Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Tectonic Engineering
Theresa Ranciato-Viele
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

February 24, 2022

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

RE: **Notice of Exempt Modification to an existing 150' monopole located at 158 Edison Road, Trumbull, Connecticut**

Latitude: 41° 14' 03.49" / Longitude: 73° 13' 07.79"

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless, LLC ("Dish"). Dish plans to install antennas and related equipment to the tower site at the existing 143'monopole tower facility located at 158 Edison Road, Trumbull, Connecticut (See Original Facility Approval attached as Exhibit A) ("Facility"). The property is owned by The Town of Trumbull and the tower is owned by American Tower Corporation (See Trumbull Vision Appraisal information attached hereto as Exhibit B).

Dish proposes to install three (3) 600/1900/2100 MHz JMA – MX08Fr0665-21 antennas and six (6) FUJITSU TA08025 RRUs on the tower at the ninety nine foot (99') centerline AGL. Dish further proposes to install one (1) 1.5" Hybrid Cable. Dish will also install its equipment cabinets on a 5' X 7' platform within its 10' X 15' lease area. The installation is shown on plans completed by Tectonic Engineering, dated February 1, 2022 and attached hereto as Exhibit C.

Dish requests that the Connecticut Siting Council ("Council") find that the proposed shared use of this Facility satisfies the criteria of C.G.S. sec. 16-50aa and accordingly issue an order approving the proposed shared use. This proposed installation constitutes an exempt modification pursuant to R.C.S.A. 16-50j-89. Pursuant to R.C.S.A. 16-50j-73, Dish is providing notice to Vicki A. Tesoro, First Selectperson of the Town of Trumbull, Rob Librandi, Land Use Planner, the property owner, Town of Trumbull, and the tower owner, American Tower Corporation.

Under the Council's regulations, Dish's plans do not constitute a modification subject to the Council's review in that:

Dish will not change the existing 143' height of the Tower as the Dish antennas will be installed at a height of 99'.

The proposed installation will not extend the existing boundaries of the compound as depicted in Exhibit C;

The proposed installation will not increase the noise levels at the facility by six (6) decibels or more, or to levels that exceed local and state criteria; and

The proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The attached Exhibit F indicates that the combined site operations will result in a total power density of 7.8871%.

Tower

The Facility consists of a One hundred forty three (143') foot monopole tower located at 158 Edison Road, Trumbull, Connecticut. As indicated above, property is owned by the Town of Trumbull and the tower is owned by American Tower Corporation. The tower currently supports Town of Trumbull antennas at the one hundred forty three foot (143') and sixty foot (60') centerlines AGL, T-Mobile at the one hundred forty foot (140') centerline AGL and Verizon at the one hundred nine foot (109') centerline AGL. The antenna locations are set forth on Sheet A-2 of the attached drawings in Exhibit C.

A. TECHNICAL FEASIBILTY

The existing monopole has been deemed structurally capable of supporting the proposed Dish loading. The structural and mount analyses are attached hereto as Exhibits D and E respectively.

B. LEGAL FEASIBILITY

C.G.S. Se. 16-50aa authorizes the Council to issue orders approving the shared use of existing towers such as the above referenced tower. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit from the Town of Trumbull to proceed with the proposed installation. Additionally, a Supplement to The Master Lease Agreement is attached as Exhibit G, granting Dish the authority from the tower owner to proceed with this application for shared use.

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C. ENVIRONMENTAL FEASIBILITY

The proposed shared use of this Facility would have a minimal environmental impact. The installation of the Dish equipment at the 130' level of the existing tower would have an insignificant visual impact on the area surrounding the tower. The proposed Dish ground equipment would be installed within the existing Facility compound. The Dish installation would not cause any significant alteration to the physical or environmental characteristics of the existing Facility. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase the radio frequency emissions to a level at or above the Federal Communications Commission safety standards.

D. ECONOMIC FEASIBILTY

Dish has entered into a Lease Agreement (Exhibit G) with the Facility owner for the proposed colocation. Therefore, this shared use is economically feasible.

E. PUBLIC SAFETY CONCERNS

As set forth above, the tower is structurally capable of supporting the proposed Dish loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower.

For the reasons set forth herein, the proposed shared use of the existing tower at 158 Edison Road, Trumbull, satisfies the criteria stated in C.G.S. sec. 16-50aa, and supports the general goal of preventing the unnecessary proliferation of tower sites in Connecticut. Dish respectfully requests the Council issue an order approving the proposed shared use.

Respectfully submitted,
Dish Wireless, LLC

By _____
Theresa Ranciato-Viele, consultant
63-3 N. Branford Road
Branford, CT 06405
Tranciato@Tectonicengineering.com
203-606-5127

cc: Trumbull First Selectperson, Honorable Vicki A. Tesoro
5866 Main St.
Second Floor
Trumbull, CT 06611

Trumbull Land Use Planner, Rob Librandi
5866 Main St.
Second Floor
Trumbull, CT 06611

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Tower Owner: American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Exhibit A

Original Facility Approval

DOCKET NO. 421 – T-Mobile Northeast LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 158 Edison Road, Trumbull, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		April 26, 2012

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 158 Edison Road in Trumbull, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level.

2. The Certificate Holder shall install a tower foundation and tower that is capable of supporting an extension. Any extension of the tower must be approved by the Council.

3. Panel antennas shall be mounted cluster-mount configuration or as otherwise determined by the Council.

4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Trumbull for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
   a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
   b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

5. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

6. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Trumbull. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

13. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

14. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

15. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

16. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Connecticut Post.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant
T-Mobile Northeast, LLC

Its Representative
Julie D. Kohler, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

Intervenor
Citizens Against Trumbull Tower

Its Representative
Keith R. Ainsworth, Esq
Evans Feldman & Ainsworth, L.L.C.
P.O. Box 1694
New Haven, CT 06507-1694

Exhibit B

Property Card

158 EDISON ROAD

Location	158 EDISON ROAD	**Mblu**	E/10 / 00304/ 000/
Acct#		**Owner**	TRUMBULL TOWN OF
Assessment	$4,066,090	**Appraisal**	$5,808,700
PID	12741	**Building Count**	1
Fire District	L		

Current Value

Appraisal	
Valuation Year	**Total**
2021	$5,808,700

Assessment	
Valuation Year	**Total**
2021	$4,066,090

Owner of Record

Owner	TRUMBULL TOWN OF
Co-Owner	
Address	5866 MAIN STREET TRUMBULL, CT 06611

Sale Price	$0
Book & Page	29/ 587
Sale Date	03/27/1929

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
TRUMBULL TOWN OF	$0	29/ 587	03/27/1929

Building Information

Building 1 : Section 1

Year Built: 1981
Living Area: 28,105

Building Attributes	
Field	**Description**

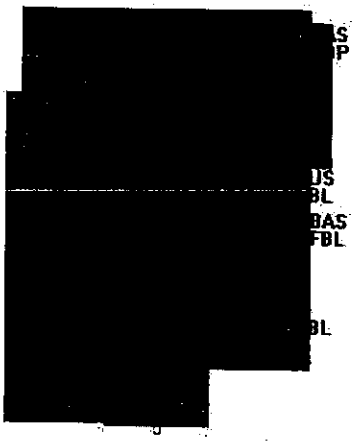
STYLE	Police Station
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Brick Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Vinyl
Heating Fuel	Gas
Heating Type	Hot Water
AC Type	Central
Bldg Use	Police Dept
1st Floor Use:	
Heat/AC	Heat/AC Split
Frame Type	Fireprf Steel
Baths/Plumbing	Average
Ceiling/Walls	Sus-Ceil & WL
Rooms/Prtns	Average
Wall Height	12
% Comn Wall	

Building Photo

E10-304 04/29/2015

(http://images.vgsi.com/photos2/TrumbullCTPhotos/\00\02\11/62.JPG)

Building Layout



(http://images.vgsi.com/photos2/TrumbullCTPhotos//Sketches/12741_1274

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	10,547	10,547
FBL	Fin Bsmt Living Area	9,785	9,785
FUS	Finished Upper Story	7,773	7,773
FGR	Attached Garage	2,254	0
FOP	Open Porch	441	0
		30,800	28,105

Extra Features

Extra Features			Legend
Code	Description	Size	Bldg #
ELV	Elevator	1 Units	1

Land

Land Use

Use Code	929
Description	Police Dept
Zone	A
Neighborhood	110
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.3
Frontage	
Depth	

Outbuildings

Outbuildings					Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Bldg #**
PAV1	Paving Asph.			60000 S.F.	1
LT1	Light - 1			13 Units	1
LT2	Light - 2			1 Units	1
ANTS	Self Sup Tower			100 L.F.	1

Valuation History

Appraisal	
Valuation Year	**Total**
2020	$4,986,300
2019	$4,986,300
2018	$4,986,300

Assessment	
Valuation Year	**Total**
2020	$3,490,410
2019	$3,490,410
2018	$3,490,410

Exhibit C

Project Plans

dish wireless.

DISH WIRELESS SITE ID:

NJJER01084B

DISH WIRELESS SITE ADDRESS:

158 EDISON ROAD
TRUMBULL, CT 06611

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA PLATFORM
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRHs (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 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 CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET
- INSTALL (1) ICE BRIDGE

SITE PHOTO

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

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	TOWN OF TRUMBULL
ADDRESS:	158 EDISON ROAD TRUMBULL, CT 06611
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	21074
TOWER APP NUMBER:	N/A
COUNTY:	FAIRFIELD COUNTY
LATITUDE (NAD 83):	41° 14' 03.49" N 41.234353° N
LONGITUDE (NAD 83):	73° 13' 07.79" W 73.218781° W
ZONING JURISDICTION:	TOWN OF TRUMBULL/ CT SITING COUNCIL
ZONING DISTRICT:	A
PARCEL NUMBER:	E10-304
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	UNITED ILLUMINATING CO.
TELEPHONE COMPANY:	T.B.D.

PROJECT DIRECTORY

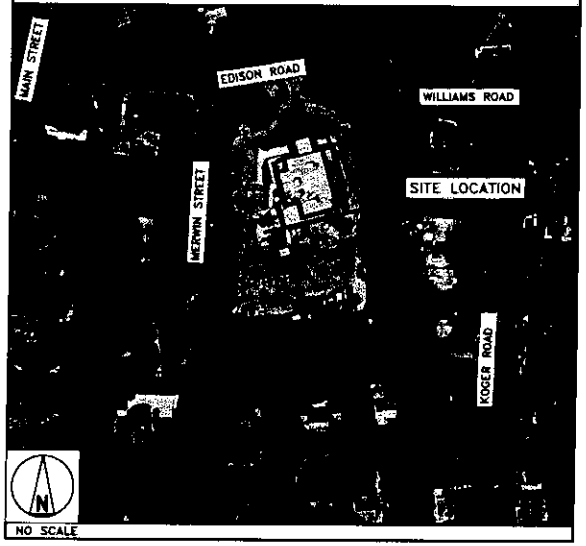
APPLICANT:	DISH WIRELESS 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	AMERICAN TOWER CORP. 116 HUNTINGTON AVE #1100 BOSTON, MA 02116
SITE DESIGNER:	TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS D.P.C. 1279 ROUTE 300 NEWBURGH, NY 10953
SITE ACQUISITION:	TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS D.P.C. (845) 567-4656
CONSTRUCTION MANAGER:	JOSEPH DIPIAZZA JOSEPH.DIPIAZZA@DISH.COM
RF ENGINEER:	PAWAN MADAHAR PAWAN.MADAHAR@DISH.COM

DIRECTIONS

DIRECTIONS FROM 3 ADP BOULEVARD, ROSELAND, NJ:

TAKE CHOCTAW WAY AND TURN RIGHT ONTO LIVINGSTON AVE, USE THE RIGHT LANE TO TAKE THE RAMP ONTO I-280 E, CONTINUE ON I-280 E. TAKE GARDEN STATE PKWY, I-287 E AND CT-15 N TO CT-111 N/MAIN ST IN TRUMBULL. TAKE EXIT 48 FROM CT-15 N, MERGE ONTO I-280 E. KEEP LEFT TO STAY ON I-280 E. TAKE EXIT 12 TOWARD ORATON PKWY. KEEP LEFT, FOLLOW SIGNS FOR GARDEN STATE PARKWAY AND MERGE ONTO GARDEN STATE PKWY. KEEP RIGHT TO STAY ON GARDEN STATE PKWY. KEEP LEFT TO STAY ON GARDEN STATE PKWY. CONTINUE ONTO NJ-444 N/GARDEN STATE PKWY. CONTINUE ONTO GARDEN STATE PARKWAY CONNECTOR. USE ANY LANE TO TAKE EXIT 1-14 TO MERGE ONTO I-287 E/I-87 S. KEEP LEFT AT THE FORK TO CONTINUE ON I-287 E. FOLLOW SIGNS FOR WHITE PLAINS/RYE. TAKE EXIT 9 S-N TOWARD HUTCHINSON PKWY/MERRITT PKWY. MERGE ONTO WESTCHESTER AVE. USE THE RIGHT LANE TO TAKE THE RAMP TO WESTCHESTER AVE/NORTH HUTCHINSON PKWY/MERRITT PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. KEEP RIGHT AT THE FORK TO STAY ON HUTCHINSON RIVER PKWY N. CONTINUE ONTO CT-15 N 30.3 MI. TAKE EXIT 48 FOR CT-111. USE THE RIGHT LANE TO TURN LEFT ONTO CT-111 N/MAIN ST. TURN RIGHT ONTO EDISON RD. TURN RIGHT. TURN LEFT. DESTINATION WILL BE ON THE RIGHT.

VICINITY MAP



NO SCALE

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

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.
Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.
Project Contact: ###
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-4656
(800) 829-4031
www.tectonicengineering.com

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: 1

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/01/22	ISSUED FOR APPROVAL

A&E PROJECT NUMBER

10710.NJJER01084B

DISH WIRELESS PROJECT INFORMATION

NJJER01084B

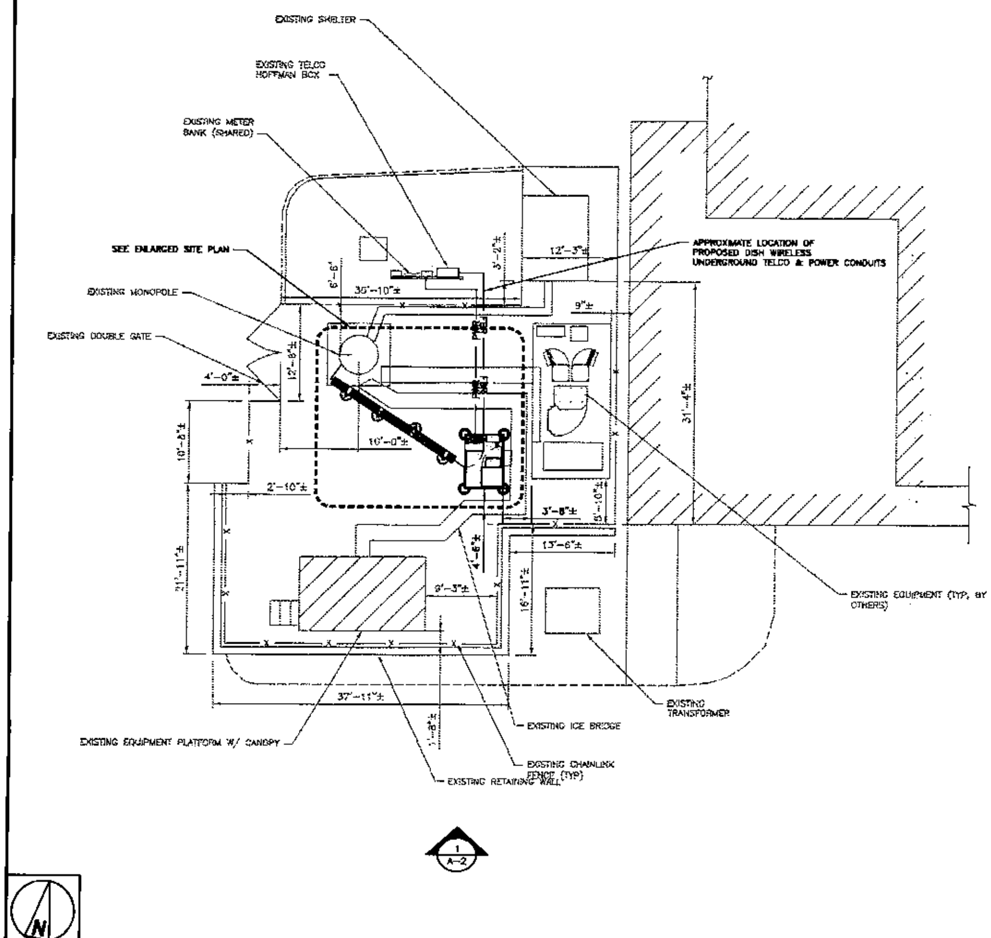
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE

TITLE SHEET

SHEET NUMBER

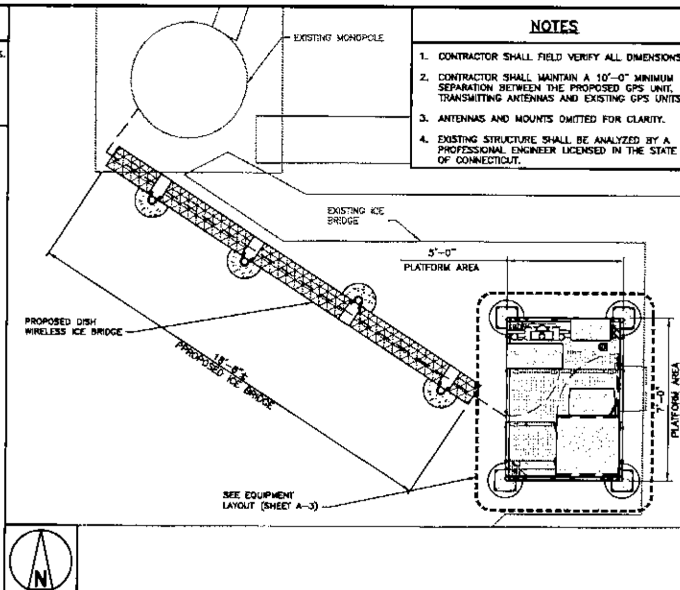
T-1



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.

OVERALL SITE PLAN — 1/8"=1'-0" — 1



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
4. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.

ENLARGED SITE PLAN — 3/8"=1'-0" — 2

NOT USED — 3

dish wireless.

5701 SOUTH SANTE FE DRIVE
LITTLETON, CO 80120

Tectonic

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:
JW	JQ	MP

RFDS REV #: 1

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/01/22	ISSUED FOR APPROVAL

A&E PROJECT NUMBER
10710.NJJER01084B

DISH WIRELESS PROJECT INFORMATION
NJJER01084B

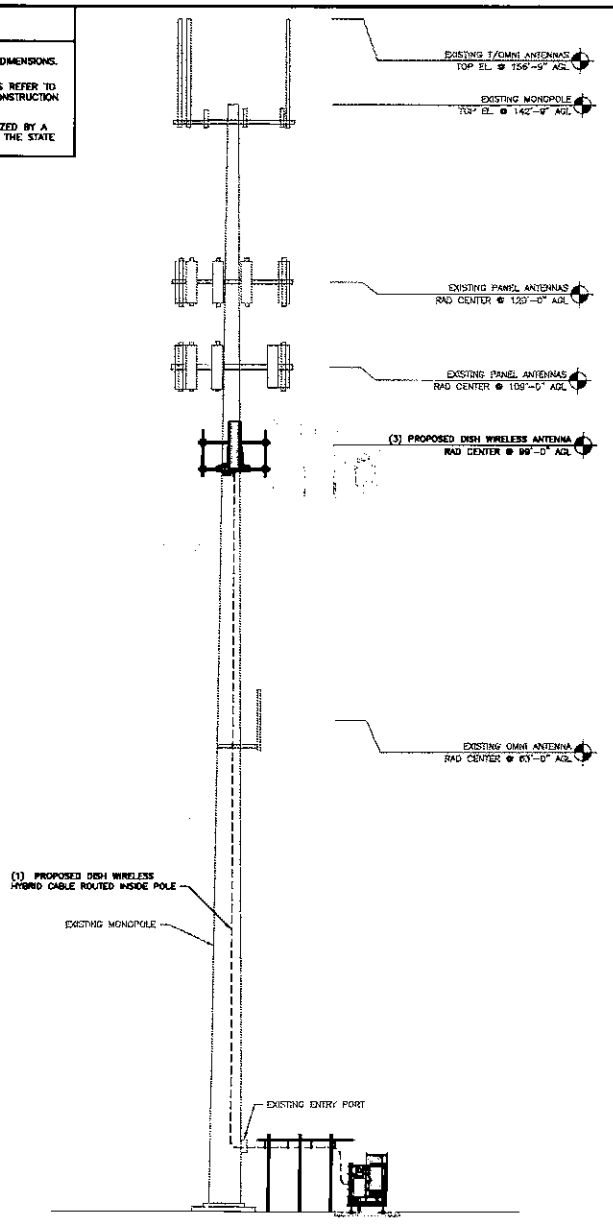
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

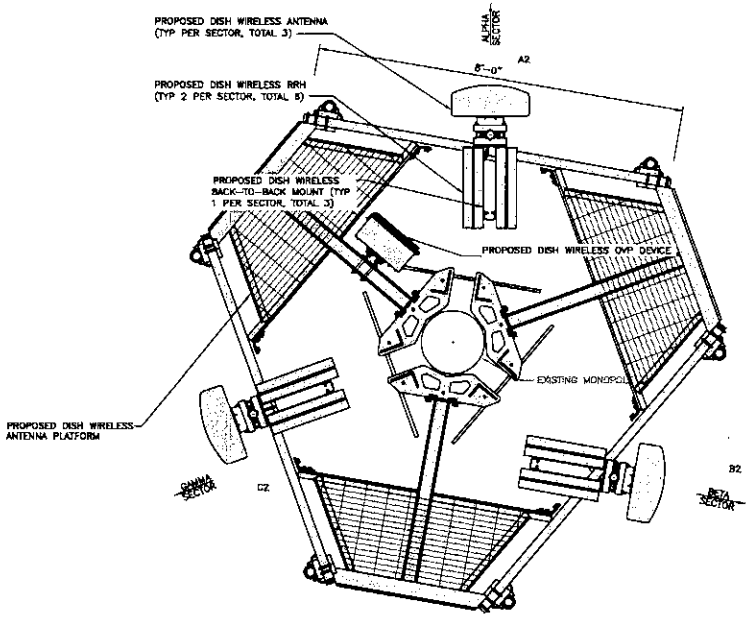
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING STRUCTURE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.



PROPOSED SOUTH ELEVATION

8' 4' 2' 0 5' 10'
3/16"=1'-0"

1



ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	—	—	—	—	—	(1) HIGH-CAPACITY HYBRID CABLE (128' LONG)	FUJITSU – TA08025-B604	5G	A2	RAYCAP – RDIDC-9181-PF-48
A2	PROPOSED	JMA – MX08FRO665-21	5G	0°	99'-0"		FUJITSU – TA08025-B605	5G	A2	
A3	—	—	—	—	—		—	—	—	
B1	—	—	—	—	—	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA – MX08FRO665-21	5G	100°	99'-0"		FUJITSU – TA08025-B605	5G	B2	
B3	—	—	—	—	—		—	—	—	
C1	—	—	—	—	—	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA – MX08FRO665-21	5G	250°	99'-0"		FUJITSU – TA08025-B605	5G	C2	
C3	—	—	—	—	—		—	—	—	

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C.
Project Contact: n/a Phone: (845) 567-3100
1279 Route 300 (800) 520-6691
Newburgh, NY 12550 www.tectonicengineering.com

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RFDS REV #: 1

ZONING DOCUMENTS

SUBMITTALS

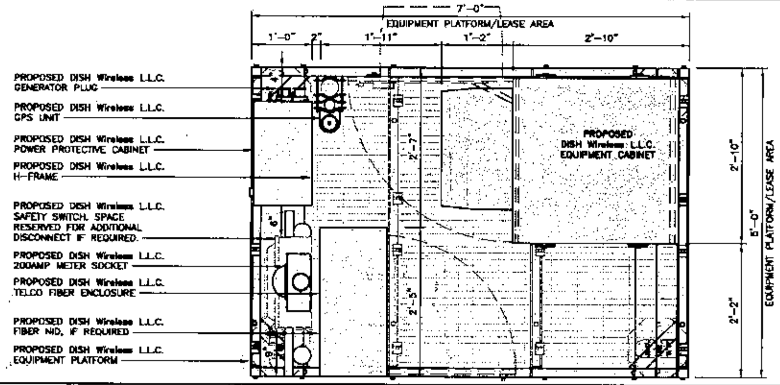
REV	DATE	DESCRIPTION
0	02/21/22	ISSUED FOR APPROVAL

A&E PROJECT NUMBER
10710.NJJER010848

DISH WIRELESS PROJECT INFORMATION
NJJER010848
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



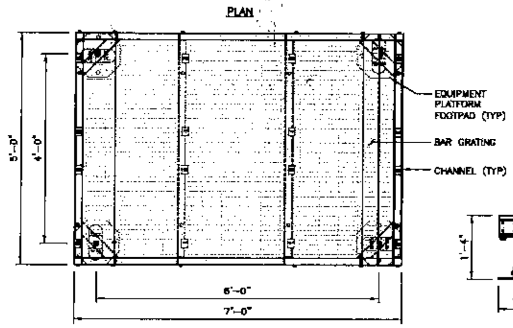
PLATFORM EQUIPMENT PLAN

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

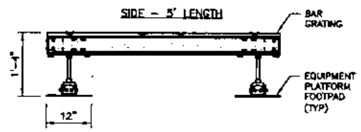
1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	18"x84"x60"
TOTAL WEIGHT	423 LBS

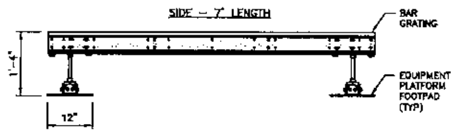
PLAN



SIDE – 5' LENGTH



SIDE – 7' LENGTH



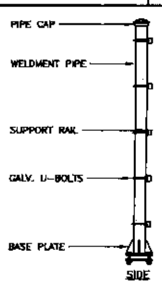
PLATFORM DETAIL

NO SCALE

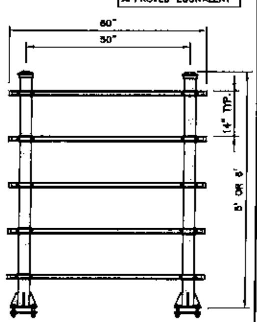
2

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

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



SIDE



FRONT

H-FRAME DETAIL

NO SCALE

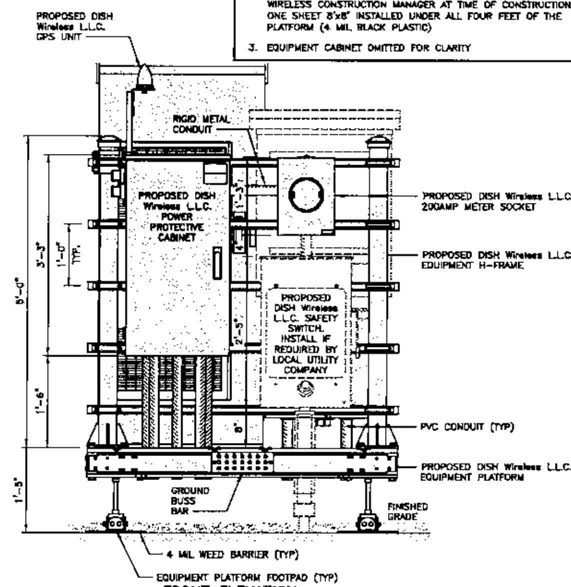
3

NOT USED

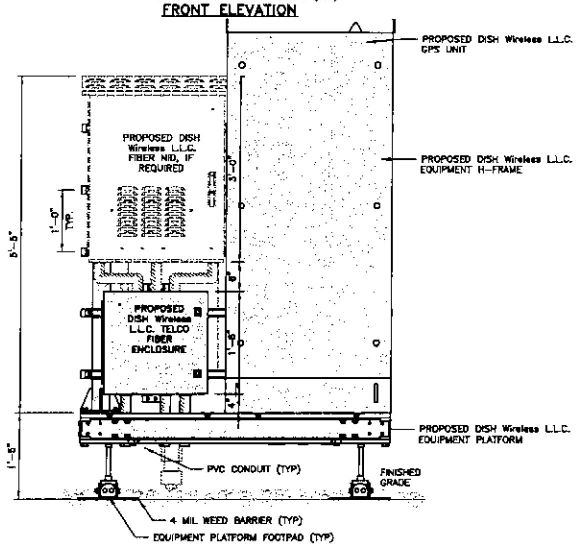
NO SCALE

4

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
10710.NJJER01084B

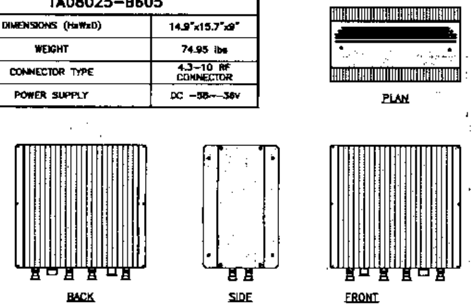
DISH WIRELESS PROJECT INFORMATION
NJJER01084B

158 EDISON ROAD
TRUMBULL, CT 06511

SHEET TITLE
EQUIPMENT DETAILS

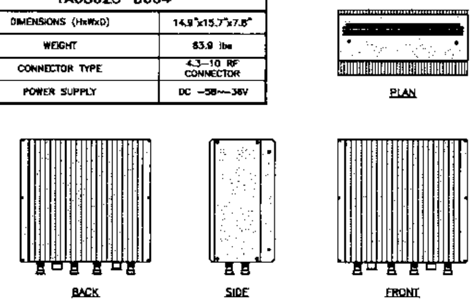
SHEET NUMBER
A-3

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~-38V



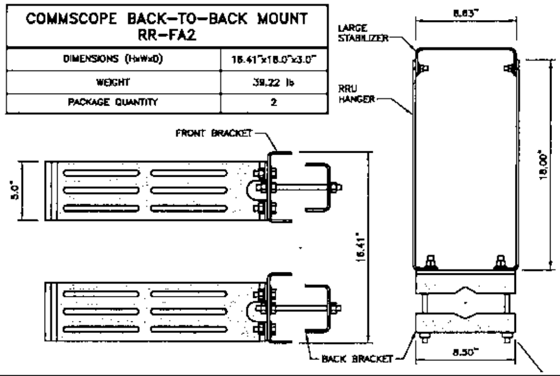
RRH DETAIL — NO SCALE — 1

FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-38V



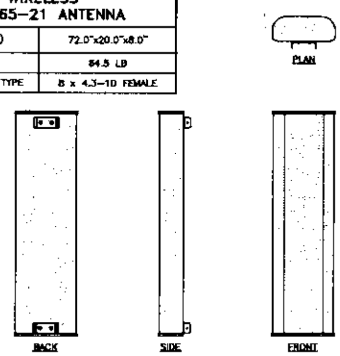
RRH DETAIL — NO SCALE — 2

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2	
DIMENSIONS (HxWxD)	18.41"x18.0"x3.0"
WEIGHT	39.22 lb
PACKAGE QUANTITY	2



REMOTE RADIO MOUNT DETAIL — NO SCALE — 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

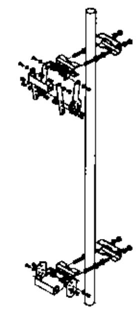


ANTENNA DETAIL — NO SCALE — 4

NOT USED — NO SCALE — 5

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

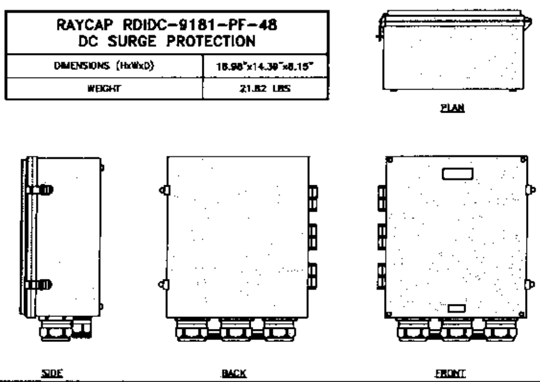
NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT



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

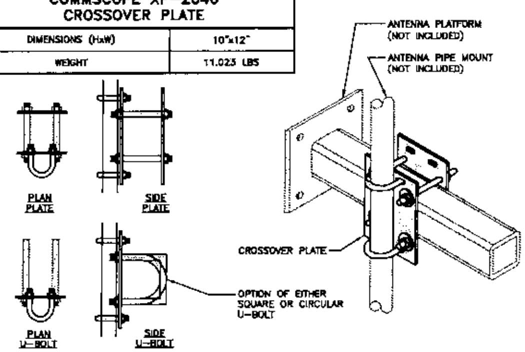
ANTENNA BRACKET DETAIL — NO SCALE — 6

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



SURGE SUPPRESSION DETAIL — NO SCALE — 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL — NO SCALE — 8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	95"
WEIGHT	1373.06 lbs
NOTE: 15" TO 38" O.D.	

NOTE:
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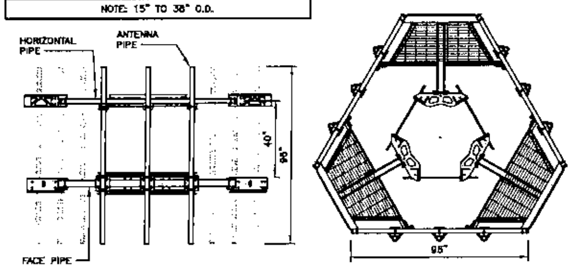

ANTENNA PLATFORM DETAIL — NO SCALE — 9

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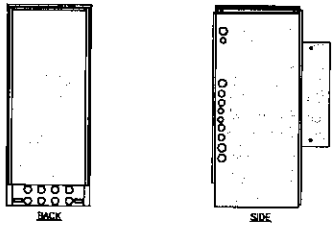
A&E PROJECT NUMBER
10710.NJJER01084B

DISH WIRELESS PROJECT INFORMATION
NJJER01084B
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
EQUIPMENT DETAILS

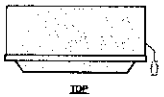
SHEET NUMBER
A-4

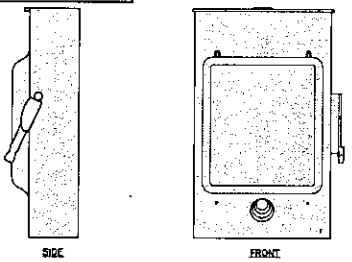
ENERSYS HEX 2000005996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	378 lbs



CABINET DETAIL | NO SCALE | 1

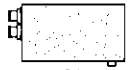
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875

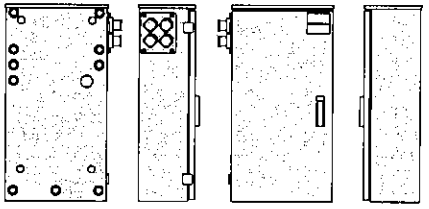




SAFETY SWITCH DETAIL | NO SCALE | 2

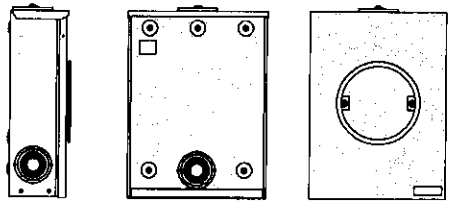
RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.655"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G





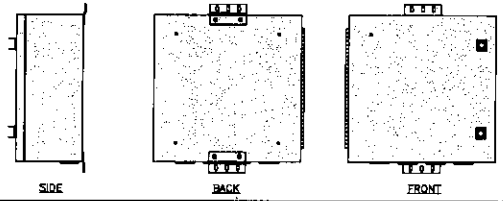
CABINET DETAIL | NO SCALE | 3

EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



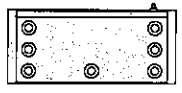
METER SOCKET DETAIL | NO SCALE | 4

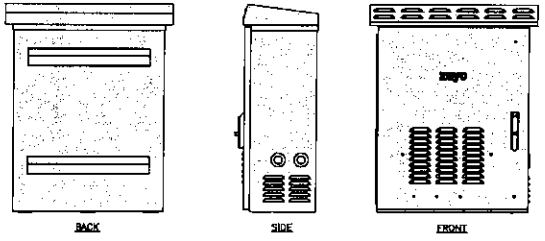
CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 5

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





FIBER NID ENCLOSURE DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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DISH WIRELESS PROJECT INFORMATION

NJJER010848

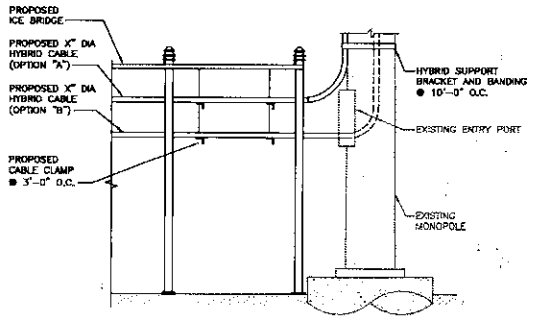
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE

EQUIPMENT DETAILS

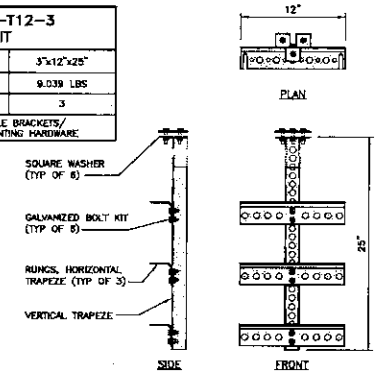
SHEET NUMBER

A-5



HYBRID CABLE RUN | NO SCALE | 1

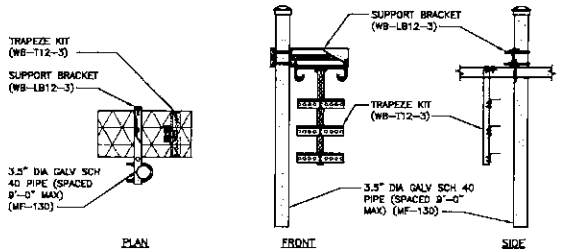
COMMSCOPE WB-T12-3 TRAPEZE KIT	
DIMENSIONS (HxWxL)	3"x12"x25"
WEIGHT	9.039 LBS
RUNGS (QTY)	3
INCLUDED PRODUCTS:	ANGLE BRACKETS/ MOUNTING HARDWARE



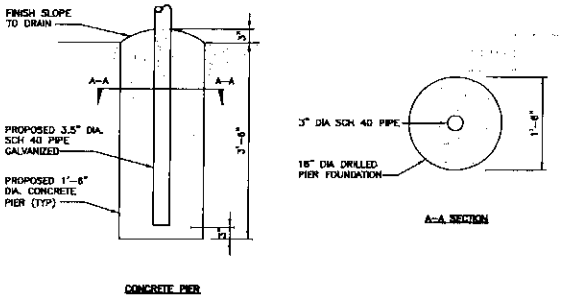
ICE BRIDGE MOUNT DETAIL | NO SCALE | 2

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

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

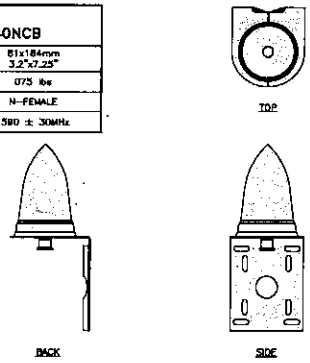


ICE BRIDGE DETAIL | NO SCALE | 3

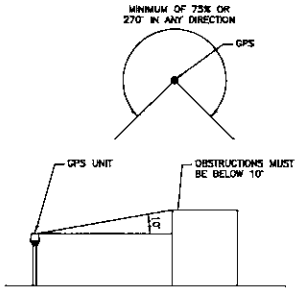


TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 4

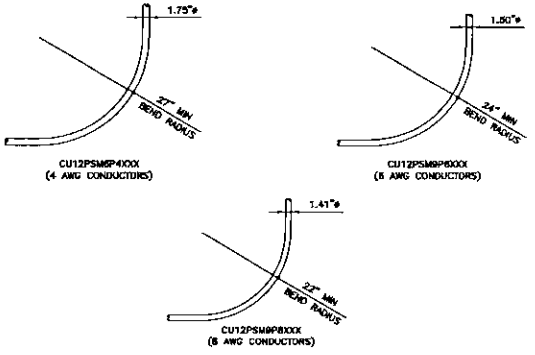
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1580 ± 30MHz



GPS DETAIL | NO SCALE | 5



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 6



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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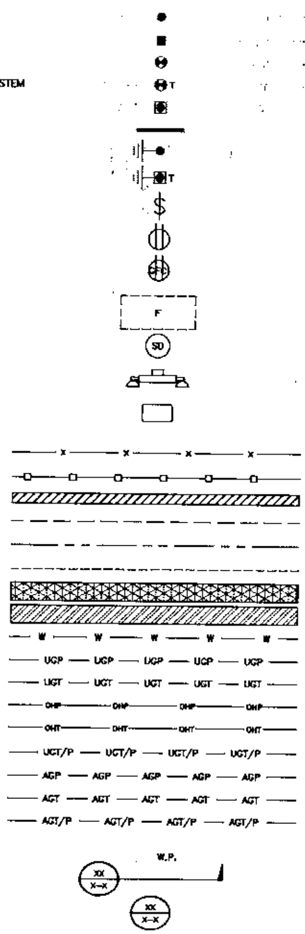
DISH WIRELESS PROJECT INFORMATION
NJJER01084B
15B EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

LEGEND

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION
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



ABBREVIATIONS

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

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

Tectonic

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	JQ	MP

RFDS REV #: 1

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/01/22	ISSUED FOR APPROVAL

A&E PROJECT NUMBER
10710.NJJER01084B

DISH WIRELESS PROJECT INFORMATION
NJJER01084B
158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

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

2. "LOOK UP" – DISH WIRELESS 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 AND DISH WIRELESS AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

5701 SOUTH SANTE FE DRIVE
LITTLETON, CO 80120

Tectonic

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:
JW	JQ	MP

RFDS REV #: 1

ZONING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/01/22	ISSUED FOR APPROVAL

A&E PROJECT NUMBER
10710.NJJER01084B

DISH WIRELESS PROJECT INFORMATION
NJJER01084B

158 EDISON ROAD
TRUMBULL, CT 06611

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

Exhibit D

Structural Analysis

AMERICAN TOWER®
CORPORATION

AIROSMITH ENGINEERING

Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**Trumbull CT, CT**
ATC Site Number	:	**210746**
Engineering Number	:	**OAA768134_C3_02**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**NJJER01084B**
Carrier Site Number	:	**NJJER01084B**
Site Location	:	**158 Edison Road** **Trumbull, CT 06611** **41.2343, -73.2189**
County	:	**Fairfield**
Date	:	**November 23, 2021**
Max Usage	:	**36%**
Result	:	**Pass**

Prepared By:

Cole DiGiacomo
Airosmith Engineering

Cole DiGiacomo

Reviewed By:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
29460
LICENSED
PROFESSIONAL ENGINEER

Joseph Johnston

11/23/2021

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Valmont Order #291087, dated September 4, 2015
Foundation Drawing	Delta Oaks Group Project #BG121-11888-01, dated November 18, 2021
Geotechnical Report	Terracon Project #J2135196, dated October 17, 2013

Analysis

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

Basic Wind Speed:	125 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	Ss = 0.21, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
143.0	2	Generic 8' Dipole	T-Arm with Platform	(2) 1 1/4" Coax (9) 7/8" Coax	TOWN OF TRUMBELL, CT
	1	Telewave ANT770F2			
	2	Andrew DB809KE-XT			
	2	Radio Waves HPD2-4.7NS			
	3	Generic 16' Omni			
	1	Decibel DS1F06F36U3D			
140.0	3	Ericsson RRUS 11 B12		(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson KRY 112 71			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Andrew LNX-6515DS-VTM			
	3	Ericsson AIR 21, 1.3M, B4A B2P			
109.0	3	Alcatel-Lucent B13 RRH4x30-4R 700U	T-Arm	(2) 1 5/8" (1.63"-41.3mm) Fiber	VERIZON WIRELESS
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent RRH4x45-B66 w/o Solar Shield			
	9	Commscope SBNHH-1D65B			
	2	Raycap RxxDC-3315-PF-48			
60.0	1	Generic 16' Omni	Stand-Off	(1) 7/8" Coax	TOWN OF TRUMBELL, CT

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
99.0	1	Raycap RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.63" (41.3mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	36%	Pass
Shaft	34%	Pass
Base Plate	8%	Pass
Flange	7%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2256.9	34%
Shear (Kips)	23.6	15%
Axial (Kips)	45.0	24%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
143.0	Radio Waves HPD2-4.7NS	TOWN OF TRUMBELL, CT	0.643	0.460
99.0	JMA Wireless MX08FRO665-21	DISH WIRELESS L.L.C.	0.318	0.370
	Fujitsu TA08025-B604			
	Raycap RDIDC-9181-PF-48			
	Fujitsu TA08025-B605			

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

Standard Conditions

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

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

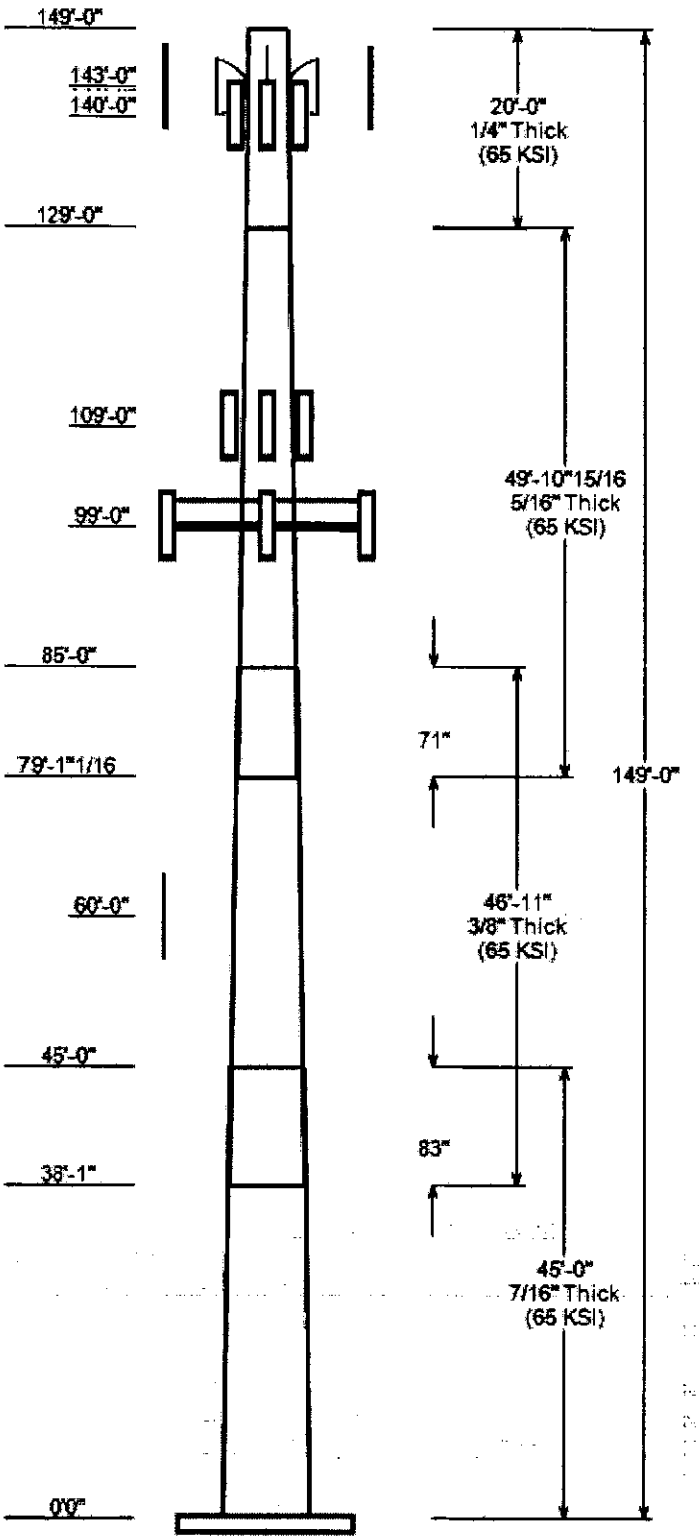
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

Asset :	210746, Trumbull CT	Height :	149 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	59.5
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.24700 (In/ft)	Exposure :	B
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.000	48.36	59.50	0.438		0.000	18 Sides	65
2	46.917	39.21	50.82	0.375	Slip Joint	83.000	18 Sides	65
3	49.909	28.95	41.30	0.312	Slip Joint	70.910	18 Sides	65
4	20.000	24.00	28.95	0.250	Butt Joint	0.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
143.0	143.0	1	Telewave ANT770F2
143.0	143.0	2	Generic 8' Dipole
143.0	143.0	2	Andrew DB809KE-XT
143.0	143.0	2	Radio Waves HPD2-4.7NS
143.0	143.0	3	Generic 16' Omni
143.0	143.0	1	Decibel DS1F06F36U3D
141.0	141.0	3	T-Arm with Platform
140.0	140.0	3	Ericsson KRY 112 71
140.0	140.0	3	Ericsson RRUS 11 B12
140.0	140.0	3	Ericsson AIR 21, 1.3 M, B2A B4
140.0	140.0	3	Ericsson AIR 21, 1.3M, B4A B2P
140.0	140.0	3	Andrew LNX-6515DS-VTM
109.0	109.0	3	Alcatel-Lucent B13 RRH4x30-4R
109.0	109.0	3	Alcatel-Lucent 1900 MHz 4X45 R
109.0	109.0	3	Alcatel-Lucent RRH4x45-B66 w/o
109.0	109.0	2	Raycap RxxDC-3315-PF-48
109.0	109.0	9	Commscope SBNHH-1D65B
109.0	109.0	3	Round T-Arm
99.0	99.0	1	Raycap RDIDC-9181-PF-48
99.0	99.0	3	Fujitsu TA08025-B605
99.0	99.0	3	Fujitsu TA08025-B604
99.0	99.0	3	JMA Wireless MX08FRO665-21
99.0	99.0	1	Generic Round Platform with Ha
60.0	60.0	1	Generic 16' Omni

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	143.0	7/8" Coax	No
0.0	143.0	1 1/4" Coax	No
0.0	140.0	1 5/8" Hybriflex	No
0.0	140.0	1 5/8" Coax	No
0.0	109.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	99.0	1.63" (41.3mm) Hybrid	No
0.0	60.0	7/8" Coax	Yes

LOAD CASES

1.2D + 1.0W	125 mph wind with no ice
0.9D + 1.0W	125 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

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REACTIONS

Load Case	Moment (klp-ft)	Shear (Kip)	Axial (Klp)
1.2D + 1.0W	2256.86	23.63	44.95
0.9D + 1.0W	2244.55	23.62	33.71
1.2D + 1.0Di + 1.0Wi	568.95	6.02	58.23
1.2D + 1.0Ev + 1.0Eh	144.40	1.39	44.82
0.9D - 1.0Ev + 1.0Eh	143.45	1.39	30.77
1.0D + 1.0W	463.51	4.87	37.48

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	143.00	7.725	0.455

ANALYSIS PARAMETERS

Location:	Fairfield County,CT	**Height:**	149 ft
Type and Shape:	Custom, 18 Sides	**Base Diameter:**	59.50 in
Manufacturer:	Valmont	**Top Diameter:**	28.95 in
K_d (non-service):	0.95	**Taper:**	0.2470 in/ft
K_e:	0.99	**Rotation:**	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	**Design Wind Speed w/o Ice:**	125 mph
Risk Category:	II	**Design Wind Speed w/Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Operational Wind Speed:**	60 mph
Topographic Category:	1	**Design Ice Thickness:**	1.00 in
Crest Height:	0 ft	**HMSL:**	320.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	1.55
T_L (sec):	6	**P:**	1	**C_s:**	0.037
S_s:	0.212	**S_1:**	0.054	**C_s Max:**	0.037
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.226	**S_{d1}:**	0.086		

LOAD CASES

1.2D + 1.0W	125 mph wind with no ice
0.9D + 1.0W	125 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	45.00	0.4375	65		0.00	11,374	59.50	0.000	82.01	36,145.8	22.22	136.00	48.36	45.00	66.55	19,311.2	17.73	110.54	0.2475
2-18	46.92	0.3750	65	Slip	83.00	8,483	50.82	38.083	60.05	19,308.3	22.13	135.53	39.21	85.00	46.22	8,809.1	16.67	104.57	0.2475
3-18	49.91	0.3125	65	Slip	70.91	5,864	41.30	79.091	40.65	8,628.8	21.54	132.16	28.95	129.00	28.40	2,942.3	14.57	92.63	0.2475
								129.00								1,343.0			
4-18	20.00	0.2500	65	Butt	0.00	1,416	28.95	0	22.77	2,369.9	18.66	115.80	24.00	149.00	18.84		15.16	96.00	0.2475

Shaft Weight 27,137

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
143.00	Generic 16' Omni	3	1.00	0.000	55.00	4.800	1.00	135.11	8.579	1.00
143.00	Radio Waves HPD2-4.7NS	2	1.00	0.000	27.00	3.960	1.00	82.22	4.739	1.00
143.00	Andrew DB809KE-XT	2	1.00	0.000	37.50	3.660	1.00	98.86	6.560	1.00
143.00	Generic 8' Dipole	2	1.00	0.000	25.00	3.010	1.00	84.37	6.106	1.00
143.00	Telewave ANT770F2	1	1.00	0.000	8.00	1.180	1.00	27.58	2.004	1.00
143.00	Decibel DS1F06F36U3D	1	1.00	0.000	60.00	6.570	1.00	169.31	11.715	1.00
141.00	T-Arm with Platform	3	0.75	0.000	400.00	16.200	0.67	584.94	23.690	0.67
140.00	Ericsson KRY 112 71	3	0.80	0.000	13.20	0.583	0.50	25.33	0.950	0.50
140.00	Ericsson RRUS 11 B12	3	0.80	0.000	50.70	2.791	0.67	98.65	3.517	0.67
140.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.80	0.000	83.00	6.049	0.71	179.65	7.481	0.71
140.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.80	0.000	81.50	6.092	0.70	177.80	7.525	0.70
140.00	Andrew LNX-6515DS-VTM	3	0.80	0.000	51.30	11.430	0.70	203.10	13.576	0.70
109.00	Round T-Arm	3	0.75	0.000	312.50	9.700	0.67	481.22	15.024	0.67
109.00	Commscope SBNHH-1D65B	9	0.80	0.000	50.70	8.173	0.69	164.05	10.001	0.69
109.00	Raycap RxxDC-3315-PF-48	2	0.80	0.000	21.40	2.512	0.67	72.85	3.184	0.67
109.00	Alcatel-Lucent RRH4x45-B66 w/o	3	0.80	0.000	63.30	2.470	0.67	104.31	3.189	0.67
109.00	Alcatel-Lucent B13 RRH4x30-4R	3	0.80	0.000	57.20	2.170	0.67	101.57	2.820	0.67
109.00	Alcatel-Lucent 1900 MHz 4X45 R	3	0.80	0.000	60.00	2.322	0.67	112.05	3.020	0.67
99.00	Raycap RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.29	2.443	1.00
99.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.07	2.550	0.50
99.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.20	2.550	0.50
99.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	228.88	14.286	0.64
99.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3535.88	42.833	1.00
60.00	Generic 16' Omni	1	1.00	0.000	55.00	4.800	1.00	128.19	8.252	1.00
Totals	Num Loadings: 24	64			7,616.30			14,018.94		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	143.00	9	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	TOWN OF TRUMB
0.00	143.00	2	1 1/4" Coax	1.55	0.63	N	0	0	0	0	0	N	TOWN OF TRUMB
0.00	140.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	T-MOBILE
0.00	140.00	1	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	109.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	VERIZON WIREL
0.00	99.00	1	1.63" (41.3mm) Hybrid	1.63	1.91	N	0	0	0	0	0	N	DISH WIRELESS
0.00	60.00	1	7/8" Coax	1.09	0.33	N	1	0	0	90	1	Y	TOWN OF TRUMB

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	59.500	82.013	36,145.80	22.22	136.00	75.3	1196.5	0.0	0.0
5.00		0.4375	58.263	80.294	33,921.10	21.72	133.17	75.9	1146.7	0.0	1,380.7
10.00		0.4375	57.025	78.576	31,789.50	21.22	130.34	76.4	1098.0	0.0	1,351.5
15.00		0.4375	55.788	76.858	29,749.20	20.72	127.51	77	1050.3	0.0	1,322.3
20.00		0.4375	54.550	75.139	27,798.10	20.22	124.69	77.6	1003.7	0.0	1,293.0
25.00		0.4375	53.313	73.421	25,934.20	19.72	121.86	78.2	958.1	0.0	1,263.8
30.00		0.4375	52.075	71.703	24,155.60	19.22	119.03	78.8	913.6	0.0	1,234.6
35.00		0.4375	50.838	69.984	22,460.20	18.73	116.20	79.4	870.2	0.0	1,205.3
38.08	Bot - Section 2	0.4375	50.074	68.925	21,455.40	18.42	114.46	79.7	843.9	0.0	728.7
40.00		0.4375	49.600	68.266	20,846.10	18.23	113.37	80	827.8	0.0	837.2
45.00	Top - Section 1	0.3750	49.113	58.008	17,408.70	21.33	130.97	76.3	698.2	0.0	2,146.3
50.00		0.3750	47.875	56.535	16,116.00	20.75	127.67	77	663.0	0.0	974.4
55.00		0.3750	46.638	55.062	14,888.90	20.17	124.37	77.7	628.8	0.0	949.3
60.00		0.3750	45.400	53.589	13,725.80	19.58	121.07	78.4	595.5	0.0	924.3
65.00		0.3750	44.163	52.116	12,624.80	19.00	117.77	79.1	563.1	0.0	899.2
70.00		0.3750	42.925	50.643	11,584.40	18.42	114.47	79.7	531.6	0.0	874.2
75.00		0.3750	41.688	49.170	10,602.80	17.84	111.17	80.4	501.0	0.0	849.1
79.09	Bot - Section 3	0.3750	40.675	47.965	9,842.20	17.36	108.47	81	476.6	0.0	676.1
80.00		0.3750	40.450	47.698	9,678.20	17.26	107.87	81.1	471.3	0.0	273.4
85.00	Top - Section 2	0.3125	39.837	39.202	7,737.70	20.71	127.48	77	382.6	0.0	1,476.4
90.00		0.3125	38.600	37.975	7,033.40	20.02	123.52	77.9	358.9	0.0	656.5
95.00		0.3125	37.363	36.748	6,373.20	19.32	119.56	78.7	336.0	0.0	635.7
99.00		0.3125	36.373	35.766	5,875.90	18.76	116.39	79.3	318.2	0.0	493.5
100.00		0.3125	36.125	35.520	5,755.70	18.62	115.60	79.5	313.8	0.0	121.3
105.00		0.3125	34.888	34.293	5,179.40	17.92	111.64	80.3	292.4	0.0	593.9
109.00		0.3125	33.898	33.311	4,747.10	17.36	108.47	81	275.8	0.0	460.1
110.00		0.3125	33.650	33.065	4,642.90	17.22	107.68	81.1	271.8	0.0	112.9
115.00		0.3125	32.413	31.838	4,144.90	16.53	103.72	82	251.9	0.0	552.1
120.00		0.3125	31.175	30.611	3,683.70	15.83	99.76	82.6	232.7	0.0	531.2
125.00		0.3125	29.938	29.383	3,258.10	15.13	95.80	82.6	214.4	0.0	510.4
129.00	Top - Section 3	0.3125	28.948	28.401	2,942.30	14.57	92.63	82.6	200.2	0.0	393.3
129.00	Bot - Section 4	0.2500	28.950	22.773	2,369.90	18.66	115.80	79.5	161.2	0.0	
130.00		0.2500	28.702	22.576	2,309.10	18.48	114.81	79.7	158.5	0.0	77.2
135.00		0.2500	27.465	21.594	2,020.70	17.61	109.86	80.7	144.9	0.0	375.8
140.00		0.2500	26.227	20.612	1,757.40	16.74	104.91	81.7	132.0	0.0	359.1
141.00		0.2500	25.980	20.416	1,707.70	16.56	103.92	81.9	129.5	0.0	69.8
143.00		0.2500	25.485	20.023	1,611.00	16.21	101.94	82.3	124.5	0.0	137.6
145.00		0.2500	24.990	19.630	1,518.00	15.86	99.96	82.6	119.6	0.0	134.9
149.00		0.2500	24.000	18.845	1,343.00	15.16	96.00	82.6	110.2	0.0	261.8
								Totals:			27,136.9

Load Case: 1.2D + 1.0W — 125 mph wind with no ice — 22 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.95	-23.63	0.00	-2,256.9	0.00	2,256.86	5,555.74	1,439.32	7,678.22	6,754.63	0	0	0.342
5.00	-43.14	-23.18	0.00	-2,138.7	0.00	2,138.70	5,481.72	1,409.17	7,359.87	6,523.98	0.05	-0.09	0.336
10.00	-41.36	-22.73	0.00	-2,022.8	0.00	2,022.82	5,405.89	1,379.01	7,048.27	6,295.01	0.18	-0.17	0.329
15.00	-39.61	-22.28	0.00	-1,909.2	0.00	1,909.20	5,328.25	1,348.85	6,743.40	6,067.87	0.41	-0.26	0.322
20.00	-37.91	-21.84	0.00	-1,797.8	0.00	1,797.79	5,248.79	1,318.69	6,445.27	5,842.69	0.74	-0.35	0.315
25.00	-36.23	-21.41	0.00	-1,688.6	0.00	1,688.58	5,167.52	1,288.54	6,153.88	5,619.62	1.15	-0.44	0.308
30.00	-34.60	-20.98	0.00	-1,581.5	0.00	1,581.51	5,084.43	1,258.38	5,869.23	5,398.79	1.66	-0.53	0.300
35.00	-33.01	-20.63	0.00	-1,476.6	0.00	1,476.60	4,999.53	1,228.22	5,591.33	5,180.35	2.26	-0.62	0.292
38.08	-32.04	-20.40	0.00	-1,413.0	0.00	1,413.00	4,946.27	1,209.63	5,423.31	5,046.90	2.68	-0.68	0.287
40.00	-30.97	-20.08	0.00	-1,373.9	0.00	1,373.90	4,912.81	1,198.07	5,320.16	4,964.44	2.96	-0.71	0.283
45.00	-28.25	-19.60	0.00	-1,273.5	0.00	1,273.48	3,984.08	1,018.04	4,481.47	3,995.91	3.76	-0.8	0.326
50.00	-26.93	-19.13	0.00	-1,175.5	0.00	1,175.48	3,917.74	992.19	4,256.81	3,828.84	4.64	-0.89	0.314
55.00	-25.64	-18.66	0.00	-1,079.8	0.00	1,079.83	3,849.59	966.34	4,037.92	3,663.45	5.63	-0.99	0.302
60.00	-24.32	-18.01	0.00	-986.5	0.00	986.54	3,779.62	940.49	3,824.81	3,499.88	6.72	-1.09	0.289
65.00	-23.10	-17.54	0.00	-896.5	0.00	896.48	3,707.84	914.64	3,617.48	3,338.26	7.92	-1.19	0.275
70.00	-21.91	-17.06	0.00	-808.8	0.00	808.81	3,634.24	888.79	3,415.92	3,178.75	9.21	-1.28	0.261
75.00	-20.75	-16.62	0.00	-723.5	0.00	723.52	3,558.83	862.94	3,220.14	3,021.47	10.61	-1.38	0.246
79.09	-19.83	-16.37	0.00	-655.5	0.00	655.53	3,495.78	841.79	3,064.26	2,894.55	11.82	-1.45	0.233
80.00	-19.48	-16.10	0.00	-640.6	0.00	640.64	3,481.61	837.09	3,030.14	2,866.56	12.1	-1.47	0.229
85.00	-17.57	-15.59	0.00	-560.2	0.00	560.16	2,718.01	688.00	2,456.17	2,210.32	13.69	-1.56	0.260
90.00	-16.65	-15.12	0.00	-482.2	0.00	482.19	2,660.98	666.46	2,304.80	2,095.66	15.37	-1.64	0.237
95.00	-15.76	-14.70	0.00	-406.6	0.00	406.58	2,602.13	644.92	2,158.24	1,982.55	17.14	-1.73	0.212
99.00	-11.37	-12.26	0.00	-347.8	0.00	347.78	2,553.75	627.69	2,044.45	1,893.26	18.62	-1.8	0.189
100.00	-11.20	-12.00	0.00	-335.5	0.00	335.52	2,541.47	623.38	2,016.49	1,871.11	19	-1.82	0.184
105.00	-10.38	-11.58	0.00	-275.5	0.00	275.53	2,479.00	601.84	1,879.55	1,761.51	20.94	-1.89	0.161
109.00	-7.47	-8.37	0.00	-229.2	0.00	229.21	2,427.71	584.61	1,773.47	1,675.23	22.55	-1.95	0.140
110.00	-7.32	-8.11	0.00	-220.8	0.00	220.84	2,414.71	580.30	1,747.43	1,653.86	22.96	-1.96	0.137
115.00	-6.57	-7.67	0.00	-180.3	0.00	180.27	2,348.61	558.76	1,620.13	1,548.32	25.05	-2.02	0.119
120.00	-5.85	-7.23	0.00	-141.9	0.00	141.93	2,274.22	537.22	1,497.64	1,440.92	27.2	-2.08	0.101
125.00	-5.15	-6.85	0.00	-105.8	0.00	105.77	2,183.03	515.68	1,379.96	1,327.13	29.4	-2.13	0.082
129.00	-4.61	-6.63	0.00	-78.4	0.00	78.37	2,110.08	498.44	1,289.29	1,239.47	31.2	-2.16	0.066
129.00	-4.61	-6.63	0.00	-78.4	0.00	78.37	1,628.53	399.66	1,036.05	960.87	31.2	-2.16	0.085
130.00	-4.51	-6.40	0.00	-71.7	0.00	71.74	1,618.66	396.21	1,018.26	946.74	31.65	-2.16	0.079
135.00	-3.98	-6.00	0.00	-39.8	0.00	39.75	1,568.21	378.98	931.62	876.99	33.94	-2.2	0.048
140.00	-2.53	-3.70	0.00	-9.7	0.00	9.74	1,515.94	361.75	848.83	808.86	36.25	-2.22	0.014
141.00	-1.05	-2.44	0.00	-6.0	0.00	6.03	1,505.27	358.30	832.74	795.44	36.72	-2.22	0.008
143.00	-0.46	-0.32	0.00	-1.2	0.00	1.16	1,483.71	351.41	801.01	768.82	37.65	-2.22	0.002
145.00	-0.31	-0.13	0.00	-0.5	0.00	0.52	1,458.45	344.51	769.90	740.76	38.57	-2.22	0.001
149.00	0.00	-0.12	0.00	0.0	0.00	0.00	1,400.08	330.73	709.52	682.38	40.43	-2.22	0.000

Load Case: 0.9D + 1.0W — 125 mph wind with no ice — 22 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.71	-23.62	0.00	-2,244.6	0.00	2,244.55	5,555.74	1,439.32	7,678.22	6,754.63	0	0	0.339
5.00	-32.34	-23.15	0.00	-2,126.4	0.00	2,126.43	5,481.72	1,409.17	7,359.87	6,523.98	0.05	-0.09	0.332
10.00	-31.00	-22.69	0.00	-2,010.7	0.00	2,010.68	5,405.89	1,379.01	7,048.27	6,295.01	0.18	-0.17	0.325
15.00	-29.68	-22.23	0.00	-1,897.3	0.00	1,897.26	5,328.25	1,348.85	6,743.40	6,067.87	0.41	-0.26	0.319
20.00	-28.39	-21.78	0.00	-1,786.1	0.00	1,786.12	5,248.79	1,318.69	6,445.27	5,842.69	0.73	-0.35	0.311
25.00	-27.13	-21.33	0.00	-1,677.2	0.00	1,677.24	5,167.52	1,288.54	6,153.88	5,619.62	1.15	-0.44	0.304
30.00	-25.90	-20.89	0.00	-1,570.6	0.00	1,570.57	5,084.43	1,258.38	5,869.23	5,398.79	1.65	-0.53	0.296
35.00	-24.70	-20.53	0.00	-1,466.1	0.00	1,466.10	4,999.53	1,228.22	5,591.33	5,180.35	2.25	-0.62	0.288
38.08	-23.97	-20.30	0.00	-1,402.8	0.00	1,402.80	4,946.27	1,209.63	5,423.31	5,046.90	2.67	-0.67	0.283
40.00	-23.16	-19.98	0.00	-1,363.9	0.00	1,363.89	4,912.81	1,198.07	5,320.16	4,964.44	2.94	-0.71	0.280
45.00	-21.11	-19.49	0.00	-1,264.0	0.00	1,264.00	3,984.08	1,018.04	4,481.47	3,995.91	3.73	-0.8	0.322
50.00	-20.12	-19.02	0.00	-1,166.5	0.00	1,166.54	3,917.74	992.19	4,256.81	3,828.84	4.61	-0.89	0.310
55.00	-19.15	-18.54	0.00	-1,071.5	0.00	1,071.46	3,849.59	966.34	4,037.92	3,663.45	5.6	-0.98	0.298
60.00	-18.16	-17.89	0.00	-978.8	0.00	978.77	3,779.62	940.49	3,824.81	3,499.88	6.68	-1.08	0.285
65.00	-17.23	-17.41	0.00	-889.3	0.00	889.34	3,707.84	914.64	3,617.48	3,338.26	7.87	-1.18	0.271
70.00	-16.34	-16.93	0.00	-802.3	0.00	802.31	3,634.24	888.79	3,415.92	3,178.75	9.15	-1.27	0.257
75.00	-15.47	-16.49	0.00	-717.7	0.00	717.68	3,558.83	862.94	3,220.14	3,021.47	10.54	-1.37	0.242
79.09	-14.78	-16.24	0.00	-650.2	0.00	650.23	3,495.78	841.79	3,064.26	2,894.55	11.74	-1.44	0.229
80.00	-14.51	-15.96	0.00	-635.5	0.00	635.47	3,481.61	837.09	3,030.14	2,866.56	12.02	-1.46	0.226
85.00	-13.08	-15.47	0.00	-555.6	0.00	555.65	2,718.01	688.00	2,456.17	2,210.32	13.6	-1.55	0.257
90.00	-12.38	-14.99	0.00	-478.3	0.00	478.33	2,660.98	666.46	2,304.80	2,095.66	15.26	-1.63	0.233
95.00	-11.71	-14.57	0.00	-403.4	0.00	403.36	2,602.13	644.92	2,158.24	1,982.55	17.02	-1.72	0.208
99.00	-8.44	-12.17	0.00	-345.1	0.00	345.08	2,553.75	627.69	2,044.45	1,893.26	18.49	-1.79	0.186
100.00	-8.31	-11.90	0.00	-332.9	0.00	332.91	2,541.47	623.38	2,016.49	1,871.11	18.87	-1.8	0.182
105.00	-7.69	-11.49	0.00	-273.4	0.00	273.40	2,479.00	601.84	1,879.55	1,761.51	20.8	-1.88	0.159
109.00	-5.53	-8.30	0.00	-227.4	0.00	227.45	2,427.71	584.61	1,773.47	1,675.23	22.4	-1.93	0.138
110.00	-5.42	-8.05	0.00	-219.1	0.00	219.14	2,414.71	580.30	1,747.43	1,653.86	22.8	-1.95	0.135
115.00	-4.86	-7.61	0.00	-178.9	0.00	178.91	2,348.61	558.76	1,620.13	1,548.32	24.88	-2.01	0.118
120.00	-4.32	-7.18	0.00	-140.9	0.00	140.89	2,274.22	537.22	1,497.64	1,440.92	27.01	-2.06	0.100
125.00	-3.80	-6.80	0.00	-105.0	0.00	105.00	2,183.03	515.68	1,379.96	1,327.13	29.19	-2.11	0.081
129.00	-3.40	-6.58	0.00	-77.8	0.00	77.82	2,110.08	498.44	1,289.29	1,239.47	30.98	-2.14	0.065
129.00	-3.40	-6.58	0.00	-77.8	0.00	77.82	1,628.53	399.66	1,036.05	960.87	30.98	-2.14	0.083
130.00	-3.32	-6.35	0.00	-71.2	0.00	71.23	1,618.66	396.21	1,018.26	946.74	31.43	-2.15	0.078
135.00	-2.93	-5.96	0.00	-39.5	0.00	39.47	1,568.21	378.98	931.62	876.99	33.7	-2.18	0.047
140.00	-1.87	-3.68	0.00	-9.7	0.00	9.67	1,515.94	361.75	848.83	808.86	35.99	-2.2	0.013
141.00	-0.77	-2.43	0.00	-6.0	0.00	5.99	1,505.27	358.30	832.74	795.44	36.46	-2.2	0.008
143.00	-0.35	-0.31	0.00	-1.1	0.00	1.14	1,483.71	351.41	801.01	768.82	37.38	-2.2	0.002
145.00	-0.23	-0.13	0.00	-0.5	0.00	0.51	1,458.45	344.51	769.90	740.76	38.3	-2.2	0.001
149.00	0.00	-0.12	0.00	0.0	0.00	0.00	1,400.08	330.73	709.52	682.38	40.15	-2.2	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi		50 mph wind with 1" radial ice			21 Iterations
Gust Response Factor:	1.10	Ice Dead Load Factor	1.00		
Dead load Factor:	1.20			Ice Importance Factor	1.00
Wind Load Factor:	1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-58.23	-6.02	0.00	-569.0	0.00	568.95	5,555.74	1,439.32	7,678.22	6,754.63	0	0	0.095
5.00	-56.16	-5.90	0.00	-538.8	0.00	538.83	5,481.72	1,409.17	7,359.87	6,523.98	0.01	-0.02	0.093
10.00	-54.09	-5.79	0.00	-509.3	0.00	509.31	5,405.89	1,379.01	7,048.27	6,295.01	0.05	-0.04	0.091
15.00	-52.05	-5.67	0.00	-480.4	0.00	480.37	5,328.25	1,348.85	6,743.40	6,067.87	0.1	-0.07	0.089
20.00	-50.04	-5.55	0.00	-452.0	0.00	452.03	5,248.79	1,318.69	6,445.27	5,842.69	0.19	-0.09	0.087
25.00	-48.07	-5.44	0.00	-424.3	0.00	424.26	5,167.52	1,288.54	6,153.88	5,619.62	0.29	-0.11	0.085
30.00	-46.13	-5.32	0.00	-397.1	0.00	397.07	5,084.43	1,258.38	5,869.23	5,398.79	0.42	-0.13	0.083
35.00	-44.23	-5.23	0.00	-370.4	0.00	370.45	4,999.53	1,228.22	5,591.33	5,180.35	0.57	-0.16	0.080
38.08	-43.07	-5.17	0.00	-354.3	0.00	354.32	4,946.27	1,209.63	5,423.31	5,046.90	0.68	-0.17	0.079
40.00	-41.89	-5.08	0.00	-344.4	0.00	344.41	4,912.81	1,198.07	5,320.16	4,964.44	0.75	-0.18	0.078
45.00	-38.86	-4.95	0.00	-319.0	0.00	318.99	3,984.08	1,018.04	4,481.47	3,995.91	0.94	-0.2	0.090
50.00	-37.24	-4.83	0.00	-294.2	0.00	294.22	3,917.74	992.19	4,256.81	3,828.84	1.17	-0.22	0.086
55.00	-35.66	-4.70	0.00	-270.1	0.00	270.08	3,849.59	966.34	4,037.92	3,663.45	1.42	-0.25	0.083
60.00	-33.99	-4.53	0.00	-246.6	0.00	246.58	3,779.62	940.49	3,824.81	3,499.88	1.69	-0.27	0.079
65.00	-32.48	-4.40	0.00	-224.0	0.00	223.95	3,707.84	914.64	3,617.48	3,338.26	1.99	-0.3	0.076
70.00	-31.01	-4.27	0.00	-202.0	0.00	201.97	3,634.24	888.79	3,415.92	3,178.75	2.32	-0.32	0.072
75.00	-29.58	-4.15	0.00	-180.6	0.00	180.64	3,558.83	862.94	3,220.14	3,021.47	2.67	-0.35	0.068
79.09	-28.44	-4.08	0.00	-163.7	0.00	163.68	3,495.78	841.79	3,064.26	2,894.55	2.97	-0.36	0.065
80.00	-28.03	-4.00	0.00	-160.0	0.00	159.97	3,481.61	837.09	3,030.14	2,866.56	3.04	-0.37	0.064
85.00	-25.86	-3.87	0.00	-140.0	0.00	139.96	2,718.01	688.00	2,456.17	2,210.32	3.44	-0.39	0.073
90.00	-24.67	-3.74	0.00	-120.6	0.00	120.63	2,660.98	666.46	2,304.80	2,095.66	3.86	-0.41	0.067
95.00	-23.52	-3.62	0.00	-102.0	0.00	101.95	2,602.13	644.92	2,158.24	1,982.55	4.3	-0.43	0.060
99.00	-17.47	-3.05	0.00	-87.5	0.00	87.48	2,553.75	627.69	2,044.45	1,893.26	4.67	-0.45	0.053
100.00	-17.25	-2.97	0.00	-84.4	0.00	84.43	2,541.47	623.38	2,016.49	1,871.11	4.77	-0.46	0.052
105.00	-16.17	-2.86	0.00	-69.6	0.00	69.56	2,479.00	601.84	1,879.55	1,761.51	5.26	-0.47	0.046
109.00	-11.38	-2.15	0.00	-58.1	0.00	58.13	2,427.71	584.61	1,773.47	1,675.23	5.66	-0.49	0.039
110.00	-11.17	-2.08	0.00	-56.0	0.00	55.97	2,414.71	580.30	1,747.43	1,653.86	5.76	-0.49	0.038
115.00	-10.18	-1.95	0.00	-45.6	0.00	45.57	2,348.61	558.76	1,620.13	1,548.32	6.29	-0.51	0.034
120.00	-9.22	-1.83	0.00	-35.8	0.00	35.80	2,274.22	537.22	1,497.64	1,440.92	6.83	-0.52	0.029
125.00	-8.30	-1.72	0.00	-26.6	0.00	26.64	2,183.03	515.68	1,379.96	1,327.13	7.38	-0.53	0.024
129.00	-7.58	-1.66	0.00	-19.8	0.00	19.75	2,110.08	498.44	1,289.29	1,239.47	7.83	-0.54	0.020
129.00	-7.58	-1.66	0.00	-19.8	0.00	19.75	1,628.53	399.66	1,036.05	960.87	7.83	-0.54	0.025
130.00	-7.43	-1.59	0.00	-18.1	0.00	18.09	1,618.66	396.21	1,018.26	946.74	7.94	-0.54	0.024
135.00	-6.68	-1.48	0.00	-10.1	0.00	10.13	1,568.21	378.98	931.62	876.99	8.52	-0.55	0.016
140.00	-4.00	-0.99	0.00	-2.7	0.00	2.73	1,515.94	361.75	848.83	808.86	9.1	-0.56	0.006
141.00	-2.00	-0.69	0.00	-1.7	0.00	1.73	1,505.27	358.30	832.74	795.44	9.21	-0.56	0.004
143.00	-0.70	-0.10	0.00	-0.4	0.00	0.36	1,483.71	351.41	801.01	768.82	9.45	-0.56	0.001
145.00	-0.46	-0.04	0.00	-0.2	0.00	0.16	1,458.45	344.51	769.90	740.76	9.68	-0.56	0.001
149.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,400.08	330.73	709.52	682.38	10.15	-0.56	0.000

Load Case: 1.0D + 1.0W — 60 mph Wind with No Ice — 20 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.48	-4.87	0.00	-463.5	0.00	463.51	5,555.74	1,439.32	7,678.22	6,754.63	0	0	0.075
5.00	-35.99	-4.77	0.00	-439.2	0.00	439.16	5,481.72	1,409.17	7,359.87	6,523.98	0.01	-0.02	0.074
10.00	-34.53	-4.68	0.00	-415.3	0.00	415.30	5,405.89	1,379.01	7,048.27	6,295.01	0.04	-0.04	0.072
15.00	-33.11	-4.58	0.00	-391.9	0.00	391.91	5,328.25	1,348.85	6,743.40	6,067.87	0.09	-0.05	0.071
20.00	-31.71	-4.49	0.00	-369.0	0.00	368.98	5,248.79	1,318.69	6,445.27	5,842.69	0.15	-0.07	0.069
25.00	-30.34	-4.40	0.00	-346.5	0.00	346.52	5,167.52	1,288.54	6,153.88	5,619.62	0.24	-0.09	0.068
30.00	-29.00	-4.31	0.00	-324.5	0.00	324.51	5,084.43	1,258.38	5,869.23	5,398.79	0.34	-0.11	0.066
35.00	-27.69	-4.24	0.00	-303.0	0.00	302.95	4,999.53	1,228.22	5,591.33	5,180.35	0.46	-0.13	0.064
38.08	-26.89	-4.19	0.00	-289.9	0.00	289.88	4,946.27	1,209.63	5,423.31	5,046.90	0.55	-0.14	0.063
40.00	-26.02	-4.12	0.00	-281.8	0.00	281.85	4,912.81	1,198.07	5,320.16	4,964.44	0.61	-0.15	0.062
45.00	-23.76	-4.02	0.00	-261.2	0.00	261.22	3,984.08	1,018.04	4,481.47	3,995.91	0.77	-0.16	0.071
50.00	-22.69	-3.93	0.00	-241.1	0.00	241.10	3,917.74	992.19	4,256.81	3,828.84	0.95	-0.18	0.069
55.00	-21.63	-3.83	0.00	-221.5	0.00	221.46	3,849.59	966.34	4,037.92	3,663.45	1.16	-0.2	0.066
60.00	-20.55	-3.70	0.00	-202.3	0.00	202.32	3,779.62	940.49	3,824.81	3,499.88	1.38	-0.22	0.063
65.00	-19.54	-3.60	0.00	-183.8	0.00	183.84	3,707.84	914.64	3,617.48	3,338.26	1.63	-0.24	0.060
70.00	-18.57	-3.50	0.00	-165.8	0.00	165.85	3,634.24	888.79	3,415.92	3,178.75	1.89	-0.26	0.057
75.00	-17.61	-3.41	0.00	-148.4	0.00	148.37	3,558.83	862.94	3,220.14	3,021.47	2.18	-0.28	0.054
79.09	-16.85	-3.36	0.00	-134.4	0.00	134.42	3,495.78	841.79	3,064.26	2,894.55	2.43	-0.3	0.051
80.00	-16.56	-3.30	0.00	-131.4	0.00	131.37	3,481.61	837.09	3,030.14	2,866.56	2.48	-0.3	0.051
85.00	-14.98	-3.20	0.00	-114.9	0.00	114.87	2,718.01	688.00	2,456.17	2,210.32	2.81	-0.32	0.058
90.00	-14.22	-3.10	0.00	-98.9	0.00	98.89	2,660.98	666.46	2,304.80	2,095.66	3.15	-0.34	0.053
95.00	-13.48	-3.01	0.00	-83.4	0.00	83.39	2,602.13	644.92	2,158.24	1,982.55	3.52	-0.36	0.047
99.00	-9.78	-2.52	0.00	-71.3	0.00	71.34	2,553.75	627.69	2,044.45	1,893.26	3.82	-0.37	0.042
100.00	-9.64	-2.46	0.00	-68.8	0.00	68.82	2,541.47	623.38	2,016.49	1,871.11	3.9	-0.37	0.041
105.00	-8.95	-2.37	0.00	-56.5	0.00	56.52	2,479.00	601.84	1,879.55	1,761.51	4.3	-0.39	0.036
109.00	-6.44	-1.72	0.00	-47.0	0.00	47.02	2,427.71	584.61	1,773.47	1,675.23	4.63	-0.4	0.031
110.00	-6.32	-1.66	0.00	-45.3	0.00	45.30	2,414.71	580.30	1,747.43	1,653.86	4.71	-0.4	0.030
115.00	-5.69	-1.57	0.00	-37.0	0.00	36.98	2,348.61	558.76	1,620.13	1,548.32	5.14	-0.41	0.026
120.00	-5.08	-1.48	0.00	-29.1	0.00	29.12	2,274.22	537.22	1,497.64	1,440.92	5.58	-0.43	0.022
125.00	-4.49	-1.41	0.00	-21.7	0.00	21.70	2,183.03	515.68	1,379.96	1,327.13	6.03	-0.44	0.018
129.00	-4.04	-1.36	0.00	-16.1	0.00	16.08	2,110.08	498.44	1,289.29	1,239.47	6.4	-0.44	0.015
129.00	-4.04	-1.36	0.00	-16.1	0.00	16.08	1,628.53	399.66	1,036.05	960.87	6.4	-0.44	0.019
130.00	-3.95	-1.31	0.00	-14.7	0.00	14.72	1,618.66	396.21	1,018.26	946.74	6.49	-0.44	0.018
135.00	-3.49	-1.23	0.00	-8.2	0.00	8.16	1,568.21	378.98	931.62	876.99	6.96	-0.45	0.012
140.00	-2.22	-0.76	0.00	-2.0	0.00	2.00	1,515.94	361.75	848.83	808.86	7.44	-0.45	0.004
141.00	-0.95	-0.50	0.00	-1.2	0.00	1.24	1,505.27	358.30	832.74	795.44	7.53	-0.46	0.002
143.00	-0.40	-0.06	0.00	-0.2	0.00	0.24	1,483.71	351.41	801.01	768.82	7.72	-0.46	0.001
145.00	-0.26	-0.03	0.00	-0.1	0.00	0.11	1,458.45	344.51	769.90	740.76	7.92	-0.46	0.000
149.00	0.00	-0.02	0.00	0.0	0.00	0.00	1,400.08	330.73	709.52	682.38	8.3	-0.46	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.212
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.226
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.037
Upper Limit C_S:	0.037
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	1.550
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.530
Total Unfactored Dead Load:	37.480 k
Seismic Base Shear (E):	1.390 k

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147	262	532	0.019	26	326
36	144	135	266	0.009	13	168
35	142	146	282	0.010	14	182
34	140.5	74	140	0.005	7	92
33	137.5	436	800	0.028	39	543
32	132.5	453	785	0.028	39	564
31	129.5	93	155	0.006	8	115
30	127	455	739	0.026	36	566
29	122.5	587	904	0.032	45	731
28	117.5	608	878	0.031	43	757
27	112.5	629	850	0.030	42	783
26	109.5	128	166	0.006	8	160
25	107	534	669	0.024	33	666
24	102.5	687	805	0.029	40	855
23	99.5	140	157	0.006	8	174
22	97	575	620	0.022	31	717
21	92.5	738	740	0.026	37	919
20	87.5	759	699	0.025	34	945
19	82.5	1,579	1,329	0.047	66	1,966
18	79.5454	292	233	0.008	11	364
17	77.0454	760	576	0.020	28	946
16	72.5	952	658	0.023	32	1,185
15	67.5	977	605	0.022	30	1,216
14	62.5	1,002	552	0.020	27	1,247
13	57.5	1,028	499	0.018	25	1,281
12	52.5	1,053	445	0.016	22	1,312
11	47.5	1,079	391	0.014	19	1,343
10	42.5	2,250	688	0.024	34	2,802
9	39.0417	877	236	0.008	12	1,092
8	36.5417	793	193	0.007	10	987
7	32.5	1,309	266	0.009	13	1,631
6	27.5	1,339	211	0.008	10	1,667
5	22.5	1,368	158	0.006	8	1,703
4	17.5	1,397	110	0.004	5	1,740

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
3	12.5	1,426	67	0.002	3	1,776
2	7.5	1,456	32	0.001	2	1,813
1	2.5	1,485	6	0.000	0	1,849
Telewave ANT770F2	143	8	16	0.001	1	10
Generic 8' Dipole	143	50	97	0.004	5	62
Andrew DB809KE-XT	143	75	146	0.005	7	93
Radio Waves HPD2-4.7NS	143	54	105	0.004	5	67
Generic 16' Omni	143	165	322	0.011	16	205
Generic 16' Omni	60	55	28	0.001	1	68
Decibel DS1F06F36U3D	143	60	117	0.004	6	75
T-Arm with Platform	141	1,200	2,289	0.081	113	1,494
Ericsson KRY 112 71	140	40	75	0.003	4	49
Ericsson RRUS 11 B12	140	152	287	0.010	14	189
Ericsson AIR 21, 1.3 M, B2A B4P	140	249	470	0.017	23	310
Ericsson AIR 21, 1.3M, B4A B2P	140	244	461	0.016	23	304
Andrew LNX-6515DS-VTM	140	154	290	0.010	14	192
Alcatel-Lucent B13 RRH4x30-4R 700U	109	172	221	0.008	11	214
Alcatel-Lucent 1900 MHz 4X45 RRH	109	180	232	0.008	11	224
Alcatel-Lucent RRH4x45-B66 w/o Solar Shield	109	190	245	0.009	12	236
Raycap RxxDC-3315-PF-48	109	43	55	0.002	3	53
Commscope SBNHH-1D65B	109	456	588	0.021	29	568
Round T-Arm	109	938	1,207	0.043	60	1,167
Raycap RDIDC-9181-PF-48	99	22	24	0.001	1	27
Fujitsu TA08025-B605	99	225	250	0.009	12	280
Fujitsu TA08025-B604	99	192	213	0.008	11	239
JMA Wireless MX08FRO665-21	99	194	215	0.008	11	241
Generic Round Platform with Handrails	99	2,500	2,780	0.099	137	3,113
		37,478	28,176	1.000	1,390	46,668

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147	262	532	0.019	26	224
36	144	135	266	0.009	13	115
35	142	146	282	0.010	14	125
34	140.5	74	140	0.005	7	63
33	137.5	436	800	0.028	39	373
32	132.5	453	785	0.028	39	387
31	129.5	93	155	0.006	8	79
30	127	455	739	0.026	36	389
29	122.5	587	904	0.032	45	502
28	117.5	608	878	0.031	43	520
27	112.5	629	850	0.030	42	538
26	109.5	128	166	0.006	8	110
25	107	534	669	0.024	33	457
24	102.5	687	805	0.029	40	587
23	99.5	140	157	0.006	8	120
22	97	575	620	0.022	31	492
21	92.5	738	740	0.026	37	631
20	87.5	759	699	0.025	34	649
19	82.5	1,579	1,329	0.047	66	1,350
18	79.5454	292	233	0.008	11	250
17	77.0454	760	576	0.020	28	650
16	72.5	952	658	0.023	32	813
15	67.5	977	605	0.022	30	835
14	62.5	1,002	552	0.020	27	856
13	57.5	1,028	499	0.018	25	879
12	52.5	1,053	445	0.016	22	901
11	47.5	1,079	391	0.014	19	922
10	42.5	2,250	688	0.024	34	1,924
9	39.0417	877	236	0.008	12	750
8	36.5417	793	193	0.007	10	678

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
7	32.5	1,309	266	0.009	13	1,119
6	27.5	1,339	211	0.008	10	1,144
5	22.5	1,368	158	0.006	8	1,169
4	17.5	1,397	110	0.004	5	1,194
3	12.5	1,426	67	0.002	3	1,219
2	7.5	1,456	32	0.001	2	1,244
1	2.5	1,485	6	0.000	0	1,269
Telewave ANT770F2	143	8	16	0.001	1	7
Generic 8' Dipole	143	50	97	0.004	5	43
Andrew DB809KE-XT	143	75	146	0.005	7	64
Radio Waves HPD2-4.7NS	143	54	105	0.004	5	46
Generic 16' Omni	143	165	322	0.011	16	141
Generic 16' Omni	60	55	28	0.001	1	47
Decibel DS1F06F36U3D	143	60	117	0.004	6	51
T-Arm with Platform	141	1,200	2,289	0.081	113	1,026
Ericsson KRY 112 71	140	40	75	0.003	4	34
Ericsson RRUS 11 B12	140	152	287	0.010	14	130
Ericsson AIR 21, 1.3 M, B2A B4P	140	249	470	0.017	23	213
Ericsson AIR 21, 1.3M, B4A B2P	140	244	461	0.016	23	209
Andrew LNX-6515DS-VTM	140	154	290	0.010	14	132
Alcatel-Lucent B13 RRH4x30-4R 700U	109	172	221	0.008	11	147
Alcatel-Lucent 1900 MHz 4X45 RRH	109	180	232	0.008	11	154
Alcatel-Lucent RRH4x45-B66 w/o Solar Shield	109	190	245	0.009	12	162
Raycap RxxDC-3315-PF-48	109	43	55	0.002	3	37
Commscope SBNHH-1D65B	109	456	588	0.021	29	390
Round T-Arm	109	938	1,207	0.043	60	801
Raycap RDIDC-9181-PF-48	99	22	24	0.001	1	19
Fujitsu TA08025-B605	99	225	250	0.009	12	192
Fujitsu TA08025-B604	99	192	213	0.008	11	164
JMA Wireless MX08FRO665-21	99	194	215	0.008	11	165
Generic Round Platform with Handrails	99	2,500	2,780	0.099	137	2,137
		37,478	28,176	1.000	1,390	32,035

1.2D + 1.0Ev + 1.0Eh **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.82	-1.39	0.00	-144.40	0.00	144.40	5,555.74	1,439.32	7,678	6,754.63	0.00	0.00	0.03
5.00	-43.01	-1.39	0.00	-137.45	0.00	137.45	5,481.72	1,409.17	7,360	6,523.98	0.00	-0.01	0.03
10.00	-41.23	-1.39	0.00	-130.48	0.00	130.48	5,405.89	1,379.01	7,048	6,295.01	0.01	-0.01	0.03
15.00	-39.49	-1.39	0.00	-123.51	0.00	123.51	5,328.25	1,348.85	6,743	6,067.87	0.03	-0.02	0.03
20.00	-37.79	-1.39	0.00	-116.55	0.00	116.55	5,248.79	1,318.69	6,445	5,842.69	0.05	-0.02	0.03
25.00	-36.12	-1.38	0.00	-109.62	0.00	109.62	5,167.52	1,288.54	6,154	5,619.62	0.07	-0.03	0.03
30.00	-34.49	-1.37	0.00	-102.72	0.00	102.72	5,084.43	1,258.38	5,869	5,398.79	0.11	-0.03	0.03
35.00	-33.50	-1.36	0.00	-95.87	0.00	95.87	4,999.53	1,228.22	5,591	5,180.35	0.15	-0.04	0.03
38.08	-32.41	-1.35	0.00	-91.67	0.00	91.67	4,946.27	1,209.63	5,423	5,046.90	0.17	-0.04	0.03
40.00	-29.61	-1.32	0.00	-89.08	0.00	89.08	4,912.81	1,198.07	5,320	4,964.44	0.19	-0.05	0.02
45.00	-28.26	-1.30	0.00	-82.49	0.00	82.49	3,984.08	1,018.04	4,481	3,995.91	0.24	-0.05	0.03
50.00	-26.95	-1.28	0.00	-76.00	0.00	76.00	3,917.74	992.19	4,257	3,828.84	0.30	-0.06	0.03
55.00	-25.67	-1.26	0.00	-69.60	0.00	69.60	3,849.59	966.34	4,038	3,663.45	0.36	-0.06	0.03
60.00	-24.35	-1.23	0.00	-63.32	0.00	63.32	3,779.62	940.49	3,825	3,499.88	0.43	-0.07	0.03
65.00	-23.14	-1.20	0.00	-57.17	0.00	57.17	3,707.84	914.64	3,617	3,338.26	0.51	-0.08	0.02
70.00	-21.95	-1.17	0.00	-51.17	0.00	51.17	3,634.24	888.79	3,416	3,178.75	0.60	-0.08	0.02
75.00	-21.01	-1.14	0.00	-45.33	0.00	45.33	3,558.83	862.94	3,220	3,021.47	0.69	-0.09	0.02
79.09	-20.64	-1.13	0.00	-40.67	0.00	40.67	3,495.78	841.79	3,064	2,894.55	0.76	-0.09	0.02
80.00	-18.68	-1.06	0.00	-39.64	0.00	39.64	3,481.61	837.09	3,030	2,866.56	0.78	-0.09	0.02
85.00	-17.73	-1.03	0.00	-34.34	0.00	34.34	2,718.01	688.00	2,456	2,210.32	0.88	-0.10	0.02
90.00	-16.81	-0.99	0.00	-29.20	0.00	29.20	2,660.98	666.46	2,305	2,095.66	0.99	-0.11	0.02
95.00	-16.10	-0.96	0.00	-24.25	0.00	24.25	2,602.13	644.92	2,158	1,982.55	1.10	-0.11	0.02
99.00	-12.02	-0.77	0.00	-20.41	0.00	20.41	2,553.75	627.69	2,044	1,893.26	1.20	-0.11	0.02
100.00	-11.17	-0.73	0.00	-19.63	0.00	19.63	2,541.47	623.38	2,016	1,871.11	1.22	-0.12	0.02
105.00	-10.50	-0.70	0.00	-15.97	0.00	15.97	2,479.00	601.84	1,880	1,761.51	1.35	-0.12	0.01
109.00	-7.88	-0.56	0.00	-13.18	0.00	13.18	2,427.71	584.61	1,773	1,675.23	1.45	-0.12	0.01

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
110.00	-7.10	-0.52	0.00	-12.62	0.00	12.62	2,414.71	580.30	1,747	1,653.86	1.47	-0.12	0.01
115.00	-6.34	-0.47	0.00	-10.04	0.00	10.04	2,348.61	558.76	1,620	1,548.32	1.61	-0.13	0.01
120.00	-5.61	-0.43	0.00	-7.69	0.00	7.69	2,274.22	537.22	1,498	1,440.92	1.74	-0.13	0.01
125.00	-5.04	-0.39	0.00	-5.56	0.00	5.56	2,183.03	515.68	1,380	1,327.13	1.88	-0.13	0.01
129.00	-4.93	-0.38	0.00	-4.01	0.00	4.01	2,110.08	498.44	1,289	1,239.47	1.99	-0.13	0.01
129.00	-4.93	-0.38	0.00	-4.01	0.00	4.01	1,628.53	399.66	1,036	960.87	1.99	-0.13	0.01
130.00	-4.36	-0.34	0.00	-3.63	0.00	3.63	1,618.66	396.21	1,018	946.74	2.02	-0.13	0.01
135.00	-3.82	-0.30	0.00	-1.93	0.00	1.93	1,568.21	378.98	932	876.99	2.16	-0.14	0.01
140.00	-2.68	-0.21	0.00	-0.43	0.00	0.43	1,515.94	361.75	849	808.86	2.30	-0.14	0.00
141.00	-1.01	-0.08	0.00	-0.22	0.00	0.22	1,505.27	358.30	833	795.44	2.33	-0.14	0.00
143.00	-0.33	-0.03	0.00	-0.05	0.00	0.05	1,483.71	351.41	801	768.82	2.39	-0.14	0.00
145.00	0.00	0.00	0.00	0.00	0.00	0.00	1,458.45	344.51	770	740.76	2.45	-0.14	0.00
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,400.08	330.73	710	682.38	2.56	-0.14	0.00

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.77	-1.39	0.00	-143.45	0.00	143.45	5,555.74	1,439.32	7,678	6,754.63	0.00	0.00	0.03
5.00	-29.52	-1.39	0.00	-136.50	0.00	136.50	5,481.72	1,409.17	7,360	6,523.98	0.00	-0.01	0.03
10.00	-28.30	-1.39	0.00	-129.54	0.00	129.54	5,405.89	1,379.01	7,048	6,295.01	0.01	-0.01	0.03
15.00	-27.11	-1.39	0.00	-122.59	0.00	122.59	5,328.25	1,348.85	6,743	6,067.87	0.03	-0.02	0.03
20.00	-25.94	-1.38	0.00	-115.65	0.00	115.65	5,248.79	1,318.69	6,445	5,842.69	0.05	-0.02	0.03
25.00	-24.79	-1.37	0.00	-108.74	0.00	108.74	5,167.52	1,288.54	6,154	5,619.62	0.07	-0.03	0.02
30.00	-23.67	-1.36	0.00	-101.87	0.00	101.87	5,084.43	1,258.38	5,869	5,398.79	0.11	-0.03	0.02
35.00	-23.00	-1.35	0.00	-95.06	0.00	95.06	4,999.53	1,228.22	5,591	5,180.35	0.14	-0.04	0.02
38.08	-22.25	-1.34	0.00	-90.88	0.00	90.88	4,946.27	1,209.63	5,423	5,046.90	0.17	-0.04	0.02
40.00	-20.32	-1.31	0.00	-88.31	0.00	88.31	4,912.81	1,198.07	5,320	4,964.44	0.19	-0.05	0.02
45.00	-19.40	-1.29	0.00	-81.76	0.00	81.76	3,984.08	1,018.04	4,481	3,995.91	0.24	-0.05	0.03
50.00	-18.50	-1.27	0.00	-75.31	0.00	75.31	3,917.74	992.19	4,257	3,828.84	0.30	-0.06	0.02
55.00	-17.62	-1.25	0.00	-68.95	0.00	68.95	3,849.59	966.34	4,038	3,663.45	0.36	-0.06	0.02
60.00	-16.72	-1.22	0.00	-62.72	0.00	62.72	3,779.62	940.49	3,825	3,499.88	0.43	-0.07	0.02
65.00	-15.88	-1.19	0.00	-56.63	0.00	56.63	3,707.84	914.64	3,617	3,338.26	0.51	-0.08	0.02
70.00	-15.07	-1.16	0.00	-50.68	0.00	50.68	3,634.24	888.79	3,416	3,178.75	0.59	-0.08	0.02
75.00	-14.42	-1.13	0.00	-44.89	0.00	44.89	3,558.83	862.94	3,220	3,021.47	0.68	-0.09	0.02
79.09	-14.17	-1.12	0.00	-40.27	0.00	40.27	3,495.78	841.79	3,064	2,894.55	0.76	-0.09	0.02
80.00	-12.82	-1.05	0.00	-39.25	0.00	39.25	3,481.61	837.09	3,030	2,866.56	0.78	-0.09	0.02
85.00	-12.17	-1.02	0.00	-33.99	0.00	33.99	2,718.01	688.00	2,456	2,210.32	0.88	-0.10	0.02
90.00	-11.54	-0.98	0.00	-28.91	0.00	28.91	2,660.98	666.46	2,305	2,095.66	0.98	-0.10	0.02
95.00	-11.05	-0.95	0.00	-24.01	0.00	24.01	2,602.13	644.92	2,158	1,982.55	1.10	-0.11	0.02
99.00	-8.25	-0.77	0.00	-20.21	0.00	20.21	2,553.75	627.69	2,044	1,893.26	1.19	-0.11	0.01
100.00	-7.66	-0.72	0.00	-19.44	0.00	19.44	2,541.47	623.38	2,016	1,871.11	1.21	-0.11	0.01
105.00	-7.21	-0.69	0.00	-15.82	0.00	15.82	2,479.00	601.84	1,880	1,761.51	1.33	-0.12	0.01
109.00	-5.41	-0.55	0.00	-13.05	0.00	13.05	2,427.71	584.61	1,773	1,675.23	1.44	-0.12	0.01
110.00	-4.87	-0.51	0.00	-12.50	0.00	12.50	2,414.71	580.30	1,747	1,653.86	1.46	-0.12	0.01
115.00	-4.35	-0.47	0.00	-9.95	0.00	9.95	2,348.61	558.76	1,620	1,548.32	1.59	-0.13	0.01
120.00	-3.85	-0.42	0.00	-7.61	0.00	7.61	2,274.22	537.22	1,498	1,440.92	1.73	-0.13	0.01
125.00	-3.46	-0.38	0.00	-5.50	0.00	5.50	2,183.03	515.68	1,380	1,327.13	1.86	-0.13	0.01
129.00	-3.38	-0.38	0.00	-3.97	0.00	3.97	2,110.08	498.44	1,289	1,239.47	1.97	-0.13	0.01
129.00	-3.38	-0.38	0.00	-3.97	0.00	3.97	1,628.53	399.66	1,036	960.87	1.97	-0.13	0.01
130.00	-2.99	-0.34	0.00	-3.59	0.00	3.59	1,618.66	396.21	1,018	946.74	2.00	-0.13	0.01
135.00	-2.62	-0.30	0.00	-1.91	0.00	1.91	1,568.21	378.98	932	876.99	2.14	-0.14	0.00
140.00	-1.84	-0.21	0.00	-0.42	0.00	0.42	1,515.94	361.75	849	808.86	2.28	-0.14	0.00
141.00	-0.69	-0.08	0.00	-0.21	0.00	0.21	1,505.27	358.30	833	795.44	2.31	-0.14	0.00
143.00	-0.22	-0.03	0.00	-0.05	0.00	0.05	1,483.71	351.41	801	768.82	2.37	-0.14	0.00
145.00	0.00	0.00	0.00	0.00	0.00	0.00	1,458.45	344.51	770	740.76	2.43	-0.14	0.00
149.00	0.00	0.00	0.00	0.00	0.00	0.00	1,400.08	330.73	710	682.38	2.54	-0.14	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	23.63	0.00	44.95	0.00	0.00	2256.86	0.00	0.34
0.9D + 1.0W	23.62	0.00	33.71	0.00	0.00	2244.55	0.00	0.34
1.2D + 1.0Di + 1.0Wi	6.02	0.00	58.23	0.00	0.00	568.95	0.00	0.09
1.2D + 1.0Ev + 1.0Eh	1.39	0.00	44.82	0.00	0.00	144.40	0.00	0.03
0.9D - 1.0Ev + 1.0Eh	1.39	0.00	30.77	0.00	0.00	143.45	0.00	0.03
1.0D + 1.0W	4.87	0.00	37.48	0.00	0.00	463.51	0.00	0.08

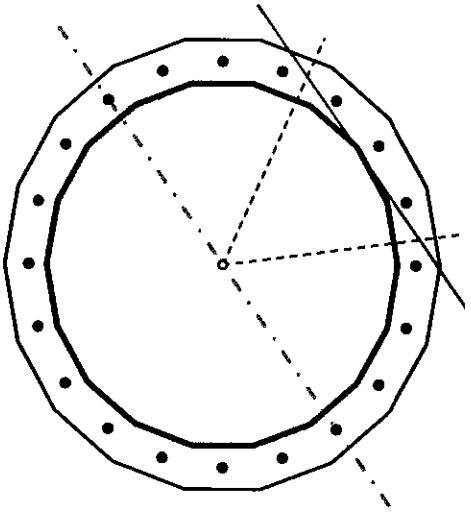
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	59.5	in
Thickness	7/16	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2,256.9	k-ft
Axial, Pu	45.0	k
Shear, Vu	23.6	k
Neutral Axis	506	°

Report Capacities		
Component	Capacity	Result
Base Plate	8%	Pass
Anchor Rods	36%	Pass
Dwyidag		

Base Plate		
Number of Sides	18	-
Diameter, ø	74.04	in
Thickness	3 1/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	2 3/4	in
Applied Moment, Mu	356.3	k
Bending Stress, ϕMn	4223.7	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ø	2 1/4	in
Bolt Circle	66.92	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	10.5	in
Orientation Offset	0	°
Applied Force, Pu	86.1	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
	k	k-ft	
Base Forces	23.6	2256.9	1.00
Anchor Rod Forces	23.6	2256.9	1.00
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces			
Stiffener Forces			

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
	in^2	in^2	in^4	#	in^4
Pole	80.7668	4.4870	0.2873		35223.30
Bolt	3.9761	3.2477	0.8393	4.5	33841.94
Bolt1					
Bolt2					
Dywidag					
Stiffener					

Base Plate		
Shape	18	-
Width, W	74.04	in
Thickness, t	3.25	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	44.064	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	2.75	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	66.92	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	86.1	k
Applied Shear, Vu	0.6	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.354	OK
Interaction Capacity	0.358	OK

External Base Plate		
Chord Length AA	45.083	in
Additional AA	6.500	in
Section Modulus, Z	136.212	in^3
Applied Moment, Mu	356.3	k-ft
Bending Capacity, ϕMn	6129.6	k-ft
Capacity, Mu/ϕMn	0.058	OK
Chord Length AB	44.164	in
Additional AB	6.500	in
Section Modulus, Z	133.783	in^3
Applied Moment, Mu	241.2	k-ft
Bending Capacity, ϕMn	6020.3	k-ft
Capacity, Mu/ϕMn	0.040	OK
Bend Line Length	35.545	in
Additional Bend Line	0.000	in
Section Modulus, Z	93.861	in^3
Applied Moment, Mu	356.3	k-ft
Bending Capacity, ϕMn	4223.7	k-ft
Capacity, Mu/ϕMn	0.084	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Flange Plate Analysis

Flange Plate

Plate Type	[illegible]	*@ 129 ft*	
Pole Diameter	28.95	in	
Pole Thickness	0.25	in	
Plate Diameter	37.52	in	
Plate Thickness	2	in	
Plate Fy	50	ksi	
Weld Length	1/8	in	
f_s Resistance	[illegible]	k-in	
Applied	[illegible]	k-in	

Code Rev. *G*

Moment 78.4 k-ft

Axial 4.6 k

Required Flange Thickness:

0.39 in OK

Date 11/23/2021

Engineer C.D.

Site # 210746

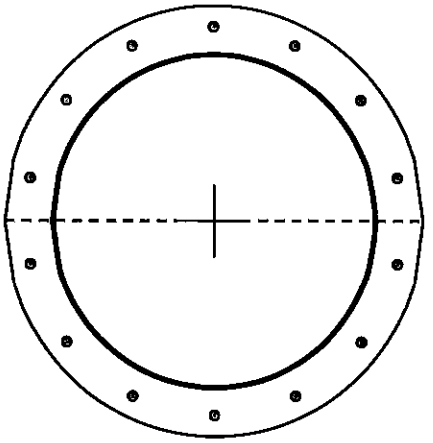
Carrier DISH WIRELESS L.L.C.

Stiffeners

#	[illegible]	

Bolts

#	*14*	
Bolt Circle	33.77	in
(R)adial / (S)quare	R	
Diameter	1 1/2	in
Hole Diameter	[illegible]	in
Type	A325	
Fy	81	ksi
Fu	105	ksi
f_s Resistance	[illegible]	k
Applied	[illegible]	k



Reinforcement

#	[illegible]	

Plate Stress Ratio:

4% Pass

Bolt Stress Ratio:

7% Pass

Extra Bolts 0

#	[illegible]	

Site Name:	**Trumbull CT, CT**
Site Number:	**210746**
Tower Type:	**MP**

Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	45.0	k
Uplift/Leg:	0.0	k
Total Shear:	23.6	k
Moment:	2,256.9	k-ft
Tower + Appurtenance Weight:	45.0	k
Depth to Base of Foundation (l + t - h):	6.5	ft
Diameter of Pier (d):	8	ft
Length of Pier (l):		ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	25	ft
Length of Pad (L):	25	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:		-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:		pcf
Unit Weight of Soil Above Water Table:	125	pcf
Unit Weight of Water:		pcf
Unit Weight of Soil Below Water Table:		pcf
Friction Angle of Uplift:	30	°
Coefficient of Shear Friction:	0.35	-
Ultimate Compressive Bearing Pressure:	12,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{Soil\ and\ Concrete\ Weight}$:		-
f_{Soil}:		-

Overturning Moment Usage		
Design OTM:		k-ft
OTM Resistance:		k-ft
Design OTM / OTM Resistance:	34%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:		psf
Factored Nominal Bearing Pressure:		psf
Factored Nominal (Net) Bearing Pressure:	24%	Pass
Load Direction Controling Design Bearing Pressure:		

Sliding Factor of Safety		
Ultimate Friction Resistance:		k
Ultimate Passive Pressure Resistance:		k
Total Factored Sliding Resistance:		k
Sliding Design / Sliding Resistance:	15%	Pass

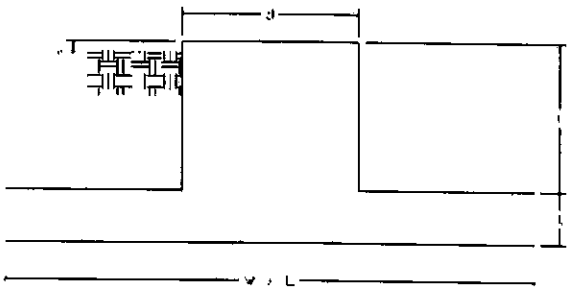


Exhibit E

Mount Analysis

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Date: **February 4, 2022**

Proposed Mount Analysis Report

Project Information:

Carrier:	Dish Wireless
Site Number:	NJJER01084B
Site Address:	158 Edison Road, Trumbull, Fairfield County, CT 06611
Site Type:	Platform w/ Railing Mount on Monopole
Tectonic Project Number:	10710.NJJER01084B

Tectonic Engineering Consultants, Geologists & Land Surveyors, D.P.C. is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of the above-mentioned proposed mount.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

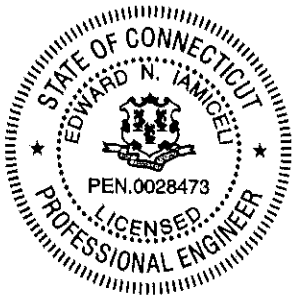
Mount: **Sufficient – 31%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.0 and Risk Category II was used in this analysis.

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

Structural analysis prepared by: John-Fritz Julien / Ian Marinaccio

Respectfully submitted by:
Tectonic Engineering Consultants, Geologists & Land Surveyors D.P.C.



Edward N. Iamiceli, P.E.
Managing Director - Structural

Project Contact Info

1279 Route 300 | Newburgh, NY 12550
845.567.6656 Tel | 845.567.8703 Fax

tectonicengineering.com
Equal Opportunity Employer

TABLE OF CONTENTS

1) INTRODUCTION

Analysis of the proposed antenna mounts due to the loading of the proposed antennas, equipment, and related appurtenances. The proposed mount is a platform mount manufactured by CommScope, P/N: MC-PK8-DSH.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	97 mph
Exposure Category:	B
Topographic Factor:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Service Load:	60 mph

Table 1 - Proposed Equipment Loading Information

Mounting Level (ft)	Carrier Designation	Number of Antennas	Antenna Manufacturer	Antenna Model	Proposed Mount Type	Note
99.0	Dish Wireless	3	JMA	MX08FRO665-21	CommScope MC-PK8-DSH	1
		3	Fujitsu	TA08025-B604 RRH		
		3	Fujitsu	TA08025-B605 RRH		
		1	Raycap	RDIDC-9181-PF-48		

Note:
1) Proposed equipment to be installed on the proposed mounts.

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Dated
Mount Assembly Drawings	CommScope, P/N: MC-PK8- DSH	03/17/2021
Field Notes & Photos	Tectonic	05/14/2021
RFDS	Dish Wireless	06/09/2021
Zoning Documents	Tectonic	02/01/2022

3.1) Analysis Method

A tool internally developed, using Microsoft Excel, was used to calculate wind loading on all appurtenances and mount members. This information was then used in conjunction with another program, RISA-3D, which is a commercially available analysis software package, used to check the antenna mounting system and calculate member stresses for various loading cases. The selected output from the analysis is included in Appendices B and C.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and 2.
3) 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.
4) Member length and sizes are based solely on the assembly drawing by CommScope, referenced above.

5) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Tectonic should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Standoff End Plate	99.0	24	Pass
	Grating Support Angle		10	Pass
	Face Horizontal		17	Pass
	Mount Pipe		21	Pass
	Standoff Channel		31	Pass
	Standoff		25	Pass
	Rail Connector		17	Pass
	Railing		17	Pass
2	Collar Connection		30	Pass
Structure Rating (max from all components) =				**31 %**

Notes:

1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Result / Conclusions

The proposed platform mount has adequate capacity to support the proposed antenna and equipment installation as detailed in the following report.

This structural analysis only includes evaluation of the antenna mounts and not the monopole. The monopole is to be analyzed under a separate structural analysis by others.

Contractor shall field verify existing conditions and recommendations as noted on the construction drawings and notify the design engineer of any discrepancies prior to construction. Any further changes to the antenna and/or appurtenance configuration should be reviewed with respect to their effect on structural loads prior to implementation.

APPENDIX A

SOFTWARE INPUT CALCULATIONS

CONNECTICUT DESIGN CRITERIA - STATE

Revison:

CT is NOT a Home Rule State; Tab added only for Design Criteria

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS

Municipality	Ground Snow Load	MCE Spectral Accelerations (%g)		*Wind Design Parameters* Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)		
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV
Andover	30	0.176	0.063	120	130	140	93	101	108
Ansonia	30	0.195	0.064	115	125	135	89	97	105
Ashford	35	0.173	0.063	120	130	140	93	101	108
Avon	35	0.181	0.064	110	120	130	85	93	101
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105
Berlin	30	0.183	0.063	115	125	135	89	97	105
Bethany	30	0.189	0.063	115	125	135	89	97	105
Bethel	30	0.215	0.066	110	120	125	85	93	97
Bethlehem	35	0.190	0.065	110	120	125	85	93	97
Bloomfield	35	0.180	0.064	115	125	130	89	97	101
Bolton	30	0.177	0.063	115	125	135	89	97	105
Bozrah	30	0.170	0.061	120	135	145	93	105	112
Branford	30	0.180	0.061	120	130	140	93	101	108
Bridgeport	30	0.209	0.064	115	125	135	89	97	105
Bridgewater	35	0.201	0.066	110	120	125	85	93	97
Bristol	35	0.185	0.064	110	120	130	85	93	101
Brookfield	35	0.208	0.066	110	120	125	85	93	97
Brooklyn	35	0.171	0.062	120	130	140	93	101	108
Burlington	35	0.182	0.064	110	120	130	85	93	101
Canaan	40	0.173	0.065	105	115	120	81	89	93
Canterbury	35	0.171	0.061	120	130	140	93	101	108
Canton	35	0.180	0.064	110	120	130	85	93	101
Chaplin	35	0.173	0.062	120	130	140	93	101	108
Cheshire	30	0.186	0.063	115	125	135	89	97	105
Chester	30	0.172	0.060	120	130	140	93	101	108
Clinton	30	0.169	0.059	120	135	140	93	105	108
Colchester	30	0.174	0.061	120	130	140	93	101	108
Colebrook	40	0.174	0.065	105	115	125	81	89	97
Columbia	30	0.175	0.062	120	130	140	93	101	108
Cornwall	40	0.180	0.065	105	115	120	81	89	93
Coventry	30	0.176	0.063	120	130	140	93	101	108
Cromwell	30	0.181	0.063	115	125	135	89	97	105
Danbury	30	0.217	0.067	110	120	125	85	93	97
Darien	30	0.242	0.068	110	120	130	85	93	101
Deep River	30	0.170	0.060	120	130	140	93	101	108
Derby	30	0.195	0.064	115	125	135	89	97	105
Durham	30	0.179	0.062	115	130	140	89	101	108
Eastford	40	0.172	0.063	120	130	140	93	101	108
East Granby	35	0.177	0.065	110	120	130	85	93	101
East Haddam	30	0.172	0.061	120	130	140	93	101	108
Trumbull	30	0.207	0.065	115	125	135	89	97	105

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

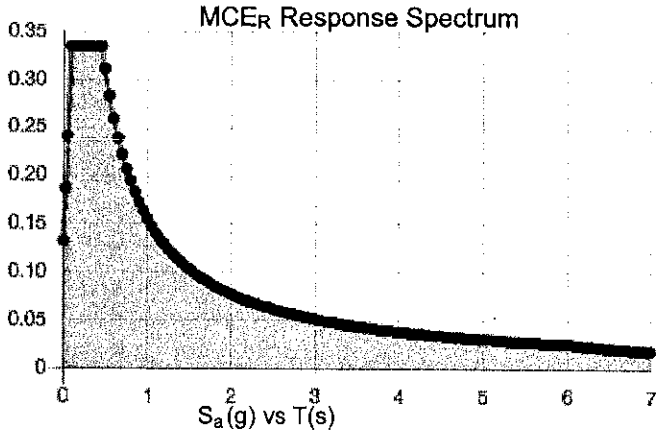
Seismic

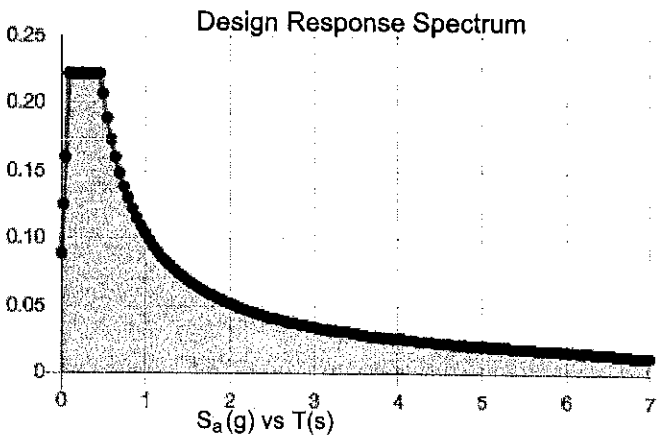
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.209	S_{DS} :	0.222
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.113
S_{MS} :	0.334	PGA_M :	0.178
S_{M1} :	0.156	F_{PGA} :	1.574
		I_e :	1

Seismic Design Category B





Data Accessed: **Thu Feb 03 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

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Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Feb 03 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 50-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.

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No.	10710.NJJER01084B		
Sheet No.	1	of	3
Calculated By	JJ	Date :	02/03/22
Checked By	IM	Date :	02/03/22

WIND AND ICE LOADS PER TIA-222-G

W.O.	[redacted]
Project Name	[redacted]
Location	[redacted]
County	[redacted]

Tower Type	[redacted]	Monopole
Structure Class	[redacted]	Substantial hazard
Exposure Category	[redacted]	Suburban/wooded/obstructed
Topo Category	[redacted]	Flat or rolling terrain
Height of crest	[redacted]	ft

Basic Wind Speed (3-sec gust):		
Without ice	[redacted]	mph*
With ice	[redacted]	mph
Service	[redacted]	mph
Ice thickness	[redacted]	in

Importance Factor	
Wind only	1.00
Wind with ice	1.00
Ice thickness	1.00
Supporting Data:	
K_e	0.90
K_t	N/A
f	N/A
z_g	1200
α	7
$K_{z,min}$	0.7
K_d	0.95
G_h	1.00

Height	z (ft)	[redacted]
	Kh	N/A
	Kzt	1.00
	Kz	0.99
	Kiz	1.12
Wind Pressure, qz (psf)	No Ice	22.55
	With Ice	5.99
	Service	8.63
(tiz)	Ice Thk	2.23
Appurtenances (qzGh)	No Ice	22.55
	With Ice	5.99
	Service	8.63

*Ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second wind gust speed of 97 mph per Section 1609.3 and Appendix N, as required for use in the TIA-222-G Standard.

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10710.NJJER01084B
Sheet No. 2 of 3
Calculated By JJ Date : 02/03/22
Checked By IM Date : 02/03/22

Appurtenance Information

Effective Projected Area for Appurtenance $(EPA)_A=Max((EPA)_N,(EPA)_T)$

$(EPA)_T=\sum(C_AA_A)_T$ | $(EPA)_N=\sum(C_AA_A)_N$ | Reduction Factor =

Wind Only Load Combinations

Antenna Configuration	(E) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(Aa)_T$ (ft^2)	Wind ward Side Face $(CaAa)_T$ (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward face Normal $(C_AA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Antenna Weight (lb)	Total Weight (lb)
[redacted]			99	6.00	20.00	8.00	[redacted]	1.47	1.25	4.00	15.84	10.00	33.72	253	119	82.5	247.5
[redacted]			99	1.24	15.70	7.80		1.20	1.20	0.81	2.61	1.62	5.26	40	20	63.9	191.7
[redacted]			99	1.24	15.70	9.00		1.20	1.20	0.93	3.02	1.62	5.26	40	23	74.9	224.7
[redacted]			99	1.58	14.39	8.15		1.20	1.20	1.07	1.16	1.90	2.05	46	26	21.8	21.8
										$\sum(CaAa)_T$	22.63	$\sum(CaAa)_N$	46.30				686

Wind with Ice Load Combinations Ice Thk= 2.23 in

Antenna Configuration	(E) or (P)	Qty	z (ft)	Length or Diameter (ft)	Width (in)	Depth (in)	Flat or Cylindrical?	Antenna $(Ca)_T$	Antenna $(Ca)_N$	Side Face $(A_a)_T$ (ft^2)	Windward Side Face $(CaAa)_T$ (ft^2)	Face Normal $(A_a)_N$ (ft^2)	Windward Face Normal $(C_AA_a)_N$ (ft^2)	Normal Antenna Wind Load Each (lb)	Transverse Antenna Wind Load Each (lb)	Ice Area for Weight (ft^2)	Ice Weight Alone (lbs)
MX08FRO665-21	P	3	99.00	6.37	20.37	8.37	Flat	1.47	1.26	4.45	17.66	10.82	36.68	73	35	28.0	291.7
TA08025-B604 RRH	P	3	99.00	1.61	16.07	8.17	Flat	1.20	1.20	1.10	3.56	2.16	7.00	14	7	4.9	50.7
TA08025-B605 RRH	P	3	99.00	1.61	16.07	9.37	Flat	1.20	1.20	1.26	4.08	2.16	7.00	14	8	5.1	53.2
RDIDC-9181-PF-48	P	1	99.00	1.95	14.76	8.52	Flat	1.21	1.20	1.39	1.51	2.40	2.60	16	9	5.9	61.9
										$\sum(CaAa)_T$	26.81	$\sum(CaAa)_N$	53.28				457

Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No.	10710.NJJER01084B		
Sheet No.	3	of	3
Calculated By	JJ	Date :	02/03/22
Checked By	IM	Date :	02/03/22

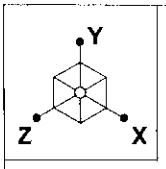
Mounting System Information

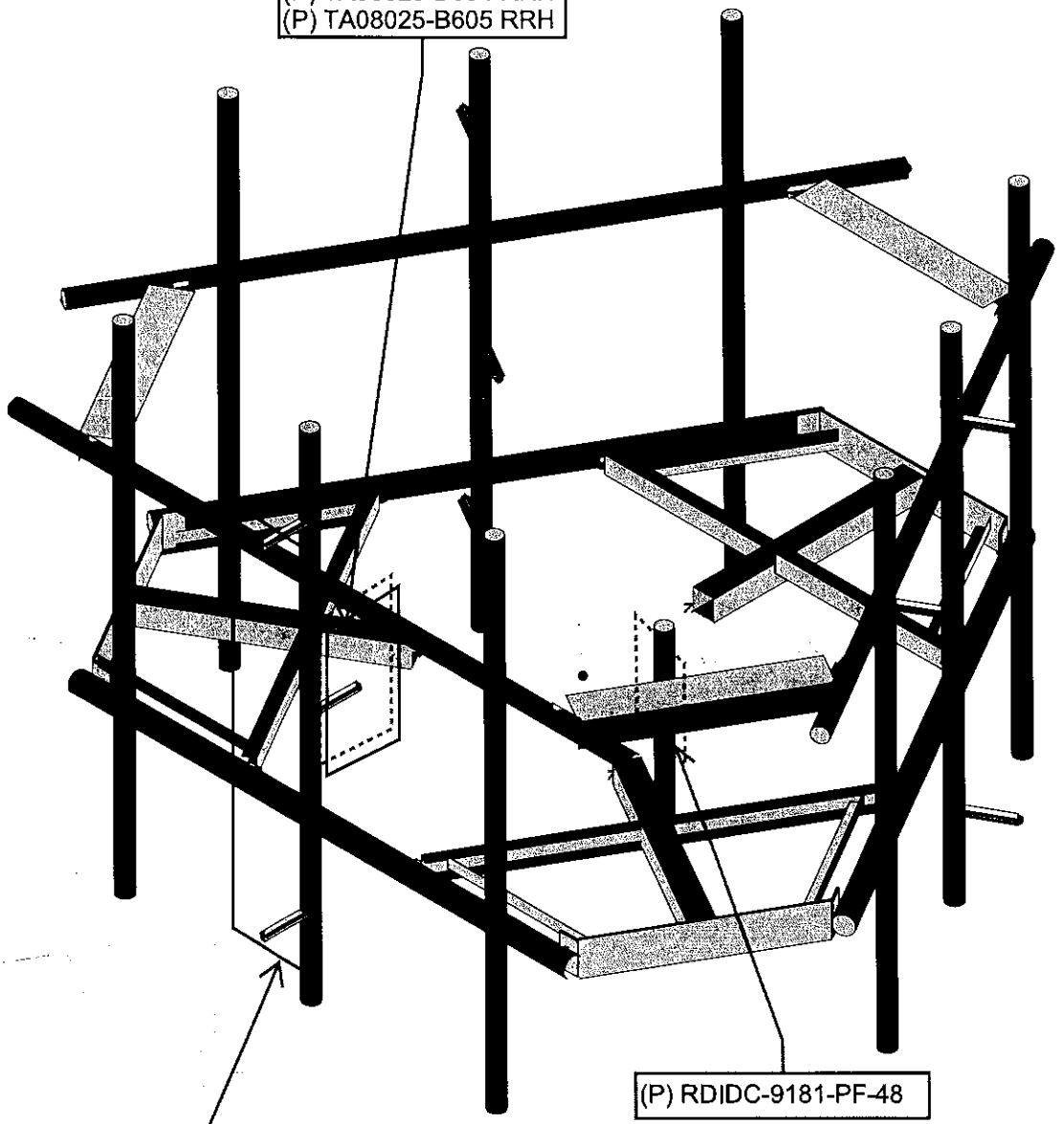
						Reduction Factor =				
Mount Part	Projected Width (in)	Depth (in)	Flat or Cylindrical ?	Drag Factor	Projected Area (ft^2)	Wind Force (lbs/ft)	Ice Weight Area (ft^2)	Ice Weight (lbs/ft)	Projected Area with Ice (ft^2)	Wind Force Ice (lbs/ft)
[redacted]				2	1.08	22.0	1.15	11.9	1.83	9.9
				2	1.00	20.3	1.06	11.1	1.74	9.4
				2	0.33	6.8	0.67	6.9	1.08	5.8
				1.2	0.35	7.1	0.92	9.5	0.80	4.3
				1.2	0.29	5.8	0.75	7.8	0.73	4.0
				2	0.56	11.4	0.91	9.4	1.31	7.0
				2	0.67	13.5	1.33	13.9	1.41	7.6
				2	1.10	22.3	1.84	19.2	1.84	9.9
				1.2	0.29	5.8	0.75	7.8	0.73	4.0

Note: The member sizes are based on the assembly drawings by Commscope, date 03/17/21

APPENDIX B

WIRE FRAME AND RENDERED MODELS





(P) TA08025-B604 RRH
(P) TA08025-B605 RRH

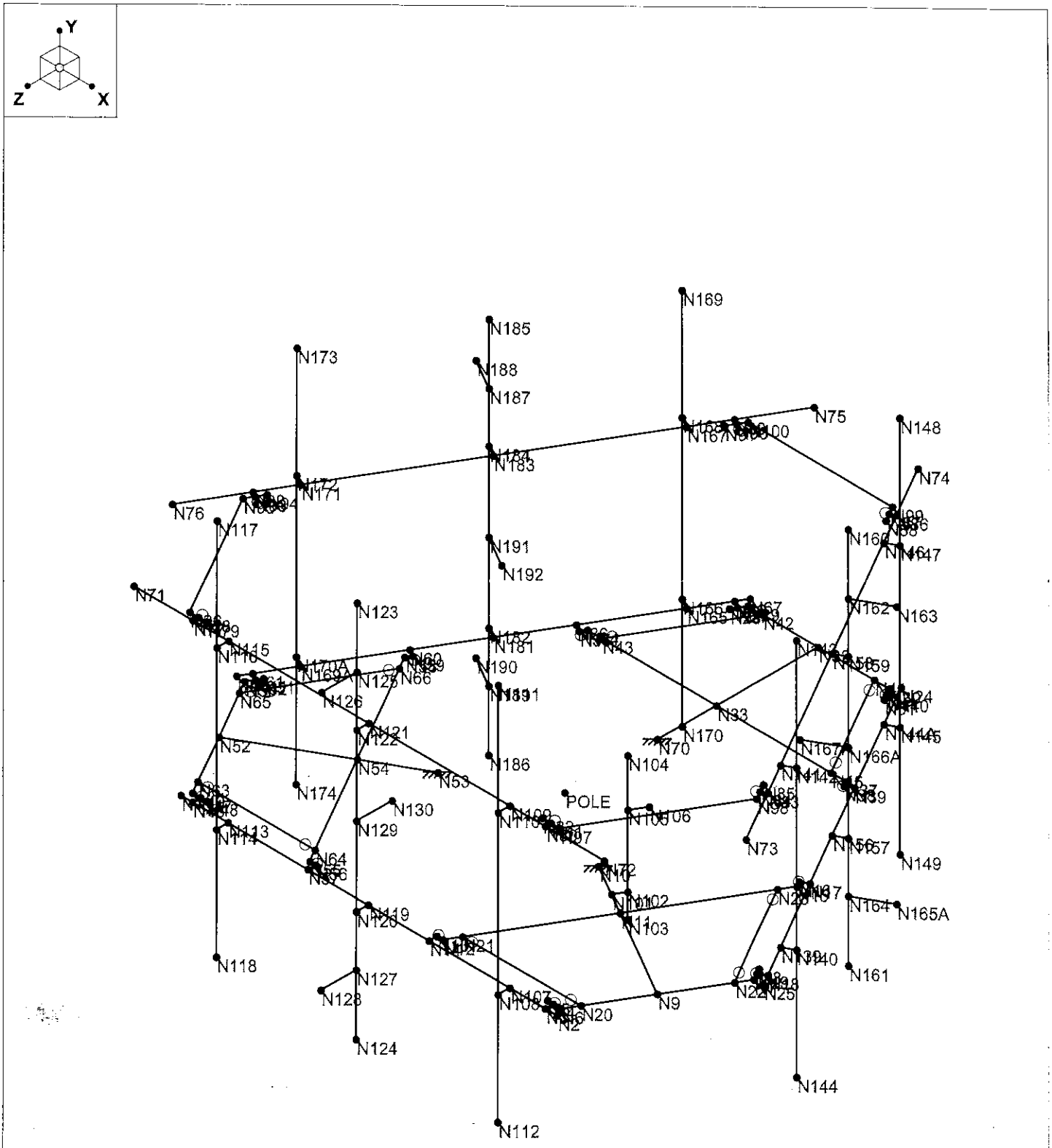
(P) RDIDC-9181-PF-48

(P) MX08FRO665-21

NOTES:
1) PROPOSED ANTENNAS AND MOUNTING PIPES HAVE BEEN VERTICALLY CENTERED ALONG THE EXISTING MOUNT (NO OFFSET).
2) LISTED PROPOSED APPURTENANCES ABOVE ARE TYPICAL FOR ALL SECTORS.

(P) PROPOSED

Envelope Only Solution



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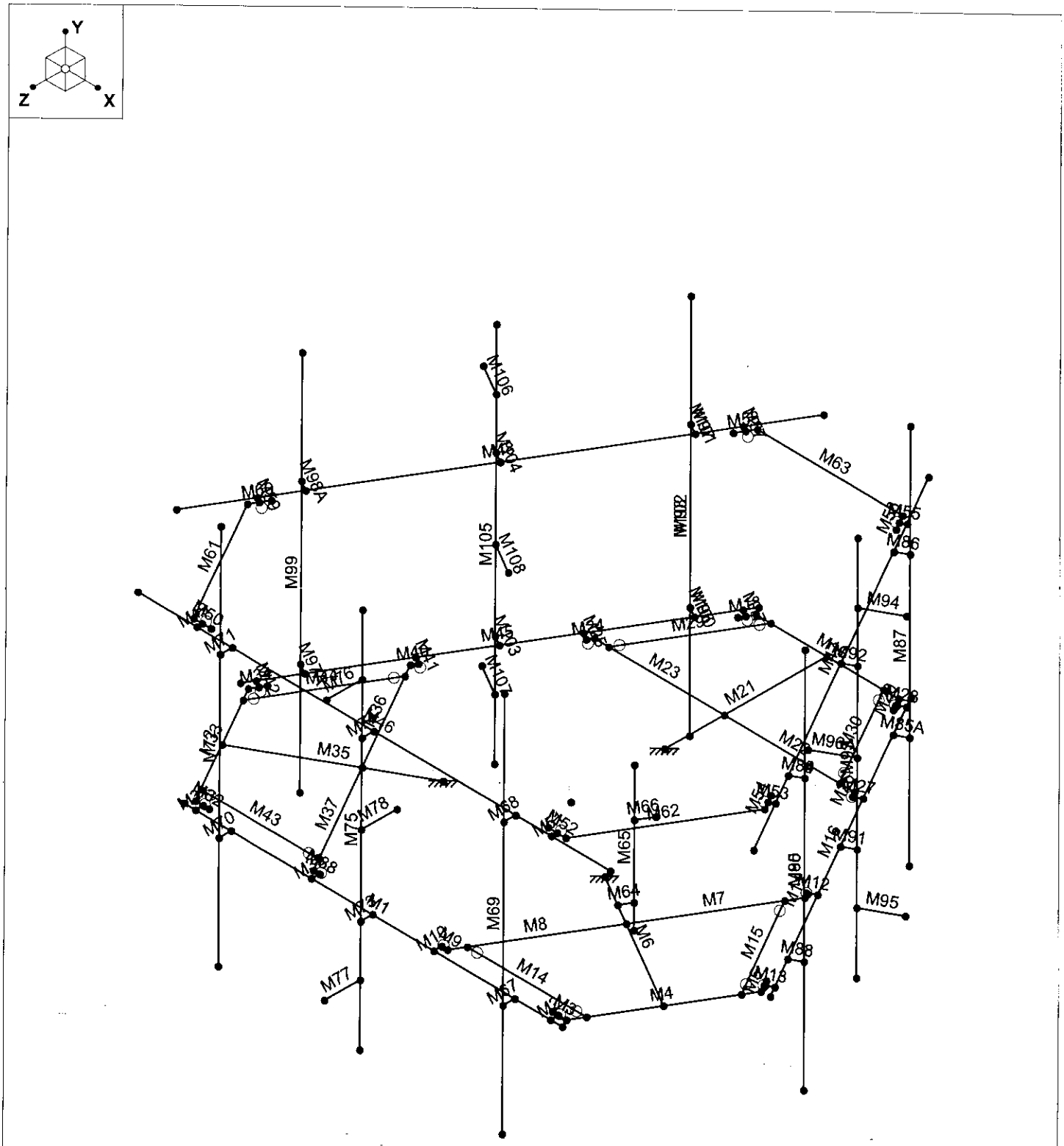

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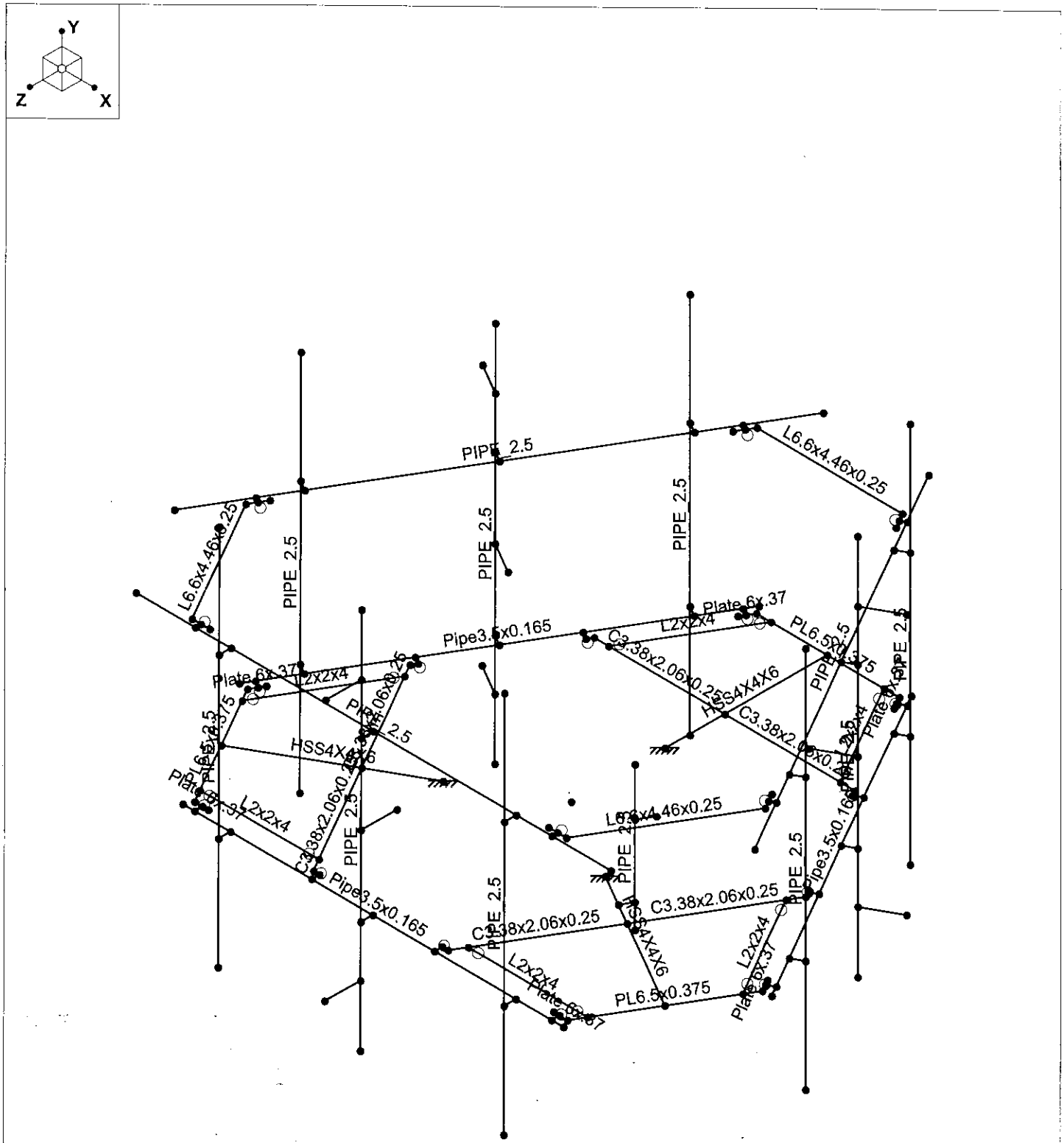

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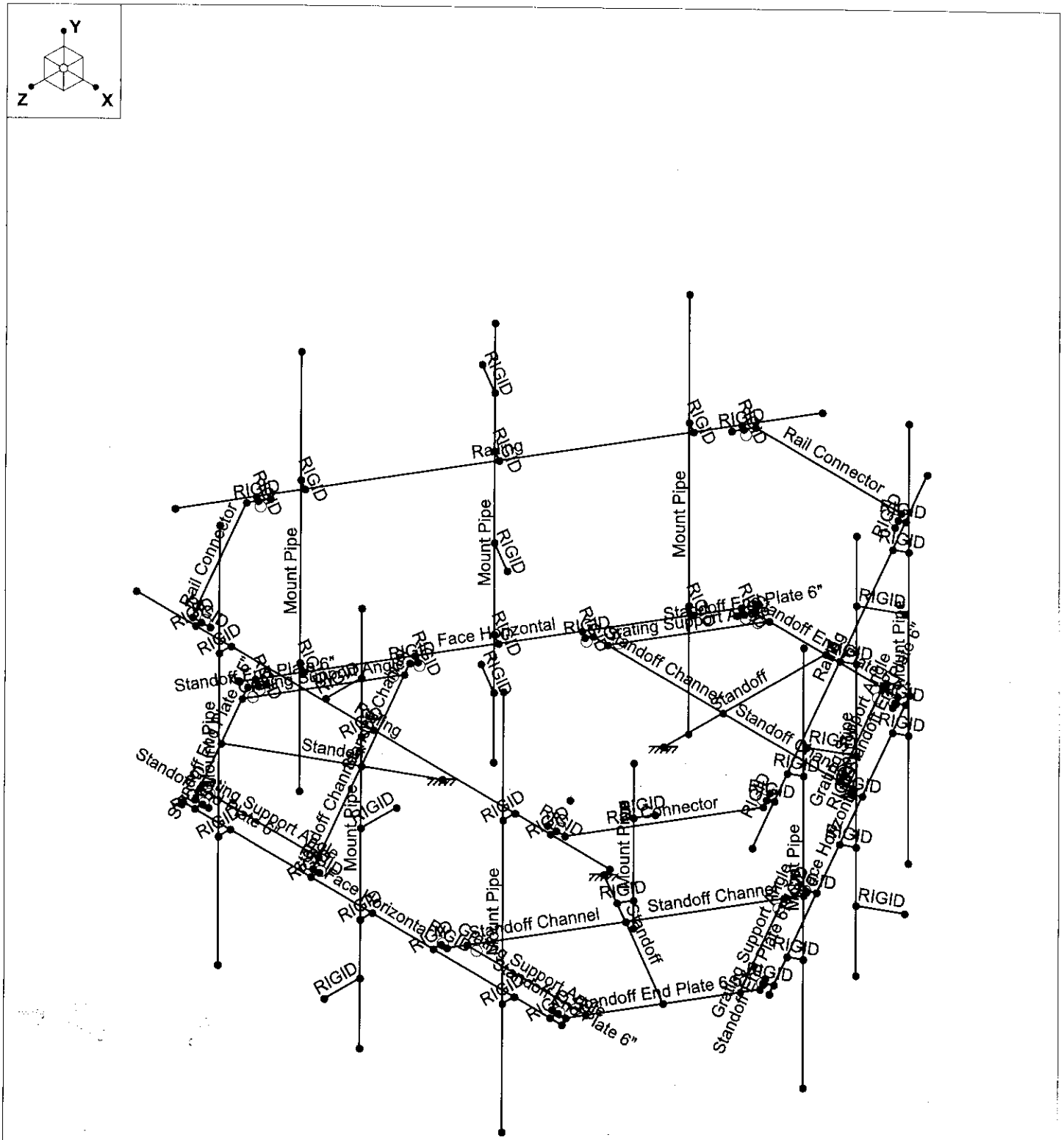

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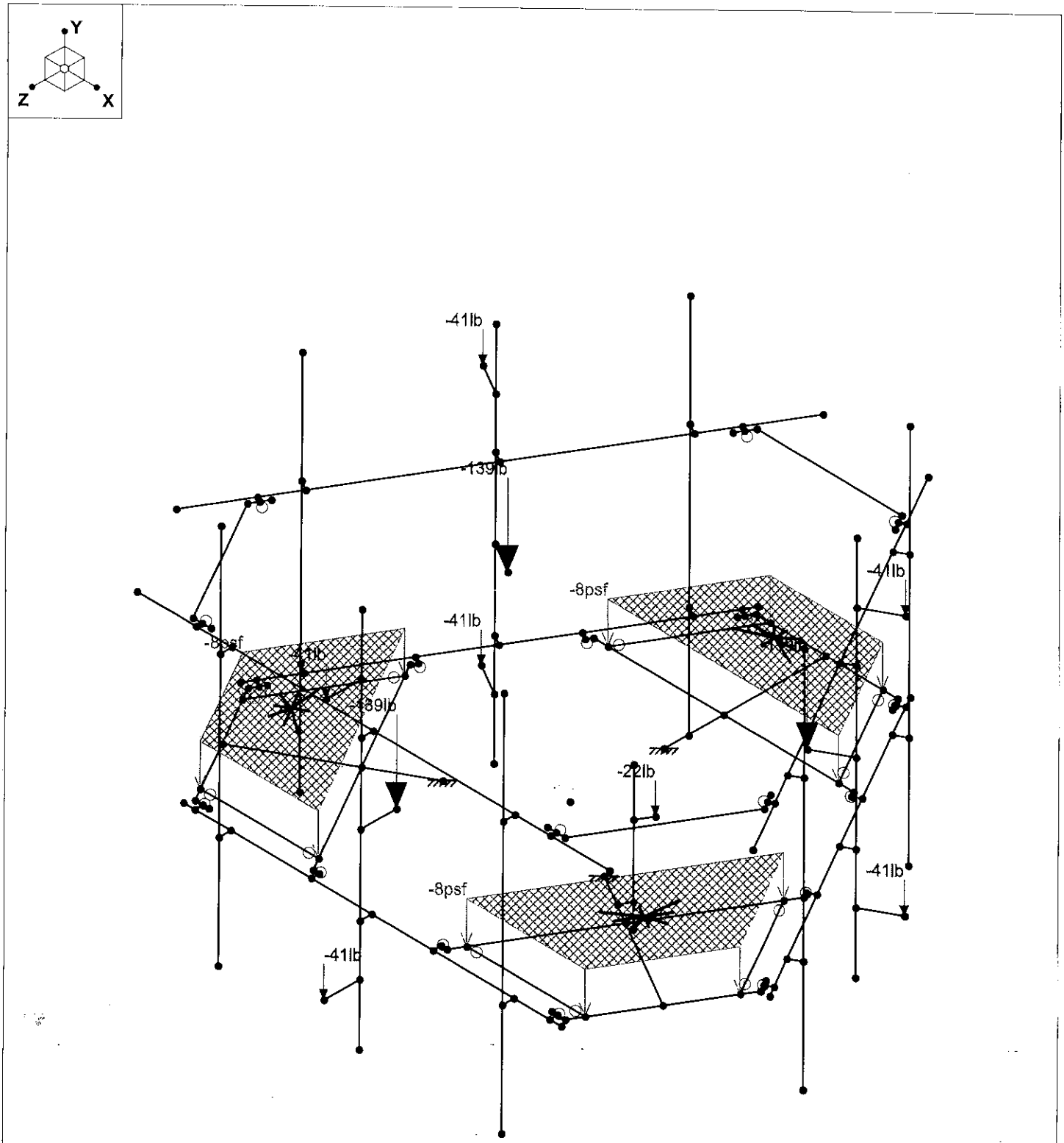
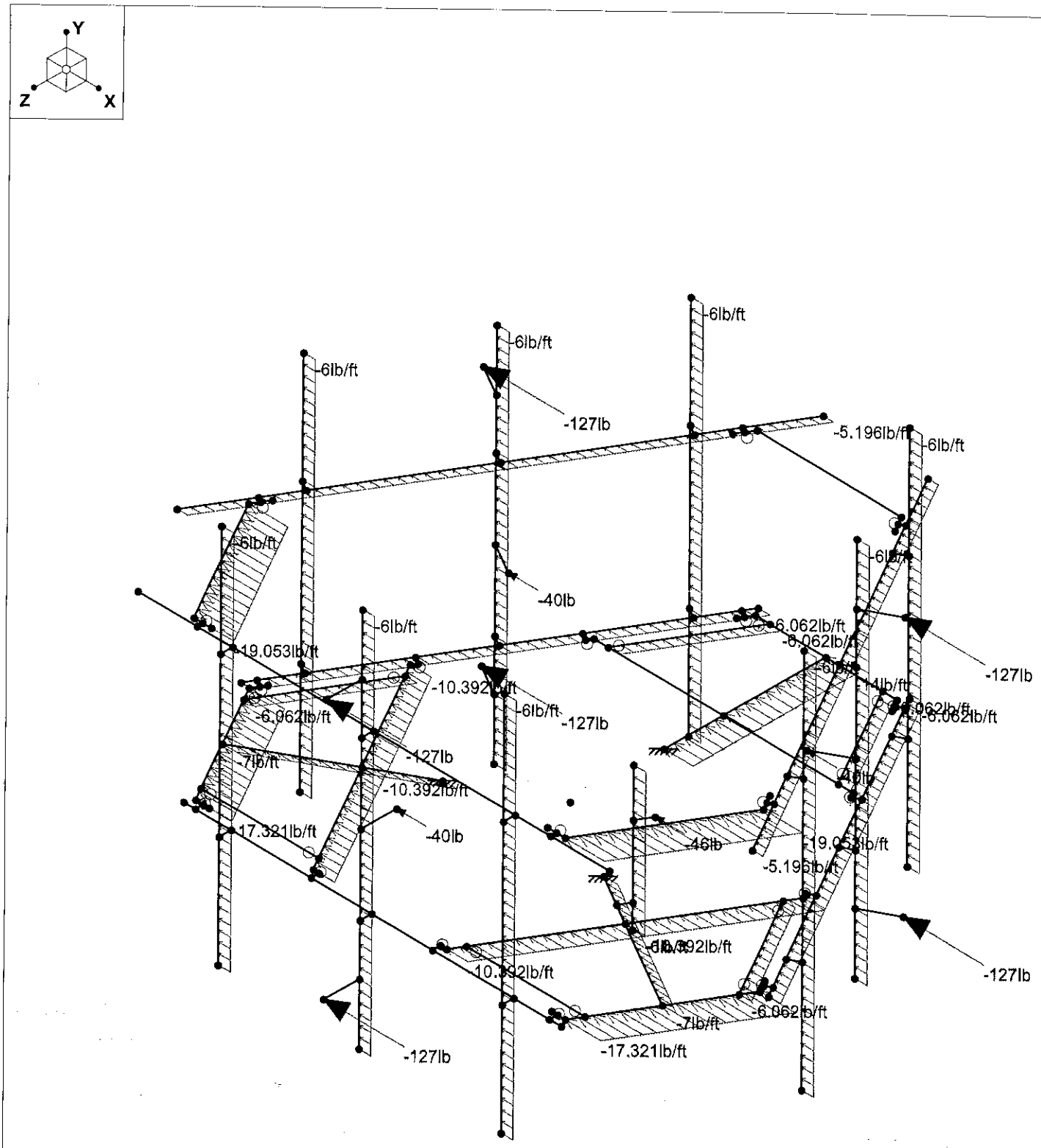
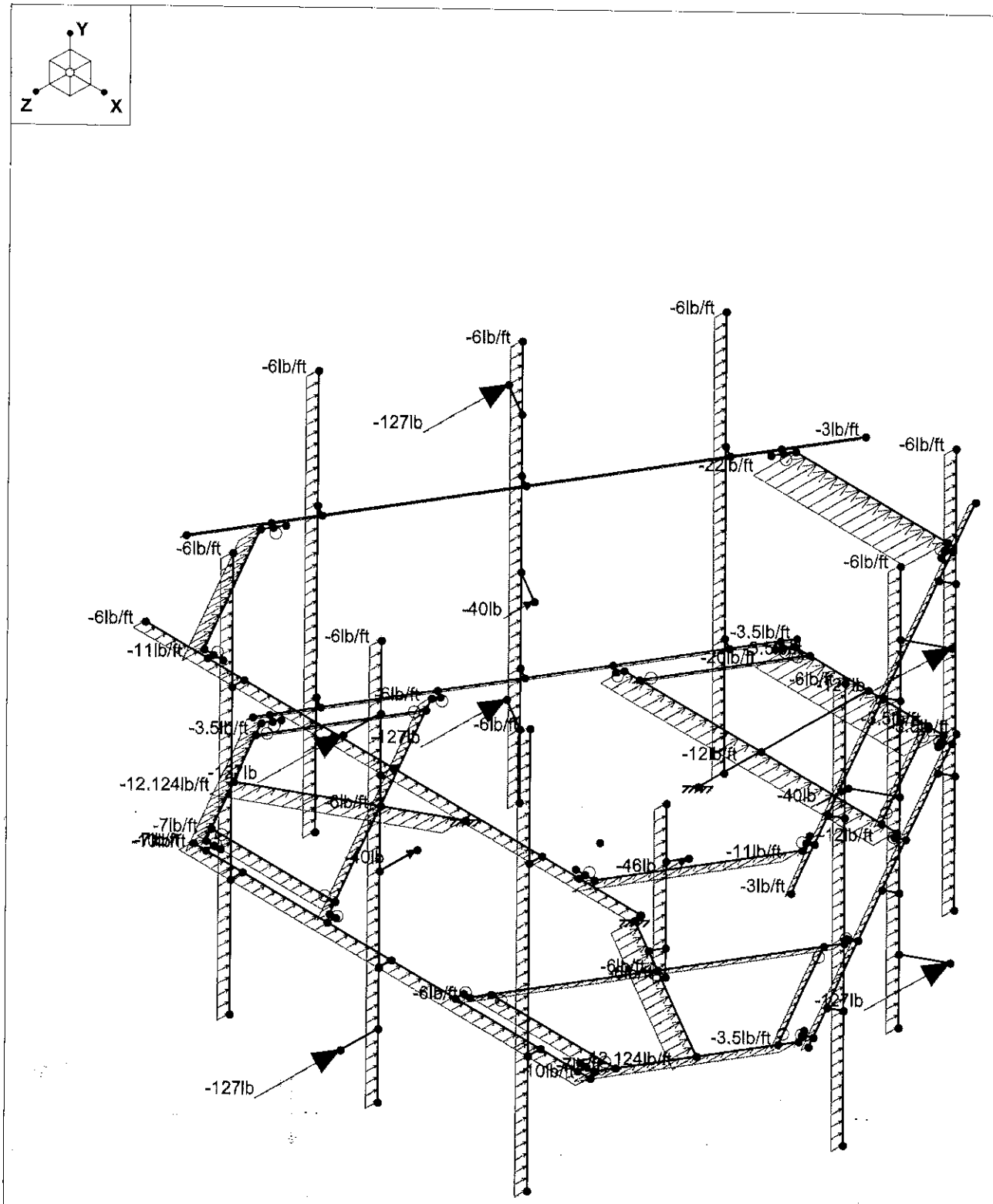


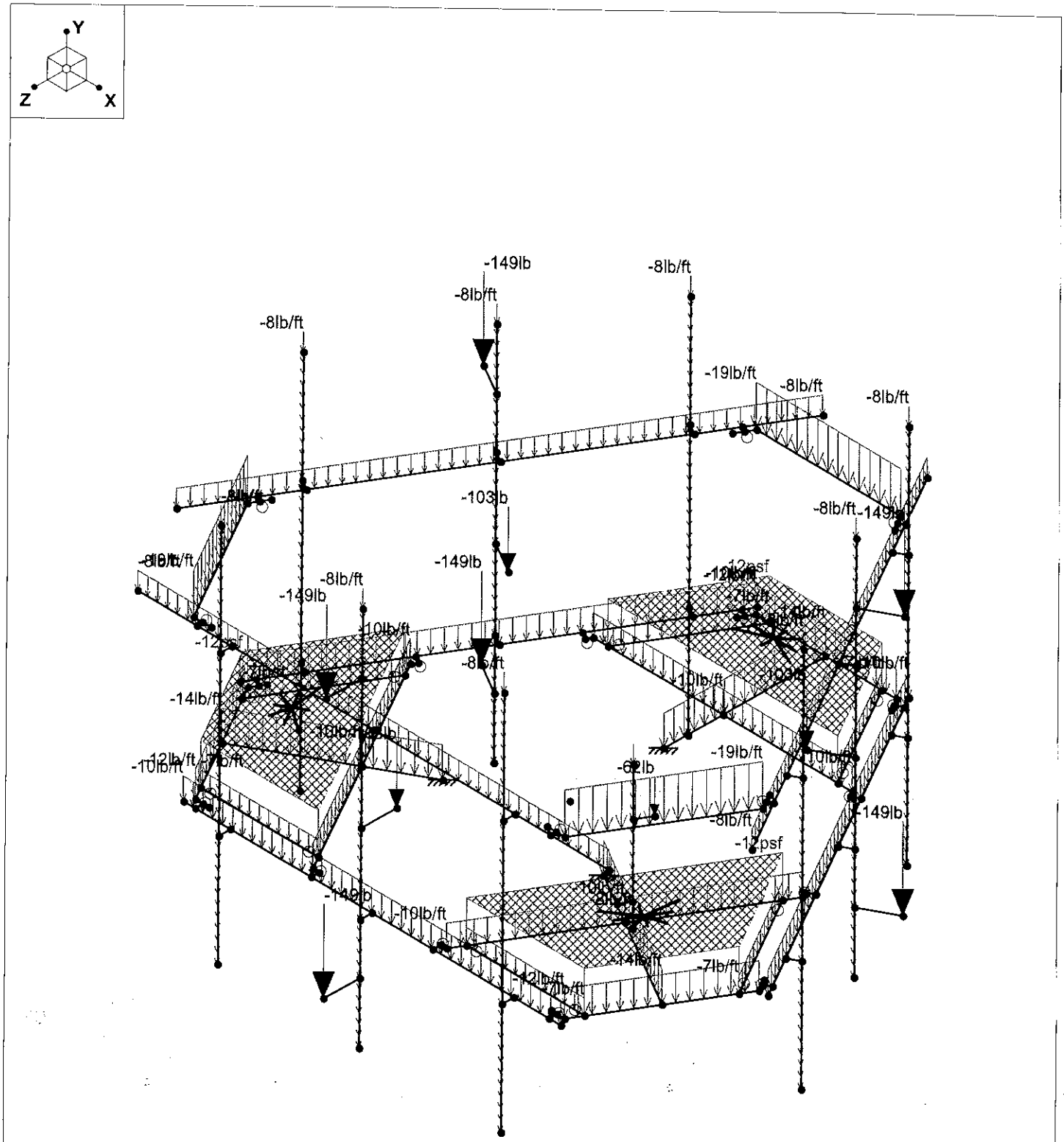
Loads: BLC 1, DL
Envelope Only Solution



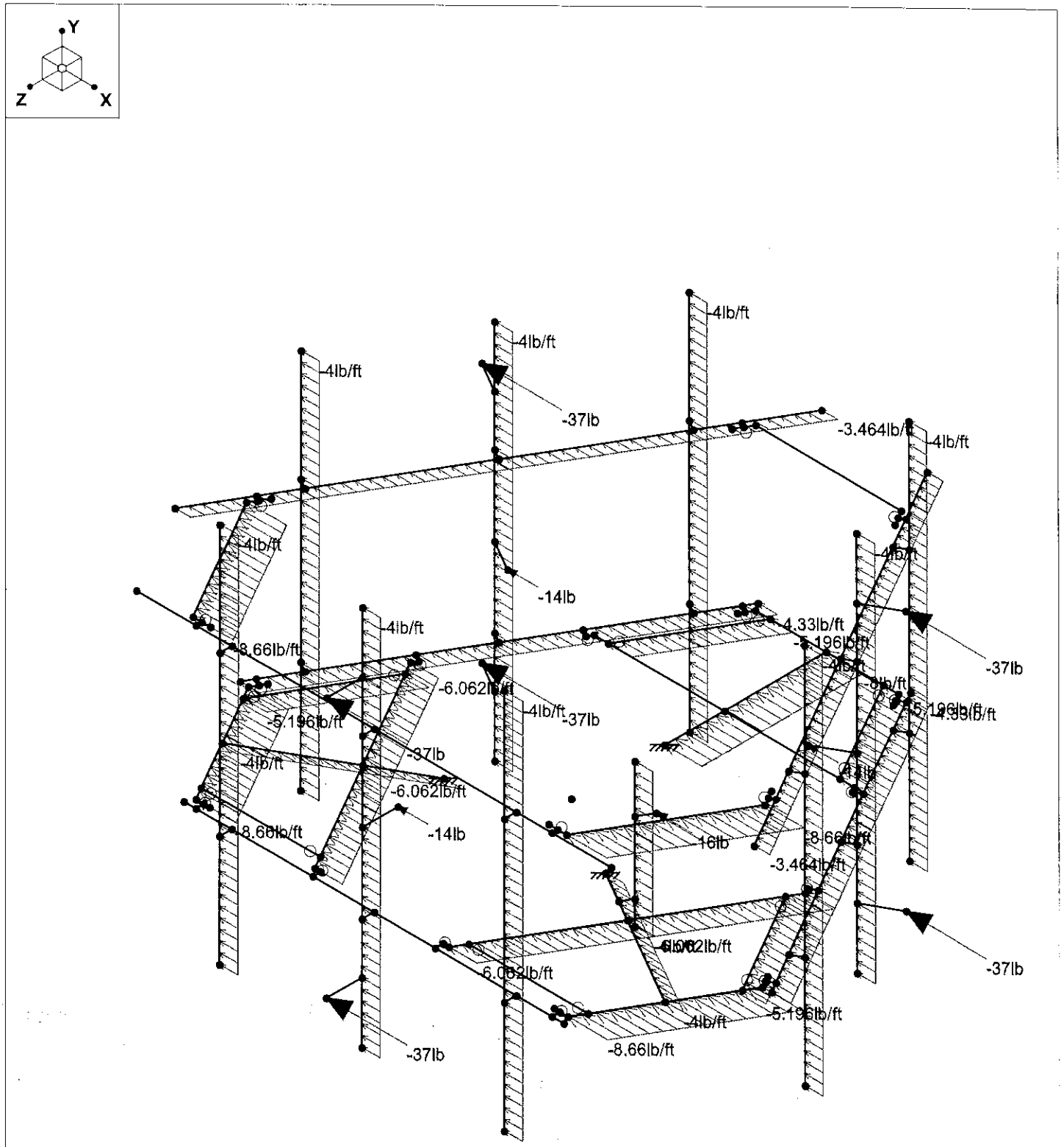
Loads: BLC 2, WLX
Envelope Only Solution



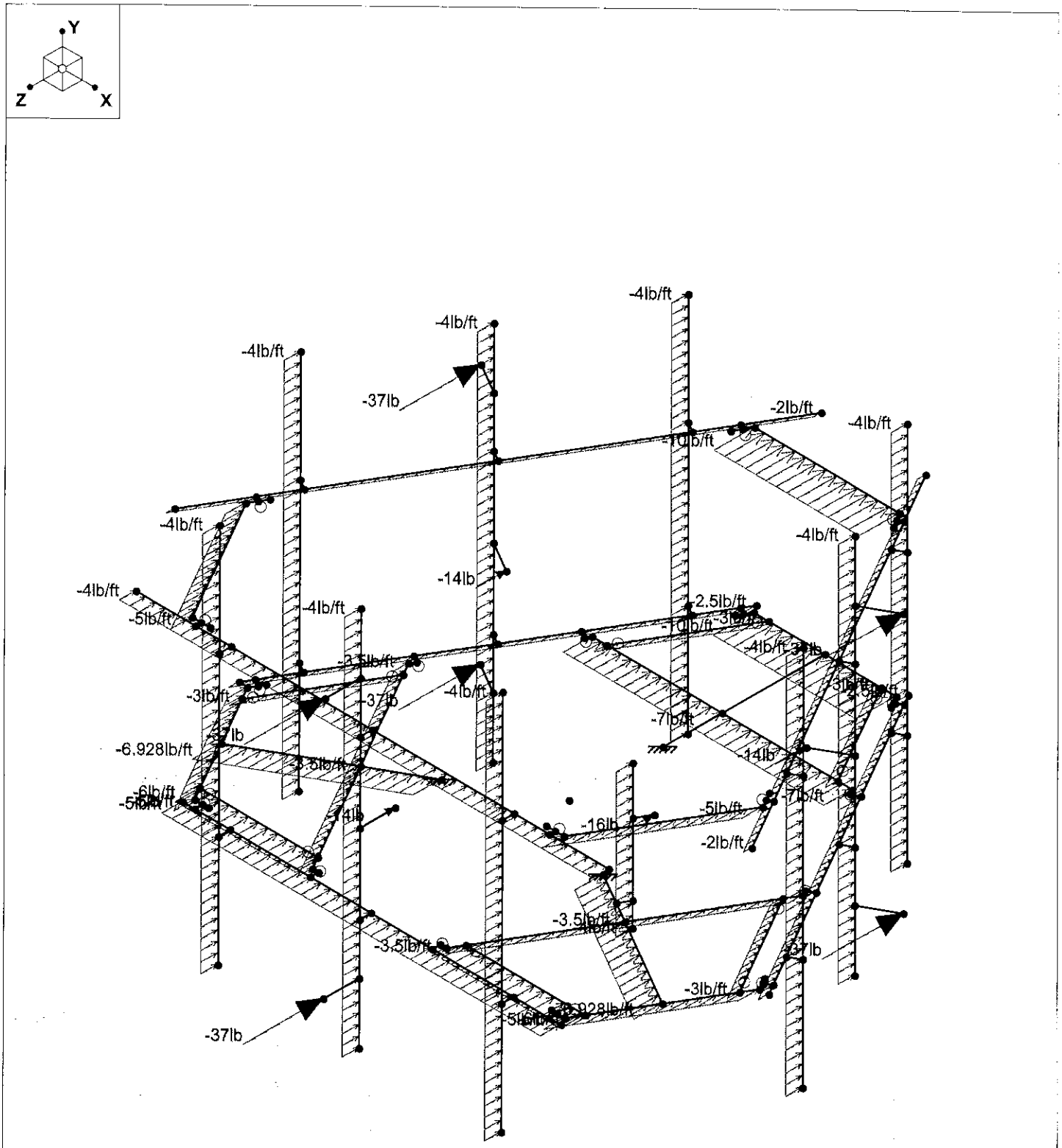
Loads: BLC 3, WLZ
Envelope Only Solution



Loads: BLC 4, DL (ICE)
Envelope Only Solution



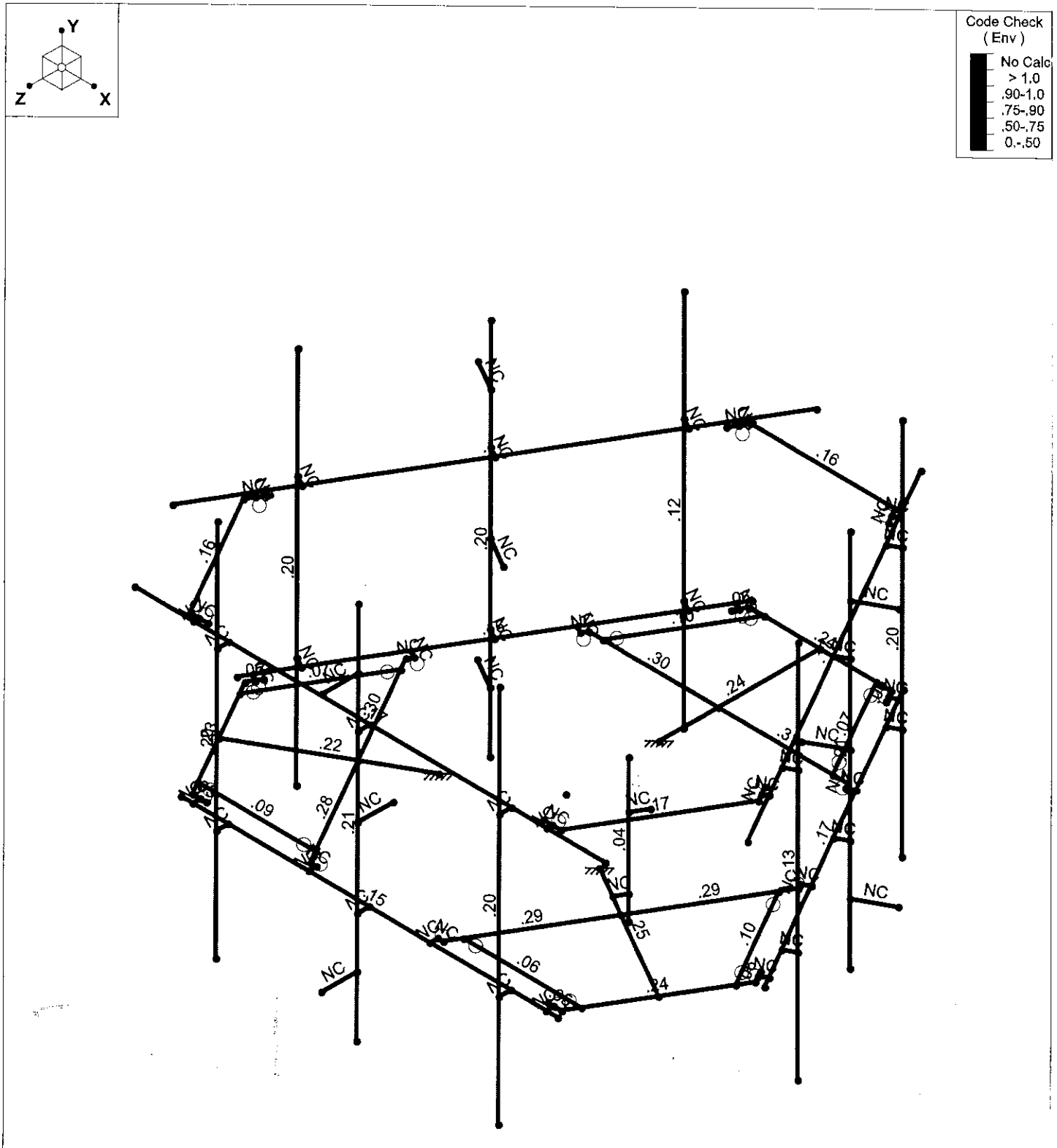
Loads: BLC 5, WLX (ICE)
Envelope Only Solution



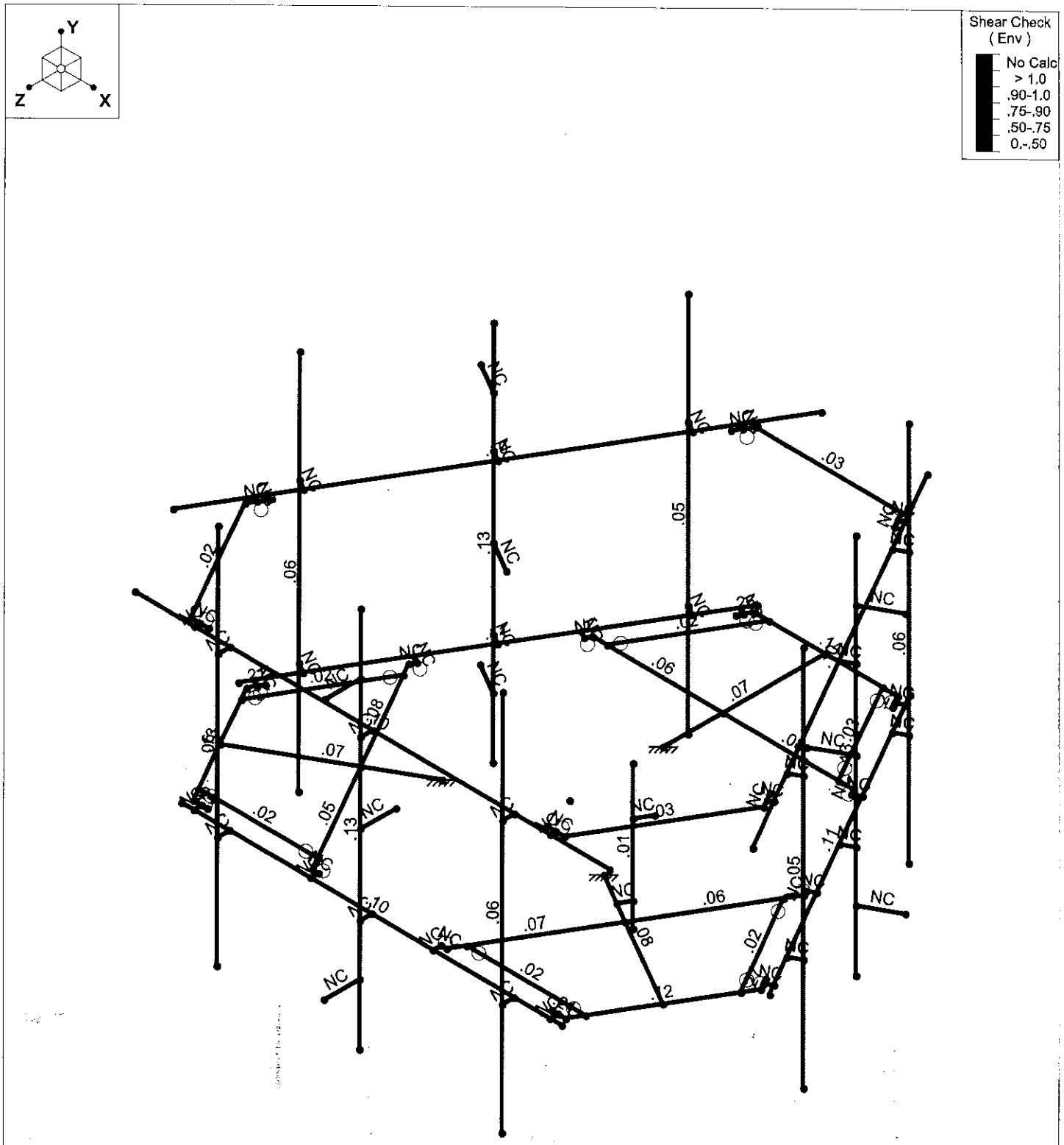
Loads: BLC 6, WLZ (ICE)
Envelope Only Solution

APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff End Plate 6.5"	PL6.5x0.375	Beam	RECT	A36 Gr.36	Typical	2.438	.029	8.582	.11
2	Standoff End Plate 6"	Plate 6x.37	Beam	RECT	A36 Gr.36	Typical	2.22	.025	6.66	.097
3	Grating Support Angle	L2x2x4	Beam	Single An...	A36 Gr.36	Typical	.944	.346	.346	.021
4	Face Horizontal	Pipe3.5x0.165	Beam	Pipe	A53 Gr.B	Typical	1.729	2.409	2.409	4.819
5	Mount Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Standoff Channel	C3.38x2.06x0.25	Beam	Channel	A36 Gr.36	Typical	1.75	.715	3.026	.034
7	Standoff	HSS4X4X6	Beam	SquareT...	A500 Gr.B R...	Typical	4.78	10.3	10.3	17.5
8	Rail Connector	L6.6x4.46x0.25	Beam	Single An...	A36 Gr.36	Typical	2.703	4.759	12.473	.055
9	Railing	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
10	OVP Pipe	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																				
2	1.2D+1.6(WLX+WLZ) - 0 Deg	Yes	Y		1	1.2	2	1.6																		
3	1.2D+1.6(WLX+WLZ) - 30 Deg	Yes	Y		1	1.2	2	1.3...	3	.8																
4	1.2D+1.6(WLX+WLZ) - 60 Deg	Yes	Y		1	1.2	2	.8	3	1.3...																
5	1.2D+1.6(WLX+WLZ) - 90 Deg	Yes	Y		1	1.2	2		3	1.6																
6	1.2D+1.6(WLX+WLZ) - 120 Deg	Yes	Y		1	1.2	2	-.8	3	1.3...																
7	1.2D+1.6(WLX+WLZ) - 150 Deg	Yes	Y		1	1.2	2	-1....	3	.8																
8	1.2D+1.6(WLX+WLZ) - 180 Deg	Yes	Y		1	1.2	2	-1.6	3																	
9	1.2D+1.6(WLX+WLZ) - 210 Deg	Yes	Y		1	1.2	2	-1....	3	-.8																
10	1.2D+1.6(WLX+WLZ) - 240 Deg	Yes	Y		1	1.2	2	-.8	3	-1....																
11	1.2D+1.6(WLX+WLZ) - 270 Deg	Yes	Y		1	1.2	2		3	-1.6																
12	1.2D+1.6(WLX+WLZ) - 300 Deg	Yes	Y		1	1.2	2	.8	3	-1....																
13	1.2D+1.6(WLX+WLZ) - 330 Deg	Yes	Y		1	1.2	2	1.3...	3	-.8																
14	**Wind Load with Ice**																									
15	1.2D+1.0Di+1.0WLXi	Yes	Y		1	1.2	4	1	5	1																
16	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	1	6															
17	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.87	6	.5														
18	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.5	6	.87														
19	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5		6	1														
20	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.5	6	.87														
21	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.87	6	.5														
22	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-1	6															
23	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.87	6	-.5														
24	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	-.5	6	-.87														
25	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5		6	-1														
26	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.5	6	-.87														
27	1.2D+1.0Di+1.0(WLXi+WLZi) - ...	Yes	Y		1	1.2	4	1	5	.87	6	-.5														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N10	max	1092.953	13	2392.15	23	1665.113	6	.513	2	1.889	12	4.599	23
2		min	-1091.363	7	148.352	3	-1659.098	12	-2.432	22	-1.874	6	-.58	3
3	N53	max	948.283	3	2159.461	27	1537.85	4	.518	8	1.778	4	.605	7
4		min	-955.207	9	52.041	7	-1543.194	10	-2.361	15	-1.774	10	-4.122	27
5	N70	max	1765.468	2	2295.057	19	497.802	5	5.112	19	1.709	8	.638	2
6		min	-1760.188	8	93.775	11	-504.711	11	-.644	11	-1.693	2	-.759	8
7	Totals:	max	3465.888	2	6141.981	25	3592.649	5						
8		min	-3465.888	8	2689.501	4	-3592.65	11						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M22	C3.38x2.06x0.25	.312	2.75	18	.084	.286	z	10	47760.0...	56700	2.203	5.752	1...	H1-1b
2	M36	C3.38x2.06x0.25	.301	2.75	27	.080	.286	z	6	47760.0...	56700	2.203	5.752	1...	H1-1b
3	M23	C3.38x2.06x0.25	.300	0	19	.061	2.464	z	6	47760.0...	56700	2.203	5.752	1...	H1-1b
4	M7	C3.38x2.06x0.25	.295	0	23	.060	2.464	z	10	47760.0...	56700	2.203	5.752	1...	H1-1b
5	M8	C3.38x2.06x0.25	.295	2.75	23	.073	.286	z	2	47760.0...	56700	2.203	5.752	1...	H1-1b
6	M37	C3.38x2.06x0.25	.284	0	27	.053	2.464	z	13	47760.0...	56700	2.203	5.752	1...	H1-1b
7	M6	HSS4X4X6	.247	3.417	24	.078	2.634	z	12	187775....	197892	22.046	22.046	2...	H1-1b
8	M19	PL6.5x0.375	.243	1.5	4	.138	3	y	10	4979.135	78975	.617	8.855	1...	H1-1b
9	M21	HSS4X4X6	.241	3.417	20	.074	3.417	z	8	187775....	197892	22.046	22.046	2...	H1-1b
10	M4	PL6.5x0.375	.235	1.5	10	.123	0	y	2	4979.135	78975	.617	9.101	1...	H1-1b
11	M33	PL6.5x0.375	.231	1.5	12	.131	3	y	6	4979.135	78975	.617	8.985	1...	H1-1b
12	M35	HSS4X4X6	.225	3.417	26	.073	3.417	z	10	187775....	197892	22.046	22.046	2...	H1-1b
13	M75	PIPE_2.5	.211	5.667	8	.126	4		8	30038.4...	50715	3.596	3.596	3...	H1-1b
14	M93	PIPE_2.5	.209	5.667	4	.129	4		4	30038.4...	50715	3.596	3.596	2...	H1-1b
15	M105	PIPE_2.5	.203	5.667	12	.126	4		12	30038.4...	50715	3.596	3.596	2...	H1-1b
16	M87	PIPE_2.5	.203	5.667	4	.060	5.667		2	30038.4...	50715	3.596	3.596	3...	H1-1b
17	M72	PIPE_2.5	.202	5.667	2	.060	5.667		4	30038.4...	50715	3.596	3.596	4	H1-1b
18	M69	PIPE_2.5	.200	5.667	8	.062	5.667		6	30038.4...	50715	3.596	3.596	4...	H1-1b
19	M99	PIPE_2.5	.199	5.667	12	.061	5.667		10	30038.4...	50715	3.596	3.596	2...	H1-1b
20	M62	L6.6x4.46x0.25	.171	3.06	2	.028	3.06	y	12	51620.6...	87561	2.465	7.125	1...	H2-1
21	M46	PIPE_2.5	.169	7.917	8	.097	2.083		13	22373.4...	50715	3.596	3.596	1...	H1-1b
22	M47	PIPE_2.5	.168	2.083	10	.096	7.917		5	22373.4...	50715	3.596	3.596	1...	H1-1b
23	M16	Pipe3.5x0.165	.168	5.333	4	.111	5.25		10	38821.8...	54463.5	4.822	4.822	1...	H1-1b
24	M48	PIPE_2.5	.166	2.083	6	.095	2.083		5	22373.4...	50715	3.596	3.596	1...	H1-1b
25	M45	Pipe3.5x0.165	.164	5.333	6	.110	2.75		6	38821.8...	54463.5	4.822	4.822	1...	H1-1b
26	M61	L6.6x4.46x0.25	.163	0	8	.025	0	y	4	51620.6...	87561	2.465	7.125	1...	H2-1
27	M63	L6.6x4.46x0.25	.156	3.06	10	.026	0	y	8	51620.6...	87561	2.465	7.125	1...	H2-1
28	M1	Pipe3.5x0.165	.149	2.667	8	.098	2.75		2	38821.8...	54463.5	4.822	4.822	1...	H1-1b
29	M85	PIPE_2.5	.125	5.667	10	.049	5.667		12	30038.4...	50715	3.596	3.596	2...	H1-1b
30	M90	PIPE_2.5	.125	5.667	10	.049	5.667		12	30038.4...	50715	3.596	3.596	2...	H1-1b
31	M98	PIPE_2.5	.123	5.667	6	.047	5.667		8	30038.4...	50715	3.596	3.596	3...	H1-1b
32	M102	PIPE_2.5	.123	5.667	6	.047	5.667		8	30038.4...	50715	3.596	3.596	3...	H1-1b
33	M29	L2x2x4	.102	0	12	.022	0	z	16	22280.3...	30585.6	.691	1.577	1...	H2-1
34	M15	L2x2x4	.100	0	4	.022	0	z	19	22280.3...	30585.6	.691	1.577	1...	H2-1
35	M43	L2x2x4	.088	0	8	.022	0	z	24	22280.3...	30585.6	.691	1.577	1...	H2-1
36	M30	L2x2x4	.072	0	4	.025	2.502	y	23	22280.3...	30585.6	.691	1.577	2.3	H2-1
37	M44	L2x2x4	.069	0	12	.023	2.502	y	19	22280.3...	30585.6	.691	1.577	2...	H2-1
38	M14	L2x2x4	.061	0	8	.024	2.502	y	27	22280.3...	30585.6	.691	1.577	2...	H2-1
39	M5	Plate 6x.37	.058	.164	5	.267	0	y	10	67974.7...	71928	.554	8.991	2...	H1-1b
40	M18	Plate 6x.37	.056	.128	13	.264	.292	y	6	67974.7...	71928	.554	8.991	2...	H1-1b
41	M34	Plate 6x.37	.056	.164	5	.209	0	y	12	67974.7...	71928	.554	8.991	1...	H1-1b
42	M20	Plate 6x.37	.055	.164	9	.212	0	y	4	67974.7...	71928	.554	8.991	1...	H1-1b
43	M32	Plate 6x.37	.050	.128	9	.236	.292	y	2	67974.7...	71928	.554	8.991	2...	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code ...	Loc[ft]	LC	Shear ..	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
44	M3	Plate 6x.37	.050	.128	13	.213	.292	y	8	67974.7..	71928	.554	8.991	1..	H1-1b
45	M65	PIPE_2.5	.042	.5	6	.014	.5		9	47114.0..	50715	3.596	3.596	1..	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10710.NJJER01084B
Calculated By: JJ Date : 2/3/22
Checked By: IM Date : 2/3/22

Connection Details		
Bolt Details		
Bolt Quantity =	[redacted]	
Bolt Diameter =	[redacted]	in
Vertical Spacing =	[redacted]	in
Horizontal Spacing =	[redacted]	in
Bolt Grade =	[redacted]	
Bolt F_u, if "Other" =	[redacted]	ksi

Loading Details		
Node N70, LC20		
Shear, X =	[redacted]	k
Shear, Y =	[redacted]	k
Tension, Z =	[redacted]	k
Mx =	[redacted]	k-ft
My =	[redacted]	k-ft
Torsion, Mz =	[redacted]	k-ft

1 - Tensile Capacity

$$R_{nt} = F_{nt} A_b$$ AISC [Eqn. J3-1]

Φ =	0.75	
F_{nt} =	90	ksi
A_b =	0.307	in^2
$ΦR_{nt}$ =	20.72	k
T_{max} =	4.58	k

AISC [Table J3.2]

ΦRnt > Tmax [redacted] **OK**

2 - Shear Capacity

$$R_{nv} = F_{nv} A_b$$ AISC [Eqn. J3-1]

Φ =	0.75	
F_{nv} =	54	ksi
A_b =	0.307	in^2
$ΦR_{nv}$ =	12.43	k
V_{max} =	0.70	k

AISC [Table J3.2]

ΦRnv > Vmax [redacted] **OK**

3 - Combined Tension and Shear Capacity

$$R'_{nt} = F'_{nt} A_b$$ AISC [Eqn. J3-2]

$$F'_{nt} = 1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_{rv} \leq F_{nt}$$ AISC [Eqn. J3-3a]

Φ =	0.75	
F'_{nt} =	90	ksi
A_b =	0.307	in^2
$ΦR'_{nt}$ =	20.72	k
T_{max} =	4.58	k

ΦR'nt > Tmax [redacted] **OK**

Tectonic
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Job No. 10710.NJJER01084B
Calculated By: JJ Date : 2/3/22
Checked By: IM Date : 2/3/22

Connection Details		
Weld Details		
Weld Type		
# of Sides		
Electrodes		XX
Size of Weld =		in
HSS Height =		in
HSS Width =		in
HSS Thickness =		in
Plate Details		
Height/Width =		in
Thickness =		in
F_y =		ksi

4 - Weld Capacity

$$F_{nw} = 0.6F_{EXX}$$

AISC [Table J2.5]

Φ =	0.75	
ΦF_{nw} =	63.00	ksi
$f_{v,max}$ =	0.965	ksi
$f_{b,max}$ =	16.84	ksi

Min(ΦFnw,ΦFnbm) > √(fv,max+fm,max)

[redacted] **OK**

5 - Plate Capacity

Φ =	0.9	
ΦF_{byy} =	45.00	ksi
f_b =	13.30	ksi

ΦFbyy > Fb

[redacted] **OK**

Exhibit F

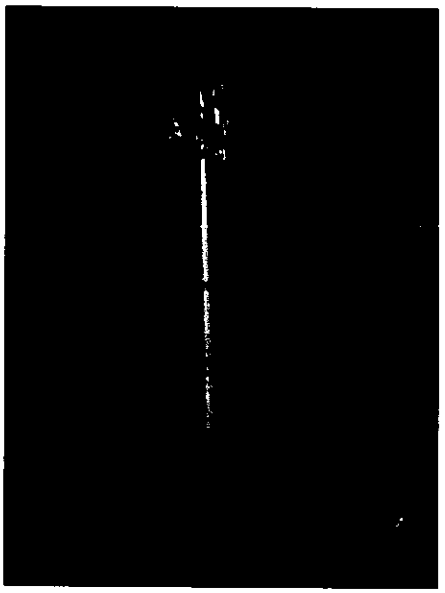
Emissions Report

Pinnacle Telecom Group

Professional and Technical Services

Telecom Consulting

Antenna Site FCC RF Compliance Assessment and Report for Municipal Submission



Prepared for:	Dish Wireless, LLC
Site ID:	NJJER01084B
Site Address:	158 Edison Road Trumbull, CT
Latitude:	N 41.234353
Longitude:	W 73.218761
Structure type:	Monopole
Report date:	February 15, 2022
Compliance Conclusion:	Dish Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

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Contents

Introduction and Summary

At the request of Dish Wireless, LLC ("Dish"), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing monopole located at 158 Edison Road in Trumbull, CT. Dish refers to the antenna site by the code "NJJER01084B", and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz, and 2100 MHz frequency bands licensed to it by the FCC.

The FCC requires all wireless antenna operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC's regulations. In this case, the compliance assessment needs to take into account the RF effects of other existing antenna operations at the site by T-Mobile, Verizon Wireless, Trumbull Center Fire District, Trumbull Police Department, Trumbull Regional Dispatch Center and the Town of Trumbull. Note that FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the cumulative effects of all then-proposed and then-existing antennas at the site.

This report describes a mathematical analysis of RF levels resulting around the site in areas of unrestricted public access, that is, at street level around the site. The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to overstate the RF levels and to ensure "safe-side" conclusions regarding compliance with the FCC limit for safe continuous exposure of the general public.

The results of a compliance assessment can be described in layman's terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the normalized reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure. On the other hand, calculated RF levels consistently below 100 percent serve as a clear and sufficient demonstration of

compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the "plain-English" equivalent "times-below-the-limit" factor.

The result of the RF compliance assessment in this case is as follows:

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations at the site is 7.8871 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, the worst-case calculated RF level – intentionally and significantly overstated by the calculations – is still more than 12 times below the FCC limit for safe, continuous exposure of the general public.
- A supplemental analysis of the RF levels at the same height as the Dish antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that two Caution signs be installed six feet below the antennas. In addition, NOC Information signs are to be installed at the base of the monopole.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

- relevant technical data on the proposed Dish antenna operations at the site, as well as on the other existing antenna operations;
- a description of the applicable FCC mathematical model for calculating RF levels, and application of the relevant technical data to that model;
- analysis of the results of the calculations against the FCC MPE limit, and the compliance conclusion for the site.

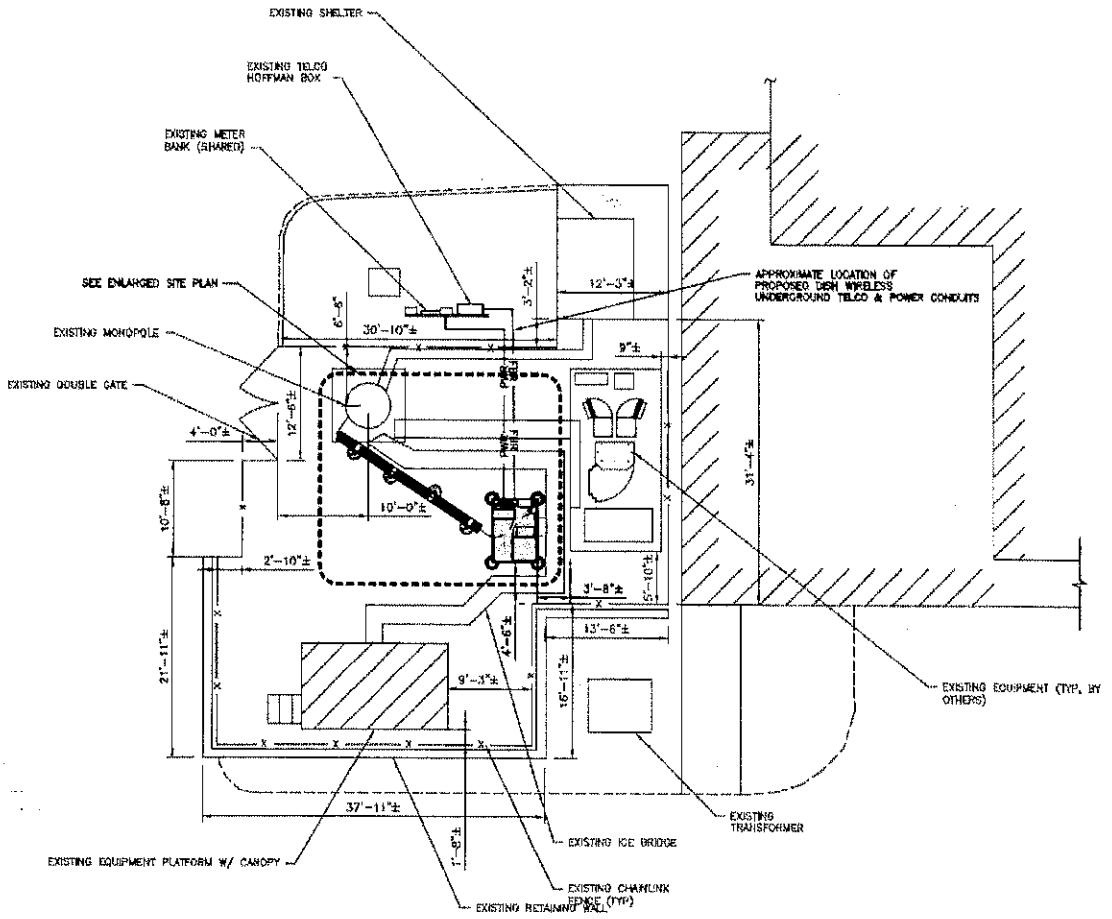
In addition, four Appendices are included. Appendix A provides information on the documents used to prepare the analysis. Appendix B provides background on the

FCC MPE limit. Appendix C details the proposed mitigation to satisfy the FCC requirements and associated guidelines on RF compliance. Appendix D provides a summary of the qualifications of the expert certifying FCC compliance for this site.

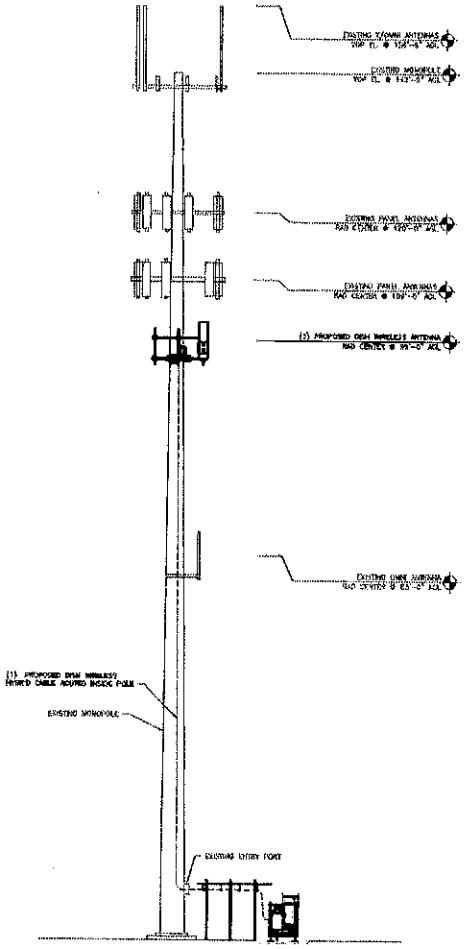
Antenna and Transmission Data

The plan and elevation views that follow, extracted from the site drawings, illustrate the mounting positions of the Dish antennas at the site.

Plan View:



Elevation View:



The table that follows summarizes the relevant data for the proposed Dish antenna operations. Note that the "Z" height references the centerline of the antenna.

Ant. ID	Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Ant. Dim. (ft.)	Total ERP (watts)	Z (ft)	Ant. Gain (dBd)	B/W	Azimuth	EDT	MDT
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	0	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	0	2	0
❶	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	0	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	100	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	100	2	0
❷	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	100	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	600	6	1637	99	11.46	68	250	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2000	6	6011	99	16.16	62	250	2	0
❸	Dish	JMA Wireless	MX08FRO665-21	Panel	2100	6	7567	99	16.66	64	250	2	0

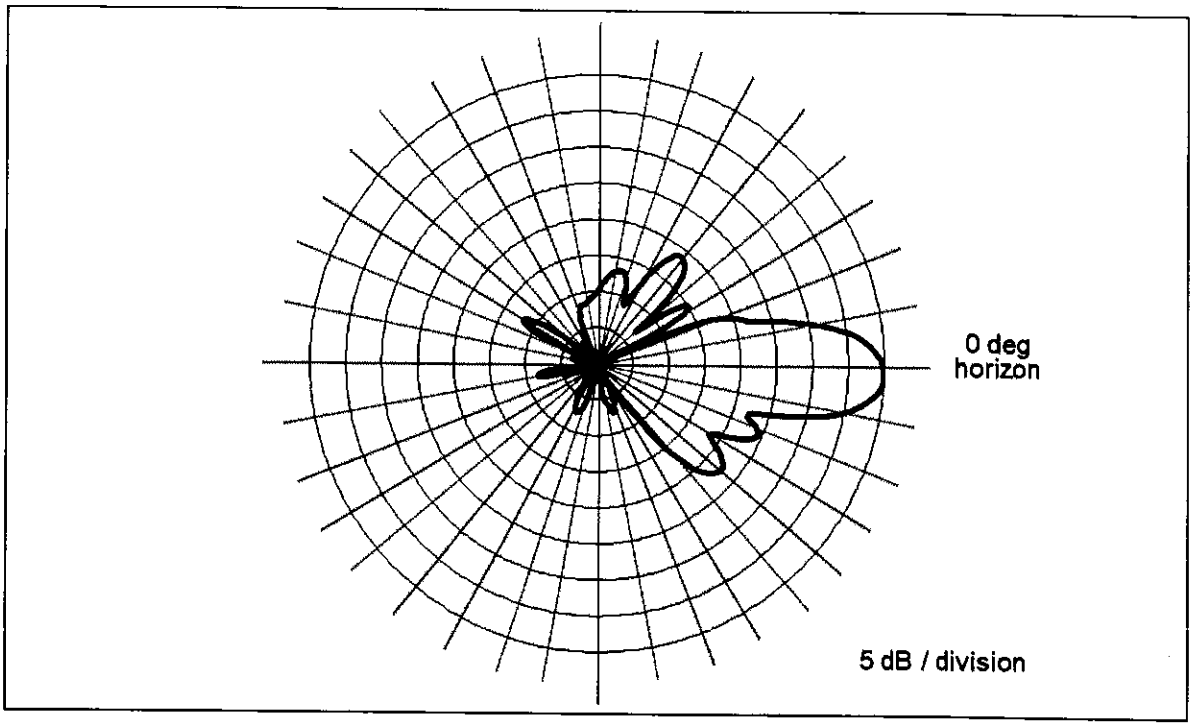
The area below the antennas, at street level, is of interest in terms of potential "uncontrolled" exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the "downward" direction.

By way of illustration, Figure 1 that follows shows the vertical-plane radiation pattern of the proposed antenna model in the 600 MHz frequency band. In this type of antenna radiation pattern diagram, the antenna is effectively pointed at the three o'clock position (the horizon) and the relative strength of the pattern at different angles is described using decibel units.

Note that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs in the main beam (at 0 degrees); at 30 dB, the energy is only 1/1000th of the maximum.

Finally, note that the automatic pattern-scaling feature of our internal software may skew side-by-side visual comparisons of different antenna models, or even different parties' depictions of the same antenna model.

Figure 1. JMA Wireless MX08FRO665-21 – 600 MHz Vertical-plane Pattern



As noted at the outset, there are existing antenna operations to include in the compliance assessment. For each of the wireless operators, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power per channel to be used by each wireless operator in each of their respective FCC-licensed frequency bands. For each of the other operators, we will rely on the transmission parameters in their respective FCC licenses.

The table that follows summarizes the relevant data for the collocated antenna operations.

Carrier	Antenna Manufacturer	Antenna Model	Type	Freq (MHz)	Total ERP (watts)	Z (AGL) (ft)	Ant. Gain (dBd)	Azimuth
T-Mobile	Generic	Generic	Panel	600	6716	140	12.96	N/A
T-Mobile	Generic	Generic	Panel	700	973	140	13.36	N/A
T-Mobile	Generic	Generic	Panel	1900	4123	140	15.36	N/A
T-Mobile	Generic	Generic	Panel	1900	1812	140	15.60	N/A
T-Mobile	Generic	Generic	Panel	2100	4626	140	15.86	N/A
T-Mobile	Generic	Generic	Panel	2100	1986	140	15.50	N/A
T-Mobile	Generic	Generic	Panel	2500	12804	140	22.35	N/A
Verizon Wireless	Generic	Generic	Panel	746	2400	109	11.76	N/A
Verizon Wireless	Generic	Generic	Panel	869	5166	109	12.36	N/A
Verizon Wireless	Generic	Generic	Panel	1900	5372	109	15.26	N/A
Verizon Wireless	Generic	Generic	Panel	2100	5625	109	15.46	N/A
Trumbull Center Fire District	Generic	Generic	Omnidirectional	154	100	24	0	N/A
Trumbull Police Department	Generic	Generic	Omnidirectional	4972	463	137	9	N/A
Trumbull Regional Dispatch Center	Generic	Generic	Omnidirectional	33	100	121	0	N/A
Trumbull Regional Dispatch Center	Generic	Generic	Omnidirectional	33	110	121	0	N/A
Town of Trumbull	Generic	Generic	Omnidirectional	155	70	98	0	N/A
Town of Trumbull	Generic	Generic	Omnidirectional	857	185	177	9	N/A
Town of Trumbull	Generic	Generic	Omnidirectional	153	35	80	0	N/A
Town of Trumbull	Generic	Generic	Omnidirectional	453	30	49	3	N/A
Town of Trumbull	Generic	Generic	Omnidirectional	461	150	144	3	N/A

Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas. Different models apply in different areas around antennas, with one model applying to street level around a site, and another applying to the area at the same height as the antennas. We will address each area of interest in turn in the subsections that follow.

Street Level Analysis

At street-level around an antenna site (in what is called the "far field" of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain in the downward direction of interest – and the levels are otherwise inversely proportional to the square of the straight-line distance to the antenna.

Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF energy from the intervening ground. Our calculations will assume a 100% "perfect", mirror-like reflection, which is the absolute worst-case scenario.

The formula for street-level compliance assessment for any given wireless antenna operation is as follows:

$$MPE\% = (100 * Chans * TxPower * 10^{(Gmax-Vdisc/10)} * 4) / (MPE * 4\pi * R^2)$$

where

MPE%	=	RF level, expressed as a percentage of the MPE limit applicable to continuous exposure of the general public
100	=	factor to convert the raw result to a percentage
Chans	=	maximum number of RF channels per sector
TxPower	=	maximum transmitter power per channel, in milliwatts

$10^{(Gmax-Vdlsc/10)}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest; data on the antenna vertical-plane pattern is taken from manufacturer specifications
4	=	factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density ($2^2 = 4$)
MPE	=	FCC general population MPE limit
R	=	straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended standing height) off the ground, as illustrated in Figure 2, below.

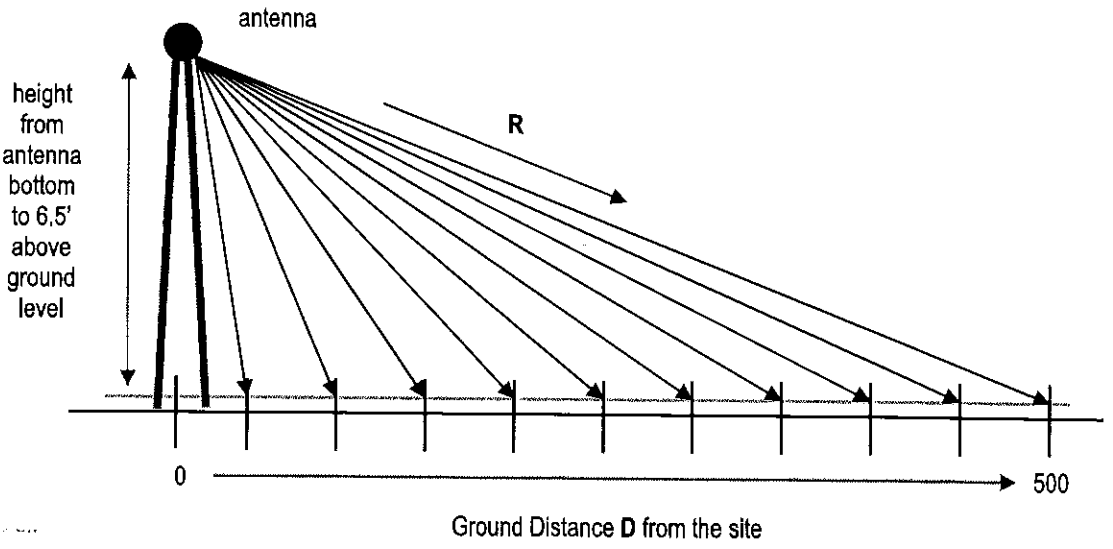


Figure 2. Street-level MPE% Calculation Geometry

It is popularly understood that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antenna.

Therefore, RF levels may actually increase slightly with increasing distance within

the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled and, as a result, the RF levels generally decrease with increasing distance. In any case, the RF levels more than 500 feet from a wireless antenna site are well understood to be sufficiently low to be comfortably in compliance.

According to the FCC, when directional antennas (such as panels) are used, compliance assessments are based on the RF effect of a single (facing) antenna sector, as the effects of directional antennas pointed away from the point(s) of interest are considered insignificant. If the different parameters apply in the different sectors, compliance is based on the worst-case parameters.

Street level FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each antenna operation (including each frequency band), and the sum of the individual MPE% contributions at each point is compared to 100 percent, the normalized reference for compliance with the MPE limit. We refer to the sum of the individual MPE% contributions as "total MPE%", and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represents non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The antennas are assumed to be operating continuously at maximum power and maximum channel capacity.
2. The power-attenuation effects of shadowing or other obstructions to the line-of-sight path from the antenna to the point of interest are ignored.
3. The calculations intentionally minimize the distance factor (R) by assuming a 6'6" human and performing the calculations from the bottom (rather than the centerline) of each operator's lowest-mounted antenna, as applicable.

4. The calculations also conservatively take into account, when applicable, the different technical characteristics and related RF effects of the use of multiple antennas for transmission in the same frequency band.
5. The RF exposure at ground level is assumed to be 100-percent enhanced (increased) via a "perfect" field reflection from the intervening ground.

The net result of these assumptions is to intentionally and significantly overstate the calculated RF levels relative to the levels that will actually result from the antenna operations – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

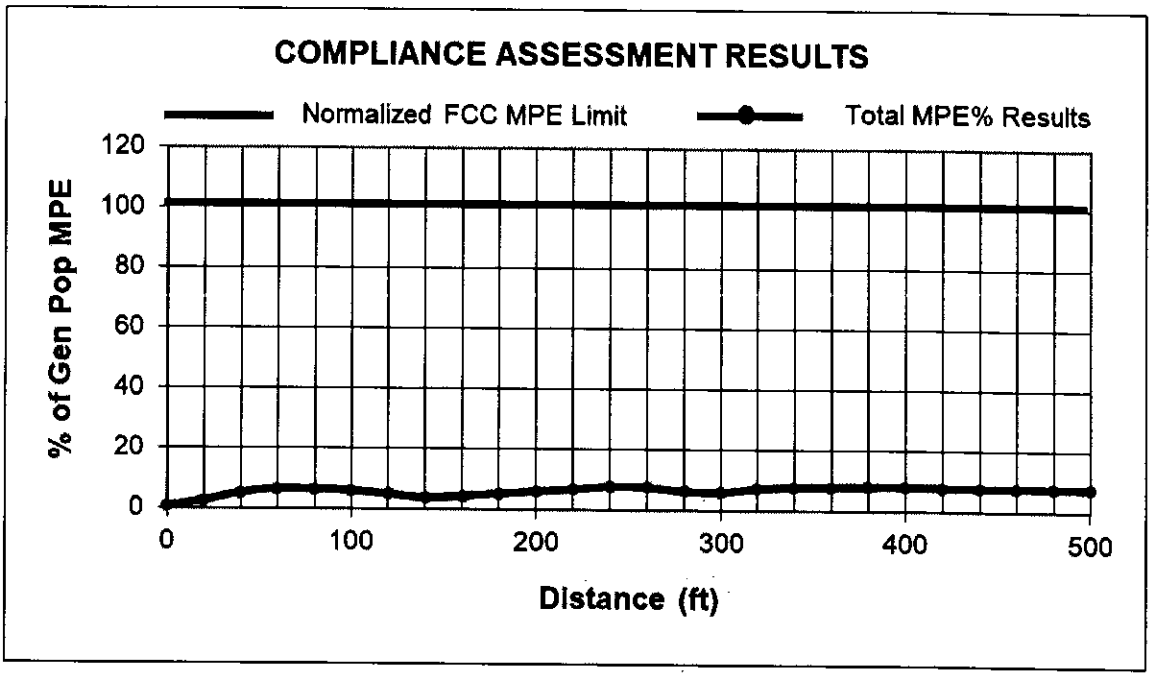
The tables that follow provide the results of the MPE% calculations for each antenna operation, with the overall worst-case calculated result highlighted in bold in the last column of the last table.

Ground Distance (ft)	Dish 600 MHz MPE%	Dish 2000 MHz MPE%	Dish 2100 MHz MPE%	T-Mobile MPE%	Verizon Wireless MPE%	Trumbull Cntr. Fire Dist. MPE%	Subtotal MPE%
0	0.0018	0.0023	0.0000	0.2348	0.4412	0.0026	0.6827
20	0.0083	0.0150	0.0086	0.3397	0.6126	0.9006	1.8848
40	0.0074	0.0233	0.0067	0.5129	1.1750	2.0313	3.7566
60	0.0046	0.0104	0.0359	0.8092	1.4321	2.2553	4.5475
80	0.1083	0.0066	0.2577	0.6561	1.2402	1.9748	4.2437
100	0.2228	0.2261	0.6372	0.4093	0.8539	1.5683	3.9176
120	0.1297	0.4890	0.3306	0.3047	0.4921	1.2475	2.9936
140	0.0565	0.0181	0.0165	0.3906	0.7088	0.9941	2.1846
160	0.0736	0.0086	0.0211	0.5541	1.4236	0.7920	2.8730
180	0.1194	0.1328	0.0482	0.7422	2.1171	0.6586	3.8183
200	0.1236	0.0974	0.0674	1.0777	2.9285	0.5446	4.8392
220	0.1005	0.0041	0.0138	1.5993	3.4331	0.4572	5.6080
240	0.0655	0.0541	0.0566	1.9014	4.2622	0.3888	6.7286
260	0.0484	0.0514	0.0399	2.1589	3.9361	0.3344	6.5691
280	0.0558	0.0341	0.0210	1.9972	3.0130	0.2973	5.4184
300	0.0780	0.0406	0.0362	1.5113	3.1958	0.2606	5.1225
320	0.1176	0.0558	0.0671	1.8305	4.2584	0.2302	6.5596
340	0.1704	0.0499	0.0704	2.2272	4.2700	0.2048	6.9927
360	0.2370	0.0214	0.0381	2.4721	4.3102	0.1833	7.2621
380	0.2140	0.0194	0.0344	2.5083	4.4318	0.1650	7.3729
400	0.2806	0.0011	0.0051	2.4594	4.6013	0.1528	7.5003
420	0.2556	0.0010	0.0046	2.3888	4.5474	0.1389	7.3363
440	0.3303	0.0047	0.0024	2.3143	4.4665	0.1268	7.2450
460	0.3032	0.0043	0.0022	2.1237	4.6739	0.1162	7.2235
480	0.3682	0.0127	0.0136	2.0862	4.5993	0.1069	7.1869
500	0.3402	0.0117	0.0125	2.0599	4.5570	0.0986	7.0799

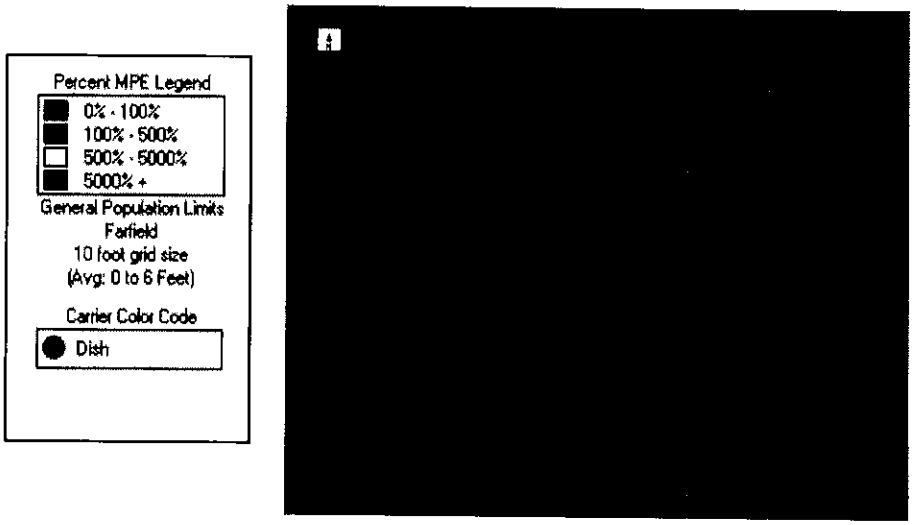
Ground Distance (ft)	Subtotal MPE%	Trumbull PD MPE%	Trumbull Regional Dispatch Ctr. MPE%	Town of Trumbull MPE%	Total MPE%
0	0.6827	0.0045	0.0008	0.0028	0.6908
20	1.8848	0.0472	0.0971	0.4980	2.5271
40	3.7566	0.0335	0.3238	0.9802	5.0941
60	4.5475	0.0289	0.5071	1.3546	6.4381
80	4.2437	0.0097	0.6279	1.4250	6.3063
100	3.9176	0.0291	0.6830	1.3235	5.9532
120	2.9936	0.0026	0.6588	1.1541	4.8091
140	2.1846	0.0036	0.6076	0.9804	3.7762
160	2.8730	0.0075	0.5377	0.8451	4.2633
180	3.8183	0.0089	0.4790	0.7266	5.0328
200	4.8392	0.0020	0.4200	0.6335	5.8947
220	5.6080	0.0064	0.3711	0.5513	6.5368
240	6.7286	0.0070	0.3229	0.4935	7.5520
260	6.5691	0.0024	0.2895	0.4474	7.3084
280	5.4184	0.0000	0.2553	0.4006	6.0743
300	5.1225	0.0002	0.2266	0.3669	5.7162
320	6.5596	0.0006	0.2070	0.3359	7.1031
340	6.9927	0.0010	0.1858	0.3062	7.4857
360	7.2621	0.0009	0.1675	0.2917	7.7222
380	7.3729	0.0006	0.1518	0.2708	7.7961
400	**7.5003**	**0.0005**	**0.1381**	**0.2482**	**7.8871**
420	7.3363	0.0002	0.1262	0.2338	7.6965
440	7.2450	0.0000	0.1157	0.2195	7.5802
460	7.2235	0.0006	0.1064	0.2073	7.5378
480	7.1869	0.0005	0.0982	0.1920	7.4776
500	7.0799	0.0017	0.0930	0.1828	7.3574

As indicated, the maximum calculated overall RF level is 7.8871 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

A graph of the overall calculation results, shown below, perhaps provides a clearer *visual* illustration of the relative compliance of the calculated RF levels. The line representing the overall calculation results barely visibly rises above the graph's baseline, and shows an obviously clear, consistent margin to the FCC MPE limit.



The graphic output for the areas at street level surrounding the site is reproduced on the next page.

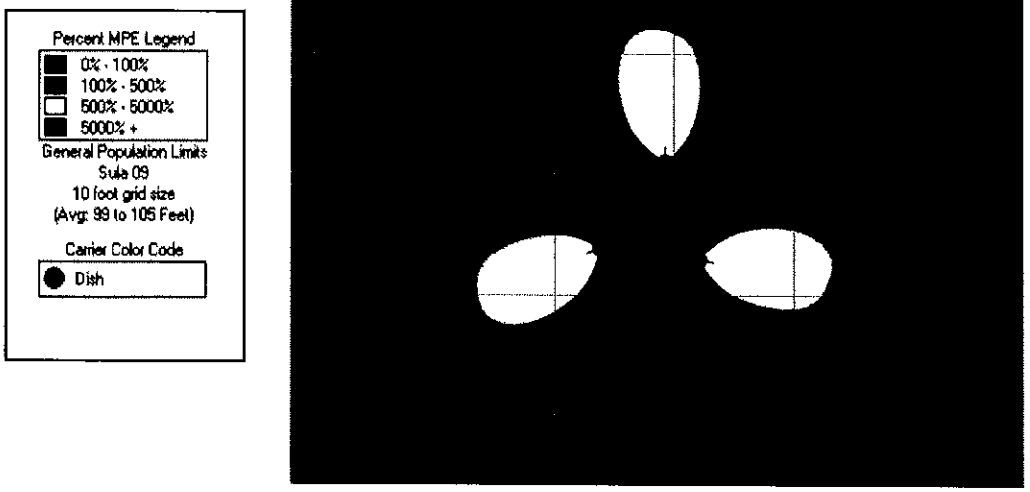


Near-field Analysis

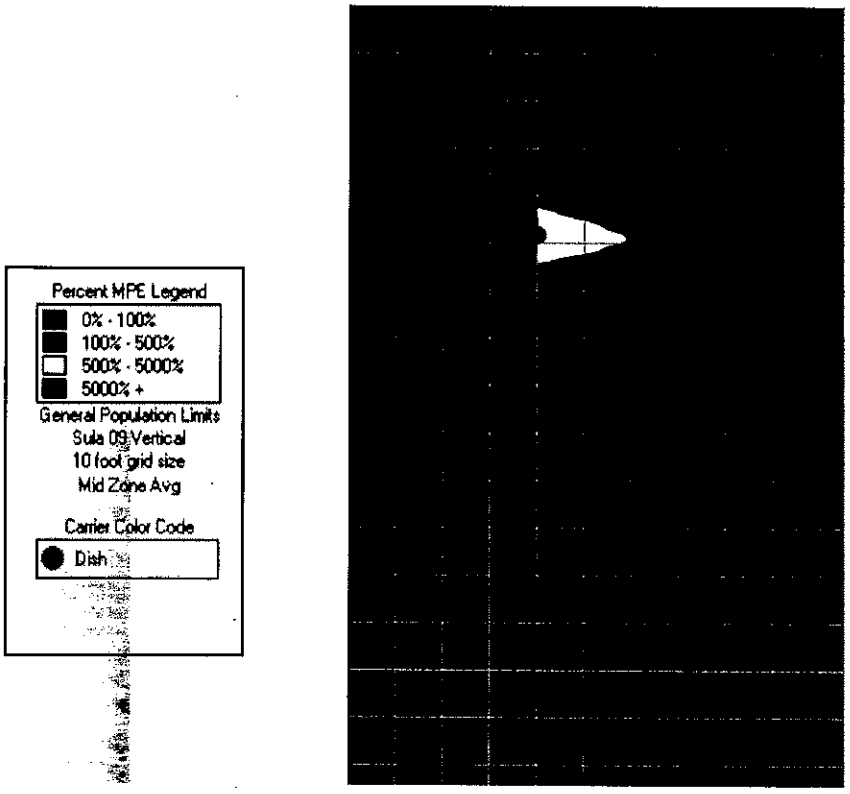
The compliance analysis for the same height as the antennas is performed using the RoofMaster program by Waterford Consultants.

RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby standing level, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than they are to the sides or rear, and in any given horizontal direction are inversely proportional to the straight-line distance to the antenna.

The RoofMaster graphic outputs for the same height as the Dish antennas are reproduced on the next page.



RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors



RoofMaster – Same Height as the Antennas – Alpha / Beta / Gamma sectors

Compliance Conclusion

According to the FCC, the MPE limit has been constructed in such a manner that continuous human exposure to RF fields up to and including 100 percent of the MPE limit is acceptable and safe.

The conservative analysis in this case shows that the maximum calculated RF level from the proposed modifications to the existing antenna operations at the site is 7.8871 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per Dish guidelines, and consistent with FCC guidance on compliance, it is recommended that two Caution signs be six feet below the antennas. In addition, NOC Information signs be installed at the base of the monopole.

The results of the calculations, along with the described RF mitigation, combine to satisfy the FCC's RF compliance requirements and associated guidelines on compliance.

Moreover, because of the extremely conservative calculation methodology and operational assumptions we applied in the analysis, RF levels actually caused by the antennas will be significantly lower than the calculation results here indicate.

Certification

It is the policy of Pinnacle Telecom Group that all FCC RF compliance assessments are reviewed, approved, and signed by the firm's Chief Technical Officer who certifies as follows:

1. I have read and fully understand the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. To the best of my knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna operations will be in compliance with the FCC regulations concerning the control of potential human exposure to the RF emissions from antennas.

Daniel J. Collins
Chief Technical Officer
Pinnacle Telecom Group, LLC

2/15/22
Date

Appendix A. Documents Used to Prepare the Analysis

RFDS: RFDS-NJJER01084B-Preliminary-20210806-v.1_20210806133817

CD: NJJER01084B_ZD_20210810121245

Appendix B. Background on the FCC MPE Limit

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

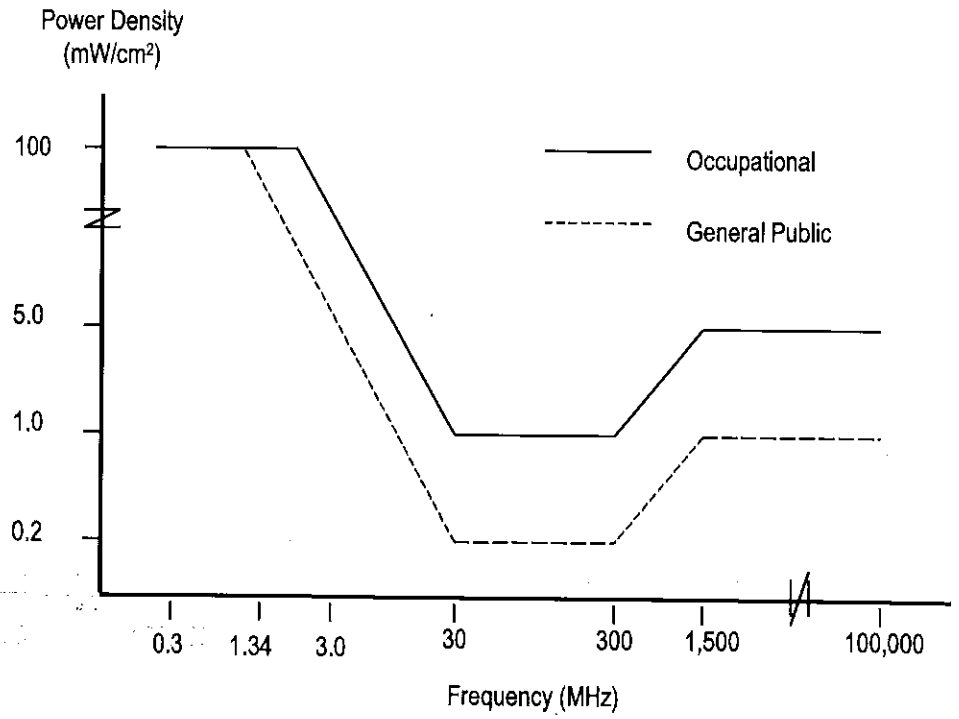
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm^2). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm^2 reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm^2)	General Public Exposure (mW/cm^2)
0.3 - 1.34	100	100
1.34 - 3.0	100	$180 / F^2$
3.0 - 30	$900 / F^2$	$180 / F^2$
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Note that the FCC "categorically excludes" all "non-building-mounted" wireless antenna operations whose mounting heights are more than 10 meters (32.8 feet) from the routine requirement to demonstrate compliance with the MPE limit, because such operations "are deemed, individually and cumulatively, to have no significant effect on the human environment". The categorical exclusion also applies to *all* point-to-point antenna operations, regardless of the type of structure they're mounted on. Note that the FCC considers any facility qualifying for the categorical exclusion to be automatically in compliance.

In addition, FCC Rules and Regulations Section 1.1307(b)(3) describes a provision known in the industry as "the 5% rule". It describes that when a specific location – like a spot on a rooftop – is subject to an overall exposure level exceeding the applicable MPE limit, operators with antennas whose MPE% contributions at the point of interest are less than 5% are exempted from the obligation otherwise shared by all operators to bring the site into compliance, and those antennas are automatically deemed by the FCC to satisfy the rooftop compliance requirement.

FCC References on RF Compliance

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

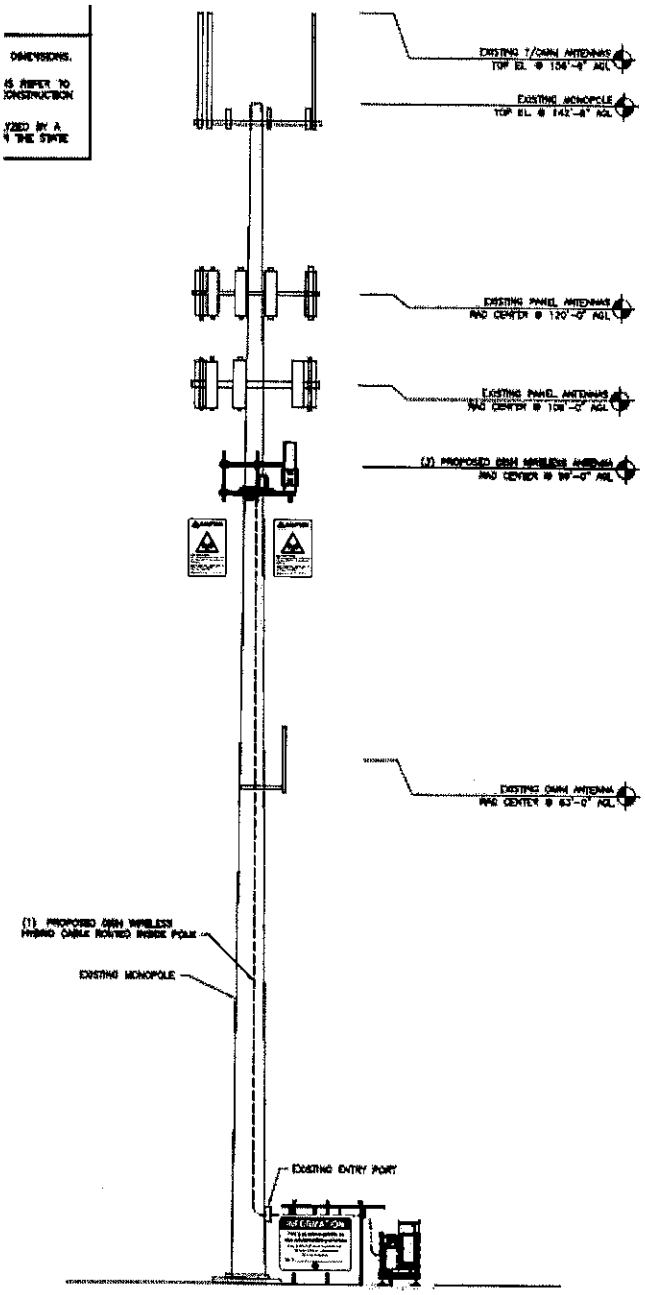
FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

FCC Report and Order, Notice of Proposed Rulemaking, Memorandum Opinion and Order (FCC 19-126), *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies,* released December 4, 2019.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", edition 4, August 1999.

Appendix C. Proposed Signage



NOC Information Sign		Caution Sign	
Guidelines Sign		Warning Sign	
Notice Sign			

Appendix D. Summary of Expert Qualifications

Daniel J. Collins, Chief Technical Officer, Pinnacle Telecom Group, LLC

Synopsis:	• 40+ years of experience in all aspects of wireless system engineering, related regulation, and RF exposure • Has performed or led RF exposure compliance assessments on more than 20,000 antenna sites since the latest FCC regulations went into effect in 1997 • Has provided testimony as an RF compliance expert more than 1,500 times since 1997 • Have been accepted as an FCC compliance expert in Connecticut, New York, New Jersey, Pennsylvania and more than 40 other states, as well as by the FCC
Education:	• B.E.E., City College of New York (Sch. Of Eng.), 1971 • M.B.A., 1982, Fairleigh Dickinson University, 1982 • Bronx High School of Science, 1966
Current Responsibilities:	• Leads all PTG staff work involving RF safety and FCC compliance, microwave and satellite system engineering, and consulting on wireless technology and regulation
Prior Experience:	• Edwards & Kelcey, VP – RF Engineering and Chief Information Technology Officer, 1996-99 • Bellcore (a Bell Labs offshoot after AT&T's 1984 divestiture), Executive Director – Regulation and Public Policy, 1983-96 • AT&T (Corp. HQ), Division Manager – RF Engineering, and Director – Radio Spectrum Management, 1977-83 • AT&T Long Lines, Group Supervisor – Microwave Radio System Design, 1972-77
Specific RF Safety / Compliance Experience:	• Involved in RF exposure matters since 1972 • Have had lead corporate responsibility for RF safety and compliance at AT&T, Bellcore, Edwards & Kelcey, and PTG • While at AT&T, helped develop the mathematical models for calculating RF exposure levels • Have been relied on for compliance by all major wireless carriers, as well as by the federal government, several state and local governments, equipment manufacturers, system integrators, and other consulting / engineering firms
Other Background:	• Author, *Microwave System Engineering* (AT&T, 1974) • Co-author and executive editor, *A Guide to New Technologies and Services* (Bellcore, 1993) • National Spectrum Management Association (NSMA) – former three-term President and Chairman of the Board of Directors; was founding member, twice-elected Vice President, long-time member of the Board, and was named an NSMA Fellow in 1991 • Have published more than 35 articles in industry magazines

Exhibit G

Lease Agreement

Other License Site Schedule

This New License Site Schedule (this "***New License***") is executed and delivered pursuant to that certain Strategic Collocation Agreement between Licensor and Licensee, each as identified below, with an Effective Date of March 12, 2021. All terms and conditions of the Strategic Collocation Agreement are incorporated herein by reference and made a part hereof for all purposes.

The following space shall be licensed on the terms indicated below:

1. **Licensee's Name**: DISH Wireless L.L.C., a Colorado limited liability company

   Notice Address: 9601 South Meridian Blvd.
   Englewood, Colorado 80112
   Attn: Tower Lease Team

   Contact Name: Network Operations Center
   Contact Number: (866) 624-6874
   E-mail: NA

2. **Licensor Information:**

   Notice Address: ATC Green Grass LLC, a Delaware limited liability company
   10 Presidential Way
   Woburn, MA 01801
   Attn: Contracts Manager

   Contact Name: Contracts Manager
   Contact Number: (781) 926-4500
   Fax Number: (781) 926-4555

   Remittance Address: American Tower Corporation
   29637 Network Place
   Chicago, IL 60673-1296

3. **Tower Information:**

   Licensor's Tower Name: Trumbull CT
   Licensor's Tower Number: 210746
   Coordinates: Lat: 41° 14' 3.516" N Long: 73° 13' 7.765" W
   Licensee's Tower Name: NJJER01084B
   Licensee's Tower Number: NJJER01084B

4. **License Commencement Date, License Fee and other Fees:**

   License Commencement Date: the earlier to occur of (i) Licensor's issuance of a Notice to Proceed; or (ii) the date that is sixty (60) days from the full execution date of this New License.

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Monthly License Fee:

- The Parties acknowledge that this New License is an Other License. During the Term, the Monthly License Fee for the Initial Equipment Allowance (as defined in the Strategic Collocation Agreement) [redacted] in accordance with Section 5(h) of the Strategic Collocation Agreement.

Electricity for operation of Approved Equipment is to be provided by (check one):

☐ Licensor, with the cost of such electricity to be paid by Licensee at the initial rate of $_____ and 00/100 Dollars ($_____.00) per month ("**Utility Fee**") subject to adjustment pursuant to Subsection 5(b) of the Terms and Conditions of Each New License; OR

[redacted]

BLM/USFS Fees applicable (check one) ____Yes __X__ No

Refer to Section 2(b) of the Strategic Collocation Agreement for the initial term of this New License and Section 3(b) of the Strategic Collocation Agreement for the Renewal Term of this New License. Refer to Section 5(b) and 5(f) of the Strategic Collocation Agreement for the Annual Escalator to the Monthly License Fee.

5. **Licensee Approved Equipment Information:**
Licensee's Approved Equipment (and its location at the Tower Facility), along with its Permitted Frequencies, are as set forth in Exhibit A, which is incorporated herein by reference and made a part hereof.

Site Drawings are to be attached as Exhibit B which is incorporated herein by reference and made a part hereof.

6. **Other Provisions:** The following provisions are applicable to the Tower Facility:

☐ Structural analysis contingency.
☐ Pre/Post AM Study.
☐ A Capital Contribution Fee in the amount N/A.
☐ Expanded Initial Equipment Allowance.
☐ Other Monetary Payment in the amount of N/A.
[redacted]
☐ Additional Costs in the amount of N/A.
☐ WAIVER OF TEXAS DECEPTIVE TRADE PRACTICES ACT.
☐ Interference with Licensor's lighting system.
☐ Rider for AirTouch/Sequoia Subleased Sites.
☐ Additional provisions that may be negotiated by the Parties for a site, as necessary:

7. **Representation & Warranty:**
Licensor covenants, warrants and represents to Licensee that, as of the New License Effective Date, Licensor, or one of its Affiliates, has a property interest in the applicable Tower Facility (as defined

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in Appendix I to Appendix B to the Strategic Collocation Agreement) as necessary to grant Licensee the rights set forth in this New License.

[SIGNATURES ARE ON THE NEXT PAGE]

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Agreed to and Accepted by:

LICENSEE:
DISH Wireless L.L.C., a Colorado limited liability company

By: DocuSigned by: Mike Fox FC0472392498468...

Name: Mike Fox

Title: Market General Manager NY/NJ

Date: January 20, 2022

Agreed to and Accepted by:

LICENSOR:
ATC Green Grass LLC, a Delaware limited liability company

By: DocuSigned by: Margaret A Robinson FA490C47D3D8450...

Name: Margaret A Robinson

Title: .Sr Counsel US Tower.

Date: January 20, 2022

This New License is not effective until completed and executed by both Parties. The New License may be rescinded by either Party prior to such date.

Emilio Mignanelli

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EXHIBIT A (to New License Site Schedule)

List of Permitted Equipment

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Exhibit A

Customer Name:	ATC Asset Name:	ATC Asset #:
DISH WIRELESS L.L.C.	Trumbull CT	210746
	Customer Site Name:	**Customer Site #:**
	NJJER01084B	NJJER01084B

GROUND SPACE REQUIREMENTS

Total Lease Area Sq. Ft: 35.00'	**Primary Contiguous Lease Area**	L:5.00'	W:7.00'	H:	Sq. Ft: 35.00
	Concrete Pad	5.00'	7.00'	N/A	35.00
	Outside Primary Lease Area	N/A	N/A	N/A	Sq. Ft: N/A

BACKUP POWER REQUIREMENTS

Generator: N/A **Capacity(KW):** N/A **Fuel Tank Size(gal):** N/A **Fuel Type:** N/A **Fuel Tank Setback(radius):** N/A

UTILITY REQUIREMENTS

Power Provided By: Utility Company Direct

Telco/Interconnect: Fiber Optics

TRANSMITTER & RECEIVER SPECIFICATIONS

Type: TX **Quantity:** 3 **TX Power(watts):** 40000 **ERP(watts):** 40000

EQUIPMENT SPECIFICATIONS

Type	PANEL	BOB/SSB	RRU/RRH	RRU/RRH	N/A	N/A
Manufacturer	JMA Wireless	Raycap	Fujitsu	Fujitsu	N/A	N/A
Model #	MX08FRO665-21	RDIDC-9181-PF-48	TA08025-B605	TA08025-B604	N/A	N/A
Dimensions HxWxD	72" x 20" x 8"	16" x 14" x 8"	15.7" x 15" x 9.1"	15.7" x 15" x 7.9"	N/A	N/A
Weight(lbs.)	64.5	21.9	75.0	63.9	N/A	N/A
Location	Tower	Tower	Tower	Tower	N/A	N/A
RAD Center AGL	99.0'	99.0'	99.0'	99.0'	N/A	N/A
Equipment Tip Height	102.0'	99.7'	99.7'	99.7'	N/A	N/A
Equipment Base Height	96.0'	98.3'	98.3'	98.3'	N/A	N/A
Mount Type	Triangular Platform with Handrails	Triangular Platform with Handrails	Triangular Platform with Handrails	Triangular Platform with Handrails	N/A	N/A
Quantity	3	1	3	3	N/A	N/A
Azimuths/Dir. of Radiation	0/120/240	0/120/240	0/120/240	0/120/240	N/A	N/A
Quant. Per Azimuth/Sector	1/1/1	1/0/0	1/1/1	1/1/1	N/A	N/A
TX/RX Frequency Units	MHz	MHz	MHz	MHz	N/A	N/A
TX Frequency	632-652,1995-2020,2155-2165,2180-2200	N/A	N/A	N/A	N/A	N/A
RX Frequency	678-698,1695-1710,1755-1765	N/A	N/A	N/A	N/A	N/A
Using Unlicensed Frequencies?	No	No	No	No	N/A	N/A
Equipment Gain	13.6/14.8/18.3/18.5/18.8	tbd	N/A	N/A	N/A	N/A
Total # of Lines	0	1	0	0	N/A	N/A
Line Quant. Per Azimuth/Sector	N/A	1/0/0	N/A	N/A	N/A	N/A
Line Type	N/A	Fiber/Hybrid	N/A	N/A	N/A	N/A
Line Diameter Size	N/A	1.63" (41.3mm) Hybrid	N/A	N/A	N/A	N/A
Line Configuration	N/A	N/A	N/A	N/A	N/A	N/A

EXHIBIT B (to New License Site Schedule)

Site Drawing

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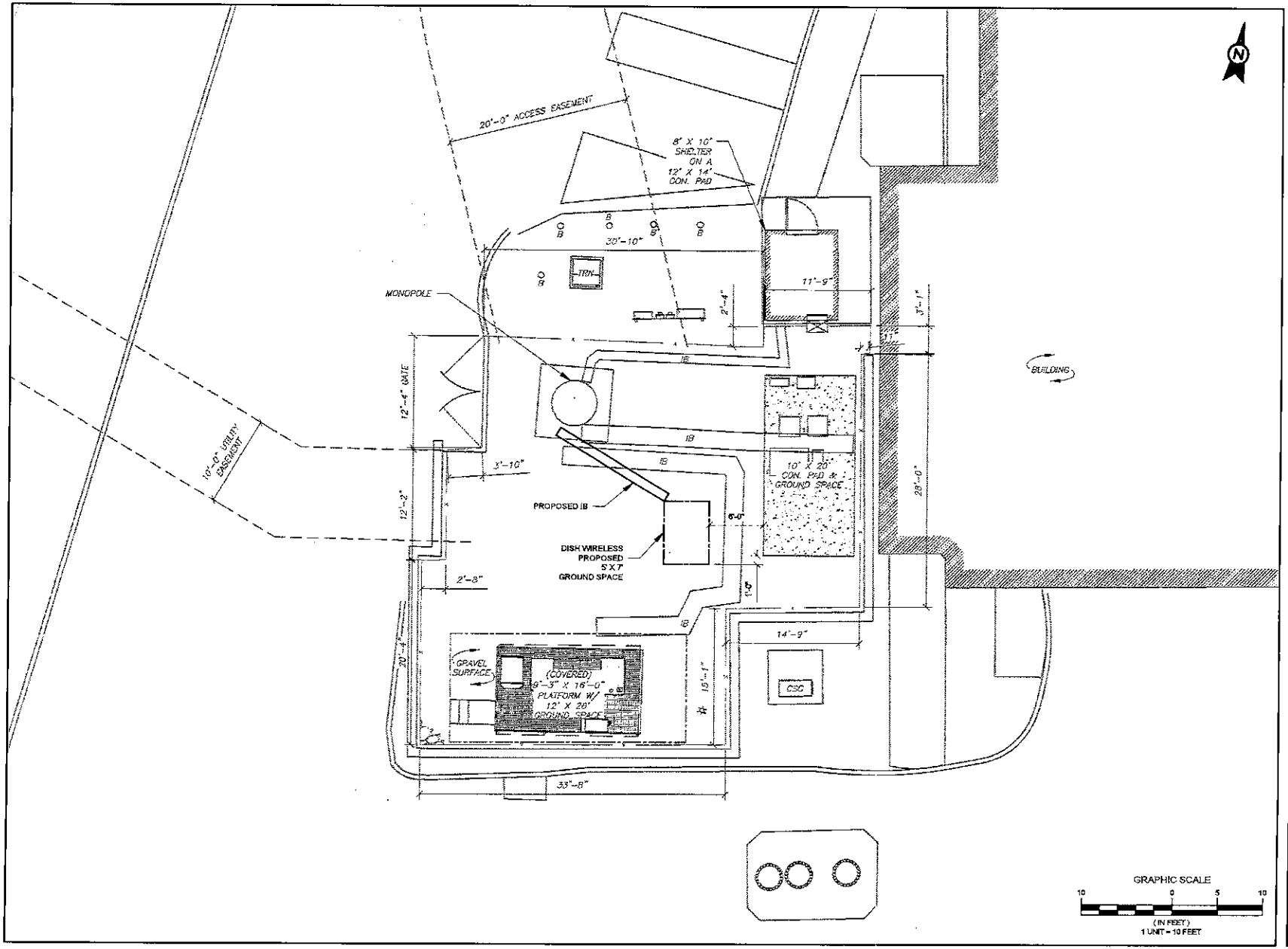

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 466-0112

ATC SITE NUMBER:
210746

ATC SITE NAME:
TRUMBULL CT
CONNECTICUT

LEGEND

⊗	GROUNDING TEST WELL
AV	AIR VENT
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
C	CABINET
CS	COAX SHROUD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
HFC	HYDROGEN FUEL CELL
HSM	HYDROGEN STORAGE MATERIAL
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
LPG	LIQUID PROPANE GAS
M	METER
MTS	MANUAL TRANSFER SWITCH
OHW	OVERHEAD WIRE
P	POWER
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
— — —	BUFFER (PROPERTY LINE)
— — —	GROUND SPACE (LEASE AREA)
— — —	EASEMENT

DRAWN BY:	KJONES
DATE DRAWN:	09/17/21
CUSTOMER:	DISH WIRELESS
ATC PROJECT NO.:	OAA768134
ATC ASSET NO.:	210746

SITE PLAN LAYOUT

SHEET NUMBER:	AUDITED BY
SITE-1	ON

Exhibit H

Mailing Receipts

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

LTR 1 OF 1

SHIP TO:

HON. VICKI A. TESSORO
2ND FL
5866 MAIN ST.,
TRUMBULL CT 06611

CT 066 9-07

UPS 2ND DAY AIR **2**

TRACKING #: 1Z E05 345 02 6329 5679

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450263295679

Service

UPS 2nd Day Air®

Delivered On

03/01/2022 10:01 A.M.

Delivered To

5866 MAIN ST
TRUMBULL, CT, 06611, US

Received By

LUKE

Left At

Receiver

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/02/2022 7:09 A.M. EST

FROM: LTR 1 OF 1

LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

MR. ROB LIBRANDI
2ND FL
5866 MAIN ST.
TRUMBULL CT 06611

CT 066 9-07

UPS 2ND DAY AIR **2**

TRACKING #: 1Z E05 345 02 6326 7486

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450263267486

Service

UPS 2nd Day Air®

Delivered On

03/01/2022 10:01 A.M.

Delivered To

5866 MAIN ST
TRUMBULL, CT, 06611, US

Received By

LUKE

Left At

Receiver

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/02/2022 7:06 A.M. EST

LTR 1 OF 1

FROM:
LEV MAYZLER
(203) 488-0712
CONSTRUCTION SERVICES OF BRANF
63-3 NORTH BRANFORD ROAD
BRANFORD CT 06405-2848

SHIP TO:

KRISTIN WHITE
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801

MA 018 9-04

UPS 2ND DAY AIR **2**
TRACKING #: 1Z E05 345 02 6113 8093

BILLING: P/P

WS 22.0.17 SHARP MX-3070 10.0A 02/2022

Fold here and place in label pouch

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZE053450261138093

Service

UPS 2nd Day Air®

Delivered On

03/01/2022 11:12 A.M.

Delivered To

10 PRESIDENTIAL WAY
WOBURN, MA, 01801, US

Received By

ANCRI

Left At

Front Desk

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 03/02/2022 7:12 A.M. EST