June 1, 2022

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**1 Hartford Square, New Britain, CT 06502 – Hartford County**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 166-feet on an existing 176-foot Self Support Tower, owned by SBA Towers at 1 Hartford Square, New Britain, CT 06502. AT&T now intends to remove three (3) 6' Quintel QS66512-2 Panel Antennas, each currently installed in position [1] and remove three (3) 6' CCI OPA65R-BU6DA Panel Antennas, each currently installed in position [3]. AT&T will then swap these for three (3) 6' Quintel QD6616-7 Panel Antennas, each to be installed in position [2], three (3) AIR 6449 B77D and three (3) AIR 64419 B77G Stacked Panel Antennas, each to be installed in position [3] all sectors. AT&T will relocate three (3) existing Remote Radio Units 8843 B2/B66A to position [2], relocate existing three (3) Remote Radio Units 4478 B14 to position [2], relocate existing Remote Radio Units RRU - 32 B30 to position [4]. In addition, AT&T intends to remove three (3) Triplexers and six (6) existing coax lines. AT&T is also proposing to install six (6) Y-Cables, two (2) per sector. All of the changes will take place on the existing antenna mount. This modification/proposal includes B2, B5, and B12 hardware that is both 4G(LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to David Zajac – Zoning Enforcement Officer/Building Inspector, Town of New Britain, CT and the honorable, Erin E. Stewart, – Mayor, New Britain, CT both at 27 West Main Street, New Britain, CT 06501. A copy of this letter is being sent to Hartford Square Associates, LLC at 1 Hartford Square, Box #15, New Britain, CT 06502 owner of the property where the tower is located and the tower owner, SBA Communications Corp. at 8051 Congress Ave. Boca Raton, FL 33487.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-004-089-137-152-154-070710** – New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 10 Redwood Lane, Avon; 1 Hartford Square, New Britain; 86 Voluntown Road, Stonington; 45 Fargo Road, Waterford; and 782 Old Clinton Road, Westbrook, Connecticut.
- **EM-AT&T-089-120904 –** AT&T Mobility notice of intent to modify an existing telecommunications facility located at One Hartford Square, **New Britain**, Connecticut.
- **EM-AT&T-089-131230** - American Telephone and Telegraph Company notice of intent to modify an existing telecommunications facility located at One Hartford Square, **New Britain**, Connecticut.
- **EM-AT&T-089-140121 –** American Telephone and Telegraph (AT&T) notice of intent to modify an existing telecommunications facility located at One Hartford Square, **New Britain**, Connecticut.

- **EM-AT&T-089-160223 -** AT&T notice of intent to modify an existing telecommunications facility located at 1 Hartford Square, **New Britain**, Connecticut.
- **EM-AT&T-089-170425** – AT&T notice of intent to modify an existing telecommunications facility located at 1 Hartford Square, **New Britain**, Connecticut.
- **EM-AT&T-089-180730** - AT&T notice of intent to modify an existing telecommunications facility located at 1 Hartford Square, **New Britain**, Connecticut.
- **EM-AT&T-089-200811** - AT&T notice of intent to modify an existing telecommunications facility located at 1 Hartford Square, **New Britain**, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 166-foot level of the 176-foot Self Support Tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under
R.C.S.A. §16-50j-72(b) (2).

Sincerely,

Kristina Cottone

CC w/enclosures:
Mayor Erin E. Stewart – Mayor, Town of New Britain, CT
David Zajac, Zoning Enforcement Officer/Building Inspector, Town of New Britain, CT
Hartford Square Associates, LLC - Property Owner
SBA Communications Corp – Tower Owner

RECEIVED
NOV - 5 2001
CONNECTICUT SITING COUNCIL

B 1414

CITY OF NEW BRITAIN
DEPARTMENT OF LICENSES, PERMITS
AND INSPECTIONS
TELEPHONE: 826-3383

BUILDING/ZONING PERMIT

DATE 8/14/00
COST 84,000.
FEE 1,290.

APPLICANT SBA TEL. NO. 860 659-9101

ADDRESS 80 Eastern Blvd. Glastonbury, CT

PERMIT FOR: Construct 175' Lattice Type Communication Tower per plans and specs.

LOCATION ONE HARTFORD SQUARE

BUILDING DIMENSIONS ____ FT. WIDE BY ____ FT. LONG AND ____ FT. IN HEIGHT

BUILDING TYPE ____ USE GROUP ____ LOT SIZE ____ ZONE I2

OWNER Dikwell Associates

ADDRESS 1 Hartford Sq. NB. CT

CERT. OF OCCUPANCY REQUIRED YES ✓ NO ___

AS-BUILT SURVEY REQUIRED YES ✓ NO ___

THE MATCHING APPLICATION IS PART AND PARCEL OF THIS BUILDING PERMIT.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

APPLICANT'S COPY

BUILDING OFFICIAL

MANDATORY INSPECTIONS REQUIRED

POST PERMIT FOR DURATION OF WORK

Nov-5-01 11:13AM; 860 439 0159; Sent by: SBA INC.;

CITY OF NEW BRITAIN

ELECTRICAL PERMIT

E 729

Job Address One Hartford Square

DATE MARCH 13, 2001

COST $ 5000.

FEE $ 105.

Permit is Granted to Dicin Electric Co. Inc Contractor's License E1-102834

Contractor's Address: 156 Cross Road Contractor's Phone (860) 442-0826
Waterford, Ct.

Property Owner: SBA

For the following Electrical Installation: Ground with #2 solid Tinned Copper Wire & install conduit & wire pre-fabbed SHELTER
It is for AT&T Wireless Shelter — 200 AMPS

The condition on which this permit is granted are: that the said Electrical Work shall be done in accordance with the laws of the State of Connecticut, and the ordinances of the City of New Britain. And if any of the statements of said applicant be not true, or if any change is made in said work, without the consent of the Electrical Inspector, this permit shall be null and void. Good for six months from date. This permit may be sooner revoked for any violation, of any ordinances, statute or order of constituted authority.

APPLICANT'S COPY

BUILDING COMMISSION

By Wayne Gleffert
Electrical Inspector

NOTE: WHEN ANY WORK IS COMPLETED OR READY FOR INSPECTION THE ELECTRICAL DEPARTMENT MUST BE NOTIFIED IMMEDIATELY

CT-254

CT 04382-S

SITE ID #10125-077 SITE NAME: New Britain 2, CT

JOB COST #004382

ZONING/PERMITTING COMPLETION FORM

Zoning Classification for Site: I-2

Special Relief (setback, height variance, special use permit, wetlands permit etc.):

Building Permit

* Date of Zoning Decision: 8/14/00

Summary of zoning conditions **(Include details of any conditions relative to time restrictions, expiration dates, renewal obligations, monetary obligations, performance obligation, inspection fees).**

See attached

Submitted by: Esther McNany Title: Territory Manager

Territory Manager Approval:

* Attach a copy of the Zoning decision and forward to the Regional Compliance Manager as soon as possible, after the decision.

HC 81-00

City of New Britain

New Britain, Connecticut 06051

DEPT. OF MUNICIPAL DEVELOPMENT

"New Britain: A City for All People"

27 West Main Street – Room 311

(860) 826-3330
FAX: (860) 826-2682

MEMORANDUM

TO: Frank M. Wiatr, Director of Licenses and Permits

FROM: Steven P. Schiller, Planner II

DATE: July 27, 2000

SUBJECT: Site Plan Review for:

RECEIVED
JUL 31 2000
BUILDING DEPARTMENT
CITY OF NEW BRITAIN

ONE HARTFORD SQUARE
SBA CELL TOWER, AMODIO PROPERTY
PLAN DATED: 7/17/00

As requested, a review of the above Site Plan was made and we recommend that the Site Plan be APPROVED as submitted. City Plan approval indicates that the Site Plan and/or Landscaping Plan appears to conform to professional planning standards, but in no way shall be construed as confirmation of the accuracy or adequacy of the contents of the plans and shall not relieve the owner of the obligation to construct facilities which function safely and conform to all applicable statutes, ordinances and regulations.

NOTE: APPROVAL IS CONTINGENT UPON ZONING ENFORCEMENT OFFICIAL'S CONCURRENCE THAT THE PROPOSED USE IS PERMISSIBLE IN THE I-2 DISTRICT AND THAT THE 135 FOOT TOWER IS EXEMPTED FROM THE 125 FOOT MAXIMUM HEIGHT RESTRICTION, PURSUANT TO SECTION 230-30.

cc: Clarence Corbin, City Engineer

Kenneth A. Malinowski, Director
Department of Municipal Development

SITE # 10125-077
FILE TYPE Const
SECTION Permitting

B 1414

CITY OF NEW BRITAIN
DEPARTMENT OF LICENSES, PERMITS
AND INSPECTIONS
TELEPHONE: 826-3383

BUILDING/ZONING PERMIT

DATE	8/14/00
COST	84,000.
FEE	1,290.

APPLICANT SBA TEL. NO. 860 659-9101

ADDRESS 80 Eastern Bld. Glastonbury, CT

PERMIT FOR: Construct 175' Lattice Type Communication Tower per plans and specs.

LOCATION ONE HARTFORD SQUARE

BUILDING DIMENSIONS	FT. WIDE BY	FT. LONG AND	FT. IN HEIGHT
BUILDING TYPE	USE GROUP	LOT SIZE	ZONE I2
OWNER	Dixwell Associates	CERT. OF OCCUPANCY REQUIRED	YES ✓ NO ___
ADDRESS	1 Hartford Sq. NB, CT	AS-BUILT SURVEY REQUIRED	YES ✓ NO ___

THE MATCHING APPLICATION IS PART AND PARCEL OF THIS BUILDING PERMIT.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

APPLICANT'S COPY

BUILDING OFFICIAL

MANDATORY INSPECTIONS REQUIRED

POST PERMIT FOR DURATION OF WORK

1 HARTFORD SQ

Location	1 HARTFORD SQ	**Mblu**	F4A/ 2/ / /
Acct#	44950001	**Owner**	HARTFORD SQUARE ASSOCIATES LLC
Assessment	$3,841,670	**Appraisal**	$5,488,100
PID	764	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$3,710,700	$1,777,400	$5,488,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$2,597,490	$1,244,180	$3,841,670

Owner of Record

Owner	HARTFORD SQUARE ASSOCIATES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	1 HARTFORD SQ WEST BOX #15 NEW BRITAIN, CT 06052	**Book & Page**	1903/1103
		Sale Date	12/03/2014

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
HARTFORD SQUARE ASSOCIATES LLC	$0		1903/1103	12/03/2014
HARTFORD SQUARE ASSOCIATES LLC	$0		1895/0267	07/22/2014
HARTFORD SQUARE ASSOCIATES LLC	$0		1895/0157	07/22/2014
HARTFORD SQUARE ASSOCIATES LLC	$0	1	1830/0539	12/06/2011
HARTFORD SQUARE ASSOCIATES LLC	$3,500,000		1813/0022	02/14/2011
DIXWELL ASSOCIATES	$0		1366/0205	04/25/2001
	$0		1359/0354	02/09/2001
	$0		1291/0825	11/25/1998
	$0		1291/0824	11/25/1998
DIXWELL ASSOCIATES	$0		0847/0052	09/25/1986
	$0		0808/0891	01/14/1985

LOUIS G AMODIO SR & JOHN A AMODIO	$0		0808/0888	01/14/1985
INTERPACE CORPORATION	$0		0808/0885	01/14/1985

Building Information

Building 1 : Section 1

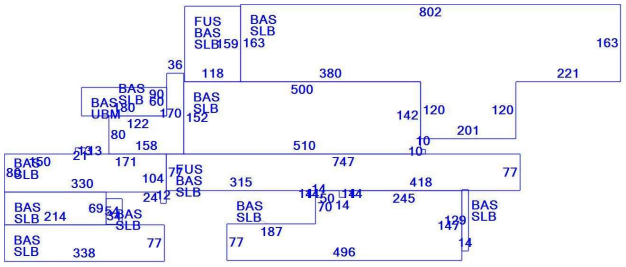
Year Built: 1940
Living Area: 542,561
Replacement Cost: $18,387,603
Building Percent Good: 20
Replacement Cost Less Depreciation: $3,677,500

Building Attributes	
Field	**Description**
Style:	Warehouse
Model	Ind/Comm
Grade	C
Stories:	2
Occupancy	31.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Minimum/Masonr
Interior Wall 2	
Interior Floor 1	Finished Concr
Interior Floor 2	
Central Heat	Yes
AC Type	Partial
Struct Class	
Bldg Use	Ind Whse MDL-96
Apt Units	
Total Bedrms	00
Total Baths	0
Comm Units	
Ind Units	
1st Floor Use:	4010
Heat/AC	Unit Heat
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Min WL
Rooms/Prtns	Average

Building Photo

(http://images.vgsi.com/photos/NewBritainCTPhotos//\00\03\49\90.jpg)

Building Layout



(ParcelSketch.ashx?pid=764&bid=1069)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	466,084	466,084
FUS	Finished Upper Story	76,477	76,477
SLB	Slab	455,284	0
UBM	Basement	10,800	0
		1,008,645	542,561

Wall Height	18.00
% Comn Wall	

Building 2 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes : Bldg 2 of 2	
Field	**Description**
Style	Outbuildings
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Central Heat Sys	
Heat Type	
AC Type	
Total Bedrooms	
Total Full Baths	
Total Half Baths	
Total Xtra Fixtrs	
Total Rooms	
Bath Style	
Kitchen Style	
Num Kitchens	
Whirlpool Tub	
Fireplaces_2	
Rec Room Finish	
Rec Room Qual	
Bsmt Garages	
Fireplaces	

Building Photo

(http://images.vgsi.com/photos/NewBritainCTPhotos//\00\03\49\91.jpg)

Building Layout

Building Layout (ParcelSketch.ashx?pid=764&bid=1070)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Bldg Nbhd	
Fndtn Cndtn	
Basement	

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
A/C	Central A/C	18000.00 S.F.	$11,700	1
LDL2	Load Lv Manual	8.00 Units	$1,900	1

Land

Land Use

Use Code	4010
Description	Ind Whse MDL-96
Zone	I2
Neighborhood	101G
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	24.88
Depth	
Assessed Value	$1,244,180
Appraised Value	$1,777,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV5	Conc Pad			1836.00 S.F.	$22,000	2
UST2	Utility Metal			3036.00 S.F.	$21,900	1
CB4	PreCastConcCel			200.00 S.F.	$33,000	2
UST3	Utility Masonr			484.00 S.F.	$4,600	1
CB3	PreCastConcCel			240.00 S.F.	$55,400	2
UST2	Utility Metal			320.00 S.F.	$2,300	1
CB3	PreCastConcCel			360.00 S.F.	$83,200	2
UST1	Utility Frame			320.00 S.F.	$2,800	1
FN4	Fence-8' Chain			272.00 L.F.	$3,500	2
UST2	Utility Metal			2000.00 S.F.	$14,400	1
SCL1	Scales-Mech			60.00 Tons	$37,800	2
TNK2	Tank Bulk			300000.00 Gal	$1,200	1
PAV1	Paving Asphalt			50000.00 S.F.	$48,000	1
BLB2	Billboard 2 Side			2.00 Units	$0	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$3,710,700	$1,777,400	$5,488,100

2020	$3,710,700	$1,777,400	$5,488,100
2019	$3,710,700	$1,777,400	$5,488,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$2,597,490	$1,244,180	$3,841,670
2020	$2,597,490	$1,244,180	$3,841,670
2019	$2,597,490	$1,244,180	$3,841,670

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SiteSafe
A QUALTEK Company

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink on behalf of AT&T Mobility, LLC
Site FA – 10071149
Site ID – CTL05254
USID – 15210
Site Name – NEW BRITIAN WEST MRCTB050920-MRCTB052152

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052

Latitude: N41-39-59.01
Longitude: W72-48-46.08
Structure Type: Self Support

Report generated date: March 3, 2022
Report by: Sophie Thein
Customer Contact: Kristina Cottone

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 4.2 or other appropriate remediation is implemented.

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Table of Contents

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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
Compliant per AT&T Mobility, LLC's Policy?	No

1.2 Fall Arrest Anchor Point Summary

Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTL05254_2021-5G-NR-Radio_5G-NR-1SR-CBAND_mm093q_2051A1029X_10071149_15210_03-04-2021_Final-Approved_v3.00

CD's: 10071149_AE201_220223_CTL05254_Rev1_LTE 5G NR

RF Powers Used: Max RRH Powers

AT&T Mobility, LLC Duty Cycle: MPE Calculations are modeled with "75% Downlink Duty Cycle" for LTE and 5G.

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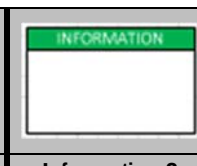
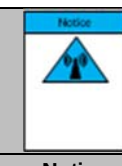
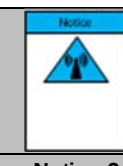
1.3 Signage Summary

a. Pre-Site Visit AT&T Signage (Existing Signage)

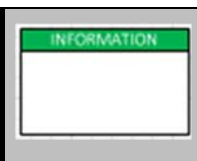
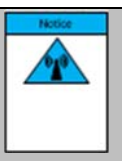
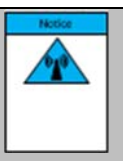
AT&T Signage Locations																		
	Information 1		Information 2		Notice		Notice 2		Caution		Caution 2		Warning		Warning 2		Barriers	
Access Point(s)																		
Alpha																		
Beta																		
Gamma																		
Delta																		
Epsilon																		
Zeta																		
Status	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A	Existing	N/A

b. Proposed AT&T Signage

AT&T Signage Locations																		
	Information 1		Information 2		Notice		Notice 2		Caution		Caution 2		Warning		Warning 2		Barriers	
Access Point(s)											1							
Alpha																		
Beta																		
Gamma																		
Delta																		
Epsilon																		
Zeta																		
Status	N/A	Remove	N/A	Remove	N/A	Remove	Install	Remove	N/A	Remove	Install	Remove	N/A	Remove	Install	Remove	Install	Remove

Note: The Caution sign proposed at the Monopole Base is a Caution 2B sign.

c. Final Compliance Configuration Signage Summary (Required)

AT&T Signage Locations																		
	Information 1		Information 2		Notice		Notice 2		Caution		Caution 2		Warning		Warning 2		Barriers	
Access Point(s)												1						
Alpha																		
Beta																		
Gamma																		
Delta																		
Epsilon																		
Zeta																		
Status	N/A	N/A	N/A	N/A	N/A	N/A	Existing	Proposed	N/A	N/A	Existing	Proposed	N/A	N/A	Existing	Proposed	Existing	Proposed

Note: The Caution sign required at the Monopole Base is a Caution 2B sign.

Note: The table above represents EVERY compliance item that MUST be implemented at this location.

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2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Detailed View
- RF Exposure Diagram - AT&T Mobility, LLC Contribution
- RF Exposure Diagram – Elevation View

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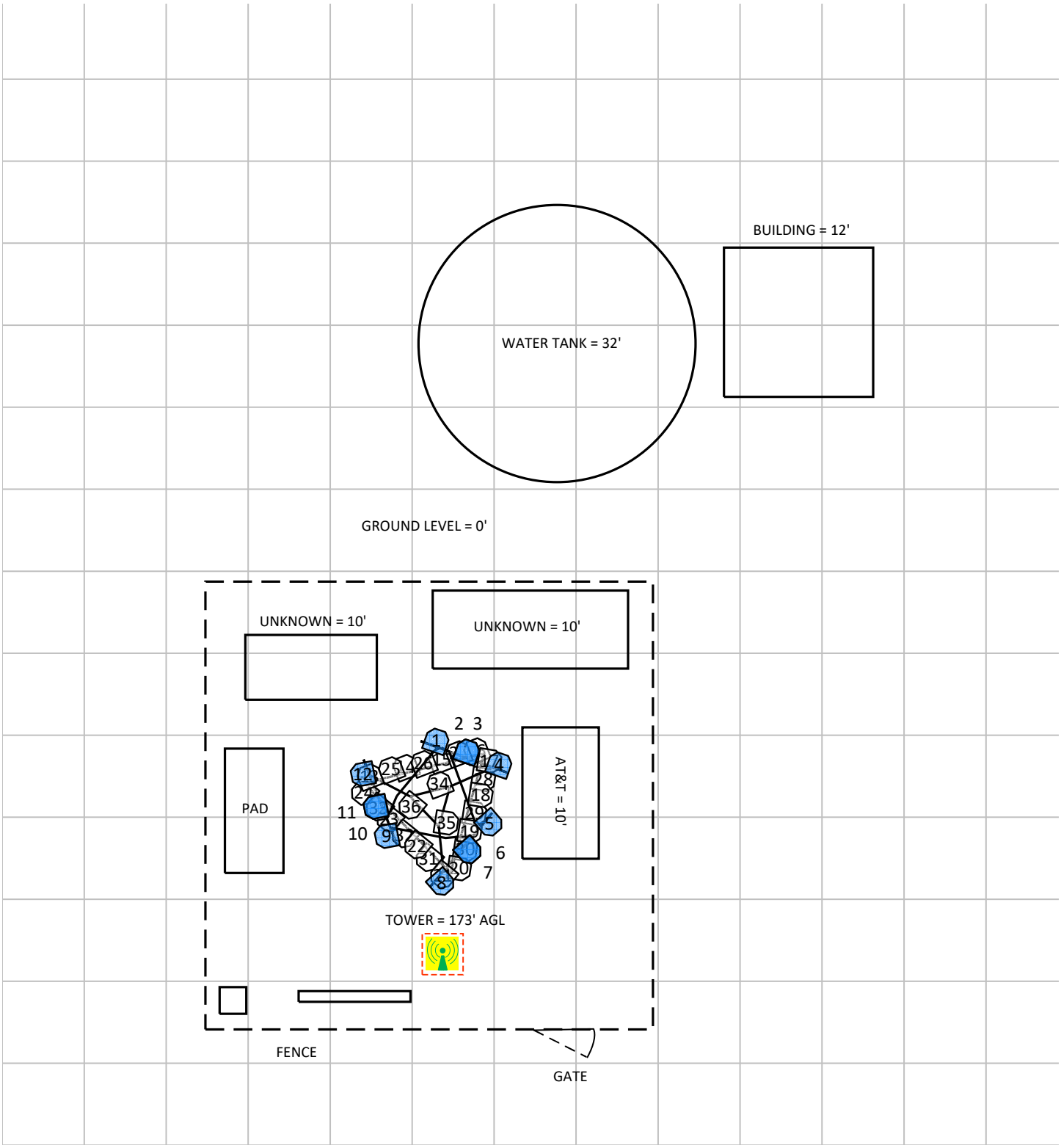
Site Scale Map For: NEW BRITIAN WEST



(Feet)

0 10.7 21.5

www.sitesafe.com
3/3/2022 1:45:27 PM

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | DISH | UNKNOWN CARRIER

Sign Legend

Notice | Notice 2 | Caution | Caution 2 | Warning | Warning 2 | Info 2 | Info | RF Emissions Diagram

Barrier Signage Legend

No-sign | Notice 2 | Caution 2 | Warning 2 | Notice | Caution | Warning

Existing Barrier ——— **Proposed Barrier/Sign** — — — **Remove Barrier/Sign** X

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (ft)	AGL (ft)
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	722	LTE	40	73.0	6	80	TPO	Watt	1	887.34	11.70	164.5	164.5
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	763	LTE	40	73.0	6	160	TPO	Watt	1	1774.68	11.70	164.5	164.5
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	LTE	40	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	5G	40	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	LTE/AWS1	40	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
1	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	5G	40	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
2	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6449 (AT&T C-band)	Panel	3700	5G	40	11.0	2.6	108.48	TPO	Watt	1	24285.65	21.70	164.4	166.23
3	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6149 (AT&T C-band)	Panel	3450	5G	40	11.0	2.6	108.48	TPO	Watt	1	24285.65	25.30	168.0	166.23
4	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	737	LTE	40	65.7	5.9	160	TPO	Watt	1	1799.37	11.76	164.5	164.54
4	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	850	5G	40	70.9	5.9	160	TPO	Watt	1	1679.27	11.46	164.5	164.54
4	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	2300	LTE	40	51.8	5.9	100	TPO	Watt	1	1954.34	14.16	164.5	164.54
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	722	LTE	160	73.0	6	80	TPO	Watt	1	887.34	11.70	164.5	164.5
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	763	LTE	160	73.0	6	160	TPO	Watt	1	1774.68	11.70	164.5	164.5
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	LTE	160	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	5G	160	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	LTE/AWS1	160	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
5	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	5G	160	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
6	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6449 (AT&T C-band)	Panel	3700	5G	160	11.0	2.6	108.48	TPO	Watt	1	24285.65	21.70	164.4	166.23
7	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6149 (AT&T C-band)	Panel	3450	5G	160	11.0	2.6	108.48	TPO	Watt	1	24285.65	25.30	168.0	166.23
8	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	737	LTE	160	65.7	5.9	160	TPO	Watt	1	1799.37	11.76	164.5	164.54
8	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	850	5G	160	70.9	5.9	160	TPO	Watt	1	1679.27	11.46	164.5	164.54
8	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	2300	LTE	160	51.8	5.9	100	TPO	Watt	1	1954.34	14.16	164.5	164.54
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	722	LTE	280	73.0	6	80	TPO	Watt	1	887.34	11.70	164.5	164.5
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	763	LTE	280	73.0	6	160	TPO	Watt	1	1774.68	11.70	164.5	164.5
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	LTE	280	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	1900	5G	280	66.0	6	80	TPO	Watt	1	1807.55	14.79	164.5	164.5
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	LTE/AWS1	280	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
9	AT&T MOBILITY LLC (Proposed)	Quintel QD6616-7	Panel	2100	5G	280	61.0	6	80	TPO	Watt	1	2188.21	15.62	164.5	164.5
10	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6449 (AT&T C-band)	Panel	3700	5G	280	11.0	2.6	108.48	TPO	Watt	1	24285.65	21.70	164.4	166.23
11	AT&T MOBILITY LLC (Proposed)	Ericsson AIR6149 (AT&T C-band)	Panel	3450	5G	280	11.0	2.6	108.48	TPO	Watt	1	24285.65	25.30	168.0	166.23
12	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	737	LTE	280	65.7	5.9	160	TPO	Watt	1	1799.37	11.76	164.5	164.54
12	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	850	5G	280	70.9	5.9	160	TPO	Watt	1	1679.27	11.46	164.5	164.54

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Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	TX Count	Total ERP (Watts)	Ant Gain (dBd)	Z (ft)	AGL (ft)
12	AT&T MOBILITY LLC	Cci DMP65R-BU6D	Panel	2300	LTE	280	51.8	5.9	100	TPO	Watt	1	1954.34	14.16	164.5	164.54
13	UNKNOWN CARRIER	Generic	Panel	700		0	65.0	6.3	160	TPO	Watt	1	2884.83	12.56	136.9	136.86
14	UNKNOWN CARRIER	Generic	Panel	1900		0	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	136.9	136.86
15	UNKNOWN CARRIER	Generic	Panel	2100		0	65.0	6.3	160	TPO	Watt	1	5716.37	15.53	136.9	136.86
16	UNKNOWN CARRIER	Generic	Panel	850		0	65.0	6.3	160	TPO	Watt	1	3524.68	13.43	136.9	136.86
17	UNKNOWN CARRIER	Generic	Panel	700		120	65.0	6.3	160	TPO	Watt	1	2884.83	12.56	136.9	136.86
18	UNKNOWN CARRIER	Generic	Panel	1900		120	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	136.9	136.86
19	UNKNOWN CARRIER	Generic	Panel	2100		120	65.0	6.3	160	TPO	Watt	1	5716.37	15.53	136.9	136.86
20	UNKNOWN CARRIER	Generic	Panel	850		120	65.0	6.3	160	TPO	Watt	1	3524.68	13.43	136.9	136.86
21	UNKNOWN CARRIER	Generic	Panel	700		240	65.0	6.3	160	TPO	Watt	1	2884.83	12.56	136.9	136.86
22	UNKNOWN CARRIER	Generic	Panel	1900		240	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	136.9	136.86
23	UNKNOWN CARRIER	Generic	Panel	2100		240	65.0	6.3	160	TPO	Watt	1	5716.37	15.53	136.9	136.86
24	UNKNOWN CARRIER	Generic	Panel	850		240	65.0	6.3	160	TPO	Watt	1	3524.68	13.43	136.9	136.86
25	UNKNOWN CARRIER	Generic	Panel	1900		0	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
26	UNKNOWN CARRIER	Generic	Panel	2100		0	65.0	8	160	TPO	Watt	1	6027.26	15.76	147	147
27	UNKNOWN CARRIER	Generic	Panel	1900		0	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
28	UNKNOWN CARRIER	Generic	Panel	1900		120	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
29	UNKNOWN CARRIER	Generic	Panel	2100		120	65.0	8	160	TPO	Watt	1	6027.26	15.76	147	147
30	UNKNOWN CARRIER	Generic	Panel	1900		120	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
31	UNKNOWN CARRIER	Generic	Panel	1900		240	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
32	UNKNOWN CARRIER	Generic	Panel	2100		240	65.0	8	160	TPO	Watt	1	6027.26	15.76	147	147
33	UNKNOWN CARRIER	Generic	Panel	1900		240	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	147.9	147.86
34	UNKNOWN CARRIER	Generic	Panel	1900		0	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	169.9	169.86
35	UNKNOWN CARRIER	Generic	Panel	1900		120	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	169.9	169.86
36	UNKNOWN CARRIER	Generic	Panel	1900		240	65.0	6.3	160	TPO	Watt	1	6762.7	16.26	169.9	169.86

Note: The Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

Note: A power reduction factor of 0.32 was included in the ERP calculation for the C-Band antenna(s) per AT&T HQ Regulatory guidance.

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4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

- GROUND LEVEL = 0'
- TOWER = 173'
- AT&T = 10'
- UNKNOWN = 10'
- WATER TANK = 32'
- BUILDING = 12'

The Antenna Inventory heights are referenced to the same level.

Per AT&T HQ Regulatory guidance, the C-Band antenna(s) were not included in the exposure simulation(s). The recommended mitigation for potential C-Band exposure as detailed in this report (where applicable) is based on exposure areas as calculated and detailed in the antenna-specific compliance remediation documents provided by AT&T HQ Regulatory.

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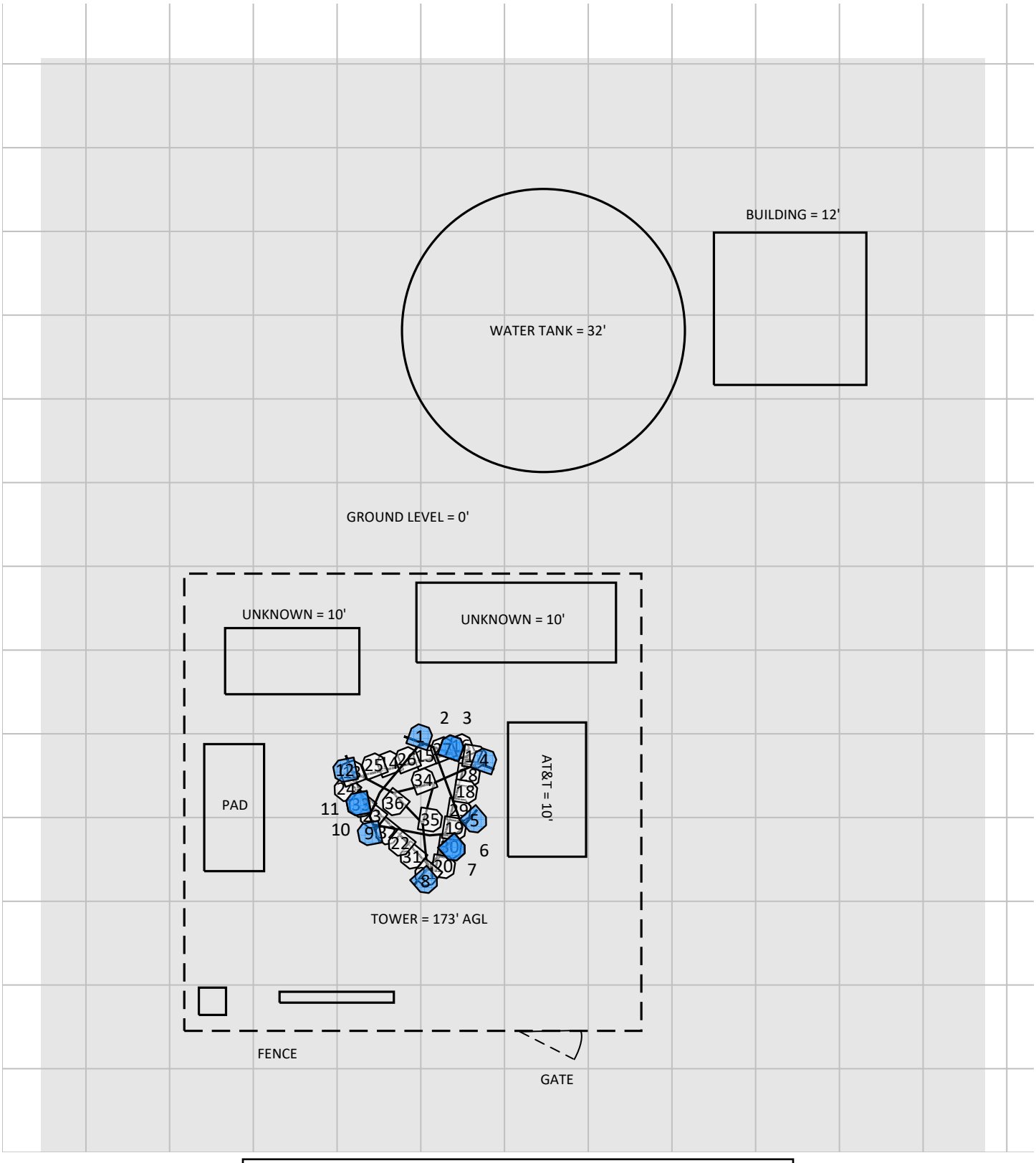
RF Exposure Simulation For: NEW BRITIAN WEST
Composite View



% of FCC Public Exposure Limit

0-5	5-100	100-500	500-5000	5000+

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | DISH | UNKNOWN CARRIER

Barrier Signage Legend

No-sign | Notice | Caution | Warning

Existing Barrier ——— Proposed Barrier/Sign — — — Remove Barrier/Sign X

(Feet)

0 10.3 20.5

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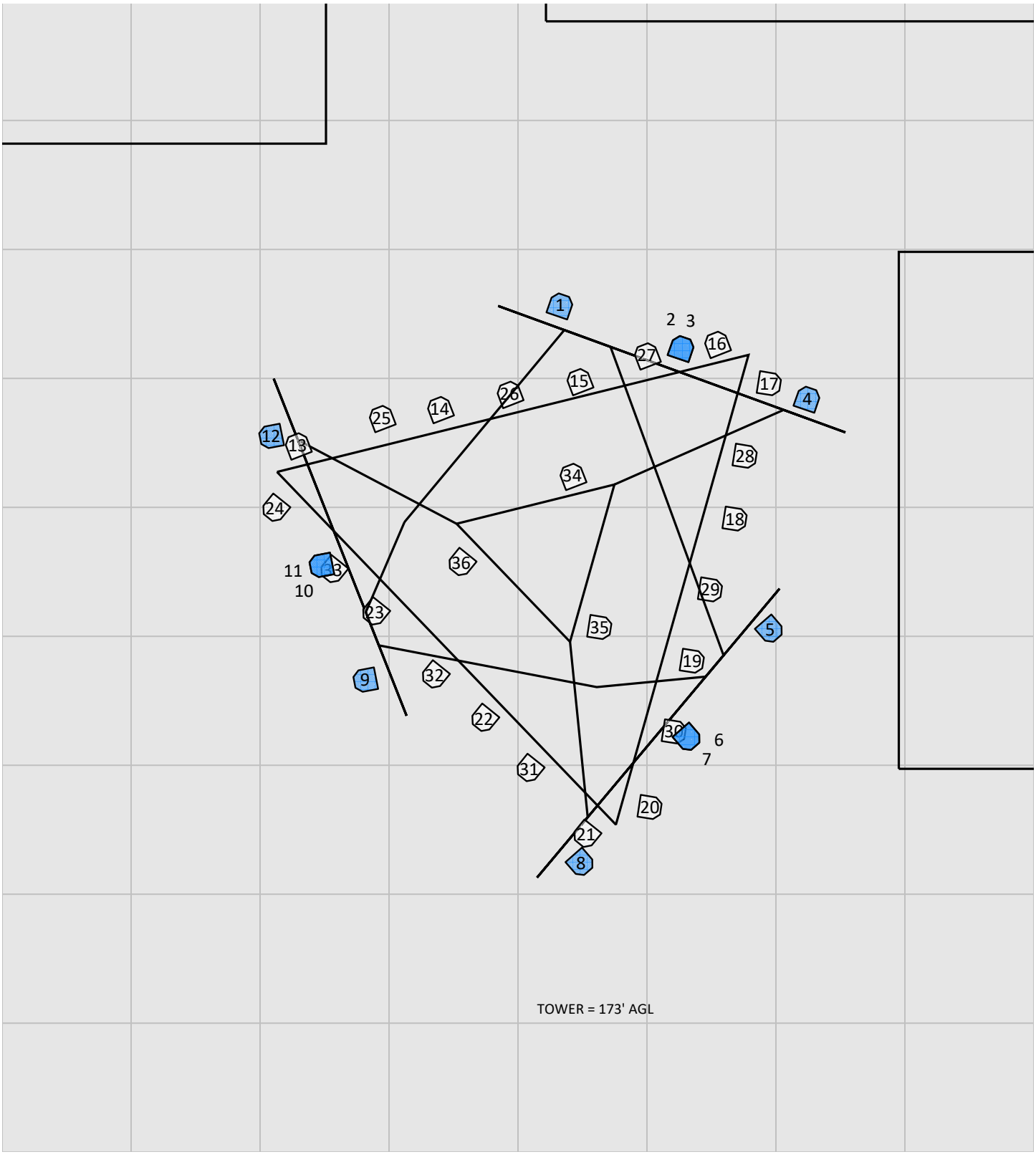
Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: NEW BRITIAN WEST
Detailed View



% of FCC Public Exposure Limit

0-5	5-100	100-500	500-5000	5000+

AT&T MOBILITY LLC | VERIZON WIRELESS | T-MOBILE | SPRINT | DISH | UNKNOWN CARRIER

Barrier Signage Legend

No-sign | Notice | Caution | Warning

Existing Barrier ——— Proposed Barrier/Sign — — — Remove Barrier/Sign X

(Feet)

0 2.7 5.3

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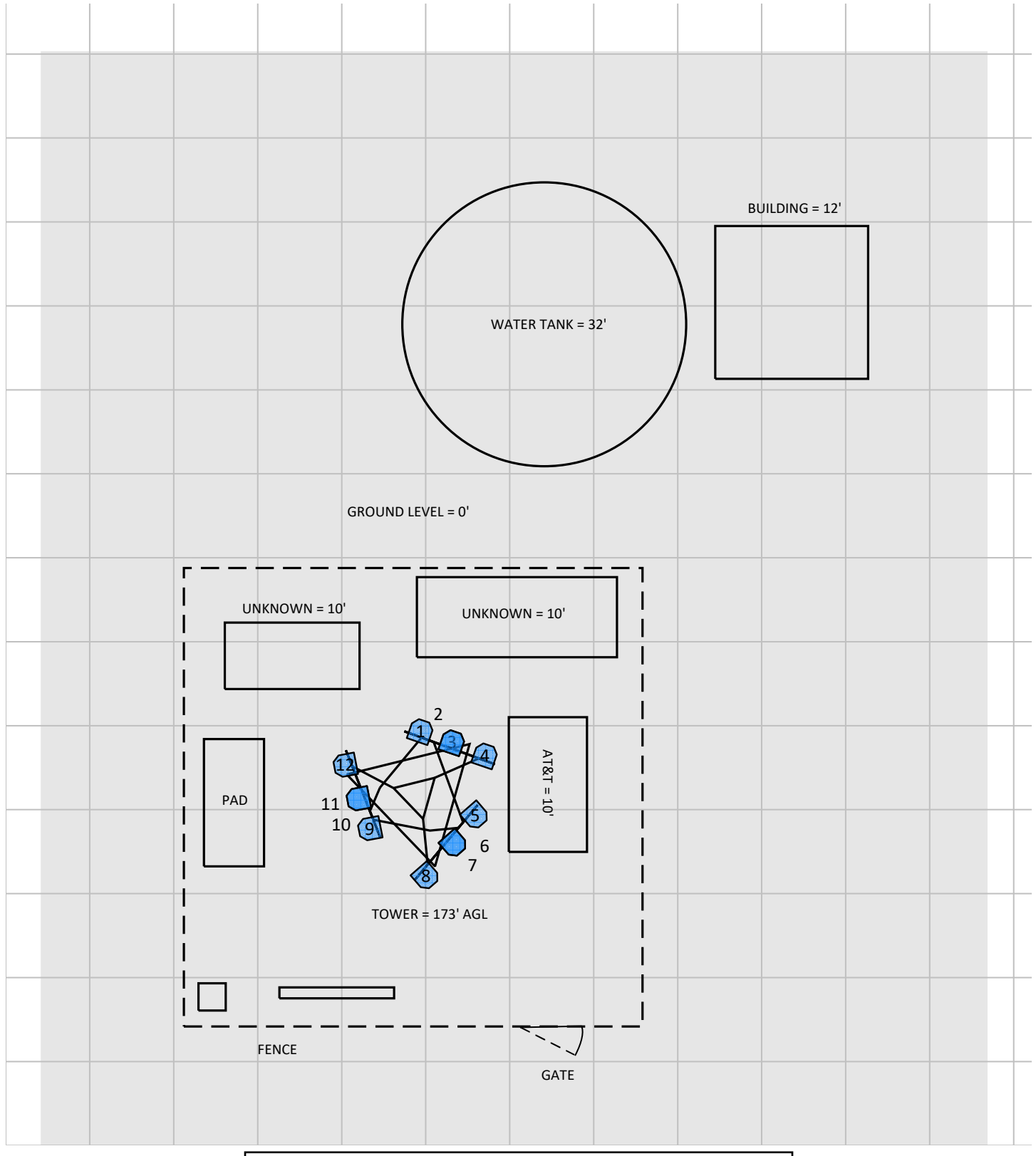
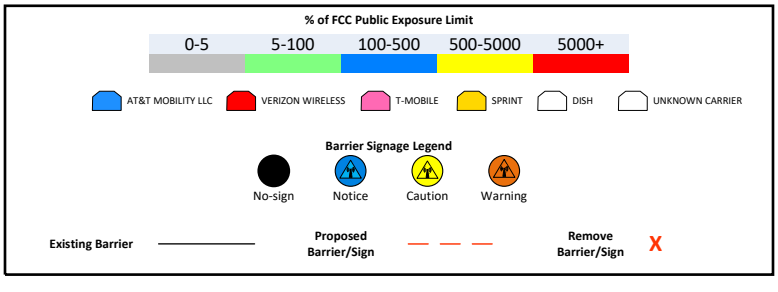
Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: NEW BRITIAN WEST
AT&T Mobility Contribution





(Feet)

0 10.2 20.4

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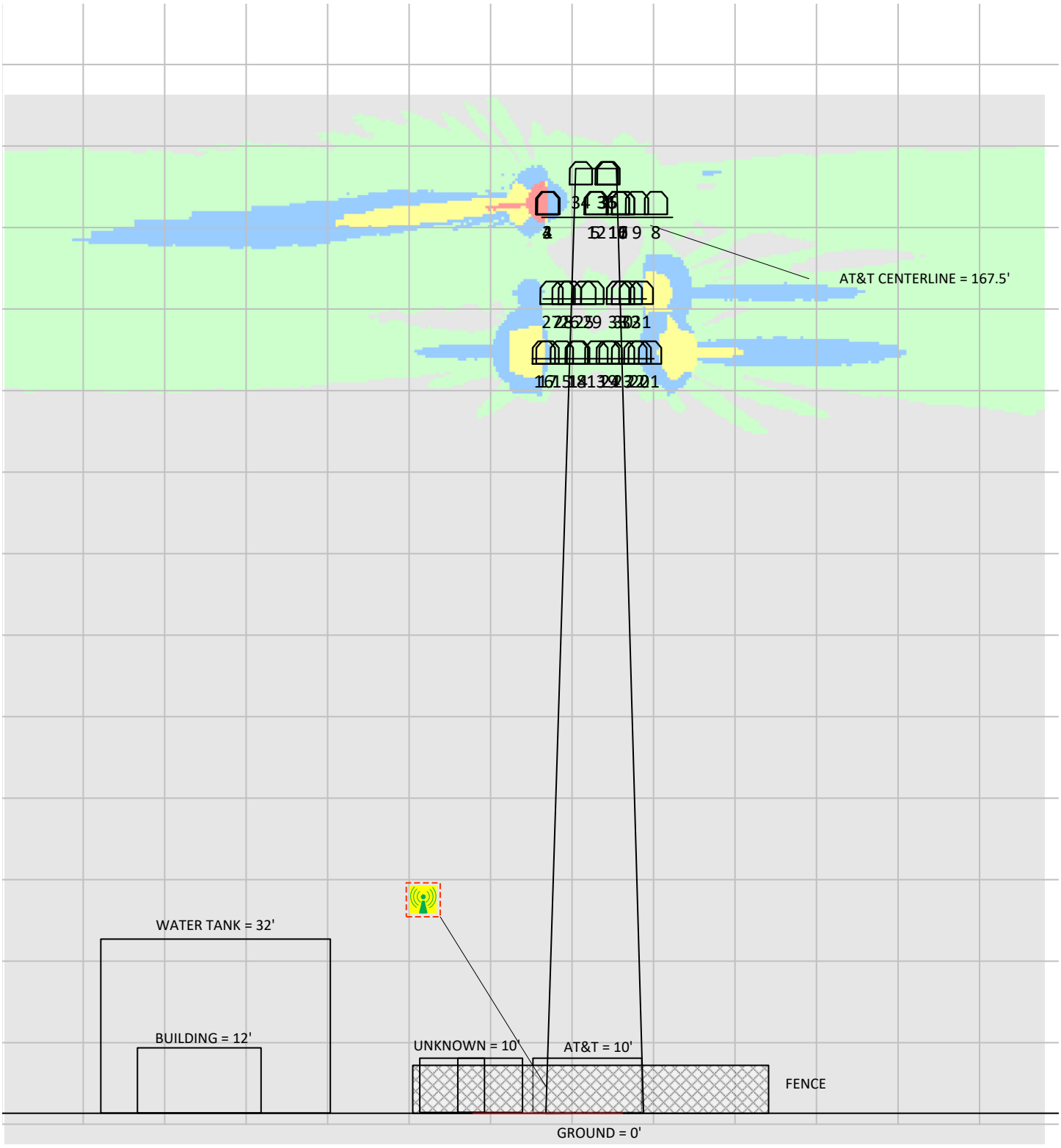
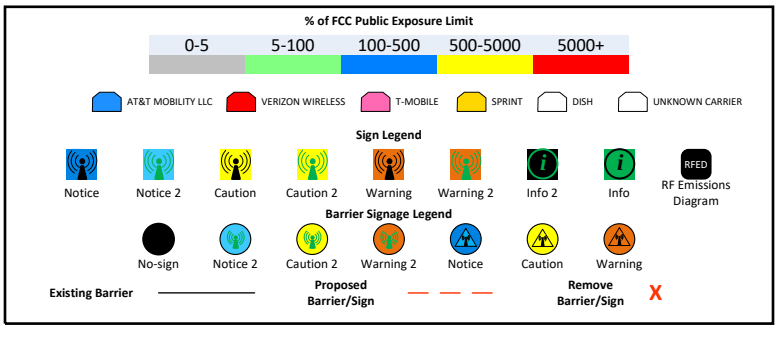
Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: NEW BRITIAN WEST
Elevation View





(Feet)

0 13 25.9

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3/3/2022 1:44:47 PM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 4.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, and the level of restricted access to the antennas at the site.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

(1) Caution 2B sign(s) required on the access point.

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6 Reviewer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms:

That I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Sophie Thein.

March 3, 2022

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Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

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Appendix B – Regulatory Background Information

AT&T Mobility, LLC policies

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

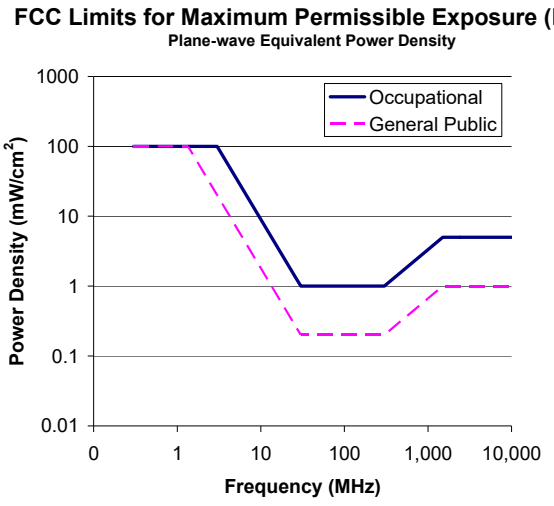
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

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

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



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Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lockout/Tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

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Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power, unless otherwise noted. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

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Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit. **Gray areas are accessible to anyone**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

If trained occupational personnel require access to areas that are delineated as above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

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Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has assumed a 100% duty cycle or another duty cycle as noted in this report.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

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Appendix F – Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio of the maximum power in a given direction to the maximum power in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antenna as compared to an omnidirectional antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **unaware** of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

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OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

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Appendix G – References

The following references can be followed for further information about RF Health and Safety.

Site Safe, LLC
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-Ionizing Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

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March 30, 2022
February 2, 2022

Smartlink, LLC
1997 Annapolis Exchange Pkwy, Suite 200
Annapolis, MD 21401

RE:		
	Site Number:	CT5254
	FA Number:	10071149
	PACE Number:	MRCTB052152
	PT Number:	2051A1029X
	Site Name:	NEW BRITIAN WEST
	Site Address:	1 Hartford Square New Britain, CT 06052

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Smartlink to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine its capability of supporting the following additional loading (based on RFDS dated 3/29/2022 v.5.0):

- (3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)
- (3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (4) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs.)
- **(3) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**

*Proposed equipment shown in bold.

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on September 1, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.77 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.183 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.064.
- The mounts have been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mounts have been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mounts are secured to the existing lattice tower with threaded rods and clamps tightened around the tower leg. HDG considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	6	LC81	52%	**PASS**

Reference Documents:

- Mount Mapping Report prepared by ProVertic, dated October 14, 2021.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mounts have been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

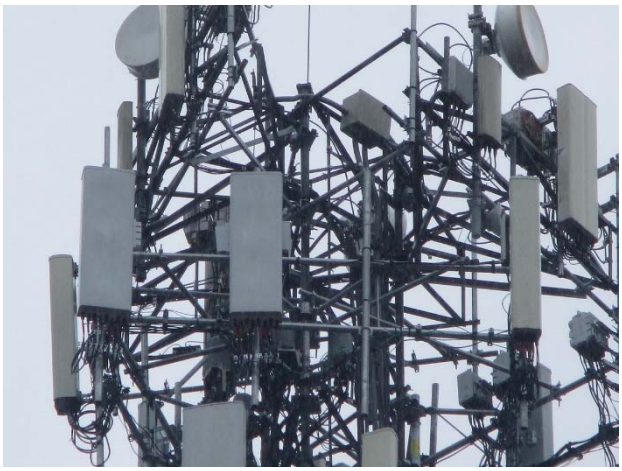
Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:



FIELD PHOTOS (CONT.):

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	169.25	(ft)
z_g=	900	(ft)
α=	9.5	

K_z= 1.414

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt} =1.0)

Category= 1

K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	169.25	
z_s=	218	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.50	in
Importance Factor = I=	1.00	(from Table 2-3)
K_{iz} =	1.18	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.77 in

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	175	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.414	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**47.69**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**7.63**	K_d=	0.85	(from Table 2-2)
$q_{z\ (30)}$=	**2.75**	V_{max}=	125	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.77** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	3.27	1.23	**648**	**126**	**37**
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	**198**	**43**	**11**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**193**	**42**	**11**
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**606**	**119**	**35**
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	**60**	**16**	**3**
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	4.36	1.28	**32**	**11**	**2**
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	**65**	**17**	**4**
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	**33**	**11**	**2**
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	**67**	**18**	**4**
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	3.81	1.26	**35**	**12**	**2**
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	**80**	**22**	**5**
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	7.77	1.43	**45**	**16**	**3**
DC6-48-60-18-8F Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**54**	**14**	**3**
3/4" RoundBar	0.8	12.0		0.06	0.06	1.20	**4**		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	**14**		
3" Pipe	3.5	12.0		0.29	0.29	1.20	**17**		
2" Pipe	2.4	12.0		0.20	0.20	1.20	**11**		

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.77	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	648	324	567
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	198	96	173
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	193	131	178
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	606	268	522
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	60	96	69
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	32	96	48
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	65	78	68
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	33	78	44
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	67	94	74
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	35	94	50
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	80	131	92
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	45	131	66

WIND LOADS WITH ICE:

QD6616-7 Antenna	75.5	25.5	13.1	13.39	6.89	2.96	5.75	1.22	1.34	125	71	111
AIR6419 Antenna	34.5	19.6	10.8	4.71	2.60	1.76	3.19	1.20	1.23	43	24	38
AIR6449 Antenna	34.1	19.4	14.1	4.61	3.35	1.76	2.42	1.20	1.20	42	31	39
DMP65R-BU6DA Antenna	74.7	24.2	11.2	12.58	5.83	3.08	6.65	1.23	1.38	118	62	104
B14 4478 RRH (Side)	21.6	11.8	16.9	1.78	2.54	1.83	1.28	1.20	1.20	16	23	18
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	11	23	14
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	17	20	18
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.15	2.14	2.05	1.10	1.20	1.20	11	20	13
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	18	23	19
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.23	2.49	2.60	1.28	1.20	1.20	11	23	14
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.25	3.34	2.92	1.97	1.22	1.20	21	31	23
RRUS-32 B30 RRH (Shielded)	30.7	7.0	15.6	1.50	3.34	4.37	1.97	1.28	1.20	15	31	19

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	37	19	33
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	6	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	8	10
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	35	15	30
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	6	4
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	6	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	3
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	5
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	3	8	4

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.77	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	648	324	405
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	198	96	121
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	193	131	146
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	606	268	352
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	60	96	87
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	32	96	80
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	65	78	75
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	33	78	67
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	67	94	87
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	35	94	79
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	80	131	118
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	45	131	109

WIND LOADS WITH ICE:

QD6616-7 Antenna	75.5	25.5	13.1	13.39	6.89	2.96	5.75	1.22	1.34	125	71	84
AIR6419 Antenna	34.5	19.6	10.8	4.71	2.60	1.76	3.19	1.20	1.23	43	24	29
AIR6449 Antenna	34.1	19.4	14.1	4.61	3.35	1.76	2.42	1.20	1.20	42	31	34
DMP65R-BU6DA Antenna	74.7	24.2	11.2	12.58	5.83	3.08	6.65	1.23	1.38	118	62	76
B14 4478 RRH (Side)	21.6	11.8	16.9	1.78	2.54	1.83	1.28	1.20	1.20	16	23	22
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	11	23	20
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	17	20	19
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.15	2.14	2.05	1.10	1.20	1.20	11	20	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	18	23	22
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.23	2.49	2.60	1.28	1.20	1.20	11	23	20
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.25	3.34	2.92	1.97	1.22	1.20	21	31	28
RRUS-32 B30 RRH (Shielded)	30.7	7.0	15.6	1.50	3.34	4.37	1.97	1.28	1.20	15	31	27

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	37	19	23
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	6	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	8	8
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	35	15	20
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	6	5
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	6	5
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	5
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	7
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	3	8	6

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.77	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	648	324	324
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	198	96	96
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	193	131	131
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	606	268	268
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	60	96	96
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	32	96	96
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	65	78	78
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	33	78	78
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	67	94	94
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	35	94	94
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	80	131	131
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	45	131	131

WIND LOADS WITH ICE:

QD6616-7 Antenna	75.5	25.5	13.1	13.39	6.89	2.96	5.75	1.22	1.34	125	71	71
AIR6419 Antenna	34.5	19.6	10.8	4.71	2.60	1.76	3.19	1.20	1.23	43	24	24
AIR6449 Antenna	34.1	19.4	14.1	4.61	3.35	1.76	2.42	1.20	1.20	42	31	31
DMP65R-BU6DA Antenna	74.7	24.2	11.2	12.58	5.83	3.08	6.65	1.23	1.38	118	62	62
B14 4478 RRH (Side)	21.6	11.8	16.9	1.78	2.54	1.83	1.28	1.20	1.20	16	23	23
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	11	23	23
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	17	20	20
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.15	2.14	2.05	1.10	1.20	1.20	11	20	20
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	18	23	23
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.23	2.49	2.60	1.28	1.20	1.20	11	23	23
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.25	3.34	2.92	1.97	1.22	1.20	21	31	31
RRUS-32 B30 RRH (Shielded)	30.7	7.0	15.6	1.50	3.34	4.37	1.97	1.28	1.20	15	31	31

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	37	19	19
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	6	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	8	8
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	35	15	15
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	6	6
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	6	6
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	5
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	5
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	8
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	3	8	8

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.77	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	648	324	405
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	198	96	121
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	193	131	146
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	606	268	352
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	60	96	87
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	32	96	80
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	65	78	75
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	33	78	67
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	67	94	87
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	35	94	79
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	80	131	118
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	45	131	109

WIND LOADS WITH ICE:

QD6616-7 Antenna	75.5	25.5	13.1	13.39	6.89	2.96	5.75	1.22	1.34	125	71	84
AIR6419 Antenna	34.5	19.6	10.8	4.71	2.60	1.76	3.19	1.20	1.23	43	24	29
AIR6449 Antenna	34.1	19.4	14.1	4.61	3.35	1.76	2.42	1.20	1.20	42	31	34
DMP65R-BU6DA Antenna	74.7	24.2	11.2	12.58	5.83	3.08	6.65	1.23	1.38	118	62	76
B14 4478 RRH (Side)	21.6	11.8	16.9	1.78	2.54	1.83	1.28	1.20	1.20	16	23	22
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	11	23	20
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	17	20	19
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.15	2.14	2.05	1.10	1.20	1.20	11	20	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	18	23	22
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.23	2.49	2.60	1.28	1.20	1.20	11	23	20
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.25	3.34	2.92	1.97	1.22	1.20	21	31	28
RRUS-32 B30 RRH (Shielded)	30.7	7.0	15.6	1.50	3.34	4.37	1.97	1.28	1.20	15	31	27

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	37	19	23
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	6	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	8	8
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	35	15	20
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	6	5
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	6	5
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	5
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	7
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	3	8	6

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.77	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	648	324	567
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	198	96	173
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	193	131	178
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	606	268	522
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	60	96	69
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	32	96	48
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	65	78	68
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	33	78	44
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	67	94	74
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	35	94	50
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	80	131	92
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	45	131	66

WIND LOADS WITH ICE:

QD6616-7 Antenna	75.5	25.5	13.1	13.39	6.89	2.96	5.75	1.22	1.34	125	71	111
AIR6419 Antenna	34.5	19.6	10.8	4.71	2.60	1.76	3.19	1.20	1.23	43	24	38
AIR6449 Antenna	34.1	19.4	14.1	4.61	3.35	1.76	2.42	1.20	1.20	42	31	39
DMP65R-BU6DA Antenna	74.7	24.2	11.2	12.58	5.83	3.08	6.65	1.23	1.38	118	62	104
B14 4478 RRH (Side)	21.6	11.8	16.9	1.78	2.54	1.83	1.28	1.20	1.20	16	23	18
B14 4478 RRH (Shielded)	21.6	7.7	16.9	1.15	2.54	2.82	1.28	1.21	1.20	11	23	14
B2/B66A 8843 RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	17	20	18
B2/B66A 8843 RRH (Shielded)	18.4	9.0	16.7	1.15	2.14	2.05	1.10	1.20	1.20	11	20	13
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	18	23	19
4449 B5/B12 RRH (Shielded)	21.4	8.2	16.7	1.23	2.49	2.60	1.28	1.20	1.20	11	23	14
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.25	3.34	2.92	1.97	1.22	1.20	21	31	23
RRUS-32 B30 RRH (Shielded)	30.7	7.0	15.6	1.50	3.34	4.37	1.97	1.28	1.20	15	31	19

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	37	19	33
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	6	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	8	10
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	35	15	30
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	6	4
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	2	6	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	17.9	4.7	13.2	0.58	1.64	3.81	1.36	1.26	1.20	2	5	3
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	5
RRUS-32 B30 RRH (Shielded)	27.2	3.5	12.1	0.66	2.29	7.77	2.25	1.43	1.20	3	8	4

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.77 in.
Density of ice: 56 pcf

QD6616-7 Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	22.0	
Depth (in):	9.6	
Total weight of ice on object:		334 lbs
Weight of object:	130.0 lbs	
Combined weight of ice and object:		464 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.0	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		109 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		175 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		115 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		197 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		306 lbs
Weight of object:	80.0 lbs	
Combined weight of ice and object:		386 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		57 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		117 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		51 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		123 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		58 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		131 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		77 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		137 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		50 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		83 lbs

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		5 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		10 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		11 plf

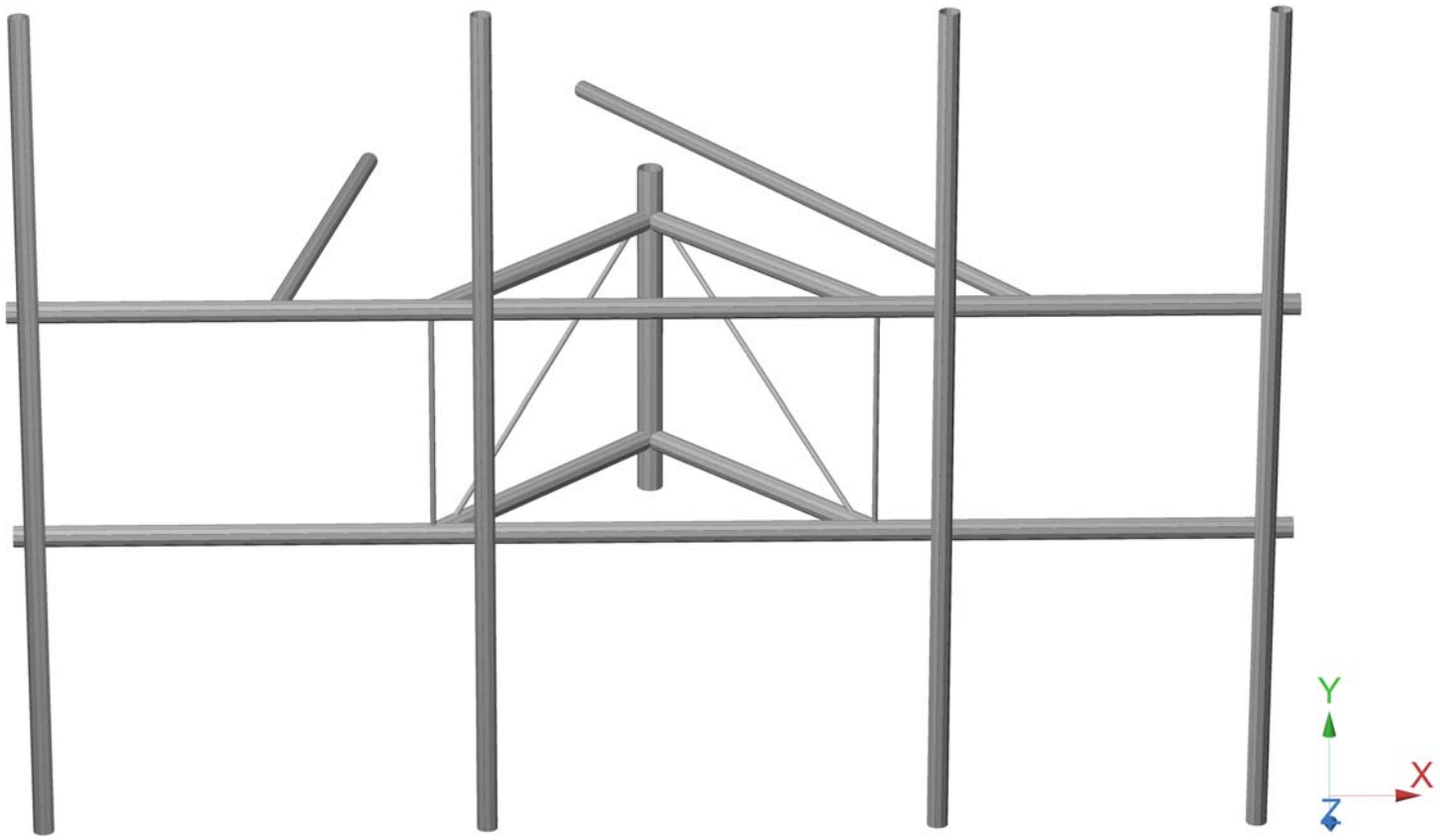
2" pipe

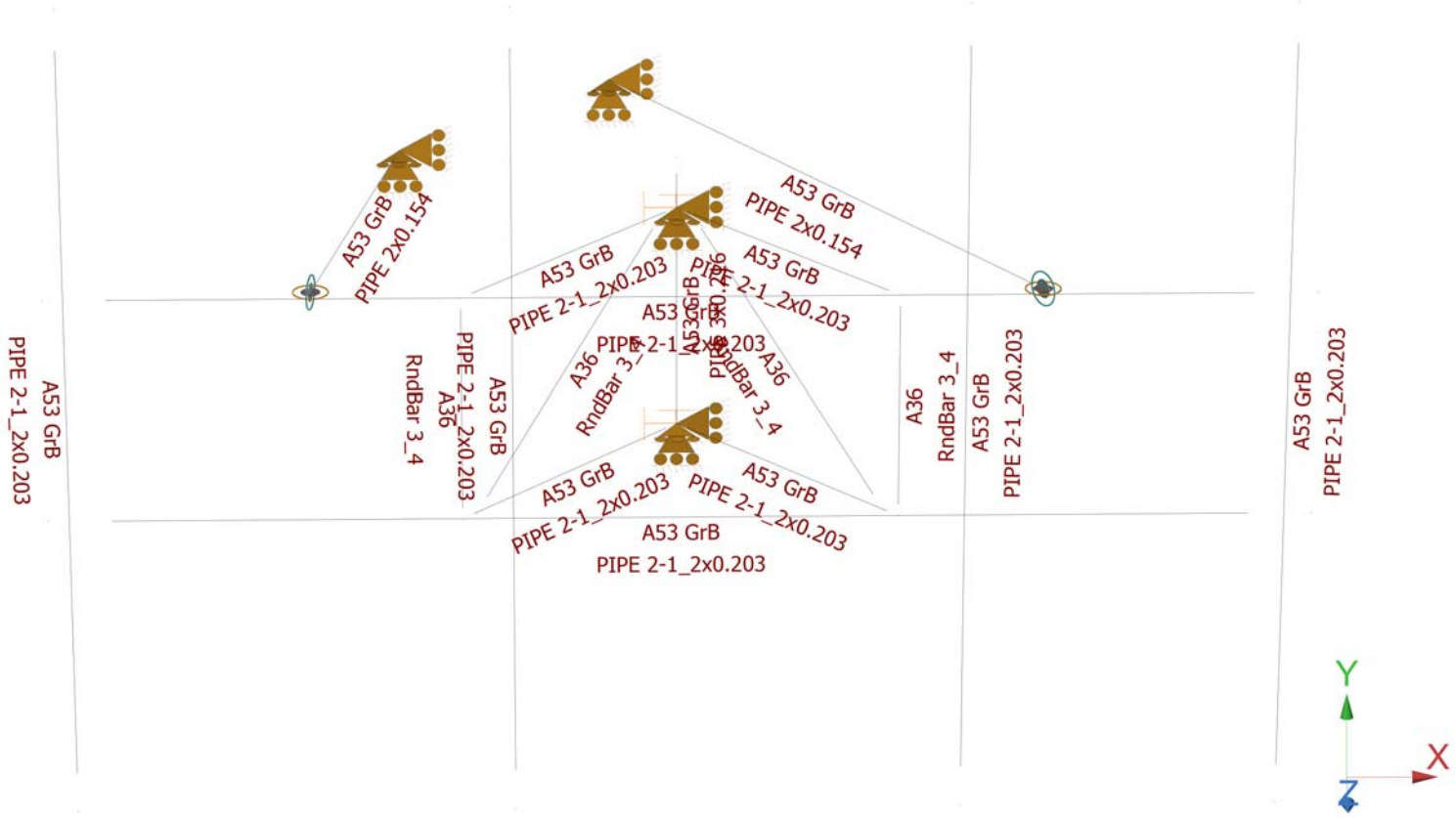
Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		9 plf

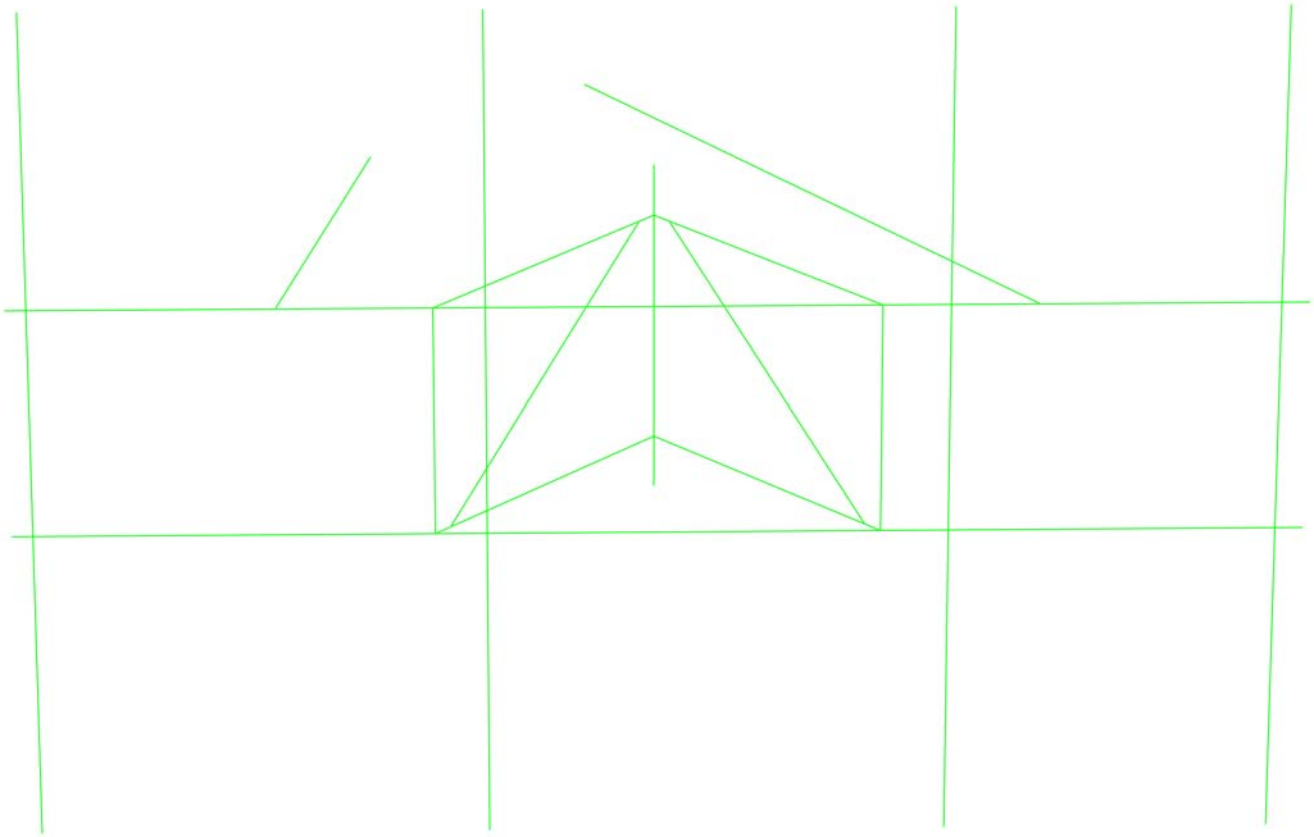
HUDSON
Design Group LLC

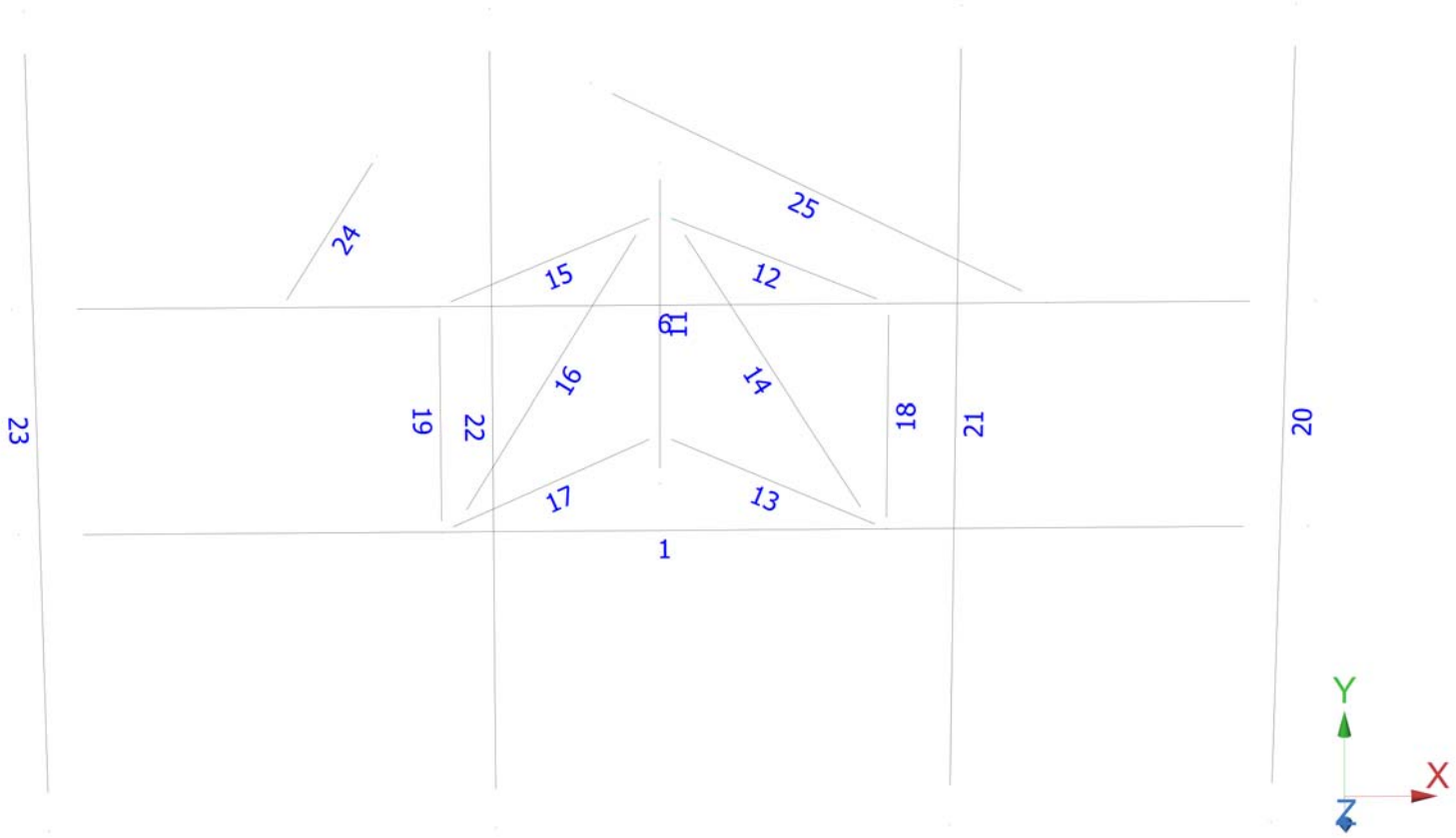
Mount Calculations
(Existing Conditions)


Y
X
Z


A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A36
RndBar 3_4
A36
RndBar 3_4
A36
RndBar 3_4
A36
RndBar 3_4
Y
X
Z

Current Date: 2/2/2022 5:30 PM
Units system: English
Load condition: LC3=1.2D+W60




24
25
15
12
F1
16
14
19
22
18
21
23
20
17
13
1
Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 2/2/2022 5:31 PM
Units system: English

Load data

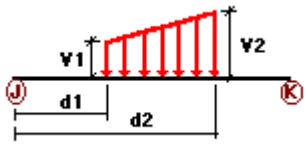
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

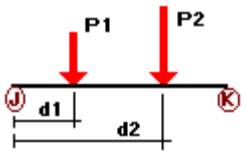
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.014	0.00	0.00	No	0.00	No
	6	z	-0.014	0.00	0.00	No	0.00	No
	11	z	-0.017	0.00	0.00	No	0.00	No
	12	z	-0.014	0.00	0.00	No	0.00	No
	13	z	-0.014	0.00	0.00	No	0.00	No
	14	z	-0.004	0.00	0.00	No	0.00	No
	15	z	-0.014	0.00	0.00	No	0.00	No
	16	z	-0.004	0.00	0.00	No	0.00	No
	17	z	-0.014	0.00	0.00	No	0.00	No
	18	z	-0.004	0.00	0.00	No	0.00	No
	19	z	-0.004	0.00	0.00	No	0.00	No
	20	z	-0.014	0.00	0.00	No	0.00	No
	21	z	-0.014	-0.014	6.50	No	10.00	No
	22	z	-0.014	-0.014	7.50	No	10.00	No
	23	z	-0.014	-0.014	6.50	No	10.00	No
	24	z	-0.011	0.00	0.00	No	0.00	No
	25	z	-0.011	0.00	0.00	No	0.00	No
W30	1	z	-0.014	0.00	0.00	No	0.00	No
	6	z	-0.014	0.00	0.00	No	0.00	No
	11	z	-0.017	0.00	0.00	No	0.00	No
	12	z	-0.014	0.00	0.00	No	0.00	No
	13	z	-0.014	0.00	0.00	No	0.00	No
	14	z	-0.004	0.00	0.00	No	0.00	No
	15	z	-0.014	0.00	0.00	No	0.00	No
	16	z	-0.004	0.00	0.00	No	0.00	No
	17	z	-0.014	0.00	0.00	No	0.00	No
	18	z	-0.004	0.00	0.00	No	0.00	No
	19	z	-0.004	0.00	0.00	No	0.00	No
	20	z	-0.014	0.00	0.00	No	0.00	No
	21	z	-0.014	-0.014	6.50	No	10.00	No
	22	z	-0.014	-0.014	7.50	No	10.00	No
	23	z	-0.014	-0.014	6.50	No	10.00	No
	24	z	-0.011	0.00	0.00	No	0.00	No
	25	z	-0.011	0.00	0.00	No	0.00	No
W60	1	x	-0.014	0.00	0.00	No	0.00	No
	6	x	-0.014	0.00	0.00	No	0.00	No
	11	x	-0.017	0.00	0.00	No	0.00	No
	12	x	-0.014	0.00	0.00	No	0.00	No
	13	x	-0.014	0.00	0.00	No	0.00	No
	14	x	-0.004	0.00	0.00	No	0.00	No
	15	x	-0.014	0.00	0.00	No	0.00	No
	16	x	-0.004	0.00	0.00	No	0.00	No
	17	x	-0.014	0.00	0.00	No	0.00	No
	18	x	-0.004	0.00	0.00	No	0.00	No
	19	x	-0.004	0.00	0.00	No	0.00	No
	20	x	-0.014	0.00	0.00	No	0.00	No
	21	x	-0.014	0.00	0.00	No	0.00	No
	22	x	-0.014	0.00	0.00	No	0.00	No
	23	x	-0.014	0.00	0.00	No	0.00	No
	24	x	-0.011	0.00	0.00	No	0.00	No
	25	x	-0.011	0.00	0.00	No	0.00	No
W90	11	x	-0.017	0.00	0.00	No	0.00	No
	12	x	-0.014	0.00	0.00	No	0.00	No
	13	x	-0.014	0.00	0.00	No	0.00	No
	14	x	-0.004	0.00	0.00	No	0.00	No
	15	x	-0.014	0.00	0.00	No	0.00	No
	16	x	-0.004	0.00	0.00	No	0.00	No
	17	x	-0.014	0.00	0.00	No	0.00	No
	18	x	-0.004	0.00	0.00	No	0.00	No
	19	x	-0.004	0.00	0.00	No	0.00	No

	20	x	-0.014	0.00	0.00	No	0.00	No
	21	x	-0.014	0.00	0.00	No	0.00	No
	22	x	-0.014	0.00	0.00	No	0.00	No
	23	x	-0.014	0.00	0.00	No	0.00	No
	24	x	-0.011	0.00	0.00	No	0.00	No
	25	x	-0.011	0.00	0.00	No	0.00	No
W120	1	x	-0.014	0.00	0.00	No	0.00	No
	6	x	-0.014	0.00	0.00	No	0.00	No
	11	x	-0.017	0.00	0.00	No	0.00	No
	12	x	-0.014	0.00	0.00	No	0.00	No
	13	x	-0.014	0.00	0.00	No	0.00	No
	14	x	-0.004	0.00	0.00	No	0.00	No
	15	x	-0.014	0.00	0.00	No	0.00	No
	16	x	-0.004	0.00	0.00	No	0.00	No
	17	x	-0.014	0.00	0.00	No	0.00	No
	18	x	-0.004	0.00	0.00	No	0.00	No
	19	x	-0.004	0.00	0.00	No	0.00	No
	20	x	-0.014	0.00	0.00	No	0.00	No
	21	x	-0.014	0.00	0.00	No	0.00	No
	22	x	-0.014	0.00	0.00	No	0.00	No
	23	x	-0.014	0.00	0.00	No	0.00	No
	24	x	-0.011	0.00	0.00	No	0.00	No
	25	x	-0.011	0.00	0.00	No	0.00	No
W150	1	z	0.014	0.00	0.00	No	0.00	No
	6	z	0.014	0.00	0.00	No	0.00	No
	11	z	0.017	0.00	0.00	No	0.00	No
	12	z	0.014	0.00	0.00	No	0.00	No
	13	z	0.014	0.00	0.00	No	0.00	No
	14	z	0.004	0.00	0.00	No	0.00	No
	15	z	0.014	0.00	0.00	No	0.00	No
	16	z	0.004	0.00	0.00	No	0.00	No
	17	z	0.014	0.00	0.00	No	0.00	No
	18	z	0.004	0.00	0.00	No	0.00	No
	19	z	0.004	0.00	0.00	No	0.00	No
	20	z	0.014	0.00	0.00	No	0.00	No
	21	z	0.014	0.00	0.00	No	0.00	No
	22	z	0.014	0.00	0.00	No	0.00	No
	23	z	0.014	0.00	0.00	No	0.00	No
	24	z	0.011	0.00	0.00	No	0.00	No
	25	z	0.011	0.00	0.00	No	0.00	No
Di	1	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.011	0.00	0.00	No	0.00	No
	12	y	-0.01	0.00	0.00	No	0.00	No
	13	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.01	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	19	y	-0.005	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.01	0.00	0.00	No	0.00	No
	22	y	-0.01	0.00	0.00	No	0.00	No
	23	y	-0.01	0.00	0.00	No	0.00	No
	24	y	-0.009	0.00	0.00	No	0.00	No
	25	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	21	y	-0.065	1.00	No
		y	-0.065	6.00	No
		y	-0.06	2.50	No
		y	-0.072	2.50	No
	22	y	-0.033	1.25	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	6.75	No
	23	y	-0.04	1.00	No
		y	-0.04	6.00	No
		y	-0.073	2.50	No
		y	-0.06	2.50	No
	27	y	-0.033	0.00	No
Wo	21	z	-0.324	1.00	No
		z	-0.324	6.00	No
		z	-0.032	2.50	No
		z	-0.033	2.50	No
	22	z	-0.10	1.25	No
		z	-0.10	3.00	No
		z	-0.097	5.00	No
		z	-0.097	6.75	No
	23	z	-0.304	1.00	No
		z	-0.304	6.00	No
		z	-0.035	2.50	No
		z	-0.045	2.50	No
	27	z	-0.054	0.00	No
W30	21	3	-0.284	1.00	No
		3	-0.284	6.00	No
		3	-0.048	2.50	No
	22	3	-0.087	1.25	No
		3	-0.087	3.00	No
		3	-0.089	5.00	No
		3	-0.089	6.75	No
	23	3	-0.261	1.00	No
		3	-0.261	6.00	No
		3	-0.066	2.50	No
	27	3	-0.054	0.00	No
W60	21	3	-0.203	1.00	No
		3	-0.203	6.00	No
		3	-0.08	2.50	No
	22	3	-0.061	1.25	No
		3	-0.061	3.00	No
		3	-0.074	5.00	No
		3	-0.074	6.75	No
	23	3	-0.177	1.00	No
		3	-0.177	6.00	No
		3	-0.109	2.50	No
	27	3	-0.054	0.00	No
W90	21	x	-0.163	1.00	No
		x	-0.163	6.00	No
		x	-0.096	2.50	No
	22	x	-0.048	1.25	No
		x	-0.048	3.00	No
		x	-0.066	5.00	No

		x	-0.066	6.75	No
	23	x	-0.134	1.00	No
		x	-0.134	6.00	No
		x	-0.131	2.50	No
	27	x	-0.054	0.00	No
W120	21	2	-0.203	1.00	No
		2	-0.203	6.00	No
		2	-0.08	2.50	No
	22	2	-0.061	1.25	No
		2	-0.061	3.00	No
		2	-0.074	5.00	No
		2	-0.074	6.75	No
	23	2	-0.177	1.00	No
		2	-0.177	6.00	No
		2	-0.109	2.50	No
	27	2	-0.054	0.00	No
W150	21	2	-0.284	1.00	No
		2	-0.284	6.00	No
		2	-0.048	2.50	No
	22	2	-0.087	1.25	No
		2	-0.087	3.00	No
		2	-0.089	5.00	No
		2	-0.089	6.75	No
	23	2	-0.261	1.00	No
		2	-0.261	6.00	No
		2	-0.066	2.50	No
	27	2	-0.054	0.00	No
Di	21	y	-0.168	1.00	No
		y	-0.168	6.00	No
		y	-0.057	2.50	No
		y	-0.051	2.50	No
	22	y	-0.055	1.25	No
		y	-0.055	3.00	No
		y	-0.058	5.00	No
		y	-0.058	6.75	No
	23	y	-0.154	1.00	No
		y	-0.154	6.00	No
		y	-0.058	2.50	No
		y	-0.077	2.50	No
	27	y	-0.05	0.00	No
WI0	21	z	-0.064	1.00	No
		z	-0.064	6.00	No
		z	-0.011	2.50	No
		z	-0.011	2.50	No
	22	z	-0.022	1.25	No
		z	-0.022	3.00	No
		z	-0.022	5.00	No
		z	-0.022	6.75	No
	23	z	-0.06	1.00	No
		z	-0.06	6.00	No
		z	-0.012	2.50	No
		z	-0.016	2.50	No
	27	z	-0.014	0.00	No
WI30	21	3	-0.056	1.00	No
		3	-0.056	6.00	No
		3	-0.014	2.50	No
	22	3	-0.02	1.25	No
		3	-0.02	3.00	No
		3	-0.02	5.00	No
		3	-0.02	6.75	No

	23	3	-0.052	1.00	No
		3	-0.052	6.00	No
		3	-0.019	2.50	No
	27	3	-0.014	0.00	No
WI60	21	3	-0.043	1.00	No
		3	-0.043	6.00	No
		3	-0.02	2.50	No
	22	3	-0.015	1.25	No
		3	-0.015	3.00	No
		3	-0.017	5.00	No
		3	-0.017	6.75	No
	23	3	-0.038	1.00	No
		3	-0.038	6.00	No
		3	-0.027	2.50	No
	27	3	-0.014	0.00	No
WI90	21	x	-0.036	1.00	No
		x	-0.036	6.00	No
		x	-0.023	2.50	No
	22	x	-0.013	1.25	No
		x	-0.013	3.00	No
		x	-0.016	5.00	No
		x	-0.016	6.75	No
	23	x	-0.031	1.00	No
		x	-0.031	6.00	No
		x	-0.031	2.50	No
	27	x	-0.014	0.00	No
WI120	21	2	-0.043	1.00	No
		2	-0.043	6.00	No
		2	-0.02	2.50	No
	22	2	-0.015	1.25	No
		2	-0.015	3.00	No
		2	-0.017	5.00	No
		2	-0.017	6.75	No
	23	2	-0.038	1.00	No
		2	-0.038	6.00	No
		2	-0.027	2.50	No
	27	2	-0.014	0.00	No
WI150	21	2	-0.056	1.00	No
		2	-0.056	6.00	No
		2	-0.014	2.50	No
	22	2	-0.02	1.25	No
		2	-0.02	3.00	No
		2	-0.02	5.00	No
		2	-0.02	6.75	No
	23	2	-0.052	1.00	No
		2	-0.052	6.00	No
		2	-0.019	2.50	No
	27	2	-0.014	0.00	No
WL0	21	z	-0.019	1.00	No
		z	-0.019	6.00	No
		z	-0.002	2.50	No
		z	-0.002	2.50	No
	22	z	-0.006	1.25	No
		z	-0.006	3.00	No
		z	-0.006	5.00	No
		z	-0.006	6.75	No
	23	z	-0.018	1.00	No
		z	-0.018	6.00	No
		z	-0.002	2.50	No
		z	-0.003	2.50	No

	27	z	-0.003	0.00	No
WL30	21	3	-0.017	1.00	No
		3	-0.017	6.00	No
		3	-0.003	2.50	No
	22	3	-0.005	1.25	No
		3	-0.005	3.00	No
		3	-0.006	5.00	No
		3	-0.006	6.75	No
	23	3	-0.016	1.00	No
		3	-0.016	6.00	No
		3	-0.004	2.50	No
	27	3	-0.003	0.00	No
WL60	21	3	-0.012	1.00	No
		3	-0.012	6.00	No
		3	-0.005	2.50	No
	22	3	-0.004	1.25	No
		3	-0.004	3.00	No
		3	-0.005	5.00	No
		3	-0.005	6.75	No
	23	3	-0.011	1.00	No
		3	-0.011	6.00	No
		3	-0.006	2.50	No
	27	3	-0.003	0.00	No
WL90	21	x	-0.01	1.00	No
		x	-0.01	6.00	No
		x	-0.006	2.50	No
	22	x	-0.003	1.25	No
		x	-0.003	3.00	No
		x	-0.004	5.00	No
		x	-0.004	6.75	No
	23	x	-0.008	1.00	No
		x	-0.008	6.00	No
		x	-0.008	2.50	No
	27	x	-0.003	0.00	No
WL120	21	2	-0.012	1.00	No
		2	-0.012	6.00	No
		2	-0.005	2.50	No
	22	2	-0.004	1.25	No
		2	-0.004	3.00	No
		2	-0.005	5.00	No
		2	-0.005	6.75	No
	23	2	-0.011	1.00	No
		2	-0.011	6.00	No
		2	-0.006	2.50	No
	27	2	-0.003	0.00	No
WL150	21	2	-0.017	1.00	No
		2	-0.017	6.00	No
		2	-0.003	2.50	No
	22	2	-0.005	1.25	No
		2	-0.005	3.00	No
		2	-0.006	5.00	No
		2	-0.006	6.75	No
	23	2	-0.016	1.00	No
		2	-0.016	6.00	No
		2	-0.004	2.50	No
	27	2	-0.003	0.00	No
LL1	6	y	-0.25	50.00	Yes
LL2	6	y	-0.25	100.00	Yes
LL3	6	y	-0.25	0.00	Yes
LLa1	20	y	-0.50	50.00	Yes

LLa2	21	y	-0.50	50.00	Yes
LLa3	22	y	-0.50	50.00	Yes
LLa4	23	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00

WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

RAM® Elements
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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2
LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**1**	LC76 at 32.03%	0.52	OK	
		6	LC81 at 32.50%	**0.52**	**OK**	
		12	LC51 at 0.00%	0.20	OK	
		13	LC40 at 9.38%	0.18	OK	
		15	LC5 at 100.00%	0.25	OK	
		17	LC76 at 9.38%	0.25	OK	
		20	LC47 at 62.50%	0.27	OK	
		21	LC1 at 35.42%	0.36	OK	
		22	LC51 at 62.50%	0.12	OK	
		23	LC77 at 62.50%	0.39	OK	
	PIPE 2x0.154	**24**	LC15 at 0.00%	0.06	OK	
		25	LC24 at 100.00%	**0.12**	**OK**	
	PIPE 3x0.216	**11**	LC1 at 15.63%	**0.00**	**OK**	
	RndBar 3_4	**14**	LC47 at 0.00%	0.26	OK	
		16	LC81 at 0.00%	0.32	OK	
		18	LC41 at 100.00%	0.39	OK	
		19	LC76 at 100.00%	**0.44**	**OK**	

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	7.25	0.00	0.00	0
3	-7.25	0.00	0.00	0
14	7.25	2.75	0.00	0
15	-7.25	2.75	0.00	0
24	0.00	0.00	-2.6667	0
25	0.00	2.75	-2.6667	0
27	0.00	3.375	-2.6667	0
28	0.00	-0.625	-2.6667	0
29	2.50	2.75	0.00	0
30	-2.50	2.75	0.00	0
31	2.50	0.00	0.00	0
32	-2.50	0.00	0.00	0
34	0.171	2.75	-2.4843	0
35	2.329	0.00	-0.1824	0
36	-2.329	0.00	-0.1824	0
37	-0.171	2.75	-2.4843	0
39	6.9167	6.375	0.20	0
40	6.9167	-3.625	0.20	0
41	3.25	6.375	0.20	0
42	3.25	-3.625	0.20	0
43	-1.9167	6.375	0.20	0
44	-1.9167	-3.625	0.20	0
45	-7.00	6.375	0.20	0

46	-7.00	-3.625	0.20	0
48	4.25	2.75	0.00	0
49	-4.25	2.75	0.00	0
50	-0.75	2.75	-6.75	0
51	-3.25	2.75	-4.50	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
24	1	1	1	1	0	1
25	1	1	1	1	0	1
50	1	1	1	0	0	0
51	1	1	1	0	0	0

Members

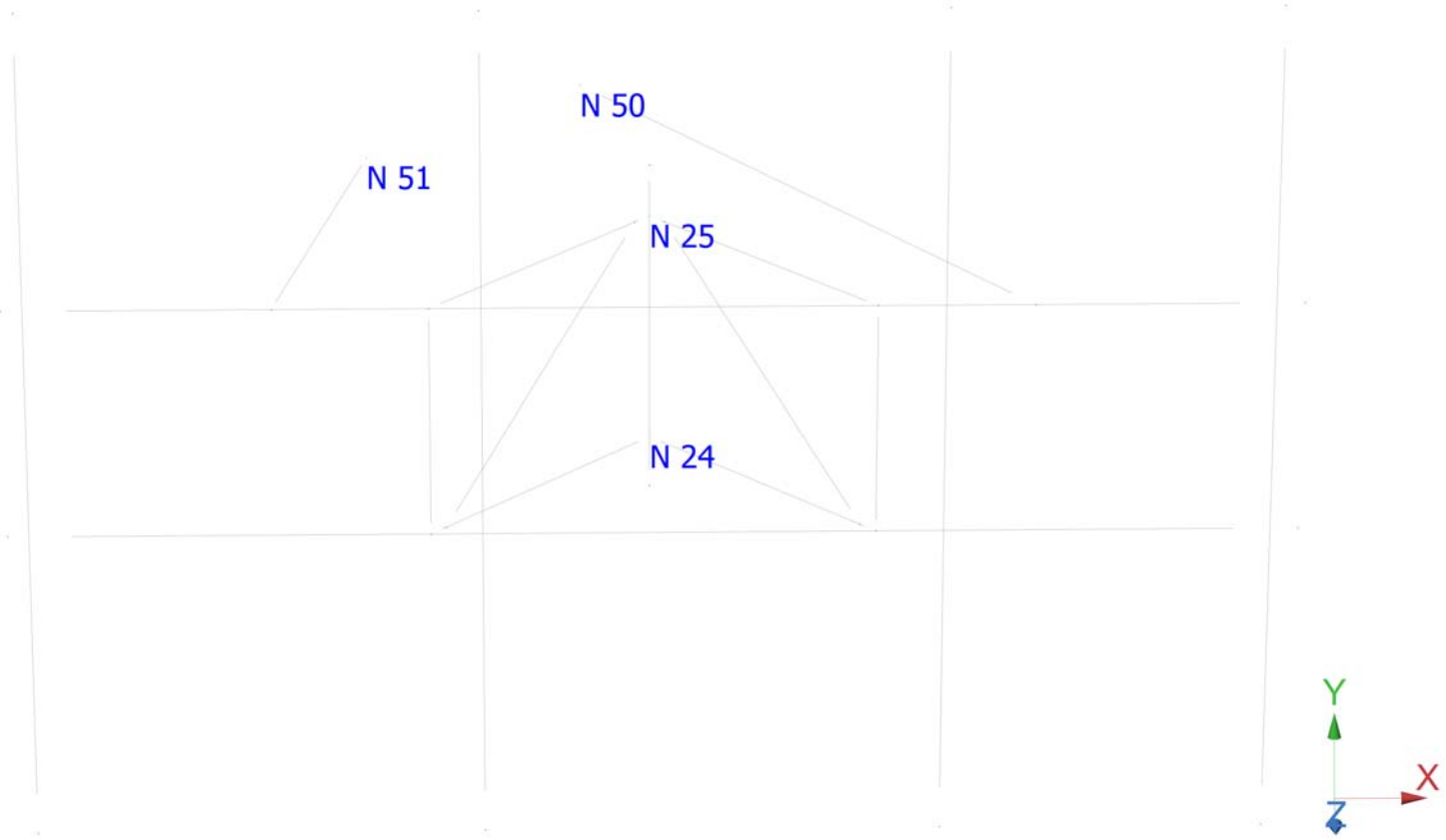
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	3	2		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
6	15	14		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	27	28		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
12	25	29		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
13	31	24		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	35	34		RndBar 3_4	A36	0.00	0.00	0.00
15	25	30		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
16	36	37		RndBar 3_4	A36	0.00	0.00	0.00
17	32	24		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
18	29	31		RndBar 3_4	A36	0.00	0.00	0.00
19	30	32		RndBar 3_4	A36	0.00	0.00	0.00
20	39	40		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
21	41	42		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
22	43	44		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
23	45	46		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
24	49	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
25	48	50		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
20	315.00	0	0.00	0.00	0.00
21	315.00	0	0.00	0.00	0.00
22	315.00	0	0.00	0.00	0.00
23	315.00	0	0.00	0.00	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
24	1	1	0	0	0	0	0	0	0	0	Full
25	1	1	0	0	0	0	0	0	0	0	Full


N 50
N 51
N 25
N 24
Y
X
Z

RAM® Elements
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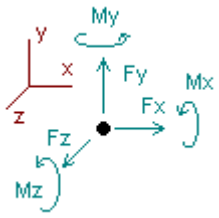
Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2D+Wo**						
25	-0.13181	1.54913	-1.32604	-0.26310	0.00000	0.00097
24	-0.33443	-0.11699	1.84203	0.11588	0.00000	-0.03221
50	0.75231	0.01704	1.04312	0.00000	0.00000	0.00000
51	-0.28608	0.00935	1.29284	0.00000	0.00000	0.00000
SUM	0.00000	1.45853	2.85197	-0.14722	0.00000	-0.03123
Condition **LC2=1.2D+W30**						
25	1.51136	1.55665	-1.59196	-0.26770	0.00000	-0.06611
24	-0.35079	-0.12451	1.87836	0.11723	0.00000	-0.02762
50	0.29443	0.01704	0.42499	0.00000	0.00000	0.00000
51	-0.31656	0.00935	1.43002	0.00000	0.00000	0.00000
SUM	1.13844	1.45853	2.14141	-0.15047	0.00000	-0.09373
Condition **LC3=1.2D+W60**						
25	2.35130	1.51760	-1.46321	-0.23407	0.00000	0.01348
24	0.00875	-0.08546	1.24572	0.10498	0.00000	0.01953
50	-0.21029	0.01704	-0.33401	0.00000	0.00000	0.00000
51	-0.29784	0.00935	1.45165	0.00000	0.00000	0.00000
SUM	1.85192	1.45853	0.90015	-0.12909	0.00000	0.03301
Condition **LC4=1.2D+W90**						
25	2.70668	1.52797	-1.60043	-0.23890	0.00000	-0.03546
24	0.00025	-0.09583	1.29153	0.10526	0.00000	0.01877
50	-0.45933	0.01704	-0.67021	0.00000	0.00000	0.00000
51	-0.19283	0.00935	0.97910	0.00000	0.00000	0.00000
SUM	2.05477	1.45853	0.00000	-0.13364	0.00000	-0.01669
Condition **LC5=1.2D+W120**						
25	2.46546	1.53785	-1.66532	-0.23851	0.00000	-0.05612
24	0.03301	-0.10572	1.33900	0.10485	0.00000	0.02243
50	-0.60590	0.01704	-0.86808	0.00000	0.00000	0.00000
51	-0.04064	0.00935	0.29426	0.00000	0.00000	0.00000
SUM	1.85192	1.45853	-0.90015	-0.13366	0.00000	-0.03369

Condition	**LC6=1.2D+W150**					
25	2.31874	1.50627	-1.48770	-0.19787	0.00000	-0.14472
24	-0.32738	-0.07413	0.73058	0.09708	0.00000	-0.01337
50	-0.93614	0.01704	-1.29129	0.00000	0.00000	0.00000
51	0.08322	0.00935	-0.38001	0.00000	0.00000	0.00000
SUM	1.13844	1.45853	-2.42841	-0.10079	0.00000	-0.15809
Condition	**LC7=1.2D-Wo**					
25	0.76063	1.50948	-1.26407	-0.19086	0.00000	-0.12596
24	-0.29353	-0.07735	0.75037	0.09647	0.00000	-0.01773
50	-0.75336	0.01704	-1.04454	0.00000	0.00000	0.00000
51	0.28627	0.00935	-1.29372	0.00000	0.00000	0.00000
SUM	0.00000	1.45853	-2.85197	-0.09439	0.00000	-0.14369
Condition	**LC8=1.2D-W30**					
25	-0.88254	1.50196	-0.99815	-0.18626	0.00000	-0.05888
24	-0.27718	-0.06983	0.71404	0.09512	0.00000	-0.02232
50	-0.29548	0.01704	-0.42640	0.00000	0.00000	0.00000
51	0.31676	0.00935	-1.43090	0.00000	0.00000	0.00000
SUM	-1.13844	1.45853	-2.14141	-0.09114	0.00000	-0.08120
Condition	**LC9=1.2D-W60**					
25	-1.72249	1.54101	-1.12690	-0.21989	0.00000	-0.13847
24	-0.63671	-0.10888	1.34669	0.10736	0.00000	-0.06947
50	0.20924	0.01704	0.33260	0.00000	0.00000	0.00000
51	0.29803	0.00935	-1.45253	0.00000	0.00000	0.00000
SUM	-1.85192	1.45853	-0.90015	-0.11252	0.00000	-0.20794
Condition	**LC10=1.2D-W90**					
25	-2.07786	1.53064	-0.98968	-0.21506	0.00000	-0.08952
24	-0.62821	-0.09851	1.30087	0.10709	0.00000	-0.06871
50	0.45828	0.01704	0.66879	0.00000	0.00000	0.00000
51	0.19302	0.00935	-0.97999	0.00000	0.00000	0.00000
SUM	-2.05477	1.45853	0.00000	-0.10797	0.00000	-0.15823
Condition	**LC11=1.2D-W120**					
25	-1.83664	1.52075	-0.92478	-0.21545	0.00000	-0.06886
24	-0.66097	-0.08862	1.25340	0.10750	0.00000	-0.07237
50	0.60485	0.01704	0.86667	0.00000	0.00000	0.00000
51	0.04084	0.00935	-0.29514	0.00000	0.00000	0.00000
SUM	-1.85192	1.45853	0.90015	-0.10795	0.00000	-0.14123
Condition	**LC12=1.2D-W150**					
25	-1.68992	1.55234	-1.10241	-0.25609	0.00000	0.01974
24	-0.30058	-0.12021	1.86182	0.11527	0.00000	-0.03657
50	0.93509	0.01704	1.28987	0.00000	0.00000	0.00000
51	-0.08303	0.00935	0.37912	0.00000	0.00000	0.00000
SUM	-1.13844	1.45853	2.42841	-0.14082	0.00000	-0.01683

Condition **LC13=0.9D+Wo**

25	-0.21041	1.16680	-1.00227	-0.20636	0.00000	0.01660
24	-0.25593	-0.09270	1.51798	0.08934	0.00000	-0.02597
50	0.75245	0.01278	1.04330	0.00000	0.00000	0.00000
51	-0.28610	0.00701	1.29295	0.00000	0.00000	0.00000
SUM	0.00000	1.09390	2.85197	-0.11702	0.00000	-0.00937

Condition **LC14=0.9D+W30**

25	1.43275	1.17432	-1.26820	-0.21096	0.00000	-0.05048
24	-0.27229	-0.10022	1.55431	0.09069	0.00000	-0.02138
50	0.29456	0.01278	0.42516	0.00000	0.00000	0.00000
51	-0.31659	0.00701	1.43013	0.00000	0.00000	0.00000
SUM	1.13844	1.09390	2.14141	-0.12027	0.00000	-0.07186

Condition **LC15=0.9D+W60**

25	2.27270	1.13527	-1.13945	-0.17733	0.00000	0.02910
24	0.08724	-0.06117	0.92167	0.07844	0.00000	0.02577
50	-0.21016	0.01278	-0.33384	0.00000	0.00000	0.00000
51	-0.29786	0.00701	1.45176	0.00000	0.00000	0.00000
SUM	1.85192	1.09390	0.90015	-0.09889	0.00000	0.05488

Condition **LC16=0.9D+W90**

25	2.62808	1.14564	-1.27667	-0.18215	0.00000	-0.01984
24	0.07875	-0.07154	0.96748	0.07871	0.00000	0.02501
50	-0.45920	0.01278	-0.67003	0.00000	0.00000	0.00000
51	-0.19285	0.00701	0.97921	0.00000	0.00000	0.00000
SUM	2.05477	1.09390	0.00000	-0.10344	0.00000	0.00517

Condition **LC17=0.9D+W120**

25	2.38686	1.15553	-1.34156	-0.18176	0.00000	-0.04050
24	0.11150	-0.08143	1.01495	0.07830	0.00000	0.02867
50	-0.60577	0.01278	-0.86791	0.00000	0.00000	0.00000
51	-0.04067	0.00701	0.29437	0.00000	0.00000	0.00000
SUM	1.85192	1.09390	-0.90015	-0.10346	0.00000	-0.01183

Condition **LC18=0.9D+W150**

25	2.24014	1.12394	-1.16393	-0.14112	0.00000	-0.12910
24	-0.24889	-0.04984	0.40653	0.07053	0.00000	-0.00713
50	-0.93601	0.01278	-1.29111	0.00000	0.00000	0.00000
51	0.08320	0.00701	-0.37989	0.00000	0.00000	0.00000
SUM	1.13844	1.09390	-2.42841	-0.07059	0.00000	-0.13623

Condition **LC19=0.9D-Wo**

25	0.68202	1.12716	-0.94031	-0.13411	0.00000	-0.11033
24	-0.21504	-0.05305	0.42632	0.06992	0.00000	-0.01149
50	-0.75323	0.01278	-1.04436	0.00000	0.00000	0.00000
51	0.28625	0.00701	-1.29361	0.00000	0.00000	0.00000
SUM	0.00000	1.09390	-2.85197	-0.06419	0.00000	-0.12182

Condition	**LC20=0.9D-W30**					
25	-0.96114	1.11963	-0.67438	-0.12951	0.00000	-0.04325
24	-0.19868	-0.04553	0.38999	0.06857	0.00000	-0.01608
50	-0.29535	0.01278	-0.42623	0.00000	0.00000	0.00000
51	0.31673	0.00701	-1.43079	0.00000	0.00000	0.00000
SUM	-1.13844	1.09390	-2.14141	-0.06094	0.00000	-0.05933
Condition	**LC21=0.9D-W60**					
25	-1.80109	1.15868	-0.80313	-0.16314	0.00000	-0.12284
24	-0.55822	-0.08458	1.02264	0.08082	0.00000	-0.06323
50	0.20937	0.01278	0.33277	0.00000	0.00000	0.00000
51	0.29801	0.00701	-1.45242	0.00000	0.00000	0.00000
SUM	-1.85192	1.09390	-0.90015	-0.08232	0.00000	-0.18607
Condition	**LC22=0.9D-W90**					
25	-2.15647	1.14832	-0.66591	-0.15832	0.00000	-0.07390
24	-0.54972	-0.07421	0.97682	0.08055	0.00000	-0.06247
50	0.45841	0.01278	0.66897	0.00000	0.00000	0.00000
51	0.19300	0.00701	-0.97988	0.00000	0.00000	0.00000
SUM	-2.05477	1.09390	0.00000	-0.07777	0.00000	-0.13637
Condition	**LC23=0.9D-W120**					
25	-1.91524	1.13843	-0.60102	-0.15871	0.00000	-0.05324
24	-0.58247	-0.06433	0.92935	0.08096	0.00000	-0.06613
50	0.60498	0.01278	0.86685	0.00000	0.00000	0.00000
51	0.04081	0.00701	-0.29503	0.00000	0.00000	0.00000
SUM	-1.85192	1.09390	0.90015	-0.07775	0.00000	-0.11937
Condition	**LC24=0.9D-W150**					
25	-1.76852	1.17001	-0.77865	-0.19935	0.00000	0.03536
24	-0.22209	-0.09591	1.53777	0.08873	0.00000	-0.03033
50	0.93522	0.01278	1.29005	0.00000	0.00000	0.00000
51	-0.08305	0.00701	0.37923	0.00000	0.00000	0.00000
SUM	-1.13844	1.09390	2.42841	-0.11062	0.00000	0.00503
Condition	**LC25=1.2D+Di+Wl0**					
25	0.93358	3.34829	-2.81183	-0.49234	0.00000	-0.20018
24	-0.96406	-0.22684	2.82147	0.24056	0.00000	-0.07675
50	0.09018	0.05484	0.12174	0.00000	0.00000	0.00000
51	-0.05969	0.03010	0.26862	0.00000	0.00000	0.00000
SUM	0.00000	3.20638	0.40000	-0.25178	0.00000	-0.27693
Condition	**LC26=1.2D+Di+Wl30**					
25	1.28584	3.35047	-2.86882	-0.49372	0.00000	-0.21544
24	-0.96946	-0.22902	2.83283	0.24102	0.00000	-0.07570
50	-0.00918	0.05484	-0.01240	0.00000	0.00000	0.00000
51	-0.06465	0.03010	0.29092	0.00000	0.00000	0.00000
SUM	0.24254	3.20638	0.24254	-0.25269	0.00000	-0.29114

Condition	**LC27=1.2D+Di+WI60**					
25	1.23224	3.35026	-2.86537	-0.49295	0.00000	-0.21626
24	-0.97068	-0.22881	2.83109	0.24077	0.00000	-0.07684
50	-0.00455	0.05484	-0.00614	0.00000	0.00000	0.00000
51	-0.05408	0.03010	0.24335	0.00000	0.00000	0.00000
SUM	0.20294	3.20638	0.20294	-0.25218	0.00000	-0.29311
Condition	**LC28=1.2D+Di+WI90**					
25	1.32666	3.35263	-2.90257	-0.49432	0.00000	-0.22721
24	-0.97293	-0.23118	2.84310	0.24077	0.00000	-0.07682
50	-0.06193	0.05484	-0.08361	0.00000	0.00000	0.00000
51	-0.03180	0.03010	0.14308	0.00000	0.00000	0.00000
SUM	0.26000	3.20638	0.00000	-0.25354	0.00000	-0.30403
Condition	**LC29=1.2D+Di+WI120**					
25	1.25534	3.35479	-2.91864	-0.49449	0.00000	-0.23098
24	-0.96567	-0.23334	2.85543	0.24047	0.00000	-0.07591
50	-0.09060	0.05484	-0.12231	0.00000	0.00000	0.00000
51	0.00387	0.03010	-0.01742	0.00000	0.00000	0.00000
SUM	0.20294	3.20638	-0.20294	-0.25402	0.00000	-0.30688
Condition	**LC30=1.2D+Di+WI150**					
25	1.30851	3.35465	-2.93042	-0.49380	0.00000	-0.23251
24	-0.96325	-0.23320	2.85371	0.24037	0.00000	-0.07573
50	-0.10737	0.05484	-0.14494	0.00000	0.00000	0.00000
51	0.00464	0.03010	-0.02089	0.00000	0.00000	0.00000
SUM	0.24254	3.20638	-0.24254	-0.25344	0.00000	-0.30824
Condition	**LC31=1.2D+Di-WI0**					
25	0.97667	3.35623	-2.89707	-0.49180	0.00000	-0.22821
24	-0.95417	-0.23479	2.86594	0.23982	0.00000	-0.07590
50	-0.08036	0.05484	-0.10849	0.00000	0.00000	0.00000
51	0.05786	0.03010	-0.26038	0.00000	0.00000	0.00000
SUM	0.00000	3.20638	-0.40000	-0.25198	0.00000	-0.30411
Condition	**LC32=1.2D+Di-WI30**					
25	0.62442	3.35405	-2.84008	-0.49043	0.00000	-0.21294
24	-0.94877	-0.23261	2.85458	0.23936	0.00000	-0.07695
50	0.01900	0.05484	0.02565	0.00000	0.00000	0.00000
51	0.06282	0.03010	-0.28268	0.00000	0.00000	0.00000
SUM	-0.24254	3.20638	-0.24254	-0.25107	0.00000	-0.28990
Condition	**LC33=1.2D+Di-WI60**					
25	0.67801	3.35426	-2.84353	-0.49120	0.00000	-0.21212
24	-0.94756	-0.23282	2.85632	0.23961	0.00000	-0.07581
50	0.01436	0.05484	0.01939	0.00000	0.00000	0.00000
51	0.05225	0.03010	-0.23511	0.00000	0.00000	0.00000
SUM	-0.20294	3.20638	-0.20294	-0.25159	0.00000	-0.28793

Condition **LC34=1.2D+Di-WI90**

25	0.58359	3.35189	-2.80633	-0.48983	0.00000	-0.20118
24	-0.94530	-0.23045	2.84431	0.23961	0.00000	-0.07584
50	0.07175	0.05484	0.09686	0.00000	0.00000	0.00000
51	0.02996	0.03010	-0.13484	0.00000	0.00000	0.00000
SUM	-0.26000	3.20638	0.00000	-0.25022	0.00000	-0.27701

Condition **LC35=1.2D+Di-WI120**

25	0.65491	3.34974	-2.79026	-0.48966	0.00000	-0.19741
24	-0.95256	-0.22829	2.83198	0.23992	0.00000	-0.07675
50	0.10041	0.05484	0.13556	0.00000	0.00000	0.00000
51	-0.00570	0.03010	0.02566	0.00000	0.00000	0.00000
SUM	-0.20294	3.20638	0.20294	-0.24974	0.00000	-0.27416

Condition **LC36=1.2D+Di-WI150**

25	0.60174	3.34987	-2.77848	-0.49034	0.00000	-0.19587
24	-0.95499	-0.22843	2.83370	0.24002	0.00000	-0.07693
50	0.11718	0.05484	0.15819	0.00000	0.00000	0.00000
51	-0.00647	0.03010	0.02913	0.00000	0.00000	0.00000
SUM	-0.24254	3.20638	0.24254	-0.25032	0.00000	-0.27280

Condition **LC37=1.2D+1.6LL1**

25	0.32082	1.92183	-1.60117	-0.37515	0.00000	-0.06804
24	-0.31572	-0.08969	1.61489	0.06408	0.00000	-0.01463
50	-0.00627	0.01704	-0.00846	0.00000	0.00000	0.00000
51	0.00117	0.00935	-0.00526	0.00000	0.00000	0.00000
SUM	0.00000	1.85853	0.00000	-0.31107	0.00000	-0.08267

Condition **LC38=1.2D+1.6LL2**

25	-0.60866	1.99432	-1.68184	-0.25796	0.00000	0.20140
24	0.61607	-0.16219	1.70178	0.18582	0.00000	0.05351
50	-0.00911	0.01704	-0.01229	0.00000	0.00000	0.00000
51	0.00170	0.00935	-0.00765	0.00000	0.00000	0.00000
SUM	0.00000	1.85853	0.00000	-0.07214	0.00000	0.25491

Condition **LC39=1.2D+1.6LL3**

25	1.22882	2.03132	-1.77745	-0.22227	0.00000	-0.33087
24	-1.24571	-0.19919	1.73197	0.23317	0.00000	-0.09433
50	0.02077	0.01704	0.02804	0.00000	0.00000	0.00000
51	-0.00388	0.00935	0.01744	0.00000	0.00000	0.00000
SUM	0.00000	1.85853	0.00000	0.01090	0.00000	-0.42520

Condition **LC40=1.2D+WL0+1.6LLa1**

25	-1.45307	2.46217	-2.07143	-0.29365	0.00000	0.42116
24	1.47580	-0.23003	2.15785	0.26091	0.00000	0.10282
50	-0.01345	0.01704	-0.01816	0.00000	0.00000	0.00000
51	-0.00928	0.00935	0.04175	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	0.11000	-0.03274	0.00000	0.52398

Condition **LC41=1.2D+WL30+1.6LLa1**

25	-1.35384	2.46258	-2.08817	-0.29390	0.00000	0.41762
24	1.47546	-0.23045	2.16064	0.26095	0.00000	0.10331
50	-0.04079	0.01704	-0.05507	0.00000	0.00000	0.00000
51	-0.01153	0.00935	0.05189	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	0.06930	-0.03295	0.00000	0.52094

Condition **LC42=1.2D+WL60+1.6LLa1**

25	-1.37228	2.46262	-2.08521	-0.29365	0.00000	0.41709
24	1.47490	-0.23048	2.15983	0.26095	0.00000	0.10290
50	-0.03984	0.01704	-0.05379	0.00000	0.00000	0.00000
51	-0.00763	0.00935	0.03432	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	0.05515	-0.03270	0.00000	0.51999

Condition **LC43=1.2D+WL90+1.6LLa1**

25	-1.35135	2.46320	-2.09368	-0.29387	0.00000	0.41396
24	1.47384	-0.23107	2.16210	0.26094	0.00000	0.10265
50	-0.05438	0.01704	-0.07341	0.00000	0.00000	0.00000
51	-0.00111	0.00935	0.00499	0.00000	0.00000	0.00000
SUM	0.06700	2.25853	0.00000	-0.03293	0.00000	0.51661

Condition **LC44=1.2D+WL120+1.6LLa1**

25	-1.36663	2.46378	-2.09809	-0.29375	0.00000	0.41282
24	1.47647	-0.23165	2.16448	0.26092	0.00000	0.10286
50	-0.06284	0.01704	-0.08483	0.00000	0.00000	0.00000
51	0.00816	0.00935	-0.03671	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	-0.05515	-0.03284	0.00000	0.51569

Condition **LC45=1.2D+WL150+1.6LLa1**

25	-1.34723	2.46382	-2.10031	-0.29364	0.00000	0.41213
24	1.47757	-0.23168	2.16362	0.26093	0.00000	0.10299
50	-0.06963	0.01704	-0.09400	0.00000	0.00000	0.00000
51	0.00858	0.00935	-0.03861	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	-0.06930	-0.03271	0.00000	0.51512

Condition **LC46=1.2D-WL0+1.6LLa1**

25	-1.44146	2.46411	-2.09146	-0.29295	0.00000	0.41312
24	1.47878	-0.23197	2.16668	0.26076	0.00000	0.10266
50	-0.06037	0.01704	-0.08149	0.00000	0.00000	0.00000
51	0.02305	0.00935	-0.10373	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	-0.11000	-0.03220	0.00000	0.51579

Condition **LC47=1.2D-WL30+1.6LLa1**

25	-1.54069	2.46369	-2.07472	-0.29270	0.00000	0.41665
24	1.47912	-0.23155	2.16389	0.26072	0.00000	0.10217
50	-0.03303	0.01704	-0.04459	0.00000	0.00000	0.00000
51	0.02530	0.00935	-0.11387	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	-0.06930	-0.03198	0.00000	0.51883

Condition **LC48=1.2D-WL60+1.6LLa1**

25	-1.52225	2.46366	-2.07768	-0.29295	0.00000	0.41719
24	1.47967	-0.23152	2.16470	0.26072	0.00000	0.10259
50	-0.03398	0.01704	-0.04587	0.00000	0.00000	0.00000
51	0.02140	0.00935	-0.09630	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	-0.05515	-0.03223	0.00000	0.51977

Condition **LC49=1.2D-WL90+1.6LLa1**

25	-1.54317	2.46307	-2.06921	-0.29274	0.00000	0.42032
24	1.48073	-0.23094	2.16243	0.26073	0.00000	0.10284
50	-0.01944	0.01704	-0.02625	0.00000	0.00000	0.00000
51	0.01488	0.00935	-0.06697	0.00000	0.00000	0.00000
SUM	-0.06700	2.25853	0.00000	-0.03201	0.00000	0.52316

Condition **LC50=1.2D-WL120+1.6LLa1**

25	-1.52790	2.46249	-2.06480	-0.29285	0.00000	0.42145
24	1.47811	-0.23036	2.16005	0.26075	0.00000	0.10262
50	-0.01098	0.01704	-0.01482	0.00000	0.00000	0.00000
51	0.00562	0.00935	-0.02527	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	0.05515	-0.03210	0.00000	0.52408

Condition **LC51=1.2D-WL150+1.6LLa1**

25	-1.54730	2.46246	-2.06258	-0.29297	0.00000	0.42215
24	1.47700	-0.23032	2.16090	0.26074	0.00000	0.10249
50	-0.00419	0.01704	-0.00566	0.00000	0.00000	0.00000
51	0.00519	0.00935	-0.02337	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	0.06930	-0.03223	0.00000	0.52464

Condition **LC52=1.2D+WL0+1.6LLa2**

25	-0.54562	2.39047	-2.05518	-0.38302	0.00000	0.16056
24	0.54603	-0.15834	2.08151	0.14035	0.00000	-0.01306
50	0.01399	0.01704	0.01888	0.00000	0.00000	0.00000
51	-0.01440	0.00935	0.06479	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	0.11000	-0.24267	0.00000	0.14750

Condition **LC53=1.2D+WL30+1.6LLa2**

25	-0.44640	2.39089	-2.07192	-0.38328	0.00000	0.15702
24	0.54569	-0.15876	2.08430	0.14039	0.00000	-0.01257
50	-0.01335	0.01704	-0.01802	0.00000	0.00000	0.00000
51	-0.01665	0.00935	0.07493	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	0.06930	-0.24289	0.00000	0.14446

Condition **LC54=1.2D+WL60+1.6LLa2**

25	-0.46484	2.39092	-2.06896	-0.38303	0.00000	0.15649
24	0.54514	-0.15879	2.08349	0.14039	0.00000	-0.01298
50	-0.01240	0.01704	-0.01674	0.00000	0.00000	0.00000
51	-0.01275	0.00935	0.05736	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	0.05515	-0.24264	0.00000	0.14351

Condition **LC55=1.2D+WL90+1.6LLa2**

25	-0.44391	2.39151	-2.07743	-0.38324	0.00000	0.15336
24	0.54408	-0.15937	2.08576	0.14038	0.00000	-0.01323
50	-0.02694	0.01704	-0.03636	0.00000	0.00000	0.00000
51	-0.00623	0.00935	0.02803	0.00000	0.00000	0.00000
SUM	0.06700	2.25853	0.00000	-0.24286	0.00000	0.14013

Condition **LC56=1.2D+WL120+1.6LLa2**

25	-0.45919	2.39209	-2.08184	-0.38312	0.00000	0.15223
24	0.54670	-0.15995	2.08814	0.14035	0.00000	-0.01302
50	-0.03540	0.01704	-0.04779	0.00000	0.00000	0.00000
51	0.00304	0.00935	-0.01367	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	-0.05515	-0.24277	0.00000	0.13921

Condition **LC57=1.2D+WL150+1.6LLa2**

25	-0.43978	2.39212	-2.08406	-0.38301	0.00000	0.15153
24	0.54781	-0.15999	2.08728	0.14037	0.00000	-0.01289
50	-0.04219	0.01704	-0.05695	0.00000	0.00000	0.00000
51	0.00346	0.00935	-0.01557	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	-0.06930	-0.24264	0.00000	0.13864

Condition **LC58=1.2D-WL0+1.6LLa2**

25	-0.53402	2.39241	-2.07521	-0.38233	0.00000	0.15252
24	0.54901	-0.16028	2.09034	0.14019	0.00000	-0.01322
50	-0.03292	0.01704	-0.04445	0.00000	0.00000	0.00000
51	0.01793	0.00935	-0.08069	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	-0.11000	-0.24213	0.00000	0.13930

Condition **LC59=1.2D-WL30+1.6LLa2**

25	-0.63325	2.39200	-2.05847	-0.38207	0.00000	0.15606
24	0.54935	-0.15986	2.08755	0.14015	0.00000	-0.01371
50	-0.00559	0.01704	-0.00754	0.00000	0.00000	0.00000
51	0.02018	0.00935	-0.09083	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	-0.06930	-0.24192	0.00000	0.14235

Condition **LC60=1.2D-WL60+1.6LLa2**

25	-0.61481	2.39196	-2.06143	-0.38232	0.00000	0.15659
24	0.54991	-0.15983	2.08836	0.14015	0.00000	-0.01330
50	-0.00653	0.01704	-0.00882	0.00000	0.00000	0.00000
51	0.01628	0.00935	-0.07326	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	-0.05515	-0.24217	0.00000	0.14329

Condition **LC61=1.2D-WL90+1.6LLa2**

25	-0.63573	2.39138	-2.05296	-0.38211	0.00000	0.15972
24	0.55097	-0.15924	2.08609	0.14017	0.00000	-0.01304
50	0.00800	0.01704	0.01080	0.00000	0.00000	0.00000
51	0.00976	0.00935	-0.04393	0.00000	0.00000	0.00000
SUM	-0.06700	2.25853	0.00000	-0.24194	0.00000	0.14668

Condition **LC62=1.2D-WL120+1.6LLa2**

25	-0.62046	2.39080	-2.04855	-0.38222	0.00000	0.16085
24	0.54834	-0.15866	2.08371	0.14019	0.00000	-0.01326
50	0.01646	0.01704	0.02222	0.00000	0.00000	0.00000
51	0.00050	0.00935	-0.00223	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	0.05515	-0.24204	0.00000	0.14760

Condition **LC63=1.2D-WL150+1.6LLa2**

25	-0.63986	2.39077	-2.04633	-0.38234	0.00000	0.16155
24	0.54724	-0.15863	2.08456	0.14017	0.00000	-0.01339
50	0.02325	0.01704	0.03139	0.00000	0.00000	0.00000
51	0.00007	0.00935	-0.00033	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	0.06930	-0.24216	0.00000	0.14816

Condition **LC64=1.2D+WL0+1.6LLa3**

25	0.83004	2.33189	-2.00071	-0.44755	0.00000	-0.18451
24	-0.83082	-0.09976	2.02382	0.04625	0.00000	-0.01496
50	0.01545	0.01704	0.02086	0.00000	0.00000	0.00000
51	-0.01467	0.00935	0.06602	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	0.11000	-0.40131	0.00000	-0.19948

Condition **LC65=1.2D+WL30+1.6LLa3**

25	0.92927	2.33231	-2.01744	-0.44781	0.00000	-0.18805
24	-0.83116	-0.10018	2.02662	0.04629	0.00000	-0.01447
50	-0.01188	0.01704	-0.01604	0.00000	0.00000	0.00000
51	-0.01693	0.00935	0.07616	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	0.06930	-0.40152	0.00000	-0.20252

Condition **LC66=1.2D+WL60+1.6LLa3**

25	0.91083	2.33234	-2.01448	-0.44756	0.00000	-0.18858
24	-0.83172	-0.10021	2.02581	0.04629	0.00000	-0.01489
50	-0.01093	0.01704	-0.01476	0.00000	0.00000	0.00000
51	-0.01302	0.00935	0.05859	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	0.05515	-0.40127	0.00000	-0.20347

Condition **LC67=1.2D+WL90+1.6LLa3**

25	0.93175	2.33293	-2.02295	-0.44777	0.00000	-0.19171
24	-0.83278	-0.10079	2.02807	0.04627	0.00000	-0.01514
50	-0.02547	0.01704	-0.03438	0.00000	0.00000	0.00000
51	-0.00650	0.00935	0.02926	0.00000	0.00000	0.00000
SUM	0.06700	2.25853	0.00000	-0.40150	0.00000	-0.20685

Condition **LC68=1.2D+WL120+1.6LLa3**

25	0.91647	2.33351	-2.02736	-0.44766	0.00000	-0.19285
24	-0.83015	-0.10137	2.03045	0.04625	0.00000	-0.01493
50	-0.03393	0.01704	-0.04581	0.00000	0.00000	0.00000
51	0.00276	0.00935	-0.01244	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	-0.05515	-0.40140	0.00000	-0.20777

Condition **LC69=1.2D+WL150+1.6LLa3**

25	0.93588	2.33354	-2.02959	-0.44754	0.00000	-0.19354
24	-0.82905	-0.10141	2.02960	0.04627	0.00000	-0.01479
50	-0.04072	0.01704	-0.05497	0.00000	0.00000	0.00000
51	0.00319	0.00935	-0.01434	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	-0.06930	-0.40128	0.00000	-0.20833

Condition **LC70=1.2D-WL0+1.6LLa3**

25	0.84164	2.33383	-2.02073	-0.44686	0.00000	-0.19255
24	-0.82784	-0.10170	2.03266	0.04609	0.00000	-0.01512
50	-0.03146	0.01704	-0.04247	0.00000	0.00000	0.00000
51	0.01766	0.00935	-0.07946	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	-0.11000	-0.40077	0.00000	-0.20767

Condition **LC71=1.2D-WL30+1.6LLa3**

25	0.74242	2.33342	-2.00399	-0.44661	0.00000	-0.18902
24	-0.82750	-0.10128	2.02986	0.04605	0.00000	-0.01562
50	-0.00412	0.01704	-0.00556	0.00000	0.00000	0.00000
51	0.01991	0.00935	-0.08960	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	-0.06930	-0.40055	0.00000	-0.20463

Condition **LC72=1.2D-WL60+1.6LLa3**

25	0.76085	2.33338	-2.00696	-0.44686	0.00000	-0.18848
24	-0.82695	-0.10125	2.03067	0.04605	0.00000	-0.01520
50	-0.00507	0.01704	-0.00684	0.00000	0.00000	0.00000
51	0.01601	0.00935	-0.07203	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	-0.05515	-0.40080	0.00000	-0.20369

Condition **LC73=1.2D-WL90+1.6LLa3**

25	0.73993	2.33280	-1.99849	-0.44664	0.00000	-0.18535
24	-0.82589	-0.10066	2.02841	0.04607	0.00000	-0.01495
50	0.00947	0.01704	0.01278	0.00000	0.00000	0.00000
51	0.00949	0.00935	-0.04270	0.00000	0.00000	0.00000
SUM	-0.06700	2.25853	0.00000	-0.40058	0.00000	-0.20030

Condition **LC74=1.2D-WL120+1.6LLa3**

25	0.75521	2.33222	-1.99408	-0.44676	0.00000	-0.18422
24	-0.82851	-0.10008	2.02603	0.04609	0.00000	-0.01516
50	0.01793	0.01704	0.02420	0.00000	0.00000	0.00000
51	0.00022	0.00935	-0.00100	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	0.05515	-0.40067	0.00000	-0.19938

Condition **LC75=1.2D-WL150+1.6LLa3**

25	0.73580	2.33218	-1.99185	-0.44687	0.00000	-0.18352
24	-0.82962	-0.10005	2.02688	0.04607	0.00000	-0.01530
50	0.02472	0.01704	0.03337	0.00000	0.00000	0.00000
51	-0.00020	0.00935	0.00090	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	0.06930	-0.40080	0.00000	-0.19882

Condition **LC76=1.2D+WL0+1.6LLa4**

25	2.10762	2.52983	-2.25571	-0.22062	0.00000	-0.54938
24	-2.13172	-0.29770	2.21606	0.34797	0.00000	-0.13930
50	0.04412	0.01704	0.05956	0.00000	0.00000	0.00000
51	-0.02002	0.00935	0.09009	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	0.11000	0.12735	0.00000	-0.68869

Condition **LC77=1.2D+WL30+1.6LLa4**

25	2.20684	2.53025	-2.27245	-0.22087	0.00000	-0.55292
24	-2.13206	-0.29811	2.21886	0.34801	0.00000	-0.13881
50	0.01678	0.01704	0.02266	0.00000	0.00000	0.00000
51	-0.02227	0.00935	0.10023	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	0.06930	0.12714	0.00000	-0.69173

Condition **LC78=1.2D+WL60+1.6LLa4**

25	2.18841	2.53028	-2.26949	-0.22062	0.00000	-0.55345
24	-2.13261	-0.29815	2.21805	0.34801	0.00000	-0.13922
50	0.01773	0.01704	0.02394	0.00000	0.00000	0.00000
51	-0.01837	0.00935	0.08266	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	0.05515	0.12739	0.00000	-0.69267

Condition **LC79=1.2D+WL90+1.6LLa4**

25	2.20933	2.53087	-2.27796	-0.22084	0.00000	-0.55658
24	-2.13367	-0.29873	2.22031	0.34800	0.00000	-0.13948
50	0.00320	0.01704	0.00431	0.00000	0.00000	0.00000
51	-0.01185	0.00935	0.05333	0.00000	0.00000	0.00000
SUM	0.06700	2.25853	0.00000	0.12716	0.00000	-0.69606

Condition **LC80=1.2D+WL120+1.6LLa4**

25	2.19405	2.53145	-2.28237	-0.22072	0.00000	-0.55772
24	-2.13105	-0.29931	2.22269	0.34798	0.00000	-0.13926
50	-0.00527	0.01704	-0.00711	0.00000	0.00000	0.00000
51	-0.00258	0.00935	0.01163	0.00000	0.00000	0.00000
SUM	0.05515	2.25853	-0.05515	0.12726	0.00000	-0.69698

Condition **LC81=1.2D+WL150+1.6LLa4**

25	2.21346	2.53148	-2.28459	-0.22061	0.00000	-0.55841
24	-2.12994	-0.29935	2.22184	0.34799	0.00000	-0.13913
50	-0.01205	0.01704	-0.01627	0.00000	0.00000	0.00000
51	-0.00216	0.00935	0.00973	0.00000	0.00000	0.00000
SUM	0.06930	2.25853	-0.06930	0.12738	0.00000	-0.69754

Condition **LC82=1.2D-WL0+1.6LLa4**

25	2.11922	2.53177	-2.27573	-0.21992	0.00000	-0.55742
24	-2.12874	-0.29964	2.22490	0.34782	0.00000	-0.13946
50	-0.00279	0.01704	-0.00377	0.00000	0.00000	0.00000
51	0.01231	0.00935	-0.05539	0.00000	0.00000	0.00000
SUM	0.00000	2.25853	-0.11000	0.12789	0.00000	-0.69688

Condition **LC83=1.2D-WL30+1.6LLa4**

25	2.01999	2.53135	-2.25900	-0.21967	0.00000	-0.55389
24	-2.12840	-0.29922	2.22210	0.34778	0.00000	-0.13995
50	0.02454	0.01704	0.03313	0.00000	0.00000	0.00000
51	0.01456	0.00935	-0.06553	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	-0.06930	0.12811	0.00000	-0.69384

Condition **LC84=1.2D-WL60+1.6LLa4**

25	2.03843	2.53132	-2.26196	-0.21992	0.00000	-0.55335
24	-2.12784	-0.29919	2.22291	0.34778	0.00000	-0.13954
50	0.02360	0.01704	0.03186	0.00000	0.00000	0.00000
51	0.01066	0.00935	-0.04796	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	-0.05515	0.12786	0.00000	-0.69289

Condition **LC85=1.2D-WL90+1.6LLa4**

25	2.01751	2.53074	-2.25349	-0.21971	0.00000	-0.55022
24	-2.12678	-0.29860	2.22065	0.34779	0.00000	-0.13929
50	0.03813	0.01704	0.05148	0.00000	0.00000	0.00000
51	0.00414	0.00935	-0.01863	0.00000	0.00000	0.00000
SUM	-0.06700	2.25853	0.00000	0.12808	0.00000	-0.68951

Condition **LC86=1.2D-WL120+1.6LLa4**

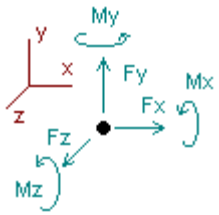
25	2.03279	2.53016	-2.24908	-0.21982	0.00000	-0.54909
24	-2.12941	-0.29802	2.21827	0.34781	0.00000	-0.13950
50	0.04659	0.01704	0.06290	0.00000	0.00000	0.00000
51	-0.00513	0.00935	0.02307	0.00000	0.00000	0.00000
SUM	-0.05515	2.25853	0.05515	0.12799	0.00000	-0.68859

Condition **LC87=1.2D-WL150+1.6LLa4**

25	2.01338	2.53012	-2.24686	-0.21994	0.00000	-0.54839
24	-2.13051	-0.29799	2.21912	0.34780	0.00000	-0.13963
50	0.05338	0.01704	0.07207	0.00000	0.00000	0.00000
51	-0.00555	0.00935	0.02497	0.00000	0.00000	0.00000
SUM	-0.06930	2.25853	0.06930	0.12786	0.00000	-0.68803

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

LC64=1.2D+WL0+1.6LLa3
LC65=1.2D+WL30+1.6LLa3
LC66=1.2D+WL60+1.6LLa3
LC67=1.2D+WL90+1.6LLa3
LC68=1.2D+WL120+1.6LLa3
LC69=1.2D+WL150+1.6LLa3
LC70=1.2D-WL0+1.6LLa3
LC71=1.2D-WL30+1.6LLa3
LC72=1.2D-WL60+1.6LLa3
LC73=1.2D-WL90+1.6LLa3
LC74=1.2D-WL120+1.6LLa3
LC75=1.2D-WL150+1.6LLa3
LC76=1.2D+WL0+1.6LLa4
LC77=1.2D+WL30+1.6LLa4
LC78=1.2D+WL60+1.6LLa4
LC79=1.2D+WL90+1.6LLa4
LC80=1.2D+WL120+1.6LLa4
LC81=1.2D+WL150+1.6LLa4
LC82=1.2D-WL0+1.6LLa4
LC83=1.2D-WL30+1.6LLa4
LC84=1.2D-WL60+1.6LLa4
LC85=1.2D-WL90+1.6LLa4
LC86=1.2D-WL120+1.6LLa4
LC87=1.2D-WL150+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
25	Max	2.707	LC4	3.356	LC31	-0.601	LC23	-0.12951	LC20	0.00000	LC1	0.42215	LC51
	Min	-2.156	LC22	1.120	LC20	-2.930	LC30	-0.49449	LC29	0.00000	LC1	-0.55841	LC81
24	Max	1.481	LC49	-0.046	LC20	2.866	LC31	0.34801	LC77	0.00000	LC1	0.10331	LC41
	Min	-2.134	LC79	-0.300	LC82	0.390	LC20	0.04605	LC71	0.00000	LC1	-0.13995	LC83
50	Max	0.935	LC24	0.055	LC25	1.290	LC24	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.936	LC6	0.013	LC13	-1.291	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
51	Max	0.317	LC8	0.030	LC25	1.452	LC15	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.317	LC14	0.007	LC15	-1.453	LC9	0.00000	LC1	0.00000	LC1	0.00000	LC1

HUDSON
Design Group LLC

Connection Check

Date: 2/2/2022
Project Name: NEW BRITIAN WEST
Project No.: CT5254
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 5/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall}= 4004 lbs.

TENSILE FORCES

Reaction **F =** 2930 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 2707 lbs. (See Bentley Output)
Reactions in Y direction: 3356 lbs. (See Bentley Output)

Resultant: 4312 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t= 1465.00 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2155.84 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.220	+	0.538	=	0.758	<	1.0	**Therefore, OK !**

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

Structural Analysis Report

Existing 176 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT04382-S

Customer Site Name: New Britain 2, CT

Carrier Name: AT&T (App#: 180227-3)

Carrier Site ID / Name: CTL05254 / New Britain West

Site Location: 1 Hartford Square

New Britain, Connecticut

Hartford County

Latitude: 41.666411

Longitude: -72.812803

Analysis Result:

Max Structural Usage: 82.0% [Pass]

Max Foundation Usage: 51.0% [Pass]

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

Report Prepared By: Samnang Chay

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

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Analysis Result:

Max Structural Usage: 82.0% [Pass]

Max Foundation Usage: 51.0% [Pass]

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

Report Prepared By: Samnang Chay

Introduction

The purpose of this report is to summarize the analysis results on the 176 ft Rohn Self Supporting Tower 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	Rohn Eng. File # 44545AE, Dwg. # C000882, dated 08/21/2000
Foundation Drawing	Rohn Eng. File # 44545AE, Dwg. # A001473, dated 07/26/2000
Geotechnical Report	Jaworski Geotech Project # 00309G, dated 07/05/2000
Modification Drawings	Allpro Consulting Group Job # 17-0378 rev.1, dated 02/21/2017
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 **TESTowers,** 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} = 125 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" 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:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.183, S_1 = 0.064

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	177.0	3	Kathrein 840 10054 Panel	(3) Sector Frames w/ (3) VBrace Kits (SitePro SFSV- L) & (6) 2-3/8"x6" Pipe Masts (BBPM-K1)	(4) 1/2" Fiber (6) 5/16" Fiber (1) 5/16" RET	Sprint Nextel
2		4	Andrew VHLP2.5 Dish			
3		3	Samsung U-RAS Flexible FRH			
4		3	Dragonwave Horizon Duo			
-	166.0	3	Cci Antennas DMP65R-BU6DA Panel	(3) Commscope SFG22HDX Mount	(6) 1 5/8" (4) 3/4" DC (2) 1/2" Fiber (1) 3" Conduit [(4) existing DC & (2) existing fiber in (1) 3" conduit]	AT&T
-		3	Cci Antennas OPA65R-BU6DA Panel			
-		3	Quintel QS66512-2 Panel			
-		3	Ericsson 8843 B2/B66A RRU			
-		6	CCI TPX-070821 Diplexer			
-		3	Ericsson RRUS-32 RRU			
-		3	Ericsson 4449 B5/B12 RRU			
-		3	Ericsson 4478 B14 RRU			
-		3	Commscope ION23 SDARS RRU			
-		3	Commscope CBC23SR-43 Combiners			
-		2	Raycap DC6-48-60-18-8F OVP			
-		1	Raycap DC6-48-60-0-8C-EV OVP			
-		1	Raycap DC6-48-60-18-8C-EV OVP			
16	152.0	3	Ericsson AIR32 KRD901146-1_B66A_B2A (Octo)	(3) Sector Frame	(1) 1 1/4" Fiber (8) 1 5/8" Coax (5) 1 5/8" Fiber	T-Mobile
17		3	RFS APXVAARR24_43-U-NA20			
18		3	Ericsson AIR6449 B41			
19		3	Ericsson KRY 112 144/1			
20		3	Commscope SDX1926Q-43			
21		3	Ericsson 4449 B71+B85			
22		3	Ericsson 4415 B25			
23	140.0	6	Andrew SBNHH-1D65B w/ Mount Pipe - Panel	(3) SitePro1 VFA12-HD (3) Commscope BSAMNT-SBS-2-2	(12) 1 5/8" (2) 1 5/8" Hybrid (1) 1/2"	Verizon
24		3	Samsung MT6407-77A - Panel			
25		3	Antel BXA-80080/4CF - Panel			
26		3	Samsung B2/B66A RRH-BR049 RRU			
27		1	Raycap RVZDC-6627-PF-48 – OVP			
28		3	Samsung XXDWMM-12.5-65-8T - Panel			
29		3	Samsung B5/B13 RRH-BR04C RRU			
30		1	GPS			
31	130.0	3	JMA Wireless MX08FRO665-21 - Panel	(3) Sector frames Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
32		3	Fujitsu TA08025-B605 RRU			
33		3	Fujitsu TA08025-B604 RRU			
34		1	Raycap RDIDC-9181-PF-48 - OVP			
35	82.0	1	GPS	Pipe	(2) 1/2"	Sprint Nextel

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
5	166.0	3	Ericsson RRUS-32	(3) Commscope SFG22HDX14-4-H10	(6) 1-5/8" (4) 3/4" DC (1) 1/2" Fiber (1) 3" Conduit [Housing (4) 3/4" DC & (2) 1/2" Fiber cable]	AT&T
6		2	Raycap DC6-48-60-18-8F - OVP			
7		3	Cci Antennas DMP65R-BU6DA Panel			
8		3	Ericsson 4449 B5/B12 – RRU			
9		3	Ericsson 4478 B14 – RRU			
10		3	Quintel QD6616-7 - Panel			
11		3	AIR 6449 B77D - Panel			
12		3	AIR 6419 B77G - Panel			
13		3	Ericsson 8843 B2/B66A - RRU			
14		1	Raycap DC6-48-60-0-8C-EV - OVP			
15		1	Raycap DC6-48-60-18-8C-EV - 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:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**54.4%**	**82.0%**	**4.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	268.2	226.9	26.1

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 0.1616 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.

Structure: CT04382-S-SBA

Site Name:	New Britain 2, CT			**Code:**	TIA-222-G	4/18/2022
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	176.00 (ft)	**Base Width:**	21.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	4.69	**Operational WS:**	60.00	Page: 1

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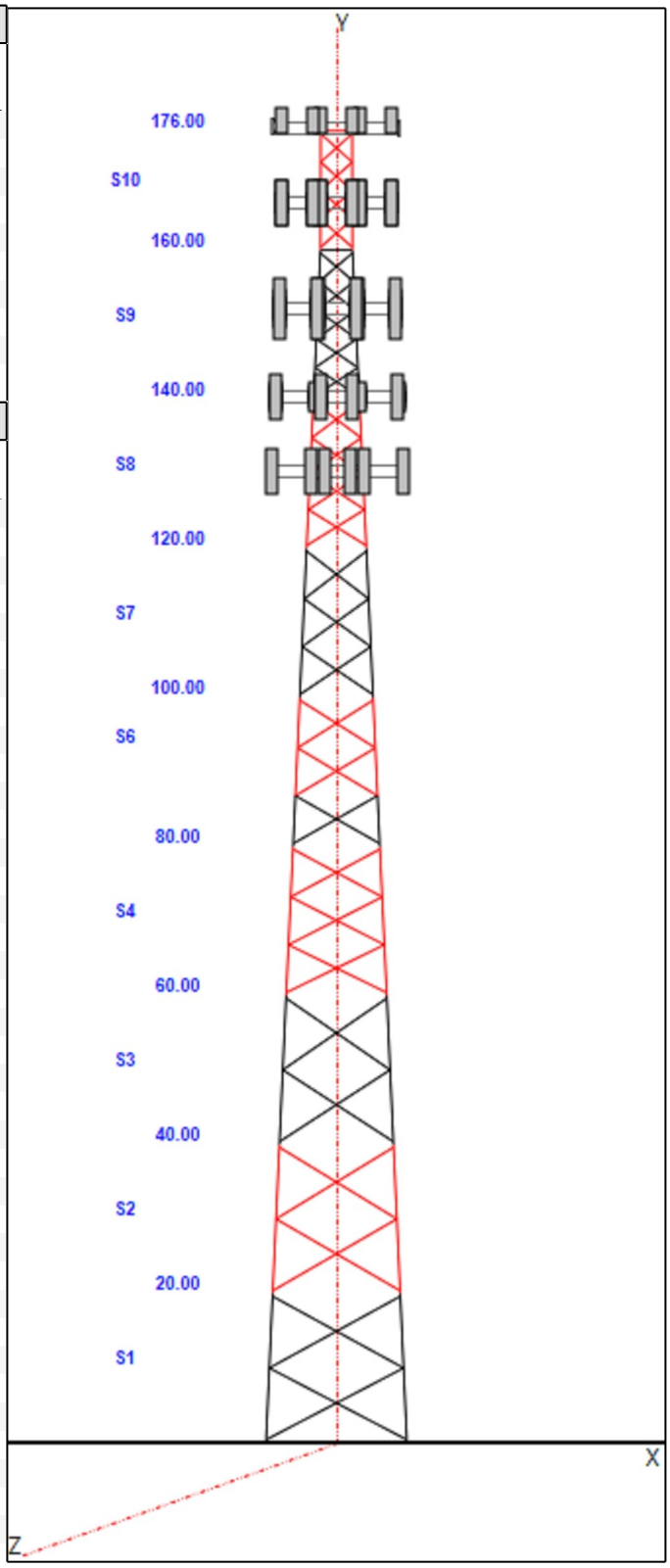
Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1	PX 8" DIA PIPE	SAE 4X4X0.25	
2	PX 8" DIA PIPE	SAE 3.5X3.5X0.25	
3	PSP ROHN 8 EHS	SAE 3.5X3.5X0.25	
4	PX 6" DIA PIPE	SAE 3X3X0.25	
5	PX 6" DIA PIPE	MOD 2L2.5x2.5x3/16_S	
6	PX 6" DIA PIPE	SAE 2.5X2.5X0.1875	
7	PSP ROHN 6 EHS	SAE 2.5X2.5X0.1875	
8	PX 5" DIA PIPE	SAE 2X2X0.1875	
9	PX 4" DIA PIPE	SAE 2X2X0.1875	SAE 2X2X0.1875
10	PX 3" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
176.00	179.00	1	Lightning Rod
176.00	176.00	1	Beacon
176.00	176.00	3	Light Sector Frame
176.00	176.00	1	(3) SFS-H-L (V-Braces)
176.00	177.00	4	VHLP2.5
176.00	177.00	3	Horizon Duo
176.00	177.00	3	840 10054
176.00	177.00	3	U-RAS Flexible FRH
166.00	166.00	3	RRUS 32
166.00	166.00	2	DC6-48-60-18-8F
166.00	166.00	3	DMP65R-BU6DA
166.00	166.00	3	4449 B5/B12
166.00	166.00	3	4478 B14
166.00	166.00	1	DC6-48-60-0-8C-EV
166.00	166.00	1	DC6-48-60-18-8C-EV
166.00	166.00	1	Commscope SFG22HDX
166.00	166.00	3	Quintel QD6616-7
166.00	166.00	3	AIR 6449 B77D
166.00	166.00	3	AIR 6419 B77G
166.00	166.00	3	8843
152.00	152.00	3	KRY 112 144/1
152.00	152.00	3	AIR32 KRD901146-1_B66A_B2A (Oc
152.00	152.00	3	APXVAARR24_43-U-NA20
152.00	152.00	3	AIR6449 B41
152.00	152.00	3	SDX1926Q-43
152.00	152.00	3	4449 B71 + B85
152.00	152.00	3	RRUS 4415 B25
152.00	152.00	3	Sector Frame
140.00	140.00	6	Andrew SBNHH-1D65B w/ Mount Pipe
140.00	140.00	3	Samsung MT6407-77A
140.00	140.00	3	Antel BXA-80080/4CF
140.00	140.00	3	Samsung B2/B66A RRH-BR049
140.00	140.00	3	(3) Commscope BSAMNT-SBS-2-2
140.00	140.00	1	Raycap RVZDC-6627-PF-48
140.00	140.00	1	GPS
140.00	140.00	3	Samsung XXDWMM-12.5-65-8T
140.00	140.00	1	(3) SitePro1 VFA12-HD
140.00	140.00	3	Samsung B5/B13 RRH-BR04C
130.00	130.00	3	JMA Wireless MX08FRO665-21



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130.00	130.00	1	(3) MTC3975083
130.00	130.00	3	Fujitsu TA08025-B605 RRU
130.00	130.00	3	Fujitsu TA08025-B604 RRU
130.00	130.00	1	Raycap RDIDC-9181-PF-48
82.00	82.00	1	GPS

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
152.00	176.00	4	1/2" Fiber
152.00	176.00	6	5/16" Fiber
152.00	176.00	1	5/16" RET
152.00	176.00	1	W/G Ladder
0.00	166.00	6	1 5/8" Coax
0.00	166.00	1	1/2" Fiber
0.00	166.00	1	3" Conduit
0.00	166.00	4	3/4" DC
0.00	162.00	1	W/G Ladder
0.00	152.00	1	1 1/4" Fiber
0.00	152.00	8	1 5/8" Coax
0.00	152.00	5	1 5/8" Fiber
0.00	152.00	1	W/G Ladder
0.00	140.00	12	1 5/8" Coax
0.00	140.00	2	1 5/8" Hybrid
0.00	140.00	1	1/2" Coax
0.00	130.00	1	1.6" Hybrid
0.00	82.00	1	1/2" Coax

Base Reactions

Leg			Overturning	
Max Uplift:	-226.87 (kips	Moment:	4544.03	(ft-kips)
Max Down:	268.22 (kips	Total Down:	55.09	(kips)
Max Shear:	26.12 (kips	Total Shear:	41.76	(kips)

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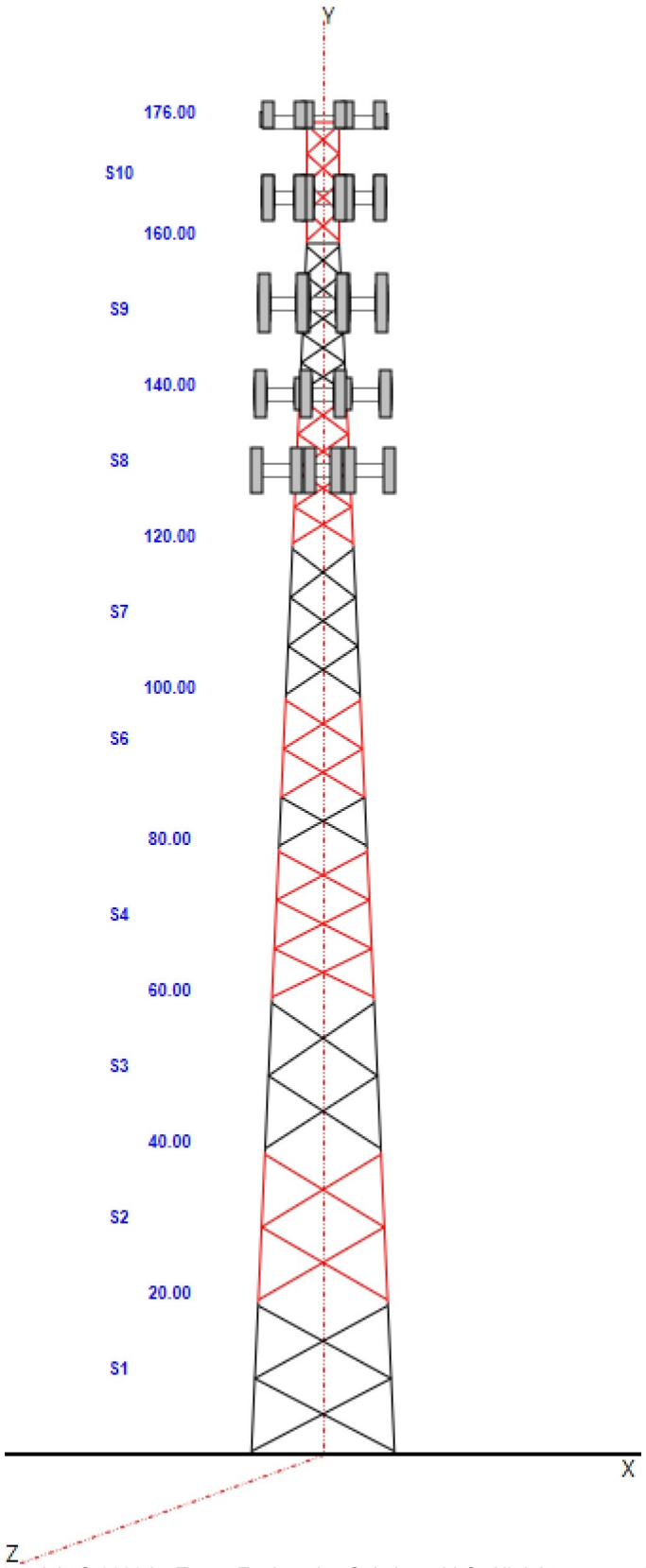

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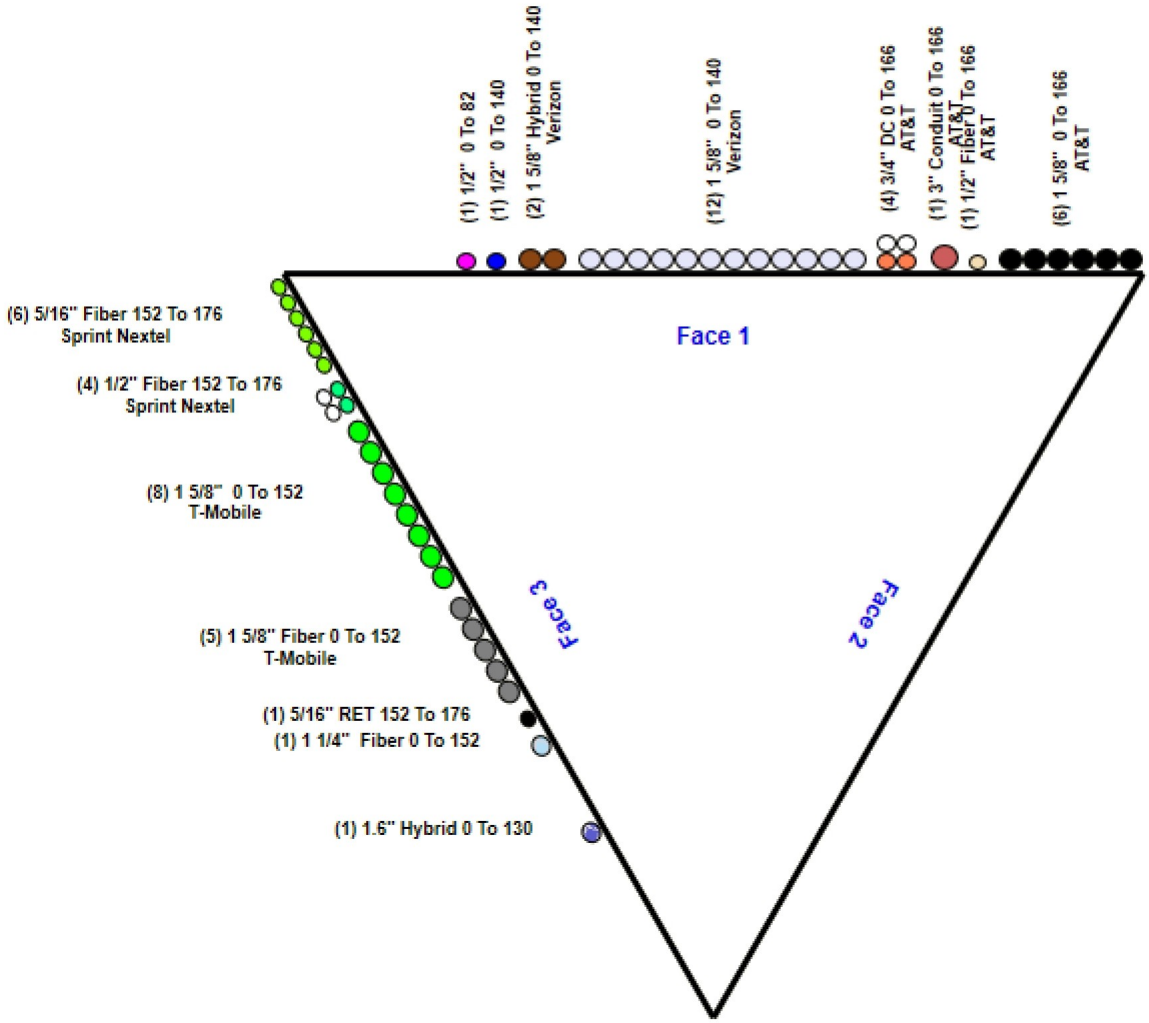
Structure: CT04382-S-SBA - Coax Line Placement

Type: Self Support
Site Name: New Britain 2, CT
Height: 176.00 (ft)

4/18/2022

IES Tower Engineering Solutions



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Loading Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
176.00	Lightning Rod	1	5.00	0.500	33.24	2.853	72.000	1.000	1.000	1.00	1.00	3.000
176.00	Beacon	1	36.00	2.720	215.62	4.000	28.000	17.500	17.500	1.00	1.00	0.000
176.00	Light Sector Frame	3	500.00	17.500	1441.39	36.281	0.000	0.000	0.000	0.75	0.75	0.000
176.00	(3) SFS-H-L (V-Braces)	1	230.00	6.700	663.04	16.161	0.000	0.000	0.000	0.75	1.00	0.000
176.00	VHLP2.5	4	27.00	4.680	158.97	6.398	26.100	26.100	13.200	1.00	1.00	1.000
176.00	Horizon Duo	3	10.60	0.430	40.99	1.119	4.700	7.500	7.500	0.80	0.67	1.000
176.00	840 10054	3	30.00	4.590	143.64	6.846	42.000	12.700	2.800	0.80	0.68	1.000
176.00	U-RAS Flexible FRH	3	33.00	1.820	89.17	3.134	16.000	11.600	5.000	0.80	0.67	1.000
166.00	RRUS 32	3	77.00	1.650	150.17	2.458	20.900	9.500	3.300	0.80	0.67	0.000
166.00	DC6-48-60-18-8F	2	32.80	0.920	118.79	1.511	24.000	11.000	11.000	0.80	0.67	0.000
166.00	DMP65R-BU6DA	3	79.40	12.710	476.60	14.684	71.200	20.700	7.700	0.80	0.72	0.000
166.00	4449 B5/B12	3	71.00	1.970	142.99	2.708	17.900	13.200	9.400	0.80	0.67	0.000
166.00	4478 B14	3	59.90	1.840	123.28	2.550	16.500	13.400	7.700	0.80	0.67	0.000
166.00	DC6-48-60-0-8C-EV	1	16.00	4.750	182.86	5.935	31.400	10.240	10.200	1.00	1.00	0.000
166.00	DC6-48-60-18-8C-EV	1	16.00	4.780	182.86	5.973	31.400	18.300	10.200	1.00	1.00	0.000
166.00	Commscope SFG22HDX	1	1569.0	51.900	3636.86	139.84	0.000	0.000	0.000	0.75	1.00	0.000
166.00	Quintel QD6616-7	3	59.10	14.880	354.75	17.191	72.000	22.000	9.600	0.80	0.93	0.000
166.00	AIR 6449 B77D	3	88.00	4.130	285.71	5.313	30.800	16.100	10.800	0.80	0.85	0.000
166.00	AIR 6419 B77G	3	66.10	3.800	195.84	4.873	28.300	16.100	7.900	0.80	0.76	0.000
166.00	8843	3	75.00	1.650	184.55	2.403	15.000	13.200	11.100	0.80	0.67	0.000
152.00	KRY 112 144/1	3	11.00	0.410	25.38	1.044	6.900	6.100	2.700	0.80	0.67	0.000
152.00	AIR32 KRD901146-1_B66A_B2A	3	132.20	6.510	393.25	8.098	57.000	12.900	8.700	0.80	0.87	0.000
152.00	APXVAARR24_43-U-NA20	3	128.00	20.240	709.08	22.805	95.900	24.000	7.800	0.80	0.70	0.000
152.00	AIR6449 B41	3	103.00	5.650	285.82	6.917	33.100	20.500	8.300	0.80	0.71	0.000
152.00	SDX1926Q-43	3	6.10	0.230	17.47	0.721	4.000	6.000	3.000	0.80	0.67	0.000
152.00	4449 B71 + B85	3	74.00	1.970	151.83	2.729	17.900	13.200	10.600	0.80	0.67	0.000
152.00	RRUS 4415 B25	3	46.00	1.640	100.80	2.327	15.000	13.200	5.400	0.80	0.67	0.000
152.00	Sector Frame	3	500.00	17.500	1430.78	36.069	0.000	0.000	0.000	0.75	0.75	0.000
140.00	Andrew SBNHH-1D65B w/ Mount	6	40.00	8.160	314.13	9.905	72.600	11.900	7.100	0.80	0.83	0.000
140.00	Samsung MT6407-77A	3	79.40	4.690	247.09	5.953	35.100	16.100	5.500	0.80	0.70	0.000
140.00	Antel BXA-80080/4CF	3	48.20	4.800	527.57	7.262	48.200	11.200	5.900	0.80	0.76	0.000
140.00	Samsung B2/B66A RRH-BR049	3	84.40	1.870	192.87	2.646	15.000	15.000	10.000	0.80	0.67	0.000
140.00	(3) Commscope BSAMNT-SBS-2-2	3	25.40	0.000	102.78	0.000	4.500	2.400	1.000	1.00	1.00	0.000
140.00	Raycap RVZDC-6627-PF-48	1	32.00	4.060	181.75	5.140	29.500	16.500	12.600	1.00	1.00	0.000
140.00	GPS	1	10.00	1.000	48.54	1.936	12.000	9.000	6.000	1.00	1.00	0.000
140.00	Samsung XXDWMM-12.5-65-8T	3	23.10	1.540	98.83	2.257	16.200	11.400	5.500	0.80	0.67	0.000
140.00	(3) SitePro1 VFA12-HD	1	2322.0	50.700	5304.79	134.43	0.000	0.000	0.000	0.75	1.00	0.000
140.00	Samsung B5/B13 RRH-BR04C	3	70.30	1.870	169.00	2.646	15.000	15.000	8.100	0.80	0.67	0.000
130.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	446.82	14.415	72.000	20.000	8.000	0.80	0.74	0.000
130.00	(3) MTC3975083	1	1242.0	28.050	2837.45	74.377	0.000	0.000	0.000	0.75	1.00	0.000
130.00	Fujitsu TA08025-B605 RRU	3	75.00	1.960	143.75	2.697	15.800	15.000	9.100	0.80	0.67	0.000
130.00	Fujitsu TA08025-B604 RRU	3	63.90	1.960	130.45	2.697	15.800	15.000	7.900	0.80	0.67	0.000
130.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	91.89	2.757	16.600	14.600	8.500	1.00	1.00	0.000
82.00	GPS	1	10.00	1.000	46.86	1.895	12.000	9.000	6.000	1.00	1.00	0.000
	Totals:	**111**	**13,974.30**		**42,591.94**						**Number of Appurtenances :**	**44**

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Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
152.00	176.00	1/2" Fiber	4	0.50	0.16	50.00	3	Block		N	0.50	1.00	
152.00	176.00	5/16" Fiber	6	0.32	0.95	100.00	3	Individual IR		N	0.50	1.00	
152.00	176.00	5/16" RET	1	0.32	0.08	100.00	3	Individual NR		N	1.00	1.00	
152.00	176.00	W/G Ladder	1	2.00	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	166.00	1 5/8" Coax	6	1.98	1.04	100.00	1	Individual IR		N	0.50	1.00	
0.00	166.00	1/2" Fiber	1	0.50	0.16	100.00	1	Individual NR		N	0.00	1.00	0
0.00	166.00	3" Conduit	1	3.02	1.78	100.00	1	Individual NR		N	0.50	1.00	
0.00	166.00	3/4" DC	4	0.75	0.40	50.00	1	Block		N	0.50	0.94	0
0.00	162.00	W/G Ladder	1	0.25	6.00	100.00	1	Individual NR		N	0.50	1.00	
0.00	152.00	1 1/4" Fiber	1	1.55	0.66	100.00	3	Individual NR		N	1.00	1.00	
0.00	152.00	1 5/8" Coax	8	1.98	1.04	100.00	3	Individual IR		N	0.50	1.00	
0.00	152.00	1 5/8" Fiber	5	2.00	1.10	100.00	3	Individual IR		N	0.50	1.00	
0.00	152.00	W/G Ladder	1	0.25	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	140.00	1 5/8" Coax	12	1.98	1.04	100.00	1	Individual IR		N	0.50	1.00	0
0.00	140.00	1 5/8" Hybrid	2	2.00	1.10	100.00	1	Individual IR		N	0.50	1.00	0
0.00	140.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	
0.00	130.00	1.6" Hybrid	1	1.55	0.66	100.00	3	Individual NR		N	1.00	1.00	
0.00	82.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.32	126.50	0.00	6,488.0	0.0	2265.98	1087.22	3,353.21
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	126.50	0.00	6,083.0	0.0	1957.29	1088.14	3,045.43
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	1.00	1.00	0.00	33.15	126.50	0.00	5,190.9	0.0	2076.81	1259.13	3,335.95
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.88	126.50	0.00	4,932.6	0.0	2255.93	1386.19	3,642.11
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	1.00	1.00	0.00	9.80	42.70	0.00	1,751.2	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	1.00	1.00	0.00	17.51	82.83	0.00	2,767.1	0.0	1296.87	980.15	2,277.03
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	1.00	1.00	0.00	24.58	125.42	0.00	3,673.1	0.0	1868.66	1555.22	3,423.88
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	1.00	1.00	0.00	21.17	124.13	0.00	3,382.1	0.0	1669.70	1603.66	3,273.36
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	1.00	1.00	0.00	20.03	60.88	0.00	2,527.3	0.0	1573.00	1298.68	2,871.68
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	1.00	1.00	0.00	13.84	16.39	0.00	1,525.7	0.0	1115.49	401.52	1,517.00
														38,321.0	**0.0**			**27,892.79**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.59	126.50	0.00	6,488.0	0.0	1951.84	1087.22	3,039.06
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	126.50	0.00	6,083.0	0.0	1704.98	1088.14	2,793.12
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	0.80	1.00	0.00	28.96	126.50	0.00	5,190.9	0.0	1814.40	1259.13	3,073.54
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.43	126.50	0.00	4,932.6	0.0	1951.08	1386.19	3,337.27
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	0.80	1.00	0.00	9.80	42.70	0.00	1,751.2	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	0.80	1.00	0.00	15.39	82.83	0.00	2,767.1	0.0	1140.05	980.15	2,120.20
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	0.80	1.00	0.00	21.76	125.42	0.00	3,673.1	0.0	1654.53	1555.22	3,209.75
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	0.80	1.00	0.00	18.83	124.13	0.00	3,382.1	0.0	1485.25	1603.66	3,088.91
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	0.80	1.00	0.00	17.69	60.88	0.00	2,527.3	0.0	1389.01	1298.68	2,687.69
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	0.80	1.00	0.00	12.15	16.39	0.00	1,525.7	0.0	979.45	401.52	1,380.97
														38,321.0	**0.0**			**25,883.64**

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.02	126.50	0.00	6,488.0	0.0	2030.37	1087.22	3,117.60
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	126.50	0.00	6,083.0	0.0	1768.05	1088.14	2,856.20
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	0.85	1.00	0.00	30.00	126.50	0.00	5,190.9	0.0	1880.01	1259.13	3,139.14
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.55	126.50	0.00	4,932.6	0.0	2027.29	1386.19	3,413.48
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	0.85	1.00	0.00	9.80	42.70	0.00	1,751.2	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	0.85	1.00	0.00	15.92	82.83	0.00	2,767.1	0.0	1179.25	980.15	2,159.41
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	0.85	1.00	0.00	22.46	125.42	0.00	3,673.1	0.0	1708.07	1555.22	3,263.28
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	0.85	1.00	0.00	19.42	124.13	0.00	3,382.1	0.0	1531.36	1603.66	3,135.02
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.28	60.88	0.00	2,527.3	0.0	1435.01	1298.68	2,733.69
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	0.85	1.00	0.00	12.57	16.39	0.00	1,525.7	0.0	1013.46	401.52	1,414.98
														38,321.0	**0.0**			**26,385.92**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	1.00	1.00	0.00	41.32	126.50	0.00	4,866.0	0.0	2265.98	1087.22	3,353.21
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	126.50	0.00	4,562.2	0.0	1957.29	1088.14	3,045.43
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	1.00	1.00	0.00	33.15	126.50	0.00	3,893.2	0.0	2076.81	1259.13	3,335.95
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	1.00	1.00	0.00	32.88	126.50	0.00	3,699.5	0.0	2255.93	1386.19	3,642.11
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	1.00	1.00	0.00	9.80	42.70	0.00	1,313.4	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	1.00	1.00	0.00	17.51	82.83	0.00	2,075.3	0.0	1296.87	980.15	2,277.03
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	1.00	1.00	0.00	24.58	125.42	0.00	2,754.8	0.0	1868.66	1555.22	3,423.88
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	1.00	1.00	0.00	21.17	124.13	0.00	2,536.6	0.0	1669.70	1603.66	3,273.36
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	1.00	1.00	0.00	20.03	60.88	0.00	1,895.5	0.0	1573.00	1298.68	2,871.68
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	1.00	1.00	0.00	13.84	16.39	0.00	1,144.3	0.0	1115.49	401.52	1,517.00
														28,740.8	**0.0**			**27,892.79**

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	0.80	1.00	0.00	35.59	126.50	0.00	4,866.0	0.0	1951.84	1087.22	3,039.06
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	126.50	0.00	4,562.2	0.0	1704.98	1088.14	2,793.12
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	0.80	1.00	0.00	28.96	126.50	0.00	3,893.2	0.0	1814.40	1259.13	3,073.54
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	0.80	1.00	0.00	28.43	126.50	0.00	3,699.5	0.0	1951.08	1386.19	3,337.27
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	0.80	1.00	0.00	9.80	42.70	0.00	1,313.4	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	0.80	1.00	0.00	15.39	82.83	0.00	2,075.3	0.0	1140.05	980.15	2,120.20
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	0.80	1.00	0.00	21.76	125.42	0.00	2,754.8	0.0	1654.53	1555.22	3,209.75
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	0.80	1.00	0.00	18.83	124.13	0.00	2,536.6	0.0	1485.25	1603.66	3,088.91
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	0.80	1.00	0.00	17.69	60.88	0.00	1,895.5	0.0	1389.01	1298.68	2,687.69
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	0.80	1.00	0.00	12.15	16.39	0.00	1,144.3	0.0	979.45	401.52	1,380.97
														28,740.8	**0.0**			**25,883.64**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	14.33	28.639	28.80	0.00	0.14	2.81	0.85	1.00	0.00	37.02	126.50	0.00	4,866.0	0.0	2030.37	1087.22	3,117.60
2	30.0	14.34	22.974	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	126.50	0.00	4,562.2	0.0	1768.05	1088.14	2,856.20
3	50.0	16.60	20.940	28.80	0.00	0.15	2.78	0.85	1.00	0.00	30.00	126.50	0.00	3,893.2	0.0	1880.01	1259.13	3,139.14
4	70.0	18.27	22.213	22.12	0.00	0.15	2.76	0.85	1.00	0.00	29.55	126.50	0.00	3,699.5	0.0	2027.29	1386.19	3,413.48
5	83.4	19.21	0.000	17.99	0.00	0.20	2.59	0.85	1.00	0.00	9.80	42.70	0.00	1,313.4	0.0	663.12	490.02	1,153.13
6	93.4	19.84	10.586	14.61	0.00	0.16	2.74	0.85	1.00	0.00	15.92	82.83	0.00	2,075.3	0.0	1179.25	980.15	2,159.41
7	110.0	20.79	14.081	22.12	0.00	0.17	2.69	0.85	1.00	0.00	22.46	125.42	0.00	2,754.8	0.0	1708.07	1555.22	3,263.28
8	130.0	21.81	11.695	18.58	0.00	0.18	2.66	0.85	1.00	0.00	19.42	124.13	0.00	2,536.6	0.0	1531.36	1603.66	3,135.02
9	150.0	22.72	11.717	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.28	60.88	0.00	1,895.5	0.0	1435.01	1298.68	2,733.69
10	168.0	23.47	8.438	9.33	0.00	0.22	2.53	0.85	1.00	0.00	12.57	16.39	0.00	1,144.3	0.0	1013.46	401.52	1,414.98
														28,740.8	**0.0**			**26,385.92**

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	

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Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.639	66.92	38.12	0.23	2.51	1.00	1.00	1.77	67.44	197.16	35.50	16,014.	9526.9	547.27	452.76	1,000.04
2	30.0	3.81	22.974	68.98	40.18	0.24	2.46	1.00	1.00	1.98	63.19	202.66	39.62	16,228.	10145.2	504.26	472.46	976.72
3	50.0	4.41	20.940	68.67	39.87	0.26	2.40	1.00	1.00	2.08	61.33	205.43	41.70	15,676.	10485.3	551.76	554.79	1,106.55
4	70.0	4.86	22.213	69.64	47.52	0.31	2.27	1.00	1.00	2.16	64.12	207.33	43.12	15,884.	10951.8	601.34	609.10	1,210.44
5	83.4	5.10	0.000	33.28	15.29	0.36	2.14	1.00	1.00	2.19	20.93	70.50	13.15	5,752.9	4001.6	194.52	207.85	402.37
6	93.4	5.27	10.586	44.01	29.40	0.33	2.22	1.00	1.00	2.22	37.39	137.32	24.43	9,553.3	6786.2	371.55	418.62	790.17
7	110.0	5.52	14.081	63.84	41.72	0.36	2.15	1.00	1.00	2.26	53.64	208.91	37.60	13,803.	10130.8	541.57	662.36	1,203.93
8	130.0	5.79	11.695	62.14	43.57	0.42	2.02	1.00	1.00	2.29	51.88	208.63	34.41	13,162.	9780.4	516.06	645.79	1,161.85
9	150.0	6.04	11.717	59.43	44.41	0.54	1.85	1.00	1.00	2.33	53.84	118.76	23.27	9,700.2	7172.9	511.33	437.10	948.43
10	168.0	6.23	8.438	42.77	33.44	0.59	1.81	1.00	1.00	2.35	40.03	45.30	10.98	5,517.4	3991.7	383.85	167.40	551.25
														121,294.0	**82973.0**			**9,351.75**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.639	66.92	38.12	0.23	2.51	0.80	1.00	1.77	61.71	197.16	35.50	16,014.	9526.9	500.79	452.76	953.56
2	30.0	3.81	22.974	68.98	40.18	0.24	2.46	0.80	1.00	1.98	58.59	202.66	39.62	16,228.	10145.2	467.60	472.46	940.05
3	50.0	4.41	20.940	68.67	39.87	0.26	2.40	0.80	1.00	2.08	57.14	205.43	41.70	15,676.	10485.3	514.09	554.79	1,068.88
4	70.0	4.86	22.213	69.64	47.52	0.31	2.27	0.80	1.00	2.16	59.68	207.33	43.12	15,884.	10951.8	559.67	609.10	1,168.77
5	83.4	5.10	0.000	33.28	15.29	0.36	2.14	0.80	1.00	2.19	20.93	70.50	13.15	5,752.9	4001.6	194.52	207.85	402.37
6	93.4	5.27	10.586	44.01	29.40	0.33	2.22	0.80	1.00	2.22	35.27	137.32	24.43	9,553.3	6786.2	350.51	418.62	769.13
7	110.0	5.52	14.081	63.84	41.72	0.36	2.15	0.80	1.00	2.26	50.82	208.91	37.60	13,803.	10130.8	513.14	662.36	1,175.50
8	130.0	5.79	11.695	62.14	43.57	0.42	2.02	0.80	1.00	2.29	49.54	208.63	34.41	13,162.	9780.4	492.79	645.79	1,138.58
9	150.0	6.04	11.717	59.43	44.41	0.54	1.85	0.80	1.00	2.33	51.50	118.76	23.27	9,700.2	7172.9	489.07	437.10	926.18
10	168.0	6.23	8.438	42.77	33.44	0.59	1.81	0.80	1.00	2.35	38.34	45.30	10.98	5,517.4	3991.7	367.67	167.40	535.07
														121,294.0	**82973.0**			**9,078.08**

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

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Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	28.639	66.92	38.12	0.23	2.51	0.85	1.00	1.77	63.14	197.16	35.50	16,014.	9526.9	512.41	452.76	965.18
2	30.0	3.81	22.974	68.98	40.18	0.24	2.46	0.85	1.00	1.98	59.74	202.66	39.62	16,228.	10145.2	476.76	472.46	949.22
3	50.0	4.41	20.940	68.67	39.87	0.26	2.40	0.85	1.00	2.08	58.19	205.43	41.70	15,676.	10485.3	523.51	554.79	1,078.30
4	70.0	4.86	22.213	69.64	47.52	0.31	2.27	0.85	1.00	2.16	60.79	207.33	43.12	15,884.	10951.8	570.09	609.10	1,179.19
5	83.4	5.10	0.000	33.28	15.29	0.36	2.14	0.85	1.00	2.19	20.93	70.50	13.15	5,752.9	4001.6	194.52	207.85	402.37
6	93.4	5.27	10.586	44.01	29.40	0.33	2.22	0.85	1.00	2.22	35.80	137.32	24.43	9,553.3	6786.2	355.77	418.62	774.39
7	110.0	5.52	14.081	63.84	41.72	0.36	2.15	0.85	1.00	2.26	51.52	208.91	37.60	13,803.	10130.8	520.25	662.36	1,182.61
8	130.0	5.79	11.695	62.14	43.57	0.42	2.02	0.85	1.00	2.29	50.12	208.63	34.41	13,162.	9780.4	498.61	645.79	1,144.40
9	150.0	6.04	11.717	59.43	44.41	0.54	1.85	0.85	1.00	2.33	52.08	118.76	23.27	9,700.2	7172.9	494.64	437.10	931.74
10	168.0	6.23	8.438	42.77	33.44	0.59	1.81	0.85	1.00	2.35	38.77	45.30	10.98	5,517.4	3991.7	371.71	167.40	539.11
														121,294.0	**82973.0**			**9,146.50**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.639	28.80	0.00	0.14	2.81	1.00	1.00	0.00	44.39	126.50	0.00	5,406.6	0.0	582.18	259.99	842.17
2	30.0	5.49	22.974	28.80	0.00	0.14	2.81	1.00	1.00	0.00	38.72	126.50	0.00	5,069.2	0.0	508.45	260.21	768.67
3	50.0	6.35	20.940	28.80	0.00	0.15	2.78	1.00	1.00	0.00	36.36	126.50	0.00	4,325.7	0.0	544.84	301.10	845.94
4	70.0	6.99	22.213	22.12	0.00	0.15	2.76	1.00	1.00	0.00	34.78	126.50	0.00	4,110.5	0.0	570.61	331.48	902.10
5	83.4	7.35	0.000	17.99	0.00	0.20	2.59	1.00	1.00	0.00	10.58	42.70	0.00	1,459.4	0.0	171.24	117.18	288.42
6	93.4	7.59	10.586	14.61	0.00	0.16	2.74	1.00	1.00	0.00	18.85	82.83	0.00	2,305.9	0.0	333.85	234.39	568.23
7	110.0	7.96	14.081	22.12	0.00	0.17	2.69	1.00	1.00	0.00	26.56	125.42	0.00	3,060.9	0.0	482.97	371.90	854.87
8	130.0	8.34	11.695	18.58	0.00	0.18	2.66	1.00	1.00	0.00	22.31	124.13	0.00	2,818.4	0.0	420.75	383.49	804.24
9	150.0	8.69	11.717	15.03	0.00	0.22	2.54	1.00	1.00	0.00	20.40	60.88	0.00	2,106.1	0.0	382.96	310.56	693.52
10	168.0	8.98	8.438	9.33	0.00	0.22	2.53	1.00	1.00	0.00	13.84	16.39	0.00	1,271.4	0.0	266.75	96.02	362.77
														31,934.2	**0.0**			**6,930.92**

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Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

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Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.639	28.80	0.00	0.14	2.81	0.80	1.00	0.00	38.66	126.50	0.00	5,406.6	0.0	507.05	259.99	767.04
2	30.0	5.49	22.974	28.80	0.00	0.14	2.81	0.80	1.00	0.00	34.13	126.50	0.00	5,069.2	0.0	448.12	260.21	708.33
3	50.0	6.35	20.940	28.80	0.00	0.15	2.78	0.80	1.00	0.00	32.17	126.50	0.00	4,325.7	0.0	482.09	301.10	783.19
4	70.0	6.99	22.213	22.12	0.00	0.15	2.76	0.80	1.00	0.00	30.33	126.50	0.00	4,110.5	0.0	497.72	331.48	829.20
5	83.4	7.35	0.000	17.99	0.00	0.20	2.59	0.80	1.00	0.00	10.58	42.70	0.00	1,459.4	0.0	171.24	117.18	288.42
6	93.4	7.59	10.586	14.61	0.00	0.16	2.74	0.80	1.00	0.00	16.73	82.83	0.00	2,305.9	0.0	296.35	234.39	530.73
7	110.0	7.96	14.081	22.12	0.00	0.17	2.69	0.80	1.00	0.00	23.75	125.42	0.00	3,060.9	0.0	431.76	371.90	803.67
8	130.0	8.34	11.695	18.58	0.00	0.18	2.66	0.80	1.00	0.00	19.97	124.13	0.00	2,818.4	0.0	376.64	383.49	760.13
9	150.0	8.69	11.717	15.03	0.00	0.22	2.54	0.80	1.00	0.00	18.05	60.88	0.00	2,106.1	0.0	338.96	310.56	649.52
10	168.0	8.98	8.438	9.33	0.00	0.22	2.53	0.80	1.00	0.00	12.15	16.39	0.00	1,271.4	0.0	234.22	96.02	330.23
														31,934.2	**0.0**			**6,450.47**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	28.639	28.80	0.00	0.14	2.81	0.85	1.00	0.00	40.09	126.50	0.00	5,406.6	0.0	525.83	259.99	785.83
2	30.0	5.49	22.974	28.80	0.00	0.14	2.81	0.85	1.00	0.00	35.27	126.50	0.00	5,069.2	0.0	463.20	260.21	723.41
3	50.0	6.35	20.940	28.80	0.00	0.15	2.78	0.85	1.00	0.00	33.22	126.50	0.00	4,325.7	0.0	497.78	301.10	798.88
4	70.0	6.99	22.213	22.12	0.00	0.15	2.76	0.85	1.00	0.00	31.44	126.50	0.00	4,110.5	0.0	515.94	331.48	847.42
5	83.4	7.35	0.000	17.99	0.00	0.20	2.59	0.85	1.00	0.00	10.58	42.70	0.00	1,459.4	0.0	171.24	117.18	288.42
6	93.4	7.59	10.586	14.61	0.00	0.16	2.74	0.85	1.00	0.00	17.26	82.83	0.00	2,305.9	0.0	305.72	234.39	540.11
7	110.0	7.96	14.081	22.12	0.00	0.17	2.69	0.85	1.00	0.00	24.45	125.42	0.00	3,060.9	0.0	444.57	371.90	816.47
8	130.0	8.34	11.695	18.58	0.00	0.18	2.66	0.85	1.00	0.00	20.56	124.13	0.00	2,818.4	0.0	387.67	383.49	771.16
9	150.0	8.69	11.717	15.03	0.00	0.22	2.54	0.85	1.00	0.00	18.64	60.88	0.00	2,106.1	0.0	349.96	310.56	660.52
10	168.0	8.98	8.438	9.33	0.00	0.22	2.53	0.85	1.00	0.00	12.57	16.39	0.00	1,271.4	0.0	242.35	96.02	338.37
														31,934.2	**0.0**			**6,570.58**

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Force/Stress Compression Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	-262.32	1.2D + 1.6W Normal Wind	9.64	100	100	100	40.20	50.00	510.21	51.4	Member X
2	40	PX - 8" DIA PIPE	-238.23	1.2D + 1.6W Normal Wind	9.64	100	100	100	40.20	50.00	510.21	46.7	Member X
3	60	PSP - ROHN 8 EHS	-212.11	1.2D + 1.6W Normal Wind	9.64	100	100	100	39.62	50.00	389.96	54.4	Member X
4	80	PX - 6" DIA PIPE	-186.98	1.2D + 1.6W Normal Wind	6.43	100	100	100	35.22	50.00	345.22	54.2	Member X
5	86.79	PX - 6" DIA PIPE	-158.40	1.2D + 1.6W Normal Wind	6.43	100	100	100	35.22	50.00	345.22	45.9	Member X
6	100	PX - 6" DIA PIPE	-148.75	1.2D + 1.6W Normal Wind	6.43	100	100	100	35.22	50.00	345.23	43.1	Member X
7	120	PSP - ROHN 6 EHS	-126.47	1.2D + 1.6W Normal Wind	6.43	100	100	100	34.66	50.00	276.68	45.7	Member X
8	140	PX - 5" DIA PIPE	-92.09	1.2D + 1.6W Normal Wind	4.82	100	100	100	31.44	50.00	255.78	36.0	Member X
9	160	PX - 4" DIA PIPE	-55.05	1.2D + 1.6W Normal Wind	0.38	100	100	100	3.05	50.00	198.32	27.8	Member X
10	176	PX - 3" DIA PIPE	-18.98	1.2D + 1.6W Normal Wind	0.38	100	100	100	3.95	50.00	135.75	14.0	Member X

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	245.66	0.00	0.0			1.2D + 1.6W Normal Wind	268.84	0.00			
2	40	1.2D + 1.6W Normal Wind	219.82	0.00	0.0			1.2D + 1.6W Normal Wind	245.66	0.00		1 A325	8
3	60	1.2D + 1.6W Normal Wind	192.45	0.00	0.0			1.2D + 1.6W Normal Wind	219.82	0.00		1 A325	8
4	80	1.2D + 1.6W Normal Wind	164.59	0.00	0.0			1.2D + 1.6W Normal Wind	192.45	0.00		1 A325	8
5	86.79	1.2D + 1.6W Normal Wind	153.14	0.00	0.0			1.2D + 1.6W Normal Wind	164.59	0.00		1 A325	6
6	100	1.2D + 1.6W Normal Wind	133.03	0.00	0.0			1.2D + 1.6W Normal Wind	153.14	0.00		1 A325	6
7	120	1.2D + 1.6W Normal Wind	97.61	0.00	0.0			1.2D + 1.6W Normal Wind	133.03	0.00		1 A325	6
8	140	1.2D + 1.6W Normal Wind	56.74	0.00	0.0			1.2D + 1.6W Normal Wind	97.61	0.00		1 A325	6
9	160	1.2D + 1.6W Normal Wind	19.30	0.00	0.0			1.2D + 1.6W Normal Wind	56.74	0.00		1 A325	4
10	176	1.2D + 1.0Di + 1.0Wi Normal Wi	2.46	0.00	0.0			1.2D + 1.6W Normal Wind	19.30	0.00		7/8 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	86.7										0.00	0	0				
6	100										0.00	0	0				
7	120										0.00	0	0				
8	140										0.00	0	0				
9	160	SAE - 2X2X0.1875	-0.22	1.2D + 1.6W Normal Wind	4.76	100	100	100	144.97	36.00	7.63	1	1	12.43	7.84	3	Member Z
10	176	SAE - 2X2X0.25	-0.28	1.2D + 1.6W 60° Wind	4.69	100	100	100	143.88	36.00	10.26	1	1	12.43	10.45	3	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	-7.35	0.9D + 1.6W 90° Wind	21.76	50	50	50	164.26	36.00	16.24	1	1	17.89	12.6	58	Bolt Bear
2	40	SAE - 3.5X3.5X0.25	-6.99	1.2D + 1.6W 90° Wind	20.84	50	50	50	180.15	36.00	11.76	1	1	17.89	12.6	59	Member Z
3	60	SAE - 3.5X3.5X0.25	-7.05	1.2D + 1.6W 90° Wind	18.25	50	50	50	157.82	36.00	15.33	1	1	17.89	12.6	56	Bolt Bear
4	80	SAE - 3X3X0.25	-6.12	1.2D + 1.6W 90° Wind	14.76	50	50	50	149.57	36.00	14.54	1	1	17.89	12.6	48	Bolt Bear
5	86.7	MOD - 2L2.5x2.5x3/16_s	-6.15	1.2D + 1.6W 90° Wind	14.10	50	50	8	113.59	36.00	29.91	1	1	12.43		49	Bolt Shear
6	100	SAE - 2.5X2.5X0.1875	-6.30	1.2D + 1.6W 90° Wind	12.97	50	50	50	157.27	36.00	8.24	1	1	12.43	7.84	80	Bolt Bear

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Force/Stress Compression Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
7	120	SAE - 2.5X2.5X0.1875	-6.43	1.2D + 1.6W 90° Wind	11.28	50	50	50	136.73	36.00	10.90	1	1	12.43	7.84	82	Bolt Bear
8	140	SAE - 2X2X0.1875	-5.50	1.2D + 1.6W 90° Wind	9.88	50	50	50	150.45	36.00	7.09	1	1	12.43	7.84	78	Member Z
9	160	SAE - 2X2X0.1875	-3.99	1.2D + 1.6W 90° Wind	7.64	50	50	50	117.23	36.00	11.16	1	1	12.43	7.84	51	Bolt Bear
10	176	SAE - 2X2X0.25	-3.54	1.2D + 1.6W 90° Wind	6.09	50	50	50	100.10	36.00	17.97	1	1	12.43	10.4	34	Bolt Bear

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Force/Stress Tension Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	228.13	0.9D + 1.6W 60° Wind	50	574.20	39.7	Member
2	40	PX - 8" DIA PIPE	208.87	0.9D + 1.6W 60° Wind	50	574.20	36.4	Member
3	60	PSP - ROHN 8 EHS	187.80	0.9D + 1.6W 60° Wind	50	437.40	42.9	Member
4	80	PX - 6" DIA PIPE	164.78	0.9D + 1.6W 60° Wind	50	378.00	43.6	Member
5	86.792	PX - 6" DIA PIPE	140.96	0.9D + 1.6W 60° Wind	50	378.00	37.3	Member
6	100	PX - 6" DIA PIPE	127.10	0.9D + 1.6W 60° Wind	50	378.00	33.6	Member
7	120	PSP - ROHN 6 EHS	113.21	0.9D + 1.6W 60° Wind	50	302.09	37.5	Member
8	140	PX - 5" DIA PIPE	81.05	0.9D + 1.6W 60° Wind	50	274.95	29.5	Member
9	160	PX - 4" DIA PIPE	45.39	0.9D + 1.6W 60° Wind	50	198.45	22.9	Member
10	176	PX - 3" DIA PIPE	13.58	0.9D + 1.6W 60° Wind	50	135.90	10.0	Member

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	208.56	0.00	0.0			0.9D + 1.6W 60° Wind	228.1	0.00			
2	40	0.9D + 1.6W 60° Wind	187.43	0.00	0.0			0.9D + 1.6W 60° Wind	208.5	424.08	49.2	1 A325	8
3	60	0.9D + 1.6W 60° Wind	164.46	0.00	0.0			0.9D + 1.6W 60° Wind	187.4	424.08	44.2	1 A325	8
4	80	0.9D + 1.6W 60° Wind	140.74	0.00	0.0			0.9D + 1.6W 60° Wind	164.4	424.08	38.8	1 A325	8
5	86.792	0.9D + 1.6W 60° Wind	130.75	0.00	0.0			0.9D + 1.6W 60° Wind	140.7	318.06	44.3	1 A325	6
6	100	0.9D + 1.6W 60° Wind	112.99	0.00	0.0			0.9D + 1.6W 60° Wind	130.7	318.06	41.1	1 A325	6
7	120	0.9D + 1.6W 60° Wind	80.86	0.00	0.0			0.9D + 1.6W 60° Wind	112.9	318.06	35.5	1 A325	6
8	140	0.9D + 1.6W 60° Wind	44.26	0.00	0.0			0.9D + 1.6W 60° Wind	80.86	318.06	25.4	1 A325	6
9	160	0.9D + 1.6W 60° Wind	13.69	0.00	0.0			0.9D + 1.6W 60° Wind	44.26	212.04	20.9	1 A325	4
10	176		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	13.69	166.24	8.2	7/8 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	86.792	-			36	0.00	0	0					
6	100	-			36	0.00	0	0					
7	120	-			36	0.00	0	0					
8	140	-			36	0.00	0	0					
9	160	SAE - 2X2X0.1875	0.23	1.2D + 1.6W 60° Wind	36	23.00	1	1	12.43	7.84	7.85	2.9	Bolt Bear
10	176	SAE - 2X2X0.25	0.42	0.9D + 1.6W Normal Wi	36	30.46	1	1	12.43	10.45	10.47	4.0	Bolt Bear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 4X4X0.25	7.22	0.9D + 1.6W 90° Wind	36	62.86	1	1	17.89	12.62	26.92	57.3	Bolt Bear
2	40	SAE - 3.5X3.5X0.25	7.01	0.9D + 1.6W 90° Wind	36	54.76	1	1	17.89	12.62	21.48	55.6	Bolt Bear
3	60	SAE - 3.5X3.5X0.25	6.86	0.9D + 1.6W 90° Wind	36	54.76	1	1	17.89	12.62	21.48	54.4	Bolt Bear
4	80	SAE - 3X3X0.25	6.00	1.2D + 1.6W 90° Wind	36	46.66	1	1	17.89	12.62	16.04	47.5	Bolt Bear
5	86.792	MOD - 2L2.5x2.5x3/16_Spec	6.03	1.2D + 1.6W 90° Wind	36	59.00	1	1	12.43			48.5	Bolt Shear
6	100	SAE - 2.5X2.5X0.1875	6.20	1.2D + 1.6W 90° Wind	36	29.22	1	1	12.43	7.84	9.89	79.1	Bolt Bear
7	120	SAE - 2.5X2.5X0.1875	6.29	1.2D + 1.6W 90° Wind	36	29.22	1	1	12.43	7.84	9.89	80.3	Bolt Bear

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Force/Stress Tension Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	

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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
8	140	SAE - 2X2X0.1875	5.52	1.2D + 1.6W 90° Wind	36	23.00	1	1	12.43	7.84	7.85	70.4	Bolt Bear
9	160	SAE - 2X2X0.1875	3.93	1.2D + 1.6W 90° Wind	36	23.00	1	1	12.43	7.84	7.85	50.1	Bolt Bear
10	176	SAE - 2X2X0.25	3.42	0.9D + 1.6W 90° Wind	36	30.46	1	1	12.43	10.45	10.47	32.8	Bolt Bear

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Seismic Section Forces

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 17	

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Load Case: 1.2D + 1.0E

Dead Load Factor	1.20	**Sds**	0.195	**Ss**	0.1830	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.102	**S1**	0.0640	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.172	**R**	3.0000	**Vs**	3.1718	**f1**	1.6859

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	5406.6	0.01	0.05	0.03	20.47
2	30.00	5069.1	0.05	0.07	0.04	41.58
3	50.00	4325.7	0.15	0.07	0.03	58.44
4	70.00	4110.5	0.30	0.05	0.01	83.87
5	83.40	1469.3	0.42	0.01	0.01	36.87
6	93.40	2305.9	0.53	-0.03	0.01	65.55
7	110.00	3060.8	0.74	-0.10	0.04	105.53
8	130.00	8288.9	1.03	-0.10	0.15	395.00
9	150.00	5107.0	1.37	0.23	0.40	399.29
10	168.00	6764.3	1.72	1.21	0.85	880.86

Load Case: 0.9D + 1.0E

Dead Load Factor	0.90	**Sds**	0.195	**Ss**	0.1830	**Fa**	1.6000	**Ke**	0.0000
Seismic Load Factor	1.00	**Sd1**	0.102	**S1**	0.0640	**Fv**	2.4000	**Kg**	0.0000
Seismic Importance Factor	1.00	**SA**	0.172	**R**	3.0000	**Vs**	3.1718	**f1**	1.6859

Sect #	Elev (ft)	Wz (lb)	a	b	c	Lateral Fsz (lb)
1	10.00	5406.6	0.01	0.05	0.03	20.47
2	30.00	5069.1	0.05	0.07	0.04	41.58
3	50.00	4325.7	0.15	0.07	0.03	58.44
4	70.00	4110.5	0.30	0.05	0.01	83.87
5	83.40	1469.3	0.42	0.01	0.01	36.87
6	93.40	2305.9	0.53	-0.03	0.01	65.55
7	110.00	3060.8	0.74	-0.10	0.04	105.53
8	130.00	8288.9	1.03	-0.10	0.15	395.00
9	150.00	5107.0	1.37	0.23	0.40	399.29
10	168.00	6764.3	1.72	1.21	0.85	880.86

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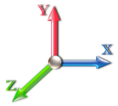
Support Forces Summary

Structure:	CT04382-S-SBA	**Code:**	TIA-222-G	4/18/2022	
Site Name:	New Britain 2, CT	**Exposure:**	B		
Height:	176.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 18	



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	-0.01	268.22	-26.12	
	1a	8.64	-106.57	-7.82	
	1b	-8.63	-106.56	-7.83	
1.2D + 1.6W 60° Wind	1	-2.24	138.89	-13.08	
	1a	-12.44	138.81	4.61	
	1b	-19.75	-222.61	-11.40	
1.2D + 1.6W 90° Wind	1	-2.65	18.36	-1.14	
	1a	-19.75	228.93	9.89	
	1b	-17.86	-192.20	-8.75	
0.9D + 1.6W Normal Wind	1	-0.01	263.29	-25.82	
	1a	8.89	-110.99	-7.97	
	1b	-8.88	-110.98	-7.98	
0.9D + 1.6W 60° Wind	1	-2.24	134.13	-12.79	
	1a	-12.19	134.05	4.45	
	1b	-20.00	-226.87	-11.55	
0.9D + 1.6W 90° Wind	1	-2.66	13.77	-0.85	
	1a	-19.49	224.05	9.74	
	1b	-18.11	-196.50	-8.89	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	133.17	-8.13	
	1a	2.91	14.28	-2.56	
	1b	-2.90	14.33	-2.56	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.73	92.86	-4.08	
	1a	-3.90	92.83	1.40	
	1b	-6.59	-23.92	-3.80	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.86	53.92	-0.19	
	1a	-6.25	121.76	3.12	
	1b	-5.94	-13.90	-2.93	
1.2D + 1.0E	1	0.00	34.40	4.61	
	1a	5.69	10.34	-3.33	
	1b	-5.69	10.34	-3.33	
0.9D + 1.0E	1	0.00	29.79	4.91	
	1a	5.95	5.77	-3.48	
	1b	-5.95	5.77	-3.48	
1.0D + 1.0W Normal Wind	1	0.00	75.73	-7.08	
	1a	1.50	-14.91	-1.57	
	1b	-1.49	-14.91	-1.57	
1.0D + 1.0W 60° Wind	1	-0.56	44.46	-3.90	
	1a	-3.66	44.44	1.46	
	1b	-4.21	-42.99	-2.43	
1.0D + 1.0W 90° Wind	1	-0.66	15.30	-0.98	
	1a	-5.44	66.24	2.76	
	1b	-3.75	-35.63	-1.78	

Max Reactions

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Leg			Overturning		
Max Uplift:	-226.87	(kips)	Moment:	4544.03	(ft-kips)
Max Down:	268.22	(kips)	Total Down:	55.09	(kips)
Max Shear:	26.12	(kips)	Total Shear:	41.76	(kips)

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Max Reactions

Leg			Overturning		
Max Uplift:	-226.87	(kips)	Moment:	4544.03	(ft-kips)
Max Down:	268.22	(kips)	Total Down:	55.09	(kips)
Max Shear:	26.12	(kips)	Total Shear:	41.76	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	10
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00
Detail Type:	C		

Interaction Ratio: 0.45

Max Usages

Max Leg: 54.4% (1.2D + 1.6W Normal Wind - Sect 3)
Max Diag: 82.0% (1.2D + 1.6W 90° Wind - Sect 7)
Max Horiz: 4.0% (0.9D + 1.6W Normal Wind - Sect 10)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	80.38	0.0162	0.0009	0.0243
	130.00	0.0443	0.0015	0.0448
	140.00	0.0524	0.0017	0.0524
	151.93	0.0630	0.0015	0.0546
	164.19	0.0750	0.0016	0.0568
	176.00	0.0871	0.0016	0.0611
0.9D + 1.6W 97 mph Wind at 60° From Face	80.38	0.2141	0.0156	0.3425
	130.00	0.5933	0.0254	0.5638
	140.00	0.6948	0.0284	0.6508
	151.93	0.8239	0.0272	0.6425
	164.19	0.9650	0.0302	0.6549
	176.00	1.1029	0.0338	0.6931
0.9D + 1.6W 97 mph Wind at 90° From Face	80.38	0.2156	-0.0168	0.3410
	130.00	0.5975	-0.0267	0.5654
	140.00	0.6997	-0.0295	0.6479
	151.93	0.8296	-0.0271	0.6450
	164.19	0.9715	-0.0286	0.6613
	176.00	1.1099	-0.0297	0.6732
0.9D + 1.6W 97 mph Wind at Normal To Face	80.38	0.2214	0.0136	0.3539
	130.00	0.6114	0.0211	0.5794
	140.00	0.7160	0.0232	0.6679
	151.93	0.8487	0.0206	0.6602
	164.19	0.9939	0.0210	0.6737
	176.00	1.1362	0.0201	0.7720

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1.0D + 1.0W 60 mph Wind at 60° From Face	80.38	0.0517	0.0035	0.0828
	130.00	0.1429	0.0054	0.1352
	140.00	0.1673	0.0060	0.1566
	151.93	0.1983	0.0055	0.1540
	164.19	0.2321	0.0057	0.1568
	176.00	0.2651	0.0059	0.1663
1.0D + 1.0W 60 mph Wind at 90° From Face	80.38	0.0522	-0.0040	0.0823
	130.00	0.1440	-0.0063	0.1358
	140.00	0.1685	-0.0070	0.1558
	151.93	0.1997	-0.0064	0.1547
	164.19	0.2337	-0.0067	0.1585
	176.00	0.2668	-0.0069	0.1615
1.0D + 1.0W 60 mph Wind at Normal To Face	80.38	0.0536	0.0033	0.0853
	130.00	0.1475	0.0051	0.1392
	140.00	0.1725	0.0056	0.1597
	151.93	0.2043	0.0049	0.1584
	164.19	0.2391	0.0050	0.1616
	176.00	0.2733	0.0048	0.1846
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	80.38	0.0703	0.0047	0.1109
	130.00	0.1907	0.0072	0.1781
	140.00	0.2227	0.0080	0.2067
	151.93	0.2633	0.0073	0.2023
	164.19	0.3075	0.0077	0.2063
	176.00	0.3512	0.0079	0.2212
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	80.38	0.0705	-0.0054	0.1099
	130.00	0.1916	-0.0084	0.1790
	140.00	0.2239	-0.0093	0.2055
	151.93	0.2647	-0.0085	0.2033
	164.19	0.3092	-0.0090	0.2086
	176.00	0.3530	-0.0093	0.2160
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	80.38	0.0707	0.0044	0.1119
	130.00	0.1933	0.0067	0.1815
	140.00	0.2260	0.0073	0.2061
	151.93	0.2672	0.0065	0.2059
	164.19	0.3124	0.0066	0.2106
	176.00	0.3569	0.0064	0.2400
1.2D + 1.0E - Normal To Face	80.38	0.0162	0.0009	0.0243
	130.00	0.0444	0.0015	0.0449
	140.00	0.0525	0.0017	0.0524
	151.93	0.0631	0.0015	0.0548
	164.19	0.0751	0.0016	0.0569
	176.00	0.0873	0.0016	0.0611
1.2D + 1.6W 97 mph Wind at 60° From Face	80.38	0.2144	0.0156	0.3432
	130.00	0.5944	0.0255	0.5651
	140.00	0.6961	0.0284	0.6526
	151.93	0.8256	0.0273	0.6440
	164.19	0.9671	0.0303	0.6565
	176.00	1.1052	0.0339	0.6950
1.2D + 1.6W 97 mph Wind at 90° From Face	80.38	0.2159	-0.0169	0.3416
	130.00	0.5987	-0.0268	0.5667
	140.00	0.7011	-0.0296	0.6496
	151.93	0.8313	-0.0271	0.6465
	164.19	0.9735	-0.0287	0.6629
	176.00	1.1123	-0.0298	0.6750
1.2D + 1.6W 97 mph Wind at Normal To Face	80.38	0.2218	0.0136	0.3545
	130.00	0.6126	0.0212	0.5808
	140.00	0.7175	0.0232	0.6694
	151.93	0.8504	0.0207	0.6619
	164.19	0.9960	0.0210	0.6754
	176.00	1.1386	0.0201	0.7737

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Mat Foundation Design for Self Supporting Tower

				Date
				3/24/2022
Customer Name:	**SBA Communications Corp**	**EIA/TIA Standard:**	TIA-222-G
Site Name:		**Structure Height (Ft.):**	176
Site Nmber:	CT04382-S-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	126594	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

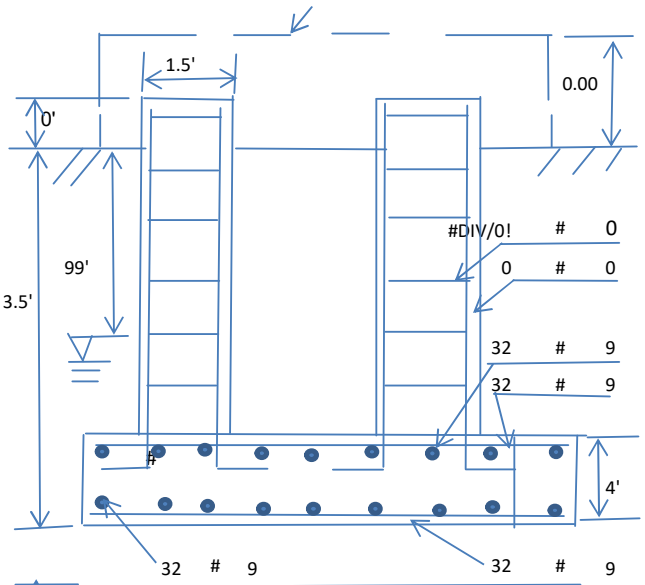
Axial Load (Kips):	268.2	Uplift Force (Kips):	226.9
Shear Force (Kips):	26.1		

(2). Tower Base:

Total Vertical Load (Kips):	55.1	Total Shear Force (Kips):	41.8
Moment (Kips-ft):	4544.0		

Foundation Geometries:

Leg distance (Center-to-Center ft.):		21.0	Mods required -Yes/No ?:	No	
Diameter of Pier (ft.):	Round	1.5	Pier Height A. G. (ft.):	0.00	
Tower center to mat center (ft):		0	Depth of Base BG (ft.):	3.5	
Length of Pad (ft.):		31.5	Width of Pad (ft.):	31.5	
Thickness of Pad (ft):		4.00			



Material Properties and Reabr Info:

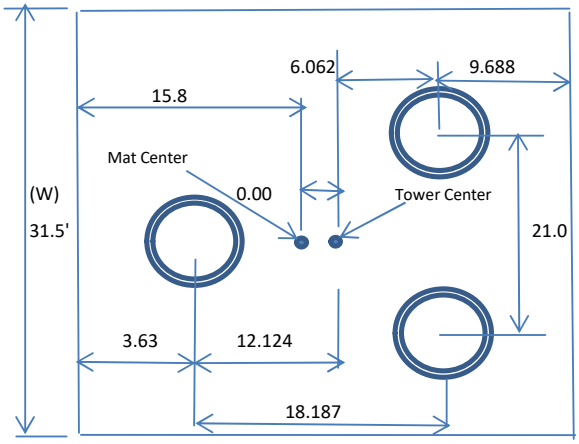
Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)		Tie steel yield (ksi):	60	
Vertical Rebar Size #:		Tie / Stirrup Size #:		
Qty. of Vertical Rebars:		Tie Spacing (in):		
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32

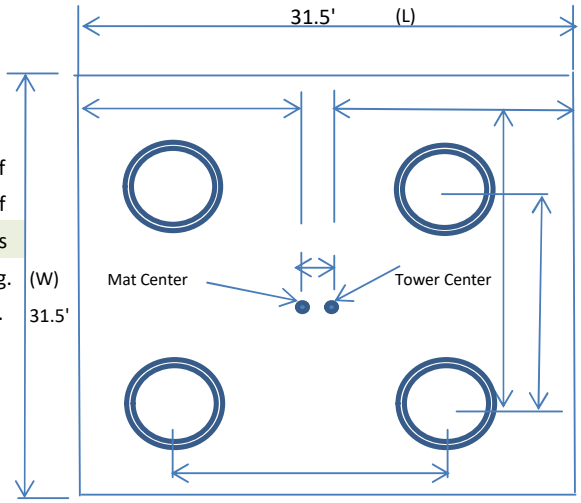
Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	32	Qty. of Rebar in Pad (W):	32



Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	10000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	Yes	Enter soil C (psf) or Phi (deg.):	30.0	Deg.
		Depth to ignor lateral resistance	1.0	Ft.



Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design:	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75			
Total Dry Soil Volume (cu. Ft.):		1.97	Total Dry Soil Weight (Kips):	0.23			
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00			
Total Effective Soil Weight (Kips):		0.23	Weight from the Concrete Block at Top (K):	0.00			
Total Dry Concrete Volume (cu. Ft.):		3969.04	Total Dry Concrete Weight (Kips):	595.36			
Total Buoyant Concrete Volume (cu. Ft.):		0.00	Total Buoyant Concrete Weight (Kips):	0.00			
Total Effective Concrete Weight (Kips):		595.36	Total Vertical Load on Base (Kips):	650.68			
Check Soil Capacities:						Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):		1735.27	<	Allowable Factored Soil Bearing (psf):	7500	0.23	OK!
Allowable Foundation Overturning Resistance (kips-ft.):		9310.2	>	Design Factored Momont (kips-ft):	4711	0.51	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):		1.98	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		
(1) Concrete Pier:						Load/ Capacity Ratio	
	Vertical Steel Rebar Area (sq. in./each):	#N/A		Tie / Stirrup Area (sq. in./each):	#N/A		
	Calculated Moment Capacity (Mn,Kips-Ft):	#N/A	#N/A	Design Factored Moment (Mu, Kips-Ft):	0.2	#N/A	###
	Calculated Shear Capacity (Kips):	#N/A	#N/A	Design Factored Shear (Kips):	26.1	#N/A	###
	Calculated Tension Capacity (Tn, Kips):	#N/A	#N/A	Design Factored Tension (Tu Kips):	226.9	#N/A	###
	Calculated Compression Capacity (Pn, Kips):	#N/A	#N/A	Design Factored Axial Load (Pu Kips):	268.2	#N/A	###
	Moment & Tension Strength Combination:	#N/A	#N/A	Check Tie Spacing (Design/Req'd):	#DIV/0!		
	Pier Reinforcement Ratio:	#N/A		#N/A			
(2).Concrete Pad:							
	One-Way Design Shear Capacity (L or W Direction, Kips):	1380.0	>	One-Way Factored Shear (L/W-Dir Kips)	298.5	0.22	OK!
	One-Way Design Shear Capacity (Diagonal Dir., Kips):	1112.9	>	One-Way Factored Shear (Dia. Dir, Kips	267.6	0.24	OK!
	Lower Steel Pad Reinforcement Ratio (L or W-Direct.):	0.0019		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0017		
	Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	6255.6	>	Moment at Bottom (L-Direct. K-Ft):	2011.0	0.32	OK!
	Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	6061.9	>	Moment at Bottom (Dia. Dir. K-Ft):	1620.0	0.27	OK!
	Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0019		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0017		
	Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	6255.6	>	Moment at the top (L-Dir Kips-Ft):	983.7	0.16	OK!
	Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	6061.9	>	Moment at the top (Dia. Dir., K-Ft):	581.3	0.10	OK!
	Punching Failure Capacity (Kips):	1351.5	>	Punch. Failure Factored Shear (K):	268.2	0.20	OK!

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Friday, June 10, 2022 10:08 AM
To: Kristina Cottone
Subject: FedEx Shipment 777065862339: Your package has been delivered

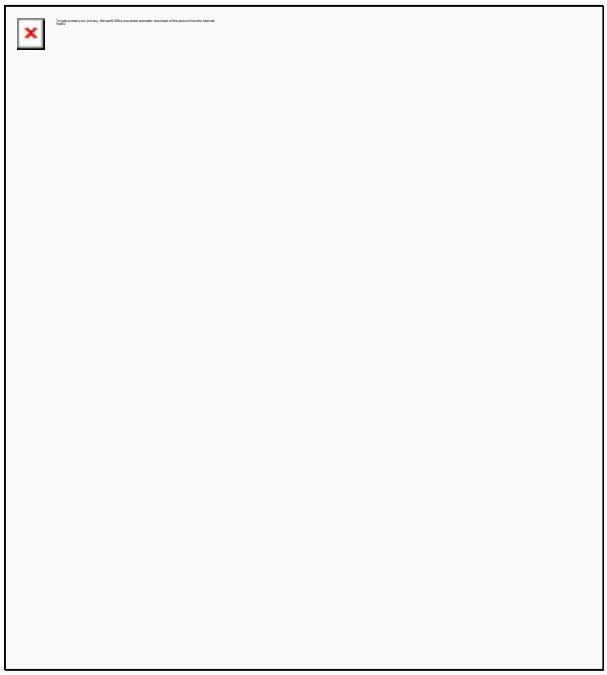
Hi. Your package was delivered Fri, 06/10/2022 at 10:04am.

Delivered to 8051 CONGRESS AVE, BOCA RATON, FL 33487
Received by L.ANTONETTI

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777065862339
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	SBA Site Management George O'Neil

	8051 Congress Ave BOCA RATON, FL, US, 33487
REFERENCE	CTL05254 - New Britian
SHIPPER REFERENCE	CTL05254 - New Britian
SHIP DATE	Wed 6/08/2022 06:22 PM
DELIVERED TO	Mailroom
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	BOCA RATON, FL, US, 33487
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx 2Day



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Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Tuesday, June 14, 2022 9:52 AM
To: Kristina Cottone
Subject: FedEx Shipment 777065817336: Your package has been delivered

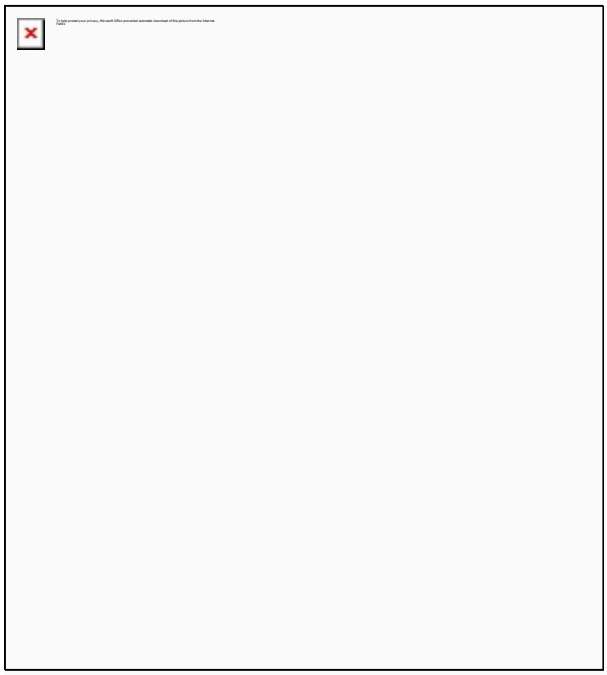
Hi. Your package was delivered Tue, 06/14/2022 at 9:48am.

Delivered to 27 W MAIN ST, NEW HAVEN, CT 06501
Received by A.TIRGEN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777065817336
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of New Britian ATTN: Mayor Erin E. Stewart

	27 West Main Street NEW HAVEN, CT, US, 06501
REFERENCE	CTL05254 - New Britian
SHIPPER REFERENCE	CTL05254 - New Britian
SHIP DATE	Wed 6/08/2022 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	NEW HAVEN, CT, US, 06501
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx 2Day



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FOLLOW FEDEX

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Tuesday, June 14, 2022 9:52 AM
To: Kristina Cottone
Subject: FedEx Shipment 777065803330: Your package has been delivered

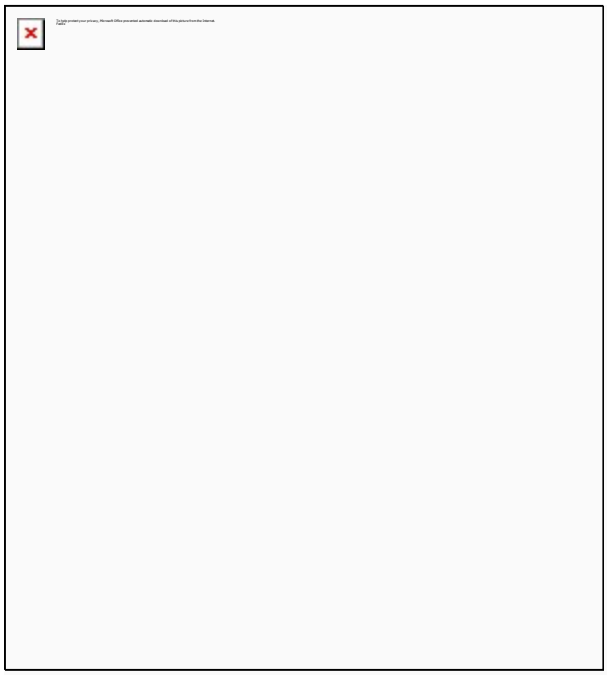
Hi. Your package was delivered Tue, 06/14/2022 at 9:48am.

Delivered to 27 W MAIN ST, NEW HAVEN, CT 06501
Received by A.TIRGEN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777065803330
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of New Britian ATTN: David Zajac Building Departme

	27 West Main Street NEW HAVEN, CT, US, 06501
REFERENCE	CTL05254 - New Britian
SHIPPER REFERENCE	CTL05254 - New Britian
SHIP DATE	Wed 6/08/2022 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	NEW HAVEN, CT, US, 06501
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx 2Day



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- **Download now**.

FOLLOW FEDEX

Kristina Cottone

From: auto-reply@usps.com
Sent: Tuesday, June 21, 2022 12:52 PM
To: Kristina Cottone
Subject: USPS® Item Delivered, In/At Mailbox 9505510019662160569244

UNITED STAT
POSTAL SERV

Hello **Kristina Cottone**,

Your item was delivered in or at the mailbox at 3:11 pm on June 18, 2022 in NEW BR
06052.

Tracking Number: **9505510019662160569244**

Delivered, In/At Mailbox

Tracking & Delivery Options

My Account

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT TOWER: • INSTALL ANTENNA (QD6616-7) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • INSTALL ANTENNA (AIR 6449 B77D) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • INSTALL ANTENNA (AIR 6419 B77D) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • RELOCATED EXISTING RRUS 8843 B2/B66A POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • RELOCATED EXISTING RRUS 4478 B14 @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • RELOCATED EXISTING RRUS-32 B30 @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • ADD Y-CABLES (TYP. OF 2 PER SECTOR TOTAL OF 6) ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD 6648 FRONTHAUL GATEWAY + XCEDE • EXISTING RRUS E2 B29 @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • ADD (12) VERTIV UPCONVERTERS INSIDE POWER PLANT ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNA (QS66512-2) @ POS. 1 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNA (OPA65R-BU6DA) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T TRIPLEXERS (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING (6) COAX LINES ITEMS TO REMAIN: •(3) ANTENNAS, (12) RRHs, (3) RRHS (GROUND), (4) SURGE ARRESTORS, (8) DC POWER & (3) FIBER.
RFDS:	FINAL APPROVED V5 RFDS 03/29/22
SITE ADDRESS:	1 HARTFORD SQUARE NEW BRITAIN, CT 06052
LATITUDE:	41.6663919° N, 41° 39' 59.0" N
LONGITUDE:	-72.8127989°, 72° 48' 46.1" W
TYPE OF SITE:	SELF SUPPORT TOWER / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	173'-0"±
RAD CENTER:	167'-6"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	3
GN-1	GENERAL NOTES	3
A-1	COMPOUND & EQUIPMENT PLAN	3
A-2	ANTENNA PLANS & ELEVATION	3
A-3	DETAILS	3
G-1	GROUNDING DETAILS	3
RF-1	RF PLUMBING DIAGRAM	3
RF-2	RF PLUMBING DIAGRAM	3

SITE NUMBER: CTL05254

SITE NAME: NEW BRITIAN WEST

FA CODE: 10071149

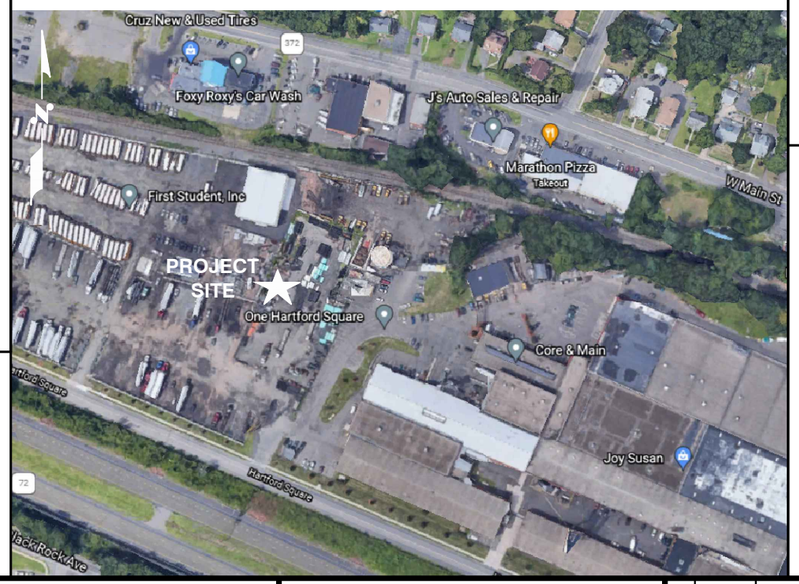
PACE ID: MRCTB052152, MRCTB050920

PROJECT: 5G NR 1SR CBAND

VICINITY MAP

DIRECTIONS TO SITE: (FROM AT&T ADDRESS)

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN. MERGE ONTO CT-571 VIA EXIT 24 ON THE LEFT TOWARD CT-71/KENSINGTON/CT-372. STAY STRAIGHT TO GO ONTO CT-372/CT-571. CONTINUE TO FOLLOW CT-372. TURN LEFT ONTO BLACK ROCK AVE. TAKE THE 2ND RIGHT ONTO WARREN ST. TURN LEFT ONTO HARTFORD SQ. 1 HARTFORD SQ, NEW BRITAIN, CT 06052-1107, 1 HARTFORD SQ IS ON THE RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

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FAX: (978) 336-5586

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ANNAPOLIS, MD 21401

SITE NUMBER: CTL05254
SITE NAME: NEW BRITIAN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	03/30/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
2	03/14/22	ISSUED FOR CONSTRUCTION	SG	AT	DPH
1	03/09/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	01/24/22	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	T-1	3

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. 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.

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

4. 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.

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

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

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

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

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

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

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

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

   CONTRACTOR – SMARTLINK
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR 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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

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

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

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

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

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

11. SUBCONTRACTOR 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL05254
SITE NAME: NEW BRITIAN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	03/30/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
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0	01/24/22	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR | CHK'D BY: DPH

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
5G NR 1SR CBAND

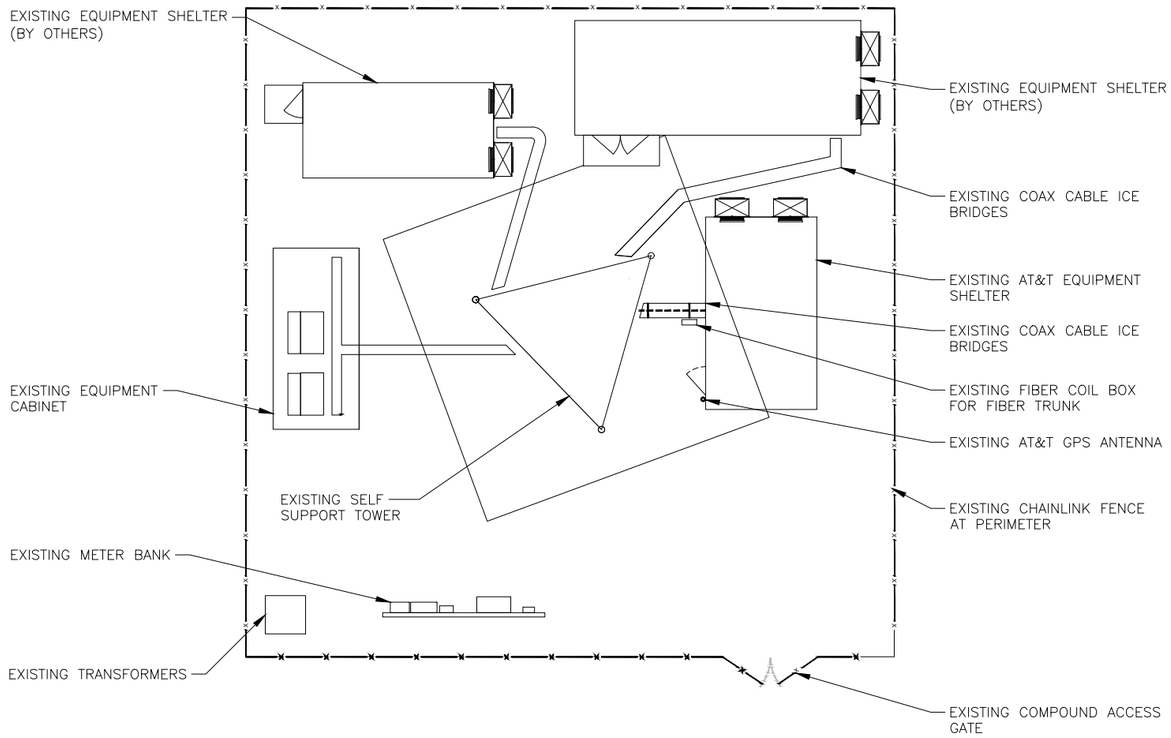
SITE NUMBER	DRAWING NUMBER	REV
CTL05254	GN-1	3

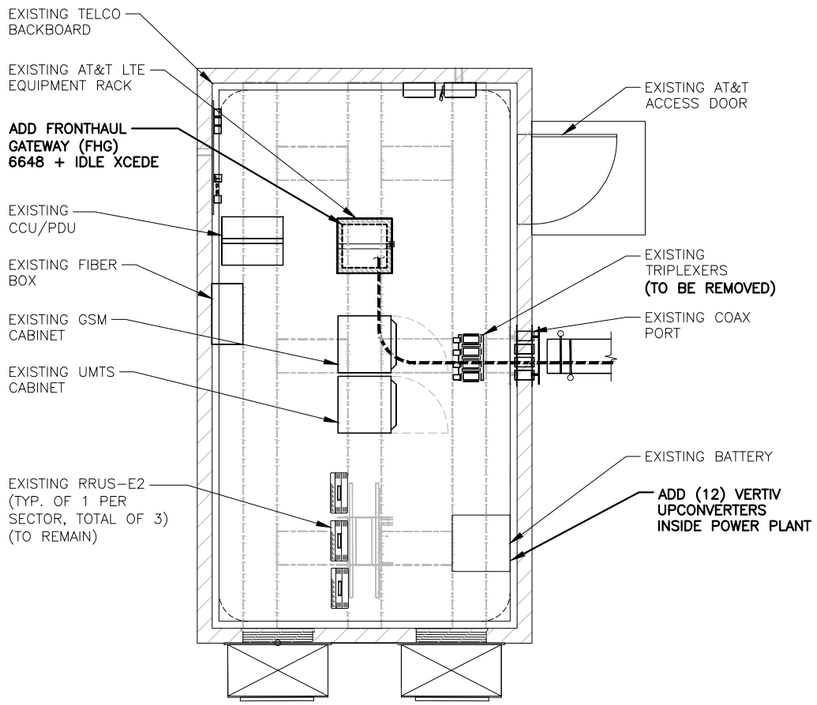
NOTE:

REFER TO FINAL APPROVED V5 RFDS 03/29/22

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MARCH 30, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.





13°25' TRUE NORTH / MAGNETIC NORTH

COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

13°25' TRUE NORTH / MAGNETIC NORTH

EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

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45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
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2	03/14/22	ISSUED FOR CONSTRUCTION	SG	AT	DPH
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0	01/24/22	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

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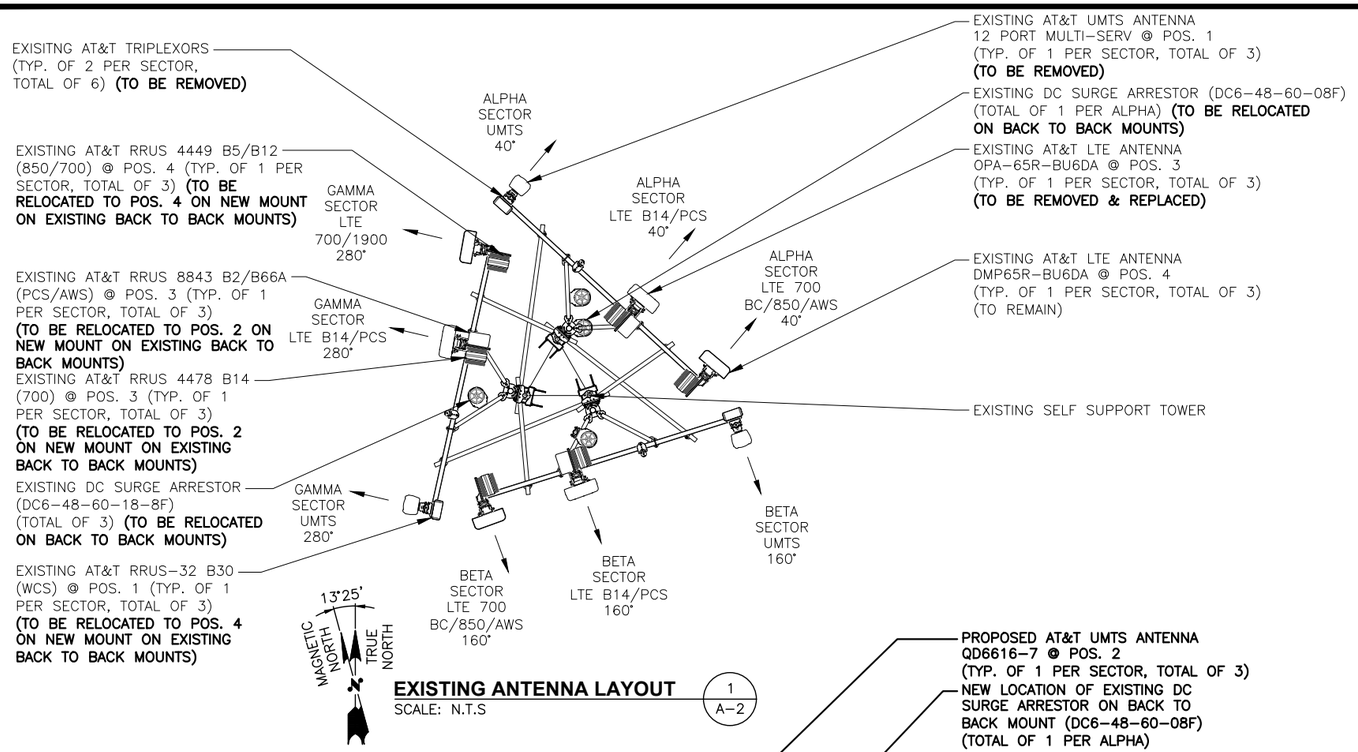
COMPOUND & EQUIPMENT PLANS
5G NR 1SR CBAND

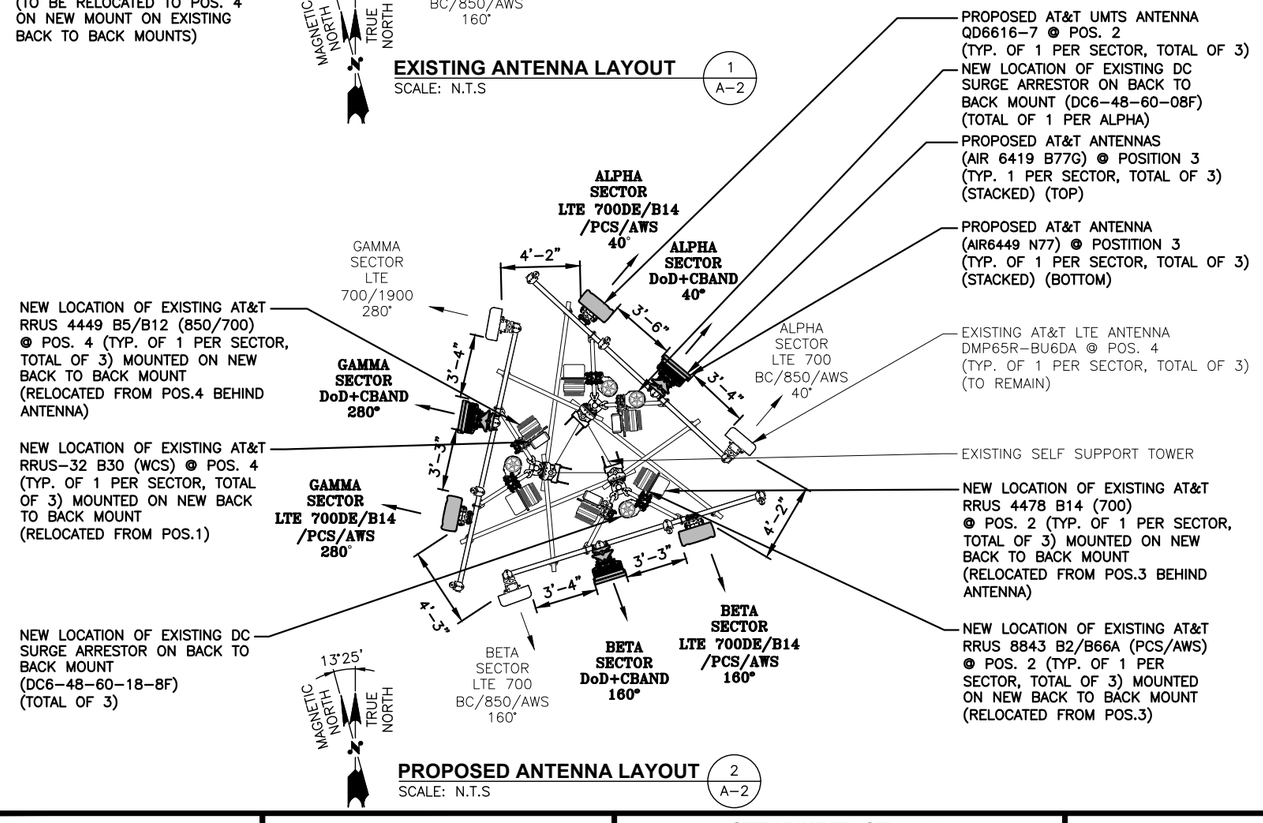
SITE NUMBER	DRAWING NUMBER	REV
CTL05254	A-1	3



EXISTING ANTENNA LAYOUT

1 / A-2

SCALE: N.T.S



PROPOSED ANTENNA LAYOUT

2 / A-2

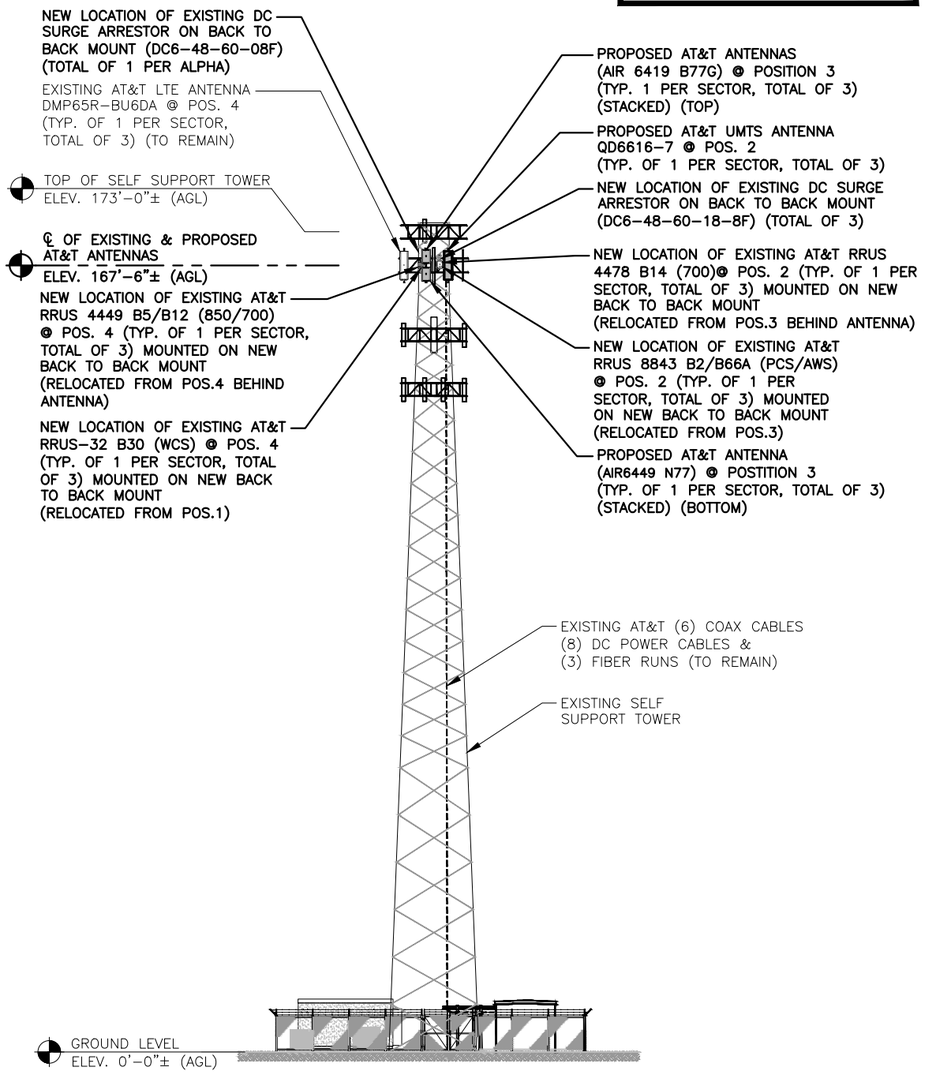
SCALE: N.T.S

NOTE:

REFER TO FINAL APPROVED V5 RFDS 03/29/22

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MARCH 30, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



ELEVATION

3 / A-2

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

0 8'-0" 16'-0" 32'-0" 48'-0"

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45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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1	03/09/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	01/24/22	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

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ANTENNA LAYOUTS & ELEVATION
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	A-2	3

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F (E) (1) RAYCAP DC6–48–60–08F
A2	**PROPOSED**	**LTE 700DE/B14/PCS/AWS**	**QD6616–7**	**72X22X9.6**	**167'–6"±**	**40°**	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS) (E)(G)(1)RRUS–E2 B29 (700 DE)	– – –	(E)(4) DC TRUNKS & (1) FIBER **(P)(1) Y CABLE**	
A3	**PROPOSED**	**DOD+CBAND**	**AIR 6419 B77G AIR 6449 B77D**	**28X15.7X6.7 30.4X15.9X8.1**	**167'–6"±**	**40°**	–	–	– –	–	
A4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	167'–6"±	40°	–	(E)(1) RRUS–32 B30 (WCS) (E)(1) 4449 B5/B12 (700/850)	– –	**(P)(1) Y CABLE**	
B1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F
B2	**PROPOSED**	**LTE 700DE/B14/PCS/AWS**	**QD6616–7**	**72X22X9.6**	**167'–6"±**	**160°**	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS) (E)(G)(1)RRUS–E2 B29 (700 DE)	– – –	(E)(2) DC POWER & (1) FIBER **(P)(1) Y CABLE**	
B3	**PROPOSED**	**DOD+CBAND**	**AIR 6419 B77G AIR 6449 B77D**	**28X15.7X6.7 30.4X15.9X8.1**	**167'–6"±**	**160°**	–	–	– –	–	
B4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	167'–6"±	160°	–	(E)(1) RRUS–32 B30 (WCS) (E)(1) 4449 B5/B12 (700/850)	– –	**(P)(1) Y CABLE**	
C1	–	–	–	–	–	–	–	–	–	(2)1–5/8 COAX	(E) (1) RAYCAP DC6–48–60–18–8F
C2	**PROPOSED**	**LTE 700DE/B14/PCS/AWS**	**QD6616–7**	**72X22X9.6**	**167'–6"±**	**280°**	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS) (E)(G)(1)RRUS–E2 B29 (700 DE)	– – –	(E)(2) DC POWER & (1) FIBER **(P)(1) Y CABLE**	
C3	**PROPOSED**	**DOD+CBAND**	**AIR 6419 B77G AIR 6449 B77D**	**28X15.7X6.7 30.4X15.9X8.1**	**167'–6"±**	**280°**	–	–	– –	–	
C4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2X20.7X7.7	167'–6"±	280°	–	(E)(1) RRUS–32 B30 (WCS) (E)(1) 4449 B5/B12 (700/850)	– –	**(P)(1) Y CABLE**	

NOTE:

REFER TO FINAL APPROVED V5 RFDS 03/29/22

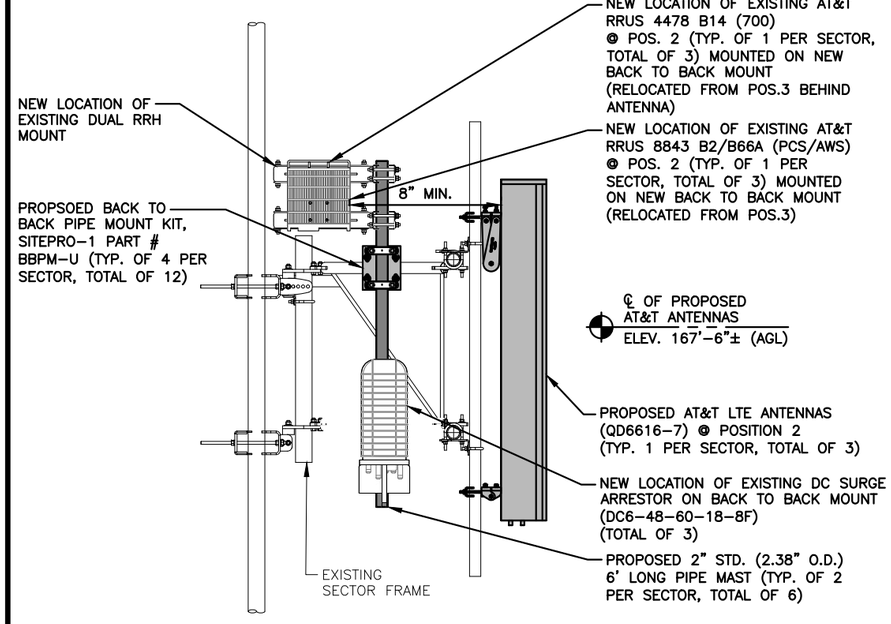
NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MARCH 30, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

FINAL ANTENNA CONFIGURATION

(1 / A–3)

SCALE: N.T.S

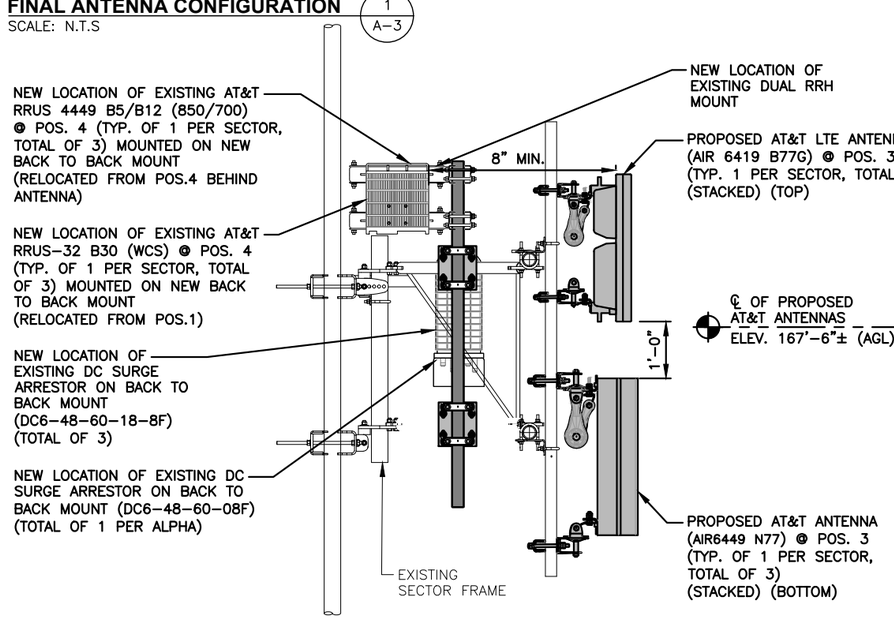


PROPOSED ANTENNA @ POS. 2

(2 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

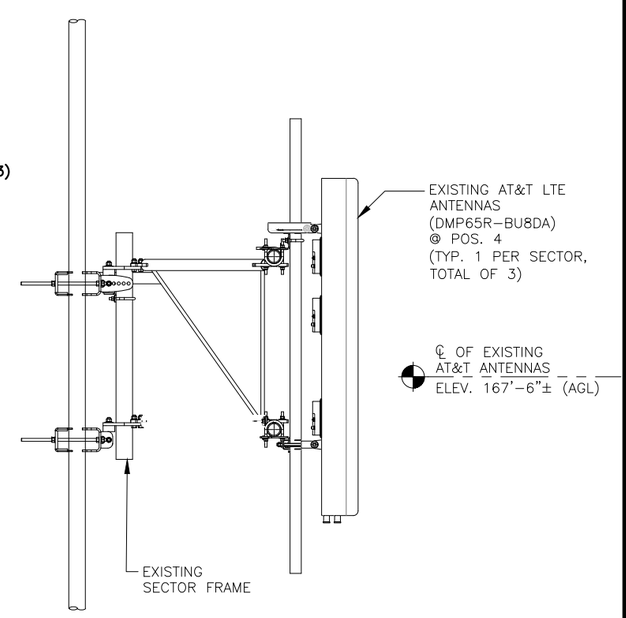


PROPOSED ANTENNA @ POS. 3

(3 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"



PROPOSED ANTENNA @ POS. 4

(4 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL05254
SITE NAME: NEW BRITIAN WEST

1 HARTFORD SQUARE
NEW BRITAIN, CT 06052
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	03/30/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
2	03/14/22	ISSUED FOR CONSTRUCTION	SG	AT	DPH
1	03/09/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	01/24/22	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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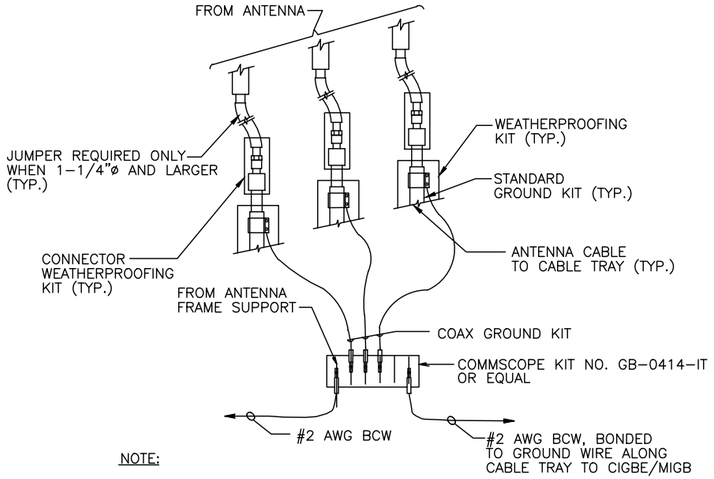
DETAILS
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	A–3	3



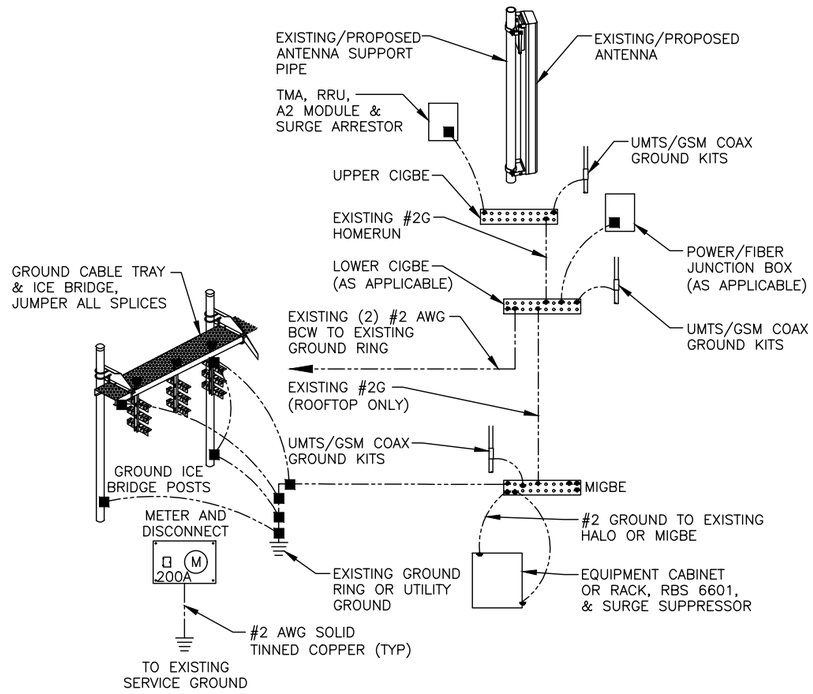
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

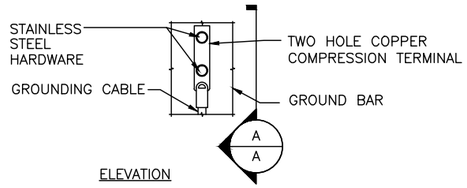
1 / G–1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G–1



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G–1

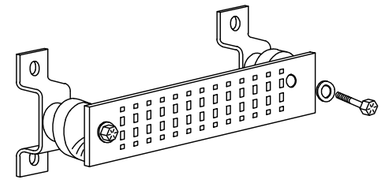
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
–48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

4 / G–1

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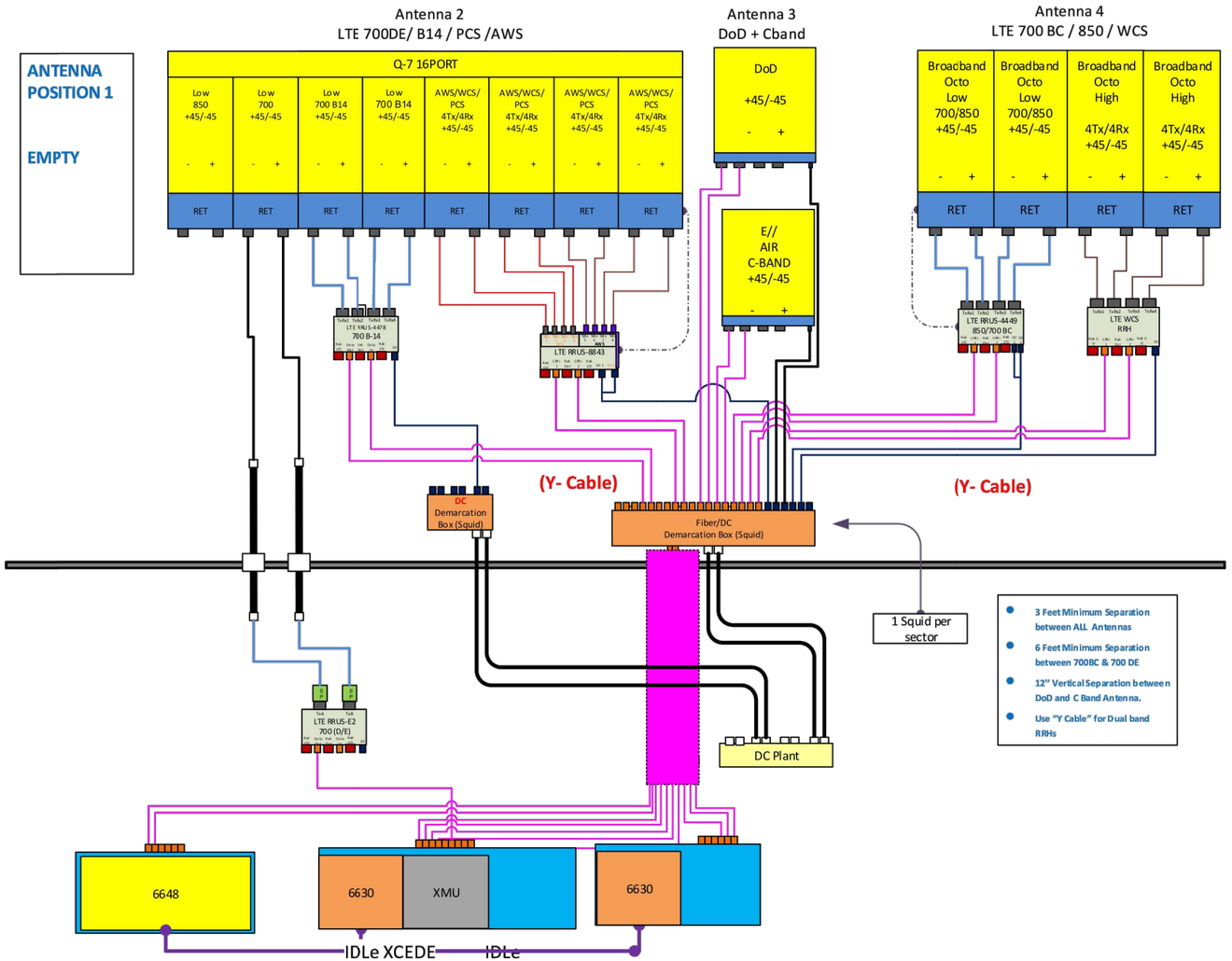
GROUNDING DETAILS
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	G–1	3

FINAL APPROVED V5 RFDS 03/29/22



ALPHA SECTOR

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO FINAL APPROVED V5 RFDS 03/29/22

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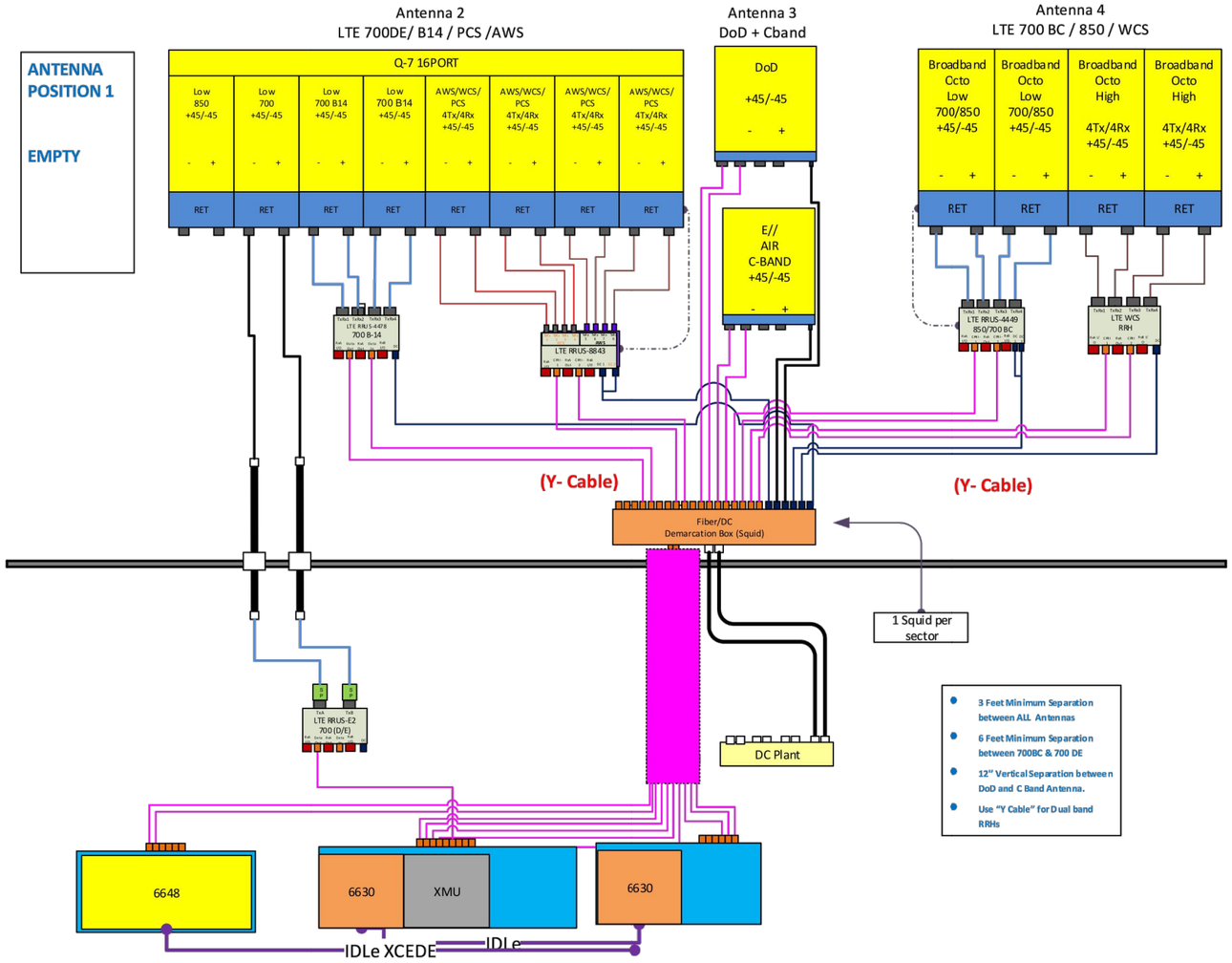
RF PLUMBING DIAGRAM
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	RF–1	3

FINAL APPROVED V5 RFDS 03/29/22



BETA & GAMMA SECTOR

RF PLUMBING DIAGRAM (1 / RF–2)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

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RF PLUMBING DIAGRAM
5G NR 1SR CBAND

SITE NUMBER	DRAWING NUMBER	REV
CTL05254	RF–2	3