

PROJECT NARRATIVE

December 13, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
343 Daleville Road Willington, CT 06279
Latitude: 41°50'11.782" / Longitude: -72° 15' 17.915"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 343 Daleville Road in Willington (the "Property"). The existing 104-foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Muriel Kreuscher. DISH requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to Erika Wiczenski, First Selectman of Town of Willington, Jim Rupert, Town of Willington Building Official and Muriel Kreuscher as the property owner.

Background

This facility was approved by the Council under Docket No. 400 on July 29, 2010. A copy of this approval is included in the filing attachments. The existing ATC facility consists of a 104-foot monopole tower located within an existing leased area. Verizon currently maintains antennas at the 96-foot level. Equipment associated with these antennas are located at various positions within the tower and compound.

DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and ATC have agreed to the proposed shared use of the 343 Daleville Road tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground on the south side of the tower within the existing compound. ATC has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower.
(See attached Letter of Authorization)

DISH proposes to install three (3) antennas, (1) Tower platform mount, (6) Remote radio units at the 86-foot level along with, (1) over voltage protection device (OVP) and (1) Hybrid cable. DISH will install an equipment cabinet on a 5'x7' equipment platform. DISH's Construction Drawings provide project specifications for all proposed site improvement locations. The construction drawings also include specifications for DISH's proposed antenna and groundwork.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." DISH respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing ATC tower is structurally capable of supporting DISH's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support DISH's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.
3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility.** As previously mentioned, DISH has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting DISH's full array of three (3) antennas, (1) Tower platform mount, (6) Remote radio units, (1) over voltage protection device (OVP) and (1) Hybrid cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower

Conclusion

For the reasons discussed above, the proposed shared use of the existing ATC tower at 343 Daleville Road satisfies the criteria stated in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager

LETTER OF AUTHORIZATION



AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION
LICENSEE: DISH WIRELESS L.L.C.

I, Margaret Robinson, Senior Counsel for American Tower*, owner/operator of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize DISH WIRELESS L.L.C., its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

Project #	ATC Site #	ATC Site Name	ATC Site Address
13688133	208450	Enfield	1A Ecology Drive, Enfield CT
13700322	209115	Ridgefield 2	320 Old Stagecoach Road, Ridgefield, CT
13688136	209185	Burlington 2	87 Monce Road, Burlington CT
13700320	209271	Brookfield 2	100 Pocono Road, Brookfield CT
13693702	243036	WEST HAVEN & RT 162 CT	668 Jones Hill Road, West Haven CT
13693677	280501	ROXBURY CT	377 Southbury Road, Roxbury CT
13685406	281416	WILLINGTON CT	196 Tolland Turnpike, Willington CT
13709418	281862	BRIDGEWATER CT	111 SECOND HILL RD, Bridgewater CT
13693659	283418	NORTH HAVEN CT	50 Devine Street, North Haven CT
13694329	283419	PINE ORCHARD BRANFORD CT	123 Pine Orchard Road, Branford CT
13694332	283422	SHORT BEACH BRANFORD CT	171 Short Beach Road, Branford CT
13698427	283423	NAUGATUCK CT	880 Andrew Mountain Road, Naugatuck CT
13685464	283563	MANSFIELD CT	343 Daleville Road, Willington CT
13692735	284983	OLD LYME CT	61-1 Buttonball Road, Old Lyme CT
13693120	284984	PAWCATUCK CT	166 Pawcatuck Ave, Pawcatuck CT
13693144	284988	GUILFORD CT	Moose Hill Road, Guilford CT
13694582	302465	Colchester CT 6	355 Route 85, Colchester CT
13683501	302468	Petro Lock	99 Meadow St, Hartford CT
13685427	302469	Bridgeport CT 2	1069 Connecticut Avenue, Bridgeport CT
13683503	302472	Andover-bunker Hill Road	104 Bunker Hill Road, Andover CT
13683507	302473	E H F R - Prestige Park	310 Prestige Park Road, East Hartford CT



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Project #	ATC Site #	ATC Site Name	ATC Site Address
13683510	302474	South Windsor	391 Niederwerfer Road, South Windsor CT
13683513	302483	Brln - Berlin	286 Beckley Road, Berlin CT
13692185	302488	Cntn - Canton	4 Hoffmann Road, Canton CT
13692173	302495	Tolland CT	56 Ruops Road, Tolland CT
13694579	302496	Clch - Colchester	Chestnut Hill Road, Colchester CT
13701212	302501	Plymouth CT 3	297 North Street, Plymouth CT
13685414	302515	SMFR - North	5 High Ridge Park Road, Stamford CT
13702496	302516	Mlfd - Milford	438 Bridgeport Ave, Milford CT
13688395	302518	Newtown CT 3	25 Meridian Ridge Drive, Newton CT
13692174	302529	Vernon CT 6	777 Talcotville Road, Vernon Rockville CT
13693124	311014	NORWICH CT	202 N Wawecus Hill Rd, Norwich CT
13702522	311305	GLFD-GUILFORD REBUILD CT	10 Tanner Marsh Road, Guilford CT
13693127	370623	MONTVILLE CT	139 Sharp Hill Road, Uncasville CT
13681964	370625	Old Saybrook	77 Springbrook Road, Old Saybrook CT
13702535	383660	North Madison Volunteer FD	864 Opening Hill Road, Madison CT
13702538	411180	Good Hill CT	481 GOOD HILL ROAD, Woodbury CT
13693709	411182	Nepaug CT	20 Antolini Road, New Hartford CT
13693131	411183	WATERFORD CT	53 Dayton Rd., Waterford CT
13693135	411184	SALEM CT SQA	399 West Road, Salem CT
13692177	411186	West Granby, CT CT	207 West Granby Road, Granby CT
13692178	411187	Hartford North 2 CT	811 Blue Hills Avenue, Bloomfield CT
13693705	411188	Southbury CT	111 Upper Fishrock Road, Southbury CT
13692179	411256	CANTON CT	14 CANTON SPRINGS ROAD, Canton CT
13681988	411257	Middle Haddam Road-CROWN CT	191 Middle Haddam Rd, Portland CT
13692180	411258	Farmington North 2 CT	199 Town Farm Road, Farmington CT
13692182	411259	CT Collinsville CAC 802816 CT	650 Albany Turnpike, Collinsville CT
13692184	416862	SUFFIELD SW CT CT	106 South Grand St., West Suffield CT
13694578	6260	NORTH STONINGTON CT	118C Wintechog Hill Rd., off of Rt. 2, North Stonington CT
13681397	88013	Killingworth	131 Little City Road, Killingworth CT

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*



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CORPORATION

**LETTER OF AUTHORIZATION
LICENSEE: DISH WIRELESS L.L.C.**

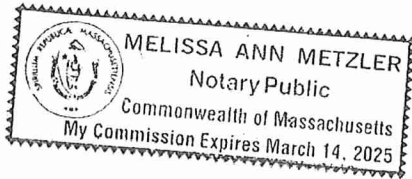
NOTARY BLOCK


Commonwealth of MASSACHUSETTS
County of Middlesex

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

WITNESS my hand and official seal, this 10th day of September 2021.

NOTARY SEAL



Notary Public 
My Commission Expires: March 14, 2025

ORIGINAL FACILITY APPROVAL

<p>DOCKET NO. 400 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public need for the construction, maintenance and operation of a telecommunications facility located at 343 Daleville Road, Willington, Connecticut.</p>	<p>} } }</p>	<p>Connecticut Siting Council</p>
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July 29, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, management, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Cellco Partnership d/b/a Verizon Wireless, hereinafter referred to as the Certificate Holder, for a telecommunications facility located at 343 Daleville Road, Willington, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Verizon Wireless and other entities, both public and private, but such tower shall not exceed a height of 105 feet above ground level.
2. The facility compound shall be relocated towards the south, on the flatter portion of the knoll, as depicted on the site plan dated June 10, 2010.
3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Willington (Town) for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
 - c) development of a identification/relocation program for the wood turtle, a state species of special concern, that may be encountered during site construction.

4. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
9. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
10. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town. Any proposed modifications to this Decision and Order shall likewise be so served.
11. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
12. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

13. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.
14. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

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

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

The parties and intervenors to this proceeding are:

Applicant
Cellco Partnership
d/b/a Verizon Wireless

Its Representative
Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

ENGINEERING DRAWINGS



DISH WIRELESS, LLC. SITE ID:

BOBDL00008A

DISH WIRELESS, LLC. SITE ADDRESS:

**343 DALEVILLE ROAD
WILLINGTON, CT 06279**

SCOPE OF WORK
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:
TOWER SCOPE OF WORK:
<ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT • INSTALL PROPOSED JUMPERS • INSTALL (6) PROPOSED RRU's (2 PER SECTOR) • INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) • INSTALL (1) PROPOSED HYBRID CABLE (LENGTH: 120'-0")
GROUND SCOPE OF WORK:
<ul style="list-style-type: none"> • INSTALL (1) PROPOSED STEEL PLATFORM • INSTALL (1) PROPOSED ICE BRIDGE • INSTALL (1) PROPOSED PPC CABINET • INSTALL (1) PROPOSED EQUIPMENT CABINET • INSTALL (1) PROPOSED POWER CONDUIT • INSTALL (1) PROPOSED TELCO CONDUIT • INSTALL (1) PROPOSED TELCO-FIBER BOX • INSTALL (1) PROPOSED GPS UNIT • INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED) • INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: MURIEL KREUSCHER ADDRESS: 343 DALEVILLE ROAD WILLINGTON, CT 06279	APPLICANT: DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 (303) 706-5008
TOWER TYPE: MONOPOLE	TOWER OWNER: AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801
TOWER CO SITE ID: 283563	SITE DESIGNER: FULLERTON ENGINEERING 1100 E WOODFIELD, STE 500 SCHAUMBURG, IL 60173 (847) 908-8400
TOWER APP NUMBER: 13685464_D2	SITE ACQUISITION: BONNIE DARRENKAMP Bonnie.Darrenkamp@dish.com
COUNTY: TOLLAND	CONSTRUCTION MANAGER: JAVIER SOTO Javier.Soto@Dish.com
LATITUDE (NAD 83): 41° 50' 11.782" N 41.83660611	RF ENGINEER: BOSSENER CHARLES Bossener.Charles@Dish.com
LONGITUDE (NAD 83): 72° 15' 17.915" W 72.2549763	
ZONING JURISDICTION: CITY OF TOLLAND	
ZONING DISTRICT: TBD	
PARCEL NUMBER: TBD	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: V-B	
POWER COMPANY: EVERSOURCE	
TELEPHONE COMPANY: FRONTIER COMMUNICATIONS	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

FULLERTON
ENGINEERING · DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
www.FullertonEngineering.com



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.

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT :
HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD, TAKE EXIT 35A FOR I-291 TOWARD MANCHESTER, CONTINUE ONTO I-291 E, USE THE LEFT LANE TO MERGE WITH I-84 E TOWARD BOSTON, TAKE EXIT 68 FOR CT-195 TOWARD TOLLAND/MANSFIELD, USE THE RIGHT 2 LANES TO TURN RIGHT ONTO CT-195 S, TURN LEFT ONTO US-44 E, TURN LEFT ONTO DALEVILLE RD, DESTINATION WILL BE ON THE RIGHT



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
LS1	EXISTING SURVEY (BY OTHERS)
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	CONCRETE PAD AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS, & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

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: MS
CHECKED BY: KR
APPROVED BY: DS

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	07/20/21	ISSUED FOR REVIEW
0	08/06/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2021.0102.0126

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

PROJECT SUMMARY	SURVEYOR'S NOTES
<p>FIELD SURVEY DATE: 11/17/2016 SITE ADDRESS: 343 DALEVILLE RD., WILLINGTON, CT 06279</p> <p>PARCEL INFORMATION OWNER: MURIEL KREUSCHER OWNER ADDRESS: 343 DALEVILLE RD., WILLINGTON, CT 06279 TAX MAP 2, LOT 5; BOOK 89, PG. 941</p> <p>TOTAL AREAS: PARENT PARCEL: 22.2 ACRES (PER TAX RECORDS) ATC LEASE AREA: 6.40 SQ. FT. (174 ACRES) ACCESS & UTILITY EASEMENT: 34,738 SQ. FT., 0.7972 ACRES</p> <p>BASIS OF BEARINGS: BEARINGS ARE BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM BY GPS OBSERVATION. COORDINATES BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM.</p> <p>FLOODPLAIN: PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE C. COMMUNITY PANEL NO.: 0901590020A DATED: 06/15/1982</p> <p>ENCROACHMENT STATEMENT: AT THE TIME OF SURVEY NO VISIBLE ENCROACHMENTS WERE EVIDENT ONTO OR BEYOND THE ATC LEASE AREA OR THE ACCESS & UTILITY EASEMENT(S).</p> <p>TOWER INFORMATION: LATITUDE: 41° 50' 11.78" N, NAD 83 LONGITUDE: 72° 15' 17.92" W, NAD 83 GROUND ELEVATION AT BASE OF TOWER: 497 FEET (NAVD 1988) TOP OF TOWER HEIGHT ABOVE GROUND: 105' (AGL) ELEVATION OF TOP OF TOWER (602' AMSL) NAVD 1988 HEIGHT OF ANTENNA ABOVE TOWER TOP: 107' (AGL) ELEVATION OF TOP OF HIGHEST APPURTENANCE: 604' (NAVD 1988)</p>	<p>1. THERE IS ACCESS TO THE ATC LEASE AREA FROM DALEVILLE ROAD PER THE AS-SURVEYED ACCESS EASEMENT SHOWN HEREON.</p> <p>2. THE LOCATIONS OF ALL UTILITIES SHOWN ON THE SURVEY ARE FROM VISIBLE SURFACE EVIDENCE ONLY.</p> <p>3. AT THE TIME OF THIS SURVEY THERE WAS NO OBSERVABLE SURFACE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.</p> <p>4. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF THE SUBJECT PROPERTY BEING USED AS A SOLID WASTE DUMP, SLUMP OR SANITARY LANDFILL.</p> <p>5. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF ANY RECENT CHANGES IN STREET RIGHT-OF-WAY LINES EITHER COMPLETED OR PROPOSED, AND AVAILABLE FROM THE CONTROLLING JURISDICTION.</p> <p>6. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF ANY RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.</p> <p>7. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE PARENT TRACT. ANY PARENT TRACT PROPERTY LINES SHOWN HEREON ARE FROM SUPPLIED INFORMATION AND MAY NOT BE FIELD VERIFIED.</p> <p>8. THIS IS AN AS-BUILT SURVEY OF AN EXISTING ATC LEASE PARCEL WITHIN AN EXISTING PARCEL OF LAND, THE BOUNDARIES OF WHICH HAVE NOT BEEN SURVEYED.</p> <p>9. ALL CALLS ARE MEASURED UNLESS OTHERWISE NOTED.</p> <p>10. UNLESS OTHERWISE SPECIFIED, UTILITY POLES DID NOT IDENTIFY OWNERSHIP.</p> <p>11. THIS SURVEY IS A HORIZONTAL ACCURACY CLASS AA AND A TOPOGRAPHICAL ACCURACY CLASS 1-T AS DEFINED IN SEC. 20-300B-11 OF THE CONNECTICUT STANDARDS FOR SURVEYS.</p>
<p>ZONING INFORMATION</p> <p>TOWN OF WILLINGTON 40 OLD FARMS RD., WILLINGTON, CT 06279 760-487-3123</p> <p>ZONING INFORMATION WAS NOT PROVIDED AT THE TIME OF SURVEY.</p>	

LEGAL DESCRIPTIONS

REPORT OF TITLE LEGAL DESCRIPTION (PARENT PARCEL - FOR INFORMATION ONLY - NOT SURVEYED):
PROPERTY LOCATED IN NEW LONDON, CT

A CERTAIN PIECE OR PARCEL OF LAND SITUATED ON THE EASTERLY LINE OF DENNIS ROAD IN THE TOWN OF WILLINGTON, COUNTY OF TOLLAND AND STATE OF CONNECTICUT, BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:

BEGINNING AT A POINT IN THE EASTERLY LINE OF DENNIS ROAD AT THE SOUTHWESTERLY CORNER HEREOF AND AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF RACHELLE S. BARRY, THE LINE RUNS THENCE EASTERLY ABOUT 1,400 FEET ALONG THE WILLINGTON - MANSFIELD TOWN LINE ALONG LAND OF SAID BARRY, ALONG LAND NOW OR FORMERLY OF DONALD B. AND NORMA H. WARREN AND ALONG LAND NOW OR FORMERLY OF MASON AND HAZEL M. PARKER, IN PART BY EACH, TO LAND NOW OR FORMERLY OF ALBERT AND NATY M. COHEN, THENCE NORTHERLY ALONG SAID COHEN LAND ABOUT 850 FEET TO LAND OF RICHARD P. AND JOAN P. LEBLOND, THENCE WESTERLY BY LAND OF SAID RICHARD P. AND JOAN P. LEBLOND ABOUT 1,284 FEET TO THE NORTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF FRED H. EMMERT AND PAULA LUCILLE EMMERT, THENCE SOUTHERLY ABOUT 715 FEET ALONG SAID EMMERT LAND, ALONG LAND NOW OR FORMERLY OF PAUL M. AND MARY E. MCILVAINE, ALONG LAND NOW OR FORMERLY OF PRISCILLA B. CRIPPS, IN PART BY EACH, TO A CORNER, THENCE WESTERLY BY SAID CRIPPS LAND ABOUT 216 FEET TO THE EASTERLY LINE OF DENNIS ROAD, THENCE SOUTHERLY ALONG THE EASTERLY LINE OF DENNIS ROAD ABOUT 135 FEET TO THE POINT AND PLACE OF BEGINNING, SAID PARCEL CONTAINS ABOUT 22 ACRES, MORE OR LESS.

AND BEING THE SAME PROPERTY CONVEYED TO MURIEL TODD FROM RICHARD P. LEBLOND AND JOAN P. LEBLOND BY STATUTORY FORM WARRANTY DEED DATED APRIL 03, 1986 AND RECORDED APRIL 03, 1986 IN DEED BOOK 89, PAGE 941.

TAX PARCEL NO. MAP 2 LOT 5
ATC LEASE AREA (AS-SURVEYED):
SITUATED IN THE TOWN OF WILLINGTON, COUNTY OF TOLLAND AND STATE OF CONNECTICUT, LYING WITHIN THAT TRACT OF LAND CONVEYED TO MURIEL KREUSCHER IN BOOK 89, PAGE 941, WILLINGTON TOWN RECORDS AND BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:
COMMENCING AT A 1" IRON PIPE FOUND IN THE EASTERLY LINE OF DALEVILLE ROAD FOR THE NORTHWEST CORNER OF THE AFORESAID MURIEL KREUSCHER TRACT;
THENCE LEAVING DALEVILLE ROAD AND CROSSING THE KREUSCHER TRACT, NORTH 77°35'19" EAST, A DISTANCE OF 843.28 FEET TO THE POINT OF BEGINNING;
THENCE NORTH 34°23'56" EAST, A DISTANCE OF 80.00 FEET TO A POINT;
THENCE NORTH 55°36'04" EAST, A DISTANCE OF 80.00 FEET TO A POINT;
THENCE SOUTH 34°23'56" WEST, A DISTANCE OF 80.00 FEET TO A POINT;
THENCE NORTH 55°36'04" WEST, A DISTANCE OF 80.00 FEET TO THE POINT OF BEGINNING.
HAVING AN AREA OF 6,400 SQUARE FEET, 0.147 ACRES OF LAND, MORE OR LESS.

ACCESS & UTILITY EASEMENT (AS-SURVEYED):
SITUATED IN THE TOWN OF WILLINGTON, COUNTY OF TOLLAND AND STATE OF CONNECTICUT, LYING WITHIN THAT TRACT OF LAND CONVEYED TO MURIEL KREUSCHER IN BOOK 89, PAGE 941, WILLINGTON TOWN RECORDS AND BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:
COMMENCING AT A 1" IRON PIPE FOUND IN THE EASTERLY LINE OF DALEVILLE ROAD FOR THE NORTHWEST CORNER OF THE AFORESAID MURIEL KREUSCHER TRACT;
THENCE ALONG THE EASTERLY LINE OF DALEVILLE ROAD, SOUTH 03°37'53" WEST, A DISTANCE OF 68.12 FEET TO THE POINT OF BEGINNING;
THENCE LEAVING DALEVILLE ROAD AND CROSSING SAID KREUSCHER TRACT, NORTH 46°02'58" EAST, A DISTANCE OF 65.06 FEET TO A POINT;
THENCE NORTH 72°58'56" EAST, A DISTANCE OF 67.50 FEET TO A POINT;
THENCE NORTH 89°11'08" EAST, A DISTANCE OF 107.29 FEET TO A POINT;
THENCE NORTH 54°15'45" EAST, A DISTANCE OF 24.60 FEET TO A POINT;
THENCE NORTH 19°34'11" EAST, A DISTANCE OF 36.75 FEET TO A POINT;
THENCE NORTH 85°34'00" EAST, A DISTANCE OF 288.65 FEET TO A POINT;
THENCE SOUTH 64°31'24" EAST, A DISTANCE OF 44.55 FEET TO A POINT;
THENCE SOUTH 46°10'01" EAST, A DISTANCE OF 83.75 FEET TO A POINT;
THENCE SOUTH 74°08'34" EAST, A DISTANCE OF 83.95 FEET TO A POINT;
THENCE NORTH 34°23'56" EAST, A DISTANCE OF 57.89 FEET TO A POINT;
THENCE SOUTH 55°36'04" EAST, A DISTANCE OF 30.00 FEET TO A POINT;
THENCE SOUTH 34°23'56" WEST, A DISTANCE OF 80.00 FEET TO A POINT;
THENCE NORTH 55°36'04" WEST, A DISTANCE OF 1.58 FEET TO A POINT;
THENCE NORTH 74°08'34" WEST, A DISTANCE OF 111.34 FEET TO A POINT;
THENCE NORTH 46°10'01" WEST, A DISTANCE OF 80.00 FEET TO A POINT;
THENCE NORTH 64°31'24" WEST, A DISTANCE OF 31.69 FEET TO A POINT;
THENCE NORTH 85°34'00" WEST, A DISTANCE OF 259.16 FEET TO A POINT;
THENCE SOUTH 19°34'11" WEST, A DISTANCE OF 296.08 FEET TO A POINT;
THENCE SOUTH 54°15'45" WEST, A DISTANCE OF 43.41 FEET TO A POINT;
THENCE SOUTH 89°11'08" WEST, A DISTANCE OF 112.45 FEET TO A POINT;
THENCE SOUTH 72°58'56" WEST, A DISTANCE OF 65.06 FEET TO A POINT;
THENCE SOUTH 46°02'58" WEST, A DISTANCE OF 90.70 FEET TO A POINT;
THENCE NORTH 03°37'53" EAST, A DISTANCE OF 44.47 FEET TO THE POINT OF BEGINNING.
HAVING AN AREA OF 34,738 SQUARE FEET, 0.797 ACRES OF LAND, MORE OR LESS.

NOTE: AT THE TIME OF SURVEY, NO LEGAL DESCRIPTIONS OF THE ATC LEASE AREA, ACCESS AND/OR UTILITY EASEMENTS WERE PROVIDED TO THE SURVEY.

NOTES CORRESPONDING TO REPORT OF TITLE

THE REPORT OF TITLE ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY ORDER NO. 24104669, ISSUE DATE OF NOVEMBER 3, 2016, CONTAINS THE FOLLOWING ITEMS:

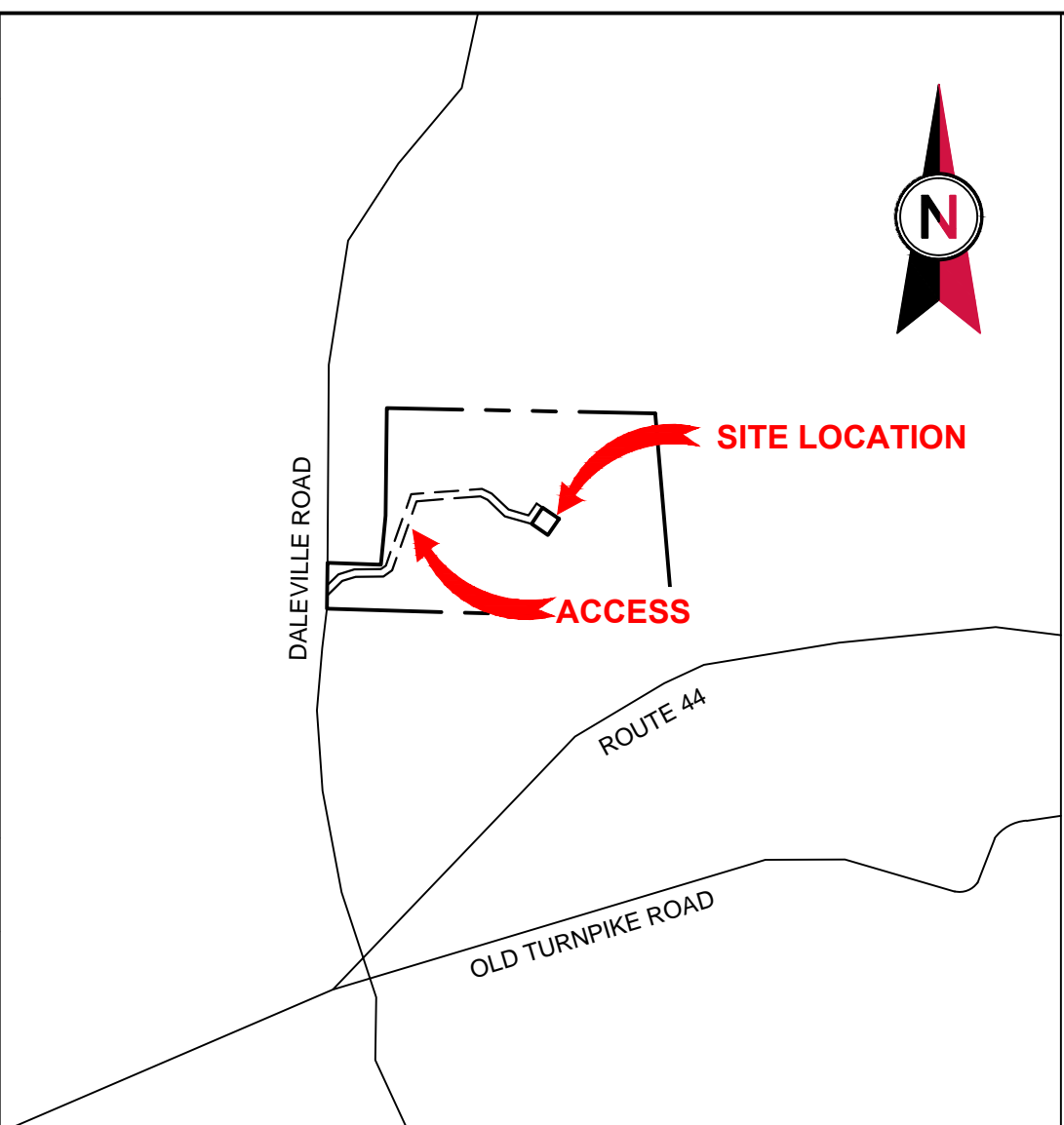
2. NOTICE OF LEASE:
DATED: 01/07/2008
LANDLORD: MURIEL KREUSCHER, AS LANDLORD/LESSOR
TENANT: CELCO PARTNERSHIP DBA VERIZON WIRELESS, AS TENANT/LESSEE
RECORDED ON: 01/22/2008
RECORDED IN: DEED BOOK 184, PAGE 299
ATC LEASE AREA IS SHOWN HEREON

3. OPEN-END MORTGAGE-VARIABLE INTEREST RATE (HOME EQUITY LINE OF CREDIT ACCOUNT)
FROM: MURIEL KREUSCHER
IN FAVOR OF: NEW ALLIANCE BANK
DATED: 10/31/2008
RECORDED ON: 11/17/2008
RECORDED IN: DEED BOOK 187, PAGE 204
ORIGINAL S.A.M.T.: \$100,000.00
NOT A SURVEY RELATED ITEM

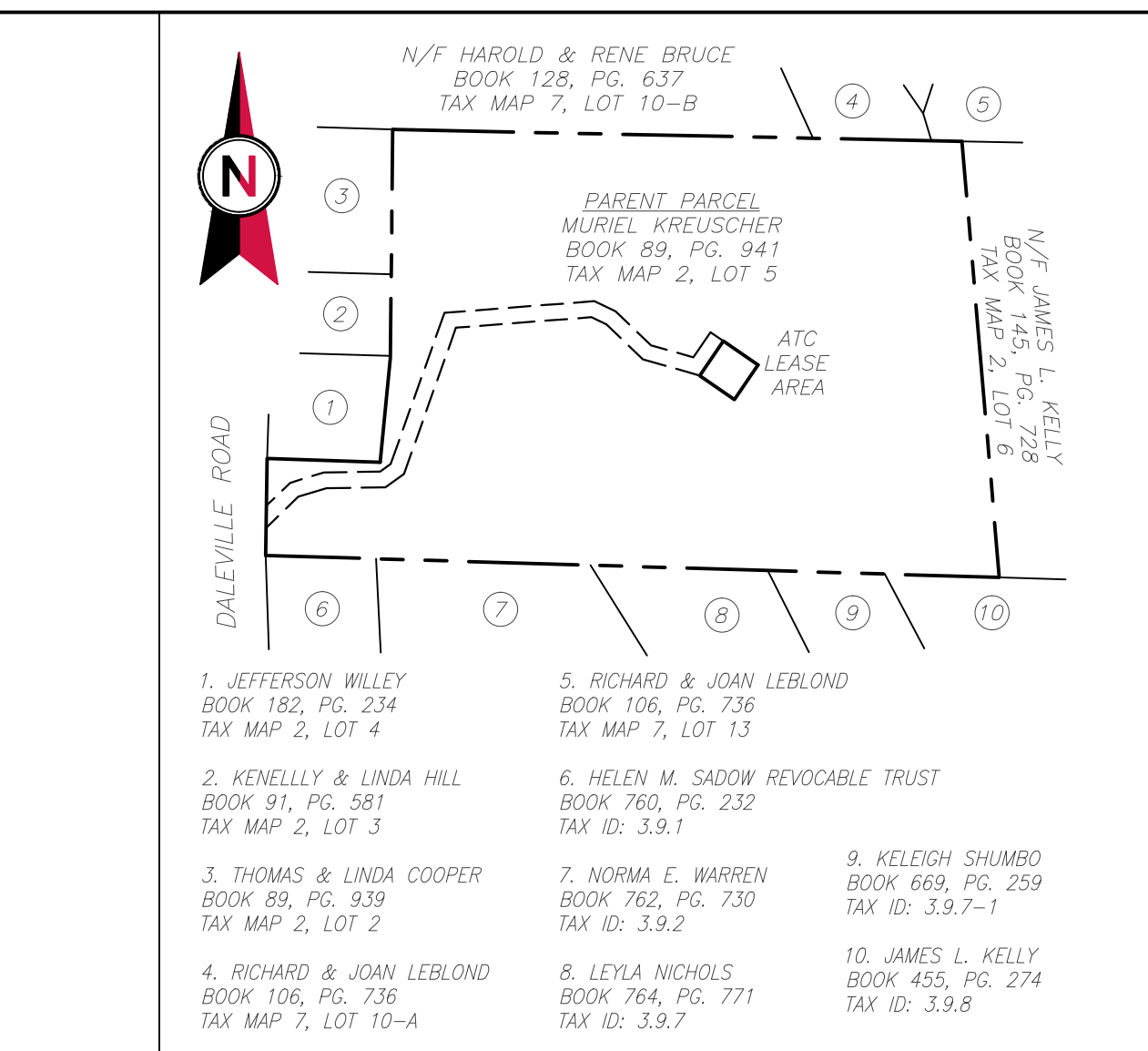
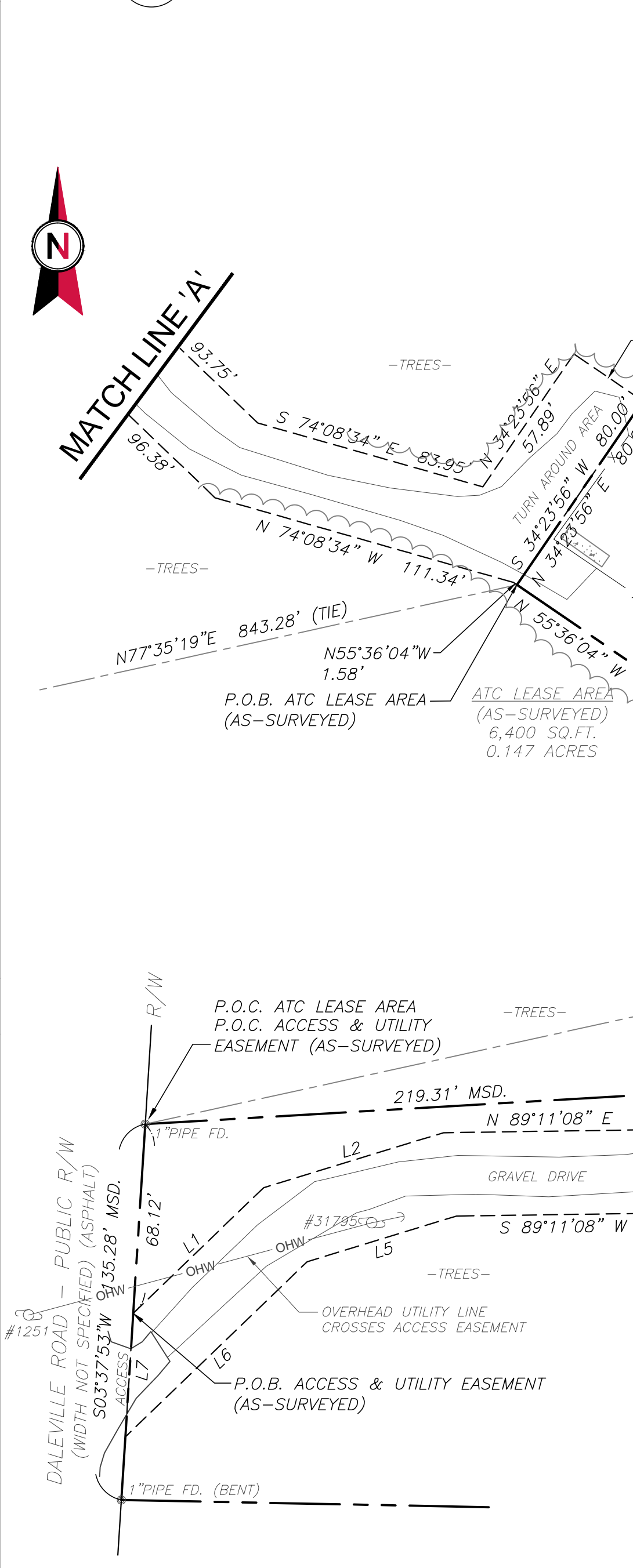
AMENDED NOTICE OF LEASE:
DATED: 05/14/2013
RECORDED ON: 05/30/2013
RECORDED IN: DEED BOOK 204, PAGE 0406
ATC LEASE AREA IS SHOWN HEREON

4. MEMORANDUM OF TOWER LEASE AGREEMENT:
DATED: 07/08/2013
LANDLORD: CONSTRUCTION SERVICES TOWERS, LLC, A CONNECTICUT LIMITED LIABILITY COMPANY, AS LANDLORD/LESSOR
TENANT: CELCO PARTNERSHIP, A DELAWARE GENERAL PARTNERSHIP DBA VERIZON WIRELESS, AS TENANT/LESSEE
RECORDED ON: 07/15/2013
RECORDED IN: DEED BOOK 204, PAGE 1118
ATC LEASE AREA IS SHOWN HEREON

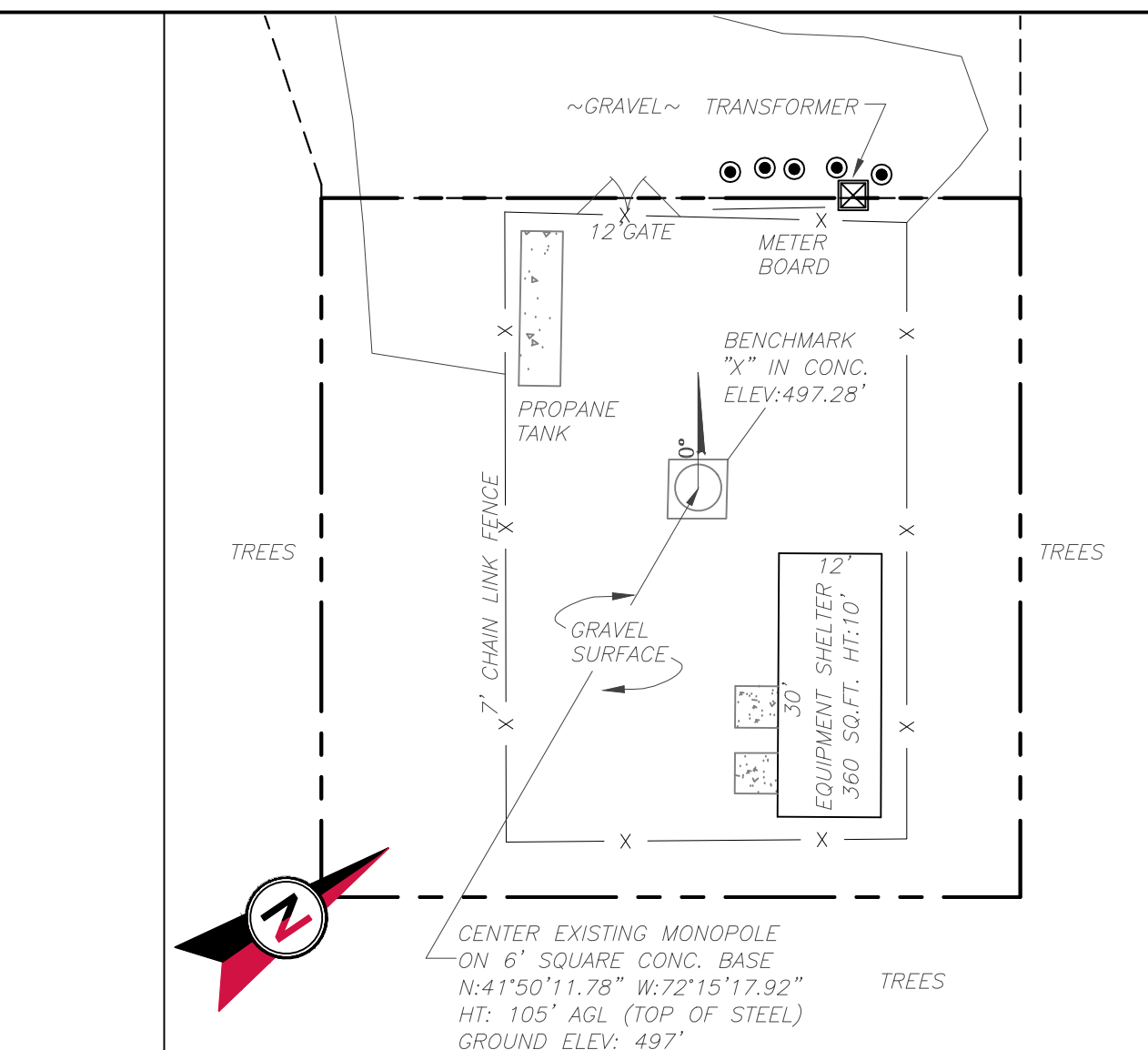
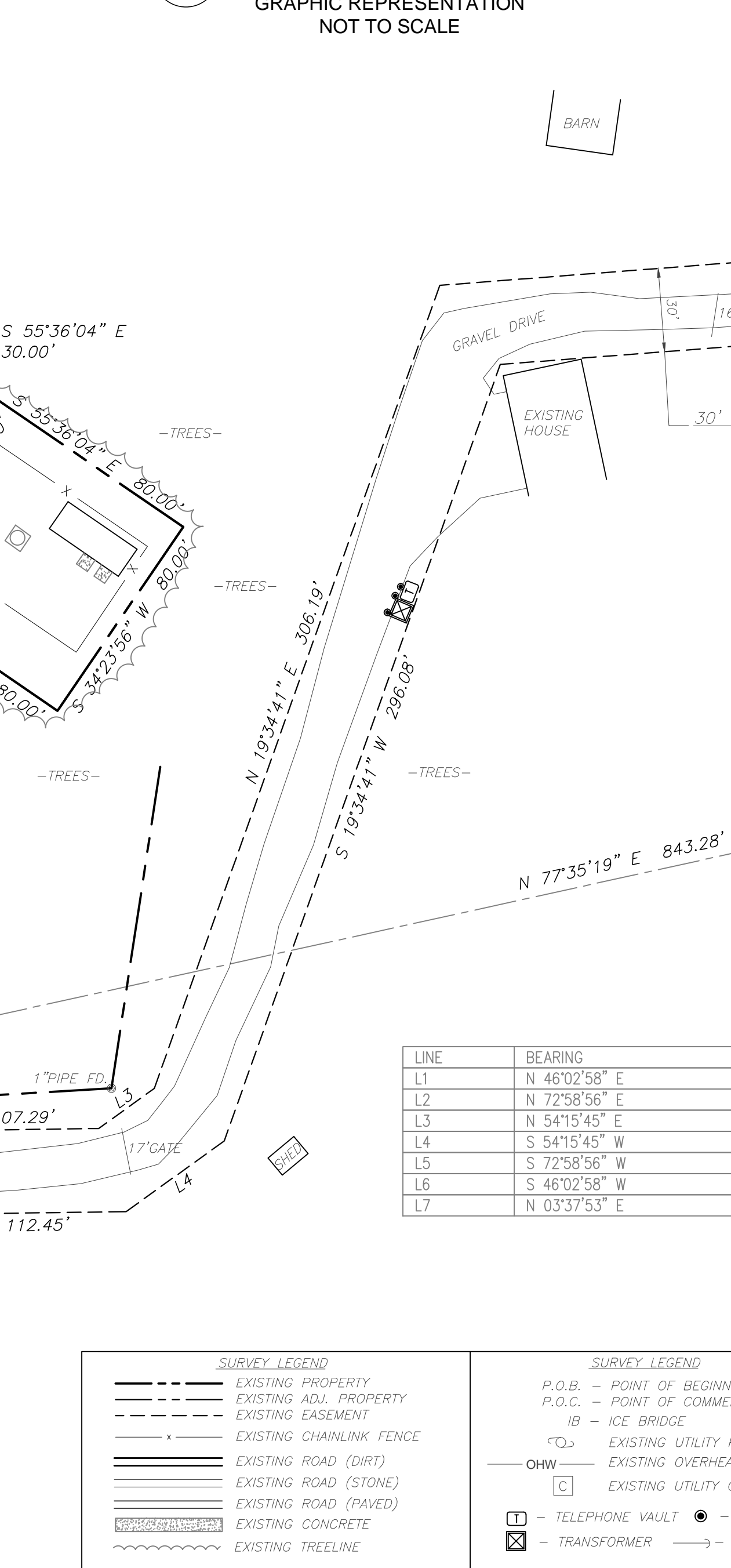
5. ELECTRIC DISTRIBUTION EASEMENT
IN FAVOR OF: THE CONNECTICUT LIGHT AND POWER COMPANY, A SPECIALLY CHARTERED CONNECTICUT CORPORATION, ITS SUCCESSORS AND ASSIGNS
LIMITED LIABILITY COMPANY
DATED: 10/16/2014
RECORDED ON: 11/12/2014
RECORDED IN: DEED BOOK 209, PAGE 151
ATC LEASE AREA IS SHOWN HEREON



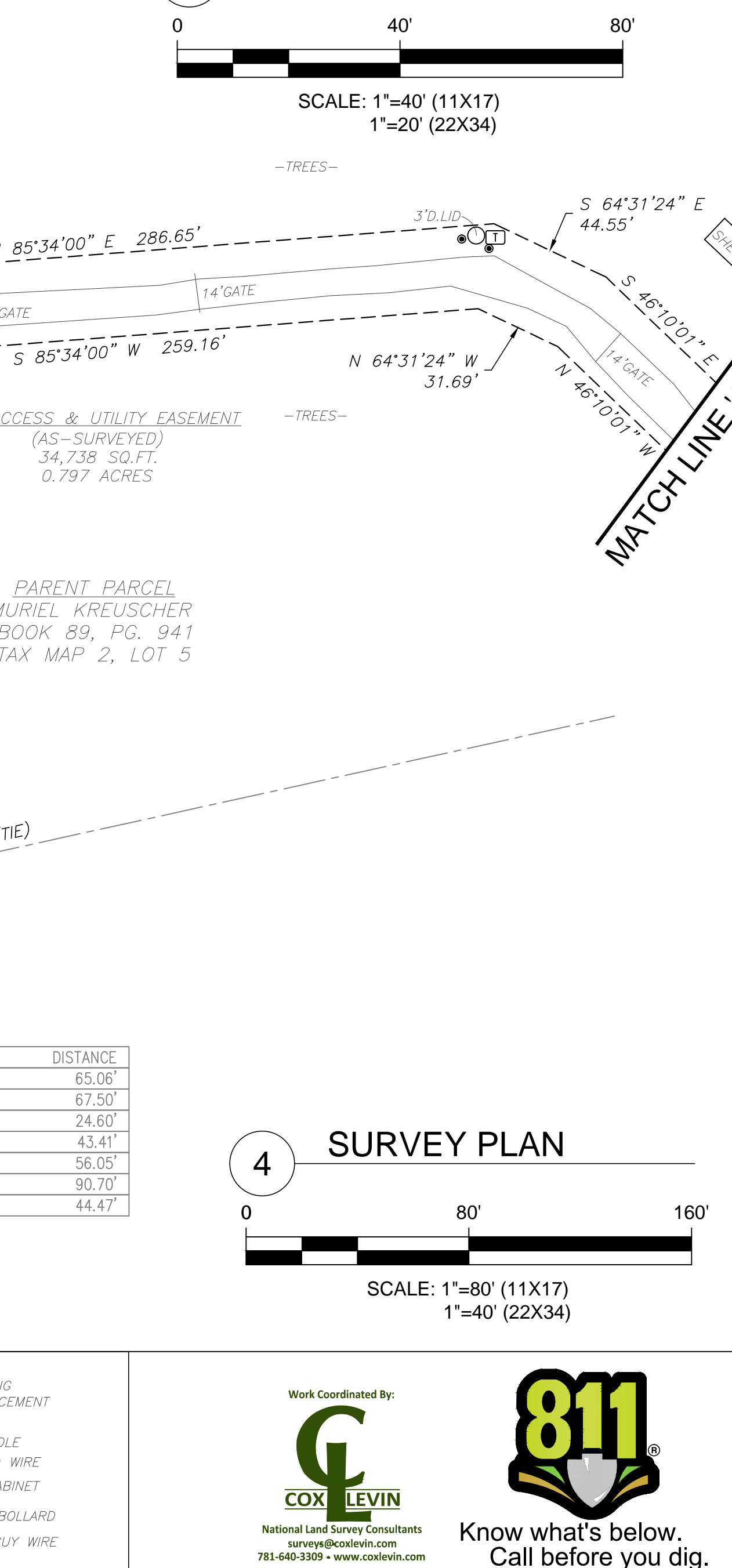
1 VICINITY MAP



2 PARENT PARCEL



3 COMPOUND DETAIL



AMERICAN TOWER®
ATC TOWER SERVICES, INC.
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
FAX: (919) 466-5415

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REV.	DESCRIPTION	BY	DATE
0	PRELIM	LKC	11/23/16
1	REPORT OF TITLE	LKC	12/6/2016

ATC SITE NUMBER:
283563

ATC SITE NAME:
MANSFIELD CT

SITE ADDRESS:
343 DALEVILLE ROAD
WILLINGTON, CT 06279

THIS IS TO CERTIFY THAT THE UNDERSIGNED AT THE REQUEST AND FOR THE EXCLUSIVE USE OF AMERICAN TOWER CORPORATION AND FIDELITY NATIONAL TITLE INSURANCE COMPANY HAS PERFORMED THIS AS-BUILT SURVEY OF THE ATC LEASE AREA ONLY, FROM THE RECORD SOURCES AND ACTUAL FIELD SURVEY ON NOVEMBER 17, 2016 IN ACCORDANCE WITH THE MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS. ALL LINEAR AND ANGULAR VALUES SHOWN ARE BASED UPON DEED OR RECORD INFORMATION UNLESS OTHERWISE NOTED.

DATE OF PLAT OR MAP: NOVEMBER 23, 2016

PRELIMINARY SURVEY
TIMOTHY R. DURR
PLS: 70198
IN THE STATE OF CONNECTICUT

LMS SURVEYING LTD
P.O. Box 65 Sharon Center, OH 44274
Phone: 330-329-6812 / Fax: 330-239-1529

DRAWN BY:	LKC
APPROVED BY:	TRD
DATE DRAWN:	11/23/2016
JOB NO:	B-160827

AS-BUILT SURVEY

SHEET NUMBER:
V-101

REVISION:
1

PROJECT SUMMARY

FIELD SURVEY DATE: 11/17/2016
 SITE ADDRESS: 343 DALEVILLE RD., WILLINGTON, CT 06279

PARCEL INFORMATION
 OWNER: MURIEL KREUSCHER
 OWNER ADDRESS: 343 DALEVILLE RD., WILLINGTON, CT 06279
 TAX MAP 2, LOT 5; PID: 3565; BOOK 89, PG. 941

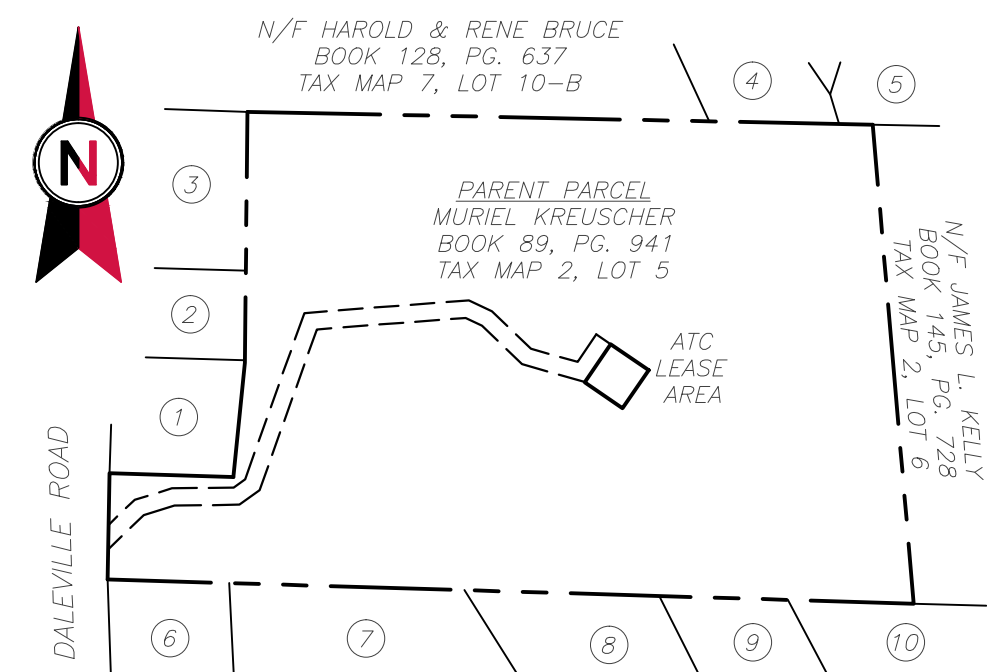
TOTAL AREAS:
 PARENT PARCEL: 22± ACRES (PER TAX RECORDS)
 ATC LEASE AREA: 6,400 SQ.FT. 0.147± ACRES
 ACCESS & UTILITY EASEMENT: 34,738 SQ.FT. 0.797± ACRES

BASIS OF BEARINGS
 BEARINGS ARE BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM BY GPS OBSERVATION.
 COORDINATES BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM.

FLOODPLAIN
 PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE C.
 COMMUNITY PANEL NO.: 0901500020A DATED: 06/15/1982

ENCROACHMENT STATEMENT:
 AT THE TIME OF SURVEY NO VISIBLE ENCROACHMENTS WERE EVIDENT ON OR BEYOND THE ATC LEASE AREA OR THE ACCESS & UTILITY EASEMENTS.

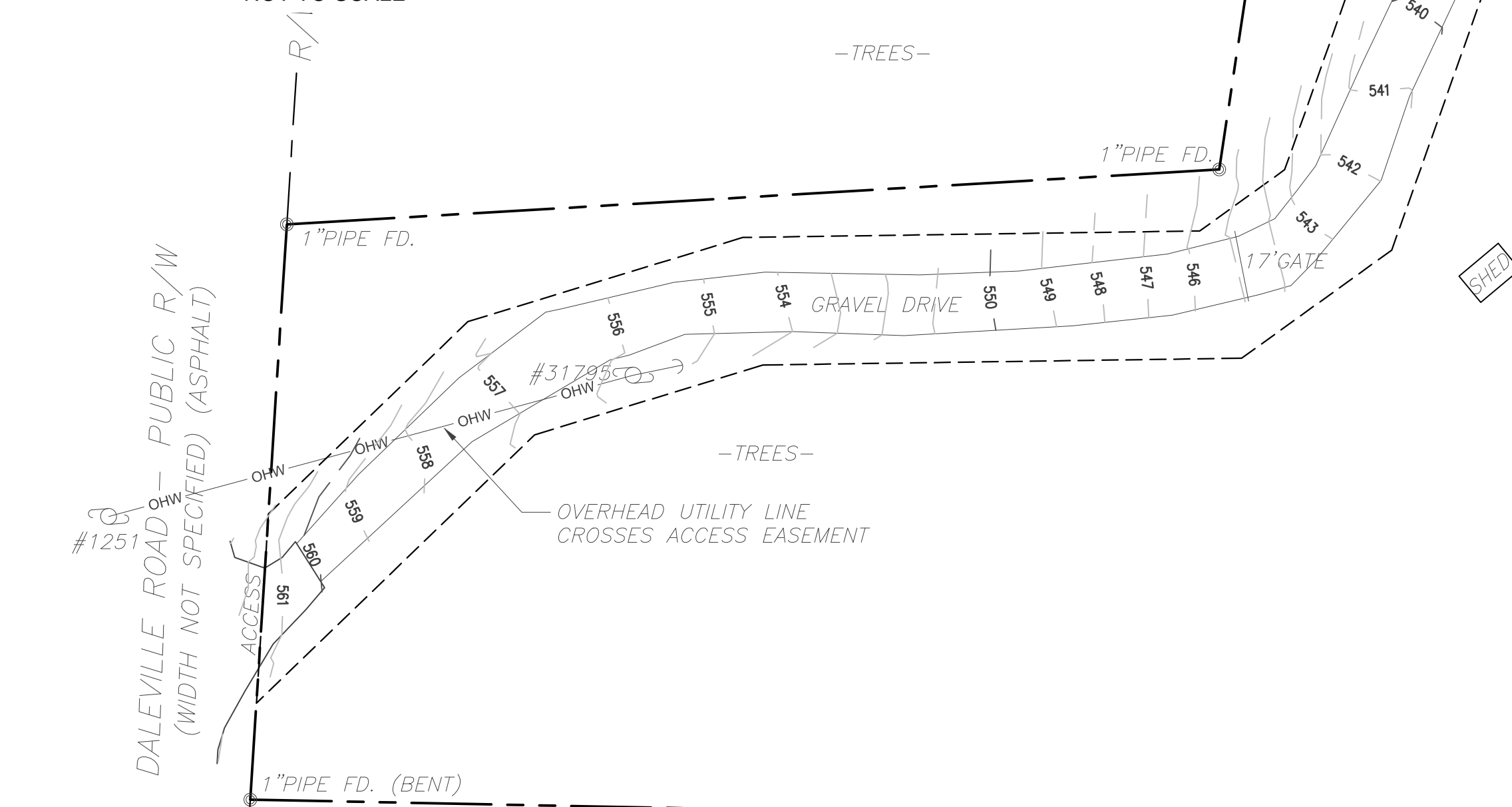
TOWER INFORMATION:
 LATITUDE: 41° 50' 11.78" N, NAD 83
 LONGITUDE: 72° 15' 17.92" W, NAD 83
 GROUND ELEVATION AT BASE OF TOWER: 497 FEET (NAVD 1988)
 TOP OF TOWER HEIGHT ABOVE GROUND: 105 (AGL)
 ELEVATION OF TOP OF TOWER: 602 (AMSL) NAVD 1988
 HEIGHT OF ANTENNA ABOVE TOWER TOP: 107' (AGL)
 ELEVATION OF TOP OF HIGHEST APPURTENANCE: 604' (NAVD 1988)



1. JEFFERSON WILLEY
BOOK 182, PG. 234
TAX MAP 2, LOT 4
2. KENNELLY & LINDA HILL
BOOK 91, PG. 581
TAX MAP 2, LOT 3
3. THOMAS & LINDA COOPER
BOOK 89, PG. 939
TAX MAP 2, LOT 2
4. RICHARD & JOAN LEBLOND
BOOK 106, PG. 736
TAX MAP 7, LOT 10-A
5. RICHARD & JOAN LEBLOND
BOOK 106, PG. 736
TAX MAP 7, LOT 13
6. HELEN M. SADOW REVOCABLE TRUST
BOOK 760, PG. 232
TAX ID: 3.9.1
7. NORMA E. WARREN
BOOK 762, PG. 730
TAX ID: 3.9.2
8. LEYLA NICHOLS
BOOK 764, PG. 771
TAX ID: 3.9.7
9. KELEIGH SHUMBO
BOOK 669, PG. 259
TAX ID: 3.9.7-1
10. JAMES L. KELLY
BOOK 455, PG. 274
TAX ID: 3.9.8

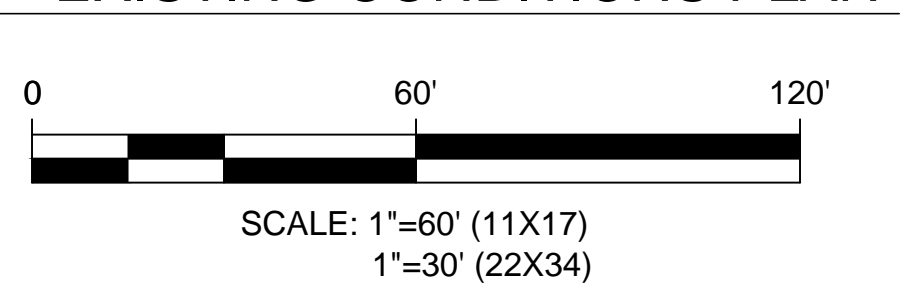
1 PARENT PARCEL

GRAPHIC REPRESENTATION
 NOT TO SCALE



SURVEY LEGEND	
	EXISTING PROPERTY
	EXISTING ADJ. PROPERTY
	EXISTING EASEMENT
	EXISTING CHAINLINK FENCE
	EXISTING ROAD (DIRT)
	EXISTING ROAD (STONE)
	EXISTING ROAD (PAVED)
	EXISTING CONCRETE
	EXISTING TREELINE
	P.O.B. - POINT OF BEGINNING
	P.O.C. - POINT OF COMMENCEMENT
	IB - ICE BRIDGE
	EXISTING UTILITY POLE
	EXISTING OVERHEAD WIRE
	EXISTING UTILITY CABINET
	TELEPHONE VAULT
	BOLLARD
	TRANSFORMER

3 EXISTING CONDITIONS PLAN



AMERICAN TOWER®
 ATC TOWER SERVICES, INC.
 3500 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: (919) 468-0112
 FAX: (919) 466-5415

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0	PRELIM	LKC	11/23/16
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DRAWN BY:	LKC
APPROVED BY:	TRD
DATE DRAWN:	11/23/2016
JOB NO:	B-160827

EXISTING CONDITIONS AND TOPOGRAPHY PLAN

SHEET NUMBER:	REVISION:
V-102	1

Work Coordinated By:

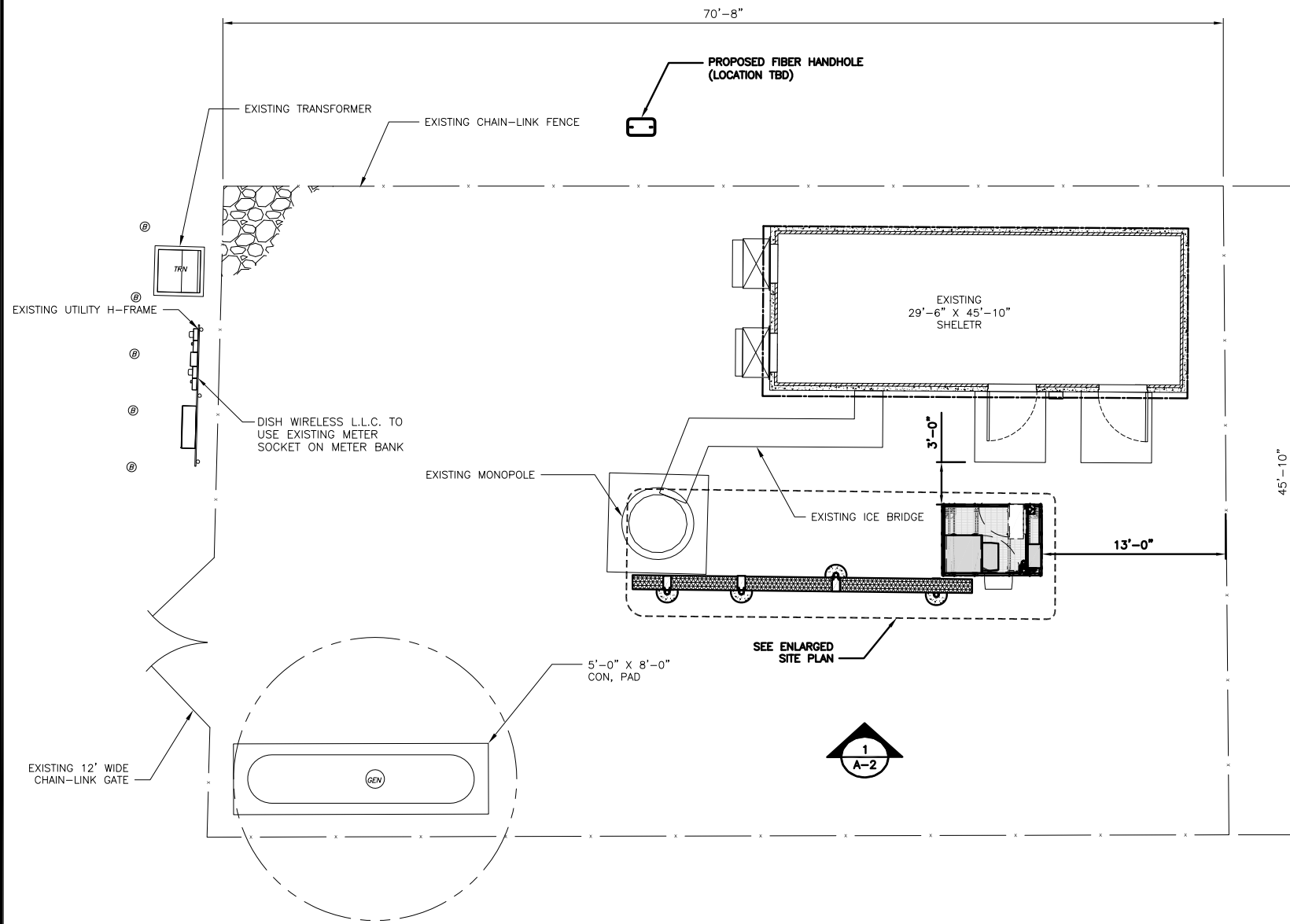
811
 Know what's below.
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 surveys@coxlevin.com
 781-640-3309 • www.coxlevin.com

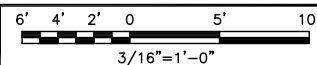
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NOTES

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



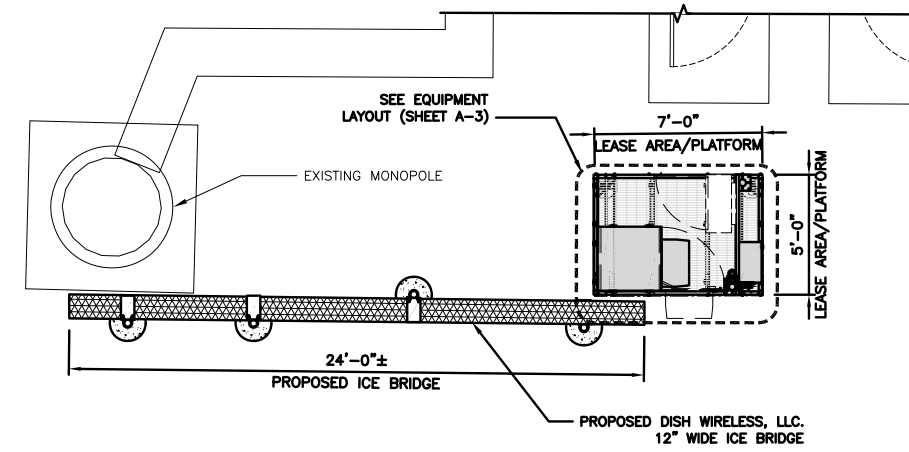
SITE PLAN



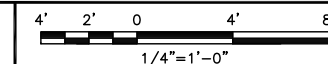
1

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



OVERALL SITE PLAN

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

FULLERTON
ENGINEERING · DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHAMBURG, ILLINOIS 60173
TEL: 847-908-8400
www.FullertonEngineering.com

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DRAWN BY:	CHECKED BY:	APPROVED BY:
MS	KR	DS

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	07/20/21	ISSUED FOR REVIEW
0	08/06/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2021.0102.0126

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

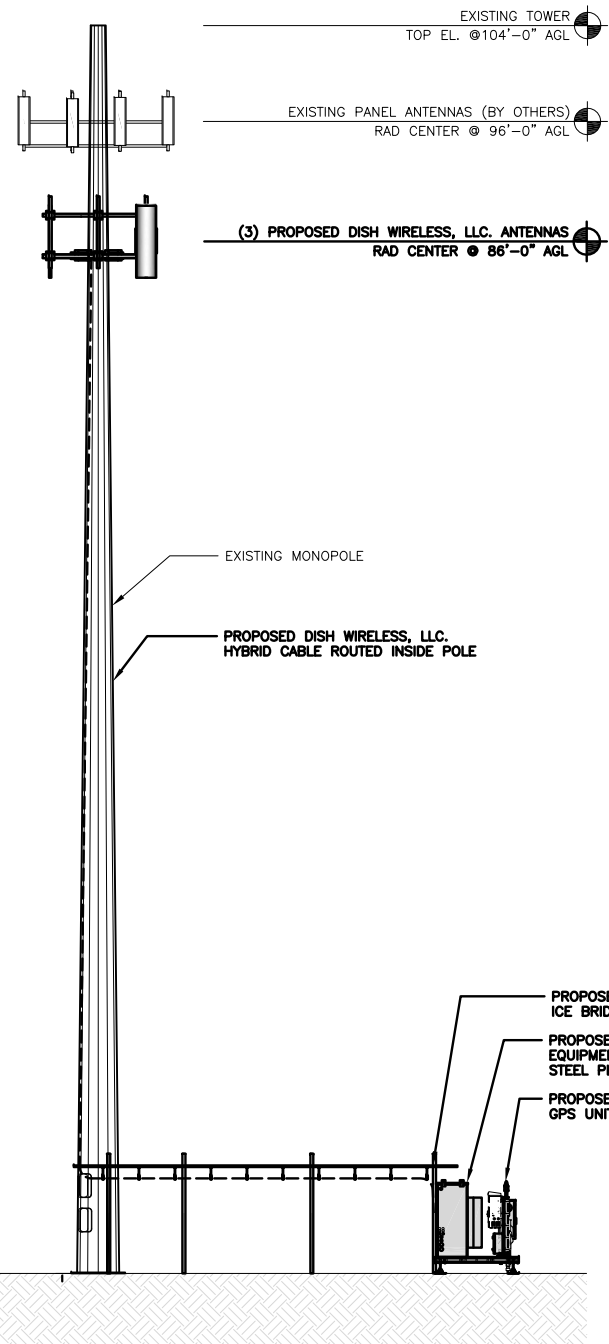
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

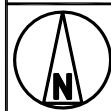
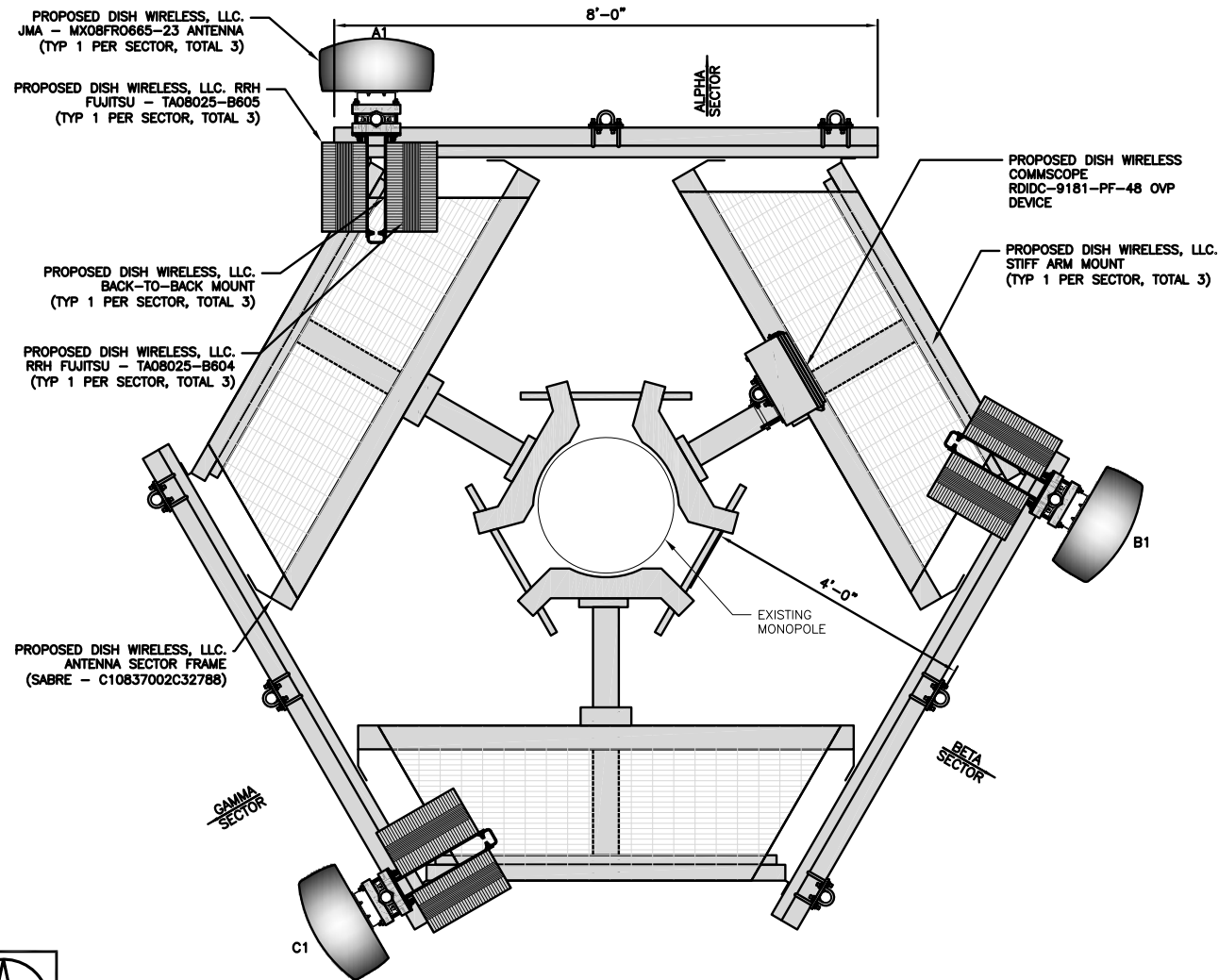
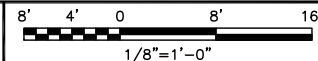
A-1

NOTES

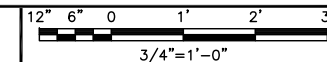
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION



ANTENNA LAYOUT



SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	0	86'-0"	(1) HIGH-CAPACITY HYBRID CABLE (120' LONG)
BETA	B1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	120	86'-0"	
GAMMA	C1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	240	86'-0"	
SECTOR	POSITION	RRH		NOTES				
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY					
ALPHA	A1	FUJITSU - TA08025-B604	5G	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. 3. VERIFY AZIMUTHS WITH LATEST DISH RFDS PRIOR TO INSTALLATION.				
	A2	FUJITSU - TA08025-B605	5G					
BETA	B1	FUJITSU - TA08025-B604	5G					
	B2	FUJITSU - TA08025-B605	5G					
GAMMA	C1	FUJITSU - TA08025-B604	5G					
	C2	FUJITSU - TA08025-B605	5G					

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

FULLERTON
ENGINEERING · DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHLAUMBURG, ILLINOIS 60173
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www.FullertonEngineering.com

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DRAWN BY: MS
CHECKED BY: KR
APPROVED BY: DS

RFDS REV #: ---

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0	08/06/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
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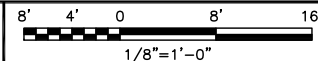
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2

PROPOSED WEST ELEVATION

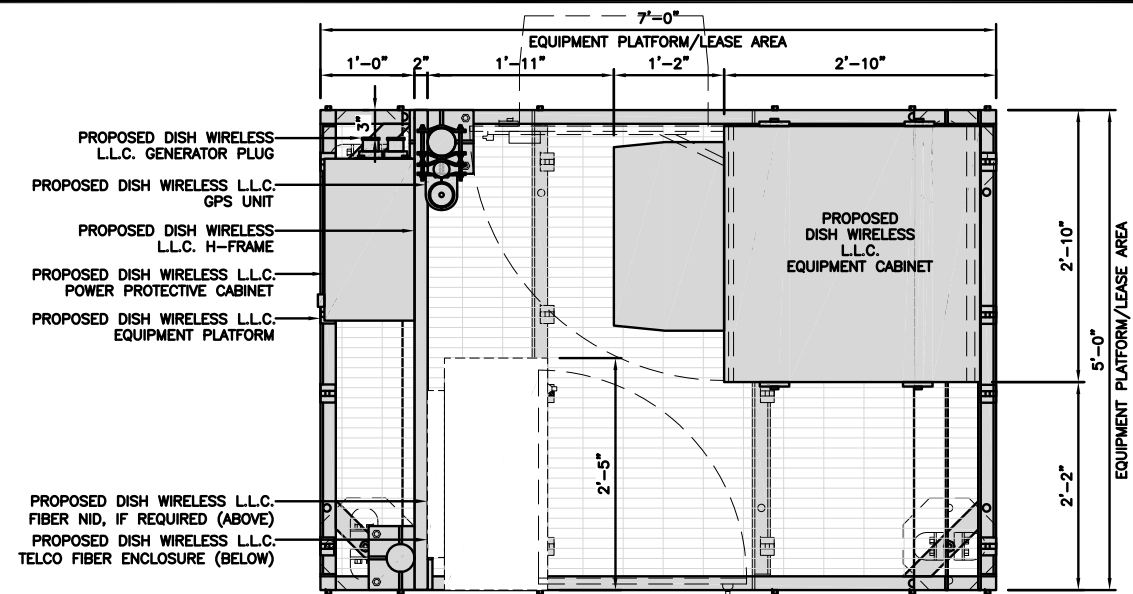


1

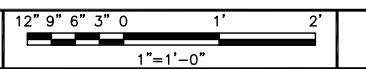
ANTENNA SCHEDULE

NO SCALE

3



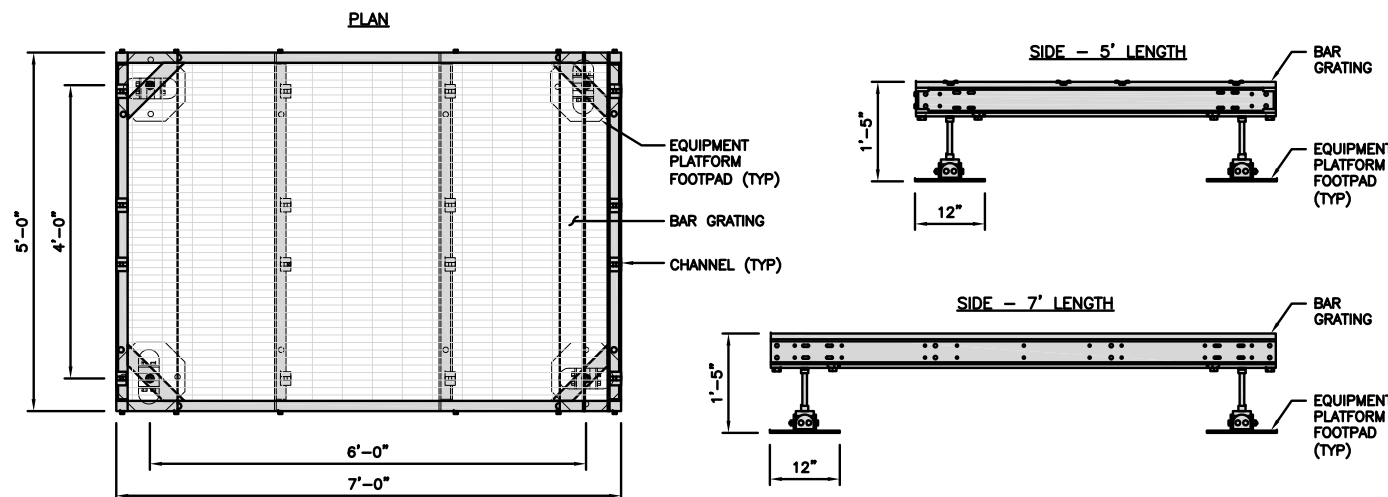
PLATFORM EQUIPMENT PLAN



1

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

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

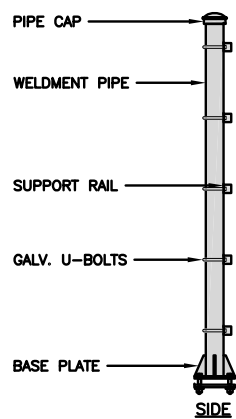


PLATFORM DETAIL

NO SCALE 2

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

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



H-FRAME DETAIL

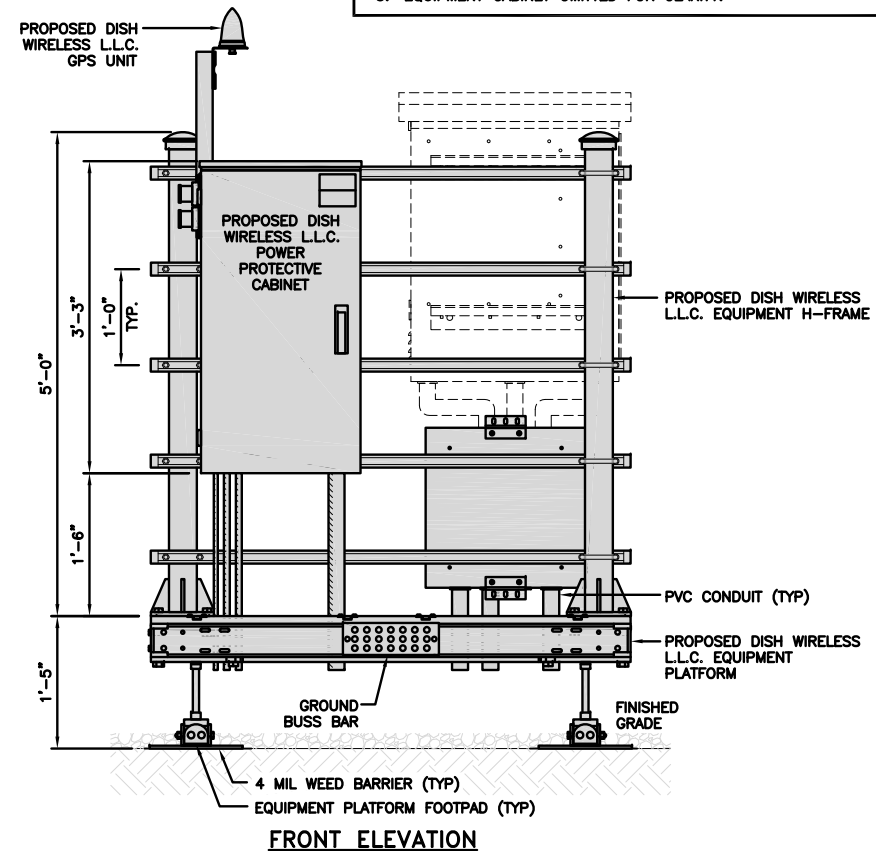
NO SCALE 3

NOT USED

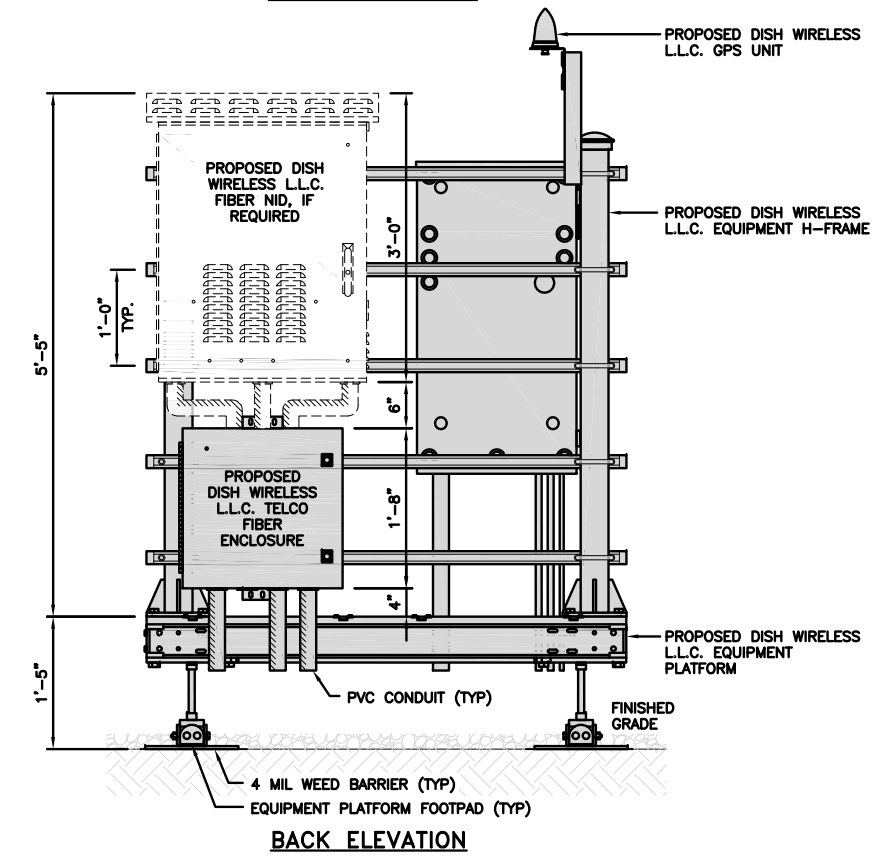
NO SCALE 4

NOTES

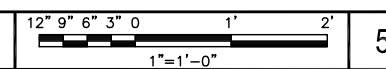
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE.
- WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC).
- EQUIPMENT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



FRONT ELEVATION



BACK ELEVATION



H-FRAME EQUIPMENT ELEVATION

5



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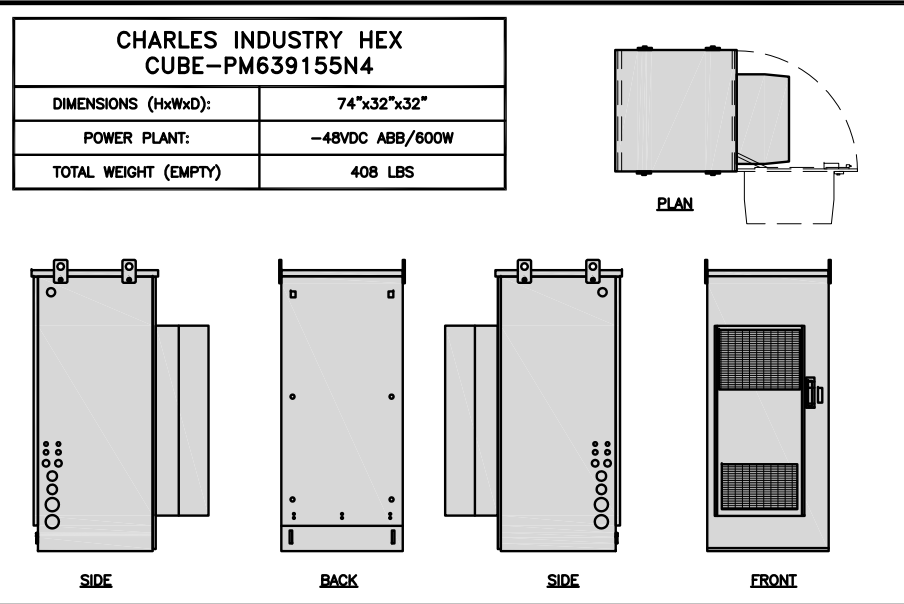
DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

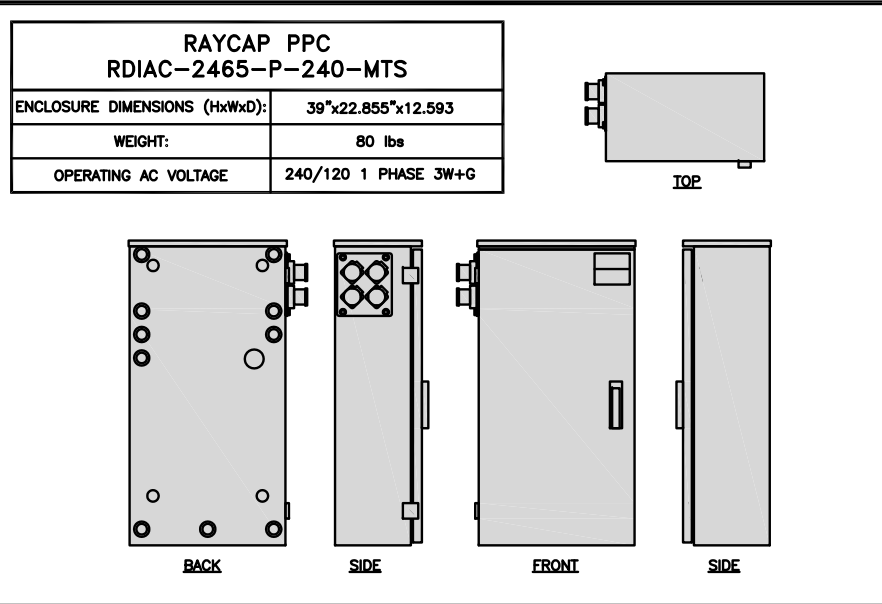
SHEET NUMBER

A-3



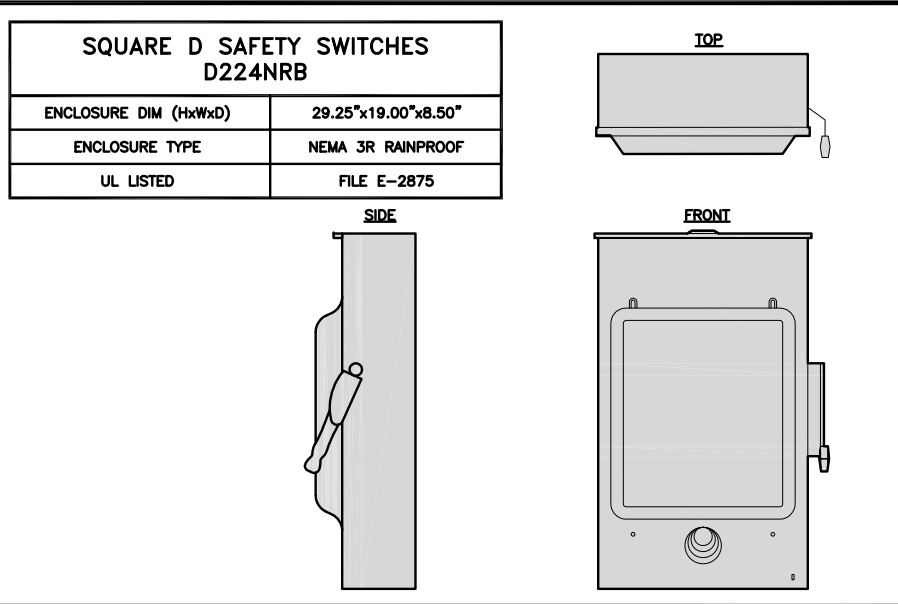
CABINET DETAIL

NO SCALE 1



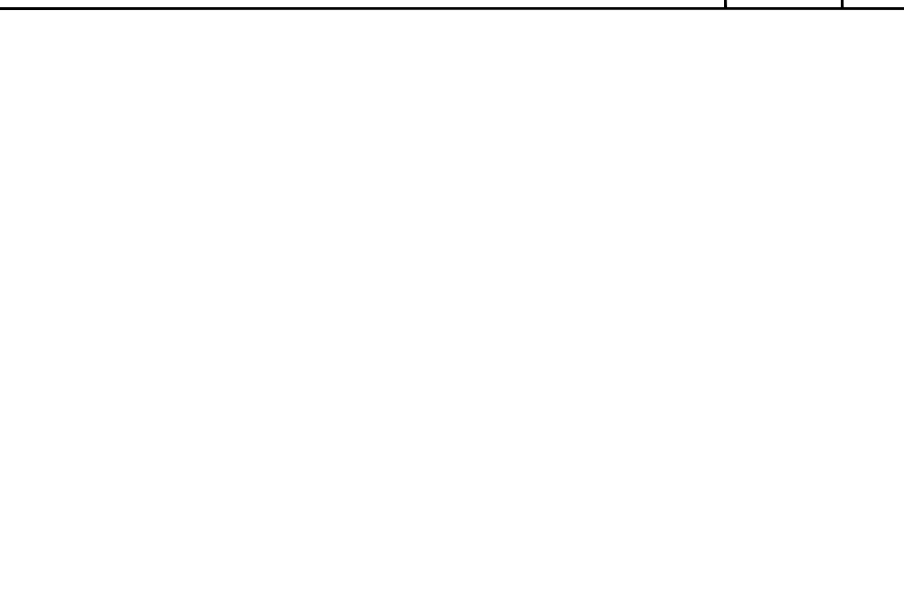
POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE 2



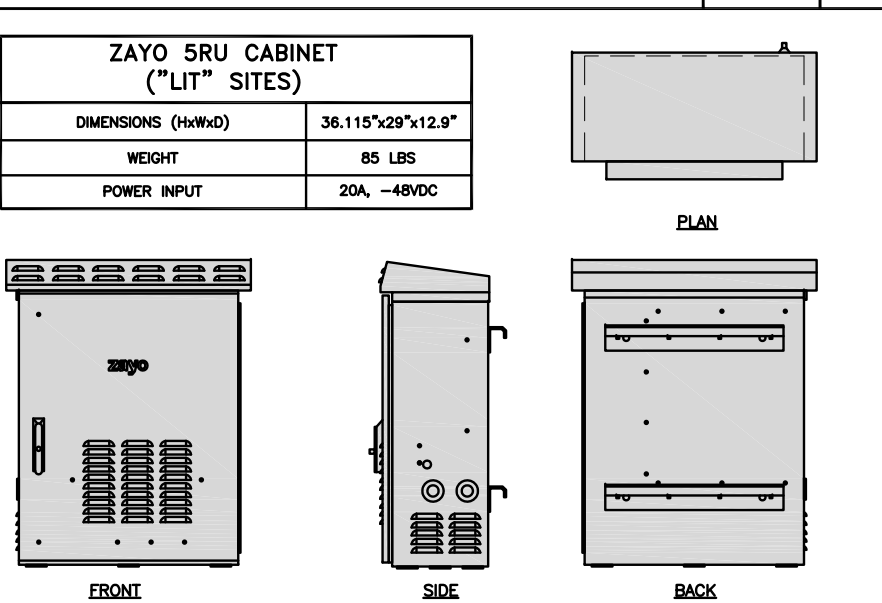
SAFETY SWITCH DETAIL

NO SCALE 3



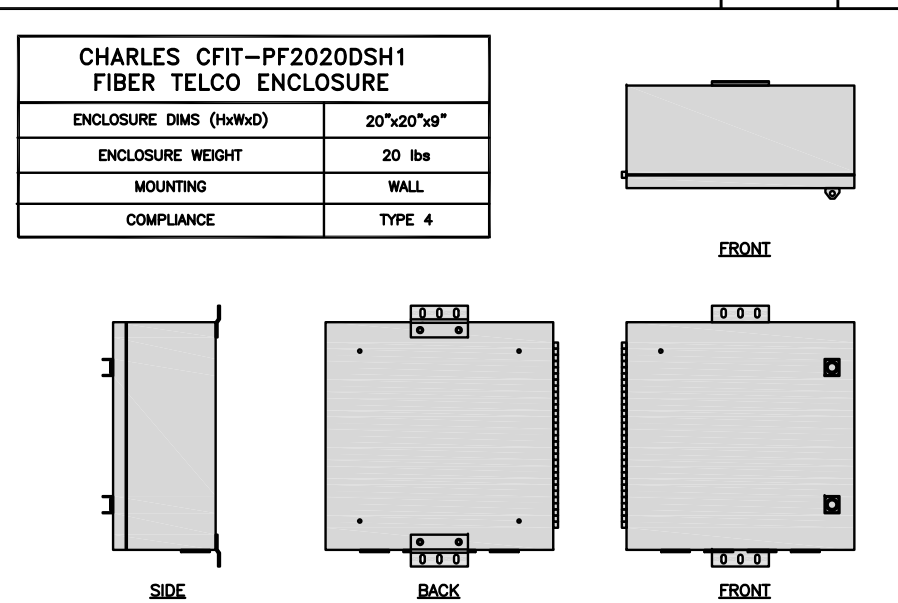
NOT USED

NO SCALE 4



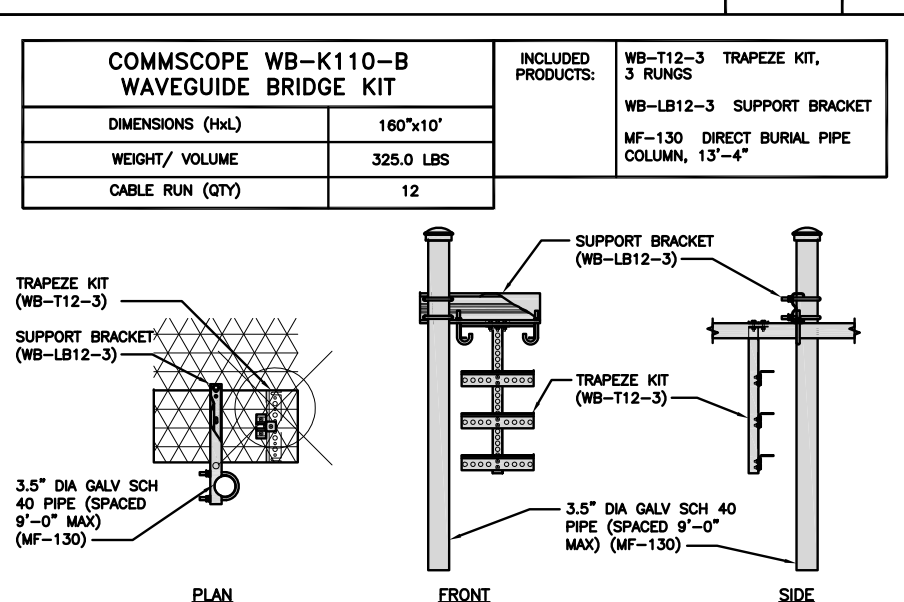
NETWORK INTERFACE UNIT DETAIL

NO SCALE 5



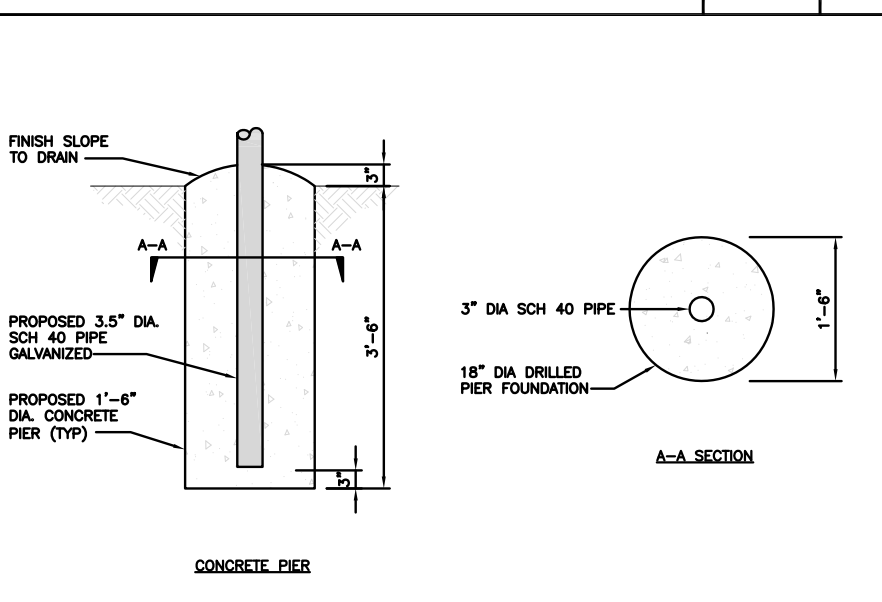
FIBER TELCO ENCLOSURE DETAIL

NO SCALE 6



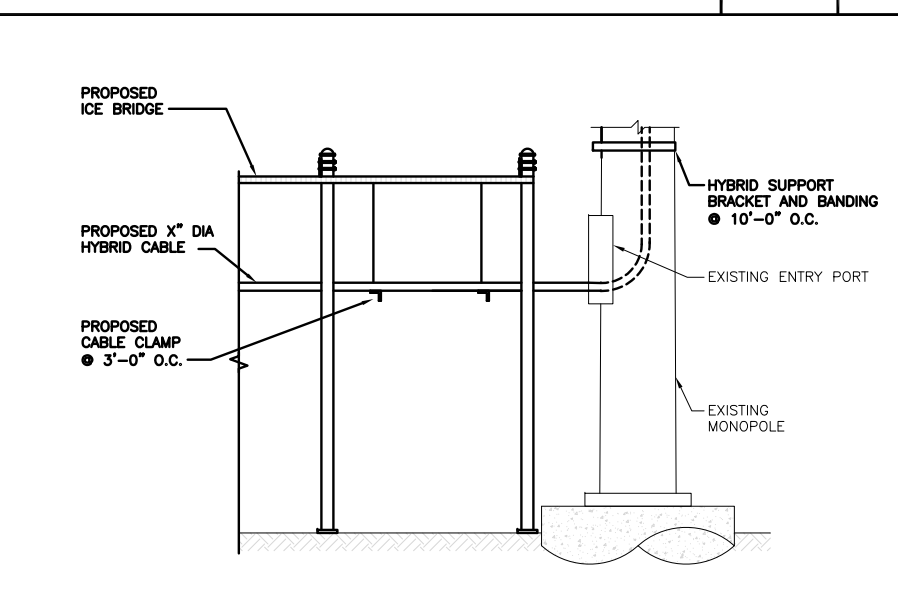
ICE BRIDGE DETAIL

NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE 8



HYBRID CABLE RUN

NO SCALE 9

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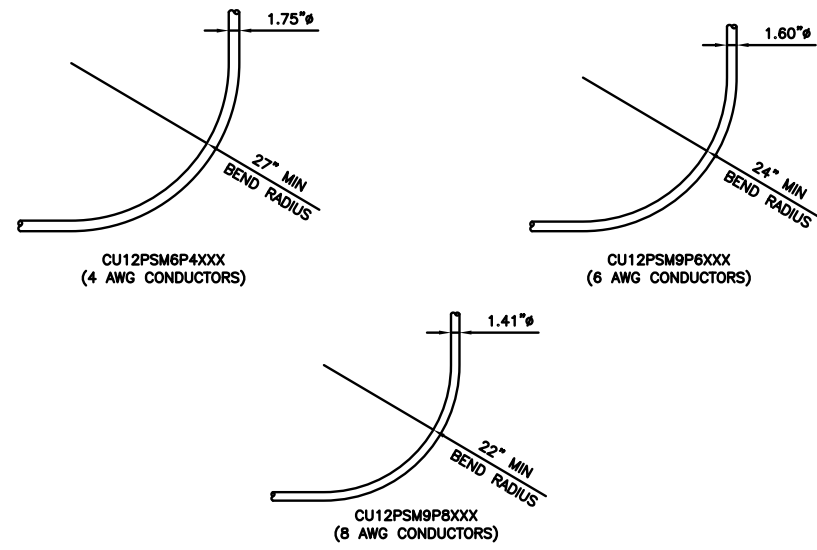
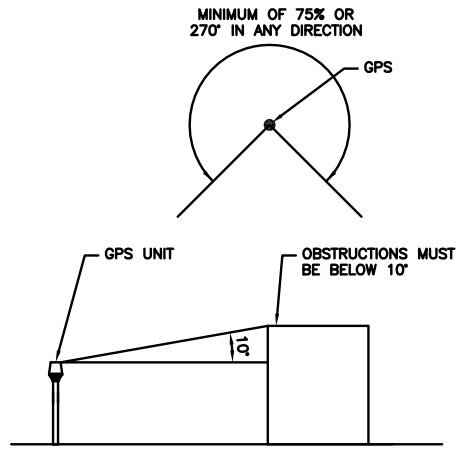
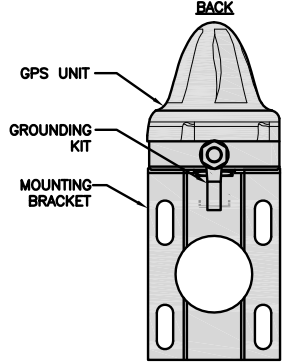
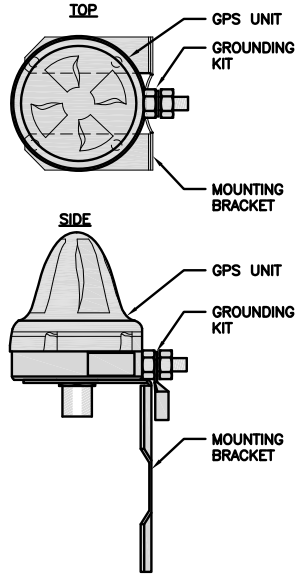
DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL0008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA 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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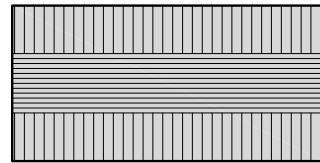
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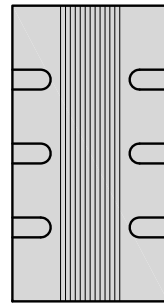
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

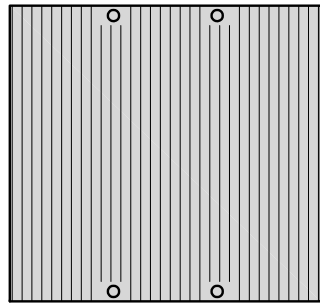
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



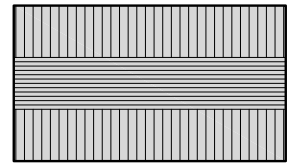
FRONT

REMOTE RADIO HEAD DETAIL

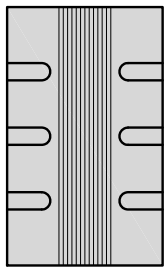
NO SCALE

1

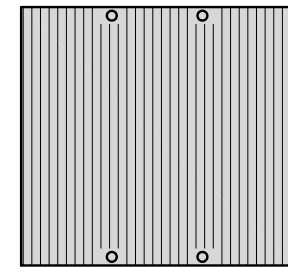
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

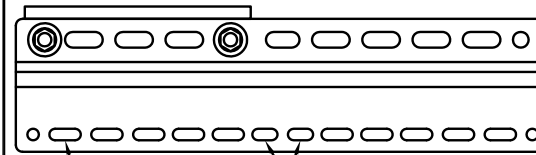
REMOTE RADIO HEAD DETAIL

NO SCALE

2

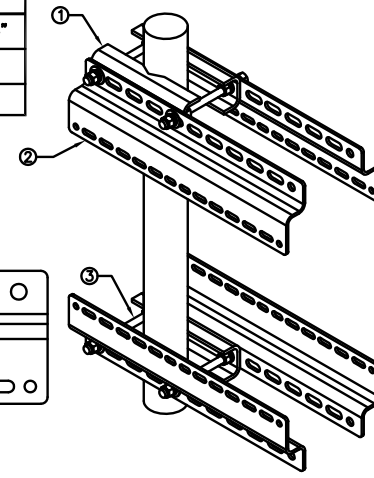
SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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



11MM x 30MM SLOTS
40MM ON CENTER

11MM x 24MM SLOTS



REMOTE RADIO MOUNT DETAIL

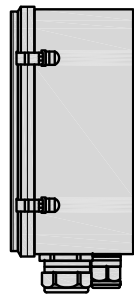
NO SCALE

3

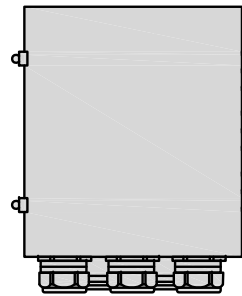
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



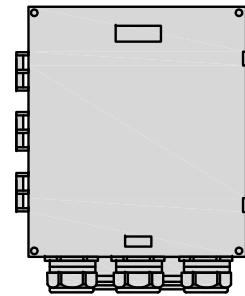
PLAN



SIDE



BACK



FRONT

SURGE SUPPRESSION DETAIL (OVP)

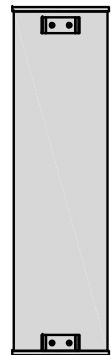
NO SCALE

4

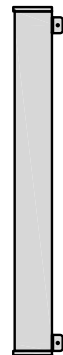
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



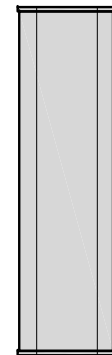
PLAN



BACK



SIDE



FRONT

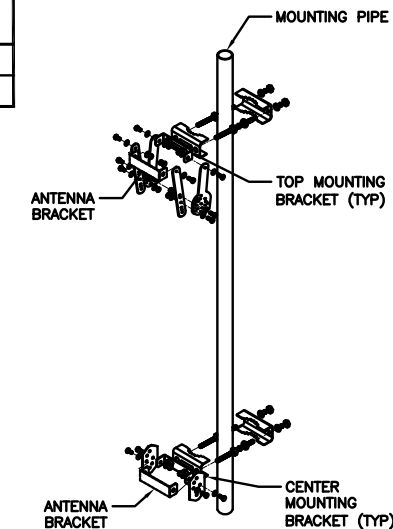
ANTENNA DETAIL

NO SCALE

5

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

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



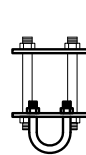
ANTENNA BRACKET DETAIL

NO SCALE

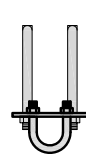
6

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

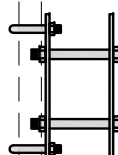
NOTE:
OR DISH WIRELESS L.L.C.
APPROVED EQUIVALENT



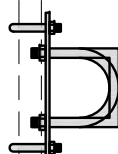
PLAN
U-BOLT



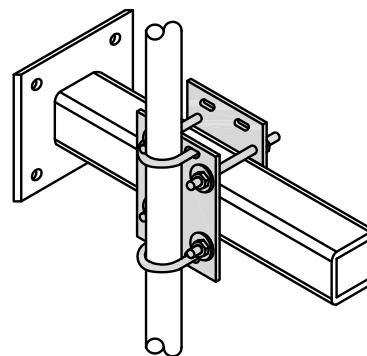
PLAN
U-BOLT



SIDE
U-BOLT



SIDE
U-BOLT

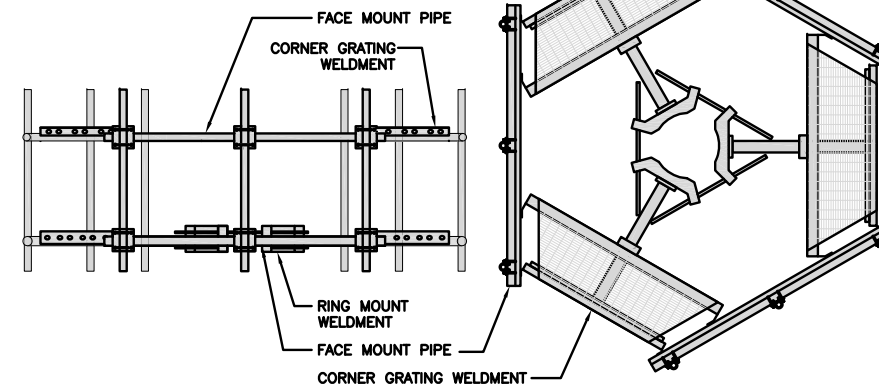


RRH/OVP MOUNT DETAIL

NO SCALE

8

SITEPRO1 SNP8HR-396 SNUB-NOSE PLATFORM	
FACE SIZE	8'-0"
WEIGHT	1786.28 LB
ANTENNA PIPE MOUNTS	(9) 2-3/8" O.D.



ANTENNA PLATFORM DETAIL

NO SCALE

9

NOT USED

NO SCALE

7

dish
wireless.

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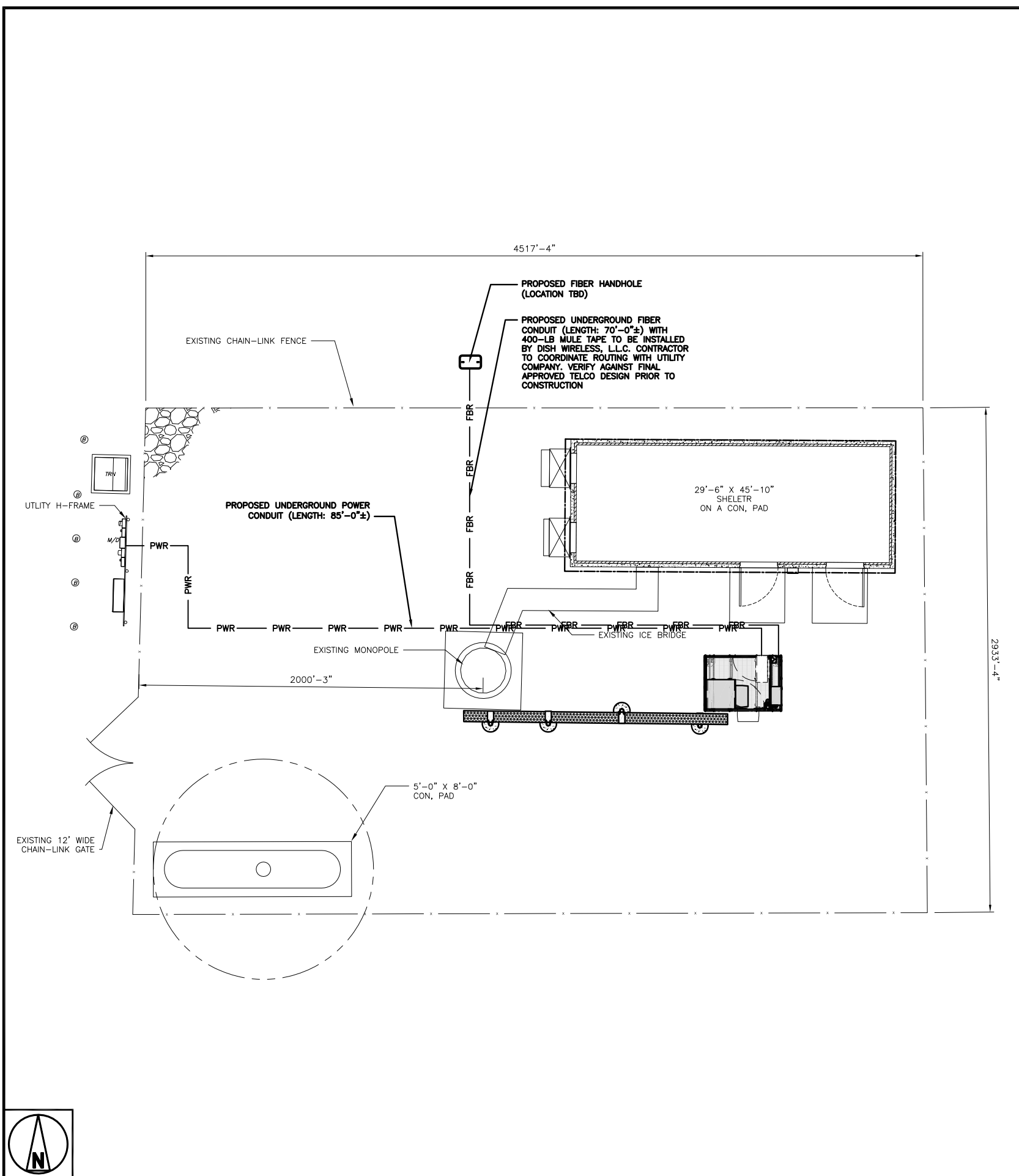
DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

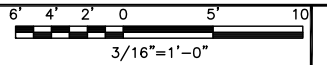
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6



UTILITY ROUTE PLAN



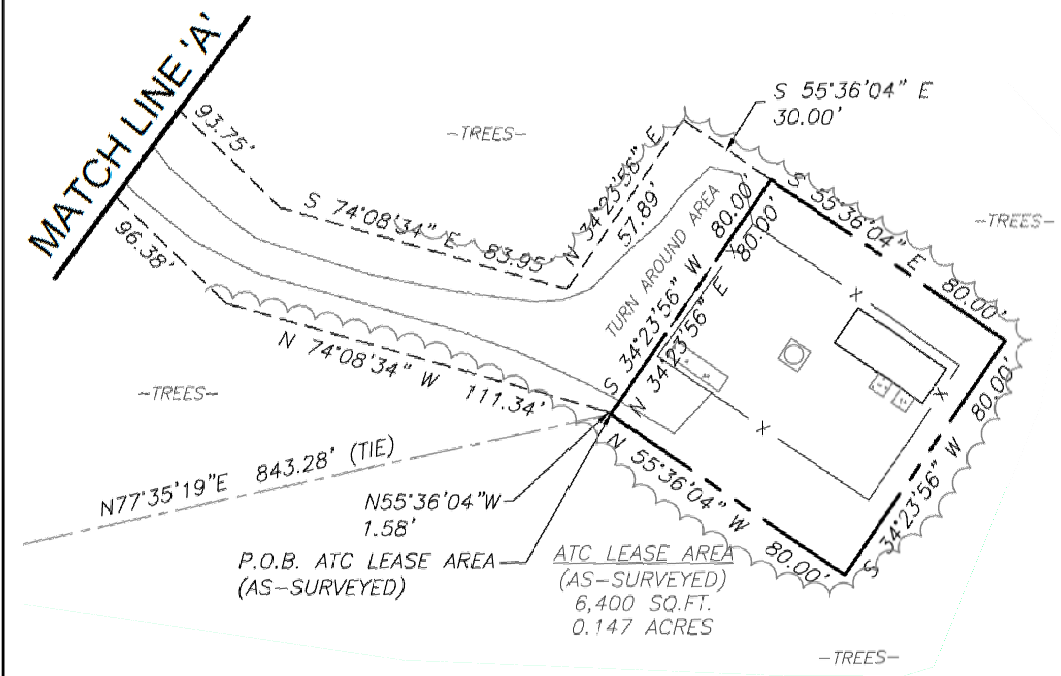
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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

ELECTRICAL NOTES

NO SCALE

2



UTILITY ROUTE PLAN (OVERALL)

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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SCHAUMBURG, ILLINOIS 60173
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DISH WIRELESS, LLC.
PROJECT INFORMATION

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343 DALEVILLE ROAD
WILLINGTON, CT 06279

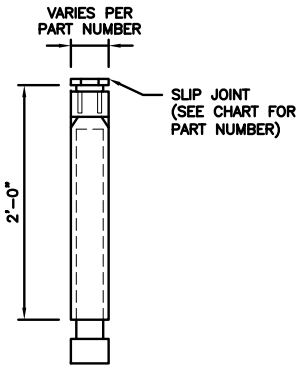
SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

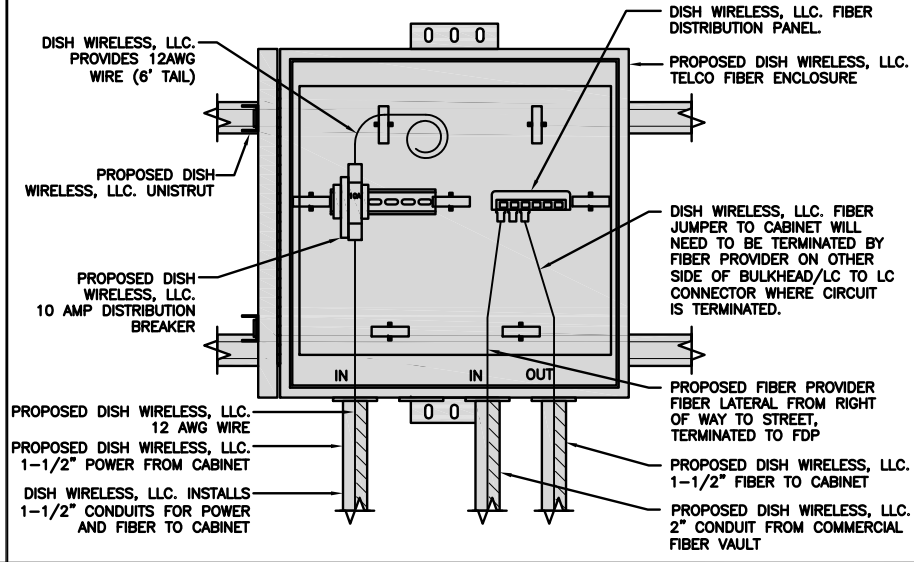
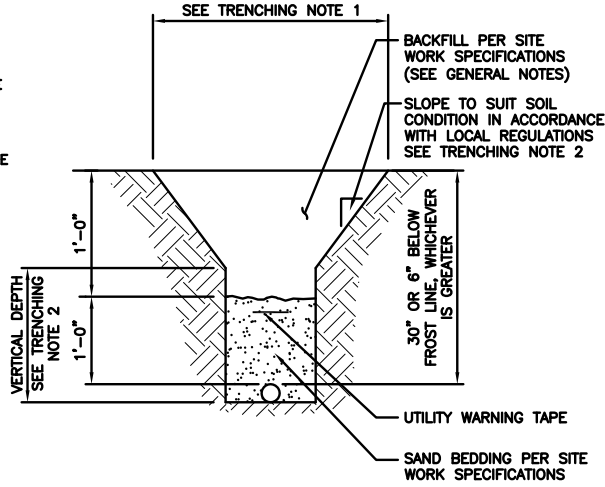
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

TRENCHING NOTES

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



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DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

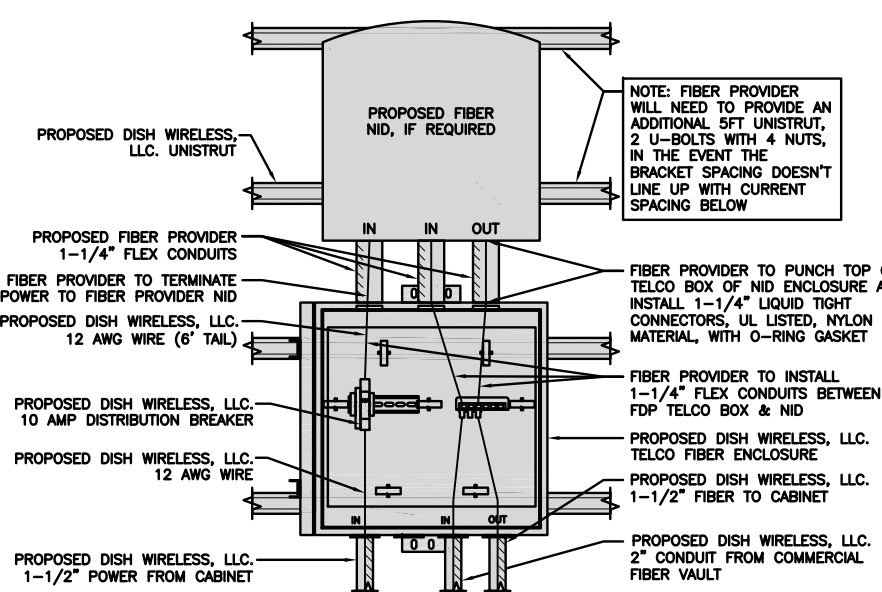
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



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

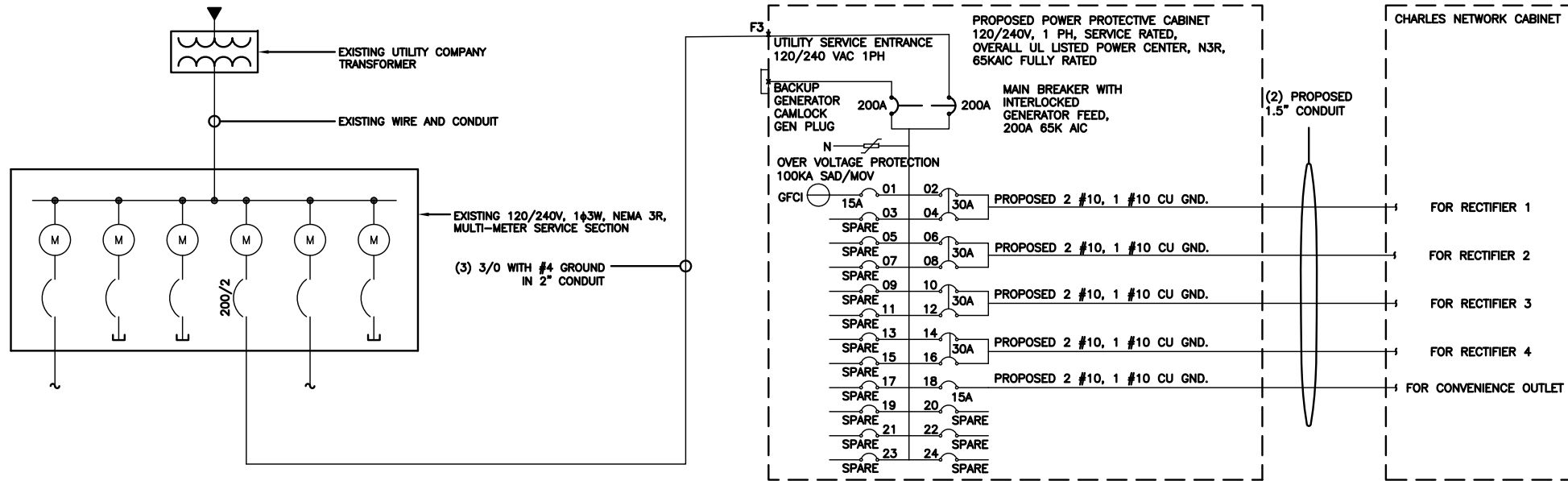
NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9



NOTES

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

#12 FOR 15A-20A/1P BREAKER: 0.8 x 25A = 20.0A
 #10 FOR 25A-30A/2P BREAKER: 0.8 x 35A = 28.0A
 #8 FOR 35A-40A/2P BREAKER: 0.8 x 50A = 40.0A
 #6 FOR 45A-60A/2P BREAKER: 0.8 x 65A = 52.0A

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

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 353.
 2.0" CONDUIT - 1.316 SQ. IN AREA
 3.0" CONDUIT - 2.907 SQ. IN AREA

[RECTIFIER 1 & 2 CONDUCTORS (1 CONDUIT)], AND [CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT)]: USING THWN-2, CU.

#6 - 0.0507 SQ. IN X 2 = 0.1014 SQ. IN
 #6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
 TOTAL = 0.1521 SQ. IN

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

RECTIFIER 3, 4, & 5 CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#6 - 0.0507 SQ. IN X 4 = 0.2028 SQ. IN
 #6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
 TOTAL = 0.2535 SQ. IN

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

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
 #4 - 0.0824 SQ. IN X 1 = 0.0824 SQ. IN <GROUND
 TOTAL = 0.8861 SQ. IN

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

DUE TO INCREASED SIZE OF CONDUCTORS, CONTRACTOR IS TO UTILIZE CORRECTLY SIZED JUMPERS AT TERMINATIONS OF RECEPTACLE. CONTRACTOR IS TO USE BURNDY AMSO TYPE MECHANICAL SPLICES WITH HEAT SHRINK TUBE INSULATION AT SPLICES BETWEEN JUMPERS AND OVERSIZED CONDUCTORS. 20A BREAKERS TO BE RATED TO ACCEPT #6 CONDUCTORS (SQUARE D BREAKERS Q01205219 AND Q02205219).

(CHARLES ABB GE INFINITY) WITH STAND ALONE METER 120V240V 1PH SOURCE

NO SCALE 1

PROPOSED PANEL SCHEDULE										
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
GFCI IN PPC CAB.	1440A		15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPARE-				3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPARE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPARE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPARE-				9	A	10	30A	2880	2880	CHARLES GFCI OUTLET
-SPARE-				11	B	12	30A	2880	2880	-SPARE-
-SPARE-				13	A	14	30A	2880	2880	-SPARE-
-SPARE-				15	B	16	30A	2880	2880	-SPARE-
-SPARE-				17	A	18	15A	1920		-SPARE-
-SPARE-				19	B	20				-SPARE-
-SPARE-				21	A	22				-SPARE-
-SPARE-				23	B	24				-SPARE-
VOLT AMPS	1440							12960A	11520	
200A MCB, 1 ϕ , 3W, 120/240V				L1	L2			VOLT AMPS		
MB RATING: 65,000 AIC				14400	11520			AMPS		
				120	96			MAX AMPS		
				120	150			MAX 125%		

PANEL SCHEDULE

(CHARLES ABB GE INFINITY) WITH STAND ALONE METER 120V240V 1PH SOURCE

NO SCALE 2

NOT USED

NO SCALE 3



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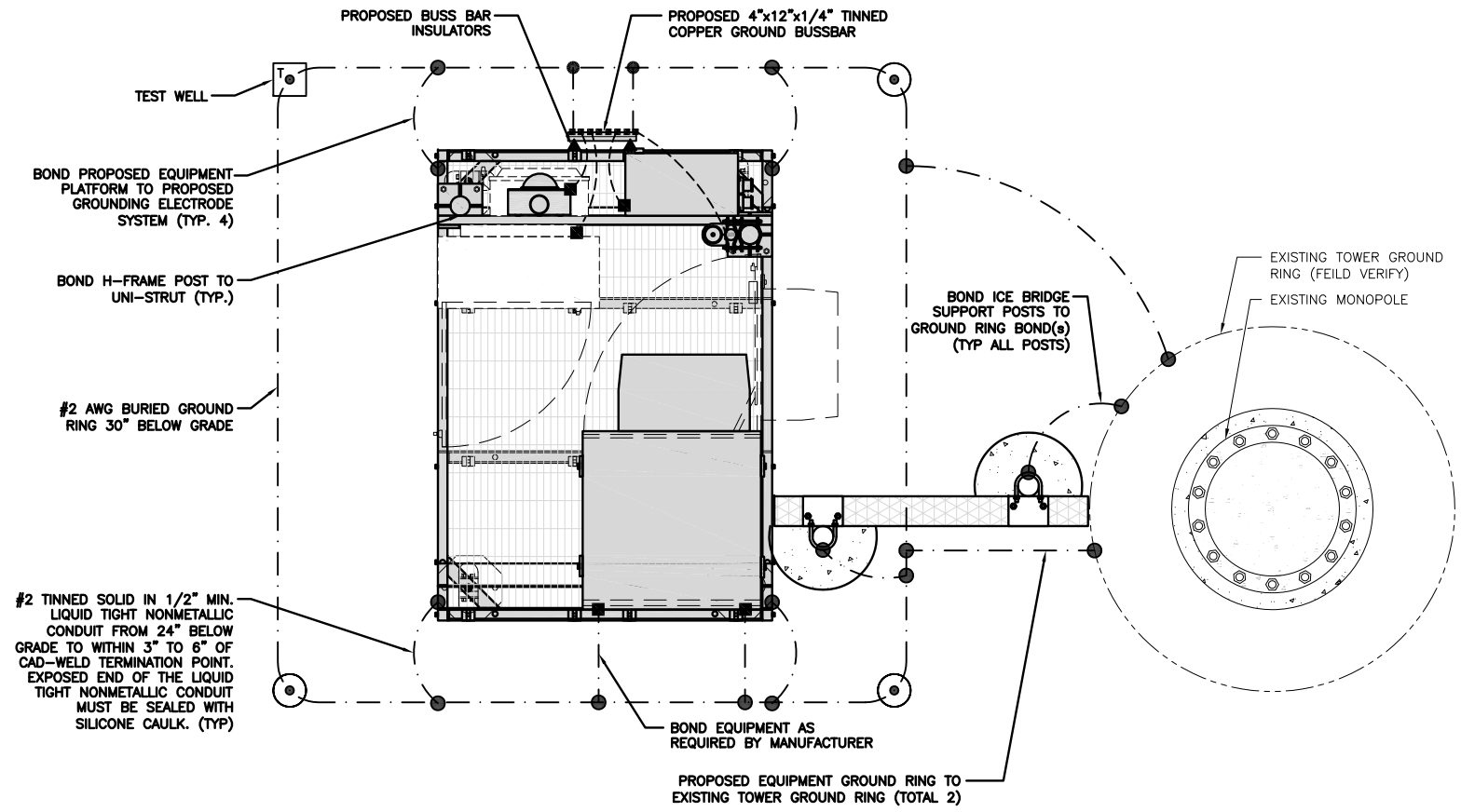
DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

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

SHEET NUMBER

E-3

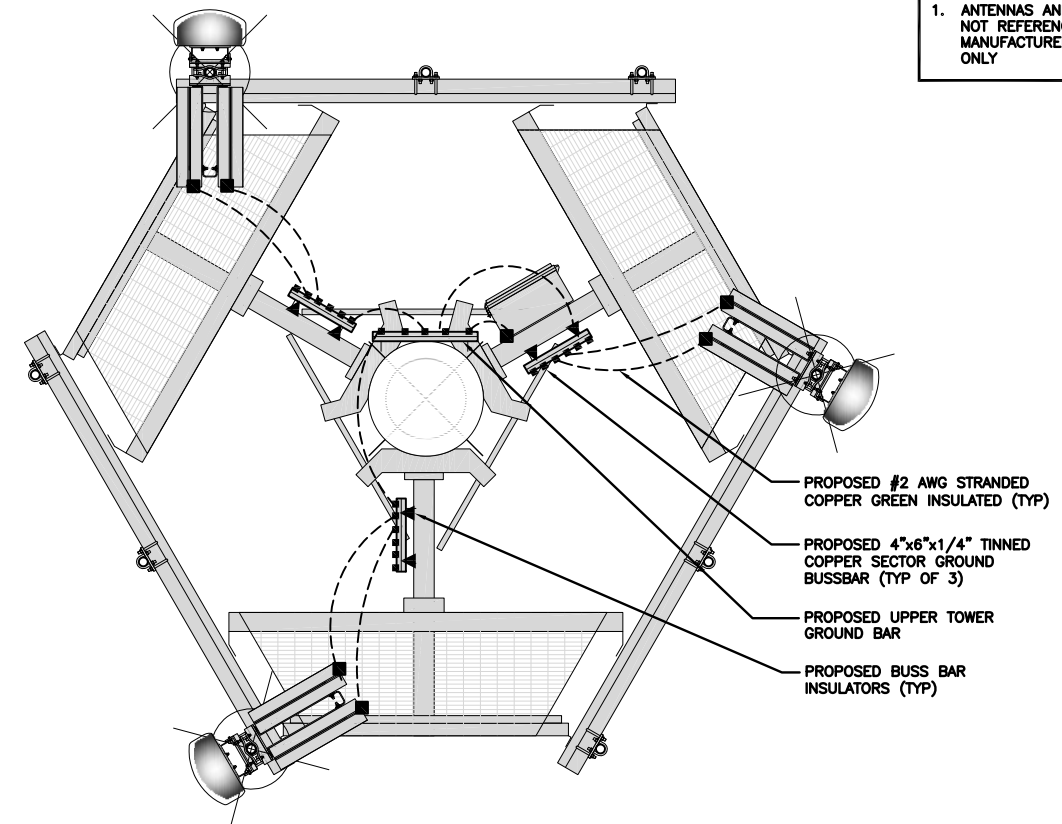


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH WIRELESS, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



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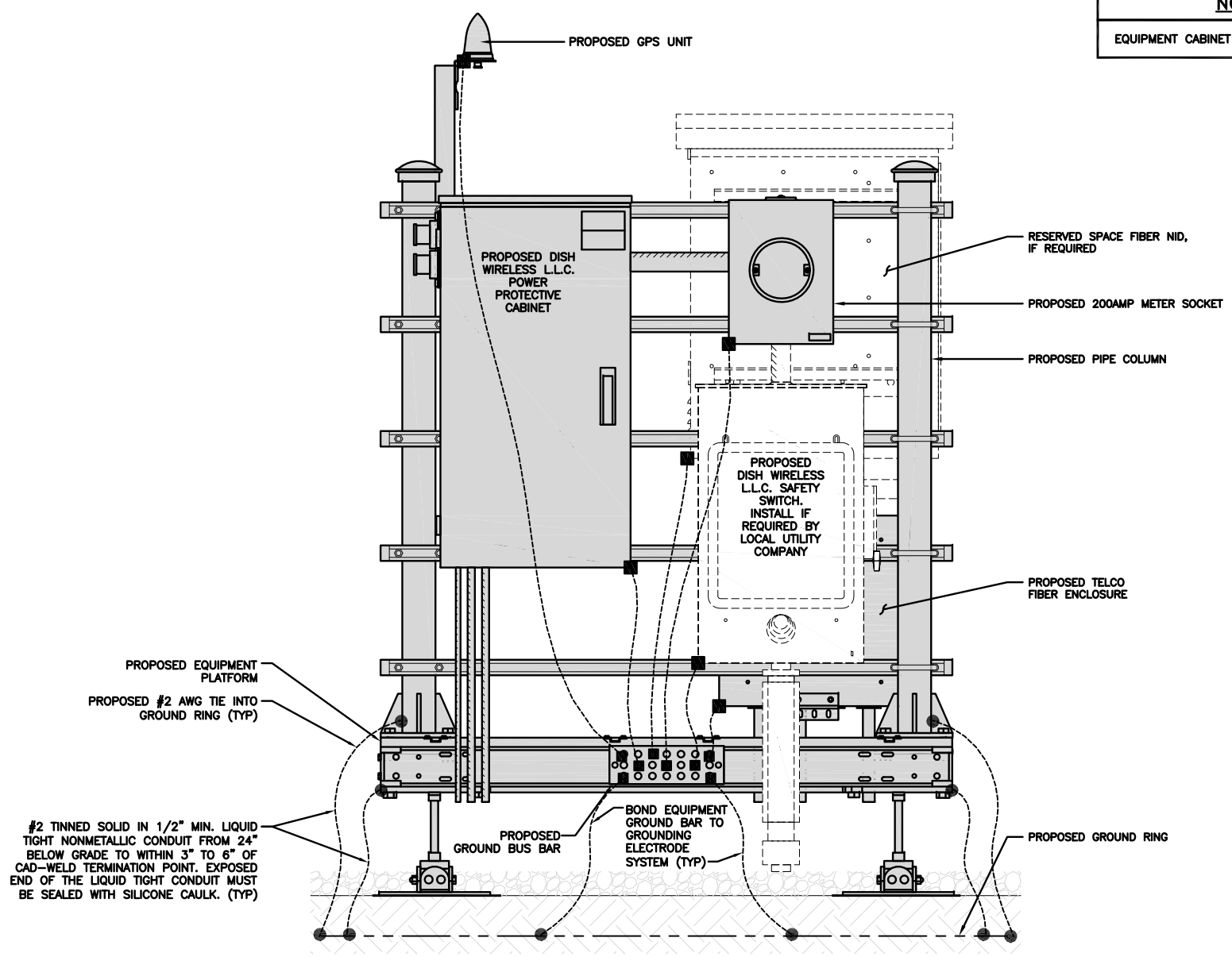
DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER
G-1

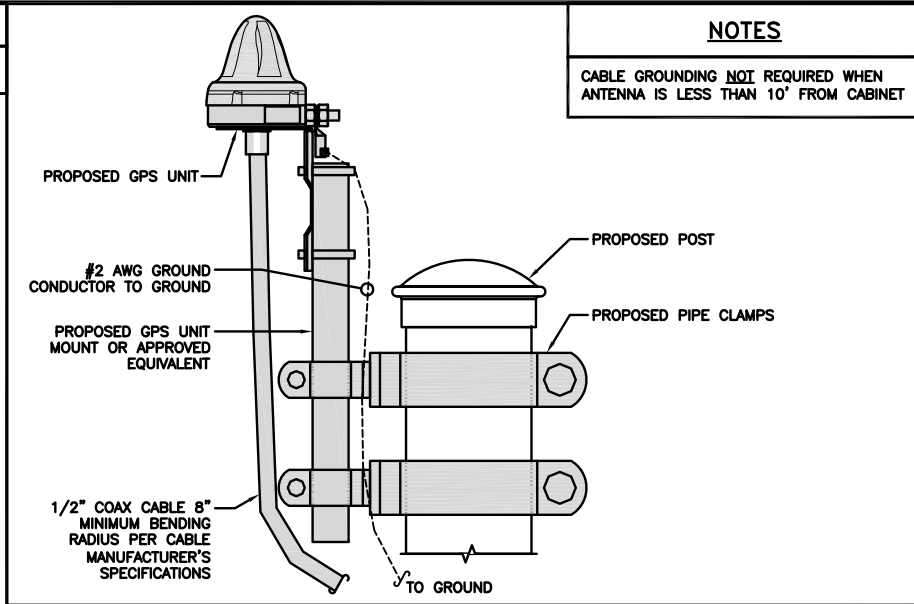
NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY



H-FRAME GROUNDING DETAIL

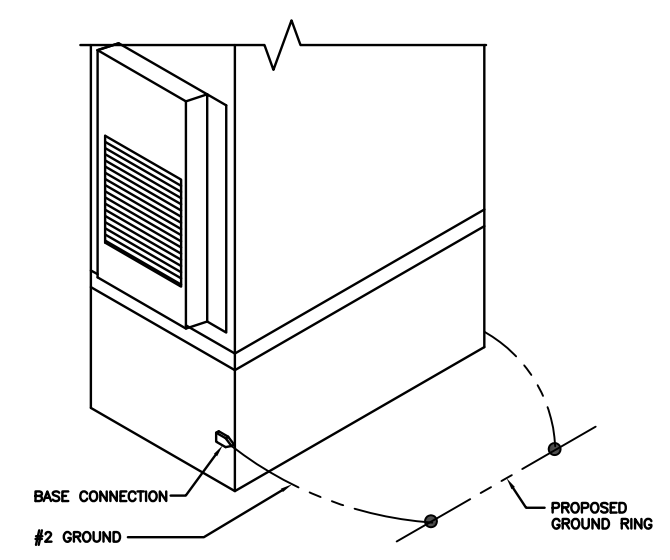
NO SCALE 1

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



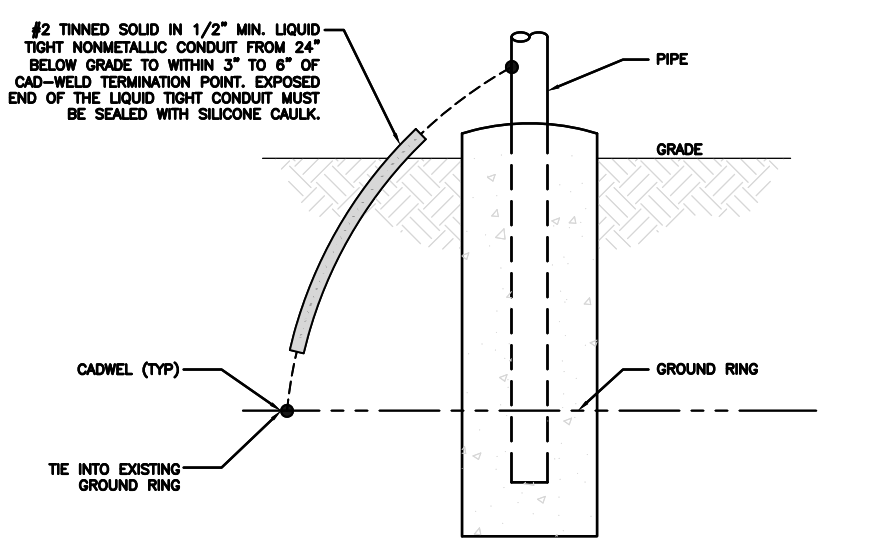
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



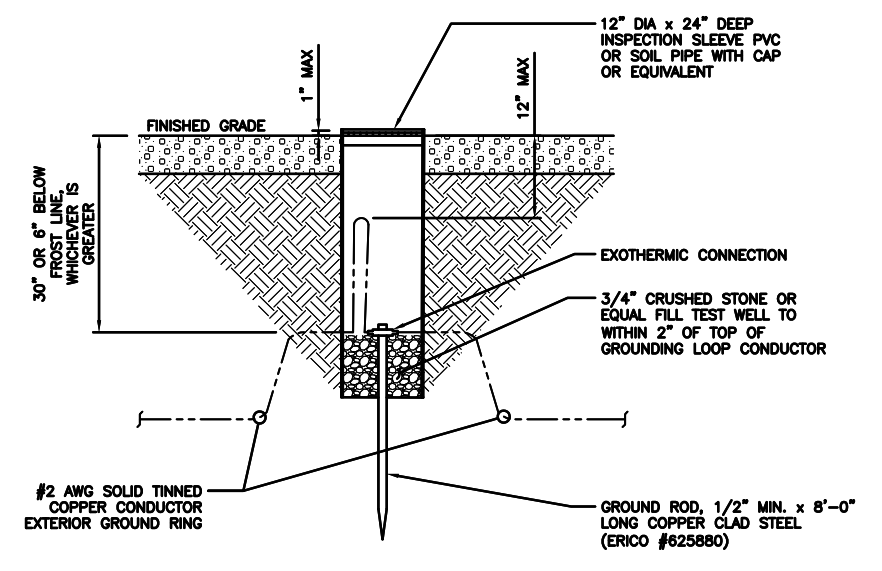
OUTDOOR CABINET GROUNDING

NO SCALE 3



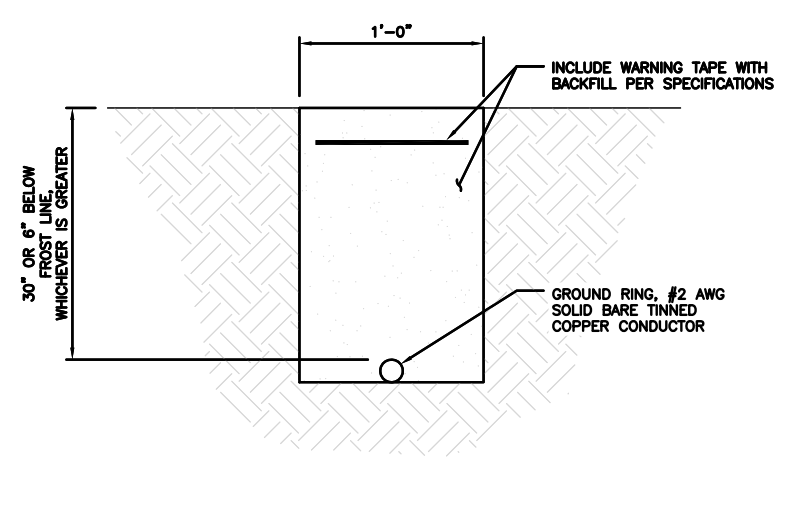
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6



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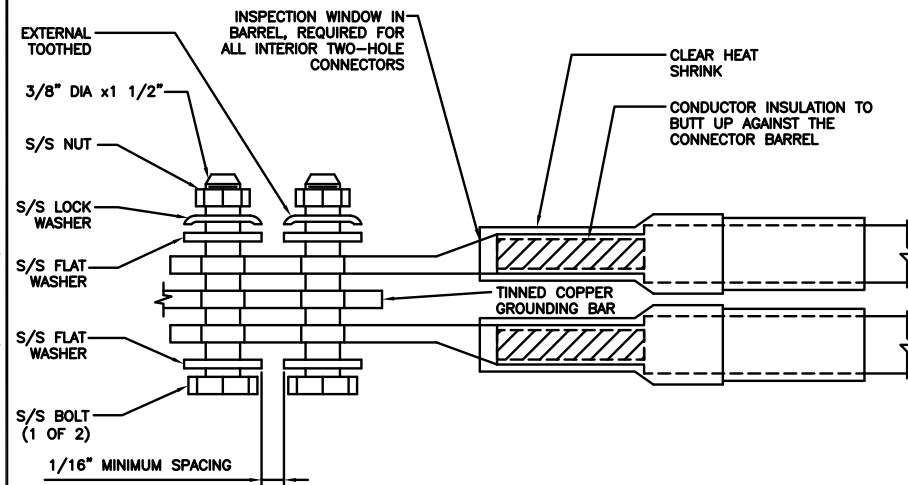
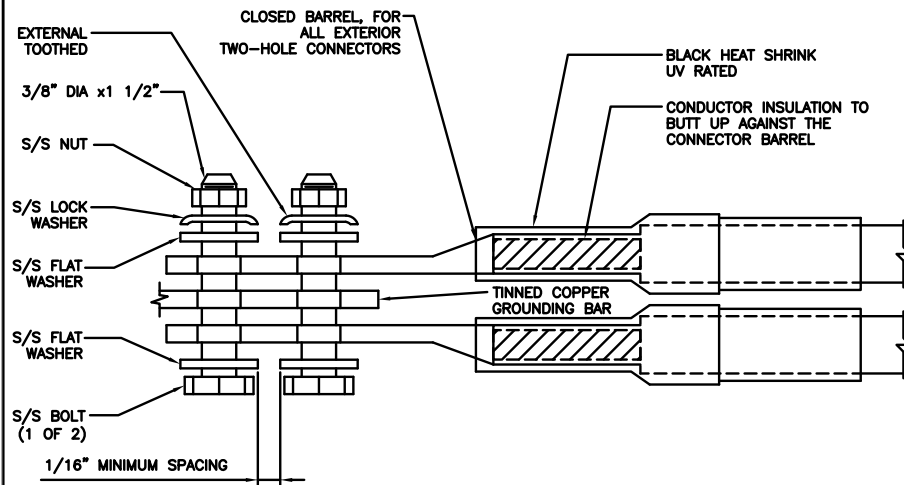
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

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



TYPICAL GROUNDING NOTES

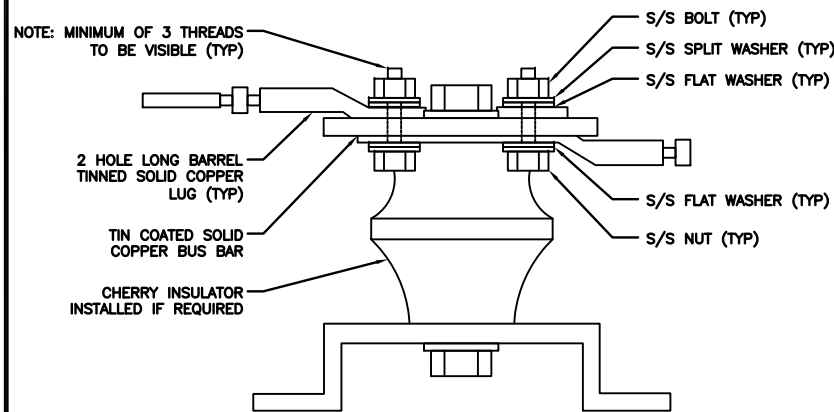
NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 3



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9

dish
wireless.

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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 (1) PORT	ORANGE	ORANGE		WHITE (1) PORT	ORANGE	ORANGE		WHITE (1) PORT	ORANGE	ORANGE
			WHITE (1) PORT				WHITE (1) PORT				WHITE (1) 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 (1) PORT	PURPLE	PURPLE		WHITE (1) PORT	PURPLE	PURPLE		WHITE (1) PORT	PURPLE	PURPLE
			WHITE (1) PORT				WHITE (1) PORT				WHITE (1) PORT

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM
LONG 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
RED	RED
BLUE	BLUE
GREEN	GREEN
ORANGE	YELLOW
PURPLE	

HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

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

RET MOTORS AT ANTENNAS

PORT 1/ ANTENNA 1 "IN"	PORT 1/ ANTENNA 1 "IN"	PORT 1/ ANTENNA 1 "IN"
RED	BLUE	GREEN

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

PRIMARY	SECONDARY
WHITE	WHITE
RED	RED
WHITE	WHITE
	RED
	WHITE

RF CABLE COLOR CODES

NO SCALE 1

LOW BANDS (N71-N28)
OPTIONAL - (N29)



AWS
(N65+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANTRRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE 2

NOT USED

NO SCALE 3

NOT USED

NO SCALE 4



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REV	DATE	DESCRIPTION
A	07/20/21	ISSUED FOR REVIEW
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A&E PROJECT NUMBER
2021.0102.0126

DISH WIRELESS, LLC.
PROJECT INFORMATION

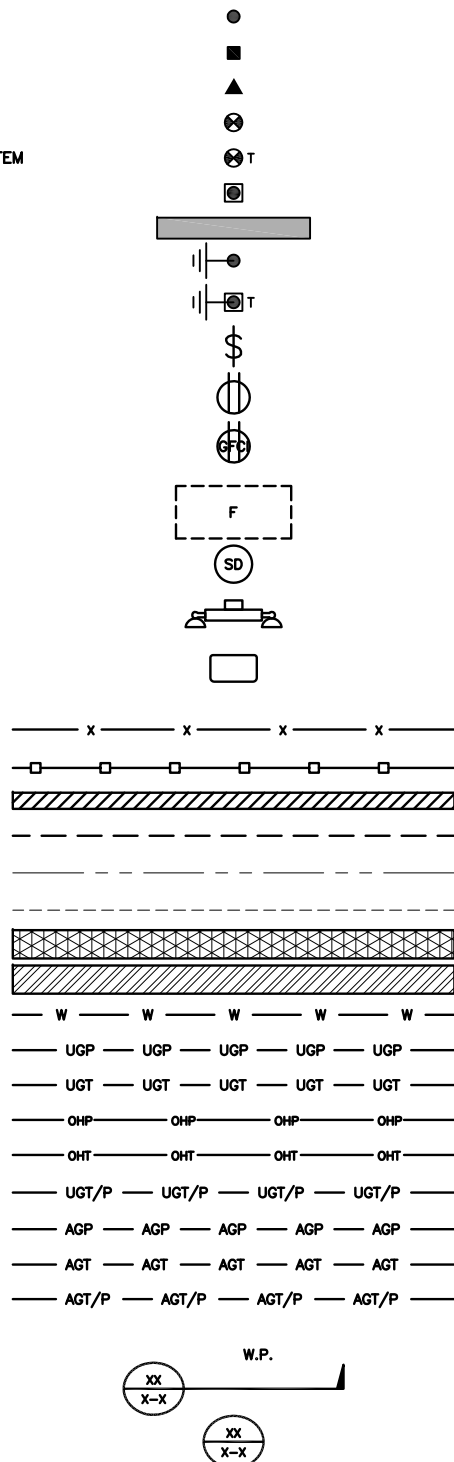
BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER

RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 BUSS BAR INSULATOR
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE
 (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DBTDX



SECTION REFERENCE
 DETAIL REFERENCE

LEGEND

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

ABBREVIATIONS



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 PROJECT INFORMATION
 BOBDL00008A
 343 DALEVILLE ROAD
 WILLINGTON, CT 06279

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH WIRELESS, LLC.
TOWER OWNER:TOWER OWNER
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH WIRELESS, LLC. AND TOWER OWNER
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
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WILLINGTON, CT 06279

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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



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DRAWN BY:	CHECKED BY:	APPROVED BY:
MS	KR	DS

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	07/20/21	ISSUED FOR REVIEW
0	08/06/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2021.0102.0126

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

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



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A&E PROJECT NUMBER
2021.0102.0126

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00008A
343 DALEVILLE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING:
STRUCTURAL ANALYSIS
MOUNT ANALYSIS



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by



Structural Analysis Report

Structure : 104 ft Monopole with Pending 56 ft Extension

ATC Site Name : MANSFIELD CT, CT

ATC Asset Number : 283563

Engineering Number : 13685464_C3_02

Proposed Carrier : DISH WIRELESS L.L.C.

Carrier Site Name : BOBDL00008A

Carrier Site Number : BOBDL00008A

Site Location : 343 Daleville Road
Willington, CT 06279-2014
41.836600, -72.255000

County : Tolland

Date : August 16, 2021

Max Usage : 77%

Result : Pass

Prepared By:
Shahad Haji
POD

Reviewed By:

8/16/21





Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 104 ft monopole with pending 56 ft extension to reflect the change in loading by DISH WIRELESS L.L.C.

Supporting Documents

Tower Drawings	TransAmerican Order #TP-11556, dated August 1, 2013
Foundation Drawing	TransAmerican Job #23513-0339, dated July 30, 2013
Geotechnical Report	Design Eart Technology Job #2010-11, dated September 10, 2010

Analysis

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

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.5” radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.18, S_1 = 0.05$
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
155.0	3	Ericsson RRUS 8843 B2, B66A	Sector Frame	(2) 0.40" (10.3mm) Fiber (4) 0.92" (23.4mm) Cable (3) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 4415 B30			
	3	CCI TPA65R-BU8D			
	3	CCI DMP65R-BU8D			
	1	Raycap DC9-48-60-24-8C-EV			
	1	Raycap DC6-48-60-18-8C-EV			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
96.0	6	Antel BXA-70063/6CF_	Low Profile Platform	(18) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON
	1	RFS DB-T1-6Z-8AB-OZ			
	6	Antel BXA-171063/12CF			
	3	Alcatel-Lucent RRH2x40-AWS			
	3	Alcatel-Lucent RRH2x40 (700)			
50.0	1	Generic 2" x 8" GPS	Flush	-	

Equipment to be Removed

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

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
86.0	1	Commscope RDIDC-9181-PF-48	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	66%	Pass
Shaft	77%	Pass
Base Plate	29%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,395.9	45%
Axial (Kips)	55.1	25%
Shear (Kips)	23.9	27%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
86.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.662	0.946
	Fujitsu TA08025-B605			
	Fujitsu TA08025-B604			
	JMA Wireless MX08FRO665-21			

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



Standard Conditions

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

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of POD Group

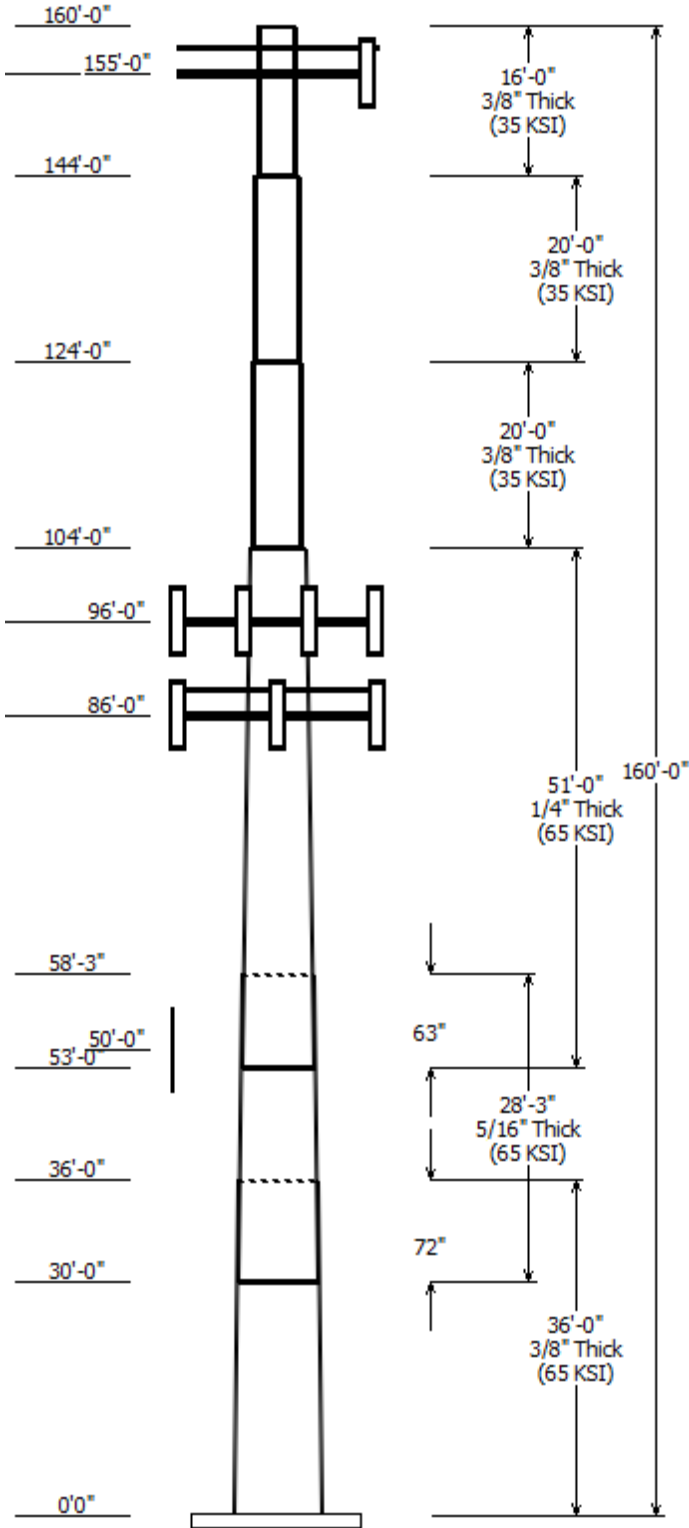
It is the responsibility of the client to ensure that the information provided to POD Group and used in the performance of our engineering services is correct and complete.

POD Group assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and POD Group, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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



Job Information	
Client : DISH WIRELESS L.L.C.	
Pole : 283563	Code: ANSI/TIA-222-H
Location : MANSFIELD CT, CT	
Description : 104 ft TransAmerican Mono Pole with Proposed 60 Ft Extension	Risk Category : II
Shape : 18 Sides	Exposure : C
Height : 160.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.202644(in/ft)	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Joint Type	Overlap Length (in)	Steel Grade
		Across Flats Top	Across Flats Bottom			
1	36.000	40.70	48.00	0.375	0.000	18 Sides 65
2	28.250	36.82	42.54	0.313 Slip Joint	72.000	18 Sides 65
3	51.000	28.05	38.38	0.250 Slip Joint	63.000	18 Sides 65
4	20.000	26.00	26.00	0.375 Butt Joint	0.000	Round 35
5	20.000	24.00	24.00	0.375 Butt Joint	0.000	Round 35
6	16.000	20.00	20.00	0.375 Butt Joint	0.000	Round 35

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
155.000	155.000	3	Generic Flat Light Sector Fram
155.000	155.000	3	CCI TPA65R-BU8D
155.000	155.000	3	CCI DMP65R-BU8D
155.000	155.000	1	Raycap DC9-48-60-24-8C-EV
155.000	155.000	1	Raycap DC6-48-60-18-8C-EV
155.000	155.000	3	Ericsson RRUS 4478 B14
155.000	155.000	3	Ericsson RRUS 4449 B5, B12
155.000	155.000	3	Ericsson RRUS 4415 B30
155.000	155.000	3	Ericsson RRUS 8843 B2, B66A
96.000	96.000	1	Generic Round Low Profile
96.000	96.000	6	Antel BXA-70063/6CF_
96.000	96.000	1	RFS DB-T1-6Z-8AB-0Z
96.000	96.000	6	Antel BXA-171063/12CF
96.000	96.000	3	Alcatel-Lucent RRH2x40-AWS
96.000	96.000	3	Alcatel-Lucent RRH2x40 (700)
86.000	86.000	3	Generic Flat Light Sector Fram
86.000	86.000	3	JMA Wireless MX08FRO665-21
86.000	86.000	3	Fujitsu TA08025-B604
86.000	86.000	3	Fujitsu TA08025-B605
86.000	86.000	1	Commscope RDIDC-9181-PF-48
50.000	50.000	1	Generic 2" x 8" GPS

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	86.000	1.60" (40.6mm)	No
0.000	102.0	1 5/8" Coax	No
0.000	102.0	1 5/8" Hybriflex	No
0.000	155.0	0.40" (10.3mm)	No
0.000	155.0	0.92" (23.4mm)	No
0.000	155.0	2" conduit	No

Load Cases	
1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic

0.9D - 1.0Ev + 1.0Eh
1.0D + 1.0W

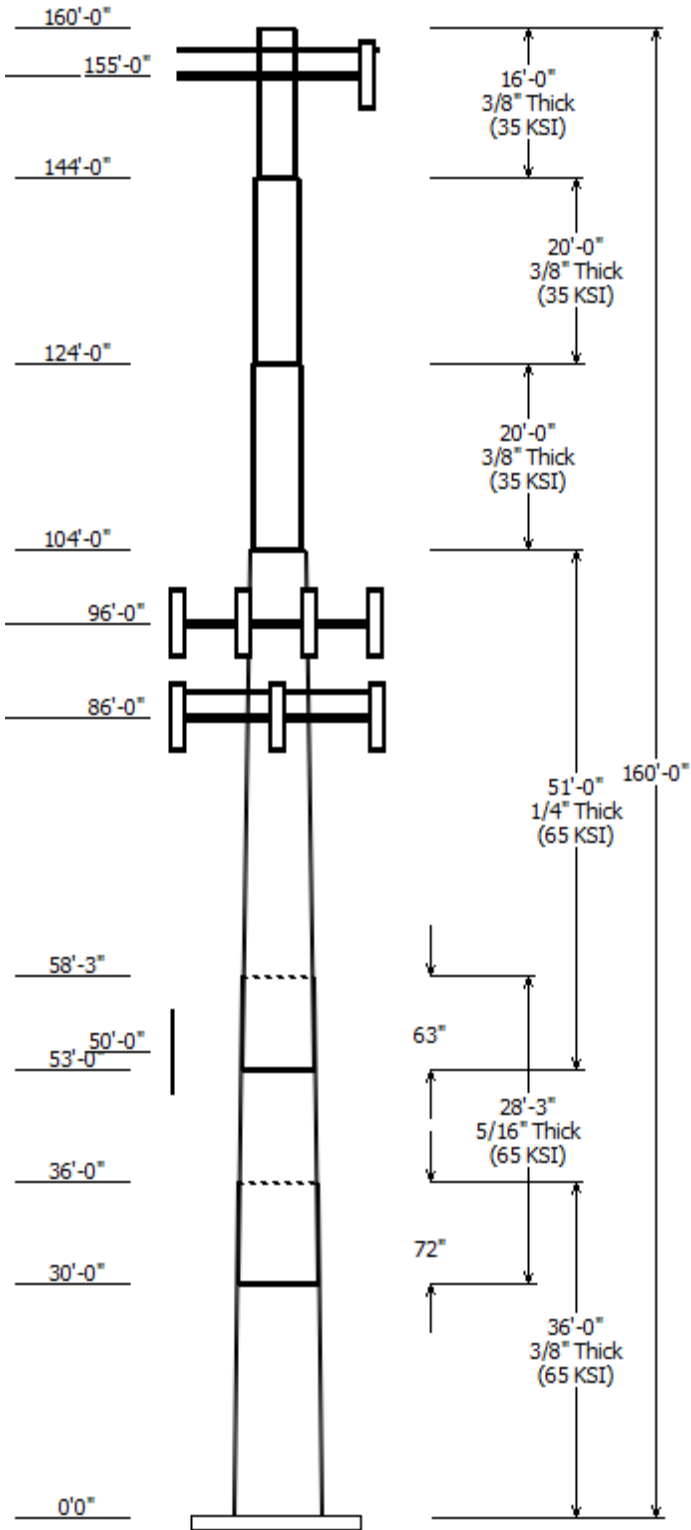
Seismic (Reduced DL)
Serviceability 60 mph

Reactions

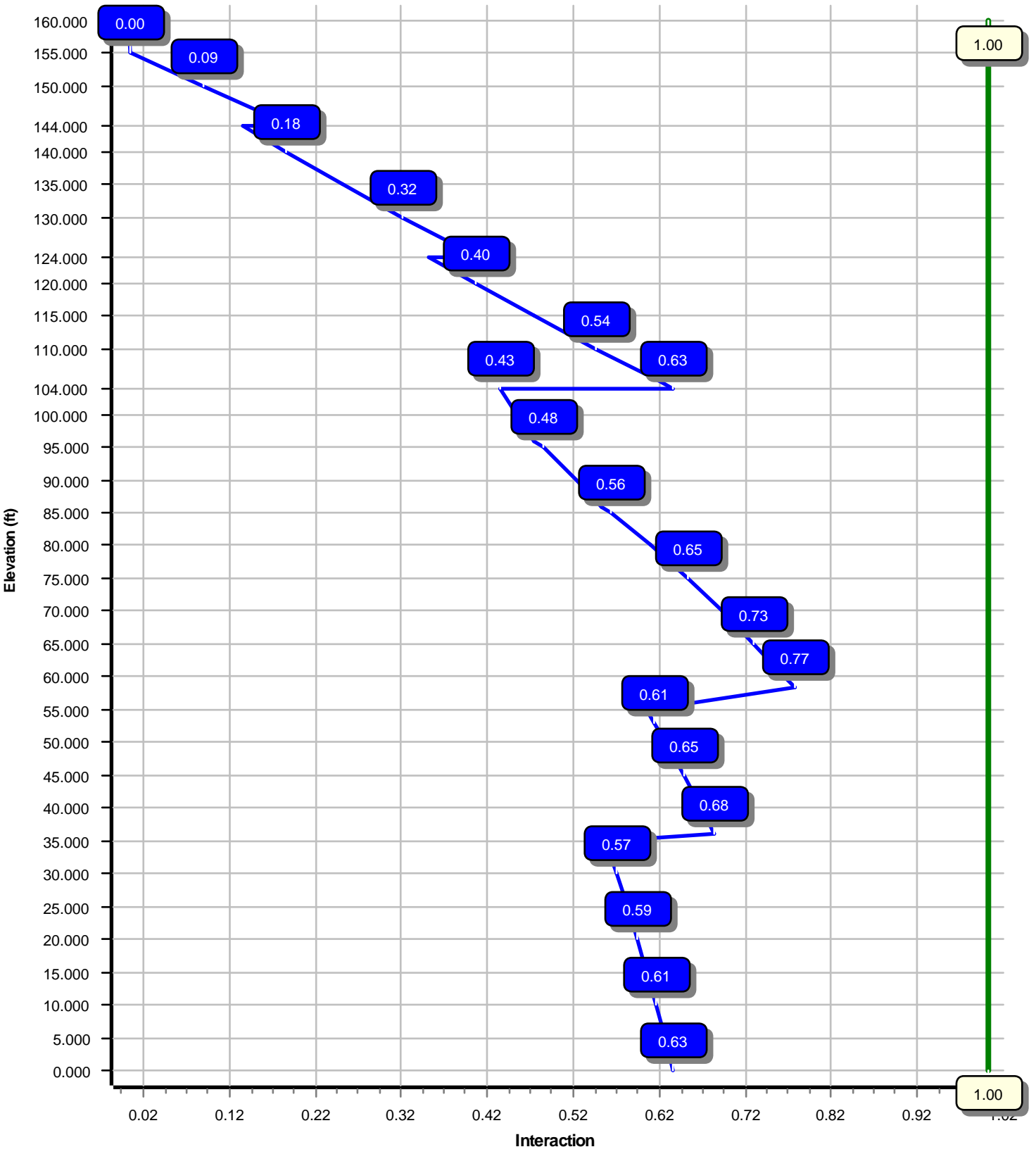
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2395.87	23.89	37.05
0.9D + 1.0W	2363.45	23.87	27.77
1.2D + 1.0Di + 1.0Wi	747.96	7.25	55.11
1.2D + 1.0Ev + 1.0Eh	117.04	0.93	36.90
0.9D - 1.0Ev + 1.0Eh	114.98	0.93	25.64
1.0D + 1.0W	540.82	5.43	30.91

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000



Load Case : 1.2D + 1.0W
Max Ratio 77.48% at 58.3 ft



Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:04 PM

Customer: DISH WIRELESS L.L.C.

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	160
Code :	ANSI/TIA-222-H	Base Diameter (in) :	48.00
Shape :	18 Sides. Sect 4: Round. Sect 5: Round	Top Diameter (in) :	20.00
Pole Type :	Custom	Taper (in/ft) :	0.203
Pole Manufacturer :		Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.98

Ice & Wind Parameters

Exposure Category:	C	Design Wind Speed Without Ice:	119 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	485.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.63		
T_L (sec):	6	p :	1
S_s :	0.183	S_1 :	0.055
F_a :	1.600	F_v :	2.400
S_{ds} :	0.195	S_{d1} :	0.088
		C_s :	0.030
		C_s Max:	0.030
		C_s Min:	0.030

Load Cases

1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

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Customer: DISH WIRELESS L.L.C.

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	36.000	0.3750	65		0.00	6,412	48.00	0.00	56.68	16243.5	20.81	128.00	40.70	36.00	48.00	9864.0	17.38	108.55	0.202644
2-18	28.250	0.3125	65	Slip	72.00	3,754	42.54	30.00	41.89	9439.6	22.24	136.15	36.82	58.25	36.21	6097.8	19.01	117.83	0.202644
3-18	51.000	0.2500	65	Slip	63.00	4,540	38.38	53.00	30.26	5559.7	25.31	153.54	28.05	104.00	22.06	2153.9	18.02	112.20	0.202644
4-R	20.000	0.3750	35	Butt	0.00	2,055	26.00	104.00	30.19	2479.8	0.00	69.33	26.00	124.00	30.19	2479.8	0.00	69.33	0.000000
5-R	20.000	0.3750	35	Butt	0.00	1,894	24.00	124.00	27.83	1943.3	0.00	64.00	24.00	144.00	27.83	1943.3	0.00	64.00	0.000000
6-R	16.000	0.3750	35	Butt	0.00	1,259	20.00	144.00	23.12	1113.9	0.00	53.33	20.00	160.00	23.12	1113.9	0.00	53.33	0.000000
Shaft Weight						19,913													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
155.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.639	0.50	133.52	2.487	0.50
155.00	Ericsson RRUS 4415 B30	3	0.80	0.000	46.00	1.842	0.50	95.21	2.742	0.50
155.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	135.69	2.905	0.50
155.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.021	0.67	121.00	2.968	0.67
155.00	Raycap DC6-48-60-18-8C-EV	1	0.80	0.000	16.00	4.788	1.00	145.61	6.264	1.00
155.00	Raycap DC9-48-60-24-8C-EV	1	0.80	0.000	16.00	4.788	1.00	145.58	6.264	1.00
155.00	CCI DMP65R-BU8D	3	0.80	0.000	95.70	17.871	0.63	436.84	21.570	0.63
155.00	Generic Flat Light Sector Frame	3	0.75	0.000	400.00	17.900	0.75	702.07	33.045	0.75
155.00	CCI TPA65R-BU8D	3	0.80	0.000	82.50	18.089	0.63	428.57	21.795	0.63
96.00	Alcatel-Lucent RRH2x40 (700)	3	0.80	0.000	50.00	2.125	0.67	120.33	3.074	0.67
96.00	Alcatel-Lucent RRH2x40-AWS	3	0.80	0.000	44.00	2.155	0.67	102.04	3.154	0.67
96.00	Antel BXA-171063/12CF	6	0.80	0.000	15.00	4.790	0.72	106.59	7.050	0.72
96.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	0.000	44.00	4.800	1.00	164.55	6.161	1.00
96.00	Antel BXA-70063/6CF_	6	0.80	0.000	17.00	7.569	0.65	152.45	10.210	0.65
96.00	Generic Round Low Profile	1	1.00	0.000	1,875.00	21.700	1.00	2,650.70	40.089	1.00
86.00	Commscope RDIDC-9181-PF-48	1	0.80	0.000	21.90	1.867	1.00	75.81	2.720	1.00
86.00	Fujitsu TA08025-B605	3	0.80	0.000	75.00	1.962	0.50	134.34	2.833	0.50
86.00	Fujitsu TA08025-B604	3	0.80	0.000	63.90	1.962	0.50	119.14	2.833	0.50
86.00	JMA Wireless MX08FRO665-21	3	0.80	0.000	64.50	12.489	0.64	307.97	15.151	0.64
86.00	Generic Flat Light Sector Frame	3	0.75	0.000	400.00	17.900	0.75	685.09	32.193	0.75
50.00	Generic 2" x 8" GPS	1	1.00	0.000	10.00	0.141	1.00	14.94	0.443	1.00
Totals	Num Loadings:21	57			6,746.90			15,316.94		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	155.00	2	0.40" (10.3mm) Fiber	0.40	0.09	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	155.00	4	0.92" (23.4mm) Cable	0.92	0.89	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	155.00	3	2" conduit	2.38	3.65	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	102.00	18	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	102.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	86.00	1	1.60" (40.6mm) Hybrid	1.60	2.34	N	0	0.00	0.00	0	N DISH WIRELESS

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	48.000	56.684	16,243.5	20.81	128.00	76.9	666.5	0.0	0.0
5.00		0.3750	46.987	55.478	15,228.7	20.33	125.30	77.5	638.4	0.0	954.1
10.00		0.3750	45.974	54.272	14,257.0	19.85	122.60	78.0	610.8	0.0	933.6
15.00		0.3750	44.960	53.066	13,327.6	19.38	119.89	78.6	583.9	0.0	913.1
20.00		0.3750	43.947	51.860	12,439.5	18.90	117.19	79.2	557.5	0.0	892.6
25.00		0.3750	42.934	50.654	11,591.7	18.42	114.49	79.7	531.8	0.0	872.1
30.00	Bot - Section 2	0.3750	41.921	49.448	10,783.3	17.95	111.79	80.3	506.6	0.0	851.6
35.00		0.3750	40.907	48.242	10,013.5	17.47	109.09	80.9	482.1	0.0	1,535.2
36.00	Top - Section 1	0.3125	41.330	40.683	8,647.6	21.56	132.26	76.0	412.1	0.0	302.5
40.00		0.3125	40.519	39.879	8,145.0	21.10	129.66	76.6	395.9	0.0	548.3
45.00		0.3125	39.506	38.874	7,544.6	20.53	126.42	77.3	376.1	0.0	669.9
50.00		0.3125	38.493	37.869	6,974.5	19.96	123.18	77.9	356.9	0.0	652.8
53.00	Bot - Section 3	0.3125	37.885	37.266	6,646.6	19.61	121.23	78.3	345.6	0.0	383.5
55.00		0.3125	37.480	36.864	6,433.8	19.38	119.93	78.6	338.1	0.0	457.1
58.25	Top - Section 2	0.2500	37.321	29.415	5,107.2	24.56	149.28	72.5	269.5	0.0	732.3
60.00		0.2500	36.966	29.133	4,962.1	24.31	147.87	72.8	264.4	0.0	174.3
65.00		0.2500	35.953	28.329	4,562.5	23.59	143.81	73.6	249.9	0.0	488.8
70.00		0.2500	34.940	27.525	4,185.0	22.88	139.76	74.5	235.9	0.0	475.2
75.00		0.2500	33.927	26.721	3,828.9	22.17	135.71	75.3	222.3	0.0	461.5
80.00		0.2500	32.913	25.918	3,493.6	21.45	131.65	76.2	209.1	0.0	447.8
85.00		0.2500	31.900	25.114	3,178.4	20.74	127.60	77.0	196.2	0.0	434.1
86.00		0.2500	31.698	24.953	3,117.8	20.59	126.79	77.2	193.7	0.0	85.2
90.00		0.2500	30.887	24.310	2,882.9	20.02	123.55	77.9	183.8	0.0	335.3
95.00		0.2500	29.874	23.506	2,606.2	19.31	119.50	78.7	171.8	0.0	406.8
96.00		0.2500	29.671	23.345	2,553.1	19.16	118.68	78.9	169.5	0.0	79.7
100.0		0.2500	28.861	22.702	2,347.8	18.59	115.44	79.5	160.2	0.0	313.4
104.0	Top - Section 3	0.2500	28.050	22.059	2,153.9	18.02	112.20	80.2	151.2	0.0	304.6
104.0	Bot - Section 4	0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	
105.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	102.7
110.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
115.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
120.0		0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	513.6
124.0	Top - Section 4	0.3750	26.000	30.189	2,479.8	0.00	69.33	35.0	190.8	246.3	410.9
124.0	Bot - Section 5	0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	
125.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	94.7
130.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
135.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
140.0		0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	473.5
144.0	Top - Section 5	0.3750	24.000	27.833	1,943.3	0.00	64.00	35.0	161.9	209.3	378.8
144.0	Bot - Section 6	0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	
145.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	78.7
150.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
155.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
160.0		0.3750	20.000	23.120	1,113.9	0.00	53.33	35.0	111.4	144.4	393.4
19,912.8											

Load Case: 1.2D + 1.0W	119 mph with No Ice	28 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.20		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		232.1	0.0					0.0	0.0	232.1	0.0	0.0	0.0
5.00		459.2	1,145.0					0.0	206.3	459.2	1,351.3	0.0	0.0
10.00		449.3	1,120.4					0.0	206.3	449.3	1,326.7	0.0	0.0
15.00		446.2	1,095.7					0.0	206.3	446.2	1,302.1	0.0	0.0
20.00		455.0	1,071.1					0.0	206.3	455.0	1,277.5	0.0	0.0
25.00		466.1	1,046.5					0.0	206.3	466.1	1,252.8	0.0	0.0
30.00	Bot - Section 2	476.6	1,021.9					0.0	206.3	476.6	1,228.2	0.0	0.0
35.00		289.9	1,842.2					0.0	206.3	289.9	2,048.6	0.0	0.0
36.00	Top - Section 1	242.8	363.0					0.0	41.3	242.8	404.3	0.0	0.0
40.00		437.4	657.9					0.0	165.1	437.4	823.0	0.0	0.0
45.00		485.7	803.9					0.0	206.3	485.7	1,010.3	0.0	0.0
50.00	Appurtenance(s)	387.5	783.4	5.7	0.0	0.0	12.0	0.0	206.3	393.3	1,001.8	0.0	0.0
53.00	Bot - Section 3	242.6	460.2					0.0	123.8	242.6	584.0	0.0	0.0
55.00		255.6	548.5					0.0	82.5	255.6	631.0	0.0	0.0
58.25	Top - Section 2	242.6	878.7					0.0	134.1	242.6	1,012.8	0.0	0.0
60.00		324.9	209.2					0.0	72.2	324.9	281.4	0.0	0.0
65.00		477.7	586.6					0.0	206.3	477.7	792.9	0.0	0.0
70.00		471.5	570.2					0.0	206.3	471.5	776.5	0.0	0.0
75.00		464.6	553.8					0.0	206.3	464.6	760.1	0.0	0.0
80.00		456.9	537.4					0.0	206.3	456.9	743.7	0.0	0.0
85.00		271.2	520.9					0.0	206.3	271.2	727.3	0.0	0.0
86.00	Appurtenance(s)	222.1	102.2	2,537.2	0.0	0.0	2,198.5	0.0	41.3	2,759.2	2,342.0	0.0	0.0
90.00		394.7	402.3					0.0	153.8	394.7	556.1	0.0	0.0
95.00		260.3	488.1					0.0	192.3	260.3	680.4	0.0	0.0
96.00	Appurtenance(s)	212.5	95.7	3,390.7	0.0	0.0	2,871.6	0.0	38.5	3,603.2	3,005.7	0.0	0.0
100.00		335.9	376.0					0.0	153.8	335.9	529.9	0.0	0.0
104.00	Top - Section 3	197.2	365.5					0.0	112.2	197.2	477.7	0.0	0.0
105.00		186.4	123.3					0.0	17.6	186.4	140.9	0.0	0.0
110.00		312.4	616.4					0.0	88.1	312.4	704.5	0.0	0.0
115.00		315.4	616.4					0.0	88.1	315.4	704.5	0.0	0.0
120.00		286.1	616.4					0.0	88.1	286.1	704.5	0.0	0.0
124.00	Top - Section 4	157.3	493.1					0.0	70.5	157.3	563.6	0.0	0.0
125.00		178.4	113.6					0.0	17.6	178.4	131.3	0.0	0.0
130.00		298.7	568.2					0.0	88.1	298.7	656.4	0.0	0.0
135.00		301.1	568.2					0.0	88.1	301.1	656.4	0.0	0.0
140.00		272.9	568.2					0.0	88.1	272.9	656.4	0.0	0.0
144.00	Top - Section 5	147.2	454.6					0.0	70.5	147.2	525.1	0.0	0.0
145.00		153.3	94.4					0.0	17.6	153.3	112.0	0.0	0.0
150.00		256.5	472.0					0.0	88.1	256.5	560.2	0.0	0.0
155.00	Appurtenance(s)	225.9	472.0	5,271.3	0.0	0.0	3,014.2	0.0	88.1	5,497.2	3,574.3	0.0	0.0
160.00		97.2	472.0					0.0	0.0	97.2	472.0	0.0	0.0
Totals:										24,051.6	37,090.2	0.00	0.00

Load Case: 1.2D + 1.0W

119 mph with No Ice

28 Iterations

Gust Response Factor :1.10
 Dead Load Factor :1.20
 Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.05	-23.89	0.00	-2,395.87	0.00	2,395.87	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.633
5.00	-35.61	-23.55	0.00	-2,276.44	0.00	2,276.44	3,869.00	973.63	4,099.11	3,709.95	0.11	-0.20	0.623
10.00	-34.20	-23.22	0.00	-2,158.67	0.00	2,158.67	3,812.27	952.47	3,922.86	3,575.45	0.44	-0.41	0.613
15.00	-32.82	-22.88	0.00	-2,042.57	0.00	2,042.57	3,754.32	931.30	3,750.48	3,442.23	0.98	-0.62	0.603
20.00	-31.47	-22.53	0.00	-1,928.15	0.00	1,928.15	3,695.16	910.14	3,581.98	3,310.34	1.74	-0.83	0.592
25.00	-30.14	-22.16	0.00	-1,815.50	0.00	1,815.50	3,634.78	888.98	3,417.35	3,179.89	2.73	-1.05	0.580
30.00	-28.84	-21.77	0.00	-1,704.71	0.00	1,704.71	3,573.18	867.81	3,256.59	3,050.92	3.94	-1.26	0.567
35.00	-26.75	-21.49	0.00	-1,595.89	0.00	1,595.89	3,510.36	846.65	3,099.70	2,923.54	5.38	-1.48	0.554
36.00	-26.31	-21.29	0.00	-1,574.40	0.00	1,574.40	2,784.37	713.98	2,645.12	2,350.45	5.70	-1.53	0.680
40.00	-25.42	-20.92	0.00	-1,489.26	0.00	1,489.26	2,748.65	699.87	2,541.62	2,274.10	7.05	-1.70	0.665
45.00	-24.34	-20.51	0.00	-1,384.66	0.00	1,384.66	2,702.91	682.23	2,415.15	2,179.46	8.97	-1.95	0.645
50.00	-23.28	-20.16	0.00	-1,282.12	0.00	1,282.12	2,655.95	664.60	2,291.91	2,085.80	11.15	-2.21	0.624
53.00	-22.66	-19.95	0.00	-1,221.64	0.00	1,221.64	2,627.19	654.01	2,219.51	2,030.10	12.59	-2.36	0.611
55.00	-21.99	-19.72	0.00	-1,181.74	0.00	1,181.74	2,607.78	646.96	2,171.89	1,993.18	13.60	-2.46	0.602
58.25	-20.95	-19.48	0.00	-1,117.67	0.00	1,117.67	1,919.69	516.23	1,728.46	1,465.89	15.33	-2.63	0.775
60.00	-20.62	-19.21	0.00	-1,083.59	0.00	1,083.59	1,909.04	511.29	1,695.55	1,443.71	16.31	-2.72	0.763
65.00	-19.75	-18.79	0.00	-987.55	0.00	987.55	1,877.79	497.18	1,603.27	1,380.63	19.31	-3.01	0.727
70.00	-18.91	-18.38	0.00	-893.58	0.00	893.58	1,845.32	483.07	1,513.57	1,317.98	22.63	-3.31	0.690
75.00	-18.09	-17.96	0.00	-801.70	0.00	801.70	1,811.64	468.96	1,426.45	1,255.86	26.24	-3.59	0.650
80.00	-17.30	-17.54	0.00	-711.92	0.00	711.92	1,776.74	454.85	1,341.92	1,194.34	30.16	-3.88	0.607
85.00	-16.54	-17.26	0.00	-624.24	0.00	624.24	1,740.62	440.74	1,259.97	1,133.49	34.36	-4.15	0.562
86.00	-14.37	-14.37	0.00	-606.98	0.00	606.98	1,733.25	437.92	1,243.89	1,121.41	35.23	-4.20	0.551
90.00	-13.79	-13.99	0.00	-549.49	0.00	549.49	1,703.29	426.63	1,180.60	1,073.39	38.84	-4.41	0.521
95.00	-13.10	-13.71	0.00	-479.52	0.00	479.52	1,664.74	412.52	1,103.81	1,014.12	43.60	-4.67	0.482
96.00	-10.37	-9.90	0.00	-465.81	0.00	465.81	1,656.88	409.70	1,088.76	1,002.37	44.58	-4.72	0.472
100.00	-9.84	-9.55	0.00	-426.21	0.00	426.21	1,624.97	398.41	1,029.60	955.76	48.62	-4.92	0.453
104.00	-9.36	-9.34	0.00	-387.99	0.00	387.99	1,592.28	387.13	972.10	909.77	52.82	-5.12	0.433
104.00	-9.36	-9.34	0.00	-387.99	0.00	387.99	950.95	285.28	642.72	624.60	52.82	-5.12	0.632
105.00	-9.22	-9.16	0.00	-378.65	0.00	378.65	950.95	285.28	642.72	624.60	53.89	-5.17	0.617
110.00	-8.52	-8.81	0.00	-332.86	0.00	332.86	950.95	285.28	642.72	624.60	59.40	-5.37	0.543
115.00	-7.82	-8.45	0.00	-288.80	0.00	288.80	950.95	285.28	642.72	624.60	65.12	-5.55	0.471
120.00	-7.13	-8.12	0.00	-246.53	0.00	246.53	950.95	285.28	642.72	624.60	71.00	-5.70	0.403
124.00	-6.58	-7.91	0.00	-214.07	0.00	214.07	950.95	285.28	642.72	624.60	75.82	-5.81	0.350
124.00	-6.58	-7.91	0.00	-214.07	0.00	214.07	876.73	263.02	546.31	539.02	75.82	-5.81	0.406
125.00	-6.45	-7.73	0.00	-206.16	0.00	206.16	876.73	263.02	546.31	539.02	77.03	-5.83	0.391
130.00	-5.81	-7.38	0.00	-167.52	0.00	167.52	876.73	263.02	546.31	539.02	83.20	-5.97	0.318
135.00	-5.18	-7.02	0.00	-130.64	0.00	130.64	876.73	263.02	546.31	539.02	89.50	-6.08	0.249
140.00	-4.55	-6.68	0.00	-95.55	0.00	95.55	876.73	263.02	546.31	539.02	95.90	-6.16	0.183
144.00	-4.04	-6.48	0.00	-68.83	0.00	68.83	876.73	263.02	546.31	539.02	101.07	-6.21	0.133
144.00	-4.04	-6.48	0.00	-68.83	0.00	68.83	728.28	218.49	376.97	379.17	101.07	-6.21	0.188
145.00	-3.94	-6.32	0.00	-62.35	0.00	62.35	728.28	218.49	376.97	379.17	102.37	-6.22	0.171
150.00	-3.41	-6.00	0.00	-30.76	0.00	30.76	728.28	218.49	376.97	379.17	108.91	-6.28	0.087
155.00	-0.46	-0.15	0.00	-0.74	0.00	0.74	728.28	218.49	376.97	379.17	115.48	-6.30	0.003

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:06 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 1.2D + 1.0W

119 mph with No Ice

28 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

Wind Load Factor :1.00

160.00 0.00 -0.10 0.00 0.00 0.00 0.00 0.00 728.28 218.49 376.97 379.17 122.07 -6.30 0.000

Load Case: 0.9D + 1.0W	119 mph with No Ice (Reduced DL)	27 Iterations
Gust Response Factor :1.10		
Dead Load Factor :0.90		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		232.1	0.0					0.0	0.0	232.1	0.0	0.0	0.0
5.00		459.2	858.7					0.0	154.8	459.2	1,013.5	0.0	0.0
10.00		449.3	840.3					0.0	154.8	449.3	995.0	0.0	0.0
15.00		446.2	821.8					0.0	154.8	446.2	976.6	0.0	0.0
20.00		455.0	803.3					0.0	154.8	455.0	958.1	0.0	0.0
25.00		466.1	784.9					0.0	154.8	466.1	939.6	0.0	0.0
30.00	Bot - Section 2	476.6	766.4					0.0	154.8	476.6	921.2	0.0	0.0
35.00		289.9	1,381.7					0.0	154.8	289.9	1,536.4	0.0	0.0
36.00	Top - Section 1	242.8	272.3					0.0	31.0	242.8	303.2	0.0	0.0
40.00		437.4	493.4					0.0	123.8	437.4	617.2	0.0	0.0
45.00		485.7	602.9					0.0	154.8	485.7	757.7	0.0	0.0
50.00	Appurtenance(s)	387.5	587.6	5.7	0.0	0.0	9.0	0.0	154.8	393.3	751.3	0.0	0.0
53.00	Bot - Section 3	242.6	345.1					0.0	92.9	242.6	438.0	0.0	0.0
55.00		255.6	411.4					0.0	61.9	255.6	473.3	0.0	0.0
58.25	Top - Section 2	242.6	659.0					0.0	100.6	242.6	759.6	0.0	0.0
60.00		324.9	156.9					0.0	54.2	324.9	211.1	0.0	0.0
65.00		477.7	439.9					0.0	154.8	477.7	594.7	0.0	0.0
70.00		471.5	427.6					0.0	154.8	471.5	582.4	0.0	0.0
75.00		464.6	415.3					0.0	154.8	464.6	570.1	0.0	0.0
80.00		456.9	403.0					0.0	154.8	456.9	557.8	0.0	0.0
85.00		271.2	390.7					0.0	154.8	271.2	545.5	0.0	0.0
86.00	Appurtenance(s)	222.1	76.7	2,537.2	0.0	0.0	1,648.9	0.0	31.0	2,759.2	1,756.5	0.0	0.0
90.00		394.7	301.7					0.0	115.4	394.7	417.1	0.0	0.0
95.00		260.3	366.1					0.0	144.2	260.3	510.3	0.0	0.0
96.00	Appurtenance(s)	212.5	71.7	3,390.7	0.0	0.0	2,153.7	0.0	28.8	3,603.2	2,254.3	0.0	0.0
100.00		335.9	282.0					0.0	115.4	335.9	397.4	0.0	0.0
104.00	Top - Section 3	197.2	274.2					0.0	84.1	197.2	358.3	0.0	0.0
105.00		186.4	92.5					0.0	13.2	186.4	105.7	0.0	0.0
110.00		312.4	462.3					0.0	66.1	312.4	528.4	0.0	0.0
115.00		315.4	462.3					0.0	66.1	315.4	528.4	0.0	0.0
120.00		286.1	462.3					0.0	66.1	286.1	528.4	0.0	0.0
124.00	Top - Section 4	157.3	369.8					0.0	52.9	157.3	422.7	0.0	0.0
125.00		178.4	85.2					0.0	13.2	178.4	98.5	0.0	0.0
130.00		298.7	426.2					0.0	66.1	298.7	492.3	0.0	0.0
135.00		301.1	426.2					0.0	66.1	301.1	492.3	0.0	0.0
140.00		272.9	426.2					0.0	66.1	272.9	492.3	0.0	0.0
144.00	Top - Section 5	147.2	340.9					0.0	52.9	147.2	393.8	0.0	0.0
145.00		153.3	70.8					0.0	13.2	153.3	84.0	0.0	0.0
150.00		256.5	354.0					0.0	66.1	256.5	420.1	0.0	0.0
155.00	Appurtenance(s)	225.9	354.0	5,271.3	0.0	0.0	2,260.6	0.0	66.1	5,497.2	2,680.8	0.0	0.0
160.00		97.2	354.0					0.0	0.0	97.2	354.0	0.0	0.0
Totals:										24,051.6	27,817.7	0.00	0.00

Load Case: 0.9D + 1.0W

119 mph with No Ice (Reduced DL)

27 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.77	-23.87	0.00	-2,363.45	0.00	2,363.45	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.622
5.00	-26.68	-23.50	0.00	-2,244.10	0.00	2,244.10	3,869.00	973.63	4,099.11	3,709.95	0.11	-0.20	0.612
10.00	-25.60	-23.14	0.00	-2,126.59	0.00	2,126.59	3,812.27	952.47	3,922.86	3,575.45	0.43	-0.41	0.602
15.00	-24.55	-22.77	0.00	-2,010.90	0.00	2,010.90	3,754.32	931.30	3,750.48	3,442.23	0.97	-0.61	0.591
20.00	-23.51	-22.39	0.00	-1,897.03	0.00	1,897.03	3,695.16	910.14	3,581.98	3,310.34	1.72	-0.82	0.580
25.00	-22.50	-21.99	0.00	-1,785.07	0.00	1,785.07	3,634.78	888.98	3,417.35	3,179.89	2.69	-1.03	0.568
30.00	-21.51	-21.58	0.00	-1,675.10	0.00	1,675.10	3,573.18	867.81	3,256.59	3,050.92	3.89	-1.24	0.556
35.00	-19.93	-21.30	0.00	-1,567.20	0.00	1,567.20	3,510.36	846.65	3,099.70	2,923.54	5.30	-1.46	0.542
36.00	-19.60	-21.09	0.00	-1,545.90	0.00	1,545.90	2,784.37	713.98	2,645.12	2,350.45	5.61	-1.50	0.666
40.00	-18.92	-20.70	0.00	-1,461.56	0.00	1,461.56	2,748.65	699.87	2,541.62	2,274.10	6.95	-1.68	0.650
45.00	-18.09	-20.27	0.00	-1,358.05	0.00	1,358.05	2,702.91	682.23	2,415.15	2,179.46	8.83	-1.92	0.631
50.00	-17.28	-19.91	0.00	-1,256.70	0.00	1,256.70	2,655.95	664.60	2,291.91	2,085.80	10.98	-2.17	0.610
53.00	-16.81	-19.69	0.00	-1,196.98	0.00	1,196.98	2,627.19	654.01	2,219.51	2,030.10	12.39	-2.32	0.597
55.00	-16.30	-19.45	0.00	-1,157.60	0.00	1,157.60	2,607.78	646.96	2,171.89	1,993.18	13.38	-2.42	0.588
58.25	-15.51	-19.21	0.00	-1,094.39	0.00	1,094.39	1,919.69	516.23	1,728.46	1,465.89	15.08	-2.58	0.756
60.00	-15.25	-18.92	0.00	-1,060.78	0.00	1,060.78	1,909.04	511.29	1,695.55	1,443.71	16.05	-2.67	0.744
65.00	-14.59	-18.49	0.00	-966.16	0.00	966.16	1,877.79	497.18	1,603.27	1,380.63	19.00	-2.96	0.709
70.00	-13.94	-18.06	0.00	-873.70	0.00	873.70	1,845.32	483.07	1,513.57	1,317.98	22.25	-3.25	0.672
75.00	-13.32	-17.63	0.00	-783.41	0.00	783.41	1,811.64	468.96	1,426.45	1,255.86	25.80	-3.53	0.633
80.00	-12.71	-17.19	0.00	-695.28	0.00	695.28	1,776.74	454.85	1,341.92	1,194.34	29.64	-3.80	0.591
85.00	-12.14	-16.92	0.00	-609.30	0.00	609.30	1,740.62	440.74	1,259.97	1,133.49	33.76	-4.07	0.546
86.00	-10.55	-14.07	0.00	-592.38	0.00	592.38	1,733.25	437.92	1,243.89	1,121.41	34.62	-4.12	0.535
90.00	-10.11	-13.68	0.00	-536.12	0.00	536.12	1,703.29	426.63	1,180.60	1,073.39	38.16	-4.33	0.506
95.00	-9.59	-13.41	0.00	-467.71	0.00	467.71	1,664.74	412.52	1,103.81	1,014.12	42.82	-4.58	0.468
96.00	-7.61	-9.65	0.00	-454.30	0.00	454.30	1,656.88	409.70	1,088.76	1,002.37	43.79	-4.63	0.458
100.00	-7.21	-9.31	0.00	-415.69	0.00	415.69	1,624.97	398.41	1,029.60	955.76	47.74	-4.82	0.440
104.00	-6.85	-9.10	0.00	-378.46	0.00	378.46	1,592.28	387.13	972.10	909.77	51.86	-5.01	0.421
104.00	-6.85	-9.10	0.00	-378.46	0.00	378.46	950.95	285.28	642.72	624.60	51.86	-5.01	0.614
105.00	-6.74	-8.92	0.00	-369.36	0.00	369.36	950.95	285.28	642.72	624.60	52.91	-5.06	0.599
110.00	-6.21	-8.58	0.00	-324.78	0.00	324.78	950.95	285.28	642.72	624.60	58.31	-5.26	0.527
115.00	-5.69	-8.23	0.00	-281.89	0.00	281.89	950.95	285.28	642.72	624.60	63.91	-5.43	0.458
120.00	-5.18	-7.91	0.00	-240.74	0.00	240.74	950.95	285.28	642.72	624.60	69.67	-5.58	0.392
124.00	-4.77	-7.71	0.00	-209.12	0.00	209.12	950.95	285.28	642.72	624.60	74.38	-5.69	0.341
124.00	-4.77	-7.71	0.00	-209.12	0.00	209.12	876.73	263.02	546.31	539.02	74.38	-5.69	0.394
125.00	-4.67	-7.53	0.00	-201.40	0.00	201.40	876.73	263.02	546.31	539.02	75.58	-5.71	0.380
130.00	-4.20	-7.19	0.00	-163.74	0.00	163.74	876.73	263.02	546.31	539.02	81.62	-5.84	0.309
135.00	-3.73	-6.85	0.00	-127.77	0.00	127.77	876.73	263.02	546.31	539.02	87.79	-5.95	0.242
140.00	-3.26	-6.53	0.00	-93.51	0.00	93.51	876.73	263.02	546.31	539.02	94.06	-6.03	0.178
144.00	-2.88	-6.35	0.00	-67.39	0.00	67.39	876.73	263.02	546.31	539.02	99.12	-6.08	0.129
144.00	-2.88	-6.35	0.00	-67.39	0.00	67.39	728.28	218.49	376.97	379.17	99.12	-6.08	0.183
145.00	-2.81	-6.19	0.00	-61.04	0.00	61.04	728.28	218.49	376.97	379.17	100.39	-6.09	0.166
150.00	-2.42	-5.89	0.00	-30.11	0.00	30.11	728.28	218.49	376.97	379.17	106.79	-6.15	0.083
155.00	-0.34	-0.13	0.00	-0.67	0.00	0.67	728.28	218.49	376.97	379.17	113.23	-6.17	0.002

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:07 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 0.9D + 1.0W

119 mph with No Ice (Reduced DL)

27 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

160.00 0.00 -0.10 0.00 0.00 0.00 0.00 0.00 728.28 218.49 376.97 379.17 119.68 -6.17 0.000

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 1.50 in Radial Ice	27 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		70.6	0.0					0.0	0.0	70.6	0.0	0.0	0.0
5.00		140.1	1,494.5					0.0	206.3	140.1	1,700.8	0.0	0.0
10.00		137.8	1,503.3					0.0	206.3	137.8	1,709.7	0.0	0.0
15.00		137.4	1,490.7					0.0	206.3	137.4	1,697.0	0.0	0.0
20.00		140.5	1,471.1					0.0	206.3	140.5	1,677.4	0.0	0.0
25.00		144.3	1,447.8					0.0	206.3	144.3	1,654.1	0.0	0.0
30.00	Bot - Section 2	147.9	1,422.2					0.0	206.3	147.9	1,628.5	0.0	0.0
35.00		90.1	2,245.9					0.0	206.3	90.1	2,452.2	0.0	0.0
36.00	Top - Section 1	75.6	444.1					0.0	41.3	75.6	485.4	0.0	0.0
40.00		136.4	978.4					0.0	165.1	136.4	1,143.4	0.0	0.0
45.00		151.8	1,199.4					0.0	206.3	151.8	1,405.7	0.0	0.0
50.00	Appurtenance(s)	121.4	1,173.6	3.2	0.0	0.0	16.1	0.0	206.3	124.6	1,396.1	0.0	0.0
53.00	Bot - Section 3	76.1	692.7					0.0	123.8	76.1	816.5	0.0	0.0
55.00		80.3	704.6					0.0	82.5	80.3	787.2	0.0	0.0
58.25	Top - Section 2	76.3	1,129.4					0.0	134.1	76.3	1,263.6	0.0	0.0
60.00		102.4	343.6					0.0	72.2	102.4	415.8	0.0	0.0
65.00		150.8	962.6					0.0	206.3	150.8	1,169.0	0.0	0.0
70.00		149.3	939.0					0.0	206.3	149.3	1,145.3	0.0	0.0
75.00		147.6	915.0					0.0	206.3	147.6	1,121.4	0.0	0.0
80.00		145.6	890.8					0.0	206.3	145.6	1,097.1	0.0	0.0
85.00		86.6	866.3					0.0	206.3	86.6	1,072.6	0.0	0.0
86.00	Appurtenance(s)	71.1	171.1	697.5	0.0	0.0	3,881.3	0.0	41.3	768.7	4,093.7	0.0	0.0
90.00		126.7	672.0					0.0	153.8	126.7	825.9	0.0	0.0
95.00		83.7	816.5					0.0	192.3	83.7	1,008.8	0.0	0.0
96.00	Appurtenance(s)	68.6	161.1	917.4	0.0	0.0	5,119.1	0.0	38.5	986.0	5,318.6	0.0	0.0
100.00		108.6	631.8					0.0	153.8	108.6	785.7	0.0	0.0
104.00	Top - Section 3	66.2	615.6					0.0	112.2	66.2	727.8	0.0	0.0
105.00		74.3	180.2					0.0	17.6	74.3	197.8	0.0	0.0
110.00		124.7	901.7					0.0	88.1	124.7	989.9	0.0	0.0
115.00		125.9	903.1					0.0	88.1	125.9	991.2	0.0	0.0
120.00		114.3	904.4					0.0	88.1	114.3	992.6	0.0	0.0
124.00	Top - Section 4	63.0	724.5					0.0	70.5	63.0	795.0	0.0	0.0
125.00		72.0	167.4					0.0	17.6	72.0	185.1	0.0	0.0
130.00		120.6	837.9					0.0	88.1	120.6	926.0	0.0	0.0
135.00		121.6	839.0					0.0	88.1	121.6	927.1	0.0	0.0
140.00		110.3	840.0					0.0	88.1	110.3	928.2	0.0	0.0
144.00	Top - Section 5	59.7	672.8					0.0	70.5	59.7	743.3	0.0	0.0
145.00		63.5	140.6					0.0	17.6	63.5	158.2	0.0	0.0
150.00		106.4	703.3					0.0	88.1	106.4	791.5	0.0	0.0
155.00	Appurtenance(s)	102.7	704.2	1,330.6	0.0	0.0	6,389.1	0.0	88.1	1,433.3	7,181.4	0.0	0.0
160.00		49.3	705.0					0.0	0.0	49.3	705.0	0.0	0.0
Totals:										7,290.78	55,111.4	0.00	0.00

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:08 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.50 in Radial Ice

27 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.11	-7.25	0.00	-747.96	0.00	747.96	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.209
5.00	-53.40	-7.17	0.00	-711.70	0.00	711.70	3,869.00	973.63	4,099.11	3,709.95	0.03	-0.06	0.206
10.00	-51.68	-7.09	0.00	-675.85	0.00	675.85	3,812.27	952.47	3,922.86	3,575.45	0.14	-0.13	0.203
15.00	-49.98	-7.00	0.00	-640.41	0.00	640.41	3,754.32	931.30	3,750.48	3,442.23	0.31	-0.19	0.199
20.00	-48.29	-6.91	0.00	-605.40	0.00	605.40	3,695.16	910.14	3,581.98	3,310.34	0.55	-0.26	0.196
25.00	-46.63	-6.82	0.00	-570.83	0.00	570.83	3,634.78	888.98	3,417.35	3,179.89	0.85	-0.33	0.192
30.00	-44.99	-6.71	0.00	-536.76	0.00	536.76	3,573.18	867.81	3,256.59	3,050.92	1.23	-0.40	0.189
35.00	-42.54	-6.63	0.00	-503.20	0.00	503.20	3,510.36	846.65	3,099.70	2,923.54	1.69	-0.46	0.184
36.00	-42.05	-6.58	0.00	-496.57	0.00	496.57	2,784.37	713.98	2,645.12	2,350.45	1.79	-0.48	0.226
40.00	-40.90	-6.48	0.00	-470.26	0.00	470.26	2,748.65	699.87	2,541.62	2,274.10	2.21	-0.53	0.222
45.00	-39.49	-6.37	0.00	-437.85	0.00	437.85	2,702.91	682.23	2,415.15	2,179.46	2.81	-0.61	0.216
50.00	-38.09	-6.27	0.00	-406.01	0.00	406.01	2,655.95	664.60	2,291.91	2,085.80	3.50	-0.69	0.209
53.00	-37.27	-6.21	0.00	-387.19	0.00	387.19	2,627.19	654.01	2,219.51	2,030.10	3.95	-0.74	0.205
55.00	-36.47	-6.15	0.00	-374.77	0.00	374.77	2,607.78	646.96	2,171.89	1,993.18	4.27	-0.77	0.202
58.25	-35.21	-6.08	0.00	-354.79	0.00	354.79	1,919.69	516.23	1,728.46	1,465.89	4.81	-0.83	0.261
60.00	-34.79	-6.01	0.00	-344.15	0.00	344.15	1,909.04	511.29	1,695.55	1,443.71	5.12	-0.86	0.257
65.00	-33.61	-5.89	0.00	-314.11	0.00	314.11	1,877.79	497.18	1,603.27	1,380.63	6.07	-0.95	0.246
70.00	-32.46	-5.78	0.00	-284.65	0.00	284.65	1,845.32	483.07	1,513.57	1,317.98	7.11	-1.04	0.234
75.00	-31.33	-5.66	0.00	-255.76	0.00	255.76	1,811.64	468.96	1,426.45	1,255.86	8.26	-1.14	0.221
80.00	-30.23	-5.54	0.00	-227.47	0.00	227.47	1,776.74	454.85	1,341.92	1,194.34	9.49	-1.22	0.208
85.00	-29.15	-5.45	0.00	-199.79	0.00	199.79	1,740.62	440.74	1,259.97	1,133.49	10.82	-1.31	0.193
86.00	-25.08	-4.61	0.00	-194.34	0.00	194.34	1,733.25	437.92	1,243.89	1,121.41	11.10	-1.33	0.188
90.00	-24.25	-4.49	0.00	-175.91	0.00	175.91	1,703.29	426.63	1,180.60	1,073.39	12.24	-1.40	0.178
95.00	-23.24	-4.40	0.00	-153.44	0.00	153.44	1,664.74	412.52	1,103.81	1,014.12	13.75	-1.48	0.165
96.00	-17.94	-3.29	0.00	-149.04	0.00	149.04	1,656.88	409.70	1,088.76	1,002.37	14.06	-1.49	0.160
100.00	-17.16	-3.18	0.00	-135.86	0.00	135.86	1,624.97	398.41	1,029.60	955.76	15.34	-1.56	0.153
104.00	-16.43	-3.11	0.00	-123.14	0.00	123.14	1,592.28	387.13	972.10	909.77	16.67	-1.62	0.146
104.00	-16.43	-3.11	0.00	-123.14	0.00	123.14	950.95	285.28	642.72	624.60	16.67	-1.62	0.215
105.00	-16.23	-3.04	0.00	-120.03	0.00	120.03	950.95	285.28	642.72	624.60	17.02	-1.64	0.209
110.00	-15.24	-2.90	0.00	-104.84	0.00	104.84	950.95	285.28	642.72	624.60	18.77	-1.70	0.184
115.00	-14.25	-2.76	0.00	-90.33	0.00	90.33	950.95	285.28	642.72	624.60	20.58	-1.76	0.160
120.00	-13.26	-2.62	0.00	-76.54	0.00	76.54	950.95	285.28	642.72	624.60	22.44	-1.81	0.137
124.00	-12.47	-2.54	0.00	-66.05	0.00	66.05	950.95	285.28	642.72	624.60	23.97	-1.84	0.119
124.00	-12.47	-2.54	0.00	-66.05	0.00	66.05	876.73	263.02	546.31	539.02	23.97	-1.84	0.137
125.00	-12.29	-2.47	0.00	-63.51	0.00	63.51	876.73	263.02	546.31	539.02	24.36	-1.85	0.132
130.00	-11.36	-2.32	0.00	-51.18	0.00	51.18	876.73	263.02	546.31	539.02	26.31	-1.89	0.108
135.00	-10.44	-2.18	0.00	-39.56	0.00	39.56	876.73	263.02	546.31	539.02	28.31	-1.92	0.085
140.00	-9.52	-2.04	0.00	-28.68	0.00	28.68	876.73	263.02	546.31	539.02	30.33	-1.95	0.064
144.00	-8.77	-1.95	0.00	-20.53	0.00	20.53	876.73	263.02	546.31	539.02	31.97	-1.96	0.048
144.00	-8.77	-1.95	0.00	-20.53	0.00	20.53	728.28	218.49	376.97	379.17	31.97	-1.96	0.066
145.00	-8.62	-1.89	0.00	-18.58	0.00	18.58	728.28	218.49	376.97	379.17	32.38	-1.96	0.061
150.00	-7.83	-1.75	0.00	-9.14	0.00	9.14	728.28	218.49	376.97	379.17	34.45	-1.98	0.035
155.00	-0.70	-0.07	0.00	-0.37	0.00	0.37	728.28	218.49	376.97	379.17	36.52	-1.99	0.002

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:09 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.50 in Radial Ice

27 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

160.00 0.00 -0.05 0.00 0.00 0.00 0.00 0.00 728.28 218.49 376.97 379.17 38.60 -1.99 0.000

Load Case: 1.0D + 1.0W	Serviceability 60 mph	26 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		52.8	0.0					0.0	0.0	52.8	0.0	0.0	0.0
5.00		104.4	954.1					0.0	172.0	104.4	1,126.1	0.0	0.0
10.00		102.2	933.6					0.0	172.0	102.2	1,105.6	0.0	0.0
15.00		101.5	913.1					0.0	172.0	101.5	1,085.1	0.0	0.0
20.00		103.5	892.6					0.0	172.0	103.5	1,064.5	0.0	0.0
25.00		106.0	872.1					0.0	172.0	106.0	1,044.0	0.0	0.0
30.00	Bot - Section 2	108.4	851.6					0.0	172.0	108.4	1,023.5	0.0	0.0
35.00		65.9	1,535.2					0.0	172.0	65.9	1,707.1	0.0	0.0
36.00	Top - Section 1	55.2	302.5					0.0	34.4	55.2	336.9	0.0	0.0
40.00		99.5	548.3					0.0	137.6	99.5	685.8	0.0	0.0
45.00		110.5	669.9					0.0	172.0	110.5	841.9	0.0	0.0
50.00	Appurtenance(s)	88.2	652.8	1.3	0.0	0.0	10.0	0.0	172.0	89.5	834.8	0.0	0.0
53.00	Bot - Section 3	55.2	383.5					0.0	103.2	55.2	486.7	0.0	0.0
55.00		58.1	457.1					0.0	68.8	58.1	525.9	0.0	0.0
58.25	Top - Section 2	55.2	732.3					0.0	111.8	55.2	844.0	0.0	0.0
60.00		73.9	174.3					0.0	60.2	73.9	234.5	0.0	0.0
65.00		108.7	488.8					0.0	172.0	108.7	660.8	0.0	0.0
70.00		107.3	475.2					0.0	172.0	107.3	647.1	0.0	0.0
75.00		105.7	461.5					0.0	172.0	105.7	633.4	0.0	0.0
80.00		103.9	447.8					0.0	172.0	103.9	619.7	0.0	0.0
85.00		61.7	434.1					0.0	172.0	61.7	606.1	0.0	0.0
86.00	Appurtenance(s)	50.5	85.2	577.1	0.0	0.0	1,832.1	0.0	34.4	627.6	1,951.7	0.0	0.0
90.00		89.8	335.3					0.0	128.2	89.8	463.5	0.0	0.0
95.00		59.2	406.8					0.0	160.3	59.2	567.0	0.0	0.0
96.00	Appurtenance(s)	48.3	79.7	771.2	0.0	0.0	2,393.0	0.0	32.1	819.6	2,504.8	0.0	0.0
100.00		76.4	313.4					0.0	128.2	76.4	441.6	0.0	0.0
104.00	Top - Section 3	44.9	304.6					0.0	93.5	44.9	398.1	0.0	0.0
105.00		42.4	102.7					0.0	14.7	42.4	117.4	0.0	0.0
110.00		71.1	513.6					0.0	73.4	71.1	587.1	0.0	0.0
115.00		71.7	513.6					0.0	73.4	71.7	587.1	0.0	0.0
120.00		65.1	513.6					0.0	73.4	65.1	587.1	0.0	0.0
124.00	Top - Section 4	35.8	410.9					0.0	58.8	35.8	469.7	0.0	0.0
125.00		40.6	94.7					0.0	14.7	40.6	109.4	0.0	0.0
130.00		67.9	473.5					0.0	73.4	67.9	547.0	0.0	0.0
135.00		68.5	473.5					0.0	73.4	68.5	547.0	0.0	0.0
140.00		62.1	473.5					0.0	73.4	62.1	547.0	0.0	0.0
144.00	Top - Section 5	33.5	378.8					0.0	58.8	33.5	437.6	0.0	0.0
145.00		34.9	78.7					0.0	14.7	34.9	93.4	0.0	0.0
150.00		58.4	393.4					0.0	73.4	58.4	466.8	0.0	0.0
155.00	Appurtenance(s)	51.4	393.4	1,199.0	0.0	0.0	2,511.8	0.0	73.4	1,250.4	2,978.6	0.0	0.0
160.00		22.1	393.4					0.0	0.0	22.1	393.4	0.0	0.0
Totals:										5,470.78	30,908.5	0.00	0.00

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:10 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 1.0D + 1.0W

Serviceability 60 mph

26 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.91	-5.43	0.00	-540.82	0.00	540.82	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.149
5.00	-29.78	-5.35	0.00	-513.67	0.00	513.67	3,869.00	973.63	4,099.11	3,709.95	0.02	-0.05	0.146
10.00	-28.67	-5.27	0.00	-486.92	0.00	486.92	3,812.27	952.47	3,922.86	3,575.45	0.10	-0.09	0.144
15.00	-27.58	-5.19	0.00	-460.57	0.00	460.57	3,754.32	931.30	3,750.48	3,442.23	0.22	-0.14	0.141
20.00	-26.51	-5.10	0.00	-434.63	0.00	434.63	3,695.16	910.14	3,581.98	3,310.34	0.39	-0.19	0.139
25.00	-25.46	-5.02	0.00	-409.11	0.00	409.11	3,634.78	888.98	3,417.35	3,179.89	0.62	-0.24	0.136
30.00	-24.43	-4.92	0.00	-384.03	0.00	384.03	3,573.18	867.81	3,256.59	3,050.92	0.89	-0.28	0.133
35.00	-22.72	-4.86	0.00	-359.42	0.00	359.42	3,510.36	846.65	3,099.70	2,923.54	1.21	-0.33	0.129
36.00	-22.39	-4.81	0.00	-354.56	0.00	354.56	2,784.37	713.98	2,645.12	2,350.45	1.29	-0.34	0.159
40.00	-21.70	-4.73	0.00	-335.31	0.00	335.31	2,748.65	699.87	2,541.62	2,274.10	1.59	-0.38	0.155
45.00	-20.85	-4.63	0.00	-311.67	0.00	311.67	2,702.91	682.23	2,415.15	2,179.46	2.02	-0.44	0.151
50.00	-20.01	-4.55	0.00	-288.52	0.00	288.52	2,655.95	664.60	2,291.91	2,085.80	2.51	-0.50	0.146
53.00	-19.52	-4.50	0.00	-274.87	0.00	274.87	2,627.19	654.01	2,219.51	2,030.10	2.84	-0.53	0.143
55.00	-19.00	-4.45	0.00	-265.86	0.00	265.86	2,607.78	646.96	2,171.89	1,993.18	3.07	-0.55	0.141
58.25	-18.15	-4.39	0.00	-251.41	0.00	251.41	1,919.69	516.23	1,728.46	1,465.89	3.46	-0.59	0.181
60.00	-17.91	-4.33	0.00	-243.72	0.00	243.72	1,909.04	511.29	1,695.55	1,443.71	3.68	-0.61	0.178
65.00	-17.25	-4.23	0.00	-222.07	0.00	222.07	1,877.79	497.18	1,603.27	1,380.63	4.35	-0.68	0.170
70.00	-16.60	-4.14	0.00	-200.90	0.00	200.90	1,845.32	483.07	1,513.57	1,317.98	5.10	-0.74	0.161
75.00	-15.96	-4.04	0.00	-180.20	0.00	180.20	1,811.64	468.96	1,426.45	1,255.86	5.92	-0.81	0.152
80.00	-15.34	-3.95	0.00	-160.00	0.00	160.00	1,776.74	454.85	1,341.92	1,194.34	6.80	-0.87	0.143
85.00	-14.73	-3.88	0.00	-140.27	0.00	140.27	1,740.62	440.74	1,259.97	1,133.49	7.74	-0.93	0.132
86.00	-12.79	-3.23	0.00	-136.39	0.00	136.39	1,733.25	437.92	1,243.89	1,121.41	7.94	-0.95	0.129
90.00	-12.33	-3.14	0.00	-123.46	0.00	123.46	1,703.29	426.63	1,180.60	1,073.39	8.75	-0.99	0.122
95.00	-11.76	-3.08	0.00	-107.74	0.00	107.74	1,664.74	412.52	1,103.81	1,014.12	9.83	-1.05	0.113
96.00	-9.27	-2.22	0.00	-104.66	0.00	104.66	1,656.88	409.70	1,088.76	1,002.37	10.05	-1.06	0.110
100.00	-8.83	-2.14	0.00	-95.78	0.00	95.78	1,624.97	398.41	1,029.60	955.76	10.96	-1.11	0.106
104.00	-8.43	-2.09	0.00	-87.20	0.00	87.20	1,592.28	387.13	972.10	909.77	11.90	-1.15	0.101
104.00	-8.43	-2.09	0.00	-87.20	0.00	87.20	950.95	285.28	642.72	624.60	11.90	-1.15	0.149
105.00	-8.31	-2.05	0.00	-85.11	0.00	85.11	950.95	285.28	642.72	624.60	12.14	-1.16	0.145
110.00	-7.72	-1.98	0.00	-74.84	0.00	74.84	950.95	285.28	642.72	624.60	13.39	-1.21	0.128
115.00	-7.14	-1.90	0.00	-64.96	0.00	64.96	950.95	285.28	642.72	624.60	14.67	-1.25	0.112
120.00	-6.55	-1.82	0.00	-55.47	0.00	55.47	950.95	285.28	642.72	624.60	16.00	-1.28	0.096
124.00	-6.08	-1.78	0.00	-48.18	0.00	48.18	950.95	285.28	642.72	624.60	17.09	-1.31	0.084
124.00	-6.08	-1.78	0.00	-48.18	0.00	48.18	876.73	263.02	546.31	539.02	17.09	-1.31	0.096
125.00	-5.97	-1.74	0.00	-46.41	0.00	46.41	876.73	263.02	546.31	539.02	17.36	-1.31	0.093
130.00	-5.43	-1.66	0.00	-37.72	0.00	37.72	876.73	263.02	546.31	539.02	18.75	-1.34	0.076
135.00	-4.88	-1.58	0.00	-29.43	0.00	29.43	876.73	263.02	546.31	539.02	20.17	-1.37	0.060
140.00	-4.33	-1.50	0.00	-21.54	0.00	21.54	876.73	263.02	546.31	539.02	21.61	-1.39	0.045
144.00	-3.90	-1.46	0.00	-15.52	0.00	15.52	876.73	263.02	546.31	539.02	22.78	-1.40	0.033
144.00	-3.90	-1.46	0.00	-15.52	0.00	15.52	728.28	218.49	376.97	379.17	22.78	-1.40	0.046
145.00	-3.80	-1.42	0.00	-14.06	0.00	14.06	728.28	218.49	376.97	379.17	23.07	-1.40	0.042
150.00	-3.34	-1.36	0.00	-6.94	0.00	6.94	728.28	218.49	376.97	379.17	24.55	-1.41	0.023
155.00	-0.39	-0.03	0.00	-0.16	0.00	0.16	728.28	218.49	376.97	379.17	26.03	-1.42	0.001

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:10 PM

Customer: DISH WIRELESS L.L.C.

Load Case: 1.0D + 1.0W

Serviceability 60 mph

26 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

160.00 0.00 -0.02 0.00 0.00 0.00 0.00 0.00 728.28 218.49 376.97 379.17 27.51 -1.42 0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.63
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	30.91 k
Seismic Base Shear (E):	0.93 k

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	157.50	393	9,758	0.039	36	487
39	152.50	467	10,856	0.044	40	578
38	147.50	467	10,156	0.041	38	578
37	144.50	93	1,949	0.008	7	116
36	142.00	438	8,824	0.035	33	542
35	137.50	547	10,342	0.042	39	678
34	132.50	547	9,603	0.039	36	678
33	127.50	547	8,892	0.036	33	678
32	124.50	109	1,696	0.007	6	136
31	122.00	470	6,990	0.028	26	582
30	117.50	587	8,105	0.033	30	727
29	112.50	587	7,430	0.030	28	727
28	107.50	587	6,784	0.027	25	727
27	104.50	117	1,282	0.005	5	145
26	102.00	398	4,142	0.017	15	493
25	98.00	442	4,241	0.017	16	547
24	95.50	112	1,019	0.004	4	138
23	92.50	567	4,851	0.019	18	703
22	88.00	463	3,589	0.014	13	574
21	85.50	120	874	0.004	3	148
20	82.50	606	4,125	0.017	15	751
19	77.50	620	3,722	0.015	14	768
18	72.50	633	3,329	0.013	12	785
17	67.50	647	2,948	0.012	11	802
16	62.50	661	2,581	0.010	10	819

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:10 PM

Customer: DISH WIRELESS L.L.C.

15	59.13	235	820	0.003	3	291
14	56.63	844	2,706	0.011	10	1,046
13	54.00	526	1,533	0.006	6	652
12	51.50	487	1,291	0.005	5	603
11	47.50	825	1,861	0.007	7	1,022
10	42.50	842	1,521	0.006	6	1,043
9	38.00	686	990	0.004	4	850
8	35.50	337	425	0.002	2	417
7	32.50	1,707	1,803	0.007	7	2,115
6	27.50	1,024	774	0.003	3	1,268
5	22.50	1,044	529	0.002	2	1,294
4	17.50	1,065	326	0.001	1	1,319
3	12.50	1,085	170	0.001	1	1,344
2	7.50	1,106	62	0.000	0	1,370
1	2.50	1,126	7	0.000	0	1,395
Ericsson RRUS 8843 B	155.00	216	5,189	0.021	19	268
Ericsson RRUS 4415 B	155.00	138	3,315	0.013	12	171
Ericsson RRUS 4449 B	155.00	213	5,117	0.021	19	264
Ericsson RRUS 4478 B	155.00	178	4,281	0.017	16	221
Raycap DC6-48-60-18-	155.00	16	384	0.002	1	20
Raycap DC9-48-60-24-	155.00	16	384	0.002	1	20
CCI DMP65R-BU8D	155.00	287	6,898	0.028	26	356
Generic Flat Light S	155.00	1,200	28,830	0.116	107	1,487
CCI TPA65R-BU8D	155.00	248	5,946	0.024	22	307
Alcatel-Lucent RRH2x	96.00	150	1,382	0.006	5	186
Alcatel-Lucent RRH2x	96.00	132	1,217	0.005	5	164
Antel BXA-171063/12C	96.00	90	829	0.003	3	112
RFS DB-T1-6Z-8AB-0Z	96.00	44	406	0.002	2	55
Antel BXA-70063/6CF_	96.00	102	940	0.004	4	126
Generic Round Low Pr	96.00	1,875	17,280	0.069	64	2,323
Commscope RDIDC-9181	86.00	22	162	0.001	1	27
Fujitsu TA08025-B605	86.00	225	1,664	0.007	6	279
Fujitsu TA08025-B604	86.00	192	1,418	0.006	5	238
JMA Wireless MX08FRO	86.00	193	1,431	0.006	5	240
Generic Flat Light S	86.00	1,200	8,875	0.036	33	1,487
Generic 2" x 8" GPS	50.00	10	25	0.000	0	12
		30,909	248,884	1.000	927	38,297

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
40	157.50	393	9,758	0.039	36	339
39	152.50	467	10,856	0.044	40	402
38	147.50	467	10,156	0.041	38	402
37	144.50	93	1,949	0.008	7	80
36	142.00	438	8,824	0.035	33	377
35	137.50	547	10,342	0.042	39	471
34	132.50	547	9,603	0.039	36	471
33	127.50	547	8,892	0.036	33	471
32	124.50	109	1,696	0.007	6	94
31	122.00	470	6,990	0.028	26	404
30	117.50	587	8,105	0.033	30	505
29	112.50	587	7,430	0.030	28	505
28	107.50	587	6,784	0.027	25	505
27	104.50	117	1,282	0.005	5	101
26	102.00	398	4,142	0.017	15	343
25	98.00	442	4,241	0.017	16	380
24	95.50	112	1,019	0.004	4	96
23	92.50	567	4,851	0.019	18	488
22	88.00	463	3,589	0.014	13	399

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

7/29/2021 3:32:10 PM

Customer: DISH WIRELESS L.L.C.

21	85.50	120	874	0.004	3	103
20	82.50	606	4,125	0.017	15	522
19	77.50	620	3,722	0.015	14	534
18	72.50	633	3,329	0.013	12	545
17	67.50	647	2,948	0.012	11	557
16	62.50	661	2,581	0.010	10	569
15	59.13	235	820	0.003	3	202
14	56.63	844	2,706	0.011	10	727
13	54.00	526	1,533	0.006	6	453
12	51.50	487	1,291	0.005	5	419
11	47.50	825	1,861	0.007	7	710
10	42.50	842	1,521	0.006	6	725
9	38.00	686	990	0.004	4	590
8	35.50	337	425	0.002	2	290
7	32.50	1,707	1,803	0.007	7	1,470
6	27.50	1,024	774	0.003	3	881
5	22.50	1,044	529	0.002	2	899
4	17.50	1,065	326	0.001	1	917
3	12.50	1,085	170	0.001	1	934
2	7.50	1,106	62	0.000	0	952
1	2.50	1,126	7	0.000	0	970
Ericsson RRUS 8843 B	155.00	216	5,189	0.021	19	186
Ericsson RRUS 4415 B	155.00	138	3,315	0.013	12	119
Ericsson RRUS 4449 B	155.00	213	5,117	0.021	19	183
Ericsson RRUS 4478 B	155.00	178	4,281	0.017	16	153
Raycap DC6-48-60-18-	155.00	16	384	0.002	1	14
Raycap DC9-48-60-24-	155.00	16	384	0.002	1	14
CCI DMP65R-BU8D	155.00	287	6,898	0.028	26	247
Generic Flat Light S	155.00	1,200	28,830	0.116	107	1,033
CCI TPA65R-BU8D	155.00	248	5,946	0.024	22	213
Alcatel-Lucent RRH2x	96.00	150	1,382	0.006	5	129
Alcatel-Lucent RRH2x	96.00	132	1,217	0.005	5	114
Antel BXA-171063/12C	96.00	90	829	0.003	3	77
RFS DB-T1-6Z-8AB-0Z	96.00	44	406	0.002	2	38
Antel BXA-70063/6CF_	96.00	102	940	0.004	4	88
Generic Round Low Pr	96.00	1,875	17,280	0.069	64	1,614
Commscope RDIDC-9181	86.00	22	162	0.001	1	19
Fujitsu TA08025-B605	86.00	225	1,664	0.007	6	194
Fujitsu TA08025-B604	86.00	192	1,418	0.006	5	165
JMA Wireless MX08FRO	86.00	193	1,431	0.006	5	167
Generic Flat Light S	86.00	1,200	8,875	0.036	33	1,033
Generic 2" x 8" GPS	50.00	10	25	0.000	0	9
		30,909	248,884	1.000	927	26,611

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.90	-0.93	0.00	-117.04	0.00	117.04	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.040
5.00	-35.53	-0.94	0.00	-112.39	0.00	112.39	3,869.00	973.63	4,099.11	3,709.95	0.01	-0.01	0.039
10.00	-34.19	-0.94	0.00	-107.72	0.00	107.72	3,812.27	952.47	3,922.86	3,575.45	0.02	-0.02	0.039
15.00	-32.87	-0.94	0.00	-103.01	0.00	103.01	3,754.32	931.30	3,750.48	3,442.23	0.05	-0.03	0.039
20.00	-31.57	-0.95	0.00	-98.29	0.00	98.29	3,695.16	910.14	3,581.98	3,310.34	0.09	-0.04	0.038
25.00	-30.31	-0.95	0.00	-93.55	0.00	93.55	3,634.78	888.98	3,417.35	3,179.89	0.14	-0.05	0.038
30.00	-28.19	-0.95	0.00	-88.80	0.00	88.80	3,573.18	867.81	3,256.59	3,050.92	0.20	-0.06	0.037
35.00	-27.77	-0.95	0.00	-84.07	0.00	84.07	3,510.36	846.65	3,099.70	2,923.54	0.27	-0.08	0.037
36.00	-26.92	-0.95	0.00	-83.12	0.00	83.12	2,784.37	713.98	2,645.12	2,350.45	0.29	-0.08	0.045
40.00	-25.88	-0.94	0.00	-79.34	0.00	79.34	2,748.65	699.87	2,541.62	2,274.10	0.35	-0.09	0.044
45.00	-24.86	-0.94	0.00	-74.62	0.00	74.62	2,702.91	682.23	2,415.15	2,179.46	0.45	-0.10	0.043
50.00	-24.24	-0.94	0.00	-69.92	0.00	69.92	2,655.95	664.60	2,291.91	2,085.80	0.57	-0.11	0.043
53.00	-23.59	-0.94	0.00	-67.10	0.00	67.10	2,627.19	654.01	2,219.51	2,030.10	0.64	-0.12	0.042
55.00	-22.54	-0.93	0.00	-65.23	0.00	65.23	2,607.78	646.96	2,171.89	1,993.18	0.69	-0.13	0.041
58.25	-22.25	-0.93	0.00	-62.22	0.00	62.22	1,919.69	516.23	1,728.46	1,465.89	0.78	-0.14	0.054
60.00	-21.43	-0.92	0.00	-60.60	0.00	60.60	1,909.04	511.29	1,695.55	1,443.71	0.83	-0.14	0.053
65.00	-20.63	-0.91	0.00	-56.01	0.00	56.01	1,877.79	497.18	1,603.27	1,380.63	0.99	-0.16	0.052
70.00	-19.85	-0.90	0.00	-51.46	0.00	51.46	1,845.32	483.07	1,513.57	1,317.98	1.17	-0.18	0.050
75.00	-19.08	-0.89	0.00	-46.95	0.00	46.95	1,811.64	468.96	1,426.45	1,255.86	1.36	-0.19	0.048
80.00	-18.33	-0.88	0.00	-42.50	0.00	42.50	1,776.74	454.85	1,341.92	1,194.34	1.57	-0.21	0.046
85.00	-18.18	-0.88	0.00	-38.10	0.00	38.10	1,740.62	440.74	1,259.97	1,133.49	1.80	-0.23	0.044
86.00	-15.34	-0.80	0.00	-37.23	0.00	37.23	1,733.25	437.92	1,243.89	1,121.41	1.85	-0.23	0.042
90.00	-14.63	-0.79	0.00	-34.01	0.00	34.01	1,703.29	426.63	1,180.60	1,073.39	2.04	-0.24	0.040
95.00	-14.49	-0.79	0.00	-30.07	0.00	30.07	1,664.74	412.52	1,103.81	1,014.12	2.30	-0.26	0.038
96.00	-10.98	-0.67	0.00	-29.29	0.00	29.29	1,656.88	409.70	1,088.76	1,002.37	2.36	-0.26	0.036
100.00	-10.49	-0.66	0.00	-26.60	0.00	26.60	1,624.97	398.41	1,029.60	955.76	2.58	-0.27	0.034
104.00	-10.34	-0.65	0.00	-23.96	0.00	23.96	1,592.28	387.13	972.10	909.77	2.82	-0.29	0.033
104.00	-10.34	-0.65	0.00	-23.96	0.00	23.96	950.95	285.28	642.72	624.60	2.82	-0.29	0.049
105.00	-9.62	-0.63	0.00	-23.31	0.00	23.31	950.95	285.28	642.72	624.60	2.88	-0.29	0.047
110.00	-8.89	-0.60	0.00	-20.18	0.00	20.18	950.95	285.28	642.72	624.60	3.19	-0.30	0.042
115.00	-8.16	-0.56	0.00	-17.20	0.00	17.20	950.95	285.28	642.72	624.60	3.51	-0.31	0.036
120.00	-7.58	-0.54	0.00	-14.38	0.00	14.38	950.95	285.28	642.72	624.60	3.84	-0.32	0.031
124.00	-7.44	-0.53	0.00	-12.24	0.00	12.24	950.95	285.28	642.72	624.60	4.11	-0.33	0.027
124.00	-7.44	-0.53	0.00	-12.24	0.00	12.24	876.73	263.02	546.31	539.02	4.11	-0.33	0.031
125.00	-6.77	-0.49	0.00	-11.71	0.00	11.71	876.73	263.02	546.31	539.02	4.18	-0.33	0.029
130.00	-6.09	-0.45	0.00	-9.25	0.00	9.25	876.73	263.02	546.31	539.02	4.53	-0.34	0.024
135.00	-5.41	-0.41	0.00	-6.98	0.00	6.98	876.73	263.02	546.31	539.02	4.88	-0.34	0.019
140.00	-4.87	-0.38	0.00	-4.92	0.00	4.92	876.73	263.02	546.31	539.02	5.24	-0.35	0.015
144.00	-4.75	-0.37	0.00	-3.42	0.00	3.42	876.73	263.02	546.31	539.02	5.53	-0.35	0.012
144.00	-4.75	-0.37	0.00	-3.42	0.00	3.42	728.28	218.49	376.97	379.17	5.53	-0.35	0.016
145.00	-4.18	-0.33	0.00	-3.05	0.00	3.05	728.28	218.49	376.97	379.17	5.61	-0.35	0.014
150.00	-3.60	-0.28	0.00	-1.42	0.00	1.42	728.28	218.49	376.97	379.17	5.97	-0.35	0.009
155.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.34	-0.35	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.71	-0.35	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.64	-0.93	0.00	-114.98	0.00	114.98	3,924.52	994.80	4,279.24	3,845.64	0.00	0.00	0.036
5.00	-24.69	-0.93	0.00	-110.34	0.00	110.34	3,869.00	973.63	4,099.11	3,709.95	0.01	-0.01	0.036
10.00	-23.76	-0.94	0.00	-105.68	0.00	105.68	3,812.27	952.47	3,922.86	3,575.45	0.02	-0.02	0.036
15.00	-22.84	-0.94	0.00	-101.00	0.00	101.00	3,754.32	931.30	3,750.48	3,442.23	0.05	-0.03	0.035
20.00	-21.94	-0.94	0.00	-96.31	0.00	96.31	3,695.16	910.14	3,581.98	3,310.34	0.08	-0.04	0.035
25.00	-21.06	-0.94	0.00	-91.61	0.00	91.61	3,634.78	888.98	3,417.35	3,179.89	0.13	-0.05	0.035
30.00	-19.59	-0.94	0.00	-86.91	0.00	86.91	3,573.18	867.81	3,256.59	3,050.92	0.19	-0.06	0.034
35.00	-19.30	-0.94	0.00	-82.23	0.00	82.23	3,510.36	846.65	3,099.70	2,923.54	0.26	-0.07	0.034
36.00	-18.71	-0.93	0.00	-81.30	0.00	81.30	2,784.37	713.98	2,645.12	2,350.45	0.28	-0.08	0.041
40.00	-17.98	-0.93	0.00	-77.56	0.00	77.56	2,748.65	699.87	2,541.62	2,274.10	0.35	-0.09	0.041
45.00	-17.27	-0.93	0.00	-72.91	0.00	72.91	2,702.91	682.23	2,415.15	2,179.46	0.44	-0.10	0.040
50.00	-16.84	-0.92	0.00	-68.28	0.00	68.28	2,655.95	664.60	2,291.91	2,085.80	0.55	-0.11	0.039
53.00	-16.39	-0.92	0.00	-65.51	0.00	65.51	2,627.19	654.01	2,219.51	2,030.10	0.63	-0.12	0.039
55.00	-15.66	-0.91	0.00	-63.67	0.00	63.67	2,607.78	646.96	2,171.89	1,993.18	0.68	-0.13	0.038
58.25	-15.46	-0.91	0.00	-60.72	0.00	60.72	1,919.69	516.23	1,728.46	1,465.89	0.77	-0.13	0.049
60.00	-14.89	-0.90	0.00	-59.13	0.00	59.13	1,909.04	511.29	1,695.55	1,443.71	0.82	-0.14	0.049
65.00	-14.34	-0.89	0.00	-54.63	0.00	54.63	1,877.79	497.18	1,603.27	1,380.63	0.97	-0.16	0.047
70.00	-13.79	-0.88	0.00	-50.17	0.00	50.17	1,845.32	483.07	1,513.57	1,317.98	1.14	-0.17	0.046
75.00	-13.26	-0.87	0.00	-45.77	0.00	45.77	1,811.64	468.96	1,426.45	1,255.86	1.33	-0.19	0.044
80.00	-12.73	-0.86	0.00	-41.42	0.00	41.42	1,776.74	454.85	1,341.92	1,194.34	1.54	-0.20	0.042
85.00	-12.63	-0.85	0.00	-37.14	0.00	37.14	1,740.62	440.74	1,259.97	1,133.49	1.76	-0.22	0.040
86.00	-10.66	-0.78	0.00	-36.28	0.00	36.28	1,733.25	437.92	1,243.89	1,121.41	1.81	-0.22	0.039
90.00	-10.17	-0.77	0.00	-33.15	0.00	33.15	1,703.29	426.63	1,180.60	1,073.39	2.00	-0.24	0.037
95.00	-10.07	-0.76	0.00	-29.31	0.00	29.31	1,664.74	412.52	1,103.81	1,014.12	2.25	-0.25	0.035
96.00	-7.63	-0.66	0.00	-28.55	0.00	28.55	1,656.88	409.70	1,088.76	1,002.37	2.31	-0.25	0.033
100.00	-7.29	-0.64	0.00	-25.92	0.00	25.92	1,624.97	398.41	1,029.60	955.76	2.53	-0.27	0.032
104.00	-7.19	-0.64	0.00	-23.36	0.00	23.36	1,592.28	387.13	972.10	909.77	2.76	-0.28	0.030
104.00	-7.19	-0.64	0.00	-23.36	0.00	23.36	950.95	285.28	642.72	624.60	2.76	-0.28	0.045
105.00	-6.68	-0.61	0.00	-22.72	0.00	22.72	950.95	285.28	642.72	624.60	2.81	-0.28	0.043
110.00	-6.18	-0.58	0.00	-19.67	0.00	19.67	950.95	285.28	642.72	624.60	3.12	-0.29	0.038
115.00	-5.67	-0.55	0.00	-16.76	0.00	16.76	950.95	285.28	642.72	624.60	3.43	-0.30	0.033
120.00	-5.27	-0.52	0.00	-14.02	0.00	14.02	950.95	285.28	642.72	624.60	3.75	-0.31	0.028
124.00	-5.17	-0.52	0.00	-11.93	0.00	11.93	950.95	285.28	642.72	624.60	4.02	-0.32	0.025
124.00	-5.17	-0.52	0.00	-11.93	0.00	11.93	876.73	263.02	546.31	539.02	4.02	-0.32	0.028
125.00	-4.70	-0.48	0.00	-11.41	0.00	11.41	876.73	263.02	546.31	539.02	4.09	-0.32	0.027
130.00	-4.23	-0.44	0.00	-9.01	0.00	9.01	876.73	263.02	546.31	539.02	4.43	-0.33	0.022
135.00	-3.76	-0.40	0.00	-6.80	0.00	6.80	876.73	263.02	546.31	539.02	4.77	-0.33	0.017
140.00	-3.38	-0.37	0.00	-4.80	0.00	4.80	876.73	263.02	546.31	539.02	5.12	-0.34	0.013
144.00	-3.30	-0.36	0.00	-3.33	0.00	3.33	876.73	263.02	546.31	539.02	5.41	-0.34	0.010
144.00	-3.30	-0.36	0.00	-3.33	0.00	3.33	728.28	218.49	376.97	379.17	5.41	-0.34	0.013
145.00	-2.90	-0.32	0.00	-2.97	0.00	2.97	728.28	218.49	376.97	379.17	5.48	-0.34	0.012
150.00	-2.50	-0.28	0.00	-1.38	0.00	1.38	728.28	218.49	376.97	379.17	5.84	-0.34	0.007
155.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.20	-0.34	0.000
160.00	0.00	0.00	0.00	0.00	0.00	0.00	728.28	218.49	376.97	379.17	6.56	-0.34	0.000

Site Number: 283563

Code: ANSI/TIA-222-H

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Site Name: MANSFIELD CT, CT

Engineering Number: 13685464_C3_02

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Customer: DISH WIRELESS L.L.C.

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	23.89	0.00	37.05	0.00	0.00	2395.87	58.25	0.77
0.9D + 1.0W	23.87	0.00	27.77	0.00	0.00	2363.45	58.25	0.76
1.2D + 1.0Di + 1.0Wi	7.25	0.00	55.11	0.00	0.00	747.96	58.25	0.26
1.2D + 1.0Ev + 1.0Eh	0.93	0.00	36.90	0.00	0.00	117.04	58.25	0.05
0.9D - 1.0Ev + 1.0Eh	0.93	0.00	25.64	0.00	0.00	114.98	58.25	0.05
1.0D + 1.0W	5.43	0.00	30.91	0.00	0.00	540.82	58.25	0.18

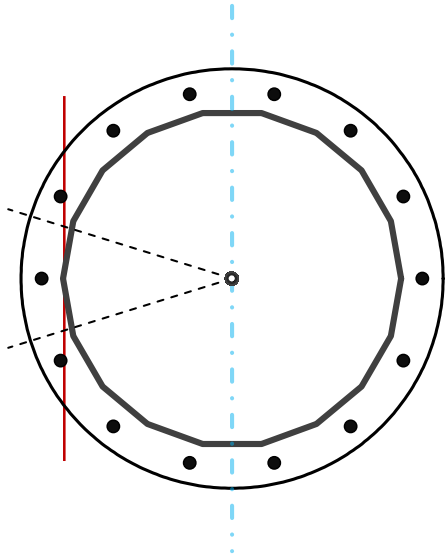
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	48	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2,395.9	k-ft
Axial, Pu	55.1	k
Shear, Vu	23.9	k
Neutral Axis	90	°

Report Capacities		
Component	Capacity	Result
Base Plate	29%	Pass
Anchor Rods	66%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	61	in
Thickness	2 1/4	in
Grade	A572-55	
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	359.8	k
Bending Stress, ϕMn	1229.8	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ϕ	2 1/4	in
Bolt Circle	55	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.3	in
Orientation Offset	0	°
Applied Force, Pu	159.9	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	23.9	2395.9	1.00
Anchor Rod Forces	23.9	2395.9	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	55.8225	3.1012	0.1459		15829.28
Bolt	3.9761	3.2477	0.8393	4.5	15751.46
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	61	in
Thickness, t	2.25	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	37.643	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	14	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	55	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	159.9	k
Applied Shear, Vu	0.6	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.657	OK
Interaction Capacity	0.661	OK

External Base Plate		
Chord Length AA	31.468	in
Additional AA	4.500	in
Section Modulus, Z	45.522	in ³
Applied Moment, Mu	359.8	k-ft
Bending Capacity, φMn	2253.3	k-ft
Capacity, Mu/φMn	0.160	OK
Chord Length AB	30.302	in
Additional AB	4.500	in
Section Modulus, Z	44.047	in ³
Applied Moment, Mu	300.4	k-ft
Bending Capacity, φMn	2180.3	k-ft
Capacity, Mu/φMn	0.138	OK
Bend Line Length	19.630	in
Additional Bend Line	0.000	in
Section Modulus, Z	24.844	in ³
Applied Moment, Mu	359.8	k-ft
Bending Capacity, φMn	1229.8	k-ft
Capacity, Mu/φMn	0.293	OK

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

Site Name: Mansfield CT, CT
Site Number: 283563
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

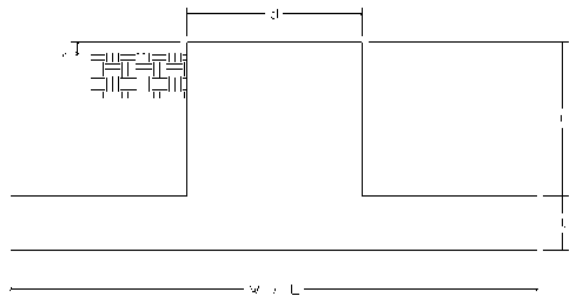
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	55.1	k
Uplift/Leg:	37.1	k
Total Shear:	23.9	k
Moment:	2,395.9	k-ft
Tower + Appurtenance Weight:	34.6	k
Depth to Base of Foundation (l + t - h):	6	ft
Diameter of Pier (d):	7	ft
Length of Pier (l):	3.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	24	ft
Length of Pad (L):	24	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	131	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	68.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.2	-
Ultimate Compressive Bearing Pressure:	14,050	psf
Ultimate Passive Pressure on Pad Face:	1,509	psf
$f_{\text{Soil and Concrete Weight}}$:	0.9	-
f_{Soil} :	0.75	-

Overturning Moment Usage		
Design OTM:	2551.2	k-ft
OTM Resistance:	5950.0	k-ft
Design OTM / OTM Resistance:	43%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	2634	psf
Factored Nominal Bearing Pressure:	10538	psf
Factored Nominal (Net) Bearing Pressure:	25%	Pass
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety		
Ultimate Friction Resistance:	103.9	k
Ultimate Passive Pressure Resistance:	81.5	k
Total Factored Sliding Resistance:	139.0	k
Sliding Design / Sliding Resistance:	17%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	15.9	k
Shear/Leg (Uplift):	13.1	k
Concrete Strength (f'_c):	3,000	psi
Pad Tension Steel Depth:	32.38	in
Dead Load Factor:	0.9	-
f_{Shear} :	0.75	-
$f_{\text{Flexure / Tension}}$:	0.9	-
$f_{\text{Compression}}$:	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	10	-
# of Bottom Pad Rebar:	25	-
Pad Bottom Steel Area:	31.75	in ²
Pad Steel F_y :	60,000	psi
Top Pad Rebar Size #:	10	-
# of Top Pad Rebar:	25	-
Pad Top Steel Area:	31.75	in ²
Pier Rebar Size #:	10	-
Pier Steel Area (Single Bar):	1.27	in ²
# of Pier Rebar:	36	-
Pier Steel F_y :	60,000	psi
Pier Cage Diameter:	75.5	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	5	-
Tie Steel Area (Single Bar):	0.31	in ²
Tie Spacing:	6	in
Tie Steel F_y :	40,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	186.9	k	
One Way Shear Capacity (fV_n):	687.7	k	ACI 318-14 25.5.5.1
V_u / fV_n :	27%	Pass	
Load Direction Controlling Shear Capacity:	Diagonal to Pad Edge		
Lower Steel Pad Factored Moment (M_u):	1267.6	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	4468.1	k-ft	ACI 318-14 22.3.1.1
M_u / fM_n :	28%	Pass	
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge		
Upper Steel Pad Factored Moment (M_u):	688.7	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	4468.1	k-ft	
M_u / fM_n :	15%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0034		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Upper Pad Flexural Reinforcement Ratio:	0.0034		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Pad Shrinkage Reinforcement Ratio:	0.0068		OK - ACI 318-14 24.4.3.2
Lower Pad Reinforcement Spacing:	11.7	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Upper Pad Reinforcement Spacing:	11.7	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Ultimate Punching Shear Stress, v_u :	26.56	psi	ACI 318-14 R8.4.4.2.3
Nominal Punching Shear Capacity ($f_c v_c$):	164.3	psi	ACI 318-14 22.6.5.2
$v_u / f_c v_c$:	16%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f :	0.60		TIA-222-H 9.4.2
Moment Transfer Effective Flexural Width, B_{eff} :	16.00	ft	TIA-222-H 9.4.2
Moment Transfer Through Pad Flexure:	17852.51	k-in	TIA-222-H 9.4.2
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	37211.41	k-in	
$g_f M_{sc} / fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	2479.5	k-ft	
Pier Moment Capacity (fM_n):	7596.2	k-ft	
M_u / fM_n :	33%	Pass	
Factored Shear in Pier (V_u):	23.9	k	
Pier Shear Capacity (fV_n):	657.5	k	ACI 318-14 22.5.1.1
V_u / fV_n :	4%	Pass	
Pier Shear Reinforcement Ratio:	0.0007		OK - No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	37.1	k	
Pier Tension Capacity (fT_n):	2468.9	k	
T_u / fT_n :	2%	Pass	
Factored Compression in Pier (P_u):	55.1	k	
Pier Compression Capacity (fP_n):	7327.4	k	ACI 318-14 22.4.2.1
P_u / fP_n :	1%	Pass	
Pier Compression Reinforcement Ratio:	0.008		OK - TIA-222-H 9.4.1
Minimum Depth to Develop Vertical Rebar:	52	in	ACI 318-14 25.4.2.3
Minimum Hook Development Length:	28	in	ACI 318-14 25.4.3.1
Minimum Mat Thickness / Edge Distance from Pier:	31.0	in	
Minimum Foundation Depth:	7.18	ft	
$M_u / f_B M_n + T_u / f_T T_n$:	34%	Pass	

INFINIGY8

MOUNT ANALYSIS REPORT

August 26, 2021

Dish Wireless Site Name	BOBDL00008A
Dish Wireless Site Number	BOBDL00008A
ATC Site Name	Mansfield CT, CT
ATC Site Number	283563
Infinigy Job Number	1197-F0001-C
Client	ATC
Carrier	Dish Wireless
Site Location	343 Daleville Road Willington, CT 06279 Tolland County 41.836606 N NAD83 72.2549763 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	86.0 ft AGL
Structural Usage Ratio	42.4
Overall Result	Pass

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



CONTENTS

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

1. INTRODUCTION

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

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	125 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 2.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	$S_s = 0.174 \text{ g} / S_1 = 0.063 \text{ g}$
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs

3. PROPOSED LOADING CONFIGURATION - 86.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
86.0	3	JMA WIRELESS	MX08FRO665-21
	3	FUJITSU	TA08025-B605
	3	FUJITSU	TA08025-B604
	1	RAYCAP	RDIDC-9181-PF-48

4. SUPPORTING DOCUMENTATION

Proposed Loading	Dish Wireless Asset ID CT-ATC-T-283563 Rev 1, Site #BOBDL00008A, dated June 14, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021
Structural Analysis Report	ATC, Asset #283563, dated August 16, 2021
Construction Drawings	Fullerton Engineering Design, 2021.01.02.0126, Rev 0, dated August 06, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	22.8%	Pass
Horizontals	13.9%	Pass
Standoffs	34.4%	Pass
Handrails	27.8%	Pass
Connections	42.4%	Pass
MOUNT RATING =	42.4 %	Pass

Notes:

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

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless’s proposed equipment loading configuration on the mount at 86.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

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

7. ASSUMPTIONS

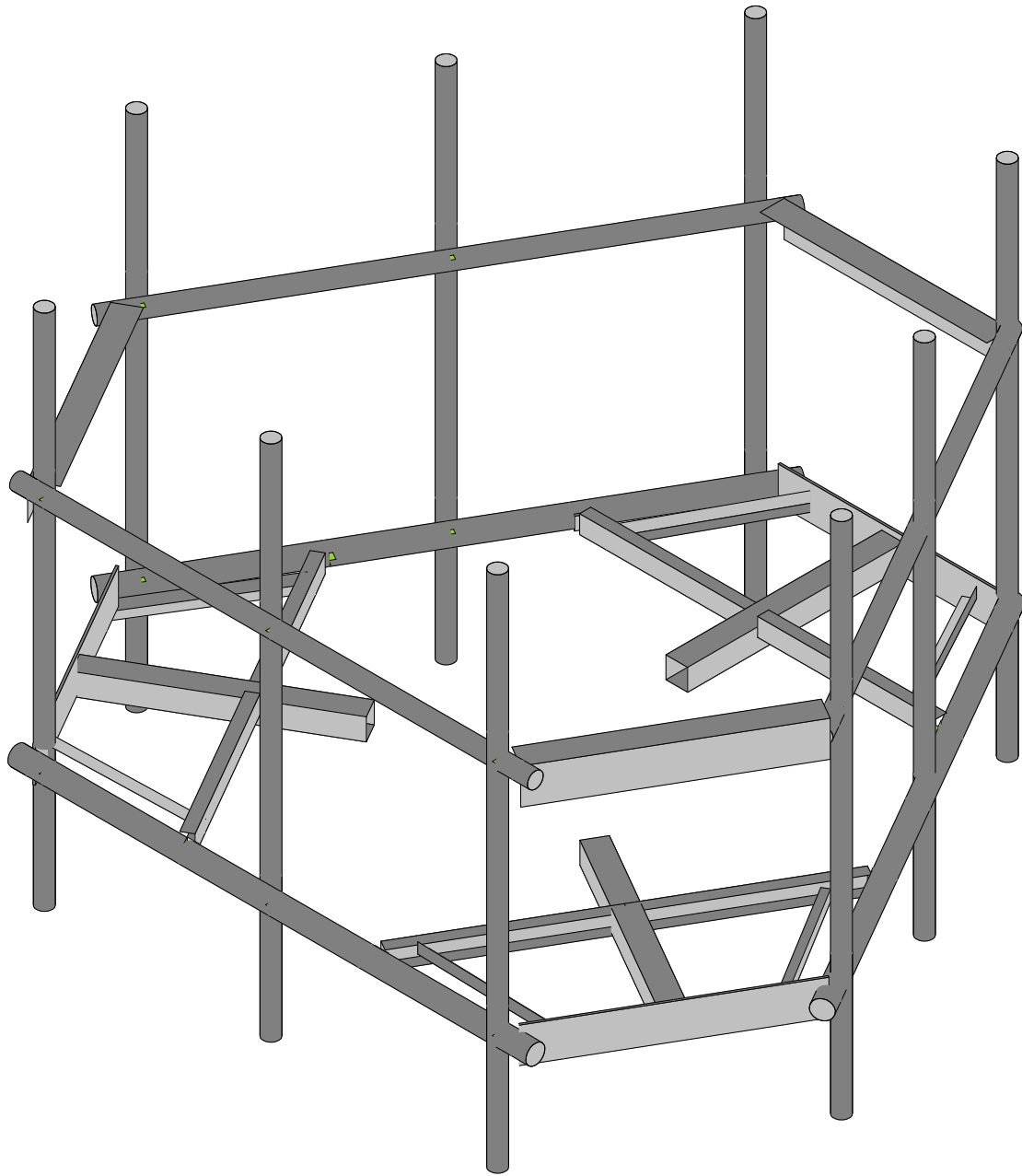
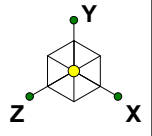
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
All member connections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

8. LIABILITY WAIVER AND LIMITATIONS

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

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

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



Envelope Only Solution

Infinigy Engineering, PLLC

PSM

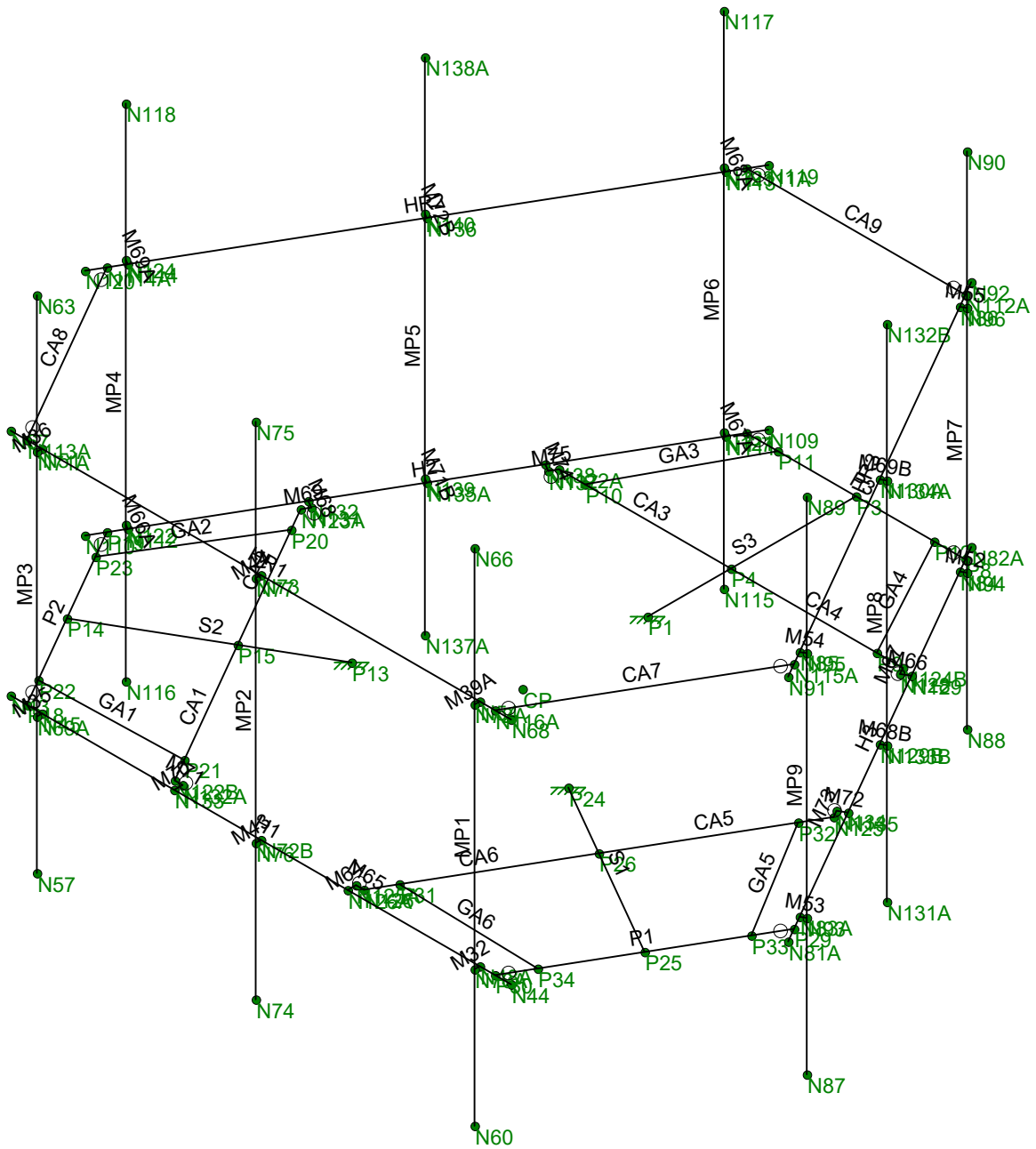
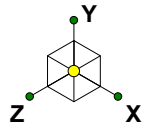
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Rendered

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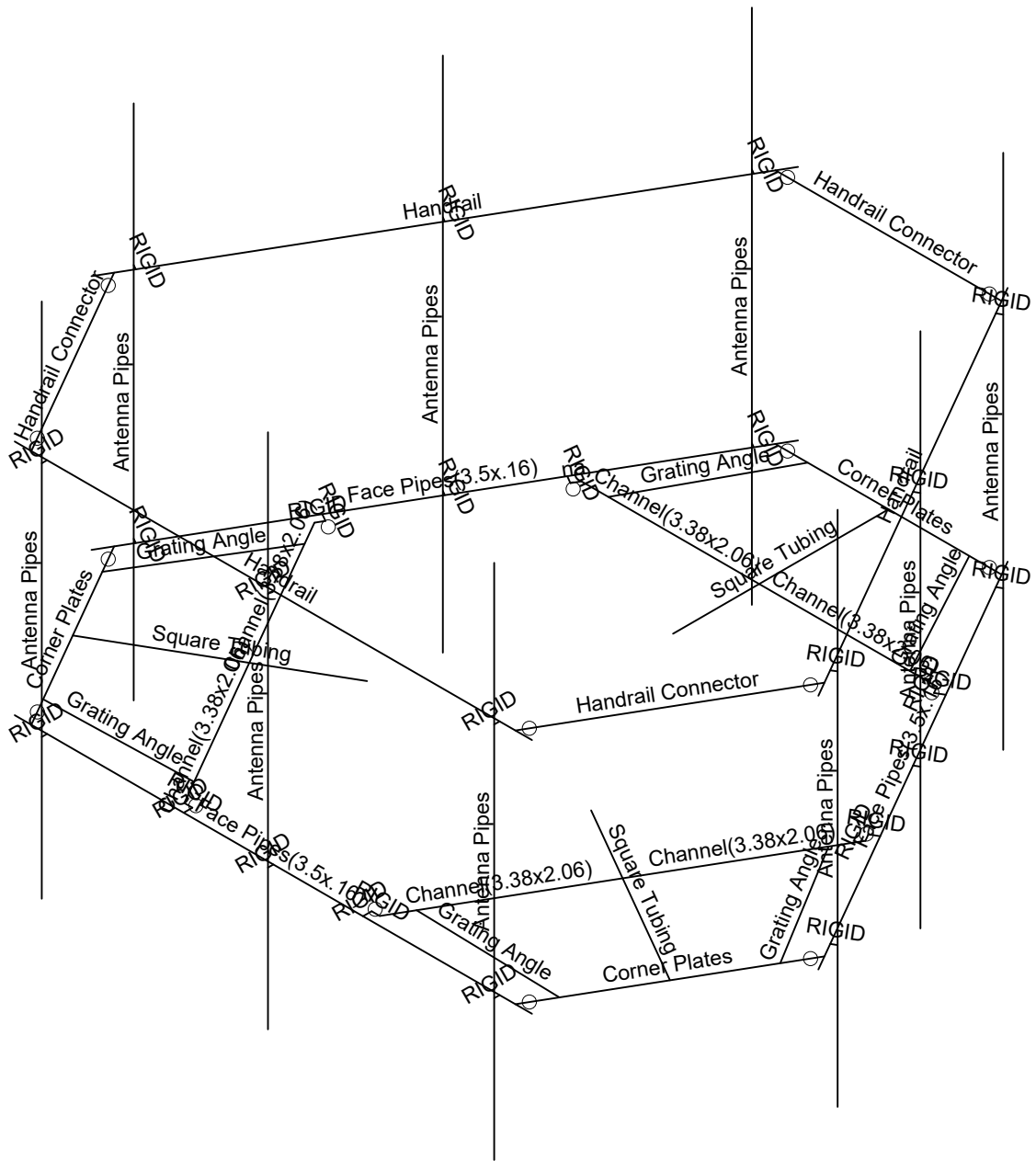
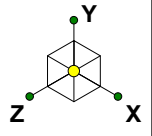
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WireFrame

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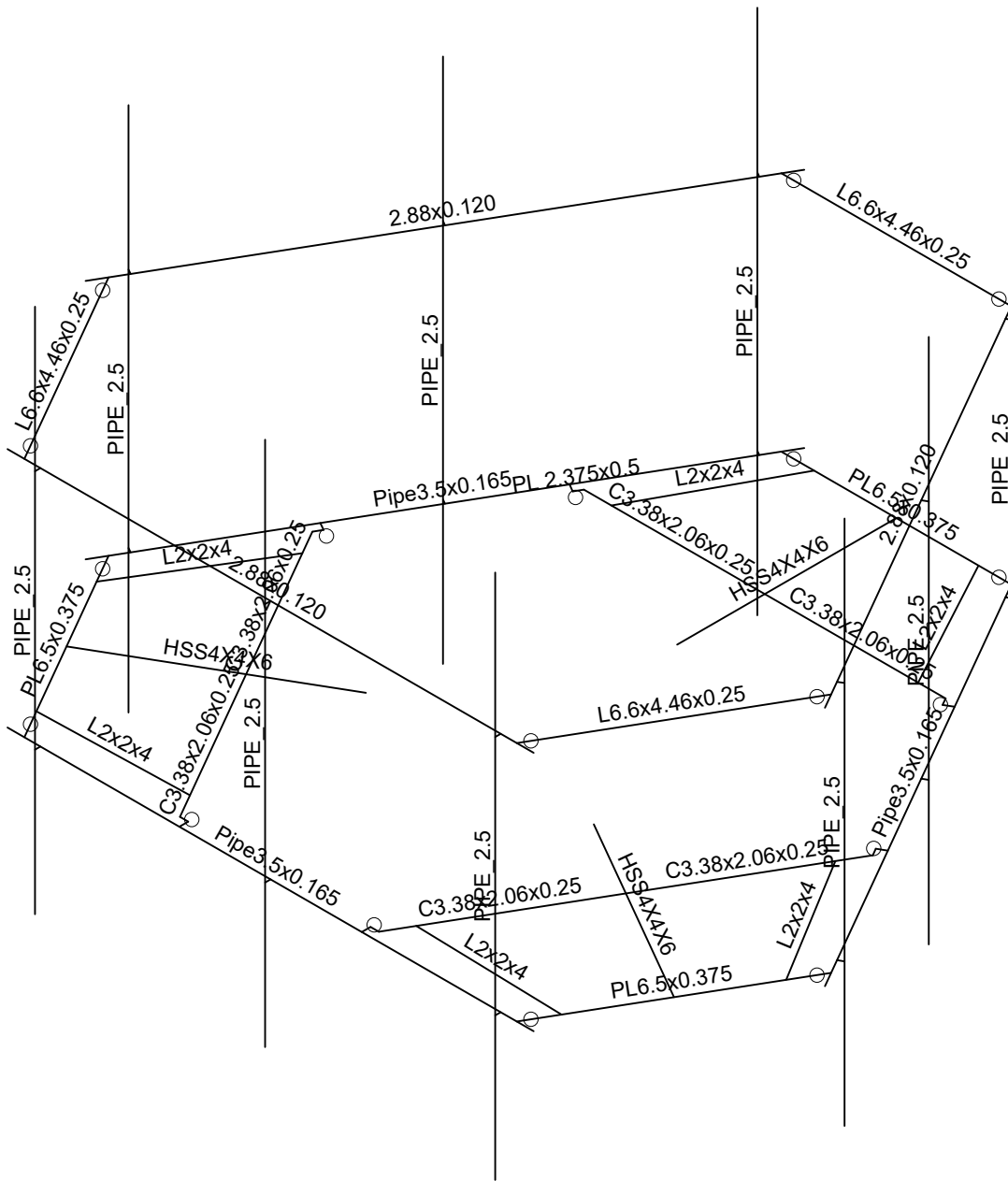
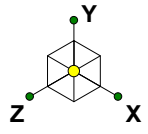
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Section Sets

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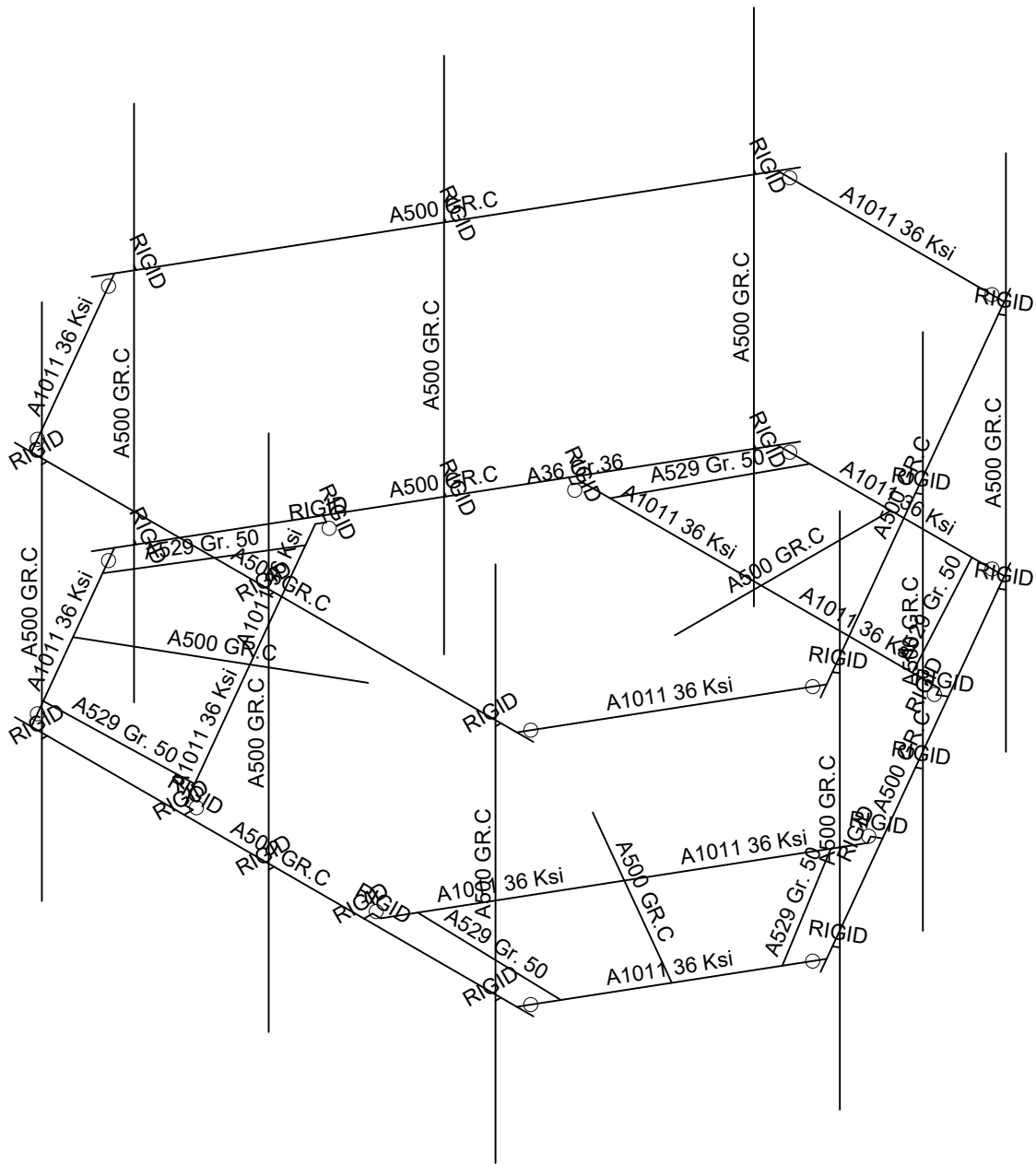
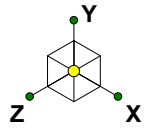
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Member Shapes

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Envelope Only Solution

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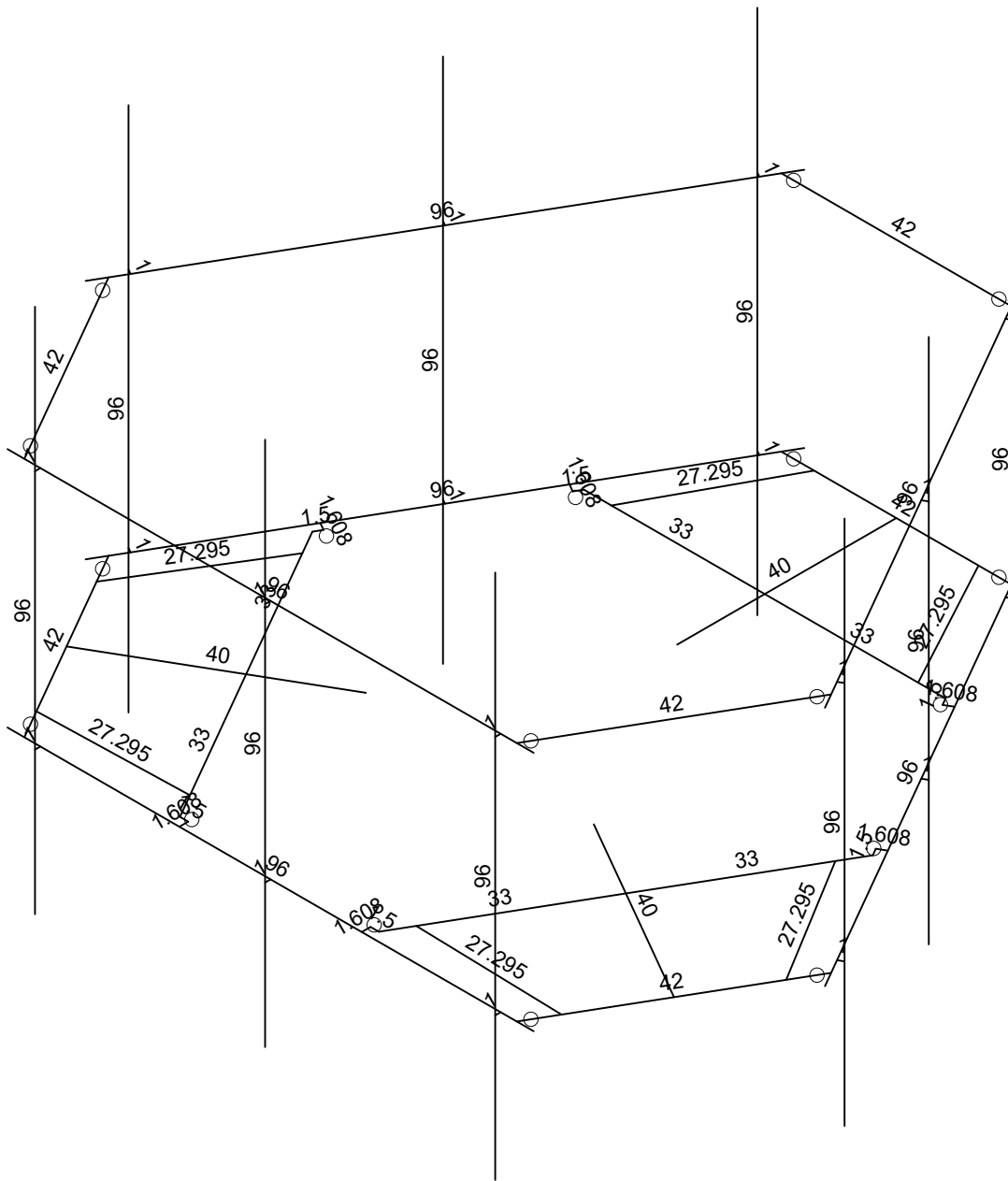
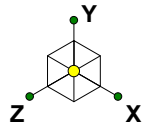
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Material Sets

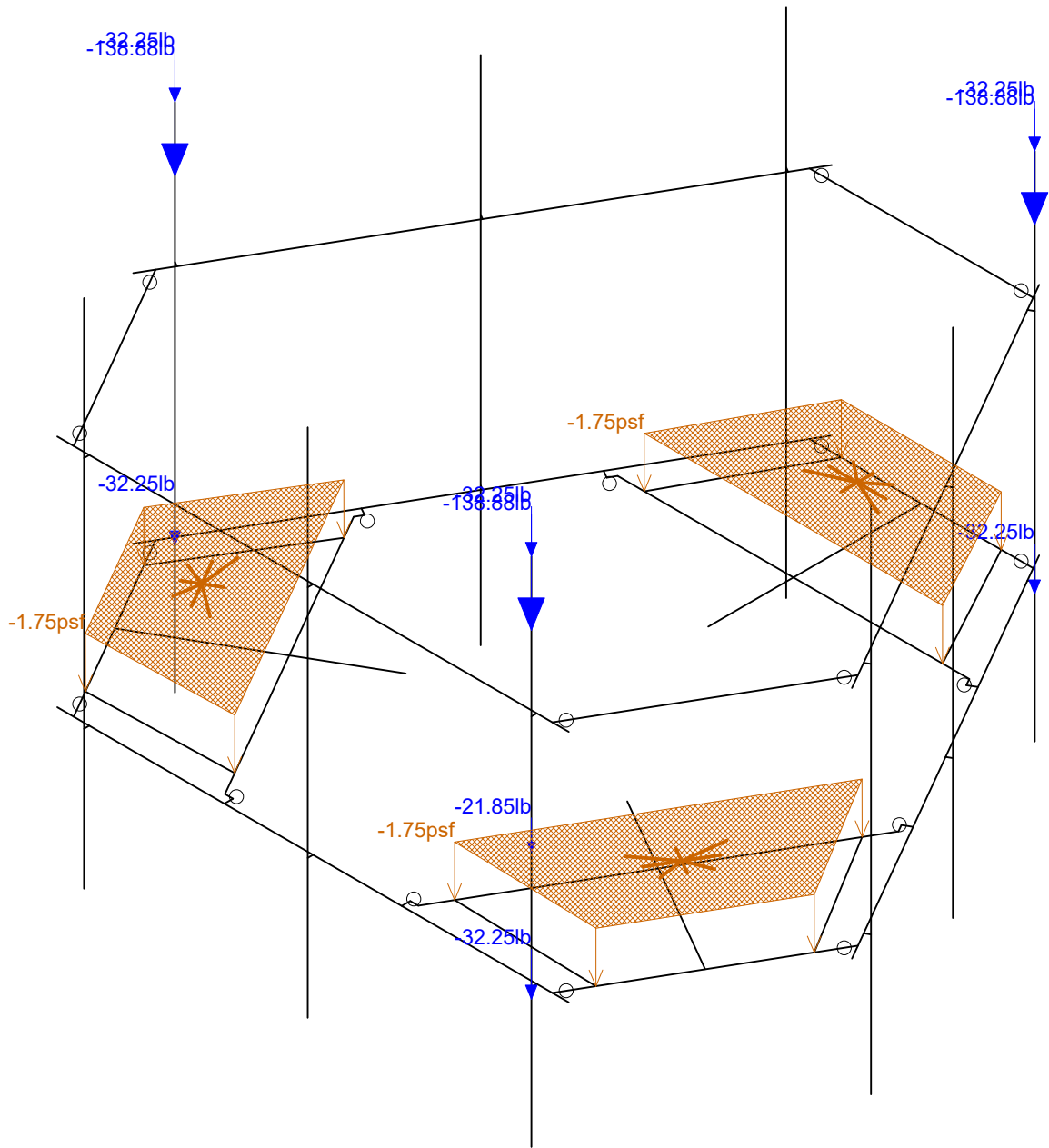
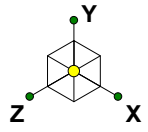
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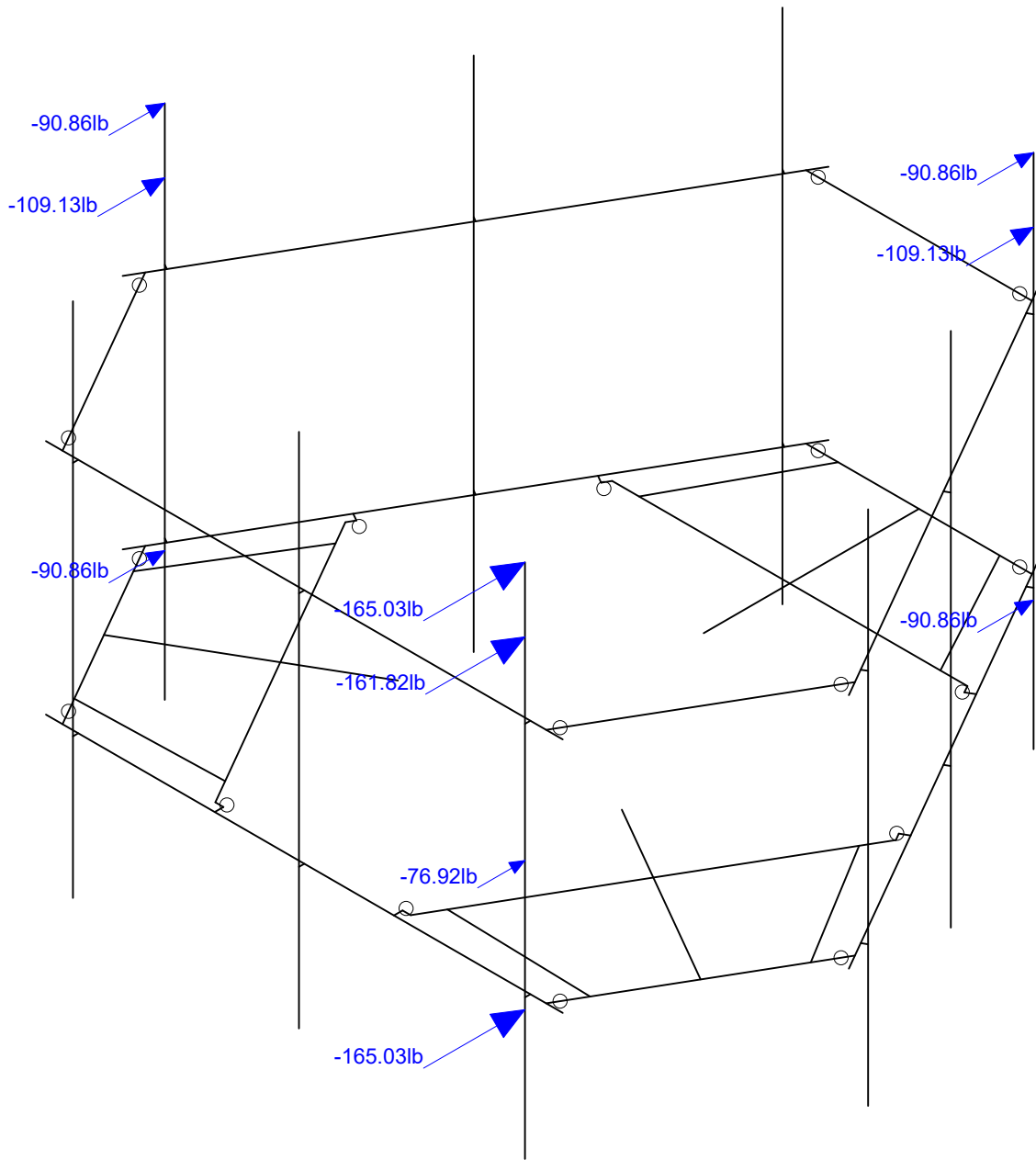
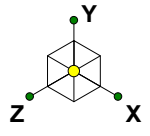
Member Length (in) Displayed
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Member Lengths
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Loads: BLC 1, Self Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Self Weight
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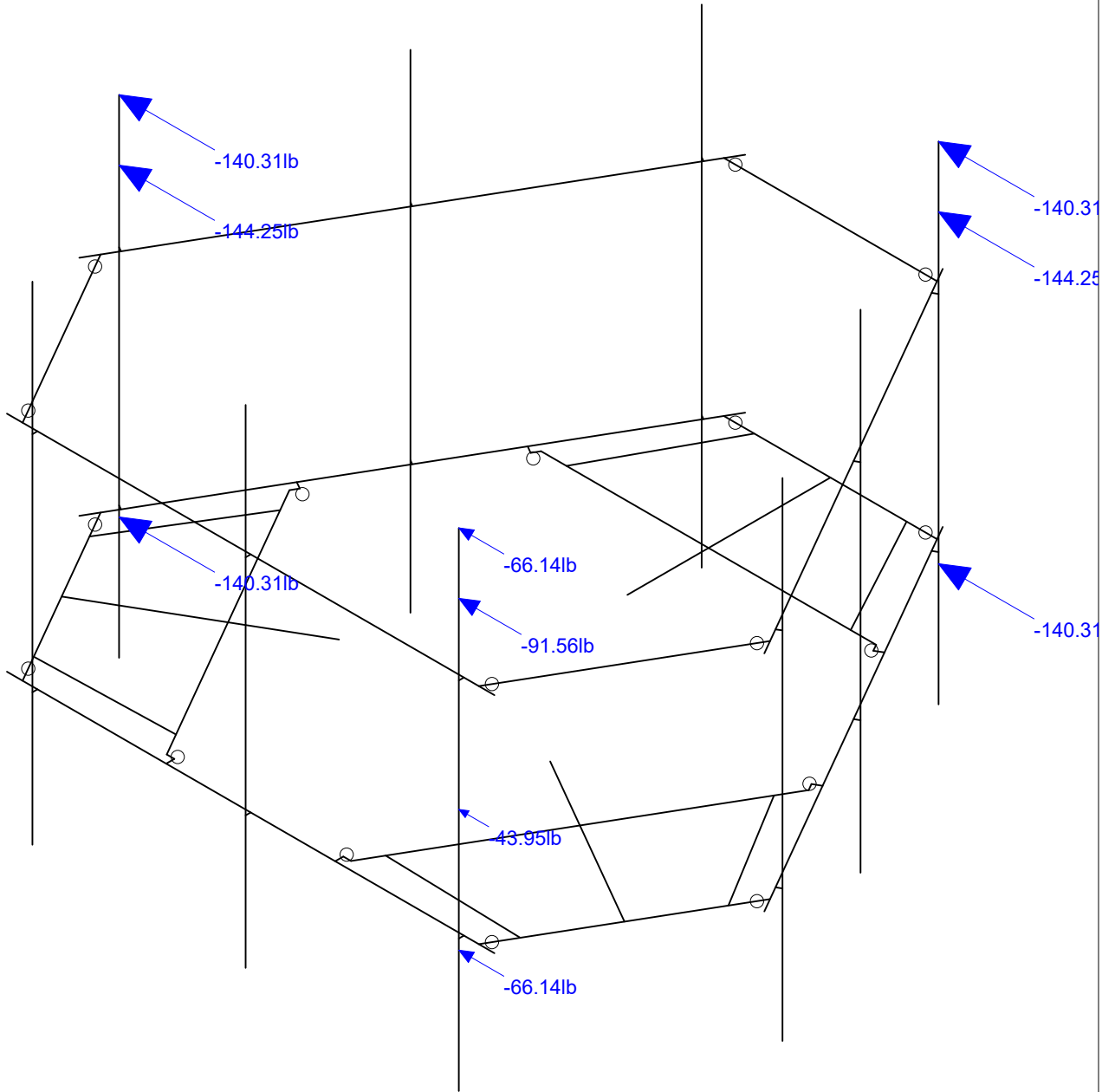
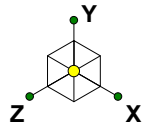


Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-C

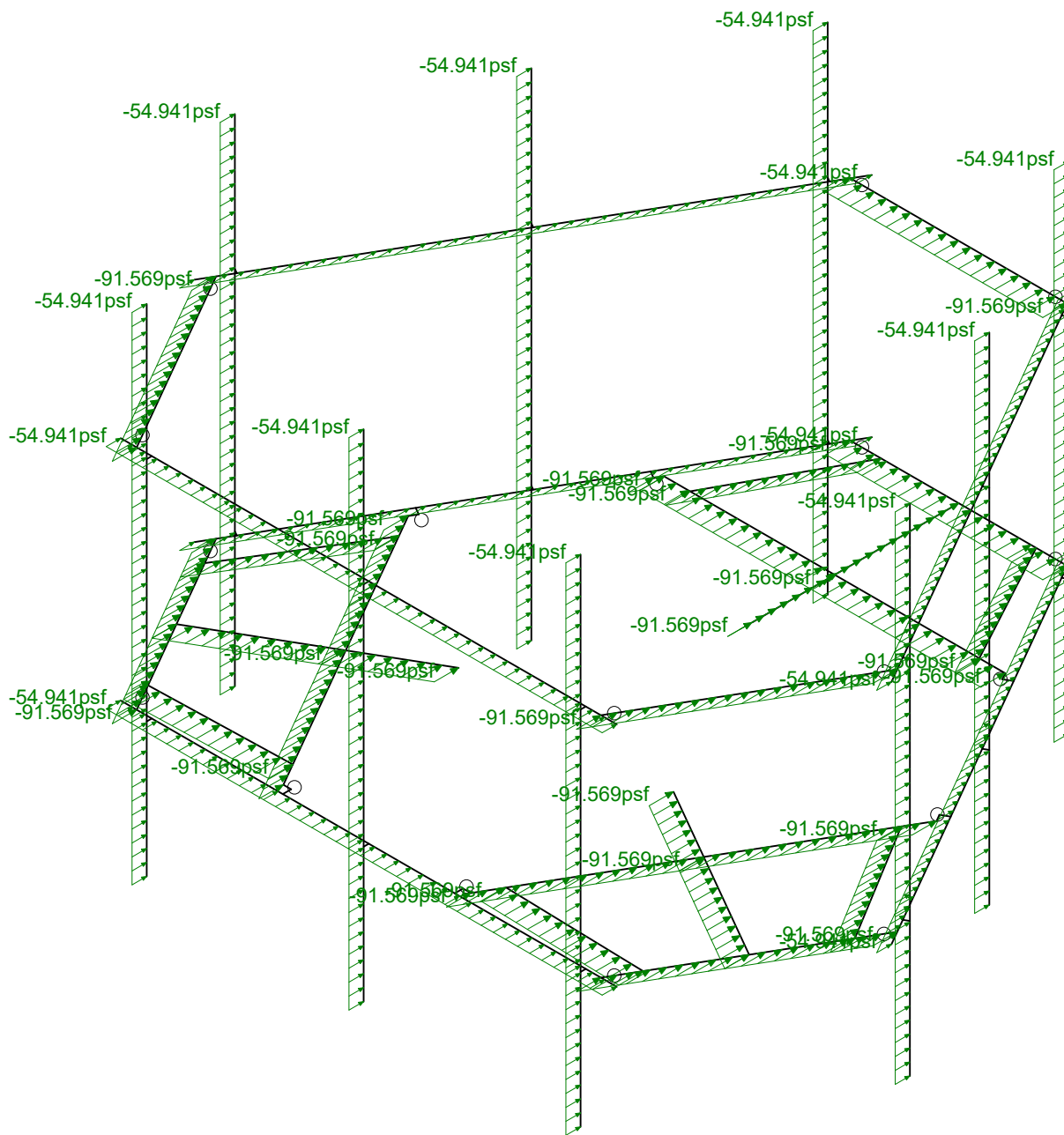
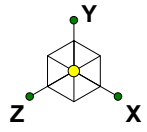
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Wind Load AZI 000
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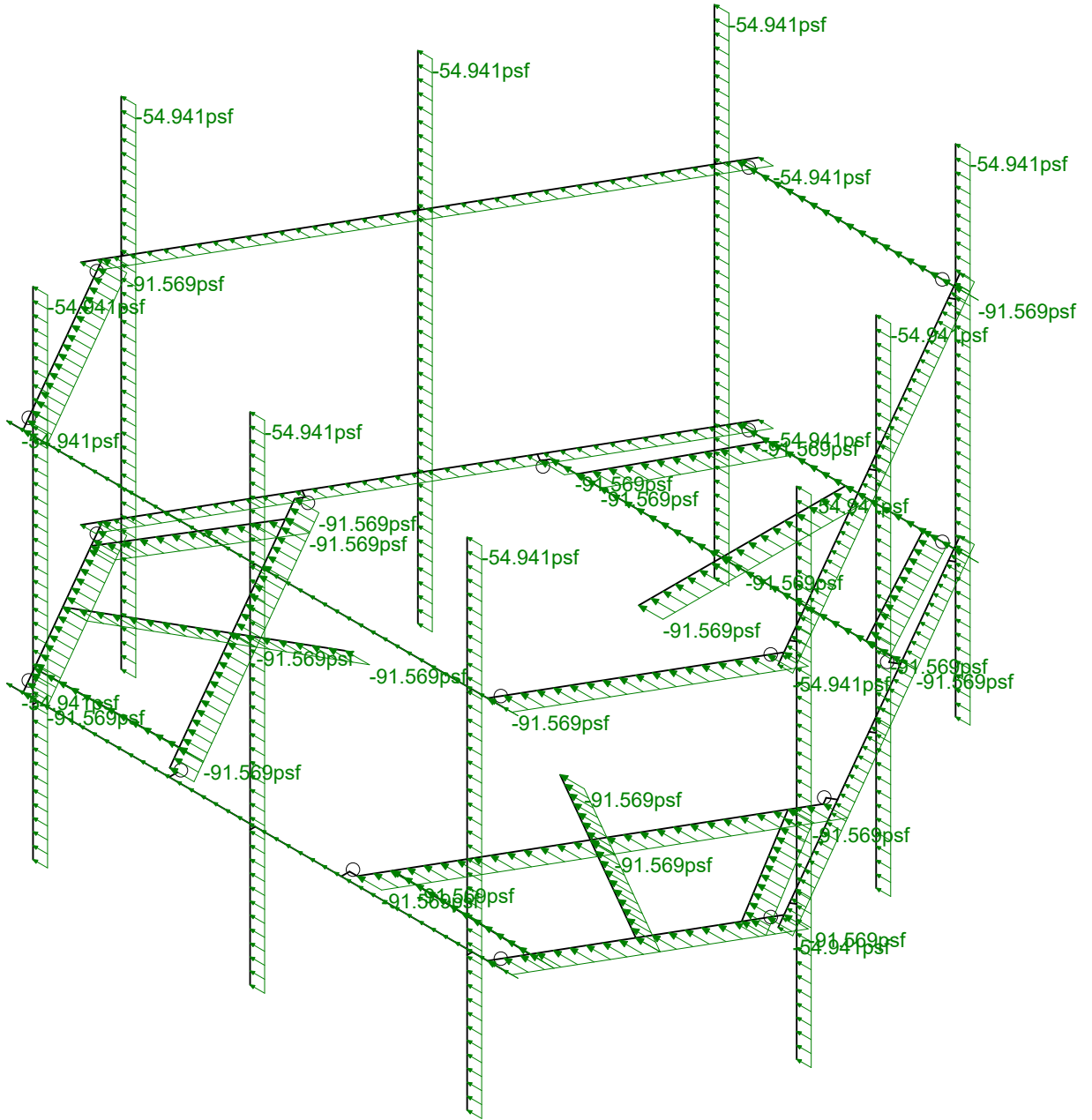
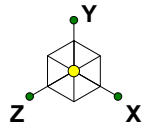
Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Wind Load AZI 090
PSM		Aug 26, 2021 at 1:45 PM
1197-F0001-C		BOBDL00008A_loaded.r3d



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

Infinigy Engineering, PLLC	BOBDL00008A	Distr Wind Load AZI 000
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1197-F0001-C		BOBDL00008A_loaded.r3d



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

Infinigy Engineering, PLLC

PSM

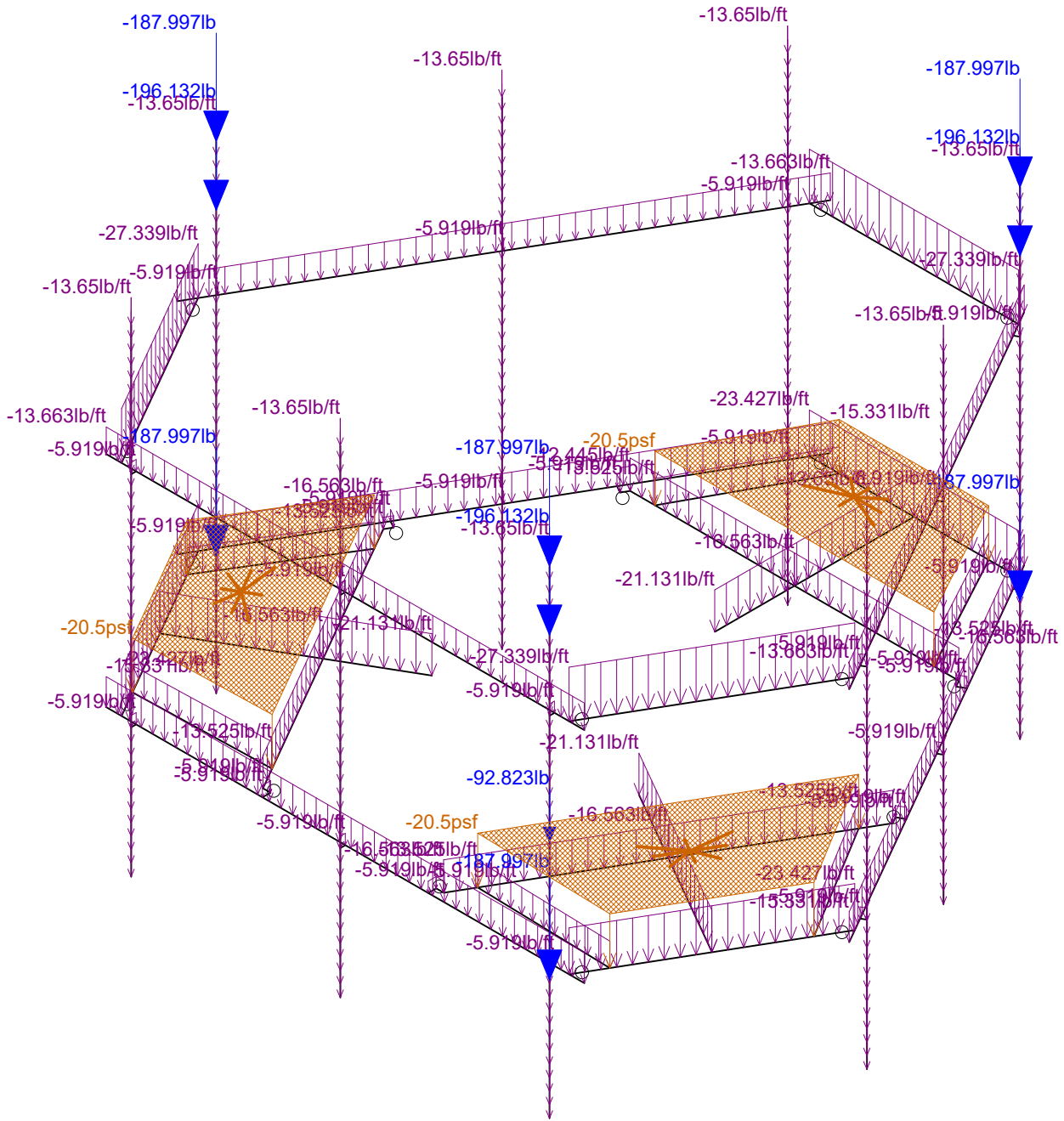
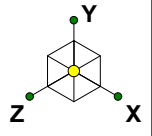
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BOBDL00008A

Distr Wind Load AZI 090

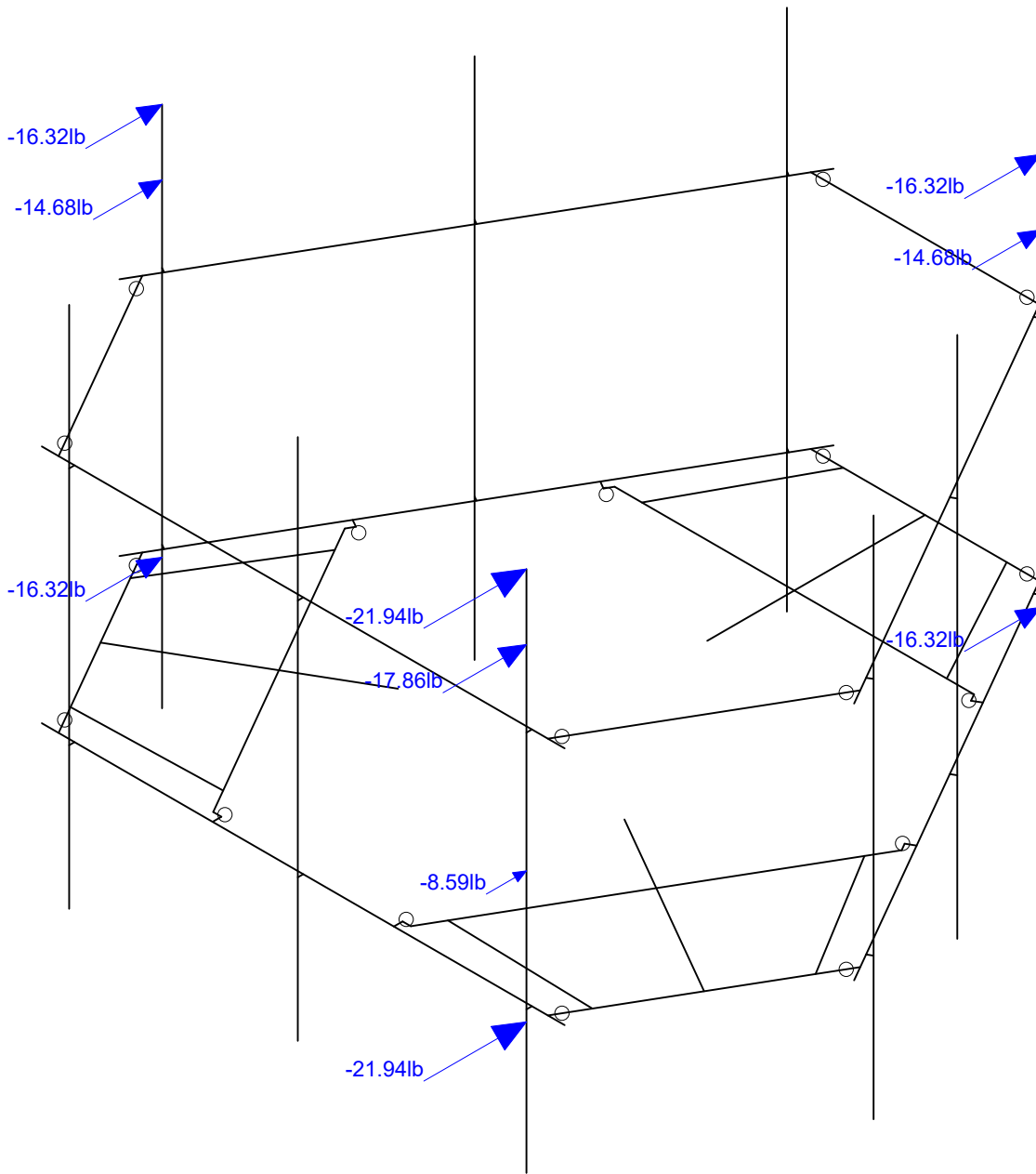
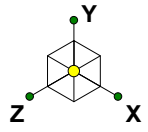
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Loads: BLC 16, Ice Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Ice Weight
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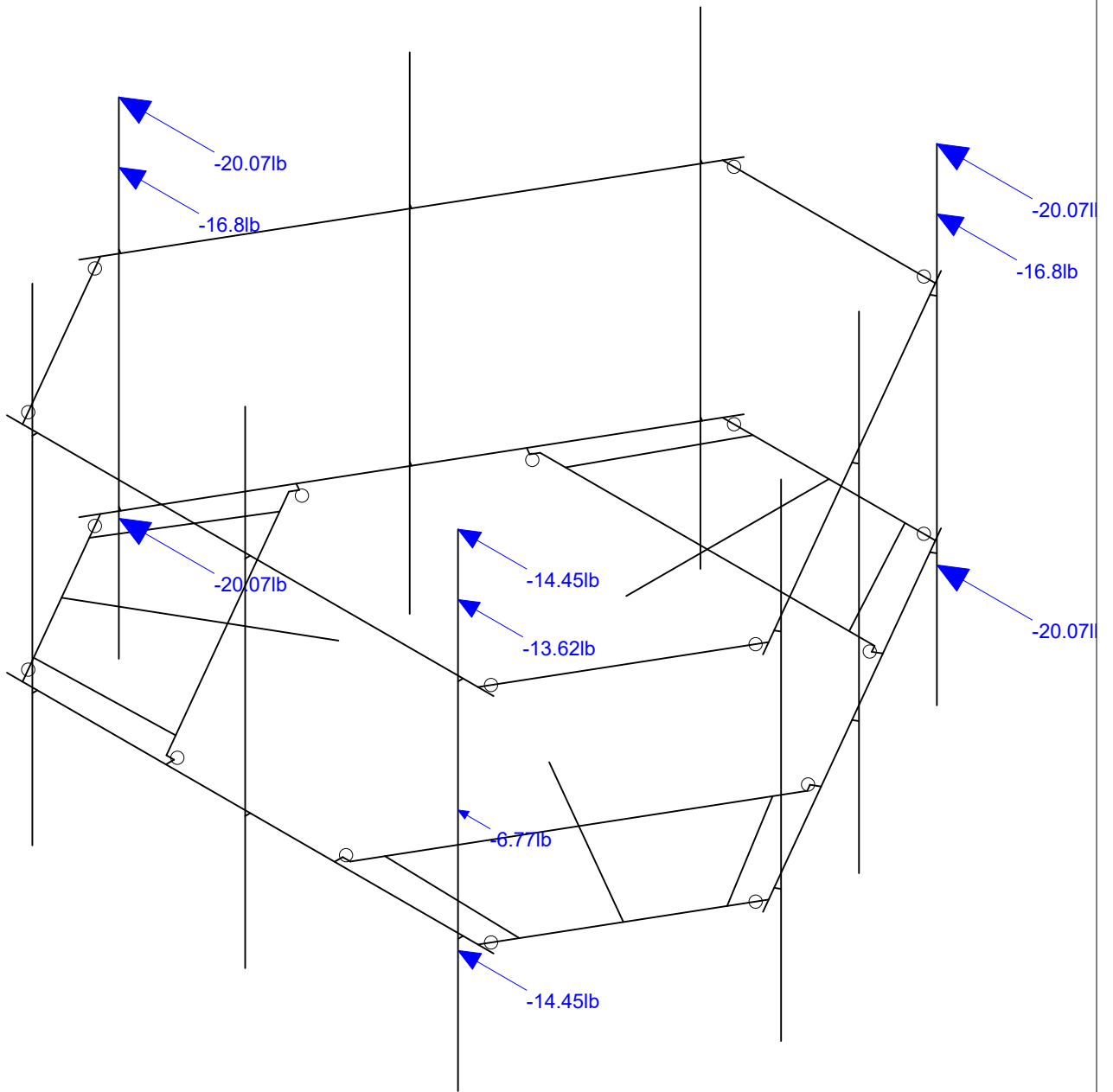
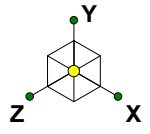


Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-C

BOBDL00008A

Wind + Ice Load AZI 000
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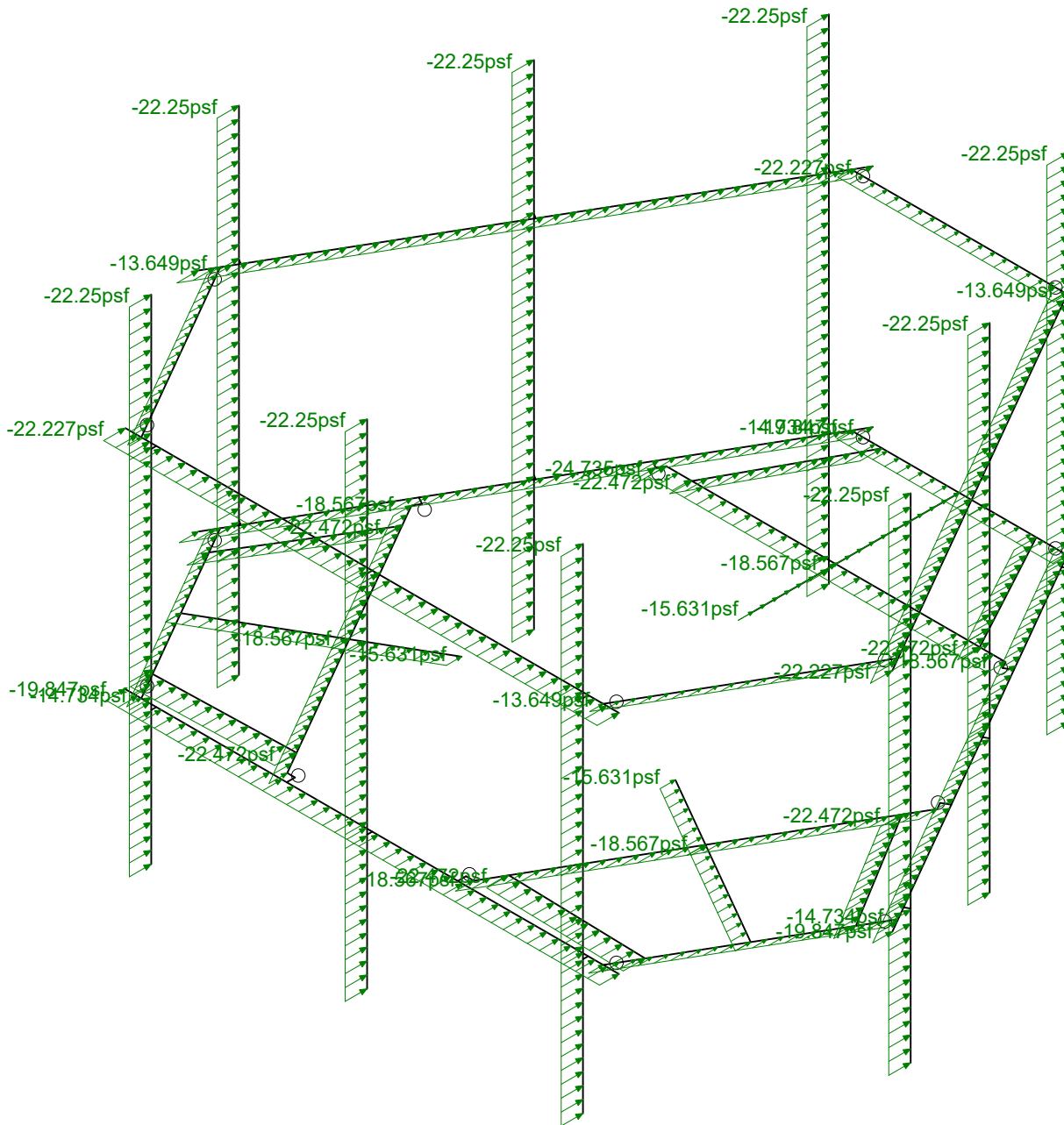
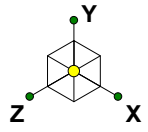


Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-C

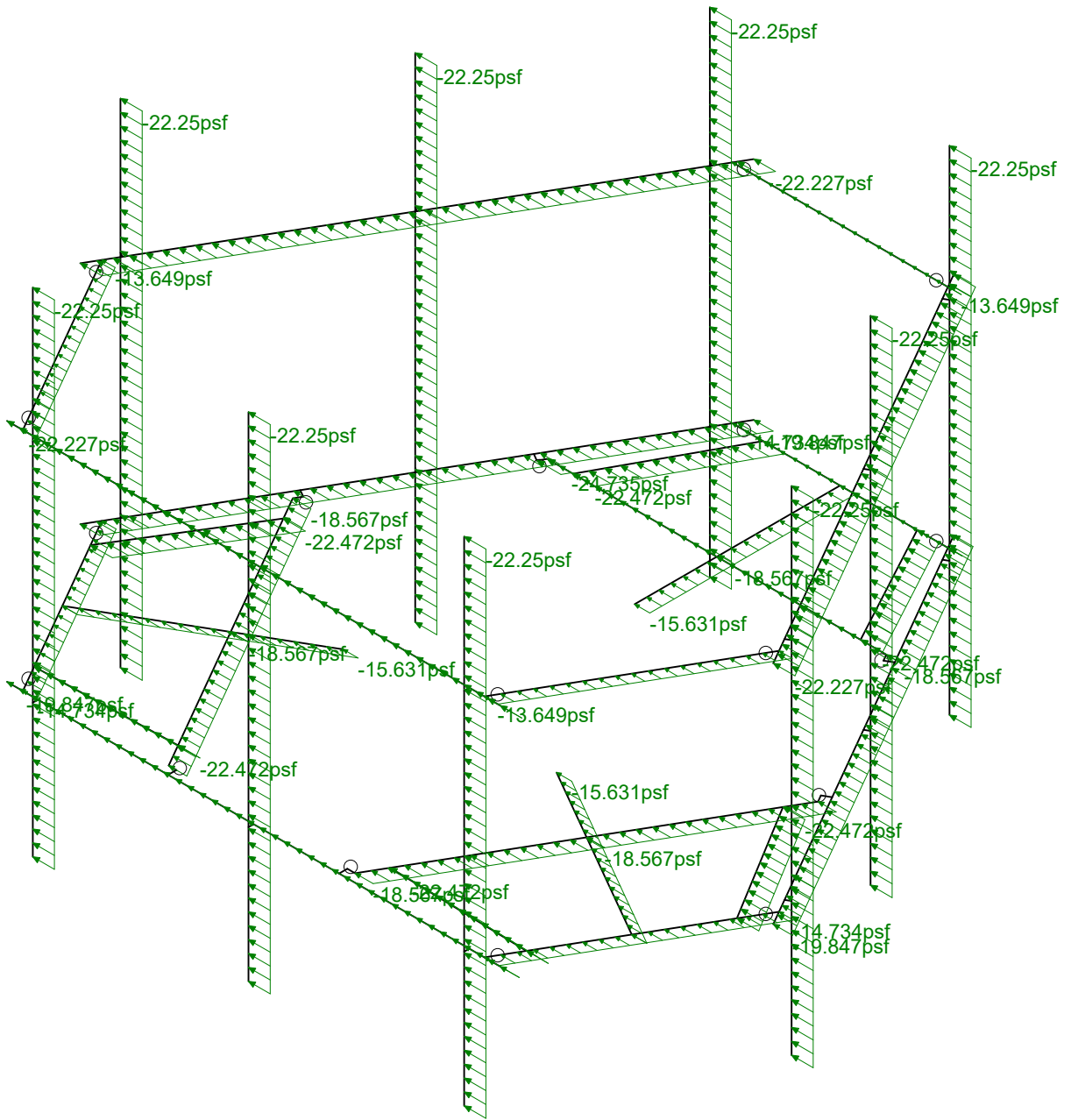
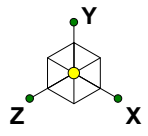
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Wind + Ice Load AZI 090
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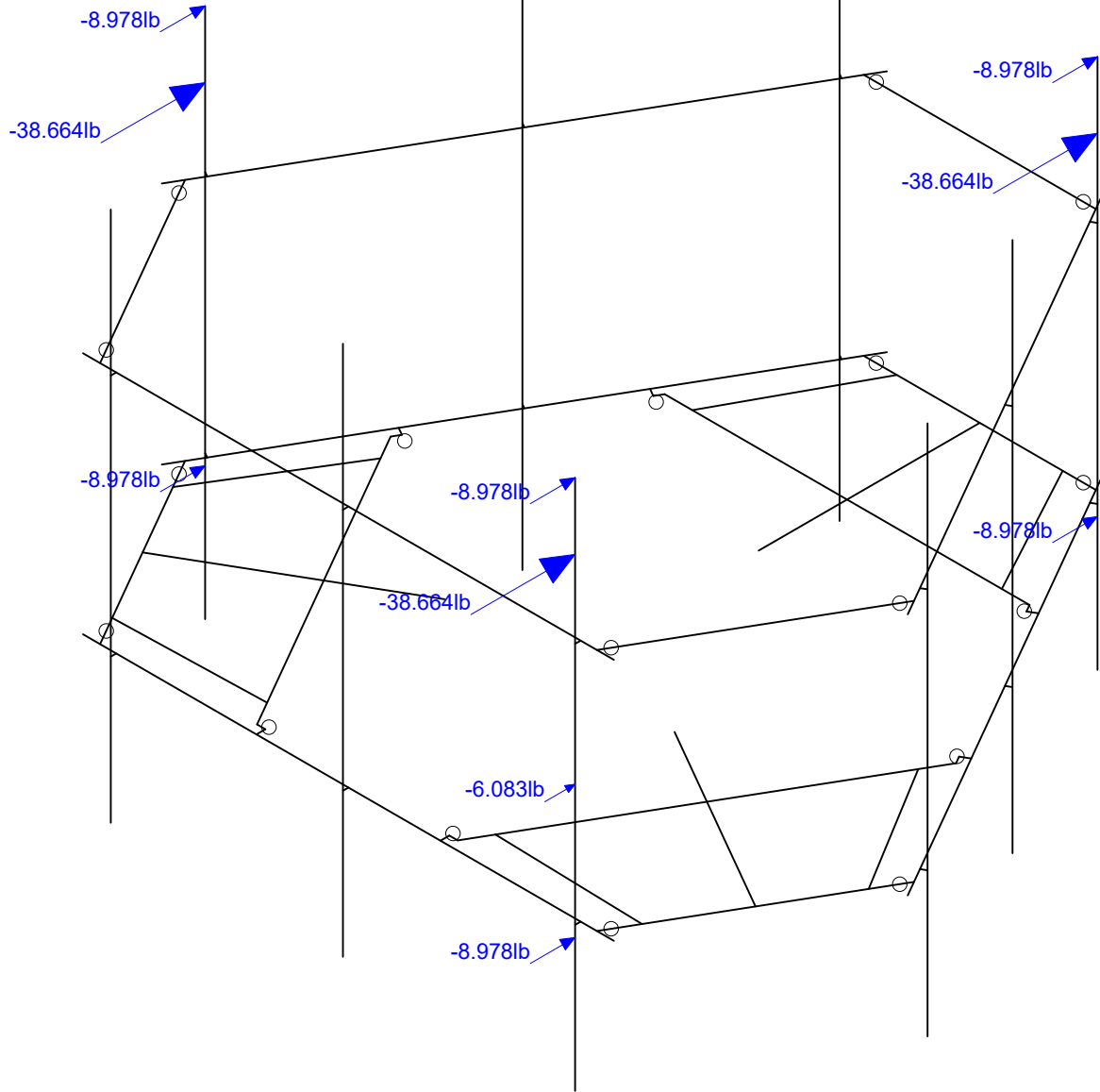
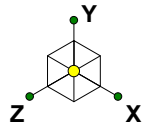
Loads: BLC 29, Distr. Ice Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Distr Wind + Ice Load AZI 000
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1197-F0001-C		BOBDL00008A_loaded.r3d



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

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Loads: BLC 31, Seismic Load Z
Envelope Only Solution

Infinigy Engineering, PLLC

PSM

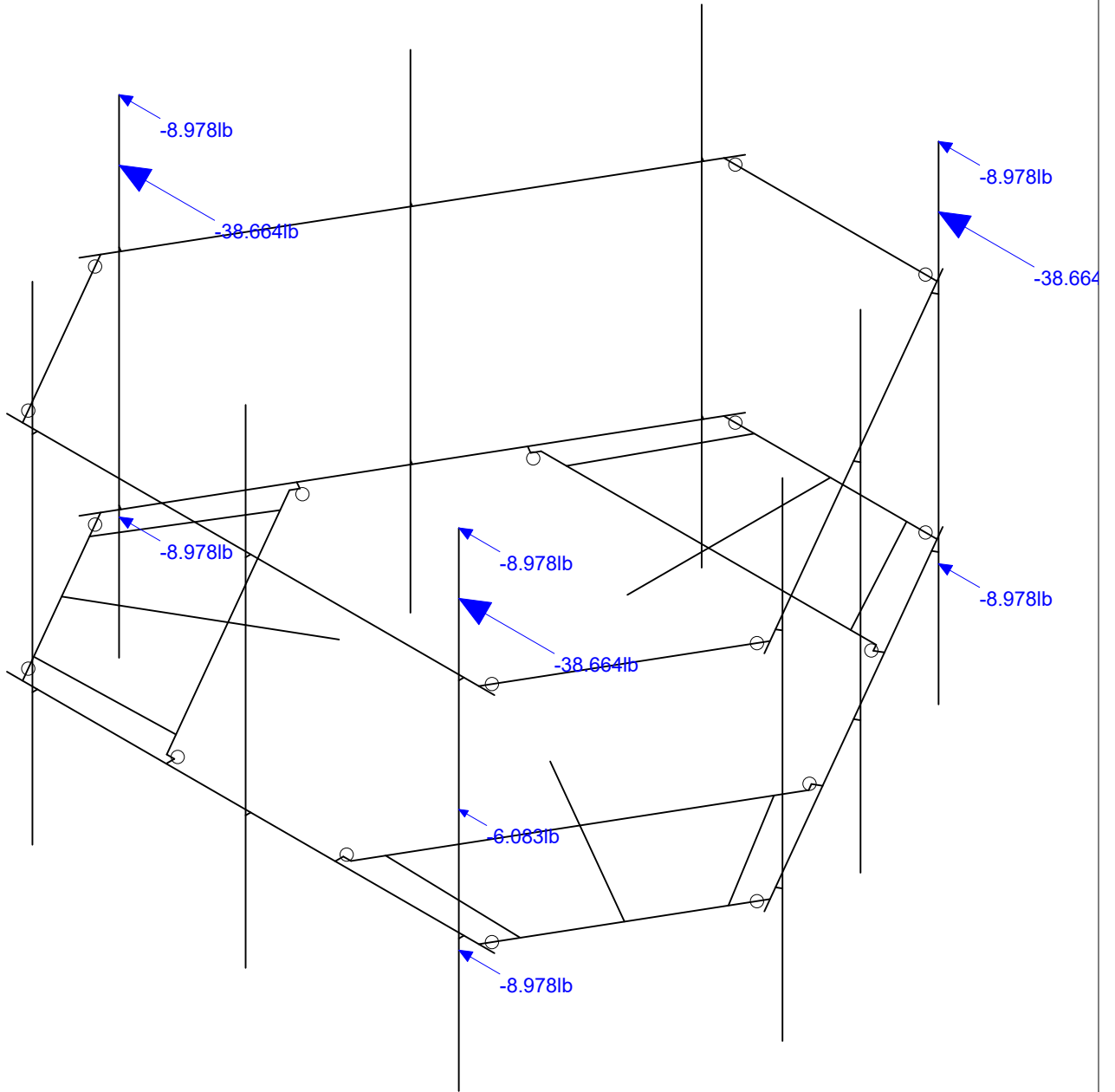
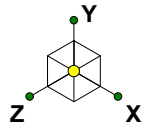
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Seismic Load AZI 000

Aug 26, 2021 at 1:46 PM

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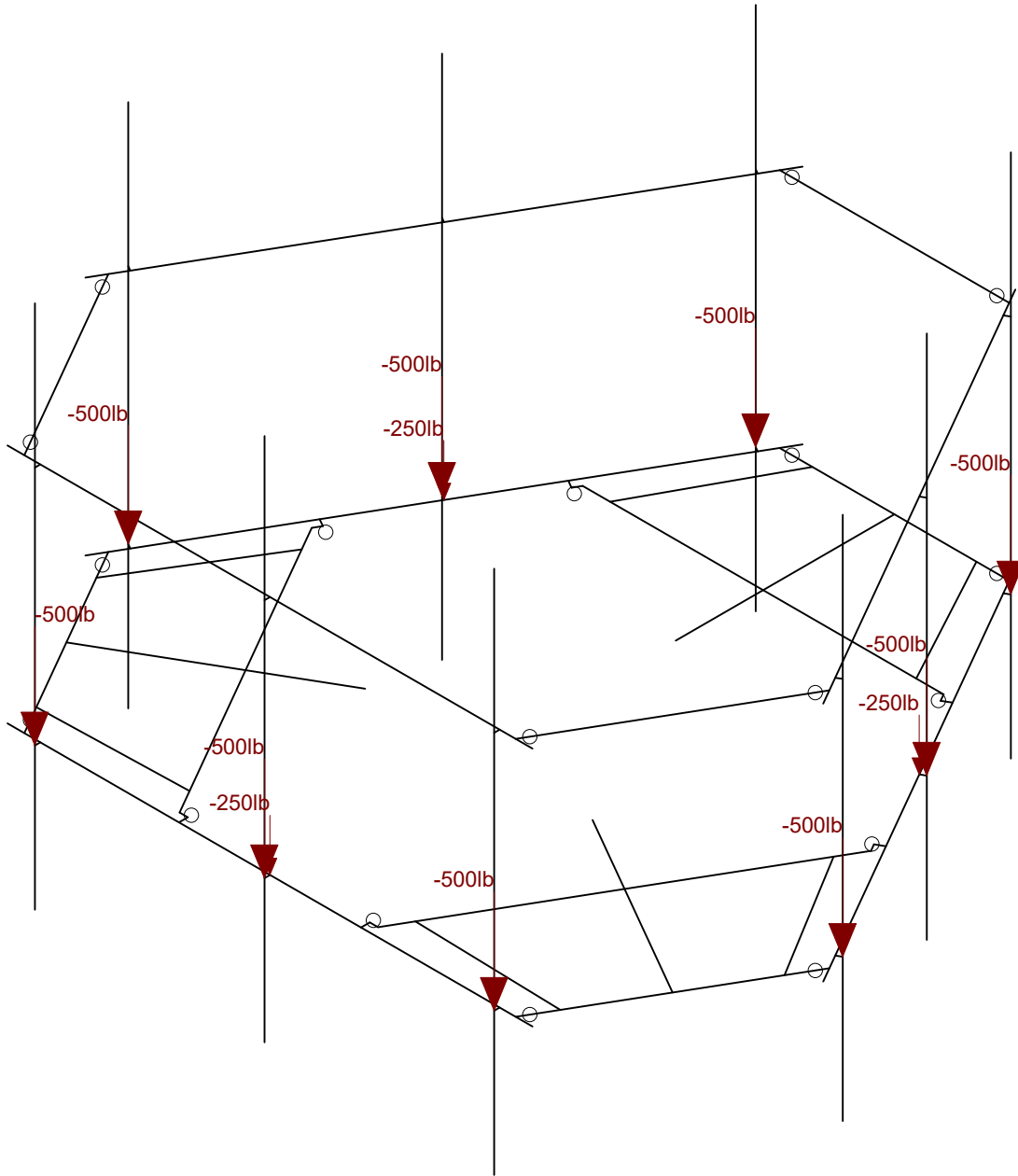
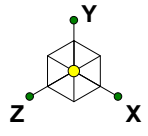


Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-C

BOBDL00008A

Seismic Load AZI 090
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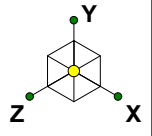


Loads: LL - Live Load
Envelope Only Solution

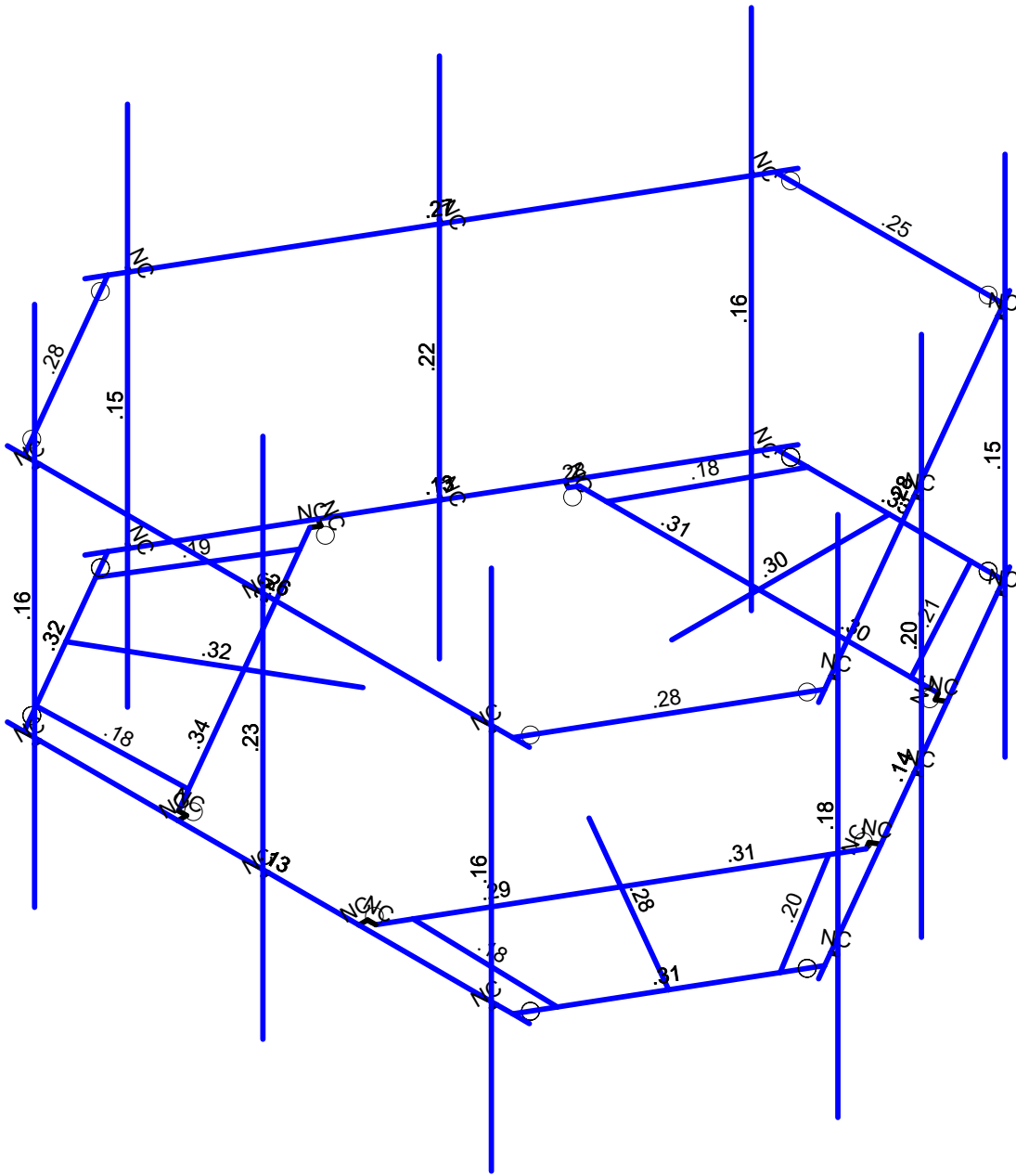
Infinigy Engineering, PLLC
PSM
1197-F0001-C

BOBDL00008A

Non-concurrent Live Loads
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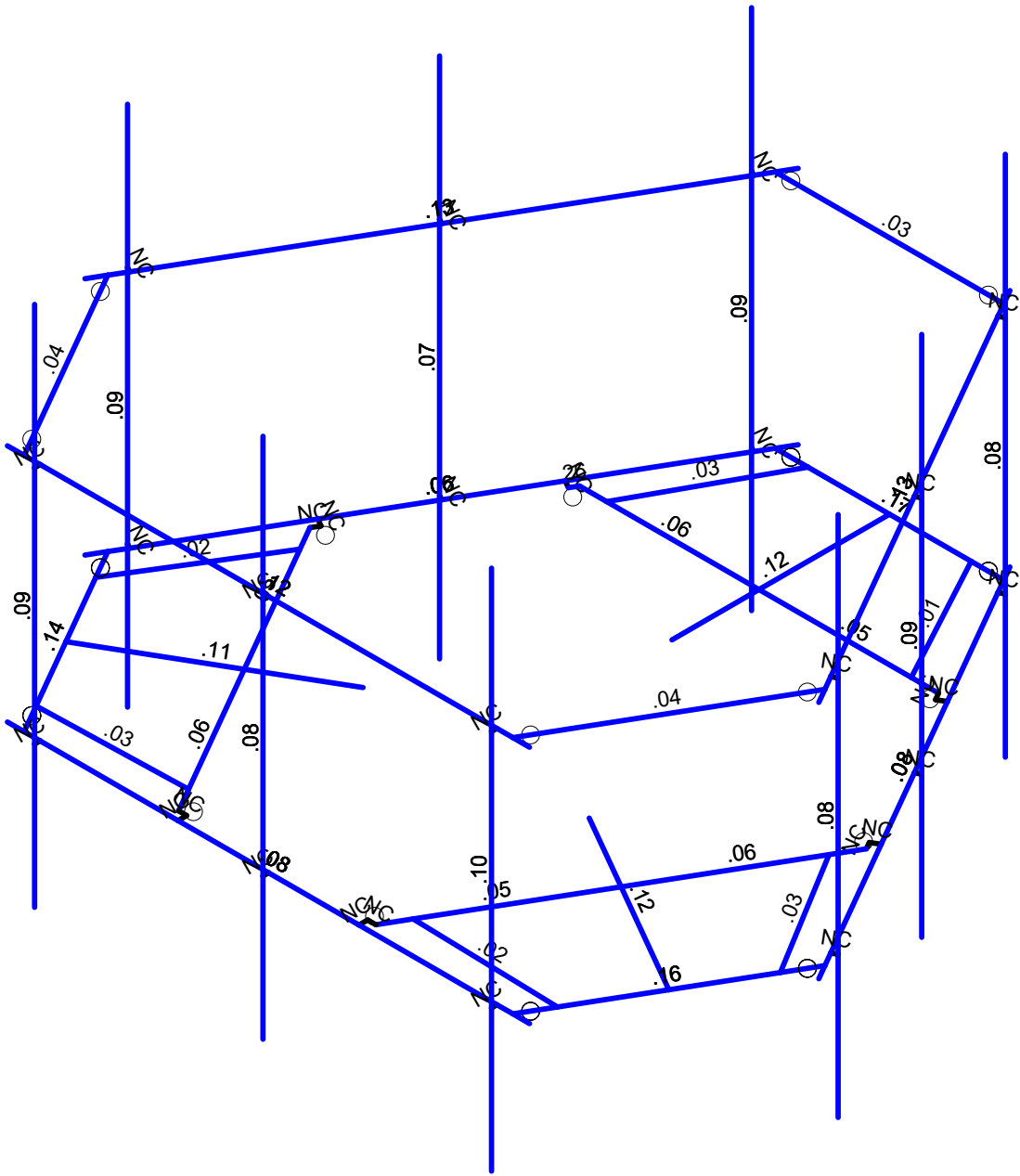
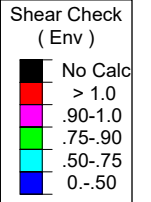
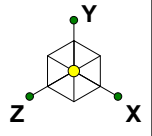


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Bending Check
PSM		Aug 26, 2021 at 1:47 PM
1197-F0001-C		BOBDL00008A_loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00008A	Shear Check
PSM		Aug 26, 2021 at 1:48 PM
1197-F0001-C		BOBDL00008A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	482.17	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	86.00	ft
Tower Height AGL:	160.00	ft

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

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.983	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

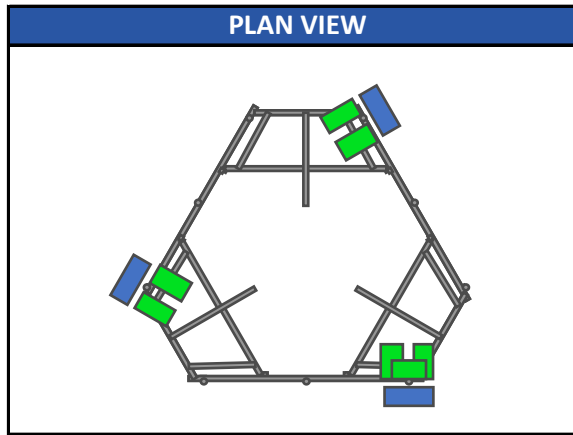
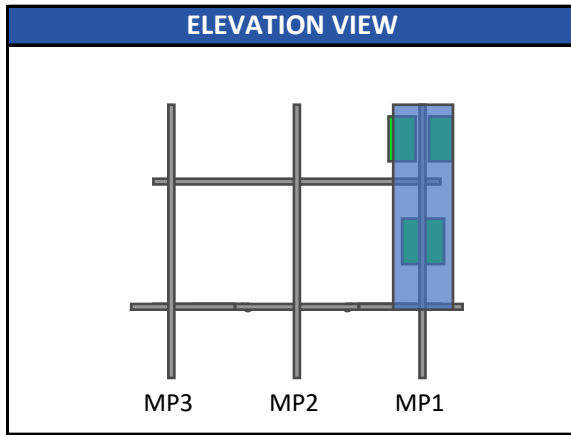
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2	in
Flat Pressure:	91.569	psf
Round Pressure:	54.941	psf
Ice Wind Pressure:	8.791	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.174	g
1-Second Accel. (S_1):	0.063	g
Short-Period Design (S_{DS}):	0.186	
1-Second Design (S_{D1}):	0.101	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.7

Program Inputs



Infinigy Load Calculator V2.1.7

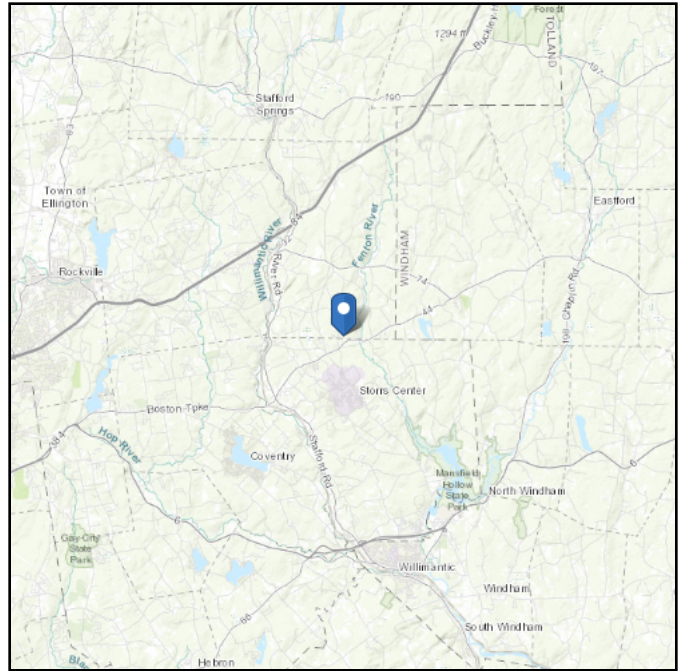
APPURTENANCE INFORMATION											
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft ²)	EPA_T (ft ²)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	86.0	3	0.90	45.78	8.01	3.21	330.06	132.27	64.50	17.96	MP1
FUJITSU TA08025-B605	86.0	3	0.90	45.78	1.96	1.19	80.91	49.00	74.95	20.87	MP1
FUJITSU TA08025-B604	86.0	3	0.90	45.78	1.96	1.03	80.91	42.56	63.93	17.80	MP1
RAYCAP RDIDC-9181-PF-48	86.0	1	0.90	45.78	1.87	1.07	76.92	43.95	21.85	6.08	MP1

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 482.17 ft (NAVD 88)
Latitude: 41.836606
Longitude: -72.254976



Wind

Results:

Wind Speed:	125 mph per Willington City Requirements in WSEL
10-year MRI	77 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	102 Vmph

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

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

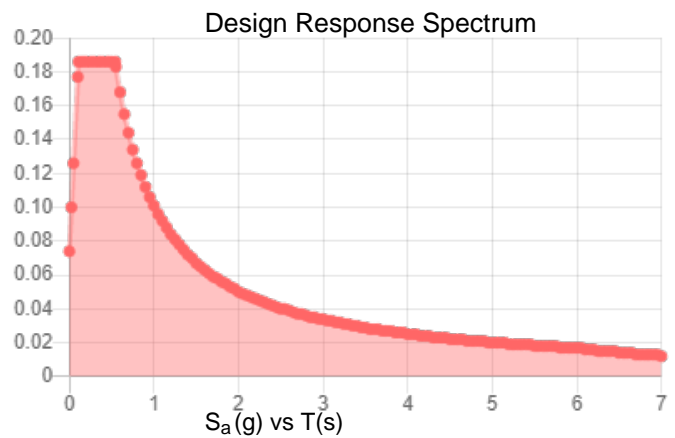
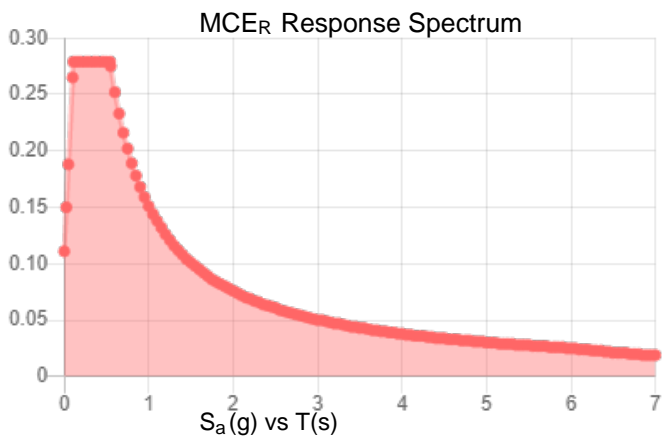
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.174	S_{DS} :	0.186
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.279	PGA _M :	0.139
S_{M1} :	0.151	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Aug 26 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Thu Aug 26 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Member Primary Data

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

Member Primary Data (Continued)

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

Hot Rolled Steel Design Parameters

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

Hot Rolled Steel Design Parameters (Continued)

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

Member Advanced Data

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

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
15	MP3						Yes		+y+3		None
16	HR1						Yes				None
17	CA8	00000X	00000X				Yes				None
18	CA9	00000X	00000X				Yes				None
19	CA7	00000X	00000X				Yes	Default			None
20	M32						Yes	** NA **			None
21	M35						Yes	** NA **			None
22	M36						Yes	** NA **			None
23	M39A						Yes	** NA **			None
24	CA3						Yes	Default			None
25	CA4						Yes	Default			None
26	CA1						Yes	Default			None
27	CA2						Yes	Default			None
28	CA5						Yes	Default			None
29	CA6						Yes	Default			None
30	M64	BenPIN					Yes	** NA **			None
31	M65						Yes	** NA **			None
32	M66	BenPIN					Yes	** NA **			None
33	M67						Yes	** NA **			None
34	M68	BenPIN					Yes	** NA **			None
35	M69						Yes	** NA **			None
36	M70	BenPIN					Yes	** NA **			None
37	M71						Yes	** NA **			None
38	M72	BenPIN					Yes	** NA **			None
39	M73						Yes	** NA **			None
40	M74	BenPIN					Yes	** NA **			None
41	M75						Yes	** NA **			None
42	MP2						Yes		+y+3		None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	H3						Yes				None
46	MP7						Yes		+y+3		None
47	MP9						Yes		+y+3		None
48	HR3						Yes				None
49	M52						Yes	** NA **			None
50	M53						Yes	** NA **			None
51	M54						Yes	** NA **			None
52	M55						Yes	** NA **			None
53	H2						Yes				None
54	MP4						Yes		+y+3		None
55	MP6						Yes		+y+3		None
56	HR2						Yes				None

Member Advanced Data (Continued)

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

Material Takeoff

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

Hot Rolled Steel Section Sets

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



Hot Rolled Steel Section Sets (Continued)

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

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			13		3	
2	Wind Load AZI 0	WLZ					26			
3	Wind Load AZI 30	None					26			
4	Wind Load AZI 60	None					26			
5	Wind Load AZI 90	WLX					26			
6	Wind Load AZI 1...	None					26			
7	Wind Load AZI 1...	None					26			
8	Wind Load AZI 1...	None					26			
9	Wind Load AZI 2...	None					26			
10	Wind Load AZI 2...	None					26			
11	Wind Load AZI 2...	None					26			
12	Wind Load AZI 3...	None					26			
13	Wind Load AZI 3...	None					26			
14	Distr. Wind Load Z	WLZ						66		
15	Distr. Wind Load X	WLX						66		
16	Ice Weight	OL1					13	66	3	
17	Ice Wind Load A...	OL2					26			
18	Ice Wind Load A...	None					26			
19	Ice Wind Load A...	None					26			
20	Ice Wind Load A...	OL3					26			
21	Ice Wind Load A...	None					26			
22	Ice Wind Load A...	None					26			
23	Ice Wind Load A...	None					26			
24	Ice Wind Load A...	None					26			
25	Ice Wind Load A...	None					26			
26	Ice Wind Load A...	None					26			
27	Ice Wind Load A...	None					26			
28	Ice Wind Load A...	None					26			
29	Distr. Ice Wind L...	OL2						66		
30	Distr. Ice Wind L...	OL3						66		
31	Seismic Load Z	ELZ			-.278		13			
32	Seismic Load X	ELX	-.278				13			
33	Service Live Loa...	LL					3			
34	Maintenance Loa...	LL					1			
35	Maintenance Loa...	LL					1			
36	Maintenance Loa...	LL					1			
37	Maintenance Loa...	LL					1			



Basic Load Cases (Continued)

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

Load Combinations

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

Load Combinations (Continued)

	Description	S...	P...	S...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...
32	1.2D + 1.0Di + 1.0Wi AZI 150	Y...	Y	1	1.2	16	1	22	1	29	-8...	30	.5							
33	1.2D + 1.0Di + 1.0Wi AZI 180	Y...	Y	1	1.2	16	1	23	1	29	-1	30								
34	1.2D + 1.0Di + 1.0Wi AZI 210	Y...	Y	1	1.2	16	1	24	1	29	-8...	30	-.5							
35	1.2D + 1.0Di + 1.0Wi AZI 240	Y...	Y	1	1.2	16	1	25	1	29	-.5	30	-8...							
36	1.2D + 1.0Di + 1.0Wi AZI 270	Y...	Y	1	1.2	16	1	26	1	29		30	-1							
37	1.2D + 1.0Di + 1.0Wi AZI 300	Y...	Y	1	1.2	16	1	27	1	29	.5	30	-8...							
38	1.2D + 1.0Di + 1.0Wi AZI 330	Y...	Y	1	1.2	16	1	28	1	29	.866	30	-.5							
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1	1.2	.31	1	32												
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1	1.2	.31	.866	32	.5											
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1	1.2	.31	.5	32	.866											
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1	1.2	.31		32	1											
43	(1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-.5	32	.866											
44	(1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-8...	32	.5											
45	(1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-1	32												
46	(1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31	-8...	32	-.5											
47	(1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31	-.5	32	-8...											
48	(1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31		32	-1											
49	(1.2 + 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	1.2	.31	.5	32	-8...											
50	(1.2 + 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	1.2	.31	.866	32	-.5											
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1	.863	31	1	32												
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1	.863	31	.866	32	.5											
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1	.863	31	.5	32	.866											
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1	.863	31		32	1											
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.863	31	-.5	32	.866											
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.863	31	-8...	32	.5											
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.863	31	-1	32												
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.863	31	-8...	32	-.5											
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.863	31	-.5	32	-8...											
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.863	31		32	-1											
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	.863	31	.5	32	-8...											
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	.863	31	.866	32	-.5											
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	2	.23	14	.23	15		33	1.5							
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	3	.23	14	.2	15	.115	33	1.5							
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	4	.23	14	.115	15	.2	33	1.5							
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	5	.23	14		15	.23	33	1.5							
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	6	.23	14	-.1...	15	.2	33	1.5							
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	7	.23	14	-.2	15	.115	33	1.5							
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	8	.23	14	-.23	15		33	1.5							
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	9	.23	14	-.2	15	-.1...	33	1.5							
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	10	.23	14	-.1...	15	-.2	33	1.5							
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	11	.23	14		15	-.23	33	1.5							
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	12	.23	14	.115	15	-.2	33	1.5							



Load Combinations (Continued)

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



Load Combinations (Continued)

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

Load Combinations (Continued)

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

Joint Boundary Conditions

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

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC		
1	P24	...	1041.351	6	2580.53	35	1600.9...	13	1045.1...	16	2044.936	19	4609.22	35
2		...	-1023.524	24	-574.4...	16	-1593.0...	19	-4107.6...	35	-2061.01	13	-1844.425	16
3	P13	...	1215.094	4	2833.4...	31	1589.9...	15	1027.6...	24	2164.838	15	1708.649	24
4		...	-1214.072	22	-517.3...	24	-1596.6...	9	-2815.9...	92	-2210.423	9	-6491.354	31
5	P1	...	1586.834	17	2627.2...	27	826.858	2	6326.7...	27	1798.832	11	1581.926	115

Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6	-1605.803	11	-592.72	20	-833.674	8	-2175.6...	20	-1747.548	17	-863.725	157
7	Totals: 3649.335	5	7284.4...	34	3865.2...	14						
8	-3649.327	23	1535.14	53	-3865.2...	8						

Member Point Loads (BLC 1 : Self Weight)

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	0	0
2	MP1	Z	-165.03	0
3	MP1	X	0	72
4	MP1	Z	-165.03	72
5	MP1	X	0	12
6	MP1	Z	-80.91	12
7	MP1	X	0	12
8	MP1	Z	-80.91	12
9	MP1	X	0	48
10	MP1	Z	-76.92	48
11	MP4	X	0	0
12	MP4	Z	-90.86	0
13	MP4	X	0	72
14	MP4	Z	-90.86	72
15	MP4	X	0	12
16	MP4	Z	-56.98	12
17	MP4	X	0	12
18	MP4	Z	-52.15	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP7	X	0	0
20	MP7	Z	-90.86	0
21	MP7	X	0	72
22	MP7	Z	-90.86	72
23	MP7	X	0	12
24	MP7	Z	-56.98	12
25	MP7	X	0	12
26	MP7	Z	-52.15	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-70.15	0
2	MP1	Z	-121.51	0
3	MP1	X	-70.15	72
4	MP1	Z	-121.51	72
5	MP1	X	-36.47	12
6	MP1	Z	-63.16	12
7	MP1	X	-35.66	12
8	MP1	Z	-61.77	12
9	MP1	X	-34.34	48
10	MP1	Z	-59.48	48
11	MP4	X	-70.15	0
12	MP4	Z	-121.51	0
13	MP4	X	-70.15	72
14	MP4	Z	-121.51	72
15	MP4	X	-36.47	12
16	MP4	Z	-63.16	12
17	MP4	X	-35.66	12
18	MP4	Z	-61.77	12
19	MP7	X	-33.07	0
20	MP7	Z	-57.27	0
21	MP7	X	-33.07	72
22	MP7	Z	-57.27	72
23	MP7	X	-24.5	12
24	MP7	Z	-42.43	12
25	MP7	X	-21.28	12
26	MP7	Z	-36.86	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-78.69	0



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-45.43	0
3	MP1	X	-78.69	72
4	MP1	Z	-45.43	72
5	MP1	X	-49.34	12
6	MP1	Z	-28.49	12
7	MP1	X	-45.16	12
8	MP1	Z	-26.07	12
9	MP1	X	-45.2	48
10	MP1	Z	-26.1	48
11	MP4	X	-142.92	0
12	MP4	Z	-82.51	0
13	MP4	X	-142.92	72
14	MP4	Z	-82.51	72
15	MP4	X	-70.07	12
16	MP4	Z	-40.45	12
17	MP4	X	-70.07	12
18	MP4	Z	-40.45	12
19	MP7	X	-78.69	0
20	MP7	Z	-45.43	0
21	MP7	X	-78.69	72
22	MP7	Z	-45.43	72
23	MP7	X	-49.34	12
24	MP7	Z	-28.49	12
25	MP7	X	-45.16	12
26	MP7	Z	-26.07	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-66.14	0
2	MP1	Z	0	0
3	MP1	X	-66.14	72
4	MP1	Z	0	72
5	MP1	X	-49	12
6	MP1	Z	0	12
7	MP1	X	-42.56	12
8	MP1	Z	0	12
9	MP1	X	-43.95	48
10	MP1	Z	0	48
11	MP4	X	-140.31	0
12	MP4	Z	0	0
13	MP4	X	-140.31	72
14	MP4	Z	0	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	MP4	X	-72.93	12
16	MP4	Z	0	12
17	MP4	X	-71.32	12
18	MP4	Z	0	12
19	MP7	X	-140.31	0
20	MP7	Z	0	0
21	MP7	X	-140.31	72
22	MP7	Z	0	72
23	MP7	X	-72.93	12
24	MP7	Z	0	12
25	MP7	X	-71.32	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-78.69	0
2	MP1	Z	45.43	0
3	MP1	X	-78.69	72
4	MP1	Z	45.43	72
5	MP1	X	-49.34	12
6	MP1	Z	28.49	12
7	MP1	X	-45.16	12
8	MP1	Z	26.07	12
9	MP1	X	-45.2	48
10	MP1	Z	26.1	48
11	MP4	X	-78.69	0
12	MP4	Z	45.43	0
13	MP4	X	-78.69	72
14	MP4	Z	45.43	72
15	MP4	X	-49.34	12
16	MP4	Z	28.49	12
17	MP4	X	-45.16	12
18	MP4	Z	26.07	12
19	MP7	X	-142.92	0
20	MP7	Z	82.51	0
21	MP7	X	-142.92	72
22	MP7	Z	82.51	72
23	MP7	X	-70.07	12
24	MP7	Z	40.45	12
25	MP7	X	-70.07	12
26	MP7	Z	40.45	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-70.15	0
2	MP1	Z	121.51	0
3	MP1	X	-70.15	72
4	MP1	Z	121.51	72
5	MP1	X	-36.47	12
6	MP1	Z	63.16	12
7	MP1	X	-35.66	12
8	MP1	Z	61.77	12
9	MP1	X	-34.34	48
10	MP1	Z	59.48	48
11	MP4	X	-33.07	0
12	MP4	Z	57.27	0
13	MP4	X	-33.07	72
14	MP4	Z	57.27	72
15	MP4	X	-24.5	12
16	MP4	Z	42.43	12
17	MP4	X	-21.28	12
18	MP4	Z	36.86	12
19	MP7	X	-70.15	0
20	MP7	Z	121.51	0
21	MP7	X	-70.15	72
22	MP7	Z	121.51	72
23	MP7	X	-36.47	12
24	MP7	Z	63.16	12
25	MP7	X	-35.66	12
26	MP7	Z	61.77	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	165.03	0
3	MP1	X	0	72
4	MP1	Z	165.03	72
5	MP1	X	0	12
6	MP1	Z	80.91	12
7	MP1	X	0	12
8	MP1	Z	80.91	12
9	MP1	X	0	48
10	MP1	Z	76.92	48
11	MP4	X	0	0
12	MP4	Z	90.86	0
13	MP4	X	0	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	90.86	72
15	MP4	X	0	12
16	MP4	Z	56.98	12
17	MP4	X	0	12
18	MP4	Z	52.15	12
19	MP7	X	0	0
20	MP7	Z	90.86	0
21	MP7	X	0	72
22	MP7	Z	90.86	72
23	MP7	X	0	12
24	MP7	Z	56.98	12
25	MP7	X	0	12
26	MP7	Z	52.15	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	70.15	0
2	MP1	Z	121.51	0
3	MP1	X	70.15	72
4	MP1	Z	121.51	72
5	MP1	X	36.47	12
6	MP1	Z	63.16	12
7	MP1	X	35.66	12
8	MP1	Z	61.77	12
9	MP1	X	34.34	48
10	MP1	Z	59.48	48
11	MP4	X	70.15	0
12	MP4	Z	121.51	0
13	MP4	X	70.15	72
14	MP4	Z	121.51	72
15	MP4	X	36.47	12
16	MP4	Z	63.16	12
17	MP4	X	35.66	12
18	MP4	Z	61.77	12
19	MP7	X	33.07	0
20	MP7	Z	57.27	0
21	MP7	X	33.07	72
22	MP7	Z	57.27	72
23	MP7	X	24.5	12
24	MP7	Z	42.43	12
25	MP7	X	21.28	12
26	MP7	Z	36.86	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	78.69	0
2	MP1	Z	45.43	0
3	MP1	X	78.69	72
4	MP1	Z	45.43	72
5	MP1	X	49.34	12
6	MP1	Z	28.49	12
7	MP1	X	45.16	12
8	MP1	Z	26.07	12
9	MP1	X	45.2	48
10	MP1	Z	26.1	48
11	MP4	X	142.92	0
12	MP4	Z	82.51	0
13	MP4	X	142.92	72
14	MP4	Z	82.51	72
15	MP4	X	70.07	12
16	MP4	Z	40.45	12
17	MP4	X	70.07	12
18	MP4	Z	40.45	12
19	MP7	X	78.69	0
20	MP7	Z	45.43	0
21	MP7	X	78.69	72
22	MP7	Z	45.43	72
23	MP7	X	49.34	12
24	MP7	Z	28.49	12
25	MP7	X	45.16	12
26	MP7	Z	26.07	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	66.14	0
2	MP1	Z	0	0
3	MP1	X	66.14	72
4	MP1	Z	0	72
5	MP1	X	49	12
6	MP1	Z	0	12
7	MP1	X	42.56	12
8	MP1	Z	0	12
9	MP1	X	43.95	48
10	MP1	Z	0	48
11	MP4	X	140.31	0
12	MP4	Z	0	0
13	MP4	X	140.31	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	0	72
15	MP4	X	72.93	12
16	MP4	Z	0	12
17	MP4	X	71.32	12
18	MP4	Z	0	12
19	MP7	X	140.31	0
20	MP7	Z	0	0
21	MP7	X	140.31	72
22	MP7	Z	0	72
23	MP7	X	72.93	12
24	MP7	Z	0	12
25	MP7	X	71.32	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	78.69	0
2	MP1	Z	-45.43	0
3	MP1	X	78.69	72
4	MP1	Z	-45.43	72
5	MP1	X	49.34	12
6	MP1	Z	-28.49	12
7	MP1	X	45.16	12
8	MP1	Z	-26.07	12
9	MP1	X	45.2	48
10	MP1	Z	-26.1	48
11	MP4	X	78.69	0
12	MP4	Z	-45.43	0
13	MP4	X	78.69	72
14	MP4	Z	-45.43	72
15	MP4	X	49.34	12
16	MP4	Z	-28.49	12
17	MP4	X	45.16	12
18	MP4	Z	-26.07	12
19	MP7	X	142.92	0
20	MP7	Z	-82.51	0
21	MP7	X	142.92	72
22	MP7	Z	-82.51	72
23	MP7	X	70.07	12
24	MP7	Z	-40.45	12
25	MP7	X	70.07	12
26	MP7	Z	-40.45	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	70.15	0
2	MP1	Z	-121.51	0
3	MP1	X	70.15	72
4	MP1	Z	-121.51	72
5	MP1	X	36.47	12
6	MP1	Z	-63.16	12
7	MP1	X	35.66	12
8	MP1	Z	-61.77	12
9	MP1	X	34.34	48
10	MP1	Z	-59.48	48
11	MP4	X	33.07	0
12	MP4	Z	-57.27	0
13	MP4	X	33.07	72
14	MP4	Z	-57.27	72
15	MP4	X	24.5	12
16	MP4	Z	-42.43	12
17	MP4	X	21.28	12
18	MP4	Z	-36.86	12
19	MP7	X	70.15	0
20	MP7	Z	-121.51	0
21	MP7	X	70.15	72
22	MP7	Z	-121.51	72
23	MP7	X	36.47	12
24	MP7	Z	-63.16	12
25	MP7	X	35.66	12
26	MP7	Z	-61.77	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-187.997	0
2	MP1	Y	-187.997	72
3	MP1	Y	-101.046	12
4	MP1	Y	-95.086	12
5	MP1	Y	-92.823	48
6	MP4	Y	-187.997	0
7	MP4	Y	-187.997	72
8	MP4	Y	-101.046	12
9	MP4	Y	-95.086	12
10	MP7	Y	-187.997	0
11	MP7	Y	-187.997	72
12	MP7	Y	-101.046	12
13	MP7	Y	-95.086	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-21.94	0
3	MP1	X	0	72
4	MP1	Z	-21.94	72
5	MP1	X	0	12
6	MP1	Z	-8.93	12
7	MP1	X	0	12
8	MP1	Z	-8.93	12
9	MP1	X	0	48
10	MP1	Z	-8.59	48
11	MP4	X	0	0
12	MP4	Z	-16.32	0
13	MP4	X	0	72
14	MP4	Z	-16.32	72
15	MP4	X	0	12
16	MP4	Z	-7.46	12
17	MP4	X	0	12
18	MP4	Z	-7.22	12
19	MP7	X	0	0
20	MP7	Z	-16.32	0
21	MP7	X	0	72
22	MP7	Z	-16.32	72
23	MP7	X	0	12
24	MP7	Z	-7.46	12
25	MP7	X	0	12
26	MP7	Z	-7.22	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.03	0
2	MP1	Z	-17.38	0
3	MP1	X	-10.03	72
4	MP1	Z	-17.38	72
5	MP1	X	-4.22	12
6	MP1	Z	-7.31	12
7	MP1	X	-4.18	12
8	MP1	Z	-7.24	12
9	MP1	X	-4.07	48
10	MP1	Z	-7.05	48
11	MP4	X	-10.03	0
12	MP4	Z	-17.38	0
13	MP4	X	-10.03	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
14	MP4	Z	-17.38	72
15	MP4	X	-4.22	12
16	MP4	Z	-7.31	12
17	MP4	X	-4.18	12
18	MP4	Z	-7.24	12
19	MP7	X	-7.22	0
20	MP7	Z	-12.51	0
21	MP7	X	-7.22	72
22	MP7	Z	-12.51	72
23	MP7	X	-3.49	12
24	MP7	Z	-6.04	12
25	MP7	X	-3.32	12
26	MP7	Z	-5.76	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	-14.13	0
2	MP1	Z	-8.16	0
3	MP1	X	-14.13	72
4	MP1	Z	-8.16	72
5	MP1	X	-6.46	12
6	MP1	Z	-3.73	12
7	MP1	X	-6.25	12
8	MP1	Z	-3.61	12
9	MP1	X	-6.26	48
10	MP1	Z	-3.61	48
11	MP4	X	-19	0
12	MP4	Z	-10.97	0
13	MP4	X	-19	72
14	MP4	Z	-10.97	72
15	MP4	X	-7.74	12
16	MP4	Z	-4.47	12
17	MP4	X	-7.74	12
18	MP4	Z	-4.47	12
19	MP7	X	-14.13	0
20	MP7	Z	-8.16	0
21	MP7	X	-14.13	72
22	MP7	Z	-8.16	72
23	MP7	X	-6.46	12
24	MP7	Z	-3.73	12
25	MP7	X	-6.25	12
26	MP7	Z	-3.61	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-14.45	0
2	MP1	Z	0	0
3	MP1	X	-14.45	72
4	MP1	Z	0	72
5	MP1	X	-6.97	12
6	MP1	Z	0	12
7	MP1	X	-6.65	12
8	MP1	Z	0	12
9	MP1	X	-6.77	48
10	MP1	Z	0	48
11	MP4	X	-20.07	0
12	MP4	Z	0	0
13	MP4	X	-20.07	72
14	MP4	Z	0	72
15	MP4	X	-8.44	12
16	MP4	Z	0	12
17	MP4	X	-8.36	12
18	MP4	Z	0	12
19	MP7	X	-20.07	0
20	MP7	Z	0	0
21	MP7	X	-20.07	72
22	MP7	Z	0	72
23	MP7	X	-8.44	12
24	MP7	Z	0	12
25	MP7	X	-8.36	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-14.13	0
2	MP1	Z	8.16	0
3	MP1	X	-14.13	72
4	MP1	Z	8.16	72
5	MP1	X	-6.46	12
6	MP1	Z	3.73	12
7	MP1	X	-6.25	12
8	MP1	Z	3.61	12
9	MP1	X	-6.26	48
10	MP1	Z	3.61	48
11	MP4	X	-14.13	0
12	MP4	Z	8.16	0
13	MP4	X	-14.13	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
14	MP4	Z	8.16	72
15	MP4	X	-6.46	12
16	MP4	Z	3.73	12
17	MP4	X	-6.25	12
18	MP4	Z	3.61	12
19	MP7	X	-19	0
20	MP7	Z	10.97	0
21	MP7	X	-19	72
22	MP7	Z	10.97	72
23	MP7	X	-7.74	12
24	MP7	Z	4.47	12
25	MP7	X	-7.74	12
26	MP7	Z	4.47	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	-10.03	0
2	MP1	Z	17.38	0
3	MP1	X	-10.03	72
4	MP1	Z	17.38	72
5	MP1	X	-4.22	12
6	MP1	Z	7.31	12
7	MP1	X	-4.18	12
8	MP1	Z	7.24	12
9	MP1	X	-4.07	48
10	MP1	Z	7.05	48
11	MP4	X	-7.22	0
12	MP4	Z	12.51	0
13	MP4	X	-7.22	72
14	MP4	Z	12.51	72
15	MP4	X	-3.49	12
16	MP4	Z	6.04	12
17	MP4	X	-3.32	12
18	MP4	Z	5.76	12
19	MP7	X	-10.03	0
20	MP7	Z	17.38	0
21	MP7	X	-10.03	72
22	MP7	Z	17.38	72
23	MP7	X	-4.22	12
24	MP7	Z	7.31	12
25	MP7	X	-4.18	12
26	MP7	Z	7.24	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	0	0
2	MP1	Z	21.94	0
3	MP1	X	0	72
4	MP1	Z	21.94	72
5	MP1	X	0	12
6	MP1	Z	8.93	12
7	MP1	X	0	12
8	MP1	Z	8.93	12
9	MP1	X	0	48
10	MP1	Z	8.59	48
11	MP4	X	0	0
12	MP4	Z	16.32	0
13	MP4	X	0	72
14	MP4	Z	16.32	72
15	MP4	X	0	12
16	MP4	Z	7.46	12
17	MP4	X	0	12
18	MP4	Z	7.22	12
19	MP7	X	0	0
20	MP7	Z	16.32	0
21	MP7	X	0	72
22	MP7	Z	16.32	72
23	MP7	X	0	12
24	MP7	Z	7.46	12
25	MP7	X	0	12
26	MP7	Z	7.22	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	10.03	0
2	MP1	Z	17.38	0
3	MP1	X	10.03	72
4	MP1	Z	17.38	72
5	MP1	X	4.22	12
6	MP1	Z	7.31	12
7	MP1	X	4.18	12
8	MP1	Z	7.24	12
9	MP1	X	4.07	48
10	MP1	Z	7.05	48
11	MP4	X	10.03	0
12	MP4	Z	17.38	0
13	MP4	X	10.03	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	17.38	72
15	MP4	X	4.22	12
16	MP4	Z	7.31	12
17	MP4	X	4.18	12
18	MP4	Z	7.24	12
19	MP7	X	7.22	0
20	MP7	Z	12.51	0
21	MP7	X	7.22	72
22	MP7	Z	12.51	72
23	MP7	X	3.49	12
24	MP7	Z	6.04	12
25	MP7	X	3.32	12
26	MP7	Z	5.76	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.13	0
2	MP1	Z	8.16	0
3	MP1	X	14.13	72
4	MP1	Z	8.16	72
5	MP1	X	6.46	12
6	MP1	Z	3.73	12
7	MP1	X	6.25	12
8	MP1	Z	3.61	12
9	MP1	X	6.26	48
10	MP1	Z	3.61	48
11	MP4	X	19	0
12	MP4	Z	10.97	0
13	MP4	X	19	72
14	MP4	Z	10.97	72
15	MP4	X	7.74	12
16	MP4	Z	4.47	12
17	MP4	X	7.74	12
18	MP4	Z	4.47	12
19	MP7	X	14.13	0
20	MP7	Z	8.16	0
21	MP7	X	14.13	72
22	MP7	Z	8.16	72
23	MP7	X	6.46	12
24	MP7	Z	3.73	12
25	MP7	X	6.25	12
26	MP7	Z	3.61	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.45	0
2	MP1	Z	0	0
3	MP1	X	14.45	72
4	MP1	Z	0	72
5	MP1	X	6.97	12
6	MP1	Z	0	12
7	MP1	X	6.65	12
8	MP1	Z	0	12
9	MP1	X	6.77	48
10	MP1	Z	0	48
11	MP4	X	20.07	0
12	MP4	Z	0	0
13	MP4	X	20.07	72
14	MP4	Z	0	72
15	MP4	X	8.44	12
16	MP4	Z	0	12
17	MP4	X	8.36	12
18	MP4	Z	0	12
19	MP7	X	20.07	0
20	MP7	Z	0	0
21	MP7	X	20.07	72
22	MP7	Z	0	72
23	MP7	X	8.44	12
24	MP7	Z	0	12
25	MP7	X	8.36	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.13	0
2	MP1	Z	-8.16	0
3	MP1	X	14.13	72
4	MP1	Z	-8.16	72
5	MP1	X	6.46	12
6	MP1	Z	-3.73	12
7	MP1	X	6.25	12
8	MP1	Z	-3.61	12
9	MP1	X	6.26	48
10	MP1	Z	-3.61	48
11	MP4	X	14.13	0
12	MP4	Z	-8.16	0
13	MP4	X	14.13	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-8.16	72
15	MP4	X	6.46	12
16	MP4	Z	-3.73	12
17	MP4	X	6.25	12
18	MP4	Z	-3.61	12
19	MP7	X	19	0
20	MP7	Z	-10.97	0
21	MP7	X	19	72
22	MP7	Z	-10.97	72
23	MP7	X	7.74	12
24	MP7	Z	-4.47	12
25	MP7	X	7.74	12
26	MP7	Z	-4.47	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.03	0
2	MP1	Z	-17.38	0
3	MP1	X	10.03	72
4	MP1	Z	-17.38	72
5	MP1	X	4.22	12
6	MP1	Z	-7.31	12
7	MP1	X	4.18	12
8	MP1	Z	-7.24	12
9	MP1	X	4.07	48
10	MP1	Z	-7.05	48
11	MP4	X	7.22	0
12	MP4	Z	-12.51	0
13	MP4	X	7.22	72
14	MP4	Z	-12.51	72
15	MP4	X	3.49	12
16	MP4	Z	-6.04	12
17	MP4	X	3.32	12
18	MP4	Z	-5.76	12
19	MP7	X	10.03	0
20	MP7	Z	-17.38	0
21	MP7	X	10.03	72
22	MP7	Z	-17.38	72
23	MP7	X	4.22	12
24	MP7	Z	-7.31	12
25	MP7	X	4.18	12
26	MP7	Z	-7.24	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-8.978	0
2	MP1	Z	-8.978	72
3	MP1	Z	-20.866	12
4	MP1	Z	-17.798	12
5	MP1	Z	-6.083	48
6	MP4	Z	-8.978	0
7	MP4	Z	-8.978	72
8	MP4	Z	-20.866	12
9	MP4	Z	-17.798	12
10	MP7	Z	-8.978	0
11	MP7	Z	-8.978	72
12	MP7	Z	-20.866	12
13	MP7	Z	-17.798	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.978	0
2	MP1	X	-8.978	72
3	MP1	X	-20.866	12
4	MP1	X	-17.798	12
5	MP1	X	-6.083	48
6	MP4	X	-8.978	0
7	MP4	X	-8.978	72
8	MP4	X	-20.866	12
9	MP4	X	-17.798	12
10	MP7	X	-8.978	0
11	MP7	X	-8.978	72
12	MP7	X	-20.866	12
13	MP7	X	-17.798	12

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location..	End Location[in,%]
1	S3	SZ	-91.569	-91.569	0	%100
2	GA4	SZ	-91.569	-91.569	0	%100
3	GA3	SZ	-91.569	-91.569	0	%100
4	P3	SZ	-91.569	-91.569	0	%100
5	S2	SZ	-91.569	-91.569	0	%100
6	GA2	SZ	-91.569	-91.569	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
7	GA1	SZ	-91.569	-91.569	0	%100
8	P2	SZ	-91.569	-91.569	0	%100
9	S1	SZ	-91.569	-91.569	0	%100
10	GA6	SZ	-91.569	-91.569	0	%100
11	GA5	SZ	-91.569	-91.569	0	%100
12	P1	SZ	-91.569	-91.569	0	%100
13	H1	SZ	-54.941	-54.941	0	%100
14	MP1	SZ	-54.941	-54.941	0	%100
15	MP3	SZ	-54.941	-54.941	0	%100
16	HR1	SZ	-54.941	-54.941	0	%100
17	CA8	SZ	-91.569	-91.569	0	%100
18	CA9	SZ	-91.569	-91.569	0	%100
19	CA7	SZ	-91.569	-91.569	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-91.569	-91.569	0	%100
25	CA4	SZ	-91.569	-91.569	0	%100
26	CA1	SZ	-91.569	-91.569	0	%100
27	CA2	SZ	-91.569	-91.569	0	%100
28	CA5	SZ	-91.569	-91.569	0	%100
29	CA6	SZ	-91.569	-91.569	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-91.569	-91.569	0	%100
42	MP2	SZ	-54.941	-54.941	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-54.941	-54.941	0	%100
46	MP7	SZ	-54.941	-54.941	0	%100
47	MP9	SZ	-54.941	-54.941	0	%100
48	HR3	SZ	-54.941	-54.941	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100
52	M55	SZ	0	0	0	%100
53	H2	SZ	-54.941	-54.941	0	%100
54	MP4	SZ	-54.941	-54.941	0	%100
55	MP6	SZ	-54.941	-54.941	0	%100
56	HR2	SZ	-54.941	-54.941	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-54.941	-54.941	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-54.941	-54.941	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	SX	-91.569	-91.569	0	%100
2	GA4	SX	-91.569	-91.569	0	%100
3	GA3	SX	-91.569	-91.569	0	%100
4	P3	SX	-91.569	-91.569	0	%100
5	S2	SX	-91.569	-91.569	0	%100
6	GA2	SX	-91.569	-91.569	0	%100
7	GA1	SX	-91.569	-91.569	0	%100
8	P2	SX	-91.569	-91.569	0	%100
9	S1	SX	-91.569	-91.569	0	%100
10	GA6	SX	-91.569	-91.569	0	%100
11	GA5	SX	-91.569	-91.569	0	%100
12	P1	SX	-91.569	-91.569	0	%100
13	H1	SX	-54.941	-54.941	0	%100
14	MP1	SX	-54.941	-54.941	0	%100
15	MP3	SX	-54.941	-54.941	0	%100
16	HR1	SX	-54.941	-54.941	0	%100
17	CA8	SX	-91.569	-91.569	0	%100
18	CA9	SX	-91.569	-91.569	0	%100
19	CA7	SX	-91.569	-91.569	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-91.569	-91.569	0	%100
25	CA4	SX	-91.569	-91.569	0	%100
26	CA1	SX	-91.569	-91.569	0	%100
27	CA2	SX	-91.569	-91.569	0	%100
28	CA5	SX	-91.569	-91.569	0	%100
29	CA6	SX	-91.569	-91.569	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-91.569	-91.569	0	%100
42	MP2	SX	-54.941	-54.941	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-54.941	-54.941	0	%100
46	MP7	SX	-54.941	-54.941	0	%100
47	MP9	SX	-54.941	-54.941	0	%100
48	HR3	SX	-54.941	-54.941	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-54.941	-54.941	0	%100
54	MP4	SX	-54.941	-54.941	0	%100
55	MP6	SX	-54.941	-54.941	0	%100
56	HR2	SX	-54.941	-54.941	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-54.941	-54.941	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
64	MP5	SX	-54.941	-54.941	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	Y	-21.131	-21.131	0	%100
2	GA4	Y	-13.525	-13.525	0	%100
3	GA3	Y	-13.525	-13.525	0	%100
4	P3	Y	-23.427	-23.427	0	%100
5	S2	Y	-21.131	-21.131	0	%100
6	GA2	Y	-13.525	-13.525	0	%100
7	GA1	Y	-13.525	-13.525	0	%100
8	P2	Y	-23.427	-23.427	0	%100
9	S1	Y	-21.131	-21.131	0	%100
10	GA6	Y	-13.525	-13.525	0	%100
11	GA5	Y	-13.525	-13.525	0	%100
12	P1	Y	-23.427	-23.427	0	%100
13	H1	Y	-15.331	-15.331	0	%100
14	MP1	Y	-13.65	-13.65	0	%100
15	MP3	Y	-13.65	-13.65	0	%100
16	HR1	Y	-13.663	-13.663	0	%100
17	CA8	Y	-27.339	-27.339	0	%100
18	CA9	Y	-27.339	-27.339	0	%100
19	CA7	Y	-27.339	-27.339	0	%100
20	M32	Y	-5.919	-5.919	0	%100
21	M35	Y	-5.919	-5.919	0	%100
22	M36	Y	-5.919	-5.919	0	%100
23	M39A	Y	-5.919	-5.919	0	%100
24	CA3	Y	-16.563	-16.563	0	%100
25	CA4	Y	-16.563	-16.563	0	%100
26	CA1	Y	-16.563	-16.563	0	%100
27	CA2	Y	-16.563	-16.563	0	%100
28	CA5	Y	-16.563	-16.563	0	%100
29	CA6	Y	-16.563	-16.563	0	%100
30	M64	Y	-5.919	-5.919	0	%100
31	M65	Y	-5.919	-5.919	0	%100
32	M66	Y	-5.919	-5.919	0	%100
33	M67	Y	-5.919	-5.919	0	%100
34	M68	Y	-5.919	-5.919	0	%100
35	M69	Y	-5.919	-5.919	0	%100
36	M70	Y	-5.919	-5.919	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
37	M71	Y	-5.919	-5.919	0	%100
38	M72	Y	-5.919	-5.919	0	%100
39	M73	Y	-5.919	-5.919	0	%100
40	M74	Y	-5.919	-5.919	0	%100
41	M75	Y	-12.445	-12.445	0	%100
42	MP2	Y	-13.65	-13.65	0	%100
43	M43	Y	-5.919	-5.919	0	%100
44	M44	Y	-5.919	-5.919	0	%100
45	H3	Y	-15.331	-15.331	0	%100
46	MP7	Y	-13.65	-13.65	0	%100
47	MP9	Y	-13.65	-13.65	0	%100
48	HR3	Y	-13.663	-13.663	0	%100
49	M52	Y	-5.919	-5.919	0	%100
50	M53	Y	-5.919	-5.919	0	%100
51	M54	Y	-5.919	-5.919	0	%100
52	M55	Y	-5.919	-5.919	0	%100
53	H2	Y	-15.331	-15.331	0	%100
54	MP4	Y	-13.65	-13.65	0	%100
55	MP6	Y	-13.65	-13.65	0	%100
56	HR2	Y	-13.663	-13.663	0	%100
57	M66A	Y	-5.919	-5.919	0	%100
58	M67A	Y	-5.919	-5.919	0	%100
59	M68A	Y	-5.919	-5.919	0	%100
60	M69A	Y	-5.919	-5.919	0	%100
61	MP8	Y	-13.65	-13.65	0	%100
62	M68B	Y	-5.919	-5.919	0	%100
63	M69B	Y	-5.919	-5.919	0	%100
64	MP5	Y	-13.65	-13.65	0	%100
65	M71B	Y	-5.919	-5.919	0	%100
66	M72B	Y	-5.919	-5.919	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-15.631	-15.631	0	%100
2	GA4	SZ	-22.472	-22.472	0	%100
3	GA3	SZ	-22.472	-22.472	0	%100
4	P3	SZ	-14.734	-14.734	0	%100
5	S2	SZ	-15.631	-15.631	0	%100
6	GA2	SZ	-22.472	-22.472	0	%100
7	GA1	SZ	-22.472	-22.472	0	%100
8	P2	SZ	-14.734	-14.734	0	%100
9	S1	SZ	-15.631	-15.631	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
10	GA6	SZ	-22.472	-22.472	0	%100
11	GA5	SZ	-22.472	-22.472	0	%100
12	P1	SZ	-14.734	-14.734	0	%100
13	H1	SZ	-19.847	-19.847	0	%100
14	MP1	SZ	-22.25	-22.25	0	%100
15	MP3	SZ	-22.25	-22.25	0	%100
16	HR1	SZ	-22.227	-22.227	0	%100
17	CA8	SZ	-13.649	-13.649	0	%100
18	CA9	SZ	-13.649	-13.649	0	%100
19	CA7	SZ	-13.649	-13.649	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-18.567	-18.567	0	%100
25	CA4	SZ	-18.567	-18.567	0	%100
26	CA1	SZ	-18.567	-18.567	0	%100
27	CA2	SZ	-18.567	-18.567	0	%100
28	CA5	SZ	-18.567	-18.567	0	%100
29	CA6	SZ	-18.567	-18.567	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-24.735	-24.735	0	%100
42	MP2	SZ	-22.25	-22.25	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-19.847	-19.847	0	%100
46	MP7	SZ	-22.25	-22.25	0	%100
47	MP9	SZ	-22.25	-22.25	0	%100
48	HR3	SZ	-22.227	-22.227	0	%100
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
52	M55	SZ	0	0	0	%100
53	H2	SZ	-19.847	-19.847	0	%100
54	MP4	SZ	-22.25	-22.25	0	%100
55	MP6	SZ	-22.25	-22.25	0	%100
56	HR2	SZ	-22.227	-22.227	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-22.25	-22.25	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-22.25	-22.25	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-15.631	-15.631	0	%100
2	GA4	SX	-22.472	-22.472	0	%100
3	GA3	SX	-22.472	-22.472	0	%100
4	P3	SX	-14.734	-14.734	0	%100
5	S2	SX	-15.631	-15.631	0	%100
6	GA2	SX	-22.472	-22.472	0	%100
7	GA1	SX	-22.472	-22.472	0	%100
8	P2	SX	-14.734	-14.734	0	%100
9	S1	SX	-15.631	-15.631	0	%100
10	GA6	SX	-22.472	-22.472	0	%100
11	GA5	SX	-22.472	-22.472	0	%100
12	P1	SX	-14.734	-14.734	0	%100
13	H1	SX	-19.847	-19.847	0	%100
14	MP1	SX	-22.25	-22.25	0	%100
15	MP3	SX	-22.25	-22.25	0	%100
16	HR1	SX	-22.227	-22.227	0	%100
17	CA8	SX	-13.649	-13.649	0	%100
18	CA9	SX	-13.649	-13.649	0	%100
19	CA7	SX	-13.649	-13.649	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-18.567	-18.567	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
25	CA4	SX	-18.567	-18.567	0	%100
26	CA1	SX	-18.567	-18.567	0	%100
27	CA2	SX	-18.567	-18.567	0	%100
28	CA5	SX	-18.567	-18.567	0	%100
29	CA6	SX	-18.567	-18.567	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-24.735	-24.735	0	%100
42	MP2	SX	-22.25	-22.25	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-19.847	-19.847	0	%100
46	MP7	SX	-22.25	-22.25	0	%100
47	MP9	SX	-22.25	-22.25	0	%100
48	HR3	SX	-22.227	-22.227	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-19.847	-19.847	0	%100
54	MP4	SX	-22.25	-22.25	0	%100
55	MP6	SX	-22.25	-22.25	0	%100
56	HR2	SX	-22.227	-22.227	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-22.25	-22.25	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100
64	MP5	SX	-22.25	-22.25	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

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

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

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S2	Y	-37.313	-37.313	16.404	40
2	GA2	Y	-18.804	-18.804	3.828	27.295
3	GA1	Y	-18.804	-18.804	3.828	27.295
4	S3	Y	-37.313	-37.313	16.404	40
5	GA4	Y	-18.804	-18.804	3.828	27.295
6	GA3	Y	-18.804	-18.804	3.828	27.295
7	S1	Y	-37.313	-37.313	16.404	40
8	GA6	Y	-18.804	-18.804	3.828	27.295
9	GA5	Y	-18.804	-18.804	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

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

Member Area Loads (BLC 16 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-20.5
2	P10	P11	P12	P9	Y	Two Way	-20.5
3	P31	P34	P33	P32	Y	Two Way	-20.5

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

	Member	Shape	Code Check	Loc[in]	LC	She...Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...Cb	Eqn
1	CA1	C3.38x2.06...	.344	0	31	.058 28.188	y	36	4776...	56700	2202...	5751.945	1.... H1-1b
2	P3	PL6.5x0.375	.334	21	2	.168 36.312	y	30	3658...	78975	616.9...	7942.977	1.... H1-1b
3	P2	PL6.5x0.375	.324	21	6	.143 36.312	y	10	3658...	78975	616.9...	7915.851	1.... H1-1b

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

Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn
4	S2	HSS4X4X6	.324	0	32	.112	0	y	32	1882...	1978...	2204...	22045.5	1.... H1-1b
5	CA5	C3.38x2.06...	.313	0	35	.056	28.187	y	28	4776...	56700	2202...	5751.945	1.... H1-1b
6	P1	PL6.5x0.375	.311	21	10	.161	36.312	y	2	3658...	78975	616.9...	7976.364	1.... H1-1b
7	CA3	C3.38x2.06...	.305	0	27	.055	28.188	y	32	4776...	56700	2202...	5751.945	1.... H1-1b
8	CA4	C3.38x2.06...	.305	33	2	.046	33	y	31	4776...	56700	2202...	5751.945	1.... H1-1b
9	S3	HSS4X4X6	.299	0	38	.116	0	y	29	1882...	1978...	2204...	22045.5	1.93 H1-1b
10	CA6	C3.38x2.06...	.289	33	10	.049	33	y	38	4776...	56700	2202...	5751.945	1.... H1-1b
11	CA2	C3.38x2.06...	.287	33	6	.047	33	y	34	4776...	56700	2202...	5751.945	1.... H1-1b
12	CA7	L6.6x4.46x0...	.284	41.562	3	.038	42	z	8	5117...	87561	2464...	7125.374	1.... H2-1
13	S1	HSS4X4X6	.281	0	36	.117	0	y	37	1882...	1978...	2204...	22045.5	1.... H1-1b
14	CA8	L6.6x4.46x0...	.280	41.562	22	.039	42	z	4	5117...	87561	2464...	7125.374	1.... H2-1
15	HR3	2.88x0.120	.278	6	2	.126	92		6	2249...	4307...	3155...	3155.674	1.... H1-1b
16	M75	PL 2.375x0.5	.277	1.5	12	.265	0	y	28	3825...	38475	400.7...	1903.711	2.... H1-1b
17	HR2	2.88x0.120	.273	90	3	.135	92		4	2249...	4307...	3155...	3155.674	1.... H1-1b
18	HR1	2.88x0.120	.260	6	4	.118	6		4	2249...	4307...	3155...	3155.674	1.... H1-1b
19	CA9	L6.6x4.46x0...	.250	41.562	6	.035	42	z	12	5117...	87561	2464...	7125.374	1.... H2-1
20	MP2	PIPE 2.5	.228	70	5	.081	70		5	3348...	66654	4726.5	4726.5	4.... H1-1b
21	MP5	PIPE 2.5	.223	70	7	.069	70		7	3348...	66654	4726.5	4726.5	4.... H1-1b
22	GA4	L2x2x4	.210	0	2	.015	27.295	y	9	2952...	42480	959.63	2190.068	2.... H2-1
23	MP8	PIPE 2.5	.201	70	9	.086	70		3	3348...	66654	4726.5	4726.5	4.... H1-1b
24	GA5	L2x2x4	.198	0	9	.026	27.295	y	38	2952...	42480	959.63	2190.068	2.... H2-1
25	GA2	L2x2x4	.193	0	12	.016	0	y	12	2952...	42480	959.63	2190.068	2.... H2-1
26	GA6	L2x2x4	.185	0	4	.015	0	y	4	2952...	42480	959.63	2190.068	2.... H2-1
27	GA1	L2x2x4	.183	0	5	.026	27.295	y	34	2952...	42480	959.63	2190.068	2.... H2-1
28	MP9	PIPE 2.5	.180	70	2	.081	70		7	3348...	66654	4726.5	4726.5	3.... H1-1b
29	GA3	L2x2x4	.178	0	7	.026	27.295	y	30	2952...	42480	959.63	2190.068	2.... H2-1
30	MP1	PIPE 2.5	.163	70	11	.099	26		8	3348...	66654	4726.5	4726.5	2.... H1-1b
31	MP6	PIPE 2.5	.161	70	7	.087	70		6	3348...	66654	4726.5	4726.5	4.... H1-1b
32	MP3	PIPE 2.5	.157	70	5	.089	70		3	3348...	66654	4726.5	4726.5	4.... H1-1b
33	MP4	PIPE 2.5	.152	70	7	.088	26		4	3348...	66654	4726.5	4726.5	1.... H1-1b
34	MP7	PIPE 2.5	.150	70	9	.080	26		6	3348...	66654	4726.5	4726.5	3.... H1-1b
35	H3	Pipe3.5x0.1...	.139	31	2	.085	90		2	4587...	7158...	6337...	6337.65	1.... H1-1b
36	H1	Pipe3.5x0.1...	.135	31	10	.075	48		4	4587...	7158...	6337...	6337.65	2.... H1-1b
37	H2	Pipe3.5x0.1...	.129	31	6	.060	48		12	4587...	7158...	6337...	6337.65	1.... H1-1b

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOBDL00008A
Site Number:	BOBDL00008A
Connection Description:	Platform to Monopole

MAXIMUM BOLT LOADS		
Bolt Tension:	8616.87	lbs
Bolt Shear:	1666.93	lbs

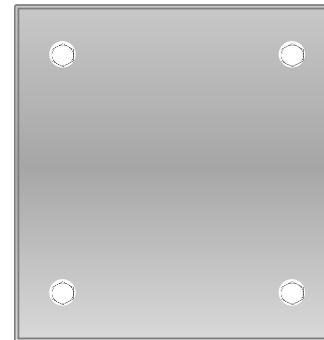
WORST CASE BOLT LOADS ¹		
Bolt Tension:	8616.87	lbs
Bolt Shear:	1492.35	lbs

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

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

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	42.4%	
Max Shear Usage	12.1%	
Interaction Check (Worst Case)	0.19	≤1.05
Result	Pass	



POWER DENSITY STUDY

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

Dish Wireless Existing Facility

Site ID: BOBDL00008A

BOBDL00008A
343 Daleville Road
Willington, Connecticut 06279

November 11, 2021

EBI Project Number: 6221003969

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.39%

November 11, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00008A - BOBDL00008A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **343 Daleville Road** in **Willington, 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 343 Daleville Road in Willington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 86 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	86 feet	Height (AGL):	86 feet	Height (AGL):	86 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	3.70%	Antenna BI MPE %:	3.70%	Antenna CI MPE %:	3.70%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	3.70%
Verizon	4.69%
Site Total MPE % :	8.39%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	3.70%
Dish Wireless Sector B Total:	3.70%
Dish Wireless Sector C Total:	3.70%
Site Total MPE % :	8.39%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	86.0	5.03	600 MHz n71	400	1.26%
Dish Wireless 1900 MHz n70	4	542.70	86.0	12.19	1900 MHz n70	1000	1.22%
Dish Wireless 2190 MHz n66	4	542.70	86.0	12.19	2190 MHz n66	1000	1.22%
						Total:	3.70%

• 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:	3.70%
Sector B:	3.70%
Sector C:	3.70%
Dish Wireless Maximum MPE % (Sector A):	3.70%
Site Total:	8.39%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.39%** 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.

UNDERLYING PROPERTY INFORMATION

343 DALEVILLE RD

Location 343 DALEVILLE RD

Mblu 02 / / 005-00 / /

Acct# 00115400

Owner KREUSCHER MURIEL &
RICHARD

Assessment \$594,420

Appraisal \$871,250

PID 3565

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$591,370	\$279,880	\$871,250

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$413,960	\$180,460	\$594,420

Owner of Record

Owner KREUSCHER MURIEL & RICHARD
Co-Owner
Address 343 DALEVILLE RD
WILLINGTON, CT 06279

Sale Price \$0
Certificate
Book & Page 217/1022
Sale Date 06/12/2018
Instrument 04

Building Information

Building 1 : Section 1

Year Built: 1987
Living Area: 2,138
Replacement Cost: \$292,316
Building Percent Good: 81
**Replacement Cost
Less Depreciation:** \$236,780

Building Attributes	
Field	Description
Style	Cape Cod
Model	Residential
Grade:	Average ++

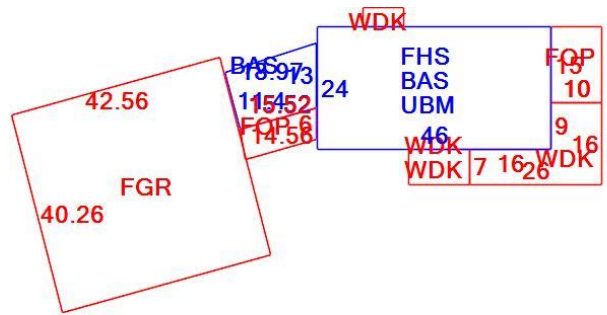
Stories:	1.50
Occupancy	1
Exterior Wall 1	Board + Batten
Exterior Wall 2	
Roof Structure:	Gable or Hip
Roof Cover	Fiberglass
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Slate
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	0
Total Rooms:	6
Bath Style:	
Kitchen Style:	
Fireplaces	1
Bsmt Garage	None

Building Photo



(<http://images.vgsi.com/photos/WillingtonCTPhotos//00\00\07\52.jpg>)

Building Layout



(ParcelSketch.ashx?pid=3565&bid=3565)

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	1,310	1,310	
FHS	Half Story, Finished	1,104	828	
FGR	Garage	1,713	0	
FOP	Open Porch	239	0	
UBM	Unfinished Basement	1,104	0	
WDK	Wood Deck	472	0	
		5,942	2,138	

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
WDS	WOODSTOVE	1.00 UNITS	\$0	1

Land

Land Use

Land Line Valuation

Use Code 1010
Description Single Fam MDL-01
Zone R80
Neighborhood 110
Alt Land Appr No
Category

Size (Acres) 22.00
Frontage
Depth
Assessed Value \$180,460
Appraised Value \$279,880

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN8	POLE BARN			960.00 S.F.	\$13,460	1
SHD1	SHED FRAME			120.00 S.F.	\$720	1
SHD1	SHED FRAME			240.00 S.F.	\$1,440	1
CELL	CELL TENENT			2.00 EA	\$252,000	1
FN5	FENCE-10'CHAIN			208.00 L.F.	\$2,970	1
CELL	CELL TENENT			1.00 EA	\$84,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$591,370	\$279,880	\$871,250

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$413,960	\$180,460	\$594,420



343 DALEVILLE RD
Parcel ID: 02/005-00

Select

- Property List
- Property Card
- External Property Card
- Documents
- Allowed Zoning Uses (R-80)

NOTIFICATIONS



TRACK ANOTHER SHIPMENT

775150223078



[ADD NICKNAME](#)

Delivered
Thursday, 12/2/2021 at 2:18 pm



DELIVERED

Signed for by: K.KELSEY

[GET STATUS UPDATES](#)

[OBTAIN PROOF OF DELIVERY](#)

Travel History

TIME ZONE

Local Scan Time



Thursday, December 2,
2021

2:18 PM		Delivered
9:07 AM	NORWICH, CT	At local FedEx facility
7:24 AM	EAST GRANBY, CT	At destination sort facility
4:09 AM	MEMPHIS, TN	Departed FedEx hub

Wednesday, December 1,
2021

11:18 AM	MEMPHIS, TN	Arrived at FedEx hub
----------	-------------	----------------------

Tuesday, November 30,
2021

8:05 PM	WILMINGTON, MA	Left FedEx origin facility
6:12 PM	WILMINGTON, MA	Picked up

Expand History

Shipment Facts

TRACKING NUMBER

SERVICE

WEIGHT

775150223078

FedEx 2Day

2 lbs / 0.91 kgs

DELIVERED TO

Receptionist/Front Desk

TOTAL SHIPMENT WEIGHT

2 lbs / 0.91 kgs

PACKAGING

FedEx Pak

SPECIAL HANDLING SECTION

Deliver Weekday

SHIP DATE

11/30/21 [?](#)

STANDARD TRANSIT

12/2/21 before 4:30 pm [?](#)

ACTUAL DELIVERY

12/2/21 at 2:18 pm

ORIGIN ID:FOXA (360) 561-3311
COREY MILLAN
NB+C
100 APOLLO DR.
SUITE 303
CHELMSFORD, MA 01824
UNITED STATES US

SHIP DATE: 08NOV21
ACTWGT: 1.00 LB
CAD: 108980334/NET4400

BILL SENDER

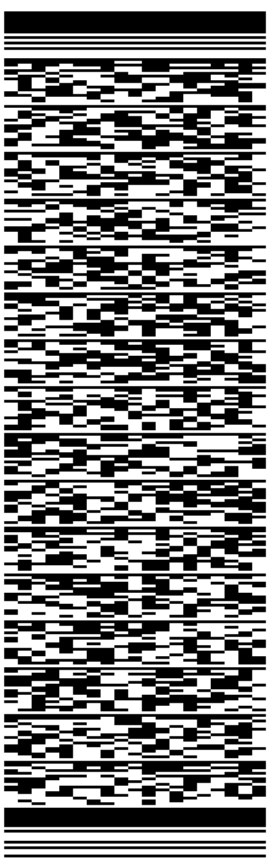
TO **ERIKA WIECENSKI - FIRST SELECTMAN**

40 OLD FARMS ROAD

WILLINGTON CT 06279

(860) 487-3100 REF: 100814

INV: DEPT:



56DJ29A7E/FE4A

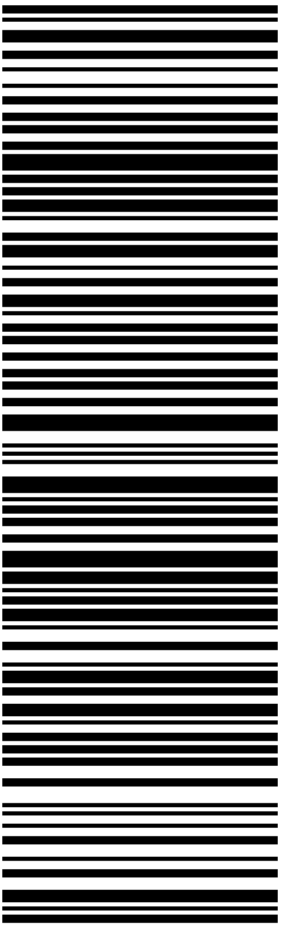
TRK# 7751 5022 3078
0201

WED - 10 NOV 4:30P

** 2DAY **

SE GONA

06279
CT-US BDL



After printing this label:

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

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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



TRACK ANOTHER SHIPMENT

775150247580

[ADD NICKNAME](#)



Delivered
Thursday, 12/2/2021 at 2:18 pm



DELIVERED

Signed for by: K.KELSEY

[GET STATUS UPDATES](#)

[OBTAIN PROOF OF DELIVERY](#)

Travel History

TIME ZONE

Local Scan Time



Thursday, December 2,
2021

2:18 PM		Delivered
9:06 AM	NORWICH, CT	At local FedEx facility
7:24 AM	EAST GRANBY, CT	At destination sort facility
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Wednesday, December 1,
2021

11:18 AM	MEMPHIS, TN	Arrived at FedEx hub
----------	-------------	----------------------

Tuesday, November 30,
2021

8:05 PM	WILMINGTON, MA	Left FedEx origin facility
6:12 PM	WILMINGTON, MA	Picked up

Collapse History

Shipment Facts

TRACKING NUMBER

SERVICE

WEIGHT

775150247580

FedEx 2Day

1 lbs / 0.45 kgs

DELIVERY ATTEMPTS

1

DELIVERED TO

Receptionist/Front Desk

TOTAL SHIPMENT WEIGHT

1 lbs / 0.45 kgs

PACKAGING

FedEx Pak

SPECIAL HANDLING SECTION

Deliver Weekday

SHIP DATE

11/30/21 [?](#)

STANDARD TRANSIT

12/2/21 before 4:30 pm [?](#)

ACTUAL DELIVERY

12/2/21 at 2:18 pm

ORIGIN ID:FOXA (360) 561-3311
COREY MILLAN
NB+C
100 APOLLO DR.
SUITE 303
CHELMSFORD, MA 01824
UNITED STATES US

SHIP DATE: 08NOV21
ACTWGT: 1.00 LB
CAD: 108980334/NET4400

BILL SENDER

TO **JIM RUPERT - BUILDING OFFICIAL**

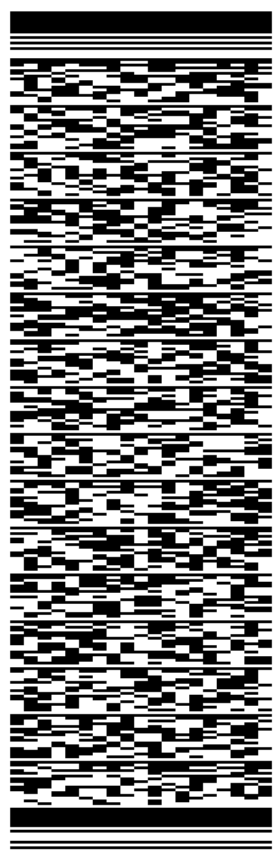
40 OLD FARMS ROAD

WILLINGTON CT 06279

(860) 487-3123 REF: 100814

INV: DEPT: PO:

56DJ29A7E/FE4A



J212221101801uv

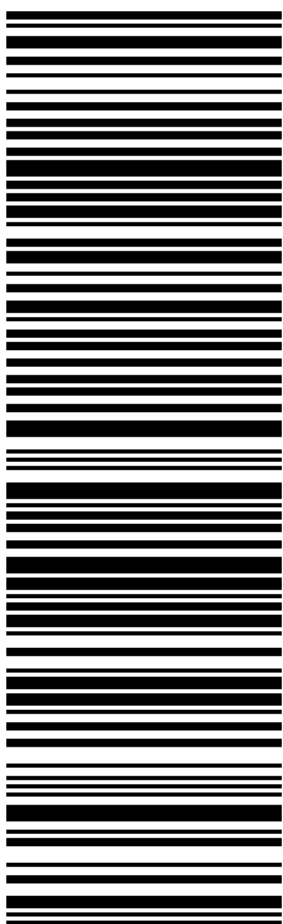
WED - 10 NOV 4:30P

** 2DAY **

TRK# 7751 5024 7580
0201

SE GONA

06279
CT-US BDL



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December 13, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775344190750

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	Signature not required	Delivery Location:	343 DALEVILLE RD
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Residential Delivery		WILLINGTON, CT, 06279
		Delivery date:	Dec 2, 2021 15:00

Shipping Information:

Tracking number:	775344190750	Ship Date:	Nov 30, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Muriel Kreuzscher - Owner,
343 Daleville Road
WILLINGTON, CT, US, 06279

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100814

Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

Thank you for choosing FedEx