



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

May 26, 2022

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

RE: Tower Share Application  
691 Oxford Road, Oxford, CT 06478  
Latitude: 41.447083  
Longitude: -73.152308  
Site #: 873645\_Crown\_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 691 Oxford Road, Oxford, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 127-foot level of the existing 150-foot tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by Infinigy, dated May 25, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated May 29, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the Town of Oxford Planning & Zoning Commission on July 5, 2021, see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to George R. Temple, First Selectman and Steven Macary, Zoning Enforcement Official for the Town of Oxford, as well as the tower owner (Crown Castle) and property owner (Don & Dave Farm Realty LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 150-feet and the Dish Wireless LLC antennas will be located at a centerline height of 127-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



**NSS** **NORTHEAST**  
SITE SOLUTIONS

*Turnkey Wireless Development*

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 12.39% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 127-foot level of the existing 150-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

*Denise Sabo*

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



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

Attachments

Cc: George R. Temple, First Selectman  
Oxford Town Hall  
486 Oxford Road  
Oxford, CT 06478

Steven Macary, Zoning Enforcement Official  
Oxford Town Hall  
486 Oxford Road  
Oxford, CT 06478

Don & Dave Farm Realty LLC - Property Owner  
691 Oxford Road  
Oxford, CT 06478

Crown Castle - Tower Owner

# Exhibit A

## **Original Facility Approval**

July 5, 2001  
Regular Planning & Zoning Meeting

the fact that Don Smith designed this 7-lot subdivision for the Town and is now reviewing his own work. The remaining six lots will need to be reviewed. It was recommended that a letter be sent to the Inland Wetlands Commission and Selectmen regarding this matter.

**MOTION** was made by Edwin Hellauer and seconded by Ray Reynolds approve Z-01-053 Ziat, LLC, 315 Riggs Street (Industrial Site Plan) based on map dated 1/18/01 and last revised 5/18/01 and with the following conditions:

- 1) Applicant and their assigns must comply with all representations made at P&Z Commission meetings or at public hearings regrading this application.
- 2) Prior to installation, lighting should be submitted to the ZEO for approval.
- 3) Vehicle directional signs stating entrance and exit are to be clearly marked and with no advertisement.
- 4) Compliance with Fire Marshal's letter dated 5/14/01.
- 5) Compliance with Oxford Driveway Ordinance as of this date.
- 6) Compliance with Oxford Zoning Regulations as of this date.
- 7) No work to begin until security is set by P&Z Engineer in a form acceptable to P&Z Counsel.
- 8) No material will be substituted without approval from the P&Z Commission and P&Z Engineer.
- 9) Landscaping plan and architectural rendering must be as presented on site plan. Any variations must be approved by the P&Z Commission.
- 10) Per Article 3, Section 19.1 of the Zoning Regulations, the applicant shall be responsible for rendering payment to any outside experts the Commission assigns to review this application.
- 11) Approval is conditioned on Inland Wetlands approval.

Reason for approval is that with the Inland Wetlands permit, this application would meet the Oxford Zoning Regulations as of this date. Alternate Scott Mackler abstained. All were in favor.

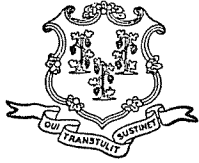
- 4) Z-01-066 Lars Realty/Cocchiola Paving, Inc., Roosevelt Drive. Secretary Edwin Hellauer read a letter dated 7/3/01 from Attorney Robert Uskevich in which he requests that this application be tabled until the 7/19/01 regular meeting. A letter will be sent suggesting that the applicant request an extension because after submittal of outstanding documents, this Commission will need time to have the documents reviewed by staff.

**MOTION** was made by Dave Robinson and seconded by Ray Reynolds to table Z-01-066 Lars Realty/Cocchiola Paving, Inc., Roosevelt Drive until the 7/19/01 regular meeting per the written request dated 7/3/01. Alternate John Barnes abstained. All were in favor.

- 5) Z-01-099 Integrated Wireless Services/Rich, 691 Oxford Road (S/E - Wireless Communications Facility). Chairman Robinson explained that the applicant was before the Commission earlier this evening during the public hearing. Contracted P&Z Planner Brian Miller has reviewed this application. An application was previously taken out for antennas on the existing silo at the same location. Alternate John Barnes recused himself at this point.

**MOTION** was made by Vincent Vizzo and seconded by Ray Reynolds to grant the waiver to the Zoning Regulations for the size of the six (6) equipment shelters for Z-01-099 Integrated Wireless Services/Rich, 691 Oxford Road. The equipment shelter for the applicant's equipment shelter will be 240 square feet in size and 10 feet in height. The maximum square footage for the remaining five (5) equipment shelters is hereby waived but is not to exceed 240 square feet and 10 feet in height. All were in favor.

**MOTION** was made by Dave Robinson and seconded by Edwin Hellauer to approve Z-01-099 Integrated Wireless Services/Rich, 691 Oxford Road (S/E - Wireless Telecommunications Facility) with the waiver for size of the six (6) equipment shelters based on Sheets T-1 dated 12/12/00 and last revised 5/16/01 and Sheets C-1 thru C-9 dated 12/12/00 and last revised 5/16/01 and conditioned upon compliance with Brian Miller's letter dated 6/12/01. Any representations made by the applicant or their assigns during the public hearing are to be made part of this approval.



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

1 CENTRAL PARK PLAZA • NEW BRITAIN, CONN. 06051

PHONE: 827-2604

Petition No. 141

Department of Environmental Protection  
Field Review of September 25, 1985

Robert Erling of the Siting Council met John Spellacy of the Department of Environmental Protection (DEP) for a field review of Petition No. 141. The DEP is petitioning the Council that no certificate of environmental compatibility and public need is necessary for the establishment of eight microwave sites in the towns of Oxford, Cornwall, Hartford, Sterling, Ledyard, and Colchester, Connecticut. Other state agencies presenting this petition include the Department of Public Safety's Division of State Police, and Office of Civil Preparedness, and the Department of Health Services' Office of Emergency Medical Services. These state agencies, with DEP, seek to implement the Connecticut Nuclear Emergency Communication System. This system, as required by the Federal Emergency Management Administration (FEMA) would provide the state agencies listed above with the capability of managing a radiological emergency which could result from a failure at either the Millstone or Haddam Neck nuclear power generating plants. The proposed system would allow the four state agencies to maintain direct radio communications with the nuclear plants at Millstone and Haddam Neck and with their respective headquarters in Hartford, as well as to maintain radio communications with their own field units.

Staff visited the eight proposed microwave sites with Mr. Spellacy. He explained that each of the proposed microwave sites would use an existing state-owned antenna or facility, and that no new tower construction would be necessary.

At the proposed Colchester site, a 4' parabolic dish would be added at the 98' level of a 100' self-supporting tower adjacent to the Troop K Headquarters of the Connecticut State Police.

In Sterling, DEP proposes to utilize the existing 70' Ekonk Hill Fire Tower. The cab section would be replaced with a new 10' section, and two 8' dishes would be added at the 65' level of the tower.

In Ledyard, a State Police owned 180' self-supporting tower on Vinegar Hill would be utilized. Two 8' and one 4' microwave dish would be added at the 176' and 90' levels respectively. There is a 6' cable television microwave dish at the 110' level of this tower.

Hartford would be the site of three microwave facilities. One 4' dish would be added to the elevator penthouse of the State Police Headquarters at 100 Washington Street. There is presently a 60' tower at this location. Four antennas, measuring 6', 4', 6' and 4' would be added to the roof top

elevator penthouses of the State Office Building. There is an existing DEP antenna located on one of these penthouses. Two of these dishes would face west, one would face east, and one would face south. One 4' dish would be added to the roof top at the east wing of the State Armory Building. The Armory has five existing antennas on its roof.

In Cornwall, the existing 180' self-supporting Regional Emergency Medical Services tower on Mohawk Mountain would have two 8' dishes added, one at the 75' level, and one at the 105' level. There is a 6' dish, currently unused, at the 172' level of this tower.

A converted fire tower in Oxford would be modified by removing its cab section and replacing it with a tower section 10' in height. This reconfiguration would result in a self-supporting tower 84' in height. An 8' dish would be added at the 80' level of this tower. One whip antenna would also be added to this tower for low band frequencies.

In a telephone conversation with the Director of DEP's Planning and Development Bureau, Richard D. Couch, Staff confirmed that the proposed system would cost \$1,200,000 and would have been a valuable asset during the recent hurricane. The proposed system would also provide microwave channels for a consortium of police departments in the Hartford area.

No expansion of the sites themselves would be necessary, nor would new access roads be needed. The addition of the proposed microwave facilities would not increase the total radio frequency electromagnetic radiation power densities at the proposed facility site boundaries to or above .1 milliwatt/Cm<sup>2</sup>.

Robert K. Erling  
Siting Analyst

RKE/cp

# Exhibit B

## **Property Card**





### Property Information

Owner	DON & DAVE FARM REALTY LLC
Address	691 OXFORD RD
Mailing Address	691 OXFORD RD OXFORD , CT 06478
Land Use	- Commercial
Land Class	C

Census Tract	L 92
Neighborhood	C05
Zoning	OPD
Acreage	65.88
Utilities	
Lot Setting/ Desc	/ Clear

### Photo



### PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	301800	211300
Outbuildings	71900	50400
Improvements	373700	261700
Extras	0	0
Land	955800	237900
Total	1329500	499600
Previous		

### Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	
Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable
Roof Cover	Metal/Tin

#### EXTERIOR WALLS:

Primary	NONE
Secondary	Stone/Masonry

#### INTERIOR WALLS:

Primary	Minim/Masonry
Secondary	

#### FLOORS:

Primary	Concr-Finished
Secondary	

#### HEATING/AC:

Heating Type	None
Heating Fuel	Coal or Wood
AC Type	None

#### BUILDING AREA:

Effective Building Area	
Gross Building Area	
Total Living Area	

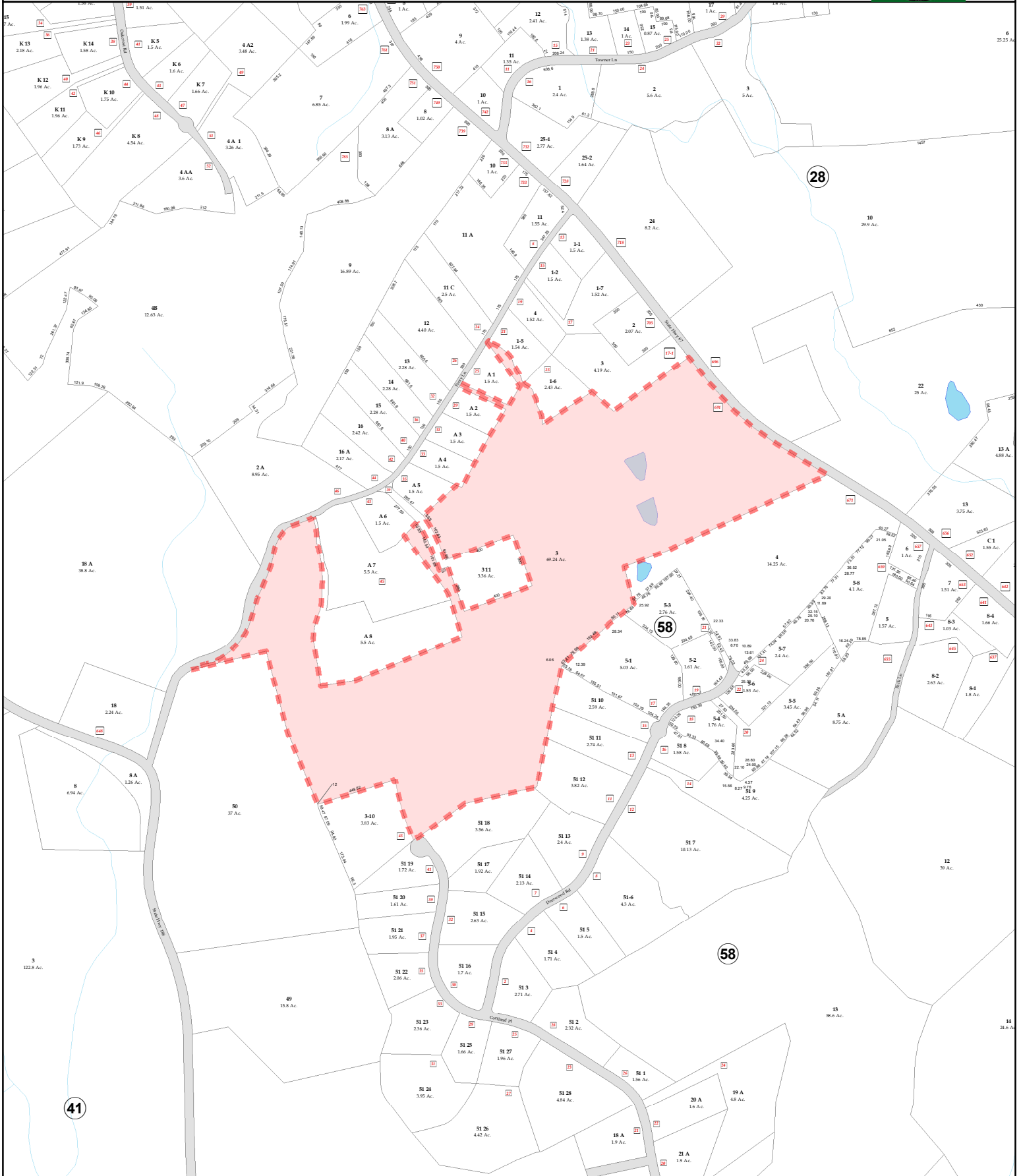
#### SALES HISTORY:

Sale Date	11/7/2007
Sale Price	0
Book/ Page	332/ 764

# Town of Oxford, Connecticut - Assessment Parcel Map

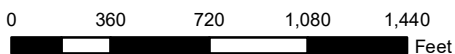
Parcel: 19-58-3

Location: 691 OXFORD RD



Approximate Scale: 1 inch = 700 feet

Map Produced: February 2021



Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The Town of Oxford and its mapping contractors assume no legal responsibility for the information contained herein.

# Exhibit C

## **Construction Drawings**



DISH Wireless L.L.C. SITE ID:

**BOHVN00019A**

DISH Wireless L.L.C. SITE ADDRESS:

**691 OXFORD RD  
OXFORD, CT 06478**

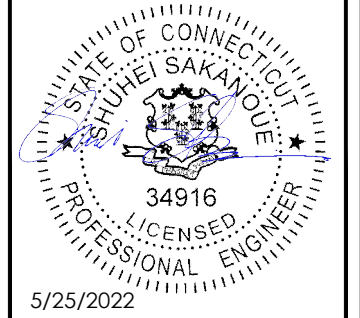
SCOPE OF WORK
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:
TOWER SCOPE OF WORK:
<ul style="list-style-type: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

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: ADDRESS: 691 OXFORD RD OXFORD, CT 06478	APPLICANT: DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: MONOPOLE	TOWER OWNER: CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
TOWER CO SITE ID: 873645	SITE DESIGNER: INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
TOWER APP NUMBER: 553362	SITE ACQUISITION: SARAH PARSONS SARAH.PARSONS@CROWNCastle.COM
COUNTY: NEW HAVEN	CONSTRUCTION MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
LATITUDE (NAD 83): 41° 26' 49.51" N 41.447083 N	RF ENGINEER: SYED ZAIDI SYED.ZAIDI@DISH.COM
LONGITUDE (NAD 83): 73° 9' 8.32" W 73.152306 W	
ZONING JURISDICTION: CT - TOWN OF OXFORD	
ZONING DISTRICT: TBD	
PARCEL NUMBER: OXF0-000000-000000-031790S	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: CONNECTICUT LIGHT & POWER	
TELEPHONE COMPANY: TBD	

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

2000 CORPORATE DRIVE  
CANONSBURG, PA 15317

FROM ZERO TO INFINIGY  
the solutions are endless  
2500 W. HIGGINS RD. SUITE 500 |  
HOFFMAN ESTATES, IL 60169  
PHONE: 847-648-4068 | FAX: 518-690-0793  
WWW.INFINIGY.COM



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.

CONNECTICUT CODE COMPLIANCE								
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:								
<table border="0"> <tr> <td>CODE TYPE</td> <td>CODE</td> </tr> <tr> <td>BUILDING</td> <td>2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS</td> </tr> <tr> <td>MECHANICAL</td> <td>2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS</td> </tr> <tr> <td>ELECTRICAL</td> <td>2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS</td> </tr> </table>	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
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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							



**DIRECTIONS**

**DIRECTIONS FROM TOURS OF DISTINCTION AIRPORT:**  
DEPART AND HEAD TOWARD EXETER ST, TURN LEFT ONTO EXETER ST, TURN LEFT ONTO NEW HAMPSHIRE AVE, TURN RIGHT ONTO PEASE BLVD, TAKE THE RAMP ON THE RIGHT FOR NH-16 SOUTH / US-4 EAST AND HEAD TOWARD BOSTON / PORTSMOUTH, TAKE THE RAMP ON THE RIGHT FOR I-95 SOUTH AND HEAD TOWARD BOSTON / HAMPTON, HEAD RIGHT ON THE RAMP FOR NH-101 TOWARD HAMPTON / MANCHESTER, TAKE THE RAMP ON THE RIGHT FOR US-1 AND HEAD TOWARD HAMPTON / SEABROOK, TURN RIGHT ONTO LINCOLN AVE, TURN RIGHT ONTO EAST RD, ARRIVE AT, ROUTE 88 AT I-95, HAMPTON FALLS, NH 03844.

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

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

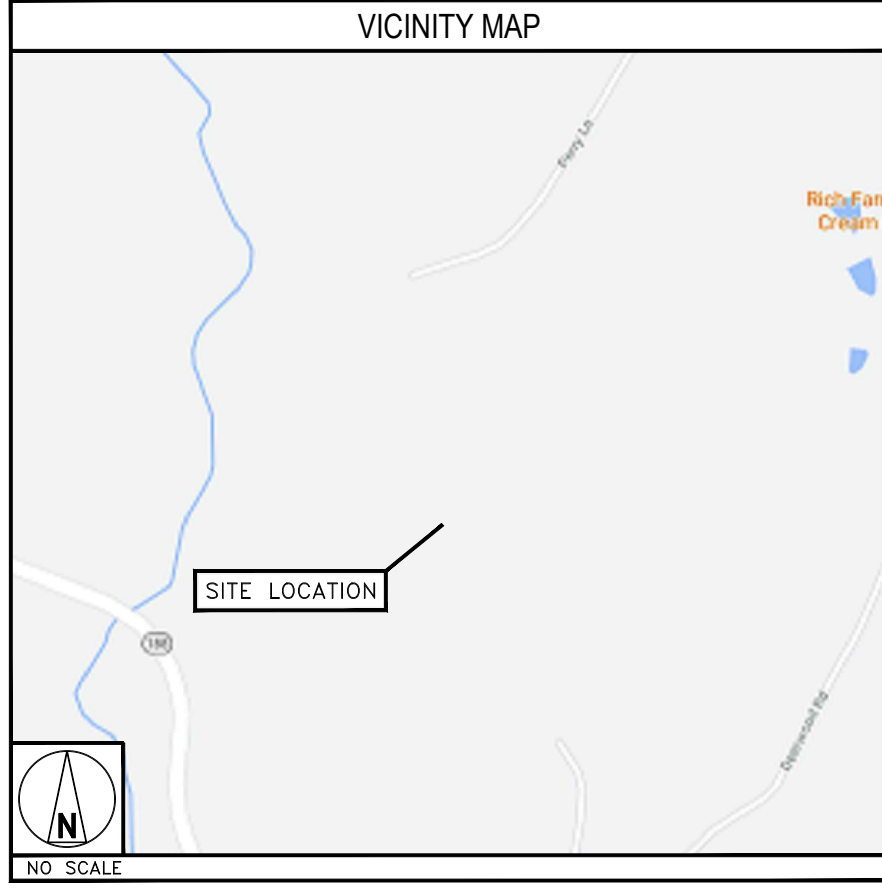
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

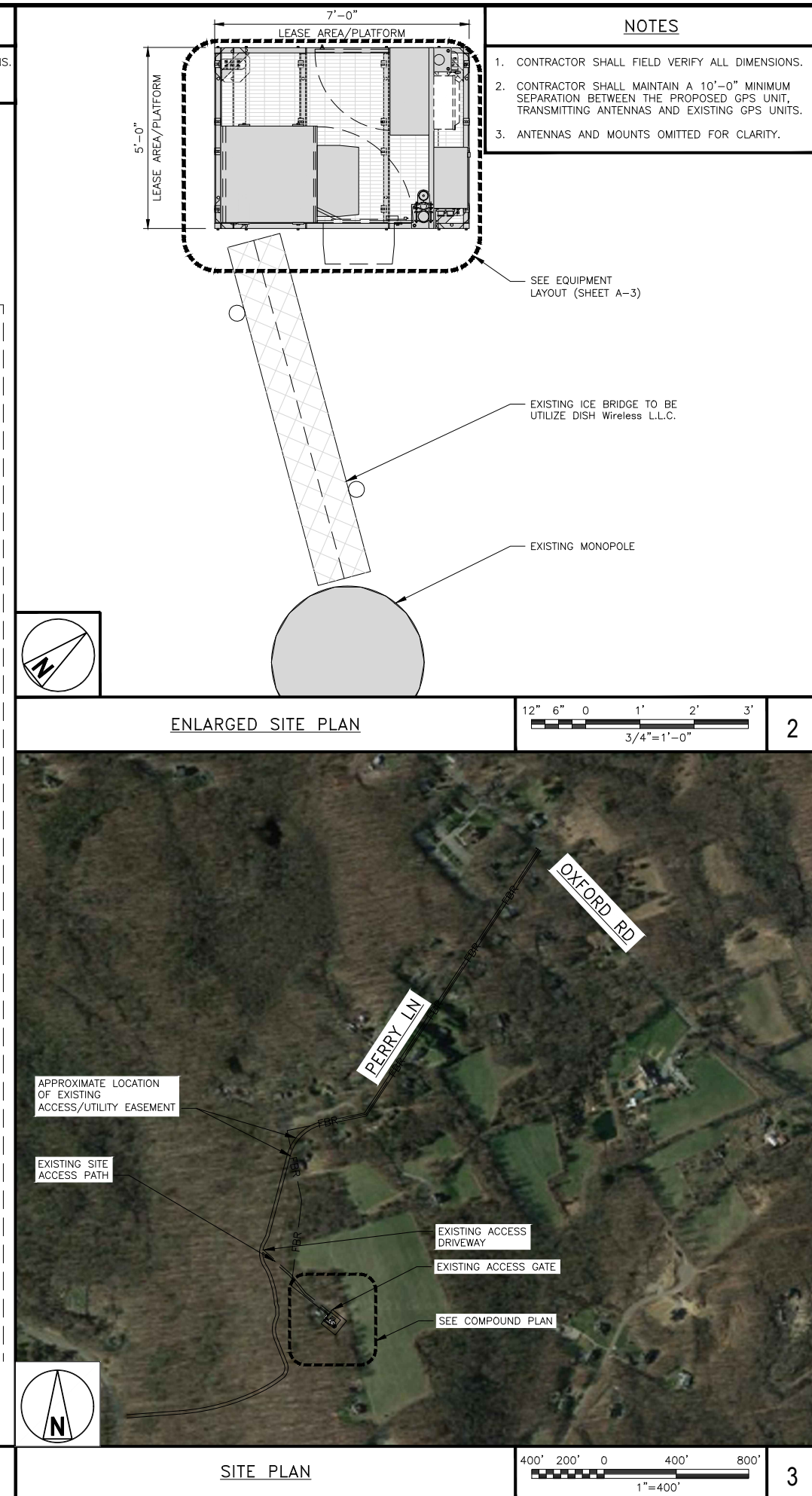
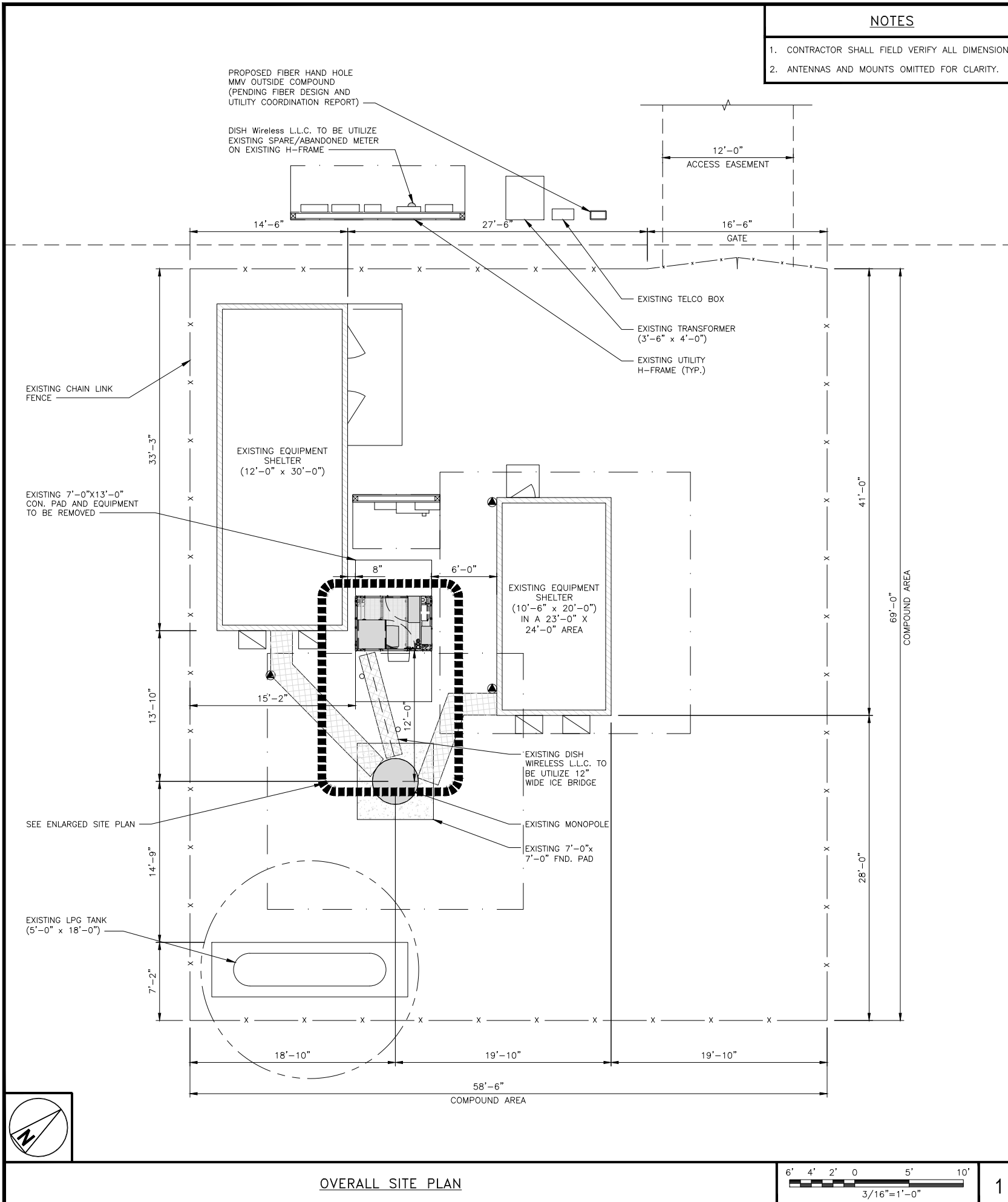
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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



DRAWN BY: RCD	CHECKED BY: SS	APPROVED BY: CJW
RFDS REV #:	N/A	
<b>CONSTRUCTION DOCUMENTS</b>		
SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/08/2021	ISSUED FOR REVIEW
0	07/30/2021	ISSUED FOR CONSTRUCTION
1	05/24/2022	ISSUED FOR CONSTRUCTION
A&E PROJECT NUMBER 2039-Z5555C		
DISH Wireless L.L.C. PROJECT INFORMATION BOHVN00019A 691 OXFORD RD OXFORD, CT 06478		
SHEET TITLE TITLE SHEET		
SHEET NUMBER <b>T-1</b>		



**dish wireless.**

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**CROWN CASTLE**

2000 CORPORATE DRIVE  
CANONSBURG, PA 15317

**INFINIGY**  
FROM ZERO TO INFINIGY  
the solutions are endless  
2500 W. HIGGINS RD., SUITE 500 |  
HOFFMAN ESTATES, IL 60169  
PHONE: 847-648-4068 | FAX: 518-690-0793  
WWW.INFINIGY.COM

STATE OF CONNECTICUT  
SHUHEI SAKANQUE  
34916  
LICENSED PROFESSIONAL ENGINEER

5/25/2022

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: RCD | CHECKED BY: SS | APPROVED BY: CJW

RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/08/2021	ISSUED FOR REVIEW
0	07/30/2021	ISSUED FOR CONSTRUCTION
1	05/24/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
2039-Z5555C

DISH Wireless L.L.C.  
PROJECT INFORMATION

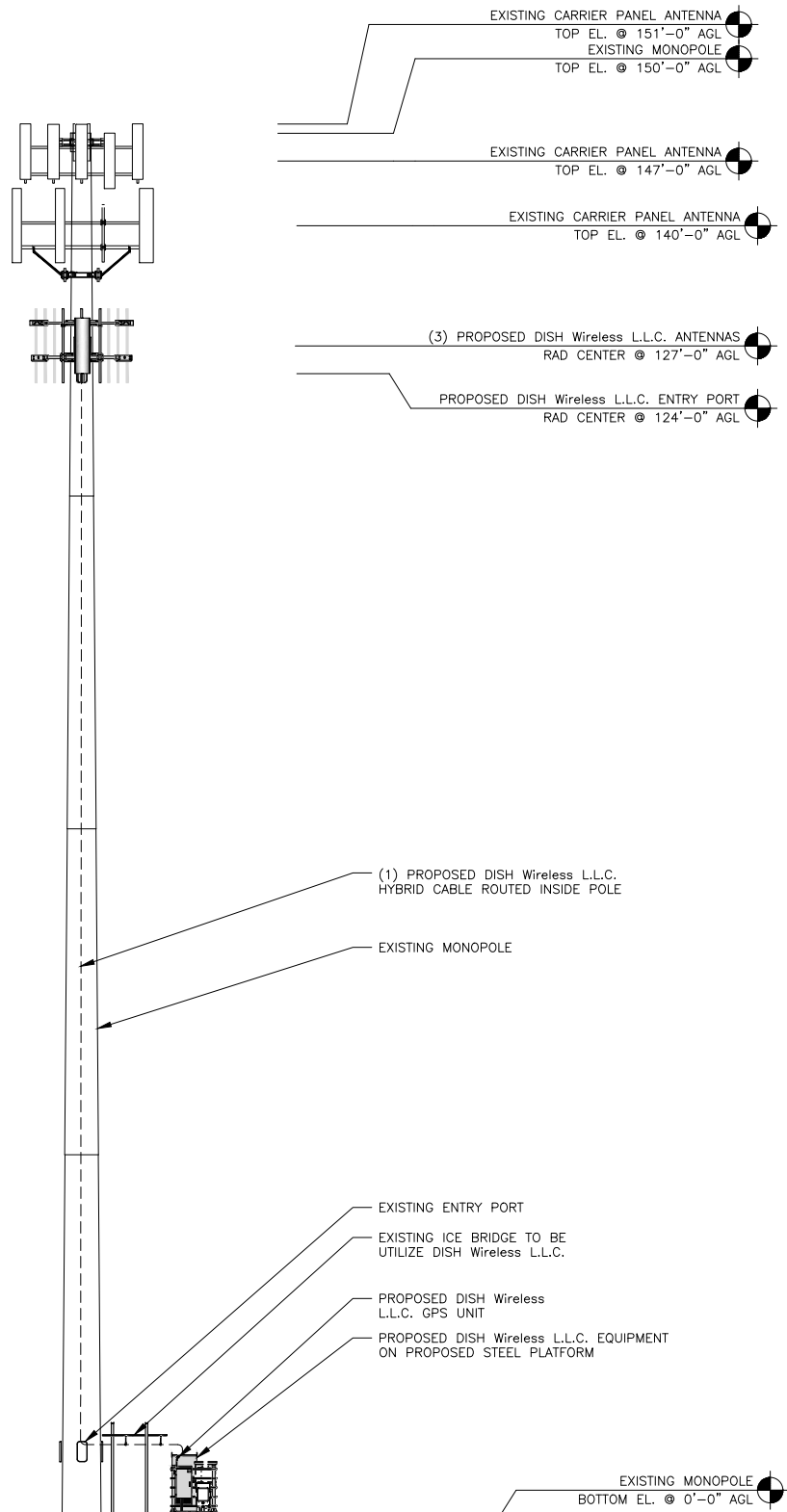
BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
OVERALL AND ENLARGED SITE PLAN

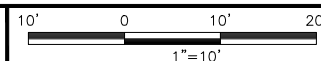
SHEET NUMBER  
**A-1**

**NOTES**

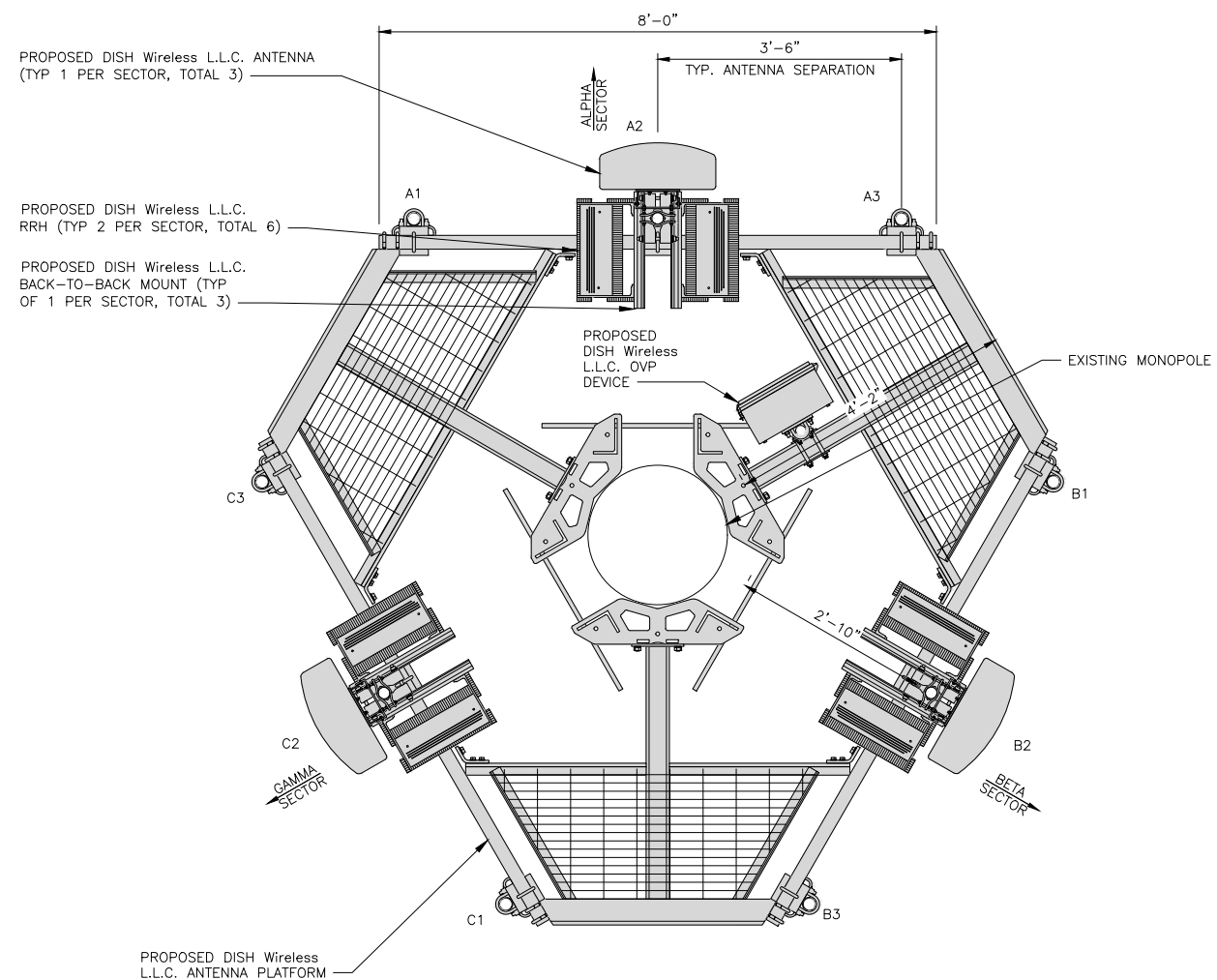
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



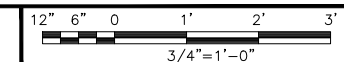
PROPOSED EAST ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA					TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A2	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	0°	127'-0"	(1) HIGH-CAPACITY HYBRID CABLE (177' LONG)
BETA	B2	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	120°	127'-0"	
GAMMA	C2	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	240°	127'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A2	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.
	A2	FUJITSU - TA08025-B605	5G	
BETA	B2	FUJITSU - TA08025-B604	5G	
	B2	FUJITSU - TA08025-B605	5G	
GAMMA	C2	FUJITSU - TA08025-B604	5G	
	C2	FUJITSU - TA08025-B605	5G	

ANTENNA SCHEDULE

NO SCALE

3



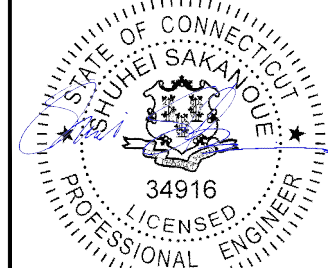
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RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

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A&E PROJECT NUMBER  
2039-Z5555C

DISH Wireless L.L.C. PROJECT INFORMATION  
BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER  
**A-2**



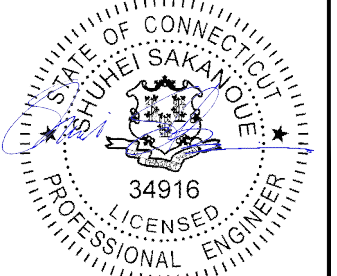
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RFDS REV #: N/A

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**2039-Z5555C**

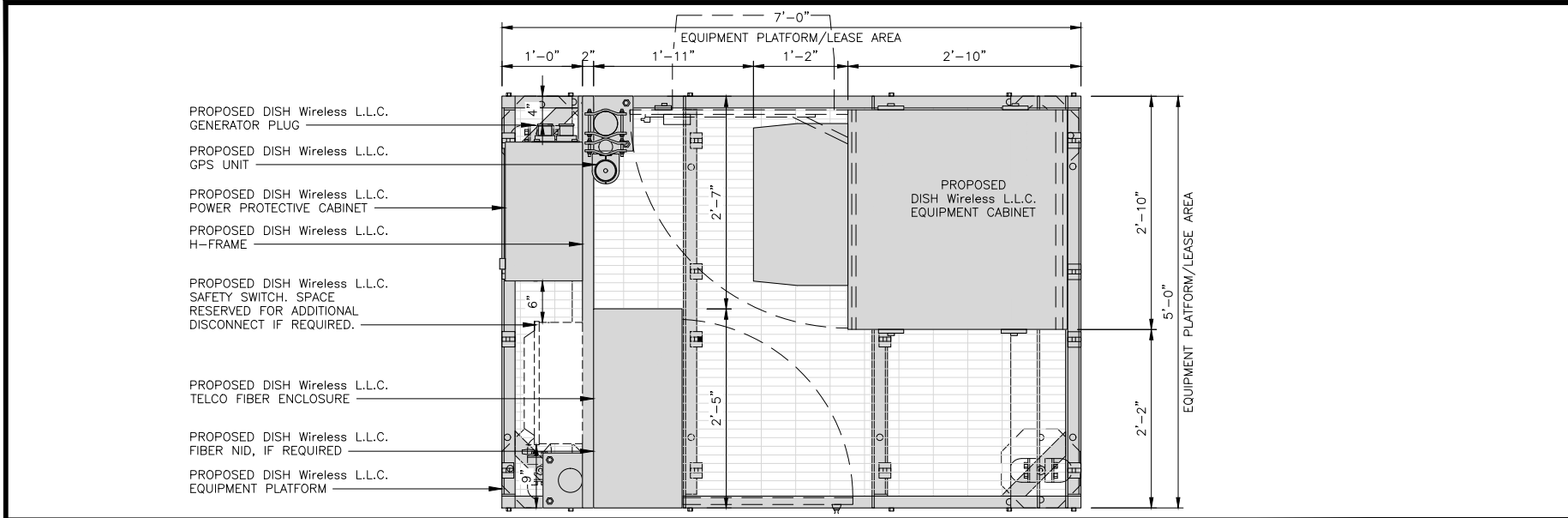
DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00019A**  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
**EQUIPMENT PLATFORM AND H-FRAME DETAILS**

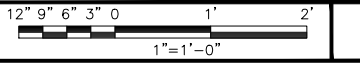
SHEET NUMBER  
**A-3**

**NOTES**

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

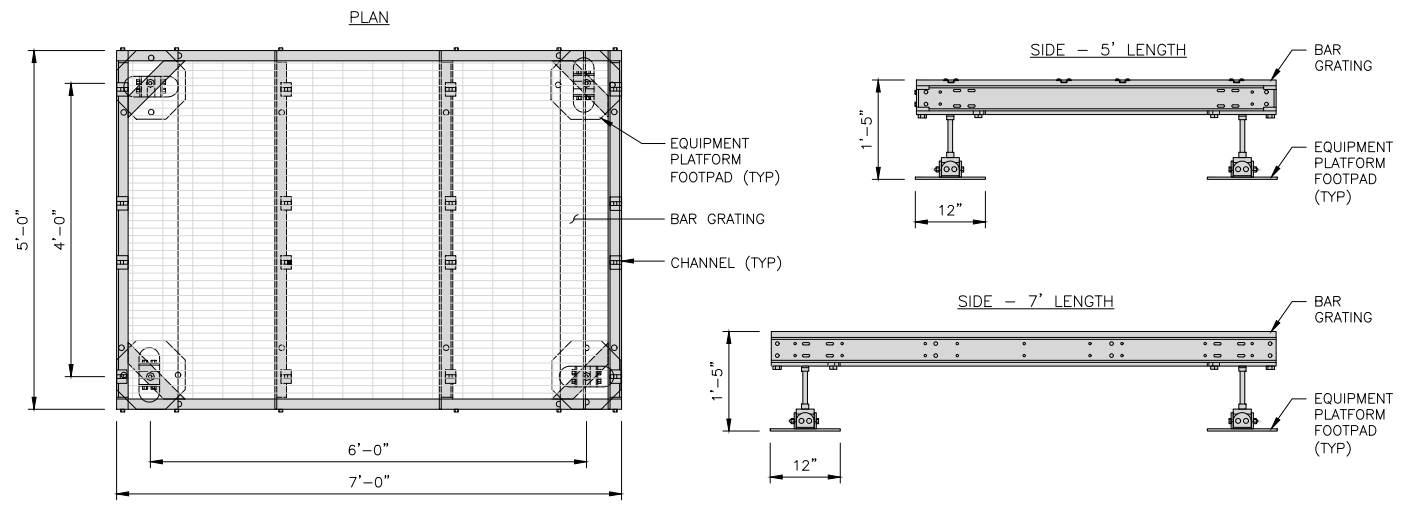


PLATFORM EQUIPMENT PLAN



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

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

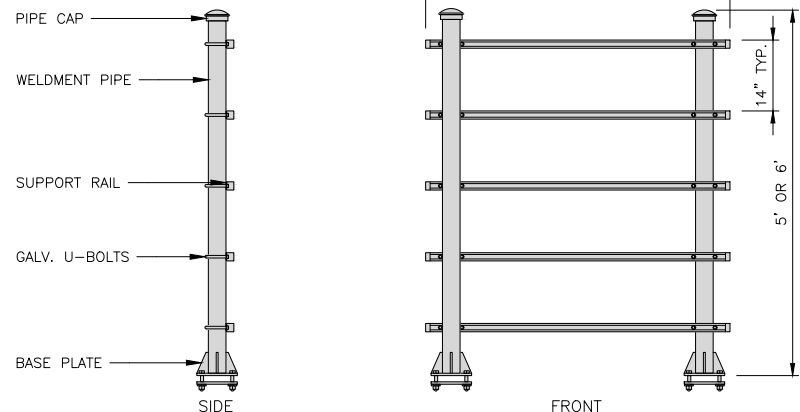


PLATFORM DETAIL

NO SCALE 2

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

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

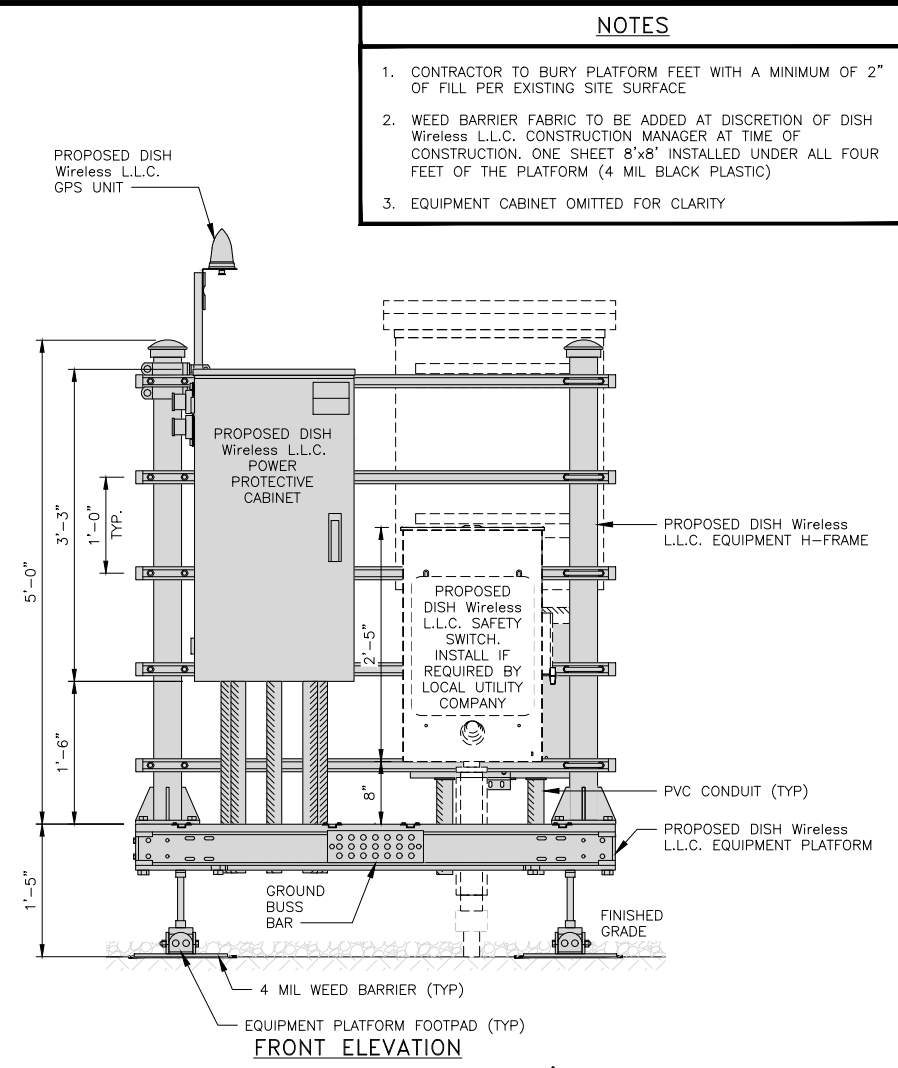


H-FRAME DETAIL

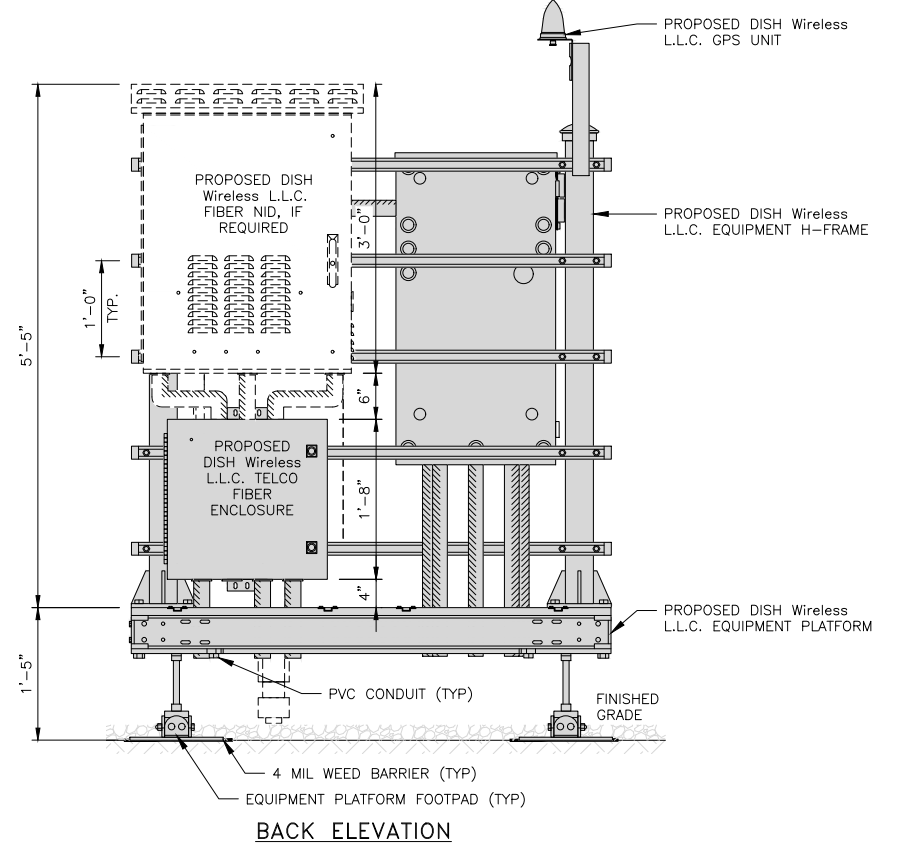
NO SCALE 3

NOT USED

NO SCALE 4

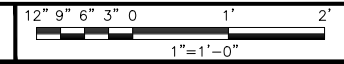


FRONT ELEVATION



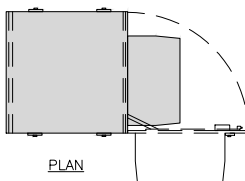
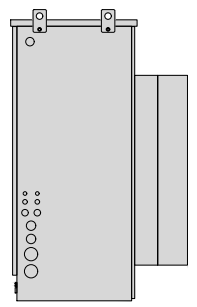
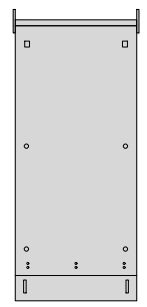
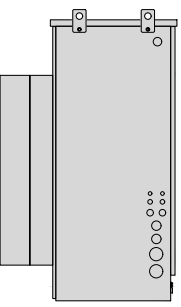
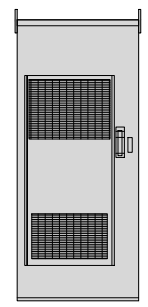
BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION



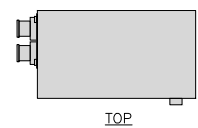
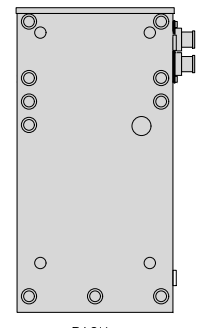
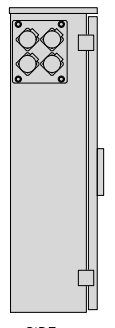
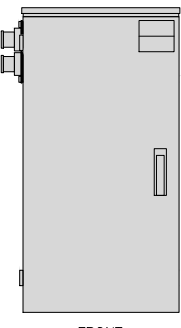
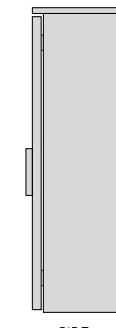
5

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

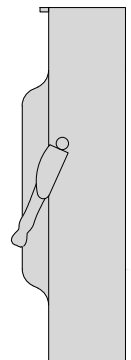
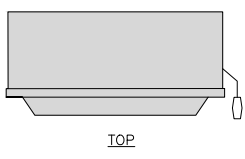
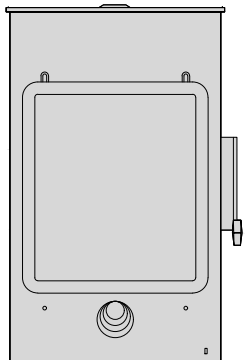
CABINET DETAIL NO SCALE 1

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

POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2

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

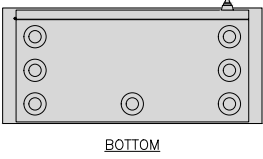
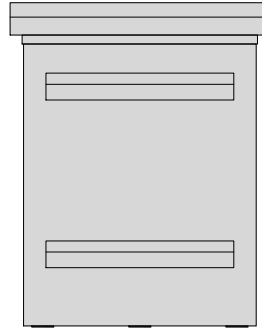
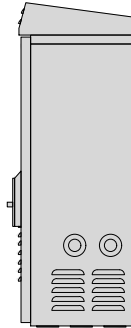
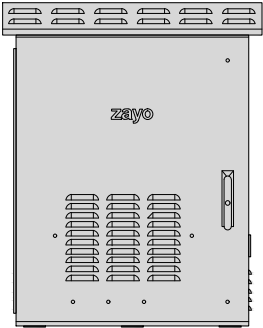




SAFETY SWITCH DETAIL NO SCALE 3

NOT USED

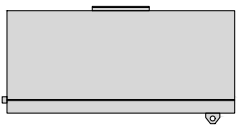
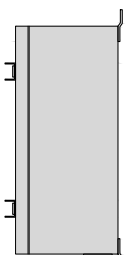
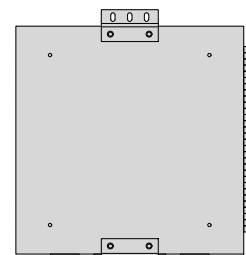
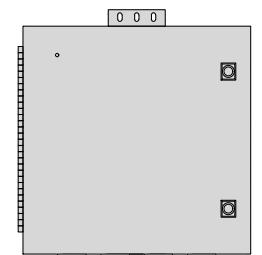
NOT USED NO SCALE 4

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

FIBER NID ENCLOSURE DETAIL NO SCALE 5

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

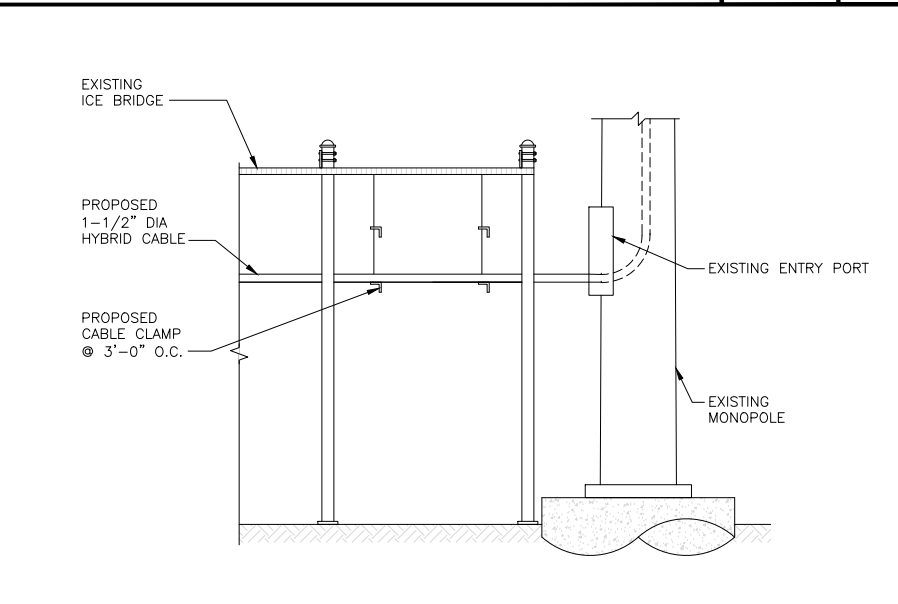
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6

NOT USED

NOT USED NO SCALE 7

NOT USED

NOT USED NO SCALE 8



HYBRID CABLE RUN NO SCALE 9

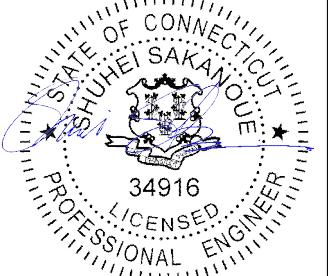


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RFDS REV #: N/A

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A&E PROJECT NUMBER  
2039-Z5555C

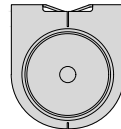
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOHVN00019A  
691 OXFORD RD  
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SHEET TITLE  
EQUIPMENT DETAILS

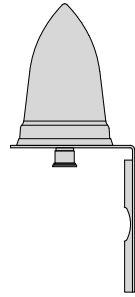
SHEET NUMBER  
**A-4**



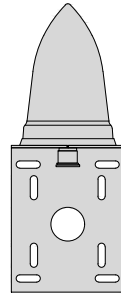
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



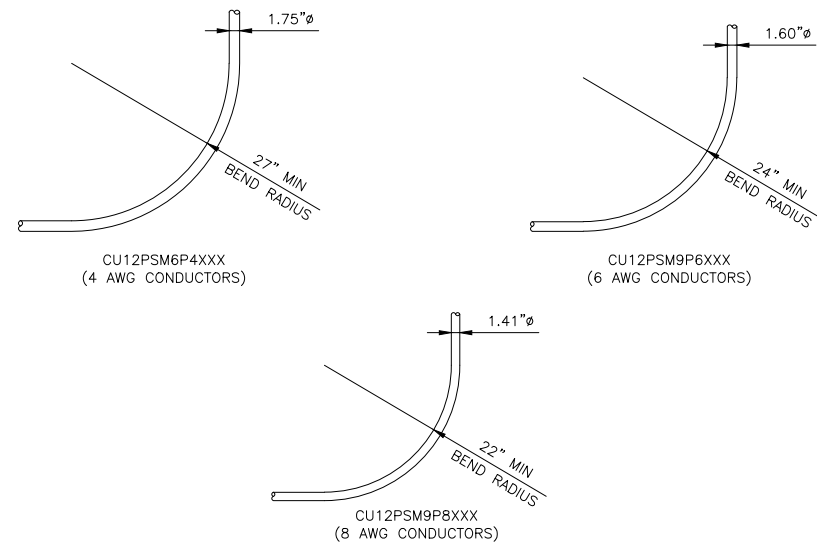
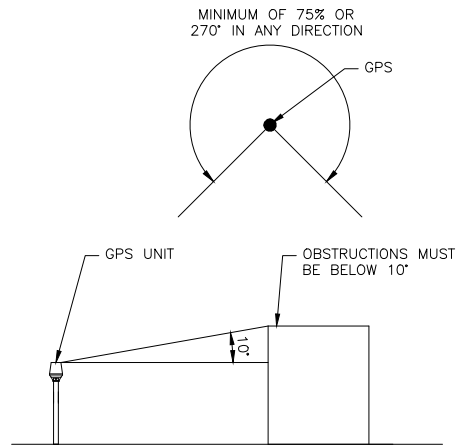
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUS

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

**dish**  
wireless.

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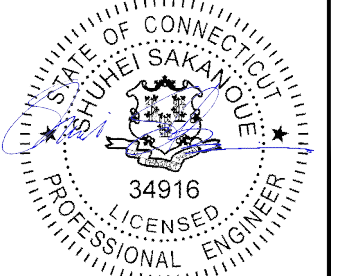
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DISH Wireless L.L.C.  
PROJECT INFORMATION

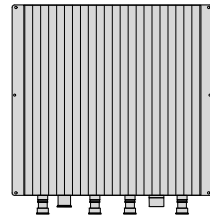
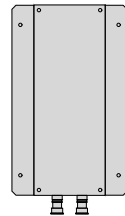
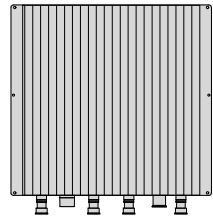
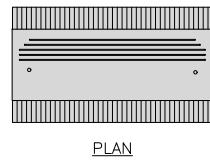
BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

**A-5**

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

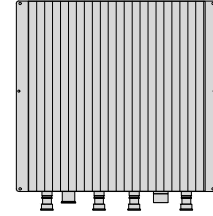
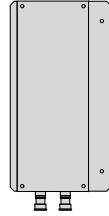
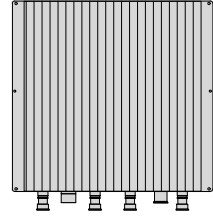
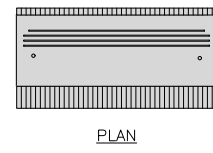


BACK

SIDE

FRONT

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



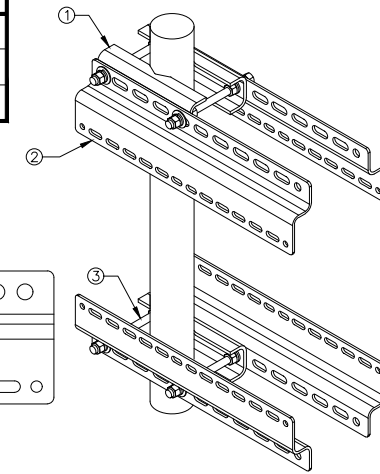
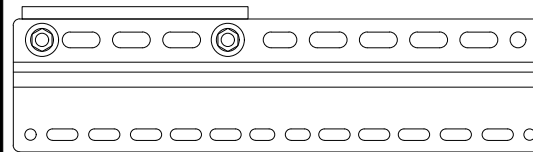
BACK

SIDE

FRONT

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

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



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

RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

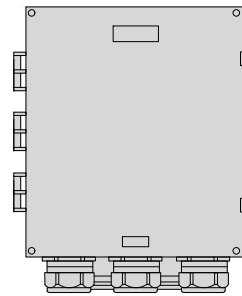
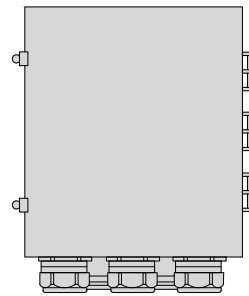
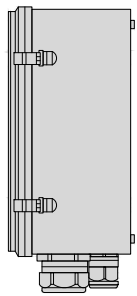
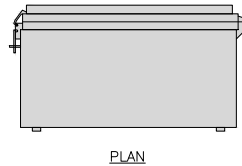
2

RRH MOUNT DETAIL

NO SCALE

3

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

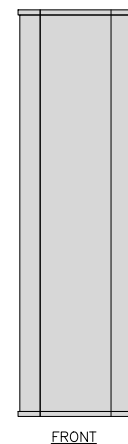
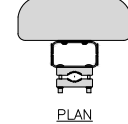


SIDE

BACK

FRONT

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



SIDE

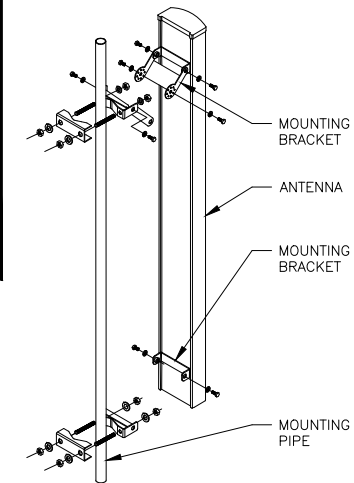
FRONT

ANTENNA DETAIL

NO SCALE

5

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



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

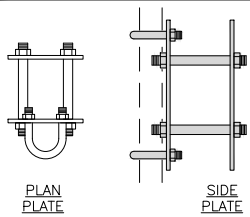
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

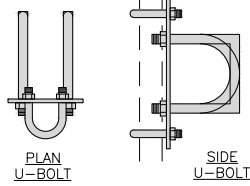
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COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

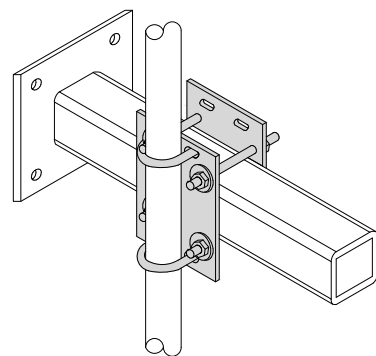
NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT



SIDE PLATE



SIDE U-BOLT



RRH/OVP MOUNT DETAIL

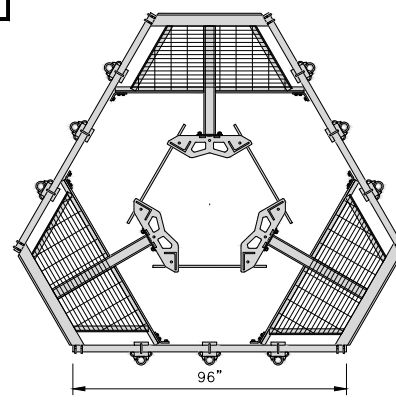
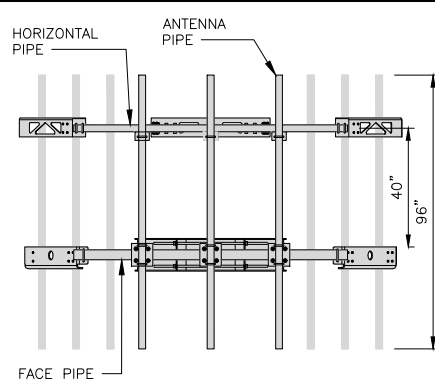
NO SCALE

7

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs

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

NOTE: 15" TO 38" O.D.



ANTENNA PLATFORM DETAIL

NO SCALE

8

ANTENNA MOUNTING DETAIL

NO SCALE

6

NOT USED

NO SCALE

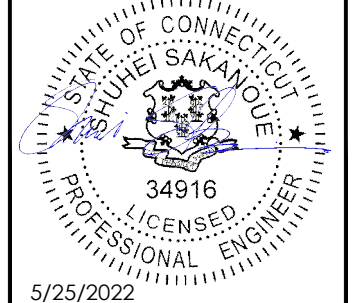
9

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RFDS REV #: N/A

**CONSTRUCTION  
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A&E PROJECT NUMBER  
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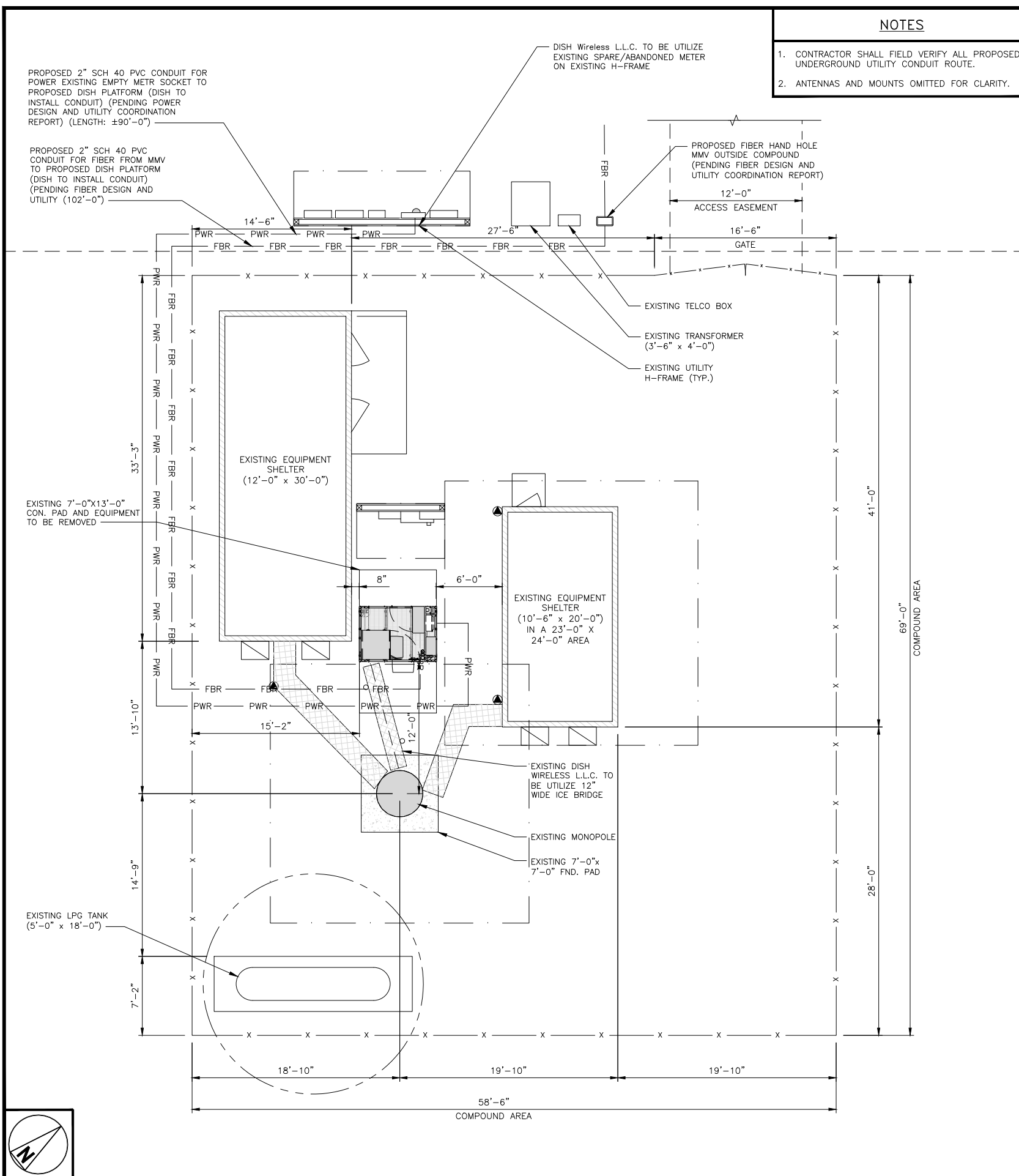
DISH Wireless L.L.C.  
PROJECT INFORMATION

BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

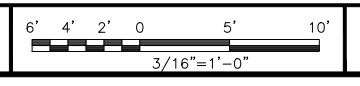
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

**A-6**



UTILITY ROUTE PLAN



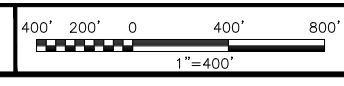
- DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.**
- CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO 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.
  - 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.
  - LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
  - CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
  - CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
  - CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
  - CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
  - 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.
  - 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.
  - ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
  - PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
  - ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE



ELECTRICAL NOTES



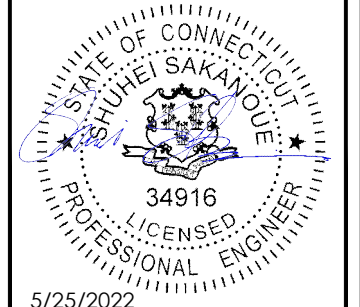
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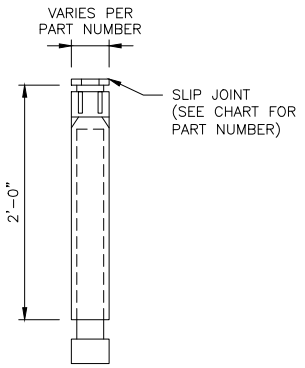
A&E PROJECT NUMBER  
2039-Z5555C

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER  
**E-1**

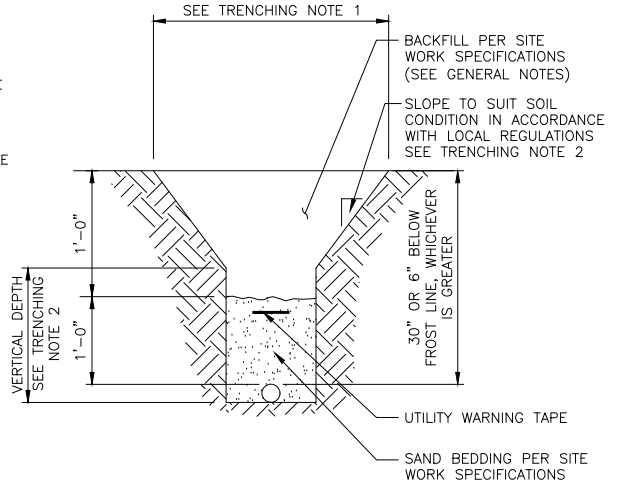
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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

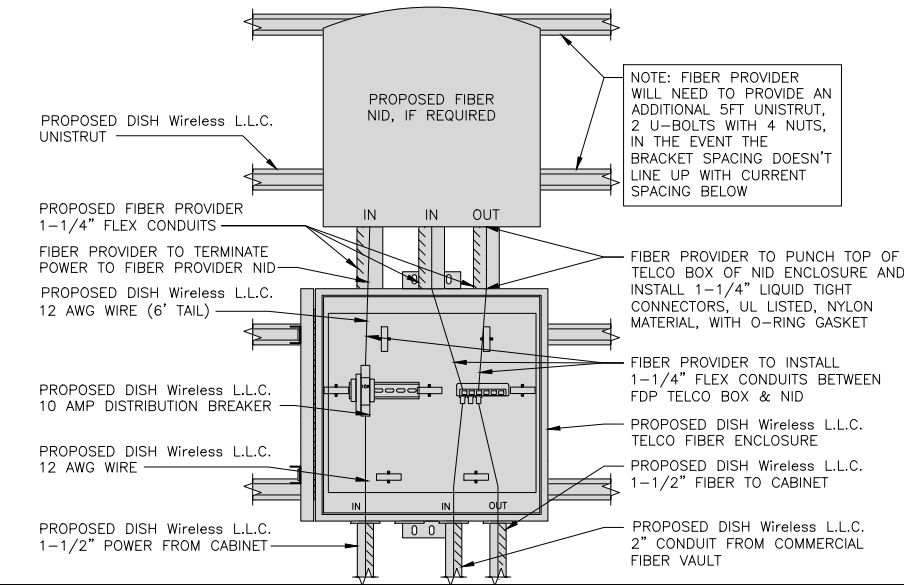
- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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.



EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

NOT USED NO SCALE 3



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

NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9

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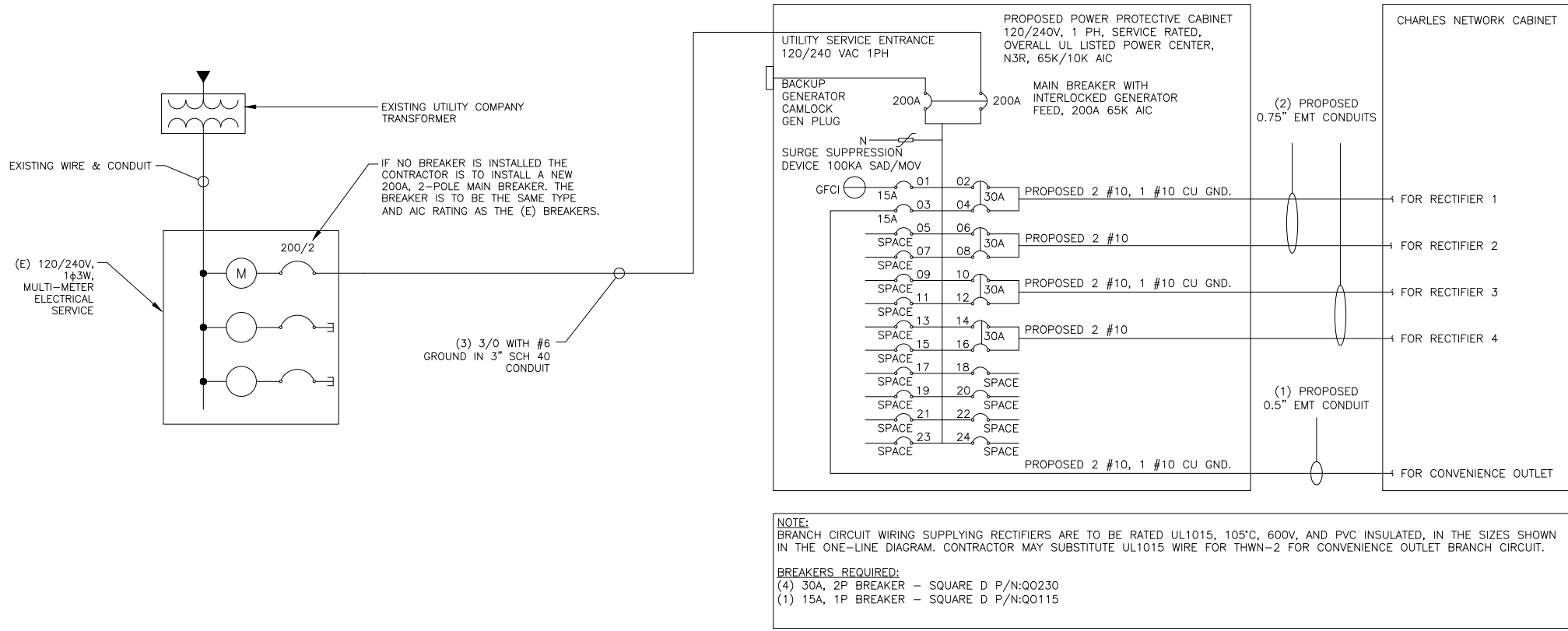
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PROJECT INFORMATION  
BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER  
**E-2**



**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)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A  
 #10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A  
 #8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A  
 #6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

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

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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.  
 #10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN  
 #10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND  
 TOTAL = 0.1146 SQ. IN

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

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.  
 3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN  
 #6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND  
 TOTAL = 0.8544 SQ. IN

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

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LICENSED PROFESSIONAL ENGINEER

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RFDS REV #: N/A

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691 OXFORD RD  
OXFORD, CT 06478

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

SHEET NUMBER  
**E-3**

PPC ONE-LINE DIAGRAM

NO SCALE 1

**PROPOSED CHARLES PANEL SCHEDULE**

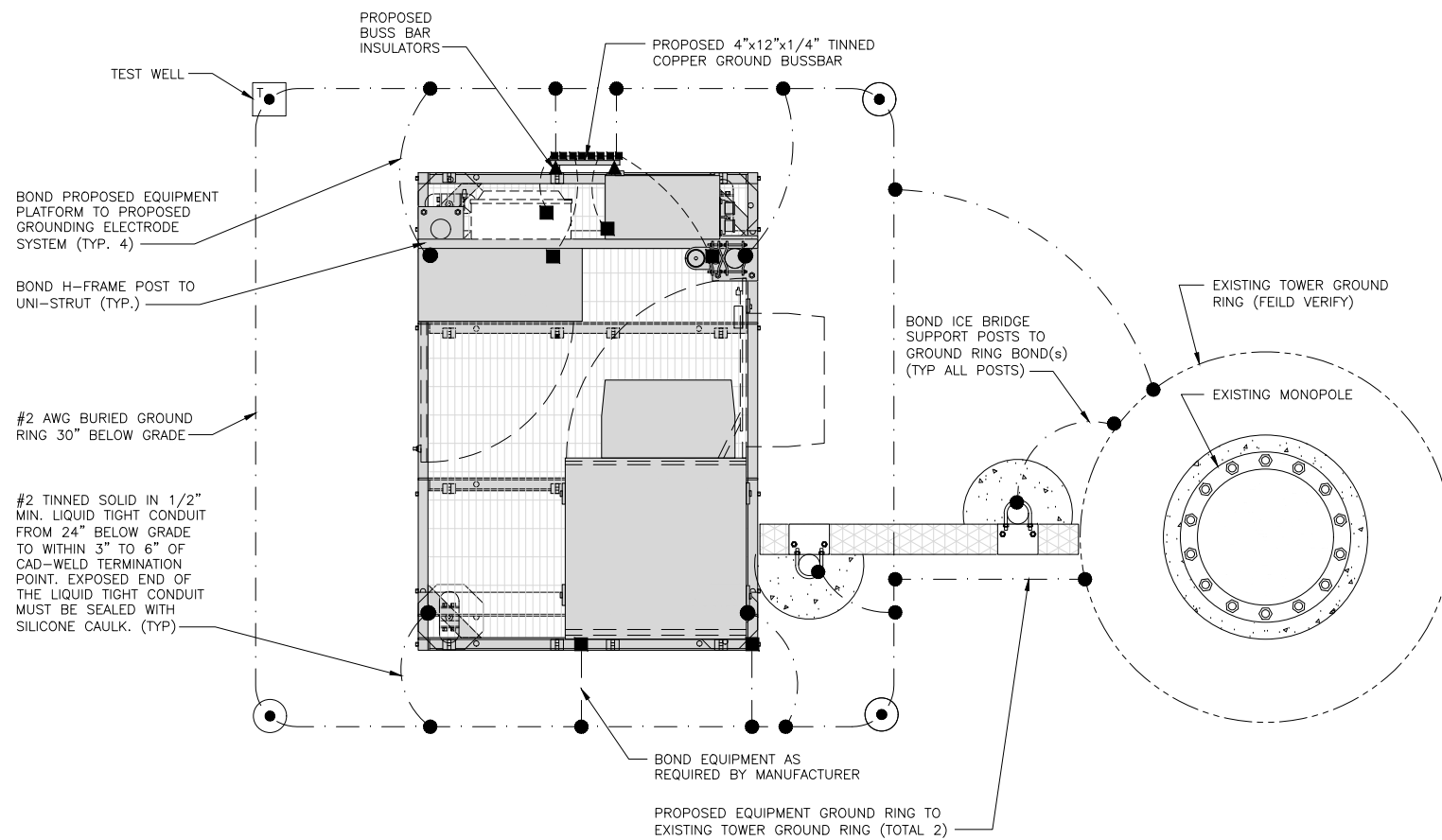
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY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

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3

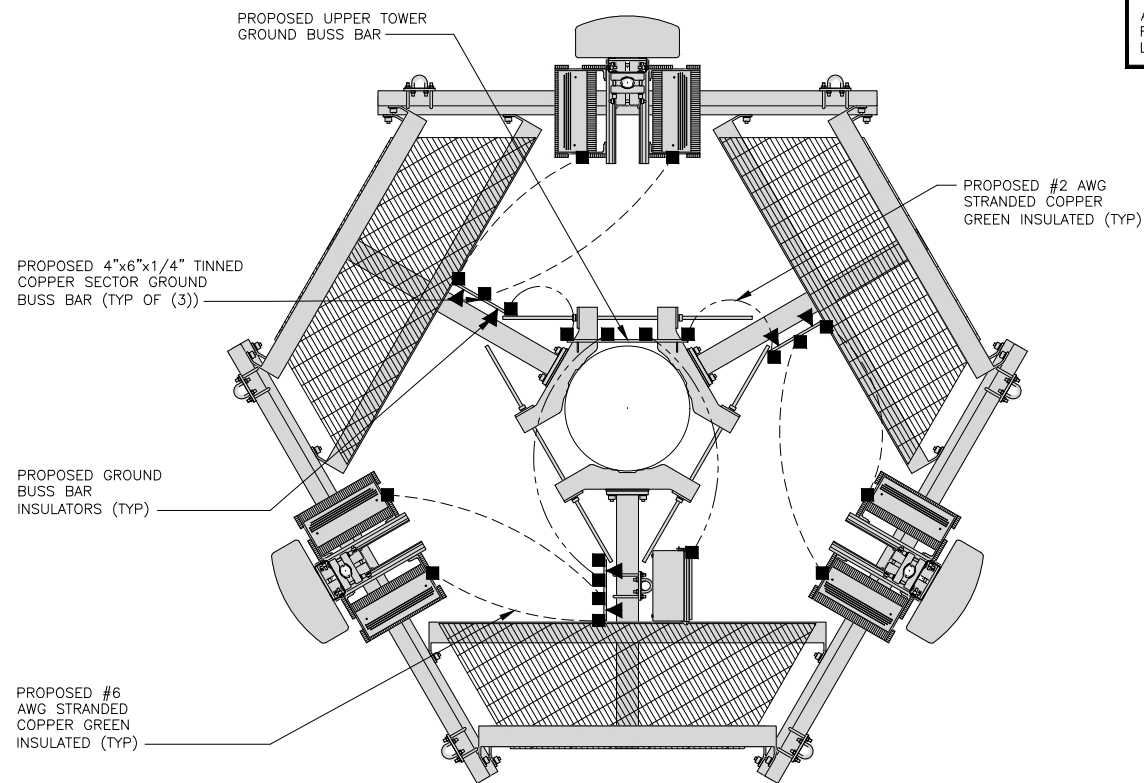


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

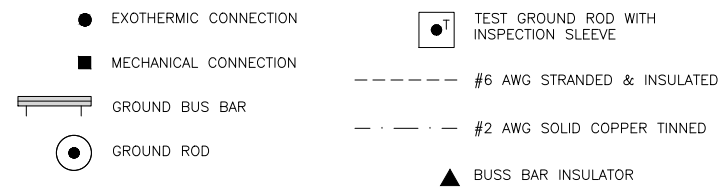
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (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 GROUND 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 L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



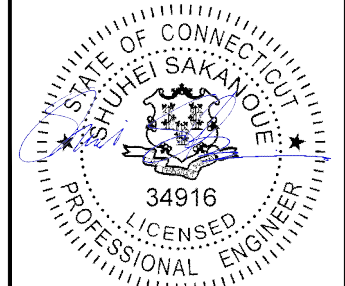
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RFDS REV #: N/A

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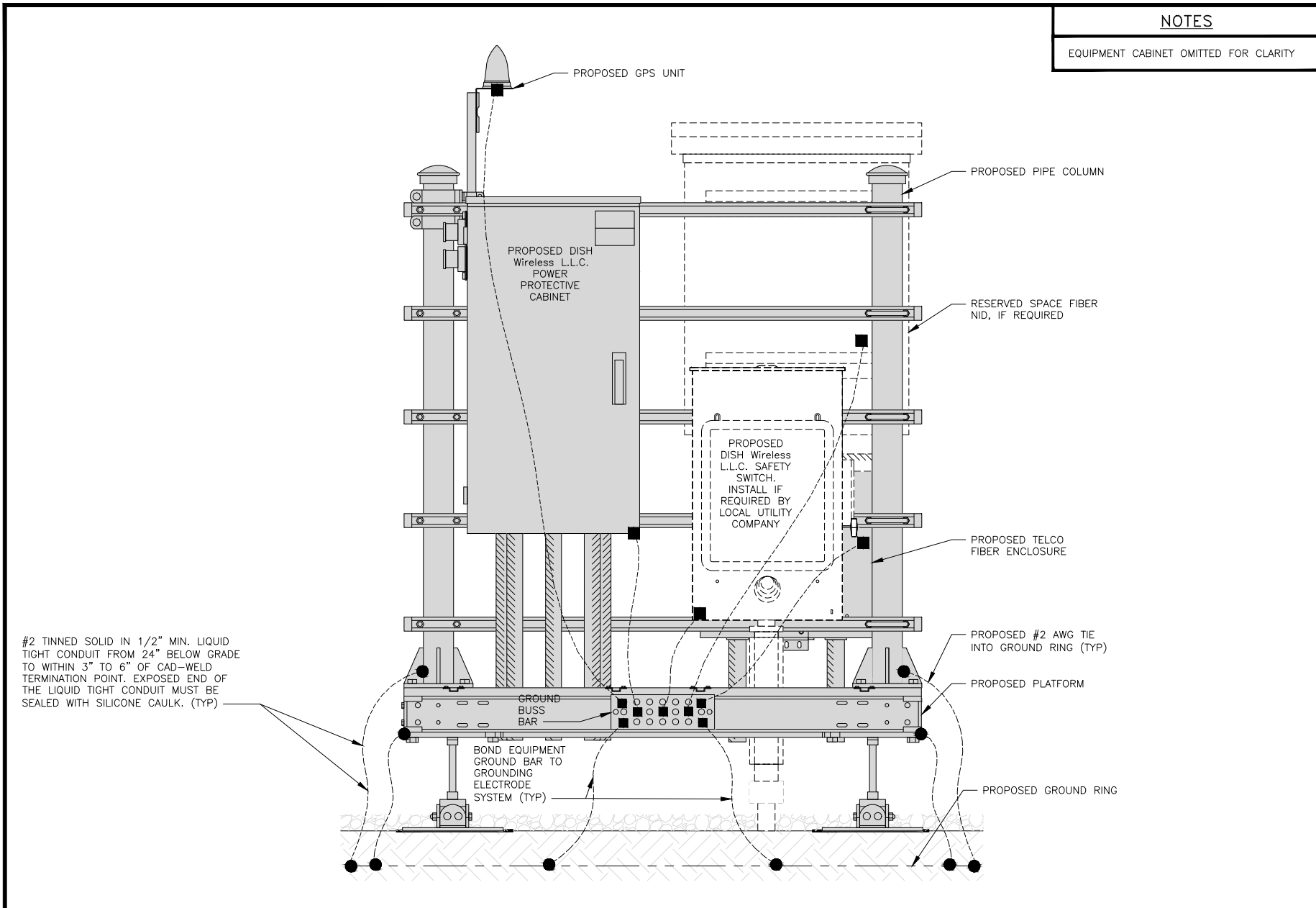
DISH Wireless L.L.C.  
PROJECT INFORMATION

BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

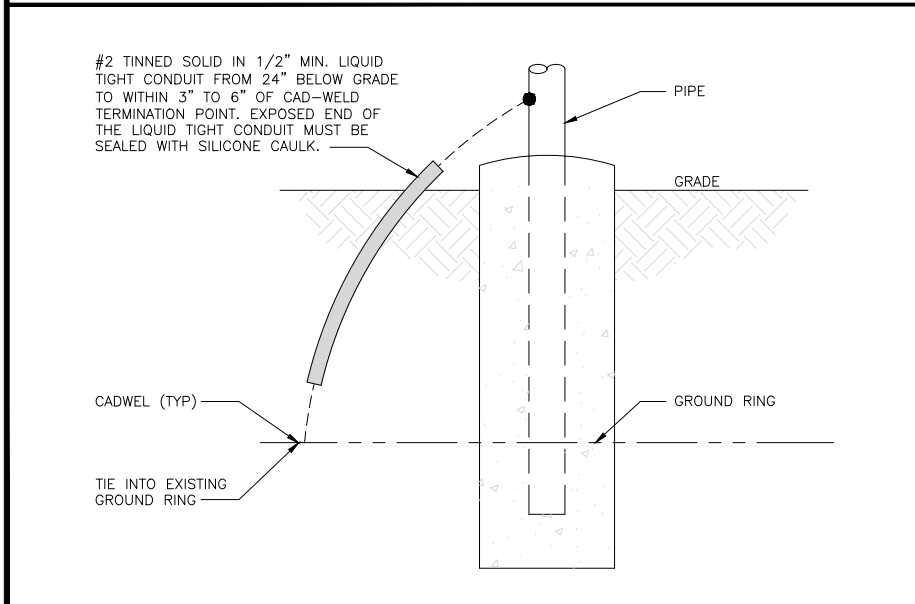
SHEET NUMBER

G-1

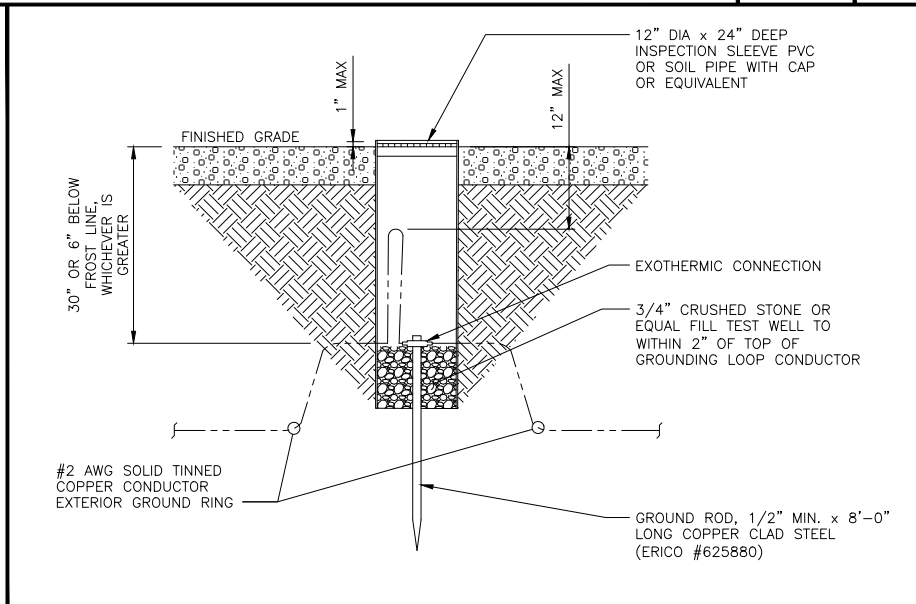


**NOTES**  
EQUIPMENT CABINET OMITTED FOR CLARITY

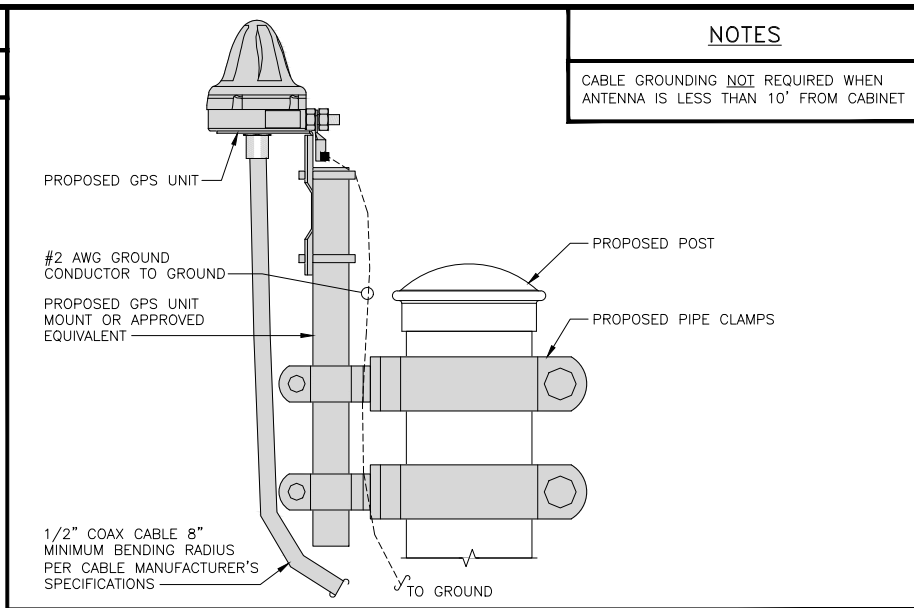
**H-FRAME GROUNDING DETAIL** NO SCALE 1



**TRANSITIONING GROUND DETAIL** NO SCALE 4

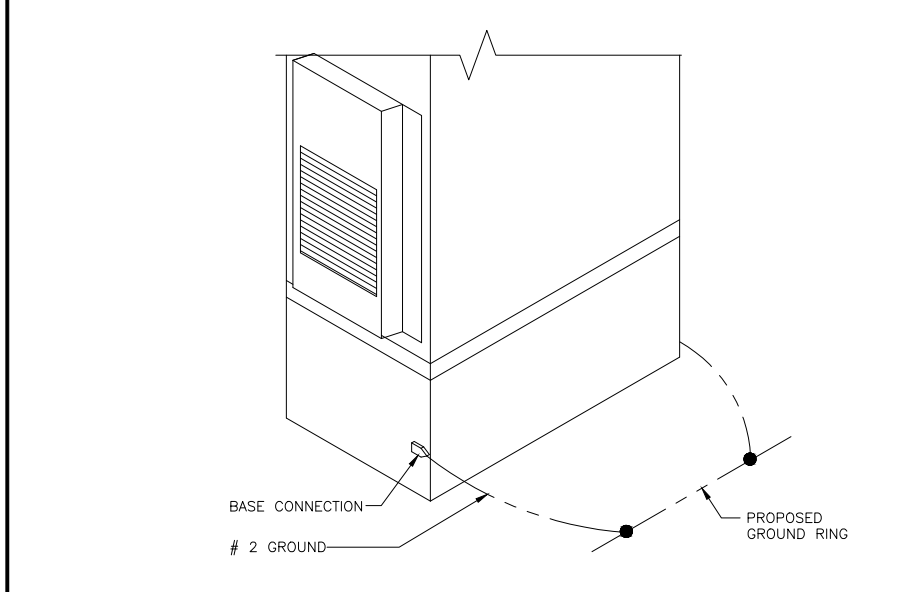


**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE** NO SCALE 5

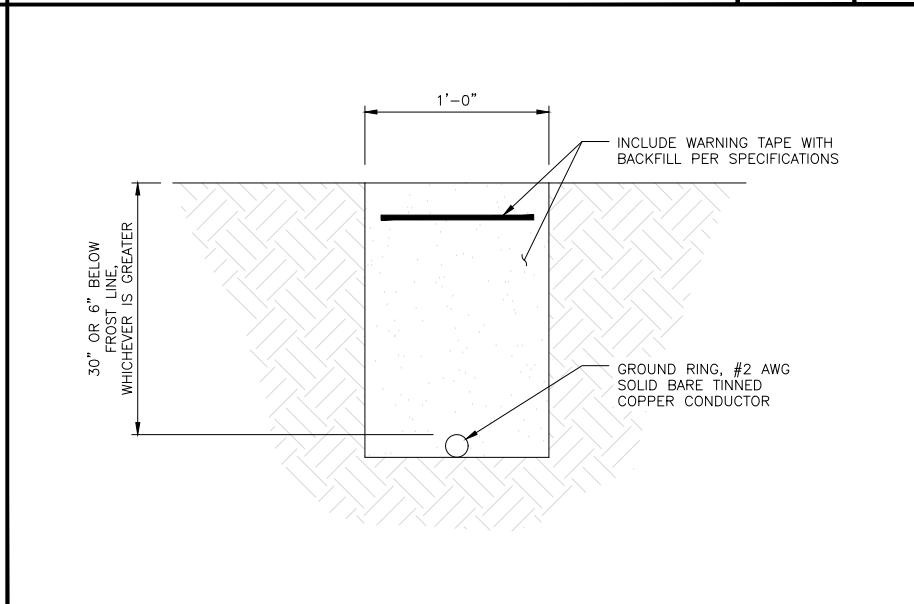


**NOTES**  
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET

**TYPICAL GPS UNIT GROUNDING** NO SCALE 2



**OUTDOOR CABINET GROUNDING** NO SCALE 3



**TYPICAL GROUND RING TRENCH** NO SCALE 6

**dish wireless.**

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**CROWN CASTLE**

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STATE OF CONNECTICUT  
SHUHEI SAKANoue  
34916  
LICENSED PROFESSIONAL ENGINEER  
5/25/2022

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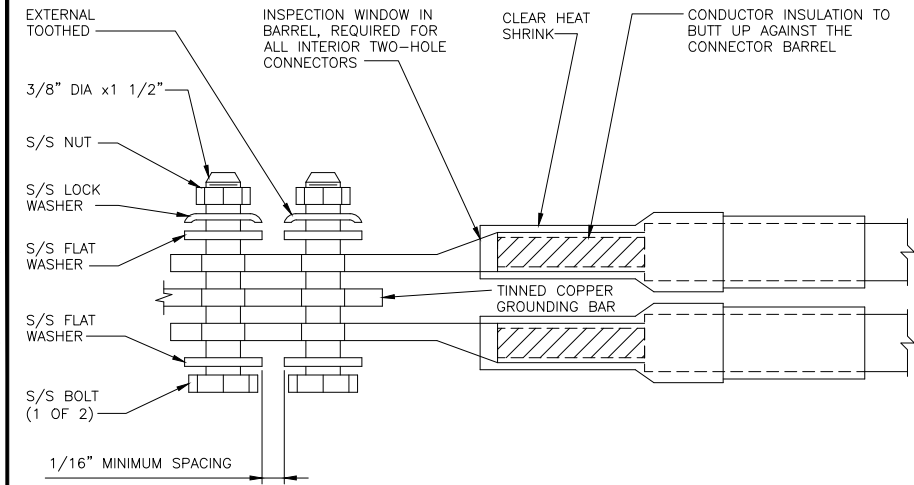
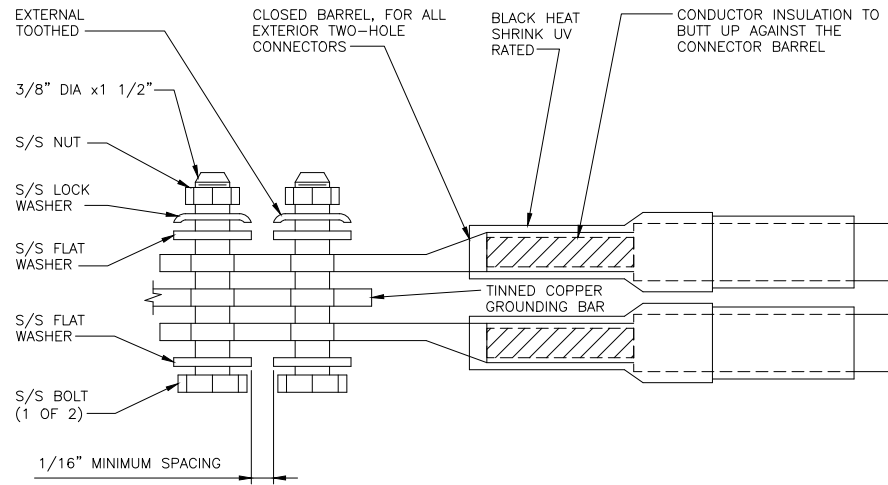
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PROJECT INFORMATION  
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SHEET TITLE  
GROUNDING DETAILS

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

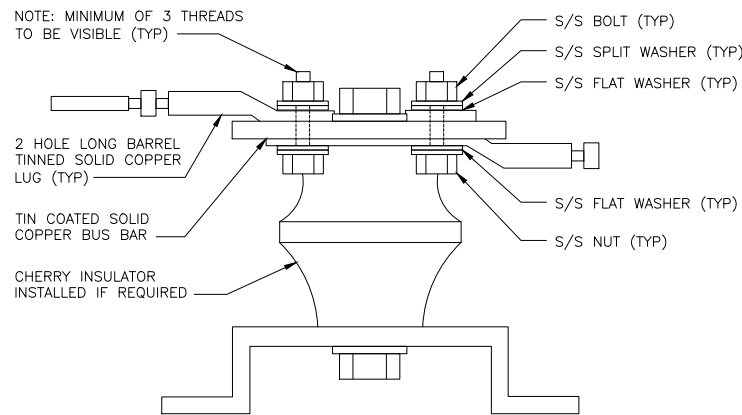
NO SCALE

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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**CROWN CASTLE**

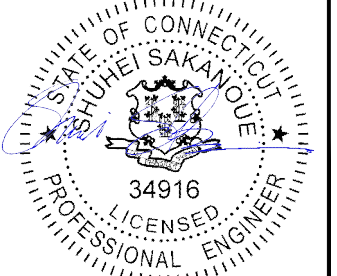
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PROJECT INFORMATION

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691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

**G-3**



**RF JUMPER COLOR CODING**

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

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

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

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

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

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

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

**HYBRID/DISCREET CABLES**

INCLUDE SECTOR BANDS BEING SUPPORTED  
ALONG WITH FREQUENCY BANDS

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

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

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

**FIBER JUMPERS TO RRHs**

LOW-BAND RRH FIBER CABLES HAVE SECTOR  
STRIPE ONLY

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

**POWER CABLES TO RRHs**

LOW-BAND RRH POWER CABLES HAVE SECTOR  
STRIPE ONLY

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

**RET MOTORS AT ANTENNAS**

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

**MICROWAVE RADIO LINKS**

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

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

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

**RF CABLE COLOR CODES**

NO SCALE

1

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



AWS  
(N66+N70+H-BLOCK)



CBRS TECH  
(3 GHz)



NEGATIVE SLANT PORT  
ON ANT/RRH



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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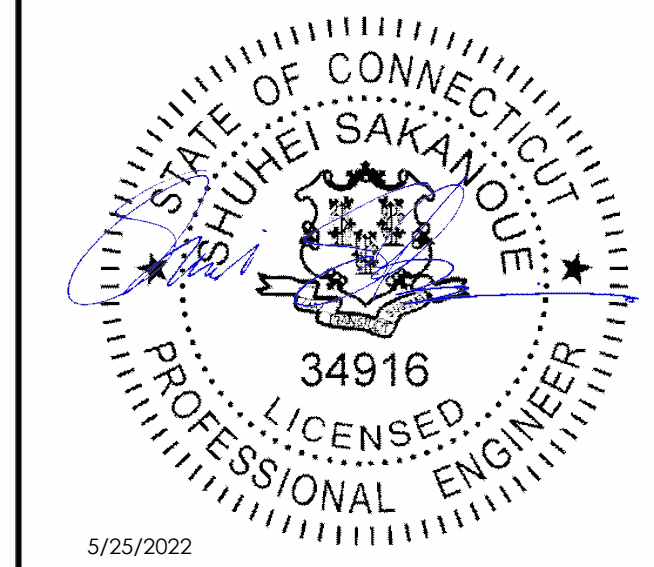


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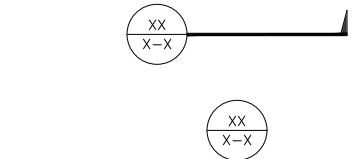
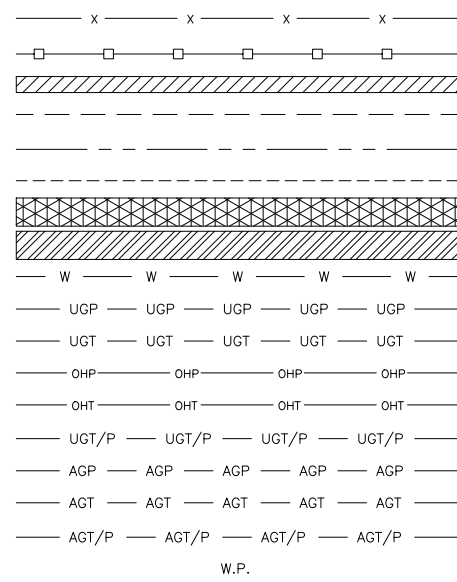
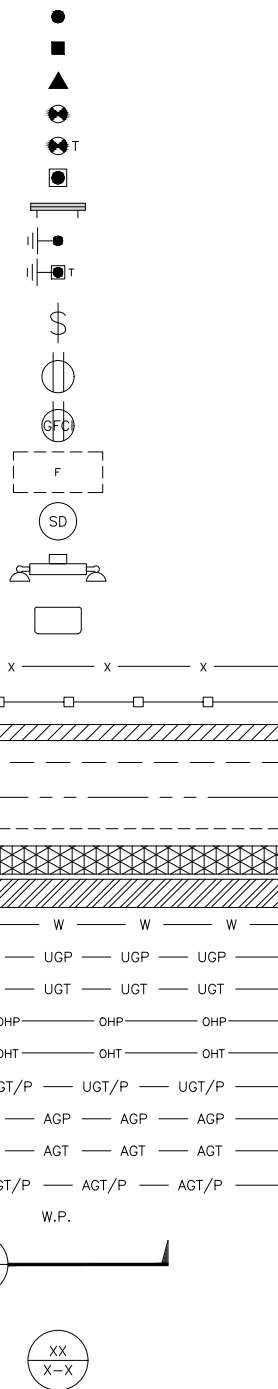
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PROJECT INFORMATION

BOHVN00019A  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
RF  
CABLE COLOR CODES

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-DBBTXD  
 CHAIN LINK FENCE  
 WOOD/WROUGHT IRON FENCE  
 WALL STRUCTURE  
 LEASE AREA  
 PROPERTY LINE (PL)  
 SETBACKS  
 ICE BRIDGE  
 CABLE TRAY  
 WATER LINE  
 UNDERGROUND POWER  
 UNDERGROUND TELCO  
 OVERHEAD POWER  
 OVERHEAD TELCO  
 UNDERGROUND TELCO/POWER  
 ABOVE GROUND POWER  
 ABOVE GROUND TELCO  
 ABOVE GROUND TELCO/POWER  
 WORKPOINT  
 SECTION REFERENCE  
 DETAIL REFERENCE



**LEGEND**

AB ANCHOR BOLT	IN INCH
ABV ABOVE	INT INTERIOR
AC ALTERNATING CURRENT	LB(S) POUND(S)
ADDL ADDITIONAL	LF LINEAR FEET
AFF ABOVE FINISHED FLOOR	LTE LONG TERM EVOLUTION
AFG ABOVE FINISHED GRADE	MAS MASONRY
AGL ABOVE GROUND LEVEL	MAX MAXIMUM
AIC AMPERAGE INTERRUPTION CAPACITY	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**



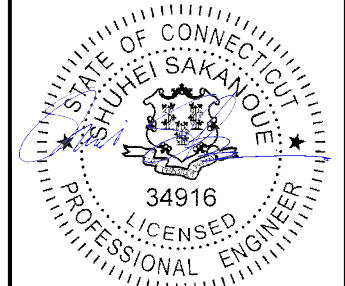
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 PROJECT INFORMATION  
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**691 OXFORD RD**  
**OXFORD, CT 06478**

SHEET TITLE  
**LEGEND AND ABBREVIATIONS**

SHEET NUMBER  
**GN-1**

SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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



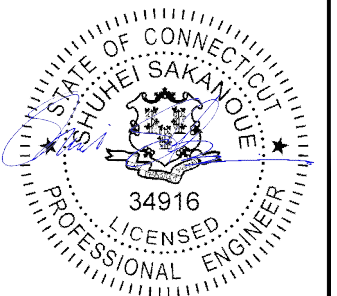
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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/08/2021	ISSUED FOR REVIEW
0	07/30/2021	ISSUED FOR CONSTRUCTION
1	05/24/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**2039-Z5555C**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00019A**  
**691 OXFORD RD**  
**OXFORD, CT 06478**

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-2**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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



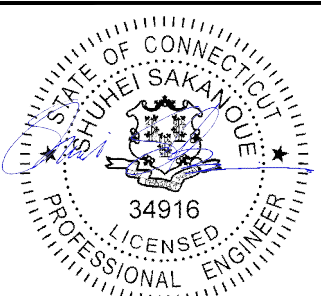
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DRAWN BY: CHECKED BY: APPROVED BY:

RCD SS CJW

RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

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A	06/08/2021	ISSUED FOR REVIEW
0	07/30/2021	ISSUED FOR CONSTRUCTION
1	05/24/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**2039-Z5555C**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00019A**  
**691 OXFORD RD**  
**OXFORD, CT 06478**

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.



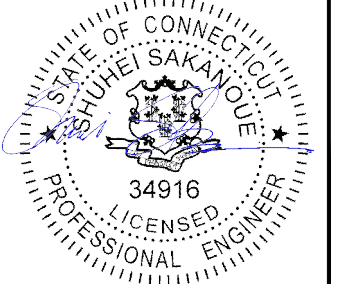
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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/08/2021	ISSUED FOR REVIEW
0	07/30/2021	ISSUED FOR CONSTRUCTION
1	05/24/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**2039-Z5555C**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00019A**  
691 OXFORD RD  
OXFORD, CT 06478

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-4**

# Exhibit D

## **Structural Analysis Report**

Date: **May 28, 2021**



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

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

**Carrier Designation:** **DISH Network Co-Locate**  
**Site Number:** BOHVN00019A  
**Site Name:** CT-CCI-T-873645

**Crown Castle Designation:** **BU Number:** 873645  
**Site Name:** Oxford  
**JDE Job Number:** 645157  
**Work Order Number:** 1977035  
**Order Number:** 553362 Rev. 1

**Engineering Firm Designation:** **Crown Castle Project Number:** 1977035

**Site Data:** **691 Oxford RD, OXFORD, NEW HAVEN County, CT**  
**Latitude 41° 26' 49.51", Longitude -73° 9' 8.316"**  
**150 Foot - Monopole Tower**

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

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

LC7: Proposed Equipment Configuration

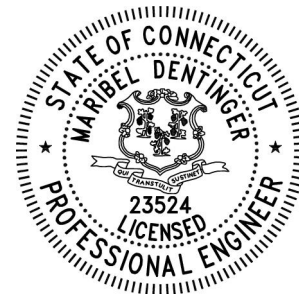
**Sufficient Capacity – 78.6%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Daniel Chen

Respectfully submitted by:

*Maribel Dentinger*  
Maribel Dentinger, P.E.  
Senior Project Engineer



## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - Tower Component Stresses vs. Capacity - LC7

4.1) Recommendations

### 5) APPENDIX A

tnxTower Output

### 6) APPENDIX B

Base Level Drawing

### 7) APPENDIX C

Additional Calculations



## 1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Summit.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Seismic Ss:</b>	0.196
<b>Seismic S1:</b>	0.064
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
127.0	127.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	148.0	6	antel	LPA-80063/6CF w/ Mount Pipe	7	1-5/8
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
	147.0	3	commscope	CBC78T-DS-43-2X		
		1	raycap	RHSDC-6627-PF-48		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	tower mounts	Platform Mount [LP 303-1_HR-1]		
		3	vzw	Sub6 Antenna - VZS01 w/ Mount Pipe		
139.0	140.0	4	andrew	SBNH-1D6565C w/ Mount Pipe	12	1-5/8
		2	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	1	3/8
		3	powerwave	7770.00 w/ Mount Pipe	2	3/4

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
			technologies			
	139.0	3	ericsson	RRUS 11 B12		
		3	ericsson	RRUS 12 B2		
		3	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 1201-1_KCKR-HR-1]		
	136.0	3	communication components inc.	DTMABP7819VG12A		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2134249	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1339630	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1339644	CCISITES

#### 3.1) Analysis Method

tnxTower (version 8.0.9.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

#### 3.2) Assumptions

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

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

### 4) ANALYSIS RESULTS

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

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 110.75	Pole	TP31.38x24x0.219	1	-13.22	1296.90	49.5	Pass
L2	110.75 - 74.75	Pole	TP37.711x30.19x0.25	2	-18.75	1782.34	78.6	Pass
L3	74.75 - 39.5	Pole	TP43.839x36.318x0.313	3	-26.36	2588.89	76.5	Pass
L4	39.5 - 0	Pole	TP50.64x42.18x0.375	4	-39.53	3674.93	72.8	Pass
							Summary	

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Pole (L2)	78.6	Pass
						Rating =	78.6	Pass

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

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	62.1	Pass
1	Base Plate	0	53.2	Pass
1	Base Foundation (Structure)	0	46.0	Pass
1	Base Foundation (Soil Interaction)	0	57.3	Pass

<b>Structure Rating (max from all components) =</b>	<b>78.6%</b>
-----------------------------------------------------	--------------

Notes:

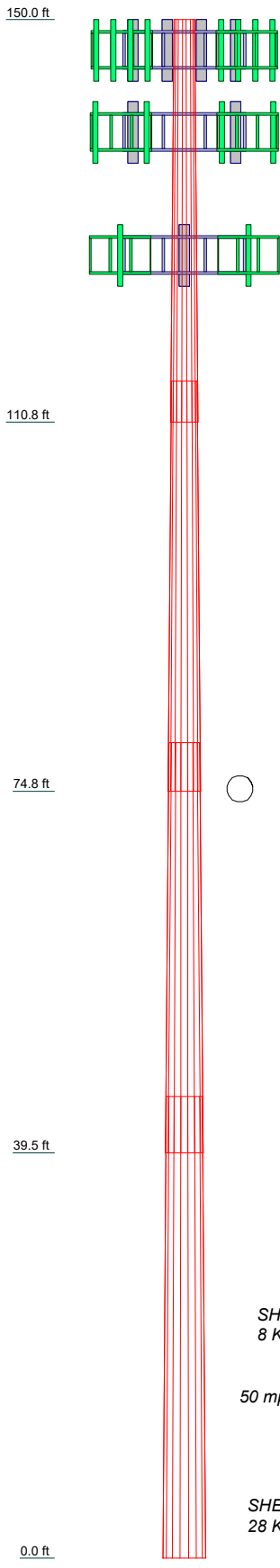
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

#### 4.1) Recommendations

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

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

Section	1	2	3	4	
Length (ft)	39.25	40.00	40.00	45.00	
Number of Sides	18	18	18	18	
Thickness (in)	0.219	0.250	0.313	0.375	
Socket Length (ft)	4.00	4.75	5.50	42.180	
Top Dia (in)	24.000	30.190	36.318	50.640	
Bot Dia (in)	31.380	37.711	43.839		
Grade	A607-65				
Weight (K)	2.5	3.6	5.4	8.4	19.9

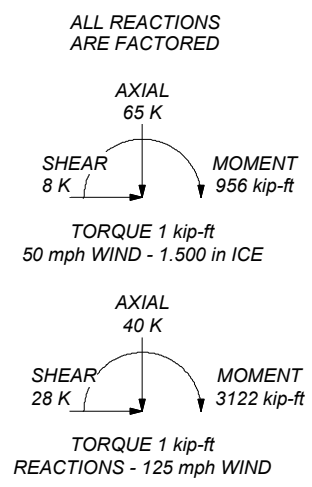


**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 78.6%



**CROWN CASTLE**  
The Pathway to Possible

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

Job: <b>BU# 873645</b>		
Project:		
Client: Crown Castle	Drawn by: Daniel Chen	App'd:
Code: TIA-222-H	Date: 05/28/21	Scale: NTS
Path:	Dwg No. E-1	

C:\Users\dchen\Documents\Work Area - DChen\873645\WO 1977035 - SAIProd\873645.dwg

## Tower Input Data

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

- Tower is located in New Haven County, Connecticut.
- Tower base elevation above sea level: 670.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

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

## Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-110.75	39.25	4.000	18	24.000	31.380	0.219	0.875	A607-65 (65 ksi)
L2	110.75-74.75	40.00	4.750	18	30.190	37.711	0.250	1.000	A607-65 (65 ksi)
L3	74.75-39.50	40.00	5.500	18	36.318	43.839	0.313	1.250	A607-65 (65 ksi)
L4	39.50-0.00	45.00		18	42.180	50.640	0.375	1.500	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	24.336	16.512	1179.768	8.442	12.192	96.766	2361.088	8.257	3.839	17.55
	31.830	21.636	2654.221	11.062	15.941	166.502	5311.934	10.820	5.138	23.487
L2	31.381	23.758	2690.649	10.629	15.337	175.438	5384.839	11.881	4.874	19.494
	38.254	29.725	5270.144	13.299	19.157	275.100	10547.223	14.865	6.197	24.789
L3	37.737	35.713	5849.225	12.782	18.450	317.040	11706.147	17.860	5.842	18.694
	44.467	43.173	10333.695	15.452	22.270	464.014	20680.987	21.591	7.166	22.93
L4	43.823	49.758	10986.408	14.841	21.427	512.728	21987.273	24.884	6.764	18.036
	51.363	59.828	19097.332	17.844	25.725	742.361	38219.793	29.920	8.253	22.007

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.00- 110.75				1	1	1			
L2 110.75- 74.75				1	1	1			
L3 74.75- 39.50				1	1	1			
L4 39.50-0.00				1	1	1			

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

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diamete r in	Perimete r in	Weight plf
****											

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

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight plf	
5/8 rod/step	C	No	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.02	0.274
							1/2" Ice	0.12	0.702
							1" Ice	0.22	1.740
							2" Ice	0.42	5.650
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.04	0.220
							1/2" Ice	0.14	0.750
							1" Ice	0.24	1.280
							2" Ice	0.44	2.340

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
<b>**147**</b>									
AVA7-50(1-5/8)	A	No	No	Inside Pole	147.00 - 0.00	6	No Ice	0.00	0.700
							1/2" Ice	0.00	0.700
							1" Ice	0.00	0.700
							2" Ice	0.00	0.700
HB158-U12S24-XXX-LI(1-5/8)	A	No	No	Inside Pole	147.00 - 0.00	1	No Ice	0.00	3.200
							1/2" Ice	0.00	3.200
							1" Ice	0.00	3.200
							2" Ice	0.00	3.200
<b>**139**</b>									
LCF158-50JA-A0(1-5/8)	B	No	No	Inside Pole	139.00 - 0.00	12	No Ice	0.00	0.800
							1/2" Ice	0.00	0.800
							1" Ice	0.00	0.800
							2" Ice	0.00	0.800
FB-L98B-034-XXX(3/8)	B	No	No	Inside Pole	139.00 - 0.00	1	No Ice	0.00	0.057
							1/2" Ice	0.00	0.057
							1" Ice	0.00	0.057
							2" Ice	0.00	0.057
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	139.00 - 0.00	2	No Ice	0.00	0.584
							1/2" Ice	0.00	0.584
							1" Ice	0.00	0.584
							2" Ice	0.00	0.584
2" Rigid Conduit	B	No	No	Inside Pole	139.00 - 0.00	1	No Ice	0.00	2.800
							1/2" Ice	0.00	2.800
							1" Ice	0.00	2.800
							2" Ice	0.00	2.800
<b>**</b>									
CU12PSM9P6XXX(1-1/2)	A	No	No	Inside Pole	127.00 - 0.00	1	No Ice	0.00	2.350
							1/2" Ice	0.00	2.350
							1" Ice	0.00	2.350
							2" Ice	0.00	2.350
<b>****</b>									

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	150.00-110.75	A	0.000	0.000	0.000	0.000	0.31
		B	0.000	0.000	0.000	0.000	0.38
		C	0.000	0.000	0.000	2.257	0.02
L2	110.75-74.75	A	0.000	0.000	0.000	0.000	0.35
		B	0.000	0.000	0.000	0.000	0.49
		C	0.000	0.000	0.000	2.070	0.02
L3	74.75-39.50	A	0.000	0.000	0.000	0.000	0.34
		B	0.000	0.000	0.000	0.000	0.48
		C	0.000	0.000	0.000	2.027	0.02
L4	39.50-0.00	A	0.000	0.000	0.000	0.000	0.39
		B	0.000	0.000	0.000	0.000	0.54
		C	0.000	0.000	0.000	2.271	0.02

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

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	150.00-110.75	A	1.462	0.000	0.000	0.000	0.000	0.31
		B		0.000	0.000	0.000	0.000	0.38
		C		0.000	0.000	0.000	25.210	0.21
L2	110.75-74.75	A	1.413	0.000	0.000	0.000	0.000	0.35



Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L3	74.75-39.50	B	1.346	0.000	0.000	0.000	0.000	0.49
		C		0.000	0.000	0.000	23.122	0.19
		A		0.000	0.000	0.000	0.000	0.34
		B		0.000	0.000	0.000	0.000	0.48
L4	39.50-0.00	C	1.212	0.000	0.000	0.000	21.953	0.18
		A		0.000	0.000	0.000	0.000	0.39
		B		0.000	0.000	0.000	0.000	0.54
		C		0.000	0.000	0.000	23.545	0.19

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
L1	150.00-110.75	-0.450	0.260	-2.210	1.276
L2	110.75-74.75	-0.453	0.262	-2.332	1.347
L3	74.75-39.50	-0.455	0.263	-2.357	1.361
L4	39.50-0.00	-0.457	0.264	-2.338	1.350

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

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K
Lighting Rod 1/2" x 2'	C	None		0.000	150.00	No Ice	0.10	0.02
						1/2" Ice	0.26	0.26
						1" Ice	0.40	0.40
						1" Ice	0.68	0.68
						2" Ice	0.68	0.03
**147** (2) LPA-80063/6CF w/ Mount Pipe	A	From Leg	4.00 0.000 1.000	0.000	147.00	No Ice	9.83	10.22
						1/2" Ice	10.40	11.38
						1" Ice	10.93	12.27
						1" Ice	12.03	14.09
						2" Ice	12.03	0.48
(2) LPA-80063/6CF w/ Mount Pipe	B	From Leg	4.00 0.000 1.000	0.000	147.00	No Ice	9.83	10.22
						1/2" Ice	10.40	11.38
						1" Ice	10.93	12.27
						1" Ice	12.03	14.09
						2" Ice	12.03	0.48
(2) LPA-80063/6CF w/ Mount Pipe	C	From Leg	4.00 0.000 1.000	0.000	147.00	No Ice	9.83	10.22
						1/2" Ice	10.40	11.38
						1" Ice	10.93	12.27
						1" Ice	12.03	14.09
						2" Ice	12.03	0.48
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00 0.000 1.000	0.000	147.00	No Ice	5.50	4.38
						1/2" Ice	5.97	4.84
						1" Ice	6.45	5.30
						1" Ice	7.44	6.26
						2" Ice	7.44	0.46
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00 0.000 1.000	0.000	147.00	No Ice	5.50	4.38
						1/2" Ice	5.97	4.84
						1" Ice	6.45	5.30

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> <sub>Front</sub>	C <sub>AA</sub> <sub>Side</sub>	Weight
			Horz	Lateral					
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.000	147.00	No Ice	5.50	4.38	0.10
			0.000			1/2" Ice	5.97	4.84	0.17
			1.000			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.00	0.000	147.00	No Ice	4.92	2.69	0.10
			0.000			1/2" Ice	5.26	3.15	0.14
			0.000			Ice	5.62	3.63	0.19
						1" Ice	6.37	4.64	0.29
						2" Ice			
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.00	0.000	147.00	No Ice	4.92	2.69	0.10
			0.000			1/2" Ice	5.26	3.15	0.14
			0.000			Ice	5.62	3.63	0.19
						1" Ice	6.37	4.64	0.29
						2" Ice			
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.00	0.000	147.00	No Ice	4.92	2.69	0.10
			0.000			1/2" Ice	5.26	3.15	0.14
			0.000			Ice	5.62	3.63	0.19
						1" Ice	6.37	4.64	0.29
						2" Ice			
RFV01U-D1A	A	From Leg	4.00	0.000	147.00	No Ice	1.88	1.25	0.08
			0.000			1/2" Ice	2.05	1.39	0.10
			0.000			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	B	From Leg	4.00	0.000	147.00	No Ice	1.88	1.25	0.08
			0.000			1/2" Ice	2.05	1.39	0.10
			0.000			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	C	From Leg	4.00	0.000	147.00	No Ice	1.88	1.25	0.08
			0.000			1/2" Ice	2.05	1.39	0.10
			0.000			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D2A	A	From Leg	4.00	0.000	147.00	No Ice	1.88	1.01	0.07
			0.000			1/2" Ice	2.05	1.14	0.09
			0.000			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	B	From Leg	4.00	0.000	147.00	No Ice	1.88	1.01	0.07
			0.000			1/2" Ice	2.05	1.14	0.09
			0.000			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	C	From Leg	4.00	0.000	147.00	No Ice	1.88	1.01	0.07
			0.000			1/2" Ice	2.05	1.14	0.09
			0.000			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
CBC78T-DS-43-2X	A	From Leg	4.00	0.000	147.00	No Ice	0.37	0.51	0.02
			0.000			1/2" Ice	0.45	0.60	0.03
			0.000			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
CBC78T-DS-43-2X	B	From Leg	4.00	0.000	147.00	No Ice	0.37	0.51	0.02
			0.000			1/2" Ice	0.45	0.60	0.03
			0.000			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
CBC78T-DS-43-2X	C	From Leg	4.00	0.000	147.00	No Ice	0.37	0.51	0.02
			0.000			1/2" Ice	0.45	0.60	0.03
			0.000			Ice	0.53	0.70	0.04

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub>		Weight K	
			Horz Lateral ft ft ft	Vert ft ft ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>		
						1" Ice	0.72	0.93	0.06	
						2" Ice				
						No Ice	4.06	3.10	0.03	
RHSDC-6627-PF-48	B	From Leg	4.00	0.000	0.000	147.00	1/2" Ice	4.32	3.34	0.07
			0.000				Ice	4.58	3.58	0.11
			0.000				1" Ice	5.14	4.09	0.20
							2" Ice			
Platform Mount [LP 303-1_HR-1]	C	None		0.000		147.00	No Ice	17.09	17.09	1.50
							1/2" Ice	21.47	21.47	1.88
							Ice	25.72	25.72	2.35
							1" Ice	33.96	33.96	3.52
							2" Ice			
**139**										
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.000	0.000	139.00	No Ice	5.75	4.25	0.06
			0.000				1/2" Ice	6.18	5.01	0.10
			1.000				Ice	6.61	5.71	0.16
							1" Ice	7.49	7.16	0.29
							2" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.000	0.000	139.00	No Ice	5.75	4.25	0.06
			0.000				1/2" Ice	6.18	5.01	0.10
			1.000				Ice	6.61	5.71	0.16
							1" Ice	7.49	7.16	0.29
							2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.000	0.000	139.00	No Ice	5.75	4.25	0.06
			0.000				1/2" Ice	6.18	5.01	0.10
			1.000				Ice	6.61	5.71	0.16
							1" Ice	7.49	7.16	0.29
							2" Ice			
(2) SBNH-1D6565C w/ Mount Pipe	A	From Leg	4.00	0.000	0.000	139.00	No Ice	5.56	4.47	0.08
			0.000				1/2" Ice	6.07	4.97	0.17
			1.000				Ice	6.59	5.47	0.26
							1" Ice	7.65	6.52	0.50
							2" Ice			
(2) SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.00	0.000	0.000	139.00	No Ice	5.56	4.47	0.08
			0.000				1/2" Ice	6.07	4.97	0.17
			1.000				Ice	6.59	5.47	0.26
							1" Ice	7.65	6.52	0.50
							2" Ice			
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.000	0.000	139.00	No Ice	4.63	3.27	0.07
			0.000				1/2" Ice	5.06	3.69	0.13
			1.000				Ice	5.51	4.12	0.20
							1" Ice	6.43	5.00	0.38
							2" Ice			
TT19-08BP111-001	A	From Leg	4.00	0.000	0.000	139.00	No Ice	0.55	0.44	0.02
			0.000				1/2" Ice	0.64	0.53	0.02
			0.000				Ice	0.74	0.63	0.03
							1" Ice	0.97	0.84	0.05
							2" Ice			
TT19-08BP111-001	B	From Leg	4.00	0.000	0.000	139.00	No Ice	0.55	0.44	0.02
			0.000				1/2" Ice	0.64	0.53	0.02
			0.000				Ice	0.74	0.63	0.03
							1" Ice	0.97	0.84	0.05
							2" Ice			
TT19-08BP111-001	C	From Leg	4.00	0.000	0.000	139.00	No Ice	0.55	0.44	0.02
			0.000				1/2" Ice	0.64	0.53	0.02
			0.000				Ice	0.74	0.63	0.03
							1" Ice	0.97	0.84	0.05
							2" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.000	0.000	139.00	No Ice	1.21	1.21	0.02
			0.000				1/2" Ice	1.89	1.89	0.04
			0.000				Ice	2.11	2.11	0.07
							1" Ice	2.57	2.57	0.13
							2" Ice			
RRUS 12 B2	A	From Leg	4.00	0.000	0.000	139.00	No Ice	3.14	1.28	0.05
			0.000				1/2" Ice	3.36	1.43	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CA <sub>AA</sub> Front ft <sup>2</sup>	CA <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			0.000			Ice 3.59	1.60	0.10
						1" Ice 4.07	1.95	0.16
						2" Ice		
RRUS 12 B2	B	From Leg	4.00	0.000	139.00	No Ice 3.14	1.28	0.05
			0.000			1/2" 3.36	1.43	0.07
			0.000			Ice 3.59	1.60	0.10
						1" Ice 4.07	1.95	0.16
						2" Ice		
RRUS 12 B2	C	From Leg	4.00	0.000	139.00	No Ice 3.14	1.28	0.05
			0.000			1/2" 3.36	1.43	0.07
			0.000			Ice 3.59	1.60	0.10
						1" Ice 4.07	1.95	0.16
						2" Ice		
RRUS 11 B12	A	From Leg	4.00	0.000	139.00	No Ice 2.83	1.18	0.05
			0.000			1/2" 3.04	1.33	0.07
			0.000			Ice 3.26	1.48	0.10
						1" Ice 3.71	1.83	0.15
						2" Ice		
RRUS 11 B12	B	From Leg	4.00	0.000	139.00	No Ice 2.83	1.18	0.05
			0.000			1/2" 3.04	1.33	0.07
			0.000			Ice 3.26	1.48	0.10
						1" Ice 3.71	1.83	0.15
						2" Ice		
RRUS 11 B12	C	From Leg	4.00	0.000	139.00	No Ice 2.83	1.18	0.05
			0.000			1/2" 3.04	1.33	0.07
			0.000			Ice 3.26	1.48	0.10
						1" Ice 3.71	1.83	0.15
						2" Ice		
DTMABP7819VG12A	A	From Leg	4.00	0.000	139.00	No Ice 0.98	0.34	0.02
			0.000			1/2" 1.10	0.42	0.03
			-3.000			Ice 1.23	0.51	0.04
						1" Ice 1.52	0.71	0.06
						2" Ice		
DTMABP7819VG12A	B	From Leg	4.00	0.000	139.00	No Ice 0.98	0.34	0.02
			0.000			1/2" 1.10	0.42	0.03
			-3.000			Ice 1.23	0.51	0.04
						1" Ice 1.52	0.71	0.06
						2" Ice		
DTMABP7819VG12A	C	From Leg	4.00	0.000	139.00	No Ice 0.98	0.34	0.02
			0.000			1/2" 1.10	0.42	0.03
			-3.000			Ice 1.23	0.51	0.04
						1" Ice 1.52	0.71	0.06
						2" Ice		
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.000	139.00	No Ice 37.61	37.61	2.63
						1/2" 45.62	45.62	3.48
						Ice 53.59	53.59	4.46
						1" Ice 69.65	69.65	6.85
						2" Ice		
**								
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.000	127.00	No Ice 8.01	4.23	0.11
			0.000			1/2" 8.52	4.69	0.19
			0.000			Ice 9.04	5.16	0.29
						1" Ice 10.11	6.12	0.52
						2" Ice		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.000	127.00	No Ice 8.01	4.23	0.11
			0.000			1/2" 8.52	4.69	0.19
			0.000			Ice 9.04	5.16	0.29
						1" Ice 10.11	6.12	0.52
						2" Ice		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.000	127.00	No Ice 8.01	4.23	0.11
			0.000			1/2" 8.52	4.69	0.19
			0.000			Ice 9.04	5.16	0.29
						1" Ice 10.11	6.12	0.52
						2" Ice		
TA08025-B604	A	From Leg	4.00	0.000	127.00	No Ice 1.96	0.98	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			0.000			1/2"	2.14	1.11	0.08
			0.000			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	B	From Leg	4.00	0.000	127.00	No Ice	1.96	0.98	0.06
			0.000			1/2"	2.14	1.11	0.08
			0.000			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	C	From Leg	4.00	0.000	127.00	No Ice	1.96	0.98	0.06
			0.000			1/2"	2.14	1.11	0.08
			0.000			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B605	A	From Leg	4.00	0.000	127.00	No Ice	1.96	1.13	0.08
			0.000			1/2"	2.14	1.27	0.09
			0.000			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	B	From Leg	4.00	0.000	127.00	No Ice	1.96	1.13	0.08
			0.000			1/2"	2.14	1.27	0.09
			0.000			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	C	From Leg	4.00	0.000	127.00	No Ice	1.96	1.13	0.08
			0.000			1/2"	2.14	1.27	0.09
			0.000			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
RDIDC-9181-PF-48	A	From Leg	4.00	0.000	127.00	No Ice	2.31	1.29	0.02
			0.000			1/2"	2.50	1.45	0.04
			0.000			Ice	2.70	1.61	0.06
						1" Ice	3.12	1.96	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.000	127.00	No Ice	1.90	1.90	0.03
			0.000			1/2"	2.73	2.73	0.04
			0.000			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.000	127.00	No Ice	1.90	1.90	0.03
			0.000			1/2"	2.73	2.73	0.04
			0.000			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.000	127.00	No Ice	1.90	1.90	0.03
			0.000			1/2"	2.73	2.73	0.04
			0.000			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
Commscope MC-PK8-DSH	C	None		0.000	127.00	No Ice	34.24	34.24	1.75
						1/2"	62.95	62.95	2.10
						Ice	91.66	91.66	2.45
						1" Ice	149.08	149.08	3.15
						2" Ice			

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## Load Combinations

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

**Maximum Member Forces**

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 110.75	Pole	Max Tension	9	0.00	0.00	-0.00
			Max. Compression	26	-31.22	-1.39	0.99
			Max. Mx	8	-13.22	-442.66	-0.15
			Max. My	2	-13.22	0.15	442.19
			Max. Vy	8	18.49	-442.66	-0.15
			Max. Vx	2	-18.50	0.15	442.19
			Max. Torque	12			1.03
			Max Tension	1	0.00	0.00	0.00
L2	110.75 - 74.75	Pole	Max. Compression	26	-38.93	-1.18	0.87
			Max. Mx	8	-18.75	-1148.53	-0.45

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	74.75 - 39.5	Pole	Max. My	2	-18.75	0.43	1148.43
			Max. Vy	8	21.53	-1148.53	-0.45
			Max. Vx	2	-21.54	0.43	1148.43
			Max. Torque	12			0.98
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.83	-0.92	0.72
			Max. Mx	8	-26.36	-1943.25	-0.74
			Max. My	2	-26.36	0.73	1943.52
			Max. Vy	8	24.47	-1943.25	-0.74
			Max. Vx	2	-24.48	0.73	1943.52
L4	39.5 - 0	Pole	Max. Torque	12			0.83
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.96	-0.56	0.51
			Max. Mx	8	-39.53	-3120.34	-1.13
			Max. My	2	-39.53	1.13	3121.10
			Max. Vy	8	27.63	-3120.34	-1.13
			Max. Vx	2	-27.64	1.13	3121.10
			Max. Torque	38			0.76

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	64.96	-8.33	-0.00
	Max. H <sub>x</sub>	21	29.67	27.59	0.01
	Max. H <sub>z</sub>	3	29.67	0.01	27.60
	Max. M <sub>x</sub>	2	3121.10	0.01	27.60
	Max. M <sub>z</sub>	8	3120.34	-27.59	-0.01
	Max. Torsion	38	0.76	4.17	7.22
	Min. Vert	11	29.67	-23.90	-13.81
	Min. H <sub>x</sub>	9	29.67	-27.59	-0.01
	Min. H <sub>z</sub>	14	39.56	-0.01	-27.60
	Min. M <sub>x</sub>	14	-3120.77	-0.01	-27.60
	Min. M <sub>z</sub>	20	-3120.01	27.59	0.01
	Min. Torsion	32	-0.76	-4.17	-7.22

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturing Moment, M <sub>x</sub> kip-ft	Overturing Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	32.96	0.00	0.00	-0.13	-0.13	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	39.56	-0.01	-27.60	-3121.10	1.13	0.50
0.9 Dead+1.0 Wind 0 deg - No Ice	29.67	-0.01	-27.60	-3078.95	1.16	0.50
1.2 Dead+1.0 Wind 30 deg - No Ice	39.56	13.79	-23.90	-2702.34	-1559.13	0.35
0.9 Dead+1.0 Wind 30 deg - No Ice	29.67	13.79	-23.90	-2665.85	-1538.06	0.35
1.2 Dead+1.0 Wind 60 deg - No Ice	39.56	23.89	-13.79	-1559.52	-2701.68	0.10
0.9 Dead+1.0 Wind 60 deg - No Ice	29.67	23.89	-13.79	-1538.44	-2665.19	0.10
1.2 Dead+1.0 Wind 90 deg - No Ice	39.56	27.59	0.01	1.13	-3120.34	-0.18
0.9 Dead+1.0 Wind 90 deg - No Ice	29.67	27.59	0.01	1.15	-3078.19	-0.17
1.2 Dead+1.0 Wind 120 deg - No Ice	39.56	23.90	13.81	1561.42	-2702.96	-0.40

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 120 deg - No Ice	29.67	23.90	13.81	1540.40	-2666.45	-0.40
1.2 Dead+1.0 Wind 150 deg - No Ice	39.56	13.80	23.91	2703.29	-1561.37	-0.52
0.9 Dead+1.0 Wind 150 deg - No Ice	29.67	13.80	23.91	2666.86	-1540.26	-0.52
1.2 Dead+1.0 Wind 180 deg - No Ice	39.56	0.01	27.60	3120.77	-1.45	-0.50
0.9 Dead+1.0 Wind 180 deg - No Ice	29.67	0.01	27.60	3078.72	-1.39	-0.50
1.2 Dead+1.0 Wind 210 deg - No Ice	39.56	-13.79	23.90	2702.00	1558.81	-0.34
0.9 Dead+1.0 Wind 210 deg - No Ice	29.67	-13.79	23.90	2665.60	1537.82	-0.35
1.2 Dead+1.0 Wind 240 deg - No Ice	39.56	-23.89	13.79	1559.18	2701.34	-0.10
0.9 Dead+1.0 Wind 240 deg - No Ice	29.67	-23.89	13.79	1538.20	2664.94	-0.10
1.2 Dead+1.0 Wind 270 deg - No Ice	39.56	-27.59	-0.01	-1.46	3120.01	0.18
0.9 Dead+1.0 Wind 270 deg - No Ice	29.67	-27.59	-0.01	-1.39	3077.95	0.17
1.2 Dead+1.0 Wind 300 deg - No Ice	39.56	-23.90	-13.81	-1561.75	2702.63	0.40
0.9 Dead+1.0 Wind 300 deg - No Ice	29.67	-23.90	-13.81	-1540.64	2666.21	0.40
1.2 Dead+1.0 Wind 330 deg - No Ice	39.56	-13.80	-23.91	-2703.62	1561.05	0.52
0.9 Dead+1.0 Wind 330 deg - No Ice	29.67	-13.80	-23.91	-2667.10	1540.02	0.52
1.2 Dead+1.0 Ice+1.0 Temp	64.96	0.00	-0.00	-0.51	-0.56	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.96	-0.00	-8.33	-955.71	-0.43	-0.67
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.96	4.16	-7.22	-827.62	-477.93	-0.40
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.96	7.21	-4.17	-477.94	-827.55	-0.02
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.96	8.33	0.00	-0.36	-955.61	0.36
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.96	7.22	4.17	477.16	-827.79	0.65
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.96	4.17	7.22	826.67	-478.35	0.76
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.96	0.00	8.33	954.51	-0.91	0.67
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.96	-4.16	7.22	826.43	476.59	0.40
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	64.96	-7.21	4.17	476.75	826.22	0.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.96	-8.33	-0.00	-0.84	954.27	-0.36
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.96	-7.22	-4.17	-478.36	826.45	-0.65
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.96	-4.17	-7.22	-827.87	477.01	-0.76
Dead+Wind 0 deg - Service	32.96	-0.00	-5.99	-672.83	0.14	0.11
Dead+Wind 30 deg - Service	32.96	2.99	-5.19	-582.57	-336.16	0.07
Dead+Wind 60 deg - Service	32.96	5.19	-2.99	-336.24	-582.42	0.02
Dead+Wind 90 deg - Service	32.96	5.99	0.00	0.14	-672.66	-0.04
Dead+Wind 120 deg - Service	32.96	5.19	3.00	336.45	-582.70	-0.09
Dead+Wind 150 deg - Service	32.96	3.00	5.19	582.57	-336.65	-0.12
Dead+Wind 180 deg - Service	32.96	0.00	5.99	672.55	-0.42	-0.11
Dead+Wind 210 deg - Service	32.96	-2.99	5.19	582.29	335.88	-0.07
Dead+Wind 240 deg - Service	32.96	-5.19	2.99	335.96	582.14	-0.02



Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead+Wind 270 deg - Service	32.96	-5.99	-0.00	-0.42	672.38	0.04
Dead+Wind 300 deg - Service	32.96	-5.19	-3.00	-336.73	582.43	0.09
Dead+Wind 330 deg - Service	32.96	-3.00	-5.19	-582.84	336.36	0.12

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-32.96	0.00	0.00	32.96	0.00	0.000%
2	-0.01	-39.56	-27.60	0.01	39.56	27.60	0.000%
3	-0.01	-29.67	-27.60	0.01	29.67	27.60	0.000%
4	13.79	-39.56	-23.90	-13.79	39.56	23.90	0.000%
5	13.79	-29.67	-23.90	-13.79	29.67	23.90	0.000%
6	23.89	-39.56	-13.79	-23.89	39.56	13.79	0.000%
7	23.89	-29.67	-13.79	-23.89	29.67	13.79	0.000%
8	27.59	-39.56	0.01	-27.59	39.56	-0.01	0.000%
9	27.59	-29.67	0.01	-27.59	29.67	-0.01	0.000%
10	23.90	-39.56	13.81	-23.90	39.56	-13.81	0.000%
11	23.90	-29.67	13.81	-23.90	29.67	-13.81	0.000%
12	13.80	-39.56	23.91	-13.80	39.56	-23.91	0.000%
13	13.80	-29.67	23.91	-13.80	29.67	-23.91	0.000%
14	0.01	-39.56	27.60	-0.01	39.56	-27.60	0.000%
15	0.01	-29.67	27.60	-0.01	29.67	-27.60	0.000%
16	-13.79	-39.56	23.90	13.79	39.56	-23.90	0.000%
17	-13.79	-29.67	23.90	13.79	29.67	-23.90	0.000%
18	-23.89	-39.56	13.79	23.89	39.56	-13.79	0.000%
19	-23.89	-29.67	13.79	23.89	29.67	-13.79	0.000%
20	-27.59	-39.56	-0.01	27.59	39.56	0.01	0.000%
21	-27.59	-29.67	-0.01	27.59	29.67	0.01	0.000%
22	-23.90	-39.56	-13.81	23.90	39.56	13.81	0.000%
23	-23.90	-29.67	-13.81	23.90	29.67	13.81	0.000%
24	-13.80	-39.56	-23.91	13.80	39.56	23.91	0.000%
25	-13.80	-29.67	-23.91	13.80	29.67	23.91	0.000%
26	0.00	-64.96	0.00	-0.00	64.96	0.00	0.000%
27	-0.00	-64.96	-8.33	0.00	64.96	8.33	0.000%
28	4.16	-64.96	-7.22	-4.16	64.96	7.22	0.000%
29	7.21	-64.96	-4.17	-7.21	64.96	4.17	0.000%
30	8.33	-64.96	0.00	-8.33	64.96	-0.00	0.000%
31	7.22	-64.96	4.17	-7.22	64.96	-4.17	0.000%
32	4.17	-64.96	7.22	-4.17	64.96	-7.22	0.000%
33	0.00	-64.96	8.33	-0.00	64.96	-8.33	0.000%
34	-4.16	-64.96	7.22	4.16	64.96	-7.22	0.000%
35	-7.21	-64.96	4.17	7.21	64.96	-4.17	0.000%
36	-8.33	-64.96	-0.00	8.33	64.96	0.00	0.000%
37	-7.22	-64.96	-4.17	7.22	64.96	4.17	0.000%
38	-4.17	-64.96	-7.22	4.17	64.96	7.22	0.000%
39	-0.00	-32.96	-5.99	0.00	32.96	5.99	0.000%
40	2.99	-32.96	-5.19	-2.99	32.96	5.19	0.000%
41	5.19	-32.96	-2.99	-5.19	32.96	2.99	0.000%
42	5.99	-32.96	0.00	-5.99	32.96	-0.00	0.000%
43	5.19	-32.96	3.00	-5.19	32.96	-3.00	0.000%
44	3.00	-32.96	5.19	-3.00	32.96	-5.19	0.000%
45	0.00	-32.96	5.99	-0.00	32.96	-5.99	0.000%
46	-2.99	-32.96	5.19	2.99	32.96	-5.19	0.000%
47	-5.19	-32.96	2.99	5.19	32.96	-2.99	0.000%
48	-5.99	-32.96	-0.00	5.99	32.96	0.00	0.000%
49	-5.19	-32.96	-3.00	5.19	32.96	3.00	0.000%
50	-3.00	-32.96	-5.19	3.00	32.96	5.19	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00008938
3	Yes	4	0.00000001	0.00096234
4	Yes	6	0.00000001	0.00025061
5	Yes	6	0.00000001	0.00007651
6	Yes	6	0.00000001	0.00024799
7	Yes	6	0.00000001	0.00007557
8	Yes	5	0.00000001	0.00004099
9	Yes	4	0.00000001	0.00051466
10	Yes	6	0.00000001	0.00024613
11	Yes	6	0.00000001	0.00007487
12	Yes	6	0.00000001	0.00025223
13	Yes	6	0.00000001	0.00007704
14	Yes	5	0.00000001	0.00009878
15	Yes	5	0.00000001	0.00004453
16	Yes	6	0.00000001	0.00024612
17	Yes	6	0.00000001	0.00007495
18	Yes	6	0.00000001	0.00024878
19	Yes	6	0.00000001	0.00007590
20	Yes	5	0.00000001	0.00004897
21	Yes	4	0.00000001	0.00057898
22	Yes	6	0.00000001	0.00025155
23	Yes	6	0.00000001	0.00007680
24	Yes	6	0.00000001	0.00024542
25	Yes	6	0.00000001	0.00007462
26	Yes	4	0.00000001	0.00002180
27	Yes	6	0.00000001	0.00016190
28	Yes	6	0.00000001	0.00026005
29	Yes	6	0.00000001	0.00026112
30	Yes	6	0.00000001	0.00016188
31	Yes	6	0.00000001	0.00026140
32	Yes	6	0.00000001	0.00025832
33	Yes	6	0.00000001	0.00016123
34	Yes	6	0.00000001	0.00025858
35	Yes	6	0.00000001	0.00025742
36	Yes	6	0.00000001	0.00016096
37	Yes	6	0.00000001	0.00025802
38	Yes	6	0.00000001	0.00026119
39	Yes	4	0.00000001	0.00013746
40	Yes	4	0.00000001	0.00099090
41	Yes	4	0.00000001	0.00096038
42	Yes	4	0.00000001	0.00011490
43	Yes	4	0.00000001	0.00093468
44	Yes	5	0.00000001	0.00005840
45	Yes	4	0.00000001	0.00013846
46	Yes	4	0.00000001	0.00093647
47	Yes	4	0.00000001	0.00096487
48	Yes	4	0.00000001	0.00011534
49	Yes	5	0.00000001	0.00005786
50	Yes	4	0.00000001	0.00092744

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 110.75	25.200	43	1.456	0.002
L2	114.75 - 74.75	14.874	43	1.272	0.001
L3	79.5 - 39.5	6.915	50	0.843	0.000
L4	45 - 0	2.178	50	0.444	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Lighting Rod 1/2" x 2'	43	25.200	1.456	0.002	38147
147.00	(2) LPA-80063/6CF w/ Mount Pipe	43	24.282	1.446	0.002	38147
139.00	7770.00 w/ Mount Pipe	43	21.848	1.417	0.002	17339
127.00	MX08FRO665-21 w/ Mount Pipe	43	18.291	1.360	0.001	8292

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 110.75	116.890	8	6.762	0.010
L2	114.75 - 74.75	69.032	2	5.909	0.005
L3	79.5 - 39.5	32.098	2	3.916	0.002
L4	45 - 0	10.109	24	2.061	0.001

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Lighting Rod 1/2" x 2'	8	116.890	6.762	0.010	8437
147.00	(2) LPA-80063/6CF w/ Mount Pipe	8	112.637	6.715	0.010	8437
139.00	7770.00 w/ Mount Pipe	2	101.357	6.583	0.008	3833
127.00	MX08FRO665-21 w/ Mount Pipe	2	84.869	6.321	0.007	1830

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 110.75 (1)	TP31.38x24x0.219	39.25	0.00	0.0	21.114	-13.22	1235.14	0.011
L2	110.75 - 74.75 (2)	TP37.711x30.19x0.25	40.00	0.00	0.0	29.017	-18.75	1697.47	0.011
L3	74.75 - 39.5 (3)	TP43.839x36.318x0.313	40.00	0.00	0.0	42.147	-26.36	2465.61	0.011
L4	39.5 - 0 (4)	TP50.64x42.18x0.375	45.00	0.00	0.0	59.828	-39.53	3499.93	0.011

### Pole Bending Design Data

Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$\phi M_{nx}$ kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	$M_{uy}$ kip-ft	$\phi M_{ny}$ kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 110.75 (1)	TP31.38x24x0.219	442.70	873.35	0.507	0.00	873.35	0.000
L2	110.75 - 74.75 (2)	TP37.711x30.19x0.25	1148.93	1414.33	0.812	0.00	1414.33	0.000
L3	74.75 - 39.5 (3)	TP43.839x36.318x0.313	1944.12	2456.62	0.791	0.00	2456.62	0.000
L4	39.5 - 0 (4)	TP50.64x42.18x0.375	3121.93	4146.91	0.753	0.00	4146.91	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 110.75 (1)	TP31.38x24x0.219	18.50	370.54	0.050	0.82	986.78	0.001
L2	110.75 - 74.75 (2)	TP37.711x30.19x0.25	21.54	509.24	0.042	0.69	1630.82	0.000
L3	74.75 - 39.5 (3)	TP43.839x36.318x0.313	24.48	739.68	0.033	0.71	2752.55	0.000
L4	39.5 - 0 (4)	TP50.64x42.18x0.375	27.64	1049.98	0.026	0.53	4621.97	0.000

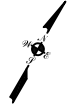
### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u$	Ratio $M_{ux}$	Ratio $M_{uy}$	Ratio $V_u$	Ratio $T_u$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$\phi P_n$	$\phi M_{nx}$	$\phi M_{ny}$	$\phi V_n$	$\phi T_n$			
L1	150 - 110.75 (1)	0.011	0.507	0.000	0.050	0.001	0.520	1.050	4.8.2
L2	110.75 - 74.75 (2)	0.011	0.812	0.000	0.042	0.000	0.825	1.050	4.8.2
L3	74.75 - 39.5 (3)	0.011	0.791	0.000	0.033	0.000	0.803	1.050	4.8.2
L4	39.5 - 0 (4)	0.011	0.753	0.000	0.026	0.000	0.765	1.050	4.8.2

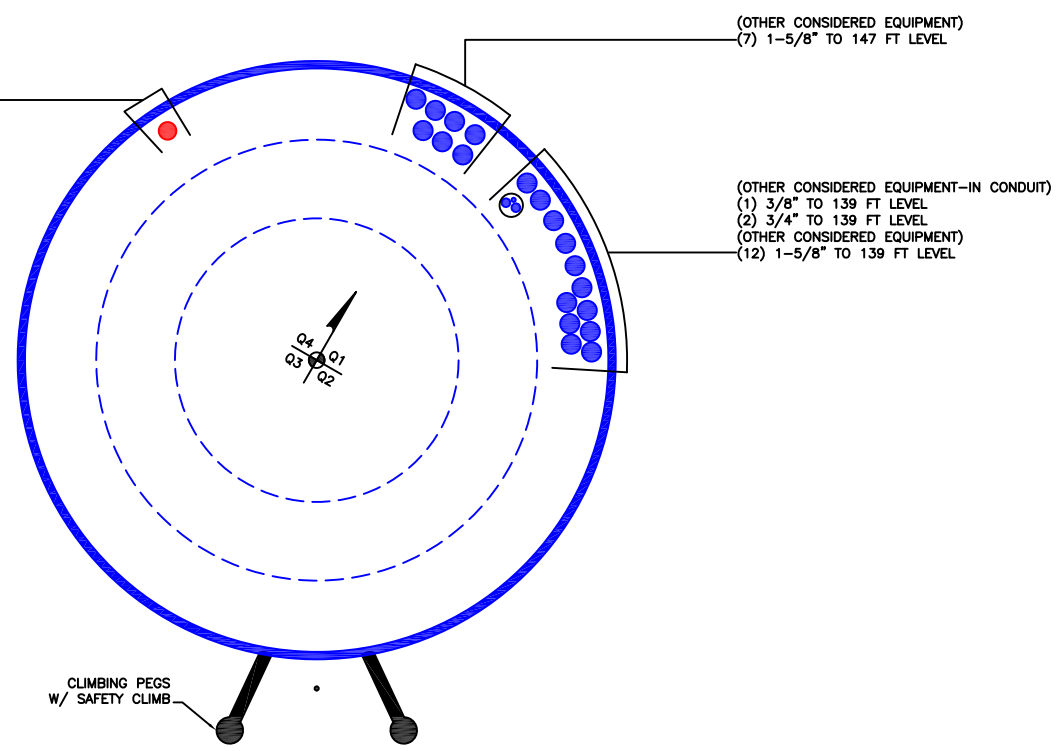
### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 110.75	Pole	TP31.38x24x0.219	1	-13.22	1296.90	49.5	Pass
L2	110.75 - 74.75	Pole	TP37.711x30.19x0.25	2	-18.75	1782.34	78.6	Pass
L3	74.75 - 39.5	Pole	TP43.839x36.318x0.313	3	-26.36	2588.89	76.5	Pass
L4	39.5 - 0	Pole	TP50.64x42.18x0.375	4	-39.53	3674.93	72.8	Pass
Summary								
Pole (L2)							78.6	Pass
<b>RATING =</b>							<b>78.6</b>	<b>Pass</b>

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



(PROPOSED EQUIPMENT CONFIGURATION)  
(1) 1-1/2" TO 127 FT LEVEL



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

# Monopole Base Plate Connection

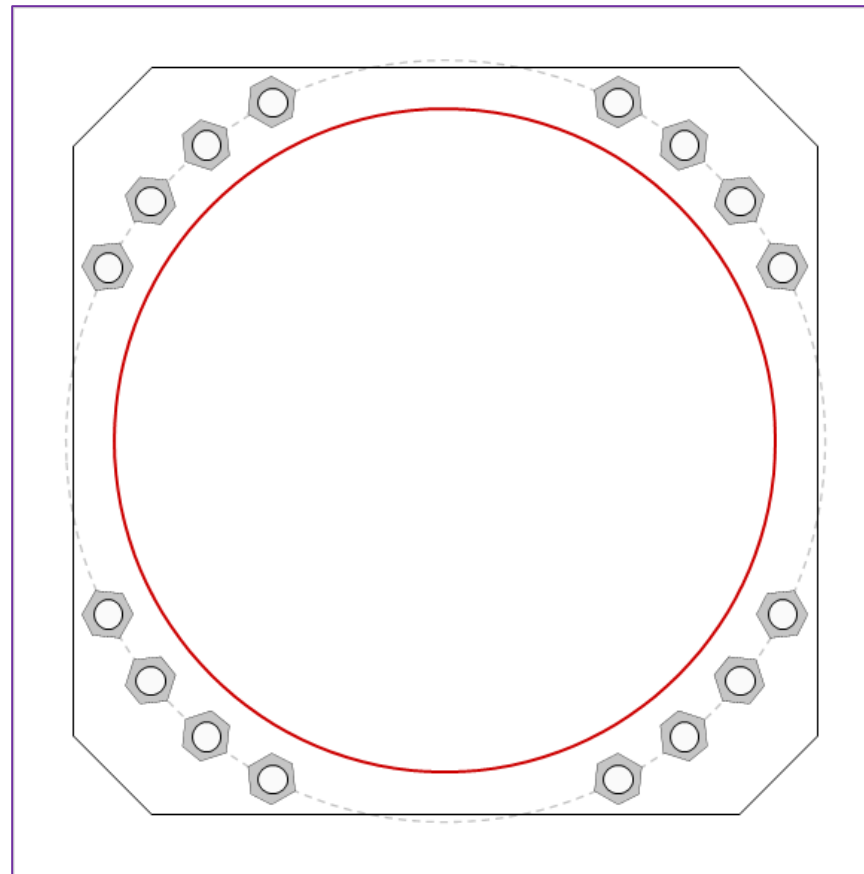


Site Info	
BU #	873645
Site Name	Oxford
Order #	553362 Rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
$l_{ar}$ (in)	0.75

Applied Loads	
Moment (kip-ft)	3121.92
Axial Force (kips)	39.53
Shear Force (kips)	27.64

\*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
(16) 2-1/4" $\phi$ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 58" BC <i>Anchor Spacing: 6 in</i>
Base Plate Data
57" W x 3" Plate (A572-55; $F_y=55$ ksi, $F_u=70$ ksi); Clip: 6 in
Stiffener Data
N/A
Pole Data
50.64" x 0.375" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u,t} = 158.91$	$\phi P_{n,t} = 243.75$	<b>Stress Rating</b>	
$V_u = 1.73$	$\phi V_n = 149.1$	<b>62.1%</b>	
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>	
Base Plate Summary			
Max Stress (ksi):	27.64		(Flexural)
Allowable Stress (ksi):	49.5		
Stress Rating:	<b>53.2%</b>		<b>Pass</b>



# Pier and Pad Foundation



BU # :	873645
Site Name:	Oxford
App. Number:	553362 Rev 1

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>
Rectangular Pad?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	40	kips
Base Shear, $V_{u\_comp}$ :	28	kips
Moment, $M_u$ :	3122	ft-kips
Tower Height, $H$ :	150	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	227.47	28.00	11.7%	Pass
<i>Bearing Pressure (ksf)</i>	9.00	2.38	26.4%	Pass
<i>Overturning (kip*ft)</i>	5827.09	3339.00	57.3%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	6722.38	3248.00	46.0%	Pass
<i>Pier Compression (kip)</i>	23390.64	79.69	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	4415.72	1148.28	24.8%	Pass
<i>Pad Shear - 1-way (kips)</i>	720.43	189.06	25.0%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.032	18.8%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	5938.20	1948.80	31.3%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	7	ft
Ext. Above Grade, $E$ :	0.5	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	28	
Pier Tie/Spiral Size, $St$ :	4	
Pier Tie/Spiral Quantity, $mt$ :	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	46.0%
Soil Rating*:	57.3%

Pad Properties		
Depth, $D$ :	7	ft
Pad Width, $W_1$ :	23.5	ft
Pad Thickness, $T$ :	3	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	10	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	26	
Pad Clear Cover, $cc_{pad}$ :	3	in

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

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	125	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	12.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	30	degrees
SPT Blow Count, $N_{blows}$ :		
Base Friction, $\mu$ :	0.3	
Neglected Depth, $N$ :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	None	ft

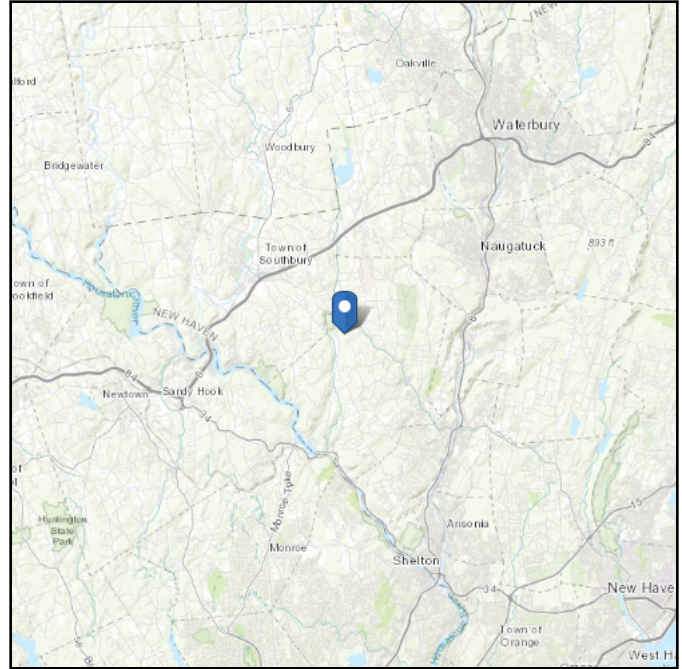
<--Toggle between Gross and Net

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 669.86 ft (NAVD 88)  
**Latitude:** 41.447086  
**Longitude:** -73.15231

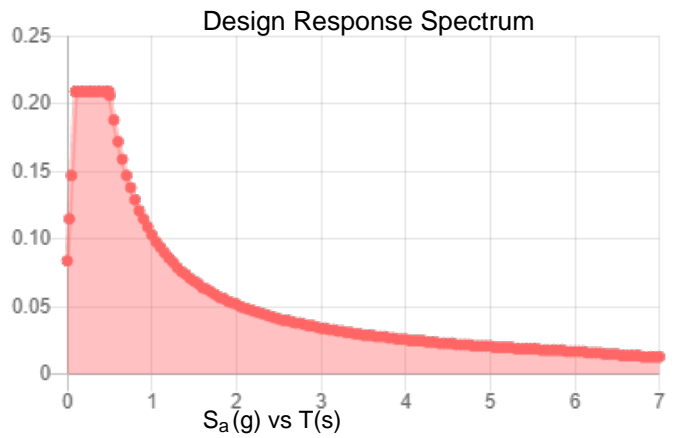
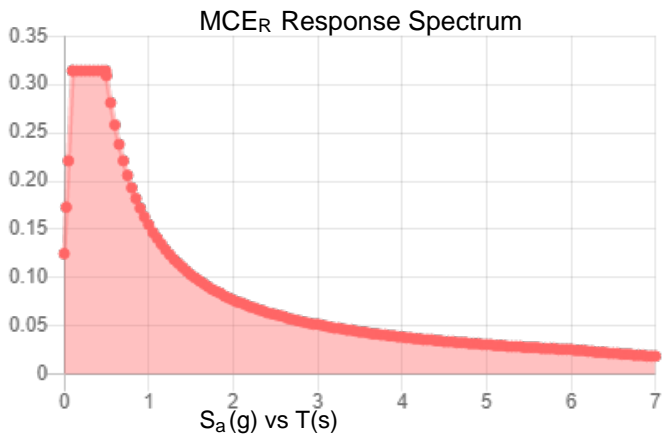


**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.196	$S_{DS}$ :	0.209
$S_1$ :	0.064	$S_{D1}$ :	0.103
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.103
$S_{MS}$ :	0.314	PGA <sub>M</sub> :	0.165
$S_{M1}$ :	0.155	F <sub>PGA</sub> :	1.593
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Wed Apr 21 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: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Wed Apr 21 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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# Exhibit E

## **Mount Analysis**

Date: **May 12, 2022**

# INFINIGY

Infinigy  
500 West Office Center Drive, Suite 150  
Fort Washington, PA 19034  
(518) 690-0790  
structural@infinigy.com

**Subject:** **Mount Analysis Report**

**Carrier Designation:** **DISH Network 5G**  
**Carrier Site Number:** BOHVN00019A  
**Carrier Site Name:** CT-CCI-T-873645

**Crown Castle Designation:** **Crown Castle BU Number:** 873645  
**Crown Castle Site Name:** Oxford  
**Crown Castle JDE Job Number:** 645157  
**Crown Castle Order Number:** 553362 Rev. 2

**Engineering Firm Designation:** **Infinigy Report Designation:** 1039-Z0001-B

**Site Data:** **691 Oxford RD, Oxford, New Haven County, CT, 06478**  
**Latitude 41°26'49.51" Longitude -73°9'8.32"**

**Structure Information:** **Tower Height & Type:** **150.0 ft Monopole**  
**Mount Elevation:** **127.0 ft**  
**Mount Type:** **8.0 ft Platform**

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

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

**Platform**

**Sufficient**

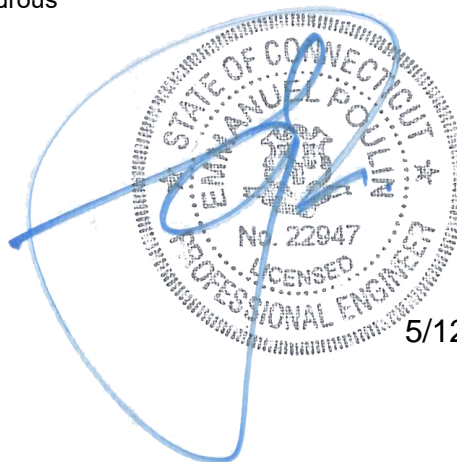
**\*See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Abram Tadrous

Respectfully Submitted by:

structural@infinigy.com



5/12/22

## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

### 3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

### 5) APPENDIX A

Wire Frame and Rendered Models

### 6) APPENDIX B

Software Input Calculations

### 7) APPENDIX C

Software Analysis Output

### 8) APPENDIX D

Additional Calculations

### 9) APPENDIX E

Mount Modification Design Drawings (MDD) / Supplemental Drawings

**1) INTRODUCTION**

This is a proposed 3 sector 8.0 ft Platform, designed by Commscope.

**2) ANALYSIS CRITERIA**

**Building Code:** 2015 IBC  
**TIA-222 Revision:** TIA-222-H  
**Risk Category:** II  
**Ultimate Wind Speed:** 117 mph  
**Exposure Category:** C  
**Topographic Factor at Base:** 1.0  
**Topographic Factor at Mount:** 1.0  
**Ice Thickness:** 1.5 in  
**Wind Speed with Ice:** 50 mph  
**Seismic S<sub>s</sub>:** 0.196  
**Seismic S<sub>1</sub>:** 0.064  
**Live Loading Wind Speed:** 30 mph  
**Man Live Load at Mid/End-Points:** 250 lb  
**Man Live Load at Mount Pipes:** 500 lb

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
127.0	127.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform (Commscope: MC-PK8-DSH)
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	



### 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
Crown Application	DISH Network Application	553362 Rev.2	CCI Sites
Mount Manufacturer Drawings	Commscope	Part No: MC-PK8-DSH	Infinigy

#### 3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.7, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

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

#### 3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:
 

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

**4) ANALYSIS RESULTS**

**Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)**

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP8	127.0	20.8	Pass
	Horizontal(s)	H3		15.4	Pass
	Handrail(s)	HR2		18.8	Pass
	Handrail Corner Angle(s)	CA8		23.4	Pass
	Standoff(s)	S1		32.8	Pass
	Channel(s)	CA5		31.6	Pass
	Grating Angle(s)	GA2		25.1	Pass
	Corner Plate(s)	P3		26.2	Pass
	Mount Connection(s)	--		39.3	Pass

<b>Structure Rating (max from all components) =</b>	<b>39.3%</b>
-----------------------------------------------------	--------------

Notes:

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

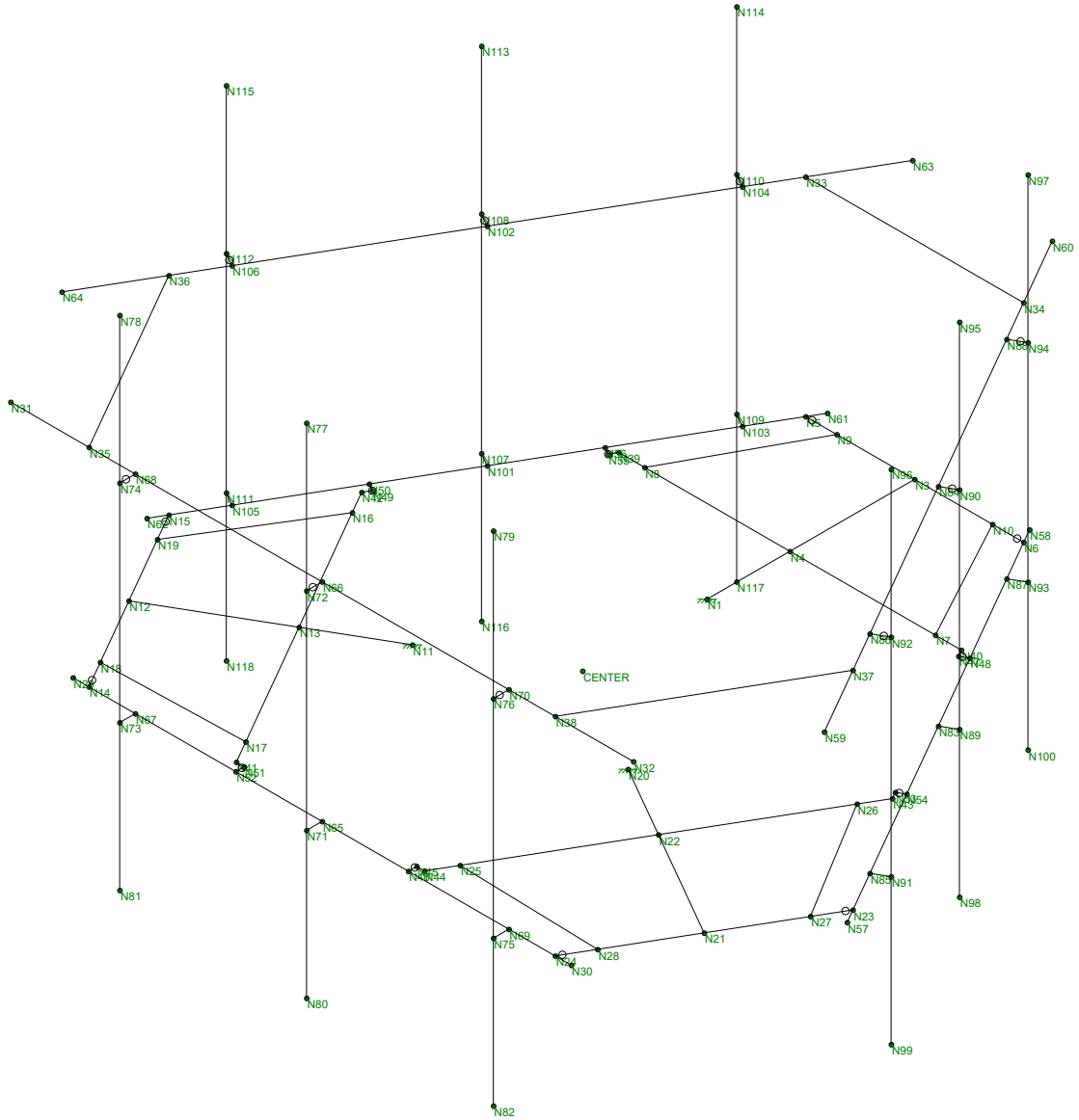
**4.1) Recommendations**

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

1. Installation (1) Commscope, MC-PK8-DSH.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

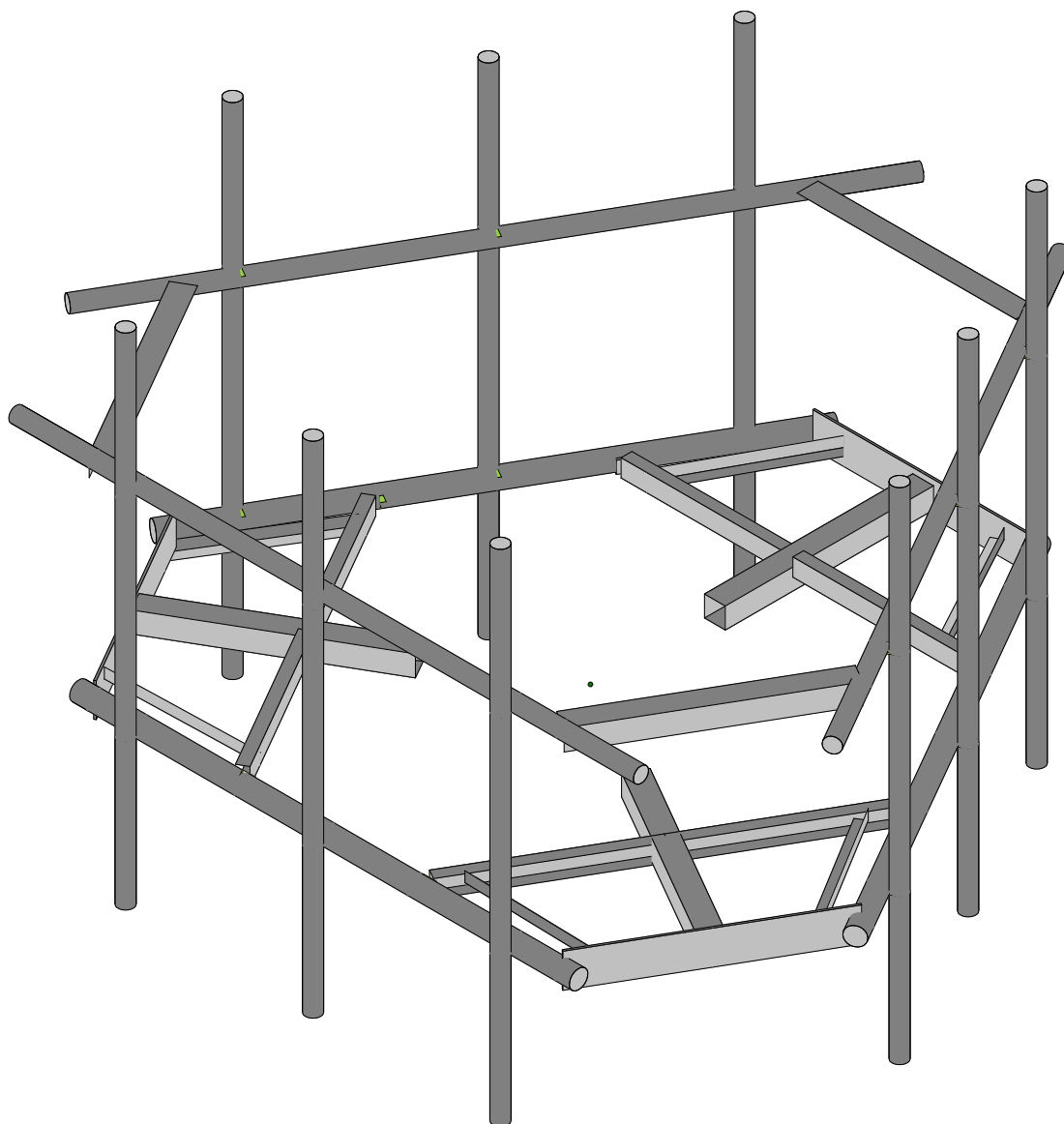
**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



Infinigy Engineering  
AT  
1039-Z0001-B

873645

Wire Frame  
May 12, 2022 at 1:29 AM  
873645\_loaded.r3d



Infinigy Engineering

AT

1039-Z0001-B

873645

Rendered

May 12, 2022 at 1:29 AM

873645\_loaded.r3d

**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

## Program Inputs

PROJECT INFORMATION		
Client:	Crown Castle	
Carrier:	Dish Network	
Engineer:	Abram Tadrous	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	669.86	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	127.00	ft
Tower Height AGL:	150.00	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 ( $K_e$ ):	0.976	*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	

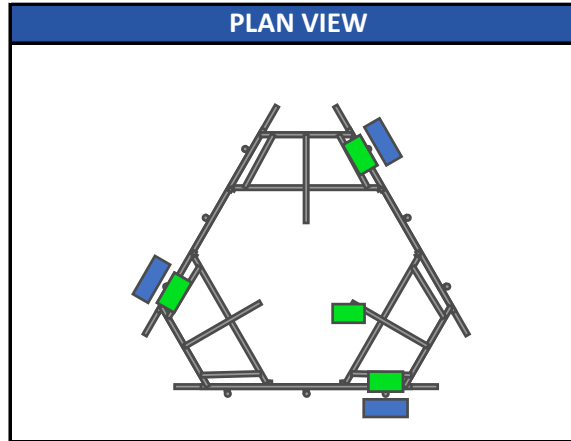
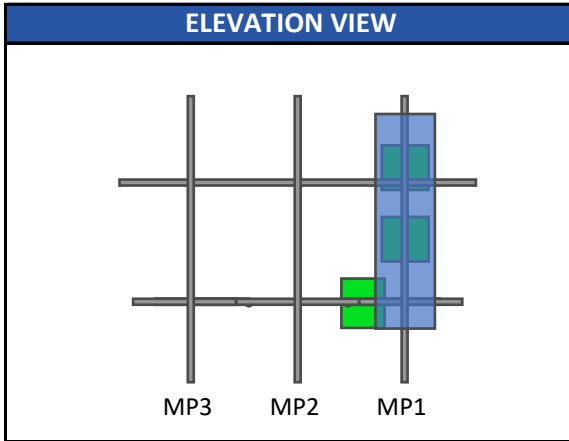
WIND AND ICE DATA		
Ultimate Wind ( $V_{ult}$ ):	117	mph
Design Wind ( $V$ ):	N/A	mph
Ice Wind ( $V_{ice}$ ):	50	mph
Base Ice Thickness ( $t_i$ ):	1.5	in
Flat Pressure:	86.495	psf
Round Pressure:	51.897	psf
Ice Wind Pressure:	9.478	psf

SEISMIC DATA		
Short-Period Accel. ( $S_s$ ):	0.196	g
1-Second Accel. ( $S_1$ ):	0.064	g
Short-Period Design ( $S_{DS}$ ):	0.209	
1-Second Design ( $S_{D1}$ ):	0.102	
Short-Period Coeff. ( $F_a$ ):	1.600	
1-Second Coeff. ( $F_v$ ):	2.400	
Amplification Factor ( $A_s$ ):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.7

# Program Inputs



## INFINIGY

FROM ZERO TO INFINIGY  
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION												
Appurtenance Name	Elevation	Qty.	K <sub>a</sub>	q <sub>z</sub> (psf)	EPA <sub>N</sub> (ft <sup>2</sup> )	EPA <sub>T</sub> (ft <sup>2</sup> )	Wind F <sub>z</sub> (lbs)	Wind F <sub>x</sub> (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)	
JMA WIRELESS MX08FRO665-21	127.0	3	0.90	43.25	8.01	3.21	311.77	124.94	82.50	25.87	MP1	
FUJITSU TA08025-B604	127.0	3	0.90	43.25	1.96	0.98	76.42	38.19	63.90	20.04	MP1	
FUJITSU TA08025-B605	127.0	3	0.90	43.25	1.96	1.13	76.42	43.96	75.00	23.52	MP1	
RAYCAP RDIDC-9181-PF-48	127.0	1	0.90	43.25	2.01	1.17	78.31	45.47	21.85	6.85	S1	

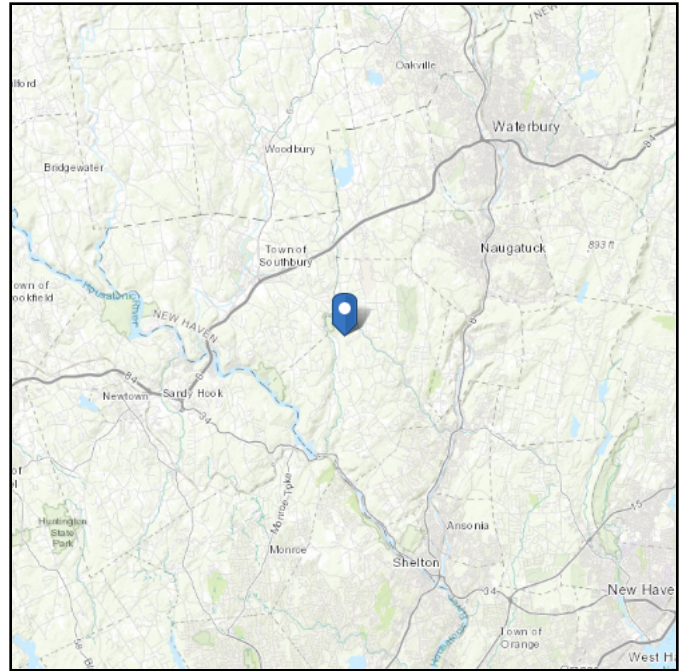


# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 669.86 ft (NAVD 88)  
**Latitude:** 41.447086  
**Longitude:** -73.152311



## Wind

### Results:

Wind Speed	120 Vmph	117 Vmph Per Jurisdiction
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	91 Vmph	
100-year MRI	98 Vmph	

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

**Date Accessed:** Wed May 11 2022

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

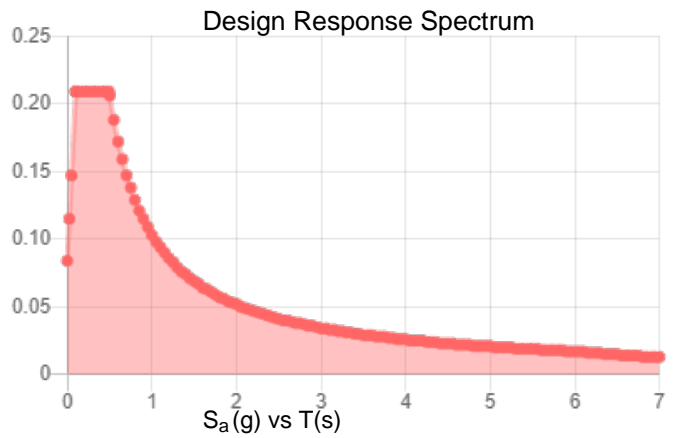
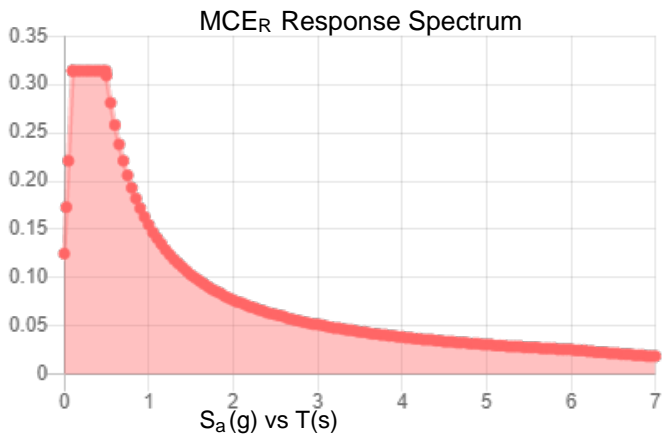
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.196	$S_{DS}$ :	0.209
$S_1$ :	0.064	$S_{D1}$ :	0.103
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.103
$S_{MS}$ :	0.314	PGA <sub>M</sub> :	0.165
$S_{M1}$ :	0.155	F <sub>PGA</sub> :	1.593
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:** Wed May 11 2022

**Date Source:**

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

## Ice

---

### Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed 50 mph

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

**Date Accessed:** Wed May 11 2022

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

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

---

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



Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	S3	N1	N3			Standoff	Beam	Tube	A500 Gr.B...	Typical
2	GA4	N7	N10		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
3	GA3	N8	N9			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
4	P3	N5	N6			Corner Plates	Beam	RECT	A36 Gr.36	Typical
5	S2	N11	N12			Standoff	Beam	Tube	A500 Gr.B...	Typical
6	GA2	N16	N19		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
7	GA1	N17	N18			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
8	P2	N14	N15			Corner Plates	Beam	RECT	A36 Gr.36	Typical
9	S1	N20	N21			Standoff	Beam	Tube	A500 Gr.B...	Typical
10	GA6	N25	N28		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
11	GA5	N26	N27			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
12	P1	N23	N24			Corner Plates	Beam	RECT	A36 Gr.36	Typical
13	H1	N29	N30			Horizontal	Beam	Pipe	A53 Gr.B	Typical
14	HR1	N31	N32			Handrail	Beam	Pipe	A53 Gr.B	Typical
15	CA8	N36	N35		180	Handrail Corn...	Beam	Single Angle	A36 Gr.36	Typical
16	CA9	N34	N33		180	Handrail Corn...	Beam	Single Angle	A36 Gr.36	Typical
17	CA7	N38	N37		180	Handrail Corn...	Beam	Single Angle	A36 Gr.36	Typical
18	CA3	N4	N39			Channel	Beam	Channel	A36 Gr.36	Typical
19	CA4	N40	N4			Channel	Beam	Channel	A36 Gr.36	Typical
20	CA1	N13	N41			Channel	Beam	Channel	A36 Gr.36	Typical
21	CA2	N42	N13			Channel	Beam	Channel	A36 Gr.36	Typical
22	CA5	N22	N43			Channel	Beam	Channel	A36 Gr.36	Typical
23	CA6	N44	N22			Channel	Beam	Channel	A36 Gr.36	Typical
24	M64	N46	N45			RIGID	None	None	RIGID	Typical
25	M65	N44	N45			RIGID	None	None	RIGID	Typical
26	M66	N48	N47			RIGID	None	None	RIGID	Typical
27	M67	N40	N47			RIGID	None	None	RIGID	Typical
28	M68	N50	N49			RIGID	None	None	RIGID	Typical
29	M69	N42	N49			RIGID	None	None	RIGID	Typical
30	M70	N52	N51			RIGID	None	None	RIGID	Typical
31	M71	N41	N51			RIGID	None	None	RIGID	Typical
32	M72	N54	N53			RIGID	None	None	RIGID	Typical
33	M73	N43	N53			RIGID	None	None	RIGID	Typical
34	M74	N56	N55			RIGID	None	None	RIGID	Typical
35	M75	N39	N55			PL 2.375x0.5	None	None	A36 Gr.36	Typical
36	H3	N57	N58			Horizontal	Beam	Pipe	A53 Gr.B	Typical
37	HR3	N59	N60			Handrail	Beam	Pipe	A53 Gr.B	Typical
38	H2	N61	N62			Horizontal	Beam	Pipe	A53 Gr.B	Typical
39	HR2	N63	N64			Handrail	Beam	Pipe	A53 Gr.B	Typical
40	M40	N68	N74			RIGID	None	None	RIGID	Typical
41	M41	N67	N73			RIGID	None	None	RIGID	Typical
42	M42	N66	N72			RIGID	None	None	RIGID	Typical
43	M43	N65	N71			RIGID	None	None	RIGID	Typical
44	M44	N70	N76			RIGID	None	None	RIGID	Typical
45	M45	N69	N75			RIGID	None	None	RIGID	Typical
46	MP3	N78	N81			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
47	MP2	N77	N80			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
48	MP1	N79	N82			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
49	M49	N86	N92			RIGID	None	None	RIGID	Typical
50	M50	N85	N91			RIGID	None	None	RIGID	Typical
51	M51	N84	N90			RIGID	None	None	RIGID	Typical
52	M52	N83	N89			RIGID	None	None	RIGID	Typical
53	M53	N88	N94			RIGID	None	None	RIGID	Typical
54	M54	N87	N93			RIGID	None	None	RIGID	Typical
55	MP9	N96	N99			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
56	MP8	N95	N98			Mount Pipe	Column	Pipe	A53 Gr.B	Typical



Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

### Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	MP7	N97	N100			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
58	M58	N104	N110			RIGID	None	None	RIGID	Typical
59	M59	N103	N109			RIGID	None	None	RIGID	Typical
60	M60	N102	N108			RIGID	None	None	RIGID	Typical
61	M61	N101	N107			RIGID	None	None	RIGID	Typical
62	M62	N106	N112			RIGID	None	None	RIGID	Typical
63	M63	N105	N111			RIGID	None	None	RIGID	Typical
64	MP6	N114	N117			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
65	MP5	N113	N116			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
66	MP4	N115	N118			Mount Pipe	Column	Pipe	A53 Gr.B	Typical

### Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	71.1	0
3	Total General		29	71.1	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C3.38x2.06x0.25	6	198	98.255
7	A36 Gr.36	L2x2x4	6	163.8	43.838
8	A36 Gr.36	PL6.5x0.375	3	126	87.09
9	A36 Gr.36	L4X4X4	3	126	68.957
10	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
11	A500 Gr.B Rect	HSS4X4X4	3	120	123.333
12	A53 Gr.B	PIPE 2.5	12	1224	558.804
13	A53 Gr.B	PIPE 3.0	3	288	169.05
14	Total HR Steel		37	2247.3	1149.833

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(P...
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 120	None					26		
7	Wind Load AZI 150	None					26		
8	Wind Load AZI 180	None					26		
9	Wind Load AZI 210	None					26		
10	Wind Load AZI 240	None					26		
11	Wind Load AZI 270	None					26		
12	Wind Load AZI 300	None					26		
13	Wind Load AZI 330	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 AZI 0	OL2					26		
18	Ice Wind Load AZI 30	None					26		
19	Ice Wind Load AZI 60	None					26		
20	Ice Wind Load AZI 90	OL3					26		
21	Ice Wind Load AZI 120	None					26		
22	Ice Wind Load AZI 150	None					26		
23	Ice Wind Load AZI 180	None					26		
24	Ice Wind Load AZI 210	None					26		



Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

**Basic Load Cases (Continued)**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
25	Ice Wind Load AZI 240	None					26		
26	Ice Wind Load AZI 270	None					26		
27	Ice Wind Load AZI 300	None					26		
28	Ice Wind Load AZI 330	None					26		
29	Distr. Ice Wind Load Z	OL2						66	
30	Distr. Ice Wind Load X	OL3						66	
31	Seismic Load Z	ELZ			- .314		13		
32	Seismic Load X	ELX	- .314				13		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	BLC 1 Transient Area..	None						9	
44	BLC 16 Transient Are..	None						9	

**Load Combinations**

	Description	Sol.	PD	SR	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
1	1.4DL	Yes	Y		1	1.4								
2	1.2DL + 1...	Yes	Y		1	1.2	2	1	14	1	15			
3	1.2DL + 1...	Yes	Y		1	1.2	3	1	14	.866	15	.5		
4	1.2DL + 1...	Yes	Y		1	1.2	4	1	14	.5	15	.866		
5	1.2DL + 1...	Yes	Y		1	1.2	5	1	14		15	1		
6	1.2DL + 1...	Yes	Y		1	1.2	6	1	14	-.5	15	.866		
7	1.2DL + 1...	Yes	Y		1	1.2	7	1	14	-.866	15	.5		
8	1.2DL + 1...	Yes	Y		1	1.2	8	1	14	-1	15			
9	1.2DL + 1...	Yes	Y		1	1.2	9	1	14	-.866	15	-.5		
10	1.2DL + 1...	Yes	Y		1	1.2	10	1	14	-.5	15	-.866		
11	1.2DL + 1...	Yes	Y		1	1.2	11	1	14		15	-1		
12	1.2DL + 1...	Yes	Y		1	1.2	12	1	14	.5	15	-.866		
13	1.2DL + 1...	Yes	Y		1	1.2	13	1	14	.866	15	-.5		
14	0.9DL + 1...	Yes	Y		1	.9	2	1	14	1	15			
15	0.9DL + 1...	Yes	Y		1	.9	3	1	14	.866	15	.5		
16	0.9DL + 1...	Yes	Y		1	.9	4	1	14	.5	15	.866		
17	0.9DL + 1...	Yes	Y		1	.9	5	1	14		15	1		
18	0.9DL + 1...	Yes	Y		1	.9	6	1	14	-.5	15	.866		
19	0.9DL + 1...	Yes	Y		1	.9	7	1	14	-.866	15	.5		
20	0.9DL + 1...	Yes	Y		1	.9	8	1	14	-1	15			
21	0.9DL + 1...	Yes	Y		1	.9	9	1	14	-.866	15	-.5		
22	0.9DL + 1...	Yes	Y		1	.9	10	1	14	-.5	15	-.866		
23	0.9DL + 1...	Yes	Y		1	.9	11	1	14		15	-1		
24	0.9DL + 1...	Yes	Y		1	.9	12	1	14	.5	15	-.866		
25	0.9DL + 1...	Yes	Y		1	.9	13	1	14	.866	15	-.5		
26	1.2D + 1.0...	Yes	Y		1	1.2	16	1						
27	1.2D + 1.0...	Yes	Y		1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5
29	1.2D + 1.0...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866
30	1.2D + 1.0...	Yes	Y		1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866
32	1.2D + 1.0...	Yes	Y		1	1.2	16	1	22	1	29	-.866	30	.5



Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

**Load Combinations (Continued)**

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
33	1.2D + 1.0...	Yes	Y		1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0...	Yes	Y		1	1.2	16	1	24	1	29	-.866	30	-.5
35	1.2D + 1.0...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.866
36	1.2D + 1.0...	Yes	Y		1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.866
38	1.2D + 1.0...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5
39	(1.2 + 0.2...	Yes	Y		1	1.242	31	1	32					
40	(1.2 + 0.2...	Yes	Y		1	1.242	31	.866	32	.5				
41	(1.2 + 0.2...	Yes	Y		1	1.242	31	.5	32	.866				
42	(1.2 + 0.2...	Yes	Y		1	1.242	31		32	1				
43	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.5	32	.866				
44	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.866	32	.5				
45	(1.2 + 0.2...	Yes	Y		1	1.242	31	-1	32					
46	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.866	32	-.5				
47	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.5	32	-.866				
48	(1.2 + 0.2...	Yes	Y		1	1.242	31		32	-1				
49	(1.2 + 0.2...	Yes	Y		1	1.242	31	.5	32	-.866				
50	(1.2 + 0.2...	Yes	Y		1	1.242	31	.866	32	-.5				
51	(0.9 - 0.2S...	Yes	Y		1	.858	31	1	32					
52	(0.9 - 0.2S...	Yes	Y		1	.858	31	.866	32	.5				
53	(0.9 - 0.2S...	Yes	Y		1	.858	31	.5	32	.866				
54	(0.9 - 0.2S...	Yes	Y		1	.858	31		32	1				
55	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.5	32	.866				
56	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.866	32	.5				
57	(0.9 - 0.2S...	Yes	Y		1	.858	31	-1	32					
58	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.866	32	-.5				
59	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.5	32	-.866				
60	(0.9 - 0.2S...	Yes	Y		1	.858	31		32	-1				
61	(0.9 - 0.2S...	Yes	Y		1	.858	31	.5	32	-.866				
62	(0.9 - 0.2S...	Yes	Y		1	.858	31	.866	32	-.5				
63	1.0DL + 1...	Yes	Y		1	1	2	.263	14	.263	15		33	1.5
64	1.0DL + 1...	Yes	Y		1	1	3	.263	14	.228	15	.131	33	1.5
65	1.0DL + 1...	Yes	Y		1	1	4	.263	14	.131	15	.228	33	1.5
66	1.0DL + 1...	Yes	Y		1	1	5	.263	14		15	.263	33	1.5
67	1.0DL + 1...	Yes	Y		1	1	6	.263	14	-.131	15	.228	33	1.5
68	1.0DL + 1...	Yes	Y		1	1	7	.263	14	-.228	15	.131	33	1.5
69	1.0DL + 1...	Yes	Y		1	1	8	.263	14	-.263	15		33	1.5
70	1.0DL + 1...	Yes	Y		1	1	9	.263	14	-.228	15	-.131	33	1.5
71	1.0DL + 1...	Yes	Y		1	1	10	.263	14	-.131	15	-.228	33	1.5
72	1.0DL + 1...	Yes	Y		1	1	11	.263	14		15	-.263	33	1.5
73	1.0DL + 1...	Yes	Y		1	1	12	.263	14	.131	15	-.228	33	1.5
74	1.0DL + 1...	Yes	Y		1	1	13	.263	14	.228	15	-.131	33	1.5
75	1.2DL + 1...	Yes	Y		1	1.2	33	1.5						
76	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	2	.066	14	.066	15	
77	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	3	.066	14	.057	15	.033
78	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	4	.066	14	.033	15	.057
79	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	5	.066	14		15	.066
80	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	6	.066	14	-.033	15	.057
81	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	7	.066	14	-.057	15	.033
82	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	8	.066	14	-.066	15	
83	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	9	.066	14	-.057	15	-.033
84	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	10	.066	14	-.033	15	-.057
85	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	11	.066	14		15	-.066
86	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	12	.066	14	.033	15	-.057
87	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	13	.066	14	.057	15	-.033
88	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	2	.066	14	.066	15	
89	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	3	.066	14	.057	15	.033







Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

**Load Combinations (Continued)**

Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
147	1.2DL + 1...	Yes	Y	1	1.2	39	1.5	13	.066	14	.057	15	-.033
148	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	2	.066	14	.066	15	
149	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	3	.066	14	.057	15	.033
150	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	4	.066	14	.033	15	.057
151	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	5	.066	14		15	.066
152	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	6	.066	14	-.033	15	.057
153	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	7	.066	14	-.057	15	.033
154	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	8	.066	14	-.066	15	
155	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	9	.066	14	-.057	15	-.033
156	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	10	.066	14	-.033	15	-.057
157	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	11	.066	14		15	-.066
158	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	12	.066	14	.033	15	-.057
159	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	13	.066	14	.057	15	-.033
160	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	2	.066	14	.066	15	
161	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	3	.066	14	.057	15	.033
162	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	4	.066	14	.033	15	.057
163	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	5	.066	14		15	.066
164	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	6	.066	14	-.033	15	.057
165	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	7	.066	14	-.057	15	.033
166	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	8	.066	14	-.066	15	
167	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	9	.066	14	-.057	15	-.033
168	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	10	.066	14	-.033	15	-.057
169	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	11	.066	14		15	-.066
170	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	12	.066	14	.033	15	-.057
171	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	13	.066	14	.057	15	-.033
172	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	2	.066	14	.066	15	
173	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	3	.066	14	.057	15	.033
174	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	4	.066	14	.033	15	.057
175	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	5	.066	14		15	.066
176	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	6	.066	14	-.033	15	.057
177	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	7	.066	14	-.057	15	.033
178	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	8	.066	14	-.066	15	
179	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	9	.066	14	-.057	15	-.033
180	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	10	.066	14	-.033	15	-.057
181	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	11	.066	14		15	-.066
182	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	12	.066	14	.033	15	-.057

**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	N20	max	980.001	6	2293.806	35	1529.421	14	557.985	17	2073.323	19	4194.152	35
2		min	-973.741	24	-237.13	16	-1529.098	8	-3025.185	36	-2076	13	-1134.487	16
3	N11	max	1055.421	4	2193.304	31	1413.074	3	850.694	23	1963.501	15	1031.573	24
4		min	-1056.74	22	-256.828	24	-1408.041	21	-2474.629	79	-1965.838	9	-4504.239	31
5	N1	max	1522.089	17	2196.625	27	751.499	2	4927.056	27	1787.535	23	1210.351	139
6		min	-1526.74	11	-281.147	20	-760.235	8	-1339.053	20	-1789.993	5	-807.256	157
7	Totals:	max	3373.653	17	6029.487	28	3568.306	2						
8		min	-3373.656	11	1607.81	58	-3568.304	20						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn	phi*Mn	Cb	Eqn
1	S1	HSS4X4X4	.328	0	34	.127	0	y	1..133178..	139518	16180.5	16180.5	2..	H1-1b
2	CA5	C3.38x2.0..	.316	0	35	.051	28.1..	y	2947760....	56700	2202.8..	5751.9..	1..	H1-1b
3	S2	HSS4X4X4	.314	0	32	.127	0	y	1..133178..	139518	16180.5	16180.5	2..	H1-1b
4	S3	HSS4X4X4	.314	0	28	.127	0	y	1..133178..	139518	16180.5	16180.5	2..	H1-1b



Company : Infinigy Engineering  
 Designer : AT  
 Job Number : 1039-Z0001-B  
 Model Name : 873645

May 12, 2022  
 12:01 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[...Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...Cb	Eqn	
5	CA3	C3.38x2.0...	.310	0	27	.050	28.1...	y 33	47760....	56700	2202.8...	5751.9...1..	H1-1b
6	CA1	C3.38x2.0...	.309	0	31	.050	28.1...	y 37	47760....	56700	2202.8...	5751.9...1..	H1-1b
7	CA4	C3.38x2.0...	.294	33	2	.043	33	y 30	47760....	56700	2202.8...	5751.9...1..	H1-1b
8	CA2	C3.38x2.0...	.291	33	6	.044	33	y 34	47760....	56700	2202.8...	5751.9...1..	H1-1b
9	CA6	C3.38x2.0...	.280	33	35	.044	33	y 38	47760....	56700	2202.8...	5751.9...1..	H1-1b
10	P3	PL6.5x0.3...	.262	21	2	.194	36.3...	y 6	3658.14	78975	616.993	7725.5...1..	H1-1b
11	P2	PL6.5x0.3...	.259	21	6	.198	36.3...	y 10	3658.14	78975	616.993	7750.6...1..	H1-1b
12	GA2	L2x2x4	.251	0	12	.022	0	y 12	23539....	30585.6	690.934	1576.8...2..	H2-1
13	P1	PL6.5x0.3...	.251	21	10	.201	36.3...	y 2	3658.14	78975	616.993	7727.4...1..	H1-1b
14	M75	PL 2.375x...	.247	1.5	13	.260	0	y 28	38256....	38475	400.783	1903.7...2..	H1-1b
15	GA4	L2x2x4	.241	0	8	.021	0	y 8	23539....	30585.6	690.934	1576.8...2..	H2-1
16	CA8	L4X4X4	.234	42	5	.027	42	z 9	46987....	62532	3137.5...	6714.8...2..	H2-1
17	GA5	L2x2x4	.230	0	10	.031	27.2...	y 38	23539....	30585.6	690.934	1576.8...2..	H2-1
18	CA7	L4X4X4	.228	42	9	.027	0	z 13	46987....	62532	3137.5...	6714.8...2..	H2-1
19	GA6	L2x2x4	.225	0	4	.020	0	y 4	23539....	30585.6	690.934	1576.8...2..	H2-1
20	CA9	L4X4X4	.224	42	13	.025	42	z 6	46987....	62532	3137.5...	6714.8...2..	H2-1
21	GA3	L2x2x4	.221	0	2	.031	27.2...	y 30	23539....	30585.6	690.934	1576.8...2..	H2-1
22	GA1	L2x2x4	.210	0	6	.031	27.2...	y 34	23539....	30585.6	690.934	1576.8...2..	H2-1
23	MP8	PIPE 2.5	.208	68	9	.030	68	9	30038....	50715	3596.25	3596.25 4..	H1-1b
24	MP5	PIPE 2.5	.207	68	13	.030	68	13	30038....	50715	3596.25	3596.25 4..	H1-1b
25	MP4	PIPE 2.5	.204	68	7	.023	68	7	30038....	50715	3596.25	3596.25 1..	H1-1b
26	MP7	PIPE 2.5	.203	68	3	.022	68	3	30038....	50715	3596.25	3596.25 2..	H1-1b
27	MP2	PIPE 2.5	.203	68	5	.029	68	5	30038....	50715	3596.25	3596.25 4..	H1-1b
28	MP1	PIPE 2.5	.198	68	11	.022	68	11	30038....	50715	3596.25	3596.25 3..	H1-1b
29	HR2	PIPE 2.5	.188	95	3	.066	103...	6	22373....	50715	3596.25	3596.25 1..	H1-1b
30	HR1	PIPE 2.5	.186	95	7	.065	103...	10	22373....	50715	3596.25	3596.25 1..	H1-1b
31	HR3	PIPE 2.5	.180	25	8	.066	103...	2	22373....	50715	3596.25	3596.25 1..	H1-1b
32	MP6	PIPE 2.5	.178	68	13	.022	68	7	30038....	50715	3596.25	3596.25 3..	H1-1b
33	MP9	PIPE 2.5	.178	68	9	.022	68	3	30038....	50715	3596.25	3596.25 2..	H1-1b
34	MP3	PIPE 2.5	.173	68	5	.021	68	11	30038....	50715	3596.25	3596.25 3..	H1-1b
35	H3	PIPE 3.0	.154	31	2	.096	48	8	46290....	65205	5748.75	5748.75 2..	H1-1b
36	H2	PIPE 3.0	.148	31	6	.095	48	12	46290....	65205	5748.75	5748.75 2..	H1-1b
37	H1	PIPE 3.0	.144	31	10	.093	48	4	46290....	65205	5748.75	5748.75 2..	H1-1b

**APPENDIX D**  
**ADDITIONAL CALCUATIONS**

# INFINIGY

## Bolt Calculation Tool, V1.6

PROJECT DATA	
Site Name:	Oxford
Site Number:	873645
Connection Description:	Mount to Tower Connection

MAXIMUM BOLT LOADS		
Bolt Tension:	7995.68	lbs
Bolt Shear:	1581.03	lbs

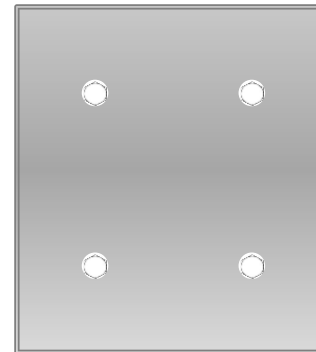
WORST CASE BOLT LOADS <sup>1</sup>		
Bolt Tension:	7995.68	lbs
Bolt Shear:	447.62	lbs

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

<sup>1</sup> Worst case bolt loads correspond to Load combination #34 on member S1 in RISA-3D, which causes the maximum demand on the bolts.

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	39.3%	
Max Shear Usage	11.5%	
Interaction Check (Worst Case)	0.16	≤1.05
Result	Pass	



**APPENDIX E**

**MOUNT MODIFICATION DESIGN DRAWINGS (MDD) / SUPPLEMENTAL DRAWINGS**

4

3

2

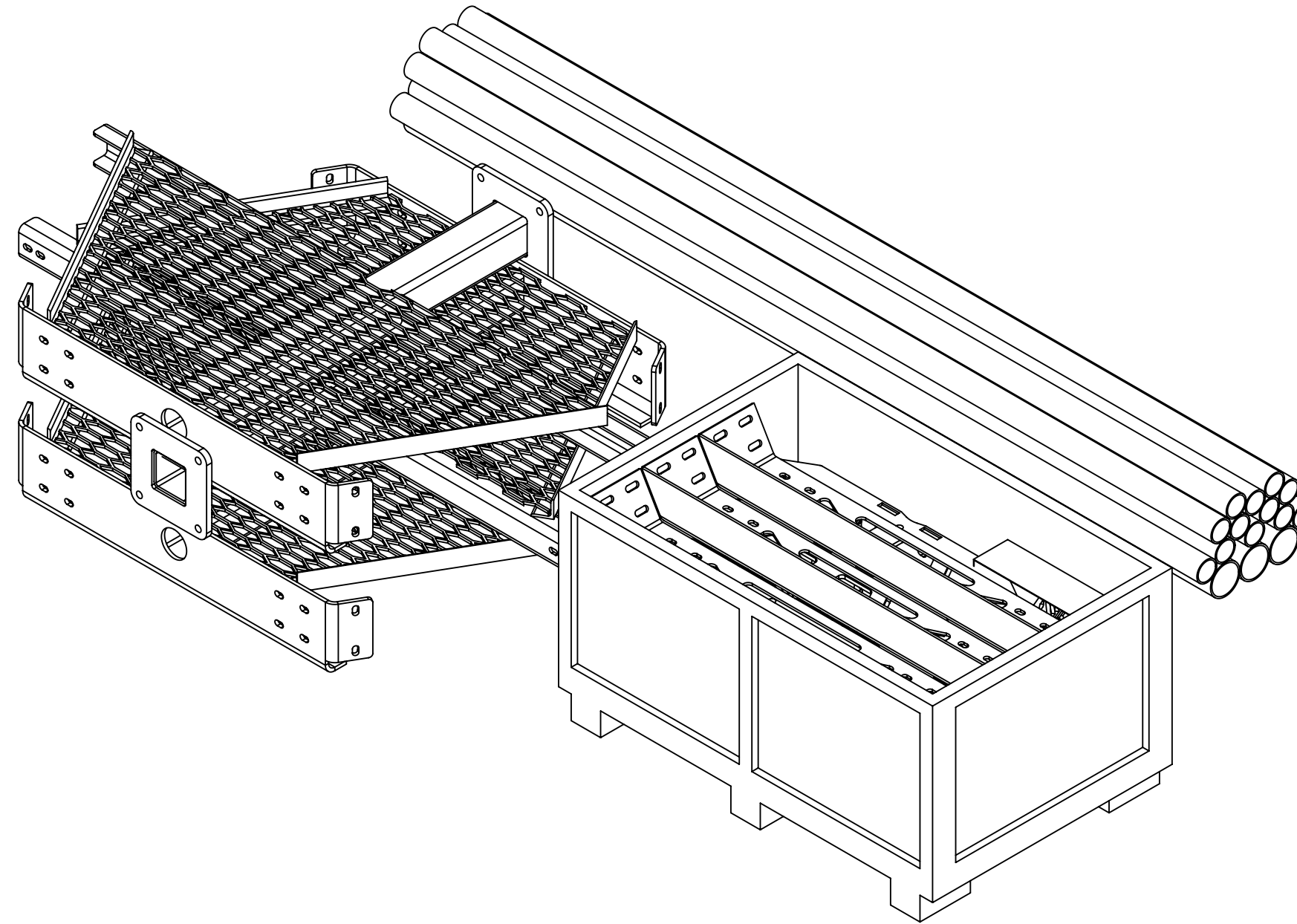
1

NOTES:

- 1.0 GENERAL
  - 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
  - 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM
- 2.0 DESIGN NOTES
- 3.0 MANUFACTURING/SPECIAL REQUIREMENTS
- 4.0 TEST
- 5.0 PACKAGING

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021

FOR BOM ENTRY ONLY



**PATENT PENDING**

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES		SAP MATERIAL MASTER
1 PLACE .X ± .25	3 PLACE .XXX ± 0.06	MC-PK8-DSH
2 PLACE .XX ± 0.12	ANGLES ± 2°	
FINISH GALV A123		MATERIAL A500, A1011/A1018

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994	CE	MRC	02/17/20	TITLE <b>LOW PROFILE PLATFORM FACE</b>
	RW	ROGHANSON	03/11/2021	
	AD	BCROSS	03/11/2021	
	RE	FA1024	02/27/2020	
ECN 10272PC				SCALE <b>1:32</b>
DOCUMENT NO. <b>MC-PK8-DSH</b>				
SIZE	Auth Group	INSL	MODEL	
<b>C</b>			VERSION	STATUS
			00	AD
DRAWING			VERSION	STATUS
			00	AD
			REVISION	REVISION
			A	A
				SHEET 1 OF 3

DENSITY		lbs/in <sup>3</sup>
MASS	1484.04	lbs
VOLUME		in <sup>3</sup>
SURFACE AREA		in <sup>2</sup>
HEIGHT	96"	
LENGTH	46"	
WIDTH	29"	

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ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MTC3006SB	STEEL BUNDLE FOR SNUB NOSE PLATFORM	1	462.92 LBS	
2	MCPK8CHWK	HARDWARE KIT FOR MC-PK8-C	1	523.54 LBS	
3	MT54796	3.50" OD X 96" GALV PIPE	3	48.54 LBS	
4	MT651096154	2.375"OD X 96" SCHD 40 PIPE	12	23.05 LBS	3

D

D

C

C

B

B

A

A

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1

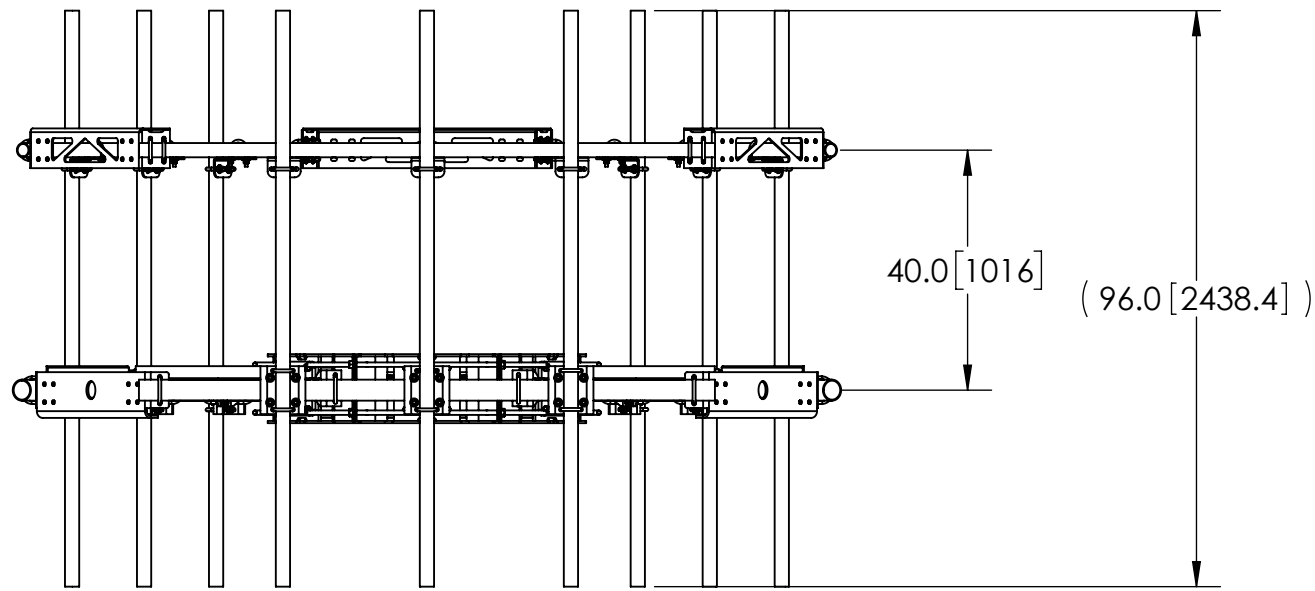
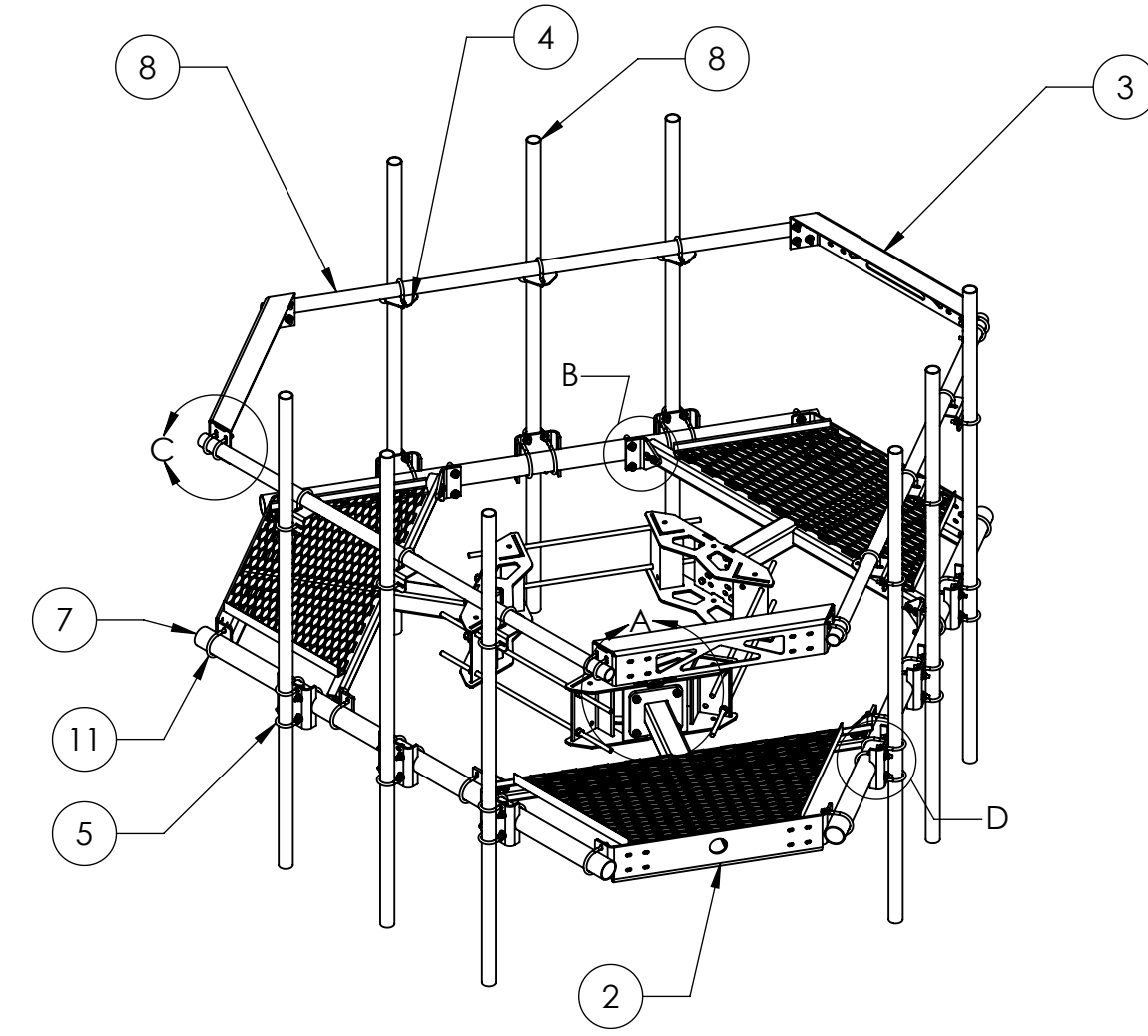
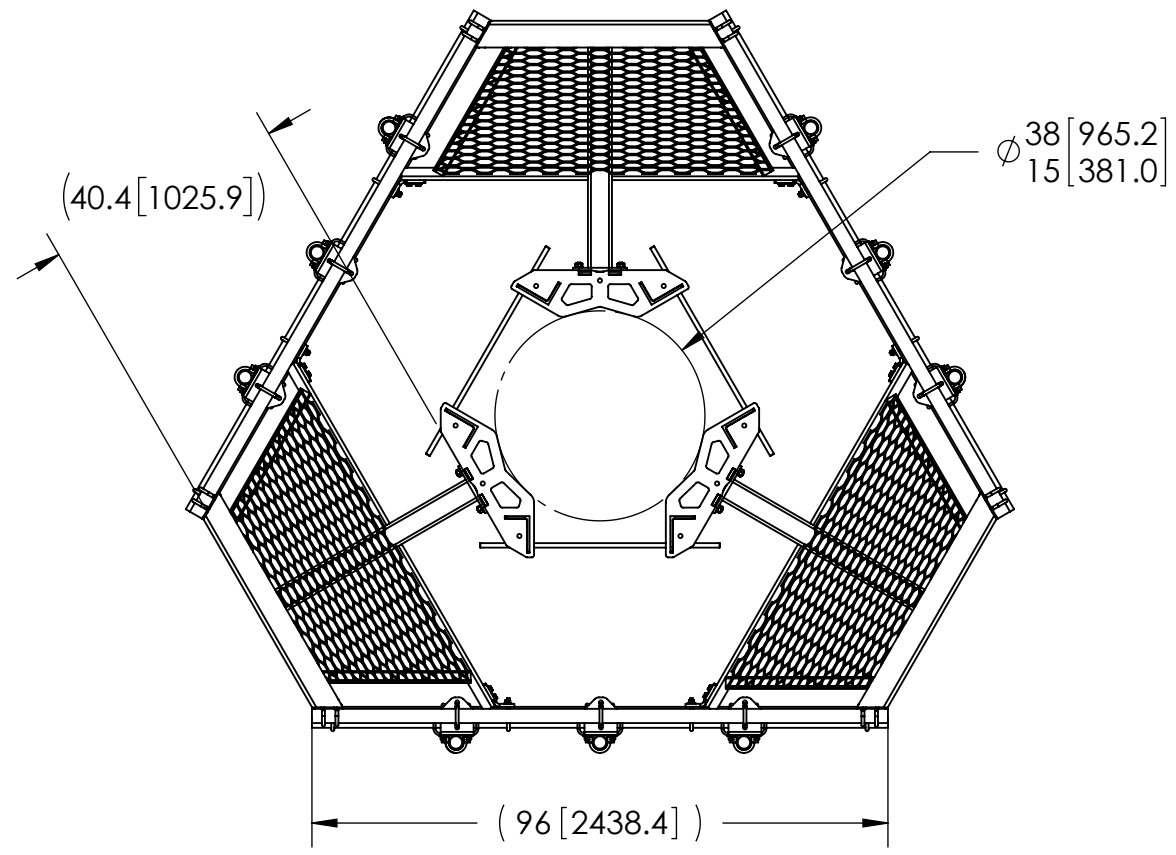
4

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1

NOTES:



ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	XAU01	ANGLE, CROSSOVER, 1.9-3.5" X 1.9-3.5" OD	9
5	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	48
6	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
7	MT54796	3.50" OD X 96" GALV PIPE	3
8	MT651096154	2.375"OD X 96" SCHD 40 PIPE	12
9	MT21701	PIPE MOUNT PLATE	9
10	GWF-04	1/2" GALV FLAT WASHER	12
11	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
12	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18
13	MTC300618	MOUNTING PLATE FOR MT-196	6
14	GB-04205	1/2" X 2" GALV BOLT KIT	12

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE LOW PROFILE PLATFORM FACE			
SIZE C	SCALE 1:32	DOCUMENT NO. MC-PK8-DSH	
DRAWING			SHEET
VERSION 00	STATUS AD	REVISION A	

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4

3

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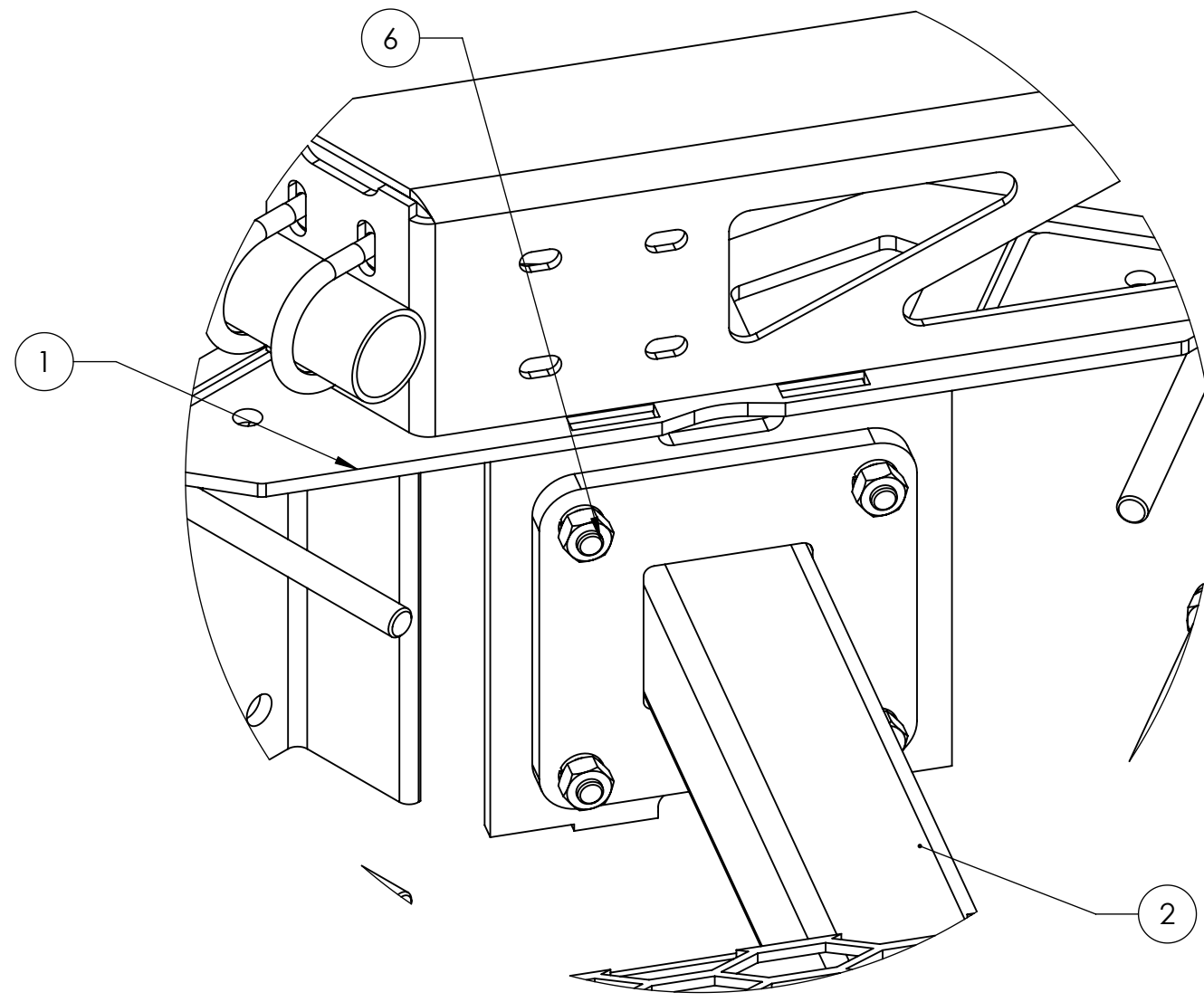
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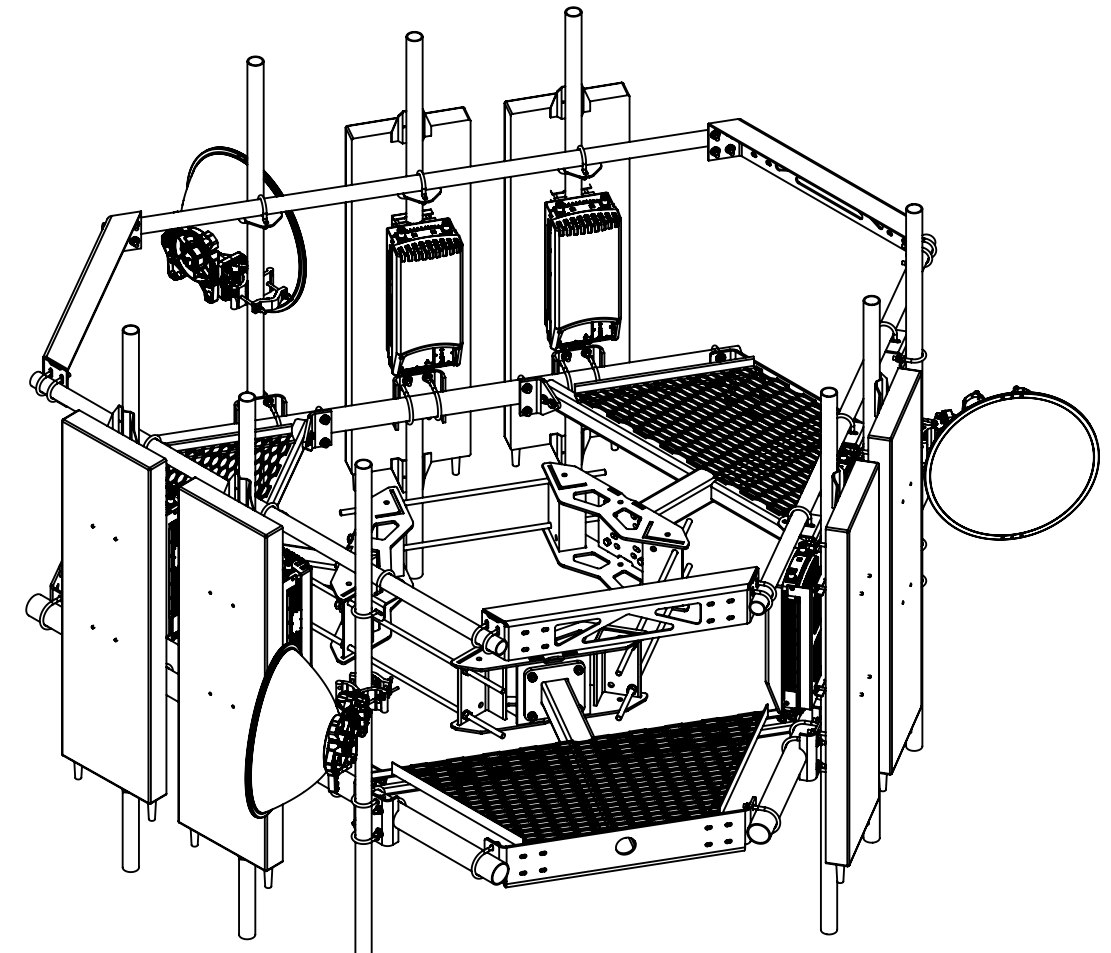
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1

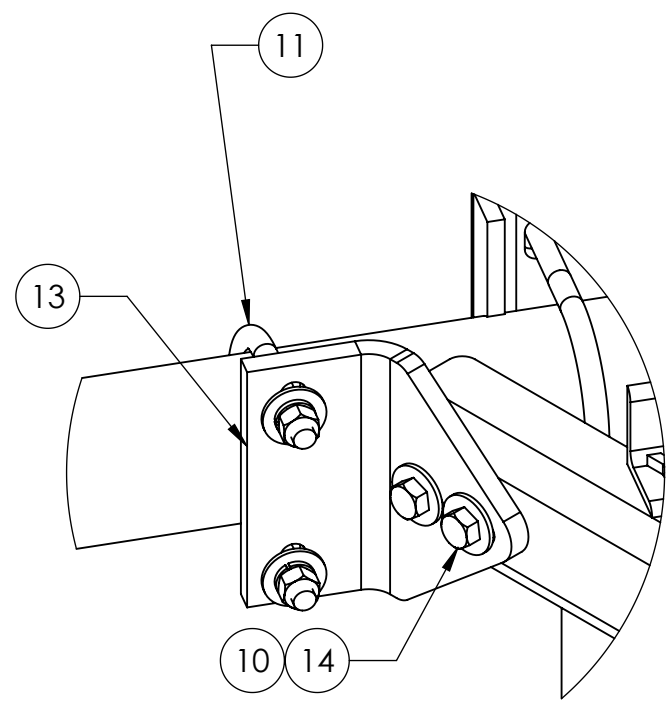
NOTES:



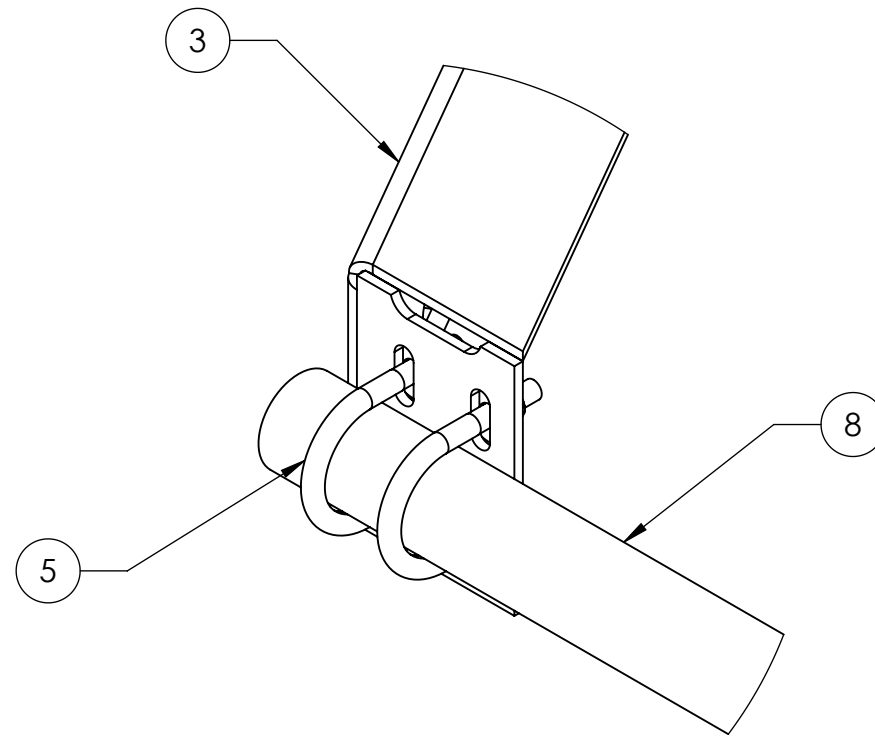
DETAIL A  
SCALE 1 : 4



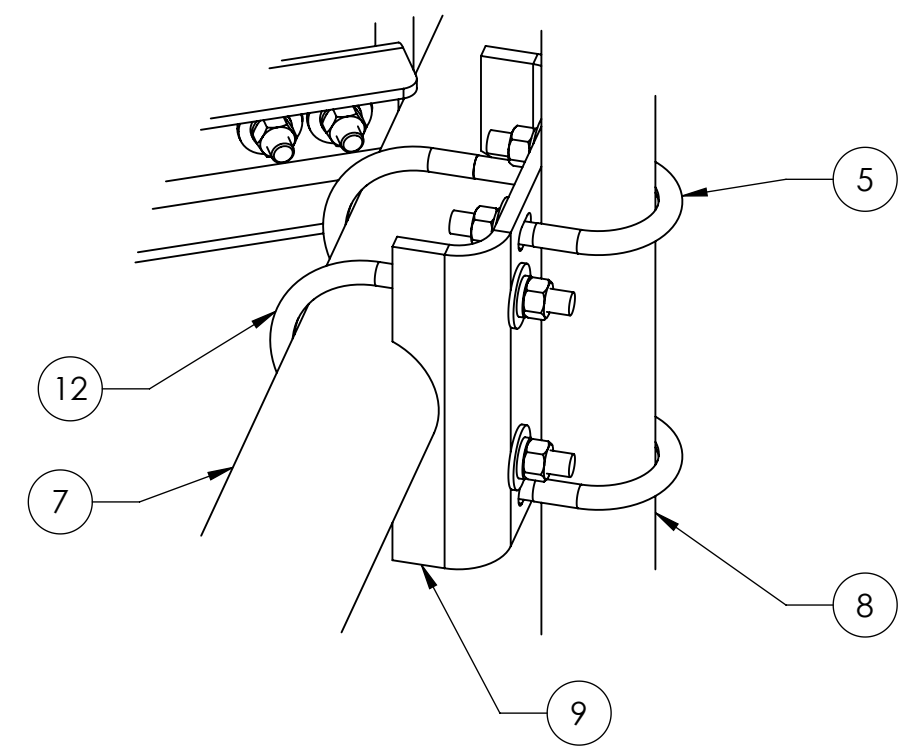
**WITH ANTENNAS**



DETAIL B  
SCALE 1 : 4

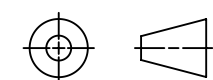


DETAIL C  
SCALE 1 : 4



DETAIL D  
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA				
TITLE LOW PROFILE PLATFORM FACE				
SIZE <b>C</b>	SCALE <b>1:24</b>	DOCUMENT NO. <b>MC-PK8-DSH</b>		
		DRAWING		SHEET
		VERSION	STATUS	REVISION
		00	AD	A
				3 OF 3



D

C

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1

# Exhibit F

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

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

**Dish Wireless Existing Facility**

**Site ID: 873645**

**BOHVN00019A  
691 Oxford Road  
Oxford, Connecticut 06478**

**May 17, 2022**

**EBI Project Number: 6222003247**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>12.39%</b>

May 17, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 873645 - BOHVN00019A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **691 Oxford Road in Oxford, 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 691 Oxford Road in Oxford, 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) 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.
- 4) 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.

- 5) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 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.
- 6) The antenna mounting height centerline of the proposed antennas is 127 feet above ground level (AGL).
- 7) 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.
- 8) All calculations were done with respect to uncontrolled / general population threshold limits.

## Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	11.35 dBd / 15.75 dBd	Gain:	11.35 dBd / 15.75 dBd	Gain:	11.35 dBd / 15.75 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280.00 Watts	Total TX Power (W):	280.00 Watts	Total TX Power (W):	280.00 Watts
ERP (W):	1,424.17	ERP (W):	1,424.17	ERP (W):	1,424.17
Antenna AI MPE %:	<b>0.51%</b>	Antenna BI MPE %:	<b>0.51%</b>	Antenna CI MPE %:	<b>0.51%</b>

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	0.51%
AT&T	2.69%
Verizon	9.19%
<b>Site Total MPE % :</b>	<b>12.39%</b>

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.51%
Dish Wireless Sector B Total:	0.51%
Dish Wireless Sector C Total:	0.51%
<b>Site Total MPE % :</b>	<b>12.39%</b>

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish Wireless 600 MHz n71	4	110.82	127.0	1.09	600 MHz n71	400	0.27%
Dish Wireless 1900 MHz n70	4	245.22	127.0	2.41	1900 MHz n70	1000	0.24%
						<b>Total:</b>	<b>0.51%</b>

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



## Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	0.51%
Sector B:	0.51%
Sector C:	0.51%
Dish Wireless Maximum MPE % (Sector A):	0.51%
Site Total:	12.39%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **12.39%** 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.

# Exhibit G

## **Letter of Authorization**



4545 E River Rd, Suite 320  
West Henrietta, NY 14586

Phone: (585) 445-5896  
Fax: (724) 416-4461  
www.crowncastle.com

## **Crown Castle Letter of Authorization**

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

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

**Re: Tower Share Application**  
**Crown Castle telecommunications site at:**  
**691 OXFORD RD, OXFORD, CT 06478**

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

**Crown Site ID/Name: 873645/Oxford**  
**Customer Site ID: BOHVN00019A/CT-CCI-T-873645**  
**Site Address: 691 Oxford RD, OXFORD, CT 06478**


Crown Castle

By:  Date: 5/17/2022

Richard Zajac  
Site Acquisition Specialist

# Exhibit H

## Recipient Mailings



**UNITED STATES  
POSTAL SERVICE®**

**Click-N-Ship®**

**P**

USPS.com 9405 5036 9930 0258 8565 33 0089 5000 0031 4586  
**US POSTAGE**  
 Flat Rate Env  
 U.S. POSTAGE PAID  
click-n-ship®

05/26/2022 Mailed from 01566

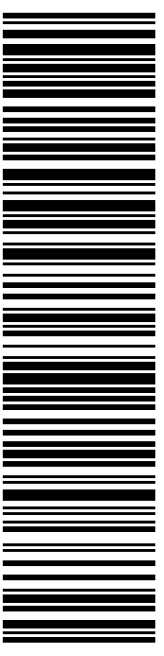
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-876345  
**0006**

**R013**

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

**USPS TRACKING #**



**9405 5036 9930 0258 8565 33**

Electronic Rate Approved #038555749



Cut on dotted line.

### Instructions

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

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0258 8565 33**

Trans. #: 564357987	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/26/2022	Total: <b>\$8.95</b>
Ship Date: 05/26/2022	
Expected Delivery Date: 05/28/2022	

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


Ref#: DS-876345

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

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



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**Click-N-Ship®**

**P**

usps.com 9405 5036 9930 0258 8565 40 0089 5000 0010 6478  
**US POSTAGE**  
 Flat Rate Env  
**U.S. POSTAGE PAID**  
Click-N-Ship®

05/26/2022 Mailed from 01566


**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-873645  
**0006**

**R001**

SHIP TO:  
 GEORGE TEMPLE  
 486 OXFORD RD  
 OXFORD CT 06478-1298

**USPS TRACKING #**



**9405 5036 9930 0258 8565 40**

Electronic Rate Approved #038555749



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**USPS TRACKING # :**  
**9405 5036 9930 0258 8565 40**

Trans. #: 564357987	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/26/2022	Total: <b>\$8.95</b>
Ship Date: 05/26/2022	
Expected Delivery Date: 05/28/2022	

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


Ref#: DS-873645

**To:** GEORGE TEMPLE  
 486 OXFORD RD  
 OXFORD CT 06478-1298

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usps.com 9405 5036 9930 0258 8565 57 0089 5000 0010 6478  
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Click-N-Ship®

05/26/2022 Mailed from 01566

**PRIORITY MAIL 2-DAY™**


Expected Delivery Date: 05/28/22  
 Ref#: DS-873645  
**0006**

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

**R001**

SHIP TO:  
 STEVEN MACARY  
 486 OXFORD RD  
 OXFORD CT 06478-1298

**USPS TRACKING #**



**9405 5036 9930 0258 8565 57**

Electronic Rate Approved #038555749



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5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0258 8565 57**

Trans. #: 564357987	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/26/2022	Total: <b>\$8.95</b>
Ship Date: 05/26/2022	
Expected Delivery Date: 05/28/2022	

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


Ref#: DS-873645

**To:** STEVEN MACARY  
 486 OXFORD RD  
 OXFORD CT 06478-1298

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**P**

usps.com 9405 5036 9930 0258 8565 71 0089 5000 0010 6478  
**US POSTAGE**  
 Flat Rate Env  
 05/26/2022

**U.S. POSTAGE PAID**  
click-n-ship®

Mailed from 01566

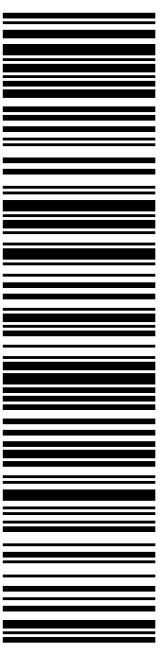
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-873645  
**0006**

**R005**

SHIP TO:  
 DON AND DAVE FARM REALTY LLC  
 691 OXFORD RD  
 OXFORD CT 06478-1244

**USPS TRACKING #**



**9405 5036 9930 0258 8565 71**

Electronic Rate Approved #038555749



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5. Mail your package on the "Ship Date" you selected when creating this label.

## Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0258 8565 71</b>	
Trans. #:	564357987
Print Date:	05/26/2022
Ship Date:	05/26/2022
Expected Delivery Date:	05/28/2022
Priority Mail® Postage:	<b>\$8.95</b>
Total:	<b>\$8.95</b>
<b>From:</b>	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
<b>To:</b>	DON AND DAVE FARM REALTY LLC 691 OXFORD RD OXFORD CT 06478-1244
	Ref#: DS-873645
* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.	



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873645 Crown Disk



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

05/27/2022 03:30 PM

Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
West Henrietta, NY 14586			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Fri 05/27/2022			
Tracking #:			
9405 5036 9930 0258 8565 33			

Prepaid Mail	1		\$0.00
Oxford, CT 06478			
Weight: 0 lb 9.10 oz			
Acceptance Date:			
Fri 05/27/2022			
Tracking #:			
9405 5036 9930 0258 8565 71			

Prepaid Mail	1		\$0.00
Oxford, CT 06478			
Weight: 0 lb 9.10 oz			
Acceptance Date:			
Fri 05/27/2022			
Tracking #:			
9405 5036 9930 0258 8565 57			

Prepaid Mail	1		\$0.00
Oxford, CT 06478			
Weight: 0 lb 9.10 oz			
Acceptance Date:			
Fri 05/27/2022			
Tracking #:			
9405 5036 9930 0258 8565 40			

Grand Total:			\$0.00
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\*\*\*\*\*  
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 eligible to receive a third set  
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