Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

June 21, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #822765; ATT Site ID CT06405
10 Sylvia Street, Branford, CT 06405
Latitude: 41° 17′ 38.01″ / Longitude: -72° 47′ 8.62″

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 100-foot level of the existing 125-foot monopole tower at 10 Sylvia Street, Branford, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by 322 East Main Street LLC. AT&T now intends to replace nine (9) antennas, install nine (9) new antennas and ancillary equipment at the 100-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

(1) CCI-TPA65R-BU6DA-K Antennas
(2) CCI-TPA65R-BU4DA-K Antennas
(6) Ericsson-AIR6449 B77D + AIR6419 B77G Stacked Antennas
(3) Ericsson 4478 B14 RRUs
(1) RAYCAP-DC6-48-60-18-8C-EV Squid
(1) 3/8" 18-PAIR Fiber Cable
(6) Mount Pipes
(6) Dual RRU Mounts
(6) Y CABLES
Install Mount Modifications

Remove:

(3) POWERWAVE-770.00 Antennas
(1) CCI-HPA-65R-BUU-H6 Antennas
(1) ANDREW-SBNHH-1D65A Antennas
(1) KATHREIN-800-10965 Antennas
(2) KATHREIN-800-10964 Antennas
(6) POWERWAVE-LGP 21401 TMAs
(1) RAYCAP-DC6-48-60-0-8C Squid

Ground:

Install New:

(1) 6648 W/XCEDE Cable
(6) Rectifiers
(3) 170AH Battery Strings
(1) Battery Cabinet w/(2) Strings

Remove:

(6) KATHREIN-782 10250 Diplexers
(1) XMU
(3) Battery Strings
(1) UMTS Cabinet

The facility was approved by the Town of Branford Planning and Zoning Commission in application #98-9.3 on November 10, 1998. Said approval given with conditions. AT&T's proposed exempt modification complies with the conditions of approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable James B Cosgrove, First Selectman for the Town of Branford, Harry Smith, Town Planner, Crown Castle as the tower owner, and 332 East Main Street LLC the property owner. The proposed modifications will not result in an increase in the height of the existing tower.

1. The proposed modifications will not require the extension of the site boundary.
2. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
3. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
4. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
5. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, ATT respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments
cc:

The Honorable James B Cosgrove, First Selectman
Town of Branford
1019 Main Street,
Branford CT 06405
203-488-8394

Harry Smith, Town Planner
Town of Branford
1019 Main Street,
Branford CT 06405
203-488-1255

332 East Main Street LLC, Property Owner
375 Fairfield Ave, Bldg 1,
Stamford CT 06902

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777184058446: Your package has been delivered
Date: Wednesday, June 22, 2022 10:18:38 AM

Hi. Your package was delivered Wed, 06/22/2022 at 10:16am.

Delivered to 1019 MAIN ST, BRANFORD, CT 06405
Received by C.LRK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777184058446

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of Branford Honorable James B. Cosgrove 1019 Main Street BRANFORD, CT, US, 06405
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Tue 6/21/2022 05:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BRANFORD, CT, US, 06405
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777184077500: Your package has been delivered
Date: Wednesday, June 22, 2022 10:18:32 AM

Hi. Your package was delivered Wed, 06/22/2022 at 10:16am.

Delivered to 1019 MAIN ST, BRANFORD, CT 06405
Received by C.LRK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777184077500

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of Branford Harry Smith, Town Planner 1019 Main Street BRANFORD, CT, US, 06405
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Tue 6/21/2022 05:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BRANFORD, CT, US, 06405
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

(https://www.fedex.com/en-us/home.html)

FedEx® Tracking

777184114130

ADD NICKNAME

Sign up for Status Updates to get updated as we have more information.

DELAYED

We made a delivery attempt: 06/22/2022 10:03 AM. Don't wait until the next business day for your delivery. Pick up your package(s) today after 12:00 PM at FedEx Facility: 24 ARDMORE STREET . Click Manage Delivery below to take more control of your package(s).

Updated delivery
Thursday, 6/23/2022 before 10:30 am

Initially expected: Wednesday, 6/22/2022

DELAY
STAMFORD, CT

GET STATUS UPDATES

FROM
Domenica Tatasciore

1800 West Park Drive
Suite 200
WESTBOROUGH, MA US 01581
508-621-9161

TO
332 East Main Street LLC

375 Fairfield Ave., Building 1
STAMFORD, CT US 06902
203-324-2730

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Wednesday, June 22, 2022

[redacted]

9:31 AM	STAMFORD, CT	At local FedEx facility
9:31 AM	STAMFORD, CT	On FedEx vehicle for delivery
8:45 AM	STAMFORD, CT	At local FedEx facility
4:09 AM	NEWARK, NJ	Departed FedEx hub
Tuesday, June 21, 2022		
8:33 PM	FRAMINGHAM, MA	Left FedEx origin facility
5:59 PM	FRAMINGHAM, MA	Shipment arriving On-Time
5:42 PM	FRAMINGHAM, MA	Picked up
10:05 AM		Shipment information sent to FedEx

Expand History

Shipment Facts

TRACKING NUMBER
777184114130

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

SHIPPER REFERENCE
799001.7680

PACKAGING
FedEx Pak

SPECIAL HANDLING SECTION
Deliver Weekday

SHIP DATE
6/21/22

STANDARD TRANSIT
6/22/22 before 10:30 am

UPDATED DELIVERY
6/23/22 before 10:30 am

CT11-025

VOL. 662 PAGE 502

6340

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

November 10, 1998

J. Brendan Sharkey, Esq. For Omnipoint Communications, Inc.
25 VanZant Street #18E
East Norwalk, Connecticut 06855

SUBJECT: Special Exception APPLICATION # 98-9.3

LOCATION: 10 Sylvia Street

OWNERS OF RECORD: TKJ SYLVIA ASSOCIATES, LLC

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, November 5, 1998, the Commission voted to:

X Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen

Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Omnipoint must construct tower so that it can easily be extended to provide spaces for two (2) other carriers for co-location purposes.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

RECEIVED FOR RECORD Nov. 19, 1998
at 3h 49m P.M. AND RECORDED BY
GEORGETTE A. LASKE
BRANFORD TOWN CLERK

Town of Branford, CT

Property Listing Report

Map Block Lot G05/F05/004/ Bldg # 1 Sec # 1 PID 1103 Account 000614

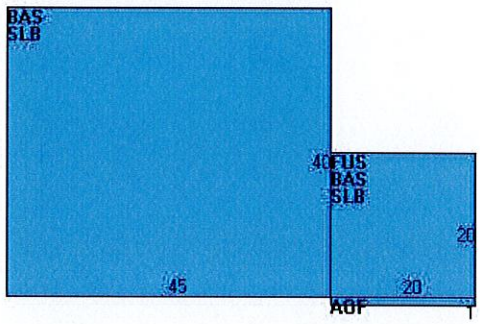
Property Information

Property Location	10 SYLVIA ST
Owner	322 EAST MAIN STREET LLC
Co-Owner	na
Mailing Address	375 FAIRFIELD AVE STAMFORD CT 06902
Land Use	3160 COMM WHS MDL96
Land Class	C
Zoning Code	BL
Census Tract	

Neighborhood	400
Acreage	0.95
Utilities	Public Water,Septic
Lot Setting/Desc	Bus. District Level
Book / Page	1132/0054

Photo

Sketch



Primary Construction Details

Year Built	1960
Building Desc.	COMM WHS MDL96
Building Style	Health Club
Building Grade	C
Stories	1
Occupancy	1.00
Exterior Walls	Concr/Cinder
Exterior Walls 2	Wood on Sheath
Roof Style	Gable/Hip
Roof Cover	Asphalt
Interior Walls	Minim/Masonry
Interior Walls 2	Drywall
Interior Floors 1	Concr-Finished
Interior Floors 2	Ceram Clay Til

Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	Ind/Comm
Building Condition	A
Sprinkler %	NA
Heat / AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & MIN WL
Rooms / Prtns	AVERAGE
Wall Height	16.00
First Floor Use	NA
Foundation	NA

Report Created On 6/16/2022

Town of Branford, CT

Property Listing Report

Map Block Lot G05/F05/004/ Bldg # 1 Sec # 1 PID 1103 Account 000614

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	210600	147400
Extras	4100	2900
Improvements		
Outbuildings	16000	11200
Land	481500	337100
Total	783420	548460

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office	420	420
First Floor	2200	2200
Slab	2200	0
Total Area	4820	2620

Outbuilding and Extra Features

Type	Description
PAVING-ASPHALT	18000 S.F.
FENCE-6' CHAIN	200 L.F.
PAVING-CONC	72 S.F.
COMMUN UTLTY	36 S.F.
GEN 15-30KW PRMT BKP	1 UNITS
HGH PRE-SOD PL	3 UNITS
AIR CONDITION	800 S.F.

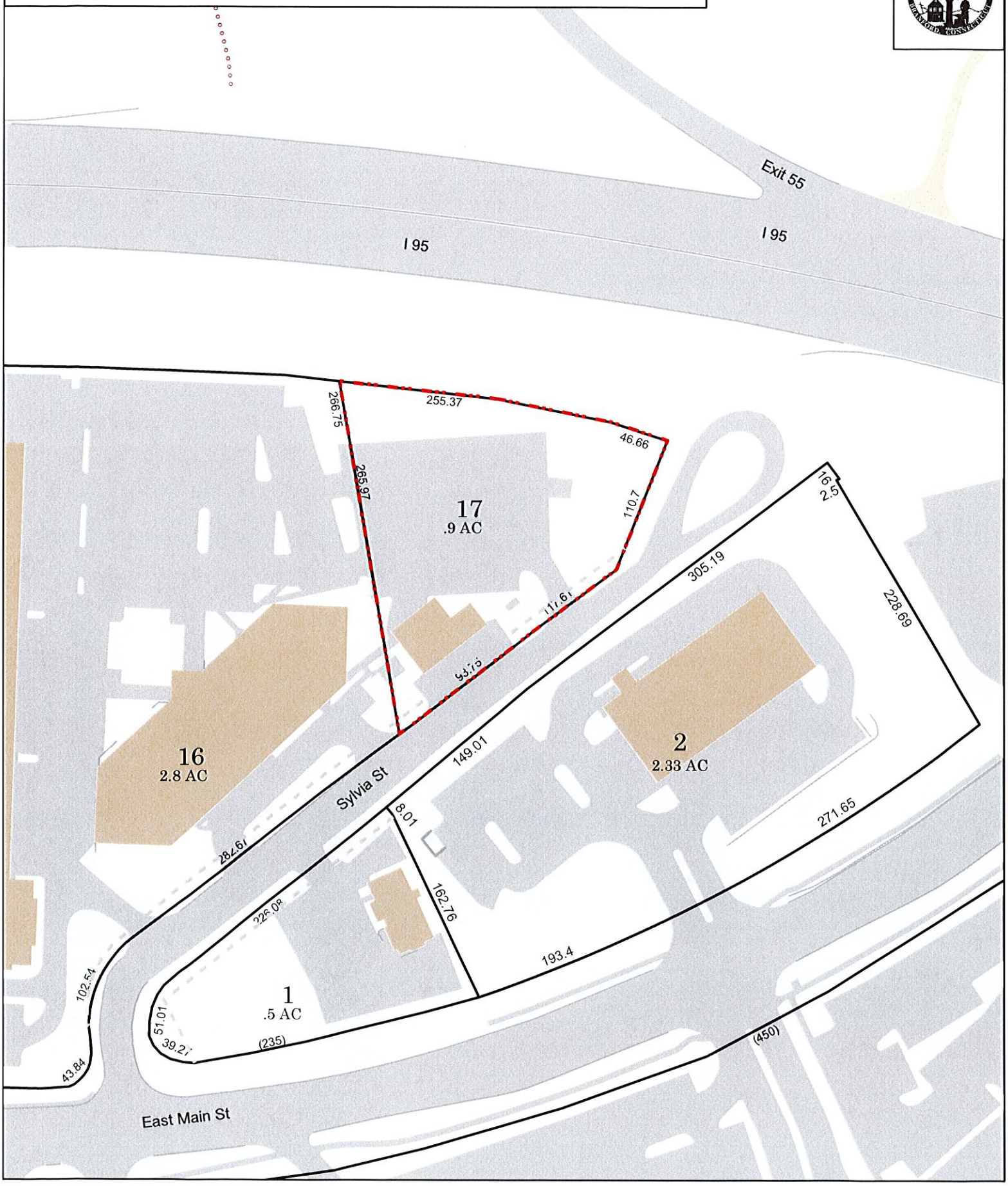
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
322 EAST MAIN STREET LLC	1132/0054	2013-05-02	468000
T K J SYLVIA ASSOCIATES LLC	0571/0583	1994-06-07	0

Report Created On 6/16/2022

Town of Branford, Connecticut - Assessment Parcel Map

Parcel: G05-F05-004-00017 Address: 10 SYLVIA ST



Approximate Scale: 1 inch : 100 feet

Grand List Date June 2021

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

Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T

Site Name:	BRANFORD EAST
FA#	10070944
USID:	24493
Site ID:	CTL05199
Address:	10 SILVIA STREET BRANFORD, CT 06405
County:	NEW HAVEN
Latitude:	41.2938919
Longitude:	-72.7856989
Structure Type:	MONOPOLE
Property Owner:	322 EAST MAIN STREET LLC
Pace Job:	MRCTB054220
RFDS technology:	5G NR 1SR CBAND

Report Information

Report Writer: Vishesh Kumar

Report Generated Date: 06-10-2022

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented

Table of Contents

1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	46294.60% on Antennas Centerline Level & at AT&T Sec-A antenna no. #A3-1
Max Predictive Spatial Average MPE% at Ground Level (General Public)	2.26%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

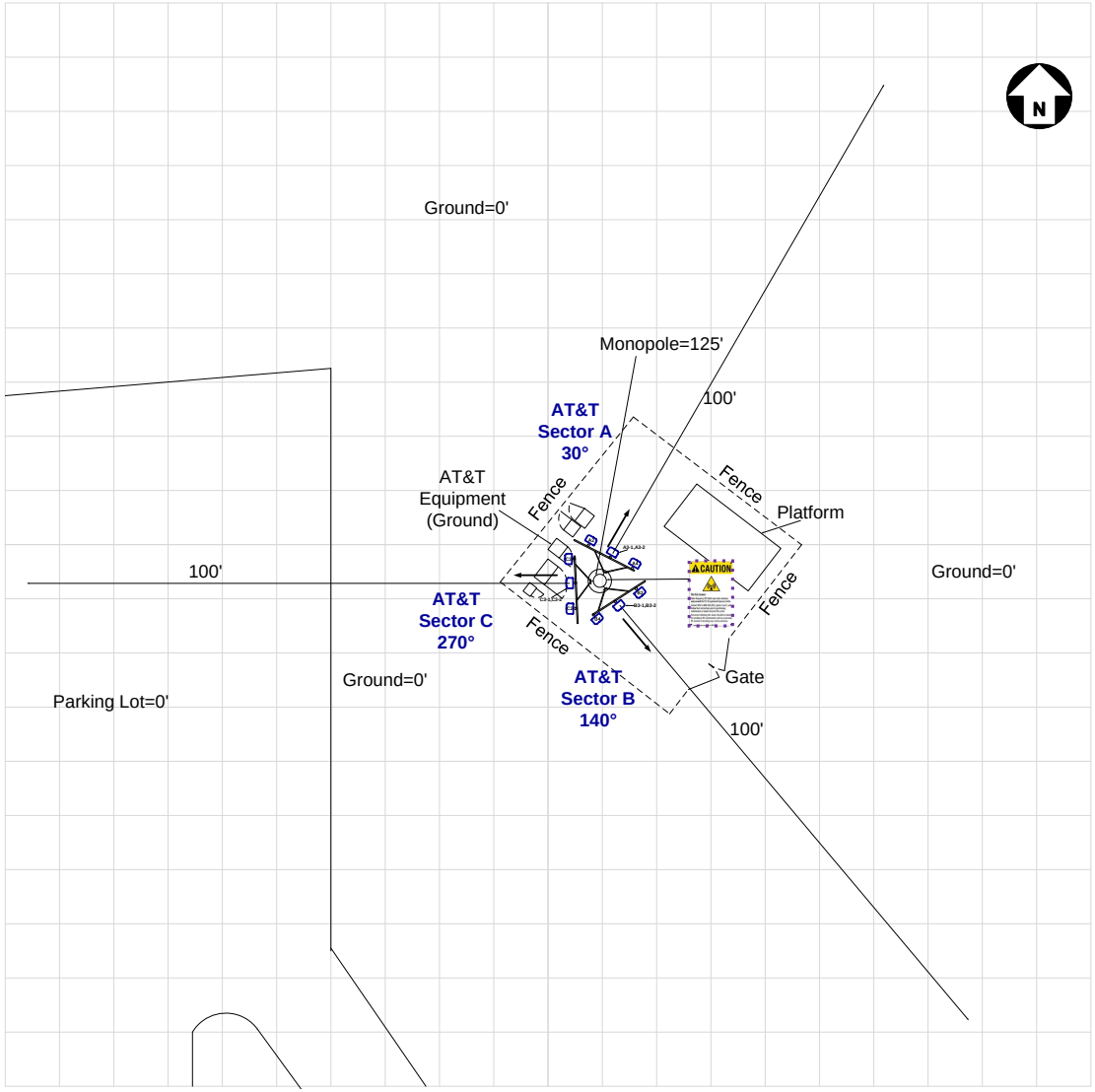
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *822765_586264 - 10 Sylvia Street CD*
- *822765_586264 - 10 Sylvia Street RFDS*

2. Site Scale Map



AT&T Antenna	Proposed	Proposed Signage									
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	***Map Scale = 10 ft***
OMNI	Posts										

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	HBW (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(FN)	30	73	12.35	6	120.00	0.5	1837.30	3014.26
A2	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	30	66	15.95	6	120.00	0.5	4209.02	6905.28
A2	AT&T	CCI	TPA65R-BU6D	Panel	2100	LTE/5G	30	66	16.25	6	120.00	0.5	4510.05	7399.14
A3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	30	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	30	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A4	AT&T	Kathrein	80010965	Panel	700	LTE(B12)	30	62	12.65	6.5	120.00	0.5	1968.71	3229.84
A4	AT&T	Kathrein	80010965	Panel	850	5G	30	60	13.45	6.5	120.00	0.5	2366.91	3883.12
A4	AT&T	Kathrein	80010965	Panel	2300	LTE	30	56	15.95	6.5	75.00	0.5	2630.64	4315.80
B2	AT&T	CCI	TPA65R-BU4D	Panel	700	LTE(FN)	140	74	11.15	4	120.00	0.5	1393.74	2286.55
B2	AT&T	CCI	TPA65R-BU4D	Panel	1900	LTE/5G	140	66	14.95	4	120.00	0.5	3343.35	5485.06
B2	AT&T	CCI	TPA65R-BU4D	Panel	2100	LTE/5G	140	66	15.05	4	120.00	0.5	3421.22	5612.82
B3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	140	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	140	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B4	AT&T	Kathrein	80010964	Panel	700	LTE(B12)	140	65	11.45	4.9	120.00	0.5	1493.42	2450.09
B4	AT&T	Kathrein	80010964	Panel	850	5G	140	62	12.15	4.9	120.00	0.5	1754.61	2878.60
B4	AT&T	Kathrein	80010964	Panel	2300	LTE	140	54	15.55	4.9	75.00	0.5	2399.17	3936.06
C2	AT&T	CCI	TPA65R-BU4D	Panel	700	LTE(FN)	270	74	11.15	4	120.00	0.5	1393.74	2286.55
C2	AT&T	CCI	TPA65R-BU4D	Panel	1900	LTE/5G	270	66	14.95	4	120.00	0.5	3343.35	5485.06
C2	AT&T	CCI	TPA65R-BU4D	Panel	2100	LTE/5G	270	66	15.05	4	120.00	0.5	3421.22	5612.82
C3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	270	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	270	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C4	AT&T	Kathrein	80010964	Panel	700	LTE(B12)	270	65	11.45	4.9	120.00	0.5	1493.42	2450.09
C4	AT&T	Kathrein	80010964	Panel	850	5G	270	62	12.15	4.9	120.00	0.5	1754.61	2878.60
C4	AT&T	Kathrein	80010964	Panel	2300	LTE	270	54	15.55	4.9	75.00	0.5	2399.17	3936.06

Table 3.1: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**
* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

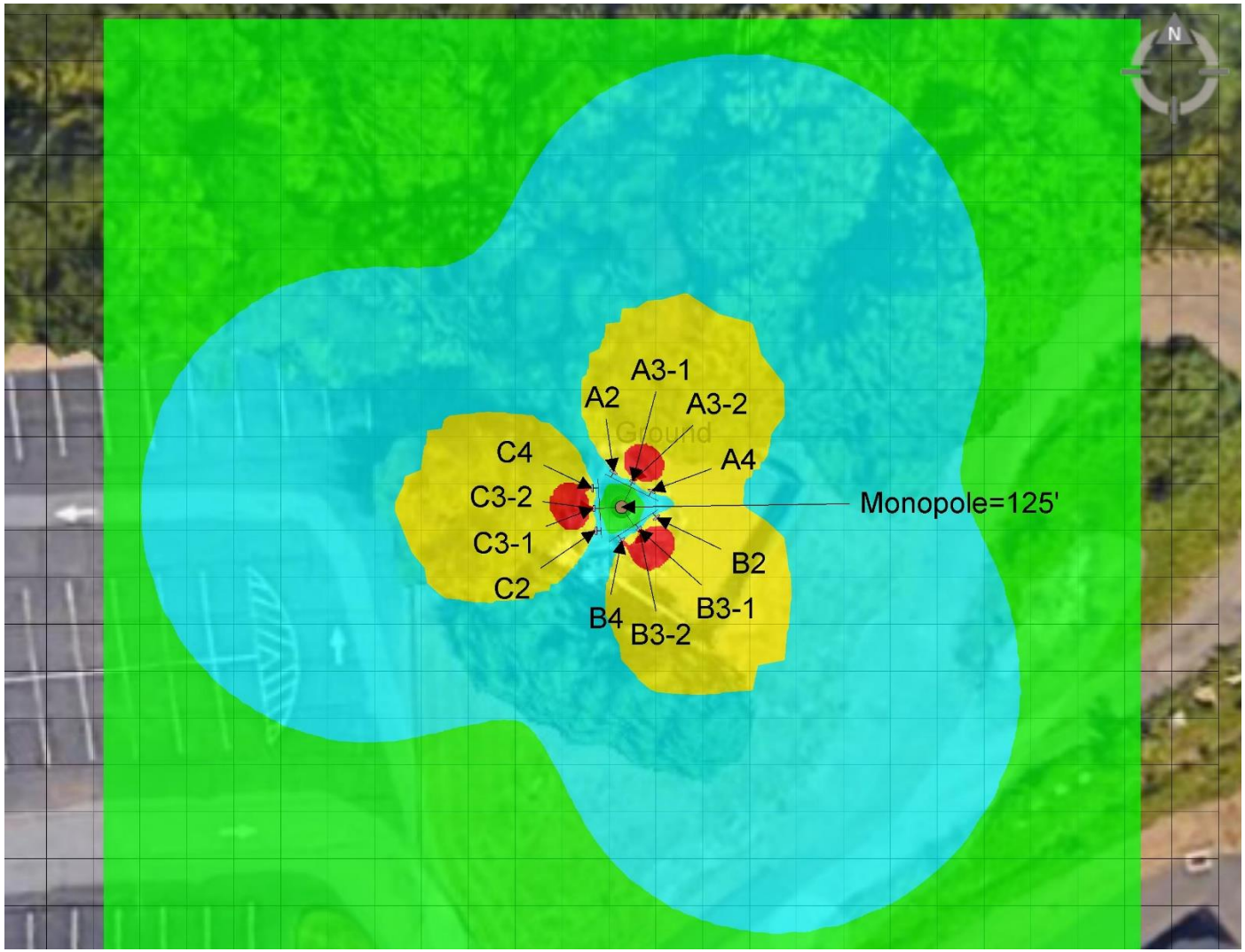
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Ground
A2	AT&T	100.00	97.00
A3-1	AT&T	101.75	100.48
A3-2	AT&T	98.25	96.98
A4	AT&T	100.00	96.75
B2	AT&T	100.00	98.00
B3-1	AT&T	101.75	100.48
B3-2	AT&T	98.25	96.98
B4	AT&T	100.00	97.55
C2	AT&T	100.00	98.00
C3-1	AT&T	101.75	100.48
C3-2	AT&T	98.25	96.98
C4	AT&T	100.00	97.55

Table 3.3: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (100 ft.)



Max. Predictive Spatial Average MPE% = **46294.60%**

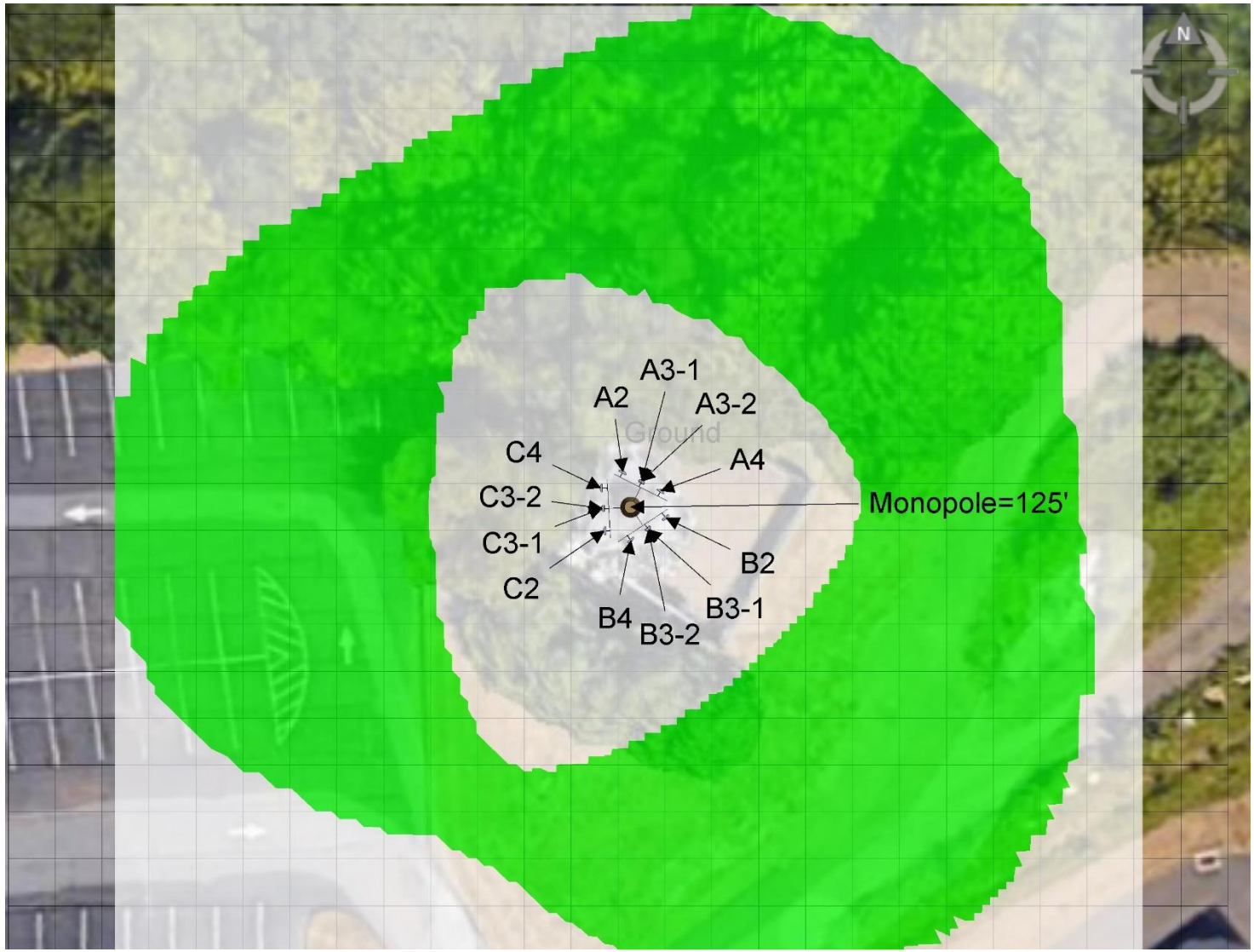
Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = **2.26%**

Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

AT&T Alpha Sector:

- No action required.

AT&T Beta Sector:

- No action required.

AT&T Gamma Sector:

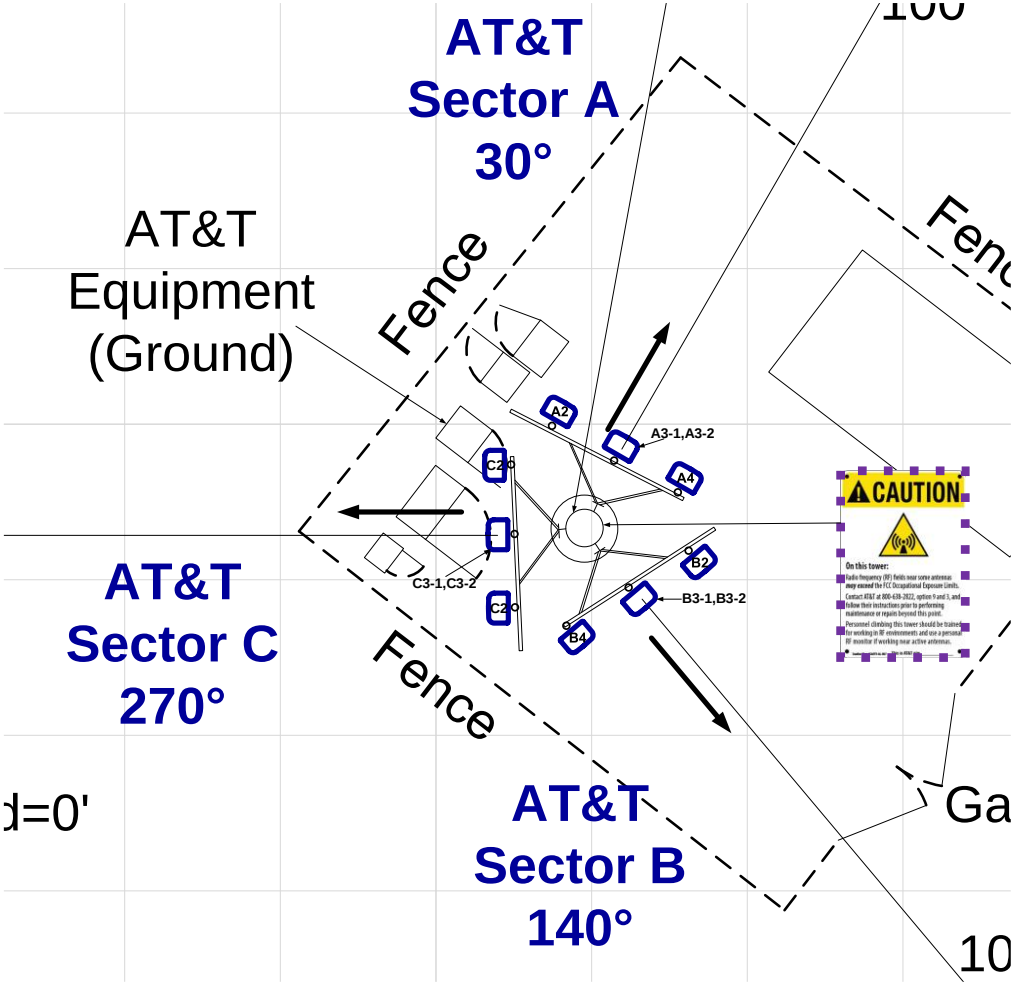
- No action required.

Monopole:

- One Caution 2B Sign to be posted on Monopole at climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 10. (1 Total Sign)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



AT&T Antenna	Proposed	Proposed Signage									
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	*Map Scale = 10 ft*
OMNI	Posts										

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS^ antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS^ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP.

AT&T recommended to use worst-case tilts for the simulations.

***Power Reduction Factor**: IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a "0.32" factor to calculate the "Actual Maximum" (time averaged) power value, which accounts for "Beam Scanning," "Scheduling," and "RBS Utilization" This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:*

1. IEEE Access, Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÄR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)
5. Ofcom Technical Report, Electromagnetic Field (EMF) measurements near 5G mobile phone base stations (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Other Carrier" 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, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. 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, MobileComm uses the closest frequency in the antenna's range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2).The number of µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
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-I,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
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-I,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.

2. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:

- *adding new antennas that may have been located on the site*
- *removing of any existing antennas*
- *changes in the radiating power or number of RF emitters*

3. Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.

4. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.

5. For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:

- *White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits*
- *Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits*
- *Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.*
- *Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.*
- *Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.*

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields 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. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

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 an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety 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 workers 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 locations (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.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. 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.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation 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 75% 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, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of 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, MobileComm will use our 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 Exposure Limit (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 Radio Frequency Radiation (RFR) 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.*

Radio Frequency Radiation – *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 an average sized 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.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

Date: **April 20, 2022**

Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject:	**Mount Modification Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CT5199
	Carrier Site Name:	Branford East
	Carrier FA Number:	10070944
Crown Castle Designation:	**BU Number:**	822765
	Site Name:	Branford/ I-95/ X55/ Dtn1
	JDE Job Number:	686214
	Order Number:	586264 Rev. 0
Engineering Firm Designation:	**Trylon Report Designation:**	207297
Site Data:	**10 Sylvia St., Branford, New Haven County, CT, 06405** **Latitude 41° 17' 38.16"Longitude -72° 47' 8.54"**	
Structure Information:	**Tower Height & Type:**	**125.0 ft Monopole**
	Mount Elevation:	**100.0 ft**
	Mount Width & Type:	**12.5 ft T-Arm**

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

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

T-Arm **Sufficient***

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 122 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Adrian Marin

Respectfully Submitted by:
Cliff Abernathy, P.E.

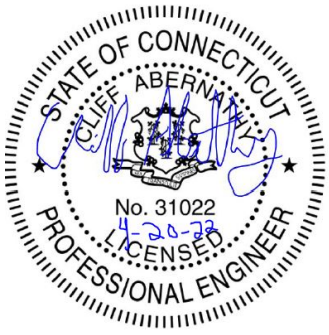


TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 sector 12.5 ft T-Arm, mapped by HighTower Solutions Inc. with proposed modifications.

2) ANALYSIS CRITERIA

Building Code: 2018 IBC
TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 122 mph
Exposure Category: B
Topographic Factor at Base: 1.00
Topographic Factor at Mount: 1.00
Ice Thickness: 1.00 in
Wind Speed with Ice: 50 mph
Seismic S_s: 0.202
Seismic S_1: 0.054
Live Loading Wind Speed: 30 mph
Man Live Load at Mid/End-Points: 250 lb
Man Live Load at Mount Pipes: 500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
100.0	102.0	3	Ericsson	AIR 6419 B77G_CCIV3	12.5 ft T-Arm
	100.0	2	CCI Antennas	TPA65R-BU4D	
		1	CCI Antennas	TPA65R-BU6DA-K	
		2	Kathrein	80010964	
		1	Kathrein	80010965	
		3	Ericsson	RRUS 32 B30	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS 8843 B2/B66A	
		3	Raycap	DC6-48-60-18-8F	
	98.0	3	Ericsson	AIR 6449 B77D_CCVI2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	AT&T Mobility Application	586264, Rev. 0	CCI Sites
Mount Mapping Report	HighTower Solutions Inc.	8259535	CCI Sites
Mount Analysis Report	Jacobs Engineering Group, Inc.	8259539	CCI Sites
Mount Modification Drawings	Trylon	Appendix E	Trylon

3.1) Analysis Method

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

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

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (T-Arm, Worst Case Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP3	100.0	42.5	Pass
	Horizontal(s)	H1		80.6	Pass
	Standoff(s)	M2		52.6	Pass
	Threaded Rod(s)	M38		79.1	Pass
	Kicker(s)	M44		24.5	Pass
	Mount Connection(s)	-		40.1	Pass

Structure Rating (max from all components) =	**80.6%**

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

4.1) Recommendations

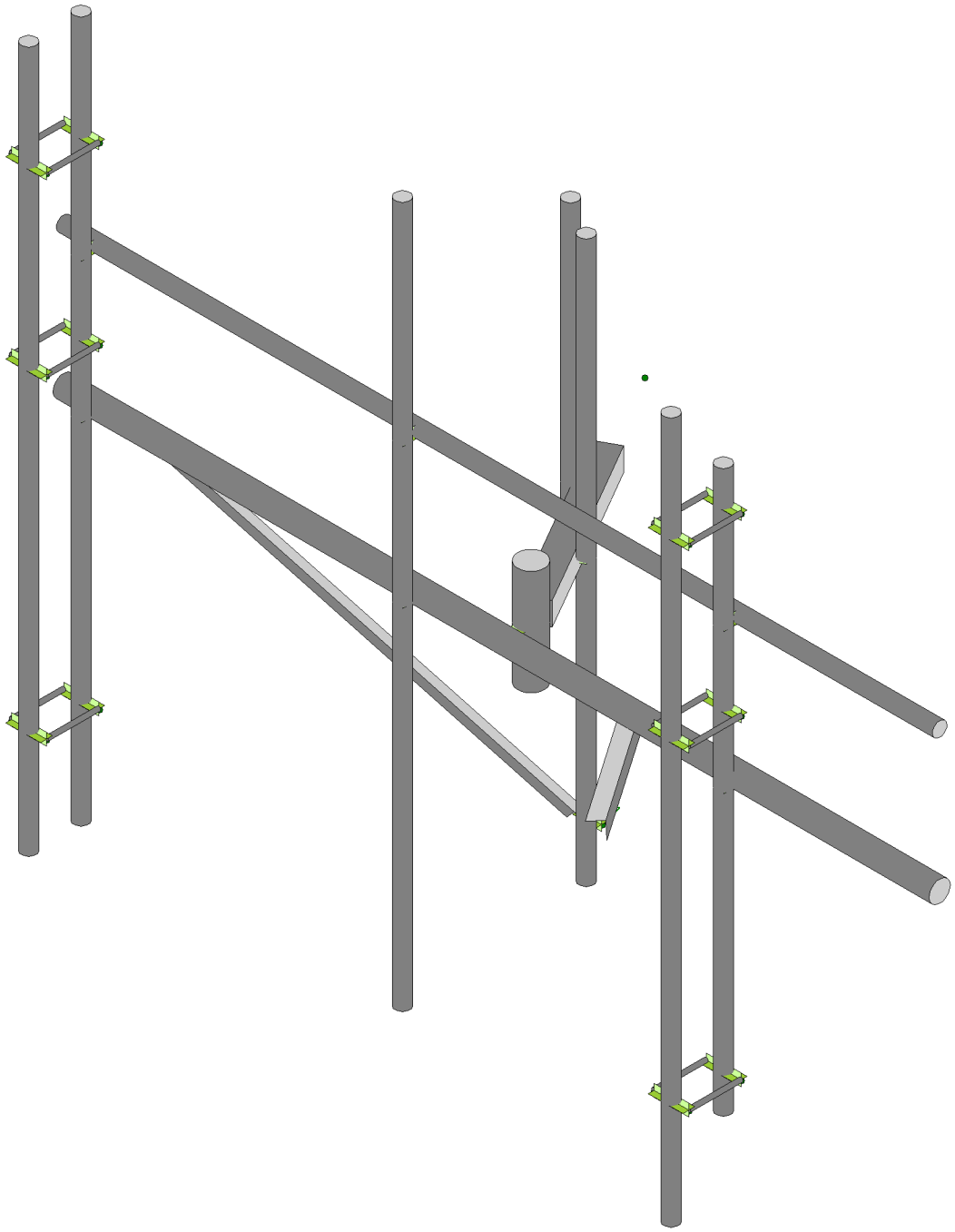
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Install a new 2.375" O.D., Sch. 40, 10-ft long mounting pipes on positions #2 and #4, connected to the existing pipes with (3) Site Pro 1, DCP18K pipe-to-pipe clamp.
2. Install a new Site Pro 1, PRK-SFS-L.
3. Install a new 2.375" O.D., Sch. 40, 12.5-ft long horizontal pipe above the existing Face Horizontal and connected to all mounting pipes with CommScope XP-2020 crossover plates.

Engineering detail drawings have been provided in Appendix E – Mount Modification Design Drawings. Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



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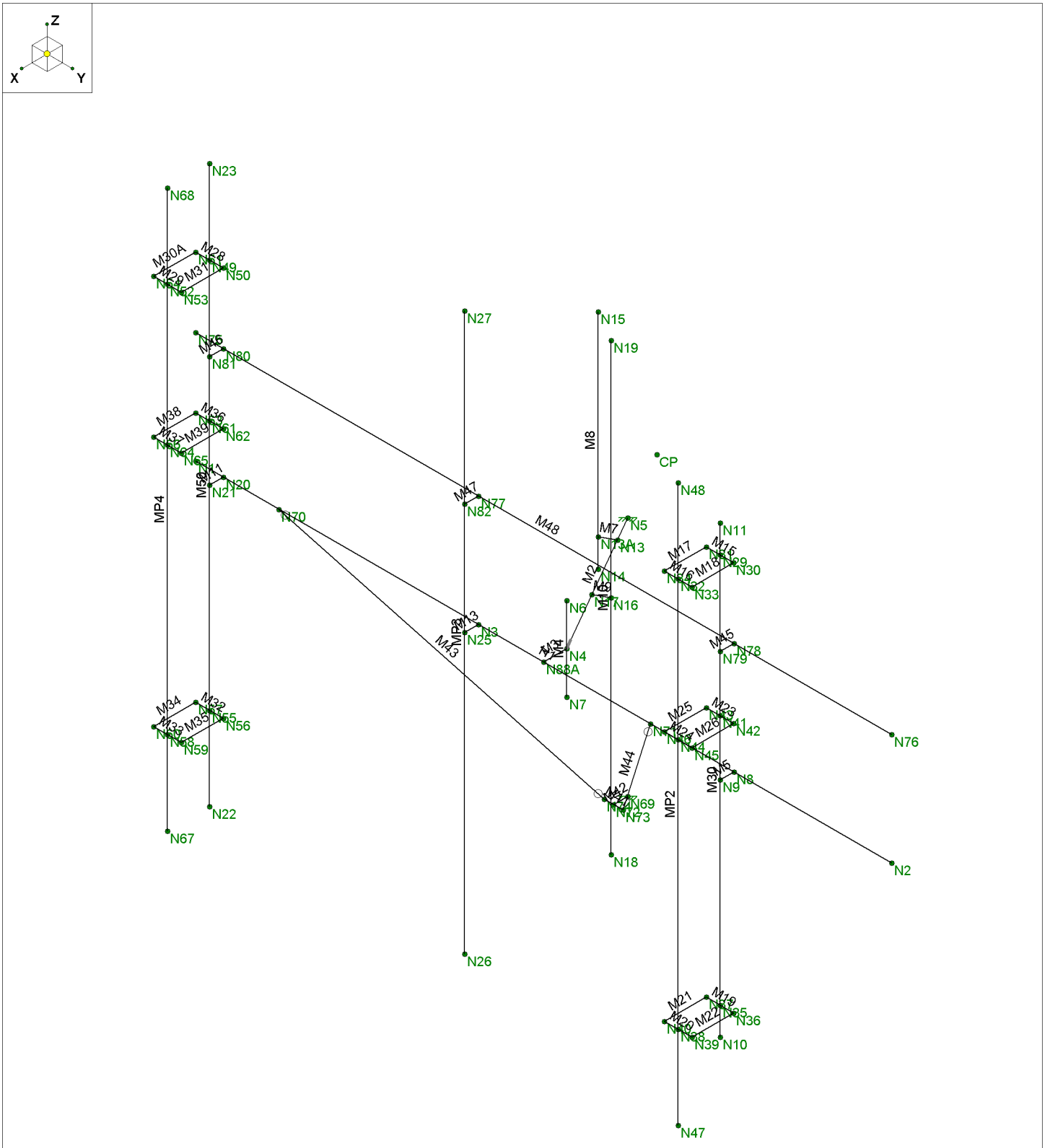

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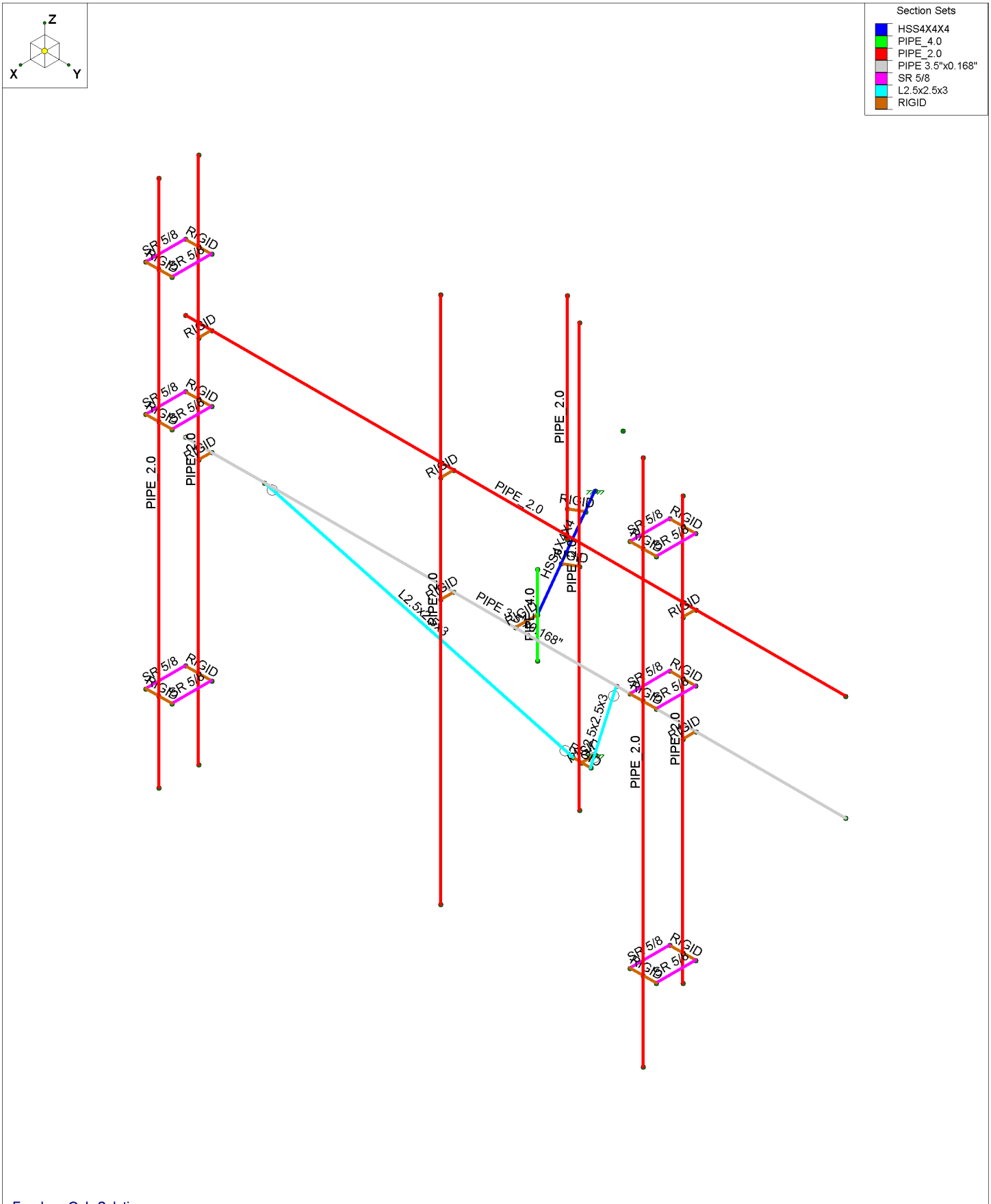

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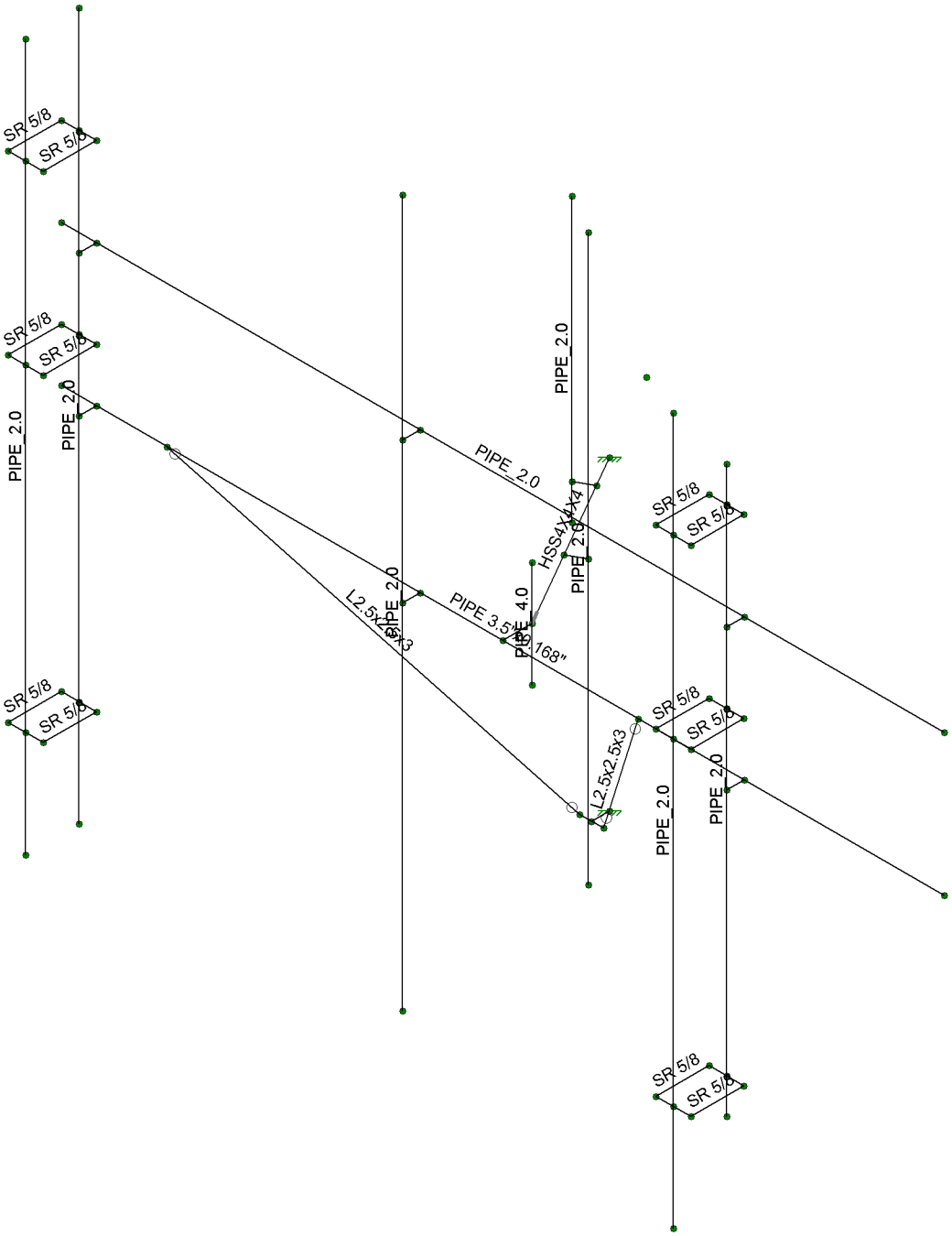

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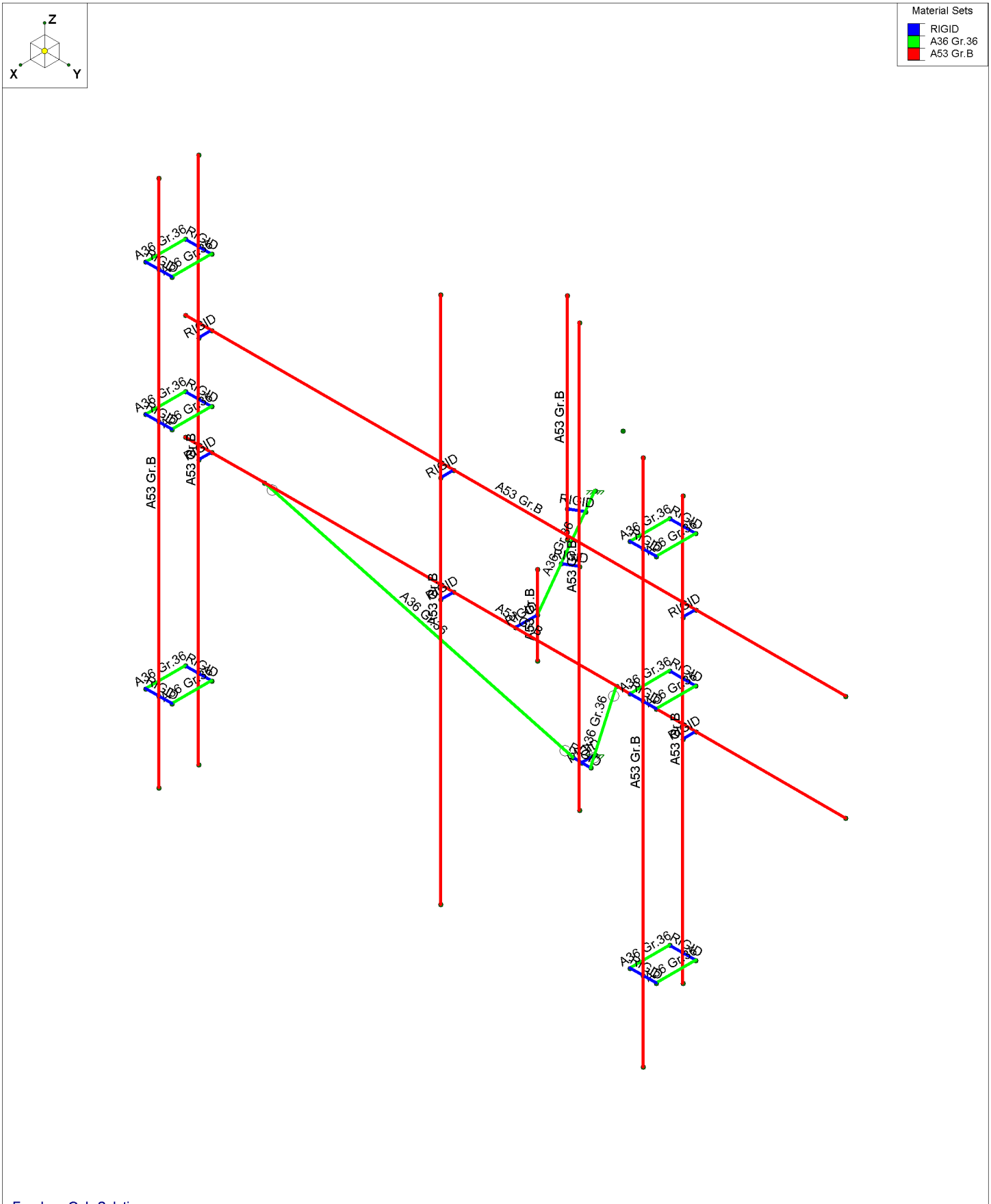

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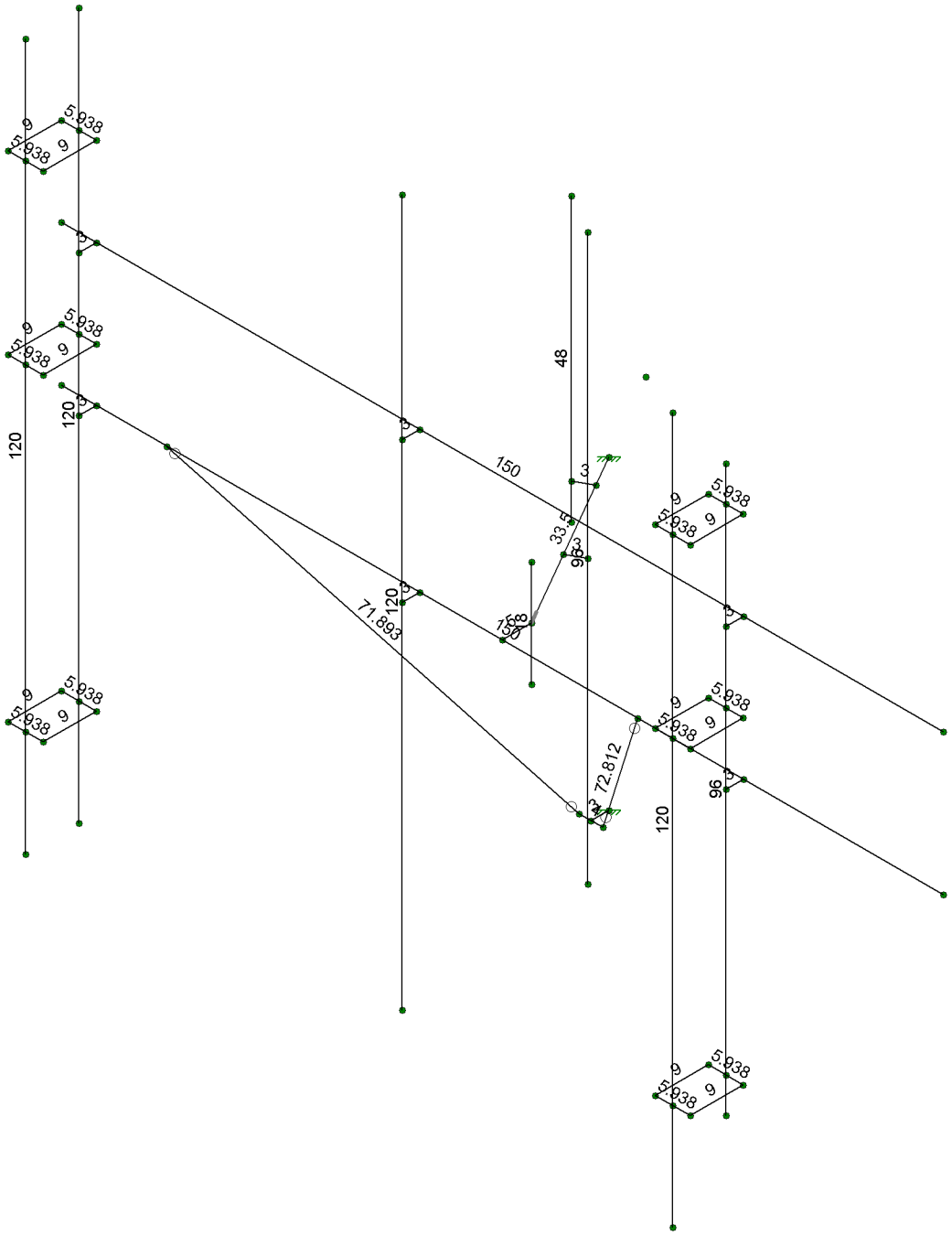

Member Length (in) Displayed
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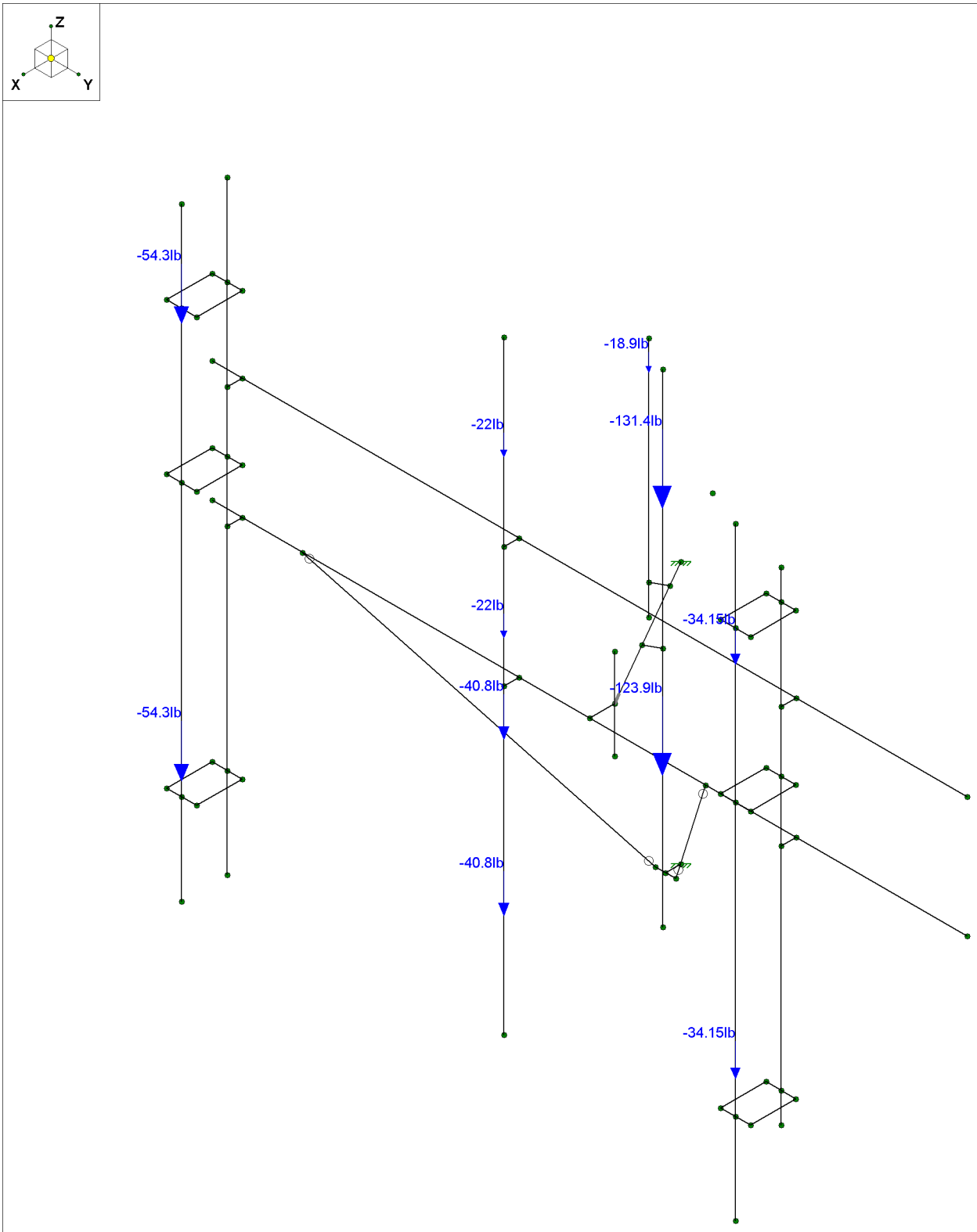

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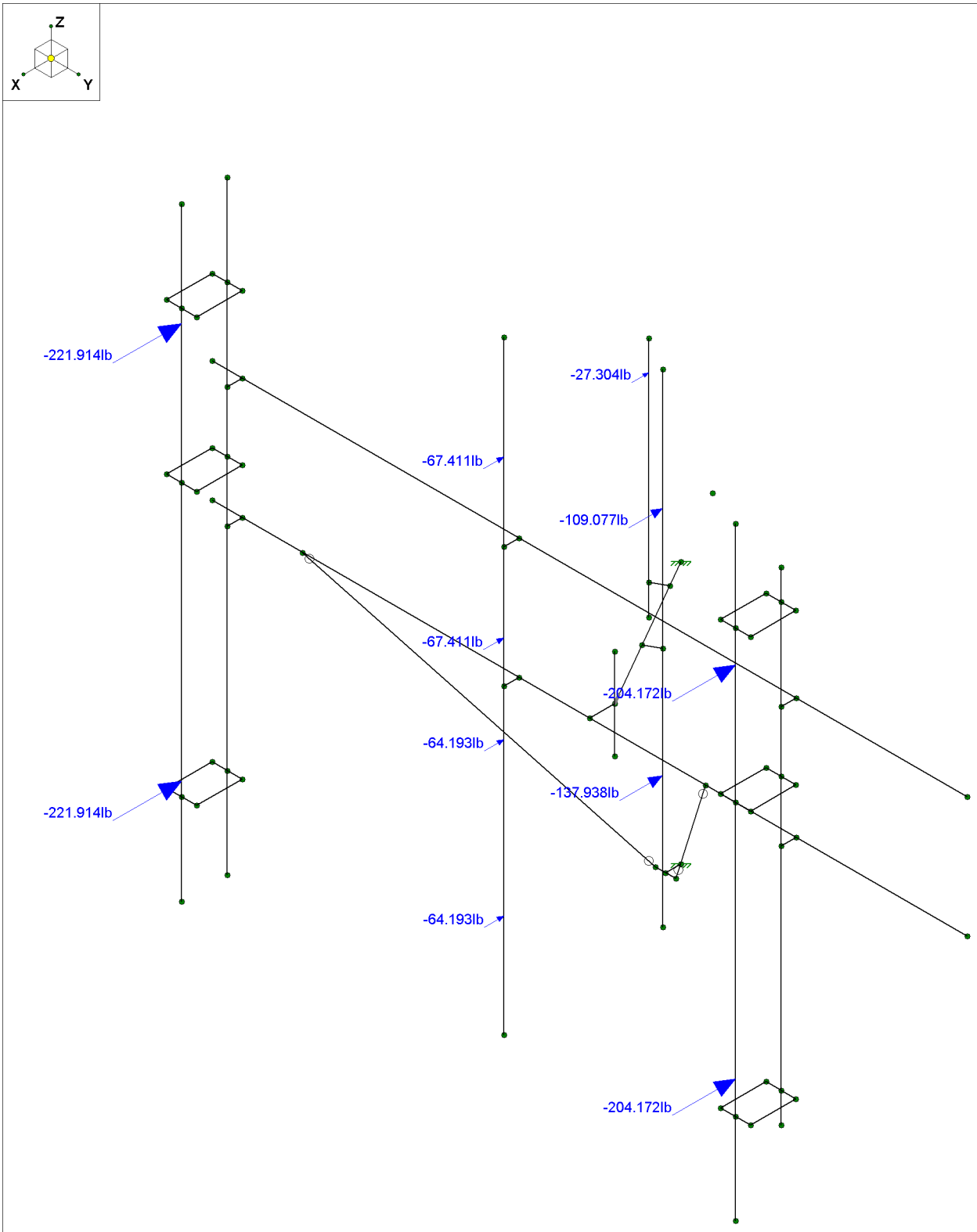

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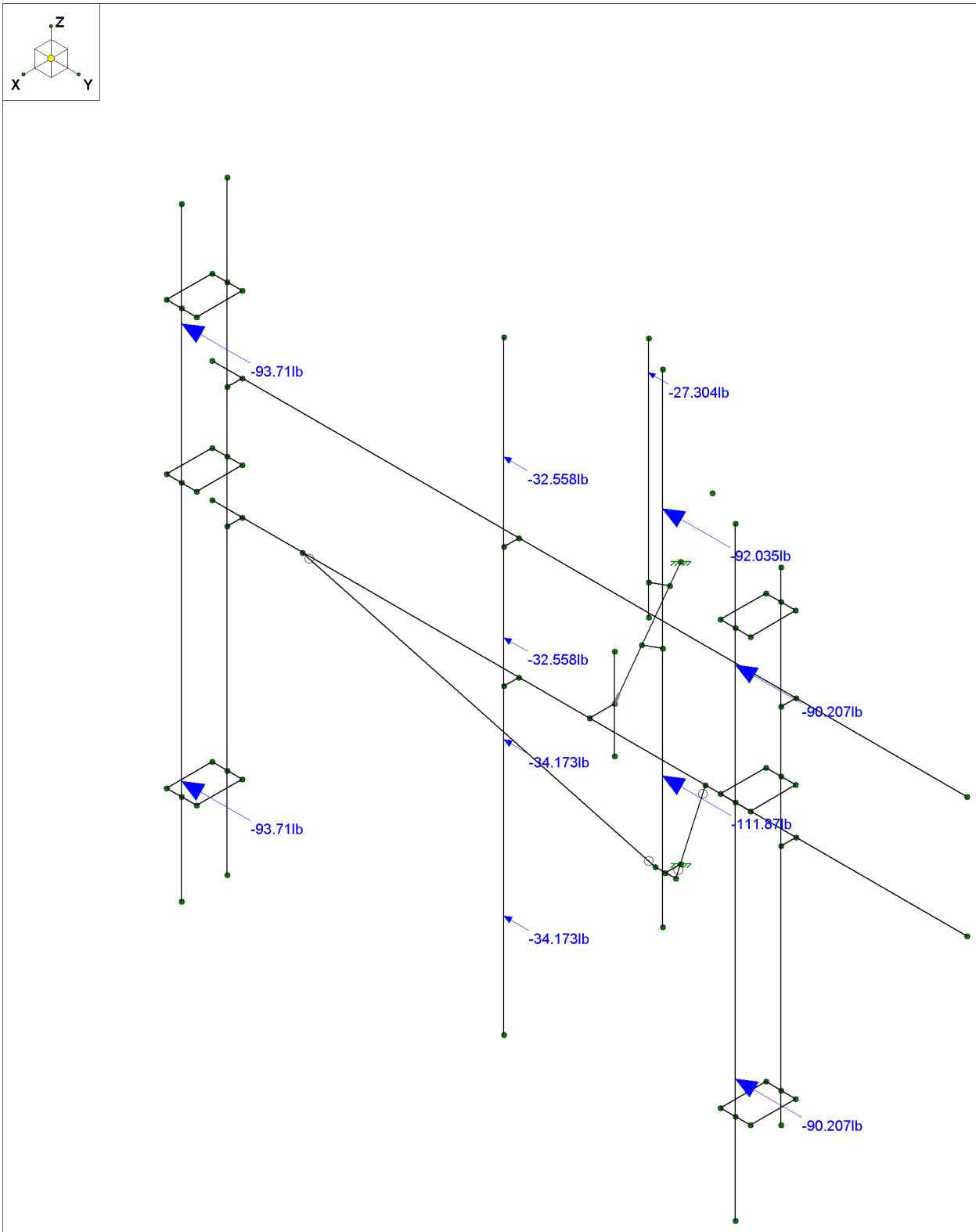

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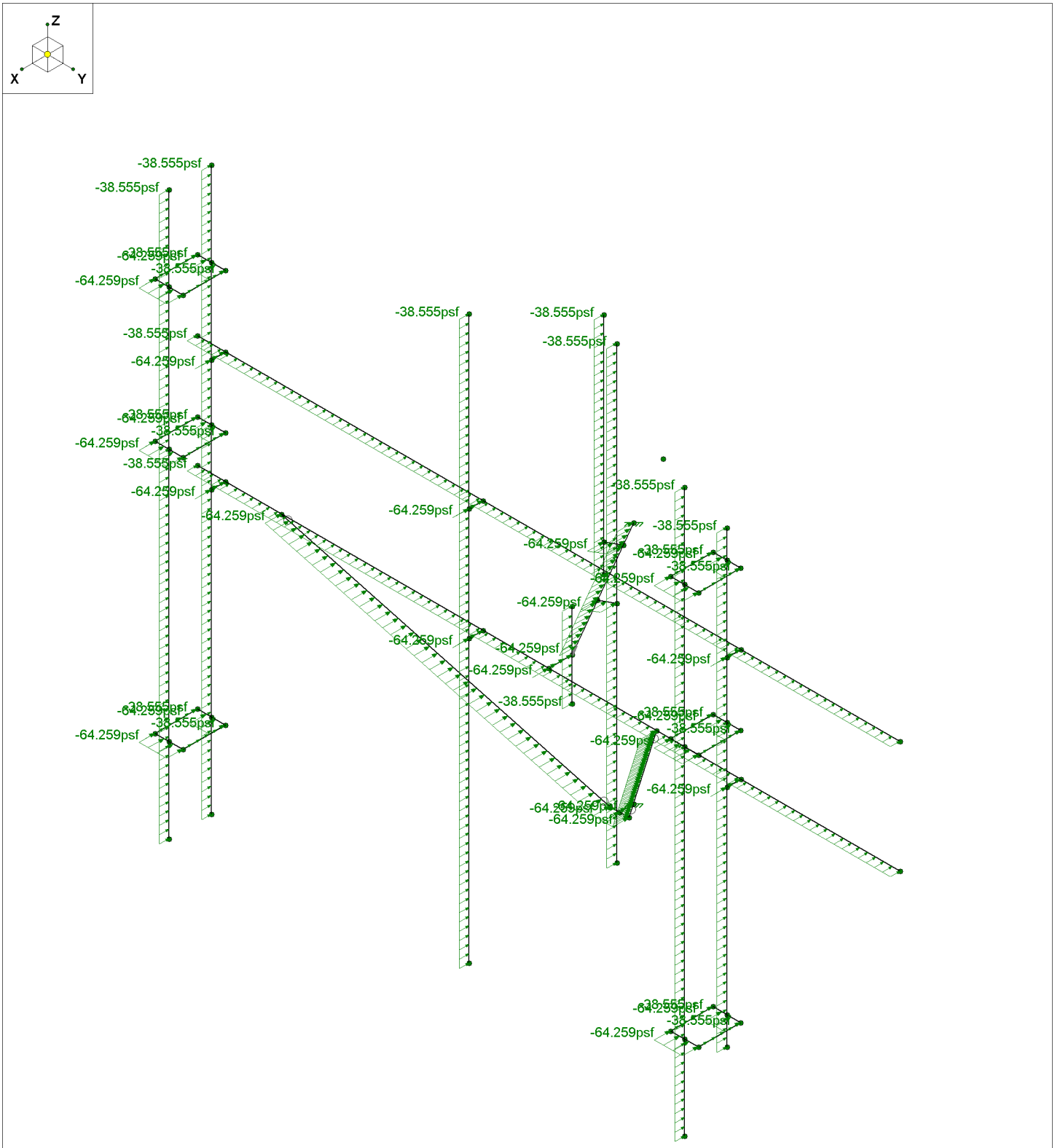
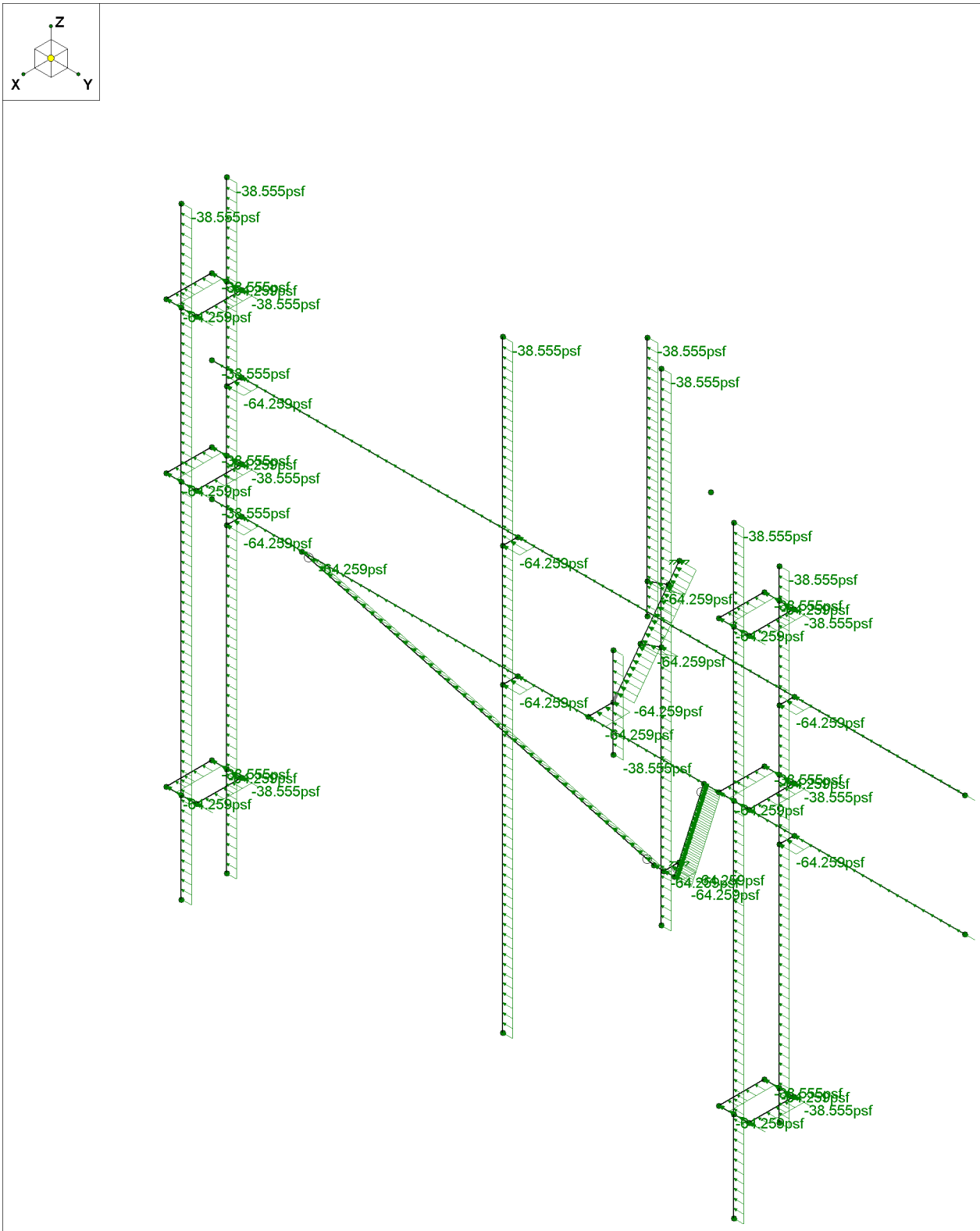


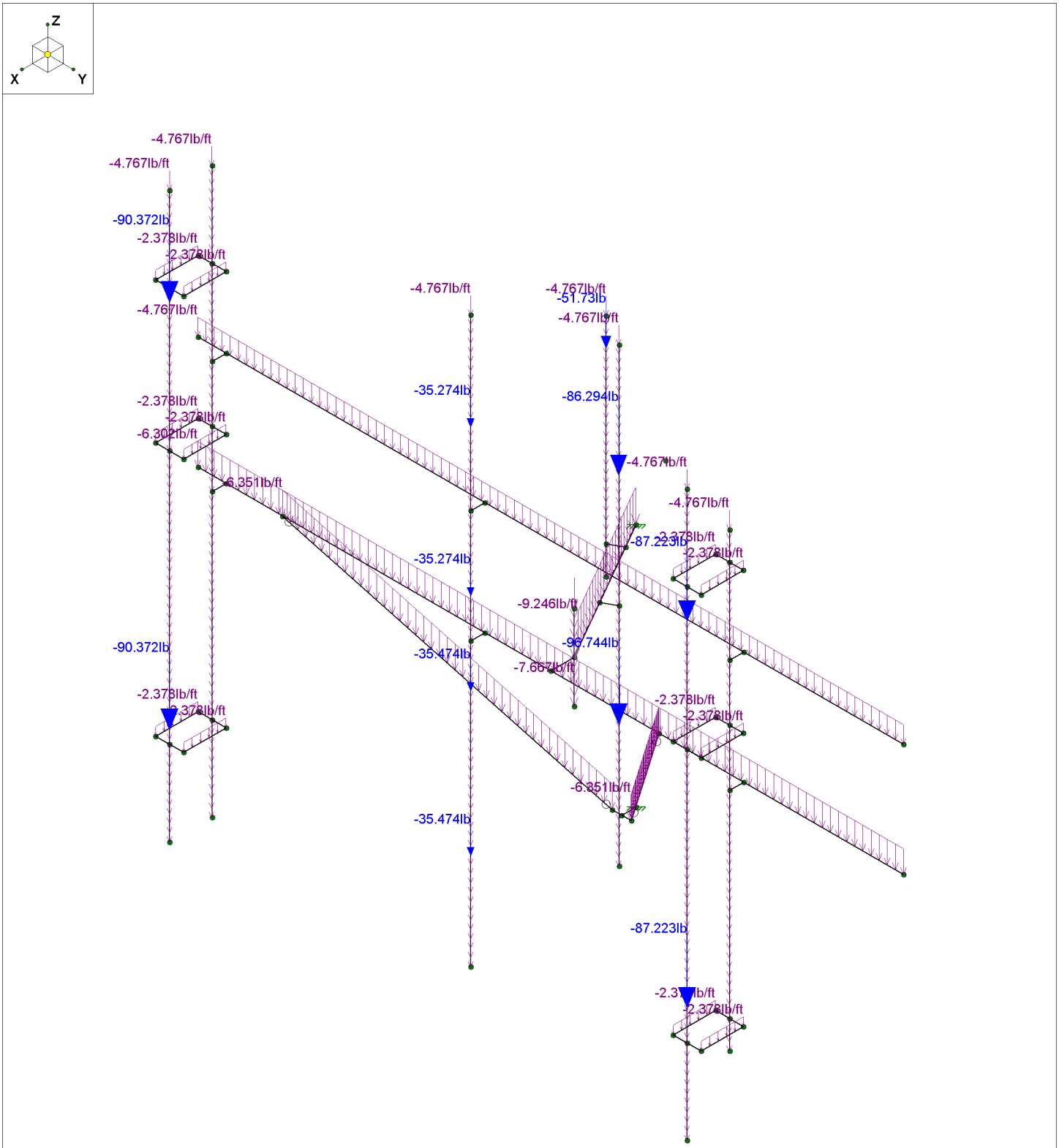
Loads: BLC 2, Structure Wind X
Envelope Only Solution

Trylon	822765	SK - 10
AM		Apr 20, 2022 at 5:17 PM
207297		822765_loaded.r3d



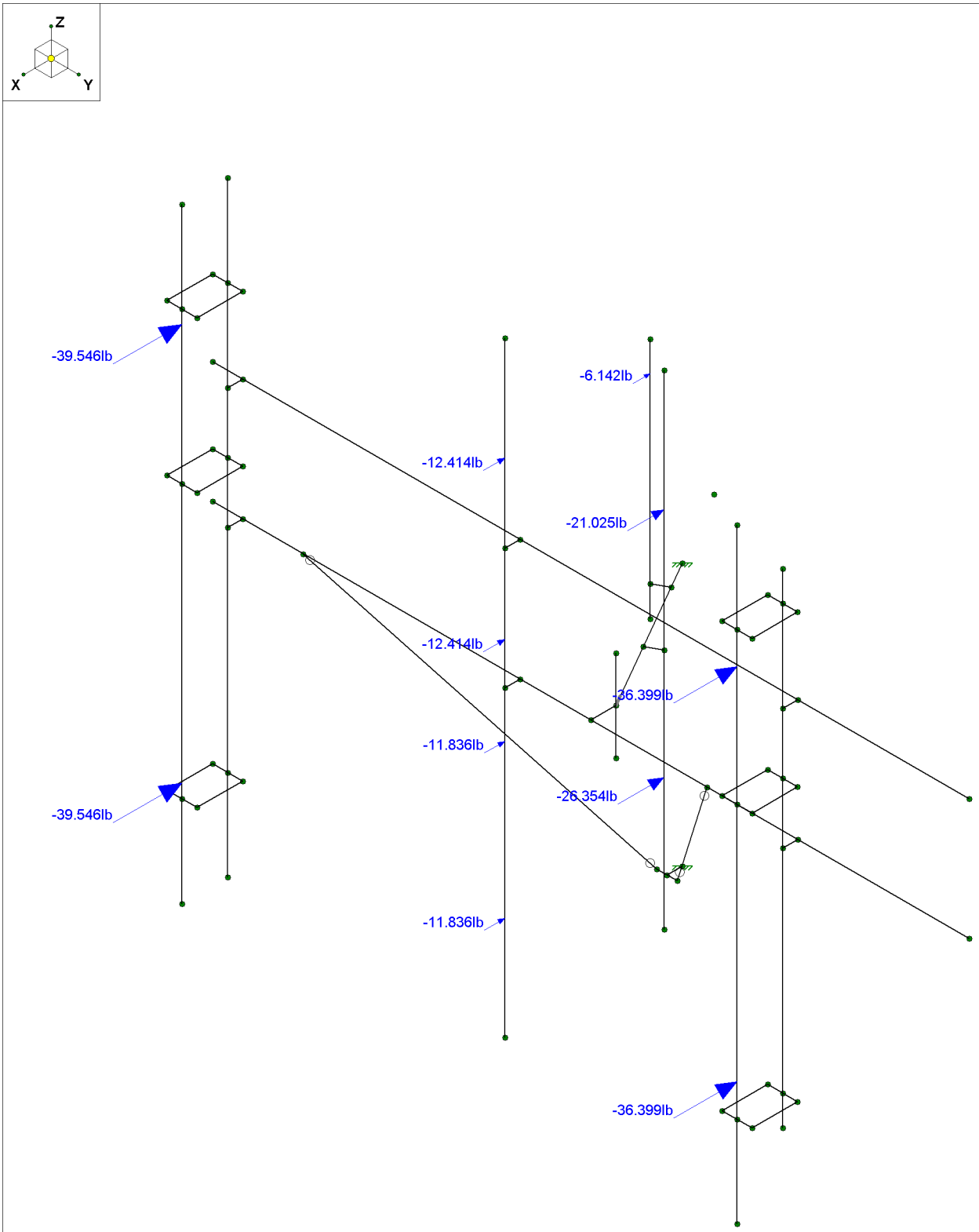
Loads: BLC 3, Structure Wind Y
Envelope Only Solution

Trylon	822765	SK - 11
AM		Apr 20, 2022 at 5:17 PM
207297		822765_loaded.r3d



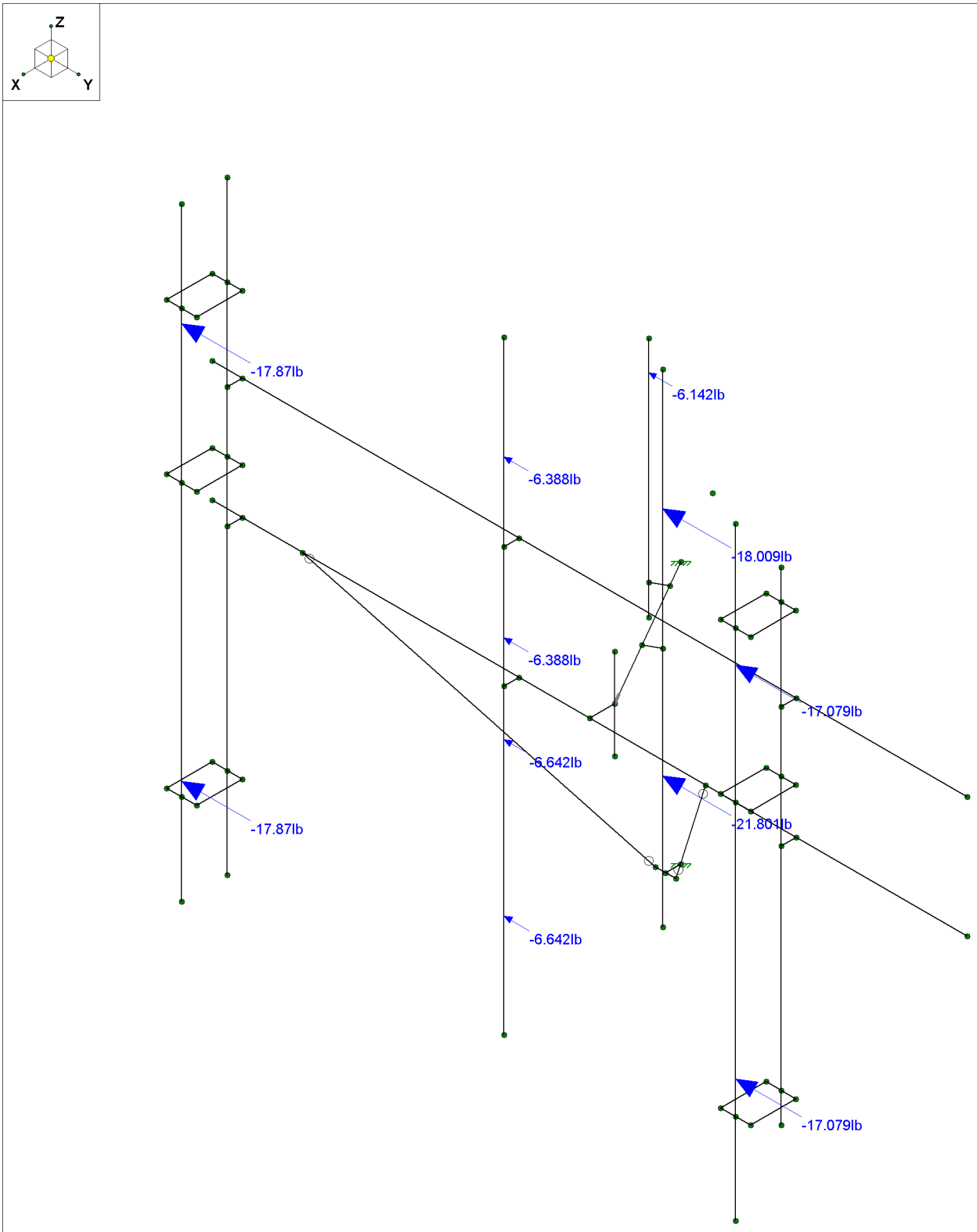
Loads: BLC 12, Ice Weight
Envelope Only Solution

Trylon	822765	SK - 12
AM		Apr 20, 2022 at 5:18 PM
207297		822765_loaded.r3d



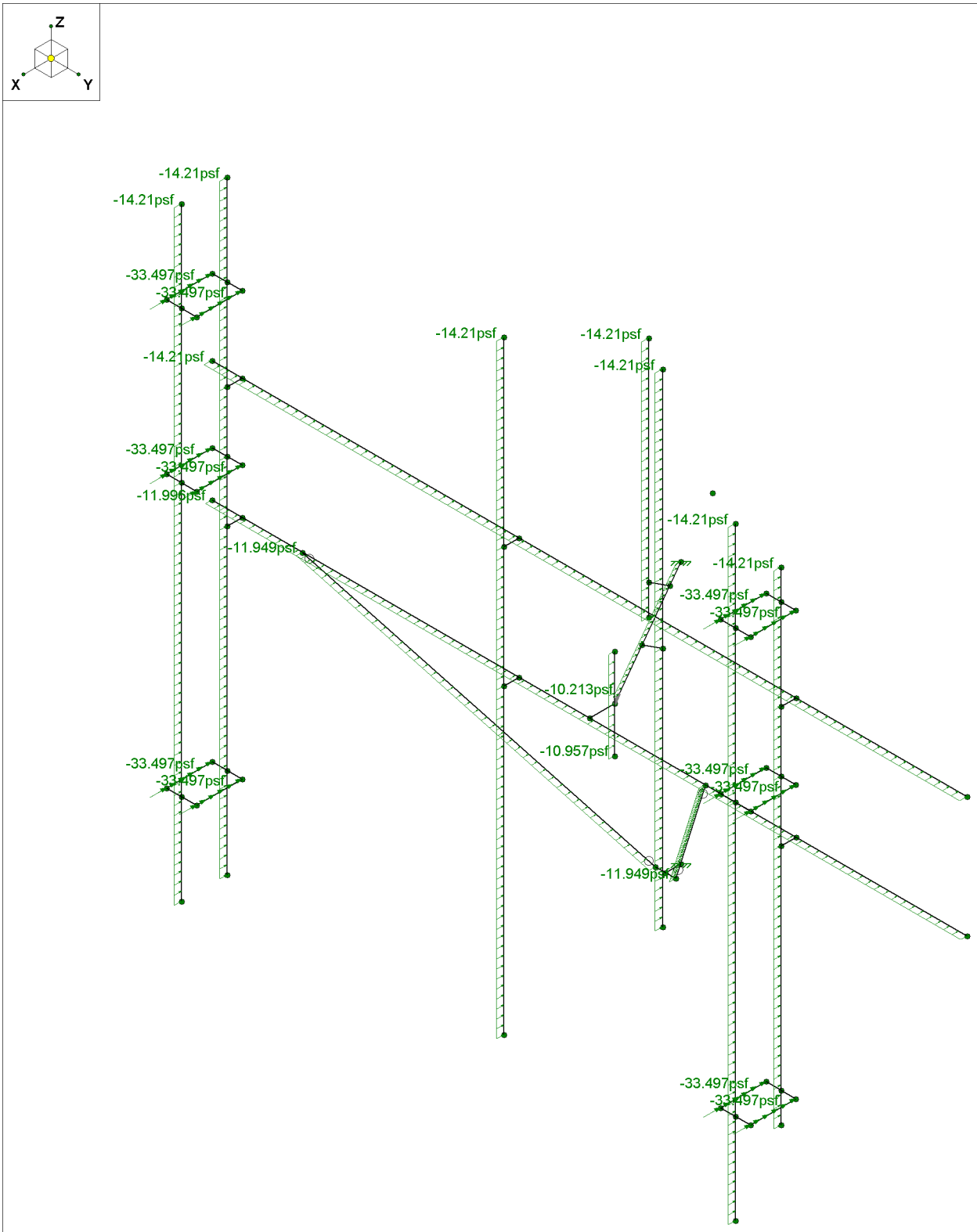
Loads: BLC 15, Ice Wind Load 0 AZI
Envelope Only Solution

Trylon	822765	SK - 13
AM		Apr 20, 2022 at 5:18 PM
207297		822765_loaded.r3d



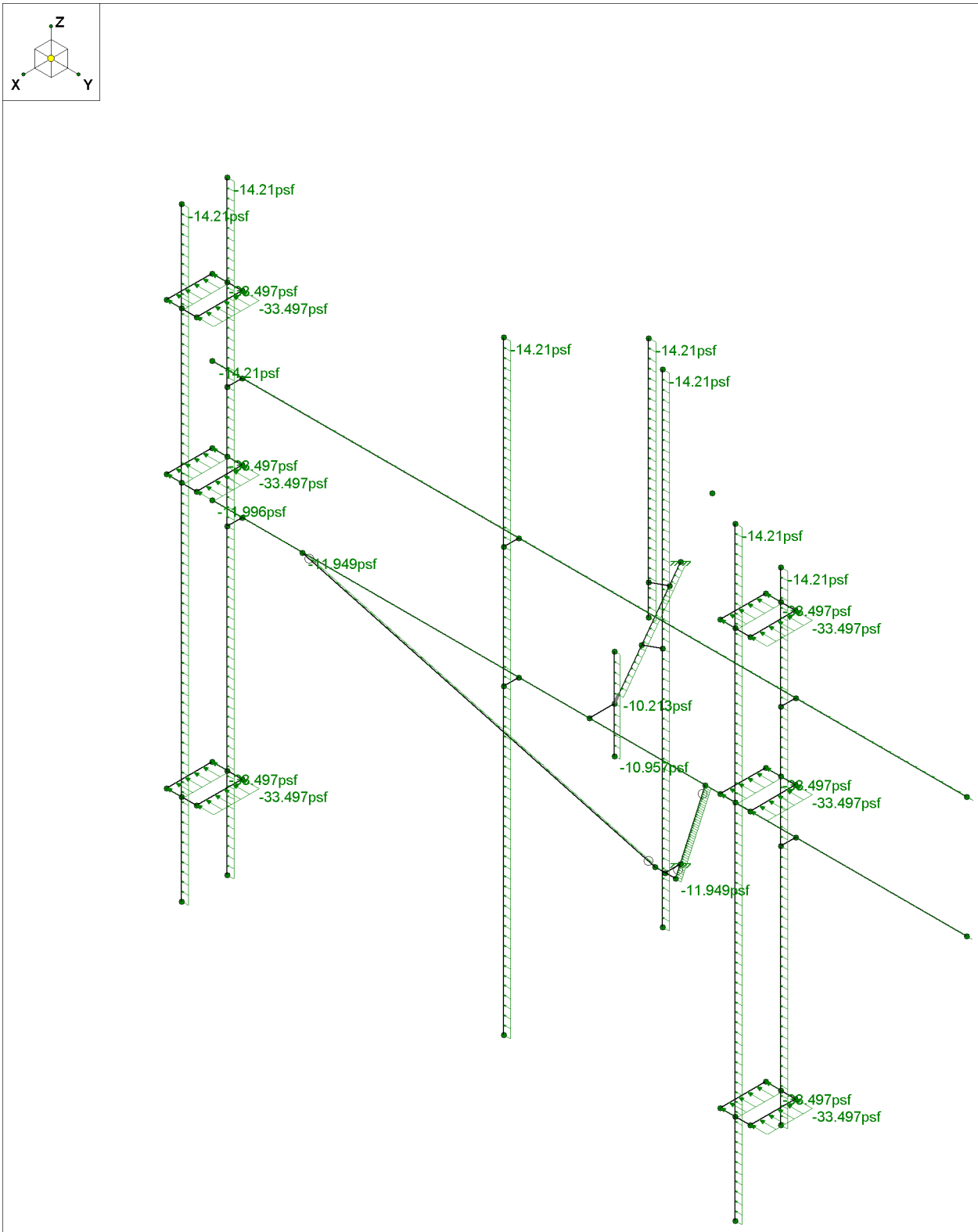
Loads: BLC 19, Ice Wind Load 90 AZI
Envelope Only Solution

Trylon	822765	SK - 14
AM		Apr 20, 2022 at 5:18 PM
207297		822765_loaded.r3d



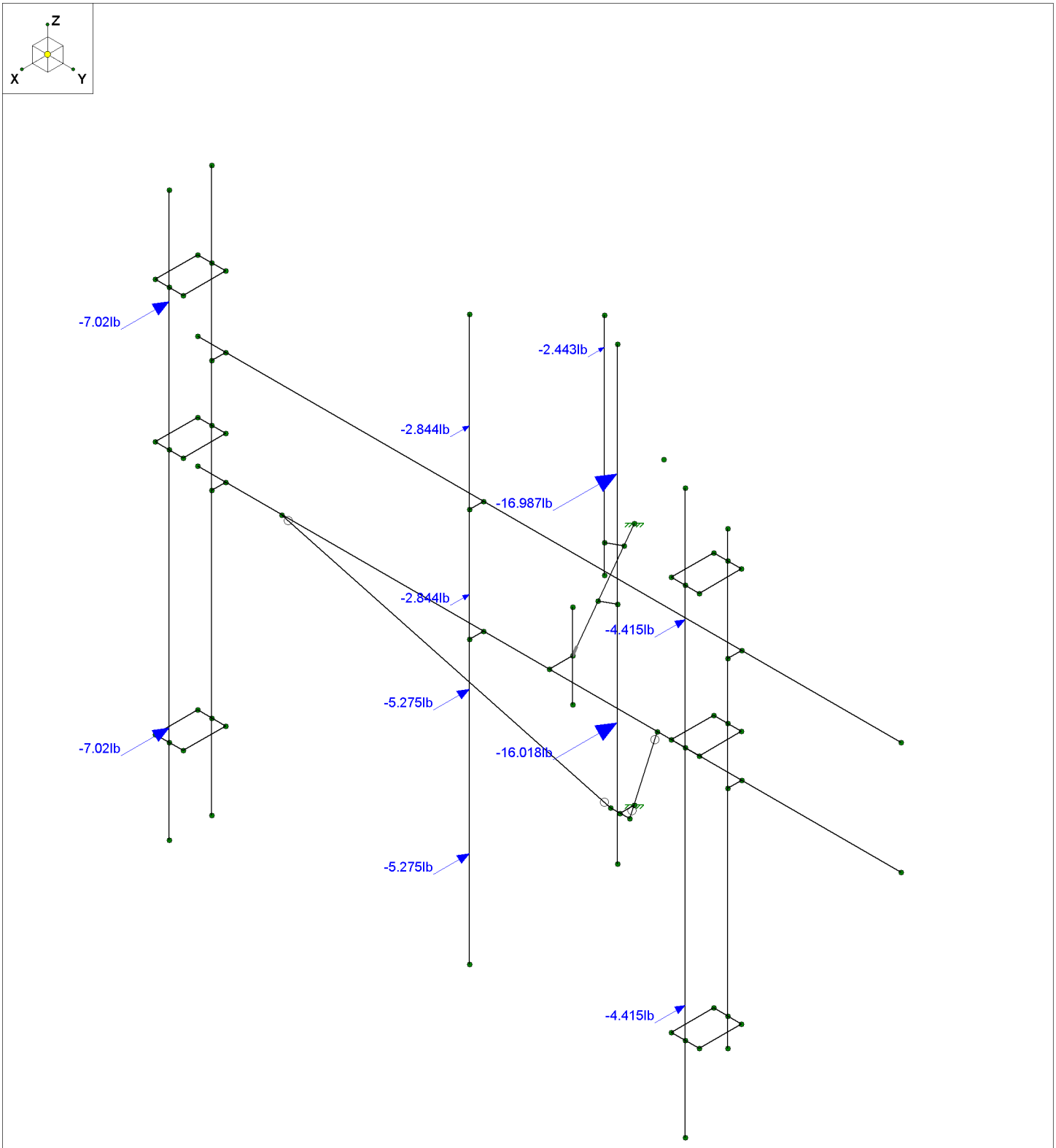
Loads: BLC 13, Ice Structure Wind X
Envelope Only Solution

Trylon	822765	SK - 15
AM		Apr 20, 2022 at 5:18 PM
207297		822765_loaded.r3d



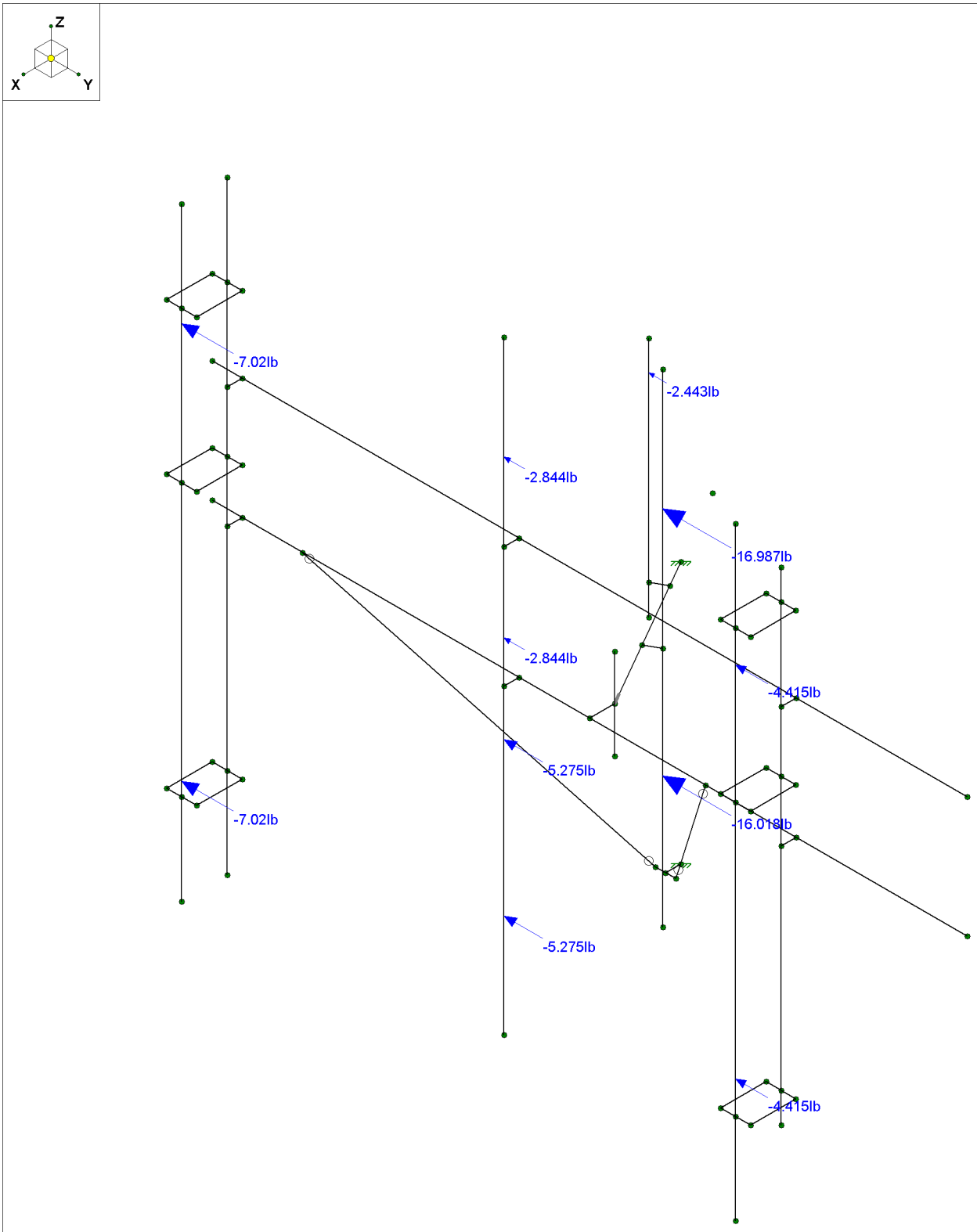
Loads: BLC 14, Ice Structure Wind Y
Envelope Only Solution

Trylon	822765	SK - 16
AM		Apr 20, 2022 at 5:18 PM
207297		822765_loaded.r3d



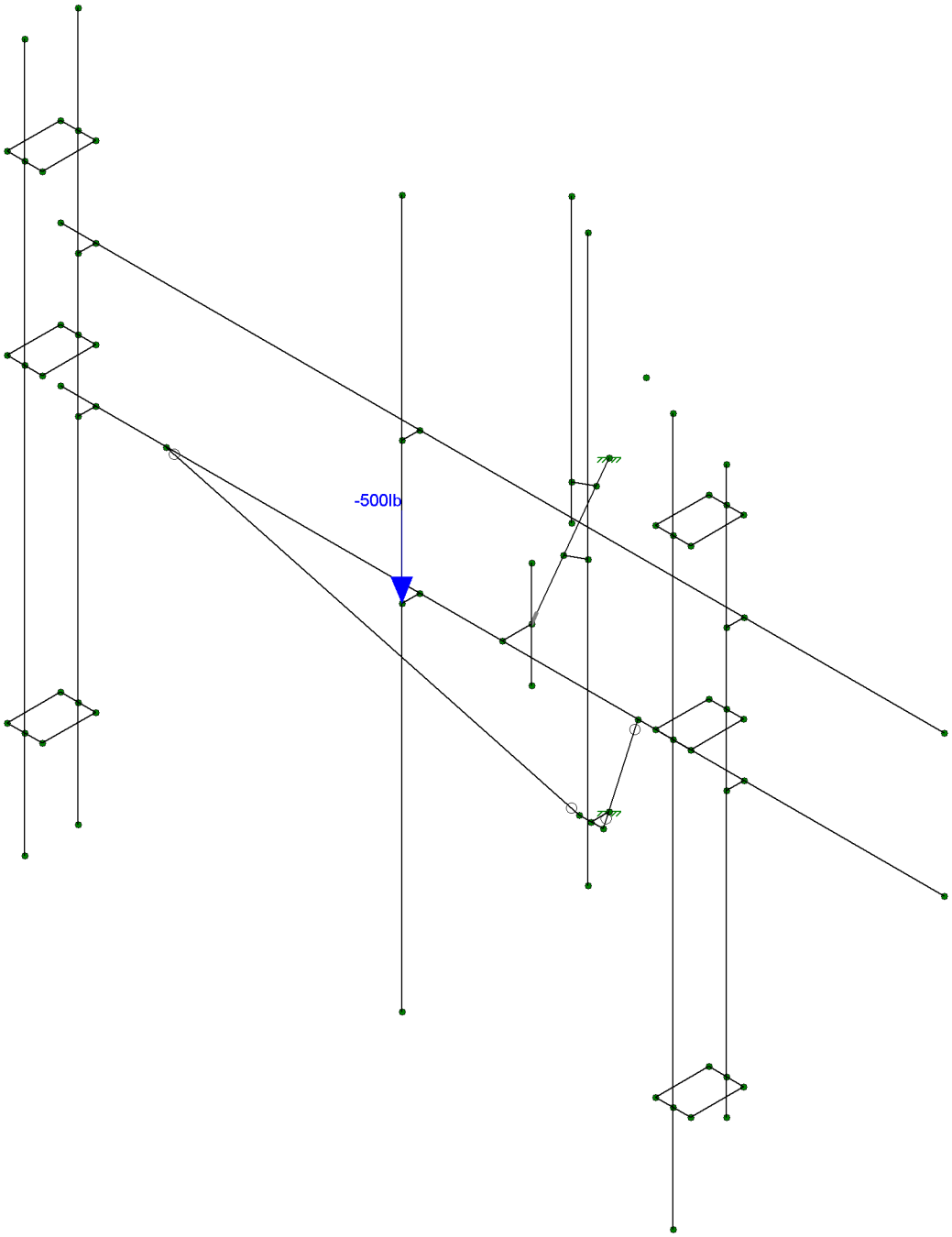
Loads: BLC 23, Seismic Load X
Envelope Only Solution

Trylon	822765	SK - 17
AM		Apr 20, 2022 at 5:19 PM
207297		822765_loaded.r3d



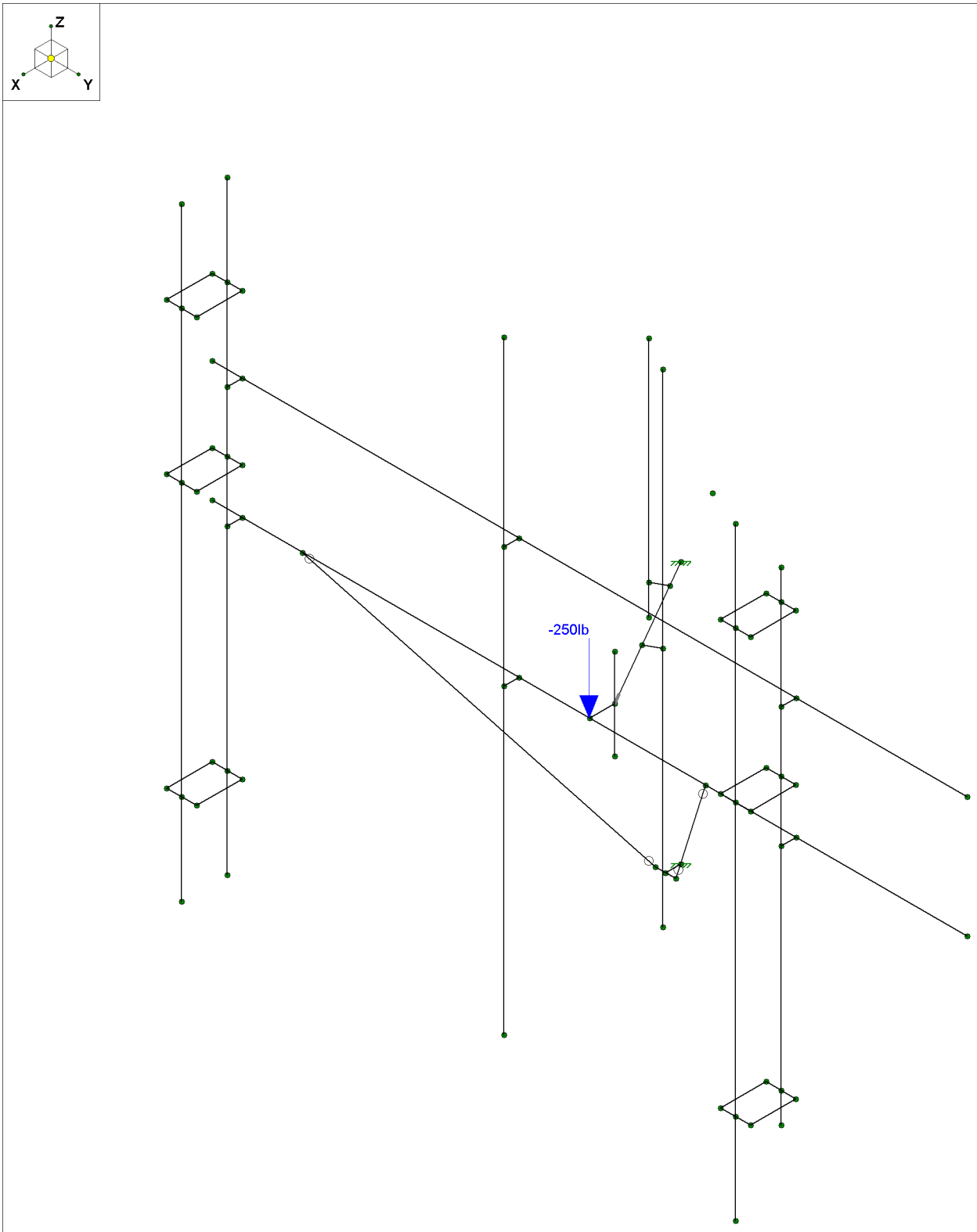
Loads: BLC 24, Seismic Load Y
Envelope Only Solution

Trylon	822765	SK - 18
AM		Apr 20, 2022 at 5:19 PM
207297		822765_loaded.r3d



Loads: BLC 28, Maintenance Load 1 (Lm)
Envelope Only Solution

Trylon	822765	SK - 19
AM		Apr 20, 2022 at 5:19 PM
207297		822765_loaded.r3d



Loads: BLC 26, Live Load 2 (Lv)
Envelope Only Solution

Trylon	822765	SK - 20
AM		Apr 20, 2022 at 5:19 PM
207297		822765_loaded.r3d

APPENDIX B

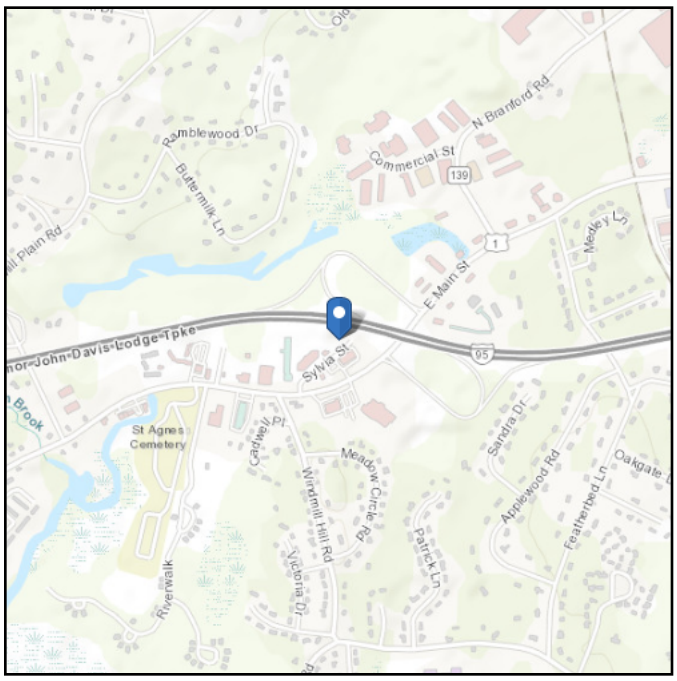
SOFTWARE INPUT CALCULATIONS

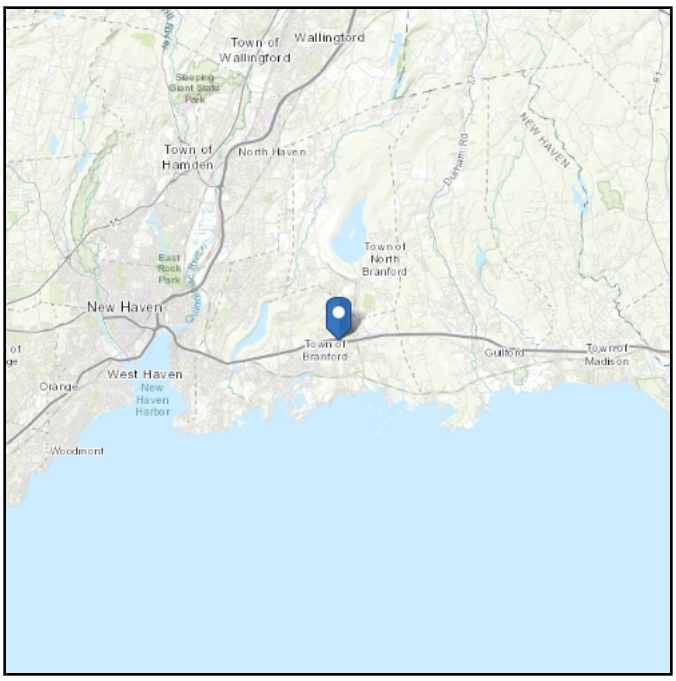
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 56.16 ft (NAVD 88)
Latitude: 41.293933
Longitude: -72.785706





Wind

Results:

Wind Speed	122 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Wed Apr 13 2022

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

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

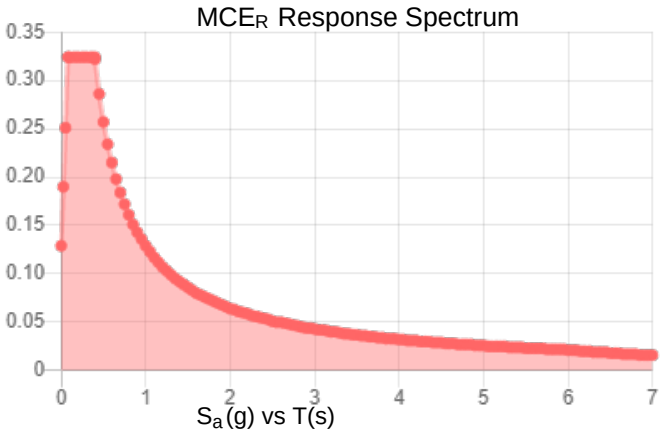
Seismic

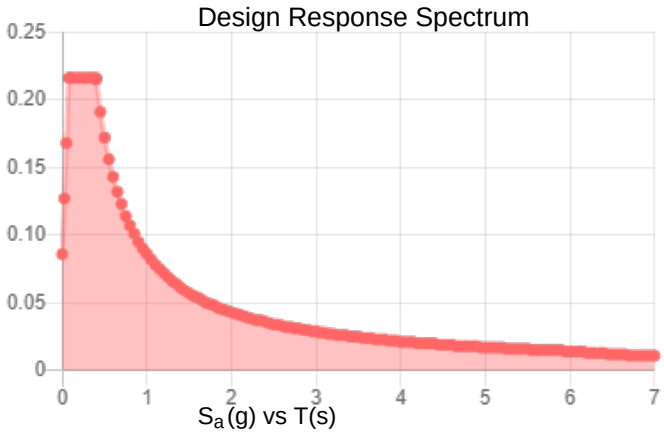
Site Soil Class: D - Default (see Section 11.4.3)

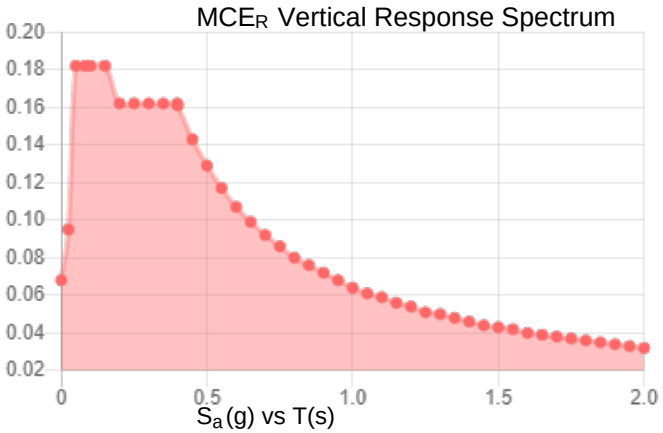
Results:

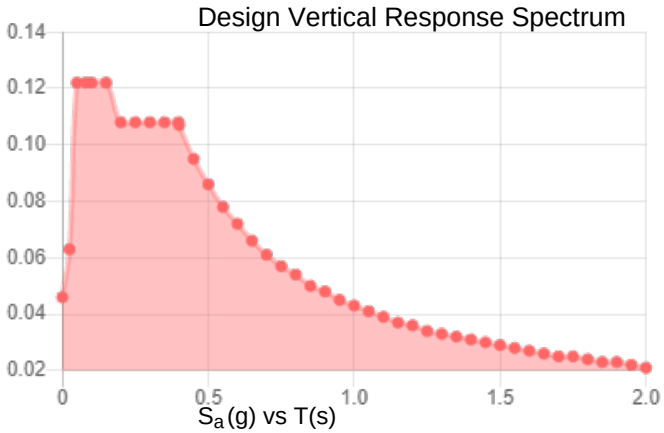
S_S :	0.202	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.324	F_{PGA} :	1.574
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.216	C_v :	0.704

Seismic Design Category B









Data Accessed: **Wed Apr 13 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Apr 13 2022

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

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

Trylon
1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	207297
Carrier Site ID:	CT5199
Carrier Site Name:	Branford East

CODES AND STANDARDS	
Building Code:	2018 IBC
Local Building Code:	-
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	T-Arm	--
Mount Elevation:	100.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	125.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	56.16	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	122	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	0.99	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	35.70	psf
Ground Elevation Factor (K_e):	1.00	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	6.78	psf
Mount Ice Thickness (t_{iz}):	1.12	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	64.26	psf
Round Member Pressure:	38.56	psf
Ice Wind Pressure:	7.32	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.202	g
1 Second Accel (S_1):	0.054	g
Short Period Des. (S_{DS}):	0.22	g
1 Second Des. (S_{D1}):	0.09	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.11	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

Appurtenance Name	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
TPA65R-BU6DA-K	1	100	No Ice	12.71	5.62	68.30
--	--	--	w/ Ice	13.49	6.33	174.45
AIR 6419 B77G_CCIV3	1	102	No Ice	4.17	2.02	44.00
--	--	--	w/ Ice	4.57	2.35	70.55
AIR 6449 B77D_CCVI2	1	98	No Ice	4.02	2.14	81.60
--	--	--	w/ Ice	4.41	2.48	70.95
80010965	1	100	No Ice	13.81	5.83	108.60
--	--	--	w/ Ice	14.66	6.62	180.74
RRUS 4478 B14_CCIV2	1	100	No Ice	2.02	1.25	59.40
--	--	--	w/ Ice	2.29	1.48	43.20
RRUS 8843 B2/B66A	1	100	No Ice	1.64	1.35	72.00
--	--	--	w/ Ice	1.88	1.58	43.09
RRUS 4449 B5/B12	1	100	No Ice	1.97	1.41	71.00
--	--	--	w/ Ice	2.24	1.65	45.27
RRUS 32 B30	1	100	No Ice	2.73	1.67	52.90
--	--	--	w/ Ice	3.07	1.97	51.48
DC6-48-60-18-8F	1	100	No Ice	0.85	0.85	18.90
--	--	--	w/ Ice	1.14	1.14	51.73
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name	Qty.	Elevation [ft]	--	EPA_N (ft2)	EPA_T (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
TPA65R-BU6DA-K	1	100	1.00	0.99	0.95	1.12	35.70	6.00
AIR 6419 B77G_CCIV3	1	102	1.00	0.99	0.95	1.12	35.90	6.03
AIR 6449 B77D_CCVI2	1	98	1.00	0.98	0.95	1.11	35.49	5.96
80010965	1	100	1.00	0.99	0.95	1.12	35.70	6.00
RRUS 4478 B14_CCIV2	1	100	1.00	0.99	0.95	1.12	35.70	6.00
RRUS 8843 B2/B66A	1	100	1.00	0.99	0.95	1.12	35.70	6.00
RRUS 4449 B5/B12	1	100	1.00	0.99	0.95	1.12	35.70	6.00
RRUS 32 B30	1	100	1.00	0.99	0.95	1.12	35.70	6.00
DC6-48-60-18-8F	1	100	1.00	0.99	0.95	1.12	35.70	6.00

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
TPA65R-BU6DA-K	1	No Ice	408.34	237.40	351.36	180.41	351.36	237.40
--	--	w/ Ice	72.80	43.82	63.14	34.16	63.14	43.82
AIR 6419 B77G_CCIV3	1	No Ice	134.82	82.54	117.40	65.12	117.40	82.54
--	--	w/ Ice	24.83	15.79	21.82	12.78	21.82	15.79
AIR 6449 B77D_CCVI2	1	No Ice	128.39	83.36	113.38	68.35	113.38	83.36
--	--	w/ Ice	23.67	15.88	21.08	13.28	21.08	15.88
80010965	1	No Ice	443.83	251.52	379.73	187.42	379.73	251.52
--	--	w/ Ice	79.09	46.58	68.25	35.74	68.25	46.58
RRUS 4478 B14_CCIV2	1	No Ice	64.94	46.26	58.71	40.03	58.71	46.26
--	--	w/ Ice	12.37	9.08	11.27	7.98	11.27	9.08
RRUS 8843 B2/B66A	1	No Ice	52.66	45.78	50.37	43.48	50.37	45.78
--	--	w/ Ice	10.16	8.93	9.75	8.52	9.75	8.93
RRUS 4449 B5/B12	1	No Ice	63.21	49.74	58.72	45.24	58.72	49.74
--	--	w/ Ice	12.07	9.69	11.27	8.89	11.27	9.69
RRUS 32 B30	1	No Ice	87.76	62.14	79.22	53.59	79.22	62.14
--	--	w/ Ice	16.56	12.11	15.08	10.63	15.08	12.11
DC6-48-60-18-8F	1	No Ice	27.30	27.30	27.30	27.30	27.30	27.30
--	--	w/ Ice	6.14	6.14	6.14	6.14	6.14	6.14
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

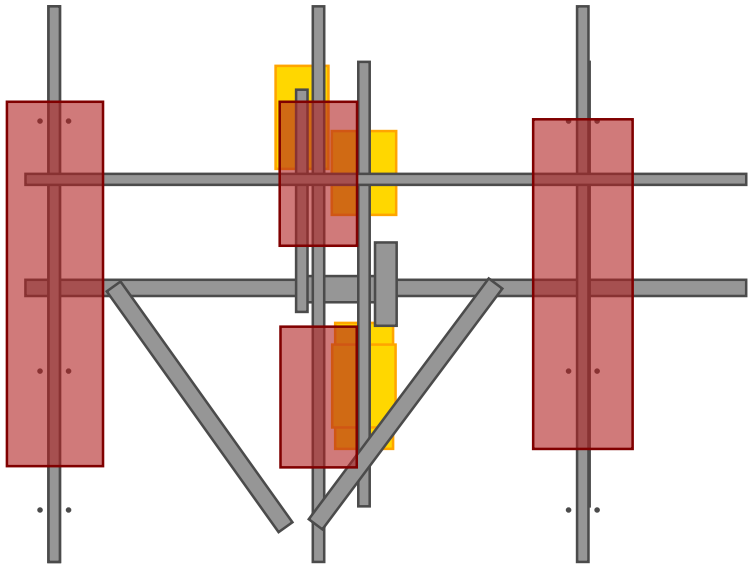
EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

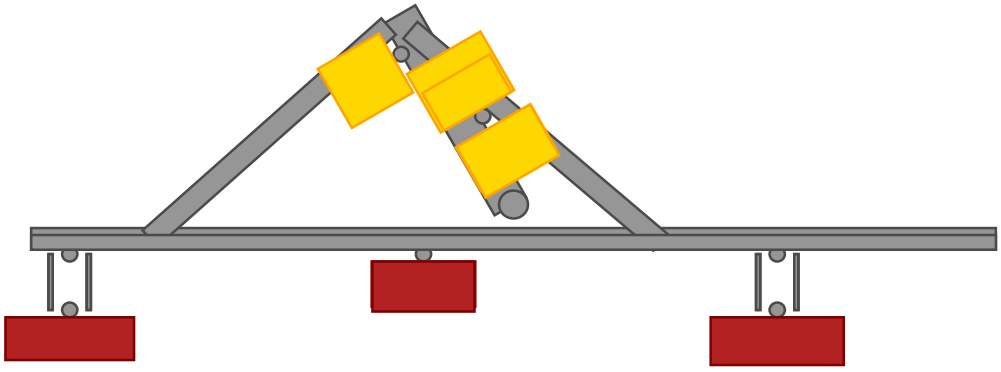
Appurtenance Name	*Qty.*	*Elevation [ft]*	*Weight [lbs]*	F_p [lbs]
TPA65R-BU6DA-K	1	100	68.3	8.83
AIR 6419 B77G_CCIV3	1	102	44	5.69
AIR 6449 B77D_CCVI2	1	98	81.6	10.55
80010965	1	100	108.6	14.04
RRUS 4478 B14_CCIV2	1	100	59.4	7.68
RRUS 8843 B2/B66A	1	100	72	9.31
RRUS 4449 B5/B12	1	100	71	9.18
RRUS 32 B30	1	100	52.9	6.84
DC6-48-60-18-8F	1	100	18.9	2.44

ELEVATION VIEW



MP4 MP3 MP2

PLAN VIEW



1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
TPA65R-BU6DA-K	1	100	MP2	0
AIR 6419 B77G_CCIV3	1	102	MP3	0
AIR 6449 B77D_CCVI2	1	98	MP3	0
80010965	1	100	MP4	0
RRUS 4478 B14_CCIV2	1	100	M10	150
RRUS 8843 B2/B66A	1	100	M10	330
RRUS 4449 B5/B12	1	100	M10	150
RRUS 32 B30	1	100	M10	330
DC6-48-60-18-8F	1	100	M8	240

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XY
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HSS4X4X4	HSS4X4X4	Beam	Tube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
2	PIPE_4.0	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
3	PIPE_2.0	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	PIPE 3.5"x0.168"	PIPE 3.5"x0.168"	Beam	Pipe	A53 Gr.B	Typical	1.759	2.447	2.447	4.893
5	SR 5/8	SR 5/8	Beam	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
6	L2.5x2.5x3	L2.5x2.5x3	Beam	Single ...	A36 Gr.36	Typical	.901	.535	.535	.011

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	.581	.057	4.41	.00063

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N13						
3	N13A						
4	N14						
5	N15						
6	N16						
7	N17						
8	N18						
9	N19						
10	CP						
11	N69	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N72						
13	N73						
14	N74						

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	H1	N1	N2			PIPE 3.5"x0.1...	Beam	Pipe	A53 Gr.B	Typical
2	M2	N4	N5			HSS4X4X4	Beam	Tube	A36 Gr.36	Typical
3	M3	N88A	N4			RIGID	None	None	RIGID	Typical
4	M4	N7	N6			PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical
5	M5	N9	N8			RIGID	None	None	RIGID	Typical
6	M30	N11	N10			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
7	M7	N13A	N13			RIGID	None	None	RIGID	Typical
8	M8	N15	N14			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
9	M9	N17	N16			RIGID	None	None	RIGID	Typical
10	M10	N19	N18			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
11	M11	N21	N20			RIGID	None	None	RIGID	Typical
12	M50	N23	N22			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
13	M13	N25	N3			RIGID	None	None	RIGID	Typical
14	MP3	N27	N26			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
15	M15	N31	N30			RIGID	None	None	RIGID	Typical
16	M16	N34	N33			RIGID	None	None	RIGID	Typical
17	M17	N31	N34			SR 5/8	Beam	BAR	A36 Gr.36	Typical
18	M18	N30	N33			SR 5/8	Beam	BAR	A36 Gr.36	Typical
19	M19	N37	N36			RIGID	None	None	RIGID	Typical
20	M20	N40	N39			RIGID	None	None	RIGID	Typical
21	M21	N37	N40			SR 5/8	Beam	BAR	A36 Gr.36	Typical
22	M22	N36	N39			SR 5/8	Beam	BAR	A36 Gr.36	Typical
23	M23	N43	N42			RIGID	None	None	RIGID	Typical
24	M24	N46	N45			RIGID	None	None	RIGID	Typical
25	M25	N43	N46			SR 5/8	Beam	BAR	A36 Gr.36	Typical
26	M26	N42	N45			SR 5/8	Beam	BAR	A36 Gr.36	Typical
27	MP2	N48	N47			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
28	M28	N51	N50			RIGID	None	None	RIGID	Typical
29	M29	N54	N53			RIGID	None	None	RIGID	Typical
30	M30A	N51	N54			SR 5/8	Beam	BAR	A36 Gr.36	Typical
31	M31	N50	N53			SR 5/8	Beam	BAR	A36 Gr.36	Typical
32	M32	N57	N56			RIGID	None	None	RIGID	Typical
33	M33	N60	N59			RIGID	None	None	RIGID	Typical
34	M34	N57	N60			SR 5/8	Beam	BAR	A36 Gr.36	Typical
35	M35	N56	N59			SR 5/8	Beam	BAR	A36 Gr.36	Typical
36	M36	N63	N62			RIGID	None	None	RIGID	Typical
37	M37	N66	N65			RIGID	None	None	RIGID	Typical
38	M38	N63	N66			SR 5/8	Beam	BAR	A36 Gr.36	Typical
39	M39	N62	N65			SR 5/8	Beam	BAR	A36 Gr.36	Typical
40	MP4	N68	N67			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
41	M41	N74	N73			RIGID	None	None	RIGID	Typical
42	M42	N69	N72			RIGID	None	None	RIGID	Typical
43	M43	N70	N74		90	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical
44	M44	N73	N71		90	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical
45	M45	N79	N78			RIGID	None	None	RIGID	Typical
46	M46	N81	N80			RIGID	None	None	RIGID	Typical
47	M47	N82	N77			RIGID	None	None	RIGID	Typical
48	M48	N75	N76			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	H1						Yes				None
2	M2			2.25			Yes				None
3	M3						Yes	** NA **			None
4	M4						Yes				None
5	M5						Yes	** NA **			None
6	M30						Yes	Default			None
7	M7						Yes	** NA **			None
8	M8						Yes				None
9	M9						Yes	** NA **			None
10	M10						Yes				None
11	M11						Yes	** NA **			None
12	M50						Yes	Default			None
13	M13						Yes	** NA **			None
14	MP3						Yes	Default			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes				None
26	M26						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
27	MP2						Yes	Default			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30A						Yes				None
31	M31						Yes				None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None
34	M34						Yes				None
35	M35						Yes				None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes				None
39	M39						Yes				None
40	MP4						Yes	Default			None
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43	BenPIN	BenPIN				Yes	Default			None
44	M44	BenPIN	BenPIN				Yes	Default			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	Default			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	H1	PIPE 3.5"x0...	150	57	57	Lbyy		57	1	1		Lateral
2	M2	HSS4X4X4	35.75	33.5	33.5	Lbyy		33.5	2.1	2.1		Lateral
3	M4	PIPE_4.0	18	Segment	Segment	Lbyy		Segme...	1	1		Lateral
4	M30	PIPE_2.0	96	48	48	Lbyy		48	2.1	2.1		Lateral
5	M8	PIPE_2.0	48	42	42	Lbyy		42	2.1	2.1		Lateral
6	M10	PIPE_2.0	96	48	48	Lbyy		48	2.1	2.1		Lateral
7	M50	PIPE_2.0	120	60	60	Lbyy		60	2.1	2.1		Lateral
8	MP3	PIPE_2.0	120	60	60	Lbyy		60	2.1	2.1		Lateral
9	M17	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
10	M18	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
11	M21	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
12	M22	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
13	M25	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
14	M26	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
15	MP2	PIPE_2.0	120	120	120	Lbyy		120	1	1		Lateral
16	M30A	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
17	M31	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
18	M34	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
19	M35	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
20	M38	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
21	M39	SR 5/8	9	Segment	Segment	Lbyy		Segme...	1	1		Lateral
22	MP4	PIPE_2.0	120	120	120	Lbyy		120	1	1		Lateral
23	M43	L2.5x2.5x3	71.893	Segment	Segment	Lbyy		Segme...	1	1		Lateral
24	M44	L2.5x2.5x3	72.812	Segment	Segment	Lbyy		Segme...	1	1		Lateral
25	M48	PIPE_2.0	150	150	150	Lbyy		150	1	1		Lateral

Cold Formed Steel Design Parameters

Label	Shape	Length...	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo...	L-torque[in]	Kyy	Kzz	Cb	R	a[in]	Funct...
No Data to Print ...													

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^...
No Data to Print ...			

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-34.15	24.4
2	MP2	Z	-34.15	95.6
3	MP3	Z	-22	20.6
4	MP3	Z	-22	51.7
5	MP3	Z	-40.8	69.2
6	MP3	Z	-40.8	99.59
7	MP4	Z	-54.3	20.65
8	MP4	Z	-54.3	99.35
9	M10	Z	-59.4	24
10	M10	Z	-72	24
11	M10	Z	-71	70
12	M10	Z	-52.9	70
13	M8	Z	-18.9	6

Member Point Loads (BLC 4 : Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-204.172	24.4
2	MP2	X	-204.172	95.6
3	MP3	X	-67.411	20.6
4	MP3	X	-67.411	51.7
5	MP3	X	-64.193	69.2
6	MP3	X	-64.193	99.59
7	MP4	X	-221.914	20.65
8	MP4	X	-221.914	99.35
9	M10	X	-58.711	24
10	M10	X	-50.366	24
11	M10	X	-58.722	70
12	M10	X	-79.216	70
13	M8	X	-27.304	6
14	MP2	Y	0	24.4
15	MP2	Y	0	95.6
16	MP3	Y	0	20.6
17	MP3	Y	0	51.7
18	MP3	Y	0	69.2
19	MP3	Y	0	99.59
20	MP4	Y	0	20.65
21	MP4	Y	0	99.35
22	M10	Y	0	24
23	M10	Y	0	24

Member Point Loads (BLC 4 : Wind Load 0 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
24	M10	Y	0	70
25	M10	Y	0	70
26	M8	Y	0	6

Member Point Loads (BLC 5 : Wind Load 30 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-152.144	24.4
2	MP2	X	-152.144	95.6
3	MP3	X	-50.834	20.6
4	MP3	X	-50.834	51.7
5	MP3	X	-49.094	69.2
6	MP3	X	-49.094	99.59
7	MP4	X	-164.426	20.65
8	MP4	X	-164.426	99.35
9	M10	X	-56.239	24
10	M10	X	-45.605	24
11	M10	X	-54.746	70
12	M10	X	-75.999	70
13	M8	X	-23.646	6
14	MP2	Y	-87.841	24.4
15	MP2	Y	-87.841	95.6
16	MP3	Y	-29.349	20.6
17	MP3	Y	-29.349	51.7
18	MP3	Y	-28.344	69.2
19	MP3	Y	-28.344	99.59
20	MP4	Y	-94.931	20.65
21	MP4	Y	-94.931	99.35
22	M10	Y	-32.469	24
23	M10	Y	-26.33	24
24	M10	Y	-31.607	70
25	M10	Y	-43.878	70
26	M8	Y	-13.652	6

Member Point Loads (BLC 6 : Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-104.079	24.4
2	MP2	X	-104.079	95.6
3	MP3	X	-35.345	20.6
4	MP3	X	-35.345	51.7
5	MP3	X	-34.778	69.2
6	MP3	X	-34.778	99.59
7	MP4	X	-111.59	20.65
8	MP4	X	-111.59	99.35
9	M10	X	-44.739	24
10	M10	X	-36.802	24
11	M10	X	-43.848	70
12	M10	X	-60.435	70
13	M8	X	-19.307	6
14	MP2	Y	-104.079	24.4
15	MP2	Y	-104.079	95.6
16	MP3	Y	-35.345	20.6

Member Point Loads (BLC 6 : Wind Load 45 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
17	MP3	Y	-35.345	51.7
18	MP3	Y	-34.778	69.2
19	MP3	Y	-34.778	99.59
20	MP4	Y	-111.59	20.65
21	MP4	Y	-111.59	99.35
22	M10	Y	-44.739	24
23	M10	Y	-36.802	24
24	M10	Y	-43.848	70
25	M10	Y	-60.435	70
26	M8	Y	-19.307	6

Member Point Loads (BLC 7 : Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-59.349	24.4
2	MP2	X	-59.349	95.6
3	MP3	X	-20.636	20.6
4	MP3	X	-20.636	51.7
5	MP3	X	-20.839	69.2
6	MP3	X	-20.839	99.59
7	MP4	X	-62.88	20.65
8	MP4	X	-62.88	99.35
9	M10	X	-29.356	24
10	M10	X	-25.183	24
11	M10	X	-29.361	70
12	M10	X	-39.608	70
13	M8	X	-13.652	6
14	MP2	Y	-102.796	24.4
15	MP2	Y	-102.796	95.6
16	MP3	Y	-35.742	20.6
17	MP3	Y	-35.742	51.7
18	MP3	Y	-36.094	69.2
19	MP3	Y	-36.094	99.59
20	MP4	Y	-108.912	20.65
21	MP4	Y	-108.912	99.35
22	M10	Y	-50.846	24
23	M10	Y	-43.618	24
24	M10	Y	-50.854	70
25	M10	Y	-68.603	70
26	M8	Y	-23.646	6

Member Point Loads (BLC 8 : Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	24.4
2	MP2	X	0	95.6
3	MP3	X	0	20.6
4	MP3	X	0	51.7
5	MP3	X	0	69.2
6	MP3	X	0	99.59
7	MP4	X	0	20.65
8	MP4	X	0	99.35
9	M10	X	0	24

Member Point Loads (BLC 8 : Wind Load 90 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
10	M10	X	0	24
11	M10	X	0	70
12	M10	X	0	70
13	M8	X	0	6
14	MP2	Y	-90.207	24.4
15	MP2	Y	-90.207	95.6
16	MP3	Y	-32.558	20.6
17	MP3	Y	-32.558	51.7
18	MP3	Y	-34.173	69.2
19	MP3	Y	-34.173	99.59
20	MP4	Y	-93.71	20.65
21	MP4	Y	-93.71	99.35
22	M10	Y	-46.257	24
23	M10	Y	-45.778	24
24	M10	Y	-49.735	70
25	M10	Y	-62.135	70
26	M8	Y	-27.304	6

Member Point Loads (BLC 9 : Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	59.349	24.4
2	MP2	X	59.349	95.6
3	MP3	X	20.636	20.6
4	MP3	X	20.636	51.7
5	MP3	X	20.839	69.2
6	MP3	X	20.839	99.59
7	MP4	X	62.88	20.65
8	MP4	X	62.88	99.35
9	M10	X	20.015	24
10	M10	X	21.742	24
11	M10	X	22.621	70
12	M10	X	26.797	70
13	M8	X	13.652	6
14	MP2	Y	-102.796	24.4
15	MP2	Y	-102.796	95.6
16	MP3	Y	-35.742	20.6
17	MP3	Y	-35.742	51.7
18	MP3	Y	-36.094	69.2
19	MP3	Y	-36.094	99.59
20	MP4	Y	-108.912	20.65
21	MP4	Y	-108.912	99.35
22	M10	Y	-34.666	24
23	M10	Y	-37.659	24
24	M10	Y	-39.181	70
25	M10	Y	-46.415	70
26	M8	Y	-23.646	6

Member Point Loads (BLC 10 : Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	104.079	24.4
2	MP2	X	104.079	95.6

Member Point Loads (BLC 10 : Wind Load 135 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP3	X	35.345	20.6
4	MP3	X	35.345	51.7
5	MP3	X	34.778	69.2
6	MP3	X	34.778	99.59
7	MP4	X	111.59	20.65
8	MP4	X	111.59	99.35
9	M10	X	29.485	24
10	M10	X	31.183	24
11	M10	X	32.842	70
12	M10	X	39.515	70
13	M8	X	19.307	6
14	MP2	Y	-104.079	24.4
15	MP2	Y	-104.079	95.6
16	MP3	Y	-35.345	20.6
17	MP3	Y	-35.345	51.7
18	MP3	Y	-34.778	69.2
19	MP3	Y	-34.778	99.59
20	MP4	Y	-111.59	20.65
21	MP4	Y	-111.59	99.35
22	M10	Y	-29.485	24
23	M10	Y	-31.183	24
24	M10	Y	-32.842	70
25	M10	Y	-39.515	70
26	M8	Y	-19.307	6

Member Point Loads (BLC 11 : Wind Load 150 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	152.144	24.4
2	MP2	X	152.144	95.6
3	MP3	X	50.834	20.6
4	MP3	X	50.834	51.7
5	MP3	X	49.094	69.2
6	MP3	X	49.094	99.59
7	MP4	X	164.426	20.65
8	MP4	X	164.426	99.35
9	M10	X	40.059	24
10	M10	X	39.645	24
11	M10	X	43.072	70
12	M10	X	53.811	70
13	M8	X	23.646	6
14	MP2	Y	-87.841	24.4
15	MP2	Y	-87.841	95.6
16	MP3	Y	-29.349	20.6
17	MP3	Y	-29.349	51.7
18	MP3	Y	-28.344	69.2
19	MP3	Y	-28.344	99.59
20	MP4	Y	-94.931	20.65
21	MP4	Y	-94.931	99.35
22	M10	Y	-23.128	24
23	M10	Y	-22.889	24
24	M10	Y	-24.868	70

Member Point Loads (BLC 11 : Wind Load 150 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
25	M10	Y	-31.068	70
26	M8	Y	-13.652	6

Member Point Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-87.223	24.4
2	MP2	Z	-87.223	95.6
3	MP3	Z	-35.274	20.6
4	MP3	Z	-35.274	51.7
5	MP3	Z	-35.474	69.2
6	MP3	Z	-35.474	99.59
7	MP4	Z	-90.372	20.65
8	MP4	Z	-90.372	99.35
9	M10	Z	-43.2	24
10	M10	Z	-43.094	24
11	M10	Z	-45.269	70
12	M10	Z	-51.475	70
13	M8	Z	-51.73	6

Member Point Loads (BLC 15 : Ice Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-36.399	24.4
2	MP2	X	-36.399	95.6
3	MP3	X	-12.414	20.6
4	MP3	X	-12.414	51.7
5	MP3	X	-11.836	69.2
6	MP3	X	-11.836	99.59
7	MP4	X	-39.546	20.65
8	MP4	X	-39.546	99.35
9	M10	X	-11.275	24
10	M10	X	-9.75	24
11	M10	X	-11.273	70
12	M10	X	-15.081	70
13	M8	X	-6.142	6
14	MP2	Y	0	24.4
15	MP2	Y	0	95.6
16	MP3	Y	0	20.6
17	MP3	Y	0	51.7
18	MP3	Y	0	69.2
19	MP3	Y	0	99.59
20	MP4	Y	0	20.65
21	MP4	Y	0	99.35
22	M10	Y	0	24
23	M10	Y	0	24
24	M10	Y	0	70
25	M10	Y	0	70
26	M8	Y	0	6

Member Point Loads (BLC 16 : Ice Wind Load 30 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 16 : Ice Wind Load 30 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-27.34	24.4
2	MP2	X	-27.34	95.6
3	MP3	X	-9.446	20.6
4	MP3	X	-9.446	51.7
5	MP3	X	-9.126	69.2
6	MP3	X	-9.126	99.59
7	MP4	X	-29.555	20.65
8	MP4	X	-29.555	99.35
9	M10	X	-10.716	24
10	M10	X	-8.799	24
11	M10	X	-10.45	70
12	M10	X	-14.345	70
13	M8	X	-5.319	6
14	MP2	Y	-15.785	24.4
15	MP2	Y	-15.785	95.6
16	MP3	Y	-5.454	20.6
17	MP3	Y	-5.454	51.7
18	MP3	Y	-5.269	69.2
19	MP3	Y	-5.269	99.59
20	MP4	Y	-17.063	20.65
21	MP4	Y	-17.063	99.35
22	M10	Y	-6.187	24
23	M10	Y	-5.08	24
24	M10	Y	-6.033	70
25	M10	Y	-8.282	70
26	M8	Y	-3.071	6

Member Point Loads (BLC 17 : Ice Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-18.907	24.4
2	MP2	X	-18.907	95.6
3	MP3	X	-6.648	20.6
4	MP3	X	-6.648	51.7
5	MP3	X	-6.533	69.2
6	MP3	X	-6.533	99.59
7	MP4	X	-20.299	20.65
8	MP4	X	-20.299	99.35
9	M10	X	-8.541	24
10	M10	X	-7.106	24
11	M10	X	-8.382	70
12	M10	X	-11.432	70
13	M8	X	-4.343	6
14	MP2	Y	-18.907	24.4
15	MP2	Y	-18.907	95.6
16	MP3	Y	-6.648	20.6
17	MP3	Y	-6.648	51.7
18	MP3	Y	-6.533	69.2
19	MP3	Y	-6.533	99.59
20	MP4	Y	-20.299	20.65
21	MP4	Y	-20.299	99.35
22	M10	Y	-8.541	24

Member Point Loads (BLC 17 : Ice Wind Load 45 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
23	M10	Y	-7.106	24
24	M10	Y	-8.382	70
25	M10	Y	-11.432	70
26	M8	Y	-4.343	6

Member Point Loads (BLC 18 : Ice Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-10.955	24.4
2	MP2	X	-10.955	95.6
3	MP3	X	-3.947	20.6
4	MP3	X	-3.947	51.7
5	MP3	X	-3.97	69.2
6	MP3	X	-3.97	99.59
7	MP4	X	-11.644	20.65
8	MP4	X	-11.644	99.35
9	M10	X	-5.637	24
10	M10	X	-4.875	24
11	M10	X	-5.637	70
12	M10	X	-7.54	70
13	M8	X	-3.071	6
14	MP2	Y	-18.974	24.4
15	MP2	Y	-18.974	95.6
16	MP3	Y	-6.837	20.6
17	MP3	Y	-6.837	51.7
18	MP3	Y	-6.877	69.2
19	MP3	Y	-6.877	99.59
20	MP4	Y	-20.169	20.65
21	MP4	Y	-20.169	99.35
22	M10	Y	-9.764	24
23	M10	Y	-8.444	24
24	M10	Y	-9.763	70
25	M10	Y	-13.06	70
26	M8	Y	-5.319	6

Member Point Loads (BLC 19 : Ice Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	24.4
2	MP2	X	0	95.6
3	MP3	X	0	20.6
4	MP3	X	0	51.7
5	MP3	X	0	69.2
6	MP3	X	0	99.59
7	MP4	X	0	20.65
8	MP4	X	0	99.35
9	M10	X	0	24
10	M10	X	0	24
11	M10	X	0	70
12	M10	X	0	70
13	M8	X	0	6
14	MP2	Y	-17.079	24.4
15	MP2	Y	-17.079	95.6

Member Point Loads (BLC 19 : Ice Wind Load 90 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP3	Y	-6.388	20.6
17	MP3	Y	-6.388	51.7
18	MP3	Y	-6.642	69.2
19	MP3	Y	-6.642	99.59
20	MP4	Y	-17.87	20.65
21	MP4	Y	-17.87	99.35
22	M10	Y	-9.077	24
23	M10	Y	-8.932	24
24	M10	Y	-9.686	70
25	M10	Y	-12.115	70
26	M8	Y	-6.142	6

Member Point Loads (BLC 20 : Ice Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	10.955	24.4
2	MP2	X	10.955	95.6
3	MP3	X	3.947	20.6
4	MP3	X	3.947	51.7
5	MP3	X	3.97	69.2
6	MP3	X	3.97	99.59
7	MP4	X	11.644	20.65
8	MP4	X	11.644	99.35
9	M10	X	3.989	24
10	M10	X	4.261	24
11	M10	X	4.446	70
12	M10	X	5.316	70
13	M8	X	3.071	6
14	MP2	Y	-18.974	24.4
15	MP2	Y	-18.974	95.6
16	MP3	Y	-6.837	20.6
17	MP3	Y	-6.837	51.7
18	MP3	Y	-6.877	69.2
19	MP3	Y	-6.877	99.59
20	MP4	Y	-20.169	20.65
21	MP4	Y	-20.169	99.35
22	M10	Y	-6.91	24
23	M10	Y	-7.381	24
24	M10	Y	-7.702	70
25	M10	Y	-9.207	70
26	M8	Y	-5.319	6

Member Point Loads (BLC 21 : Ice Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	18.907	24.4
2	MP2	X	18.907	95.6
3	MP3	X	6.648	20.6
4	MP3	X	6.648	51.7
5	MP3	X	6.533	69.2
6	MP3	X	6.533	99.59
7	MP4	X	20.299	20.65
8	MP4	X	20.299	99.35

Member Point Loads (BLC 21 : Ice Wind Load 135 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	M10	X	5.85	24
10	M10	X	6.104	24
11	M10	X	6.439	70
12	M10	X	7.799	70
13	M8	X	4.343	6
14	MP2	Y	-18.907	24.4
15	MP2	Y	-18.907	95.6
16	MP3	Y	-6.648	20.6
17	MP3	Y	-6.648	51.7
18	MP3	Y	-6.533	69.2
19	MP3	Y	-6.533	99.59
20	MP4	Y	-20.299	20.65
21	MP4	Y	-20.299	99.35
22	M10	Y	-5.85	24
23	M10	Y	-6.104	24
24	M10	Y	-6.439	70
25	M10	Y	-7.799	70
26	M8	Y	-4.343	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	27.34	24.4
2	MP2	X	27.34	95.6
3	MP3	X	9.446	20.6
4	MP3	X	9.446	51.7
5	MP3	X	9.126	69.2
6	MP3	X	9.126	99.59
7	MP4	X	29.555	20.65
8	MP4	X	29.555	99.35
9	M10	X	7.861	24
10	M10	X	7.735	24
11	M10	X	8.389	70
12	M10	X	10.492	70
13	M8	X	5.319	6
14	MP2	Y	-15.785	24.4
15	MP2	Y	-15.785	95.6
16	MP3	Y	-5.454	20.6
17	MP3	Y	-5.454	51.7
18	MP3	Y	-5.269	69.2
19	MP3	Y	-5.269	99.59
20	MP4	Y	-17.063	20.65
21	MP4	Y	-17.063	99.35
22	M10	Y	-4.539	24
23	M10	Y	-4.466	24
24	M10	Y	-4.843	70
25	M10	Y	-6.057	70
26	M8	Y	-3.071	6

Member Point Loads (BLC 23 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-4.415	24.4

Member Point Loads (BLC 23 : Seismic Load X) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP2	X	-4.415	95.6
3	MP3	X	-2.844	20.6
4	MP3	X	-2.844	51.7
5	MP3	X	-5.275	69.2
6	MP3	X	-5.275	99.59
7	MP4	X	-7.02	20.65
8	MP4	X	-7.02	99.35
9	M10	X	-7.679	24
10	M10	X	-9.308	24
11	M10	X	-9.179	70
12	M10	X	-6.839	70
13	M8	X	-2.443	6

Member Point Loads (BLC 24 : Seismic Load Y)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-4.415	24.4
2	MP2	Y	-4.415	95.6
3	MP3	Y	-2.844	20.6
4	MP3	Y	-2.844	51.7
5	MP3	Y	-5.275	69.2
6	MP3	Y	-5.275	99.59
7	MP4	Y	-7.02	20.65
8	MP4	Y	-7.02	99.35
9	M10	Y	-7.679	24
10	M10	Y	-9.308	24
11	M10	Y	-9.179	70
12	M10	Y	-6.839	70
13	M8	Y	-2.443	6

Member Point Loads (BLC 25 : Live Load 1 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Z	-250	0

Member Point Loads (BLC 26 : Live Load 2 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Z	-250	%50

Member Point Loads (BLC 27 : Live Load 3 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Z	-250	%100

Member Point Loads (BLC 28 : Maintenance Load 1 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-500	%50

Member Point Loads (BLC 29 : Maintenance Load 2 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-500	%50

Member Point Loads (BLC 30 : Maintenance Load 3 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP4	Z	-500	%50

Member Distributed Loads (BLC 2 : Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	H1	SX	-38.555	-38.555	0	%100
2	M2	SX	-64.259	-64.259	0	%100
3	M3	SX	-64.259	-64.259	0	%100
4	M4	SX	-38.555	-38.555	0	%100
5	M5	SX	-64.259	-64.259	0	%100
6	M30	SX	-38.555	-38.555	0	%100
7	M7	SX	-64.259	-64.259	0	%100
8	M8	SX	-38.555	-38.555	0	%100
9	M9	SX	-64.259	-64.259	0	%100
10	M10	SX	-38.555	-38.555	0	%100
11	M11	SX	-64.259	-64.259	0	%100
12	M50	SX	-38.555	-38.555	0	%100
13	M13	SX	-64.259	-64.259	0	%100
14	MP3	SX	-38.555	-38.555	0	%100
15	M15	SX	-64.259	-64.259	0	%100
16	M16	SX	-64.259	-64.259	0	%100
17	M17	SX	-38.555	-38.555	0	%100
18	M18	SX	-38.555	-38.555	0	%100
19	M19	SX	-64.259	-64.259	0	%100
20	M20	SX	-64.259	-64.259	0	%100
21	M21	SX	-38.555	-38.555	0	%100
22	M22	SX	-38.555	-38.555	0	%100
23	M23	SX	-64.259	-64.259	0	%100
24	M24	SX	-64.259	-64.259	0	%100
25	M25	SX	-38.555	-38.555	0	%100
26	M26	SX	-38.555	-38.555	0	%100
27	MP2	SX	-38.555	-38.555	0	%100
28	M28	SX	-64.259	-64.259	0	%100
29	M29	SX	-64.259	-64.259	0	%100
30	M30A	SX	-38.555	-38.555	0	%100
31	M31	SX	-38.555	-38.555	0	%100
32	M32	SX	-64.259	-64.259	0	%100
33	M33	SX	-64.259	-64.259	0	%100
34	M34	SX	-38.555	-38.555	0	%100
35	M35	SX	-38.555	-38.555	0	%100
36	M36	SX	-64.259	-64.259	0	%100
37	M37	SX	-64.259	-64.259	0	%100
38	M38	SX	-38.555	-38.555	0	%100
39	M39	SX	-38.555	-38.555	0	%100
40	MP4	SX	-38.555	-38.555	0	%100
41	M41	SX	-64.259	-64.259	0	%100
42	M42	SX	-64.259	-64.259	0	%100
43	M43	SX	-64.259	-64.259	0	%100
44	M44	SX	-64.259	-64.259	0	%100
45	M45	SX	-64.259	-64.259	0	%100
46	M46	SX	-64.259	-64.259	0	%100

Member Distributed Loads (BLC 2 : Structure Wind X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
47	M47	SX	-64.259	-64.259	0	%100
48	M48	SX	-38.555	-38.555	0	%100

Member Distributed Loads (BLC 3 : Structure Wind Y)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	H1	SY	-38.555	-38.555	0	%100
2	M2	SY	-64.259	-64.259	0	%100
3	M3	SY	-64.259	-64.259	0	%100
4	M4	SY	-38.555	-38.555	0	%100
5	M5	SY	-64.259	-64.259	0	%100
6	M30	SY	-38.555	-38.555	0	%100
7	M7	SY	-64.259	-64.259	0	%100
8	M8	SY	-38.555	-38.555	0	%100
9	M9	SY	-64.259	-64.259	0	%100
10	M10	SY	-38.555	-38.555	0	%100
11	M11	SY	-64.259	-64.259	0	%100
12	M50	SY	-38.555	-38.555	0	%100
13	M13	SY	-64.259	-64.259	0	%100
14	MP3	SY	-38.555	-38.555	0	%100
15	M15	SY	-64.259	-64.259	0	%100
16	M16	SY	-64.259	-64.259	0	%100
17	M17	SY	-38.555	-38.555	0	%100
18	M18	SY	-38.555	-38.555	0	%100
19	M19	SY	-64.259	-64.259	0	%100
20	M20	SY	-64.259	-64.259	0	%100
21	M21	SY	-38.555	-38.555	0	%100
22	M22	SY	-38.555	-38.555	0	%100
23	M23	SY	-64.259	-64.259	0	%100
24	M24	SY	-64.259	-64.259	0	%100
25	M25	SY	-38.555	-38.555	0	%100
26	M26	SY	-38.555	-38.555	0	%100
27	MP2	SY	-38.555	-38.555	0	%100
28	M28	SY	-64.259	-64.259	0	%100
29	M29	SY	-64.259	-64.259	0	%100
30	M30A	SY	-38.555	-38.555	0	%100
31	M31	SY	-38.555	-38.555	0	%100
32	M32	SY	-64.259	-64.259	0	%100
33	M33	SY	-64.259	-64.259	0	%100
34	M34	SY	-38.555	-38.555	0	%100
35	M35	SY	-38.555	-38.555	0	%100
36	M36	SY	-64.259	-64.259	0	%100
37	M37	SY	-64.259	-64.259	0	%100
38	M38	SY	-38.555	-38.555	0	%100
39	M39	SY	-38.555	-38.555	0	%100
40	MP4	SY	-38.555	-38.555	0	%100
41	M41	SY	-64.259	-64.259	0	%100
42	M42	SY	-64.259	-64.259	0	%100
43	M43	SY	-64.259	-64.259	0	%100
44	M44	SY	-64.259	-64.259	0	%100
45	M45	SY	-64.259	-64.259	0	%100
46	M46	SY	-64.259	-64.259	0	%100

Member Distributed Loads (BLC 3 : Structure Wind Y) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
47	M47	SY	-64.259	-64.259	0	%100
48	M48	SY	-38.555	-38.555	0	%100

Member Distributed Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	H1	Z	-6.302	-6.302	0	%100
2	M2	Z	-9.246	-9.246	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	-7.667	-7.667	0	%100
5	M5	Z	0	0	0	%100
6	M30	Z	-4.767	-4.767	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	-4.767	-4.767	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	-4.767	-4.767	0	%100
11	M11	Z	0	0	0	%100
12	M50	Z	-4.767	-4.767	0	%100
13	M13	Z	0	0	0	%100
14	MP3	Z	-4.767	-4.767	0	%100
15	M15	Z	0	0	0	%100
16	M16	Z	0	0	0	%100
17	M17	Z	-2.378	-2.378	0	%100
18	M18	Z	-2.378	-2.378	0	%100
19	M19	Z	0	0	0	%100
20	M20	Z	0	0	0	%100
21	M21	Z	-2.378	-2.378	0	%100
22	M22	Z	-2.378	-2.378	0	%100
23	M23	Z	0	0	0	%100
24	M24	Z	0	0	0	%100
25	M25	Z	-2.378	-2.378	0	%100
26	M26	Z	-2.378	-2.378	0	%100
27	MP2	Z	-4.767	-4.767	0	%100
28	M28	Z	0	0	0	%100
29	M29	Z	0	0	0	%100
30	M30A	Z	-2.378	-2.378	0	%100
31	M31	Z	-2.378	-2.378	0	%100
32	M32	Z	0	0	0	%100
33	M33	Z	0	0	0	%100
34	M34	Z	-2.378	-2.378	0	%100
35	M35	Z	-2.378	-2.378	0	%100
36	M36	Z	0	0	0	%100
37	M37	Z	0	0	0	%100
38	M38	Z	-2.378	-2.378	0	%100
39	M39	Z	-2.378	-2.378	0	%100
40	MP4	Z	-4.767	-4.767	0	%100
41	M41	Z	0	0	0	%100
42	M42	Z	0	0	0	%100
43	M43	Z	-6.351	-6.351	0	%100
44	M44	Z	-6.351	-6.351	0	%100
45	M45	Z	0	0	0	%100
46	M46	Z	0	0	0	%100

Member Distributed Loads (BLC 12 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
47	M47	Z	0	0	0	%100
48	M48	Z	-4.767	-4.767	0	%100

Member Distributed Loads (BLC 13 : Ice Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	H1	SX	-11.996	-11.996	0	%100
2	M2	SX	-10.213	-10.213	0	%100
3	M3	SX	0	0	0	%100
4	M4	SX	-10.957	-10.957	0	%100
5	M5	SX	0	0	0	%100
6	M30	SX	-14.21	-14.21	0	%100
7	M7	SX	0	0	0	%100
8	M8	SX	-14.21	-14.21	0	%100
9	M9	SX	0	0	0	%100
10	M10	SX	-14.21	-14.21	0	%100
11	M11	SX	0	0	0	%100
12	M50	SX	-14.21	-14.21	0	%100
13	M13	SX	0	0	0	%100
14	MP3	SX	-14.21	-14.21	0	%100
15	M15	SX	0	0	0	%100
16	M16	SX	0	0	0	%100
17	M17	SX	-33.497	-33.497	0	%100
18	M18	SX	-33.497	-33.497	0	%100
19	M19	SX	0	0	0	%100
20	M20	SX	0	0	0	%100
21	M21	SX	-33.497	-33.497	0	%100
22	M22	SX	-33.497	-33.497	0	%100
23	M23	SX	0	0	0	%100
24	M24	SX	0	0	0	%100
25	M25	SX	-33.497	-33.497	0	%100
26	M26	SX	-33.497	-33.497	0	%100
27	MP2	SX	-14.21	-14.21	0	%100
28	M28	SX	0	0	0	%100
29	M29	SX	0	0	0	%100
30	M30A	SX	-33.497	-33.497	0	%100
31	M31	SX	-33.497	-33.497	0	%100
32	M32	SX	0	0	0	%100
33	M33	SX	0	0	0	%100
34	M34	SX	-33.497	-33.497	0	%100
35	M35	SX	-33.497	-33.497	0	%100
36	M36	SX	0	0	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	-33.497	-33.497	0	%100
39	M39	SX	-33.497	-33.497	0	%100
40	MP4	SX	-14.21	-14.21	0	%100
41	M41	SX	0	0	0	%100
42	M42	SX	0	0	0	%100
43	M43	SX	-11.949	-11.949	0	%100
44	M44	SX	-11.949	-11.949	0	%100
45	M45	SX	0	0	0	%100
46	M46	SX	0	0	0	%100

Member Distributed Loads (BLC 13 : Ice Structure Wind X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
47	M47	SX	0	0	0	%100
48	M48	SX	-14.21	-14.21	0	%100

Member Distributed Loads (BLC 14 : Ice Structure Wind Y)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	H1	SY	-11.996	-11.996	0	%100
2	M2	SY	-10.213	-10.213	0	%100
3	M3	SY	0	0	0	%100
4	M4	SY	-10.957	-10.957	0	%100
5	M5	SY	0	0	0	%100
6	M30	SY	-14.21	-14.21	0	%100
7	M7	SY	0	0	0	%100
8	M8	SY	-14.21	-14.21	0	%100
9	M9	SY	0	0	0	%100
10	M10	SY	-14.21	-14.21	0	%100
11	M11	SY	0	0	0	%100
12	M50	SY	-14.21	-14.21	0	%100
13	M13	SY	0	0	0	%100
14	MP3	SY	-14.21	-14.21	0	%100
15	M15	SY	0	0	0	%100
16	M16	SY	0	0	0	%100
17	M17	SY	-33.497	-33.497	0	%100
18	M18	SY	-33.497	-33.497	0	%100
19	M19	SY	0	0	0	%100
20	M20	SY	0	0	0	%100
21	M21	SY	-33.497	-33.497	0	%100
22	M22	SY	-33.497	-33.497	0	%100
23	M23	SY	0	0	0	%100
24	M24	SY	0	0	0	%100
25	M25	SY	-33.497	-33.497	0	%100
26	M26	SY	-33.497	-33.497	0	%100
27	MP2	SY	-14.21	-14.21	0	%100
28	M28	SY	0	0	0	%100
29	M29	SY	0	0	0	%100
30	M30A	SY	-33.497	-33.497	0	%100
31	M31	SY	-33.497	-33.497	0	%100
32	M32	SY	0	0	0	%100
33	M33	SY	0	0	0	%100
34	M34	SY	-33.497	-33.497	0	%100
35	M35	SY	-33.497	-33.497	0	%100
36	M36	SY	0	0	0	%100
37	M37	SY	0	0	0	%100
38	M38	SY	-33.497	-33.497	0	%100
39	M39	SY	-33.497	-33.497	0	%100
40	MP4	SY	-14.21	-14.21	0	%100
41	M41	SY	0	0	0	%100
42	M42	SY	0	0	0	%100
43	M43	SY	-11.949	-11.949	0	%100
44	M44	SY	-11.949	-11.949	0	%100
45	M45	SY	0	0	0	%100
46	M46	SY	0	0	0	%100

Member Distributed Loads (BLC 14 : Ice Structure Wind Y) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
47	M47	SY	0	0	0	%100
48	M48	SY	-14.21	-14.21	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL			-1		13			
2	Structure Wind X	WLX						48		
3	Structure Wind Y	WLY						48		
4	Wind Load 0 AZI	WLX					26			
5	Wind Load 30 AZI	None					26			
6	Wind Load 45 AZI	None					26			
7	Wind Load 60 AZI	None					26			
8	Wind Load 90 AZI	WLY					26			
9	Wind Load 120 AZI	None					26			
10	Wind Load 135 AZI	None					26			
11	Wind Load 150 AZI	None					26			
12	Ice Weight	OL1					13	48		
13	Ice Structure Wind X	OL2						48		
14	Ice Structure Wind Y	OL3						48		
15	Ice Wind Load 0 AZI	OL2					26			
16	Ice Wind Load 30 AZI	None					26			
17	Ice Wind Load 45 AZI	None					26			
18	Ice Wind Load 60 AZI	None					26			
19	Ice Wind Load 90 AZI	OL3					26			
20	Ice Wind Load 120 AZI	None					26			
21	Ice Wind Load 135 AZI	None					26			
22	Ice Wind Load 150 AZI	None					26			
23	Seismic Load X	ELX	-.129				13			
24	Seismic Load Y	ELY		-.129			13			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Maintenance Load 1 (...	None					1			
29	Maintenance Load 2 (...	None					1			
30	Maintenance Load 3 (...	None					1			

Load Combinations

	Description	Sol...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4DL	Yes	Y		DL	1.4																		
2	1.2DL + 1...	Yes	Y		DL	1.2	2	1	3		4	1												
3	1.2DL + 1...	Yes	Y		DL	1.2	2	.866	3	.5	5	1												
4	1.2DL + 1...	Yes	Y		DL	1.2	2	.707	3	.707	6	1												
5	1.2DL + 1...	Yes	Y		DL	1.2	2	.5	3	.866	7	1												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
6	1.2DL + 1...	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1...	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1...	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1...	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1...	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1...	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1...	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1...	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1...	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1...	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1...	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1...	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1...	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1...	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1...	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1...	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1...	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1...	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1...	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1...	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1...	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1...	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1...	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1...	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1...	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1...	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1...	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1...	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2S...	Yes	Y		DL	1.243	23	1	24																	
51	(1.2+0.2S...	Yes	Y		DL	1.243	23	.866	24	.5																
52	(1.2+0.2S...	Yes	Y		DL	1.243	23	.707	24	.707																
53	(1.2+0.2S...	Yes	Y		DL	1.243	23	.5	24	.866																
54	(1.2+0.2S...	Yes	Y		DL	1.243	23		24	1																
55	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.5	24	.866																
56	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.707	24	.707																
57	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.866	24	.5																

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
58	(1.2+0.2S...	Yes	Y		DL	1.243	23	-1	24																	
59	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.866	24	-.5																
60	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.707	24	-.707																
61	(1.2+0.2S...	Yes	Y		DL	1.243	23	-.5	24	-.866																
62	(1.2+0.2S...	Yes	Y		DL	1.243	23		24	-1																
63	(1.2+0.2S...	Yes	Y		DL	1.243	23	.5	24	-.866																
64	(1.2+0.2S...	Yes	Y		DL	1.243	23	.707	24	-.707																
65	(1.2+0.2S...	Yes	Y		DL	1.243	23	.866	24	-.5																
66	(0.9-0.2Sd...	Yes	Y		DL	.857	23	1	24																	
67	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.866	24	.5																
68	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.707	24	.707																
69	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.5	24	.866																
70	(0.9-0.2Sd...	Yes	Y		DL	.857	23		24	1																
71	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.5	24	.866																
72	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.707	24	.707																
73	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.866	24	.5																
74	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-1	24																	
75	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.866	24	-.5																
76	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.707	24	-.707																
77	(0.9-0.2Sd...	Yes	Y		DL	.857	23	-.5	24	-.866																
78	(0.9-0.2Sd...	Yes	Y		DL	.857	23		24	-1																
79	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.5	24	-.866																
80	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.707	24	-.707																
81	(0.9-0.2Sd...	Yes	Y		DL	.857	23	.866	24	-.5																
82	1.2DL + 1...	Yes	Y		DL	1.2	25	1.5																		
83	1.2DL + 1...	Yes	Y		DL	1.2	26	1.5																		
84	1.2DL + 1...	Yes	Y		DL	1.2	27	1.5																		
85	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.06	3		4	.06												
86	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.052	3	.03	5	.06												
87	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.043	3	.043	6	.06												
88	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.03	3	.052	7	.06												
89	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2		3	.06	8	.06												
90	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.03	3	.052	9	.06												
91	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.043	3	.043	10	.06												
92	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.052	3	.03	11	.06												
93	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.06	3		4	-.06												
94	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.052	3	-.03	5	-.06												
95	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.043	3	-.043	6	-.06												
96	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	-.03	3	-.052	7	-.06												
97	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2		3	-.06	8	-.06												
98	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.03	3	-.052	9	-.06												
99	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.043	3	-.043	10	-.06												
100	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5	2	.052	3	-.03	11	-.06												
101	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.06	3		4	.06												
102	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.052	3	.03	5	.06												
103	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.043	3	.043	6	.06												
104	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.03	3	.052	7	.06												
105	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2		3	.06	8	.06												
106	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.03	3	.052	9	.06												
107	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.043	3	.043	10	.06												
108	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.052	3	.03	11	.06												
109	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.06	3		4	-.06												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
110	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.052	3	-.03	5	-.06										
111	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.043	3	-.043	6	-.06										
112	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	-.03	3	-.052	7	-.06										
113	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2		3	-.06	8	-.06										
114	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.03	3	-.052	9	-.06										
115	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.043	3	-.043	10	-.06										
116	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5	2	.052	3	-.03	11	-.06										
117	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.06	3		4	.06										
118	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.052	3	.03	5	.06										
119	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.043	3	.043	6	.06										
120	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.03	3	.052	7	.06										
121	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2		3	.06	8	.06										
122	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.03	3	.052	9	.06										
123	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.043	3	.043	10	.06										
124	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.052	3	.03	11	.06										
125	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.06	3		4	-.06										
126	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.052	3	-.03	5	-.06										
127	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.043	3	-.043	6	-.06										
128	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	-.03	3	-.052	7	-.06										
129	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2		3	-.06	8	-.06										
130	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.03	3	-.052	9	-.06										
131	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.043	3	-.043	10	-.06										
132	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5	2	.052	3	-.03	11	-.06										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N5	max	1436.187	18	1356.836	22	1248.9	10	249.55	4	1740.007	18	4458.955	23
2		min	-2183.741	10	-1553.429	14	-392.992	18	-540.646	128	-3672.87	10	-4488.237	15
3	N69	max	1109.334	34	921.016	105	1774.809	34	204.07	112	58.363	26	101.904	105
4		min	-258.465	26	-460.204	129	-228.743	26	-110.225	120	-443.779	34	-45.611	129
5	Totals:	max	2332.842	2	1475.256	6	2487.166	42						
6		min	-2332.756	26	-1475.25	30	854.036	66						

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

	Member	Shape	Code Check	Loc.....		Shear Check	Loc.....		...	phi*P...	phi*P...	phi*M...	phi*M.....		Eqn
1	H1	PIPE 3.5"x0.168"	.806	75	10	.292	75		...	49154..	55395..	4900....	4900....	...	H1-1b
2	M38	SR 5/8	.791	0	...	.067	0		13	8250....	9946.8	96.768	96.768	...	H1-1b
3	M26	SR 5/8	.740	0	...	.061	0		8	8250....	9946.8	96.768	96.768	...	H1-1b
4	M39	SR 5/8	.739	0	...	.065	0		12	8250....	9946.8	96.768	96.768	...	H1-1b
5	M25	SR 5/8	.699	0	...	.060	0		8	8250....	9946.8	96.768	96.768	...	H1-1b
6	M34	SR 5/8	.615	0	10	.064	0		8	8250....	9946.8	96.768	96.768	...	H1-1b
7	M35	SR 5/8	.612	0	10	.062	0		12	8250....	9946.8	96.768	96.768	...	H1-1b
8	M31	SR 5/8	.597	9	...	.038	0		...	8250....	9946.8	96.768	96.768	...	H1-1b
9	M30A	SR 5/8	.581	9	...	.037	0		...	8250....	9946.8	96.768	96.768	...	H1-1b
10	M22	SR 5/8	.563	9	...	.061	0		12	8250....	9946.8	96.768	96.768	...	H1-1b
11	M21	SR 5/8	.551	9	...	.060	0		8	8250....	9946.8	96.768	96.768	...	H1-1b
12	M17	SR 5/8	.542	9	...	.032	0		...	8250....	9946.8	96.768	96.768	...	H1-1b
13	M18	SR 5/8	.538	9	...	.032	0		...	8250....	9946.8	96.768	96.768	...	H1-1b
14	M2	HSS4X4X4	.526	33.5	8	.209	33.5	y	10	97563..	109188	12663	12663	...	H1-1b

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

	Member	Shape	Code Check	Loc.....		Shear Check	Loc.....		...	phi*P...	phi*P...	phi*M...	phi*M.....		Eqn
15	MP3	PIPE_2.0	.425	60	10	.089	60		...	8922....	32130	1871....	1871.....	...	H1-1b
16	M30	PIPE_2.0	.373	48	84	.108	36		9	13787...	32130	1871....	1871.....	1	H1-1b
17	M48	PIPE_2.0	.354	62.5	10	.083	62.5		...	6295....	32130	1871....	1871.....	...	H1-1b
18	M50	PIPE_2.0	.332	60	11	.112	60		17	8922....	32130	1871....	1871.....	...	H1-1b
19	M44	L2.5x2.5x3	.245	35.....		.013	72....	y	16	8919....	29192...	872.5...	1525.....	...	H2-1
20	MP4	PIPE_2.0	.212	47.5	2	.033	47.5		2	9836....	32130	1871....	1871.....	...	H1-1b
21	MP2	PIPE_2.0	.190	48....	10	.034	47.5		10	9836....	32130	1871....	1871.....	1	H1-1b
22	M10	PIPE_2.0	.187	48	11	.019	48		11	13787...	32130	1871....	1871.....	...	H1-1b
23	M43	L2.5x2.5x3	.171	36....	3	.027	0	y	11	9149....	29192...	872.5...	1531.....	...	H2-1
24	M8	PIPE_2.0	.070	42	10	.006	42		10	16811...	32130	1871....	1871.....	1	H1-1b
25	M4	PIPE_4.0	.000	9	10	.000	9		10	93072...	93240	10631...	10631.....	...	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCULATIONS

Trylon

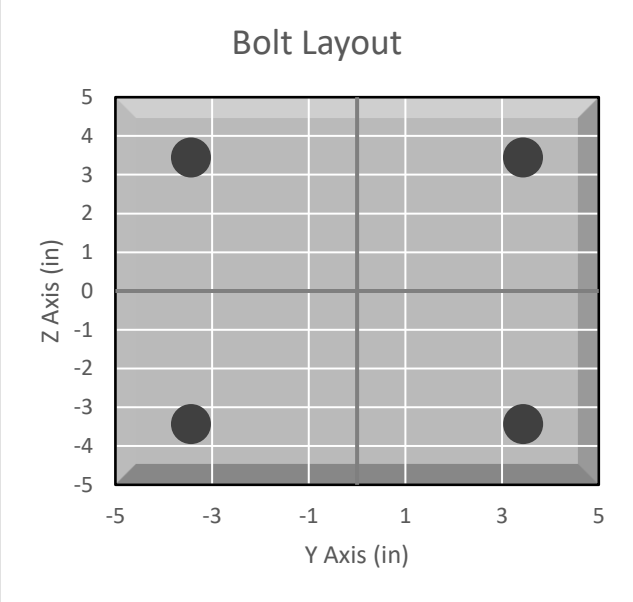
Analysis date: 4/20/2022

BOLT TOOL 1.5.2

Project Data	
Job Code:	207297
Carrier Site ID:	CT5199
Carrier Site Name:	Branford East

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Standoff to Collar

Bolt Check		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	5958.1	lbs
Shear Force (V_u):	1108.6	lbs
Tension Usage:	29.3%	--
Shear Usage:	8.0%	--
Interaction:	29.3%	Pass
Controlling Member:	M2	--
Controlling LC:	8	--

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

Trylon

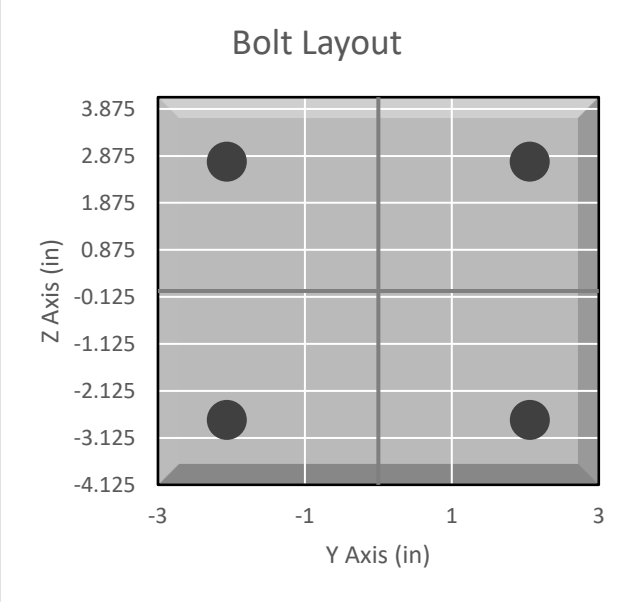
Analysis date: 4/20/2022

BOLT TOOL 1.5.2

Project Data	
Job Code:	207297
Carrier Site ID:	CT5199
Carrier Site Name:	Branford East

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	U-Bolt	
Diameter:	0.5	in
Grade:	A307	--
Yield Strength (Fy):	36	ksi
Ultimate Strength (Fu):	60	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	3.5	in



Connection Description
Mounting Pipe to Face Horizontal

Bolt Check		
Tensile Capacity (ϕT_n):	6385.4	lbs
Shear Capacity (ϕV_n):	4417.9	lbs
Tension Force (T_u):	132.6	lbs
Shear Force (V_u):	784.4	lbs
Tension Usage:	2.1%	--
Shear Usage:	17.8%	--
Interaction:	17.8%	Pass
Controlling Member:	M5	--
Controlling LC:	84	--

Slip Check		
Sliding Capacity (ϕR_{ns}):	9424.8	lbs
Torsion Capacity (ϕR_{nr}):	1374.4	lb-ft
Sliding Force (V_{us}):	187.8	lbs
Torsional Force (T_{ur}):	266.8	lb-ft
Sliding Usage:	2.0%	--
Torsion Usage:	19.4%	--
Interaction:	19.5%	Pass
Controlling Member:	M11	--
Controlling LC:	15	--

Trylon

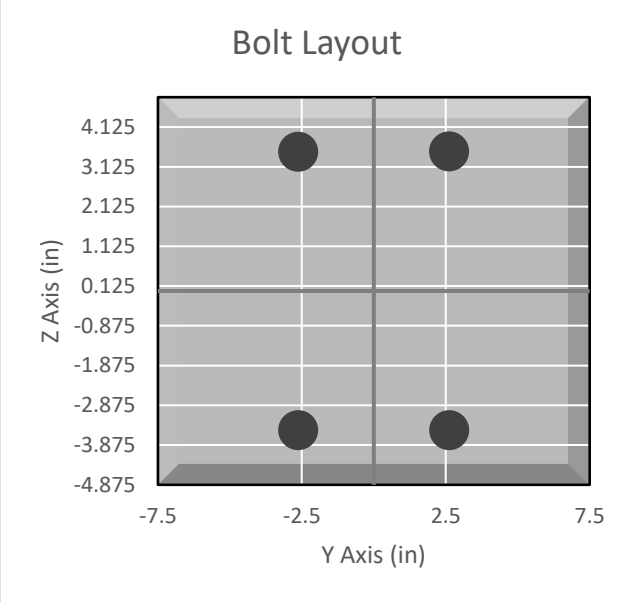
Analysis date: 4/20/2022

BOLT TOOL 1.5.2

Project Data	
Job Code:	206847
Carrier Site ID:	CT5199
Carrier Site Name:	Branford East

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	U-Bolt	
Diameter:	0.625	in
Grade:	A307	--
Yield Strength (Fy):	36	ksi
Ultimate Strength (Fu):	60	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	4.5	in



Connection Description
Face Horizontal to Standoff

Bolt Check		
Tensile Capacity (ϕT_n):	10170.1	lbs
Shear Capacity (ϕV_n):	6902.9	lbs
Tension Force (T_u):	4073.8	lbs
Shear Force (V_u):	983.5	lbs
Tension Usage:	40.1%	--
Shear Usage:	14.2%	--
Interaction:	40.1%	Pass
Controlling Member:	M3	--
Controlling LC:	126	--

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

Trylon

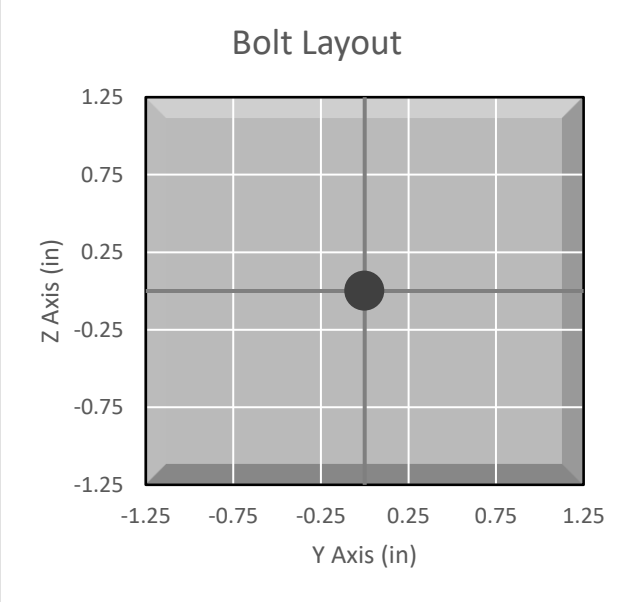
Analysis date: 4/20/2022

BOLT TOOL 1.5.2

Project Data	
Job Code:	207297
Carrier Site ID:	CT5199
Carrier Site Name:	Branford East

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.5	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	1	--
Threads Included:	Yes	--
Double Shear:	Yes	--
Connection Pipe Size:	4.5	in



Connection Description
Kicker to Tower - 1 Bolt

Bolt Check		
Tensile Capacity (ϕT_n):	12770.9	lbs
Shear Capacity (ϕV_n):	8835.7	lbs
Tension Force (T_u):	273.2	lbs
Shear Force (V_u):	1046.5	lbs
Tension Usage:	2.1%	--
Shear Usage:	11.8%	--
Interaction:	11.8%	Pass
Controlling Member:	M42	--
Controlling LC:	34	--

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

APPENDIX E

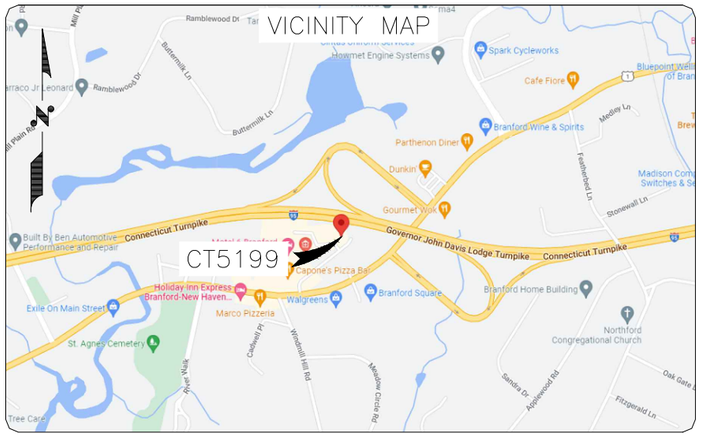
MOUNT MODIFICATION DESIGN DRAWINGS (MDD)

AT&T

UPGRADE:

MOUNT REINFORCEMENT

VICINITY MAP



GENERAL NOTES

PRIOR TO ACCESSING/ ENTERING THE SITE, YOU MUST CONTACT THE CROWN NOC AT 800-788-7011 AND CROWN CM
CHAD STEINHOFF- 214-287-3756, CHAD.STEINHOFF@CROWNCASTLE.COM

THE HEIGHT OF THE TOWER WILL NOT BE INCREASED, NOR AN EXPANSION OF THE GROUND/ LEASE AREA WHEN AND WHERE APPLICABLE

BUILDING CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL AUTHORITIES HAVING JURISDICTION

1. 2018 INTERNATIONAL BUILDING CODE
2. UNIFORM BUILDING CODE
3. CITY/COUNTY ORDINANCES
4. TIA-222-H

IF YOU DIG IN ANY STATE DIAL 811
FOR THE LOCAL "ONE CALL CENTER"
IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

SITE NAME:

BRANFORD / I-95 / X55 / DTN 1

SITE NUMBER:

CT5199

FA NUMBER:

10070944

CROWN CASTLE BU#:

822765

SITE ADDRESS:

10 SYLVIA ST,
BRANFORD, CT 06405

APPROVALS

AT&T CONSTRUCTION MANAGER	AT&T RF ENGINEER
LAND USE PLANNER	NETWORK OPERATION
PROPERTY OWNER	CONTRACTOR

DRIVING DIRECTION

FROM TWEED NEW HAVEN AIRPORT:
HEAD SOUTHWEST (417 FT). TURN LEFT (0.2 MI). TURN RIGHT ONTO BURR ST (0.2 MI). TURN LEFT TO STAY ON BURR ST (0.1 MI). SLIGHT LEFT ONTO CHARTER OAK AVE (0.6 MI). TURN LEFT ONTO MAIN ST (0.4 MI). TURN RIGHT ONTO OAKLEY ST (358 FT). TURN RIGHT ONTO US-1 N (0.5 MI). USE THE LEFT LANE TO TAKE THE RAMP ONTO I-95 N (0.2 MI). MERGE WITH I-95 N (5.0 MI). TAKE EXIT 55 FOR US-1/EAST MAIN ST TOWARD NORTH BRANFORD (0.4 MI). TURN LEFT ONTO US-1 S (0.2 MI). TURN RIGHT ONTO SYLVIA ST (0.1 MI). TURN LEFT (33 FT). SLIGHT RIGHT (79 FT). DESTINATION WILL BE ON THE RIGHT.

PROJECT INFORMATION

SCOPE OF WORK:	REINFORCE AS FOLLOWS: • INSTALL (6, 2 PER SECTOR) NEW 2.375" O.D., SCH. 40, 120" LONG MOUNTING PIPES ON POSITION #2 AND #4, CONNECTED TO THE EXISTING PIPES WITH (18, 6 PER SECTOR) NEW SITE PRO 1, DCP18K PIPE-TO-PIPE CLAMP SETS (EACH PIPE CONNECTED WITH CLAMPS AT THE TOP AND AT THE BOTTOM, AND AT 12" ABOVE THE FACE HORIZONTALS). • MOUNTING PIPES FROM POSITION #1 TO BE RELOCATED TO THE STANDOFF WHERE ALL EXISTING AND PROPOSED RRUs WILL BE INSTALLED (1 PER SECTOR). • KEEP POSITION #1 FREE FOR FUTURE ANTENNAS. • INSTALL (1) NEW SITE PRO 1, PRK-SFS-L CONNECTED TO THE TOWER AT 52" UNDER THE MOUNT, AND TO THE EXISTING FACE HORIZONTAL AT 52" FROM AN EDGE (ANTENNA POSITION #1) AND 18" FROM THE OTHER EDGE. • INSTALL (3, 1 PER SECTOR) NEW 2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPES AT 24" ABOVE THE EXISTING FACE HORIZONTALS AND CONNECTED TO ALL MOUNTING PIPES WITH NEW COMMSCOPE XP-2020 CROSSOVER PLATES (3 PER SECTOR).
JURISDICTION:	NEW HAVEN COUNTY
SITE NAME:	BRANFORD / I-95 / X55 / DTN 1
SITE ADDRESS:	10 SYLVIA ST, BRANFORD, CT 06405
LATITUDE:	41° 17' 38.16"
LONGITUDE:	-72° 47' 8.54"
TOWER TYPE:	MONOPOLE
OVERALL TOWER HEIGHT:	125'
ELEVATION OF WORK ON TOWER:	100'

SHEET INDEX

SHEET #	DESCRIPTION	REVISION #
T-1.	TITLE SHEET	0
S-1	MOUNT REINFORCEMENT	0
S-2	MOUNT REINFORCEMENT DETAILS	0

CROWN CASTLE
1220 AUGUSTA DRIVE SUIT 500
HOUSTON, TX 77057

AT&T

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

STATE OF CONNECTICUT
CLIFF ABERNATHY
No. 31022
LICENSED
PROFESSIONAL ENGINEER
4-20-22

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	04/18/22	FOR REVIEW	RC

SITE INFORMATION

SITE NAME:
BRANFORD / I-95 / X55 / DTN 1
SITE NUMBER:
CT5199
FA NUMBER:
10070944
SITE ADDRESS:
10 SYLVIA ST,
BRANFORD, CT 06405

SHEET DESCRIPTION

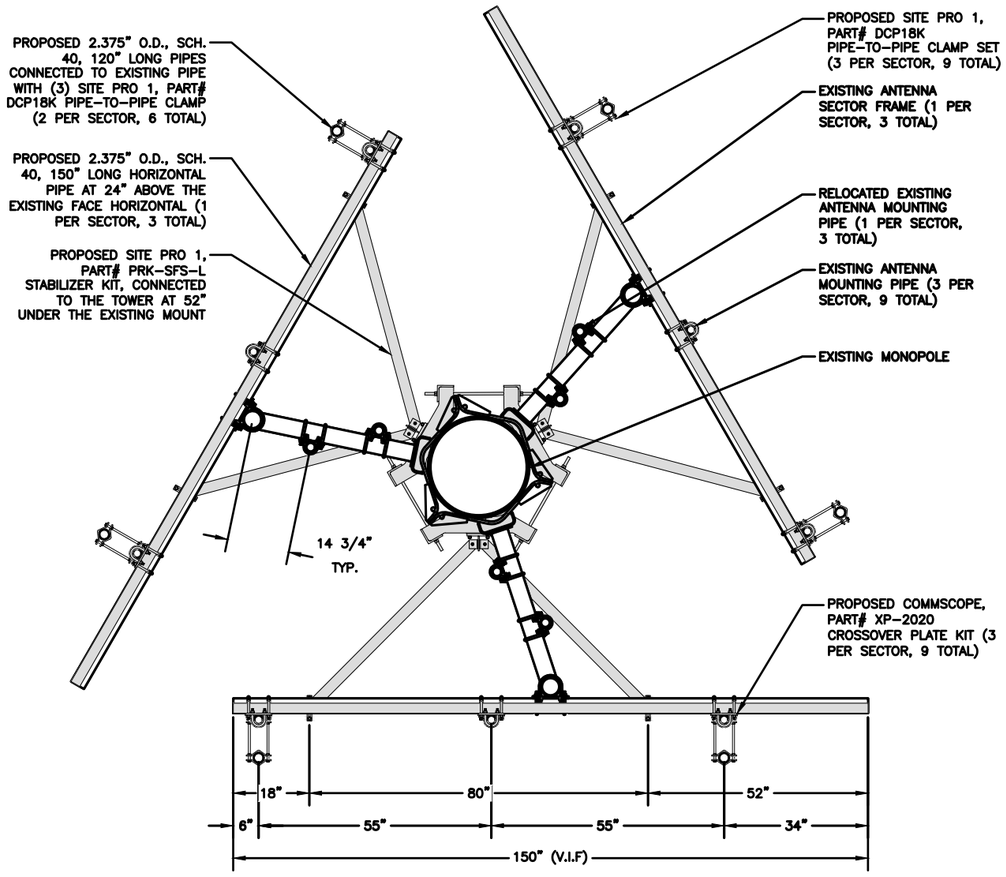
TITLE SHEET

SHEET No.

T-1

INSTALLATION NOTES:

- INSTALL (6, 2 PER SECTOR) NEW 2.375" O.D., SCH. 40, 120" LONG MOUNTING PIPES ON POSITION #2 AND #4, CONNECTED TO THE EXISTING PIPES WITH (18, 6 PER SECTOR) NEW SITE PRO 1, DCP18K PIPE-TO-PIPE CLAMP SETS (EACH PIPE CONNECTED WITH CLAMPS AT THE TOP AND AT THE BOTTOM, AND AT 12" ABOVE THE FACE HORIZONTALS).
- MOUNTING PIPES FROM POSITION #1 TO BE RELOCATED TO THE STANDOFF WHERE ALL EXISTING AND PROPOSED RRUs WILL BE INSTALLED (1 PER SECTOR).
- KEEP POSITION #1 FREE FOR FUTURE ANTENNAS.
- INSTALL (1) NEW SITE PRO 1, PRK-SFS-L CONNECTED TO THE TOWER AT 52" UNDER THE MOUNT, AND TO THE EXISTING FACE HORIZONTAL AT 52" FROM AN EDGE (ANTENNA POSITION #1) AND 18" FROM THE OTHER EDGE.
- INSTALL (3, 1 PER SECTOR) NEW 2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPES AT 24" ABOVE THE EXISTING FACE HORIZONTALS AND CONNECTED TO ALL MOUNTING PIPES WITH NEW COMMSCOPE XP-2020 CROSSOVER PLATES (3 PER SECTOR).

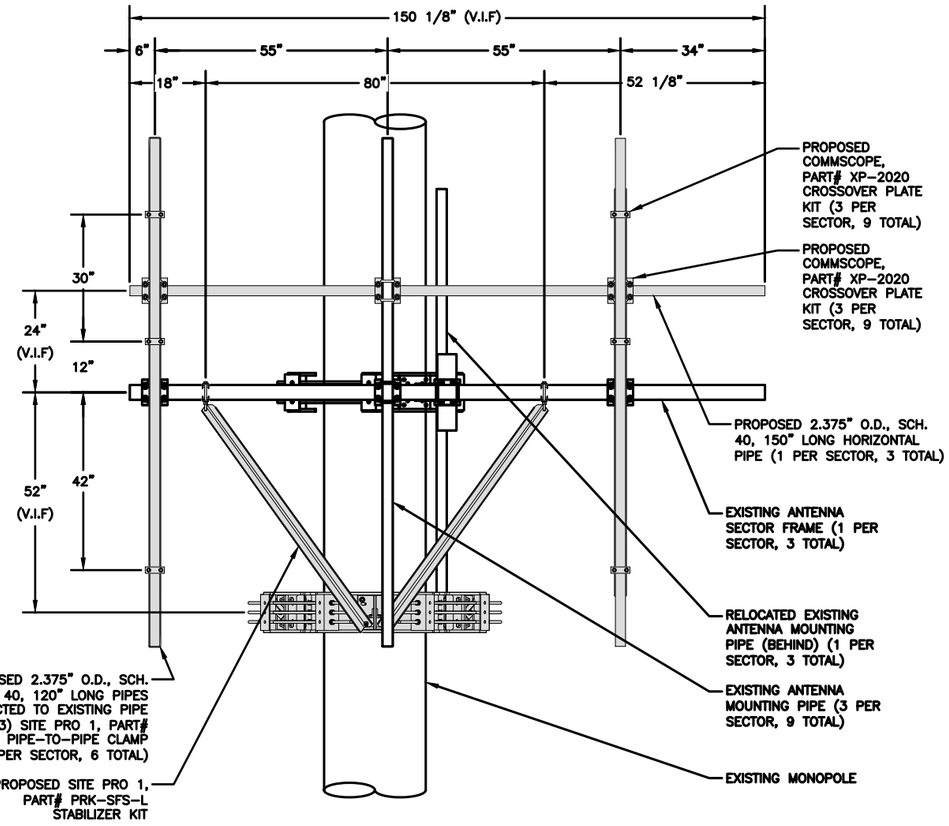


EQUIPMENT NOT SHOWN FOR CLARITY.

1 / S-1 PROPOSED PLAN VIEW (ALL SECTORS)
SCALE: 3/4" = 1'-0"

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

BILL OF MATERIALS		
QTY.	KIT NO./PART NO.	DESCRIPTION
1 PER SECTOR, 3 TOTAL	–	2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPE
2 PER SECTOR, 6 TOTAL	–	2.375" O.D., SCH. 40, 120" LONG PIPE
3 PER SECTOR, 9 TOTAL	XP-2020	CROSSOVER PLATE KIT
3 PER SECTOR, 9 TOTAL	DCP18K	PIPE-TO-PIPE CLAMP SET
1 TOTAL	PRK-SFS-L	STABILIZER KIT



EQUIPMENT NOT SHOWN FOR CLARITY.

2 / S-1 PROPOSED ELEVATION VIEW (ALL SECTORS)
SCALE: 3/4" = 1'-0"

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

GENERAL NOTES:

1. ALL STEEL ANGLE TO BE ASTM A36 (GR 36) OR BETTER.
2. ALL STEEL PLATE TO BE ASTM A36 (GR 36) OR BETTER.
3. ALL PIPES TO BE ASTM A53 (GR 35) OR BETTER.
4. HOT DIP GALVANIZE LEVEL 3 PARTS.
5. APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILL EDGES.
6. ALL BOLTS TO MAINTAIN 1" EDGE DISTANCE.

CROWN CASTLE
1220 AUGUSTA DRIVE SUIT 500
HOUSTON, TX 77057

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Trylon
1825 W. WALNUT HILL LANE, SUITE 120
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1-855-669-5421

STATE OF CONNECTICUT
CLIFF ABERNATHY
No. 31022
LICENSED
PROFESSIONAL ENGINEER
4-20-22

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	04/18/22	FOR REVIEW	RC

SITE INFORMATION

SITE NAME:
BRANFORD / I-95 / X55 / DTN 1
SITE NUMBER:
CT5199
FA NUMBER:
10070944
SITE ADDRESS:
10 SYLVIA ST,
BRANFORD, CT 06405

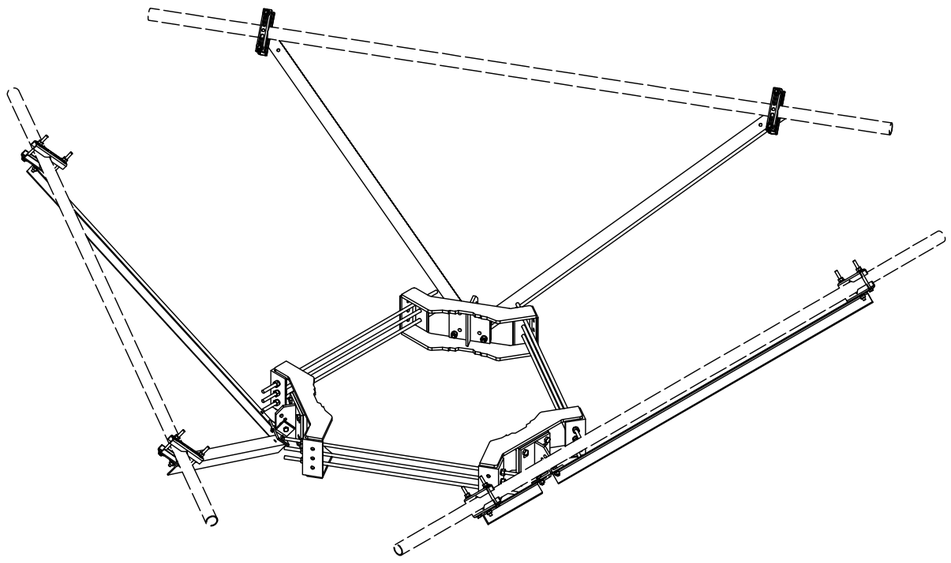
SHEET DESCRIPTION

MOUNT REINFORCEMENT

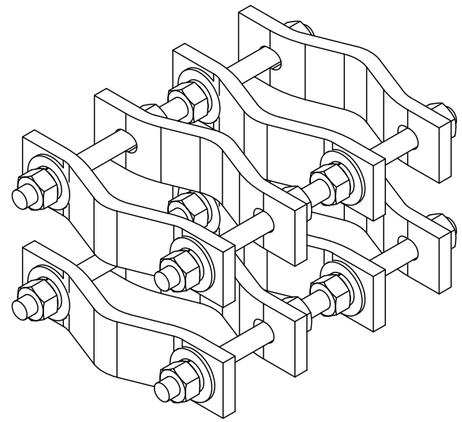
SHEET No.

S-1

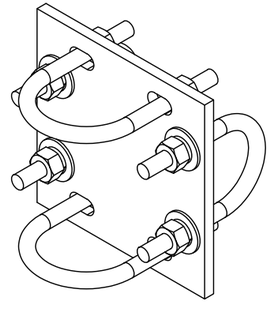
MOUNT KIT	
PART NUMBER	DESCRIPTION
PRK-SFS-L	REINFORCEMENT ASSEMBLY KIT



MOUNT KIT	
PART NUMBER	DESCRIPTION
DCP18K	PIPE TO PIPE CLAMP SET



MOUNT KIT	
PART NUMBER	DESCRIPTION
XP-2020	CROSSOVER PLATE KIT



CROWN CASTLE

1220 AUGUSTA DRIVE SUIT 500
HOUSTON, TX 77057

AT&T

Trylon

1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

STATE OF CONNECTICUT
CLIFF ABERNATHY
No. 31022
LICENSED
PROFESSIONAL ENGINEER
4-20-22

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	04/18/22	FOR REVIEW	RC

SITE INFORMATION

SITE NAME:
BRANFORD / I-95 / X55 / DTN 1

SITE NUMBER:
CT5199

FA NUMBER:
10070944

SITE ADDRESS:
10 SYLVIA ST,
BRANFORD, CT 06405

SHEET DESCRIPTION

MOUNT REINFORCEMENT DETAILS

SHEET No.

S-2

AT&T

AT&T SITE NUMBER: CTL05199
AT&T SITE NAME: BRANFORD EAST
AT&T FA CODE: 10070944
AT&T PACE NUMBER: MRCTB054220, MRCTB055335, MRCTB054598, MRCTB054605, MRCTB053260, MRCTB053262
AT&T PROJECT: LTE 6C, BBU RECONFIGURATION WITH NEW IDS, 5G NR 1SR CBAND, 5G NR ACTIVATION

BUSINESS UNIT #: 822765
SITE ADDRESS: 10 SYLVIA ST, BRANFORD, CT 06405
COUNTY: NEW HAVEN
SITE TYPE: MONOPOLE
TOWER HEIGHT: 125'-0"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRANFORD/ I-95/ X55/ DTN1
SITE ADDRESS:	10 SYLVIA ST BRANFORD, CT 06405
COUNTY:	NEW HAVEN
MAP/PARCEL #:	G05/F05/004/00017
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 17' 38.01"
LONGITUDE:	-72° 47' 8.62"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	56'
CURRENT ZONING:	BL
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	322 EAST MAIN STREET LLC 375 FAIRFIELD AVE STAMFORD, CT 06902
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO (800) 286-2000
TELCO PROVIDER:	COMCAST (800) 934-6489

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS MARVIN.PHILLIPS@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM HEATHER MILLER - AES HEATHER.MILLER@CROWNCASTLE.COM

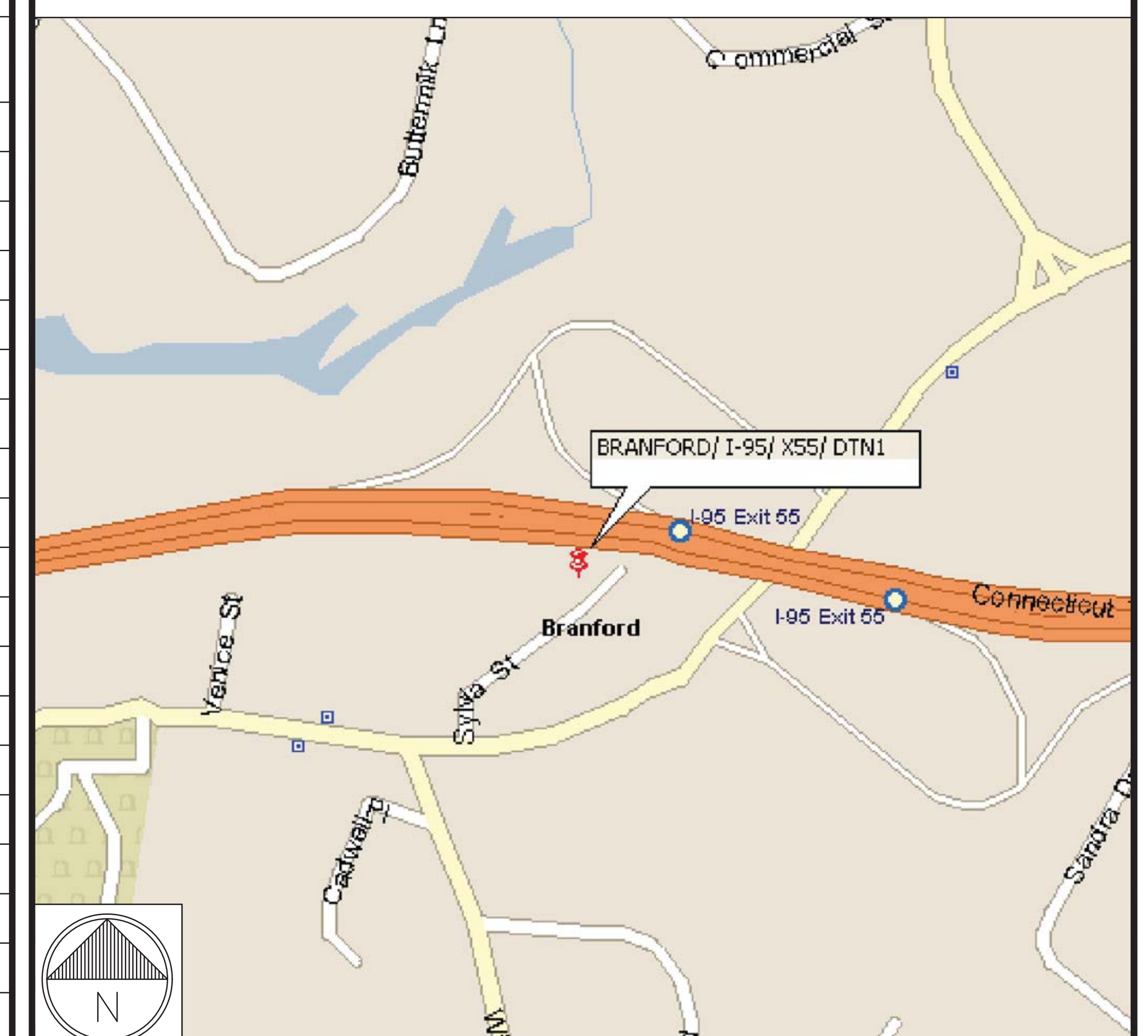
NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) POWERWAVE - 7770.00 ANTENNA
- REMOVE (1) CCI - HPA-65R-BUU-H6 ANTENNAS
- REMOVE (2) ANDREW - SBNHH-1D65A ANTENNAS
- REMOVE (1) KATHREIN - 800 10965 ANTENNA
- REMOVE (2) KATHREIN - 800 10964 ANTENNAS
- REMOVE (6) POWERWAVE - LGP 21401 TMAS
- REMOVE (1) RAYCAP - DC6-48-60-0-8C SQUID
- INSTALL (1) CCI - TPA65R-BU6DA-K ANTENNA
- INSTALL (2) CCI - TPA65R-BU4DA-K ANTENNAS
- INSTALL (6) ERICSSON - AIR6449 B77D+AIR6419 B77G STACKED ANTENNAS
- INSTALL (3) ERICSSON - 4478 B14 RRUS
- INSTALL (1) RAYCAP - DC6-48-60-18-8C-EV SQUID
- INSTALL (1) 3/8" 18-PAIR FIBER CABLE
- INSTALL (6) MOUNT PIPES
- INSTALL (6) DUAL RRU MOUNTS
- INSTALL (6) Y CABLES
- INSTALL MOUNT MODIFICATIONS PER MOUNT MODIFICATION DRAWINGS BY TRYLON DATED A4/18/22

GROUND SCOPE OF WORK:
- REMOVE (6) KATHREIN - 782 10250 DIPLEXERS
- REMOVE (1) XMU
- REMOVE (3) BATTERY STRINGS
- REMOVE (1) UMTS CABINET
- INSTALL (1) 6648 W/XCEDE CABLE
- INSTALL (6) RECTIFIERS
- INSTALL (3) 170AH BATTERY STRINGS
- INSTALL (1) BATTERY CABINET W/(2) STRINGS

APPLICABLE CODES & REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT SBC/2015 IBC
MECHANICAL	2018 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2018 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	4/25/22
MOUNT MOD ANALYSIS:	TRYLON
DATED:	4/20/22
RFDS REVISION:	FINAL
DATED:	5/16/22
ORDER ID:	586264
REVISION:	0

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

AT&T SITE NUMBER: **CTL05199**

BU #: **822765**
BRANFORD/ I-95/ X55/ DTN1

10 SYLVIA ST
BRANFORD, CT 06405

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	5/2/22	JHW	PRELIMINARY REVIEW	MJ
0	6/1/22	YX	CONSTRUCTION	LR

No. 23924 LICENSED PROFESSIONAL ENGINEER 6/1/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

SHEET NUMBER:	REVISION:
T-1	0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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BU #: **822765**
BRANFORD/ I-95/ X55/ DTN1

10 SYLVIA ST
BRANFORD, CT 06405

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

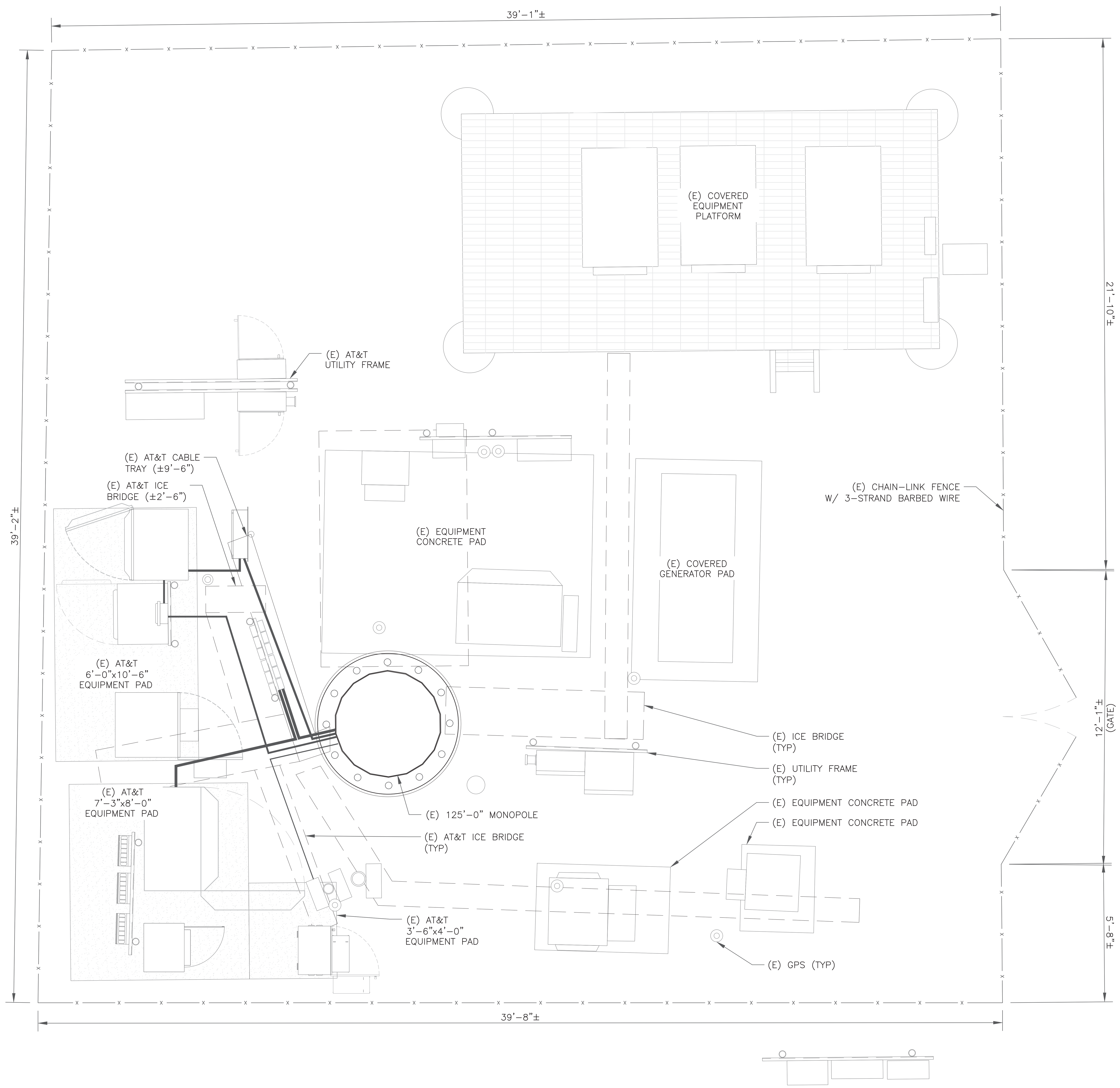
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	5/2/22	JHW	PRELIMINARY REVIEW	MJ
0	6/1/22	YX	CONSTRUCTION	LR

CHAD TUTTLE
No. 23924
6/1/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

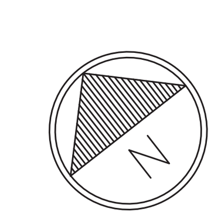
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2
REVISION: 0



1 SITE PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)



AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

AT&T SITE NUMBER: **CTL05199**

BU #: **822765**
BRANFORD/ I-95/ X55/ DTN1

10 SYLVIA ST
BRANFORD, CT 06405

EXISTING
125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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0	6/1/22	YX	CONSTRUCTION	LR

6/1/22

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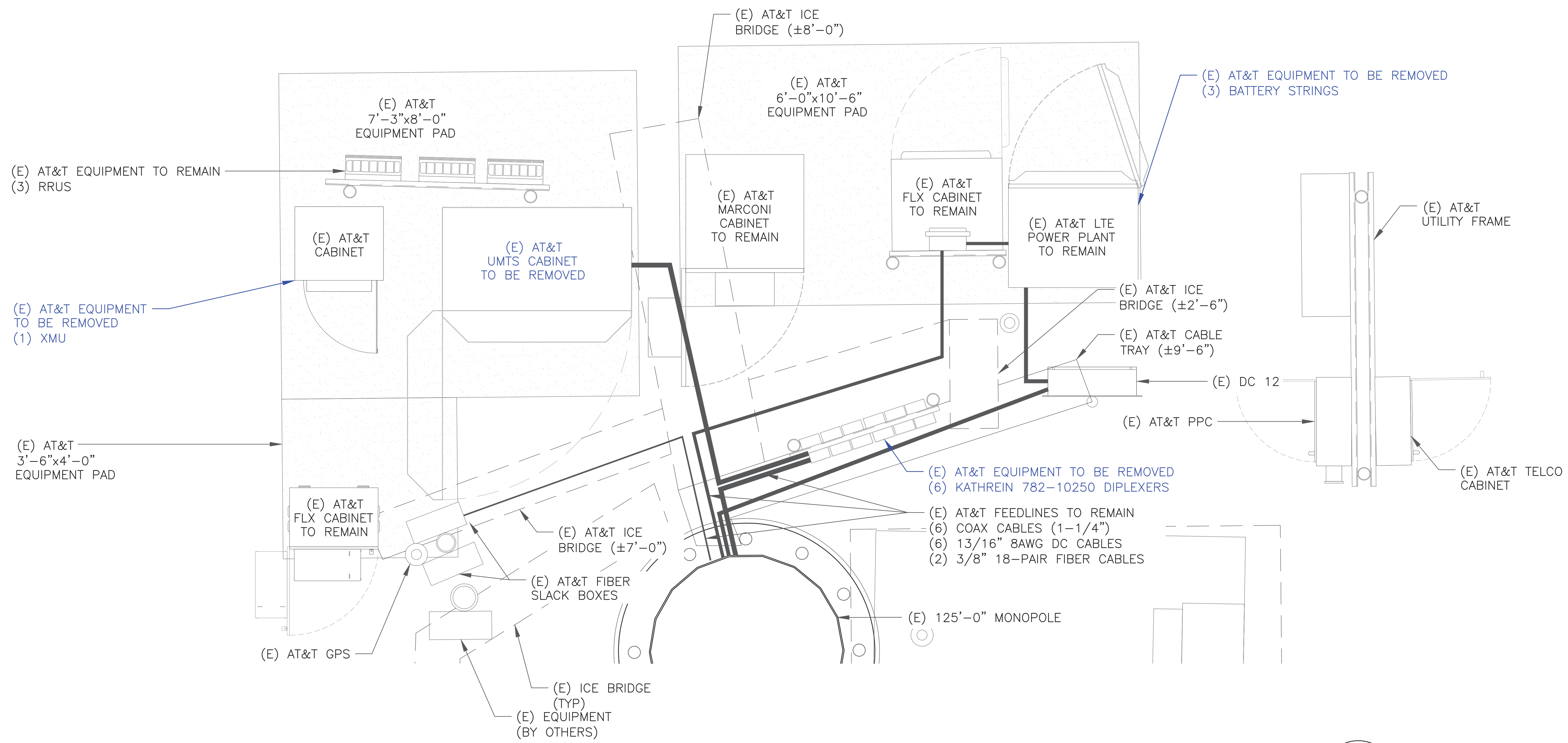
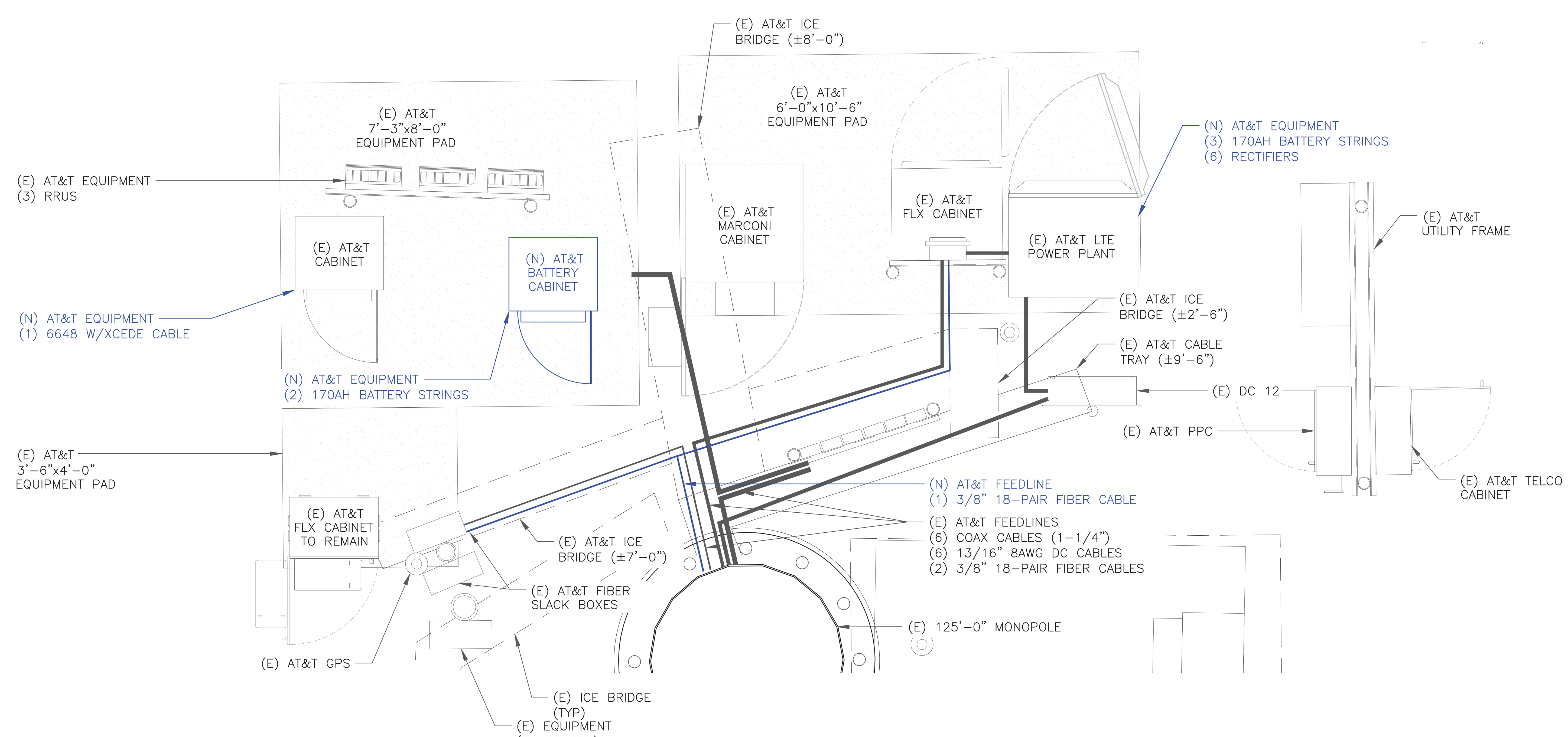
SHEET NUMBER: C-1.1

REVISION: 0



1 EXISTING EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

GROUND SCOPE OF WORK:

- REMOVE (6) KATHREIN – 782 10250 DIPLEXERS
- REMOVE (1) XMU
- REMOVE (3) BATTERY STRINGS
- REMOVE (1) UMTS CABINET
- INSTALL (1) 6648 W/XCEDE CABLE
- INSTALL (6) RECTIFIERS
- INSTALL (3) 170AH BATTERY STRINGS
- INSTALL (1) BATTERY CABINET W/(2) STRINGS

NOTE:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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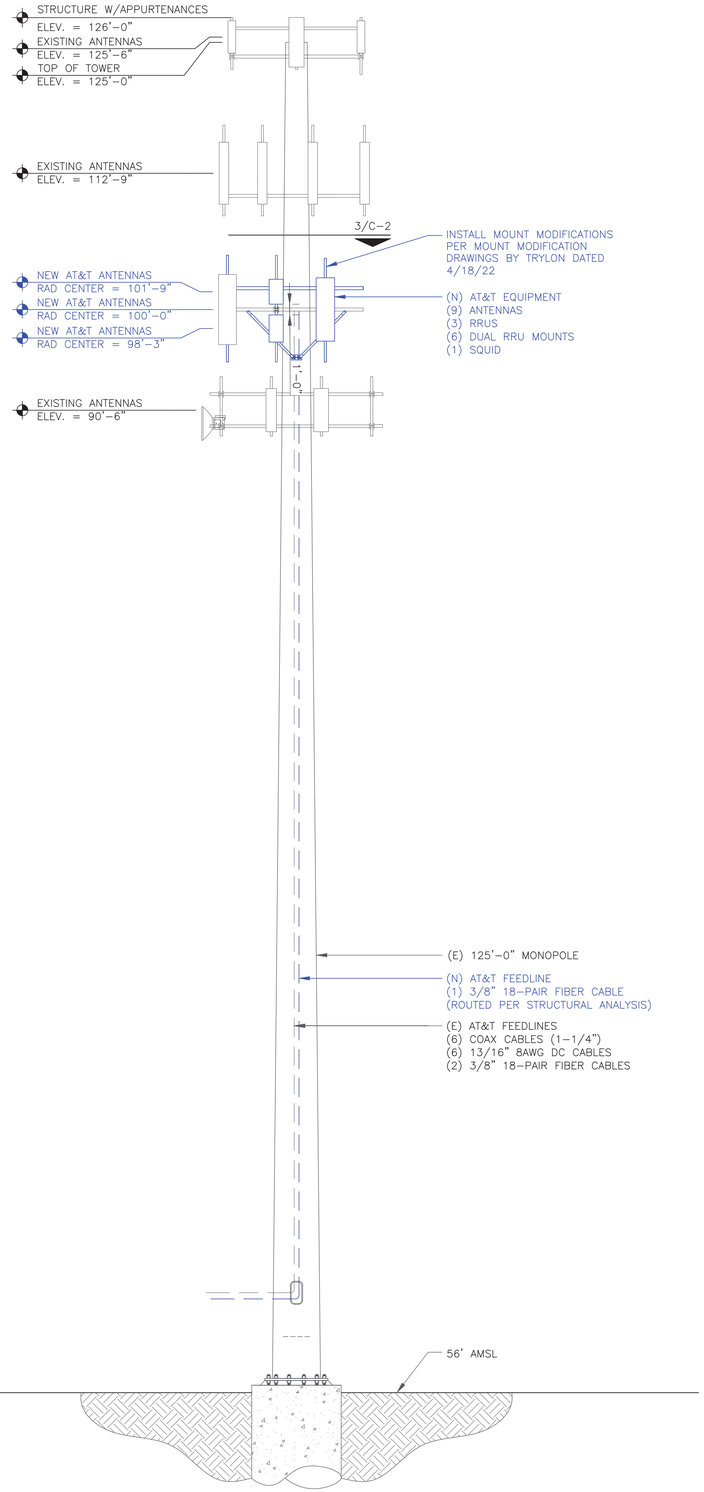
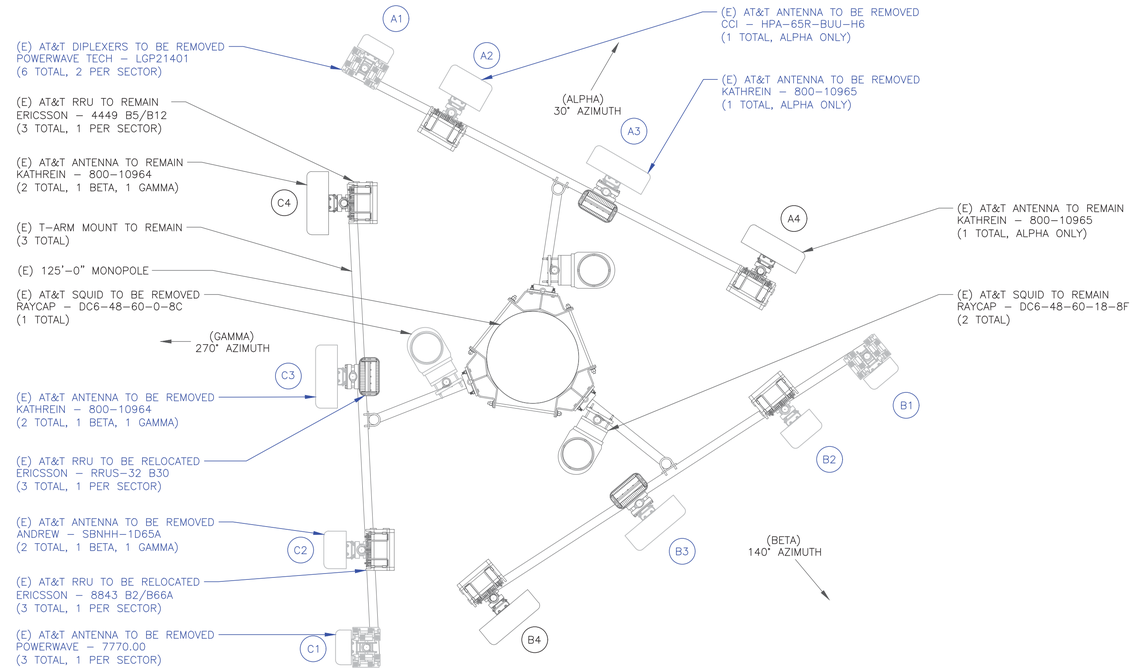
SHEET NUMBER: C-1.2

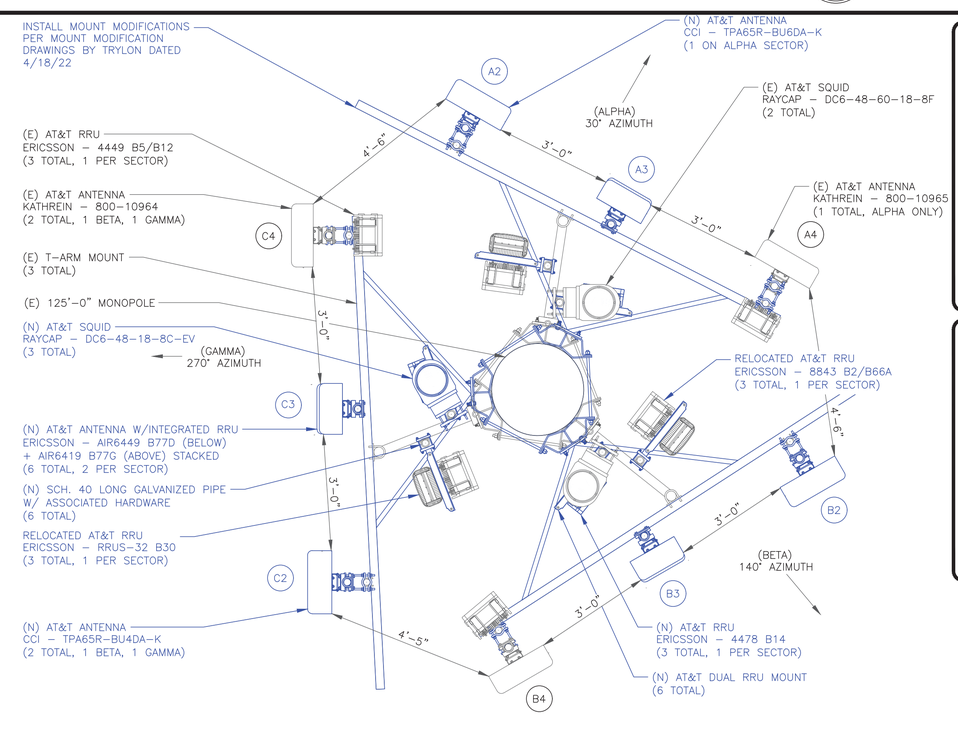
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



3 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

"LOOK UP" - CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-2

REVISION: 0

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA TECH.	ANTENNA STATUS/MANUFACTURER MODEL	ANTENNA AZIMUTH	ANTENNA RAD CENTER	RADIO QTY.	RADIO STATUS/MODEL	RADIO LOCATION	DIPLEXER QTY.	DIPLEXER STATUS	DIPLEXER LOCATION	TMA QTY.	TMA STATUS/MANUFACTURER MODEL	SURGE PROTECTION QTY.	SURGE PROTECTION STATUS/MODEL	CABLES QTY.	CABLES STATUS/TYPE	CABLES SIZE	CABLES LENGTH
ALPHA																		
A2	LTE/5G	(N) CCI – TPA65R-BU6DA-K	30°	100'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1 1	(E) 8843 B2/B66A Y-CABLE	TOWER											
A3	5G CBAND/ 5G 3.5GHZ	(N) ERICSSON – AIR6419 B77G	30°	101'-9"	1	(N) INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2	(E) 8AWG DC	13/16"	150'-0"
		(N) ERICSSON – AIR6449 B77D		98'-3"	1	(N) INTEGRATED WITHIN	TOWER								1	(E) 18-PAIR FIBER	3/8"	150'-0"
A4	LTE/5G	(E) KATHREIN – 800-10965	30°	100'-0"	1 1	(E) 4449 B5/B12 Y-CABLE	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) RRUS-32 B30	TOWER											
BETA																		
B2	LTE/5G	(N) CCI – TPA65R-BU4DA-K	140°	100'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1 1	(E) 8843 B2/B66A Y-CABLE	TOWER											
B3	5G CBAND/ 5G 3.5GHZ	(N) ERICSSON – AIR6419 B77G	140°	101'-9"	1	(N) INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2	(E) 8AWG DC	13/16"	150'-0"
		(N) ERICSSON – AIR6449 B77D		98'-3"	1	(N) INTEGRATED WITHIN	TOWER								1	(E) 18-PAIR FIBER	3/8"	150'-0"
B4	LTE/5G	(E) KATHREIN – 800-10964	140°	100'-0"	1 1	(E) 4449 B5/B12 Y-CABLE	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) RRUS-32 B30	TOWER											
GAMMA																		
C2	LTE/5G	(N) CCI – TPA65R-BU4DA-K	270°	100'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1 1	(E) 8843 B2/B66A Y-CABLE	TOWER											
C3	5G CBAND/ 5G 3.5GHZ	(N) ERICSSON – AIR6419 B77G	270°	101'-9"	1	(N) INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(E) DC6-48-18-8C-EV	2	(E) 8AWG DC	13/16"	150'-0"
		(N) ERICSSON – AIR6449 B77D		98'-3"	1	(N) INTEGRATED WITHIN	TOWER								1	(N) 18-PAIR FIBER	3/8"	150'-0"
C4	LTE/5G	(E) KATHREIN – 800-10964	270°	100'-0"	1 1	(E) 4449 B5/B12 Y-CABLE	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) RRUS-32 B30	TOWER											
														UNUSED FEEDLINES:	6	(E) COAX	1-1/4"	150'-0"

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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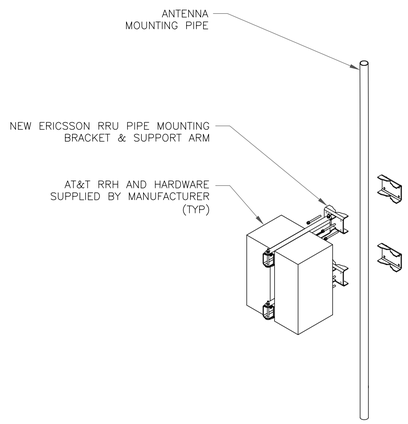
6/1/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

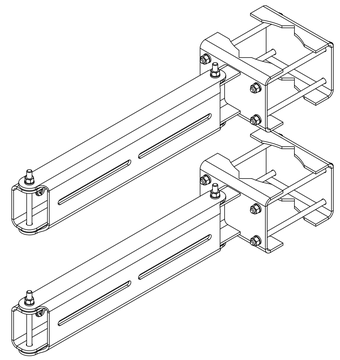
SHEET NUMBER: C-3
REVISION: 0

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



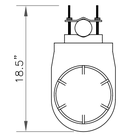
2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE

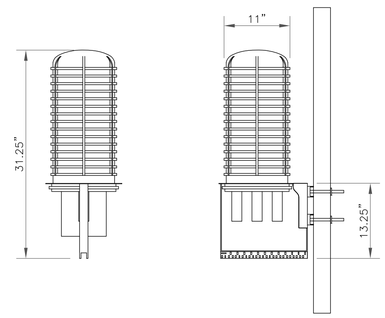
3 NOT USED
SCALE: NOT TO SCALE

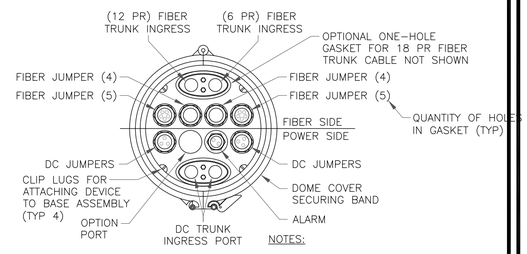
RAYCAP
DC6-48-60-18-8C-EV

RAYCAP – DC6-48-60-18-8C-EV
SIZE: 11x31.25 IN.
WEIGHT: 32.8 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 400 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION







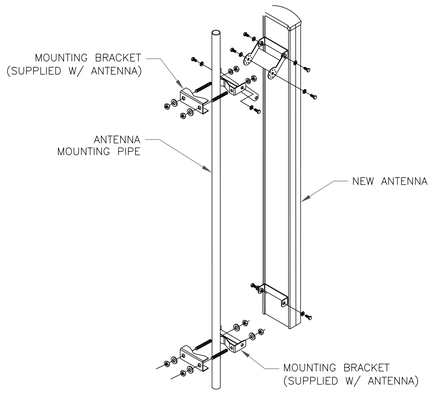
NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

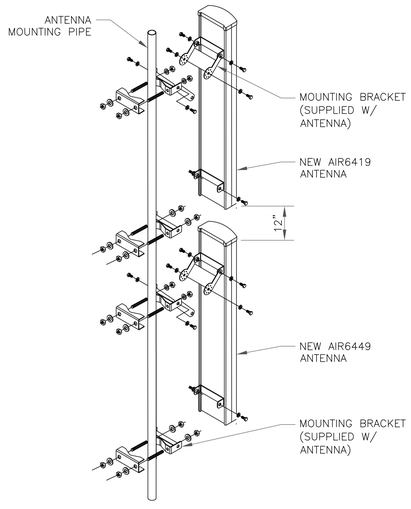
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



4 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



5 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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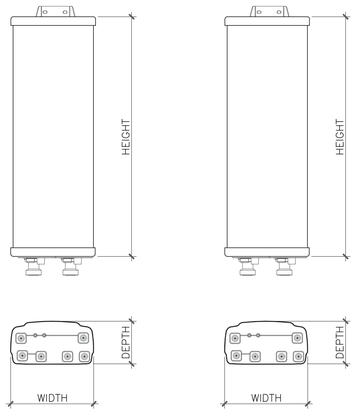
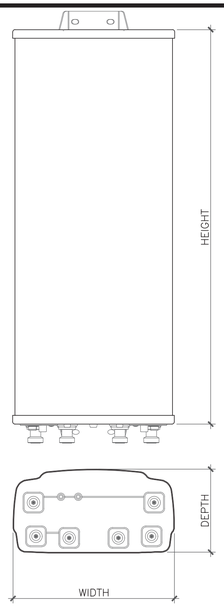
SHEET NUMBER: C-4

REVISION: 0



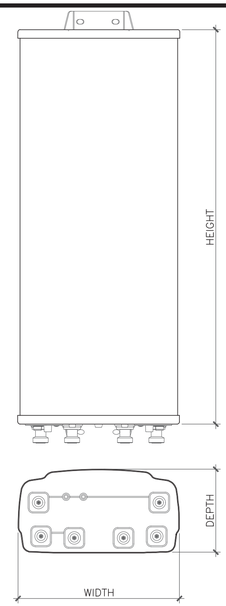
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON – AIR6449_B77D	30.39"	15.87"	8.07"	81.60 lbs
ERICSSON – AIR6419_B77G	31.10"	16.10"	7.30"	44.00 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



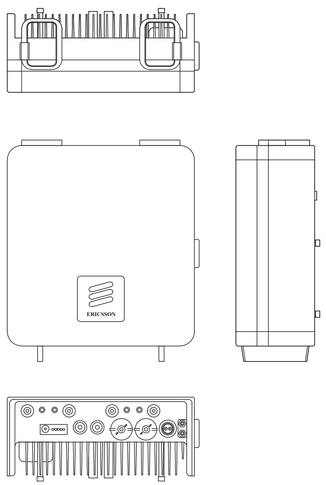
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
CCI – TPA65R–BU6DA–K	71.2"	20.7"	7.7"	68.3 lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
CCI – TPA65R–BU4DA–K	48"	21"	7.8"	61.6 lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON – RRUS 4478
WEIGHT: 60.0 LBS
SIZE (HxWxD): 15.0x13.0x8.0 IN.

4 RADIO DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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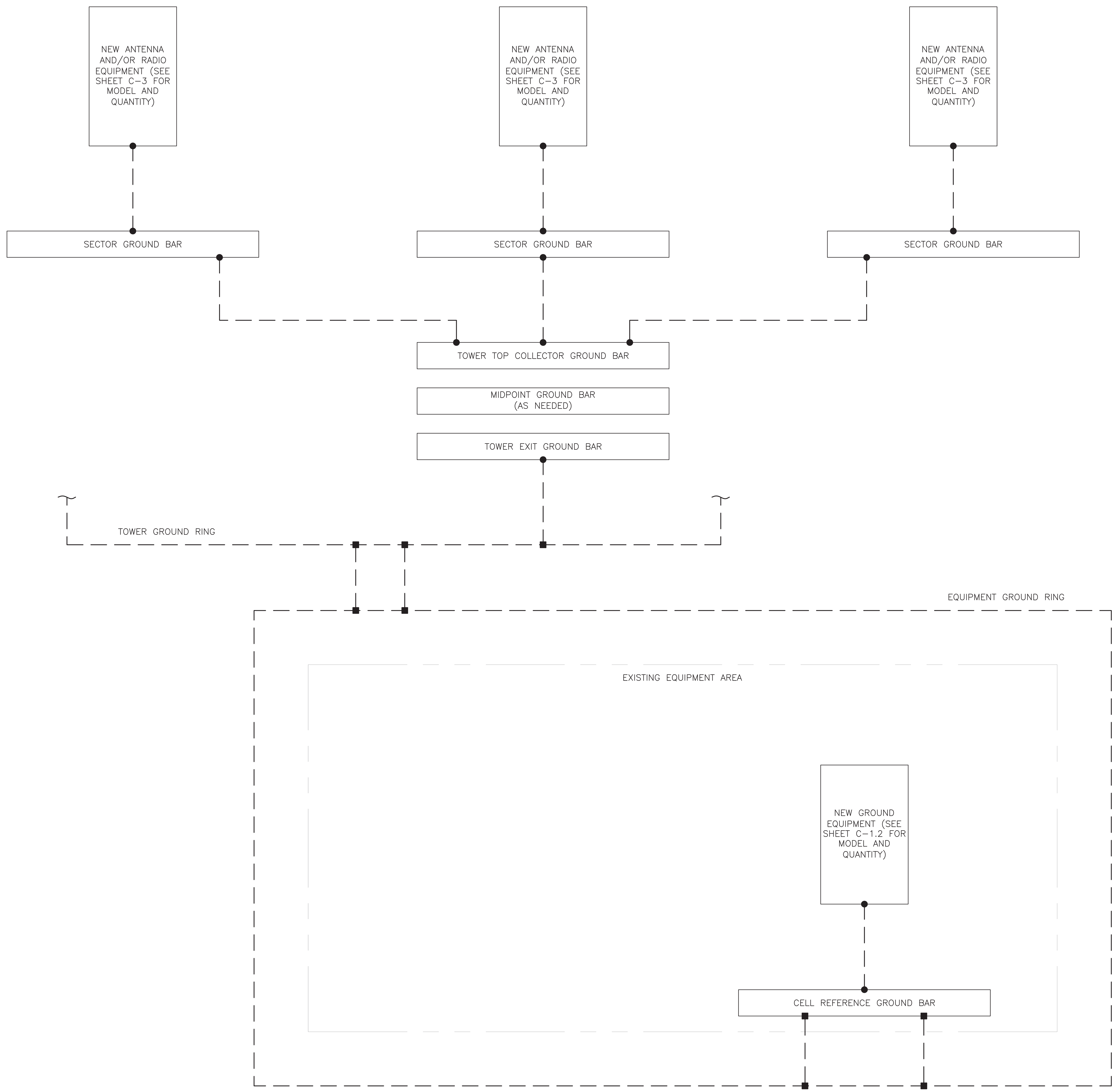
SHEET NUMBER: C-5

REVISION: 0



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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

AT&T SITE NUMBER: **CTL05199**

BU #: **822765**
BRANFORD/ I-95/ X55/ DTN1

10 SYLVIA ST
BRANFORD, CT 06405

EXISTING
125'-0" MONOPOLE

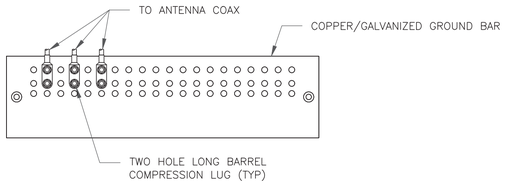
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	5/2/22	JHW	PRELIMINARY REVIEW	MJ
0	6/1/22	YX	CONSTRUCTION	LR

6/1/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

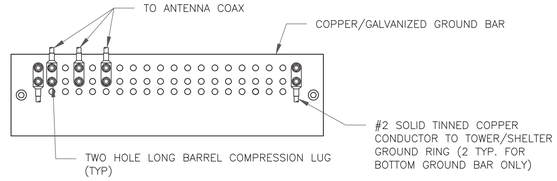
SHEET NUMBER: G-1
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

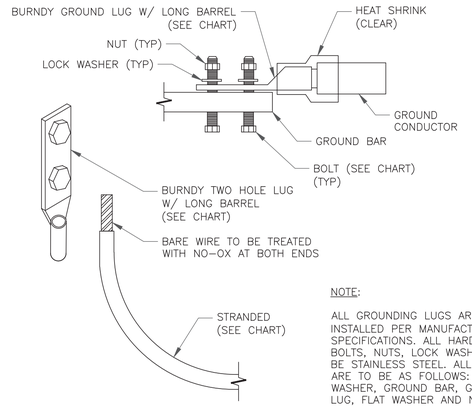


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

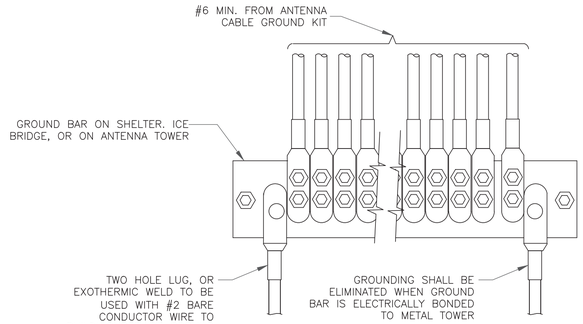
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



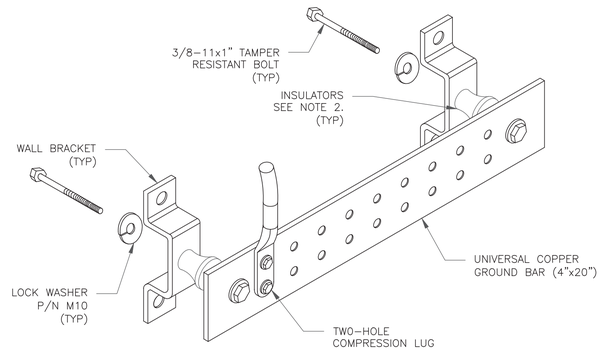
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

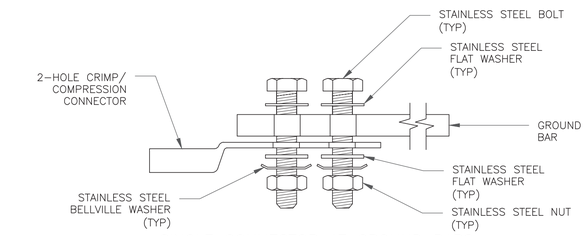


NOTES:

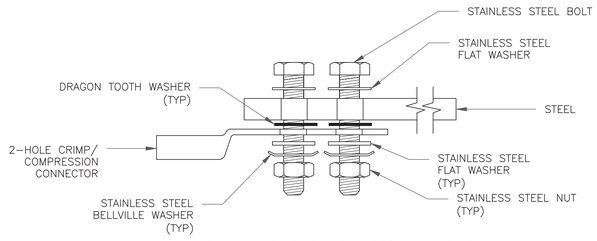
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

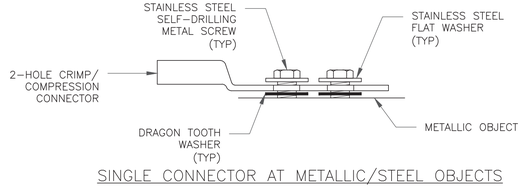
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

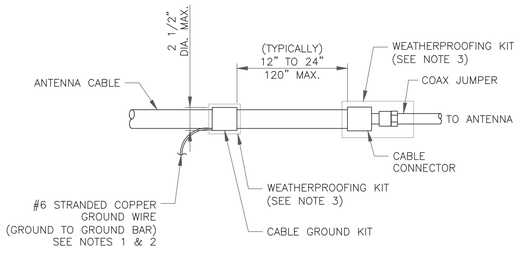


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

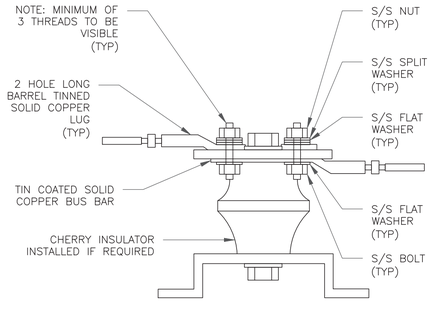
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: G-2

REVISION: 0

Diagram - Sector A | Diagram File Name - NewCband_3Ant_2Coax_BA12_DoD_CB_DMP__8843_1DCFib_1x5216_XMU_6630_6648.vsd

Atoll Site Name - CTL05199 | Location Name - BRANFORD EAST | Market - CONNECTICUT | Market Cluster - NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

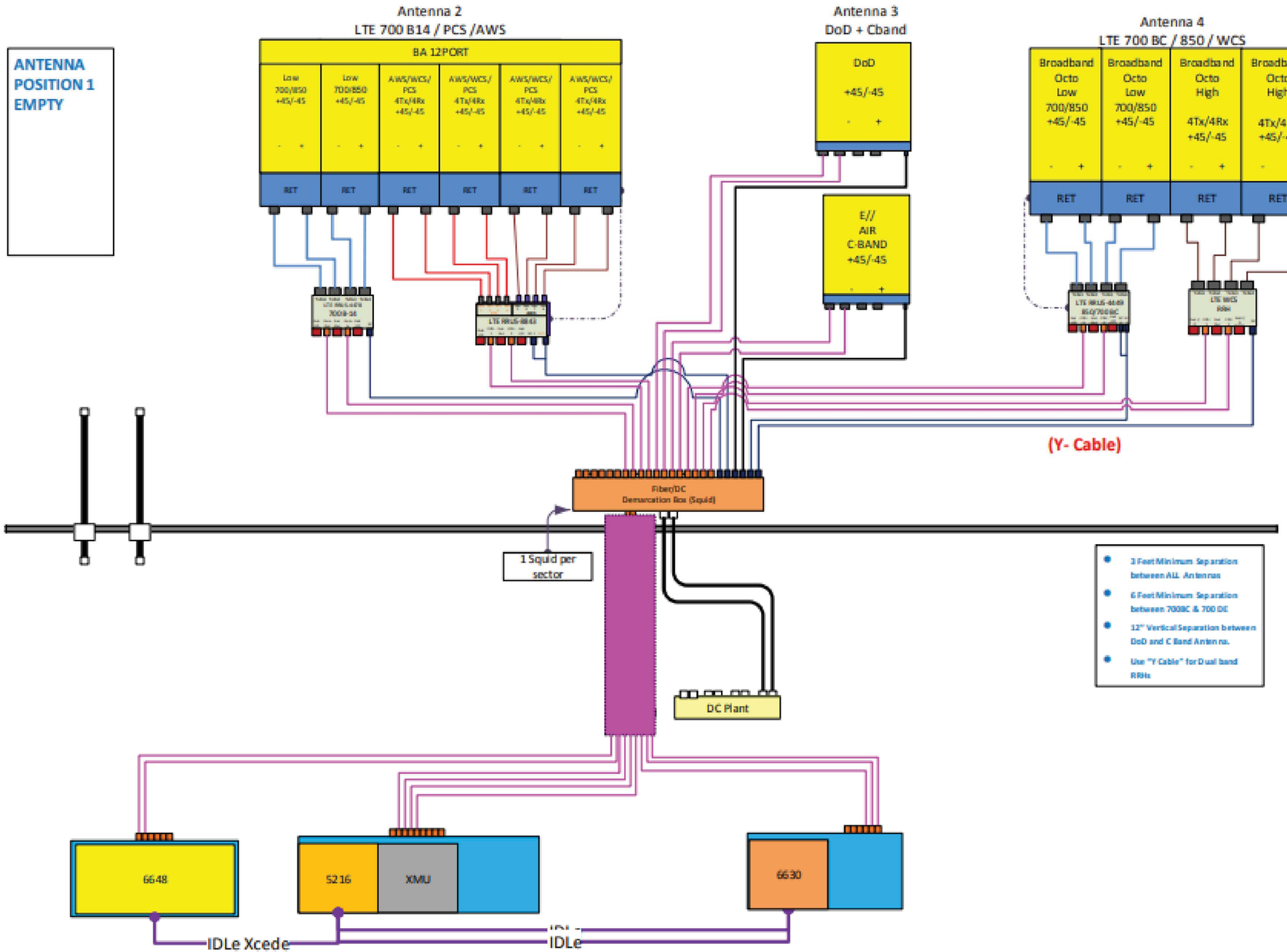


Diagram - Sector	B	Diagram File Name - NewCband_3Ant_2Coax_BA12_DoD_CB_DMP__8843_1DCFib_1x5216_XMU_6630_6648.vsd					
Atoll Site Name -	CTL05199	Location Name -	BRANFORD EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

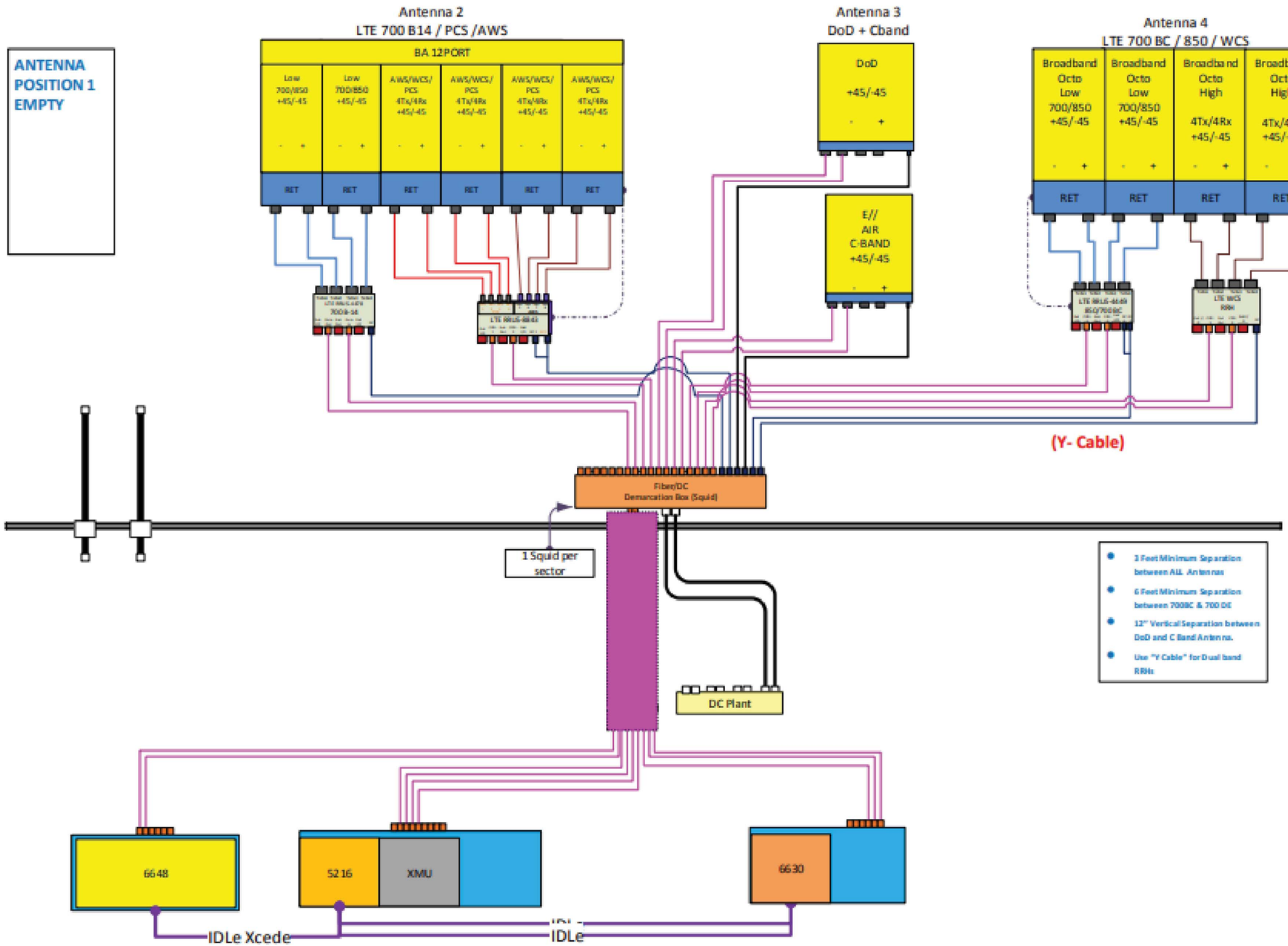
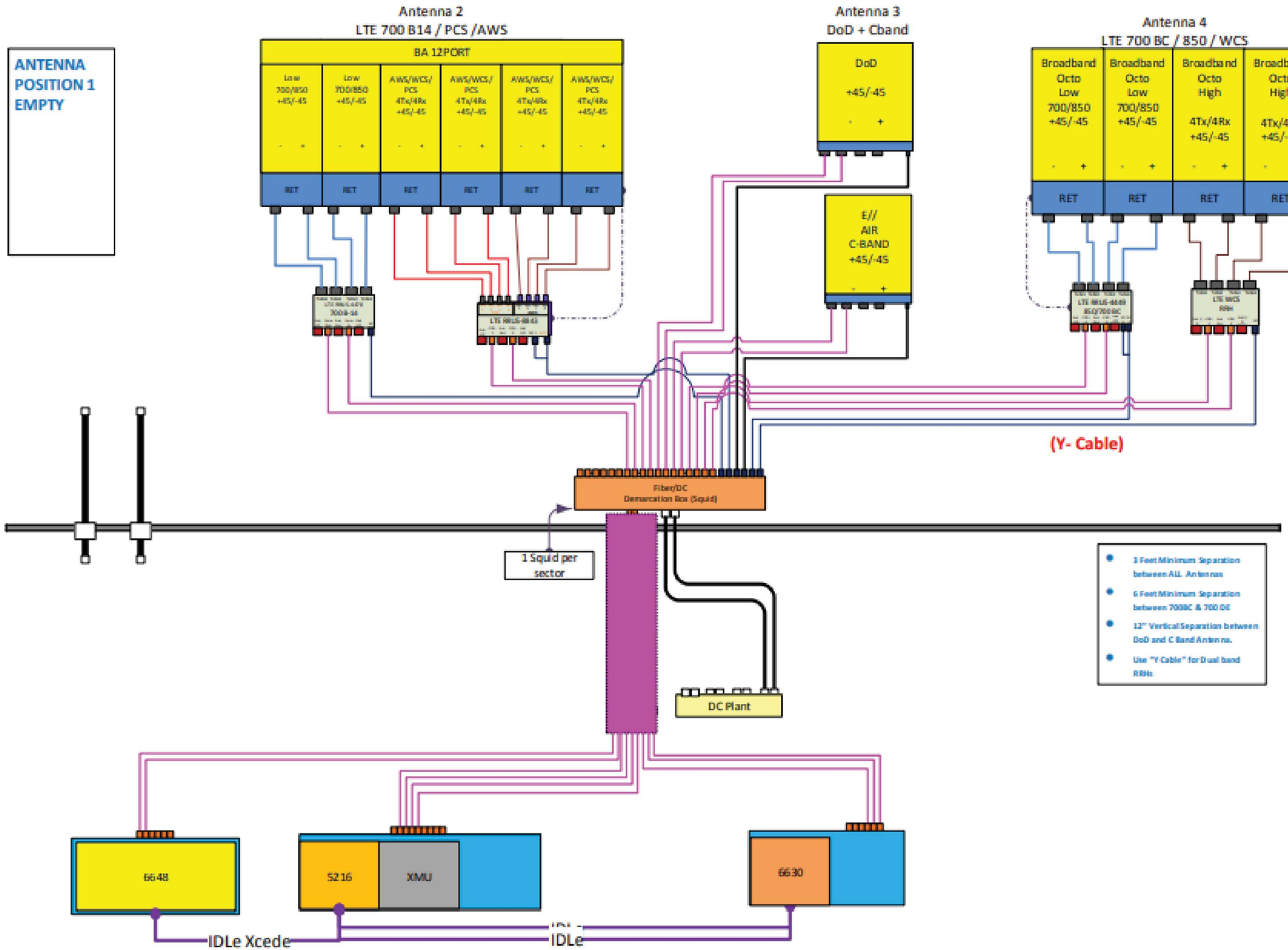


Diagram - Sector	C	Diagram File Name - NewCband_3Ant_2Coax_BA12_DoD_CB_DMP__8843_1DCFib_1x5216_XMU_6630_6648.vsd					
Atoll Site Name -	CTL05199	Location Name -	BRANFORD EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson							

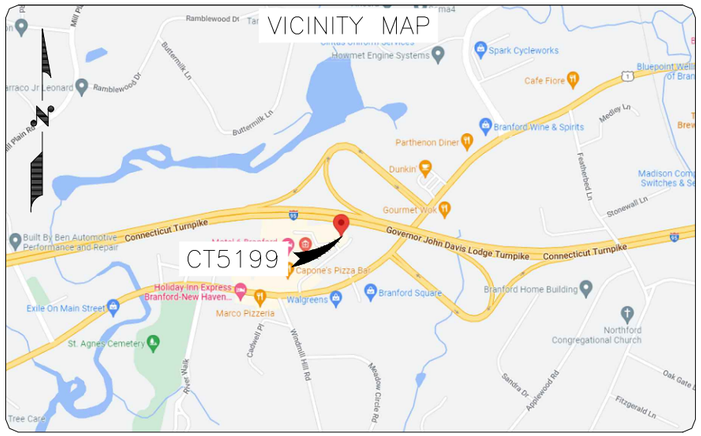


AT&T

UPGRADE:

MOUNT REINFORCEMENT

VICINITY MAP



GENERAL NOTES

PRIOR TO ACCESSING/ ENTERING THE SITE, YOU MUST CONTACT THE CROWN NOC AT 800-788-7011 AND CROWN CM
CHAD STEINHOFF- 214-287-3756, CHAD.STEINHOFF@CROWNCASTLE.COM

THE HEIGHT OF THE TOWER WILL NOT BE INCREASED, NOR AN EXPANSION OF THE GROUND/ LEASE AREA WHEN AND WHERE APPLICABLE

BUILDING CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL AUTHORITIES HAVING JURISDICTION

1. 2018 INTERNATIONAL BUILDING CODE
2. UNIFORM BUILDING CODE
3. CITY/COUNTY ORDINANCES
4. TIA-222-H

IF YOU DIG IN ANY STATE DIAL 811
FOR THE LOCAL "ONE CALL CENTER"
IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

SITE NAME:

BRANFORD / I-95 / X55 / DTN 1

SITE NUMBER:

CT5199

FA NUMBER:

10070944

CROWN CASTLE BU#:

822765

SITE ADDRESS:

10 SYLVIA ST,
BRANFORD, CT 06405

APPROVALS

AT&T CONSTRUCTION MANAGER	AT&T RF ENGINEER
LAND USE PLANNER	NETWORK OPERATION
PROPERTY OWNER	CONTRACTOR

DRIVING DIRECTION

FROM TWEED NEW HAVEN AIRPORT:
HEAD SOUTHWEST (417 FT). TURN LEFT (0.2 MI). TURN RIGHT ONTO BURR ST (0.2 MI). TURN LEFT TO STAY ON BURR ST (0.1 MI). SLIGHT LEFT ONTO CHARTER OAK AVE (0.6 MI). TURN LEFT ONTO MAIN ST (0.4 MI). TURN RIGHT ONTO OAKLEY ST (358 FT). TURN RIGHT ONTO US-1 N (0.5 MI). USE THE LEFT LANE TO TAKE THE RAMP ONTO I-95 N (0.2 MI). MERGE WITH I-95 N (5.0 MI). TAKE EXIT 55 FOR US-1/EAST MAIN ST TOWARD NORTH BRANFORD (0.4 MI). TURN LEFT ONTO US-1 S (0.2 MI). TURN RIGHT ONTO SYLVIA ST (0.1 MI). TURN LEFT (33 FT). SLIGHT RIGHT (79 FT). DESTINATION WILL BE ON THE RIGHT.

PROJECT INFORMATION

SCOPE OF WORK:	REINFORCE AS FOLLOWS: • INSTALL (6, 2 PER SECTOR) NEW 2.375" O.D., SCH. 40, 120" LONG MOUNTING PIPES ON POSITION #2 AND #4, CONNECTED TO THE EXISTING PIPES WITH (18, 6 PER SECTOR) NEW SITE PRO 1, DCP18K PIPE-TO-PIPE CLAMP SETS (EACH PIPE CONNECTED WITH CLAMPS AT THE TOP AND AT THE BOTTOM, AND AT 12" ABOVE THE FACE HORIZONTALS). • MOUNTING PIPES FROM POSITION #1 TO BE RELOCATED TO THE STANDOFF WHERE ALL EXISTING AND PROPOSED RRUs WILL BE INSTALLED (1 PER SECTOR). • KEEP POSITION #1 FREE FOR FUTURE ANTENNAS. • INSTALL (1) NEW SITE PRO 1, PRK-SFS-L CONNECTED TO THE TOWER AT 52" UNDER THE MOUNT, AND TO THE EXISTING FACE HORIZONTAL AT 52" FROM AN EDGE (ANTENNA POSITION #1) AND 18" FROM THE OTHER EDGE. • INSTALL (3, 1 PER SECTOR) NEW 2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPES AT 24" ABOVE THE EXISTING FACE HORIZONTALS AND CONNECTED TO ALL MOUNTING PIPES WITH NEW COMMSCOPE XP-2020 CROSSOVER PLATES (3 PER SECTOR).
JURISDICTION:	NEW HAVEN COUNTY
SITE NAME:	BRANFORD / I-95 / X55 / DTN 1
SITE ADDRESS:	10 SYLVIA ST, BRANFORD, CT 06405
LATITUDE:	41° 17' 38.16"
LONGITUDE:	-72° 47' 8.54"
TOWER TYPE:	MONOPOLE
OVERALL TOWER HEIGHT:	125'
ELEVATION OF WORK ON TOWER:	100'

SHEET INDEX

SHEET #	DESCRIPTION	REVISION #
T-1.	TITLE SHEET	0
S-1	MOUNT REINFORCEMENT	0
S-2	MOUNT REINFORCEMENT DETAILS	0

CROWN CASTLE
1220 AUGUSTA DRIVE SUIT 500
HOUSTON, TX 77057

AT&T

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

STATE OF CONNECTICUT
CLIFF ABERNATHY
No. 31022
LICENSED
PROFESSIONAL ENGINEER
4-20-22

DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	04/18/22	FOR REVIEW	RC

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BRANFORD, CT 06405

SHEET DESCRIPTION

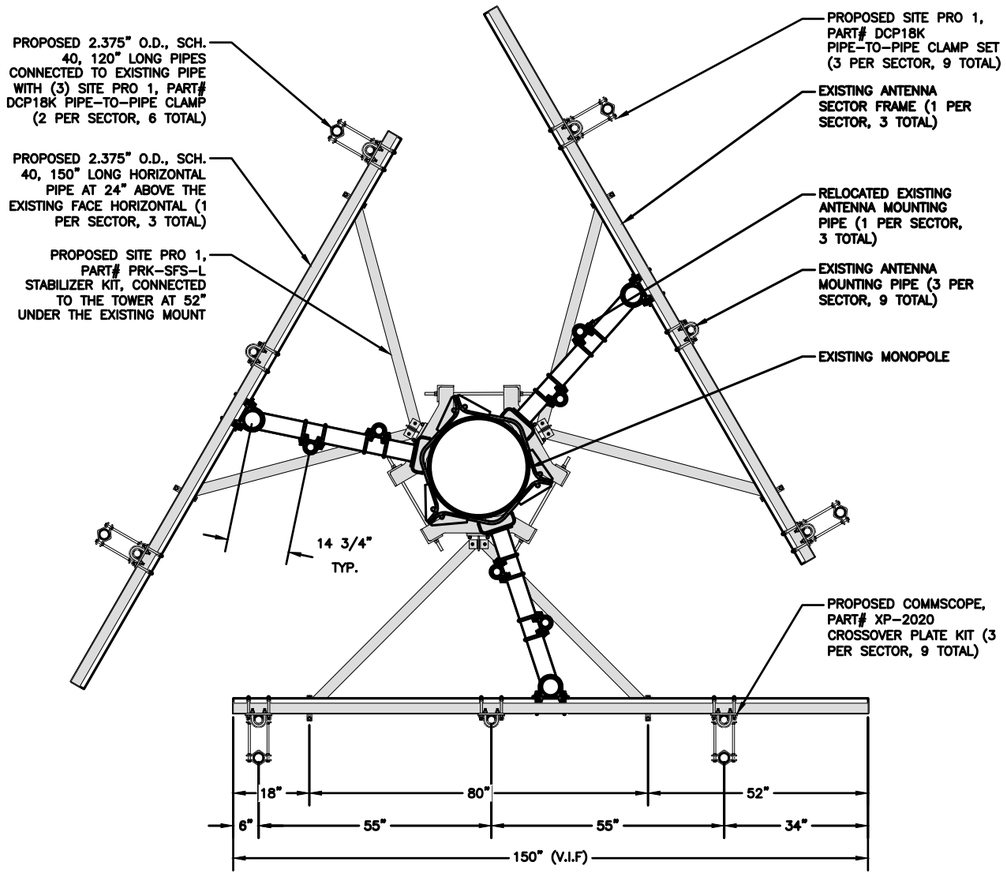
TITLE SHEET

SHEET No.

T-1

INSTALLATION NOTES:

- INSTALL (6, 2 PER SECTOR) NEW 2.375" O.D., SCH. 40, 120" LONG MOUNTING PIPES ON POSITION #2 AND #4, CONNECTED TO THE EXISTING PIPES WITH (18, 6 PER SECTOR) NEW SITE PRO 1, DCP18K PIPE-TO-PIPE CLAMP SETS (EACH PIPE CONNECTED WITH CLAMPS AT THE TOP AND AT THE BOTTOM, AND AT 12" ABOVE THE FACE HORIZONTALS).
- MOUNTING PIPES FROM POSITION #1 TO BE RELOCATED TO THE STANDOFF WHERE ALL EXISTING AND PROPOSED RRUs WILL BE INSTALLED (1 PER SECTOR).
- KEEP POSITION #1 FREE FOR FUTURE ANTENNAS.
- INSTALL (1) NEW SITE PRO 1, PRK-SFS-L CONNECTED TO THE TOWER AT 52" UNDER THE MOUNT, AND TO THE EXISTING FACE HORIZONTAL AT 52" FROM AN EDGE (ANTENNA POSITION #1) AND 18" FROM THE OTHER EDGE.
- INSTALL (3, 1 PER SECTOR) NEW 2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPES AT 24" ABOVE THE EXISTING FACE HORIZONTALS AND CONNECTED TO ALL MOUNTING PIPES WITH NEW COMMSCOPE XP-2020 CROSSOVER PLATES (3 PER SECTOR).

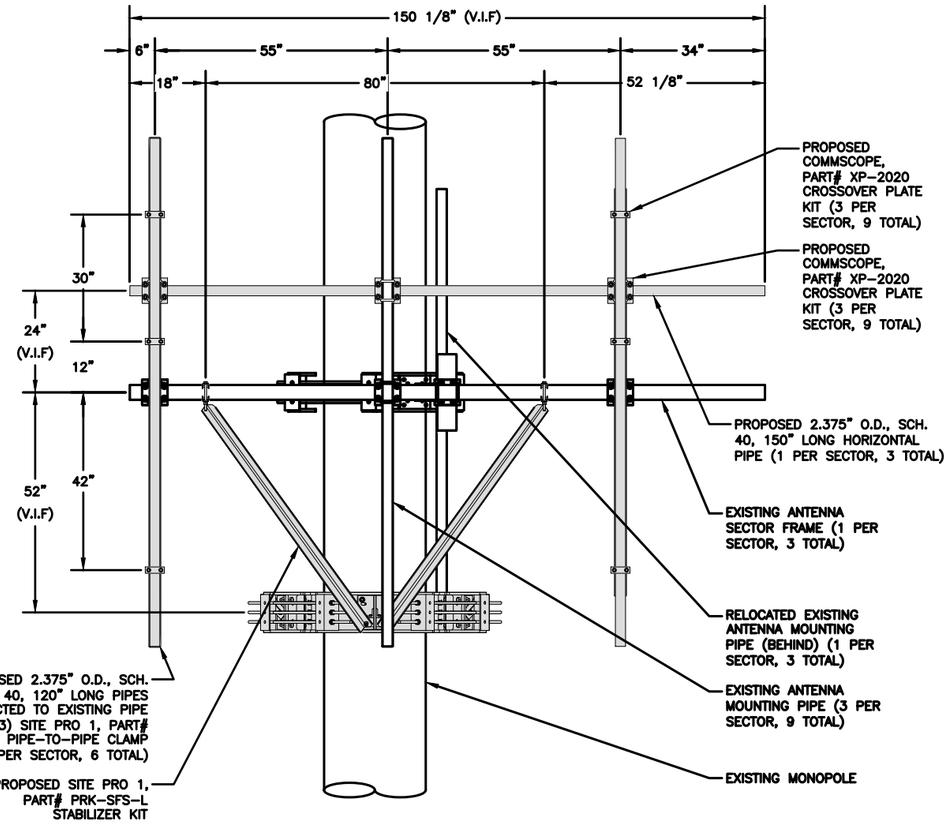


EQUIPMENT NOT SHOWN FOR CLARITY.

1 / S-1 PROPOSED PLAN VIEW (ALL SECTORS)
SCALE: 3/4" = 1'-0"

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

BILL OF MATERIALS		
QTY.	KIT NO./PART NO.	DESCRIPTION
1 PER SECTOR, 3 TOTAL	–	2.375" O.D., SCH. 40, 150" LONG HORIZONTAL PIPE
2 PER SECTOR, 6 TOTAL	–	2.375" O.D., SCH. 40, 120" LONG PIPE
3 PER SECTOR, 9 TOTAL	XP-2020	CROSSOVER PLATE KIT
3 PER SECTOR, 9 TOTAL	DCP18K	PIPE-TO-PIPE CLAMP SET
1 TOTAL	PRK-SFS-L	STABILIZER KIT



EQUIPMENT NOT SHOWN FOR CLARITY.

2 / S-1 PROPOSED ELEVATION VIEW (ALL SECTORS)
SCALE: 3/4" = 1'-0"

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

GENERAL NOTES:

1. ALL STEEL ANGLE TO BE ASTM A36 (GR 36) OR BETTER.
2. ALL STEEL PLATE TO BE ASTM A36 (GR 36) OR BETTER.
3. ALL PIPES TO BE ASTM A53 (GR 35) OR BETTER.
4. HOT DIP GALVANIZE LEVEL 3 PARTS.
5. APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILL EDGES.
6. ALL BOLTS TO MAINTAIN 1" EDGE DISTANCE.

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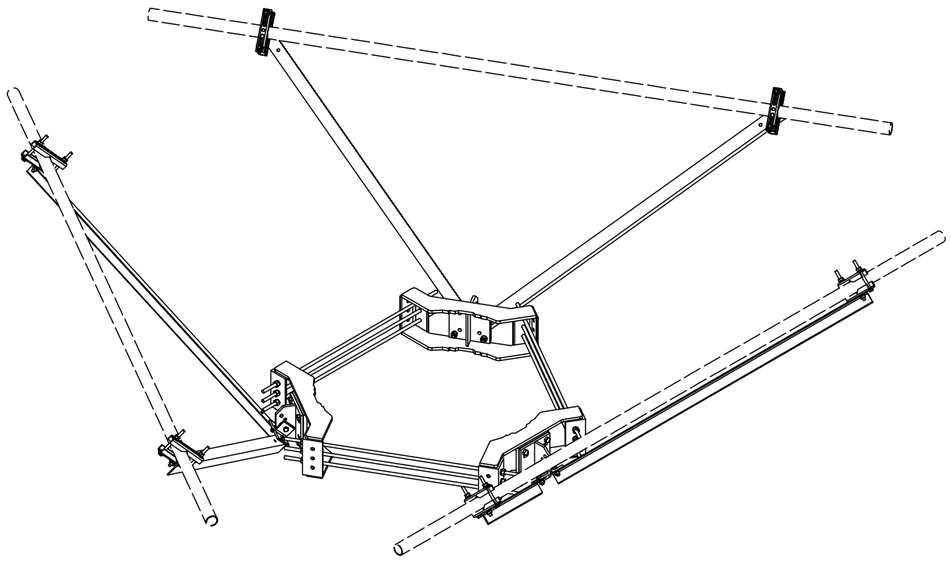
SHEET DESCRIPTION

MOUNT REINFORCEMENT

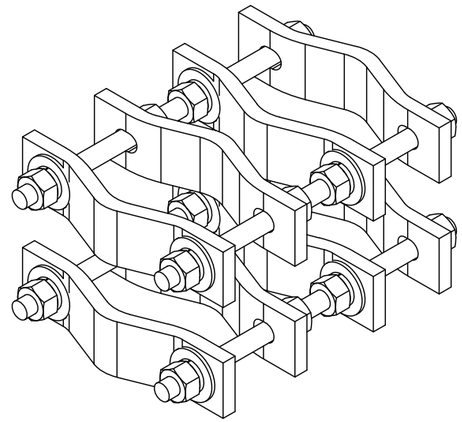
SHEET No.

S-1

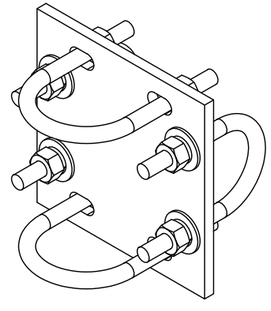
MOUNT KIT	
PART NUMBER	DESCRIPTION
PRK-SFS-L	REINFORCEMENT ASSEMBLY KIT



MOUNT KIT	
PART NUMBER	DESCRIPTION
DCP18K	PIPE TO PIPE CLAMP SET



MOUNT KIT	
PART NUMBER	DESCRIPTION
XP-2020	CROSSOVER PLATE KIT



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SHEET DESCRIPTION

MOUNT REINFORCEMENT DETAILS

SHEET No.

S-2