



Filed by:

G. Scott Shepherd, Sr. Property Specialist - SBA Communications  
134 Flanders Rd., Suite 125, Westborough, MA 01581  
508.251.0720 x 3807 - GShepherd@sbsite.com

March 8, 2022

Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Tower Share Application  
157 Chestnut Hill Rd., Stafford Springs, CT 06076  
Latitude: 41.977416  
Longitude: -72.383305  
Site# Dish BOBDL00112A

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 157 Chestnut Hill Rd., Stafford Springs, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 140-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, dated January 20, 2022 Exhibit 10. Also included is a structural analysis prepared by TES, December 21, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit 8. This facility was approved by the Town of Stafford's Planning and Zoning Commission on September 11, 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 Noel Bishop, First Selectman for the Town of Westbrook, David Maiden-Building Official, as well as the tower owner (Crown Castle) and property owner (Toby Hill Farm LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 150-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 140-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 negligible.
4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 9.78% 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 support tower in Stafford. 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 140-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 guyed 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 Westbrook.

Sincerely,

Scott Shepherd  
Site Development Specialist II  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Rd., Suite 125  
Westborough, MA 01581  
508.251.0720 x3807 + T  
508.366.2610 + F  
508.868.6000 + C  
[GShepherd@sbsite.com](mailto:GShepherd@sbsite.com)

Attachments:



cc: Sal P. Titus, First Selectman / with attachments  
Warren Memorial Town Hall, 2<sup>nd</sup> Fl.  
1 Main St., Stafford Springs, CT 06076  
Glenn T. Setzler, Building Official / with attachments  
Warren Memorial Town Hall, 2<sup>nd</sup> Fl.  
1 Main St., Stafford Springs, CT 06076  
Troiano Realty / with attachments  
777 Enfield St., Enfield, CT 06082 (SBA address 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	Stafford P & Z Commission 9/11/01
Exhibit 7	EME Report	EBI Consulting 3/3/22
Exhibit 8	Structural Analysis	TES 12/21/22
Exhibit 9	Mount Analysis	B+T Group 1/6/22
Exhibit 10	Construction Drawings	B+T Group 1/20/22

# EXHIBIT 1

Copy of check

**EXHIBIT 2**

**Letter of Intent**



March 8, 2022

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: 768 Gilead St., Hebron, CT**  
Dish Wireless Site No: BOBDL00115A  
SBA Site No: CT01001-S

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish's shared use of the existing SBA telecommunications site at **768 Gilead St., Hebron, CT.**

SBA Properties, LLC ("Owner") and Dish Wireless ("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 115' for antennas and associated equipment.

Thank you,

**Rick Woods**

*Site Development Manager*  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Road, Suite 125  
Westboro, MA 01581

508.251.0720 x3800 + T  
508.366.2610 + F  
508.614.0389 + C  
[rwoods@sbsite.com](mailto:rwoods@sbsite.com)

# EXHIBIT 3

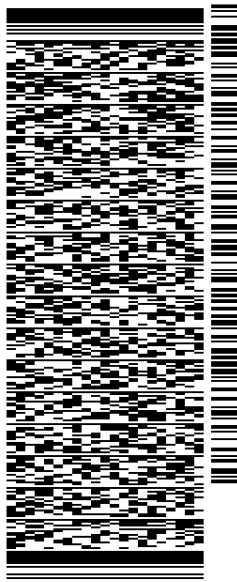
## Fedex Labels

ORIGIN ID:BBFA (508) 614-0389  
SHERRI KNAPIK  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 08MAR22  
ACTWGT: 2.00 LB  
CAD: 105843304/NET4460  
BILL SENDER

TO **MELANIE A. BACHMAN EXEC. DIR**  
**CONNECTICUT SITING COUNCIL**  
**TEN FRANKLIN SQUARE**

**NEW BRITAIN CT 06051**  
(508) 251-0720 X 3807 REF: 105692009-6089  
INV# DEPT:



J221022010501uv

TRK# 7762 3645 5096  
0201  
WED - 09 MAR 10:30A  
PRIORITY OVERNIGHT

**EBBDLA**  
06051  
CT-US BDL

56DJ5IEB02/FE4A

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**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.





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776236455096


[ADD NICKNAME](#)
ON TIME

Scheduled delivery:  
Wednesday, March 9, 2022 before 10:30 am



PICKED UP  
WESTBOROUGH, MA

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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Sherri Knapik  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Melanie A. Bachman Exec. Dir  
Connecticut Siting Council

Ten Franklin Square  
NEW BRITAIN, CT US 06051  
508-251-0720

[MANAGE DELIVERY](#)
[Travel History](#)
[Shipment Facts](#)

## Travel History

**TIME ZONE**  
Local Scan Time



Tuesday, March 8,  
2022

1:03 PM

WESTBOROUGH, MA

Picked up  
Tendered at FedEx Office

10:37 AM

Shipment information sent to FedEx

## Shipment Facts

**TRACKING NUMBER**  
776236455096

**SERVICE**  
FedEx Priority Overnight

**WEIGHT**  
2 lbs / 0.91 kgs

**TOTAL PIECES**  
1

**TOTAL SHIPMENT WEIGHT**  
2 lbs / 0.91 kgs

**TERMS**  
Shipper

**SHIPPER REFERENCE**  
10-56-92009-6089

**PACKAGING**  
FedEx Pak

**SPECIAL HANDLING SECTION**  
Deliver Weekday

**ACTUAL PICK UP**  
3/8/22 [?](#)

**SHIPMENT-FACTS.COD-DETAIL**  
\$0.00

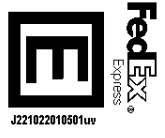
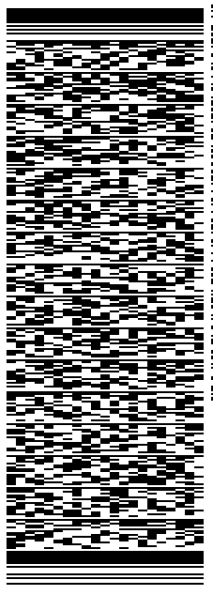
**STANDARD TRANSIT**  
3/9/22 before 10:30 am [?](#)

ORIGIN ID:BFBA (508) 614-0389  
SERRI KNAPIK  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 08MAR22  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4460  
BILL SENDER

TO SAL P. TITUS  
WARREN MEMORIAL TOWN HALL  
FIRST SELECTMAN  
1 MAIN ST  
STAFFORD SPRINGS CT 06076  
(508) 251-0720 X 3807  
REF: 1056-92009-6089  
PO: DEPT:

56DJ5IEB02/FE4A



J221022010501uv

TRK# 7762 3649 0477  
0201  
WED - 09 MAR 10:30A  
PRIORITY OVERNIGHT

EB QCWA  
06076  
CT-US BDL

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776236490477


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ON TIME

Scheduled delivery:  
Wednesday, March 9, 2022 before 10:30 am



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WESTBOROUGH, MA

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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Sherri Knapik  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Sal P. Titus  
Warren Memorial Town Hall  
First Selectman  
1 Main St  
STAFFORD SPRINGS, CT US 06076  
508-251-0720

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[Travel History](#)
[Shipment Facts](#)

## Travel History

TIME ZONE  
Local Scan Time



Tuesday, March 8,  
2022

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Tendered at FedEx Office

10:39 AM

Shipment information sent to FedEx

## Shipment Facts

### TRACKING NUMBER

776236490477

### SERVICE

FedEx Priority Overnight

### WEIGHT

0.5 lbs / 0.23 kgs

### TOTAL PIECES

1

### TOTAL SHIPMENT WEIGHT

0.5 lbs / 0.23 kgs

### TERMS

Shipper

### SHIPPER REFERENCE

10-56-92009-6089

### PACKAGING

FedEx Envelope

### SPECIAL HANDLING SECTION

Deliver Weekday

### ACTUAL PICK UP

3/8/22 [?](#)

### SHIPMENT-FACTS.COD-DETAIL

\$0.00

### STANDARD TRANSIT

3/9/22 before 10:30 am [?](#)

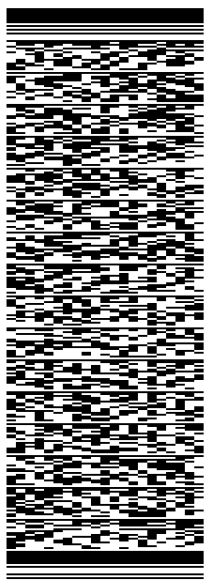
ORIGIN ID:BFBA (508) 614-0389  
SERRI KNAPIK  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 08MAR22  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4460

BILL SENDER

TO GLENN T. SETZLER  
WARREN MEMORIAL TOWN HALL  
BUILDING OFFICIAL  
1 MAIN ST  
STAFFORD SPRINGS CT 06076  
(508) 251-0720 X 3807  
REF: 105692009-6089  
PO: DEPT:

56DJ5IEB02/FE4A

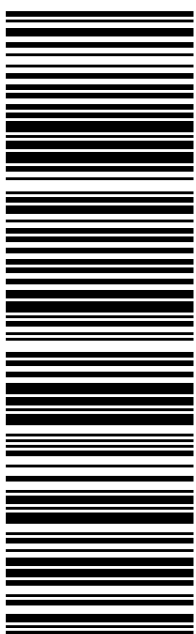


J221022010501uv

TRK# 7762 3650 9620  
0201  
WED - 09 MAR 10:30A  
PRIORITY OVERNIGHT

EB QCWA

06076  
CT-US BDL



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776236509620


[ADD NICKNAME](#)
ON TIME

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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Sherri Knapik  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Glenn T. Setzler  
Warren Memorial Town Hall  
Building Official  
1 Main St  
STAFFORD SPRINGS, CT US 06076  
508-251-0720

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## Travel History

**TIME ZONE**  
Local Scan Time



Tuesday, March 8,  
2022

1:03 PM

WESTBOROUGH, MA

Picked up  
Tendered at FedEx Office

10:40 AM

Shipment information sent to FedEx

## Shipment Facts

### TRACKING NUMBER

776236509620

### SERVICE

FedEx Priority Overnight

### WEIGHT

0.5 lbs / 0.23 kgs

### TOTAL PIECES

1

### TOTAL SHIPMENT WEIGHT

0.5 lbs / 0.23 kgs

### TERMS

Shipper

### SHIPPER REFERENCE

10-56-92009-6089

### PACKAGING

FedEx Envelope

### SPECIAL HANDLING SECTION

Deliver Weekday

### ACTUAL PICK UP

3/8/22 [?](#)

### SHIPMENT-FACTS.COD-DETAIL

\$0.00

### STANDARD TRANSIT

3/9/22 before 10:30 am [?](#)

ORIGIN ID:BFBA (508) 614-0389  
SHERRI KNAPIK  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 08MAR22  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4460  
BILL SENDER

TO

TROIANON REALTY  
777 ENFIELD ST

ENFIELD CT 06082

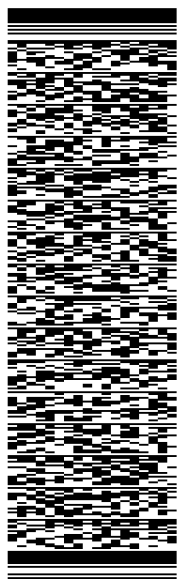
(508) 251-0720 X.3807

INV#

PO:

REF: 105692009-6089

DEPT:



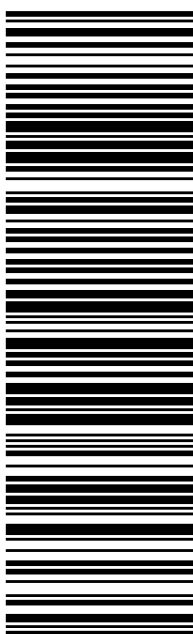
J221022010501uv

TRK# 7762 3653 9335  
0201

WED - 09 MAR 10:30A  
PRIORITY OVERNIGHT

EB QCWA

06082  
CT-US BDL



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776236539335


[ADD NICKNAME](#)
ON TIME

Scheduled delivery:  
Wednesday, March 9, 2022 before 10:30 am



**PICKED UP**  
WESTBOROUGH, MA

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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Sherri Knapik  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Troianon Realty  
777 Enfield St  
ENFIELD, CT US 06082  
508-251-0720

[MANAGE DELIVERY](#)
[Travel History](#)
[Shipment Facts](#)

## Travel History

**TIME ZONE**  
Local Scan Time

Tuesday, March 8,  
2022

1:03 PM

WESTBOROUGH, MA

Picked up  
Tendered at FedEx Office

10:41 AM

Shipment information sent to FedEx

## Shipment Facts

### TRACKING NUMBER

776236539335

### SERVICE

FedEx Priority Overnight

### WEIGHT

0.5 lbs / 0.23 kgs

### TOTAL PIECES

1

### TOTAL SHIPMENT WEIGHT

0.5 lbs / 0.23 kgs

### TERMS

Shipper

### SHIPPER REFERENCE

10-56-92009-6089

### PACKAGING

FedEx Envelope

### SPECIAL HANDLING SECTION

Deliver Weekday

### ACTUAL PICK UP

3/8/22 [?](#)

### SHIPMENT-FACTS.COD-DETAIL

\$0.00

### STANDARD TRANSIT

3/9/22 before 10:30 am [?](#)

# EXHIBIT 4

## Property Card



# 157 CHESTNUT HILL

**Location** 157 CHESTNUT HILL

**Mblu** 34 / 32 /

**Acct#** 00167400

**Owner** TROIANO REALTY CORP

**Assessment** \$313,530

**Appraisal** \$447,900

**PID** 1896

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$46,400	\$401,500	\$447,900

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$32,480	\$281,050	\$313,530

## Owner of Record

**Owner** TROIANO REALTY CORP  
**Co-Owner** %ANTONIO TROIANO  
**Address** 777 ENFIELD ST  
ENFIELD, CT 06082

**Sale Price** \$0  
**Certificate** 1  
**Book & Page** 0110/0503  
**Sale Date** 01/27/1961  
**Instrument** 00

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TROIANO REALTY CORP	\$0	1	0110/0503	00	01/27/1961

## Building Information

### Building 1 : Section 1

**Year Built:** 1985  
**Living Area:** 1,008  
**Replacement Cost:** \$51,862  
**Building Percent Good:** 77  
**Replacement Cost**  
**Less Depreciation:** \$39,900

**Building Attributes**

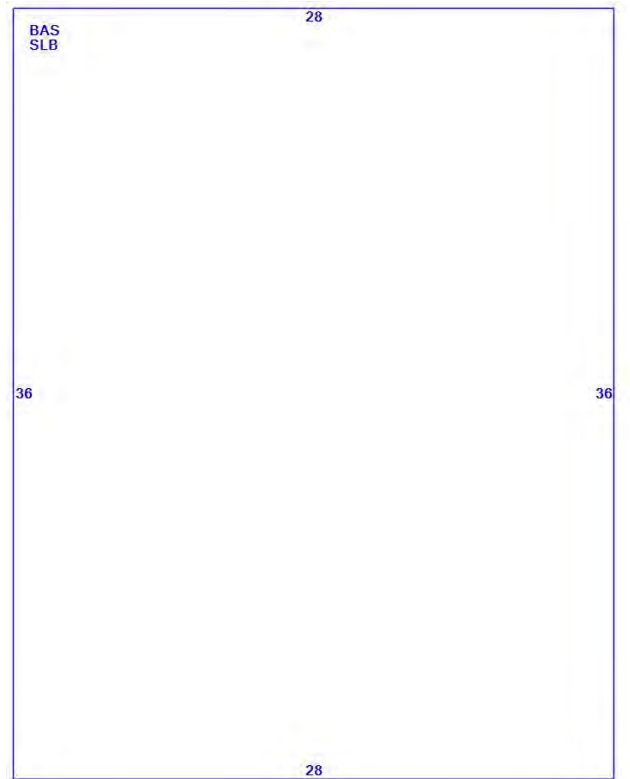
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asph/F GlS/Cmp
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Forced Hot Air
AC Type	Central
Struct Class	
Bldg Use	Industrial
Total Bedrooms	
Total Baths	
1st Floor Use:	
Heat/AC	Heat/AC Pkg.
Frame Type	Masonary
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	12.00
Num Fixtures	

### Building Photo



(<http://images.vgsi.com/photos2/StaffordCTPhotos/\A00\01\13\65.jpg>)

### Building Layout



(ParcelSketch.ashx?pid=1896&bid=1896)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,008	1,008
SLB	Slab	1,008	0
		2,016	1,008

### Extra Features

Extra Features	Legend

No Data for Extra Features

## Land

### Land Use

**Use Code** 301  
**Description** Industrial  
**Zone** AAA  
**Neighborhood** 502  
**Alt Land Appr** No  
**Category**

### Land Line Valuation

**Size (Acres)** 50.00  
**Frontage**  
**Depth**  
**Assessed Value** \$281,050  
**Appraised Value** \$401,500

## Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN3	FENCE-6' CHAIN			300.00 L.F.	\$1,400	1
FN4	FENCE-8' CHAIN			360.00 L.F.	\$2,000	1
SHD1	Shed	MS	Masonry	160.00 S.F.	\$1,300	1
SHD1	Shed	MS	Masonry	220.00 S.F.	\$1,800	1

## Valuation History

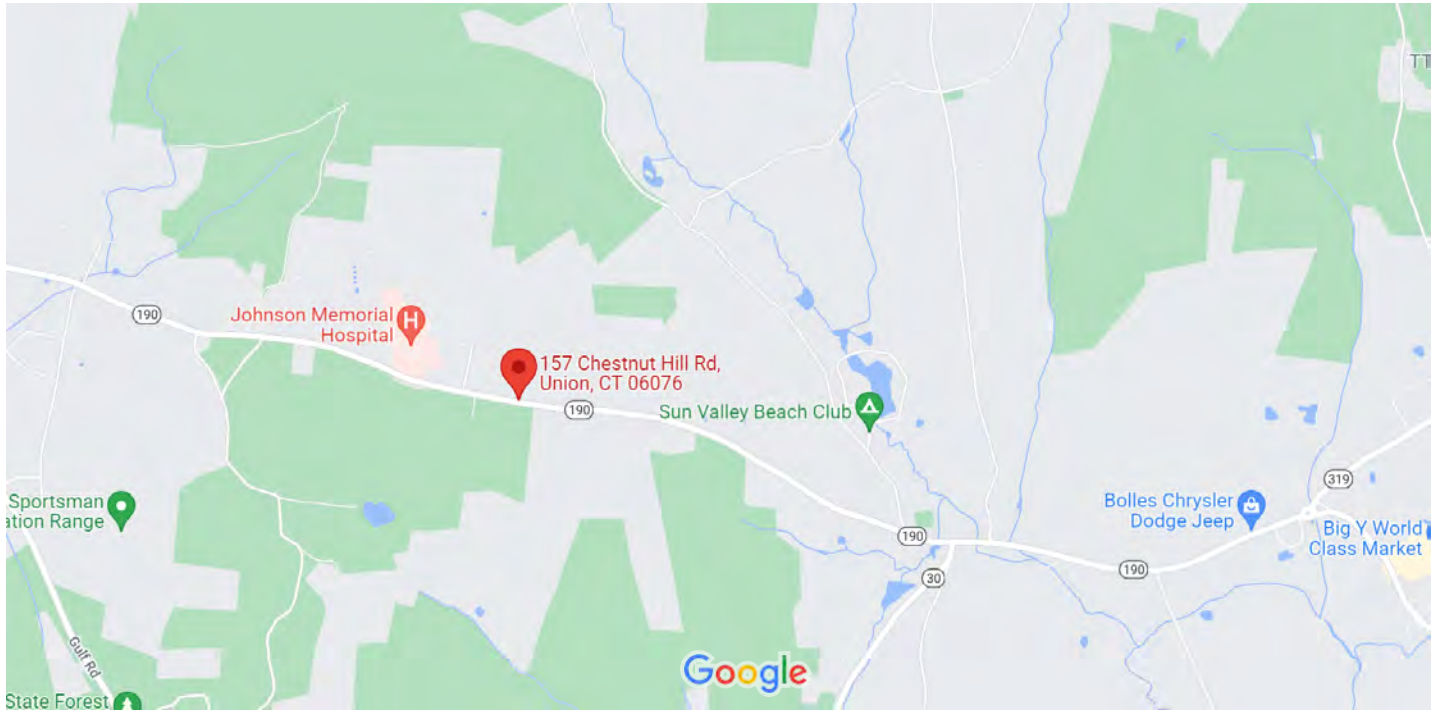
Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$47,400	\$426,000	\$473,400
2018	\$47,400	\$426,000	\$473,400
2017	\$47,400	\$426,000	\$473,400

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$33,180	\$298,200	\$331,380
2018	\$33,180	\$298,200	\$331,380
2017	\$33,180	\$298,200	\$331,380

# EXHIBIT 5

## Property Map

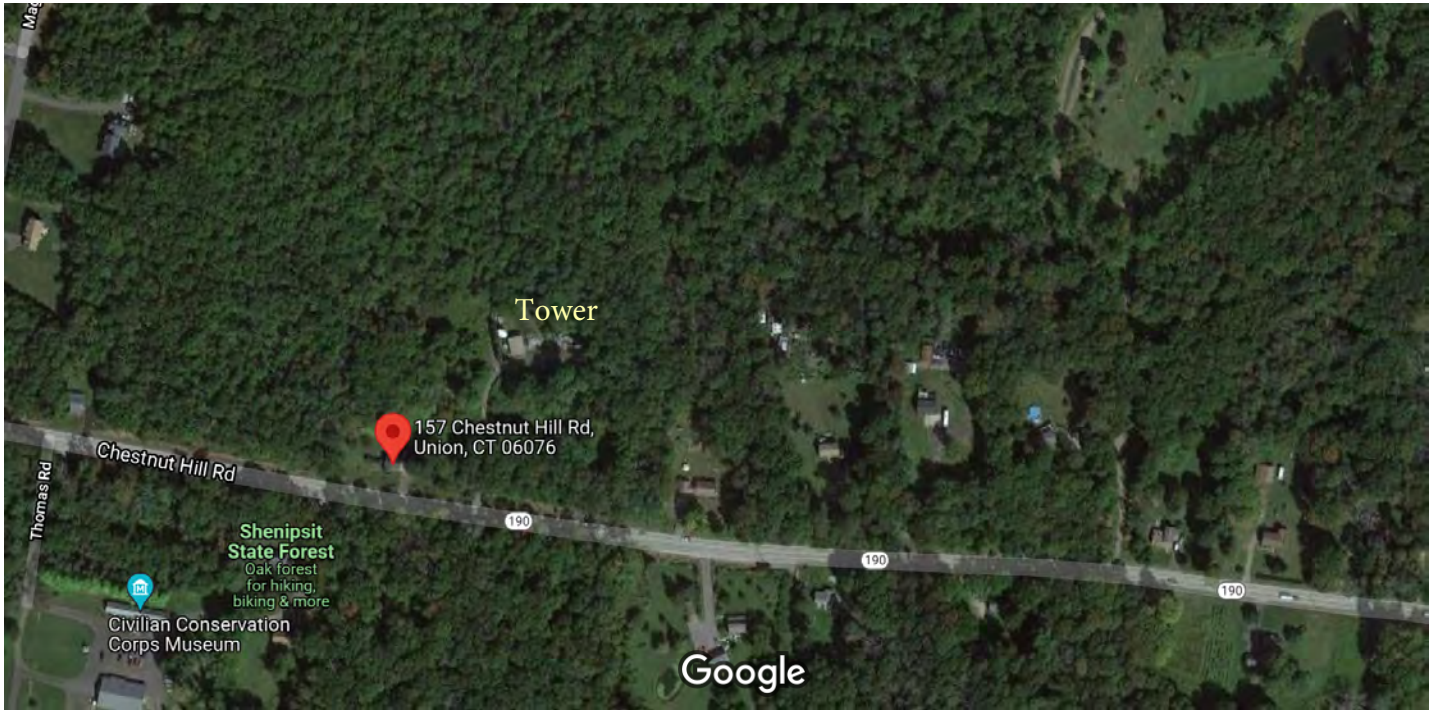
Google Maps 157 Chestnut Hill Rd



Map data ©2021 2000 ft



157 Chestnut Hill Rd



Imagery ©2021 MassGIS, Commonwealth of Massachusetts EOE, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021

200 ft

# EXHIBIT 6

## Zoning Approval

SITE NAME: TROIANO REALTY

SITE ID: CT13617-A

Transaction: Light Tower

**ZONING/PERMITTING COMPLETION FORM**

Address: 157 Chestnut Mtn. Rd., <sup>Stafford</sup> ~~Eastford~~, CT 06076

Jurisdiction: Comm. Siting Council, Town of Stafford Zoning District: \_\_\_\_\_

Zoning Approval Type: CSC / Special Use Permit Case #: \_\_\_\_\_

Approval Date: 9/11/01 Approved Height: 180' Tower Build Date: \_\_\_\_\_

If tower is destroyed or drop/swap required, tower can likely be rebuilt?  YES  NO

**Conditions of Approval:**

	Yes	No	N/A
Removal Bond _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Site Plan Submittal _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fall Zone _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Periodic Inspections _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Periodic Reporting _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Approval Renewal _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Additional Conditions _____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Utilities be placed underground

**JURISDICTION POC/DEPT.**

Planning/Zoning: M. G. (Town of Stafford)

Phone: 860-684-1775 Fax: \_\_\_\_\_

Bldg./Code Enforcement: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Submitted by: Ratches Estes Date: 9/23/08  
Zoning Compliance

**TO BE COMPLETED BY CORPORATE**

	Yes	No	N/A	
Zoning Approval Attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ordinance Attached (required)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Building Permit Attached (required) <u>Town of Stafford</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Date Recd
				<u>12/11/2001</u>
Certificate of Occupancy or Compliance (CO) attached (required)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>3/11/2002</u>

Zoning Manager Approval: Diane E. Borchartt Date 9/23/2008  
Diane E. Borchartt, AICP





*Town of Stafford*  
*The Stafford Planning & Zoning Commission*

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

(860) 684-7444  
FAX 684-9845

TOWN OF STAFFORD  
LEGAL NOTICE

Notice is hereby given that the Stafford Planning & Zoning Commission at a regularly scheduled meeting held on September 11, 2001, at 7:00 p.m. in the Veterans Meeting Room, Warren Memorial Town Hall, Stafford, CT rendered the following:

1. Approved, with condition, Special Use Permit Application of Tower Ventures, Inc. to construct 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.

John Mocko  
Chairman

Journal Inquirer  
September 14, 2001



*Town of Stafford*  
*The Stafford Planning & Zoning Commission*

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

Telephone: (860) 684-1775  
Fax: (860) 684-1768

**AGENDA**  
**STAFFORD PLANNING & ZONING COMMISSION**  
Meeting Date: September 11, 2001  
7:00 p.m.  
Veterans Meeting Room  
Warren Memorial Town Hall  
Stafford Springs, CT

**COPY**

**PUBLIC HEARING**

1. Special Use Permit Application of Tower Ventures, Inc., to construct 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.

---

**AGENDA**

1. Review of minutes of August 28, 2001 regular meeting.
2. Discussion - Special Use Permit application of Tower Ventures, for telecommunication tower. Location: 157 Chestnut Hill, Assessors' Map #34, Lot #32, AAA Zone.
3. Adjournment.

Wendell Avery  
Zoning Enforcement Officer

Agenda Closed: 9/7/01

COPY

Town of Stafford  
Planning & Zoning Commission  
Regular Meeting  
September 11, 2001  
7:00 p.m. - Veterans Meeting Room

Members Present: Jack Mocko, Chairman  
Roger Pelizari  
Nancy Ravetto  
Peter Rossi

Also Present: Wendell Avery, Zoning Enforcement Officer

Meeting Agenda:

1. Review minutes of August 28, 2001 regular meeting.
2. Discussion - Special Use Permit application for Tower Ventures, Inc. to construct 180-foot telecommunication tower. Location 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.
3. Adjournment.

A Public hearing was held prior to the regular meeting re Item #3, Tower Ventures, Inc., tape-recorded and filed in the office of the Town Clerk.

Chairman Mocko called the regular meeting to order at 8:20 p.m. following the public hearing.

1. **Review minutes of August 28, 2001 regular meeting.**  
Peter Rossi made a motion to accept the minutes of the August 28, 2001 meeting as presented. Second by Nancy Ravetto. Motion for approval passed unanimously.
2. **Discussion - Special Use Permit application for Tower Ventures, Inc. to construct 180-foot telecommunication tower. Location 157 Chestnut Hill.**  
Attorney Chris Smith of Pullman & Comley and David Vivian of Tower Ventures, Inc. made their presentation for the proposed cell tower to be located at 157 Chestnut Hill Road. The Board was in agreement that the Town regulations for cell towers were adhered to and took the following action on the Special Use Permit for Tower Ventures, Inc. Nancy Ravetto made a motion to approve the Special Use Permit Application of Tower Ventures Inc., to construct a 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment with condition that utilities be placed underground. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone. Second by Roger Pelizari. Motion for approval passed 3-0.
3. **Adjournment.**  
There being no further business to come before the Board, Roger Pelizari made a motion for adjournment, seconded by Nancy Ravetto. Regular meeting adjourned at 8:30 p.m.

Respectfully submitted,

  
Mary Jane LaMorte  
Recording Secretary

# EXHIBIT 7

## EME Report

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT  
EVALUATION OF HUMAN EXPOSURE POTENTIAL  
TO NON-IONIZING EMISSIONS

Dish Wireless Existing Facility

Site ID: BOBDL00112B

BOBDL00112B  
157 Chestnut Hill Road  
Stafford Springs, Connecticut 06076

**March 3, 2022**

**EBI Project Number: 6222001479**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>9.78%</b>

March 3, 2022

Dish Wireless

Emissions Analysis for Site: BOBDL00112B - BOBDL00112B

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **157 Chestnut Hill Road in Stafford Springs, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 157 Chestnut Hill Road in Stafford Springs, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative



estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

## Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	<b>1.32%</b>	Antenna BI MPE %:	<b>1.32%</b>	Antenna CI MPE %:	<b>1.32%</b>

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	<b>1.32%</b>
Verizon	3.21%
T-Mobile	1.3%
AT&T	3.95%
<b>Site Total MPE % :</b>	<b>9.78%</b>

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.32%
Dish Wireless Sector B Total:	1.32%
Dish Wireless Sector C Total:	1.32%
<b>Site Total MPE % :</b>	<b>9.78%</b>

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	140.0	1.79	600 MHz n71	400	0.45%
Dish Wireless 1900 MHz n70	4	542.70	140.0	4.35	1900 MHz n70	1000	0.43%
Dish Wireless 2190 MHz n66	4	542.70	140.0	4.35	2190 MHz n66	1000	0.43%
<b>Total:</b>							<b>1.32%</b>

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.



## 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 Wireless 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 Wireless Sector	Power Density Value (%)
Sector A:	1.32%
Sector B:	1.32%
Sector C:	1.32%
Dish Wireless Maximum MPE % (Sector A):	1.32%
Site Total:	9.78%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **9.78%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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.

# EXHIBIT 8

## Structural Analysis



**Tower Engineering Solutions**

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

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**Structural Analysis Report**

Existing 180 ft Rohn Self Supporting Tower  
Customer Name: SBA Communications Corp  
Customer Site Number: CT13617-A  
Customer Site Name: Troiano Realty  
Carrier Name: Dish Wireless (App#: 181997-1)  
Carrier Site ID / Name: BOBDL00112B / 0  
Site Location: 157 Chestnut Hill Road  
Stafford Springs, Connecticut  
Tolland County  
Latitude: 41.977416  
Longitude: -72.383305

**Analysis Result:**

Max Structural Usage: 93.2% [Pass]

Max Foundation Usage: 66.0% [Pass]

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



Report Prepared By: Mohammed Al Rubaye

## 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

<b>Tower Drawings</b>	Rohn Eng. File # 49944AE, Dwg. # C011522, dated 12/17/2001
<b>Foundation Drawing</b>	Rohn Eng. File # 49944AE, Dwg. # A012939, dated 12/17/2001
<b>Geotechnical Report</b>	Jaworski Geotech Project # 01659G, dated 10/19/2001
<b>Modification Drawings</b>	N/A

## 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 1" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.173$ , $S_1 = 0.064$

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	177.0	3	RFS - APXV18-206516S-C-A20 - Panel	(3) T-Arms (Commscope SF-HPM3-96)	(9) 1 5/8" (3) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - KRY 112 489/2 - TMA			
3		3	Ericsson - Radio 4449 B71+B12 - RRU			
4		3	Kathrein - 782 11056 - Bias T			
5	175.0	3	RFS - APXVAARR24_43-U-NA20 - Panel	(3) Sector Frame SitePro 1 VFA12-WLL-30120	(12) 1 5/8" (2) 1" DC Cables (1) 1/2"	AT&T
6	167.0	1	CCI - OPA65R-BU4DA - Panel			
7		2	CCI - DMP65R-BU8DA - Panel			
8		1	CCI - DMP65R-BU4DA - Panel			
9		12	ADC/Cleargain CT-1900W800 TMA			
10		3	Ericsson 4449 B5/B12			
11		3	Ericsson RRUS 8843 B2 B66A			
12		1	Raycap DC6-48-60-18-8F ("Squid")			
13		6	Powerwave - P65-17-XLH-RR - Panel			
14		2	CCI - OPA65R-BU8DA - Panel			
15		150.0	4	Antel LPA-80080-4CF-EDIN-0 - Panel	(3) Modified Sector Frames (Site Pro VFA12-HD) W/ (3) Commscope BSAMNT-SBS-1-2	(12) 1 5/8" (2) 1 5/8" Hybrid
16	2		Antel - LPA-80063-4CF-EDIN-5 - Panel			
17	6		Commscope SBNHH-1D65B- Panel			
18	3		Samsung MT6407-77A - Panel			
19	3		Samsung RF4440d-13A - RRU			
20	3		Samsung RF4439d-25A - RRU			
21	2		RFS DB-B1-6C-12AB-0Z- OVP			

## 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	140.0	3	JMA Wireless - MX08FRO665-21 - Panel	(3) Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
23		3	Fujitsu - TA08025-B604			
24		3	Fujitsu - TA08025-B605			
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:	<b>93.2%</b>	<b>90.4%</b>	<b>5.0%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Original Design Reactions	324.8	268.2	30.0
Analysis Reactions	316.8	279.2	29.1
Factored Reactions*	438.5	362.1	40.5
% of Design Reactions	72.2%	77.1%	71.8%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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

## **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 0.3359 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: CT13617-A-SBA

<b>Site Name:</b> Troiano Realty	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Type:</b> Self Support	<b>Base Shape:</b> Triangle	<b>Basic WS:</b> 97.00
<b>Height:</b> 180.00 (ft)	<b>Base Width:</b> 18.99	<b>Basic Ice WS:</b> 50.00
<b>Base Elev:</b> 0.00 (ft)	<b>Top Width:</b> 4.64	<b>Operational WS:</b> 60.00



Page: 1

### Section Properties

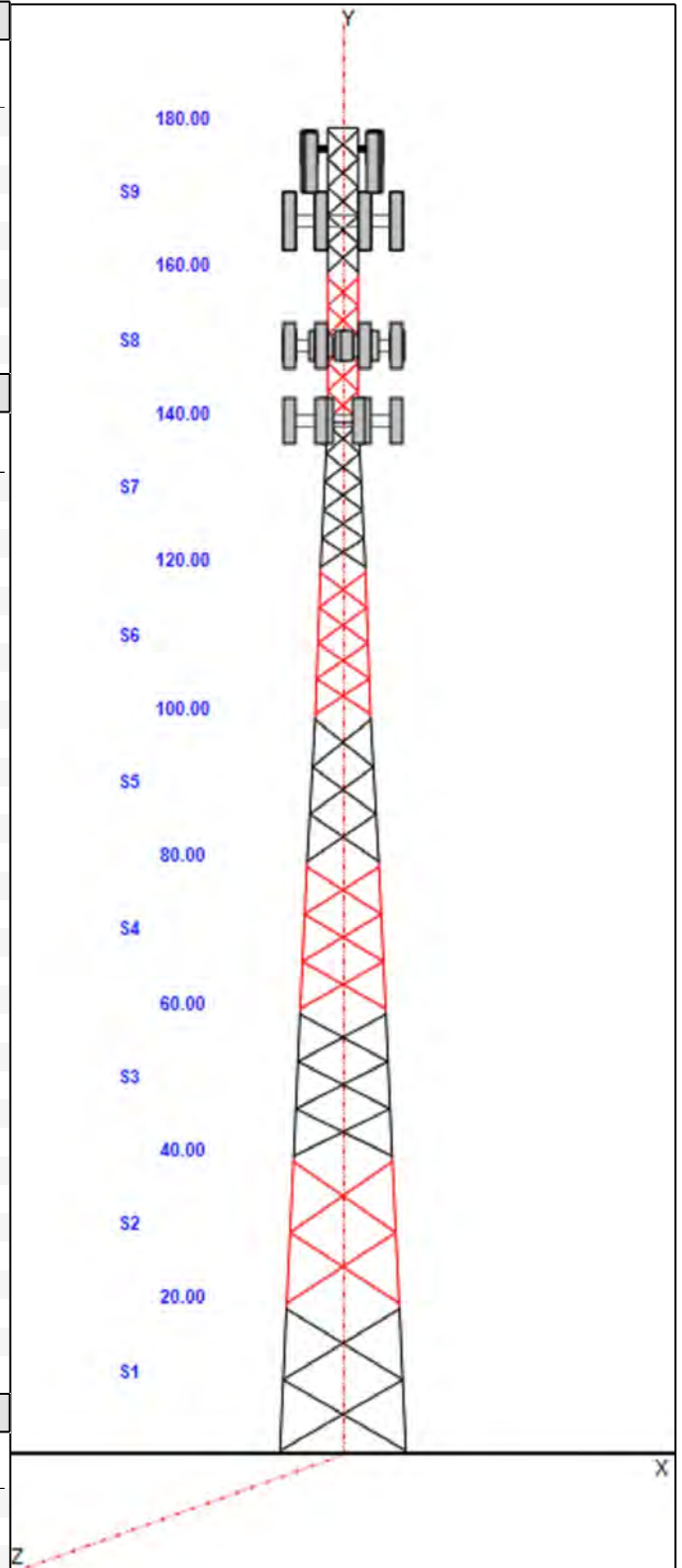
Sect	Leg Members	Diagonal Members	Horizontal Members
1	PX 8" DIA PIPE	SAE 3.5X3.5X0.25	
2	PSP ROHN 8 EHS	SAE 3X3X0.25	
3	PX 6" DIA PIPE	SAE 2.5X2.5X0.25	
4	PSP ROHN 6 EHS	SAE 2.5X2.5X0.1875	
5	PX 5" DIA PIPE	SAE 2.5X2.5X0.1875	
6	PX 5" DIA PIPE	SAE 2X2X0.1875	
7	PX 4" DIA PIPE	SAE 2X2X0.1875	SAE 1.75X1.75X0.125
8	PST 3" DIA PIPE	SAE 2X2X0.25	
9	PST 2-1/2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.125

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.00	180.00	1	Lightning Rod
180.00	180.00	1	Beacon
177.00	177.00	1	MC-K12M-12-96
177.00	177.00	3	APXV18-206516S-C-A20
177.00	177.00	3	KRY 112 89/4
177.00	177.00	3	4449
177.00	177.00	3	782 10254
177.00	175.00	3	APXVAARR24_43-U-NA20
167.00	167.00	6	P65-17-XLH-RR
167.00	167.00	2	OPA65R-BU8DA
167.00	167.00	1	OPA65R-BU4DA
167.00	167.00	2	DMP65R-BU8DA
167.00	167.00	1	DMP65R-BU4DA
167.00	167.00	12	ADC/Cleargain CT-1900W800
167.00	167.00	3	Ericsson 4449 B5/B12
167.00	167.00	3	Ericsson RRUS 8843 B2 B66A
167.00	167.00	1	RaycaDC6-48-60-18-8F ("Squid")
167.00	167.00	3	VFA12-WLL-30120
150.00	150.00	1	(3) VFA12-HD
150.00	150.00	6	SBNHH-1D65B
150.00	150.00	4	LPA-80080-4CF-EDIN-0
150.00	150.00	2	LPA-80063-4CF-EDIN-5
150.00	150.00	2	RFS DB-B1-6C-12AB-OZ
150.00	150.00	3	Samsung MT6407-77A
150.00	150.00	3	Commscope BSAMNT-SBS-1-2
150.00	150.00	3	Samsung RF4440d-13A
150.00	150.00	3	Samsung RF4439d-25A
140.00	140.00	3	MX08FRO665-21
140.00	140.00	3	TA08025-B604
140.00	140.00	3	TA08025-B605
140.00	140.00	1	RDIDC-9181-PF-48
140.00	140.00	1	(3) Commscope 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	177.00	3	1 5/8" Coax
0.00	177.00	6	1 5/8" Coax
0.00	177.00	3	1 5/8" Fiber



## Structure: CT13617-A-SBA

<b>Site Name:</b> Troiano Realty	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Type:</b> Self Support	<b>Base Shape:</b> Triangle	<b>Basic WS:</b> 97.00
<b>Height:</b> 180.00 (ft)	<b>Base Width:</b> 18.99	<b>Basic Ice WS:</b> 50.00
<b>Base Elev:</b> 0.00 (ft)	<b>Top Width:</b> 4.64	<b>Operational WS:</b> 60.00



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0.00	175.00	1	W/G Ladder
0.00	167.00	12	1 5/8" Coax
0.00	167.00	2	1" DC Cables
0.00	167.00	1	1/2" Coax
0.00	167.00	1	W/G Ladder
0.00	150.00	12	1 5/8" Coax
0.00	150.00	2	1 5/8" Hybrid
0.00	150.00	1	W/G Ladder
0.00	140.00	1	1.6" Hybrid
0.00	140.00	1	W/G Ladder
0.00	40.00	2	Step bolts (ladder)

### Base Reactions

	Leg	Overturning
Max Uplift:	-279.18 (kips)	Moment: 4943.27 (ft-kips)
Max Down:	316.77 (kips)	Total Down: 48.56 (kips)
Max Shear:	29.09 (kips)	Total Shear: 45.98 (kips)

# Structure: CT13617-A-SBA

**Site Name:** Troiano Realty

**Type:** Self Support

**Height:** 180.00 (ft)

**Base Elev:** 0.00 (ft)

**Base Shape:** Triangle

**Base Width:** 18.99

**Top Width:** 4.64

**Code:** EIA/TIA-222-G

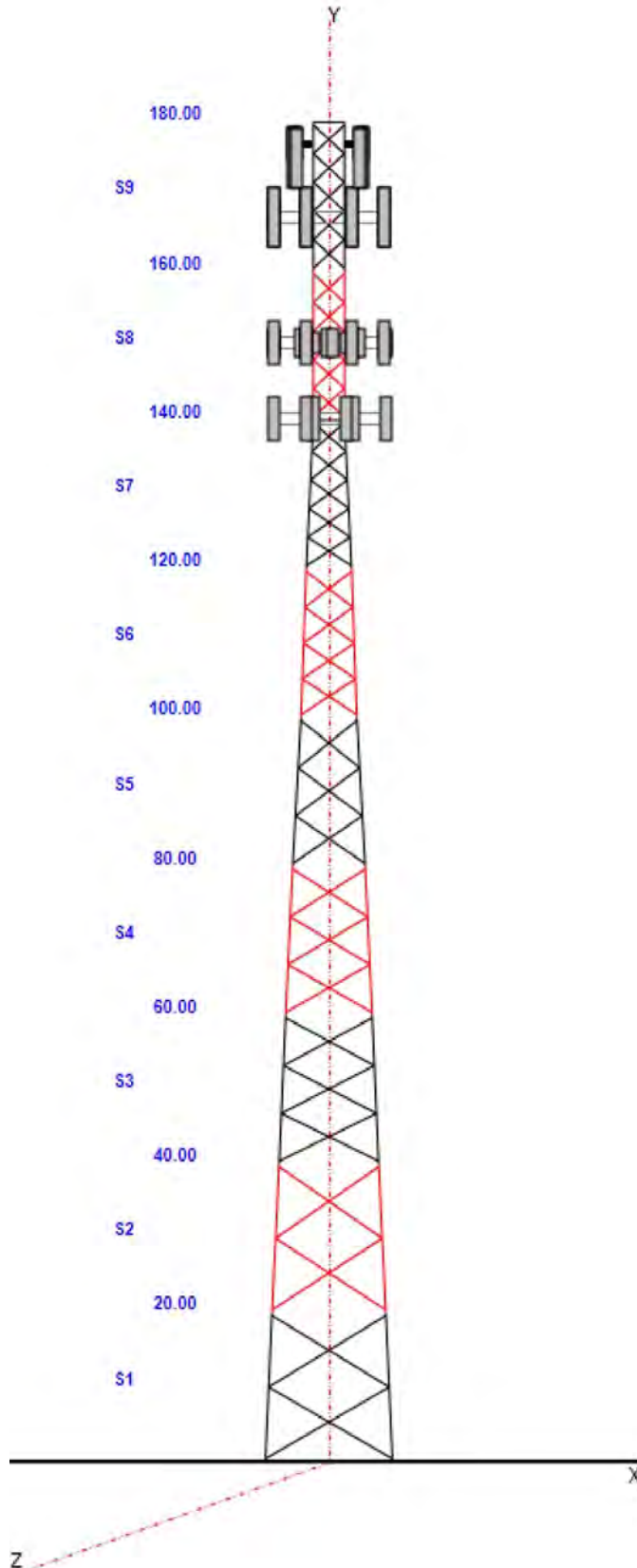
**Basic WS:** 97.00

**Basic Ice WS:** 50.00

**Operational WS:** 60.00

12/20/2021

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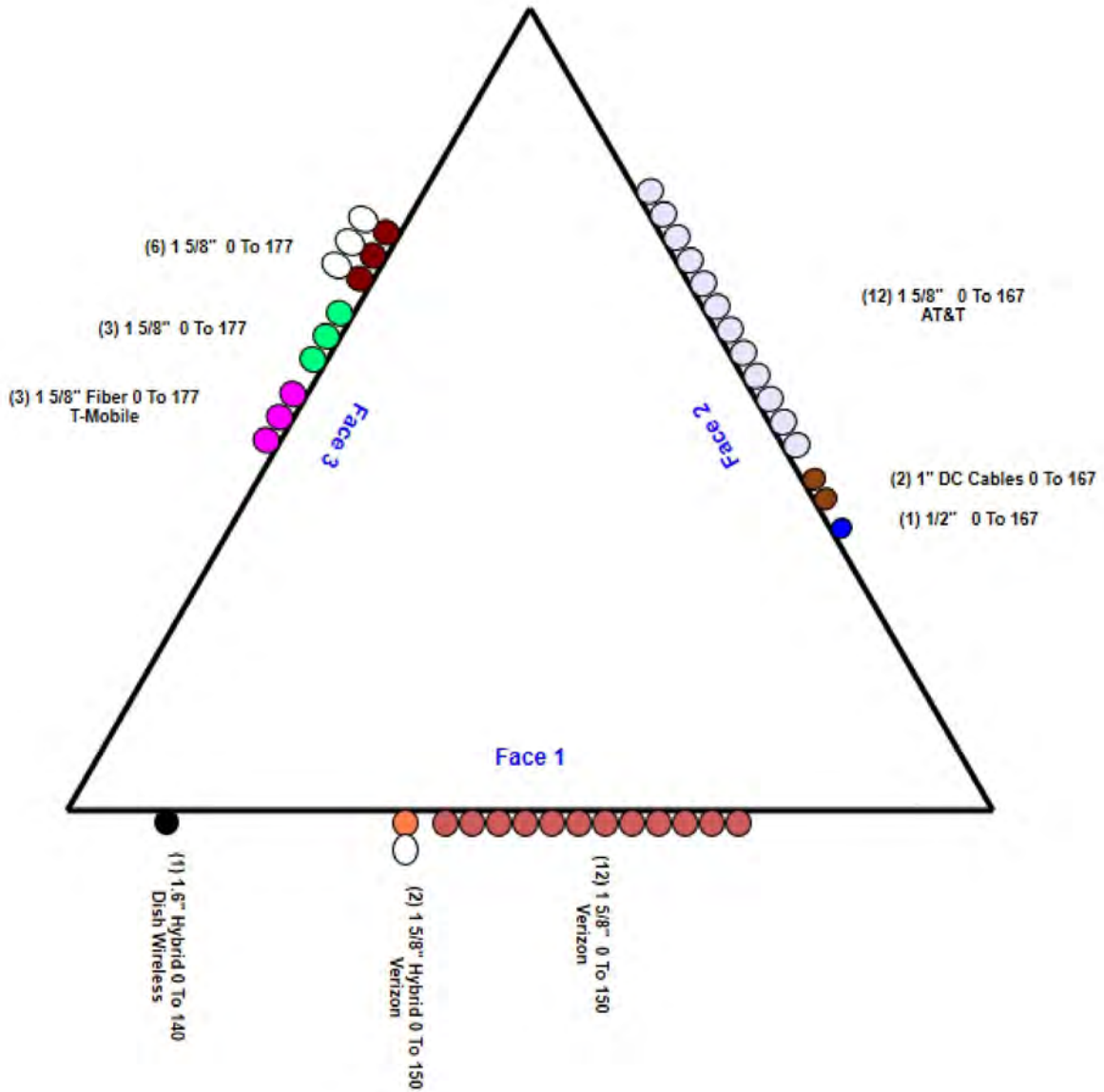
# Structure: CT13617-A-SBA - Coax Line Placement

**Type:** Self Support  
**Site Name:** Troiano Realty  
**Height:** 180.00 (ft)

12/20/2021



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## Loading Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
180.00	Lightning Rod	1	5.00	0.500	33.28	2.856	72.000	1.000	1.000	1.00	1.00	0.000
180.00	Beacon	1	36.00	2.720	215.83	4.002	28.000	17.500	17.500	1.00	1.00	0.000
177.00	MC-K12M-12-96	1	550.00	22.000	1275.73	59.323	0.000	0.000	0.000	0.75	1.00	0.000
177.00	APXV18-206516S-C-A20	3	18.70	3.610	113.31	6.118	53.100	6.900	3.200	0.80	0.78	0.000
177.00	KRY 112 89/4	3	15.40	0.650	39.19	1.476	11.000	6.100	3.900	0.80	0.50	0.000
177.00	4449	3	70.00	1.650	201.95	2.428	15.000	13.200	9.300	0.80	0.67	0.000
177.00	782 10254	3	2.90	0.130	8.29	0.524	4.300	3.000	1.700	0.80	0.50	0.000
177.00	APXVAARR24_43-U-NA20	3	128.00	20.240	762.93	22.834	95.900	24.000	7.800	0.80	0.70	-2.000
167.00	P65-17-XLH-RR	6	59.00	11.440	351.44	15.807	96.000	12.000	6.000	0.80	0.82	0.000
167.00	OPA65R-BU8DA	2	76.50	18.090	459.65	20.903	96.000	21.000	7.800	0.80	0.82	0.000
167.00	OPA65R-BU4DA	1	52.50	8.440	315.44	9.753	48.200	21.000	7.800	0.80	1.00	0.000
167.00	DMP65R-BU8DA	2	95.70	17.870	575.01	20.649	96.000	20.700	7.700	0.80	0.82	0.000
167.00	DMP65R-BU4DA	1	67.90	8.280	407.98	9.568	48.000	20.700	7.700	0.80	1.00	0.000
167.00	ADC/Cleargain CT-1900W800	12	15.40	1.100	125.73	1.890	11.700	11.300	2.800	0.80	0.67	0.000
167.00	Ericsson 4449 B5/B12	3	73.20	1.970	151.16	2.739	17.900	13.200	10.600	0.80	0.67	0.000
167.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.640	135.25	2.311	14.900	13.200	10.900	0.80	0.67	0.000
167.00	RaycaDC6-48-60-18-8F ("Squid")	1	31.80	0.920	115.27	1.511	24.000	11.000	11.000	0.80	1.00	0.000
167.00	VFA12-WLL-30120	3	774.00	18.900	1795.30	50.964	0.000	0.000	0.000	0.75	0.75	0.000
150.00	(3) VFA12-HD	1	2322.0	50.700	5347.78	135.64	0.000	0.000	0.000	0.75	1.00	0.000
150.00	SBNHH-1D65B	6	50.71	8.080	396.97	9.847	72.000	11.900	7.100	0.80	0.83	0.000
150.00	LPA-80080-4CF-EDIN-0	4	12.00	2.610	166.16	3.808	47.200	5.500	13.200	0.80	1.70	0.000
150.00	LPA-80063-4CF-EDIN-5	2	20.00	6.150	263.92	8.674	47.400	15.200	13.100	0.80	0.93	0.000
150.00	RFS DB-B1-6C-12AB-OZ	2	18.90	4.800	180.34	7.034	24.000	24.000	10.000	0.80	0.71	0.000
150.00	Samsung MT6407-77A	3	79.40	4.690	250.17	5.973	35.100	16.100	5.500	0.80	0.70	0.000
150.00	Commscope BSAMNT-SBS-1-2	3	25.35	0.000	48.95	0.000	0.000	0.000	0.000	1.00	1.00	0.000
150.00	Samsung RF4440d-13A	3	70.30	1.850	176.12	2.659	15.000	15.000	9.100	0.80	0.67	0.000
150.00	Samsung RF4439d-25A	3	74.70	1.880	135.19	2.615	15.000	15.000	10.000	0.80	0.67	0.000
140.00	MX08FRO665-21	3	64.50	12.490	446.82	14.415	72.000	20.000	8.000	0.80	0.74	0.000
140.00	TA08025-B604	3	63.90	1.960	130.45	2.697	15.800	15.000	7.900	0.80	0.67	0.000
140.00	TA08025-B605	3	75.00	1.960	143.75	2.697	15.800	15.000	9.100	0.80	0.67	0.000
140.00	RDIDC-9181-PF-48	1	21.90	2.010	91.89	2.757	16.600	14.600	8.500	1.00	1.00	0.000
140.00	(3) Commscope MTC3975083	1	1242.0	28.050	2837.45	74.377	0.000	0.000	0.000	0.75	1.00	0.000
<b>Totals:</b>		<b>90</b>	<b>10,464.41</b>		<b>33,878.73</b>						<b>Number of Appurtenances :</b>	<b>32</b>

## Loading Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



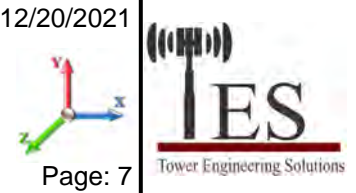
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### Linear Appurtenances Properties

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	1	Individual NR		N	1.00	1.00	
0.00	180.00	Step bolts (ladder)	1	0.63	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	177.00	1 5/8" Coax	3	1.98	1.04	100.00	3	Individual NR		N	0.50	0.67	
0.00	177.00	1 5/8" Coax	6	1.98	1.04	50.00	3	Block		N	0.50	0.80	
0.00	177.00	1 5/8" Fiber	3	2.00	1.10	100.00	3	Individual NR		N	0.50	0.67	
0.00	175.00	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	167.00	1 5/8" Coax	12	1.98	1.04	100.00	2	Individual IR		N	0.50	1.00	
0.00	167.00	1" DC Cables	2	1.00	0.40	100.00	2	Individual IR		N	0.50	1.00	
0.00	167.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	0.50	1.00	0
0.00	167.00	W/G Ladder	1	0.10	6.00	100.00	1	Individual NR		N	0.50	1.00	
0.00	150.00	1 5/8" Coax	12	1.98	1.04	100.00	1	Individual IR		N	0.50	0.39	
0.00	150.00	1 5/8" Hybrid	2	2.00	1.10	50.00	1	Block		N	0.50	1.00	0
0.00	150.00	W/G Ladder	1	0.10	6.00	100.00	1	Individual NR		N	0.50	1.00	
0.00	140.00	1.6" Hybrid	1	1.60	1.82	100.00	1	Individual NR		N	1.00	1.00	
0.00	140.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	40.00	Step bolts (ladder)	2	0.63	1.04	100.00	2,3	Individual NR		N	1.00	1.00	

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.6W Normal Wind	1.2D + 1.6W 97 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	131.83	0.00	6,516.3	0.0	1955.48	1854.84	3,810.33
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	30.59	131.83	0.00	5,379.2	0.0	1675.20	1856.41	3,531.61
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	29.25	129.75	0.00	5,045.0	0.0	1853.59	2114.26	3,967.86
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	26.86	129.75	0.00	4,172.7	0.0	1839.85	2327.61	4,167.46
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	23.41	129.75	0.00	3,895.2	0.0	1706.46	2500.89	4,207.34
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	20.91	129.75	0.00	3,756.7	0.0	1561.50	2648.47	4,209.97
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	1.00	1.00	0.00	19.85	129.75	0.00	3,339.7	0.0	1493.26	2777.94	4,271.20
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	1.00	1.00	0.00	16.30	102.20	0.00	2,432.7	0.0	1282.73	2266.64	3,549.37
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	1.00	1.00	0.00	14.58	46.38	0.00	1,462.5	0.0	1226.12	1099.98	2,326.11
														<b>36,000.0</b>	<b>0.0</b>			<b>34,041.24</b>

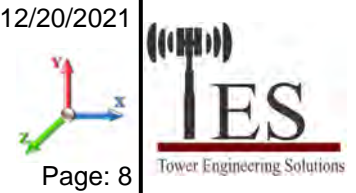
<b>Load Case:</b> 1.2D + 1.6W 60° Wind	1.2D + 1.6W 97 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	131.83	0.00	6,516.3	0.0	1703.45	1854.84	3,558.29
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	27.01	131.83	0.00	5,379.2	0.0	1479.23	1856.41	3,335.64
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	25.57	129.75	0.00	5,045.0	0.0	1620.00	2114.26	3,734.27
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	23.62	129.75	0.00	4,172.7	0.0	1618.11	2327.61	3,945.72
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	20.64	129.75	0.00	3,895.2	0.0	1504.63	2500.89	4,005.51
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	18.64	129.75	0.00	3,756.7	0.0	1392.41	2648.47	4,040.88
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	0.80	1.00	0.00	17.55	129.75	0.00	3,339.7	0.0	1320.52	2777.94	4,098.46
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	0.80	1.00	0.00	14.39	102.20	0.00	2,432.7	0.0	1132.16	2266.64	3,398.80
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	0.80	1.00	0.00	12.76	46.38	0.00	1,462.5	0.0	1073.24	1099.98	2,173.22
														<b>36,000.0</b>	<b>0.0</b>			<b>32,290.80</b>



## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.6W 90° Wind	1.2D + 1.6W 97 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

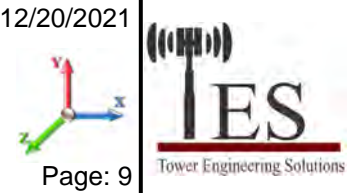
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	131.83	0.00	6,516.3	0.0	1766.46	1854.84	3,621.30
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	27.90	131.83	0.00	5,379.2	0.0	1528.22	1856.41	3,384.63
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	26.49	129.75	0.00	5,045.0	0.0	1678.40	2114.26	3,792.66
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	24.43	129.75	0.00	4,172.7	0.0	1673.54	2327.61	4,001.15
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	21.34	129.75	0.00	3,895.2	0.0	1555.08	2500.89	4,055.97
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	19.21	129.75	0.00	3,756.7	0.0	1434.69	2648.47	4,083.15
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.13	129.75	0.00	3,339.7	0.0	1363.70	2777.94	4,141.64
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	0.85	1.00	0.00	14.87	102.20	0.00	2,432.7	0.0	1169.80	2266.64	3,436.44
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	0.85	1.00	0.00	13.22	46.38	0.00	1,462.5	0.0	1111.46	1099.98	2,211.45
<b>36,000.0</b>														<b>0.0</b>	<b>32,728.41</b>			

<b>Load Case:</b> 0.9D + 1.6W Normal Wind	0.9D + 1.6W 97 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	131.83	0.00	4,887.2	0.0	1955.48	1854.84	3,810.33
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	30.59	131.83	0.00	4,034.4	0.0	1675.20	1856.41	3,531.61
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	29.25	129.75	0.00	3,783.8	0.0	1853.59	2114.26	3,967.86
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	26.86	129.75	0.00	3,129.5	0.0	1839.85	2327.61	4,167.46
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	23.41	129.75	0.00	2,921.4	0.0	1706.46	2500.89	4,207.34
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	20.91	129.75	0.00	2,817.5	0.0	1561.50	2648.47	4,209.97
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	1.00	1.00	0.00	19.85	129.75	0.00	2,504.8	0.0	1493.26	2777.94	4,271.20
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	1.00	1.00	0.00	16.30	102.20	0.00	1,824.5	0.0	1282.73	2266.64	3,549.37
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	1.00	1.00	0.00	14.58	46.38	0.00	1,096.9	0.0	1226.12	1099.98	2,326.11
<b>27,000.0</b>														<b>0.0</b>	<b>34,041.24</b>			

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.6W 60° Wind	0.9D + 1.6W 97 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

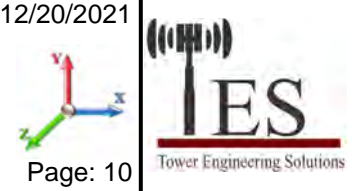
Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	131.83	0.00	4,887.2	0.0	1703.45	1854.84	3,558.29
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	27.01	131.83	0.00	4,034.4	0.0	1479.23	1856.41	3,335.64
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	25.57	129.75	0.00	3,783.8	0.0	1620.00	2114.26	3,734.27
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	23.62	129.75	0.00	3,129.5	0.0	1618.11	2327.61	3,945.72
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	20.64	129.75	0.00	2,921.4	0.0	1504.63	2500.89	4,005.51
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	18.64	129.75	0.00	2,817.5	0.0	1392.41	2648.47	4,040.88
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	0.80	1.00	0.00	17.55	129.75	0.00	2,504.8	0.0	1320.52	2777.94	4,098.46
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	0.80	1.00	0.00	14.39	102.20	0.00	1,824.5	0.0	1132.16	2266.64	3,398.80
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	0.80	1.00	0.00	12.76	46.38	0.00	1,096.9	0.0	1073.24	1099.98	2,173.22
														<b>27,000.0</b>	<b>0.0</b>			<b>32,290.80</b>

<b>Load Case:</b> 0.9D + 1.6W 90° Wind	0.9D + 1.6W 97 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	131.83	0.00	4,887.2	0.0	1766.46	1854.84	3,621.30
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	27.90	131.83	0.00	4,034.4	0.0	1528.22	1856.41	3,384.63
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	26.49	129.75	0.00	3,783.8	0.0	1678.40	2114.26	3,792.66
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	24.43	129.75	0.00	3,129.5	0.0	1673.54	2327.61	4,001.15
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	21.34	129.75	0.00	2,921.4	0.0	1555.08	2500.89	4,055.97
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	19.21	129.75	0.00	2,817.5	0.0	1434.69	2648.47	4,083.15
1 7	130.0	21.81	11.480	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.13	129.75	0.00	2,504.8	0.0	1363.70	2777.94	4,141.64
1 8	150.0	22.72	9.569	11.67	0.00	0.22	2.55	0.85	1.00	0.00	14.87	102.20	0.00	1,824.5	0.0	1169.80	2266.64	3,436.44
1 9	170.0	23.55	9.091	9.58	0.00	0.19	2.63	0.85	1.00	0.00	13.22	46.38	0.00	1,096.9	0.0	1111.46	1099.98	2,211.45
														<b>27,000.0</b>	<b>0.0</b>			<b>32,728.41</b>

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>12/20/2021</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi Normal Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 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)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	1.00	1.00	1.77	60.59	204.25	71.00	16,160.	9643.9	489.50	684.40	1,173.90
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	1.00	1.00	1.98	56.84	210.43	79.24	15,783.	10404.2	449.42	717.76	1,167.18
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	1.00	1.00	2.08	58.96	211.46	69.50	15,797.	10752.6	512.11	782.57	1,294.69
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	1.00	1.00	2.16	55.92	213.60	71.87	15,011.	10839.2	517.92	864.32	1,382.24
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	1.00	1.00	2.21	50.11	215.25	73.70	14,482.	10587.4	482.85	926.77	1,409.62
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	1.00	1.00	2.26	50.62	216.59	75.20	14,336.	10579.6	477.79	919.60	1,397.40
1 7	130.0	5.79	11.480	58.46	43.43	0.54	1.85	1.00	1.00	2.29	52.88	217.73	76.46	14,028.	10689.2	482.38	781.16	1,263.54
1 8	150.0	6.04	9.569	50.58	38.91	0.56	1.83	1.00	1.00	2.33	46.09	167.20	69.81	11,244.	8811.6	432.75	645.56	1,078.31
1 9	170.0	6.26	9.091	50.81	41.23	0.57	1.83	1.00	1.00	2.36	45.86	70.69	58.51	7,533.6	6071.1	445.72	385.31	831.03
														<b>124,378.6</b>	<b>88378.6</b>	<b>10,997.90</b>		

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 60° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 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)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	0.80	1.00	1.77	55.99	204.25	71.00	16,160.	9643.9	452.38	684.40	1,136.78
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	0.80	1.00	1.98	53.26	210.43	79.24	15,783.	10404.2	421.13	717.76	1,138.89
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	0.80	1.00	2.08	55.27	211.46	69.50	15,797.	10752.6	480.09	782.57	1,262.66
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	0.80	1.00	2.16	52.68	213.60	71.87	15,011.	10839.2	487.94	864.32	1,352.26
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	0.80	1.00	2.21	47.34	215.25	73.70	14,482.	10587.4	456.16	926.77	1,382.93
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	0.80	1.00	2.26	48.35	216.59	75.20	14,336.	10579.6	456.43	919.60	1,376.03
1 7	130.0	5.79	11.480	58.46	43.43	0.54	1.85	0.80	1.00	2.29	50.59	217.73	76.46	14,028.	10689.2	461.43	781.16	1,242.60
1 8	150.0	6.04	9.569	50.58	38.91	0.56	1.83	0.80	1.00	2.33	44.17	167.20	69.81	11,244.	8811.6	414.78	645.56	1,060.34
1 9	170.0	6.26	9.091	50.81	41.23	0.57	1.83	0.80	1.00	2.36	44.04	70.69	58.51	7,533.6	6071.1	428.05	385.31	813.36
														<b>124,378.6</b>	<b>88378.6</b>	<b>10,765.85</b>		

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
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<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 90° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

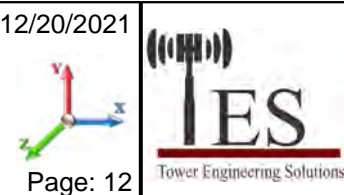
Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	0.85	1.00	1.77	57.14	204.25	71.00	16,160.0	9643.9	461.66	684.40	1,146.06	
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	0.85	1.00	1.98	54.16	210.43	79.24	15,783.0	10404.2	428.21	717.76	1,145.97	
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	0.85	1.00	2.08	56.19	211.46	69.50	15,797.0	10752.6	488.10	782.57	1,270.67	
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	0.85	1.00	2.16	53.49	213.60	71.87	15,011.0	10839.2	495.44	864.32	1,359.75	
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	0.85	1.00	2.21	48.03	215.25	73.70	14,482.0	10587.4	462.83	926.77	1,389.60	
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	0.85	1.00	2.26	48.92	216.59	75.20	14,336.0	10579.6	461.77	919.60	1,381.37	
1 7	130.0	5.79	11.480	58.46	43.43	0.54	1.85	0.85	1.00	2.29	51.16	217.73	76.46	14,028.0	10689.2	466.67	781.16	1,247.83	
1 8	150.0	6.04	9.569	50.58	38.91	0.56	1.83	0.85	1.00	2.33	44.65	167.20	69.81	11,244.0	8811.6	419.27	645.56	1,064.83	
1 9	170.0	6.26	9.091	50.81	41.23	0.57	1.83	0.85	1.00	2.36	44.50	70.69	58.51	7,533.6	6071.1	432.47	385.31	817.78	
														<b>124,378.6</b>	<b>88378.6</b>				<b>10,823.86</b>

<b>Load Case:</b> 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)						
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	38.72	131.83	0.00	5,430.3	0.0	507.97	443.55	951.52	
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	33.65	131.83	0.00	4,482.7	0.0	440.69	443.93	884.62	
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	30.97	129.75	0.00	4,204.2	0.0	469.20	505.59	974.79	
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	28.75	129.75	0.00	3,477.2	0.0	470.95	556.61	1,027.56	
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	24.42	129.75	0.00	3,246.0	0.0	425.64	598.04	1,023.69	
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	21.94	129.75	0.00	3,130.6	0.0	391.90	633.33	1,025.24	
1 7	130.0	8.34	11.480	15.03	0.00	0.22	2.54	1.00	1.00	0.00	20.16	129.75	0.00	2,783.1	0.0	362.78	664.30	1,027.08	
1 8	150.0	8.69	9.569	11.67	0.00	0.22	2.55	1.00	1.00	0.00	16.30	102.20	0.00	2,027.2	0.0	306.74	542.03	848.77	
1 9	170.0	9.01	9.091	9.58	0.00	0.19	2.63	1.00	1.00	0.00	14.58	46.38	0.00	1,218.7	0.0	293.21	263.04	556.25	
														<b>30,000.0</b>	<b>0.0</b>				<b>8,319.50</b>

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>12/20/2021</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.0D + 1.0W 60° Wind	1.0D + 1.0W 60 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	34.12	131.83	0.00	5,430.3	0.0	447.70	443.55	891.25
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	30.07	131.83	0.00	4,482.7	0.0	393.83	443.93	837.76
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	27.28	129.75	0.00	4,204.2	0.0	413.34	505.59	918.93
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	25.51	129.75	0.00	3,477.2	0.0	417.92	556.61	974.53
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	21.65	129.75	0.00	3,246.0	0.0	377.38	598.04	975.42
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	19.68	129.75	0.00	3,130.6	0.0	351.47	633.33	984.80
1 7	130.0	8.34	11.480	15.03	0.00	0.22	2.54	0.80	1.00	0.00	17.87	129.75	0.00	2,783.1	0.0	321.47	664.30	985.77
1 8	150.0	8.69	9.569	11.67	0.00	0.22	2.55	0.80	1.00	0.00	14.39	102.20	0.00	2,027.2	0.0	270.74	542.03	812.76
1 9	170.0	9.01	9.091	9.58	0.00	0.19	2.63	0.80	1.00	0.00	12.76	46.38	0.00	1,218.7	0.0	256.65	263.04	519.69
														<b>30,000.0</b>	<b>0.0</b>			<b>7,900.91</b>

<b>Load Case:</b> 1.0D + 1.0W 90° Wind	1.0D + 1.0W 60 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 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)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	35.27	131.83	0.00	5,430.3	0.0	462.77	443.55	906.32
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	30.97	131.83	0.00	4,482.7	0.0	405.54	443.93	849.47
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	28.20	129.75	0.00	4,204.2	0.0	427.30	505.59	932.89
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	26.32	129.75	0.00	3,477.2	0.0	431.18	556.61	987.79
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	22.34	129.75	0.00	3,246.0	0.0	389.44	598.04	987.49
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	20.24	129.75	0.00	3,130.6	0.0	361.58	633.33	994.91
1 7	130.0	8.34	11.480	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.44	129.75	0.00	2,783.1	0.0	331.80	664.30	996.10
1 8	150.0	8.69	9.569	11.67	0.00	0.22	2.55	0.85	1.00	0.00	14.87	102.20	0.00	2,027.2	0.0	279.74	542.03	821.77
1 9	170.0	9.01	9.091	9.58	0.00	0.19	2.63	0.85	1.00	0.00	13.22	46.38	0.00	1,218.7	0.0	265.79	263.04	528.83
														<b>30,000.0</b>	<b>0.0</b>			<b>8,005.56</b>

## Force/Stress Compression Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>12/20/2021</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
						X	Y	Z				
1	20	PX - 8" DIA PIPE	-310.23	1.2D + 1.6W Normal Wind	9.64	100	100	100	40.20	50.00	510.21	60.8 Member X
2	40	PSP - ROHN 8 EHS	-284.96	1.2D + 1.6W Normal Wind	9.64	100	100	100	39.63	50.00	389.94	73.1 Member X
3	60	PX - 6" DIA PIPE	-260.35	1.2D + 1.6W Normal Wind	6.43	100	100	100	35.21	50.00	345.23	75.4 Member X
4	80	PSP - ROHN 6 EHS	-230.37	1.2D + 1.6W Normal Wind	6.43	100	100	100	34.67	50.00	276.67	83.3 Member X
5	100	PX - 5" DIA PIPE	-202.48	1.2D + 1.6W Normal Wind	6.43	100	100	100	41.96	50.00	241.74	83.8 Member X
6	120	PX - 5" DIA PIPE	-177.04	1.2D + 1.6W Normal Wind	4.82	100	100	100	31.42	50.00	255.81	69.2 Member X
7	140	PX - 4" DIA PIPE	-133.86	1.2D + 1.6W Normal Wind	3.86	100	100	100	31.27	50.00	184.75	72.5 Member X
8	160	PST - 3" DIA PIPE	-83.31	1.2D + 1.6W Normal Wind	3.85	100	100	100	39.83	50.00	89.36	93.2 Member X
9	180	PST - 2-1/2" DIA PIPE	-26.64	1.2D + 1.6W Normal Wind	0.38	100	100	100	4.75	50.00	76.55	34.8 Member X

### Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice			
			Force (kips)	Cap (kips)	Use %	Bolt Type		Force (kips)	Cap (kips)	Use %	Bolt Type
1	20	1.2D + 1.6W Normal Wind	292.21	0.00	0.0		1.2D + 1.6W Normal Wind	317.47	0.00		
2	40	1.2D + 1.6W Normal Wind	266.41	0.00	0.0		1.2D + 1.6W Normal Wind	292.21	0.00	1 A325	8
3	60	1.2D + 1.6W Normal Wind	236.01	0.00	0.0		1.2D + 1.6W Normal Wind	266.41	0.00	1 A325	8
4	80	1.2D + 1.6W Normal Wind	206.88	0.00	0.0		1.2D + 1.6W Normal Wind	236.01	0.00	1 A325	6
5	100	1.2D + 1.6W Normal Wind	183.77	0.00	0.0		1.2D + 1.6W Normal Wind	206.88	0.00	1 A325	6
6	120	1.2D + 1.6W Normal Wind	138.16	0.00	0.0		1.2D + 1.6W Normal Wind	183.77	0.00	1 A325	4
7	140	1.2D + 1.6W Normal Wind	93.68	0.00	0.0		1.2D + 1.6W Normal Wind	138.16	0.00	1 A325	4
8	160	1.2D + 1.6W Normal Wind	26.76	0.00	0.0		1.2D + 1.6W Normal Wind	93.68	0.00	7/8 A325	4
9	180	1.2D + 1.0Di + 1.0Wi 60° Wind	0.54	0.00	0.0		1.2D + 1.6W Normal Wind	26.76	0.00	3/4 A325	4

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Shear		Bolt Use %	Controls		
											Num Holes	Bear Cap (kips)				
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	SAE - 1.75X1.75X0.125	-0.11	1.2D + 1.0Di + 1.0Wi 60° Wind	4.64	100	100	100	160.63	36.00	3.68	1	1	12.43	5.22	3 Member Z
8	160								0.00	0	0					
9	180	SAE - 1.75X1.75X0.125	-0.18	1.2D + 1.6W 90° Wind	4.64	100	100	100	160.63	36.00	3.68	1	1	12.43	5.22	5 Member Z

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Shear		Bolt Use %	Controls		
											Num Holes	Bear Cap (kips)				
1	20	SAE - 3.5X3.5X0.25	-7.49	0.9D + 1.6W 90° Wind	19.98	50	50	50	172.75	36.00	12.79	1	1	17.89	12.6	59 Bolt Bear
2	40	SAE - 3X3X0.25	-6.50	0.9D + 1.6W 90° Wind	19.05	50	50	50	193.07	36.00	8.73	1	1	17.89	12.6	74 Member Z
3	60	SAE - 2.5X2.5X0.25	-6.47	0.9D + 1.6W 90° Wind	15.86	50	50	50	193.85	36.00	7.15	1	1	12.43	10.4	90 Member Z
4	80	SAE - 2.5X2.5X0.1875	-5.63	0.9D + 1.6W 90° Wind	14.09	50	50	50	170.79	36.00	6.99	1	1	12.43	7.84	81 Member Z
5	100	SAE - 2.5X2.5X0.1875	-4.22	1.2D + 1.6W Normal Wind	10.88	50	50	50	131.83	36.00	11.71	1	1	12.43	7.84	54 Bolt Bear
6	120	SAE - 2X2X0.1875	-6.29	1.2D + 1.6W 90° Wind	8.48	50	50	50	129.10	36.00	9.57	1	1	12.43	7.84	80 Bolt Bear
7	140	SAE - 2X2X0.1875	-5.53	1.2D + 1.6W Normal Wind	6.22	50	50	50	101.08	36.00	13.43	1	1	12.43	7.84	71 Bolt Bear
8	160	SAE - 2X2X0.25	-7.47	1.2D + 1.6W 90° Wind	6.03	50	50	50	99.43	36.00	18.10	1	1	12.43	10.4	72 Bolt Bear
9	180	SAE - 1.75X1.75X0.1875	-4.24	1.2D + 1.6W 90° Wind	6.03	50	50	50	109.15	36.00	10.73	1	1	12.43	7.84	54 Bolt Bear

## Force/Stress Compression Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
						X	Y	Z								

## Force/Stress Tension Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	280.55	0.9D + 1.6W 60° Wind	50	574.20	48.9	Member
2	40	PSP - ROHN 8 EHS	259.15	0.9D + 1.6W 60° Wind	50	437.40	59.2	Member
3	60	PX - 6" DIA PIPE	237.52	0.9D + 1.6W 60° Wind	50	378.00	62.8	Member
4	80	PSP - ROHN 6 EHS	211.50	0.9D + 1.6W 60° Wind	50	302.09	70.0	Member
5	100	PX - 5" DIA PIPE	186.04	0.9D + 1.6W 60° Wind	50	274.95	67.7	Member
6	120	PX - 5" DIA PIPE	165.90	0.9D + 1.6W 60° Wind	50	274.95	60.3	Member
7	140	PX - 4" DIA PIPE	124.19	0.9D + 1.6W 60° Wind	50	198.45	62.6	Member
8	160	PST - 3" DIA PIPE	83.07	0.9D + 1.6W 60° Wind	50	100.35	82.8	Member
9	180	PST - 2-1/2" DIA PIPE	22.69	0.9D + 1.6W 60° Wind	50	76.68	29.6	Member

### Splices

Sect	Top Elev	Top Splice					Bottom Splice						
		Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	258.80	0.00	0.0			0.9D + 1.6W 60° Wind	280.5	0.00			
2	40	0.9D + 1.6W 60° Wind	237.24	0.00	0.0			0.9D + 1.6W 60° Wind	258.8	424.08	61.0	1 A325	8
3	60	0.9D + 1.6W 60° Wind	211.24	0.00	0.0			0.9D + 1.6W 60° Wind	237.2	424.08	55.9	1 A325	8
4	80	0.9D + 1.6W 60° Wind	185.79	0.00	0.0			0.9D + 1.6W 60° Wind	211.2	318.06	66.4	1 A325	6
5	100	0.9D + 1.6W 60° Wind	165.87	0.00	0.0			0.9D + 1.6W 60° Wind	185.7	318.06	58.4	1 A325	6
6	120	0.9D + 1.6W 60° Wind	123.96	0.00	0.0			0.9D + 1.6W 60° Wind	165.8	212.04	78.2	1 A325	4
7	140	0.9D + 1.6W 60° Wind	82.81	0.00	0.0			0.9D + 1.6W 60° Wind	123.9	212.04	58.5	1 A325	4
8	160	0.9D + 1.6W 60° Wind	22.60	0.00	0.0			0.9D + 1.6W 60° Wind	82.81	166.24	49.8	7/8 A325	4
9	180		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	22.60	120.40	18.8	3/4 A325	4

### 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	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE - 1.75X1.75X0.125			36	0.00	0	0					
8	160	-			36	0.00	0	0					
9	180	SAE - 1.75X1.75X0.125	0.20	0.9D + 1.6W 60° Wind	36	10.64	1	1	12.43	5.22	4.56	4.3	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 - 3.5X3.5X0.25	7.28	0.9D + 1.6W 90° Wind	36	48.00	1	1	17.89	12.62	21.48	57.7	Bolt Bear
2	40	SAE - 3X3X0.25	6.30	0.9D + 1.6W 90° Wind	36	39.84	1	1	17.89	12.62	16.04	50.0	Bolt Bear
3	60	SAE - 2.5X2.5X0.25	6.50	0.9D + 1.6W 90° Wind	36	32.71	1	1	12.43	10.45	13.19	62.2	Bolt Bear
4	80	SAE - 2.5X2.5X0.1875	5.56	1.2D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	71.0	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	3.73	0.9D + 1.6W 60° Wind	36	24.84	1	1	12.43	7.84	9.89	47.6	Bolt Bear
6	120	SAE - 2X2X0.1875	6.18	1.2D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	78.9	Bolt Bear
7	140	SAE - 2X2X0.1875	5.14	1.2D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	65.6	Bolt Bear
8	160	SAE - 2X2X0.25	7.20	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	10.45	10.47	68.9	Bolt Bear
9	180	SAE - 1.75X1.75X0.1875	4.29	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	62.8	Blck Shear



## Seismic Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case: 1.2D + 1.0E**

<b>Dead Load Factor</b>	1.20	<b>Sds</b> 0.184	<b>Ss</b> 0.1730	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.102	<b>S1</b> 0.0640	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.139	<b>R</b> 3.0000	<b>Vs</b> 2.2624	<b>f1</b> 1.3644

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	5430.2	0.01	0.05	0.03	21.67
2	30.00	4482.6	0.05	0.07	0.04	35.66
3	50.00	4204.1	0.15	0.07	0.03	50.55
4	70.00	3477.2	0.29	0.05	0.01	59.29
5	90.00	3246.0	0.47	-0.01	0.01	69.44
6	110.00	3130.6	0.71	-0.09	0.03	78.31
7	130.00	4657.1	0.99	-0.11	0.12	155.08
8	150.00	5528.5	1.31	0.14	0.35	315.81
9	170.00	6307.7	1.69	1.07	0.79	676.05

**Load Case: 0.9D + 1.0E**

<b>Dead Load Factor</b>	0.90	<b>Sds</b> 0.184	<b>Ss</b> 0.1730	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.102	<b>S1</b> 0.0640	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.139	<b>R</b> 3.0000	<b>Vs</b> 2.2624	<b>f1</b> 1.3644

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	5430.2	0.01	0.05	0.03	21.67
2	30.00	4482.6	0.05	0.07	0.04	35.66
3	50.00	4204.1	0.15	0.07	0.03	50.55
4	70.00	3477.2	0.29	0.05	0.01	59.29
5	90.00	3246.0	0.47	-0.01	0.01	69.44
6	110.00	3130.6	0.71	-0.09	0.03	78.31
7	130.00	4657.1	0.99	-0.11	0.12	155.08
8	150.00	5528.5	1.31	0.14	0.35	315.81
9	170.00	6307.7	1.69	1.07	0.79	676.05

## Support Forces Summary

**Structure:** CT13617-A-SBA

**Code:** EIA/TIA-222-G

12/20/2021

**Site Name:** Troiano Realty

**Exposure:** B



**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

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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	-0.01	316.77	-29.09	
	1a	10.26	-134.11	-8.44	
	1b	-10.25	-134.10	-8.45	
1.2D + 1.6W 60° Wind	1	-1.99	162.03	-14.56	
	1a	-13.60	162.24	5.56	
	1b	-22.71	-275.71	-13.12	
1.2D + 1.6W 90° Wind	1	-2.37	16.19	-1.00	
	1a	-21.95	270.96	11.34	
	1b	-20.35	-238.59	-10.34	
0.9D + 1.6W Normal Wind	1	-0.01	312.12	-28.82	
	1a	10.48	-137.86	-8.57	
	1b	-10.47	-137.85	-8.59	
0.9D + 1.6W 60° Wind	1	-2.00	157.70	-14.29	
	1a	-13.38	157.90	5.42	
	1b	-22.93	-279.18	-13.24	
0.9D + 1.6W 90° Wind	1	-2.38	12.14	-0.74	
	1a	-21.72	266.40	11.20	
	1b	-20.57	-242.13	-10.47	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	145.59	-9.42	
	1a	2.93	5.07	-2.46	
	1b	-2.93	5.12	-2.46	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.64	98.18	-4.96	
	1a	-4.62	98.21	1.93	
	1b	-6.96	-40.62	-4.02	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.75	51.91	-0.63	
	1a	-7.25	132.34	3.76	
	1b	-6.17	-28.48	-3.12	
1.2D + 1.0E	1	0.00	28.66	3.98	
	1a	4.68	9.95	-2.70	
	1b	-4.68	9.95	-2.70	
0.9D + 1.0E	1	0.00	24.58	4.25	
	1a	4.91	5.92	-2.84	
	1b	-4.91	5.92	-2.84	
1.0D + 1.0W Normal Wind	1	0.00	85.83	-7.69	
	1a	1.94	-22.69	-1.74	
	1b	-1.93	-22.68	-1.74	
1.0D + 1.0W 60° Wind	1	-0.50	48.60	-4.16	
	1a	-3.86	48.65	1.65	
	1b	-4.95	-56.79	-2.86	
1.0D + 1.0W 90° Wind	1	-0.59	13.49	-0.87	
	1a	-5.88	74.81	3.06	
	1b	-4.38	-47.83	-2.19	

### Max Reactions

---

Leg		Overturning	
Max Uplift:	-279.18 (kips)	Moment:	4943.27 (ft-kips)
Max Down:	316.77 (kips)	Total Down:	48.56 (kips)
Max Shear:	29.09 (kips)	Total Shear:	45.98 (kips)

## Analysis Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/20/2021
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 19



### Max Reactions

	Leg	Overturning
Max Uplift:	-279.18 (kips)	Moment: 4943.27 (ft-kips)
Max Down:	316.77 (kips)	Total Down: 48.56 (kips)
Max Shear:	29.09 (kips)	Total Shear: 45.98 (kips)

### Anchor Bolts

Bolt Size (in.): 1.00	Number Bolts: 8
Yield Strength (Ksi): 109.00	Tensile Strength (Ksi): 125.00
Detail Type: C	

**Interaction Ratio: 0.69**


### Max Usages

Max Leg: 93.2% (1.2D + 1.6W Normal Wind - Sect 8)  
 Max Diag: 90.4% (0.9D + 1.6W 90° Wind - Sect 3)  
 Max Horiz: 5.0% (1.2D + 1.6W 90° Wind - Sect 9)

### Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	140.00	0.0616	-0.0021	0.0758
	148.08	0.0724	-0.0020	0.0844
	168.08	0.1051	-0.0017	0.1005
	175.78	0.1186	-0.0017	0.1001
	180.00	0.1261	-0.0016	0.1043
0.9D + 1.6W 97 mph Wind at 60° From Face	140.00	1.2300	-0.0916	1.3740
	148.08	1.4206	-0.1087	1.4424
	168.08	1.9665	-0.1708	1.6537
	175.78	2.1861	-0.2023	1.6847
	180.00	2.3066	-0.2055	1.6181
0.9D + 1.6W 97 mph Wind at 90° From Face	140.00	1.2379	-0.0650	1.3691
	148.08	1.4295	-0.0649	1.4567
	168.08	1.9794	-0.0649	1.6647
	175.78	2.2007	-0.0649	1.7389
	180.00	2.3219	-0.0649	1.6109
0.9D + 1.6W 97 mph Wind at Normal To Face	140.00	1.2581	0.0558	1.4053
	148.08	1.4515	0.0565	1.4670
	168.08	2.0066	0.0558	1.6661
	175.78	2.2288	0.0561	1.5741
	180.00	2.3505	-0.0551	1.7020
1.0D + 1.0W 60 mph Wind at 60° From Face	140.00	0.2954	-0.0150	0.3307
	148.08	0.3411	-0.0158	0.3452
	168.08	0.4720	-0.0190	0.3971
	175.78	0.5246	-0.0207	0.4034
	180.00	0.5534	-0.0209	0.3880

1.0D + 1.0W 60 mph Wind at 90° From Face	140.00	0.2973	-0.0151	0.3284
	148.08	0.3432	-0.0150	0.3493
	168.08	0.4751	-0.0146	0.3996
	175.78	0.5281	-0.0144	0.4166
	180.00	0.5571	-0.0144	0.3860
-----				
1.0D + 1.0W 60 mph Wind at Normal To Face	140.00	0.3023	0.0133	0.3359
	148.08	0.3488	0.0131	0.3526
	168.08	0.4819	0.0128	0.3988
	175.78	0.5352	0.0127	0.3777
	180.00	0.5644	-0.0124	0.4079
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	140.00	0.3881	-0.0194	0.4343
	148.08	0.4477	-0.0202	0.4524
	168.08	0.6185	-0.0236	0.5199
	175.78	0.6873	-0.0253	0.5205
	180.00	0.7251	-0.0255	0.5110
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	140.00	0.3891	-0.0201	0.4297
	148.08	0.4488	-0.0200	0.4551
	168.08	0.6203	-0.0197	0.5208
	175.78	0.6893	-0.0197	0.5312
	180.00	0.7272	-0.0197	0.5084
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	140.00	0.3915	0.0175	0.4330
	148.08	0.4514	0.0175	0.4578
	168.08	0.6237	0.0173	0.5168
	175.78	0.6928	0.0172	0.5000
	180.00	0.7307	-0.0170	0.5253
-----				
1.2D + 1.0E - Normal To Face	140.00	0.0618	0.0021	0.0760
	148.08	0.0727	-0.0020	0.0848
	168.08	0.1055	-0.0018	0.1009
	175.78	0.1190	-0.0017	0.1005
	180.00	0.1265	-0.0017	0.1045
-----				
1.2D + 1.6W 97 mph Wind at 60° From Face	140.00	1.2339	-0.0920	1.3799
	148.08	1.4253	-0.1092	1.4483
	168.08	1.9735	-0.1715	1.6612
	175.78	2.1941	-0.2032	1.6918
	180.00	2.3151	-0.2064	1.6253
-----				
1.2D + 1.6W 97 mph Wind at 90° From Face	140.00	1.2418	-0.0653	1.3746
	148.08	1.4342	-0.0652	1.4629
	168.08	1.9866	-0.0652	1.6722
	175.78	2.2088	-0.0652	1.7461
	180.00	2.3305	-0.0652	1.6181
-----				
1.2D + 1.6W 97 mph Wind at Normal To Face	140.00	1.2621	0.0561	1.4109
	148.08	1.4563	0.0568	1.4734
	168.08	2.0138	0.0561	1.6732
	175.78	2.2370	0.0564	1.5815
	180.00	2.3593	-0.0553	1.7092
-----				

	<b>Mat Foundation Design for Self Supporting Tower</b>			Date 12/20/2021
	Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	180
	Site Number:	CT13617-A-SBA	Engineer Name:	J. Tibbetts
	Engr. Number:	120643	Engineer Login ID:	

**Foundation Info Obtained from:**

**Analysis or Design?**

**Number of Tower Legs:**

**Base Reactions (Factored):**

(1). Individual Leg:

Axial Load (Kips):	316.8	Uplift Force (Kips):	279.2
Shear Force (Kips):	29.1		

(2). Tower Base:

Total Vertical Load (Kips):	48.6	Total Shear Force (Kips):	46.0
Moment (Kips-ft):	4943.3		

**Foundation Geometries:**

Leg distance (Center-to-Center ft.):	19.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round 4.0	Pier Height A. G. (ft.):	0.00
Tower center to mat center (ft):	0	Depth of Base BG (ft.):	6.0
Length of Pad (ft.):	27	Width of Pad (ft.):	27
Thickness of Pad (ft):	3.00		

**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi):	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	12	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

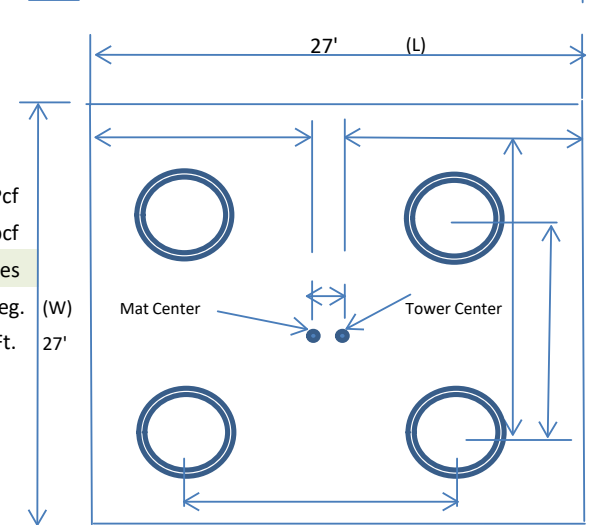
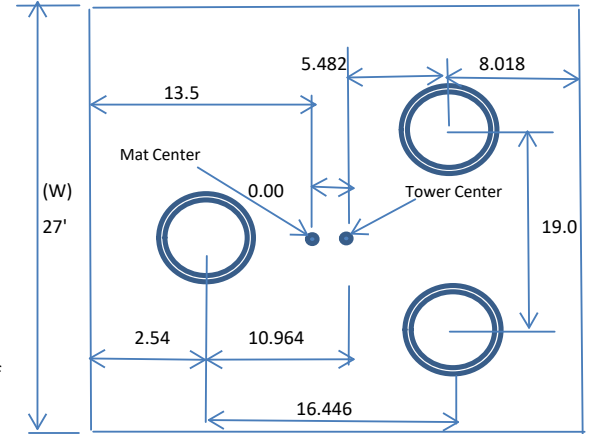
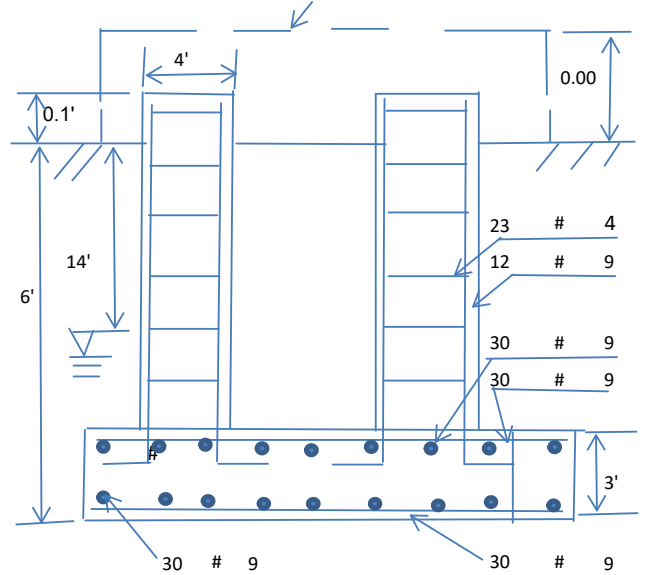
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
---------------------------	----	---------------------------	----

**Soil Design Parameters:**

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	14.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	16000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	Yes	Enter soil C (psf) or Phi (deg.):	30.0	Deg. (W)
		Depth to ignor lateral resistance	1.0	Ft. 27'



<b>Foundation Analysis and Design:</b>	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2073.90	Total Dry Soil Weight (Kips):	248.87	
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00	
Total Effective Soil Weight (Kips):	248.87	Weight from the Concrete Block at Top (K):	0.00	
Total Dry Concrete Volume (cu. Ft.):	2300.10	Total Dry Concrete Weight (Kips):	345.02	
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00	
Total Effective Concrete Weight (Kips):	345.02	Total Vertical Load on Base (Kips):	642.44	

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2926.45	<	Allowable Factored Soil Bearing (psf):	12000	0.24	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7871.2	>	Design Factored Momont (kips-ft):	5195	0.66	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.52					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 compression):	0.65	Wind Load Factor on Concrete Design:	1.00			
<b>(1) Concrete Pier:</b>						
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20			
Calculated Moment Capacity (Mn,Kips-Ft):	662.8	>	Design Factored Moment (Mu, Kips-Ft)	85.8	0.13	OK!
Calculated Shear Capacity (Kips):	328.0	>	Design Factored Shear (Kips):	29.1	0.09	OK!
Calculated Tension Capacity (Tn, Kips):	648.0	>	Design Factored Tension (Tu Kips):	279.2	0.43	OK!
Calculated Compression Capacity (Pn, Kips):	2383.6	>	Design Factored Axial Load (Pu Kips):	316.8	0.13	OK!
Moment & Tension Strength Combination:	0.13	OK!	Check Tie Spacing (Design/Req'd):	0.25		
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI			

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L or W Direction, Kips):	863.5	>	One-Way Factored Shear (L/W-Dir Kips)	261.2	0.30	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	609.8	>	One-Way Factored Shear (Dia. Dir, Kips)	194.8	0.32	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct. ):	0.0029		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0028		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	4232.0	>	Moment at Bottom ( L-Direct. K-Ft):	1302.8	0.31	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	3838.3	>	Moment at Bottom ( Dia. Dir. K-Ft):	1157.7	0.30	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0029		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0028		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	4232.0	>	Moment at the top (L-Dir Kips-Ft):	566.2	0.13	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	3838.3	>	Moment at the top (Dia. Dir., K-Ft):	354.4	0.09	OK!
Punching Failure Capacity (Kips):	997.9	>	Punch. Failure Factored Shear (K):	316.8	0.32	OK!

# EXHIBIT 9

## Antenna Mount Analysis





January 6, 2022

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

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

**Subject:** Appurtenance Mount Analysis Report

**Carrier Designation:** Dish Wireless Co-Locate  
**Site Number:** BOBDL00112B

**SBA Network Services Designation:** **Site Number:** CT13617-A  
**Site Name:** Troiano Realty  
**Application Number:** 181997, v1

**Engineering Firm Designation:** **Project Number:** 136019.004.01

**Site Data:** 157 Chestnut Hill Road, Stafford Springs, CT, 06076, Tolland County  
Latitude 41.97738°, Longitude -72.383305°  
Self-Support Tower  
8' Sector Mount

Dear Mr. Knapik,

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

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

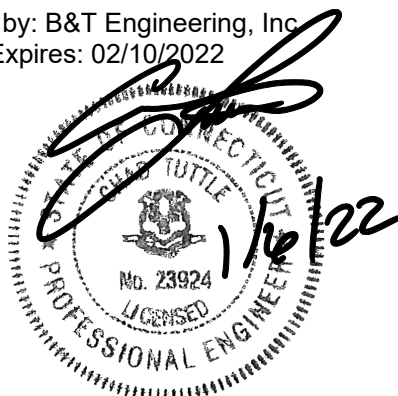
Proposed Equipment **Sufficient Capacity**  
Note: See Table 1 for the final loading configuration **(Passing at 52.1%)**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We 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: Suman Rana, P.E.

Respectfully submitted by: B&T Engineering, Inc  
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

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RISA-3D Output

### 7) APPENDIX B

Additional Calculations

## 1) INTRODUCTION

The mount consists of CommScope sector mount, Part #MTC3975083 at 140 ft., attached to self-support tower at 157 Chestnut Hill Road, Stafford Springs, CT, 06076, Tolland County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to us 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 117 mph with no ice and 50 mph with 1.5 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

**Table 1 – Proposed Equipment Information**

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	140	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

Note:

- (1) Proposed Antenna to be installed on the 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
Collo App	Proposed Loading	Date: 12/02/2021	SBA Network Services, LLC.

## 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
-	Main Face Horizontals	140	10.4	Pass
-	Support Arm	140	29.5	Pass
-	Diagonals	140	32.8	Pass
-	Connection Plates	140	24.3	Pass
-	Verticals	140	52.1	Pass
-	Tieback	140	8.2	Pass
-	Mount Pipes	140	15.9	Pass

#### 5) RECOMMENDATIONS

The Commscope sector mount, Part # MTC3975083 has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

# APPENDIX A

(RISA-3D Output)



B+T Group

SP

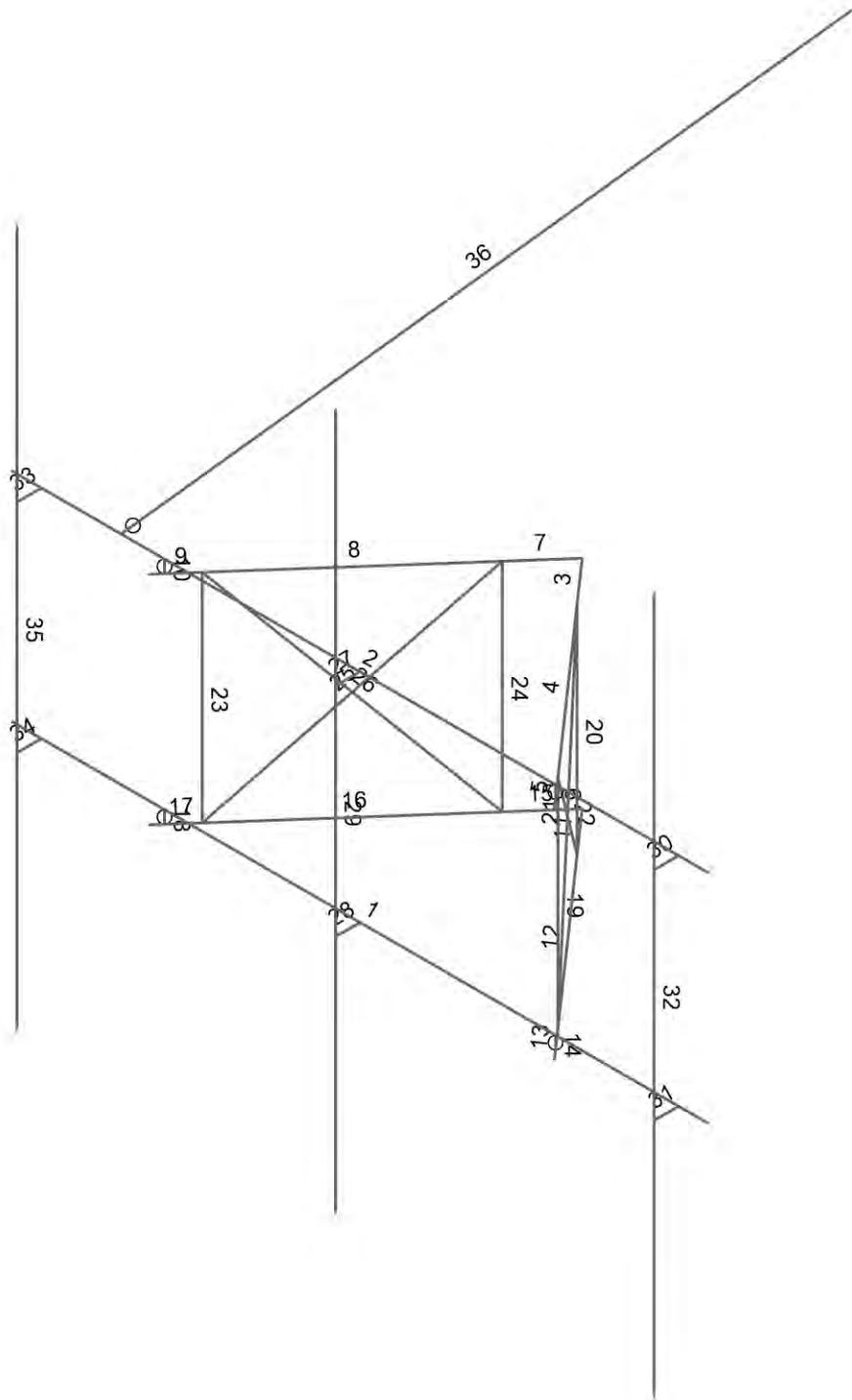
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CT13617-A - Troiano Realty

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Jan 06, 2022

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SP

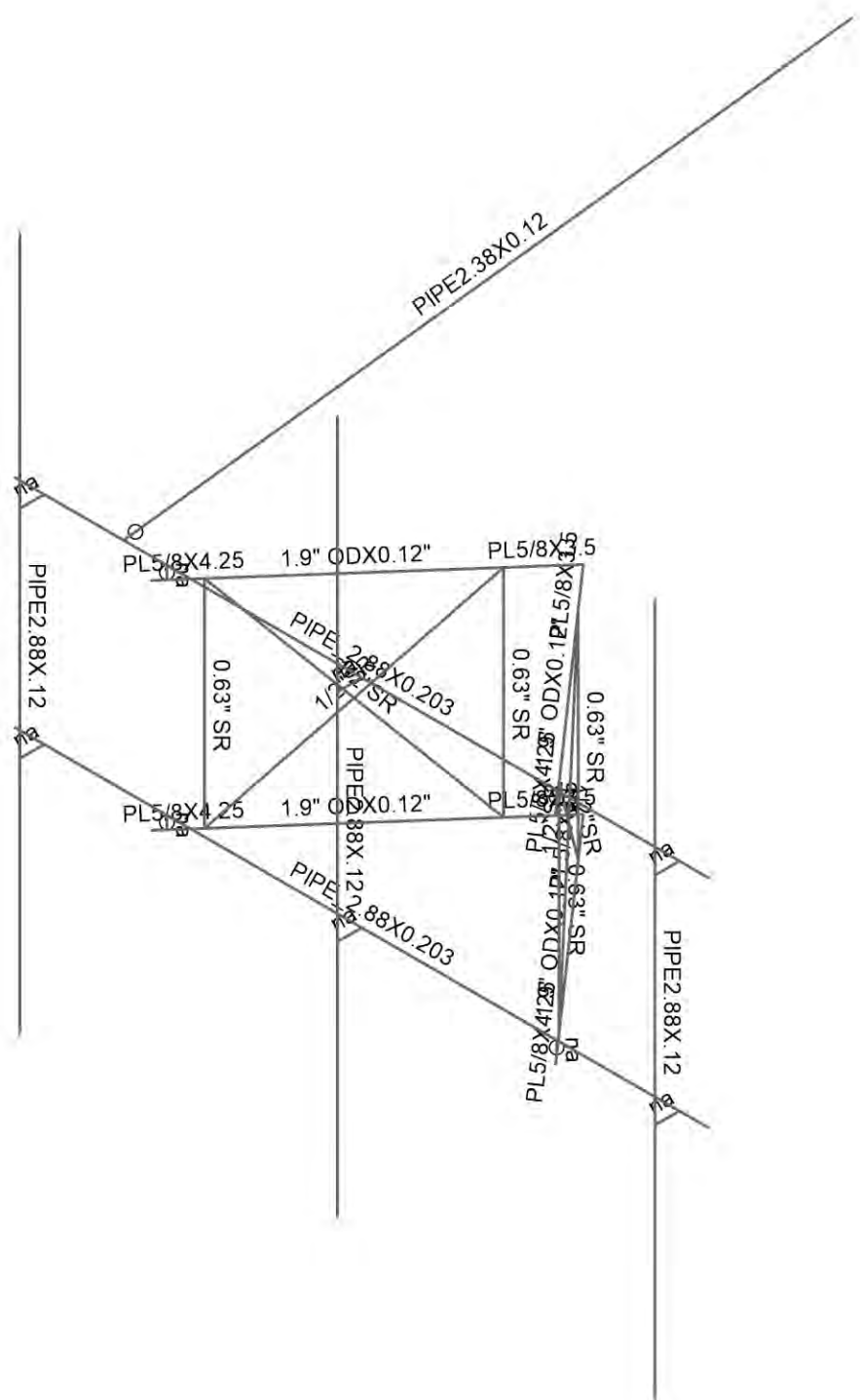
136019.004.01

CT13617-A - Troiano Realty

SP-2

Jan 06, 2022

136019\_004\_01\_Troiano Realty\_...



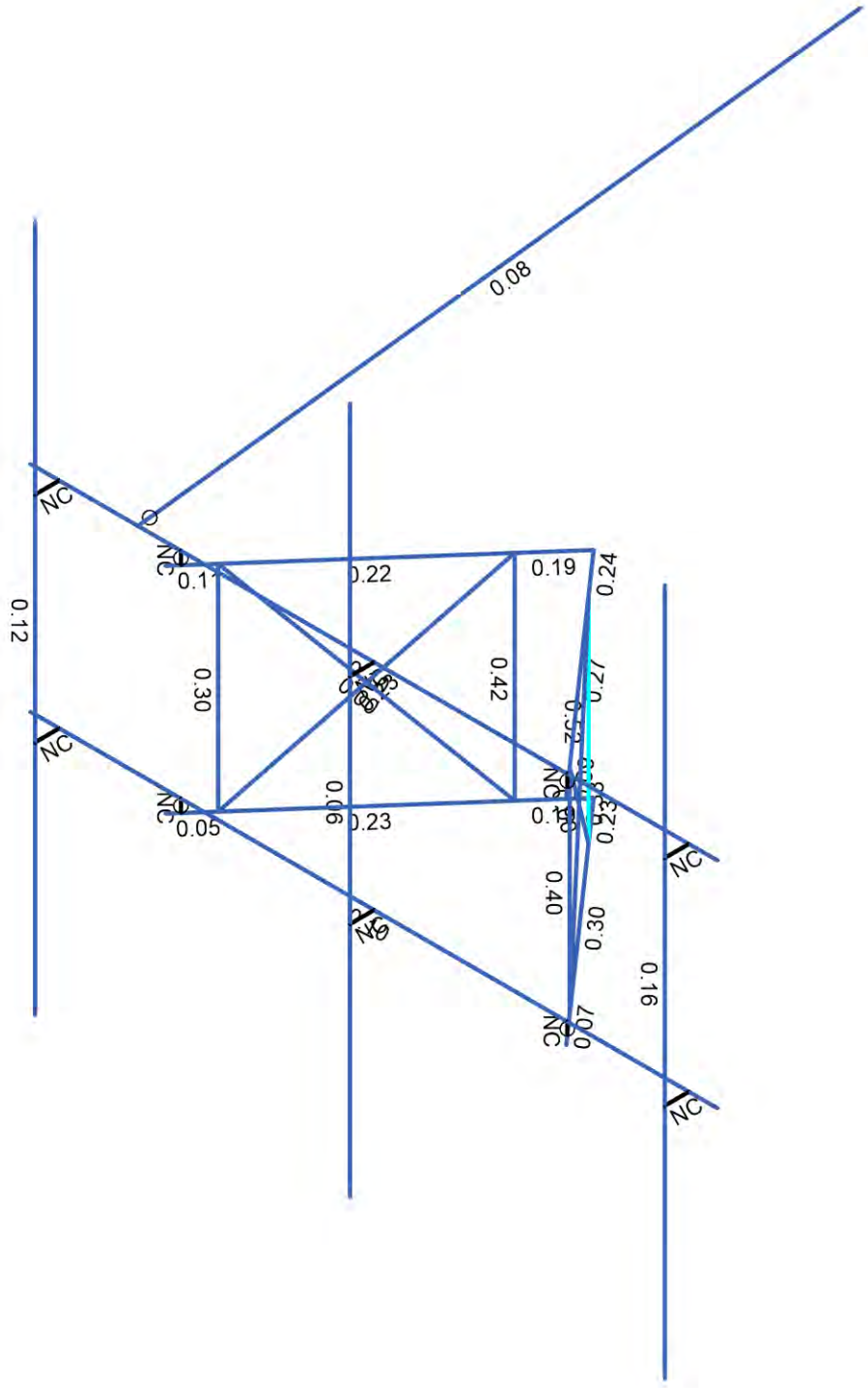
B+T Group	CT13617-A - Troiano Realty	SP-3
SP		Jan 06, 2022
136019.004.01		136019_004_01_Troiano Realty_...





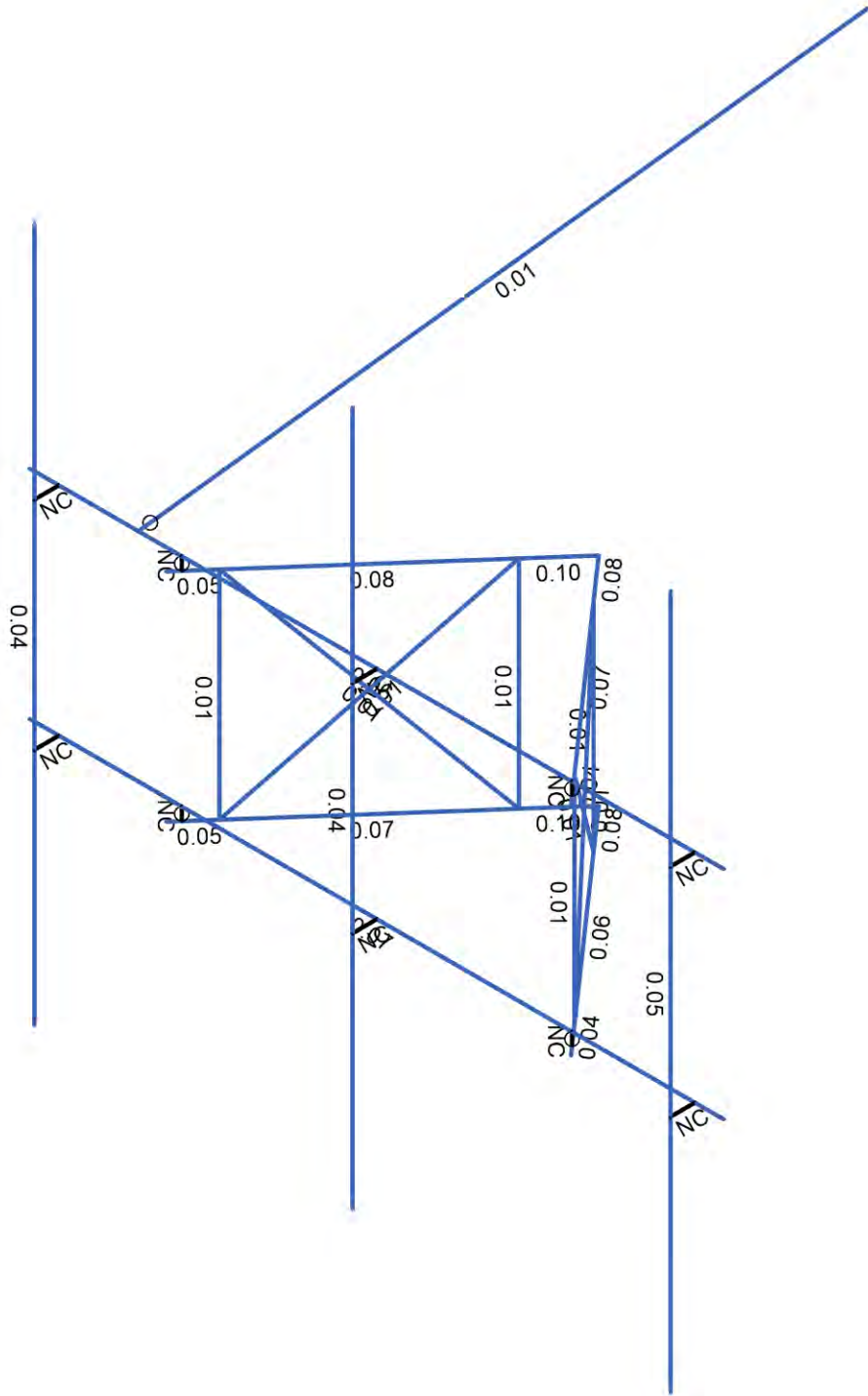
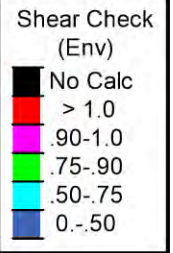
Code Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group	CT13617-A - Troiano Realty	SP-4
SP		Jan 06, 2022
136019.004.01		136019_004_01_Troiano Realty_...



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group
SP
136019.004.01

CT13617-A - Troiano Realty
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SP-5
Jan 06, 2022
136019_004_01_Troiano Realty_...



**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-4	-2.354167	2.796875	
2	2	4	-2.354167	2.796875	
3	3	-4	0.145833	2.796875	
4	4	4	0.145833	2.796875	
5	5	0.467947	0	0.771833	
6	6	0.385368	0	0.677994	
7	7	2.091999	0	2.61733	
8	8	2.00942	0	2.523491	
9	9	2.332579	0	2.890714	
10	10	2.25	0.145833	2.796875	
11	11	2.25	0	2.796875	
12	12	0	0	0.24008	
13	13	-0.467947	0	0.771833	
14	14	-0.385368	0	0.677994	
15	15	-2.091999	0	2.61733	
16	16	-2.00942	0	2.523491	
17	17	-2.332579	0	2.890714	
18	18	-2.25	0.145833	2.796875	
19	19	-2.25	0	2.796875	
20	20	0.467947	-2.5	0.771833	
21	21	0.385368	-2.5	0.677994	
22	22	2.091999	-2.5	2.61733	
23	23	2.00942	-2.5	2.523491	
24	24	2.332579	-2.5	2.890714	
25	25	2.25	-2.354167	2.796875	
26	26	2.25	-2.5	2.796875	
27	27	0	-2.5	0.24008	
28	28	-0.467947	-2.5	0.771833	
29	29	-0.385368	-2.5	0.677994	
30	30	-2.091999	-2.5	2.61733	
31	31	-2.00942	-2.5	2.523491	
32	32	-2.332579	-2.5	2.890714	
33	33	-2.25	-2.354167	2.796875	
34	34	-2.25	-2.5	2.796875	
35	35	0.430236	0	0.72898	
36	36	2.047131	-2.5	2.566344	
37	37	2.047131	0	2.566344	
38	38	0.430236	-2.5	0.72898	
39	39	-0.430236	0	0.72898	
40	40	-2.047131	-2.5	2.566344	
41	41	-2.047131	0	2.566344	
42	42	-0.430236	-2.5	0.72898	
43	43	0	0.145833	2.796875	
44	44	0	0.145833	3.078125	
45	45	0	-2.354167	2.796875	
46	46	0	-2.354167	3.078125	
47	47	0	2.895833	3.078125	
48	48	0	-5.104167	3.078125	
49	49	3.666667	0.145833	2.796875	
50	50	3.666667	0.145833	3.078125	
51	51	3.666667	-2.354167	2.796875	
52	52	3.666667	-2.354167	3.078125	
53	53	3.666667	2.895833	3.078125	
54	54	3.666667	-5.104167	3.078125	
55	55	-3.666667	0.145833	2.796875	

**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.666667	0.145833	3.078125	
57	57	-3.666667	-2.354167	2.796875	
58	58	-3.666667	-2.354167	3.078125	
59	59	-3.666667	2.895833	3.078125	
60	60	-3.666667	-5.104167	3.078125	
61	61	0	0	0	
62	62	-2.75	0.145833	2.796875	
63	63	-3.914444	0	-6.780017	

**Node Boundary Conditions**

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	12	Reaction	Reaction	Reaction
2	27	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A529 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
9	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
10	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
11	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	MF-H1	PIPE 2.88x0.203	Beam	None	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
2	MF-SA1	1.9" ODx0.12"	Beam	None	A500 Gr.B RND	Typical	0.671	0.267	0.267	0.534
3	MF-D1	1/2"SR	VBrace	None	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8x3.5	Beam	None	A572 Gr.50	Typical	2.205	0.073	2.251	0.259
5	MF-V1	0.63" SR	Column	None	A529 Gr.50	Typical	0.312	0.008	0.008	0.015
6	MF-CP2	PL5/8x4.25	Beam	None	A572 Gr.50	Typical	2.656	0.086	3.998	0.314
7	Tieback	Pipe2.38X0.12	Beam	None	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
8	MF-P1	Pipe2.88x.12	Column	None	A500 Gr.C	Typical	1.04	0.993	0.993	1.985

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	None	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	None	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	None	A572 Gr.50	Typical
4	4	6	7		MF-SA1	Beam	None	A500 Gr.B RND	Typical
5	5	8	9	90	MF-CP2	Beam	None	A572 Gr.50	Typical
6	6	10	11	90	RIGID	None	None	RIGID	Typical
7	7	12	13	90	MF-CP1	Beam	None	A572 Gr.50	Typical
8	8	14	15		MF-SA1	Beam	None	A500 Gr.B RND	Typical



**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
9	9	16	17	90	MF-CP2	Beam	None	A572 Gr.50	Typical
10	10	18	19	90	RIGID	None	None	RIGID	Typical
11	11	27	20	90	MF-CP1	Beam	None	A572 Gr.50	Typical
12	12	21	22		MF- SA1	Beam	None	A500 Gr.B RND	Typical
13	13	23	24	90	MF-CP2	Beam	None	A572 Gr.50	Typical
14	14	25	26	90	RIGID	None	None	RIGID	Typical
15	15	27	28	90	MF-CP1	Beam	None	A572 Gr.50	Typical
16	16	29	30		MF- SA1	Beam	None	A500 Gr.B RND	Typical
17	17	31	32	90	MF-CP2	Beam	None	A572 Gr.50	Typical
18	18	33	34	90	RIGID	None	None	RIGID	Typical
19	19	37	36		MF-V1	Column	None	A529 Gr.50	Typical
20	20	35	38		MF-V1	Column	None	A529 Gr.50	Typical
21	21	35	36		MF-D1	VBrace	None	A529 Gr.50	Typical
22	22	37	38		MF-D1	VBrace	None	A529 Gr.50	Typical
23	23	41	40		MF-V1	Column	None	A529 Gr.50	Typical
24	24	39	42		MF-V1	Column	None	A529 Gr.50	Typical
25	25	39	40		MF-D1	VBrace	None	A529 Gr.50	Typical
26	26	41	42		MF-D1	VBrace	None	A529 Gr.50	Typical
27	27	43	44	90	RIGID	None	None	RIGID	Typical
28	28	45	46	90	RIGID	None	None	RIGID	Typical
29	29	47	48		MF-P1	Column	None	A500 Gr.C	Typical
30	30	49	50	90	RIGID	None	None	RIGID	Typical
31	31	51	52	90	RIGID	None	None	RIGID	Typical
32	32	53	54		MF-P1	Column	None	A500 Gr.C	Typical
33	33	55	56	90	RIGID	None	None	RIGID	Typical
34	34	57	58	90	RIGID	None	None	RIGID	Typical
35	35	59	60		MF-P1	Column	None	A500 Gr.C	Typical
36	36	62	63		Tieback	Beam	None	A500 Gr.C	Typical

**Member Advanced Data**

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	Default	None
3	3			Yes	N/A	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6	OOOOXO		Yes	** NA **	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None
9	9			Yes	N/A	None
10	10	OOOOXO		Yes	** NA **	None
11	11			Yes	N/A	None
12	12			Yes	N/A	None
13	13			Yes	N/A	None
14	14	OOOOXO		Yes	** NA **	None
15	15			Yes	N/A	None
16	16			Yes	N/A	None
17	17			Yes	N/A	None
18	18	OOOOXO		Yes	** NA **	None
19	19			Yes	** NA **	None
20	20			Yes	** NA **	None
21	21			Yes	** NA **	None
22	22		Euler Buckling	Yes	** NA **	None
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None

**Member Advanced Data (Continued)**

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
25	25			Yes	** NA **	None
26	26		Euler Buckling	Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	** NA **	None
31	31			Yes	** NA **	None
32	32			Yes	** NA **	None
33	33			Yes	** NA **	None
34	34			Yes	** NA **	None
35	35			Yes	** NA **	None
36	36	BenPIN		Yes	Default	None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-H1	8	Lbyy	Lateral
2	2	MF-H1	8	Lbyy	Lateral
3	3	MF-CP1	0.708	Lbyy	Lateral
4	4	MF-SA1	2.583	Lbyy	Lateral
5	5	MF-CP2	0.489	Lbyy	Lateral
6	7	MF-CP1	0.708	Lbyy	Lateral
7	8	MF-SA1	2.583	Lbyy	Lateral
8	9	MF-CP2	0.489	Lbyy	Lateral
9	11	MF-CP1	0.708	Lbyy	Lateral
10	12	MF-SA1	2.583	Lbyy	Lateral
11	13	MF-CP2	0.489	Lbyy	Lateral
12	15	MF-CP1	0.708	Lbyy	Lateral
13	16	MF-SA1	2.583	Lbyy	Lateral
14	17	MF-CP2	0.489	Lbyy	Lateral
15	19	MF-V1	2.5	Lbyy	Lateral
16	20	MF-V1	2.5	Lbyy	Lateral
17	21	MF-D1	3.499	Lbyy	Lateral
18	22	MF-D1	3.499	Lbyy	Lateral
19	23	MF-V1	2.5	Lbyy	Lateral
20	24	MF-V1	2.5	Lbyy	Lateral
21	25	MF-D1	3.499	Lbyy	Lateral
22	26	MF-D1	3.499	Lbyy	Lateral
23	29	MF-P1	8	Lbyy	Lateral
24	32	MF-P1	8	Lbyy	Lateral
25	35	MF-P1	8	Lbyy	Lateral
26	36	Tieback	9.649	Lbyy	Lateral

**Member Point Loads (BLC 1 : Dead)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.032	%15
2	32	Y	-0.032	%85
3	32	Y	-0.075	%20
4	32	Y	-0.064	%50
5	32	Y	0	0
6	8	Y	-0.022	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0



**Member Point Loads (BLC 1 : Dead) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	8	Y	0	0

**Member Point Loads (BLC 2 : 0 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.14	%15
2	32	Z	-0.14	%85
3	32	Z	-0.062	%20
4	32	Z	-0.062	%50
5	32	Z	0	0
6	8	Z	-0.064	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

**Member Point Loads (BLC 3 : 90 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.056	%15
2	32	X	-0.056	%85
3	32	X	-0.038	%20
4	32	X	-0.033	%50
5	32	X	0	0
6	8	X	-0.036	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

**Member Point Loads (BLC 4 : 0 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.031	%15
2	32	Z	-0.031	%85
3	32	Z	-0.011	%20
4	32	Z	-0.011	%50
5	32	Z	0	0
6	8	Z	-0.012	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

**Member Point Loads (BLC 5 : 90 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.015	%15
2	32	X	-0.015	%85
3	32	X	-0.007	%20
4	32	X	-0.006	%50
5	32	X	0	0
6	8	X	-0.007	%50
7	8	X	0	0

**Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

**Member Point Loads (BLC 6 : 0 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.009	%15
2	32	Z	-0.009	%85
3	32	Z	-0.004	%20
4	32	Z	-0.004	%50
5	32	Z	0	0
6	8	Z	-0.004	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

**Member Point Loads (BLC 7 : 90 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.004	%15
2	32	X	-0.004	%85
3	32	X	-0.003	%20
4	32	X	-0.002	%50
5	32	X	0	0
6	8	X	-0.002	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

**Member Point Loads (BLC 8 : Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.164	%15
2	32	Y	-0.164	%85
3	32	Y	-0.053	%20
4	32	Y	-0.052	%50
5	32	Y	0	0
6	8	Y	-0.054	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

**Member Point Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.013	%15
2	32	Z	-0.013	%85
3	32	Z	-0.015	%20
4	32	Z	-0.013	%50
5	32	Z	0	0





**Member Point Loads (BLC 9 : 0 Seismic) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	8	Z	-0.004	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

**Member Point Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.013	%15
2	32	X	-0.013	%85
3	32	X	-0.015	%20
4	32	X	-0.013	%50
5	32	X	0	0
6	8	X	-0.004	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

**Member Point Loads (BLC 15 : Maint LL 1)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	16	Y	-0.25	%50

**Member Point Loads (BLC 16 : Maint LL 2)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%50

**Member Point Loads (BLC 17 : Maint LL 3)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	12	Y	-0.25	%50

**Member Point Loads (BLC 18 : Maint LL 4)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%50

**Member Point Loads (BLC 19 : Maint LL 5)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

**Member Point Loads (BLC 20 : Maint LL 6)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95



Company : B+T Group  
 Designer : SP  
 Job Number : 136019.004.01  
 Model Name : CT13617-A - Troiano Realty

1/6/2022  
 6:26:38 PM  
 Checked By : \_\_\_\_\_

**Member Distributed Loads (BLC 2 : 0 Wind - No Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.009	-0.009	0	%100
2	2	Z	-0.009	-0.009	0	%100
3	3	Z	-0.011	-0.011	0	%100
4	4	Z	-0.005	-0.005	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.011	-0.011	0	%100
7	8	Z	-0.005	-0.005	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.011	-0.011	0	%100
10	12	Z	-0.005	-0.005	0	%100
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.011	-0.011	0	%100
13	16	Z	-0.005	-0.005	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.002	-0.002	0	%100
18	22	Z	-0.002	-0.002	0	%100
19	23	Z	-0.002	-0.002	0	%100
20	24	Z	-0.002	-0.002	0	%100
21	25	Z	-0.002	-0.002	0	%100
22	26	Z	-0.002	-0.002	0	%100
23	29	Z	-0.009	-0.009	0	%100
24	32	Z	-0.009	-0.009	0	%100
25	35	Z	-0.009	-0.009	0	%100
26	36	Z	-0.008	-0.008	0	%100

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.009	-0.009	0	%100
2	2	X	-0.009	-0.009	0	%100
3	3	X	-0.011	-0.011	0	%100
4	4	X	-0.005	-0.005	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.011	-0.011	0	%100
7	8	X	-0.005	-0.005	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.011	-0.011	0	%100
10	12	X	-0.005	-0.005	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.011	-0.011	0	%100
13	16	X	-0.005	-0.005	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.002	-0.002	0	%100
16	20	X	-0.002	-0.002	0	%100
17	21	X	-0.002	-0.002	0	%100
18	22	X	-0.002	-0.002	0	%100
19	23	X	-0.002	-0.002	0	%100
20	24	X	-0.002	-0.002	0	%100
21	25	X	-0.002	-0.002	0	%100
22	26	X	-0.002	-0.002	0	%100
23	29	X	-0.009	-0.009	0	%100
24	32	X	-0.009	-0.009	0	%100
25	35	X	-0.009	-0.009	0	%100



Company : B+T Group  
 Designer : SP  
 Job Number : 136019.004.01  
 Model Name : CT13617-A - Troiano Realty

1/6/2022  
 6:26:38 PM  
 Checked By : \_\_\_\_\_

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	36	X	-0.008	-0.008	0	%100

**Member Distributed Loads (BLC 4 : 0 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.006	-0.006	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.005	-0.005	0	%100
6	7	Z	-0.006	-0.006	0	%100
7	8	Z	-0.002	-0.002	0	%100
8	9	Z	-0.005	-0.005	0	%100
9	11	Z	-0.006	-0.006	0	%100
10	12	Z	-0.002	-0.002	0	%100
11	13	Z	-0.005	-0.005	0	%100
12	15	Z	-0.006	-0.006	0	%100
13	16	Z	-0.002	-0.002	0	%100
14	17	Z	-0.005	-0.005	0	%100
15	19	Z	-0.003	-0.003	0	%100
16	20	Z	-0.003	-0.003	0	%100
17	21	Z	-0.003	-0.003	0	%100
18	22	Z	-0.003	-0.003	0	%100
19	23	Z	-0.003	-0.003	0	%100
20	24	Z	-0.003	-0.003	0	%100
21	25	Z	-0.003	-0.003	0	%100
22	26	Z	-0.003	-0.003	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	32	Z	-0.002	-0.002	0	%100
25	35	Z	-0.002	-0.002	0	%100
26	36	Z	-0.002	-0.002	0	%100

**Member Distributed Loads (BLC 5 : 90 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.006	-0.006	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.005	-0.005	0	%100
6	7	X	-0.006	-0.006	0	%100
7	8	X	-0.002	-0.002	0	%100
8	9	X	-0.005	-0.005	0	%100
9	11	X	-0.006	-0.006	0	%100
10	12	X	-0.002	-0.002	0	%100
11	13	X	-0.005	-0.005	0	%100
12	15	X	-0.006	-0.006	0	%100
13	16	X	-0.002	-0.002	0	%100
14	17	X	-0.005	-0.005	0	%100
15	19	X	-0.003	-0.003	0	%100
16	20	X	-0.003	-0.003	0	%100
17	21	X	-0.003	-0.003	0	%100
18	22	X	-0.003	-0.003	0	%100
19	23	X	-0.003	-0.003	0	%100
20	24	X	-0.003	-0.003	0	%100



**Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	25	X	-0.003	-0.003	0	%100
22	26	X	-0.003	-0.003	0	%100
23	29	X	-0.002	-0.002	0	%100
24	32	X	-0.002	-0.002	0	%100
25	35	X	-0.002	-0.002	0	%100
26	36	X	-0.002	-0.002	0	%100

**Member Distributed Loads (BLC 6 : 0 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0003	-0.0003	0	%100
2	2	Z	-0.0003	-0.0003	0	%100
3	3	Z	-0.0007	-0.0007	0	%100
4	4	Z	-0.0002	-0.0002	0	%100
5	5	Z	-0.0002	-0.0002	0	%100
6	7	Z	-0.0007	-0.0007	0	%100
7	8	Z	-0.0002	-0.0002	0	%100
8	9	Z	-0.0002	-0.0002	0	%100
9	11	Z	-0.0007	-0.0007	0	%100
10	12	Z	-0.0002	-0.0002	0	%100
11	13	Z	-0.0002	-0.0002	0	%100
12	15	Z	-0.0007	-0.0007	0	%100
13	16	Z	-0.0002	-0.0002	0	%100
14	17	Z	-0.0002	-0.0002	0	%100
15	19	Z	-1e-04	-1e-04	0	%100
16	20	Z	-1e-04	-1e-04	0	%100
17	21	Z	-1e-04	-1e-04	0	%100
18	22	Z	-1e-04	-1e-04	0	%100
19	23	Z	-1e-04	-1e-04	0	%100
20	24	Z	-1e-04	-1e-04	0	%100
21	25	Z	-1e-04	-1e-04	0	%100
22	26	Z	-1e-04	-1e-04	0	%100
23	29	Z	-0.0003	-0.0003	0	%100
24	32	Z	-0.0003	-0.0003	0	%100
25	35	Z	-0.0003	-0.0003	0	%100
26	36	Z	-0.0002	-0.0002	0	%100

**Member Distributed Loads (BLC 7 : 90 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0003	-0.0003	0	%100
2	2	X	-0.0003	-0.0003	0	%100
3	3	X	-0.0007	-0.0007	0	%100
4	4	X	-0.0002	-0.0002	0	%100
5	5	X	-0.0002	-0.0002	0	%100
6	7	X	-0.0007	-0.0007	0	%100
7	8	X	-0.0002	-0.0002	0	%100
8	9	X	-0.0002	-0.0002	0	%100
9	11	X	-0.0007	-0.0007	0	%100
10	12	X	-0.0002	-0.0002	0	%100
11	13	X	-0.0002	-0.0002	0	%100
12	15	X	-0.0007	-0.0007	0	%100
13	16	X	-0.0002	-0.0002	0	%100
14	17	X	-0.0002	-0.0002	0	%100
15	19	X	-1e-04	-1e-04	0	%100



**Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	20	X	-1e-04	-1e-04	0	%100
17	21	X	-1e-04	-1e-04	0	%100
18	22	X	-1e-04	-1e-04	0	%100
19	23	X	-1e-04	-1e-04	0	%100
20	24	X	-1e-04	-1e-04	0	%100
21	25	X	-1e-04	-1e-04	0	%100
22	26	X	-1e-04	-1e-04	0	%100
23	29	X	-0.0003	-0.0003	0	%100
24	32	X	-0.0003	-0.0003	0	%100
25	35	X	-0.0003	-0.0003	0	%100
26	36	X	-0.0002	-0.0002	0	%100

**Member Distributed Loads (BLC 8 : Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.01	-0.01	0	%100
2	2	Y	-0.01	-0.01	0	%100
3	3	Y	-0.011	-0.011	0	%100
4	4	Y	-0.008	-0.008	0	%100
5	5	Y	-0.013	-0.013	0	%100
6	7	Y	-0.011	-0.011	0	%100
7	8	Y	-0.008	-0.008	0	%100
8	9	Y	-0.013	-0.013	0	%100
9	11	Y	-0.011	-0.011	0	%100
10	12	Y	-0.008	-0.008	0	%100
11	13	Y	-0.013	-0.013	0	%100
12	15	Y	-0.011	-0.011	0	%100
13	16	Y	-0.008	-0.008	0	%100
14	17	Y	-0.013	-0.013	0	%100
15	19	Y	-0.005	-0.005	0	%100
16	20	Y	-0.005	-0.005	0	%100
17	21	Y	-0.005	-0.005	0	%100
18	22	Y	-0.005	-0.005	0	%100
19	23	Y	-0.005	-0.005	0	%100
20	24	Y	-0.005	-0.005	0	%100
21	25	Y	-0.005	-0.005	0	%100
22	26	Y	-0.005	-0.005	0	%100
23	29	Y	-0.01	-0.01	0	%100
24	32	Y	-0.01	-0.01	0	%100
25	35	Y	-0.01	-0.01	0	%100
26	36	Y	-0.009	-0.009	0	%100

**Member Distributed Loads (BLC 9 : 0 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.0005	-0.0005	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.001	-0.001	0	%100
7	8	Z	-0.0005	-0.0005	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.0005	-0.0005	0	%100



**Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	16	Z	-0.0005	-0.0005	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.0002	-0.0002	0	%100
16	20	Z	-0.0002	-0.0002	0	%100
17	21	Z	-0.0003	-0.0003	0	%100
18	22	Z	-0.0003	-0.0003	0	%100
19	23	Z	-0.0002	-0.0002	0	%100
20	24	Z	-0.0002	-0.0002	0	%100
21	25	Z	-0.0003	-0.0003	0	%100
22	26	Z	-0.0003	-0.0003	0	%100
23	29	Z	-0.0007	-0.0007	0	%100
24	32	Z	-0.0007	-0.0007	0	%100
25	35	Z	-0.0007	-0.0007	0	%100
26	36	Z	-0.0006	-0.0006	0	%100

**Member Distributed Loads (BLC 10 : 90 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.0005	-0.0005	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.001	-0.001	0	%100
7	8	X	-0.0005	-0.0005	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.0005	-0.0005	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.001	-0.001	0	%100
13	16	X	-0.0005	-0.0005	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.0002	-0.0002	0	%100
16	20	X	-0.0002	-0.0002	0	%100
17	21	X	-0.0003	-0.0003	0	%100
18	22	X	-0.0003	-0.0003	0	%100
19	23	X	-0.0002	-0.0002	0	%100
20	24	X	-0.0002	-0.0002	0	%100
21	25	X	-0.0003	-0.0003	0	%100
22	26	X	-0.0003	-0.0003	0	%100
23	29	X	-0.0007	-0.0007	0	%100
24	32	X	-0.0007	-0.0007	0	%100
25	35	X	-0.0007	-0.0007	0	%100
26	36	X	-0.0006	-0.0006	0	%100

**Member Area Loads**

No Data to Print...

**Node Loads and Enforced Displacements (BLC 11 : Live Load a)**

Node	Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	57	L	Y	-0.5



**Node Loads and Enforced Displacements (BLC 12 : Live Load b)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	45	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 13 : Live Load c)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	51	L	Y	-0.5

**Basic Load Cases**

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ			10	26
3	90 Wind - No Ice	WLX			10	26
4	0 Wind - Ice	WLZ			10	26
5	90 Wind - Ice	WLX			10	26
6	0 Wind - Service	WLZ			10	26
7	90 Wind - Service	WLX			10	26
8	Ice	OL1			10	26
9	0 Seismic	ELZ			10	26
10	90 Seismic	ELX			10	26
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL		1		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL				
22	Maint LL 8	LL				
23	Maint LL 9	LL				
24	Maint LL 10	LL				
25	Maint LL 11	LL				
26	Maint LL 12	LL				
27	Maint LL 13	LL				
28	Maint LL 14	LL				
29	Maint LL 15	LL				

**Load Combinations**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				



**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5





**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5

**Envelope Node Reactions**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	12	max	0.791	41	0.947	19	0.667	13	0	91	0	91
2		min	-1.444	71	0.282	11	-2.051	19	0	1	0	1
3	27	max	1.438	65	0.87	24	1.846	14	0	91	0	91
4		min	-0.785	47	0.258	5	0.268	8	0	1	0	1
5	63	max	0.119	6	0.063	18	0.706	6	0	91	0	91
6		min	-0.12	12	0.006	12	-0.706	12	0	1	0	1
7	Totals:	max	0.784	5	1.851	24	1.035	2				
8		min	-0.784	11	0.619	7	-1.035	8				

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks**

Member	Shape	Code Check	Loc [ft]	LC	Shear	Check	Loc [ft]	LC	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE_2.88x0.203	0.102	7.667	71	0.067	6.25	68	35.519	70.68	5.029	5.029	2.28	H1-1b		
2	2	PIPE_2.88x0.203	0.104	6.25	8	0.061	1.75	6	35.519	70.68	5.029	5.029	1.521	H1-1b		
3	3	PL5/8x3.5	0.243	0.583	67	0.079	0.583	y 38	84.578	99.225	1.302	7.235	1.493	H1-1b		
4	4	1.9" ODX0.12"	0.27	0.135	18	0.074	2.449	18	21.867	25.364	1.2	1.2	2.04	H1-1b		
5	5	PL5/8x4.25	0.092	0.127	67	0.042	0.362	y 24	110.629	119.531	1.556	10.583	1.372	H1-1b		
6	7	PL5/8x3.5	0.188	0.583	49	0.1	0	y 19	84.578	99.225	1.302	7.235	1.242	H1-1b		
7	8	1.9" ODX0.12"	0.217	1.292	87	0.075	2.449	18	21.867	25.364	1.2	1.2	1.317	H1-1b		
8	9	PL5/8x4.25	0.107	0.362	13	0.052	0.127	y 18	110.629	119.531	1.556	10.583	1.428	H1-1b		
9	11	PL5/8x3.5	0.234	0.583	67	0.08	0.583	y 45	84.578	99.225	1.302	7.171	1.001	H1-1b		
10	12	1.9" ODX0.12"	0.295	0.135	66	0.063	2.449	20	21.867	25.364	1.2	1.2	2.067	H1-1b		
11	13	PL5/8x4.25	0.072	0.127	68	0.04	0.362	y 44	110.629	119.531	1.556	10.583	1.893	H1-1b		
12	15	PL5/8x3.5	0.187	0.583	49	0.097	0	y 66	84.578	99.225	1.302	7.235	1.078	H1-1b		
13	16	1.9" ODX0.12"	0.234	0.135	49	0.066	2.449	20	21.867	25.364	1.2	1.2	2.057	H1-1b		
14	17	PL5/8x4.25	0.047	0.127	43	0.048	0.362	y 21	110.629	119.531	1.556	10.583	1.844	H1-1b		



Company : B+T Group  
 Designer : SP  
 Job Number : 136019.004.01  
 Model Name : CT13617-A - Troiano Realty

1/6/2022  
 6:26:38 PM  
 Checked By : \_\_\_\_\_

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)**

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
15	19	0.63" SR	0.396	2.5	14	0.006	2.5	66	1.941	14.028	0.147	0.147	2.204	H1-1a		
16	20	0.63" SR	0.521	2.5	67	0.012	0	67	1.941	14.028	0.147	0.147	2.265	H1-1a		
17	21	1/2"SR	0.328	3.499	16	0.008	3.499	48	0.393	8.836	0.074	0.074	2.096	H1-1a		
18	22	1/2"SR	0	3.499	91	0.007	0	43	0.393	8.836	0.074	0.074	1	H1-1a		
19	23	0.63" SR	0.303	2.5	49	0.008	0	6	1.941	14.028	0.147	0.147	1.867	H1-1a		
20	24	0.63" SR	0.416	2.5	48	0.013	0	67	1.941	14.028	0.147	0.147	2.258	H1-1a		
21	25	1/2"SR	0.23	0	48	0.012	3.499	14	0.393	8.836	0.074	0.074	1.691	H1-1a		
22	26	1/2"SR	0.004	3.499	6	0.01	0	6	0.393	8.836	0.074	0.074	2.927	H1-1b*		
23	29	Pipe2.88x.12	0.061	2.75	7	0.042	2.75	67	22.493	43.056	3.157	3.157	3	H1-1b		
24	32	Pipe2.88x.12	0.159	5.25	62	0.046	5.25	62	22.493	43.056	3.157	3.157	3	H1-1b		
25	35	Pipe2.88x.12	0.125	5.25	43	0.037	5.25	48	22.493	43.056	3.157	3.157	3	H1-1b		
26	36	Pipe2.38X0.12	0.082	4.824	6	0.006	9.649	23	9.184	35.273	2.115	2.115	1.136	H1-1b		

## **APPENDIX B**

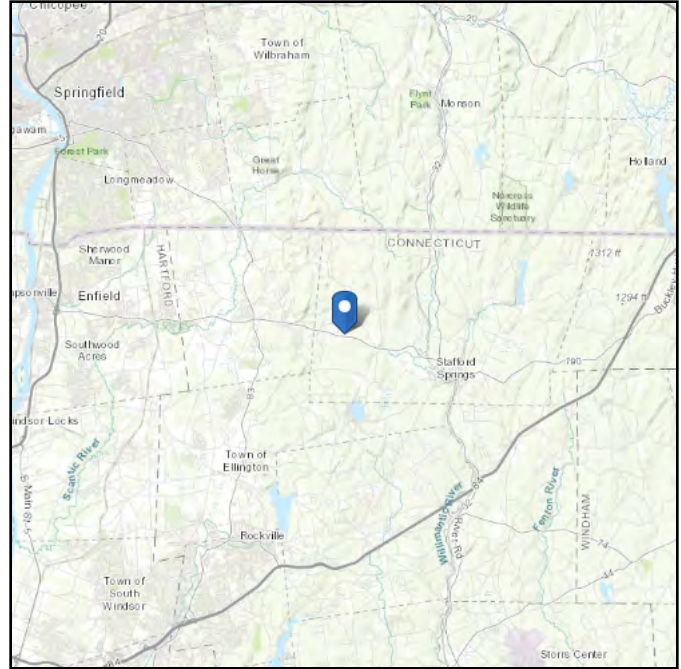
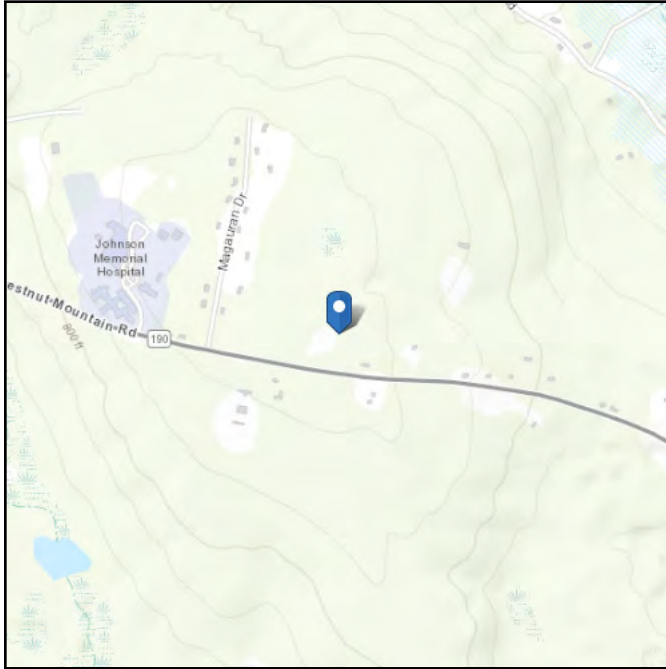
**(Additional Calculations)**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 897.3 ft (NAVD 88)  
**Latitude:** 41.977387  
**Longitude:** -72.383035



## Wind

### Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Thu Jan 06 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).

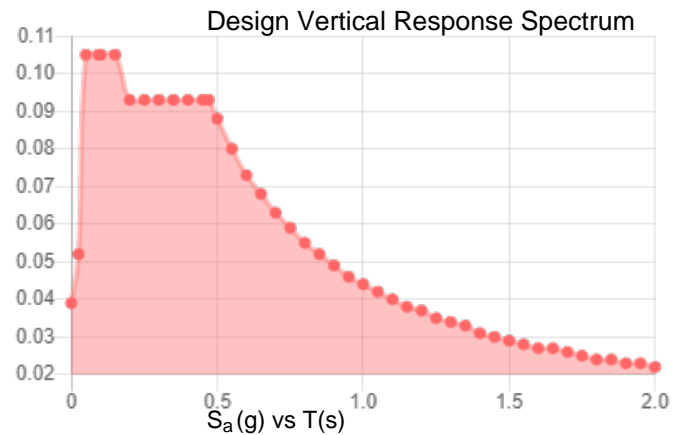
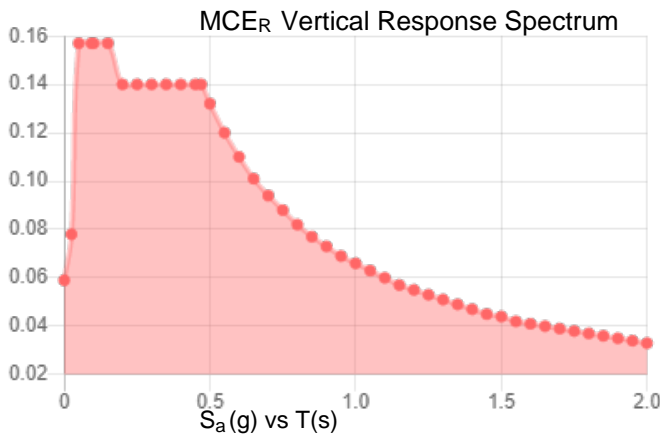
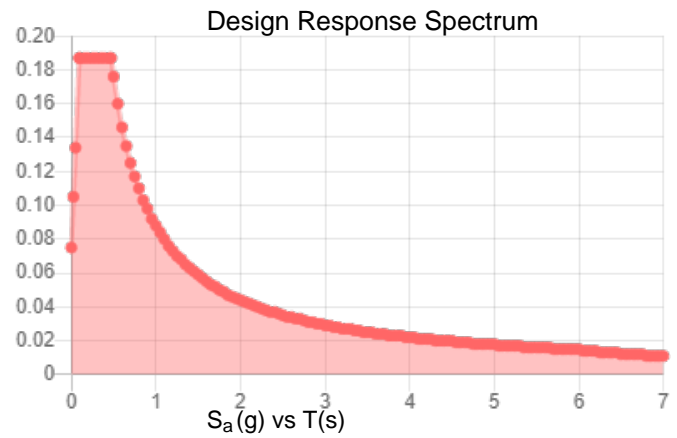
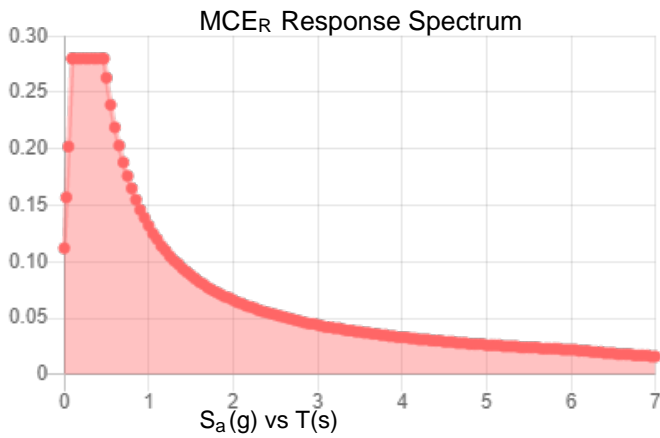
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.175	$S_{D1}$ :	0.088
$S_1$ :	0.055	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.092
$F_v$ :	2.4	PGA <sub>M</sub> :	0.148
$S_{MS}$ :	0.28	$F_{PGA}$ :	1.6
$S_{M1}$ :	0.132	$I_e$ :	1
$S_{DS}$ :	0.187	$C_v$ :	0.7

**Seismic Design Category** B



**Data Accessed:** Thu Jan 06 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: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed 50 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Thu Jan 06 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.

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The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

# EXHIBIT 10

## Construction Drawings



DISH Wireless L.L.C. SITE ID:

**BOBDL00112B**

DISH Wireless L.L.C. SITE ADDRESS:

**157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT 06076**



By Stephen Roth at 1:25:36 PM, 1/21/2022

**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 METAL PLATFORM
  - INSTALL (1) PROPOSED ICE BRIDGE
  - INSTALL (1) PROPOSED PPC CABINET
  - INSTALL (1) PROPOSED EQUIPMENT CABINET
  - INSTALL (1) PROPOSED POWER CONDUIT
  - INSTALL (1) PROPOSED TELCO CONDUIT
  - INSTALL (1) PROPOSED TELCO-FIBER BOX
  - INSTALL (1) PROPOSED GPS UNIT
  - INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
  - INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
  - INSTALL (1) PROPOSED METER SOCKET

SITE INFORMATION		PROJECT DIRECTORY	
PROPERTY OWNER:	TROIANO REALTY CORP	APPLICANT:	DISH Wireless L.L.C.
ADDRESS:	777 ENFIELD ST ENFIELD, CT 06082		5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE:	SELF-SUPPORT TOWER	TOWER OWNER:	SBA COMMUNICATAIONS CORP.
TOWER CO SITE ID:	CT13617-A		8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
TOWER APP NUMBER:	181997	SITE DESIGNER:	B+T GROUP
COUNTY:	TOLLAND		1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
LATITUDE (NAD 83):	41°58'38.6" N 41.977417	SITE ACQUISITION:	T.B.D
LONGITUDE (NAD 83):	72°22'58.9" W -72.383306	CONST. MANAGER:	T.B.D
ZONING JURISDICTION:	TOWN OF STAFFORD	RF ENGINEER:	T.B.D
ZONING DISTRICT:	AAA		
PARCEL NUMBER:	09013134-34/32		
OCCUPANCY GROUP:	U		
CONSTRUCTION TYPE:	II-B		
POWER COMPANY:	EVERSOURCE		
TELEPHONE COMPANY:	AT&T		



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



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



B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	BLJ	BLJ

RFDS REV #: T.B.D

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/12/22	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**136019.005.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBDL00112B**  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

**CONNECTICUT CODE OF COMPLIANCE**

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

CODE TYPE	CODE
BUILDING	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

**SITE PHOTO**



**DIRECTIONS**

**DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:**  
GET ON BRADLEY INTERNATIONAL AIRPORT CON IN EAST GRANBY FROM BRADLEY INTERNATIONAL AIRPORT, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, CONTINUE STRAIGHT, KEEP RIGHT TO CONTINUE TOWARD BRADLEY INTERNATIONAL AIRPORT CON, TAKE I-91 N TO CT-190 E IN STAFFORD, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE EXIT ON THE LEFT ONTO I-91 N TOWARD SPRINGFIELD TAKE EXIT 47E TO MERGE WITH CT-190 E TOWARD HAZARDVILLE/SOMERS AND ARRIVE AT BOBDL00112B.

**VICINITY MAP**



**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.

**SHEET INDEX**

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

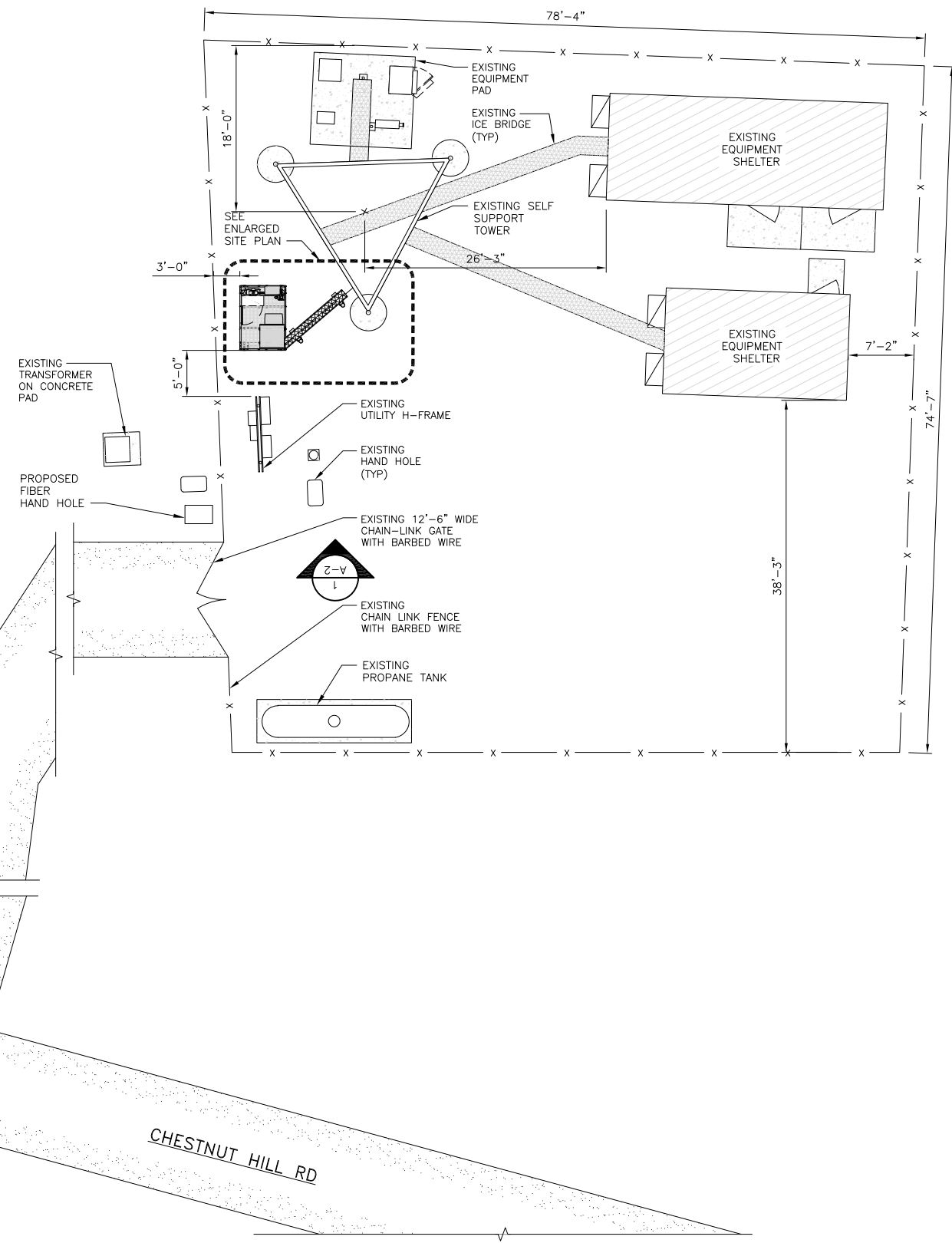


NOTES

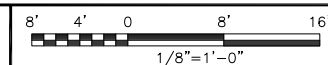
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

NOTES

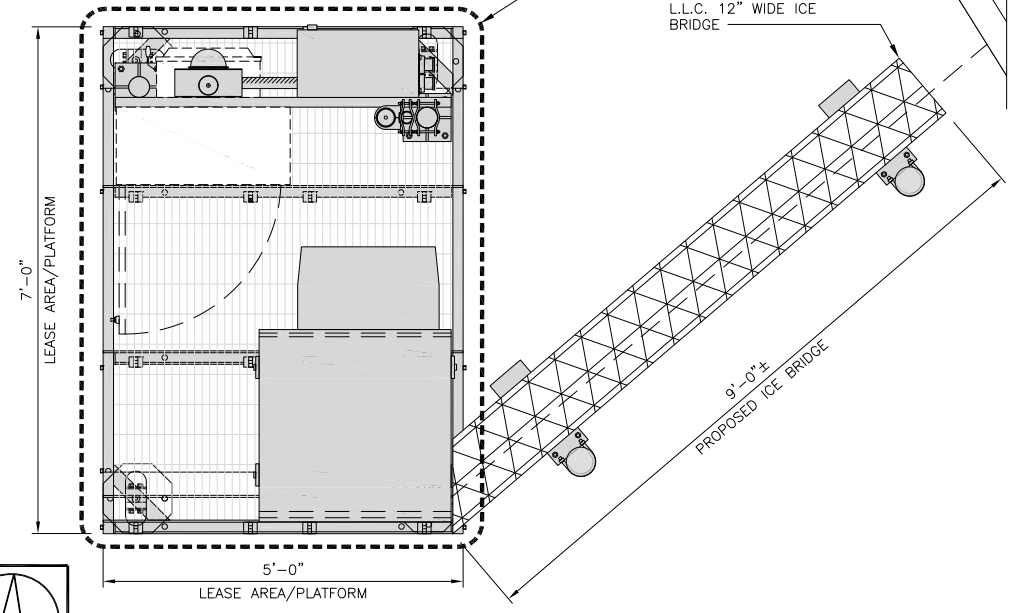
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



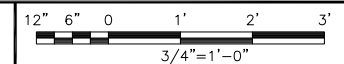
OVERALL SITE PLAN



1



ENLARGED SITE PLAN



2

NOT USED

NO SCALE

3



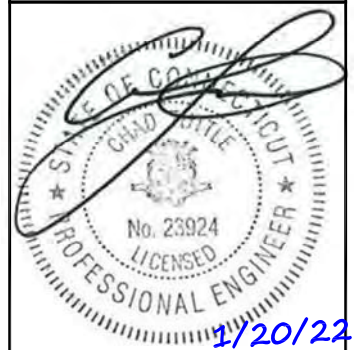
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LITTLETON, CO 80120



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NGN	BLJ	BLJ

RFDS REV #: T.B.D

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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A&E PROJECT NUMBER  
136019.005.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
OVERALL AND ENLARGED  
SITE PLAN

SHEET NUMBER  
**A-1**

**NOTES**

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

**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.

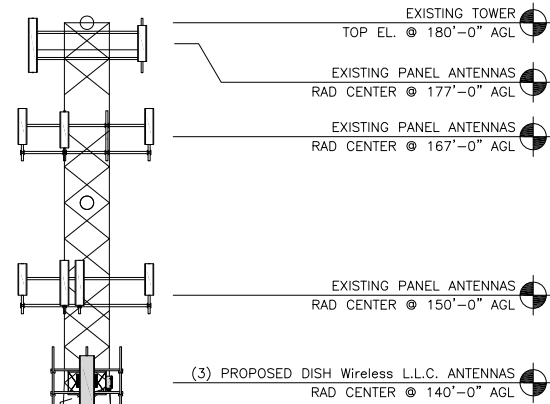
**ACCEPTABLE STIFF ARM TO TOWER MEMBER ATTACHMENT LOCATIONS:**

**INTERIOR BRACING MEMBERS:**

-WITHIN 25% OF EITHER END OF THE MEMBER'S LENGTH.

**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.



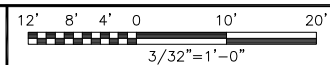
(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ON NEW WAVEGUIDE LADDER

PROPOSED DISH Wireless L.L.C. ICE BRIDGE

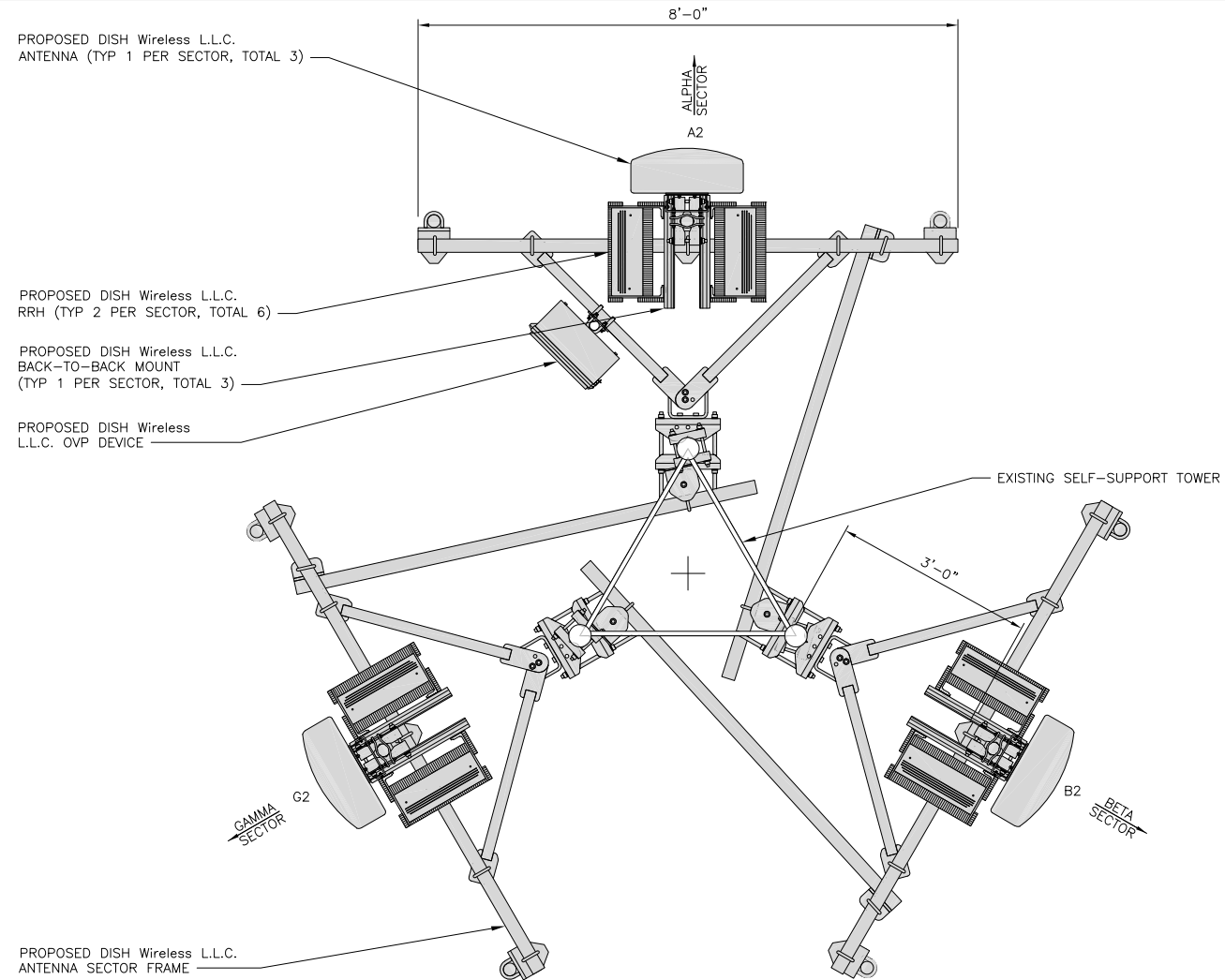
PROPOSED DISH Wireless L.L.C. GPS UNIT

PROPOSED DISH Wireless L.L.C. EQUIPMENT ON PROPOSED STEEL PLATFORM

**PROPOSED SOUTH ELEVATION**

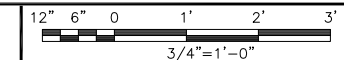


**1**



WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE

**ANTENNA LAYOUT**



**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	
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (175' LONG)	FUJITSU - TA08025-B605	5G	A2	RAYCAP RDIC-9181-PF-48
A2	PROPOSED	JMA - MX08FRO665-21	5G	0°	140'-0"		FUJITSU - TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA - MX08FRO665-21	5G	120°	140'-0"		FUJITSU - TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA - MX08FRO665-21	5G	240°	140'-0"		FUJITSU - TA08025-B604	5G	C2	
C3	--	--	--	--	--		--	--	--	

**NOTES**

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

**ANTENNA SCHEDULE**

NO SCALE

**3**



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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APPROVED BY: BLJ

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**136019.005.01**

DISH Wireless L.L.C. PROJECT INFORMATION  
**BOBDL00112B**  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT 06076

SHEET TITLE  
**ELEVATION, ANTENNA LAYOUT AND SCHEDULE**

SHEET NUMBER  
**A-2**



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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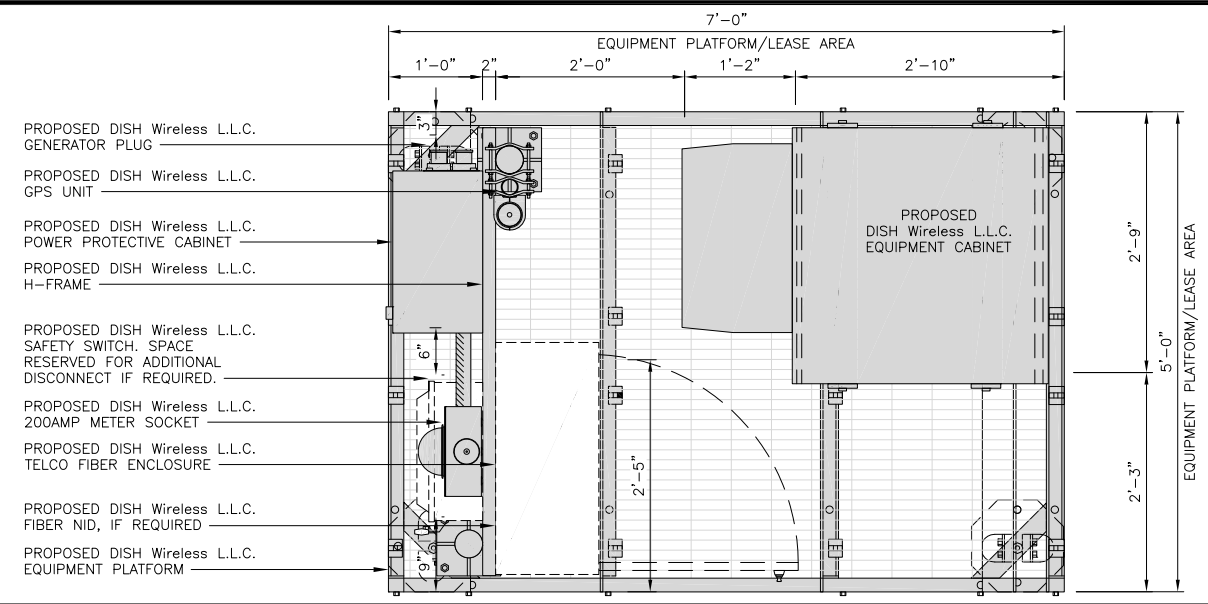
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

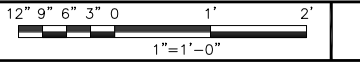
SHEET NUMBER  
**A-3**

NOTES

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



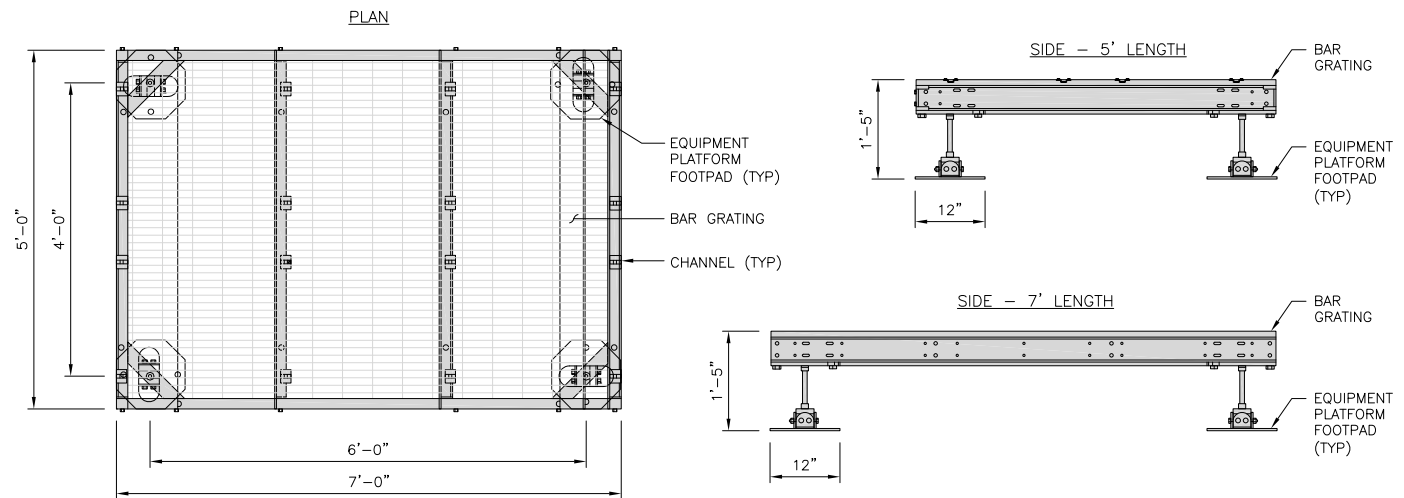
PLATFORM EQUIPMENT PLAN



1

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

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

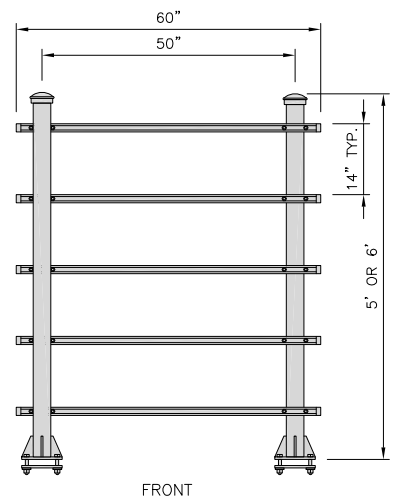
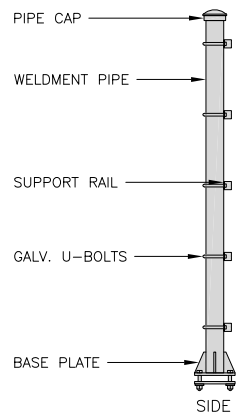


PLATFORM DETAIL

NO SCALE 2

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

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

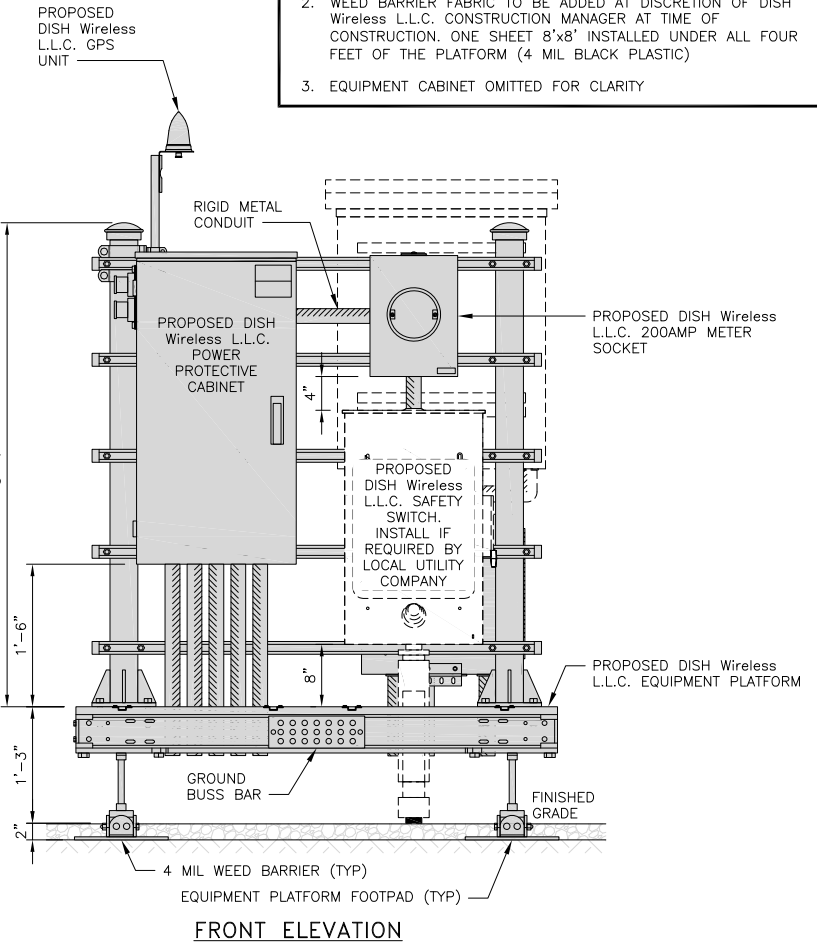


H-FRAME DETAIL

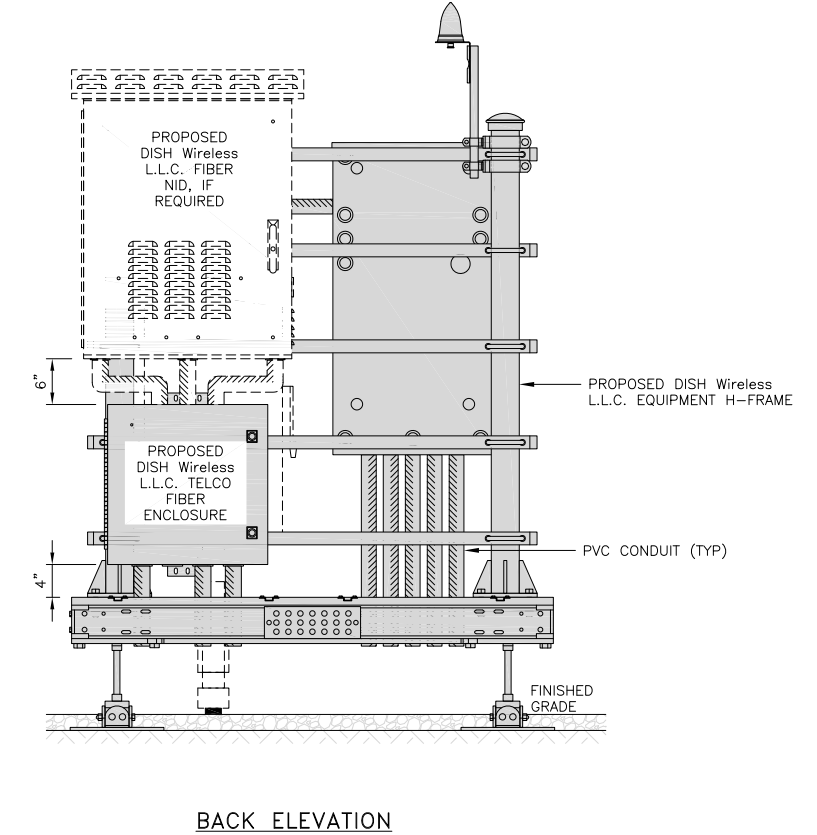
NO SCALE 3

NOT USED

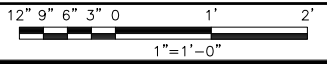
NO SCALE 4



FRONT ELEVATION

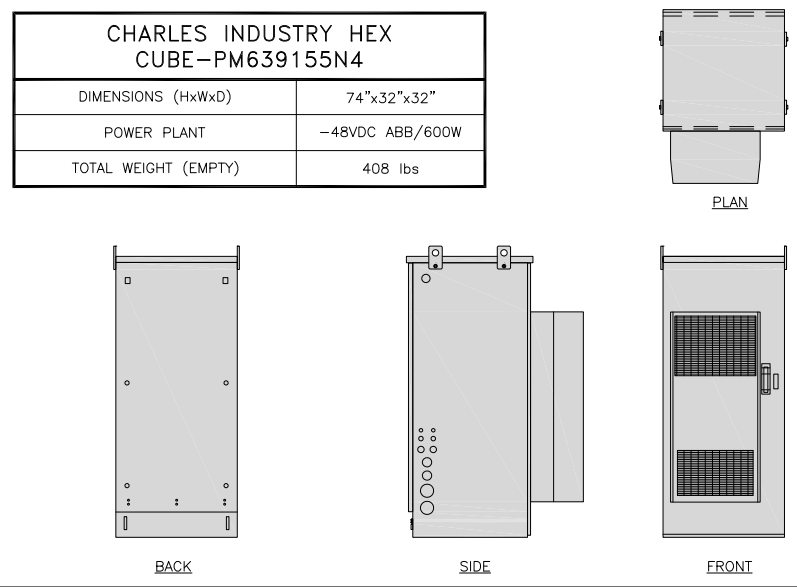


BACK ELEVATION

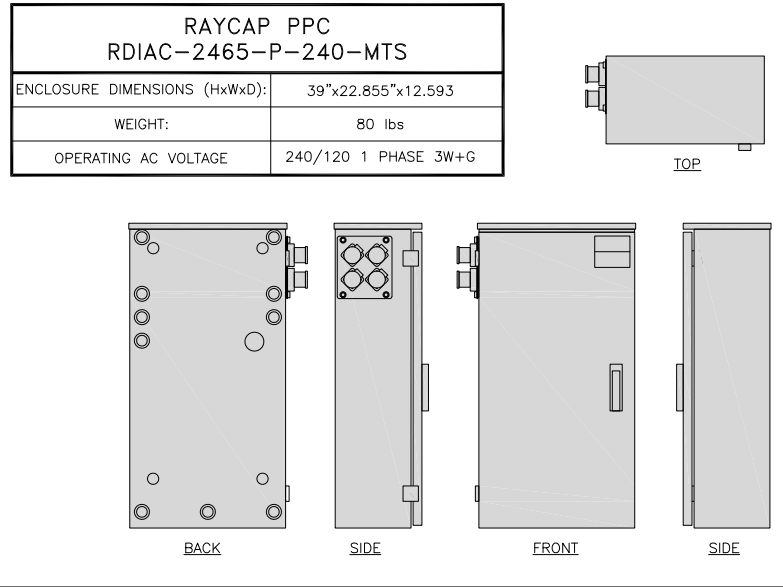


5

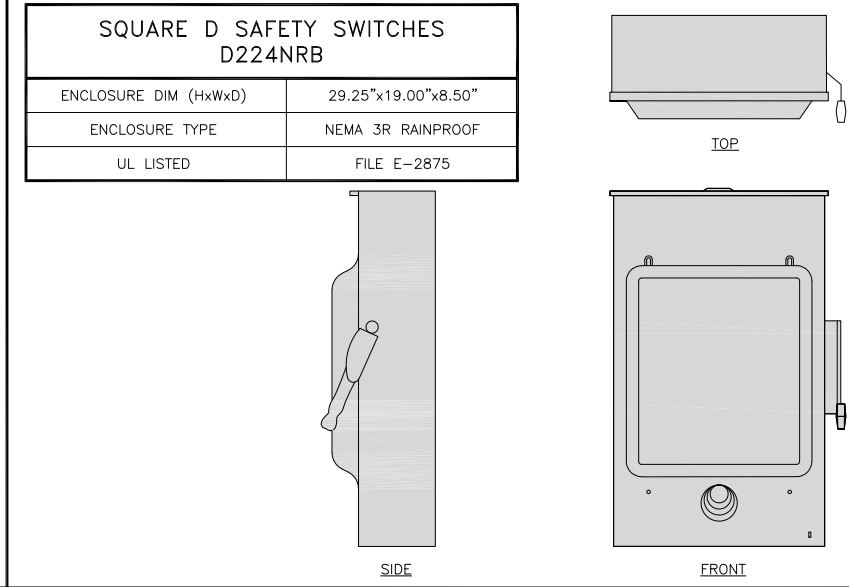
H-FRAME EQUIPMENT ELEVATION



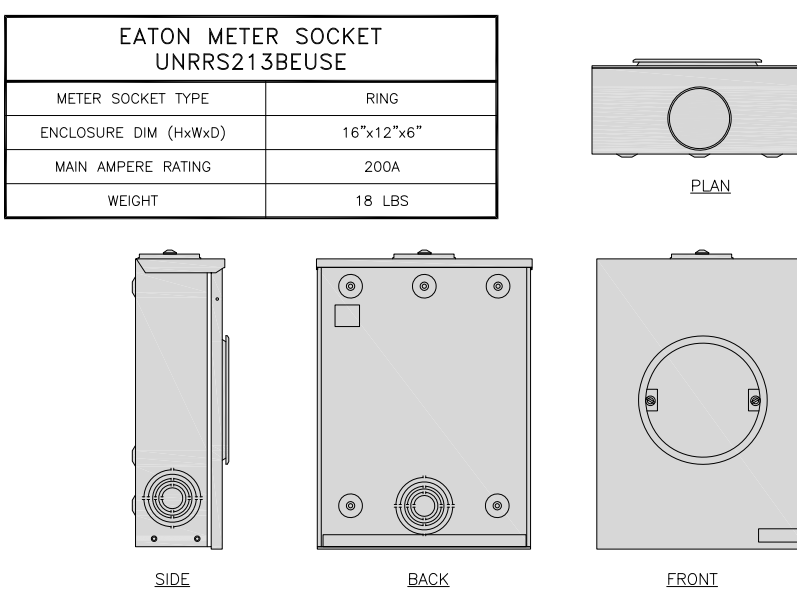
CABINET DETAIL NO SCALE 1



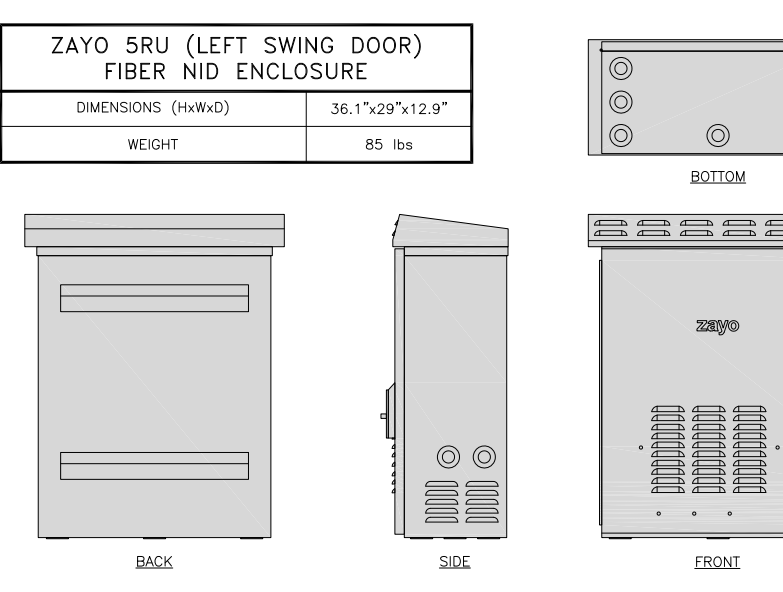
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2



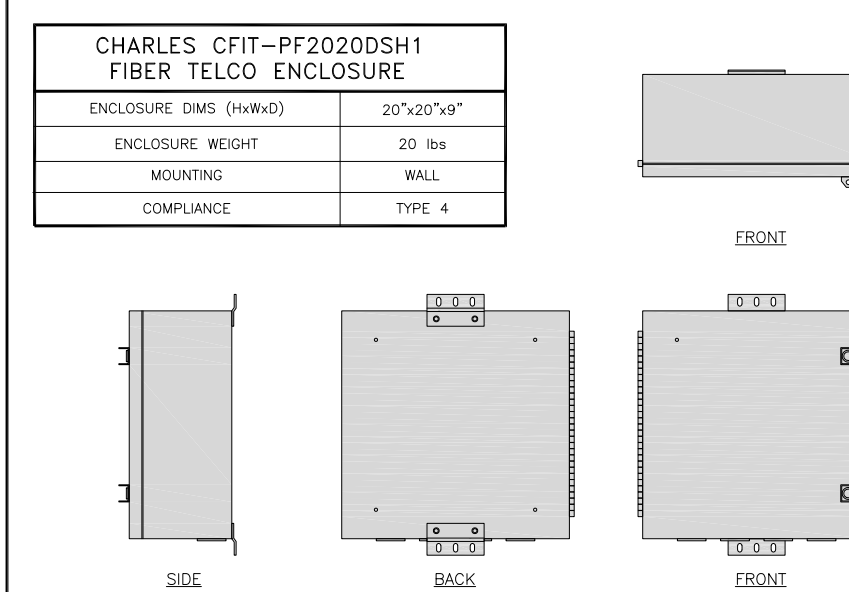
SAFETY SWITCH DETAIL NO SCALE 3



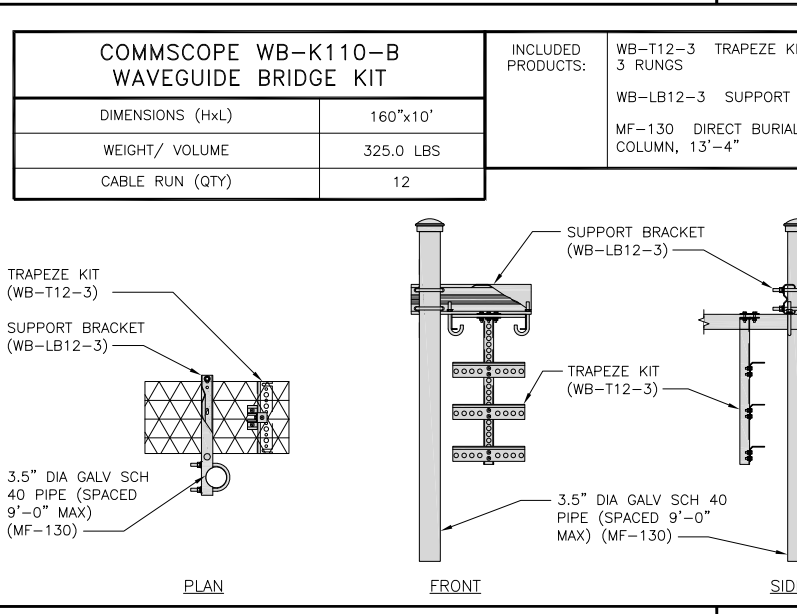
METER SOCKET DETAIL NO SCALE 4



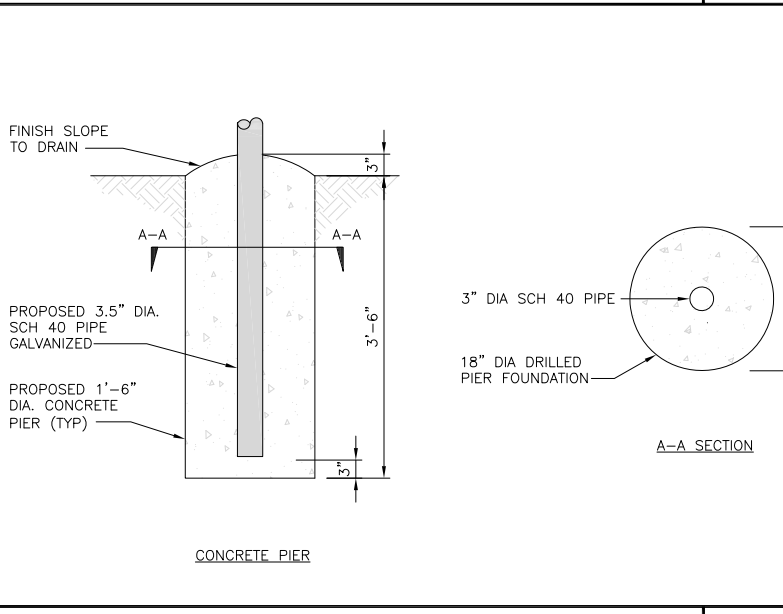
FIBER NID ENCLOSURE DETAIL NO SCALE 5



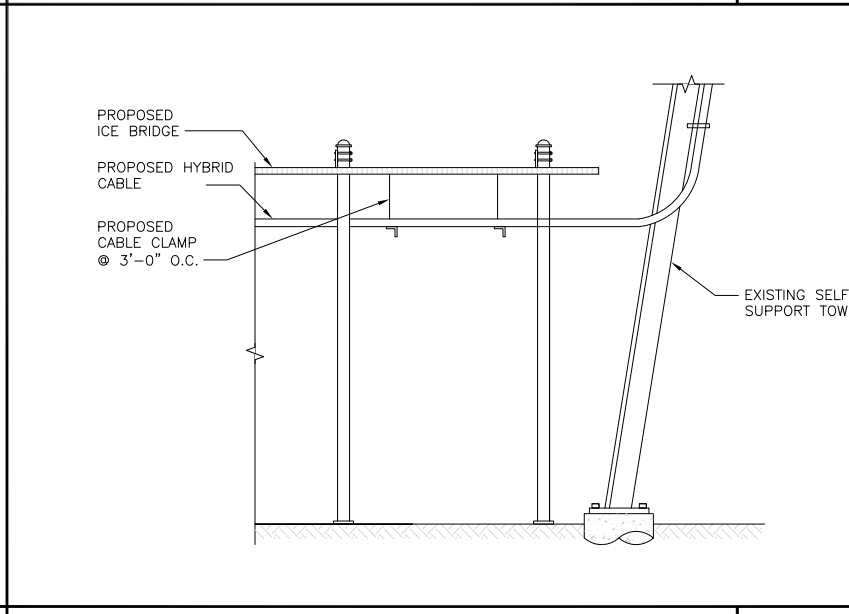
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6



ICE BRIDGE DETAIL NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE 8



HYBRID CABLE RUN NO SCALE 9



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RFDS REV #: T.B.D

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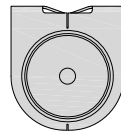
A&E PROJECT NUMBER  
136019.005.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

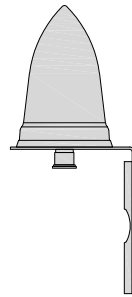
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
A-4

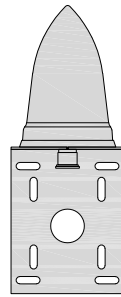
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



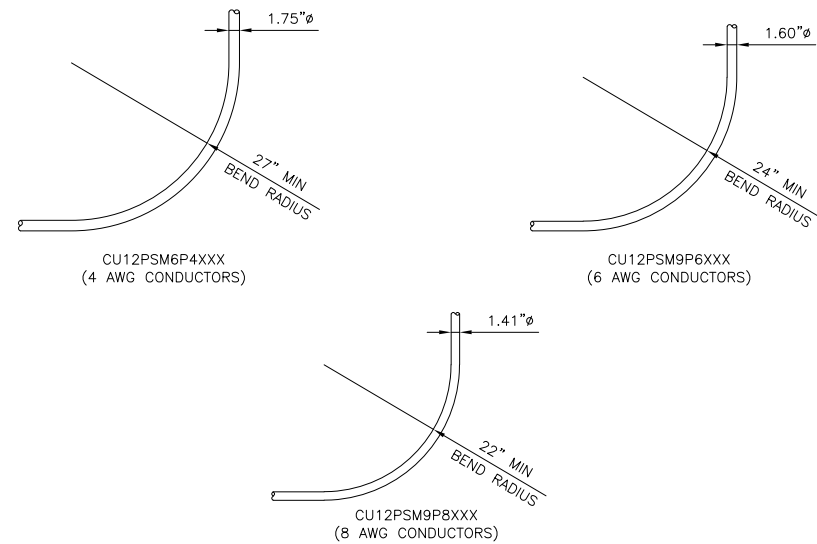
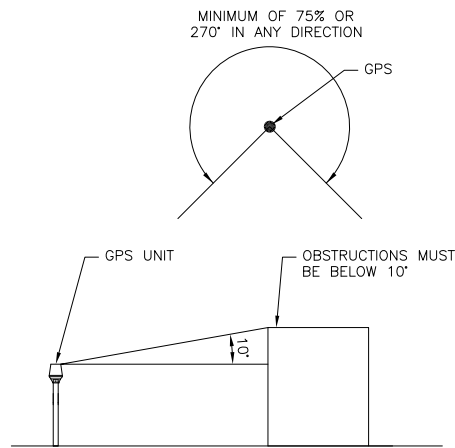
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUS

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



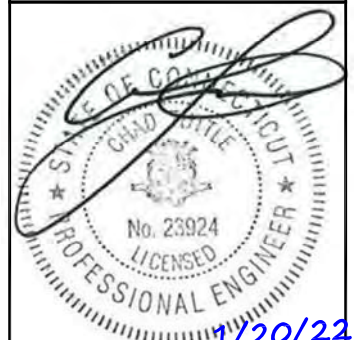
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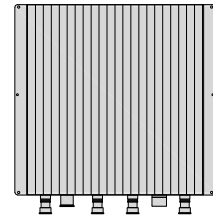
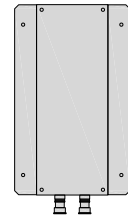
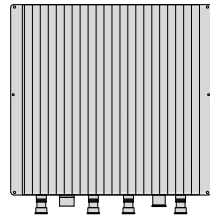
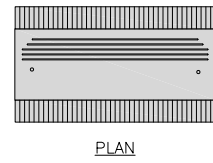
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-5**

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

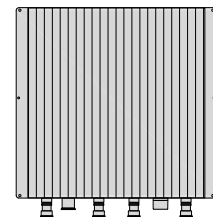
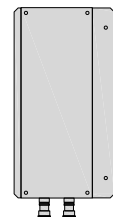
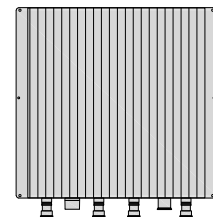
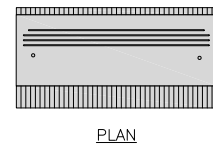


BACK

SIDE

FRONT

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



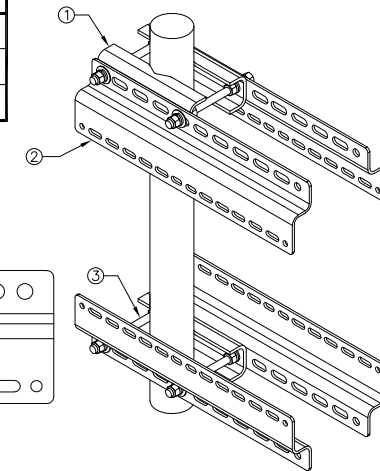
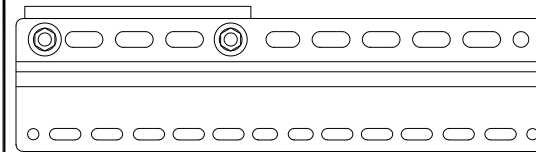
BACK

SIDE

FRONT

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

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



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

RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

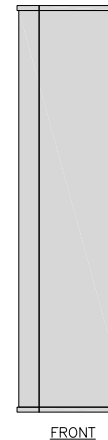
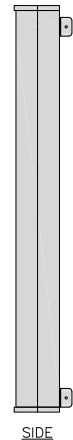
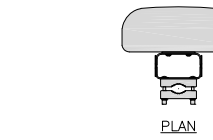
2

RRH MOUNT DETAIL

NO SCALE

3

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



SIDE

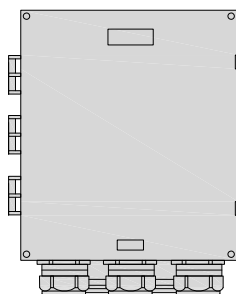
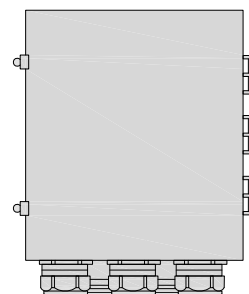
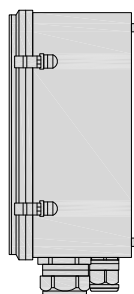
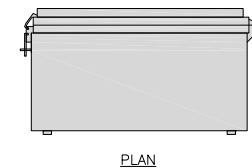
FRONT

ANTENNA DETAIL

NO SCALE

4

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



SIDE

BACK

FRONT

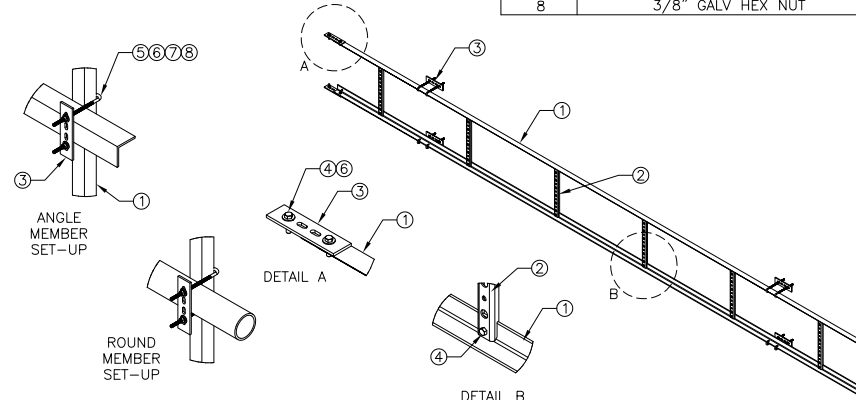
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

COMMSCOPE 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



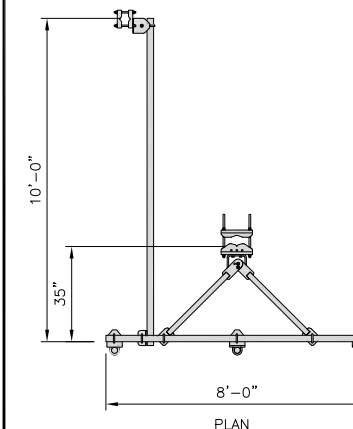
CABLE LADDER DETAIL

NO SCALE

8

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

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



ANTENNA FRAME DETAIL

NO SCALE

9

**dish**  
wireless.

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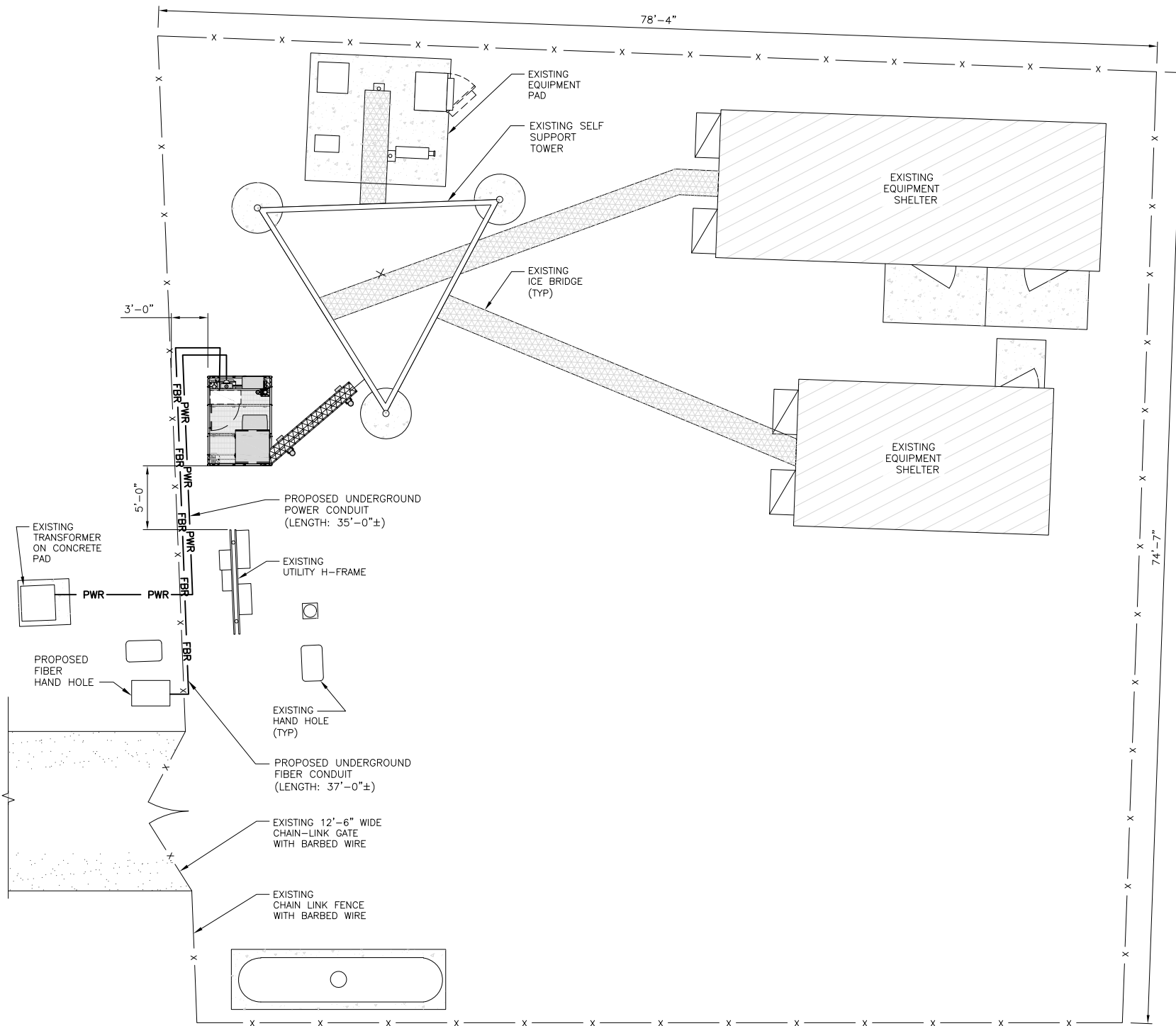
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
EQUIPMENT DETAILS

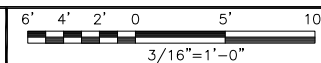
SHEET NUMBER  
**A-6**

**NOTES**

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE DOES NOT SPECIFY OUR 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 COORINATION MAY BE NEEDED.



**UTILITY ROUTE PLAN**



**1**

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

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

**ELECTRICAL NOTES**

NO SCALE

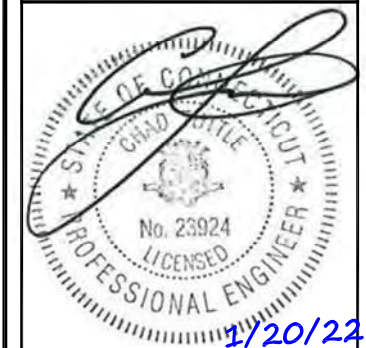
**2**



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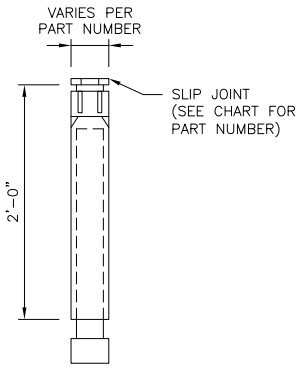
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBDL00112B**  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES**

SHEET NUMBER  
**E-1**

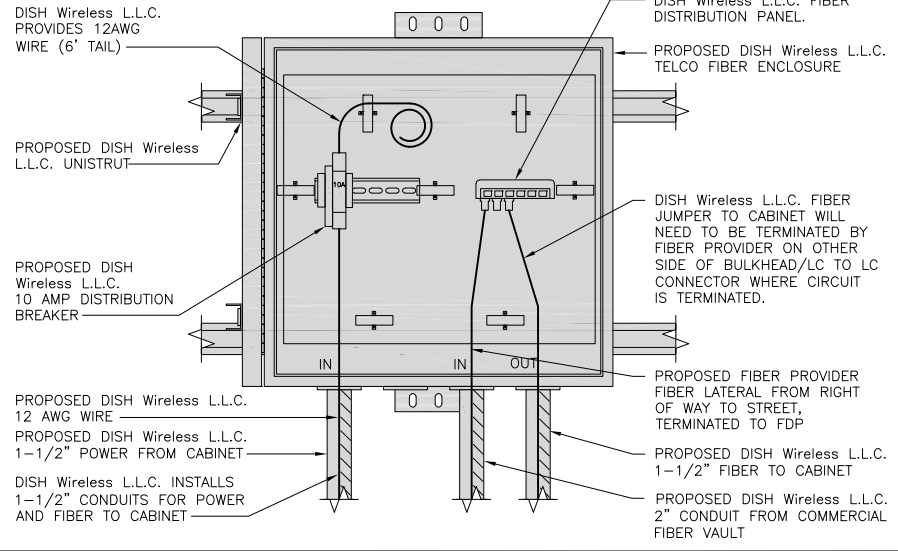
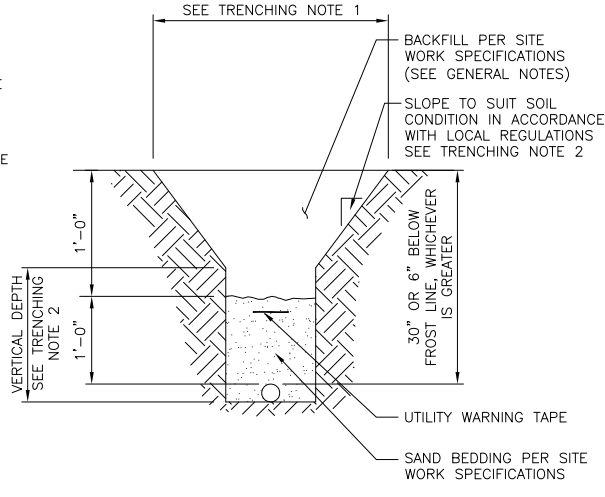
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



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

**TRENCHING NOTES**

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



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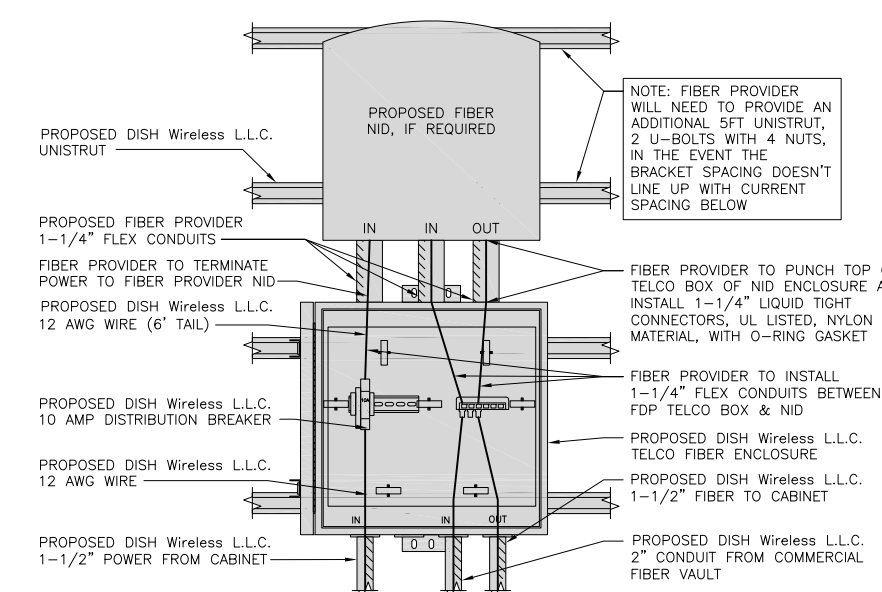
SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E-2**

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



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

NOT USED NO SCALE 5

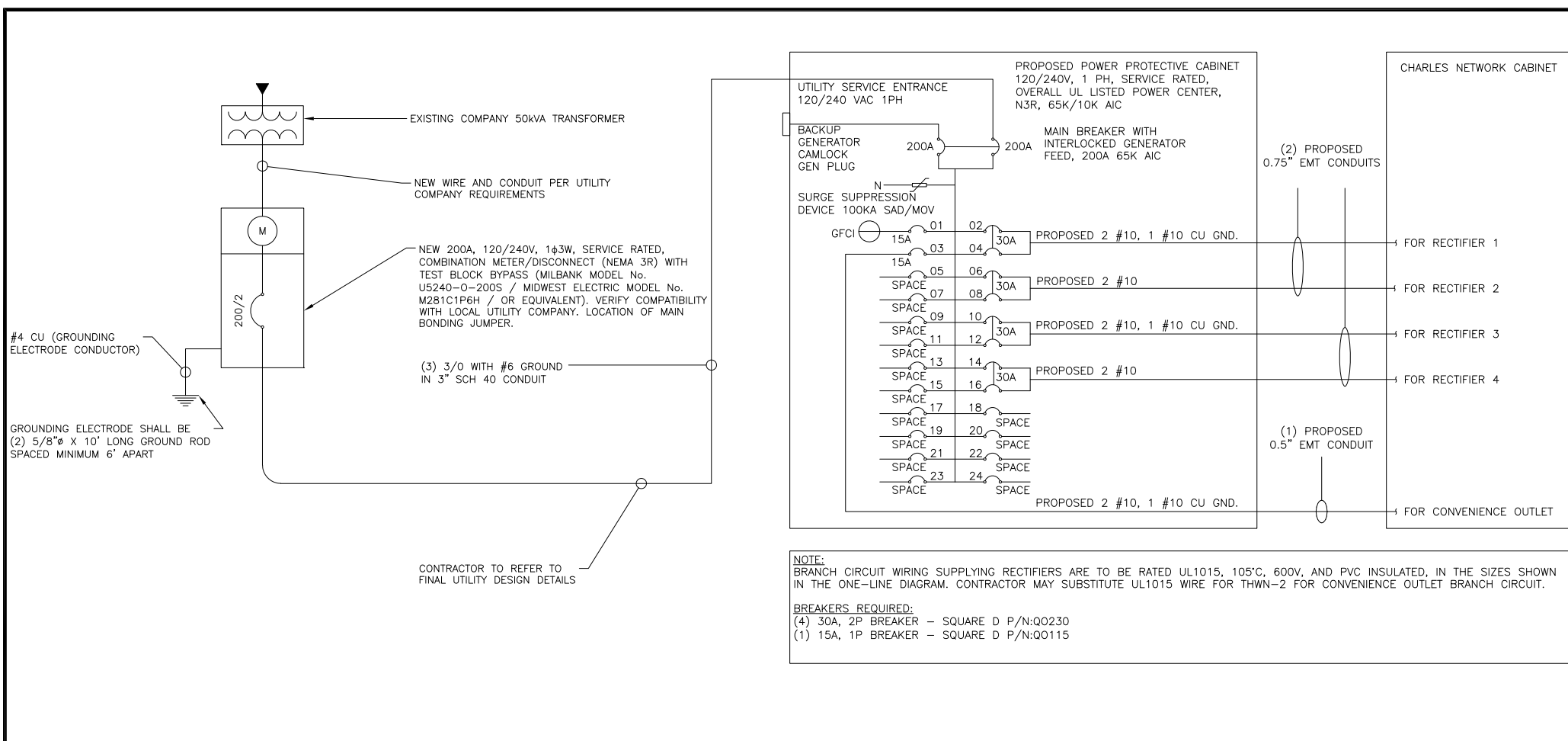
NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9





**NOTES**

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

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

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(g) 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)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
--SPACE--				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3	
--SPACE--				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
--SPACE--				9	A	10				--SPACE--	
--SPACE--				11	B	12				--SPACE--	
--SPACE--				13	A	14				--SPACE--	
--SPACE--				15	B	16				--SPACE--	
--SPACE--				17	A	18				--SPACE--	
--SPACE--				19	B	20				--SPACE--	
--SPACE--				21	A	22				--SPACE--	
--SPACE--				23	B	24				--SPACE--	
VOLTAGE AMPS	180	180						11520	11520		
200A MCB, 1Ø, 24 SPACE, 120/240V				L1	L2						
MB RATING: 65,000 AIC				11700	11700						
				98	98						
				98							
				123							

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

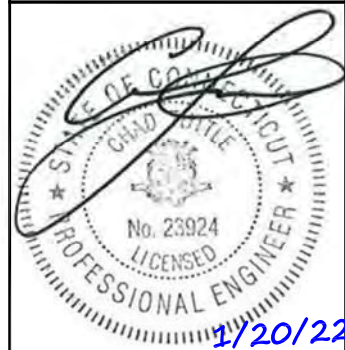
3



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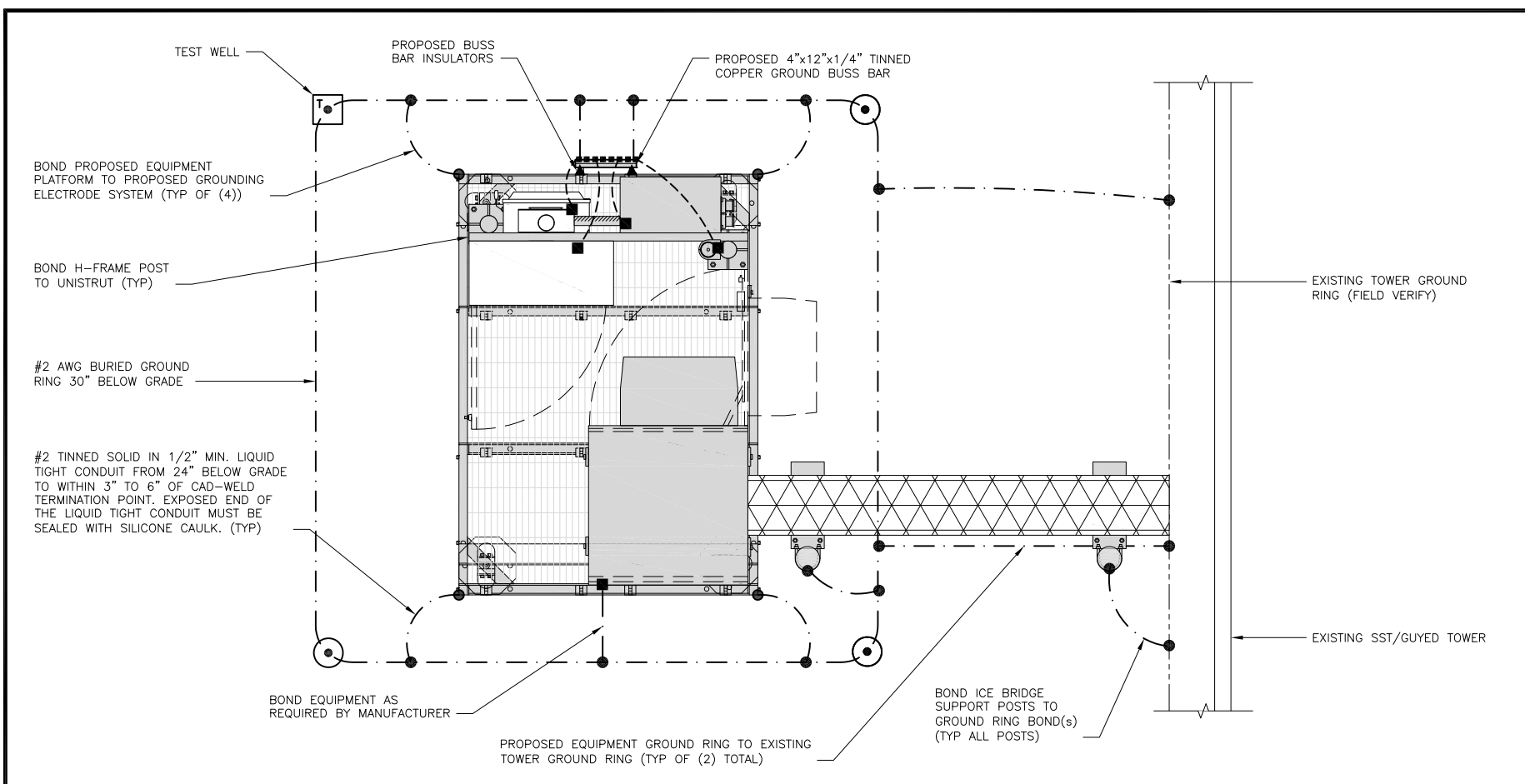
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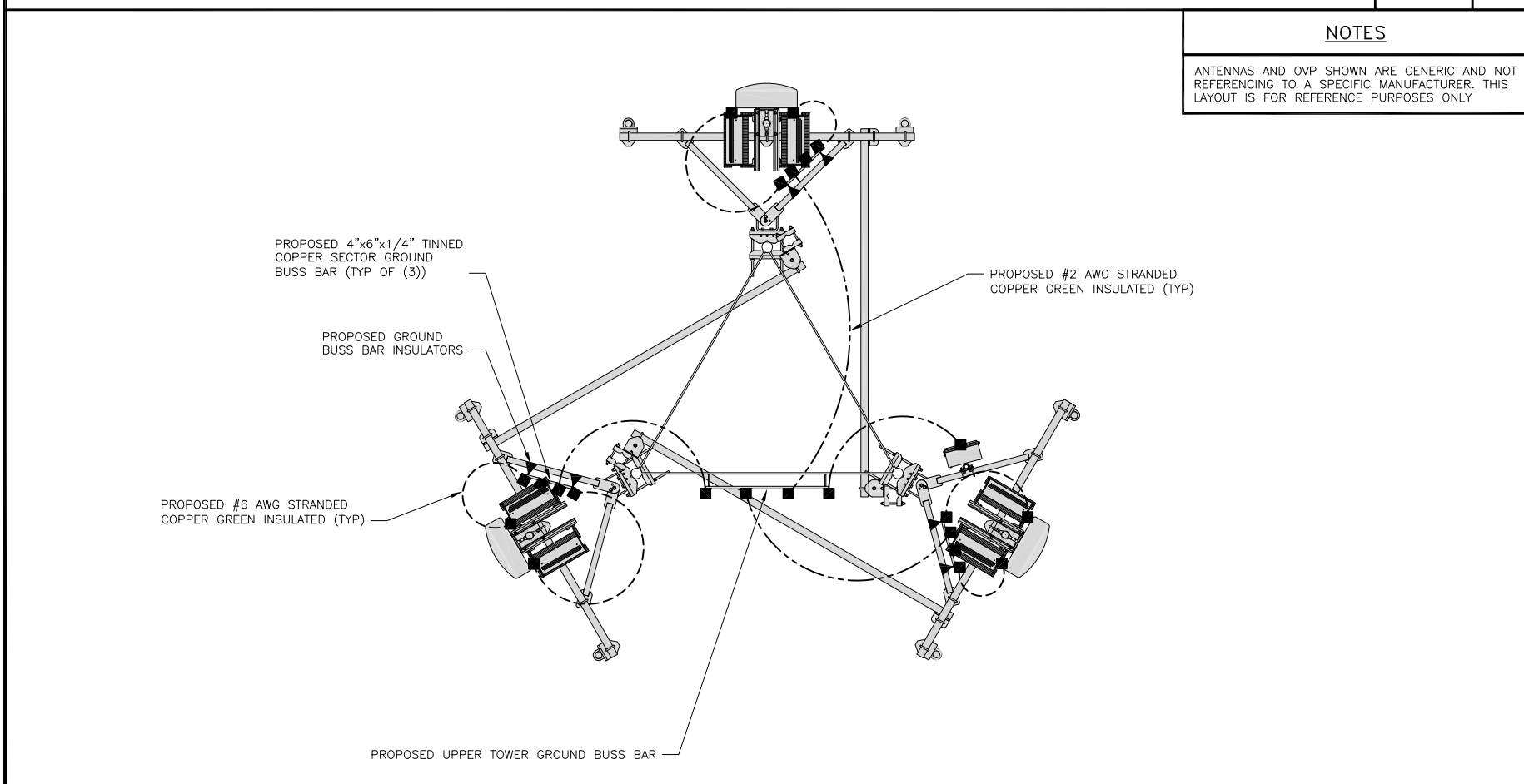
SHEET TITLE  
ELECTRICAL ONE-LINE, FAULT  
CALCS & PANEL SCHEDULE

SHEET NUMBER  
**E-3**



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

- 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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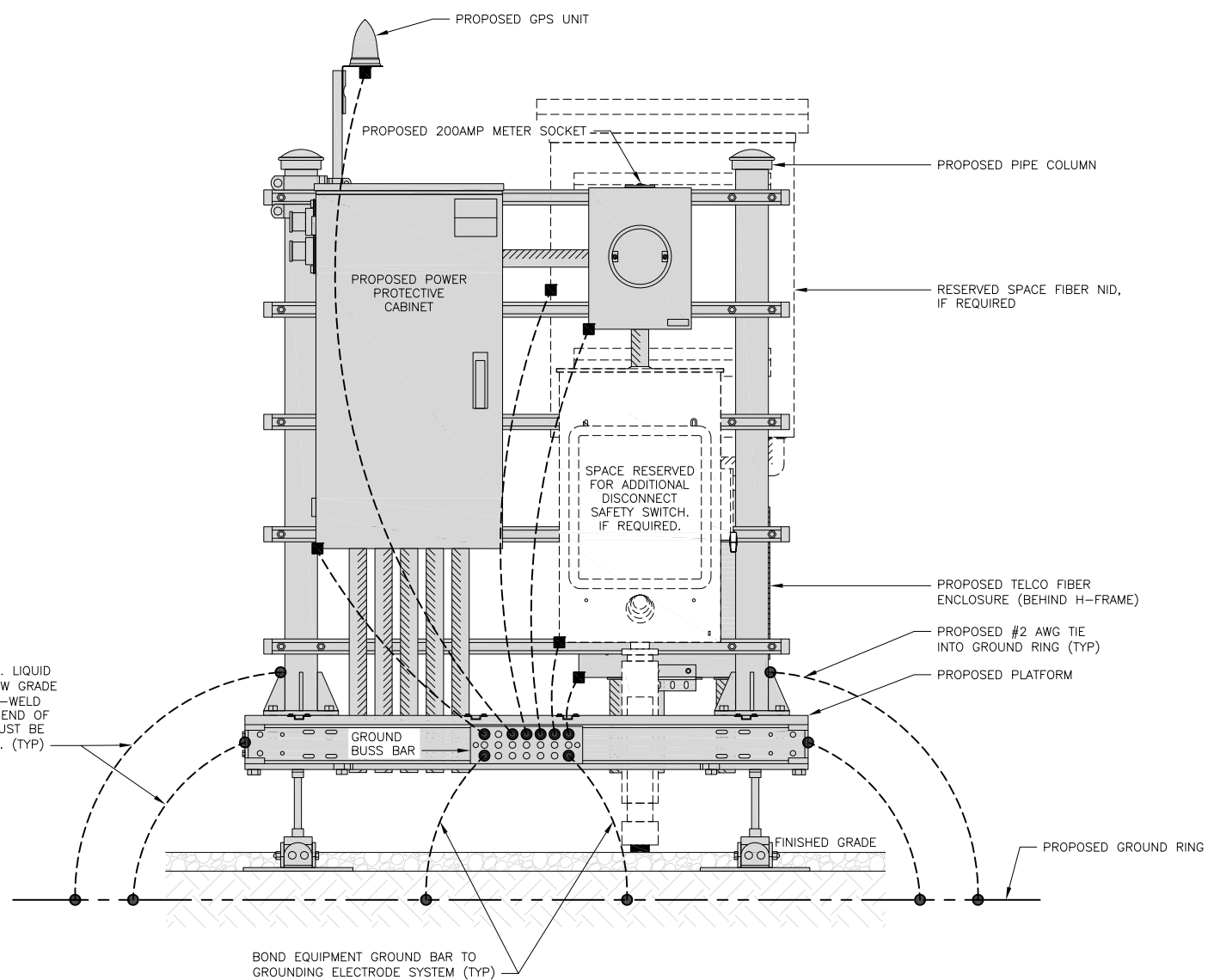
A&E PROJECT NUMBER  
136019.005.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

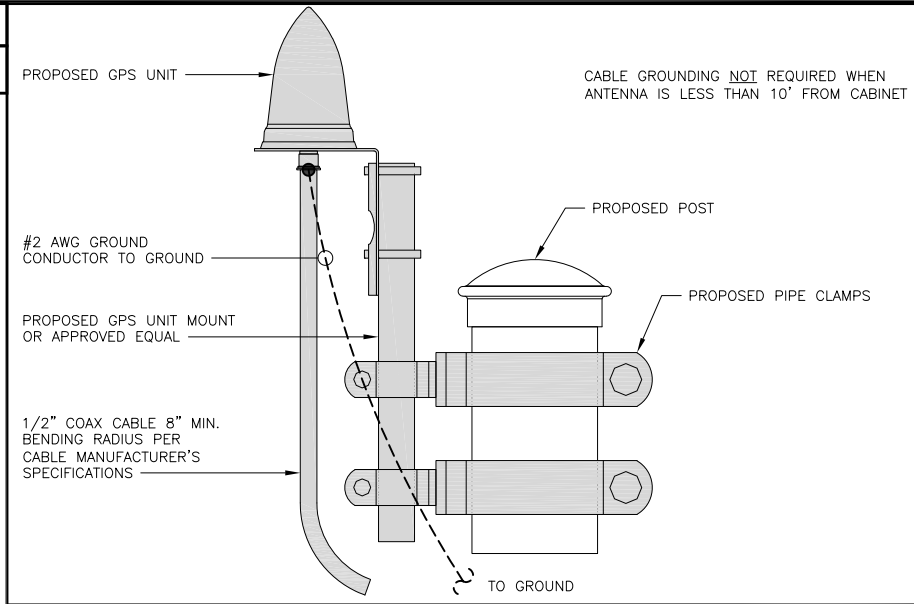
SHEET NUMBER  
**G-1**

**NOTES**  
EQUIPMENT CABINET OMITTED FOR CLARITY



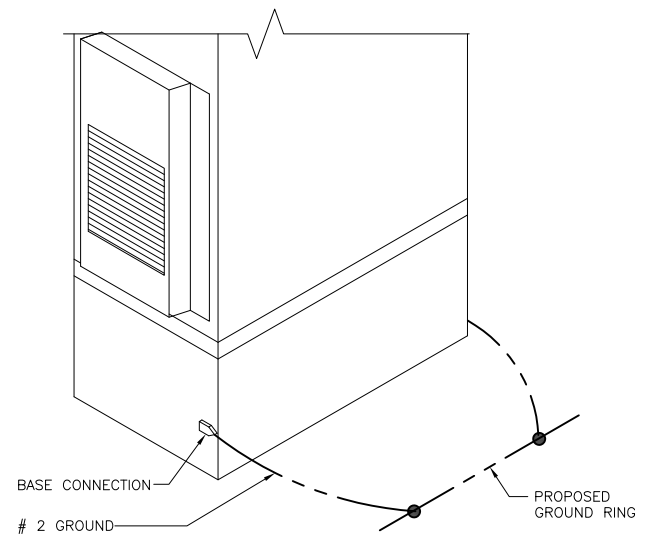
**H-FRAME GROUNDING DETAIL**

NO SCALE **1**



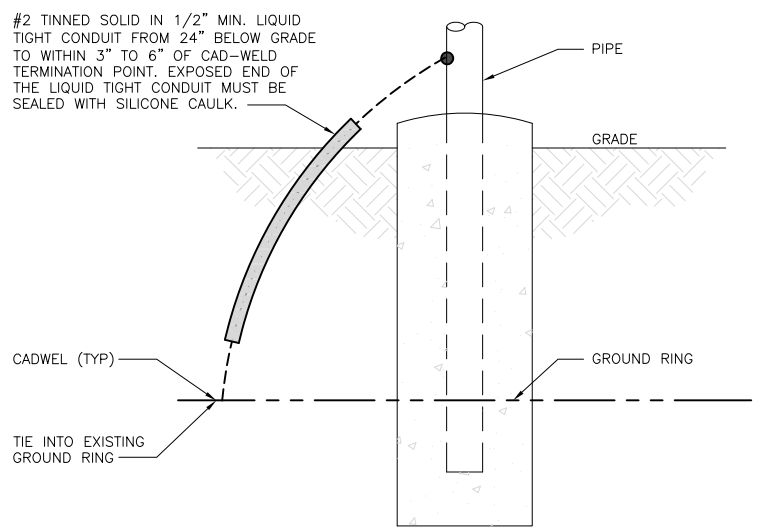
**TYPICAL GPS UNIT GROUNDING**

NO SCALE **2**



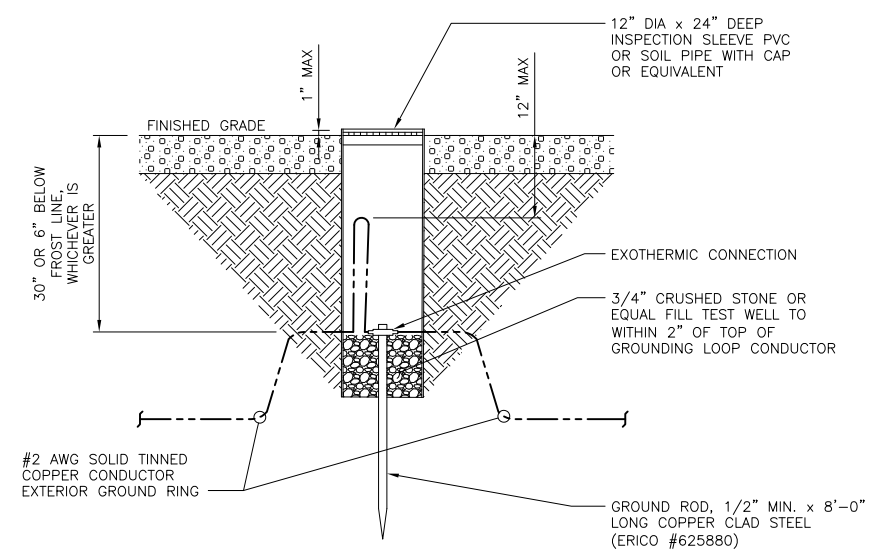
**OUTDOOR CABINET GROUNDING**

NO SCALE **3**



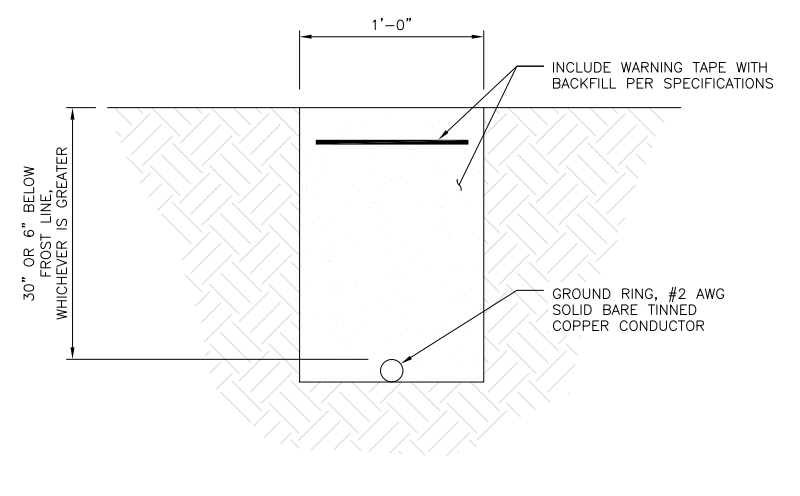
**TRANSITIONING GROUND DETAIL**

NO SCALE **4**



**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE**

NO SCALE **5**



**TYPICAL GROUND RING TRENCH**

NO SCALE **6**

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**SBA**  
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APPROVED BY: BLJ

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SUBMITTALS		
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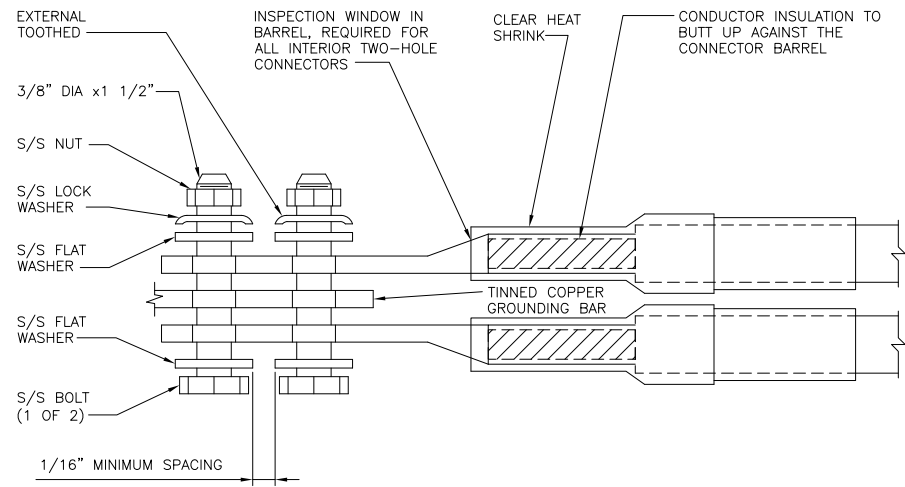
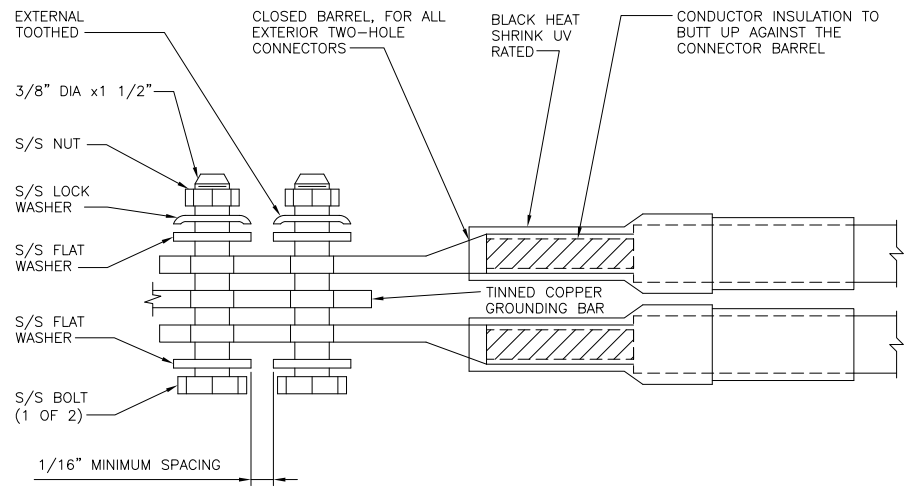
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157 CHESTNUT HILL ROAD  
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SHEET TITLE  
**GROUNDING DETAILS**

SHEET NUMBER  
**G-2**

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



TYPICAL GROUNDING NOTES

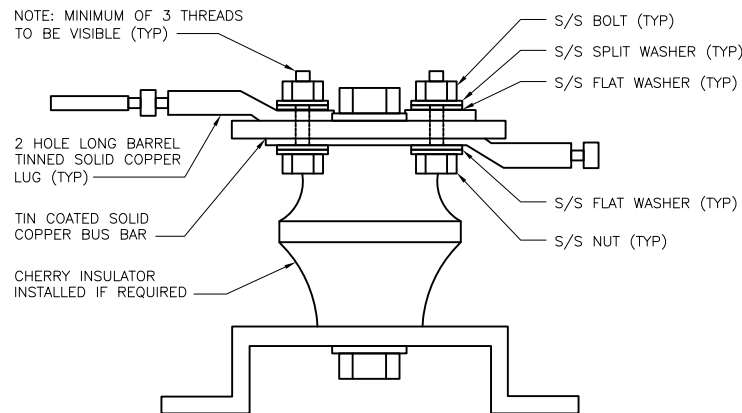
NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 3



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



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SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-3**

HYBRID/DISCREET CABLES												3/4" TAPE WIDTHS WITH 3/4" SPACING																											
<p>LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) - OPTIONAL PER MARKET</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)</p>												ALPHA RRH				BETA RRH				GAMMA RRH																			
												PORT 1 + SLANT				PORT 2 - SLANT				PORT 3 + SLANT				PORT 4 - SLANT															
												RED				BLUE				GREEN																			
												ORANGE				ORANGE				ORANGE																			
												WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT																			
<p>MID-BAND RRH (AWS BANDS N66+N70)</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)</p>												RED				BLUE				GREEN																			
												PURPLE				PURPLE				PURPLE																			
												WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT																			
<p>HYBRID/DISCREET CABLES</p> <p>INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.</p> <p>EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.</p> <p>EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.</p> <p>EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHs.</p>												EXAMPLE 1		EXAMPLE 2		EXAMPLE 3		CANISTER COAX #1 (ALPHA)		CANISTER COAX #2 (ALPHA)		CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.																	
												RED		RED		RED		RED		RED																			
												BLUE		BLUE		BLUE		BLUE		BLUE																			
												GREEN		GREEN		GREEN		GREEN		GREEN																			
												ORANGE		ORANGE		ORANGE		ORANGE		ORANGE																			
												PURPLE		PURPLE		PURPLE		PURPLE		PURPLE																			
<p>FIBER JUMPERS TO RRHs</p> <p>LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.</p>												LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH																	
												RED		RED		BLUE		BLUE		GREEN		GREEN																	
												ORANGE		PURPLE		ORANGE		PURPLE		ORANGE		PURPLE																	
<p>POWER CABLES TO RRHs</p> <p>LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY</p>												LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH		LOW BAND RRH		MID BAND RRH																	
												RED		RED		BLUE		BLUE		GREEN		GREEN																	
												ORANGE		PURPLE		ORANGE		PURPLE		ORANGE		PURPLE																	
<p>RET MOTORS AT ANTENNAS</p> <p>RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.</p> <p>SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.</p>												ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND		ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND		ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND																	
												IN		IN		IN		IN		IN		IN																	
												RED		RED		BLUE		BLUE		GREEN		GREEN																	
												PURPLE		ORANGE		PURPLE		ORANGE		PURPLE		ORANGE																	
<p>MICROWAVE RADIO LINKS</p> <p>LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.</p> <p>ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.</p> <p>MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.</p>												FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-359 DEGREES																							
												PRIMARY		SECONDARY		PRIMARY		SECONDARY		PRIMARY		SECONDARY																	
												WHITE		WHITE		WHITE		WHITE		WHITE		WHITE																	
												RED		RED		BLUE		BLUE		GREEN		GREEN																	
												WHITE		WHITE		WHITE		WHITE		WHITE		WHITE																	
												RED		RED		BLUE		BLUE		GREEN		GREEN																	
												WHITE		WHITE		WHITE		WHITE		WHITE		WHITE																	

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

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



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SHEET TITLE  
RF  
CABLE COLOR CODE

SHEET NUMBER

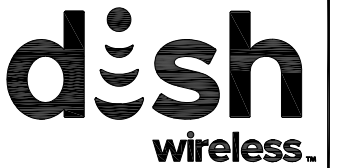
RF-1

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

**ABBREVIATIONS**



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SHEET TITLE  
**LEGEND AND ABBREVIATIONS**

SHEET NUMBER  
**GN-1**

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

**SIGN PLACEMENT:**

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

**NOTES:**

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

# INFORMATION

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

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

Site ID: \_\_\_\_\_



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

## NOTICE



Transmitting Antenna(s)

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

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

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

Site ID: \_\_\_\_\_



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## CAUTION



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## WARNING



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136019.005.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBDL00112B  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
LEGEND AND ABBREVIATIONS

SHEET NUMBER  
**GN-2**

SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
- "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:  
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION  
CARRIER:DISH Wireless L.L.C.  
TOWER OWNER:TOWER OWNER
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
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B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	BLJ	BLJ

RFDS REV #: T.B.D

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/12/22	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBDL00112B**  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
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SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-3**



CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
  - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
  - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. TIE WRAPS ARE NOT ALLOWED.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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B&T ENGINEERING, INC.  
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Expires 2/10/22

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SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-4**

**GROUNDING NOTES:**

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



5701 SOUTH SANTA FE DRIVE  
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8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	BLJ	BLJ

RFDS REV #: T.B.D

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	1/12/22	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**136019.005.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOBDL00112B**  
157 CHESTNUT HILL ROAD  
STAFFORD SPRINGS, CT  
06076

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-5**