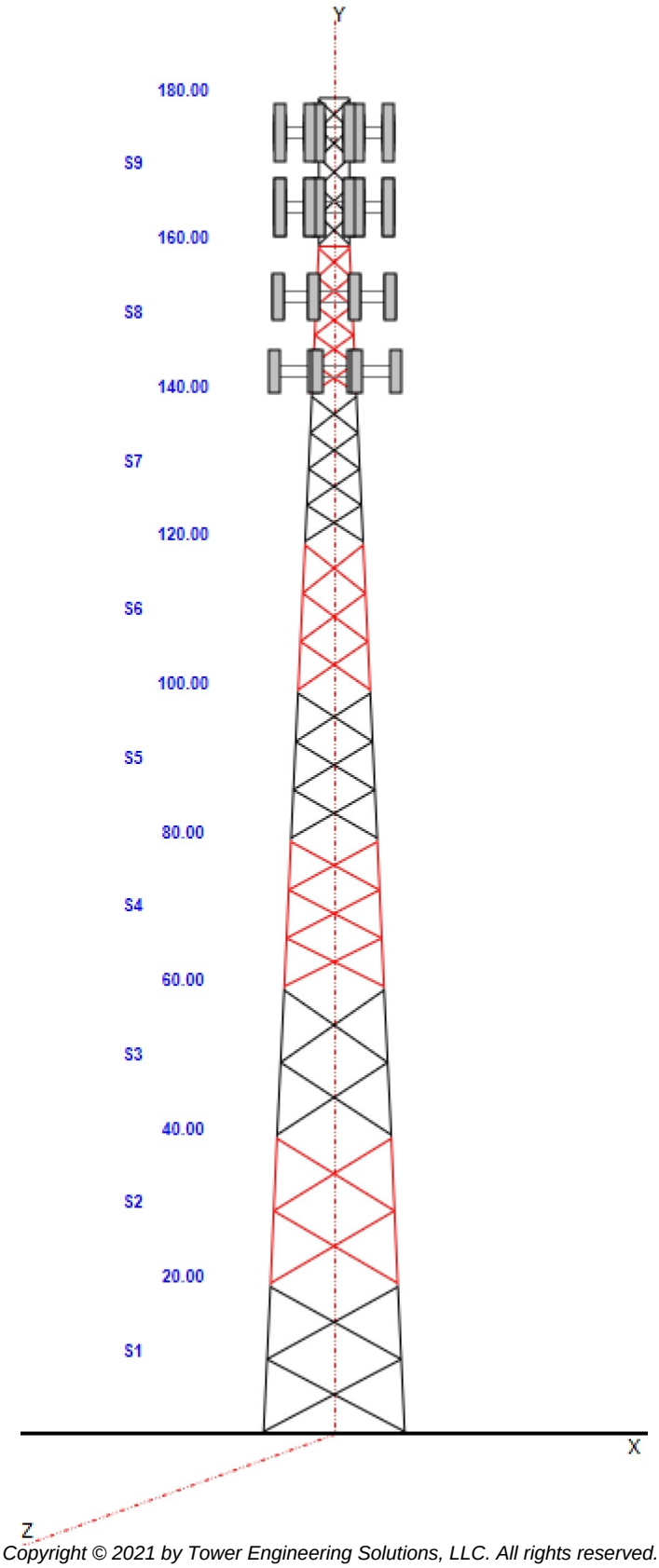
0.00	153.00	12	1 5/8" Coax
0.00	143.00	1	1.60" Hybrid

Base Reactions

Leg			Overturning	
Max Uplift:	-336.43 (kips		Moment:	6655.09 (ft-kips)
Max Down:	380.56 (kips		Total Down:	50.12 (kips)
Max Shear:	38.80 (kips		Total Shear:	63.32 (kips)

Structure: CT10024-A-SBA

Site Name:	Voluntown			**Code:**	EIA/TIA-222-G	11/18/2021
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	180.00 (ft)	**Base Width:**	21.12	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	4.58	**Operational WS:**	60.00	Page: 3

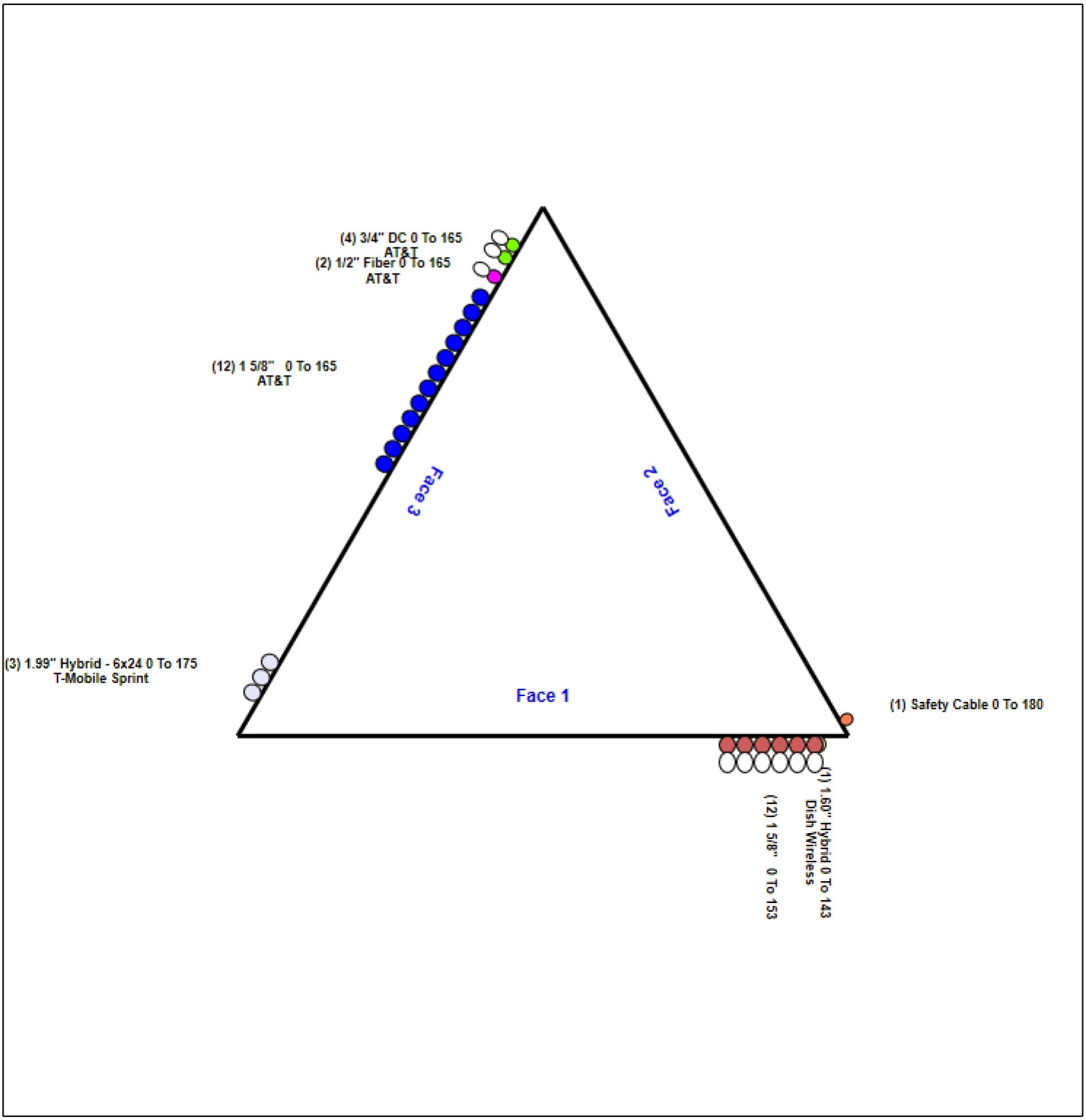


Structure: CT10024-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Voluntown
Height: 180.00 (ft)

11/18/2021

Tower Engineering Solutions



Loading Summary

Structure:	CT10024-A-SBA		**Code:**	EIA/TIA-222-G	11/18/2021
Site Name:	Voluntown		**Exposure:**	C	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**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)
175.00	APX16DWV-16DWVS-E-A20	3	40.70	6.610	159.23	8.815	55.900	13.300	3.100	0.80	0.62	0.000
175.00	VFA12-HD w/ Stiff Arms	3	683.00	18.900	1358.92	42.948	0.000	0.000	0.000	0.75	0.75	0.000
175.00	APXVAALL24-43-U-NA20	3	143.30	20.240	603.28	22.143	95.900	24.000	8.500	0.80	0.72	0.000
175.00	4415 B66A	3	46.20	1.860	96.53	2.440	13.500	16.500	4.800	0.80	0.67	0.000
175.00	4424 B25	3	88.00	2.050	175.73	2.654	17.100	14.400	11.300	0.80	0.67	0.000
175.00	4449 B71 + B85	3	73.20	1.970	131.67	2.546	17.900	13.200	10.600	0.80	0.67	0.000
175.00	AIR6449 B41	3	103.00	5.650	241.85	6.612	33.100	20.500	8.300	0.80	0.71	0.000
165.00	800 10966	3	125.70	17.360	488.48	19.191	96.000	20.000	6.900	0.80	0.72	0.000
165.00	DBCT108F1V92-1	3	7.00	0.710	21.53	1.341	7.000	10.400	1.800	0.80	0.67	0.000
165.00	4449 B5/B12	3	71.00	1.970	125.05	2.524	17.900	13.200	9.400	0.80	0.67	0.000
165.00	DC6-48-60-18-8C	1	20.00	1.260	73.43	1.928	23.500	9.700	9.700	0.90	0.90	0.000
165.00	Sector Frames	3	450.00	14.000	806.27	21.125	0.000	0.000	0.000	0.75	0.75	0.000
165.00	7770.00	6	35.00	5.500	172.27	6.580	55.000	11.000	5.000	0.80	0.73	0.000
165.00	HPA-65R-BU8AA	3	68.00	12.980	363.32	14.617	92.400	14.800	7.400	0.80	0.79	0.000
165.00	LGP21401 TMA	6	14.10	1.290	39.42	2.136	14.400	9.200	2.600	0.80	0.67	0.000
165.00	LGP21903	6	5.50	0.270	14.03	0.673	4.400	6.300	3.000	0.80	0.67	0.000
165.00	RRUS 8843 B2 B66A	3	72.00	1.640	119.43	2.143	14.900	13.200	10.900	0.80	0.67	0.000
165.00	DC6-48-60-18-8F	1	31.80	0.920	94.40	1.363	24.000	11.000	11.000	0.90	0.90	0.000
153.00	Sector Frames	3	500.00	17.500	1198.09	31.427	0.000	0.000	0.000	0.75	0.75	0.000
153.00	Antel BXA-70063-6CF	6	17.00	7.570	165.30	10.334	71.000	11.200	5.200	0.80	0.73	0.000
153.00	BXA-171063-12CF	6	15.00	4.780	110.82	7.139	72.400	6.100	4.100	0.80	0.84	0.000
153.00	DB-T1-6Z-8AB-0Z	2	18.90	4.800	139.98	5.805	24.000	24.000	10.000	0.90	0.90	0.000
153.00	RRH2x40-AWS	3	44.00	2.160	104.73	3.208	24.400	10.600	6.700	0.80	0.67	0.000
153.00	RRH2x40-07	3	50.70	1.930	109.49	2.849	15.400	15.000	8.200	0.80	0.67	0.000
143.00	FFVV-65B-R2	3	70.80	12.270	321.94	12.842	72.000	18.000	7.000	0.80	0.73	0.000
143.00	Fujitsu TA08025-B605	3	75.00	1.960	127.30	2.521	15.800	15.000	9.100	0.80	0.67	0.000
143.00	Fujitsu TA08025-B604	3	63.90	1.960	114.53	2.521	15.800	15.000	7.900	0.80	0.67	0.000
143.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	75.15	2.578	16.600	14.600	8.500	0.80	1.00	0.000
143.00	(3) MTC3975083	1	1242.0	28.050	2455.83	63.296	0.000	0.000	0.000	0.75	1.00	0.000
	Totals:	**93**	**10,199.60**		**25,991.88**						**Number of Appurtenances :**	**29**

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	180.00	Safety Cable	1	0.38	0.27	100.00	2	Individual NR		N	1.00	1.00	
0.00	180.00	Step bolts (ladder)	1	0.63	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	175.00	1.99" Hybrid - 6x24	3	1.99	0.95	100.00	3	Individual IR		N	1.00	1.00	
0.00	175.00	W/G Ladder	1	2.50	6.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	165.00	1 5/8" Coax	12	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	165.00	1/2" Fiber	2	0.65	0.16	50.00	3	Block		N	1.00	1.00	
0.00	165.00	3/4" DC	4	0.75	0.40	50.00	3	Block		N	0.50	1.00	
0.00	165.00	W/G Ladder	1	2.00	6.00		3	Individual NR		N	1.00	1.00	
0.00	160.00	W/G Ladder	1	2.50	6.00		1	Individual NR		N	1.00	1.00	
0.00	153.00	1 5/8" Coax	12	1.98	1.04	50.00	1	Block		N	0.50	1.00	
0.00	143.00	1.60" Hybrid	1	1.60	1.04	50.00	1	Block		N	0.50	1.00	

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	40.70	93.93	0.00	6,467.1	0.0	3176.70	2017.32	5,194.02
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.43	93.93	0.00	6,296.0	0.0	3427.08	2331.20	5,758.28
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	93.93	0.00	5,164.8	0.0	3275.90	2595.88	5,871.78
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	31.63	93.93	0.00	4,899.1	0.0	3344.00	2786.43	6,130.42
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	25.52	93.93	0.00	4,057.3	0.0	2839.21	2937.82	5,777.03
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	22.66	93.93	0.00	3,748.5	0.0	2610.76	3064.59	5,675.35
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.26	93.93	0.00	3,127.6	0.0	2280.91	3174.29	5,455.20
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.15	83.28	0.00	2,663.8	0.0	2124.88	2858.46	4,983.34
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	24.09	0.00	1,481.6	0.0	1885.43	810.11	2,695.54
														37,905.9	**0.0**			**47,540.95**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	34.94	93.93	0.00	6,467.1	0.0	2727.02	2017.32	4,744.34
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.15	93.93	0.00	6,296.0	0.0	2955.92	2331.20	5,287.12
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	93.93	0.00	5,164.8	0.0	2859.33	2595.88	5,455.21
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	27.19	93.93	0.00	4,899.1	0.0	2874.35	2786.43	5,660.77
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	22.28	93.93	0.00	4,057.3	0.0	2478.65	2937.82	5,416.47
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	19.85	93.93	0.00	3,748.5	0.0	2286.89	3064.59	5,351.48
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	16.94	93.93	0.00	3,127.6	0.0	2005.93	3174.29	5,180.22
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	15.82	83.28	0.00	2,663.8	0.0	1852.65	2858.46	4,711.11
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	24.09	0.00	1,481.6	0.0	1639.46	810.11	2,449.57
														37,905.9	**0.0**			**44,256.28**

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	36.38	93.93	0.00	6,467.1	0.0	2839.44	2017.32	4,856.76
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.47	93.93	0.00	6,296.0	0.0	3073.71	2331.20	5,404.91
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	93.93	0.00	5,164.8	0.0	2963.47	2595.88	5,559.35
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	28.30	93.93	0.00	4,899.1	0.0	2991.76	2786.43	5,778.19
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	23.09	93.93	0.00	4,057.3	0.0	2568.79	2937.82	5,506.61
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	20.55	93.93	0.00	3,748.5	0.0	2367.86	3064.59	5,432.45
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	17.52	93.93	0.00	3,127.6	0.0	2074.67	3174.29	5,248.96
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.40	83.28	0.00	2,663.8	0.0	1920.71	2858.46	4,779.17
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	24.09	0.00	1,481.6	0.0	1700.95	810.11	2,511.06
														37,905.9	**0.0**			**45,077.45**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	40.70	93.93	0.00	4,850.4	0.0	3176.70	2017.32	5,194.02
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	38.43	93.93	0.00	4,722.0	0.0	3427.08	2331.20	5,758.28
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	33.08	93.93	0.00	3,873.6	0.0	3275.90	2595.88	5,871.78
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	31.63	93.93	0.00	3,674.3	0.0	3344.00	2786.43	6,130.42
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	25.52	93.93	0.00	3,043.0	0.0	2839.21	2937.82	5,777.03
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	22.66	93.93	0.00	2,811.4	0.0	2610.76	3064.59	5,675.35
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	19.26	93.93	0.00	2,345.7	0.0	2280.91	3174.29	5,455.20
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.15	83.28	0.00	1,997.8	0.0	2124.88	2858.46	4,983.34
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	24.09	0.00	1,111.2	0.0	1885.43	810.11	2,695.54
														28,429.4	**0.0**			**47,540.95**

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	34.94	93.93	0.00	4,850.4	0.0	2727.02	2017.32	4,744.34
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	33.15	93.93	0.00	4,722.0	0.0	2955.92	2331.20	5,287.12
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	28.87	93.93	0.00	3,873.6	0.0	2859.33	2595.88	5,455.21
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	27.19	93.93	0.00	3,674.3	0.0	2874.35	2786.43	5,660.77
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	22.28	93.93	0.00	3,043.0	0.0	2478.65	2937.82	5,416.47
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	19.85	93.93	0.00	2,811.4	0.0	2286.89	3064.59	5,351.48
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	16.94	93.93	0.00	2,345.7	0.0	2005.93	3174.29	5,180.22
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	15.82	83.28	0.00	1,997.8	0.0	1852.65	2858.46	4,711.11
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	24.09	0.00	1,111.2	0.0	1639.46	810.11	2,449.57
														28,429.4	**0.0**			**44,256.28**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	20.39	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	36.38	93.93	0.00	4,850.4	0.0	2839.44	2017.32	4,856.76
2	30.0	23.56	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	34.47	93.93	0.00	4,722.0	0.0	3073.71	2331.20	5,404.91
3	50.0	26.24	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	29.92	93.93	0.00	3,873.6	0.0	2963.47	2595.88	5,559.35
4	70.0	28.17	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	28.30	93.93	0.00	3,674.3	0.0	2991.76	2786.43	5,778.19
5	90.0	29.70	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	23.09	93.93	0.00	3,043.0	0.0	2568.79	2937.82	5,506.61
6	110.0	30.98	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	20.55	93.93	0.00	2,811.4	0.0	2367.86	3064.59	5,432.45
7	130.0	32.09	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	17.52	93.93	0.00	2,345.7	0.0	2074.67	3174.29	5,248.96
8	150.0	33.07	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.40	83.28	0.00	1,997.8	0.0	1920.71	2858.46	4,779.17
9	170.0	33.95	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	24.09	0.00	1,111.2	0.0	1700.95	810.11	2,511.06
														28,429.4	**0.0**			**45,077.45**

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	

TES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	28.808	57.50	28.70	0.21	2.58	1.00	1.00	1.33	61.90	119.45	75.43	13,060.	6593.1	627.28	716.45	1,343.73
2	30.0	5.34	26.417	59.05	30.26	0.22	2.52	1.00	1.00	1.49	60.62	122.03	84.19	13,588.	7292.6	692.76	862.01	1,554.77
3	50.0	5.95	21.031	58.79	29.99	0.23	2.48	1.00	1.00	1.56	55.22	123.33	88.61	12,407.	7242.6	693.50	977.59	1,671.09
4	70.0	6.39	22.214	57.76	35.64	0.27	2.38	1.00	1.00	1.62	56.32	118.83	97.03	12,426.	7526.9	726.21	1033.45	1,759.67
5	90.0	6.73	16.204	55.61	33.49	0.28	2.34	1.00	1.00	1.66	49.23	119.38	99.50	11,187.	7129.8	659.79	1092.01	1,751.80
6	110.0	7.02	14.054	49.69	31.11	0.30	2.28	1.00	1.00	1.69	43.88	119.83	101.5	10,647.	6898.6	598.59	1128.38	1,726.97
7	130.0	7.28	11.609	47.35	32.32	0.35	2.16	1.00	1.00	1.72	40.86	120.21	103.2	9,817.3	6689.7	546.11	1120.53	1,666.64
8	150.0	7.50	11.624	44.56	32.87	0.45	1.97	1.00	1.00	1.75	41.09	107.85	99.77	8,940.8	6277.0	515.14	923.89	1,439.03
9	170.0	7.70	10.350	40.43	30.85	0.50	1.90	1.00	1.00	1.77	37.97	33.95	35.34	4,887.6	3406.0	473.23	292.22	765.45
														96,962.1	**59056.3**			**13,679.14**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	28.808	57.50	28.70	0.21	2.58	0.80	1.00	1.33	56.14	119.45	75.43	13,060.	6593.1	568.89	716.45	1,285.34
2	30.0	5.34	26.417	59.05	30.26	0.22	2.52	0.80	1.00	1.49	55.34	122.03	84.19	13,588.	7292.6	632.38	862.01	1,494.39
3	50.0	5.95	21.031	58.79	29.99	0.23	2.48	0.80	1.00	1.56	51.01	123.33	88.61	12,407.	7242.6	640.68	977.59	1,618.26
4	70.0	6.39	22.214	57.76	35.64	0.27	2.38	0.80	1.00	1.62	51.88	118.83	97.03	12,426.	7526.9	668.93	1033.45	1,702.38
5	90.0	6.73	16.204	55.61	33.49	0.28	2.34	0.80	1.00	1.66	45.99	119.38	99.50	11,187.	7129.8	616.36	1092.01	1,708.37
6	110.0	7.02	14.054	49.69	31.11	0.30	2.28	0.80	1.00	1.69	41.07	119.83	101.5	10,647.	6898.6	560.24	1128.38	1,688.63
7	130.0	7.28	11.609	47.35	32.32	0.35	2.16	0.80	1.00	1.72	38.54	120.21	103.2	9,817.3	6689.7	515.08	1120.53	1,635.61
8	150.0	7.50	11.624	44.56	32.87	0.45	1.97	0.80	1.00	1.75	38.76	107.85	99.77	8,940.8	6277.0	485.99	923.89	1,409.88
9	170.0	7.70	10.350	40.43	30.85	0.50	1.90	0.80	1.00	1.77	35.90	33.95	35.34	4,887.6	3406.0	447.43	292.22	739.65
														96,962.1	**59056.3**			**13,282.51**

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

TES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	28.808	57.50	28.70	0.21	2.58	0.85	1.00	1.33	57.58	119.45	75.43	13,060.	6593.1	583.49	716.45	1,299.93
2	30.0	5.34	26.417	59.05	30.26	0.22	2.52	0.85	1.00	1.49	56.66	122.03	84.19	13,588.	7292.6	647.48	862.01	1,509.48
3	50.0	5.95	21.031	58.79	29.99	0.23	2.48	0.85	1.00	1.56	52.06	123.33	88.61	12,407.	7242.6	653.88	977.59	1,631.47
4	70.0	6.39	22.214	57.76	35.64	0.27	2.38	0.85	1.00	1.62	52.99	118.83	97.03	12,426.	7526.9	683.25	1033.45	1,716.70
5	90.0	6.73	16.204	55.61	33.49	0.28	2.34	0.85	1.00	1.66	46.80	119.38	99.50	11,187.	7129.8	627.21	1092.01	1,719.22
6	110.0	7.02	14.054	49.69	31.11	0.30	2.28	0.85	1.00	1.69	41.77	119.83	101.5	10,647.	6898.6	569.83	1128.38	1,698.21
7	130.0	7.28	11.609	47.35	32.32	0.35	2.16	0.85	1.00	1.72	39.12	120.21	103.2	9,817.3	6689.7	522.84	1120.53	1,643.36
8	150.0	7.50	11.624	44.56	32.87	0.45	1.97	0.85	1.00	1.75	39.35	107.85	99.77	8,940.8	6277.0	493.28	923.89	1,417.17
9	170.0	7.70	10.350	40.43	30.85	0.50	1.90	0.85	1.00	1.77	36.42	33.95	35.34	4,887.6	3406.0	453.88	292.22	746.10
														96,962.1	**59056.3**			**13,381.66**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	28.808	28.80	0.00	0.14	2.81	1.00	1.00	0.00	44.05	93.93	0.00	5,389.3	0.0	701.66	411.70	1,113.36
2	30.0	7.69	26.417	28.80	0.00	0.15	2.78	1.00	1.00	0.00	41.30	93.93	0.00	5,246.7	0.0	751.66	475.75	1,227.41
3	50.0	8.57	21.031	28.81	0.00	0.15	2.78	1.00	1.00	0.00	35.62	93.93	0.00	4,304.0	0.0	719.87	529.77	1,249.64
4	70.0	9.20	22.214	22.12	0.00	0.15	2.76	1.00	1.00	0.00	34.38	93.93	0.00	4,082.6	0.0	741.68	568.66	1,310.33
5	90.0	9.70	16.204	22.13	0.00	0.15	2.75	1.00	1.00	0.00	28.28	93.93	0.00	3,381.1	0.0	642.06	599.56	1,241.62
6	110.0	10.12	14.054	18.58	0.00	0.16	2.73	1.00	1.00	0.00	24.62	93.93	0.00	3,123.7	0.0	578.87	625.43	1,204.30
7	130.0	10.48	11.609	15.03	0.00	0.17	2.71	1.00	1.00	0.00	20.16	93.93	0.00	2,606.3	0.0	487.37	647.81	1,135.19
8	150.0	10.80	11.624	11.69	0.00	0.20	2.60	1.00	1.00	0.00	18.33	83.28	0.00	2,219.8	0.0	438.13	583.36	1,021.48
9	170.0	11.09	10.350	9.58	0.00	0.21	2.57	1.00	1.00	0.00	15.87	24.09	0.00	1,234.7	0.0	384.78	165.33	550.11
														31,588.2	**0.0**			**10,053.44**

Section Forces

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	28.808	28.80	0.00	0.14	2.81	0.80	1.00	0.00	38.29	93.93	0.00	5,389.3	0.0	609.89	411.70	1,021.59
2	30.0	7.69	26.417	28.80	0.00	0.15	2.78	0.80	1.00	0.00	36.02	93.93	0.00	5,246.7	0.0	655.50	475.75	1,131.26
3	50.0	8.57	21.031	28.81	0.00	0.15	2.78	0.80	1.00	0.00	31.41	93.93	0.00	4,304.0	0.0	634.85	529.77	1,164.62
4	70.0	9.20	22.214	22.12	0.00	0.15	2.76	0.80	1.00	0.00	29.94	93.93	0.00	4,082.6	0.0	645.83	568.66	1,214.49
5	90.0	9.70	16.204	22.13	0.00	0.15	2.75	0.80	1.00	0.00	25.04	93.93	0.00	3,381.1	0.0	568.48	599.56	1,168.03
6	110.0	10.12	14.054	18.58	0.00	0.16	2.73	0.80	1.00	0.00	21.81	93.93	0.00	3,123.7	0.0	512.78	625.43	1,138.21
7	130.0	10.48	11.609	15.03	0.00	0.17	2.71	0.80	1.00	0.00	17.84	93.93	0.00	2,606.3	0.0	431.25	647.81	1,079.07
8	150.0	10.80	11.624	11.69	0.00	0.20	2.60	0.80	1.00	0.00	16.01	83.28	0.00	2,219.8	0.0	382.57	583.36	965.93
9	170.0	11.09	10.350	9.58	0.00	0.21	2.57	0.80	1.00	0.00	13.80	24.09	0.00	1,234.7	0.0	334.58	165.33	499.91
														31,588.2	**0.0**			**9,383.10**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	28.808	28.80	0.00	0.14	2.81	0.85	1.00	0.00	39.73	93.93	0.00	5,389.3	0.0	632.83	411.70	1,044.53
2	30.0	7.69	26.417	28.80	0.00	0.15	2.78	0.85	1.00	0.00	37.34	93.93	0.00	5,246.7	0.0	679.54	475.75	1,155.29
3	50.0	8.57	21.031	28.81	0.00	0.15	2.78	0.85	1.00	0.00	32.46	93.93	0.00	4,304.0	0.0	656.11	529.77	1,185.88
4	70.0	9.20	22.214	22.12	0.00	0.15	2.76	0.85	1.00	0.00	31.05	93.93	0.00	4,082.6	0.0	669.79	568.66	1,238.45
5	90.0	9.70	16.204	22.13	0.00	0.15	2.75	0.85	1.00	0.00	25.85	93.93	0.00	3,381.1	0.0	586.87	599.56	1,186.43
6	110.0	10.12	14.054	18.58	0.00	0.16	2.73	0.85	1.00	0.00	22.51	93.93	0.00	3,123.7	0.0	529.30	625.43	1,154.73
7	130.0	10.48	11.609	15.03	0.00	0.17	2.71	0.85	1.00	0.00	18.42	93.93	0.00	2,606.3	0.0	445.28	647.81	1,093.10
8	150.0	10.80	11.624	11.69	0.00	0.20	2.60	0.85	1.00	0.00	16.59	83.28	0.00	2,219.8	0.0	396.46	583.36	979.82
9	170.0	11.09	10.350	9.58	0.00	0.21	2.57	0.85	1.00	0.00	14.31	24.09	0.00	1,234.7	0.0	347.13	165.33	512.46
														31,588.2	**0.0**			**9,550.69**

Force/Stress Compression Summary

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	-372.02	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.73	50.00	508.62	73.1	Member X
2	40	PX - 8" DIA PIPE	-335.52	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.72	50.00	508.65	66.0	Member X
3	60	PSP - ROHN 8 EHS	-296.63	1.2D + 1.6W Normal Wind	9.77	100	100	100	40.15	50.00	388.77	76.3	Member X
4	80	PX - 6" DIA PIPE	-261.67	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.68	50.00	344.41	76.0	Member X
5	100	PSP - ROHN 6 EHS	-221.09	1.2D + 1.6W Normal Wind	6.51	100	100	100	35.12	50.00	276.03	80.1	Member X
6	120	PX - 5" DIA PIPE	-180.18	1.2D + 1.6W Normal Wind	6.51	100	100	100	42.47	50.00	240.98	74.8	Member X
7	140	PX - 4" DIA PIPE	-136.82	1.2D + 1.6W Normal Wind	4.88	100	100	100	39.60	50.00	176.96	77.3	Member X
8	160	PX - 3" DIA PIPE	-83.95	1.2D + 1.6W Normal Wind	3.91	100	100	100	41.12	50.00	120.09	69.9	Member X
9	180	PST - 2-1/2" DIA PIPE	-33.94	1.2D + 1.6W Normal Wind	0.25	100	100	100	3.17	50.00	76.62	44.3	Member X

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	140										0.00	0	0				
8	160	SAE - 2X2X0.25	-0.44	0.9D + 1.6W Normal Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	4	Member Z
9	180	SAE - 2X2X0.25	-0.30	0.9D + 1.6W Normal Wind	4.58	100	100	100	140.56	36.00	10.75	1	1	12.43	13.05	3	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	-11.0	0.9D + 1.6W 90° Wind	21.87	48	48	48	158.45	50.00	17.46	1	1	17.89	16.0	68	Bolt Bear
2	40	SAE - 4X4X0.25	-11.2	0.9D + 1.6W 90° Wind	20.11	48	48	48	145.72	50.00	20.64	1	1	17.89	16.0	70	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	-9.47	0.9D + 1.6W 90° Wind	19.20	48	48	48	159.33	50.00	15.04	1	1	17.89	16.0	63	Member Z
4	80	SAE - 3X3X0.25	-8.69	1.2D + 1.6W 90° Wind	15.95	48	48	48	155.22	50.00	13.50	1	1	17.89	16.0	64	Member Z
5	100	SAE - 2.5X2.5X0.25	-7.68	1.2D + 1.6W 90° Wind	14.12	48	48	48	165.68	36.00	9.79	1	1	12.43	13.0	78	Member Z
6	120	SAE - 2.5X2.5X0.25	-7.85	1.2D + 1.6W 90° Wind	11.14	48	48	48	130.71	36.00	15.68	1	1	12.43	13.0	63	Bolt Shear
7	140	SAE - 2X2X0.25	-6.64	1.2D + 1.6W 90° Wind	9.72	49	49	49	146.13	36.00	9.94	1	1	12.43	13.0	67	Member Z
8	160	SAE - 2X2X0.25	-6.52	1.2D + 1.6W 90° Wind	7.50	49	49	49	114.58	36.00	15.26	1	1	12.43	13.0	52	Bolt Shear
9	180	SAE - 2X2X0.25	-5.51	1.2D + 1.6W 90° Wind	6.02	49	49	49	97.85	36.00	18.40	1	1	12.43	13.0	44	Bolt Shear

Force/Stress Tension Summary

Structure:	CT10024-A-SBA	**Code:**	EIA/TIA-222-G	11/18/2021	
Site Name:	Voluntown	**Exposure:**	C		
Height:	180.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	338.25	0.9D + 1.6W 60° Wind	50	574.20	58.9	Member
2	40	PX - 8" DIA PIPE	308.38	0.9D + 1.6W 60° Wind	50	574.20	53.7	Member
3	60	PSP - ROHN 8 EHS	274.08	0.9D + 1.6W 60° Wind	50	437.40	62.7	Member
4	80	PX - 6" DIA PIPE	241.74	0.9D + 1.6W 60° Wind	50	378.00	64.0	Member
5	100	PSP - ROHN 6 EHS	205.86	0.9D + 1.6W 60° Wind	50	302.09	68.1	Member
6	120	PX - 5" DIA PIPE	169.51	0.9D + 1.6W 60° Wind	50	274.95	61.7	Member
7	140	PX - 4" DIA PIPE	128.66	0.9D + 1.6W 60° Wind	50	198.45	64.8	Member
8	160	PX - 3" DIA PIPE	79.29	0.9D + 1.6W 60° Wind	50	135.90	58.3	Member
9	180	PST - 2-1/2" DIA PIPE	28.05	0.9D + 1.6W 60° Wind	50	76.68	36.6	Member

HORIZONTAL MEMBERS

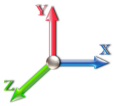
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			50	0.00	0	0					
2	40	-			50	0.00	0	0					
3	60	-			50	0.00	0	0					
4	80	-			50	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	-			36	0.00	0	0					
8	160	SAE - 2X2X0.25	0.41	1.2D + 1.6W 60° Wind	36	30.46	1	1	12.43	13.05	11.35	3.6	Blck Shear
9	180	SAE - 2X2X0.25	0.34	1.2D + 1.6W 60° Wind	36	30.46	1	1	12.43	13.05	11.35	3.0	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	10.71	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	66.6	Bolt Bear
2	40	SAE - 4X4X0.25	11.00	0.9D + 1.6W 90° Wind	50	62.93	1	1	17.89	16.09	18.89	68.4	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	9.26	0.9D + 1.6W 90° Wind	50	53.79	1	1	17.89	16.09	18.89	57.6	Bolt Bear
4	80	SAE - 3X3X0.25	8.69	1.2D + 1.6W 90° Wind	50	44.65	1	1	17.89	16.09	15.84	54.9	Blck Shear
5	100	SAE - 2.5X2.5X0.25	7.71	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	62.1	Bolt Shear
6	120	SAE - 2.5X2.5X0.25	7.61	1.2D + 1.6W 90° Wind	36	32.71	1	1	12.43	13.05	12.71	61.2	Bolt Shear
7	140	SAE - 2X2X0.25	7.42	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	74.3	Blck Shear
8	160	SAE - 2X2X0.25	6.42	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	64.3	Blck Shear
9	180	SAE - 2X2X0.25	5.37	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	13.05	9.99	53.8	Blck Shear

Support Forces Summary

Structure:	CT10024-A-SBA		**Code:**	EIA/TIA-222-G	11/18/2021
Site Name:	Voluntown		**Exposure:**	C	
Height:	180.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 15



Tower Engineering Solutions

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	380.56	-38.80	
	1a	13.66	-165.22	-12.26	
	1b	-13.66	-165.22	-12.26	
1.2D + 1.6W 60° Wind	1	-3.42	191.41	-19.01	
	1a	-18.17	191.41	6.55	
	1b	-30.41	-332.71	-17.56	
1.2D + 1.6W 90° Wind	1	-4.08	16.72	-1.02	
	1a	-29.18	322.43	14.55	
	1b	-27.60	-289.02	-13.53	
0.9D + 1.6W Normal Wind	1	0.00	375.92	-38.52	
	1a	13.89	-169.16	-12.40	
	1b	-13.89	-169.16	-12.40	
0.9D + 1.6W 60° Wind	1	-3.42	187.01	-18.73	
	1a	-17.93	187.01	6.40	
	1b	-30.64	-336.43	-17.69	
0.9D + 1.6W 90° Wind	1	-4.09	12.54	-0.75	
	1a	-28.94	317.85	14.40	
	1b	-27.83	-292.80	-13.66	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	136.17	-9.49	
	1a	4.41	-6.90	-3.73	
	1b	-4.41	-6.90	-3.73	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.98	87.64	-4.32	
	1a	-4.23	87.64	1.31	
	1b	-9.11	-52.90	-5.26	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.15	40.79	0.62	
	1a	-7.20	122.30	3.50	
	1b	-8.30	-40.72	-4.12	
1.0D + 1.0W Normal Wind	1	0.00	89.27	-8.82	
	1a	2.24	-23.75	-2.22	
	1b	-2.24	-23.75	-2.22	
1.0D + 1.0W 60° Wind	1	-0.74	50.12	-4.67	
	1a	-4.42	50.12	1.70	
	1b	-5.75	-58.48	-3.32	
1.0D + 1.0W 90° Wind	1	-0.87	13.92	-0.91	
	1a	-6.73	77.33	3.38	
	1b	-5.17	-49.48	-2.48	

Max Reactions

Leg			Overturning		
Max Uplift:	-336.43	(kips)	Moment:	6655.09	(ft-kips)
Max Down:	380.56	(kips)	Total Down:	50.12	(kips)
Max Shear:	38.80	(kips)	Total Shear:	63.32	(kips)

Max Reactions

Leg			Overturning		
Max Uplift:	-336.43	(kips)	Moment:	6655.09	(ft-kips)
Max Down:	380.56	(kips)	Total Down:	50.12	(kips)
Max Shear:	38.80	(kips)	Total Shear:	63.32	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	10
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00
Detail Type:	D	Length:	1.00

Interaction Ratio: 0.76

Max Usages

Max Leg: 80.1% (1.2D + 1.6W Normal Wind - Sect 5)
Max Diag: 78.4% (1.2D + 1.6W 90° Wind - Sect 5)
Max Horiz: 4.1% (0.9D + 1.6W Normal Wind - Sect 8)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 105 mph Wind at 60° From Face	144.15	1.1177	0.0420	1.0260
	151.95	1.2660	0.0435	1.1376
	164.15	1.5198	0.0469	1.2140
	175.85	1.7776	0.0472	1.2771
0.9D + 1.6W 105 mph Wind at 90° From Face	144.15	1.1264	-0.0491	1.0366
	151.95	1.2759	-0.0507	1.1435
	164.15	1.5313	-0.0550	1.2304
	175.85	1.7910	-0.0550	1.2849
0.9D + 1.6W 105 mph Wind at Normal To Face	144.15	1.1538	-0.0432	1.0555
	151.95	1.3067	0.0445	1.1693
	164.15	1.5671	-0.0485	1.2481
	175.85	1.8327	-0.0482	1.3099
1.0D + 1.0W 60 mph Wind at 60° From Face	144.15	0.2301	0.0082	0.2104
	151.95	0.2605	0.0084	0.2332
	164.15	0.3125	0.0089	0.2486
	175.85	0.3654	0.0087	0.2627
1.0D + 1.0W 60 mph Wind at 90° From Face	144.15	0.2323	-0.0097	0.2130
	151.95	0.2630	-0.0099	0.2348
	164.15	0.3155	-0.0106	0.2525
	175.85	0.3688	-0.0104	0.2646
1.0D + 1.0W 60 mph Wind at Normal To Face	144.15	0.2378	0.0084	0.2166
	151.95	0.2690	-0.0085	0.2397
	164.15	0.3227	0.0091	0.2560
	175.85	0.3769	0.0088	0.2690

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	144.15	0.2911	0.0107	0.2584
	151.95	0.3283	0.0110	0.2850
	164.15	0.3912	0.0118	0.3030
	175.85	0.4559	0.0116	0.3217
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	144.15	0.2920	-0.0124	0.2601
	151.95	0.3294	-0.0128	0.2854
	164.15	0.3925	-0.0136	0.3062
	175.85	0.4575	-0.0134	0.3222
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	144.15	0.2949	0.0107	0.2618
	151.95	0.3327	0.0110	0.2883
	164.15	0.3965	0.0118	0.3078
	175.85	0.4621	0.0116	0.3239
1.2D + 1.6W 105 mph Wind at 60° From Face	144.15	1.1199	0.0421	1.0287
	151.95	1.2687	0.0436	1.1408
	164.15	1.5231	0.0470	1.2174
	175.85	1.7817	0.0473	1.2813
1.2D + 1.6W 105 mph Wind at 90° From Face	144.15	1.1287	-0.0492	1.0394
	151.95	1.2786	-0.0508	1.1466
	164.15	1.5347	-0.0551	1.2339
	175.85	1.7952	-0.0551	1.2890
1.2D + 1.6W 105 mph Wind at Normal To Face	144.15	1.1561	0.0433	1.0583
	151.95	1.3094	0.0446	1.1725
	164.15	1.5706	0.0487	1.2517
	175.85	1.8370	0.0483	1.3140

Mat Foundation Design for Self Supporting Tower

			Date: 11/18/2021
Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	180
Site Nmber:	CT10024-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	119513	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

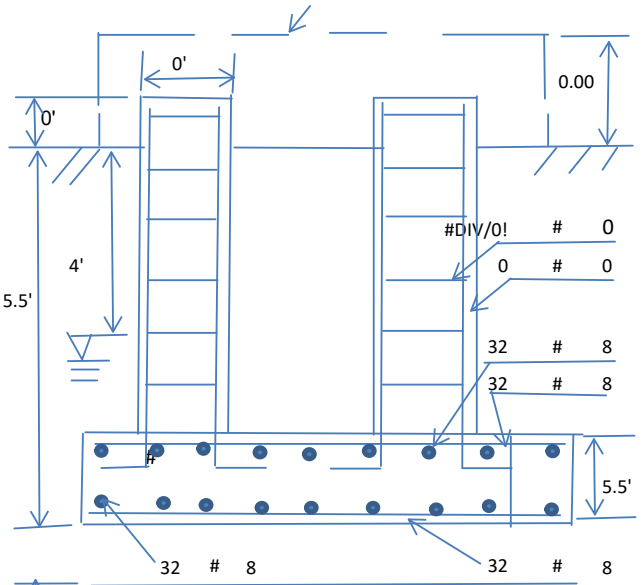
Axial Load (Kips):	380.6	Uplift Force (Kips):	336.4
Shear Force (Kips):	38.8		

(2). Tower Base:

Total Vertical Load (Kips):	50.1	Total Shear Force (Kips):	63.3
Moment (Kips-ft):	6655.1		

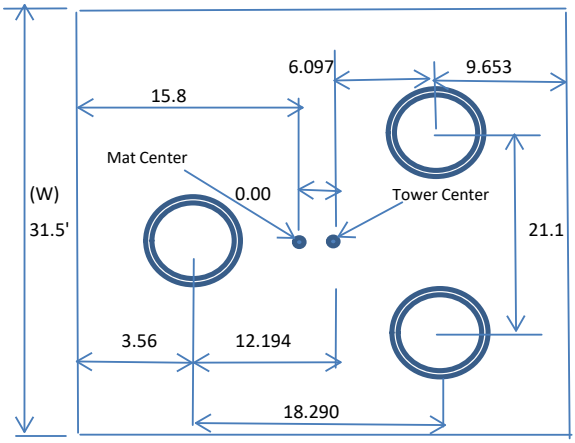
Foundation Geometries:

Leg distance (Center-to-Center ft.):		21.1	Mods required -Yes/No ?:	No	
Diameter of Pier (ft.):	Round	0.0	Pier Height A. G. (ft.):	0.00	
Tower center to mat center (ft):			Depth of Base BG (ft.):	5.5	
Length of Pad (ft.):		31.5	Width of Pad (ft.):	31.5	
Thickness of Pad (ft):		5.50			



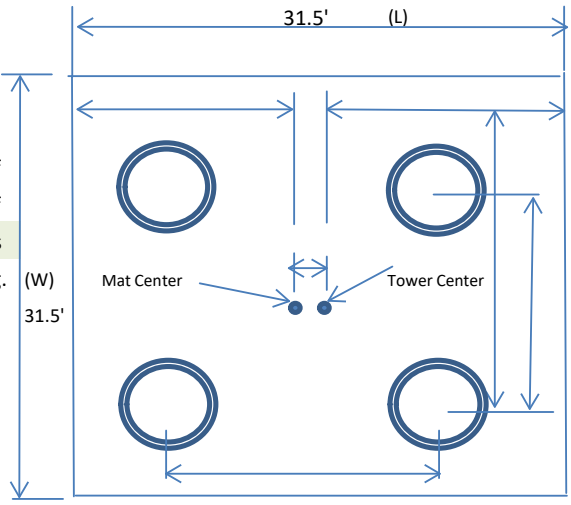
Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)		Tie steel yield (ksi):	60	
Vertical Rebar Size #:		Tie / Stirrup Size #:		
Qty. of Vertical Rebars:		Tie Spacing (in):		
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32	



Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	4.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	12000	Consider ties in concrete shear strength:		Yes
Consider Soil Lateral Resistance ?	Yes	Enter soil C (psf) or Phi (deg.):	30.0	Deg.
		Depth to ignor lateral resistance	1.0	Ft.



Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design:	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75			
Total Dry Soil Volume (cu. Ft.):		0.00	Total Dry Soil Weight (Kips):	0.00			
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00			
Total Effective Soil Weight (Kips):		0.00	Weight from the Concrete Block at Top (K):	0.00			
Total Dry Concrete Volume (cu. Ft.):		3969.00	Total Dry Concrete Weight (Kips):	595.35			
Total Buoyant Concrete Volume (cu. Ft.):		1488.38	Total Buoyant Concrete Weight (Kips):	130.38			
Total Effective Concrete Weight (Kips):		725.73	Total Vertical Load on Base (Kips):	775.85			
Check Soil Capacities:						Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):		2560.08	<	Allowable Factored Soil Bearing (psf):	9000	0.28	OK!
Allowable Foundation Overturning Resistance (kips-ft.):		11076.7	>	Design Factored Momont (kips-ft):	7004	0.63	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):		1.58	OK!				
Check the capacities of Reinforceing Concrete:							
Strength reduction factor (Flexure and axial tension):		0.90	Strength reduction factor (Shear):		0.75		
Strength reduction factor (Axial compresion):		0.65	Wind Load Factor on Concrete Design:		1.00		
(1) Concrete Pier:						Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):		#N/A		Tie / Stirrup Area (sq. in./each):	#N/A		
Calculated Moment Capacity (Mn,Kips-Ft):		#N/A	#N/A	Design Factored Moment (Mu, Kips-Ft)	0.2	#N/A	###
Calculated Shear Capacity (Kips):		#DIV/0!	#####	Design Factored Shear (Kips):	38.8	#DIV/0!	###
Calculated Tension Capacity (Tn, Kips):		#N/A	#N/A	Design Factored Tension (Tu Kips):	336.4	#N/A	###
Calculated Compression Capacity (Pn, Kips):		#N/A	#N/A	Design Factored Axial Load (Pu Kips):	380.6	#N/A	###
Moment & Tension Strength Combination:		#N/A	#N/A	Check Tie Spacing (Design/Req'd):	#DIV/0!		
Pier Reinforcement Ratio:		#N/A		#N/A			
(2).Concrete Pad:							
One-Way Design Shear Capacity (L or W Direction, Kips):		2241.3	>	One-Way Factored Shear (L/W-Dir Kips	388.3	0.17	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):		1677.6	>	One-Way Factored Shear (Dia. Dir, Kips	340.1	0.20	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):		0.0011		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0009		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):		7042.9	>	Moment at Bottom (L-Direct. K-Ft):	3478.1	0.49	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):		6976.9	>	Moment at Bottom (Dia. Dir. K-Ft):	2597.5	0.37	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):		0.0011		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0009		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):		7042.9	>	Moment at the top (L-Dir Kips-Ft):	1842.4	0.26	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):		6976.9	>	Moment at the top (Dia. Dir., K-Ft):	963.2	0.14	OK!
Punching Failure Capacity (Kips):		2176.4	>	Punch. Failure Factored Shear (K):	380.6	0.17	OK!

EXHIBIT 9

Antenna Mount Analysis

January 24, 2023

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

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

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBOS00052A
	Site Name:	SBA - Stone Hill Road
SBA Network Services Designation:	**Site Number:**	CT10024-A-04
	Site Name:	Voluntown
	Application Number:	178862, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149456.003.01
Site Data:	**111 Stone Hill Road, Voluntown, CT, 06384, New London County** **Latitude *41.60641*°, Longitude *-71.85113*°** **Self-Support Tower** **(3) 8 ft. Sector Mount**	

Dear Ms. 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 Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 41.5%)**

This analysis utilizes an ultimate 3-second gust wind speed of 125 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: Erika Ruiz

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

1-24-22

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The appurtenance mount consists of Commscope sector mounts, (Part# MTC3975083) at 143 ft., attached to self-support tower at 111 Stone Hill Road, Voluntown, CT, 06384, New London 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 125 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C & Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector mounts 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	143	1	3	Commscope FFVV-65B-R2	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 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
SBA Application	Proposed Loading Mount Info	Date: 12/08/2021	SBA Network Services, LLC.
RFDS		Date: 10/25/2021	

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 areas 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

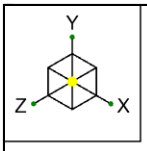
Table 3 – Mount Component Stresses vs. Capacity

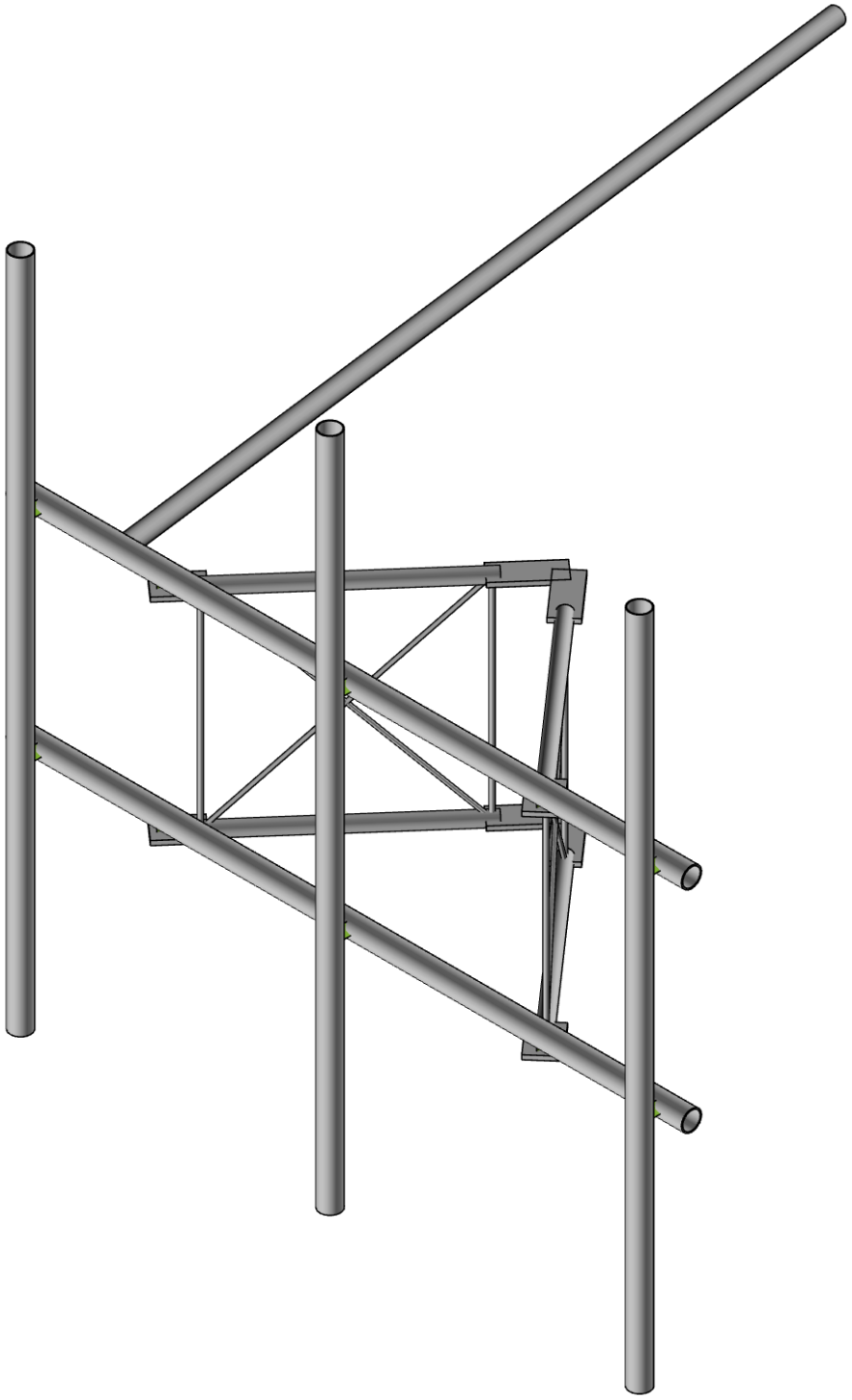
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	143	18.5	Pass
-	Support Arms	143	29.7	Pass
-	Diagonals	143	30.1	Pass
-	Connection Plates	143	24.5	Pass
-	Verticals	143	41.5	Pass
-	Tieback	143	13.6	Pass
-	Mount Pipes	143	20.5	Pass
-	Connection Bolts	-	33.6	Pass

5) RECOMMENDATIONS

The Commscope sector mounts, (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).

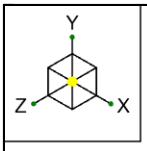
APPENDIX A
(RISA-3D Output)

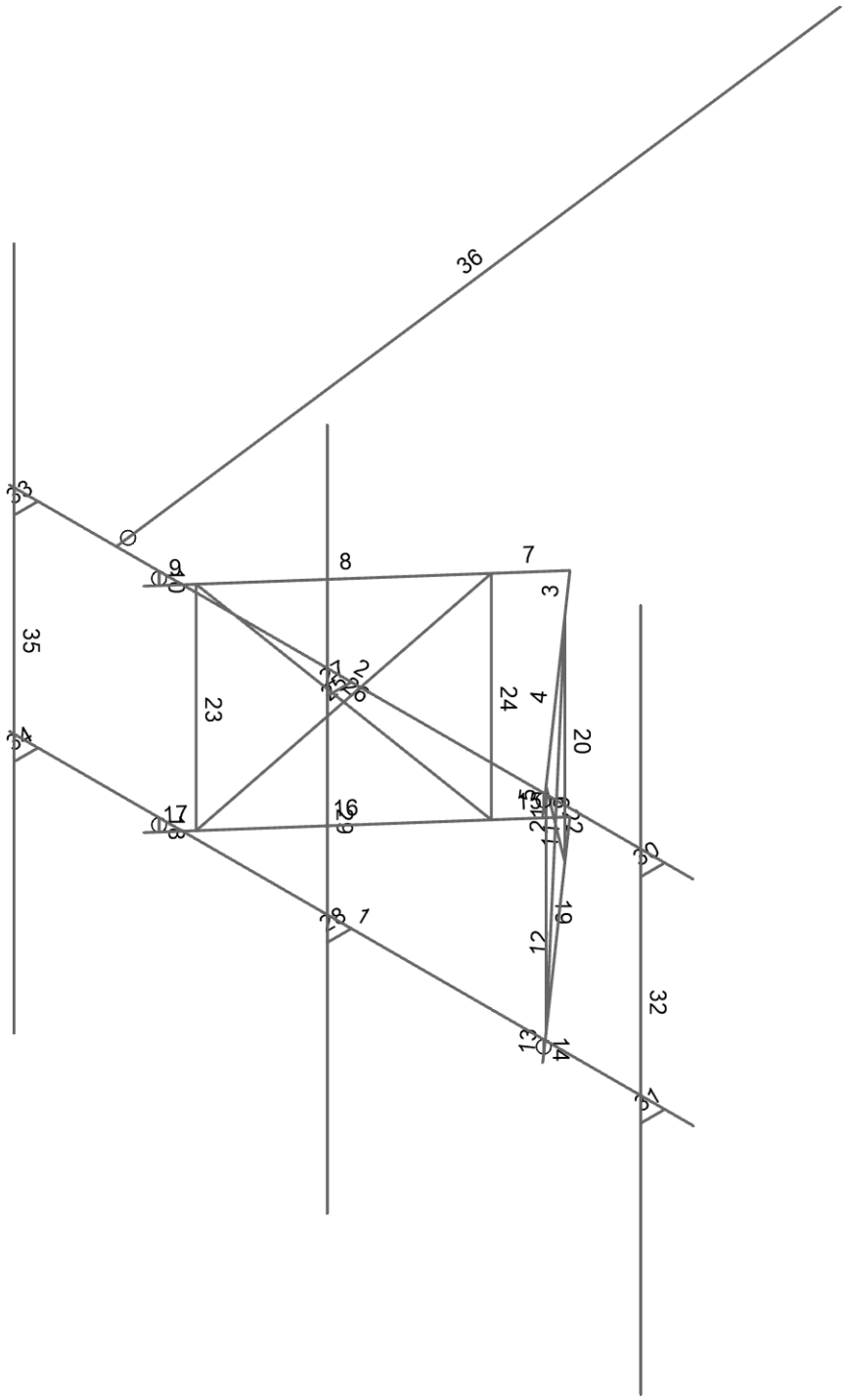




Envelope Only Solution

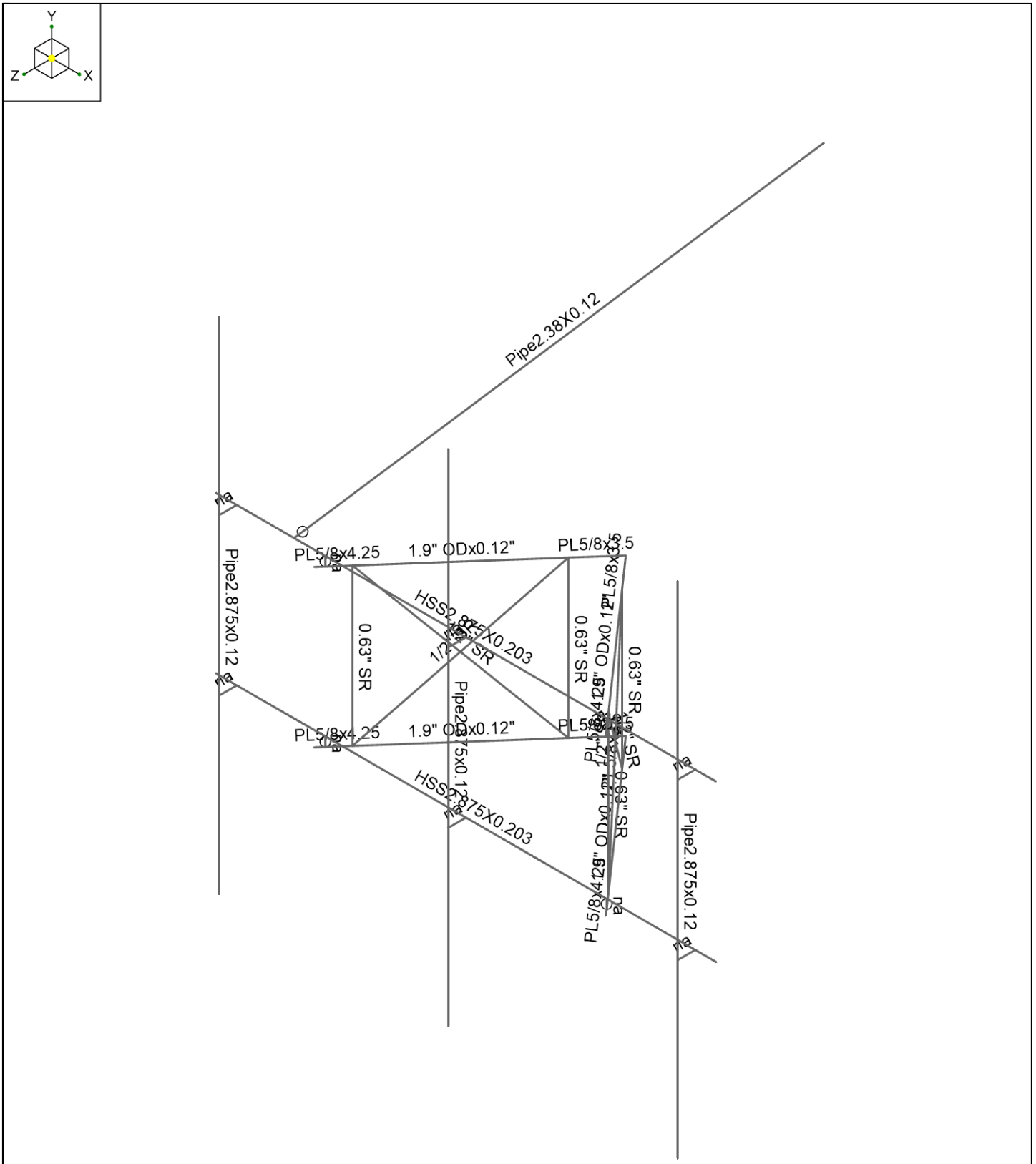
B+T Group	CT10024-A-04 - Voluntown	SK-1
MP		Jan 13, 2022
149456.003.01		149456_003_01_Voluntown_CT.r3d





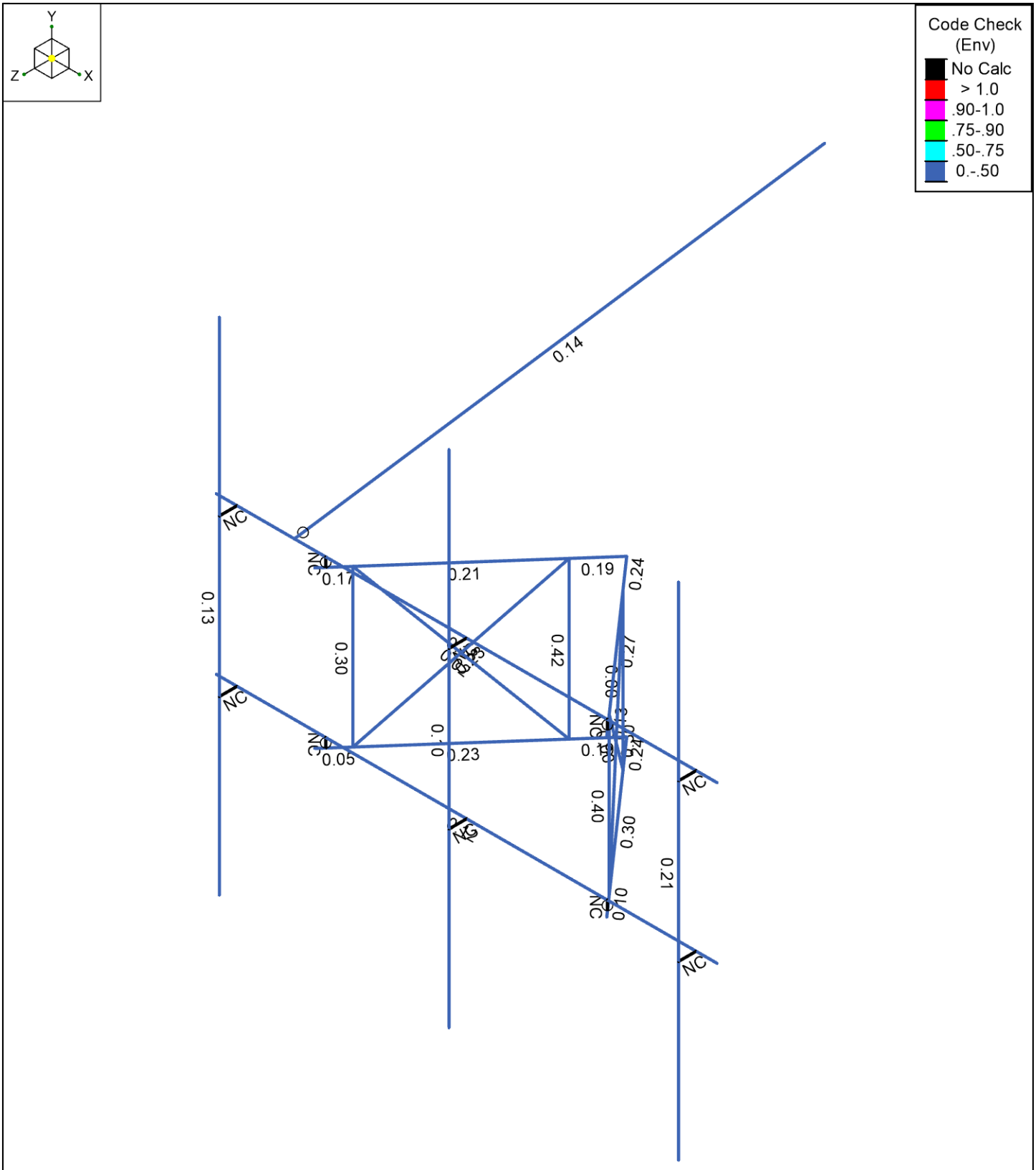
Envelope Only Solution

B+T Group	CT10024-A-04 - Voluntown	SK-2
MP		Jan 13, 2022
149456.003.01		149456_003_01_Voluntown_CT.r3d



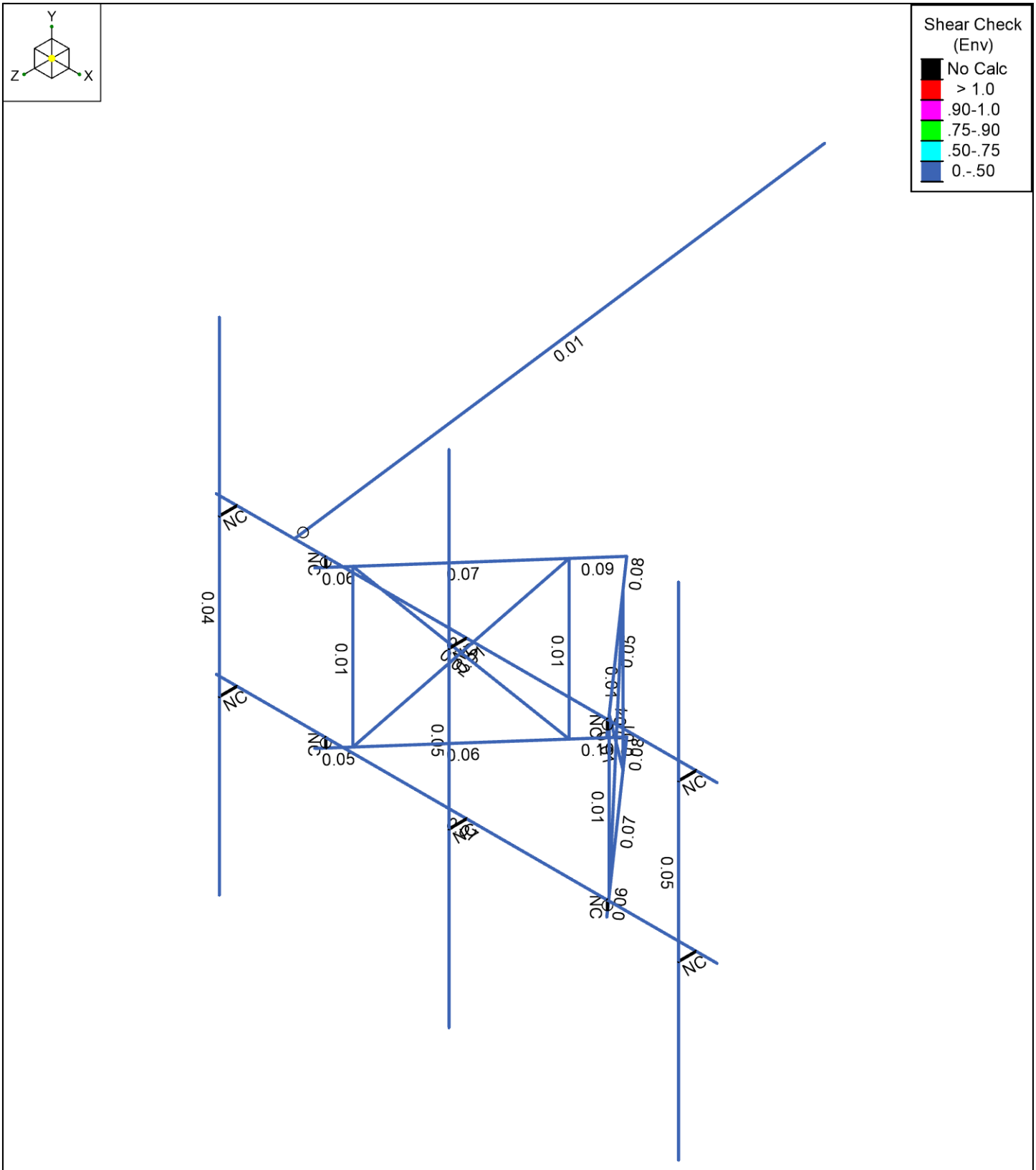
Envelope Only Solution

B+T Group	CT10024-A-04 - Voluntown	SK-3
MP		Jan 13, 2022
149456.003.01		149456_003_01_Voluntown_CT.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT10024-A-04 - Voluntown	SK-4
MP		Jan 13, 2022
149456.003.01		149456_003_01_Voluntown_CT.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

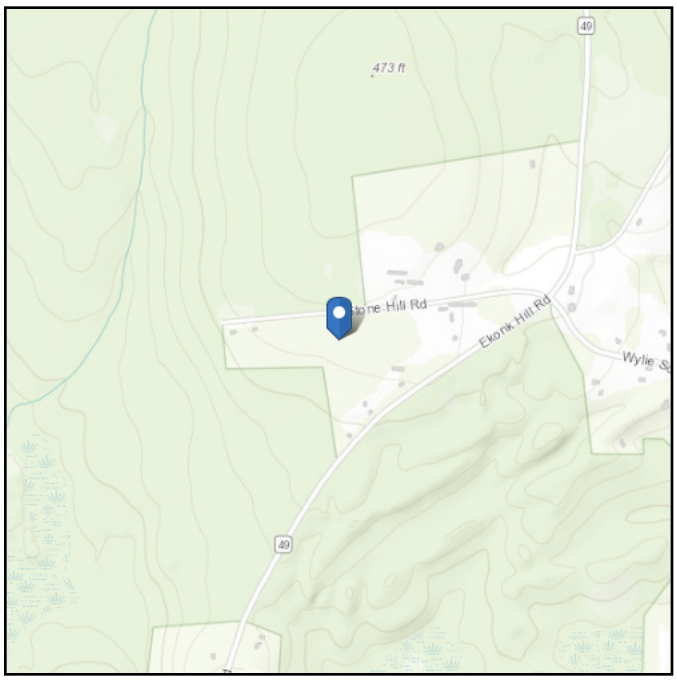
B+T Group	CT10024-A-04 - Voluntown	SK-5
MP		Jan 13, 2022
149456.003.01		149456_003_01_Voluntown_CT.r3d

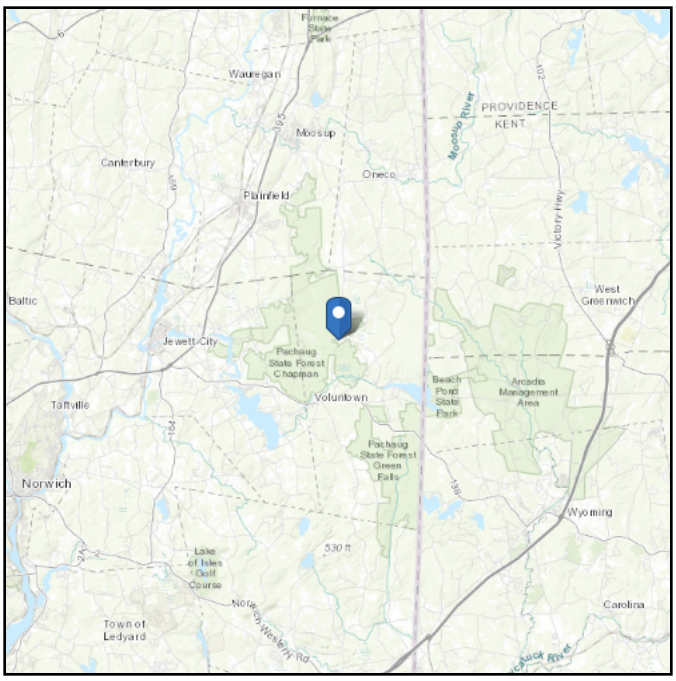
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 428.85 ft (NAVD 88)
Latitude: 41.606411
Longitude: -71.851133





Wind

Results:

Wind Speed	125 Vmph
10-year MRI	75 Vmph
25-year MRI	86 Vmph
50-year MRI	98 Vmph
100-year MRI	103 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.

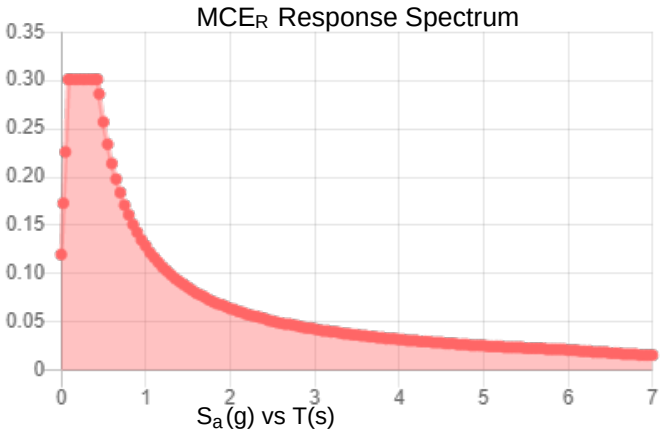
Seismic

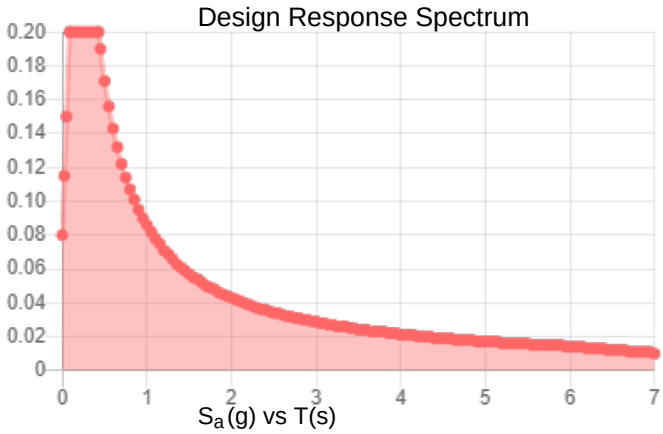
Site Soil Class: D - Default (see Section 11.4.3)

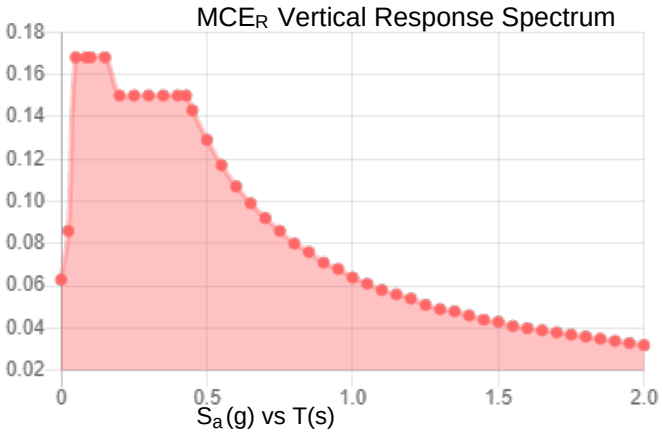
Results:

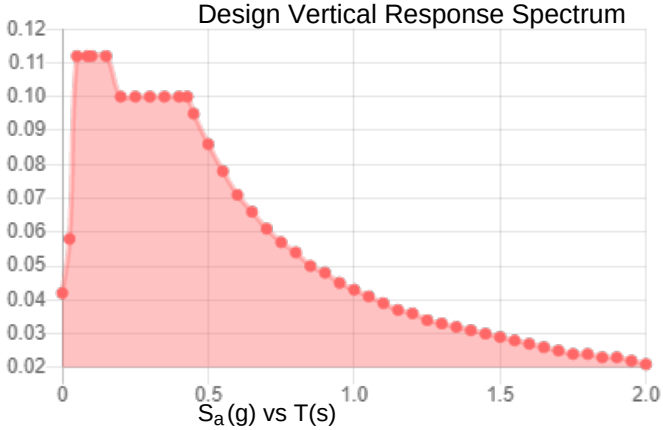
S_S :	0.188	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.301	F_{PGA} :	1.595
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.2	C_v :	0.7

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	**149456.003.01 - Voluntown,**		**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	:	429	ft	[ASCE7 Hazard Tool]
Tower Height		:	180.00	ft	
Mount Elevation		:	143.00	ft	
Antenna Elevation		:	143.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	125	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	:	0.19		
	S_1	:	0.05		
	S_{DS}	:	0.20		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.36		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.98		[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}	:	1.16	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.100		[Sec. 2.7.7.1]
Amplification	A_s	:	2.177778		[Sec. 16.7]
	q_z	:	51.06	psf	

PROJECT	**149456.003.01 - Voluntown,**		**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

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)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
Commscope	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.66	2.61	0.28	0.11	0.05	0.02
Commscope	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.66	2.61	0.28	0.11	0.05	0.02
Fujitsu	TA08025-B605	1	1.05	1.20	1.64	0.99	2.17	1.43	0.09	0.05	0.01	0.01
Fujitsu	TA08025-B604	1	1.05	1.20	1.64	0.86	2.17	1.28	0.09	0.05	0.01	0.01
Raycap	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.94	2.21	1.37	0.09	0.05	0.01	0.01

APPENDIX B
(Additional Calculations)

PROJECT	**149456.003.01 - Voluntown, CT**				**KSC**
SUBJECT	**Sector Mount Analysis**				
DATE	**01/13/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.378	k
Vertical Shear	:	0.663	k
Horizontal Shear	:	1.457	k
Torsion	:	0	k.ft
Moment from Horizontal Forces	:	0	k.ft
Moment from Vertical Forces	:	0	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	2	bolts

Summary of Forces

Shear Resultant Force	:	1.60	k
Force from Horz. Moment	:	0.00	k
Force from Vert. Moment	:	0.00	k
Shear Load / Bolt	:	0.80	k
Tension Load / Bolt	:	0.69	k
Resultant from Moments / Bolt	:	0.00	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**6.65%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**26.95%**		**OKAY**
Unity Check, Combined	:	**33.60%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**2.31%**		**OKAY**

EXHIBIT 10

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBOS00052A

DISH Wireless L.L.C. SITE ADDRESS:

111 STONE HILL ROAD
VOLUNTOWN, CT 06384

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	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (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 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 PHOTO

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	THOMAS & PATRICIA SWEET
ADDRESS:	497 EKONK HILL RD VOLUNTOWN, CT 06384
TOWER TYPE:	SELF-SUPPORT TOWER
TOWER CO SITE ID:	CT10024-A
TOWER APP NUMBER:	178862
COUNTY:	NEW LONDON
LATITUDE (NAD 83):	41° 36' 23.1" N 41.606411
LONGITUDE (NAD 83):	71° 51' 04.1" W -71.851133
ZONING JURISDICTION:	NEW LONDON COUNTY
ZONING DISTRICT:	R
PARCEL NUMBER:	CT-147-043/005-00/0497
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	JEAN COTTRELL jean.cottrell@dish.com
CONST. MANAGER:	CHAD WILCOX chad.wilcox@dish.com
RF ENGINEER:	DIPESH PARIKH dipesh.parikh@dish.com

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

GET ON BRADLEY INTERNATIONAL AIRPORT CON IN EAST GRANBY FROM BRADLEY INTERNATIONAL AIRPORT TAKE I-91 S, CT-2 E AND I-395 N TO GRISWOLD EXPY IN GRISWOLD. TAKE EXIT 22 FROM I-395 N FOLLOW CT-138 E AND CT-49 N TO STONE HL RD IN VOLUNTOWN. ARRIVE AT BOBOS00052A.

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 WILCOX
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NA	RMC	BEH

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

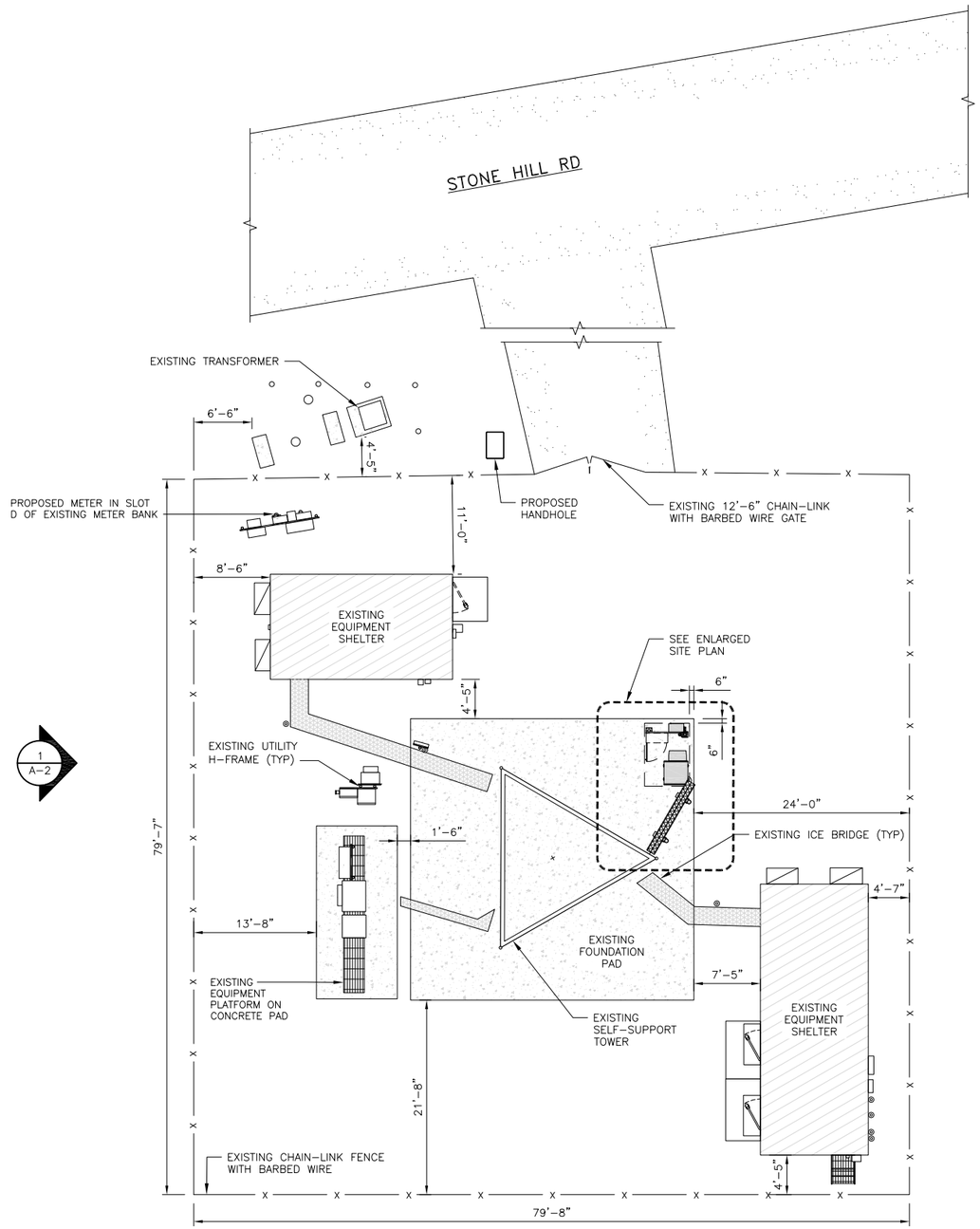
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



1
A-2

N

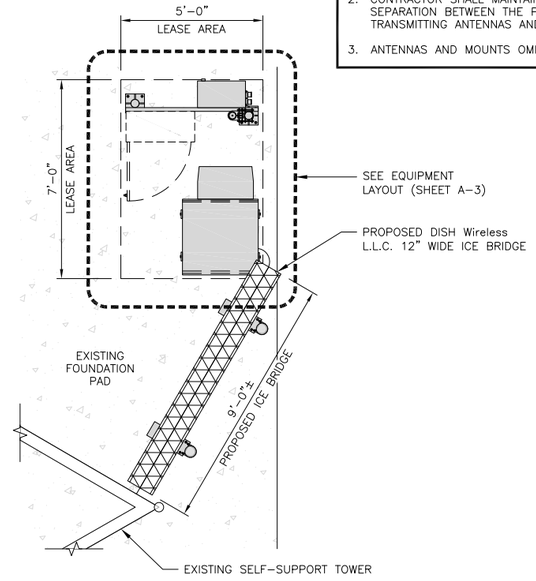
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=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.



N

ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2

NOT USED

NO SCALE

3

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 E. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NA	RMC	BEH

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

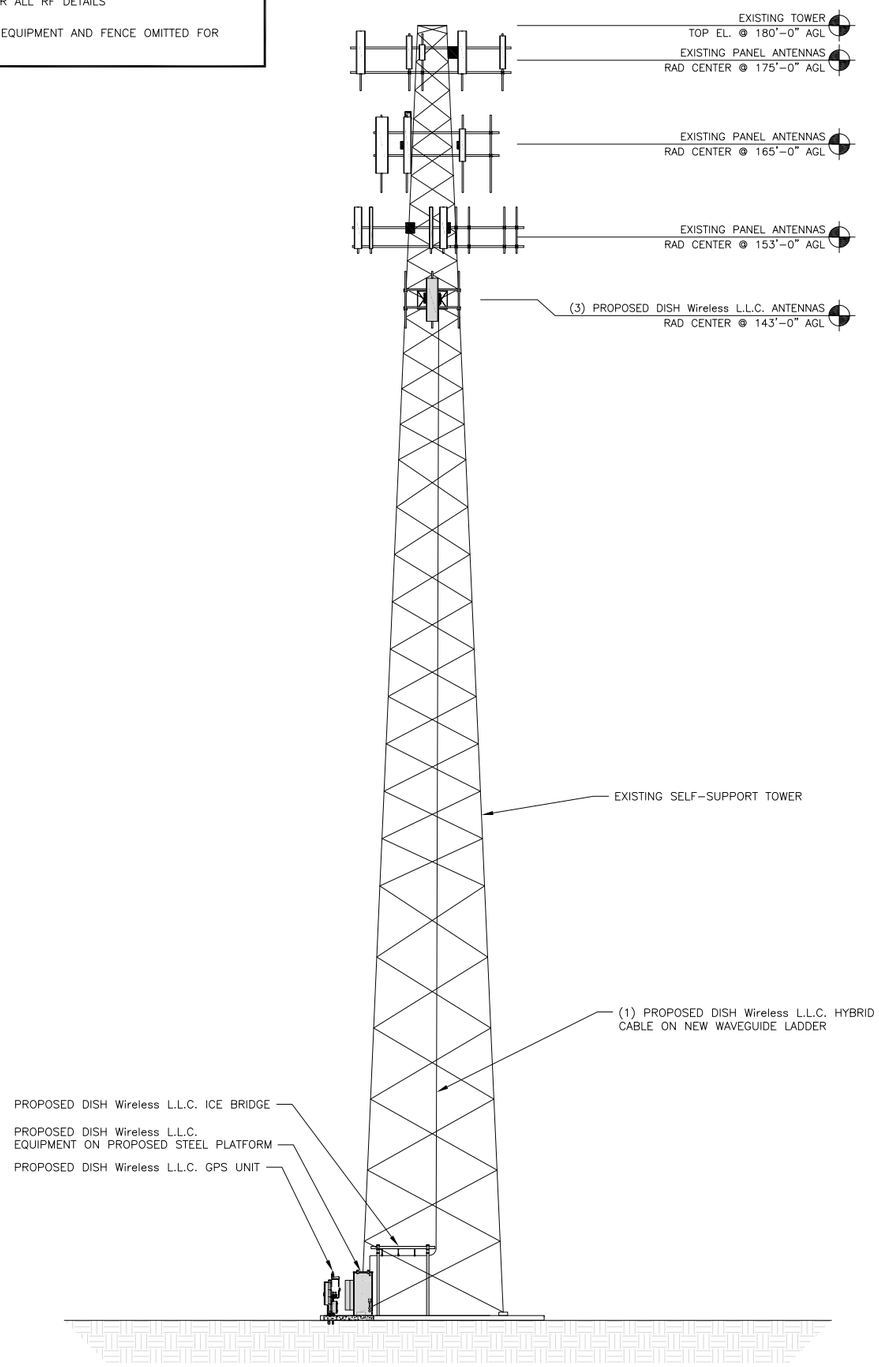
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

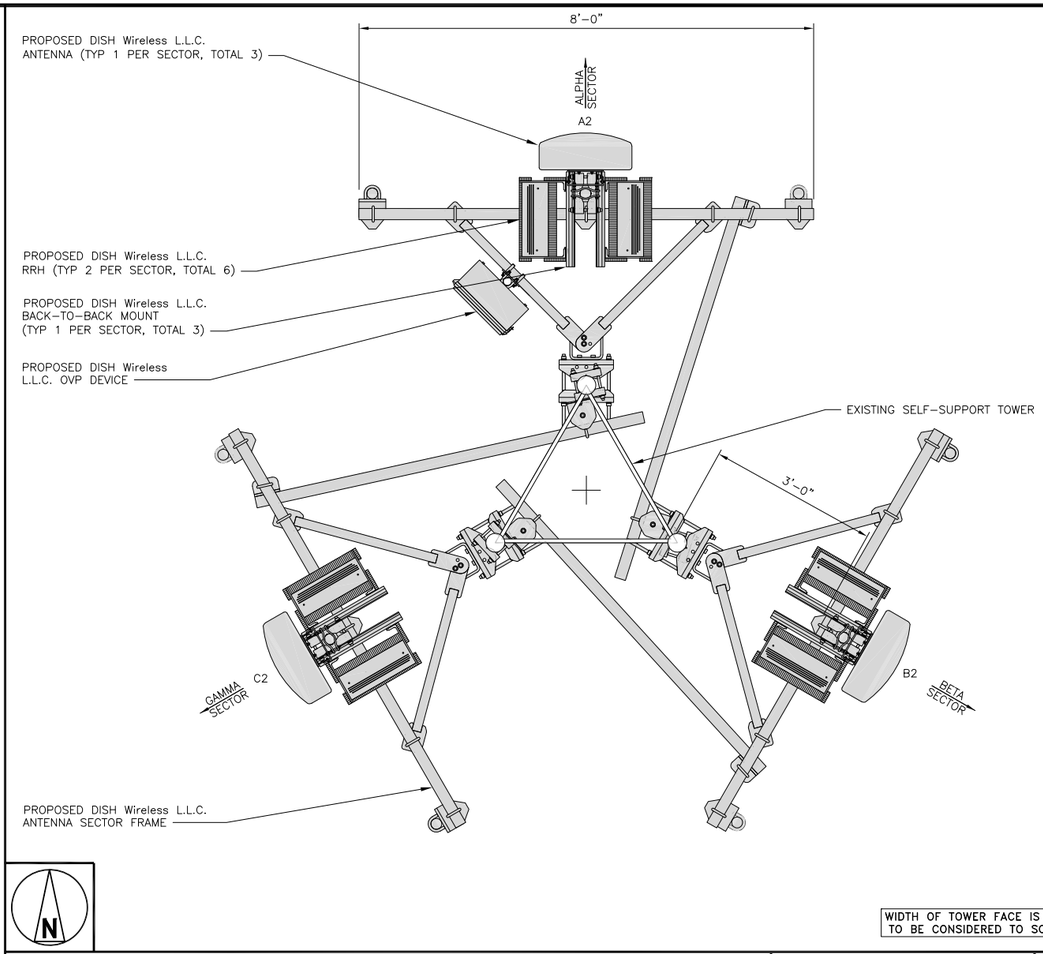
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

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

1



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 (175' LONG)	FUJITSU – TA08025-B604	5G	A2	(1) RAYCAP RDIDC-9181-PF-48
A2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	0°	143'-0"		FUJITSU – TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	120°	143'-0"		FUJITSU – TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	240°	143'-0"		FUJITSU – TA08025-B605	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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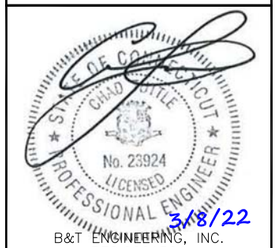

3/8/22

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PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NA	RMC	BEH

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

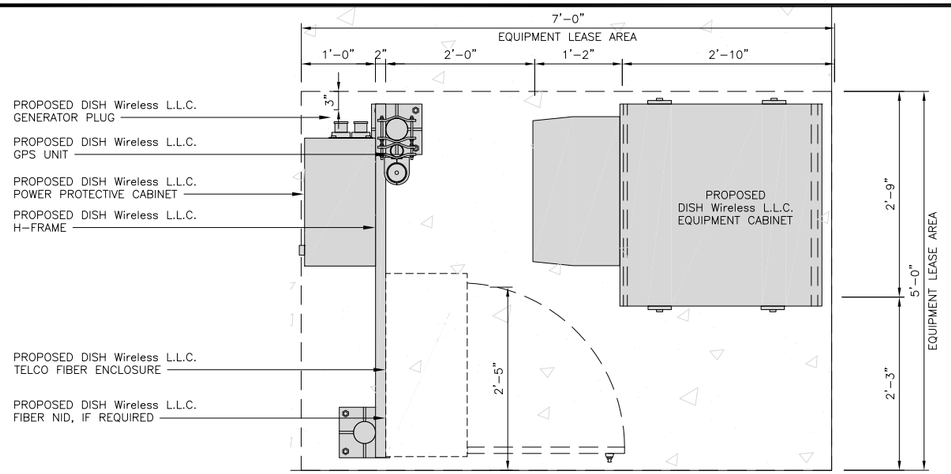
BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2

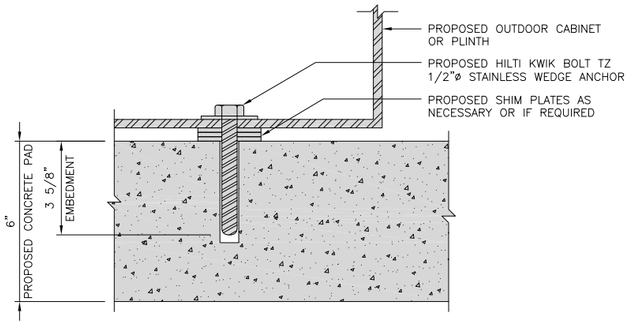


PAD EQUIPMENT PLAN

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

1

NOT USED

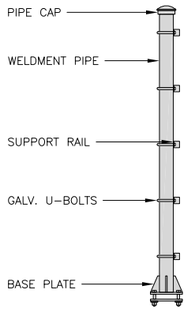


TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE

NO SCALE

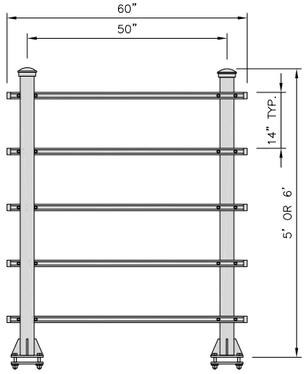
2

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



SIDE

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



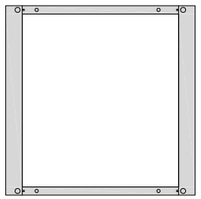
FRONT

H-FRAME DETAIL

NO SCALE

3

CHARLES INDUSTRY LT-97-002422 PLINTH KIT	
DIMENSIONS (HxWxD):	6"x 32"x 32"
NOTE: GASKET AND MOUNTING HARDWARE INCLUDED	



PLAN

FRONT/BACK

SIDE

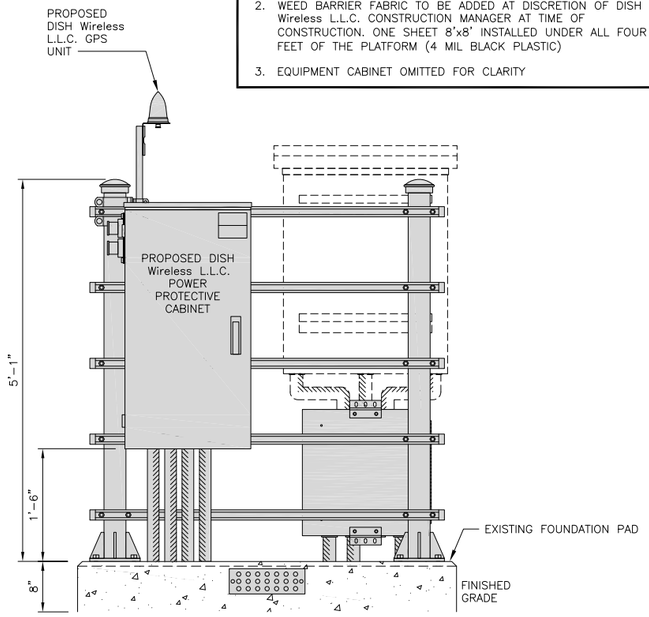
PLINTH DETAIL

NO SCALE

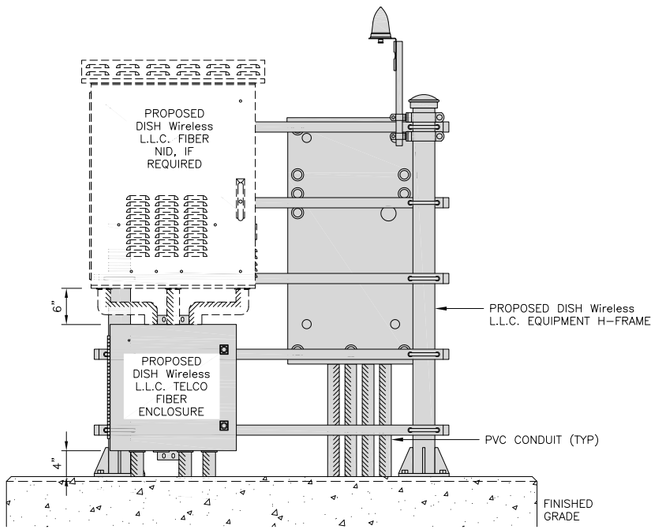
4

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

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

H-FRAME EQUIPMENT ELEVATION

5

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No. 23924
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PROFESSIONAL ENGINEER
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RFDS REV #: 2

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149456.001.01

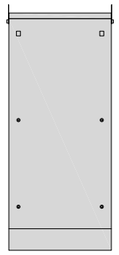
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE
EQUIPMENT PAD AND H-FRAME DETAILS

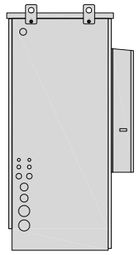
SHEET NUMBER
A-3

CHARLES INDUSTRY HVAC CUBE–PM63915IN4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	383 lbs

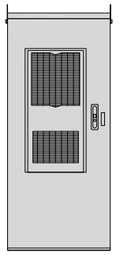
PLAN



BACK



SIDE

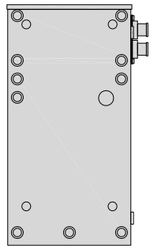


FRONT

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



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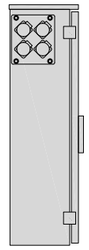

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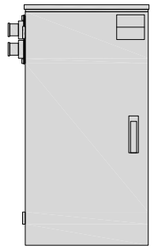

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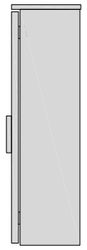


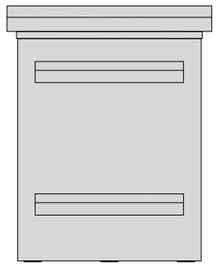
SIDE

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

NOT USED — NO SCALE — 3

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

BOTTOM



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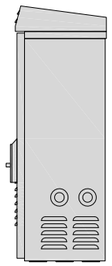

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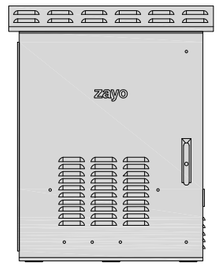
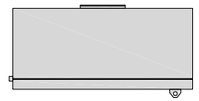


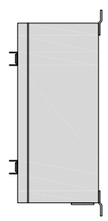
FRONT

FIBER NID ENCLOSURE DETAIL — NO SCALE — 5

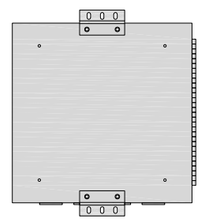
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT



SIDE



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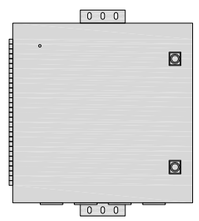


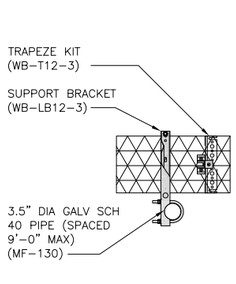
FRONT

FIBER TELCO ENCLOSURE DETAIL — NO SCALE — 6

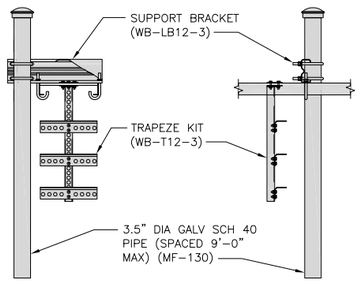
NOT USED — NO SCALE — 4

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"



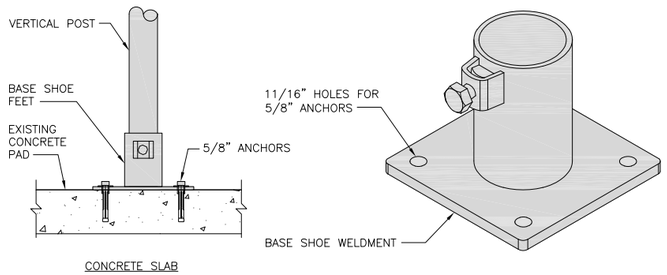
PLAN



FRONT SIDE

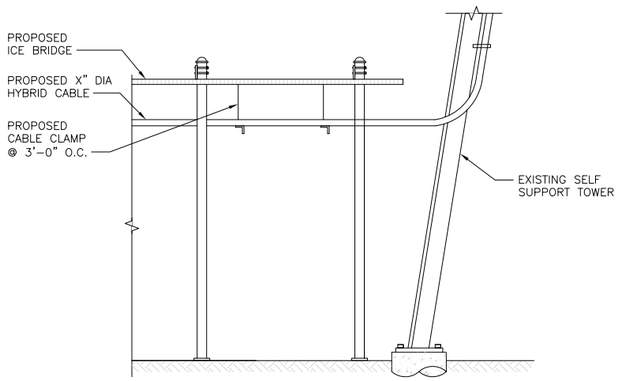
ICE BRIDGE DETAIL — NO SCALE — 7

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



CONCRETE SLAB

ICE BRIDGE PIPE MOUNT DETAIL — NO SCALE — 8



HYBRID CABLE RUN — NO SCALE — 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

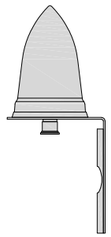
EQUIPMENT DETAILS

SHEET NUMBER

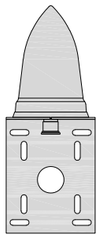
A-4

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

TOP

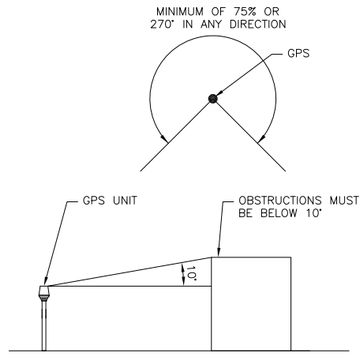


BACK

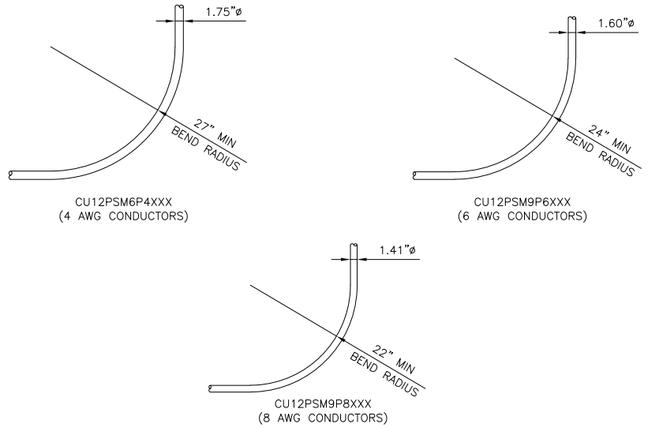


SIDE

GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION

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111 STONE HILL ROAD
VOLUNTOWN, CT 06384

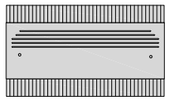
SHEET TITLE

EQUIPMENT DETAILS

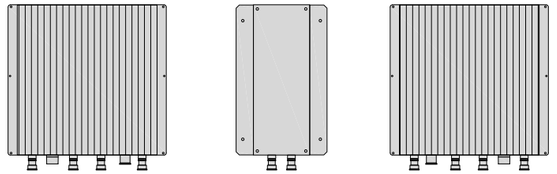
SHEET NUMBER

A-5

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



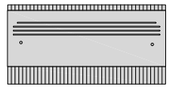
PLAN



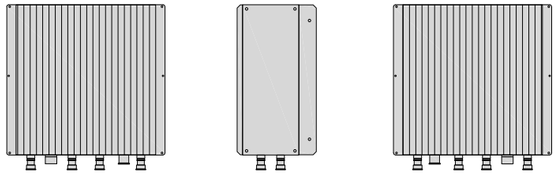
BACK SIDE FRONT

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



PLAN



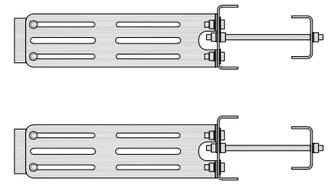
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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

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

PLAN



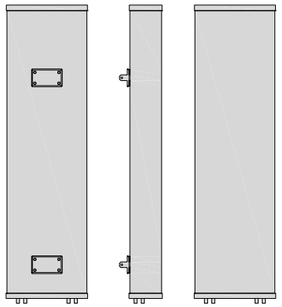
SIDE

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

RRH MOUNT DETAIL | NO SCALE | 3

COMMSCOPE FFVV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs

PLAN



BACK SIDE FRONT

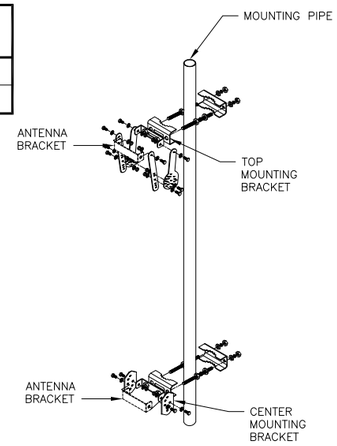
ANTENNA DETAIL | NO SCALE | 4

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:
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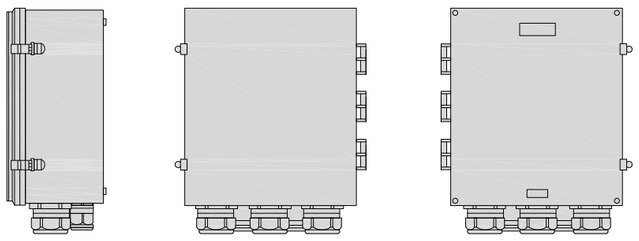
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

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

PLAN

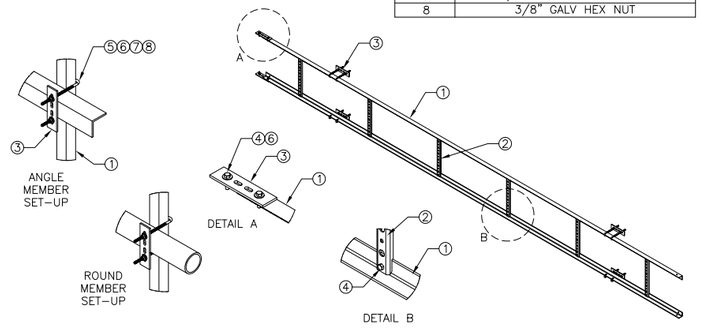


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE 20' CABLE LADDER 6 HOLE RUNGS	
DIMENSIONS (WxL)	20.5"x240"
WEIGHT	84.94 lbs

ITEM#	DESCRIPTION
1	20' ANGLE SIDE RAIL
2	20" LADDER RUNG
3	BACKING PLATE
4	3/8"x1-1/2" GALV BOLT KIT
5	8" GALV J-BOLT KIT
6	3/8" GALV FLAT WASHER
7	3/8" GALV LOCK WASHER
8	3/8" GALV HEX NUT



CABLE LADDER DETAIL | NO SCALE | 8

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

NOTE:
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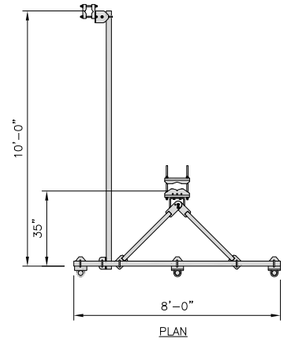
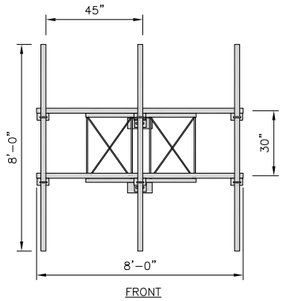
APPROVED EQUIVALENT



PLAN



FRONT

ANTENNA FRAME DETAIL | NO SCALE | 9

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STATE OF CONNECTICUT CHAD TUTTLE No. 23924 LICENSED PROFESSIONAL ENGINEER 3/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NA	RMC	BEH

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149456.001.01

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PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

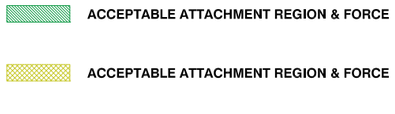
EQUIPMENT DETAILS

SHEET NUMBER

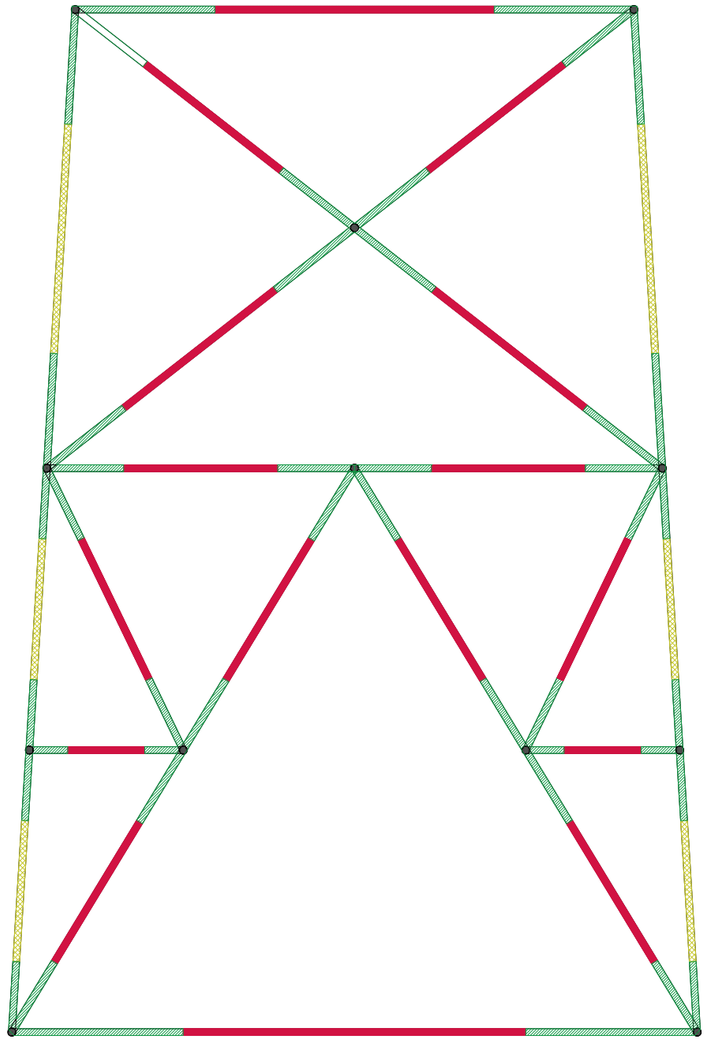
A-6

STIFF ARM LOCATION NOTES:

- TIE BACK SHALL BE CONNECTED PER MANUFACTURER SPECIFICATIONS. IF THE ANGLE OF ATTACHMENT DEVIATES FROM THE MANUFACTURER RANGES, A SITE SPECIFIC ANALYSIS THAT CONSIDERS THESE EFFECTS ON BOTH THE TOWER AND THE MOUNT WILL BE NEEDED.
- ACCEPTABLE STIFF ARM TO TOWER MEMBER ATTACHMENT LOCATIONS:
  - A) INTERIOR BRACING MEMBERS:
    -WITHIN 25% OF EITHER END OF THE MEMBER'S LENGTH.
  - B) TOWER LEGS:
    -WITHIN 25% OF EITHER END OF THE MEMBER'S LENGTH. IF ATTACHMENT IS NOT WITHIN 25% OF EITHER END OF THE MEMBERS LENGTH THEN ADJUST ATTACHMENT POINT TO MINIMIZE DISTANCE TO END OF MEMBER WHILE FOLLOWING MANUFACTURERS SPECIFICATIONS.



INTERIOR BRACING



TOWER SECTION

TOWER LEG

STIFF ARM LOCATIONS | NO SCALE | 1

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SHEET TITLE

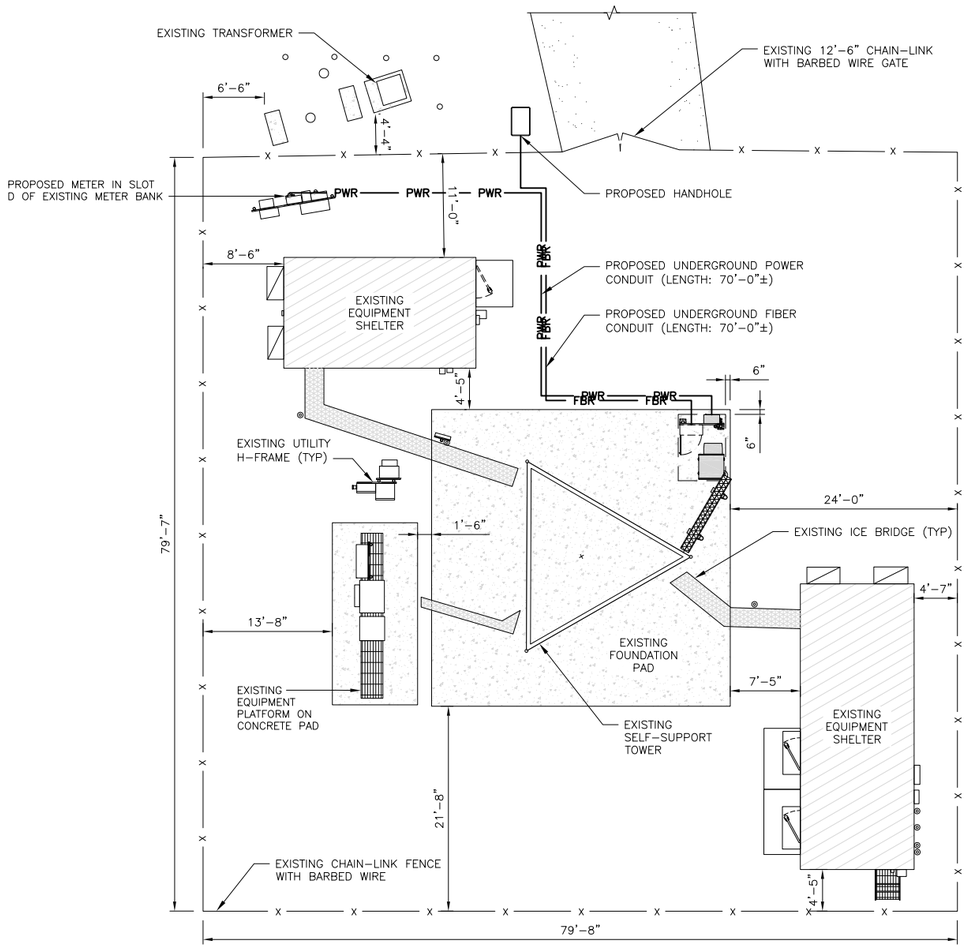
STIFF ARM
LOCATION DETAIL

SHEET NUMBER

A-7

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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PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

N

UTILITY ROUTE PLAN

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

1

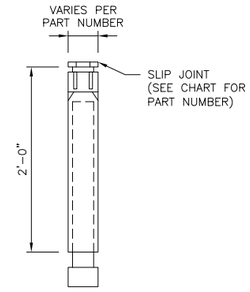
ELECTRICAL NOTES

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"

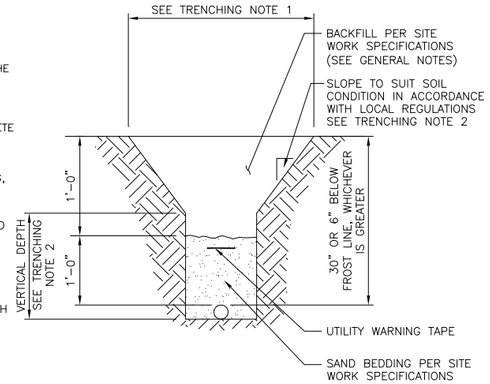


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

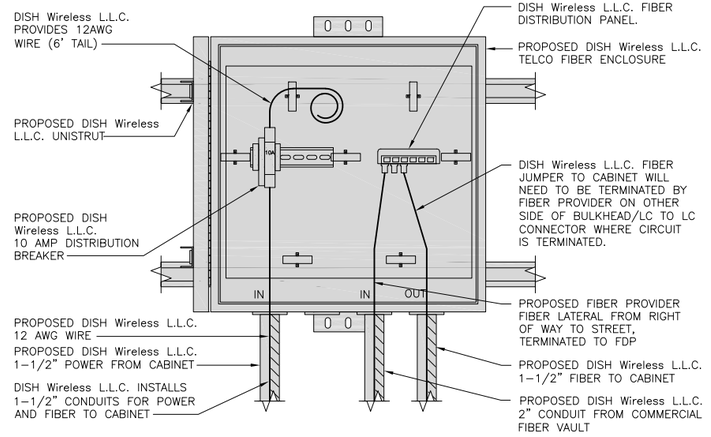
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

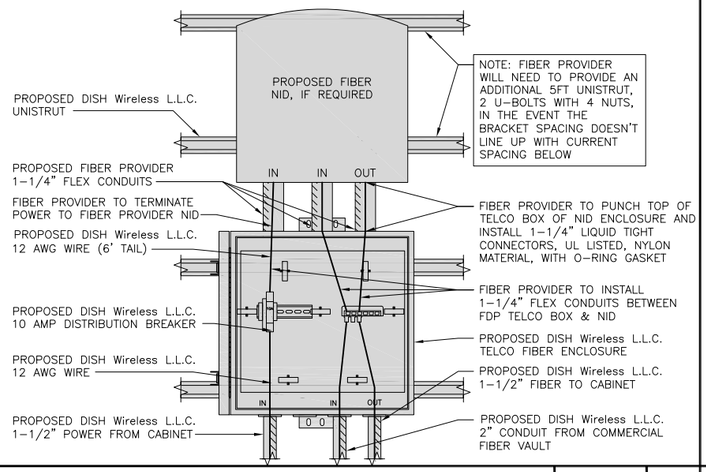
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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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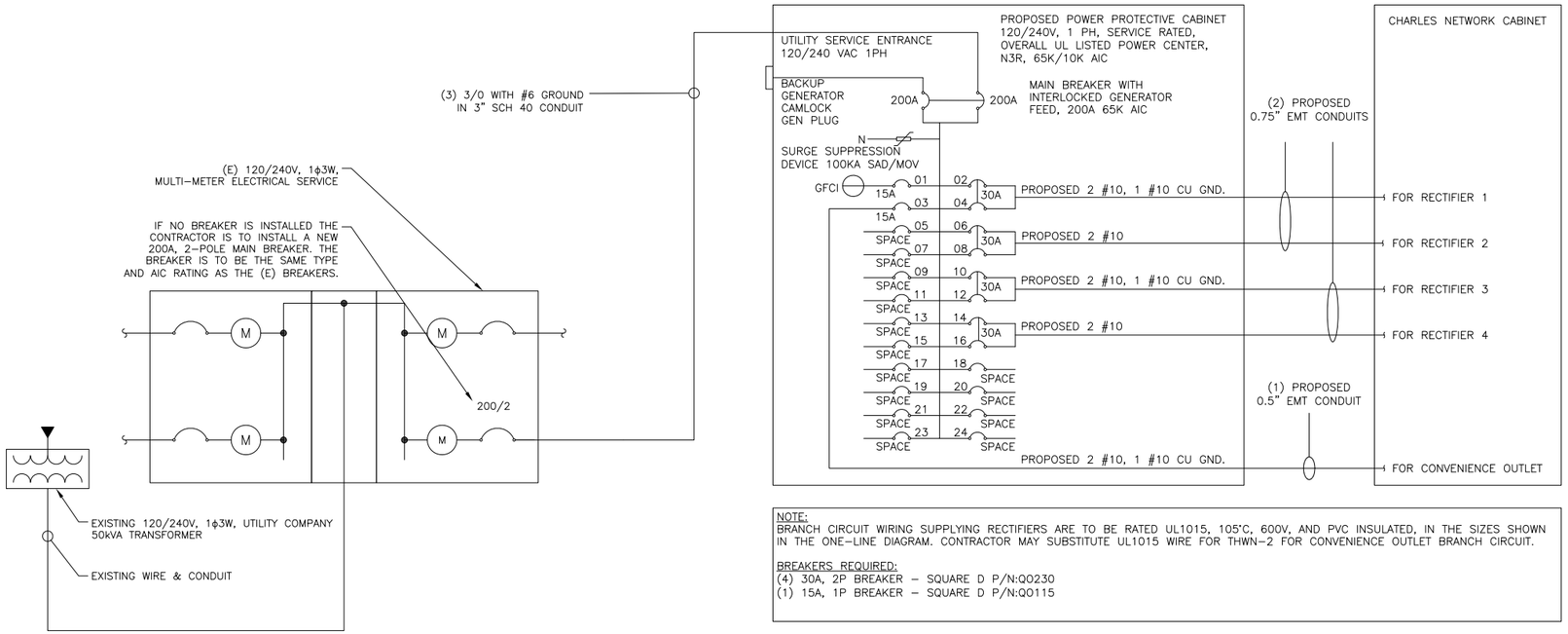
SHEET TITLE

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

NOTES

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

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

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

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

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

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

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

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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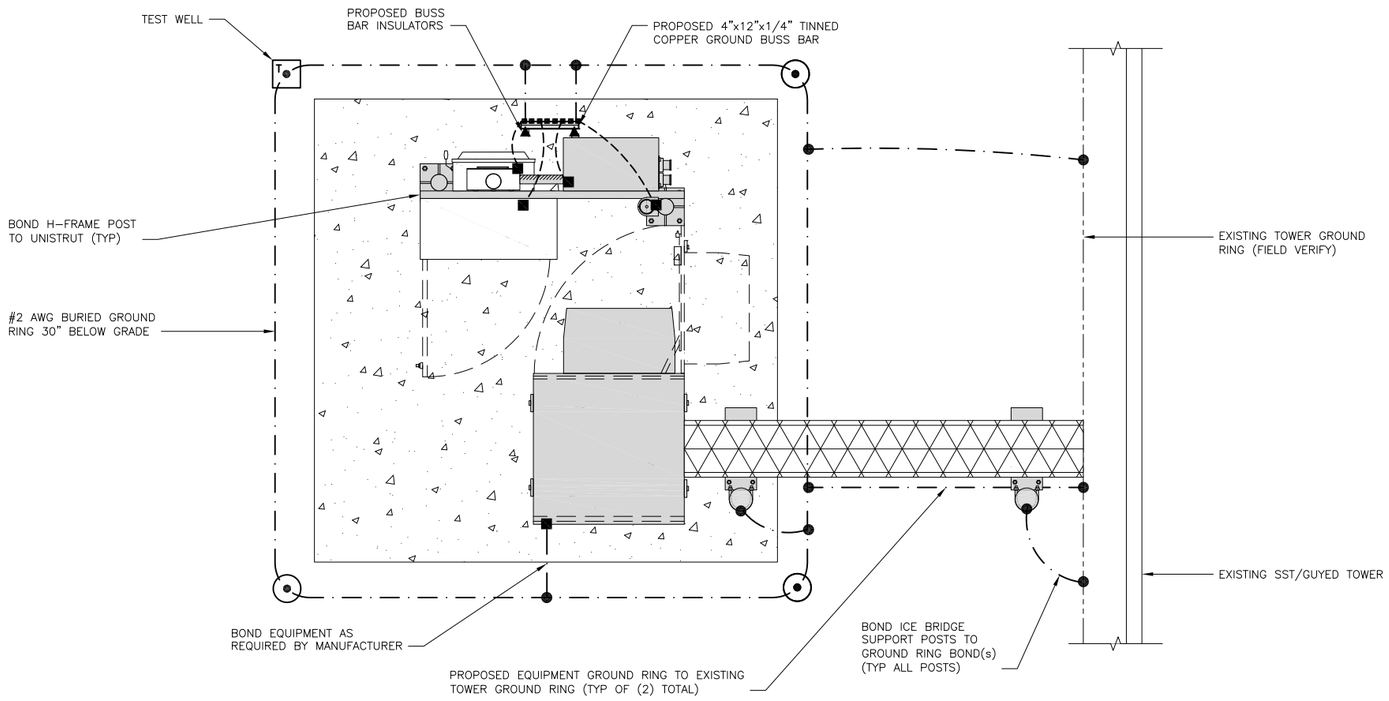
VOLUNTOWN, CT 06384

SHEET TITLE

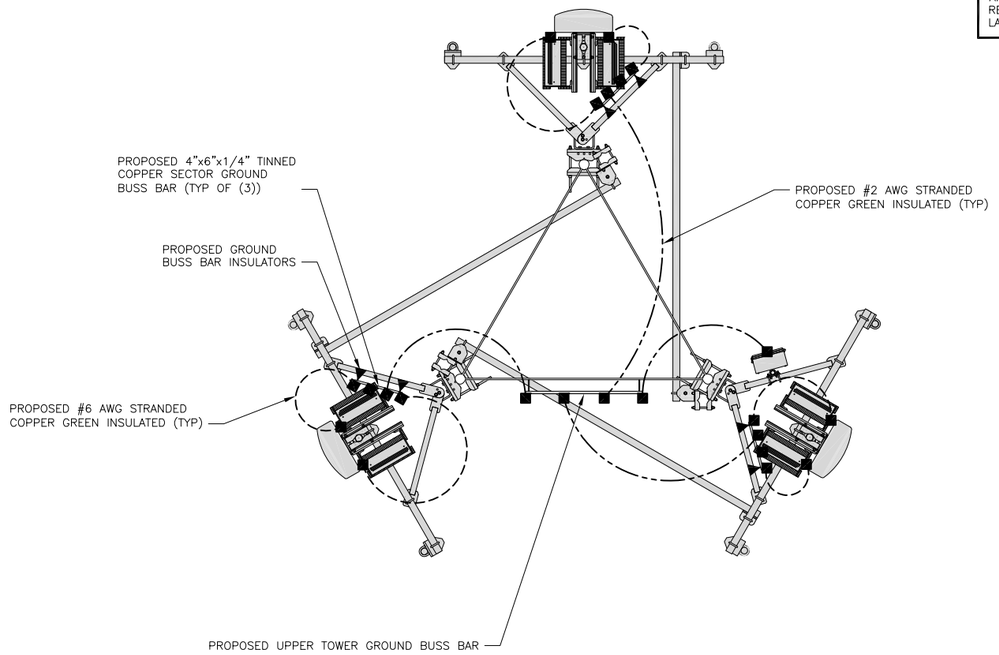
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER

E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

NOTES

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

- 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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No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/8/22

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PEC.0001564
Expires 2/10/23

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RFDS REV #: 2

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149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

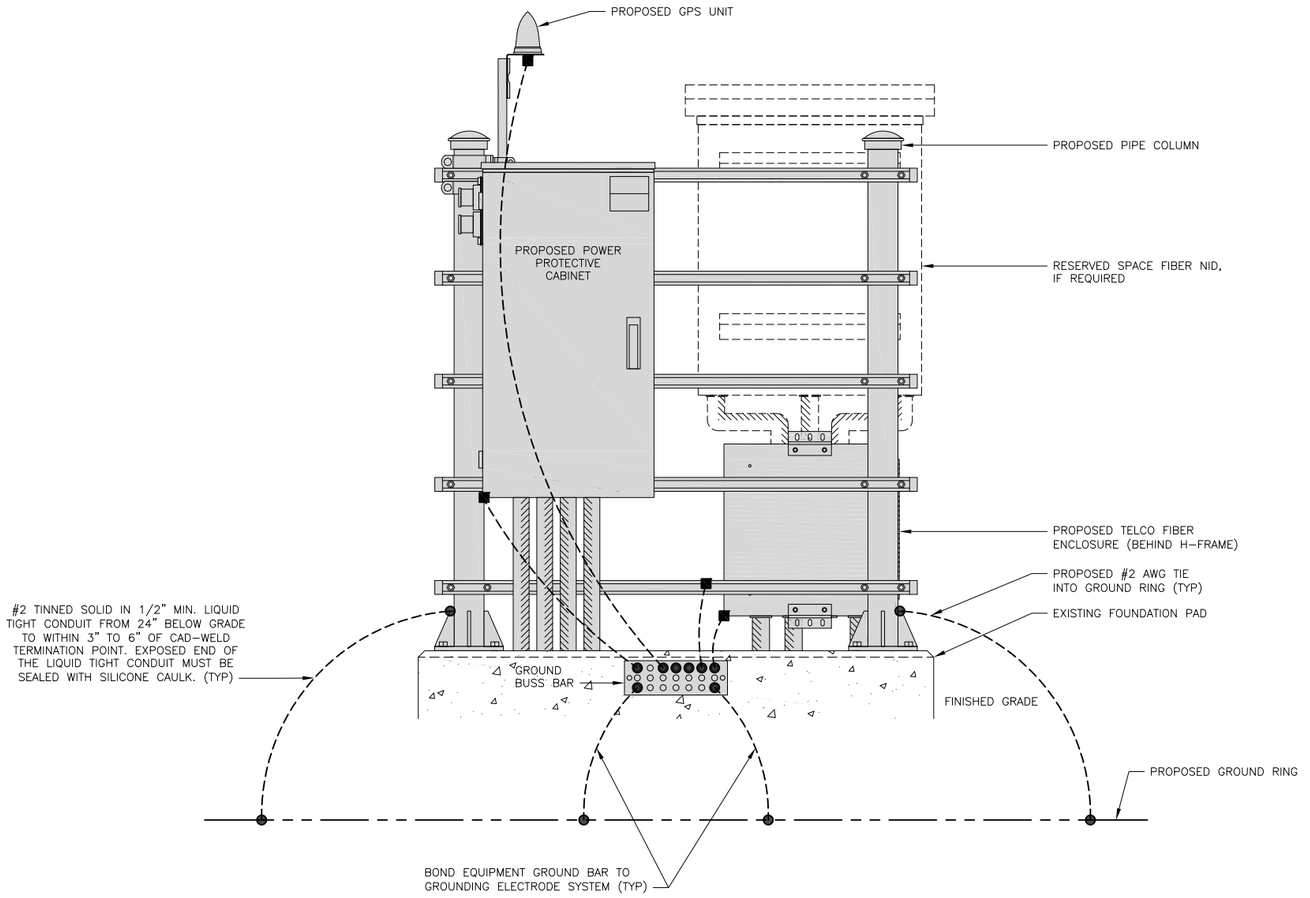
GROUNDING PLANS AND NOTES

SHEET NUMBER

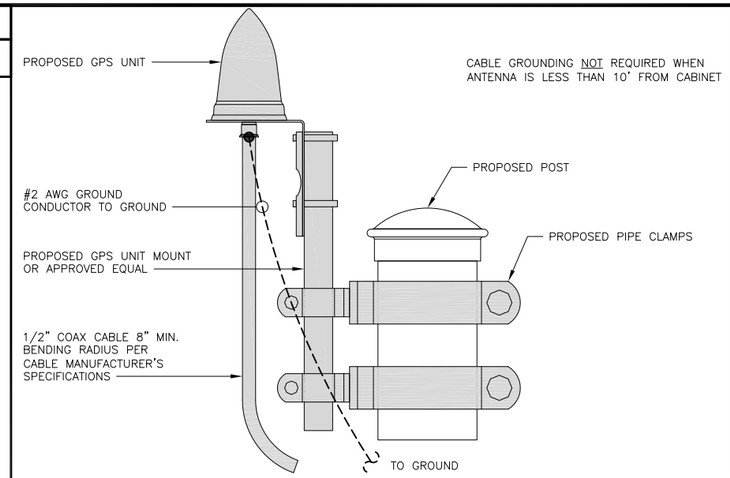
G-1

NOTES

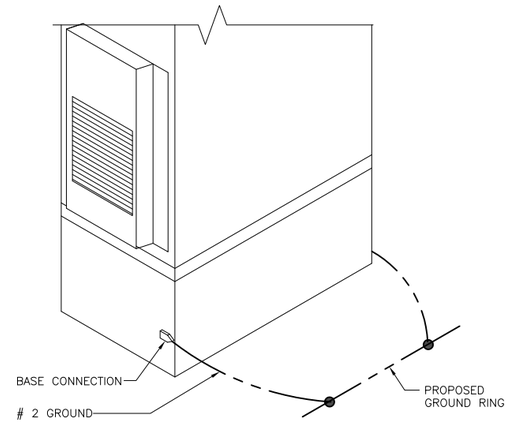
EQUIPMENT CABINET OMITTED FOR CLARITY



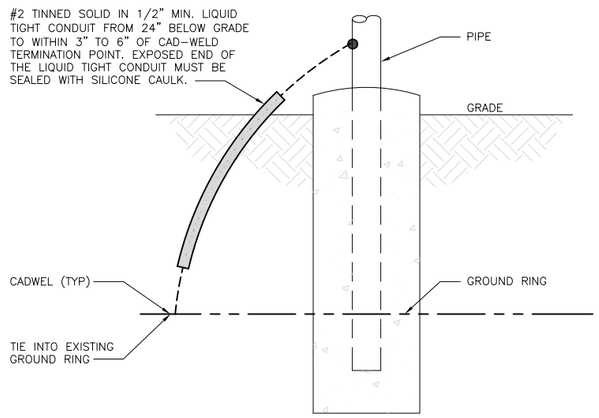
H-FRAME GROUNDING DETAIL | NO SCALE | 1



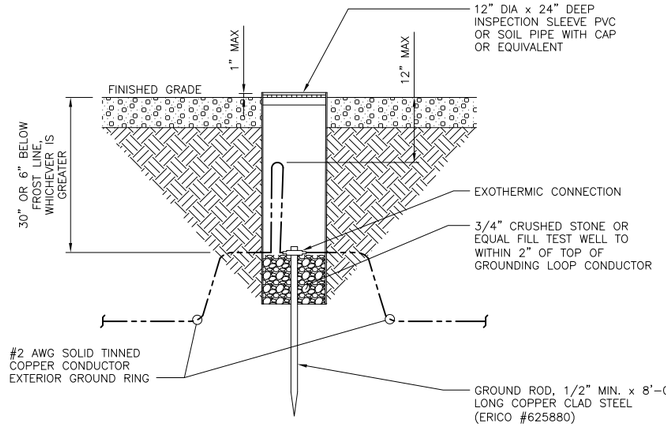
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



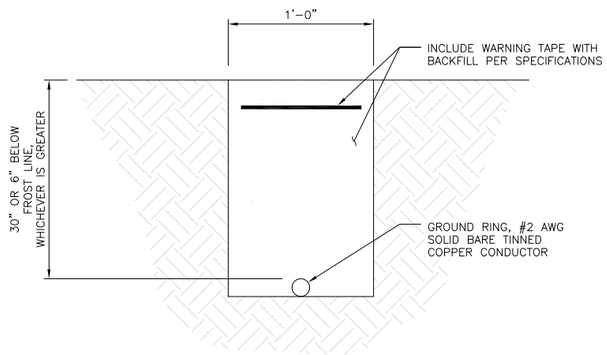
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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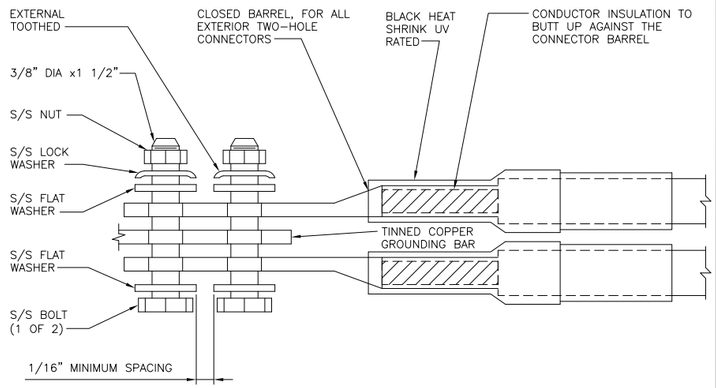
VOLUNTOWN, CT 06384

SHEET TITLE
GROUNDING DETAILS

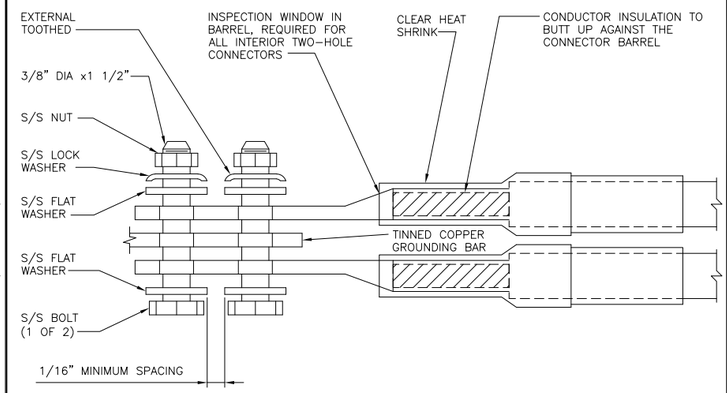
SHEET NUMBER
G-2

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).

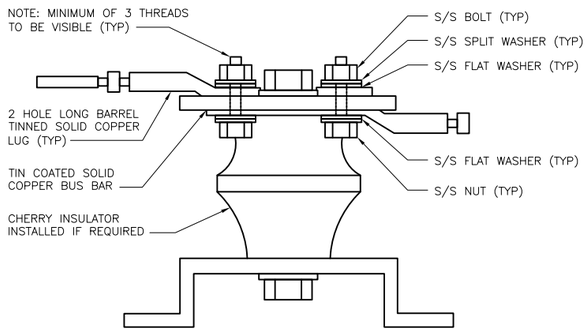
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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VOLUNTOWN, CT 06384

SHEET TITLE

GROUNDING DETAILS

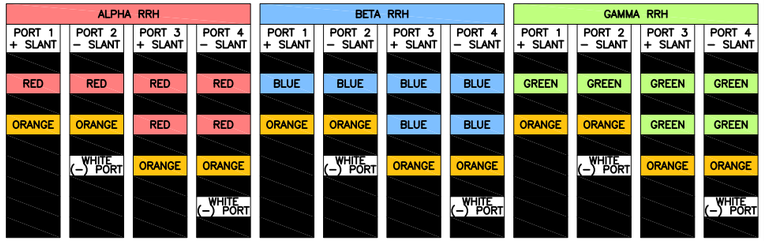
SHEET NUMBER

G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

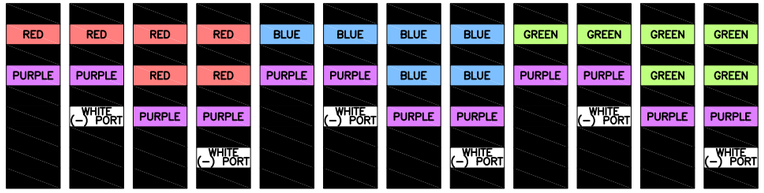
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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)



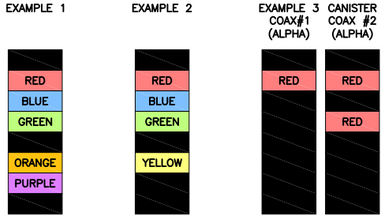
HYBRID/DISCREET CABLES

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.

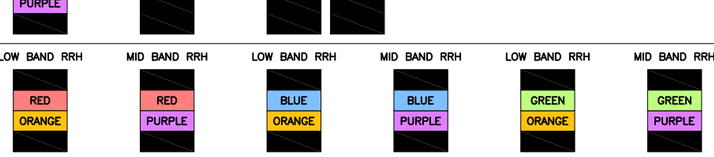
EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



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

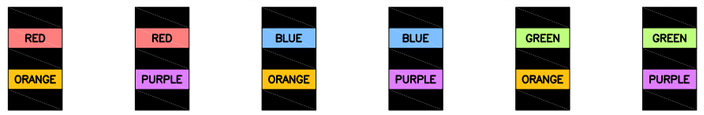
FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

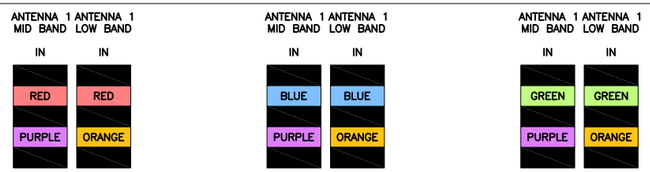
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

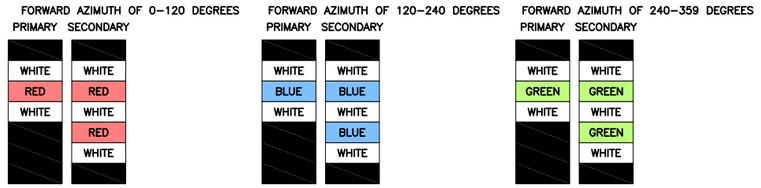
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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.



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

RF CABLE COLOR CODES | NO SCALE | 1

NOT USED | NO SCALE | 4

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PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

LEGEND

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

ABBREVIATIONS

dish wireless.

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STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/8/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NA	RMC	BEH

RFDS REV #: 2

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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149456.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00052A
111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.
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111 STONE HILL ROAD
VOLUNTOWN, CT 06384

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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NA	RMC	BEH

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CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	1/18/22	ISSUED FOR REVIEW
0	3/8/22	ISSUED FOR CONSTRUCTION

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PROJECT INFORMATION

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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

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