Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

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

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

Dear Ms. Bachman,

Dish Wireless ("Dish") is proposing a wireless telecommunications facility on an existing One hundred and thirteen (113) foot tall monopole tower at 289 Mountain Street, Hartford, CT 06106 (Latitude: 41.72656944 Longitude: -72.70816944) and within the existing fenced compound. The monopole tower is owned and operated by American Tower Corporation. The subject property is owned by the Metropolitan District Bureau of Public Works.

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at seventy (70) feet as more particularly detailed and described on the enclosed Construction Drawings prepared by American Tower Engineering., dated 9/27/2021. The overall height of the existing tower is and will remain at 113 feet and no changes will be made to the compound dimensions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the following individuals: American Tower Corporation as Tower Operator/Owner; the Metropolitan District as Property Owner; the Honorable Luke Bronin as Mayor of the City of Hartford and Charles Mathews, Director of Development Services for the City of Hartford.

The applicant's proposal falls squarely within those activities explicitly provided for in R.C.S.A. §16-50j-89. Specifically:

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an extension of the site boundary.

3. The proposed modifications will NOT increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for DISH's modified facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis dated October 5, 2021, prepared by American Tower Corporation enclosed herewith.

Connecticut General Statute 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish respectfully indicates that the shared use of this facility satisfies these criteria:

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish's proposed loading (see attached Structural Analysis).

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower. 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 for the proposed installation. Further, a Letter of Authorization is attached, authorizing Dish to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish equipment at the 79-foot level of the existing 130-foot tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. DISH shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by the attached EME study, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting the proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish's intentions of providing new and improved wireless service

through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Hartford.

For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 289 Mountain Street, Hartford, CT 06106.

If you have any questions, please feel free to contact me.

Sincerely,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures:
Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – Property Card and GIS
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Cc:
American Tower Corporation – Tower Operator/Owner
Metropolitan District Bureau of Public Works – Property Owner
The Honorable Luke Bronin - Mayor of the City of Hartford
Charles Mathews - Director of Hartford Development Services

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

The Honorable Luke Bronin
Hartford City Hall
550 Main Street, 2nd Floor, Room 200
06103

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

Dear Mayor Bronin:

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Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, a single antenna mount, six (6) RRUs, and cables on the existing tower at seventy (70) feet as more particularly detailed and described on the enclosed Construction Drawings. The overall height of the existing tower is and will remain at 113 feet and no changes will be made to the compound dimensions.

This letter is intended to serve as the required notice to the property owner. As required by Regulations of Connecticut State Agencies ("RCSA") 16- 50j-73 the Connecticut Siting Council ("CSC") has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish's proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Acting Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures

cc: Melanie Bachmann, Acting Executive Director, CSC

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

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

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

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Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

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through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Hartford.

For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 289 Mountain Street, Hartford, CT 06106.

If you have any questions, please feel free to contact me.

Sincerely,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures:

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Cc:

American Tower Corporation – Tower Operator/Owner
Metropolitan District Bureau of Public Works – Property Owner
The Honorable Luke Bronin - Mayor of the City of Hartford
Charles Mathews - Director of Hartford Development Services

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

Blake Paynter
Project Manager, Site Development
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

Dear Mr. Paynter,

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Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

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Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures

cc: Melanie Bachmann, Acting Executive Director, CSC

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

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

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through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Hartford.

For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 289 Mountain Street, Hartford, CT 06106.

If you have any questions, please feel free to contact me.

Sincerely,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

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Metropolitan District Bureau of Public Works – Property Owner
The Honorable Luke Bronin - Mayor of the City of Hartford
Charles Mathews - Director of Hartford Development Services

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

Scott W. Jellison Chief Executive Officer
The Metropolitan District
555 Main Street
Hartford, CT 06103

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

Dear Mr. Jellison,

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Respectfully Submitted,

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10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures

cc: Melanie Bachmann, Acting Executive Director, CSC

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

December 3, 2021

Melanie A. Bachman
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Connecticut Siting Council
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New Britain, CT 06051

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Metropolitan District Bureau of Public Works – Property Owner
The Honorable Luke Bronin - Mayor of the City of Hartford
Charles Mathews - Director of Hartford Development Services

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144

CENTERLINE COMMUNICATIONS

December 3, 2021

Charles Mathews
Director of Development Services
260 Constitution Plaza, 1st Fl
Hartford, CT 06103

Re: Tower Share Application – Dish Site 13726719
Dish Wireless Telecommunications Facility @ 289 Mountain Street, Hartford, CT 06106

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December 3, 2021

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New Britain, CT 06051

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6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis dated October 5, 2021, prepared by American Tower Corporation enclosed herewith.

Connecticut General Statute 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish respectfully indicates that the shared use of this facility satisfies these criteria:

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish's proposed loading (see attached Structural Analysis).

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower. 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 for the proposed installation. Further, a Letter of Authorization is attached, authorizing Dish to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish equipment at the 79-foot level of the existing 130-foot tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. DISH shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by the attached EME study, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting the proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish's intentions of providing new and improved wireless service

through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Hartford.

For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 289 Mountain Street, Hartford, CT 06106.

If you have any questions, please feel free to contact me.

Sincerely,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures:

Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – Property Card and GIS
Exhibit 3 – Construction Drawings
Exhibit 4 – Structural Analysis Report
Exhibit 5 – Antenna Mount Analysis Report
Exhibit 6 – EME Study Report
Exhibit 7 – Original Tower Approval
Exhibit 8 – (4) Notice Confirmations

Cc:

American Tower Corporation – Tower Operator/Owner
Metropolitan District Bureau of Public Works – Property Owner
The Honorable Luke Bronin - Mayor of the City of Hartford
Charles Mathews - Director of Hartford Development Services

DOCKET NO. 40

ORIGINAL

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN THE HARTFORD AND MIDDLESEX COUNTIES.	:	CONNECTICUT SITING COUNCIL
	:	May 15, 1984

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to Southern New England Telephone for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Shuttle Meadow Road, Southington, Connecticut;
Mountain Street, Hartford, Connecticut;
Prestige Park Road, East Hartford, Connecticut;
Beckley Road, Berlin, Connecticut;
Slicer tract, Niederwerfer Road, South Windsor, Connecticut; and
Kikapoo Road, Middlefield, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The towers shall be no taller than necessary to provide the proposed service and in no event shall exceed

   a) 150 feet at the Southington site,
   b) 100 feet at the Hartford site,
   c) 150 feet at the East Hartford site,
   d) 150 feet at the Berlin site,
   e) 75 feet at the South Windsor site, and
   f) 75 feet at the Middlefield site.

2. A fence not lower than eight feet shall surround each tower and its associated equipment.

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities.
4. The applicant or its successor shall permit in accordance with representations made by it during the proceeding public or private entities to share space on the facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
5. Unless necessary to comply with condition number seven, below, no lights shall be installed on any of these towers.
6. The facility construction shall be conducted in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a development and management plan (D&M) for the South Windsor, Southington, and Berlin sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites. The applicant shall consult with Mrs. Claire Aubin and the Town of South Windsor in the preparation of the South Windsor site D&M.
8. Construction activities shall take place during daylight working hours.
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed,

or reapplication for any new use shall be made to the Connecticut Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p(c) of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, Journal Inquirer, and the Middletown Press.

The parties to this proceeding are

Southern New England Telephone Company Room 314 227 Church Street New Haven, Connecticut 06506	(Applicant)
ATTN: Mr. Peter J. Tyrrell, Esquire	(its attorney)
Town of South Windsor 1540 Sullivan Avenue South Windsor, Connecticut 06074	represented by: Mr. Richard M. Rittenband Town Attorney 1734 Ellington Road South Windsor, Connecticut 06074
Frank Niederwerfer 260 Niederwerfer Road South Windsor, Connecticut 06074	(service waived)
Claire Aubin 407 Niederwerfer Road South Windsor, Connecticut 06074	(service waived)

Betty S. Kleiner
Chairman
Hartford Audubon Society, Inc.
5 Flintlock Ridge
Simsbury, Connecticut 06070

(service waived)

Roger Thorpe
2916 Ellington Road
South Windsor, Connecticut 06074

Intervenors in this proceeding are

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

representing:

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 15th day of May, 1984.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter G. Boucher	Yes
Commissioner Stanley Pac Designee: Christopher Cooper	Yes
Owen L. Clark	Yes
Fred J. Doocy	~~Yes~~ Abstain
Mortimer A. Gelston	Yes
James G. Horsfall	Absent
Janet Sitty	Yes
Colin C. Tait	Absent

STATE OF CONNECTICUT)
: ss. New Britain, May 15, 1984
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

SITE NO: See Site List Below **SITE NAME: See Site List Below**

ADDRESS: See Site List Below

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower*, owner and/or operator of the tower facilities located at the addresses identified below (the "Tower Facilities"), do hereby authorize Centerline Communications LLC ("Centerline"), its agents, successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facilities located at the addresses identified below. This installation shall not affect adjoining lands and will occur only within the areas leased or owned by American Tower.

American Tower understands that the applications may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installations. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installations of telecommunications equipment without the prior written approval of American Tower.

Site Authorized:

ATC Project #	ATC Tower #	ATC Site Name	Customer Site Name
13726411	370626	East Hartford	BOBDL00032B
13728728	383657	Atlas Container	BOBDL00095B
13733451	209280	Stafford 2	BOBDL00112A
13726719	302481	Hrfr - South	BOBDL00153B
13741553	283425	WOODSTOCK 2 CT	BOBOS00019A
13726721	302532	Hartford - Nyc	BOBOS00022A
13733429	415439	Woodstock NW PCS CT	BOBOS00027A
13733431	415484	East Woodstock, CT CT	BOBOS00028A
13733433	415784	East Putnam CT	BOBOS00029A
13733434	418609	Woodstock Relo CT	BOBOS00030A
13733436	6270	East Killingly	BOBOS00031A
13733438	6300	WOODSTOCK CT	BOBOS00032A
13746611	302503	Lisbon CT 3	BOBOS00068B
13733440	411216	CT Chaplin South CT	BOBOS00893A
13733446	10029	HAMPTON CT	BOBOS00894A
13733449	208478	Cheshire	BOHVN00033A

AMERICAN TOWER®
CORPORATION

13729958	208205	Great Hill Road Seymour	BOHVN00035A
13729960	207941	Wolcott-Waterbury	BOHVN00036A

Signature: _____

Margaret Robinson, Senior Counsel
US Tower Division

NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (owner and/or operator of the above referenced Tower Facilities), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 3rd day of December, 2021.

NOTARY SEAL

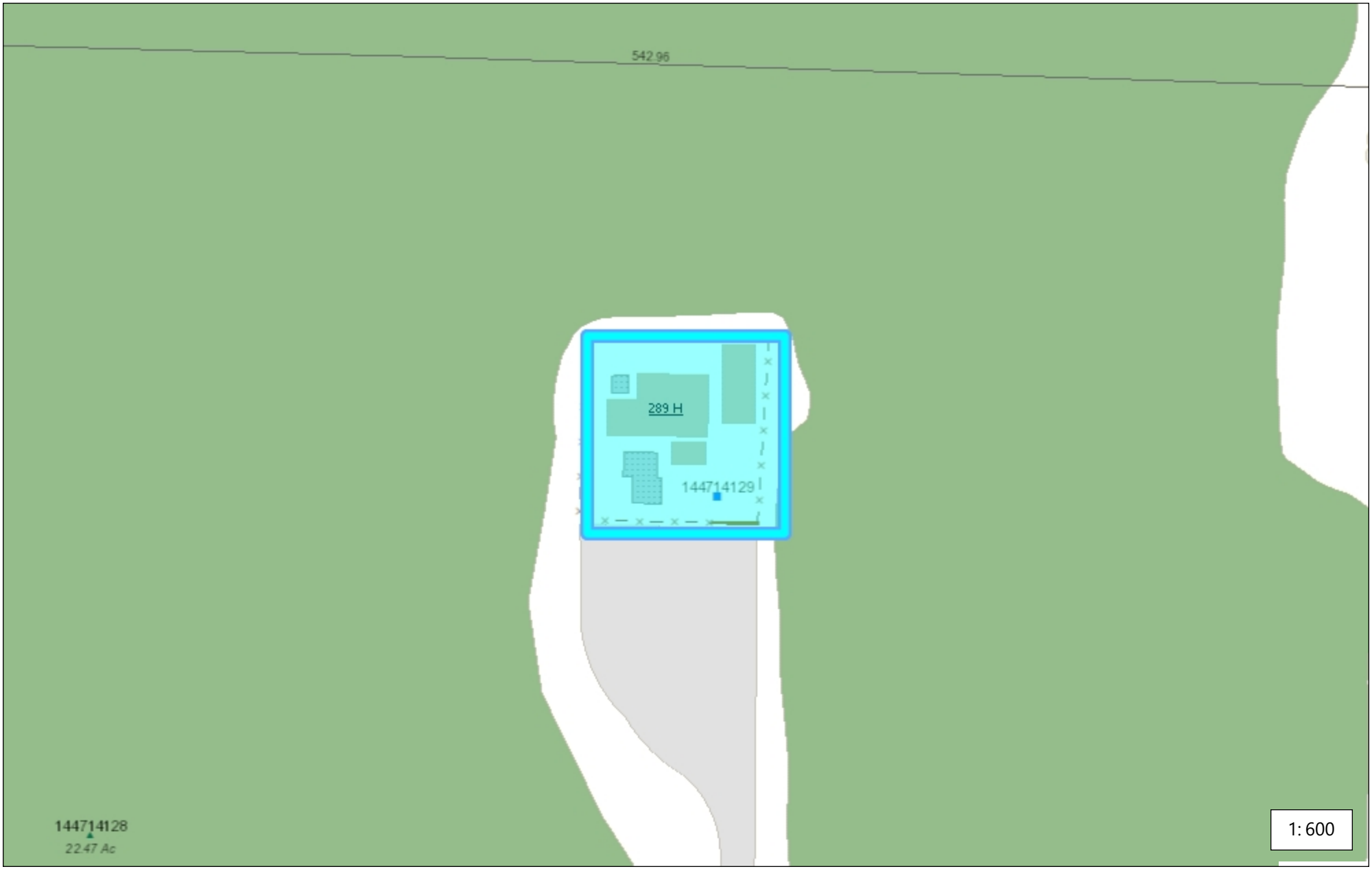
GERARD T. HEFFRON
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 9, 2024

Notary Public _____
My Commission Expires: August 9th, 2024

* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

City of Hartford - Property Map

289 Mountain Road, Hartford CT



100 0 50 100 Feet

City of Hartford GIS Services - HartfordGIS

Date Printed: 12/3/2021

The planimetric and topographic information depicted on this map was compiled by The Sanbor Map Company and is based on an aerial flight performed in April 2015. In addition, the City's GIS staff has been updating limited planimetric features on a yearly basis. The intent of this map is to depict a graphical representation of real property information relative to the planimetric features for the City of Hartford and is subject to change as a more accurate survey may disclose. The City of Hartford and the mapping company assume no legal responsibility for the information contained in this data. THIS MAP IS NOT TO BE USED FOR THE TRANSFER OF PROPERTY

City of Hartford Property Viewer

Search...

Tool

Tool Labels

Home

Welcome to the City of Hartford Property Viewer.

This website is mobile friendly so you can access it on a Computer, Tablet or Mobile Phone.

You can use this website to locate Owner & Property information for properties in the City.

- You can zoom in and out on the map using your mouse wheel or the +/- buttons in the upper left as the Parcels become visible you can use the Identify Tool in the upper left to select a parcel. Then select the **>** twice in the Results window to get information about the selected property
- By using the search window in the upper right and pressing the magnifying glass you can search by Owners Last Name (ex. enter Sanchez), Parcel ID (ex. enter 152186096), or Address (ex. enter 220 blue hills). Then select the **>** in the Search Results to get information about the selected property.

289 Mountain Street, Hartford, CT

Home Layers

Streets

0 150 300ft

Card 1 of 1

Location 289-H MOUNTAIN ST	Property Account Number	Parcel ID 144-714-128

Old Parcel ID --

Current Property Mailing Address

Owner METROPOLITAN DISTRICT BUREAU OF PUBLIC WORKS	City HARTFORD
	State CT
Address 555 MAIN ST	Zip 06103-2915
	Zoning CAMP

Current Property Sales Information

Sale Date 5/1/1990	Legal Reference 03061 0053
Sale Price 250	Grantor(Seller) PRACHNIAKEDWARD J.

Current Property Assessment

Card 1 Value

Card 1 of 1

Location 289-H MOUNTAIN ST	Property Account Number	Parcel ID 144-714-129

Old Parcel ID I-E PEN 16-10835-

Current Property Mailing Address

Owner SPRINGWHICH CELLULAR TOWER HOLDINGS LLC	City ST LOUIS
	State MO
Address 909 CHESTNUT, RM 36-M-1	Zip 63101
AT & T MOBILITY LLC	Zoning CAMP

Current Property Sales Information

Sale Date 7/7/2003	Legal Reference 04797-0166
Sale Price 0	Grantor(Seller) METROPOLITAN DISTRICT BUREAU OF

Current Property Assessment

Card 1 Value

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00153B

BOBDL00153B
289 Mountain Street
Hartford, Connecticut 06106

November 4, 2021

EBI Project Number: 6221006852

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**72.37%**

November 4, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00153B - BOBDL00153B

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **289 Mountain Street** in **Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 289 Mountain Street in Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

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

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 70 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	70 feet	Height (AGL):	70 feet	Height (AGL):	70 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**5.77%**	Antenna B1 MPE %:	**5.77%**	Antenna C1 MPE %:	**5.77%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	5.77%
AT&T	14.53%
Sprint	4.86%
Metro PCS	2.96%
T-Mobile	28.76%
Town of W. Hartford	0.98%
Verizon	14.51%
Site Total MPE % :	72.37%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	5.77%
Dish Wireless Sector B Total:	5.77%
Dish Wireless Sector C Total:	5.77%
Site Total MPE % :	72.37%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	70.0	7.85	600 MHz n71	400	1.96%
Dish Wireless 1900 MHz n70	4	542.70	70.0	19.05	1900 MHz n70	1000	1.91%
Dish Wireless 2190 MHz n66	4	542.70	70.0	19.05	2190 MHz n66	1000	1.91%
						Total:	**5.77%**

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

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	5.77%
Sector B:	5.77%
Sector C:	5.77%
Dish Wireless Maximum MPE % (Sector A):	5.77%
Site Total:	72.37%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **72.37%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

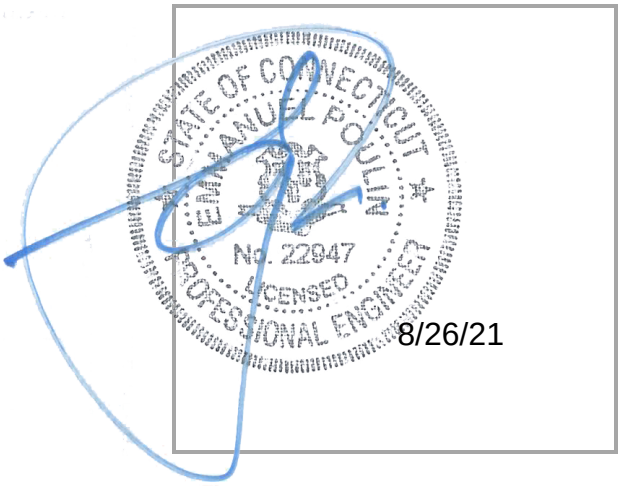
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

MOUNT ANALYSIS REPORT

August 26, 2021

Dish Wireless Site Name	0
Dish Wireless Site Number	BOBDL00153B
ATC Site Name	-
ATC Site Number	302481
Infinigy Job Number	1197-F0001-C
Client	ATC
Carrier	Dish Wireless
Site Location	289 Mountain Street Hartford, CT 06106 Hartford County 41.721833 N NAD83 72.701279 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	50.0 ft AGL
Structural Usage Ratio	**39.9**
Overall Result	**Pass**

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC) based on an ultimate 3-second gust wind speed of 125 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



CONTENTS

1. INTRODUCTION

Infinigy performed a structural analysis on the Dish Wireless proposed telecommunication equipment supporting Platform mounted to the existing structure located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using Risa-3D version 17.0.4 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	125 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 2.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.181 g / S_1 = 0.064 g
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs

3. PROPOSED LOADING CONFIGURATION - 50.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
50.0	3	JMA WIRELESS	MX08FRO665-21
	3	FUJITSU	TA08025-B605
	3	FUJITSU	TA08025-B604
	1	RAYCAP	RDIDC-9181-PF-48

4. SUPPORTING DOCUMENTATION

Proposed Loading	Dish Wireless Asset ID CT-ATC-T-302481 Rev 1, Site #BOBDL00153B, dated June 14, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	20.7%	Pass
Horizontals	12.6%	Pass
Standoffs	32.4%	Pass
Handrails	25.1%	Pass
Connections	39.9%	Pass
MOUNT RATING =	**39.9 %**	**Pass**

Notes:

1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the mount at 50.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

Pradin Suinyal Magar
Project Engineer II | **INFINIGY**

7. ASSUMPTIONS

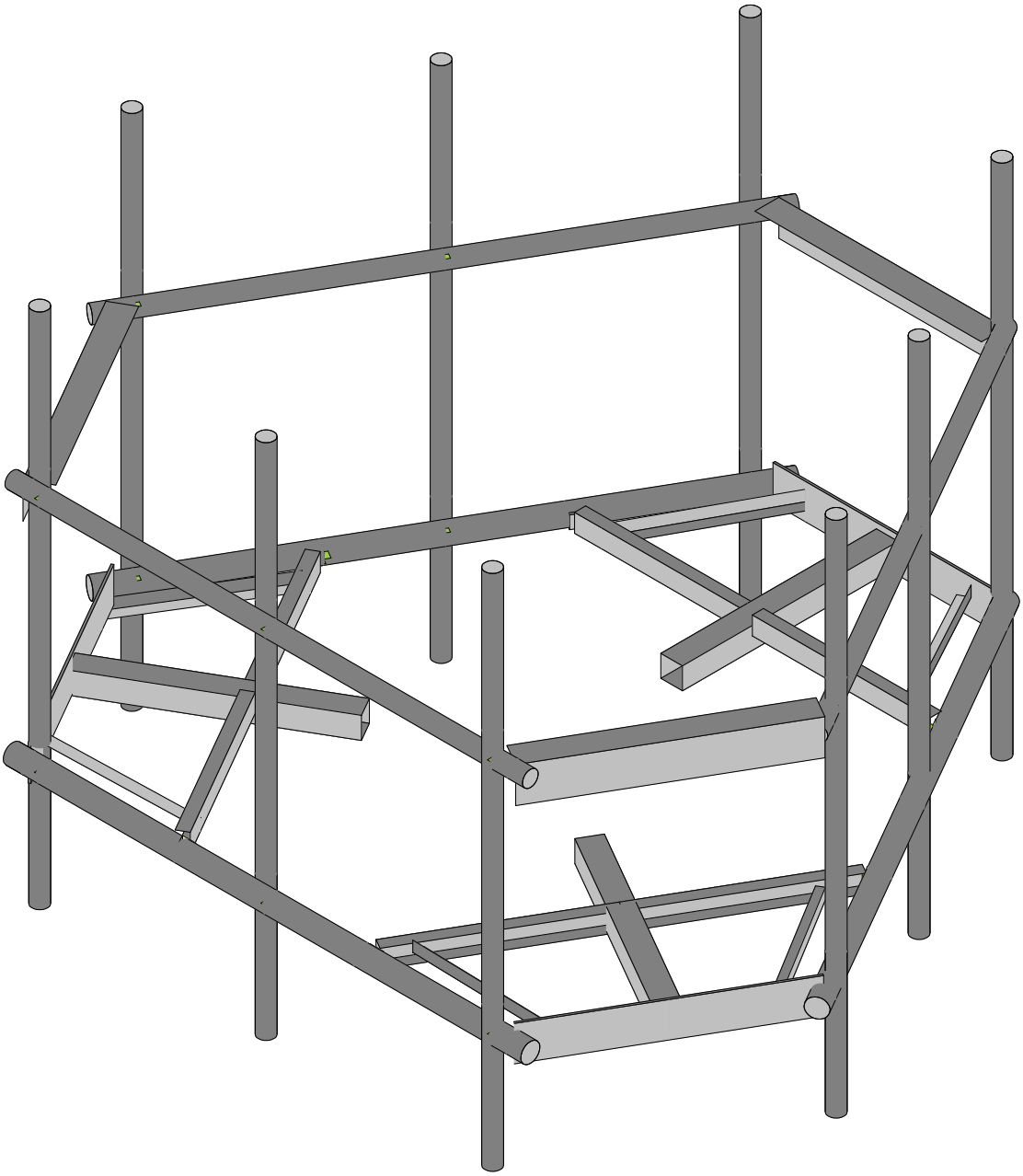
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
The analysis will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
Steel grades have been assumed as follows, unless noted otherwise: Channel, Solid Round, Plate, Built-up Angle — ASTM A1011 36 KSI Structural Angle — ASTM A529 Gr. 50 HSS (Rectangular) — ASTM A500-B GR 46 HSS (Circular) — ASTM A500-B GR 42 Pipe — ASTM A500 Gr C Connection Bolts — ASTM A325 U-Bolts — ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard

8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.



Envelope Only Solution

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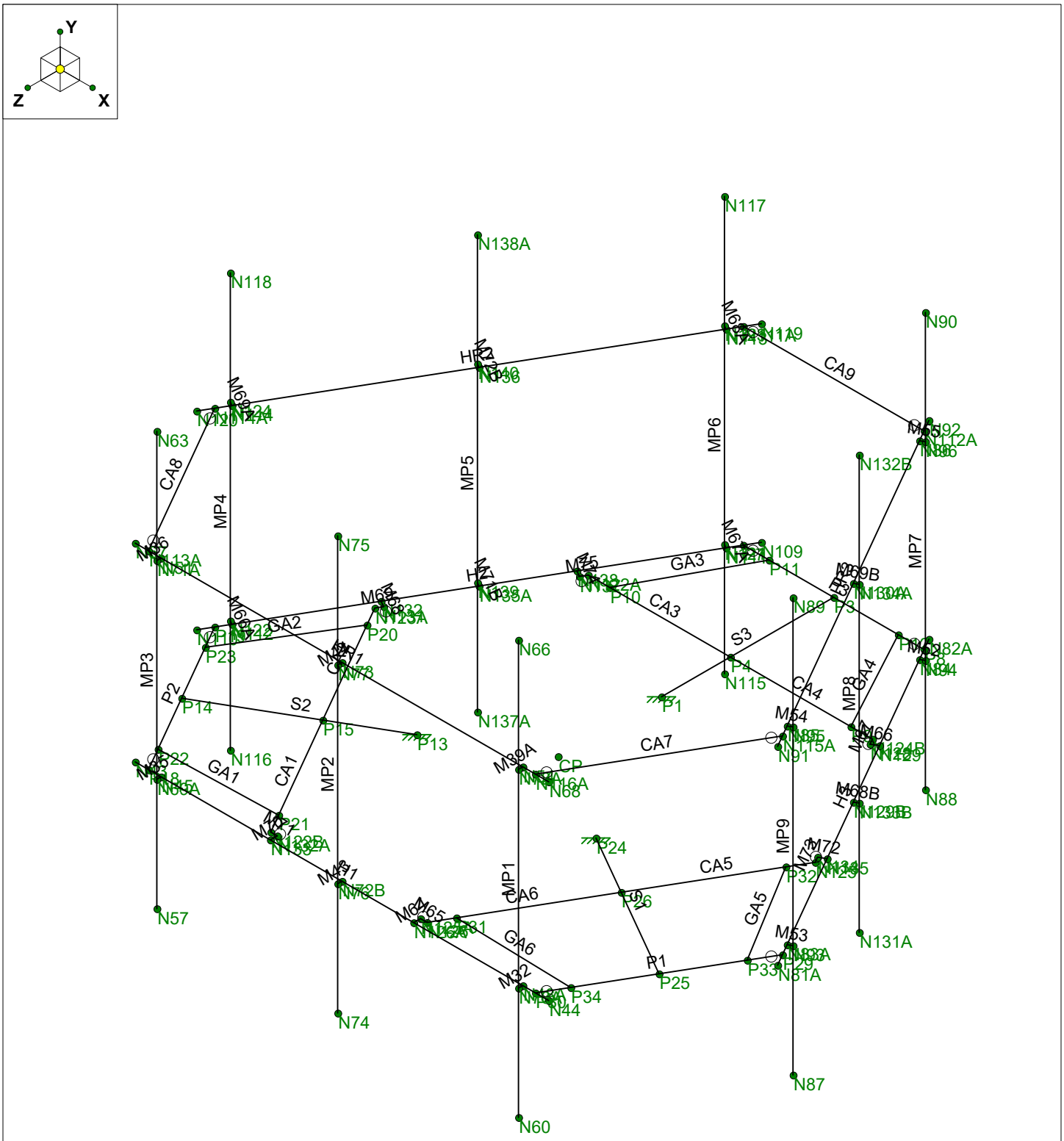

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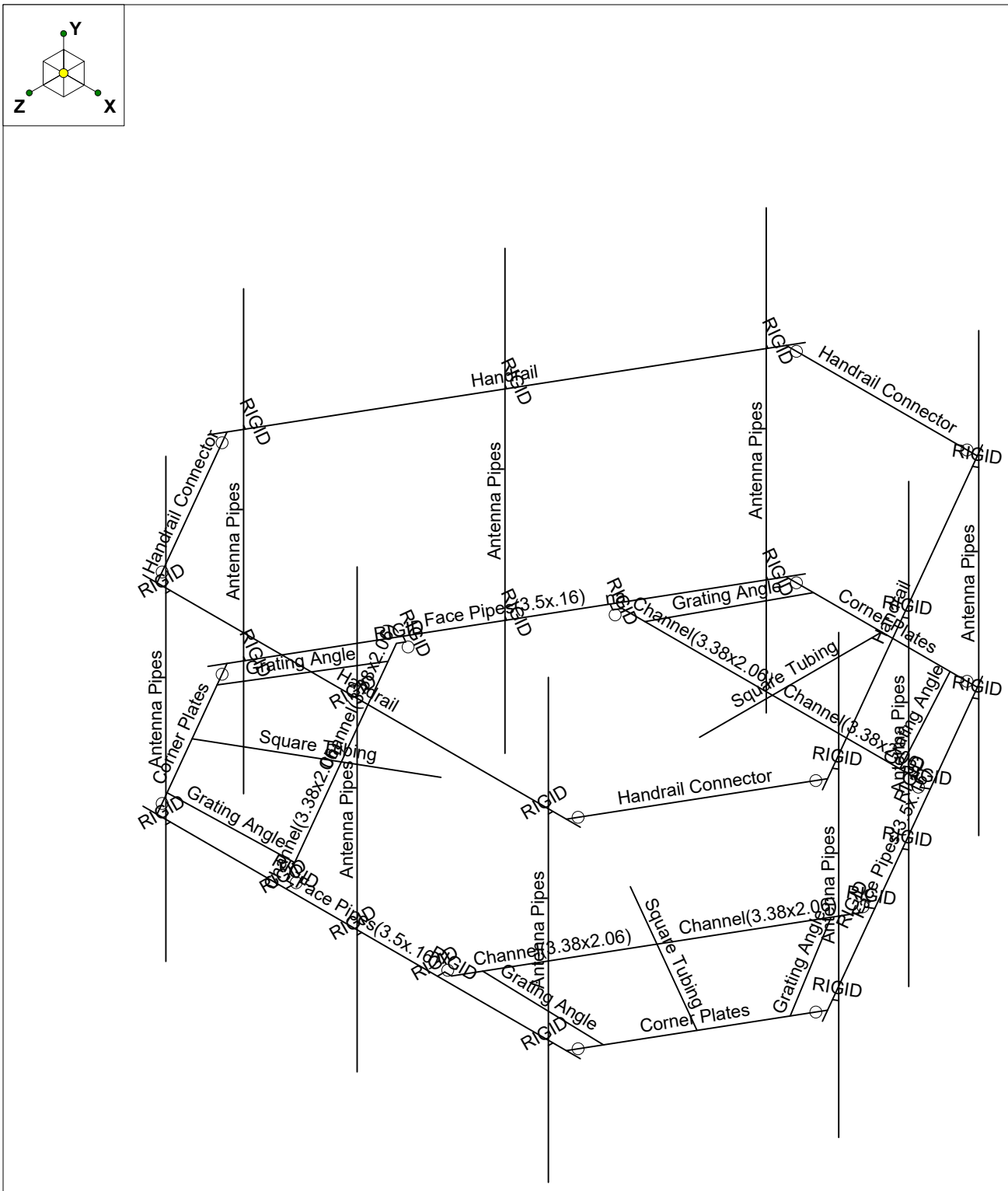

Envelope Only Solution

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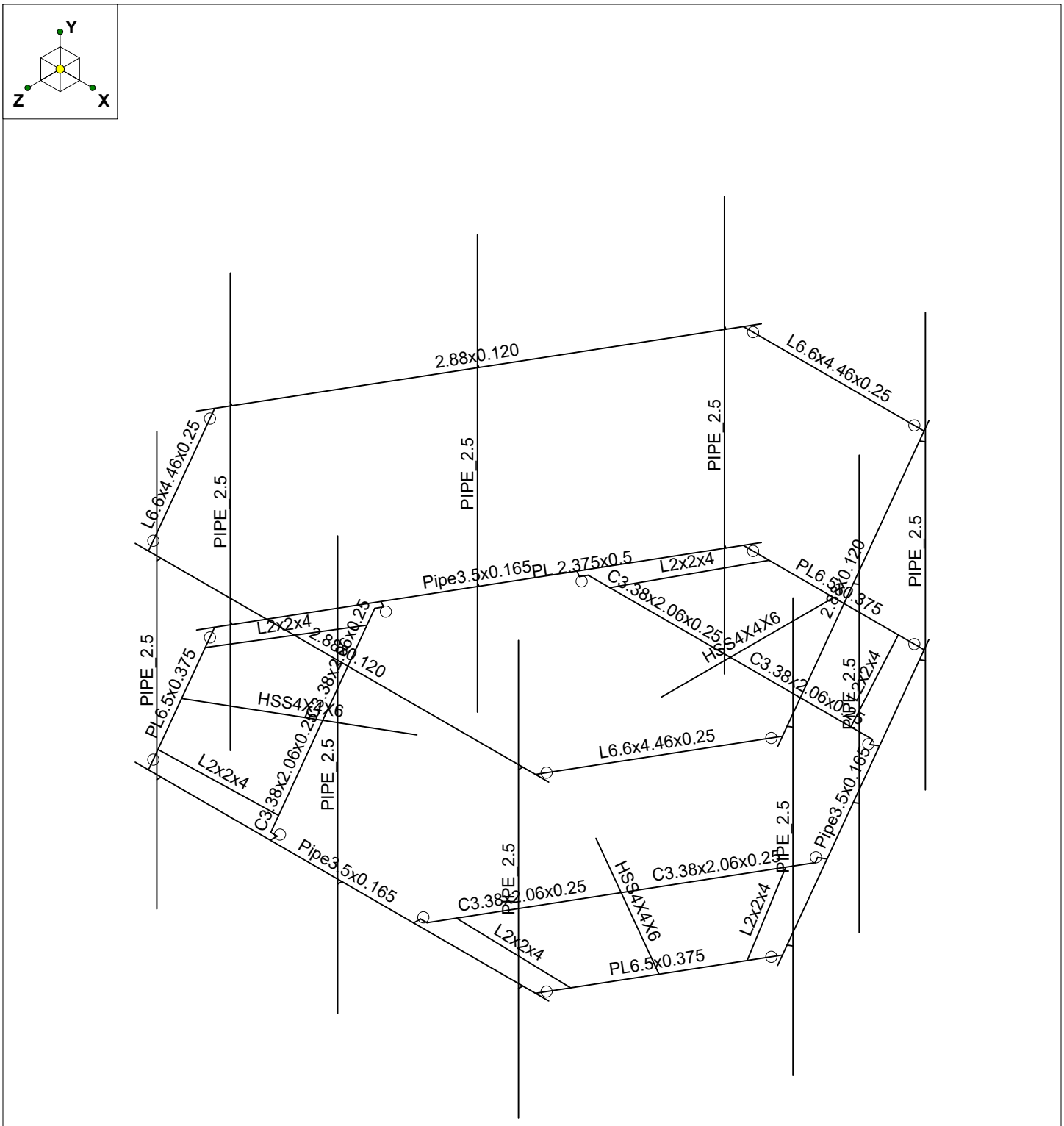

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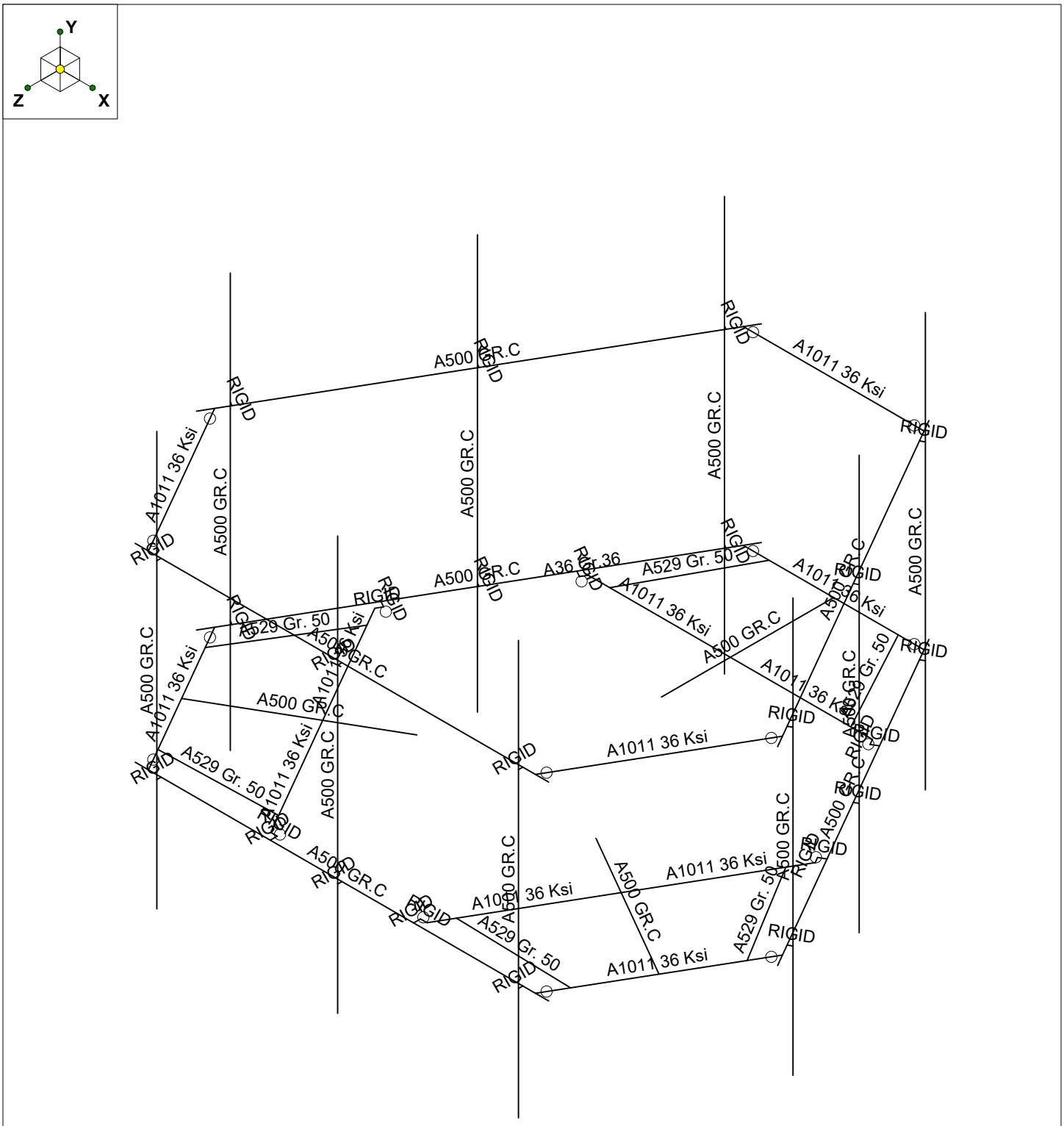

Envelope Only Solution

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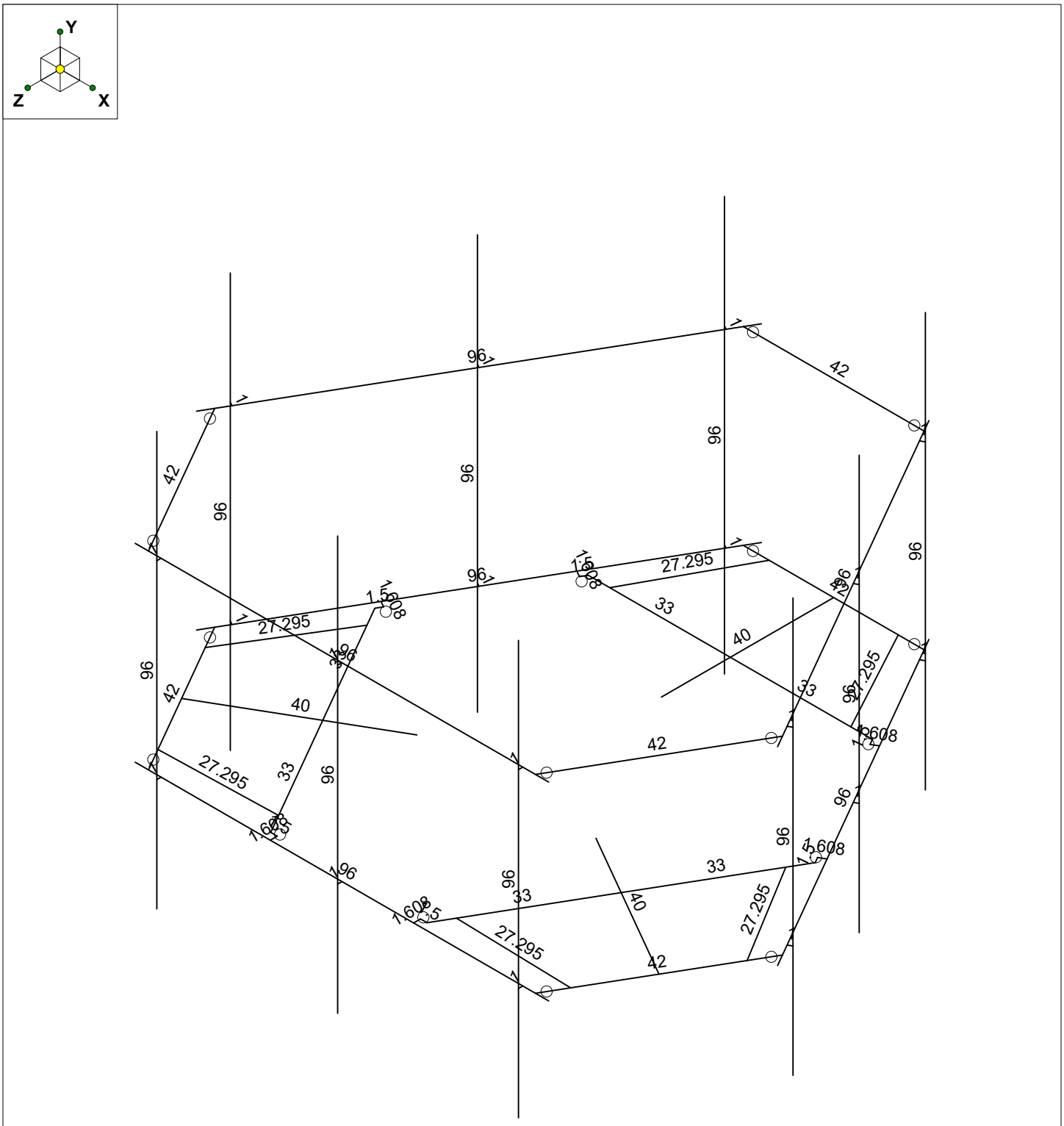

Member Length (in) Displayed
Envelope Only Solution

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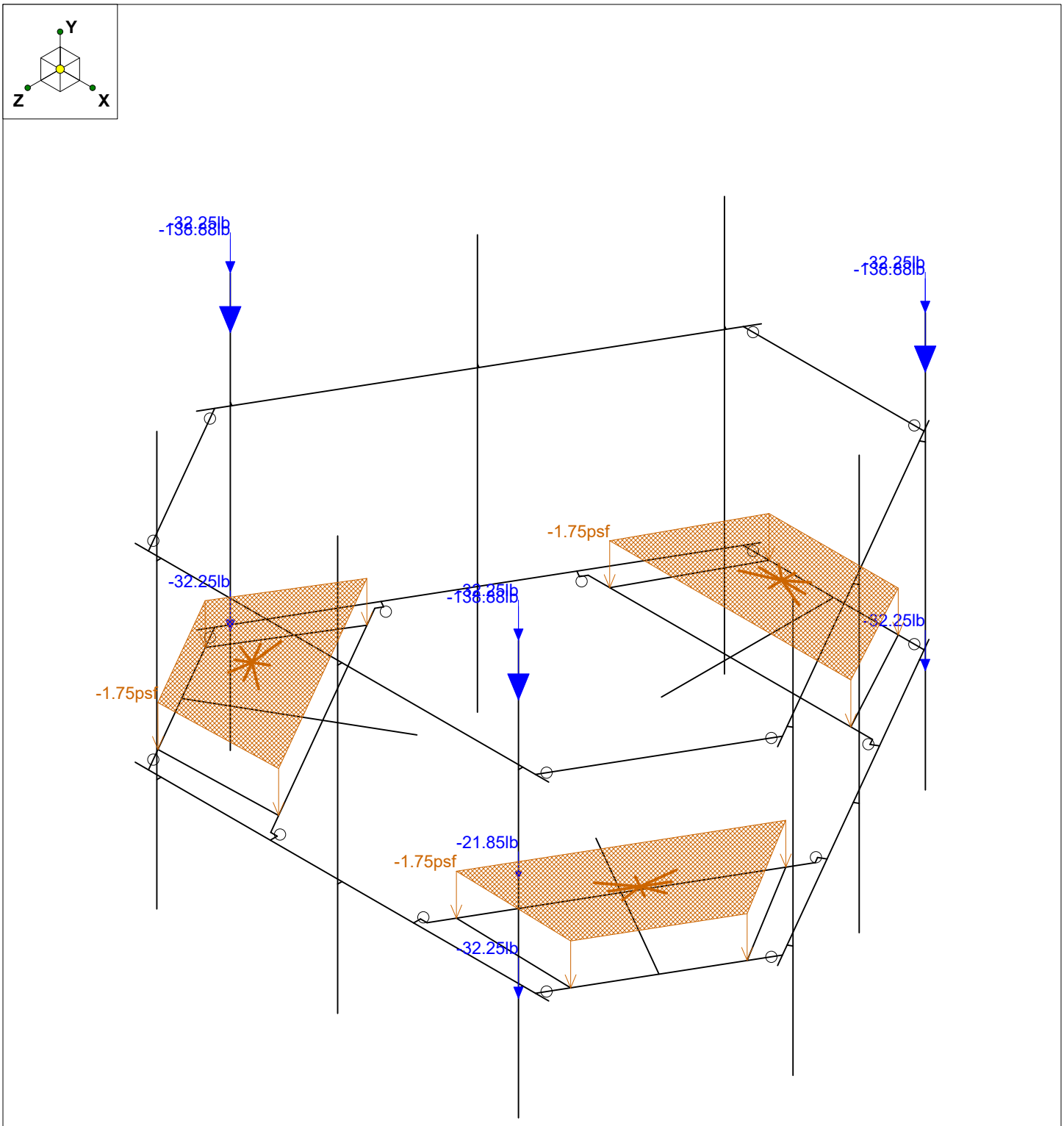

Loads: BLC 1, Self Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Self Weight
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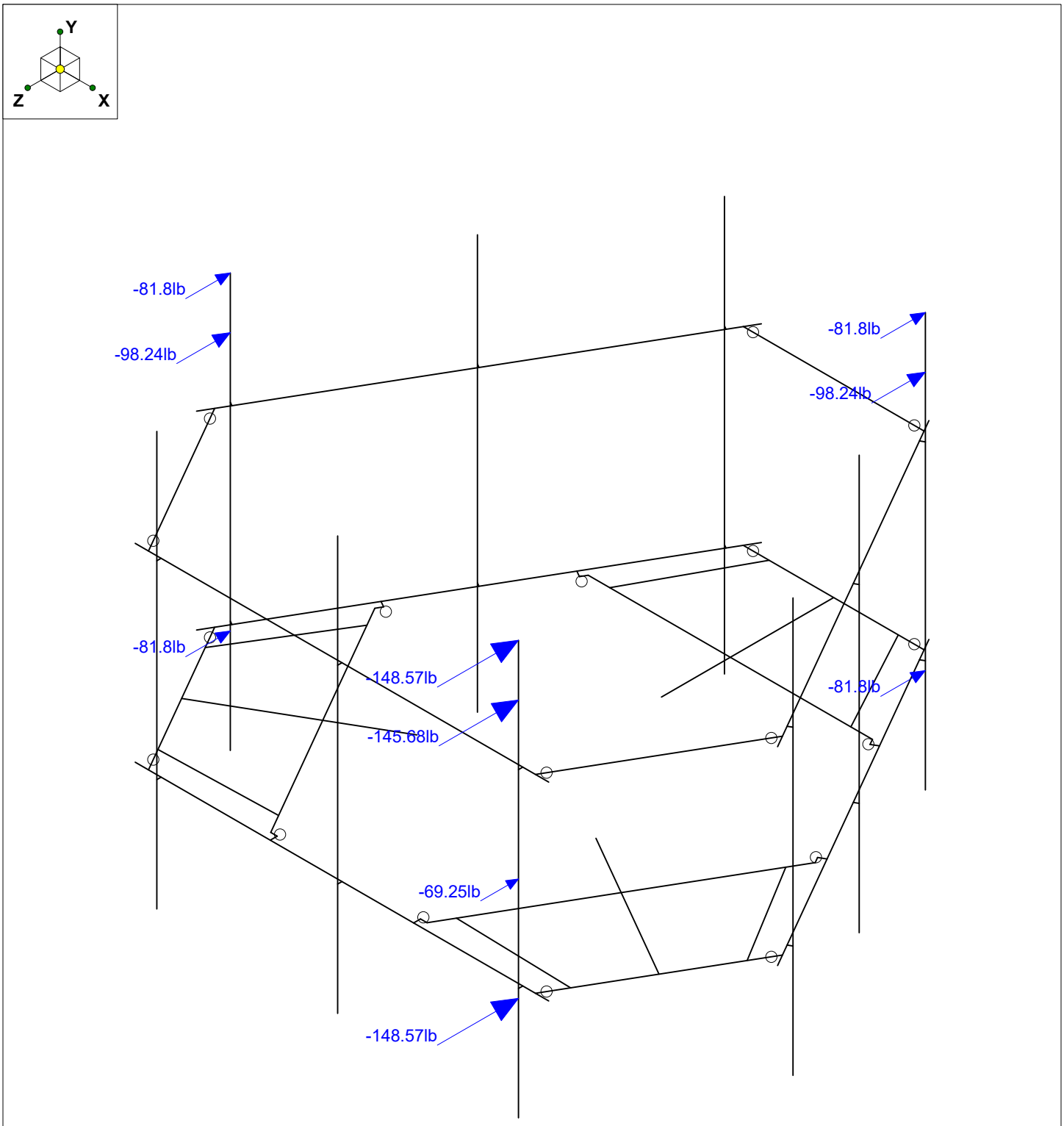

Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Wind Load AZI 000
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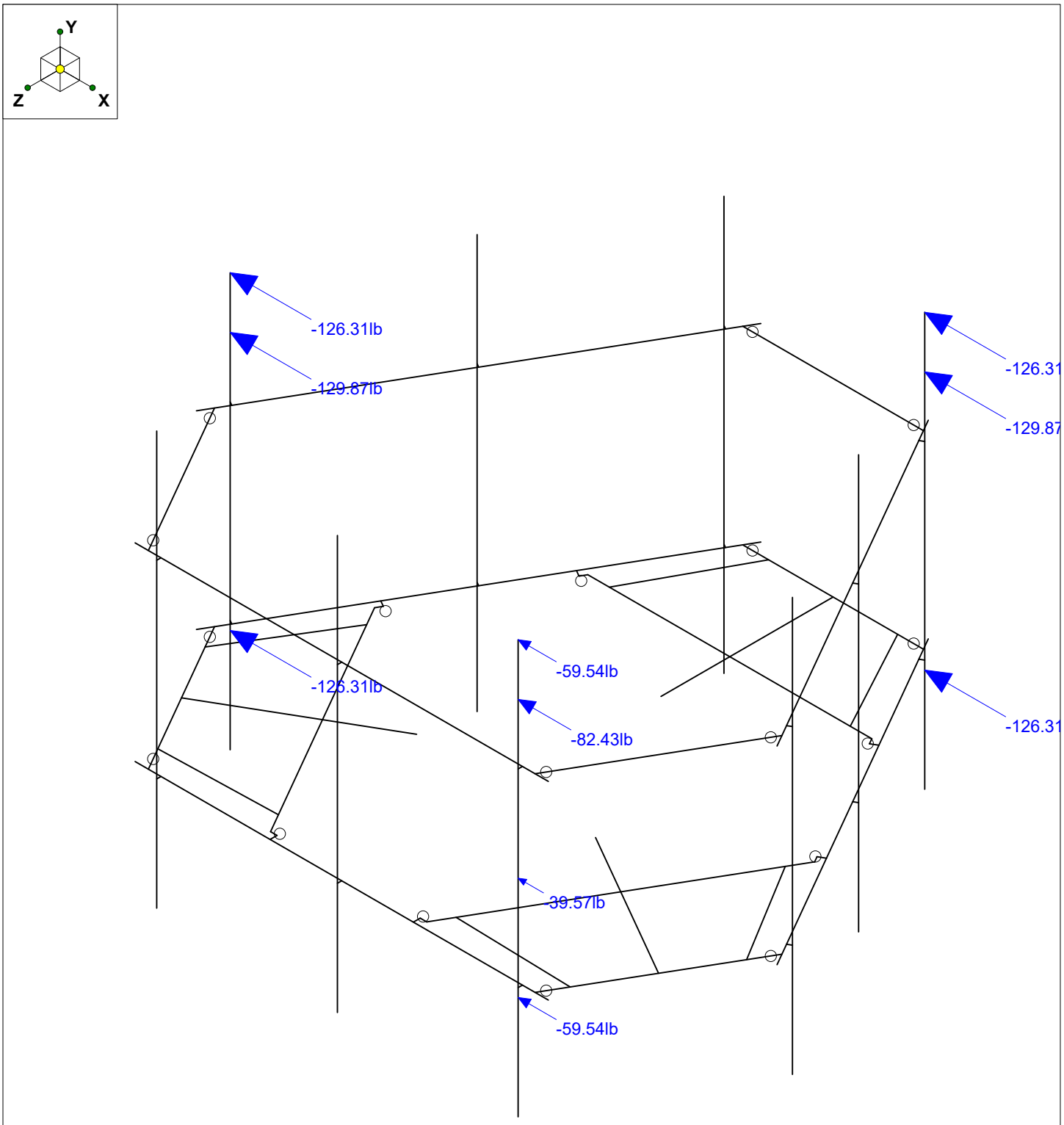

Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

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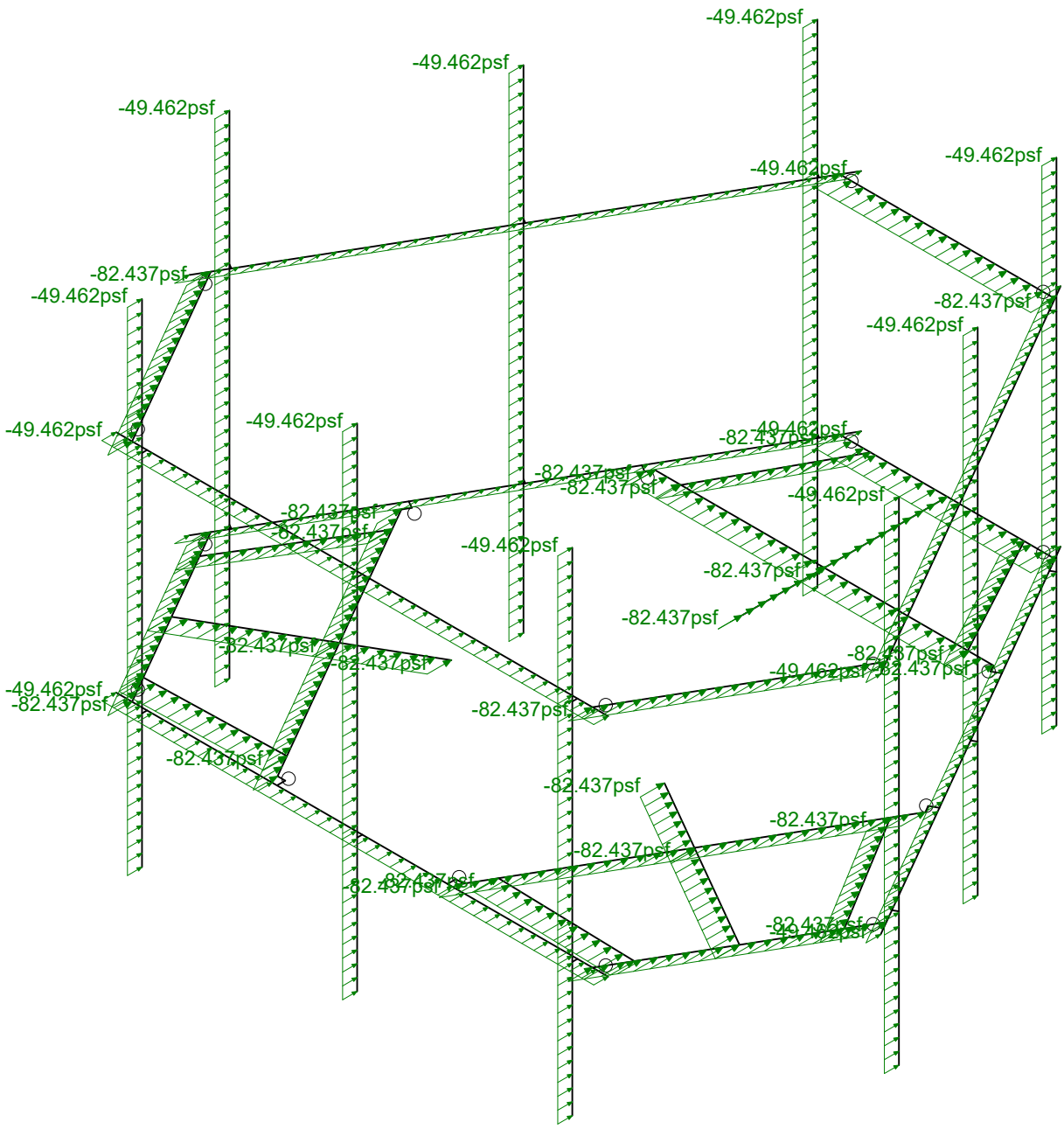

Loads: BLC 14, Distr. Wind Load Z
Envelope Only Solution

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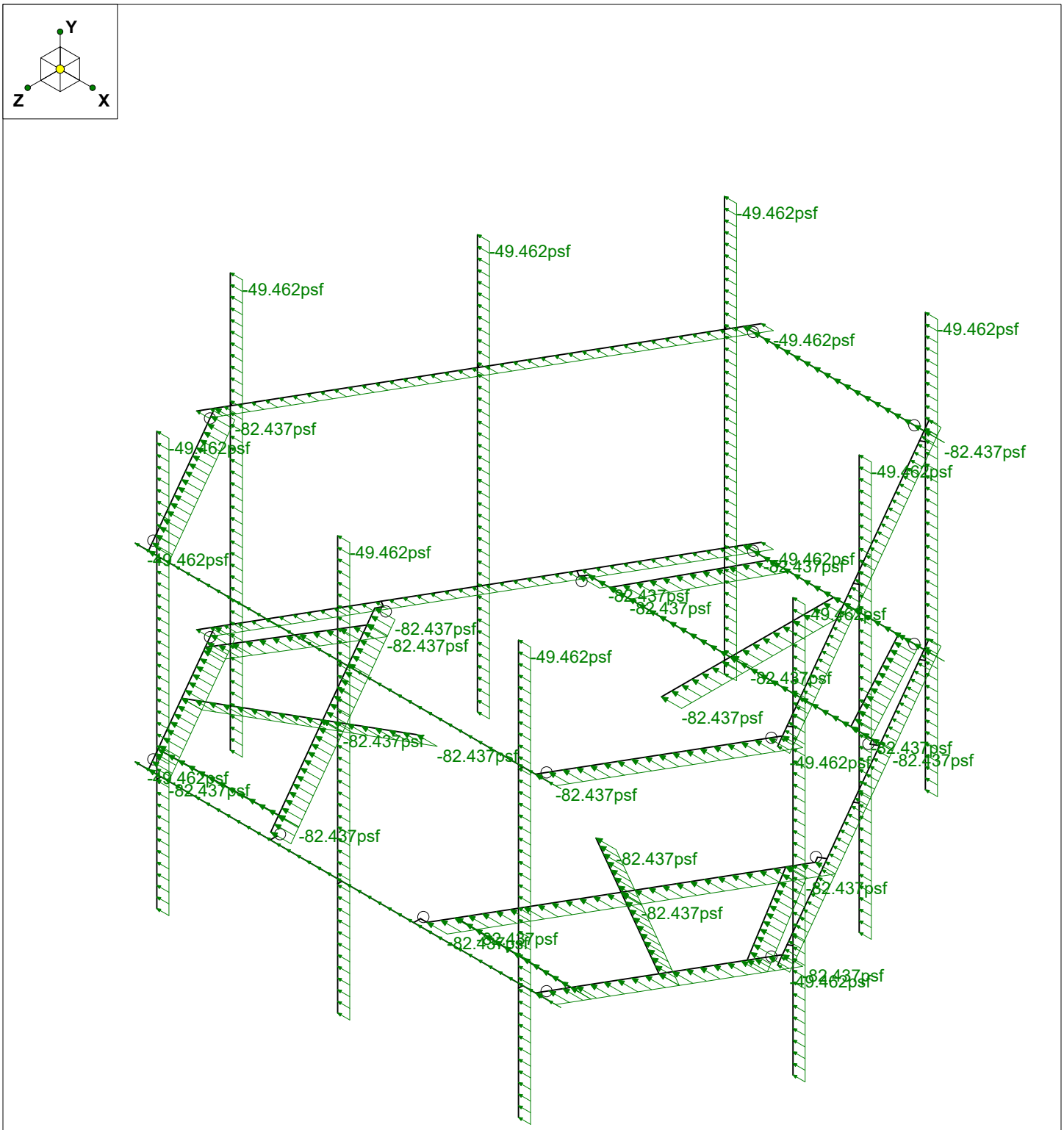

Loads: BLC 15, Distr. Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Distr Wind Load AZI 090
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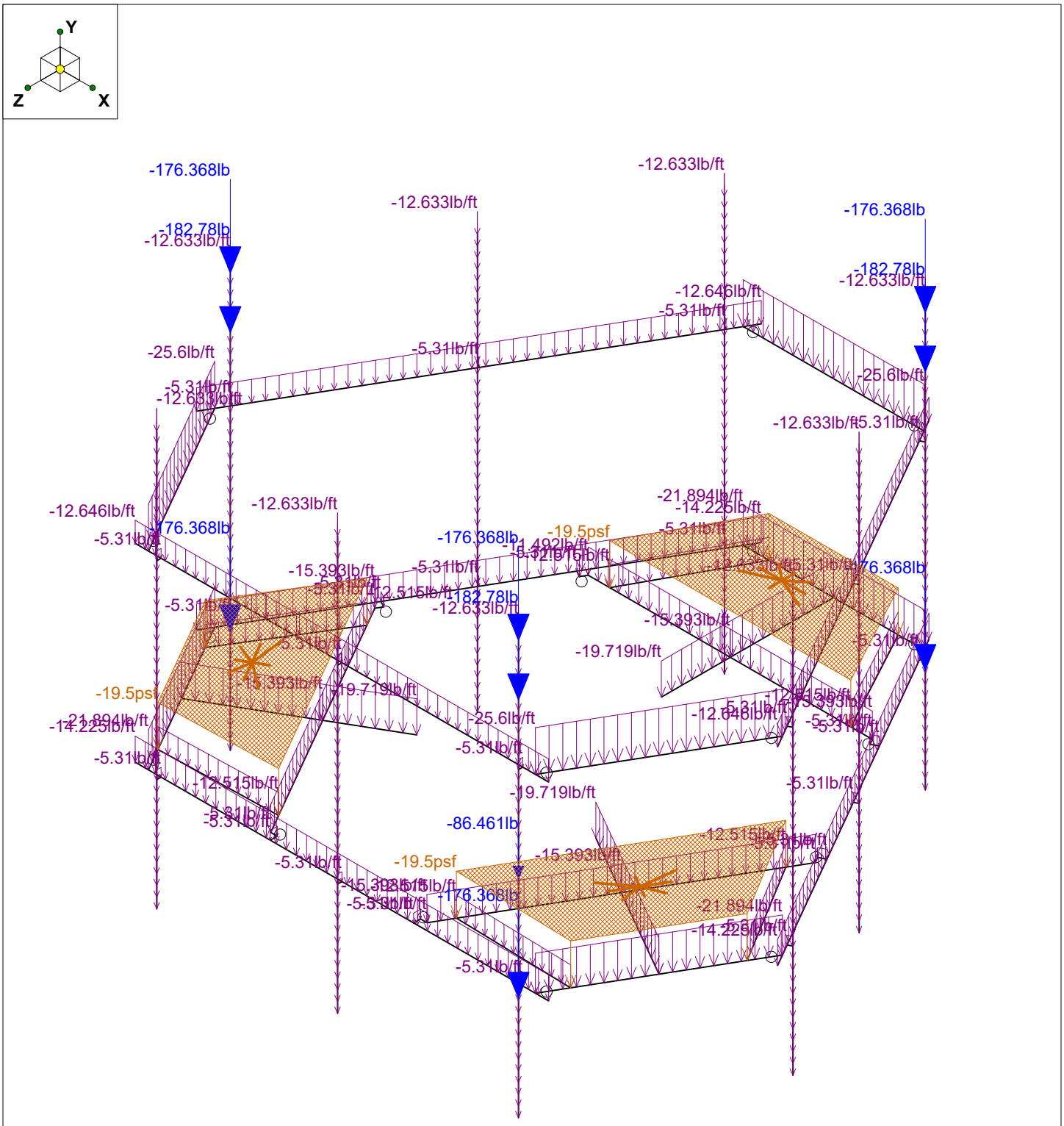

Loads: BLC 16, Ice Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Ice Weight
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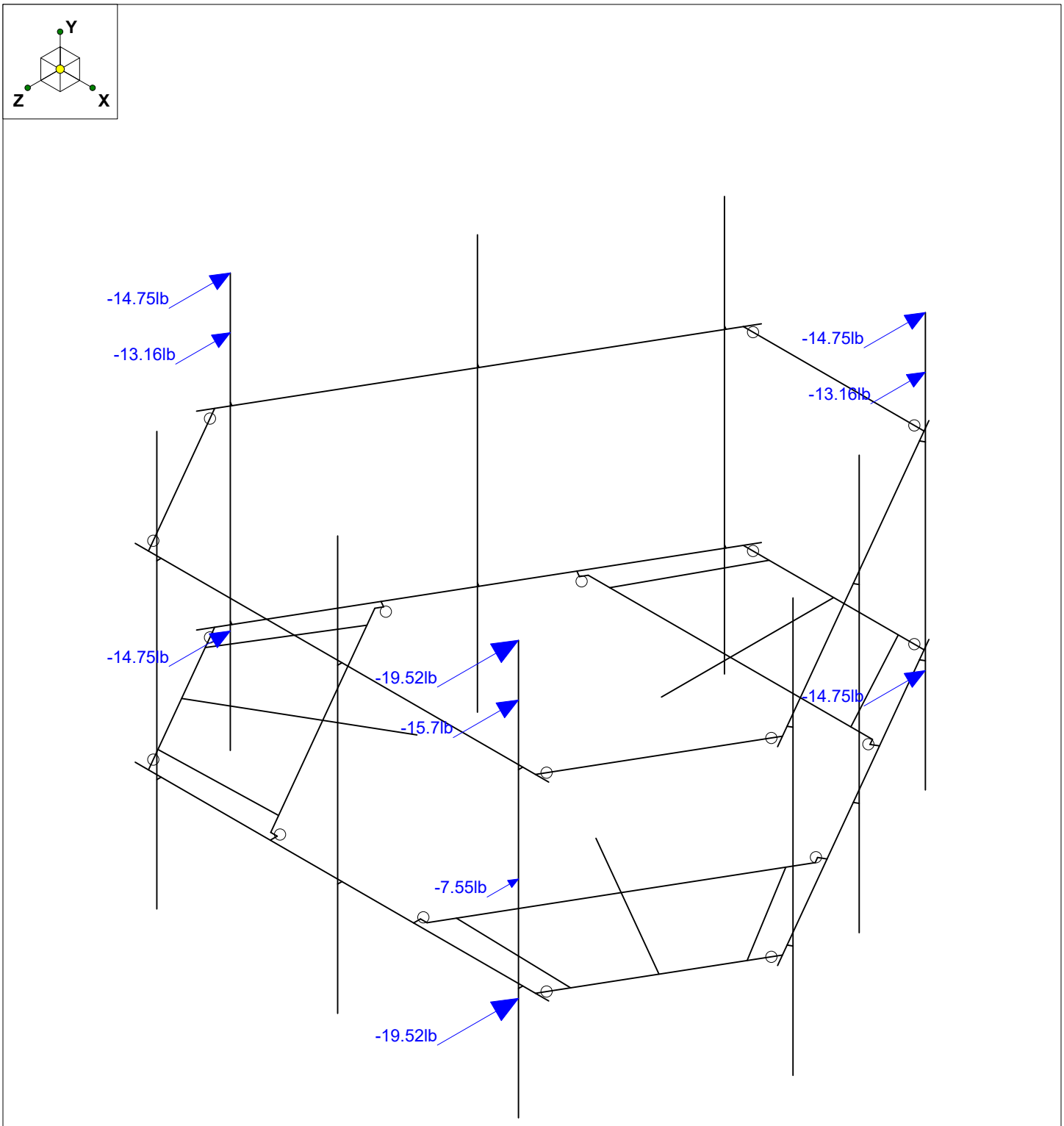

Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

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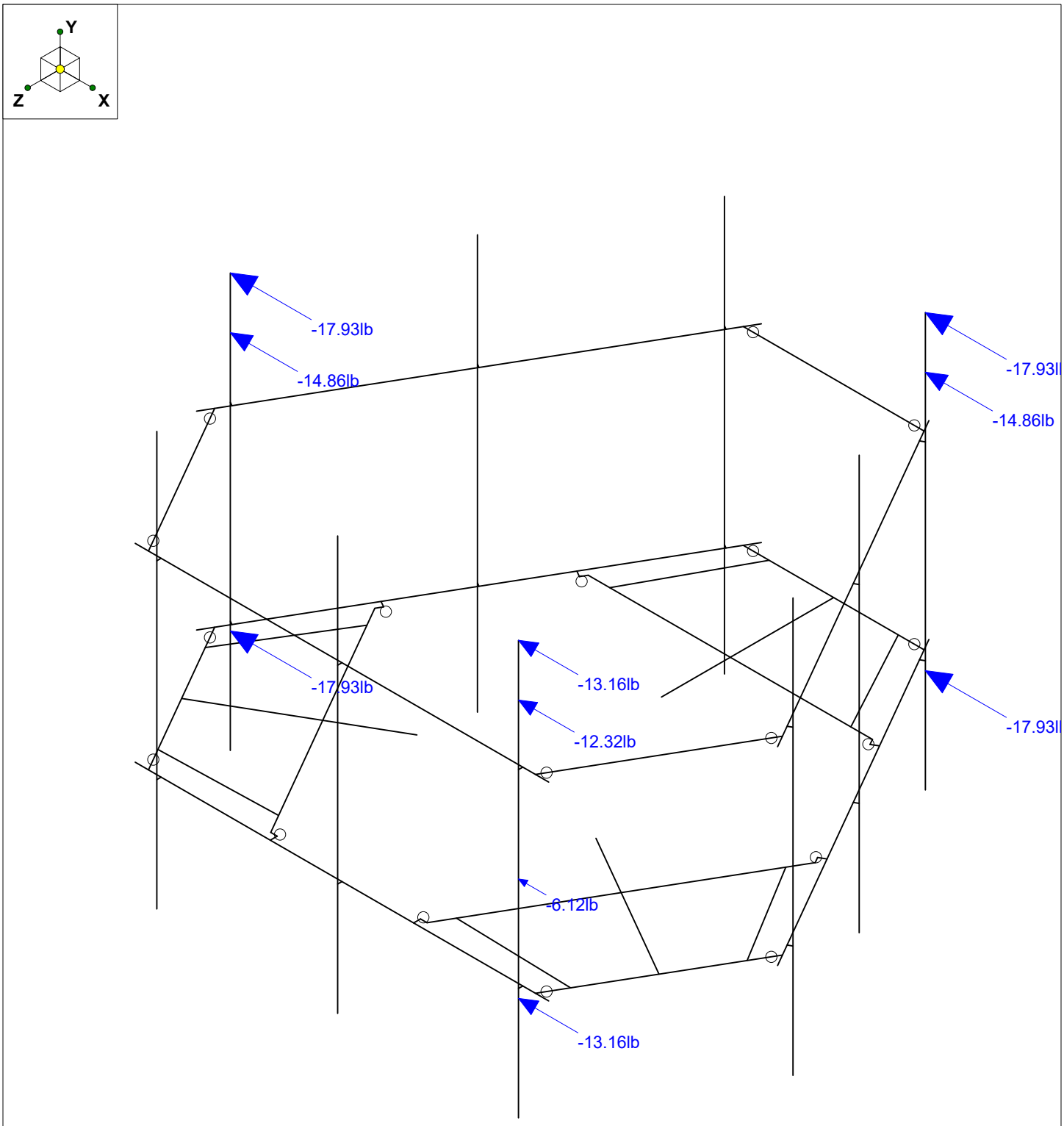

Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

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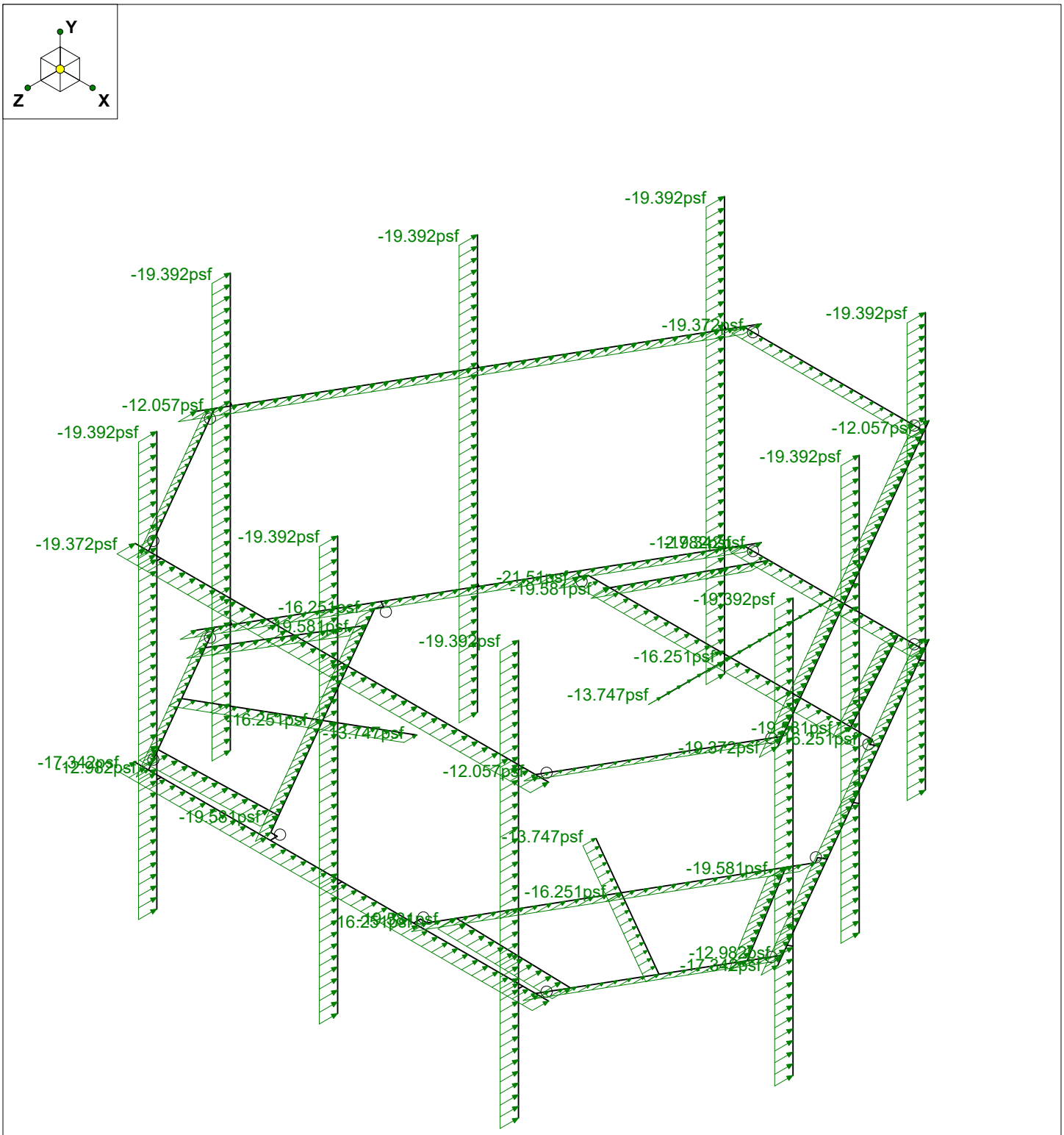

Loads: BLC 29, Distr. Ice Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Distr Ice + Wind Load AZI 000
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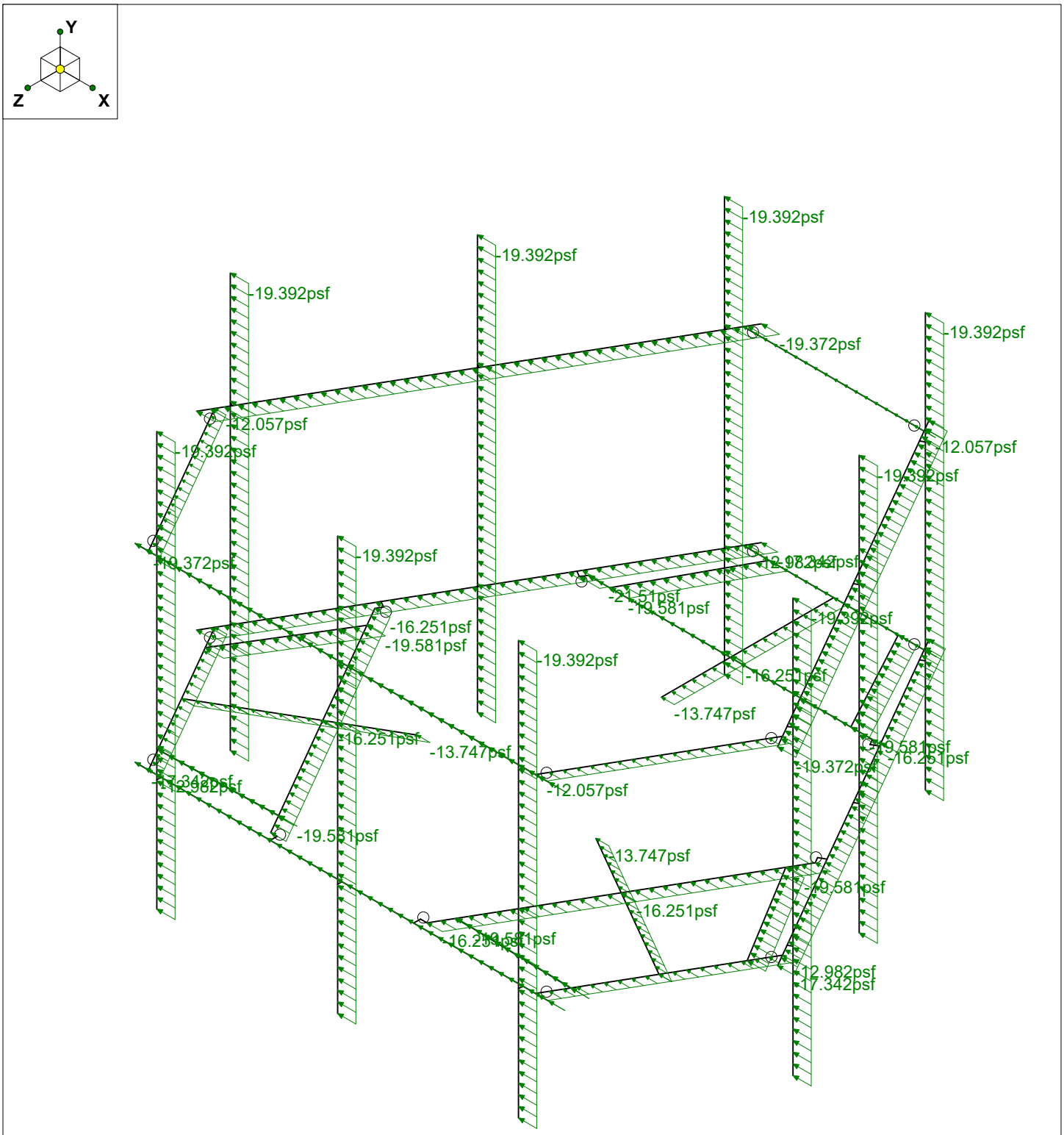

Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

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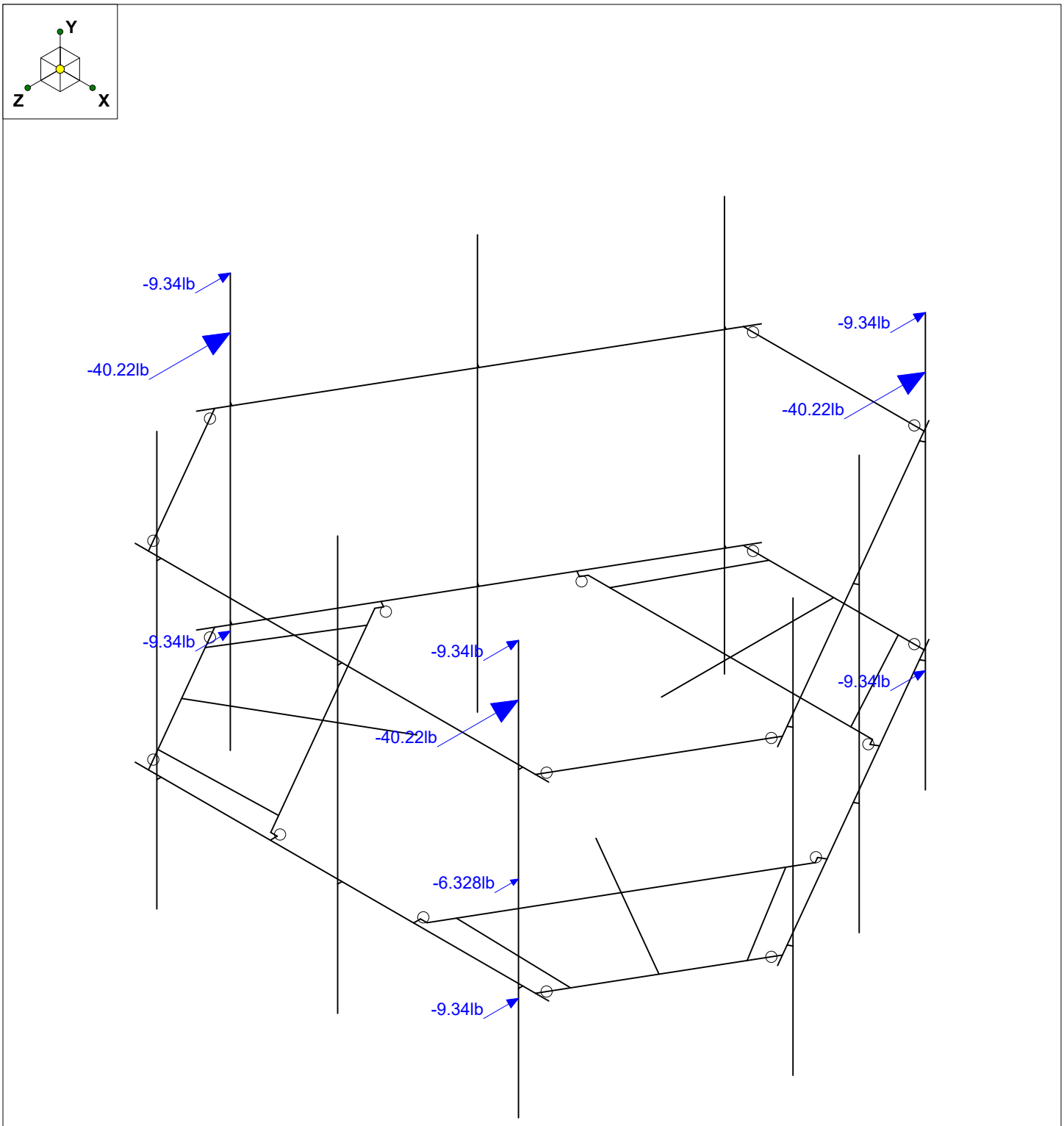

Loads: BLC 31, Seismic Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Seismic Load AZI 000
PSM		Aug 26, 2021 at 11:47 AM
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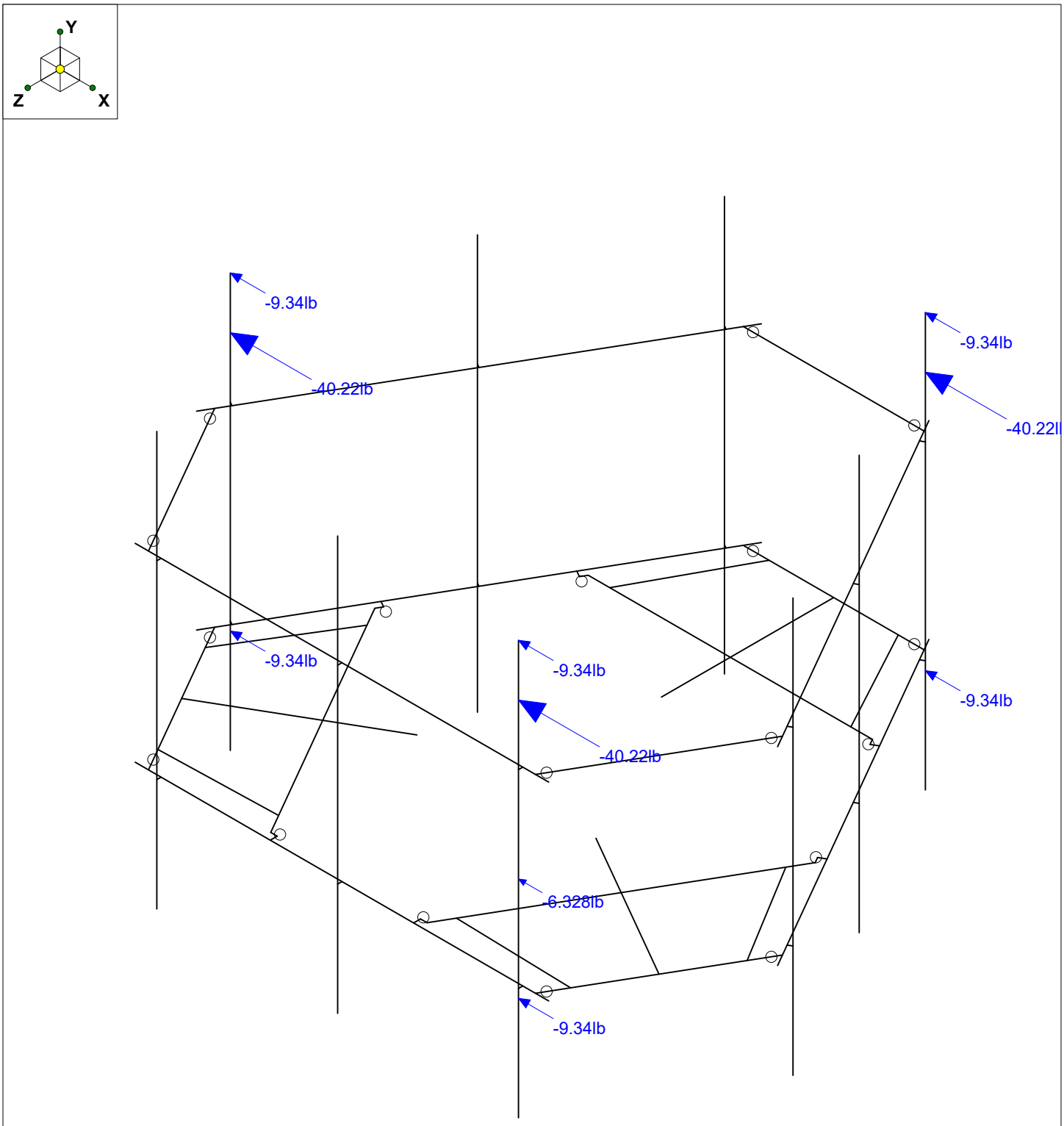

Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Seismic Load AZI 090
PSM		Aug 26, 2021 at 11:47 AM
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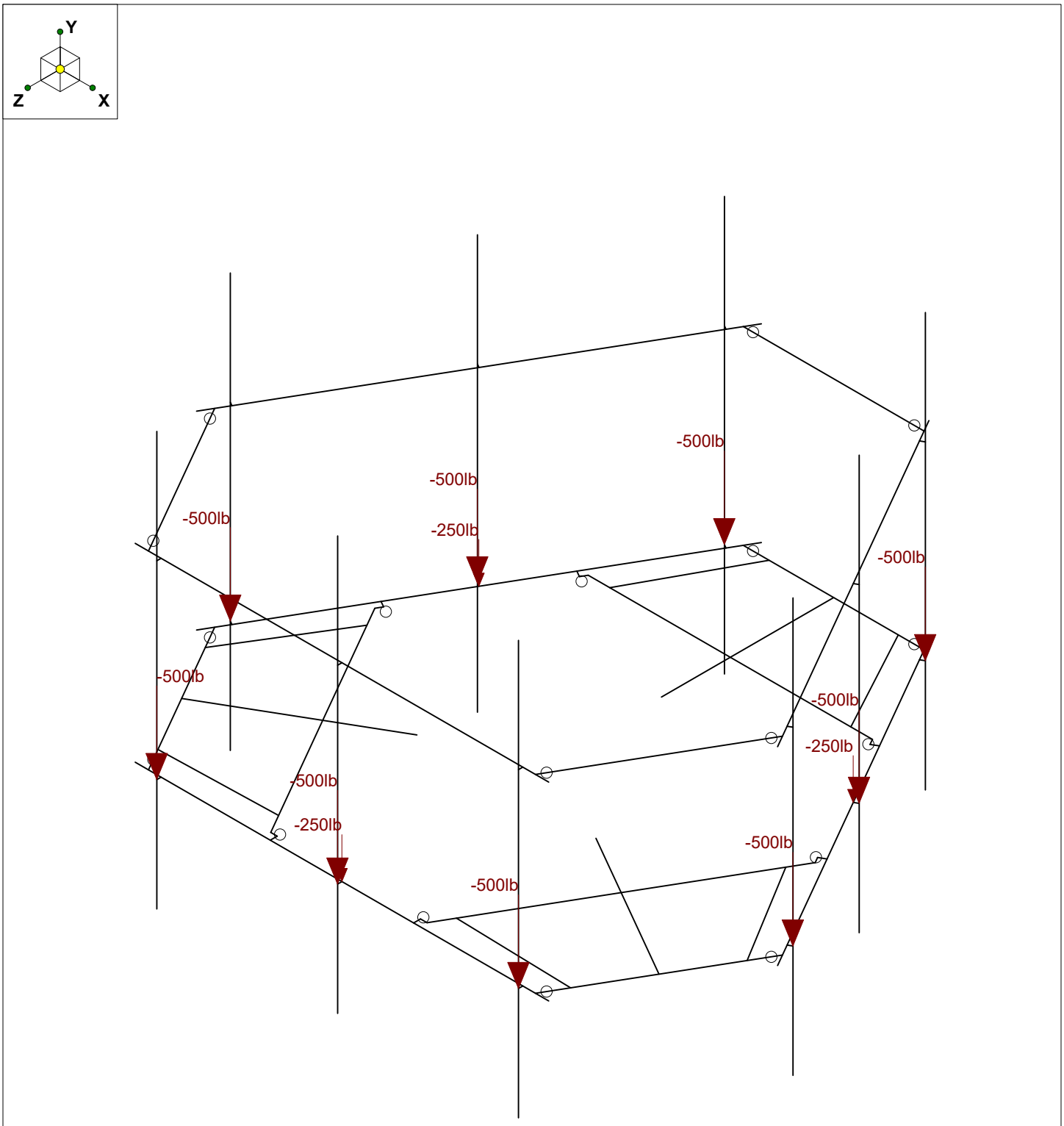

Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Non-concurrent Live Loads
PSM		Aug 26, 2021 at 11:47 AM
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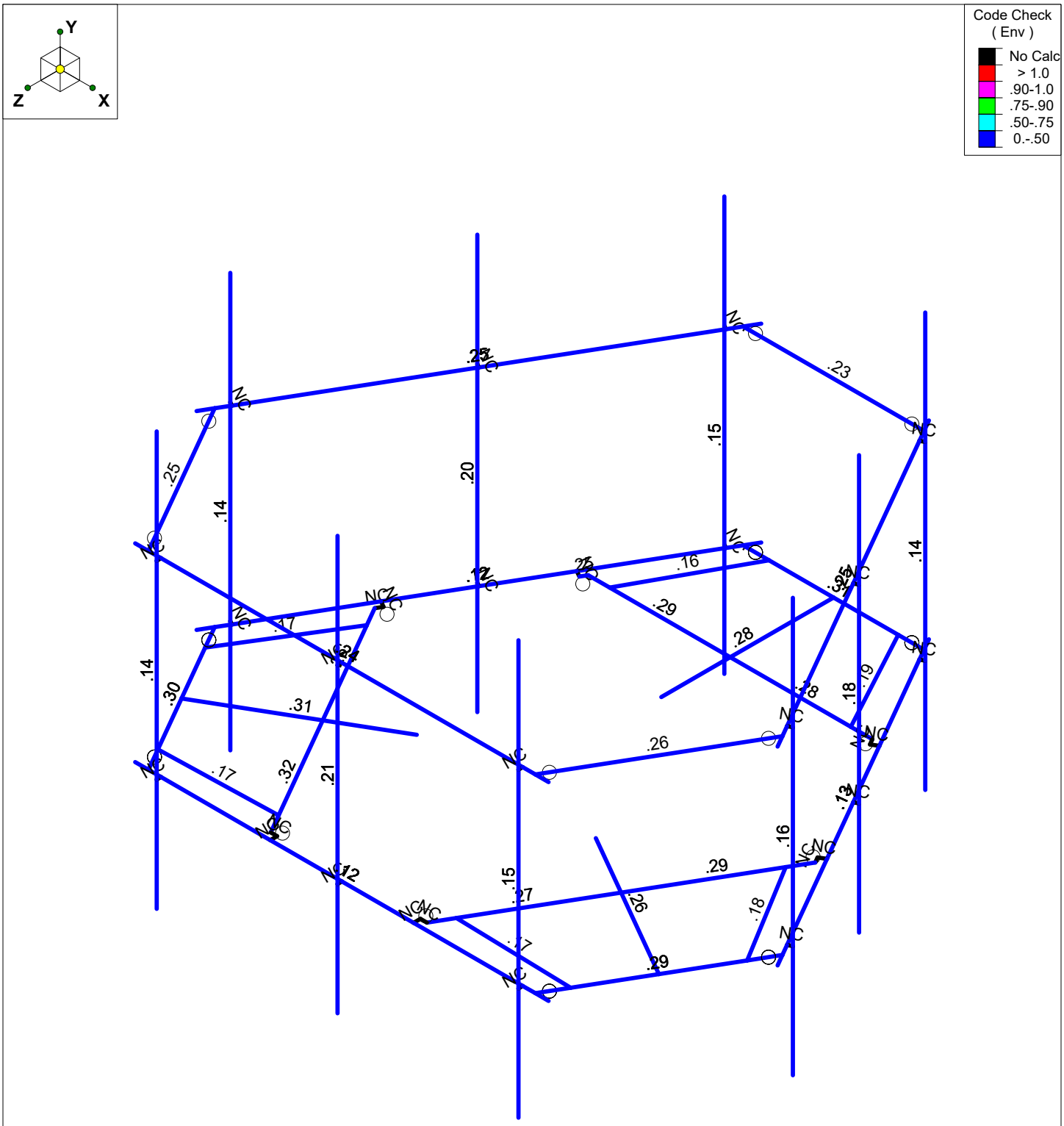

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Bending Check
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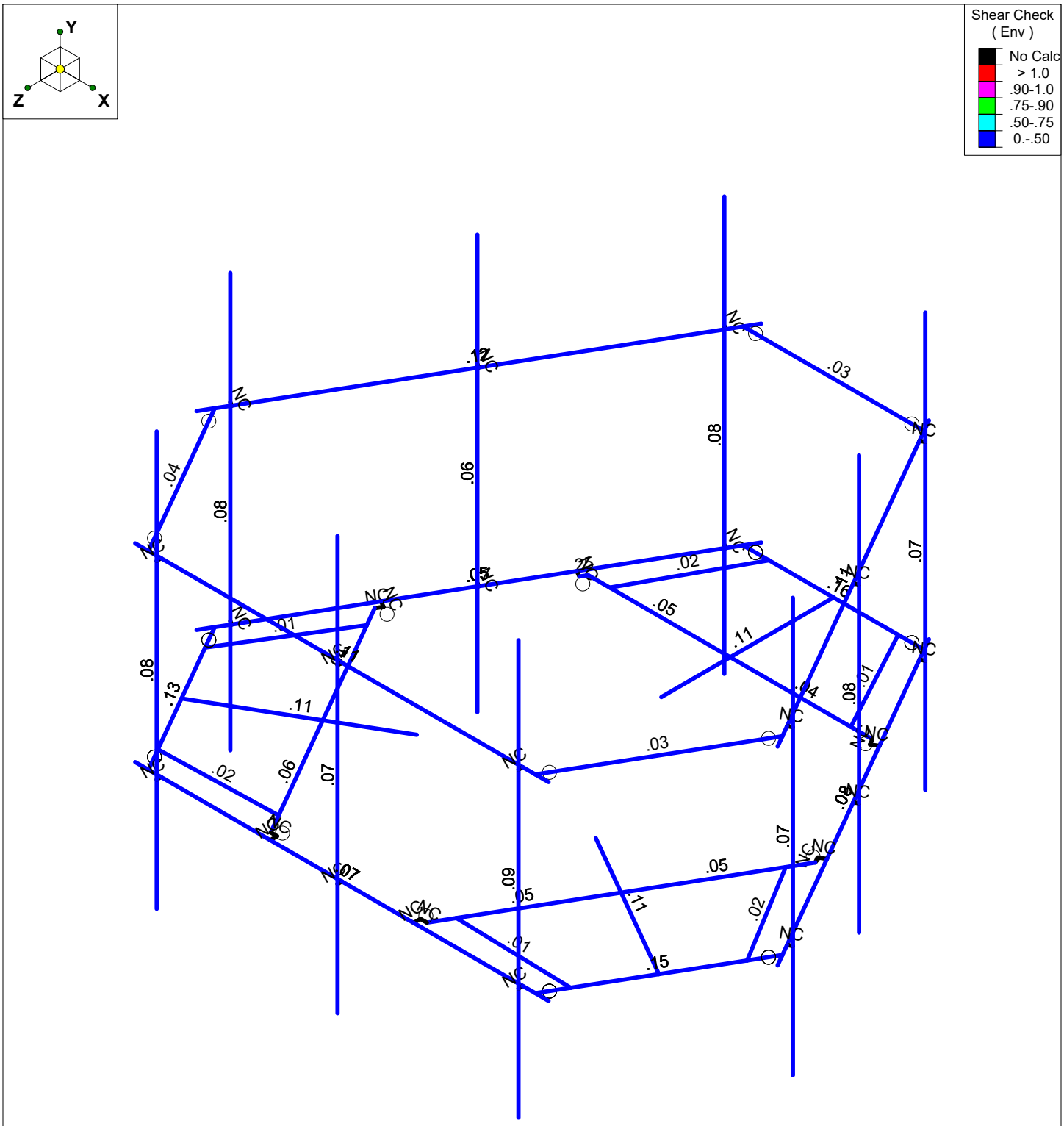
1197-F0001-C		BOBDL00153B_loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00153B	Shear Check
PSM		Aug 26, 2021 at 11:47 AM
1197-F0001-C		BOBDL00153B_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	ATC
Carrier:	Dish Wireless
Engineer:	Pradin Suinyal Magar, M.S

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	230.19	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	50.00	ft
Tower Height AGL:	110.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.992	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2	in
Flat Pressure:	82.437	psf
Round Pressure:	49.462	psf
Ice Wind Pressure:	7.914	psf

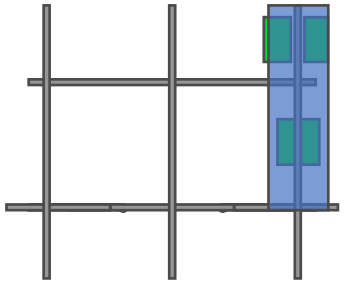
SEISMIC DATA		
Short-Period Accel. (S_s):	0.181	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.193	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

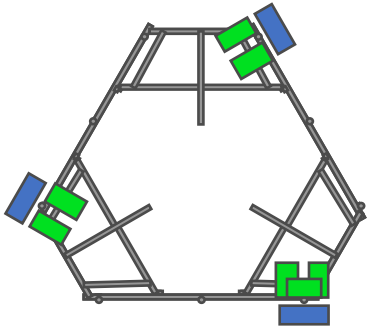
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

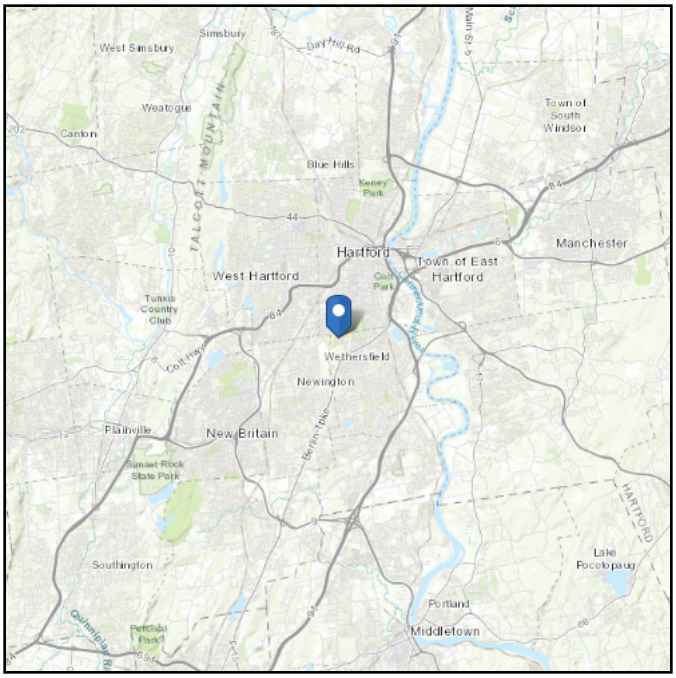
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	50.0	3	0.90	41.22	8.01	3.21	297.14	119.08	64.50	18.68	MP1
FUJITSU TA08025-B605	50.0	3	0.90	41.22	1.96	1.19	72.84	44.11	74.95	21.71	MP1
FUJITSU TA08025-B604	50.0	3	0.90	41.22	1.96	1.03	72.84	38.32	63.93	18.51	MP1
RAYCAP RDIDC-9181-PF-48	50.0	1	0.90	41.22	1.87	1.07	69.25	39.57	21.85	6.33	MP1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 230.19 ft (NAVD 88)
Latitude: 41.721833
Longitude: -72.70128



Wind

Results:

Wind Speed:	125 mph per Hartford City Requirements in WSEL
10-year MRI	77 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Thu Aug 26 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

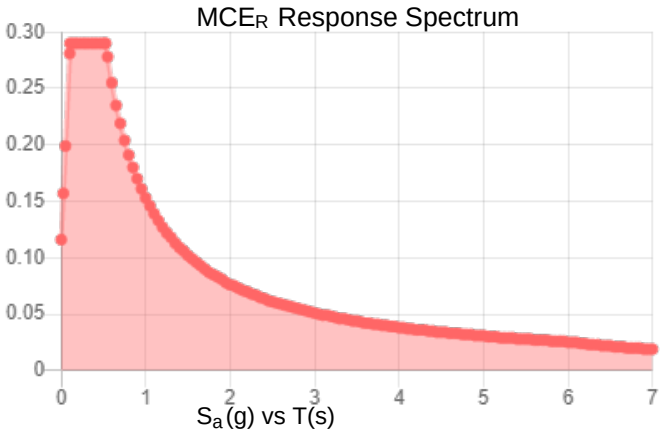
Seismic

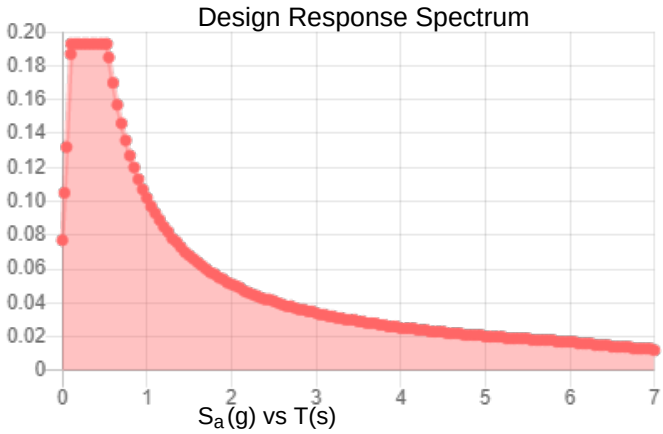
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.29	PGA_M :	0.147
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Aug 26 2021

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.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Aug 26 2021

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.

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	S3	P1	P3			Square Tubing	Beam	None	A500 GR.C	Typical
2	GA4	P9	P12		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
3	GA3	P10	P11			Grating Angle	Beam	None	A529 Gr. 50	Typical
4	P3	P7	P8			Corner Plates	Beam	None	A1011 36 Ksi	Typical
5	S2	P13	P14			Square Tubing	Beam	None	A500 GR.C	Typical
6	GA2	P20	P23		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
7	GA1	P21	P22			Grating Angle	Beam	None	A529 Gr. 50	Typical
8	P2	P18	P19			Corner Plates	Beam	None	A1011 36 Ksi	Typical
9	S1	P24	P25			Square Tubing	Beam	None	A500 GR.C	Typical
10	GA6	P31	P34		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
11	GA5	P32	P33			Grating Angle	Beam	None	A529 Gr. 50	Typical
12	P1	P29	P30			Corner Plates	Beam	None	A1011 36 Ksi	Typical
13	H1	N43	N44			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
14	MP1	N66	N60			Antenna Pipes	Beam	None	A500 GR.C	Typical
15	MP3	N63	N57			Antenna Pipes	Beam	None	A500 GR.C	Typical
16	HR1	N67	N68			Handrail	Beam	None	A500 GR.C	Typical
17	CA8	N114A	N113A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
18	CA9	N112A	N111A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
19	CA7	N116A	N115A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
20	M32	N48A	N70A			RIGID	None	None	RIGID	Typical
21	M35	N45	N69A			RIGID	None	None	RIGID	Typical
22	M36	N51	N71A			RIGID	None	None	RIGID	Typical
23	M39A	N54	N72A			RIGID	None	None	RIGID	Typical
24	CA3	P4	N122A			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
25	CA4	N124B	P4			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
26	CA1	P15	N122B			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
27	CA2	N123A	P15			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
28	CA5	P26	N125			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
29	CA6	N126	P26			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
30	M64	N126A	N125A			RIGID	None	None	RIGID	Typical
31	M65	N126	N125A			RIGID	None	None	RIGID	Typical
32	M66	N129	N128			RIGID	None	None	RIGID	Typical
33	M67	N124B	N128			RIGID	None	None	RIGID	Typical
34	M68	N132	N131			RIGID	None	None	RIGID	Typical
35	M69	N123A	N131			RIGID	None	None	RIGID	Typical
36	M70	N133	N132A			RIGID	None	None	RIGID	Typical
37	M71	N122B	N132A			RIGID	None	None	RIGID	Typical
38	M72	N135	N134			RIGID	None	None	RIGID	Typical
39	M73	N125	N134			RIGID	None	None	RIGID	Typical
40	M74	N138	N137			RIGID	None	None	RIGID	Typical
41	M75	N122A	N137			PL 2.375x0.5	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
42	MP2	N75	N74			Antenna Pipes	Beam	None	A500 GR.C	Typical
43	M43	N72B	N76			RIGID	None	None	RIGID	Typical
44	M44	N73	N77			RIGID	None	None	RIGID	Typical
45	H3	N81A	N82A			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
46	MP7	N90	N88			Antenna Pipes	Beam	None	A500 GR.C	Typical
47	MP9	N89	N87			Antenna Pipes	Beam	None	A500 GR.C	Typical
48	HR3	N91	N92			Handrail	Beam	None	A500 GR.C	Typical
49	M52	N84	N94			RIGID	None	None	RIGID	Typical
50	M53	N83A	N93			RIGID	None	None	RIGID	Typical
51	M54	N85	N95			RIGID	None	None	RIGID	Typical
52	M55	N86	N96			RIGID	None	None	RIGID	Typical
53	H2	N109	N110			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
54	MP4	N118	N116			Antenna Pipes	Beam	None	A500 GR.C	Typical
55	MP6	N117	N115			Antenna Pipes	Beam	None	A500 GR.C	Typical
56	HR2	N119	N120			Handrail	Beam	None	A500 GR.C	Typical
57	M66A	N112	N122			RIGID	None	None	RIGID	Typical
58	M67A	N111	N121			RIGID	None	None	RIGID	Typical
59	M68A	N113	N123			RIGID	None	None	RIGID	Typical
60	M69A	N114	N124			RIGID	None	None	RIGID	Typical
61	MP8	N132B	N131A			Antenna Pipes	Beam	None	A500 GR.C	Typical
62	M68B	N129B	N133B			RIGID	None	None	RIGID	Typical
63	M69B	N130A	N134A			RIGID	None	None	RIGID	Typical
64	MP5	N138A	N137A			Antenna Pipes	Beam	None	A500 GR.C	Typical
65	M71B	N135A	N139			RIGID	None	None	RIGID	Typical
66	M72B	N136	N140			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
1	S3	Square Tubing	40			Lbyy						Late...
2	GA4	Grating Angle	27.295			Lbyy						Late...
3	GA3	Grating Angle	27.295			Lbyy						Late...
4	P3	Corner Plates	42			Lbyy						Late...
5	S2	Square Tubing	40			Lbyy						Late...
6	GA2	Grating Angle	27.295			Lbyy						Late...
7	GA1	Grating Angle	27.295			Lbyy						Late...
8	P2	Corner Plates	42			Lbyy						Late...
9	S1	Square Tubing	40			Lbyy						Late...
10	GA6	Grating Angle	27.295			Lbyy						Late...
11	GA5	Grating Angle	27.295			Lbyy						Late...
12	P1	Corner Plates	42			Lbyy						Late...
13	H1	Face Pipes(3.5x.16)	96			Lbyy						Late...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
14	MP1	Antenna Pipes	96			Lbyy						Late...
15	MP3	Antenna Pipes	96			Lbyy						Late...
16	HR1	Handrail	96			Lbyy						Late...
17	CA8	Handrail Connector	42			Lbyy						Late...
18	CA9	Handrail Connector	42			Lbyy						Late...
19	CA7	Handrail Connector	42			Lbyy						Late...
20	CA3	Channel(3.38x2.06)	33			Lbyy						Late...
21	CA4	Channel(3.38x2.06)	33			Lbyy						Late...
22	CA1	Channel(3.38x2.06)	33			Lbyy						Late...
23	CA2	Channel(3.38x2.06)	33			Lbyy						Late...
24	CA5	Channel(3.38x2.06)	33			Lbyy						Late...
25	CA6	Channel(3.38x2.06)	33			Lbyy						Late...
26	M75	PL 2.375x0.5	1.5			Lbyy						Late...
27	MP2	Antenna Pipes	96			Lbyy						Late...
28	H3	Face Pipes(3.5x.16)	96			Lbyy						Late...
29	MP7	Antenna Pipes	96			Lbyy						Late...
30	MP9	Antenna Pipes	96			Lbyy						Late...
31	HR3	Handrail	96			Lbyy						Late...
32	H2	Face Pipes(3.5x.16)	96			Lbyy						Late...
33	MP4	Antenna Pipes	96			Lbyy						Late...
34	MP6	Antenna Pipes	96			Lbyy						Late...
35	HR2	Handrail	96			Lbyy						Late...
36	MP8	Antenna Pipes	96			Lbyy						Late...
37	MP5	Antenna Pipes	96			Lbyy						Late...

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismi...
1	S3						Yes				None
2	GA4						Yes				None
3	GA3						Yes				None
4	P3	BenPIN	BenPIN				Yes	Default			None
5	S2						Yes				None
6	GA2						Yes				None
7	GA1						Yes				None
8	P2	BenPIN	BenPIN				Yes	Default			None
9	S1						Yes	Default			None
10	GA6						Yes				None
11	GA5						Yes				None
12	P1	BenPIN	BenPIN				Yes	Default			None
13	H1						Yes				None
14	MP1						Yes		+y+3		None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
15	MP3						Yes		+y+3		None
16	HR1						Yes				None
17	CA8	OOOOOX	OOOOOX				Yes				None
18	CA9	OOOOOX	OOOOOX				Yes				None
19	CA7	OOOOOX	OOOOOX				Yes	Default			None
20	M32						Yes	** NA **			None
21	M35						Yes	** NA **			None
22	M36						Yes	** NA **			None
23	M39A						Yes	** NA **			None
24	CA3						Yes	Default			None
25	CA4						Yes	Default			None
26	CA1						Yes	Default			None
27	CA2						Yes	Default			None
28	CA5						Yes	Default			None
29	CA6						Yes	Default			None
30	M64	BenPIN					Yes	** NA **			None
31	M65						Yes	** NA **			None
32	M66	BenPIN					Yes	** NA **			None
33	M67						Yes	** NA **			None
34	M68	BenPIN					Yes	** NA **			None
35	M69						Yes	** NA **			None
36	M70	BenPIN					Yes	** NA **			None
37	M71						Yes	** NA **			None
38	M72	BenPIN					Yes	** NA **			None
39	M73						Yes	** NA **			None
40	M74	BenPIN					Yes	** NA **			None
41	M75						Yes	** NA **			None
42	MP2						Yes		+y+3		None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	H3						Yes				None
46	MP7						Yes		+y+3		None
47	MP9						Yes		+y+3		None
48	HR3						Yes				None
49	M52						Yes	** NA **			None
50	M53						Yes	** NA **			None
51	M54						Yes	** NA **			None
52	M55						Yes	** NA **			None
53	H2						Yes				None
54	MP4						Yes		+y+3		None
55	MP6						Yes		+y+3		None
56	HR2						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
57	M66A						Yes	** NA **			None
58	M67A						Yes	** NA **			None
59	M68A						Yes	** NA **			None
60	M69A						Yes	** NA **			None
61	MP8						Yes		+y+3		None
62	M68B						Yes	** NA **			None
63	M69B						Yes	** NA **			None
64	MP5						Yes		+y+3		None
65	M71B						Yes	** NA **			None
66	M72B						Yes	** NA **			None

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	35.1	0
3	Total General		29	35.1	0
4					
5	Hot Rolled Steel				
6	A1011 36 Ksi	C3.38x2.06x0.25	6	198	98.255
7	A1011 36 Ksi	PL6.5x0.375	3	126	87.09
8	A1011 36 Ksi	L6.6x4.46x0.25	3	126	96.558
9	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
10	A500 GR.C	2.88x0.120	3	288	84.974
11	A500 GR.C	HSS4X4X6	3	120	162.653
12	A500 GR.C	Pipe3.5x0.165	3	288	141.202
13	A500 GR.C	PIPE 2.5	9	864	394.45
14	A529 Gr. 50	L2x2x4	6	163.8	43.838
15	Total HR Steel		37	2175.3	1109.525

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
1	Corner Plates	PL6.5x0.375	Beam	None	A1011 ...	Typical	2.438	.029	8.582	.11
2	6"x0.37" Plate	Plate 6x.37	Beam	None	A1011 ...	Typical	2.22	.025	6.66	.097
3	Grating Angle	L2x2x4	Beam	None	A529 G...	Typical	.944	.346	.346	.021
4	Face Pipes(3.5x.1...	Pipe3.5x0.165	Beam	None	A500 G...	Typical	1.729	2.409	2.409	4.819
5	Antenna Pipes	PIPE 2.5	Beam	None	A500 G...	Typical	1.61	1.45	1.45	2.89
6	Channel(3.38x2.06)	C3.38x2.06x0.25	Beam	None	A1011 ...	Typical	1.75	.715	3.026	.034
7	Square Tubing	HSS4X4X6	Beam	None	A500 G...	Typical	4.78	10.3	10.3	17.5
8	Handrail Connector	L6.6x4.46x0.25	Beam	None	A1011 ...	Typical	2.703	4.759	12.473	.055

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
9	Handrail	2.88x0.120	Beam	None	A500 G...	Typical	1.04	.993	.993	1.985

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			13		3	
2	Wind Load AZI 0	WLZ					26			
3	Wind Load AZI 30	None					26			
4	Wind Load AZI 60	None					26			
5	Wind Load AZI 90	WLX					26			
6	Wind Load AZI 1...	None					26			
7	Wind Load AZI 1...	None					26			
8	Wind Load AZI 1...	None					26			
9	Wind Load AZI 2...	None					26			
10	Wind Load AZI 2...	None					26			
11	Wind Load AZI 2...	None					26			
12	Wind Load AZI 3...	None					26			
13	Wind Load AZI 3...	None					26			
14	Distr. Wind Load Z	WLZ						66		
15	Distr. Wind Load X	WLX						66		
16	Ice Weight	OL1					13	66	3	
17	Ice Wind Load A...	OL2					26			
18	Ice Wind Load A...	None					26			
19	Ice Wind Load A...	None					26			
20	Ice Wind Load A...	OL3					26			
21	Ice Wind Load A...	None					26			
22	Ice Wind Load A...	None					26			
23	Ice Wind Load A...	None					26			
24	Ice Wind Load A...	None					26			
25	Ice Wind Load A...	None					26			
26	Ice Wind Load A...	None					26			
27	Ice Wind Load A...	None					26			
28	Ice Wind Load A...	None					26			
29	Distr. Ice Wind L...	OL2						66		
30	Distr. Ice Wind L...	OL3						66		
31	Seismic Load Z	ELZ			-.29		13			
32	Seismic Load X	ELX	-.29				13			
33	Service Live Loa...	LL				3				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	Maintenance Loa...	LL				1				
37	Maintenance Loa...	LL				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
38	Maintenance Loa...	LL				1				
39	Maintenance Loa...	LL				1				
40	Maintenance Loa...	LL				1				
41	Maintenance Loa...	LL				1				
42	Maintenance Loa...	LL				1				
43	BLC 1 Transient ...	None						9		
44	BLC 16 Transien...	None						9		

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	1.4DL	Y...	Y		1	1.4																				
2	1.2DL + 1WL AZI 0	Y...	Y		1	1.2	2	1	14	1	15															
3	1.2DL + 1WL AZI 30	Y...	Y		1	1.2	3	1	14	.866	15	.5														
4	1.2DL + 1WL AZI 60	Y...	Y		1	1.2	4	1	14	.5	15	.866														
5	1.2DL + 1WL AZI 90	Y...	Y		1	1.2	5	1	14		15	1														
6	1.2DL + 1WL AZI 120	Y...	Y		1	1.2	6	1	14	-.5	15	.866														
7	1.2DL + 1WL AZI 150	Y...	Y		1	1.2	7	1	14	-.8...	15	.5														
8	1.2DL + 1WL AZI 180	Y...	Y		1	1.2	8	1	14	-1	15															
9	1.2DL + 1WL AZI 210	Y...	Y		1	1.2	9	1	14	-.8...	15	-.5														
10	1.2DL + 1WL AZI 240	Y...	Y		1	1.2	10	1	14	-.5	15	-.8...														
11	1.2DL + 1WL AZI 270	Y...	Y		1	1.2	11	1	14		15	-1														
12	1.2DL + 1WL AZI 300	Y...	Y		1	1.2	12	1	14	.5	15	-.8...														
13	1.2DL + 1WL AZI 330	Y...	Y		1	1.2	13	1	14	.866	15	-.5														
14	0.9DL + 1WL AZI 0	Y...	Y		1	.9	2	1	14	1	15															
15	0.9DL + 1WL AZI 30	Y...	Y		1	.9	3	1	14	.866	15	.5														
16	0.9DL + 1WL AZI 60	Y...	Y		1	.9	4	1	14	.5	15	.866														
17	0.9DL + 1WL AZI 90	Y...	Y		1	.9	5	1	14		15	1														
18	0.9DL + 1WL AZI 120	Y...	Y		1	.9	6	1	14	-.5	15	.866														
19	0.9DL + 1WL AZI 150	Y...	Y		1	.9	7	1	14	-.8...	15	.5														
20	0.9DL + 1WL AZI 180	Y...	Y		1	.9	8	1	14	-1	15															
21	0.9DL + 1WL AZI 210	Y...	Y		1	.9	9	1	14	-.8...	15	-.5														
22	0.9DL + 1WL AZI 240	Y...	Y		1	.9	10	1	14	-.5	15	-.8...														
23	0.9DL + 1WL AZI 270	Y...	Y		1	.9	11	1	14		15	-1														
24	0.9DL + 1WL AZI 300	Y...	Y		1	.9	12	1	14	.5	15	-.8...														
25	0.9DL + 1WL AZI 330	Y...	Y		1	.9	13	1	14	.866	15	-.5														
26	1.2D + 1.0Di	Y...	Y		1	1.2	16	1																		
27	1.2D + 1.0Di +1.0Wi AZI 0	Y...	Y		1	1.2	16	1	17	1	29	1	30													
28	1.2D + 1.0Di +1.0Wi AZI 30	Y...	Y		1	1.2	16	1	18	1	29	.866	30	.5													
29	1.2D + 1.0Di +1.0Wi AZI 60	Y...	Y		1	1.2	16	1	19	1	29	.5	30	.866													
30	1.2D + 1.0Di +1.0Wi AZI 90	Y...	Y		1	1.2	16	1	20	1	29		30	1													
31	1.2D + 1.0Di +1.0Wi AZI 120	Y...	Y		1	1.2	16	1	21	1	29	-.5	30	.866													

Load Combinations (Continued)

	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...
32	1.2D + 1.0Di +1.0Wi AZI 150	Y...	Y		1	1.2	16	1	22	1	29	-.8...	30	.5												
33	1.2D + 1.0Di +1.0Wi AZI 180	Y...	Y		1	1.2	16	1	23	1	29	-1	30													
34	1.2D + 1.0Di +1.0Wi AZI 210	Y...	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5												
35	1.2D + 1.0Di +1.0Wi AZI 240	Y...	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...												
36	1.2D + 1.0Di +1.0Wi AZI 270	Y...	Y		1	1.2	16	1	26	1	29		30	-1												
37	1.2D + 1.0Di +1.0Wi AZI 300	Y...	Y		1	1.2	16	1	27	1	29	.5	30	-.8...												
38	1.2D + 1.0Di +1.0Wi AZI 330	Y...	Y		1	1.2	16	1	28	1	29	.866	30	-.5												
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	1.2...	31	1	32																	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	1.2...	31	.866	32	.5																
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	1.2...	31	.5	32	.866																
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	1.2...	31		32	1																
43	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.5	32	.866																
44	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.8...	32	.5																
45	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-1	32																	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.8...	32	-.5																
47	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.5	32	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31		32	-1																
49	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.5	32	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.866	32	-.5																
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	.861	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	.861	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	.861	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	.861	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31	-.8...	32	-.5																
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31	-.5	32	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31		32	-1																
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.861	31	.5	32	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.861	31	.866	32	-.5																
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	2	.23	14	.23	15		33	1.5												
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	3	.23	14	.2	15	.115	33	1.5												
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	4	.23	14	.115	15	.2	33	1.5												
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	5	.23	14		15	.23	33	1.5												
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	6	.23	14	-.1...	15	.2	33	1.5												
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	7	.23	14	-.2	15	.115	33	1.5												
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	8	.23	14	-.23	15		33	1.5												
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	9	.23	14	-.2	15	-.1...	33	1.5												
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	10	.23	14	-.1...	15	-.2	33	1.5												
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	11	.23	14		15	-.23	33	1.5												
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	12	.23	14	.115	15	-.2	33	1.5												

Load Combinations (Continued)

	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...
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	13	.23	14	.2	15	-.1...	33	1.5												
75	1.2DL + 1.5LL	Y...	Y		1	1.2	33	1.5																		
76	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	2	.058	14	.058	15													
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	3	.058	14	.05	15	.029												
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	4	.058	14	.029	15	.05												
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	5	.058	14		15	.058												
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	6	.058	14	-.0...	15	.05												
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	7	.058	14	-.05	15	.029												
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	8	.058	14	-.0...	15													
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	9	.058	14	-.05	15	-.0...												
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	10	.058	14	-.0...	15	-.05												
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	11	.058	14		15	-.0...												
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	12	.058	14	.029	15	-.05												
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	13	.058	14	.05	15	-.0...												
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	2	.058	14	.058	15													
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	3	.058	14	.05	15	.029												
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	4	.058	14	.029	15	.05												
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	5	.058	14		15	.058												
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	6	.058	14	-.0...	15	.05												
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	7	.058	14	-.05	15	.029												
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	8	.058	14	-.0...	15													
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	9	.058	14	-.05	15	-.0...												
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	10	.058	14	-.0...	15	-.05												
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	11	.058	14		15	-.0...												
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	12	.058	14	.029	15	-.05												
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	13	.058	14	.05	15	-.0...												
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	2	.058	14	.058	15													
101	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	3	.058	14	.05	15	.029												
102	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	4	.058	14	.029	15	.05												
103	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	5	.058	14		15	.058												
104	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	6	.058	14	-.0...	15	.05												
105	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	7	.058	14	-.05	15	.029												
106	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	8	.058	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	9	.058	14	-.05	15	-.0...												
108	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	10	.058	14	-.0...	15	-.05												
109	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	11	.058	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	12	.058	14	.029	15	-.05												
111	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	13	.058	14	.05	15	-.0...												
112	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	2	.058	14	.058	15													
113	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	3	.058	14	.05	15	.029												
114	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	4	.058	14	.029	15	.05												
115	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	5	.058	14		15	.058												

Load Combinations (Continued)

	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...
116	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	6	.058	14	-.0...	15	.05												
117	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	7	.058	14	-.05	15	.029												
118	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	8	.058	14	-.0...	15													
119	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	9	.058	14	-.05	15	-.0...												
120	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	10	.058	14	-.0...	15	-.05												
121	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	11	.058	14		15	-.0...												
122	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	12	.058	14	.029	15	-.05												
123	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	13	.058	14	.05	15	-.0...												
124	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	2	.058	14	.058	15													
125	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	3	.058	14	.05	15	.029												
126	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	4	.058	14	.029	15	.05												
127	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	5	.058	14		15	.058												
128	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	6	.058	14	-.0...	15	.05												
129	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	7	.058	14	-.05	15	.029												
130	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	8	.058	14	-.0...	15													
131	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	9	.058	14	-.05	15	-.0...												
132	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	10	.058	14	-.0...	15	-.05												
133	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	11	.058	14		15	-.0...												
134	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	12	.058	14	.029	15	-.05												
135	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	13	.058	14	.05	15	-.0...												
136	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	2	.058	14	.058	15													
137	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	3	.058	14	.05	15	.029												
138	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	4	.058	14	.029	15	.05												
139	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	5	.058	14		15	.058												
140	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	6	.058	14	-.0...	15	.05												
141	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	7	.058	14	-.05	15	.029												
142	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	8	.058	14	-.0...	15													
143	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	9	.058	14	-.05	15	-.0...												
144	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	10	.058	14	-.0...	15	-.05												
145	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	11	.058	14		15	-.0...												
146	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	12	.058	14	.029	15	-.05												
147	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	13	.058	14	.05	15	-.0...												
148	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	2	.058	14	.058	15													
149	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	3	.058	14	.05	15	.029												
150	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	4	.058	14	.029	15	.05												
151	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	5	.058	14		15	.058												
152	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	6	.058	14	-.0...	15	.05												
153	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	7	.058	14	-.05	15	.029												
154	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	8	.058	14	-.0...	15													
155	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	9	.058	14	-.05	15	-.0...												
156	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	10	.058	14	-.0...	15	-.05												
157	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	11	.058	14		15	-.0...												

Load Combinations (Continued)

	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...
158	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	12	.058	14	.029	15	-.05												
159	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	13	.058	14	.05	15	-.0...												
160	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	2	.058	14	.058	15													
161	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	3	.058	14	.05	15	.029												
162	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	4	.058	14	.029	15	.05												
163	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	5	.058	14		15	.058												
164	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	6	.058	14	-.0...	15	.05												
165	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	7	.058	14	-.05	15	.029												
166	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	8	.058	14	-.0...	15													
167	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	9	.058	14	-.05	15	-.0...												
168	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	10	.058	14	-.0...	15	-.05												
169	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	11	.058	14		15	-.0...												
170	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	12	.058	14	.029	15	-.05												
171	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	13	.058	14	.05	15	-.0...												
172	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	2	.058	14	.058	15													
173	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	3	.058	14	.05	15	.029												
174	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	4	.058	14	.029	15	.05												
175	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	5	.058	14		15	.058												
176	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	6	.058	14	-.0...	15	.05												
177	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	7	.058	14	-.05	15	.029												
178	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	8	.058	14	-.0...	15													
179	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	9	.058	14	-.05	15	-.0...												
180	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	10	.058	14	-.0...	15	-.05												
181	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	11	.058	14		15	-.0...												
182	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	12	.058	14	.029	15	-.05												

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	P24	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	P13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	P1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	P24	...	938.028	6	2439.6...	35	1441.7...	13	861.291	16	1840.052	19	4341.346	35
2		...	-921.114	24	-466.6...	16	-1433.8...	19	-3884.7...	35	-1856.68	13	-1575.625	16
3	P13	...	1094.324	4	2681.1...	31	1430.8...	15	878.315	24	1946.642	15	1410.551	24
4		...	-1092.675	22	-408.8...	24	-1438.0...	9	-2807.31	92	-1993.016	9	-6135.16	31
5	P1	...	1427.921	17	2484.2...	27	744.851	2	5969.5...	27	1622.081	11	1578.916	115

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6		...	-1446.558	11	-481.3...	20	-750.078	8	-1837.4...	20	-1571.31	17	-860.736	157
7	Totals:	...	3285.388	5	6939.2...	34	3479.7...	14						
8		...	-3285.38	23	1532.4...	53	-3479.7...	8						

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-32.25	0
2	MP1	Y	-32.25	72
3	MP1	Y	-74.95	12
4	MP1	Y	-63.93	12
5	MP1	Y	-21.85	48
6	MP4	Y	-32.25	0
7	MP4	Y	-32.25	72
8	MP4	Y	-74.95	12
9	MP4	Y	-63.93	12
10	MP7	Y	-32.25	0
11	MP7	Y	-32.25	72
12	MP7	Y	-74.95	12
13	MP7	Y	-63.93	12

Member Point Loads (BLC 2 : Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-148.57	0
3	MP1	X	0	72
4	MP1	Z	-148.57	72
5	MP1	X	0	12
6	MP1	Z	-72.84	12
7	MP1	X	0	12
8	MP1	Z	-72.84	12
9	MP1	X	0	48
10	MP1	Z	-69.25	48
11	MP4	X	0	0
12	MP4	Z	-81.8	0
13	MP4	X	0	72
14	MP4	Z	-81.8	72
15	MP4	X	0	12
16	MP4	Z	-51.29	12
17	MP4	X	0	12
18	MP4	Z	-46.95	12

Member Point Loads (BLC 2 : Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP7	X	0	0
20	MP7	Z	-81.8	0
21	MP7	X	0	72
22	MP7	Z	-81.8	72
23	MP7	X	0	12
24	MP7	Z	-51.29	12
25	MP7	X	0	12
26	MP7	Z	-46.95	12

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-63.16	0
2	MP1	Z	-109.39	0
3	MP1	X	-63.16	72
4	MP1	Z	-109.39	72
5	MP1	X	-32.83	12
6	MP1	Z	-56.86	12
7	MP1	X	-32.1	12
8	MP1	Z	-55.61	12
9	MP1	X	-30.91	48
10	MP1	Z	-53.54	48
11	MP4	X	-63.16	0
12	MP4	Z	-109.39	0
13	MP4	X	-63.16	72
14	MP4	Z	-109.39	72
15	MP4	X	-32.83	12
16	MP4	Z	-56.86	12
17	MP4	X	-32.1	12
18	MP4	Z	-55.61	12
19	MP7	X	-29.77	0
20	MP7	Z	-51.56	0
21	MP7	X	-29.77	72
22	MP7	Z	-51.56	72
23	MP7	X	-22.06	12
24	MP7	Z	-38.2	12
25	MP7	X	-19.16	12
26	MP7	Z	-33.18	12

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-70.84	0

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-40.9	0
3	MP1	X	-70.84	72
4	MP1	Z	-40.9	72
5	MP1	X	-44.42	12
6	MP1	Z	-25.65	12
7	MP1	X	-40.66	12
8	MP1	Z	-23.47	12
9	MP1	X	-40.69	48
10	MP1	Z	-23.49	48
11	MP4	X	-128.67	0
12	MP4	Z	-74.29	0
13	MP4	X	-128.67	72
14	MP4	Z	-74.29	72
15	MP4	X	-63.08	12
16	MP4	Z	-36.42	12
17	MP4	X	-63.08	12
18	MP4	Z	-36.42	12
19	MP7	X	-70.84	0
20	MP7	Z	-40.9	0
21	MP7	X	-70.84	72
22	MP7	Z	-40.9	72
23	MP7	X	-44.42	12
24	MP7	Z	-25.65	12
25	MP7	X	-40.66	12
26	MP7	Z	-23.47	12

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-59.54	0
2	MP1	Z	0	0
3	MP1	X	-59.54	72
4	MP1	Z	0	72
5	MP1	X	-44.11	12
6	MP1	Z	0	12
7	MP1	X	-38.32	12
8	MP1	Z	0	12
9	MP1	X	-39.57	48
10	MP1	Z	0	48
11	MP4	X	-126.31	0
12	MP4	Z	0	0
13	MP4	X	-126.31	72
14	MP4	Z	0	72

Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	MP4	X	-65.66	12
16	MP4	Z	0	12
17	MP4	X	-64.21	12
18	MP4	Z	0	12
19	MP7	X	-126.31	0
20	MP7	Z	0	0
21	MP7	X	-126.31	72
22	MP7	Z	0	72
23	MP7	X	-65.66	12
24	MP7	Z	0	12
25	MP7	X	-64.21	12
26	MP7	Z	0	12

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-70.84	0
2	MP1	Z	40.9	0
3	MP1	X	-70.84	72
4	MP1	Z	40.9	72
5	MP1	X	-44.42	12
6	MP1	Z	25.65	12
7	MP1	X	-40.66	12
8	MP1	Z	23.47	12
9	MP1	X	-40.69	48
10	MP1	Z	23.49	48
11	MP4	X	-70.84	0
12	MP4	Z	40.9	0
13	MP4	X	-70.84	72
14	MP4	Z	40.9	72
15	MP4	X	-44.42	12
16	MP4	Z	25.65	12
17	MP4	X	-40.66	12
18	MP4	Z	23.47	12
19	MP7	X	-128.67	0
20	MP7	Z	74.29	0
21	MP7	X	-128.67	72
22	MP7	Z	74.29	72
23	MP7	X	-63.08	12
24	MP7	Z	36.42	12
25	MP7	X	-63.08	12
26	MP7	Z	36.42	12

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-63.16	0
2	MP1	Z	109.39	0
3	MP1	X	-63.16	72
4	MP1	Z	109.39	72
5	MP1	X	-32.83	12
6	MP1	Z	56.86	12
7	MP1	X	-32.1	12
8	MP1	Z	55.61	12
9	MP1	X	-30.91	48
10	MP1	Z	53.54	48
11	MP4	X	-29.77	0
12	MP4	Z	51.56	0
13	MP4	X	-29.77	72
14	MP4	Z	51.56	72
15	MP4	X	-22.06	12
16	MP4	Z	38.2	12
17	MP4	X	-19.16	12
18	MP4	Z	33.18	12
19	MP7	X	-63.16	0
20	MP7	Z	109.39	0
21	MP7	X	-63.16	72
22	MP7	Z	109.39	72
23	MP7	X	-32.83	12
24	MP7	Z	56.86	12
25	MP7	X	-32.1	12
26	MP7	Z	55.61	12

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	148.57	0
3	MP1	X	0	72
4	MP1	Z	148.57	72
5	MP1	X	0	12
6	MP1	Z	72.84	12
7	MP1	X	0	12
8	MP1	Z	72.84	12
9	MP1	X	0	48
10	MP1	Z	69.25	48
11	MP4	X	0	0
12	MP4	Z	81.8	0
13	MP4	X	0	72

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	81.8	72
15	MP4	X	0	12
16	MP4	Z	51.29	12
17	MP4	X	0	12
18	MP4	Z	46.95	12
19	MP7	X	0	0
20	MP7	Z	81.8	0
21	MP7	X	0	72
22	MP7	Z	81.8	72
23	MP7	X	0	12
24	MP7	Z	51.29	12
25	MP7	X	0	12
26	MP7	Z	46.95	12

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	63.16	0
2	MP1	Z	109.39	0
3	MP1	X	63.16	72
4	MP1	Z	109.39	72
5	MP1	X	32.83	12
6	MP1	Z	56.86	12
7	MP1	X	32.1	12
8	MP1	Z	55.61	12
9	MP1	X	30.91	48
10	MP1	Z	53.54	48
11	MP4	X	63.16	0
12	MP4	Z	109.39	0
13	MP4	X	63.16	72
14	MP4	Z	109.39	72
15	MP4	X	32.83	12
16	MP4	Z	56.86	12
17	MP4	X	32.1	12
18	MP4	Z	55.61	12
19	MP7	X	29.77	0
20	MP7	Z	51.56	0
21	MP7	X	29.77	72
22	MP7	Z	51.56	72
23	MP7	X	22.06	12
24	MP7	Z	38.2	12
25	MP7	X	19.16	12
26	MP7	Z	33.18	12

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	70.84	0
2	MP1	Z	40.9	0
3	MP1	X	70.84	72
4	MP1	Z	40.9	72
5	MP1	X	44.42	12
6	MP1	Z	25.65	12
7	MP1	X	40.66	12
8	MP1	Z	23.47	12
9	MP1	X	40.69	48
10	MP1	Z	23.49	48
11	MP4	X	128.67	0
12	MP4	Z	74.29	0
13	MP4	X	128.67	72
14	MP4	Z	74.29	72
15	MP4	X	63.08	12
16	MP4	Z	36.42	12
17	MP4	X	63.08	12
18	MP4	Z	36.42	12
19	MP7	X	70.84	0
20	MP7	Z	40.9	0
21	MP7	X	70.84	72
22	MP7	Z	40.9	72
23	MP7	X	44.42	12
24	MP7	Z	25.65	12
25	MP7	X	40.66	12
26	MP7	Z	23.47	12

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	59.54	0
2	MP1	Z	0	0
3	MP1	X	59.54	72
4	MP1	Z	0	72
5	MP1	X	44.11	12
6	MP1	Z	0	12
7	MP1	X	38.32	12
8	MP1	Z	0	12
9	MP1	X	39.57	48
10	MP1	Z	0	48
11	MP4	X	126.31	0
12	MP4	Z	0	0
13	MP4	X	126.31	72

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	0	72
15	MP4	X	65.66	12
16	MP4	Z	0	12
17	MP4	X	64.21	12
18	MP4	Z	0	12
19	MP7	X	126.31	0
20	MP7	Z	0	0
21	MP7	X	126.31	72
22	MP7	Z	0	72
23	MP7	X	65.66	12
24	MP7	Z	0	12
25	MP7	X	64.21	12
26	MP7	Z	0	12

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	70.84	0
2	MP1	Z	-40.9	0
3	MP1	X	70.84	72
4	MP1	Z	-40.9	72
5	MP1	X	44.42	12
6	MP1	Z	-25.65	12
7	MP1	X	40.66	12
8	MP1	Z	-23.47	12
9	MP1	X	40.69	48
10	MP1	Z	-23.49	48
11	MP4	X	70.84	0
12	MP4	Z	-40.9	0
13	MP4	X	70.84	72
14	MP4	Z	-40.9	72
15	MP4	X	44.42	12
16	MP4	Z	-25.65	12
17	MP4	X	40.66	12
18	MP4	Z	-23.47	12
19	MP7	X	128.67	0
20	MP7	Z	-74.29	0
21	MP7	X	128.67	72
22	MP7	Z	-74.29	72
23	MP7	X	63.08	12
24	MP7	Z	-36.42	12
25	MP7	X	63.08	12
26	MP7	Z	-36.42	12

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	63.16	0
2	MP1	Z	-109.39	0
3	MP1	X	63.16	72
4	MP1	Z	-109.39	72
5	MP1	X	32.83	12
6	MP1	Z	-56.86	12
7	MP1	X	32.1	12
8	MP1	Z	-55.61	12
9	MP1	X	30.91	48
10	MP1	Z	-53.54	48
11	MP4	X	29.77	0
12	MP4	Z	-51.56	0
13	MP4	X	29.77	72
14	MP4	Z	-51.56	72
15	MP4	X	22.06	12
16	MP4	Z	-38.2	12
17	MP4	X	19.16	12
18	MP4	Z	-33.18	12
19	MP7	X	63.16	0
20	MP7	Z	-109.39	0
21	MP7	X	63.16	72
22	MP7	Z	-109.39	72
23	MP7	X	32.83	12
24	MP7	Z	-56.86	12
25	MP7	X	32.1	12
26	MP7	Z	-55.61	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-176.368	0
2	MP1	Y	-176.368	72
3	MP1	Y	-94.194	12
4	MP1	Y	-88.586	12
5	MP1	Y	-86.461	48
6	MP4	Y	-176.368	0
7	MP4	Y	-176.368	72
8	MP4	Y	-94.194	12
9	MP4	Y	-88.586	12
10	MP7	Y	-176.368	0
11	MP7	Y	-176.368	72
12	MP7	Y	-94.194	12
13	MP7	Y	-88.586	12

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-19.52	0
3	MP1	X	0	72
4	MP1	Z	-19.52	72
5	MP1	X	0	12
6	MP1	Z	-7.85	12
7	MP1	X	0	12
8	MP1	Z	-7.85	12
9	MP1	X	0	48
10	MP1	Z	-7.55	48
11	MP4	X	0	0
12	MP4	Z	-14.75	0
13	MP4	X	0	72
14	MP4	Z	-14.75	72
15	MP4	X	0	12
16	MP4	Z	-6.69	12
17	MP4	X	0	12
18	MP4	Z	-6.47	12
19	MP7	X	0	0
20	MP7	Z	-14.75	0
21	MP7	X	0	72
22	MP7	Z	-14.75	72
23	MP7	X	0	12
24	MP7	Z	-6.69	12
25	MP7	X	0	12
26	MP7	Z	-6.47	12

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.97	0
2	MP1	Z	-15.53	0
3	MP1	X	-8.97	72
4	MP1	Z	-15.53	72
5	MP1	X	-3.73	12
6	MP1	Z	-6.47	12
7	MP1	X	-3.7	12
8	MP1	Z	-6.4	12
9	MP1	X	-3.6	48
10	MP1	Z	-6.23	48
11	MP4	X	-8.97	0
12	MP4	Z	-15.53	0
13	MP4	X	-8.97	72

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-15.53	72
15	MP4	X	-3.73	12
16	MP4	Z	-6.47	12
17	MP4	X	-3.7	12
18	MP4	Z	-6.4	12
19	MP7	X	-6.58	0
20	MP7	Z	-11.4	0
21	MP7	X	-6.58	72
22	MP7	Z	-11.4	72
23	MP7	X	-3.15	12
24	MP7	Z	-5.46	12
25	MP7	X	-3	12
26	MP7	Z	-5.2	12

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.78	0
2	MP1	Z	-7.38	0
3	MP1	X	-12.78	72
4	MP1	Z	-7.38	72
5	MP1	X	-5.8	12
6	MP1	Z	-3.35	12
7	MP1	X	-5.6	12
8	MP1	Z	-3.23	12
9	MP1	X	-5.61	48
10	MP1	Z	-3.24	48
11	MP4	X	-16.9	0
12	MP4	Z	-9.76	0
13	MP4	X	-16.9	72
14	MP4	Z	-9.76	72
15	MP4	X	-6.8	12
16	MP4	Z	-3.93	12
17	MP4	X	-6.8	12
18	MP4	Z	-3.93	12
19	MP7	X	-12.78	0
20	MP7	Z	-7.38	0
21	MP7	X	-12.78	72
22	MP7	Z	-7.38	72
23	MP7	X	-5.8	12
24	MP7	Z	-3.35	12
25	MP7	X	-5.6	12
26	MP7	Z	-3.23	12

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.16	0
2	MP1	Z	0	0
3	MP1	X	-13.16	72
4	MP1	Z	0	72
5	MP1	X	-6.31	12
6	MP1	Z	0	12
7	MP1	X	-6.01	12
8	MP1	Z	0	12
9	MP1	X	-6.12	48
10	MP1	Z	0	48
11	MP4	X	-17.93	0
12	MP4	Z	0	0
13	MP4	X	-17.93	72
14	MP4	Z	0	72
15	MP4	X	-7.47	12
16	MP4	Z	0	12
17	MP4	X	-7.39	12
18	MP4	Z	0	12
19	MP7	X	-17.93	0
20	MP7	Z	0	0
21	MP7	X	-17.93	72
22	MP7	Z	0	72
23	MP7	X	-7.47	12
24	MP7	Z	0	12
25	MP7	X	-7.39	12
26	MP7	Z	0	12

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.78	0
2	MP1	Z	7.38	0
3	MP1	X	-12.78	72
4	MP1	Z	7.38	72
5	MP1	X	-5.8	12
6	MP1	Z	3.35	12
7	MP1	X	-5.6	12
8	MP1	Z	3.23	12
9	MP1	X	-5.61	48
10	MP1	Z	3.24	48
11	MP4	X	-12.78	0
12	MP4	Z	7.38	0
13	MP4	X	-12.78	72

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	7.38	72
15	MP4	X	-5.8	12
16	MP4	Z	3.35	12
17	MP4	X	-5.6	12
18	MP4	Z	3.23	12
19	MP7	X	-16.9	0
20	MP7	Z	9.76	0
21	MP7	X	-16.9	72
22	MP7	Z	9.76	72
23	MP7	X	-6.8	12
24	MP7	Z	3.93	12
25	MP7	X	-6.8	12
26	MP7	Z	3.93	12

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.97	0
2	MP1	Z	15.53	0
3	MP1	X	-8.97	72
4	MP1	Z	15.53	72
5	MP1	X	-3.73	12
6	MP1	Z	6.47	12
7	MP1	X	-3.7	12
8	MP1	Z	6.4	12
9	MP1	X	-3.6	48
10	MP1	Z	6.23	48
11	MP4	X	-6.58	0
12	MP4	Z	11.4	0
13	MP4	X	-6.58	72
14	MP4	Z	11.4	72
15	MP4	X	-3.15	12
16	MP4	Z	5.46	12
17	MP4	X	-3	12
18	MP4	Z	5.2	12
19	MP7	X	-8.97	0
20	MP7	Z	15.53	0
21	MP7	X	-8.97	72
22	MP7	Z	15.53	72
23	MP7	X	-3.73	12
24	MP7	Z	6.47	12
25	MP7	X	-3.7	12
26	MP7	Z	6.4	12

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	19.52	0
3	MP1	X	0	72
4	MP1	Z	19.52	72
5	MP1	X	0	12
6	MP1	Z	7.85	12
7	MP1	X	0	12
8	MP1	Z	7.85	12
9	MP1	X	0	48
10	MP1	Z	7.55	48
11	MP4	X	0	0
12	MP4	Z	14.75	0
13	MP4	X	0	72
14	MP4	Z	14.75	72
15	MP4	X	0	12
16	MP4	Z	6.69	12
17	MP4	X	0	12
18	MP4	Z	6.47	12
19	MP7	X	0	0
20	MP7	Z	14.75	0
21	MP7	X	0	72
22	MP7	Z	14.75	72
23	MP7	X	0	12
24	MP7	Z	6.69	12
25	MP7	X	0	12
26	MP7	Z	6.47	12

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.97	0
2	MP1	Z	15.53	0
3	MP1	X	8.97	72
4	MP1	Z	15.53	72
5	MP1	X	3.73	12
6	MP1	Z	6.47	12
7	MP1	X	3.7	12
8	MP1	Z	6.4	12
9	MP1	X	3.6	48
10	MP1	Z	6.23	48
11	MP4	X	8.97	0
12	MP4	Z	15.53	0
13	MP4	X	8.97	72

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	15.53	72
15	MP4	X	3.73	12
16	MP4	Z	6.47	12
17	MP4	X	3.7	12
18	MP4	Z	6.4	12
19	MP7	X	6.58	0
20	MP7	Z	11.4	0
21	MP7	X	6.58	72
22	MP7	Z	11.4	72
23	MP7	X	3.15	12
24	MP7	Z	5.46	12
25	MP7	X	3	12
26	MP7	Z	5.2	12

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.78	0
2	MP1	Z	7.38	0
3	MP1	X	12.78	72
4	MP1	Z	7.38	72
5	MP1	X	5.8	12
6	MP1	Z	3.35	12
7	MP1	X	5.6	12
8	MP1	Z	3.23	12
9	MP1	X	5.61	48
10	MP1	Z	3.24	48
11	MP4	X	16.9	0
12	MP4	Z	9.76	0
13	MP4	X	16.9	72
14	MP4	Z	9.76	72
15	MP4	X	6.8	12
16	MP4	Z	3.93	12
17	MP4	X	6.8	12
18	MP4	Z	3.93	12
19	MP7	X	12.78	0
20	MP7	Z	7.38	0
21	MP7	X	12.78	72
22	MP7	Z	7.38	72
23	MP7	X	5.8	12
24	MP7	Z	3.35	12
25	MP7	X	5.6	12
26	MP7	Z	3.23	12

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.16	0
2	MP1	Z	0	0
3	MP1	X	13.16	72
4	MP1	Z	0	72
5	MP1	X	6.31	12
6	MP1	Z	0	12
7	MP1	X	6.01	12
8	MP1	Z	0	12
9	MP1	X	6.12	48
10	MP1	Z	0	48
11	MP4	X	17.93	0
12	MP4	Z	0	0
13	MP4	X	17.93	72
14	MP4	Z	0	72
15	MP4	X	7.47	12
16	MP4	Z	0	12
17	MP4	X	7.39	12
18	MP4	Z	0	12
19	MP7	X	17.93	0
20	MP7	Z	0	0
21	MP7	X	17.93	72
22	MP7	Z	0	72
23	MP7	X	7.47	12
24	MP7	Z	0	12
25	MP7	X	7.39	12
26	MP7	Z	0	12

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.78	0
2	MP1	Z	-7.38	0
3	MP1	X	12.78	72
4	MP1	Z	-7.38	72
5	MP1	X	5.8	12
6	MP1	Z	-3.35	12
7	MP1	X	5.6	12
8	MP1	Z	-3.23	12
9	MP1	X	5.61	48
10	MP1	Z	-3.24	48
11	MP4	X	12.78	0
12	MP4	Z	-7.38	0
13	MP4	X	12.78	72

Member Point Loads (BLC 27 : Ice Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-7.38	72
15	MP4	X	5.8	12
16	MP4	Z	-3.35	12
17	MP4	X	5.6	12
18	MP4	Z	-3.23	12
19	MP7	X	16.9	0
20	MP7	Z	-9.76	0
21	MP7	X	16.9	72
22	MP7	Z	-9.76	72
23	MP7	X	6.8	12
24	MP7	Z	-3.93	12
25	MP7	X	6.8	12
26	MP7	Z	-3.93	12

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.97	0
2	MP1	Z	-15.53	0
3	MP1	X	8.97	72
4	MP1	Z	-15.53	72
5	MP1	X	3.73	12
6	MP1	Z	-6.47	12
7	MP1	X	3.7	12
8	MP1	Z	-6.4	12
9	MP1	X	3.6	48
10	MP1	Z	-6.23	48
11	MP4	X	6.58	0
12	MP4	Z	-11.4	0
13	MP4	X	6.58	72
14	MP4	Z	-11.4	72
15	MP4	X	3.15	12
16	MP4	Z	-5.46	12
17	MP4	X	3	12
18	MP4	Z	-5.2	12
19	MP7	X	8.97	0
20	MP7	Z	-15.53	0
21	MP7	X	8.97	72
22	MP7	Z	-15.53	72
23	MP7	X	3.73	12
24	MP7	Z	-6.47	12
25	MP7	X	3.7	12
26	MP7	Z	-6.4	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-9.34	0
2	MP1	Z	-9.34	72
3	MP1	Z	-21.706	12
4	MP1	Z	-18.514	12
5	MP1	Z	-6.328	48
6	MP4	Z	-9.34	0
7	MP4	Z	-9.34	72
8	MP4	Z	-21.706	12
9	MP4	Z	-18.514	12
10	MP7	Z	-9.34	0
11	MP7	Z	-9.34	72
12	MP7	Z	-21.706	12
13	MP7	Z	-18.514	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.34	0
2	MP1	X	-9.34	72
3	MP1	X	-21.706	12
4	MP1	X	-18.514	12
5	MP1	X	-6.328	48
6	MP4	X	-9.34	0
7	MP4	X	-9.34	72
8	MP4	X	-21.706	12
9	MP4	X	-18.514	12
10	MP7	X	-9.34	0
11	MP7	X	-9.34	72
12	MP7	X	-21.706	12
13	MP7	X	-18.514	12

Joint Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N72B	L	Y	-250
2	N135A	L	Y	-250
3	N129B	L	Y	-250

Joint Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N70A	L	Y	-500

Joint Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N69A	L	Y	-500

Joint Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N76	L	Y	-500

Joint Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N94	L	Y	-500

Joint Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N93	L	Y	-500

Joint Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N122	L	Y	-500

Joint Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N121	L	Y	-500

Joint Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N133B	L	Y	-500

Joint Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N139	L	Y	-500

Member Distributed Loads (BLC 14 : Distr. Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-82.437	-82.437	0	%100
2	GA4	SZ	-82.437	-82.437	0	%100
3	GA3	SZ	-82.437	-82.437	0	%100
4	P3	SZ	-82.437	-82.437	0	%100
5	S2	SZ	-82.437	-82.437	0	%100
6	GA2	SZ	-82.437	-82.437	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
7	GA1	SZ	-82.437	-82.437	0	%100
8	P2	SZ	-82.437	-82.437	0	%100
9	S1	SZ	-82.437	-82.437	0	%100
10	GA6	SZ	-82.437	-82.437	0	%100
11	GA5	SZ	-82.437	-82.437	0	%100
12	P1	SZ	-82.437	-82.437	0	%100
13	H1	SZ	-49.462	-49.462	0	%100
14	MP1	SZ	-49.462	-49.462	0	%100
15	MP3	SZ	-49.462	-49.462	0	%100
16	HR1	SZ	-49.462	-49.462	0	%100
17	CA8	SZ	-82.437	-82.437	0	%100
18	CA9	SZ	-82.437	-82.437	0	%100
19	CA7	SZ	-82.437	-82.437	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-82.437	-82.437	0	%100
25	CA4	SZ	-82.437	-82.437	0	%100
26	CA1	SZ	-82.437	-82.437	0	%100
27	CA2	SZ	-82.437	-82.437	0	%100
28	CA5	SZ	-82.437	-82.437	0	%100
29	CA6	SZ	-82.437	-82.437	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-82.437	-82.437	0	%100
42	MP2	SZ	-49.462	-49.462	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-49.462	-49.462	0	%100
46	MP7	SZ	-49.462	-49.462	0	%100
47	MP9	SZ	-49.462	-49.462	0	%100
48	HR3	SZ	-49.462	-49.462	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100
52	M55	SZ	0	0	0	%100
53	H2	SZ	-49.462	-49.462	0	%100
54	MP4	SZ	-49.462	-49.462	0	%100
55	MP6	SZ	-49.462	-49.462	0	%100
56	HR2	SZ	-49.462	-49.462	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-49.462	-49.462	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-49.462	-49.462	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	SZ	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-82.437	-82.437	0	%100
2	GA4	SX	-82.437	-82.437	0	%100
3	GA3	SX	-82.437	-82.437	0	%100
4	P3	SX	-82.437	-82.437	0	%100
5	S2	SX	-82.437	-82.437	0	%100
6	GA2	SX	-82.437	-82.437	0	%100
7	GA1	SX	-82.437	-82.437	0	%100
8	P2	SX	-82.437	-82.437	0	%100
9	S1	SX	-82.437	-82.437	0	%100
10	GA6	SX	-82.437	-82.437	0	%100
11	GA5	SX	-82.437	-82.437	0	%100
12	P1	SX	-82.437	-82.437	0	%100
13	H1	SX	-49.462	-49.462	0	%100
14	MP1	SX	-49.462	-49.462	0	%100
15	MP3	SX	-49.462	-49.462	0	%100
16	HR1	SX	-49.462	-49.462	0	%100
17	CA8	SX	-82.437	-82.437	0	%100
18	CA9	SX	-82.437	-82.437	0	%100
19	CA7	SX	-82.437	-82.437	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-82.437	-82.437	0	%100
25	CA4	SX	-82.437	-82.437	0	%100
26	CA1	SX	-82.437	-82.437	0	%100
27	CA2	SX	-82.437	-82.437	0	%100
28	CA5	SX	-82.437	-82.437	0	%100
29	CA6	SX	-82.437	-82.437	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-82.437	-82.437	0	%100
42	MP2	SX	-49.462	-49.462	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-49.462	-49.462	0	%100
46	MP7	SX	-49.462	-49.462	0	%100
47	MP9	SX	-49.462	-49.462	0	%100
48	HR3	SX	-49.462	-49.462	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-49.462	-49.462	0	%100
54	MP4	SX	-49.462	-49.462	0	%100
55	MP6	SX	-49.462	-49.462	0	%100
56	HR2	SX	-49.462	-49.462	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-49.462	-49.462	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
64	MP5	SX	-49.462	-49.462	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	Y	-19.719	-19.719	0	%100
2	GA4	Y	-12.515	-12.515	0	%100
3	GA3	Y	-12.515	-12.515	0	%100
4	P3	Y	-21.894	-21.894	0	%100
5	S2	Y	-19.719	-19.719	0	%100
6	GA2	Y	-12.515	-12.515	0	%100
7	GA1	Y	-12.515	-12.515	0	%100
8	P2	Y	-21.894	-21.894	0	%100
9	S1	Y	-19.719	-19.719	0	%100
10	GA6	Y	-12.515	-12.515	0	%100
11	GA5	Y	-12.515	-12.515	0	%100
12	P1	Y	-21.894	-21.894	0	%100
13	H1	Y	-14.225	-14.225	0	%100
14	MP1	Y	-12.633	-12.633	0	%100
15	MP3	Y	-12.633	-12.633	0	%100
16	HR1	Y	-12.646	-12.646	0	%100
17	CA8	Y	-25.6	-25.6	0	%100
18	CA9	Y	-25.6	-25.6	0	%100
19	CA7	Y	-25.6	-25.6	0	%100
20	M32	Y	-5.31	-5.31	0	%100
21	M35	Y	-5.31	-5.31	0	%100
22	M36	Y	-5.31	-5.31	0	%100
23	M39A	Y	-5.31	-5.31	0	%100
24	CA3	Y	-15.393	-15.393	0	%100
25	CA4	Y	-15.393	-15.393	0	%100
26	CA1	Y	-15.393	-15.393	0	%100
27	CA2	Y	-15.393	-15.393	0	%100
28	CA5	Y	-15.393	-15.393	0	%100
29	CA6	Y	-15.393	-15.393	0	%100
30	M64	Y	-5.31	-5.31	0	%100
31	M65	Y	-5.31	-5.31	0	%100
32	M66	Y	-5.31	-5.31	0	%100
33	M67	Y	-5.31	-5.31	0	%100
34	M68	Y	-5.31	-5.31	0	%100
35	M69	Y	-5.31	-5.31	0	%100
36	M70	Y	-5.31	-5.31	0	%100

Member Distributed Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
37	M71	Y	-5.31	-5.31	0	%100
38	M72	Y	-5.31	-5.31	0	%100
39	M73	Y	-5.31	-5.31	0	%100
40	M74	Y	-5.31	-5.31	0	%100
41	M75	Y	-11.492	-11.492	0	%100
42	MP2	Y	-12.633	-12.633	0	%100
43	M43	Y	-5.31	-5.31	0	%100
44	M44	Y	-5.31	-5.31	0	%100
45	H3	Y	-14.225	-14.225	0	%100
46	MP7	Y	-12.633	-12.633	0	%100
47	MP9	Y	-12.633	-12.633	0	%100
48	HR3	Y	-12.646	-12.646	0	%100
49	M52	Y	-5.31	-5.31	0	%100
50	M53	Y	-5.31	-5.31	0	%100
51	M54	Y	-5.31	-5.31	0	%100
52	M55	Y	-5.31	-5.31	0	%100
53	H2	Y	-14.225	-14.225	0	%100
54	MP4	Y	-12.633	-12.633	0	%100
55	MP6	Y	-12.633	-12.633	0	%100
56	HR2	Y	-12.646	-12.646	0	%100
57	M66A	Y	-5.31	-5.31	0	%100
58	M67A	Y	-5.31	-5.31	0	%100
59	M68A	Y	-5.31	-5.31	0	%100
60	M69A	Y	-5.31	-5.31	0	%100
61	MP8	Y	-12.633	-12.633	0	%100
62	M68B	Y	-5.31	-5.31	0	%100
63	M69B	Y	-5.31	-5.31	0	%100
64	MP5	Y	-12.633	-12.633	0	%100
65	M71B	Y	-5.31	-5.31	0	%100
66	M72B	Y	-5.31	-5.31	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-13.747	-13.747	0	%100
2	GA4	SZ	-19.581	-19.581	0	%100
3	GA3	SZ	-19.581	-19.581	0	%100
4	P3	SZ	-12.982	-12.982	0	%100
5	S2	SZ	-13.747	-13.747	0	%100
6	GA2	SZ	-19.581	-19.581	0	%100
7	GA1	SZ	-19.581	-19.581	0	%100
8	P2	SZ	-12.982	-12.982	0	%100
9	S1	SZ	-13.747	-13.747	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
10	GA6	SZ	-19.581	-19.581	0	%100
11	GA5	SZ	-19.581	-19.581	0	%100
12	P1	SZ	-12.982	-12.982	0	%100
13	H1	SZ	-17.342	-17.342	0	%100
14	MP1	SZ	-19.392	-19.392	0	%100
15	MP3	SZ	-19.392	-19.392	0	%100
16	HR1	SZ	-19.372	-19.372	0	%100
17	CA8	SZ	-12.057	-12.057	0	%100
18	CA9	SZ	-12.057	-12.057	0	%100
19	CA7	SZ	-12.057	-12.057	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-16.251	-16.251	0	%100
25	CA4	SZ	-16.251	-16.251	0	%100
26	CA1	SZ	-16.251	-16.251	0	%100
27	CA2	SZ	-16.251	-16.251	0	%100
28	CA5	SZ	-16.251	-16.251	0	%100
29	CA6	SZ	-16.251	-16.251	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-21.51	-21.51	0	%100
42	MP2	SZ	-19.392	-19.392	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-17.342	-17.342	0	%100
46	MP7	SZ	-19.392	-19.392	0	%100
47	MP9	SZ	-19.392	-19.392	0	%100
48	HR3	SZ	-19.372	-19.372	0	%100
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
52	M55	SZ	0	0	0	%100
53	H2	SZ	-17.342	-17.342	0	%100
54	MP4	SZ	-19.392	-19.392	0	%100
55	MP6	SZ	-19.392	-19.392	0	%100
56	HR2	SZ	-19.372	-19.372	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-19.392	-19.392	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-19.392	-19.392	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	SZ	0	0	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-13.747	-13.747	0	%100
2	GA4	SX	-19.581	-19.581	0	%100
3	GA3	SX	-19.581	-19.581	0	%100
4	P3	SX	-12.982	-12.982	0	%100
5	S2	SX	-13.747	-13.747	0	%100
6	GA2	SX	-19.581	-19.581	0	%100
7	GA1	SX	-19.581	-19.581	0	%100
8	P2	SX	-12.982	-12.982	0	%100
9	S1	SX	-13.747	-13.747	0	%100
10	GA6	SX	-19.581	-19.581	0	%100
11	GA5	SX	-19.581	-19.581	0	%100
12	P1	SX	-12.982	-12.982	0	%100
13	H1	SX	-17.342	-17.342	0	%100
14	MP1	SX	-19.392	-19.392	0	%100
15	MP3	SX	-19.392	-19.392	0	%100
16	HR1	SX	-19.372	-19.372	0	%100
17	CA8	SX	-12.057	-12.057	0	%100
18	CA9	SX	-12.057	-12.057	0	%100
19	CA7	SX	-12.057	-12.057	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-16.251	-16.251	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
25	CA4	SX	-16.251	-16.251	0	%100
26	CA1	SX	-16.251	-16.251	0	%100
27	CA2	SX	-16.251	-16.251	0	%100
28	CA5	SX	-16.251	-16.251	0	%100
29	CA6	SX	-16.251	-16.251	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-21.51	-21.51	0	%100
42	MP2	SX	-19.392	-19.392	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-17.342	-17.342	0	%100
46	MP7	SX	-19.392	-19.392	0	%100
47	MP9	SX	-19.392	-19.392	0	%100
48	HR3	SX	-19.372	-19.372	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-17.342	-17.342	0	%100
54	MP4	SX	-19.392	-19.392	0	%100
55	MP6	SX	-19.392	-19.392	0	%100
56	HR2	SX	-19.372	-19.372	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-19.392	-19.392	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100
64	MP5	SX	-19.392	-19.392	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

Member Distributed Loads (BLC 43 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S2	Y	-3.185	-3.185	16.404	40
2	GA2	Y	-1.605	-1.605	3.828	27.295
3	GA1	Y	-1.605	-1.605	3.828	27.295
4	S3	Y	-3.185	-3.185	16.404	40
5	GA4	Y	-1.605	-1.605	3.828	27.295
6	GA3	Y	-1.605	-1.605	3.828	27.295
7	S1	Y	-3.185	-3.185	16.404	40
8	GA6	Y	-1.605	-1.605	3.828	27.295
9	GA5	Y	-1.605	-1.605	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 16 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S2	Y	-35.493	-35.493	16.404	40
2	GA2	Y	-17.887	-17.887	3.828	27.295
3	GA1	Y	-17.887	-17.887	3.828	27.295
4	S3	Y	-35.493	-35.493	16.404	40
5	GA4	Y	-17.887	-17.887	3.828	27.295
6	GA3	Y	-17.887	-17.887	3.828	27.295
7	S1	Y	-35.493	-35.493	16.404	40
8	GA6	Y	-17.887	-17.887	3.828	27.295
9	GA5	Y	-17.887	-17.887	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-1.75
2	P10	P11	P12	P9	Y	Two Way	-1.75
3	P31	P34	P33	P32	Y	Two Way	-1.75

Member Area Loads (BLC 16 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-19.5
2	P10	P11	P12	P9	Y	Two Way	-19.5
3	P31	P34	P33	P32	Y	Two Way	-19.5

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn
1	CA1	C3.38x2.06...	.324	0	31	.056	28.188	y	36	4776...	56700	2202....	5751.945	1....	H1-1b
2	P3	PL6.5x0.375	.307	21	2	.158	36.312	y	30	3658....	78975	616.9...	7967.595	1....	H1-1b
3	S2	HSS4X4X6	.306	0	32	.110	0	y	142	1882...	1978...	2204...	22045.5	1....	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn
4	P2	PL6.5x0.375	.298	21	6	.131	36.312	y	10	3658....	78975	616.9...	7935.78	1....	H1-1b
5	CA5	C3.38x2.06...	.294	0	35	.053	28.187	y	28	4776...	56700	2202....	5751.945	1....	H1-1b
6	CA3	C3.38x2.06...	.287	0	27	.053	28.188	y	32	4776...	56700	2202....	5751.945	1....	H1-1b
7	P1	PL6.5x0.375	.285	21	10	.148	36.312	y	2	3658....	78975	616.9...	7998.957	1....	H1-1b
8	S3	HSS4X4X6	.282	0	38	.111	0	y	114	1882...	1978...	2204...	22045.5	1....	H1-1b
9	CA4	C3.38x2.06...	.281	33	2	.044	33	y	31	4776...	56700	2202....	5751.945	1....	H1-1b
10	CA6	C3.38x2.06...	.267	33	10	.046	33	y	38	4776...	56700	2202....	5751.945	1....	H1-1b
11	CA2	C3.38x2.06...	.265	33	6	.045	33	y	34	4776...	56700	2202....	5751.945	1....	H1-1b
12	S1	HSS4X4X6	.265	0	36	.111	0	y	37	1882...	1978...	2204...	22045.5	1....	H1-1b
13	CA7	L6.6x4.46x0...	.256	41.562	3	.034	42	z	8	5117...	87561	2464....	7125.374	1....	H2-1
14	HR3	2.88x0.120	.251	6	2	.114	92		6	2249...	4307...	3155....	3155.674	1....	H1-1b
15	CA8	L6.6x4.46x0...	.250	41.562	22	.036	42	z	4	5117...	87561	2464....	7125.374	1....	H2-1
16	M75	PL 2.375x0.5	.249	1.5	12	.251	0	y	28	3825...	38475	400.7...	1903.711	2....	H1-1b
17	HR2	2.88x0.120	.246	90	3	.122	92		4	2249...	4307...	3155....	3155.674	1....	H1-1b
18	HR1	2.88x0.120	.235	6	4	.107	6		4	2249...	4307...	3155....	3155.674	1....	H1-1b
19	CA9	L6.6x4.46x0...	.226	41.562	6	.031	42	z	12	5117...	87561	2464....	7125.374	1....	H2-1
20	MP2	PIPE_2.5	.207	70	5	.074	70		5	3348...	66654	4726.5	4726.5	4....	H1-1b
21	MP5	PIPE_2.5	.201	70	7	.062	70		7	3348...	66654	4726.5	4726.5	4....	H1-1b
22	GA4	L2x2x4	.190	0	2	.013	27.295	y	9	2952...	42480	959.63	2190.068	2....	H2-1
23	MP8	PIPE_2.5	.181	70	9	.078	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
24	GA5	L2x2x4	.178	0	9	.025	27.295	y	38	2952...	42480	959.63	2190.068	2....	H2-1
25	GA2	L2x2x4	.174	0	12	.014	0	y	12	2952...	42480	959.63	2190.068	2....	H2-1
26	GA6	L2x2x4	.166	0	4	.014	0	y	4	2952...	42480	959.63	2190.068	2....	H2-1
27	GA1	L2x2x4	.165	0	5	.025	27.295	y	34	2952...	42480	959.63	2190.068	2....	H2-1
28	MP9	PIPE_2.5	.163	70	2	.074	70		7	3348...	66654	4726.5	4726.5	3....	H1-1b
29	GA3	L2x2x4	.161	0	7	.025	27.295	y	30	2952...	42480	959.63	2190.068	2....	H2-1
30	MP1	PIPE_2.5	.148	70	11	.089	26		8	3348...	66654	4726.5	4726.5	2....	H1-1b
31	MP6	PIPE_2.5	.146	70	7	.078	70		6	3348...	66654	4726.5	4726.5	4....	H1-1b
32	MP3	PIPE_2.5	.142	70	5	.081	70		3	3348...	66654	4726.5	4726.5	4.41	H1-1b
33	MP4	PIPE_2.5	.138	70	7	.079	26		4	3348...	66654	4726.5	4726.5	1....	H1-1b
34	MP7	PIPE_2.5	.136	70	9	.072	26		6	3348...	66654	4726.5	4726.5	3....	H1-1b
35	H3	Pipe3.5x0.1...	.126	31	2	.078	90		2	4587...	7158...	6337....	6337.65	1....	H1-1b
36	H1	Pipe3.5x0.1...	.121	31	10	.068	48		4	4587...	7158...	6337....	6337.65	2....	H1-1b
37	H2	Pipe3.5x0.1...	.117	31	6	.054	48		12	4587...	7158...	6337....	6337.65	1....	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	
Site Number:	BOBDL00153B
Connection Description:	Platform to Monopole

MAXIMUM BOLT LOADS		
Bolt Tension:	8122.56	lbs
Bolt Shear:	1630.03	lbs

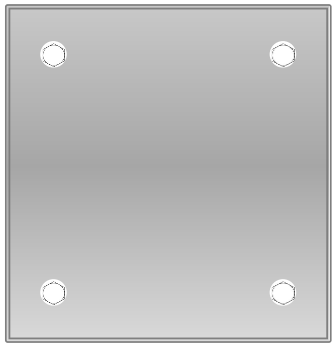
WORST CASE BOLT LOADS[1]		
Bolt Tension:	8122.56	lbs
Bolt Shear:	1417.93	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #32 on member S2 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	39.9%	
Max Shear Usage	11.8%	
Interaction Check (Worst Case)	0.17	***≤1.05***
Result	Pass	



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**110 ft Monopole**
ATC Site Name	:	**Hrfr - South,CT**
ATC Site Number	:	**302481**
Engineering Number	:	**13726719_C3_03**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**BOBDL00153B**
Carrier Site Number	:	**BOBDL00153B**
Site Location	:	**289 Mountain Street** **Hartford, CT 06106-4121** **41.7266, -72.7082**
County	:	**Hartford**
Date	:	**October 5, 2021**
Max Usage	:	**97%**
Result	:	**Pass**

Prepared By:

Ryan Ciamillo
Structural Engineer

Reviewed By:

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 110 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Mapped by Smith Cullum Site #CT-0017(A), dated June 6, 2001
Foundation Drawing	Girard & Co Engineering Job #39902, dated April 29, 1988
Geotechnical Report	TEP Project #071162.01, dated July 23, 2007
Modifications	ATC Project #42719232, dated January 12, 2009 ATC Project #43595333, dated July 1, 2009 ATC Project #43930034, dated September 15, 2009 ATC Project #44662232, dated March 30, 2010 ATC Project #OAA739695_C6_06, dated February 25, 2019 ATC Project #13251341_C6_06, dated September 4, 2020
Site Specific Study	ICE Wind Study for Site 302481, dated May 22, 2020

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:	118 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" 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 3
Topographic Category:	4
Crest Height (H):	148 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil - Default

****Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

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
110.0	3	Argus LLPX310R	Side Arm	(2) 1/2" Coax (1) 2" conduit (6) 5/16" (0.31"-7.9mm) Coax	CLEARWIRE CORPORATION
	1	DragonWave A-ANT-11G-2.5-C			
	3	NextNet BTS-2500			
	1	DragonWave A-ANT-23G-1-C			
	1	Generic 12" x 12" Junction Box			
	2	DragonWave Horizon Compact			
100.0	3	Ericsson RRUS-32 (77 lbs)	Triangular Platform with Handrails	(4) 0.39" (10mm) Fiber Trunk (10) 0.78" (19.7mm) 8 AWG 6 (24) 1 5/8" Coax (1) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS-11 (50 lbs.)			
	2	Quintel QS66512-2			
	2	CCI OPA-65R-LCUU-H6			
	1	CCI OPA-65R-LCUU-H8 (92.7")			
	1	CCI TPA-65R-LCUUUU-H8			
	3	Powerwave Allgon 7770.00			
	2	Raycap DC6-48-60-18-8F(32.8 lbs)			
	3	Powerwave Allgon LGP21401			
	6	CCI TPX-070821			
	3	Ericsson RRUS 32 B2			
90.0	3	RFS APXVAARR24_43-U-NA20	Triangular Low Profile Platform	(4) 1 1/4" (1.25"-31.8mm) Fiber (6) 1 5/8" Coax (18) 7/8" Coax	T-MOBILE
	3	Ericsson Air 3246 B66			
	3	Ericsson AIR32 B66Aa/B2a			
	3	Ericsson Air6449 B41			
	3	Ericsson RRUS 4415 B25			
	3	Ericsson Radio 4449 B71 B85A			
80.0	3	Samsung MT6407-77A	Triangular Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	6	Commscope JAHH-65B-R3B (63.3 lb)			
	3	Samsung B2/B66A RRH-BR049			
	3	Commscope CBC78T-DS-43-2X			
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna			
	1	Raycap RVZDC-6627-PF-48			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung RT4401-48A			
60.0	1	Radio Waves SP2-4.7	Stand-Off	(2) 0.41" (10.3mm) LMR-400 (1) 7/8" Coax	TOWN OF WEST HARTFORD
	1	Scala 840 10212			
	1	Generic Radio/ODU			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
75.0	1	Scala 840 10212	Stand Off	(1) 7/8" Coax	TOWN OF WEST HARTFORD
	1	TX RX Systems 421-86A-10-18-12-N			
70.0	1	RFS APXV18-206517S-C	Side Arm	(6) 1 5/8" Coax	METRO PCS INC

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
70.0	1	Raycap RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) 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	61%	Pass
Shaft	73%	Pass
Base Plate	95%	Pass
Flanges	28%	Pass
Reinforcement	97%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2461.0	85%
Axial (Kips)	51.7	6%
Shear (Kips)	34.5	51%

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 and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
110.0	DragonWave A-ANT-11G-2.5-C	CLEARWIRE CORPORATION	1.375	1.160
	DragonWave A-ANT-23G-1-C			
70.0	JMA Wireless MX08FRO665-21	DISH WIRELESS L.L.C.	0.636	0.930
	Fujitsu TA08025-B605			
	Raycap RDIDC-9181-PF-48			
	Fujitsu TA08025-B604			
60.0	Radio Waves SP2-4.7	TOWN OF WEST HARTFORD	0.481	0.840

***Deflection 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.

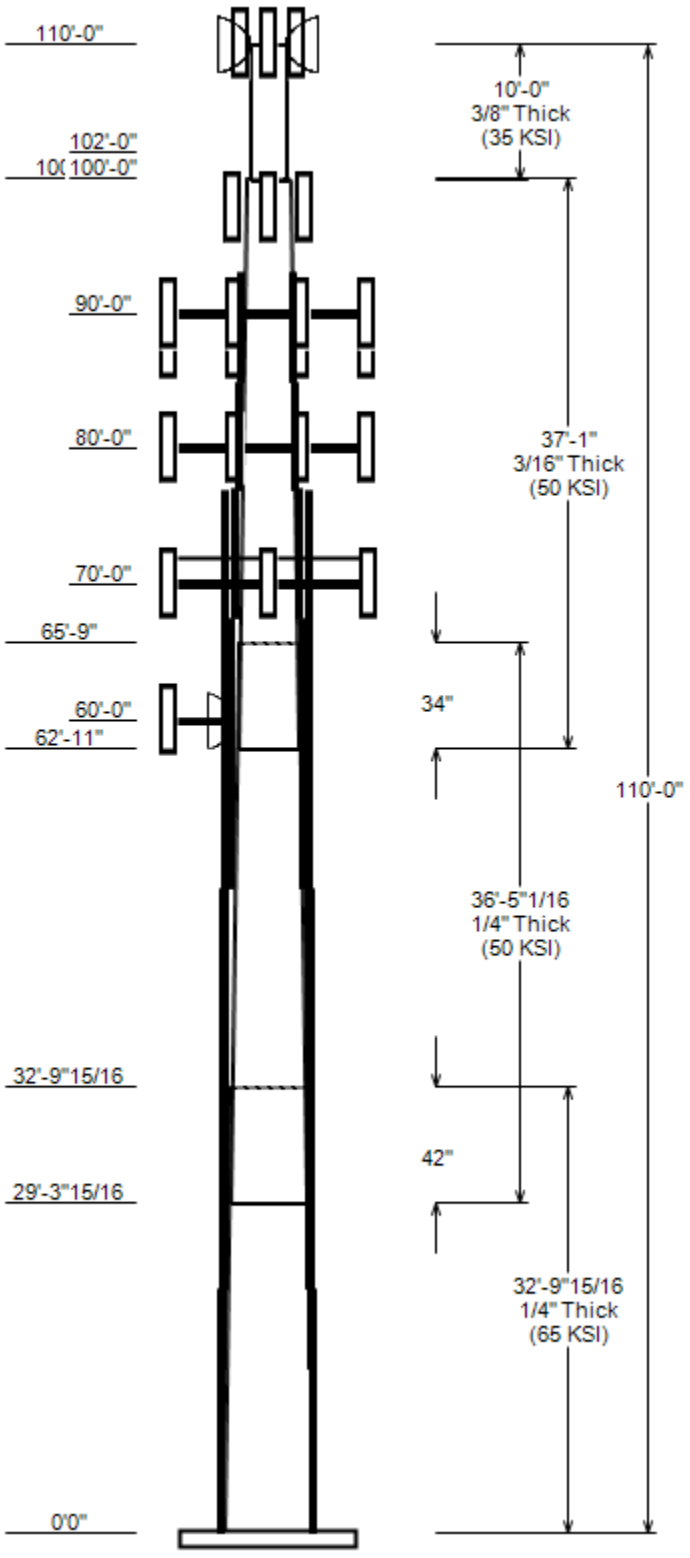
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

JOB INFORMATION

Asset :	302481, Hrfr - South	Height :	110 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	30
Code :	ANSI/TIA-222-H	Shape :	12 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.16400 (In/ft)	Exposure :	B
Topographic Category :	4	Topographic Feature:	
Topo Method :	Method 3		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Diameter (in) Across Flats Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	32.830	24.62	30.00	0.250		0.000	12 Sides	65
2	36.420	19.73	25.70	0.250	Slip Joint	42.000	12 Sides	50
3	37.083	14.50	20.57	0.188	Slip Joint	34.000	12 Sides	50
4	10.000	12.75	12.75	0.375	Butt Joint	0.000	Round	35

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.0	110.0	2	DragonWave Horizon Compact
110.0	110.0	1	Generic 12" x 12" Junction Box
110.0	110.0	1	DragonWave A-ANT-23G-1-C
110.0	110.0	3	NextNet BTS-2500
110.0	110.0	3	Argus LLPX310R
110.0	110.0	1	Clearwirre Side Arm
110.0	110.0	1	DragonWave A-ANT-11G-2.5-C
102.0	102.0	1	Small Platform with Handrails
100.0	98.0	6	CCI TPX-070821
100.0	98.0	3	Powerwave Allgon LGP21401
100.0	98.0	2	Raycap DC6-48-60-18-8F(32.8 lb
100.0	98.0	3	Ericsson RRUS-11 (50 lbs.)
100.0	98.0	3	Ericsson RRUS 32 B2
100.0	98.0	3	Ericsson RRUS-32 (77 lbs)
100.0	98.0	3	Powerwave Allgon 7770.00
100.0	98.0	2	Quintel QS66512-2
100.0	98.0	2	CCI OPA-65R-LCUU-H6
100.0	98.0	1	CCI OPA-65R-LCUU-H8 (92.7")
100.0	98.0	1	CCI TPA-65R-LCUUUU-H8
90.0	90.0	3	Ericsson Radio 4449 B71 B85A
90.0	90.0	3	Ericsson RRUS 4415 B25
90.0	90.0	3	Ericsson Air6449 B41
90.0	87.0	3	Ericsson AIR32 B66Aa/B2a
90.0	90.0	3	Ericsson Air 3246 B66
90.0	90.0	3	RFS APXVAARR24_43-U-NA20
90.0	90.0	1	Generic Flat Low Profile Platf
80.0	80.0	3	Commscope CBC78T-DS-43-2X
80.0	80.0	3	Samsung Outdoor CBRS 20W RRH –
80.0	80.0	3	Samsung RT4401-48A
80.0	80.0	3	Samsung B2/B66A RRH-BR049
80.0	80.0	3	Samsung B5/B13 RRH-BR04C
80.0	80.0	1	Raycap RVZDC-6627-PF-48
80.0	80.0	3	Samsung MT6407-77A
80.0	80.0	6	Commscope JAHH-65B-R3B (63.3 l
80.0	80.0	1	Generic Round Low Profile Plat
70.0	70.0	1	Raycap RDIDC-9181-PF-48
70.0	70.0	3	Fujitsu TA08025-B604
70.0	70.0	3	Fujitsu TA08025-B605
70.0	70.0	3	JMA Wireless MX08FRO665-21
70.0	70.0	1	Generic Round Platform with Ha
60.0	60.0	1	Generic Radio/ODU
60.0	60.0	1	Scala 840 10212
60.0	60.0	1	Stand Off
60.0	60.0	1	Radio Waves SP2-4.7

JOB INFORMATION

Asset :	302481, Hrfr - South	Height :	110 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	30
Code :	ANSI/TIA-222-H	Shape :	12 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	110.0	5/16" (0.31"-7.9mm) Coax	No
0.0	110.0	2" conduit	Yes
0.0	110.0	1/2" Coax	Yes
0.0	102.0	1 5/8" Coax	Yes
0.0	102.0	1 5/8" Coax	No
0.0	102.0	0.78" (19.7mm) 8 AWG 6	Yes
0.0	102.0	0.78" (19.7mm) 8 AWG 6	No
0.0	102.0	0.39" (10mm) Fiber Trunk	No
0.0	102.0	0.39" (10mm) Fiber Trunk	Yes
0.0	100.0	3" conduit	No
0.0	100.0	1 5/8" Coax	No
0.0	100.0	0.78" (19.7mm) 8 AWG 6	No
0.0	100.0	0.39" (10mm) Fiber Trunk	No
0.0	90.0	1 5/8" Coax	No
0.0	90.0	1 1/4" (1.25"- 31.8mm) Fiber	No
75.0	87.0	1.25" Thick Flat Plate	Yes
75.0	87.0	1.25" Thick Flat Plate	Yes
75.0	87.0	1.25" Thick Flat Plate	Yes
75.0	87.0	1.25" Thick Flat Plate	Yes
0.0	87.0	7/8" Coax	No
0.0	81.0	#20 DYWIDAG	Yes
0.0	81.0	#20 DYWIDAG	Yes
0.0	81.0	#20 DYWIDAG	Yes
0.0	81.0	#20 DYWIDAG	Yes
0.0	80.0	1 5/8" Hybriflex	Yes
0.0	80.0	1 5/8" Coax	No
0.0	70.0	1.60" (40.6mm) Hybrid	No
0.0	60.0	7/8" Coax	Yes
0.0	60.0	0.41" (10.3mm) LMR-400	Yes
0.0	20.0	1.25" Thick Flat Plate	Yes
0.0	20.0	1.25" Thick Flat Plate	Yes
0.0	20.0	1.25" Thick Flat Plate	Yes
0.0	20.0	1.25" Thick Flat Plate	Yes

LOAD CASES

1.2D + 1.0W Normal	115.01 mph wind with no ice
0.9D + 1.0W Normal	115.01 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	48.73 mph wind with 1.275" radial
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	2460.99	34.51	51.70
0.9D + 1.0W Normal	2429.72	34.47	38.75
1.2D + 1.0Di + 1.0Wi Normal	707.17	9.26	80.75
1.2D + 1.0Ev + 1.0Eh Normal	109.04	1.30	51.49
0.9D - 1.0Ev + 1.0Eh Normal	107.31	1.30	35.65
1.0D + 1.0W Service Normal	598.95	8.50	43.17

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	60.00	5.773	0.842
1.0D + 1.0W Service Normal	110.00	16.497	1.156
1.0D + 1.0W	110.00	16.497	1.156

JOB INFORMATION			
Asset :	302481, Hrfr - South	Height :	110 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	30
Code :	ANSI/TIA-222-H	Shape :	12 Sides

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Service Normal			

ANALYSIS PARAMETERS

Location:	Hartford County,CT	Height:	110 ft
Type and Shape:	Custom, Round	Base Diameter:	30.00 in
Manufacturer:	ITT Meyer	Top Diameter:	12.75 in
K_d (non-service):	0.95	Taper:	0.1640 in/ft
K_e:	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	115 mph
Risk Category:	II	Design Wind Speed w/Ice:	49 mph
Topo Factor Procedure:	Method 3	Operational Wind Speed:	60 mph
Topographic Category:	4	Design Ice Thickness:	1.28 in
Crest Height:	148 ft	HMSL:	286.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	2.04
T_L (sec):	6	P:	1	$C_{s:}$	0.030
$S_{s:}$	0.192	$S_{1:}$	0.055	C_s Max:	0.030
$F_{a:}$	1.600	$F_{v:}$	2.400	C_s Min:	0.030
$S_{ds:}$	0.205	$S_{d1:}$	0.088		

LOAD CASES

1.2D + 1.0W Normal	115.01 mph wind with no ice
0.9D + 1.0W Normal	115.01 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 1.275" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	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)
1-12	32.83	0.2500	65		0.00	2,434	30.00	0.000	23.95	2,705.5	29.47	120.00	24.62	32.83	19.62	1,488.2	23.71	98.50	0.1637
2-12	36.42	0.2500	50	Slip	42.00	2,241	25.70	29.330	20.49	1,693.5	24.86	102.79	19.73	65.75	15.69	760.3	18.47	78.94	0.1637
3-12	37.08	0.1875	50	Slip	34.00	1,322	20.57	62.917	12.31	653.1	26.72	109.72	14.50	100.00	8.64	226.2	18.05	77.33	0.1637
4-R	10.00	0.3750	35	Butt	0.00	496	12.75	100.000	14.58	279.3	0.00	34.00	12.75	110.00	14.58	279.3	0.00	34.00	0.0000
				Shaft Weight		6,493													

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
110.00	Clearwirre Side Arm	1	1.00	0.000	560.00	8.500	0.67	928.97	14.100	0.67
110.00	Argus LLPX310R	3	0.80	0.000	28.60	4.292	0.63	113.83	5.856	0.63
110.00	NextNet BTS-2500	3	0.80	0.000	35.00	1.817	0.50	78.86	2.684	0.50
110.00	DragonWave A-ANT-23G-1-C	1	1.00	0.000	15.00	1.610	1.00	48.42	2.326	1.00
110.00	Generic 12" x 12" Junction Box	1	0.80	0.000	10.00	1.200	0.50	49.39	1.886	0.50
110.00	DragonWave Horizon Compact	2	0.80	0.000	10.60	0.721	0.50	31.87	1.259	0.50
110.00	DragonWave A-ANT-11G-2.5-C	1	1.00	0.000	47.60	8.670	1.00	215.17	10.304	1.00
102.00	Small Platform with Handrails	1	1.00	0.000	2000.00	34.800	1.00	3320.72	57.780	1.00
100.00	CCI OPA-65R-LCUU-H8 (92.7")	1	0.75	-2.000	88.00	12.746	0.67	323.64	16.159	0.67
100.00	CCI TPA-65R-LCUUUU-H8	1	0.75	-2.000	81.60	13.298	0.69	344.29	16.841	0.69
100.00	CCI OPA-65R-LCUU-H6	2	0.75	-2.000	73.00	9.658	0.66	266.16	12.289	0.66
100.00	Quintel QS66512-2	2	0.75	-2.000	111.00	8.133	0.74	300.13	10.779	0.74
100.00	Powerwave Allgon 7770.00	3	0.75	-2.000	35.00	5.508	0.65	142.88	7.526	0.65
100.00	Ericsson RRUS-32 (77 lbs)	3	0.75	-2.000	77.00	3.314	0.50	169.30	4.532	0.50
100.00	Ericsson RRUS 32 B2	3	0.75	-2.000	53.00	2.743	0.50	122.80	3.853	0.50
100.00	Ericsson RRUS-11 (50 lbs.)	3	0.75	-2.000	50.00	2.566	0.50	114.70	3.560	0.50
100.00	Raycap DC6-48-60-18-8F(32.8 lb	2	0.75	-2.000	32.80	1.470	0.50	91.35	2.133	0.50
100.00	CCI TPX-070821	6	0.75	-2.000	7.50	0.469	0.50	19.01	0.924	0.50
100.00	Powerwave Allgon LGP21401	3	0.75	-2.000	14.10	1.104	0.50	37.78	1.781	0.50
90.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	501.81	23.775	0.63
90.00	Generic Flat Low Profile Platf	1	1.00	0.000	1875.00	26.100	1.00	2646.34	44.284	1.00
90.00	Ericsson Air 3246 B66	3	0.80	0.000	180.00	7.939	0.69	2755.45	10.099	0.69
90.00	Ericsson AIR32 B66Aa/B2a	3	0.80	-3.000	132.20	6.510	0.71	284.21	8.596	0.71
90.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	233.80	7.194	0.63
90.00	Ericsson RRUS 4415 B25	3	0.80	0.000	46.00	1.842	0.50	92.70	2.696	0.50
90.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	132.28	2.459	0.50
80.00	Commscope JAHH-65B-R3B (63.3 l	6	0.80	0.000	63.30	9.113	0.69	256.59	11.764	0.69
80.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2648.72	40.042	1.00
80.00	Commscope CBC78T-DS-43-2X	3	0.80	0.000	20.70	0.552	0.50	41.81	1.037	0.50
80.00	Samsung Outdoor CBRS 20W RRH –	3	0.80	0.000	4.40	0.892	0.50	21.60	1.502	0.50
80.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	178.98	6.160	0.61
80.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	124.95	2.737	0.50
80.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	145.35	2.737	0.50
80.00	Raycap RVZDC-6627-PF-48	1	0.80	0.000	32.00	3.781	0.50	136.77	5.044	0.50
80.00	Samsung RT4401-48A	3	0.80	0.000	18.60	0.996	0.50	44.40	1.650	0.50
70.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	310.79	15.182	0.64
70.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4052.10	50.624	1.00
70.00	Raycap RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	0.50	76.43	2.729	0.50
70.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	135.03	2.843	0.50
70.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	119.78	2.843	0.50
60.00	Scala 840 10212	1	1.00	0.000	6.70	2.175	0.50	54.95	3.211	0.50
60.00	Stand Off	1	1.00	0.000	75.00	2.500	1.00	110.13	3.755	1.00
60.00	Radio Waves SP2-4.7	1	1.00	0.000	22.00	5.228	1.00	75.22	6.715	1.00
60.00	Generic Radio/ODU	1	1.00	0.000	30.00	1.600	0.50	79.13	2.408	0.50
Totals	Num Loadings: 44	102			14,443.00			35,852.28		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

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	110.00	6	5/16" (0.31"-7.9mm) C	0.31	0.05	N	0	0	0	0	0	N	CLEARWIRE COR

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	110.00	2	1/2" Coax	0.63	0.15	N	1	0	0	290	0.5	Y	CLEARWIRE COR
0.00	110.00	1	2" conduit	2.38	3.65	N	1	0	0	280	0	Y	CLEARWIRE COR
0.00	102.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	102.00	6	1 5/8" Coax	1.98	0.82	N	3	0	0	218	0.5	Y	AT&T MOBILITY
0.00	102.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	102.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	2	0.5	0.5	13	0.5	Y	AT&T MOBILITY
0.00	102.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	1	0	0	8	0.5	Y	AT&T MOBILITY
0.00	102.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	1	3" conduit	3.5	7.58	N	1	0	0	0	0	N	AT&T MOBILITY
0.00	90.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	T-MOBILE
0.00	90.00	4	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	0	0	0	0	0	N	T-MOBILE
0.00	87.00	18	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	T-MOBILE
75.00	87.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	30	0	Y	
75.00	87.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	300	0	Y	
75.00	87.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	120	0	Y	
75.00	87.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	210	0	Y	
0.00	81.00	1	#20 DYWIDAG	4	4.68	N	1	0	0	180	0	Y	
0.00	81.00	1	#20 DYWIDAG	4	4.68	N	1	0	0	90	0	Y	
0.00	81.00	1	#20 DYWIDAG	4	4.68	N	1	0	0	270	0	Y	
0.00	81.00	1	#20 DYWIDAG	4	4.68	N	1	0	0	0	0	Y	
0.00	80.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	80.00	2	1 5/8" Hybriflex	1.98	1.3	N	2	0.25	0.25	65	0.5	Y	VERIZON WIREL
0.00	70.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
0.00	60.00	2	0.41" (10.3mm) LMR-40	0.41	0.07	N	2	0.25	0.25	73	0.5	Y	TOWN OF WEST
0.00	60.00	1	7/8" Coax	1.09	0.33	N	1	0	0	69	0.5	Y	TOWN OF WEST
0.00	20.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	210	0	Y	
0.00	20.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	30	0	Y	
0.00	20.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	120	0	Y	
0.00	20.00	1	1.25" Thick Flat Plat	1.25	0	Y	1	0	0	300	0	Y	

ADDITIONAL STEEL

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connectors Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	18.00	4	PL PL 6 x 1.25	65	0.00	AJAX M20 Class 8.8	24.00	3.00	AJAX M20 Class 8.8	N
0.00	12.00	4	SOL #20 All Thread Bar	80	2.31	6" Angle Bracket	39.00	3.31	5/8" A36 U-Bolt	N
12.00	47.50	4	SOL #20 All Thread Bar	80	2.31	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y
18.00	77.00	4	PL PL 6 x 1.25	65	0.00	AJAX M20 Class 8.8	24.00		AJAX M20 Class 8.8	Y
47.50	67.50	4	SOL #20 All Thread Bar	80	2.31	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y
67.50	77.04	4	SOL #20 All Thread Bar	80	2.31	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Y
77.00	85.00	4	PL PL 5" x 1.25"	65	0.00	AJAX M20 Class 8.8	24.00	3.00	AJAX M20 Class 8.8	N
85.00	93.00	4	PL PL 5" x 1.25"	65	0.00	AJAX M20 Class 8.8	24.00	3.00	AJAX M20 Class 8.8	Y

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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.2500	30.000	23.949	2,705.50	29.47	120.00	72.6	174.2	0.0	0.0	49.640	7,171.70	0.0
5.00		0.2500	29.182	23.290	2,488.30	28.60	116.73	73.5	164.7	0.0	401.9	49.640	6,828.10	844.0
10.00		0.2500	28.363	22.631	2,283.00	27.72	113.45	74.5	155.5	0.0	390.6	49.640	6,493.00	844.0
12.00	Reinf. Top Reinf Bottom	0.2500	28.036	22.367	2,204.20	27.37	112.14	74.9	151.9	0.0	153.1	49.640	6,361.40	337.6
15.00		0.2500	27.545	21.972	2,089.30	26.84	110.18	75.4	146.5	0.0	226.3	49.640	6,166.50	506.4
18.00	Reinf. Top Reinf Bottom	0.2500	27.053	21.577	1,978.60	26.32	108.21	76	141.3	0.0	222.3	49.640	5,974.60	506.4
20.00		0.2500	26.726	21.313	1,906.90	25.97	106.90	76.4	137.8	0.0	145.9	49.640	5,848.50	337.6
25.00		0.2500	25.908	20.654	1,735.50	25.09	103.63	77.4	129.4	0.0	357.0	49.640	5,539.00	844.0
29.33	Bot - Section 2	0.2500	25.199	20.084	1,595.60	24.33	100.79	78.2	122.3	0.0	300.1	49.640	5,278.00	730.9
30.00		0.2500	25.089	19.995	1,574.70	24.21	100.36	78.3	121.2	0.0	92.3	49.640	5,420.90	113.1
32.83	Top - Section 1	0.2500	25.126	20.025	1,581.60	24.25	100.50	62.7	121.6	0.0	385.4	49.640	5,251.40	477.7
35.00		0.2500	24.771	19.739	1,514.90	23.87	99.08	63	118.1	0.0	146.8	49.640	5,123.30	366.3
40.00		0.2500	23.952	19.080	1,368.20	22.99	95.81	63	110.3	0.0	330.2	49.640	4,834.30	844.0
45.00		0.2500	23.134	18.421	1,231.30	22.11	92.53	63	102.8	0.0	319.0	49.640	4,553.90	844.0
47.50	Reinf. Top Reinf Bottom	0.2500	22.724	18.092	1,166.40	21.68	90.90	63	99.2	0.0	155.3	49.640	4,416.80	422.0
50.00		0.2500	22.315	17.762	1,103.80	21.24	89.26	63	95.6	0.0	152.5	49.640	4,282.00	422.0
55.00		0.2500	21.497	17.103	985.50	20.36	85.99	63	88.6	0.0	296.6	49.640	4,018.60	844.0
60.00		0.2500	20.678	16.445	875.90	19.48	82.71	63	81.8	0.0	285.4	49.640	3,763.80	844.0
62.92	Bot - Section 3	0.2500	20.201	16.060	815.90	18.97	80.80	63	78.0	0.0	161.3	49.640	3,619.10	492.3
65.00		0.2500	19.860	15.786	774.80	18.61	79.44	63	75.4	0.0	199.4	49.640	3,629.30	351.7
65.75	Top - Section 2	0.1875	20.112	12.029	609.50	26.06	107.26	61.4	58.5	0.0	70.9	49.640	3,592.50	126.6
67.50	Reinf. Top Reinf Bottom	0.1875	19.825	11.856	583.60	25.65	105.73	61.7	56.9	0.0	71.1	49.640	3,507.40	295.4
70.00		0.1875	19.416	11.609	547.90	25.07	103.55	62.1	54.5	0.0	99.8	49.640	3,387.60	422.0
75.00		0.1875	18.598	11.115	480.80	23.90	99.19	63	49.9	0.0	193.3	49.640	3,154.60	844.0
77.00	Reinf. Top Reinf Bottom	0.1875	18.270	10.917	455.60	23.43	97.44	63	48.2	0.0	75.0	49.640	3,063.70	337.6
77.04	Reinf. Top	0.1875	18.264	10.913	455.10	23.42	97.41	63	48.1	0.0	1.5	44.640	2,804.60	6.1
80.00		0.1875	17.779	10.621	419.50	22.73	94.82	63	45.6	0.0	108.4	25.000	1,159.20	252.2
85.00	Reinf. Top Reinf Bottom	0.1875	16.961	10.127	363.60	21.56	90.46	63	41.4	0.0	176.5	25.000	1,064.00	426.0
90.00		0.1875	16.142	9.633	313.00	20.39	86.09	63	37.5	0.0	168.1	25.000	972.90	426.0
93.00	Reinf. Top	0.1875	15.651	9.336	284.90	19.69	83.47	63	35.2	0.0	96.8	25.000	920.30	255.6
95.00		0.1875	15.324	9.138	267.20	19.22	81.73	63	33.7	0.0	62.9			
100.00	Top - Section 3	0.1875	14.505	8.644	226.20	18.05	77.36	63	30.1	0.0	151.3			
100.00	Bot - Section 4	0.3750	12.750	14.579	279.30	0.00	34.00	35	43.8	57.4				
102.00		0.3750	12.750	14.579	279.30	0.00	34.00	35	43.8	57.4	99.2			
105.00		0.3750	12.750	14.579	279.30	0.00	34.00	35	43.8	57.4	148.8			
110.00		0.3750	12.750	14.579	279.30	0.00	34.00	35	43.8	57.4	248.0			
									Totals:		6,493.0			14,363.5

Load Case: 1.2D + 1.0W Normal — 115.01 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	-51.70	-34.51	0.00	-2,461.0	0.00	2,460.99	1,564.13	420.30	1,179.53	948.21	0	0	0.728
5.00	-49.49	-33.61	0.00	-2,288.4	0.00	2,288.42	1,541.15	408.74	1,115.53	908.36	0.19	-0.34	0.690
10.00	-47.37	-32.92	0.00	-2,120.4	0.00	2,120.38	1,517.04	397.17	1,053.33	868.64	0.73	-0.68	0.652
12.00	-46.48	-32.52	0.00	-2,054.5	0.00	2,054.54	1,507.08	392.55	1,028.94	852.79	1.04	-0.81	0.636
15.00	-45.19	-32.03	0.00	-1,957.0	0.00	1,956.97	1,491.79	385.61	992.90	829.09	1.62	-1.01	0.614
18.00	-43.92	-31.60	0.00	-1,860.9	0.00	1,860.89	1,476.10	378.67	957.51	805.48	2.33	-1.21	0.591
20.00	-43.03	-31.12	0.00	-1,797.7	0.00	1,797.70	1,465.41	374.05	934.26	789.78	2.86	-1.34	0.575
25.00	-40.94	-30.38	0.00	-1,642.1	0.00	1,642.10	1,437.89	362.48	877.41	750.77	4.44	-1.66	0.537
29.33	-39.19	-29.90	0.00	-1,510.6	0.00	1,510.56	1,413.15	352.47	829.62	717.27	6.07	-1.92	0.504
30.00	-38.83	-29.69	0.00	-1,490.5	0.00	1,490.53	1,409.24	350.92	822.34	712.11	6.35	-1.97	0.486
32.83	-37.44	-29.27	0.00	-1,406.5	0.00	1,406.52	1,130.12	270.34	634.44	571.92	7.57	-2.13	0.590
35.00	-36.52	-28.79	0.00	-1,343.0	0.00	1,342.99	1,119.20	266.48	616.46	558.23	8.57	-2.26	0.570
40.00	-34.50	-28.00	0.00	-1,199.0	0.00	1,199.05	1,081.84	257.58	576.00	521.40	11.08	-2.53	0.528
45.00	-32.53	-27.32	0.00	-1,059.1	0.00	1,059.08	1,044.48	248.69	536.92	485.83	13.88	-2.79	0.484
47.50	-31.54	-26.92	0.00	-990.8	0.00	990.77	1,025.80	244.24	517.89	468.51	15.37	-2.92	0.462
50.00	-30.54	-26.40	0.00	-923.5	0.00	923.48	1,007.12	239.79	499.21	451.52	16.93	-3.04	0.439
55.00	-28.60	-25.59	0.00	-791.5	0.00	791.50	969.76	230.90	462.88	418.46	20.24	-3.26	0.392
60.00	-26.57	-24.35	0.00	-663.5	0.00	663.54	932.41	222.00	427.91	386.66	23.78	-3.47	0.343
62.92	-25.47	-23.92	0.00	-592.5	0.00	592.51	910.61	216.81	408.15	368.69	25.93	-3.58	0.315
65.00	-24.59	-23.65	0.00	-542.7	0.00	542.67	895.05	213.11	394.32	356.11	27.51	-3.66	0.287
65.75	-24.27	-23.47	0.00	-524.9	0.00	524.94	664.45	162.40	305.24	269.50	28.09	-3.69	0.311
67.50	-23.64	-23.16	0.00	-483.9	0.00	483.86	658.11	160.06	296.53	263.05	29.45	-3.74	0.290
70.00	-19.19	-19.65	0.00	-426.0	0.00	425.97	648.89	156.72	284.30	253.91	31.44	-3.82	0.255
75.00	-17.45	-19.00	0.00	-327.7	0.00	327.70	629.88	150.05	260.62	235.88	35.52	-3.96	0.205
77.00	-16.76	-18.77	0.00	-289.7	0.00	289.70	619.01	147.38	251.44	227.65	37.19	-4.01	0.186
77.00	-16.76	-18.77	0.00	-289.7	0.00	289.70	619.01	147.38	251.44	227.65	37.19	-4.01	0.199
77.04	-16.75	-18.63	0.00	-289.0	0.00	288.95	618.79	147.33	251.26	227.48	37.22	-4.01	0.199
77.04	-16.75	-18.63	0.00	-289.0	0.00	288.95	618.79	147.33	251.26	227.48	37.22	-4.01	0.370
80.00	-12.54	-14.19	0.00	-233.8	0.00	233.81	602.20	143.38	237.97	215.39	39.73	-4.08	0.304
85.00	-11.49	-13.50	0.00	-162.8	0.00	162.84	574.18	136.71	216.35	195.71	44.1	-4.25	0.227
90.00	-6.25	-7.74	0.00	-95.3	0.00	95.32	546.16	130.04	195.76	176.97	48.63	-4.38	0.138
93.00	-5.70	-7.48	0.00	-72.1	0.00	72.10	529.35	126.04	183.90	166.19	51.4	-4.44	0.109
93.00	-5.70	-7.48	0.00	-72.1	0.00	72.10	529.35	126.04	183.90	166.19	51.4	-4.44	0.448
95.00	-5.54	-7.19	0.00	-57.1	0.00	57.13	518.15	123.37	176.19	159.18	53.26	-4.47	0.373
100.00	-3.78	-3.96	0.00	-21.2	0.00	21.20	459.24	137.77	149.89	150.79	58.07	-4.68	0.150
100.00	-3.78	-3.96	0.00	-21.2	0.00	21.20	490.13	116.70	157.66	142.33	58.07	-4.68	0.158
102.00	-1.39	-1.79	0.00	-13.3	0.00	13.27	459.24	137.77	149.89	150.79	60.03	-4.72	0.091
105.00	-1.21	-1.58	0.00	-7.9	0.00	7.88	459.24	137.77	149.89	150.79	63.01	-4.75	0.055
110.00	0.00	-1.47	0.00	0.0	0.00	0.00	459.24	137.77	149.89	150.79	67.99	-4.77	0.000

Load Case: 0.9D + 1.0W Normal 115.01 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	-38.75	-34.47	0.00	-2,429.7	0.00	2,429.72	1,564.13	420.30	1,179.53	948.21	0	0	0.717
5.00	-37.05	-33.49	0.00	-2,257.4	0.00	2,257.37	1,541.15	408.74	1,115.53	908.36	0.18	-0.34	0.678
10.00	-35.42	-32.76	0.00	-2,089.9	0.00	2,089.91	1,517.04	397.17	1,053.33	868.64	0.72	-0.67	0.640
12.00	-34.74	-32.33	0.00	-2,024.4	0.00	2,024.39	1,507.08	392.55	1,028.94	852.79	1.03	-0.8	0.625
15.00	-33.75	-31.79	0.00	-1,927.4	0.00	1,927.41	1,491.79	385.61	992.90	829.09	1.6	-1	0.602
18.00	-32.78	-31.33	0.00	-1,832.0	0.00	1,832.03	1,476.10	378.67	957.51	805.48	2.29	-1.19	0.579
20.00	-32.08	-30.82	0.00	-1,769.4	0.00	1,769.36	1,465.41	374.05	934.26	789.78	2.82	-1.32	0.564
25.00	-30.49	-30.04	0.00	-1,615.3	0.00	1,615.26	1,437.89	362.48	877.41	750.77	4.38	-1.63	0.526
29.33	-29.16	-29.54	0.00	-1,485.2	0.00	1,485.21	1,413.15	352.47	829.62	717.27	5.99	-1.9	0.494
30.00	-28.88	-29.31	0.00	-1,465.4	0.00	1,465.41	1,409.24	350.92	822.34	712.11	6.26	-1.94	0.476
32.83	-27.83	-28.89	0.00	-1,382.5	0.00	1,382.46	1,130.12	270.34	634.44	571.92	7.46	-2.1	0.578
35.00	-27.12	-28.38	0.00	-1,319.8	0.00	1,319.77	1,119.20	266.48	616.46	558.23	8.44	-2.22	0.558
40.00	-25.59	-27.56	0.00	-1,177.9	0.00	1,177.89	1,081.84	257.58	576.00	521.40	10.92	-2.49	0.516
45.00	-24.10	-26.88	0.00	-1,040.1	0.00	1,040.09	1,044.48	248.69	536.92	485.83	13.67	-2.75	0.474
47.50	-23.35	-26.47	0.00	-972.9	0.00	972.89	1,025.80	244.24	517.89	468.51	15.14	-2.87	0.452
50.00	-22.59	-25.94	0.00	-906.7	0.00	906.71	1,007.12	239.79	499.21	451.52	16.68	-2.99	0.429
55.00	-21.12	-25.13	0.00	-777.0	0.00	777.03	969.76	230.90	462.88	418.46	19.93	-3.21	0.383
60.00	-19.60	-23.90	0.00	-651.4	0.00	651.39	932.41	222.00	427.91	386.66	23.41	-3.42	0.335
62.92	-18.78	-23.48	0.00	-581.7	0.00	581.67	910.61	216.81	408.15	368.69	25.53	-3.53	0.307
65.00	-18.12	-23.21	0.00	-532.8	0.00	532.76	895.05	213.11	394.32	356.11	27.09	-3.6	0.280
65.75	-17.87	-23.04	0.00	-515.4	0.00	515.35	664.45	162.40	305.24	269.50	27.66	-3.63	0.303
67.50	-17.40	-22.72	0.00	-475.0	0.00	475.04	658.11	160.06	296.53	263.05	29	-3.68	0.283
70.00	-14.10	-19.29	0.00	-418.2	0.00	418.23	648.89	156.72	284.30	253.91	30.95	-3.76	0.249
75.00	-12.80	-18.66	0.00	-321.8	0.00	321.78	629.88	150.05	260.62	235.88	34.96	-3.89	0.200
77.00	-12.29	-18.44	0.00	-284.5	0.00	284.47	619.01	147.38	251.44	227.65	36.61	-3.94	0.181
77.00	-12.29	-18.44	0.00	-284.5	0.00	284.47	619.01	147.38	251.44	227.65	36.61	-3.94	0.194
77.04	-12.28	-18.30	0.00	-283.7	0.00	283.73	618.79	147.33	251.26	227.48	36.64	-3.94	0.193
77.04	-12.28	-18.30	0.00	-283.7	0.00	283.73	618.79	147.33	251.26	227.48	36.64	-3.94	0.361
80.00	-9.18	-13.94	0.00	-229.6	0.00	229.57	602.20	143.38	237.97	215.39	39.11	-4.01	0.297
85.00	-8.40	-13.26	0.00	-159.9	0.00	159.89	574.18	136.71	216.35	195.71	43.4	-4.18	0.222
90.00	-4.56	-7.61	0.00	-93.6	0.00	93.60	546.16	130.04	195.76	176.97	47.86	-4.31	0.134
93.00	-4.15	-7.36	0.00	-70.8	0.00	70.79	529.35	126.04	183.90	166.19	50.58	-4.36	0.106
93.00	-4.15	-7.36	0.00	-70.8	0.00	70.79	529.35	126.04	183.90	166.19	50.58	-4.36	0.437
95.00	-4.03	-7.06	0.00	-56.1	0.00	56.07	518.15	123.37	176.19	159.18	52.42	-4.39	0.363
100.00	-2.77	-3.88	0.00	-20.8	0.00	20.78	459.24	137.77	149.89	150.79	57.14	-4.6	0.145
100.00	-2.77	-3.88	0.00	-20.8	0.00	20.78	490.13	116.70	157.66	142.33	57.14	-4.6	0.153
102.00	-1.01	-1.76	0.00	-13.0	0.00	13.02	459.24	137.77	149.89	150.79	59.07	-4.64	0.089
105.00	-0.88	-1.55	0.00	-7.7	0.00	7.74	459.24	137.77	149.89	150.79	62	-4.67	0.053
110.00	0.00	-1.47	0.00	0.0	0.00	0.00	459.24	137.77	149.89	150.79	66.9	-4.69	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		48.73 mph wind with 1.275" 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	-80.75	-9.26	0.00	-707.2	0.00	707.17	1,564.13	420.30	1,179.53	948.21	0	0	0.222
5.00	-78.17	-9.19	0.00	-660.9	0.00	660.89	1,541.15	408.74	1,115.53	908.36	0.05	-0.1	0.211
10.00	-75.55	-9.09	0.00	-615.0	0.00	614.95	1,517.04	397.17	1,053.33	868.64	0.21	-0.2	0.200
12.00	-74.50	-9.04	0.00	-596.8	0.00	596.77	1,507.08	392.55	1,028.94	852.79	0.3	-0.24	0.196
15.00	-72.93	-8.98	0.00	-569.6	0.00	569.64	1,491.79	385.61	992.90	829.09	0.47	-0.29	0.189
18.00	-71.35	-8.91	0.00	-542.7	0.00	542.72	1,476.10	378.67	957.51	805.48	0.67	-0.35	0.183
20.00	-70.30	-8.85	0.00	-524.9	0.00	524.89	1,465.41	374.05	934.26	789.78	0.83	-0.39	0.178
25.00	-67.75	-8.71	0.00	-480.6	0.00	480.65	1,437.89	362.48	877.41	750.77	1.29	-0.48	0.167
29.33	-65.55	-8.60	0.00	-442.9	0.00	442.93	1,413.15	352.47	829.62	717.27	1.76	-0.56	0.157
30.00	-65.15	-8.57	0.00	-437.2	0.00	437.17	1,409.24	350.92	822.34	712.11	1.84	-0.57	0.152
32.83	-63.48	-8.47	0.00	-412.9	0.00	412.93	1,130.12	270.34	634.44	571.92	2.19	-0.62	0.184
35.00	-62.38	-8.38	0.00	-394.6	0.00	394.55	1,119.20	266.48	616.46	558.23	2.48	-0.66	0.178
40.00	-59.86	-8.19	0.00	-352.6	0.00	352.65	1,081.84	257.58	576.00	521.40	3.22	-0.74	0.166
45.00	-57.37	-8.01	0.00	-311.7	0.00	311.68	1,044.48	248.69	536.92	485.83	4.03	-0.81	0.152
47.50	-56.13	-7.91	0.00	-291.6	0.00	291.64	1,025.80	244.24	517.89	468.51	4.47	-0.85	0.146
50.00	-54.90	-7.78	0.00	-271.9	0.00	271.86	1,007.12	239.79	499.21	451.52	4.93	-0.89	0.139
55.00	-52.45	-7.56	0.00	-232.9	0.00	232.94	969.76	230.90	462.88	418.46	5.89	-0.95	0.125
60.00	-49.72	-7.21	0.00	-195.1	0.00	195.13	932.41	222.00	427.91	386.66	6.92	-1.01	0.110
62.92	-48.33	-7.08	0.00	-174.1	0.00	174.10	910.61	216.81	408.15	368.69	7.56	-1.05	0.101
65.00	-47.24	-6.98	0.00	-159.4	0.00	159.35	895.05	213.11	394.32	356.11	8.02	-1.07	0.093
65.75	-46.85	-6.94	0.00	-154.1	0.00	154.12	664.45	162.40	305.24	269.50	8.19	-1.08	0.099
67.50	-46.05	-6.84	0.00	-142.0	0.00	141.98	658.11	160.06	296.53	263.05	8.59	-1.09	0.092
70.00	-38.88	-5.78	0.00	-124.9	0.00	124.88	648.89	156.72	284.30	253.91	9.17	-1.12	0.081
75.00	-36.65	-5.55	0.00	-96.0	0.00	95.95	629.88	150.05	260.62	235.88	10.36	-1.16	0.066
77.00	-35.74	-5.46	0.00	-84.9	0.00	84.86	619.01	147.38	251.44	227.65	10.85	-1.17	0.060
77.00	-35.74	-5.46	0.00	-84.9	0.00	84.86	619.01	147.38	251.44	227.65	10.85	-1.17	0.065
77.04	-35.72	-5.43	0.00	-84.6	0.00	84.64	618.79	147.33	251.26	227.48	10.86	-1.17	0.065
77.04	-35.72	-5.43	0.00	-84.6	0.00	84.64	618.79	147.33	251.26	227.48	10.86	-1.17	0.120
80.00	-28.51	-4.14	0.00	-68.6	0.00	68.58	602.20	143.38	237.97	215.39	11.59	-1.19	0.100
85.00	-27.06	-3.97	0.00	-47.9	0.00	47.86	574.18	136.71	216.35	195.71	12.87	-1.24	0.077
90.00	-11.94	-2.28	0.00	-28.0	0.00	28.03	546.16	130.04	195.76	176.97	14.2	-1.28	0.045
93.00	-11.20	-2.19	0.00	-21.2	0.00	21.18	529.35	126.04	183.90	166.19	15.01	-1.3	0.036
93.00	-11.20	-2.19	0.00	-21.2	0.00	21.18	529.35	126.04	183.90	166.19	15.01	-1.3	0.149
95.00	-10.91	-2.11	0.00	-16.8	0.00	16.79	518.15	123.37	176.19	159.18	15.55	-1.31	0.127
100.00	-6.47	-1.23	0.00	-6.2	0.00	6.23	459.24	137.77	149.89	150.79	16.96	-1.37	0.056
100.00	-6.47	-1.23	0.00	-6.2	0.00	6.23	490.13	116.70	157.66	142.33	16.96	-1.37	0.057
102.00	-2.69	-0.52	0.00	-3.8	0.00	3.78	459.24	137.77	149.89	150.79	17.53	-1.38	0.031
105.00	-2.39	-0.44	0.00	-2.2	0.00	2.22	459.24	137.77	149.89	150.79	18.41	-1.39	0.020
110.00	0.00	-0.39	0.00	0.0	0.00	0.00	459.24	137.77	149.89	150.79	19.87	-1.4	0.000

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 21 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	-43.17	-8.50	0.00	-599.0	0.00	598.95	1,564.13	420.30	1,179.53	948.21	0	0	0.182
5.00	-41.48	-8.25	0.00	-556.5	0.00	556.47	1,541.15	408.74	1,115.53	908.36	0.05	-0.08	0.173
10.00	-39.80	-8.07	0.00	-515.2	0.00	515.19	1,517.04	397.17	1,053.33	868.64	0.18	-0.17	0.163
12.00	-39.13	-7.97	0.00	-499.0	0.00	499.05	1,507.08	392.55	1,028.94	852.79	0.25	-0.2	0.159
15.00	-38.13	-7.84	0.00	-475.2	0.00	475.15	1,491.79	385.61	992.90	829.09	0.39	-0.25	0.153
18.00	-37.14	-7.72	0.00	-451.6	0.00	451.64	1,476.10	378.67	957.51	805.48	0.57	-0.29	0.148
20.00	-36.48	-7.60	0.00	-436.2	0.00	436.19	1,465.41	374.05	934.26	789.78	0.7	-0.33	0.144
25.00	-34.84	-7.41	0.00	-398.2	0.00	398.19	1,437.89	362.48	877.41	750.77	1.08	-0.4	0.134
29.33	-33.43	-7.29	0.00	-366.1	0.00	366.11	1,413.15	352.47	829.62	717.27	1.48	-0.47	0.126
30.00	-33.16	-7.23	0.00	-361.2	0.00	361.23	1,409.24	350.92	822.34	712.11	1.54	-0.48	0.121
32.83	-32.05	-7.13	0.00	-340.8	0.00	340.77	1,130.12	270.34	634.44	571.92	1.84	-0.52	0.147
35.00	-31.34	-7.00	0.00	-325.3	0.00	325.31	1,119.20	266.48	616.46	558.23	2.08	-0.55	0.142
40.00	-29.73	-6.80	0.00	-290.3	0.00	290.30	1,081.84	257.58	576.00	521.40	2.69	-0.61	0.131
45.00	-28.13	-6.63	0.00	-256.3	0.00	256.30	1,044.48	248.69	536.92	485.83	3.37	-0.68	0.120
47.50	-27.33	-6.53	0.00	-239.7	0.00	239.72	1,025.80	244.24	517.89	468.51	3.73	-0.71	0.115
50.00	-26.54	-6.40	0.00	-223.4	0.00	223.39	1,007.12	239.79	499.21	451.52	4.11	-0.74	0.109
55.00	-24.96	-6.20	0.00	-191.4	0.00	191.40	969.76	230.90	462.88	418.46	4.92	-0.79	0.097
60.00	-23.27	-5.89	0.00	-160.4	0.00	160.40	932.41	222.00	427.91	386.66	5.77	-0.84	0.085
62.92	-22.36	-5.79	0.00	-143.2	0.00	143.21	910.61	216.81	408.15	368.69	6.3	-0.87	0.078
65.00	-21.63	-5.72	0.00	-131.2	0.00	131.15	895.05	213.11	394.32	356.11	6.68	-0.89	0.071
65.75	-21.37	-5.68	0.00	-126.9	0.00	126.86	664.45	162.40	305.24	269.50	6.82	-0.89	0.076
67.50	-20.85	-5.60	0.00	-116.9	0.00	116.92	658.11	160.06	296.53	263.05	7.15	-0.91	0.071
70.00	-16.99	-4.75	0.00	-102.9	0.00	102.92	648.89	156.72	284.30	253.91	7.63	-0.93	0.062
75.00	-15.54	-4.59	0.00	-79.2	0.00	79.15	629.88	150.05	260.62	235.88	8.62	-0.96	0.050
77.00	-14.96	-4.54	0.00	-70.0	0.00	69.97	619.01	147.38	251.44	227.65	9.03	-0.97	0.045
77.00	-14.96	-4.54	0.00	-70.0	0.00	69.97	619.01	147.38	251.44	227.65	9.03	-0.97	0.049
77.04	-14.94	-4.50	0.00	-69.8	0.00	69.78	618.79	147.33	251.26	227.48	9.04	-0.97	0.049
77.04	-14.94	-4.50	0.00	-69.8	0.00	69.78	618.79	147.33	251.26	227.48	9.04	-0.97	0.092
80.00	-11.22	-3.43	0.00	-56.4	0.00	56.45	602.20	143.38	237.97	215.39	9.64	-0.99	0.076
85.00	-10.34	-3.26	0.00	-39.3	0.00	39.30	574.18	136.71	216.35	195.71	10.7	-1.03	0.057
90.00	-5.65	-1.87	0.00	-23.0	0.00	23.01	546.16	130.04	195.76	176.97	11.8	-1.06	0.035
93.00	-5.19	-1.81	0.00	-17.4	0.00	17.40	529.35	126.04	183.90	166.19	12.47	-1.08	0.028
93.00	-5.19	-1.81	0.00	-17.4	0.00	17.40	529.35	126.04	183.90	166.19	12.47	-1.08	0.115
95.00	-5.05	-1.74	0.00	-13.8	0.00	13.79	518.15	123.37	176.19	159.18	12.93	-1.08	0.097
100.00	-3.39	-0.95	0.00	-5.1	0.00	5.11	459.24	137.77	149.89	150.79	14.09	-1.13	0.041
100.00	-3.39	-0.95	0.00	-5.1	0.00	5.11	490.13	116.70	157.66	142.33	14.09	-1.13	0.043
102.00	-1.27	-0.43	0.00	-3.2	0.00	3.20	459.24	137.77	149.89	150.79	14.57	-1.14	0.024
105.00	-1.11	-0.38	0.00	-1.9	0.00	1.90	459.24	137.77	149.89	150.79	15.29	-1.15	0.015
110.00	0.00	-0.36	0.00	0.0	0.00	0.00	459.24	137.77	149.89	150.79	16.5	-1.16	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.192
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
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}):	0.205
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	2.040
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.770
Total Unfactored Dead Load:	43.180 k
Seismic Base Shear (E):	1.300 k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	107.5	269	1,054	0.015	20	334
33	103.5	162	591	0.009	11	201
32	101	135	472	0.007	9	167
31	97.5	340	1,118	0.016	21	421
30	94	138	426	0.006	8	171
29	91.5	465	1,369	0.020	26	578
28	87.5	840	2,284	0.033	43	1,042
27	82.5	885	2,168	0.031	41	1,098
26	78.52	609	1,367	0.020	26	756
25	77.02	11	24	0.000	0	14
24	76	580	1,230	0.018	23	720
23	72.5	1,457	2,840	0.041	53	1,808
22	68.75	737	1,309	0.019	25	915
21	66.625	517	869	0.013	16	642
20	65.375	262	426	0.006	8	325
19	63.9583	731	1,141	0.016	21	907
18	61.4583	905	1,318	0.019	25	1,123
17	57.5	1,563	2,022	0.029	38	1,939
16	52.5	1,574	1,734	0.025	32	1,953
15	48.75	791	765	0.011	14	982
14	46.25	794	699	0.010	13	985
13	42.5	1,596	1,210	0.018	23	1,981
12	37.5	1,608	977	0.014	18	1,995
11	33.915	701	357	0.005	7	870
10	31.415	1,108	492	0.007	9	1,375
9	29.665	264	106	0.002	2	327
8	27.165	1,406	483	0.007	9	1,745
7	22.5	1,634	402	0.006	8	2,028
6	19	657	120	0.002	2	815
5	16.5	989	141	0.002	3	1,227
4	13.5	993	99	0.001	2	1,232
3	11	664	46	0.001	1	824
2	7.5	1,668	59	0.001	1	2,070
1	2.5	1,679	8	0.000	0	2,084

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
DragonWave Horizon Compact	110	21	86	0.001	2	26
Generic 12" x 12" Junction Box	110	10	41	0.001	1	12
DragonWave A-ANT-23G-1-C	110	15	61	0.001	1	19
NextNet BTS-2500	110	105	428	0.006	8	130
Argus LLPX310R	110	86	350	0.005	7	106
Clearwirre Side Arm	110	560	2,282	0.033	43	695
DragonWave A-ANT-11G-2.5-C	110	48	194	0.003	4	59
Small Platform with Handrails	102	2,000	7,132	0.103	134	2,482
CCI TPX-070821	100	45	155	0.002	3	56
Powerwave Allgon LGP21401	100	42	146	0.002	3	52
Raycap DC6-48-60-18-8F(32.8 lbs)	100	66	226	0.003	4	81
Ericsson RRUS-11 (50 lbs.)	100	150	517	0.008	10	186
Ericsson RRUS 32 B2	100	159	547	0.008	10	197
Ericsson RRUS-32 (77 lbs)	100	231	795	0.012	15	287
Powerwave Allgon 7770.00	100	105	362	0.005	7	130
Quintel QS66512-2	100	222	764	0.011	14	275
CCI OPA-65R-LCUU-H6	100	146	503	0.007	9	181
CCI OPA-65R-LCUU-H8 (92.7")	100	88	303	0.004	6	109
CCI TPA-65R-LCUUUU-H8	100	82	281	0.004	5	101
Ericsson Radio 4449 B71 B85A	90	225	643	0.009	12	279
Ericsson RRUS 4415 B25	90	138	394	0.006	7	171
Ericsson Air6449 B41	90	312	892	0.013	17	387
Ericsson AIR32 B66Aa/B2a	90	397	1,133	0.016	21	492
Ericsson Air 3246 B66	90	540	1,543	0.022	29	670
RFS APXVAARR24_43-U-NA20	90	384	1,097	0.016	21	476
Generic Flat Low Profile Platform	90	1,875	5,359	0.078	100	2,327
Commscope CBC78T-DS-43-2X	80	62	144	0.002	3	77
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	80	13	31	0.000	1	16
Samsung RT4401-48A	80	56	129	0.002	2	69
Samsung B5/B13 RRH-BR04C	80	211	489	0.007	9	262
Samsung B2/B66A RRH-BR049	80	253	588	0.008	11	314
Raycap RVZDC-6627-PF-48	80	32	74	0.001	1	40
Samsung MT6407-77A	80	245	568	0.008	11	304
Commscope JAHH-65B-R3B (63.3 lb)	80	380	881	0.013	17	471
Generic Round Low Profile Platform	80	1,875	4,351	0.063	82	2,327
Raycap RDIDC-9181-PF-48	70	22	40	0.001	1	27
Fujitsu TA08025-B605	70	225	412	0.006	8	279
Fujitsu TA08025-B604	70	192	351	0.005	7	238
JMA Wireless MX08FRO665-21	70	194	355	0.005	7	240
Generic Round Platform with Handrails	70	2,500	4,581	0.066	86	3,102
Generic Radio/ODU	60	30	42	0.001	1	37
Scala 840 10212	60	7	9	0.000	0	8
Stand Off	60	75	105	0.002	2	93
Radio Waves SP2-4.7	60	22	31	0.000	1	27
		43,175	69,143	1.000	1,295	53,579

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	107.5	269	1,054	0.015	20	231
33	103.5	162	591	0.009	11	139
32	101	135	472	0.007	9	116
31	97.5	340	1,118	0.016	21	292
30	94	138	426	0.006	8	119
29	91.5	465	1,369	0.020	26	400
28	87.5	840	2,284	0.033	43	721
27	82.5	885	2,168	0.031	41	760
26	78.52	609	1,367	0.020	26	523
25	77.02	11	24	0.000	0	9
24	76	580	1,230	0.018	23	499
23	72.5	1,457	2,840	0.041	53	1,251

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
22	68.75	737	1,309	0.019	25	633
21	66.625	517	869	0.013	16	444
20	65.375	262	426	0.006	8	225
19	63.9583	731	1,141	0.016	21	628
18	61.4583	905	1,318	0.019	25	777
17	57.5	1,563	2,022	0.029	38	1,342
16	52.5	1,574	1,734	0.025	32	1,352
15	48.75	791	765	0.011	14	680
14	46.25	794	699	0.010	13	682
13	42.5	1,596	1,210	0.018	23	1,371
12	37.5	1,608	977	0.014	18	1,381
11	33.915	701	357	0.005	7	602
10	31.415	1,108	492	0.007	9	952
9	29.665	264	106	0.002	2	226
8	27.165	1,406	483	0.007	9	1,208
7	22.5	1,634	402	0.006	8	1,404
6	19	657	120	0.002	2	564
5	16.5	989	141	0.002	3	849
4	13.5	993	99	0.001	2	853
3	11	664	46	0.001	1	570
2	7.5	1,668	59	0.001	1	1,433
1	2.5	1,679	8	0.000	0	1,443
DragonWave Horizon Compact	110	21	86	0.001	2	18
Generic 12" x 12" Junction Box	110	10	41	0.001	1	9
DragonWave A-ANT-23G-1-C	110	15	61	0.001	1	13
NextNet BTS-2500	110	105	428	0.006	8	90
Argus LLPX310R	110	86	350	0.005	7	74
Clearwirre Side Arm	110	560	2,282	0.033	43	481
DragonWave A-ANT-11G-2.5-C	110	48	194	0.003	4	41
Small Platform with Handrails	102	2,000	7,132	0.103	134	1,718
CCI TPX-070821	100	45	155	0.002	3	39
Powerwave Allgon LGP21401	100	42	146	0.002	3	36
Raycap DC6-48-60-18-8F(32.8 lbs)	100	66	226	0.003	4	56
Ericsson RRUS-11 (50 lbs.)	100	150	517	0.008	10	129
Ericsson RRUS 32 B2	100	159	547	0.008	10	137
Ericsson RRUS-32 (77 lbs)	100	231	795	0.012	15	198
Powerwave Allgon 7770.00	100	105	362	0.005	7	90
Quintel QS66512-2	100	222	764	0.011	14	191
CCI OPA-65R-LCUU-H6	100	146	503	0.007	9	125
CCI OPA-65R-LCUU-H8 (92.7")	100	88	303	0.004	6	76
CCI TPA-65R-LCUUUU-H8	100	82	281	0.004	5	70
Ericsson Radio 4449 B71 B85A	90	225	643	0.009	12	193
Ericsson RRUS 4415 B25	90	138	394	0.006	7	119
Ericsson Air6449 B41	90	312	892	0.013	17	268
Ericsson AIR32 B66Aa/B2a	90	397	1,133	0.016	21	341
Ericsson Air 3246 B66	90	540	1,543	0.022	29	464
RFS APXVAARR24_43-U-NA20	90	384	1,097	0.016	21	330
Generic Flat Low Profile Platform	90	1,875	5,359	0.078	100	1,611
Commscope CBC78T-DS-43-2X	80	62	144	0.002	3	53
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	80	13	31	0.000	1	11
Samsung RT4401-48A	80	56	129	0.002	2	48
Samsung B5/B13 RRH-BR04C	80	211	489	0.007	9	181
Samsung B2/B66A RRH-BR049	80	253	588	0.008	11	218
Raycap RVZDC-6627-PF-48	80	32	74	0.001	1	27
Samsung MT6407-77A	80	245	568	0.008	11	210
Commscope JAHH-65B-R3B (63.3 lb)	80	380	881	0.013	17	326
Generic Round Low Profile Platform	80	1,875	4,351	0.063	82	1,611
Raycap RDIDC-9181-PF-48	70	22	40	0.001	1	19
Fujitsu TA08025-B605	70	225	412	0.006	8	193
Fujitsu TA08025-B604	70	192	351	0.005	7	165
JMA Wireless MX08FRO665-21	70	194	355	0.005	7	166
Generic Round Platform with Handrails	70	2,500	4,581	0.066	86	2,148
Generic Radio/ODU	60	30	42	0.001	1	26
Scala 840 10212	60	7	9	0.000	0	6
Stand Off	60	75	105	0.002	2	64
Radio Waves SP2-4.7	60	22	31	0.000	1	19
		43,175	69,143	1.000	1,295	37,089

1.2D + 1.0Ev + 1.0Eh Normal **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	-51.49	-1.30	0.00	-109.04	0.00	109.04	1,564.13	420.30	1,180	948.21	0.00	0.00	0.04
5.00	-49.42	-1.31	0.00	-102.54	0.00	102.54	1,541.15	408.74	1,116	908.36	0.01	-0.02	0.04
10.00	-48.60	-1.32	0.00	-95.97	0.00	95.97	1,517.04	397.17	1,053	868.64	0.03	-0.03	0.04
12.00	-47.37	-1.32	0.00	-93.33	0.00	93.33	1,507.08	392.55	1,029	852.79	0.05	-0.04	0.04
12.00	-47.37	-1.32	0.00	-93.33	0.00	93.33	1,507.08	392.55	1,029	852.79	0.05	-0.04	0.04
15.00	-46.14	-1.33	0.00	-89.36	0.00	89.36	1,491.79	385.61	993	829.09	0.07	-0.05	0.04
18.00	-45.33	-1.33	0.00	-85.37	0.00	85.37	1,476.10	378.67	958	805.48	0.10	-0.05	0.04
18.00	-45.33	-1.33	0.00	-85.37	0.00	85.37	1,476.10	378.67	958	805.48	0.10	-0.05	0.04
20.00	-43.30	-1.33	0.00	-82.71	0.00	82.71	1,465.41	374.05	934	789.78	0.13	-0.06	0.04
25.00	-41.55	-1.33	0.00	-76.06	0.00	76.06	1,437.89	362.48	877	750.77	0.20	-0.08	0.03
29.33	-41.22	-1.33	0.00	-70.31	0.00	70.31	1,413.15	352.47	830	717.27	0.27	-0.09	0.03
30.00	-39.85	-1.32	0.00	-69.42	0.00	69.42	1,409.24	350.92	822	712.11	0.29	-0.09	0.03
32.83	-38.98	-1.32	0.00	-65.68	0.00	65.68	1,130.12	270.34	634	571.92	0.34	-0.10	0.04
35.00	-36.98	-1.30	0.00	-62.81	0.00	62.81	1,119.20	266.48	616	558.23	0.39	-0.10	0.04
40.00	-35.00	-1.28	0.00	-56.30	0.00	56.30	1,081.84	257.58	576	521.40	0.50	-0.12	0.03
45.00	-34.02	-1.27	0.00	-49.87	0.00	49.87	1,044.48	248.69	537	485.83	0.63	-0.13	0.03
47.50	-33.03	-1.26	0.00	-46.68	0.00	46.68	1,025.80	244.24	518	468.51	0.70	-0.13	0.03
47.50	-33.03	-1.26	0.00	-46.68	0.00	46.68	1,025.80	244.24	518	468.51	0.70	-0.13	0.03
50.00	-31.08	-1.23	0.00	-43.53	0.00	43.53	1,007.12	239.79	499	451.52	0.77	-0.14	0.03
55.00	-29.14	-1.19	0.00	-37.38	0.00	37.38	969.76	230.90	463	418.46	0.92	-0.15	0.03
60.00	-27.85	-1.16	0.00	-31.43	0.00	31.43	932.41	222.00	428	386.66	1.09	-0.16	0.02
62.92	-26.95	-1.14	0.00	-28.03	0.00	28.03	910.61	216.81	408	368.69	1.19	-0.17	0.02
65.00	-26.62	-1.13	0.00	-25.66	0.00	25.66	895.05	213.11	394	356.11	1.26	-0.17	0.02
65.75	-25.98	-1.12	0.00	-24.81	0.00	24.81	664.45	162.40	305	269.50	1.29	-0.17	0.02
67.50	-25.06	-1.09	0.00	-22.85	0.00	22.85	658.11	160.06	297	263.05	1.35	-0.17	0.02
67.50	-25.06	-1.09	0.00	-22.85	0.00	22.85	658.11	160.06	297	263.05	1.35	-0.17	0.02
70.00	-19.37	-0.91	0.00	-20.12	0.00	20.12	648.89	156.72	284	253.91	1.44	-0.18	0.02
75.00	-18.65	-0.89	0.00	-15.55	0.00	15.55	629.88	150.05	261	235.88	1.63	-0.18	0.01
77.00	-18.64	-0.89	0.00	-13.77	0.00	13.77	619.01	147.38	251	227.65	1.71	-0.19	0.01
77.00	-18.64	-0.89	0.00	-13.77	0.00	13.77	619.01	147.38	251	227.65	1.71	-0.19	0.01
77.04	-17.88	-0.86	0.00	-13.73	0.00	13.73	618.79	147.33	251	227.48	1.71	-0.19	0.01
77.04	-17.88	-0.86	0.00	-13.73	0.00	13.73	618.79	147.33	251	227.48	1.71	-0.19	0.03
80.00	-12.90	-0.67	0.00	-11.18	0.00	11.18	602.20	143.38	238	215.39	1.83	-0.19	0.02
85.00	-11.86	-0.63	0.00	-7.82	0.00	7.82	574.18	136.71	216	195.71	2.03	-0.20	0.02
85.00	-11.86	-0.63	0.00	-7.82	0.00	7.82	574.18	136.71	216	195.71	2.03	-0.20	0.02
90.00	-6.48	-0.38	0.00	-4.69	0.00	4.69	546.16	130.04	196	176.97	2.24	-0.20	0.01
93.00	-6.31	-0.37	0.00	-3.56	0.00	3.56	529.35	126.04	184	166.19	2.37	-0.21	0.01
93.00	-6.31	-0.37	0.00	-3.56	0.00	3.56	529.35	126.04	184	166.19	2.37	-0.21	0.03
95.00	-5.89	-0.35	0.00	-2.83	0.00	2.83	518.15	123.37	176	159.18	2.46	-0.21	0.03
100.00	-4.06	-0.24	0.00	-1.10	0.00	1.10	490.13	116.70	158	142.33	2.68	-0.22	0.02
100.00	-4.06	-0.24	0.00	-1.10	0.00	1.10	459.24	137.77	150	150.79	2.68	-0.22	0.02
102.00	-1.38	-0.09	0.00	-0.61	0.00	0.61	459.24	137.77	150	150.79	2.77	-0.22	0.01
105.00	-1.05	-0.07	0.00	-0.34	0.00	0.34	459.24	137.77	150	150.79	2.91	-0.22	0.01
110.00	0.00	-0.06	0.00	0.00	0.00	0.00	459.24	137.77	150	150.79	3.14	-0.22	0.00

0.9D - 1.0Ev + 1.0Eh Normal **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	-35.65	-1.30	0.00	-107.31	0.00	107.31	1,564.13	420.30	1,180	948.21	0.00	0.00	0.04
5.00	-34.21	-1.31	0.00	-100.82	0.00	100.82	1,541.15	408.74	1,116	908.36	0.01	-0.01	0.04
10.00	-33.64	-1.31	0.00	-94.28	0.00	94.28	1,517.04	397.17	1,053	868.64	0.03	-0.03	0.04
12.00	-32.79	-1.31	0.00	-91.66	0.00	91.66	1,507.08	392.55	1,029	852.79	0.05	-0.04	0.03
12.00	-32.79	-1.31	0.00	-91.66	0.00	91.66	1,507.08	392.55	1,029	852.79	0.05	-0.04	0.03
15.00	-31.94	-1.32	0.00	-87.72	0.00	87.72	1,491.79	385.61	993	829.09	0.07	-0.04	0.03
18.00	-31.38	-1.32	0.00	-83.77	0.00	83.77	1,476.10	378.67	958	805.48	0.10	-0.05	0.03
18.00	-31.38	-1.32	0.00	-83.77	0.00	83.77	1,476.10	378.67	958	805.48	0.10	-0.05	0.03
20.00	-29.97	-1.31	0.00	-81.14	0.00	81.14	1,465.41	374.05	934	789.78	0.13	-0.06	0.03
25.00	-28.76	-1.31	0.00	-74.58	0.00	74.58	1,437.89	362.48	877	750.77	0.20	-0.07	0.03
29.33	-28.54	-1.31	0.00	-68.91	0.00	68.91	1,413.15	352.47	830	717.27	0.27	-0.09	0.03
30.00	-27.58	-1.30	0.00	-68.03	0.00	68.03	1,409.24	350.92	822	712.11	0.28	-0.09	0.03
32.83	-26.98	-1.30	0.00	-64.34	0.00	64.34	1,130.12	270.34	634	571.92	0.34	-0.10	0.03

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
35.00	-25.60	-1.28	0.00	-61.53	0.00	61.53	1,119.20	266.48	616	558.23	0.38	-0.10	0.03
40.00	-24.23	-1.26	0.00	-55.12	0.00	55.12	1,081.84	257.58	576	521.40	0.49	-0.11	0.03
45.00	-23.55	-1.25	0.00	-48.82	0.00	48.82	1,044.48	248.69	537	485.83	0.62	-0.13	0.03
47.50	-22.87	-1.24	0.00	-45.69	0.00	45.69	1,025.80	244.24	518	468.51	0.69	-0.13	0.03
47.50	-22.87	-1.24	0.00	-45.69	0.00	45.69	1,025.80	244.24	518	468.51	0.69	-0.13	0.03
50.00	-21.51	-1.20	0.00	-42.60	0.00	42.60	1,007.12	239.79	499	451.52	0.76	-0.14	0.03
55.00	-20.17	-1.17	0.00	-36.58	0.00	36.58	969.76	230.90	463	418.46	0.91	-0.15	0.02
60.00	-19.28	-1.14	0.00	-30.75	0.00	30.75	932.41	222.00	428	386.66	1.07	-0.16	0.02
62.92	-18.65	-1.12	0.00	-27.43	0.00	27.43	910.61	216.81	408	368.69	1.17	-0.16	0.02
65.00	-18.43	-1.11	0.00	-25.11	0.00	25.11	895.05	213.11	394	356.11	1.24	-0.17	0.02
65.75	-17.98	-1.09	0.00	-24.28	0.00	24.28	664.45	162.40	305	269.50	1.26	-0.17	0.02
67.50	-17.35	-1.07	0.00	-22.37	0.00	22.37	658.11	160.06	297	263.05	1.33	-0.17	0.02
67.50	-17.35	-1.07	0.00	-22.37	0.00	22.37	658.11	160.06	297	263.05	1.33	-0.17	0.02
70.00	-13.41	-0.89	0.00	-19.70	0.00	19.70	648.89	156.72	284	253.91	1.42	-0.17	0.02
75.00	-12.91	-0.87	0.00	-15.23	0.00	15.23	629.88	150.05	261	235.88	1.60	-0.18	0.01
77.00	-12.90	-0.87	0.00	-13.48	0.00	13.48	619.01	147.38	251	227.65	1.68	-0.18	0.01
77.00	-12.90	-0.87	0.00	-13.48	0.00	13.48	619.01	147.38	251	227.65	1.68	-0.18	0.01
77.04	-12.38	-0.84	0.00	-13.45	0.00	13.45	618.79	147.33	251	227.48	1.68	-0.18	0.01
77.04	-12.38	-0.84	0.00	-13.45	0.00	13.45	618.79	147.33	251	227.48	1.68	-0.18	0.02
80.00	-8.93	-0.66	0.00	-10.95	0.00	10.95	602.20	143.38	238	215.39	1.79	-0.19	0.02
85.00	-8.21	-0.61	0.00	-7.66	0.00	7.66	574.18	136.71	216	195.71	1.99	-0.19	0.01
85.00	-8.21	-0.61	0.00	-7.66	0.00	7.66	574.18	136.71	216	195.71	1.99	-0.19	0.01
90.00	-4.49	-0.37	0.00	-4.59	0.00	4.59	546.16	130.04	196	176.97	2.20	-0.20	0.01
93.00	-4.37	-0.36	0.00	-3.49	0.00	3.49	529.35	126.04	184	166.19	2.32	-0.20	0.01
93.00	-4.37	-0.36	0.00	-3.49	0.00	3.49	529.35	126.04	184	166.19	2.32	-0.20	0.03
95.00	-4.08	-0.34	0.00	-2.77	0.00	2.77	518.15	123.37	176	159.18	2.41	-0.20	0.03
100.00	-2.81	-0.24	0.00	-1.08	0.00	1.08	490.13	116.70	158	142.33	2.63	-0.21	0.01
100.00	-2.81	-0.24	0.00	-1.08	0.00	1.08	459.24	137.77	150	150.79	2.63	-0.21	0.01
102.00	-0.96	-0.09	0.00	-0.60	0.00	0.60	459.24	137.77	150	150.79	2.72	-0.22	0.01
105.00	-0.73	-0.07	0.00	-0.34	0.00	0.34	459.24	137.77	150	150.79	2.86	-0.22	0.00
110.00	0.00	-0.06	0.00	0.00	0.00	0.00	459.24	137.77	150	150.79	3.08	-0.22	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 Normal	34.51	0.00	51.70	0.00	0.00	2460.99	0.00	0.73
0.9D + 1.0W Normal	34.47	0.00	38.75	0.00	0.00	2429.72	0.00	0.72
1.2D + 1.0Di + 1.0Wi Normal	9.26	0.00	80.75	0.00	0.00	707.17	0.00	0.22
1.2D + 1.0Ev + 1.0Eh Normal	1.33	0.00	51.49	0.00	0.00	109.04	0.00	0.04
0.9D - 1.0Ev + 1.0Eh Normal	1.32	0.00	35.65	0.00	0.00	107.31	0.00	0.04
1.0D + 1.0W Service Normal	8.50	0.00	43.17	0.00	0.00	598.95	0.00	0.18

ADDITIONAL STEEL SUMMARY

			Intermediate Connectors				Max member		
Elev From (ft)	Elev To (ft)	Member	VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	12.00	SOL #20 All Thread Bar	330.7	12.9	16.8	0.7673	278.8	315.5	0.8838
0.00	18.00	PL PL 6 x 1.25	421.6	10.1	38.3	0.2644	355.6	395.0	0.9004
12.00	47.50	SOL #20 All Thread Bar	354.9	10.6	16.8	0.6334	253.9	330.5	0.7682
18.00	77.00	PL PL 6 x 1.25	447.3	10.7	38.3	0.2805	302.6	395.0	0.7662
47.50	67.50	SOL #20 All Thread Bar	374.9	11.2	16.8	0.6691	159.0	330.5	0.4812
67.50	77.04	SOL #20 All Thread Bar	374.9	11.2	16.8	0.6691	95.9	330.5	0.2902
77.00	85.00	PL PL 5" x 1.25"	679.1	16.3	38.3	0.4259	129.3	329.2	0.3929
85.00	93.00	PL PL 5" x 1.25"	538.3	12.9	38.3	0.3376	79.9	329.2	0.2428

			Upper Termination Connectors					Lower Termination Connectors				
Elev From (ft)	Elev To (ft)	Member	MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	12.00	SOL #20 All Thread Bar	0	12	0	0	0.0000	0	12	0	0	0.0000
0.00	18.00	PL PL 6 x 1.25	298.0091	38.27	8	8	0.9734	0	38.27	0	0	0.0000
12.00	47.50	SOL #20 All Thread Bar	0	12	0	0	0.0000	0	12	0	0	0.0000
18.00	77.00	PL PL 6 x 1.25	0	38.27	0	8	0.0000	0	38.27	0	0	0.0000
47.50	67.50	SOL #20 All Thread Bar	0	12	0	0	0.0000	0	12	0	0	0.0000
67.50	77.04	SOL #20 All Thread Bar	66.2348	12	6	7	0.7885	0	12	0	0	0.0000
77.00	85.00	PL PL 5" x 1.25"	0	38.27	0	8	0.0000	0	38.27	0	8	0.0000
85.00	93.00	PL PL 5" x 1.25"	0	38.27	0	8	0.0000	0	38.27	0	8	0.0000

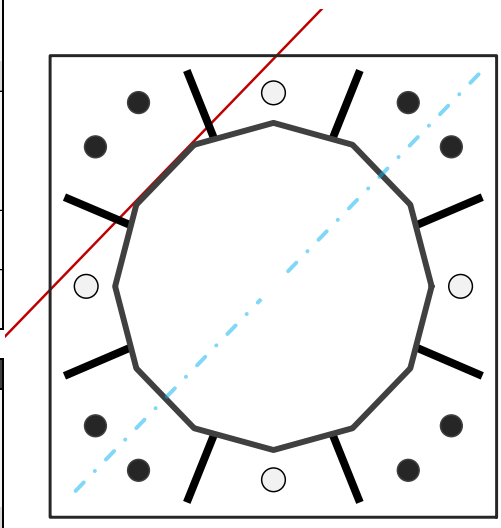
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	30	in
Thickness	1/4	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2461.0	k-ft
Axial, Pu	51.7	k
Shear, Vu	34.5	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	95%	Pass
Anchor Rods	61%	Pass
Dwyidag	89%	Pass

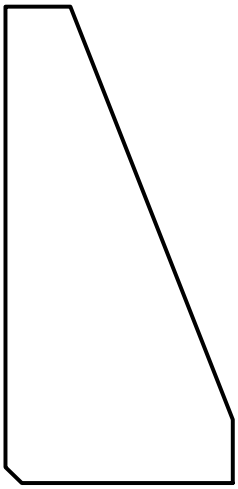
Base Plate		
Shape	Square	-
Width	44	in
Thickness	2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1974.7	k
Bending Stress, ϕMn	2085.6	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	36.88	in
Orientation Offset	0	°
Applied Force, Pu	327.6	k
Dywidag Bar, ϕPn	368.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	146.6	k
Anchor Rods, ϕPn	243.6	k

Stiffeners		
Arrangement	Radial	-
Quantity	8	-
Height	15	in
Width	7	in
Effective Width	7.000	in
Thickness	3/4	in
Effective Thickness	0.750	in
Notch	0.5	in
Flat Edge	2	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	3/8	in
Bevel Depth		in
Vertical Weld	Fillet	
Vertical Fillet Size	1/4	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset		°
Vertical Weld, ϕRn	165.2	k
Horz. Weld, ϕRn	124.1	k
Ten. Capacity, ϕTn	213.9	k
Comp. Capacity, ϕPn	637.3	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	34.5	1065.8	0.43
Anchor Rod Forces	34.5	1065.8	0.43
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1395.2	0.57
Stiffener Forces	24.3	750.8	0.31

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	23.0996	1.9250	0.0403		2556.06
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		3345.94
Stiffener	4.8750	4.3875	85.7500		6093.22

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	32.187	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	32.100	in
Additional AA	6.521	in
Section Modulus, Z	38.622	in^3
Applied Moment, Mu	1974.7	k-ft
Bending Capacity, ϕMn	2085.6	k-ft
Capacity, Mu/ϕMn	0.947	OK
Chord Length AB	31.038	in
Additional AB	5.206	in
Section Modulus, Z	36.244	in^3
Applied Moment, Mu	1818.8	k-ft
Bending Capacity, ϕMn	1957.2	k-ft
Capacity, Mu/ϕMn	0.929	OK
Bend Line Length	0.000	in
Additional Bend Line	#N/A	in
Section Modulus, Z	#N/A	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	#N/A	k-ft
Capacity, Mu/ϕMn		

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		

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	146.6	k
Applied Shear, Vu	1.0	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.602	OK
Interaction Capacity	0.610	OK

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	36.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	327.6	k
Compressive Capacity, ϕPn	368.2	k
Capacity, Pu/ϕPn	0.890	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	112.9	k
Applied Horizontal Force, Vu	1.52	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	0.156	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	3.670	-
Compressive Capacity, ϕPn	165.2	k
Vert.-to-Plate a=e_x/l	0.333	-
Spacing Ratio, k	0.050	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	132.3	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.695	OK

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.167	-
Spacing Ratio, k	0.107	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.375	in
Compressive Capacity, ϕPn	124.1	k
Horz.-to-Pole a=e_x/l	0.357	-
Spacing Ratio, k	0.107	-
Weld Coefficient, C	3.090	-
Shear Capacity, ϕVn	97.3	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.925	OK

Plate Tension		
Gross Cross Section	4.875	in^2
Net Cross Section	4.388	in^2
Tensile Capacity, ϕTn	213.9	k
Capacity, Tu/ϕTn	0.264	OK

Plate Compression		
Radius of Gyration	0.217	in^3
kl/r	41.57	-
4.71 $\sqrt{(E/Fy)}$	113.43	-
Buckling Stress(Fe)	165.6	-
Crit. Buckling Stress(Fcr)	145.3	ksi
Compressive Capacity, ϕPn	637.3	k
Capacity, Pu/ϕPn	0.089	OK

Flange Plate Analysis

Flange Plate

Plate Type	***Flange***	***100 ft***
Pole Diameter	12.75	in
Pole Thickness	0.375	in
Plate Diameter	28.5	in
Plate Thickness	1.5	in
Plate Fy	36	ksi
Weld Length	0.25	in
f_s Resistance	60.83	k-in
Applied	17.12	k-in

Code Rev.	***H***
Moment	21.2 k-ft
Axial	3.8 k

Required Flange Thickness:
0.80 in OK

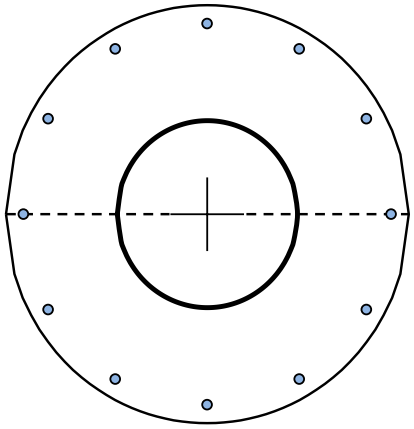
Date	10/5/2021
Engineer	RC
Site #	302481
Carrier	DISH WIRELESS L.L.C.

Stiffeners

#	

Bolts

#	***12***	
Bolt Circle	26	in
(R)adial / (S)quare	R	
Bolt Gap	6	in
Diameter	1	in
Hole Diameter	1.125	in
Type	A325	
Fy	92	ksi
Fu	120	ksi
f_s Resistance	54.52	k
Applied	2.94	k



Reinforcement

#	

Plate Stress Ratio:
28% Pass

Bolt Stress Ratio:
5% Pass

Extra Bolts O

#	

Site Name:	**HRFR - South**
Site Number:	**302481**
Engineering Number:	**13726719_C3_03**
Engineer:	**RC**
Date:	**10/5/2021**

Design Base Loads (Factored) - Design per TIA-222-G Standard

Moment (Overturning) (M_u):	2461.0	k-ft
Shear/Leg (V_u):	34.5	k
Compression/Leg (P_u):	51.7	k
Uplift/Leg (T_u):	0.0	k
Tower Type (GT / SST / MP):	MP	

Length of Block:	9.0	ft
Width of Block:	13.0	ft
Thickness of Block:	6.0	ft
Block Height Above Ground:	1.0	ft
Depth Below Ground Surface to Water Table (w):	30.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil:	162.2	pcf
Unit Weight of Water:	62.4	pcf
Ultimate Compressive Bearing Pressure:	15000	psf
Capacity Increase (Due to Transient Loads):	1.00	
Pullout Angle:	45.0	degrees
Rod Diameter:	1.00	in
Rod Ultimate Strength:	71	ksi
Rod Net Area:	0.85	in^2
Number of Rods:	18	
Diameter of Cored Hole:	2.50	in
Ultimate Grout / Rock Interface Bond Strength:	100	psi
Ultimate Grout / Rock Anchor Interface Bond Strength:	400	psi
Overall Rod Embedment Length:	192	in
Rod Exposure Above Lock Off Nut in Foundation:	72	in
Rod Embedment Square:	78	in
Free Stress Length:	0	in
Soil / Concrete Friction Coefficient:	0.45	
Lock Off Load:	60	k
Rock Anchor Design Plastic or Elastic:	Elastic	
Ignore Pullout Weight Resistance (Y/N):	N	
Weight of Concrete (Buoyancy Effect Considered):	105.3	k
Compressive Bearing Resistance:	954.3	k
Total Rock / Grout Bond Strength:	2714.3	k
Total Grout / Rod Bond Strength:	4342.9	k
Total Rod Mechanical Strength:	1080.0	k
Pullout Weight / Rod:	84.3	k
Rock / Grout Bond Strength / Rod:	150.8	k
Grout / Rod Bond Strength / Rod:	241.3	k
Rod Mechanical Strength / Rod:	60.0	k
Soil Strength Reduction Factor (ϕ_s):	0.75	
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	3155.8	k
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	927.8	k
Factored Nominal Compressive Capacity per Leg ($\phi_s P_n$):	715.7	k
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	486.0	k
M_u:	2668.1	k-ft
T_u:	0.0	k
P_u:	42.6	k
V_u:	34.5	k
$T_u/\phi_s T_n + M_u/\phi_s M_n$:	0.85	Result: OK

$P_u/\phi_s P_n$:	0.06	Result: OK
$V_u/\phi_s V_n$:	0.07	Result: OK

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	52	Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Anchor Rod Nut Diameter:	2.02	in
Rebar Cage Diameter:	108.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	2668.1	k-ft
Factored Nominal Moment Capacity ($\phi_B M_n$):	19276.7	k-ft - ACI318-05 - 10.2
$M_u/\phi_B M_n$:	0.14	Result: OK
Design Shear (V_u):	308.6	k
Factored Nominal Shear Capacity ($\phi_V V_n$):	603.4	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.51	Result: OK
Design Tension (T_u):	0.0	k
Factored Nominal Tension Capacity ($\phi_T T_n$):	4380.5	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	51.7	k
Factored Nominal Compression Capacity ($\phi_P P_n$):	14164.4	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.00	Result: OK

DISH WIRELESS, L.L.C. SITE ID:

BOBDL00153B

DISH WIRELESS, L.L.C. SITE ADDRESS:

289 MOUNTAIN STREET
HARTFORD, CT 06106

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 (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

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

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

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.

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

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:	THE METROPOLITAN DISTRICT
ADDRESS:	289 MOUNTAIN STREET HARTFORD, CT 06106
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	302481
TOWER APP NUMBER:	13726719_D2
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 43' 35.650" N 41.72656944
LONGITUDE (NAD 83):	72° 42' 29.410" W -72.70816944
ZONING JURISDICTION:	TOWN OF HARTFORD
ZONING DISTRICT:	RESIDENTIAL
PARCEL NUMBER:	HTFD-000144-000714 -000129
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS, L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801
ENGINEER:	ATC TOWER SERVICES, LLC 3500 REGENCY PARKWAY SUITE 100 CARY, NC 27518
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

DIRECTIONS

FROM HARTFORD TAKE MAPLE AVENUE SOUTH TO WHITE STREET. TURN RIGHT ONTO WHITE STREET AND FOLLOW TO MOUNTAIN ROAD AND TURN LEFT. FOLLOW MOUNTAIN ROAD TO THE END WHERE THE ACCESS GATE WILL BE FOR THE ACCESS ROAD (METROPOLITAN DISTRICT COMMISSION SIGN ON GATE)

FROM HARTFORD TAKE MAPLE AVENUE SOUTH TO WHITE STREET. TURN RIGHT ONTO WHITE STREET AND FOLLOW TO MOUNTAIN ROAD AND TURN LEFT. FOLLOW MOUNTAIN ROAD TO THE END WHERE THE ACCESS GATE WILL BE FOR THE ACCESS ROAD (METROPOLITAN DISTRICT COMMISSION SIGN ON GATE)

VICINITY MAP

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

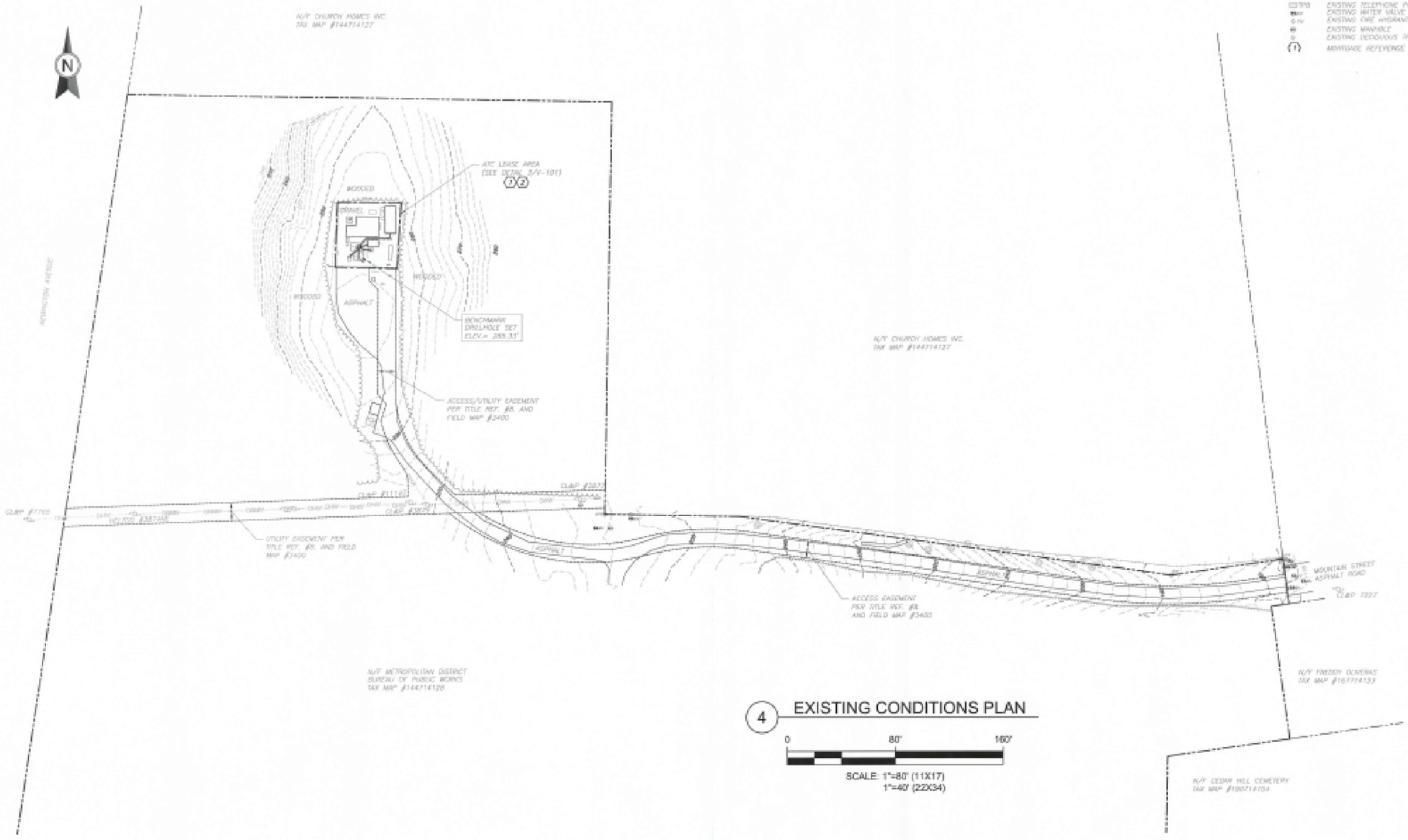
STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



4 EXISTING CONDITIONS PLAN

0 80' 160'

SCALE: 1"=80' (11X17)
1"=40' (22X34)

SURVEY LEGEND

- EXISTING PROPERTY
- EXISTING ADJ. PROPERTY
- EXISTING LEASE
- EXISTING EASEMENT
- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING TREELINE
- EXISTING CHAINLINK FENCE
- EXISTING OVERHEAD WIRES
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING ROAD (PAVED)
- EXISTING ROAD (PAVED)
- SURVEY IRON PIN FOUND
- SURVEY BENCHMARK
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- EXISTING ELECTRIC METER
- EXISTING BOLLARD
- EXISTING TELEPHONE PULLBOX
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING MANHOLE
- EXISTING DECIDUOUS TREE
- (1) MONUMENT REFERENCE #

AMERICAN TOWER®
ATC TOWER SERVICES, INC
3530 REGENCY PARKWAY
SUITE 133
CARY, NC 27551
PHONE: (919) 468-0145
COA: D-0204

REV.	DESCRIPTION	BY	DATE
0	ISSUED FOR COMMENT	JR	05/21/18
1	ISSUED	SAA	11/20/18

ATC SITE NUMBER:
302481

ATC SITE NAME:
HRFR-SOUTH
CONNECTICUT

SITE ADDRESS:
289 MOUNTAIN STREET
HARTFORD, CT 06106

SURVEY CERTIFICATE:
I HEREBY DECLARE TO, AND ONLY, TO, THE INDIVIDUALS LISTED BELOW THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF THIS MAP SIS SUBSTANTIALLY CORRECT. THIS MAP AND SURVEY WERE PREPARED IN ACCORDANCE WITH THE STANDARDS OF A CLASS A-1 SURVEY AS DEFINED IN THE "RECOMMENDED STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC., ON SEPT. 13 1984, EXCEPT AS NOTED.

AMERICAN TOWER CORPORATION

TIMOTHY D. HAYES, L.S. 70900
CT LICENSED LAND SURVEYOR

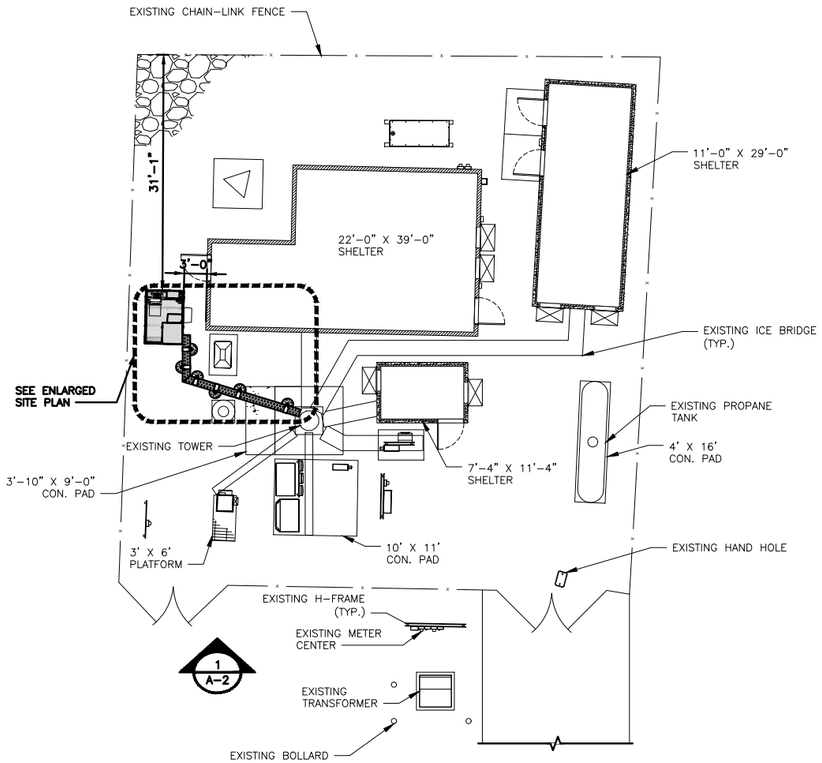
SURVEY LOGO:	Tectonic PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE. Tectonic Engineering & Surveying Consultants P.C. www.tectonicengineering.com
DRAWN BY:	JR
APPROVED BY:	TH
DATE DRAWN:	05/21/18
ATC JOB NO:	302481

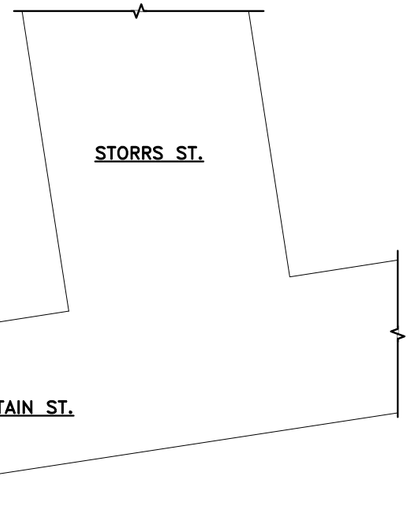
EXISTING CONDITIONS

SHEET NUMBER:	REVISION:
V-102	1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.





N

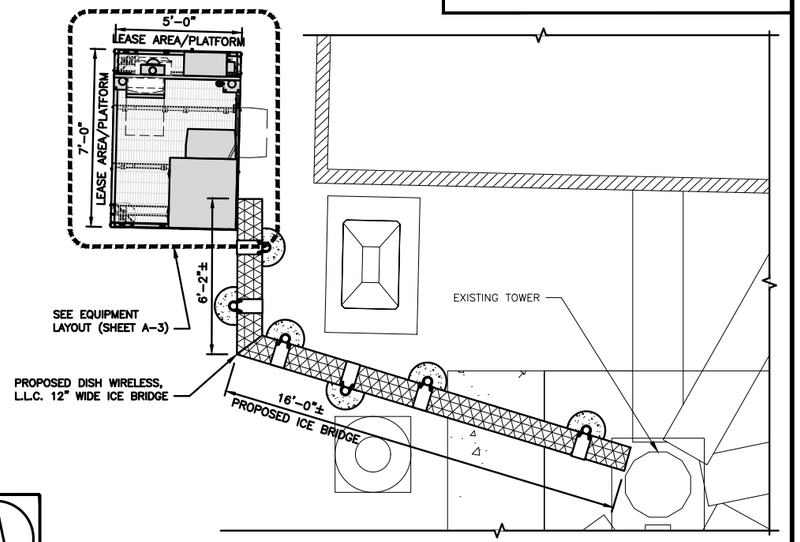
OVERALL SITE PLAN

10' 0 10' 20'
1"=10'

1

NOTES

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



N

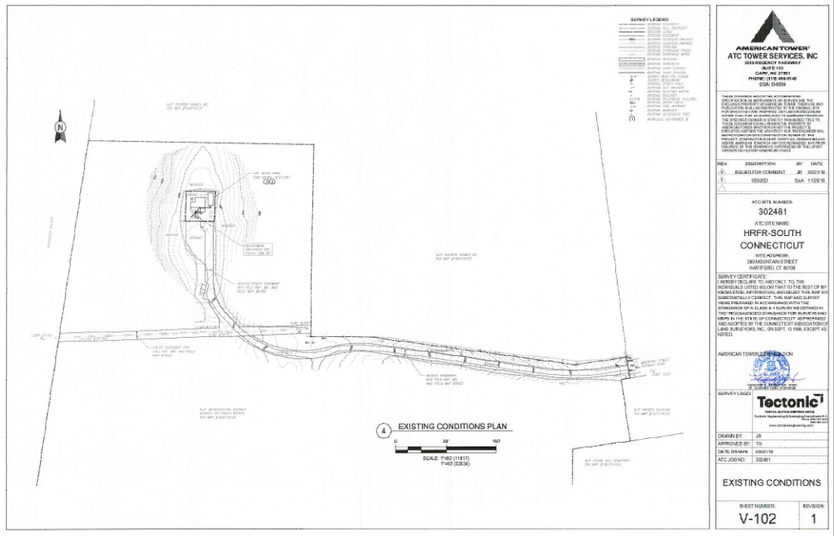
ENLARGED SITE PLAN

3' 0 3' 6'
1"=3'

2

NOTES

1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.



EXISTING SURVEY (BY OTHERS)

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
302481-13726719_D2

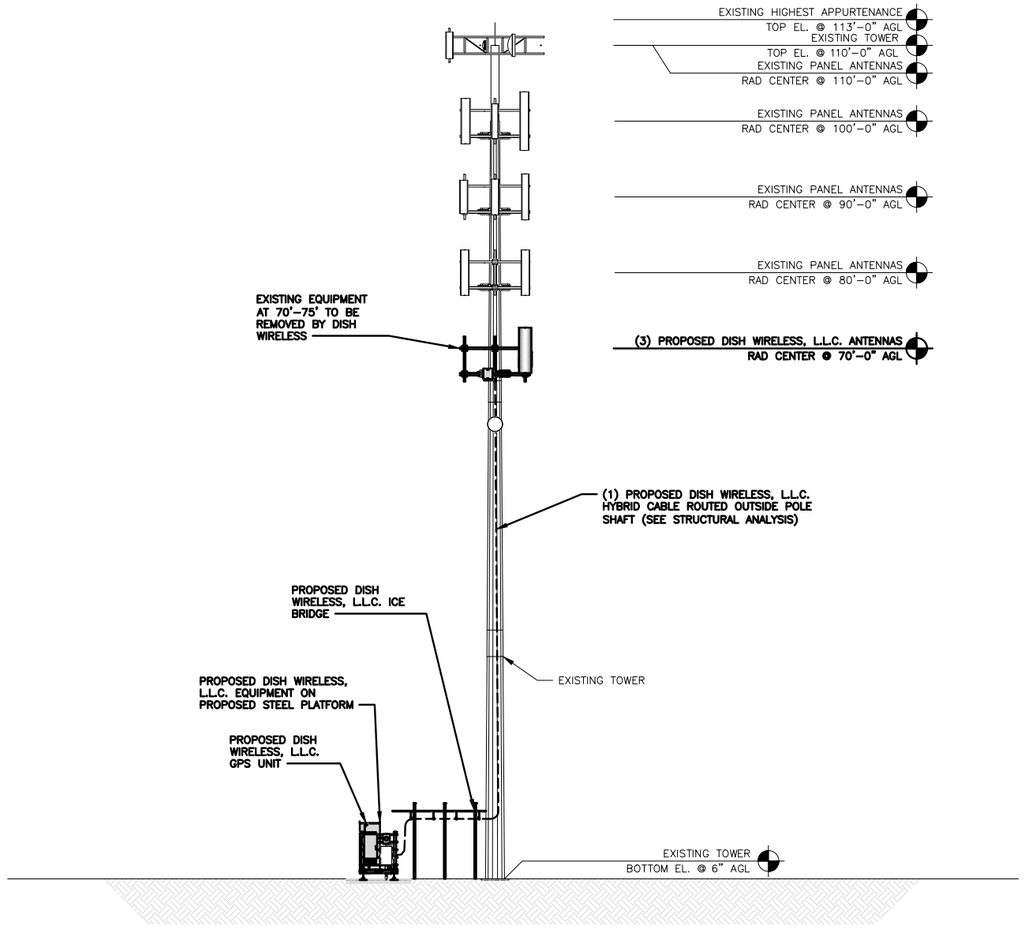
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

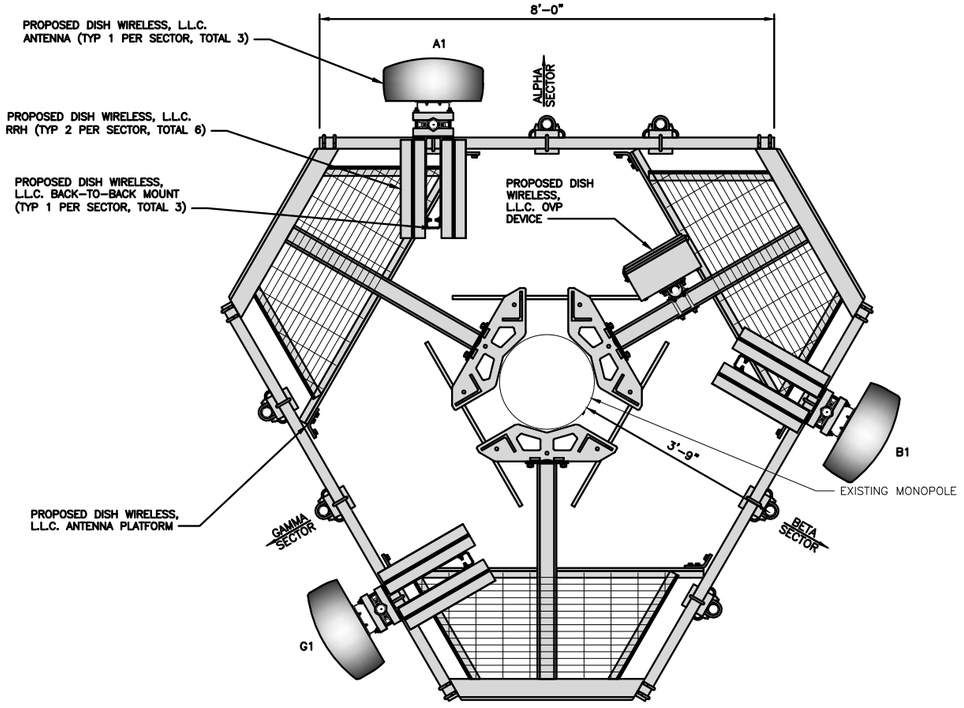
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

10' 0 10' 20'
1"=10'

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	0°	70'-0"	(1) HIGH-CAPACITY HYBRID CABLE (110' LONG)
BETA	B1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	120°	70'-0"	
GAMMA	G1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	240°	70'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	TA08025-B604	N66 / N70
	A1	TA08025-B605	N29 / N71
BETA	B1	TA08025-B604	N66 / N70
	B1	TA08025-B605	N29 / N71
GAMMA	G1	TA08025-B604	N66 / N70
	G1	TA08025-B605	N29 / N71

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
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SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

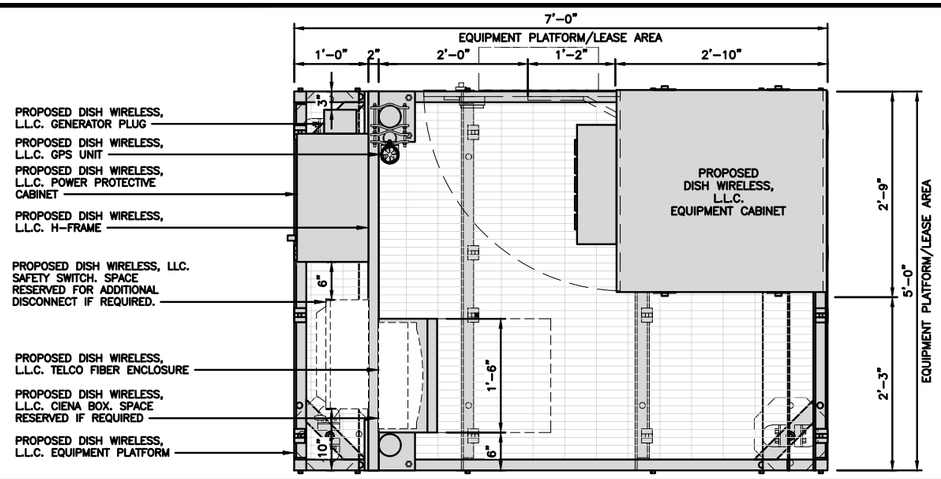
STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



PLATFORM EQUIPMENT PLAN

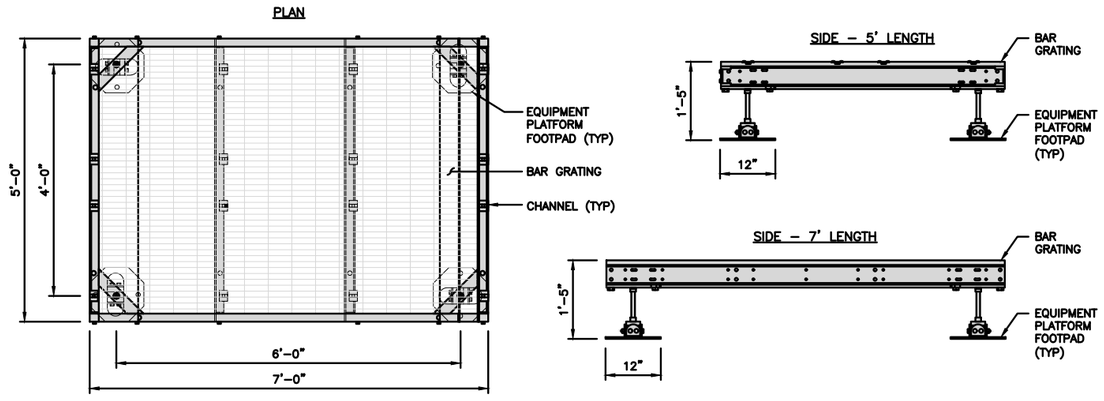
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

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

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

PLATFORM TO BE WITHIN 1° OF LEVEL

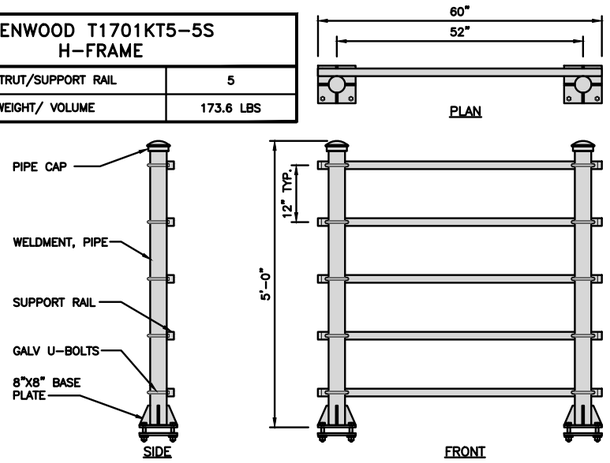


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE

3

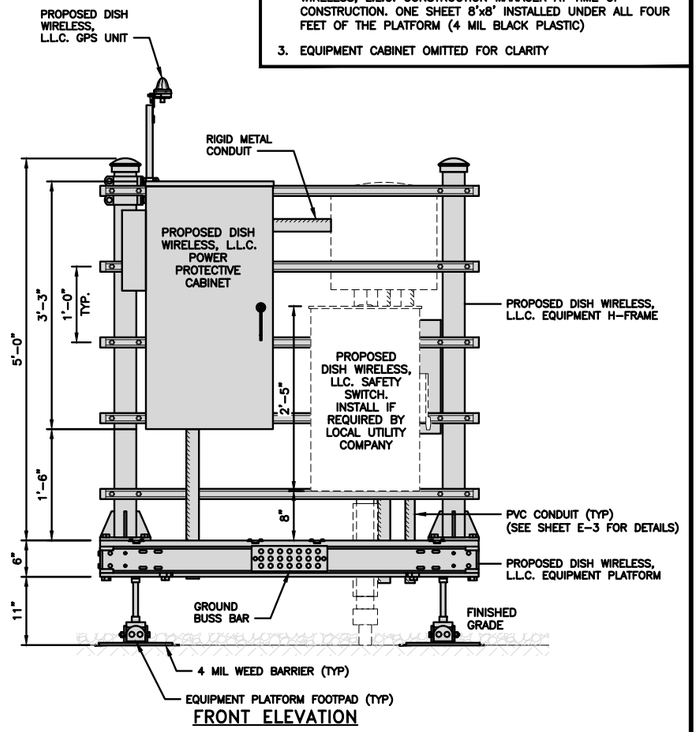
NOT USED

NO SCALE

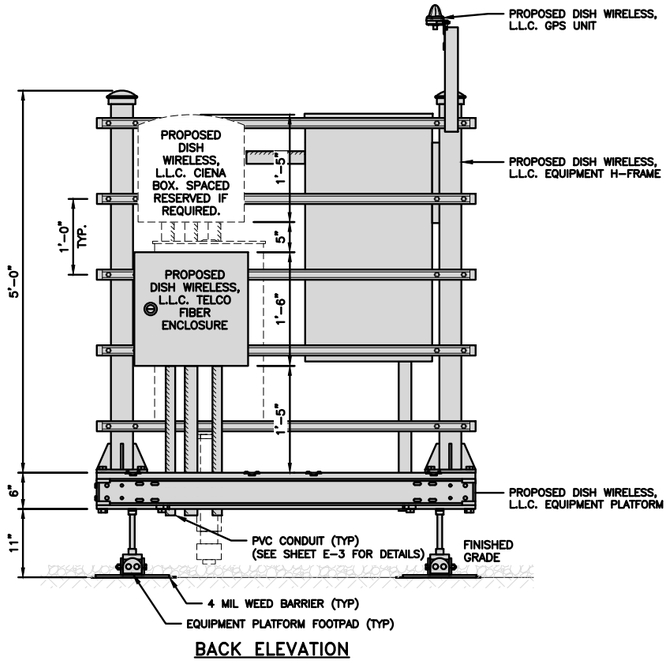
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

dish wireless.

5701 SOUTH SANTA FE DRIVE
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PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED PROFESSIONAL ENGINEER

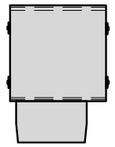
A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

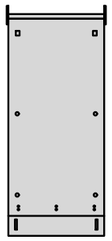
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

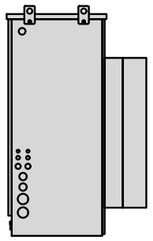
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs



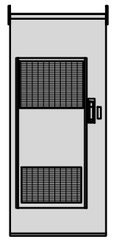
PLAN



BACK



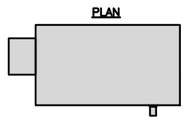
SIDE



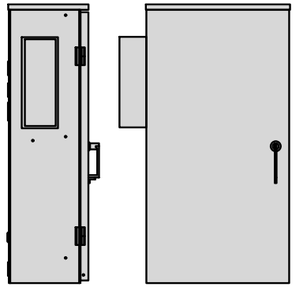
FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP RDIAC–6512–P–240–MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65kA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED



PLAN

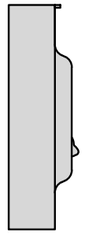


SIDE FRONT

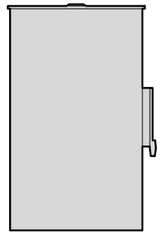
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R

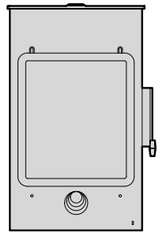
PLAN



SIDE



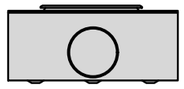
BACK



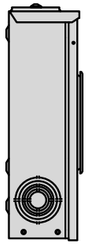
FRONT

SAFETY SWITCH | NO SCALE | 3

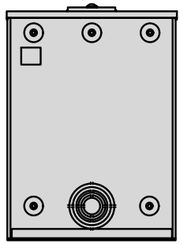
EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



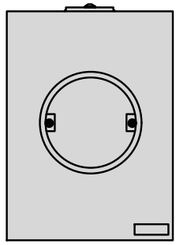
PLAN



SIDE



BACK

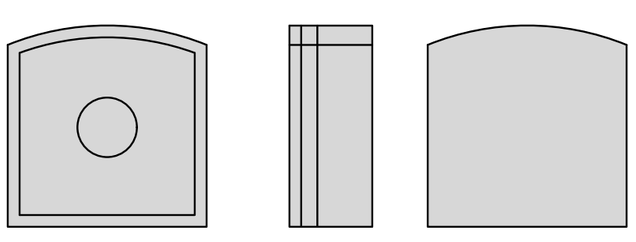


FRONT

METER SOCKET DETAIL | NO SCALE | 4

CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX

PLAN

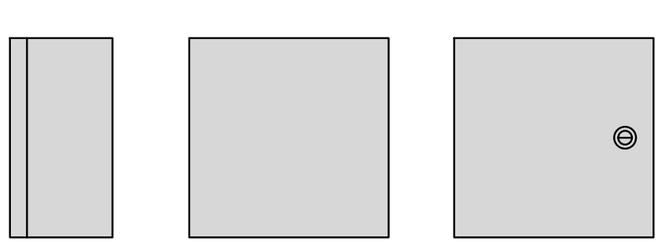


FRONT SIDE BACK

CIENA DETAIL | NO SCALE | 5

CHARLES FIBER TELCO ENCLOSURE CUBE–MP1818WB–A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD

PLAN

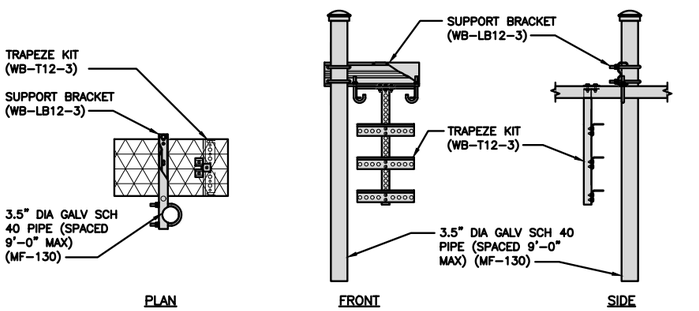


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

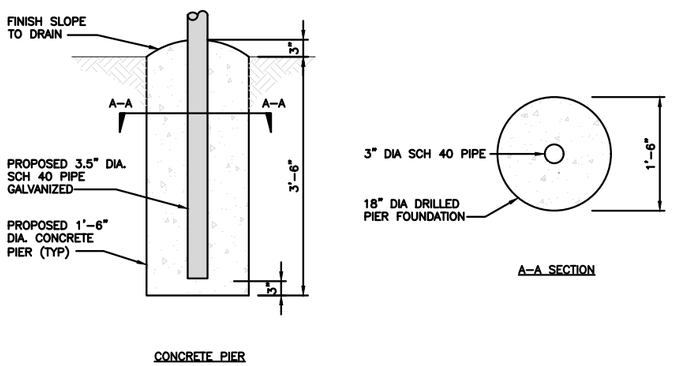
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



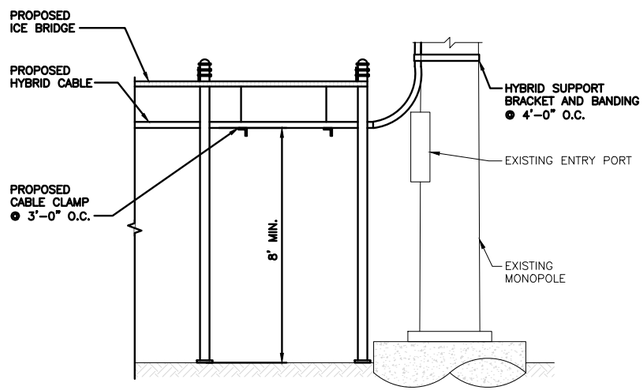
PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

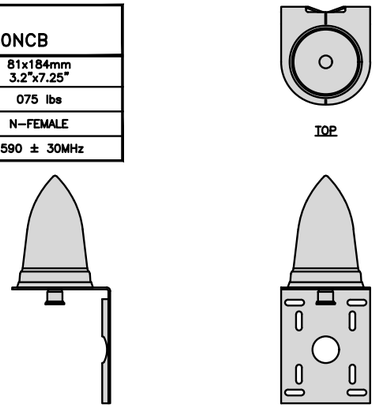
A&E PROJECT NUMBER
302481–13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

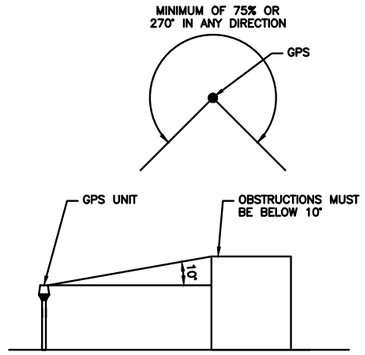
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

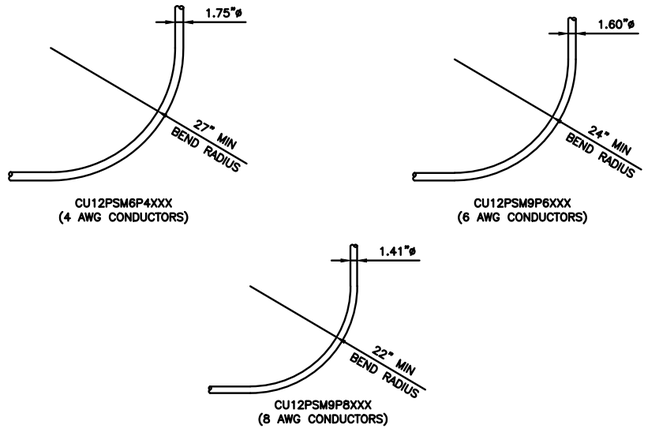
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.
5701 SOUTH SANTA FE DRIVE
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PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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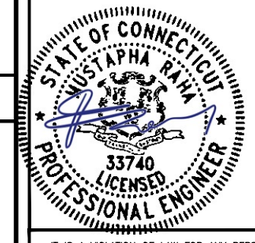


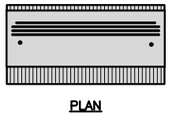
A&E PROJECT NUMBER
302481-13726719_D2

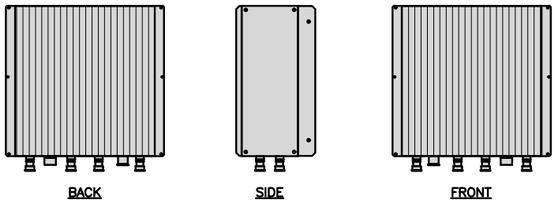
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

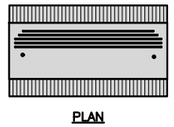
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V

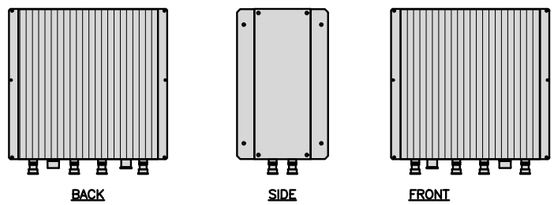

PLAN


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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

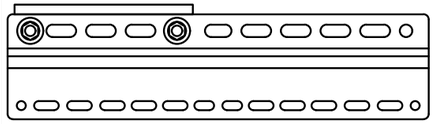

PLAN

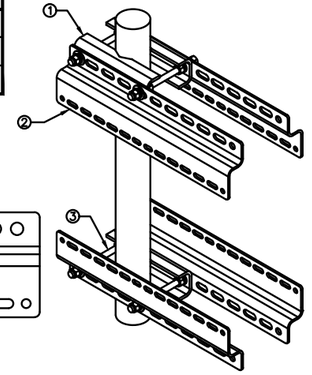

BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET G10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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



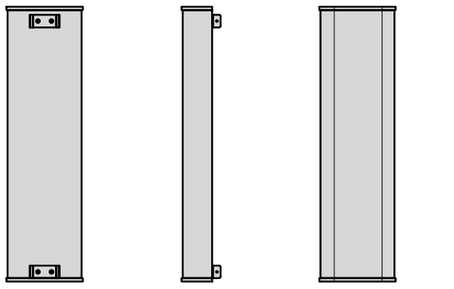


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA 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


PLAN


BACK SIDE FRONT

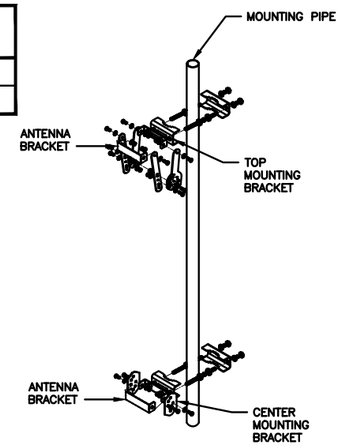
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

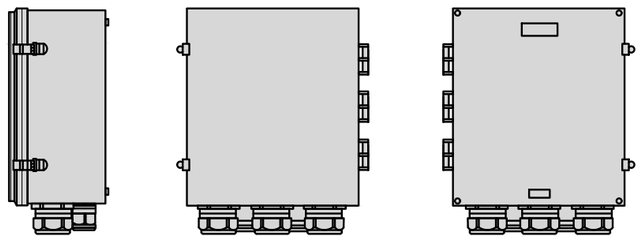


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

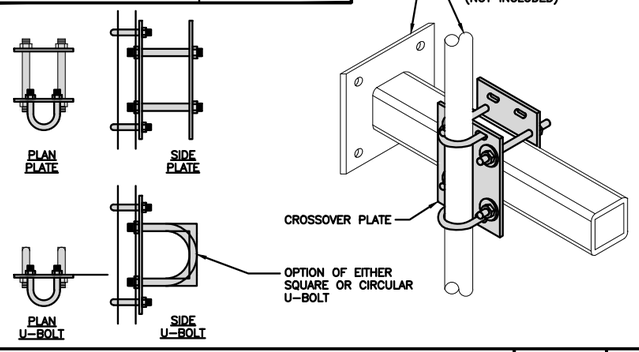
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS


PLAN


SIDE BACK FRONT

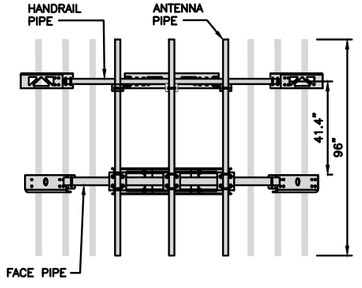
SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

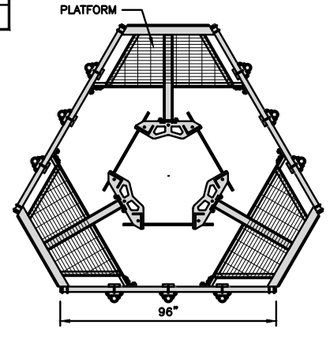
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

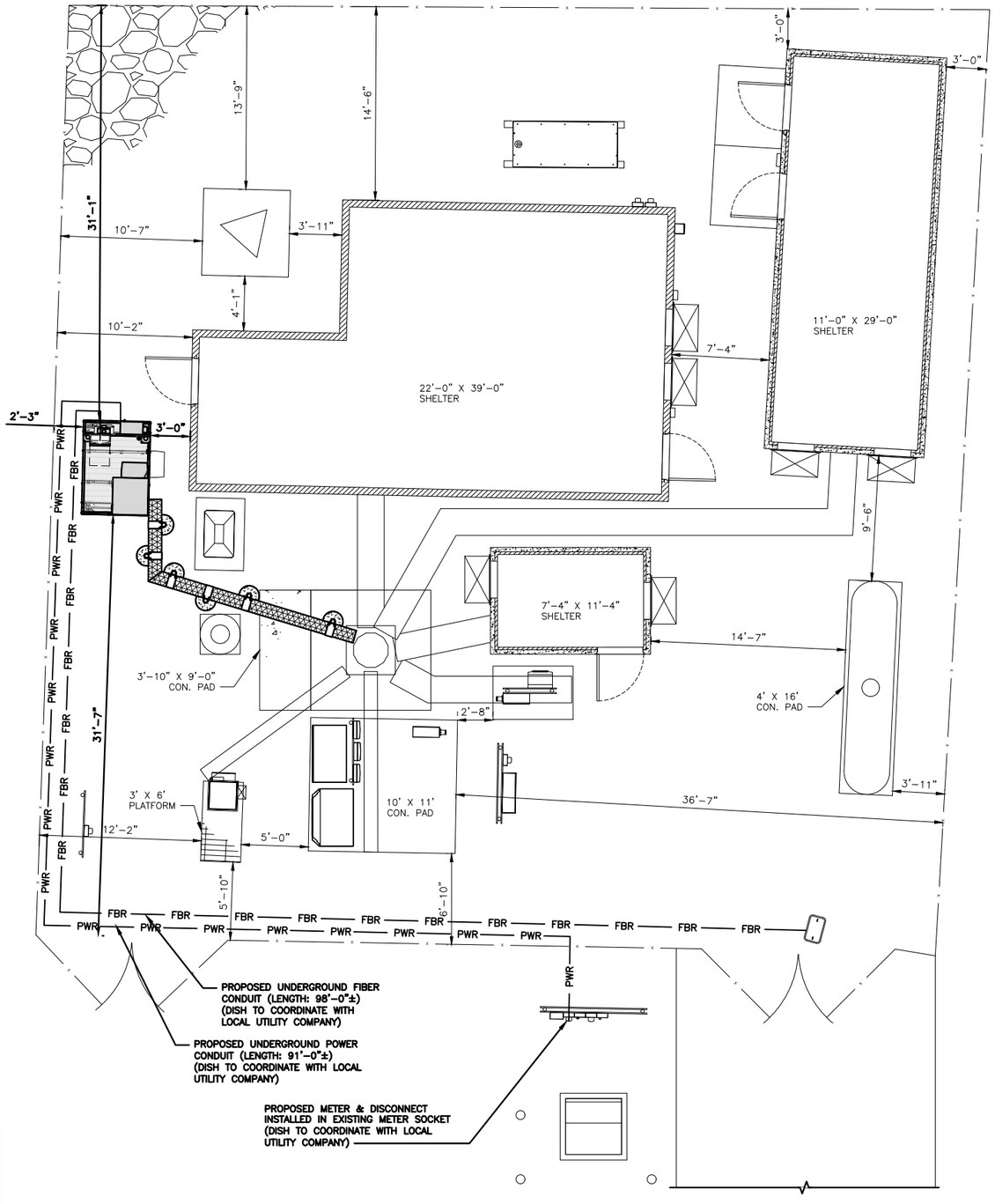
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR MUST VERIFY THAT THE PROPOSED UTILITY ROUTES ARE WITHIN AMERICAN TOWER'S EASEMENT.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

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

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

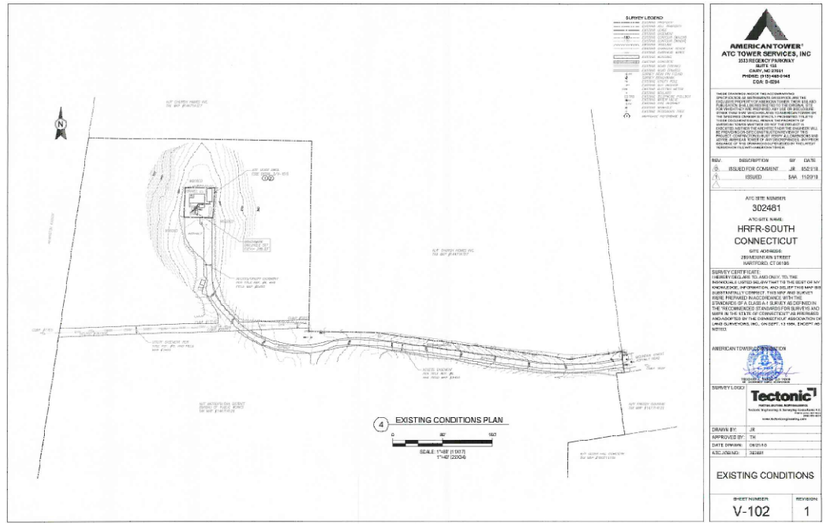
ELECTRICAL NOTES

NO SCALE

2

NOTES

1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY. THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.



EXISTING SURVEY (BY OTHERS)

NO SCALE

3

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CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

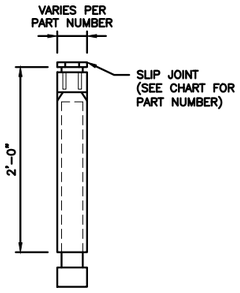
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

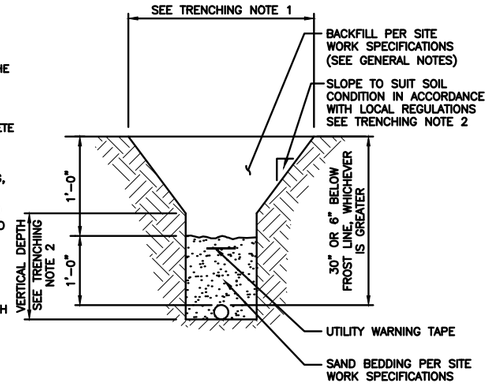


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

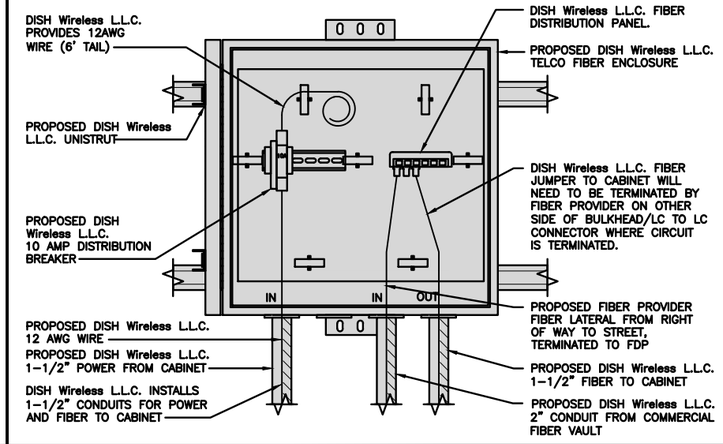
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

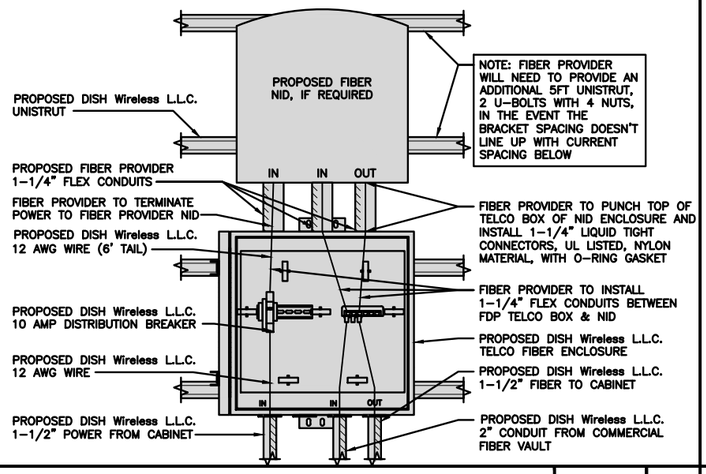
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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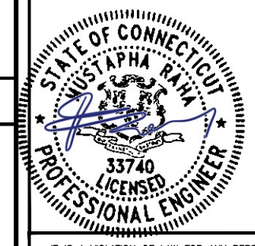
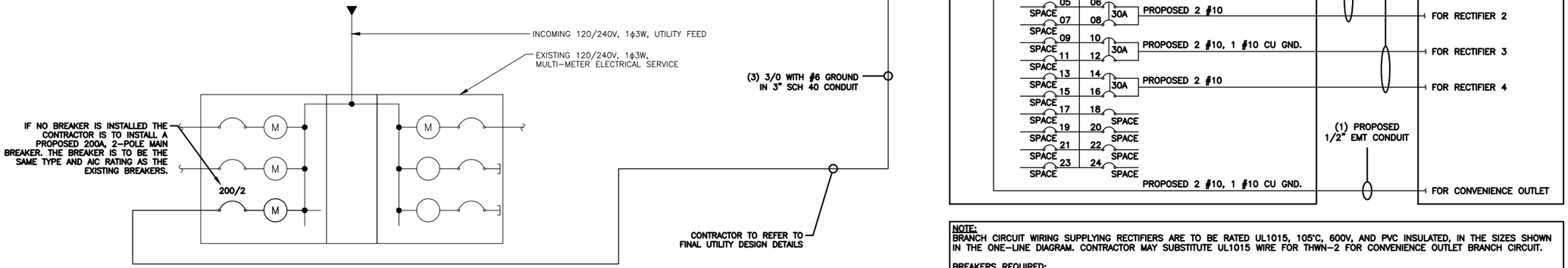


A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

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

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

dish wireless.
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RFDS REV #: ----

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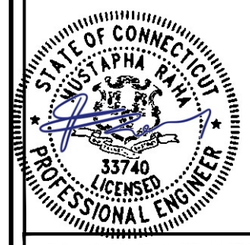
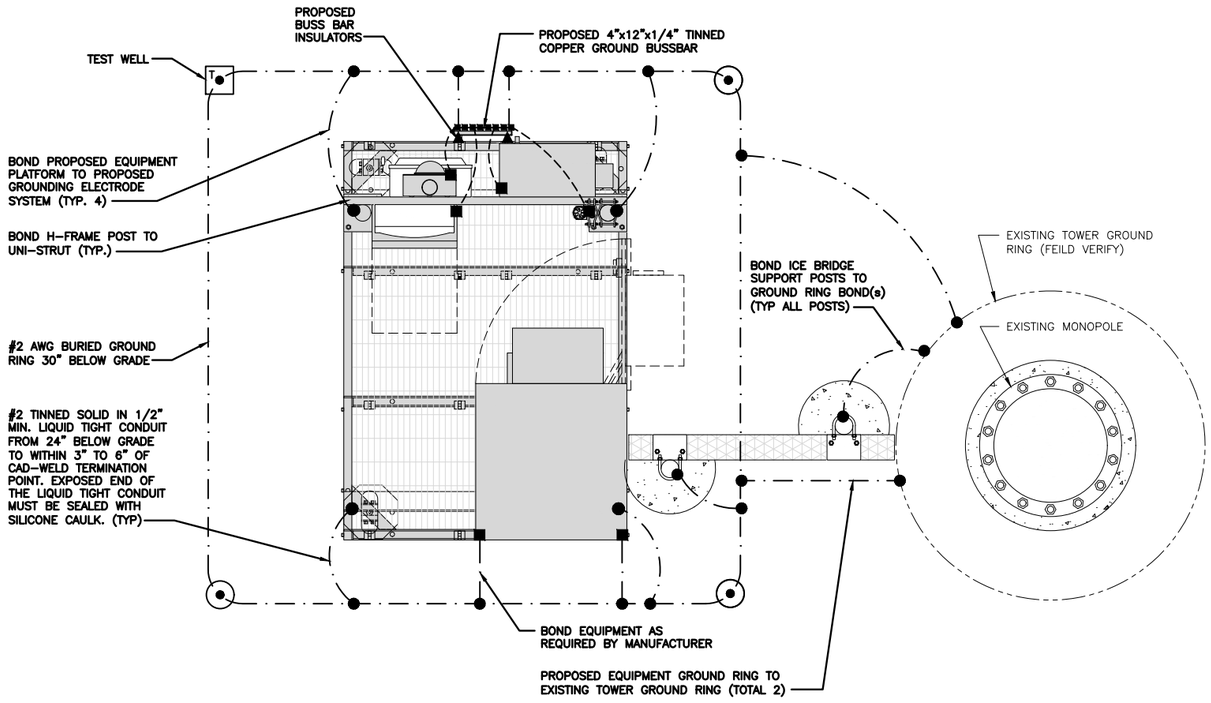


A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

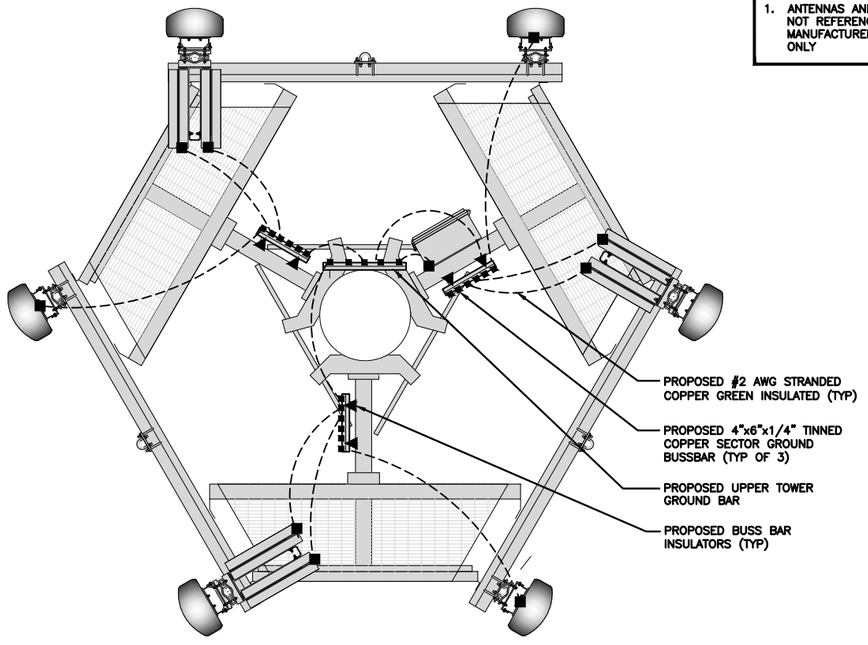
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

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

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

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

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

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

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

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

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

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

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

(R) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH WIRELESS, L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

dish wireless.
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DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

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0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

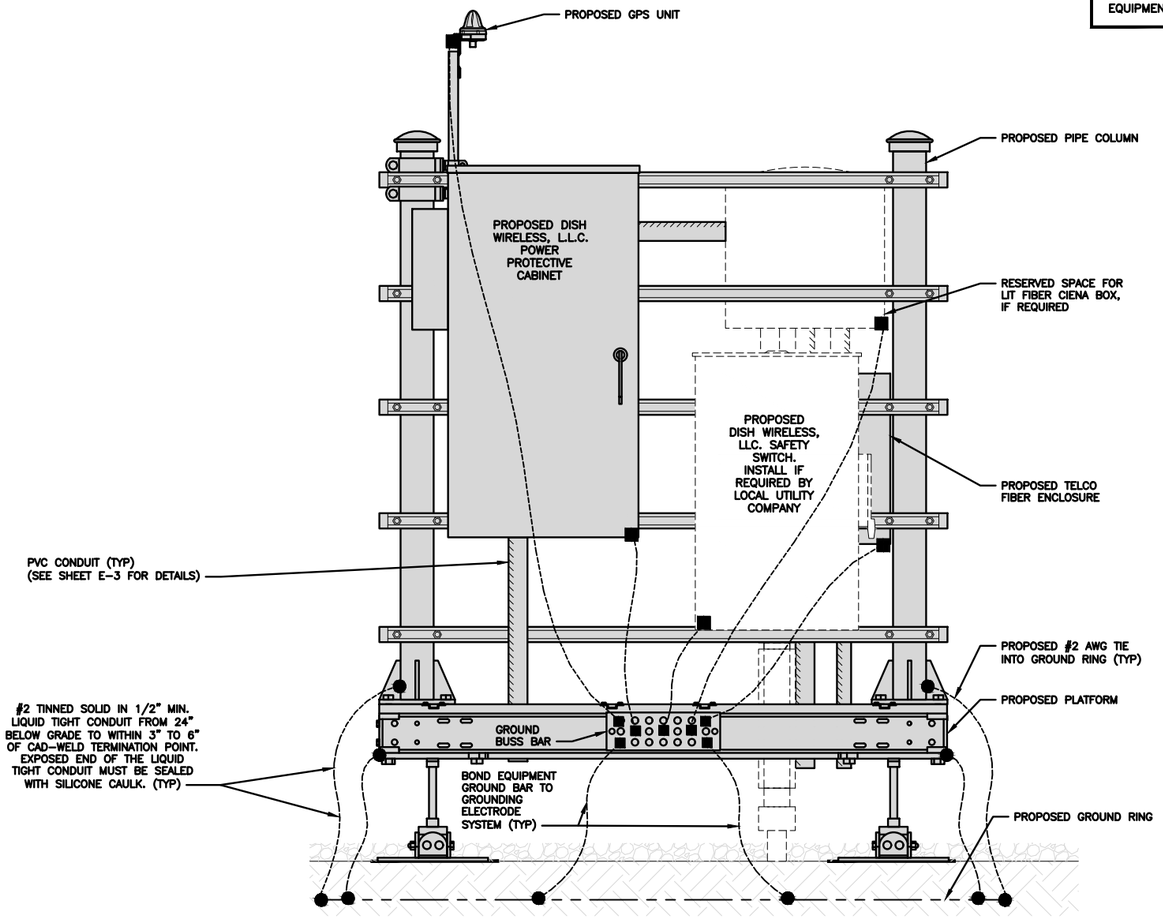
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

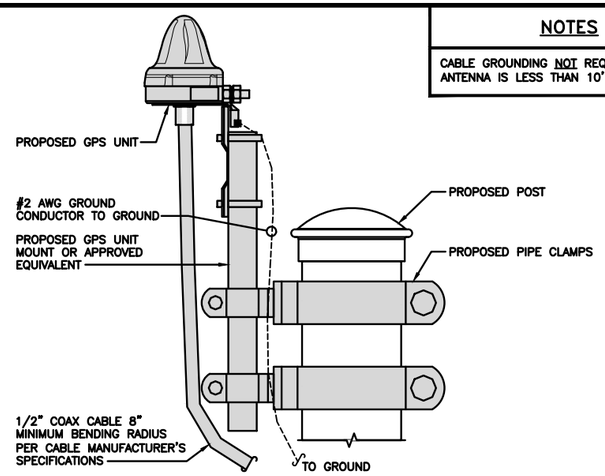
EQUIPMENT CABINET OMITTED FOR CLARITY



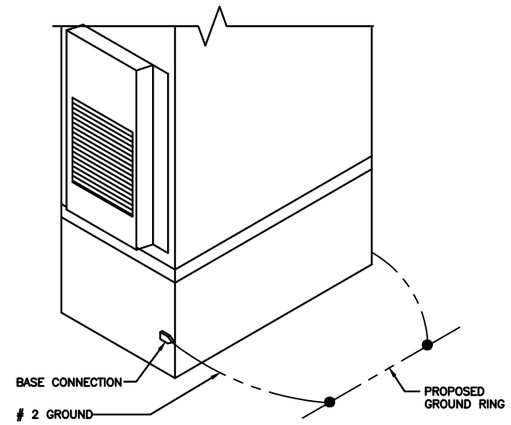
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

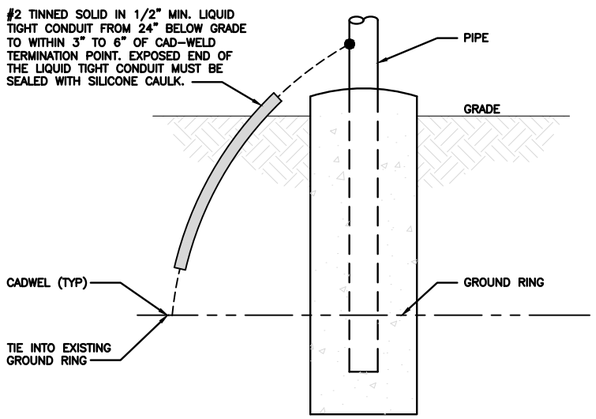
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



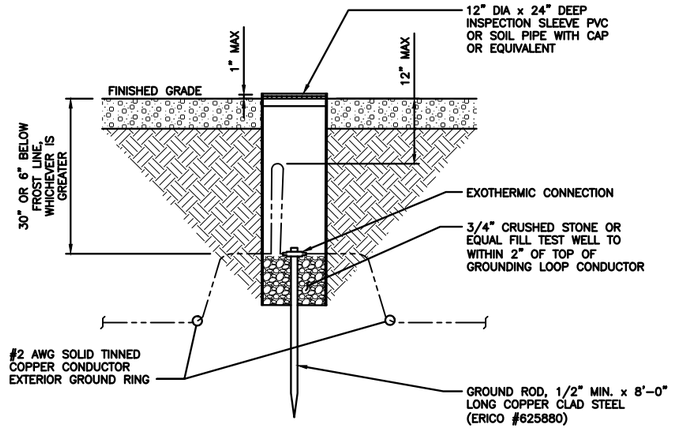
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



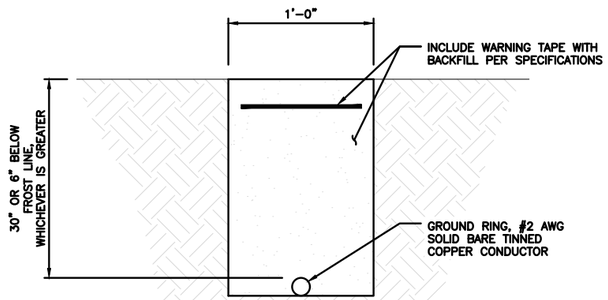
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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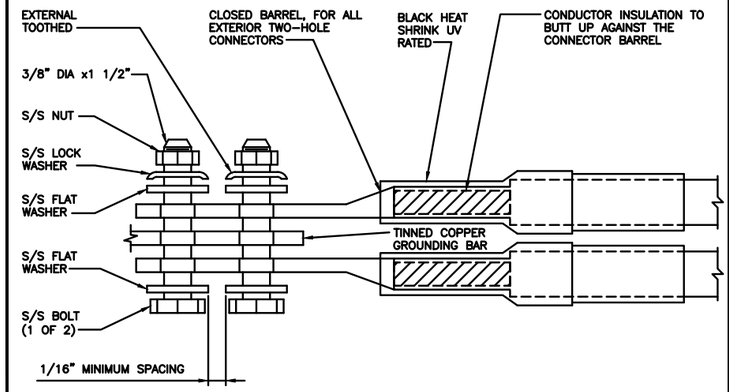
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
GROUNDING DETAILS

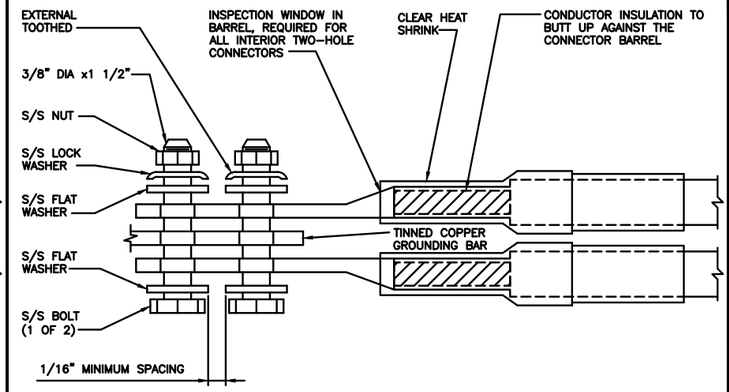
SHEET NUMBER
G-2

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

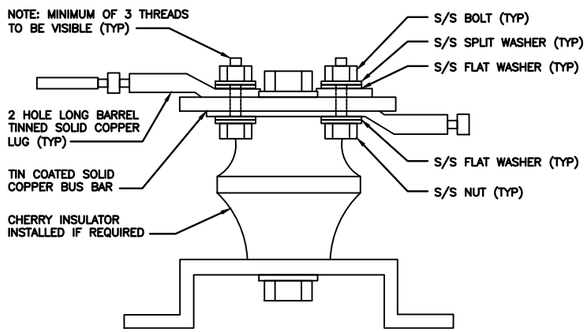
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
GROUNDING DETAILS

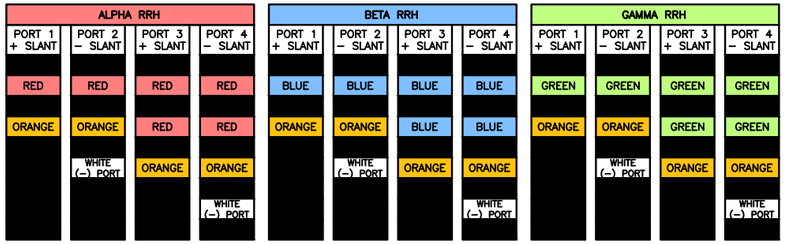
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

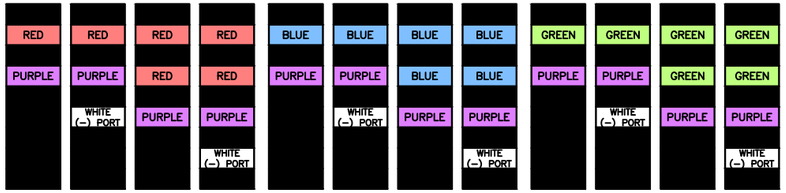
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

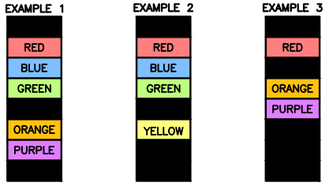


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

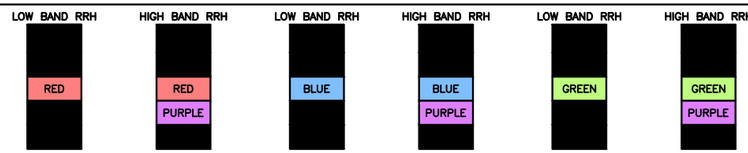
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



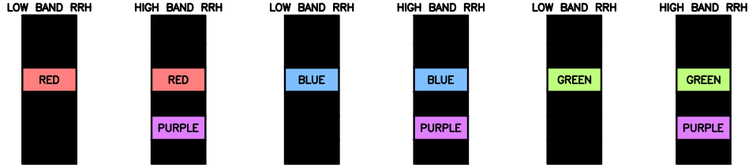
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

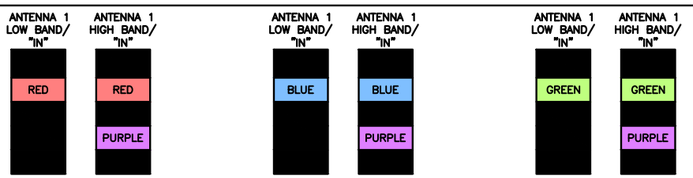


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



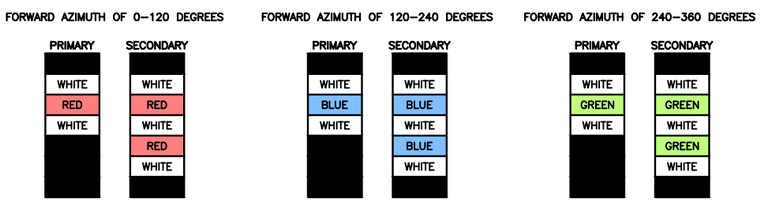
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S



RF CABLE COLOR CODES | NO SCALE | 1

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

AWS
(N66+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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PROFESSIONAL ENGINEER

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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

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

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — x — x — x — x

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

UNDERGROUND POWER — UGP — UGP — UGP — UGP — UGP

UNDERGROUND TELCO — UGT — UGT — UGT — UGT — UGT

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

ABOVE GROUND POWER — AGP — AGP — AGP — AGP — AGP

ABOVE GROUND TELCO — AGT — AGT — AGT — AGT — AGT

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
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DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT · MUSTAPHA RAHA · 33740 LICENSED PROFESSIONAL ENGINEER

A&E PROJECT NUMBER

302481–13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION

BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS, L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF CONNECTICUT
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33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER

302481–13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION

BOBDL00153B

289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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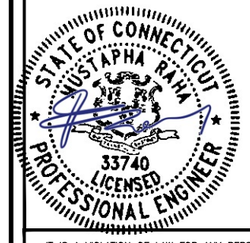

A&E PROJECT NUMBER

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DISH WIRELESS, L.L.C.
PROJECT INFORMATION

BOBDL00153B
289 MOUNTAIN STREET
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GENERAL NOTES

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GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

A. ASTM A-572, GRADE 50 – ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE

B. ASTM A-36 – ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.

C. ASTM A-500, GRADE B – HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)

D. ASTM A-325, TYPE SC OR N – ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS

E. ASTM F-1554 07 – ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE

3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.

4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.

6. CONNECTIONS:

A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.

B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.

C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.

D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.

E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.

F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.

G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.

I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING

dish wireless.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	09/27/21	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
MUSTAPHA RAHA
33740
LICENSED
PROFESSIONAL ENGINEER

A&E PROJECT NUMBER
302481-13726719_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00153B
289 MOUNTAIN STREET
HARTFORD, CT 06106

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4