NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

September 1, 2022

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

RE: Tower Share Application
12 Orchard Drive, Ledyard, CT
Latitude: 41.468277
Longitude: -72.054472
Site #: CT13076-A_BOBOS00059A_SBA_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 12 Orchard Drive, Ledyard, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 137-foot level of the existing 150-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated August 12, 2021, Exhibit C. Also included is a structural analysis prepared by TES, dated July 9, 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 Connecticut Siting Council, Docket No. 322 on February 27, 2007. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Fred Allyn, III and Juliet Hodge, Planning Director for the Town of Ledyard, as well as the tower owner (SBA) and property owner (Richard & Diane Holmberg).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 150-feet and the Dish Wireless LLC antennas will be located at a center line height of 137-feet.

2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.

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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 1.38% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole tower in Ledyard. 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 137-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 Ledyard.

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Mayor Fred Allyn, III
Town of Ledyard
741 Colonel Ledyard Highway
Ledyard, CT 06339-1511

Juliet Hodge, Planning Director
Town of Ledyard
741 Colonel Ledyard Highway
Ledyard, CT 06339-1511

Richard & Diane Holmberg – Property Owners
12 Orchard Drive
Gales Ferry, CT 06339

SBA - Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 322 - Optasite, Inc. and Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 12 Orchard Drive, Ledyard, Connecticut.	Connecticut Siting Council
	February 27, 2007

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Optasite, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at Site B, 12 Orchard Drive, Ledyard, Connecticut. The Council denies certification of proposed Site A, 12 Orchard Drive, Ledyard, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas Omnipoint Communications, Inc. and other entities, both public and private, but such tower shall not exceed a height of 150 feet above ground level. Antennas mounted on the tower shall not exceed a height of 150 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Ledyard for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
    b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

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

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

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

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Ledyard public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Ledyard. Any proposed modifications to this Decision and Order shall likewise be so served.

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

10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

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

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

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

The parties and intervenors to this proceeding are:

Certificate Holder	**Its Representative**
Optasite, Inc.	Julie D. Kohler, Esq. Carrie L. Larson, Esq. Cohen & Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 Jennifer Young Gaudet 345 Taylor Street Talcottville, CT 06066
Co-Applicant	**Its Representative**
Omnipoint Communications, Inc.	Julie D. Kohler, Esq. Carrie L. Larson, Esq. Cohen & Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 322** - Optasite, Inc. and Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 12 Orchard Drive, Ledyard, Connecticut, and voted as follows to approve proposed Site B, located at 12 Orchard Drive, Ledyard, Connecticut, and deny certification of proposed Site A, also located at 12 Orchard Drive, Ledyard, Connecticut:

Council Members	Vote Cast
Daniel F. Caruso, Chairman	Yes
Colin C. Tait, Vice Chairman	Absent
Commissioner Donald W. Downes Designee: Gerald J. Heffernan	Absent
Commissioner Gina McCarthy Designee: Brian J. Emerick	Yes
Philip T. Ashton	Absent
Daniel P. Lynch, Jr.	Yes
James J. Murphy, Jr.	Yes
Dr. Barbara Currier Bell	Yes
Edward S. Wilensky	Yes

Dated at New Britain, Connecticut, February 27, 2007.

Exhibit B

Property Card

Town of Ledyard Property Summary Report

12 ORCHARD DR

PARCEL ID:	24-1790-12
LOCATION:	12 ORCHARD DR
OWNER NAME:	HOLMBERG RICHARD H + DIANE Y

OWNER OF RECORD
HOLMBERG RICHARD H + DIANE Y 4 ORCHARD DR GALES FERRY, CT 06339

LIVING AREA:	2382	**ZONING:**	R40	**ACREAGE:**	139.61

SALES HISTORY

OWNER	BOOK / PAGE	SALE DATE	SALE PRICE
HOLMBERG RICHARD H + DIANE Y	407/ 329	22-Jul-2005	$0.00
HOLMBERG RICHARD H + DIANE Y	329/1023	02-May-2002	$0.00
HOLMBERG RICHARD H	00153/0417	11-Jun-1986	$0.00

CURRENT ASSESSED VALUE

TOTAL:	$340,760.00	**IMPROVEMENTS:**	$226,100.00	**LAND:**	$114,660.00

ASSESSING HISTORY

FISCAL YEAR	TOTAL VALUE	IMPROVEMENT VALUE	LAND VALUE
2018	$340,760.00	$226,100.00	$114,660.00
2017	$340,760.00	$226,100.00	$114,660.00
2016	$340,760.00	$226,100.00	$114,660.00
2015	$340,760.00	$226,100.00	$114,660.00
2014	$301,310.00	$210,840.00	$90,470.00

Town of Ledyard Property Summary Report

12 ORCHARD DR

PARCEL ID:	24-1790-12
LOCATION:	12 ORCHARD DR
OWNER NAME:	HOLMBERG RICHARD H + DIANE Y

BUILDING # 1

YEAR BUILT	1730	**ROOF STRUCTURE**	Gable/Hip
STYLE	Antique	**ROOF COVER**	Asphalt Shingl
MODEL	Residential	**FLOOR COVER 1**	Hardwood
GRADE	Average +	**FLOOR COVER 2**	
STORIES	2	**HEAT FUEL**	Oil
OCCUPANCY	Single Fam M01	**HEAT TYPE**	Hot Water
EXT WALL 1	Wood Shingle	**AC TYPE**	None
EXT WALL 2		**BEDROOMS**	3 Bedrooms
INT WALLS 1	Plastered	**FULL BATHS**	1
INT WALLS 2		**HALF BATHS**	1
		TOT ROOMS	8

EXTRA FEATURES

DESCRIPTION	CODE	UNITS
2ST Fireplace	FPL3	1 UNITS

OUTBUILDINGS

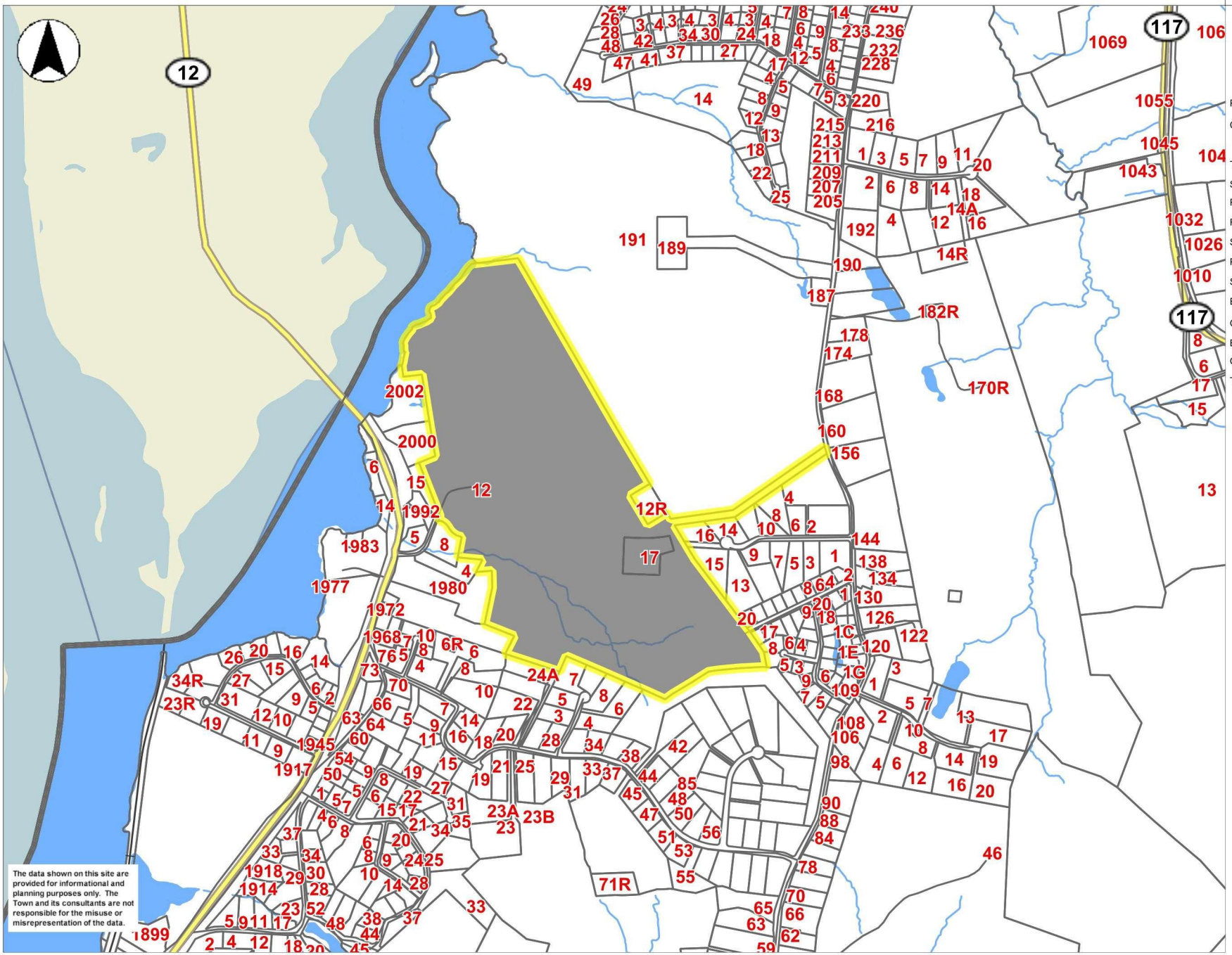
DESCRIPTION	CODE	UNITS
1 st Barn	BRN1	1914 S.F.
Shed	SHD1	256 S.F.
WorkShop- Ave	SHP1	900 S.F.
1 st Barn	BRN1	3930 S.F.
1 st Barn	BRN1	1546 S.F.
Hoop House	GRN3	1056 S.F.
Implement Shed	IMP	494 S.F.
1 st Barn	BRN1	3200 S.F.
MH/Trailer	TRL	1 UNITS
Lean-to	LNT	210 S.F.
Hoop House	GRN3	440 S.F.

Town of Ledyard Property Summary Report

12 ORCHARD DR

PARCEL ID:	24-1790-12
LOCATION:	12 ORCHARD DR
OWNER NAME:	HOLMBERG RICHARD H + DIANE Y

Pole barn	BRN8	2880 S.F.
Patio-Concrete	PAT2	240 S.F.
CELL TOWER		1



0 1600 3200 ft

Printed on 05/16/2019 at 09:52 AM

Ledyard, CT MapsOnline

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBOS00059A

DISH Wireless L.L.C. SITE ADDRESS:

12 ORCHARD DRIVE
GALES FERRY, CT 06335

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

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED TOWER PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

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

SITE INFORMATION

PROPERTY OWNER:	HOLMBERG, RICHARD H & DIANE Y
ADDRESS:	N/A
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT13076A
TOWER APP NUMBER:	163273
COUNTY:	NEW LONDON
LATITUDE (NAD 83):	41° 28' 5.8" N 41.468277 N
LONGITUDE (NAD 83):	72° 3' 16.1" W 72.05447222 W
ZONING JURISDICTION:	CT SITING COUNCIL
ZONING DISTRICT:	UNZONED
PARCEL NUMBER:	581
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	T.B.D.
TELEPHONE COMPANY:	XFINITY

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	JEAN COTTRELL JEAN.COTTRELL@DISH.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	ARVIN SEBASTIAN ARVIN.SEBASTIAN@DISH.COM

CONNECTICUT CODE COMPLIANCE

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

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

SITE PHOTO

UNAVAILABLE

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

LEDYARD SCHOOL DISTRICT LEDYARD, CT, USA TAKE CT-12 N AND CT-2A W TO I-395 N IN MONTVILLE. TAKE THE I-395 N EXIT FROM CT-2A W HEAD SOUTHWEST ON ORCHARD LN TOWARD CT-12 N TURN RIGHT ONTO CT-12 N USE THE LEFT 2 LANES TO TURN LEFT ONTO CT-2A W (SIGNS FOR INTERSTATE 395) TAKE THE EXIT ONTO I-395 N TOWARD NORWICH TAKE CT-2 W AND I-91 N TO SCHOEPHOESTER RD IN WINDSOR LOCKS MERGE WITH I-395 N TAKE EXIT 13B FOR CT-2 W/CT-32 W TOWARD HARTFORD MERGE WITH CT-2 W/CT-32 N CONTINUE TO FOLLOW CT-2 W USE THE LEFT 2 LANES TO TAKE EXIT 2W FOR I-84 W TOWARD I-91 N MERGE WITH I-84 TAKE EXIT 51 TO MERGE WITH I-91 N TOWARD SPRINGFIELD USE THE RIGHT 2 LANES TO TAKE EXIT 40 FOR CT-20 TOWARD BRADLEY INTERNATIONAL AIRPORT CONTINUE ONTO CT-20 W CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON DRIVE TO YOUR DESTINATION USE ANY LANE TO TURN SLIGHTLY RIGHT ONTO SCHOEPHOESTER RD USE THE RIGHT 2 LANES TO TURN SLIGHTLY RIGHT ARRIVE AT BOBOS00059A.

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

811

GENERAL NOTES

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

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

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

VICINITY MAP

NO SCALE

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER
8/12/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
BMK	MRE	BLB

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149467.001.01

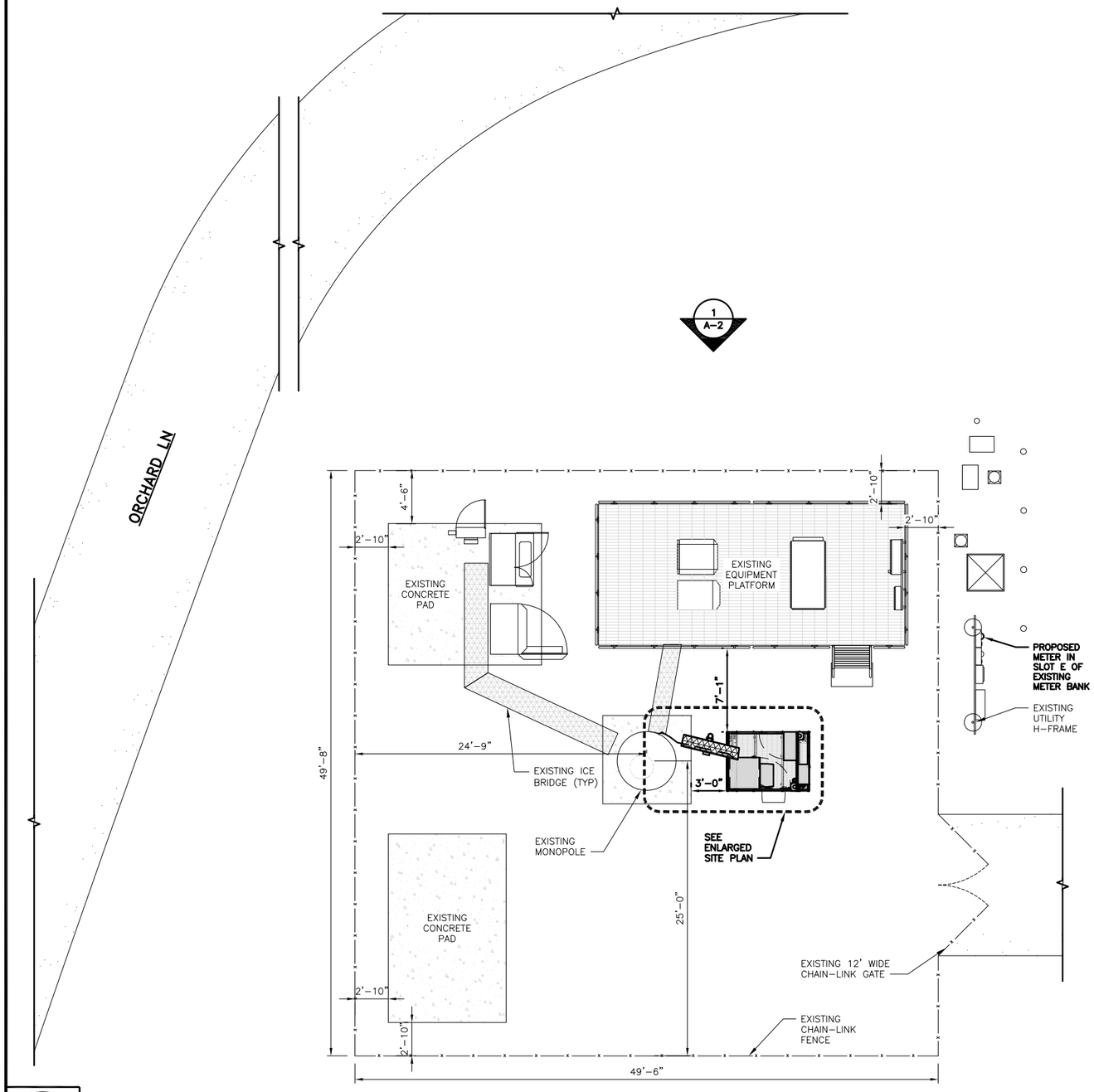
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



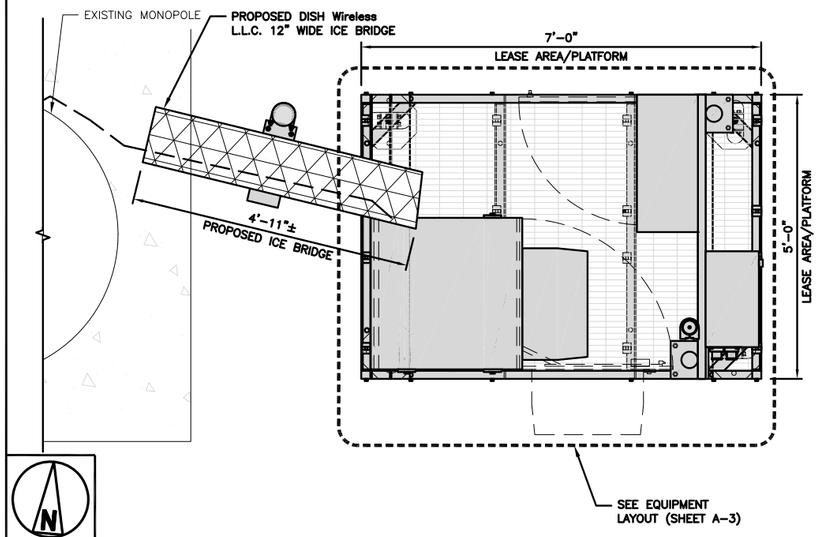
OVERALL SITE PLAN

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

1

NOTES

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



ENLARGED SITE PLAN

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

2

AERIAL MAP

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
BMK	MRE	BLB

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149467.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE

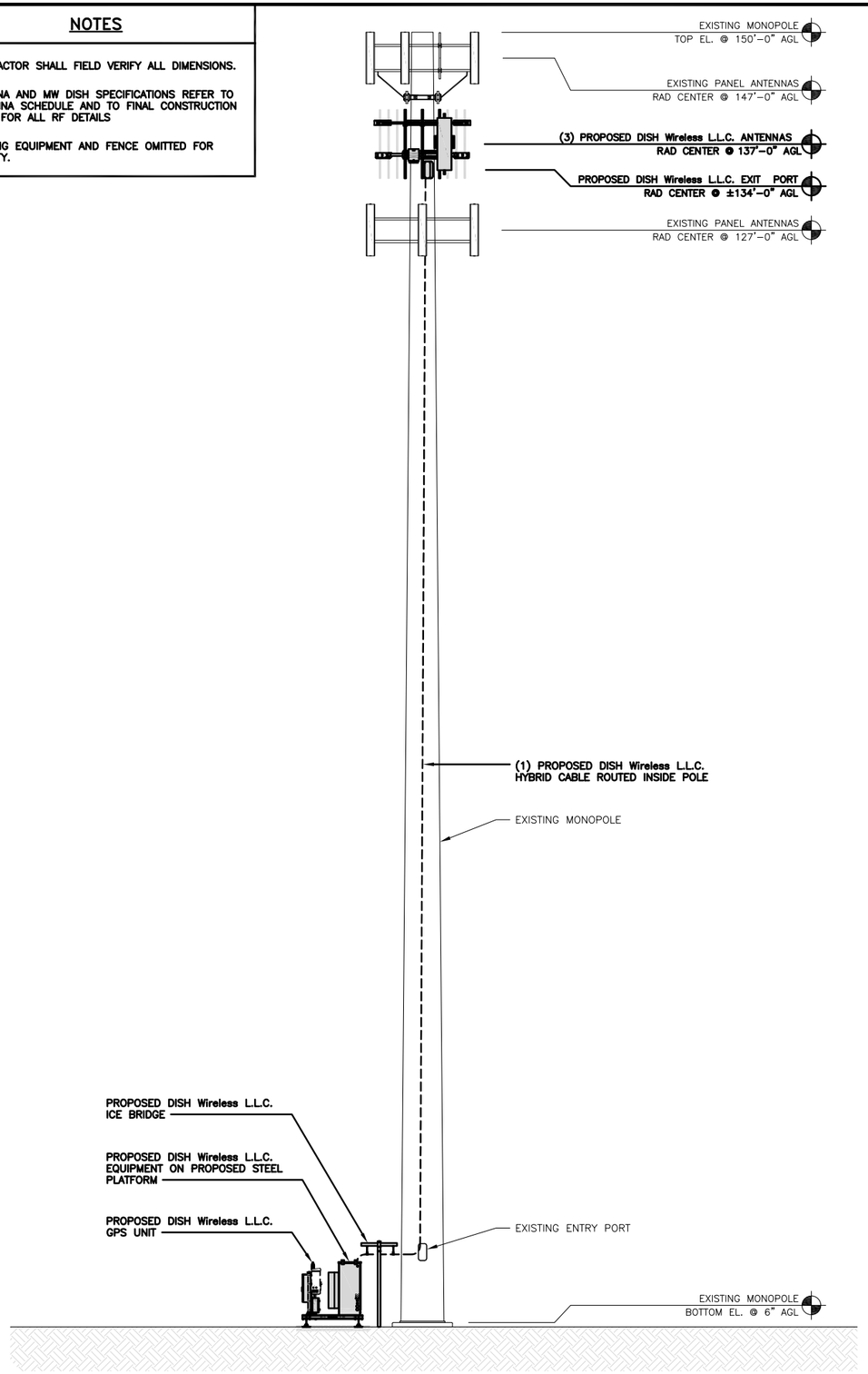
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

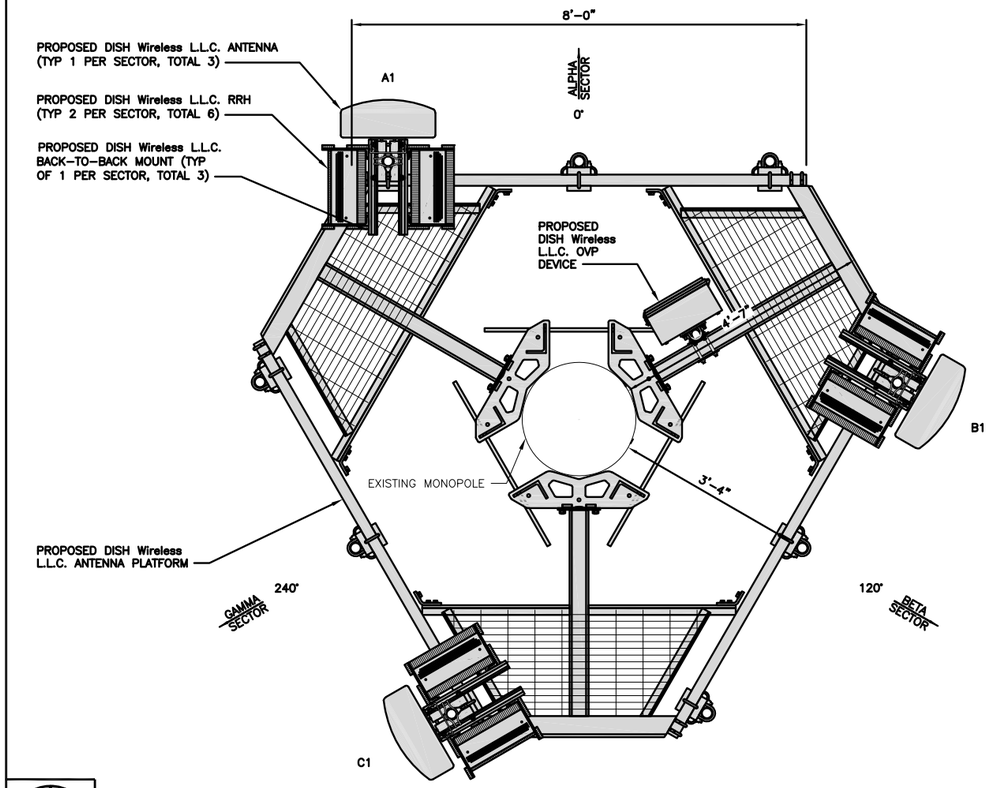
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	137'-0"	(1) HIGH-CAPACITY HYBRID CABLE (165' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	137'-0"	
GAMMA	C1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	137'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B605	5G
	A1	FUJITSU – TA08025-B604	5G
BETA	B1	FUJITSU – TA08025-B605	5G
	B1	FUJITSU – TA08025-B604	5G
GAMMA	C1	FUJITSU – TA08025-B605	5G
	C1	FUJITSU – TA08025-B604	5G

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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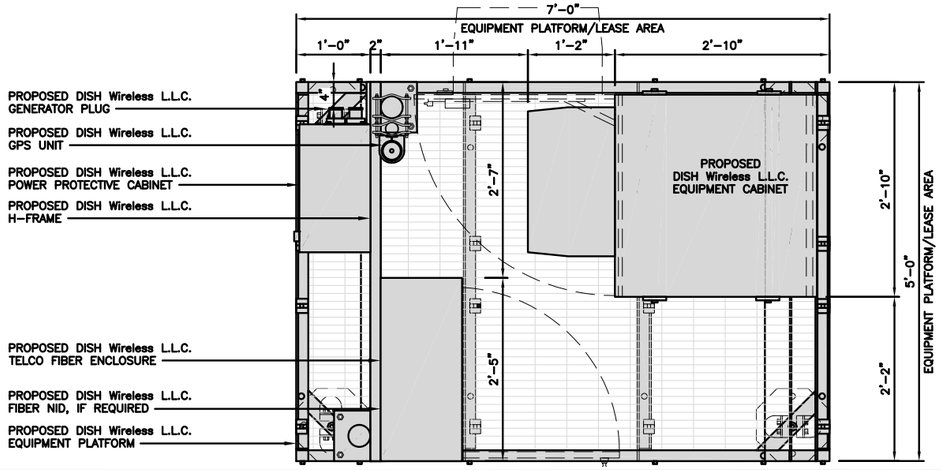
A&E PROJECT NUMBER
149467.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



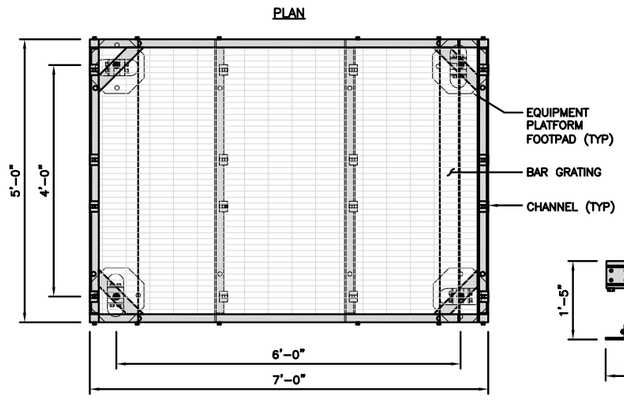
PLATFORM EQUIPMENT PLAN

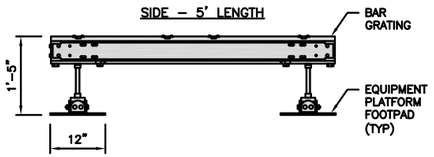
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

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

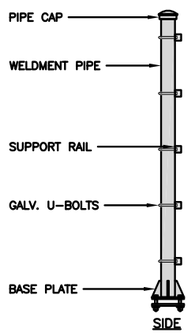
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



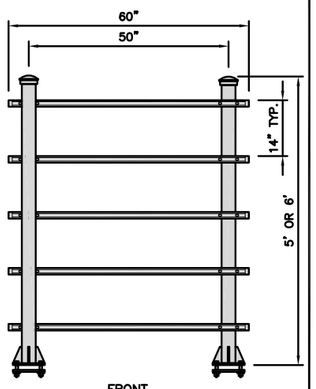


PLATFORM DETAIL | NO SCALE | 2

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



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

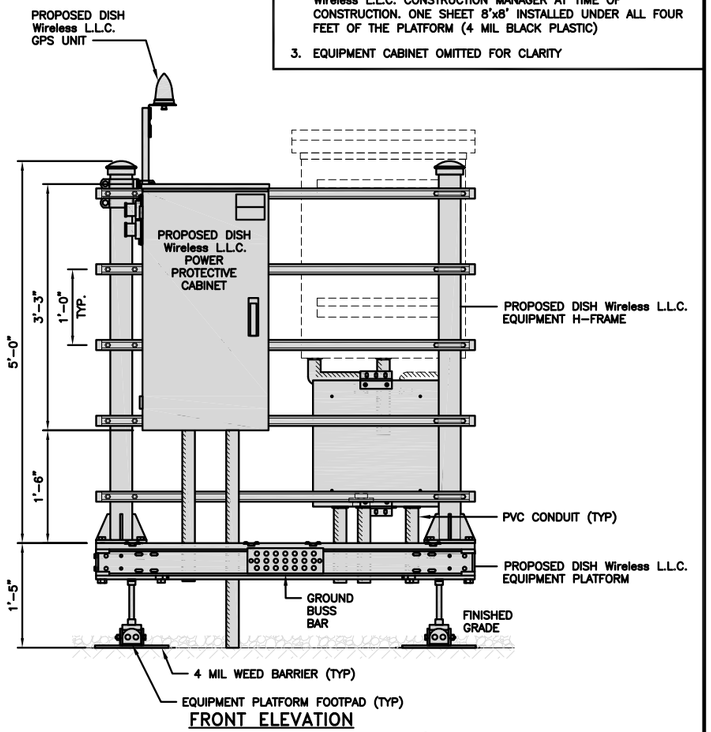


H-FRAME DETAIL | NO SCALE | 3

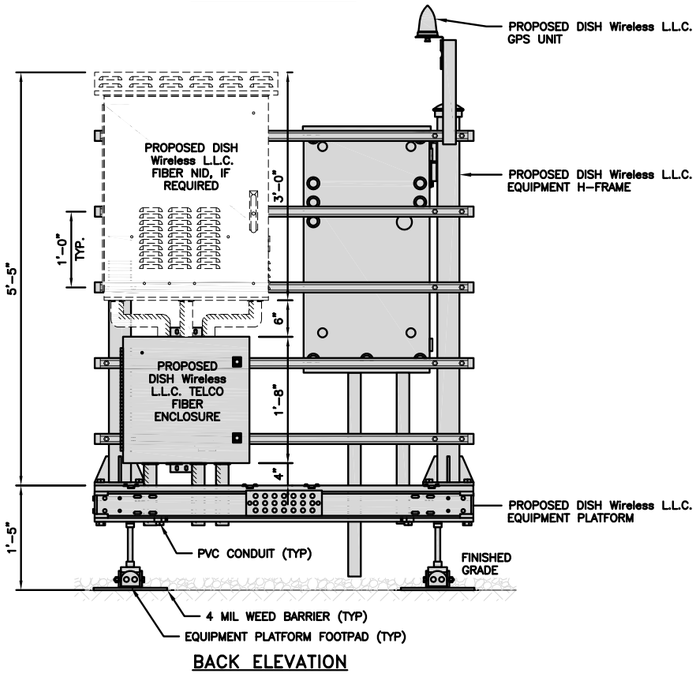
NOT USED | NO SCALE | 4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

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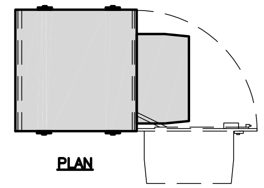
DISH Wireless L.L.C.
PROJECT INFORMATION

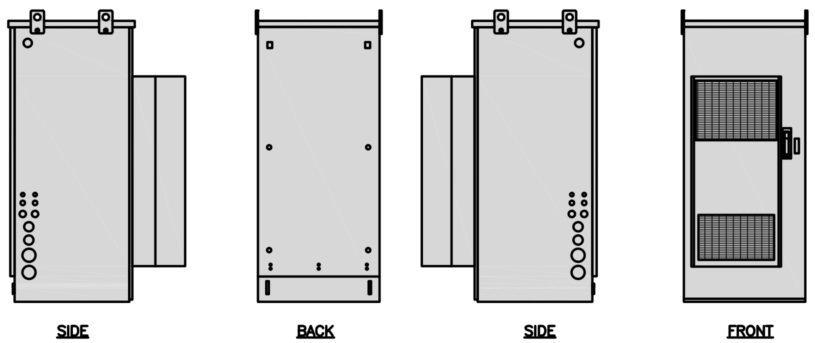
BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

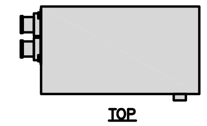
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS

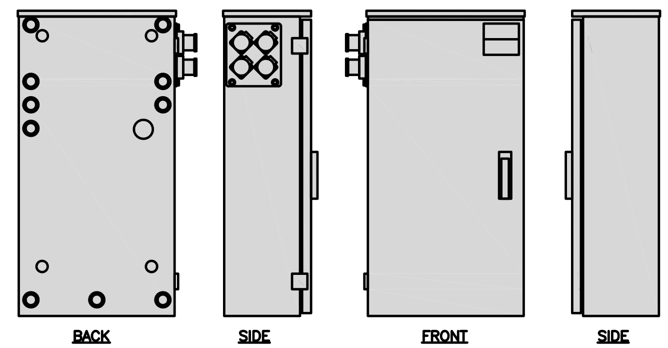




CABINET DETAIL | NO SCALE | 1

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



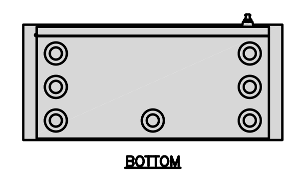


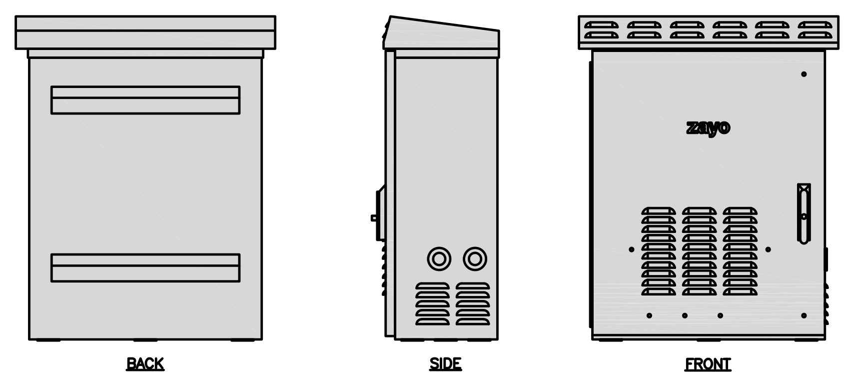
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

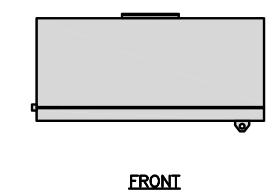
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

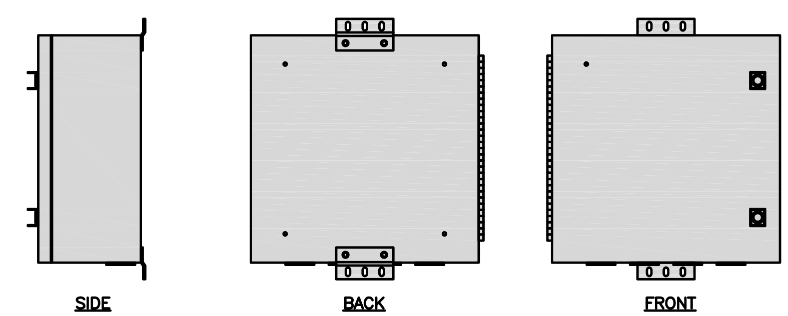




FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

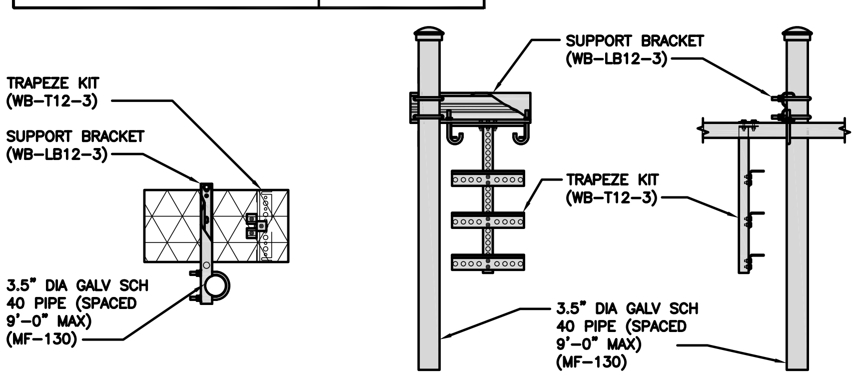
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



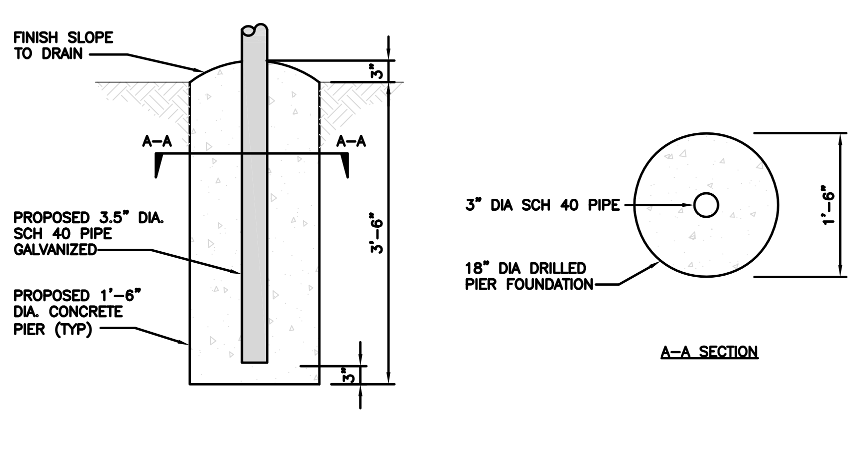


FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

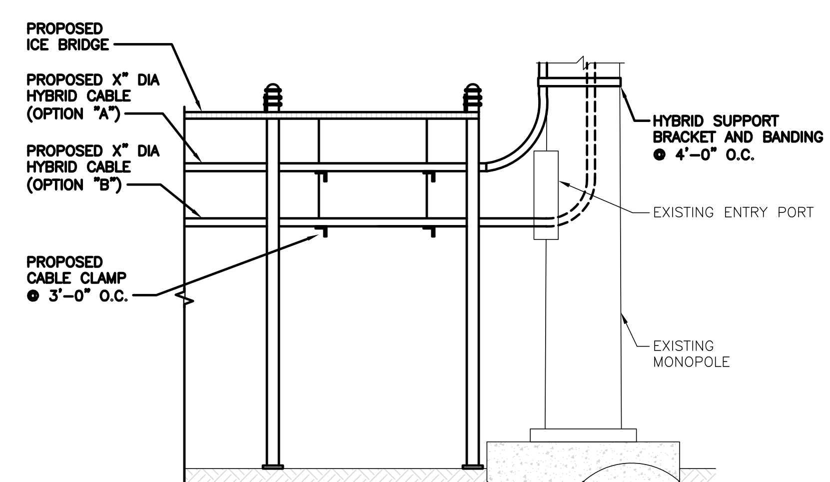
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS:	WB–T12–3 TRAPEZE KIT, 3 RUNGS
DIMENSIONS (HxL)	160"x10'		WB–LB12–3 SUPPORT BRACKET
WEIGHT/ VOLUME	325.0 LBS		MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"
CABLE RUN (QTY)	12		



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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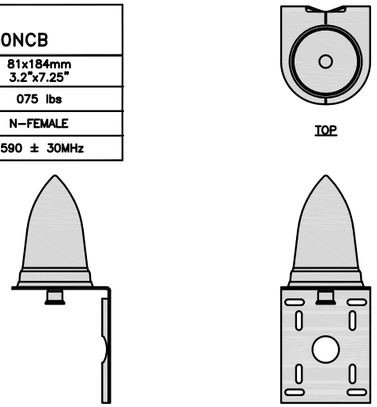
DISH Wireless L.L.C. PROJECT INFORMATION
BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE
EQUIPMENT DETAILS

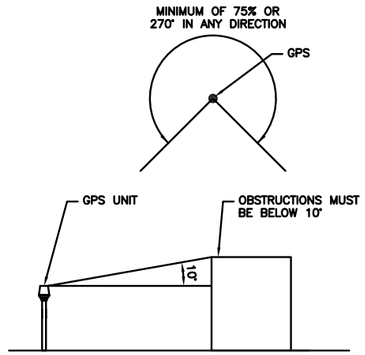
SHEET NUMBER
A-4

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



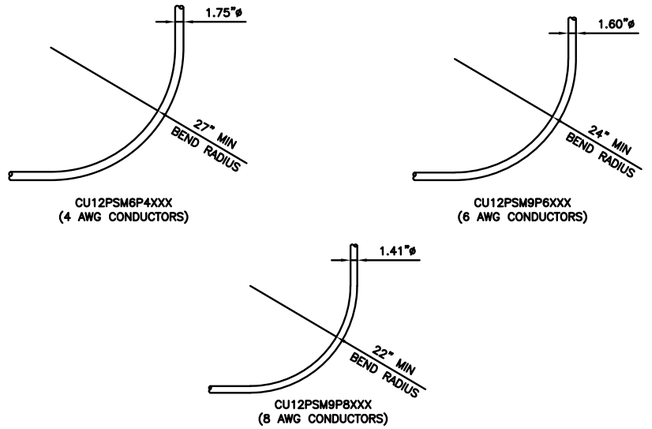
GPS DETAIL

NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES

NO SCALE | 3

NOT USED

NO SCALE | 4

NOT USED

NO SCALE | 5

NOT USED

NO SCALE | 6

NOT USED

NO SCALE | 7

NOT USED

NO SCALE | 8

NOT USED

NO SCALE | 9

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12 ORCHARD DRIVE
GALES FERRY, CT 06335

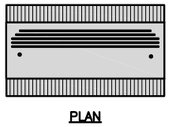
SHEET TITLE

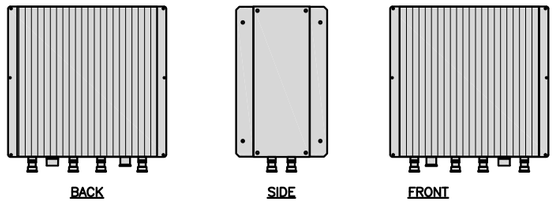
EQUIPMENT DETAILS

SHEET NUMBER

A-5

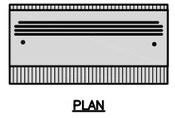
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V

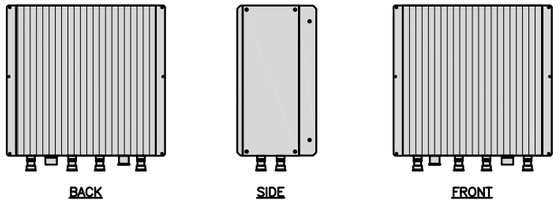

PLAN


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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

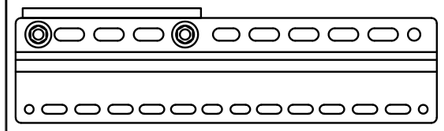

PLAN

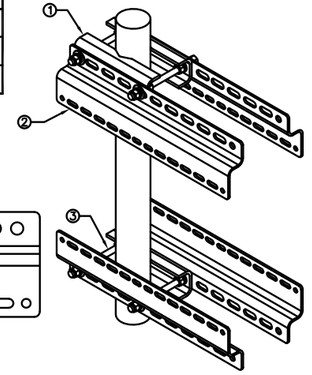

BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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"

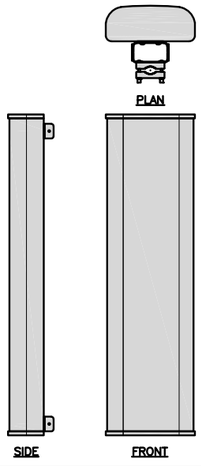




NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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


PLAN SIDE FRONT

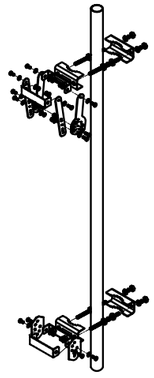
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

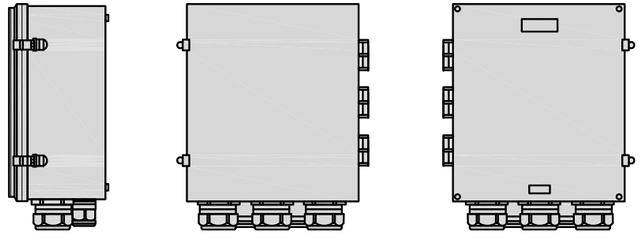


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

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

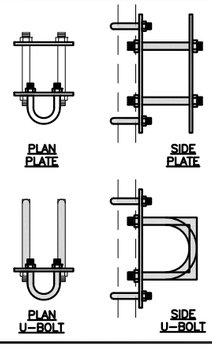

PLAN

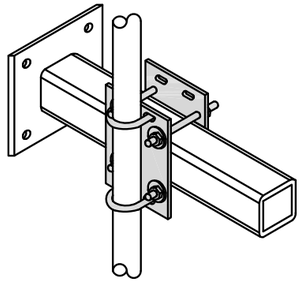

SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

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

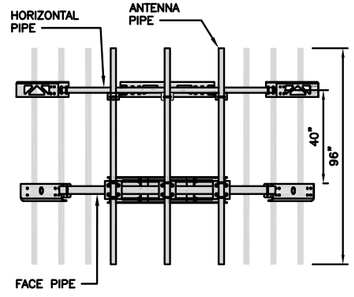

PLAN PLATE SIDE PLATE PLAN U-BOLT SIDE U-BOLT

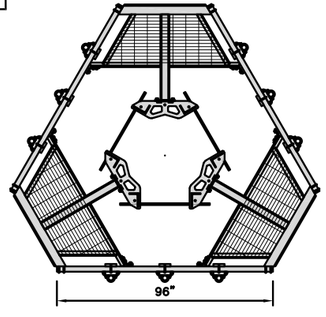


RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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A	7/28/21	ISSUED FOR REVIEW
0	8/12/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149467.001.01

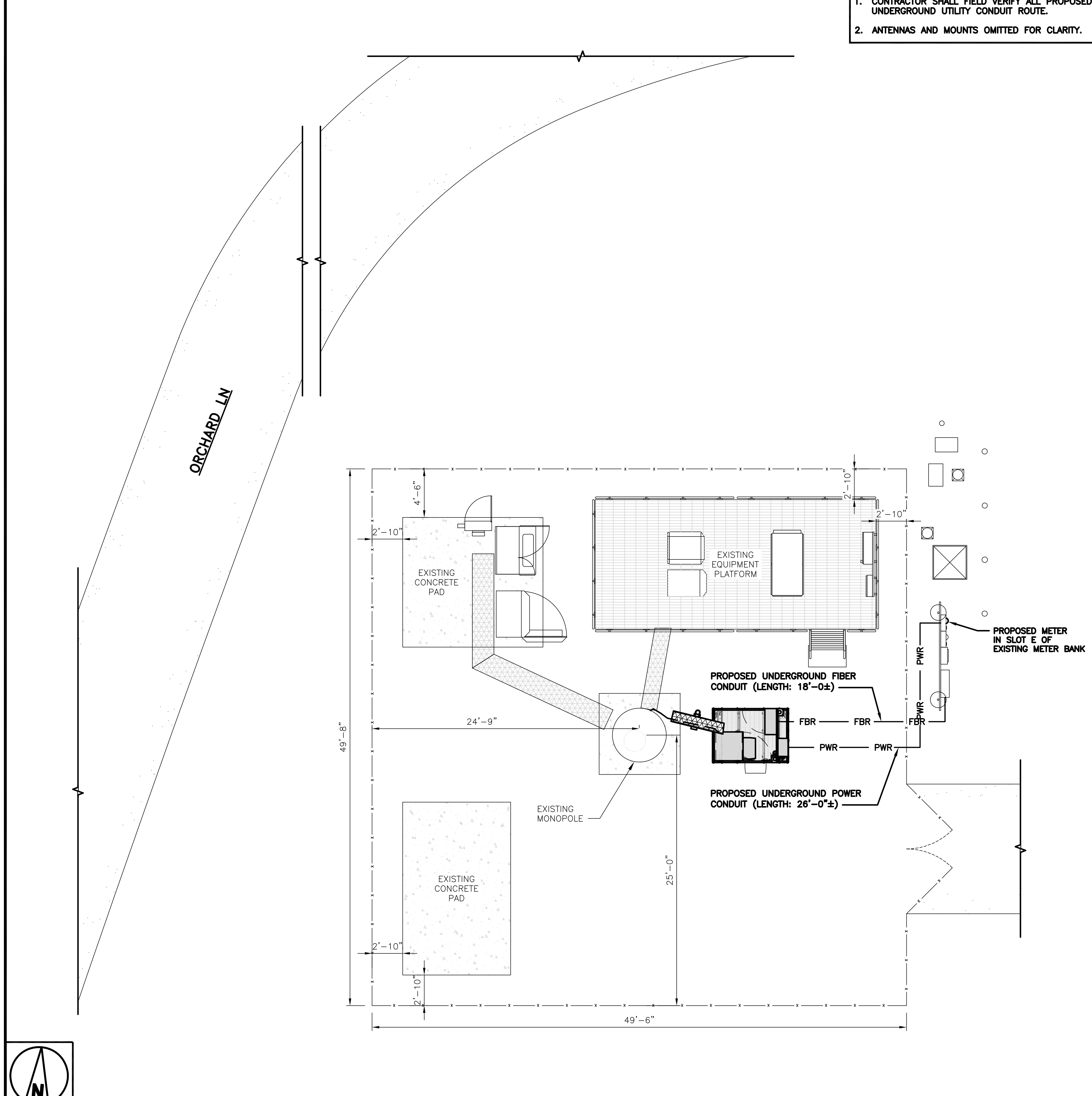
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

FINAL POWER OR FIBER DESIGN NOT AVAILABLE AT TIME OF ISSUE



UTILITY ROUTE PLAN

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

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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

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

ELECTRICAL NOTES

NO SCALE

2

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Expires 2/10/22

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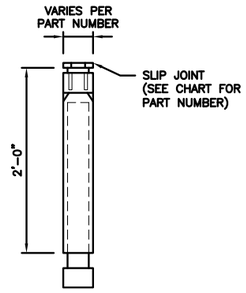
SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

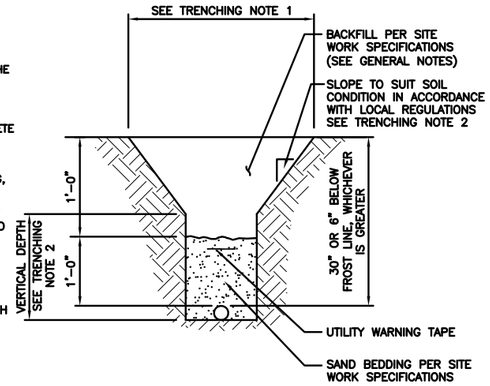


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

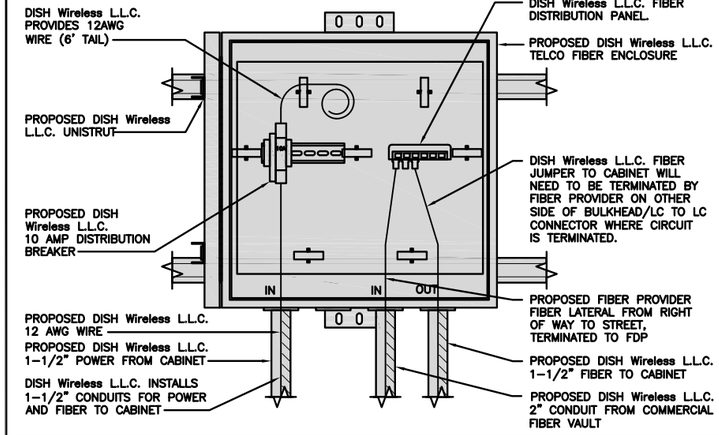
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

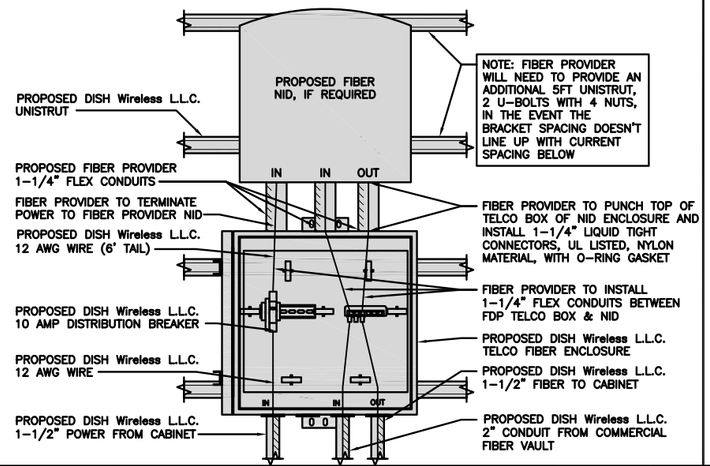
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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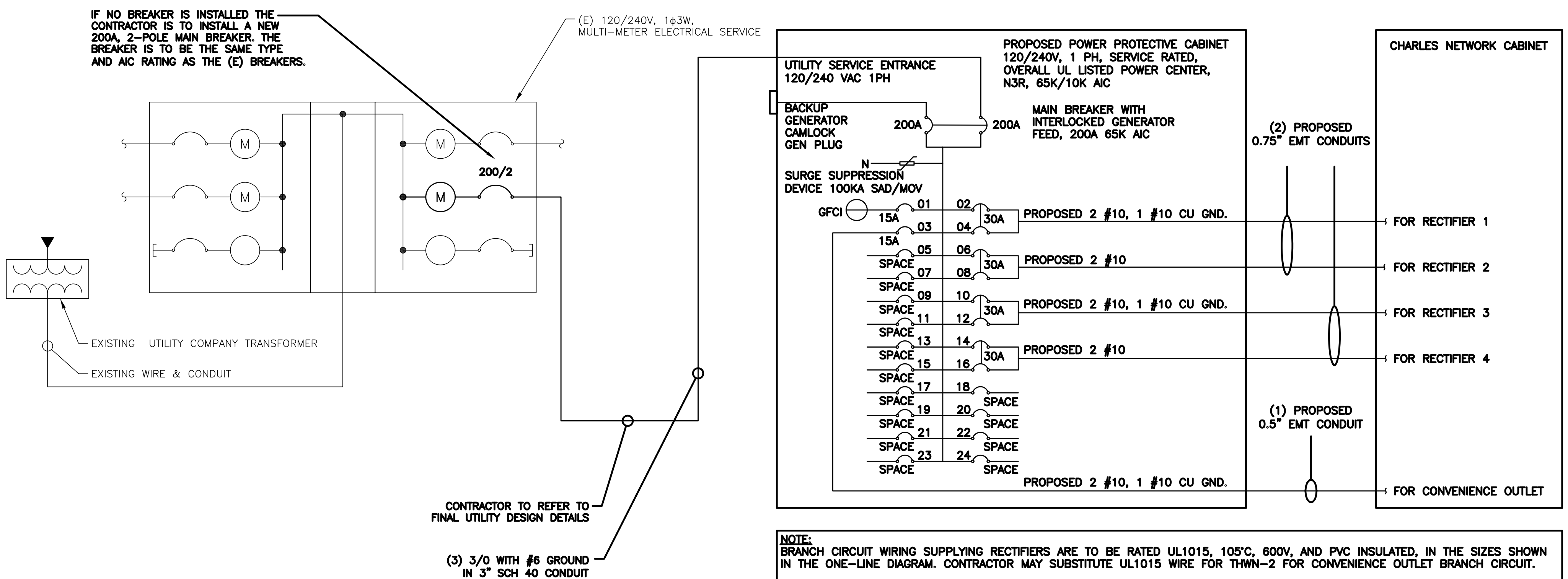
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



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

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

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.

PPC ONE-LINE DIAGRAM — NO SCALE — 1

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

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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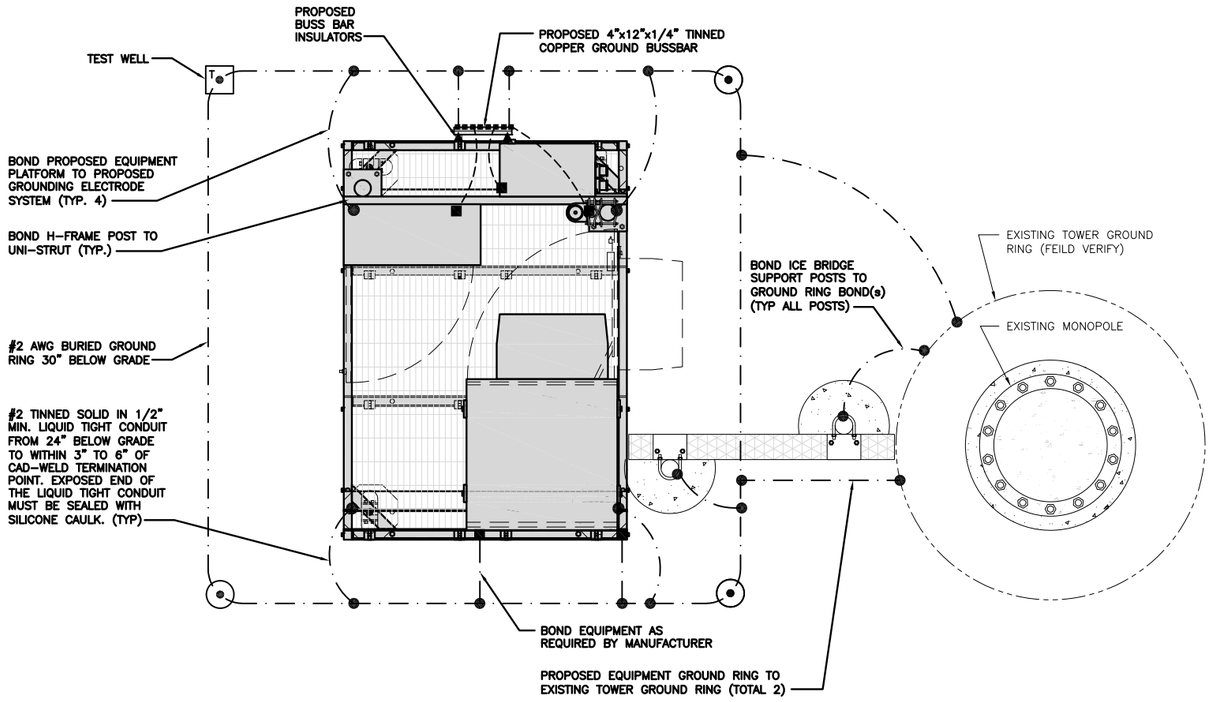
12 ORCHARD DRIVE
GALES FERRY, CT 06335

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

SHEET NUMBER
E-3

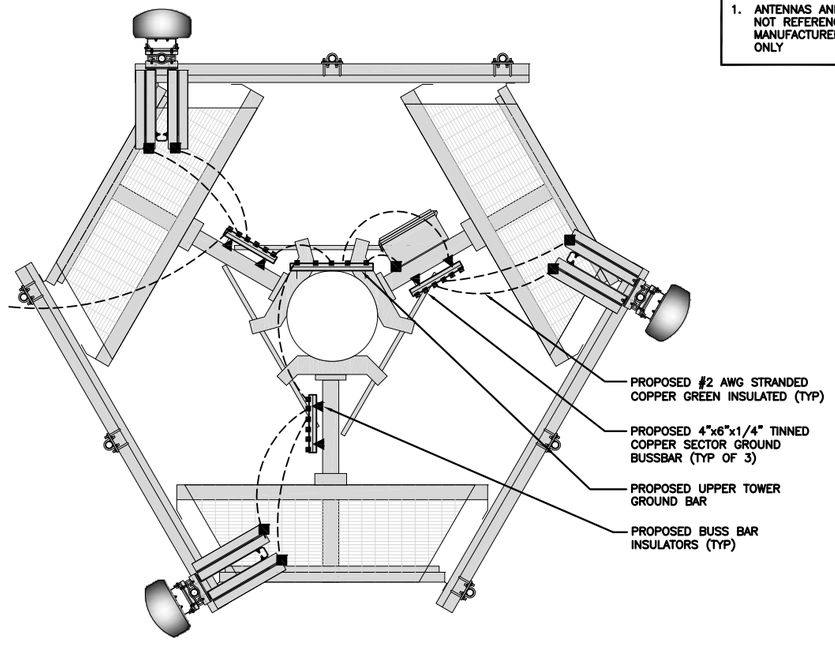


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 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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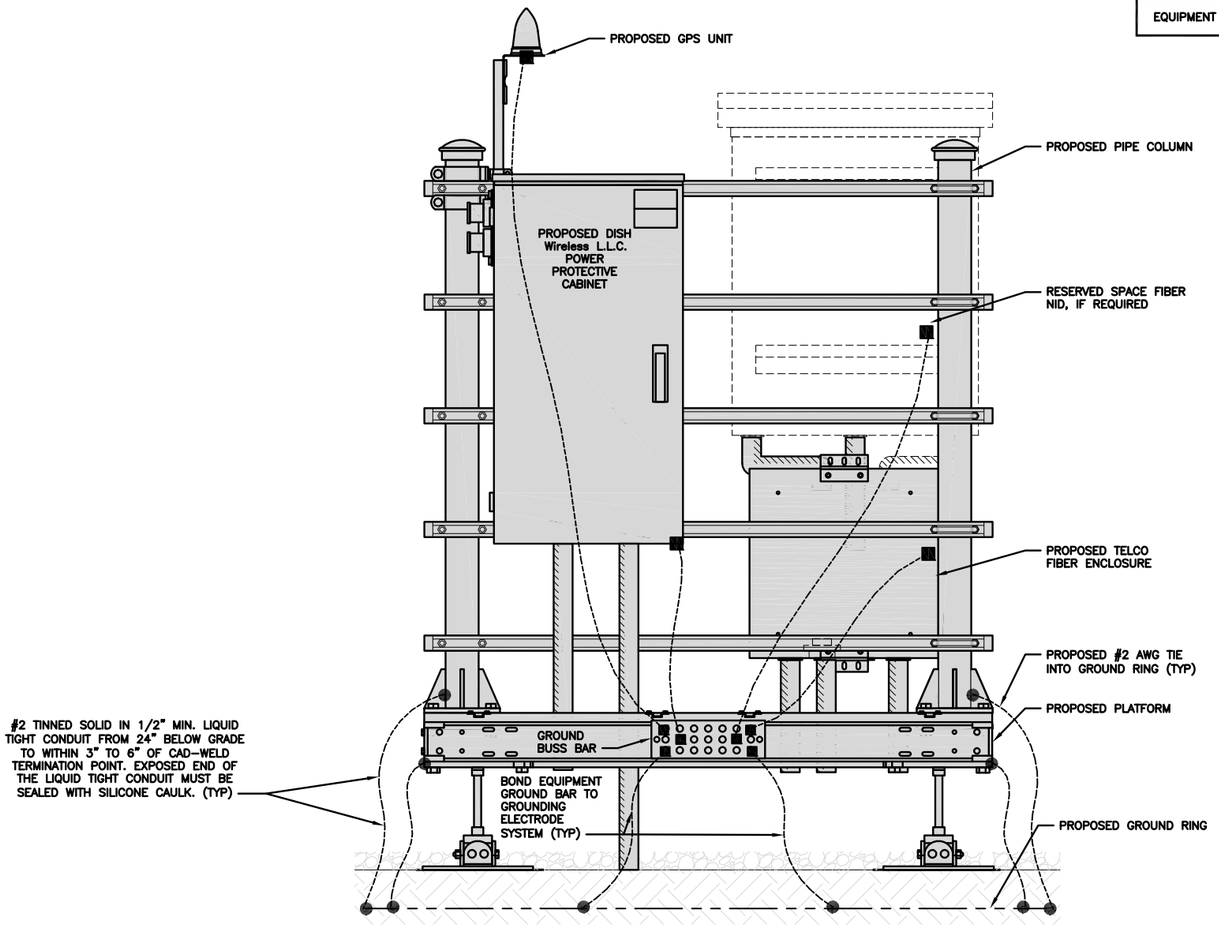
G-1

NOTES

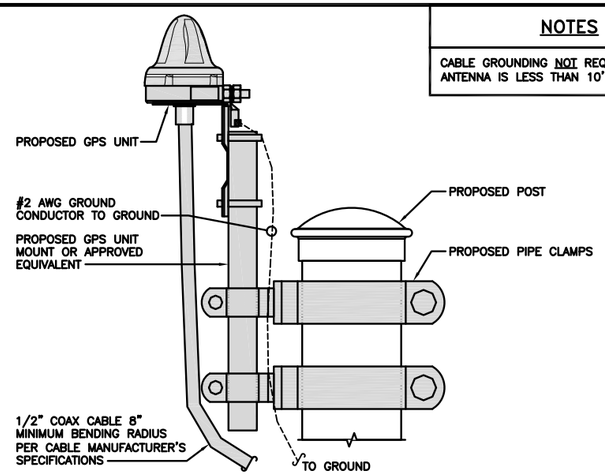
EQUIPMENT CABINET OMITTED FOR CLARITY



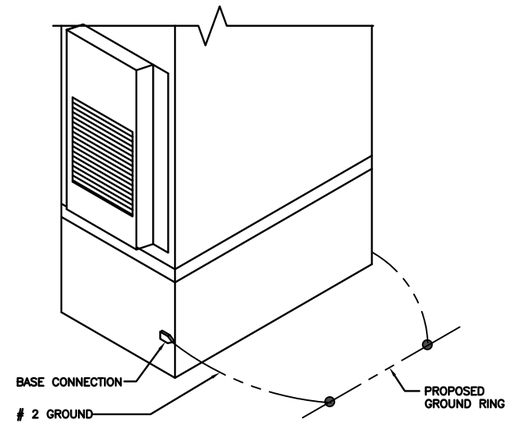
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

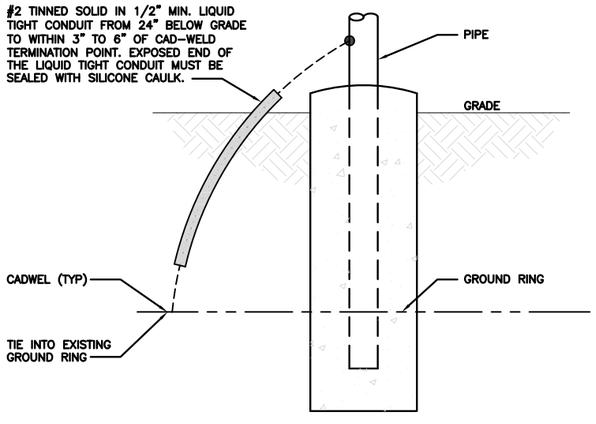
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



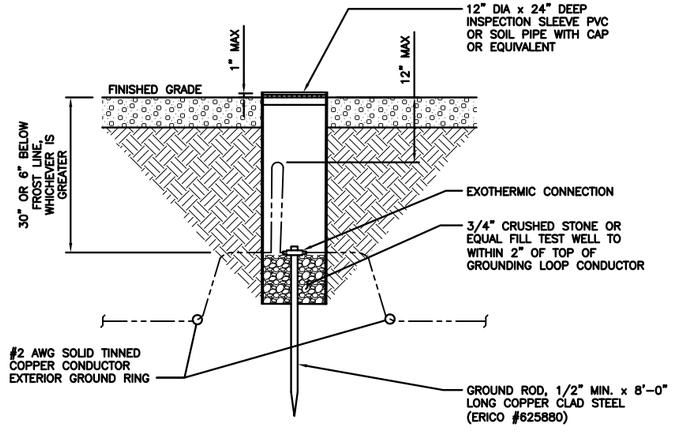
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



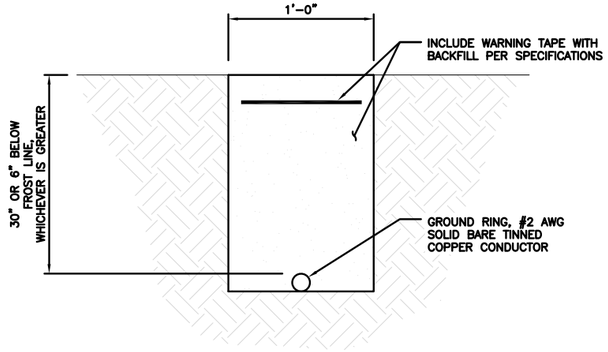
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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149467.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE

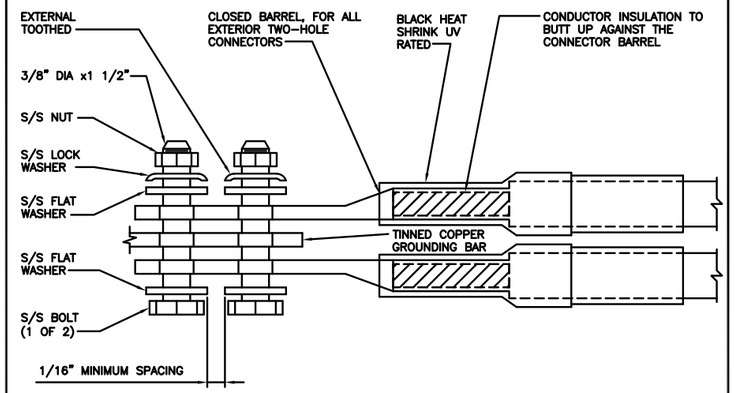
GROUNDING DETAILS

SHEET NUMBER

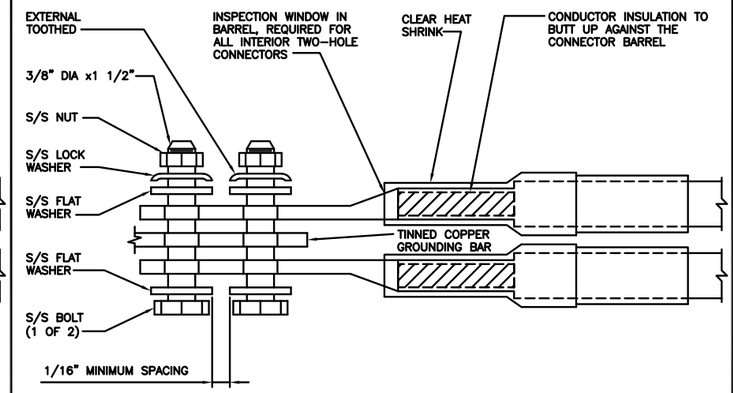
G-2

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

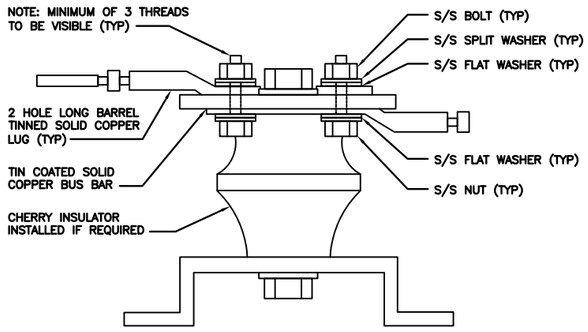
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
BMK	MRE	BLB

RFDS REV #: 0

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GALES FERRY, CT 06335

SHEET TITLE
GROUNDING DETAILS

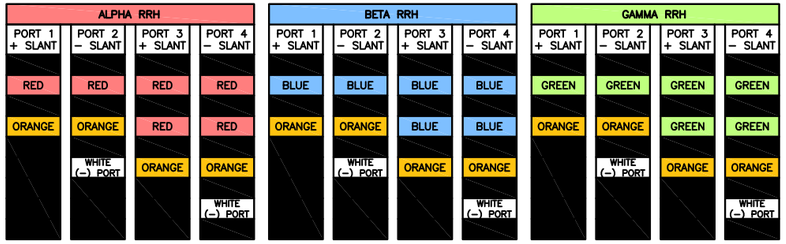
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

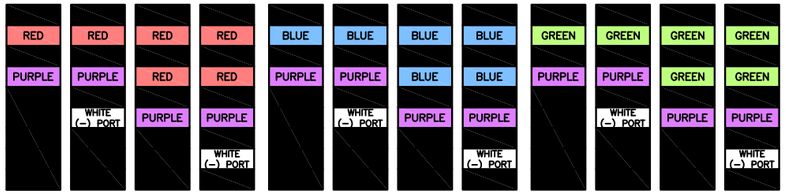
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

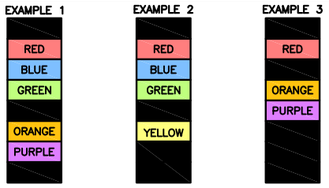


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

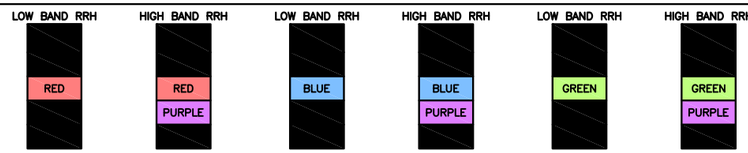
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



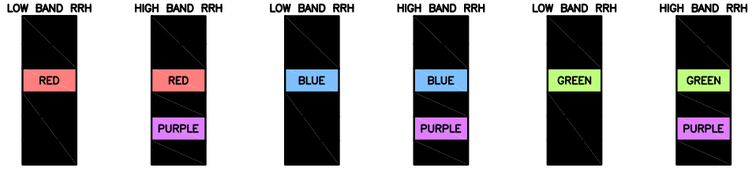
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

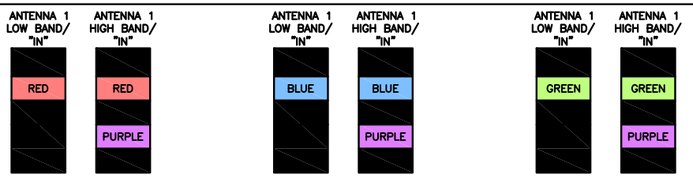


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



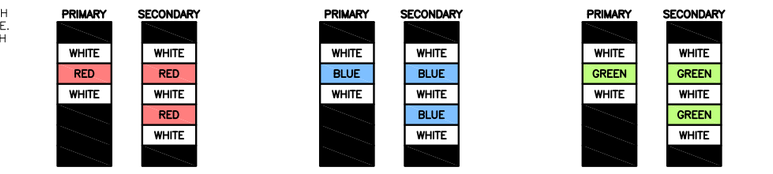
RET MOTORS AT ANTENNAS



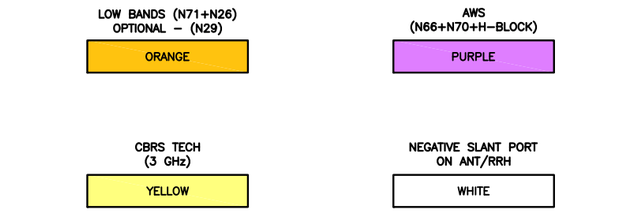
MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1



COLOR IDENTIFIER | NO SCALE | 2

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS FINAL RFDS IN NEXYSONE

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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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–DDBTXD

CHAIN LINK FENCE — X — X — X — X —

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W —

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP —

OVERHEAD TELCO — OHT — OHT — OHT — OHT —

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

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

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

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

WORKPOINT W.P.

SECTION REFERENCE XX / X–X

DETAIL REFERENCE XX / X–X

LEGEND

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

ABBREVIATIONS

dish wireless.

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GALES FERRY, CT 06335

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.

dish wireless.

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8/12/21

B&T ENGINEERING, INC.
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Expires 2/10/22

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RFDS REV #: 0

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

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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8/12/21

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PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
BMK	MRE	BLB

RFDS REV #: 0

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A&E PROJECT NUMBER

149467.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

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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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00059A
12 ORCHARD DRIVE
GALES FERRY, CT 06335

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 150 ft Rohn Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13076-A

Customer Site Name: Ledyard

Carrier Name: Dish Wireless (App#: 163273, V1)

Carrier Site ID / Name: BOBOS00059A / 0

Site Location: 12 Orchard Drive

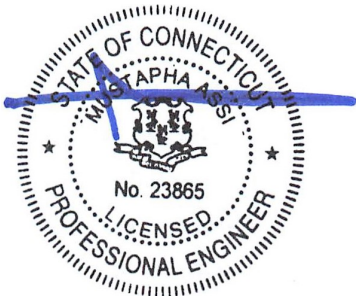
Ledyard, Connecticut

New London County

Latitude: 41.468277

Longitude: -72.054472

Exp.10/31/2021



07/09/2021

Analysis Result:

Max Structural Usage: 71.9% [Pass]

Max Foundation Usage: 74.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By : Delu Zhou

Introduction

The purpose of this report is to summarize the analysis results on the 150 ft Rohn Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Radian Communication Services, File # 060-3664, Drawing # A070132, dated 03-15-2007
Foundation Drawing	Radian Communication Services, File # 060-3664, Drawing # A070146, dated 03-26-2007
Geotechnical Report	Gemini Geotechnical Associates, Inc. Geotechnical Report, dated 03-22-2007
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 133.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 103.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.165, S_1 = 0.059

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	147.0	3	Ericsson Air 21 B2A/B4P	(1) Low Profile Platform (1) Kicker support (MS-KI22-5) (1) collar mount (MS-1436) (1) Support rail w/end connection (MS-HRCEP-35)	(9) 1 5/8" Coax (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson Air 21 B4A/B2P			
3		3	RFS APXVAARR24_43-U-NA20			
4		3	Ericsson KRY 112 144/1			
5		3	Ericsson Radio 4449 B71+B12			
10	127.0	6	Commscope SBNHH-1D45- Panel	Platform w/ Handrails	(2) 1 5/8" Hybrid (1) 1/2"	Verizon
11		3	Samsung 64T64R - Panel			
12		3	Samsung B2/B66A RRH-BR049			
13		3	Samsung B5/B13 RRH-BR04C			
14		2	RFS DB-T1-6Z-8AB-0Z-OVP			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	137.0	3	JMA Wireless MX08FRO665-21 Panel	Commscope MC-PK8-DSH Platform w/HRK	(1) 1.6" Hybrid	Dish Wireless
7		3	Fujitsu TA08025-B605 RRU			
8		3	Fujitsu TA08025-B604 RRU			
9		1	Raycap RDIDC-9181-PF-48 OVP			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**46.3%**	**60.0%**	**71.9%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3696.9	35.1	76.5

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.6655 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

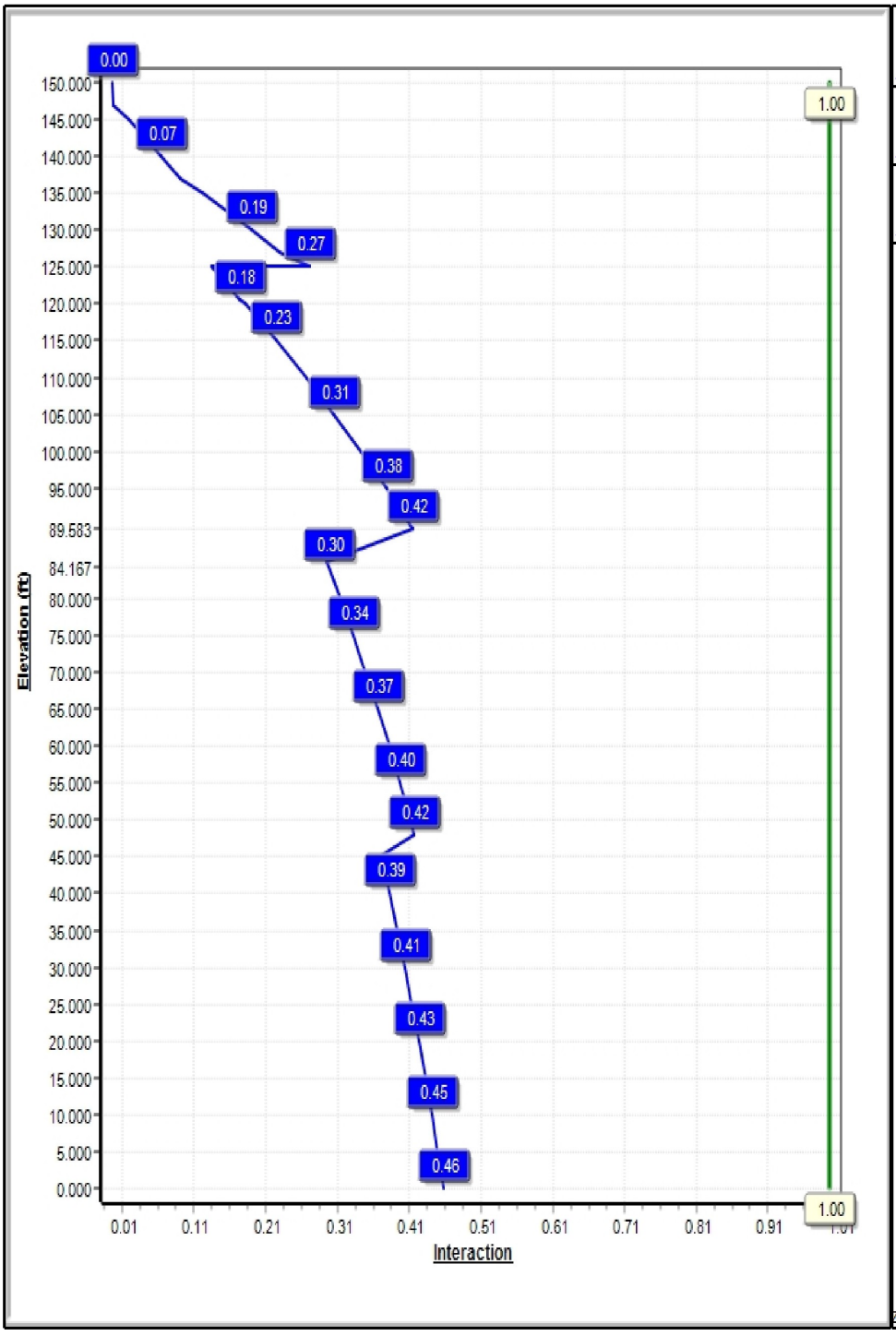
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

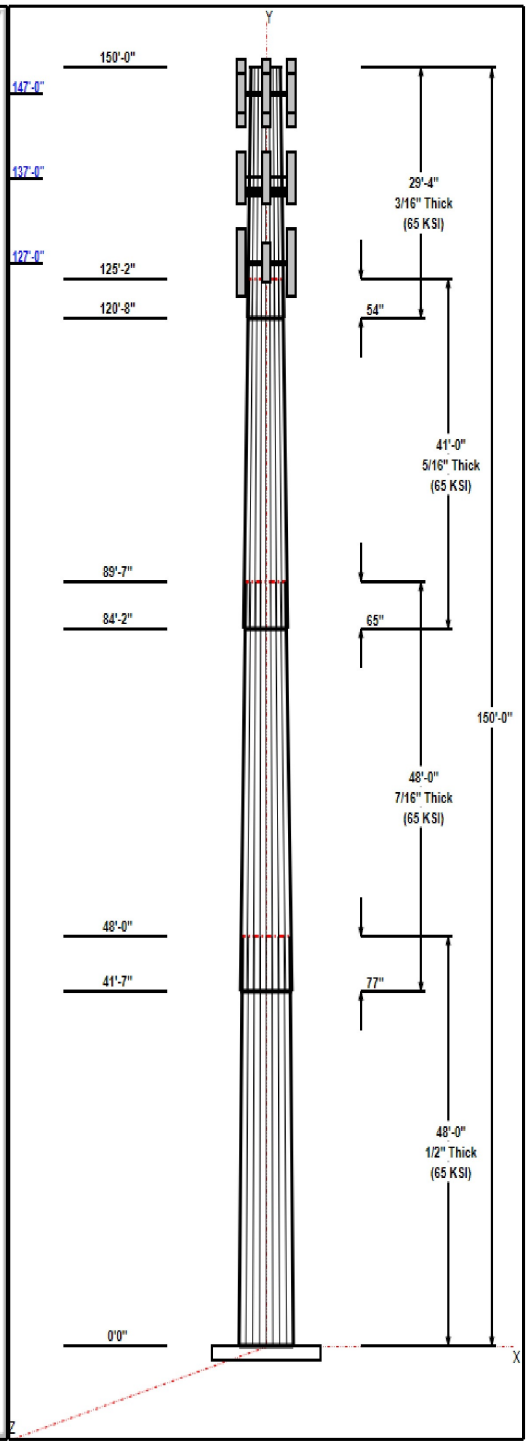
Usage Diagram - Max Ratio 46.26% at 0.0ft

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Dead Load Factor:	1.20	**Iterations:**	21
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 103 mph Wind





Structure: CT13076-A-SBA

Type: Tapered
Site Name: Ledyard
Height: 150.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.21250

7/9/2021

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	49.80	60.00	0.500		0.21250	65
2	48.00	41.84	52.04	0.438	Slip	0.21250	65
3	41.00	34.90	43.61	0.313	Slip	0.21250	65
4	29.33	30.00	36.23	0.188	Slip	0.21250	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
150.00	152.50	1	Lightning Rod	
147.00	147.00	3	Ericsson AIR 21 B2A B4P	T-Mobile
147.00	147.00	3	Ericsson AIR 21 B4A B2P	T-Mobile
147.00	147.00	3	Ericsson KRY 112 144/1	T-Mobile
147.00	147.00	1	Platform w/ Hand Rail	T-Mobile
147.00	147.00	3	APXVAARR24_43-U-NA20	T-Mobile
147.00	147.00	3	Radio 4449 B71+B12	T-Mobile
147.00	147.00	1	Kickers w/o Collar	T-Mobile
137.00	137.00	3	MX08FRO665-21	Dish Wireless
137.00	137.00	1	MC-PK8-DSH	Dish Wireless
137.00	137.00	3	TA08025-B605	Dish Wireless
137.00	137.00	3	TA08025-B604	Dish Wireless
137.00	137.00	1	RDIDC-9181-PF-48	Dish Wireless
127.00	127.00	6	SBNHH-1D45C	Verizon
127.00	127.00	2	RFS DB-T1-6Z-8AB-0Z	Verizon
127.00	127.00	1	Platform w/ Handrails	Verizon
127.00	127.00	3	Samsung 64T64R	Verizon
127.00	127.00	3	Samsung B2/B66A	Verizon
127.00	127.00	3	Samsung B5/B13	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	150.00	Outside	Safety Cable	
0.00	150.00	Outside	Step bolts (ladder)	
0.00	147.00	Inside	1 5/8" Coax	T-Mobile
0.00	147.00	Inside	1 5/8" Fiber	T-Mobile
0.00	137.00	Inside	1.6" Hybrid	Dish Wireless
0.00	127.00	Inside	1 5/8" Hybrid	Verizon
0.00	127.00	Inside	1/2" Coax	Verizon

Anchor Bolts

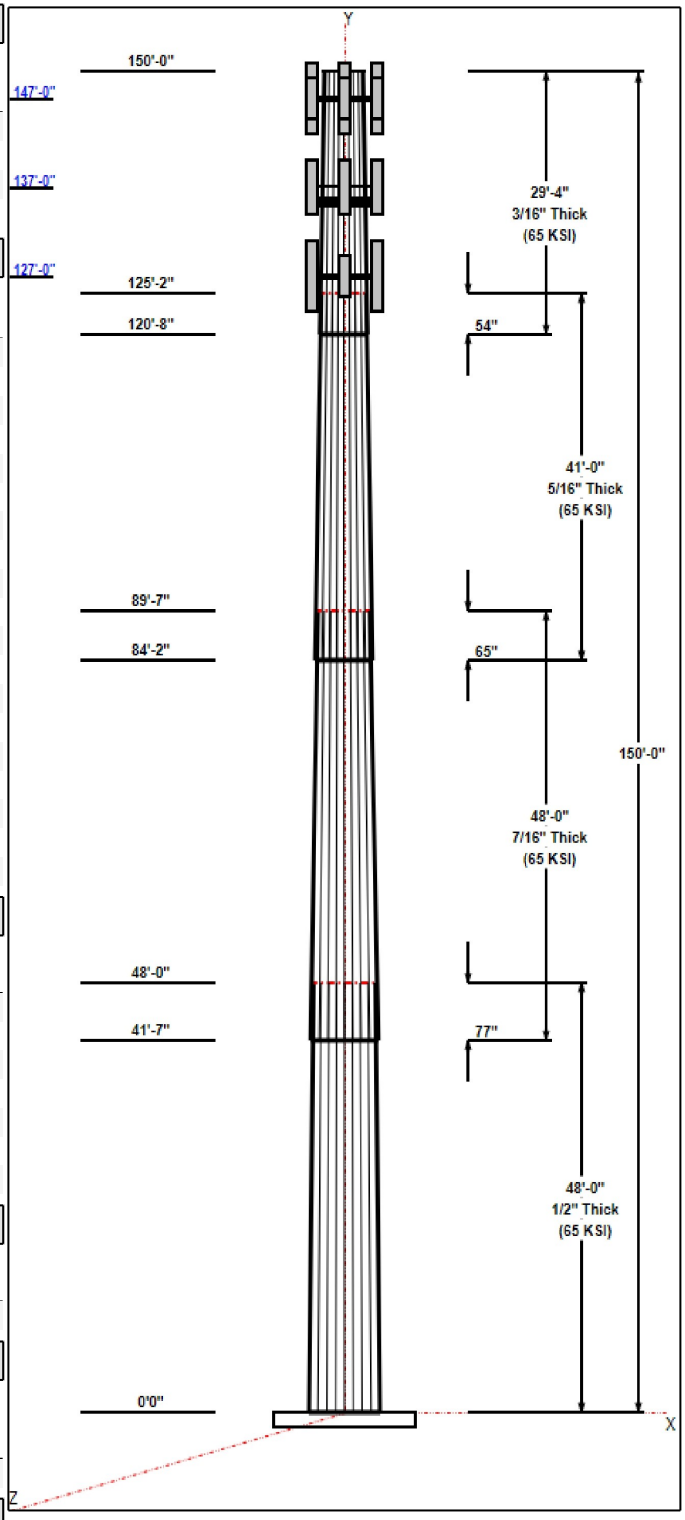
Qty	Specifications	Grade (ksi)	Arrangement
34	1.5" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	69.5	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 103 mph Wind	3696.9	35.1	51.1
0.9D + 1.6W 103 mph Wind	3675.2	35.1	38.3



1.2D + 1.0Di + 1.0Wi 50 mph Wind	966.8	9.3	76.5
1.2D + 1.0E	200.4	1.8	51.1
0.9D + 1.0E	199.2	1.8	38.4
1.0D + 1.0W 60 mph Wind	781.3	7.4	42.6

Structure: CT13076-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Ledyard
Height: 150.00 (ft)

7/9/2021

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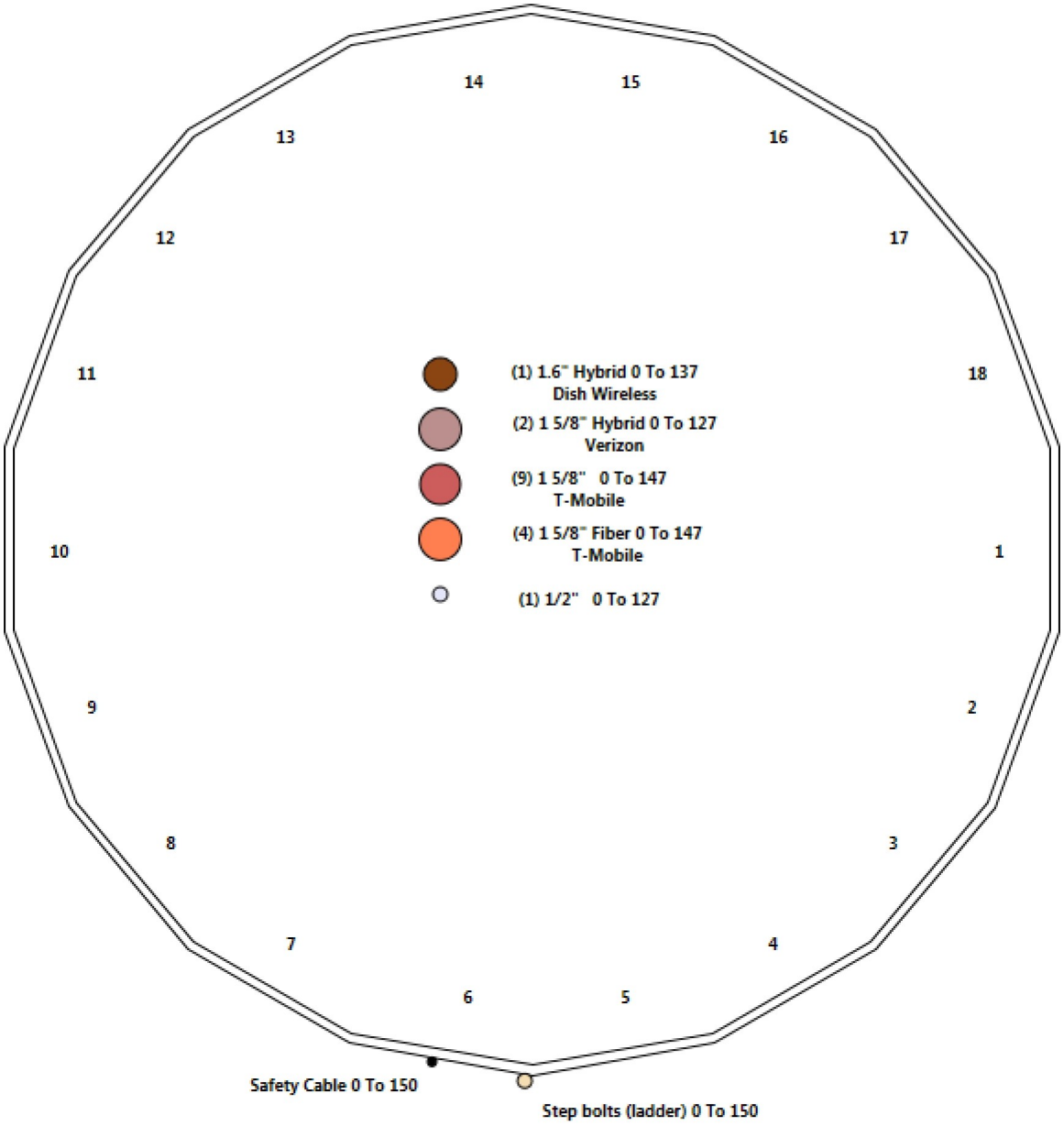

Shaft Properties

Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.5000	65		0.00	14,101
2	18	48.000	0.4375	65	Slip	77.00	10,546
3	18	41.000	0.3125	65	Slip	65.00	5,389
4	18	29.333	0.1875	65	Slip	54.00	1,956
					Total Shaft Weight:		**31,992**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	60.00	0.00	94.42	42234.30	19.75	120.00	49.80	48.00	78.24	24024.5	16.15	99.60	0.212500
2	52.04	41.58	71.65	24104.48	19.56	118.95	41.84	89.58	57.49	12449.6	15.45	95.63	0.212500
3	43.61	84.17	42.95	10174.68	23.20	139.57	34.90	125.17	34.31	5185.97	18.28	111.6	0.212500
4	36.23	120.6	21.45	3521.36	32.66	193.24	30.00	150.00	17.74	1992.24	26.80	160.0	0.212500

Load Summary

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	150.00	Lightning Rod	1	35.00	1.05	1.00	66.41	3.424	1.00	0.00	2.50
2	147.00	Ericsson AIR 21 B2A B4P	3	91.50	6.09	0.86	259.98	7.185	0.87	0.00	0.00
3	147.00	Ericsson AIR 21 B4A B2P	3	90.40	6.09	0.86	258.88	7.185	0.87	0.00	0.00
4	147.00	Ericsson KRY 112 144/1 TMA	3	11.00	0.41	0.70	21.76	0.884	0.71	0.00	0.00
5	147.00	Platform w/ Hand Rail (round)	1	1600.00	32.00	1.00	3695.61	59.867	1.00	0.00	0.00
6	147.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.50	544.98	22.136	0.70	0.00	0.00
7	147.00	Radio 4449 B71+B12	3	71.00	1.97	0.67	124.27	2.516	0.67	0.00	0.00
8	147.00	Kickers w/o Collar	1	146.00	5.33	1.00	349.43	10.900	1.00	0.00	0.00
9	137.00	MX08FRO665-21	3	64.50	12.49	0.74	352.75	13.942	0.74	0.00	0.00
10	137.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3399.60	84.398	1.00	0.00	0.00
11	137.00	TA08025-B605	3	75.00	1.96	0.67	126.83	2.516	0.67	0.00	0.00
12	137.00	TA08025-B604	3	63.90	1.96	0.67	114.07	2.516	0.67	0.00	0.00
13	137.00	RDIDC-9181-PF-48	1	21.85	2.01	1.00	74.50	2.568	1.00	0.00	0.00
14	127.00	SBNHH-1D45C	6	49.60	11.39	0.84	307.15	13.018	0.85	0.00	0.00
15	127.00	RFS DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.71	159.84	5.658	0.72	0.00	0.00
16	127.00	Platform w/ Handrails	1	1600.00	32.00	1.00	3665.18	59.462	1.00	0.00	0.00
17	127.00	Samsung 64T64R	3	87.10	6.80	0.75	254.44	8.459	0.75	0.00	0.00
18	127.00	Samsung B2/B66A RRH-BR049	3	84.40	1.87	0.67	159.39	2.433	0.67	0.00	0.00
19	127.00	Samsung B5/B13 RRH-BR04C	3	70.30	1.87	0.67	138.23	2.433	0.67	0.00	0.00
		Totals:	**47**	**7,976.55**			**20,480.04**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	150.00	(1) Safety Cable	0.00	Outside
0.00	150.00	(1) Step bolts (ladder)	0.00	Outside
0.00	147.00	(9) 1 5/8" Coax	0.00	Inside
0.00	147.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	137.00	(1) 1.6" Hybrid	0.00	Inside
0.00	127.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	127.00	(1) 1/2" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

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Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	60.000	94.423	42234.3	19.75	120.00	78.2	1386.	0.0
5.00		0.5000	58.938	92.737	40011.9	19.37	117.88	78.6	1337.	1592.2
10.00		0.5000	57.875	91.051	37868.9	19.00	115.75	79.1	1288.	1563.5
15.00		0.5000	56.813	89.365	35803.8	18.62	113.63	79.5	1241.	1534.8
20.00		0.5000	55.750	87.679	33815.1	18.25	111.50	79.9	1194.	1506.1
25.00		0.5000	54.688	85.992	31901.5	17.88	109.38	80.4	1149.	1477.4
30.00		0.5000	53.625	84.306	30061.5	17.50	107.25	80.8	1104.	1448.7
35.00		0.5000	52.563	82.620	28293.7	17.13	105.13	81.3	1060.	1420.0
40.00		0.5000	51.500	80.934	26596.5	16.75	103.00	81.7	1017.	1391.3
41.58	Bot - Section 2	0.5000	51.164	80.400	26073.6	16.63	102.33	81.8	1003.	434.6
45.00		0.5000	50.438	79.248	24968.6	16.38	100.88	82.1	975.0	1755.2
48.00	Top - Section 1	0.4375	50.675	69.759	22243.7	19.01	115.83	0.0	0.0	1520.5
50.00		0.4375	50.250	69.168	21683.9	18.84	114.86	79.2	849.9	472.7
55.00		0.4375	49.188	67.693	20325.7	18.41	112.43	79.7	813.9	1164.3
60.00		0.4375	48.125	66.218	19025.5	17.99	110.00	80.2	778.7	1139.2
65.00		0.4375	47.063	64.742	17781.9	17.56	107.57	80.8	744.2	1114.1
70.00		0.4375	46.000	63.267	16593.8	17.13	105.14	81.3	710.5	1089.0
75.00		0.4375	44.938	61.792	15459.7	16.70	102.71	81.8	677.6	1063.9
80.00		0.4375	43.875	60.316	14378.6	16.27	100.29	82.3	645.5	1038.8
84.17	Bot - Section 3	0.4375	42.990	59.087	13517.1	15.92	98.26	82.5	619.3	846.5
85.00		0.4375	42.813	58.841	13349.1	15.84	97.86	82.5	614.1	288.7
89.58	Top - Section 2	0.3125	42.464	41.807	9384.7	22.55	135.88	0.0	0.0	1566.7
90.00		0.3125	42.375	41.719	9325.7	22.50	135.60	74.9	433.5	59.2
95.00		0.3125	41.313	40.665	8636.7	21.90	132.20	75.6	411.8	700.8
100.00		0.3125	40.250	39.612	7982.5	21.30	128.80	76.3	390.6	682.9
105.00		0.3125	39.188	38.558	7362.2	20.70	125.40	77.1	370.0	665.0
110.00		0.3125	38.125	37.504	6774.9	20.10	122.00	77.8	350.0	647.1
115.00		0.3125	37.063	36.450	6219.7	19.50	118.60	78.5	330.5	629.1
120.00		0.3125	36.000	35.396	5695.6	18.90	115.20	79.2	311.6	611.2
120.67	Bot - Section 4	0.3125	35.858	35.256	5628.1	18.82	114.75	79.3	309.1	80.1
125.00		0.3125	34.938	34.342	5201.9	18.30	111.80	79.9	293.3	825.4
125.17	Top - Section 3	0.1875	35.277	20.882	3248.5	31.76	188.14	0.0	0.0	31.3
127.00		0.1875	34.888	20.650	3141.5	31.40	186.07	64.5	177.4	129.5
130.00		0.1875	34.250	20.271	2971.5	30.80	182.67	65.2	170.9	208.9
135.00		0.1875	33.188	19.638	2702.0	29.80	177.00	66.4	160.4	339.5
137.00		0.1875	32.763	19.385	2599.0	29.40	174.73	66.8	156.2	132.8
140.00		0.1875	32.125	19.006	2449.3	28.80	171.33	67.5	150.2	196.0
145.00		0.1875	31.063	18.374	2212.9	27.80	165.67	68.7	140.3	318.0
147.00		0.1875	30.638	18.121	2122.8	27.40	163.40	69.2	136.5	124.2
150.00		0.1875	30.000	17.742	1992.2	26.80	160.00	69.9	130.8	183.0
										31992.1

Wind Loading - Shaft

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

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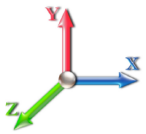
Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.931	24.12	482.13	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.931	24.12	473.59	0.650	0.000	5.00	25.161	16.35	631.3	0.0	1910.6
10.00		1.00	0.85	21.931	24.12	465.06	0.650	0.000	5.00	24.711	16.06	620.0	0.0	1876.2
15.00		1.00	0.85	21.931	24.12	456.52	0.650	0.000	5.00	24.262	15.77	608.7	0.0	1841.7
20.00		1.00	0.90	23.270	25.60	461.45	0.650	0.000	5.00	23.812	15.48	633.9	0.0	1807.3
25.00		1.00	0.95	24.389	26.83	463.41	0.650	0.000	5.00	23.363	15.19	651.8	0.0	1772.9
30.00		1.00	0.98	25.343	27.88	463.22	0.650	0.000	5.00	22.913	14.89	664.3	0.0	1738.5
35.00		1.00	1.01	26.179	28.80	461.47	0.650	0.000	5.00	22.464	14.60	672.8	0.0	1704.0
40.00		1.00	1.04	26.926	29.62	458.54	0.650	0.000	5.00	22.014	14.31	678.1	0.0	1669.6
41.58	Bot - Section 2	1.00	1.05	27.146	29.86	457.41	0.650	0.000	1.58	6.877	4.47	213.6	0.0	521.5
45.00		1.00	1.07	27.602	30.36	454.68	0.650	0.000	3.42	14.940	9.71	471.8	0.0	2106.3
48.00	Top - Section 1	1.00	1.08	27.979	30.78	451.99	0.650	0.000	3.00	12.945	8.41	414.3	0.0	1824.6
50.00		1.00	1.09	28.221	31.04	458.04	0.650	0.000	2.00	8.540	5.55	275.7	0.0	567.3
55.00		1.00	1.12	28.793	31.67	452.88	0.650	0.000	5.00	21.036	13.67	692.9	0.0	1397.1
60.00		1.00	1.14	29.325	32.26	447.17	0.650	0.000	5.00	20.586	13.38	690.6	0.0	1367.0
65.00		1.00	1.16	29.823	32.81	441.00	0.650	0.000	5.00	20.137	13.09	687.0	0.0	1336.9
70.00		1.00	1.17	30.292	33.32	434.42	0.650	0.000	5.00	19.687	12.80	682.2	0.0	1306.8
75.00		1.00	1.19	30.735	33.81	427.48	0.650	0.000	5.00	19.238	12.50	676.4	0.0	1276.6
80.00		1.00	1.21	31.156	34.27	420.22	0.650	0.000	5.00	18.788	12.21	669.6	0.0	1246.5
84.17	Bot - Section 3	1.00	1.22	31.491	34.64	413.94	0.650	0.000	4.17	15.313	9.95	551.7	0.0	1015.8
85.00		1.00	1.22	31.556	34.71	412.66	0.650	0.000	0.83	3.069	2.00	110.8	0.0	346.5
89.58	Top - Section 2	1.00	1.24	31.907	35.10	405.51	0.650	0.000	4.58	16.658	10.83	608.0	0.0	1880.0
90.00		1.00	1.24	31.938	35.13	410.91	0.650	0.000	0.42	1.496	0.97	54.6	0.0	71.1
95.00		1.00	1.25	32.304	35.53	402.90	0.650	0.000	5.00	17.704	11.51	654.3	0.0	841.0
100.00		1.00	1.27	32.654	35.92	394.66	0.650	0.000	5.00	17.254	11.22	644.6	0.0	819.5
105.00		1.00	1.28	32.991	36.29	386.22	0.650	0.000	5.00	16.805	10.92	634.3	0.0	798.0
110.00		1.00	1.29	33.316	36.65	377.59	0.650	0.000	5.00	16.355	10.63	623.4	0.0	776.5
115.00		1.00	1.30	33.629	36.99	368.79	0.650	0.000	5.00	15.906	10.34	611.9	0.0	754.9
120.00		1.00	1.32	33.932	37.33	359.83	0.650	0.000	5.00	15.456	10.05	600.0	0.0	733.4
120.67	Bot - Section 4	1.00	1.32	33.972	37.37	358.62	0.650	0.000	0.67	2.027	1.32	78.8	0.0	96.2
125.00		1.00	1.33	34.225	37.65	350.71	0.650	0.000	4.33	13.117	8.53	513.6	0.0	990.5
125.17	Top - Section 3	1.00	1.33	34.235	37.66	350.40	0.650	0.000	0.17	0.498	0.32	19.5	0.0	37.6
127.00	Appurtenance(s)	1.00	1.33	34.340	37.77	350.79	0.650	0.000	1.83	5.442	3.54	213.8	0.0	155.5
130.00		1.00	1.34	34.509	37.96	345.23	0.650	0.000	3.00	8.776	5.70	346.4	0.0	250.6
135.00		1.00	1.35	34.784	38.26	335.85	0.650	0.000	5.00	14.266	9.27	567.7	0.0	407.4
137.00	Appurtenance(s)	1.00	1.35	34.892	38.38	332.07	0.650	0.000	2.00	5.581	3.63	222.8	0.0	159.3
140.00		1.00	1.36	35.051	38.56	326.35	0.650	0.000	3.00	8.236	5.35	330.3	0.0	235.1
145.00		1.00	1.37	35.311	38.84	316.72	0.650	0.000	5.00	13.367	8.69	540.0	0.0	381.6
147.00	Appurtenance(s)	1.00	1.37	35.413	38.95	312.84	0.650	0.000	2.00	5.221	3.39	211.5	0.0	149.0
150.00	Appurtenance(s)	1.00	1.38	35.564	39.12	306.98	0.650	0.000	3.00	7.697	5.00	313.1	0.0	219.7
								Totals:	**150.00**			**19,086.0**		**38,390.5**

Discrete Appurtenance Forces

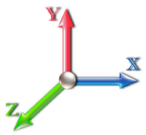
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Lightning Rod	1	35.688	39.257	1.00	1.00	1.05	42.00	0.000	2.500	65.95	0.00	164.88
2	147.00	Kickers w/o Collar	1	35.413	38.955	1.00	1.00	5.33	175.20	0.000	0.000	332.20	0.00	0.00
3	147.00	Radio 4449 B71+B12	3	35.413	38.955	0.54	0.80	3.17	255.60	0.000	0.000	197.44	0.00	0.00
4	147.00	APXVAARR24_43-U-NA2	3	35.413	38.955	0.40	0.80	24.29	460.80	0.000	0.000	1513.81	0.00	0.00
5	147.00	Platform w/ Hand Rail	1	35.413	38.955	1.00	1.00	32.00	1920.00	0.000	0.000	1994.47	0.00	0.00
6	147.00	Ericsson KRY 112 144/1	3	35.413	38.955	0.56	0.80	0.69	39.60	0.000	0.000	42.93	0.00	0.00
7	147.00	Ericsson AIR 21 B4A B2P	3	35.413	38.955	0.69	0.80	12.57	325.44	0.000	0.000	783.44	0.00	0.00
8	147.00	Ericsson AIR 21 B2A B4P	3	35.413	38.955	0.69	0.80	12.57	329.40	0.000	0.000	783.44	0.00	0.00
9	137.00	RDIDC-9181-PF-48	1	34.892	38.381	1.00	1.00	2.01	26.22	0.000	0.000	123.43	0.00	0.00
10	137.00	TA08025-B604	3	34.892	38.381	0.50	0.75	2.95	230.04	0.000	0.000	181.45	0.00	0.00
11	137.00	TA08025-B605	3	34.892	38.381	0.50	0.75	2.95	270.00	0.000	0.000	181.45	0.00	0.00
12	137.00	MC-PK8-DSH	1	34.892	38.381	1.00	1.00	37.59	2072.40	0.000	0.000	2308.39	0.00	0.00
13	137.00	MX08FRO665-21	3	34.892	38.381	0.55	0.75	20.80	232.20	0.000	0.000	1277.07	0.00	0.00
14	127.00	Platform w/ Handrails	1	34.340	37.773	1.00	1.00	32.00	1920.00	0.000	0.000	1934.00	0.00	0.00
15	127.00	RFS DB-T1-6Z-8AB-0Z	2	34.340	37.773	0.57	0.80	5.45	45.36	0.000	0.000	329.55	0.00	0.00
16	127.00	SBNHH-1D45C	6	34.340	37.773	0.67	0.80	45.92	357.12	0.000	0.000	2775.56	0.00	0.00
17	127.00	Samsung B5/B13	3	34.340	37.773	0.54	0.80	3.01	253.08	0.000	0.000	181.73	0.00	0.00
18	127.00	Samsung B2/B66A	3	34.340	37.773	0.54	0.80	3.01	303.84	0.000	0.000	181.73	0.00	0.00
19	127.00	Samsung 64T64R	3	34.340	37.773	0.60	0.80	12.24	313.56	0.000	0.000	739.76	0.00	0.00
							Totals:		**9,571.86**			**15,927.81**		

Total Applied Force Summary

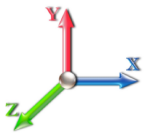
Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		631.26	2021.19	0.00	0.00
10.00		619.98	1986.77	0.00	0.00
15.00		608.70	1952.34	0.00	0.00
20.00		633.89	1917.92	0.00	0.00
25.00		651.84	1883.49	0.00	0.00
30.00		664.31	1849.06	0.00	0.00
35.00		672.76	1814.64	0.00	0.00
40.00		678.10	1780.21	0.00	0.00
41.58		213.58	556.56	0.00	0.00
45.00		471.75	2181.84	0.00	0.00
48.00		414.35	1890.91	0.00	0.00
50.00		275.71	611.52	0.00	0.00
55.00		692.89	1507.73	0.00	0.00
60.00		690.62	1477.60	0.00	0.00
65.00		687.02	1447.48	0.00	0.00
70.00		682.24	1417.36	0.00	0.00
75.00		676.42	1387.24	0.00	0.00
80.00		669.65	1357.12	0.00	0.00
84.17		551.67	1107.92	0.00	0.00
85.00		110.80	364.92	0.00	0.00
89.58		608.03	1981.42	0.00	0.00
90.00		54.65	80.27	0.00	0.00
95.00		654.25	951.61	0.00	0.00
100.00		644.56	930.09	0.00	0.00
105.00		634.25	908.58	0.00	0.00
110.00		623.36	887.06	0.00	0.00
115.00		611.93	865.55	0.00	0.00
120.00		599.98	844.03	0.00	0.00
120.67		78.77	110.91	0.00	0.00
125.00		513.59	1086.32	0.00	0.00
125.17		19.49	41.27	0.00	0.00
127.00	(18) attachments	6356.15	3388.97	0.00	0.00
130.00		346.44	308.50	0.00	0.00
135.00		567.69	503.84	0.00	0.00
137.00	(11) attachments	4294.54	3028.78	0.00	0.00
140.00		330.26	289.41	0.00	0.00
145.00		539.98	472.02	0.00	0.00
147.00	(17) attachments	5859.25	3691.24	0.00	0.00
150.00	(1) attachments	379.09	266.38	0.00	164.88
	Totals:	**35,013.81**	**51,150.07**	**0.00**	**164.88**

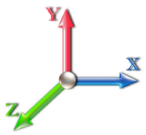
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.270	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.270	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.389	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.389	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.343	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.343	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.179	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.179	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.926	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.926	0.00	6.24
41.58	Safety Cable	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	27.146	0.00	0.52
41.58	Step bolts (ladder)	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	27.146	0.00	1.98
45.00	Safety Cable	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	27.602	0.00	1.12
45.00	Step bolts (ladder)	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	27.602	0.00	4.26
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.979	0.00	0.98
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.979	0.00	3.74
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.221	0.00	0.66
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.221	0.00	2.50
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.793	0.00	1.64
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.793	0.00	6.24
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.325	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.325	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.823	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.823	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.292	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.292	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.735	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.735	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.156	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.156	0.00	6.24
84.17	Safety Cable	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	31.491	0.00	1.37
84.17	Step bolts (ladder)	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	31.491	0.00	5.20
85.00	Safety Cable	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	31.556	0.00	0.27
85.00	Step bolts (ladder)	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	31.556	0.00	1.04
89.58	Safety Cable	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	31.907	0.00	1.50
89.58	Step bolts (ladder)	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	31.907	0.00	5.72
90.00	Safety Cable	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	31.938	0.00	0.14
90.00	Step bolts (ladder)	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	31.938	0.00	0.52
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.304	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.304	0.00	6.24
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.654	0.00	1.64

Linear Appurtenance Segment Forces (Factored)

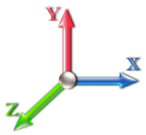
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.654	0.00	6.24
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.991	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.991	0.00	6.24
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.316	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.316	0.00	6.24
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.629	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.629	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.932	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.932	0.00	6.24
120.67	Safety Cable	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	33.972	0.00	0.22
120.67	Step bolts (ladder)	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	33.972	0.00	0.83
125.00	Safety Cable	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	34.225	0.00	1.42
125.00	Step bolts (ladder)	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	34.225	0.00	5.41
125.17	Safety Cable	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	34.235	0.00	0.05
125.17	Step bolts (ladder)	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	34.235	0.00	0.21
127.00	Safety Cable	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	34.340	0.00	0.60
127.00	Step bolts (ladder)	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	34.340	0.00	2.29
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	34.509	0.00	0.98
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	34.509	0.00	3.74
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.784	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.784	0.00	6.24
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	34.892	0.00	0.66
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	34.892	0.00	2.50
140.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.051	0.00	0.98
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.051	0.00	3.74
145.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.311	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.311	0.00	6.24
147.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	35.413	0.00	0.66
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	35.413	0.00	2.50
150.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.564	0.00	0.98
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.564	0.00	3.74
									Totals:		**0.0**	**236.3**

Calculated Forces

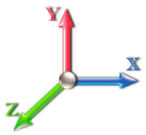
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 103 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.11	-35.07	0.00	-3696.8	0.00	3696.89	6643.18	3321.59	16232.9	8128.53	0.00	0.000	0.000	0.463
5.00	-49.02	-34.54	0.00	-3521.5	0.00	3521.55	6561.33	3280.67	15744.2	7883.82	0.07	-0.122	0.000	0.454
10.00	-46.96	-34.01	0.00	-3348.8	0.00	3348.85	6478.15	3239.07	15259.6	7641.15	0.26	-0.244	0.000	0.446
15.00	-44.94	-33.49	0.00	-3178.7	0.00	3178.79	6393.63	3196.81	14779.2	7400.59	0.58	-0.366	0.000	0.437
20.00	-42.96	-32.94	0.00	-3011.3	0.00	3011.34	6307.77	3153.88	14303.2	7162.24	1.03	-0.489	0.000	0.427
25.00	-41.01	-32.35	0.00	-2846.6	0.00	2846.66	6220.57	3110.29	13831.8	6926.18	1.61	-0.612	0.000	0.418
30.00	-39.10	-31.75	0.00	-2684.9	0.00	2684.90	6132.04	3066.02	13365.1	6692.51	2.32	-0.736	0.000	0.408
35.00	-37.23	-31.13	0.00	-2526.1	0.00	2526.14	6042.17	3021.08	12903.4	6461.30	3.16	-0.859	0.000	0.397
40.00	-35.42	-30.48	0.00	-2370.4	0.00	2370.48	5950.96	2975.48	12446.8	6232.66	4.12	-0.982	0.000	0.386
41.58	-34.83	-30.29	0.00	-2322.2	0.00	2322.22	5921.80	2960.90	12303.3	6160.80	4.45	-1.022	0.000	0.383
45.00	-32.62	-29.82	0.00	-2218.7	0.00	2218.73	5858.41	2929.21	11995.4	6006.66	5.22	-1.107	0.000	0.375
48.00	-30.70	-29.41	0.00	-2129.2	0.00	2129.25	4962.21	2481.10	10234.7	5124.96	5.94	-1.181	0.000	0.422
50.00	-30.05	-29.17	0.00	-2070.4	0.00	2070.44	4932.77	2466.38	10087.1	5051.08	6.44	-1.231	0.000	0.416
55.00	-28.49	-28.50	0.00	-1924.6	0.00	1924.62	4858.24	2429.12	9721.01	4867.73	7.80	-1.362	0.000	0.401
60.00	-26.97	-27.84	0.00	-1782.1	0.00	1782.10	4782.37	2391.18	9358.79	4686.35	9.30	-1.491	0.000	0.386
65.00	-25.48	-27.17	0.00	-1642.9	0.00	1642.92	4705.16	2352.58	9000.68	4507.03	10.93	-1.619	0.000	0.370
70.00	-24.03	-26.50	0.00	-1507.0	0.00	1507.09	4626.62	2313.31	8646.87	4329.86	12.69	-1.745	0.000	0.353
75.00	-22.61	-25.82	0.00	-1374.6	0.00	1374.61	4546.74	2273.37	8297.53	4154.93	14.59	-1.869	0.000	0.336
80.00	-21.23	-25.15	0.00	-1245.4	0.00	1245.49	4465.52	2232.76	7952.84	3982.33	16.61	-1.989	0.000	0.318
84.17	-20.11	-24.58	0.00	-1140.7	0.00	1140.70	4389.85	2194.93	7657.14	3834.26	18.39	-2.088	0.000	0.302
85.00	-19.73	-24.48	0.00	-1120.2	0.00	1120.22	4371.58	2185.79	7593.21	3802.25	18.76	-2.108	0.000	0.299
89.58	-17.75	-23.81	0.00	-1008.0	0.00	1008.03	2817.41	1408.71	4881.90	2444.58	20.83	-2.212	0.000	0.419
90.00	-17.64	-23.78	0.00	-998.11	0.00	998.11	2813.70	1406.85	4865.15	2436.19	21.03	-2.221	0.000	0.416
95.00	-16.66	-23.13	0.00	-879.22	0.00	879.22	2768.43	1384.22	4665.07	2336.00	23.43	-2.364	0.000	0.383
100.00	-15.70	-22.48	0.00	-763.58	0.00	763.58	2721.83	1360.91	4466.78	2236.71	25.98	-2.500	0.000	0.347
105.00	-14.78	-21.84	0.00	-651.19	0.00	651.19	2673.89	1336.94	4270.46	2138.40	28.67	-2.626	0.000	0.310
110.00	-13.88	-21.20	0.00	-542.00	0.00	542.00	2624.60	1312.30	4076.27	2041.17	31.48	-2.741	0.000	0.271
115.00	-13.01	-20.57	0.00	-436.01	0.00	436.01	2573.99	1286.99	3884.41	1945.09	34.41	-2.844	0.000	0.229
120.00	-12.18	-19.94	0.00	-333.17	0.00	333.17	2522.03	1261.02	3695.03	1850.26	37.44	-2.932	0.000	0.185
120.67	-12.06	-19.86	0.00	-319.88	0.00	319.88	2515.00	1257.50	3669.98	1837.72	37.85	-2.942	0.000	0.179
125.00	-10.99	-19.30	0.00	-233.83	0.00	233.83	2468.74	1234.37	3508.34	1756.78	40.55	-3.003	0.000	0.138
125.17	-10.95	-19.28	0.00	-230.61	0.00	230.61	1203.56	601.78	1739.68	871.13	40.65	-3.005	0.000	0.275
127.00	-7.89	-12.76	0.00	-195.27	0.00	195.27	1198.21	599.10	1712.61	857.58	41.81	-3.027	0.000	0.235
130.00	-7.59	-12.40	0.00	-157.01	0.00	157.01	1189.06	594.53	1668.14	835.31	43.73	-3.075	0.000	0.195
135.00	-7.11	-11.81	0.00	-95.01	0.00	95.01	1172.74	586.37	1593.65	798.01	46.98	-3.135	0.000	0.126
137.00	-4.32	-7.36	0.00	-71.39	0.00	71.39	1165.84	582.92	1563.75	783.04	48.30	-3.152	0.000	0.095
140.00	-4.05	-7.01	0.00	-49.31	0.00	49.31	1155.08	577.54	1518.83	760.54	50.29	-3.172	0.000	0.068
145.00	-3.60	-6.45	0.00	-14.24	0.00	14.24	1136.09	568.04	1443.87	723.01	53.62	-3.191	0.000	0.023
147.00	-0.24	-0.39	0.00	-1.34	0.00	1.34	1128.12	564.06	1413.88	707.99	54.96	-3.193	0.000	0.002
150.00	0.00	-0.38	0.00	-0.16	0.00	0.16	1115.76	557.88	1368.94	685.49	56.96	-3.193	0.000	0.000

Wind Loading - Shaft

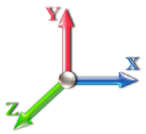
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

TES Tower Engineering Solutions

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.931	24.12	482.13	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.931	24.12	473.59	0.650	0.000	5.00	25.161	16.35	631.3	0.0	1432.9
10.00		1.00	0.85	21.931	24.12	465.06	0.650	0.000	5.00	24.711	16.06	620.0	0.0	1407.1
15.00		1.00	0.85	21.931	24.12	456.52	0.650	0.000	5.00	24.262	15.77	608.7	0.0	1381.3
20.00		1.00	0.90	23.270	25.60	461.45	0.650	0.000	5.00	23.812	15.48	633.9	0.0	1355.5
25.00		1.00	0.95	24.389	26.83	463.41	0.650	0.000	5.00	23.363	15.19	651.8	0.0	1329.7
30.00		1.00	0.98	25.343	27.88	463.22	0.650	0.000	5.00	22.913	14.89	664.3	0.0	1303.9
35.00		1.00	1.01	26.179	28.80	461.47	0.650	0.000	5.00	22.464	14.60	672.8	0.0	1278.0
40.00		1.00	1.04	26.926	29.62	458.54	0.650	0.000	5.00	22.014	14.31	678.1	0.0	1252.2
41.58	Bot - Section 2	1.00	1.05	27.146	29.86	457.41	0.650	0.000	1.58	6.877	4.47	213.6	0.0	391.2
45.00		1.00	1.07	27.602	30.36	454.68	0.650	0.000	3.42	14.940	9.71	471.8	0.0	1579.7
48.00	Top - Section 1	1.00	1.08	27.979	30.78	451.99	0.650	0.000	3.00	12.945	8.41	414.3	0.0	1368.4
50.00		1.00	1.09	28.221	31.04	458.04	0.650	0.000	2.00	8.540	5.55	275.7	0.0	425.5
55.00		1.00	1.12	28.793	31.67	452.88	0.650	0.000	5.00	21.036	13.67	692.9	0.0	1047.8
60.00		1.00	1.14	29.325	32.26	447.17	0.650	0.000	5.00	20.586	13.38	690.6	0.0	1025.3
65.00		1.00	1.16	29.823	32.81	441.00	0.650	0.000	5.00	20.137	13.09	687.0	0.0	1002.7
70.00		1.00	1.17	30.292	33.32	434.42	0.650	0.000	5.00	19.687	12.80	682.2	0.0	980.1
75.00		1.00	1.19	30.735	33.81	427.48	0.650	0.000	5.00	19.238	12.50	676.4	0.0	957.5
80.00		1.00	1.21	31.156	34.27	420.22	0.650	0.000	5.00	18.788	12.21	669.6	0.0	934.9
84.17	Bot - Section 3	1.00	1.22	31.491	34.64	413.94	0.650	0.000	4.17	15.313	9.95	551.7	0.0	761.8
85.00		1.00	1.22	31.556	34.71	412.66	0.650	0.000	0.83	3.069	2.00	110.8	0.0	259.9
89.58	Top - Section 2	1.00	1.24	31.907	35.10	405.51	0.650	0.000	4.58	16.658	10.83	608.0	0.0	1410.0
90.00		1.00	1.24	31.938	35.13	410.91	0.650	0.000	0.42	1.496	0.97	54.6	0.0	53.3
95.00		1.00	1.25	32.304	35.53	402.90	0.650	0.000	5.00	17.704	11.51	654.3	0.0	630.8
100.00		1.00	1.27	32.654	35.92	394.66	0.650	0.000	5.00	17.254	11.22	644.6	0.0	614.6
105.00		1.00	1.28	32.991	36.29	386.22	0.650	0.000	5.00	16.805	10.92	634.3	0.0	598.5
110.00		1.00	1.29	33.316	36.65	377.59	0.650	0.000	5.00	16.355	10.63	623.4	0.0	582.3
115.00		1.00	1.30	33.629	36.99	368.79	0.650	0.000	5.00	15.906	10.34	611.9	0.0	566.2
120.00		1.00	1.32	33.932	37.33	359.83	0.650	0.000	5.00	15.456	10.05	600.0	0.0	550.1
120.67	Bot - Section 4	1.00	1.32	33.972	37.37	358.62	0.650	0.000	0.67	2.027	1.32	78.8	0.0	72.1
125.00		1.00	1.33	34.225	37.65	350.71	0.650	0.000	4.33	13.117	8.53	513.6	0.0	742.8
125.17	Top - Section 3	1.00	1.33	34.235	37.66	350.40	0.650	0.000	0.17	0.498	0.32	19.5	0.0	28.2
127.00	Appurtenance(s)	1.00	1.33	34.340	37.77	350.79	0.650	0.000	1.83	5.442	3.54	213.8	0.0	116.6
130.00		1.00	1.34	34.509	37.96	345.23	0.650	0.000	3.00	8.776	5.70	346.4	0.0	188.0
135.00		1.00	1.35	34.784	38.26	335.85	0.650	0.000	5.00	14.266	9.27	567.7	0.0	305.6
137.00	Appurtenance(s)	1.00	1.35	34.892	38.38	332.07	0.650	0.000	2.00	5.581	3.63	222.8	0.0	119.5
140.00		1.00	1.36	35.051	38.56	326.35	0.650	0.000	3.00	8.236	5.35	330.3	0.0	176.4
145.00		1.00	1.37	35.311	38.84	316.72	0.650	0.000	5.00	13.367	8.69	540.0	0.0	286.2
147.00	Appurtenance(s)	1.00	1.37	35.413	38.95	312.84	0.650	0.000	2.00	5.221	3.39	211.5	0.0	111.8
150.00	Appurtenance(s)	1.00	1.38	35.564	39.12	306.98	0.650	0.000	3.00	7.697	5.00	313.1	0.0	164.7
								Totals:	**150.00**			**19,086.0**		**28,792.9**

Discrete Appurtenance Forces

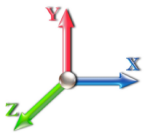
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Lightning Rod	1	35.688	39.257	1.00	1.00	1.05	31.50	0.000	2.500	65.95	0.00	164.88
2	147.00	Kickers w/o Collar	1	35.413	38.955	1.00	1.00	5.33	131.40	0.000	0.000	332.20	0.00	0.00
3	147.00	Radio 4449 B71+B12	3	35.413	38.955	0.54	0.80	3.17	191.70	0.000	0.000	197.44	0.00	0.00
4	147.00	APXVAARR24_43-U-NA2	3	35.413	38.955	0.40	0.80	24.29	345.60	0.000	0.000	1513.81	0.00	0.00
5	147.00	Platform w/ Hand Rail	1	35.413	38.955	1.00	1.00	32.00	1440.00	0.000	0.000	1994.47	0.00	0.00
6	147.00	Ericsson KRY 112 144/1	3	35.413	38.955	0.56	0.80	0.69	29.70	0.000	0.000	42.93	0.00	0.00
7	147.00	Ericsson AIR 21 B4A B2P	3	35.413	38.955	0.69	0.80	12.57	244.08	0.000	0.000	783.44	0.00	0.00
8	147.00	Ericsson AIR 21 B2A B4P	3	35.413	38.955	0.69	0.80	12.57	247.05	0.000	0.000	783.44	0.00	0.00
9	137.00	RDIDC-9181-PF-48	1	34.892	38.381	1.00	1.00	2.01	19.67	0.000	0.000	123.43	0.00	0.00
10	137.00	TA08025-B604	3	34.892	38.381	0.50	0.75	2.95	172.53	0.000	0.000	181.45	0.00	0.00
11	137.00	TA08025-B605	3	34.892	38.381	0.50	0.75	2.95	202.50	0.000	0.000	181.45	0.00	0.00
12	137.00	MC-PK8-DSH	1	34.892	38.381	1.00	1.00	37.59	1554.30	0.000	0.000	2308.39	0.00	0.00
13	137.00	MX08FRO665-21	3	34.892	38.381	0.55	0.75	20.80	174.15	0.000	0.000	1277.07	0.00	0.00
14	127.00	Platform w/ Handrails	1	34.340	37.773	1.00	1.00	32.00	1440.00	0.000	0.000	1934.00	0.00	0.00
15	127.00	RFS DB-T1-6Z-8AB-0Z	2	34.340	37.773	0.57	0.80	5.45	34.02	0.000	0.000	329.55	0.00	0.00
16	127.00	SBNHH-1D45C	6	34.340	37.773	0.67	0.80	45.92	267.84	0.000	0.000	2775.56	0.00	0.00
17	127.00	Samsung B5/B13	3	34.340	37.773	0.54	0.80	3.01	189.81	0.000	0.000	181.73	0.00	0.00
18	127.00	Samsung B2/B66A	3	34.340	37.773	0.54	0.80	3.01	227.88	0.000	0.000	181.73	0.00	0.00
19	127.00	Samsung 64T64R	3	34.340	37.773	0.60	0.80	12.24	235.17	0.000	0.000	739.76	0.00	0.00
							Totals:		**7,178.90**			**15,927.81**		

Total Applied Force Summary

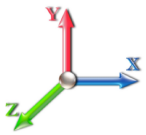
Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 16

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		631.26	1515.89	0.00	0.00
10.00		619.98	1490.07	0.00	0.00
15.00		608.70	1464.26	0.00	0.00
20.00		633.89	1438.44	0.00	0.00
25.00		651.84	1412.62	0.00	0.00
30.00		664.31	1386.80	0.00	0.00
35.00		672.76	1360.98	0.00	0.00
40.00		678.10	1335.16	0.00	0.00
41.58		213.58	417.42	0.00	0.00
45.00		471.75	1636.38	0.00	0.00
48.00		414.35	1418.19	0.00	0.00
50.00		275.71	458.64	0.00	0.00
55.00		692.89	1130.79	0.00	0.00
60.00		690.62	1108.20	0.00	0.00
65.00		687.02	1085.61	0.00	0.00
70.00		682.24	1063.02	0.00	0.00
75.00		676.42	1040.43	0.00	0.00
80.00		669.65	1017.84	0.00	0.00
84.17		551.67	830.94	0.00	0.00
85.00		110.80	273.69	0.00	0.00
89.58		608.03	1486.06	0.00	0.00
90.00		54.65	60.20	0.00	0.00
95.00		654.25	713.71	0.00	0.00
100.00		644.56	697.57	0.00	0.00
105.00		634.25	681.43	0.00	0.00
110.00		623.36	665.30	0.00	0.00
115.00		611.93	649.16	0.00	0.00
120.00		599.98	633.02	0.00	0.00
120.67		78.77	83.18	0.00	0.00
125.00		513.59	814.74	0.00	0.00
125.17		19.49	30.95	0.00	0.00
127.00	(18) attachments	6356.15	2541.73	0.00	0.00
130.00		346.44	231.38	0.00	0.00
135.00		567.69	377.88	0.00	0.00
137.00	(11) attachments	4294.54	2271.59	0.00	0.00
140.00		330.26	217.06	0.00	0.00
145.00		539.98	354.02	0.00	0.00
147.00	(17) attachments	5859.25	2768.43	0.00	0.00
150.00	(1) attachments	379.09	199.79	0.00	164.88
	Totals:	**35,013.81**	**38,362.55**	**0.00**	**164.88**

Linear Appurtenance Segment Forces (Factored)

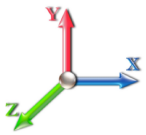
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	21.931	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.270	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	23.270	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.389	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	24.389	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.343	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	25.343	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.179	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.179	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.926	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	26.926	0.00	4.68
41.58	Safety Cable	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	27.146	0.00	0.39
41.58	Step bolts (ladder)	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	27.146	0.00	1.48
45.00	Safety Cable	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	27.602	0.00	0.84
45.00	Step bolts (ladder)	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	27.602	0.00	3.20
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.979	0.00	0.74
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	27.979	0.00	2.81
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.221	0.00	0.49
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	28.221	0.00	1.87
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.793	0.00	1.23
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	28.793	0.00	4.68
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.325	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.325	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.823	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.823	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.292	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.292	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.735	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	30.735	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.156	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.156	0.00	4.68
84.17	Safety Cable	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	31.491	0.00	1.02
84.17	Step bolts (ladder)	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	31.491	0.00	3.90
85.00	Safety Cable	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	31.556	0.00	0.20
85.00	Step bolts (ladder)	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	31.556	0.00	0.78
89.58	Safety Cable	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	31.907	0.00	1.13
89.58	Step bolts (ladder)	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	31.907	0.00	4.29
90.00	Safety Cable	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	31.938	0.00	0.10
90.00	Step bolts (ladder)	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	31.938	0.00	0.39
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.304	0.00	1.23
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.304	0.00	4.68
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.654	0.00	1.23

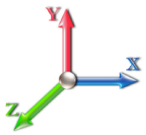
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.654	0.00	4.68
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.991	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	32.991	0.00	4.68
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.316	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.316	0.00	4.68
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.629	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.629	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.932	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.932	0.00	4.68
120.67	Safety Cable	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	33.972	0.00	0.16
120.67	Step bolts (ladder)	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	33.972	0.00	0.62
125.00	Safety Cable	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	34.225	0.00	1.06
125.00	Step bolts (ladder)	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	34.225	0.00	4.06
125.17	Safety Cable	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	34.235	0.00	0.04
125.17	Step bolts (ladder)	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	34.235	0.00	0.16
127.00	Safety Cable	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	34.340	0.00	0.45
127.00	Step bolts (ladder)	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	34.340	0.00	1.72
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	34.509	0.00	0.74
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	34.509	0.00	2.81
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.784	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.784	0.00	4.68
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	34.892	0.00	0.49
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	34.892	0.00	1.87
140.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.051	0.00	0.74
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.051	0.00	2.81
145.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.311	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.311	0.00	4.68
147.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	35.413	0.00	0.49
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	35.413	0.00	1.87
150.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.564	0.00	0.74
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	35.564	0.00	2.81
									Totals:		**0.0**	**177.3**

Calculated Forces

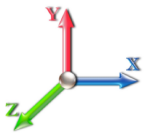
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 103 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.32	-35.05	0.00	-3675.2	0.00	3675.21	6643.18	3321.59	16232.9	8128.53	0.00	0.000	0.000	0.458
5.00	-36.74	-34.50	0.00	-3499.9	0.00	3499.94	6561.33	3280.67	15744.2	7883.82	0.07	-0.121	0.000	0.450
10.00	-35.18	-33.95	0.00	-3327.4	0.00	3327.45	6478.15	3239.07	15259.6	7641.15	0.26	-0.242	0.000	0.441
15.00	-33.64	-33.40	0.00	-3157.7	0.00	3157.70	6393.63	3196.81	14779.2	7400.59	0.58	-0.364	0.000	0.432
20.00	-32.14	-32.83	0.00	-2990.6	0.00	2990.68	6307.77	3153.88	14303.2	7162.24	1.02	-0.486	0.000	0.423
25.00	-30.67	-32.23	0.00	-2826.5	0.00	2826.54	6220.57	3110.29	13831.8	6926.18	1.60	-0.609	0.000	0.413
30.00	-29.22	-31.61	0.00	-2665.4	0.00	2665.40	6132.04	3066.02	13365.1	6692.51	2.30	-0.731	0.000	0.403
35.00	-27.80	-30.98	0.00	-2507.3	0.00	2507.34	6042.17	3021.08	12903.4	6461.30	3.13	-0.853	0.000	0.393
40.00	-26.43	-30.32	0.00	-2352.4	0.00	2352.45	5950.96	2975.48	12446.8	6232.66	4.09	-0.976	0.000	0.382
41.58	-25.99	-30.12	0.00	-2304.4	0.00	2304.45	5921.80	2960.90	12303.3	6160.80	4.42	-1.015	0.000	0.379
45.00	-24.32	-29.66	0.00	-2201.5	0.00	2201.53	5858.41	2929.21	11995.4	6006.66	5.18	-1.099	0.000	0.371
48.00	-22.88	-29.24	0.00	-2112.5	0.00	2112.56	4962.21	2481.10	10234.7	5124.96	5.90	-1.173	0.000	0.417
50.00	-22.38	-28.99	0.00	-2054.0	0.00	2054.09	4932.77	2466.38	10087.1	5051.08	6.40	-1.222	0.000	0.411
55.00	-21.20	-28.32	0.00	-1909.1	0.00	1909.15	4858.24	2429.12	9721.01	4867.73	7.75	-1.352	0.000	0.397
60.00	-20.05	-27.64	0.00	-1767.5	0.00	1767.56	4782.37	2391.18	9358.79	4686.35	9.24	-1.481	0.000	0.381
65.00	-18.92	-26.97	0.00	-1629.3	0.00	1629.34	4705.16	2352.58	9000.68	4507.03	10.85	-1.608	0.000	0.366
70.00	-17.82	-26.30	0.00	-1494.4	0.00	1494.49	4626.62	2313.31	8646.87	4329.86	12.61	-1.733	0.000	0.349
75.00	-16.75	-25.62	0.00	-1363.0	0.00	1363.02	4546.74	2273.37	8297.53	4154.93	14.49	-1.855	0.000	0.332
80.00	-15.71	-24.95	0.00	-1234.9	0.00	1234.91	4465.52	2232.76	7952.84	3982.33	16.49	-1.975	0.000	0.314
84.17	-14.87	-24.38	0.00	-1130.9	0.00	1130.95	4389.85	2194.93	7657.14	3834.26	18.26	-2.072	0.000	0.298
85.00	-14.58	-24.28	0.00	-1110.6	0.00	1110.63	4371.58	2185.79	7593.21	3802.25	18.63	-2.092	0.000	0.296
89.58	-13.09	-23.63	0.00	-999.36	0.00	999.36	2817.41	1408.71	4881.90	2444.58	20.68	-2.195	0.000	0.414
90.00	-13.00	-23.59	0.00	-989.51	0.00	989.51	2813.70	1406.85	4865.15	2436.19	20.88	-2.204	0.000	0.411
95.00	-12.26	-22.94	0.00	-871.57	0.00	871.57	2768.43	1384.22	4665.07	2336.00	23.26	-2.346	0.000	0.378
100.00	-11.54	-22.29	0.00	-756.89	0.00	756.89	2721.83	1360.91	4466.78	2236.71	25.79	-2.480	0.000	0.343
105.00	-10.84	-21.65	0.00	-645.45	0.00	645.45	2673.89	1336.94	4270.46	2138.40	28.46	-2.605	0.000	0.306
110.00	-10.17	-21.01	0.00	-537.21	0.00	537.21	2624.60	1312.30	4076.27	2041.17	31.25	-2.720	0.000	0.267
115.00	-9.52	-20.39	0.00	-432.14	0.00	432.14	2573.99	1286.99	3884.41	1945.09	34.15	-2.821	0.000	0.226
120.00	-8.90	-19.76	0.00	-330.21	0.00	330.21	2522.03	1261.02	3695.03	1850.26	37.16	-2.909	0.000	0.182
120.67	-8.81	-19.69	0.00	-317.04	0.00	317.04	2515.00	1257.50	3669.98	1837.72	37.57	-2.919	0.000	0.176
125.00	-8.01	-19.14	0.00	-231.73	0.00	231.73	2468.74	1234.37	3508.34	1756.78	40.24	-2.979	0.000	0.135
125.17	-7.97	-19.12	0.00	-228.54	0.00	228.54	1203.56	601.78	1739.68	871.13	40.35	-2.982	0.000	0.270
127.00	-5.76	-12.64	0.00	-193.50	0.00	193.50	1198.21	599.10	1712.61	857.58	41.50	-3.003	0.000	0.231
130.00	-5.54	-12.29	0.00	-155.58	0.00	155.58	1189.06	594.53	1668.14	835.31	43.40	-3.050	0.000	0.191
135.00	-5.18	-11.70	0.00	-94.15	0.00	94.15	1172.74	586.37	1593.65	798.01	46.63	-3.110	0.000	0.123
137.00	-3.14	-7.29	0.00	-70.75	0.00	70.75	1165.84	582.92	1563.75	783.04	47.94	-3.127	0.000	0.093
140.00	-2.94	-6.95	0.00	-48.87	0.00	48.87	1155.08	577.54	1518.83	760.54	49.91	-3.147	0.000	0.067
145.00	-2.62	-6.39	0.00	-14.12	0.00	14.12	1136.09	568.04	1443.87	723.01	53.21	-3.165	0.000	0.022
147.00	-0.18	-0.39	0.00	-1.33	0.00	1.33	1128.12	564.06	1413.88	707.99	54.54	-3.167	0.000	0.002
150.00	0.00	-0.38	0.00	-0.16	0.00	0.16	1115.76	557.88	1368.94	685.49	56.53	-3.168	0.000	0.000

Wind Loading - Shaft

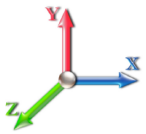
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	26.196	31.44	178.7	468.3	2378.9
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	25.821	30.98	176.1	493.7	2369.9
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	25.417	30.50	173.4	505.4	2347.1
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	25.001	30.00	181.0	511.0	2318.3
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	24.579	29.49	186.5	513.1	2286.0
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	24.151	28.98	190.4	512.9	2251.4
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	23.721	28.47	193.2	511.1	2215.1
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	23.288	27.95	195.0	507.9	2177.5
41.58	Bot - Section 2	1.00	1.05	6.397	7.04	0.00	1.200	1.535	1.58	7.283	8.74	61.5	160.5	682.0
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	3.42	15.821	18.99	135.8	350.1	2456.3
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.200	1.557	3.00	13.724	16.47	119.4	305.7	2130.3
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	2.00	9.061	10.87	79.5	203.0	770.3
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	22.351	26.82	200.2	502.0	1899.1
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	21.913	26.30	199.9	495.9	1862.9
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.474	25.77	199.2	489.3	1826.2
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.035	25.24	198.2	482.3	1789.1
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.595	24.71	196.9	474.9	1751.6
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	20.154	24.18	195.3	467.2	1713.7
84.17	Bot - Section 3	1.00	1.22	7.421	8.16	0.00	1.200	1.647	4.17	16.457	19.75	161.2	383.8	1399.5
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	0.83	3.298	3.96	32.4	77.6	424.1
89.58	Top - Section 2	1.00	1.24	7.519	8.27	0.00	1.200	1.658	4.58	17.924	21.51	177.9	419.9	2299.9
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	0.42	1.611	1.93	16.0	38.1	109.2
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	5.00	19.093	22.91	191.9	448.8	1289.8
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	18.651	22.38	189.4	440.0	1259.5
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	18.208	21.85	186.9	431.1	1229.0
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	17.765	21.32	184.1	421.9	1198.4
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	17.322	20.79	181.2	412.5	1167.5
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	16.878	20.25	178.1	403.0	1136.4
120.67	Bot - Section 4	1.00	1.32	8.005	8.81	0.00	1.200	1.708	0.67	2.217	2.66	23.4	53.6	149.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	4.33	14.355	17.23	152.8	344.4	1334.8
125.17	Top - Section 3	1.00	1.33	8.067	8.87	0.00	1.200	1.714	0.17	0.545	0.65	5.8	13.2	50.8
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	1.83	5.967	7.16	63.7	144.3	299.7
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	9.636	11.56	103.4	232.5	483.2
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	15.705	18.85	169.9	377.6	785.0
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	1.729	2.00	6.157	7.39	66.8	149.4	308.8
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	3.00	9.103	10.92	99.2	220.5	455.6
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	14.817	17.78	162.7	357.2	738.8
147.00	Appurtenance(s)	1.00	1.37	8.345	9.18	0.00	1.200	1.742	2.00	5.802	6.96	63.9	141.2	290.3
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	3.00	8.569	10.28	94.8	208.1	427.8
								Totals:	**150.00**			**5,566.0**		**52,063.5**

Discrete Appurtenance Forces

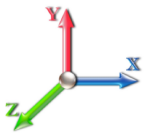
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Lightning Rod	1	8.410	9.251	1.00	1.00	3.42	64.41	0.000	2.500	31.67	0.00	79.18
2	147.00	Kickers w/o Collar	1	8.345	9.180	1.00	1.00	10.90	314.63	0.000	0.000	100.06	0.00	0.00
3	147.00	Radio 4449 B71+B12	3	8.345	9.180	0.54	0.80	4.05	374.62	0.000	0.000	37.14	0.00	0.00
4	147.00	APXVAARR24_43-U-NA2	3	8.345	9.180	0.56	0.80	37.19	1711.75	0.000	0.000	341.38	0.00	0.00
5	147.00	Platform w/ Hand Rail	1	8.345	9.180	1.00	1.00	59.87	3415.60	0.000	0.000	549.56	0.00	0.00
6	147.00	Ericsson KRY 112 144/1	3	8.345	9.180	0.57	0.80	1.51	62.58	0.000	0.000	13.83	0.00	0.00
7	147.00	Ericsson AIR 21 B4A B2P	3	8.345	9.180	0.70	0.80	15.00	830.88	0.000	0.000	137.71	0.00	0.00
8	147.00	Ericsson AIR 21 B2A B4P	3	8.345	9.180	0.70	0.80	15.00	834.84	0.000	0.000	137.71	0.00	0.00
9	137.00	RDIDC-9181-PF-48	1	8.222	9.044	1.00	1.00	2.57	100.72	0.000	0.000	23.22	0.00	0.00
10	137.00	TA08025-B604	3	8.222	9.044	0.50	0.75	3.79	344.26	0.000	0.000	34.30	0.00	0.00
11	137.00	TA08025-B605	3	8.222	9.044	0.50	0.75	3.79	387.70	0.000	0.000	34.30	0.00	0.00
12	137.00	MC-PK8-DSH	1	8.222	9.044	1.00	1.00	84.40	3372.00	0.000	0.000	763.33	0.00	0.00
13	137.00	MX08FRO665-21	3	8.222	9.044	0.55	0.75	23.21	895.34	0.000	0.000	209.95	0.00	0.00
14	127.00	Platform w/ Handrails	1	8.092	8.901	1.00	1.00	59.46	3385.18	0.000	0.000	529.29	0.00	0.00
15	127.00	RFS DB-T1-6Z-8AB-0Z	2	8.092	8.901	0.58	0.80	6.52	327.24	0.000	0.000	58.02	0.00	0.00
16	127.00	SBNHH-1D45C	6	8.092	8.901	0.68	0.80	53.11	1902.39	0.000	0.000	472.78	0.00	0.00
17	127.00	Samsung B5/B13	3	8.092	8.901	0.54	0.80	3.91	456.86	0.000	0.000	34.82	0.00	0.00
18	127.00	Samsung B2/B66A	3	8.092	8.901	0.54	0.80	3.91	528.82	0.000	0.000	34.82	0.00	0.00
19	127.00	Samsung 64T64R	3	8.092	8.901	0.60	0.80	15.23	815.59	0.000	0.000	135.53	0.00	0.00
							Totals:		**20,125.40**			**3,679.43**		

Total Applied Force Summary

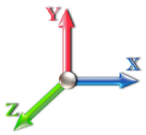
Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 22

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		178.70	2513.35	0.00	0.00
10.00		176.14	2507.55	0.00	0.00
15.00		173.39	2486.84	0.00	0.00
20.00		180.96	2459.57	0.00	0.00
25.00		186.46	2428.51	0.00	0.00
30.00		190.39	2394.95	0.00	0.00
35.00		193.17	2359.60	0.00	0.00
40.00		195.05	2322.88	0.00	0.00
41.58		61.49	728.10	0.00	0.00
45.00		135.84	2556.17	0.00	0.00
48.00		119.44	2218.16	0.00	0.00
50.00		79.54	828.98	0.00	0.00
55.00		200.18	2046.50	0.00	0.00
60.00		199.89	2010.89	0.00	0.00
65.00		199.21	1974.74	0.00	0.00
70.00		198.20	1938.13	0.00	0.00
75.00		196.89	1901.10	0.00	0.00
80.00		195.31	1863.71	0.00	0.00
84.17		161.20	1524.83	0.00	0.00
85.00		32.37	449.16	0.00	0.00
89.58		177.89	2438.16	0.00	0.00
90.00		16.00	121.74	0.00	0.00
95.00		191.85	1441.08	0.00	0.00
100.00		189.44	1411.19	0.00	0.00
105.00		186.86	1381.06	0.00	0.00
110.00		184.10	1350.73	0.00	0.00
115.00		181.20	1320.20	0.00	0.00
120.00		178.15	1289.48	0.00	0.00
120.67		23.42	170.14	0.00	0.00
125.00		152.82	1467.75	0.00	0.00
125.17		5.81	55.92	0.00	0.00
127.00	(18) attachments	1329.00	7772.07	0.00	0.00
130.00		103.43	566.86	0.00	0.00
135.00		169.93	924.78	0.00	0.00
137.00	(11) attachments	1131.93	5464.75	0.00	0.00
140.00		99.25	536.09	0.00	0.00
145.00		162.74	873.21	0.00	0.00
147.00	(17) attachments	1381.30	7888.96	0.00	0.00
150.00	(1) attachments	126.47	523.47	0.00	79.18
	Totals:	**9,245.43**	**76,511.35**	**0.00**	**79.18**

Linear Appurtenance Segment Forces (Factored)

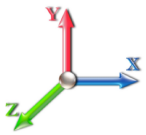
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	18.85
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	20.46
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.168	0.00	21.51
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.483	0.00	22.31
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.747	0.00	22.95
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.972	0.00	23.50
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	23.98
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.345	0.00	24.40
41.58	Safety Cable	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	6.397	0.00	5.80
41.58	Step bolts (ladder)	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	6.397	0.00	7.77
45.00	Safety Cable	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	12.69
45.00	Step bolts (ladder)	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	6.504	0.00	16.94
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	6.593	0.00	11.27
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	6.593	0.00	15.00
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	7.56
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	6.650	0.00	10.06
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	19.22
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.785	0.00	25.46
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.910	0.00	25.76
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.028	0.00	26.04
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.138	0.00	26.31
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.243	0.00	26.56
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.342	0.00	26.79
84.17	Safety Cable	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	7.421	0.00	17.23
84.17	Step bolts (ladder)	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	7.421	0.00	22.48
85.00	Safety Cable	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	3.45
85.00	Step bolts (ladder)	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	7.436	0.00	4.50
89.58	Safety Cable	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	7.519	0.00	19.16
89.58	Step bolts (ladder)	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	7.519	0.00	24.95
90.00	Safety Cable	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	1.74
90.00	Step bolts (ladder)	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	7.526	0.00	2.27
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	21.11
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.612	0.00	27.44
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	21.30

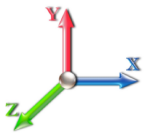
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.695	0.00	27.63
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	21.48
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.774	0.00	27.82
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	21.65
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.851	0.00	28.00
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.925	0.00	28.18
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.996	0.00	28.34
120.67	Safety Cable	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	8.005	0.00	2.93
120.67	Step bolts (ladder)	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	8.005	0.00	3.78
125.00	Safety Cable	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	19.18
125.00	Step bolts (ladder)	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	8.065	0.00	24.71
125.17	Safety Cable	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	8.067	0.00	0.74
125.17	Step bolts (ladder)	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	8.067	0.00	0.95
127.00	Safety Cable	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	8.092	0.00	8.14
127.00	Step bolts (ladder)	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	8.092	0.00	10.48
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	13.37
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.132	0.00	17.20
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.197	0.00	28.82
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.222	0.00	9.00
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.222	0.00	11.55
140.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.260	0.00	13.54
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.260	0.00	17.38
145.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.321	0.00	22.71
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.321	0.00	29.11
147.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.345	0.00	9.11
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	8.345	0.00	11.67
150.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.381	0.00	13.71
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	8.381	0.00	17.55
										Totals:	**0.0**	**1,371.1**

Calculated Forces

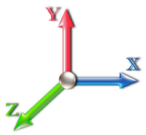
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-76.51	-9.27	0.00	-966.76	0.00	966.76	6643.18	3321.59	16232.9	8128.53	0.00	0.000	0.000	0.130
5.00	-73.99	-9.13	0.00	-920.43	0.00	920.43	6561.33	3280.67	15744.2	7883.82	0.02	-0.032	0.000	0.128
10.00	-71.48	-8.99	0.00	-874.80	0.00	874.80	6478.15	3239.07	15259.6	7641.15	0.07	-0.064	0.000	0.126
15.00	-68.99	-8.85	0.00	-829.85	0.00	829.85	6393.63	3196.81	14779.2	7400.59	0.15	-0.096	0.000	0.123
20.00	-66.52	-8.70	0.00	-785.59	0.00	785.59	6307.77	3153.88	14303.2	7162.24	0.27	-0.128	0.000	0.120
25.00	-64.09	-8.55	0.00	-742.08	0.00	742.08	6220.57	3110.29	13831.8	6926.18	0.42	-0.160	0.000	0.117
30.00	-61.69	-8.38	0.00	-699.35	0.00	699.35	6132.04	3066.02	13365.1	6692.51	0.61	-0.192	0.000	0.115
35.00	-59.33	-8.21	0.00	-657.44	0.00	657.44	6042.17	3021.08	12903.4	6461.30	0.82	-0.224	0.000	0.112
40.00	-57.00	-8.03	0.00	-616.37	0.00	616.37	5950.96	2975.48	12446.8	6232.66	1.08	-0.256	0.000	0.108
41.58	-56.27	-7.98	0.00	-603.65	0.00	603.65	5921.80	2960.90	12303.3	6160.80	1.16	-0.267	0.000	0.107
45.00	-53.71	-7.85	0.00	-576.38	0.00	576.38	5858.41	2929.21	11995.4	6006.66	1.36	-0.289	0.000	0.105
48.00	-51.49	-7.74	0.00	-552.82	0.00	552.82	4962.21	2481.10	10234.7	5124.96	1.55	-0.308	0.000	0.118
50.00	-50.66	-7.67	0.00	-537.35	0.00	537.35	4932.77	2466.38	10087.1	5051.08	1.68	-0.321	0.000	0.117
55.00	-48.61	-7.49	0.00	-498.99	0.00	498.99	4858.24	2429.12	9721.01	4867.73	2.04	-0.355	0.000	0.113
60.00	-46.60	-7.30	0.00	-461.54	0.00	461.54	4782.37	2391.18	9358.79	4686.35	2.43	-0.388	0.000	0.108
65.00	-44.62	-7.12	0.00	-425.02	0.00	425.02	4705.16	2352.58	9000.68	4507.03	2.85	-0.421	0.000	0.104
70.00	-42.68	-6.93	0.00	-389.44	0.00	389.44	4626.62	2313.31	8646.87	4329.86	3.31	-0.454	0.000	0.099
75.00	-40.78	-6.74	0.00	-354.81	0.00	354.81	4546.74	2273.37	8297.53	4154.93	3.80	-0.486	0.000	0.094
80.00	-38.91	-6.54	0.00	-321.12	0.00	321.12	4465.52	2232.76	7952.84	3982.33	4.33	-0.517	0.000	0.089
84.17	-37.39	-6.38	0.00	-293.85	0.00	293.85	4389.85	2194.93	7657.14	3834.26	4.79	-0.542	0.000	0.085
85.00	-36.94	-6.35	0.00	-288.54	0.00	288.54	4371.58	2185.79	7593.21	3802.25	4.89	-0.548	0.000	0.084
89.58	-34.50	-6.16	0.00	-259.42	0.00	259.42	2817.41	1408.71	4881.90	2444.58	5.42	-0.574	0.000	0.118
90.00	-34.38	-6.15	0.00	-256.85	0.00	256.85	2813.70	1406.85	4865.15	2436.19	5.48	-0.577	0.000	0.118
95.00	-32.93	-5.97	0.00	-226.08	0.00	226.08	2768.43	1384.22	4665.07	2336.00	6.10	-0.614	0.000	0.109
100.00	-31.52	-5.78	0.00	-196.24	0.00	196.24	2721.83	1360.91	4466.78	2236.71	6.76	-0.648	0.000	0.099
105.00	-30.14	-5.60	0.00	-167.33	0.00	167.33	2673.89	1336.94	4270.46	2138.40	7.46	-0.681	0.000	0.090
110.00	-28.79	-5.41	0.00	-139.35	0.00	139.35	2624.60	1312.30	4076.27	2041.17	8.19	-0.710	0.000	0.079
115.00	-27.47	-5.22	0.00	-112.31	0.00	112.31	2573.99	1286.99	3884.41	1945.09	8.95	-0.737	0.000	0.068
120.00	-26.18	-5.03	0.00	-86.19	0.00	86.19	2522.03	1261.02	3695.03	1850.26	9.73	-0.759	0.000	0.057
120.67	-26.01	-5.01	0.00	-82.84	0.00	82.84	2515.00	1257.50	3669.98	1837.72	9.84	-0.762	0.000	0.055
125.00	-24.54	-4.84	0.00	-61.11	0.00	61.11	2468.74	1234.37	3508.34	1756.78	10.54	-0.778	0.000	0.045
125.17	-24.49	-4.84	0.00	-60.31	0.00	60.31	1203.56	601.78	1739.68	871.13	10.56	-0.779	0.000	0.090
127.00	-16.73	-3.41	0.00	-51.44	0.00	51.44	1198.21	599.10	1712.61	857.58	10.86	-0.784	0.000	0.074
130.00	-16.17	-3.30	0.00	-41.22	0.00	41.22	1189.06	594.53	1668.14	835.31	11.36	-0.797	0.000	0.063
135.00	-15.24	-3.12	0.00	-24.73	0.00	24.73	1172.74	586.37	1593.65	798.01	12.21	-0.813	0.000	0.044
137.00	-9.80	-1.91	0.00	-18.49	0.00	18.49	1165.84	582.92	1563.75	783.04	12.55	-0.817	0.000	0.032
140.00	-9.26	-1.80	0.00	-12.76	0.00	12.76	1155.08	577.54	1518.83	760.54	13.06	-0.822	0.000	0.025
145.00	-8.39	-1.63	0.00	-3.74	0.00	3.74	1136.09	568.04	1443.87	723.01	13.93	-0.827	0.000	0.013
147.00	-0.52	-0.13	0.00	-0.48	0.00	0.48	1128.12	564.06	1413.88	707.99	14.27	-0.828	0.000	0.001
150.00	0.00	-0.13	0.00	-0.08	0.00	0.08	1115.76	557.88	1368.94	685.49	14.79	-0.828	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	19
Gust Response Factor	1.10				**Sds**	0.18		**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.45		**SA**	0.04	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1592.1	0.00	0.03	0.02	21.95	
10.00		1563.4	0.01	0.05	0.03	32.38	
15.00		1534.7	0.02	0.06	0.04	37.34	
20.00		1506.1	0.03	0.07	0.04	39.58	
25.00		1477.4	0.05	0.07	0.04	40.56	
30.00		1448.7	0.08	0.07	0.04	41.03	
35.00		1420.0	0.10	0.07	0.04	41.33	
40.00		1391.3	0.13	0.07	0.03	41.51	
41.58	Bot - Section 2	434.61	0.15	0.07	0.03	13.05	
45.00		1755.2	0.17	0.07	0.03	53.30	
48.00	Top - Section 1	1520.4	0.19	0.06	0.02	46.35	
50.00		472.74	0.21	0.06	0.02	14.39	
55.00		1164.2	0.25	0.05	0.02	34.50	
60.00		1139.1	0.30	0.04	0.01	31.36	
65.00		1114.0	0.35	0.03	0.01	26.37	
70.00		1088.9	0.41	0.01	0.01	19.38	
75.00		1063.8	0.47	-0.01	0.01	10.64	
80.00		1038.7	0.54	-0.03	0.01	0.94	
84.17	Bot - Section 3	846.46	0.60	-0.05	0.01	-5.78	
85.00		288.74	0.61	-0.06	0.02	-2.40	
89.58	Top - Section 2	1566.7	0.67	-0.08	0.03	-24.42	
90.00		59.21	0.68	-0.08	0.03	-0.96	
95.00		700.84	0.76	-0.10	0.04	-14.88	
100.00		682.91	0.84	-0.12	0.07	-15.40	
105.00		664.98	0.93	-0.12	0.10	-12.98	
110.00		647.05	1.02	-0.11	0.14	-7.66	
115.00		629.12	1.11	-0.06	0.19	0.36	
120.00		611.19	1.21	0.01	0.26	10.86	
120.67	Bot - Section 4	80.14	1.22	0.03	0.27	1.64	
125.00		825.39	1.31	0.14	0.35	32.84	
125.17	Top - Section 3	31.32	1.32	0.14	0.35	1.27	
127.00	Appurtenance(s)	2790.3	1.35	0.20	0.39	139.36	
130.00		208.87	1.42	0.32	0.45	13.92	
135.00		339.50	1.53	0.58	0.58	33.42	
137.00	Appurtenance(s)	2491.8	1.58	0.71	0.64	280.48	
140.00		195.96	1.65	0.93	0.73	26.50	
145.00		317.99	1.77	1.39	0.92	56.32	
147.00	Appurtenance(s)	3045.8	1.82	1.61	1.00	594.88	
150.00	Appurtenance(s)	218.05	1.89	1.98	1.14	48.88	
	Totals:	**39,968.7**				**1,702.2**	**Total Wind:** **35,013.8**

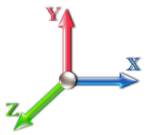
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.18			**Iterations**	19
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.17
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.45	**SA**	0.04			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.15	-1.79	0.00	-200.44	0.00	200.44	6643.18	3321.59	16232.9	8128.53		0.00	0.00	0.032
5.00	-49.13	-1.77	0.00	-191.50	0.00	191.50	6561.33	3280.67	15744.2	7883.82		0.00	-0.01	0.032
10.00	-47.14	-1.75	0.00	-182.63	0.00	182.63	6478.15	3239.07	15259.6	7641.15		0.01	-0.01	0.031
15.00	-45.19	-1.71	0.00	-173.91	0.00	173.91	6393.63	3196.81	14779.2	7400.59		0.03	-0.02	0.031
20.00	-43.27	-1.68	0.00	-165.34	0.00	165.34	6307.77	3153.88	14303.2	7162.24		0.06	-0.03	0.030
25.00	-41.39	-1.64	0.00	-156.96	0.00	156.96	6220.57	3110.29	13831.8	6926.18		0.09	-0.03	0.029
30.00	-39.54	-1.60	0.00	-148.75	0.00	148.75	6132.04	3066.02	13365.1	6692.51		0.13	-0.04	0.029
35.00	-37.72	-1.57	0.00	-140.74	0.00	140.74	6042.17	3021.08	12903.4	6461.30		0.17	-0.05	0.028
40.00	-35.94	-1.52	0.00	-132.91	0.00	132.91	5950.96	2975.48	12446.8	6232.66		0.23	-0.05	0.027
41.58	-35.39	-1.51	0.00	-130.50	0.00	130.50	5921.80	2960.90	12303.3	6160.80		0.24	-0.06	0.027
45.00	-33.20	-1.46	0.00	-125.33	0.00	125.33	5858.41	2929.21	11995.4	6006.66		0.29	-0.06	0.027
48.00	-31.31	-1.41	0.00	-120.95	0.00	120.95	4962.21	2481.10	10234.7	5124.96		0.33	-0.07	0.030
50.00	-30.70	-1.40	0.00	-118.12	0.00	118.12	4932.77	2466.38	10087.1	5051.08		0.35	-0.07	0.030
55.00	-29.19	-1.37	0.00	-111.11	0.00	111.11	4858.24	2429.12	9721.01	4867.73		0.43	-0.08	0.029
60.00	-27.72	-1.34	0.00	-104.26	0.00	104.26	4782.37	2391.18	9358.79	4686.35		0.51	-0.08	0.028
65.00	-26.27	-1.31	0.00	-97.57	0.00	97.57	4705.16	2352.58	9000.68	4507.03		0.60	-0.09	0.027
70.00	-24.85	-1.30	0.00	-91.00	0.00	91.00	4626.62	2313.31	8646.87	4329.86		0.70	-0.10	0.026
75.00	-23.46	-1.29	0.00	-84.52	0.00	84.52	4546.74	2273.37	8297.53	4154.93		0.81	-0.11	0.026
80.00	-22.11	-1.28	0.00	-78.09	0.00	78.09	4465.52	2232.76	7952.84	3982.33		0.92	-0.11	0.025
84.17	-21.00	-1.28	0.00	-72.74	0.00	72.74	4389.85	2194.93	7657.14	3834.26		1.03	-0.12	0.024
85.00	-20.63	-1.28	0.00	-71.67	0.00	71.67	4371.58	2185.79	7593.21	3802.25		1.05	-0.12	0.024
89.58	-18.65	-1.28	0.00	-65.78	0.00	65.78	2817.41	1408.71	4881.90	2444.58		1.17	-0.13	0.034
90.00	-18.57	-1.28	0.00	-65.24	0.00	65.24	2813.70	1406.85	4865.15	2436.19		1.18	-0.13	0.033
95.00	-17.62	-1.28	0.00	-58.83	0.00	58.83	2768.43	1384.22	4665.07	2336.00		1.32	-0.14	0.032
100.00	-16.69	-1.28	0.00	-52.41	0.00	52.41	2721.83	1360.91	4466.78	2236.71		1.46	-0.15	0.030
105.00	-15.78	-1.28	0.00	-45.99	0.00	45.99	2673.89	1336.94	4270.46	2138.40		1.62	-0.16	0.027
110.00	-14.89	-1.28	0.00	-39.57	0.00	39.57	2624.60	1312.30	4076.27	2041.17		1.79	-0.16	0.025
115.00	-14.03	-1.28	0.00	-33.15	0.00	33.15	2573.99	1286.99	3884.41	1945.09		1.97	-0.17	0.022
120.00	-13.18	-1.27	0.00	-26.73	0.00	26.73	2522.03	1261.02	3695.03	1850.26		2.15	-0.18	0.020
120.67	-13.07	-1.27	0.00	-25.89	0.00	25.89	2515.00	1257.50	3669.98	1837.72		2.17	-0.18	0.019
125.00	-11.99	-1.23	0.00	-20.39	0.00	20.39	2468.74	1234.37	3508.34	1756.78		2.34	-0.18	0.016
125.17	-11.95	-1.23	0.00	-20.18	0.00	20.18	1203.56	601.78	1739.68	871.13		2.35	-0.18	0.033
127.00	-8.56	-1.08	0.00	-17.92	0.00	17.92	1198.21	599.10	1712.61	857.58		2.42	-0.19	0.028
130.00	-8.25	-1.07	0.00	-14.68	0.00	14.68	1189.06	594.53	1668.14	835.31		2.54	-0.19	0.025
135.00	-7.74	-1.03	0.00	-9.34	0.00	9.34	1172.74	586.37	1593.65	798.01		2.74	-0.20	0.018
137.00	-4.72	-0.74	0.00	-7.27	0.00	7.27	1165.84	582.92	1563.75	783.04		2.82	-0.20	0.013
140.00	-4.43	-0.72	0.00	-5.04	0.00	5.04	1155.08	577.54	1518.83	760.54		2.95	-0.20	0.010
145.00	-3.96	-0.66	0.00	-1.46	0.00	1.46	1136.09	568.04	1443.87	723.01		3.16	-0.20	0.006
147.00	-0.27	-0.05	0.00	-0.15	0.00	0.15	1128.12	564.06	1413.88	707.99		3.24	-0.20	0.000
150.00	0.00	-0.05	0.00	0.00	0.00	0.00	1115.76	557.88	1368.94	685.49		3.37	-0.20	0.000

Seismic Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

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Load Case:	0.9D + 1.0E							**Iterations**	19
Gust Response Factor	1.10				**Sds**	0.18		**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.45		**SA**	0.04	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1592.1	0.00	0.03	0.02	21.95	
10.00		1563.4	0.01	0.05	0.03	32.38	
15.00		1534.7	0.02	0.06	0.04	37.34	
20.00		1506.1	0.03	0.07	0.04	39.58	
25.00		1477.4	0.05	0.07	0.04	40.56	
30.00		1448.7	0.08	0.07	0.04	41.03	
35.00		1420.0	0.10	0.07	0.04	41.33	
40.00		1391.3	0.13	0.07	0.03	41.51	
41.58	Bot - Section 2	434.61	0.15	0.07	0.03	13.05	
45.00		1755.2	0.17	0.07	0.03	53.30	
48.00	Top - Section 1	1520.4	0.19	0.06	0.02	46.35	
50.00		472.74	0.21	0.06	0.02	14.39	
55.00		1164.2	0.25	0.05	0.02	34.50	
60.00		1139.1	0.30	0.04	0.01	31.36	
65.00		1114.0	0.35	0.03	0.01	26.37	
70.00		1088.9	0.41	0.01	0.01	19.38	
75.00		1063.8	0.47	-0.01	0.01	10.64	
80.00		1038.7	0.54	-0.03	0.01	0.94	
84.17	Bot - Section 3	846.46	0.60	-0.05	0.01	-5.78	
85.00		288.74	0.61	-0.06	0.02	-2.40	
89.58	Top - Section 2	1566.7	0.67	-0.08	0.03	-24.42	
90.00		59.21	0.68	-0.08	0.03	-0.96	
95.00		700.84	0.76	-0.10	0.04	-14.88	
100.00		682.91	0.84	-0.12	0.07	-15.40	
105.00		664.98	0.93	-0.12	0.10	-12.98	
110.00		647.05	1.02	-0.11	0.14	-7.66	
115.00		629.12	1.11	-0.06	0.19	0.36	
120.00		611.19	1.21	0.01	0.26	10.86	
120.67	Bot - Section 4	80.14	1.22	0.03	0.27	1.64	
125.00		825.39	1.31	0.14	0.35	32.84	
125.17	Top - Section 3	31.32	1.32	0.14	0.35	1.27	
127.00	Appurtenance(s)	2790.3	1.35	0.20	0.39	139.36	
130.00		208.87	1.42	0.32	0.45	13.92	
135.00		339.50	1.53	0.58	0.58	33.42	
137.00	Appurtenance(s)	2491.8	1.58	0.71	0.64	280.48	
140.00		195.96	1.65	0.93	0.73	26.50	
145.00		317.99	1.77	1.39	0.92	56.32	
147.00	Appurtenance(s)	3045.8	1.82	1.61	1.00	594.88	
150.00	Appurtenance(s)	218.05	1.89	1.98	1.14	48.88	
	Totals:	**39,968.7**				**1,702.2**	**Total Wind:** **35,013.8**

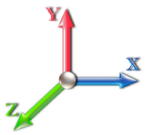
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.18			**Iterations**	19
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.17
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.45	**SA**	0.04			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.36	-1.79	0.00	-199.20	0.00	199.20	6643.18	3321.59	16232.9	8128.53		0.00	0.00	0.030
5.00	-36.85	-1.77	0.00	-190.26	0.00	190.26	6561.33	3280.67	15744.2	7883.82		0.00	-0.01	0.030
10.00	-35.36	-1.74	0.00	-181.40	0.00	181.40	6478.15	3239.07	15259.6	7641.15		0.01	-0.01	0.029
15.00	-33.89	-1.71	0.00	-172.70	0.00	172.70	6393.63	3196.81	14779.2	7400.59		0.03	-0.02	0.029
20.00	-32.45	-1.67	0.00	-164.16	0.00	164.16	6307.77	3153.88	14303.2	7162.24		0.06	-0.03	0.028
25.00	-31.04	-1.63	0.00	-155.80	0.00	155.80	6220.57	3110.29	13831.8	6926.18		0.09	-0.03	0.027
30.00	-29.65	-1.60	0.00	-147.63	0.00	147.63	6132.04	3066.02	13365.1	6692.51		0.13	-0.04	0.027
35.00	-28.29	-1.56	0.00	-139.65	0.00	139.65	6042.17	3021.08	12903.4	6461.30		0.17	-0.05	0.026
40.00	-26.96	-1.52	0.00	-131.87	0.00	131.87	5950.96	2975.48	12446.8	6232.66		0.22	-0.05	0.026
41.58	-26.54	-1.50	0.00	-129.47	0.00	129.47	5921.80	2960.90	12303.3	6160.80		0.24	-0.06	0.025
45.00	-24.90	-1.45	0.00	-124.33	0.00	124.33	5858.41	2929.21	11995.4	6006.66		0.28	-0.06	0.025
48.00	-23.48	-1.40	0.00	-119.97	0.00	119.97	4962.21	2481.10	10234.7	5124.96		0.32	-0.06	0.028
50.00	-23.03	-1.39	0.00	-117.16	0.00	117.16	4932.77	2466.38	10087.1	5051.08		0.35	-0.07	0.028
55.00	-21.90	-1.36	0.00	-110.21	0.00	110.21	4858.24	2429.12	9721.01	4867.73		0.43	-0.08	0.027
60.00	-20.79	-1.33	0.00	-103.41	0.00	103.41	4782.37	2391.18	9358.79	4686.35		0.51	-0.08	0.026
65.00	-19.70	-1.30	0.00	-96.77	0.00	96.77	4705.16	2352.58	9000.68	4507.03		0.60	-0.09	0.026
70.00	-18.64	-1.28	0.00	-90.25	0.00	90.25	4626.62	2313.31	8646.87	4329.86		0.70	-0.10	0.025
75.00	-17.60	-1.27	0.00	-83.83	0.00	83.83	4546.74	2273.37	8297.53	4154.93		0.80	-0.10	0.024
80.00	-16.58	-1.27	0.00	-77.46	0.00	77.46	4465.52	2232.76	7952.84	3982.33		0.92	-0.11	0.023
84.17	-15.75	-1.27	0.00	-72.15	0.00	72.15	4389.85	2194.93	7657.14	3834.26		1.02	-0.12	0.022
85.00	-15.47	-1.27	0.00	-71.09	0.00	71.09	4371.58	2185.79	7593.21	3802.25		1.04	-0.12	0.022
89.58	-13.99	-1.27	0.00	-65.26	0.00	65.26	2817.41	1408.71	4881.90	2444.58		1.16	-0.13	0.032
90.00	-13.93	-1.27	0.00	-64.73	0.00	64.73	2813.70	1406.85	4865.15	2436.19		1.17	-0.13	0.032
95.00	-13.21	-1.27	0.00	-58.36	0.00	58.36	2768.43	1384.22	4665.07	2336.00		1.31	-0.14	0.030
100.00	-12.52	-1.27	0.00	-52.00	0.00	52.00	2721.83	1360.91	4466.78	2236.71		1.45	-0.15	0.028
105.00	-11.83	-1.27	0.00	-45.64	0.00	45.64	2673.89	1336.94	4270.46	2138.40		1.61	-0.15	0.026
110.00	-11.17	-1.27	0.00	-39.27	0.00	39.27	2624.60	1312.30	4076.27	2041.17		1.78	-0.16	0.023
115.00	-10.52	-1.27	0.00	-32.91	0.00	32.91	2573.99	1286.99	3884.41	1945.09		1.95	-0.17	0.021
120.00	-9.89	-1.26	0.00	-26.55	0.00	26.55	2522.03	1261.02	3695.03	1850.26		2.13	-0.18	0.018
120.67	-9.80	-1.26	0.00	-25.71	0.00	25.71	2515.00	1257.50	3669.98	1837.72		2.16	-0.18	0.018
125.00	-8.99	-1.22	0.00	-20.26	0.00	20.26	2468.74	1234.37	3508.34	1756.78		2.32	-0.18	0.015
125.17	-8.96	-1.22	0.00	-20.05	0.00	20.05	1203.56	601.78	1739.68	871.13		2.33	-0.18	0.030
127.00	-6.42	-1.08	0.00	-17.81	0.00	17.81	1198.21	599.10	1712.61	857.58		2.40	-0.18	0.026
130.00	-6.19	-1.06	0.00	-14.59	0.00	14.59	1189.06	594.53	1668.14	835.31		2.52	-0.19	0.023
135.00	-5.81	-1.03	0.00	-9.28	0.00	9.28	1172.74	586.37	1593.65	798.01		2.72	-0.19	0.017
137.00	-3.54	-0.74	0.00	-7.23	0.00	7.23	1165.84	582.92	1563.75	783.04		2.80	-0.20	0.012
140.00	-3.32	-0.71	0.00	-5.01	0.00	5.01	1155.08	577.54	1518.83	760.54		2.92	-0.20	0.009
145.00	-2.97	-0.65	0.00	-1.46	0.00	1.46	1136.09	568.04	1443.87	723.01		3.13	-0.20	0.005
147.00	-0.20	-0.05	0.00	-0.15	0.00	0.15	1128.12	564.06	1413.88	707.99		3.22	-0.20	0.000
150.00	0.00	-0.05	0.00	0.00	0.00	0.00	1115.76	557.88	1368.94	685.49		3.34	-0.20	0.000

Wind Loading - Shaft

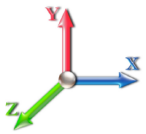
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

TES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	280.85	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	275.88	0.650	0.000	5.00	25.161	16.35	133.9	0.0	1592.2
10.00		1.00	0.85	7.442	8.19	270.91	0.650	0.000	5.00	24.711	16.06	131.5	0.0	1563.5
15.00		1.00	0.85	7.442	8.19	265.93	0.650	0.000	5.00	24.262	15.77	129.1	0.0	1534.8
20.00		1.00	0.90	7.896	8.69	268.81	0.650	0.000	5.00	23.812	15.48	134.4	0.0	1506.1
25.00		1.00	0.95	8.276	9.10	269.95	0.650	0.000	5.00	23.363	15.19	138.2	0.0	1477.4
30.00		1.00	0.98	8.600	9.46	269.83	0.650	0.000	5.00	22.913	14.89	140.9	0.0	1448.7
35.00		1.00	1.01	8.883	9.77	268.81	0.650	0.000	5.00	22.464	14.60	142.7	0.0	1420.0
40.00		1.00	1.04	9.137	10.05	267.11	0.650	0.000	5.00	22.014	14.31	143.8	0.0	1391.3
41.58	Bot - Section 2	1.00	1.05	9.212	10.13	266.45	0.650	0.000	1.58	6.877	4.47	45.3	0.0	434.6
45.00		1.00	1.07	9.366	10.30	264.86	0.650	0.000	3.42	14.940	9.71	100.1	0.0	1755.2
48.00	Top - Section 1	1.00	1.08	9.494	10.44	263.30	0.650	0.000	3.00	12.945	8.41	87.9	0.0	1520.5
50.00		1.00	1.09	9.576	10.53	266.82	0.650	0.000	2.00	8.540	5.55	58.5	0.0	472.7
55.00		1.00	1.12	9.770	10.75	263.81	0.650	0.000	5.00	21.036	13.67	147.0	0.0	1164.3
60.00		1.00	1.14	9.951	10.95	260.49	0.650	0.000	5.00	20.586	13.38	146.5	0.0	1139.2
65.00		1.00	1.16	10.120	11.13	256.89	0.650	0.000	5.00	20.137	13.09	145.7	0.0	1114.1
70.00		1.00	1.17	10.279	11.31	253.06	0.650	0.000	5.00	19.687	12.80	144.7	0.0	1089.0
75.00		1.00	1.19	10.430	11.47	249.02	0.650	0.000	5.00	19.238	12.50	143.5	0.0	1063.9
80.00		1.00	1.21	10.572	11.63	244.79	0.650	0.000	5.00	18.788	12.21	142.0	0.0	1038.8
84.17	Bot - Section 3	1.00	1.22	10.686	11.75	241.13	0.650	0.000	4.17	15.313	9.95	117.0	0.0	846.5
85.00		1.00	1.22	10.708	11.78	240.39	0.650	0.000	0.83	3.069	2.00	23.5	0.0	288.7
89.58	Top - Section 2	1.00	1.24	10.827	11.91	236.22	0.650	0.000	4.58	16.658	10.83	129.0	0.0	1566.7
90.00		1.00	1.24	10.838	11.92	239.37	0.650	0.000	0.42	1.496	0.97	11.6	0.0	59.2
95.00		1.00	1.25	10.962	12.06	234.70	0.650	0.000	5.00	17.704	11.51	138.8	0.0	700.8
100.00		1.00	1.27	11.081	12.19	229.90	0.650	0.000	5.00	17.254	11.22	136.7	0.0	682.9
105.00		1.00	1.28	11.195	12.31	224.98	0.650	0.000	5.00	16.805	10.92	134.5	0.0	665.0
110.00		1.00	1.29	11.305	12.44	219.96	0.650	0.000	5.00	16.355	10.63	132.2	0.0	647.1
115.00		1.00	1.30	11.412	12.55	214.83	0.650	0.000	5.00	15.906	10.34	129.8	0.0	629.1
120.00		1.00	1.32	11.514	12.67	209.61	0.650	0.000	5.00	15.456	10.05	127.2	0.0	611.2
120.67	Bot - Section 4	1.00	1.32	11.528	12.68	208.90	0.650	0.000	0.67	2.027	1.32	16.7	0.0	80.1
125.00		1.00	1.33	11.614	12.78	204.30	0.650	0.000	4.33	13.117	8.53	108.9	0.0	825.4
125.17	Top - Section 3	1.00	1.33	11.617	12.78	204.12	0.650	0.000	0.17	0.498	0.32	4.1	0.0	31.3
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	204.35	0.650	0.000	1.83	5.442	3.54	45.3	0.0	129.5
130.00		1.00	1.34	11.710	12.88	201.11	0.650	0.000	3.00	8.776	5.70	73.5	0.0	208.9
135.00		1.00	1.35	11.803	12.98	195.64	0.650	0.000	5.00	14.266	9.27	120.4	0.0	339.5
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	193.44	0.650	0.000	2.00	5.581	3.63	47.2	0.0	132.8
140.00		1.00	1.36	11.894	13.08	190.11	0.650	0.000	3.00	8.236	5.35	70.0	0.0	196.0
145.00		1.00	1.37	11.982	13.18	184.50	0.650	0.000	5.00	13.367	8.69	114.5	0.0	318.0
147.00	Appurtenance(s)	1.00	1.37	12.017	13.22	182.24	0.650	0.000	2.00	5.221	3.39	44.9	0.0	124.2
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	178.82	0.650	0.000	3.00	7.697	5.00	66.4	0.0	183.0
								Totals:	**150.00**			**4,047.8**		**31,992.1**

Discrete Appurtenance Forces

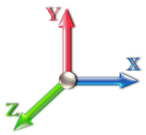
Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	150.00	Lightning Rod	1	12.110	13.321	1.00	1.00	1.05	35.00	0.000	2.500	13.99	0.00	34.97
2	147.00	Kickers w/o Collar	1	12.017	13.219	1.00	1.00	5.33	146.00	0.000	0.000	70.46	0.00	0.00
3	147.00	Radio 4449 B71+B12	3	12.017	13.219	0.54	0.80	3.17	213.00	0.000	0.000	41.87	0.00	0.00
4	147.00	APXVAARR24_43-U-NA2	3	12.017	13.219	0.40	0.80	24.29	384.00	0.000	0.000	321.05	0.00	0.00
5	147.00	Platform w/ Hand Rail	1	12.017	13.219	1.00	1.00	32.00	1600.00	0.000	0.000	423.00	0.00	0.00
6	147.00	Ericsson KRY 112 144/1	3	12.017	13.219	0.56	0.80	0.69	33.00	0.000	0.000	9.10	0.00	0.00
7	147.00	Ericsson AIR 21 B4A B2P	3	12.017	13.219	0.69	0.80	12.57	271.20	0.000	0.000	166.15	0.00	0.00
8	147.00	Ericsson AIR 21 B2A B4P	3	12.017	13.219	0.69	0.80	12.57	274.50	0.000	0.000	166.15	0.00	0.00
9	137.00	RDIDC-9181-PF-48	1	11.840	13.024	1.00	1.00	2.01	21.85	0.000	0.000	26.18	0.00	0.00
10	137.00	TA08025-B604	3	11.840	13.024	0.50	0.75	2.95	191.70	0.000	0.000	38.48	0.00	0.00
11	137.00	TA08025-B605	3	11.840	13.024	0.50	0.75	2.95	225.00	0.000	0.000	38.48	0.00	0.00
12	137.00	MC-PK8-DSH	1	11.840	13.024	1.00	1.00	37.59	1727.00	0.000	0.000	489.57	0.00	0.00
13	137.00	MX08FRO665-21	3	11.840	13.024	0.55	0.75	20.80	193.50	0.000	0.000	270.85	0.00	0.00
14	127.00	Platform w/ Handrails	1	11.653	12.818	1.00	1.00	32.00	1600.00	0.000	0.000	410.17	0.00	0.00
15	127.00	RFS DB-T1-6Z-8AB-0Z	2	11.653	12.818	0.57	0.80	5.45	37.80	0.000	0.000	69.89	0.00	0.00
16	127.00	SBNHH-1D45C	6	11.653	12.818	0.67	0.80	45.92	297.60	0.000	0.000	588.65	0.00	0.00
17	127.00	Samsung B5/B13	3	11.653	12.818	0.54	0.80	3.01	210.90	0.000	0.000	38.54	0.00	0.00
18	127.00	Samsung B2/B66A	3	11.653	12.818	0.54	0.80	3.01	253.20	0.000	0.000	38.54	0.00	0.00
19	127.00	Samsung 64T64R	3	11.653	12.818	0.60	0.80	12.24	261.30	0.000	0.000	156.89	0.00	0.00
							Totals:		**7,976.55**			**3,378.03**		

Total Applied Force Summary

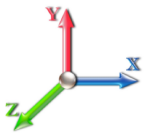
Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 32

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		133.88	1684.33	0.00	0.00
10.00		131.49	1655.64	0.00	0.00
15.00		129.10	1626.95	0.00	0.00
20.00		134.44	1598.26	0.00	0.00
25.00		138.24	1569.58	0.00	0.00
30.00		140.89	1540.89	0.00	0.00
35.00		142.68	1512.20	0.00	0.00
40.00		143.81	1483.51	0.00	0.00
41.58		45.30	463.80	0.00	0.00
45.00		100.05	1818.20	0.00	0.00
48.00		87.88	1575.76	0.00	0.00
50.00		58.47	509.60	0.00	0.00
55.00		146.95	1256.44	0.00	0.00
60.00		146.47	1231.34	0.00	0.00
65.00		145.71	1206.23	0.00	0.00
70.00		144.69	1181.13	0.00	0.00
75.00		143.46	1156.03	0.00	0.00
80.00		142.02	1130.93	0.00	0.00
84.17		117.00	923.27	0.00	0.00
85.00		23.50	304.10	0.00	0.00
89.58		128.95	1651.18	0.00	0.00
90.00		11.59	66.89	0.00	0.00
95.00		138.76	793.01	0.00	0.00
100.00		136.70	775.08	0.00	0.00
105.00		134.51	757.15	0.00	0.00
110.00		132.20	739.22	0.00	0.00
115.00		129.78	721.29	0.00	0.00
120.00		127.25	703.36	0.00	0.00
120.67		16.71	92.43	0.00	0.00
125.00		108.92	905.26	0.00	0.00
125.17		4.13	34.39	0.00	0.00
127.00	(18) attachments	1348.04	2824.14	0.00	0.00
130.00		73.47	257.09	0.00	0.00
135.00		120.40	419.87	0.00	0.00
137.00	(11) attachments	910.80	2523.99	0.00	0.00
140.00		70.04	241.18	0.00	0.00
145.00		114.52	393.35	0.00	0.00
147.00	(17) attachments	1242.65	3076.03	0.00	0.00
150.00	(1) attachments	80.40	221.99	0.00	34.97
	Totals:	**7,425.87**	**42,625.06**	**0.00**	**34.97**

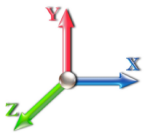
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.442	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.896	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.276	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.600	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.883	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.137	0.00	5.20
41.58	Safety Cable	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	9.212	0.00	0.43
41.58	Step bolts (ladder)	Yes	1.58	0.000	0.00	0.00	0.00	0.000	0.000	9.212	0.00	1.65
45.00	Safety Cable	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	0.93
45.00	Step bolts (ladder)	Yes	3.42	0.000	0.00	0.00	0.00	0.000	0.000	9.366	0.00	3.55
48.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	9.494	0.00	0.82
48.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	9.494	0.00	3.12
50.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	0.55
50.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.576	0.00	2.08
55.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	1.37
55.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.770	0.00	5.20
60.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.951	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.120	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.279	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.430	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.572	0.00	5.20
84.17	Safety Cable	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	10.686	0.00	1.14
84.17	Step bolts (ladder)	Yes	4.17	0.000	0.00	0.00	0.00	0.000	0.000	10.686	0.00	4.33
85.00	Safety Cable	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	0.23
85.00	Step bolts (ladder)	Yes	0.83	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	0.87
89.58	Safety Cable	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	10.827	0.00	1.25
89.58	Step bolts (ladder)	Yes	4.58	0.000	0.00	0.00	0.00	0.000	0.000	10.827	0.00	4.77
90.00	Safety Cable	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	0.11
90.00	Step bolts (ladder)	Yes	0.42	0.000	0.00	0.00	0.00	0.000	0.000	10.838	0.00	0.43
95.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.962	0.00	5.20
100.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	1.37

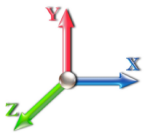
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.081	0.00	5.20
105.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.195	0.00	5.20
110.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.305	0.00	5.20
115.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.412	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.514	0.00	5.20
120.67	Safety Cable	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	11.528	0.00	0.18
120.67	Step bolts (ladder)	Yes	0.67	0.000	0.00	0.00	0.00	0.000	0.000	11.528	0.00	0.69
125.00	Safety Cable	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	1.18
125.00	Step bolts (ladder)	Yes	4.33	0.000	0.00	0.00	0.00	0.000	0.000	11.614	0.00	4.51
125.17	Safety Cable	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	11.617	0.00	0.05
125.17	Step bolts (ladder)	Yes	0.17	0.000	0.00	0.00	0.00	0.000	0.000	11.617	0.00	0.17
127.00	Safety Cable	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	11.653	0.00	0.50
127.00	Step bolts (ladder)	Yes	1.83	0.000	0.00	0.00	0.00	0.000	0.000	11.653	0.00	1.91
130.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	0.82
130.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.710	0.00	3.12
135.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.803	0.00	5.20
137.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.840	0.00	0.55
137.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	11.840	0.00	2.08
140.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.894	0.00	0.82
140.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	11.894	0.00	3.12
145.00	Safety Cable	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.982	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	11.982	0.00	5.20
147.00	Safety Cable	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	12.017	0.00	0.55
147.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	12.017	0.00	2.08
150.00	Safety Cable	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	12.068	0.00	0.82
150.00	Step bolts (ladder)	Yes	3.00	0.000	0.00	0.00	0.00	0.000	0.000	12.068	0.00	3.12
									Totals:		**0.0**	**197.0**

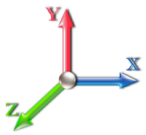
Calculated Forces

Structure:	CT13076-A-SBA	**Code:**	EIA/TIA-222-G	7/9/2021	
Site Name:	Ledyard	**Exposure:**	C		
Height:	150.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-42.62	-7.43	0.00	-781.27	0.00	781.27	6643.18	3321.59	16232.9	8128.53	0.00	0.000	0.000	0.103
5.00	-40.94	-7.32	0.00	-744.09	0.00	744.09	6561.33	3280.67	15744.2	7883.82	0.01	-0.026	0.000	0.101
10.00	-39.28	-7.20	0.00	-707.50	0.00	707.50	6478.15	3239.07	15259.6	7641.15	0.05	-0.051	0.000	0.099
15.00	-37.65	-7.09	0.00	-671.48	0.00	671.48	6393.63	3196.81	14779.2	7400.59	0.12	-0.077	0.000	0.097
20.00	-36.05	-6.97	0.00	-636.03	0.00	636.03	6307.77	3153.88	14303.2	7162.24	0.22	-0.103	0.000	0.095
25.00	-34.47	-6.84	0.00	-601.18	0.00	601.18	6220.57	3110.29	13831.8	6926.18	0.34	-0.129	0.000	0.092
30.00	-32.93	-6.71	0.00	-566.96	0.00	566.96	6132.04	3066.02	13365.1	6692.51	0.49	-0.155	0.000	0.090
35.00	-31.42	-6.58	0.00	-533.39	0.00	533.39	6042.17	3021.08	12903.4	6461.30	0.67	-0.181	0.000	0.088
40.00	-29.93	-6.44	0.00	-500.48	0.00	500.48	5950.96	2975.48	12446.8	6232.66	0.87	-0.207	0.000	0.085
41.58	-29.46	-6.40	0.00	-490.28	0.00	490.28	5921.80	2960.90	12303.3	6160.80	0.94	-0.216	0.000	0.085
45.00	-27.65	-6.30	0.00	-468.41	0.00	468.41	5858.41	2929.21	11995.4	6006.66	1.10	-0.234	0.000	0.083
48.00	-26.07	-6.21	0.00	-449.51	0.00	449.51	4962.21	2481.10	10234.7	5124.96	1.25	-0.249	0.000	0.093
50.00	-25.56	-6.16	0.00	-437.08	0.00	437.08	4932.77	2466.38	10087.1	5051.08	1.36	-0.260	0.000	0.092
55.00	-24.30	-6.02	0.00	-406.28	0.00	406.28	4858.24	2429.12	9721.01	4867.73	1.65	-0.288	0.000	0.088
60.00	-23.07	-5.88	0.00	-376.18	0.00	376.18	4782.37	2391.18	9358.79	4686.35	1.96	-0.315	0.000	0.085
65.00	-21.86	-5.74	0.00	-346.79	0.00	346.79	4705.16	2352.58	9000.68	4507.03	2.31	-0.342	0.000	0.082
70.00	-20.67	-5.59	0.00	-318.11	0.00	318.11	4626.62	2313.31	8646.87	4329.86	2.68	-0.369	0.000	0.078
75.00	-19.52	-5.45	0.00	-290.14	0.00	290.14	4546.74	2273.37	8297.53	4154.93	3.08	-0.395	0.000	0.074
80.00	-18.38	-5.31	0.00	-262.89	0.00	262.89	4465.52	2232.76	7952.84	3982.33	3.51	-0.420	0.000	0.070
84.17	-17.46	-5.19	0.00	-240.77	0.00	240.77	4389.85	2194.93	7657.14	3834.26	3.88	-0.441	0.000	0.067
85.00	-17.16	-5.17	0.00	-236.45	0.00	236.45	4371.58	2185.79	7593.21	3802.25	3.96	-0.445	0.000	0.066
89.58	-15.51	-5.03	0.00	-212.77	0.00	212.77	2817.41	1408.71	4881.90	2444.58	4.40	-0.467	0.000	0.093
90.00	-15.44	-5.02	0.00	-210.68	0.00	210.68	2813.70	1406.85	4865.15	2436.19	4.44	-0.469	0.000	0.092
95.00	-14.64	-4.88	0.00	-185.58	0.00	185.58	2768.43	1384.22	4665.07	2336.00	4.95	-0.499	0.000	0.085
100.00	-13.87	-4.74	0.00	-161.17	0.00	161.17	2721.83	1360.91	4466.78	2236.71	5.49	-0.528	0.000	0.077
105.00	-13.11	-4.61	0.00	-137.45	0.00	137.45	2673.89	1336.94	4270.46	2138.40	6.05	-0.554	0.000	0.069
110.00	-12.37	-4.47	0.00	-114.41	0.00	114.41	2624.60	1312.30	4076.27	2041.17	6.65	-0.579	0.000	0.061
115.00	-11.65	-4.34	0.00	-92.04	0.00	92.04	2573.99	1286.99	3884.41	1945.09	7.27	-0.600	0.000	0.052
120.00	-10.94	-4.21	0.00	-70.33	0.00	70.33	2522.03	1261.02	3695.03	1850.26	7.91	-0.619	0.000	0.042
120.67	-10.85	-4.19	0.00	-67.52	0.00	67.52	2515.00	1257.50	3669.98	1837.72	7.99	-0.621	0.000	0.041
125.00	-9.95	-4.07	0.00	-49.36	0.00	49.36	2468.74	1234.37	3508.34	1756.78	8.56	-0.634	0.000	0.032
125.17	-9.91	-4.07	0.00	-48.68	0.00	48.68	1203.56	601.78	1739.68	871.13	8.59	-0.634	0.000	0.064
127.00	-7.10	-2.69	0.00	-41.22	0.00	41.22	1198.21	599.10	1712.61	857.58	8.83	-0.639	0.000	0.054
130.00	-6.85	-2.62	0.00	-33.14	0.00	33.14	1189.06	594.53	1668.14	835.31	9.24	-0.649	0.000	0.045
135.00	-6.43	-2.49	0.00	-20.06	0.00	20.06	1172.74	586.37	1593.65	798.01	9.92	-0.662	0.000	0.031
137.00	-3.91	-1.55	0.00	-15.07	0.00	15.07	1165.84	582.92	1563.75	783.04	10.20	-0.666	0.000	0.023
140.00	-3.67	-1.48	0.00	-10.41	0.00	10.41	1155.08	577.54	1518.83	760.54	10.62	-0.670	0.000	0.017
145.00	-3.28	-1.36	0.00	-3.01	0.00	3.01	1136.09	568.04	1443.87	723.01	11.33	-0.674	0.000	0.007
147.00	-0.22	-0.08	0.00	-0.28	0.00	0.28	1128.12	564.06	1413.88	707.99	11.61	-0.674	0.000	0.001
150.00	0.00	-0.08	0.00	-0.03	0.00	0.03	1115.76	557.88	1368.94	685.49	12.03	-0.674	0.000	0.000

Final Analysis Summary

Structure:	CT13076-A-SBA		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 36

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 103 mph Wind	35.1	0.00	51.11	0.00	0.00	3696.89
0.9D + 1.6W 103 mph Wind	35.1	0.00	38.32	0.00	0.00	3675.21
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.3	0.00	76.51	0.00	0.00	966.76
1.2D + 1.0E	1.8	0.00	51.15	0.00	0.00	200.44
0.9D + 1.0E	1.8	0.00	38.36	0.00	0.00	199.20
1.0D + 1.0W 60 mph Wind	7.4	0.00	42.62	0.00	0.00	781.27

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 103 mph Wind	-51.11	-35.07	0.00	-3696.8	0.00	-3696.8	6643.18	3321.5	16232.9	8128.53	0.00	0.463
0.9D + 1.6W 103 mph Wind	-38.32	-35.05	0.00	-3675.2	0.00	-3675.2	6643.18	3321.5	16232.9	8128.53	0.00	0.458
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-76.51	-9.27	0.00	-966.76	0.00	-966.76	6643.18	3321.5	16232.9	8128.53	0.00	0.130
1.2D + 1.0E	-18.65	-1.28	0.00	-65.78	0.00	-65.78	2817.41	1408.7	4881.90	2444.58	89.58	0.034
0.9D + 1.0E	-13.99	-1.27	0.00	-65.26	0.00	-65.26	2817.41	1408.7	4881.90	2444.58	89.58	0.032
1.0D + 1.0W 60 mph Wind	-42.62	-7.43	0.00	-781.27	0.00	-781.27	6643.18	3321.5	16232.9	8128.53	0.00	0.103

Base Plate Summary

Structure:	CT13076-A-SB		**Code:**	EIA/TIA-222-G	7/9/2021
Site Name:	Ledyard		**Exposure:**	C	
Height:	150.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 37

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	6054.10
Axial (kip):	94.70
Shear (kip):	55.40

Analysis (1.2D + 1.6W)

Moment (kip-ft):	3696.89
Axial (kip):	51.11
Shear (kip):	35.07

Base Plate

Yield (ksi):	50.00
Width (in):	69.50
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	8.33
Moment (kip-in):	206.36
Allow Stress (ksi):	67.50
Applied Stress (ksi):	48.60
Stress Ratio:	0.72

Anchor Bolts

Bolt Circle:	65.00
Number Bolts:	34.00
Bolt Type:	1.5" F1554 105
Bolt Diameter (in):	1.50
Yield (ksi):	105.00
Ultimate (ksi):	125.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	82.54
Allowable (kip):	141.00
Ratio:	0.60

Tension

Force (kip):	78.04
Allowable (kip):	141.00
Ratio:	0.57

Monopole Mat Foundation Design

			Date: 7/9/2021
Customer Name:	Dish Wireless	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	150
Site Number:	CT13076-A-SBA	**Engineer Name:**	D. Zhou
Engr. Number:	111944	**Engineer Login ID:**	

Foundation Info Obtained from: Mapping Operation

Structure Type: Monopole

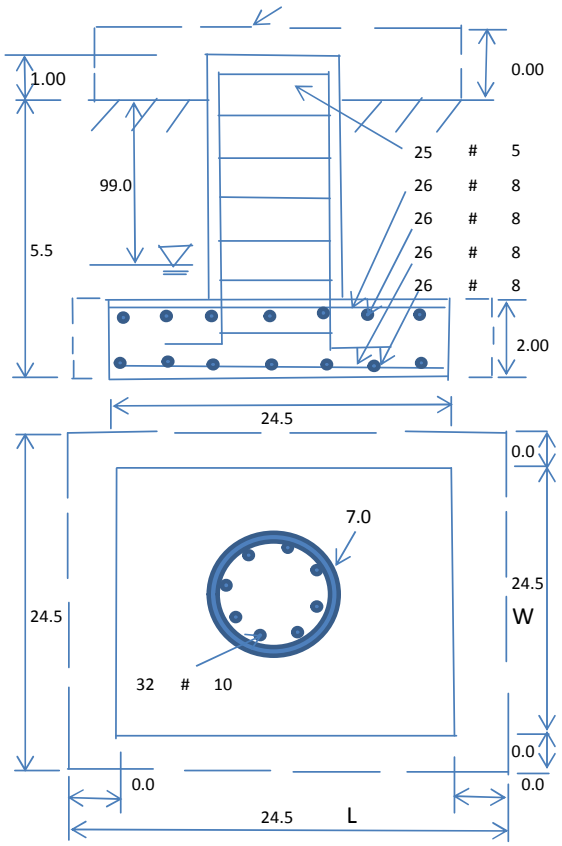
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	51.1	Shear Force (Kips):	35.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3696.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5
Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	32	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	10000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	1966.18	Total Dry Soil Weight (Kips):	216.28
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	216.28	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1373.68	Total Dry Concrete Weight (Kips):	206.05
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	206.05	Total Vertical Load on Base (Kips):	473.43

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3111	<	Allowable Factored Soil Bearing (psf): 7500	0.41	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5282.2	>	Design Factored Momont (kips-ft): 3925	0.74	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.35	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.27		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	6761.6	>	Design Factored Moment (Mu, Kips-F	3854.9	0.57	OK!
Calculated Shear Capacity (Kips):	1359.0	>	Design Factored Shear (Kips):	35.1	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	2194.6	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9726.0	>	Design Factored Axial Load (Pu Kips):	51.1	0.01	OK!
Moment & Axial Strength Combination:	0.57	OK!	Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	571.8	>	One-Way Factored Shear (L-D. Kips):	258.8	0.45	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	571.8	>	One-Way Factored Shear (W-D., Kips)	258.8	0.45	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	565.5	>	One-Way Factored Shear (C-C, Kips):	266.0	0.47	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0034	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0034		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1837.8	>	Moment at Bottom (L-Dir. K-Ft):	1239.8	0.67	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1837.8	>	Moment at Bottom (W-Dir. K-Ft):	1239.8	0.67	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	2578.7	>	Moment at Bottom (C-C Dir. K-Ft):	1753.3	0.68	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0034	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0034		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1837.8	>	Moment at the top (L-Dir K-Ft):	572.9	0.31	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1837.8	>	Moment at the top (W-Dir K-Ft):	572.9	0.31	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	2578.7	>	Moment at the top (C-C Dir. K-Ft):	537.9	0.21	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1478.8	k-ft.	Max. factored shear stress v_{u_CD}:		3.8	Psi
Max. factored shear stress v_{u_AB}:	16.5	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	16.5	Psi	Check Usage of Punching Shear Capacity:		0.09	OK!

Exhibit E

Mount Analysis

August 16, 2021

Sherri Knapik
SBA Network Services, LLC
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805

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

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate** **Site Number:**	 BOBOS00059A
***SBA Network Services Designation*:**	**Site Number:** **Site Name:** **Application Number:**	CT13076-A Ledyard 163273, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149467.003.01
Site Data:	**12 Orchard Drive, Gales Ferry, CT, 06335, New London County** **Latitude *41.46827*°, Longitude *-72.05447*°** **Monopole** **8' Platform Mount**	

Dear Ms. Knapik,

B+T Group is pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

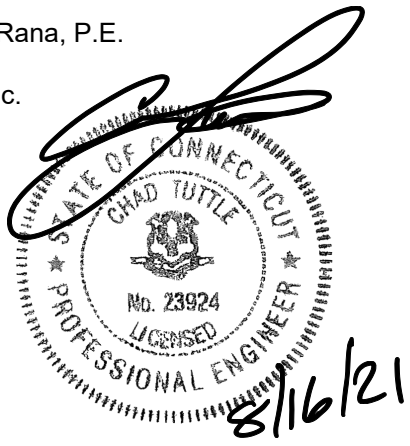
Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 72.7%)**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with topographic factor of 1 and Risk Category II were used in this analysis.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC.* If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Suman Rana, P.E.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The mount consists of CommScope platform mount (Part# MC-PK8-DSH) at 137 ft., attached to monopole at 12 Orchard Drive, Gales Ferry, CT, 06335, New London County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust wind speed of 105 mph with no ice and 50 mph with 0.75 inch escalated ice thickness. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	137	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

Note:
(1) Proposed Antenna to be installed on the proposed Mount Pipe.
(2) Proposed Equipment to be installed directly behind the Antenna.
(3) Proposed Equipment to be installed on the Mount.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 06/24/2021	SBA Network Services, LLC
RFDS		Date: 06/09/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. 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.
9. The following material grades were assumed (Unless Noted Otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

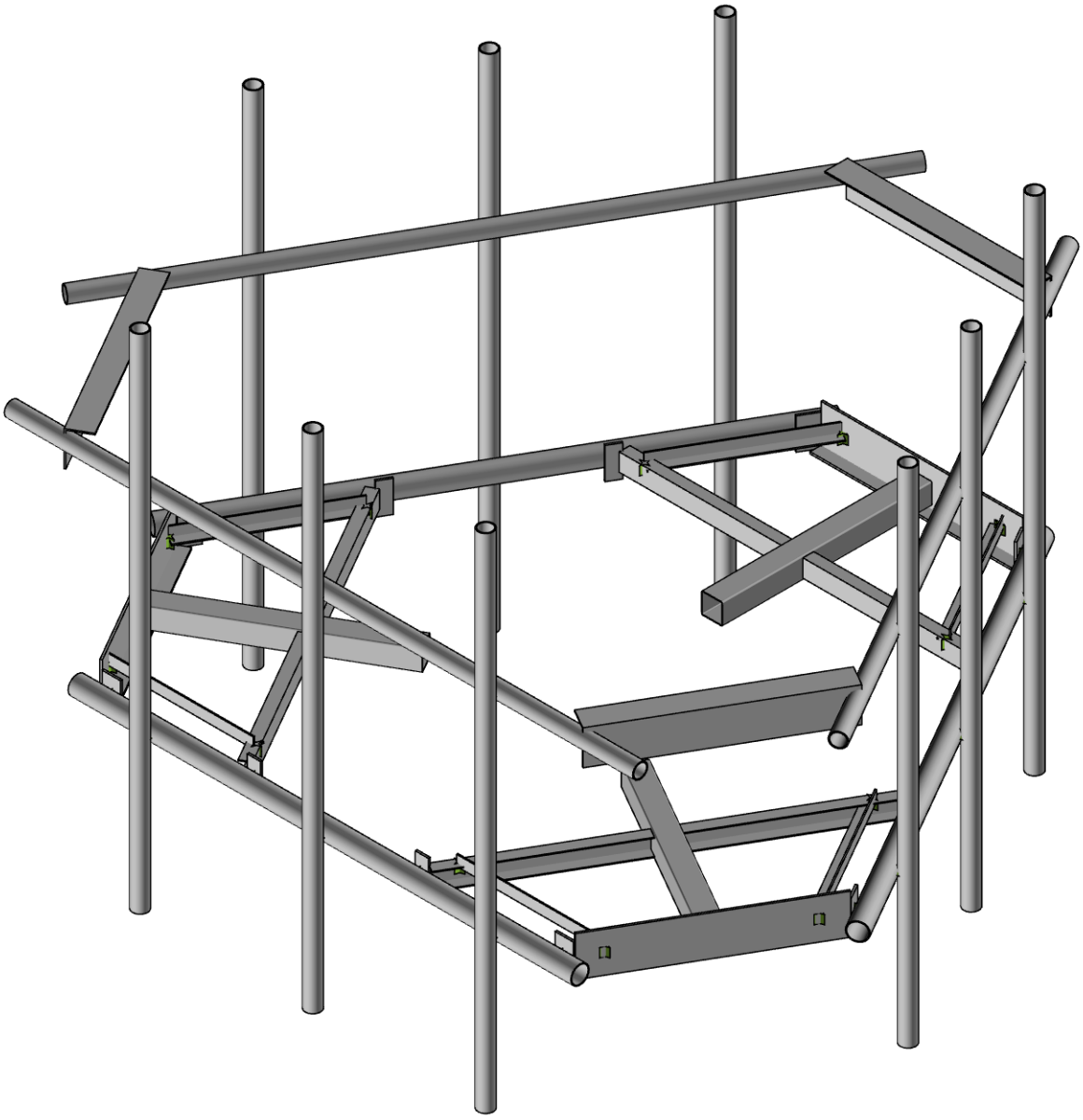
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Face Horizontals	137	12.5	Pass
-	Support Rails	137	23.5	Pass
-	Support Tubes	137	72.7	Pass
-	Support Channels	137	49.5	Pass
-	Support Angles	137	45.1	Pass
-	Mount Pipes	137	24.9	Pass
-	Connection Plates	137	24.0	Pass
	Connection Angles	137	61.8	Pass

5) RECOMMENDATIONS

The CommScope platform mount (Part# MC-PK8-DSH) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-G standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)



B+T Group	CT13076-A - Ledyard	SK-1
KP		Aug 14, 2021
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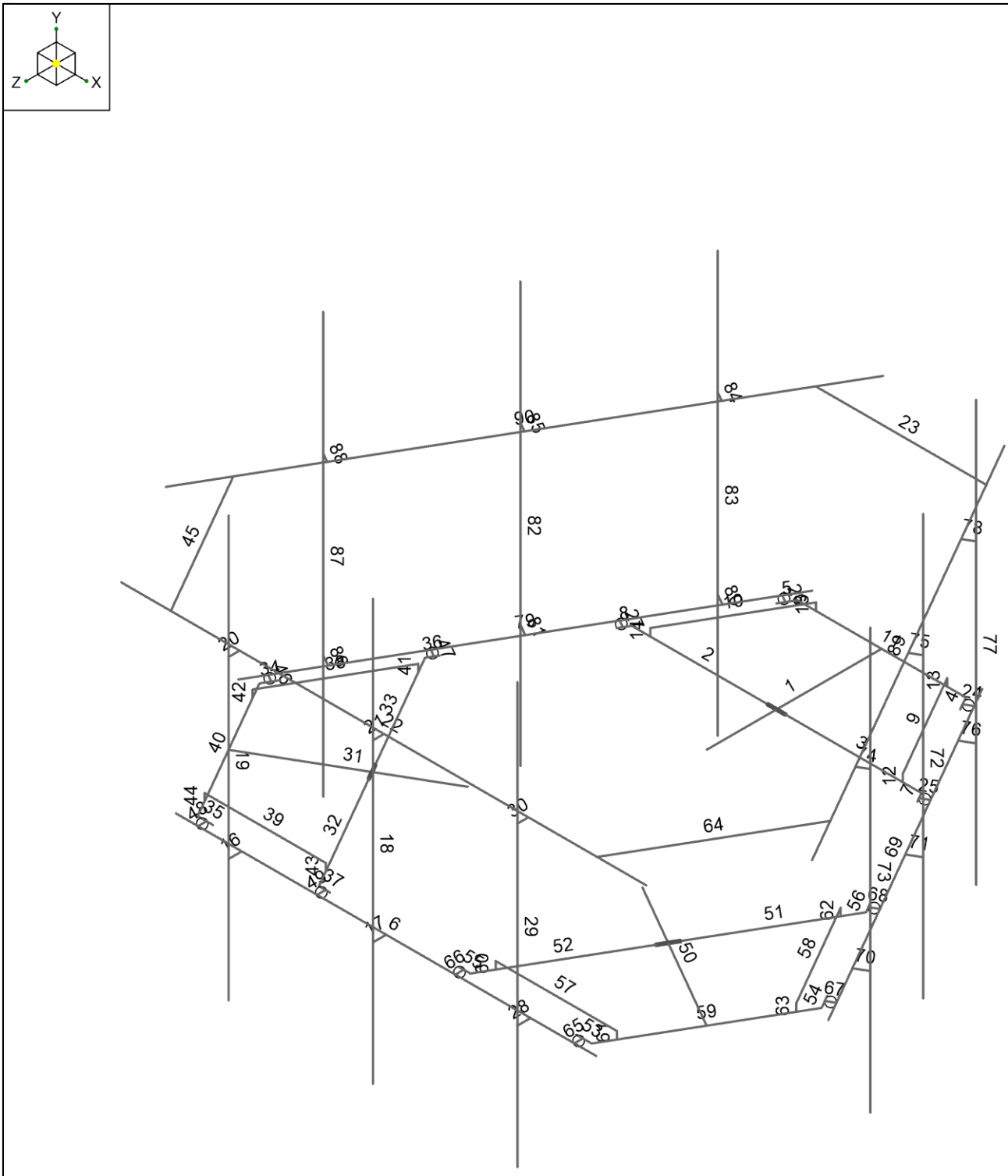

Envelope Only Solution

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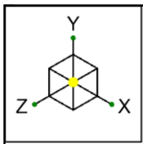

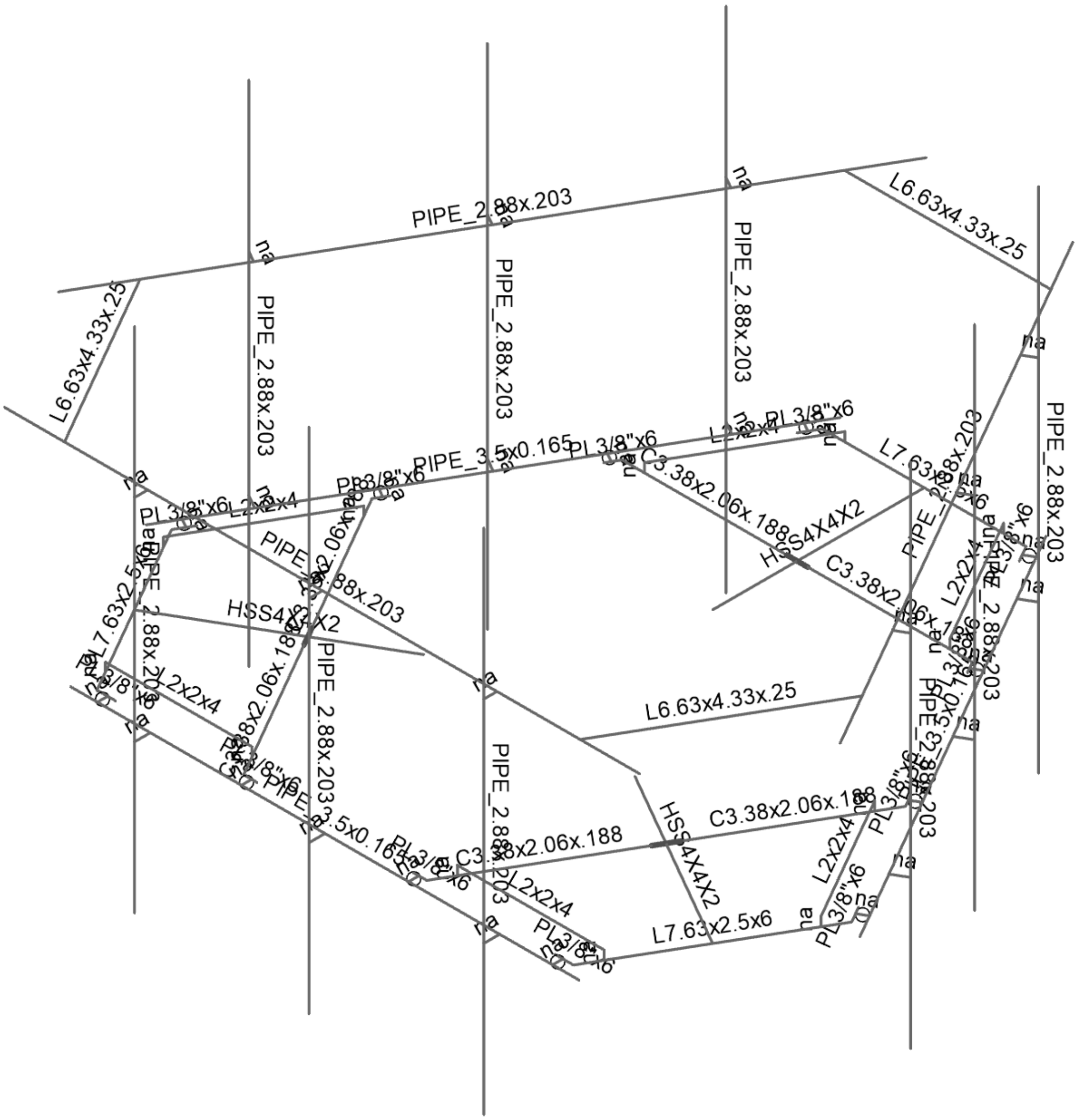

Envelope Only Solution

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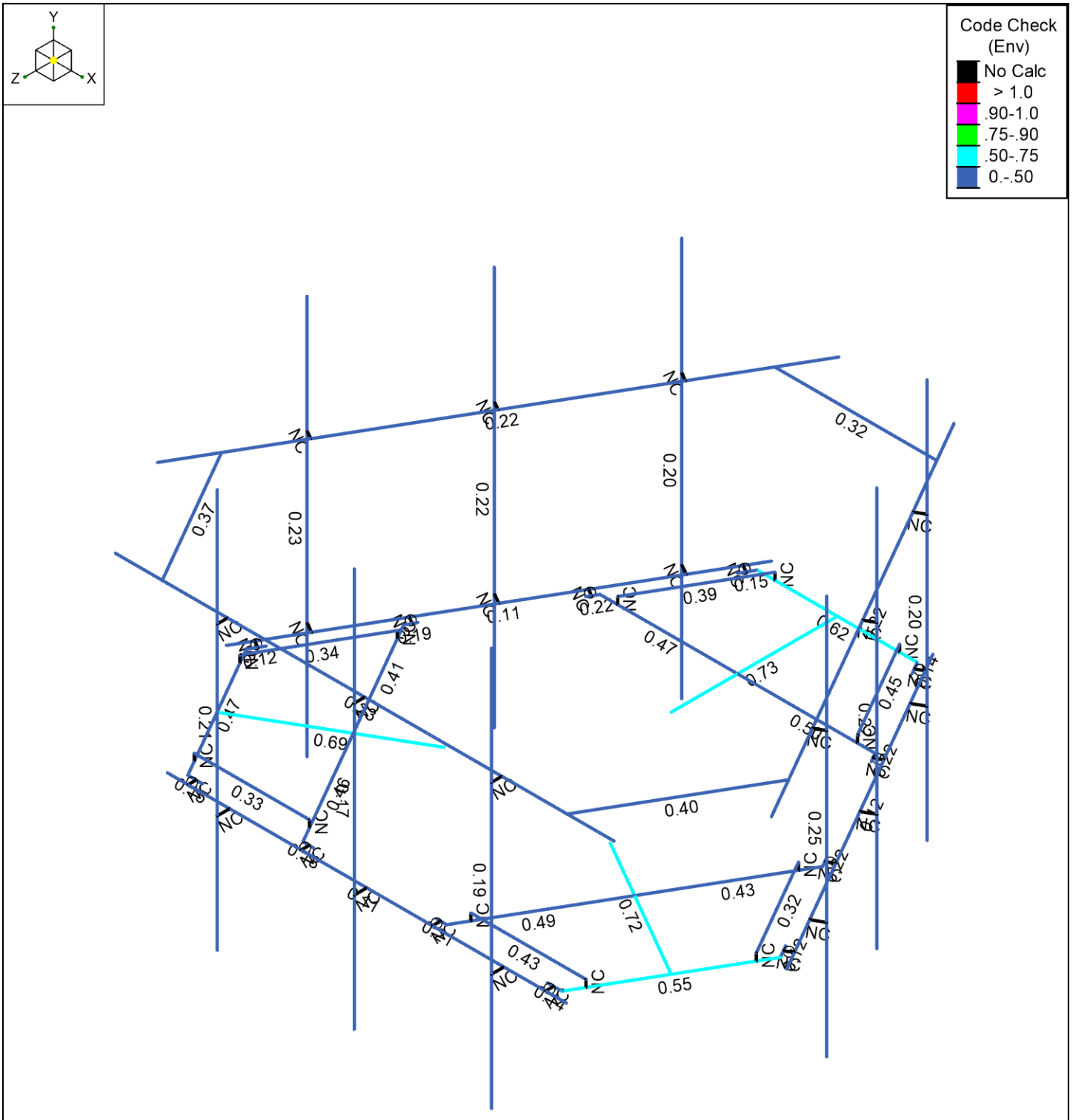

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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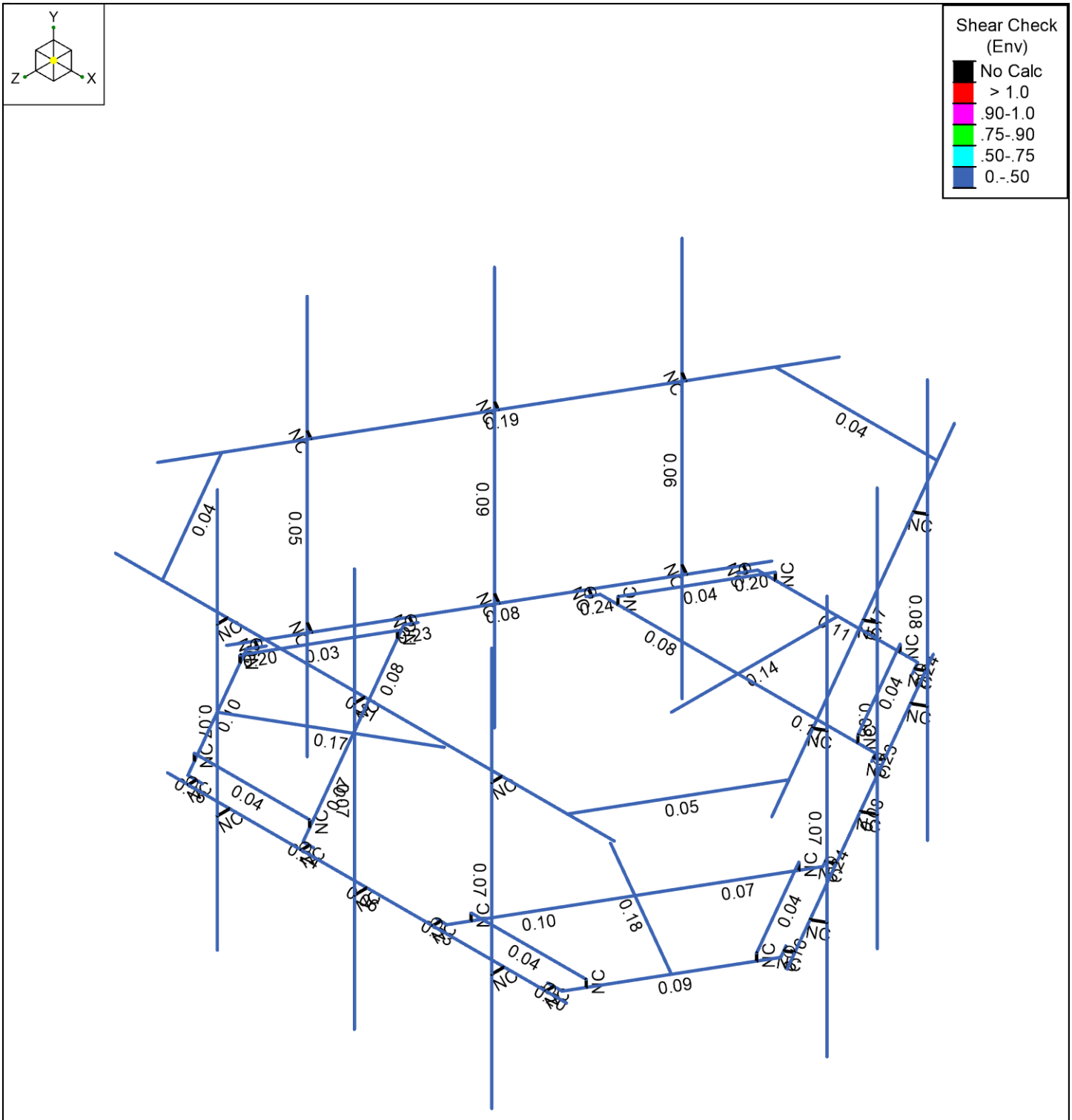

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13076-A - Ledyard	SK-5
KP		Aug 14, 2021
149467.003.01		149467_003_01_Ledyard_CT.R3D

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.923334	
2	2	0	0	-5.256667	
3	3	0	0	-3.256667	
4	4	2.758333	0	-3.256667	
5	5	-2.758333	0	-3.256667	
6	6	-1.603633	0	-5.256667	
7	7	1.603633	0	-5.256667	
8	8	1.749466	0	-5.004076	
9	9	-1.749466	0	-5.004076	
10	10	1.686966	0	-5.11233	
11	11	1.826804	0	-5.193065	
12	12	-1.686966	0	-5.11233	
13	13	-1.826804	0	-5.193065	
14	14	-3.999998	0	4.178592	
15	15	3.999998	0	4.178592	
16	16	2.8625	0	-3.076245	
17	17	2.820833	0	-3.148415	
18	18	2.960671	0	-3.229151	
19	19	-2.8625	0	-3.076245	
20	20	-2.820833	0	-3.148415	
21	21	-2.960671	0	-3.229151	
22	22	-1.25	0.140833	-5.256667	
23	23	-2.404701	0.140833	-3.256667	
24	24	2.404701	0.140833	-3.256667	
25	25	1.25	0.140833	-5.256667	
26	26	-1.25	0	-5.256667	
27	27	-2.404701	0	-3.256667	
28	28	2.404701	0	-3.256667	
29	29	1.25	0	-5.256667	
30	30	-2.749998	0	4.178592	
31	31	0.000002	0	4.178592	
32	32	-2.749998	0	4.428592	
33	33	0.000002	0	4.428592	
34	34	-2.749998	-2.333333	4.428592	
35	35	0.000002	-2.333333	4.428592	
36	36	-2.749998	5.666668	4.428592	
37	37	0.000002	5.666668	4.428592	
38	38	-2.749998	3.333337	4.428592	
39	39	0.000002	3.333337	4.428592	
40	40	-2.749998	3.333337	4.220258	
41	41	0.000002	3.333337	4.220258	
42	42	-5	3.333337	4.220258	
43	43	5	3.333337	4.220258	
44	44	1.625017	3.333337	-5.625905	
45	45	-1.625017	3.333337	-5.625905	
46	46	2.749998	0	4.178592	
47	47	2.749998	0	4.428592	
48	48	2.749998	-2.333333	4.428592	
49	49	2.749998	5.666668	4.428592	
50	50	2.749998	3.333337	4.428592	
51	51	2.749998	3.333337	4.220258	
52	52	0	0	0	
53	53	-1.665656	0	0.961667	
54	54	-4.552407	0	2.628334	
55	55	-2.820356	0	1.628334	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-4.199523	0	-0.760453	
57	57	-1.44119	0	4.01712	
58	58	-3.750591	0	4.01712	
59	59	-5.354224	0	1.239547	
60	60	-5.20839	0	0.986956	
61	61	-3.458924	0	4.01712	
62	62	-5.27089	0	1.095209	
63	63	-5.410729	0	1.014474	
64	64	-3.583924	0	4.01712	
65	65	-3.583924	0	4.178592	
66	66	-4.095356	0	-0.940875	
67	67	-4.137024	0	-0.868705	
68	68	-4.276862	0	-0.949441	
69	69	-1.232856	0	4.01712	
70	70	-1.316191	0	4.01712	
71	71	-1.316191	0	4.178592	
72	72	-3.927407	0.140833	3.710865	
73	73	-1.618006	0.140833	3.710865	
74	74	-4.022707	0.140833	-0.454198	
75	75	-5.177407	0.140833	1.545802	
76	76	-3.927407	0	3.710865	
77	77	-1.618006	0	3.710865	
78	78	-4.022707	0	-0.454198	
79	79	-5.177407	0	1.545802	
80	80	-5.684685	3.333337	1.405647	
81	81	-4.059669	3.333337	4.220258	
82	82	1.665656	0	0.961667	
83	83	4.552407	0	2.628334	
84	84	2.820356	0	1.628334	
85	85	1.44119	0	4.01712	
86	86	4.199523	0	-0.760453	
87	87	5.354224	0	1.239547	
88	88	3.750591	0	4.01712	
89	89	3.458924	0	4.01712	
90	90	5.20839	0	0.986956	
91	91	3.583924	0	4.01712	
92	92	3.583924	0	4.178592	
93	93	5.27089	0	1.095209	
94	94	5.410729	0	1.014474	
95	95	1.232856	0	4.01712	
96	96	1.316191	0	4.01712	
97	97	1.316191	0	4.178592	
98	98	4.095356	0	-0.940875	
99	99	4.137024	0	-0.868705	
100	100	4.276862	0	-0.949441	
101	101	5.177407	0.140833	1.545802	
102	102	4.022707	0.140833	-0.454198	
103	103	1.618006	0.140833	3.710865	
104	104	3.927407	0.140833	3.710865	
105	105	5.177407	0	1.545802	
106	106	4.022707	0	-0.454198	
107	107	1.618006	0	3.710865	
108	108	3.927407	0	3.710865	
109	109	4.059669	3.333337	4.220258	
110	110	5.684685	3.333337	1.405647	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
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112	112	1.618768	0	-5.553396	
113	113	4.993766	0	0.292272	
114	114	3.618766	0	-2.089298	
115	115	5.210272	0	0.167272	
116	116	3.835272	0	-2.214298	
117	117	5.210272	-2.333333	0.167272	
118	118	3.835272	-2.333333	-2.214298	
119	119	5.210272	5.666668	0.167272	
120	120	3.835272	5.666668	-2.214298	
121	121	5.210272	3.333337	0.167272	
122	122	3.835272	3.333337	-2.214298	
123	123	5.02985	3.333337	0.271439	
124	124	3.65485	3.333337	-2.110131	
125	125	2.243768	0	-4.470864	
126	126	2.460274	0	-4.595864	
127	127	2.460274	-2.333333	-4.595864	
128	128	2.460274	5.666668	-4.595864	
129	129	2.460274	3.333337	-4.595864	
130	130	2.279852	3.333337	-4.491697	
131	131	-1.618768	0	-5.553396	
132	132	-5.618766	0	1.374804	
133	133	-2.243768	0	-4.470864	
134	134	-3.618768	0	-2.089294	
135	135	-2.460274	0	-4.595864	
136	136	-3.835274	0	-2.214294	
137	137	-2.460274	-2.333333	-4.595864	
138	138	-3.835274	-2.333333	-2.214294	
139	139	-2.460274	5.666668	-4.595864	
140	140	-3.835274	5.666668	-2.214294	
141	141	-2.460274	3.333337	-4.595864	
142	142	-3.835274	3.333337	-2.214294	
143	143	-2.279852	3.333337	-4.491697	
144	144	-3.654852	3.333337	-2.110128	
145	145	-4.993766	0	0.292272	
146	146	-5.210272	0	0.167272	
147	147	-5.210272	-2.333333	0.167272	
148	148	-5.210272	5.666668	0.167272	
149	149	-5.210272	3.333337	0.167272	
150	150	-5.02985	3.333337	0.271439	
151	151	6.154851	3.333337	2.219998	
152	152	1.154851	3.333337	-6.440256	
153	153	-1.154851	3.333337	-6.440256	
154	154	-6.154851	3.333337	2.219998	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2						
3	3						
4	4						
5	5						
6	16						
7	17						
8	19						

Node Boundary Conditions (Continued)

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
9	20						
10	22						
11	25						
12	26						
13	29						
14	53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	54						
16	55						
17	56						
18	57						
19	66						
20	67						
21	69						
22	70						
23	72						
24	75						
25	76						
26	79						
27	82	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	83						
29	84						
30	85						
31	86						
32	95						
33	96						
34	98						
35	99						
36	101						
37	104						
38	105						
39	108						

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE_2.88x.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.88x.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24		RIGID	None	None	RIGID	Typical
13	13	29	25		RIGID	None	None	RIGID	Typical
14	14	27	23		RIGID	None	None	RIGID	Typical
15	15	26	22		RIGID	None	None	RIGID	Typical
16	16	32	30		RIGID	None	None	RIGID	Typical
17	17	33	31		RIGID	None	None	RIGID	Typical
18	18	37	35		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	36	34		MF-P1	Column	Pipe	A500 Gr.C	Typical
20	20	38	40		RIGID	None	None	RIGID	Typical
21	21	39	41		RIGID	None	None	RIGID	Typical
22	22	42	43		MF-H2	Beam	Pipe	A500 Gr.C	Typical
23	23	44	45	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
24	24	11	10		RIGID	None	None	RIGID	Typical
25	25	18	17		RIGID	None	None	RIGID	Typical
26	26	13	12		RIGID	None	None	RIGID	Typical
27	27	21	20		RIGID	None	None	RIGID	Typical
28	28	47	46		RIGID	None	None	RIGID	Typical
29	29	49	48		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	50	51		RIGID	None	None	RIGID	Typical
31	31	53	54		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
32	32	57	55	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
33	33	55	56	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	59	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	58	61		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	36	66	56		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	57	69		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	75	74		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	39	73	72		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	58	59		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
41	41	78	74		RIGID	None	None	RIGID	Typical
42	42	79	75		RIGID	None	None	RIGID	Typical
43	43	77	73		RIGID	None	None	RIGID	Typical
44	44	76	72		RIGID	None	None	RIGID	Typical
45	45	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
46	46	63	62		RIGID	None	None	RIGID	Typical
47	47	68	67		RIGID	None	None	RIGID	Typical
48	48	65	64		RIGID	None	None	RIGID	Typical
49	49	71	70		RIGID	None	None	RIGID	Typical
50	50	82	83		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	86	84	180	SF-H2	Beam	Channel	A36 Gr.36	Typical

Member Primary Data (Continued)

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

Member Advanced Data

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2			2	Yes	N/A	None
3	3		2		Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	None
7	7				Yes	N/A	None
8	8				Yes	N/A	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	** NA **	None
13	13				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
14	14				Yes	** NA **	None
15	15				Yes	** NA **	None
16	16				Yes	** NA **	None
17	17				Yes	** NA **	None
18	18				Yes	** NA **	None
19	19				Yes	** NA **	None
20	20				Yes	** NA **	None
21	21				Yes	** NA **	None
22	22				Yes	N/A	None
23	23				Yes	N/A	None
24	24	OOOOOX			Yes	** NA **	None
25	25	OOOOOX			Yes	** NA **	None
26	26	OOOOOX			Yes	** NA **	None
27	27	OOOOOX			Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	** NA **	None
31	31				Yes	N/A	None
32	32			2	Yes	N/A	None
33	33		2		Yes	N/A	None
34	34				Yes	N/A	None
35	35				Yes	N/A	None
36	36				Yes	N/A	None
37	37				Yes	N/A	None
38	38				Yes	N/A	None
39	39				Yes	N/A	None
40	40				Yes	N/A	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45				Yes	N/A	None
46	46	OOOOOX			Yes	** NA **	None
47	47	OOOOOX			Yes	** NA **	None
48	48	OOOOOX			Yes	** NA **	None
49	49	OOOOOX			Yes	** NA **	None
50	50				Yes	N/A	None
51	51			2	Yes	N/A	None
52	52		2		Yes	N/A	None
53	53				Yes	N/A	None
54	54				Yes	N/A	None
55	55				Yes	N/A	None
56	56				Yes	N/A	None
57	57				Yes	N/A	None
58	58				Yes	N/A	None
59	59				Yes	N/A	None
60	60				Yes	** NA **	None
61	61				Yes	** NA **	None
62	62				Yes	** NA **	None
63	63				Yes	** NA **	None
64	64				Yes	N/A	None
65	65	OOOOOX			Yes	** NA **	None
66	66	OOOOOX			Yes	** NA **	None
67	67	OOOOOX			Yes	** NA **	None
68	68	OOOOOX			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
69	69				Yes	N/A	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes	** NA **	None
77	77				Yes	** NA **	None
78	78				Yes	** NA **	None
79	79				Yes	N/A	None
80	80				Yes	** NA **	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes	** NA **	None
88	88				Yes	** NA **	None
89	89				Yes	N/A	None
90	90				Yes	N/A	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy	Lateral
2	2	SF-H2	2.758	Lbyy	Lateral
3	3	SF-H2	2.758	Lbyy	Lateral
4	4	MF-CP1	0.292	Lbyy	Lateral
5	5	MF-CP1	0.292	Lbyy	Lateral
6	6	MF-H1	8	Lbyy	Lateral
7	7	MF-CP1	0.208	Lbyy	Lateral
8	8	MF-CP1	0.208	Lbyy	Lateral
9	9	SF-H3	2.309	Lbyy	Lateral
10	10	SF-H3	2.309	Lbyy	Lateral
11	11	SF-H4	3.207	Lbyy	Lateral
12	18	MF-P1	8	Lbyy	Lateral
13	19	MF-P1	8	Lbyy	Lateral
14	22	MF-H2	10	Lbyy	Lateral
15	23	MF-H3	3.25	Lbyy	Lateral
16	29	MF-P1	8	Lbyy	Lateral
17	31	SF-H1	3.333	Lbyy	Lateral
18	32	SF-H2	2.758	Lbyy	Lateral
19	33	SF-H2	2.758	Lbyy	Lateral
20	34	MF-CP1	0.292	Lbyy	Lateral
21	35	MF-CP1	0.292	Lbyy	Lateral
22	36	MF-CP1	0.208	Lbyy	Lateral
23	37	MF-CP1	0.208	Lbyy	Lateral
24	38	SF-H3	2.309	Lbyy	Lateral
25	39	SF-H3	2.309	Lbyy	Lateral
26	40	SF-H4	3.207	Lbyy	Lateral
27	45	MF-H3	3.25	Lbyy	Lateral
28	50	SF-H1	3.333	Lbyy	Lateral
29	51	SF-H2	2.758	Lbyy	Lateral
30	52	SF-H2	2.758	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
31	53	MF-CP1	0.292	Lbyy	Lateral
32	54	MF-CP1	0.292	Lbyy	Lateral
33	55	MF-CP1	0.208	Lbyy	Lateral
34	56	MF-CP1	0.208	Lbyy	Lateral
35	57	SF-H3	2.309	Lbyy	Lateral
36	58	SF-H3	2.309	Lbyy	Lateral
37	59	SF-H4	3.207	Lbyy	Lateral
38	64	MF-H3	3.25	Lbyy	Lateral
39	69	MF-H1	8	Lbyy	Lateral
40	72	MF-P1	8	Lbyy	Lateral
41	73	MF-P1	8	Lbyy	Lateral
42	77	MF-P1	8	Lbyy	Lateral
43	79	MF-H1	8	Lbyy	Lateral
44	82	MF-P1	8	Lbyy	Lateral
45	83	MF-P1	8	Lbyy	Lateral
46	87	MF-P1	8	Lbyy	Lateral
47	89	MF-H2	10	Lbyy	Lateral
48	90	MF-H2	10	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.032	%15
2	29	Y	-0.032	%85
3	29	Y	-0.075	%15
4	29	Y	-0.064	%50
5	29	Y	0	0
6	87	Y	-0.032	%15
7	87	Y	-0.032	%85
8	87	Y	-0.075	%15
9	87	Y	-0.064	%50
10	87	Y	0	0
11	77	Y	-0.032	%15
12	77	Y	-0.032	%85
13	77	Y	-0.075	%15
14	77	Y	-0.064	%50
15	77	Y	0	0
16	31	Y	-0.022	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.226	%15
2	29	Z	-0.226	%85
3	29	Z	-0.071	%15
4	29	Z	-0.071	%50
5	29	Z	0	0
6	87	Z	-0.226	%15
7	87	Z	-0.226	%85
8	87	Z	-0.071	%15
9	87	Z	-0.071	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	87	Z	0	0
11	77	Z	-0.226	%15
12	77	Z	-0.226	%85
13	77	Z	-0.071	%15
14	77	Z	-0.071	%50
15	77	Z	0	0
16	31	Z	-0.073	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.091	%15
2	29	X	-0.091	%85
3	29	X	-0.043	%15
4	29	X	-0.038	%50
5	29	X	0	0
6	87	X	-0.091	%15
7	87	X	-0.091	%85
8	87	X	-0.043	%15
9	87	X	-0.038	%50
10	87	X	0	0
11	77	X	-0.091	%15
12	77	X	-0.091	%85
13	77	X	-0.043	%15
14	77	X	-0.038	%50
15	77	X	0	0
16	31	X	-0.041	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.063	%15
2	29	Z	-0.063	%85
3	29	Z	-0.024	%15
4	29	Z	-0.024	%50
5	29	Z	0	0
6	87	Z	-0.063	%15
7	87	Z	-0.063	%85
8	87	Z	-0.024	%15
9	87	Z	-0.024	%50
10	87	Z	0	0
11	77	Z	-0.063	%15
12	77	Z	-0.063	%85
13	77	Z	-0.024	%15
14	77	Z	-0.024	%50
15	77	Z	0	0
16	31	Z	-0.025	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.031	%15
2	29	X	-0.031	%85
3	29	X	-0.017	%15
4	29	X	-0.015	%50
5	29	X	0	0
6	87	X	-0.031	%15
7	87	X	-0.031	%85
8	87	X	-0.017	%15
9	87	X	-0.015	%50
10	87	X	0	0
11	77	X	-0.031	%15
12	77	X	-0.031	%85
13	77	X	-0.017	%15
14	77	X	-0.015	%50
15	77	X	0	0
16	31	X	-0.016	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Z	-0.018	%15
2	29	Z	-0.018	%85
3	29	Z	-0.006	%15
4	29	Z	-0.006	%50
5	29	Z	0	0
6	87	Z	-0.018	%15
7	87	Z	-0.018	%85
8	87	Z	-0.006	%15
9	87	Z	-0.006	%50
10	87	Z	0	0
11	77	Z	-0.018	%15
12	77	Z	-0.018	%85
13	77	Z	-0.006	%15
14	77	Z	-0.006	%50
15	77	Z	0	0
16	31	Z	-0.006	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	X	-0.007	%15
2	29	X	-0.007	%85
3	29	X	-0.004	%15
4	29	X	-0.003	%50
5	29	X	0	0
6	87	X	-0.007	%15
7	87	X	-0.007	%85
8	87	X	-0.004	%15
9	87	X	-0.003	%50
10	87	X	0	0
11	77	X	-0.007	%15
12	77	X	-0.007	%85
13	77	X	-0.004	%15
14	77	X	-0.003	%50
15	77	X	0	0
16	31	X	-0.003	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	29	Y	-0.148	%15
2	29	Y	-0.148	%85
3	29	Y	-0.053	%15
4	29	Y	-0.052	%50
5	29	Y	0	0
6	87	Y	-0.148	%15
7	87	Y	-0.148	%85
8	87	Y	-0.053	%15
9	87	Y	-0.052	%50
10	87	Y	0	0
11	77	Y	-0.148	%15
12	77	Y	-0.148	%85
13	77	Y	-0.053	%15
14	77	Y	-0.052	%50
15	77	Y	0	0
16	31	Y	-0.054	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

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

Member Point Loads (BLC 14 : Maint LL 2)

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

Member Point Loads (BLC 15 : Maint LL 3)

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

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	89	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	79	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	90	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 7)

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

Member Point Loads (BLC 20 : Maint LL 8)

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

Member Point Loads (BLC 21 : Maint LL 9)

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

Member Point Loads (BLC 22 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	89	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	79	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	90	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 13)

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

Member Point Loads (BLC 26 : Maint LL 14)

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

Member Point Loads (BLC 27 : Maint LL 15)

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

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.018	-0.018	0	%100
2	2	Z	-0.015	-0.015	0	%100
3	3	Z	-0.015	-0.015	0	%100
4	4	Z	-0.022	-0.022	0	%100
5	5	Z	-0.022	-0.022	0	%100
6	6	Z	-0.011	-0.011	0	%100
7	7	Z	-0.022	-0.022	0	%100
8	8	Z	-0.022	-0.022	0	%100
9	9	Z	-0.01	-0.01	0	%100
10	10	Z	-0.01	-0.01	0	%100
11	11	Z	-0.03	-0.03	0	%100
12	18	Z	-0.01	-0.01	0	%100
13	19	Z	-0.01	-0.01	0	%100
14	22	Z	-0.01	-0.01	0	%100
15	23	Z	-0.026	-0.026	0	%100
16	29	Z	-0.01	-0.01	0	%100
17	31	Z	-0.018	-0.018	0	%100
18	32	Z	-0.015	-0.015	0	%100
19	33	Z	-0.015	-0.015	0	%100
20	34	Z	-0.022	-0.022	0	%100
21	35	Z	-0.022	-0.022	0	%100
22	36	Z	-0.022	-0.022	0	%100
23	37	Z	-0.022	-0.022	0	%100
24	38	Z	-0.01	-0.01	0	%100
25	39	Z	-0.01	-0.01	0	%100
26	40	Z	-0.03	-0.03	0	%100
27	45	Z	-0.026	-0.026	0	%100
28	50	Z	-0.018	-0.018	0	%100
29	51	Z	-0.015	-0.015	0	%100
30	52	Z	-0.015	-0.015	0	%100
31	53	Z	-0.022	-0.022	0	%100
32	54	Z	-0.022	-0.022	0	%100
33	55	Z	-0.022	-0.022	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
34	56	Z	-0.022	-0.022	0	%100
35	57	Z	-0.01	-0.01	0	%100
36	58	Z	-0.01	-0.01	0	%100
37	59	Z	-0.03	-0.03	0	%100
38	64	Z	-0.026	-0.026	0	%100
39	69	Z	-0.011	-0.011	0	%100
40	72	Z	-0.01	-0.01	0	%100
41	73	Z	-0.01	-0.01	0	%100
42	77	Z	-0.01	-0.01	0	%100
43	79	Z	-0.011	-0.011	0	%100
44	82	Z	-0.01	-0.01	0	%100
45	83	Z	-0.01	-0.01	0	%100
46	87	Z	-0.01	-0.01	0	%100
47	89	Z	-0.01	-0.01	0	%100
48	90	Z	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.018	-0.018	0	%100
2	2	X	-0.015	-0.015	0	%100
3	3	X	-0.015	-0.015	0	%100
4	4	X	-0.022	-0.022	0	%100
5	5	X	-0.022	-0.022	0	%100
6	6	X	-0.011	-0.011	0	%100
7	7	X	-0.022	-0.022	0	%100
8	8	X	-0.022	-0.022	0	%100
9	9	X	-0.01	-0.01	0	%100
10	10	X	-0.01	-0.01	0	%100
11	11	X	-0.03	-0.03	0	%100
12	18	X	-0.01	-0.01	0	%100
13	19	X	-0.01	-0.01	0	%100
14	22	X	-0.01	-0.01	0	%100
15	23	X	-0.026	-0.026	0	%100
16	29	X	-0.01	-0.01	0	%100
17	31	X	-0.018	-0.018	0	%100
18	32	X	-0.015	-0.015	0	%100
19	33	X	-0.015	-0.015	0	%100
20	34	X	-0.022	-0.022	0	%100
21	35	X	-0.022	-0.022	0	%100
22	36	X	-0.022	-0.022	0	%100
23	37	X	-0.022	-0.022	0	%100
24	38	X	-0.01	-0.01	0	%100
25	39	X	-0.01	-0.01	0	%100
26	40	X	-0.03	-0.03	0	%100
27	45	X	-0.026	-0.026	0	%100
28	50	X	-0.018	-0.018	0	%100
29	51	X	-0.015	-0.015	0	%100
30	52	X	-0.015	-0.015	0	%100
31	53	X	-0.022	-0.022	0	%100
32	54	X	-0.022	-0.022	0	%100
33	55	X	-0.022	-0.022	0	%100
34	56	X	-0.022	-0.022	0	%100
35	57	X	-0.01	-0.01	0	%100
36	58	X	-0.01	-0.01	0	%100
37	59	X	-0.03	-0.03	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
38	64	X	-0.026	-0.026	0	%100
39	69	X	-0.011	-0.011	0	%100
40	72	X	-0.01	-0.01	0	%100
41	73	X	-0.01	-0.01	0	%100
42	77	X	-0.01	-0.01	0	%100
43	79	X	-0.011	-0.011	0	%100
44	82	X	-0.01	-0.01	0	%100
45	83	X	-0.01	-0.01	0	%100
46	87	X	-0.01	-0.01	0	%100
47	89	X	-0.01	-0.01	0	%100
48	90	X	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.008	-0.008	0	%100
2	2	Z	-0.008	-0.008	0	%100
3	3	Z	-0.008	-0.008	0	%100
4	4	Z	-0.016	-0.016	0	%100
5	5	Z	-0.016	-0.016	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	7	Z	-0.019	-0.019	0	%100
8	8	Z	-0.019	-0.019	0	%100
9	9	Z	-0.007	-0.007	0	%100
10	10	Z	-0.007	-0.007	0	%100
11	11	Z	-0.011	-0.011	0	%100
12	18	Z	-0.003	-0.003	0	%100
13	19	Z	-0.003	-0.003	0	%100
14	22	Z	-0.003	-0.003	0	%100
15	23	Z	-0.01	-0.01	0	%100
16	29	Z	-0.003	-0.003	0	%100
17	31	Z	-0.008	-0.008	0	%100
18	32	Z	-0.008	-0.008	0	%100
19	33	Z	-0.008	-0.008	0	%100
20	34	Z	-0.016	-0.016	0	%100
21	35	Z	-0.016	-0.016	0	%100
22	36	Z	-0.019	-0.019	0	%100
23	37	Z	-0.019	-0.019	0	%100
24	38	Z	-0.007	-0.007	0	%100
25	39	Z	-0.007	-0.007	0	%100
26	40	Z	-0.011	-0.011	0	%100
27	45	Z	-0.01	-0.01	0	%100
28	50	Z	-0.008	-0.008	0	%100
29	51	Z	-0.008	-0.008	0	%100
30	52	Z	-0.008	-0.008	0	%100
31	53	Z	-0.016	-0.016	0	%100
32	54	Z	-0.016	-0.016	0	%100
33	55	Z	-0.019	-0.019	0	%100
34	56	Z	-0.019	-0.019	0	%100
35	57	Z	-0.007	-0.007	0	%100
36	58	Z	-0.007	-0.007	0	%100
37	59	Z	-0.011	-0.011	0	%100
38	64	Z	-0.01	-0.01	0	%100
39	69	Z	-0.003	-0.003	0	%100
40	72	Z	-0.003	-0.003	0	%100
41	73	Z	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
42	77	Z	-0.003	-0.003	0	%100
43	79	Z	-0.003	-0.003	0	%100
44	82	Z	-0.003	-0.003	0	%100
45	83	Z	-0.003	-0.003	0	%100
46	87	Z	-0.003	-0.003	0	%100
47	89	Z	-0.003	-0.003	0	%100
48	90	Z	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.008	-0.008	0	%100
2	2	X	-0.008	-0.008	0	%100
3	3	X	-0.008	-0.008	0	%100
4	4	X	-0.016	-0.016	0	%100
5	5	X	-0.016	-0.016	0	%100
6	6	X	-0.003	-0.003	0	%100
7	7	X	-0.019	-0.019	0	%100
8	8	X	-0.019	-0.019	0	%100
9	9	X	-0.007	-0.007	0	%100
10	10	X	-0.007	-0.007	0	%100
11	11	X	-0.011	-0.011	0	%100
12	18	X	-0.003	-0.003	0	%100
13	19	X	-0.003	-0.003	0	%100
14	22	X	-0.003	-0.003	0	%100
15	23	X	-0.01	-0.01	0	%100
16	29	X	-0.003	-0.003	0	%100
17	31	X	-0.008	-0.008	0	%100
18	32	X	-0.008	-0.008	0	%100
19	33	X	-0.008	-0.008	0	%100
20	34	X	-0.016	-0.016	0	%100
21	35	X	-0.016	-0.016	0	%100
22	36	X	-0.019	-0.019	0	%100
23	37	X	-0.019	-0.019	0	%100
24	38	X	-0.007	-0.007	0	%100
25	39	X	-0.007	-0.007	0	%100
26	40	X	-0.011	-0.011	0	%100
27	45	X	-0.01	-0.01	0	%100
28	50	X	-0.008	-0.008	0	%100
29	51	X	-0.008	-0.008	0	%100
30	52	X	-0.008	-0.008	0	%100
31	53	X	-0.016	-0.016	0	%100
32	54	X	-0.016	-0.016	0	%100
33	55	X	-0.019	-0.019	0	%100
34	56	X	-0.019	-0.019	0	%100
35	57	X	-0.007	-0.007	0	%100
36	58	X	-0.007	-0.007	0	%100
37	59	X	-0.011	-0.011	0	%100
38	64	X	-0.01	-0.01	0	%100
39	69	X	-0.003	-0.003	0	%100
40	72	X	-0.003	-0.003	0	%100
41	73	X	-0.003	-0.003	0	%100
42	77	X	-0.003	-0.003	0	%100
43	79	X	-0.003	-0.003	0	%100
44	82	X	-0.003	-0.003	0	%100
45	83	X	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
46	87	X	-0.003	-0.003	0	%100
47	89	X	-0.003	-0.003	0	%100
48	90	X	-0.003	-0.003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.0005	-0.0005	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0008	-0.0008	0	%100
10	10	Z	-0.0008	-0.0008	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0004	-0.0004	0	%100
13	19	Z	-0.0004	-0.0004	0	%100
14	22	Z	-0.0004	-0.0004	0	%100
15	23	Z	-0.002	-0.002	0	%100
16	29	Z	-0.0004	-0.0004	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.001	-0.001	0	%100
19	33	Z	-0.001	-0.001	0	%100
20	34	Z	-0.002	-0.002	0	%100
21	35	Z	-0.002	-0.002	0	%100
22	36	Z	-0.002	-0.002	0	%100
23	37	Z	-0.002	-0.002	0	%100
24	38	Z	-0.0008	-0.0008	0	%100
25	39	Z	-0.0008	-0.0008	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	45	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.001	-0.001	0	%100
30	52	Z	-0.001	-0.001	0	%100
31	53	Z	-0.002	-0.002	0	%100
32	54	Z	-0.002	-0.002	0	%100
33	55	Z	-0.002	-0.002	0	%100
34	56	Z	-0.002	-0.002	0	%100
35	57	Z	-0.0008	-0.0008	0	%100
36	58	Z	-0.0008	-0.0008	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	64	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0005	-0.0005	0	%100
40	72	Z	-0.0004	-0.0004	0	%100
41	73	Z	-0.0004	-0.0004	0	%100
42	77	Z	-0.0004	-0.0004	0	%100
43	79	Z	-0.0005	-0.0005	0	%100
44	82	Z	-0.0004	-0.0004	0	%100
45	83	Z	-0.0004	-0.0004	0	%100
46	87	Z	-0.0004	-0.0004	0	%100
47	89	Z	-0.0004	-0.0004	0	%100
48	90	Z	-0.0004	-0.0004	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.0005	-0.0005	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0008	-0.0008	0	%100
10	10	X	-0.0008	-0.0008	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.0004	-0.0004	0	%100
13	19	X	-0.0004	-0.0004	0	%100
14	22	X	-0.0004	-0.0004	0	%100
15	23	X	-0.002	-0.002	0	%100
16	29	X	-0.0004	-0.0004	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.001	-0.001	0	%100
19	33	X	-0.001	-0.001	0	%100
20	34	X	-0.002	-0.002	0	%100
21	35	X	-0.002	-0.002	0	%100
22	36	X	-0.002	-0.002	0	%100
23	37	X	-0.002	-0.002	0	%100
24	38	X	-0.0008	-0.0008	0	%100
25	39	X	-0.0008	-0.0008	0	%100
26	40	X	-0.002	-0.002	0	%100
27	45	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.001	-0.001	0	%100
30	52	X	-0.001	-0.001	0	%100
31	53	X	-0.002	-0.002	0	%100
32	54	X	-0.002	-0.002	0	%100
33	55	X	-0.002	-0.002	0	%100
34	56	X	-0.002	-0.002	0	%100
35	57	X	-0.0008	-0.0008	0	%100
36	58	X	-0.0008	-0.0008	0	%100
37	59	X	-0.002	-0.002	0	%100
38	64	X	-0.002	-0.002	0	%100
39	69	X	-0.0005	-0.0005	0	%100
40	72	X	-0.0004	-0.0004	0	%100
41	73	X	-0.0004	-0.0004	0	%100
42	77	X	-0.0004	-0.0004	0	%100
43	79	X	-0.0005	-0.0005	0	%100
44	82	X	-0.0004	-0.0004	0	%100
45	83	X	-0.0004	-0.0004	0	%100
46	87	X	-0.0004	-0.0004	0	%100
47	89	X	-0.0004	-0.0004	0	%100
48	90	X	-0.0004	-0.0004	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.016	-0.016	0	%100
2	2	Y	-0.012	-0.012	0	%100
3	3	Y	-0.012	-0.012	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
4	4	Y	-0.016	-0.016	0	%100
5	5	Y	-0.016	-0.016	0	%100
6	6	Y	-0.011	-0.011	0	%100
7	7	Y	-0.016	-0.016	0	%100
8	8	Y	-0.016	-0.016	0	%100
9	9	Y	-0.01	-0.01	0	%100
10	10	Y	-0.01	-0.01	0	%100
11	11	Y	-0.021	-0.021	0	%100
12	18	Y	-0.01	-0.01	0	%100
13	19	Y	-0.01	-0.01	0	%100
14	22	Y	-0.01	-0.01	0	%100
15	23	Y	-0.02	-0.02	0	%100
16	29	Y	-0.01	-0.01	0	%100
17	31	Y	-0.016	-0.016	0	%100
18	32	Y	-0.012	-0.012	0	%100
19	33	Y	-0.012	-0.012	0	%100
20	34	Y	-0.016	-0.016	0	%100
21	35	Y	-0.016	-0.016	0	%100
22	36	Y	-0.016	-0.016	0	%100
23	37	Y	-0.016	-0.016	0	%100
24	38	Y	-0.01	-0.01	0	%100
25	39	Y	-0.01	-0.01	0	%100
26	40	Y	-0.021	-0.021	0	%100
27	45	Y	-0.02	-0.02	0	%100
28	50	Y	-0.016	-0.016	0	%100
29	51	Y	-0.012	-0.012	0	%100
30	52	Y	-0.012	-0.012	0	%100
31	53	Y	-0.016	-0.016	0	%100
32	54	Y	-0.016	-0.016	0	%100
33	55	Y	-0.016	-0.016	0	%100
34	56	Y	-0.016	-0.016	0	%100
35	57	Y	-0.01	-0.01	0	%100
36	58	Y	-0.01	-0.01	0	%100
37	59	Y	-0.021	-0.021	0	%100
38	64	Y	-0.02	-0.02	0	%100
39	69	Y	-0.011	-0.011	0	%100
40	72	Y	-0.01	-0.01	0	%100
41	73	Y	-0.01	-0.01	0	%100
42	77	Y	-0.01	-0.01	0	%100
43	79	Y	-0.011	-0.011	0	%100
44	82	Y	-0.01	-0.01	0	%100
45	83	Y	-0.01	-0.01	0	%100
46	87	Y	-0.01	-0.01	0	%100
47	89	Y	-0.01	-0.01	0	%100
48	90	Y	-0.01	-0.01	0	%100

Member Distributed Loads (BLC 28 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	39	Y	-0.018	-0.016	0.231	2.309
2	57	Y	-0.018	-0.016	0	2.078
3	58	Y	0.0006164	-0.016	0	1.155
4	58	Y	-0.016	-0.035	1.155	2.309
5	9	Y	-0.015	-0.015	0	2.078
6	10	Y	-0.014	-0.02	0.231	1.27
7	10	Y	-0.02	-0.026	1.27	2.309

Member Distributed Loads (BLC 28 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
8	38	Y	-0.035	-0.016	0	1.155
9	38	Y	-0.016	0.0006163	1.155	2.309

Member Distributed Loads (BLC 29 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.012	-0.012	0	2.078
2	10	Y	-0.012	-0.017	0.231	1.27
3	10	Y	-0.017	-0.021	1.27	2.309
4	38	Y	-0.028	-0.013	0	1.155
5	38	Y	-0.013	0.0004931	1.155	2.309
6	39	Y	-0.014	-0.013	0.231	2.309
7	57	Y	-0.014	-0.013	0	2.078
8	58	Y	0.0004931	-0.013	0	1.155
9	58	Y	-0.013	-0.028	1.155	2.309

Member Area Loads (BLC 1 : Dead)

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

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	23	22	25	24	Y	Two Way	-0.008
2	73	72	75	74	Y	Two Way	-0.008
3	102	101	104	103	Y	Two Way	-0.008

Node Loads and Enforced Displacements (BLC 9 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	30	L	Y	-0.5
2	113	L	Y	-0.5
3	133	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 10 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	31	L	Y	-0.5
2	114	L	Y	-0.5
3	134	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	46	L	Y	-0.5
2	125	L	Y	-0.5
3	145	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		20		3
2	0 Wind - No Ice	WLZ			20	48	
3	90 Wind - No Ice	WLX			20	48	
4	0 Wind - Ice	WLZ			20	48	
5	90 Wind - Ice	WLX			20	48	
6	0 Wind - Service	WLZ			20	48	
7	90 Wind - Service	WLX			20	48	
8	Ice	OL1			20	48	3
9	Live Load a	LL		3			
10	Live Load b	LL		3			
11	Live Load c	LL		3			
12	Live Load d	LL					
13	Maint LL 1	LL			1		
14	Maint LL 2	LL			1		
15	Maint LL 3	LL			1		
16	Maint LL 4	LL			1		
17	Maint LL 5	LL			1		
18	Maint LL 6	LL			1		
19	Maint LL 7	LL			1		
20	Maint LL 8	LL			1		
21	Maint LL 9	LL			1		
22	Maint LL 10	LL			1		
23	Maint LL 11	LL			1		
24	Maint LL 12	LL			1		
25	Maint LL 13	LL			1		
26	Maint LL 14	LL			1		
27	Maint LL 15	LL			1		
28	BLC 1 Transient Area Loads	None				9	
29	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5
104	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					19	1.5
105	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					20	1.5
106	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					21	1.5
107	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					22	1.5
108	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					23	1.5
109	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					24	1.5
110	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					25	1.5
111	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					26	1.5
112	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					27	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	1.725	5	2.292	14	2.245	2	5.338	14	1.748	11	0.41	24
2		min	-1.727	23	-0.909	8	-2.361	20	-2.677	8	-1.748	5	-0.287	6
3	53	max	1.858	5	2.3	42	2.235	14	1.052	13	2.185	3	1.56	12
4		min	-1.953	23	-0.568	12	-2.174	8	-2.29	19	-2.183	21	-4.012	42
5	82	max	1.732	17	2.215	46	2.488	14	1.131	3	2.211	7	3.859	22
6		min	-1.634	11	-0.594	4	-2.433	8	-2.594	21	-2.211	25	-1.603	4
7	Totals:	max	5.301	17	6.042	44	6.953	2						
8		min	-5.301	23	1.797	2	-6.953	20						

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.727	0	25	0.145	0	y	25	70.173	73.278	8.24	8.24	1.969	H1-1b
2	2	C3.38x2.06x.188	0.468	2.592	15	0.078	0.351	z	20	38.433	43.394	1.694	4.483	1.591	H1-1b
3	3	C3.38x2.06x.188	0.495	0	25	0.11	2.241	z	20	38.433	43.394	1.694	4.483	1.585	H1-1b
4	4	PL3/8"x6	0.142	0	14	0.239	0	y	14	68.856	72.9	0.57	9.113	2.391	H1-1b

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
5	5	PL3/8"x6	0.149	0	15	0.195	0	y	14	68.856	72.9	0.57	9.113	2.024	H1-1b
6	6	PIPE_3.5x0.165	0.112	6.75	19	0.06	4		16	45.872	71.57	6.336	6.336	1.891	H1-1b
7	7	PL3/8"x6	0.223	0.208	14	0.229	0.208	y	38	70.733	72.9	0.57	9.113	2.271	H1-1b
8	8	PL3/8"x6	0.221	0	25	0.24	0	y	39	70.733	72.9	0.57	9.113	2.728	H1-1b
9	9	L2x2x4	0.451	0	20	0.037	2.309	z	25	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.391	2.309	20	0.041	2.309	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.618	1.604	8	0.107	1.604	z	14	73.845	118.523	1.798	13.629	1.222	H2-1
12	18	PIPE_2.88x.203	0.175	5.667	17	0.066	5.667		18	35.519	70.68	5.029	5.029	3	H1-1b
13	19	PIPE_2.88x.203	0.205	2.333	21	0.074	5.667		21	35.519	70.68	5.029	5.029	3	H1-1b
14	22	PIPE_2.88x.203	0.235	7.813	14	0.21	8.958		14	24.131	70.68	5.029	5.029	2.468	H1-1b
15	23	L6.63x4.33x.25	0.318	3.25	6	0.039	3.25	z	24	49.975	86.751	2.311	6.976	1.5	H2-1
16	29	PIPE_2.88x.203	0.195	2.333	19	0.074	2.333		20	35.519	70.68	5.029	5.029	3	H1-1b
17	31	HSS4X4X2	0.687	0	19	0.173	0	z	15	70.173	73.278	8.24	8.24	1.995	H1-1b
18	32	C3.38x2.06x.188	0.463	2.592	19	0.07	0.351	y	45	38.433	43.394	1.694	4.483	1.593	H1-1b
19	33	C3.38x2.06x.188	0.41	0	17	0.081	2.241	z	24	38.433	43.394	1.694	4.483	1.59	H1-1b
20	34	PL3/8"x6	0.119	0	18	0.195	0	y	18	68.856	72.9	0.57	9.113	2.397	H1-1b
21	35	PL3/8"x6	0.146	0	19	0.159	0	y	18	68.856	72.9	0.57	9.113	1.935	H1-1b
22	36	PL3/8"x6	0.194	0.208	19	0.227	0.208	y	42	70.733	72.9	0.57	9.113	2.572	H1-1b
23	37	PL3/8"x6	0.176	0	17	0.24	0	y	43	70.733	72.9	0.57	9.113	2.81	H1-1b
24	38	L2x2x4	0.338	0	23	0.031	2.309	z	17	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.327	2.309	25	0.042	0	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.468	1.604	12	0.1	1.604	z	19	73.845	118.523	1.798	13.663	1.229	H2-1
27	45	L6.63x4.33x.25	0.367	0	2	0.045	3.25	y	21	49.975	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.721	0	21	0.18	0	z	19	70.173	73.278	8.24	8.24	1.969	H1-1b
29	51	C3.38x2.06x.188	0.427	2.592	47	0.07	0.351	y	49	38.433	43.394	1.694	4.483	1.629	H1-1b
30	52	C3.38x2.06x.188	0.486	0	21	0.096	2.241	z	15	38.433	43.394	1.694	4.483	1.586	H1-1b
31	53	PL3/8"x6	0.142	0.164	15	0.198	0	y	22	68.856	72.9	0.57	9.113	2.941	H1-1b
32	54	PL3/8"x6	0.117	0	23	0.164	0	y	21	68.856	72.9	0.57	9.113	1.93	H1-1b
33	55	PL3/8"x6	0.207	0.085	14	0.227	0.208	y	45	70.733	72.9	0.57	9.113	1.382	H1-1b
34	56	PL3/8"x6	0.224	0	21	0.237	0	y	47	70.733	72.9	0.57	9.113	2.723	H1-1b
35	57	L2x2x4	0.433	0	15	0.037	2.309	z	21	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.323	2.309	16	0.041	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.548	1.604	3	0.09	1.604	z	21	73.845	118.523	1.798	13.886	1.279	H2-1
38	64	L6.63x4.33x.25	0.398	3.25	14	0.051	3.25	z	20	49.975	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE_3.5x0.165	0.125	1.25	14	0.08	4		20	45.872	71.57	6.336	6.336	1.699	H1-1b
40	72	PIPE_2.88x.203	0.222	5.667	21	0.077	5.667		21	35.519	70.68	5.029	5.029	3	H1-1b
41	73	PIPE_2.88x.203	0.249	2.333	14	0.073	5.667		25	35.519	70.68	5.029	5.029	3	H1-1b
42	77	PIPE_2.88x.203	0.199	5.667	21	0.077	2.333		25	35.519	70.68	5.029	5.029	3	H1-1b
43	79	PIPE_3.5x0.165	0.108	4	14	0.075	2.75		25	45.872	71.57	6.336	6.336	1.439	H1-1b
44	82	PIPE_2.88x.203	0.221	5.667	25	0.086	5.667		14	35.519	70.68	5.029	5.029	3	H1-1b
45	83	PIPE_2.88x.203	0.196	2.333	18	0.055	5.667		17	35.519	70.68	5.029	5.029	3	H1-1b
46	87	PIPE_2.88x.203	0.229	5.667	14	0.054	5.667		18	35.519	70.68	5.029	5.029	3	H1-1b
47	89	PIPE_2.88x.203	0.217	2.188	25	0.17	2.188		25	24.131	70.68	5.029	5.029	2.194	H1-1b
48	90	PIPE_2.88x.203	0.216	7.813	21	0.187	8.958		21	24.131	70.68	5.029	5.029	2.422	H1-1b

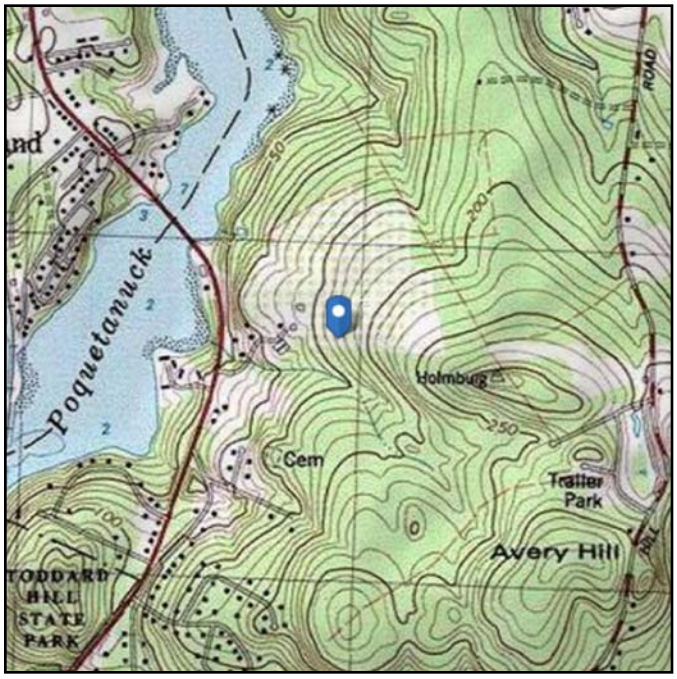
APPENDIX B

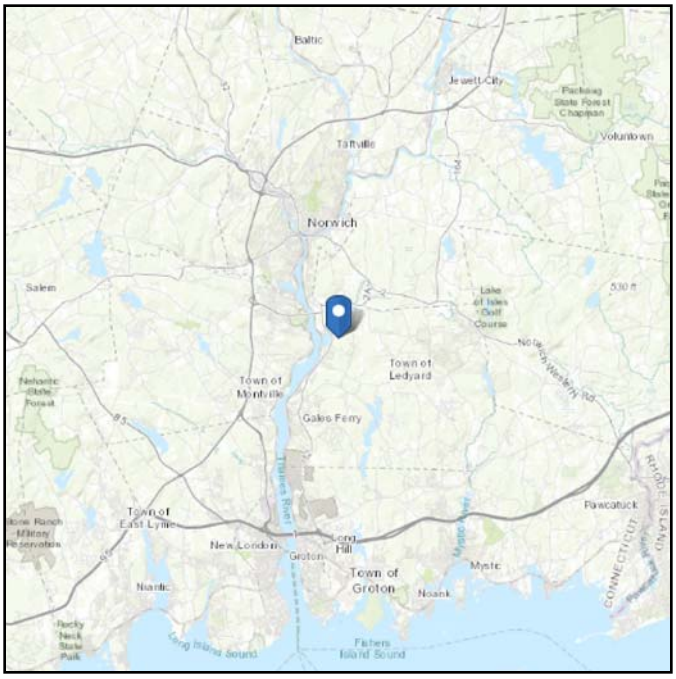
(Additional Calculations)

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	173.63 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.4683
Soil Class:	D - Stiff Soil	**Longitude:**	-72.0545





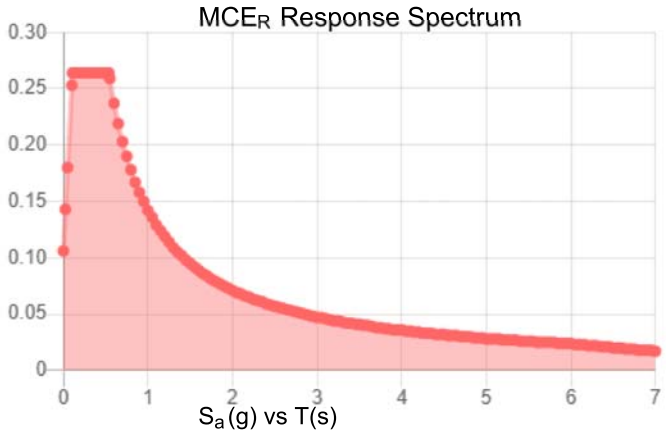
Seismic

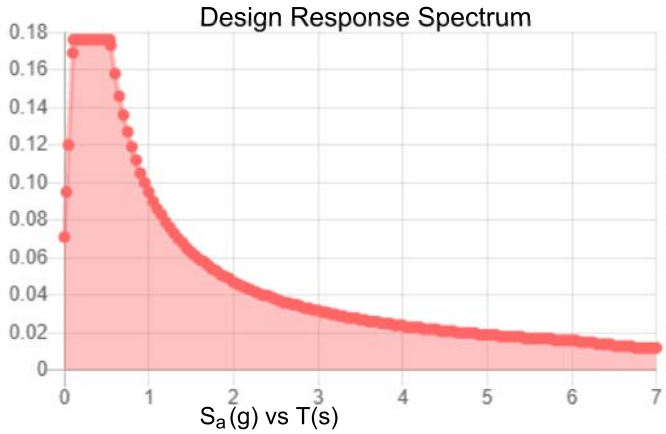
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.165	S_{DS} :	0.176
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.083
S_{MS} :	0.264	PGA_M :	0.132
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 22 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:	Thu Jul 22 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.

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBOS00059A

BOBOS00059A
12 Orchard Drive
Gales Ferry, Connecticut 06335

November 4, 2021

EBI Project Number: 6221006492

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**1.38%**

November 4, 2021

Dish Wireless

Emissions Analysis for Site: BOBOS00059A - BOBOS00059A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **12 Orchard Drive** in **Gales Ferry, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 12 Orchard Drive in Gales Ferry, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

7) The antenna mounting height centerline of the proposed antennas is 137 feet above ground level (AGL).

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

9) Emissions from additional carriers were not included because emissions data for the site location are not available. Site was not listed on the 9/14/21 CTSC Power density table; CDs show 2 additional carriers, but contribution cannot be provided as no data is available.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	137 feet	Height (AGL):	137 feet	Height (AGL):	137 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**1.38%**	Antenna B1 MPE %:	**1.38%**	Antenna C1 MPE %:	**1.38%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.38%
no additional carriers (see NOTE 9 above)	N/A
Site Total MPE % :	1.38%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.38%
Dish Wireless Sector B Total:	1.38%
Dish Wireless Sector C Total:	1.38%
Site Total MPE % :	1.38%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	137.0	1.87	600 MHz n71	400	0.47%
Dish Wireless 1900 MHz n70	4	542.70	137.0	4.55	1900 MHz n70	1000	0.45%
Dish Wireless 2190 MHz n66	4	542.70	137.0	4.55	2190 MHz n66	1000	0.45%
						Total:	**1.38%**

• 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:	1.38%
Sector B:	1.38%
Sector C:	1.38%
Dish Wireless Maximum MPE % (Sector A):	1.38%
Site Total:	1.38%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **1.38%** 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

SBA Letter of Authorization

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

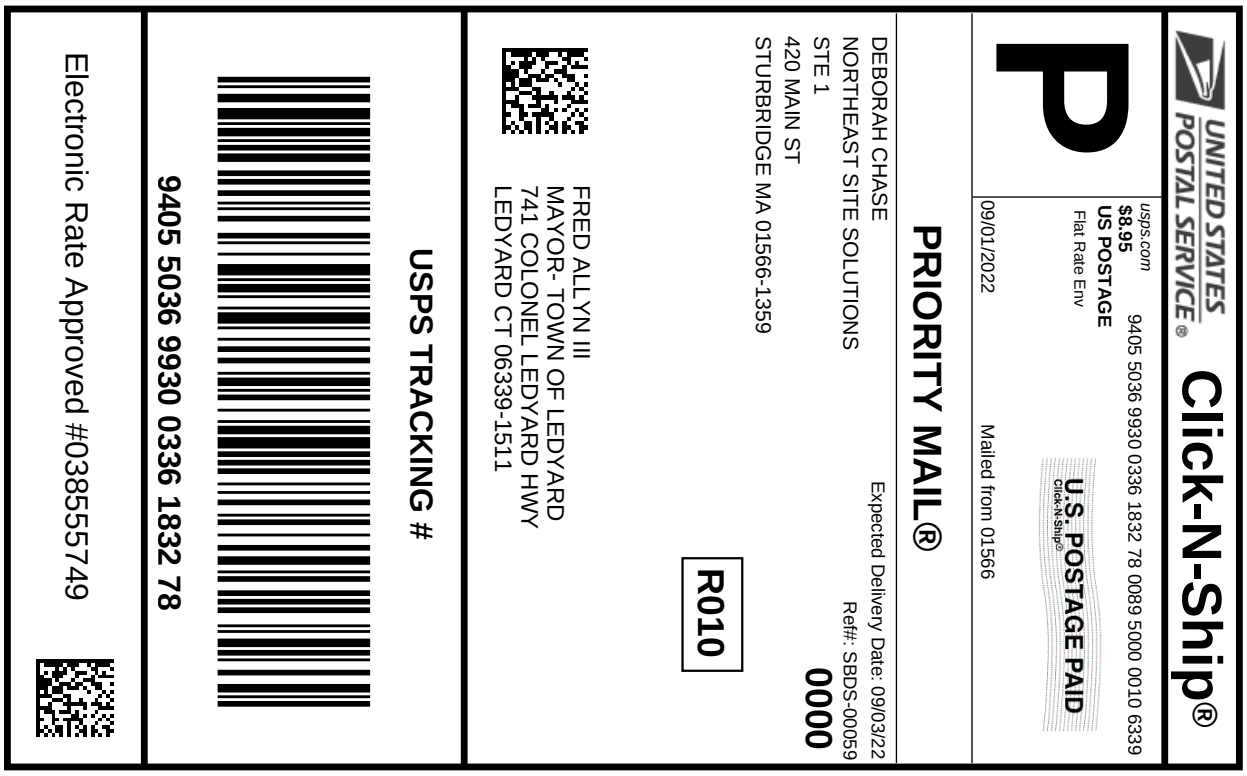
Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION 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 CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
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 0336 1832 78

Trans. #:	570936977
Print Date:	09/01/2022
Ship Date:	09/01/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

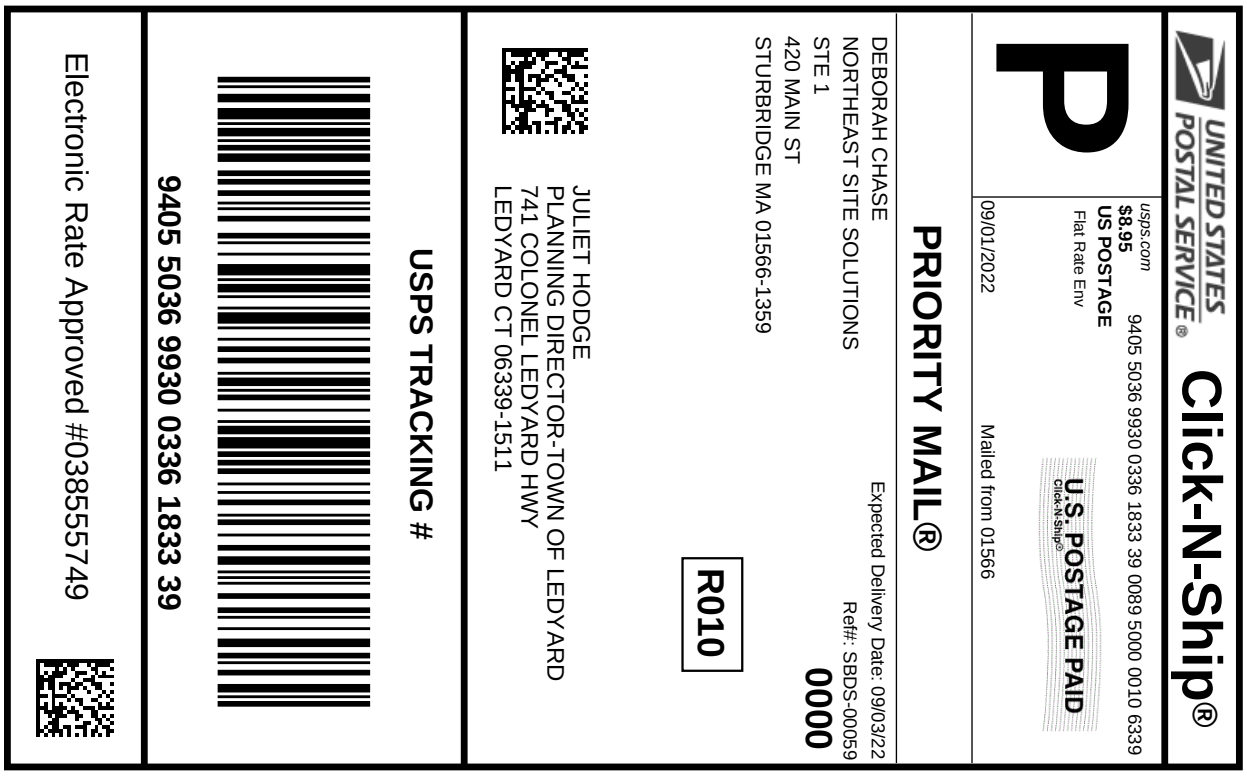
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-00059

To: FRED ALLYN III
MAYOR- TOWN OF LEDYARD
741 COLONEL LEDYARD HWY
LEDYARD CT 06339-1511

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0336 1833 39

Trans. #:	570936977
Print Date:	09/01/2022
Ship Date:	09/01/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

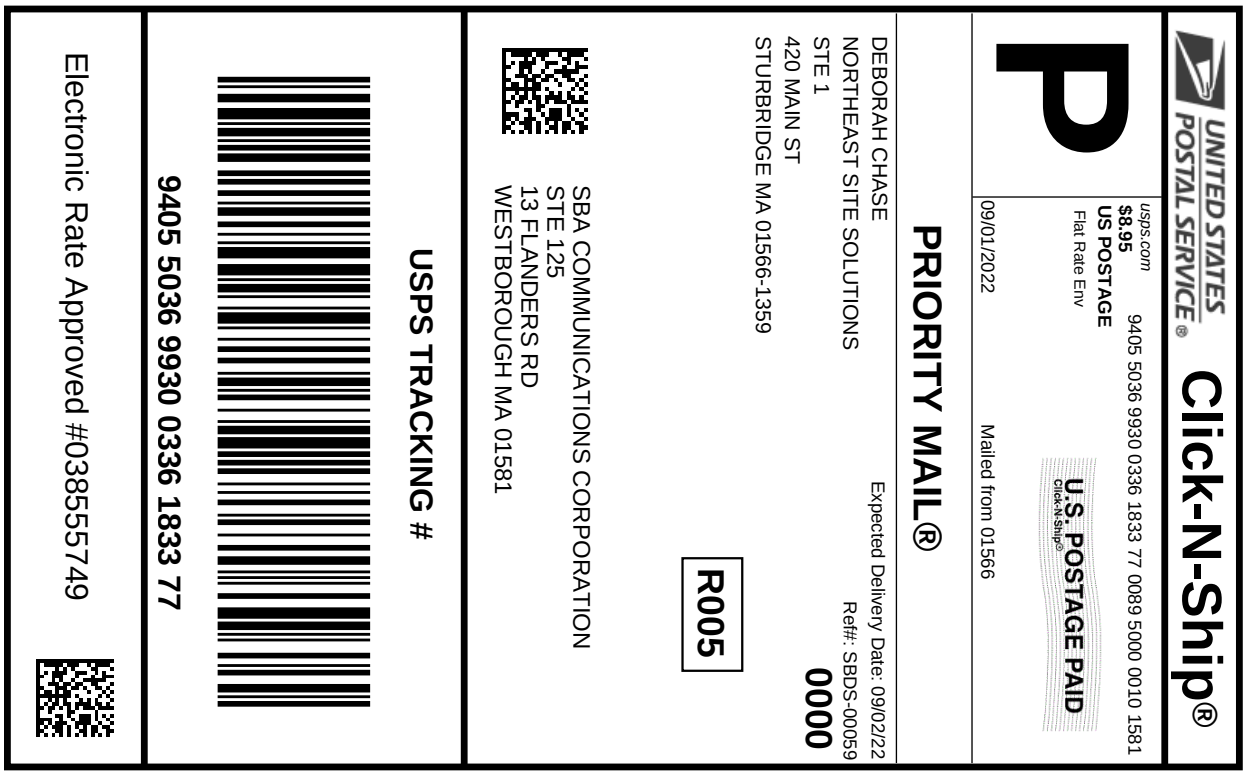
Ref#: SBDS-00059

To: JULIET HODGE
PLANNING DIRECTOR-TOWN OF LEDYARD
741 COLONEL LEDYARD HWY
LEDYARD CT 06339-1511

* 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.

UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0336 1833 77

Trans. #:	570936977
Print Date:	09/01/2022
Ship Date:	09/01/2022
Expected Delivery Date:	09/02/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: SBDS-00059

To: SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

* 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.

Thank you for shipping with the United States Postal Service!
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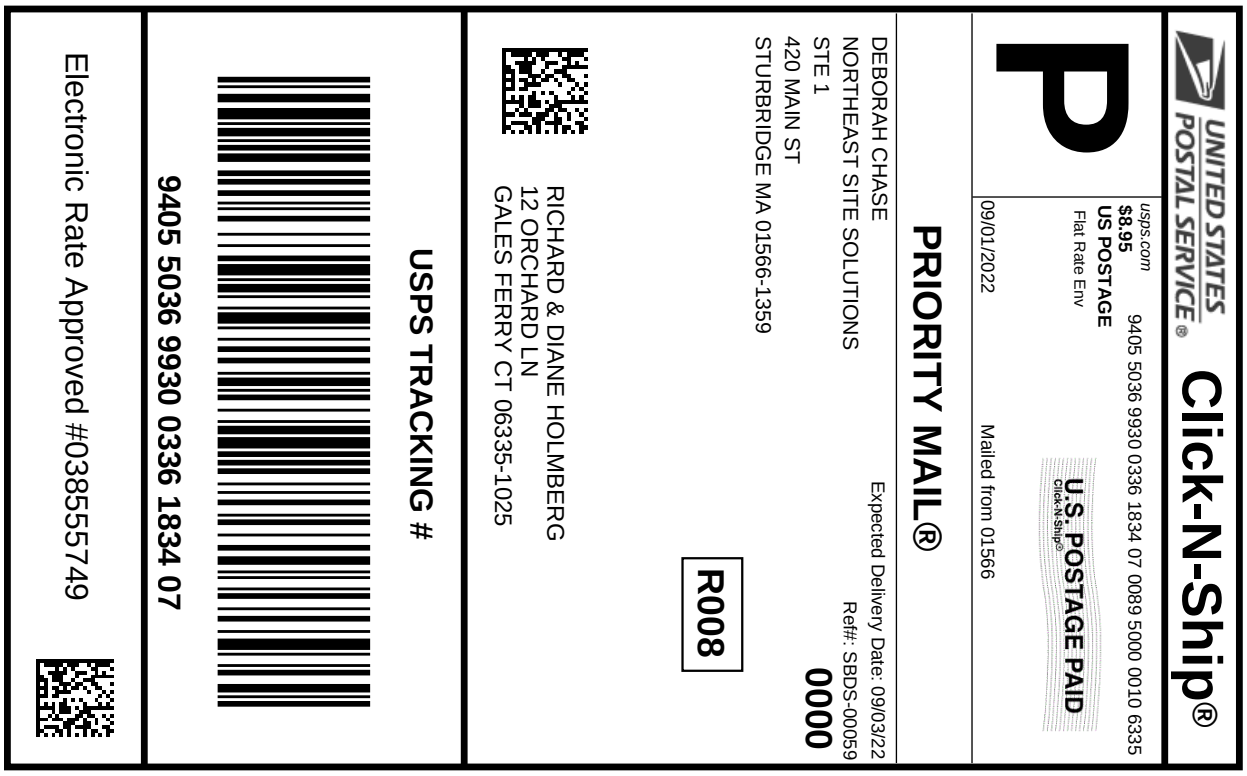

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0336 1834 07

Trans. #:	570936977
Print Date:	09/01/2022
Ship Date:	09/01/2022
Expected Delivery Date:	09/03/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: SBDS-00059

To: RICHARD & DIANE HOLMBERG
12 ORCHARD LN
GALES FERRY CT 06335-1025

* 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.

Thank you for shipping with the United States Postal Service!
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BOB0500059A SBA D18

UNITED STATES POSTAL SERVICE.

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

09/06/2022 08:50 AM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0336 1833 77	1		$0.00
Prepaid Mail Ledyard, CT 06339 Weight: 0 lb 7.60 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0336 1832 78	1		$0.00
Prepaid Mail Gales Ferry, CT 06335 Weight: 0 lb 7.50 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0336 1834 07	1		$0.00
Prepaid Mail Ledyard, CT 06339 Weight: 0 lb 7.60 oz Acceptance Date: Tue 09/06/2022 Tracking #: 9405 5036 9930 0336 1833 39	1		$0.00
Grand Total:			$0.00

****
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eligible to receive a third set
of 8 free test kits.
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****

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Track your Packages
Sign up for FREE @
https://informeddelivery.usps.com

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

Tell us about your experience.
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or scan this code with your mobile device,

or call 1-800-410-7420.