



1 Cityplace Dr, Suite 490  
Creve Coeur, MO 63141

Phone: (314) 513-0147  
www.crowncastle.com

December 9, 2021

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

RE: **Notice of Exempt Modification for Sprint  
Crown Site ID#876315; Sprint Site ID#CT11585A  
1027 Racebrook Road, WOODBRIDGE, CT 06525  
Latitude: 41° 19' 0.30"/ Longitude: -73° 0' 41.80"**

Dear Ms. Bachman:

Sprint currently maintains (6) antennas at the 150-foot mounts on the existing 150'-6" Monopole Tower located at **1027 Racebrook Road, WOODBRIDGE**. The property is owned by Tradition Golf Club at Oak Lane LLC and the Tower by Crown Castle. Sprint now intends to replace six (6) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

**Planned Modifications:**

**Tower:**

**REMOVE AND REPLACE**

- (3) RFS/Celwave – APXVTM14-C-120 Antennas (**REMOVE**), (3) RFS – APXVAALL24\_43\_U\_NA20 Antennas (**REPLACE**)
- (3) RFS/Celwave – APXVSPP18-C-A20 Antennas (**REMOVE**), (3) Ericsson - AIR6449\_B41 Antennas (**REPLACE**)
- (3) Alcatel Lucent - 1900MHZ (65MHZ) Remote Radio head's (**REMOVE**), (3) Ericsson Radio 4460 B25 + B66 Remote Radio heads (**REPLACE**)
- (3) Alcatel Lucent – TD – RRH8X20-25 (**REMOVE**), (3) Ericsson Radio 4480 B71+B85 Remote Radio heads (**REPLACE**)
- (3) Alcatel Lucent – 800MHZ Remote Radio heads (**REMOVE**)
- (3) Alcatel Lucent – 800 External Notch Filter (**REMOVE**)
- (9) RFS/Celwave – ACU-A20-N TMA (**REMOVE**)
- (3) Hybrid Cable (**REMOVE**), (3) Hybrid Cables (1 – 5/8") (**REPLACE**)

**Ground:**

**REMOVE:**

All Existing equipment (**REMOVE**)

**INSTALL:**

- (1) 6160 Battery Cabinet
- (1) B160 Battery Cabinet
- (1) IXRE Router in (P) Cabinet
- (1) DUG20 in (P) Cabinet

---

The Foundation for a Wireless World.

CrownCastle.com



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Creve Coeur, MO 63141

Phone: (314) 513-0147  
[www.crowncastle.com](http://www.crowncastle.com)

- (3) BB6648 in (P) Cabinet
- New T-Mobile 2" Conduit
- (1) LTFC BET. 6160 & PPC
- (2) PVC (SCG.40) BET. 6160 & PPC
- (1) PVC (SCH.40) BET. 6160 & AAV
- (\*) Upgrade Service to 200AMP

The Facility was approved by the Town of Woodbridge Planning and Zoning Commission between July 1997 and January 1998. A Building permit was issued to Sprint on January 21, 1998.

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 Beth Heller, Town of Woodbridge First Selectman, Kristine Sullivan, Zoning Enforcement Officer, Tradition Golf Club at Oak Lane LLC as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. 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.
4. 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.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint 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).

Sincerely,

Ersilia Davis  
NETWORK BUILDING + CONSULTING  
1777 Sentry Parkway W | VEVA 17, Suite 400, Blue Bell, PA 19422  
[edavis@nbcllc.com](mailto:edavis@nbcllc.com)  
(551)804-0667



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Creve Coeur, MO 63141

Phone: (314) 513-0147  
[www.crowncastle.com](http://www.crowncastle.com)

cc:

Beth Heller, First Selectman  
11 Meetinghouse Lane  
Woodbridge, CT 06525  
(203) 389- 3401  
*(Via Fedex)*

Kristine Sullivan, Acting Zoning Enforcement Office  
11 Meetinghouse Lane  
Woodbridge, CT 06525  
(203) 389- 3406  
*(Via Fedex)*

The Tradition Golf Club at Oak Lane LLC  
1027 Racebrook Road  
Woodbridge, CT 06525  
(203) 397-5103  
*(Via Fedex)*



TRACK ANOTHER SHIPMENT

775442961490



ADD NICKNAME

Delivered  
Friday, 12/10/2021 at 11:21 am



DELIVERED

Signed for by: P.CRISCO



GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

TO

Beth Heller, First Selectman  
Town of Woodbridge  
11 Meetinghouse Lane  
WOODBIDGE, CT US 06525  
203-389-3401

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time

Friday, December 10, 2021

11:21 AM	WOODBIDGE, CT	Delivered
9:17 AM	NORTH HAVEN, CT	On FedEx vehicle for delivery
8:18 AM	NORTH HAVEN, CT	At local FedEx facility
3:30 AM	NEWARK, NJ	Departed FedEx hub

Thursday, December 9, 2021



12/10/21, 11:40 AM

Detailed Tracking

10:38 PM	NEWARK, NJ	Arrived at FedEx hub
9:26 PM	NEWBURGH, NY	Left FedEx origin facility
6:22 PM	NEWBURGH, NY	Picked up
10:31 AM		Shipment information sent to FedEx

Expand History 

Shipment Facts

<b>TRACKING NUMBER</b> 775442961490	<b>SERVICE</b> FedEx Priority Overnight	<b>WEIGHT</b> 1 lbs / 0.45 kgs
<b>DELIVERY ATTEMPTS</b> 1	<b>DELIVERED TO</b> Receptionist/Front Desk	<b>TOTAL PIECES</b> 1
<b>TOTAL SHIPMENT WEIGHT</b> 1 lbs / 0.45 kgs	<b>TERMS</b> Shipper	<b>SHIPPER REFERENCE</b> 100788/NBC 876315
<b>PACKAGING</b> FedEx Envelope	<b>SPECIAL HANDLING SECTION</b> Deliver Weekday	<b>SHIP DATE</b> 12/9/21 
<b>STANDARD TRANSIT</b> 12/10/21 before 11:30 am 	<b>ACTUAL DELIVERY</b> 12/10/21 at 11:21 am	



TRACK ANOTHER SHIPMENT

775443010458



[ADD NICKNAME](#)

Delivered  
Friday, 12/10/2021 at 11:21 am



**DELIVERED**

Signed for by: P.CRISCO



[GET STATUS UPDATES](#)

[OBTAIN PROOF OF DELIVERY](#)

**FROM**

Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

**TO**

Kristine Sullivan, Zoning  
Town of Woodbridge  
11 Meetinghouse Lane  
WOODBIDGE, CT US 06525  
203-389-3406

[MANAGE DELIVERY](#)

Travel History

**TIME ZONE**

Local Scan Time



Friday, December 10,  
2021

11:21 AM	WOODBIDGE, CT	Delivered
9:17 AM	NORTH HAVEN, CT	On FedEx vehicle for delivery
8:12 AM	NORTH HAVEN, CT	At local FedEx facility
3:30 AM	NEWARK, NJ	Departed FedEx hub

Thursday, December 9,  
2021



TRACK ANOTHER SHIPMENT

775443060371



[ADD NICKNAME](#)

Delivered  
Friday, 12/10/2021 at 10:15 am



**DELIVERED**

Signed for by: S.EYMOUR

[GET STATUS UPDATES](#)

[OBTAIN PROOF OF DELIVERY](#)

**FROM**

Ersilia Davis

1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

**TO**

The Tradition Golf Club at Oak Lane

1027 Racebrook Road  
WOODBIDGE, CT US 06525  
203-397-5103

[MANAGE DELIVERY](#)

Travel History

**TIME ZONE**

Local Scan Time



Friday, December 10, 2021

10:15 AM	WOODBIDGE, CT	Delivered
9:17 AM	NORTH HAVEN, CT	On FedEx vehicle for delivery
8:12 AM	NORTH HAVEN, CT	At local FedEx facility
3:30 AM	NEWARK, NJ	Departed FedEx hub

Thursday, December 9, 2021

10:38 PM	NEWARK, NJ	Arrived at FedEx hub
9:26 PM	NEWBURGH, NY	Left FedEx origin facility

# Exhibit A

## Original Facility Approval



020.07

TOWN OF WOODBRIDGE, CONN.  
BUILDING DEPARTMENT

Date Issued January 21 19 98

**BUILDING PERMIT** No. 9937

ISSUED TO SPRINT PCS (Michael Evanchick-Agent)  
TO ERECT Installation of telecommunications TOWER & ANTENNAS and associated telecommunications equipment per application specifications & approved plans  
LOCATION 1116 JOHNSON ROAD

DO NOT BACKFILL until the following inspections are made and approved..

Footings .....  
Foundation drains & Dampproofing .....

DO NOT INSULATE or COVER until the following inspections are made and approved.

Structural ..... Plumbing .....  
Electrical ..... Heating .....  
Alarm System ..... Fireplace Hearth .....  
Fireplace Smoke Chamber & Throat .....

DO NOT COVER until the following inspections are made and approved.

Insulation .....

The following FINAL INSPECTIONS are necessary for a CERTIFICATE OF OCCUPANCY.

Structural ..... Plumbing .....  
Electrical ..... Heating .....  
Alarm System ..... Air Conditioning .....  
Water Heater ..... Oil Burner .....  
Water Pump !.....

THIS CARD MUST BE CONSPICUOUSLY DISPLAYED AT ALL TIMES  
DURING THE PROGRESS OF CONSTRUCTION.

Signed by [Signature]  
Building Official

# Exhibit B

## Property Card



# Town of Woodbridge, CT

## Property Listing Report

Map Block Lot

3003/890/1116//

Building # 1

PID 768

Account

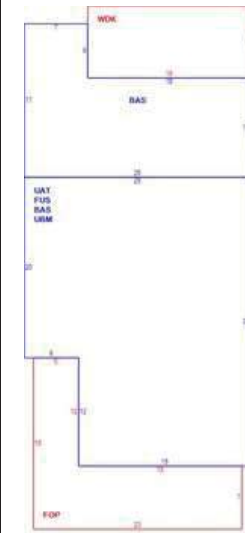
102287

### Property Information

Property Location	1116 JOHNSON RD
Owner	THE TRADITION GOLF CLUB AT
Co-Owner	OAK LANE LLC
Mailing Address	1027 RACEBROOK RD WOODBIDGE CT 06525
Land Use	380R Golf Course
Land Class	C
Zoning Code	A
Census Tract	

Neighborhood	
Acreage	84.5
Utilities	Well,Septic
Lot Setting/Desc	Rural Level,Rolling
Book / Page	0682/0010
Additional Info	

### Photo



### Primary Construction Details

Year Built	1905
Building Desc.	Golf Course
Building Style	Conventional
Building Grade	C
Stories	2
Occupancy	1.00
Exterior Walls	Vinyl Siding
Exterior Walls 2	NA
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Walls	Plastered
Interior Walls 2	Drywall/Sheet
Interior Floors 1	Carpet
Interior Floors 2	Hardwood

Heating Fuel	Oil
Heating Type	Hot Water
AC Type	01
Bedrooms	04
Full Bathrooms	2
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	6
Bath Style	Average
Kitchen Style	Average
Fin Bsmt Area	NA
Fin Bsmt Quality	NA
Bsmt Gar	NA
Fireplaces	NA

(\*Industrial / Commercial Details)

Building Use	Residential
Building Condition	A
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA



# Town of Woodbridge, CT

Property Listing Report

Map Block Lot

3003/890/1116//

Building # 1

PID 768

Account 102287

## Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	243400	170380
Extras	0	0
Improvements		
Outbuildings	841600	589120
Land	998300	408310
<b>Total</b>	<b>2083300</b>	<b>1167810</b>

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1045	1045
Open Porch	221	0
Upper Story, Finished	728	728
Attic, Unfinished	728	0
Basement, Unfinished	728	0
Wood Deck	144	0
<b>Total Area</b>	<b>3594</b>	<b>1773</b>

## Outbuilding and Extra Features

Type	Description
Shed	64 S.F.
GREENS	10 UNIT
Silo	644 DIAxHT

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
THE TRADITION GOLF CLUB AT	0682/0010	2012-01-05	1092561
OAK LANE COUNTRY CLUB INC	0622/0298	2009-06-19	0
OAK LANE COUNTRY CLUB INC	0094/0510	1970-12-14	0
OAK LANE COUNTRY CLUB INC	0073/0511	1963-01-10	0
OAK LANE COUNTRY CLUB INC	0070/0071	1961-05-11	0



# Town of Woodbridge, CT

Property Listing Report

Map Block Lot

3003/890/1116//

Building # 2

PID 768

Account 102287



Sketch



## Primary Construction Details

Year Built	1983
Building Desc.	Industrial
Building Style	Warehouse
Building Grade	C
Stories	1
Occupancy	1.00
Exterior Walls	Clapboard
Exterior Walls 2	NA
Roof Style	Gable/Hip
Roof Cover	Asph/F GlS/Cmp
Interior Walls	Minim/Masonry
Interior Walls 2	NA
Interior Floors 1	Concr-Finished
Interior Floors 2	

Heating Fuel	Coal or Wood
Heating Type	None
AC Type	01
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	NA
Fin Bsmt Quality	NA
Bsmt Gar	NA
Fireplaces	NA

(\*Industrial / Commercial Details)

Building Use	Comm. Warehouse
Building Condition	A
Sprinkler %	NA
Heat / AC	NONE
Frame Type	WOOD FRAME
Baths / Plumbing	AVERAGE
Ceiling / Wall	CEIL & WALLS
Rooms / Prtns	AVERAGE
Wall Height	10.00
First Floor Use	NA
Foundation	NA

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office	880	880
First Floor	5184	5184

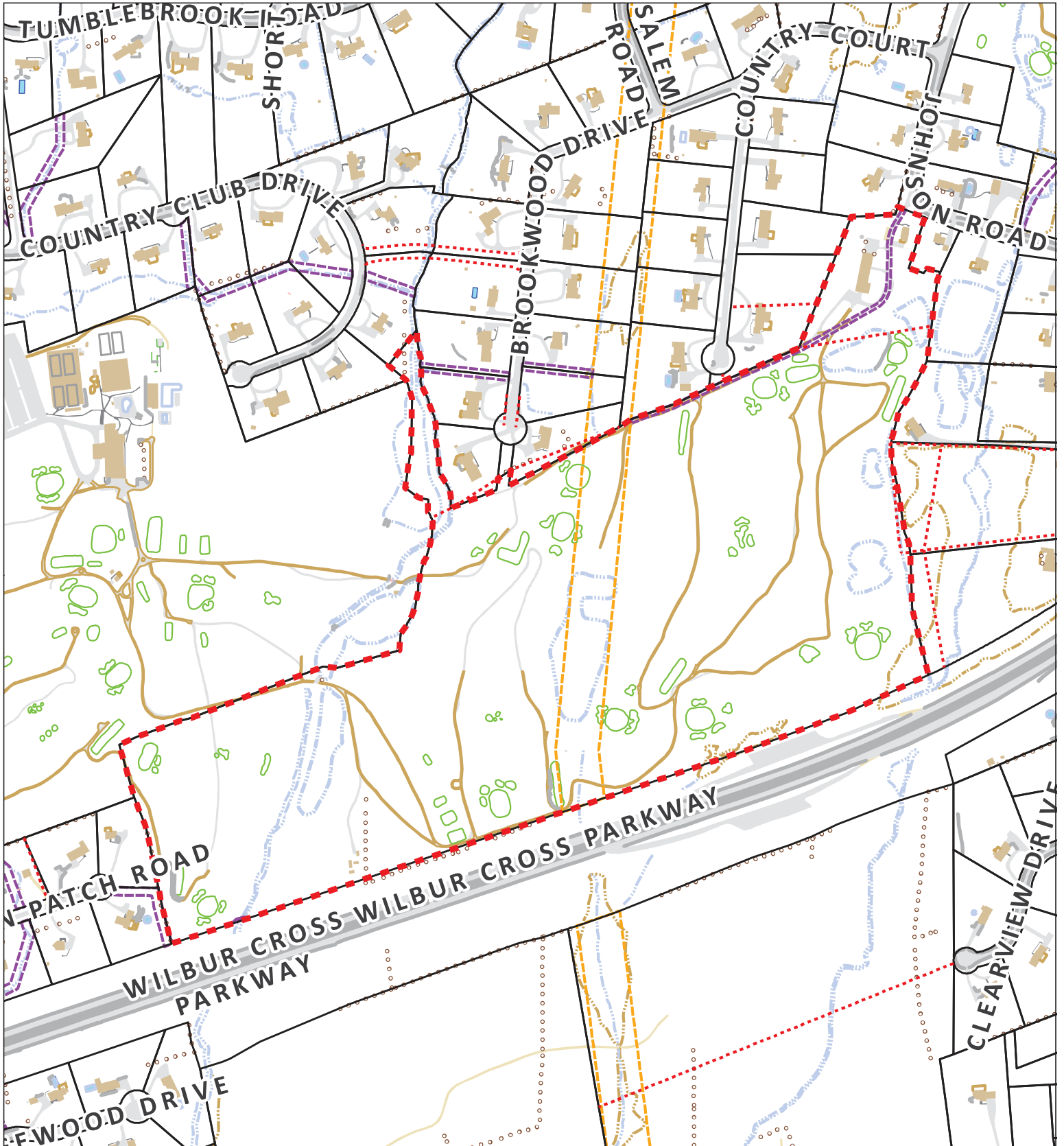
Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	6064	6064

# Town of Woodbridge, Connecticut - Assessment Parcel Map



GIS ID: 768

Address:



Approximate Scale:

1:6,000

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

Map Produced July 2019



# Exhibit C

## **Construction Drawings**

# T-Mobile

**T-MOBILE SITE NUMBER: CT11585A**

**T-MOBILE SITE NAME: CT11585A**

**SITE TYPE: MONOPOLE**

**TOWER HEIGHT: 150'-6"**

**BUSINESS UNIT #: 876315**

**SITE ADDRESS: 1027 RACEBROOK ROAD  
WOODBRIDGE, CT 06525**

**COUNTY: NEW HAVEN**

**JURISDICTION: NEW HAVEN COUNTY**

**T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E53998E\_1xAIR+1OP+1QP**

T-Mobile

35 GRIFFIN ROAD  
BLOOMFIELD, CT 06002



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



FROM ZERO TO INFINIGY  
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205  
Phone: 518-690-0790 | Fax: 518-690-0793  
www.infinigy.com

**T-MOBILE SITE NUMBER:  
CT11585A**

**BU #: 876315  
OAK LANE CC, INC. TOWER  
(SSUSA)**

**1027 RACEBROOK ROAD  
WOODBRIDGE, CT 06525**

**EXISTING 150'-6" MONOPOLE**

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DWG/QA
0	11/01/2021	TJ	FINAL	SS
1	11/29/2021	TJ	MA NOTE UPDATE	SS
2	11/30/2021	TJ	SA REFERENCE	SS

**SITE INFORMATION**

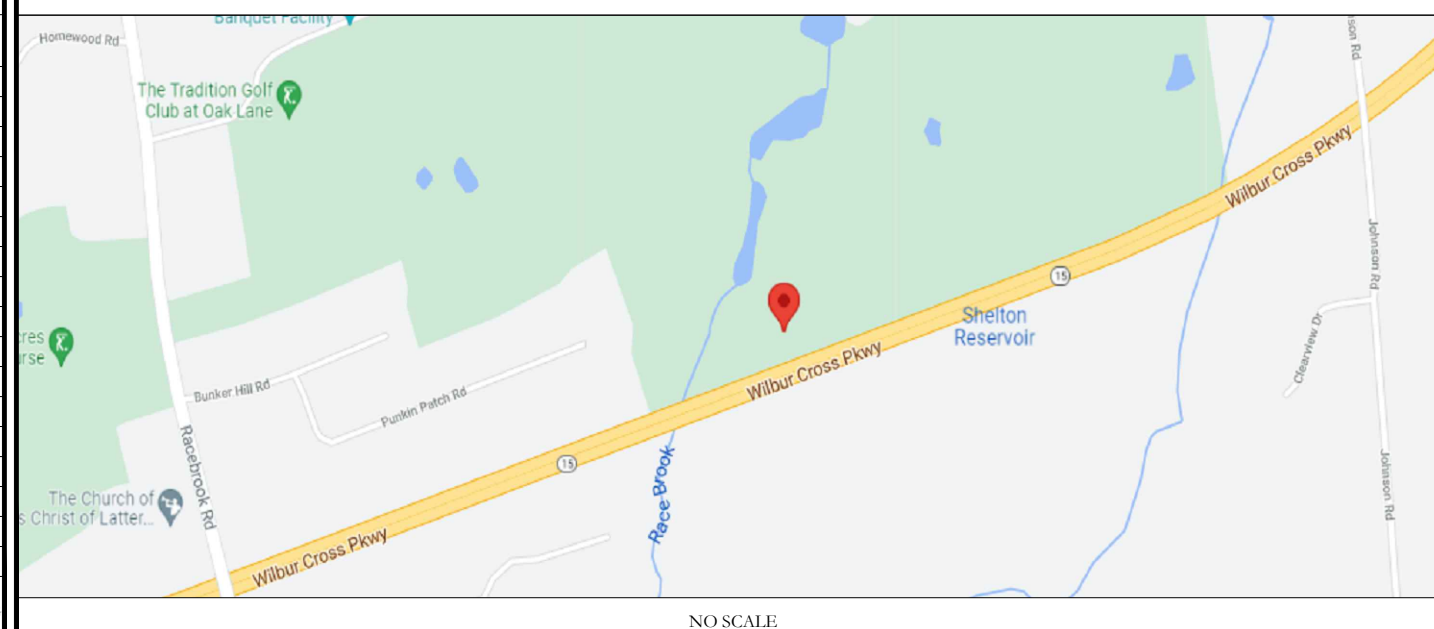
CROWN CASTLE USA INC. OAK LANE CC, INC. TOWER (SSUSA)  
SITE NAME:  
SITE ADDRESS: 1027 RACEBROOK ROAD  
WOODBRIDGE, CT 06525  
COUNTY: NEW HAVEN  
MAP/PARCEL #: 3003/890/1114//  
AREA OF CONSTRUCTION: EXISTING  
LATITUDE: 41.31683333° (41° 19' 0.30")  
LONGITUDE: -73.01158333° (-73° 0' 41.80")  
LAT/LONG TYPE: NAD83  
GROUND ELEVATION: 256 FT  
CURRENT ZONING: OUTBUILDINGS  
JURISDICTION: NEW HAVEN COUNTY  
OCCUPANCY CLASSIFICATION: U  
TYPE OF CONSTRUCTION: IIB  
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR  
HUMAN HABITATION  
PROPERTY OWNER: CROWN CASTLE USA  
2000 CORPORATE DRIVE  
CANONSBURG, PA  
TOWER OWNER: CROWN CASTLE  
2000 CORPORATE DRIVE  
CANONSBURG, PA 15317  
CARRIER/APPLICANT: T-MOBILE  
35 GRIFFIN ROAD  
BLOOMFIELD, CT 06002  
ELECTRIC PROVIDER: CONNECTICUT LIGHT AND POWER  
(800) 286-2000  
TELCO PROVIDER: TBD

**DRAWING INDEX**

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. 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.

**LOCATION MAP**



NO SCALE

**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 (6) ANTENNAS
  - REMOVE (9) RRHS
  - REMOVE (9) TMA
  - REMOVE (3) FILTER
  - REMOVE (3) HYBRID CABLES
  - INSTALL (6) ANTENNAS
  - INSTALL (6) RRHS
  - INSTALL (3) HYBRID CABLES INSIDE THE MONOPOLE
  - MODIFY EXISTING MOUNTS

- GROUND SCOPE OF WORK:**
- REMOVE ALL EXISTING EQUIPMENT
  - INSTALL (1) 6160 & (1) B160 BATTERY CABINET
  - INSTALL (1) IXRE ROUTER IN (P) CABINET
  - INSTALL (1) DUG20 IN (P) CABINET
  - INSTALL (3) BB6648 IN (P) CABINET
  - UPGRADE SERVICE TO 200AMP.

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

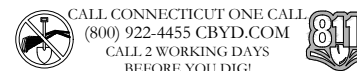
**APPLICABLE CODES/REFERENCE DOCUMENTS**

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 CT STATE BUILDING CODE MECHANICAL
	2015 IMC
ELECTRICAL	2017 NEC

**REFERENCE DOCUMENTS:**

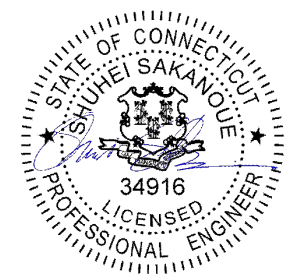
STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	OCTOBER 7, 2021
MOUNT ANALYSIS:	TRYLON
DATED:	OCTOBER 4, 2021
RFDS REVISION:	1
DATED:	08/02/2021
ORDER ID:	579392
REVISION:	0



**APPROVALS**

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.



11/30/2021

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-1**

REVISION:

**2**

**PROJECT TEAM**

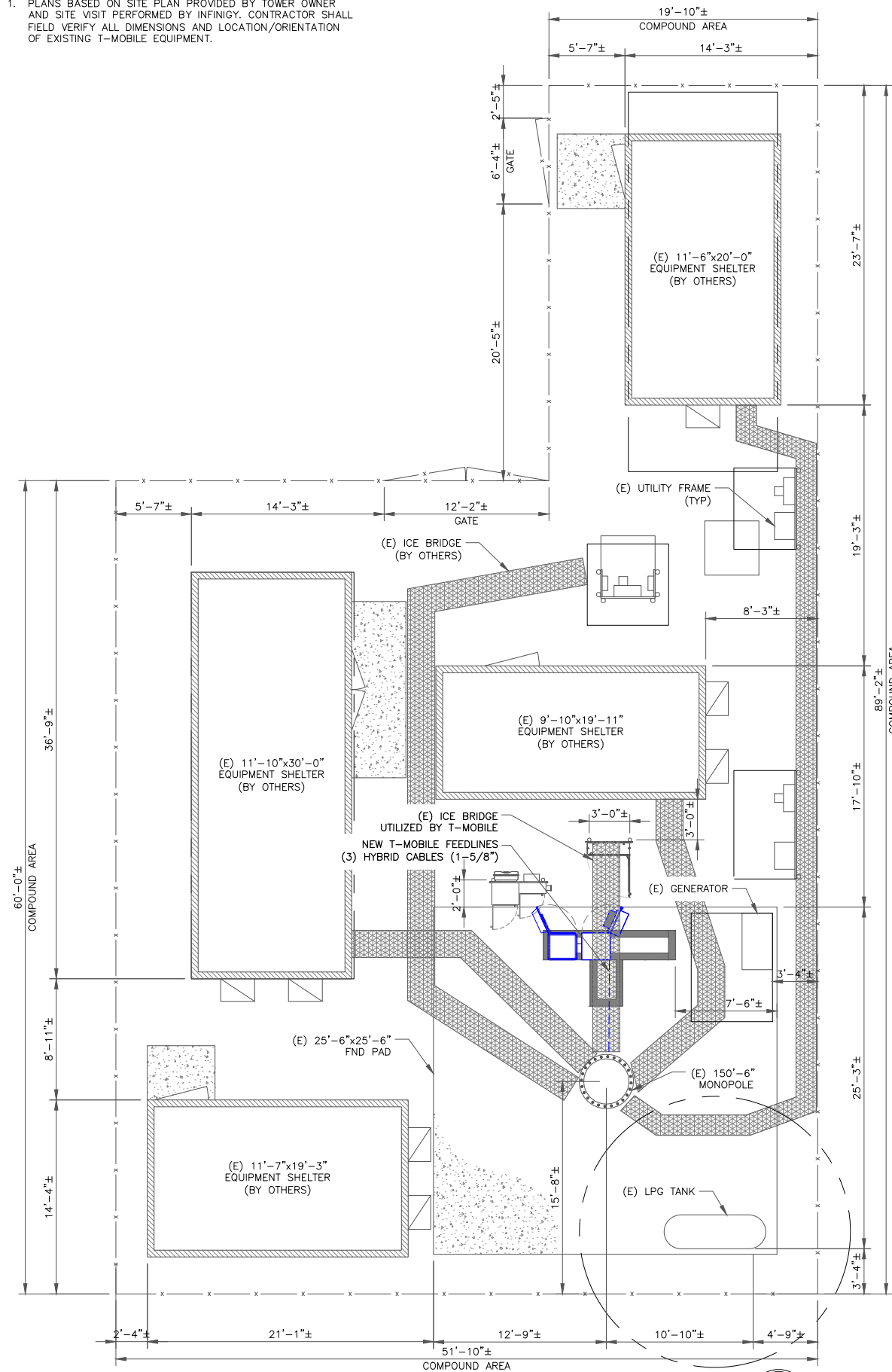
A&E FIRM: INFINIGY  
1033 WATERVLIET SHAKER RD.  
ALBANY, NY 12205  
CROWN CASTLE USA INC. DISTRICT CONTACTS:  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065  
TRICIA PELON - PROJECT MANAGER  
TRICAI.PELON@CROWNCastle.COM  
CHRISTOPHER P MILLER - CONSTRUCTION MANAGER  
CHRISP.MILLER@CROWNCastle.COM  
CONTACT : 585-739-1780





NOTE:

- PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.



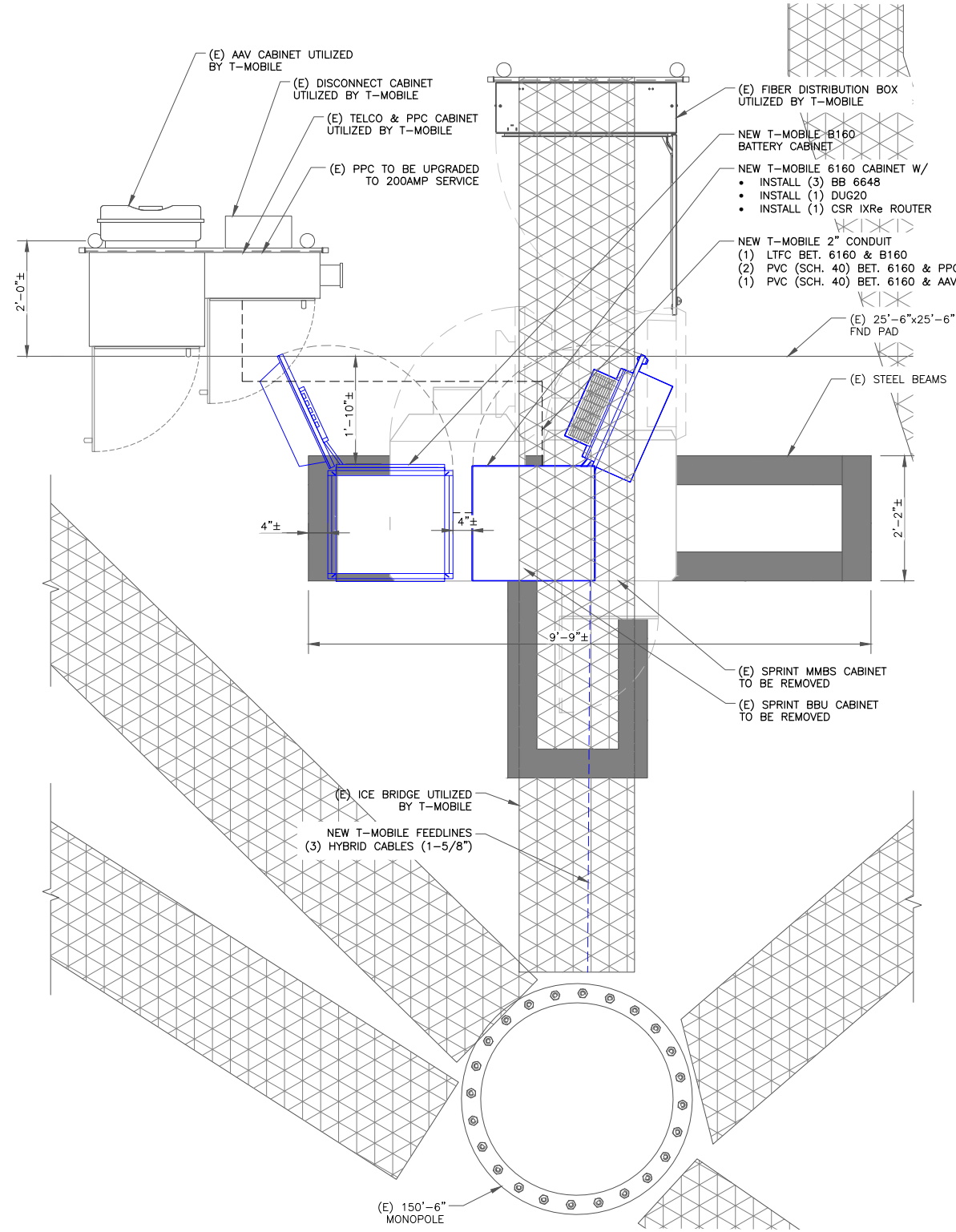
1 SITE PLAN

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



NOTES:

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



2 ENLARGED SITE PLAN

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



T-Mobile

35 GRIFFIN ROAD  
BLOOMFIELD, CT 06002

CROWN CASTLE

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

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205  
Phone: 518-690-0790 | Fax: 518-690-0793  
www.infinigy.com

T-MOBILE SITE NUMBER:  
CT11585A

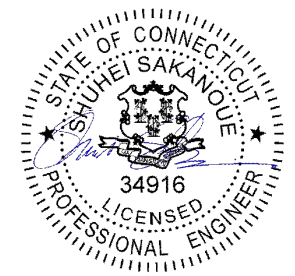
BU #: 876315  
OAK LANE CC, INC. TOWER  
(SSUSA)

1027 RACEBROOK ROAD  
WOODBIDGE, CT 06525

EXISTING 150'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	11/01/2021	TJ	FINAL	SS
1	11/29/2021	TJ	MA NOTE UPDATE	SS
2	11/30/2021	TJ	SA REFERENCE	SS



11/30/2021

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:

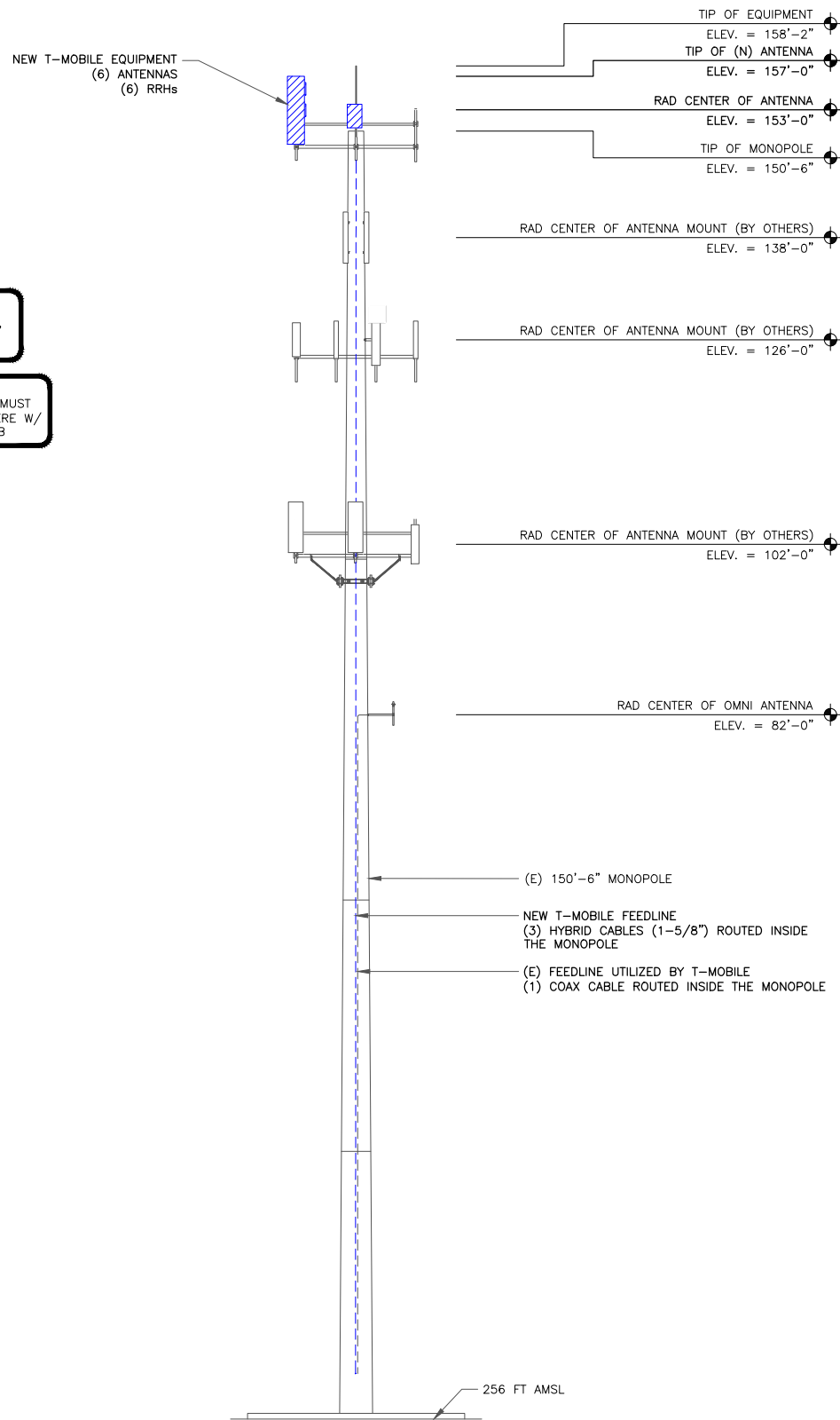
C-1

REVISION:

2

**NOTES:**

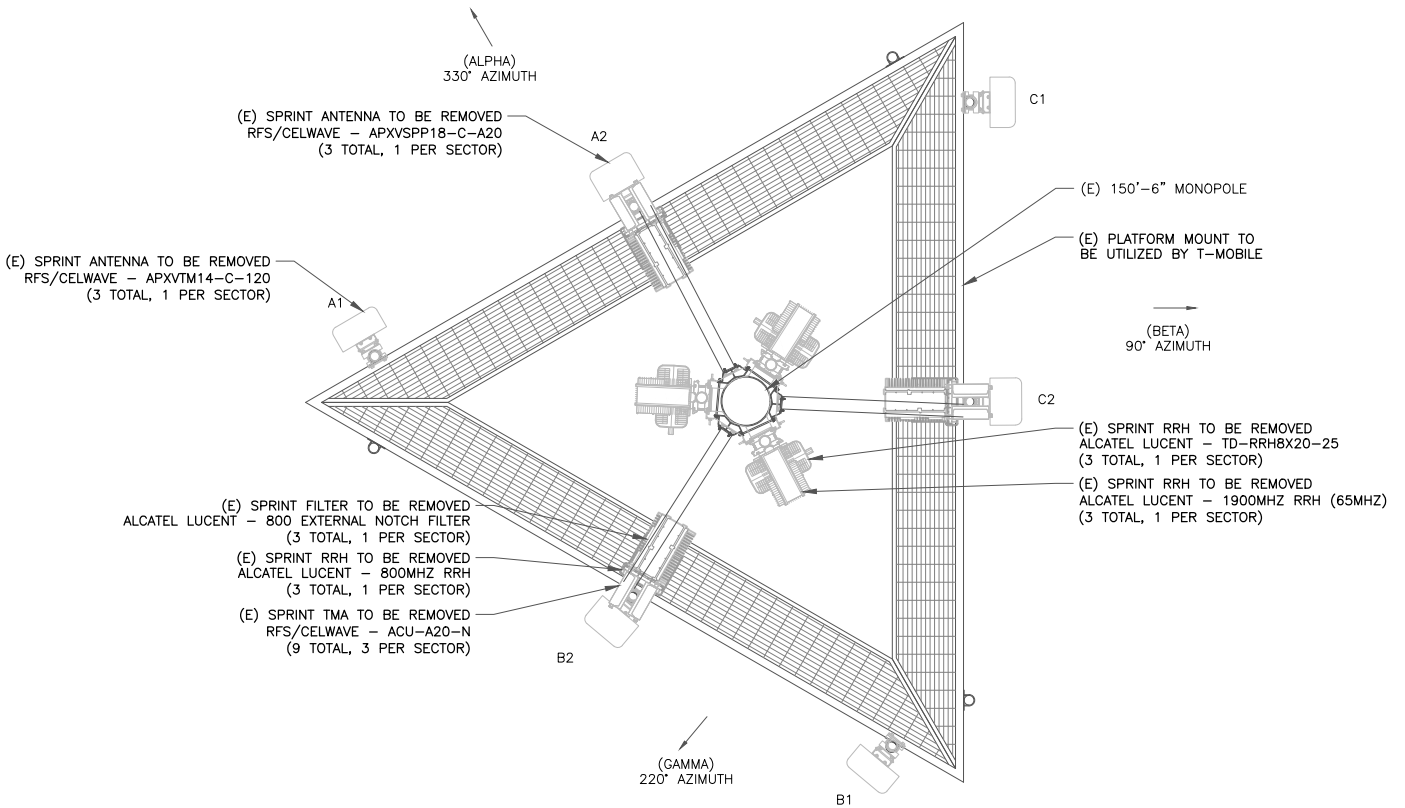
- ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
- INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



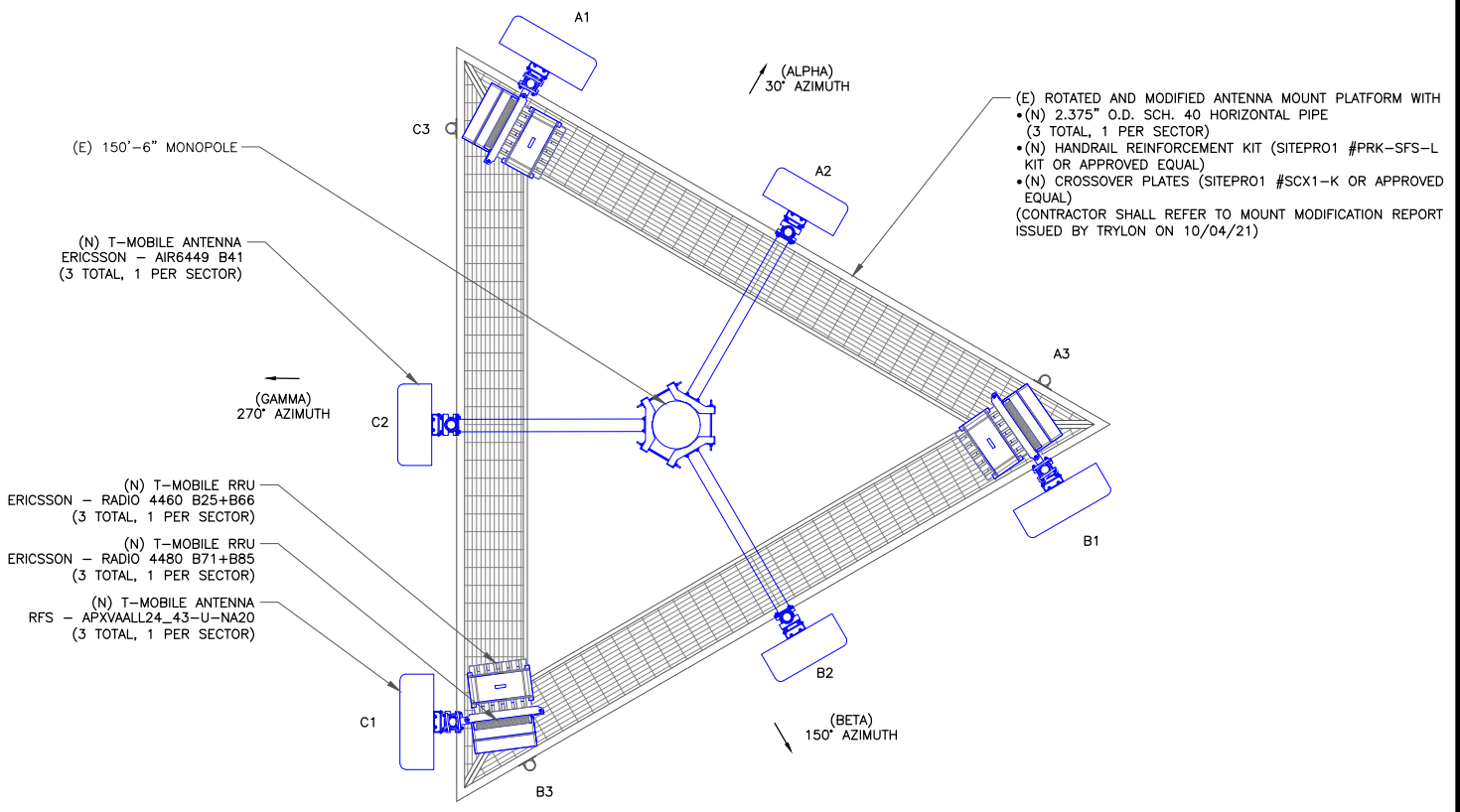
**T-MOBILE EQUIPMENT**  
ANTENNA CL: 153'-0"  
MOUNT CL: 150'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION  
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT  
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT  
SCALE: NOT TO SCALE

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T-MOBILE SITE NUMBER:  
**CT11585A**

BU #: 876315  
**OAK LANE CC, INC. TOWER (SSUSA)**

1027 RACEBROOK ROAD  
WOODBIDGE, CT 06525

EXISTING 150'-6" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	11/01/2021	TJ	FINAL	SS
1	11/29/2021	TJ	MA NOTE UPDATE	SS
2	11/30/2021	TJ	SA REFERENCE	SS

STATE OF CONNECTICUT  
SHUHEI SAKANOU  
34916  
LICENSED PROFESSIONAL ENGINEER

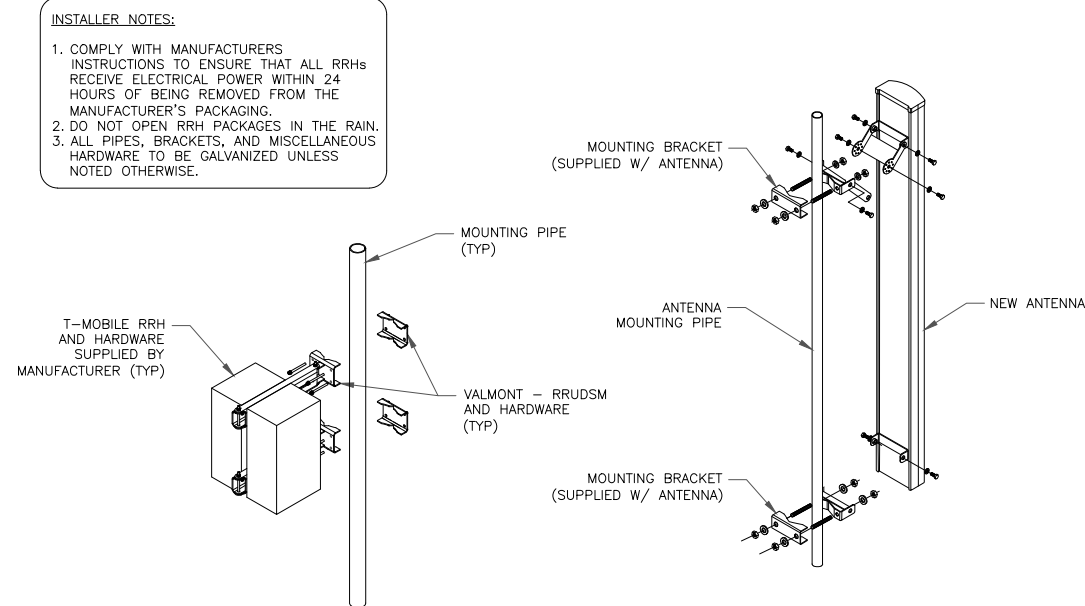
11/30/2021

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SHEET NUMBER: **C-2** REVISION: **2**

ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	LTE 600/700/1900/L2100, N600,G1900	153'-0"	30°	RFS	APXVAALL24_43-U-NA20	-	-	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(3) 1-5/8" HYBRID (SHARED)
ALPHA	A2	LTE 2500, N2500	153'-0"	30°	ERICSSON	AIR6449 B41	-	-	-	
ALPHA	A3	-	-	-	-	-	-	-	-	
BETA	B1	LTE 600/700/1900/L2100, N600,G1900	153'-0"	150°	RFS	APXVAALL24_43-U-NA20	-	-	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(3) 1-5/8" HYBRID (SHARED)
BETA	B2	LTE 2500, N2500	153'-0"	150°	ERICSSON	AIR6449 B41	-	-	-	
BETA	B3	-	-	-	-	-	-	-	-	
GAMMA	C1	LTE 600/700/1900/L2100, N600,G1900	153'-0"	270°	RFS	APXVAALL24_43-U-NA20	-	-	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	(3) 1-5/8" HYBRID (SHARED)
GAMMA	C2	LTE 2500, N2500	153'-0"	270°	ERICSSON	AIR6449 B41	-	-	-	
GAMMA	C3	-	-	-	-	-	-	-	-	

1 ANTENNA AND CABLE SCHEDULE  
SCALE: NOT TO SCALE



2 ANTENNA WITH RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE

NOTE:  
1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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EXISTING 150'-6" MONOPOLE

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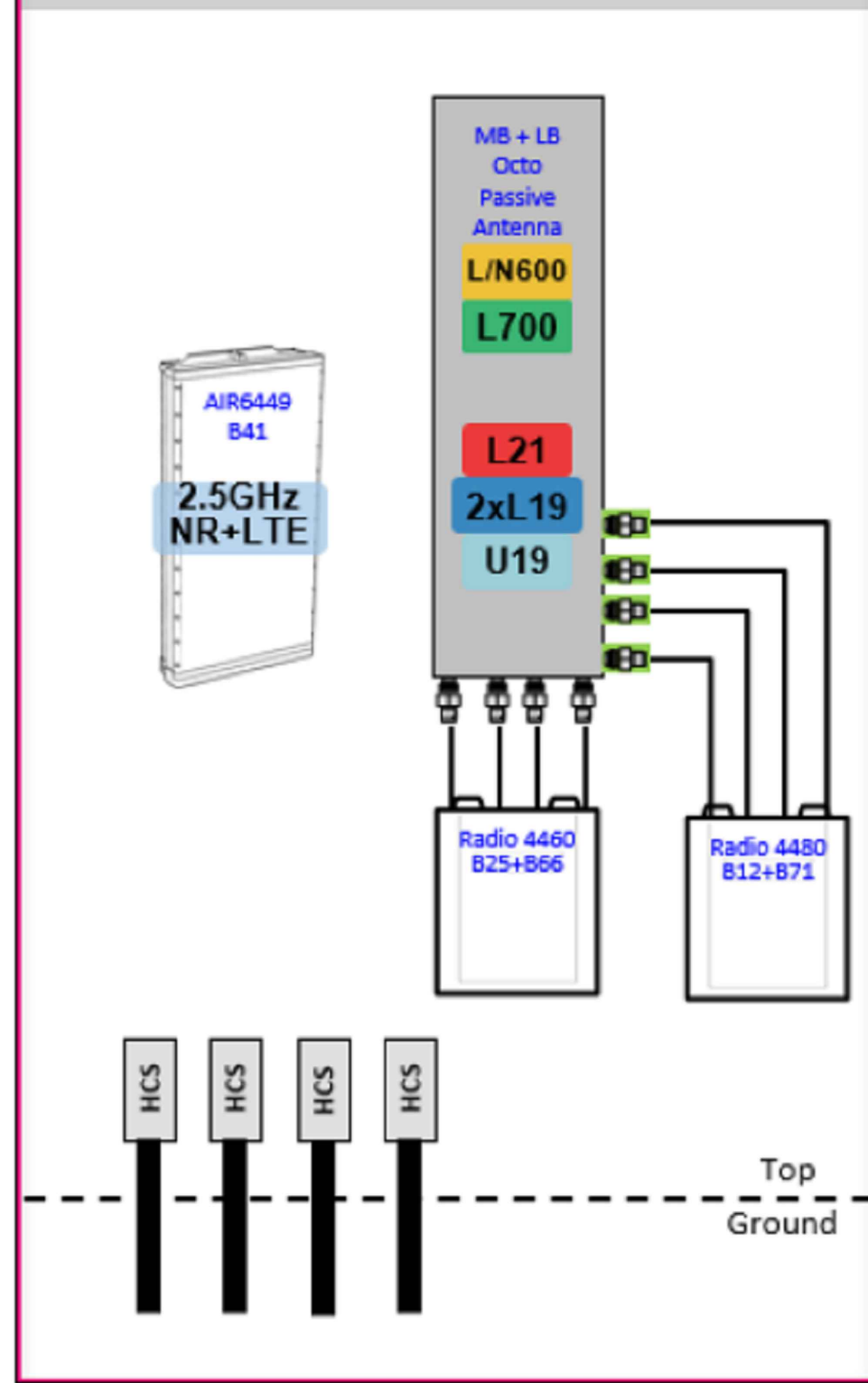
STATE OF CONNECTICUT  
SHUHEI SAKANOU  
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LICENSED PROFESSIONAL ENGINEER

11/30/2021

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SHEET NUMBER: **C-3** REVISION: **2**

# 67E5A998E\_1AIR+1OP



1 PLUMBING DIAGRAM  
SCALE: NOT TO SCALE

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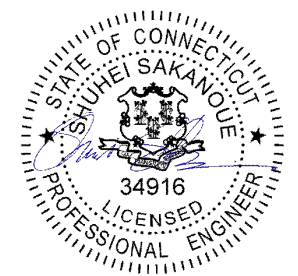
BU #: 876315  
OAK LANE CC, INC. TOWER  
(SSUSA)

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WOODBIDGE, CT 06525

EXISTING 150'-6" MONOPOLE

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11/30/2021

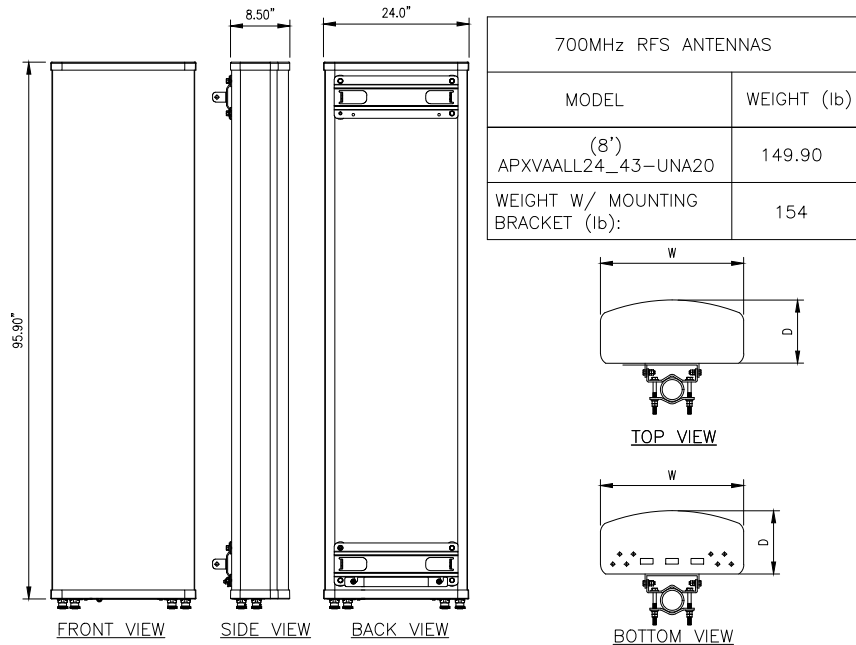
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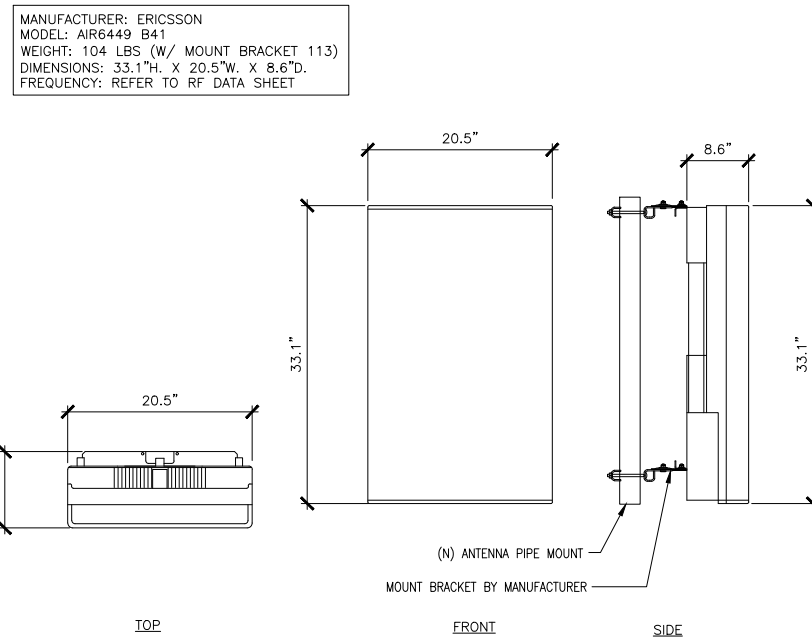
C-4

REVISION:

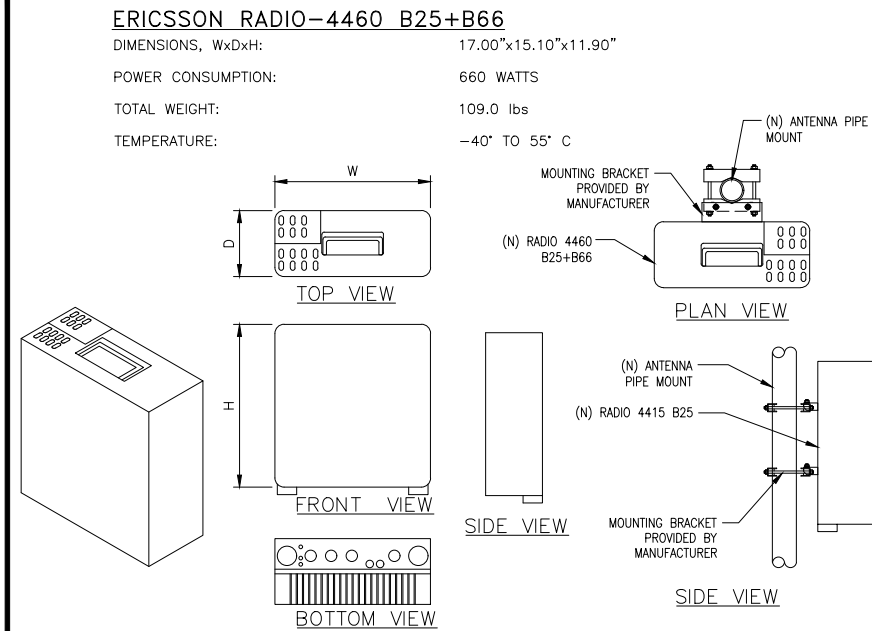
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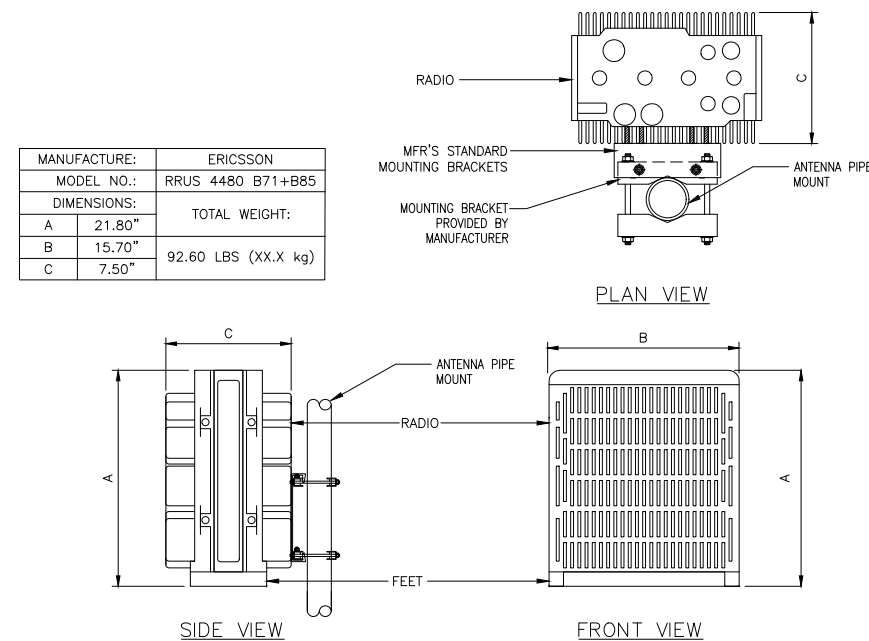
1 (N) APXVAALL24\_43-UNA20 ANTENNA SPEC  
SCALE: NOT TO SCALE



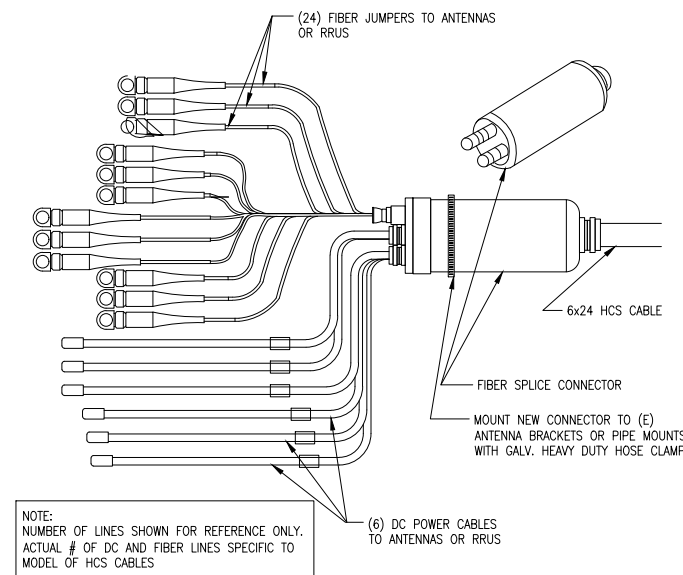
2 (N) AIR6449 B41 ANTENNA SPEC  
SCALE: NOT TO SCALE



3 (N) RADIO 4460 B25+B66 SPEC  
SCALE: NOT TO SCALE



4 (N) RADIO 4480 B71+B85 SPEC  
SCALE: NOT TO SCALE



5 (N) 6X24 HCS CABLE DETAIL  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE

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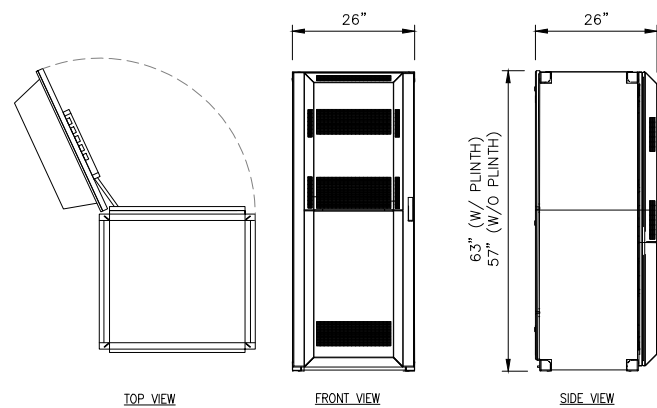
T-MOBILE SITE NUMBER:  
CT11585A  
BU #: 876315  
OAK LANE CC, INC. TOWER  
(SSUSA)  
1027 RACEBROOK ROAD  
WOODBIDGE, CT 06525  
EXISTING 150'-6" MONOPOLE

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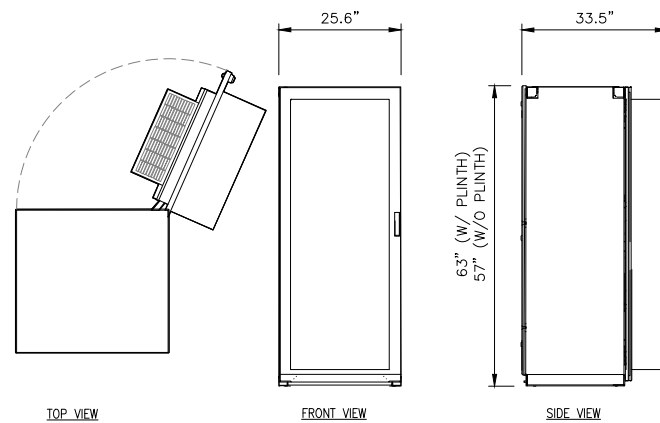
STATE OF CONNECTICUT  
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LICENSED PROFESSIONAL ENGINEER  
11/30/2021  
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SHEET NUMBER: C-5  
REVISION: 2



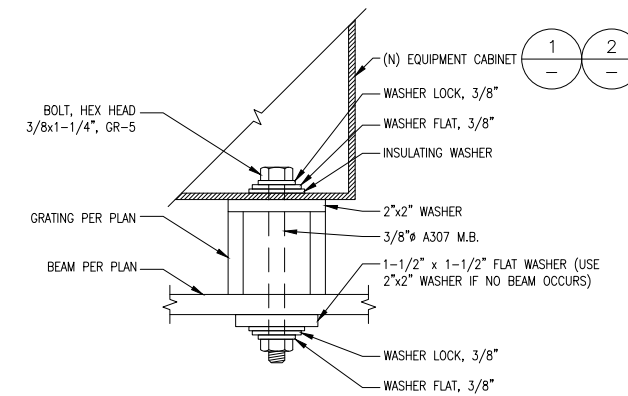
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL  
SCALE: NOT TO SCALE

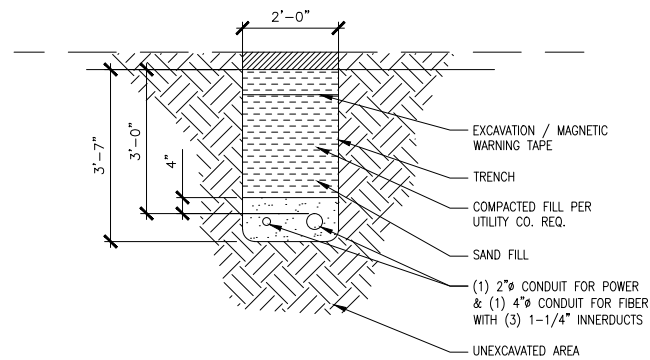


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

2 (N) 6160 CABINET DETAIL  
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL  
SCALE: NOT TO SCALE



4 (N) CONDUIT TRENCH DETAIL  
SCALE: NOT TO SCALE

5 NOT USED  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE

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BU #: 876315  
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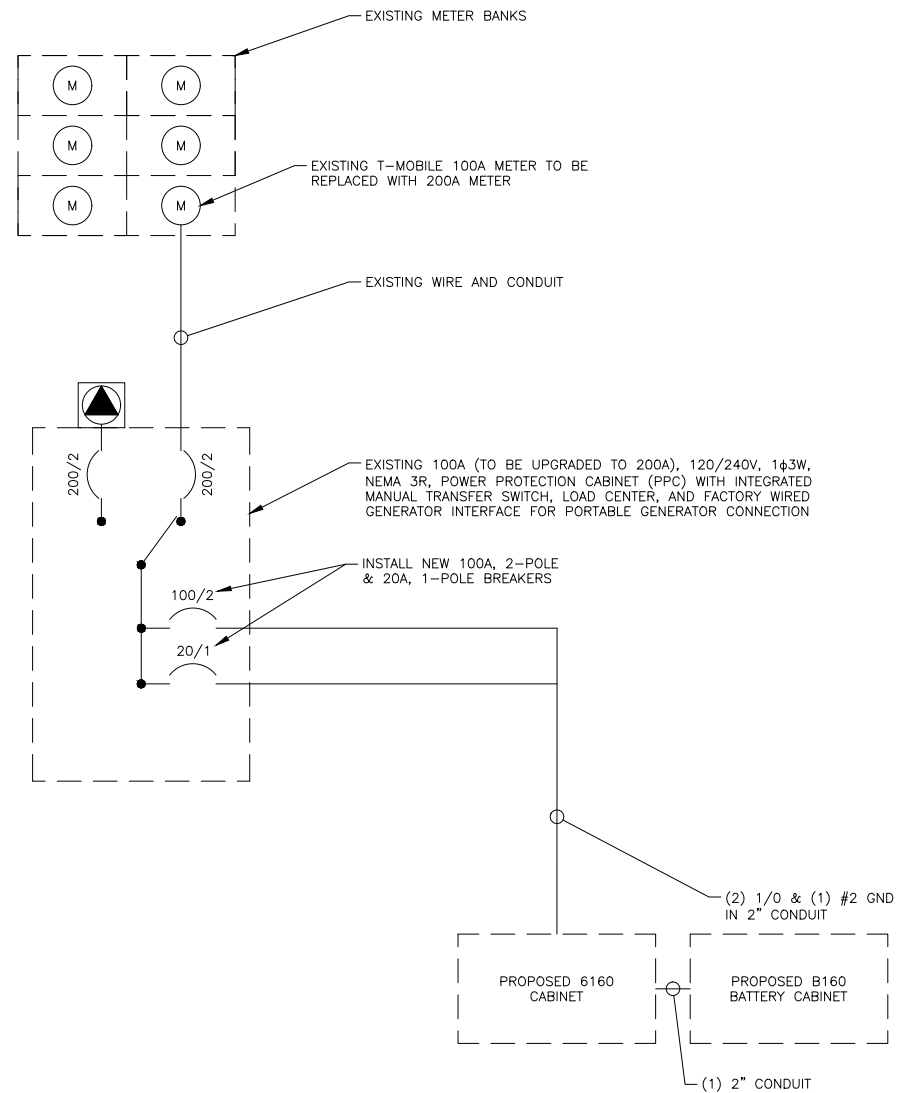
SHEET NUMBER: **C-6** REVISION: **2**

T-MOBILE PANEL SCHEDULE											
MAIN: 200A MAIN BREAKER				VOTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE				SHORT CIRCUIT CURRENT RATING: --			
MOUNTING: INSIDE PPC ENCLOSURE				ENCLOSURE: NEMA 3R				SURGE PROTECTION DEVICE: YES			
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A	B					
6160	7000	C	100	1	7001		7	60	NC	1	SURGE ARRESTOR
	7000	C		2		7001	8		NC	1	
6160 GFI	180	NC	20	3	180		9	60	NC	0	UNKNOWN (OFF)
AAV GFI	180	NC	20	4		180	10		NC	0	
6160 GFI	180	NC	20	5	360		11	20	NC	180	TELCO GFI
FAN	900	NC	10	6		900	12				BLANK
BASE LOAD (VA) =					7541	8081					
25% OF CONTINUOUS LOAD (VA) =					1750	1750					
TOTAL LOAD (VA) =					9291	9831					
TOTAL LOAD (A) =					77	82					
C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD											
NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED VALUES.											

1 AC PANEL SCHEDULE  
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM  
SCALE: NOT TO SCALE

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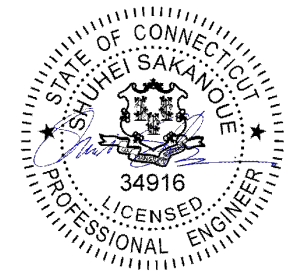
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SHEET NUMBER:

E-1

REVISION:

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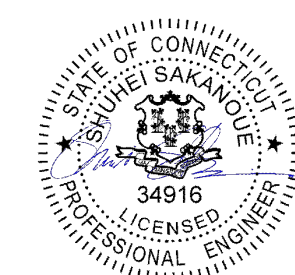
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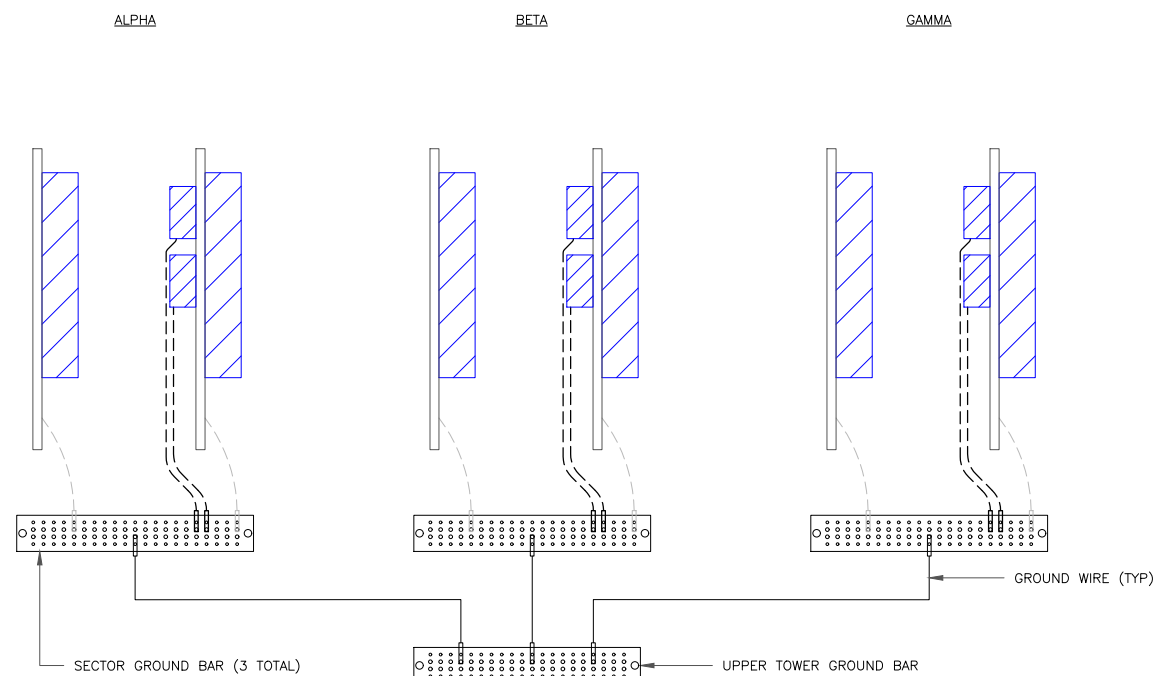


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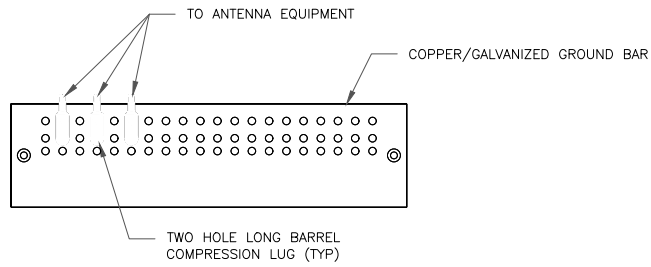
SHEET NUMBER: REVISION:

G-1 2



NOTE:  
ALL NEW GROUNDS TO BE #6 STRANDED  
COPPER WITH GREEN INSULATION UNLESS  
NOTED OTHERWISE.

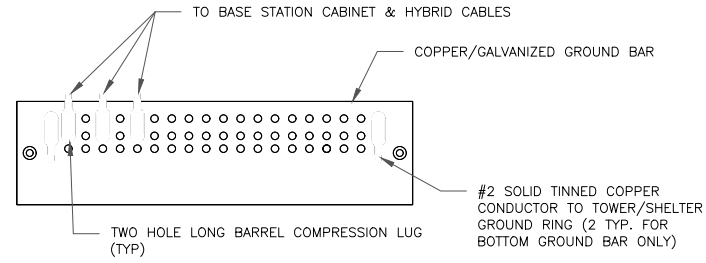
1 ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE



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.

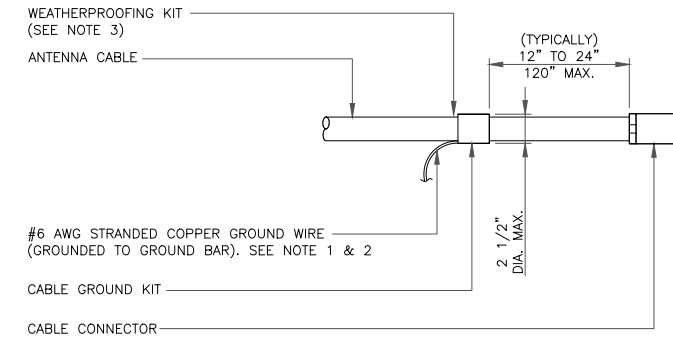
1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



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.

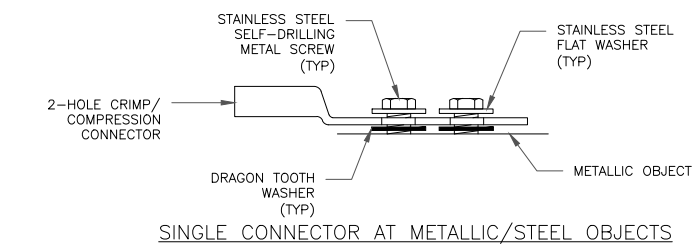
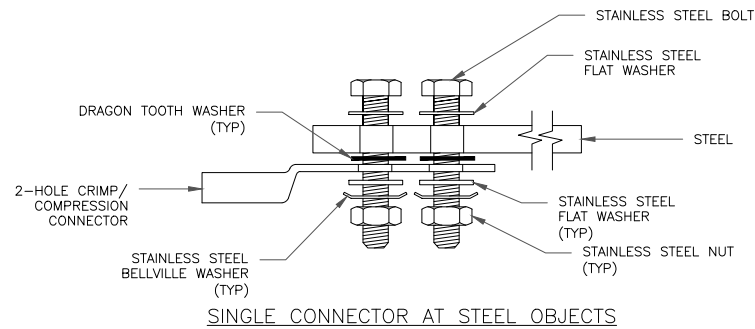
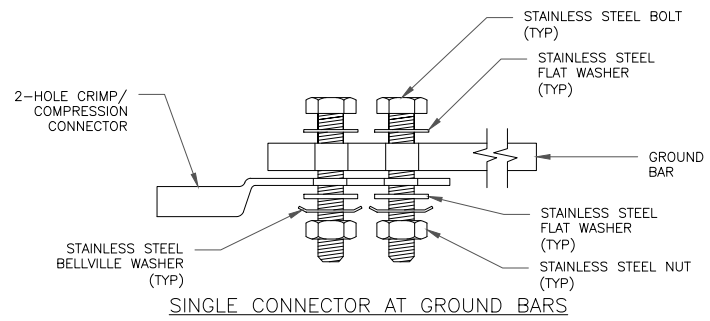
2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



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.

3 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE

5 NOT USED  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE

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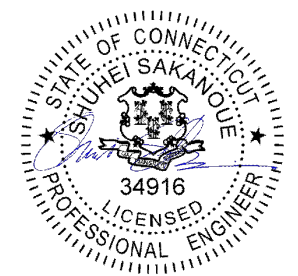
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SHEET NUMBER: **G-2** REVISION: **2**

# Exhibit D

## Structural Analysis Report

Date: **October 07, 2021**



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

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

**Carrier Designation:**

**Site Number:** CT11585A  
**Site Name:** CT03XC020

**Crown Castle Designation:**

**BU Number:** 876315  
**Site Name:** Oak Lane Cc, Inc. Tower (SSUSA)  
**JDE Job Number:** 678523  
**Work Order Number:** 2018341  
**Order Number:** 579392 Rev. 0

**Engineering Firm Designation:**

**B+T Group Project Number:** 81150.010.01

**Site Data:**

**1027 Racebrook Road, Woodbridge, New Haven County, CT**  
**Latitude 41° 19' 0.3", Longitude -73° 0' 41.8"**  
**150 Foot - Monopole Tower**

B+T Group is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

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

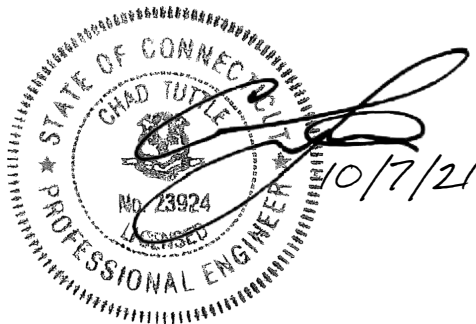
LC7: Proposed Equipment Configuration

**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Massood Sattari, EIT

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



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

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## 1) INTRODUCTION

This tower is a 150 ft Monopole designed by Summit.

This tower has been modified multiple times to accommodate additional loading.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	119 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	150.0	3	Ericsson	AIR6449 B41_T-MOBILE	3 1	1-5/8 1/2
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	RADIO 4480 B71_TMO		
		3	Rfs Celwave	APXVAALL24_43-U-NA20_TMO		
		3	--	Face Horizontal 2.3758" OD Sch 40,168" long pipe		
		1	Site Pro1	PRK-SFS-L Reinforcement Kit		
		1	--	Platform Mount [LP 1201-HR1]		
82.0	83.0	1	Lucent	KS24019-L112A	1	1/2
	82.0	1	--	Side Arm Mount [SO 701-1]		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	154.0	1	Rfs Celwave	201-7	--	--
138.0	138.0	4	Ericsson	AIR 32 B2A/B66AA	11 1 2	1-5/8 1-3/8 1/2
		4	Ericsson	ERICSSON AIR 21 B2A B4P		
		4	Ericsson	RADIO 4449 B12/B71		
		1	Gps	GPS_A		
		4	Rfs Celwave	APXVAA24_43-U-A20		
		4	Rfs Celwave	ATMA4P4DBP-1A20		
		1	Rfs Celwave	SC2-W100AC		
		1	--	Platform Mount [LP 701-1]		
126.0	129.0	1	Rfs Celwave	TMA-DB-T1-6Z-8AB-0Z	1	1-5/8
124.0	127.0	1	Gps	GPS_A	7 1	1-5/8 1/2
		6	Jma Wireless	MX06FRO660-03		
		1	Raycap	RVZDC-6627-PF-48		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	
		3	Samsung Telecomm.	RFV01U-D1A			
		3	Samsung Telecomm.	RFV01U-D2A			
		3	Vzw	Sub6 Antenna - VZS01			
	126.0	1	Antel	BXA-70080/4CF			
		2	Antel	BXA-80063/4CF			
	124.0	1	--	Platform Mount [LP 1201-1]			
102.0	104.0	3	CCI Antennas	DMP65R-BU6D	6 2 2 2	1-5/8 3/4 5/8 3/8	
		3	CCI Antennas	OPA65R-BU6D			
		3	Ericsson	RRUS 4449 B5/B12			
		3	Ericsson	RRUS 8843 B2/B66A			
		3	Powerwave Tech.	LGP12104			
		2	Raycap	DC6-48-60-18-8F			
	102.0		3	Powerwave Tech.			7770.00
			3	Site Pro 1			PRK-SFS-L Stabilizer Kit
			3	Site Pro 1			HRK14-HD Handrail Kit
			1	--			Platform Mount [LP 1201-1]

### 3) ANALYSIS PROCEDURE

**Table 3- Documents Provided**

Document	Reference	Source
Tower Manufacturing Drawings	2134236	CCI Sites
Mount Reinforcement Report	10002912	CCI Sites
Tower Modification Drawings	2134235	CCI Sites
Tower Modification Drawings	2414123	CCI Sites
Post Modification Inspection	2414121	CCI Sites
Tower Modification Drawings	3313096	CCI Sites
Post Modification Inspection	4137621	CCI Sites
Foundation Drawings	2112237	CCI Sites
Geotech Report	2134233	CCI Sites
Crown CAD Package	Date: 09/17/2021	CCI Sites

#### 3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

### 3.2) Assumptions

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

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

## 4) ANALYSIS RESULTS

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

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 145	Pole	TP22.875x22x0.25	1	-5.445	--	4.7%	Pass
L2	145 - 140	Pole	TP23.75x22.875x0.25	2	-5.827	--	8.8%	Pass
L3	140 - 135	Pole	TP24.625x23.75x0.25	3	-11.703	--	15.9%	Pass
L4	135 - 130	Pole	TP25.501x24.625x0.25	4	-12.178	--	23.4%	Pass
L5	130 - 125	Pole	TP26.376x25.501x0.25	5	-12.740	--	30.4%	Pass
L6	125 - 120	Pole	TP27.251x26.376x0.25	6	-17.366	--	40.0%	Pass
L7	120 - 115	Pole	TP28.126x27.251x0.25	7	-17.991	--	48.1%	Pass
L8	115 - 110	Pole	TP29.001x28.126x0.25	8	-18.643	--	55.7%	Pass
L9	110 - 106.25	Pole	TP30.314x29.001x0.25	9	-19.147	--	61.0%	Pass
L10	106.25 - 101.25	Pole	TP30.033x29.158x0.3125	10	-24.504	--	48.8%	Pass
L11	101.25 - 96.25	Pole	TP30.908x30.033x0.3125	11	-25.420	--	54.6%	Pass
L12	96.25 - 91.25	Pole	TP31.783x30.908x0.3125	12	-26.363	--	59.9%	Pass
L13	91.25 - 86.25	Pole	TP32.658x31.783x0.3125	13	-27.335	--	64.8%	Pass
L14	86.25 - 81.25	Pole	TP33.534x32.658x0.3125	14	-28.415	--	69.4%	Pass
L15	81.25 - 76.25	Pole	TP34.409x33.534x0.3125	15	-29.442	--	73.8%	Pass
L16	76.25 - 73.5	Pole	TP34.89x34.409x0.3125	16	-30.013	--	76.1%	Pass
L17	73.5 - 73.25	Pole + Reinf.	TP34.934x34.89x0.4	17	-30.090	--	69.0%	Pass
L18	73.25 - 68.25	Pole + Reinf.	TP35.809x34.934x0.4	18	-31.300	--	72.2%	Pass
L19	68.25 - 66.75	Pole + Reinf.	TP36.903x35.809x0.4	19	-31.665	--	73.1%	Pass
L20	66.75 - 61	Pole	TP36.453x35.447x0.375	20	-33.881	--	68.4%	Pass
L21	61 - 56.25	Pole	TP37.284x36.453x0.375	21	-35.061	--	70.9%	Pass
L22	56.25 - 56	Pole + Reinf.	TP37.328x37.284x0.4563	22	-35.145	--	70.5%	Pass
L23	56 - 51	Pole + Reinf.	TP38.203x37.328x0.4563	23	-36.565	--	72.6%	Pass
L24	51 - 46	Pole + Reinf.	TP39.078x38.203x0.45	24	-38.021	--	74.5%	Pass
L25	46 - 41	Pole + Reinf.	TP39.954x39.078x0.45	25	-39.503	--	76.3%	Pass
L26	41 - 39.5	Pole + Reinf.	TP40.216x39.954x0.45	26	-39.946	--	76.8%	Pass
L27	39.5 - 39.25	Pole + Reinf.	TP40.26x40.216x0.4875	27	-40.044	--	73.9%	Pass
L28	39.25 - 38.75	Pole + Reinf.	TP40.347x40.26x0.4875	28	-40.208	--	74.1%	Pass
L29	38.75 - 38.5	Pole + Reinf.	TP40.391x40.347x0.475	29	-40.288	--	73.4%	Pass
L30	38.5 - 37.5	Pole + Reinf.	TP41.485x40.391x0.475	30	-40.593	--	73.7%	Pass



Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail	
L31	37.5 - 31.25	Pole + Reinf.	TP40.91x39.816x0.5375	31	-43.997	--	69.3%	Pass	
L32	31.25 - 26.25	Pole + Reinf.	TP41.785x40.91x0.5375	32	-45.746	--	70.5%	Pass	
L33	26.25 - 21.25	Pole + Reinf.	TP42.66x41.785x0.5375	33	-47.522	--	71.5%	Pass	
L34	21.25 - 16.25	Pole + Reinf.	TP43.536x42.66x0.5313	34	-49.327	--	72.5%	Pass	
L35	16.25 - 11.25	Pole + Reinf.	TP44.411x43.536x0.525	35	-51.159	--	73.4%	Pass	
L36	11.25 - 10	Pole + Reinf.	TP44.63x44.411x0.525	36	-51.619	--	73.7%	Pass	
L37	10 - 9.75	Pole + Reinf.	TP44.673x44.63x0.4625	37	-51.719	--	73.2%	Pass	
L38	9.75 - 7.25	Pole + Reinf.	TP45.111x44.673x0.4625	38	-52.604	--	73.8%	Pass	
L39	7.25 - 7	Pole + Reinf.	TP45.155x45.111x0.5063	39	-52.706	--	74.4%	Pass	
L40	7 - 2	Pole + Reinf.	TP46.03x45.155x0.5	40	-54.504	--	75.2%	Pass	
L41	2 - 0	Pole + Reinf.	TP46.38x46.03x0.5	41	-55.234	--	75.4%	Pass	
							Summary		
							Pole (L16)	76.1	Pass
							Reinforcement	76.8	Pass
							Rating =	76.8	Pass

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

Notes	Component	Elevation	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	55.0	Pass
1,2	Base Plate	Base	43.5	Pass
1,2	Anchor Rods Bracket	Base	52.7	Pass
1,2	Base Foundation (Structure)	Base	18.1	Pass
1,2	Base Foundation (Soil Interaction)	Base	69.2	Pass

<b>Structure Rating (max from all components) =</b>	<b>76.8%</b>
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.

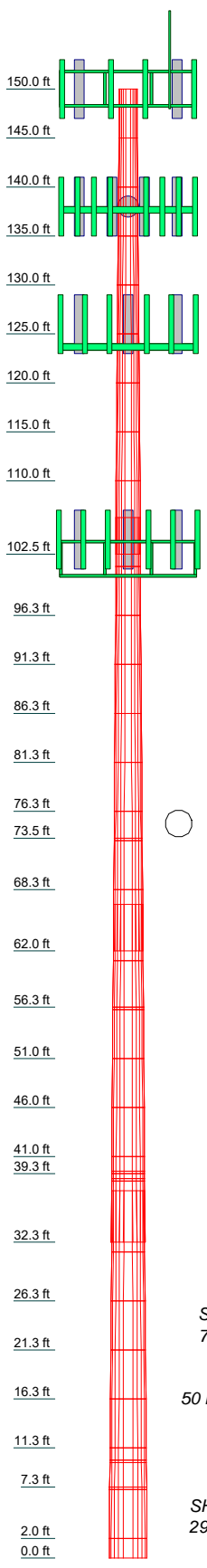
**4.1) Recommendations**

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

**APPENDIX A**

**TNXTOWER OUTPUT**

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	12	0.250	3.750	24.000	24.000	A607-60	0.3
2	5.000	12	0.250	3.750	22.875	22.875	A607-60	0.3
3	5.000	12	0.250	3.750	23.750	23.750	A607-60	0.3
4	5.000	12	0.250	3.750	24.625	24.625	A607-60	0.3
5	5.000	12	0.250	3.750	25.501	25.501	A607-60	0.4
6	5.000	12	0.250	3.750	26.376	26.376	A607-60	0.4
7	5.000	12	0.250	3.750	27.251	27.251	A607-60	0.4
8	5.000	12	0.250	3.750	28.126	28.126	A607-60	0.4
9	5.000	12	0.250	3.750	29.001	29.001	A607-60	0.4
10	5.000	12	0.250	3.750	29.876	29.876	A607-60	0.5
11	5.000	12	0.313	4.750	30.751	30.751	A607-65	0.5
12	5.000	12	0.313	4.750	31.626	31.626	A607-65	0.5
13	5.000	12	0.313	4.750	32.501	32.501	A607-65	0.5
14	5.000	12	0.313	4.750	33.376	33.376	A607-65	0.6
15	5.000	12	0.313	4.750	34.251	34.251	A607-65	0.6
16	5.000	12	0.313	4.750	35.126	35.126	A607-65	0.6
17	5.000	12	0.400	5.250	36.001	36.001	A607-65	0.8
18	5.000	12	0.400	5.250	36.876	36.876	A607-65	0.8
19	5.000	12	0.400	5.250	37.751	37.751	A607-65	1.0
20	5.000	12	0.450	5.250	38.626	38.626	A607-65	1.0
21	5.000	12	0.450	5.250	39.501	39.501	A607-65	1.0
22	5.000	12	0.450	5.250	40.376	40.376	A607-65	1.0
23	5.000	12	0.450	5.250	41.251	41.251	A607-65	1.0
24	5.000	12	0.450	5.250	42.126	42.126	A607-65	1.2
25	5.000	12	0.531	5.250	43.001	43.001	A607-65	1.2
26	5.000	12	0.531	5.250	43.876	43.876	A607-65	1.2
27	5.000	12	0.531	5.250	44.751	44.751	A607-65	1.2
28	5.000	12	0.531	5.250	45.626	45.626	A607-65	1.2
29	5.000	12	0.531	5.250	46.501	46.501	A607-65	1.2
30	5.000	12	0.531	5.250	47.376	47.376	A607-65	1.3
31	5.000	12	0.531	5.250	48.251	48.251	A607-65	1.4
32	5.000	12	0.531	5.250	49.126	49.126	A607-65	1.4
33	5.000	12	0.531	5.250	50.001	50.001	A607-65	1.2
34	5.000	12	0.531	5.250	50.876	50.876	A607-65	1.2
35	5.000	12	0.531	5.250	51.751	51.751	A607-65	1.2
36	5.000	12	0.531	5.250	52.626	52.626	A607-65	1.2
37	5.000	12	0.531	5.250	53.501	53.501	A607-65	1.2
38	5.000	12	0.531	5.250	54.376	54.376	A607-65	1.2
39	5.000	12	0.531	5.250	55.251	55.251	A607-65	1.2
40	5.000	12	0.531	5.250	56.126	56.126	A607-65	1.2
41	5.000	12	0.531	5.250	57.001	57.001	A607-65	1.2



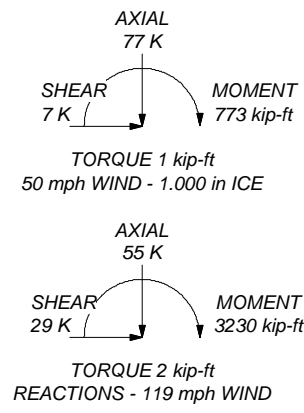
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 76.8%

ALL REACTIONS ARE FACTORED



**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 Phone: (918) 587-4630  
 FAX: (918) 295-0265

Job: <b>81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631</b>		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 10/07/21	Scale: NTS
Path:		Dwg No. E-1

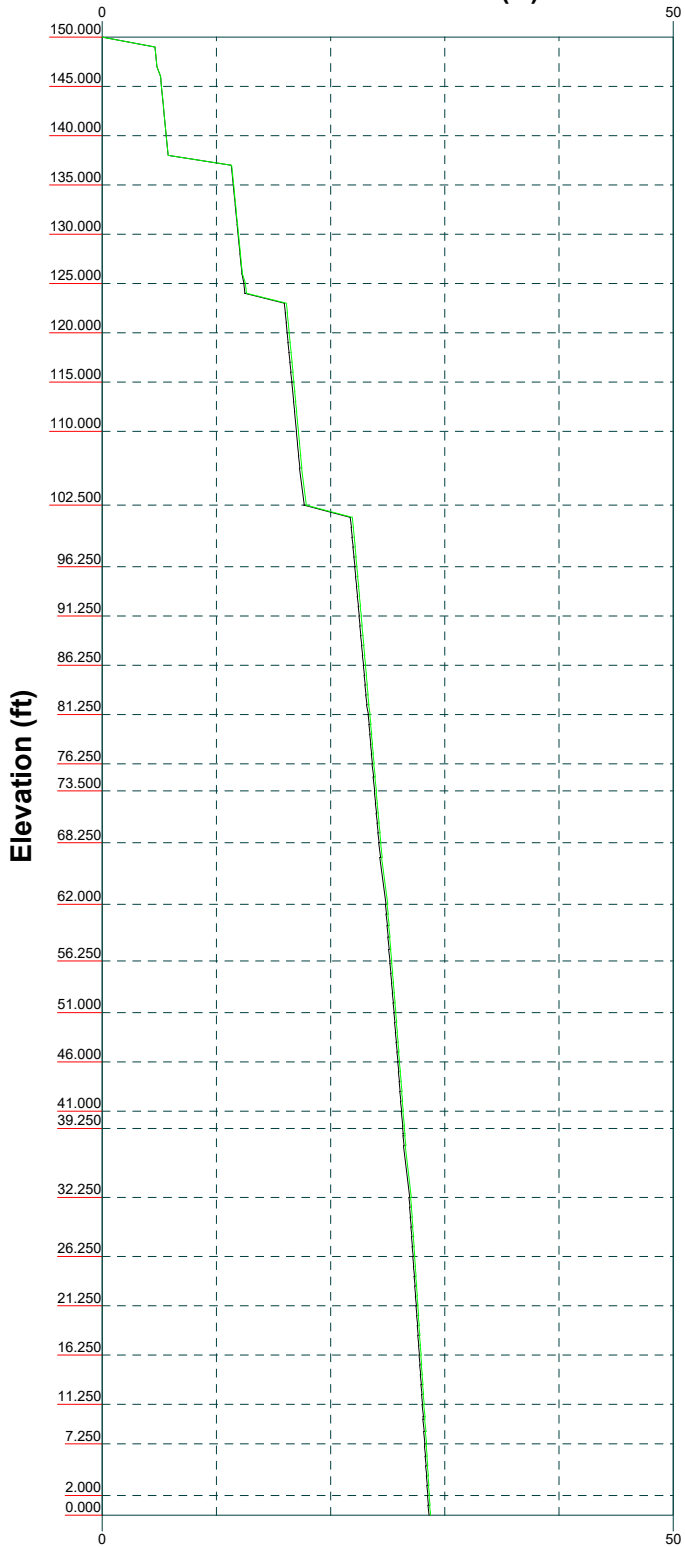
Vx

Vz

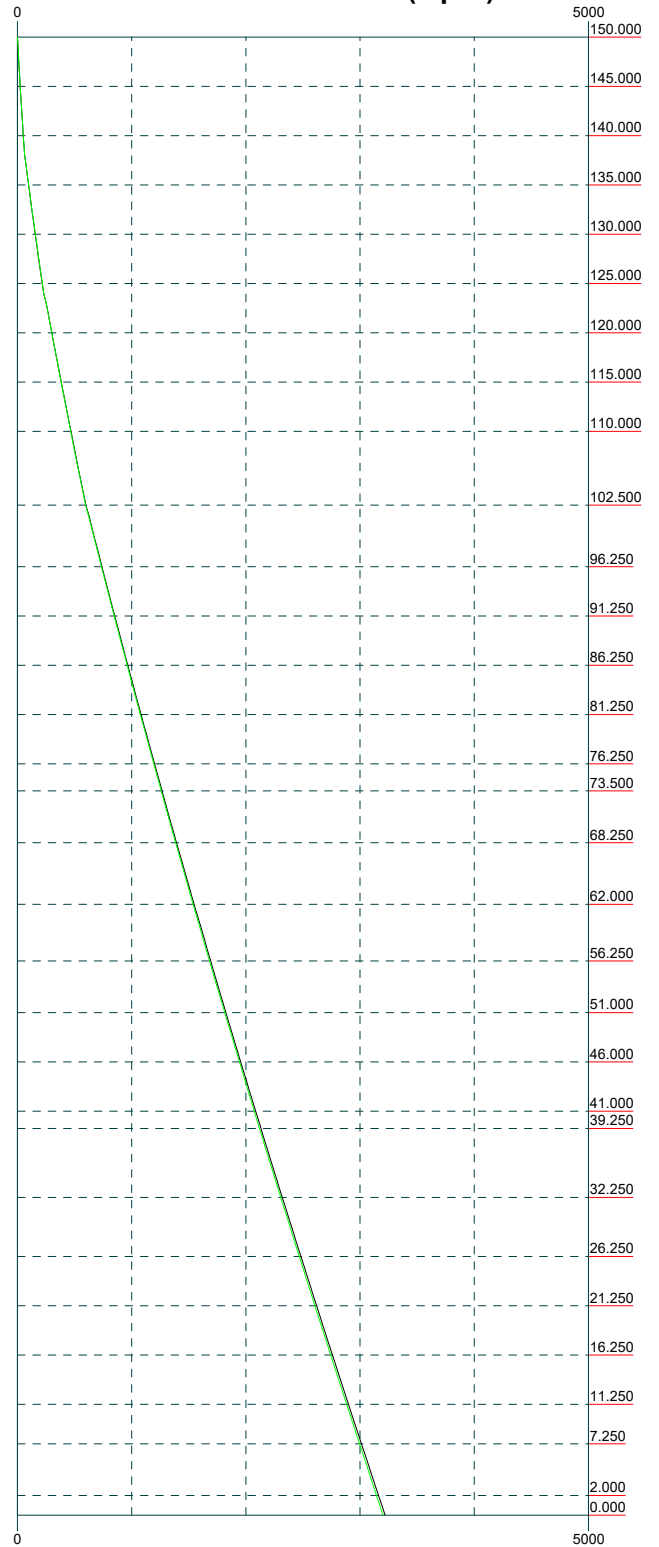
Mx

Mz

Global Mast Shear (K)

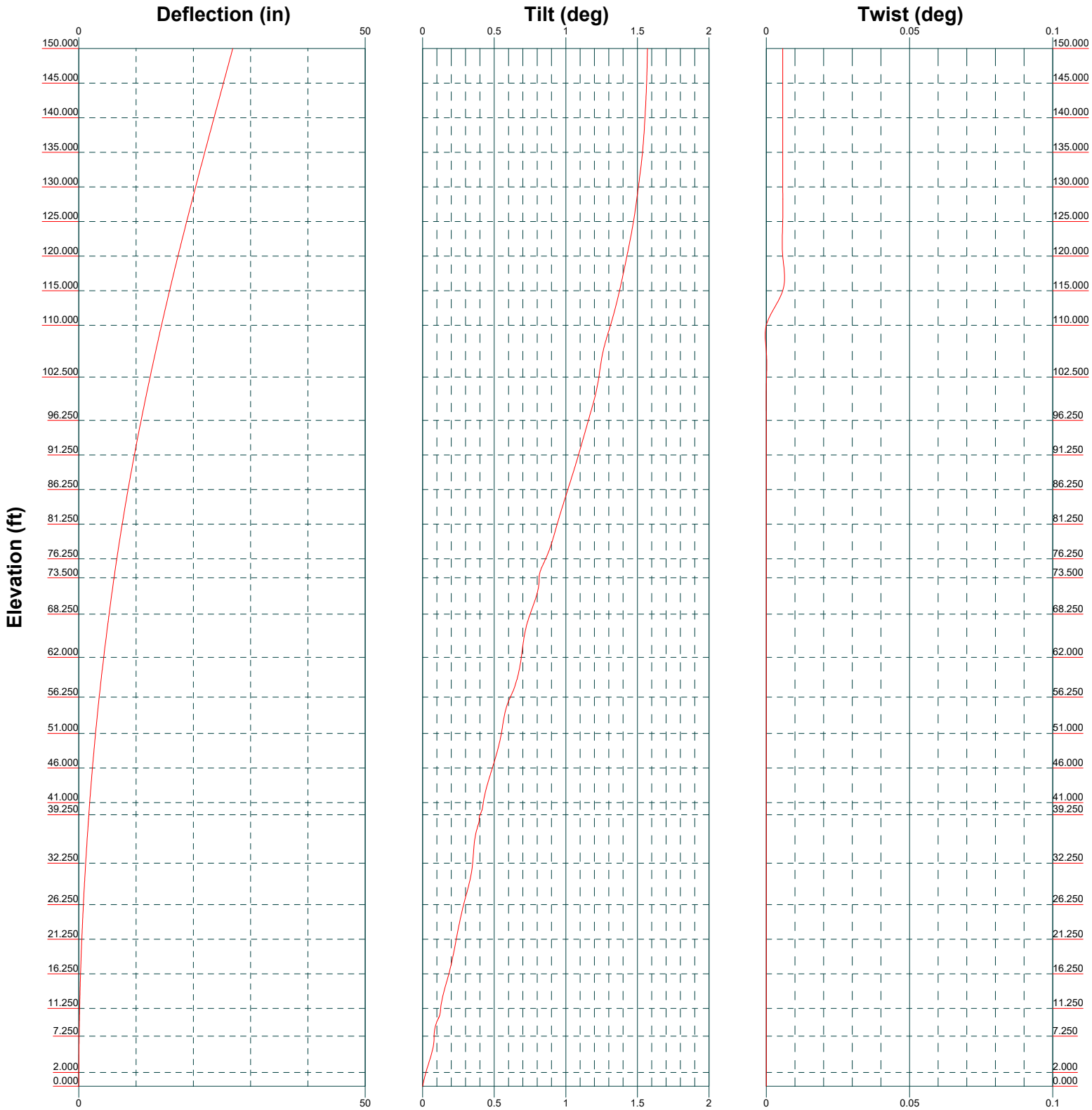


Global Mast Moment (kip-ft)



**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 Phone: (918) 587-4630  
 FAX: (918) 295-0265

Job: <b>81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631</b>		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 10/07/21	Scale: NTS
Path:	Dwg No. E-4	

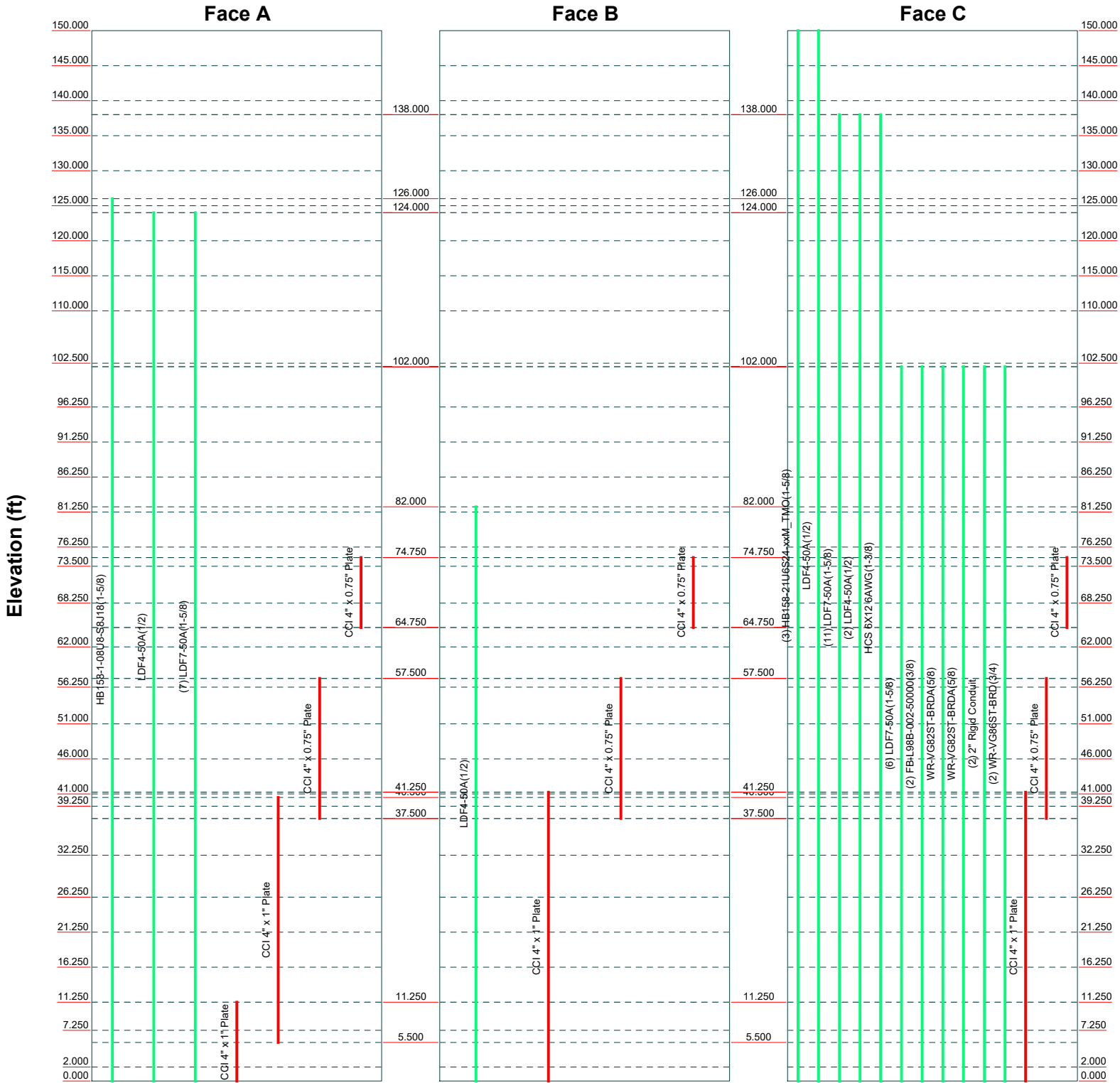


**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 Phone: (918) 587-4630  
 FAX: (918) 295-0265

Job: <b>81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631</b>		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 10/07/21	Scale: NTS
Path:	Dwg No. E-5	

# Feed Line Distribution Chart 0' - 150'

— Round   
 — Flat   
 — App In Face   
 — App Out Face   
 — Truss Leg



**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 Phone: (918) 587-4630  
 FAX: (918) 295-0265

Job: <b>81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631</b>		
Project:		
Client: Crown Castle	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 10/07/21	Scale: NTS
Path:	Dwg No: E-7	

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 1 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

## Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Tower base elevation above sea level: 238.000 ft.

Basic wind speed of 119 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.000 ft.

Nominal ice thickness of 1.000 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

TIA-222-H Annex S.

TOWER RATING:76.8%.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .

Maximum demand-capacity ratio is: 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>Use Clear Spans For KL/r</li> <li>Retension Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>Include Angle Block Shear Check</li> <li>Use TIA-222-H Bracing Resist. Exemption</li> <li>Use TIA-222-H Tension Splice Exemption</li> <li style="background-color: #e0e0e0;">Poles</li> <li>√ Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 2 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

## Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.000-145.000	5.000	0.000	12	22.000	22.875	0.250	1.000	A607-60 (60 ksi)
L2	145.000-140.000	5.000	0.000	12	22.875	23.750	0.250	1.000	A607-60 (60 ksi)
L3	140.000-135.000	5.000	0.000	12	23.750	24.625	0.250	1.000	A607-60 (60 ksi)
L4	135.000-130.000	5.000	0.000	12	24.625	25.501	0.250	1.000	A607-60 (60 ksi)
L5	130.000-125.000	5.000	0.000	12	25.501	26.376	0.250	1.000	A607-60 (60 ksi)
L6	125.000-120.000	5.000	0.000	12	26.376	27.251	0.250	1.000	A607-60 (60 ksi)
L7	120.000-115.000	5.000	0.000	12	27.251	28.126	0.250	1.000	A607-60 (60 ksi)
L8	115.000-110.000	5.000	0.000	12	28.126	29.001	0.250	1.000	A607-60 (60 ksi)
L9	110.000-102.500	7.500	3.750	12	29.001	30.314	0.250	1.000	A607-60 (60 ksi)
L10	102.500-101.250	5.000	0.000	12	29.158	30.033	0.313	1.250	A607-65 (65 ksi)
L11	101.250-96.250	5.000	0.000	12	30.033	30.908	0.313	1.250	A607-65 (65 ksi)
L12	96.250-91.250	5.000	0.000	12	30.908	31.783	0.313	1.250	A607-65 (65 ksi)
L13	91.250-86.250	5.000	0.000	12	31.783	32.658	0.313	1.250	A607-65 (65 ksi)
L14	86.250-81.250	5.000	0.000	12	32.658	33.534	0.313	1.250	A607-65 (65 ksi)
L15	81.250-76.250	5.000	0.000	12	33.534	34.409	0.313	1.250	A607-65 (65 ksi)
L16	76.250-73.500	2.750	0.000	12	34.409	34.890	0.313	1.250	A607-65 (65 ksi)
L17	73.500-73.250	0.250	0.000	12	34.890	34.934	0.400	1.600	A607-65 (65 ksi)
L18	73.250-68.250	5.000	0.000	12	34.934	35.809	0.400	1.600	A607-65 (65 ksi)
L19	68.250-62.000	6.250	4.750	12	35.809	36.903	0.400	1.600	A607-65 (65 ksi)
L20	62.000-61.000	5.750	0.000	12	35.447	36.453	0.375	1.500	A607-65 (65 ksi)
L21	61.000-56.250	4.750	0.000	12	36.453	37.284	0.375	1.500	A607-65 (65 ksi)
L22	56.250-56.000	0.250	0.000	12	37.284	37.328	0.456	1.825	A607-65 (65 ksi)
L23	56.000-51.000	5.000	0.000	12	37.328	38.203	0.456	1.825	A607-65 (65 ksi)
L24	51.000-46.000	5.000	0.000	12	38.203	39.078	0.450	1.800	A607-65 (65 ksi)
L25	46.000-41.000	5.000	0.000	12	39.078	39.954	0.450	1.800	A607-65 (65 ksi)
L26	41.000-39.500	1.500	0.000	12	39.954	40.216	0.450	1.800	A607-65 (65 ksi)
L27	39.500-39.250	0.250	0.000	12	40.216	40.260	0.487	1.950	A607-65 (65 ksi)
L28	39.250-38.750	0.500	0.000	12	40.260	40.347	0.487	1.950	A607-65 (65 ksi)



Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L29	38.750-38.500	0.250	0.000	12	40.347	40.391	0.475	1.900	A607-65 (65 ksi)
L30	38.500-32.250	6.250	5.250	12	40.391	41.485	0.475	1.900	A607-65 (65 ksi)
L31	32.250-31.250	6.250	0.000	12	39.816	40.910	0.537	2.150	A607-65 (65 ksi)
L32	31.250-26.250	5.000	0.000	12	40.910	41.785	0.537	2.150	A607-65 (65 ksi)
L33	26.250-21.250	5.000	0.000	12	41.785	42.660	0.537	2.150	A607-65 (65 ksi)
L34	21.250-16.250	5.000	0.000	12	42.660	43.536	0.531	2.125	A607-65 (65 ksi)
L35	16.250-11.250	5.000	0.000	12	43.536	44.411	0.525	2.100	A607-65 (65 ksi)
L36	11.250-10.000	1.250	0.000	12	44.411	44.630	0.525	2.100	A607-65 (65 ksi)
L37	10.000-9.750	0.250	0.000	12	44.630	44.673	0.463	1.850	A607-65 (65 ksi)
L38	9.750-7.250	2.500	0.000	12	44.673	45.111	0.463	1.850	A607-65 (65 ksi)
L39	7.250-7.000	0.250	0.000	12	45.111	45.155	0.506	2.025	A607-65 (65 ksi)
L40	7.000-2.000	5.000	0.000	12	45.155	46.030	0.500	2.000	A607-65 (65 ksi)
L41	2.000-0.000	2.000		12	46.030	46.380	0.500	2.000	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	22.688	17.509	1057.206	7.786	11.396	92.770	2142.186	8.617	5.226	20.904
L2	23.594	18.213	1190.027	8.100	11.849	100.430	2411.317	8.964	5.461	21.842
L3	24.500	18.918	1333.530	8.413	12.303	108.394	2702.094	9.311	5.695	22.78
L4	25.406	19.622	1488.131	8.726	12.756	116.661	3015.356	9.657	5.930	23.719
L5	26.312	20.327	1654.240	9.040	13.209	125.233	3351.939	10.004	6.164	24.657
L6	27.218	21.031	1832.273	9.353	13.663	134.108	3712.681	10.351	6.399	25.595
L7	28.124	21.736	2022.641	9.666	14.116	143.287	4098.419	10.698	6.633	26.533
L8	29.030	22.440	2225.759	9.980	14.569	152.770	4509.991	11.044	6.868	27.471
L9	29.936	23.145	2442.039	10.293	15.023	162.557	4948.233	11.391	7.102	28.409
L10	30.756	23.850	2672.585	10.606	15.477	172.754	5409.991	11.738	7.340	29.347
L11	31.582	24.555	2917.292	10.919	15.931	183.551	5898.419	12.085	7.578	30.285
L12	32.408	25.260	3176.158	11.232	16.385	194.958	6414.991	12.432	7.816	31.223
L13	33.234	25.965	3439.184	11.545	16.839	206.975	6959.991	12.779	8.054	32.161

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	<p><b>Project</b></p>	<p><b>Date</b></p> <p>16:57:25 10/07/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>Jayaraj B</p>

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L14	33.700	32.548	4346.584	11.580	16.917	256.935	8807.358	16.019	7.915	25.328
	33.700	32.548	4346.584	11.580	16.917	256.935	8807.358	16.019	7.915	25.328
	34.606	33.429	4709.033	11.893	17.370	271.096	9541.778	16.453	8.149	26.078
L15	34.606	33.429	4709.033	11.893	17.370	271.096	9541.778	16.453	8.149	26.078
	35.512	34.309	5091.091	12.206	17.824	285.636	10315.931	16.886	8.384	26.829
L16	35.512	34.309	5091.091	12.206	17.824	285.636	10315.931	16.886	8.384	26.829
	36.011	34.794	5309.769	12.379	18.073	293.795	10759.031	17.124	8.513	27.242
L17	35.980	44.423	6745.038	12.347	18.073	373.209	13667.275	21.864	8.279	20.696
	36.025	44.480	6770.744	12.363	18.096	374.163	13719.362	21.891	8.290	20.726
L18	36.025	44.480	6770.744	12.363	18.096	374.163	13719.362	21.891	8.290	20.726
	36.931	45.607	7298.668	12.676	18.549	393.479	14789.079	22.446	8.525	21.312
L19	36.931	45.607	7298.668	12.676	18.549	393.479	14789.079	22.446	8.525	21.312
	38.064	47.016	7996.271	13.068	19.116	418.308	16202.612	23.140	8.818	22.045
L20	37.425	42.349	6648.734	12.556	18.361	362.105	13472.137	20.843	8.495	22.652
	37.607	43.564	7237.686	12.916	18.883	383.298	14665.514	21.441	8.764	23.372
L21	37.607	43.564	7237.686	12.916	18.883	383.298	14665.514	21.441	8.764	23.372
	38.467	44.568	7749.658	13.214	19.313	401.260	15702.908	21.935	8.987	23.966
L22	38.439	54.105	9366.620	13.184	19.313	484.983	18979.312	26.629	8.769	19.221
	38.484	54.169	9400.046	13.200	19.336	486.143	19047.042	26.661	8.781	19.246
L23	38.484	54.169	9400.046	13.200	19.336	486.143	19047.042	26.661	8.781	19.246
	39.390	55.455	10085.373	13.513	19.789	509.638	20435.699	27.293	9.016	19.76
L24	39.392	54.704	9952.159	13.516	19.789	502.907	20165.772	26.924	9.032	20.072
	40.298	55.973	10660.409	13.829	20.243	526.632	21600.880	27.548	9.267	20.593
L25	40.298	55.973	10660.409	13.829	20.243	526.632	21600.880	27.548	9.267	20.593
	41.204	57.241	11401.489	14.142	20.696	550.905	23102.508	28.172	9.502	21.115
L26	41.204	57.241	11401.489	14.142	20.696	550.905	23102.508	28.172	9.502	21.115
	41.476	57.621	11630.326	14.236	20.832	558.294	23566.194	28.359	9.572	21.271
L27	41.463	62.364	12563.909	14.223	20.832	603.109	25457.886	30.694	9.471	19.429
	41.508	62.433	12605.468	14.238	20.855	604.446	25542.096	30.727	9.483	19.453
L28	41.508	62.433	12605.468	14.238	20.855	604.446	25542.096	30.727	9.483	19.453
	41.599	62.570	12688.861	14.270	20.900	607.125	25711.072	30.795	9.507	19.501
L29	41.603	60.985	12375.141	14.274	20.900	592.114	25075.390	30.015	9.540	20.084
	41.648	61.052	12415.928	14.290	20.923	593.422	25158.035	30.048	9.552	20.109
L30	41.648	61.052	12415.928	14.290	20.923	593.422	25158.035	30.048	9.552	20.109
	42.781	62.725	13464.950	14.682	21.489	626.591	27283.639	30.871	9.845	20.726
L31	41.982	67.981	13387.165	14.062	20.625	649.083	27126.025	33.458	9.230	17.172
	42.164	69.875	14537.180	14.453	21.191	685.993	29456.268	34.390	9.523	17.718
L32	42.164	69.875	14537.180	14.453	21.191	685.993	29456.268	34.390	9.523	17.718
	43.070	71.390	15503.220	14.767	21.645	716.257	31413.728	35.136	9.758	18.154
L33	43.070	71.390	15503.220	14.767	21.645	716.257	31413.728	35.136	9.758	18.154
	43.976	72.904	16511.138	15.080	22.098	747.174	33456.041	35.881	9.993	18.591
L34	43.978	72.067	16326.413	15.082	22.098	738.815	33081.739	35.469	10.009	18.841
	44.884	73.564	17365.183	15.396	22.551	770.025	35186.569	36.206	10.244	19.282
L35	44.886	72.709	17168.370	15.398	22.551	761.297	34787.772	35.785	10.261	19.544
	45.792	74.189	18237.872	15.711	23.005	792.785	36954.873	36.514	10.495	19.991
L36	45.792	74.189	18237.872	15.711	23.005	792.785	36954.873	36.514	10.495	19.991
	46.019	74.559	18512.013	15.789	23.118	800.757	37510.358	36.696	10.554	20.102
L37	46.041	65.776	16377.631	15.812	23.118	708.432	33185.520	32.373	10.721	23.181
	46.086	65.841	16426.358	15.827	23.141	709.844	33284.255	32.405	10.733	23.206
L38	46.086	65.841	16426.358	15.827	23.141	709.844	33284.255	32.405	10.733	23.206
	46.539	66.493	16918.959	15.984	23.367	724.038	34282.397	32.726	10.850	23.46
L39	46.524	72.711	18465.014	15.968	23.367	790.201	37415.124	35.786	10.733	21.201
	46.569	72.783	18519.412	15.984	23.390	791.761	37525.350	35.821	10.745	21.224
L40	46.571	71.894	18298.460	15.986	23.390	782.315	37077.640	35.384	10.761	21.523
	47.477	73.303	19395.575	16.300	23.844	813.453	39300.693	36.078	10.996	21.992
L41	47.477	73.303	19395.575	16.300	23.844	813.453	39300.693	36.078	10.996	21.992
	47.840	73.867	19846.414	16.425	24.025	826.079	40214.216	36.355	11.090	22.18



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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor $A_f$	Adjust. Factor $A_r$	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft <sup>2</sup>	in							
L25				1	1	0.992372			
46.000-41.000									
L26				1	1	0.991322			
41.000-39.500									
L27				1	1	1.04409			
39.500-39.250									
L28				1	1	1.04349			
39.250-38.750									
L29				1	1	0.988288			
38.750-38.500									
L30				1	1	0.98742			
38.500-32.250									
L31				1	1	0.987951			
32.250-31.250									
L32				1	1	0.98426			
31.250-26.250									
L33				1	1	0.980721			
26.250-21.250									
L34				1	1	0.988681			
21.250-16.250									
L35				1	1	0.996976			
16.250-11.250									
L36				1	1	0.996164			
11.250-10.000									
L37				1	1	1.06816			
10.000-9.750									
L38				1	1	1.06696			
9.750-7.250									
L39				1	1	0.975602			
7.250-7.000									
L40				1	1	0.985493			
7.000-2.000									
L41				1	1	0.98465			
2.000-0.000									

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

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*										
CCI 4" x 1" Plate	A	No	Surface Af (CaAa)	11.250 - 0.000	1	1	0.000 - 0.000	4.000	10.000	0.000
CCI 4" x 1" Plate	A	No	Surface Af (CaAa)	40.500 - 5.500	1	1	0.000 - 0.000	4.000	10.000	0.000
CCI 4" x 1" Plate	B	No	Surface Af (CaAa)	41.250 - 0.000	1	1	0.000 - 0.000	4.000	10.000	0.000
CCI 4" x 1" Plate	C	No	Surface Af (CaAa)	41.250 - 0.000	1	1	0.000 - 0.000	4.000	10.000	0.000
CCI 4" x 0.75" Plate	A	No	Surface Af (CaAa)	57.500 - 37.500	1	1	0.000 - 0.000	4.000	9.500	0.000
CCI 4" x 0.75" Plate	B	No	Surface Af (CaAa)	57.500 - 37.500	1	1	0.000 - 0.000	4.000	9.500	0.000
CCI 4" x 0.75" Plate	C	No	Surface Af	57.500 -	1	1	0.000	4.000	9.500	0.000

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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
			(CaAa)	37.500			0.000			
CCI 4" x 0.75" Plate	A	No	Surface Af	74.750 - 64.750	1	1	0.000	4.000	9.500	0.000
CCI 4" x 0.75" Plate	B	No	Surface Af	74.750 - 64.750	1	1	0.000	4.000	9.500	0.000
CCI 4" x 0.75" Plate	C	No	Surface Af	74.750 - 64.750	1	1	0.000	4.000	9.500	0.000
*										
*										
*										

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

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight klf
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	150.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
LDF4-50A(1/2)	C	No	No	Inside Pole	150.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	138.000 - 0.000	11	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
LDF4-50A(1/2)	C	No	No	Inside Pole	138.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	138.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.002 0.002 0.002
*									
HB158-1-08U8-S8J 18(1-5/8)	A	No	No	Inside Pole	126.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
LDF4-50A(1/2)	A	No	No	Inside Pole	124.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
LDF7-50A(1-5/8)	A	No	No	Inside Pole	124.000 - 0.000	7	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	102.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
FB-L98B-002-50000 (3/8)	C	No	No	Inside Pole	102.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
WR-VG82ST-BRD A(5/8)	C	No	No	Inside Pole	102.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
WR-VG82ST-BRD A(5/8)	C	No	No	Inside Pole	102.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
2" Rigid Conduit	C	No	No	Inside Pole	102.000 - 0.000	2	No Ice	0.000	0.003

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 8 of 49
	<b>Project</b>	<b>Date</b> 16:57:25 10/07/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight klf
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	102.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
LDF4-50A(1/2)	B	No	No	Inside Pole	82.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
*									
*									
*									

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	150.000-145.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.038
L2	145.000-140.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.038
L3	140.000-135.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.071
L4	135.000-130.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093
L5	130.000-125.000	A	0.000	0.000	0.000	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093
L6	125.000-120.000	A	0.000	0.000	0.000	0.000	0.030
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093
L7	120.000-115.000	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093
L8	115.000-110.000	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.093
L9	110.000-102.500	A	0.000	0.000	0.000	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.140
L10	102.500-101.250	A	0.000	0.000	0.000	0.000	0.009
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.033
L11	101.250-96.250	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.155
L12	96.250-91.250	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.155

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L13	91.250-86.250	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.155
L14	86.250-81.250	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.155
L15	81.250-76.250	A	0.000	0.000	0.000	0.000	0.036
		B	0.000	0.000	0.000	0.000	0.001
		C	0.000	0.000	0.000	0.000	0.155
L16	76.250-73.500	A	0.000	0.000	0.833	0.000	0.020
		B	0.000	0.000	0.833	0.000	0.000
		C	0.000	0.000	0.833	0.000	0.085
L17	73.500-73.250	A	0.000	0.000	0.167	0.000	0.002
		B	0.000	0.000	0.167	0.000	0.000
		C	0.000	0.000	0.167	0.000	0.008
L18	73.250-68.250	A	0.000	0.000	3.333	0.000	0.036
		B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
L19	68.250-62.000	A	0.000	0.000	2.333	0.000	0.045
		B	0.000	0.000	2.333	0.000	0.001
		C	0.000	0.000	2.333	0.000	0.194
L20	62.000-61.000	A	0.000	0.000	0.000	0.000	0.007
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.031
L21	61.000-56.250	A	0.000	0.000	0.833	0.000	0.034
		B	0.000	0.000	0.833	0.000	0.001
		C	0.000	0.000	0.833	0.000	0.148
L22	56.250-56.000	A	0.000	0.000	0.167	0.000	0.002
		B	0.000	0.000	0.167	0.000	0.000
		C	0.000	0.000	0.167	0.000	0.008
L23	56.000-51.000	A	0.000	0.000	3.333	0.000	0.036
		B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
L24	51.000-46.000	A	0.000	0.000	3.333	0.000	0.036
		B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
L25	46.000-41.000	A	0.000	0.000	3.333	0.000	0.036
		B	0.000	0.000	3.500	0.000	0.001
		C	0.000	0.000	3.500	0.000	0.155
L26	41.000-39.500	A	0.000	0.000	1.667	0.000	0.011
		B	0.000	0.000	2.000	0.000	0.000
		C	0.000	0.000	2.000	0.000	0.047
L27	39.500-39.250	A	0.000	0.000	0.333	0.000	0.002
		B	0.000	0.000	0.333	0.000	0.000
		C	0.000	0.000	0.333	0.000	0.008
L28	39.250-38.750	A	0.000	0.000	0.667	0.000	0.004
		B	0.000	0.000	0.667	0.000	0.000
		C	0.000	0.000	0.667	0.000	0.016
L29	38.750-38.500	A	0.000	0.000	0.333	0.000	0.002
		B	0.000	0.000	0.333	0.000	0.000
		C	0.000	0.000	0.333	0.000	0.008
L30	38.500-32.250	A	0.000	0.000	4.833	0.000	0.045
		B	0.000	0.000	4.833	0.000	0.001
		C	0.000	0.000	4.833	0.000	0.194
L31	32.250-31.250	A	0.000	0.000	0.667	0.000	0.007
		B	0.000	0.000	0.667	0.000	0.000
		C	0.000	0.000	0.667	0.000	0.031
L32	31.250-26.250	A	0.000	0.000	3.333	0.000	0.036
		B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
L33	26.250-21.250	A	0.000	0.000	3.333	0.000	0.036

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 10 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L34	21.250-16.250	B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
		A	0.000	0.000	3.333	0.000	0.036
L35	16.250-11.250	B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
		A	0.000	0.000	3.333	0.000	0.036
L36	11.250-10.000	B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
		A	0.000	0.000	1.667	0.000	0.009
L37	10.000-9.750	B	0.000	0.000	0.833	0.000	0.000
		C	0.000	0.000	0.833	0.000	0.039
		A	0.000	0.000	0.333	0.000	0.002
L38	9.750-7.250	B	0.000	0.000	0.167	0.000	0.000
		C	0.000	0.000	0.167	0.000	0.008
		A	0.000	0.000	3.333	0.000	0.018
L39	7.250-7.000	B	0.000	0.000	1.667	0.000	0.000
		C	0.000	0.000	1.667	0.000	0.078
		A	0.000	0.000	0.333	0.000	0.002
L40	7.000-2.000	B	0.000	0.000	0.167	0.000	0.000
		C	0.000	0.000	0.167	0.000	0.008
		A	0.000	0.000	4.333	0.000	0.036
L41	2.000-0.000	B	0.000	0.000	3.333	0.000	0.001
		C	0.000	0.000	3.333	0.000	0.155
		A	0.000	0.000	1.333	0.000	0.014
		B	0.000	0.000	1.333	0.000	0.000
		C	0.000	0.000	1.333	0.000	0.062
		A	0.000	0.000	1.333	0.000	0.062

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

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	150.000-145.000	A	0.987	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.038
L2	145.000-140.000	A	0.984	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.038
L3	140.000-135.000	A	0.980	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.071
L4	135.000-130.000	A	0.977	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093
L5	130.000-125.000	A	0.973	0.000	0.000	0.000	0.000	0.001
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093
L6	125.000-120.000	A	0.969	0.000	0.000	0.000	0.000	0.030
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093
L7	120.000-115.000	A	0.965	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093
L8	115.000-110.000	A	0.961	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.093
L9	110.000-102.500	A	0.955	0.000	0.000	0.000	0.000	0.054
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000



Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L10	102.500-101.250	C		0.000	0.000	0.000	0.000	0.140
		A	0.951	0.000	0.000	0.000	0.000	0.009
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.033
L11	101.250-96.250	A	0.948	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.155
L12	96.250-91.250	A	0.944	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.155
L13	91.250-86.250	A	0.938	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.155
L14	86.250-81.250	A	0.933	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.155
L15	81.250-76.250	A	0.927	0.000	0.000	0.000	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.001
		C		0.000	0.000	0.000	0.000	0.155
L16	76.250-73.500	A	0.923	0.000	0.000	1.016	0.000	0.026
		B		0.000	0.000	1.016	0.000	0.006
		C		0.000	0.000	1.016	0.000	0.091
L17	73.500-73.250	A	0.921	0.000	0.000	0.203	0.000	0.003
		B		0.000	0.000	0.203	0.000	0.001
		C		0.000	0.000	0.203	0.000	0.009
L18	73.250-68.250	A	0.917	0.000	0.000	4.060	0.000	0.059
		B		0.000	0.000	4.060	0.000	0.024
		C		0.000	0.000	4.060	0.000	0.179
L19	68.250-62.000	A	0.910	0.000	0.000	2.839	0.000	0.061
		B		0.000	0.000	2.839	0.000	0.017
		C		0.000	0.000	2.839	0.000	0.210
L20	62.000-61.000	A	0.905	0.000	0.000	0.000	0.000	0.007
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.031
L21	61.000-56.250	A	0.900	0.000	0.000	1.058	0.000	0.040
		B		0.000	0.000	1.058	0.000	0.006
		C		0.000	0.000	1.058	0.000	0.153
L22	56.250-56.000	A	0.896	0.000	0.000	0.211	0.000	0.003
		B		0.000	0.000	0.211	0.000	0.001
		C		0.000	0.000	0.211	0.000	0.009
L23	56.000-51.000	A	0.892	0.000	0.000	4.225	0.000	0.058
		B		0.000	0.000	4.225	0.000	0.023
		C		0.000	0.000	4.225	0.000	0.178
L24	51.000-46.000	A	0.883	0.000	0.000	4.217	0.000	0.058
		B		0.000	0.000	4.217	0.000	0.023
		C		0.000	0.000	4.217	0.000	0.178
L25	46.000-41.000	A	0.874	0.000	0.000	4.207	0.000	0.058
		B		0.000	0.000	4.417	0.000	0.024
		C		0.000	0.000	4.417	0.000	0.178
L26	41.000-39.500	A	0.867	0.000	0.000	2.100	0.000	0.022
		B		0.000	0.000	2.520	0.000	0.013
		C		0.000	0.000	2.520	0.000	0.060
L27	39.500-39.250	A	0.865	0.000	0.000	0.420	0.000	0.004
		B		0.000	0.000	0.420	0.000	0.002
		C		0.000	0.000	0.420	0.000	0.010
L28	39.250-38.750	A	0.864	0.000	0.000	0.840	0.000	0.008
		B		0.000	0.000	0.840	0.000	0.004
		C		0.000	0.000	0.840	0.000	0.020
L29	38.750-38.500	A	0.863	0.000	0.000	0.420	0.000	0.004
		B		0.000	0.000	0.420	0.000	0.002
		C		0.000	0.000	0.420	0.000	0.010

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 12 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L30	38.500-32.250	A	0.856	0.000	0.000	6.074	0.000	0.077
		B		0.000	0.000	6.074	0.000	0.033
		C		0.000	0.000	6.074	0.000	0.226
L31	32.250-31.250	A	0.847	0.000	0.000	0.838	0.000	0.012
		B		0.000	0.000	0.838	0.000	0.005
		C		0.000	0.000	0.838	0.000	0.035
L32	31.250-26.250	A	0.838	0.000	0.000	4.172	0.000	0.057
		B		0.000	0.000	4.172	0.000	0.022
		C		0.000	0.000	4.172	0.000	0.177
L33	26.250-21.250	A	0.822	0.000	0.000	4.156	0.000	0.057
		B		0.000	0.000	4.156	0.000	0.022
		C		0.000	0.000	4.156	0.000	0.176
L34	21.250-16.250	A	0.803	0.000	0.000	4.137	0.000	0.056
		B		0.000	0.000	4.137	0.000	0.021
		C		0.000	0.000	4.137	0.000	0.176
L35	16.250-11.250	A	0.779	0.000	0.000	4.112	0.000	0.056
		B		0.000	0.000	4.112	0.000	0.020
		C		0.000	0.000	4.112	0.000	0.175
L36	11.250-10.000	A	0.759	0.000	0.000	2.043	0.000	0.018
		B		0.000	0.000	1.023	0.000	0.005
		C		0.000	0.000	1.023	0.000	0.044
L37	10.000-9.750	A	0.753	0.000	0.000	0.408	0.000	0.004
		B		0.000	0.000	0.204	0.000	0.001
		C		0.000	0.000	0.204	0.000	0.009
L38	9.750-7.250	A	0.742	0.000	0.000	4.071	0.000	0.036
		B		0.000	0.000	2.038	0.000	0.010
		C		0.000	0.000	2.038	0.000	0.087
L39	7.250-7.000	A	0.729	0.000	0.000	0.406	0.000	0.004
		B		0.000	0.000	0.203	0.000	0.001
		C		0.000	0.000	0.203	0.000	0.009
L40	7.000-2.000	A	0.696	0.000	0.000	5.235	0.000	0.058
		B		0.000	0.000	4.030	0.000	0.018
		C		0.000	0.000	4.030	0.000	0.173
L41	2.000-0.000	A	0.599	0.000	0.000	1.573	0.000	0.020
		B		0.000	0.000	1.573	0.000	0.006
		C		0.000	0.000	1.573	0.000	0.068

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
L1	150.000-145.000	0.000	0.000	0.000	0.000
L2	145.000-140.000	0.000	0.000	0.000	0.000
L3	140.000-135.000	0.000	0.000	0.000	0.000
L4	135.000-130.000	0.000	0.000	0.000	0.000
L5	130.000-125.000	0.000	0.000	0.000	0.000
L6	125.000-120.000	0.000	0.000	0.000	0.000
L7	120.000-115.000	0.000	0.000	0.000	0.000
L8	115.000-110.000	0.000	0.000	0.000	0.000
L9	110.000-102.500	0.000	0.000	0.000	0.000
L10	102.500-101.250	0.000	0.000	0.000	0.000
L11	101.250-96.250	0.000	0.000	0.000	0.000
L12	96.250-91.250	0.000	0.000	0.000	0.000
L13	91.250-86.250	0.000	0.000	0.000	0.000
L14	86.250-81.250	0.000	0.000	0.000	0.000
L15	81.250-76.250	0.000	0.000	0.000	0.000

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 13 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
L16	76.250-73.500	0.000	0.000	0.000	0.000
L17	73.500-73.250	0.000	0.000	0.000	0.000
L18	73.250-68.250	0.000	0.000	0.000	0.000
L19	68.250-62.000	0.000	0.000	0.000	0.000
L20	62.000-61.000	0.000	0.000	0.000	0.000
L21	61.000-56.250	0.000	0.000	0.000	0.000
L22	56.250-56.000	0.000	0.000	0.000	0.000
L23	56.000-51.000	0.000	0.000	0.000	0.000
L24	51.000-46.000	0.000	0.000	0.000	0.000
L25	46.000-41.000	0.112	0.064	0.109	0.063
L26	41.000-39.500	0.560	0.323	0.548	0.317
L27	39.500-39.250	0.000	0.000	0.000	0.000
L28	39.250-38.750	0.000	0.000	0.000	0.000
L29	38.750-38.500	0.000	0.000	0.000	0.000
L30	38.500-32.250	0.000	0.000	0.000	0.000
L31	32.250-31.250	0.000	0.000	0.000	0.000
L32	31.250-26.250	0.000	0.000	0.000	0.000
L33	26.250-21.250	0.000	0.000	0.000	0.000
L34	21.250-16.250	0.000	0.000	0.000	0.000
L35	16.250-11.250	0.000	0.000	0.000	0.000
L36	11.250-10.000	-2.086	-1.204	-2.008	-1.159
L37	10.000-9.750	-2.087	-1.205	-2.008	-1.160
L38	9.750-7.250	-2.092	-1.208	-2.011	-1.161
L39	7.250-7.000	-2.097	-1.211	-2.013	-1.162
L40	7.000-2.000	-0.677	-0.391	-0.644	-0.372
L41	2.000-0.000	0.000	0.000	0.000	0.000

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

## Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L16	34	CCI 4" x 0.75" Plate	73.50 - 74.75	1.0000	1.0000
L16	35	CCI 4" x 0.75" Plate	73.50 - 74.75	1.0000	1.0000
L16	36	CCI 4" x 0.75" Plate	73.50 - 74.75	1.0000	1.0000
L17	34	CCI 4" x 0.75" Plate	73.25 - 73.50	1.0000	1.0000
L17	35	CCI 4" x 0.75" Plate	73.25 - 73.50	1.0000	1.0000
L17	36	CCI 4" x 0.75" Plate	73.25 - 73.50	1.0000	1.0000
L18	34	CCI 4" x 0.75" Plate	68.25 - 73.25	1.0000	1.0000
L18	35	CCI 4" x 0.75" Plate	68.25 - 73.25	1.0000	1.0000
L18	36	CCI 4" x 0.75" Plate	68.25 - 73.25	1.0000	1.0000
L19	34	CCI 4" x 0.75" Plate	64.75 - 68.25	1.0000	1.0000
L19	35	CCI 4" x 0.75" Plate	64.75 - 68.25	1.0000	1.0000
L19	36	CCI 4" x 0.75" Plate	64.75 - 68.25	1.0000	1.0000
L21	31	CCI 4" x 0.75" Plate	56.25 - 57.50	1.0000	1.0000
L21	32	CCI 4" x 0.75" Plate	56.25 - 57.50	1.0000	1.0000
L21	33	CCI 4" x 0.75" Plate	56.25 - 57.50	1.0000	1.0000
L22	31	CCI 4" x 0.75" Plate	56.00 - 56.25	1.0000	1.0000
L22	32	CCI 4" x 0.75" Plate	56.00 - 56.25	1.0000	1.0000
L22	33	CCI 4" x 0.75" Plate	56.00 - 56.25	1.0000	1.0000
L23	31	CCI 4" x 0.75" Plate	51.00 - 56.00	1.0000	1.0000
L23	32	CCI 4" x 0.75" Plate	51.00 - 56.00	1.0000	1.0000
L23	33	CCI 4" x 0.75" Plate	51.00 - 56.00	1.0000	1.0000

# tnxTower

**B+T Group**  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
Phone: (918) 587-4630  
FAX: (918) 295-0265

**Job**  
81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT  
(BU# 876315))

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**Project**

**Date**  
16:57:25 10/07/21

**Client**  
Crown Castle

**Designed by**  
Jayaraj B

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
L24	31	CCI 4" x 0.75" Plate	46.00 - 51.00	1.0000	1.0000
L24	32	CCI 4" x 0.75" Plate	46.00 - 51.00	1.0000	1.0000
L24	33	CCI 4" x 0.75" Plate	46.00 - 51.00	1.0000	1.0000
L25	29	CCI 4" x 1" Plate	41.00 - 41.25	1.0000	1.0000
L25	30	CCI 4" x 1" Plate	41.00 - 41.25	1.0000	1.0000
L25	31	CCI 4" x 0.75" Plate	41.00 - 46.00	1.0000	1.0000
L25	32	CCI 4" x 0.75" Plate	41.00 - 46.00	1.0000	1.0000
L25	33	CCI 4" x 0.75" Plate	41.00 - 46.00	1.0000	1.0000
L26	28	CCI 4" x 1" Plate	39.50 - 40.50	1.0000	1.0000
L26	29	CCI 4" x 1" Plate	39.50 - 41.00	1.0000	1.0000
L26	30	CCI 4" x 1" Plate	39.50 - 41.00	1.0000	1.0000
L26	31	CCI 4" x 0.75" Plate	39.50 - 41.00	1.0000	1.0000
L26	32	CCI 4" x 0.75" Plate	39.50 - 41.00	1.0000	1.0000
L26	33	CCI 4" x 0.75" Plate	39.50 - 41.00	1.0000	1.0000
L27	28	CCI 4" x 1" Plate	39.25 - 39.50	1.0000	1.0000
L27	29	CCI 4" x 1" Plate	39.25 - 39.50	1.0000	1.0000
L27	30	CCI 4" x 1" Plate	39.25 - 39.50	1.0000	1.0000
L27	31	CCI 4" x 0.75" Plate	39.25 - 39.50	1.0000	1.0000
L27	32	CCI 4" x 0.75" Plate	39.25 - 39.50	1.0000	1.0000
L27	33	CCI 4" x 0.75" Plate	39.25 - 39.50	1.0000	1.0000
L28	28	CCI 4" x 1" Plate	38.75 - 39.25	1.0000	1.0000
L28	29	CCI 4" x 1" Plate	38.75 - 39.25	1.0000	1.0000
L28	30	CCI 4" x 1" Plate	38.75 - 39.25	1.0000	1.0000
L28	31	CCI 4" x 0.75" Plate	38.75 - 39.25	1.0000	1.0000
L28	32	CCI 4" x 0.75" Plate	38.75 - 39.25	1.0000	1.0000
L28	33	CCI 4" x 0.75" Plate	38.75 - 39.25	1.0000	1.0000
L29	28	CCI 4" x 1" Plate	38.50 - 38.75	1.0000	1.0000
L29	29	CCI 4" x 1" Plate	38.50 - 38.75	1.0000	1.0000
L29	30	CCI 4" x 1" Plate	38.50 - 38.75	1.0000	1.0000
L29	31	CCI 4" x 0.75" Plate	38.50 - 38.75	1.0000	1.0000
L29	32	CCI 4" x 0.75" Plate	38.50 - 38.75	1.0000	1.0000
L29	33	CCI 4" x 0.75" Plate	38.50 - 38.75	1.0000	1.0000
L30	28	CCI 4" x 1" Plate	32.25 - 38.50	1.0000	1.0000
L30	29	CCI 4" x 1" Plate	32.25 - 38.50	1.0000	1.0000
L30	30	CCI 4" x 1" Plate	32.25 - 38.50	1.0000	1.0000
L30	31	CCI 4" x 0.75" Plate	37.50 - 38.50	1.0000	1.0000
L30	32	CCI 4" x 0.75" Plate	37.50 - 38.50	1.0000	1.0000
L30	33	CCI 4" x 0.75" Plate	37.50 - 38.50	1.0000	1.0000
L31	28	CCI 4" x 1" Plate	31.25 - 32.25	1.0000	1.0000
L31	29	CCI 4" x 1" Plate	31.25 - 32.25	1.0000	1.0000
L31	30	CCI 4" x 1" Plate	31.25 - 32.25	1.0000	1.0000
L32	28	CCI 4" x 1" Plate	26.25 - 31.25	1.0000	1.0000
L32	29	CCI 4" x 1" Plate	26.25 - 31.25	1.0000	1.0000
L32	30	CCI 4" x 1" Plate	26.25 - 31.25	1.0000	1.0000
L33	28	CCI 4" x 1" Plate	21.25 - 26.25	1.0000	1.0000
L33	29	CCI 4" x 1" Plate	21.25 - 26.25	1.0000	1.0000
L33	30	CCI 4" x 1" Plate	21.25 - 26.25	1.0000	1.0000
L34	28	CCI 4" x 1" Plate	16.25 - 21.25	1.0000	1.0000
L34	29	CCI 4" x 1" Plate	16.25 - 21.25	1.0000	1.0000
L34	30	CCI 4" x 1" Plate	16.25 - 21.25	1.0000	1.0000
L35	28	CCI 4" x 1" Plate	11.25 - 16.25	1.0000	1.0000
L35	29	CCI 4" x 1" Plate	11.25 - 16.25	1.0000	1.0000
L35	30	CCI 4" x 1" Plate	11.25 - 16.25	1.0000	1.0000
L36	27	CCI 4" x 1" Plate	10.00 - 11.25	1.0000	1.0000
L36	28	CCI 4" x 1" Plate	10.00 - 11.25	1.0000	1.0000
L36	29	CCI 4" x 1" Plate	10.00 - 11.25	1.0000	1.0000
L36	30	CCI 4" x 1" Plate	10.00 - 11.25	1.0000	1.0000
L37	27	CCI 4" x 1" Plate	9.75 - 10.00	1.0000	1.0000
L37	28	CCI 4" x 1" Plate	9.75 - 10.00	1.0000	1.0000
L37	29	CCI 4" x 1" Plate	9.75 - 10.00	1.0000	1.0000
L37	30	CCI 4" x 1" Plate	9.75 - 10.00	1.0000	1.0000
L38	27	CCI 4" x 1" Plate	7.25 - 9.75	1.0000	1.0000

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 15 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L38	28	CCI 4" x 1" Plate	7.25 - 9.75	1.0000	1.0000
L38	29	CCI 4" x 1" Plate	7.25 - 9.75	1.0000	1.0000
L38	30	CCI 4" x 1" Plate	7.25 - 9.75	1.0000	1.0000
L39	27	CCI 4" x 1" Plate	7.00 - 7.25	1.0000	1.0000
L39	28	CCI 4" x 1" Plate	7.00 - 7.25	1.0000	1.0000
L39	29	CCI 4" x 1" Plate	7.00 - 7.25	1.0000	1.0000
L39	30	CCI 4" x 1" Plate	7.00 - 7.25	1.0000	1.0000
L40	27	CCI 4" x 1" Plate	2.00 - 7.00	1.0000	1.0000
L40	28	CCI 4" x 1" Plate	5.50 - 7.00	1.0000	1.0000
L40	29	CCI 4" x 1" Plate	2.00 - 7.00	1.0000	1.0000
L40	30	CCI 4" x 1" Plate	2.00 - 7.00	1.0000	1.0000
L41	27	CCI 4" x 1" Plate	0.00 - 2.00	1.0000	1.0000
L41	29	CCI 4" x 1" Plate	0.00 - 2.00	1.0000	1.0000
L41	30	CCI 4" x 1" Plate	0.00 - 2.00	1.0000	1.0000

### Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L16	34	CCI 4" x 0.75" Plate	73.50 - 74.75	Auto	0.0000
L16	35	CCI 4" x 0.75" Plate	73.50 - 74.75	Auto	0.0000
L16	36	CCI 4" x 0.75" Plate	73.50 - 74.75	Auto	0.0000
L17	34	CCI 4" x 0.75" Plate	73.25 - 73.50	Auto	0.0000
L17	35	CCI 4" x 0.75" Plate	73.25 - 73.50	Auto	0.0000
L17	36	CCI 4" x 0.75" Plate	73.25 - 73.50	Auto	0.0000
L18	34	CCI 4" x 0.75" Plate	68.25 - 73.25	Auto	0.0000
L18	35	CCI 4" x 0.75" Plate	68.25 - 73.25	Auto	0.0000
L18	36	CCI 4" x 0.75" Plate	68.25 - 73.25	Auto	0.0000
L19	34	CCI 4" x 0.75" Plate	64.75 - 68.25	Auto	0.0000
L19	35	CCI 4" x 0.75" Plate	64.75 - 68.25	Auto	0.0000
L19	36	CCI 4" x 0.75" Plate	64.75 - 68.25	Auto	0.0000
L21	31	CCI 4" x 0.75" Plate	56.25 - 57.50	Auto	0.0000
L21	32	CCI 4" x 0.75" Plate	56.25 - 57.50	Auto	0.0000
L21	33	CCI 4" x 0.75" Plate	56.25 - 57.50	Auto	0.0000
L22	31	CCI 4" x 0.75" Plate	56.00 - 56.25	Auto	0.0000
L22	32	CCI 4" x 0.75" Plate	56.00 - 56.25	Auto	0.0000
L22	33	CCI 4" x 0.75" Plate	56.00 - 56.25	Auto	0.0000
L23	31	CCI 4" x 0.75" Plate	51.00 - 56.00	Auto	0.0000
L23	32	CCI 4" x 0.75" Plate	51.00 - 56.00	Auto	0.0000
L23	33	CCI 4" x 0.75" Plate	51.00 - 56.00	Auto	0.0000
L24	31	CCI 4" x 0.75" Plate	46.00 - 51.00	Auto	0.0000
L24	32	CCI 4" x 0.75" Plate	46.00 - 51.00	Auto	0.0000
L24	33	CCI 4" x 0.75" Plate	46.00 - 51.00	Auto	0.0000
L25	29	CCI 4" x 1" Plate	41.00 - 41.25	Auto	0.0000
L25	30	CCI 4" x 1" Plate	41.00 - 41.25	Auto	0.0000
L25	31	CCI 4" x 0.75" Plate	41.00 - 46.00	Auto	0.0000
L25	32	CCI 4" x 0.75" Plate	41.00 - 46.00	Auto	0.0000
L25	33	CCI 4" x 0.75" Plate	41.00 - 46.00	Auto	0.0000
L26	28	CCI 4" x 1" Plate	39.50 - 40.50	Auto	0.0000
L26	29	CCI 4" x 1" Plate	39.50 - 41.00	Auto	0.0000
L26	30	CCI 4" x 1" Plate	39.50 - 41.00	Auto	0.0000
L26	31	CCI 4" x 0.75" Plate	39.50 - 41.00	Auto	0.0000
L26	32	CCI 4" x 0.75" Plate	39.50 - 41.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	33	CCI 4" x 0.75" Plate	39.50 - 41.00	Auto	0.0000
L27	28	CCI 4" x 1" Plate	39.25 - 39.50	Auto	0.0000
L27	29	CCI 4" x 1" Plate	39.25 - 39.50	Auto	0.0000
L27	30	CCI 4" x 1" Plate	39.25 - 39.50	Auto	0.0000
L27	31	CCI 4" x 0.75" Plate	39.25 - 39.50	Auto	0.0000
L27	32	CCI 4" x 0.75" Plate	39.25 - 39.50	Auto	0.0000
L27	33	CCI 4" x 0.75" Plate	39.25 - 39.50	Auto	0.0000
L28	28	CCI 4" x 1" Plate	38.75 - 39.25	Auto	0.0000
L28	29	CCI 4" x 1" Plate	38.75 - 39.25	Auto	0.0000
L28	30	CCI 4" x 1" Plate	38.75 - 39.25	Auto	0.0000
L28	31	CCI 4" x 0.75" Plate	38.75 - 39.25	Auto	0.0000
L28	32	CCI 4" x 0.75" Plate	38.75 - 39.25	Auto	0.0000
L28	33	CCI 4" x 0.75" Plate	38.75 - 39.25	Auto	0.0000
L29	28	CCI 4" x 1" Plate	38.50 - 38.75	Auto	0.0000
L29	29	CCI 4" x 1" Plate	38.50 - 38.75	Auto	0.0000
L29	30	CCI 4" x 1" Plate	38.50 - 38.75	Auto	0.0000
L29	31	CCI 4" x 0.75" Plate	38.50 - 38.75	Auto	0.0000
L29	32	CCI 4" x 0.75" Plate	38.50 - 38.75	Auto	0.0000
L29	33	CCI 4" x 0.75" Plate	38.50 - 38.75	Auto	0.0000
L30	28	CCI 4" x 1" Plate	32.25 - 38.50	Auto	0.0000
L30	29	CCI 4" x 1" Plate	32.25 - 38.50	Auto	0.0000
L30	30	CCI 4" x 1" Plate	32.25 - 38.50	Auto	0.0000
L30	31	CCI 4" x 0.75" Plate	37.50 - 38.50	Auto	0.0000
L30	32	CCI 4" x 0.75" Plate	37.50 - 38.50	Auto	0.0000
L30	33	CCI 4" x 0.75" Plate	37.50 - 38.50	Auto	0.0000
L31	28	CCI 4" x 1" Plate	31.25 - 32.25	Auto	0.0000
L31	29	CCI 4" x 1" Plate	31.25 - 32.25	Auto	0.0000
L31	30	CCI 4" x 1" Plate	31.25 - 32.25	Auto	0.0000
L32	28	CCI 4" x 1" Plate	26.25 - 31.25	Auto	0.0000
L32	29	CCI 4" x 1" Plate	26.25 - 31.25	Auto	0.0000
L32	30	CCI 4" x 1" Plate	26.25 - 31.25	Auto	0.0000
L33	28	CCI 4" x 1" Plate	21.25 - 26.25	Auto	0.0000
L33	29	CCI 4" x 1" Plate	21.25 - 26.25	Auto	0.0000
L33	30	CCI 4" x 1" Plate	21.25 - 26.25	Auto	0.0000
L34	28	CCI 4" x 1" Plate	16.25 - 21.25	Auto	0.0000
L34	29	CCI 4" x 1" Plate	16.25 - 21.25	Auto	0.0000
L34	30	CCI 4" x 1" Plate	16.25 - 21.25	Auto	0.0000
L35	28	CCI 4" x 1" Plate	11.25 - 16.25	Auto	0.0000
L35	29	CCI 4" x 1" Plate	11.25 - 16.25	Auto	0.0000
L35	30	CCI 4" x 1" Plate	11.25 - 16.25	Auto	0.0000
L36	27	CCI 4" x 1" Plate	10.00 - 11.25	Auto	0.0000
L36	28	CCI 4" x 1" Plate	10.00 - 11.25	Auto	0.0000
L36	29	CCI 4" x 1" Plate	10.00 - 11.25	Auto	0.0000
L36	30	CCI 4" x 1" Plate	10.00 - 11.25	Auto	0.0000
L37	27	CCI 4" x 1" Plate	9.75 - 10.00	Auto	0.0000
L37	28	CCI 4" x 1" Plate	9.75 - 10.00	Auto	0.0000
L37	29	CCI 4" x 1" Plate	9.75 - 10.00	Auto	0.0000
L37	30	CCI 4" x 1" Plate	9.75 - 10.00	Auto	0.0000
L38	27	CCI 4" x 1" Plate	7.25 - 9.75	Auto	0.0000
L38	28	CCI 4" x 1" Plate	7.25 - 9.75	Auto	0.0000
L38	29	CCI 4" x 1" Plate	7.25 - 9.75	Auto	0.0000
L38	30	CCI 4" x 1" Plate	7.25 - 9.75	Auto	0.0000
L39	27	CCI 4" x 1" Plate	7.00 - 7.25	Auto	0.0000
L39	28	CCI 4" x 1" Plate	7.00 - 7.25	Auto	0.0000
L39	29	CCI 4" x 1" Plate	7.00 - 7.25	Auto	0.0000
L39	30	CCI 4" x 1" Plate	7.00 - 7.25	Auto	0.0000
L40	27	CCI 4" x 1" Plate	2.00 - 7.00	Auto	0.0000
L40	28	CCI 4" x 1" Plate	5.50 - 7.00	Auto	0.0000
L40	29	CCI 4" x 1" Plate	2.00 - 7.00	Auto	0.0000
L40	30	CCI 4" x 1" Plate	2.00 - 7.00	Auto	0.0000
L41	27	CCI 4" x 1" Plate	0.00 - 2.00	Auto	0.0000

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 17 of 49
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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L41	29	CCI 4" x 1" Plate	0.00 - 2.00	Auto	0.0000
L41	30	CCI 4" x 1" Plate	0.00 - 2.00	Auto	0.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
Lightning Rod 5/8" x 6'	B	From Leg	4.000	0.000	0.000	153.000	No Ice	0.375	0.375	0.006
			0.000	0.000			1/2" Ice	0.989	0.989	0.010
			0.000	0.000			1" Ice	1.619	1.619	0.019
* 201-7	A	From Leg	4.000	0.000	0.000	150.000	No Ice	1.087	1.087	0.004
			0.000	0.000			1/2" Ice	1.937	1.937	0.013
			4.000	0.000			1" Ice	2.802	2.802	0.028
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	150.000	No Ice	5.190	2.710	0.128
			0.000	0.000			1/2" Ice	5.590	3.040	0.174
			0.000	0.000			1" Ice	6.020	3.380	0.227
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	150.000	No Ice	5.190	2.710	0.128
			0.000	0.000			1/2" Ice	5.590	3.040	0.174
			0.000	0.000			1" Ice	6.020	3.380	0.227
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	150.000	No Ice	5.190	2.710	0.128
			0.000	0.000			1/2" Ice	5.590	3.040	0.174
			0.000	0.000			1" Ice	6.020	3.380	0.227
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	150.000	No Ice	14.690	6.870	0.183
			0.000	0.000			1/2" Ice	15.460	7.550	0.311
			0.000	0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	150.000	No Ice	14.690	6.870	0.183
			0.000	0.000			1/2" Ice	15.460	7.550	0.311
			0.000	0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	150.000	No Ice	14.690	6.870	0.183
			0.000	0.000			1/2" Ice	15.460	7.550	0.311
			0.000	0.000			1" Ice	16.230	8.250	0.453
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000	0.000	0.000	150.000	No Ice	2.139	1.686	0.109
			0.000	0.000			1/2" Ice	2.321	1.850	0.131
			0.000	0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000	0.000	0.000	150.000	No Ice	2.139	1.686	0.109
			0.000	0.000			1/2" Ice	2.321	1.850	0.131
			0.000	0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000	0.000	0.000	150.000	No Ice	2.139	1.686	0.109
			0.000	0.000			1/2" Ice	2.321	1.850	0.131
			0.000	0.000			1" Ice	2.511	2.022	0.156
RADIO 4480 B71_TMO	A	From Leg	4.000	0.000	0.000	150.000	No Ice	2.852	1.383	0.093
			0.000	0.000			1/2" Ice	3.064	1.543	0.114
			0.000	0.000			1" Ice	3.284	1.710	0.139
RADIO 4480 B71_TMO	B	From Leg	4.000	0.000	0.000	150.000	No Ice	2.852	1.383	0.093
			0.000	0.000			1/2" Ice	3.064	1.543	0.114
			0.000	0.000			1" Ice	3.284	1.710	0.139
RADIO 4480 B71_TMO	C	From Leg	4.000	0.000	0.000	150.000	No Ice	2.852	1.383	0.093
			0.000	0.000			1/2" Ice	3.064	1.543	0.114
			0.000	0.000			1" Ice	3.284	1.710	0.139

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 18 of 49
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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			Horz Lateral ft	Vert ft					
6' x 2" Mount Pipe	A	From Face	0.000	0.000	0.000	150.000	1" Ice 3.284	1.710	0.139
			4.000	0.000			No Ice 1.425	1.425	0.022
			0.000	0.000			1/2" Ice 1.925	1.925	0.033
6' x 2" Mount Pipe	B	From Face	0.000	0.000	0.000	150.000	1" Ice 2.294	2.294	0.048
			4.000	0.000			No Ice 1.425	1.425	0.022
			0.000	0.000			1/2" Ice 1.925	1.925	0.033
6' x 2" Mount Pipe	C	From Face	0.000	0.000	0.000	150.000	1" Ice 2.294	2.294	0.048
			4.000	0.000			No Ice 1.425	1.425	0.022
			0.000	0.000			1/2" Ice 1.925	1.925	0.033
4' x 2" Pipe Mount	A	From Leg	0.000	0.000	0.000	147.000	1" Ice 2.294	2.294	0.048
			1.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
4' x 2" Pipe Mount	B	From Leg	0.000	0.000	0.000	147.000	1" Ice 1.281	1.281	0.044
			1.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
4' x 2" Pipe Mount	C	From Leg	0.000	0.000	0.000	147.000	1" Ice 1.281	1.281	0.044
			1.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
Miscellaneous [NA 510-1]	C	None	0.000	0.000	0.000	150.000	1" Ice 1.281	1.281	0.044
			0.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None	0.000	0.000	0.000	150.000	1" Ice 1.281	1.281	0.044
			0.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
Side Arm Mount [SO 102-3]	C	None	0.000	0.000	0.000	147.000	1" Ice 1.281	1.281	0.044
			0.000	0.000			No Ice 0.785	0.785	0.029
			0.000	0.000			1/2" Ice 1.028	1.028	0.035
*									
(2) ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice 3.140	2.590	0.112
			0.000	0.000			1/2" Ice 3.450	2.880	0.164
			0.000	0.000			1" Ice 3.770	3.190	0.225
(2) ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice 3.140	2.590	0.112
			0.000	0.000			1/2" Ice 3.450	2.880	0.164
			0.000	0.000			1" Ice 3.770	3.190	0.225
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice 3.760	3.150	0.194
			0.000	0.000			1/2" Ice 4.120	3.490	0.252
			0.000	0.000			1" Ice 4.480	3.840	0.320
(2) AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	138.000	No Ice 3.760	3.150	0.194
			0.000	0.000			1/2" Ice 4.120	3.490	0.252
			0.000	0.000			1" Ice 4.480	3.840	0.320
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice 3.760	3.150	0.194
			0.000	0.000			1/2" Ice 4.120	3.490	0.252
			0.000	0.000			1" Ice 4.480	3.840	0.320
APXVAA24_43-U-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice 14.690	6.870	0.157
			0.000	0.000			1/2" Ice 15.460	7.550	0.285
			0.000	0.000			1" Ice 16.230	8.250	0.427
(2) APXVAA24_43-U-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	138.000	No Ice 14.690	6.870	0.157
			0.000	0.000			1/2" Ice 15.460	7.550	0.285
			0.000	0.000			1" Ice 16.230	8.250	0.427
APXVAA24_43-U-A20 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice 14.690	6.870	0.157
			0.000	0.000			1/2" Ice 15.460	7.550	0.285
			0.000	0.000			1" Ice 16.230	8.250	0.427
(4) ATMA4P4DBP-1A20	A	From Leg	4.000	0.000	0.000	138.000	No Ice 0.747	0.457	0.017
			0.000	0.000			1/2" Ice 0.857	0.550	0.024
			0.000	0.000			1" Ice 0.975	0.651	0.032
(2) RADIO 4449 B12/B71	A	From Leg	4.000	0.000	0.000	138.000	No Ice 1.650	1.163	0.074



Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
			0.000				1/2" Ice	1.810	1.301	0.090
			0.000				1" Ice	1.978	1.447	0.109
(2) RADIO 4449 B12/B71	B	From Leg	4.000		0.000	138.000	No Ice	1.650	1.163	0.074
			0.000				1/2" Ice	1.810	1.301	0.090
			0.000				1" Ice	1.978	1.447	0.109
GPS_A	A	From Leg	4.000		0.000	138.000	No Ice	0.255	0.255	0.001
			0.000				1/2" Ice	0.320	0.320	0.005
			0.000				1" Ice	0.393	0.393	0.010
5' x 2" Pipe Mount	A	From Leg	4.000		0.000	138.000	No Ice	1.188	1.188	0.018
			0.000				1/2" Ice	1.496	1.496	0.027
			0.000				1" Ice	1.807	1.807	0.040
Platform Mount [LP 701-1]	C	None			0.000	138.000	No Ice	58.680	58.680	2.750
							1/2" Ice	66.010	66.010	3.841
							1" Ice	73.410	73.410	5.069
*										
TMA-DB-T1-6Z-8AB-0Z	A	From Leg	1.000		0.000	126.000	No Ice	4.800	2.000	0.044
			0.000				1/2" Ice	5.070	2.193	0.080
			3.000				1" Ice	5.348	2.393	0.120
*										
BXA-70080/4CF w/ Mount Pipe	A	From Leg	4.000		0.000	124.000	No Ice	4.991	3.997	0.031
			0.000				1/2" Ice	5.373	4.611	0.075
			2.000				1" Ice	5.763	5.232	0.125
BXA-80063/4CF w/ Mount Pipe	B	From Leg	4.000		0.000	124.000	No Ice	4.830	3.650	0.028
			0.000				1/2" Ice	5.350	4.140	0.065
			2.000				1" Ice	5.880	4.640	0.109
BXA-80063/4CF w/ Mount Pipe	C	From Leg	4.000		0.000	124.000	No Ice	4.830	3.650	0.028
			0.000				1/2" Ice	5.350	4.140	0.065
			2.000				1" Ice	5.880	4.640	0.109
GPS_A	A	From Leg	4.000		0.000	124.000	No Ice	0.255	0.255	0.001
			0.000				1/2" Ice	0.320	0.320	0.005
			3.000				1" Ice	0.393	0.393	0.010
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	4.000		0.000	124.000	No Ice	6.540	5.550	0.103
			0.000				1/2" Ice	7.060	6.050	0.185
			3.000				1" Ice	7.600	6.570	0.277
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	4.000		0.000	124.000	No Ice	6.540	5.550	0.103
			0.000				1/2" Ice	7.060	6.050	0.185
			3.000				1" Ice	7.600	6.570	0.277
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	4.000		0.000	124.000	No Ice	6.540	5.550	0.103
			0.000				1/2" Ice	7.060	6.050	0.185
			3.000				1" Ice	7.600	6.570	0.277
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.000		0.000	124.000	No Ice	4.915	2.687	0.101
			0.000				1/2" Ice	5.264	3.151	0.141
			3.000				1" Ice	5.623	3.631	0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.000		0.000	124.000	No Ice	4.915	2.687	0.101
			0.000				1/2" Ice	5.264	3.151	0.141
			3.000				1" Ice	5.623	3.631	0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.000		0.000	124.000	No Ice	4.915	2.687	0.101
			0.000				1/2" Ice	5.264	3.151	0.141
			3.000				1" Ice	5.623	3.631	0.186
RFV01U-D1A	A	From Leg	4.000		0.000	124.000	No Ice	1.875	1.250	0.084
			0.000				1/2" Ice	2.045	1.393	0.103
			3.000				1" Ice	2.223	1.543	0.124
(2) RFV01U-D1A	B	From Leg	4.000		0.000	124.000	No Ice	1.875	1.250	0.084
			0.000				1/2" Ice	2.045	1.393	0.103
			3.000				1" Ice	2.223	1.543	0.124
RFV01U-D2A	A	From Leg	4.000		0.000	124.000	No Ice	1.875	1.013	0.070
			0.000				1/2" Ice	2.045	1.145	0.087

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 20 of 49
	<b>Project</b>	<b>Date</b> 16:57:25 10/07/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			Horz Lateral ft	Vert ft						
(2) RFV01U-D2A	C	From Leg	3.000		0.000	124.000	1" Ice	2.223	1.284	0.106
			4.000				No Ice	1.875	1.013	0.070
			0.000				1/2" Ice	2.045	1.145	0.087
RVZDC-6627-PF-48	A	From Leg	3.000		0.000	124.000	1" Ice	2.223	1.284	0.106
			4.000				No Ice	3.792	2.514	0.032
			0.000				1/2" Ice	4.044	2.727	0.063
4' x 2" Pipe Mount	B	From Leg	3.000		0.000	124.000	1" Ice	4.303	2.947	0.099
			4.000				No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
4' x 2" Pipe Mount	C	From Leg	2.000		0.000	124.000	1" Ice	1.281	1.281	0.044
			4.000				No Ice	0.785	0.785	0.029
			0.000				1/2" Ice	1.028	1.028	0.035
Platform Mount [LP 1201-1]	C	None	2.000		0.000	124.000	1" Ice	1.281	1.281	0.044
							No Ice	18.380	18.380	2.100
							1/2" Ice	22.110	22.110	2.652
* OPA65R-BU6D w/ Mount Pipe	A	From Leg	4.000		0.000	102.000	No Ice	12.250	6.050	0.089
			0.000				1/2" Ice	13.000	6.710	0.176
			2.000				1" Ice	13.760	7.390	0.275
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.000		0.000	102.000	No Ice	12.250	6.050	0.089
			0.000				1/2" Ice	13.000	6.710	0.176
			2.000				1" Ice	13.760	7.390	0.275
OPA65R-BU6D w/ Mount Pipe	C	From Leg	4.000		0.000	102.000	No Ice	12.250	6.050	0.089
			0.000				1/2" Ice	13.000	6.710	0.176
			2.000				1" Ice	13.760	7.390	0.275
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.000		0.000	102.000	No Ice	11.960	5.970	0.115
			0.000				1/2" Ice	12.700	6.630	0.201
			2.000				1" Ice	13.460	7.300	0.298
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.000		0.000	102.000	No Ice	11.960	5.970	0.115
			0.000				1/2" Ice	12.700	6.630	0.201
			2.000				1" Ice	13.460	7.300	0.298
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.000		0.000	102.000	No Ice	11.960	5.970	0.115
			0.000				1/2" Ice	12.700	6.630	0.201
			2.000				1" Ice	13.460	7.300	0.298
7770.00 w/ Mount Pipe	A	From Leg	4.000		0.000	102.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			0.000				1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000		0.000	102.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			0.000				1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	C	From Leg	4.000		0.000	102.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			0.000				1" Ice	6.607	5.711	0.157
RRUS 4449 B5/B12	A	From Leg	4.000		0.000	102.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			2.000				1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	B	From Leg	4.000		0.000	102.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			2.000				1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	C	From Leg	4.000		0.000	102.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			2.000				1" Ice	2.328	1.727	0.111
RRUS 8843 B2/B66A	A	From Leg	4.000		0.000	102.000	No Ice	1.639	1.353	0.072
			0.000				1/2" Ice	1.799	1.500	0.090
			2.000				1" Ice	1.966	1.655	0.110
RRUS 8843 B2/B66A	B	From Leg	4.000		0.000	102.000	No Ice	1.639	1.353	0.072

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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			0.000			1/2" Ice	1.799	1.500	0.090
			2.000			1" Ice	1.966	1.655	0.110
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	102.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			2.000			1" Ice	1.966	1.655	0.110
LGP12104	A	From Leg	4.000	0.000	102.000	No Ice	0.443	0.024	0.002
			0.000			1/2" Ice	0.568	0.048	0.005
			2.000			1" Ice	0.700	0.080	0.010
LGP12104	B	From Leg	4.000	0.000	102.000	No Ice	0.443	0.024	0.002
			0.000			1/2" Ice	0.568	0.048	0.005
			2.000			1" Ice	0.700	0.080	0.010
LGP12104	C	From Leg	4.000	0.000	102.000	No Ice	0.443	0.024	0.002
			0.000			1/2" Ice	0.568	0.048	0.005
			2.000			1" Ice	0.700	0.080	0.010
DC6-48-60-18-8F	A	From Leg	4.000	0.000	102.000	No Ice	1.212	1.212	0.033
			0.000			1/2" Ice	1.892	1.892	0.055
			2.000			1" Ice	2.105	2.105	0.080
DC6-48-60-18-8F	B	From Leg	4.000	0.000	102.000	No Ice	1.212	1.212	0.033
			0.000			1/2" Ice	1.892	1.892	0.055
			2.000			1" Ice	2.105	2.105	0.080
3' x 2" Pipe Mount	A	From Leg	3.000	0.000	102.000	No Ice	0.583	0.583	0.011
			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
3' x 2" Pipe Mount	B	From Leg	3.000	0.000	102.000	No Ice	0.583	0.583	0.011
			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
3' x 2" Pipe Mount	C	From Leg	3.000	0.000	102.000	No Ice	0.583	0.583	0.011
			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
(2) L 2.5x2.5x3/16x6'	A	From Leg	4.000	0.000	102.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			-3.000			1" Ice	2.343	0.049	0.048
(2) L 2.5x2.5x3/16x6'	B	From Leg	4.000	0.000	102.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			-3.000			1" Ice	2.343	0.049	0.048
(2) L 2.5x2.5x3/16x6'	C	From Leg	4.000	0.000	102.000	No Ice	1.500	0.005	0.025
			0.000			1/2" Ice	1.918	0.024	0.034
			-3.000			1" Ice	2.343	0.049	0.048
14.5' x 2.375" horizontal mount pipe	A	From Leg	4.000	0.000	102.000	No Ice	5.740	0.000	0.053
			0.000			1/2" Ice	7.379	1.617	0.072
			3.000			1" Ice	9.030	3.247	0.103
14.5' x 2.375" horizontal mount pipe	B	From Leg	4.000	0.000	102.000	No Ice	5.740	0.000	0.053
			0.000			1/2" Ice	7.379	1.617	0.072
			3.000			1" Ice	9.030	3.247	0.103
14.5' x 2.375" horizontal mount pipe	C	From Leg	4.000	0.000	102.000	No Ice	5.740	0.000	0.053
			0.000			1/2" Ice	7.379	1.617	0.072
			3.000			1" Ice	9.030	3.247	0.103
7'x2.375" Horizontal Mount Pipe	A	From Face	4.000	0.000	102.000	No Ice	1.663	1.663	0.026
			0.000			1/2" Ice	2.391	2.391	0.039
			3.000			1" Ice	2.825	2.825	0.056
7'x2.375" Horizontal Mount Pipe	B	From Face	4.000	0.000	102.000	No Ice	1.663	1.663	0.026
			0.000			1/2" Ice	2.391	2.391	0.039
			3.000			1" Ice	2.825	2.825	0.056
7'x2.375" Horizontal Mount Pipe	C	From Face	4.000	0.000	102.000	No Ice	1.663	1.663	0.026
			0.000			1/2" Ice	2.391	2.391	0.039
			3.000			1" Ice	2.825	2.825	0.056
Platform Mount [LP 1201-1]	C	None		0.000	102.000	No Ice	18.380	18.380	2.100

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
						1/2" Ice	22.110	22.110	2.652
						1" Ice	25.870	25.870	3.263
*									
KS24019-L112A	A	From Leg	4.000	0.000	82.000	No Ice	0.141	0.141	0.005
			0.000			1/2" Ice	0.198	0.198	0.007
			1.000			1" Ice	0.262	0.262	0.009
Side Arm Mount [SO 701-1]	A	From Leg	2.000	0.000	82.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
*									
*									
*									
*									

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz Lateral	Vert							
				ft	ft	°	°	ft	ft	ft <sup>2</sup>	K	
SC2-W100AC	A	Paraboloid w/Shroud (HP)	From Leg	4.000	0.000	0.000		138.000	2.200	No Ice	3.801	0.022
				0.000						1/2" Ice	4.095	0.043
				0.000						1" Ice	4.388	0.064
*												

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice

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Comb. No.	Description
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 145	Pole	Max Tension	26	0.000	0.000	-0.000
			Max. Compression	26	-9.747	-0.106	0.108
			Max. Mx	8	-5.449	-24.478	-0.020
			Max. My	2	-5.446	-0.017	24.466
			Max. Vy	8	5.191	-24.478	-0.020
			Max. Vx	2	-5.194	-0.017	24.466
			Max. Torque	10			0.186
L2	145 - 140	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-10.322	-0.130	0.124
			Max. Mx	8	-5.833	-51.460	-0.026
			Max. My	2	-5.830	-0.010	51.463
			Max. Vy	8	5.605	-51.460	-0.026
			Max. Vx	2	-5.608	-0.010	51.463
			Max. Torque	10			0.186
L3	140 - 135	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-21.495	-2.616	1.276
			Max. Mx	8	-11.703	-98.310	0.302
			Max. My	2	-11.697	-0.974	97.612
			Max. Vy	8	11.477	-98.310	0.302
			Max. Vx	14	11.513	-1.783	-96.265
			Max. Torque	12			1.464

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	135 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.174	-2.663	1.309
			Max. Mx	8	-12.198	-156.738	-0.188
			Max. My	2	-12.192	-0.400	156.046
			Max. Vy	8	11.900	-156.738	-0.188
			Max. Vx	14	11.937	-2.406	-154.875
L5	130 - 125	Pole	Max. Torque	12			1.463
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-23.001	-2.707	1.606
			Max. Mx	8	-12.763	-217.589	-0.588
			Max. My	2	-12.745	0.176	217.441
			Max. Vy	8	12.406	-217.589	-0.588
L6	125 - 120	Pole	Max. Vx	14	12.548	-3.028	-216.226
			Max. Torque	22			-1.597
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.107	-2.941	2.049
			Max. Mx	8	-17.407	-300.578	-1.038
			Max. My	2	-17.384	0.574	301.106
L7	120 - 115	Pole	Max. Vy	8	16.203	-300.578	-1.038
			Max. Vx	14	16.381	-3.763	-299.985
			Max. Torque	22			-1.948
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.887	-2.991	2.086
			Max. Mx	8	-18.031	-382.577	-1.509
L8	115 - 110	Pole	Max. My	2	-18.009	1.130	383.819
			Max. Vy	8	16.611	-382.577	-1.509
			Max. Vx	14	16.790	-4.370	-382.877
			Max. Torque	22			-1.947
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.685	-3.036	2.120
L9	110 - 102.5	Pole	Max. Mx	8	-18.682	-466.597	-1.980
			Max. My	2	-18.660	1.687	468.553
			Max. Vy	8	17.014	-466.597	-1.980
			Max. Vx	14	17.193	-4.973	-467.791
			Max. Torque	22			-1.946
			Max Tension	1	0.000	0.000	0.000
L10	102.5 - 101.25	Pole	Max. Compression	26	-33.297	-3.067	2.143
			Max. Mx	8	-19.184	-530.920	-2.334
			Max. My	2	-19.163	2.105	533.412
			Max. Vy	8	17.313	-530.920	-2.334
			Max. Vx	14	17.492	-5.423	-532.786
			Max. Torque	22			-1.945
L11	101.25 - 96.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-42.479	-3.490	2.395
			Max. Mx	8	-24.544	-626.444	-2.711
			Max. My	2	-24.521	2.498	629.578
			Max. Vy	8	21.744	-626.444	-2.711
			Max. Vx	14	21.926	-6.191	-628.927
L12	96.25 - 91.25	Pole	Max. Torque	22			-2.095
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.515	-3.537	2.430
			Max. Mx	8	-25.458	-736.071	-3.190
			Max. My	2	-25.437	3.064	739.931
			Max. Vy	8	22.132	-736.071	-3.190
L12	96.25 - 91.25	Pole	Max. Vx	14	22.314	-6.803	-739.462
			Max. Torque	22			-2.095
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-44.573	-3.579	2.463
L12	96.25 - 91.25	Pole	Max. Mx	8	-26.399	-847.621	-3.669
			Max. My	2	-26.379	3.631	852.206
			Max. Vy	8	22.514	-847.621	-3.669
			Max. Vx	8	22.514	-847.621	-3.669

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L13	91.25 - 86.25	Pole	Max. Vx	14	22.695	-7.411	-851.920
			Max. Torque	22			-2.093
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.653	-3.617	2.492
			Max. Mx	8	-27.369	-961.048	-4.148
			Max. My	2	-27.350	4.197	966.357
			Max. Vy	8	22.885	-961.048	-4.148
L14	86.25 - 81.25	Pole	Max. Vx	14	23.067	-8.015	-966.253
			Max. Torque	22			-2.092
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.869	-3.651	2.925
			Max. Mx	8	-28.445	-1076.357	-4.344
			Max. My	2	-28.429	4.762	1082.663
			Max. Vy	8	23.313	-1076.357	-4.344
L15	81.25 - 76.25	Pole	Max. Vx	14	23.467	-8.613	-1082.151
			Max. Torque	22			-2.272
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.993	-3.681	2.950
			Max. Mx	8	-29.470	-1193.718	-4.821
			Max. My	2	-29.455	5.326	1200.608
			Max. Vy	8	23.664	-1193.718	-4.821
L16	76.25 - 73.5	Pole	Max. Vx	14	23.818	-9.206	-1200.280
			Max. Torque	22			-2.272
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.639	-3.696	2.962
			Max. Mx	8	-30.039	-1259.006	-5.083
			Max. My	2	-30.025	5.636	1266.215
			Max. Vy	8	23.859	-1259.006	-5.083
L17	73.5 - 73.25	Pole	Max. Vx	14	24.012	-9.530	-1265.989
			Max. Torque	22			-2.270
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.709	-3.702	2.967
			Max. Mx	8	-30.116	-1264.968	-5.107
			Max. My	2	-30.102	5.664	1272.206
			Max. Vy	8	23.860	-1264.968	-5.107
L18	73.25 - 68.25	Pole	Max. Vx	14	24.012	-9.560	-1271.988
			Max. Torque	22			-2.270
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.119	-3.723	2.984
			Max. Mx	8	-31.324	-1385.193	-5.582
			Max. My	2	-31.311	6.225	1393.010
			Max. Vy	8	24.251	-1385.193	-5.582
L19	68.25 - 62	Pole	Max. Vx	14	24.403	-10.145	-1392.977
			Max. Torque	22			-2.270
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.538	-3.730	2.989
			Max. Mx	8	-31.688	-1421.630	-5.724
			Max. My	14	-31.673	-10.320	-1429.642
			Max. Vy	8	24.369	-1421.630	-5.724
L20	62 - 61	Pole	Max. Vx	14	24.522	-10.320	-1429.642
			Max. Torque	22			-2.268
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.176	-3.757	3.010
			Max. Mx	8	-33.904	-1563.224	-6.269
			Max. My	14	-33.889	-10.990	-1572.113
			Max. Vy	8	24.895	-1563.224	-6.269
L21	61 - 56.25	Pole	Max. Vx	14	25.047	-10.990	-1572.113
			Max. Torque	22			-2.268
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.469	-3.767	3.018
			Max. Mx	8	-35.081	-1682.117	-6.719

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 26 of 49
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	56.25 - 56	Pole	Max. My	14	-35.068	-11.540	-1691.729
			Max. Vy	8	25.206	-1682.117	-6.719
			Max. Vx	14	25.358	-11.540	-1691.729
			Max. Torque	22			-2.267
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.549	-3.772	3.022
			Max. Mx	8	-35.165	-1688.415	-6.743
			Max. My	14	-35.152	-11.569	-1698.065
			Max. Vy	8	25.207	-1688.415	-6.743
			Max. Vx	14	25.359	-11.569	-1698.065
L23	56 - 51	Pole	Max. Torque	22			-2.266
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.166	-3.767	3.019
			Max. Mx	8	-36.584	-1815.298	-7.215
			Max. My	14	-36.572	-12.142	-1825.705
			Max. Vy	8	25.568	-1815.298	-7.215
			Max. Vx	14	25.719	-12.142	-1825.705
			Max. Torque	22			-2.266
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.807	-3.767	3.019
L24	51 - 46	Pole	Max. Mx	8	-38.038	-1943.892	-7.685
			Max. My	14	-38.027	-12.712	-1955.054
			Max. Vy	8	25.903	-1943.892	-7.685
			Max. Vx	14	26.054	-12.712	-1955.054
			Max. Torque	22			-2.265
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.473	-3.769	3.018
			Max. Mx	8	-39.517	-2074.118	-8.153
			Max. My	14	-39.508	-13.277	-2086.031
			Max. Vy	8	26.222	-2074.118	-8.153
L25	46 - 41	Pole	Max. Vx	14	26.372	-13.277	-2086.031
			Max. Torque	22			-2.265
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.995	-3.771	3.015
			Max. Mx	8	-39.960	-2113.495	-8.293
			Max. My	14	-39.951	-13.446	-2125.632
			Max. Vy	8	26.324	-2113.495	-8.293
			Max. Vx	14	26.474	-13.446	-2125.632
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
L26	41 - 39.5	Pole	Max. Compression	26	-60.091	-3.775	3.018
			Max. Mx	8	-40.058	-2120.071	-8.317
			Max. My	14	-40.049	-13.474	-2132.246
			Max. Vy	8	26.319	-2120.071	-8.317
			Max. Vx	14	26.468	-13.474	-2132.246
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.282	-3.773	3.017
			Max. Mx	8	-40.221	-2133.236	-8.364
			Max. My	14	-40.212	-13.530	-2145.485
L27	39.5 - 39.25	Pole	Max. Vy	8	26.354	-2133.236	-8.364
			Max. Vx	14	26.504	-13.530	-2145.485
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.373	-3.775	3.018
			Max. Mx	8	-40.302	-2139.824	-8.387
			Max. My	14	-40.293	-13.558	-2152.111
			Max. Vy	8	26.367	-2139.824	-8.387
			Max. Vx	14	26.516	-13.558	-2152.111
			Max. Torque	22			-2.264
L28	39.25 - 38.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.373	-3.775	3.018
			Max. Mx	8	-40.302	-2139.824	-8.387
			Max. My	14	-40.293	-13.558	-2152.111
			Max. Vy	8	26.367	-2139.824	-8.387
			Max. Vx	14	26.516	-13.558	-2152.111
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.373	-3.775	3.018
			Max. Mx	8	-40.302	-2139.824	-8.387
L29	38.75 - 38.5	Pole	Max. My	14	-40.293	-13.558	-2152.111
			Max. Vy	8	26.367	-2139.824	-8.387
			Max. Vx	14	26.516	-13.558	-2152.111
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.373	-3.775	3.018
			Max. Mx	8	-40.302	-2139.824	-8.387
			Max. My	14	-40.293	-13.558	-2152.111
			Max. Vy	8	26.367	-2139.824	-8.387
			Max. Vx	14	26.516	-13.558	-2152.111
L30	38.5 - 32.25	Pole	Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000



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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L31	32.25 - 31.25	Pole	Max. Compression	26	-60.726	-3.772	3.016
			Max. Mx	8	-40.606	-2166.215	-8.480
			Max. My	14	-40.598	-13.670	-2178.651
			Max. Vy	8	26.439	-2166.215	-8.480
			Max. Vx	14	26.588	-13.670	-2178.651
			Max. Torque	22			-2.264
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.669	-3.772	3.016
			Max. Mx	8	-44.009	-2333.015	-9.061
			Max. My	14	-44.001	-14.370	-2346.385
L32	31.25 - 26.25	Pole	Max. Vy	8	26.947	-2333.015	-9.061
			Max. Vx	14	27.096	-14.370	-2346.385
			Max. Torque	22			-2.263
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.605	-3.772	3.016
			Max. Mx	8	-45.756	-2468.367	-9.525
			Max. My	14	-45.750	-14.925	-2482.480
			Max. Vy	8	27.229	-2468.367	-9.525
			Max. Vx	14	27.377	-14.925	-2482.480
			Max. Torque	22			-2.263
L33	26.25 - 21.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.565	-3.771	3.015
			Max. Mx	8	-47.531	-2605.118	-9.986
			Max. My	14	-47.525	-15.476	-2619.971
			Max. Vy	8	27.508	-2605.118	-9.986
			Max. Vx	14	27.656	-15.476	-2619.971
			Max. Torque	22			-2.263
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.547	-3.771	3.015
			Max. Mx	8	-49.333	-2743.250	-10.445
L34	21.25 - 16.25	Pole	Max. My	14	-49.329	-16.022	-2758.839
			Max. Vy	8	27.783	-2743.250	-10.445
			Max. Vx	14	27.929	-16.022	-2758.839
			Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.550	-3.771	3.015
			Max. Mx	8	-51.163	-2882.741	-10.902
			Max. My	14	-51.160	-16.562	-2899.060
			Max. Vy	8	28.053	-2882.741	-10.902
			Max. Vx	14	28.198	-16.562	-2899.060
L35	16.25 - 11.25	Pole	Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.059	-3.763	3.020
			Max. Mx	8	-51.623	-2917.824	-11.015
			Max. My	14	-51.620	-16.697	-2934.325
			Max. Vy	8	28.125	-2917.824	-11.015
			Max. Vx	14	28.270	-16.697	-2934.325
			Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.156	-3.763	3.021
L36	11.25 - 10	Pole	Max. Mx	8	-51.723	-2924.851	-11.038
			Max. My	14	-51.720	-16.723	-2941.388
			Max. Vy	8	28.118	-2924.851	-11.038
			Max. Vx	14	28.263	-16.723	-2941.388
			Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.135	-3.746	3.029
			Max. Mx	8	-52.607	-2995.280	-11.264
			Max. My	14	-52.605	-16.991	-3012.180
			Max. Vy	8	28.261	-2995.280	-11.264
L37	10 - 9.75	Pole	Max. Vx	14	28.405	-16.991	-3012.180
			Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.135	-3.746	3.029
L38	9.75 - 7.25	Pole	Max. Mx	8	-52.607	-2995.280	-11.264
			Max. My	14	-52.605	-16.991	-3012.180
			Max. Vy	8	28.261	-2995.280	-11.264
			Max. Vx	14	28.405	-16.991	-3012.180

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L39	7.25 - 7	Pole	Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.233	-3.746	3.031
			Max. Mx	8	-52.709	-3002.340	-11.287
			Max. My	14	-52.707	-17.017	-3019.276
			Max. Vy	8	28.250	-3002.340	-11.287
			Max. Vx	14	28.395	-17.017	-3019.276
L40	7 - 2	Pole	Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.183	-3.736	3.035
			Max. Mx	8	-54.505	-3144.199	-11.737
			Max. My	14	-54.504	-17.546	-3161.855
			Max. Vy	8	28.520	-3144.199	-11.737
			Max. Vx	14	28.664	-17.546	-3161.855
L41	2 - 0	Pole	Max. Torque	22			-2.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.954	-3.736	3.035
			Max. Mx	8	-55.234	-3201.297	-11.916
			Max. My	14	-55.234	-17.756	-3219.239
			Max. Vy	8	28.622	-3201.297	-11.916
			Max. Vx	14	28.765	-17.756	-3219.239
			Max. Torque	22			-2.261

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	76.954	-0.000	0.000
	Max. H <sub>x</sub>	20	55.246	28.599	0.121
	Max. H <sub>z</sub>	3	41.434	0.105	28.706
	Max. M <sub>x</sub>	2	3216.760	0.105	28.706
	Max. M <sub>z</sub>	8	3201.297	-28.599	-0.089
	Max. Torsion	10	2.145	-24.795	-14.508
	Min. Vert	19	41.434	24.690	-14.326
	Min. H <sub>x</sub>	9	41.434	-28.599	-0.089
	Min. H <sub>z</sub>	14	55.246	-0.105	-28.742
	Min. M <sub>x</sub>	14	-3219.239	-0.105	-28.742
	Min. M <sub>z</sub>	20	-3197.218	28.599	0.121
	Min. Torsion	22	-2.261	24.805	14.474

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overtuning Moment, M <sub>x</sub> kip-ft	Overtuning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	46.038	0.000	-0.000	-1.129	-1.593	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	55.246	-0.105	-28.706	-3216.760	13.699	1.402
0.9 Dead+1.0 Wind 0 deg - No Ice	41.434	-0.105	-28.706	-3158.366	13.939	1.356
1.2 Dead+1.0 Wind 30 deg - No Ice	55.246	14.189	-24.819	-2779.894	-1585.060	0.356

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b></p> <p style="text-align: center;">81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315))</p>	<p><b>Page</b></p> <p style="text-align: center;">29 of 49</p>
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	<p><b>Client</b></p> <p style="text-align: center;">Crown Castle</p>	<p><b>Designed by</b></p> <p style="text-align: center;">Jayaraj B</p>

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 30 deg - No Ice	41.434	14.189	-24.819	-2729.392	-1555.995	0.329
1.2 Dead+1.0 Wind 60 deg - No Ice	55.246	24.700	-14.292	-1599.975	-2762.589	-0.869
0.9 Dead+1.0 Wind 60 deg - No Ice	41.434	24.700	-14.292	-1570.767	-2712.274	-0.871
1.2 Dead+1.0 Wind 90 deg - No Ice	55.246	28.599	0.089	11.916	-3201.297	-1.871
0.9 Dead+1.0 Wind 90 deg - No Ice	41.434	28.599	0.089	12.032	-3143.052	-1.848
1.2 Dead+1.0 Wind 120 deg - No Ice	55.246	24.795	14.508	1629.430	-2776.640	-2.145
0.9 Dead+1.0 Wind 120 deg - No Ice	41.434	24.795	14.508	1600.350	-2726.052	-2.103
1.2 Dead+1.0 Wind 150 deg - No Ice	55.246	14.379	24.961	2798.173	-1613.488	-2.034
0.9 Dead+1.0 Wind 150 deg - No Ice	41.434	14.379	24.961	2748.037	-1583.853	-1.984
1.2 Dead+1.0 Wind 180 deg - No Ice	55.246	0.105	28.742	3219.239	-17.756	-1.392
0.9 Dead+1.0 Wind 180 deg - No Ice	41.434	0.105	28.742	3161.532	-16.874	-1.347
1.2 Dead+1.0 Wind 210 deg - No Ice	55.246	-14.197	24.856	2782.549	1582.249	-0.381
0.9 Dead+1.0 Wind 210 deg - No Ice	41.434	-14.197	24.856	2732.727	1554.287	-0.352
1.2 Dead+1.0 Wind 240 deg - No Ice	55.246	-24.690	14.326	1602.245	2756.950	0.743
0.9 Dead+1.0 Wind 240 deg - No Ice	41.434	-24.690	14.326	1573.717	2707.799	0.746
1.2 Dead+1.0 Wind 270 deg - No Ice	55.246	-28.599	-0.121	-19.540	3197.218	1.862
0.9 Dead+1.0 Wind 270 deg - No Ice	41.434	-28.599	-0.121	-18.782	3140.104	1.839
1.2 Dead+1.0 Wind 300 deg - No Ice	55.246	-24.805	-14.474	-1627.142	2774.132	2.261
0.9 Dead+1.0 Wind 300 deg - No Ice	41.434	-24.805	-14.474	-1597.387	2724.633	2.218
1.2 Dead+1.0 Wind 330 deg - No Ice	55.246	-14.371	-24.924	-2795.500	1608.175	2.068
0.9 Dead+1.0 Wind 330 deg - No Ice	41.434	-14.371	-24.924	-2744.690	1579.682	2.017
1.2 Dead+1.0 Ice+1.0 Temp	76.954	0.000	-0.000	-3.035	-3.736	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	76.954	-0.019	-6.590	-772.551	-0.872	0.383
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	76.954	3.267	-5.700	-668.338	-383.946	0.096
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	76.954	5.681	-3.284	-386.206	-665.801	-0.235
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	76.954	6.574	0.016	-0.657	-770.489	-0.508
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	76.954	5.698	3.324	386.212	-668.458	-0.599
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	76.954	3.301	5.726	666.244	-389.397	-0.566
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	76.954	0.019	6.597	767.430	-6.852	-0.382
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	76.954	-3.268	5.707	663.254	376.494	-0.096
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	76.954	-5.679	3.291	381.033	657.743	0.216

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	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	76.954	-6.574	-0.022	-6.637	762.763	0.508
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	76.954	-5.700	-3.317	-391.383	661.063	0.618
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	76.954	-3.299	-5.719	-671.325	381.399	0.566
Dead+Wind 0 deg - Service	46.038	-0.025	-6.876	-763.424	2.049	0.339
Dead+Wind 30 deg - Service	46.038	3.399	-5.945	-659.845	-376.952	0.089
Dead+Wind 60 deg - Service	46.038	5.917	-3.423	-380.135	-656.088	-0.207
Dead+Wind 90 deg - Service	46.038	6.851	0.021	1.970	-760.095	-0.454
Dead+Wind 120 deg - Service	46.038	5.939	3.475	385.425	-659.443	-0.524
Dead+Wind 150 deg - Service	46.038	3.444	5.979	662.510	-383.701	-0.498
Dead+Wind 180 deg - Service	46.038	0.025	6.885	762.327	-5.396	-0.339
Dead+Wind 210 deg - Service	46.038	-3.401	5.954	658.788	373.907	-0.089
Dead+Wind 240 deg - Service	46.038	-5.914	3.432	378.978	652.374	0.184
Dead+Wind 270 deg - Service	46.038	-6.851	-0.029	-5.474	756.747	0.453
Dead+Wind 300 deg - Service	46.038	-5.942	-3.467	-386.580	656.460	0.546
Dead+Wind 330 deg - Service	46.038	-3.442	-5.970	-663.565	380.051	0.498

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-46.038	0.000	-0.000	46.038	0.000	0.000%
2	-0.105	-55.246	-28.706	0.105	55.246	28.706	0.000%
3	-0.105	-41.434	-28.706	0.105	41.434	28.706	0.000%
4	14.189	-55.246	-24.819	-14.189	55.246	24.819	0.000%
5	14.189	-41.434	-24.819	-14.189	41.434	24.819	0.000%
6	24.700	-55.246	-14.292	-24.700	55.246	14.292	0.000%
7	24.700	-41.434	-14.292	-24.700	41.434	14.292	0.000%
8	28.599	-55.246	0.089	-28.599	55.246	-0.089	0.000%
9	28.599	-41.434	0.089	-28.599	41.434	-0.089	0.000%
10	24.795	-55.246	14.508	-24.795	55.246	-14.508	0.000%
11	24.795	-41.434	14.508	-24.795	41.434	-14.508	0.000%
12	14.379	-55.246	24.961	-14.379	55.246	-24.961	0.000%
13	14.379	-41.434	24.961	-14.379	41.434	-24.961	0.000%
14	0.105	-55.246	28.742	-0.105	55.246	-28.742	0.000%
15	0.105	-41.434	28.742	-0.105	41.434	-28.742	0.000%
16	-14.197	-55.246	24.856	14.197	55.246	-24.856	0.000%
17	-14.197	-41.434	24.856	14.197	41.434	-24.856	0.000%
18	-24.690	-55.246	14.326	24.690	55.246	-14.326	0.000%
19	-24.690	-41.434	14.326	24.690	41.434	-14.326	0.000%
20	-28.599	-55.246	-0.121	28.599	55.246	0.121	0.000%
21	-28.599	-41.434	-0.121	28.599	41.434	0.121	0.000%
22	-24.805	-55.246	-14.474	24.805	55.246	14.474	0.000%
23	-24.805	-41.434	-14.474	24.805	41.434	14.474	0.000%
24	-14.371	-55.246	-24.924	14.371	55.246	24.924	0.000%
25	-14.371	-41.434	-24.924	14.371	41.434	24.924	0.000%
26	0.000	-76.954	0.000	-0.000	76.954	0.000	0.000%
27	-0.019	-76.954	-6.590	0.019	76.954	6.590	0.000%
28	3.267	-76.954	-5.700	-3.267	76.954	5.700	0.000%
29	5.681	-76.954	-3.284	-5.681	76.954	3.284	0.000%
30	6.574	-76.954	0.016	-6.574	76.954	-0.016	0.000%
31	5.698	-76.954	3.324	-5.698	76.954	-3.324	0.000%
32	3.301	-76.954	5.726	-3.301	76.954	-5.726	0.000%
33	0.019	-76.954	6.597	-0.019	76.954	-6.597	0.000%
34	-3.268	-76.954	5.707	3.268	76.954	-5.707	0.000%

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	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>Jayaraj B</p>

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
35	-5.679	-76.954	3.291	5.679	76.954	-3.291	0.000%
36	-6.574	-76.954	-0.022	6.574	76.954	0.022	0.000%
37	-5.700	-76.954	-3.317	5.700	76.954	3.317	0.000%
38	-3.299	-76.954	-5.719	3.299	76.954	5.719	0.000%
39	-0.025	-46.038	-6.876	0.025	46.038	6.876	0.000%
40	3.399	-46.038	-5.945	-3.399	46.038	5.945	0.000%
41	5.917	-46.038	-3.423	-5.917	46.038	3.423	0.000%
42	6.851	-46.038	0.021	-6.851	46.038	-0.021	0.000%
43	5.939	-46.038	3.475	-5.939	46.038	-3.475	0.000%
44	3.444	-46.038	5.979	-3.444	46.038	-5.979	0.000%
45	0.025	-46.038	6.885	-0.025	46.038	-6.885	0.000%
46	-3.401	-46.038	5.954	3.401	46.038	-5.954	0.000%
47	-5.914	-46.038	3.432	5.914	46.038	-3.432	0.000%
48	-6.851	-46.038	-0.029	6.851	46.038	0.029	0.000%
49	-5.942	-46.038	-3.467	5.942	46.038	3.467	0.000%
50	-3.442	-46.038	-5.970	3.442	46.038	5.970	0.000%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00001001
2	Yes	6	0.00000001	0.00011907
3	Yes	5	0.00000001	0.00060171
4	Yes	7	0.00000001	0.00028741
5	Yes	7	0.00000001	0.00007129
6	Yes	7	0.00000001	0.00028990
7	Yes	7	0.00000001	0.00007202
8	Yes	6	0.00000001	0.00015725
9	Yes	5	0.00000001	0.00084519
10	Yes	7	0.00000001	0.00028339
11	Yes	7	0.00000001	0.00006974
12	Yes	7	0.00000001	0.00030185
13	Yes	7	0.00000001	0.00007482
14	Yes	6	0.00000001	0.00019592
15	Yes	6	0.00000001	0.00006691
16	Yes	7	0.00000001	0.00028267
17	Yes	7	0.00000001	0.00007018
18	Yes	7	0.00000001	0.00028147
19	Yes	7	0.00000001	0.00006981
20	Yes	6	0.00000001	0.00023702
21	Yes	6	0.00000001	0.00008346
22	Yes	7	0.00000001	0.00030163
23	Yes	7	0.00000001	0.00007490
24	Yes	7	0.00000001	0.00028191
25	Yes	7	0.00000001	0.00006945
26	Yes	4	0.00000001	0.00090936
27	Yes	7	0.00000001	0.00022027
28	Yes	7	0.00000001	0.00025134
29	Yes	7	0.00000001	0.00025145
30	Yes	7	0.00000001	0.00022004
31	Yes	7	0.00000001	0.00024995
32	Yes	7	0.00000001	0.00025159
33	Yes	7	0.00000001	0.00021709
34	Yes	7	0.00000001	0.00024338
35	Yes	7	0.00000001	0.00024265

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36	Yes	7	0.00000001	0.00021524
37	Yes	7	0.00000001	0.00024977
38	Yes	7	0.00000001	0.00024877
39	Yes	5	0.00000001	0.00016966
40	Yes	5	0.00000001	0.00062777
41	Yes	5	0.00000001	0.00063956
42	Yes	5	0.00000001	0.00018191
43	Yes	5	0.00000001	0.00059336
44	Yes	5	0.00000001	0.00068924
45	Yes	5	0.00000001	0.00017505
46	Yes	5	0.00000001	0.00059412
47	Yes	5	0.00000001	0.00058797
48	Yes	5	0.00000001	0.00018728
49	Yes	5	0.00000001	0.00068767
50	Yes	5	0.00000001	0.00058632

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	26.883	44	1.568	0.005
L2	145 - 140	25.244	44	1.564	0.005
L3	140 - 135	23.611	44	1.554	0.005
L4	135 - 130	21.993	44	1.537	0.005
L5	130 - 125	20.397	44	1.510	0.004
L6	125 - 120	18.835	44	1.474	0.004
L7	120 - 115	17.315	44	1.428	0.003
L8	115 - 110	15.847	44	1.374	0.003
L9	110 - 102.5	14.440	44	1.313	0.003
L10	106.25 - 101.25	13.428	44	1.263	0.003
L11	101.25 - 96.25	12.124	44	1.223	0.002
L12	96.25 - 91.25	10.877	44	1.158	0.002
L13	91.25 - 86.25	9.701	44	1.088	0.002
L14	86.25 - 81.25	8.600	44	1.014	0.002
L15	81.25 - 76.25	7.578	44	0.938	0.001
L16	76.25 - 73.5	6.636	44	0.860	0.001
L17	73.5 - 73.25	6.154	44	0.816	0.001
L18	73.25 - 68.25	6.111	44	0.813	0.001
L19	68.25 - 62	5.293	44	0.749	0.001
L20	66.75 - 61	5.061	44	0.729	0.001
L21	61 - 56.25	4.207	44	0.682	0.001
L22	56.25 - 56	3.563	44	0.613	0.001
L23	56 - 51	3.531	44	0.609	0.001
L24	51 - 46	2.925	44	0.549	0.001
L25	46 - 41	2.383	44	0.487	0.001
L26	41 - 39.5	1.905	44	0.425	0.000
L27	39.5 - 39.25	1.775	44	0.407	0.000
L28	39.25 - 38.75	1.754	44	0.404	0.000
L29	38.75 - 38.5	1.712	44	0.398	0.000
L30	38.5 - 32.25	1.691	44	0.395	0.000
L31	37.5 - 31.25	1.609	44	0.383	0.000
L32	31.25 - 26.25	1.131	44	0.343	0.000
L33	26.25 - 21.25	0.800	44	0.289	0.000
L34	21.25 - 16.25	0.526	44	0.235	0.000
L35	16.25 - 11.25	0.309	44	0.181	0.000
L36	11.25 - 10	0.148	44	0.127	0.000
L37	10 - 9.75	0.117	44	0.113	0.000
L38	9.75 - 7.25	0.111	44	0.110	0.000
L39	7.25 - 7	0.061	44	0.080	0.000

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L40	7 - 2	0.057	44	0.077	0.000
L41	2 - 0	0.005	44	0.022	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.000	Lightning Rod 5/8" x 6'	44	26.883	1.568	0.005	41972
150.000	201-7	44	26.883	1.568	0.005	41972
147.000	4' x 2" Pipe Mount	44	25.899	1.566	0.005	41972
138.000	SC2-W100AC	44	22.962	1.548	0.005	17038
126.000	TMA-DB-T1-6Z-8AB-0Z	44	19.144	1.482	0.004	7324
124.000	BXA-70080/4CF w/ Mount Pipe	44	18.527	1.465	0.004	6692
102.000	OPA65R-BU6D w/ Mount Pipe	44	12.316	1.230	0.002	5398
82.000	KS24019-L112A	44	7.726	0.950	0.001	3721

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	113.568	12	6.640	0.021
L2	145 - 140	106.647	12	6.625	0.021
L3	140 - 135	99.756	12	6.583	0.020
L4	135 - 130	92.922	12	6.511	0.019
L5	130 - 125	86.185	12	6.397	0.017
L6	125 - 120	79.586	12	6.244	0.016
L7	120 - 115	73.166	12	6.052	0.014
L8	115 - 110	66.965	12	5.822	0.013
L9	110 - 102.5	61.019	12	5.561	0.011
L10	106.25 - 101.25	56.746	12	5.349	0.010
L11	101.25 - 96.25	51.234	12	5.180	0.010
L12	96.25 - 91.25	45.965	12	4.902	0.009
L13	91.25 - 86.25	40.995	12	4.606	0.008
L14	86.25 - 81.25	36.342	12	4.295	0.007
L15	81.25 - 76.25	32.020	12	3.971	0.006
L16	76.25 - 73.5	28.040	12	3.638	0.005
L17	73.5 - 73.25	26.000	12	3.452	0.005
L18	73.25 - 68.25	25.820	12	3.439	0.005
L19	68.25 - 62	22.364	12	3.168	0.004
L20	66.75 - 61	21.382	12	3.086	0.004
L21	61 - 56.25	17.772	12	2.886	0.004
L22	56.25 - 56	15.050	12	2.590	0.003
L23	56 - 51	14.915	12	2.577	0.003
L24	51 - 46	12.353	12	2.319	0.003
L25	46 - 41	10.063	12	2.057	0.002
L26	41 - 39.5	8.046	12	1.795	0.002
L27	39.5 - 39.25	7.495	12	1.718	0.002
L28	39.25 - 38.75	7.405	12	1.706	0.002
L29	38.75 - 38.5	7.228	12	1.682	0.002
L30	38.5 - 32.25	7.140	12	1.669	0.002

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L31	37.5 - 31.25	6.796	12	1.620	0.002
L32	31.25 - 26.25	4.775	12	1.448	0.002
L33	26.25 - 21.25	3.379	12	1.219	0.001
L34	21.25 - 16.25	2.222	12	0.991	0.001
L35	16.25 - 11.25	1.304	12	0.763	0.001
L36	11.25 - 10	0.625	12	0.535	0.001
L37	10 - 9.75	0.492	12	0.479	0.000
L38	9.75 - 7.25	0.467	12	0.466	0.000
L39	7.25 - 7	0.256	12	0.339	0.000
L40	7 - 2	0.239	12	0.327	0.000
L41	2 - 0	0.019	12	0.093	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.000	Lightning Rod 5/8" x 6'	12	113.568	6.640	0.021	10151
150.000	201-7	12	113.568	6.640	0.021	10151
147.000	4' x 2" Pipe Mount	12	109.413	6.633	0.021	10151
138.000	SC2-W100AC	12	97.013	6.558	0.020	4219
126.000	TMA-DB-T1-6Z-8AB-0Z	12	80.893	6.278	0.016	1795
124.000	BXA-70080/4CF w/ Mount Pipe	12	78.287	6.209	0.016	1636
102.000	OPA65R-BU6D w/ Mount Pipe	12	52.046	5.208	0.010	1296
82.000	KS24019-L112A	12	32.647	4.020	0.006	887

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L1	150 - 149	TP22.875x22x0.25	5.000	0.000	0.0	17.650	-4.985	953.081	0.005
	149 - 148					17.791	-5.058	960.690	0.005
	148 - 147					17.931	-5.128	968.298	0.005
	147 - 146					18.072	-5.371	975.907	0.006
	146 - 145					18.213	-5.445	983.516	0.006
L2	145 - 144	TP23.75x22.875x0.25	5.000	0.000	0.0	18.354	-5.521	991.124	0.006
	144 - 143					18.495	-5.597	998.733	0.006
	143 - 142					18.636	-5.674	1006.340	0.006
	142 - 141					18.777	-5.749	1013.950	0.006
	141 - 140					18.918	-5.827	1021.560	0.006
L3	140 - 139	TP24.625x23.75x0.25	5.000	0.000	0.0	19.059	-5.913	1029.170	0.006
	139 - 138					19.200	-6.001	1036.780	0.006
	138 - 137					19.340	-11.522	1044.380	0.011
	137 - 136					19.481	-11.612	1051.990	0.011
	136 - 135					19.622	-11.703	1059.600	0.011
L4	135 - 134	TP25.501x24.625x0.25	5.000	0.000	0.0	19.763	-11.800	1067.210	0.011
	134 - 133					19.904	-11.878	1074.820	0.011



Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
	133 - 132					20.045	-11.977	1082.430	0.011
	132 - 131					20.186	-12.077	1090.040	0.011
	131 - 130					20.327	-12.178	1097.650	0.011
L5	130 - 129	TP26.376x25.501x0.25	5.000	0.000	0.0	20.468	-12.281	1105.250	0.011
	129 - 128					20.609	-12.384	1112.860	0.011
	128 - 127					20.750	-12.488	1120.470	0.011
	127 - 126					20.890	-12.593	1128.080	0.011
	126 - 125					21.031	-12.740	1135.690	0.011
L6	125 - 124	TP27.251x26.376x0.25	5.000	0.000	0.0	21.172	-12.854	1143.300	0.011
	124 - 123					21.313	-17.024	1150.910	0.015
	123 - 122					21.454	-17.127	1158.510	0.015
	122 - 121					21.595	-17.246	1166.120	0.015
	121 - 120					21.736	-17.366	1173.730	0.015
L7	120 - 119	TP28.126x27.251x0.25	5.000	0.000	0.0	21.877	-17.489	1181.340	0.015
	119 - 118					22.018	-17.613	1188.950	0.015
	118 - 117					22.159	-17.738	1196.560	0.015
	117 - 116					22.299	-17.864	1204.170	0.015
	116 - 115					22.440	-17.991	1211.770	0.015
L8	115 - 114	TP29.001x28.126x0.25	5.000	0.000	0.0	22.581	-18.120	1219.380	0.015
	114 - 113					22.722	-18.249	1226.990	0.015
	113 - 112					22.863	-18.380	1234.600	0.015
	112 - 111					23.004	-18.511	1242.210	0.015
	111 - 110					23.145	-18.643	1249.820	0.015
L9	110 - 108.75	TP30.314x29.001x0.25	7.500	0.000	0.0	23.321	-18.808	1259.330	0.015
	108.75 - 107.5					23.497	-18.977	1268.840	0.015
	107.5 - 106.25					23.673	-19.147	1278.350	0.015
	106.25 - 102.5					24.201	-9.039	1306.880	0.007
L10	106.25 - 102.5	TP30.033x29.158x0.313	5.000	0.000	0.0	29.686	-11.033	1736.630	0.006
	102.5 - 101.25					29.906	-24.504	1749.500	0.014
L11	101.25 - 100.25	TP30.908x30.033x0.313	5.000	0.000	0.0	30.082	-24.687	1759.810	0.014
	100.25 - 99.25					30.258	-24.868	1770.110	0.014
	99.25 - 98.25					30.434	-25.051	1780.420	0.014
	98.25 - 97.25					30.611	-25.235	1790.720	0.014
	97.25 - 96.25					30.787	-25.420	1801.020	0.014
L12	96.25 - 95.25	TP31.783x30.908x0.313	5.000	0.000	0.0	30.963	-25.607	1811.330	0.014
	95.25 - 94.25					31.139	-25.794	1821.630	0.014
	94.25 - 93.25					31.315	-25.983	1831.930	0.014
	93.25 - 92.25					31.491	-26.173	1842.240	0.014
	92.25 - 91.25					31.667	-26.363	1852.540	0.014
L13	91.25 - 90.25	TP32.658x31.783x0.313	5.000	0.000	0.0	31.844	-26.556	1862.840	0.014
	90.25 - 89.25					32.020	-26.749	1873.150	0.014
	89.25 - 88.25					32.196	-26.943	1883.450	0.014
	88.25 - 87.25					32.372	-27.139	1893.760	0.014
	87.25 - 86.25					32.548	-27.335	1904.060	0.014
L14	86.25 - 85.25	TP33.534x32.658x0.313	5.000	0.000	0.0	32.724	-27.533	1914.360	0.014
	85.25 - 84.25					32.900	-27.732	1924.670	0.014
	84.25 - 83.25					33.076	-27.931	1934.970	0.014
	83.25 - 82.25					33.252	-28.132	1945.270	0.014
	82.25 - 81.25					33.429	-28.415	1955.580	0.015
L15	81.25 - 80.25	TP34.409x33.534x0.313	5.000	0.000	0.0	33.605	-28.619	1965.880	0.015
	80.25 - 79.25					33.781	-28.823	1976.180	0.015
	79.25 - 78.25					33.957	-29.028	1986.490	0.015
	78.25 - 77.25					34.133	-29.235	1996.790	0.015
	77.25 - 76.25					34.309	-29.442	2007.100	0.015
L16	76.25 - 74.875	TP34.89x34.409x0.313	2.750	0.000	0.0	34.551	-29.724	2021.260	0.015
	74.875 - 73.5					34.794	-30.013	2035.430	0.015
L17	73.5 - 73.25	TP34.934x34.89x0.4	0.250	0.000	0.0	44.480	-30.090	2602.060	0.012
	(17)								
L18	73.25 - 72.25	TP35.809x34.934x0.4	5.000	0.000	0.0	44.705	-30.323	2615.240	0.012

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 36 of 49
	<b>Project</b>	<b>Date</b> 16:57:25 10/07/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
	72.25 - 71.25					44.931	-30.565	2628.430	0.012
	71.25 - 70.25					45.156	-30.809	2641.620	0.012
	70.25 - 69.25					45.381	-31.054	2654.810	0.012
	69.25 - 68.25					45.607	-31.300	2668.000	0.012
L19	68.25 - 66.75	TP36.903x35.809x0.4	6.250	0.000	0.0	45.945	-31.665	2687.780	0.012
	66.75 - 62					47.016	-17.535	2750.430	0.006
L20	66.75 - 62	TP36.453x35.447x0.375	5.750	0.000	0.0	43.353	-16.084	2536.140	0.006
	62 - 61					43.564	-33.881	2548.500	0.013
L21	61 - 59.8125	TP37.284x36.453x0.375	4.750	0.000	0.0	43.815	-34.172	2563.190	0.013
	59.8125 - 58.625					44.066	-34.467	2577.870	0.013
	58.625 - 57.4375					44.317	-34.763	2592.550	0.013
	57.4375 - 56.25					44.568	-35.061	2607.230	0.013
L22	56.25 - 56 (22)	TP37.328x37.284x0.456	0.250	0.000	0.0	54.169	-35.145	3168.910	0.011
L23	56 - 55	TP38.203x37.328x0.456	5.000	0.000	0.0	54.426	-35.420	3183.950	0.011
	55 - 54					54.684	-35.705	3198.990	0.011
	54 - 53					54.941	-35.990	3214.040	0.011
	53 - 52					55.198	-36.277	3229.080	0.011
	52 - 51					55.455	-36.565	3244.120	0.011
L24	51 - 50	TP39.078x38.203x0.45	5.000	0.000	0.0	54.958	-36.854	3215.050	0.011
	50 - 49					55.212	-37.144	3229.880	0.012
	49 - 48					55.465	-37.435	3244.720	0.012
	48 - 47					55.719	-37.728	3259.560	0.012
	47 - 46					55.972	-38.021	3274.390	0.012
L25	46 - 45	TP39.954x39.078x0.45	5.000	0.000	0.0	56.226	-38.315	3289.230	0.012
	45 - 44					56.480	-38.611	3304.070	0.012
	44 - 43					56.733	-38.907	3318.900	0.012
	43 - 42					56.987	-39.204	3333.740	0.012
	42 - 41					57.241	-39.503	3348.570	0.012
L26	41 - 39.5 (26)	TP40.216x39.954x0.45	1.500	0.000	0.0	57.621	-39.946	3370.830	0.012
L27	39.5 - 39.25 (27)	TP40.26x40.216x0.488	0.250	0.000	0.0	62.433	-40.044	3652.310	0.011
L28	39.25 - 38.75 (28)	TP40.347x40.26x0.488	0.500	0.000	0.0	62.570	-40.208	3660.340	0.011
L29	38.75 - 38.5 (29)	TP40.391x40.347x0.475	0.250	0.000	0.0	61.052	-40.288	3571.520	0.011
L30	38.5 - 37.5	TP41.485x40.391x0.475	6.250	0.000	0.0	61.319	-40.593	3587.180	0.011
	37.5 - 32.25					62.725	-20.749	3669.400	0.006
L31	37.5 - 32.25	TP40.91x39.816x0.538	6.250	0.000	0.0	69.572	-22.882	4069.960	0.006
	32.25 - 31.25					69.875	-43.997	4087.680	0.011
L32	31.25 - 30.25	TP41.785x40.91x0.538	5.000	0.000	0.0	70.178	-44.345	4105.400	0.011
	30.25 - 29.25					70.481	-44.693	4123.120	0.011
	29.25 - 28.25					70.784	-45.043	4140.850	0.011
	28.25 - 27.25					71.087	-45.394	4158.570	0.011
	27.25 - 26.25					71.390	-45.746	4176.290	0.011
L33	26.25 - 25.25	TP42.66x41.785x0.538	5.000	0.000	0.0	71.692	-46.099	4194.010	0.011
	25.25 - 24.25					71.995	-46.453	4211.740	0.011
	24.25 - 23.25					72.298	-46.808	4229.460	0.011
	23.25 - 22.25					72.601	-47.165	4247.180	0.011
	22.25 - 21.25					72.904	-47.522	4264.900	0.011
L34	21.25 - 20.25	TP43.536x42.66x0.531	5.000	0.000	0.0	72.367	-47.881	4233.450	0.011
	20.25 - 19.25					72.666	-48.240	4250.970	0.011
	19.25 - 18.25					72.966	-48.601	4268.490	0.011
	18.25 - 17.25					73.265	-48.963	4286.000	0.011
	17.25 - 16.25					73.564	-49.327	4303.520	0.011
L35	16.25 - 15.25	TP44.411x43.536x0.525	5.000	0.000	0.0	73.005	-49.690	4270.820	0.012
	15.25 - 14.25					73.301	-50.056	4288.130	0.012
	14.25 - 13.25					73.597	-50.422	4305.440	0.012

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)	<b>Page</b> 37 of 49
	<b>Project</b>	<b>Date</b> 16:57:25 10/07/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
	13.25 - 12.25					73.893	-50.790	4322.750	0.012
	12.25 - 11.25					74.189	-51.159	4340.060	0.012
L36	11.25 - 10 (36)	TP44.63x44.41x0.525	1.250	0.000	0.0	74.559	-51.619	4361.690	0.012
L37	10 - 9.75 (37)	TP44.673x44.63x0.463	0.250	0.000	0.0	65.841	-51.719	3851.700	0.013
L38	9.75 - 8.5	TP45.111x44.673x0.463	2.500	0.000	0.0	66.167	-52.154	3870.760	0.013
	8.5 - 7.25					66.493	-52.604	3889.830	0.014
L39	7.25 - 7 (39)	TP45.155x45.111x0.506	0.250	0.000	0.0	72.783	-52.706	4257.780	0.012
L40	7 - 6	TP46.03x45.155x0.5	5.000	0.000	0.0	72.176	-53.056	4222.290	0.013
	6 - 5					72.458	-53.416	4238.780	0.013
	5 - 4					72.740	-53.778	4255.260	0.013
	4 - 3					73.021	-54.140	4271.750	0.013
	3 - 2					73.303	-54.504	4288.240	0.013
L41	2 - 1	TP46.38x46.03x0.5	2.000	0.000	0.0	73.585	-54.868	4304.720	0.013
	1 - 0					73.867	-55.234	4321.210	0.013

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio M <sub>ux</sub> / φM <sub>ux</sub>	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio M <sub>uy</sub> / φM <sub>uy</sub>
L1	150 - 149	TP22.875x22x0.25	4.839	530.048	0.009	0.000	530.048	0.000
	149 - 148		9.509	537.288	0.018	0.000	537.288	0.000
	148 - 147		14.263	544.556	0.026	0.000	544.556	0.000
	147 - 146		19.335	551.849	0.035	0.000	551.849	0.000
	146 - 145		24.488	559.168	0.044	0.000	559.168	0.000
L2	145 - 144	TP23.75x22.875x0.25	29.724	566.513	0.052	0.000	566.513	0.000
	144 - 143		35.041	573.882	0.061	0.000	573.882	0.000
	143 - 142		40.441	581.275	0.070	0.000	581.275	0.000
	142 - 141		45.927	588.692	0.078	0.000	588.692	0.000
	141 - 140		51.495	596.132	0.086	0.000	596.132	0.000
L3	140 - 139	TP24.625x23.75x0.25	57.147	603.594	0.095	0.000	603.594	0.000
	139 - 138		62.884	611.079	0.103	0.000	611.079	0.000
	138 - 137		75.530	618.585	0.122	0.000	618.585	0.000
	137 - 136		86.877	626.112	0.139	0.000	626.112	0.000
	136 - 135		98.310	633.661	0.155	0.000	633.661	0.000
L4	135 - 134	TP25.501x24.625x0.25	109.827	641.229	0.171	0.000	641.229	0.000
	134 - 133		121.478	648.818	0.187	0.000	648.818	0.000
	133 - 132		133.276	656.425	0.203	0.000	656.425	0.000
	132 - 131		145.158	664.051	0.219	0.000	664.051	0.000
	131 - 130		157.126	671.695	0.234	0.000	671.695	0.000
L5	130 - 129	TP26.376x25.501x0.25	169.178	679.357	0.249	0.000	679.357	0.000
	129 - 128		181.314	687.036	0.264	0.000	687.036	0.000
	128 - 127		193.536	694.732	0.279	0.000	694.732	0.000
	127 - 126		205.843	702.443	0.293	0.000	702.443	0.000
	126 - 125		218.593	710.171	0.308	0.000	710.171	0.000
L6	125 - 124	TP27.251x26.376x0.25	231.178	717.913	0.322	0.000	717.913	0.000
	124 - 123		253.618	725.672	0.349	0.000	725.672	0.000
	123 - 122		269.777	733.443	0.368	0.000	733.443	0.000
	122 - 121		286.093	741.228	0.386	0.000	741.228	0.000
	121 - 120		302.492	749.028	0.404	0.000	749.028	0.000
L7	120 - 119	TP28.126x27.251x0.25	318.973	756.838	0.421	0.000	756.838	0.000
	119 - 118		335.535	764.663	0.439	0.000	764.663	0.000
	118 - 117		352.179	772.497	0.456	0.000	772.497	0.000
	117 - 116		368.904	780.344	0.473	0.000	780.344	0.000
	116 - 115		385.711	788.202	0.489	0.000	788.202	0.000
L8	115 - 114	TP29.001x28.126x0.25	402.598	796.069	0.506	0.000	796.069	0.000

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	<p><b>Project</b></p>	<p><b>Date</b></p> <p>16:57:25 10/07/21</p>
	<p><b>Client</b></p> <p>Crown Castle</p>	<p><b>Designed by</b></p> <p>Jayaraj B</p>

Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$\phi M_{ux}$ kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	$M_{uy}$ kip-ft	$\phi M_{uy}$ kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
	114 - 113		419.567	803.947	0.522	0.000	803.947	0.000
	113 - 112		436.615	811.833	0.538	0.000	811.833	0.000
	112 - 111		453.743	819.729	0.554	0.000	819.729	0.000
	111 - 110		470.952	827.633	0.569	0.000	827.633	0.000
L9	110 - 108.75	TP30.314x29.001x0.25	492.575	837.525	0.588	0.000	837.525	0.000
	108.75 - 107.5		514.322	847.425	0.607	0.000	847.425	0.000
	107.5 - 106.25		536.192	857.333	0.625	0.000	857.333	0.000
	106.25 - 102.5		276.470	887.125	0.312	0.000	887.125	0.000
L10	106.25 - 102.5	TP30.033x29.158x0.313	326.227	1253.842	0.260	0.000	1253.842	0.000
	102.5 - 101.25		632.763	1269.275	0.499	0.000	1269.275	0.000
L11	101.25 - 100.25	TP30.908x30.033x0.313	654.781	1281.658	0.511	0.000	1281.658	0.000
	100.25 - 99.25		676.877	1294.067	0.523	0.000	1294.067	0.000
	99.25 - 98.25		699.050	1306.492	0.535	0.000	1306.492	0.000
	98.25 - 97.25		721.302	1318.950	0.547	0.000	1318.950	0.000
	97.25 - 96.25		743.631	1331.425	0.559	0.000	1331.425	0.000
L12	96.25 - 95.25	TP31.783x30.908x0.313	766.037	1343.925	0.570	0.000	1343.925	0.000
	95.25 - 94.25		788.519	1356.450	0.581	0.000	1356.450	0.000
	94.25 - 93.25		811.077	1369.000	0.592	0.000	1369.000	0.000
	93.25 - 92.25		833.708	1381.567	0.603	0.000	1381.567	0.000
	92.25 - 91.25		856.417	1394.158	0.614	0.000	1394.158	0.000
L13	91.25 - 90.25	TP32.658x31.783x0.313	879.208	1406.767	0.625	0.000	1406.767	0.000
	90.25 - 89.25		902.067	1419.392	0.636	0.000	1419.392	0.000
	89.25 - 88.25		925.000	1432.042	0.646	0.000	1432.042	0.000
	88.25 - 87.25		948.000	1444.708	0.656	0.000	1444.708	0.000
	87.25 - 86.25		971.083	1457.392	0.666	0.000	1457.392	0.000
L14	86.25 - 85.25	TP33.534x32.658x0.313	994.242	1470.092	0.676	0.000	1470.092	0.000
	85.25 - 84.25		1017.467	1482.817	0.686	0.000	1482.817	0.000
	84.25 - 83.25		1040.758	1495.550	0.696	0.000	1495.550	0.000
	83.25 - 82.25		1064.133	1508.300	0.706	0.000	1508.300	0.000
	82.25 - 81.25		1087.358	1521.067	0.715	0.000	1521.067	0.000
L15	81.25 - 80.25	TP34.409x33.534x0.313	1110.908	1533.850	0.724	0.000	1533.850	0.000
	80.25 - 79.25		1134.542	1546.642	0.734	0.000	1546.642	0.000
	79.25 - 78.25		1158.242	1559.458	0.743	0.000	1559.458	0.000
	78.25 - 77.25		1182.008	1572.275	0.752	0.000	1572.275	0.000
	77.25 - 76.25		1205.842	1585.117	0.761	0.000	1585.117	0.000
L16	76.25 - 74.875	TP34.89x34.409x0.313	1238.733	1602.783	0.773	0.000	1602.783	0.000
	74.875 - 73.5		1271.750	1620.467	0.785	0.000	1620.467	0.000
L17	73.5 - 73.25	TP34.934x34.89x0.4	1277.767	2263.183	0.565	0.000	2263.183	0.000
	(17)							
L18	73.25 - 72.25	TP35.809x34.934x0.4	1301.883	2282.692	0.570	0.000	2282.692	0.000
	72.25 - 71.25		1326.075	2302.242	0.576	0.000	2302.242	0.000
	71.25 - 70.25		1350.342	2321.833	0.582	0.000	2321.833	0.000
	70.25 - 69.25		1374.692	2341.467	0.587	0.000	2341.467	0.000
	69.25 - 68.25		1399.108	2361.150	0.593	0.000	2361.150	0.000
L19	68.25 - 66.75	TP36.903x35.809x0.4	1435.883	2390.742	0.601	0.000	2390.742	0.000
	66.75 - 62		821.482	2485.058	0.331	0.000	2485.058	0.000
L20	66.75 - 62	TP36.453x35.447x0.375	732.212	2217.617	0.330	0.000	2217.617	0.000
	62 - 61		1578.758	2235.483	0.706	0.000	2235.483	0.000
L21	61 - 59.8125	TP37.284x36.453x0.375	1608.608	2256.733	0.713	0.000	2256.733	0.000
	59.8125 - 58.625		1638.550	2278.025	0.719	0.000	2278.025	0.000
	58.625 - 57.4375		1668.583	2299.358	0.726	0.000	2299.358	0.000
	57.4375 - 56.25		1698.708	2320.733	0.732	0.000	2320.733	0.000
L22	56.25 - 56 (22)	TP37.328x37.284x0.456	1705.067	2986.133	0.571	0.000	2986.133	0.000
L23	56 - 55	TP38.203x37.328x0.456	1730.525	3014.725	0.574	0.000	3014.725	0.000
	55 - 54		1756.050	3043.450	0.577	0.000	3043.450	0.000
	54 - 53		1781.650	3072.317	0.580	0.000	3072.317	0.000

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315))	<b>Page</b> 39 of 49
	<b>Project</b>	<b>Date</b> 16:57:25 10/07/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Size	$M_{ux}$	$\phi M_{rx}$	Ratio	$M_{uy}$	$\phi M_{ry}$	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{rx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ry}}$
	53 - 52		1807.317	3098.050	0.583	0.000	3098.050	0.000
	52 - 51		1833.058	3122.867	0.587	0.000	3122.867	0.000
L24	51 - 50	TP39.078x38.203x0.45	1858.858	3093.158	0.601	0.000	3093.158	0.000
	50 - 49		1884.733	3117.567	0.605	0.000	3117.567	0.000
	49 - 48		1910.675	3142.033	0.608	0.000	3142.033	0.000
	48 - 47		1936.683	3166.550	0.612	0.000	3166.550	0.000
	47 - 46		1962.750	3191.125	0.615	0.000	3191.125	0.000
L25	46 - 45	TP39.954x39.078x0.45	1988.892	3215.742	0.618	0.000	3215.742	0.000
	45 - 44		2015.092	3240.408	0.622	0.000	3240.408	0.000
	44 - 43		2041.358	3265.133	0.625	0.000	3265.133	0.000
	43 - 42		2067.683	3289.900	0.628	0.000	3289.900	0.000
	42 - 41		2094.075	3314.717	0.632	0.000	3314.717	0.000
L26	41 - 39.5 (26)	TP40.216x39.954x0.45	2133.775	3352.033	0.637	0.000	3352.033	0.000
L27	39.5 - 39.25 (27)	TP40.26x40.216x0.488	2140.408	3712.808	0.576	0.000	3712.808	0.000
L28	39.25 - 38.75 (28)	TP40.347x40.26x0.488	2153.683	3729.267	0.578	0.000	3729.267	0.000
L29	38.75 - 38.5 (29)	TP40.391x40.347x0.475	2160.325	3619.342	0.597	0.000	3619.342	0.000
L30	38.5 - 37.5	TP41.485x40.391x0.475	2186.933	3646.508	0.600	0.000	3646.508	0.000
	37.5 - 32.25		1127.492	3790.008	0.297	0.000	3790.008	0.000
L31	37.5 - 32.25	TP40.91x39.816x0.538	1200.492	4177.017	0.287	0.000	4177.017	0.000
	32.25 - 31.25		2355.100	4213.717	0.559	0.000	4213.717	0.000
L32	31.25 - 30.25	TP41.785x40.91x0.538	2382.275	4250.575	0.560	0.000	4250.575	0.000
	30.25 - 29.25		2409.508	4287.592	0.562	0.000	4287.592	0.000
	29.25 - 28.25		2436.792	4324.767	0.563	0.000	4324.767	0.000
	28.25 - 27.25		2464.133	4362.108	0.565	0.000	4362.108	0.000
	27.25 - 26.25		2491.533	4399.608	0.566	0.000	4399.608	0.000
L33	26.25 - 25.25	TP42.66x41.785x0.538	2518.992	4437.267	0.568	0.000	4437.267	0.000
	25.25 - 24.25		2546.500	4475.092	0.569	0.000	4475.092	0.000
	24.25 - 23.25		2574.067	4513.075	0.570	0.000	4513.075	0.000
	23.25 - 22.25		2601.683	4551.217	0.572	0.000	4551.217	0.000
	22.25 - 21.25		2629.367	4589.517	0.573	0.000	4589.517	0.000
L34	21.25 - 20.25	TP43.536x42.66x0.531	2657.092	4576.192	0.581	0.000	4576.192	0.000
	20.25 - 19.25		2684.883	4614.375	0.582	0.000	4614.375	0.000
	19.25 - 18.25		2712.725	4652.717	0.583	0.000	4652.717	0.000
	18.25 - 17.25		2740.617	4691.217	0.584	0.000	4691.217	0.000
	17.25 - 16.25		2768.567	4729.875	0.585	0.000	4729.875	0.000
L35	16.25 - 15.25	TP44.411x43.536x0.525	2796.567	4711.200	0.594	0.000	4711.200	0.000
	15.25 - 14.25		2824.625	4744.042	0.595	0.000	4744.042	0.000
	14.25 - 13.25		2852.733	4776.950	0.597	0.000	4776.950	0.000
	13.25 - 12.25		2880.900	4809.925	0.599	0.000	4809.925	0.000
	12.25 - 11.25		2909.117	4842.958	0.601	0.000	4842.958	0.000
L36	11.25 - 10 (36)	TP44.63x44.411x0.525	2944.467	4884.333	0.603	0.000	4884.333	0.000
L37	10 - 9.75 (37)	TP44.673x44.63x0.463	2951.550	4149.558	0.711	0.000	4149.558	0.000
L38	9.75 - 8.5	TP45.111x44.673x0.463	2986.983	4183.517	0.714	0.000	4183.517	0.000
	8.5 - 7.25		3022.500	4217.525	0.717	0.000	4217.525	0.000
L39	7.25 - 7 (39)	TP45.155x45.111x0.506	3029.617	4756.817	0.637	0.000	4756.817	0.000
L40	7 - 6	TP46.03x45.155x0.5	3058.092	4711.858	0.649	0.000	4711.858	0.000
	6 - 5		3086.625	4742.833	0.651	0.000	4742.833	0.000
	5 - 4		3115.208	4773.850	0.653	0.000	4773.850	0.000
	4 - 3		3143.842	4804.925	0.654	0.000	4804.925	0.000
	3 - 2		3172.517	4836.042	0.656	0.000	4836.042	0.000
L41	2 - 1	TP46.38x46.03x0.5	3201.250	4867.208	0.658	0.000	4867.208	0.000
	1 - 0		3230.033	4898.425	0.659	0.000	4898.425	0.000

**Pole Shear Design Data**

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $V_u$ $\phi V_n$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $T_u$ $\phi T_n$
L1	150 - 149	TP22.875x22x0.25	4.630	285.924	0.016	0.176	551.431	0.000
	149 - 148		4.710	288.207	0.016	0.176	560.271	0.000
	148 - 147		4.795	290.490	0.017	0.186	569.180	0.000
	147 - 146		5.114	292.772	0.017	0.186	578.160	0.000
	146 - 145		5.196	295.055	0.018	0.186	587.211	0.000
L2	145 - 144	TP23.75x22.875x0.25	5.277	297.337	0.018	0.186	596.332	0.000
	144 - 143		5.360	299.620	0.018	0.186	605.523	0.000
	143 - 142		5.442	301.902	0.018	0.186	614.783	0.000
	142 - 141		5.528	304.185	0.018	0.146	624.115	0.000
	141 - 140		5.611	306.468	0.018	0.146	633.517	0.000
L3	140 - 139	TP24.625x23.75x0.25	5.696	308.750	0.018	0.146	642.989	0.000
	139 - 138		5.781	311.033	0.019	0.146	652.532	0.000
	138 - 137		11.309	313.315	0.036	1.056	662.144	0.002
	137 - 136		11.393	315.598	0.036	1.056	671.827	0.002
	136 - 135		11.477	317.881	0.036	1.056	681.580	0.002
L4	135 - 134	TP25.501x24.625x0.25	11.561	320.163	0.036	1.056	691.403	0.002
	134 - 133		11.759	322.446	0.036	1.349	701.298	0.002
	133 - 132		11.844	324.728	0.036	1.349	711.262	0.002
	132 - 131		11.929	327.011	0.036	1.349	721.296	0.002
	131 - 130		12.014	329.294	0.036	1.349	731.401	0.002
L5	130 - 129	TP26.376x25.501x0.25	12.099	331.576	0.036	1.349	741.576	0.002
	129 - 128		12.184	333.859	0.036	1.349	751.821	0.002
	128 - 127		12.269	336.141	0.036	1.349	762.136	0.002
	127 - 126		12.354	338.424	0.037	1.349	772.522	0.002
	126 - 125		12.547	340.706	0.037	1.481	782.978	0.002
L6	125 - 124	TP27.251x26.376x0.25	12.632	342.989	0.037	1.481	793.504	0.002
	124 - 123		16.102	345.272	0.047	1.835	804.101	0.002
	123 - 122		16.283	347.554	0.047	1.776	814.768	0.002
	122 - 121		16.365	349.837	0.047	1.775	825.505	0.002
	121 - 120		16.448	352.119	0.047	1.775	836.317	0.002
L7	120 - 119	TP28.126x27.251x0.25	16.529	354.402	0.047	1.775	847.192	0.002
	119 - 118		16.611	356.685	0.047	1.775	858.142	0.002
	118 - 117		16.693	358.967	0.047	1.775	869.158	0.002
	117 - 116		16.775	361.250	0.046	1.775	880.242	0.002
	116 - 115		16.856	363.532	0.046	1.774	891.408	0.002
L8	115 - 114	TP29.001x28.126x0.25	16.937	365.815	0.046	1.774	902.633	0.002
	114 - 113		17.017	368.097	0.046	1.774	913.933	0.002
	113 - 112		17.098	370.380	0.046	1.774	925.300	0.002
	112 - 111		17.178	372.663	0.046	1.774	936.742	0.002
	111 - 110		17.259	374.945	0.046	1.773	948.250	0.002
L9	110 - 108.75	TP30.314x29.001x0.25	17.360	377.798	0.046	1.773	962.742	0.002
	108.75 - 107.5		17.459	380.652	0.046	1.773	977.333	0.002
	107.5 - 106.25		17.558	383.505	0.046	1.773	992.042	0.002
	106.25 - 102.5		8.321	392.065	0.021	0.813	1036.825	0.001
L10	106.25 - 102.5	TP30.033x29.158x0.313	9.622	520.988	0.018	0.959	1351.983	0.001
	102.5 - 101.25		21.994	524.851	0.042	1.944	1372.108	0.001
L11	101.25 - 100.25	TP30.908x30.033x0.313	22.070	527.943	0.042	1.944	1388.325	0.001
	100.25 - 99.25		22.148	531.034	0.042	1.944	1404.625	0.001
	99.25 - 98.25		22.226	534.125	0.042	1.943	1421.025	0.001
	98.25 - 97.25		22.304	537.216	0.042	1.943	1437.525	0.001
	97.25 - 96.25		22.381	540.307	0.041	1.943	1454.108	0.001
L12	96.25 - 95.25	TP31.783x30.908x0.313	22.458	543.398	0.041	1.943	1470.800	0.001
	95.25 - 94.25		22.534	546.489	0.041	1.942	1487.575	0.001
	94.25 - 93.25		22.610	549.580	0.041	1.942	1504.458	0.001
	93.25 - 92.25		22.686	552.671	0.041	1.942	1521.425	0.001
	92.25 - 91.25		22.762	555.762	0.041	1.942	1538.492	0.001
L13	91.25 - 90.25	TP32.658x31.783x0.313	22.837	558.854	0.041	1.941	1555.650	0.001
	90.25 - 89.25		22.911	561.945	0.041	1.941	1572.908	0.001

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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $V_u$ $\phi V_n$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $T_u$ $\phi T_n$
	89.25 - 88.25		22.985	565.036	0.041	1.941	1590.258	0.001
	88.25 - 87.25		23.059	568.127	0.041	1.941	1607.708	0.001
	87.25 - 86.25		23.133	571.218	0.040	1.940	1625.250	0.001
L14	86.25 - 85.25	TP33.534x32.658x0.313	23.206	574.309	0.040	1.940	1642.892	0.001
	85.25 - 84.25		23.278	577.400	0.040	1.940	1660.617	0.001
	84.25 - 83.25		23.350	580.491	0.040	1.939	1678.450	0.001
	83.25 - 82.25		23.422	583.582	0.040	1.939	1696.375	0.001
	82.25 - 81.25		23.540	586.673	0.040	2.044	1714.392	0.001
L15	81.25 - 80.25	TP34.409x33.534x0.313	23.610	589.764	0.040	2.044	1732.500	0.001
	80.25 - 79.25		23.680	592.856	0.040	2.044	1750.708	0.001
	79.25 - 78.25		23.750	595.947	0.040	2.043	1769.017	0.001
	78.25 - 77.25		23.820	599.038	0.040	2.043	1787.417	0.001
	77.25 - 76.25		23.890	602.129	0.040	2.043	1805.908	0.001
L16	76.25 - 74.875	TP34.89x34.409x0.313	23.990	606.379	0.040	2.043	1831.492	0.001
	74.875 - 73.5		24.084	610.629	0.039	2.042	1857.258	0.001
L17	73.5 - 73.25	TP34.934x34.89x0.4	24.089	780.617	0.031	2.042	2371.275	0.001
	(17)							
L18	73.25 - 72.25	TP35.809x34.934x0.4	24.169	784.573	0.031	2.042	2395.375	0.001
	72.25 - 71.25		24.246	788.530	0.031	2.042	2419.600	0.001
	71.25 - 70.25		24.322	792.487	0.031	2.042	2443.942	0.001
	70.25 - 69.25		24.398	796.443	0.031	2.041	2468.408	0.001
	69.25 - 68.25		24.474	800.400	0.031	2.041	2492.992	0.001
L19	68.25 - 66.75	TP36.903x35.809x0.4	24.593	806.335	0.030	2.041	2530.100	0.001
	66.75 - 62		13.363	825.128	0.016	1.079	2649.417	0.000
L20	66.75 - 62	TP36.453x35.447x0.375	11.712	760.842	0.015	0.962	2402.842	0.000
	62 - 61		25.118	764.551	0.033	2.040	2426.325	0.001
L21	61 - 59.8125	TP37.284x36.453x0.375	25.198	768.956	0.033	2.040	2454.358	0.001
	59.8125 - 58.625		25.275	773.360	0.033	2.040	2482.558	0.001
	58.625 - 57.4375		25.352	777.765	0.033	2.039	2510.917	0.001
	57.4375 - 56.25		25.428	782.169	0.033	2.039	2539.433	0.001
L22	56.25 - 56 (22)	TP37.328x37.284x0.456	25.431	950.673	0.027	2.039	3083.375	0.001
L23	56 - 55	TP38.203x37.328x0.456	25.509	955.185	0.027	2.039	3112.717	0.001
	55 - 54		25.579	959.698	0.027	2.039	3142.192	0.001
	54 - 53		25.650	964.211	0.027	2.039	3171.817	0.001
	53 - 52		25.720	968.724	0.027	2.038	3201.575	0.001
	52 - 51		25.789	973.236	0.026	2.038	3231.475	0.001
L24	51 - 50	TP39.078x38.203x0.45	25.857	964.514	0.027	2.038	3217.892	0.001
	50 - 49		25.923	968.965	0.027	2.038	3247.658	0.001
	49 - 48		25.990	973.416	0.027	2.038	3277.567	0.001
	48 - 47		26.057	977.867	0.027	2.038	3307.608	0.001
	47 - 46		26.123	982.318	0.027	2.037	3337.783	0.001
L25	46 - 45	TP39.954x39.078x0.45	26.187	986.769	0.027	2.037	3368.100	0.001
	45 - 44		26.251	991.220	0.026	2.037	3398.550	0.001
	44 - 43		26.314	995.671	0.026	2.037	3429.142	0.001
	43 - 42		26.378	1000.120	0.026	2.037	3459.867	0.001
	42 - 41		26.441	1004.570	0.026	2.037	3490.733	0.001
L26	41 - 39.5 (26)	TP40.216x39.954x0.45	26.543	1011.250	0.026	2.037	3537.292	0.001
L27	39.5 - 39.25	TP40.26x40.216x0.488	26.537	1095.690	0.024	2.037	3833.267	0.001
	(27)							
L28	39.25 - 38.75	TP40.347x40.26x0.488	26.573	1098.100	0.024	2.037	3850.158	0.001
	(28)							
L29	38.75 - 38.5	TP40.391x40.347x0.475	26.585	1071.460	0.025	2.036	3762.033	0.001
	(29)							
L30	38.5 - 37.5	TP41.485x40.391x0.475	26.657	1076.150	0.025	2.036	3795.092	0.001
	37.5 - 32.25		13.263	1100.820	0.012	0.986	3971.058	0.000
L31	37.5 - 32.25	TP40.91x39.816x0.538	13.875	1220.990	0.011	1.050	4317.283	0.000
	32.25 - 31.25		27.165	1226.300	0.022	2.036	4354.967	0.000

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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $V_u$ $\phi V_n$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $T_u$ $\phi T_n$
L32	31.25 - 30.25	TP41.785x40.91x0.538	27.221	1231.620	0.022	2.036	4392.808	0.000
	30.25 - 29.25		27.277	1236.940	0.022	2.036	4430.817	0.000
	29.25 - 28.25		27.333	1242.250	0.022	2.036	4468.983	0.000
	28.25 - 27.25		27.389	1247.570	0.022	2.036	4507.325	0.000
	27.25 - 26.25		27.445	1252.890	0.022	2.036	4545.825	0.000
L33	26.25 - 25.25	TP42.66x41.785x0.538	27.501	1258.200	0.022	2.035	4584.483	0.000
	25.25 - 24.25		27.557	1263.520	0.022	2.035	4623.308	0.000
	24.25 - 23.25		27.612	1268.840	0.022	2.035	4662.300	0.000
	23.25 - 22.25		27.668	1274.150	0.022	2.035	4701.458	0.000
	22.25 - 21.25		27.723	1279.470	0.022	2.035	4740.775	0.000
L34	21.25 - 20.25	TP43.536x42.66x0.531	27.778	1270.040	0.022	2.035	4726.067	0.000
	20.25 - 19.25		27.833	1275.290	0.022	2.035	4765.258	0.000
	19.25 - 18.25		27.887	1280.550	0.022	2.035	4804.608	0.000
	18.25 - 17.25		27.942	1285.800	0.022	2.035	4844.117	0.000
	17.25 - 16.25		27.996	1291.060	0.022	2.035	4883.800	0.000
L35	16.25 - 15.25	TP44.411x43.536x0.525	28.050	1281.240	0.022	2.035	4867.117	0.000
	15.25 - 14.25		28.104	1286.440	0.022	2.035	4906.650	0.000
	14.25 - 13.25		28.158	1291.630	0.022	2.035	4946.342	0.000
	13.25 - 12.25		28.211	1296.820	0.022	2.035	4986.200	0.000
	12.25 - 11.25		28.265	1302.020	0.022	2.035	5026.208	0.000
L36	11.25 - 10 (36)	TP44.63x44.411x0.525	28.337	1308.510	0.022	2.035	5076.458	0.000
L37	10 - 9.75 (37)	TP44.673x44.63x0.463	28.329	1155.510	0.025	2.035	4493.692	0.000
L38	9.75 - 8.5	TP45.111x44.673x0.463	28.412	1161.230	0.024	2.035	4538.275	0.000
	8.5 - 7.25		28.471	1166.950	0.024	2.035	4583.083	0.000
L39	7.25 - 7 (39)	TP45.155x45.111x0.506	28.460	1277.340	0.022	2.035	5016.625	0.000
L40	7 - 6	TP46.03x45.155x0.5	28.527	1266.690	0.023	2.035	4995.008	0.000
	6 - 5		28.578	1271.630	0.022	2.034	5034.092	0.000
	5 - 4		28.628	1276.580	0.022	2.034	5073.325	0.000
	4 - 3		28.679	1281.530	0.022	2.034	5112.708	0.000
	3 - 2		28.729	1286.470	0.022	2.034	5152.250	0.000
L41	2 - 1	TP46.38x46.03x0.5	28.779	1291.420	0.022	2.034	5191.942	0.000
	1 - 0		28.829	1296.360	0.022	2.034	5231.783	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 149	0.005	0.009	0.000	0.016	0.000	0.015	1.050	4.8.2 ✓
	149 - 148	0.005	0.018	0.000	0.016	0.000	0.023	1.050	4.8.2 ✓
	148 - 147	0.005	0.026	0.000	0.017	0.000	0.032	1.050	4.8.2 ✓
	147 - 146	0.006	0.035	0.000	0.017	0.000	0.041	1.050	4.8.2 ✓
	146 - 145	0.006	0.044	0.000	0.018	0.000	0.050	1.050	4.8.2 ✓
L2	145 - 144	0.006	0.052	0.000	0.018	0.000	0.058	1.050	4.8.2 ✓
	144 - 143	0.006	0.061	0.000	0.018	0.000	0.067	1.050	4.8.2 ✓



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	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	143 - 142	0.006	0.070	0.000	0.018	0.000	0.076	1.050	4.8.2 ✓
	142 - 141	0.006	0.078	0.000	0.018	0.000	0.084	1.050	4.8.2 ✓
	141 - 140	0.006	0.086	0.000	0.018	0.000	0.092	1.050	4.8.2 ✓
L3	140 - 139	0.006	0.095	0.000	0.018	0.000	0.101	1.050	4.8.2 ✓
	139 - 138	0.006	0.103	0.000	0.019	0.000	0.109	1.050	4.8.2 ✓
	138 - 137	0.011	0.122	0.000	0.036	0.002	0.135	1.050	4.8.2 ✓
	137 - 136	0.011	0.139	0.000	0.036	0.002	0.151	1.050	4.8.2 ✓
	136 - 135	0.011	0.155	0.000	0.036	0.002	0.168	1.050	4.8.2 ✓
L4	135 - 134	0.011	0.171	0.000	0.036	0.002	0.184	1.050	4.8.2 ✓
	134 - 133	0.011	0.187	0.000	0.036	0.002	0.200	1.050	4.8.2 ✓
	133 - 132	0.011	0.203	0.000	0.036	0.002	0.216	1.050	4.8.2 ✓
	132 - 131	0.011	0.219	0.000	0.036	0.002	0.231	1.050	4.8.2 ✓
	131 - 130	0.011	0.234	0.000	0.036	0.002	0.246	1.050	4.8.2 ✓
L5	130 - 129	0.011	0.249	0.000	0.036	0.002	0.262	1.050	4.8.2 ✓
	129 - 128	0.011	0.264	0.000	0.036	0.002	0.277	1.050	4.8.2 ✓
	128 - 127	0.011	0.279	0.000	0.036	0.002	0.291	1.050	4.8.2 ✓
	127 - 126	0.011	0.293	0.000	0.037	0.002	0.306	1.050	4.8.2 ✓
	126 - 125	0.011	0.308	0.000	0.037	0.002	0.321	1.050	4.8.2 ✓
L6	125 - 124	0.011	0.322	0.000	0.037	0.002	0.335	1.050	4.8.2 ✓
	124 - 123	0.015	0.349	0.000	0.047	0.002	0.367	1.050	4.8.2 ✓
	123 - 122	0.015	0.368	0.000	0.047	0.002	0.385	1.050	4.8.2 ✓
	122 - 121	0.015	0.386	0.000	0.047	0.002	0.403	1.050	4.8.2 ✓
	121 - 120	0.015	0.404	0.000	0.047	0.002	0.421	1.050	4.8.2 ✓
L7	120 - 119	0.015	0.421	0.000	0.047	0.002	0.439	1.050	4.8.2 ✓
	119 - 118	0.015	0.439	0.000	0.047	0.002	0.456	1.050	4.8.2 ✓
	118 - 117	0.015	0.456	0.000	0.047	0.002	0.473	1.050	4.8.2 ✓

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	117 - 116	0.015	0.473	0.000	0.046	0.002	0.490	1.050	4.8.2 ✓
	116 - 115	0.015	0.489	0.000	0.046	0.002	0.507	1.050	4.8.2 ✓
L8	115 - 114	0.015	0.506	0.000	0.046	0.002	0.523	1.050	4.8.2 ✓
	114 - 113	0.015	0.522	0.000	0.046	0.002	0.539	1.050	4.8.2 ✓
	113 - 112	0.015	0.538	0.000	0.046	0.002	0.555	1.050	4.8.2 ✓
	112 - 111	0.015	0.554	0.000	0.046	0.002	0.571	1.050	4.8.2 ✓
	111 - 110	0.015	0.569	0.000	0.046	0.002	0.586	1.050	4.8.2 ✓
L9	110 - 108.75	0.015	0.588	0.000	0.046	0.002	0.605	1.050	4.8.2 ✓
	108.75 - 107.5	0.015	0.607	0.000	0.046	0.002	0.624	1.050	4.8.2 ✓
	107.5 - 106.25	0.015	0.625	0.000	0.046	0.002	0.643	1.050	4.8.2 ✓
	106.25 - 102.5	0.007	0.312	0.000	0.021	0.001	0.319	1.050	4.8.2 ✓
L10	106.25 - 102.5	0.006	0.260	0.000	0.018	0.001	0.267	1.050	4.8.2 ✓
	102.5 - 101.25	0.014	0.499	0.000	0.042	0.001	0.514	1.050	4.8.2 ✓
L11	101.25 - 100.25	0.014	0.511	0.000	0.042	0.001	0.527	1.050	4.8.2 ✓
	100.25 - 99.25	0.014	0.523	0.000	0.042	0.001	0.539	1.050	4.8.2 ✓
	99.25 - 98.25	0.014	0.535	0.000	0.042	0.001	0.551	1.050	4.8.2 ✓
	98.25 - 97.25	0.014	0.547	0.000	0.042	0.001	0.563	1.050	4.8.2 ✓
	97.25 - 96.25	0.014	0.559	0.000	0.041	0.001	0.574	1.050	4.8.2 ✓
L12	96.25 - 95.25	0.014	0.570	0.000	0.041	0.001	0.586	1.050	4.8.2 ✓
	95.25 - 94.25	0.014	0.581	0.000	0.041	0.001	0.597	1.050	4.8.2 ✓
	94.25 - 93.25	0.014	0.592	0.000	0.041	0.001	0.608	1.050	4.8.2 ✓
	93.25 - 92.25	0.014	0.603	0.000	0.041	0.001	0.619	1.050	4.8.2 ✓
	92.25 - 91.25	0.014	0.614	0.000	0.041	0.001	0.630	1.050	4.8.2 ✓
L13	91.25 - 90.25	0.014	0.625	0.000	0.041	0.001	0.641	1.050	4.8.2 ✓
	90.25 - 89.25	0.014	0.636	0.000	0.041	0.001	0.652	1.050	4.8.2 ✓
	89.25 - 88.25	0.014	0.646	0.000	0.041	0.001	0.662	1.050	4.8.2 ✓

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	88.25 - 87.25	0.014	0.656	0.000	0.041	0.001	0.672	1.050	4.8.2 ✓
	87.25 - 86.25	0.014	0.666	0.000	0.040	0.001	0.682	1.050	4.8.2 ✓
L14	86.25 - 85.25	0.014	0.676	0.000	0.040	0.001	0.692	1.050	4.8.2 ✓
	85.25 - 84.25	0.014	0.686	0.000	0.040	0.001	0.702	1.050	4.8.2 ✓
	84.25 - 83.25	0.014	0.696	0.000	0.040	0.001	0.712	1.050	4.8.2 ✓
	83.25 - 82.25	0.014	0.706	0.000	0.040	0.001	0.722	1.050	4.8.2 ✓
	82.25 - 81.25	0.015	0.715	0.000	0.040	0.001	0.731	1.050	4.8.2 ✓
L15	81.25 - 80.25	0.015	0.724	0.000	0.040	0.001	0.741	1.050	4.8.2 ✓
	80.25 - 79.25	0.015	0.734	0.000	0.040	0.001	0.750	1.050	4.8.2 ✓
	79.25 - 78.25	0.015	0.743	0.000	0.040	0.001	0.759	1.050	4.8.2 ✓
	78.25 - 77.25	0.015	0.752	0.000	0.040	0.001	0.768	1.050	4.8.2 ✓
	77.25 - 76.25	0.015	0.761	0.000	0.040	0.001	0.777	1.050	4.8.2 ✓
L16	76.25 - 74.875	0.015	0.773	0.000	0.040	0.001	0.789	1.050	4.8.2 ✓
	74.875 - 73.5	0.015	0.785	0.000	0.039	0.001	0.801	1.050	4.8.2 ✓
L17	73.5 - 73.25 (17)	0.012	0.565	0.000	0.031	0.001	0.577	1.050	4.8.2 ✓
L18	73.25 - 72.25	0.012	0.570	0.000	0.031	0.001	0.583	1.050	4.8.2 ✓
	72.25 - 71.25	0.012	0.576	0.000	0.031	0.001	0.589	1.050	4.8.2 ✓
	71.25 - 70.25	0.012	0.582	0.000	0.031	0.001	0.594	1.050	4.8.2 ✓
	70.25 - 69.25	0.012	0.587	0.000	0.031	0.001	0.600	1.050	4.8.2 ✓
	69.25 - 68.25	0.012	0.593	0.000	0.031	0.001	0.605	1.050	4.8.2 ✓
L19	68.25 - 66.75	0.012	0.601	0.000	0.030	0.001	0.613	1.050	4.8.2 ✓
	66.75 - 62	0.006	0.331	0.000	0.016	0.000	0.337	1.050	4.8.2 ✓
L20	66.75 - 62	0.006	0.330	0.000	0.015	0.000	0.337	1.050	4.8.2 ✓
	62 - 61	0.013	0.706	0.000	0.033	0.001	0.721	1.050	4.8.2 ✓
L21	61 - 59.8125	0.013	0.713	0.000	0.033	0.001	0.727	1.050	4.8.2 ✓
	59.8125 - 58.625	0.013	0.719	0.000	0.033	0.001	0.734	1.050	4.8.2 ✓

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Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	58.625 - 57.4375	0.013	0.726	0.000	0.033	0.001	0.740	1.050	4.8.2 ✓
	57.4375 - 56.25	0.013	0.732	0.000	0.033	0.001	0.747	1.050	4.8.2 ✓
L22	56.25 - 56 (22)	0.011	0.571	0.000	0.027	0.001	0.583	1.050	4.8.2 ✓
L23	56 - 55	0.011	0.574	0.000	0.027	0.001	0.586	1.050	4.8.2 ✓
	55 - 54	0.011	0.577	0.000	0.027	0.001	0.589	1.050	4.8.2 ✓
	54 - 53	0.011	0.580	0.000	0.027	0.001	0.592	1.050	4.8.2 ✓
	53 - 52	0.011	0.583	0.000	0.027	0.001	0.595	1.050	4.8.2 ✓
	52 - 51	0.011	0.587	0.000	0.026	0.001	0.599	1.050	4.8.2 ✓
L24	51 - 50	0.011	0.601	0.000	0.027	0.001	0.613	1.050	4.8.2 ✓
	50 - 49	0.012	0.605	0.000	0.027	0.001	0.617	1.050	4.8.2 ✓
	49 - 48	0.012	0.608	0.000	0.027	0.001	0.620	1.050	4.8.2 ✓
	48 - 47	0.012	0.612	0.000	0.027	0.001	0.624	1.050	4.8.2 ✓
	47 - 46	0.012	0.615	0.000	0.027	0.001	0.627	1.050	4.8.2 ✓
L25	46 - 45	0.012	0.618	0.000	0.027	0.001	0.631	1.050	4.8.2 ✓
	45 - 44	0.012	0.622	0.000	0.026	0.001	0.634	1.050	4.8.2 ✓
	44 - 43	0.012	0.625	0.000	0.026	0.001	0.638	1.050	4.8.2 ✓
	43 - 42	0.012	0.628	0.000	0.026	0.001	0.641	1.050	4.8.2 ✓
	42 - 41	0.012	0.632	0.000	0.026	0.001	0.644	1.050	4.8.2 ✓
L26	41 - 39.5 (26)	0.012	0.637	0.000	0.026	0.001	0.649	1.050	4.8.2 ✓
L27	39.5 - 39.25 (27)	0.011	0.576	0.000	0.024	0.001	0.588	1.050	4.8.2 ✓
L28	39.25 - 38.75 (28)	0.011	0.578	0.000	0.024	0.001	0.589	1.050	4.8.2 ✓
L29	38.75 - 38.5 (29)	0.011	0.597	0.000	0.025	0.001	0.609	1.050	4.8.2 ✓
L30	38.5 - 37.5	0.011	0.600	0.000	0.025	0.001	0.612	1.050	4.8.2 ✓
	37.5 - 32.25	0.006	0.297	0.000	0.012	0.000	0.303	1.050	4.8.2 ✓
L31	37.5 - 32.25	0.006	0.287	0.000	0.011	0.000	0.293	1.050	4.8.2 ✓
	32.25 - 31.25	0.011	0.559	0.000	0.022	0.000	0.570	1.050	4.8.2 ✓

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L32	31.25 - 30.25	0.011	0.560	0.000	0.022	0.000	0.572	1.050	4.8.2 ✓
	30.25 - 29.25	0.011	0.562	0.000	0.022	0.000	0.573	1.050	4.8.2 ✓
	29.25 - 28.25	0.011	0.563	0.000	0.022	0.000	0.575	1.050	4.8.2 ✓
	28.25 - 27.25	0.011	0.565	0.000	0.022	0.000	0.576	1.050	4.8.2 ✓
	27.25 - 26.25	0.011	0.566	0.000	0.022	0.000	0.578	1.050	4.8.2 ✓
L33	26.25 - 25.25	0.011	0.568	0.000	0.022	0.000	0.579	1.050	4.8.2 ✓
	25.25 - 24.25	0.011	0.569	0.000	0.022	0.000	0.581	1.050	4.8.2 ✓
	24.25 - 23.25	0.011	0.570	0.000	0.022	0.000	0.582	1.050	4.8.2 ✓
	23.25 - 22.25	0.011	0.572	0.000	0.022	0.000	0.583	1.050	4.8.2 ✓
	22.25 - 21.25	0.011	0.573	0.000	0.022	0.000	0.585	1.050	4.8.2 ✓
L34	21.25 - 20.25	0.011	0.581	0.000	0.022	0.000	0.592	1.050	4.8.2 ✓
	20.25 - 19.25	0.011	0.582	0.000	0.022	0.000	0.594	1.050	4.8.2 ✓
	19.25 - 18.25	0.011	0.583	0.000	0.022	0.000	0.595	1.050	4.8.2 ✓
	18.25 - 17.25	0.011	0.584	0.000	0.022	0.000	0.596	1.050	4.8.2 ✓
	17.25 - 16.25	0.011	0.585	0.000	0.022	0.000	0.597	1.050	4.8.2 ✓
L35	16.25 - 15.25	0.012	0.594	0.000	0.022	0.000	0.606	1.050	4.8.2 ✓
	15.25 - 14.25	0.012	0.595	0.000	0.022	0.000	0.608	1.050	4.8.2 ✓
	14.25 - 13.25	0.012	0.597	0.000	0.022	0.000	0.609	1.050	4.8.2 ✓
	13.25 - 12.25	0.012	0.599	0.000	0.022	0.000	0.611	1.050	4.8.2 ✓
	12.25 - 11.25	0.012	0.601	0.000	0.022	0.000	0.613	1.050	4.8.2 ✓
L36	11.25 - 10 (36)	0.012	0.603	0.000	0.022	0.000	0.615	1.050	4.8.2 ✓
L37	10 - 9.75 (37)	0.013	0.711	0.000	0.025	0.000	0.725	1.050	4.8.2 ✓
L38	9.75 - 8.5	0.013	0.714	0.000	0.024	0.000	0.728	1.050	4.8.2 ✓
	8.5 - 7.25	0.014	0.717	0.000	0.024	0.000	0.731	1.050	4.8.2 ✓
L39	7.25 - 7 (39)	0.012	0.637	0.000	0.022	0.000	0.650	1.050	4.8.2 ✓
L40	7 - 6	0.013	0.649	0.000	0.023	0.000	0.662	1.050	4.8.2 ✓

<p><b>tnxTower</b></p> <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p><b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315)</p>	<p><b>Page</b> 48 of 49</p>
	<p><b>Project</b></p>	<p><b>Date</b> 16:57:25 10/07/21</p>
	<p><b>Client</b> Crown Castle</p>	<p><b>Designed by</b> Jayaraj B</p>

Section No.	Elevation ft	Ratio $P_u$	Ratio $M_{ux}$	Ratio $M_{uy}$	Ratio $V_u$	Ratio $T_u$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$\phi P_n$	$\phi M_{nx}$	$\phi M_{ny}$	$\phi V_n$	$\phi T_n$			
	6 - 5	0.013	0.651	0.000	0.022	0.000	0.664	1.050	4.8.2 ✓
	5 - 4	0.013	0.653	0.000	0.022	0.000	0.666	1.050	4.8.2 ✓
	4 - 3	0.013	0.654	0.000	0.022	0.000	0.667	1.050	4.8.2 ✓
	3 - 2	0.013	0.656	0.000	0.022	0.000	0.669	1.050	4.8.2 ✓
L41	2 - 1	0.013	0.658	0.000	0.022	0.000	0.671	1.050	4.8.2 ✓
	1 - 0	0.013	0.659	0.000	0.022	0.000	0.673	1.050	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 145	Pole	TP22.875x22x0.25	1	-5.445	1032.692	**	**
L2	145 - 140	Pole	TP23.75x22.875x0.25	2	-5.827	1072.638	**	**
L3	140 - 135	Pole	TP24.625x23.75x0.25	3	-11.703	1112.580	**	**
L4	135 - 130	Pole	TP25.501x24.625x0.25	4	-12.178	1152.532	**	**
L5	130 - 125	Pole	TP26.376x25.501x0.25	5	-12.740	1192.474	**	**
L6	125 - 120	Pole	TP27.251x26.376x0.25	6	-17.366	1232.416	**	**
L7	120 - 115	Pole	TP28.126x27.251x0.25	7	-17.991	1272.358	**	**
L8	115 - 110	Pole	TP29.001x28.126x0.25	8	-18.643	1312.311	**	**
L9	110 - 102.5	Pole	TP30.314x29.001x0.25	9	-19.147	1342.267	**	**
L10	102.5 - 101.25	Pole	TP30.033x29.158x0.313	10	-24.504	1836.975	**	**
L11	101.25 - 96.25	Pole	TP30.908x30.033x0.313	11	-25.420	1891.071	**	**
L12	96.25 - 91.25	Pole	TP31.783x30.908x0.313	12	-26.363	1945.167	**	**
L13	91.25 - 86.25	Pole	TP32.658x31.783x0.313	13	-27.335	1999.263	**	**
L14	86.25 - 81.25	Pole	TP33.534x32.658x0.313	14	-28.415	2053.359	**	**
L15	81.25 - 76.25	Pole	TP34.409x33.534x0.313	15	-29.442	2107.455	**	**
L16	76.25 - 73.5	Pole	TP34.89x34.409x0.313	16	-30.013	2137.201	**	**
L17	73.5 - 73.25	Pole	TP34.934x34.89x0.4	17	-30.090	2732.163	**	**
L18	73.25 - 68.25	Pole	TP35.809x34.934x0.4	18	-31.300	2801.400	**	**
L19	68.25 - 62	Pole	TP36.903x35.809x0.4	19	-31.665	2822.169	**	**
L20	62 - 61	Pole	TP36.453x35.447x0.375	20	-33.881	2675.925	**	**
L21	61 - 56.25	Pole	TP37.284x36.453x0.375	21	-35.061	2737.591	**	**
L22	56.25 - 56	Pole	TP37.328x37.284x0.456	22	-35.145	3327.355	**	**
L23	56 - 51	Pole	TP38.203x37.328x0.456	23	-36.565	3406.326	**	**
L24	51 - 46	Pole	TP39.078x38.203x0.45	24	-38.021	3438.109	**	**
L25	46 - 41	Pole	TP39.954x39.078x0.45	25	-39.503	3515.998	**	**
L26	41 - 39.5	Pole	TP40.216x39.954x0.45	26	-39.946	3539.371	**	**
L27	39.5 - 39.25	Pole	TP40.26x40.216x0.488	27	-40.044	3834.925	**	**
L28	39.25 - 38.75	Pole	TP40.347x40.26x0.488	28	-40.208	3843.357	**	**
L29	38.75 - 38.5	Pole	TP40.391x40.347x0.475	29	-40.288	3750.096	**	**
L30	38.5 - 32.25	Pole	TP41.485x40.391x0.475	30	-40.593	3766.539	**	**
L31	32.25 - 31.25	Pole	TP40.91x39.816x0.538	31	-43.997	4292.064	**	**
L32	31.25 - 26.25	Pole	TP41.785x40.91x0.538	32	-45.746	4385.104	**	**
L33	26.25 - 21.25	Pole	TP42.66x41.785x0.538	33	-47.522	4478.145	**	**
L34	21.25 - 16.25	Pole	TP43.536x42.66x0.531	34	-49.327	4518.696	**	**

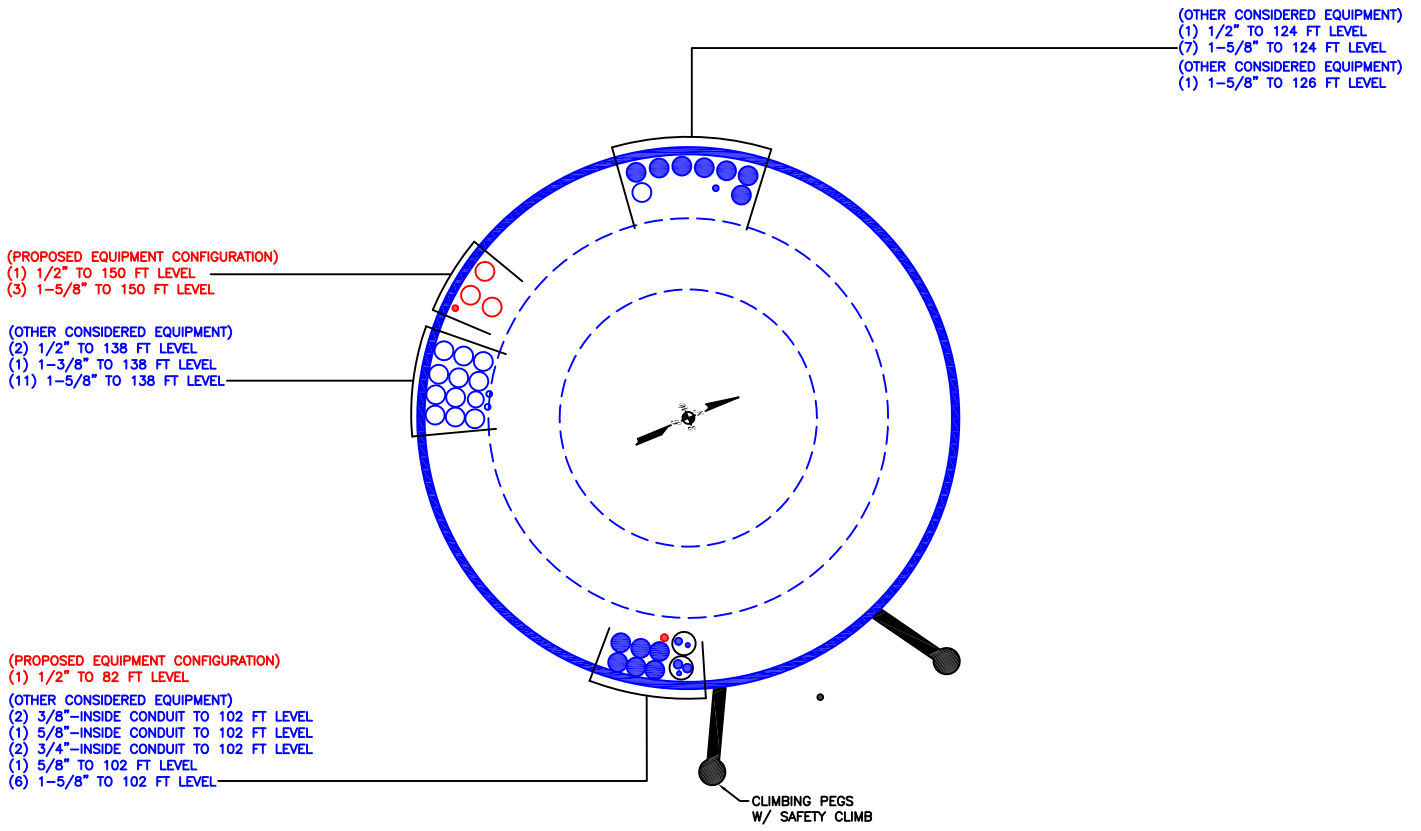
<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 876315))	<b>Page</b> 49 of 49
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	<b>Client</b> Crown Castle	<b>Designed by</b> Jayaraj B

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L35	16.25 - 11.25	Pole	TP44.411x43.536x0.525	35	-51.159	4557.063	**	**	
L36	11.25 - 10	Pole	TP44.63x44.411x0.525	36	-51.619	4579.774	**	**	
L37	10 - 9.75	Pole	TP44.673x44.63x0.463	37	-51.719	4044.285	**	**	
L38	9.75 - 7.25	Pole	TP45.111x44.673x0.463	38	-52.604	4084.321	**	**	
L39	7.25 - 7	Pole	TP45.155x45.111x0.506	39	-52.706	4470.669	**	**	
L40	7 - 2	Pole	TP46.03x45.155x0.5	40	-54.504	4502.652	**	**	
L41	2 - 0	Pole	TP46.38x46.03x0.5	41	-55.234	4537.270	**	**	
							Summary		
							Pole (L16)	**	**
							<b>RATING =</b>	**	**

\*\* Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.

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





BUSINESS UNIT: 876315

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

**Pole Geometry**

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	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	150	47.5	3.75	12	22	30.314	0.25	Auto	A607-60
2	106.25	44.25	4.75	12	29.16	36.903	0.3125	Auto	A607-65
3	66.75	34.5	5.25	12	35.45	41.485	0.375	Auto	A607-65
4	37.5	37.5	0	12	39.82	46.38	0.4375	Auto	A607-65

**Reinforcement Configuration**

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	10	plate	PL 4x1 (5TB)	1			E2									
2	0	39.5	plate	Plate 4x1 (7TB)	2								E2				E2
3	7.25	38.75	plate	Plate 4x1 (7TB)	1				E2								
4	38.75	56.25	plate	Plate 4x0.75 (5TB)	3			E2				E2				E2	
5	66	73.5	plate	Plate 4x0.75 (5TB)	3				E2				E2				E2
6																	
7																	
8																	
9																	
10																	

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	4	1	4	0.5	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	15.000	20.000	2.750	1.1875	A514-GR100
2	4	1	4	0.5	PC 8.8 - M20 (100)	21	PC 8.8 - M20 (100)	21.000	20.000	2.750	1.1875	A514-GR100
3	4	1	4	0.5	PC 8.8 - M20 (100)	21	PC 8.8 - M20 (100)	21.000	20.000	2.750	1.1875	A514-GR100
4	4	0.75	3	0.375	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	15.000	15.000	2.063	1.1875	A514-GR100
5	4	0.75	3	0.375	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	15.000	15.000	2.063	1.1875	A514-GR100

**Connection Details for Custom Reinforcements**

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL 4x1 (5TB)	Top	5	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	5	N	3	3	-	-	-	-	-	-	-	-	-
Plate 4x0.75 (5TB)	Top	5	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	5	N	3	3	-	-	-	-	-	-	-	-	-
Plate 4x1 (7TB)	Top	7	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	3	-	-	-	-	-	-	-	-	-

# TNX Geometry Input

Increment (ft):  [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150 - 145	5		12	22.000	22.875	0.25	A607-60	1.000
2	145 - 140	5		12	22.875	23.750	0.25	A607-60	1.000
3	140 - 135	5		12	23.750	24.625	0.25	A607-60	1.000
4	135 - 130	5		12	24.625	25.501	0.25	A607-60	1.000
5	130 - 125	5		12	25.501	26.376	0.25	A607-60	1.000
6	125 - 120	5		12	26.376	27.251	0.25	A607-60	1.000
7	120 - 115	5		12	27.251	28.126	0.25	A607-60	1.000
8	115 - 110	5		12	28.126	29.001	0.25	A607-60	1.000
9	110 - 106.25	7.5	3.75	12	29.001	30.314	0.25	A607-60	1.000
10	106.25 - 101.25	5		12	29.158	30.033	0.3125	A607-65	1.000
11	101.25 - 96.25	5		12	30.033	30.908	0.3125	A607-65	1.000
12	96.25 - 91.25	5		12	30.908	31.783	0.3125	A607-65	1.000
13	91.25 - 86.25	5		12	31.783	32.658	0.3125	A607-65	1.000
14	86.25 - 81.25	5		12	32.658	33.534	0.3125	A607-65	1.000
15	81.25 - 76.25	5		12	33.534	34.409	0.3125	A607-65	1.000
16	76.25 - 73.5	2.75		12	34.409	34.890	0.3125	A607-65	1.000
17	73.5 - 73.25	0.25		12	34.890	34.934	0.4	A607-65	0.986
18	73.25 - 68.25	5		12	34.934	35.809	0.4	A607-65	0.981
19	68.25 - 66.75	6.25	4.75	12	35.809	36.903	0.4	A607-65	0.979
20	66.75 - 61	5.75		12	35.447	36.453	0.375	A607-65	1.000
21	61 - 56.25	4.75		12	36.453	37.284	0.375	A607-65	1.000
22	56.25 - 56	0.25		12	37.284	37.328	0.45625	A607-65	0.990
23	56 - 51	5		12	37.328	38.203	0.45625	A607-65	0.986
24	51 - 46	5		12	38.203	39.078	0.45	A607-65	0.996
25	46 - 41	5		12	39.078	39.954	0.45	A607-65	0.992
26	41 - 39.5	1.5		12	39.954	40.216	0.45	A607-65	0.991
27	39.5 - 39.25	0.25		12	40.216	40.260	0.4875	A607-65	1.044
28	39.25 - 38.75	0.5		12	40.260	40.347	0.4875	A607-65	1.043
29	38.75 - 38.5	0.25		12	40.347	40.391	0.475	A607-65	0.988
30	38.5 - 37.5	6.25	5.25	12	40.391	41.485	0.475	A607-65	0.987
31	37.5 - 31.25	6.25		12	39.816	40.910	0.5375	A607-65	0.988
32	31.25 - 26.25	5		12	40.910	41.785	0.5375	A607-65	0.984
33	26.25 - 21.25	5		12	41.785	42.660	0.5375	A607-65	0.981
34	21.25 - 16.25	5		12	42.660	43.536	0.53125	A607-65	0.989
35	16.25 - 11.25	5		12	43.536	44.411	0.525	A607-65	0.997
36	11.25 - 10	1.25		12	44.411	44.630	0.525	A607-65	0.996
37	10 - 9.75	0.25		12	44.630	44.673	0.4625	A607-65	1.068
38	9.75 - 7.25	2.5		12	44.673	45.111	0.4625	A607-65	1.067
39	7.25 - 7	0.25		12	45.111	45.155	0.50625	A607-65	0.976
40	7 - 2	5		12	45.155	46.030	0.5	A607-65	0.985
41	2 - 0	2		12	46.030	46.380	0.5	A607-65	0.985

## TNX Section Forces

Increment (ft):		TNX Output		
	5	P <sub>u</sub>	M <sub>ux</sub> (kip-ft)	V <sub>u</sub>
	Section Height (ft)	(K)		(K)
1	150 - 145	5.45	24.49	5.20
2	145 - 140	5.83	51.49	5.61
3	140 - 135	11.70	98.31	11.48
4	135 - 130	12.18	157.13	12.01
5	130 - 125	12.74	218.59	12.55
6	125 - 120	17.37	302.49	16.45
7	120 - 115	17.99	385.71	16.86
8	115 - 110	18.64	470.95	17.26
9	110 - 106.25	19.15	536.19	17.56
10	106.25 - 101.25	24.50	632.76	21.99
11	101.25 - 96.25	25.42	743.63	22.38
12	96.25 - 91.25	26.36	856.42	22.76
13	91.25 - 86.25	27.34	971.08	23.13
14	86.25 - 81.25	28.42	1087.35	23.54
15	81.25 - 76.25	29.44	1205.84	23.89
16	76.25 - 73.5	30.01	1271.75	24.08
17	73.5 - 73.25	30.09	1277.77	24.09
18	73.25 - 68.25	31.30	1399.11	24.47
19	68.25 - 66.75	31.66	1435.88	24.59
20	66.75 - 61	33.88	1578.76	25.12
21	61 - 56.25	35.06	1698.71	25.43
22	56.25 - 56	35.15	1705.06	25.43
23	56 - 51	36.57	1833.05	25.79
24	51 - 46	38.02	1962.75	26.12
25	46 - 41	39.50	2094.07	26.44
26	41 - 39.5	39.95	2133.78	26.54
27	39.5 - 39.25	40.04	2140.41	26.54
28	39.25 - 38.75	40.21	2153.68	26.57
29	38.75 - 38.5	40.29	2160.33	26.59
30	38.5 - 37.5	40.59	2186.94	26.66
31	37.5 - 31.25	44.00	2355.10	27.16
32	31.25 - 26.25	45.75	2491.53	27.45
33	26.25 - 21.25	47.52	2629.36	27.72
34	21.25 - 16.25	49.33	2768.57	28.00
35	16.25 - 11.25	51.16	2909.12	28.26
36	11.25 - 10	51.62	2944.47	28.34
37	10 - 9.75	51.72	2951.55	28.33
38	9.75 - 7.25	52.60	3022.50	28.47
39	7.25 - 7	52.71	3029.61	28.46
40	7 - 2	54.50	3172.52	28.73
41	2 - 0	55.23	3230.03	28.83

# Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP22.875x22x0.25	Pole	4.7%	Pass
145 - 140	Pole	TP23.75x22.875x0.25	Pole	8.8%	Pass
140 - 135	Pole	TP24.625x23.75x0.25	Pole	15.9%	Pass
135 - 130	Pole	TP25.501x24.625x0.25	Pole	23.4%	Pass
130 - 125	Pole	TP26.376x25.501x0.25	Pole	30.4%	Pass
125 - 120	Pole	TP27.251x26.376x0.25	Pole	40.0%	Pass
120 - 115	Pole	TP28.126x27.251x0.25	Pole	48.1%	Pass
115 - 110	Pole	TP29.001x28.126x0.25	Pole	55.7%	Pass
110 - 106.25	Pole	TP30.314x29.001x0.25	Pole	61.0%	Pass
106.25 - 101.25	Pole	TP30.033x29.158x0.3125	Pole	48.8%	Pass
101.25 - 96.25	Pole	TP30.908x30.033x0.3125	Pole	54.6%	Pass
96.25 - 91.25	Pole	TP31.783x30.908x0.3125	Pole	59.9%	Pass
91.25 - 86.25	Pole	TP32.658x31.783x0.3125	Pole	64.8%	Pass
86.25 - 81.25	Pole	TP33.534x32.658x0.3125	Pole	69.4%	Pass
81.25 - 76.25	Pole	TP34.409x33.534x0.3125	Pole	73.8%	Pass
76.25 - 73.5	Pole	TP34.89x34.409x0.3125	Pole	76.1%	Pass
73.5 - 73.25	Pole + Reinf.	TP34.934x34.89x0.4	Reinf. 5 Tension Rupture	69.0%	Pass
73.25 - 68.25	Pole + Reinf.	TP35.809x34.934x0.4	Reinf. 5 Tension Rupture	72.2%	Pass
68.25 - 66.75	Pole + Reinf.	TP36.903x35.809x0.4	Reinf. 5 Tension Rupture	73.1%	Pass
66.75 - 61	Pole	TP36.453x35.447x0.375	Pole	68.4%	Pass
61 - 56.25	Pole	TP37.284x36.453x0.375	Pole	70.9%	Pass
56.25 - 56	Pole + Reinf.	TP37.328x37.284x0.4563	Reinf. 4 Tension Rupture	70.5%	Pass
56 - 51	Pole + Reinf.	TP38.203x37.328x0.4563	Reinf. 4 Tension Rupture	72.6%	Pass
51 - 46	Pole + Reinf.	TP39.078x38.203x0.45	Reinf. 4 Tension Rupture	74.5%	Pass
46 - 41	Pole + Reinf.	TP39.954x39.078x0.45	Reinf. 4 Tension Rupture	76.3%	Pass
41 - 39.5	Pole + Reinf.	TP40.216x39.954x0.45	Reinf. 4 Tension Rupture	76.8%	Pass
39.5 - 39.25	Pole + Reinf.	TP40.26x40.216x0.4875	Reinf. 4 Tension Rupture	73.9%	Pass
39.25 - 38.75	Pole + Reinf.	TP40.347x40.26x0.4875	Reinf. 4 Tension Rupture	74.1%	Pass
38.75 - 38.5	Pole + Reinf.	TP40.391x40.347x0.475	Reinf. 3 Tension Rupture	73.4%	Pass
38.5 - 37.5	Pole + Reinf.	TP41.485x40.391x0.475	Reinf. 3 Tension Rupture	73.7%	Pass
37.5 - 31.25	Pole + Reinf.	TP40.91x39.816x0.5375	Reinf. 3 Tension Rupture	69.3%	Pass
31.25 - 26.25	Pole + Reinf.	TP41.785x40.91x0.5375	Reinf. 3 Tension Rupture	70.5%	Pass
26.25 - 21.25	Pole + Reinf.	TP42.66x41.785x0.5375	Reinf. 3 Tension Rupture	71.5%	Pass
21.25 - 16.25	Pole + Reinf.	TP43.536x42.66x0.5313	Reinf. 3 Tension Rupture	72.5%	Pass
16.25 - 11.25	Pole + Reinf.	TP44.411x43.536x0.525	Reinf. 3 Tension Rupture	73.4%	Pass
11.25 - 10	Pole + Reinf.	TP44.63x44.411x0.525	Reinf. 3 Tension Rupture	73.7%	Pass
10 - 9.75	Pole + Reinf.	TP44.673x44.63x0.4625	Pole	73.2%	Pass
9.75 - 7.25	Pole + Reinf.	TP45.111x44.673x0.4625	Pole	73.8%	Pass
7.25 - 7	Pole + Reinf.	TP45.155x45.111x0.5063	Reinf. 2 Tension Rupture	74.4%	Pass
7 - 2	Pole + Reinf.	TP46.03x45.155x0.5	Reinf. 2 Tension Rupture	75.2%	Pass
2 - 0	Pole + Reinf.	TP46.38x46.03x0.5	Reinf. 2 Tension Rupture	75.4%	Pass
				Summary	
			Pole	76.1%	Pass
			Reinforcement	76.8%	Pass
			Overall	76.8%	Pass

# Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity*					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
150 - 145	1192	n/a	1192	18.19	n/a	18.19	4.7%					
145 - 140	1335	n/a	1335	18.89	n/a	18.89	8.8%					
140 - 135	1490	n/a	1490	19.59	n/a	19.59	15.9%					
135 - 130	1656	n/a	1656	20.30	n/a	20.30	23.4%					
130 - 125	1835	n/a	1835	21.00	n/a	21.00	30.4%					
125 - 120	2025	n/a	2025	21.70	n/a	21.70	40.0%					
120 - 115	2229	n/a	2229	22.41	n/a	22.41	48.1%					
115 - 110	2445	n/a	2445	23.11	n/a	23.11	55.7%					
110 - 106.25	2617	n/a	2617	23.64	n/a	23.64	61.0%					
106.25 - 101.25	3376	n/a	3376	29.86	n/a	29.86	48.8%					
101.25 - 96.25	3683	n/a	3683	30.74	n/a	30.74	54.6%					
96.25 - 91.25	4009	n/a	4009	31.62	n/a	31.62	59.9%					
91.25 - 86.25	4352	n/a	4352	32.50	n/a	32.50	64.8%					
86.25 - 81.25	4715	n/a	4715	33.38	n/a	33.38	69.4%					
81.25 - 76.25	5098	n/a	5098	34.26	n/a	34.26	73.8%					
76.25 - 73.5	5317	n/a	5317	34.74	n/a	34.74	76.1%					
73.5 - 73.25	5337	1439	6776	34.79	9.00	43.79	58.1%					69.0%
73.25 - 68.25	5752	1510	7262	35.67	9.00	44.67	61.5%					72.2%
68.25 - 66.75	5881	1532	7412	35.93	9.00	44.93	62.4%					73.1%
66.75 - 61	7247	n/a	7247	43.50	n/a	43.50	68.4%					
61 - 56.25	7760	n/a	7760	44.50	n/a	44.50	70.9%					
56.25 - 56	7788	1637	9425	44.56	9.00	53.56	56.7%				70.5%	
56 - 51	8354	1713	10068	45.61	9.00	54.61	58.9%				72.6%	
51 - 46	8948	1791	10738	46.67	9.00	55.67	61.0%				74.5%	
46 - 41	9568	1870	11438	47.72	9.00	56.72	63.1%				76.3%	
41 - 39.5	9760	1894	11654	48.04	9.00	57.04	63.7%				76.8%	
39.5 - 39.25	9856	2911	12767	48.09	17.00	65.09	62.7%		63.6%		73.9%	
39.25 - 38.75	9921	2924	12844	48.20	17.00	65.20	62.9%		63.8%		74.1%	
38.75 - 38.5	9889	2578	12468	48.25	12.00	60.25	60.6%		73.4%	73.4%		
38.5 - 37.5	10020	2600	12620	48.46	12.00	60.46	61.0%		73.7%	73.7%		
37.5 - 31.25	11937	2643	14580	56.93	12.00	68.93	54.3%		69.3%	69.3%		
31.25 - 26.25	12728	2754	15483	58.17	12.00	70.17	55.6%		70.5%	70.5%		
26.25 - 21.25	13554	2868	16421	59.40	12.00	71.40	56.9%		71.5%	71.5%		
21.25 - 16.25	14414	2984	17398	60.63	12.00	72.63	58.2%		72.5%	72.5%		
16.25 - 11.25	15310	3102	18412	61.86	12.00	73.86	59.4%		73.4%	73.4%		
11.25 - 10	15540	3132	18671	62.17	12.00	74.17	59.7%		73.7%	73.7%		
10 - 9.75	15656	784	16440	62.23	8.00	70.23	73.2%	66.3%		66.3%		
9.75 - 7.25	16124	800	16924	62.84	8.00	70.84	73.8%	66.7%		66.7%		
7.25 - 7	16135	2425	18560	62.91	8.00	70.91	66.0%		74.4%			
7 - 2	17100	2519	19619	64.14	8.00	72.14	67.2%		75.2%			
2 - 0	17496	2557	20053	64.63	8.00	72.63	67.6%		75.4%			

Note: Section capacity checked using 5 degree increments.  
Rating per TIA-222-H Section 15.5.

# Monopole Base Plate Connection

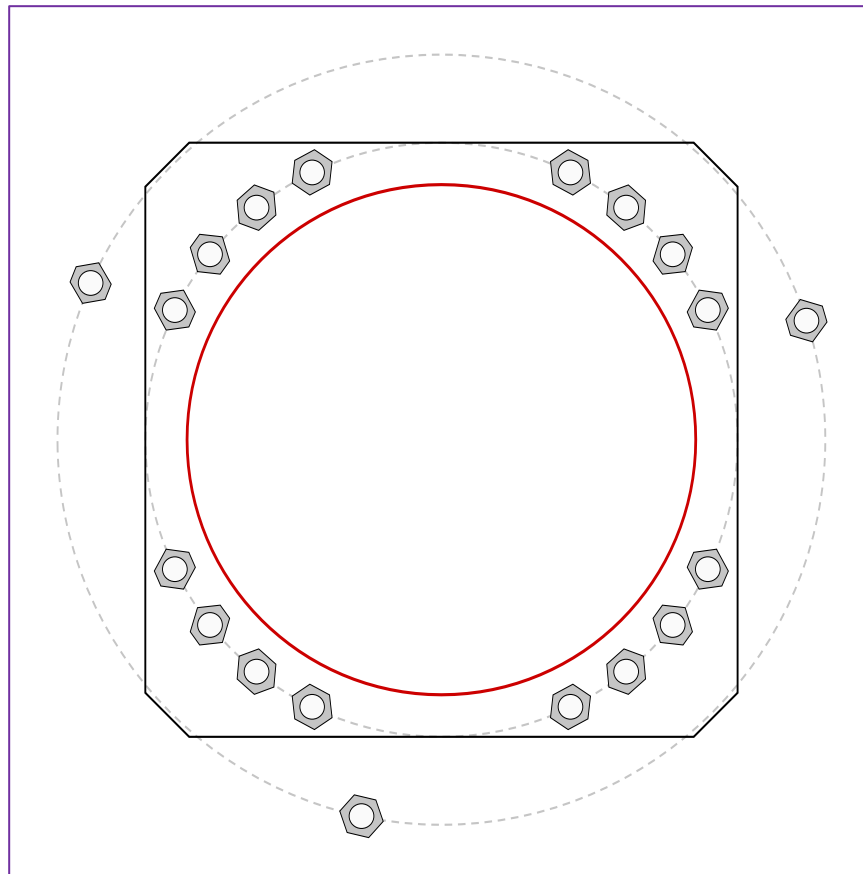


Site Info	
BU #	876315
Site Name	CC, INC. TOWER
Order #	579392, Rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
$l_{ar}$ (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3230.00
Axial Force (kips)	55.00
Shear Force (kips)	29.00

\*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results										
<b>Anchor Rod Data</b> <hr/> GROUP 1: (16) 2-1/4" $\phi$ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 54" BC <i>Anchor Spacing: 6 in</i> GROUP 2: (3) 2-1/4" $\phi$ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 70" BC <i>pos. (deg): 18, 156, 258</i>	<b>Anchor Rod Summary</b> <span style="float: right;"><i>(units of kips, kip-in)</i></span> <hr/> GROUP 1: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Pu_t = 140.89</td> <td style="width: 33%;"><math>\phi Pn_t = 243.75</math></td> <td style="width: 33%;"><b>Stress Rating</b></td> </tr> <tr> <td>Vu = 1.81</td> <td><math>\phi Vn = 149.1</math></td> <td><b>55.0%</b></td> </tr> <tr> <td>Mu = n/a</td> <td><math>\phi Mn = n/a</math></td> <td><b>Pass</b></td> </tr> </table>		Pu_t = 140.89	$\phi Pn_t = 243.75$	<b>Stress Rating</b>	Vu = 1.81	$\phi Vn = 149.1$	<b>55.0%</b>	Mu = n/a	$\phi Mn = n/a$	<b>Pass</b>
Pu_t = 140.89	$\phi Pn_t = 243.75$	<b>Stress Rating</b>									
Vu = 1.81	$\phi Vn = 149.1$	<b>55.0%</b>									
Mu = n/a	$\phi Mn = n/a$	<b>Pass</b>									
<b>Base Plate Data</b> <hr/> 54" W x 3" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi); Clip: 4 in	GROUP 2: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Pu_t = 180.51</td> <td style="width: 33%;"><math>\phi Pn_t = 304.69</math></td> <td style="width: 33%;"><b>Stress Rating</b></td> </tr> <tr> <td>Vu = 0</td> <td><math>\phi Vn = 186.38</math></td> <td><b>56.4%</b></td> </tr> <tr> <td>Mu = n/a</td> <td><math>\phi Mn = n/a</math></td> <td><b>Pass</b></td> </tr> </table>		Pu_t = 180.51	$\phi Pn_t = 304.69$	<b>Stress Rating</b>	Vu = 0	$\phi Vn = 186.38$	<b>56.4%</b>	Mu = n/a	$\phi Mn = n/a$	<b>Pass</b>
Pu_t = 180.51	$\phi Pn_t = 304.69$	<b>Stress Rating</b>									
Vu = 0	$\phi Vn = 186.38$	<b>56.4%</b>									
Mu = n/a	$\phi Mn = n/a$	<b>Pass</b>									
<b>Stiffener Data</b> <hr/> N/A	<b>Base Plate Summary</b> <hr/> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Max Stress (ksi):</td> <td style="width: 33%;">24.68</td> <td style="width: 33%;">(Flexural)</td> </tr> <tr> <td>Allowable Stress (ksi):</td> <td>54</td> <td></td> </tr> <tr> <td>Stress Rating:</td> <td><b>43.5%</b></td> <td><b>Pass</b></td> </tr> </table>		Max Stress (ksi):	24.68	(Flexural)	Allowable Stress (ksi):	54		Stress Rating:	<b>43.5%</b>	<b>Pass</b>
Max Stress (ksi):	24.68	(Flexural)									
Allowable Stress (ksi):	54										
Stress Rating:	<b>43.5%</b>	<b>Pass</b>									
<b>Pole Data</b> <hr/> 46.38" x 0.4375" 12-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)											



PROJECT **81150.010.01 - OAK LANE CC, INC. TOWER (SSUSA, CT)**

SUBJECT **Anchor Rod Bracket Analysis**

DATE **10/07/21**

TIA-222 Rev.

H

v4.6.1

Apply TIA-222-H Section 15.5?

Yes



**B+T GRP**  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630

Analysis Criteria	
Design/Analysis	Analysis
Load Type	Current Load
Current load	180.51 kips
AR Capacity	375.7 kips

Tower Type	Monopole
------------	----------

Manufacturers Tower Prop.	
Pole Thickness	0.4375 in
Pole Grade	A572-65
Fy	65 ksi
Fu	80 ksi
Base Plate Gr.	A572-60
Fy	60 ksi
Fu	75 ksi

Post-Installed Adhesive AR Mod.	
ARB Type	Welded
Size	2.25 in
Grade	A193 Gr B7
Fy	105 ksi
Fu	125 ksi

Anchor Rod Bracket Analysis Checks		
Tube Bearing	35.1%	-
Tube Compression	52.7%	-
Gusset Shear	13.1%	-
Gusset Flexure	N/A	-
Welds	Gusset to Tower and BP	25.1% -
	Gusset to Tube	13.1% -
	Geometry	N/A -
Tower Punching	17.4%	-
Tube Punching	7.6%	-
Utilization		52.7%

Bracket Properties			
Gusset	Pipe/Tube	Weld - Gusset to Pipe/Tube	
Thickness	1.25 in	FEXX	
Width at Tube	9.75 in	Total Length	
Height at Pole	48 in	Length above Gusset	
Height at Tube	36 in	Length below Gusset	
Grade	A572-50	Grade	
Fy	50 ksi	Fy	
Fu	65 ksi	Fu	
Weld - Gusset to Tower		Weld - Gusset to Base Plate	
FEXX	70 ksi	FEXX	70 ksi
Weld Type	Double Fillet	Weld Type	PJP - Double Bevel
Fillet Size	3/8 in	Fillet Size	5/8 in
		Bevel Depth	1/2 in
		Gap	2 in
		Notch (horiz)	0.75 in
		Notch (vert)	0.75 in
		Pipe/Tube Welded to Base/Footpad?	No

# Pier and Pad Foundation



**BU #:** 876315  
**Site Name:** OAK LANE CC,  
**App. Number:** 579392, Rev# 0

**TIA-222 Revision:** H  
**Tower Type:** Monopole

**Top & Bot. Pad Rein. Different?:**   
**Block Foundation?:**   
**Rectangular Pad?:**

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	55	kips
Base Shear, $Vu_{comp}$ :	29	kips
Moment, $M_u$ :	3230	ft-kips
Tower Height, $H$ :	150	ft
BP Dist. Above Fdn, $bp_{dist}$ :	4.625	in
Bolt Circle / Bearing Plate Width, $BC$ :	54	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	134.06	29.00	<b>20.6%</b>	<b>Pass</b>
<i>Bearing Pressure (ksf)</i>	18.00	3.44	<b>19.1%</b>	<b>Pass</b>
<i>Overturning (kip*ft)</i>	4893.77	3386.18	<b>69.2%</b>	<b>Pass</b>
<i>Pad Flexure (kip*ft)</i>	8967.19	1699.95	<b>18.1%</b>	<b>Pass</b>
<i>Pad Shear - 1-way (kips)</i>	1363.20	199.53	<b>13.9%</b>	<b>Pass</b>
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.002	<b>1.3%</b>	<b>Pass</b>
<i>Flexural 2-way (Comp) (kip*ft)</i>	10725.59	0.00	<b>0.0%</b>	<b>Pass</b>

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	<b>18.1%</b>
Soil Rating*:	<b>69.2%</b>

Pad Properties		
Depth, $D$ :	4.5	ft
Pad Width, $W_1$ :	25	ft
Pad Thickness, $T$ :	5	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	9	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	37	
Pad Clear Cover, $cc_{pad}$ :	3	in

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

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	100	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	24.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	30	degrees
SPT Blow Count, $N_{blows}$ :		
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, $gw$ :	3	ft


<--Toggle between Gross and Net

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Company:	B+T Grp	Page:	1
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone   Fax:	918-587-4630	E-Mail:	
Design:	Concrete Breakout	Date:	10/7/2021
Fastening point:			

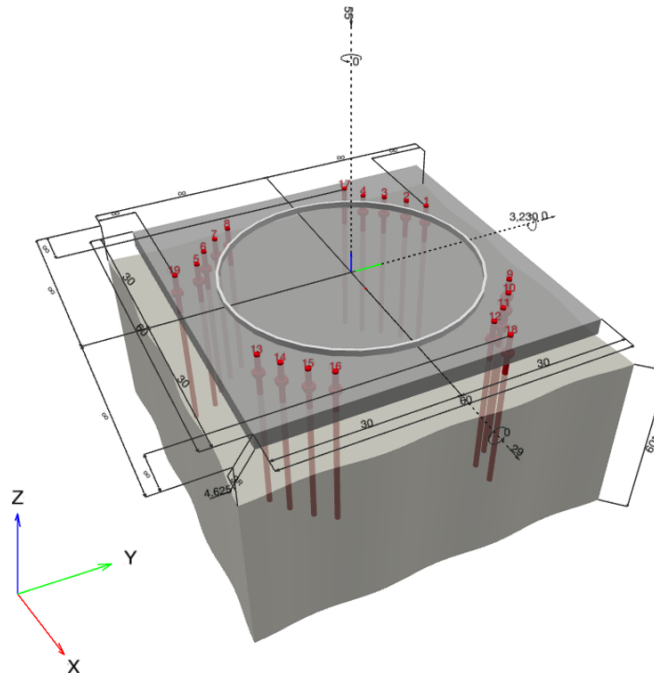
**Specifier's comments:**

**1 Input data**

<b>Anchor type and diameter:</b>	<b>Heavy Hex Head ASTM F 1554 GR. 105 1</b>	
Item number:	not available	
Effective embedment depth:	$h_{ef} = 25.000$ in.	
Material:	ASTM F 1554	
Evaluation Service Report:	Hilti Technical Data	
Issued   Valid:	-   -	
Proof:	Design Method ACI 318-14 / CIP	
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; $e_b = 4.625$ in.; $t = 3.000$ in.	
Anchor plate <sup>R</sup> :	$l_x \times l_y \times t = 60.000$ in. x $60.000$ in. x $3.000$ in.; (Recommended plate thickness: not calculated)	
Profile:	Steel pipe, ; (L x W x T) = $46.380$ in. x $46.380$ in. x $0.500$ in.	
Base material:	cracked concrete, 3000, $f'_c = 3,000$ psi; $h = 60.000$ in.	
Reinforcement:	tension: condition B, shear: condition B; edge reinforcement: none or < No. 4 bar	

<sup>R</sup> - The anchor calculation is based on a rigid anchor plate assumption.

**Geometry [in.] & Loading [kip, ft.kip]**



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Company:	B+T Grp	Page:	2
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone   Fax:	918-587-4630	E-Mail:	
Design:	Concrete Breakout	Date:	10/7/2021
Fastening point:			

**1.1 Design results**

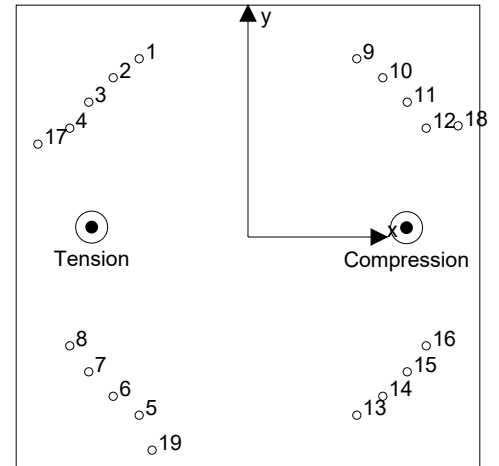
Case	Description	Forces [kip] / Moments [ft.kip]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = -55.000; V <sub>x</sub> = 29.000; V <sub>y</sub> = 0.000; M <sub>x</sub> = 0.00000; M <sub>y</sub> = 3,230.00000; M <sub>z</sub> = 0.00000;	no	∞

**2 Load case/Resulting anchor forces**

**Anchor reactions [kip]**

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	74.179	1.529	1.529	0.002
2	90.983	1.529	1.529	0.002
3	106.532	1.529	1.529	0.002
4	118.306	1.528	1.528	0.003
5	60.151	1.523	1.523	0.002
6	78.446	1.524	1.524	0.002
7	95.919	1.524	1.524	0.002
8	109.744	1.525	1.525	0.003
9	-72.717	1.529	1.529	-0.002
10	-91.012	1.529	1.529	-0.002
11	-108.485	1.529	1.529	-0.003
12	-122.310	1.528	1.528	-0.003
13	-86.747	1.523	1.523	-0.002
14	-103.549	1.524	1.524	-0.002
15	-119.097	1.524	1.524	-0.003
16	-130.875	1.525	1.525	-0.003
17	139.189	1.528	1.528	0.003
18	-143.726	1.528	1.528	-0.003
19	50.071	1.523	1.523	0.001



max. concrete compressive strain: - [%]  
 max. concrete compressive stress: - [psi]  
 resulting tension force in (x/y)=(-20.231/1.277): 923.518 [kip]  
 resulting compression force in (x/y)=(20.517/1.205): 978.518 [kip]

Anchor forces are calculated based on the assumption of a rigid anchor plate.



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Company:	B+T Grp	Page:	3
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone   Fax:	918-587-4630	E-Mail:	
Design:	Concrete Breakout	Date:	10/7/2021
Fastening point:			

## 3 Tension load

	Load $N_{ua}$ [kip]	Capacity $\phi N_n$ [kip]	Utilization $\beta_N = N_{ua}/\phi N_n$	Status
Steel Strength*	-143.726	56.812	253	not recommended
Pullout Strength*	139.189	25.217	552	not recommended
Concrete Breakout Failure**	923.518	227.504	406	not recommended
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

\* highest loaded anchor \*\*anchor group (anchors in tension)

### 3.1 Steel Strength

$$N_{sa} = A_{se,N} f_{uta} \quad \text{ACI 318-14 Eq. (17.4.1.2)}$$

$$\phi N_{sa} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

#### Variables

$A_{se,N}$ [in. <sup>2</sup> ]	$f_{uta}$ [psi]
0.61	125,001

#### Calculations

$N_{sa}$ [kip]
75.750

#### Results

$N_{sa}$ [kip]	$\phi_{steel}$	$\phi N_{sa}$ [kip]	$N_{ua}$ [kip]
75.750	0.750	56.812	-143.726

The steel proof was done for the highest absolute force per anchor - in this case compression loading. Please be aware that buckling should be verified separately

### 3.2 Pullout Strength

$$N_{pN} = \psi_{c,p} N_p \quad \text{ACI 318-14 Eq. (17.4.3.1)}$$

$$N_p = 8 A_{brg} f'_c \quad \text{ACI 318-14 Eq. (17.4.3.4)}$$

$$\phi N_{pN} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

#### Variables

$\psi_{c,p}$	$A_{brg}$ [in. <sup>2</sup> ]	$\lambda_a$	$f'_c$ [psi]
1.000	1.50	1.000	3,000

#### Calculations

$N_p$ [kip]
36.024

#### Results

$N_{pn}$ [kip]	$\phi_{concrete}$	$\phi N_{pn}$ [kip]	$N_{ua}$ [kip]
36.024	0.700	25.217	139.189



# Hilti PROFIS Engineering 3.1.1

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Company:	B+T Grp	Page:	4
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone   Fax:	918-587-4630	E-Mail:	
Design:	Concrete Breakout	Date:	10/7/2021
Fastening point:			

### 3.3 Concrete Breakout Failure

$$N_{cbg} = \left( \frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \quad \text{ACI 318-14 Eq. (17.4.2.1b)}$$

$$\phi N_{cbg} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

$A_{Nc}$  see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\psi_{ec,N} = \left( \frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.4)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\psi_{cp,N} = \text{MAX} \left( \frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = 16 \lambda_a \sqrt{f'_c} h_{ef}^{5/3} \quad \text{ACI 318-14 Eq. (17.4.2.2b)}$$

#### Variables

$h_{ef}$ [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
25.000	1.233	2.833	∞	1.000
$c_{ac}$ [in.]	$k_c$	$\lambda_a$	$f'_c$ [psij]	
-	16	1.000	3,000	

#### Calculations

$A_{Nc}$ [in. <sup>2</sup> ]	$A_{Nc0}$ [in. <sup>2</sup> ]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	$N_b$ [kip]
10,842.01	5,625.00	0.968	0.930	1.000	1.000	187.318

#### Results

$N_{cbg}$ [kip]	$\phi_{concrete}$	$\phi N_{cbg}$ [kip]	$N_{ua}$ [kip]
325.006	0.700	227.504	923.518



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Company:	B+T Grp	Page:	5
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone   Fax:	918-587-4630	E-Mail:	
Design:	Concrete Breakout	Date:	10/7/2021
Fastening point:			

## 4 Shear load

	Load $V_{ua}$ [kip]	Capacity $\phi V_n$ [kip]	Utilization $\beta_v = V_{ua}/\phi V_n$	Status
Steel Strength*	1.529	29.542	6	OK
Steel failure (with lever arm)*	1.528	0.000	$\infty$	not recommended
Pryout Strength**	29.000	718.510	5	OK
Concrete edge failure in direction **	N/A	N/A	N/A	N/A

\* highest loaded anchor    \*\*anchor group (relevant anchors)

### 4.1 Steel Strength

$$V_{sa} = 0.6 A_{se,V} f_{uta} \quad \text{ACI 318-14 Eq. (17.5.1.2b)}$$

$$\phi V_{steel} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

#### Variables

$A_{se,V}$ [in. <sup>2</sup> ]	$f_{uta}$ [psi]
0.61	125,001

#### Calculations

$V_{sa}$ [kip]
45.450

#### Results

$V_{sa}$ [kip]	$\phi_{steel}$	$\phi V_{sa}$ [kip]	$V_{ua}$ [kip]
45.450	0.650	29.542	1.529



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**4.2 Steel failure (with lever arm)**

$V_s^M$	$= \frac{\alpha_M \cdot M_s}{L_b}$	bending equation for stand-off
$M_s$	$= M_s^0 \left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$	resultant flexural resistance of anchor
$M_s^0$	$= (1.2) (S) (f_{u,min})$	characteristic flexural resistance of anchor
$\left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$		reduction for tensile force acting simultaneously with a shear force on the anchor
$S$	$= \frac{\pi(d)^3}{32}$	elastic section modulus of anchor bolt at concrete surface
$L_b$	$= z + (n)(d_0)$	internal lever arm adjusted for spalling of the surface concrete
$\phi V_s^M$	$\geq V_{ua}$	ACI 318-14 Table 17.3.1.1

**Variables**

$\alpha_M$	$f_{u,min}$ [psi]	$N_{ua}$ [kip]	$\phi N_{sa}$ [kip]	$z$ [in.]	$n$	$d_0$ [in.]
1.00	125,001	-143.726	56.812	6.125	0.500	1.000

**Calculations**

$M_s^0$ [ft.kip]	$\left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$	$M_s$ [ft.kip]	$L_b$ [in.]
0.79343	-1.530	0.00000	6.625

**Results**

$V_s^M$ [kip]	$\phi_{steel}$	$\phi V_s^M$ [kip]	$V_{ua}$ [kip]
0.000	0.650	0.000	1.528



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**4.3 Pryout Strength**

$$V_{cp,g} = k_{cp} \left[ \left( \frac{A_{Nc}}{A_{Nc0}} \right) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \right] \quad \text{ACI 318-14 Eq. (17.5.3.1b)}$$

$$\phi V_{cp,g} \geq V_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

 $A_{Nc}$  see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\Psi_{ec,N} = \left( \frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.4)}$$

$$\Psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\Psi_{cp,N} = \text{MAX} \left( \frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = 16 \lambda_a \sqrt{f'_c} h_{ef}^{5/3} \quad \text{ACI 318-14 Eq. (17.4.2.2b)}$$

**Variables**

$k_{cp}$	$h_{ef}$ [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	25.000	0.000	0.062	$\infty$
$\Psi_{c,N}$	$c_{ac}$ [in.]	$k_c$	$\lambda_a$	$f'_c$ [psi]
1.000	$\infty$	16	1.000	3,000

**Calculations**

$A_{Nc}$ [in. <sup>2</sup> ]	$A_{Nc0}$ [in. <sup>2</sup> ]	$\Psi_{ec1,N}$	$\Psi_{ec2,N}$	$\Psi_{ed,N}$	$\Psi_{cp,N}$	$N_b$ [kip]
15,437.14	5,625.00	1.000	0.998	1.000	1.000	187.318

**Results**

$V_{cp,g}$ [kip]	$\phi_{concrete}$	$\phi V_{cp,g}$ [kip]	$V_{ua}$ [kip]
1,026.443	0.700	718.510	29.000

**5 Combined tension and shear loads**

$\beta_N$	$\beta_V$	$\zeta$	Utilization $\beta_{N,V}$ [%]	Status
5.520	$\infty$	1.000	$\infty$	not recommended

$$\beta_{NV} = (\beta_N + \beta_V) / 1.2 \leq 1$$



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Fastening point:			

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### 6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2018, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- ACI 318 does not specifically address anchor bending when a stand-off condition exists. PROFIS Engineering calculates a shear load corresponding to anchor bending when stand-off exists and includes the results as a shear Design Strength!
- For additional information about ACI 318 strength design provisions, please go to <https://submittals.us.hilti.com/PROFISAnchorDesignGuide/>
- Attention! In case of compressive anchor forces a buckling check as well as the proof of the local load transfer into and within the base material (incl. punching) has to be done separately.

**Fastening does not meet the design criteria!**

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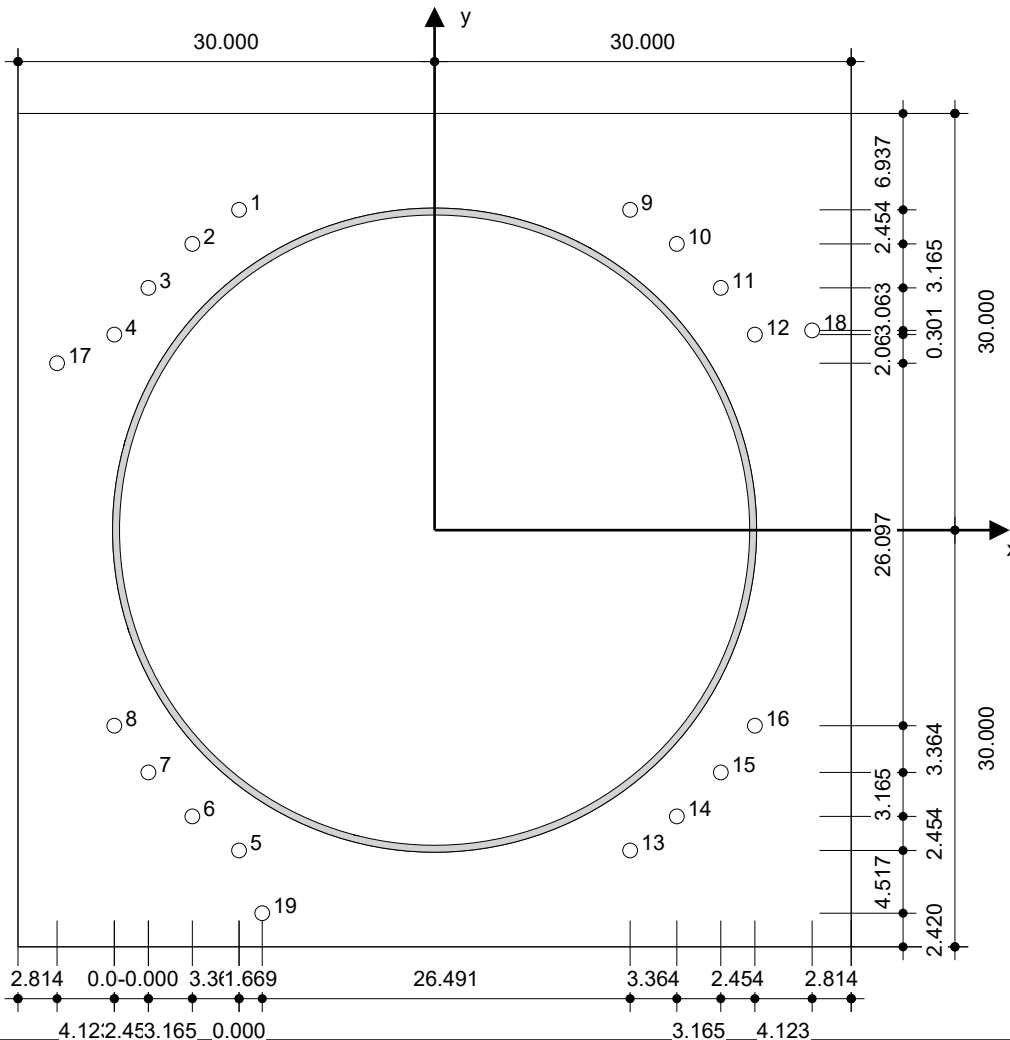
Page: 9  
 Specifier: Pavithra  
 E-Mail:  
 Date: 10/7/2021

### 7 Installation data

Profile: Steel pipe, ; (L x W x T) = 46.380 in. x 46.380 in. x 0.500 in.  
 Hole diameter in the fixture:  $d_f = 1.062$  in.  
 Plate thickness (input): 3.000 in.  
 Recommended plate thickness: not calculated

Anchor type and diameter: Heavy Hex Head ASTM F 1554  
 GR. 105 1  
 Item number: not available  
 Maximum installation torque: -  
 Hole diameter in the base material: - in.  
 Hole depth in the base material: 25.000 in.  
 Minimum thickness of the base material: 26.172 in.

Hilti Heavy Hex Head headed stud anchor with 25 in embedment, 1, Steel galvanized, installation per instruction for use



Input data and results must be checked for conformity with the existing conditions and for plausibility!  
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### Coordinates Anchor [in.]

Anchor	x	y	C <sub>-x</sub>	C <sub>+x</sub>	C <sub>-y</sub>	C <sub>+y</sub>	Anchor	x	y	C <sub>-x</sub>	C <sub>+x</sub>	C <sub>-y</sub>	C <sub>+y</sub>
1	-14.080	23.063	-	-	-	-	11	20.609	17.444	-	-	-	-
2	-17.444	20.609	-	-	-	-	12	23.063	14.080	-	-	-	-
3	-20.609	17.444	-	-	-	-	13	14.080	-23.063	-	-	-	-
4	-23.062	14.080	-	-	-	-	14	17.444	-20.609	-	-	-	-
5	-14.080	-23.063	-	-	-	-	15	20.609	-17.444	-	-	-	-
6	-17.444	-20.609	-	-	-	-	16	23.063	-14.080	-	-	-	-
7	-20.609	-17.444	-	-	-	-	17	-27.186	12.017	-	-	-	-
8	-23.063	-14.080	-	-	-	-	18	27.186	14.381	-	-	-	-
9	14.080	23.063	-	-	-	-	19	-12.411	-27.580	-	-	-	-
10	17.444	20.609	-	-	-	-							



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### 8 Remarks; Your Cooperation Duties


- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

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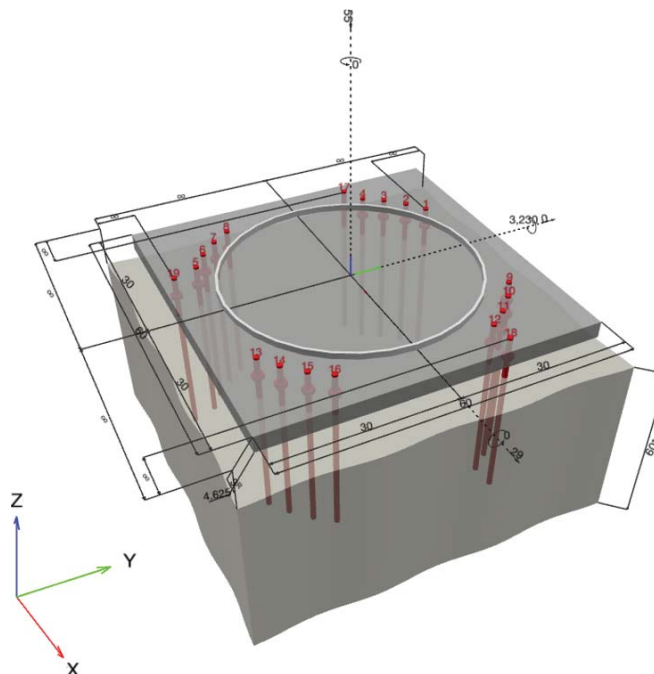
Specifier's comments:

## 1 Input data

<b>Anchor type and diameter:</b>	<b>2.25in AR</b>	
Item number:	not available	
Effective embedment depth:	$h_{ef} = 80 \text{ in}$	
Material:	ASTM F 1554	
Evaluation Service Report:	Hilti Technical Data	
Issued   Valid:	-   -	
Proof:	Design Method ACI 318-14 / CIP	
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; $e_b = 4.625 \text{ in.}$ ; $t = 3.000 \text{ in.}$	
Anchor plate <sup>R</sup> :	$l_x \times l_y \times t = 60.000 \text{ in.} \times 60.000 \text{ in.} \times 3.000 \text{ in.}$ ; (Recommended plate thickness: not calculated)	
Profile:	Steel pipe, ; (L x W x T) = 46.380 in. x 46.380 in. x 0.500 in.	
Base material:	cracked concrete, 3000, $f'_c = 3,000 \text{ psi}$ ; $h = 60.000 \text{ in.}$	
Reinforcement:	tension: condition B, shear: condition B; edge reinforcement: none or < No. 4 bar	

<sup>R</sup> - The anchor calculation is based on a rigid anchor plate assumption.

### Geometry [in.] & Loading [kip, ft.kip]



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1.1 Design results

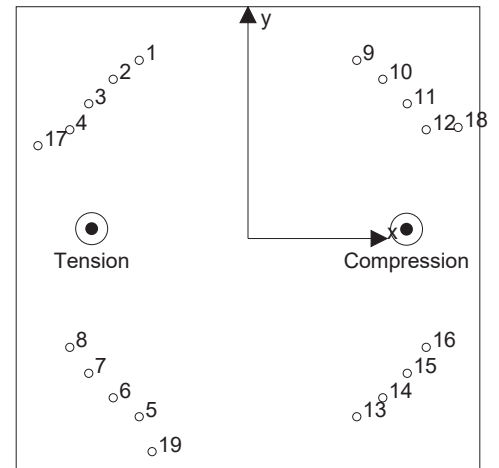
Case	Description	Forces [kip] / Moments [ft.kip]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = -55.000; V <sub>x</sub> = 29.000; V <sub>y</sub> = 0.000; M <sub>x</sub> = 0.00000; M <sub>y</sub> = 3,230.00000; M <sub>z</sub> = 0.00000;	no	∞

2 Load case/Resulting anchor forces

Anchor reactions [kip]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	74.179	1.529	1.529	0.002
2	90.983	1.529	1.529	0.002
3	106.532	1.529	1.529	0.002
4	118.306	1.528	1.528	0.003
5	60.151	1.523	1.523	0.002
6	78.446	1.524	1.524	0.002
7	95.919	1.524	1.524	0.002
8	109.744	1.525	1.525	0.003
9	-72.717	1.529	1.529	-0.002
10	-91.012	1.529	1.529	-0.002
11	-108.485	1.529	1.529	-0.003
12	-122.310	1.528	1.528	-0.003
13	-86.747	1.523	1.523	-0.002
14	-103.549	1.524	1.524	-0.002
15	-119.097	1.524	1.524	-0.003
16	-130.875	1.525	1.525	-0.003
17	139.189	1.528	1.528	0.003
18	-143.726	1.528	1.528	-0.003
19	50.071	1.523	1.523	0.001



max. concrete compressive strain: - [%]  
 max. concrete compressive stress: - [psi]  
 resulting tension force in (x/y)=(-20.231/1.277): 923.518 [kip]  
 resulting compression force in (x/y)=(20.517/1.205): 978.518 [kip]

Anchor forces are calculated based on the assumption of a rigid anchor plate.



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Fastening point:			

## 3 Tension load

	Load $N_{ua}$ [kip]	Capacity $\phi N_n$ [kip]	Utilization $\beta_N = N_{ua}/\phi N_n$	Rev H
Steel Strength*	-143.726	304.69	47.17%	44.9%
Concrete Breakout Failure**	923.518	1162.215	79.46%	75.68%

### 3.1 Steel Strength

$$N_{sa} = A_{se,N} f_{uta} \quad \text{ACI 318-14 Eq. (17.4.1.2)}$$

$$\phi N_{sa} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

Governing Rating

#### Variables

$A_{se,N}$ [in. <sup>2</sup> ]	$f_{uta}$ [psi]
3.25	125000

#### Calculations

$N_{sa}$ [kip]
406.25

#### Results

$N_{sa}$ [kip]	$\phi_{steel}$	$\phi N_{sa}$ [kip]	$N_{ua}$ [kip]
406.25	0.750	304.69	-143.726

The steel proof was done for the highest absolute force per anchor - in this case compression loading. Please be aware that buckling should be verified separately



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**3.3 Concrete Breakout Failure**

$$N_{cbg} = \left( \frac{A_{Nc}}{A_{Nc0}} \right) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \quad \text{ACI 318-14 Eq. (17.4.2.1b)}$$

$$\phi N_{cbg} \geq N_{ua} \quad \text{ACI 318-14 Table 17.3.1.1}$$

$$A_{Nc} \text{ see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-14 Eq. (17.4.2.1c)}$$

$$\Psi_{ec,N} = \left( \frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.4)}$$

$$\Psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.5b)}$$

$$\Psi_{cp,N} = \text{MAX} \left( \frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-14 Eq. (17.4.2.7b)}$$

$$N_b = 16 \lambda_a \sqrt{f'_c} h_{ef}^{5/3} \quad \text{ACI 318-14 Eq. (17.4.2.2b)}$$

**Variables**

$h_{ef}$ [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\Psi_{c,N}$
<b>80</b>		2.833	$\infty$	1.000
$c_{ac}$ [in.]	$k_c$	$\lambda_a$	$f'_c$ [psij]	
-	16	1.000	3,000	

**Calculations**

$A_{Nc}$ [in. <sup>2</sup> ]	$A_{Nc0}$ [in. <sup>2</sup> ]	$\Psi_{ec1,N}$	$\Psi_{ec2,N}$	$\Psi_{ed,N}$	$\Psi_{cp,N}$	$N_b$ [kip]
<b>86436</b>	<b>57600</b>	<b>1</b>	<b>0.85</b>	1.000	1.000	<b>1301.659</b>

**Results**

$N_{cbg}$ [kip]	$\phi_{concrete}$	$\phi N_{cbg}$ [kip]	$N_{ua}$ [kip]
<b>1660.307</b>	0.700	<b>1162.215</b>	923.518

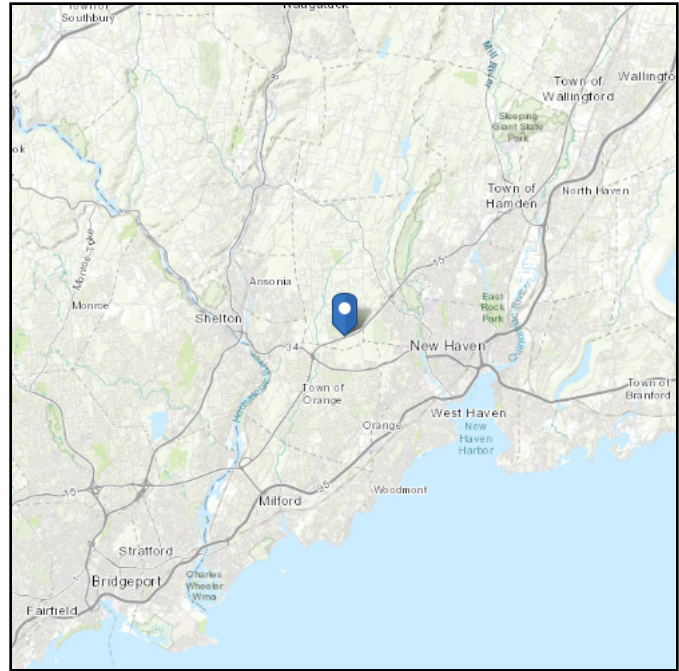
**\*Please refer excel sheet for calculation**

# 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:** 238.48 ft (NAVD 88)  
**Latitude:** 41.31675  
**Longitude:** -73.011611



## Wind

**Results:**

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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 Oct 06 2021

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).

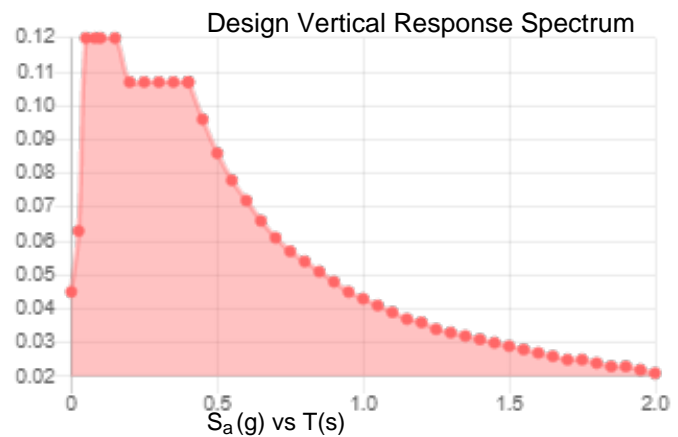
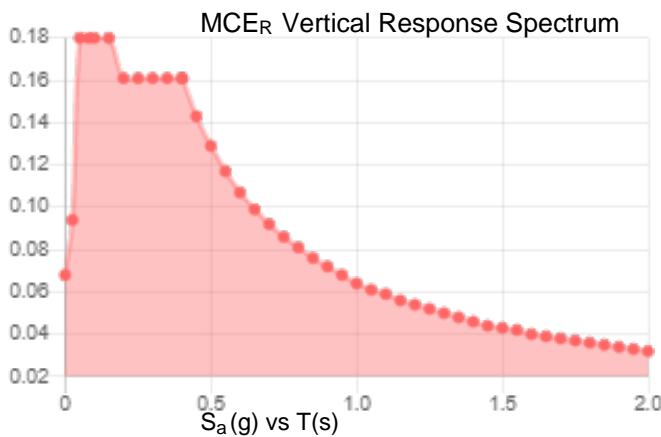
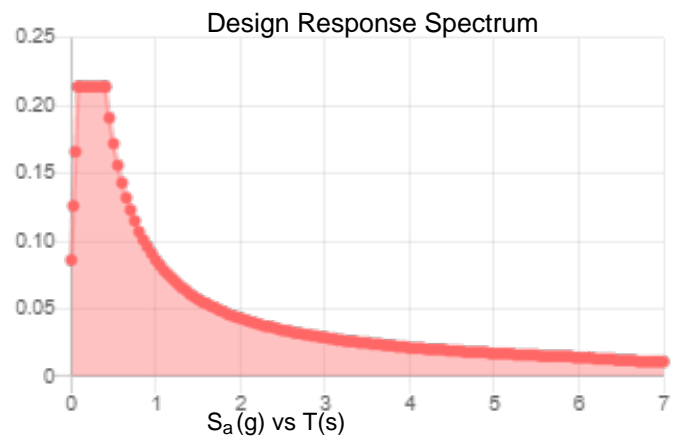
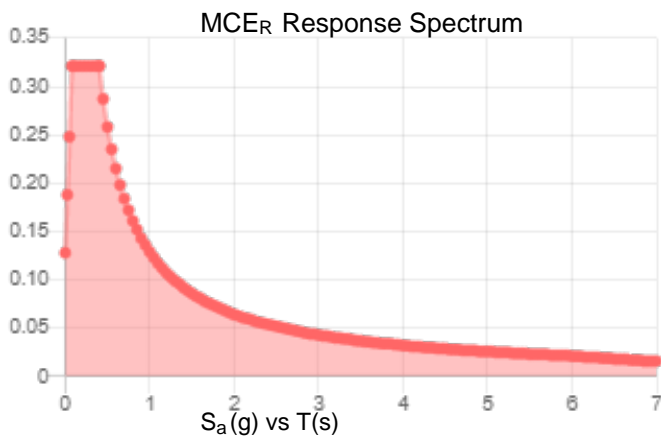
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.201	$S_{D1}$ :	0.086
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.112
$F_v$ :	2.4	PGA <sub>M</sub> :	0.177
$S_{MS}$ :	0.321	$F_{PGA}$ :	1.575
$S_{M1}$ :	0.129	$I_e$ :	1
$S_{DS}$ :	0.214	$C_v$ :	0.701

**Seismic Design Category** B



**Data Accessed:**

Wed Oct 06 2021

**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 Oct 06 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 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.

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# Exhibit E

## **Mount Analysis**

Date: **October 4, 2021**

Darcy Tarr  
Crown Castle  
3530 Toringdon Way, Suite 300  
Charlotte, NC 28277  
(704) 405-6589



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

**Subject:** Mount Modification Report

**Carrier Designation:** T-Mobile Sprint Keep  
**Carrier Site Number:** CT11585A  
**Carrier Site Name:** CT03XC020

**Crown Castle Designation:** **Crown Castle BU Number:** 876315  
**Crown Castle Site Name:** Oak lane CC, INC. Tower (SSUSA)  
**Crown Castle JDE Job Number:** 678523  
**Crown Castle Order Number:** 579392 Rev. 0

**Engineering Firm Designation:** **Trylon Report Designation:** 192736

**Site Data:** **1027 Racebrook Road, Woodbridge, New Haven County, CT, 06525**  
**Latitude 41°19'0.30" Longitude -73°0'41.80"**

**Structure Information:** **Tower Height & Type:** **150.0 ft Monopole**  
**Mount Elevation:** **150.0 ft**  
**Mount Type:** **14.0 ft Platform**

Dear Darcy Tarr,

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

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

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

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

Mount analysis prepared by: Andrei Florea

Respectfully Submitted by:  
Jinshan Wang, P.E



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Mount Modification Design Drawings (MDD)

### 1) INTRODUCTION

This is an existing 3 sector 14.0 ft Platform, mapped by Tower Engineering Professionals.

### 2) ANALYSIS CRITERIA

<b>Building Code:</b>	2015 IBC
<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Ultimate Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor at Base:</b>	1.000
<b>Topographic Factor at Mount:</b>	1.000
<b>Ice Thickness:</b>	1.50 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Seismic S<sub>s</sub>:</b>	0.191
<b>Seismic S<sub>1</sub>:</b>	0.063
<b>Live Loading Wind Speed:</b>	30 mph
<b>Man Live Load at Mid/End-Points:</b>	250 lb
<b>Man Live Load at Mount Pipes:</b>	500 lb

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
150.0	154.0	1	RFS/CELWAVE	201-7	14.0 ft Platform
	150.0	3	ERICSSON	AIR6449 B41_T-MOBILE	
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	RADIO 4480 B71_TMO	

### 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
Crown Application	T-Mobile PCS Application	579392 Rev.0	CCI Sites
Tower Mapping	Tower Engineering Professionals	2134236	CCI Sites
Exposure Category Determination	Crown Castle	7064574	CCI Sites

#### 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 Tylon 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. Tylon should be notified to determine the effect on the structural integrity of the antenna mounting system.

**4) ANALYSIS RESULTS**

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP4	150.0	34.0	Pass
	Horizontal(s)	H1		52.6	Pass
	Standoff(s)	M3		46.1	Pass
	Bracing(s)	M9		38.0	Pass
	Handrail(s)	M32A		41.4	Pass
	Reinforcing Kit	M78		36.8	Pass
	Mount Connection(s)	-		31.0	Pass

<b>Structure Rating (max from all components) =</b>	<b>52.6%</b>
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Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H, Section 15.5

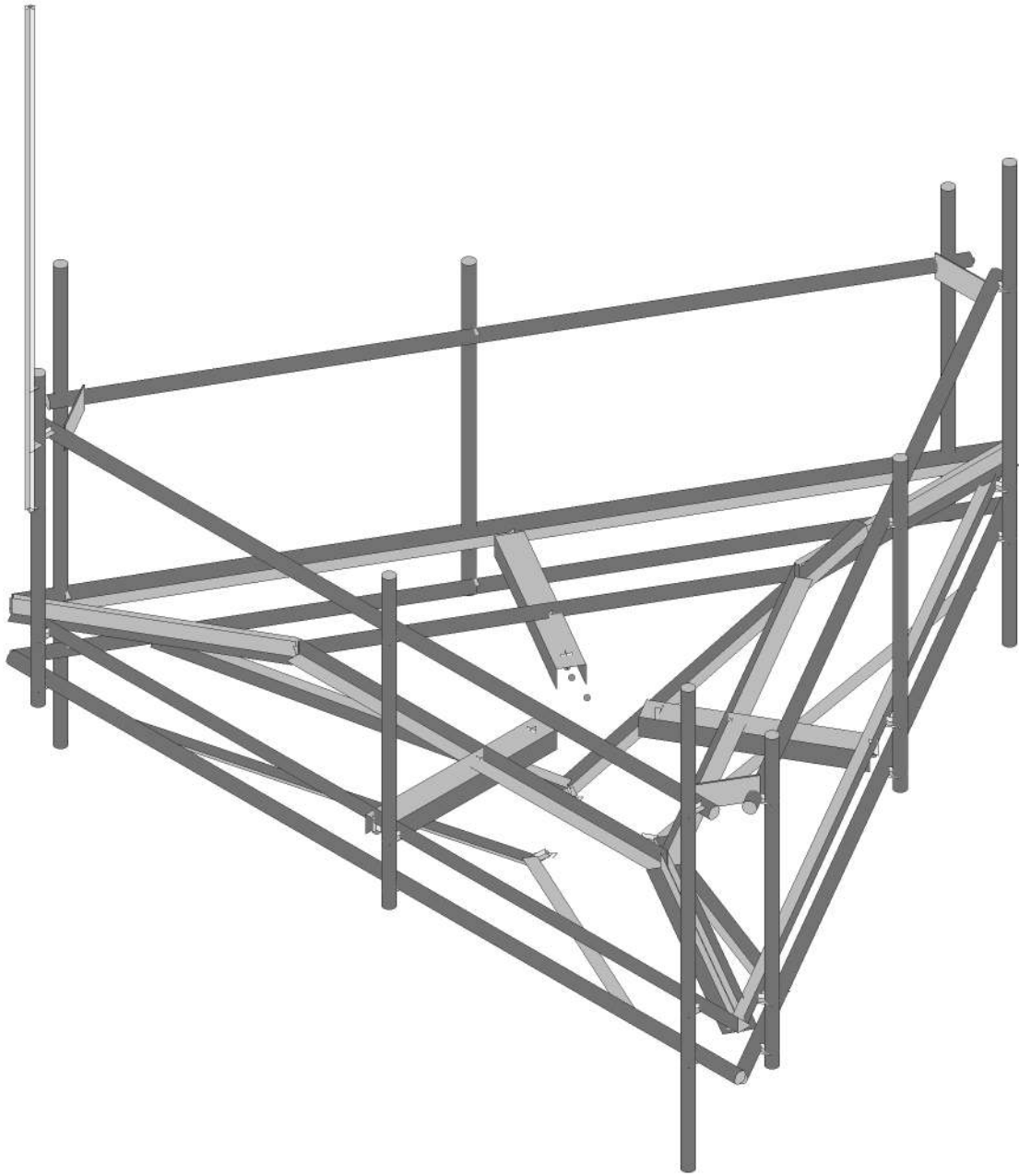
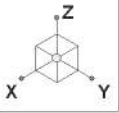
#### 4.1) Recommendations

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 2.375" O.D Schd.40 as a new face horizontal.
2. Install Site Pro 1, PRK-SFS-L kit.
3. Install Site Pro 1, SCX1-K cross over 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**



Envelope Only Solution

Trylon

AF

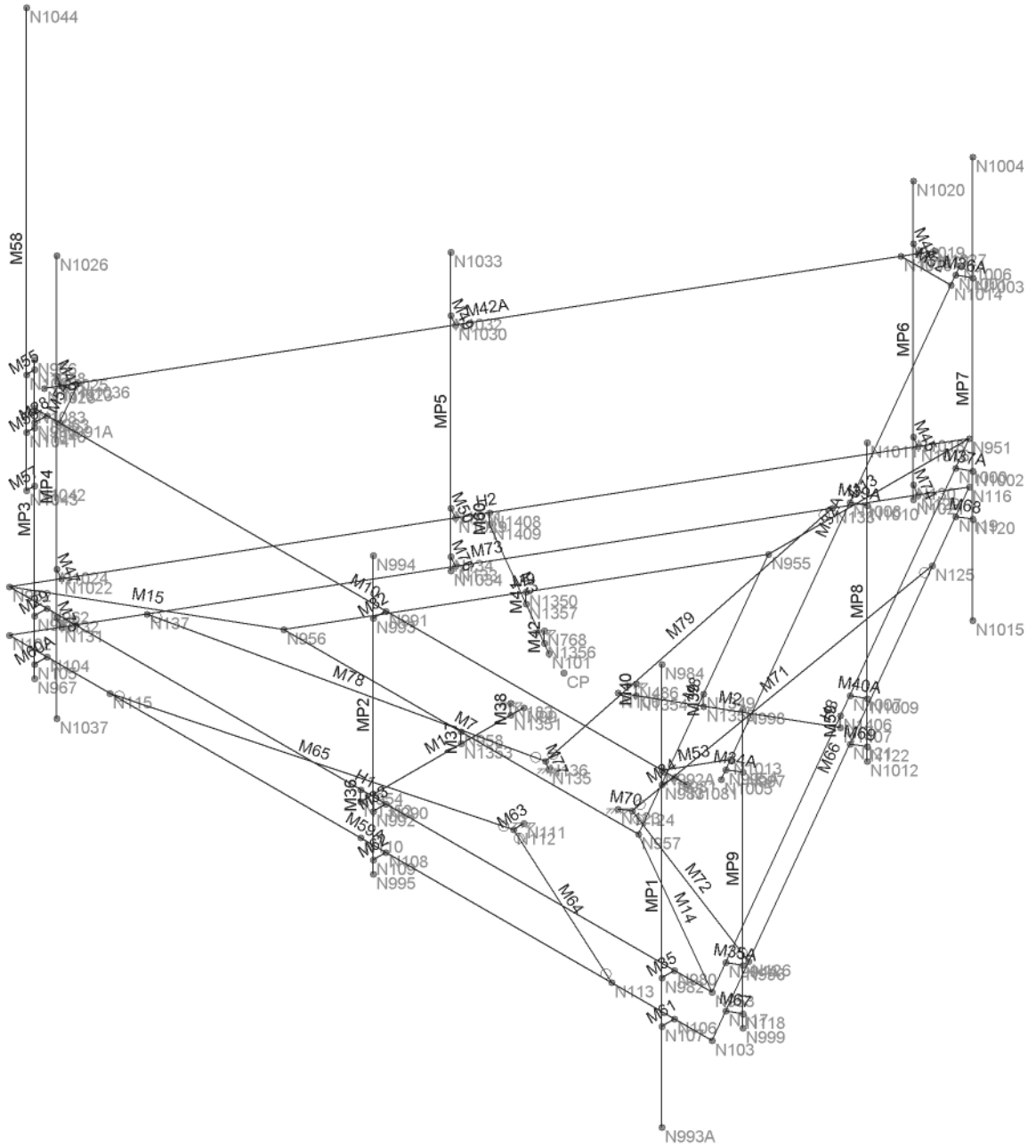
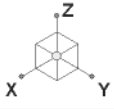
192736

876315

SK - 1

Oct 4, 2021 at 11:49 AM

876315 -REINF\_loaded.r3d



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Trylon  
AF  
192736

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

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 238.48 ft (NAVD 88)  
**Latitude:** 41.31675  
**Longitude:** -73.011611

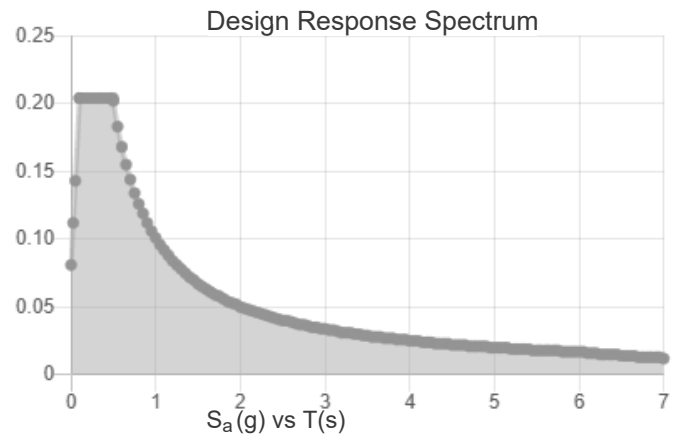
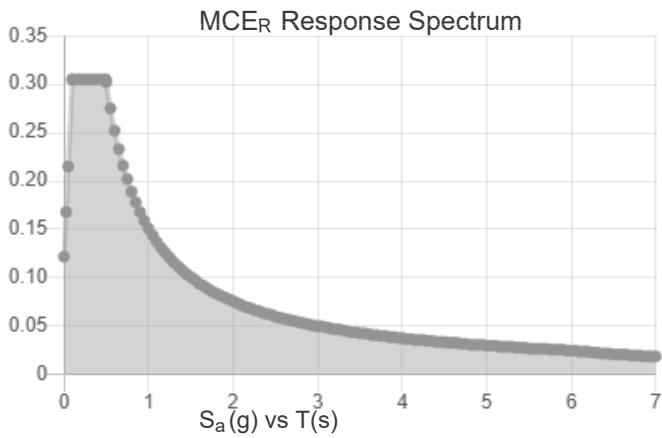


**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.191	$S_{DS}$ :	0.204
$S_1$ :	0.063	$S_{D1}$ :	0.101
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.1
$S_{MS}$ :	0.305	PGA <sub>M</sub> :	0.161
$S_{M1}$ :	0.151	F <sub>PGA</sub> :	1.599
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Thu Sep 09 2021

**Date Source:**

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



**Results:**

Ice Thickness: 0.75 in.  
Concurrent Temperature: 15 F  
Gust Speed: 50 mph

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

**Date Accessed:** Thu Sep 09 2021

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

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

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**TIA LOAD CALCULATOR 2.1**

PROJECT DATA		
Job Code:	192736	
Carrier Site ID:	CT11585A	
Carrier Site Name:	CT03XC020	

CODES AND STANDARDS		
Building Code:	2015 IBC	
Local Building Code:	2018 CSBC	
Design Standard:	TIA-222-H	

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	150.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	150.5	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	238.48	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:	125	mph
Wind Escalation Factor ( $K_e$ ):	1.00	--
Velocity Coefficient ( $K_z$ ):	1.11	--
Directionality Factor ( $K_d$ ):	0.95	--
Gust Effect Factor ( $G_h$ ):	1.00	--
Shielding Factor ( $K_s$ ):	0.90	--
Velocity Pressure ( $q_z$ ):	41.80	psf
Ground Elevation Factor ( $K_g$ ):	0.99	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness ( $t_i$ ):	1.50	in
Importance Factor ( $I_i$ ):	1.00	--
Ice Velocity Pressure ( $q_{zi}$ ):	41.80	psf
Mount Ice Thickness ( $t_{i2}$ ):	1.75	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	75.24	psf
Round Member Pressure:	45.15	psf
Ice Wind Pressure:	7.57	psf

SEISMIC PARAMETERS		
Importance Factor ( $I_e$ ):	1.00	--
Short Period Accel. ( $S_s$ ):	0.19	g
1 Second Accel. ( $S_1$ ):	0.06	g
Short Period Des. ( $S_{DS}$ ):	0.20	g
1 Second Des. ( $S_{D1}$ ):	0.10	g
Short Period Coeff. ( $F_a$ ):	1.60	--
1 Second Coeff. ( $F_v$ ):	2.40	--
Response Coefficient ( $C_s$ ):	0.10	--
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

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>--</i>	<i>EPA<sub>N</sub> (ft2)</i>	<i>EPA<sub>T</sub> (ft2)</i>	<i>Weight (lbs)</i>
APXVAALL24_43-U-NA20_TMO	3	150	No Ice	14.67	5.32	149.90
--	--	--	w/ Ice	17.04	7.41	427.70
AIR6449 B41_T-MOBILE	3	150	No Ice	5.27	2.03	114.63
--	--	--	w/ Ice	6.63	3.10	154.53
RADIO 4480 B71_TMO	3	150	No Ice	2.85	1.38	92.60
--	--	--	w/ Ice	3.37	1.80	89.67
RADIO 4460 B2/B25 B66_TMO	3	150	No Ice	2.14	1.69	109.00
--	--	--	w/ Ice	2.59	2.09	91.00
201-7	1	154	No Ice	1.09	1.09	4.00
--	--	--	w/ Ice	2.81	2.81	71.75
			No Ice			
			w/ Ice			
			No Ice			
			w/ Ice			
			No Ice			
			w/ Ice			
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			No Ice			
			w/ Ice			
			No Ice			
			w/ Ice			

**EQUIPMENT LOADING [CONT.]**

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>--</i>	<i>EPA<sub>N</sub> (ft2)</i>	<i>EPA<sub>T</sub> (ft2)</i>	<i>Weight (lbs)</i>
			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

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>K<sub>zt</sub></i>	<i>K<sub>z</sub></i>	<i>K<sub>d</sub></i>	<i>t<sub>d</sub></i>	<i>q<sub>z</sub></i> <i>[psf]</i>	<i>q<sub>zi</sub></i> <i>[psf]</i>
XVAALL24_43-U-NA20_T	3	150	1.00	1.11	0.95	1.75	41.80	6.69
AIR6449 B41_T-MOBILE	3	150	1.00	1.11	0.95	1.75	41.80	6.69
RADIO 4480 B71_TMO	3	150	1.00	1.11	0.95	1.75	41.80	6.69
RADIO 4460 B2/B25 B66_TM	3	150	1.00	1.11	0.95	1.75	41.80	6.69
201-7	1	154	1.00	1.12	0.95	1.75	42.12	6.74

## EQUIPMENT LATERAL WIND FORCE CALCULATIONS

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>--</i>	<i>0° 180°</i>	<i>30° 210°</i>	<i>60° 240°</i>	<i>90° 270°</i>	<i>120° 300°</i>	<i>150° 330°</i>
APXVAALL24_43-U-NA20_TMO	3	No Ice	551.92	288.09	463.98	200.15	463.98	288.09
--	--	w/ Ice	102.56	59.07	88.06	44.58	88.06	59.07
AIR6449 B41_T-MOBILE	3	No Ice	198.27	106.85	167.80	76.37	167.80	106.85
--	--	w/ Ice	39.94	23.98	34.62	18.66	34.62	23.98
RADIO 4480 B71_TMO	3	No Ice	107.31	65.85	93.49	52.03	93.49	65.85
--	--	w/ Ice	20.27	13.20	17.92	10.85	17.92	13.20
RADIO 4460 B2/B25 B66_TMO	3	No Ice	80.48	67.69	76.22	63.43	76.22	67.69
--	--	w/ Ice	15.56	13.34	14.82	12.60	14.82	13.34
201-7	1	No Ice	41.22	41.22	41.22	41.22	41.22	41.22
--	--	w/ Ice	17.04	17.04	17.04	17.04	17.04	17.04
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						
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--	--	w/ Ice						
--	--	No Ice						
--	--	w/ Ice						



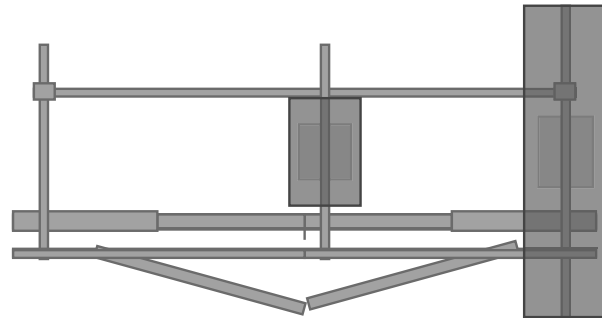
**EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]**

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>--</i>	<i>0° 180°</i>	<i>30° 210°</i>	<i>60° 240°</i>	<i>90° 270°</i>	<i>120° 300°</i>	<i>150° 330°</i>
		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						

**EQUIPMENT SEISMIC FORCE CALCULATIONS**

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>Weight [lbs]</i>	<i>F<sub>p</sub> [lbs]</i>
APXVAALL24_43-U-NA20_TMO	3	150	149.9	18.32
AIR6449 B41_T-MOBILE	3	150	114.63	14.01
RADIO 4480 B71_TMO	3	150	92.6	11.32
RADIO 4460 B2/B25 B66_TMO	3	150	109	13.32
201-7	1	154	4	0.49

ELEVATION VIEW



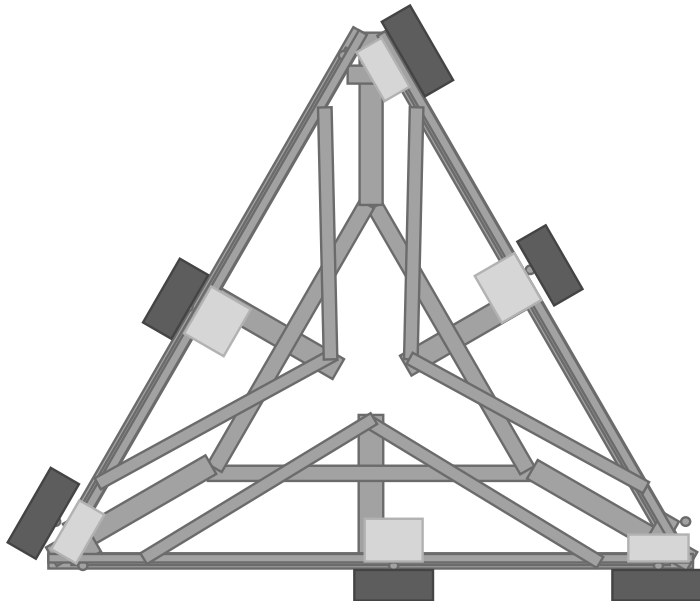
MP3

MP2

MP1

\*Elevation View Shows Alpha Sector Only

PLAN VIEW



Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
APXVAALL24_43-U-NA20_TMO	3	150	MP1/MP4/MP7	0/120/240
AIR6449 B41_T-MOBILE	3	150	MP2/MP5/MP8	0/120/240
RADIO 4480 B71_TMO	3	150	MP1/MP4/MP7	0/120/240
RADIO 4460 B2/B25 B66_TMO	3	150	MP2/MP5/MP8	0/120/240
201-7	1	154	M58	0

**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	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
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 7-10
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
3	A36	29500	11346	.3	.65	.49	36	58

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rules	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	L3"x3"x0.25"	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
2	Pipe 2.375"x...	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	LL3"x3"x0.25"	LL3x3x4x0	Beam	Double Angl...	A36 Gr.36	Typical	2.88	4.5	2.46	.063
4	Plate 5"x0.25"	Plate 5"x0.25"	Beam	RECT	A36 Gr.36	Typical	1.25	.007	2.604	.025
5	C5"x4"x0.375"	C5x4x6	Beam	Channel	A36 Gr.36	Typical	4.594	7.438	18.477	.203
6	L2.5"x2.5"x0...	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011



Company : Trylon  
 Designer : AF  
 Job Number : 192736  
 Model Name : 876315

Oct 4, 2021  
 1:14 PM  
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### Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in <sup>2</sup> ]	I <sub>yy</sub> [in <sup>4</sup> ]	I <sub>zz</sub> [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	C5.25"x4"	C5.25"x4"x0...	Beam	None	A36	Typical	4.446	7.105	19.039	.208

### 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	CP						
2	N768	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N486	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N183	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N111	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N123	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N135	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(P...
1	Self Weight	DL			-1		20	3	
2	Structure Wind X	WLX						79	
3	Structure Wind Y	WLY						79	
4	Wind Load 0 AZI	WLX					40		
5	Wind Load 30 AZI	None					40		
6	Wind Load 45 AZI	None					40		
7	Wind Load 60 AZI	None					40		
8	Wind Load 90 AZI	WLY					40		
9	Wind Load 120 AZI	None					40		
10	Wind Load 135 AZI	None					40		
11	Wind Load 150 AZI	None					40		
12	Ice Weight	OL1					20	79	3
13	Ice Structure Wind X	OL2						79	
14	Ice Structure Wind Y	OL3						79	
15	Ice Wind Load 0 AZI	OL2					40		
16	Ice Wind Load 30 AZI	None					40		
17	Ice Wind Load 45 AZI	None					40		
18	Ice Wind Load 60 AZI	None					40		
19	Ice Wind Load 90 AZI	OL3					40		
20	Ice Wind Load 120 AZI	None					40		
21	Ice Wind Load 135 AZI	None					40		
22	Ice Wind Load 150 AZI	None					40		
23	Seismic Load X	ELX	-.122				20		
24	Seismic Load Y	ELY		-.122			20		
25	Live Load 1 (Lv)	None					1		
26	Live Load 2 (Lv)	None					1		
27	Live Load 3 (Lv)	None					1		
28	Live Load 4 (Lv)	None					1		
29	Live Load 5 (Lv)	None					1		
30	Live Load 6 (Lv)	None					1		
31	Live Load 7 (Lv)	None					1		
32	Live Load 8 (Lv)	None					1		
33	Live Load 9 (Lv)	None					1		
34	Maintenance Load 1 (...)	None					1		



### Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(P...
35	Maintenance Load 2 (...)	None					1		
36	Maintenance Load 3 (...)	None					1		
37	Maintenance Load 4 (...)	None					1		
38	Maintenance Load 5 (...)	None					1		
39	Maintenance Load 6 (...)	None					1		
40	Maintenance Load 7 (...)	None					1		
41	Maintenance Load 8 (...)	None					1		
42	Maintenance Load 9 (...)	None					1		
43	BLC 1 Transient Area..	None						33	
44	BLC 12 Transient Are..	None						33	

### 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...	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							
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					



Company : Trylon  
 Designer : AF  
 Job Number : 192736  
 Model Name : 876315

Oct 4, 2021  
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**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...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
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	1.241		23	1	24										
51	(1.2+0.2S...	Yes	Y		DL	1.241		23	.866	24	.5									
52	(1.2+0.2S...	Yes	Y		DL	1.241		23	.707	24	.707									
53	(1.2+0.2S...	Yes	Y		DL	1.241		23	.5	24	.866									
54	(1.2+0.2S...	Yes	Y		DL	1.241		23		24	1									
55	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.5	24	.866									
56	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.707	24	.707									
57	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.866	24	.5									
58	(1.2+0.2S...	Yes	Y		DL	1.241		23	-1	24										
59	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.866	24	-.5									
60	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.707	24	-.707									
61	(1.2+0.2S...	Yes	Y		DL	1.241		23	-.5	24	-.866									
62	(1.2+0.2S...	Yes	Y		DL	1.241		23		24	-1									
63	(1.2+0.2S...	Yes	Y		DL	1.241		23	.5	24	-.866									
64	(1.2+0.2S...	Yes	Y		DL	1.241		23	.707	24	-.707									
65	(1.2+0.2S...	Yes	Y		DL	1.241		23	.866	24	-.5									
66	(0.9-0.2Sd...	Yes	Y		DL	.859		23	1	24										
67	(0.9-0.2Sd...	Yes	Y		DL	.859		23	.866	24	.5									
68	(0.9-0.2Sd...	Yes	Y		DL	.859		23	.707	24	.707									
69	(0.9-0.2Sd...	Yes	Y		DL	.859		23	.5	24	.866									
70	(0.9-0.2Sd...	Yes	Y		DL	.859		23		24	1									
71	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.5	24	.866									
72	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.707	24	.707									
73	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.866	24	.5									
74	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-1	24										
75	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.866	24	-.5									
76	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.707	24	-.707									
77	(0.9-0.2Sd...	Yes	Y		DL	.859		23	-.5	24	-.866									
78	(0.9-0.2Sd...	Yes	Y		DL	.859		23		24	-1									
79	(0.9-0.2Sd...	Yes	Y		DL	.859		23	.5	24	-.866									
80	(0.9-0.2Sd...	Yes	Y		DL	.859		23	.707	24	-.707									
81	(0.9-0.2Sd...	Yes	Y		DL	.859		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											
86	1.2DL + 1...	Yes	Y		DL	1.2		29	1.5											
87	1.2DL + 1...	Yes	Y		DL	1.2		30	1.5											
88	1.2DL + 1...	Yes	Y		DL	1.2		31	1.5											
89	1.2DL + 1...	Yes	Y		DL	1.2		32	1.5											



Company : Trylon  
 Designer : AF  
 Job Number : 192736  
 Model Name : 876315

Oct 4, 2021  
 1:14 PM  
 Checked By: JW

**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...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
90	1.2DL + 1...	Yes	Y		DL	1.2	33	1.5												
91	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.058	3		4	.058						
92	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.05	3	.029	5	.058						
93	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.041	3	.041	6	.058						
94	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.029	3	.05	7	.058						
95	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2		3	.058	8	.058						
96	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	.05	9	.058						
97	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	.041	10	.058						
98	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	.029	11	.058						
99	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.058	3		4	-.058						
100	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	-.029	5	-.058						
101	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	-.041	6	-.058						
102	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	-.05	7	-.058						
103	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2		3	-.058	8	-.058						
104	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.029	3	-.05	9	-.058						
105	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.041	3	-.041	10	-.058						
106	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.05	3	-.029	11	-.058						
107	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.058	3		4	.058						
108	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.05	3	.029	5	.058						
109	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.041	3	.041	6	.058						
110	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.029	3	.05	7	.058						
111	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2		3	.058	8	.058						
112	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	.05	9	.058						
113	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	.041	10	.058						
114	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	.029	11	.058						
115	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.058	3		4	-.058						
116	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	-.029	5	-.058						
117	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	-.041	6	-.058						
118	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	-.05	7	-.058						
119	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2		3	-.058	8	-.058						
120	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.029	3	-.05	9	-.058						
121	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.041	3	-.041	10	-.058						
122	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.05	3	-.029	11	-.058						
123	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.058	3		4	.058						
124	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.05	3	.029	5	.058						
125	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.041	3	.041	6	.058						
126	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.029	3	.05	7	.058						
127	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2		3	.058	8	.058						
128	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	.05	9	.058						
129	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	.041	10	.058						
130	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	.029	11	.058						
131	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.058	3		4	-.058						
132	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	-.029	5	-.058						
133	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	-.041	6	-.058						
134	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	-.05	7	-.058						
135	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2		3	-.058	8	-.058						
136	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.029	3	-.05	9	-.058						
137	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.041	3	-.041	10	-.058						
138	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.05	3	-.029	11	-.058						
139	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.058	3		4	.058						
140	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.05	3	.029	5	.058						
141	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.041	3	.041	6	.058						



Company : Trylon  
 Designer : AF  
 Job Number : 192736  
 Model Name : 876315

Oct 4, 2021  
 1:14 PM  
 Checked By: JW

**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...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
142	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.029	3	.05	7	.058						
143	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2		3	.058	8	.058						
144	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	.05	9	.058						
145	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	.041	10	.058						
146	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	.029	11	.058						
147	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.058	3		4	-.058						
148	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	-.029	5	-.058						
149	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	-.041	6	-.058						
150	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	-.05	7	-.058						
151	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2		3	-.058	8	-.058						
152	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.029	3	-.05	9	-.058						
153	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.041	3	-.041	10	-.058						
154	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.05	3	-.029	11	-.058						
155	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.058	3		4	.058						
156	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.05	3	.029	5	.058						
157	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.041	3	.041	6	.058						
158	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.029	3	.05	7	.058						
159	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2		3	.058	8	.058						
160	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	.05	9	.058						
161	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	.041	10	.058						
162	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	.029	11	.058						
163	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.058	3		4	-.058						
164	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	-.029	5	-.058						
165	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	-.041	6	-.058						
166	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	-.05	7	-.058						
167	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2		3	-.058	8	-.058						
168	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.029	3	-.05	9	-.058						
169	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.041	3	-.041	10	-.058						
170	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.05	3	-.029	11	-.058						
171	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.058	3		4	.058						
172	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.05	3	.029	5	.058						
173	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.041	3	.041	6	.058						
174	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.029	3	.05	7	.058						
175	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2		3	.058	8	.058						
176	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	.05	9	.058						
177	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	.041	10	.058						
178	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	.029	11	.058						
179	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.058	3		4	-.058						
180	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	-.029	5	-.058						
181	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	-.041	6	-.058						
182	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	-.05	7	-.058						
183	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2		3	-.058	8	-.058						
184	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.029	3	-.05	9	-.058						
185	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.041	3	-.041	10	-.058						
186	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.05	3	-.029	11	-.058						
187	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.058	3		4	.058						
188	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.05	3	.029	5	.058						
189	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.041	3	.041	6	.058						
190	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.029	3	.05	7	.058						
191	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2		3	.058	8	.058						
192	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	.05	9	.058						
193	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	.041	10	.058						

### 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...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
194	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	.029	11	.058						
195	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.058	3		4	-.058						
196	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	-.029	5	-.058						
197	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	-.041	6	-.058						
198	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	-.05	7	-.058						
199	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2		3	-.058	8	-.058						
200	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.029	3	-.05	9	-.058						
201	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.041	3	-.041	10	-.058						
202	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.05	3	-.029	11	-.058						
203	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.058	3		4	.058						
204	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.05	3	.029	5	.058						
205	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.041	3	.041	6	.058						
206	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.029	3	.05	7	.058						
207	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2		3	.058	8	.058						
208	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	.05	9	.058						
209	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	.041	10	.058						
210	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	.029	11	.058						
211	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.058	3		4	-.058						
212	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	-.029	5	-.058						
213	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	-.041	6	-.058						
214	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	-.05	7	-.058						
215	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2		3	-.058	8	-.058						
216	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.029	3	-.05	9	-.058						
217	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.041	3	-.041	10	-.058						
218	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.05	3	-.029	11	-.058						
219	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.058	3		4	.058						
220	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.05	3	.029	5	.058						
221	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.041	3	.041	6	.058						
222	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.029	3	.05	7	.058						
223	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2		3	.058	8	.058						
224	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	.05	9	.058						
225	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	.041	10	.058						
226	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	.029	11	.058						
227	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.058	3		4	-.058						
228	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	-.029	5	-.058						
229	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	-.041	6	-.058						
230	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	-.05	7	-.058						
231	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2		3	-.058	8	-.058						
232	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.029	3	-.05	9	-.058						
233	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.041	3	-.041	10	-.058						
234	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.05	3	-.029	11	-.058						

### 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	N768	max	2849.225	17	2166.494	7	2053.287	36	-639.51	27	2569.116	39	3454.62	31
2		min	-2747.068	25	-1892.033	31	329.924	28	-4327.599	35	190.239	31	-3518.561	7
3	N486	max	2947.211	2	1629.213	21	2018.016	47	4251.63	49	2522.496	45	3086.546	26
4		min	-2765.434	26	-1854.61	13	343.193	23	791.927	25	148.182	21	-3145.593	2
5	N183	max	761.568	18	2810.107	22	2056.286	42	420.294	21	-903.346	18	2690.675	21
6		min	-1055.293	10	-2843.345	14	334.214	18	-426.422	13	-4981.743	41	-2737.173	13



Company : Trylon  
 Designer : AF  
 Job Number : 192736  
 Model Name : 876315

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**Envelope Joint Reactions (Continued)**

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
7	N111	max	2592.497	42	977.28	135	1242.679	42	.249	29	-3.984	18	203.622	135
8		min	105.853	18	-808.255	95	22.983	18	-.278	5	-258.755	42	-168.405	95
9	N123	max	250.106	27	2111.351	46	1211.538	47	218.454	47	126.102	47	204.444	172
10		min	-1542.197	172	29.891	22	27.861	23	4.386	23	2.464	24	-165.99	148
11	N135	max	344.279	26	-47.573	30	1233.046	37	-4.878	29	128.372	37	204.193	226
12		min	-1385.694	187	-2368.237	38	30.763	29	-222.31	37	2.811	29	-166.038	202
13	Totals:	max	4571.776	18	4470.21	22	9460.68	40						
14		min	-4571.782	10	-4470.211	14	2315.778	80						

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

Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn	
1	H2	L3X3X4	.553	84	39	.251	84	z	45	15778.129	46656	1688.138	2160.605	1	H2-1
2	H1	L3X3X4	.553	84	45	.249	84	z	34	15778.129	46656	1688.138	2160.605	1	H2-1
3	H3	L3X3X4	.534	84	34	.248	84	z	39	15778.129	46656	1688.138	2160.605	1	H2-1
4	M73	PIPE 2.0	.505	168	38	.189	168		5	17855.085	32130	1871.625	1871.625	2...	H1-1b
5	M59A	PIPE 2.0	.504	0	38	.182	168		10	17855.085	32130	1871.625	1871.625	2...	H1-1b
6	M66	PIPE 2.0	.490	0	43	.181	168		15	17855.085	32130	1871.625	1871.625	2...	H1-1b
7	M3	C5x4x6	.484	35.75	39	.164	24.375	y	8	128989.3...	148845.6	12222.199	23303.7	2...	H1-1b
8	M1	C5x4x6	.464	35.75	38	.144	24.375	y	14	128989.3...	148845.6	12222.199	23303.7	2...	H1-1b
9	M2	C5x4x6	.463	35.75	34	.159	24.375	y	3	128989.3...	148845.6	12222.199	23303.7	2...	H1-1b
10	M53	Plate 5"x0.25"	.433	12	18	.087	12	y	10	10213.118	40500	210.938	3356.628	1	H1-1b
11	M52	Plate 5"x0.25"	.416	12	24	.086	12	y	16	10213.118	40500	210.938	3356.628	1	H1-1b
12	M54	Plate 5"x0.25"	.410	12	29	.095	12	y	5	10213.118	40500	210.938	3356.628	1	H1-1b
13	M9	L3X3X4	.399	42.431	39	.020	42.431	z	39	35366.194	46656	1688.138	2926.246	1	H2-1
14	M7	L3X3X4	.388	42.431	39	.019	42.431	z	40	35366.194	46656	1688.138	2926.246	1	H2-1
15	M78	L2.5x2.5x3	.387	36.071	38	.010	0	y	11	9086.092	29192.4	872.574	1529.867	1...	H2-1
16	M64	L2.5x2.5x3	.383	36.071	43	.010	72.142	y	17	9086.092	29192.4	872.574	1529.867	1...	H2-1
17	M8	L3X3X4	.380	42.431	34	.019	42.431	z	34	35366.194	46656	1688.138	2926.246	1	H2-1
18	M71	L2.5x2.5x3	.379	36.071	48	.011	0	y	6	9086.092	29192.4	872.574	1529.867	1...	H2-1
19	M65	L2.5x2.5x3	.371	36.071	41	.011	0	z	3	9086.092	29192.4	872.574	1529.867	1...	H2-1
20	MP4	PIPE 2.0	.357	25	5	.219	65		41	14916.096	32130	1871.625	1871.625	1	H1-1b
21	M79	L2.5x2.5x3	.356	36.071	36	.012	0	z	14	9086.092	29192.4	872.574	1529.867	1...	H2-1
22	MP1	PIPE 2.0	.355	25	10	.209	65		46	14916.096	32130	1871.625	1871.625	1...	H1-1b
23	M72	L2.5x2.5x3	.354	36.071	46	.011	72.142	z	9	9086.092	29192.4	872.574	1529.867	1...	H2-1
24	MP7	PIPE 2.0	.352	25	15	.208	65		36	14916.096	32130	1871.625	1871.625	1...	H1-1b
25	M10	PIPE 2.0	.342	4.875	9	.432	4.875		2	5820.472	32130	1871.625	1871.625	1...	H3-6
26	M32A	PIPE 2.0	.341	4.875	14	.435	4.875		7	5820.472	32130	1871.625	1871.625	1...	H3-6
27	M42A	PIPE 2.0	.331	4.875	3	.413	4.875		13	5820.472	32130	1871.625	1871.625	1...	H3-6
28	MP5	PIPE 2.0	.329	52.938	15	.179	53.625		223	22356.067	32130	1871.625	1871.625	1...	H1-1b
29	MP2	PIPE 2.0	.326	52.938	5	.178	53.625		132	22356.067	32130	1871.625	1871.625	1	H1-1b
30	MP8	PIPE 2.0	.318	52.938	10	.179	53.625		186	22356.067	32130	1871.625	1871.625	1...	H1-1b
31	MP3	PIPE 2.0	.317	62.563	39	.243	53.625		37	22356.067	32130	1871.625	1871.625	4...	H1-1b
32	MP9	PIPE 2.0	.301	62.563	44	.232	53.625		42	22356.067	32130	1871.625	1871.625	1	H1-1b
33	MP6	PIPE 2.0	.301	62.563	34	.231	53.625		48	22356.067	32130	1871.625	1871.625	1	H1-1b
34	M13	LL3x3x4x0	.169	48	7	.019	0	z	15	76288.155	93312	6480	4357.09	1...	H1-1b
35	M15	LL3x3x4x0	.169	0	13	.022	48	z	4	76288.155	93312	6480	4357.09	1...	H1-1b
36	M14	LL3x3x4x0	.165	48	2	.019	0	z	10	76288.155	93312	6480	4357.09	1...	H1-1b



Company : Trylon  
Designer : AF  
Job Number : 192736  
Model Name : 876315

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Checked By: JW

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

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Member	Shape	Code ...	Loc[in]	LC Shear ..Loc[in]	Dir	LC $\phi^*P_n$ [lb]	$\phi^*T_n$ [lb]	$\phi^*M_{ny}$ ...	$\phi^*M_{nz}$ ...	$\phi^*V$ ...	$\phi^*V$ ...	Cb	Eqn
No Data to Print ...													

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



**BOLT TOOL 1.5.2**

Project Data	
Job Code:	192736
Carrier Site ID:	CT11585A
Carrier Site Name:	CT03XC020

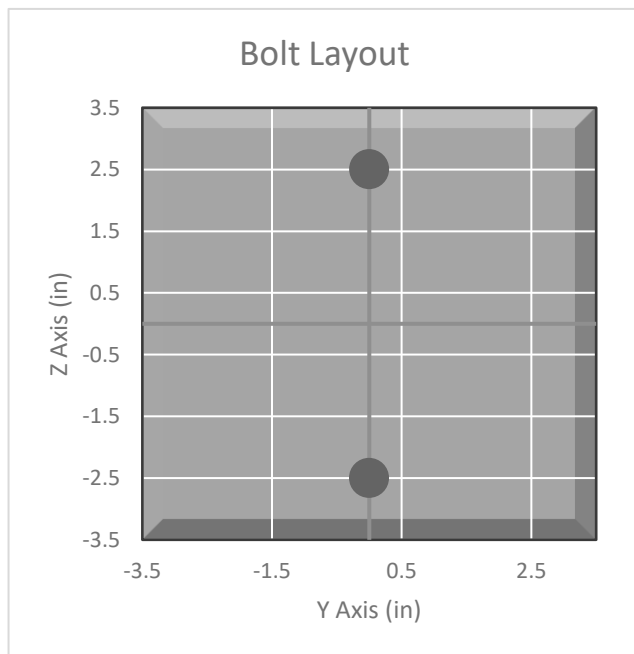
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	1	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

Connection Description
Standoff to Monopole Collar

Bolt Check*		
Tensile Capacity ( $\phi T_n$ ):	54517.0	lbs
Shear Capacity ( $\phi V_n$ ):	35342.9	lbs
Tension Force ( $T_u$ ):	4718.0	lbs
Shear Force ( $V_u$ ):	10077.7	lbs
Tension Usage:	8.2%	--
Shear Usage:	27.2%	--
Interaction:	27.2%	Pass
Controlling Member:	M42	--
Controlling LC:	7	--

\*Rating per TIA-222-H Section 15.5



**BOLT TOOL 1.5.2**

Project Data	
Job Code:	192736
Carrier Site ID:	CT11585A
Carrier Site Name:	CT03XC020

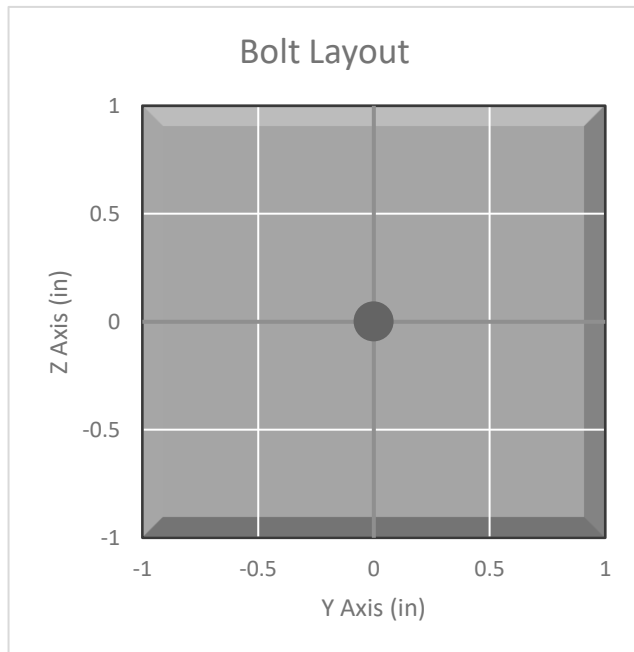
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

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:	No	--
Connection Pipe Size:	-	in

Connection Description
Single Angle to Reinforcing Kit

Bolt Check*		
Tensile Capacity ( $\phi T_n$ ):	12770.9	lbs
Shear Capacity ( $\phi V_n$ ):	8835.7	lbs
Tension Force ( $T_u$ ):	82.9	lbs
Shear Force ( $V_u$ ):	2874.9	lbs
Tension Usage:	0.6%	--
Shear Usage:	31.0%	--
Interaction:	31.0%	Pass
Controlling Member:	M63	--
Controlling LC:	42	--

\*Rating per TIA-222-H Section 15.5



**BOLT TOOL 1.5.2**

Project Data	
Job Code:	192736
Carrier Site ID:	CT11585A
Carrier Site Name:	CT03XC020

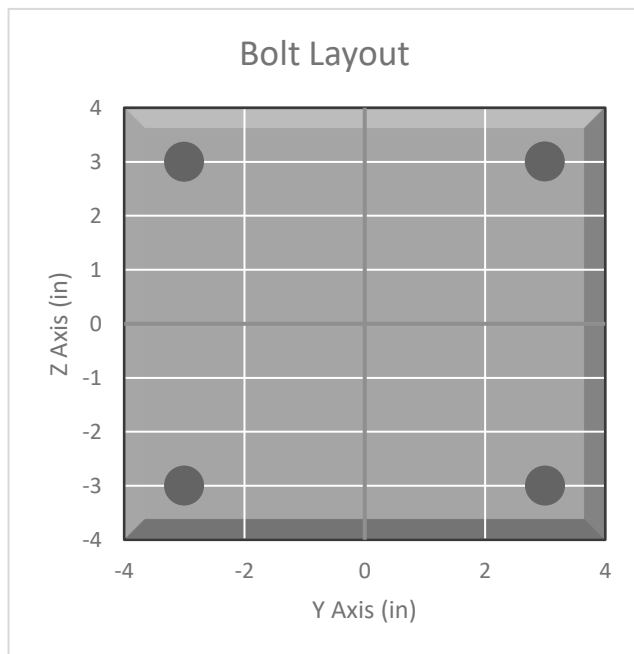
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

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
Reinforcing kit to Collar

Bolt Check*		
Tensile Capacity ( $\phi T_n$ ):	20340.1	lbs
Shear Capacity ( $\phi V_n$ ):	13805.8	lbs
Tension Force ( $T_u$ ):	0.0	lbs
Shear Force ( $V_u$ ):	315.8	lbs
Tension Usage:	0.0%	--
Shear Usage:	2.2%	--
Interaction:	2.2%	Pass
Controlling Member:	M77	--
Controlling LC:	38	--

\*Rating per TIA-222-H Section 15.5



**APPENDIX E**  
**MOUNT MODIFICATION DESIGN DRAWINGS (MDD)**

# T-Mobile

## UPGRADE: MOUNT REINFORCEMENT

**SITE NAME:**  
OAK LANE CC, INC. TOWER (SSUSA)

**SITE NUMBER:**  
CT11585A

**CROWN CASTLE BU#:**  
876315

**SITE ADDRESS:**  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

### PROJECT INFORMATION

**SCOPE OF WORK:** REINFORCE EACH SECTOR AS FOLLOWS:  
 • INSTALL (1) 2.375" O.D SCH 40, 168" LONG PIPE 10" BELOW FACE HORIZONTAL.  
 • INSTALL (2) SITE PRO 1 SCX1-K CROSSOVER PLATE.  
 • INSTALL (1) SITE PRO 1 FRK-SFS-L REINFORCEMENT KIT COLLAR MOUNTED 24" BELOW STANDOFF.

**JURISDICTION:** NEW HAVEN COUNTY  
**SITE NAME:** OAK LANE CC, INC. TOWER (SSUSA)  
**SITE ADDRESS:** 1027 RACEBROOK ROAD, WOODBRIDGE, CT 06525  
**LATITUDE:** 41° 19' 0.30"  
**LONGITUDE:** -73° 0' 41.80"  
**TOWER TYPE:** MONOPOLE  
**OVERALL TOWER HEIGHT:** 150'  
**ELEVATION OF WORK ON TOWER:** 150'

### SHEET INDEX

SHEET #	DESCRIPTION	REVISION #
T-1	TITLE SHEET	A
A-1	MOUNT REINFORCEMENT	A
S-1	MOUNT REINFORCEMENT DETAIL	A



### GENERAL NOTES

PRIOR TO ACCESSING/ ENTERING THE SITE, YOU MUST CONTACT THE CROWN NCC AT 800-788-7011 AND CROWN CM CHAD STENHOFF- 214-287-3756, CHAD.STENHOFF@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. 2015 INTERNATIONAL BUILDING CODE  
 2. UNIFORM BUILDING CODE  
 3. CITY/COUNTY ORDINANCES  
 4. 1A-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/SUPERVISOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTORS 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.

### APPROVALS

\_\_\_\_\_  
T-MOBILE CONSTRUCTION MANAGER

\_\_\_\_\_  
T-MOBILE RF ENGINEER

\_\_\_\_\_  
LAND USE PLANNER

\_\_\_\_\_  
NETWORK OPERATION

\_\_\_\_\_  
PROPERTY OWNER

\_\_\_\_\_  
CONTRACTOR

### DRIVING DIRECTION

FROM TWEED NEW HAVEN AIRPORT:  
 FOLLOW FORT HALE RD TO TOWNSEND AVE (0.4 MI), HEAD WEST (3 FT), CONTINUE ONTO FORT HALE RD (0.4 MI), TAKE N FRONTAGE RD, ELLA T GRASSO BLVD AND WHALLEY AVE TO CT-15 S IN WOODBRIDGE (10.4 MI), TURN RIGHT ONTO TOWNSEND AVE (0.6 MI), TURN LEFT ONTO UPSON TERRACE (0.1 MI), TURN RIGHT ONTO WOODWARD AVE (0.6 MI), TURN LEFT TO MERGE WITH I-95 S (1.1 MI), USE THE RIGHT 3 LANES TO TAKE EXIT 47 TOWARD MLK BLVD/DOWNTOWN/NEW HAVEN (0.7 MI), CONTINUE ONTO OAK STREET CONNECTOR (0.3 MI), USE THE RIGHT 3 LANES TO TURN SLIGHTLY RIGHT TOWARD STATE RD 34 W (0.81 FT), CONTINUE ONTO STATE RD 34 W (0.23 FT), CONTINUE ONTO N FRONTAGE RD/MLK, JR. BLVD CONTINUE TO FOLLOW N FRONTAGE RD (1.4 MI), USE THE RIGHT 2 LANES TO TURN RIGHT ONTO ELLA T GRASSO BLVD (0.9 MI), TURN LEFT ONTO WHALLEY AVE (1.9 MI), CONTINUE STRAIGHT ONTO AMY RD (0.3 MI), TURN RIGHT TO MERGE WITH CT-15 S TOWARD N.Y.CITY DESTINATION WILL BE ON THE RIGHT



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
A	10/01/21	FOR REVIEW	HC

### SITE INFORMATION

**SITE NAME:**  
OAK LANE CC, INC. TOWER (SSUSA)  
**SITE NUMBER:**  
CT11585A  
**SITE ADDRESS:**  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

### SHEET DESCRIPTION

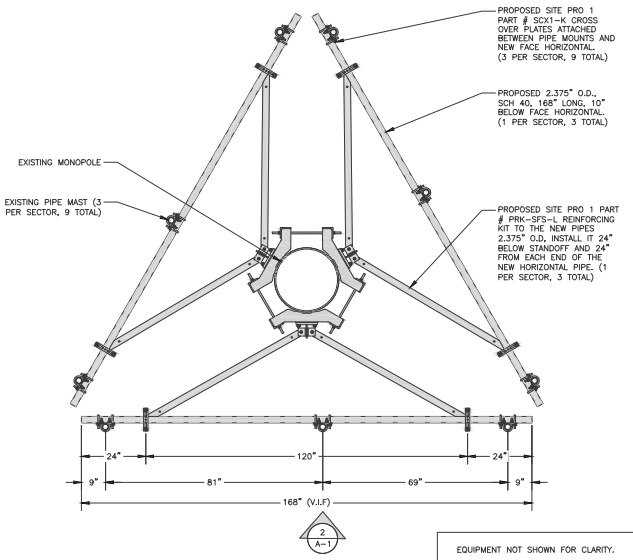
TITLE SHEET

SHEET No.

T-1

**INSTALLATION NOTES AT EACH SECTOR:**

- INSTALL (1) 2.375" O.D. SCH 40, 168" LONG PIPE 10" BELOW FACE HORIZONTAL.
- INSTALL (3) SITE PRO 1 SCX1-K CROSSOVER PLATE.
- INSTALL (1) SITE PRO 1 PRK-SFS-L REINFORCEMENT KIT COLLAR MOUNTED 24" BELOW STANDOFF.
- INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

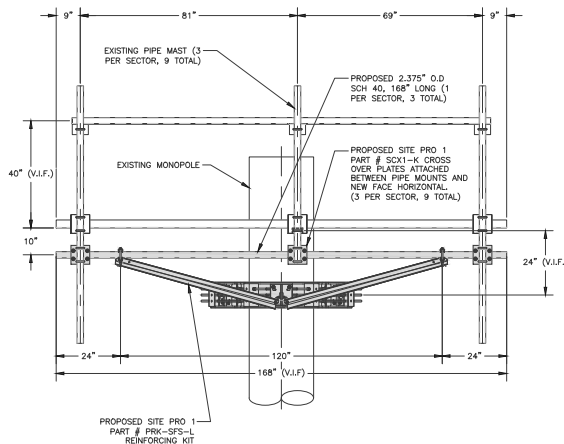


**1 PROPOSED PLAN VIEW (ALL SECTORS)**  
SCALE: 3/4" = 1'-0"

BILL OF MATERIALS		
QTY.	KIT NO./PART NO.	DESCRIPTION
1 PER SECTOR, 3 TOTAL	PRK-SFS-L	MOUNT REINFORCEMENT ASSEMBLY
3 PER SECTOR, 9 TOTAL	SCX1-K	CROSSOVER PLATE
1 PER SECTOR, 3 TOTAL	-	2.375" O.D. SCHD.40, 168" LONG HORIZONTAL PIPE

**GENERAL NOTES:**

1. ALL STEEL ANGLE TO BE ASTM A36 (GR 36) OR BETTER.
2. ALL PIPES TO BE ASTM A53 (GR 35) OR BETTER.
3. ALL STEEL PLATE TO BE ASTM A36 (GR 36) 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.



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



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
A	10/01/21	FOR REVIEW	HC

**SITE INFORMATION**

SITE NAME:  
OAK LANE CC, INC. TOWER (SSUSA)

SITE NUMBER:  
CT11585A

SITE ADDRESS:  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

**SHEET DESCRIPTION**

MOUNT REINFORCEMENT

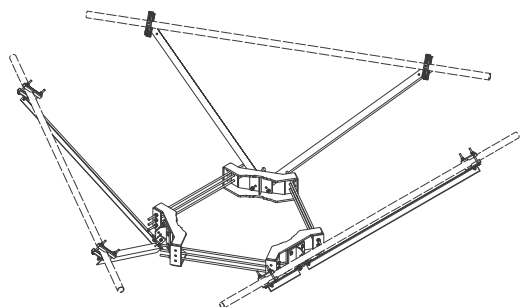
SHEET No.  
A-1

**CROWN CASTLE**  
 1220 AUGUSTA DRIVE, SUITE 500  
 HOUSTON, TX 77057

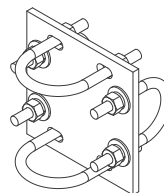
**T-Mobile**  
 T-MOBILE NORTHEAST LLC  
 400 STREET RD  
 BENSALEM, PA 19020

**Trylon**  
 1825 W. WALNUT HILL LANE, SUITE 120  
 IRVING, TEXAS 75038  
 1-800-669-5421

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



MOUNT KIT	
PART NUMBER	DESCRIPTION
SCX1-K	CROSSOVER PLATE



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	
A	10/01/21	FOR REVIEW	HC	

**SITE INFORMATION**  
 SITE NAME:  
 OAK LANE CC, INC. TOWER (SSUSA)  
 SITE NUMBER:  
 CT11585A  
 SITE ADDRESS:  
 1027 RACEBROOK ROAD,  
 WOODBRIDGE, CT 06525

**SHEET DESCRIPTION**  
 MOUNT REINFORCEMENT  
 DETAIL

SHEET No.  
 S-1

# T-Mobile



1220 AUGUSTA DRIVE SUIT 500  
HOUSTON, TX 77057



T-MOBILE NORTHEAST LLC  
400 STREET RD  
BENSALEM, PA 19020



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

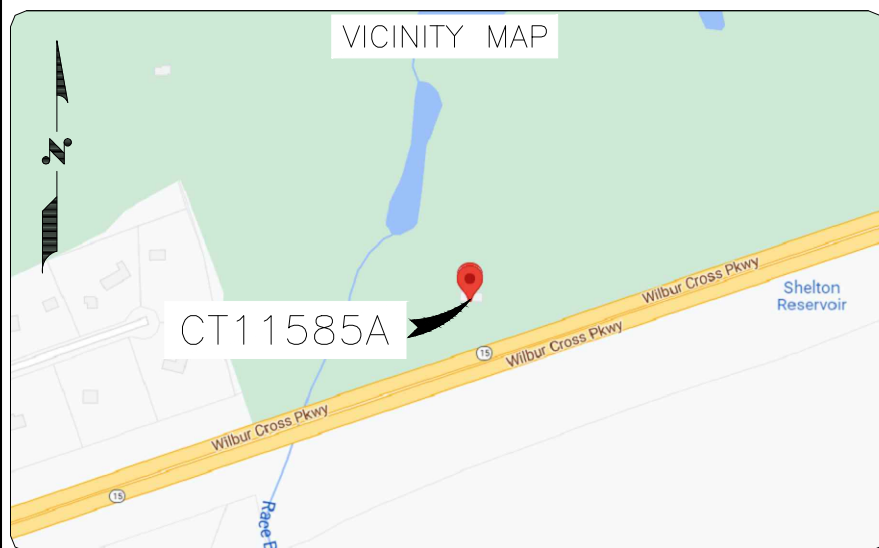
## UPGRADE: MOUNT REINFORCEMENT

**SITE NAME:**  
OAK LANE CC, INC. TOWER (SSUSA)

**SITE NUMBER:**  
CT11585A

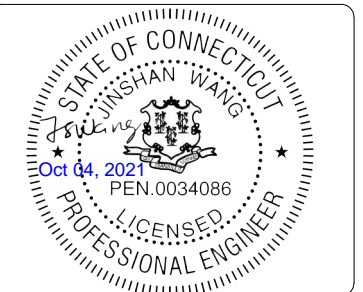
**CROWN CASTLE BU#:**  
876315

**SITE ADDRESS:**  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525



### PROJECT INFORMATION

SCOPE OF WORK:	REINFORCE EACH SECTOR AS FOLLOWS: <ul style="list-style-type: none"> <li>INSTALL (1) 2.375" O.D SCH 40, 168" LONG PIPE 10" BELOW FACE HORIZONTAL.</li> <li>INSTALL (3) SITE PRO 1 SCX1-K CROSSOVER PLATE.</li> <li>INSTALL (1) SITE PRO 1 PRK-SFS-L REINFORCEMENT KIT COLLAR MOUNTED 24" BELOW STANDOFF.</li> </ul>
JURISDICTION:	NEW HAVEN COUNTY
SITE NAME:	OAK LANE CC, INC. TOWER (SSUSA)
SITE ADDRESS:	1027 RACEBROOK ROAD, WOODBRIDGE, CT 06525
LATITUDE:	41° 19' 0.30"
LONGITUDE:	-73° 0' 41.80"
TOWER TYPE:	MONOPOLE
OVERALL TOWER HEIGHT:	150'
ELEVATION OF WORK ON TOWER:	150'



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
A	10/01/21	FOR REVIEW	RC

### SITE INFORMATION

**SITE NAME:**  
OAK LANE CC, INC. TOWER (SSUSA)  
**SITE NUMBER:**  
CT11585A  
**SITE ADDRESS:**  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

### SHEET DESCRIPTION

TITLE SHEET

SHEET No.

T-1

### 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

- 2015 INTERNATIONAL BUILDING CODE
- UNIFORM BUILDING CODE
- CITY/COUNTY ORDINANCES
- 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.

### APPROVALS

_____ T-MOBILE CONSTRUCTION MANAGER	_____ T-MOBILE RF ENGINEER
_____ LAND USE PLANNER	_____ NETWORK OPERATION
_____ PROPERTY OWNER	_____ CONTRACTOR

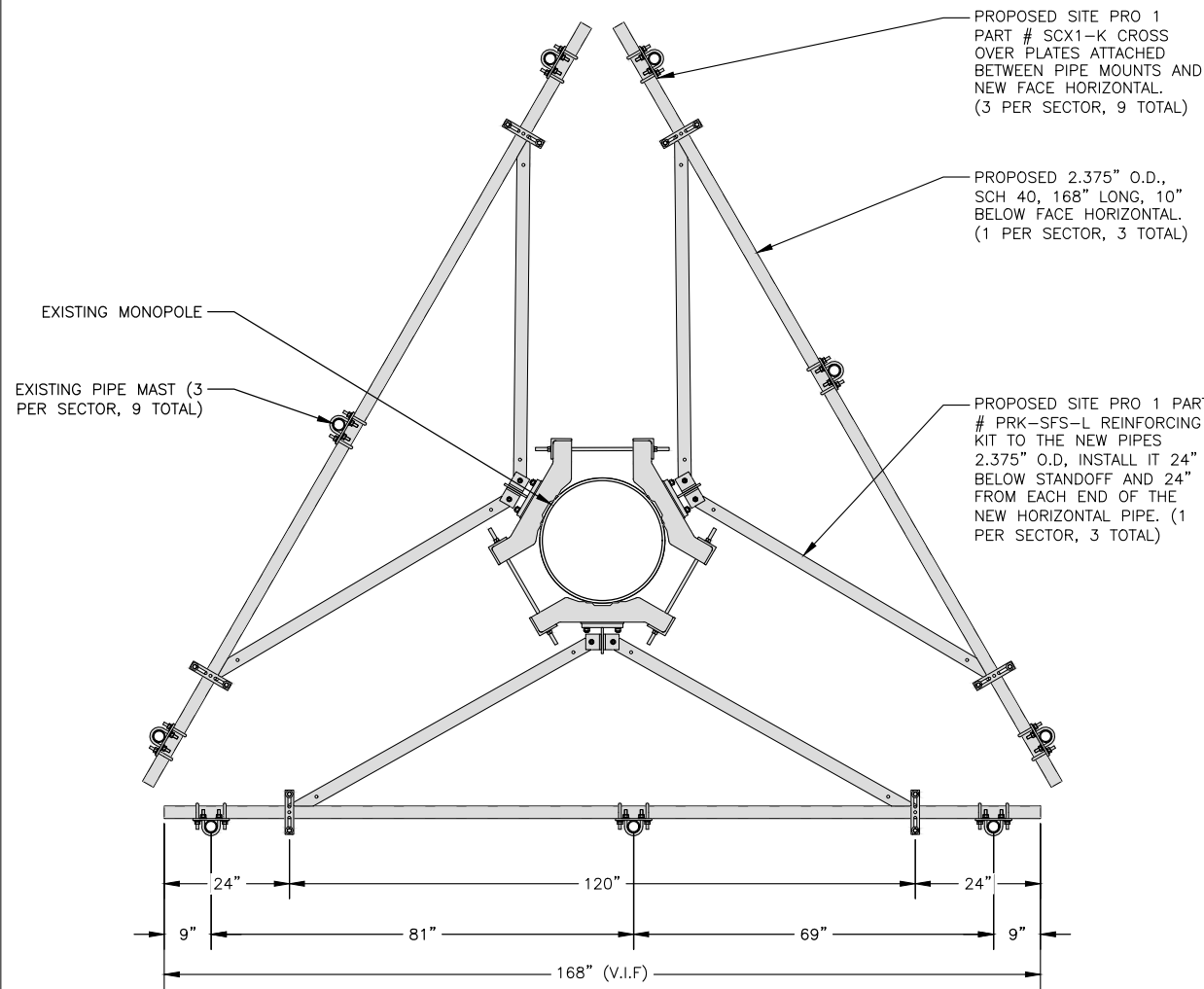
### DRIVING DIRECTION

FROM TWEED NEW HAVEN AIRPORT:  
FOLLOW FORT HALE RD TO TOWNSEND AVE (0.4 MI), HEAD WEST (3 FT), CONTINUE ONTO FORT HALE RD (0.4 MI), TAKE N FRONTAGE RD, ELLA T GRASSO BLVD AND WHALLEY AVE TO CT-15 S IN WOODBRIDGE (10.4 MI), TURN RIGHT ONTO TOWNSEND AVE (0.6 MI), TURN LEFT ONTO UPSON TERRACE (0.1 MI), TURN RIGHT ONTO WOODWARD AVE (0.6 MI), TURN LEFT TO MERGE WITH I-95 S (1.1 MI), USE THE RIGHT 3 LANES TO TAKE EXIT 47 TOWARD MLK BLVD/DOWNTOWN/NEW HAVEN (0.7 MI), CONTINUE ONTO OAK STREET CONNECTOR (0.3 MI), USE THE RIGHT 3 LANES TO TURN SLIGHTLY RIGHT TOWARD STATE RD 34 W (381 FT), CONTINUE ONTO STATE RD 34 W (423 FT), CONTINUE ONTO N FRONTAGE RD/M.L.K. JR. BLVD CONTINUE TO FOLLOW N FRONTAGE RD (1.4 MI), USE THE RIGHT 2 LANES TO TURN RIGHT ONTO ELLA T GRASSO BLVD (0.9 MI), TURN LEFT ONTO WHALLEY AVE (1.9 MI), CONTINUE STRAIGHT ONTO AMITY RD (0.3 MI), TURN RIGHT TO MERGE WITH CT-15 S TOWARD N.Y.CITY DESTINATION WILL BE ON THE RIGHT



**INSTALLATION NOTES AT EACH SECTORS:**

- INSTALL (1) 2.375" O.D SCH 40, 168" LONG PIPE 10" BELOW FACE HORIZONTAL.
- INSTALL (3) SITE PRO 1 SCX1-K CROSSOVER PLATE.
- INSTALL (1) SITE PRO 1 PRK-SFS-L REINFORCEMENT KIT COLLAR MOUNTED 24" BELOW STANDOFF.
- INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.



EQUIPMENT NOT SHOWN FOR CLARITY.

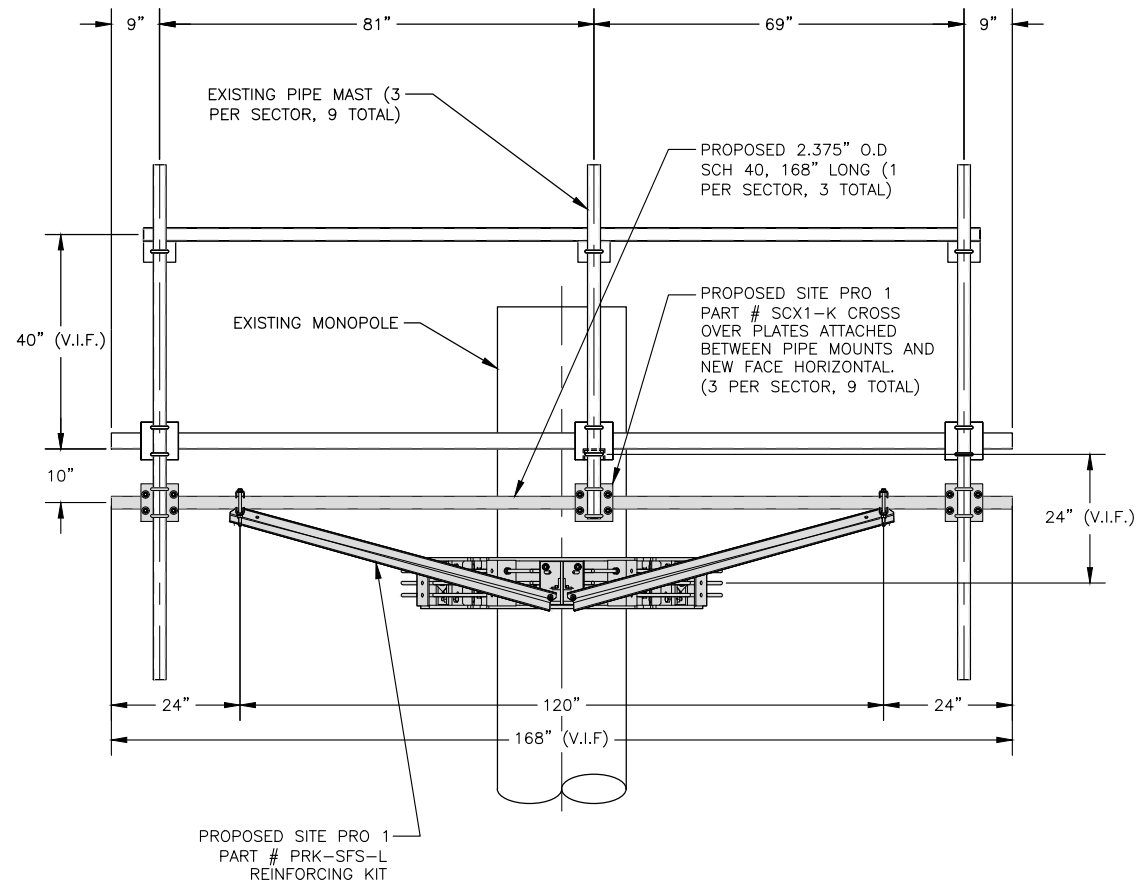
**1** PROPOSED PLAN VIEW (ALL SECTORS)  
A-1 SCALE: 3/4" = 1'-0"



BILL OF MATERIALS		
QTY.	KIT NO./PART NO.	DESCRIPTION
1 PER SECTOR, 3 TOTAL	PRK-SFS-L	MOUNT REINFORCEMENT ASSEMBLY
3 PER SECTOR, 9 TOTAL	SCX1-K	CROSSOVER PLATE
1 PER SECTOR, 3 TOTAL	-	2.375" O.D SCHD.40, 168" LONG HORIZONTAL PIPE

**GENERAL NOTES:**

1. ALL STEEL ANGLE TO BE ASTM A36 (GR 36) OR BETTER.
2. ALL PIPES TO BE ASTM A53 (GR 35) OR BETTER.
3. ALL STEEL PLATE TO BE ASTM A36 (GR 36) 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.



EQUIPMENT NOT SHOWN FOR CLARITY.

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



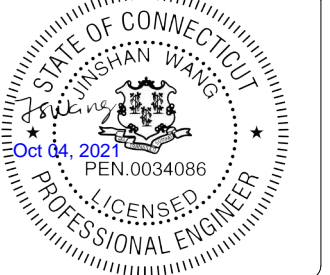
1220 AUGUSTA DRIVE SUIT 500  
HOUSTON, TX 77057



T-MOBILE NORTHEAST LLC  
400 STREET RD  
BENSALEM, PA 19020



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



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
A	10/01/21	FOR REVIEW	RC

**SITE INFORMATION**

SITE NAME:  
OAK LANE CC, INC. TOWER (SSUSA)

SITE NUMBER:  
CT11585A

SITE ADDRESS:  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

**SHEET DESCRIPTION**

MOUNT REINFORCEMENT

**SHEET No.**

A-1



1220 AUGUSTA DRIVE SUIT 500  
HOUSTON, TX 77057



T-MOBILE NORTHEAST LLC  
400 STREET RD  
BENSALEM, PA 19020



1825 W. WALNUT HILL LANE, SUITE 120  
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SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	10/01/21	FOR REVIEW	RC

SITE INFORMATION

SITE NAME:  
OAK LANE CC, INC. TOWER  
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SITE NUMBER:  
CT11585A  
SITE ADDRESS:  
1027 RACEBROOK ROAD,  
WOODBIDGE, CT 06525

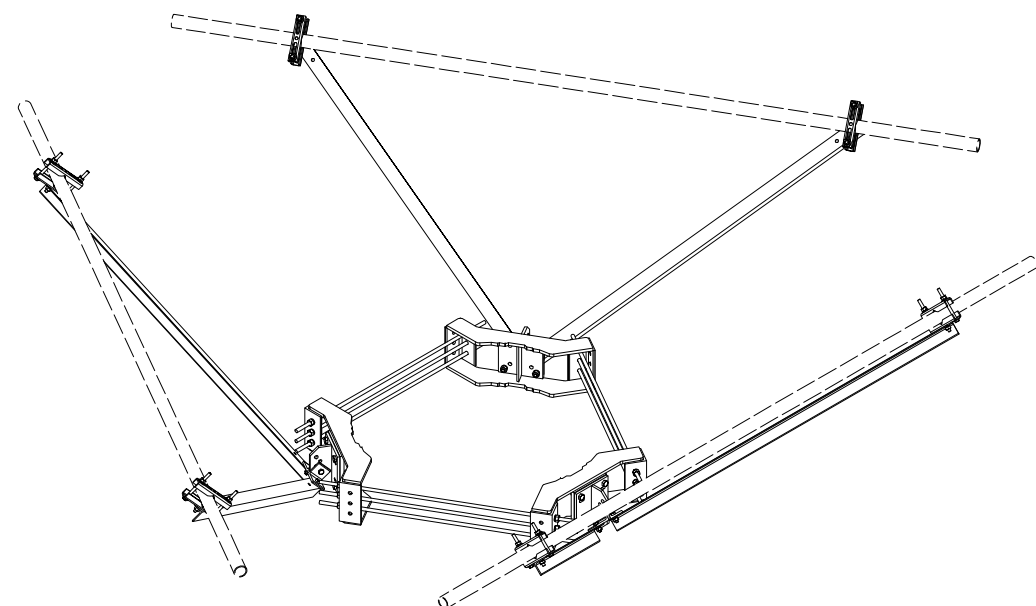
SHEET DESCRIPTION

MOUNT REINFORCEMENT  
DETAIL

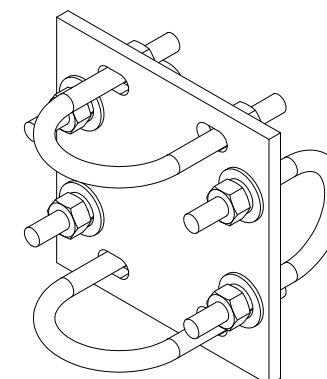
SHEET No.

S-1

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



MOUNT KIT	
PART NUMBER	DESCRIPTION
SCX1-K	CROSSOVER PLATE



# Exhibit F

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

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

T-Mobile Existing Facility

Site ID: CT11585A

876315

1027 Racebrook Road  
Woodbridge, Connecticut 06525

**December 3, 2021**

**EBI Project Number: 6221007284**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>27.79%</b>

December 3, 2021

T-Mobile

Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11585A - 876315

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1027 Racebrook Road** in **Woodbridge, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1027 Racebrook Road in Woodbridge, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 14) The antenna mounting height centerline of the proposed antennas is 150 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.



## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	<b>4.09%</b>	Antenna B1 MPE %:	<b>4.09%</b>	Antenna C1 MPE %:	<b>4.09%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	<b>6.30%</b>	Antenna B2 MPE %:	<b>6.30%</b>	Antenna C2 MPE %:	<b>6.30%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	10.39%
T-Mobile (Existing)	5.45%
Verizon	2.41%
Nextel	0.46%
Metro PCS	0.39%
AT&T	8.69%
<b>Site Total MPE % :</b>	<b>27.79%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.39%
T-Mobile Sector B Total:	10.39%
T-Mobile Sector C Total:	10.39%
Site Total MPE % :	27.79%

### T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	150.0	2.05	600 MHz LTE	400	0.51%
T-Mobile 600 MHz NR	1	1577.94	150.0	2.74	600 MHz NR	400	0.68%
T-Mobile 700 MHz LTE	2	695.22	150.0	2.41	700 MHz LTE	467	0.52%
T-Mobile 1900 MHz GSM	4	1052.26	150.0	7.30	1900 MHz GSM	1000	0.73%
T-Mobile 1900 MHz LTE	2	2104.51	150.0	7.30	1900 MHz LTE	1000	0.73%
T-Mobile 2100 MHz LTE	2	2649.42	150.0	9.19	2100 MHz LTE	1000	0.92%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	150.0	19.15	2500 MHz LTE IC & 2C Traffic	1000	1.91%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	150.0	1.86	2500 MHz LTE IC & 2C Broadcast	1000	0.19%
T-Mobile 2500 MHz NR Traffic	1	22089.26	150.0	38.30	2500 MHz NR Traffic	1000	3.83%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	150.0	3.72	2500 MHz NR Broadcast	1000	0.37%
						<b>Total:</b>	<b>10.39%</b>

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

## Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	10.39%
Sector B:	10.39%
Sector C:	10.39%
T-Mobile Maximum MPE % (Sector A):	10.39%
Site Total:	27.79%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **27.79%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

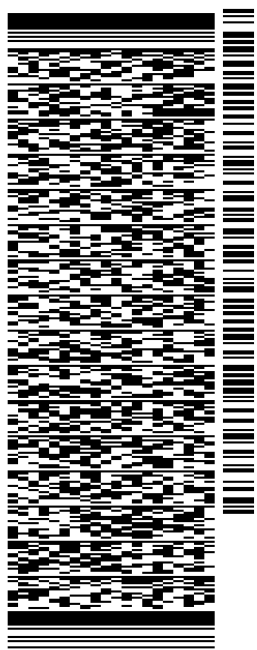
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 VEVA 17, SUITE 210  
 BLUE BELL, PA 19422  
 UNITED STATES US

SHIP DATE: 10DEC21  
 ACTWGT: 1.00 LB  
 CAD: 108980334IN/NET4400

BILL SENDER

TO **MELANIE A. BACHMAN**  
**CONNECTICUT SITING COUNCIL**  
**10 FRANKLIN SQUARE**

**NEW BRITAIN CT 06051**  
 (860) 827-2935 REF: 100789NBC CSC 876315  
 INV/ PO: DEPT:



56DJ3/E934/FE4A

TRK# 7754 5727 1348  
 0201  
 MON - 13 DEC 11:30A  
 PRIORITY OVERNIGHT

**EB BDLA**  
 CT-US BDL 06051

**After printing this label:**

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

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

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