



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

May 24, 2022

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

RE: Tower Share Application  
600 Connecticut Avenue, Norwalk, CT 06850  
Latitude: 41.097022  
Longitude: -73.448991  
Site #: 841287\_Crown\_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 600 Connecticut Avenue, Norwalk, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 140-foot level of the existing 150-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing compound. Included are plans by Jacobs, dated February 23, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated January 3, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 45 on September 14, 1984. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Harry Rilling and Steven Kleppin, Director of Planning & Zoning for the City of Norwalk, as well as the tower owner (Crown Castle) and property owner (Home Depot USA Inc.).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 150-feet and the Dish Wireless LLC antennas will be located at a center line height of 140-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 16.00% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole tower in Norwalk. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 140-foot level of the existing 150-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Norwalk.

Sincerely,

*Denise Sabo*

Denise Sabo  
Mobile: 203-435-3640  
Fax: 413-521-0558  
Office: 4 Angela's Way, Burlington CT 06013  
Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: Mayor Harry Rilling  
City of Norwalk  
125 East Ave.  
Norwalk, CT 06856

Steven Kleppin, Director of Planning & Zoning  
City of Norwalk  
125 East Ave.  
Room 129  
Norwalk, CT 06856

Home Depot USA Inc., Property Owner  
PO Box 105842  
Atlanta, GA 30348

Crown Castle, Tower Owner

# Exhibit A

## **Original Facility Approval**

DOCKET NO. 45

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 FAIRFIELD COUNTY. : CONNECTICUT SITING COUNCIL : September 14, 1984

DECISION AND ORDER

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 the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Kaechele Place, Bridgeport, Connecticut;  
Connecticut Avenue, Norwalk, Connecticut;  
Nells Rock Road, Shelton, Connecticut;  
Newfield Avenue, Stamford, Connecticut; and  
Bayberry Lane, (former Nike site), Westport, 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) 167' at the Bridgeport site,
  - b) 167' at the Norwalk site,
  - c) 189.5' at the Shelton site,
  - d) 167' at the Stamford site,
  - e) 117' at the Westport 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 six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed 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 Bridgeport, Stamford, and Westport 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, erosion control measures, reseeding plans, and tree removal plans. The applicant shall consult with the Stamford Environmental Protection Board in the preparation of a drainage and erosion control plan for the Stamford tower. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
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 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 Bridgeport Post, the Norwalk Hour, the Stamford Advocate, and the Shelton Suburban News, and the Westport News.

The parties to this proceeding are

The Southern New England Telephone Company (Applicant)  
Room 314  
227 Church Street  
New Haven, Connecticut 06506

Attention: Mr. Peter J. Tyrrell (its attorney)  
Senior Attorney

Rolnick Observatory represented by:  
52 Sawyer Road  
Fairfield, Connecticut  
Frederick H. Bump  
Director

Mr. Adam Norton  
40 Highland Road  
Westport, Connecticut 06880

Representative John Wayne Fox (service waived)  
13 Apple Tree Drive  
Stamford, Connecticut 06906

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Mr. George C. Lenfest  
4 Highland Road  
Westport, Connecticut

Mr. William Seiden  
First Selectman  
Town of Westport  
110 Myrtle Avenue  
P.O. Box 549  
Westport, Connecticut 06881

Mr. Arthur L. Schimel  
174 Bayberry Lane  
Westport, Connecticut

Mr. Seymour Bendremer  
11 Apache Trail  
Westport, Connecticut

Ms. Gladys Floch  
32 Woody Lane  
Westport, Connecticut

Ms. Helen S. Cohen  
15 Highland Road  
Westport, Connecticut (service waived)

Mr. Jack Braverman  
226 Bayberry Lane  
Westport, Connecticut

Mr. Kevin Gavin  
191 Bayberry Lane  
Westport, Connecticut (service waived)

Mr. A.B. Beiser  
12 Highland Road  
Westport, Connecticut

Mr. Edward V. Polusky  
4 Hooper Road  
Westport, Connecticut (service waived)

Ms. Lois Schine

represented by:

Mary D. Mix, Esquire  
830 Post Road - East  
Suite 100  
Westport, Connecticut 06880

Mr. Allen Witt  
3 Apache Trail  
Westport, Connecticut

Ms. Gayle Shiller  
5 Apache Trail  
Westport, Connecticut (service waived)



Mrs. Ronnie Hammer  
3 Hooper Road  
Westport, Connecticut

Mr. Paul Rosenblatt  
7 Apache Trail  
Westport, Connecticut

(service waived)

Mr. Henry J. Wolfson  
179 Bayberry Lane  
Westport, Connecticut

(service waived)

Mr. Melvin H. Barr  
Planning Director  
Town of Westport  
110 Myrtle Avenue  
P.O. Box 549  
Westport, Connecticut 06881

(service waived)

Mr. Mark Infeld  
6 Apache Trail  
Westport, Connecticut

(service waived)

Ms. Barbara Saipe  
Representative Town  
Meeting Member  
District #8  
Town Hall  
P.O. Box 549  
Westport, Connecticut 06881

(service waived)

Ms. Peggy Goldenberg  
201 Bayberry Lane  
Westport, Connecticut

(service waived)

Ms. Martha Hauhuth  
Board of Selectman  
Town Hall  
P.O. Box 549  
Westport, Connecticut 06881

(service waived)

Ms. Meg Coffee  
32 Otter Trail  
Westport, Connecticut

(service waived)

C E R T I F I C A T I O N

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 14th day of September, 1984.

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

STATE OF CONNECTICUT

)

COUNTY OF HARTFORD


:

)

ss. New Britain, September 14, 1984

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

# Exhibit B

## **Property Card**

# 600 CONNECTICUT AVE

**Location** 600 CONNECTICUT AVE

**Mblu** 5/ 69/ 61/ 0/

**Acct#** 22907

**Owner** HOME DEPOT USA INC

**Assessment** \$25,550,000

**Appraisal** \$36,500,000

**PID** 22907

**Building Count** 2

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$17,485,450	\$19,014,550	\$36,500,000

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$12,239,815	\$13,310,185	\$25,550,000

## Owner of Record

<b>Owner</b>	HOME DEPOT USA INC	<b>Sale Price</b>	\$17,750,000
<b>Co-Owner</b>		<b>Certificate</b>	
<b>Address</b>	ATTN PROP TAX DEPT #6204 PO BOX 105842 ATLANTA, GA 30348-5842	<b>Book &amp; Page</b>	3254/22
		<b>Sale Date</b>	09/06/1996
		<b>Instrument</b>	25

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
HOME DEPOT USA INC	\$17,750,000		3254/22	25	09/06/1996
BTS NORWALK LIMITED PRTNR	\$17,750,000		3254/22		09/06/1996
HOBBS ENGINEERING COMPANY	\$0		2237/206		08/08/1988
HOBBS INTERNATIONAL INC	\$0		1357/237	07	06/24/1981
HOBBS EQUIPMENT COMPANY INC	\$0		0/0		

## Building Information

### Building 1 : Section 1

**Year Built:** 1996

**Building Photo**

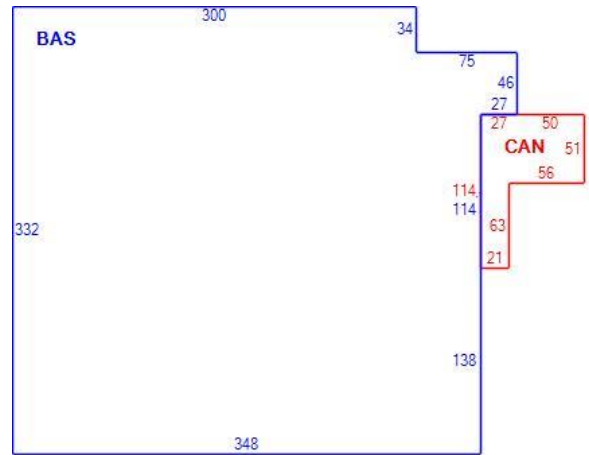
**Living Area:** 115,146  
**Replacement Cost:** \$16,046,089  
**Building Percent Good:** 86  
**Replacement Cost**  
**Less Depreciation:** \$17,409,120

Building Attributes	
Field	Description
Style:	Retail
Model:	Commercial
Grade	A
Stories:	1.00
Occupancy	1.00
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air
AC Percent	100
Heat Percent	100
Bldg Use	Commercial Improved
Total Rooms	0
Bedrooms	0
Full Baths	0
Half Baths	2
Extra Fixtures	2
FBM Area	
Heat/AC	Heat/AC Pkg
Frame	Steel
Plumbing	Average
Foundation	Slab
Partitions	Light
Wall Height	26.00
% Sprinkler	100.00
# of Heat Systems	1
Insulation	Typical



(<http://images.vgsi.com/photos/NorwalkCTPhotos//00\00\67\32.jpg>)

### Building Layout



(ParcelSketch.ashx?pid=22907&bid=22907)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	115,146	115,146
CAN	Canopy	5,250	0
		120,396	115,146

### Building 2 : Section 1

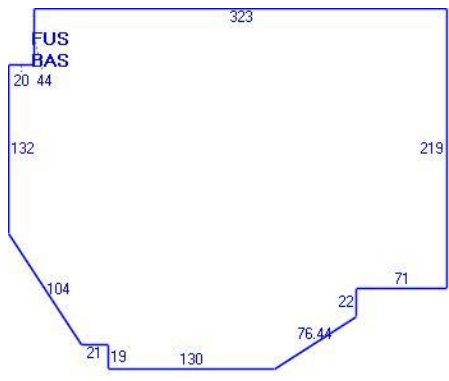
**Year Built:** 1996  
**Living Area:** 172,328  
**Replacement Cost:** \$7,229,160  
**Building Percent Good:** 86  
**Replacement Cost Less Depreciation:** \$17,409,120

**Building Photo**



(<http://images.vgsi.com/photos/NorwalkCTPhotos//00\00\90\30.jpg>)

**Building Layout**



(ParcelSketch.ashx?pid=22907&bid=50840)

Building Attributes : Bldg 2 of 2	
Field	Description
Style:	Parking Garage
Model:	Commercial
Grade	C
Stories:	1.00
Occupancy	1.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar and Gravel
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Percent	0
Heat Percent	100
Bldg Use	Commercial Improved
Total Rooms	0
Bedrooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
FBM Area	
Heat/AC	None
Frame	Masonry
Plumbing	Average
Foundation	Poured Conc
Partitions	Average
Wall Height	8.00
% Sprinkler	0.00
# of Heat Systems	0
Insulation	None

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	86,164	86,164
FUS	Finished Upper Story	86,164	86,164
		172,328	172,328

**Extra Features**

Extra Features					<u>Legend</u>
Code	Description	Size	Value	Bldg #	
ELV1	Commercial	2.00 STOP	\$0	1	
SPR	Sprinklers	115146.00 S.F.	\$0	1	

## Land

### Land Use

**Use Code** 201V  
**Description** Commercial Improved  
**Zone** B2  
**Neighborhood** C320

### Land Line Valuation

**Size (Acres)** 9.75  
**Frontage**  
**Depth**  
**Assessed Value** \$13,310,185  
**Appraised Value** \$19,014,550

## Outbuildings

Outbuildings							<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #	
LT1	Light 1			7.00 UNITS	\$0	1	
PAV1	Paving Asph.			5000.00 S.F.	\$0	1	
FUEL	Fuel Cell	Ext	Energy Cell	200.00 KW	\$0	1	

## Valuation History

Appraisal				
Valuation Year	Improvements	Land	Total	
2020	\$17,485,450	\$19,014,550	\$36,500,000	
2019	\$17,485,450	\$19,014,550	\$36,500,000	
2018	\$17,485,450	\$19,014,550	\$36,500,000	

Assessment				
Valuation Year	Improvements	Land	Total	
2020	\$12,239,815	\$13,310,185	\$25,550,000	
2019	\$12,239,810	\$13,310,190	\$25,550,000	
2018	\$12,239,810	\$13,310,190	\$25,550,000	



# Exhibit C

## **Construction Drawings**



DISH WIRELESS L.L.C. SITE ID:

**NJJER01132C**

DISH WIRELESS L.L.C. SITE ADDRESS:

**600 CONNECTICUT AVE  
NORWALK, CT 06850**

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:	
<b>TOWER SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)</li> <li>• INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT</li> <li>• INSTALL PROPOSED JUMPERS</li> <li>• INSTALL (6) PROPOSED RRRs (2 PER SECTOR)</li> <li>• INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)</li> <li>• INSTALL (1) PROPOSED HYBRID CABLE</li> </ul>	
<b>GROUND SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL (1) PROPOSED METAL PLATFORM</li> <li>• INSTALL (1) PROPOSED ICE BRIDGE</li> <li>• INSTALL (1) PROPOSED PPC CABINET</li> <li>• INSTALL (1) PROPOSED EQUIPMENT CABINET</li> <li>• INSTALL (1) PROPOSED POWER CONDUIT</li> <li>• INSTALL (1) PROPOSED TELCO CONDUIT</li> <li>• INSTALL (1) PROPOSED TELCO-FIBER BOX</li> <li>• INSTALL (1) PROPOSED GPS UNIT</li> <li>• INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)</li> <li>• INSTALL (1) PROPOSED METER SOCKET</li> </ul>	

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: HOME DEPOT USA INC ADDRESS: HOME DEPOT RECEIVABLES PO BOX 7247-7491 PHILADELPHIA, PA 19170	APPLICANT: DISH WIRELESS L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: MONOPOLE	TOWER OWNER: CROWN CASTLE USA, INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 877.486.9377
TOWER CO SITE ID: 841287	SITE DESIGNER: JACOBS TELECOMMUNICATIONS, INC 5449 BELLS FERRY ROAD ACWORTH, GA 30102 470.785.4050
TOWER APP NUMBER: 576724	SITE ACQUISITION: COURTNEY PRESTON COURTNEY.PRESTON.CONTRACTOR@CROWNCastle.COM
COUNTY: FAIRFIELD	CONSTRUCTION MANAGER: MICHAEL NARDUCCI MICHAEL.NARDUCCI@DISH.COM
LATITUDE (NAD 83): 41° 05' 49.45" N 41.097069 N	RF ENGINEER: MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM
LONGITUDE (NAD 83): 73° 26' 56.61" W 73.449058 W	
ZONING JURISDICTION: CITY OF NORWALK	
ZONING DISTRICT: NOT REQUIRED	
PARCEL NUMBER: 5-69-61-0	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: NORTHEAST UTILITIES	
TELEPHONE COMPANY: TBD	

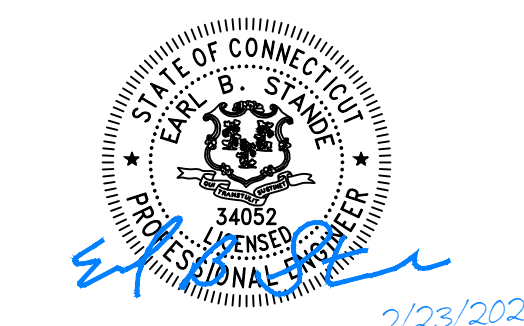


5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



Challenging today.  
Reinventing tomorrow.

Jacobs Telecommunications, Inc.  
5449 BELLS FERRY ROAD  
ACWORTH, GA 30102



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

DRAWN BY: CHECKED BY: APPROVED BY:

WBP TJM KRK

RFDS REV #: 1

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
1	01/28/2022	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
**NJJER01132C**  
**600 CONNECTICUT AVE  
NORWALK, CT 06850**

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
**T-1**

**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**

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

**SITE PHOTO**



**DIRECTIONS**

DIRECTIONS FROM DISH WIRELESS L.L.C. DISTRICT OFFICE AT 3 ADP BLVD., ROSELAND NJ 07068:  
HEAD EAST ON ADP BLVD TOWARD CHOCTAW WAY, TURN RIGHT ONTO CHOCTAW WAY, TURN RIGHT ONTO LIVINGSTON AVE / COUNTY HWY-527, TAKE THE RAMP ON THE RIGHT AND FOLLOW SIGNS FOR I-280 EAST, AT EXIT 12, HEAD RIGHT ON THE RAMP FOR ORATON PKY TOWARD PARKWAY, ROAD NAME CHANGES TO GARDEN STATE PKWY N, ROAD NAME CHANGES TO GARDEN STATE PKWY N, ENTERING NEW YORK, AT EXIT 14-1, HEAD RIGHT ON THE RAMP FOR I-87 SOUTH / I-287 EAST TOWARD NEW YORK CITY, KEEP STRAIGHT TO GET ONTO I-287 E, TAKE THE RAMP FOR I-95 N, ENTERING CONNECTICUT, AT EXIT 13, HEAD RIGHT ON THE RAMP FOR POST ROAD TOWARD NORWALK COMMUNITY COLLEGE, TURN RIGHT ONTO US-1 S / CONNECTICUT AVE TOWARD NORWALK COMMUNITY COLLEGE / POST ROAD, ARRIVE AT YOUR DESTINATION ON THE RIGHT.

**VICINITY MAP**



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



**GENERAL NOTES**

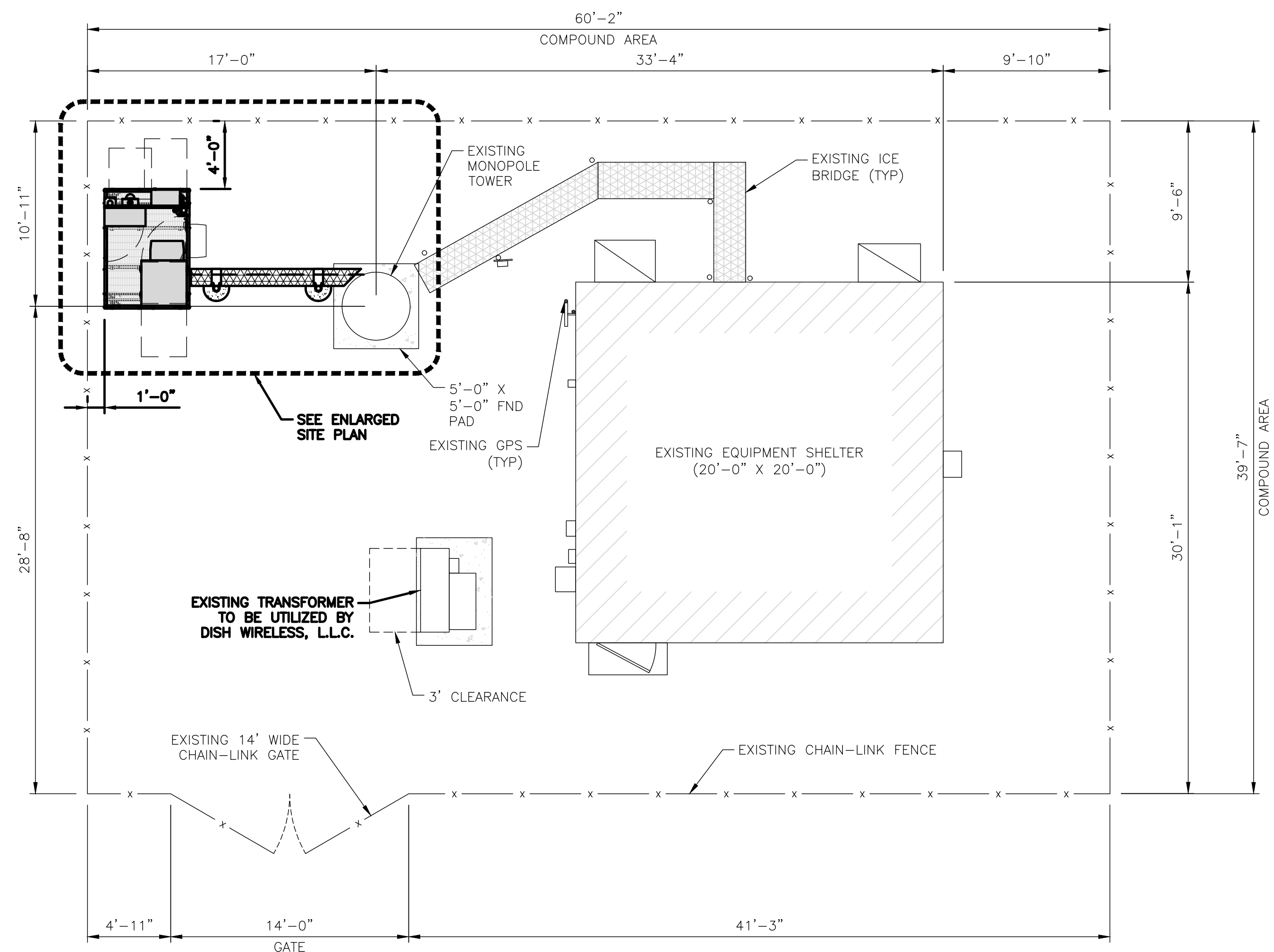
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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

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

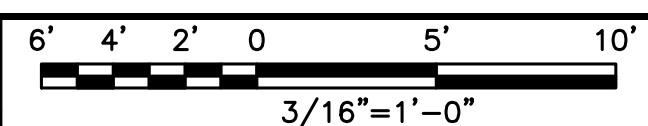
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

**NOTES**

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



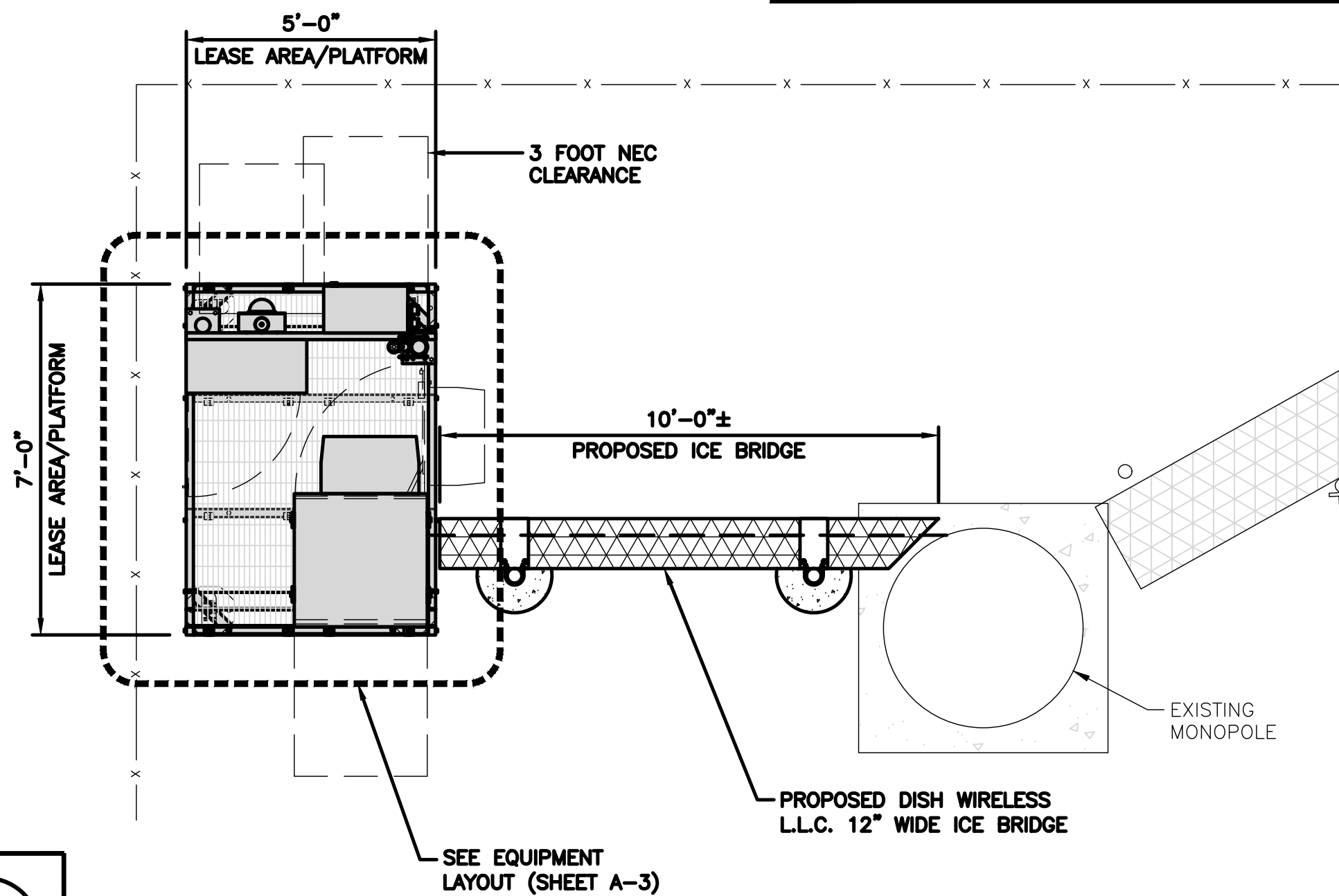
**OVERALL SITE PLAN**



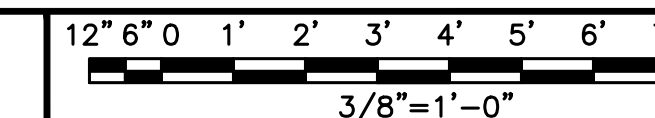
1

**NOTES**

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



**ENLARGED SITE PLAN**



2



**ESA**

NO SCALE

3

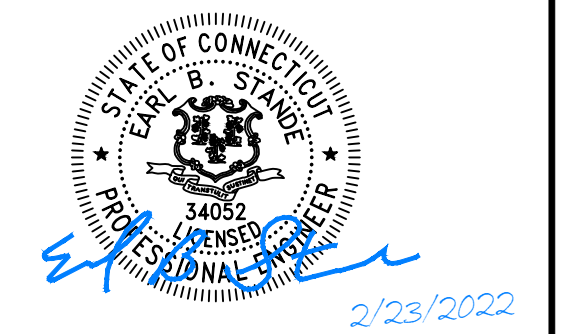


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RFDS REV #: 1

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EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION

NJJer01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

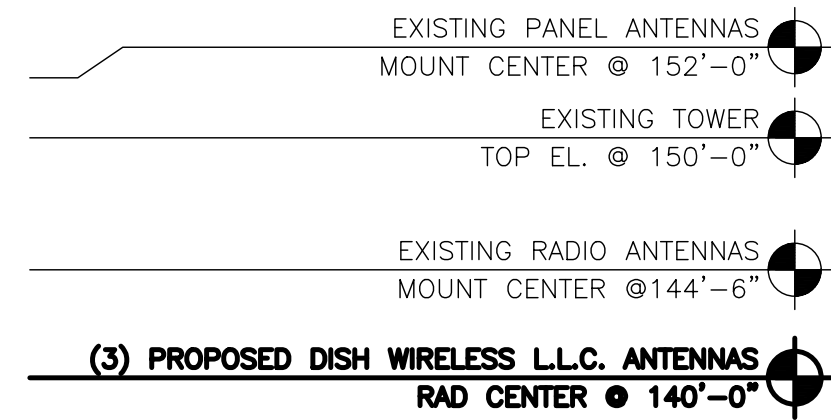
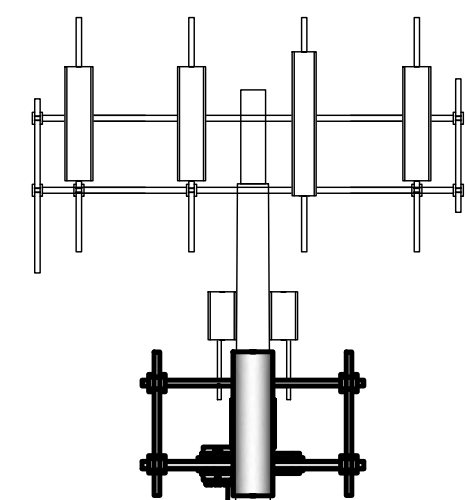
SHEET TITLE  
OVERALL AND ENLARGED  
SITE PLAN

SHEET NUMBER

**A-1**

**NOTES**

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. FOR ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. JACOBS HAS NOT EVALUATED OR CONFIRMED THE STRUCTURAL CAPACITY OF THE TOWER OR ANTENNA/RADIO MOUNTS. REFER TO LATEST STRUCTURAL ANALYSIS FOR VERIFICATION OF TOWER AND MOUNTING COMPONENTS PRIOR TO CONSTRUCTION. ANY MODIFICATIONS SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF THE EQUIPMENT SHOWN IN THE DRAWING.



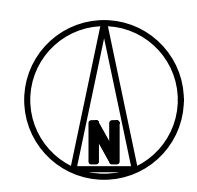
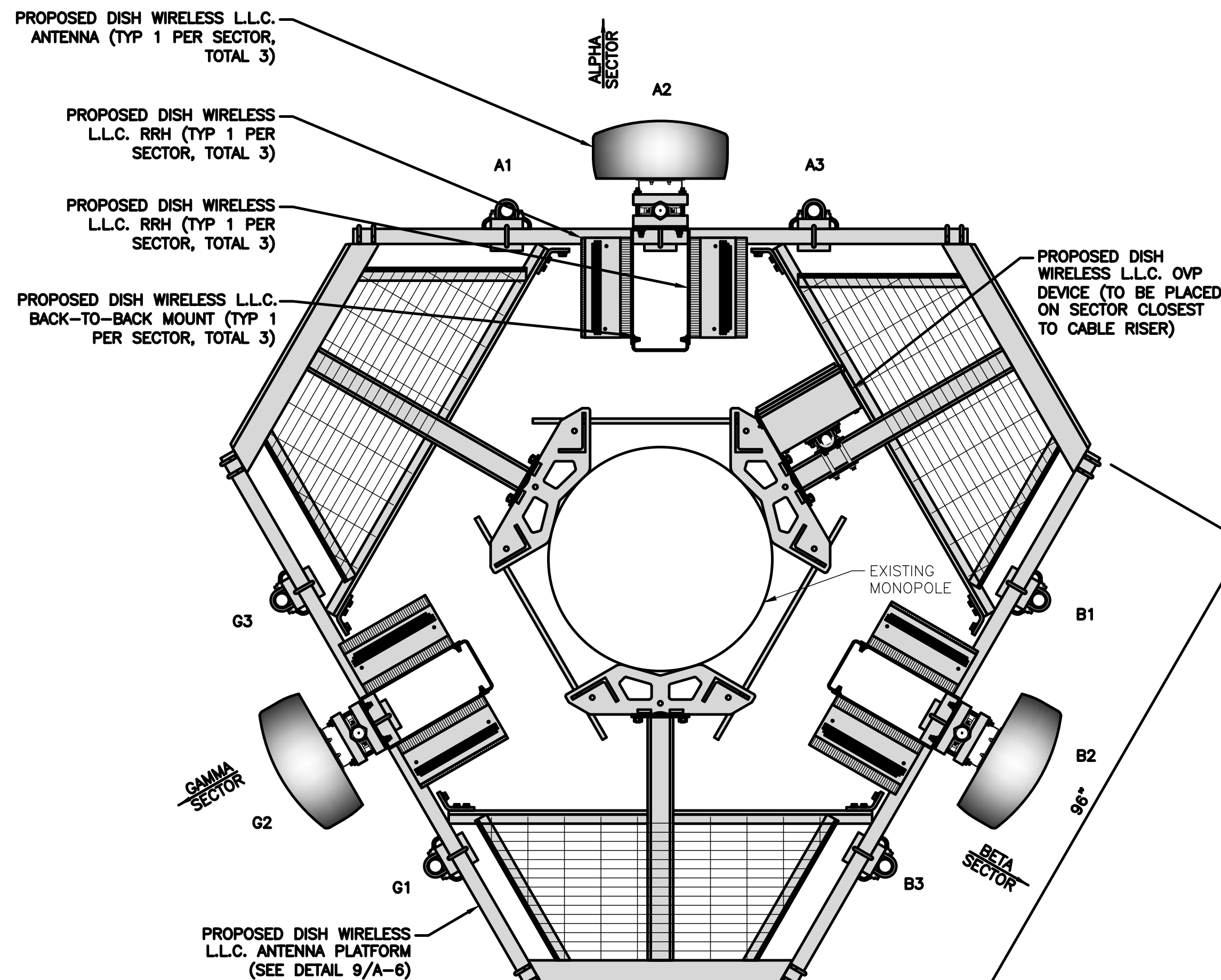
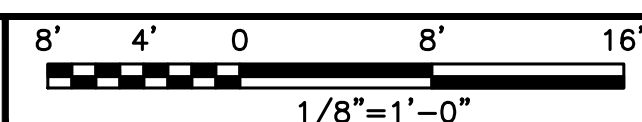
(1) PROPOSED DISH WIRELESS L.L.C. HYBRID CABLE ROUTED UP POLE EXTERIOR PER STRUCTURAL ANALYSIS (BY CROWN CASTLE DECEMBER 28, 2021)

EXISTING MONOPOLE

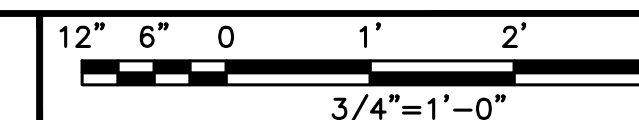
PROPOSED DISH WIRELESS L.L.C. ICE BRIDGE  
 PROPOSED DISH WIRELESS L.L.C. EQUIPMENT  
 PROPOSED DISH WIRELESS L.L.C. GPS UNIT



**PROPOSED SOUTHEAST ELEVATION**



**ANTENNA LAYOUT**



2

SECTOR POS.	ANTENNA					RRH		OVP	TRANSMISSION CABLE
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	MANUFACTURER - MODEL NUMBER	TECH	MANUFACTURER MODEL	FEED LINE TYPE AND LENGTH
A1	---	---	---	---	---	---	---	RAYCAP RDIDC-9181-PF-48	(1) HIGH-CAPACITY HYBRID CABLE (170' LONG)
A2	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	90°	140'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
A3	---	---	---	---	---	---	---		
B1	---	---	---	---	---	---	---	SHARED W/ALPHA	SHARED W/ALPHA
B2	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	210°	140'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
B3	---	---	---	---	---	---	---		
G1	---	---	---	---	---	---	---	SHARED W/ALPHA	SHARED W/ALPHA
G2	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	330°	140'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
G3	---	---	---	---	---	---	---		

**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.

\*SEE LATEST DISH RFDS FOR AZIMUTH INFORMATION AT TIME OF BUILD

**ANTENNA SCHEDULE**

NO SCALE

3



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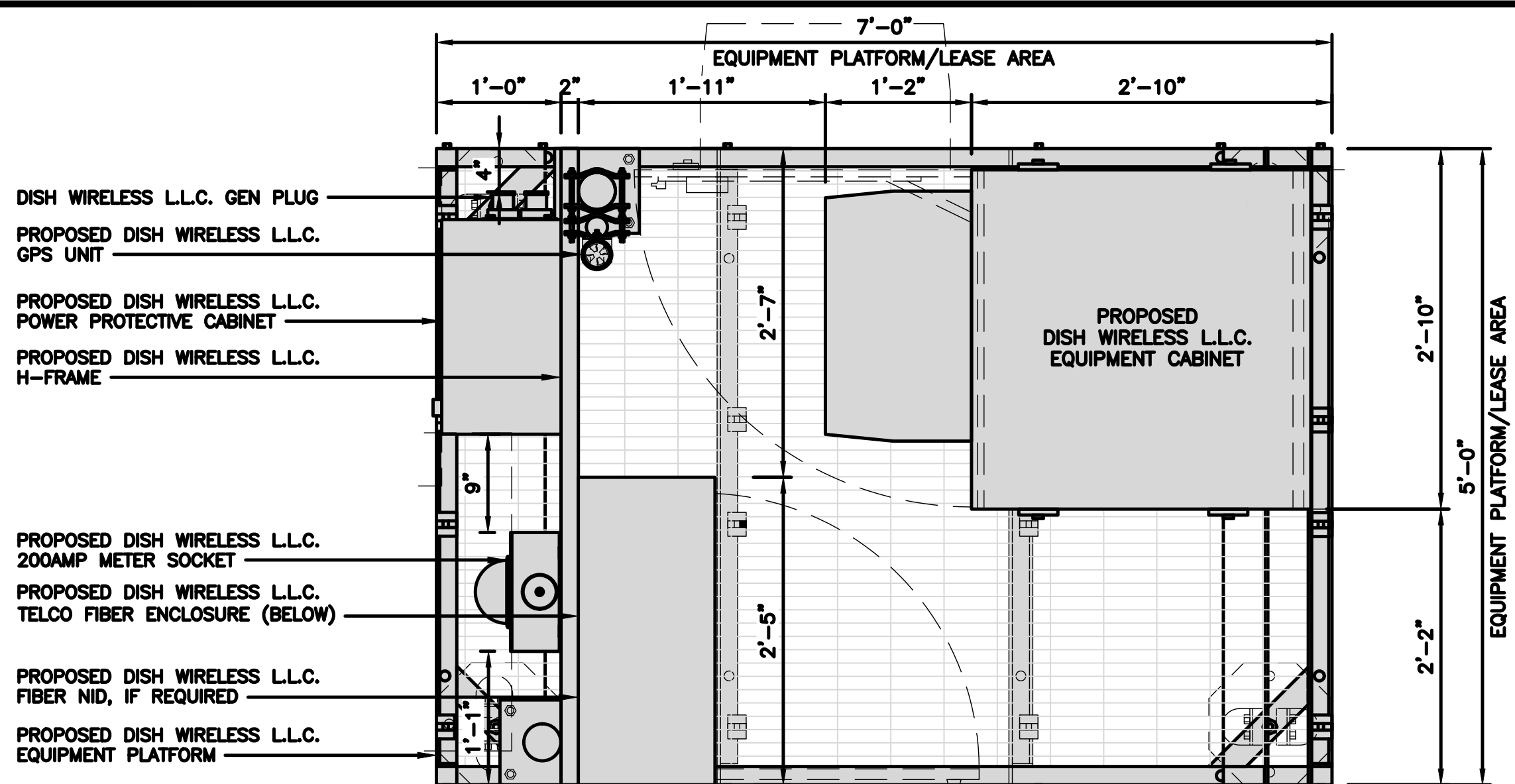
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DISH WIRELESS L.L.C. PROJECT INFORMATION  
 NJJER01132C  
 600 CONNECTICUT AVE  
 NORWALK, CT 06850

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

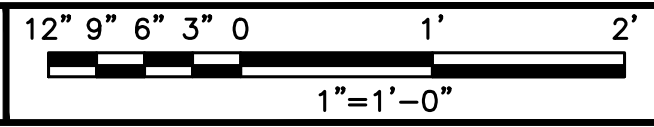
SHEET NUMBER

**A-2**



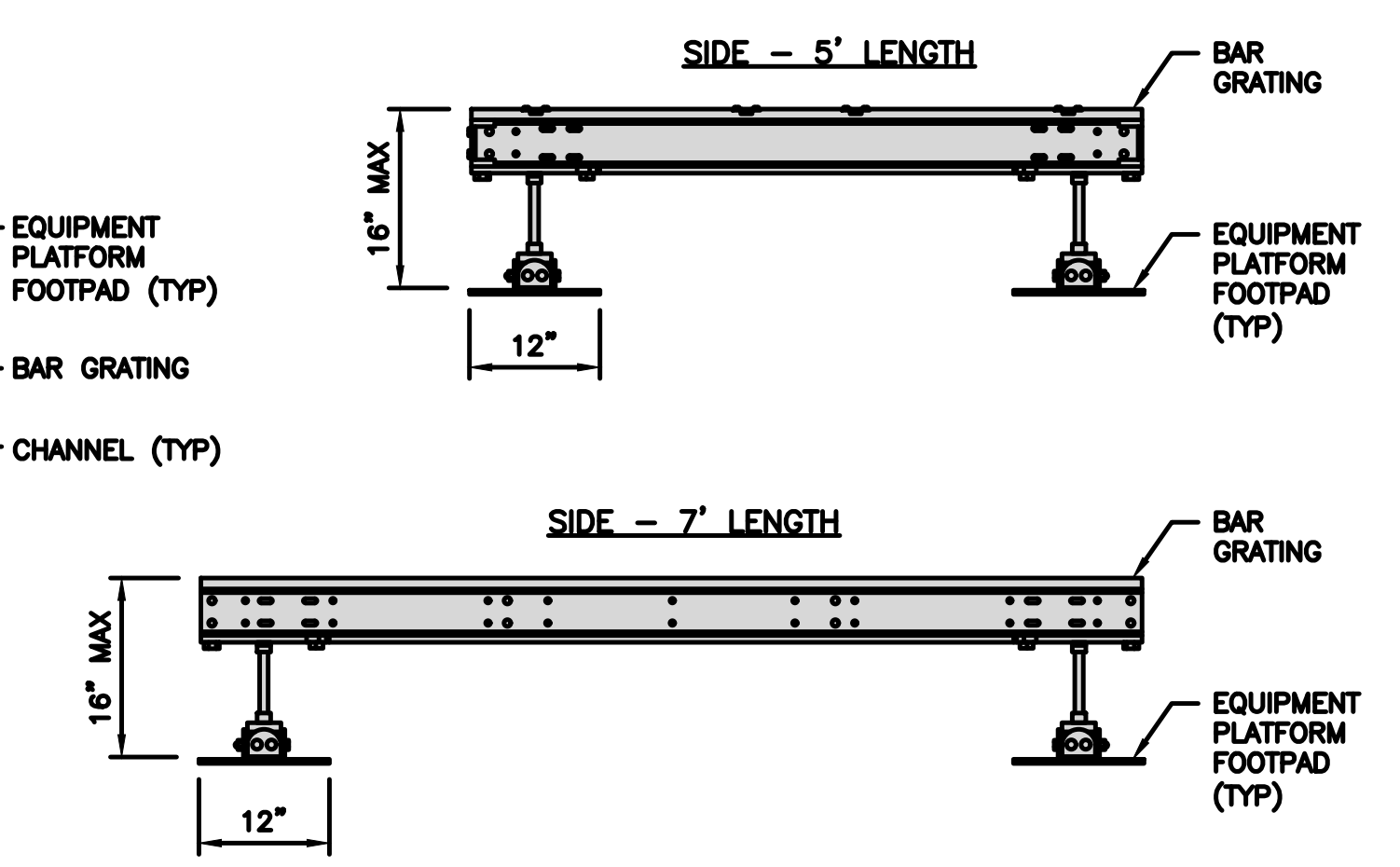
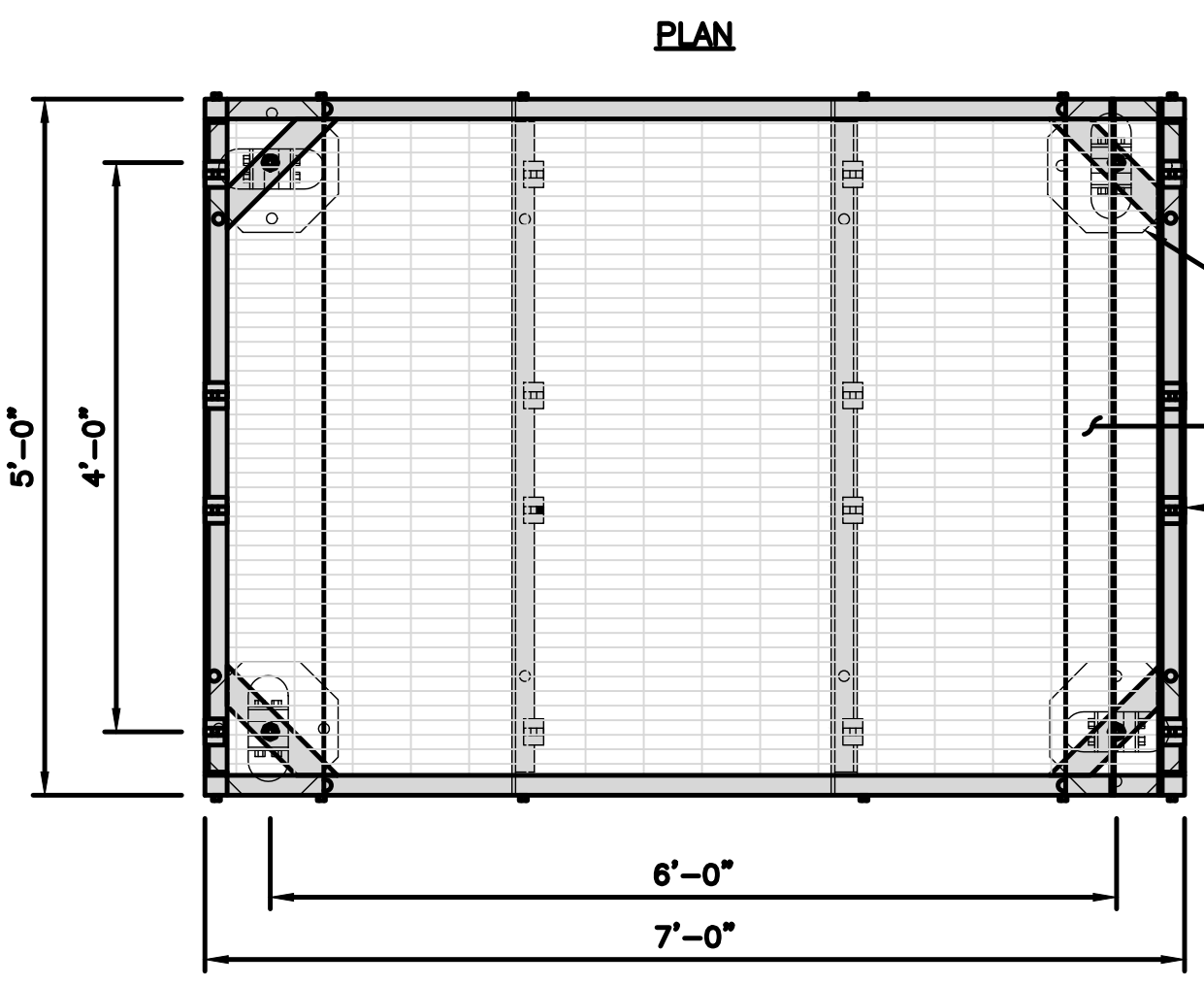
- DISH WIRELESS L.L.C. GEN PLUG
- PROPOSED DISH WIRELESS L.L.C. GPS UNIT
- PROPOSED DISH WIRELESS L.L.C. POWER PROTECTIVE CABINET
- PROPOSED DISH WIRELESS L.L.C. H-FRAME
- PROPOSED DISH WIRELESS L.L.C. 200AMP METER SOCKET
- PROPOSED DISH WIRELESS L.L.C. TELCO FIBER ENCLOSURE (BELOW)
- PROPOSED DISH WIRELESS L.L.C. FIBER NID, IF REQUIRED
- PROPOSED DISH WIRELESS L.L.C. EQUIPMENT PLATFORM

PLATFORM EQUIPMENT PLAN



1

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



NOTES

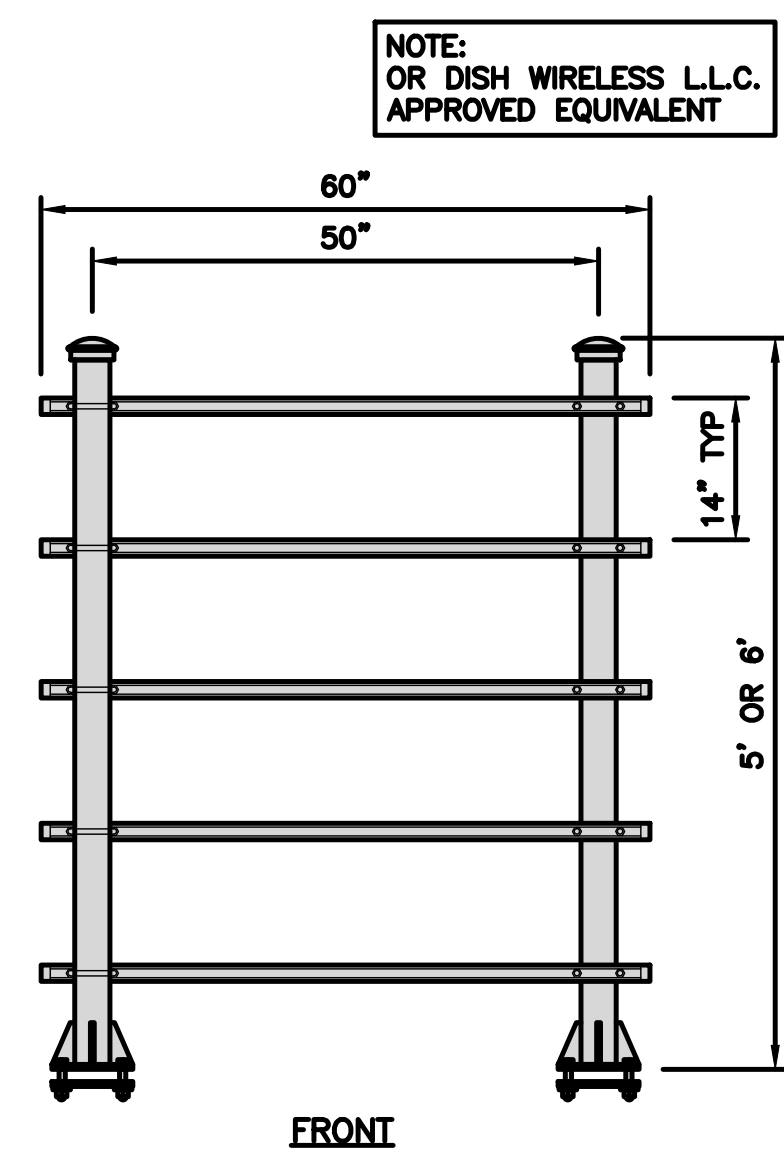
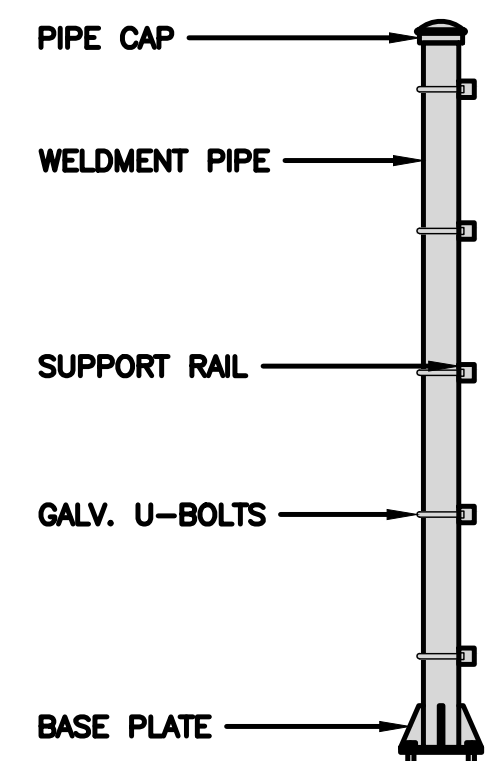
1. PLATFORM TO BE LEVELED TO NO MORE THAN +/- 1 DEGREE FROM HORIZONTAL ON BOTH PLANES.

PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

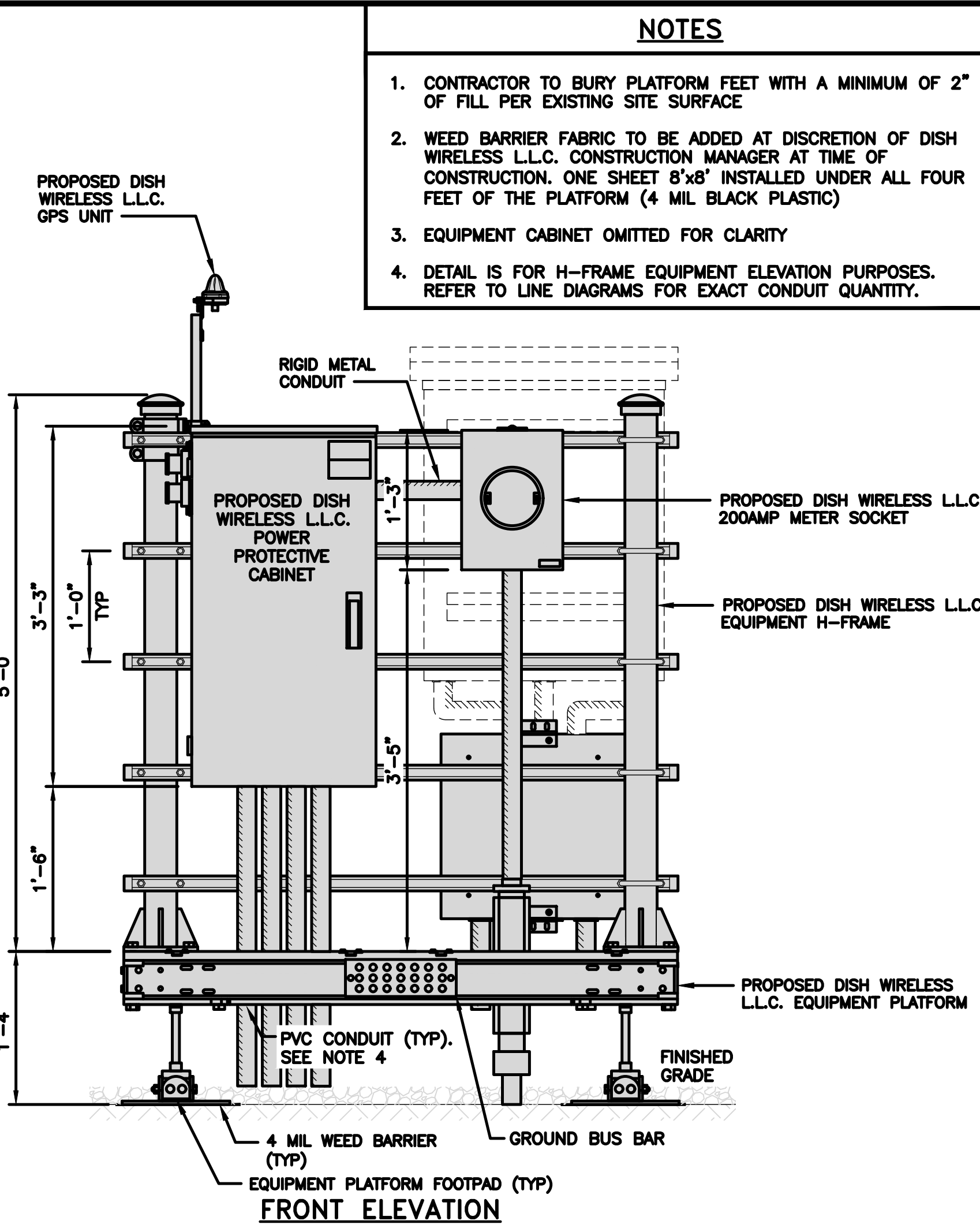
NO SCALE

3

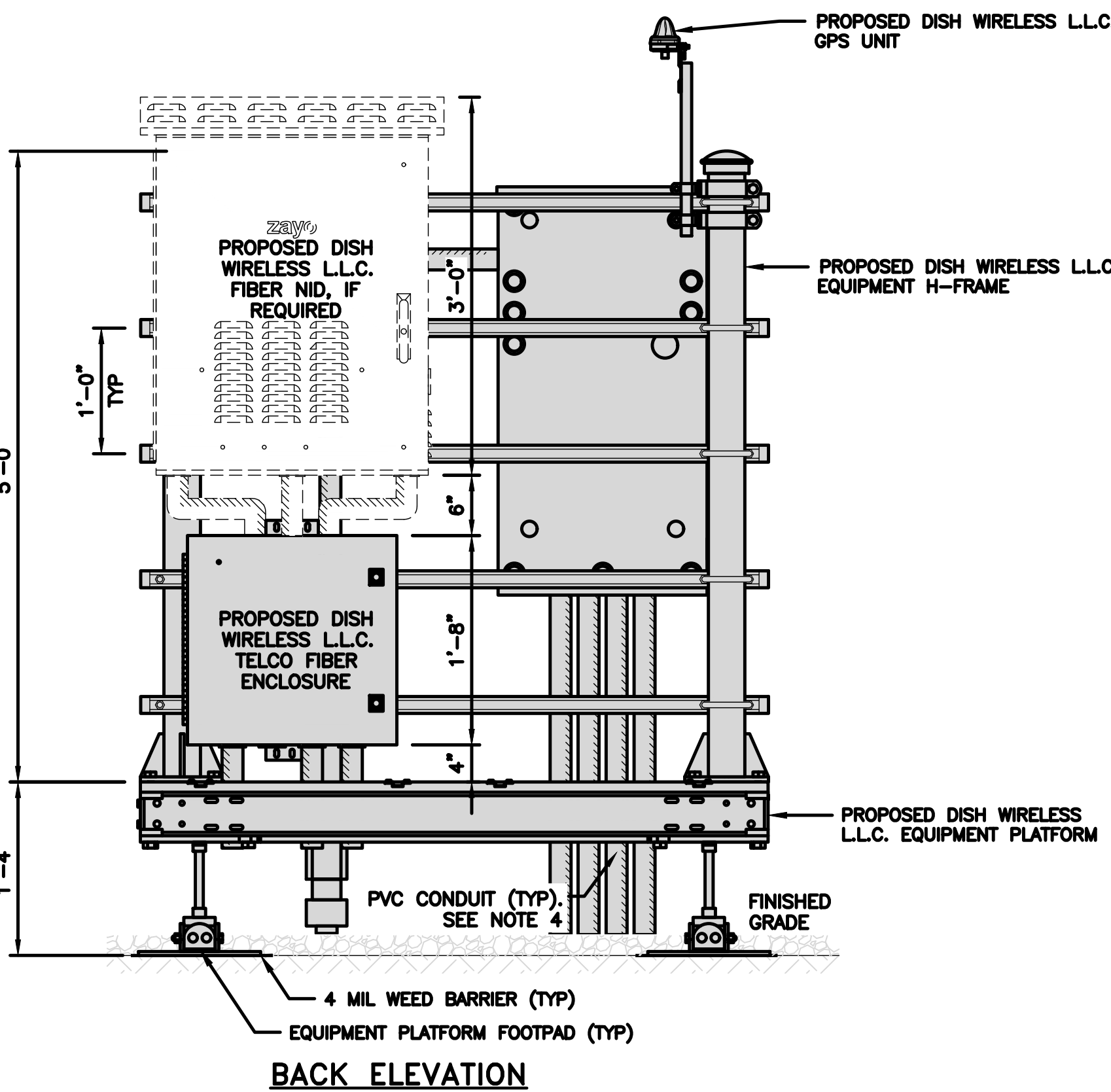
NOT USED

NO SCALE

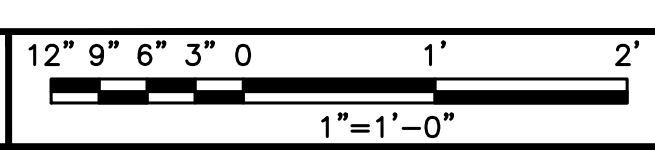
4



FRONT ELEVATION



BACK ELEVATION



5

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
4. DETAIL IS FOR H-FRAME EQUIPMENT ELEVATION PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.

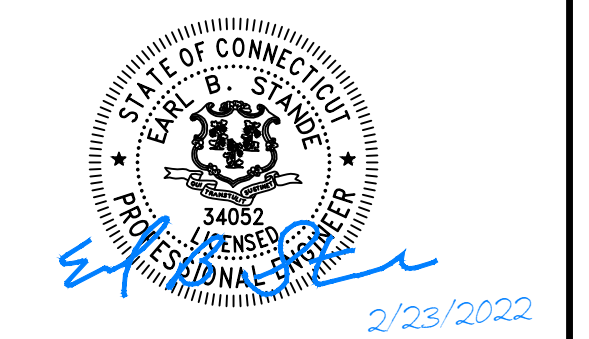


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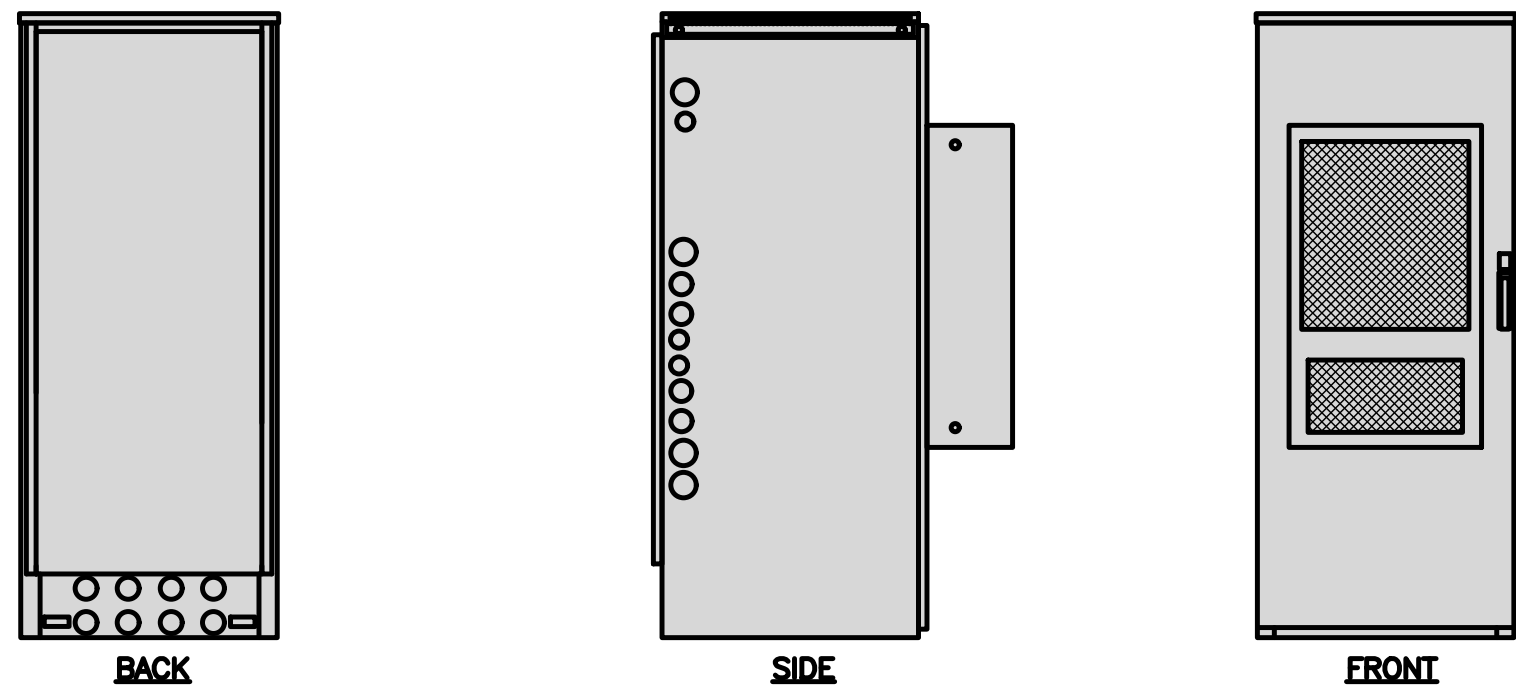
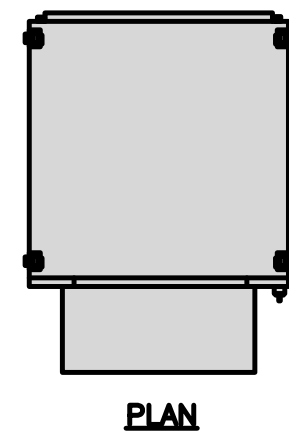
A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

SHEET NUMBER  
**A-3**

<b>ENERSYS HEX</b> 20000059996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs

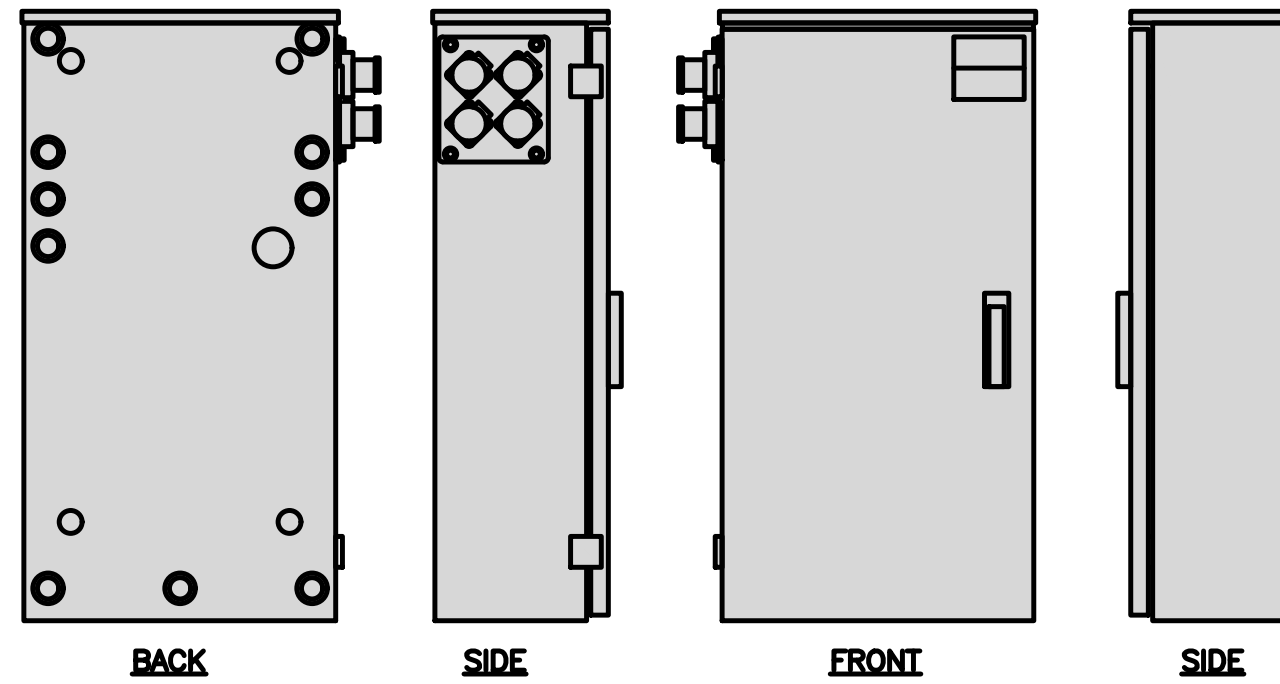
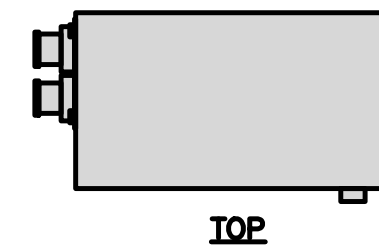


**CABINET DETAIL**

NO SCALE

1

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



**POWER PROTECTION CABINET (PPC) DETAIL**

NO SCALE

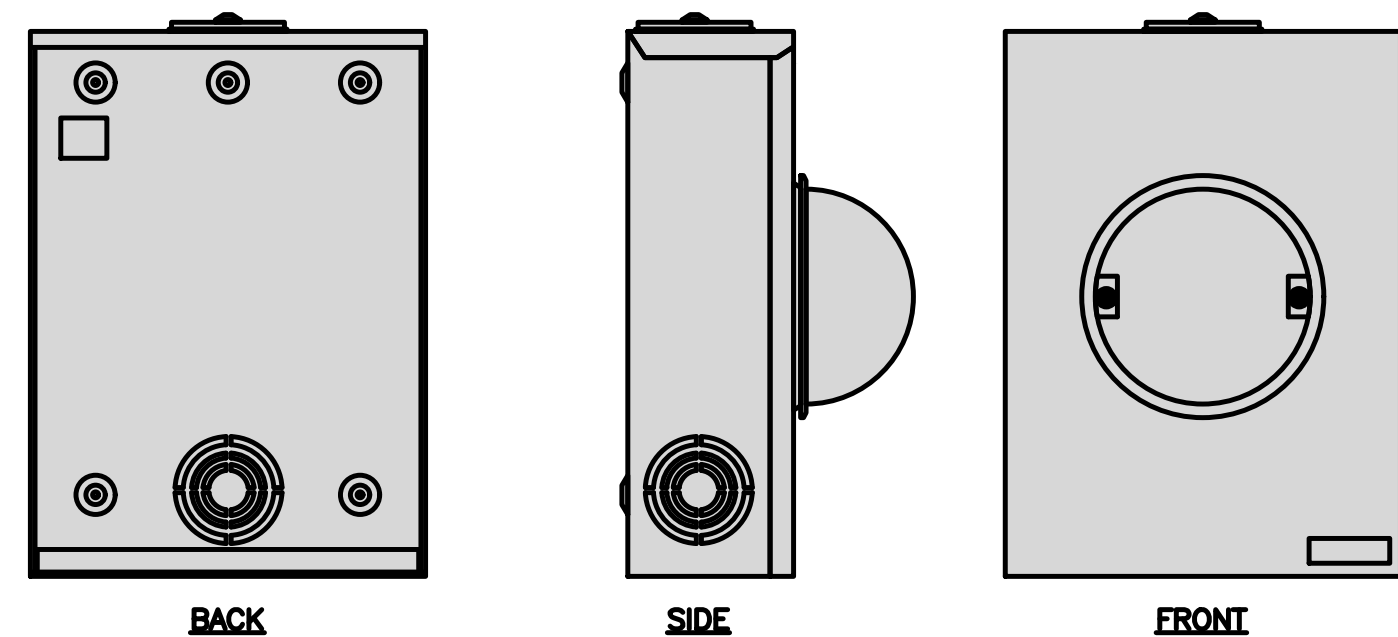
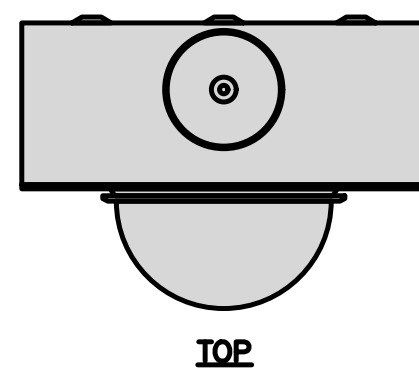
2

**NOT USED**

NO SCALE

3

<b>EATON METER SOCKET</b> UNRRS213BEUSE	
DIMENSIONS (HxWxD)	16"x12"x6"
TYPE	RING
AMPERAGE RATING	200 CONT. AMP
WEIGHT	18 lbs

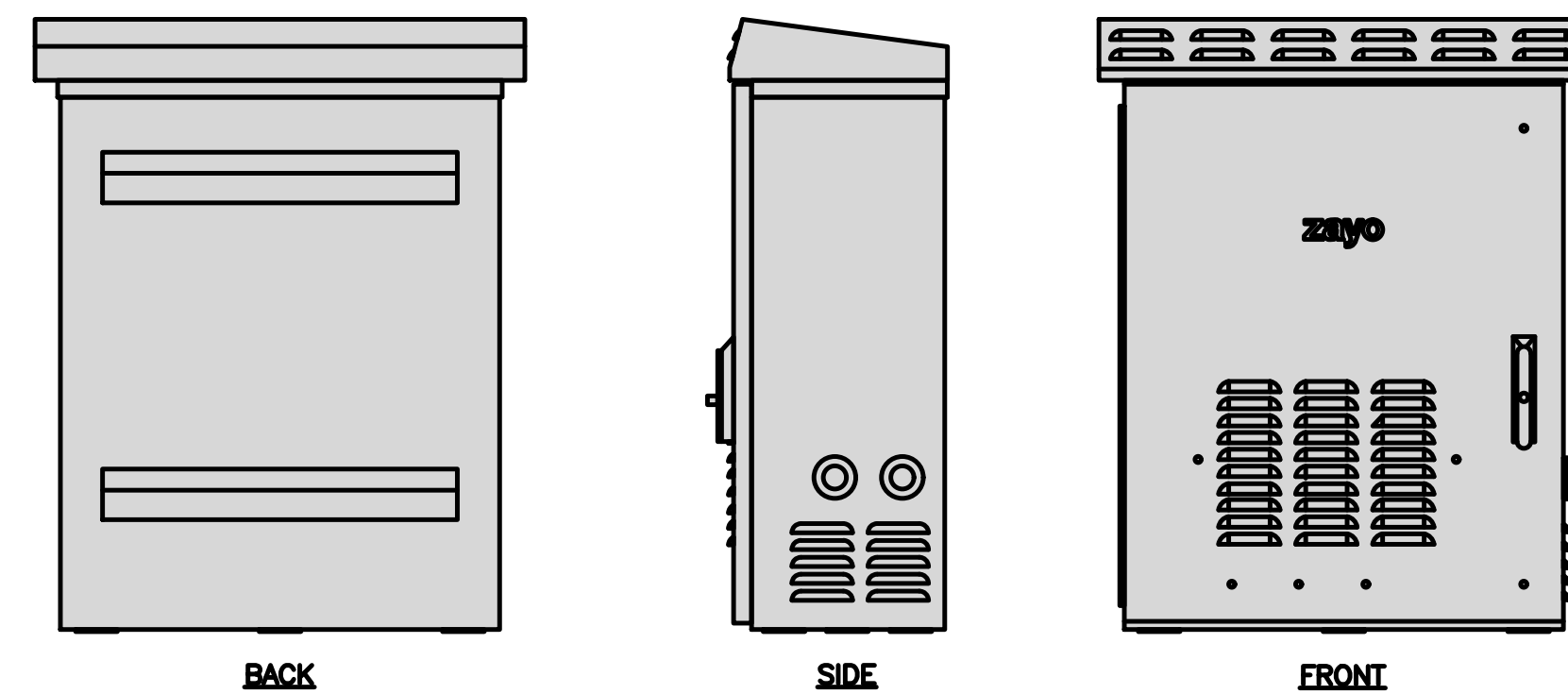
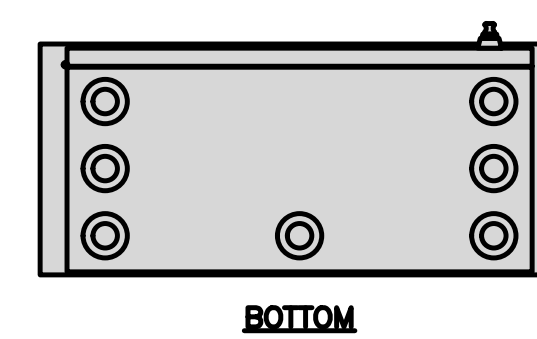


**METER SOCKET DETAIL**

NO SCALE

4

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

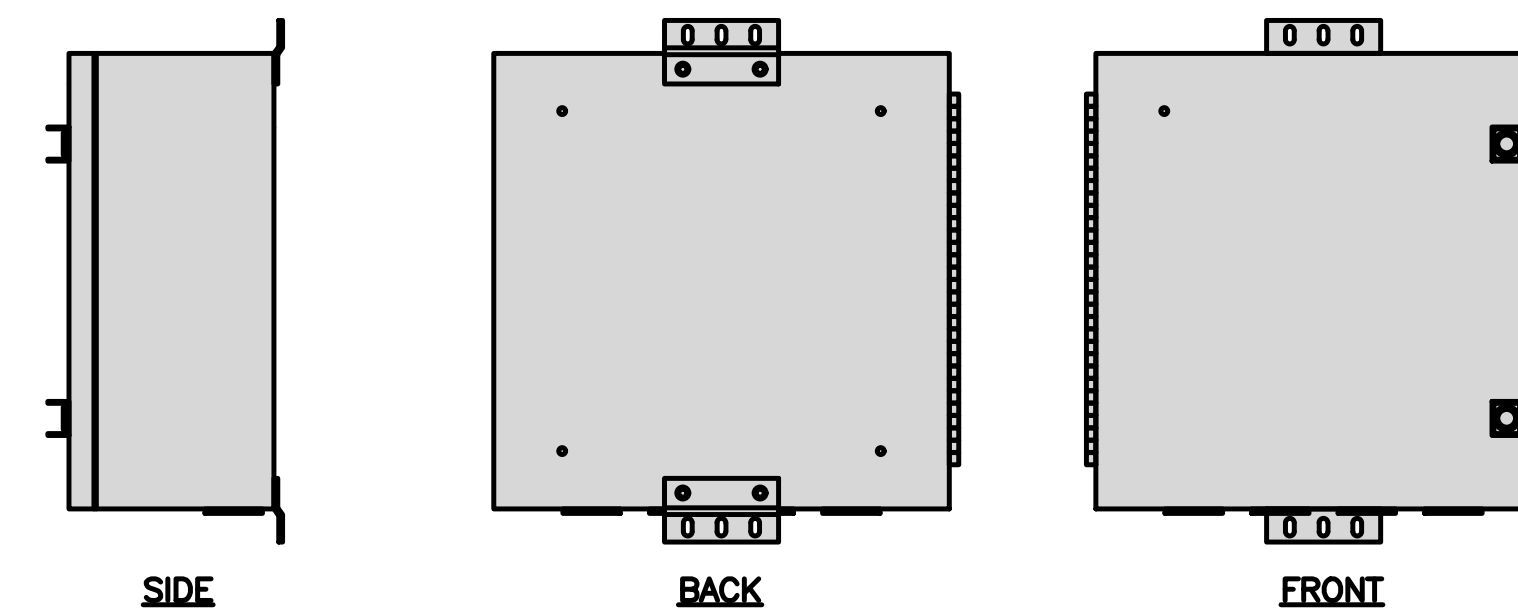
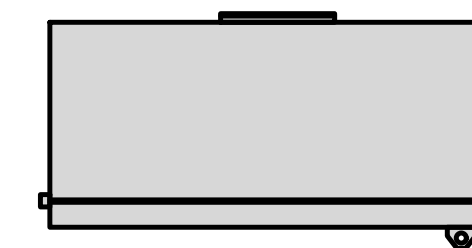


**FIBER NID ENCLOSURE DETAIL**

NO SCALE

5

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

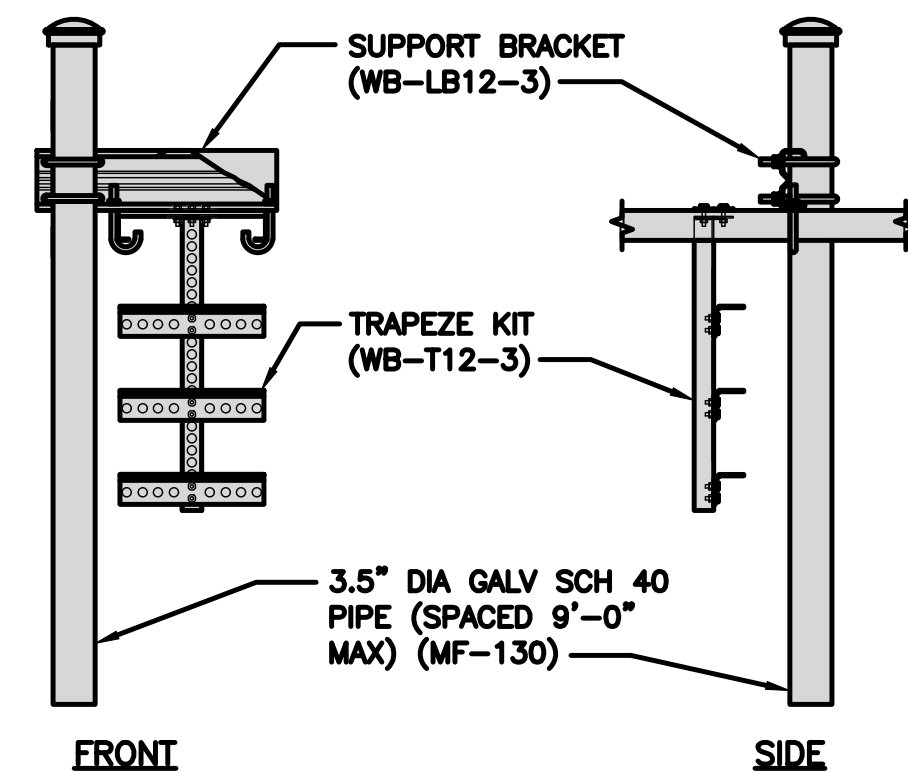
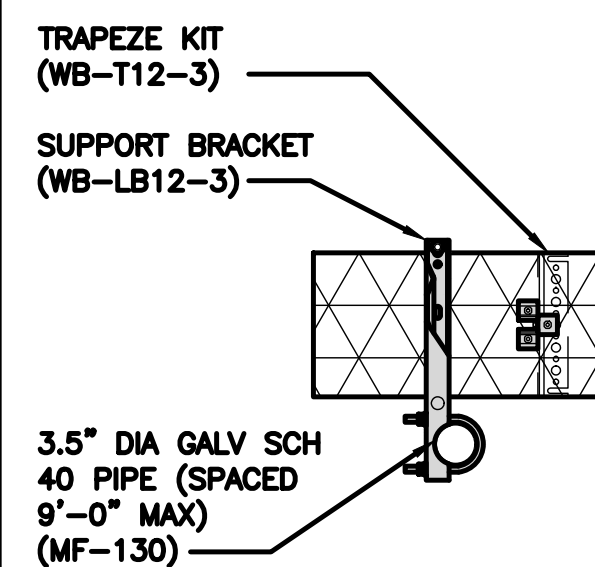


**FIBER TELCO ENCLOSURE DETAIL**

NO SCALE

6

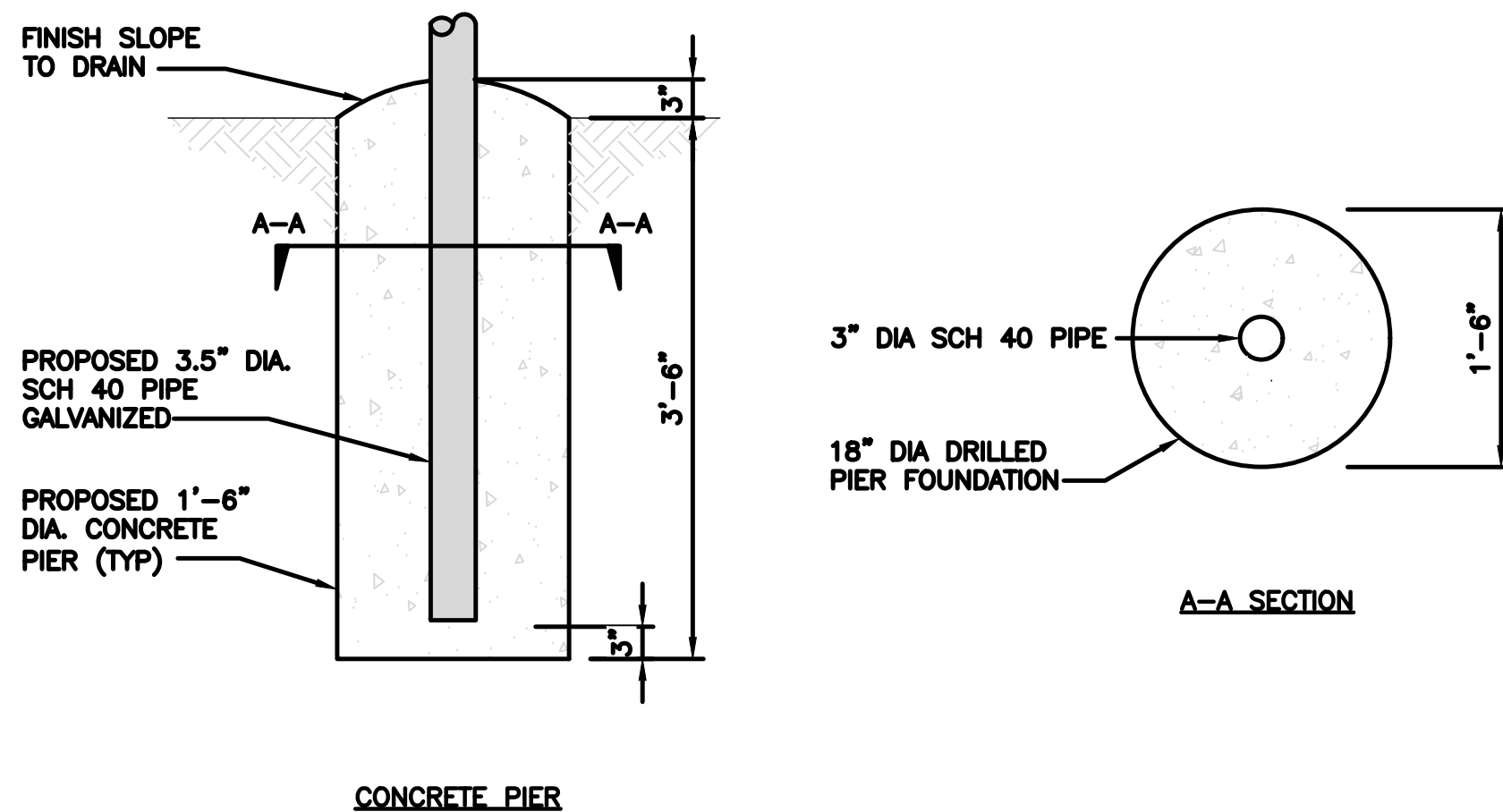
<b>COMMSCOPE WB-K110-B</b> WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS: WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
DIMENSIONS (HxL)	160"x10"	
WEIGHT/ VOLUME	325.0 LBS	
CABLE RUN (QTY)	12	



**ICE BRIDGE DETAIL**

NO SCALE

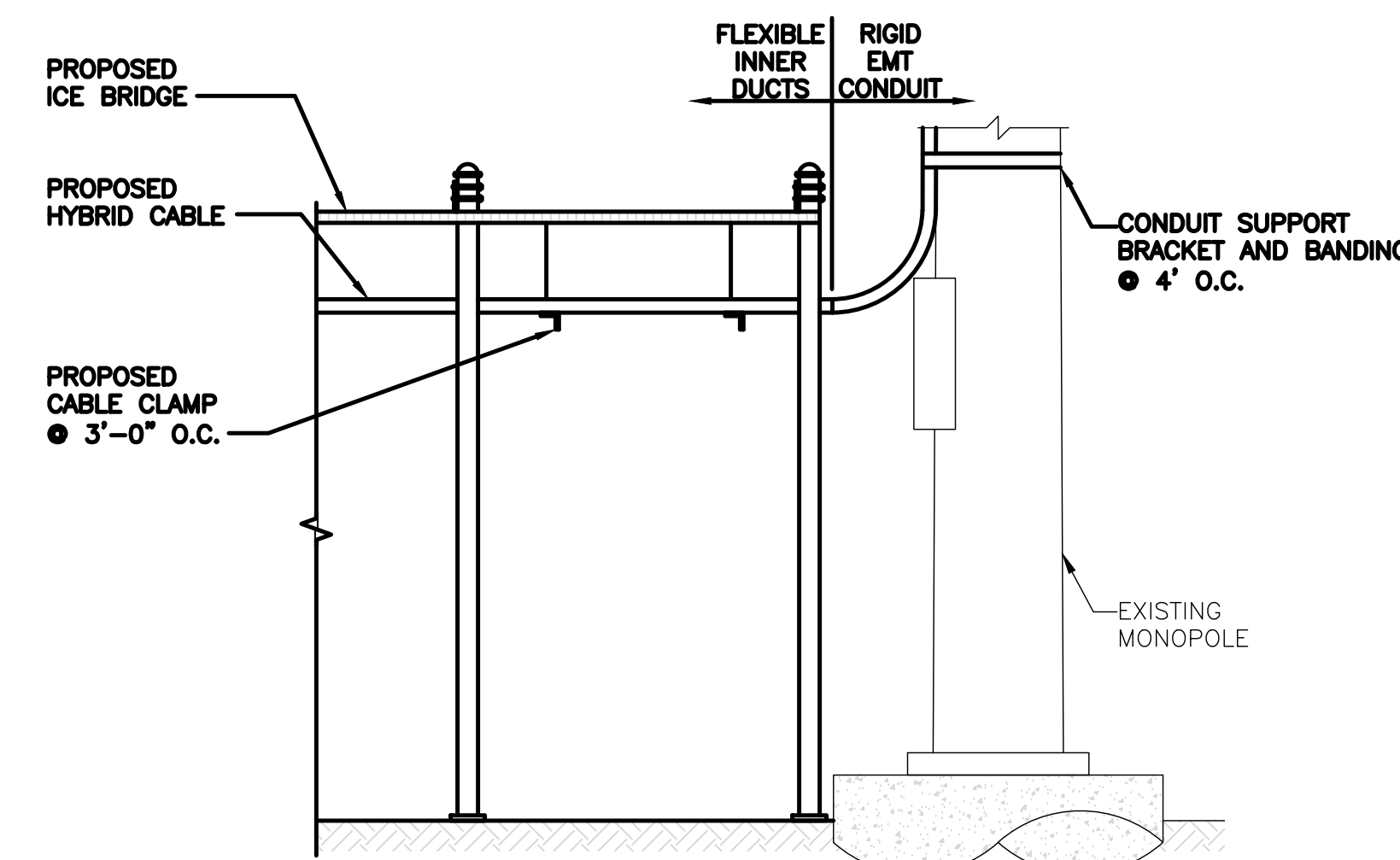
7



**TYPICAL ICE BRIDGE CONCRETE PIER DETAIL**

NO SCALE

8



**HYBRID CABLE RUN**

NO SCALE

9

**dish**  
wireless.

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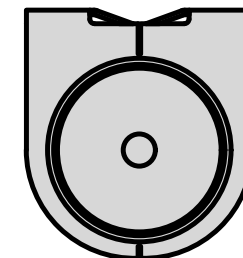
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SHEET TITLE  
EQUIPMENT DETAILS

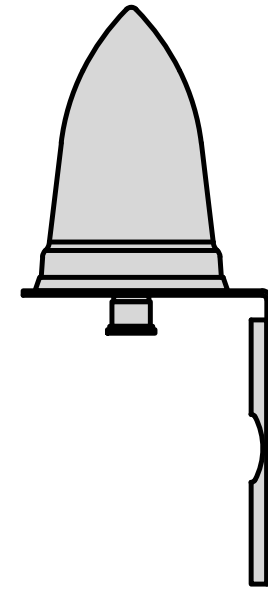
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**A-4**

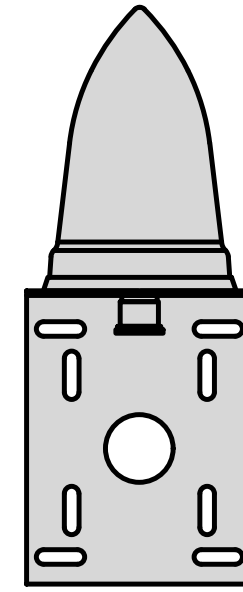
<b>PCTEL GPSGL-TMG-SPI-40NCB</b>	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



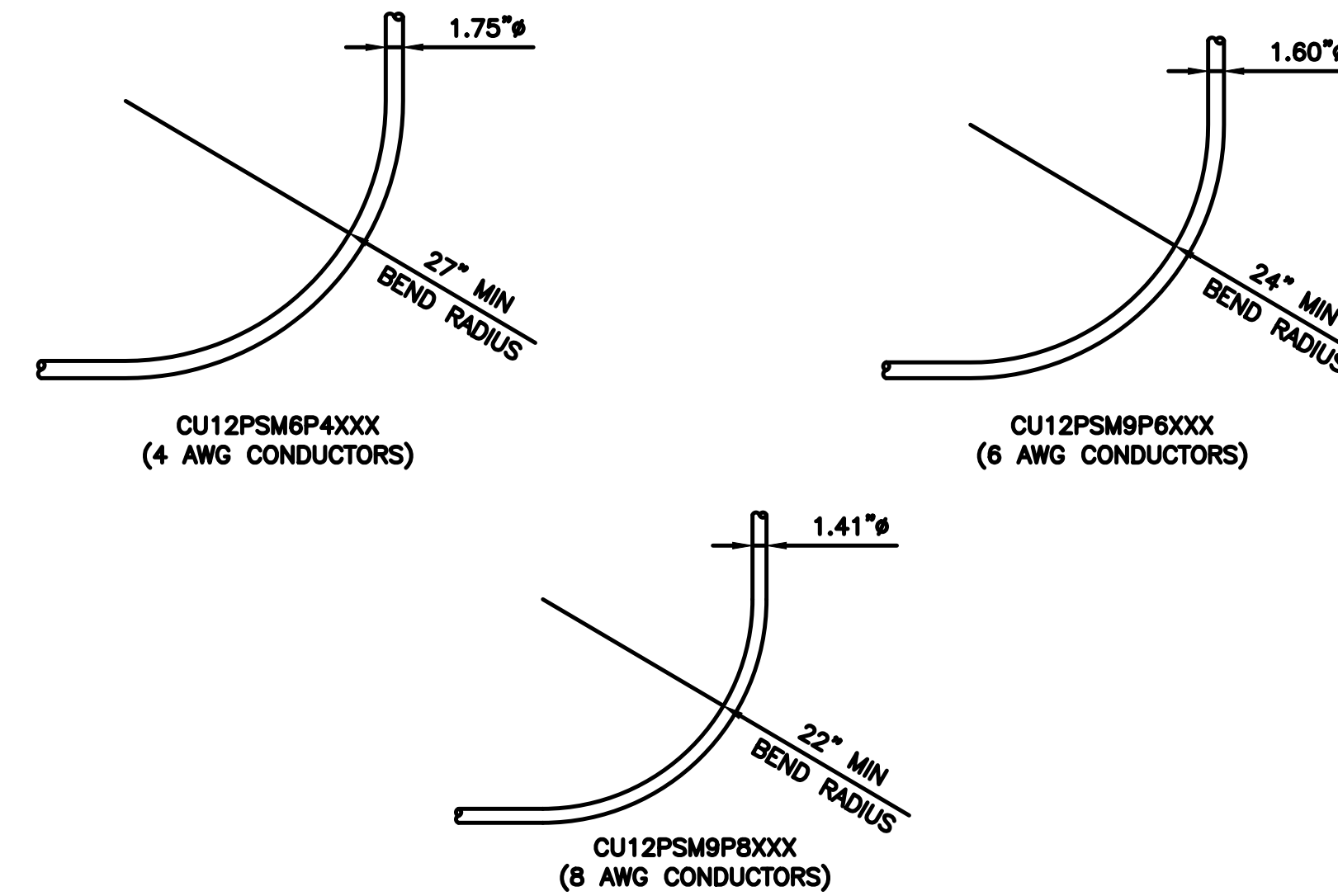
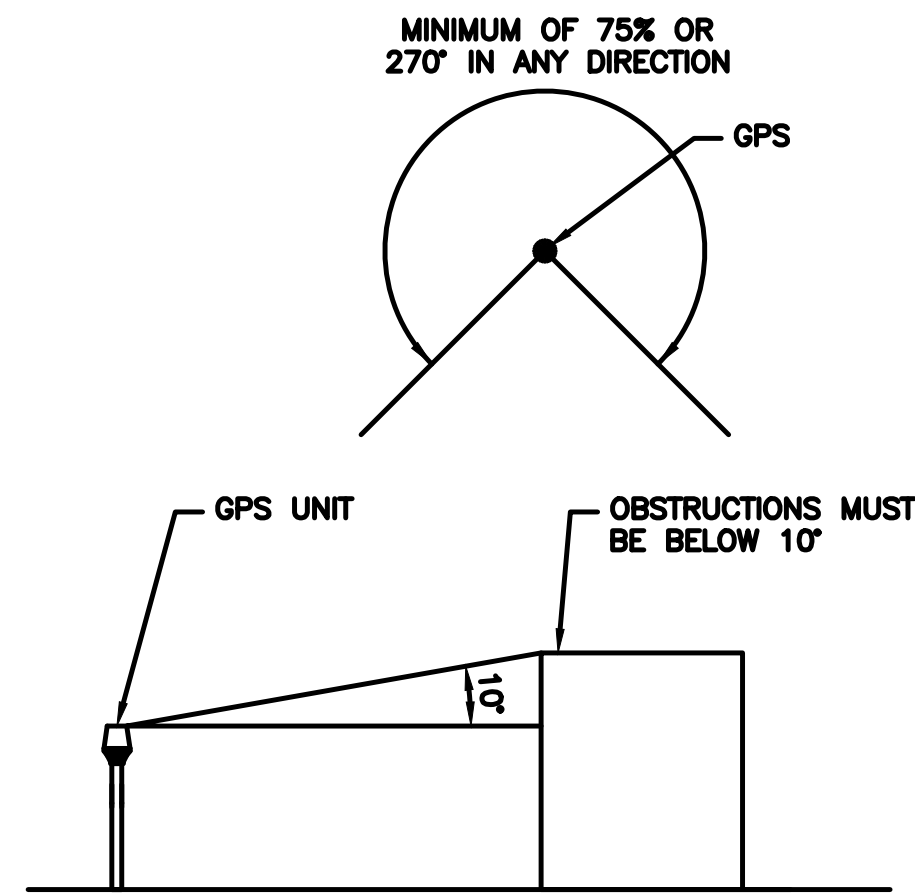
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

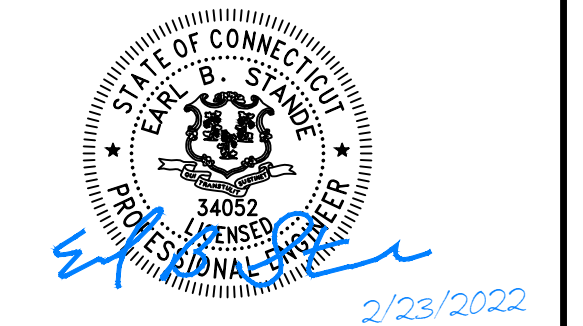
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wireless.

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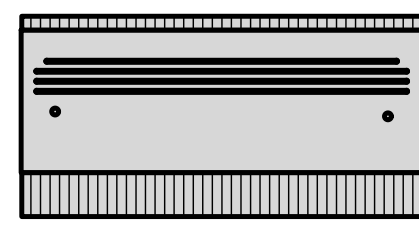
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SHEET TITLE  
EQUIPMENT DETAILS

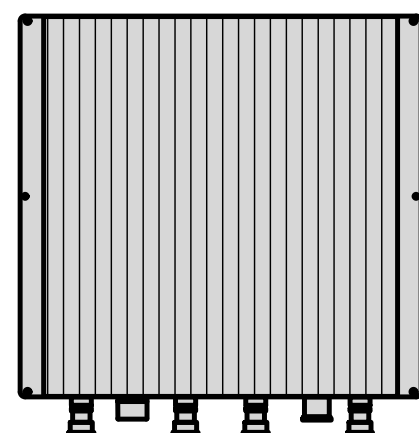
SHEET NUMBER

**A-5**

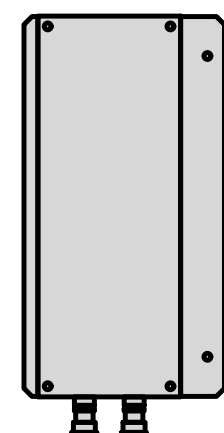
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



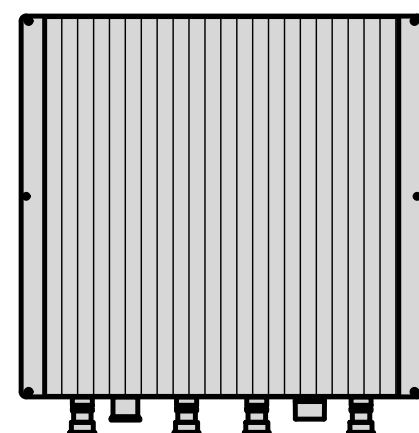
PLAN



BACK

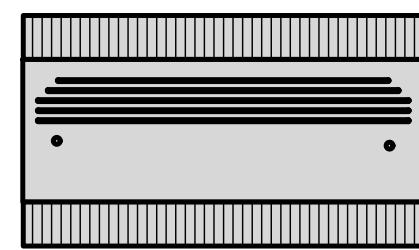


SIDE

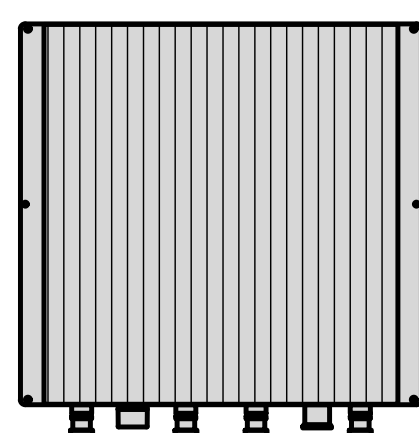


FRONT

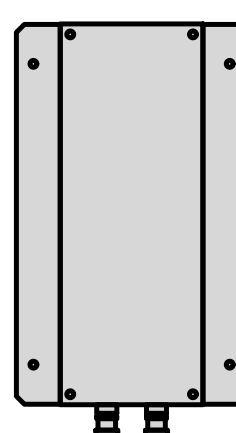
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



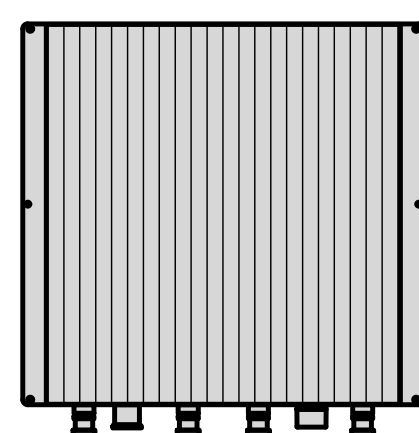
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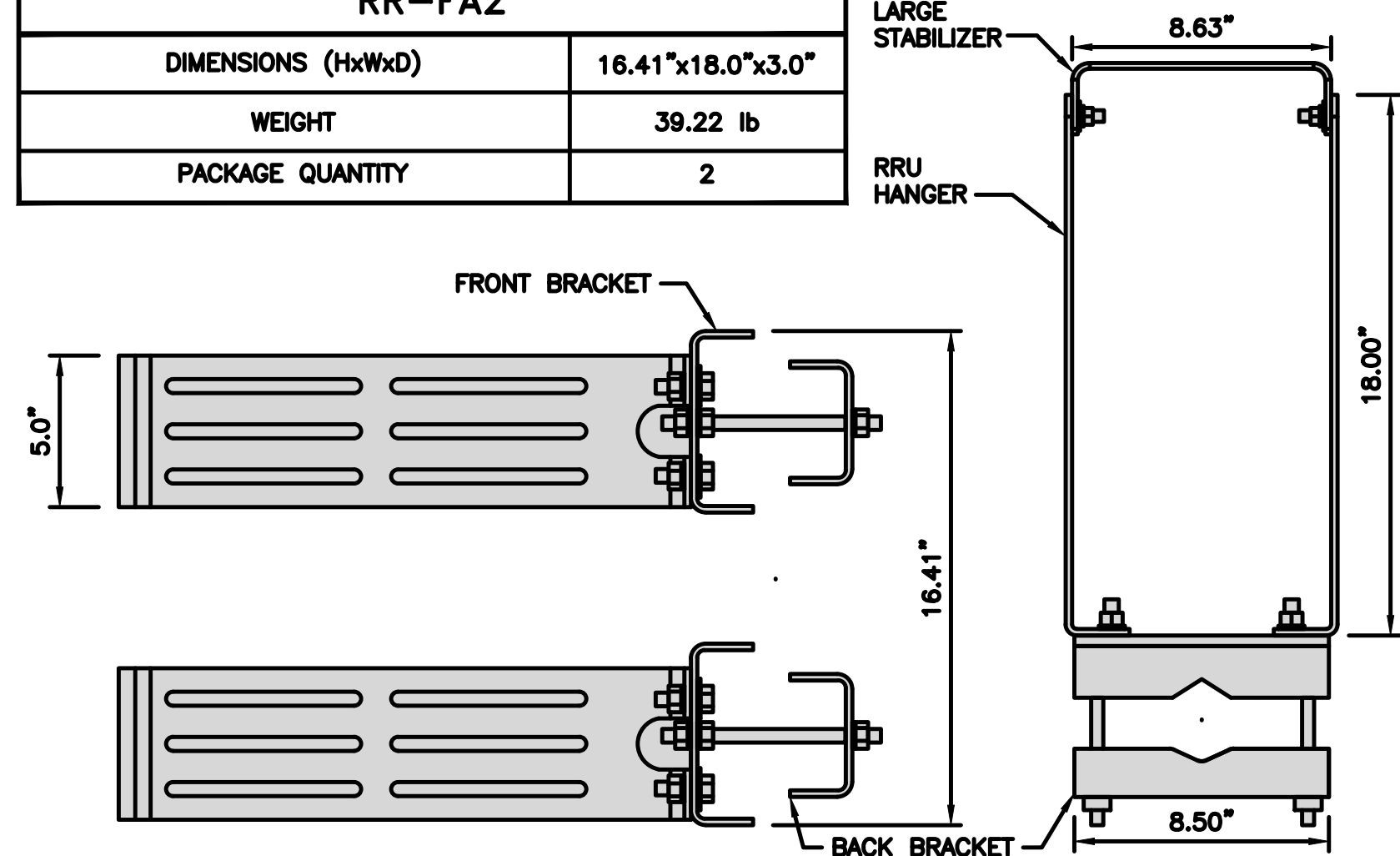


SIDE



FRONT

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2	
DIMENSIONS (HxWxD)	16.41"x18.0"x3.0"
WEIGHT	39.22 lb
PACKAGE QUANTITY	2



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

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

1

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

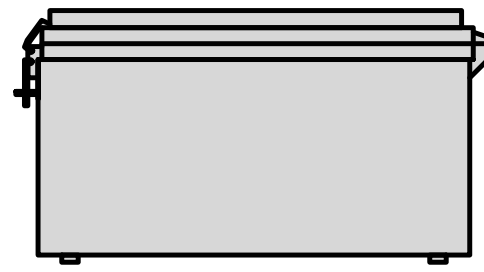
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REMOTE RADIO MOUNT DETAIL

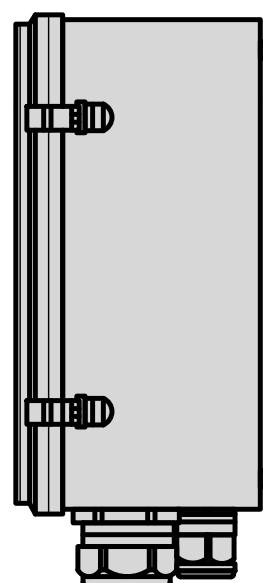
NO SCALE

3

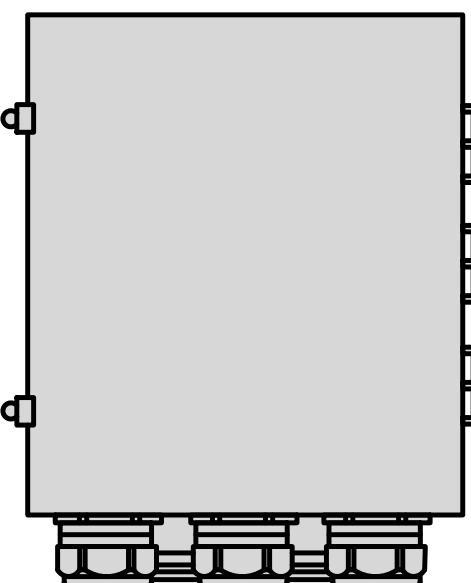
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



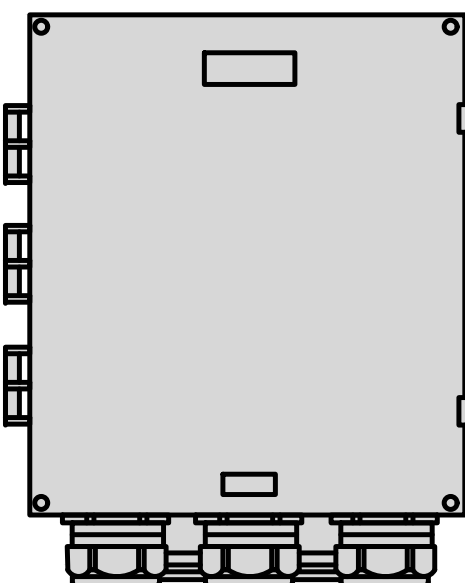
PLAN



SIDE

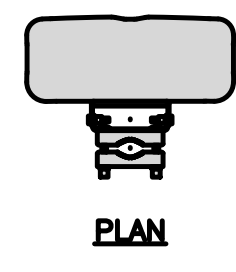


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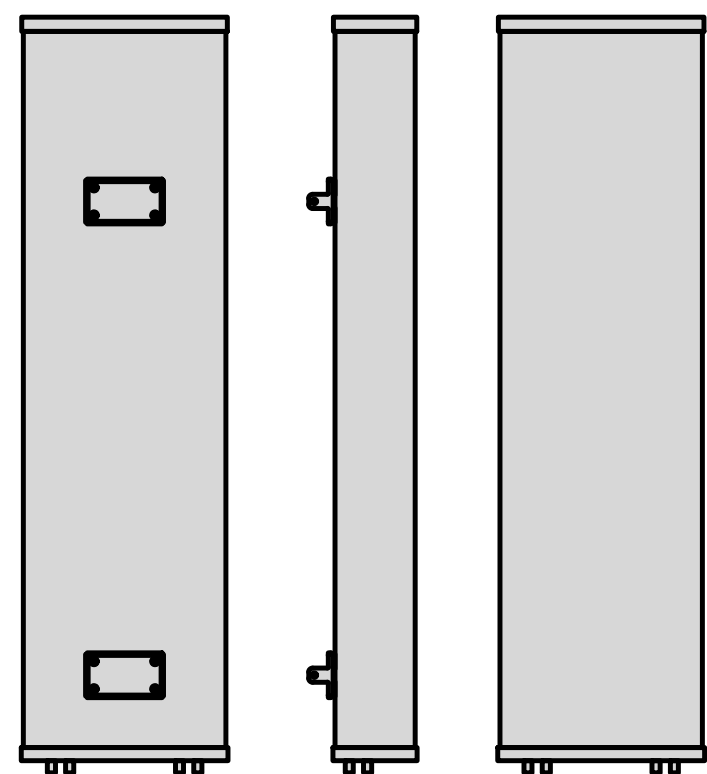


FRONT

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



PLAN



BACK

SIDE

FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

4

ANTENNA DETAIL

NO SCALE

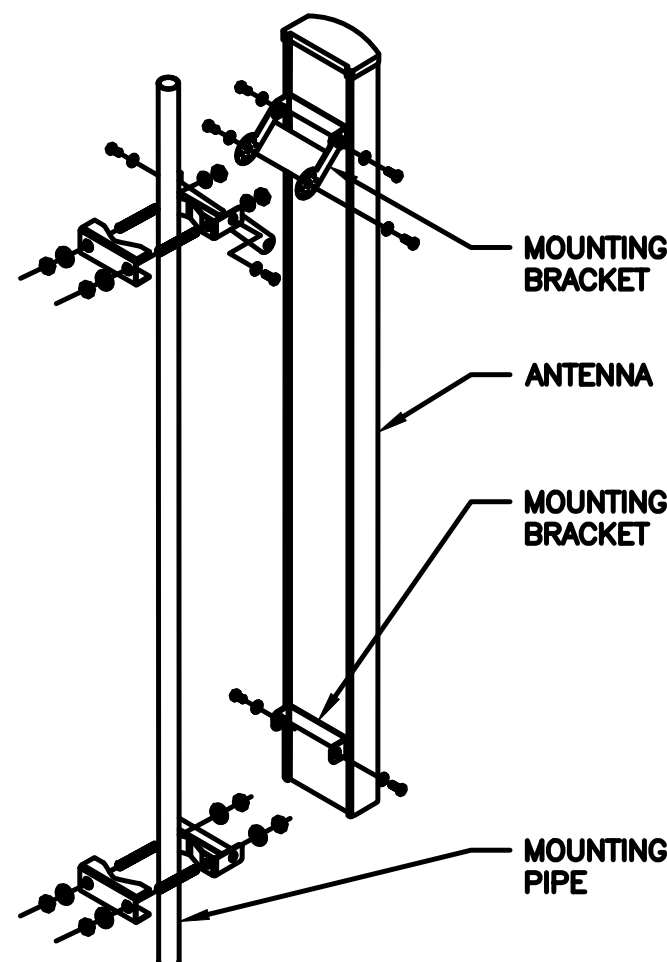
5

NOT USED

NO SCALE

6

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN



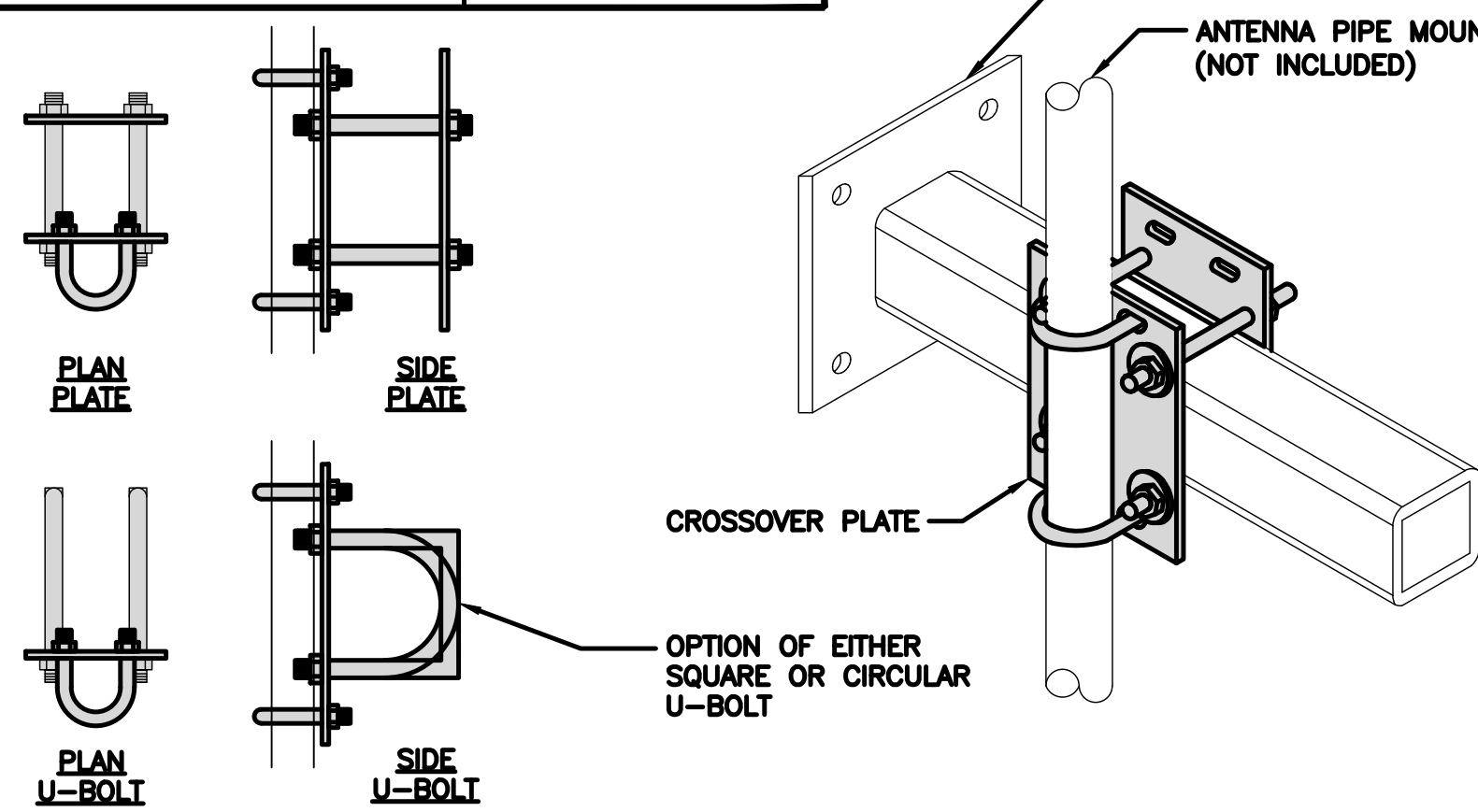
NOTE:  
OR DISH WIRELESS L.L.C.  
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL

NO SCALE

7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 LBS



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

PLAN  
PLATE

SIDE  
PLATE

PLAN  
U-BOLT

SIDE  
U-BOLT

CROSSOVER PLATE

OPTION OF EITHER  
SQUARE OR CIRCULAR  
U-BOLT

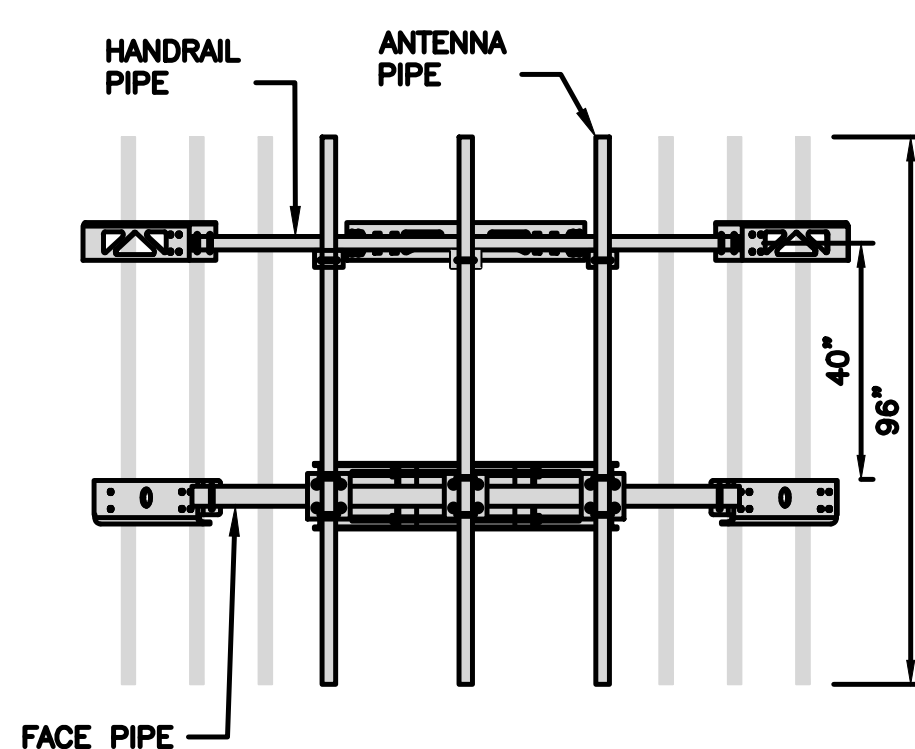
ANTENNA PLATFORM  
(NOT INCLUDED)

ANTENNA PIPE MOUNT  
(NOT INCLUDED)

COMMSCOPE  
MC-PK8-DSH

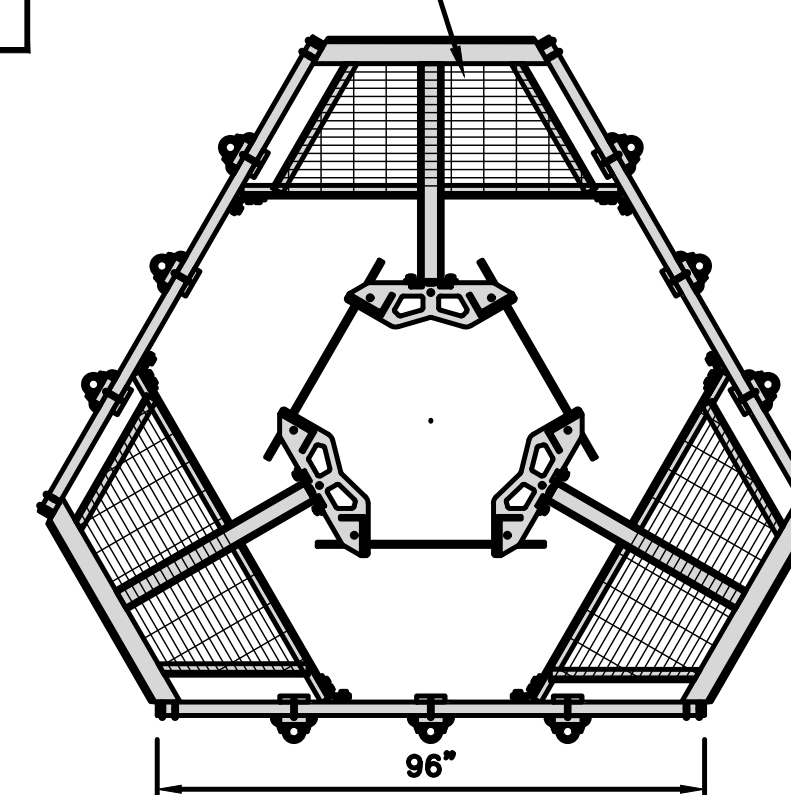
FACE WIDTH	96"
WEIGHT	1373.08 lbs

NOTE: 15" TO 38" O.D.



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

PLATFORM



ANTENNA PLATFORM DETAIL

NO SCALE

9

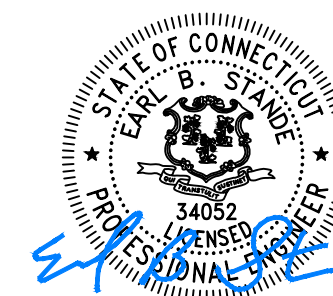


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DRAWN BY: CHECKED BY: APPROVED BY:

WBP TJM KRK

RFDS REV #: 1

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DOCUMENTS

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A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION

NJJer01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

A-6



**ROW NOTE**

NO WORK WITHIN THIS PERMIT APPLICATION SHALL BE PERFORMED WITHIN THE PUBLIC ROW. UTILITY WORK WITHIN THE PUBLIC ROW SHALL BE THE RESPONSIBILITY OF THE UTILITY PROVIDER AND REQUIRES A SEPARATE PERMIT.

**NOTES**

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 AND SAID VARIANCE IS NOT NOTED ON CDs, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.

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

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314. PROVIDE 1 PULL BOX EVERY 150' TO 200' MAX.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG.

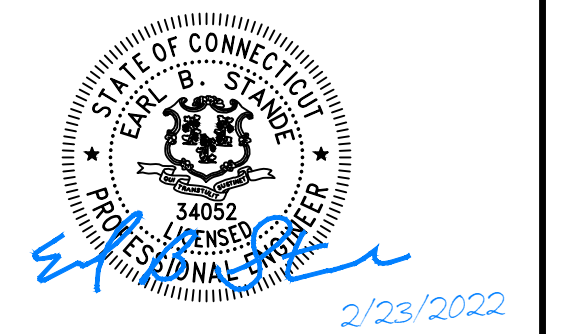


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DRAWN BY: WBP CHECKED BY: TJM APPROVED BY: KRK

RFDS REV #: 1

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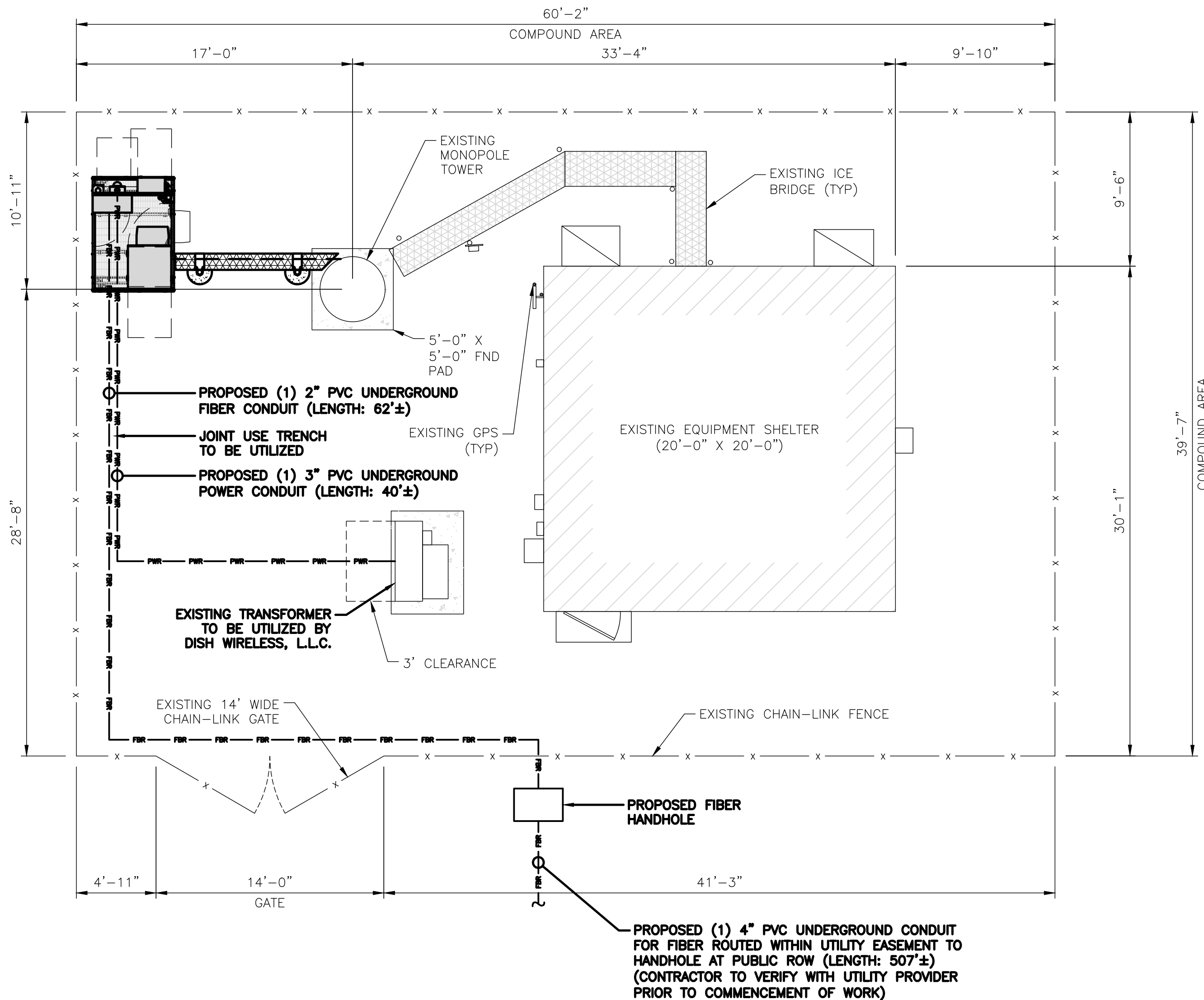
A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

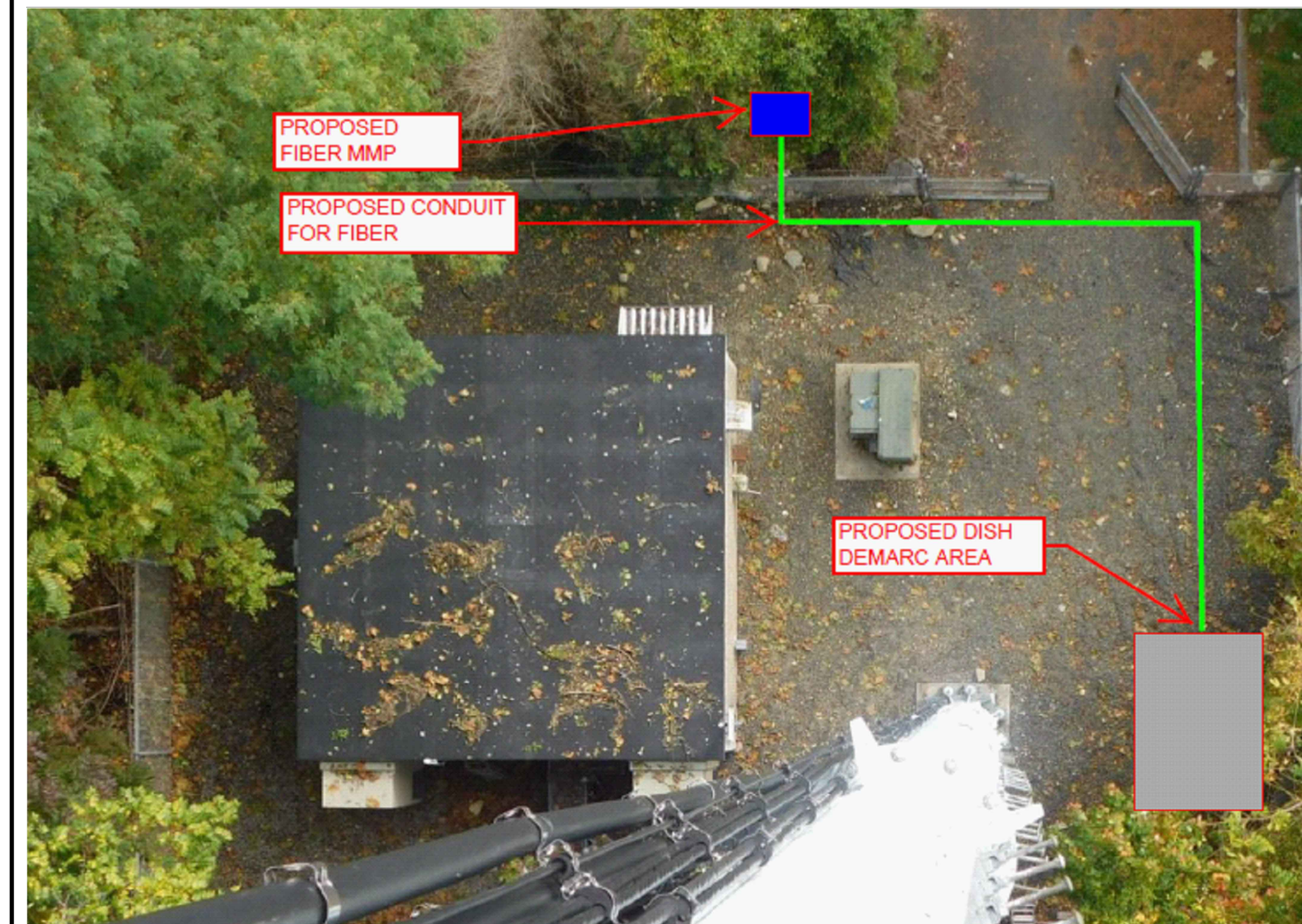
**E-1**



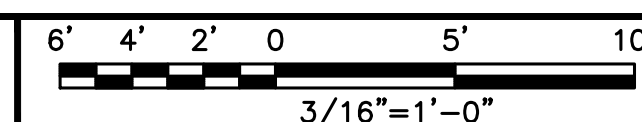
**ELECTRICAL NOTES**

NO SCALE

2



**UTILITY ROUTE PLAN**



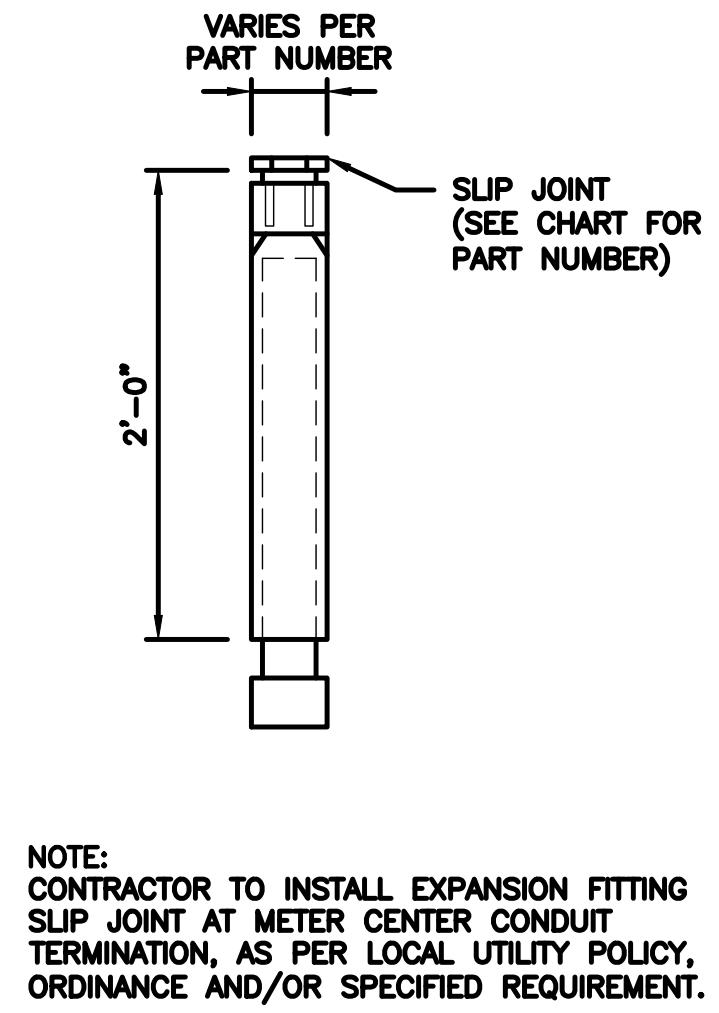
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ESA

NO SCALE

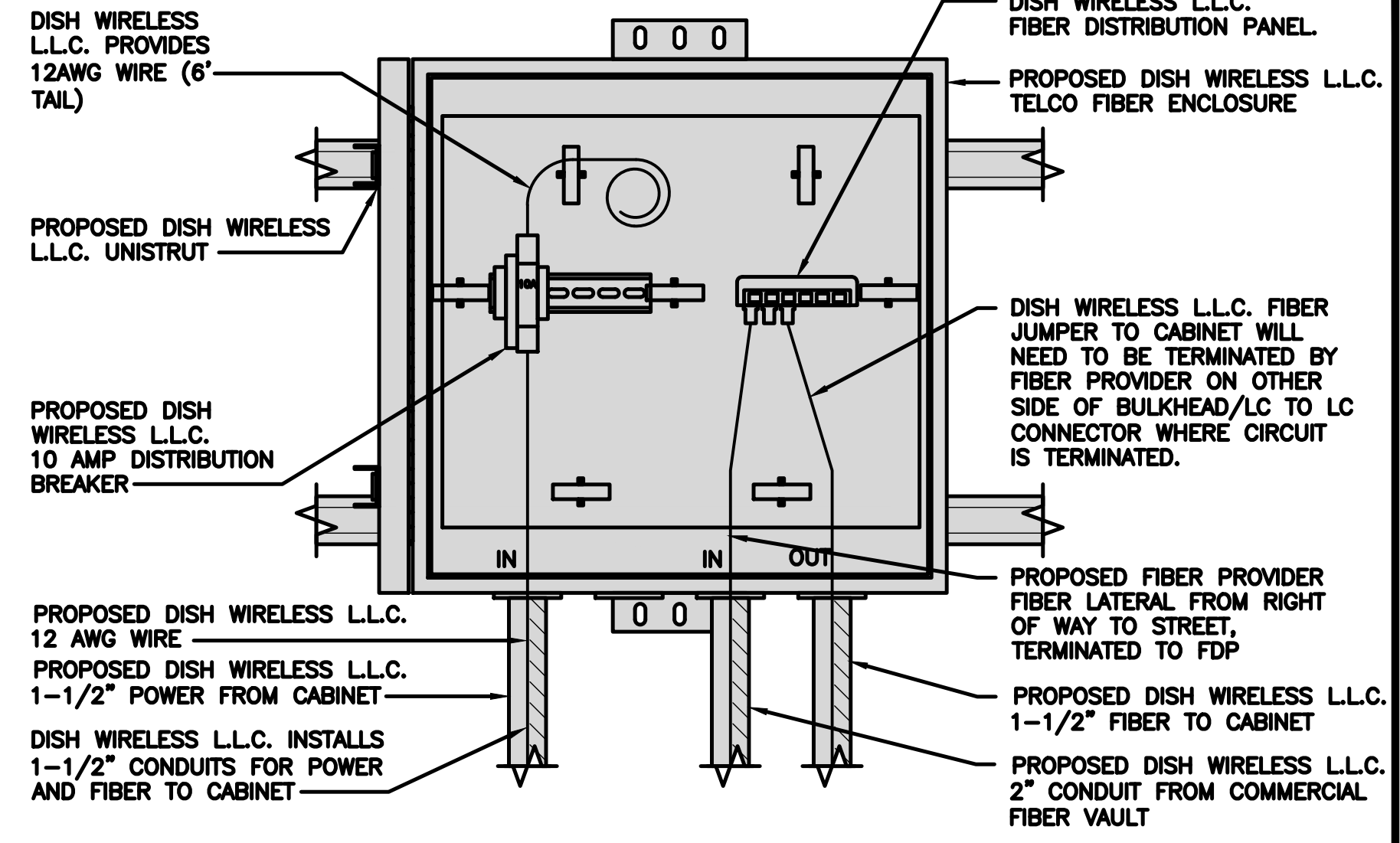
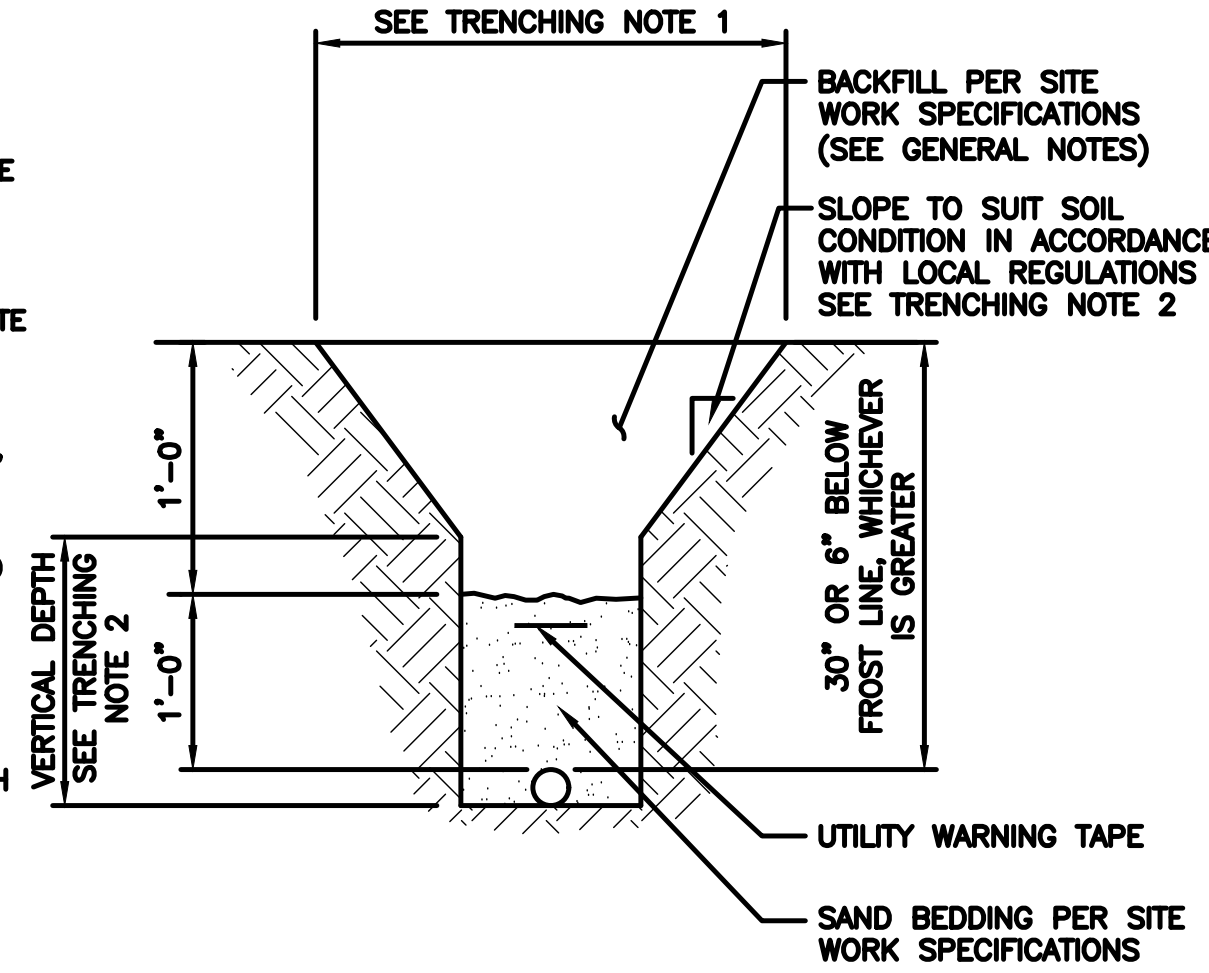
3

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"



**TRENCHING NOTES**

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



EXPANSION JOINT DETAIL

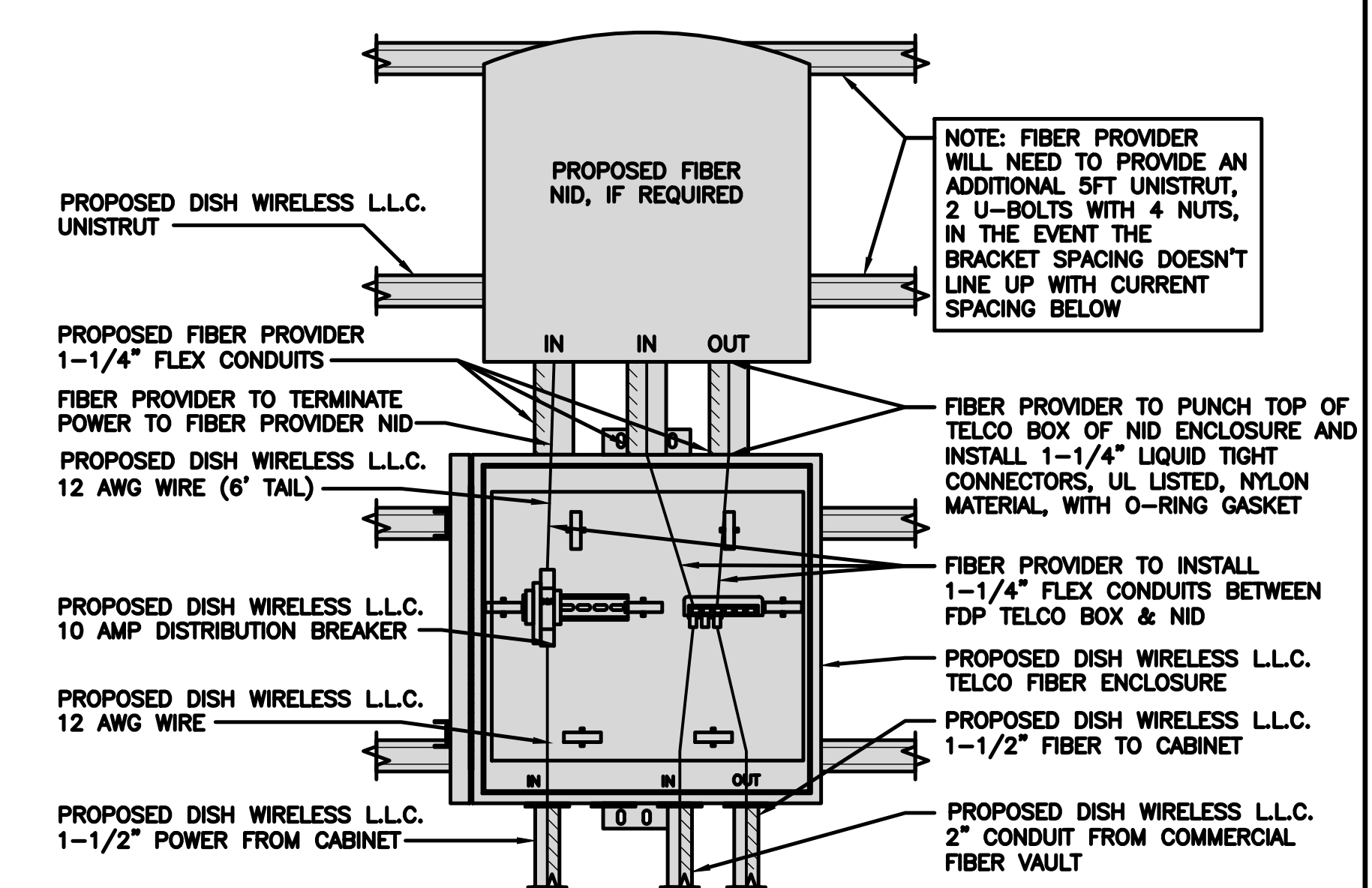
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)

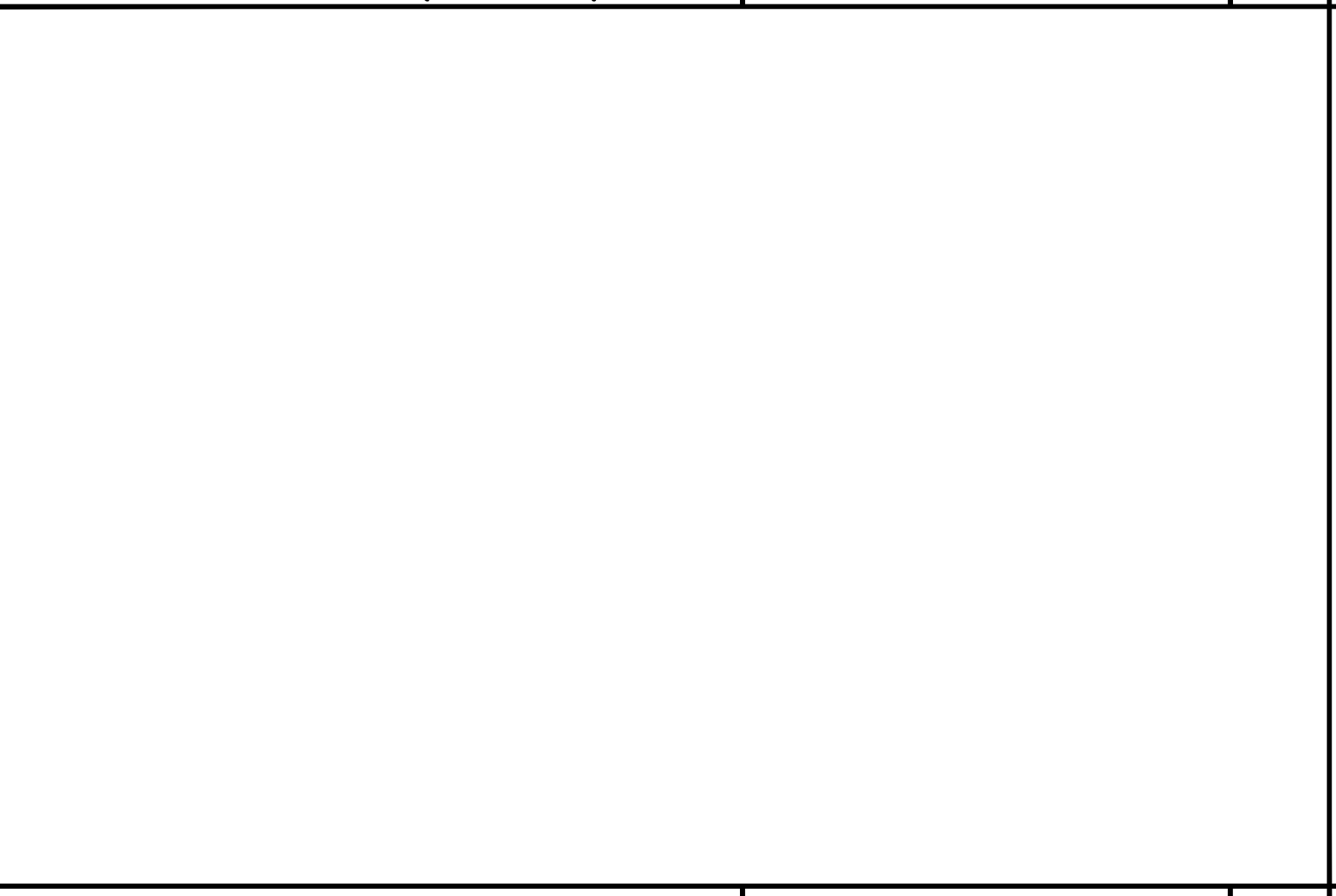
NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6



NOT USED

NO SCALE 7



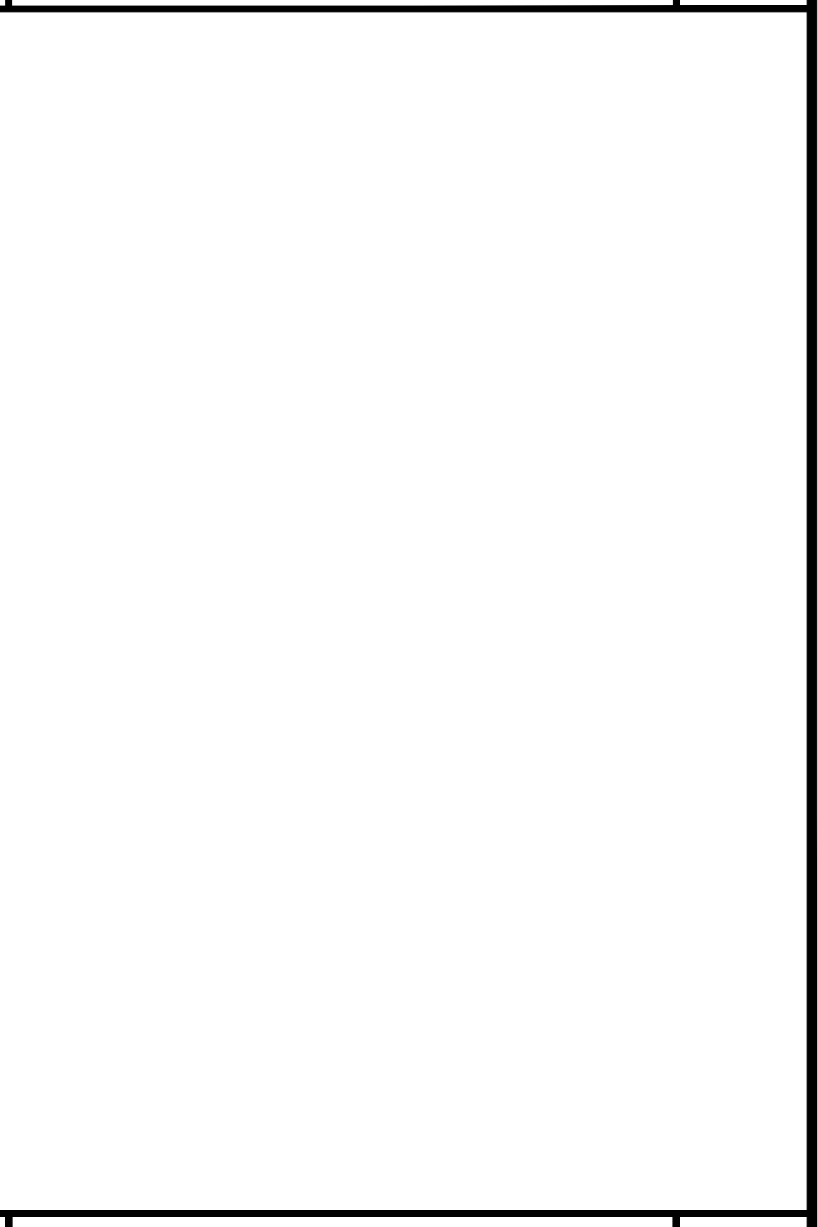
NOT USED



NO SCALE 8



NOT USED



NO SCALE 9

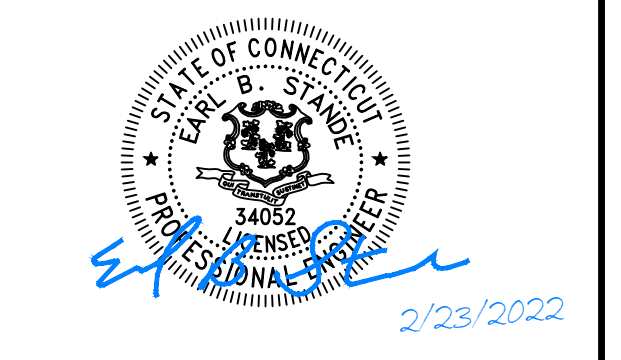


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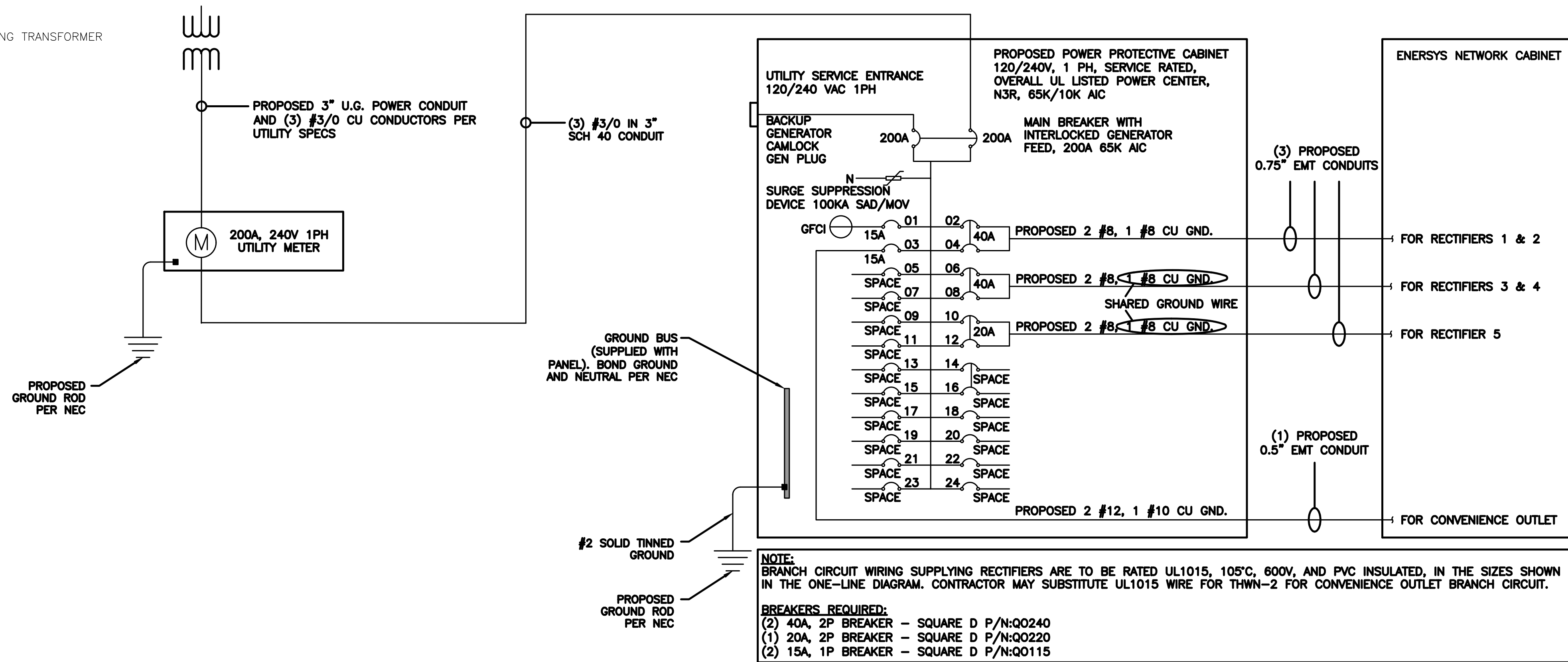
A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER  
**E-2**

EXISTING TRANSFORMER



PPC ONE-LINE DIAGRAM

NO SCALE

1

PROPOSED PPC PANEL SCHEDULE FOR ENERSYS CABINET										
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET			15A	3	B	4	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				5	A	6	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				7	B	8	20A	1920	1920	-SPACE-
-SPACE-				9	A	10				-SPACE-
-SPACE-				11	B	12				-SPACE-
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
<b>VOLTAGE AMPS</b>	<b>180</b>	<b>180</b>						<b>9600</b>	<b>9600</b>	
<b>200A MCB, 1φ, 24 SPACE, 120/240V</b>				L1	L2			<b>9775</b>	<b>9775</b>	<b>VOLTAGE AMPS</b>
<b>MB RATING: 65,000 AIC</b>				<b>82</b>	<b>82</b>			<b>82</b>	<b>82</b>	<b>AMPS</b>
				<b>82</b>	<b>82</b>			<b>82</b>	<b>82</b>	<b>MAX AMPS</b>
				<b>102</b>	<b>102</b>			<b>102</b>	<b>102</b>	<b>MAX 125%</b>

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3

NOTES

ELECTRICAL CONTRACTOR TO CALCULATE MAXIMUM AVAILABLE FAULT CURRENT AND LABEL PANEL IN ACCORDANCE WITH NEC AS REQUIRED BY JURISDICTION.

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

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

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.  
#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN  
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND  
TOTAL = 0.0633 SQ. IN

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

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.  
#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN  
#8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND  
TOTAL = 0.1234 SQ. IN

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

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.  
3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN  
TOTAL = 0.8037 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, AS INDICATED ABOVE.



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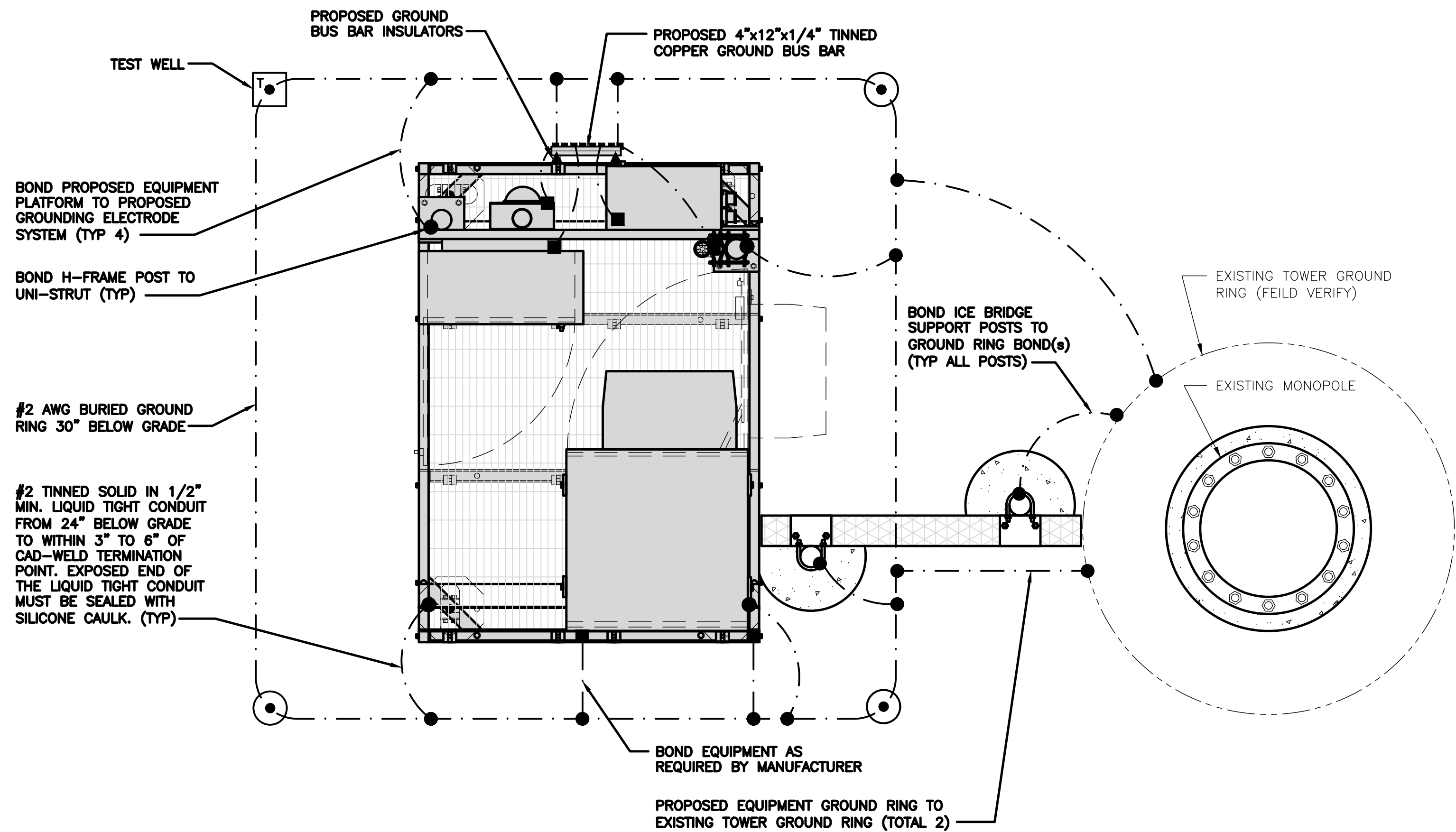
A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
ELECTRICAL ONE-LINE  
& PANEL SCHEDULE

SHEET NUMBER

E-3



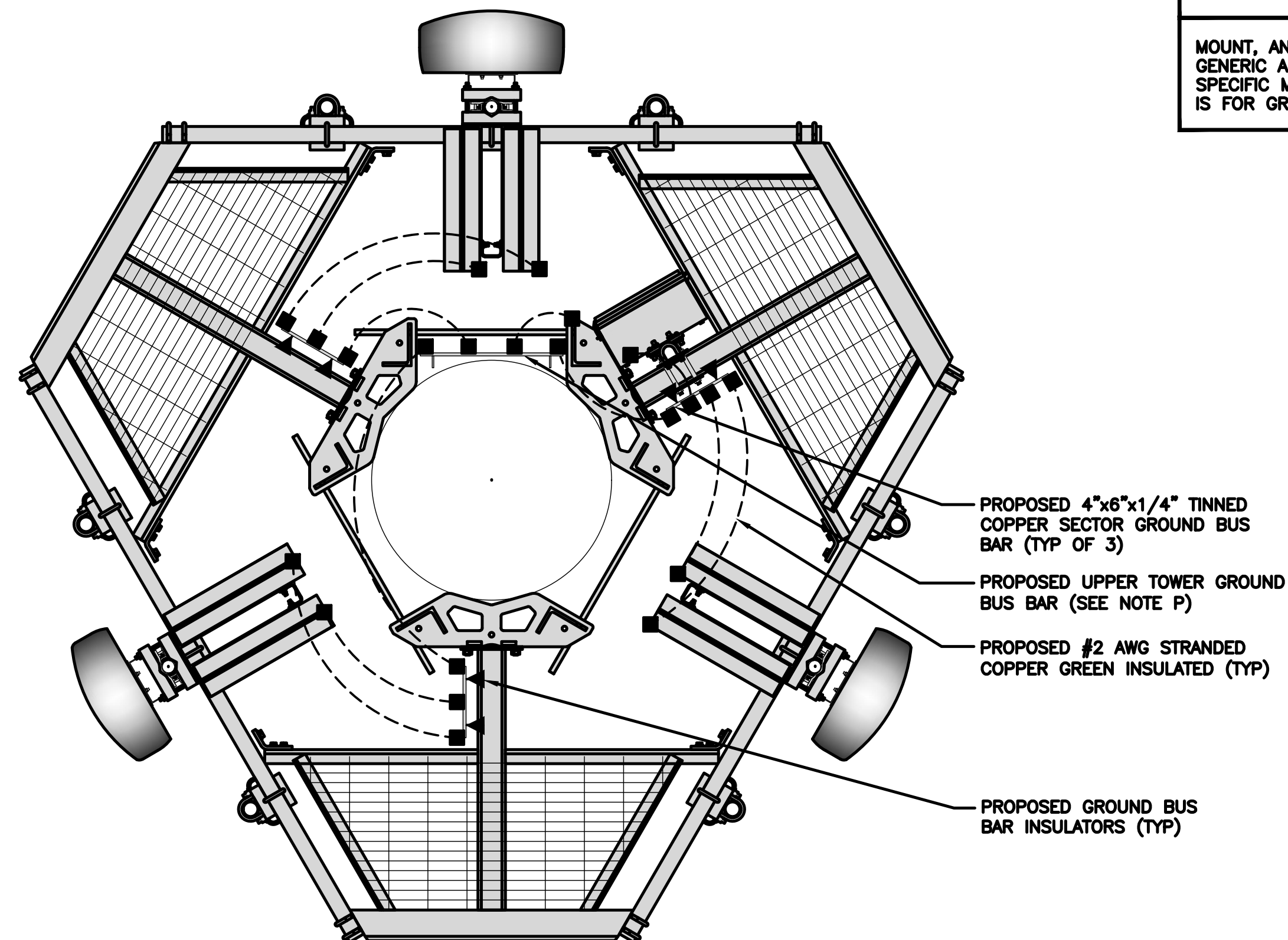
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

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

GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- 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.
- 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.
- 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.
- 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.
- GROUND ROD:** UL LISTED COPPER CLAD STEEL, MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- 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.
- 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.
- 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.
- TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- 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.
- 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.
- 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
- 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.
- 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**
- TOWER TOP COLLECTOR BUS 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

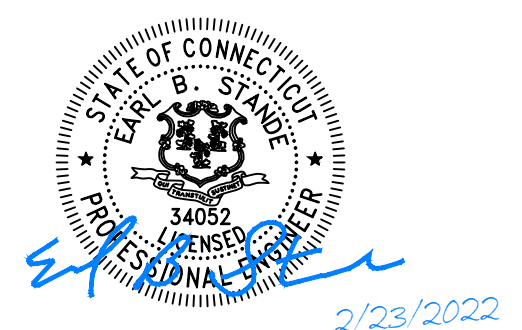


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A&E PROJECT NUMBER

EUCC0309

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PROJECT INFORMATION

NJJer01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

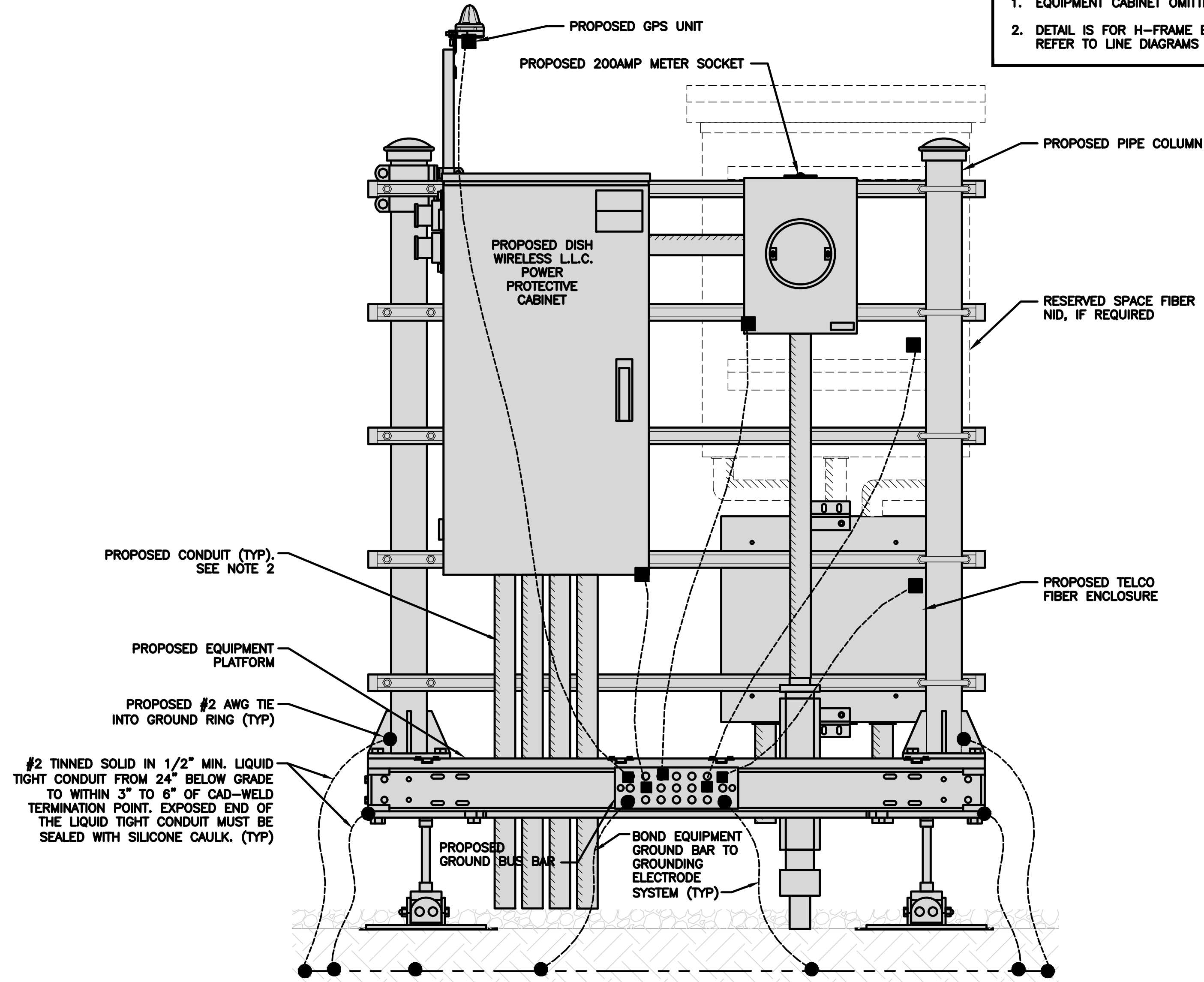
SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

G-1

**NOTES**

- EQUIPMENT CABINET OMITTED FOR CLARITY
- DETAIL IS FOR H-FRAME EQUIPMENT GROUNDING PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.



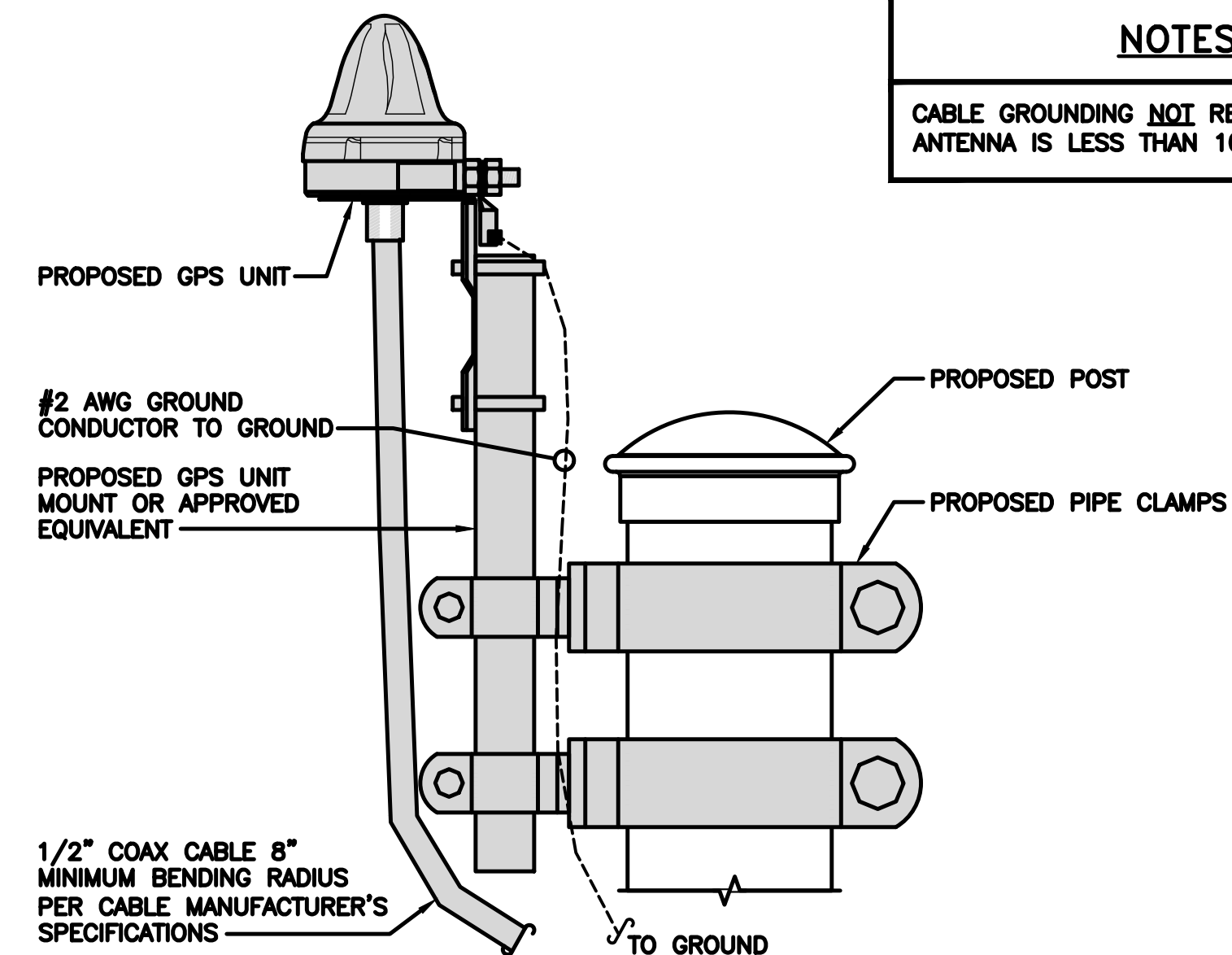
**H-FRAME GROUNDING DETAIL**

NO SCALE

1

**NOTES**

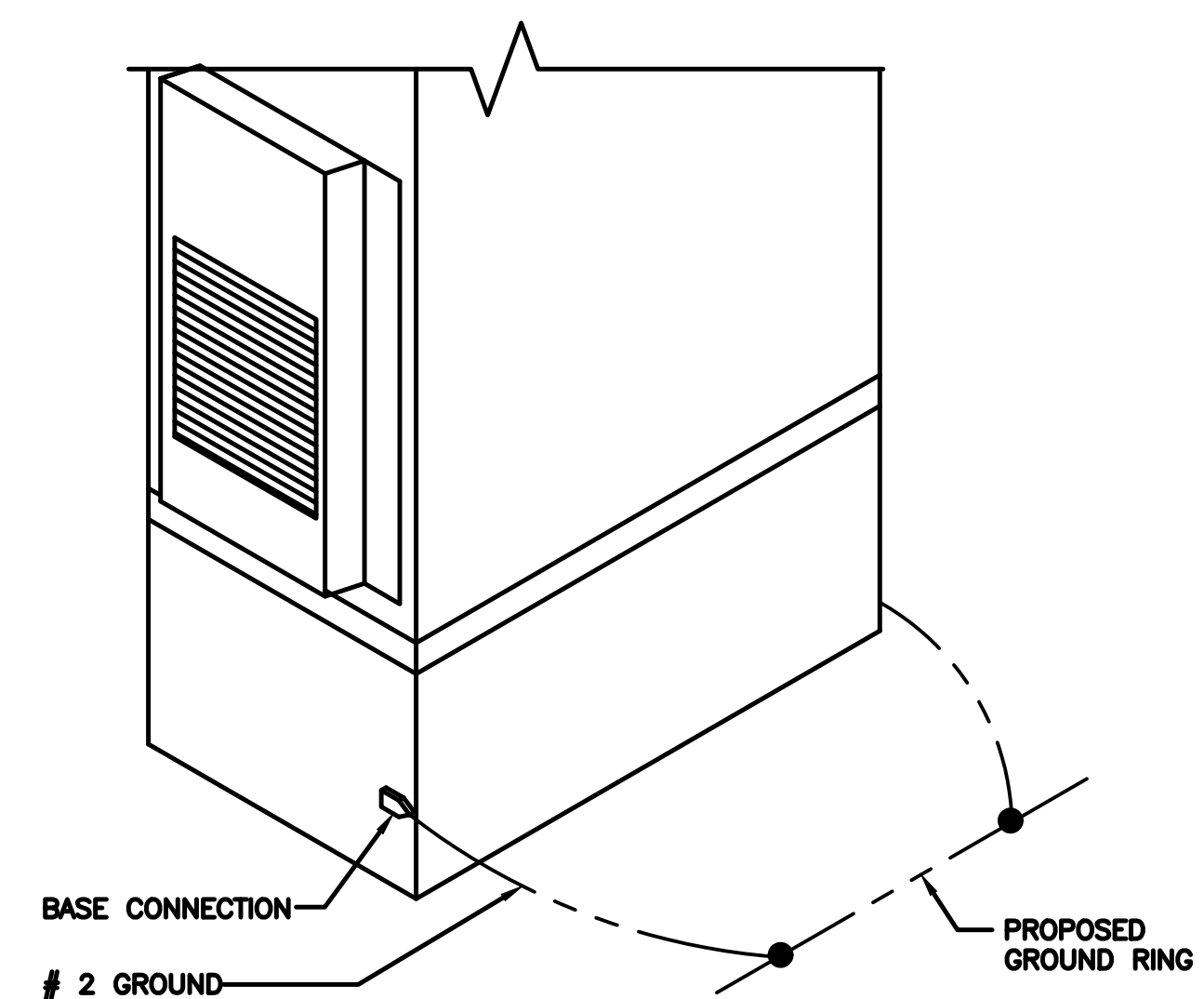
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



**TYPICAL GPS UNIT GROUNDING**

NO SCALE

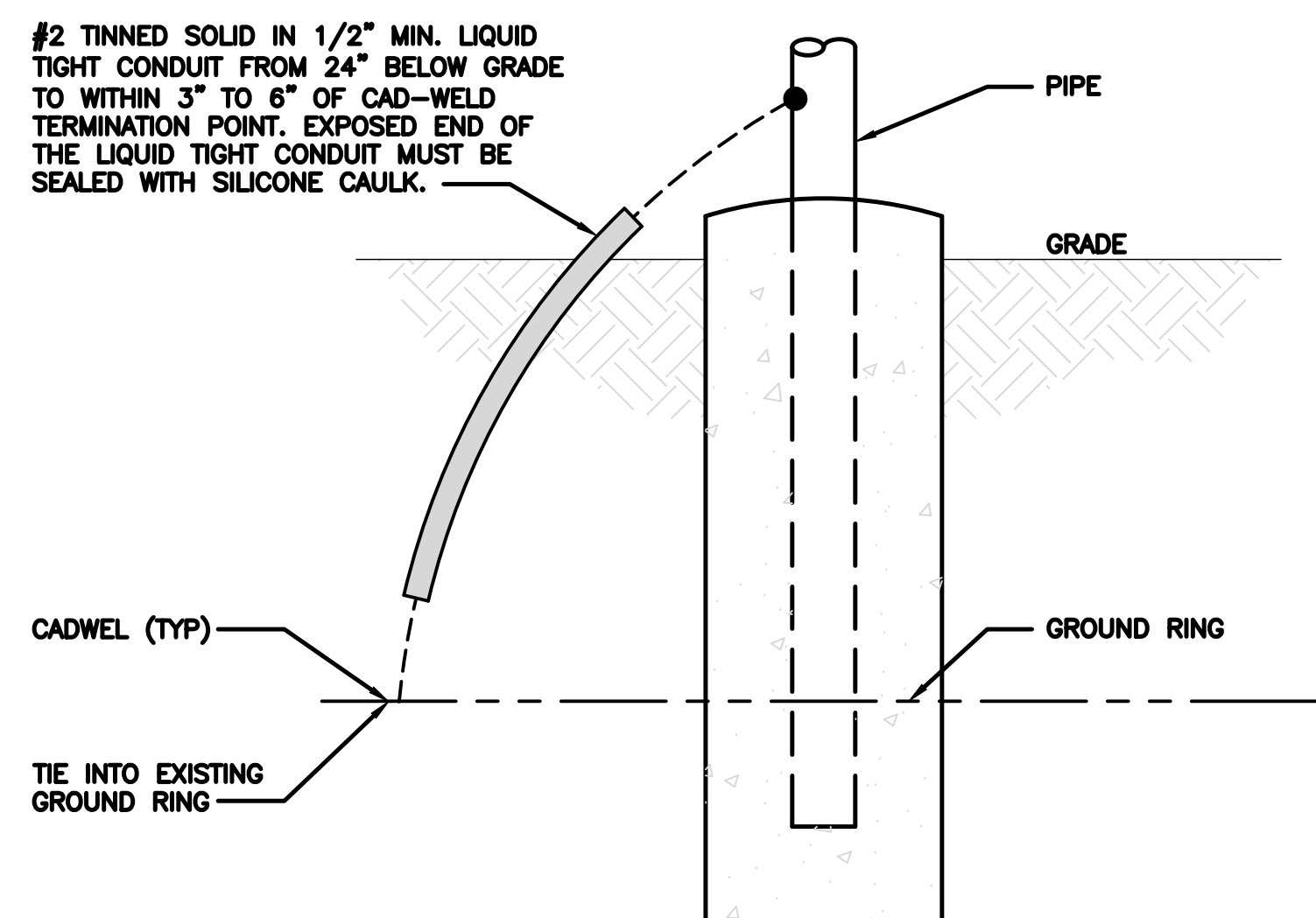
2



**OUTDOOR CABINET GROUNDING**

NO SCALE

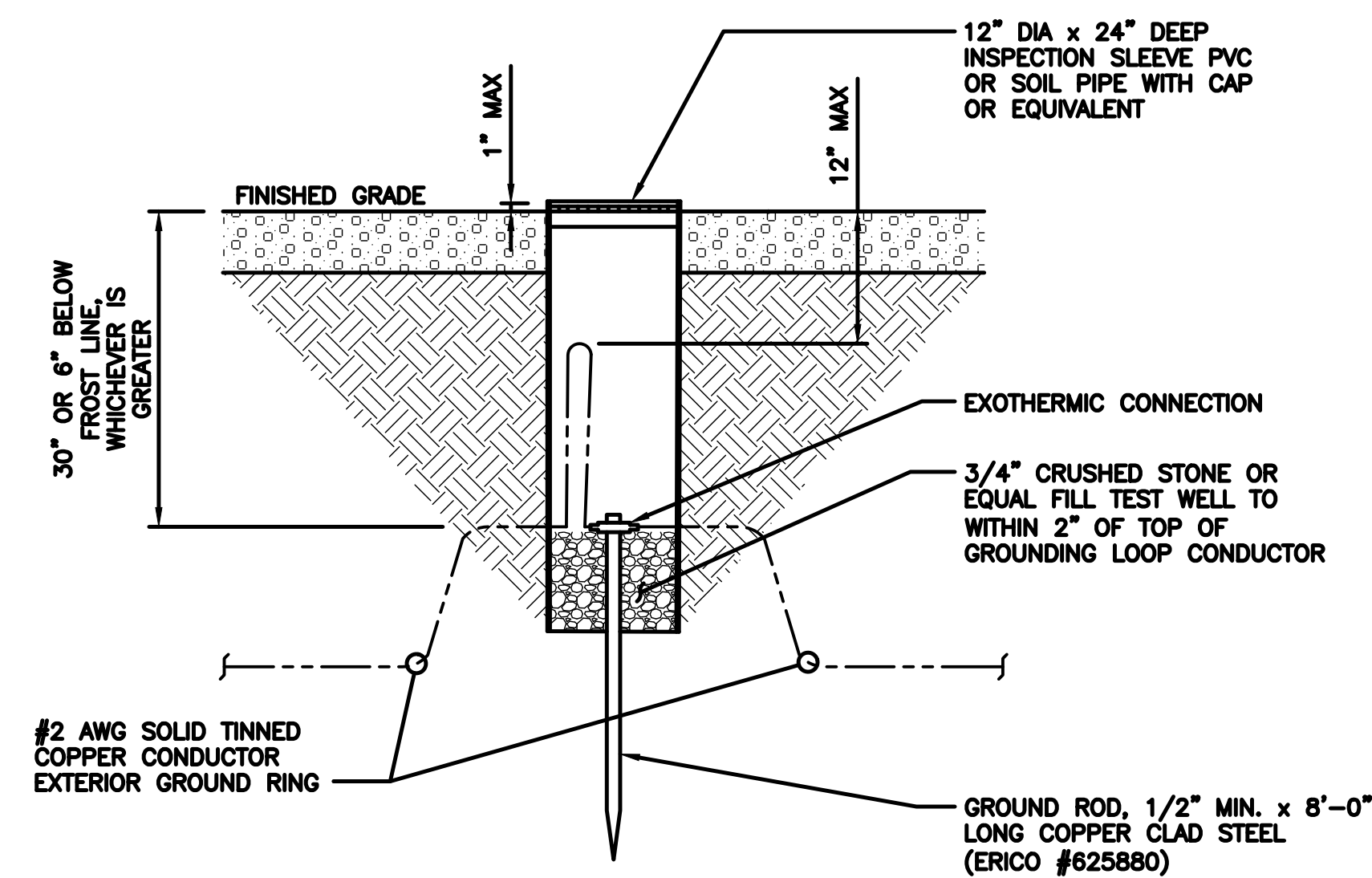
3



**TRANSITIONING GROUND DETAIL**

NO SCALE

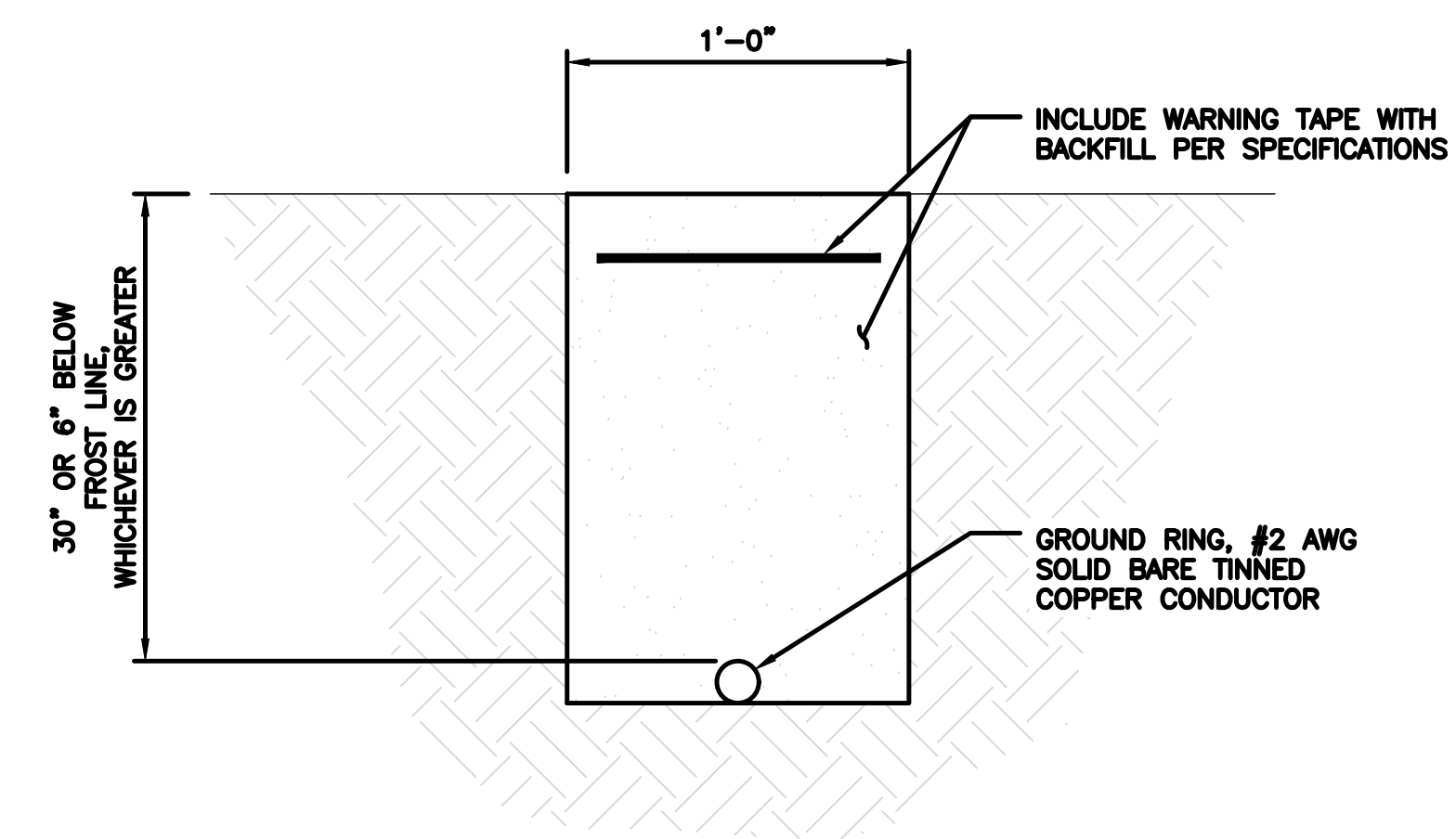
4



**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE**

NO SCALE

5



**TYPICAL GROUND RING TRENCH**

NO SCALE

6

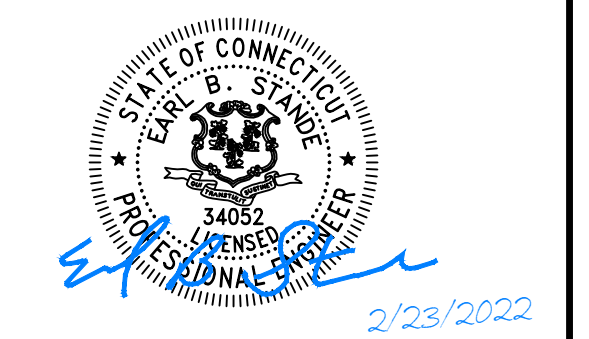
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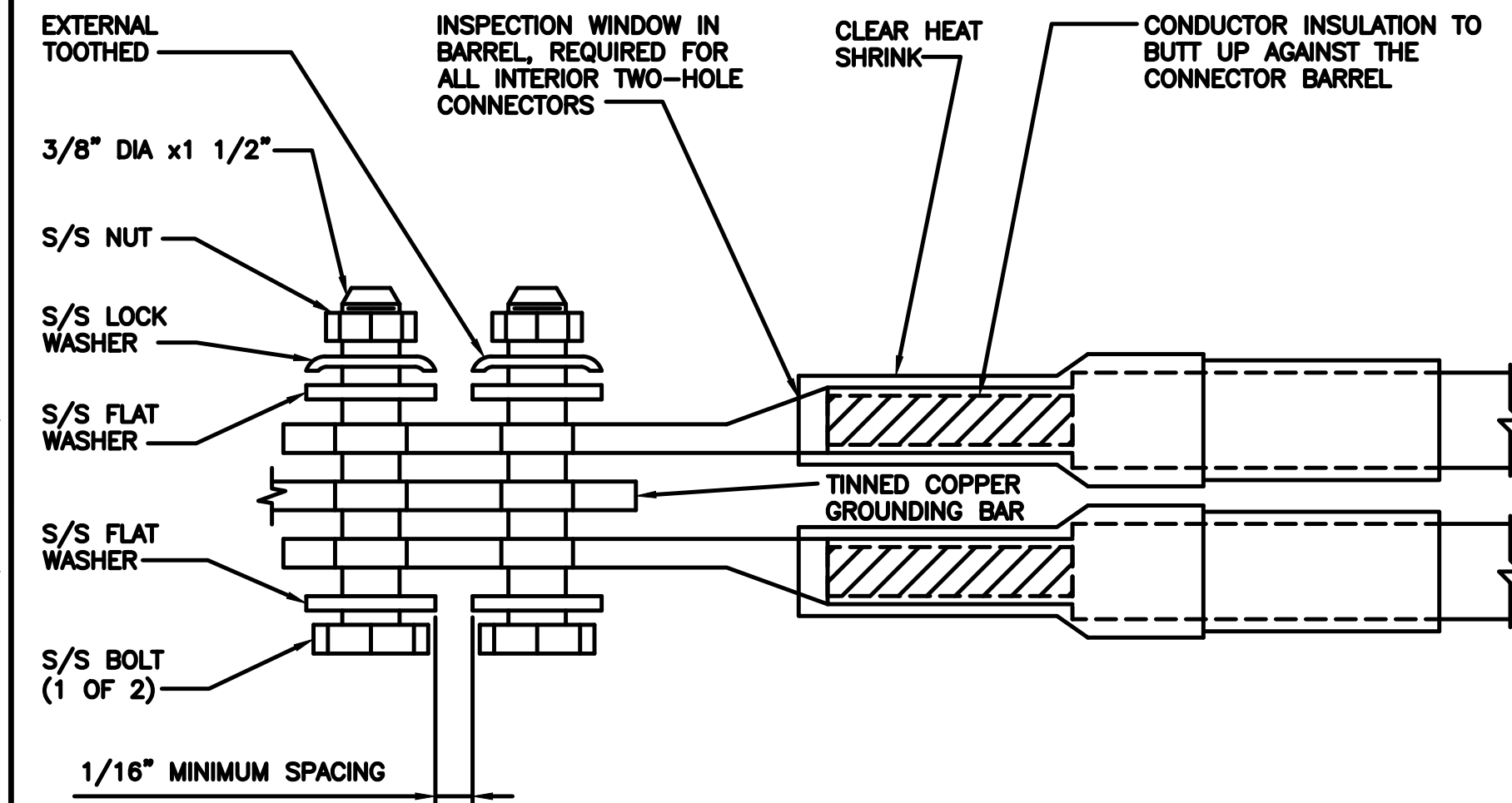
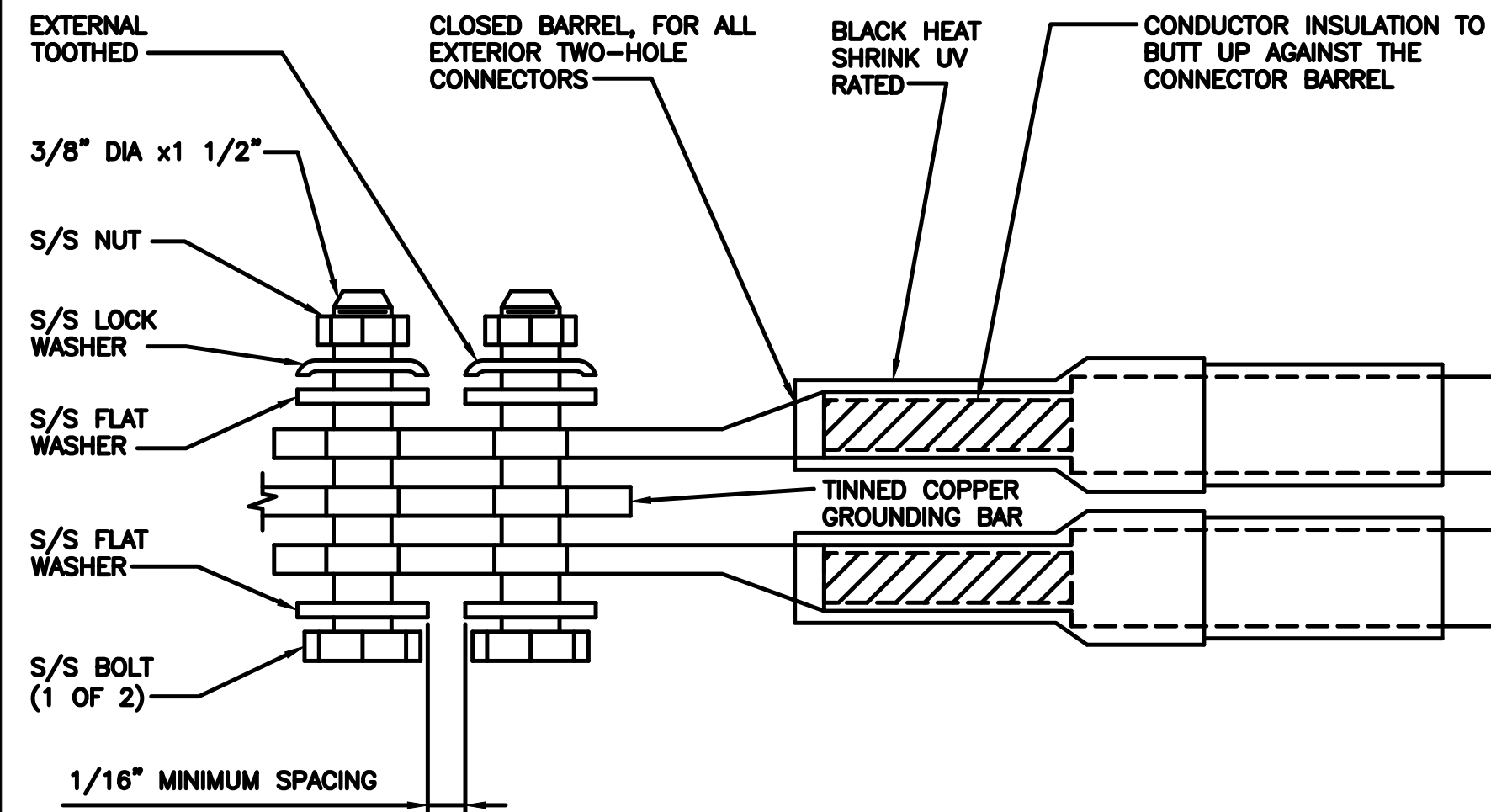
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NORWALK, CT 06850

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

**G-2**

- 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.
- 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.
- FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
- ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
- 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

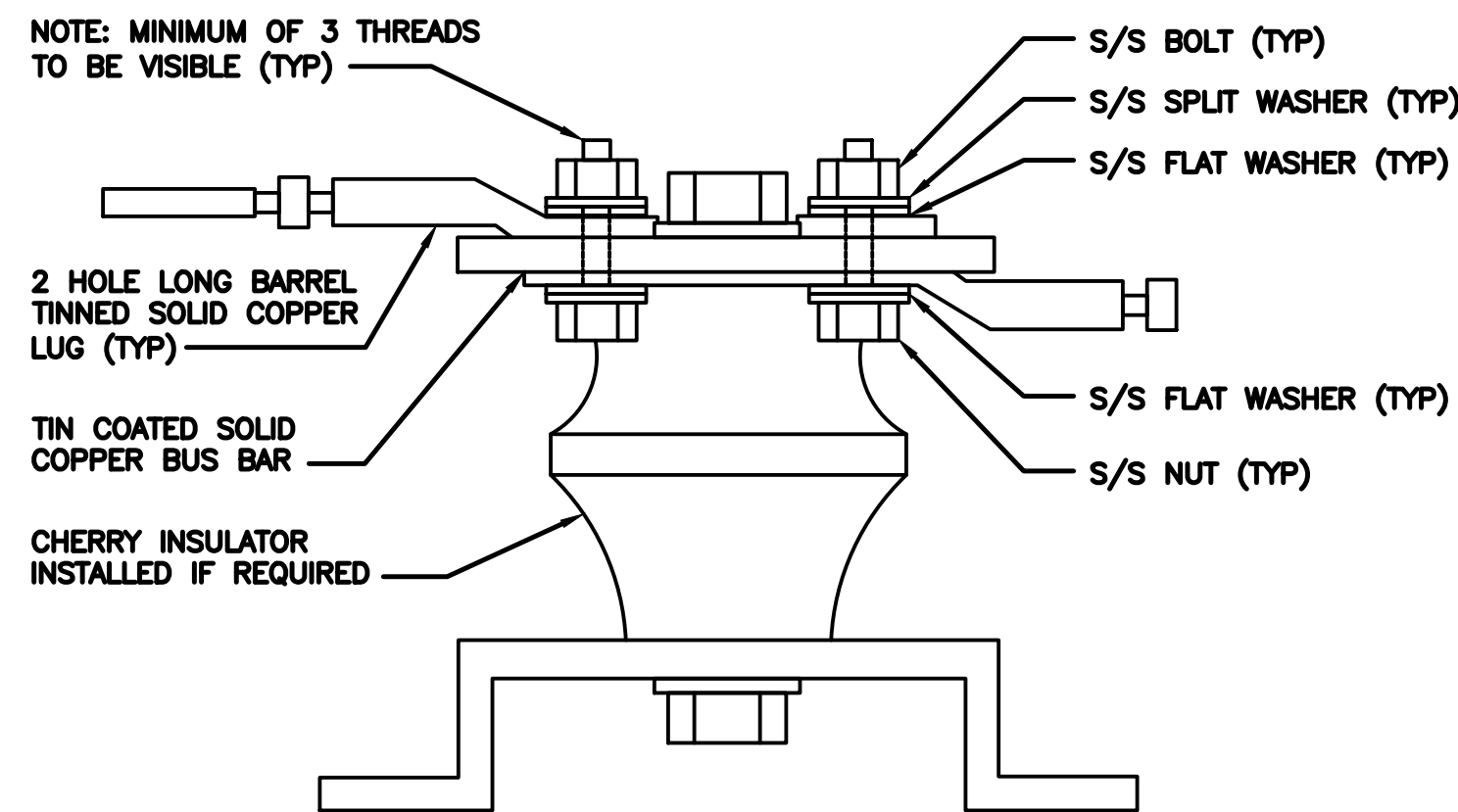
NO SCALE

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

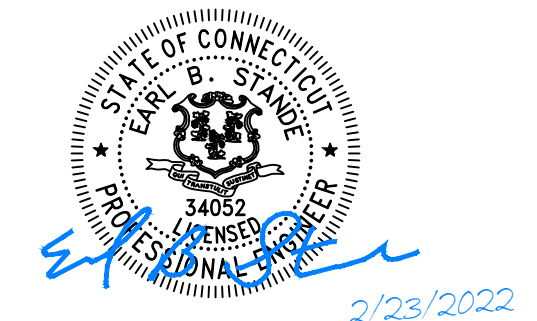
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NORWALK, CT 06850

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)

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

MID-BAND RRH - (AWS BANDS N66+N70)

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

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

**HYBRID/DISCREET CABLES**

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS

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

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

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

**FIBER JUMPERS TO RRHs**

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

**POWER CABLES TO RRHs**

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

**RET MOTORS AT ANTENNAS**

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

**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

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

**RF CABLE COLOR CODES**

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)  
OPTIONAL - (N29)

ORANGE

AWS  
(N66+N70+H-BLOCK)

PURPLE

CBRS TECH  
(3 GHz)

YELLOW

NEGATIVE SLANT PORT  
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

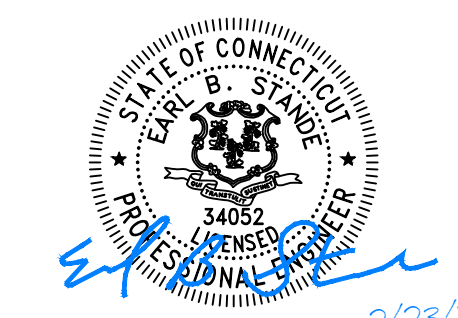


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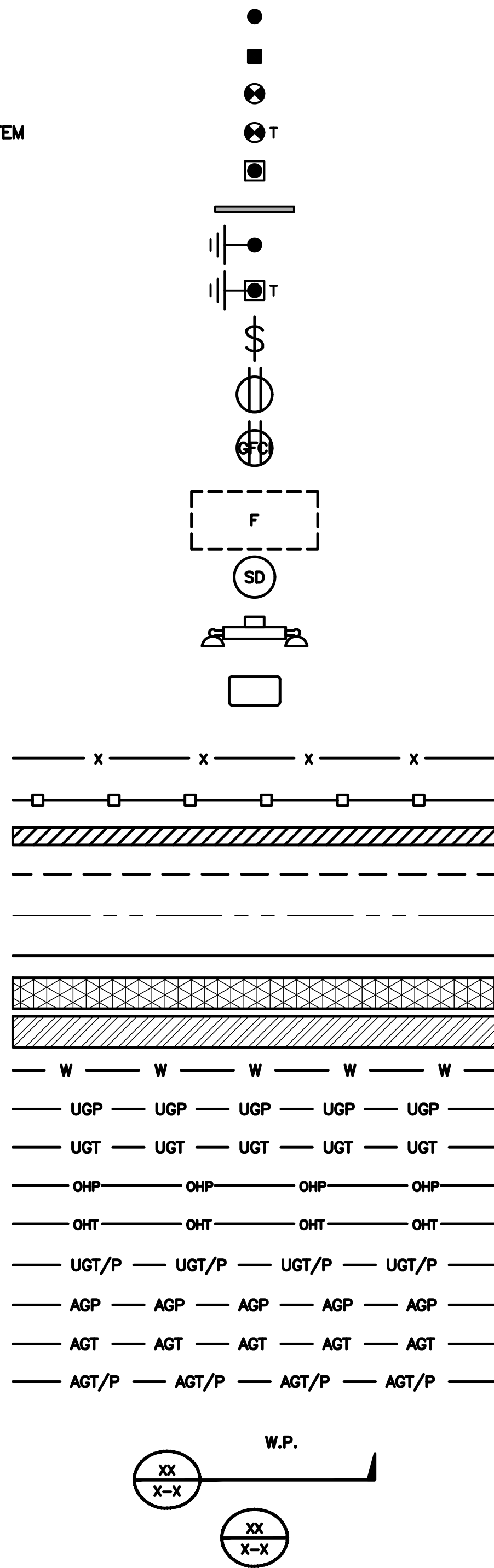
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PROJECT INFORMATION  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
RF  
CABLE COLOR CODES

SHEET NUMBER  
**RF-1**

EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 EXOTHERMIC WITH INSPECTION SLEEVE  
 GROUNDING BAR  
 GROUND ROD  
 TEST GROUND ROD WITH INSPECTION SLEEVE  
 SINGLE POLE SWITCH  
 DUPLEX RECEPTACLE  
 DUPLEX GFCI RECEPTACLE  
 FLUORESCENT LIGHTING FIXTURE  
 (2) TWO LAMPS 48-T8  
 SMOKE DETECTION (DC)  
 EMERGENCY LIGHTING (DC)  
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
 LED-1-25A400/51K-SR4-120-PE-DBBTXD  
 CHAIN LINK FENCE  
 WOOD/WROUGHT IRON FENCE  
 WALL STRUCTURE  
 LEASE AREA  
 PROPERTY LINE (PL)  
 SETBACKS  
 ICE BRIDGE  
 CABLE TRAY  
 WATER LINE  
 UNDERGROUND POWER  
 UNDERGROUND TELCO  
 OVERHEAD POWER  
 OVERHEAD TELCO  
 UNDERGROUND TELCO/POWER  
 ABOVE GROUND POWER  
 ABOVE GROUND TELCO  
 ABOVE GROUND TELCO/POWER  
 WORKPOINT  
 SECTION REFERENCE  
 DETAIL REFERENCE



**LEGEND**

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

**ABBREVIATIONS**



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NORWALK, CT 06850

SHEET TITLE  
LEGEND AND ABBREVIATIONS

SHEET NUMBER  
**GN-1**



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

**SIGN PLACEMENT:**

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

**NOTES:**

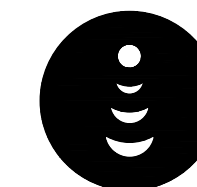
1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE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

# INFORMATION

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

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

Site ID: NJJER01132C



THIS SIGN IS FOR REFERENCE PURPOSES ONLY



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



Challenging today.  
Reinventing tomorrow.

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DRAWN BY: CHECKED BY: APPROVED BY:

WBP TJM KRK

RFDS REV #: 1

## CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	01/28/2022	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION

NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
RF SIGNAGE

SHEET NUMBER  
**GN-2**

# NOTICE



Transmitting Antenna(s)

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

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

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

Site ID: NJJER01132C



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# CAUTION



Transmitting Antenna(s)

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Site ID: NJJER01132C



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# WARNING



Transmitting Antenna(s)

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Site ID: NJJER01132C



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

**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.

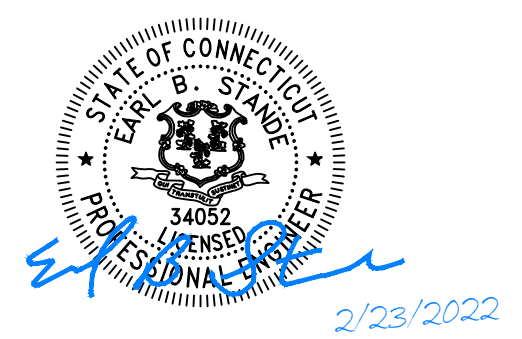


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DRAWN BY: CHECKED BY: APPROVED BY:

WBP	TJM	KRK
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RFDS REV #: 1

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
1	01/28/2022	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-3**

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

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

**ELECTRICAL INSTALLATION NOTES:**

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

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



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ACWORTH, GA 30102



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DRAWN BY: CHECKED BY: APPROVED BY:

WBP	TJM	KRK
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RFDS REV #: 1

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
1	01/28/2022	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION

NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-4**

**GROUNDING NOTES:**

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

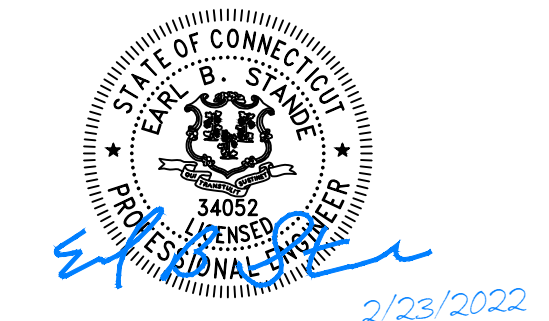


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DRAWN BY: WBP    CHECKED BY: TJM    APPROVED BY: KRK

RFDS REV #: 1

**CONSTRUCTION DOCUMENTS**

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A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
NJJER01132C  
600 CONNECTICUT AVE  
NORWALK, CT 06850

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-5**

# Exhibit D

## **Structural Analysis Report**

Date: **December 28, 2021**



Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317  
(724) 416-2000

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **DISH Network Co-Locate**  
**Site Number:** NJJER01132C

**Crown Castle Designation:** **BU Number:** 841287  
**Site Name:** NORWALK WEST- CT AVE  
**JDE Job Number:** 675280  
**Work Order Number:** 2059615  
**Order Number:** 576724 Rev. 1

**Engineering Firm Designation:** **Crown Castle Project Number:** 2059615

**Site Data:** **600 Connecticut Ave, NORWALK, FAIRFIELD County, CT**  
**Latitude 41° 5' 49.45", Longitude -73° 26' 56.61"**  
**150 Foot - Monopole Tower**

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration

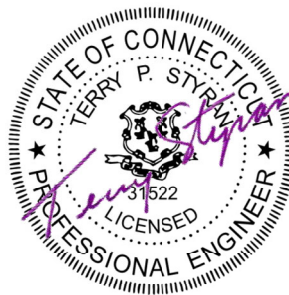
**Sufficient Capacity – 99.3%**

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

Structural analysis prepared by: Matthew Schmitt

Respectfully submitted by:

Terry P. Styran, P.E.  
Senior Project Engineer



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## 1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Valmont. The tower has been modified to accommodate additional loading.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	117 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
140.0	140.0	3	commscope	FFVV-65B-R2 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
152.0	154.0	3	ericsson	AIR 6449 N77 w/ Mount Pipe	6 1 6 5	1-5/8 7/8 3/4 3/8
	153.0	3	cci antennas	DMP65R-BU4E w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4449 B5/B12		
		3	quintel technology	QD6616-7 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8F		
		1	raycap	DC9-48-60-24-8C-EV		
	152.0	3	cci	C-Band Antenna E w/ Mount Pipe		
		3	commscope	MCG22HDX1412-H10		



### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
4-GEOTECHNICAL REPORTS	5344374	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4710140	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5968178	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5344563	CCISITES
4-POST-MODIFICATION INSPECTION	6044141	CCISITES

#### 3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the reinforcing elements. These calculations are presented in Appendix C.

#### 3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

### 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	150 - 145	Pole	TP15.254x14.5x0.25	Pole	17.3%	Pass
L2	145 - 140	Pole	TP16.008x15.254x0.25	Pole	27.4%	Pass
L3	140 - 139.58	Pole	TP16.071x16.008x0.25	Pole	28.5%	Pass
L4	139.58 - 139.33	Pole + Reinf.	TP16.109x16.071x0.55	Reinf. 5 Tension Rupture	21.5%	Pass
L5	139.33 - 134.33	Pole + Reinf.	TP16.863x16.109x0.525	Reinf. 5 Tension Rupture	31.6%	Pass
L6	134.33 - 129.33	Pole + Reinf.	TP17.617x16.863x0.5125	Reinf. 5 Tension Rupture	40.9%	Pass
L7	129.33 - 124.33	Pole + Reinf.	TP18.371x17.617x0.5	Reinf. 5 Tension Rupture	49.5%	Pass
L8	124.33 - 119.33	Pole + Reinf.	TP19.125x18.371x0.4875	Reinf. 5 Tension Rupture	57.4%	Pass
L9	119.33 - 114.33	Pole + Reinf.	TP19.88x19.125x0.475	Reinf. 5 Tension Rupture	64.8%	Pass
L10	114.33 - 110	Pole + Reinf.	TP20.533x19.88x0.4625	Reinf. 5 Tension Rupture	70.8%	Pass
L11	110 - 109.75	Pole + Reinf.	TP20.571x20.533x0.5625	Reinf. 4 Tension Rupture	59.5%	Pass
L12	109.75 - 104.75	Pole + Reinf.	TP21.325x20.571x0.55	Reinf. 4 Tension Rupture	65.3%	Pass
L13	104.75 - 99.75	Pole + Reinf.	TP22.079x21.325x0.5375	Reinf. 4 Tension Rupture	70.7%	Pass
L14	99.75 - 94.75	Pole + Reinf.	TP22.833x22.079x0.525	Reinf. 4 Tension Rupture	75.8%	Pass
L15	94.75 - 89.75	Pole + Reinf.	TP23.587x22.833x0.5125	Reinf. 4 Tension Rupture	80.6%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L16	89.75 - 84.75	Pole + Reinf.	TP24.341x23.587x0.5	Reinf. 4 Tension Rupture	85.2%	Pass
L17	84.75 - 81.5	Pole + Reinf.	TP24.832x24.341x0.5	Reinf. 4 Tension Rupture	88.0%	Pass
L18	81.5 - 81.25	Pole + Reinf.	TP24.869x24.832x0.5	Reinf. 3 Tension Rupture	88.2%	Pass
L19	81.25 - 76.25	Pole + Reinf.	TP25.624x24.869x0.4875	Reinf. 3 Tension Rupture	92.4%	Pass
L20	76.25 - 71.25	Pole + Reinf.	TP26.378x25.624x0.475	Reinf. 3 Tension Rupture	96.3%	Pass
L21	71.25 - 70	Pole + Reinf.	TP27.17x26.378x0.475	Reinf. 3 Tension Rupture	97.2%	Pass
L22	70 - 65	Pole + Reinf.	TP26.82x26.066x0.5375	Reinf. 3 Tension Rupture	91.8%	Pass
L23	65 - 60	Pole + Reinf.	TP27.574x26.82x0.5313	Reinf. 3 Tension Rupture	94.8%	Pass
L24	60 - 55	Pole + Reinf.	TP28.329x27.574x0.525	Reinf. 3 Tension Rupture	97.4%	Pass
L25	55 - 51.25	Pole + Reinf.	TP28.894x28.329x0.5188	Reinf. 3 Tension Rupture	99.3%	Pass
L26	51.25 - 51	Pole + Reinf.	TP28.932x28.894x0.6	Reinf. 2 Tension Rupture	84.2%	Pass
L27	51 - 46	Pole + Reinf.	TP29.686x28.932x0.6	Reinf. 2 Tension Rupture	86.4%	Pass
L28	46 - 41	Pole + Reinf.	TP30.44x29.686x0.5875	Reinf. 2 Tension Rupture	88.5%	Pass
L29	41 - 36	Pole + Reinf.	TP31.194x30.44x0.575	Reinf. 2 Tension Rupture	90.5%	Pass
L30	36 - 31	Pole + Reinf.	TP31.948x31.194x0.575	Reinf. 2 Tension Rupture	92.3%	Pass
L31	31 - 30	Pole + Reinf.	TP32.552x31.948x0.575	Reinf. 2 Tension Rupture	92.6%	Pass
L32	30 - 26.25	Pole + Reinf.	TP32.04x31.474x0.6375	Reinf. 2 Tension Rupture	87.4%	Pass
L33	26.25 - 26	Pole + Reinf.	TP32.078x32.04x0.6375	Reinf. 1 Tension Rupture	87.5%	Pass
L34	26 - 21	Pole + Reinf.	TP32.832x32.078x0.625	Reinf. 1 Tension Rupture	88.8%	Pass
L35	21 - 16	Pole + Reinf.	TP33.586x32.832x0.625	Reinf. 1 Tension Rupture	90.1%	Pass
L36	16 - 11	Pole + Reinf.	TP34.341x33.586x0.6125	Reinf. 1 Tension Rupture	91.2%	Pass
L37	11 - 6	Pole + Reinf.	TP35.095x34.341x0.6125	Reinf. 1 Tension Rupture	92.3%	Pass
L38	6 - 1	Pole + Reinf.	TP35.849x35.095x0.6	Reinf. 1 Tension Rupture	93.3%	Pass
L39	1 - 0	Pole + Reinf.	TP36x35.849x0.6	Reinf. 1 Tension Rupture	93.4%	Pass
					Summary	
				Pole	68.6%	Pass
				Reinforcement	99.3%	Pass
				Overall	99.3%	Pass

**Table 5 - Tower Component Stresses vs. Capacity - LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	110	78.0	Pass
1	Anchor Rods	0	73.3	Pass
1	Base Plate	0	63.7	Pass
1	Base Foundation (Structure)	0	63.0	Pass
1	Base Foundation (Soil Interaction)	0	59.8	Pass

<b>Structure Rating (max from all components) =</b>	<b>99.3%</b>
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Notes:

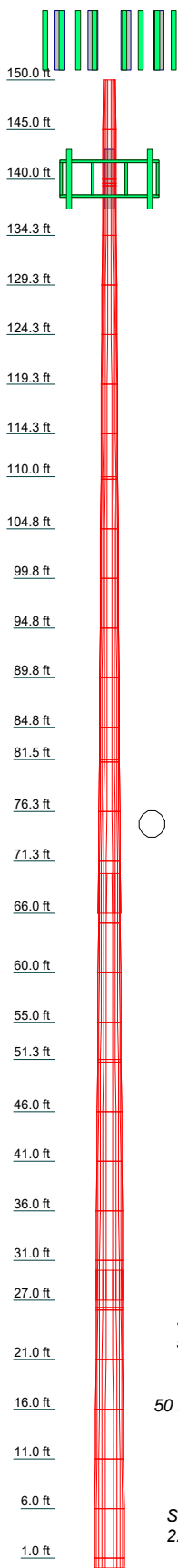
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

**4.1) Recommendations**

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

**APPENDIX A**  
**TNXTOWER OUTPUT**

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
2	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
3	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
4	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
5	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
6	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
7	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
8	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
9	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
10	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
11	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
12	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
13	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
14	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
15	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
16	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
17	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
18	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
19	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
20	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
21	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
22	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
23	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
24	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
25	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
26	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
27	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
28	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
29	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
30	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
31	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
32	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
33	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
34	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
35	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
36	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
37	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
38	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2
39	5.00	12	0.525	4.00	16.8630	16.8630	A572-65	0.2



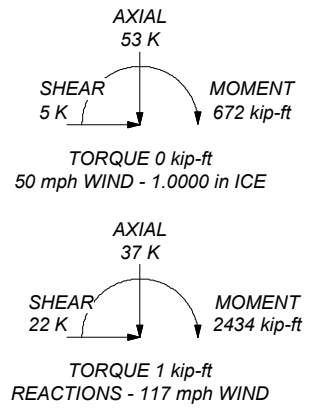
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.3%

ALL REACTIONS ARE FACTORED



**Crown Castle**  
 2000 Corporate Drive  
 Canonsburg, PA 15317  
 Phone: (724) 416-2000  
 FAX:

Job: <b>BU# 841287</b>			
Project:			
Client: Crown Castle	Drawn by: Matthew Schmitt	App'd:	
Code: TIA-222-H	Date: 12/30/21	Scale: NTS	
Path: C:\Work Area\841287\WO 2059615 - SAIProd\841287 R.eri		Dwg No. E-1	

## Tower Input Data

The tower is a monopole.  
 This tower is designed using the TIA-222-H standard.  
 The following design criteria apply:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Tower base elevation above sea level: 89.00 ft.
- 3) Basic wind speed of 117 mph.
- 4) Risk Category II.
- 5) Exposure Category B.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.00 ft.
- 9) Nominal ice thickness of 1.0000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .
- 20) Maximum demand-capacity ratio is: 1.05.
- 21) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption  <div style="text-align: center; background-color: #e0e0e0; padding: 2px;"><b>Poles</b></div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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## Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-145.00	5.00	0.00	12	14.5000	15.2541	0.2500	1.0000	A572-65 (65 ksi)
L2	145.00-140.00	5.00	0.00	12	15.2541	16.0083	0.2500	1.0000	A572-65 (65 ksi)
L3	140.00-139.58	0.42	0.00	12	16.0083	16.0712	0.2500	1.0000	A572-65 (65 ksi)
L4	139.58-139.33	0.25	0.00	12	16.0712	16.1089	0.5500	2.2000	A572-65 (65 ksi)
L5	139.33-134.33	5.00	0.00	12	16.1089	16.8630	0.5250	2.1000	A572-65 (65 ksi)
L6	134.33-129.33	5.00	0.00	12	16.8630	17.6172	0.5125	2.0500	A572-65 (65 ksi)
L7	129.33-124.33	5.00	0.00	12	17.6172	18.3713	0.5000	2.0000	A572-65 (65 ksi)
L8	124.33-119.33	5.00	0.00	12	18.3713	19.1254	0.4875	1.9500	A572-65 (65 ksi)
L9	119.33-114.33	5.00	0.00	12	19.1254	19.8796	0.4750	1.9000	A572-65 (65 ksi)
L10	114.33-110.00	4.33	0.00	12	19.8796	20.5331	0.4625	1.8500	A572-65 (65 ksi)
L11	110.00-109.75	0.25	0.00	12	20.5331	20.5708	0.5625	2.2500	A572-65 (65 ksi)
L12	109.75-104.75	5.00	0.00	12	20.5708	21.3249	0.5500	2.2000	A572-65 (65 ksi)
L13	104.75-99.75	5.00	0.00	12	21.3249	22.0791	0.5375	2.1500	A572-65 (65 ksi)
L14	99.75-94.75	5.00	0.00	12	22.0791	22.8332	0.5250	2.1000	A572-65 (65 ksi)
L15	94.75-89.75	5.00	0.00	12	22.8332	23.5874	0.5125	2.0500	A572-65 (65 ksi)
L16	89.75-84.75	5.00	0.00	12	23.5874	24.3415	0.5000	2.0000	A572-65 (65 ksi)
L17	84.75-81.50	3.25	0.00	12	24.3415	24.8317	0.5000	2.0000	A572-65 (65 ksi)
L18	81.50-81.25	0.25	0.00	12	24.8317	24.8694	0.5000	2.0000	A572-65 (65 ksi)
L19	81.25-76.25	5.00	0.00	12	24.8694	25.6235	0.4875	1.9500	A572-65 (65 ksi)
L20	76.25-71.25	5.00	0.00	12	25.6235	26.3777	0.4750	1.9000	A572-65 (65 ksi)
L21	71.25-66.00	5.25	4.00	12	26.3777	27.1695	0.4750	1.9000	A572-65 (65 ksi)
L22	66.00-65.00	5.00	0.00	12	26.0662	26.8203	0.5375	2.1500	A572-65 (65 ksi)
L23	65.00-60.00	5.00	0.00	12	26.8203	27.5745	0.5313	2.1250	A572-65 (65 ksi)
L24	60.00-55.00	5.00	0.00	12	27.5745	28.3286	0.5250	2.1000	A572-65 (65 ksi)
L25	55.00-51.25	3.75	0.00	12	28.3286	28.8942	0.5188	2.0750	A572-65 (65 ksi)
L26	51.25-51.00	0.25	0.00	12	28.8942	28.9319	0.6000	2.4000	A572-65 (65 ksi)
L27	51.00-46.00	5.00	0.00	12	28.9319	29.6861	0.6000	2.4000	A572-65 (65 ksi)
L28	46.00-41.00	5.00	0.00	12	29.6861	30.4402	0.5875	2.3500	A572-65 (65 ksi)
L29	41.00-36.00	5.00	0.00	12	30.4402	31.1943	0.5750	2.3000	A572-65 (65 ksi)
L30	36.00-31.00	5.00	0.00	12	31.1943	31.9485	0.5750	2.3000	A572-65 (65 ksi)
L31	31.00-27.00	4.00	3.00	12	31.9485	32.5518	0.5750	2.3000	A572-65 (65 ksi)
L32	27.00-26.25	3.75	0.00	12	31.4743	32.0400	0.6375	2.5500	A572-65 (65 ksi)
L33	26.25-26.00	0.25	0.00	12	32.0400	32.0777	0.6375	2.5500	A572-65 (65 ksi)
L34	26.00-21.00	5.00	0.00	12	32.0777	32.8320	0.6250	2.5000	A572-65 (65 ksi)
L35	21.00-16.00	5.00	0.00	12	32.8320	33.5863	0.6250	2.5000	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	16.00-11.00	5.00	0.00	12	33.5863	34.3406	0.6125	2.4500	(65 ksi) A572-65
L37	11.00-6.00	5.00	0.00	12	34.3406	35.0949	0.6125	2.4500	(65 ksi) A572-65
L38	6.00-1.00	5.00	0.00	12	35.0949	35.8491	0.6000	2.4000	(65 ksi) A572-65
L39	1.00-0.00	1.00		12	35.8491	36.0000	0.6000	2.4000	(65 ksi) A572-65

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	14.9233	11.4713	297.3216	5.1015	7.5110	39.5848	602.4541	5.6458	3.2160	12.864
	15.7041	12.0783	347.0683	5.3715	7.9016	43.9236	703.2545	5.9446	3.4181	13.672
L2	15.7041	12.0783	347.0683	5.3715	7.9016	43.9236	703.2545	5.9446	3.4181	13.672
	16.4848	12.6854	402.0757	5.6415	8.2923	48.4879	814.7144	6.2434	3.6202	14.481
L3	16.4848	12.6854	402.0757	5.6415	8.2923	48.4879	814.7144	6.2434	3.6202	14.481
	16.5499	12.7360	406.9093	5.6640	8.3249	48.8788	824.5086	6.2683	3.6371	14.548
L4	16.4441	27.4880	845.2358	5.5566	8.3249	101.5315	1712.6769	13.5288	2.8331	5.151
	16.4831	27.5548	851.4110	5.5701	8.3444	102.0338	1725.1895	13.5616	2.8432	5.169
L5	16.4919	26.3445	816.6344	5.5790	8.3444	97.8662	1654.7227	12.9660	2.9102	5.543
	17.2727	27.6194	941.0201	5.8490	8.7350	107.7293	1906.7619	13.5934	3.1123	5.928
L6	17.2771	26.9824	920.7250	5.8535	8.7350	105.4059	1865.6384	13.2799	3.1458	6.138
	18.0578	28.2270	1054.0918	6.1235	9.1257	115.5082	2135.8757	13.8924	3.3479	6.532
L7	18.0622	27.5586	1030.6385	6.1279	9.1257	112.8382	2088.3530	13.5635	3.3814	6.763
	18.8430	28.7728	1172.9499	6.3979	9.5163	123.2566	2376.7145	14.1611	3.5835	7.167
L8	18.8474	28.0731	1146.0275	6.4024	9.5163	120.4275	2322.1625	13.8167	3.6170	7.419
	19.6281	29.2569	1297.2069	6.6724	9.9070	130.9388	2628.4929	14.3993	3.8191	7.834
L9	19.6325	28.5258	1266.4900	6.6769	9.9070	127.8383	2566.2521	14.0395	3.8526	8.111
	20.4133	29.6793	1426.4189	6.9468	10.2976	138.5194	2890.3115	14.6072	4.0547	8.536
L10	20.4177	28.9169	1391.5674	6.9513	10.2976	135.1349	2819.6928	14.2320	4.0882	8.839
	21.0943	29.8901	1536.8611	7.1853	10.6361	144.4942	3114.0973	14.7110	4.2634	9.218
L11	21.0590	36.1717	1841.3557	7.1495	10.6361	173.1225	3731.0858	17.8026	3.9954	7.103
	21.0980	36.2400	1851.8055	7.1630	10.6557	173.7858	3752.2600	17.8362	4.0055	7.121
L12	21.1024	35.4568	1814.0500	7.1674	10.6557	170.2426	3675.7571	17.4508	4.0390	7.344
	21.8832	36.7924	2026.8613	7.4374	11.0463	183.4875	4106.9705	18.1081	4.2411	7.711
L13	21.8876	35.9779	1984.3739	7.4419	11.0463	179.6412	4020.8795	17.7072	4.2746	7.953
	22.6683	37.2831	2208.2740	7.7119	11.4370	193.0822	4474.5618	18.3496	4.4767	8.329
L14	22.6727	36.4372	2160.6757	7.7164	11.4370	188.9204	4378.1148	17.9333	4.5102	8.591
	23.4535	37.7120	2395.4971	7.9863	11.8276	202.5344	4853.9266	18.5607	4.7123	8.976
L15	23.4579	36.8348	2342.3946	7.9908	11.8276	198.0447	4746.3265	18.1289	4.7458	9.26
	24.2386	38.0793	2587.9296	8.2608	12.2182	211.8086	5243.8471	18.7415	4.9479	9.654
L16	24.2430	37.1706	2528.9148	8.2653	12.2182	206.9785	5124.2670	18.2943	4.9814	9.963
	25.0238	38.3848	2784.9151	8.5353	12.6089	220.8691	5642.9929	18.8918	5.1835	10.367
L17	25.0238	38.3848	2784.9151	8.5353	12.6089	220.8691	5642.9929	18.8918	5.1835	10.367
	25.5313	39.1740	2960.2470	8.7107	12.8628	230.1400	5998.2630	19.2803	5.3149	10.63
L18	25.5313	39.1740	2960.2470	8.7107	12.8628	230.1400	5998.2630	19.2803	5.3149	10.63
	25.5703	39.2347	2974.0309	8.7242	12.8823	230.8611	6026.1930	19.3101	5.3250	10.65
L19	25.5747	38.2735	2904.1445	8.7287	12.8823	225.4361	5884.5841	18.8370	5.3585	10.992
	26.3554	39.4573	3182.0425	8.9987	13.2730	239.7383	6447.6809	19.4197	5.5606	11.406
L20	26.3599	38.4647	3105.0795	9.0032	13.2730	233.9398	6291.7329	18.9311	5.5941	11.777
	27.1406	39.6181	3392.8790	9.2732	13.6636	248.3147	6874.8928	19.4988	5.7962	12.203
L21	27.1406	39.6181	3392.8790	9.2732	13.6636	248.3147	6874.8928	19.4988	5.7962	12.203
	27.9604	40.8292	3713.6486	9.5566	14.0738	263.8696	7524.8588	20.0949	6.0084	12.649
L22	27.4207	44.1838	3675.4112	9.1393	13.5023	272.2066	7447.3795	21.7459	5.5452	10.317
	27.5768	45.4890	4010.8532	9.4093	13.8929	288.6974	8127.0760	22.3883	5.7473	10.693
L23	27.5790	44.9708	3967.0441	9.4115	13.8929	285.5441	8038.3069	22.1332	5.7641	10.85
	28.3598	46.2608	4318.3324	9.6815	14.2836	302.3285	8750.1121	22.7682	5.9662	11.231
L24	28.3620	45.7271	4270.4880	9.6837	14.2836	298.9789	8653.1664	22.5055	5.9830	11.396
	29.1427	47.0020	4637.7233	9.9537	14.6742	316.0456	9397.2847	23.1330	6.1851	11.781
L25	29.1449	46.4529	4585.6033	9.9559	14.6742	312.4938	9291.6755	22.8627	6.2018	11.955
	29.7305	47.3977	4871.1223	10.1584	14.9672	325.4530	9870.2143	23.3277	6.3534	12.248
L26	29.7018	54.6644	5585.8100	10.1293	14.9672	373.2033	11318.365	26.9042	6.1357	10.226



Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
	29.7409	54.7373	5608.1720	10.1428	14.9867	374.2090	11363.676	26.9400	6.1458	10.243
L27	29.7409	54.7373	5608.1720	10.1428	14.9867	374.2090	11363.676	26.9400	6.1458	10.243
	30.5216	56.1943	6068.0343	10.4128	15.3774	394.6078	12295.482	27.6571	6.3479	10.58
L28	30.5260	55.0472	5949.2806	10.4173	15.3774	386.8851	12054.855	27.0926	6.3814	10.862
	31.3068	56.4739	6423.9301	10.6873	15.7680	407.4023	13016.623	27.7947	6.5835	11.206
L29	31.3112	55.2954	6295.1519	10.6917	15.7680	399.2352	12755.684	27.2147	6.6170	11.508
	32.0919	56.6917	6784.1812	10.9617	16.1587	419.8477	13746.590	27.9019	6.8191	11.859
L30	32.0919	56.6917	6784.1812	10.9617	16.1587	419.8477	13746.590	27.9019	6.8191	11.859
	32.8727	58.0880	7297.9029	11.2317	16.5493	440.9791	14787.529	28.5892	7.0212	12.211
L31	32.8727	58.0880	7297.9029	11.2317	16.5493	440.9791	14787.529	28.5892	7.0212	12.211
	33.4973	59.2050	7727.0668	11.4477	16.8618	458.2578	15657.132	29.1389	7.1829	12.492
L32	32.8283	63.3003	7682.9959	11.0396	16.3037	471.2426	15567.832	31.1545	6.7266	10.552
	32.9454	64.4615	8113.6405	11.2421	16.5967	488.8697	16440.435	31.7260	6.8782	10.789
L33	32.9454	64.4615	8113.6405	11.2421	16.5967	488.8697	16440.435	31.7260	6.8782	10.789
	32.9844	64.5390	8142.9088	11.2556	16.6163	490.0564	16499.740	31.7641	6.8883	10.805
L34	32.9888	63.2986	7992.7696	11.2601	16.6163	481.0207	16195.518	31.1537	6.9218	11.075
	33.7697	64.8166	8581.7036	11.5301	17.0070	504.5987	17388.858	31.9008	7.1240	11.398
L35	33.7697	64.8166	8581.7036	11.5301	17.0070	504.5987	17388.858	31.9008	7.1240	11.398
	34.5506	66.3346	9198.8792	11.8001	17.3977	528.7410	18639.423	32.6479	7.3261	11.722
L36	34.5550	65.0326	9025.1617	11.8046	17.3977	518.7559	18287.424	32.0071	7.3596	12.016
	35.3359	66.5202	9658.7928	12.0747	17.7884	542.9820	19571.332	32.7392	7.5618	12.346
L37	35.3359	66.5202	9658.7928	12.0747	17.7884	542.9820	19571.332	32.7392	7.5618	12.346
	36.1168	68.0078	10321.408	12.3447	18.1791	567.7611	20913.972	33.4714	7.7639	12.676
L38	36.1212	66.6441	10121.767	12.3492	18.1791	556.7792	20509.444	32.8002	7.7974	12.996
	36.9021	68.1013	10800.374	12.6192	18.5699	581.6078	21884.486	33.5174	7.9996	13.333
L39	36.9021	68.1013	10800.374	12.6192	18.5699	581.6078	21884.486	33.5174	7.9996	13.333
	37.0583	68.3928	10939.635	12.6732	18.6480	586.6385	22166.667	33.6609	8.0400	13.4

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
L1 150.00-145.00				1	1	1			
L2 145.00-140.00				1	1	1			
L3 140.00-139.58				1	1	1			
L4 139.58-139.33				1	1	0.887801			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor $A_r$	Adjust. Factor $A_r$	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft <sup>2</sup>	in							
L5 139.33-134.33				1	1	0.907703			
L6 134.33-129.33				1	1	0.909673			
L7 129.33-124.33				1	1	0.913516			
L8 124.33-119.33				1	1	0.91915			
L9 119.33-114.33				1	1	0.926523			
L10 114.33-110.00				1	1	0.937588			
L11 110.00-109.75				1	1	0.907889			
L12 109.75-104.75				1	1	0.910758			
L13 104.75-99.75				1	1	0.915055			
L14 99.75-94.75				1	1	0.920745			
L15 94.75-89.75				1	1	0.927808			
L16 89.75-84.75				1	1	0.936239			
L17 84.75-81.50				1	1	0.92745			
L18 81.50-81.25				1	1	0.926789			
L19 81.25-76.25				1	1	0.936947			
L20 76.25-71.25				1	1	0.948466			
L21 71.25-66.00				1	1	0.945416			
L22 66.00-65.00				1	1	0.950058			
L23 65.00-60.00				1	1	0.950611			
L24 60.00-55.00				1	1	0.951766			
L25 55.00-51.25				1	1	0.955828			
L26 51.25-51.00				1	1	0.939592			
L27 51.00-46.00				1	1	0.928734			
L28 46.00-41.00				1	1	0.937574			
L29 41.00-36.00				1	1	0.947356			
L30 36.00-31.00				1	1	0.937648			
L31 31.00-27.00				1	1	0.935762			
L32 27.00-26.25				1	1	0.944252			
L33 26.25-26.00				1	1	0.943825			
L34 26.00-21.00				1	1	0.953833			
L35 21.00-16.00				1	1	0.945736			
L36 16.00-11.00				1	1	0.95679			
L37 11.00-6.00				1	1	0.949253			
L38 6.00-1.00				1	1	0.961324			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor $A_r$	Adjust. Factor $A_r$	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft <sup>2</sup>	in							
L39 1.00-0.00				1	1	0.95989			

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter r in	Perimeter r in	Weight plf
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	150.00 - 0.00	2	2	-0.490 -0.360	1.9800		0.82
WR-VG86ST-BRD(3/4)	B	No	Surface Ar (CaAa)	150.00 - 0.00	3	1	-0.100 -0.100	0.7950		0.58
PWRT-606-S(7/8)	B	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	-0.050 -0.050	0.9200		0.89
FB-L98B-235-XXX(3/8)	B	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	-0.070 -0.070	0.3900		0.06
***										
MP3-05	A	No	Surface Af (CaAa)	51.25 - 0.50	1	1	0.125 0.125	5.3300	14.8400	0.00
MP3-05	B	No	Surface Af (CaAa)	51.25 - 0.50	1	1	-0.125 -0.125	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	51.25 - 0.50	1	1	-0.375 -0.375	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	51.25 - 0.50	1	1	0.375 0.375	5.3300	14.8400	0.00
*										
MP3-04	A	No	Surface Af (CaAa)	110.00 - 51.25	1	1	0.125 0.125	4.7800	12.7800	0.00
MP3-04	B	No	Surface Af (CaAa)	110.00 - 51.25	1	1	-0.125 -0.125	4.7800	12.7800	0.00
MP3-04	C	No	Surface Af (CaAa)	110.00 - 51.25	1	1	-0.375 -0.375	4.7800	12.7800	0.00
MP3-04	C	No	Surface Af (CaAa)	110.00 - 51.25	1	1	0.375 0.375	4.7800	12.7800	0.00
*										
MP3-03	A	No	Surface Af (CaAa)	140.75 - 110.75	1	1	0.125 0.125	4.0600	11.2600	0.00
MP3-03	B	No	Surface Af (CaAa)	140.75 - 110.75	1	1	-0.125 -0.125	4.0600	11.2600	0.00
MP3-03	C	No	Surface Af (CaAa)	140.75 - 110.75	1	1	-0.375 -0.375	4.0600	11.2600	0.00
MP3-03	C	No	Surface Af (CaAa)	140.75 - 110.75	1	1	0.375 0.375	4.0600	11.2600	0.00
***										
CU12PSM9P6XXX(1-1/2)	A	No	Surface Ar (CaAa)	140.00 - 0.00	1	1	0.500 0.500	1.6000		2.35
***										

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA	Weight plf	
							ft <sup>2</sup> /ft		
LDF2-50(3/8)	B	No	No	Inside Pole	150.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.08 0.08 0.08
LDF7-50A(1-5/8)	B	No	No	Inside Pole	150.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
FB-L98B-009-	B	No	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf	
XXX(3/8)							1/2" Ice 1" Ice	0.00 0.00	0.06 0.06
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	150.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.58 0.58 0.58
***									

**Feed Line/Linear Appurtenances Section Areas**

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	150.00-145.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	3.033	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L2	145.00-140.00	A	0.000	0.000	0.507	0.000	0.00
		B	0.000	0.000	3.540	0.000	0.05
		C	0.000	0.000	1.015	0.000	0.00
L3	140.00-139.58	A	0.000	0.000	0.349	0.000	0.00
		B	0.000	0.000	0.535	0.000	0.00
		C	0.000	0.000	0.564	0.000	0.00
L4	139.58-139.33	A	0.000	0.000	0.209	0.000	0.00
		B	0.000	0.000	0.321	0.000	0.00
		C	0.000	0.000	0.338	0.000	0.00
L5	139.33-134.33	A	0.000	0.000	4.183	0.000	0.01
		B	0.000	0.000	6.416	0.000	0.05
		C	0.000	0.000	6.767	0.000	0.00
L6	134.33-129.33	A	0.000	0.000	4.183	0.000	0.01
		B	0.000	0.000	6.416	0.000	0.05
		C	0.000	0.000	6.767	0.000	0.00
L7	129.33-124.33	A	0.000	0.000	4.183	0.000	0.01
		B	0.000	0.000	6.416	0.000	0.05
		C	0.000	0.000	6.767	0.000	0.00
L8	124.33-119.33	A	0.000	0.000	4.183	0.000	0.01
		B	0.000	0.000	6.416	0.000	0.05
		C	0.000	0.000	6.767	0.000	0.00
L9	119.33-114.33	A	0.000	0.000	4.183	0.000	0.01
		B	0.000	0.000	6.416	0.000	0.05
		C	0.000	0.000	6.767	0.000	0.00
L10	114.33-110.00	A	0.000	0.000	3.118	0.000	0.01
		B	0.000	0.000	5.052	0.000	0.04
		C	0.000	0.000	4.849	0.000	0.00
L11	110.00-109.75	A	0.000	0.000	0.239	0.000	0.00
		B	0.000	0.000	0.351	0.000	0.00
		C	0.000	0.000	0.398	0.000	0.00
L12	109.75-104.75	A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
		C	0.000	0.000	7.967	0.000	0.00
L13	104.75-99.75	A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
		C	0.000	0.000	7.967	0.000	0.00
L14	99.75-94.75	A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
		C	0.000	0.000	7.967	0.000	0.00
L15	94.75-89.75	A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
		C	0.000	0.000	7.967	0.000	0.00
L16	89.75-84.75	A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
		C	0.000	0.000	7.967	0.000	0.00
L17	84.75-81.50	A	0.000	0.000	3.109	0.000	0.01
		B	0.000	0.000	4.560	0.000	0.03

Tower Sectio n	Tower Elevation ft	Face	$A_R$	$A_F$	$C_{AA}$	$C_{AA}$	Weight  K
			ft <sup>2</sup>	ft <sup>2</sup>	In Face ft <sup>2</sup>	Out Face ft <sup>2</sup>	
L18	81.50-81.25	C	0.000	0.000	5.178	0.000	0.00
		A	0.000	0.000	0.239	0.000	0.00
		B	0.000	0.000	0.351	0.000	0.00
L19	81.25-76.25	C	0.000	0.000	0.398	0.000	0.00
		A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
L20	76.25-71.25	C	0.000	0.000	7.967	0.000	0.00
		A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
L21	71.25-66.00	C	0.000	0.000	7.967	0.000	0.00
		A	0.000	0.000	5.023	0.000	0.01
		B	0.000	0.000	7.367	0.000	0.05
L22	66.00-65.00	C	0.000	0.000	8.365	0.000	0.00
		A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	1.403	0.000	0.01
L23	65.00-60.00	C	0.000	0.000	1.593	0.000	0.00
		A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
L24	60.00-55.00	C	0.000	0.000	7.967	0.000	0.00
		A	0.000	0.000	4.783	0.000	0.01
		B	0.000	0.000	7.016	0.000	0.05
L25	55.00-51.25	C	0.000	0.000	7.967	0.000	0.00
		A	0.000	0.000	3.588	0.000	0.01
		B	0.000	0.000	5.262	0.000	0.04
L26	51.25-51.00	C	0.000	0.000	5.975	0.000	0.00
		A	0.000	0.000	0.262	0.000	0.00
		B	0.000	0.000	0.374	0.000	0.00
L27	51.00-46.00	C	0.000	0.000	0.444	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L28	46.00-41.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L29	41.00-36.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L30	36.00-31.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L31	31.00-27.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	4.193	0.000	0.01
		B	0.000	0.000	5.979	0.000	0.04
L32	27.00-26.25	C	0.000	0.000	7.107	0.000	0.00
		A	0.000	0.000	0.786	0.000	0.00
		B	0.000	0.000	1.121	0.000	0.01
L33	26.25-26.00	C	0.000	0.000	1.333	0.000	0.00
		A	0.000	0.000	0.262	0.000	0.00
		B	0.000	0.000	0.374	0.000	0.00
L34	26.00-21.00	C	0.000	0.000	0.444	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L35	21.00-16.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L36	16.00-11.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L37	11.00-6.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L38	6.00-1.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	5.242	0.000	0.01
		B	0.000	0.000	7.474	0.000	0.05
L39	1.00-0.00	C	0.000	0.000	8.883	0.000	0.00
		A	0.000	0.000	0.604	0.000	0.00
		B	0.000	0.000	1.051	0.000	0.01
		C	0.000	0.000	0.888	0.000	0.00

**Feed Line/Linear Appurtenances Section Areas - With Ice**

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
n	ft		in	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
L1	150.00-145.00	A	0.987	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	7.723	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L2	145.00-140.00	A	0.984	0.000	0.000	0.655	0.000	0.00
		B		0.000	0.000	8.364	0.000	0.13
		C		0.000	0.000	1.310	0.000	0.01
L3	140.00-139.58	A	0.982	0.000	0.000	0.513	0.000	0.00
		B		0.000	0.000	1.006	0.000	0.01
		C		0.000	0.000	0.728	0.000	0.00
L4	139.58-139.33	A	0.982	0.000	0.000	0.307	0.000	0.00
		B		0.000	0.000	0.603	0.000	0.01
		C		0.000	0.000	0.437	0.000	0.00
L5	139.33-134.33	A	0.980	0.000	0.000	6.143	0.000	0.06
		B		0.000	0.000	12.055	0.000	0.16
		C		0.000	0.000	8.726	0.000	0.06
L6	134.33-129.33	A	0.976	0.000	0.000	6.136	0.000	0.06
		B		0.000	0.000	12.036	0.000	0.15
		C		0.000	0.000	8.719	0.000	0.06
L7	129.33-124.33	A	0.972	0.000	0.000	6.128	0.000	0.06
		B		0.000	0.000	12.016	0.000	0.15
		C		0.000	0.000	8.712	0.000	0.06
L8	124.33-119.33	A	0.969	0.000	0.000	6.121	0.000	0.06
		B		0.000	0.000	11.996	0.000	0.15
		C		0.000	0.000	8.704	0.000	0.06
L9	119.33-114.33	A	0.965	0.000	0.000	6.112	0.000	0.05
		B		0.000	0.000	11.975	0.000	0.15
		C		0.000	0.000	8.696	0.000	0.06
L10	114.33-110.00	A	0.961	0.000	0.000	4.639	0.000	0.04
		B		0.000	0.000	9.708	0.000	0.13
		C		0.000	0.000	6.226	0.000	0.04
L11	110.00-109.75	A	0.959	0.000	0.000	0.335	0.000	0.00
		B		0.000	0.000	0.627	0.000	0.01
		C		0.000	0.000	0.494	0.000	0.00
L12	109.75-104.75	A	0.956	0.000	0.000	6.696	0.000	0.06
		B		0.000	0.000	12.531	0.000	0.15
		C		0.000	0.000	9.879	0.000	0.06
L13	104.75-99.75	A	0.952	0.000	0.000	6.687	0.000	0.06
		B		0.000	0.000	12.508	0.000	0.15
		C		0.000	0.000	9.870	0.000	0.06
L14	99.75-94.75	A	0.947	0.000	0.000	6.677	0.000	0.06
		B		0.000	0.000	12.483	0.000	0.15
		C		0.000	0.000	9.861	0.000	0.06
L15	94.75-89.75	A	0.942	0.000	0.000	6.667	0.000	0.06
		B		0.000	0.000	12.456	0.000	0.15
		C		0.000	0.000	9.851	0.000	0.06
L16	89.75-84.75	A	0.937	0.000	0.000	6.657	0.000	0.06
		B		0.000	0.000	12.429	0.000	0.15
		C		0.000	0.000	9.840	0.000	0.06
L17	84.75-81.50	A	0.932	0.000	0.000	4.321	0.000	0.04
		B		0.000	0.000	8.063	0.000	0.10
		C		0.000	0.000	6.390	0.000	0.04
L18	81.50-81.25	A	0.930	0.000	0.000	0.332	0.000	0.00
		B		0.000	0.000	0.620	0.000	0.01
		C		0.000	0.000	0.491	0.000	0.00
L19	81.25-76.25	A	0.927	0.000	0.000	6.638	0.000	0.06
		B		0.000	0.000	12.379	0.000	0.15
		C		0.000	0.000	9.821	0.000	0.06
L20	76.25-71.25	A	0.921	0.000	0.000	6.626	0.000	0.06
		B		0.000	0.000	12.347	0.000	0.15
		C		0.000	0.000	9.809	0.000	0.06
L21	71.25-66.00	A	0.915	0.000	0.000	6.943	0.000	0.06
		B		0.000	0.000	12.928	0.000	0.16
		C		0.000	0.000	10.286	0.000	0.06
L22	66.00-65.00	A	0.910	0.000	0.000	1.322	0.000	0.01
		B		0.000	0.000	2.462	0.000	0.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L23	65.00-60.00	C		0.000	0.000	1.959	0.000	0.01
		A	0.906	0.000	0.000	6.595	0.000	0.05
		B		0.000	0.000	12.268	0.000	0.15
L24	60.00-55.00	C		0.000	0.000	9.779	0.000	0.06
		A	0.899	0.000	0.000	6.580	0.000	0.05
		B		0.000	0.000	12.228	0.000	0.15
		C		0.000	0.000	9.764	0.000	0.06
L25	55.00-51.25	A	0.891	0.000	0.000	4.925	0.000	0.04
		B		0.000	0.000	9.143	0.000	0.11
		C		0.000	0.000	7.312	0.000	0.04
L26	51.25-51.00	A	0.888	0.000	0.000	0.351	0.000	0.00
		B		0.000	0.000	0.632	0.000	0.01
		C		0.000	0.000	0.533	0.000	0.00
L27	51.00-46.00	A	0.883	0.000	0.000	7.008	0.000	0.06
		B		0.000	0.000	12.607	0.000	0.15
		C		0.000	0.000	10.650	0.000	0.06
L28	46.00-41.00	A	0.874	0.000	0.000	6.989	0.000	0.06
		B		0.000	0.000	12.557	0.000	0.15
		C		0.000	0.000	10.631	0.000	0.06
L29	41.00-36.00	A	0.863	0.000	0.000	6.968	0.000	0.06
		B		0.000	0.000	12.501	0.000	0.14
		C		0.000	0.000	10.610	0.000	0.06
L30	36.00-31.00	A	0.851	0.000	0.000	6.944	0.000	0.05
		B		0.000	0.000	12.438	0.000	0.14
		C		0.000	0.000	10.586	0.000	0.06
L31	31.00-27.00	A	0.839	0.000	0.000	5.536	0.000	0.04
		B		0.000	0.000	9.899	0.000	0.11
		C		0.000	0.000	8.449	0.000	0.05
L32	27.00-26.25	A	0.832	0.000	0.000	1.038	0.000	0.01
		B		0.000	0.000	1.856	0.000	0.02
		C		0.000	0.000	1.584	0.000	0.01
L33	26.25-26.00	A	0.830	0.000	0.000	0.345	0.000	0.00
		B		0.000	0.000	0.616	0.000	0.01
		C		0.000	0.000	0.527	0.000	0.00
L34	26.00-21.00	A	0.822	0.000	0.000	6.885	0.000	0.05
		B		0.000	0.000	12.283	0.000	0.14
		C		0.000	0.000	10.527	0.000	0.06
L35	21.00-16.00	A	0.802	0.000	0.000	6.846	0.000	0.05
		B		0.000	0.000	12.181	0.000	0.14
		C		0.000	0.000	10.488	0.000	0.06
L36	16.00-11.00	A	0.777	0.000	0.000	6.796	0.000	0.05
		B		0.000	0.000	12.050	0.000	0.13
		C		0.000	0.000	10.438	0.000	0.05
L37	11.00-6.00	A	0.742	0.000	0.000	6.726	0.000	0.05
		B		0.000	0.000	11.865	0.000	0.13
		C		0.000	0.000	10.368	0.000	0.05
L38	6.00-1.00	A	0.679	0.000	0.000	6.600	0.000	0.04
		B		0.000	0.000	11.534	0.000	0.12
		C		0.000	0.000	10.241	0.000	0.05
L39	1.00-0.00	A	0.559	0.000	0.000	0.772	0.000	0.01
		B		0.000	0.000	1.681	0.000	0.02
		C		0.000	0.000	1.000	0.000	0.00

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
L1	150.00-145.00	1.0189	-2.4014	1.5974	-2.7177
L2	145.00-140.00	0.8477	-2.4970	1.4394	-2.7867
L3	140.00-139.58	0.4151	-2.8776	0.8314	-3.1015
L4	139.58-139.33	0.4167	-2.8888	0.8343	-3.1128
L5	139.33-134.33	0.4231	-2.9364	0.8480	-3.1673
L6	134.33-129.33	0.4352	-3.0258	0.8737	-3.2700
L7	129.33-124.33	0.4470	-3.1130	0.8988	-3.3705

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
L8	124.33-119.33	0.4585	-3.1980	0.9232	-3.4687
L9	119.33-114.33	0.4697	-3.2810	0.9469	-3.5648
L10	114.33-110.00	0.5283	-3.3300	1.0461	-3.6552
L11	110.00-109.75	0.4437	-3.4153	0.9247	-3.6931
L12	109.75-104.75	0.4491	-3.4588	0.9360	-3.7424
L13	104.75-99.75	0.4591	-3.5405	0.9570	-3.8348
L14	99.75-94.75	0.4689	-3.6205	0.9775	-3.9252
L15	94.75-89.75	0.4785	-3.6988	0.9973	-4.0137
L16	89.75-84.75	0.4879	-3.7754	1.0165	-4.1003
L17	84.75-81.50	0.4955	-3.8376	1.0319	-4.1705
L18	81.50-81.25	0.4987	-3.8637	1.0383	-4.1999
L19	81.25-76.25	0.5035	-3.9022	1.0477	-4.2433
L20	76.25-71.25	0.5123	-3.9746	1.0651	-4.3247
L21	71.25-66.00	0.5213	-4.0476	1.0823	-4.4064
L22	66.00-65.00	0.5211	-4.0460	1.0819	-4.4048
L23	65.00-60.00	0.5262	-4.0880	1.0893	-4.4485
L24	60.00-55.00	0.5347	-4.1568	1.1046	-4.5248
L25	55.00-51.25	0.5419	-4.2159	1.1174	-4.5898
L26	51.25-51.00	0.5154	-4.2918	1.0808	-4.6390
L27	51.00-46.00	0.5196	-4.3283	1.0878	-4.6780
L28	46.00-41.00	0.5274	-4.3966	1.1003	-4.7503
L29	41.00-36.00	0.5351	-4.4636	1.1118	-4.8203
L30	36.00-31.00	0.5427	-4.5296	1.1219	-4.8880
L31	31.00-27.00	0.5494	-4.5881	1.1297	-4.9464
L32	27.00-26.25	0.5469	-4.5664	1.1243	-4.9220
L33	26.25-26.00	0.5477	-4.5729	1.1207	-4.9225
L34	26.00-21.00	0.5515	-4.6065	1.1239	-4.9546
L35	21.00-16.00	0.5588	-4.6700	1.1280	-5.0126
L36	16.00-11.00	0.5659	-4.7322	1.1279	-5.0642
L37	11.00-6.00	0.5729	-4.7936	1.1200	-5.1053
L38	6.00-1.00	0.5798	-4.8537	1.0917	-5.1194
L39	1.00-0.00	0.7735	-4.4127	1.2796	-4.7100

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	3	LDF7-50A(1-5/8)	145.00 - 150.00	1.0000	1.0000
L1	7	WR-VG86ST-BRD(3/4)	145.00 - 150.00	1.0000	1.0000
L1	8	PWRT-606-S(7/8)	145.00 - 150.00	1.0000	1.0000
L1	9	FB-L98B-235-XXX(3/8)	145.00 - 150.00	1.0000	1.0000
L2	3	LDF7-50A(1-5/8)	140.00 - 145.00	1.0000	1.0000
L2	7	WR-VG86ST-BRD(3/4)	140.00 - 145.00	1.0000	1.0000
L2	8	PWRT-606-S(7/8)	140.00 - 145.00	1.0000	1.0000
L2	9	FB-L98B-235-XXX(3/8)	140.00 - 145.00	1.0000	1.0000
L2	21	MP3-03	140.00 - 140.75	1.0000	1.0000
L2	22	MP3-03	140.00 - 140.75	1.0000	1.0000
L2	23	MP3-03	140.00 - 140.75	1.0000	1.0000



Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L2	24	MP3-03	140.00 - 140.75	1.0000	1.0000
L3	3	LDF7-50A(1-5/8)	139.58 - 140.00	1.0000	1.0000
L3	7	WR-VG86ST-BRD(3/4)	139.58 - 140.00	1.0000	1.0000
L3	8	PWRT-606-S(7/8)	139.58 - 140.00	1.0000	1.0000
L3	9	FB-L98B-235-XXX(3/8)	139.58 - 140.00	1.0000	1.0000
L3	21	MP3-03	139.58 - 140.00	1.0000	1.0000
L3	22	MP3-03	139.58 - 140.00	1.0000	1.0000
L3	23	MP3-03	139.58 - 140.00	1.0000	1.0000
L3	24	MP3-03	139.58 - 140.00	1.0000	1.0000
L3	26	CU12PSM9P6XXX(1-1/2)	139.58 - 140.00	1.0000	1.0000
L4	3	LDF7-50A(1-5/8)	139.33 - 139.58	1.0000	1.0000
L4	7	WR-VG86ST-BRD(3/4)	139.33 - 139.58	1.0000	1.0000
L4	8	PWRT-606-S(7/8)	139.33 - 139.58	1.0000	1.0000
L4	9	FB-L98B-235-XXX(3/8)	139.33 - 139.58	1.0000	1.0000
L4	21	MP3-03	139.33 - 139.58	1.0000	1.0000
L4	22	MP3-03	139.33 - 139.58	1.0000	1.0000
L4	23	MP3-03	139.33 - 139.58	1.0000	1.0000
L4	24	MP3-03	139.33 - 139.58	1.0000	1.0000
L4	26	CU12PSM9P6XXX(1-1/2)	139.33 - 139.58	1.0000	1.0000
L5	3	LDF7-50A(1-5/8)	134.33 - 139.33	1.0000	1.0000
L5	7	WR-VG86ST-BRD(3/4)	134.33 - 139.33	1.0000	1.0000
L5	8	PWRT-606-S(7/8)	134.33 - 139.33	1.0000	1.0000
L5	9	FB-L98B-235-XXX(3/8)	134.33 - 139.33	1.0000	1.0000
L5	21	MP3-03	134.33 - 139.33	1.0000	1.0000
L5	22	MP3-03	134.33 - 139.33	1.0000	1.0000
L5	23	MP3-03	134.33 - 139.33	1.0000	1.0000
L5	24	MP3-03	134.33 - 139.33	1.0000	1.0000
L5	26	CU12PSM9P6XXX(1-1/2)	134.33 - 139.33	1.0000	1.0000
L6	3	LDF7-50A(1-5/8)	129.33 - 134.33	1.0000	1.0000
L6	7	WR-VG86ST-BRD(3/4)	129.33 - 134.33	1.0000	1.0000
L6	8	PWRT-606-S(7/8)	129.33 - 134.33	1.0000	1.0000
L6	9	FB-L98B-235-XXX(3/8)	129.33 - 134.33	1.0000	1.0000
L6	21	MP3-03	129.33 - 134.33	1.0000	1.0000
L6	22	MP3-03	129.33 - 134.33	1.0000	1.0000
L6	23	MP3-03	129.33 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L6	24	MP3-03	134.33 129.33 - 134.33	1.0000	1.0000
L6	26	CU12PSM9P6XXX(1-1/2)	129.33 - 134.33	1.0000	1.0000
L7	3	LDF7-50A(1-5/8)	124.33 - 129.33	1.0000	1.0000
L7	7	WR-VG86ST-BRD(3/4)	124.33 - 129.33	1.0000	1.0000
L7	8	PWRT-606-S(7/8)	124.33 - 129.33	1.0000	1.0000
L7	9	FB-L98B-235-XXX(3/8)	124.33 - 129.33	1.0000	1.0000
L7	21	MP3-03	124.33 - 129.33	1.0000	1.0000
L7	22	MP3-03	124.33 - 129.33	1.0000	1.0000
L7	23	MP3-03	124.33 - 129.33	1.0000	1.0000
L7	24	MP3-03	124.33 - 129.33	1.0000	1.0000
L7	26	CU12PSM9P6XXX(1-1/2)	124.33 - 129.33	1.0000	1.0000
L8	3	LDF7-50A(1-5/8)	119.33 - 124.33	1.0000	1.0000
L8	7	WR-VG86ST-BRD(3/4)	119.33 - 124.33	1.0000	1.0000
L8	8	PWRT-606-S(7/8)	119.33 - 124.33	1.0000	1.0000
L8	9	FB-L98B-235-XXX(3/8)	119.33 - 124.33	1.0000	1.0000
L8	21	MP3-03	119.33 - 124.33	1.0000	1.0000
L8	22	MP3-03	119.33 - 124.33	1.0000	1.0000
L8	23	MP3-03	119.33 - 124.33	1.0000	1.0000
L8	24	MP3-03	119.33 - 124.33	1.0000	1.0000
L8	26	CU12PSM9P6XXX(1-1/2)	119.33 - 124.33	1.0000	1.0000
L9	3	LDF7-50A(1-5/8)	114.33 - 119.33	1.0000	1.0000
L9	7	WR-VG86ST-BRD(3/4)	114.33 - 119.33	1.0000	1.0000
L9	8	PWRT-606-S(7/8)	114.33 - 119.33	1.0000	1.0000
L9	9	FB-L98B-235-XXX(3/8)	114.33 - 119.33	1.0000	1.0000
L9	21	MP3-03	114.33 - 119.33	1.0000	1.0000
L9	22	MP3-03	114.33 - 119.33	1.0000	1.0000
L9	23	MP3-03	114.33 - 119.33	1.0000	1.0000
L9	24	MP3-03	114.33 - 119.33	1.0000	1.0000
L9	26	CU12PSM9P6XXX(1-1/2)	114.33 - 119.33	1.0000	1.0000
L10	3	LDF7-50A(1-5/8)	110.00 - 114.33	1.0000	1.0000
L10	7	WR-VG86ST-BRD(3/4)	110.00 - 114.33	1.0000	1.0000
L10	8	PWRT-606-S(7/8)	110.00 - 114.33	1.0000	1.0000
L10	9	FB-L98B-235-XXX(3/8)	110.00 - 114.33	1.0000	1.0000
L10	21	MP3-03	110.75 - 114.33	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L10	22	MP3-03	110.75 - 114.33	1.0000	1.0000
L10	23	MP3-03	110.75 - 114.33	1.0000	1.0000
L10	24	MP3-03	110.75 - 114.33	1.0000	1.0000
L10	26	CU12PSM9P6XXX(1-1/2)	110.00 - 114.33	1.0000	1.0000
L11	3	LDF7-50A(1-5/8)	109.75 - 110.00	1.0000	1.0000
L11	7	WR-VG86ST-BRD(3/4)	109.75 - 110.00	1.0000	1.0000
L11	8	PWRT-606-S(7/8)	109.75 - 110.00	1.0000	1.0000
L11	9	FB-L98B-235-XXX(3/8)	109.75 - 110.00	1.0000	1.0000
L11	16	MP3-04	109.75 - 110.00	1.0000	1.0000
L11	17	MP3-04	109.75 - 110.00	1.0000	1.0000
L11	18	MP3-04	109.75 - 110.00	1.0000	1.0000
L11	19	MP3-04	109.75 - 110.00	1.0000	1.0000
L11	26	CU12PSM9P6XXX(1-1/2)	109.75 - 110.00	1.0000	1.0000
L12	3	LDF7-50A(1-5/8)	104.75 - 109.75	1.0000	1.0000
L12	7	WR-VG86ST-BRD(3/4)	104.75 - 109.75	1.0000	1.0000
L12	8	PWRT-606-S(7/8)	104.75 - 109.75	1.0000	1.0000
L12	9	FB-L98B-235-XXX(3/8)	104.75 - 109.75	1.0000	1.0000
L12	16	MP3-04	104.75 - 109.75	1.0000	1.0000
L12	17	MP3-04	104.75 - 109.75	1.0000	1.0000
L12	18	MP3-04	104.75 - 109.75	1.0000	1.0000
L12	19	MP3-04	104.75 - 109.75	1.0000	1.0000
L12	26	CU12PSM9P6XXX(1-1/2)	104.75 - 109.75	1.0000	1.0000
L13	3	LDF7-50A(1-5/8)	99.75 - 104.75	1.0000	1.0000
L13	7	WR-VG86ST-BRD(3/4)	99.75 - 104.75	1.0000	1.0000
L13	8	PWRT-606-S(7/8)	99.75 - 104.75	1.0000	1.0000
L13	9	FB-L98B-235-XXX(3/8)	99.75 - 104.75	1.0000	1.0000
L13	16	MP3-04	99.75 - 104.75	1.0000	1.0000
L13	17	MP3-04	99.75 - 104.75	1.0000	1.0000
L13	18	MP3-04	99.75 - 104.75	1.0000	1.0000
L13	19	MP3-04	99.75 - 104.75	1.0000	1.0000
L13	26	CU12PSM9P6XXX(1-1/2)	99.75 - 104.75	1.0000	1.0000
L14	3	LDF7-50A(1-5/8)	94.75 - 99.75	1.0000	1.0000
L14	7	WR-VG86ST-BRD(3/4)	94.75 - 99.75	1.0000	1.0000
L14	8	PWRT-606-S(7/8)	94.75 - 99.75	1.0000	1.0000
L14	9	FB-L98B-235-XXX(3/8)	94.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L14	16	MP3-04	99.75 94.75 -	1.0000	1.0000
L14	17	MP3-04	99.75 94.75 -	1.0000	1.0000
L14	18	MP3-04	99.75 94.75 -	1.0000	1.0000
L14	19	MP3-04	99.75 94.75 -	1.0000	1.0000
L14	26	CU12PSM9P6XXX(1-1/2)	99.75 94.75 -	1.0000	1.0000
L15	3	LDF7-50A(1-5/8)	99.75 89.75 -	1.0000	1.0000
L15	7	WR-VG86ST-BRD(3/4)	94.75 89.75 -	1.0000	1.0000
L15	8	PWRT-606-S(7/8)	94.75 89.75 -	1.0000	1.0000
L15	9	FB-L98B-235-XXX(3/8)	94.75 89.75 -	1.0000	1.0000
L15	16	MP3-04	94.75 89.75 -	1.0000	1.0000
L15	17	MP3-04	94.75 89.75 -	1.0000	1.0000
L15	18	MP3-04	94.75 89.75 -	1.0000	1.0000
L15	19	MP3-04	94.75 89.75 -	1.0000	1.0000
L15	26	CU12PSM9P6XXX(1-1/2)	94.75 89.75 -	1.0000	1.0000
L16	3	LDF7-50A(1-5/8)	94.75 84.75 -	1.0000	1.0000
L16	7	WR-VG86ST-BRD(3/4)	89.75 84.75 -	1.0000	1.0000
L16	8	PWRT-606-S(7/8)	89.75 84.75 -	1.0000	1.0000
L16	9	FB-L98B-235-XXX(3/8)	89.75 84.75 -	1.0000	1.0000
L16	16	MP3-04	89.75 84.75 -	1.0000	1.0000
L16	17	MP3-04	89.75 84.75 -	1.0000	1.0000
L16	18	MP3-04	89.75 84.75 -	1.0000	1.0000
L16	19	MP3-04	89.75 84.75 -	1.0000	1.0000
L16	26	CU12PSM9P6XXX(1-1/2)	89.75 84.75 -	1.0000	1.0000
L17	3	LDF7-50A(1-5/8)	84.75 81.50 -	1.0000	1.0000
L17	7	WR-VG86ST-BRD(3/4)	84.75 81.50 -	1.0000	1.0000
L17	8	PWRT-606-S(7/8)	84.75 81.50 -	1.0000	1.0000
L17	9	FB-L98B-235-XXX(3/8)	84.75 81.50 -	1.0000	1.0000
L17	16	MP3-04	84.75 81.50 -	1.0000	1.0000
L17	17	MP3-04	84.75 81.50 -	1.0000	1.0000
L17	18	MP3-04	84.75 81.50 -	1.0000	1.0000
L17	19	MP3-04	84.75 81.50 -	1.0000	1.0000
L17	26	CU12PSM9P6XXX(1-1/2)	84.75 81.50 -	1.0000	1.0000
L18	3	LDF7-50A(1-5/8)	81.50 81.25 -	1.0000	1.0000
L18	7	WR-VG86ST-BRD(3/4)	81.50 81.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L18	8	PWRT-606-S(7/8)	81.25 - 81.50	1.0000	1.0000
L18	9	FB-L98B-235-XXX(3/8)	81.25 - 81.50	1.0000	1.0000
L18	16	MP3-04	81.25 - 81.50	1.0000	1.0000
L18	17	MP3-04	81.25 - 81.50	1.0000	1.0000
L18	18	MP3-04	81.25 - 81.50	1.0000	1.0000
L18	19	MP3-04	81.25 - 81.50	1.0000	1.0000
L18	26	CU12PSM9P6XXX(1-1/2)	81.25 - 81.50	1.0000	1.0000
L19	3	LDF7-50A(1-5/8)	76.25 - 81.25	1.0000	1.0000
L19	7	WR-VG86ST-BRD(3/4)	76.25 - 81.25	1.0000	1.0000
L19	8	PWRT-606-S(7/8)	76.25 - 81.25	1.0000	1.0000
L19	9	FB-L98B-235-XXX(3/8)	76.25 - 81.25	1.0000	1.0000
L19	16	MP3-04	76.25 - 81.25	1.0000	1.0000
L19	17	MP3-04	76.25 - 81.25	1.0000	1.0000
L19	18	MP3-04	76.25 - 81.25	1.0000	1.0000
L19	19	MP3-04	76.25 - 81.25	1.0000	1.0000
L19	26	CU12PSM9P6XXX(1-1/2)	76.25 - 81.25	1.0000	1.0000
L20	3	LDF7-50A(1-5/8)	71.25 - 76.25	1.0000	1.0000
L20	7	WR-VG86ST-BRD(3/4)	71.25 - 76.25	1.0000	1.0000
L20	8	PWRT-606-S(7/8)	71.25 - 76.25	1.0000	1.0000
L20	9	FB-L98B-235-XXX(3/8)	71.25 - 76.25	1.0000	1.0000
L20	16	MP3-04	71.25 - 76.25	1.0000	1.0000
L20	17	MP3-04	71.25 - 76.25	1.0000	1.0000
L20	18	MP3-04	71.25 - 76.25	1.0000	1.0000
L20	19	MP3-04	71.25 - 76.25	1.0000	1.0000
L20	26	CU12PSM9P6XXX(1-1/2)	71.25 - 76.25	1.0000	1.0000
L21	3	LDF7-50A(1-5/8)	66.00 - 71.25	1.0000	1.0000
L21	7	WR-VG86ST-BRD(3/4)	66.00 - 71.25	1.0000	1.0000
L21	8	PWRT-606-S(7/8)	66.00 - 71.25	1.0000	1.0000
L21	9	FB-L98B-235-XXX(3/8)	66.00 - 71.25	1.0000	1.0000
L21	16	MP3-04	66.00 - 71.25	1.0000	1.0000
L21	17	MP3-04	66.00 - 71.25	1.0000	1.0000
L21	18	MP3-04	66.00 - 71.25	1.0000	1.0000
L21	19	MP3-04	66.00 - 71.25	1.0000	1.0000
L21	26	CU12PSM9P6XXX(1-1/2)	66.00 - 71.25	1.0000	1.0000
L22	3	LDF7-50A(1-5/8)	65.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L22	7	WR-VG86ST-BRD(3/4)	66.00 65.00 -	1.0000	1.0000
L22	8	PWRT-606-S(7/8)	66.00 65.00 -	1.0000	1.0000
L22	9	FB-L98B-235-XXX(3/8)	66.00 65.00 -	1.0000	1.0000
L22	16	MP3-04	66.00 65.00 -	1.0000	1.0000
L22	17	MP3-04	66.00 65.00 -	1.0000	1.0000
L22	18	MP3-04	66.00 65.00 -	1.0000	1.0000
L22	19	MP3-04	66.00 65.00 -	1.0000	1.0000
L22	26	CU12PSM9P6XXX(1-1/2)	66.00 65.00 -	1.0000	1.0000
L23	3	LDF7-50A(1-5/8)	66.00 60.00 -	1.0000	1.0000
L23	7	WR-VG86ST-BRD(3/4)	65.00 60.00 -	1.0000	1.0000
L23	8	PWRT-606-S(7/8)	65.00 60.00 -	1.0000	1.0000
L23	9	FB-L98B-235-XXX(3/8)	65.00 60.00 -	1.0000	1.0000
L23	16	MP3-04	65.00 60.00 -	1.0000	1.0000
L23	17	MP3-04	65.00 60.00 -	1.0000	1.0000
L23	18	MP3-04	65.00 60.00 -	1.0000	1.0000
L23	19	MP3-04	65.00 60.00 -	1.0000	1.0000
L23	26	CU12PSM9P6XXX(1-1/2)	65.00 60.00 -	1.0000	1.0000
L24	3	LDF7-50A(1-5/8)	65.00 55.00 -	1.0000	1.0000
L24	7	WR-VG86ST-BRD(3/4)	60.00 55.00 -	1.0000	1.0000
L24	8	PWRT-606-S(7/8)	60.00 55.00 -	1.0000	1.0000
L24	9	FB-L98B-235-XXX(3/8)	60.00 55.00 -	1.0000	1.0000
L24	16	MP3-04	60.00 55.00 -	1.0000	1.0000
L24	17	MP3-04	60.00 55.00 -	1.0000	1.0000
L24	18	MP3-04	60.00 55.00 -	1.0000	1.0000
L24	19	MP3-04	60.00 55.00 -	1.0000	1.0000
L24	26	CU12PSM9P6XXX(1-1/2)	60.00 55.00 -	1.0000	1.0000
L25	3	LDF7-50A(1-5/8)	60.00 51.25 -	1.0000	1.0000
L25	7	WR-VG86ST-BRD(3/4)	55.00 51.25 -	1.0000	1.0000
L25	8	PWRT-606-S(7/8)	55.00 51.25 -	1.0000	1.0000
L25	9	FB-L98B-235-XXX(3/8)	55.00 51.25 -	1.0000	1.0000
L25	16	MP3-04	55.00 51.25 -	1.0000	1.0000
L25	17	MP3-04	55.00 51.25 -	1.0000	1.0000
L25	18	MP3-04	55.00 51.25 -	1.0000	1.0000
L25	19	MP3-04	55.00 51.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L25	26	CU12PSM9P6XXX(1-1/2)	51.25 - 55.00	1.0000	1.0000
L26	3	LDF7-50A(1-5/8)	51.00 - 51.25	1.0000	1.0000
L26	7	WR-VG86ST-BRD(3/4)	51.00 - 51.25	1.0000	1.0000
L26	8	PWRT-606-S(7/8)	51.00 - 51.25	1.0000	1.0000
L26	9	FB-L98B-235-XXX(3/8)	51.00 - 51.25	1.0000	1.0000
L26	11	MP3-05	51.00 - 51.25	1.0000	1.0000
L26	12	MP3-05	51.00 - 51.25	1.0000	1.0000
L26	13	MP3-05	51.00 - 51.25	1.0000	1.0000
L26	14	MP3-05	51.00 - 51.25	1.0000	1.0000
L26	26	CU12PSM9P6XXX(1-1/2)	51.00 - 51.25	1.0000	1.0000
L27	3	LDF7-50A(1-5/8)	46.00 - 51.00	1.0000	1.0000
L27	7	WR-VG86ST-BRD(3/4)	46.00 - 51.00	1.0000	1.0000
L27	8	PWRT-606-S(7/8)	46.00 - 51.00	1.0000	1.0000
L27	9	FB-L98B-235-XXX(3/8)	46.00 - 51.00	1.0000	1.0000
L27	11	MP3-05	46.00 - 51.00	1.0000	1.0000
L27	12	MP3-05	46.00 - 51.00	1.0000	1.0000
L27	13	MP3-05	46.00 - 51.00	1.0000	1.0000
L27	14	MP3-05	46.00 - 51.00	1.0000	1.0000
L27	26	CU12PSM9P6XXX(1-1/2)	46.00 - 51.00	1.0000	1.0000
L28	3	LDF7-50A(1-5/8)	41.00 - 46.00	1.0000	1.0000
L28	7	WR-VG86ST-BRD(3/4)	41.00 - 46.00	1.0000	1.0000
L28	8	PWRT-606-S(7/8)	41.00 - 46.00	1.0000	1.0000
L28	9	FB-L98B-235-XXX(3/8)	41.00 - 46.00	1.0000	1.0000
L28	11	MP3-05	41.00 - 46.00	1.0000	1.0000
L28	12	MP3-05	41.00 - 46.00	1.0000	1.0000
L28	13	MP3-05	41.00 - 46.00	1.0000	1.0000
L28	14	MP3-05	41.00 - 46.00	1.0000	1.0000
L28	26	CU12PSM9P6XXX(1-1/2)	41.00 - 46.00	1.0000	1.0000
L29	3	LDF7-50A(1-5/8)	36.00 - 41.00	1.0000	1.0000
L29	7	WR-VG86ST-BRD(3/4)	36.00 - 41.00	1.0000	1.0000
L29	8	PWRT-606-S(7/8)	36.00 - 41.00	1.0000	1.0000
L29	9	FB-L98B-235-XXX(3/8)	36.00 - 41.00	1.0000	1.0000
L29	11	MP3-05	36.00 - 41.00	1.0000	1.0000
L29	12	MP3-05	36.00 - 41.00	1.0000	1.0000
L29	13	MP3-05	36.00 - 41.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L29	14	MP3-05	41.00 36.00 - 41.00	1.0000	1.0000
L29	26	CU12PSM9P6XXX(1-1/2)	36.00 - 41.00	1.0000	1.0000
L30	3	LDF7-50A(1-5/8)	31.00 - 36.00	1.0000	1.0000
L30	7	WR-VG86ST-BRD(3/4)	31.00 - 36.00	1.0000	1.0000
L30	8	PWRT-606-S(7/8)	31.00 - 36.00	1.0000	1.0000
L30	9	FB-L98B-235-XXX(3/8)	31.00 - 36.00	1.0000	1.0000
L30	11	MP3-05	31.00 - 36.00	1.0000	1.0000
L30	12	MP3-05	31.00 - 36.00	1.0000	1.0000
L30	13	MP3-05	31.00 - 36.00	1.0000	1.0000
L30	14	MP3-05	31.00 - 36.00	1.0000	1.0000
L30	26	CU12PSM9P6XXX(1-1/2)	31.00 - 36.00	1.0000	1.0000
L31	3	LDF7-50A(1-5/8)	27.00 - 31.00	1.0000	1.0000
L31	7	WR-VG86ST-BRD(3/4)	27.00 - 31.00	1.0000	1.0000
L31	8	PWRT-606-S(7/8)	27.00 - 31.00	1.0000	1.0000
L31	9	FB-L98B-235-XXX(3/8)	27.00 - 31.00	1.0000	1.0000
L31	11	MP3-05	27.00 - 31.00	1.0000	1.0000
L31	12	MP3-05	27.00 - 31.00	1.0000	1.0000
L31	13	MP3-05	27.00 - 31.00	1.0000	1.0000
L31	14	MP3-05	27.00 - 31.00	1.0000	1.0000
L31	26	CU12PSM9P6XXX(1-1/2)	27.00 - 31.00	1.0000	1.0000
L32	3	LDF7-50A(1-5/8)	26.25 - 27.00	1.0000	1.0000
L32	7	WR-VG86ST-BRD(3/4)	26.25 - 27.00	1.0000	1.0000
L32	8	PWRT-606-S(7/8)	26.25 - 27.00	1.0000	1.0000
L32	9	FB-L98B-235-XXX(3/8)	26.25 - 27.00	1.0000	1.0000
L32	11	MP3-05	26.25 - 27.00	1.0000	1.0000
L32	12	MP3-05	26.25 - 27.00	1.0000	1.0000
L32	13	MP3-05	26.25 - 27.00	1.0000	1.0000
L32	14	MP3-05	26.25 - 27.00	1.0000	1.0000
L32	26	CU12PSM9P6XXX(1-1/2)	26.25 - 27.00	1.0000	1.0000
L33	3	LDF7-50A(1-5/8)	26.00 - 26.25	1.0000	1.0000
L33	7	WR-VG86ST-BRD(3/4)	26.00 - 26.25	1.0000	1.0000
L33	8	PWRT-606-S(7/8)	26.00 - 26.25	1.0000	1.0000
L33	9	FB-L98B-235-XXX(3/8)	26.00 - 26.25	1.0000	1.0000
L33	11	MP3-05	26.00 - 26.25	1.0000	1.0000



Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L33	12	MP3-05	26.00 - 26.25	1.0000	1.0000
L33	13	MP3-05	26.00 - 26.25	1.0000	1.0000
L33	14	MP3-05	26.00 - 26.25	1.0000	1.0000
L33	26	CU12PSM9P6XXX(1-1/2)	26.00 - 26.25	1.0000	1.0000
L34	3	LDF7-50A(1-5/8)	21.00 - 26.00	1.0000	1.0000
L34	7	WR-VG86ST-BRD(3/4)	21.00 - 26.00	1.0000	1.0000
L34	8	PWRT-606-S(7/8)	21.00 - 26.00	1.0000	1.0000
L34	9	FB-L98B-235-XXX(3/8)	21.00 - 26.00	1.0000	1.0000
L34	11	MP3-05	21.00 - 26.00	1.0000	1.0000
L34	12	MP3-05	21.00 - 26.00	1.0000	1.0000
L34	13	MP3-05	21.00 - 26.00	1.0000	1.0000
L34	14	MP3-05	21.00 - 26.00	1.0000	1.0000
L34	26	CU12PSM9P6XXX(1-1/2)	21.00 - 26.00	1.0000	1.0000
L35	3	LDF7-50A(1-5/8)	16.00 - 21.00	1.0000	1.0000
L35	7	WR-VG86ST-BRD(3/4)	16.00 - 21.00	1.0000	1.0000
L35	8	PWRT-606-S(7/8)	16.00 - 21.00	1.0000	1.0000
L35	9	FB-L98B-235-XXX(3/8)	16.00 - 21.00	1.0000	1.0000
L35	11	MP3-05	16.00 - 21.00	1.0000	1.0000
L35	12	MP3-05	16.00 - 21.00	1.0000	1.0000
L35	13	MP3-05	16.00 - 21.00	1.0000	1.0000
L35	14	MP3-05	16.00 - 21.00	1.0000	1.0000
L35	26	CU12PSM9P6XXX(1-1/2)	16.00 - 21.00	1.0000	1.0000
L36	3	LDF7-50A(1-5/8)	11.00 - 16.00	1.0000	1.0000
L36	7	WR-VG86ST-BRD(3/4)	11.00 - 16.00	1.0000	1.0000
L36	8	PWRT-606-S(7/8)	11.00 - 16.00	1.0000	1.0000
L36	9	FB-L98B-235-XXX(3/8)	11.00 - 16.00	1.0000	1.0000
L36	11	MP3-05	11.00 - 16.00	1.0000	1.0000
L36	12	MP3-05	11.00 - 16.00	1.0000	1.0000
L36	13	MP3-05	11.00 - 16.00	1.0000	1.0000
L36	14	MP3-05	11.00 - 16.00	1.0000	1.0000
L36	26	CU12PSM9P6XXX(1-1/2)	11.00 - 16.00	1.0000	1.0000
L37	3	LDF7-50A(1-5/8)	6.00 - 11.00	1.0000	1.0000
L37	7	WR-VG86ST-BRD(3/4)	6.00 - 11.00	1.0000	1.0000
L37	8	PWRT-606-S(7/8)	6.00 - 11.00	1.0000	1.0000
L37	9	FB-L98B-235-XXX(3/8)	6.00 - 11.00	1.0000	1.0000
L37	11	MP3-05	6.00 - 11.00	1.0000	1.0000
L37	12	MP3-05	6.00 - 11.00	1.0000	1.0000
L37	13	MP3-05	6.00 - 11.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L37	14	MP3-05	6.00 - 11.00	1.0000	1.0000
L37	26	CU12PSM9P6XXX(1-1/2)	6.00 - 11.00	1.0000	1.0000
L38	3	LDF7-50A(1-5/8)	1.00 - 6.00	1.0000	1.0000
L38	7	WR-VG86ST-BRD(3/4)	1.00 - 6.00	1.0000	1.0000
L38	8	PWRT-606-S(7/8)	1.00 - 6.00	1.0000	1.0000
L38	9	FB-L98B-235-XXX(3/8)	1.00 - 6.00	1.0000	1.0000
L38	11	MP3-05	1.00 - 6.00	1.0000	1.0000
L38	12	MP3-05	1.00 - 6.00	1.0000	1.0000
L38	13	MP3-05	1.00 - 6.00	1.0000	1.0000
L38	14	MP3-05	1.00 - 6.00	1.0000	1.0000
L38	26	CU12PSM9P6XXX(1-1/2)	1.00 - 6.00	1.0000	1.0000
L39	3	LDF7-50A(1-5/8)	0.00 - 1.00	1.0000	1.0000
L39	7	WR-VG86ST-BRD(3/4)	0.00 - 1.00	1.0000	1.0000
L39	8	PWRT-606-S(7/8)	0.00 - 1.00	1.0000	1.0000
L39	9	FB-L98B-235-XXX(3/8)	0.00 - 1.00	1.0000	1.0000
L39	11	MP3-05	0.50 - 1.00	1.0000	1.0000
L39	12	MP3-05	0.50 - 1.00	1.0000	1.0000
L39	13	MP3-05	0.50 - 1.00	1.0000	1.0000
L39	14	MP3-05	0.50 - 1.00	1.0000	1.0000
L39	26	CU12PSM9P6XXX(1-1/2)	0.00 - 1.00	1.0000	1.0000

**Effective Width of Flat Linear Attachments / Feed Lines**

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L2	21	MP3-03	140.00 - 140.75	Auto	0.1121
L2	22	MP3-03	140.00 - 140.75	Auto	0.1121
L2	23	MP3-03	140.00 - 140.75	Auto	0.1121
L2	24	MP3-03	140.00 - 140.75	Auto	0.1121
L3	21	MP3-03	139.58 - 140.00	Auto	0.1062
L3	22	MP3-03	139.58 - 140.00	Auto	0.1062
L3	23	MP3-03	139.58 - 140.00	Auto	0.1062
L3	24	MP3-03	139.58 - 140.00	Auto	0.1062
L4	21	MP3-03	139.33 - 139.58	Auto	0.3010
L4	22	MP3-03	139.33 - 139.58	Auto	0.3010
L4	23	MP3-03	139.33 - 139.58	Auto	0.3010
L4	24	MP3-03	139.33 - 139.58	Auto	0.3010
L5	21	MP3-03	134.33 - 139.33	Auto	0.2583
L5	22	MP3-03	134.33 - 139.33	Auto	0.2583
L5	23	MP3-03	134.33 - 139.33	Auto	0.2583
L5	24	MP3-03	134.33 - 139.33	Auto	0.2583
L6	21	MP3-03	129.33 - 134.33	Auto	0.2003

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L6	22	MP3-03	129.33 - 134.33	Auto	0.2003
L6	23	MP3-03	129.33 - 134.33	Auto	0.2003
L6	24	MP3-03	129.33 - 134.33	Auto	0.2003
L7	21	MP3-03	124.33 - 129.33	Auto	0.1423
L7	22	MP3-03	124.33 - 129.33	Auto	0.1423
L7	23	MP3-03	124.33 - 129.33	Auto	0.1423
L7	24	MP3-03	124.33 - 129.33	Auto	0.1423
L8	21	MP3-03	119.33 - 124.33	Auto	0.0842
L8	22	MP3-03	119.33 - 124.33	Auto	0.0842
L8	23	MP3-03	119.33 - 124.33	Auto	0.0842
L8	24	MP3-03	119.33 - 124.33	Auto	0.0842
L9	21	MP3-03	114.33 - 119.33	Auto	0.0262
L9	22	MP3-03	114.33 - 119.33	Auto	0.0262
L9	23	MP3-03	114.33 - 119.33	Auto	0.0262
L9	24	MP3-03	114.33 - 119.33	Auto	0.0262
L10	21	MP3-03	110.75 - 114.33	Auto	0.0000
L10	22	MP3-03	110.75 - 114.33	Auto	0.0000
L10	23	MP3-03	110.75 - 114.33	Auto	0.0000
L10	24	MP3-03	110.75 - 114.33	Auto	0.0000
L11	16	MP3-04	109.75 - 110.00	Auto	0.1631
L11	17	MP3-04	109.75 - 110.00	Auto	0.1631
L11	18	MP3-04	109.75 - 110.00	Auto	0.1631
L11	19	MP3-04	109.75 - 110.00	Auto	0.1631
L12	16	MP3-04	104.75 - 109.75	Auto	0.1339
L12	17	MP3-04	104.75 - 109.75	Auto	0.1339
L12	18	MP3-04	104.75 - 109.75	Auto	0.1339
L12	19	MP3-04	104.75 - 109.75	Auto	0.1339
L13	16	MP3-04	99.75 - 104.75	Auto	0.0846
L13	17	MP3-04	99.75 - 104.75	Auto	0.0846
L13	18	MP3-04	99.75 - 104.75	Auto	0.0846
L13	19	MP3-04	99.75 - 104.75	Auto	0.0846
L14	16	MP3-04	94.75 - 99.75	Auto	0.0353
L14	17	MP3-04	94.75 - 99.75	Auto	0.0353
L14	18	MP3-04	94.75 - 99.75	Auto	0.0353

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L14	19	MP3-04	94.75 - 99.75	Auto	0.0353
L15	16	MP3-04	89.75 - 94.75	Auto	0.0006
L15	17	MP3-04	89.75 - 94.75	Auto	0.0006
L15	18	MP3-04	89.75 - 94.75	Auto	0.0006
L15	19	MP3-04	89.75 - 94.75	Auto	0.0006
L16	16	MP3-04	84.75 - 89.75	Auto	0.0000
L16	17	MP3-04	84.75 - 89.75	Auto	0.0000
L16	18	MP3-04	84.75 - 89.75	Auto	0.0000
L16	19	MP3-04	84.75 - 89.75	Auto	0.0000
L17	16	MP3-04	81.50 - 84.75	Auto	0.0000
L17	17	MP3-04	81.50 - 84.75	Auto	0.0000
L17	18	MP3-04	81.50 - 84.75	Auto	0.0000
L17	19	MP3-04	81.50 - 84.75	Auto	0.0000
L18	16	MP3-04	81.25 - 81.50	Auto	0.0000
L18	17	MP3-04	81.25 - 81.50	Auto	0.0000
L18	18	MP3-04	81.25 - 81.50	Auto	0.0000
L18	19	MP3-04	81.25 - 81.50	Auto	0.0000
L19	16	MP3-04	76.25 - 81.25	Auto	0.0000
L19	17	MP3-04	76.25 - 81.25	Auto	0.0000
L19	18	MP3-04	76.25 - 81.25	Auto	0.0000
L19	19	MP3-04	76.25 - 81.25	Auto	0.0000
L20	16	MP3-04	71.25 - 76.25	Auto	0.0000
L20	17	MP3-04	71.25 - 76.25	Auto	0.0000
L20	18	MP3-04	71.25 - 76.25	Auto	0.0000
L20	19	MP3-04	71.25 - 76.25	Auto	0.0000
L21	16	MP3-04	66.00 - 71.25	Auto	0.0000
L21	17	MP3-04	66.00 - 71.25	Auto	0.0000
L21	18	MP3-04	66.00 - 71.25	Auto	0.0000
L21	19	MP3-04	66.00 - 71.25	Auto	0.0000
L22	16	MP3-04	65.00 - 66.00	Auto	0.0000
L22	17	MP3-04	65.00 - 66.00	Auto	0.0000
L22	18	MP3-04	65.00 - 66.00	Auto	0.0000
L22	19	MP3-04	65.00 - 66.00	Auto	0.0000
L23	16	MP3-04	60.00 - 65.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L23	17	MP3-04	60.00 - 65.00	Auto	0.0000
L23	18	MP3-04	60.00 - 65.00	Auto	0.0000
L23	19	MP3-04	60.00 - 65.00	Auto	0.0000
L24	16	MP3-04	55.00 - 60.00	Auto	0.0000
L24	17	MP3-04	55.00 - 60.00	Auto	0.0000
L24	18	MP3-04	55.00 - 60.00	Auto	0.0000
L24	19	MP3-04	55.00 - 60.00	Auto	0.0000
L25	16	MP3-04	51.25 - 55.00	Auto	0.0000
L25	17	MP3-04	51.25 - 55.00	Auto	0.0000
L25	18	MP3-04	51.25 - 55.00	Auto	0.0000
L25	19	MP3-04	51.25 - 55.00	Auto	0.0000
L26	11	MP3-05	51.00 - 51.25	Auto	0.0000
L26	12	MP3-05	51.00 - 51.25	Auto	0.0000
L26	13	MP3-05	51.00 - 51.25	Auto	0.0000
L26	14	MP3-05	51.00 - 51.25	Auto	0.0000
L27	11	MP3-05	46.00 - 51.00	Auto	0.0000
L27	12	MP3-05	46.00 - 51.00	Auto	0.0000
L27	13	MP3-05	46.00 - 51.00	Auto	0.0000
L27	14	MP3-05	46.00 - 51.00	Auto	0.0000
L28	11	MP3-05	41.00 - 46.00	Auto	0.0000
L28	12	MP3-05	41.00 - 46.00	Auto	0.0000
L28	13	MP3-05	41.00 - 46.00	Auto	0.0000
L28	14	MP3-05	41.00 - 46.00	Auto	0.0000
L29	11	MP3-05	36.00 - 41.00	Auto	0.0000
L29	12	MP3-05	36.00 - 41.00	Auto	0.0000
L29	13	MP3-05	36.00 - 41.00	Auto	0.0000
L29	14	MP3-05	36.00 - 41.00	Auto	0.0000
L30	11	MP3-05	31.00 - 36.00	Auto	0.0000
L30	12	MP3-05	31.00 - 36.00	Auto	0.0000
L30	13	MP3-05	31.00 - 36.00	Auto	0.0000
L30	14	MP3-05	31.00 - 36.00	Auto	0.0000
L31	11	MP3-05	27.00 - 31.00	Auto	0.0000
L31	12	MP3-05	27.00 - 31.00	Auto	0.0000
L31	13	MP3-05	27.00 - 31.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	14	MP3-05	27.00 - 31.00	Auto	0.0000
L32	11	MP3-05	26.25 - 27.00	Auto	0.0000
L32	12	MP3-05	26.25 - 27.00	Auto	0.0000
L32	13	MP3-05	26.25 - 27.00	Auto	0.0000
L32	14	MP3-05	26.25 - 27.00	Auto	0.0000
L33	11	MP3-05	26.00 - 26.25	Auto	0.0000
L33	12	MP3-05	26.00 - 26.25	Auto	0.0000
L33	13	MP3-05	26.00 - 26.25	Auto	0.0000
L33	14	MP3-05	26.00 - 26.25	Auto	0.0000
L34	11	MP3-05	21.00 - 26.00	Auto	0.0000
L34	12	MP3-05	21.00 - 26.00	Auto	0.0000
L34	13	MP3-05	21.00 - 26.00	Auto	0.0000
L34	14	MP3-05	21.00 - 26.00	Auto	0.0000
L35	11	MP3-05	16.00 - 21.00	Auto	0.0000
L35	12	MP3-05	16.00 - 21.00	Auto	0.0000
L35	13	MP3-05	16.00 - 21.00	Auto	0.0000
L35	14	MP3-05	16.00 - 21.00	Auto	0.0000
L36	11	MP3-05	11.00 - 16.00	Auto	0.0000
L36	12	MP3-05	11.00 - 16.00	Auto	0.0000
L36	13	MP3-05	11.00 - 16.00	Auto	0.0000
L36	14	MP3-05	11.00 - 16.00	Auto	0.0000
L37	11	MP3-05	6.00 - 11.00	Auto	0.0000
L37	12	MP3-05	6.00 - 11.00	Auto	0.0000
L37	13	MP3-05	6.00 - 11.00	Auto	0.0000
L37	14	MP3-05	6.00 - 11.00	Auto	0.0000
L38	11	MP3-05	1.00 - 6.00	Auto	0.0000
L38	12	MP3-05	1.00 - 6.00	Auto	0.0000
L38	13	MP3-05	1.00 - 6.00	Auto	0.0000
L38	14	MP3-05	1.00 - 6.00	Auto	0.0000
L39	11	MP3-05	0.50 - 1.00	Auto	0.0000
L39	12	MP3-05	0.50 - 1.00	Auto	0.0000
L39	13	MP3-05	0.50 - 1.00	Auto	0.0000
L39	14	MP3-05	0.50 - 1.00	Auto	0.0000

**Discrete Tower Loads**

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS 32 B2	A	From Leg	4.00	0.0000	152.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00	0.0000	152.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.0000	152.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
RRUS 32 B66	A	From Leg	4.00	0.0000	152.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			1.00			Ice	3.19	2.05	0.10
RRUS 32 B66	B	From Leg	4.00	0.0000	152.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			1.00			Ice	3.19	2.05	0.10
RRUS 32 B66	C	From Leg	4.00	0.0000	152.00	No Ice	2.74	1.67	0.05
			0.00			1/2"	2.96	1.86	0.07
			1.00			Ice	3.19	2.05	0.10
(2) DC6-48-60-18-8F	A	From Leg	4.00	0.0000	152.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			1.00			Ice	2.11	2.11	0.07
RRUS 32 B30	A	From Leg	4.00	0.0000	152.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
RRUS 32 B30	B	From Leg	4.00	0.0000	152.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
RRUS 32 B30	C	From Leg	4.00	0.0000	152.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
DMP65R-BU4E w/ Mount Pipe	A	From Leg	4.00	0.0000	152.00	No Ice	8.00	4.76	0.09
			0.00			1/2"	8.55	5.25	0.16
			1.00			Ice	9.11	5.74	0.23
DMP65R-BU4E w/ Mount Pipe	B	From Leg	4.00	0.0000	152.00	No Ice	8.00	4.76	0.09
			0.00			1/2"	8.55	5.25	0.16
			1.00			Ice	9.11	5.74	0.23
DMP65R-BU4E w/ Mount Pipe	C	From Leg	4.00	0.0000	152.00	No Ice	8.00	4.76	0.09
			0.00			1/2"	8.55	5.25	0.16
			1.00			Ice	9.11	5.74	0.23
C-Band Antenna E w/ Mount Pipe	A	From Leg	4.00	0.0000	152.00	No Ice	3.87	2.32	0.08
			0.00			1/2"	4.18	2.72	0.11
			0.00			Ice	4.50	3.13	0.15
C-Band Antenna E w/ Mount Pipe	B	From Leg	4.00	0.0000	152.00	No Ice	3.87	2.32	0.08
			0.00			1/2"	4.18	2.72	0.11
			0.00			Ice	4.50	3.13	0.15
C-Band Antenna E w/ Mount Pipe	C	From Leg	4.00	0.0000	152.00	No Ice	3.87	2.32	0.08
			0.00			1/2"	4.18	2.72	0.11
			0.00			Ice	4.50	3.13	0.15
AIR 6449 N77 w/ Mount	A	From Leg	4.00	0.0000	152.00	No Ice	3.65	2.72	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
Pipe			0.00 2.00			1/2" Ice 4.35	3.99 3.03 3.36	0.15 0.20
AIR 6449 N77 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 4.35	3.65 2.72 3.03 3.36	0.11 0.15 0.20
AIR 6449 N77 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 4.35	3.65 2.72 3.03 3.36	0.11 0.15 0.20
QD6616-7 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 14.06	12.56 6.93 7.60 8.28	0.16 0.25 0.36
QD6616-7 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 14.06	12.56 6.93 7.60 8.28	0.16 0.25 0.36
QD6616-7 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 14.06	12.56 6.93 7.60 8.28	0.16 0.25 0.36
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 2.33	1.97 1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 2.33	1.97 1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 2.33	1.97 1.41 1.56 1.73	0.07 0.09 0.11
DC9-48-60-24-8C-EV	A	From Leg	4.00 0.00 1.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 2.00	1.14 1.14 1.79 2.00	0.03 0.05 0.07
Sector Mount [SM 502-3]	C	None		0.0000	152.00	1" Ice No Ice 1/2" Ice 54.43	29.82 29.82 42.21 54.43	1.67 2.27 3.05
Side Arm Mount [SO 102-3]	A	None		0.0000	152.00	1" Ice No Ice 1/2" Ice 4.75	3.60 3.60 4.18 4.75	0.07 0.11 0.14
Pipe Mount [PM 601-3]	A	None		0.0000	152.00	1" Ice No Ice 1/2" Ice 4.42	3.17 3.17 3.79 4.42	0.20 0.23 0.28
10' x 2.375" Horizontal Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 4.45	2.38 0.01 0.05 0.10	0.04 0.05 0.08
10' x 2.375" Horizontal Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 4.45	2.38 0.01 0.05 0.10	0.04 0.05 0.08
10' x 2.375" Horizontal Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	152.00	1" Ice No Ice 1/2" Ice 4.45	2.38 0.01 0.05 0.10	0.04 0.05 0.08
(2) 4' x 2" Pipe Mount	A	From Leg	2.00 0.00	0.0000	152.00	1" Ice No Ice 1/2"	0.79 0.79 1.03	0.03 0.04



Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			0.00			Ice	1.28	1.28	0.04
(2) 4' x 2" Pipe Mount	B	From Leg	2.00 0.00 0.00	0.0000	152.00	1" Ice No Ice	0.79 0.79	0.79 0.79	0.03 0.03
						1/2" Ice	1.03 1.28	1.03 1.28	0.04 0.04
(2) 4' x 2" Pipe Mount	C	From Leg	2.00 0.00 0.00	0.0000	152.00	1" Ice No Ice	0.79 0.79	0.79 0.79	0.03 0.03
						1/2" Ice	1.03 1.28	1.03 1.28	0.04 0.04
						1" Ice			
* FFVV-65B-R2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.55 8.04 8.53	4.23 4.67 5.12	0.11 0.19 0.29
						1" Ice			
FFVV-65B-R2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.55 8.04 8.53	4.23 4.67 5.12	0.11 0.19 0.29
						1" Ice			
FFVV-65B-R2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.55 8.04 8.53	4.23 4.67 5.12	0.11 0.19 0.29
						1" Ice			
(2) TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
						1" Ice			
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
						1" Ice			
(2) TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
						1" Ice			
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
						1" Ice			
RDIDC-9181-PF-48	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	2.31 2.50 2.70	1.29 1.45 1.61	0.02 0.04 0.06
						1" Ice			
Commscope MC-PK8-DSH	C	None		0.0000	140.00	No Ice 1/2" Ice	34.24 62.95 91.66	34.24 62.95 91.66	1.75 2.10 2.45
						1" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
						1" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
						1" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
						1" Ice			
*** bridge stiffener	A	None		0.0000	110.00	No Ice 1/2" Ice	1.55 1.82 2.09	0.54 1.01 1.48	0.09 0.11 0.13
						1" Ice			
bridge stiffener	A	None		0.0000	110.00	No Ice	1.55	0.54	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
bridge stiffener	B	None		0.0000	110.00	1/2" Ice	1.82	1.01	0.11
						Ice	2.09	1.48	0.13
						1" Ice	1.55	0.54	0.09
						No Ice	1.82	1.01	0.11
bridge stiffener	C	None		0.0000	110.00	1/2" Ice	2.09	1.48	0.13
						1" Ice	1.55	0.54	0.09
						No Ice	1.82	1.01	0.11
						Ice	2.09	1.48	0.13
***									

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service

Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 145	Pole	Max Tension	26	0.00	0.00	0.00
			Max. Compression	26	-9.53	-0.09	1.03
			Max. Mx	8	-4.49	-46.26	0.28
			Max. My	2	-4.55	-0.02	46.39
			Max. Vy	8	6.48	-46.26	0.28
			Max. Vx	14	6.42	-0.04	-45.61
			Max. Torque	8			0.70
L2	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.03	-0.19	1.06
			Max. Mx	8	-4.79	-79.39	0.27
			Max. My	2	-4.85	-0.03	79.17
			Max. Vy	8	6.77	-79.39	0.27
			Max. Vx	14	6.69	-0.08	-78.37
			Max. Torque	8			0.70
L3	140 - 139.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.00	-1.43	-0.77
			Max. Mx	8	-7.62	-84.25	-0.88
			Max. My	14	-7.72	-0.81	-83.60
			Max. Vy	8	9.82	-84.25	-0.88
			Max. Vx	14	9.61	-0.81	-83.60
			Max. Torque	2			-0.53
L4	139.583 - 139.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.05	-1.44	-0.77
			Max. Mx	8	-7.65	-86.71	-0.89
			Max. My	14	-7.75	-0.82	-86.01
			Max. Vy	8	9.84	-86.71	-0.89
			Max. Vx	14	9.62	-0.82	-86.01
			Max. Torque	2			-0.53
L5	139.333 - 134.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.93	-1.53	-0.74
			Max. Mx	8	-8.18	-137.05	-1.09
			Max. My	14	-8.31	-1.05	-134.86
			Max. Vy	8	10.30	-137.05	-1.09
			Max. Vx	14	9.93	-1.05	-134.86
			Max. Torque	24			-0.55
L6	134.333 - 129.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.84	-1.62	-0.71
			Max. Mx	8	-8.74	-189.69	-1.29
			Max. My	14	-8.89	-1.28	-185.24
			Max. Vy	8	10.76	-189.69	-1.29
			Max. Vx	14	10.24	-1.28	-185.24
			Max. Torque	24			-0.58
L7	129.333 - 124.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.75	-1.72	-0.67
			Max. Mx	8	-9.33	-244.42	-1.49
			Max. My	14	-9.49	-1.50	-237.14
			Max. Vy	8	11.14	-244.42	-1.49
			Max. Vx	14	10.54	-1.50	-237.14
			Max. Torque	24			-0.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L8	124.333 - 119.333	Pole	Max. Torque	24			-0.61
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.69	-1.81	-0.63
			Max. Mx	8	-9.95	-301.04	-1.68
			Max. My	14	-10.12	-1.73	-290.56
			Max. Vy	8	11.52	-301.04	-1.68
			Max. Vx	14	10.84	-1.73	-290.56
L9	119.333 - 114.333	Pole	Max. Torque	24			-0.64
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.64	-1.91	-0.59
			Max. Mx	8	-10.59	-359.52	-1.87
			Max. My	14	-10.76	-1.96	-345.47
			Max. Vy	8	11.89	-359.52	-1.87
			Max. Vx	14	11.14	-1.96	-345.47
L10	114.333 - 110	Pole	Max. Torque	24			-0.67
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.46	-1.99	-0.55
			Max. Mx	8	-11.16	-411.67	-2.04
			Max. My	14	-11.34	-2.16	-394.27
			Max. Vy	8	12.20	-411.67	-2.04
			Max. Vx	14	11.40	-2.16	-394.27
L11	110 - 109.75	Pole	Max. Torque	24			-0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.10	-2.00	-0.55
			Max. Mx	8	-11.60	-414.78	-2.05
			Max. My	14	-11.78	-2.17	-397.17
			Max. Vy	8	12.44	-414.78	-2.05
			Max. Vx	14	11.63	-2.17	-397.17
L12	109.75 - 104.75	Pole	Max. Torque	24			-0.70
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.19	-2.09	-0.51
			Max. Mx	8	-12.36	-477.92	-2.25
			Max. My	14	-12.55	-2.40	-456.10
			Max. Vy	8	12.82	-477.92	-2.25
			Max. Vx	12	11.99	-253.16	-432.84
L13	104.75 - 99.75	Pole	Max. Torque	24			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.29	-2.19	-0.47
			Max. Mx	8	-13.15	-542.91	-2.44
			Max. My	14	-13.34	-2.63	-516.58
			Max. Vy	8	13.19	-542.91	-2.44
			Max. Vx	12	12.44	-288.81	-493.86
L14	99.75 - 94.75	Pole	Max. Torque	24			-0.75
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.41	-2.29	-0.42
			Max. Mx	8	-13.96	-609.73	-2.63
			Max. My	14	-14.14	-2.86	-578.61
			Max. Vy	8	13.55	-609.73	-2.63
			Max. Vx	12	12.88	-325.74	-557.09
L15	94.75 - 89.75	Pole	Max. Torque	24			-0.78
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.54	-2.39	-0.37
			Max. Mx	8	-14.79	-678.31	-2.82
			Max. My	14	-14.97	-3.09	-642.16
			Max. Vy	8	13.90	-678.31	-2.82
			Max. Vx	12	13.31	-363.93	-622.51
L16	89.75 - 84.75	Pole	Max. Torque	24			-0.81
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.69	-2.48	-0.32
			Max. Mx	8	-15.64	-748.62	-3.01
			Max. My	14	-15.81	-3.32	-707.20

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L17	84.75 - 81.5	Pole	Max. Vy	8	14.24	-748.62	-3.01
			Max. Vx	12	13.74	-403.36	-690.07
			Max. Torque	24			-0.84
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.45	-2.55	-0.29
			Max. Mx	8	-16.20	-795.23	-3.13
			Max. My	14	-16.37	-3.47	-750.27
			Max. Vy	8	14.46	-795.23	-3.13
			Max. Vx	12	14.02	-429.65	-735.14
			Max. Torque	23			-0.87
L18	81.5 - 81.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.50	-2.55	-0.28
			Max. Mx	8	-16.25	-798.84	-3.14
			Max. My	14	-16.42	-3.48	-753.60
			Max. Vy	8	14.47	-798.84	-3.14
			Max. Vx	24	-14.03	429.70	737.26
			Max. Torque	23			-0.87
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.68	-2.65	-0.23
			Max. Mx	8	-17.12	-871.97	-3.33
L19	81.25 - 76.25	Pole	Max. My	14	-17.28	-3.71	-821.12
			Max. Vy	8	14.80	-871.97	-3.33
			Max. Vx	24	-14.45	471.16	808.45
			Max. Torque	23			-0.92
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.86	-2.75	-0.18
			Max. Mx	8	-18.02	-946.67	-3.52
			Max. My	14	-18.17	-3.93	-890.04
			Max. Vy	8	15.10	-946.67	-3.52
			Max. Vx	24	-14.86	513.81	881.69
L20	76.25 - 71.25	Pole	Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.16	-2.77	-0.16
			Max. Mx	8	-18.25	-965.58	-3.56
			Max. My	14	-18.40	-3.99	-907.48
			Max. Vy	8	15.18	-965.58	-3.56
			Max. Vx	24	-14.94	524.64	900.31
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.21	-2.87	-0.11
L21	71.25 - 66	Pole	Max. Mx	8	-19.85	-1042.49	-3.75
			Max. My	14	-19.99	-4.21	-978.41
			Max. Vy	8	15.58	-1042.49	-3.75
			Max. Vx	24	-15.34	568.70	976.01
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.53	-2.96	-0.05
			Max. Mx	8	-20.88	-1121.07	-3.93
			Max. My	12	-20.62	-615.92	-1054.61
			Max. Vy	8	15.87	-1121.07	-3.93
L22	66 - 65	Pole	Max. Vx	24	-15.64	613.75	1053.42
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.86	-3.06	0.01
			Max. Mx	8	-21.93	-1201.08	-4.11
			Max. My	12	-21.69	-661.86	-1133.45
			Max. Vy	8	16.15	-1201.08	-4.11
			Max. Vx	24	-15.93	659.65	1132.31
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
L23	65 - 60	Pole	Max. Compression	26	-35.87	-3.13	0.05
			Max. Mx	8	-22.73	-1261.97	-4.24
			Max. My	12	-22.51	-696.85	-1193.52
			Max. Vy	8	16.35	-1261.97	-4.24
			Max. Vx	24	-16.14	694.62	1192.41
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.87	-3.13	0.05
			Max. Mx	8	-22.73	-1261.97	-4.24
			Max. My	12	-22.51	-696.85	-1193.52
L24	60 - 55	Pole	Max. Vy	8	16.35	-1261.97	-4.24
			Max. Vx	24	-16.14	694.62	1192.41
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.87	-3.13	0.05
			Max. Mx	8	-22.73	-1261.97	-4.24
			Max. My	12	-22.51	-696.85	-1193.52
			Max. Vy	8	16.35	-1261.97	-4.24
			Max. Vx	24	-16.14	694.62	1192.41
			Max. Torque	23			-0.97
L25	55 - 51.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.87	-3.13	0.05
			Max. Mx	8	-22.73	-1261.97	-4.24
			Max. My	12	-22.51	-696.85	-1193.52
			Max. Vy	8	16.35	-1261.97	-4.24
			Max. Vx	24	-16.14	694.62	1192.41
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.87	-3.13	0.05
			Max. Mx	8	-22.73	-1261.97	-4.24
L26	51.25 - 51	Pole	Max. My	12	-22.51	-696.85	-1193.52
			Max. Vy	8	16.35	-1261.97	-4.24
			Max. Vx	24	-16.14	694.62	1192.41
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	51 - 46	Pole	Max. Compression	26	-35.94	-3.14	0.05
			Max. Mx	8	-22.80	-1266.06	-4.25
			Max. My	12	-22.58	-699.20	-1197.55
			Max. Vy	8	16.35	-1266.06	-4.25
			Max. Vx	24	-16.15	696.96	1196.45
			Max. Torque	23			-0.97
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.44	-3.22	0.11
			Max. Mx	8	-23.99	-1348.50	-4.43
			Max. My	12	-23.78	-746.76	-1279.22
L28	46 - 41	Pole	Max. Vy	10	16.67	-1290.42	-742.03
			Max. Vx	24	-16.54	744.49	1278.17
			Max. Torque	23			-1.03
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.95	-3.30	0.16
			Max. Mx	8	-25.21	-1432.29	-4.60
			Max. My	12	-25.02	-795.29	-1362.56
			Max. Vy	10	16.95	-1374.40	-790.34
			Max. Vx	24	-16.83	792.98	1361.56
			Max. Torque	23			-1.03
L29	41 - 36	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.48	-3.38	0.22
			Max. Mx	8	-26.45	-1517.32	-4.78
			Max. My	12	-26.27	-844.60	-1447.25
			Max. Vy	10	17.21	-1459.73	-839.42
			Max. Vx	24	-17.09	842.26	1446.30
			Max. Torque	23			-1.03
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.02	-3.45	0.28
			Max. Mx	8	-27.70	-1603.50	-4.95
L30	36 - 31	Pole	Max. My	12	-27.55	-894.64	-1533.22
			Max. Vy	10	17.46	-1546.34	-889.24
			Max. Vx	24	-17.34	892.26	1532.33
			Max. Torque	23			-1.03
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.33	-3.47	0.29
			Max. Mx	8	-27.95	-1620.87	-4.98
			Max. My	12	-27.81	-904.73	-1550.56
			Max. Vy	10	17.50	-1563.81	-899.29
			Max. Vx	24	-17.38	902.35	1549.68
L31	31 - 27	Pole	Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.36	-3.53	0.33
			Max. Mx	8	-29.64	-1686.52	-5.11
			Max. My	12	-29.51	-942.91	-1616.15
			Max. Vy	10	17.74	-1629.88	-937.29
			Max. Vx	24	-17.62	940.49	1615.31
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.44	-3.53	0.33
L32	27 - 26.25	Pole	Max. Mx	8	-29.72	-1690.93	-5.12
			Max. My	12	-29.58	-945.47	-1620.55
			Max. Vy	10	17.74	-1634.31	-939.84
			Max. Vx	24	-17.62	943.05	1619.71
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.12	-3.61	0.39
			Max. Mx	8	-31.11	-1779.53	-5.28
			Max. My	12	-31.00	-997.04	-1709.19
			Max. Vy	10	17.98	-1723.59	-991.21
L33	26.25 - 26	Pole	Max. Vx	24	-17.86	994.59	1708.40
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.81	-3.68	0.45
			Max. Mx	8	-32.54	-1869.13	-5.45
			Max. My	12	-32.45	-1049.26	-1798.93
			Max. Vy	10	18.20	-1813.99	-1043.22
			Max. Vx	24	-18.08	1046.77	1798.20
			Max. Torque	23			-1.02
			Max. My	12	-32.45	-1049.26	-1798.93
L34	26 - 21	Pole	Max. Vy	10	17.98	-1723.59	-991.21
			Max. Vx	24	-17.86	994.59	1708.40
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.12	-3.61	0.39
			Max. Mx	8	-31.11	-1779.53	-5.28
			Max. My	12	-31.00	-997.04	-1709.19
			Max. Vy	10	17.98	-1723.59	-991.21
			Max. Vx	24	-17.86	994.59	1708.40
			Max. Torque	23			-1.02
L35	21 - 16	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.81	-3.68	0.45
			Max. Mx	8	-32.54	-1869.13	-5.45
			Max. My	12	-32.45	-1049.26	-1798.93
			Max. Vy	10	18.20	-1813.99	-1043.22
			Max. Vx	24	-18.08	1046.77	1798.20
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.81	-3.68	0.45
			Max. Mx	8	-32.54	-1869.13	-5.45

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	16 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.51	-3.76	0.50
			Max. Mx	8	-33.98	-1959.69	-5.61
			Max. My	12	-33.92	-1102.09	-1889.75
			Max. Vy	10	18.41	-1905.47	-1095.85
			Max. Vx	24	-18.29	1099.57	1889.08
L37	11 - 6	Pole	Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.22	-3.83	0.56
			Max. Mx	8	-35.44	-2051.17	-5.77
			Max. My	12	-35.41	-1155.51	-1981.60
			Max. Vy	10	18.62	-1997.98	-1149.09
L38	6 - 1	Pole	Max. Vx	24	-18.50	1152.96	1981.00
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.92	-3.89	0.61
			Max. Mx	8	-36.93	-2143.54	-5.92
			Max. My	12	-36.92	-1209.51	-2074.46
L39	1 - 0	Pole	Max. Vy	10	18.82	-2091.50	-1202.91
			Max. Vx	24	-18.69	1206.93	2073.91
			Max. Torque	23			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.24	-3.91	0.62
			Max. Mx	8	-37.23	-2162.12	-5.95
			Max. My	12	-37.23	-1220.37	-2093.14
			Max. Vy	10	18.85	-2110.32	-1213.73
			Max. Vx	24	-18.72	1217.78	2092.60
			Max. Torque	23			-1.02

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	53.24	-4.68	-0.01
	Max. H <sub>x</sub>	23	27.93	18.83	10.84
	Max. H <sub>z</sub>	25	27.93	10.87	18.71
	Max. M <sub>x</sub>	24	2092.60	10.87	18.71
	Max. M <sub>z</sub>	8	2162.12	-18.59	-0.04
	Max. Torsion	11	1.02	-18.83	-10.84
	Min. Vert	5	27.93	-8.75	15.11
	Min. H <sub>x</sub>	11	27.93	-18.83	-10.84
	Min. H <sub>z</sub>	13	27.93	-10.87	-18.71
	Min. M <sub>x</sub>	12	-2093.14	-10.87	-18.71
	Min. M <sub>z</sub>	20	-2159.50	18.59	0.04
	Min. Torsion	23	-1.02	18.83	10.84

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	31.03	0.00	0.00	0.18	-1.03	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	37.24	-0.04	-17.33	-2014.00	4.37	0.52
0.9 Dead+1.0 Wind 0 deg - No Ice	27.93	-0.04	-17.33	-1968.31	4.59	0.49
1.2 Dead+1.0 Wind 30 deg - No Ice	37.24	8.75	-15.11	-1757.44	-1020.34	0.45
0.9 Dead+1.0 Wind 30 deg - No Ice	27.93	8.75	-15.11	-1717.60	-996.82	0.41

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 60 deg - No Ice	37.24	15.19	-8.70	-1011.23	-1771.94	0.27
0.9 Dead+1.0 Wind 60 deg - No Ice	27.93	15.19	-8.70	-988.35	-1731.34	0.22
1.2 Dead+1.0 Wind 90 deg - No Ice	37.24	18.59	0.04	5.95	-2162.12	-0.04
0.9 Dead+1.0 Wind 90 deg - No Ice	27.93	18.59	0.04	5.73	-2113.02	-0.07
1.2 Dead+1.0 Wind 120 deg - No Ice	37.24	18.83	10.84	1213.73	-2110.32	-1.00
0.9 Dead+1.0 Wind 120 deg - No Ice	27.93	18.83	10.84	1186.95	-2063.56	-1.02
1.2 Dead+1.0 Wind 150 deg - No Ice	37.24	10.87	18.71	2093.14	-1220.37	-0.94
0.9 Dead+1.0 Wind 150 deg - No Ice	27.93	10.87	18.71	2047.02	-1193.17	-0.93
1.2 Dead+1.0 Wind 180 deg - No Ice	37.24	0.04	17.33	2014.51	-7.00	-0.51
0.9 Dead+1.0 Wind 180 deg - No Ice	27.93	0.04	17.33	1968.66	-6.50	-0.48
1.2 Dead+1.0 Wind 210 deg - No Ice	37.24	-8.75	15.11	1757.97	1017.70	-0.46
0.9 Dead+1.0 Wind 210 deg - No Ice	27.93	-8.75	15.11	1717.96	994.91	-0.42
1.2 Dead+1.0 Wind 240 deg - No Ice	37.24	-15.19	8.70	1011.77	1769.30	-0.29
0.9 Dead+1.0 Wind 240 deg - No Ice	27.93	-15.19	8.70	988.71	1729.43	-0.24
1.2 Dead+1.0 Wind 270 deg - No Ice	37.24	-18.59	-0.04	-5.41	2159.50	0.02
0.9 Dead+1.0 Wind 270 deg - No Ice	27.93	-18.59	-0.04	-5.36	2111.12	0.06
1.2 Dead+1.0 Wind 300 deg - No Ice	37.24	-18.83	-10.84	-1213.16	2107.73	1.01
0.9 Dead+1.0 Wind 300 deg - No Ice	27.93	-18.83	-10.84	-1186.57	2061.69	1.02
1.2 Dead+1.0 Wind 330 deg - No Ice	37.24	-10.87	-18.71	-2092.60	1217.78	0.96
0.9 Dead+1.0 Wind 330 deg - No Ice	27.93	-10.87	-18.71	-2046.66	1191.30	0.95
1.2 Dead+1.0 Ice+1.0 Temp	53.24	0.00	0.00	-0.62	-3.91	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	53.24	-0.01	-4.61	-585.27	-2.80	0.15
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	53.24	2.31	-3.98	-506.35	-296.87	0.11
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	53.24	4.00	-2.30	-291.91	-512.46	0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	53.24	4.68	0.01	0.56	-599.68	-0.06
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	53.24	4.59	2.64	333.28	-583.90	-0.40
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	53.24	2.64	4.55	573.73	-337.88	-0.36
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	53.24	0.01	4.61	584.00	-5.20	-0.15
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	53.24	-2.31	3.98	505.08	288.86	-0.11
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	53.24	-4.00	2.30	290.65	504.45	-0.04
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	53.24	-4.68	-0.01	-1.83	591.68	0.06
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	53.24	-4.59	-2.64	-334.55	575.91	0.40
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	53.24	-2.64	-4.55	-575.00	329.89	0.36
Dead+Wind 0 deg - Service	31.03	-0.01	-4.30	-493.54	0.31	0.13
Dead+Wind 30 deg - Service	31.03	2.17	-3.75	-430.68	-250.88	0.10
Dead+Wind 60 deg - Service	31.03	3.77	-2.16	-247.76	-435.14	0.04
Dead+Wind 90 deg - Service	31.03	4.61	0.01	1.60	-530.94	-0.04



Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 120 deg - Service	31.03	4.67	2.69	297.97	-518.61	-0.28
Dead+Wind 150 deg - Service	31.03	2.70	4.64	513.76	-300.21	-0.25
Dead+Wind 180 deg - Service	31.03	0.01	4.30	493.96	-2.47	-0.12
Dead+Wind 210 deg - Service	31.03	-2.17	3.75	431.09	248.71	-0.10
Dead+Wind 240 deg - Service	31.03	-3.77	2.16	248.18	432.97	-0.04
Dead+Wind 270 deg - Service	31.03	-4.61	-0.01	-1.18	528.78	0.04
Dead+Wind 300 deg - Service	31.03	-4.67	-2.69	-297.56	516.44	0.28
Dead+Wind 330 deg - Service	31.03	-2.70	-4.64	-513.34	298.05	0.25

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-31.03	0.00	-0.00	31.03	-0.00	0.000%
2	-0.04	-37.24	-17.33	0.04	37.24	17.33	0.000%
3	-0.04	-27.93	-17.33	0.04	27.93	17.33	0.000%
4	8.75	-37.24	-15.11	-8.75	37.24	15.11	0.000%
5	8.75	-27.93	-15.11	-8.75	27.93	15.11	0.000%
6	15.19	-37.24	-8.70	-15.19	37.24	8.70	0.000%
7	15.19	-27.93	-8.70	-15.19	27.93	8.70	0.000%
8	18.59	-37.24	0.04	-18.59	37.24	-0.04	0.000%
9	18.59	-27.93	0.04	-18.59	27.93	-0.04	0.000%
10	18.83	-37.24	10.84	-18.83	37.24	-10.84	0.000%
11	18.83	-27.93	10.84	-18.83	27.93	-10.84	0.000%
12	10.87	-37.24	18.71	-10.87	37.24	-18.71	0.000%
13	10.87	-27.93	18.71	-10.87	27.93	-18.71	0.000%
14	0.04	-37.24	17.33	-0.04	37.24	-17.33	0.000%
15	0.04	-27.93	17.33	-0.04	27.93	-17.33	0.000%
16	-8.75	-37.24	15.11	8.75	37.24	-15.11	0.000%
17	-8.75	-27.93	15.11	8.75	27.93	-15.11	0.000%
18	-15.19	-37.24	8.70	15.19	37.24	-8.70	0.000%
19	-15.19	-27.93	8.70	15.19	27.93	-8.70	0.000%
20	-18.59	-37.24	-0.04	18.59	37.24	0.04	0.000%
21	-18.59	-27.93	-0.04	18.59	27.93	0.04	0.000%
22	-18.83	-37.24	-10.84	18.83	37.24	10.84	0.000%
23	-18.83	-27.93	-10.84	18.83	27.93	10.84	0.000%
24	-10.87	-37.24	-18.71	10.87	37.24	18.71	0.000%
25	-10.87	-27.93	-18.71	10.87	27.93	18.71	0.000%
26	0.00	-53.24	0.00	-0.00	53.24	-0.00	0.000%
27	-0.01	-53.24	-4.61	0.01	53.24	4.61	0.000%
28	2.31	-53.24	-3.98	-2.31	53.24	3.98	0.000%
29	4.00	-53.24	-2.30	-4.00	53.24	2.30	0.000%
30	4.68	-53.24	0.01	-4.68	53.24	-0.01	0.000%
31	4.59	-53.24	2.64	-4.59	53.24	-2.64	0.000%
32	2.64	-53.24	4.55	-2.64	53.24	-4.55	0.000%
33	0.01	-53.24	4.61	-0.01	53.24	-4.61	0.000%
34	-2.31	-53.24	3.98	2.31	53.24	-3.98	0.000%
35	-4.00	-53.24	2.30	4.00	53.24	-2.30	0.000%
36	-4.68	-53.24	-0.01	4.68	53.24	0.01	0.000%
37	-4.59	-53.24	-2.64	4.59	53.24	2.64	0.000%
38	-2.64	-53.24	-4.55	2.64	53.24	4.55	0.000%
39	-0.01	-31.03	-4.30	0.01	31.03	4.30	0.000%
40	2.17	-31.03	-3.75	-2.17	31.03	3.75	0.000%
41	3.77	-31.03	-2.16	-3.77	31.03	2.16	0.000%
42	4.61	-31.03	0.01	-4.61	31.03	-0.01	0.000%
43	4.67	-31.03	2.69	-4.67	31.03	-2.69	0.000%
44	2.70	-31.03	4.64	-2.70	31.03	-4.64	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
45	0.01	-31.03	4.30	-0.01	31.03	-4.30	0.000%
46	-2.17	-31.03	3.75	2.17	31.03	-3.75	0.000%
47	-3.77	-31.03	2.16	3.77	31.03	-2.16	0.000%
48	-4.61	-31.03	-0.01	4.61	31.03	0.01	0.000%
49	-4.67	-31.03	-2.69	4.67	31.03	2.69	0.000%
50	-2.70	-31.03	-4.64	2.70	31.03	4.64	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.00000751
2	Yes	6	0.0000001	0.00029988
3	Yes	6	0.0000001	0.00009650
4	Yes	8	0.0000001	0.00021603
5	Yes	7	0.0000001	0.00051565
6	Yes	8	0.0000001	0.00021287
7	Yes	7	0.0000001	0.00050802
8	Yes	6	0.0000001	0.00020661
9	Yes	5	0.0000001	0.00075327
10	Yes	8	0.0000001	0.00024339
11	Yes	7	0.0000001	0.00055742
12	Yes	8	0.0000001	0.00025131
13	Yes	7	0.0000001	0.00057854
14	Yes	6	0.0000001	0.00063526
15	Yes	6	0.0000001	0.00021078
16	Yes	8	0.0000001	0.00021141
17	Yes	7	0.0000001	0.00050458
18	Yes	8	0.0000001	0.00021526
19	Yes	7	0.0000001	0.00051353
20	Yes	6	0.0000001	0.00019126
21	Yes	6	0.0000001	0.00007344
22	Yes	8	0.0000001	0.00025082
23	Yes	7	0.0000001	0.00057811
24	Yes	8	0.0000001	0.00024171
25	Yes	7	0.0000001	0.00055485
26	Yes	5	0.0000001	0.00023822
27	Yes	7	0.0000001	0.00063319
28	Yes	8	0.0000001	0.00022876
29	Yes	8	0.0000001	0.00022655
30	Yes	7	0.0000001	0.00064978
31	Yes	8	0.0000001	0.00028263
32	Yes	8	0.0000001	0.00029047
33	Yes	7	0.0000001	0.00063491
34	Yes	8	0.0000001	0.00021877
35	Yes	8	0.0000001	0.00022165
36	Yes	7	0.0000001	0.00063742
37	Yes	8	0.0000001	0.00028450
38	Yes	8	0.0000001	0.00027104
39	Yes	5	0.0000001	0.00028650
40	Yes	6	0.0000001	0.00036000
41	Yes	6	0.0000001	0.00034950
42	Yes	5	0.0000001	0.00017514
43	Yes	6	0.0000001	0.00050803
44	Yes	6	0.0000001	0.00054738
45	Yes	5	0.0000001	0.00032970
46	Yes	6	0.0000001	0.00034120
47	Yes	6	0.0000001	0.00035408
48	Yes	5	0.0000001	0.00019230
49	Yes	6	0.0000001	0.00053895
50	Yes	6	0.0000001	0.00049201

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	40.193	43	2.4695	0.0055
L2	145 - 140	37.622	43	2.4372	0.0046
L3	140 - 139.583	35.100	43	2.3783	0.0037
L4	139.583 - 139.333	34.893	43	2.3721	0.0037
L5	139.333 - 134.333	34.768	43	2.3702	0.0037
L6	134.333 - 129.333	32.311	43	2.3236	0.0034
L7	129.333 - 124.333	29.909	43	2.2631	0.0032
L8	124.333 - 119.333	27.577	43	2.1912	0.0029
L9	119.333 - 114.333	25.326	43	2.1096	0.0027
L10	114.333 - 110	23.164	43	2.0197	0.0025
L11	110 - 109.75	21.370	43	1.9359	0.0023
L12	109.75 - 104.75	21.268	43	1.9318	0.0023
L13	104.75 - 99.75	19.291	43	1.8461	0.0021
L14	99.75 - 94.75	17.405	43	1.7561	0.0020
L15	94.75 - 89.75	15.615	43	1.6622	0.0018
L16	89.75 - 84.75	13.926	43	1.5649	0.0016
L17	84.75 - 81.5	12.340	43	1.4644	0.0015
L18	81.5 - 81.25	11.366	43	1.3989	0.0014
L19	81.25 - 76.25	11.293	43	1.3939	0.0014
L20	76.25 - 71.25	9.887	43	1.2905	0.0012
L21	71.25 - 66	8.591	43	1.1846	0.0011
L22	70 - 65	8.285	43	1.1582	0.0010
L23	65 - 60	7.100	43	1.0975	0.0010
L24	60 - 55	6.003	43	0.9980	0.0008
L25	55 - 51.25	5.010	43	0.8982	0.0007
L26	51.25 - 51	4.334	43	0.8233	0.0007
L27	51 - 46	4.291	43	0.8190	0.0006
L28	46 - 41	3.479	43	0.7329	0.0006
L29	41 - 36	2.757	43	0.6462	0.0005
L30	36 - 31	2.126	43	0.5590	0.0004
L31	31 - 27	1.585	43	0.4731	0.0003
L32	30 - 26.25	1.488	43	0.4560	0.0003
L33	26.25 - 26	1.143	43	0.4190	0.0003
L34	26 - 21	1.121	43	0.4150	0.0003
L35	21 - 16	0.729	43	0.3334	0.0002
L36	16 - 11	0.422	43	0.2532	0.0002
L37	11 - 6	0.199	43	0.1730	0.0001
L38	6 - 1	0.059	43	0.0943	0.0001
L39	1 - 0	0.002	43	0.0155	0.0000

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	RRUS 32 B2	43	40.193	2.4695	0.0055	6012
140.00	FFVV-65B-R2 w/ Mount Pipe	43	35.100	2.3783	0.0037	5187
110.00	bridge stiffener	43	21.370	1.9359	0.0023	3158

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	162.947	10	10.0445	0.0193
L2	145 - 140	152.579	10	9.9119	0.0160
L3	140 - 139.583	142.403	10	9.6712	0.0139
L4	139.583 - 139.333	141.566	10	9.6466	0.0137
L5	139.333 - 134.333	141.066	10	9.6392	0.0136
L6	134.333 - 129.333	131.143	10	9.4537	0.0126
L7	129.333 - 124.333	121.441	10	9.2113	0.0117
L8	124.333 - 119.333	112.012	10	8.9214	0.0108
L9	119.333 - 114.333	102.902	10	8.5917	0.0099
L10	114.333 - 110	94.148	10	8.2277	0.0090
L11	110 - 109.75	86.876	10	7.8877	0.0084
L12	109.75 - 104.75	86.466	10	7.8711	0.0083
L13	104.75 - 99.75	78.446	10	7.5232	0.0077
L14	99.75 - 94.75	70.795	10	7.1572	0.0071
L15	94.75 - 89.75	63.531	10	6.7752	0.0065
L16	89.75 - 84.75	56.669	10	6.3790	0.0059
L17	84.75 - 81.5	50.225	10	5.9699	0.0054
L18	81.5 - 81.25	46.264	10	5.7029	0.0050
L19	81.25 - 76.25	45.967	10	5.6823	0.0050
L20	76.25 - 71.25	40.252	10	5.2610	0.0044
L21	71.25 - 66	34.981	10	4.8295	0.0039
L22	70 - 65	33.733	10	4.7218	0.0038
L23	65 - 60	28.910	10	4.4743	0.0035
L24	60 - 55	24.445	10	4.0682	0.0031
L25	55 - 51.25	20.403	10	3.6614	0.0027
L26	51.25 - 51	17.651	10	3.3559	0.0024
L27	51 - 46	17.475	10	3.3382	0.0024
L28	46 - 41	14.167	10	2.9870	0.0021
L29	41 - 36	11.226	10	2.6335	0.0018
L30	36 - 31	8.657	10	2.2778	0.0015
L31	31 - 27	6.456	10	1.9274	0.0012
L32	30 - 26.25	6.060	10	1.8580	0.0012
L33	26.25 - 26	4.653	10	1.7069	0.0010
L34	26 - 21	4.564	10	1.6905	0.0010
L35	21 - 16	2.968	10	1.3579	0.0008
L36	16 - 11	1.718	10	1.0313	0.0006
L37	11 - 6	0.810	10	0.7046	0.0004
L38	6 - 1	0.240	10	0.3839	0.0002
L39	1 - 0	0.007	10	0.0630	0.0000

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	RRUS 32 B2	10	162.947	10.0445	0.0193	1596
140.00	FFVW-65B-R2 w/ Mount Pipe	10	142.403	9.6712	0.0139	1370
110.00	bridge stiffener	10	86.876	7.8877	0.0084	812

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L1	150 - 145 (1)	TP15.2541x14.5x0.25	5.00	0.00	0.0	12.078	-4.40	706.58	0.006
L2	145 - 140 (2)	TP16.0083x15.2541x0.25	5.00	0.00	0.0	12.685	-4.67	742.10	0.006
L3	140 - 139.583 (3)	TP16.0712x16.0083x0.25	0.42	0.00	0.0	12.736	-7.45	745.06	0.010
L4	139.583 - 139.333 (4)	TP16.1089x16.0712x0.55	0.25	0.00	0.0	27.554	-7.47	1611.95	0.005
L5	139.333 - 134.333 (5)	TP16.863x16.1089x0.525	5.00	0.00	0.0	27.619	-8.00	1615.74	0.005
L6	134.333 - 129.333 (6)	TP17.6172x16.863x0.512	5.00	0.00	0.0	28.227	-8.54	1651.28	0.005
L7	129.333 - 124.333 (7)	TP18.3713x17.6172x0.5	5.00	0.00	0.0	28.772	-9.12	1683.21	0.005
L8	124.333 - 119.333 (8)	TP19.1254x18.3713x0.48	5.00	0.00	0.0	29.256	-9.71	1711.53	0.006
L9	119.333 - 114.333 (9)	TP19.8796x19.1254x0.47	5.00	0.00	0.0	29.679	-10.34	1736.24	0.006
L10	114.333 - 110 (10)	TP20.5331x19.8796x0.46	4.33	0.00	0.0	29.890	-10.90	1748.57	0.006
L11	110 - 109.75 (11)	TP20.5708x20.5331x0.56	0.25	0.00	0.0	36.240	-11.34	2120.04	0.005
L12	109.75 - 104.75 (12)	TP21.3249x20.5708x0.55	5.00	0.00	0.0	36.792	-12.09	2152.36	0.006
L13	104.75 - 99.75 (13)	TP22.0791x21.3249x0.53	5.00	0.00	0.0	37.283	-12.86	2181.06	0.006
L14	99.75 - 94.75 (14)	TP22.8332x22.0791x0.52	5.00	0.00	0.0	37.712	-13.66	2206.15	0.006
L15	94.75 - 89.75 (15)	TP23.5874x22.8332x0.51	5.00	0.00	0.0	38.079	-14.48	2227.64	0.007
L16	89.75 - 84.75 (16)	TP24.3415x23.5874x0.5	5.00	0.00	0.0	38.384	-15.33	2245.51	0.007
L17	84.75 - 81.5 (17)	TP24.8317x24.3415x0.5	3.25	0.00	0.0	39.174	-15.89	2291.68	0.007
L18	81.5 - 81.25 (18)	TP24.8694x24.8317x0.5	0.25	0.00	0.0	39.234	-15.94	2295.23	0.007
L19	81.25 - 76.25 (19)	TP25.6235x24.8694x0.48	5.00	0.00	0.0	39.457	-16.82	2308.25	0.007
L20	76.25 - 71.25 (20)	TP26.3777x25.6235x0.47	5.00	0.00	0.0	39.618	-17.72	2317.66	0.008
L21	71.25 - 66 (21)	TP27.1695x26.3777x0.47	5.25	0.00	0.0	39.906	-17.95	2334.53	0.008
L22	66 - 65 (22)	TP26.8203x26.0662x0.53	5.00	0.00	0.0	45.489	-19.56	2661.11	0.007
L23	65 - 60 (23)	TP27.5745x26.8203x0.53	5.00	0.00	0.0	46.260	-20.61	2706.26	0.008
L24	60 - 55 (24)	TP28.3286x27.5745x0.52	5.00	0.00	0.0	47.002	-21.68	2749.62	0.008
L25	55 - 51.25 (25)	TP28.8942x28.3286x0.51	3.75	0.00	0.0	47.397	-22.50	2772.76	0.008
L26	51.25 - 51 (26)	TP28.9319x28.8942x0.6	0.25	0.00	0.0	54.737	-22.57	3202.13	0.007
L27	51 - 46 (27)	TP29.6861x28.9319x0.6	5.00	0.00	0.0	56.194	-23.77	3287.37	0.007
L28	46 - 41 (28)	TP30.4402x29.6861x0.58	5.00	0.00	0.0	56.473	-25.01	3303.72	0.008
L29	41 - 36 (29)	TP31.1943x30.4402x0.57	5.00	0.00	0.0	56.691	-26.27	3316.47	0.008
L30	36 - 31 (30)	TP31.9485x31.1943x0.57	5.00	0.00	0.0	58.088	-27.54	3398.15	0.008
L31	31 - 27 (31)	TP32.5518x31.9485x0.57	4.00	0.00	0.0	58.367	-27.80	3414.49	0.008
L32	27 - 26.25 (32)	TP32.04x31.4743x0.6375	3.75	0.00	0.0	64.461	-29.50	3771.00	0.008
L33	26.25 - 26 (33)	TP32.0777x32.04x0.6375	0.25	0.00	0.0	64.539	-29.58	3775.53	0.008
L34	26 - 21 (34)	TP32.832x32.0777x0.625	5.00	0.00	0.0	64.816	-31.00	3791.77	0.008
L35	21 - 16 (35)	TP33.5863x32.832x0.625	5.00	0.00	0.0	66.334	-32.45	3880.58	0.008

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
L36	16 - 11 (36)	TP34.3406x33.5863x0.61 25	5.00	0.00	0.0	66.520 2	-33.92	3891.43	0.009
L37	11 - 6 (37)	TP35.0949x34.3406x0.61 25	5.00	0.00	0.0	68.007 8	-35.41	3978.46	0.009
L38	6 - 1 (38)	TP35.8491x35.0949x0.6	5.00	0.00	0.0	68.101 3	-36.92	3983.93	0.009
L39	1 - 0 (39)	TP36x35.8491x0.6	1.00	0.00	0.0	68.392 8	-37.23	4000.98	0.009

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>nx</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M <sub>uy</sub> kip-ft	φM <sub>ny</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 145 (1)	TP15.2541x14.5x0.25	47.11	269.80	0.175	0.00	269.80	0.000
L2	145 - 140 (2)	TP16.0083x15.2541x0.25	81.37	297.84	0.273	0.00	297.84	0.000
L3	140 - 139.583 (3)	TP16.0712x16.0083x0.25	86.47	300.24	0.288	0.00	300.24	0.000
L4	139.583 - 139.333 (4)	TP16.1089x16.0712x0.55	89.01	626.74	0.142	0.00	626.74	0.000
L5	139.333 - 134.333 (5)	TP16.863x16.1089x0.525	141.27	661.73	0.213	0.00	661.73	0.000
L6	134.333 - 129.333 (6)	TP17.6172x16.863x0.512 5	196.09	709.51	0.276	0.00	709.51	0.000
L7	129.333 - 124.333 (7)	TP18.3713x17.6172x0.5	253.46	757.10	0.335	0.00	757.10	0.000
L8	124.333 - 119.333 (8)	TP19.1254x18.3713x0.48 75	313.39	804.29	0.390	0.00	804.29	0.000
L9	119.333 - 114.333 (9)	TP19.8796x19.1254x0.47 5	375.86	850.86	0.442	0.00	850.86	0.000
L10	114.333 - 110 (10)	TP20.5331x19.8796x0.46 25	432.03	887.56	0.487	0.00	887.56	0.000
L11	110 - 109.75 (11)	TP20.5708x20.5331x0.56 25	435.38	1067.48	0.408	0.00	1067.48	0.000
L12	109.75 - 104.75 (12)	TP21.3249x20.5708x0.55	503.85	1127.08	0.447	0.00	1127.08	0.000
L13	104.75 - 99.75 (13)	TP22.0791x21.3249x0.53 75	574.90	1186.01	0.485	0.00	1186.01	0.000
L14	99.75 - 94.75 (14)	TP22.8332x22.0791x0.52 5	648.51	1244.07	0.521	0.00	1244.07	0.000
L15	94.75 - 89.75 (15)	TP23.5874x22.8332x0.51 25	724.66	1301.03	0.557	0.00	1301.03	0.000
L16	89.75 - 84.75 (16)	TP24.3415x23.5874x0.5	803.30	1356.69	0.592	0.00	1356.69	0.000
L17	84.75 - 81.5 (17)	TP24.8317x24.3415x0.5	855.74	1413.63	0.605	0.00	1413.63	0.000
L18	81.5 - 81.25 (18)	TP24.8694x24.8317x0.5	859.82	1418.07	0.606	0.00	1418.07	0.000
L19	81.25 - 76.25 (19)	TP25.6235x24.8694x0.48 75	942.61	1472.59	0.640	0.00	1472.59	0.000
L20	76.25 - 71.25 (20)	TP26.3777x25.6235x0.47 5	1027.77	1525.28	0.674	0.00	1525.28	0.000
L21	71.25 - 66 (21)	TP27.1695x26.3777x0.47 5	1049.41	1547.76	0.678	0.00	1547.76	0.000
L22	66 - 65 (22)	TP26.8203x26.0662x0.53 75	1137.41	1773.33	0.641	0.00	1773.33	0.000
L23	65 - 60 (23)	TP27.5745x26.8203x0.53 13	1227.38	1857.05	0.661	0.00	1857.05	0.000
L24	60 - 55 (24)	TP28.3286x27.5745x0.52 5	1319.07	1941.31	0.679	0.00	1941.31	0.000
L25	55 - 51.25 (25)	TP28.8942x28.3286x0.51 88	1388.91	1999.09	0.695	0.00	1999.09	0.000
L26	51.25 - 51 (26)	TP28.9319x28.8942x0.6	1393.60	2298.57	0.606	0.00	2298.57	0.000

Section No.	Elevation ft	Size	$M_{ux}$	$\phi M_{nx}$	Ratio	$M_{uy}$	$\phi M_{ny}$	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L27	51 - 46 (27)	TP29.6861x28.9319x0.6	1488.56	2423.88	0.614	0.00	2423.88	0.000
L28	46 - 41 (28)	TP30.4402x29.6861x0.58	1585.43	2502.47	0.634	0.00	2502.47	0.000
L29	41 - 36 (29)	TP31.1943x30.4402x0.57	1683.88	2578.92	0.653	0.00	2578.92	0.000
L30	36 - 31 (30)	TP31.9485x31.1943x0.57	1783.79	2708.72	0.659	0.00	2708.72	0.000
L31	31 - 27 (31)	TP32.5518x31.9485x0.57	1803.94	2735.06	0.660	0.00	2735.06	0.000
L32	27 - 26.25 (32)	TP32.04x31.4743x0.6375	1880.17	3002.88	0.626	0.00	3002.88	0.000
L33	26.25 - 26 (33)	TP32.0777x32.04x0.6375	1885.28	3010.18	0.626	0.00	3010.18	0.000
L34	26 - 21 (34)	TP32.832x32.0777x0.625	1988.28	3099.50	0.641	0.00	3099.50	0.000
L35	21 - 16 (35)	TP33.5863x32.832x0.625	2092.57	3247.79	0.644	0.00	3247.79	0.000
L36	16 - 11 (36)	TP34.3406x33.5863x0.61	2198.11	3335.27	0.659	0.00	3335.27	0.000
L37	11 - 6 (37)	TP35.0949x34.3406x0.61	2304.85	3487.47	0.661	0.00	3487.47	0.000
L38	6 - 1 (38)	TP35.8491x35.0949x0.6	2412.75	3572.53	0.675	0.00	3572.53	0.000
L39	1 - 0 (39)	TP36x35.8491x0.6	2434.46	3603.43	0.676	0.00	3603.43	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	$\phi V_n$	Ratio	Actual	$\phi T_n$	Ratio
			$V_u$ K	K	$\frac{V_u}{\phi V_n}$	$T_u$ kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	150 - 145 (1)	TP15.2541x14.5x0.25	6.65	211.97	0.031	0.39	279.77	0.001
L2	145 - 140 (2)	TP16.0083x15.2541x0.25	7.06	222.63	0.032	0.42	308.60	0.001
L3	140 - 139.583 (3)	TP16.0712x16.0083x0.25	10.17	223.52	0.046	0.32	311.06	0.001
L4	139.583 - 139.333 (4)	TP16.1089x16.0712x0.55	10.20	483.59	0.021	0.32	661.84	0.000
L5	139.333 - 134.333 (5)	TP16.863x16.1089x0.525	10.71	484.72	0.022	0.37	696.61	0.001
L6	134.333 - 129.333 (6)	TP17.6172x16.863x0.512	11.22	495.38	0.023	0.41	745.34	0.001
L7	129.333 - 124.333 (7)	TP18.3713x17.6172x0.5	11.74	504.96	0.023	0.45	793.81	0.001
L8	124.333 - 119.333 (8)	TP19.1254x18.3713x0.48	12.25	513.46	0.024	0.50	841.79	0.001
L9	119.333 - 114.333 (9)	TP19.8796x19.1254x0.47	12.76	520.87	0.024	0.54	889.07	0.001
L10	114.333 - 110 (10)	TP20.5331x19.8796x0.46	13.19	524.57	0.025	0.58	926.12	0.001
L11	110 - 109.75 (11)	TP20.5708x20.5331x0.56	13.44	636.01	0.021	0.58	1119.38	0.001
L12	109.75 - 104.75 (12)	TP21.3249x20.5708x0.55	13.96	645.71	0.022	0.63	1179.98	0.001
L13	104.75 - 99.75 (13)	TP22.0791x21.3249x0.53	14.48	654.32	0.022	0.67	1239.84	0.001
L14	99.75 - 94.75 (14)	TP22.8332x22.0791x0.52	14.99	661.85	0.023	0.72	1298.74	0.001
L15	94.75 - 89.75 (15)	TP23.5874x22.8332x0.51	15.49	668.29	0.023	0.77	1356.45	0.001
L16	89.75 - 84.75 (16)	TP24.3415x23.5874x0.5	15.99	673.65	0.024	0.82	1412.77	0.001
L17	84.75 - 81.5 (17)	TP24.8317x24.3415x0.5	16.31	687.50	0.024	0.85	1471.46	0.001
L18	81.5 - 81.25 (18)	TP24.8694x24.8317x0.5	16.32	688.57	0.024	0.85	1476.02	0.001
L19	81.25 - 76.25 (19)	TP25.6235x24.8694x0.48	16.81	692.48	0.024	0.90	1531.09	0.001
L20	76.25 - 71.25 (20)	TP26.3777x25.6235x0.47	17.28	695.30	0.025	0.95	1584.22	0.001

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L21	71.25 - 66 (21)	TP27.1695x26.3777x0.475	17.37	700.36	0.025	0.95	1607.37	0.001
L22	66 - 65 (22)	TP26.8203x26.0662x0.5375	17.84	798.33	0.022	0.95	1845.68	0.001
L23	65 - 60 (23)	TP27.5745x26.8203x0.5313	18.18	811.88	0.022	0.95	1931.29	0.000
L24	60 - 55 (24)	TP28.3286x27.5745x0.525	18.52	824.88	0.022	0.94	2017.41	0.000
L25	55 - 51.25 (25)	TP28.8942x28.3286x0.5188	18.77	831.83	0.023	0.94	2076.24	0.000
L26	51.25 - 51 (26)	TP28.9319x28.8942x0.6	18.77	960.64	0.020	0.95	2394.07	0.000
L27	51 - 46 (27)	TP29.6861x28.9319x0.6	19.23	986.21	0.019	1.00	2523.22	0.000
L28	46 - 41 (28)	TP30.4402x29.6861x0.5875	19.55	991.12	0.020	1.00	2602.61	0.000
L29	41 - 36 (29)	TP31.1943x30.4402x0.575	19.86	994.94	0.020	1.00	2679.74	0.000
L30	36 - 31 (30)	TP31.9485x31.1943x0.575	20.14	1019.44	0.020	1.00	2813.37	0.000
L31	31 - 27 (31)	TP32.5518x31.9485x0.575	20.20	1024.35	0.020	1.00	2840.48	0.000
L32	27 - 26.25 (32)	TP32.04x31.4743x0.6375	20.47	1131.30	0.018	1.00	3124.94	0.000
L33	26.25 - 26 (33)	TP32.0777x32.04x0.6375	20.47	1132.66	0.018	1.00	3132.46	0.000
L34	26 - 21 (34)	TP32.832x32.0777x0.625	20.75	1137.53	0.018	1.00	3222.66	0.000
L35	21 - 16 (35)	TP33.5863x32.832x0.625	21.00	1164.17	0.018	1.00	3375.38	0.000
L36	16 - 11 (36)	TP34.3406x33.5863x0.6125	21.25	1167.43	0.018	1.00	3463.56	0.000
L37	11 - 6 (37)	TP35.0949x34.3406x0.6125	21.49	1193.54	0.018	1.00	3620.20	0.000
L38	6 - 1 (38)	TP35.8491x35.0949x0.6	21.71	1195.18	0.018	1.00	3705.79	0.000
L39	1 - 0 (39)	TP36x35.8491x0.6	21.75	1200.29	0.018	1.00	3737.58	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u$	Ratio $M_{ux}$	Ratio $M_{uy}$	Ratio $V_u$	Ratio $T_u$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 145 (1)	$\phi P_n$ 0.006	$\phi M_{nx}$ 0.175	$\phi M_{ny}$ 0.000	$\phi V_n$ 0.031	$\phi T_n$ 0.001	0.182	1.050	4.8.2
L2	145 - 140 (2)	0.006	0.273	0.000	0.032	0.001	0.281	1.050	4.8.2
L3	140 - 139.583 (3)	0.010	0.288	0.000	0.046	0.001	0.300	1.050	4.8.2
L4	139.583 - 139.333 (4)	0.005	0.142	0.000	0.021	0.000	0.147	1.050	4.8.2
L5	139.333 - 134.333 (5)	0.005	0.213	0.000	0.022	0.001	0.219	1.050	4.8.2
L6	134.333 - 129.333 (6)	0.005	0.276	0.000	0.023	0.001	0.282	1.050	4.8.2
L7	129.333 - 124.333 (7)	0.005	0.335	0.000	0.023	0.001	0.341	1.050	4.8.2
L8	124.333 - 119.333 (8)	0.006	0.390	0.000	0.024	0.001	0.396	1.050	4.8.2
L9	119.333 - 114.333 (9)	0.006	0.442	0.000	0.024	0.001	0.448	1.050	4.8.2
L10	114.333 - 110 (10)	0.006	0.487	0.000	0.025	0.001	0.494	1.050	4.8.2
L11	110 - 109.75 (11)	0.005	0.408	0.000	0.021	0.001	0.414	1.050	4.8.2
L12	109.75 - 104.75 (12)	0.006	0.447	0.000	0.022	0.001	0.453	1.050	4.8.2
L13	104.75 - 99.75 (13)	0.006	0.485	0.000	0.022	0.001	0.491	1.050	4.8.2



Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$P_u$	$M_{ux}$	$M_{uy}$	$V_u$	$T_u$			
L14	99.75 - 94.75 (14)	0.006	0.521	0.000	0.023	0.001	0.528	1.050	4.8.2
L15	94.75 - 89.75 (15)	0.007	0.557	0.000	0.023	0.001	0.564	1.050	4.8.2
L16	89.75 - 84.75 (16)	0.007	0.592	0.000	0.024	0.001	0.600	1.050	4.8.2
L17	84.75 - 81.5 (17)	0.007	0.605	0.000	0.024	0.001	0.613	1.050	4.8.2
L18	81.5 - 81.25 (18)	0.007	0.606	0.000	0.024	0.001	0.614	1.050	4.8.2
L19	81.25 - 76.25 (19)	0.007	0.640	0.000	0.024	0.001	0.648	1.050	4.8.2
L20	76.25 - 71.25 (20)	0.008	0.674	0.000	0.025	0.001	0.682	1.050	4.8.2
L21	71.25 - 66 (21)	0.008	0.678	0.000	0.025	0.001	0.686	1.050	4.8.2
L22	66 - 65 (22)	0.007	0.641	0.000	0.022	0.001	0.649	1.050	4.8.2
L23	65 - 60 (23)	0.008	0.661	0.000	0.022	0.000	0.669	1.050	4.8.2
L24	60 - 55 (24)	0.008	0.679	0.000	0.022	0.000	0.688	1.050	4.8.2
L25	55 - 51.25 (25)	0.008	0.695	0.000	0.023	0.000	0.703	1.050	4.8.2
L26	51.25 - 51 (26)	0.007	0.606	0.000	0.020	0.000	0.614	1.050	4.8.2
L27	51 - 46 (27)	0.007	0.614	0.000	0.019	0.000	0.622	1.050	4.8.2
L28	46 - 41 (28)	0.008	0.634	0.000	0.020	0.000	0.642	1.050	4.8.2
L29	41 - 36 (29)	0.008	0.653	0.000	0.020	0.000	0.661	1.050	4.8.2
L30	36 - 31 (30)	0.008	0.659	0.000	0.020	0.000	0.667	1.050	4.8.2
L31	31 - 27 (31)	0.008	0.660	0.000	0.020	0.000	0.668	1.050	4.8.2
L32	27 - 26.25 (32)	0.008	0.626	0.000	0.018	0.000	0.634	1.050	4.8.2
L33	26.25 - 26 (33)	0.008	0.626	0.000	0.018	0.000	0.634	1.050	4.8.2
L34	26 - 21 (34)	0.008	0.641	0.000	0.018	0.000	0.650	1.050	4.8.2
L35	21 - 16 (35)	0.008	0.644	0.000	0.018	0.000	0.653	1.050	4.8.2
L36	16 - 11 (36)	0.009	0.659	0.000	0.018	0.000	0.668	1.050	4.8.2
L37	11 - 6 (37)	0.009	0.661	0.000	0.018	0.000	0.670	1.050	4.8.2
L38	6 - 1 (38)	0.009	0.675	0.000	0.018	0.000	0.685	1.050	4.8.2
L39	1 - 0 (39)	0.009	0.676	0.000	0.018	0.000	0.685	1.050	4.8.2

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 145	Pole	TP15.2541x14.5x0.25	1	-4.40	741.91	17.3	Pass
L2	145 - 140	Pole	TP16.0083x15.2541x0.25	2	-4.67	779.20	26.7	Pass
L3	140 - 139.583	Pole	TP16.0712x16.0083x0.25	3	-7.45	782.31	28.6	Pass
L4	139.583 - 139.333	Pole	TP16.1089x16.0712x0.55	4	-7.47	1692.55	14.0	Pass
L5	139.333 - 134.333	Pole	TP16.863x16.1089x0.525	5	-8.00	1696.53	20.9	Pass
L6	134.333 - 129.333	Pole	TP17.6172x16.863x0.5125	6	-8.54	1733.84	26.9	Pass
L7	129.333 - 124.333	Pole	TP18.3713x17.6172x0.5	7	-9.12	1767.37	32.5	Pass
L8	124.333 - 119.333	Pole	TP19.1254x18.3713x0.4875	8	-9.71	1797.11	37.7	Pass
L9	119.333 - 114.333	Pole	TP19.8796x19.1254x0.475	9	-10.34	1823.05	42.7	Pass
L10	114.333 - 110	Pole	TP20.5331x19.8796x0.4625	10	-10.90	1836.00	47.0	Pass
L11	110 - 109.75	Pole	TP20.5708x20.5331x0.5625	11	-11.34	2226.04	39.4	Pass
L12	109.75 - 104.75	Pole	TP21.3249x20.5708x0.55	12	-12.09	2259.98	43.2	Pass
L13	104.75 - 99.75	Pole	TP22.0791x21.3249x0.5375	13	-12.86	2290.11	46.8	Pass

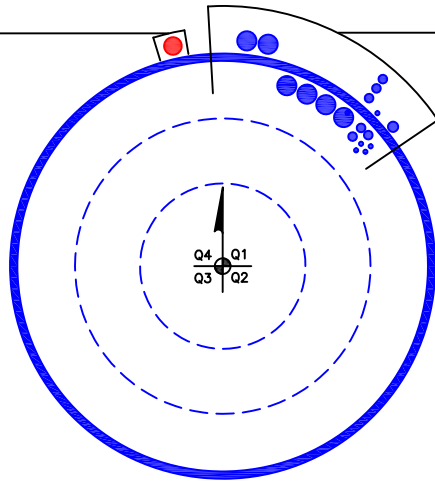
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L14	99.75 - 94.75	Pole	TP22.8332x22.0791x0.525	14	-13.66	2316.46	50.3	Pass	
L15	94.75 - 89.75	Pole	TP23.5874x22.8332x0.5125	15	-14.48	2339.02	53.7	Pass	
L16	89.75 - 84.75	Pole	TP24.3415x23.5874x0.5	16	-15.33	2357.79	57.1	Pass	
L17	84.75 - 81.5	Pole	TP24.8317x24.3415x0.5	17	-15.89	2406.26	58.4	Pass	
L18	81.5 - 81.25	Pole	TP24.8694x24.8317x0.5	18	-15.94	2409.99	58.5	Pass	
L19	81.25 - 76.25	Pole	TP25.6235x24.8694x0.4875	19	-16.82	2423.66	61.7	Pass	
L20	76.25 - 71.25	Pole	TP26.3777x25.6235x0.475	20	-17.72	2433.54	65.0	Pass	
L21	71.25 - 66	Pole	TP27.1695x26.3777x0.475	21	-17.95	2451.26	65.4	Pass	
L22	66 - 65	Pole	TP26.8203x26.0662x0.5375	22	-19.56	2794.17	61.8	Pass	
L23	65 - 60	Pole	TP27.5745x26.8203x0.5313	23	-20.61	2841.57	63.7	Pass	
L24	60 - 55	Pole	TP28.3286x27.5745x0.525	24	-21.68	2887.10	65.5	Pass	
L25	55 - 51.25	Pole	TP28.8942x28.3286x0.5188	25	-22.50	2911.40	67.0	Pass	
L26	51.25 - 51	Pole	TP28.9319x28.8942x0.6	26	-22.57	3362.24	58.5	Pass	
L27	51 - 46	Pole	TP29.6861x28.9319x0.6	27	-23.77	3451.74	59.2	Pass	
L28	46 - 41	Pole	TP30.4402x29.6861x0.5875	28	-25.01	3468.91	61.1	Pass	
L29	41 - 36	Pole	TP31.1943x30.4402x0.575	29	-26.27	3482.29	63.0	Pass	
L30	36 - 31	Pole	TP31.9485x31.1943x0.575	30	-27.54	3568.06	63.5	Pass	
L31	31 - 27	Pole	TP32.5518x31.9485x0.575	31	-27.80	3585.21	63.6	Pass	
L32	27 - 26.25	Pole	TP32.04x31.4743x0.6375	32	-29.50	3959.55	60.4	Pass	
L33	26.25 - 26	Pole	TP32.0777x32.04x0.6375	33	-29.58	3964.31	60.4	Pass	
L34	26 - 21	Pole	TP32.832x32.0777x0.625	34	-31.00	3981.36	61.9	Pass	
L35	21 - 16	Pole	TP33.5863x32.832x0.625	35	-32.45	4074.61	62.2	Pass	
L36	16 - 11	Pole	TP34.3406x33.5863x0.6125	36	-33.92	4086.00	63.6	Pass	
L37	11 - 6	Pole	TP35.0949x34.3406x0.6125	37	-35.41	4177.38	63.8	Pass	
L38	6 - 1	Pole	TP35.8491x35.0949x0.6	38	-36.92	4183.13	65.2	Pass	
L39	1 - 0	Pole	TP36x35.8491x0.6	39	-37.23	4201.03	65.3	Pass	
							Summary		
							Pole (L25)	67.0	Pass
							<b>RATING =</b>	<b>67.0</b>	<b>Pass</b>

**\*NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

**APPENDIX B**  
**BASE LEVEL DRAWING**



(PROPOSED EQUIPMENT CONFIGURATION)  
(1) 1-1/2" TO 140 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)  
(5) 3/8" TO 152 FT LEVEL  
(6) 3/4" TO 152 FT LEVEL  
(1) 7/8" TO 152 FT LEVEL  
(6) 1-5/8" TO 152 FT LEVEL

**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

**Pole Geometry**

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	150	40	0	12	14.5	20.5331	0.25	Auto	A572-65
2	110	44	4	12	20.53	27.1695	0.25	Auto	A572-65
3	70	43	3	12	26.07	32.5518	0.3125	Auto	A572-65
4	30	30	0	12	31.47	36	0.375	Auto	A572-65

**Reinforcement Configuration**

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number												
						1	2	3	4	5	6	7	8	9	10	11	12
1	0	26.25	channel	MP3-05 (1.25in)	4		x			x			x			x	
2	26.25	51.25	channel	MP3-05 (1.25in)	4		x			x			x			x	
3	51.25	81.5	channel	MP3-04 (1.25in)	4		x			x			x			x	
4	81.5	110	channel	MP3-04 (1.25in)	4		x			x			x			x	
5	110	139.583	channel	MP3-03 (1.25in)	4		x			x			x			x	
6																	
7																	
8																	
9																	
10																	

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	4.994	1.2500	A572-65
2	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	4.994	1.2500	A572-65
3	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
5	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.526	1.2500	A572-65

# TNX Geometry Input

Increment (ft):  [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150 - 145	5		12	14.500	15.254	0.25	A572-65	1.000
2	145 - 140	5		12	15.254	16.008	0.25	A572-65	1.000
3	140 - 139.583	0.417		12	16.008	16.071	0.25	A572-65	1.000
4	139.583 - 139.333	0.25		12	16.071	16.109	0.55	A572-65	0.888
5	139.333 - 134.333	5		12	16.109	16.863	0.525	A572-65	0.908
6	134.333 - 129.333	5		12	16.863	17.617	0.5125	A572-65	0.910
7	129.333 - 124.333	5		12	17.617	18.371	0.5	A572-65	0.914
8	124.333 - 119.333	5		12	18.371	19.125	0.4875	A572-65	0.919
9	119.333 - 114.333	5		12	19.125	19.880	0.475	A572-65	0.927
10	114.333 - 110	4.333	0	12	19.880	20.533	0.4625	A572-65	0.938
11	110 - 109.75	0.25		12	20.533	20.571	0.5625	A572-65	0.908
12	109.75 - 104.75	5		12	20.571	21.325	0.55	A572-65	0.911
13	104.75 - 99.75	5		12	21.325	22.079	0.5375	A572-65	0.915
14	99.75 - 94.75	5		12	22.079	22.833	0.525	A572-65	0.921
15	94.75 - 89.75	5		12	22.833	23.587	0.5125	A572-65	0.928
16	89.75 - 84.75	5		12	23.587	24.341	0.5	A572-65	0.936
17	84.75 - 81.5	3.25		12	24.341	24.832	0.5	A572-65	0.927
18	81.5 - 81.25	0.25		12	24.832	24.869	0.5	A572-65	0.927
19	81.25 - 76.25	5		12	24.869	25.624	0.4875	A572-65	0.937
20	76.25 - 71.25	5		12	25.624	26.378	0.475	A572-65	0.948
21	71.25 - 70	5.25	4	12	26.378	27.170	0.475	A572-65	0.945
22	70 - 65	5		12	26.066	26.820	0.5375	A572-65	0.950
23	65 - 60	5		12	26.820	27.574	0.53125	A572-65	0.951
24	60 - 55	5		12	27.574	28.329	0.525	A572-65	0.952
25	55 - 51.25	3.75		12	28.329	28.894	0.51875	A572-65	0.956
26	51.25 - 51	0.25		12	28.894	28.932	0.6	A572-65	0.940
27	51 - 46	5		12	28.932	29.686	0.6	A572-65	0.929
28	46 - 41	5		12	29.686	30.440	0.5875	A572-65	0.938
29	41 - 36	5		12	30.440	31.194	0.575	A572-65	0.947
30	36 - 31	5		12	31.194	31.948	0.575	A572-65	0.938
31	31 - 30	4	3	12	31.948	32.552	0.575	A572-65	0.936
32	30 - 26.25	3.75		12	31.474	32.040	0.6375	A572-65	0.944
33	26.25 - 26	0.25		12	32.040	32.078	0.6375	A572-65	0.944
34	26 - 21	5		12	32.078	32.832	0.625	A572-65	0.954
35	21 - 16	5		12	32.832	33.586	0.625	A572-65	0.946
36	16 - 11	5		12	33.586	34.341	0.6125	A572-65	0.957
37	11 - 6	5		12	34.341	35.095	0.6125	A572-65	0.949
38	6 - 1	5		12	35.095	35.849	0.6	A572-65	0.961
39	1 - 0	1		12	35.849	36.000	0.6	A572-65	0.960

## TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P <sub>u</sub> (K)	M <sub>ux</sub> (kip-ft)	V <sub>u</sub> (K)
1	150 - 145		4.40	47.11	6.65
2	145 - 140		7.90	82.23	9.62
3	140 - 139.583		7.45	86.46	10.17
4	139.583 - 139.333		7.47	89.01	10.20
5	139.333 - 134.333		8.00	141.27	10.71
6	134.333 - 129.333		8.54	196.09	11.22
7	129.333 - 124.333		9.12	253.46	11.74
8	124.333 - 119.333		9.71	313.39	12.25
9	119.333 - 114.333		10.34	375.86	12.76
10	114.333 - 110		10.90	432.03	13.19
11	110 - 109.75		11.34	435.38	13.44
12	109.75 - 104.75		12.09	503.85	13.96
13	104.75 - 99.75		12.86	574.90	14.48
14	99.75 - 94.75		13.66	648.51	14.99
15	94.75 - 89.75		14.48	724.66	15.49
16	89.75 - 84.75		15.33	803.30	15.99
17	84.75 - 81.5		15.89	855.74	16.31
18	81.5 - 81.25		15.94	859.82	16.32
19	81.25 - 76.25		16.82	942.61	16.81
20	76.25 - 71.25		17.72	1027.77	17.28
21	71.25 - 70		17.95	1049.41	17.37
22	70 - 65		19.56	1137.41	17.84
23	65 - 60		20.61	1227.39	18.18
24	60 - 55		21.68	1319.07	18.52
25	55 - 51.25		22.50	1388.91	18.77
26	51.25 - 51		22.57	1393.60	18.77
27	51 - 46		23.77	1488.55	19.23
28	46 - 41		25.01	1585.43	19.55
29	41 - 36		26.27	1683.88	19.86
30	36 - 31		27.54	1783.79	20.14
31	31 - 30		27.80	1803.94	20.20
32	30 - 26.25		29.50	1880.16	20.47
33	26.25 - 26		29.58	1885.28	20.47
34	26 - 21		31.00	1988.28	20.75
35	21 - 16		32.45	2092.57	21.00
36	16 - 11		33.92	2198.11	21.25
37	11 - 6		35.41	2304.85	21.49
38	6 - 1		36.92	2412.75	21.71
39	1 - 0		37.23	2434.46	21.75



# Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP15.254x14.5x0.25	Pole	17.3%	Pass
145 - 140	Pole	TP16.008x15.254x0.25	Pole	27.4%	Pass
140 - 139.58	Pole	TP16.071x16.008x0.25	Pole	28.5%	Pass
139.58 - 139.33	Pole + Reinf.	TP16.109x16.071x0.55	Reinf. 5 Tension Rupture	21.5%	Pass
139.33 - 134.33	Pole + Reinf.	TP16.863x16.109x0.525	Reinf. 5 Tension Rupture	31.6%	Pass
134.33 - 129.33	Pole + Reinf.	TP17.617x16.863x0.5125	Reinf. 5 Tension Rupture	40.9%	Pass
129.33 - 124.33	Pole + Reinf.	TP18.371x17.617x0.5	Reinf. 5 Tension Rupture	49.5%	Pass
124.33 - 119.33	Pole + Reinf.	TP19.125x18.371x0.4875	Reinf. 5 Tension Rupture	57.4%	Pass
119.33 - 114.33	Pole + Reinf.	TP19.88x19.125x0.475	Reinf. 5 Tension Rupture	64.8%	Pass
114.33 - 110	Pole + Reinf.	TP20.533x19.88x0.4625	Reinf. 5 Tension Rupture	70.8%	Pass
110 - 109.75	Pole + Reinf.	TP20.571x20.533x0.5625	Reinf. 4 Tension Rupture	59.5%	Pass
109.75 - 104.75	Pole + Reinf.	TP21.325x20.571x0.55	Reinf. 4 Tension Rupture	65.3%	Pass
104.75 - 99.75	Pole + Reinf.	TP22.079x21.325x0.5375	Reinf. 4 Tension Rupture	70.7%	Pass
99.75 - 94.75	Pole + Reinf.	TP22.833x22.079x0.525	Reinf. 4 Tension Rupture	75.8%	Pass
94.75 - 89.75	Pole + Reinf.	TP23.587x22.833x0.5125	Reinf. 4 Tension Rupture	80.6%	Pass
89.75 - 84.75	Pole + Reinf.	TP24.341x23.587x0.5	Reinf. 4 Tension Rupture	85.2%	Pass
84.75 - 81.5	Pole + Reinf.	TP24.832x24.341x0.5	Reinf. 4 Tension Rupture	88.0%	Pass
81.5 - 81.25	Pole + Reinf.	TP24.869x24.832x0.5	Reinf. 3 Tension Rupture	88.2%	Pass
81.25 - 76.25	Pole + Reinf.	TP25.624x24.869x0.4875	Reinf. 3 Tension Rupture	92.4%	Pass
76.25 - 71.25	Pole + Reinf.	TP26.378x25.624x0.475	Reinf. 3 Tension Rupture	96.3%	Pass
71.25 - 70	Pole + Reinf.	TP27.17x26.378x0.475	Reinf. 3 Tension Rupture	97.2%	Pass
70 - 65	Pole + Reinf.	TP26.82x26.066x0.5375	Reinf. 3 Tension Rupture	91.8%	Pass
65 - 60	Pole + Reinf.	TP27.574x26.82x0.5313	Reinf. 3 Tension Rupture	94.8%	Pass
60 - 55	Pole + Reinf.	TP28.329x27.574x0.525	Reinf. 3 Tension Rupture	97.4%	Pass
55 - 51.25	Pole + Reinf.	TP28.894x28.329x0.5188	Reinf. 3 Tension Rupture	99.3%	Pass
51.25 - 51	Pole + Reinf.	TP28.932x28.894x0.6	Reinf. 2 Tension Rupture	84.2%	Pass
51 - 46	Pole + Reinf.	TP29.686x28.932x0.6	Reinf. 2 Tension Rupture	86.4%	Pass
46 - 41	Pole + Reinf.	TP30.44x29.686x0.5875	Reinf. 2 Tension Rupture	88.5%	Pass
41 - 36	Pole + Reinf.	TP31.194x30.44x0.575	Reinf. 2 Tension Rupture	90.5%	Pass
36 - 31	Pole + Reinf.	TP31.948x31.194x0.575	Reinf. 2 Tension Rupture	92.3%	Pass
31 - 30	Pole + Reinf.	TP32.552x31.948x0.575	Reinf. 2 Tension Rupture	92.6%	Pass
30 - 26.25	Pole + Reinf.	TP32.04x31.474x0.6375	Reinf. 2 Tension Rupture	87.4%	Pass
26.25 - 26	Pole + Reinf.	TP32.078x32.04x0.6375	Reinf. 1 Tension Rupture	87.5%	Pass
26 - 21	Pole + Reinf.	TP32.832x32.078x0.625	Reinf. 1 Tension Rupture	88.8%	Pass
21 - 16	Pole + Reinf.	TP33.586x32.832x0.625	Reinf. 1 Tension Rupture	90.1%	Pass
16 - 11	Pole + Reinf.	TP34.341x33.586x0.6125	Reinf. 1 Tension Rupture	91.2%	Pass
11 - 6	Pole + Reinf.	TP35.095x34.341x0.6125	Reinf. 1 Tension Rupture	92.3%	Pass
6 - 1	Pole + Reinf.	TP35.849x35.095x0.6	Reinf. 1 Tension Rupture	93.3%	Pass
1 - 0	Pole + Reinf.	TP36x35.849x0.6	Reinf. 1 Tension Rupture	93.4%	Pass
				Summary	
			Pole	68.6%	Pass
			Reinforcement	99.3%	Pass
			Overall	99.3%	Pass

# Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity*					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
150 - 145	348	n/a	348	12.06	n/a	12.06	17.3%					
145 - 140	403	n/a	403	12.67	n/a	12.67	27.4%					
140 - 139.58	407	n/a	407	12.72	n/a	12.72	28.5%					
139.58 - 139.33	410	440	850	12.75	11.68	24.43	13.6%					21.5%
139.33 - 134.33	472	479	951	13.35	11.68	25.03	20.0%					31.6%
134.33 - 129.33	539	520	1059	13.96	11.68	25.64	25.9%					40.9%
129.33 - 124.33	612	562	1174	14.57	11.68	26.25	31.4%					49.5%
124.33 - 119.33	692	606	1298	15.17	11.68	26.85	36.5%					57.4%
119.33 - 114.33	778	651	1429	15.78	11.68	27.46	41.2%					64.8%
114.33 - 110	859	692	1551	16.30	11.68	27.98	45.1%					70.8%
110 - 109.75	863	989	1853	16.33	16.52	32.85	38.1%					59.5%
109.75 - 104.75	963	1058	2022	16.94	16.52	33.46	42.2%					65.3%
104.75 - 99.75	1070	1130	2200	17.55	16.52	34.07	46.3%					70.7%
99.75 - 94.75	1185	1204	2389	18.15	16.52	34.67	50.2%					75.8%
94.75 - 89.75	1308	1280	2587	18.76	16.52	35.28	54.1%					80.6%
89.75 - 84.75	1439	1358	2797	19.37	16.52	35.89	57.9%					85.2%
84.75 - 81.5	1528	1410	2939	19.76	16.52	36.28	60.3%					88.0%
81.5 - 81.25	1535	1414	2950	19.79	16.52	36.31	60.5%				88.2%	
81.25 - 76.25	1681	1497	3178	20.40	16.52	36.92	64.1%				92.4%	
76.25 - 71.25	1835	1582	3417	21.00	16.52	37.52	67.7%				96.3%	
71.25 - 70	1875	1603	3478	21.15	16.52	37.67	68.6%				97.2%	
70 - 65	2396	1633	4028	26.64	16.52	43.16	60.1%				91.8%	
65 - 60	2606	1721	4327	27.39	16.52	43.91	62.6%				94.8%	
60 - 55	2828	1812	4640	28.15	16.52	44.67	65.0%				97.4%	
55 - 51.25	3003	1882	4885	28.72	16.52	45.24	66.8%				99.3%	
51.25 - 51	3015	2644	5659	28.76	22.60	51.36	57.9%		84.2%			
51 - 46	3259	2776	6036	29.51	22.60	52.11	60.1%		86.4%			
46 - 41	3517	2911	6428	30.27	22.60	52.87	62.2%		88.5%			
41 - 36	3788	3049	6837	31.03	22.60	53.63	64.2%		90.5%			
36 - 31	4072	3190	7262	31.79	22.60	54.39	66.2%		92.3%			
31 - 30	4131	3219	7349	31.94	22.60	54.54	66.6%		92.6%			
30 - 26.25	4900	3208	8108	38.18	22.60	60.78	58.9%		87.4%			
26.25 - 26	4918	3215	8132	38.23	22.60	60.83	59.0%	87.5%				
26 - 21	5277	3360	8637	39.14	22.60	61.74	60.4%	88.8%				
21 - 16	5654	3508	9162	40.05	22.60	62.65	61.8%	90.1%				
16 - 11	6048	3659	9707	40.95	22.60	63.55	63.1%	91.2%				
11 - 6	6459	3814	10274	41.86	22.60	64.46	64.4%	92.3%				
6 - 1	6890	3972	10862	42.77	22.60	65.37	65.6%	93.3%				
1 - 0	6978	4004	10982	42.96	22.60	65.56	65.8%	93.4%				

Note: Section capacity checked using 5 degree increments.  
Rating per TIA-222-H Section 15.5.

# Monopole Flange Plate Connection

Elevation = 110 ft.



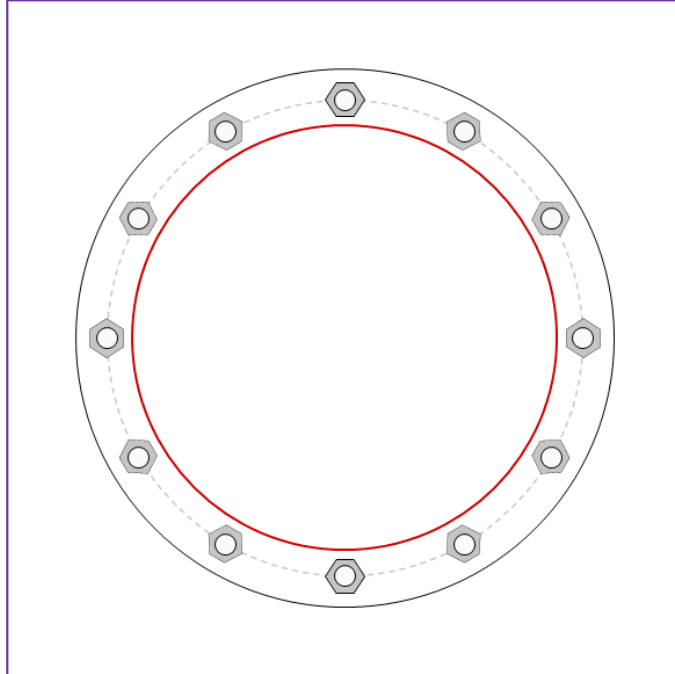
BU #	841287
Site Name	Norwalk West- Ct Ave
Order #	576724 Rev 1

TIA-222 Revision	H
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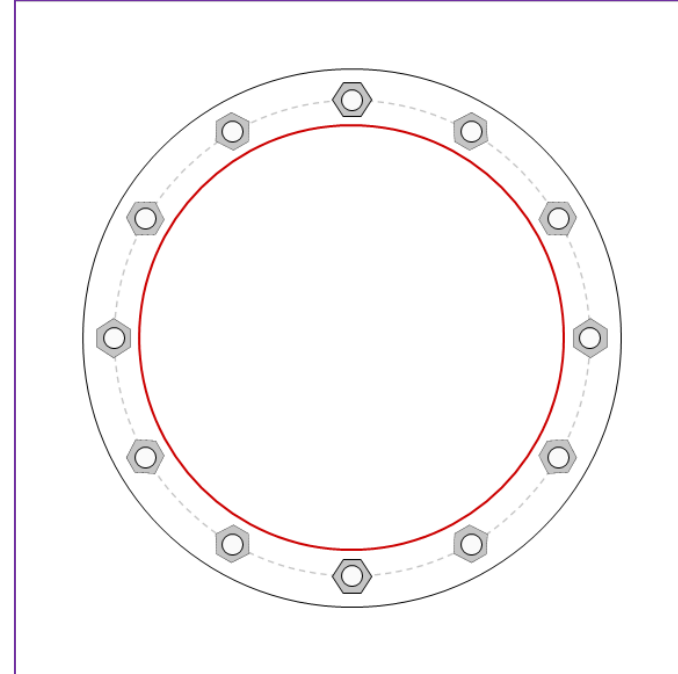
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	128.40	Moment (kip-ft)	303.63
Axial Force (kips)	10.90	Axial Force (kips)	0.00
Shear Force (kips)	13.19	Shear Force (kips)	0.00

\*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



### Connection Properties

#### Bolt Data

(12) 1"  $\phi$  bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 23" BC

#### Top Plate Data

26" OD x 1" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

#### Top Stiffener Data

N/A

#### Top Pole Data

20.5331" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

#### Bridge Stiffener Group 1 Data

(4) Welded, 3"x1", A572-65, Lu=8.5", Upper Plate Width=5", Lower Plate Width=5", Neglect Flange in MOI: No

#### Bottom Plate Data

26" OD x 1" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

#### Bottom Stiffener Data

N/A

#### Bottom Pole Data

20.5331" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

### Analysis Results

#### Bolt Capacity

Max Load (kips)	21.41
Allowable (kips)	54.51
Stress Rating:	<b>37.4%</b> Pass

#### Top Plate Capacity

Max Stress (ksi):	14.59	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	<b>30.9%</b>	Pass
Tension Side Stress Rating:	<b>10.5%</b>	Pass

#### Bottom Plate Capacity

Max Stress (ksi):	14.59	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	<b>30.9%</b>	Pass
Tension Side Stress Rating:	<b>10.5%</b>	Pass

#### Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	132.33
Max Tension (kip):	132.33
Comp. Capacity (kip):	161.62
Tens. Capacity (kip):	175.50 (Yield)
Comp. Stress Rating:	<b>78.0%</b> Pass
Tens. Stress Rating:	<b>71.8%</b> Pass

# Welded Bridge Stiffener Design

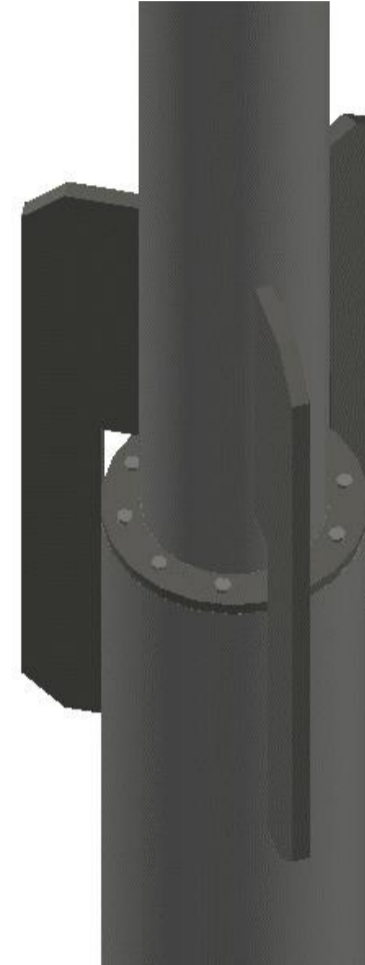
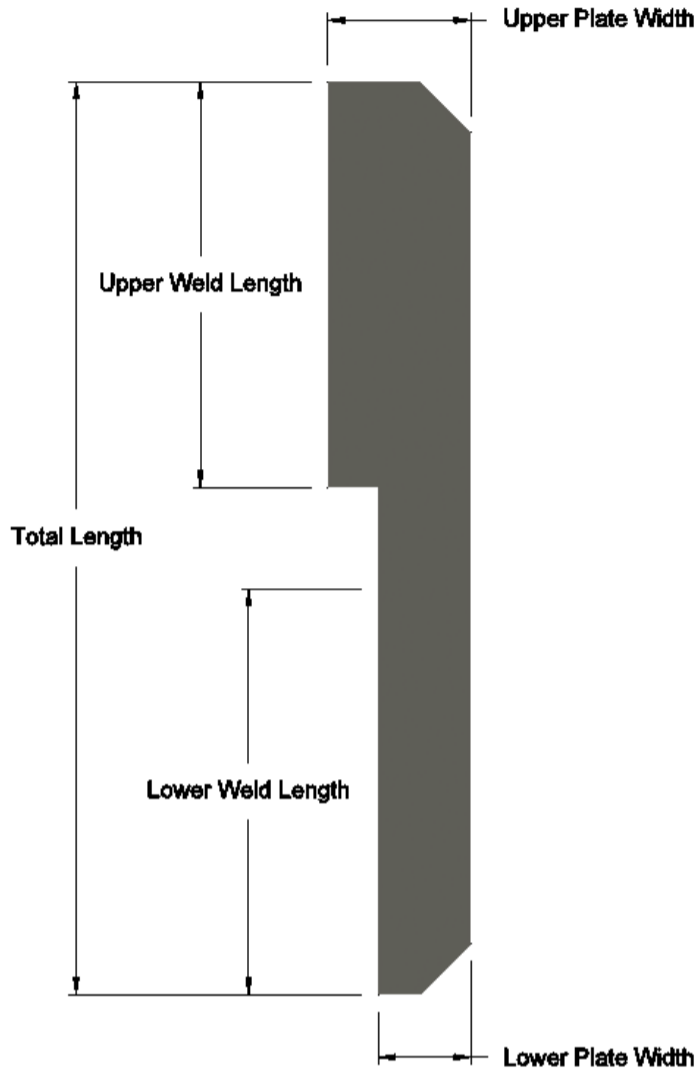
Elevation = 110 ft.



BU #	841287
Site Name	Norwalk West- Ct Ave
Order #	576724 Rev 1
TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	303.63
Axial Force (kips)	0.00
Shear Force (kips)	0.00

\*TIA-222-H Section 15.5 Applied



## Design Properties

### Bridge Stiffener Group 1 Data

(4) Welded, 3"x1", A572-65, Lu=8.5", Upper Plate Width=5", Lower Plate Width=5", Neglect Flange in MOI: No

Total Length:	60 in	Upper Weld Size:	<b>Good</b>
Weld Type:	Fillet (both sides)	Upper Weld Rating:	<b>35.89%</b>
Weld Size:	0.375 in	Lower Weld Size:	<b>Good</b>
Exx:	70 ksi	Lower Weld Rating:	<b>25.21%</b>
Upper Weld Length:	21.5 in	Top Plate Lateral-Torsional Buckling Rating:	<b>6.73%</b>
Upper Plate Width:	5 in	Top Plate Tension Yield Rating:	<b>15.03%</b>
Lower Weld Length:	30 in	Top Plate Tension Rupture Rating:	<b>16.28%</b>
Lower Plate Width:	5 in	Top Plate Interaction Rating:	<b>9.52%</b>
Stiffener Front EPA (No Ice):	2.95 ft <sup>2</sup>	Bottom Plate Lateral-Torsional Buckling Rating:	<b>3.52%</b>
Stiffener Side EPA (No Ice):	0.83 ft <sup>2</sup>	Bottom Plate Tension Yield Rating:	<b>10.77%</b>
Stiffener Front EPA (1/2" Ice):	3.29 ft <sup>2</sup>	Bottom Plate Tension Rupture Rating:	<b>11.67%</b>
Stiffener Side EPA (1/2" Ice):	1.69 ft <sup>2</sup>	Bottom Plate Interaction Rating:	<b>4.95%</b>
Stiffener Weight (No Ice):	0.077 kip	Top Pole Punching Shear Rating:	<b>19.57%</b>
Stiffener Weight (1/2" Ice):	0.088 kip	Bottom Pole Punching Shear Rating:	<b>10.05%</b>

# Monopole Base Plate Connection

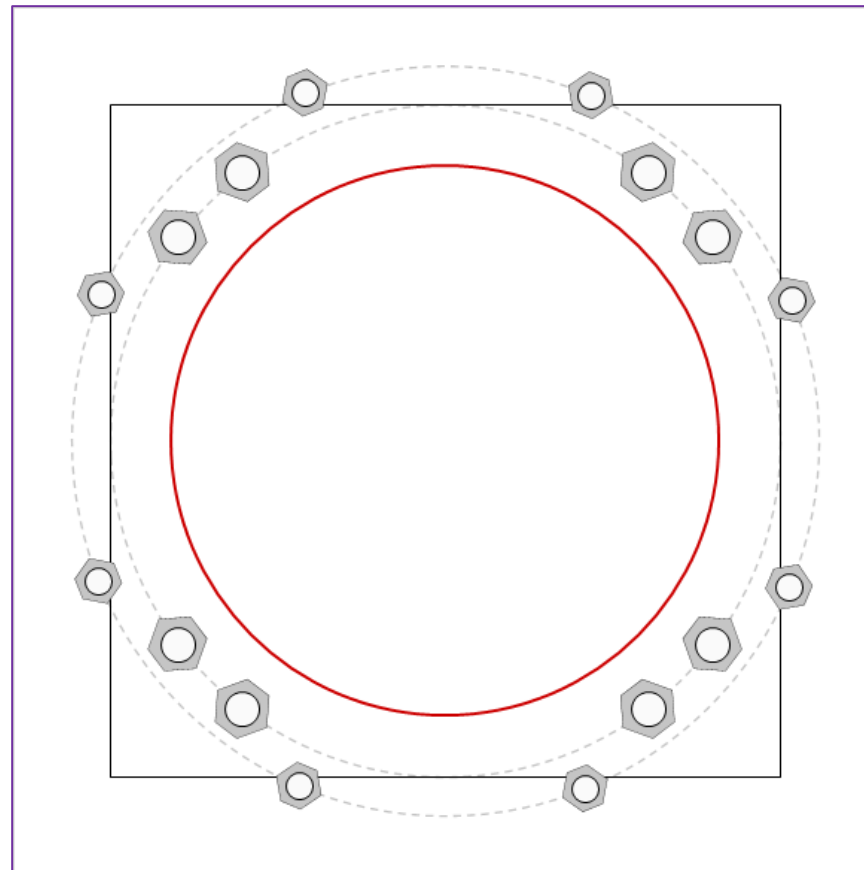


Site Info	
BU #	841287
Site Name	Norwalk West- Ct Ave
Order #	576724 Rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
$l_{ar}$ (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	2434.46
Axial Force (kips)	37.23
Shear Force (kips)	21.75

\*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
GROUP 1: (8) 2-1/4" $\phi$ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 44" BC <i>Anchor Spacing: 6 in</i>
GROUP 2: (8) 1-3/4" $\phi$ bolts (F1554-105 N; $F_y=105$ ksi, $F_u=125$ ksi) on 49" BC
Base Plate Data
44" W x 2.5" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi); Clip: 0 in
Stiffener Data
N/A
Pole Data
36" x 0.375" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
GROUP 1:		
$P_{u,t} = 187.49$	$\phi P_{n,t} = 243.75$	<b>Stress Rating</b>
$V_u = 2.72$	$\phi V_n = 149.1$	<b>73.3%</b>
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>
GROUP 2:		
$P_{u,t} = 125.11$	$\phi P_{n,t} = 178.13$	<b>Stress Rating</b>
$V_u = 0$	$\phi V_n = 112.75$	<b>66.9%</b>
$M_u = 0$	$\phi M_n = 84.41$	<b>Pass</b>
Base Plate Summary		
Max Stress (ksi):	36.14	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	<b>63.7%</b>	<b>Pass</b>

# CCIplate

Elevation (ft) 0 (Base)

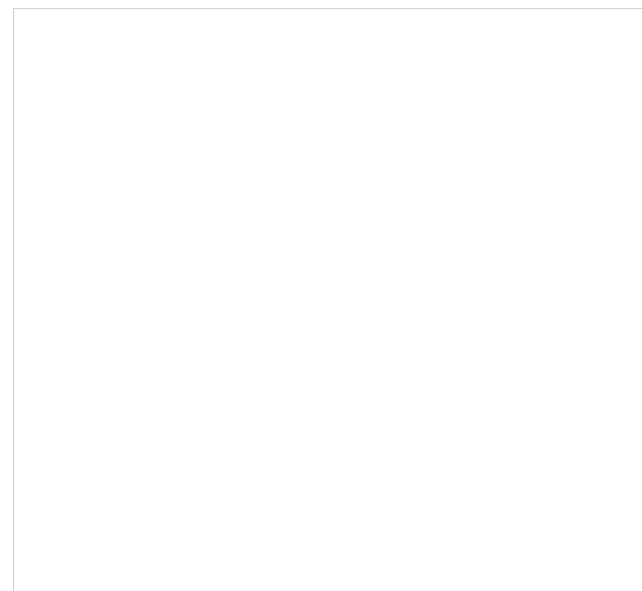
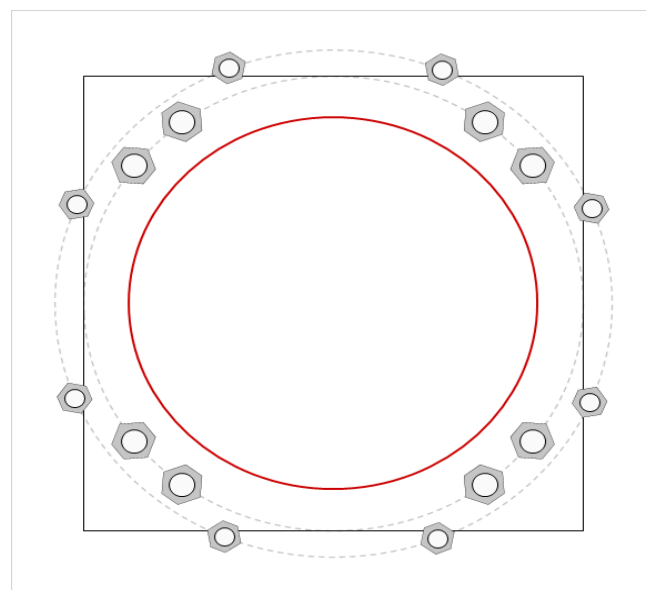
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

## Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, $\eta$ :	$I_{ar}$ (in):	Thread Type	Area Override, in <sup>2</sup>	Tension Only
1	1	37.16252	2.25	A615-75	44	0.5	2	N-Included		No
2	1	52.83748	2.25	A615-75	44	0.5	2	N-Included		No
3	1	127.16252	2.25	A615-75	44	0.5	2	N-Included		No
4	1	142.83748	2.25	A615-75	44	0.5	2	N-Included		No
5	1	217.16252	2.25	A615-75	44	0.5	2	N-Included		No
6	1	232.83748	2.25	A615-75	44	0.5	2	N-Included		No
7	1	307.16252	2.25	A615-75	44	0.5	2	N-Included		No
8	1	322.83748	2.25	A615-75	44	0.5	2	N-Included		No
9	2	22	1.75	F1554-105	49	0.5	2	N-Included		No
10	2	67	1.75	F1554-105	49	0.5	2	N-Included		No
11	2	112	1.75	F1554-105	49	0.5	2	N-Included		No
12	2	157	1.75	F1554-105	49	0.5	2	N-Included		No
13	2	202	1.75	F1554-105	49	0.5	2	N-Included		No
14	2	247	1.75	F1554-105	49	0.5	2	N-Included		No
15	2	292	1.75	F1554-105	49	0.5	2	N-Included		No
16	2	337	1.75	F1554-105	49	0.5	2	N-Included		No

## Plot Graphic



# Pier and Pad Foundation



**BU #:** 841287  
**Site Name:** Norwalk West- Ct A  
**App. Number:** 576724 Rev 1

**TIA-222 Revision:** H  
**Tower Type:** Monopole

**Top & Bot. Pad Rein. Different?:**   
**Block Foundation?:**   
**Rectangular Pad?:**

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	37.24	kips
Base Shear, $Vu_{comp}$ :	21.73	kips
Moment, $M_u$ :	2434.46	ft-kips
Tower Height, $H$ :	150	ft
BP Dist. Above Fdn, $bp_{dist}$ :	2.5	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	194.21	21.73	10.7%	Pass
<i>Bearing Pressure (ksf)</i>	15.00	2.45	16.4%	Pass
<i>Overturning (kip*ft)</i>	4348.67	2601.96	59.8%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3847.27	2543.11	63.0%	Pass
<i>Pier Compression (kip)</i>	11934.00	59.74	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	2075.93	1117.81	51.3%	Pass
<i>Pad Shear - 1-way (kips)</i>	525.75	194.10	35.2%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.054	31.4%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	2349.69	1525.87	61.8%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	5	ft
Ext. Above Grade, $E$ :	0.4	ft
Pier Rebar Size, $Sc$ :	10	
Pier Rebar Quantity, $mc$ :	30	
Pier Tie/Spiral Size, $St$ :	4	
Pier Tie/Spiral Quantity, $mt$ :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	63.0%
Soil Rating*:	59.8%

Pad Properties		
Depth, $D$ :	7.1	ft
Pad Width, $W_1$ :	21.25	ft
Pad Thickness, $T$ :	2.5	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	10	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	15	
Pad Clear Cover, $cc_{pad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60	ksi
Concrete Compressive Strength, $F'_c$ :	3	ksi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	110	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	20.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	28	degrees
SPT Blow Count, $N_{blows}$ :	5	
Base Friction, $\mu$ :	0.4	
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	12	ft

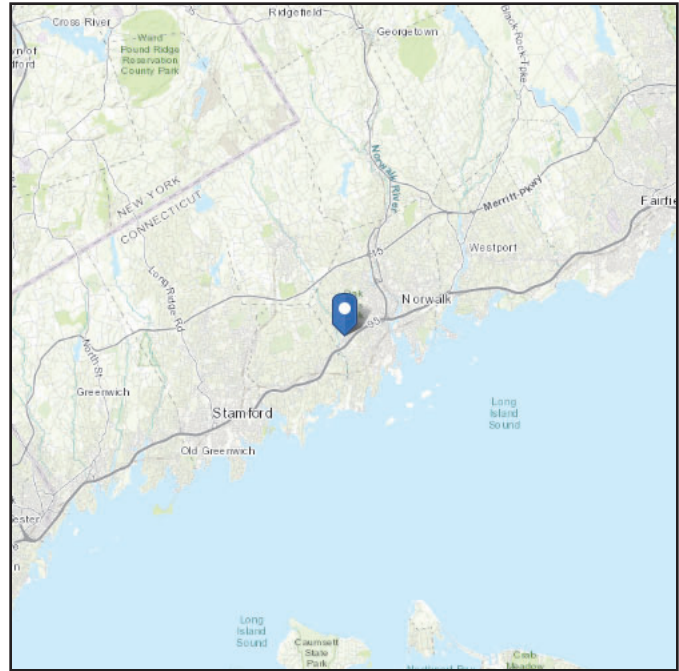
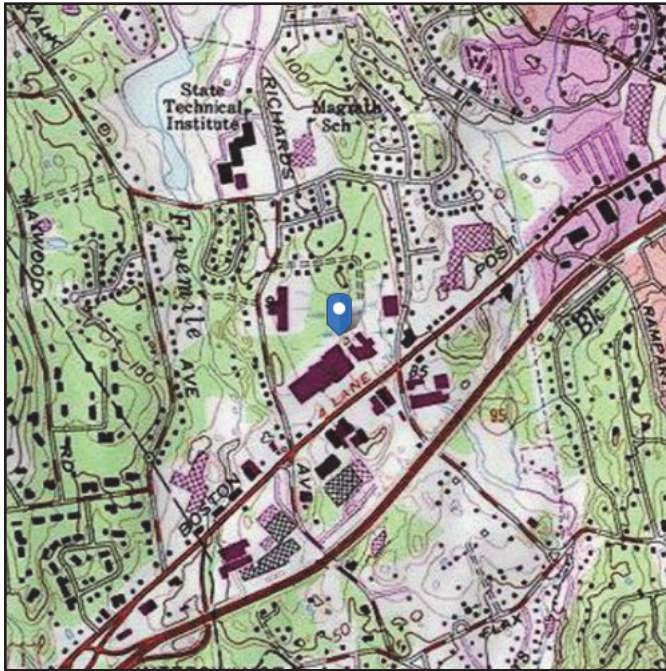
<--Toggle between Gross and Net

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

**Standard:** ASCE/SEI 7-16  
**Risk Category:** II  
**Soil Class:** D - Stiff Soil

**Elevation:** 88.52 ft (NAVD 88)  
**Latitude:** 41.097069  
**Longitude:** -73.449058



## Wind

### Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Wed Oct 27 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

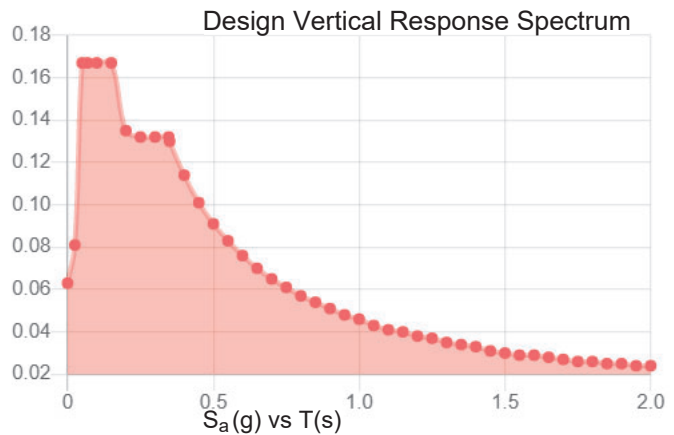
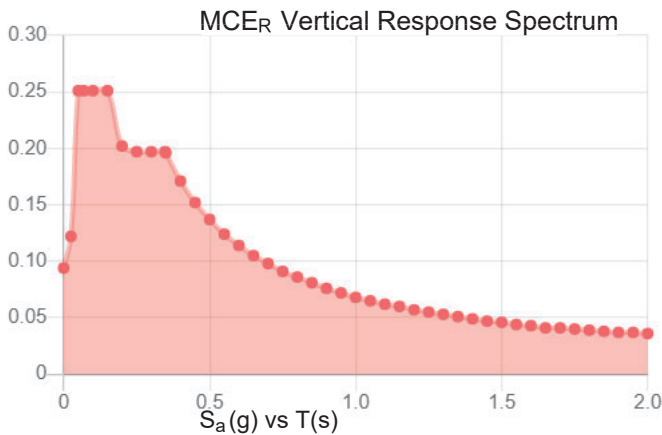
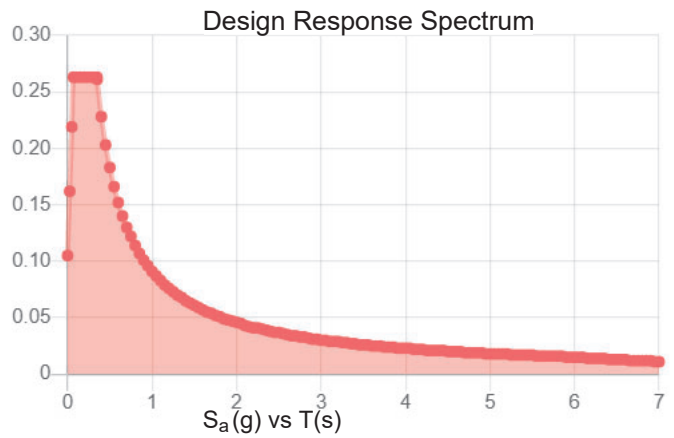
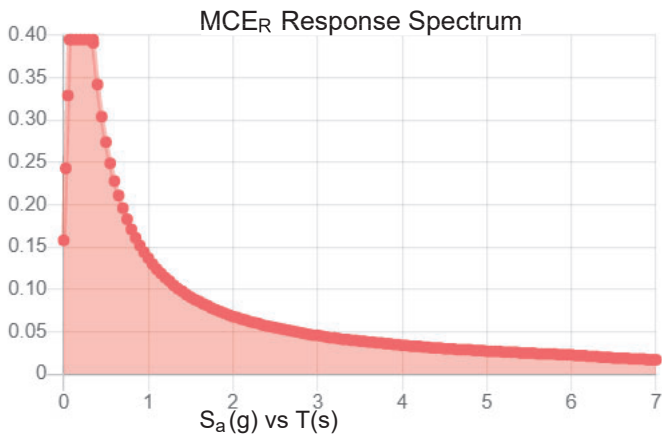


**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.247	$S_{D1}$ :	0.091
$S_1$ :	0.057	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.146
$F_v$ :	2.4	PGA <sub>M</sub> :	0.221
$S_{MS}$ :	0.395	$F_{PGA}$ :	1.507
$S_{M1}$ :	0.137	$I_e$ :	1
$S_{DS}$ :	0.263	$C_v$ :	0.793

**Seismic Design Category** B



**Data Accessed:**

Wed Oct 27 2021

**Date Source:**

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

## Ice

---

### Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Wed Oct 27 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 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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# Exhibit E

## **Mount Analysis**



Date: March 7, 2022

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

**Subject:** Mount Analysis - Conditional Passing Report

**Carrier Designation:** DISH Network Co-Locate  
**Carrier Site Number:** NJJER01132C  
**Carrier Site Name:** N/A

**Crown Castle Designation:** BU Number: 841287  
**Site Name:** Norwalk West- CT Ave  
**JDE Job Number:** 675280  
**Order Number:** 576724, Rev.1

**Engineering Firm Designation:** B+T Group Report Designation: 159022.002.01

**Site Data:** 600 Connecticut Ave, Norwalk, CT, Fairfield County, 06850  
Latitude 41° 5' 49.45" Longitude -73° 26' 56.61"

**Structure Information:** Tower Height & Type: 150 ft. Monopole  
Mount Elevation: 140 ft.  
Mount Type: 8 ft. Platform Mount

B+T Group is pleased to submit this “Mount Analysis - Conditional Passing Report” to determine the structural integrity of DISH Network’s antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

**Platform Mount**

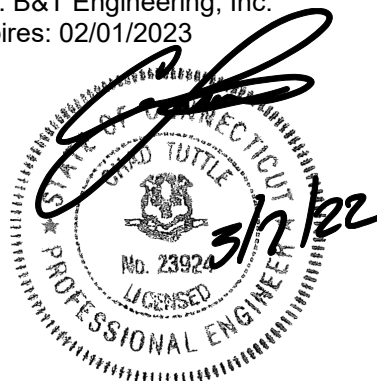
**Sufficient**

\*Sufficient upon completion of the recommendations listed in the Section 4.1 of this report.

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

Mount structural analysis prepared by: Austin Steward

Respectfully submitted by: B&T Engineering, Inc.  
COA: PEC.0001564 Expires: 02/01/2023



Chad E. Tuttle, P.E.

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Software Analysis Output

### 8) APPENDIX D

Additional Calculations

### 9) APPENDIX E

Supplemental Drawings

## 1) INTRODUCTION

This is a proposed 3 - Sector 8' Platform Mount, designed by Commscope (Part #MC-PK8-DSH).

## 2) ANALYSIS CRITERIA

Building Code:	2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic $S_s$ :	0.247
Seismic $S_1$ :	0.057
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Manufacturer	Model/Type	Mount / Modification Details
140	140	3	Commscope	FFVV-65B-R2	8' Platform Mount
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
CCI Order	Proposed Loading	Date: 12/17/2021	Crown Castle
CDs	Jacobs.	Date: 02/23/2022	
Mount Manufacturer Drawing	Commscope (Part #MC-PK8-DSH)	Date: 03/08/2021	Commscope

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E).

Manufacturer's drawing were used to create the model.

### 3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed Equipment Mount Pipe	2" Std. Pipe	4'-0"	Attached to Support Tube

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised 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.
8. The following material grades were assumed (Unless Noted Otherwise):
  - (a) Connection Bolts : ASTM A325
  - (b) Steel Pipe : ASTM A53 (GR. 35)
  - (c) HSS (Round) : ASTM 500 (GR. B-42)
  - (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - (e) Channel : ASTM A36 (GR. 36)
  - (f) Steel Solid Rod : ASTM A36 (GR. 36)
  - (g) Steel Plate : ASTM A36 (GR. 36)
  - (h) Steel Angle : ASTM A36 (GR. 36)
  - (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

### 4) ANALYSIS RESULTS

**Table 3 – Mount Component Stresses vs. Capacity (Platform Mount)**

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Main Face Horizontals	140	69	6.2	Pass
	Support Rails		22	10.9	Pass
	Support Tubes		31	50.7	Pass
	Support Channels		33	32.4	Pass
	Support Angles		11	23.9	Pass
	Mount Pipes		73	11.8	Pass
	Connection Plates		55	19.6	Pass
	Connection Angles		68	18.1	Pass
2	Mount to Tower Connection		1	24.5	Pass

<b>Structure Rating (max from all components) =</b>	<b>50.7%</b>
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Notes:

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

#### **4.1) Recommendations**

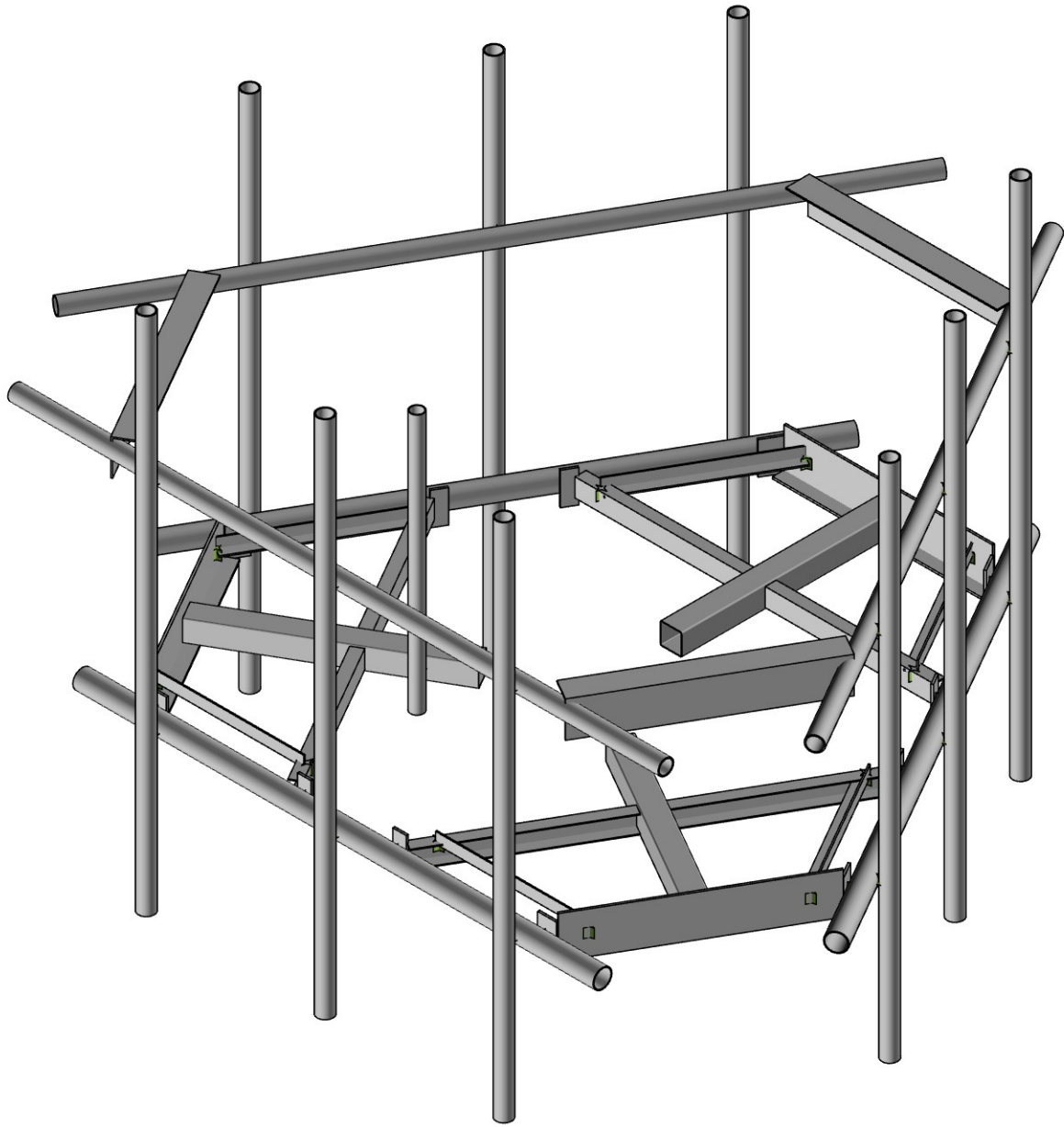
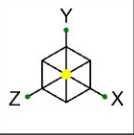
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

1. Commscope Part #MC-PK8-DSH.

No structural modifications are required at this time.



**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



Envelope Only Solution

B+T Group

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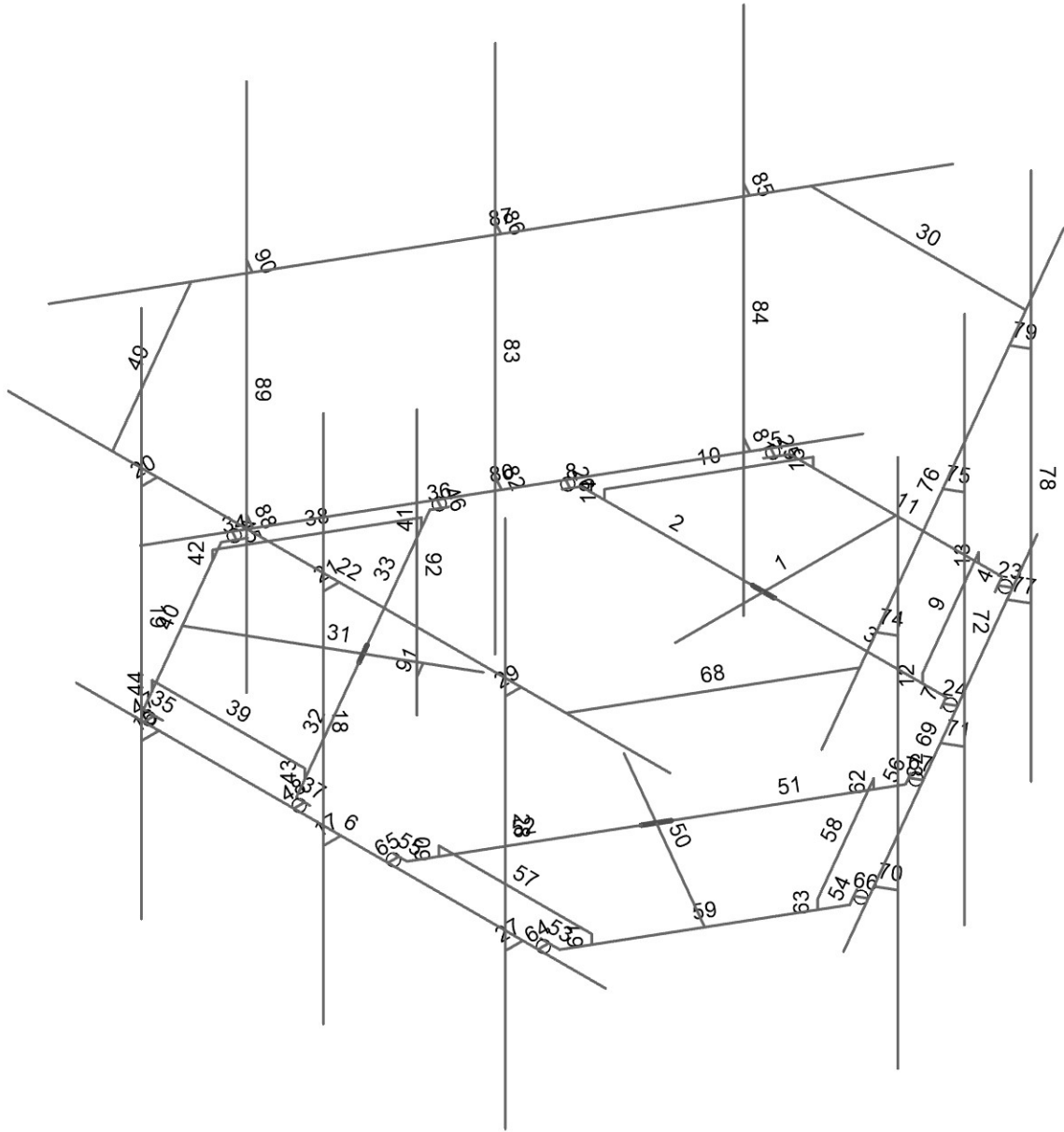
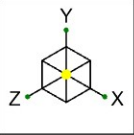
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841287 - Norwalk West- CT Ave

SK-1

Mar 05, 2022

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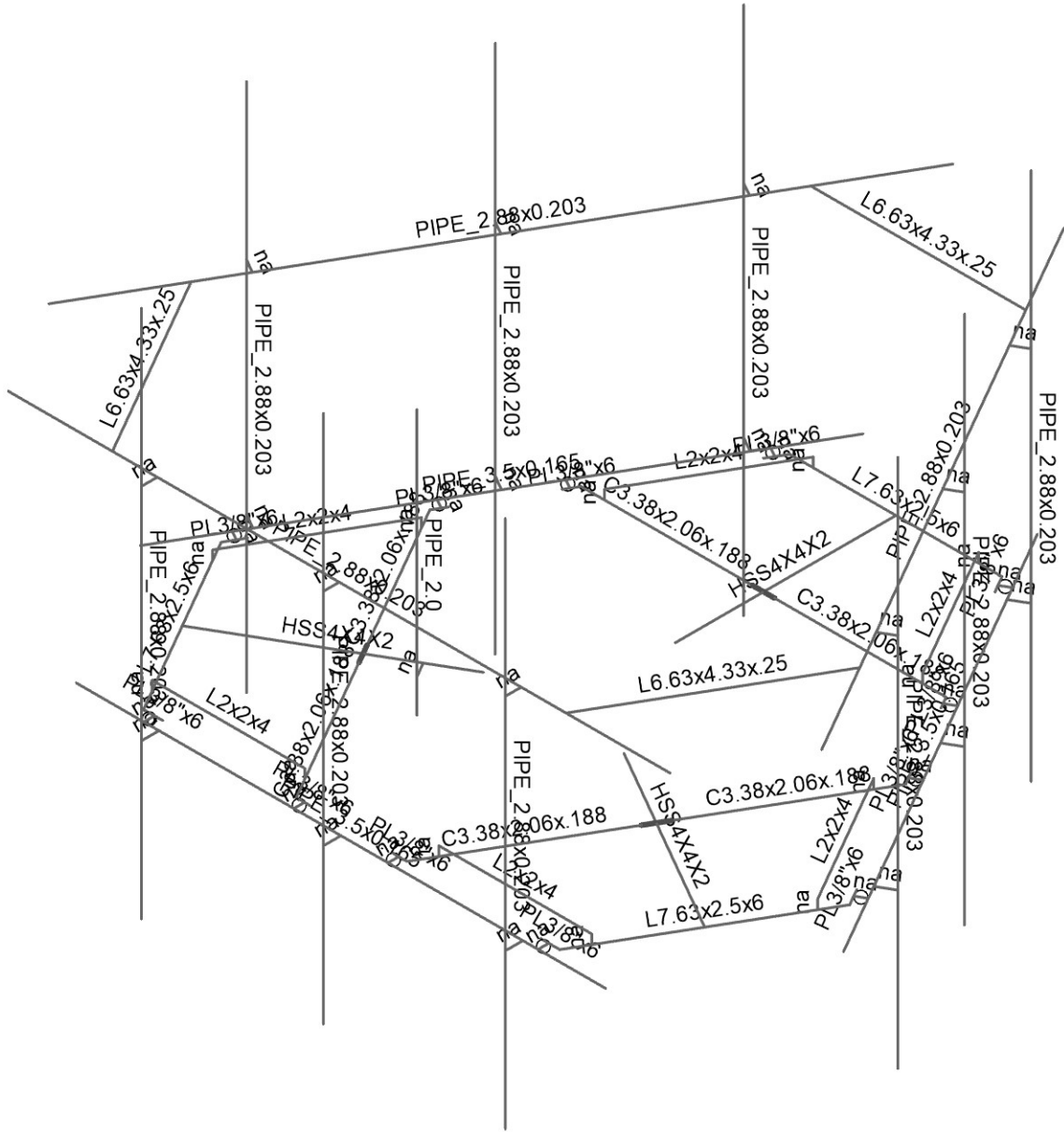
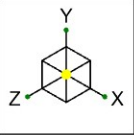
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Mar 05, 2022

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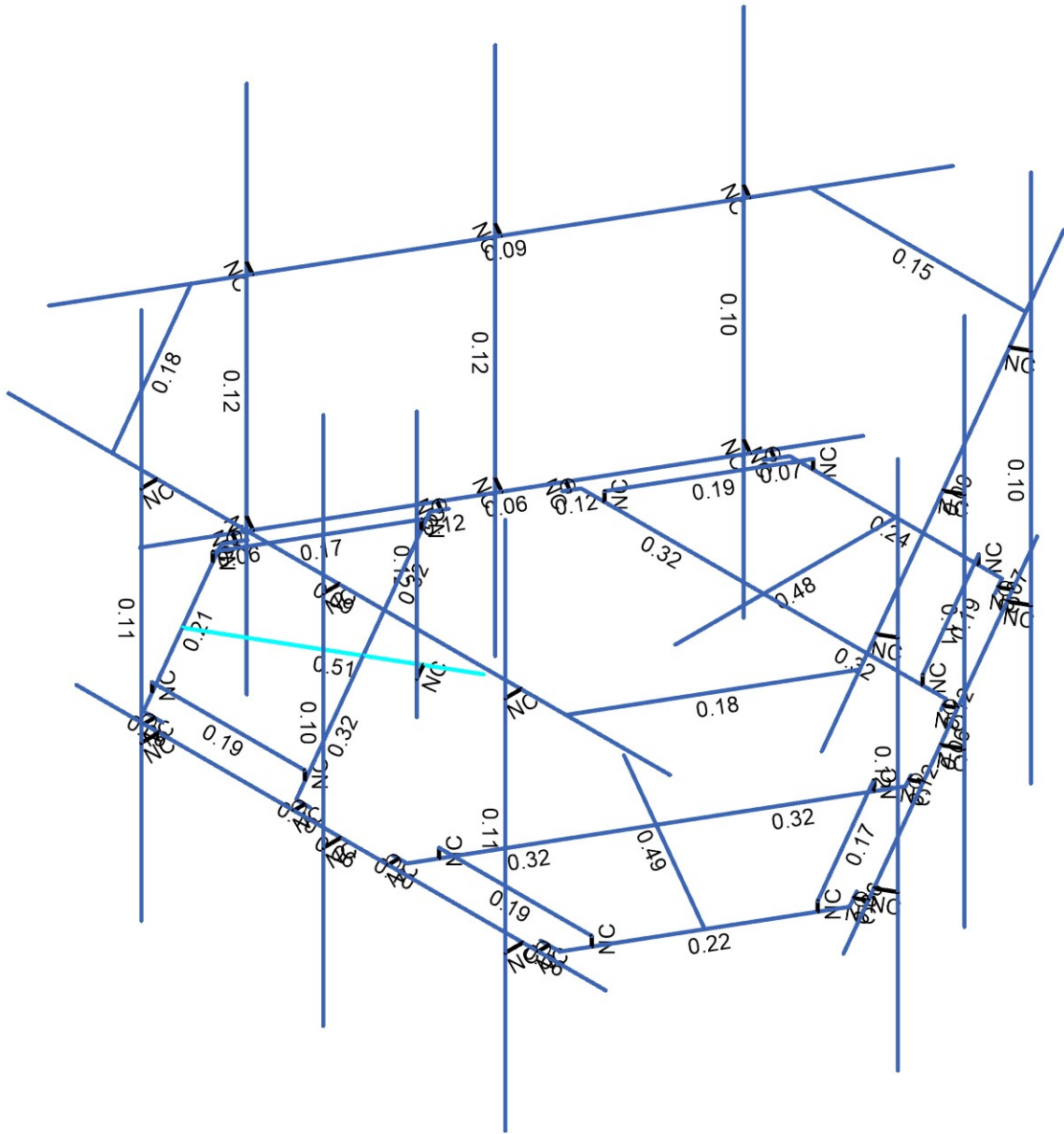
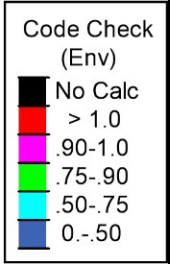
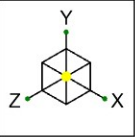


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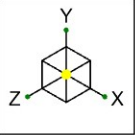


Member Code Checks Displayed (Enveloped)  
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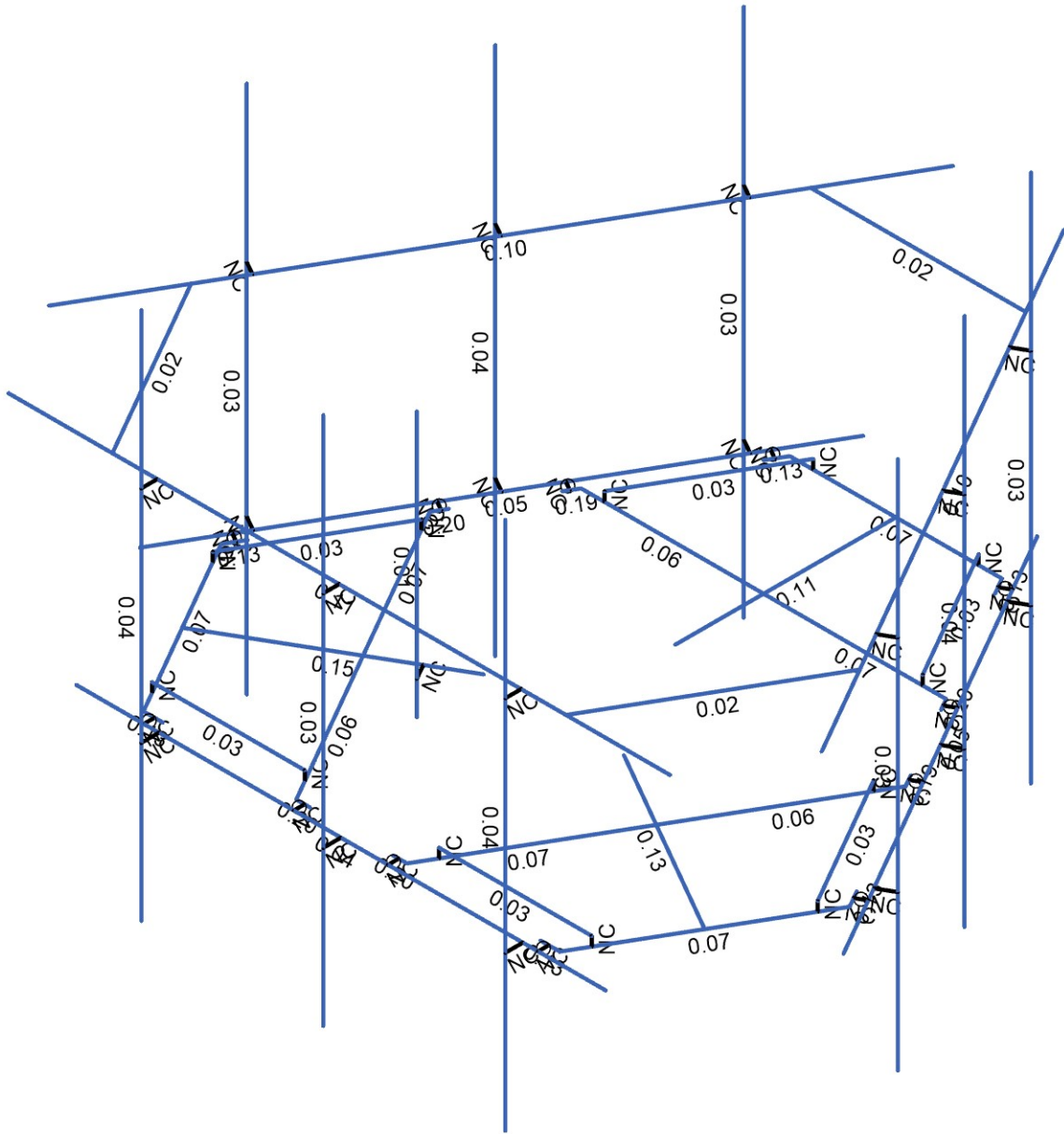
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Mar 05, 2022  
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Shear Check (Env)

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



Member Shear Checks Displayed (Enveloped)  
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SK-5
Mar 05, 2022
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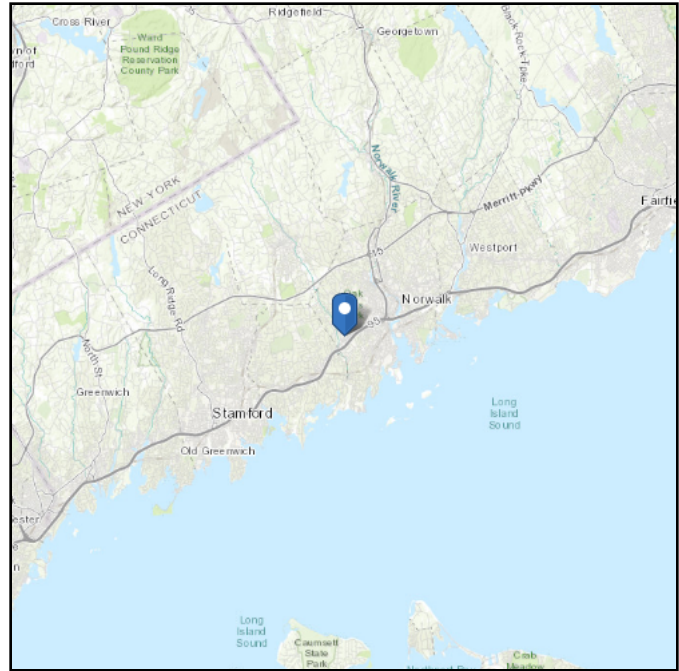
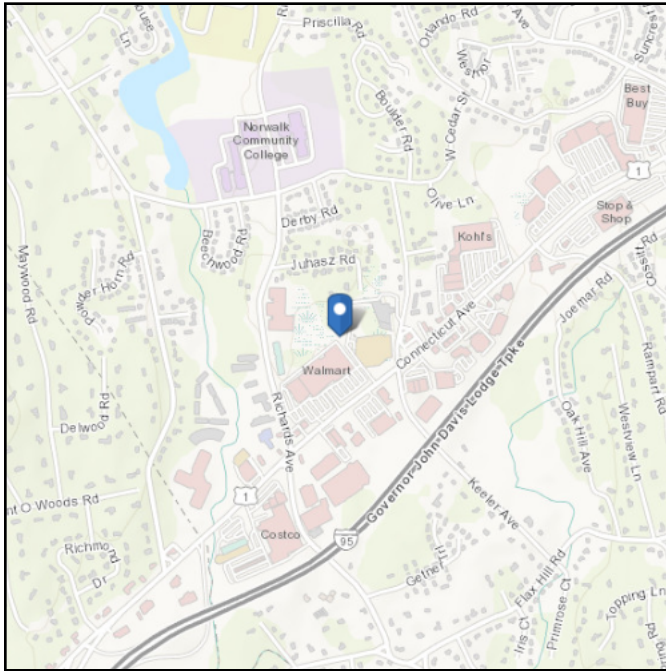
**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 88.52 ft (NAVD 88)  
**Latitude:** 41.097069  
**Longitude:** -73.449058



## Wind

### Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2  
Date Accessed: Fri Mar 04 2022

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

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

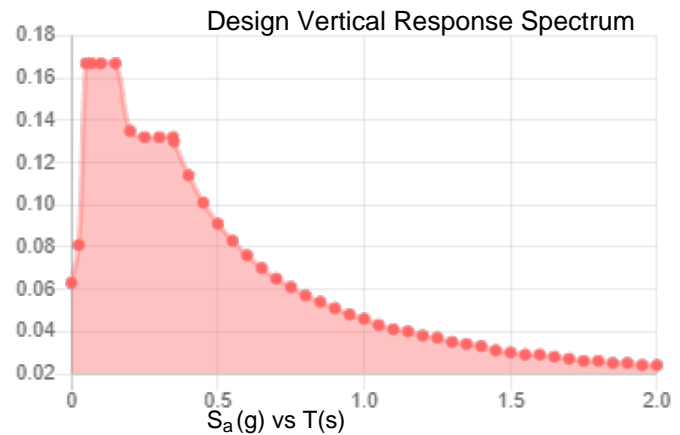
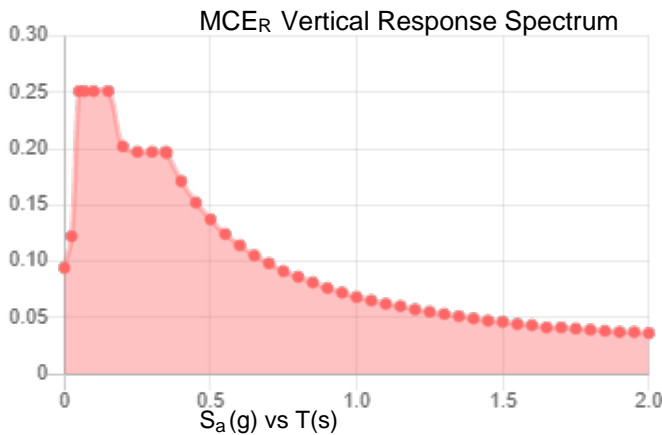
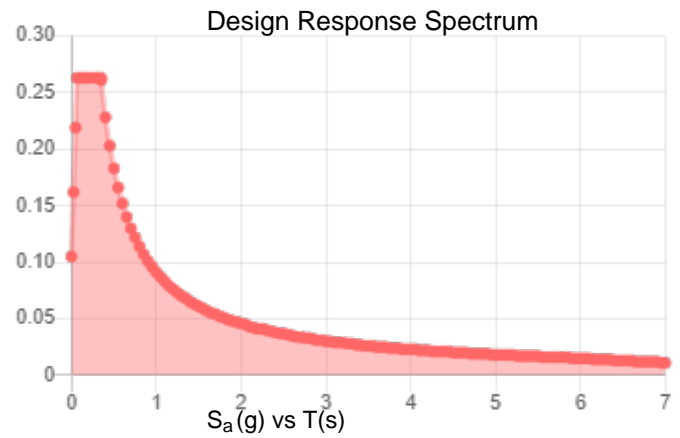
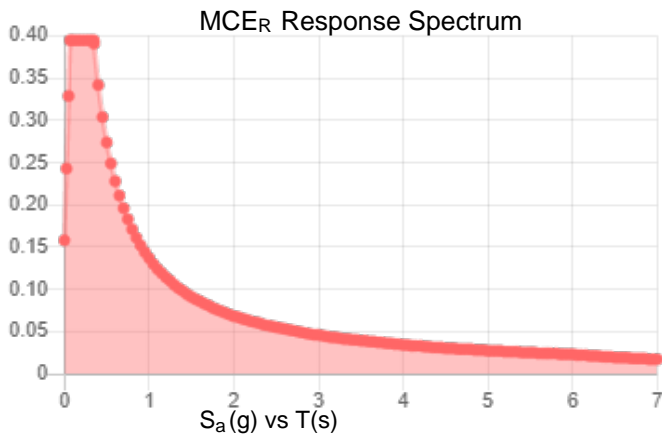


**Site Soil Class:** D - Default (see Section 11.4.3)

**Results:**

$S_s$ :	0.247	$S_{D1}$ :	0.091
$S_1$ :	0.057	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.146
$F_v$ :	2.4	PGA <sub>M</sub> :	0.221
$S_{MS}$ :	0.395	$F_{PGA}$ :	1.507
$S_{M1}$ :	0.137	$I_e$ :	1
$S_{DS}$ :	0.263	$C_v$ :	0.793

**Seismic Design Category** B



**Data Accessed:** Fri Mar 04 2022

**Date Source:**

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

## Ice

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**Results:**

Ice Thickness: 1.00 in.  
Concurrent Temperature: 15 F  
Gust Speed 50 mph

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

**Date Accessed:** Fri Mar 04 2022

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

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

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

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PROJECT	<b>159022.002.01 - Norwalk We</b>		<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>03/05/22</b>	PAGE	OF



Tower Type	:	Monopole	
Ground Elevation	$z_s$ :	89 ft	[ASCE7 Hazard Tool]
Tower Height	:	150.00 ft	
Mount Elevation	:	140.00 ft	
Antenna Elevation	:	140.00 ft	
Crest Height	:	0 ft	
Risk Category	:	II	[Table 2-1 ]
Exposure Category	:	B	[Sec. 2.6.5.1.2]
Topography Category	:	1.00	[Sec. 2.6.6.2]
Wind Velocity	$V$ :	117 mph	[ASCE7 Hazard Tool]
Ice wind Velocity	$V_i$ :	50 mph	[ASCE7 Hazard Tool]
Service Velocity	$V_s$ :	30 mph	[ASCE7 Hazard Tool]
Base Ice thickness	$t_i$ :	1.00 in	[ASCE7 Hazard Tool]
Seismic Design Cat.	:	B	[ASCE7 Hazard Tool]
	$S_s$ :	0.25	
	$S_1$ :	0.06	
	$S_{DS}$ :	0.26	
	$S_{D1}$ :	0.09	
Gust Factor	$G_h$ :	1.00	[Sec. 16.6]
Pressure Coefficient	$K_z$ :	1.09	[Sec. 2.6.5.2]
Topography Factor	$K_{zt}$ :	1.00	[Sec. 2.6.6]
Elevation Factor	$K_e$ :	1.00	[Sec. 2.6.8]
Directionality Factor	$K_d$ :	0.95	[Sec. 16.6]
Shielding Factor	$K_a$ :	0.90	[Sec. 16.6]
Design Ice Thickness	$t_{iz}$ :	1.16 in	[Sec. 2.6.10]
Importance Factor	$I_e$ :	1	[Table 2-3 ]
Response Coefficient	$C_s$ :	0.132	[Sec. 2.7.7.1]
Amplification	$A_s$ :	2.733333	[Sec. 16.7]
	$q_z$ :	36.10 psf	

PROJECT	<b>159022.002.01 - Norwalk We</b>		<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>03/05/22</b>	PAGE	OF



Manufacturer	Model	Qty	Aspect Ratio	C <sub>a</sub> flat/round	EPA <sub>N</sub> (ft <sup>2</sup> )	EPA <sub>T</sub> (ft <sup>2</sup> )	EPA <sub>N-ice</sub> (ft <sup>2</sup> )	EPA <sub>T-ice</sub> (ft <sup>2</sup> )	F <sub>A</sub> No Ice (N)	F <sub>A</sub> No Ice (T)	F <sub>A</sub> Ice (N)	F <sub>A</sub> Ice (T)
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
FUJITSU	TA08025-B604	1	1.90	1.20	0.82	1.64	1.22	2.17	0.03	0.06	0.01	0.01
FUJITSU	TA08025-B605	1	1.65	1.20	0.94	1.64	1.36	2.17	0.04	0.06	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
FUJITSU	TA08025-B604	1	1.90	1.20	0.82	1.64	1.22	2.17	0.03	0.06	0.01	0.01
FUJITSU	TA08025-B605	1	1.65	1.20	0.94	1.64	1.36	2.17	0.04	0.06	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.65	2.61	0.20	0.08	0.04	0.01
FUJITSU	TA08025-B604	1	1.90	1.20	0.82	1.64	1.22	2.17	0.03	0.06	0.01	0.01
FUJITSU	TA08025-B605	1	1.65	1.20	0.94	1.64	1.36	2.17	0.04	0.06	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.97	2.21	1.41	0.07	0.04	0.01	0.01

**APPENDIX C**  
**SOFTWARE ANALYSIS OUTPUT**

**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.225344	
2	2	0	0	-4.558678	
3	3	0	0	-2.558678	
4	4	2.758333	0	-2.558678	
5	5	-2.758333	0	-2.558678	
6	6	-1.603633	0	-4.558678	
7	7	1.603633	0	-4.558678	
8	8	1.749466	0	-4.306087	
9	9	-1.749466	0	-4.306087	
10	10	1.686966	0	-4.41434	
11	11	1.826826	0	-4.495088	
12	12	-1.686966	0	-4.41434	
13	13	-1.826826	0	-4.495088	
14	14	-3.999998	0	3.829622	
15	15	3.999998	0	3.829622	
16	16	2.8625	0	-2.378256	
17	17	2.820833	0	-2.450425	
18	18	2.960693	0	-2.531173	
19	19	-2.8625	0	-2.378256	
20	20	-2.820833	0	-2.450425	
21	21	-2.960693	0	-2.531173	
22	22	-1.25	0.140833	-4.558678	
23	23	-2.404701	0.140833	-2.558678	
24	24	2.404701	0.140833	-2.558678	
25	25	1.25	0.140833	-4.558678	
26	26	-1.25	0	-4.558678	
27	27	-2.404701	0	-2.558678	
28	28	2.404701	0	-2.558678	
29	29	1.25	0	-4.558678	
30	30	-2.749998	0	3.829622	
31	31	0.000002	0	3.829622	
32	32	-2.749998	0	4.095247	
33	33	0.000002	0	4.095247	
34	34	-2.749998	-2.333667	4.095247	
35	35	0.000002	-2.333667	4.095247	
36	36	-2.749998	5.666335	4.095247	
37	37	0.000002	5.666335	4.095247	
38	38	-2.749998	3.333337	4.095247	
39	39	0.000002	3.333337	4.095247	
40	40	-2.749998	3.333337	3.855663	
41	41	0.000002	3.333337	3.855663	
42	42	-5	3.333337	3.855663	
43	43	5	3.333337	3.855663	
44	44	2.749998	0	3.829622	
45	45	2.749998	0	4.095247	
46	46	2.749998	-2.333667	4.095247	
47	47	2.749998	5.666335	4.095247	
48	48	2.749998	3.333337	4.095247	
49	49	2.749998	3.333337	3.855663	
50	50	0	0	0	
51	51	1.625045	3.333337	-4.896667	
52	52	-1.625045	3.333337	-4.896667	
53	53	-1.061179	0	0.612672	
54	54	-3.947931	0	2.279339	
55	55	-2.21588	0	1.279339	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.595046	0	-1.109448	
57	57	-0.836713	0	3.668126	
58	58	-3.146114	0	3.668126	
59	59	-4.749747	0	0.890552	
60	60	-4.603914	0	0.637961	
61	61	-2.854448	0	3.668126	
62	62	-4.666414	0	0.746214	
63	63	-4.806273	0	0.665466	
64	64	-2.979448	0	3.668126	
65	65	-2.979448	0	3.829622	
66	66	-3.49088	0	-1.28987	
67	67	-3.532547	0	-1.2177	
68	68	-3.672407	0	-1.298448	
69	69	-0.62838	0	3.668126	
70	70	-0.711714	0	3.668126	
71	71	-0.711714	0	3.829622	
72	72	-3.322931	0.140833	3.361871	
73	73	-1.01353	0.140833	3.361871	
74	74	-3.41823	0.140833	-0.803193	
75	75	-4.572931	0.140833	1.196807	
76	76	-3.322931	0	3.361871	
77	77	-1.01353	0	3.361871	
78	78	-3.41823	0	-0.803193	
79	79	-4.572931	0	1.196807	
80	80	-5.05316	3.333337	1.041003	
81	81	-3.428116	3.333337	3.855663	
82	82	1.061179	0	0.612672	
83	83	3.947931	0	2.279339	
84	84	2.21588	0	1.279339	
85	85	0.836713	0	3.668126	
86	86	3.595046	0	-1.109448	
87	87	4.749747	0	0.890552	
88	88	3.146114	0	3.668126	
89	89	2.854448	0	3.668126	
90	90	4.603914	0	0.637961	
91	91	2.979448	0	3.668126	
92	92	2.979448	0	3.829622	
93	93	4.666414	0	0.746214	
94	94	4.806273	0	0.665466	
95	95	0.62838	0	3.668126	
96	96	0.711714	0	3.668126	
97	97	0.711714	0	3.829622	
98	98	3.49088	0	-1.28987	
99	99	3.532547	0	-1.2177	
100	100	3.672407	0	-1.298448	
101	101	4.572931	0.140833	1.196807	
102	102	3.41823	0.140833	-0.803193	
103	103	1.01353	0.140833	3.361871	
104	104	3.322931	0.140833	3.361871	
105	105	4.572931	0	1.196807	
106	106	3.41823	0	-0.803193	
107	107	1.01353	0	3.361871	
108	108	3.322931	0	3.361871	
109	109	3.428116	3.333337	3.855663	
110	110	5.05316	3.333337	1.041003	

**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	5.316549	0	1.549289	
112	112	1.316551	0	-5.378911	
113	113	4.691549	0	0.466757	
114	114	3.316549	0	-1.914813	
115	115	4.921587	0	0.333945	
116	116	3.546587	0	-2.047625	
117	117	4.921587	-2.333667	0.333945	
118	118	3.546587	-2.333667	-2.047625	
119	119	4.921587	5.666335	0.333945	
120	120	3.546587	5.666335	-2.047625	
121	121	4.921587	3.333337	0.333945	
122	122	3.546587	3.333337	-2.047625	
123	123	4.714101	3.333337	0.453736	
124	124	3.339101	3.333337	-1.927833	
125	125	5.839102	3.333337	2.402295	
126	126	0.839102	3.333337	-6.257959	
127	127	1.941551	0	-4.296379	
128	128	2.171589	0	-4.429192	
129	129	2.171589	-2.333667	-4.429192	
130	130	2.171589	5.666335	-4.429192	
131	131	2.171589	3.333337	-4.429192	
132	132	1.964103	3.333337	-4.3094	
133	133	-1.316551	0	-5.378911	
134	134	-5.316549	0	1.549289	
135	135	-1.941551	0	-4.296379	
136	136	-3.316551	0	-1.914809	
137	137	-2.171589	0	-4.429192	
138	138	-3.546589	0	-2.047622	
139	139	-2.171589	-2.333667	-4.429192	
140	140	-3.546589	-2.333667	-2.047622	
141	141	-2.171589	5.666335	-4.429192	
142	142	-3.546589	5.666335	-2.047622	
143	143	-2.171589	3.333337	-4.429192	
144	144	-3.546589	3.333337	-2.047622	
145	145	-1.964103	3.333337	-4.3094	
146	146	-3.339103	3.333337	-1.92783	
147	147	-0.839102	3.333337	-6.257959	
148	148	-5.839102	3.333337	2.402295	
149	149	-4.691549	0	0.466757	
150	150	-4.921587	0	0.333945	
151	151	-4.921587	-2.333667	0.333945	
152	152	-4.921587	5.666335	0.333945	
153	153	-4.921587	3.333337	0.333945	
154	154	-4.714101	3.333337	0.453736	
155	155	-1.638818	0	0.946172	
156	156	-1.505818	0	1.176535	
157	157	-1.505818	3.5	1.176535	
158	158	-1.505818	-0.5	1.176535	

**Node Boundary Conditions**

	Node 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	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2						
3	3						
4	4						



**Node Boundary Conditions (Continued)**

	Node 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]
5	5						
6	16						
7	17						
8	19						
9	20						
10	22						
11	25						
12	26						
13	29						
14	53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	54						
16	55						
17	56						
18	57						
19	66						
20	67						
21	69						
22	70						
23	72						
24	75						
25	76						
26	79						
27	82	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	83						
29	84						
30	85						
31	86						
32	95						
33	96						
34	98						
35	99						
36	101						
37	104						
38	105						
39	108						
40	155						
41	156						
42	157						
43	158						

**Hot Rolled Steel Properties**

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

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	MF-H1	PIPE 3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE 2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE 2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054
10	MF-P2	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24		RIGID	None	None	RIGID	Typical
13	13	29	25		RIGID	None	None	RIGID	Typical
14	14	27	23		RIGID	None	None	RIGID	Typical
15	15	26	22		RIGID	None	None	RIGID	Typical
16	16	32	30		RIGID	None	None	RIGID	Typical
17	17	33	31		RIGID	None	None	RIGID	Typical
18	18	37	35		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	36	34		MF-P1	Column	Pipe	A500 Gr.C	Typical
20	20	38	40		RIGID	None	None	RIGID	Typical
21	21	39	41		RIGID	None	None	RIGID	Typical
22	22	42	43		MF-H2	Beam	Pipe	A500 Gr.C	Typical
23	23	11	10		RIGID	None	None	RIGID	Typical
24	24	18	17		RIGID	None	None	RIGID	Typical
25	25	13	12		RIGID	None	None	RIGID	Typical
26	26	21	20		RIGID	None	None	RIGID	Typical
27	27	45	44		RIGID	None	None	RIGID	Typical
28	28	47	46		MF-P1	Column	Pipe	A500 Gr.C	Typical
29	29	48	49		RIGID	None	None	RIGID	Typical
30	30	51	52	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
31	31	53	54		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
32	32	57	55	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
33	33	55	56	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	59	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	58	61		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	36	66	56		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	57	69		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	75	74		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	39	73	72		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	58	59		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
41	41	78	74		RIGID	None	None	RIGID	Typical

**Member Primary Data (Continued)**

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule	
42	42	79	75	RIGID	None	None	RIGID	Typical	
43	43	77	73	RIGID	None	None	RIGID	Typical	
44	44	76	72	RIGID	None	None	RIGID	Typical	
45	45	63	62	RIGID	None	None	RIGID	Typical	
46	46	68	67	RIGID	None	None	RIGID	Typical	
47	47	65	64	RIGID	None	None	RIGID	Typical	
48	48	71	70	RIGID	None	None	RIGID	Typical	
49	49	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
50	50	82	83		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	86	84	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
52	52	84	85	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
53	53	88	89		MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	87	90		MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	55	95	85		MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	86	98		MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	104	103		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	58	102	101		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	87	88		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
60	60	107	103		RIGID	None	None	RIGID	Typical
61	61	108	104		RIGID	None	None	RIGID	Typical
62	62	106	102		RIGID	None	None	RIGID	Typical
63	63	105	101		RIGID	None	None	RIGID	Typical
64	64	92	91		RIGID	None	None	RIGID	Typical
65	65	97	96		RIGID	None	None	RIGID	Typical
66	66	94	93		RIGID	None	None	RIGID	Typical
67	67	100	99		RIGID	None	None	RIGID	Typical
68	68	109	110	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
69	69	111	112		MF-H1	Beam	Pipe	A500 Gr.C	Typical
70	70	115	113		RIGID	None	None	RIGID	Typical
71	71	116	114		RIGID	None	None	RIGID	Typical
72	72	120	118		MF-P1	Column	Pipe	A500 Gr.C	Typical
73	73	119	117		MF-P1	Column	Pipe	A500 Gr.C	Typical
74	74	121	123		RIGID	None	None	RIGID	Typical
75	75	122	124		RIGID	None	None	RIGID	Typical
76	76	125	126		MF-H2	Beam	Pipe	A500 Gr.C	Typical
77	77	128	127		RIGID	None	None	RIGID	Typical
78	78	130	129		MF-P1	Column	Pipe	A500 Gr.C	Typical
79	79	131	132		RIGID	None	None	RIGID	Typical
80	80	133	134		MF-H1	Beam	Pipe	A500 Gr.C	Typical
81	81	137	135		RIGID	None	None	RIGID	Typical
82	82	138	136		RIGID	None	None	RIGID	Typical
83	83	142	140		MF-P1	Column	Pipe	A500 Gr.C	Typical
84	84	141	139		MF-P1	Column	Pipe	A500 Gr.C	Typical
85	85	143	145		RIGID	None	None	RIGID	Typical
86	86	144	146		RIGID	None	None	RIGID	Typical
87	87	147	148		MF-H2	Beam	Pipe	A500 Gr.C	Typical
88	88	150	149		RIGID	None	None	RIGID	Typical
89	89	152	151		MF-P1	Column	Pipe	A500 Gr.C	Typical
90	90	153	154		RIGID	None	None	RIGID	Typical
91	91	155	156		RIGID	None	None	RIGID	Typical
92	92	157	158		MF-P2	Column	Pipe	A53 Gr.B	Typical

**Member Advanced Data**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2			2	Yes	N/A	None
3	3		2		Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	None
7	7				Yes	N/A	None
8	8				Yes	N/A	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	** NA **	None
13	13				Yes	** NA **	None
14	14				Yes	** NA **	None
15	15				Yes	** NA **	None
16	16				Yes	** NA **	None
17	17				Yes	** NA **	None
18	18				Yes	** NA **	None
19	19				Yes	** NA **	None
20	20				Yes	** NA **	None
21	21				Yes	** NA **	None
22	22				Yes	N/A	None
23	23	O O O O O X			Yes	** NA **	None
24	24	O O O O O X			Yes	** NA **	None
25	25	O O O O O X			Yes	** NA **	None
26	26	O O O O O X			Yes	** NA **	None
27	27				Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	N/A	None
31	31				Yes	N/A	None
32	32			2	Yes	N/A	None
33	33		2		Yes	N/A	None
34	34				Yes	N/A	None
35	35				Yes	N/A	None
36	36				Yes	N/A	None
37	37				Yes	N/A	None
38	38				Yes	N/A	None
39	39				Yes	N/A	None
40	40				Yes	N/A	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45	O O O O O X			Yes	** NA **	None
46	46	O O O O O X			Yes	** NA **	None
47	47	O O O O O X			Yes	** NA **	None
48	48	O O O O O X			Yes	** NA **	None
49	49				Yes	N/A	None
50	50				Yes	N/A	None
51	51			2	Yes	N/A	None
52	52		2		Yes	N/A	None
53	53				Yes	N/A	None
54	54				Yes	N/A	None
55	55				Yes	N/A	None

**Member Advanced Data (Continued)**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
56	56				Yes	N/A	None
57	57				Yes	N/A	None
58	58				Yes	N/A	None
59	59				Yes	N/A	None
60	60				Yes	** NA **	None
61	61				Yes	** NA **	None
62	62				Yes	** NA **	None
63	63				Yes	** NA **	None
64	64	OOOOOX			Yes	** NA **	None
65	65	OOOOOX			Yes	** NA **	None
66	66	OOOOOX			Yes	** NA **	None
67	67	OOOOOX			Yes	** NA **	None
68	68				Yes	N/A	None
69	69				Yes	N/A	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes	N/A	None
77	77				Yes	** NA **	None
78	78				Yes	** NA **	None
79	79				Yes	** NA **	None
80	80				Yes	N/A	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes	N/A	None
88	88				Yes	** NA **	None
89	89				Yes	** NA **	None
90	90				Yes	** NA **	None
91	91				Yes	** NA **	None
92	92				Yes	** NA **	None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy	Lateral
2	2	SF-H2	2.758	Lbyy	Lateral
3	3	SF-H2	2.758	Lbyy	Lateral
4	4	MF-CP1	0.292	Lbyy	Lateral
5	5	MF-CP1	0.292	Lbyy	Lateral
6	6	MF-H1	8	Lbyy	Lateral
7	7	MF-CP1	0.208	Lbyy	Lateral
8	8	MF-CP1	0.208	Lbyy	Lateral
9	9	SF-H3	2.309	Lbyy	Lateral
10	10	SF-H3	2.309	Lbyy	Lateral
11	11	SF-H4	3.207	Lbyy	Lateral
12	18	MF-P1	8	Lbyy	Lateral
13	19	MF-P1	8	Lbyy	Lateral
14	22	MF-H2	10	Lbyy	Lateral
15	28	MF-P1	8	Lbyy	Lateral

**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
16	30	MF-H3	3.25	Lbyy	Lateral
17	31	SF-H1	3.333	Lbyy	Lateral
18	32	SF-H2	2.758	Lbyy	Lateral
19	33	SF-H2	2.758	Lbyy	Lateral
20	34	MF-CP1	0.292	Lbyy	Lateral
21	35	MF-CP1	0.292	Lbyy	Lateral
22	36	MF-CP1	0.208	Lbyy	Lateral
23	37	MF-CP1	0.208	Lbyy	Lateral
24	38	SF-H3	2.309	Lbyy	Lateral
25	39	SF-H3	2.309	Lbyy	Lateral
26	40	SF-H4	3.207	Lbyy	Lateral
27	49	MF-H3	3.25	Lbyy	Lateral
28	50	SF-H1	3.333	Lbyy	Lateral
29	51	SF-H2	2.758	Lbyy	Lateral
30	52	SF-H2	2.758	Lbyy	Lateral
31	53	MF-CP1	0.292	Lbyy	Lateral
32	54	MF-CP1	0.292	Lbyy	Lateral
33	55	MF-CP1	0.208	Lbyy	Lateral
34	56	MF-CP1	0.208	Lbyy	Lateral
35	57	SF-H3	2.309	Lbyy	Lateral
36	58	SF-H3	2.309	Lbyy	Lateral
37	59	SF-H4	3.207	Lbyy	Lateral
38	68	MF-H3	3.25	Lbyy	Lateral
39	69	MF-H1	8	Lbyy	Lateral
40	72	MF-P1	8	Lbyy	Lateral
41	73	MF-P1	8	Lbyy	Lateral
42	76	MF-H2	10	Lbyy	Lateral
43	78	MF-P1	8	Lbyy	Lateral
44	80	MF-H1	8	Lbyy	Lateral
45	83	MF-P1	8	Lbyy	Lateral
46	84	MF-P1	8	Lbyy	Lateral
47	87	MF-H2	10	Lbyy	Lateral
48	89	MF-P1	8	Lbyy	Lateral
49	92	MF-P2	4	Lbyy	Lateral

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.035	%15
2	18	Y	-0.035	%85
3	18	Y	-0.064	%50
4	18	Y	-0.075	%50
5	18	Y	0	0
6	83	Y	-0.035	%15
7	83	Y	-0.035	%85
8	83	Y	-0.064	%50
9	83	Y	-0.075	%50
10	83	Y	0	0
11	72	Y	-0.035	%15
12	72	Y	-0.035	%85
13	72	Y	-0.064	%50
14	72	Y	-0.075	%50
15	72	Y	0	0
16	92	Y	-0.022	%20
17	92	Y	0	0
18	92	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
19	92	Y	0	0
20	92	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.199	%15
2	18	Z	-0.199	%85
3	18	Z	-0.032	%50
4	18	Z	-0.037	%50
5	18	Z	0	0
6	83	Z	-0.199	%15
7	83	Z	-0.199	%85
8	83	Z	-0.032	%50
9	83	Z	-0.037	%50
10	83	Z	0	0
11	72	Z	-0.199	%15
12	72	Z	-0.199	%85
13	72	Z	-0.032	%50
14	72	Z	-0.037	%50
15	72	Z	0	0
16	92	Z	-0.065	%20
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.079	%15
2	18	X	-0.079	%85
3	18	X	-0.064	%50
4	18	X	-0.064	%50
5	18	X	0	0
6	83	X	-0.079	%15
7	83	X	-0.079	%85
8	83	X	-0.064	%50
9	83	X	-0.064	%50
10	83	X	0	0
11	72	X	-0.079	%15
12	72	X	-0.079	%85
13	72	X	-0.064	%50
14	72	X	-0.064	%50
15	72	X	0	0
16	92	X	-0.038	%20
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.036	%15
2	18	Z	-0.036	%85
3	18	Z	-0.006	%50
4	18	Z	-0.007	%50
5	18	Z	0	0
6	83	Z	-0.036	%15
7	83	Z	-0.036	%85
8	83	Z	-0.006	%50
9	83	Z	-0.007	%50
10	83	Z	0	0
11	72	Z	-0.036	%15
12	72	Z	-0.036	%85
13	72	Z	-0.006	%50
14	72	Z	-0.007	%50
15	72	Z	0	0
16	92	Z	-0.012	%20
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.015	%15
2	18	X	-0.015	%85
3	18	X	-0.012	%50
4	18	X	-0.012	%50
5	18	X	0	0
6	83	X	-0.015	%15
7	83	X	-0.015	%85
8	83	X	-0.012	%50
9	83	X	-0.012	%50
10	83	X	0	0
11	72	X	-0.015	%15
12	72	X	-0.015	%85
13	72	X	-0.012	%50
14	72	X	-0.012	%50
15	72	X	0	0
16	92	X	-0.007	%20
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.013	%15
2	18	Z	-0.013	%85
3	18	Z	-0.002	%50
4	18	Z	-0.002	%50
5	18	Z	0	0
6	83	Z	-0.013	%15



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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	83	Z	-0.013	%85
8	83	Z	-0.002	%50
9	83	Z	-0.002	%50
10	83	Z	0	0
11	72	Z	-0.013	%15
12	72	Z	-0.013	%85
13	72	Z	-0.002	%50
14	72	Z	-0.002	%50
15	72	Z	0	0
16	92	Z	-0.004	%20
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.005	%15
2	18	X	-0.005	%85
3	18	X	-0.004	%50
4	18	X	-0.004	%50
5	18	X	0	0
6	83	X	-0.005	%15
7	83	X	-0.005	%85
8	83	X	-0.004	%50
9	83	X	-0.004	%50
10	83	X	0	0
11	72	X	-0.005	%15
12	72	X	-0.005	%85
13	72	X	-0.004	%50
14	72	X	-0.004	%50
15	72	X	0	0
16	92	X	-0.003	%20
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.094	%15
2	18	Y	-0.094	%85
3	18	Y	-0.033	%50
4	18	Y	-0.034	%50
5	18	Y	0	0
6	83	Y	-0.094	%15
7	83	Y	-0.094	%85
8	83	Y	-0.033	%50
9	83	Y	-0.034	%50
10	83	Y	0	0
11	72	Y	-0.094	%15
12	72	Y	-0.094	%85
13	72	Y	-0.033	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14	72	Y	-0.034	%50
15	72	Y	0	0
16	92	Y	-0.035	%20
17	92	Y	0	0
18	92	Y	0	0
19	92	Y	0	0
20	92	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.025	%15
2	18	Z	-0.025	%85
3	18	Z	-0.023	%50
4	18	Z	-0.027	%50
5	18	Z	0	0
6	83	Z	-0.025	%15
7	83	Z	-0.025	%85
8	83	Z	-0.023	%50
9	83	Z	-0.027	%50
10	83	Z	0	0
11	72	Z	-0.025	%15
12	72	Z	-0.025	%85
13	72	Z	-0.023	%50
14	72	Z	-0.027	%50
15	72	Z	0	0
16	92	Z	-0.008	%20
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.025	%15
2	18	X	-0.025	%85
3	18	X	-0.023	%50
4	18	X	-0.027	%50
5	18	X	0	0
6	83	X	-0.025	%15
7	83	X	-0.025	%85
8	83	X	-0.023	%50
9	83	X	-0.027	%50
10	83	X	0	0
11	72	X	-0.025	%15
12	72	X	-0.025	%85
13	72	X	-0.023	%50
14	72	X	-0.027	%50
15	72	X	0	0
16	92	X	-0.008	%20
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0



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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%5

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%5

**Member Point Loads (BLC 21 : Maint LL 7)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

**Member Point Loads (BLC 22 : Maint LL 8)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

**Member Point Loads (BLC 23 : Maint LL 9)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%95

**Member Point Loads (BLC 24 : Maint LL 10)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%95



**Member Point Loads (BLC 25 : Maint LL 11)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%95

**Member Point Loads (BLC 26 : Maint LL 12)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%95

**Member Point Loads (BLC 27 : Maint LL 13)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	31	Y	-0.25	%95

**Member Point Loads (BLC 28 : Maint LL 14)**

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

**Member Point Loads (BLC 29 : Maint LL 15)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%95

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.016	-0.016	0	%100
2	2	Z	-0.013	-0.013	0	%100
3	3	Z	-0.013	-0.013	0	%100
4	4	Z	-0.02	-0.02	0	%100
5	5	Z	-0.02	-0.02	0	%100
6	6	Z	-0.011	-0.011	0	%100
7	7	Z	-0.02	-0.02	0	%100
8	8	Z	-0.02	-0.02	0	%100
9	9	Z	-0.009	-0.009	0	%100
10	10	Z	-0.009	-0.009	0	%100
11	11	Z	-0.027	-0.027	0	%100
12	18	Z	-0.009	-0.009	0	%100
13	19	Z	-0.009	-0.009	0	%100
14	22	Z	-0.009	-0.009	0	%100
15	28	Z	-0.009	-0.009	0	%100
16	30	Z	-0.024	-0.024	0	%100
17	31	Z	-0.016	-0.016	0	%100
18	32	Z	-0.013	-0.013	0	%100
19	33	Z	-0.013	-0.013	0	%100
20	34	Z	-0.02	-0.02	0	%100
21	35	Z	-0.02	-0.02	0	%100
22	36	Z	-0.02	-0.02	0	%100
23	37	Z	-0.02	-0.02	0	%100
24	38	Z	-0.009	-0.009	0	%100
25	39	Z	-0.009	-0.009	0	%100
26	40	Z	-0.027	-0.027	0	%100
27	49	Z	-0.024	-0.024	0	%100
28	50	Z	-0.016	-0.016	0	%100



Company : B+T Group  
 Designer : KR  
 Job Number : 159022.002.01  
 Model Name : 841287 - Norwalk West- CT Ave

3/5/2022  
 5:56:37 PM  
 Checked By : \_\_\_\_\_

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
29	51	Z	-0.013	-0.013	0	%100
30	52	Z	-0.013	-0.013	0	%100
31	53	Z	-0.02	-0.02	0	%100
32	54	Z	-0.02	-0.02	0	%100
33	55	Z	-0.02	-0.02	0	%100
34	56	Z	-0.02	-0.02	0	%100
35	57	Z	-0.009	-0.009	0	%100
36	58	Z	-0.009	-0.009	0	%100
37	59	Z	-0.027	-0.027	0	%100
38	68	Z	-0.024	-0.024	0	%100
39	69	Z	-0.011	-0.011	0	%100
40	72	Z	-0.009	-0.009	0	%100
41	73	Z	-0.009	-0.009	0	%100
42	76	Z	-0.009	-0.009	0	%100
43	78	Z	-0.009	-0.009	0	%100
44	80	Z	-0.011	-0.011	0	%100
45	83	Z	-0.009	-0.009	0	%100
46	84	Z	-0.009	-0.009	0	%100
47	87	Z	-0.009	-0.009	0	%100
48	89	Z	-0.009	-0.009	0	%100
49	92	Z	-0.007	-0.007	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.016	-0.016	0	%100
2	2	X	-0.013	-0.013	0	%100
3	3	X	-0.013	-0.013	0	%100
4	4	X	-0.02	-0.02	0	%100
5	5	X	-0.02	-0.02	0	%100
6	6	X	-0.011	-0.011	0	%100
7	7	X	-0.02	-0.02	0	%100
8	8	X	-0.02	-0.02	0	%100
9	9	X	-0.009	-0.009	0	%100
10	10	X	-0.009	-0.009	0	%100
11	11	X	-0.027	-0.027	0	%100
12	18	X	-0.009	-0.009	0	%100
13	19	X	-0.009	-0.009	0	%100
14	22	X	-0.009	-0.009	0	%100
15	28	X	-0.009	-0.009	0	%100
16	30	X	-0.024	-0.024	0	%100
17	31	X	-0.016	-0.016	0	%100
18	32	X	-0.013	-0.013	0	%100
19	33	X	-0.013	-0.013	0	%100
20	34	X	-0.02	-0.02	0	%100
21	35	X	-0.02	-0.02	0	%100
22	36	X	-0.02	-0.02	0	%100
23	37	X	-0.02	-0.02	0	%100
24	38	X	-0.009	-0.009	0	%100
25	39	X	-0.009	-0.009	0	%100
26	40	X	-0.027	-0.027	0	%100
27	49	X	-0.024	-0.024	0	%100
28	50	X	-0.016	-0.016	0	%100
29	51	X	-0.013	-0.013	0	%100
30	52	X	-0.013	-0.013	0	%100
31	53	X	-0.02	-0.02	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
32	54	X	-0.02	-0.02	0	%100
33	55	X	-0.02	-0.02	0	%100
34	56	X	-0.02	-0.02	0	%100
35	57	X	-0.009	-0.009	0	%100
36	58	X	-0.009	-0.009	0	%100
37	59	X	-0.027	-0.027	0	%100
38	68	X	-0.024	-0.024	0	%100
39	69	X	-0.011	-0.011	0	%100
40	72	X	-0.009	-0.009	0	%100
41	73	X	-0.009	-0.009	0	%100
42	76	X	-0.009	-0.009	0	%100
43	78	X	-0.009	-0.009	0	%100
44	80	X	-0.011	-0.011	0	%100
45	83	X	-0.009	-0.009	0	%100
46	84	X	-0.009	-0.009	0	%100
47	87	X	-0.009	-0.009	0	%100
48	89	X	-0.009	-0.009	0	%100
49	92	X	-0.007	-0.007	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0	%100
2	2	Z	-0.004	-0.004	0	%100
3	3	Z	-0.004	-0.004	0	%100
4	4	Z	-0.008	-0.008	0	%100
5	5	Z	-0.008	-0.008	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.01	-0.01	0	%100
8	8	Z	-0.01	-0.01	0	%100
9	9	Z	-0.004	-0.004	0	%100
10	10	Z	-0.004	-0.004	0	%100
11	11	Z	-0.007	-0.007	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.006	-0.006	0	%100
17	31	Z	-0.005	-0.005	0	%100
18	32	Z	-0.004	-0.004	0	%100
19	33	Z	-0.004	-0.004	0	%100
20	34	Z	-0.008	-0.008	0	%100
21	35	Z	-0.008	-0.008	0	%100
22	36	Z	-0.01	-0.01	0	%100
23	37	Z	-0.01	-0.01	0	%100
24	38	Z	-0.004	-0.004	0	%100
25	39	Z	-0.004	-0.004	0	%100
26	40	Z	-0.007	-0.007	0	%100
27	49	Z	-0.006	-0.006	0	%100
28	50	Z	-0.005	-0.005	0	%100
29	51	Z	-0.004	-0.004	0	%100
30	52	Z	-0.004	-0.004	0	%100
31	53	Z	-0.008	-0.008	0	%100
32	54	Z	-0.008	-0.008	0	%100
33	55	Z	-0.01	-0.01	0	%100
34	56	Z	-0.01	-0.01	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
35	57	Z	-0.004	-0.004	0	%100
36	58	Z	-0.004	-0.004	0	%100
37	59	Z	-0.007	-0.007	0	%100
38	68	Z	-0.006	-0.006	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	0	%100
49	92	Z	-0.002	-0.002	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0	%100
2	2	X	-0.004	-0.004	0	%100
3	3	X	-0.004	-0.004	0	%100
4	4	X	-0.008	-0.008	0	%100
5	5	X	-0.008	-0.008	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.01	-0.01	0	%100
8	8	X	-0.01	-0.01	0	%100
9	9	X	-0.004	-0.004	0	%100
10	10	X	-0.004	-0.004	0	%100
11	11	X	-0.007	-0.007	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	28	X	-0.002	-0.002	0	%100
16	30	X	-0.006	-0.006	0	%100
17	31	X	-0.005	-0.005	0	%100
18	32	X	-0.004	-0.004	0	%100
19	33	X	-0.004	-0.004	0	%100
20	34	X	-0.008	-0.008	0	%100
21	35	X	-0.008	-0.008	0	%100
22	36	X	-0.01	-0.01	0	%100
23	37	X	-0.01	-0.01	0	%100
24	38	X	-0.004	-0.004	0	%100
25	39	X	-0.004	-0.004	0	%100
26	40	X	-0.007	-0.007	0	%100
27	49	X	-0.006	-0.006	0	%100
28	50	X	-0.005	-0.005	0	%100
29	51	X	-0.004	-0.004	0	%100
30	52	X	-0.004	-0.004	0	%100
31	53	X	-0.008	-0.008	0	%100
32	54	X	-0.008	-0.008	0	%100
33	55	X	-0.01	-0.01	0	%100
34	56	X	-0.01	-0.01	0	%100
35	57	X	-0.004	-0.004	0	%100
36	58	X	-0.004	-0.004	0	%100
37	59	X	-0.007	-0.007	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
38	68	X	-0.006	-0.006	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	0	%100
49	92	X	-0.002	-0.002	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.0009	-0.0009	0	%100
3	3	Z	-0.0009	-0.0009	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.0004	-0.0004	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.0006	-0.0006	0	%100
10	10	Z	-0.0006	-0.0006	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0003	-0.0003	0	%100
13	19	Z	-0.0003	-0.0003	0	%100
14	22	Z	-0.0003	-0.0003	0	%100
15	28	Z	-0.0003	-0.0003	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.0009	-0.0009	0	%100
19	33	Z	-0.0009	-0.0009	0	%100
20	34	Z	-0.001	-0.001	0	%100
21	35	Z	-0.001	-0.001	0	%100
22	36	Z	-0.001	-0.001	0	%100
23	37	Z	-0.001	-0.001	0	%100
24	38	Z	-0.0006	-0.0006	0	%100
25	39	Z	-0.0006	-0.0006	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.0009	-0.0009	0	%100
30	52	Z	-0.0009	-0.0009	0	%100
31	53	Z	-0.001	-0.001	0	%100
32	54	Z	-0.001	-0.001	0	%100
33	55	Z	-0.001	-0.001	0	%100
34	56	Z	-0.001	-0.001	0	%100
35	57	Z	-0.0006	-0.0006	0	%100
36	58	Z	-0.0006	-0.0006	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0004	-0.0004	0	%100
40	72	Z	-0.0003	-0.0003	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
41	73	Z	-0.0003	-0.0003	0	%100
42	76	Z	-0.0003	-0.0003	0	%100
43	78	Z	-0.0003	-0.0003	0	%100
44	80	Z	-0.0004	-0.0004	0	%100
45	83	Z	-0.0003	-0.0003	0	%100
46	84	Z	-0.0003	-0.0003	0	%100
47	87	Z	-0.0003	-0.0003	0	%100
48	89	Z	-0.0003	-0.0003	0	%100
49	92	Z	-0.0003	-0.0003	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.0009	-0.0009	0	%100
3	3	X	-0.0009	-0.0009	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.0004	-0.0004	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.0006	-0.0006	0	%100
10	10	X	-0.0006	-0.0006	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.0003	-0.0003	0	%100
13	19	X	-0.0003	-0.0003	0	%100
14	22	X	-0.0003	-0.0003	0	%100
15	28	X	-0.0003	-0.0003	0	%100
16	30	X	-0.002	-0.002	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.0009	-0.0009	0	%100
19	33	X	-0.0009	-0.0009	0	%100
20	34	X	-0.001	-0.001	0	%100
21	35	X	-0.001	-0.001	0	%100
22	36	X	-0.001	-0.001	0	%100
23	37	X	-0.001	-0.001	0	%100
24	38	X	-0.0006	-0.0006	0	%100
25	39	X	-0.0006	-0.0006	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.0009	-0.0009	0	%100
30	52	X	-0.0009	-0.0009	0	%100
31	53	X	-0.001	-0.001	0	%100
32	54	X	-0.001	-0.001	0	%100
33	55	X	-0.001	-0.001	0	%100
34	56	X	-0.001	-0.001	0	%100
35	57	X	-0.0006	-0.0006	0	%100
36	58	X	-0.0006	-0.0006	0	%100
37	59	X	-0.002	-0.002	0	%100
38	68	X	-0.002	-0.002	0	%100
39	69	X	-0.0004	-0.0004	0	%100
40	72	X	-0.0003	-0.0003	0	%100
41	73	X	-0.0003	-0.0003	0	%100
42	76	X	-0.0003	-0.0003	0	%100
43	78	X	-0.0003	-0.0003	0	%100



Company : B+T Group  
 Designer : KR  
 Job Number : 159022.002.01  
 Model Name : 841287 - Norwalk West- CT Ave

3/5/2022  
 5:56:37 PM  
 Checked By : \_\_\_\_\_

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
44	80	X	-0.0004	-0.0004	0	%100
45	83	X	-0.0003	-0.0003	0	%100
46	84	X	-0.0003	-0.0003	0	%100
47	87	X	-0.0003	-0.0003	0	%100
48	89	X	-0.0003	-0.0003	0	%100
49	92	X	-0.0003	-0.0003	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.01	-0.01	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.007	-0.007	0	%100
4	4	Y	-0.01	-0.01	0	%100
5	5	Y	-0.01	-0.01	0	%100
6	6	Y	-0.007	-0.007	0	%100
7	7	Y	-0.01	-0.01	0	%100
8	8	Y	-0.01	-0.01	0	%100
9	9	Y	-0.006	-0.006	0	%100
10	10	Y	-0.006	-0.006	0	%100
11	11	Y	-0.013	-0.013	0	%100
12	18	Y	-0.006	-0.006	0	%100
13	19	Y	-0.006	-0.006	0	%100
14	22	Y	-0.006	-0.006	0	%100
15	28	Y	-0.006	-0.006	0	%100
16	30	Y	-0.013	-0.013	0	%100
17	31	Y	-0.01	-0.01	0	%100
18	32	Y	-0.007	-0.007	0	%100
19	33	Y	-0.007	-0.007	0	%100
20	34	Y	-0.01	-0.01	0	%100
21	35	Y	-0.01	-0.01	0	%100
22	36	Y	-0.01	-0.01	0	%100
23	37	Y	-0.01	-0.01	0	%100
24	38	Y	-0.006	-0.006	0	%100
25	39	Y	-0.006	-0.006	0	%100
26	40	Y	-0.013	-0.013	0	%100
27	49	Y	-0.013	-0.013	0	%100
28	50	Y	-0.01	-0.01	0	%100
29	51	Y	-0.007	-0.007	0	%100
30	52	Y	-0.007	-0.007	0	%100
31	53	Y	-0.01	-0.01	0	%100
32	54	Y	-0.01	-0.01	0	%100
33	55	Y	-0.01	-0.01	0	%100
34	56	Y	-0.01	-0.01	0	%100
35	57	Y	-0.006	-0.006	0	%100
36	58	Y	-0.006	-0.006	0	%100
37	59	Y	-0.013	-0.013	0	%100
38	68	Y	-0.013	-0.013	0	%100
39	69	Y	-0.007	-0.007	0	%100
40	72	Y	-0.006	-0.006	0	%100
41	73	Y	-0.006	-0.006	0	%100
42	76	Y	-0.006	-0.006	0	%100
43	78	Y	-0.006	-0.006	0	%100
44	80	Y	-0.007	-0.007	0	%100
45	83	Y	-0.006	-0.006	0	%100
46	84	Y	-0.006	-0.006	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
47	87	Y	-0.006	-0.006	0	%100
48	89	Y	-0.006	-0.006	0	%100
49	92	Y	-0.005	-0.005	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.003	-0.003	0	%100
8	8	Z	-0.003	-0.003	0	%100
9	9	Z	-0.001	-0.001	0	%100
10	10	Z	-0.001	-0.001	0	%100
11	11	Z	-0.004	-0.004	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.003	-0.003	0	%100
17	31	Z	-0.002	-0.002	0	%100
18	32	Z	-0.002	-0.002	0	%100
19	33	Z	-0.002	-0.002	0	%100
20	34	Z	-0.003	-0.003	0	%100
21	35	Z	-0.003	-0.003	0	%100
22	36	Z	-0.003	-0.003	0	%100
23	37	Z	-0.003	-0.003	0	%100
24	38	Z	-0.001	-0.001	0	%100
25	39	Z	-0.001	-0.001	0	%100
26	40	Z	-0.004	-0.004	0	%100
27	49	Z	-0.003	-0.003	0	%100
28	50	Z	-0.002	-0.002	0	%100
29	51	Z	-0.002	-0.002	0	%100
30	52	Z	-0.002	-0.002	0	%100
31	53	Z	-0.003	-0.003	0	%100
32	54	Z	-0.003	-0.003	0	%100
33	55	Z	-0.003	-0.003	0	%100
34	56	Z	-0.003	-0.003	0	%100
35	57	Z	-0.001	-0.001	0	%100
36	58	Z	-0.001	-0.001	0	%100
37	59	Z	-0.004	-0.004	0	%100
38	68	Z	-0.003	-0.003	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	0	%100
49	92	Z	-0.001	-0.001	0	%100



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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.003	-0.003	0	%100
8	8	X	-0.003	-0.003	0	%100
9	9	X	-0.001	-0.001	0	%100
10	10	X	-0.001	-0.001	0	%100
11	11	X	-0.004	-0.004	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	28	X	-0.002	-0.002	0	%100
16	30	X	-0.003	-0.003	0	%100
17	31	X	-0.002	-0.002	0	%100
18	32	X	-0.002	-0.002	0	%100
19	33	X	-0.002	-0.002	0	%100
20	34	X	-0.003	-0.003	0	%100
21	35	X	-0.003	-0.003	0	%100
22	36	X	-0.003	-0.003	0	%100
23	37	X	-0.003	-0.003	0	%100
24	38	X	-0.001	-0.001	0	%100
25	39	X	-0.001	-0.001	0	%100
26	40	X	-0.004	-0.004	0	%100
27	49	X	-0.003	-0.003	0	%100
28	50	X	-0.002	-0.002	0	%100
29	51	X	-0.002	-0.002	0	%100
30	52	X	-0.002	-0.002	0	%100
31	53	X	-0.003	-0.003	0	%100
32	54	X	-0.003	-0.003	0	%100
33	55	X	-0.003	-0.003	0	%100
34	56	X	-0.003	-0.003	0	%100
35	57	X	-0.001	-0.001	0	%100
36	58	X	-0.001	-0.001	0	%100
37	59	X	-0.004	-0.004	0	%100
38	68	X	-0.003	-0.003	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	0	%100
49	92	X	-0.001	-0.001	0	%100

**Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	38	Y	-0.017	-0.017	0	2.078
2	39	Y	0.0006164	-0.016	0	1.155

**Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads) (Continued)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
3	39	Y	-0.016	-0.035	1.155 2.309
4	9	Y	-0.014	-0.016	0 2.078
5	10	Y	-0.014	-0.02	0.231 1.27
6	10	Y	-0.02	-0.026	1.27 2.309
7	57	Y	-0.035	-0.016	0 1.155
8	57	Y	-0.016	0.0006163	1.155 2.309
9	58	Y	-0.018	-0.016	0.231 2.309

**Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	38	Y	-0.009	-0.009	0 2.078
2	39	Y	0.0003408	-0.009	0 1.155
3	39	Y	-0.009	-0.019	1.155 2.309
4	9	Y	-0.009	-0.009	0 2.078
5	10	Y	-0.009	-0.012	0.231 1.27
6	10	Y	-0.012	-0.016	1.27 2.309
7	57	Y	-0.021	-0.009	0 1.155
8	57	Y	-0.009	0.0003698	1.155 2.309
9	58	Y	-0.011	-0.009	0.231 2.309

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

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	
1	72	75	74	73	Y	Two Way	-0.01
2	23	22	25	24	Y	Two Way	-0.01
3	103	102	101	104	Y	Two Way	-0.01

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

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	
1	72	75	74	73	Y	Two Way	-0.006
2	23	22	25	24	Y	Two Way	-0.006
3	103	102	101	104	Y	Two Way	-0.006

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]	
1	30	L	Y	-0.5
2	113	L	Y	-0.5
3	135	L	Y	-0.5

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]	
1	31	L	Y	-0.5
2	114	L	Y	-0.5
3	136	L	Y	-0.5

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1 44	L	Y	-0.5
2 127	L	Y	-0.5
3 149	L	Y	-0.5

**Basic Load Cases**

BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1 Dead	DL	-1		20		3
2 0 Wind - No Ice	WLZ			20	49	
3 90 Wind - No Ice	WLX			20	49	
4 0 Wind - Ice	WLZ			20	49	
5 90 Wind - Ice	WLX			20	49	
6 0 Wind - Service	WLZ			20	49	
7 90 Wind - Service	WLX			20	49	
8 Ice	OL1			20	49	3
9 0 Seismic	ELZ			20	49	
10 90 Seismic	ELX			20	49	
11 Live Load a	LL		3			
12 Live Load b	LL		3			
13 Live Load c	LL		3			
14 Live Load d	LL					
15 Maint LL 1	LL			1		
16 Maint LL 2	LL			1		
17 Maint LL 3	LL			1		
18 Maint LL 4	LL			1		
19 Maint LL 5	LL			1		
20 Maint LL 6	LL			1		
21 Maint LL 7	LL			1		
22 Maint LL 8	LL			1		
23 Maint LL 9	LL			1		
24 Maint LL 10	LL			1		
25 Maint LL 11	LL			1		
26 Maint LL 12	LL			1		
27 Maint LL 13	LL			1		
28 Maint LL 14	LL			1		
29 Maint LL 15	LL			1		
30 BLC 1 Transient Area Loads	None				9	
31 BLC 8 Transient Area Loads	None				9	

**Load Combinations**

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1 1.4 Dead	Yes	Y	1	1.4						
2 1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3 1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4 1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5 1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6 1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7 1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8 1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9 1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10 1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11 1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12 1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		

**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5

**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

**Envelope Node Reactions**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
1	1	max	1.245	5	1.695	14	0.889	2	3.616	2	1.208	11	0.344	11
2		min	-1.245	11	0.016	8	-1.012	8	-0.552	8	-1.207	5	-0.356	5
3	53	max	0.946	5	1.775	18	1.477	2	0.386	13	1.425	3	0.3	12
4		min	-1.052	11	0.17	12	-1.416	8	-1.968	7	-1.425	9	-3.01	6
5	82	max	0.99	5	1.677	22	1.386	2	0.273	3	1.381	7	2.88	10
6		min	-0.884	11	0.115	4	-1.324	8	-1.815	9	-1.381	13	-0.227	4
7	Totals:	max	3.181	5	4.739	20	3.752	2						
8		min	-3.181	11	2.435	2	-3.752	8						

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

Member	Shape	Code Check	Loc [ft]	LC	Shear	Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.483	0	13	0.108	0	z	5	70.173	73.278	8.24	8.24	1.996	H1-1b
2	2	C3.38x2.06x.188	0.323	2.592	60	0.058	0.351	y	64	35.676	43.394	1.703	4.483	1.62	H1-1b
3	3	C3.38x2.06x.188	0.322	0	52	0.067	2.241	y	47	35.676	43.394	1.703	4.483	1.619	H1-1b
4	4	PL3/8"x6	0.066	0	13	0.135	0	y	2	68.997	72.9	0.57	9.113	2.37	H1-1b
5	5	PL3/8"x6	0.065	0	3	0.133	0	y	2	68.997	72.9	0.57	9.113	2.397	H1-1b
6	6	PIPE 3.5x0.165	0.056	6.75	6	0.045	3.333	4	45.872	71.57	6.336	6.336	1.789	H1-1b	



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

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
7	7	PL3/8"x6	0.116	0.208	3		0.195	0.208	y	61	70.882	72.9	0.57		9.113	3	H1-1b			
8	8	PL3/8"x6	0.116	0	13		0.195	0	y	51	70.882	72.9	0.57		9.113	3	H1-1b			
9	9	L2x2x4	0.19	0	7		0.032	2.309	y	48	23.349	30.586	0.691		1.577	1.5	H2-1			
10	10	L2x2x4	0.193	2.309	9		0.032	0	y	64	23.349	30.586	0.691		1.577	1.5	H2-1			
11	11	L7.63x2.5x6	0.239	1.604	8		0.07	2.873	y	49	75.414	118.523	1.798		13.577	1.206	H2-1			
12	18	PIPE_2.88x0.203	0.101	5.583	5		0.034	5.583	5	35.519	70.68	5.029	5.029		5.029	3	H1-1b			
13	19	PIPE_2.88x0.203	0.106	2.333	9		0.037	5.583	9	35.519	70.68	5.029	5.029		5.029	3	H1-1b			
14	22	PIPE_2.88x0.203	0.089	7.812	7		0.109	8.333	13	24.131	70.68	5.029	5.029		5.029	2.192	H1-1b			
15	28	PIPE_2.88x0.203	0.107	2.333	7		0.037	5.583	7	35.519	70.68	5.029	5.029		5.029	3	H1-1b			
16	30	L6.63x4.33x.25	0.154	0	10		0.015	0	y	11	51.794	86.751	2.311		6.976	1.5	H2-1			
17	31	HSS4X4X2	0.507	0	7		0.15	0	z	9	70.173	73.278	8.24		8.24	2.081	H1-1b			
18	32	C3.38x2.06x.188	0.323	2.592	52		0.059	0.351	y	68	35.676	43.394	1.703		4.483	1.618	H1-1b			
19	33	C3.38x2.06x.188	0.324	0	56		0.067	2.241	y	38	35.676	43.394	1.703		4.483	1.619	H1-1b			
20	34	PL3/8"x6	0.057	0	5		0.132	0	y	66	68.997	72.9	0.57		9.113	2.228	H1-1b			
21	35	PL3/8"x6	0.064	0	7		0.13	0	y	42	68.997	72.9	0.57		9.113	2.262	H1-1b			
22	36	PL3/8"x6	0.118	0.208	7		0.195	0.208	y	53	70.882	72.9	0.57		9.113	3	H1-1b			
23	37	PL3/8"x6	0.103	0	5		0.196	0	y	55	70.882	72.9	0.57		9.113	3	H1-1b			
24	38	L2x2x4	0.17	0	11		0.032	2.309	y	39	23.349	30.586	0.691		1.577	1.5	H2-1			
25	39	L2x2x4	0.186	2.309	13		0.031	2.309	y	68	23.349	30.586	0.691		1.577	1.5	H2-1			
26	40	L7.63x2.5x6	0.213	1.604	13		0.07	2.873	y	41	75.414	118.523	1.798		13.477	1.185	H2-1			
27	49	L6.63x4.33x.25	0.18	0	2		0.019	3.25	y	9	51.794	86.751	2.311		6.976	1.5	H2-1			
28	50	HSS4X4X2	0.485	0	9		0.127	0	z	7	70.173	73.278	8.24		8.24	2.007	H1-1b			
29	51	C3.38x2.06x.188	0.322	2.592	56		0.058	0.351	y	72	35.676	43.394	1.703		4.483	1.62	H1-1b			
30	52	C3.38x2.06x.188	0.322	0	60		0.067	2.241	y	43	35.676	43.394	1.703		4.483	1.618	H1-1b			
31	53	PL3/8"x6	0.064	0	9		0.131	0	y	70	68.997	72.9	0.57		9.113	2.281	H1-1b			
32	54	PL3/8"x6	0.057	0	11		0.132	0	y	46	68.997	72.9	0.57		9.113	2.247	H1-1b			
33	55	PL3/8"x6	0.103	0.208	11		0.196	0.208	y	57	70.882	72.9	0.57		9.113	3	H1-1b			
34	56	PL3/8"x6	0.118	0	9		0.194	0	y	59	70.882	72.9	0.57		9.113	3	H1-1b			
35	57	L2x2x4	0.187	0	3		0.031	0	y	44	23.349	30.586	0.691		1.577	1.5	H2-1			
36	58	L2x2x4	0.17	2.309	5		0.032	0	y	73	23.349	30.586	0.691		1.577	1.5	H2-1			
37	59	L7.63x2.5x6	0.216	1.604	3		0.07	0.334	y	72	75.414	118.523	1.798		13.467	1.183	H2-1			
38	68	L6.63x4.33x.25	0.181	3.25	2		0.019	0	y	7	51.794	86.751	2.311		6.976	1.5	H2-1			
39	69	PIPE_3.5x0.165	0.062	1.25	2		0.052	3.333	9	45.872	71.57	6.336	6.336		6.336	1.813	H1-1b			
40	72	PIPE_2.88x0.203	0.115	5.583	9		0.038	5.583	3	35.519	70.68	5.029	5.029		5.029	2.634	H1-1b			
41	73	PIPE_2.88x0.203	0.118	2.333	2		0.035	5.583	13	35.519	70.68	5.029	5.029		5.029	2.983	H1-1b			
42	76	PIPE_2.88x0.203	0.088	2.188	13		0.103	1.667	7	24.131	70.68	5.029	5.029		5.029	1.876	H1-1b			
43	78	PIPE_2.88x0.203	0.101	2.333	10		0.03	5.583	11	35.519	70.68	5.029	5.029		5.029	3	H1-1b			
44	80	PIPE_3.5x0.165	0.062	6.75	2		0.052	4.667	7	45.872	71.57	6.336	6.336		6.336	1.81	H1-1b			
45	83	PIPE_2.88x0.203	0.115	5.583	7		0.038	5.583	7	35.519	70.68	5.029	5.029		5.029	2.636	H1-1b			
46	84	PIPE_2.88x0.203	0.101	2.333	6		0.03	5.583	5	35.519	70.68	5.029	5.029		5.029	3	H1-1b			
47	87	PIPE_2.88x0.203	0.087	7.813	3		0.101	8.333	9	24.131	70.68	5.029	5.029		5.029	1.864	H1-1b			
48	89	PIPE_2.88x0.203	0.117	2.333	2		0.035	5.583	3	35.519	70.68	5.029	5.029		5.029	2.999	H1-1b			
49	92	PIPE_2.0	0.118	3.5	8		0.009	3.5	8	26.521	32.13	1.872	1.872		1.872	1.522	H1-1b			

**APPENDIX D**  
**ADDITIONAL CALCULATIONS**

PROJECT	<b>159022.002.01 - Norwalk West- CT Av KSC</b>		
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>03/07/22</b>	PAGE	1 OF 1



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

**B+T GRP**

[REF: AISC 360-05]

**Reactions at Bolted Connection**

Tension	:	0.889	k
Vertical Shear	:	1.695	k
Horizontal Shear	:	1.245	k
Torsion	:	0.344	k.ft
Moment from Horizontal Forces	:	1.208	k.ft
Moment from Vertical Forces	:	3.616	k.ft

**Bolt Parameters**

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in <sup>2</sup>
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

**Summary of Forces**

Shear Resultant Force	:	2.10	k
Force from Horz. Moment	:	2.19	k
Force from Vert. Moment	:	6.55	k
Shear Load / Bolt	:	0.53	k
Tension Load / Bolt	:	0.22	k
Resultant from Moments / Bolt	:	3.45	k

**Bolt Checks**

Nominal Tensile Stress, $F_{nt}$	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, $\Phi R_{nt}$	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	<b>17.73%</b>		<b>OKAY</b>
Nominal Shear Stress, $F_{nv}$	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, $\Phi R_{nv}$	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	<b>6.77%</b>		<b>OKAY</b>
Unity Check, Combined	:	<b>24.50%</b>		<b>OKAY</b>
Available Bearing Strength, $\Phi R_n$	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	<b>1.52%</b>		<b>OKAY</b>

# Exhibit F

## **Power Density/RF Emissions Report**

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

Dish Wireless Existing Facility

Site ID: 841287

NJER01132C  
600 Connecticut Avenue  
Norwalk, Connecticut 06850

**May 20, 2022**

**EBI Project Number: 6222003439**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>16.00%</b>

May 20, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 841287 - NJJER01132C

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **600 Connecticut Avenue in Norwalk, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 600 Connecticut Avenue in Norwalk, 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 Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the Commscope FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.



## Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope FFVV-65B-R2	Make / Model:	Commscope FFVV-65B-R2	Make / Model:	Commscope FFVV-65B-R2
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:	11.1 dBd / 15.52 dBd / 16.04 dBd	Gain:	11.1 dBd / 15.52 dBd / 16.04 dBd	Gain:	11.1 dBd / 15.52 dBd / 16.04 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,400.15	ERP (W):	2,400.15	ERP (W):	2,400.15
Antenna AI MPE %:	<b>0.61%</b>	Antenna BI MPE %:	<b>0.61%</b>	Antenna CI MPE %:	<b>0.61%</b>

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	0.61%
AT&T	15.39%
<b>Site Total MPE % :</b>	<b>16.00%</b>

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.61%
Dish Wireless Sector B Total:	0.61%
Dish Wireless Sector C Total:	0.61%
<b>Site Total MPE % :</b>	<b>16.00%</b>

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish Wireless 600 MHz n71	4	107.68	140.0	0.86	600 MHz n71	400	0.22%
Dish Wireless 1900 MHz n70	4	238.81	140.0	1.91	1900 MHz n70	1000	0.19%
Dish Wireless 2190 MHz n66	4	253.55	140.0	2.03	2190 MHz n66	1000	0.20%
						<b>Total:</b>	<b>0.61%</b>

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

## Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	0.61%
Sector B:	0.61%
Sector C:	0.61%
Dish Wireless Maximum MPE % (Sector A):	0.61%
Site Total:	16.00%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **16.00%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

# Exhibit G

## **Letter of Authorization**



6325 Ardrey Kell Rd, Suite 600  
Charlotte, NC 28277

Phone:  
www.crowncastle.com

## **Crown Castle Letter of Authorization**

### **CT - CONNECTICUT SITING COUNCIL**


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

**Re: Tower Share Application**  
**Crown Castle telecommunications site at:**  
**600 CONNECTICUT AVE, NORWALK, CT 06850**

CCATT LLC ("Crown Castle") hereby authorizes DISH NETWORK, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

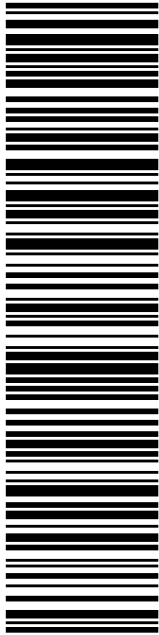
**Crown Site ID/Name: 841287/NORWALK WEST- CT AVE**  
**Customer Site ID: NJJER01132C/**  
**Site Address: 600 Connecticut Ave, NORWALK, CT 06850**

Crown Castle

By:  \_\_\_\_\_ Date: 04/07/2022  
Robin Cannizzaro  
Real Estate Specialist

# Exhibit H

## Recipient Mailings



**USPS TRACKING #**

**9405 5036 9930 0257 8121 58**

Electronic Rate Approved #038555749

**SHIP TO:** RICH ZAJAC  
CROWN CASTLE  
4545 E RIVER RD  
STE 320  
W HENRIETTA NY 14586-9024

**Expected Delivery Date:** 05/27/22  
**Ref#:** DS-841287  
**0006**

**R013**

**P**

05/25/2022

**PRIORITY MAIL 2-DAY™**

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

U.S. POSTAGE PAID  
Click-N-Ship®

USPS.com 9405 5036 9930 0257 8121 58 0089 5000 0031 4586  
**US POSTAGE \$8.95**  
Flat Rate Env

Mailed from 01566

**UNITED STATES POSTAL SERVICE® Click-N-Ship®**



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### Instructions

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2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0257 8121 58**

Trans. #: 564269395	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	

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

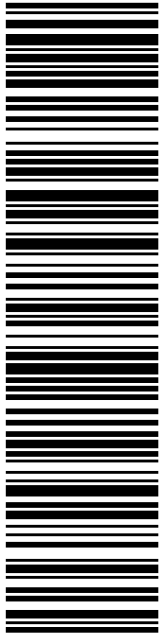
Ref#: DS-841287

**To:** RICH ZAJAC  
CROWN CASTLE  
4545 E RIVER RD  
STE 320  
W HENRIETTA NY 14586-9024

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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**USPS TRACKING #**

**9405 5036 9930 0257 8121 72**

Electronic Rate Approved #038555749

**SHIP**

TO: HARRY RILLING  
MAYOR OF NORWALK  
125 EAST AVE  
NORWALK CT 06851-5702

**P**

05/25/2022 Mailed from 01566

**USPS TRACKING #**

**9405 5036 9930 0257 8121 72**

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click-n-ship®

USPS.com 9405 5036 9930 0257 8121 72 0089 5000 0020 6851  
**US POSTAGE**  
 Flat Rate Env



05/25/2022

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

Expected Delivery Date: 05/27/22  
Ref#: DS-841287  
**0006**

**C005**

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**9405 5036 9930 0257 8121 72**

Trans. #: 564269395	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	

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

**To:** HARRY RILLING  
MAYOR OF NORWALK  
125 EAST AVE  
NORWALK CT 06851-5702


Ref#: DS-841287

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USPS.com 9405 5036 9930 0257 8122 33 0089 5000 0020 6851  
**US POSTAGE**  
 Flat Rate Env  
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05/25/2022 Mailed from 01566


**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/27/22  
 Ref#: DS-841287  
**0006**

**C005**

SHIP TO: STEVEN KLEPPIN  
 ZONING OFFICIAL  
 125 EAST AVE  
 RM 129  
 NORWALK CT 06851-5702

**USPS TRACKING #**



**9405 5036 9930 0257 8122 33**

Electronic Rate Approved #038555749



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**USPS TRACKING # :**  
**9405 5036 9930 0257 8122 33**

Trans. #: 564269395	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	

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


Ref#: DS-841287

**To:** STEVEN KLEPPIN  
 ZONING OFFICIAL  
 125 EAST AVE  
 RM 129  
 NORWALK CT 06851-5702

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**P**

usps.com 9405 5036 9930 0257 8122 57 0089 5000 0053 0348  
**US POSTAGE**  
 Flat Rate Env  
**U.S. POSTAGE PAID**  
click-n-ship®

05/25/2022 Mailed from 01566


**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-841287  
**0006**

**B001**

SHIP TO:  
 HOME DEPOT USA, INC  
 PO BOX 105842  
 ATLANTA GA 30348-5842

**USPS TRACKING #**



**9405 5036 9930 0257 8122 57**

Electronic Rate Approved #038555749



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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0257 8122 57**

Trans. #: 564269395	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/28/2022	

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

Ref#: DS-841287

**To:** HOME DEPOT USA, INC  
 PO BOX 105842  
 ATLANTA GA 30348-5842

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841287 crown 0102



FARMINGTON  
210 MAIN ST  
FARMINGTON, CT 06032-9998  
(800) 275-8777

05/25/2022 04:41 PM

Product	Qty	Unit Price	Price
---------	-----	------------	-------

Prepaid Mail	1		\$0.00
West Henrietta, NY 14586			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Wed 05/25/2022			
Tracking #:			
9405 5036 9930 0257 8121 58 ✓			

Prepaid Mail	1		\$0.00
Norwalk, CT 06851			
Weight: 0 lb 9.50 oz			
Acceptance Date:			
Wed 05/25/2022			
Tracking #:			
9405 5036 9930 0257 8121 72 ✓			

Prepaid Mail	1		\$0.00
Norwalk, CT 06851			
Weight: 0 lb 9.50 oz			
Acceptance Date:			
Wed 05/25/2022			
Tracking #:			
9405 5036 9930 0257 8122 33 ✓			

Prepaid Mail	1		\$0.00
Atlanta, GA 30348			
Weight: 0 lb 9.40 oz			
Acceptance Date:			
Wed 05/25/2022			
Tracking #:			
9405 5036 9930 0257 8122 57 ✓			

Grand Total:			\$0.00
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\*\*\*\*\*  
 Every household in the U.S. is now  
 eligible to receive a third set  
 of 8 free test kits.  
 Go to [www.covidtests.gov](http://www.covidtests.gov)  
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 Track your Packages  
 Sign up for FREE @  
<https://informedelivery.usps.com>

All sales final on stamps and postage.  
 Refunds for guaranteed services only.  
 Thank you for your business.

Tell us about your experience.  
 Go to: <https://postalexperience.com/Pos>  
 or scan this code with your mobile device,

