Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

June 20, 2018

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

Notice of Exempt Modification
100 Tatnic Hill Road, Brooklyn, CT
41 46 1.78 N
-71 58 19.02 W
Sprint #: CT33XC566

Dear Ms. Bachman:

Sprint currently maintains antennas at the 157-foot level of the existing 175-foot Monopole Tower at 100 Tatnic Hill Road in Brooklyn, CT. The tower is owned by SBA Towers, LLC. The property is owned by the Sophie and Benjamin Davidson. Sprint now intends to replace (6) existing cell antennas with (6) newer technology cell antennas at the 157-foot level of the tower. The proposed full scope of work is as follows:

Remove:

- (6) 1-5/8" lines

Remove and Replace:

- Remove:
  - (6) Decibel - DB908h90e-m – Panel Antennas
- Replace with:
  - (3) RFS - APXVTM14-C-I20 – Panel Antennas
  - (3) Commscope - NNVV-65B-R4 – Panel Antennas
  - (3) ALU - 1900 MHz - RRUs
  - (6) ALU - 800 MHz - RRUs
  - (3) ALU - TD-RRH8x20-25 – RRU

Install:

- (1) Handrail Kit & V-Brace Kit:
  - Site Pro PRK-1245L; Site Pro HRK-14-U; Site Pro PRK-SFS-H-L
- (4) 1-1/4" Fiber

Existing Equipment to Remain (Including entitlements):

- (1) Low Profile Platform

At 75':

- (1) GPS
- (1) ½" line

This facility was originally approved by the Town of Brooklyn on August 4, 1999, ahead of Council's jurisdiction. August 8, 1999 publication was made to the Norwich Bulletin confirming Site Plan Approval by the Town's Planning and Zoning Commission. The Town does not have any further documentation of original approval on file and this modification complies with all known conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Brooklyn's First Selectman, Richard Ives, and Zoning Enforcement Officer, Martha Fraenkel, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications 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 Communications Commission safety standard.
5. The proposed modification 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-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbasite.com
Attachments

cc: Richard Ives, First Selectman / with attachments
Town of Brooklyn, 4 Wolf Den Road, Brooklyn, CT 06234
Martha Fraenkel, Zoning Enforcement Officer / with attachments
Town of Brooklyn, Clifford Green Memorial Center, 69 South Main Street, Brooklyn, CT 06234
Sophie & Benjamin Davidson
18 Nicks Close, St Helens, Tasmania 7216 Australia

POWER DENSITY

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.44 %**	Antenna B1 MPE%	**1.44 %**	Antenna C1 MPE%	**1.44 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.98 %**	Antenna B2 MPE%	**0.98 %**	Antenna C2 MPE%	**0.98 %**

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	**2.42 %**
Nextel	0.26 %
Verizon Wireless	1.72 %
T-Mobile	1.66 %
Site Total MPE %:	**6.06 %**

SPRINT Sector A Total:	2.42 %
SPRINT Sector B Total:	2.42 %
SPRINT Sector C Total:	2.42 %
Site Total:	6.06 %

SPRINT _ Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	157	0.59	850 MHz	567	0.10%
Sprint 850 MHz LTE	2	941.82	157	2.97	850 MHz	567	0.52%
Sprint 1900 MHz (PCS) CDMA	5	511.82	157	4.03	1900 MHz (PCS)	1000	0.41%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	157	4.03	1900 MHz (PCS)	1000	0.41%
Sprint 2500 MHz (BRS) LTE	8	778.09	157	9.81	2500 MHz (BRS)	1000	0.98%
						Total:	**2.42%**

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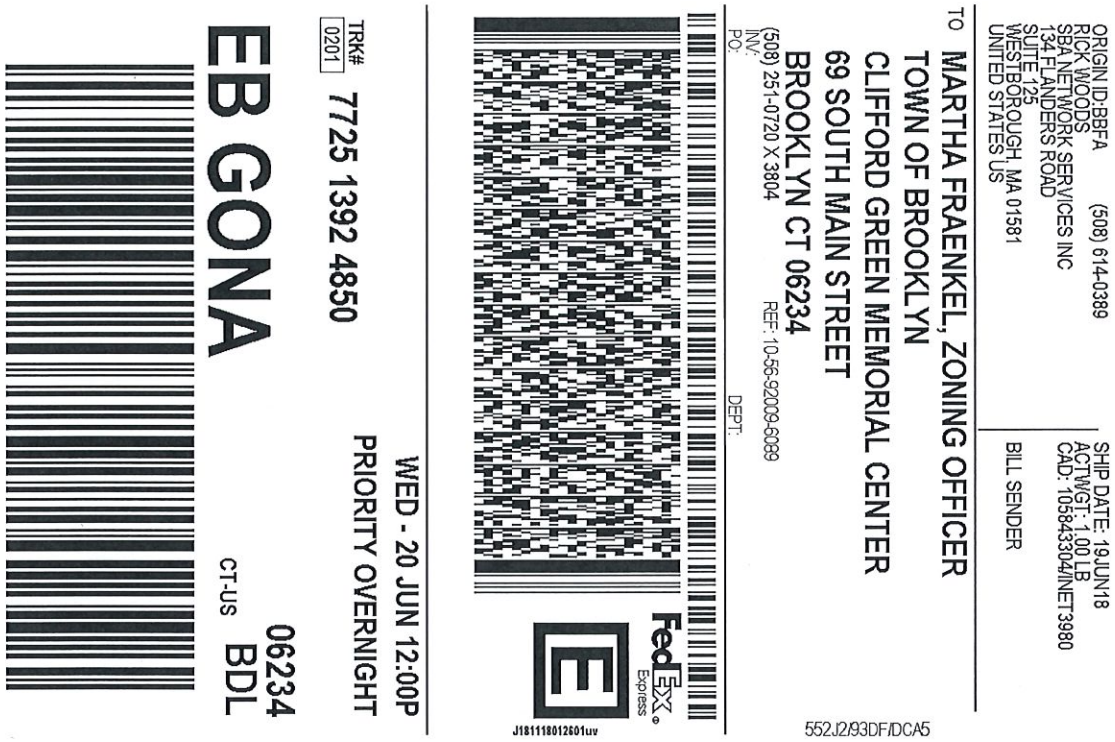

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Kri Pelletier
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd
Suite 125
Westborough, MA 01581
UNITED STATES, US

Ship Date: 20JUN18
ActWgt: 1.00 LB
CAD: 105843304/INET3980

BILL SENDER
EIN/VAT:

TO Sophie & Benjamin Davidson

18 Nicks Close

ST HELENS, 7216 (AU)

5082510720

FedEx Express

AWB

J181118012620uv

S6 LSTX

PKG TYPE: ENV

TRK# 7725 2030 8172

Form 0430

PM
INTL ECONOMY
REF: 10-56-92009-6089
DESC1:Proposals
DESC2:
DESC3:
DESC4:
EEI: NO EEI 30.37(a)

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COUNTRY MFG: US
CARRIAGE VALUE: 10.00 USD
CUSTOMS VALUE: 10.00 USD

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T/C: S 500575468
D/T: S 500575468

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100 TATNIC HILL RD

Location 100 TATNIC HILL RD
Mblu 15/ / 16-5/ /
Acct# 00116805
Owner DAVIDSON BENJAMIN & SOPHIE
Assessment $193,800
Appraisal $276,900
PID 1241
Building Count 1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$0	$276,900	$276,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$0	$193,800	$193,800

Owner of Record

Owner DAVIDSON BENJAMIN & SOPHIE
Co-Owner C/O SBA TOWERS
Care Of
Address ATTN: TAX DEPT CT01915-S
8051 CONGRESS AVE
BOCA RATON, FL 33487-1307

this is SBA's address

Sale Price $0
Certificate
Book & Page 216/ 6
Sale Date 09/09/1999
Qualified U

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
DAVIDSON BENJAMIN & SOPHIE	$0		216/ 6	09/09/1999
HALE NEWELL D	$0		112/ 259	04/29/1991

Building Information

Building 1 : Section 1

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

Building Photo

Building Attributes	
Field	**Description**

Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

(http://images.vgsi.com/photos/BrooklynCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/BrooklynCTPhotos//Sketches/12

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1300
Description	VACANT
Zone	RA
Neighborhood	0050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.67
Frontage	
Depth	
Assessed Value	$193,800
Appraised Value	$276,900

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$276,900	$276,900
2016	$0	$276,900	$276,900
2015	$0	$276,900	$276,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$193,800	$193,800
2016	$0	$193,800	$193,800
2015	$0	$193,800	$193,800

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT33XC566

Brooklyn
100 Old Tatnic Hill Road
Brooklyn, CT 06234

June 15, 2018

EBI Project Number: 6218004397

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.06 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

June 15, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT33XC566 – Brooklyn**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **100 Old Tatnic Hill Road, Brooklyn, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **100 Old Tatnic Hill Road, Brooklyn, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT 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 manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

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

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 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.

7) 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 manufactures supplied specifications minus 10 dB 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.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.

9) The antenna mounting height centerlines of the proposed antennas are **157 feet** above ground level (AGL) for **Sector A**, **157 feet** above ground level (AGL) for **Sector B** and **157 feet** above ground level (AGL) for Sector C.

10) 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.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.44 %**	Antenna B1 MPE%	**1.44 %**	Antenna C1 MPE%	**1.44 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**157 feet**	Height (AGL):	**157 feet**	Height (AGL):	**157 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.98 %**	Antenna B2 MPE%	**0.98 %**	Antenna C2 MPE%	**0.98 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.42 %**
Nextel	0.26 %
Verizon Wireless	1.72 %
T-Mobile	1.66 %
Site Total MPE %:	**6.06 %**

SPRINT Sector A Total:	2.42 %
SPRINT Sector B Total:	2.42 %
SPRINT Sector C Total:	2.42 %
Site Total:	6.06 %

SPRINT _ Frequency Band / Technology (Per Sector)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density (μW/cm²)**	**Frequency (MHz)**	**Allowable MPE (μW/cm²)**	**Calculated % MPE**
Sprint 850 MHz CDMA	1	376.73	157	0.59	850 MHz	567	0.10%
Sprint 850 MHz LTE	2	941.82	157	2.97	850 MHz	567	0.52%
Sprint 1900 MHz (PCS) CDMA	5	511.82	157	4.03	1900 MHz (PCS)	1000	0.41%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	157	4.03	1900 MHz (PCS)	1000	0.41%
Sprint 2500 MHz (BRS) LTE	8	778.09	157	9.81	2500 MHz (BRS)	1000	0.98%
						Total:	**2.42%**

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 SPRINT 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:

SPRINT Sector	Power Density Value (%)
Sector A:	2.42 %
Sector B:	2.42 %
Sector C:	2.42 %
SPRINT Maximum Total (per sector):	2.42 %
Site Total:	6.06 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.06 %** 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.

TES
Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 175 ft. SUMMIT Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01915-S

Customer Site Name: South Brooklyn

Carrier Name: Sprint Nextel

Carrier Site ID / Name: CT33XC566 / Brooklyn

Site Location: 100 Old Tatnic Hill Road

Brooklyn, Connecticut

Windham County

Latitude: 41.767160

Longitude: -71.971949

5/23/18

Analysis Result:

Max Structural Usage: 80.8% [Pass]

Max Foundation Usage: 49.0% [Pass]

Additional Usage Caused by Mount Modification: 5.0%

Report Prepared By : Delu Zhou

Introduction

The purpose of this report is to summarize the analysis results on the 175 ft. SUMMIT Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawings prepared by Paul J. Ford and Company, Job # 29200-401 Dated 04/05/2000
Foundation Drawing	Foundation Drawings prepared by Paul J. Ford and Company, Job # 29200-401 Dated 04/05/2000
Geotechnical Report	Geotechnical Report prepared by FDH Engineering, Project # 1201186EG1 Dated 08/16/2012
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft.
Seismic Parameters:	S_S = 0.171, S_1 = 0.062

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	175.0	3	Antel - BXA-70063/6CF - Panel	(1) Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Fiber	Verizon
2		3	Antel - BXA-171085/12CF - Panel			
3		3	Antel - BXA-70080/6CF - Panel			
4		3	Antel - WBX065X19R050 - Panel			
5		3	Alcatel - RRH2x40-AWS - RRH			
6		6	RFS - FD9R6004/2C-3L - Diplexer			
7		1	RFS - DB-T1-6Z-8AB-0Z - Distribution Box			
-	157.0	6	Decibel - DB908h90e-m - Panel	(1) Low Profile Platform	(6) 1 5/8"	Sprint Nextel
12	140.0	3	RFS - APXV18-206516S-C-A20 - Panel	(1) Platform w/Handrails (HRK CommScope P/N MT-195-12)	(12) 1 5/8"	T-Mobile
13		3	Commscope - LNX-6515DS-VTM - Panel			
14		3	Ericsson - KRY 112 144/1 - TMA			
15		3	Kathrein - 782 11056 - Bias T			
-	75.0	1	GPS	Direct	(1) 1/2"	Sprint Nextel

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
8	157.0	3	RFS - APXVTM14-C-I20 - Panel	(1) LP Platform w/ handrail kit & v-brace kit [(1) SitePro PRK-1245L (1) SitePro HRK-14-U & (1) SitePro PRK-SFS-H-L]	(4) 1 1/4" Fiber	Sprint Nextel
9		3	Commscope - NNVV-65B-R4 - Panel			
10		3	ALU - 1900 MHz - RRU			
11		6	ALU - 800 MHz - RRU			
12		3	ALU - TD-RRH8x20-25 - RRU			
17	75.0	1	GPS	Dircect	(1) 1/2"	

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate	Flange Plate
Max. Usage:	**64.9%**	**32.7%**	**63.7%**	**80.8%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3710.0	29.7
Analysis Reactions	3437.1	27.6
Factored Reactions*	5008.5	40.1
% of Design Reactions	68.7%	68.8%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.3471 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

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

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

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

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

Usage Diagram - Max Ratio 64.91% at 83.8ft

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn	**Exposure:**	B	
Height:	175.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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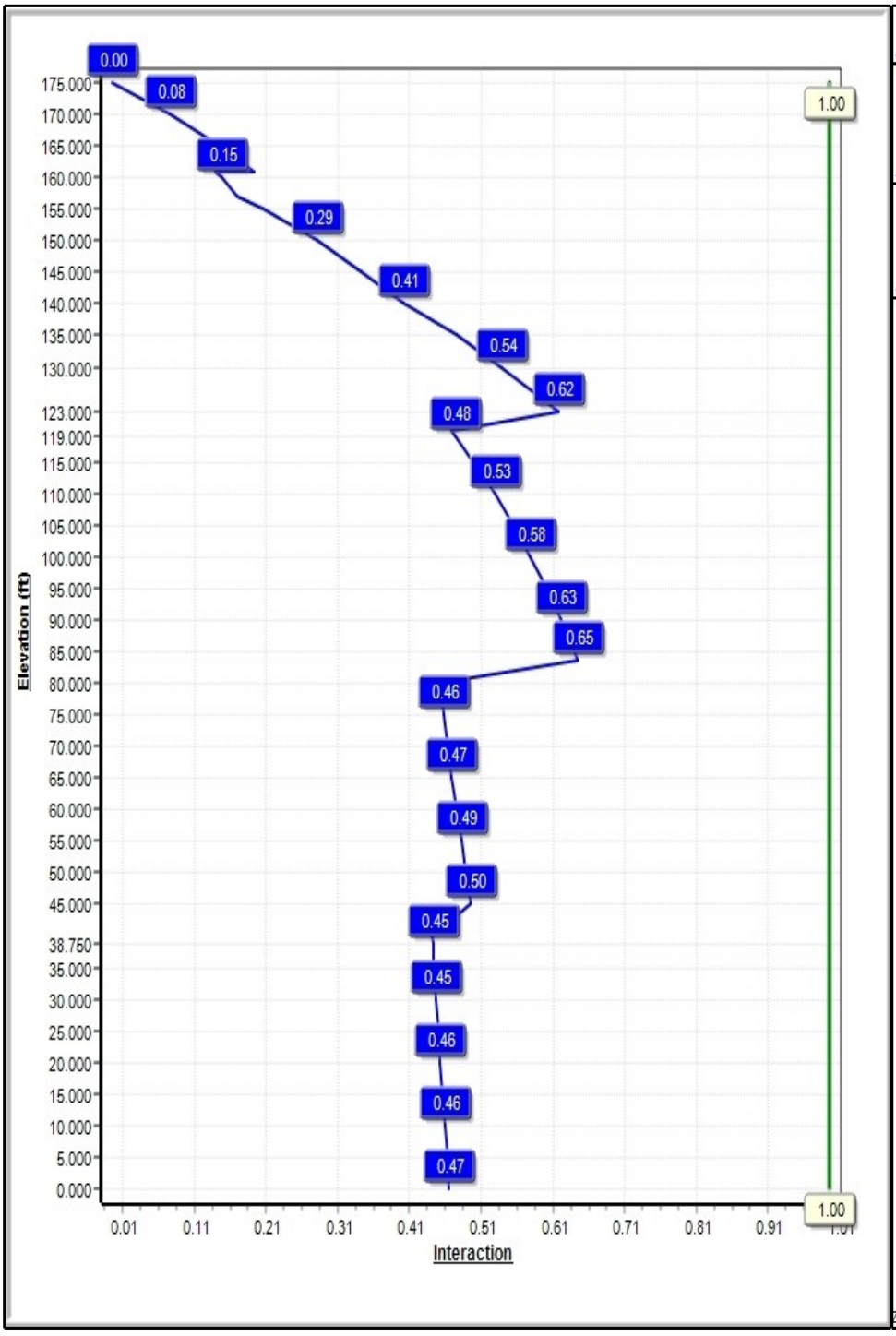
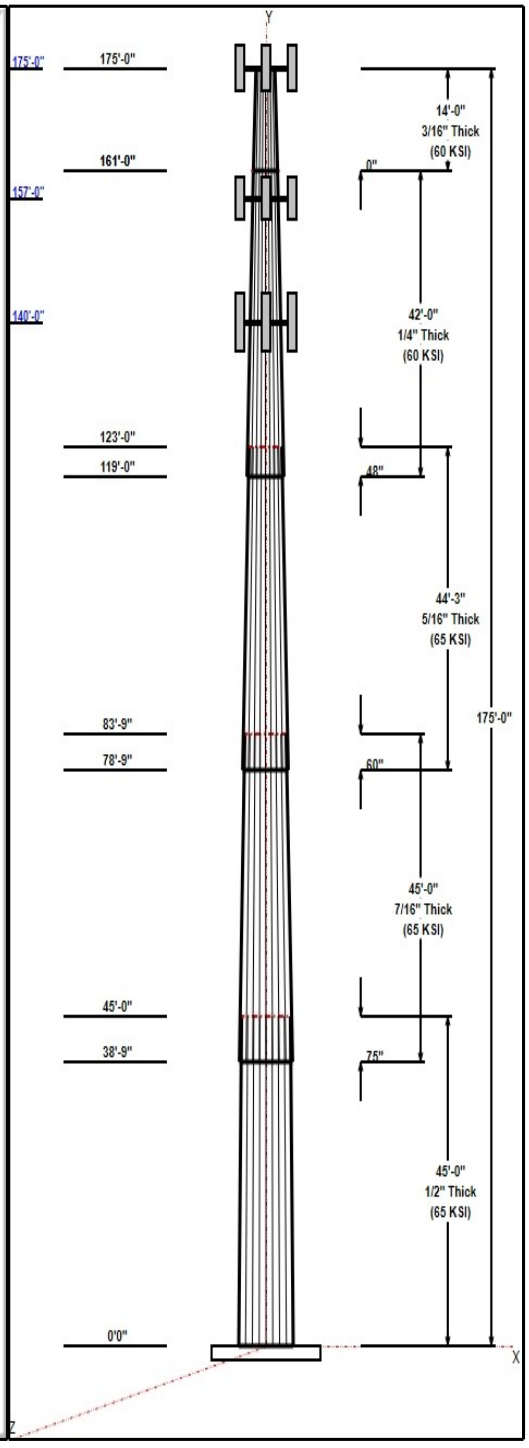
Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 101 mph Wind

Iterations: 25





Structure: CT01915-S-SBA

Type: Tapered
Site Name: South Brooklyn
Height: 175.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23000

5/23/2018

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	45.00	46.68	57.03	0.500		0.23000	65
2	45.00	38.64	48.99	0.438	Slip	0.23000	65
3	44.25	30.24	40.42	0.313	Slip	0.23000	65
4	42.00	22.00	31.66	0.250	Slip	0.23000	60
5	14.00	18.78	22.00	0.188	Butt	0.23000	60

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
175.00	175.00	1	6' Lightning rod	
175.00	175.00	3	BXA-70063/6CF	Verizon
175.00	175.00	3	BXA-171085/12CF	Verizon
175.00	175.00	3	WBX065X19R050	Verizon
175.00	175.00	3	BXA-70080/6CF	Verizon
175.00	175.00	3	RRH2x40-AWS	Verizon
175.00	175.00	6	FD9R6004/2C-3L (3.1 lbs)	Verizon
175.00	175.00	1	DB-T1-6Z-8AB-0Z	Verizon
175.00	175.00	1	Low Profile Platform-flat	Verizon
157.00	157.00	1	Platform w/ Handrail +	Sprint Nextel
157.00	157.00	3	APXVTM14-C-I20	Sprint Nextel
157.00	157.00	3	NNVV-65B-R4	Sprint Nextel
157.00	157.00	3	ALU - 1900 MHz - RRU	Sprint Nextel
157.00	157.00	6	ALU - 800 MHz - RRU	Sprint Nextel
157.00	157.00	3	ALU - TD-RRH8x20-25 -	Sprint Nextel
140.00	140.00	3	APXV18-206516S-C-A20	T-Mobile
140.00	140.00	3	LNX-6515DS-VTM	T-Mobile
140.00	140.00	3	KRY 112 144/1	T-Mobile
140.00	140.00	3	782 11056	T-Mobile
140.00	140.00	1	Platform w/ Hand Rails	T-Mobile
75.00	75.00	1	GPS	Sprint Nextel

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	175.00	Inside	1 5/8" Coax	Verizon
0.00	175.00	Inside	1 5/8" Hybrid	Verizon
0.00	157.00	Inside	1 1/4" Fiber	Sprint Nextel
0.00	140.00	Inside	1 5/8" Coax	T-Mobile
0.00	75.00	Inside	1/2" Coax	Sprint Nextel

Anchor Bolts

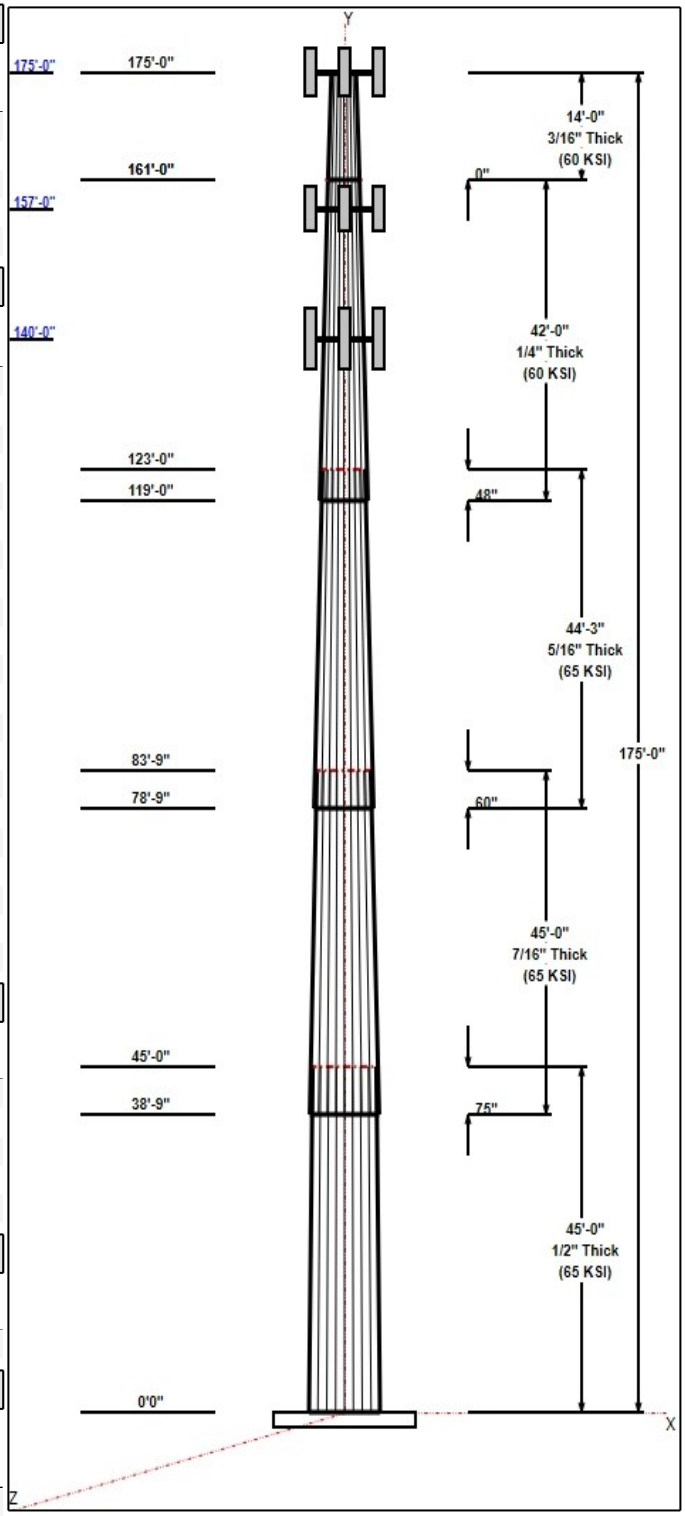
Qty	Specifications	Grade (ksi)	Arrangement
32	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	68.0	50.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3439.1	27.6	51.4



0.9D + 1.6W 101 mph Wind	3401.6	27.6	38.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1026.1	8.0	83.6
1.2D + 1.0E	196.4	1.6	51.4
0.9D + 1.0E	194.1	1.6	38.6
1.0D + 1.0W 60 mph Wind	754.0	6.1	42.8

Structure: CT01915-S-SBA - Coax Line Placement

Type: Monopole
Site Name: South Brooklyn
Height: 175.00 (ft)

5/23/2018

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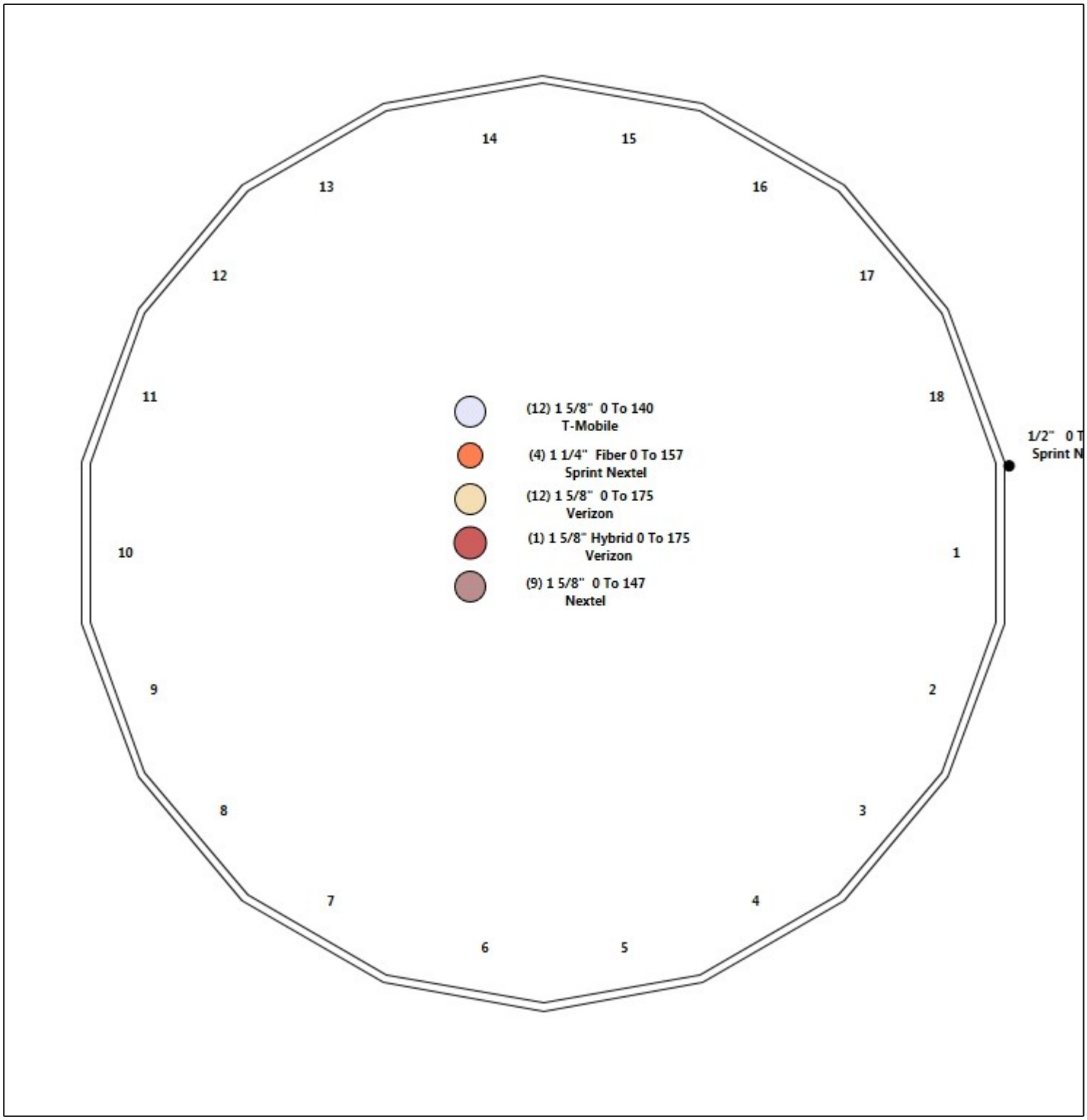

Shaft Properties

Structure:	CT01915-S-SBA		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	45.000	0.5000	65		0.00	12,479
2	18	45.000	0.4375	65	Slip	75.00	9,224
3	18	44.250	0.3125	65	Slip	60.00	5,229
4	18	42.000	0.2500	60	Slip	48.00	3,014
5	18	14.000	0.1875	60	Flange	0.00	573
					Total Shaft Weight:		**30,519**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	57.03	0.00	89.71	36220.24	18.70	114.06	46.68	45.00	73.29	19745.8	15.05	93.36	0.230000
2	48.99	38.75	67.42	20082.80	18.33	111.98	38.64	83.75	53.05	9783.25	14.16	88.33	0.230000
3	40.42	78.75	39.78	8083.32	21.39	129.34	30.24	123.00	29.68	3358.97	15.65	96.77	0.230000
4	31.66	119.0	24.92	3106.62	20.92	126.64	22.00	161.00	17.26	1031.48	14.11	88.00	0.230000
5	22.00	161.0	12.98	780.30	19.28	117.33	18.78	175.00	11.06	483.24	16.25	100.1	0.230000

Load Summary

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

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Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	175.00	6' Lightning rod	1	6.50	0.38	1.00	55.65	1.853	1.00	0.00	0.00
2	175.00	BXA-70063/6CF	3	17.00	7.57	0.70	208.88	11.312	0.70	0.00	0.00
3	175.00	BXA-171085/12CF	3	15.00	4.78	0.84	144.86	7.988	0.84	0.00	0.00
4	175.00	WBX065X19R050	3	20.90	5.22	0.72	141.43	8.605	0.72	0.00	0.00
5	175.00	BXA-70080/6CF	3	18.00	5.84	0.88	188.52	9.069	0.88	0.00	0.00
6	175.00	RRH2x40-AWS	3	44.00	2.52	0.82	126.22	4.176	0.82	0.00	0.00
7	175.00	FD9R6004/2C-3L (3.1 lbs)	6	3.10	0.36	0.67	13.97	0.960	0.67	0.00	0.00
8	175.00	DB-T1-6Z-8AB-0Z	1	18.90	4.80	0.71	226.05	6.011	0.71	0.00	0.00
9	175.00	Low Profile Platform-flat	1	1200.00	25.00	1.00	2617.86	53.357	1.00	0.00	0.00
10	157.00	Platform w/ Handrail +	1	2800.00	54.00	1.00	6072.63	14.590	1.00	0.00	0.00
11	157.00	APXVTM14-C-I20	3	56.20	6.34	0.77	286.02	7.864	0.77	0.00	0.00
12	157.00	NNVV-65B-R4	3	84.70	12.27	0.74	503.26	14.220	0.74	0.00	0.00
13	157.00	ALU - 1900 MHz - RRU	3	60.00	2.77	0.75	171.76	4.469	0.75	0.00	0.00
14	157.00	ALU - 800 MHz - RRU	6	53.00	2.49	0.75	152.06	4.022	0.75	0.00	0.00
15	157.00	ALU - TD-RRH8x20-25 - RRU	3	70.00	4.05	0.75	228.65	5.168	0.75	0.00	0.00
16	140.00	APXV18-206516S-C-A20	3	18.70	3.61	0.73	111.49	6.069	0.73	0.00	0.00
17	140.00	LNX-6515DS-VTM	3	50.30	11.47	0.80	357.78	15.775	0.80	0.00	0.00
18	140.00	KRY 112 144/1	3	11.00	0.41	0.73	25.28	1.039	0.73	0.00	0.00
19	140.00	782 11056	3	1.80	0.13	0.78	5.08	0.517	0.78	0.00	0.00
20	140.00	Platform w/ Hand Rails (flat)	1	2000.00	40.00	1.00	4773.15	67.731	1.00	0.00	0.00
21	75.00	GPS	1	10.00	1.00	1.00	46.47	1.886	1.00	0.00	0.00
		Totals:	**57**	**7,774.80**			**22,285.70**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	175.00	(12) 1 5/8" Coax	0.00	Inside
0.00	175.00	(1) 1 5/8" Hybrid	0.00	Inside
0.00	157.00	(4) 1 1/4" Fiber	0.00	Inside
0.00	140.00	(12) 1 5/8" Coax	0.00	Inside
0.00	75.00	(1) 1/2" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

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Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	57.030	89.710	36220.2	18.70	114.06	79.4	1250.	0.0
5.00		0.5000	55.880	87.885	34054.4	18.30	111.76	79.9	1200.	1510.8
10.00		0.5000	54.730	86.060	31976.7	17.89	109.46	80.4	1150.	1479.7
15.00		0.5000	53.580	84.235	29985.2	17.48	107.16	80.8	1102.	1448.7
20.00		0.5000	52.430	82.410	28078.2	17.08	104.86	81.3	1054.	1417.6
25.00		0.5000	51.280	80.585	26253.8	16.67	102.56	81.8	1008.	1386.6
30.00		0.5000	50.130	78.760	24510.2	16.27	100.26	82.3	963.0	1355.5
35.00		0.5000	48.980	76.935	22845.6	15.86	97.96	82.5	918.7	1324.5
38.75	Bot - Section 2	0.5000	48.117	75.566	21647.8	15.56	96.23	82.5	886.1	973.0
40.00		0.5000	47.830	75.110	21258.1	15.46	95.66	82.5	875.4	606.4
45.00	Top - Section 1	0.4375	47.555	65.426	18351.4	17.76	108.70	0.0	0.0	2389.1
50.00		0.4375	46.405	63.829	17040.2	17.29	106.07	81.1	723.3	1099.6
55.00		0.4375	45.255	62.232	15793.0	16.83	103.44	81.6	687.4	1072.4
60.00		0.4375	44.105	60.636	14608.2	16.37	100.81	82.2	652.4	1045.2
65.00		0.4375	42.955	59.039	13484.2	15.90	98.18	82.5	618.3	1018.1
70.00		0.4375	41.805	57.442	12419.4	15.44	95.55	82.5	585.1	990.9
75.00		0.4375	40.655	55.845	11412.2	14.97	92.93	82.5	552.9	963.7
78.75	Bot - Section 3	0.4375	39.792	54.647	10693.6	14.63	90.95	82.5	529.3	705.0
80.00		0.4375	39.505	54.248	10460.9	14.51	90.30	82.5	521.6	400.2
83.75	Top - Section 2	0.3125	39.267	38.637	7407.7	20.75	125.66	0.0	0.0	1183.1
85.00		0.3125	38.980	38.352	7244.9	20.58	124.74	77.2	366.1	163.7
90.00		0.3125	37.830	37.211	6617.5	19.93	121.06	78.0	344.5	642.8
95.00		0.3125	36.680	36.071	6027.5	19.29	117.38	78.7	323.7	623.4
100.00		0.3125	35.530	34.930	5473.6	18.64	113.70	79.5	303.4	604.0
105.00		0.3125	34.380	33.789	4954.7	17.99	110.02	80.2	283.9	584.6
110.00		0.3125	33.230	32.649	4469.7	17.34	106.34	81.0	264.9	565.2
115.00		0.3125	32.080	31.508	4017.4	16.69	102.66	81.8	246.7	545.8
119.00	Bot - Section 4	0.3125	31.160	30.596	3678.4	16.17	99.71	82.4	232.5	422.7
120.00		0.3125	30.930	30.368	3596.7	16.04	98.98	82.5	229.0	188.2
123.00	Top - Section 3	0.2500	30.740	24.193	2841.6	20.27	122.96	0.0	0.0	556.3
125.00		0.2500	30.280	23.828	2714.9	19.95	121.12	72.8	176.6	163.4
130.00		0.2500	29.130	22.915	2414.8	19.14	116.52	73.6	163.3	397.6
135.00		0.2500	27.980	22.003	2137.6	18.32	111.92	74.5	150.5	382.1
140.00		0.2500	26.830	21.090	1882.6	17.51	107.32	75.3	138.2	366.6
145.00		0.2500	25.680	20.178	1648.6	16.70	102.72	76.2	126.4	351.1
150.00		0.2500	24.530	19.265	1434.9	15.89	98.12	76.2	115.2	335.5
155.00		0.2500	23.380	18.353	1240.5	15.08	93.52	76.2	104.5	320.0
157.00		0.2500	22.920	17.988	1168.0	14.76	91.68	76.2	100.4	123.7
160.00		0.2500	22.230	17.441	1064.6	14.27	88.92	76.2	94.3	180.8
161.00	Top - Section 4	0.2500	22.000	17.258	1031.5	14.11	88.00	76.2	92.3	59.0
161.00	Bot - Section 5	0.1875	22.000	12.981	780.3	18.81	117.33	73.5	69.9	
165.00		0.1875	21.080	12.433	685.7	18.41	112.43	74.4	64.1	173.0
170.00		0.1875	19.930	11.749	578.6	17.33	106.29	75.5	57.2	205.7
175.00		0.1875	18.780	11.064	483.2	16.25	100.16	76.2	50.7	194.1
										30519.4

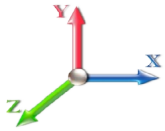
Wind Loading - Shaft

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	407.79	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	399.57	0.650	0.000	5.00	23.886	15.53	474.5	0.0	1812.9
10.00		1.00	0.70	17.366	19.10	391.35	0.650	0.000	5.00	23.399	15.21	464.9	0.0	1775.7
15.00		1.00	0.70	17.366	19.10	383.12	0.650	0.000	5.00	22.913	14.89	455.2	0.0	1738.4
20.00		1.00	0.70	17.366	19.10	374.90	0.650	0.000	5.00	22.426	14.58	445.5	0.0	1701.2
25.00		1.00	0.70	17.366	19.10	366.68	0.650	0.000	5.00	21.940	14.26	435.9	0.0	1663.9
30.00		1.00	0.70	17.381	19.12	358.61	0.650	0.000	5.00	21.453	13.94	426.6	0.0	1626.6
35.00		1.00	0.73	18.163	19.98	358.18	0.650	0.000	5.00	20.966	13.63	435.7	0.0	1589.4
38.75	Bot - Section 2	1.00	0.75	18.699	20.57	357.03	0.650	0.000	3.75	15.406	10.01	329.6	0.0	1167.6
40.00		1.00	0.76	18.870	20.76	356.51	0.650	0.000	1.25	5.167	3.36	111.5	0.0	727.7
45.00	Top - Section 1	1.00	0.79	19.516	21.47	353.84	0.650	0.000	5.00	20.364	13.24	454.6	0.0	2867.0
50.00		1.00	0.81	20.112	22.12	357.09	0.650	0.000	5.00	19.877	12.92	457.3	0.0	1319.5
55.00		1.00	0.83	20.667	22.73	353.02	0.650	0.000	5.00	19.390	12.60	458.5	0.0	1286.9
60.00		1.00	0.85	21.187	23.31	348.35	0.650	0.000	5.00	18.904	12.29	458.2	0.0	1254.3
65.00		1.00	0.87	21.678	23.85	343.17	0.650	0.000	5.00	18.417	11.97	456.7	0.0	1221.7
70.00		1.00	0.89	22.142	24.36	337.53	0.650	0.000	5.00	17.931	11.65	454.2	0.0	1189.1
75.00	Appurtenance(s)	1.00	0.91	22.582	24.84	331.50	0.650	0.000	5.00	17.444	11.34	450.7	0.0	1156.5
78.75	Bot - Section 3	1.00	0.92	22.899	25.19	326.74	0.650	0.000	3.75	12.764	8.30	334.4	0.0	846.0
80.00		1.00	0.93	23.003	25.30	325.11	0.650	0.000	1.25	4.260	2.77	112.1	0.0	480.2
83.75	Top - Section 2	1.00	0.94	23.306	25.64	320.10	0.650	0.000	3.75	12.597	8.19	335.9	0.0	1419.7
85.00		1.00	0.94	23.404	25.74	323.58	0.650	0.000	1.25	4.138	2.69	110.8	0.0	196.5
90.00		1.00	0.96	23.790	26.17	316.60	0.650	0.000	5.00	16.249	10.56	442.2	0.0	771.4
95.00		1.00	0.97	24.160	26.58	309.36	0.650	0.000	5.00	15.762	10.25	435.7	0.0	748.1
100.00		1.00	0.99	24.517	26.97	301.87	0.650	0.000	5.00	15.276	9.93	428.4	0.0	724.8
105.00		1.00	1.00	24.861	27.35	294.14	0.650	0.000	5.00	14.789	9.61	420.6	0.0	701.5
110.00		1.00	1.02	25.194	27.71	286.19	0.650	0.000	5.00	14.303	9.30	412.2	0.0	678.2
115.00		1.00	1.03	25.516	28.07	278.05	0.650	0.000	5.00	13.816	8.98	403.3	0.0	654.9
119.00	Bot - Section 4	1.00	1.04	25.766	28.34	271.40	0.650	0.000	4.00	10.703	6.96	315.5	0.0	507.2
120.00		1.00	1.04	25.828	28.41	269.72	0.650	0.000	1.00	2.669	1.74	78.9	0.0	225.9
123.00	Top - Section 3	1.00	1.05	26.011	28.61	264.63	0.650	0.000	3.00	7.891	5.13	234.8	0.0	667.5
125.00		1.00	1.05	26.131	28.74	265.59	0.650	0.000	2.00	5.163	3.36	154.4	0.0	196.1
130.00		1.00	1.07	26.425	29.07	256.94	0.650	0.000	5.00	12.568	8.17	379.9	0.0	477.2
135.00		1.00	1.08	26.712	29.38	248.13	0.650	0.000	5.00	12.081	7.85	369.2	0.0	458.5
140.00	Appurtenance(s)	1.00	1.09	26.991	29.69	239.17	0.650	0.000	5.00	11.595	7.54	358.0	0.0	439.9
145.00		1.00	1.10	27.263	29.99	230.07	0.650	0.000	5.00	11.108	7.22	346.5	0.0	421.3
150.00		1.00	1.11	27.528	30.28	220.84	0.650	0.000	5.00	10.622	6.90	334.5	0.0	402.7
155.00		1.00	1.12	27.787	30.57	211.47	0.650	0.000	5.00	10.135	6.59	322.2	0.0	384.0
157.00	Appurtenance(s)	1.00	1.12	27.889	30.68	207.69	0.650	0.000	2.00	3.918	2.55	125.0	0.0	148.4
160.00		1.00	1.13	28.040	30.84	201.98	0.650	0.000	3.00	5.731	3.73	183.8	0.0	217.0
161.00	Top - Section 4	1.00	1.13	28.090	30.90	200.07	0.650	0.000	1.00	1.871	1.22	60.1	0.0	70.8
165.00		1.00	1.14	28.288	31.12	192.38	0.650	0.000	4.00	7.291	4.74	235.9	0.0	207.5
170.00		1.00	1.15	28.530	31.38	182.66	0.650	0.000	5.00	8.676	5.64	283.2	0.0	246.9
175.00	Appurtenance(s)	1.00	1.16	28.768	31.64	172.84	0.650	0.000	5.00	8.189	5.32	269.5	0.0	232.9
								Totals:	**175.00**			**14,256.5**		**36,623.3**

Discrete Appurtenance Forces

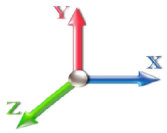
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Low Profile Platform-flat	1	28.768	31.644	1.00	1.00	25.00	1440.00	0.000	0.000	1265.78	0.00	0.00
2	175.00	DB-T1-6Z-8AB-0Z	1	28.768	31.644	0.71	1.00	3.41	22.68	0.000	0.000	172.55	0.00	0.00
3	175.00	FD9R6004/2C-3L (3.1 lbs)	6	28.768	31.644	0.67	1.00	1.45	22.32	0.000	0.000	73.27	0.00	0.00
4	175.00	RRH2x40-AWS	3	28.768	31.644	0.82	1.00	6.20	158.40	0.000	0.000	313.87	0.00	0.00
5	175.00	BXA-70080/6CF	3	28.768	31.644	0.88	1.00	15.42	64.80	0.000	0.000	780.61	0.00	0.00
6	175.00	WBX065X19R050	3	28.768	31.644	0.72	1.00	11.28	75.24	0.000	0.000	570.88	0.00	0.00
7	175.00	BXA-171085/12CF	3	28.768	31.644	0.84	1.00	12.05	54.00	0.000	0.000	609.88	0.00	0.00
8	175.00	BXA-70063/6CF	3	28.768	31.644	0.70	1.00	15.90	61.20	0.000	0.000	804.88	0.00	0.00
9	175.00	6' Lightning rod	1	28.768	31.644	1.00	1.00	0.38	7.80	0.000	0.000	19.24	0.00	0.00
10	157.00	ALU - TD-RRH8x20-25 -	3	27.889	30.678	0.60	0.80	7.29	252.00	0.000	0.000	357.83	0.00	0.00
11	157.00	ALU - 800 MHz - RRU	6	27.889	30.678	0.60	0.80	8.96	381.60	0.000	0.000	440.00	0.00	0.00
12	157.00	ALU - 1900 MHz - RRU	3	27.889	30.678	0.60	0.80	4.99	216.00	0.000	0.000	244.74	0.00	0.00
13	157.00	NNVV-65B-R4	3	27.889	30.678	0.59	0.80	21.79	304.92	0.000	0.000	1069.64	0.00	0.00
14	157.00	APXVTM14-C-I20	3	27.889	30.678	0.62	0.80	11.72	202.32	0.000	0.000	575.10	0.00	0.00
15	157.00	Platform w/ Handrail +	1	27.889	30.678	1.00	1.00	54.00	3360.00	0.000	0.000	2650.59	0.00	0.00
16	140.00	Platform w/ Hand Rails	1	26.991	29.690	1.00	1.00	40.00	2400.00	0.000	0.000	1900.15	0.00	0.00
17	140.00	782 11056	3	26.991	29.690	0.62	0.80	0.24	6.48	0.000	0.000	11.56	0.00	0.00
18	140.00	KRY 112 144/1	3	26.991	29.690	0.58	0.80	0.72	39.60	0.000	0.000	34.12	0.00	0.00
19	140.00	LNX-6515DS-VTM	3	26.991	29.690	0.64	0.80	22.02	181.08	0.000	0.000	1046.15	0.00	0.00
20	140.00	APXV18-206516S-C-A20	3	26.991	29.690	0.58	0.80	6.32	67.32	0.000	0.000	300.45	0.00	0.00
21	75.00	GPS	1	22.582	24.841	1.00	1.00	1.00	12.00	0.000	0.000	39.74	0.00	0.00
							Totals:		**9,329.76**			**13,281.03**		

Total Applied Force Summary

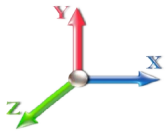
Structure:	CT01915-S-SBA		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		474.54	1986.11	0.00	0.00
10.00		464.87	1948.85	0.00	0.00
15.00		455.20	1911.59	0.00	0.00
20.00		445.54	1874.33	0.00	0.00
25.00		435.87	1837.07	0.00	0.00
30.00		426.56	1799.81	0.00	0.00
35.00		435.66	1762.55	0.00	0.00
38.75		329.56	1297.46	0.00	0.00
40.00		111.54	770.94	0.00	0.00
45.00		454.63	3040.11	0.00	0.00
50.00		457.33	1492.64	0.00	0.00
55.00		458.45	1460.04	0.00	0.00
60.00		458.20	1427.44	0.00	0.00
65.00		456.73	1394.84	0.00	0.00
70.00		454.18	1362.23	0.00	0.00
75.00	(1) attachments	490.40	1341.63	0.00	0.00
78.75		334.37	975.11	0.00	0.00
80.00		112.10	523.26	0.00	0.00
83.75		335.86	1548.84	0.00	0.00
85.00		110.80	239.53	0.00	0.00
90.00		442.22	943.58	0.00	0.00
95.00		435.66	920.29	0.00	0.00
100.00		428.45	897.00	0.00	0.00
105.00		420.62	873.71	0.00	0.00
110.00		412.23	850.42	0.00	0.00
115.00		403.29	827.14	0.00	0.00
119.00		315.47	644.94	0.00	0.00
120.00		78.87	260.30	0.00	0.00
123.00		234.81	770.85	0.00	0.00
125.00		154.35	264.97	0.00	0.00
130.00		379.94	649.37	0.00	0.00
135.00		369.19	630.74	0.00	0.00
140.00	(13) attachments	3650.45	3306.59	0.00	0.00
145.00		346.45	518.60	0.00	0.00
150.00		334.50	499.97	0.00	0.00
155.00		322.18	481.34	0.00	0.00
157.00	(19) attachments	5462.89	4904.16	0.00	0.00
160.00		183.83	265.89	0.00	0.00
161.00		60.14	87.14	0.00	0.00
165.00		235.94	272.73	0.00	0.00
170.00		283.16	328.34	0.00	0.00
175.00	(24) attachments	4880.46	2220.81	0.00	0.00
	Totals:	**27,537.54**	**51,413.24**	**0.00**	**0.00**

Calculated Forces

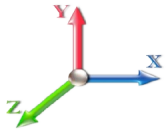
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.38	-27.60	0.00	-3439.1	0.00	3439.14	6411.04	3205.52	14877.2	7449.66	0.00	0.000	0.000	0.470
5.00	-49.33	-27.24	0.00	-3301.1	0.00	3301.15	6318.35	3159.17	14361.2	7191.28	0.07	-0.132	0.000	0.467
10.00	-47.32	-26.88	0.00	-3164.9	0.00	3164.98	6224.09	3112.04	13850.5	6935.58	0.28	-0.267	0.000	0.464
15.00	-45.35	-26.52	0.00	-3030.6	0.00	3030.60	6128.26	3064.13	13345.4	6682.66	0.64	-0.405	0.000	0.461
20.00	-43.41	-26.17	0.00	-2898.0	0.00	2898.00	6030.87	3015.43	12846.2	6432.65	1.14	-0.546	0.000	0.458
25.00	-41.51	-25.82	0.00	-2767.1	0.00	2767.17	5931.91	2965.95	12352.9	6185.64	1.78	-0.689	0.000	0.454
30.00	-39.65	-25.47	0.00	-2638.0	0.00	2638.09	5831.38	2915.69	11865.8	5941.76	2.59	-0.836	0.000	0.451
35.00	-37.84	-25.09	0.00	-2510.7	0.00	2510.75	5715.88	2857.94	11358.6	5687.79	3.54	-0.985	0.000	0.448
38.75	-36.52	-24.79	0.00	-2416.6	0.00	2416.65	5614.19	2807.10	10956.1	5486.19	4.36	-1.100	0.000	0.447
40.00	-35.71	-24.72	0.00	-2385.6	0.00	2385.67	5580.30	2790.15	10823.5	5419.80	4.65	-1.140	0.000	0.447
45.00	-32.61	-24.29	0.00	-2262.0	0.00	2262.06	4741.11	2370.56	9166.15	4589.89	5.93	-1.295	0.000	0.500
50.00	-31.06	-23.89	0.00	-2140.5	0.00	2140.59	4656.71	2328.36	8781.22	4397.14	7.37	-1.454	0.000	0.494
55.00	-29.54	-23.48	0.00	-2021.1	0.00	2021.15	4570.75	2285.37	8401.44	4206.97	8.99	-1.628	0.000	0.487
60.00	-28.06	-23.07	0.00	-1903.7	0.00	1903.73	4483.21	2241.61	8027.05	4019.49	10.79	-1.804	0.000	0.480
65.00	-26.61	-22.65	0.00	-1788.3	0.00	1788.39	4386.28	2193.14	7644.63	3828.00	12.77	-1.984	0.000	0.473
70.00	-25.19	-22.23	0.00	-1675.1	0.00	1675.13	4267.64	2133.82	7234.64	3622.70	14.95	-2.167	0.000	0.468
75.00	-23.81	-21.75	0.00	-1563.9	0.00	1563.99	4149.01	2074.50	6835.94	3423.05	17.32	-2.352	0.000	0.463
78.75	-22.81	-21.42	0.00	-1482.4	0.00	1482.41	4060.03	2030.01	6544.34	3277.03	19.22	-2.495	0.000	0.458
80.00	-22.26	-21.32	0.00	-1455.6	0.00	1455.64	4030.37	2015.18	6448.55	3229.07	19.88	-2.543	0.000	0.456
83.75	-20.69	-20.95	0.00	-1375.6	0.00	1375.69	2677.54	1338.77	4285.17	2145.77	21.94	-2.688	0.000	0.649
85.00	-20.40	-20.88	0.00	-1349.5	0.00	1349.51	2664.37	1332.18	4232.36	2119.33	22.65	-2.737	0.000	0.645
90.00	-19.39	-20.48	0.00	-1245.1	0.00	1245.11	2610.69	1305.34	4022.76	2014.37	25.65	-2.992	0.000	0.626
95.00	-18.40	-20.08	0.00	-1142.7	0.00	1142.71	2555.44	1277.72	3815.94	1910.80	28.92	-3.249	0.000	0.605
100.00	-17.44	-19.68	0.00	-1042.3	0.00	1042.33	2498.62	1249.31	3612.11	1808.74	32.46	-3.507	0.000	0.584
105.00	-16.51	-19.27	0.00	-943.96	0.00	943.96	2440.24	1220.12	3411.50	1708.29	36.27	-3.765	0.000	0.560
110.00	-15.61	-18.88	0.00	-847.59	0.00	847.59	2380.29	1190.15	3214.34	1609.56	40.35	-4.022	0.000	0.533
115.00	-14.74	-18.47	0.00	-753.21	0.00	753.21	2318.78	1159.39	3020.85	1512.67	44.69	-4.277	0.000	0.505
119.00	-14.08	-18.14	0.00	-679.33	0.00	679.33	2268.44	1134.22	2868.85	1436.56	48.36	-4.480	0.000	0.479
120.00	-13.79	-18.06	0.00	-661.19	0.00	661.19	2255.69	1127.85	2831.25	1417.73	49.30	-4.531	0.000	0.473
123.00	-13.01	-17.80	0.00	-606.99	0.00	606.99	1577.63	788.82	1975.86	989.40	52.20	-4.682	0.000	0.622
125.00	-12.70	-17.66	0.00	-571.40	0.00	571.40	1561.09	780.55	1925.40	964.13	54.18	-4.782	0.000	0.601
130.00	-12.00	-17.29	0.00	-483.08	0.00	483.08	1518.76	759.38	1800.86	901.77	59.33	-5.058	0.000	0.544
135.00	-11.33	-16.91	0.00	-396.65	0.00	396.65	1475.03	737.52	1678.77	840.64	64.76	-5.317	0.000	0.480
140.00	-8.34	-13.00	0.00	-312.10	0.00	312.10	1429.92	714.96	1559.34	780.83	70.45	-5.553	0.000	0.406
145.00	-7.81	-12.63	0.00	-247.13	0.00	247.13	1383.42	691.71	1442.75	722.45	76.38	-5.764	0.000	0.348
150.00	-7.31	-12.26	0.00	-183.99	0.00	183.99	1321.23	660.61	1314.97	658.46	82.51	-5.950	0.000	0.285
155.00	-6.85	-11.91	0.00	-122.67	0.00	122.67	1258.65	629.32	1192.75	597.26	88.81	-6.102	0.000	0.211
157.00	-2.55	-5.95	0.00	-98.86	0.00	98.86	1233.62	616.81	1145.53	573.62	91.38	-6.153	0.000	0.175
160.00	-2.30	-5.74	0.00	-81.00	0.00	81.00	1196.07	598.03	1076.49	539.05	95.26	-6.219	0.000	0.152
161.00	-2.21	-5.68	0.00	-75.26	0.00	75.26	1183.55	591.78	1053.96	527.76	96.56	-6.240	0.000	0.145
161.00	-2.21	-5.68	0.00	-75.26	0.00	75.26	858.57	429.28	768.96	385.05	96.56	-6.240	0.000	0.198
165.00	-1.96	-5.41	0.00	-52.56	0.00	52.56	832.45	416.23	713.85	357.46	101.81	-6.310	0.000	0.150
170.00	-1.66	-5.10	0.00	-25.49	0.00	25.49	798.56	399.28	646.76	323.86	108.45	-6.391	0.000	0.081
175.00	0.00	-4.88	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64	115.15	-6.422	0.000	0.000

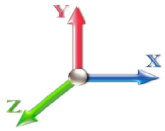
Wind Loading - Shaft

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	407.79	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	399.57	0.650	0.000	5.00	23.886	15.53	474.5	0.0	1359.7
10.00		1.00	0.70	17.366	19.10	391.35	0.650	0.000	5.00	23.399	15.21	464.9	0.0	1331.8
15.00		1.00	0.70	17.366	19.10	383.12	0.650	0.000	5.00	22.913	14.89	455.2	0.0	1303.8
20.00		1.00	0.70	17.366	19.10	374.90	0.650	0.000	5.00	22.426	14.58	445.5	0.0	1275.9
25.00		1.00	0.70	17.366	19.10	366.68	0.650	0.000	5.00	21.940	14.26	435.9	0.0	1247.9
30.00		1.00	0.70	17.381	19.12	358.61	0.650	0.000	5.00	21.453	13.94	426.6	0.0	1220.0
35.00		1.00	0.73	18.163	19.98	358.18	0.650	0.000	5.00	20.966	13.63	435.7	0.0	1192.0
38.75	Bot - Section 2	1.00	0.75	18.699	20.57	357.03	0.650	0.000	3.75	15.406	10.01	329.6	0.0	875.7
40.00		1.00	0.76	18.870	20.76	356.51	0.650	0.000	1.25	5.167	3.36	111.5	0.0	545.7
45.00	Top - Section 1	1.00	0.79	19.516	21.47	353.84	0.650	0.000	5.00	20.364	13.24	454.6	0.0	2150.2
50.00		1.00	0.81	20.112	22.12	357.09	0.650	0.000	5.00	19.877	12.92	457.3	0.0	989.6
55.00		1.00	0.83	20.667	22.73	353.02	0.650	0.000	5.00	19.390	12.60	458.5	0.0	965.2
60.00		1.00	0.85	21.187	23.31	348.35	0.650	0.000	5.00	18.904	12.29	458.2	0.0	940.7
65.00		1.00	0.87	21.678	23.85	343.17	0.650	0.000	5.00	18.417	11.97	456.7	0.0	916.3
70.00		1.00	0.89	22.142	24.36	337.53	0.650	0.000	5.00	17.931	11.65	454.2	0.0	891.8
75.00	Appurtenance(s)	1.00	0.91	22.582	24.84	331.50	0.650	0.000	5.00	17.444	11.34	450.7	0.0	867.4
78.75	Bot - Section 3	1.00	0.92	22.899	25.19	326.74	0.650	0.000	3.75	12.764	8.30	334.4	0.0	634.5
80.00		1.00	0.93	23.003	25.30	325.11	0.650	0.000	1.25	4.260	2.77	112.1	0.0	360.2
83.75	Top - Section 2	1.00	0.94	23.306	25.64	320.10	0.650	0.000	3.75	12.597	8.19	335.9	0.0	1064.8
85.00		1.00	0.94	23.404	25.74	323.58	0.650	0.000	1.25	4.138	2.69	110.8	0.0	147.4
90.00		1.00	0.96	23.790	26.17	316.60	0.650	0.000	5.00	16.249	10.56	442.2	0.0	578.5
95.00		1.00	0.97	24.160	26.58	309.36	0.650	0.000	5.00	15.762	10.25	435.7	0.0	561.1
100.00		1.00	0.99	24.517	26.97	301.87	0.650	0.000	5.00	15.276	9.93	428.4	0.0	543.6
105.00		1.00	1.00	24.861	27.35	294.14	0.650	0.000	5.00	14.789	9.61	420.6	0.0	526.1
110.00		1.00	1.02	25.194	27.71	286.19	0.650	0.000	5.00	14.303	9.30	412.2	0.0	508.7
115.00		1.00	1.03	25.516	28.07	278.05	0.650	0.000	5.00	13.816	8.98	403.3	0.0	491.2
119.00	Bot - Section 4	1.00	1.04	25.766	28.34	271.40	0.650	0.000	4.00	10.703	6.96	315.5	0.0	380.4
120.00		1.00	1.04	25.828	28.41	269.72	0.650	0.000	1.00	2.669	1.74	78.9	0.0	169.4
123.00	Top - Section 3	1.00	1.05	26.011	28.61	264.63	0.650	0.000	3.00	7.891	5.13	234.8	0.0	500.6
125.00		1.00	1.05	26.131	28.74	265.59	0.650	0.000	2.00	5.163	3.36	154.4	0.0	147.1
130.00		1.00	1.07	26.425	29.07	256.94	0.650	0.000	5.00	12.568	8.17	379.9	0.0	357.9
135.00		1.00	1.08	26.712	29.38	248.13	0.650	0.000	5.00	12.081	7.85	369.2	0.0	343.9
140.00	Appurtenance(s)	1.00	1.09	26.991	29.69	239.17	0.650	0.000	5.00	11.595	7.54	358.0	0.0	329.9
145.00		1.00	1.10	27.263	29.99	230.07	0.650	0.000	5.00	11.108	7.22	346.5	0.0	316.0
150.00		1.00	1.11	27.528	30.28	220.84	0.650	0.000	5.00	10.622	6.90	334.5	0.0	302.0
155.00		1.00	1.12	27.787	30.57	211.47	0.650	0.000	5.00	10.135	6.59	322.2	0.0	288.0
157.00	Appurtenance(s)	1.00	1.12	27.889	30.68	207.69	0.650	0.000	2.00	3.918	2.55	125.0	0.0	111.3
160.00		1.00	1.13	28.040	30.84	201.98	0.650	0.000	3.00	5.731	3.73	183.8	0.0	162.7
161.00	Top - Section 4	1.00	1.13	28.090	30.90	200.07	0.650	0.000	1.00	1.871	1.22	60.1	0.0	53.1
165.00		1.00	1.14	28.288	31.12	192.38	0.650	0.000	4.00	7.291	4.74	235.9	0.0	155.7
170.00		1.00	1.15	28.530	31.38	182.66	0.650	0.000	5.00	8.676	5.64	283.2	0.0	185.1
175.00	Appurtenance(s)	1.00	1.16	28.768	31.64	172.84	0.650	0.000	5.00	8.189	5.32	269.5	0.0	174.7
								Totals:	**175.00**			**14,256.5**		**27,467.4**

Discrete Appurtenance Forces

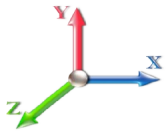
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Low Profile Platform-flat	1	28.768	31.644	1.00	1.00	25.00	1080.00	0.000	0.000	1265.78	0.00	0.00
2	175.00	DB-T1-6Z-8AB-0Z	1	28.768	31.644	0.71	1.00	3.41	17.01	0.000	0.000	172.55	0.00	0.00
3	175.00	FD9R6004/2C-3L (3.1 lbs)	6	28.768	31.644	0.67	1.00	1.45	16.74	0.000	0.000	73.27	0.00	0.00
4	175.00	RRH2x40-AWS	3	28.768	31.644	0.82	1.00	6.20	118.80	0.000	0.000	313.87	0.00	0.00
5	175.00	BXA-70080/6CF	3	28.768	31.644	0.88	1.00	15.42	48.60	0.000	0.000	780.61	0.00	0.00
6	175.00	WBX065X19R050	3	28.768	31.644	0.72	1.00	11.28	56.43	0.000	0.000	570.88	0.00	0.00
7	175.00	BXA-171085/12CF	3	28.768	31.644	0.84	1.00	12.05	40.50	0.000	0.000	609.88	0.00	0.00
8	175.00	BXA-70063/6CF	3	28.768	31.644	0.70	1.00	15.90	45.90	0.000	0.000	804.88	0.00	0.00
9	175.00	6' Lightning rod	1	28.768	31.644	1.00	1.00	0.38	5.85	0.000	0.000	19.24	0.00	0.00
10	157.00	ALU - TD-RRH8x20-25 -	3	27.889	30.678	0.60	0.80	7.29	189.00	0.000	0.000	357.83	0.00	0.00
11	157.00	ALU - 800 MHz - RRU	6	27.889	30.678	0.60	0.80	8.96	286.20	0.000	0.000	440.00	0.00	0.00
12	157.00	ALU - 1900 MHz - RRU	3	27.889	30.678	0.60	0.80	4.99	162.00	0.000	0.000	244.74	0.00	0.00
13	157.00	NNVV-65B-R4	3	27.889	30.678	0.59	0.80	21.79	228.69	0.000	0.000	1069.64	0.00	0.00
14	157.00	APXVTM14-C-I20	3	27.889	30.678	0.62	0.80	11.72	151.74	0.000	0.000	575.10	0.00	0.00
15	157.00	Platform w/ Handrail +	1	27.889	30.678	1.00	1.00	54.00	2520.00	0.000	0.000	2650.59	0.00	0.00
16	140.00	Platform w/ Hand Rails	1	26.991	29.690	1.00	1.00	40.00	1800.00	0.000	0.000	1900.15	0.00	0.00
17	140.00	782 11056	3	26.991	29.690	0.62	0.80	0.24	4.86	0.000	0.000	11.56	0.00	0.00
18	140.00	KRY 112 144/1	3	26.991	29.690	0.58	0.80	0.72	29.70	0.000	0.000	34.12	0.00	0.00
19	140.00	LNX-6515DS-VTM	3	26.991	29.690	0.64	0.80	22.02	135.81	0.000	0.000	1046.15	0.00	0.00
20	140.00	APXV18-206516S-C-A20	3	26.991	29.690	0.58	0.80	6.32	50.49	0.000	0.000	300.45	0.00	0.00
21	75.00	GPS	1	22.582	24.841	1.00	1.00	1.00	9.00	0.000	0.000	39.74	0.00	0.00
							Totals:		**6,997.32**			**13,281.03**		

Total Applied Force Summary

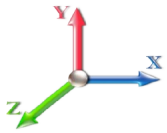
Structure:	CT01915-S-SBA		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		474.54	1489.58	0.00	0.00
10.00		464.87	1461.63	0.00	0.00
15.00		455.20	1433.69	0.00	0.00
20.00		445.54	1405.74	0.00	0.00
25.00		435.87	1377.80	0.00	0.00
30.00		426.56	1349.85	0.00	0.00
35.00		435.66	1321.91	0.00	0.00
38.75		329.56	973.09	0.00	0.00
40.00		111.54	578.21	0.00	0.00
45.00		454.63	2280.08	0.00	0.00
50.00		457.33	1119.48	0.00	0.00
55.00		458.45	1095.03	0.00	0.00
60.00		458.20	1070.58	0.00	0.00
65.00		456.73	1046.13	0.00	0.00
70.00		454.18	1021.67	0.00	0.00
75.00	(1) attachments	490.40	1006.22	0.00	0.00
78.75		334.37	731.33	0.00	0.00
80.00		112.10	392.45	0.00	0.00
83.75		335.86	1161.63	0.00	0.00
85.00		110.80	179.65	0.00	0.00
90.00		442.22	707.68	0.00	0.00
95.00		435.66	690.22	0.00	0.00
100.00		428.45	672.75	0.00	0.00
105.00		420.62	655.28	0.00	0.00
110.00		412.23	637.82	0.00	0.00
115.00		403.29	620.35	0.00	0.00
119.00		315.47	483.71	0.00	0.00
120.00		78.87	195.23	0.00	0.00
123.00		234.81	578.14	0.00	0.00
125.00		154.35	198.72	0.00	0.00
130.00		379.94	487.03	0.00	0.00
135.00		369.19	473.06	0.00	0.00
140.00	(13) attachments	3650.45	2479.94	0.00	0.00
145.00		346.45	388.95	0.00	0.00
150.00		334.50	374.98	0.00	0.00
155.00		322.18	361.01	0.00	0.00
157.00	(19) attachments	5462.89	3678.12	0.00	0.00
160.00		183.83	199.42	0.00	0.00
161.00		60.14	65.35	0.00	0.00
165.00		235.94	204.55	0.00	0.00
170.00		283.16	246.25	0.00	0.00
175.00	(24) attachments	4880.46	1665.60	0.00	0.00
	Totals:	**27,537.54**	**38,559.93**	**0.00**	**0.00**

Calculated Forces

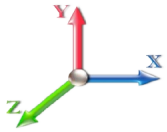
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.53	-27.58	0.00	-3401.6	0.00	3401.64	6411.04	3205.52	14877.2	7449.66	0.00	0.000	0.000	0.463
5.00	-36.98	-27.19	0.00	-3263.7	0.00	3263.74	6318.35	3159.17	14361.2	7191.28	0.07	-0.131	0.000	0.460
10.00	-35.45	-26.80	0.00	-3127.7	0.00	3127.79	6224.09	3112.04	13850.5	6935.58	0.28	-0.264	0.000	0.457
15.00	-33.96	-26.42	0.00	-2993.7	0.00	2993.77	6128.26	3064.13	13345.4	6682.66	0.63	-0.401	0.000	0.454
20.00	-32.49	-26.04	0.00	-2861.6	0.00	2861.66	6030.87	3015.43	12846.2	6432.65	1.12	-0.539	0.000	0.450
25.00	-31.06	-25.67	0.00	-2731.4	0.00	2731.43	5931.91	2965.95	12352.9	6185.64	1.76	-0.681	0.000	0.447
30.00	-29.65	-25.30	0.00	-2603.0	0.00	2603.07	5831.38	2915.69	11865.8	5941.76	2.55	-0.826	0.000	0.443
35.00	-28.28	-24.91	0.00	-2476.5	0.00	2476.56	5715.88	2857.94	11358.6	5687.79	3.50	-0.973	0.000	0.440
38.75	-27.28	-24.60	0.00	-2383.1	0.00	2383.14	5614.19	2807.10	10956.1	5486.19	4.31	-1.087	0.000	0.439
40.00	-26.66	-24.52	0.00	-2352.3	0.00	2352.39	5580.30	2790.15	10823.5	5419.80	4.60	-1.125	0.000	0.439
45.00	-24.32	-24.09	0.00	-2229.7	0.00	2229.78	4741.11	2370.56	9166.15	4589.89	5.86	-1.279	0.000	0.491
50.00	-23.15	-23.67	0.00	-2109.3	0.00	2109.35	4656.71	2328.36	8781.22	4397.14	7.28	-1.435	0.000	0.485
55.00	-22.00	-23.25	0.00	-1991.0	0.00	1991.01	4570.75	2285.37	8401.44	4206.97	8.88	-1.606	0.000	0.478
60.00	-20.87	-22.82	0.00	-1874.7	0.00	1874.77	4483.21	2241.61	8027.05	4019.49	10.65	-1.780	0.000	0.471
65.00	-19.77	-22.39	0.00	-1760.6	0.00	1760.66	4386.28	2193.14	7644.63	3828.00	12.61	-1.957	0.000	0.465
70.00	-18.69	-21.96	0.00	-1648.7	0.00	1648.70	4267.64	2133.82	7234.64	3622.70	14.76	-2.137	0.000	0.460
75.00	-17.65	-21.48	0.00	-1538.8	0.00	1538.89	4149.01	2074.50	6835.94	3423.05	17.09	-2.320	0.000	0.454
78.75	-16.90	-21.15	0.00	-1458.3	0.00	1458.33	4060.03	2030.01	6544.34	3277.03	18.97	-2.460	0.000	0.449
80.00	-16.47	-21.04	0.00	-1431.9	0.00	1431.90	4030.37	2015.18	6448.55	3229.07	19.62	-2.508	0.000	0.448
83.75	-15.29	-20.68	0.00	-1352.9	0.00	1352.98	2677.54	1338.77	4285.17	2145.77	21.65	-2.650	0.000	0.636
85.00	-15.07	-20.60	0.00	-1327.1	0.00	1327.13	2664.37	1332.18	4232.36	2119.33	22.35	-2.699	0.000	0.632
90.00	-14.29	-20.19	0.00	-1224.1	0.00	1224.12	2610.69	1305.34	4022.76	2014.37	25.31	-2.949	0.000	0.613
95.00	-13.54	-19.78	0.00	-1123.1	0.00	1123.18	2555.44	1277.72	3815.94	1910.80	28.53	-3.201	0.000	0.593
100.00	-12.81	-19.37	0.00	-1024.3	0.00	1024.30	2498.62	1249.31	3612.11	1808.74	32.02	-3.455	0.000	0.572
105.00	-12.10	-18.96	0.00	-927.46	0.00	927.46	2440.24	1220.12	3411.50	1708.29	35.77	-3.708	0.000	0.548
110.00	-11.41	-18.56	0.00	-832.67	0.00	832.67	2380.29	1190.15	3214.34	1609.56	39.79	-3.961	0.000	0.522
115.00	-10.74	-18.15	0.00	-739.89	0.00	739.89	2318.78	1159.39	3020.85	1512.67	44.07	-4.211	0.000	0.494
119.00	-10.25	-17.82	0.00	-667.28	0.00	667.28	2268.44	1134.22	2868.85	1436.56	47.68	-4.411	0.000	0.469
120.00	-10.03	-17.75	0.00	-649.46	0.00	649.46	2255.69	1127.85	2831.25	1417.73	48.61	-4.461	0.000	0.463
123.00	-9.43	-17.49	0.00	-596.22	0.00	596.22	1577.63	788.82	1975.86	989.40	51.46	-4.609	0.000	0.609
125.00	-9.19	-17.35	0.00	-561.24	0.00	561.24	1561.09	780.55	1925.40	964.13	53.41	-4.707	0.000	0.589
130.00	-8.66	-16.97	0.00	-474.51	0.00	474.51	1518.76	759.38	1800.86	901.77	58.48	-4.979	0.000	0.532
135.00	-8.15	-16.59	0.00	-389.67	0.00	389.67	1475.03	737.52	1678.77	840.64	63.83	-5.233	0.000	0.470
140.00	-5.97	-12.75	0.00	-306.71	0.00	306.71	1429.92	714.96	1559.34	780.83	69.43	-5.465	0.000	0.397
145.00	-5.58	-12.39	0.00	-242.96	0.00	242.96	1383.42	691.71	1442.75	722.45	75.26	-5.673	0.000	0.341
150.00	-5.20	-12.03	0.00	-181.03	0.00	181.03	1321.23	660.61	1314.97	658.46	81.29	-5.855	0.000	0.279
155.00	-4.86	-11.68	0.00	-120.87	0.00	120.87	1258.65	629.32	1192.75	597.26	87.50	-6.005	0.000	0.207
157.00	-1.77	-5.86	0.00	-97.51	0.00	97.51	1233.62	616.81	1145.53	573.62	90.02	-6.055	0.000	0.172
160.00	-1.59	-5.66	0.00	-79.92	0.00	79.92	1196.07	598.03	1076.49	539.05	93.84	-6.120	0.000	0.150
161.00	-1.52	-5.60	0.00	-74.26	0.00	74.26	1183.55	591.78	1053.96	527.76	95.12	-6.141	0.000	0.142
161.00	-1.52	-5.60	0.00	-74.26	0.00	74.26	858.57	429.28	768.96	385.05	95.12	-6.141	0.000	0.195
165.00	-1.34	-5.34	0.00	-51.87	0.00	51.87	832.45	416.23	713.85	357.46	100.29	-6.210	0.000	0.147
170.00	-1.12	-5.03	0.00	-25.17	0.00	25.17	798.56	399.28	646.76	323.86	106.83	-6.290	0.000	0.079
175.00	0.00	-4.88	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64	113.42	-6.321	0.000	0.000

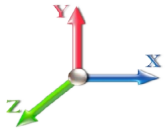
Wind Loading - Shaft

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.656	5.00	25.266	30.32	141.9	596.8	2409.8
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	24.878	29.85	139.8	628.2	2403.9
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	24.453	29.34	137.4	641.7	2380.1
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	24.011	28.81	134.9	647.4	2348.5
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	23.561	28.27	132.4	648.5	2312.4
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	23.104	27.72	129.9	646.6	2273.2
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	22.643	27.17	133.0	642.5	2231.9
38.75	Bot - Section 2	1.00	0.75	4.583	5.04	0.00	1.200	2.032	3.75	16.676	20.01	100.9	478.7	1646.3
40.00		1.00	0.76	4.625	5.09	0.00	1.200	2.039	1.25	5.592	6.71	34.1	162.0	889.6
45.00	Top - Section 1	1.00	0.79	4.783	5.26	0.00	1.200	2.063	5.00	22.083	26.50	139.4	641.1	3508.0
50.00		1.00	0.81	4.929	5.42	0.00	1.200	2.085	5.00	21.614	25.94	140.6	633.1	1952.6
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	5.00	21.144	25.37	141.4	624.3	1911.1
60.00		1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	20.673	24.81	141.7	614.7	1868.9
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	20.201	24.24	141.7	604.4	1826.1
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	19.728	23.67	141.3	593.6	1782.6
75.00	Appurtenance(s)	1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	19.253	23.10	140.7	582.2	1738.7
78.75	Bot - Section 3	1.00	0.92	5.612	6.17	0.00	1.200	2.182	3.75	14.127	16.95	104.7	430.1	1276.0
80.00		1.00	0.93	5.637	6.20	0.00	1.200	2.185	1.25	4.715	5.66	35.1	144.7	625.0
83.75	Top - Section 2	1.00	0.94	5.712	6.28	0.00	1.200	2.195	3.75	13.969	16.76	105.3	427.4	1847.1
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	1.25	4.596	5.52	34.8	141.7	338.2
90.00		1.00	0.96	5.830	6.41	0.00	1.200	2.211	5.00	18.092	21.71	139.2	554.3	1325.7
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	5.00	17.615	21.14	137.7	541.5	1289.6
100.00		1.00	0.99	6.008	6.61	0.00	1.200	2.234	5.00	17.138	20.57	135.9	528.3	1253.1
105.00		1.00	1.00	6.093	6.70	0.00	1.200	2.245	5.00	16.660	19.99	134.0	514.9	1216.4
110.00		1.00	1.02	6.174	6.79	0.00	1.200	2.256	5.00	16.183	19.42	131.9	501.2	1179.4
115.00		1.00	1.03	6.253	6.88	0.00	1.200	2.266	5.00	15.704	18.85	129.6	487.2	1142.2
119.00	Bot - Section 4	1.00	1.04	6.315	6.95	0.00	1.200	2.274	4.00	12.218	14.66	101.8	380.7	887.9
120.00		1.00	1.04	6.330	6.96	0.00	1.200	2.276	1.00	3.049	3.66	25.5	96.0	321.9
123.00	Top - Section 3	1.00	1.05	6.375	7.01	0.00	1.200	2.281	3.00	9.032	10.84	76.0	282.9	950.5
125.00		1.00	1.05	6.404	7.04	0.00	1.200	2.285	2.00	5.925	7.11	50.1	186.3	382.4
130.00		1.00	1.07	6.476	7.12	0.00	1.200	2.294	5.00	14.480	17.38	123.8	451.2	928.4
135.00		1.00	1.08	6.546	7.20	0.00	1.200	2.303	5.00	14.000	16.80	121.0	436.5	895.0
140.00	Appurtenance(s)	1.00	1.09	6.615	7.28	0.00	1.200	2.311	5.00	13.521	16.22	118.1	421.5	861.4
145.00		1.00	1.10	6.681	7.35	0.00	1.200	2.319	5.00	13.041	15.65	115.0	406.4	827.7
150.00		1.00	1.11	6.746	7.42	0.00	1.200	2.327	5.00	12.561	15.07	111.9	391.1	793.8
155.00		1.00	1.12	6.810	7.49	0.00	1.200	2.335	5.00	12.081	14.50	108.6	375.7	759.7
157.00	Appurtenance(s)	1.00	1.12	6.835	7.52	0.00	1.200	2.338	2.00	4.697	5.64	42.4	147.8	296.2
160.00		1.00	1.13	6.872	7.56	0.00	1.200	2.342	3.00	6.902	8.28	62.6	216.1	433.1
161.00	Top - Section 4	1.00	1.13	6.884	7.57	0.00	1.200	2.343	1.00	2.262	2.71	20.6	71.4	142.2
165.00		1.00	1.14	6.933	7.63	0.00	1.200	2.349	4.00	8.857	10.63	81.1	275.5	483.1
170.00		1.00	1.15	6.992	7.69	0.00	1.200	2.356	5.00	10.639	12.77	98.2	328.5	575.4
175.00	Appurtenance(s)	1.00	1.16	7.050	7.76	0.00	1.200	2.363	5.00	10.158	12.19	94.5	312.6	545.5
								Totals:	**175.00**			**4,510.2**		**55,060.6**

Discrete Appurtenance Forces

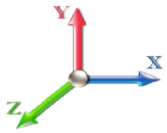
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Low Profile Platform-flat	1	7.050	7.755	1.00	1.00	53.36	2557.86	0.000	0.000	413.80	0.00	0.00
2	175.00	DB-T1-6Z-8AB-0Z	1	7.050	7.755	0.71	1.00	4.27	229.83	0.000	0.000	33.10	0.00	0.00
3	175.00	FD9R6004/2C-3L (3.1 lbs)	6	7.050	7.755	0.67	1.00	3.86	73.73	0.000	0.000	29.94	0.00	0.00
4	175.00	RRH2x40-AWS	3	7.050	7.755	0.82	1.00	10.27	352.87	0.000	0.000	79.66	0.00	0.00
5	175.00	BXA-70080/6CF	3	7.050	7.755	0.88	1.00	23.94	468.35	0.000	0.000	185.68	0.00	0.00
6	175.00	WBX065X19R050	3	7.050	7.755	0.72	1.00	18.59	360.33	0.000	0.000	144.14	0.00	0.00
7	175.00	BXA-171085/12CF	3	7.050	7.755	0.84	1.00	20.13	361.39	0.000	0.000	156.11	0.00	0.00
8	175.00	BXA-70063/6CF	3	7.050	7.755	0.70	1.00	23.76	515.04	0.000	0.000	184.23	0.00	0.00
9	175.00	6' Lightning rod	1	7.050	7.755	1.00	1.00	1.85	51.65	0.000	0.000	14.37	0.00	0.00
10	157.00	ALU - TD-RRH8x20-25 -	3	6.835	7.518	0.60	0.80	9.30	727.95	0.000	0.000	69.93	0.00	0.00
11	157.00	ALU - 800 MHz - RRU	6	6.835	7.518	0.60	0.80	14.48	849.39	0.000	0.000	108.86	0.00	0.00
12	157.00	ALU - 1900 MHz - RRU	3	6.835	7.518	0.60	0.80	8.04	479.57	0.000	0.000	60.48	0.00	0.00
13	157.00	NNVV-65B-R4	3	6.835	7.518	0.59	0.80	25.26	1385.10	0.000	0.000	189.88	0.00	0.00
14	157.00	APXVTM14-C-I20	3	6.835	7.518	0.62	0.80	14.53	891.79	0.000	0.000	109.26	0.00	0.00
15	157.00	Platform w/ Handrail +	1	6.835	7.518	1.00	1.00	114.59	7932.63	0.000	0.000	861.54	0.00	0.00
16	140.00	Platform w/ Hand Rails	1	6.615	7.276	1.00	1.00	67.73	4573.15	0.000	0.000	492.83	0.00	0.00
17	140.00	782 11056	3	6.615	7.276	0.62	0.80	0.97	9.73	0.000	0.000	7.04	0.00	0.00
18	140.00	KRY 112 144/1	3	6.615	7.276	0.58	0.80	1.82	73.13	0.000	0.000	13.25	0.00	0.00
19	140.00	LNX-6515DS-VTM	3	6.615	7.276	0.64	0.80	30.29	907.32	0.000	0.000	220.38	0.00	0.00
20	140.00	APXV18-206516S-C-A20	3	6.615	7.276	0.58	0.80	10.63	285.69	0.000	0.000	77.37	0.00	0.00
21	75.00	GPS	1	5.534	6.088	1.00	1.00	1.89	40.47	0.000	0.000	11.48	0.00	0.00
							Totals:		**23,126.96**			**3,463.32**		

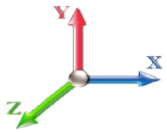
Total Applied Force Summary

Structure:	CT01915-S-SBA		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		141.94	2582.95	0.00	0.00
10.00		139.76	2577.04	0.00	0.00
15.00		137.37	2553.29	0.00	0.00
20.00		134.89	2521.68	0.00	0.00
25.00		132.36	2485.53	0.00	0.00
30.00		129.91	2446.36	0.00	0.00
35.00		133.05	2405.03	0.00	0.00
38.75		100.88	1776.20	0.00	0.00
40.00		34.13	932.93	0.00	0.00
45.00		139.41	3681.17	0.00	0.00
50.00		140.63	2125.75	0.00	0.00
55.00		141.37	2084.30	0.00	0.00
60.00		141.70	2042.10	0.00	0.00
65.00		141.66	1999.23	0.00	0.00
70.00		141.30	1955.80	0.00	0.00
75.00	(1) attachments	152.13	1952.33	0.00	0.00
78.75		104.65	1405.18	0.00	0.00
80.00		35.09	668.01	0.00	0.00
83.75		105.32	1976.28	0.00	0.00
85.00		34.80	381.25	0.00	0.00
90.00		139.23	1497.92	0.00	0.00
95.00		137.67	1461.78	0.00	0.00
100.00		135.92	1425.33	0.00	0.00
105.00		133.99	1388.60	0.00	0.00
110.00		131.89	1351.60	0.00	0.00
115.00		129.63	1314.36	0.00	0.00
119.00		101.84	1025.65	0.00	0.00
120.00		25.47	356.34	0.00	0.00
123.00		76.00	1053.79	0.00	0.00
125.00		50.09	451.28	0.00	0.00
130.00		123.78	1100.59	0.00	0.00
135.00		120.98	1067.20	0.00	0.00
140.00	(13) attachments	928.92	6882.64	0.00	0.00
145.00		115.01	925.00	0.00	0.00
150.00		111.86	891.09	0.00	0.00
155.00		108.59	857.03	0.00	0.00
157.00	(19) attachments	1442.33	12601.52	0.00	0.00
160.00		62.61	481.95	0.00	0.00
161.00		20.55	158.53	0.00	0.00
165.00		81.05	548.25	0.00	0.00
170.00		98.19	656.89	0.00	0.00
175.00	(24) attachments	1335.56	5597.99	0.00	0.00
	Totals:	**7,973.54**	**83,647.75**	**0.00**	**0.00**

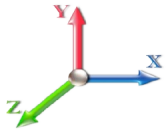
Calculated Forces

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-83.64	-8.00	0.00	-1026.1	0.00	1026.11	6411.04	3205.52	14877.2	7449.66	0.00	0.000	0.000	0.151
5.00	-81.06	-7.92	0.00	-986.10	0.00	986.10	6318.35	3159.17	14361.2	7191.28	0.02	-0.040	0.000	0.150
10.00	-78.47	-7.83	0.00	-946.52	0.00	946.52	6224.09	3112.04	13850.5	6935.58	0.08	-0.080	0.000	0.149
15.00	-75.92	-7.74	0.00	-907.37	0.00	907.37	6128.26	3064.13	13345.4	6682.66	0.19	-0.121	0.000	0.148
20.00	-73.39	-7.66	0.00	-868.66	0.00	868.66	6030.87	3015.43	12846.2	6432.65	0.34	-0.163	0.000	0.147
25.00	-70.90	-7.57	0.00	-830.38	0.00	830.38	5931.91	2965.95	12352.9	6185.64	0.53	-0.206	0.000	0.146
30.00	-68.45	-7.48	0.00	-792.53	0.00	792.53	5831.38	2915.69	11865.8	5941.76	0.77	-0.250	0.000	0.145
35.00	-66.04	-7.38	0.00	-755.11	0.00	755.11	5715.88	2857.94	11358.6	5687.79	1.06	-0.295	0.000	0.144
38.75	-64.26	-7.30	0.00	-727.42	0.00	727.42	5614.19	2807.10	10956.1	5486.19	1.30	-0.330	0.000	0.144
40.00	-63.32	-7.29	0.00	-718.30	0.00	718.30	5580.30	2790.15	10823.5	5419.80	1.39	-0.342	0.000	0.144
45.00	-59.64	-7.18	0.00	-681.83	0.00	681.83	4741.11	2370.56	9166.15	4589.89	1.78	-0.388	0.000	0.161
50.00	-57.50	-7.07	0.00	-645.94	0.00	645.94	4656.71	2328.36	8781.22	4397.14	2.21	-0.436	0.000	0.159
55.00	-55.41	-6.97	0.00	-610.57	0.00	610.57	4570.75	2285.37	8401.44	4206.97	2.69	-0.489	0.000	0.157
60.00	-53.37	-6.86	0.00	-575.74	0.00	575.74	4483.21	2241.61	8027.05	4019.49	3.23	-0.542	0.000	0.155
65.00	-51.36	-6.74	0.00	-541.45	0.00	541.45	4386.28	2193.14	7644.63	3828.00	3.83	-0.597	0.000	0.153
70.00	-49.40	-6.63	0.00	-507.73	0.00	507.73	4267.64	2133.82	7234.64	3622.70	4.49	-0.652	0.000	0.152
75.00	-47.45	-6.50	0.00	-474.58	0.00	474.58	4149.01	2074.50	6835.94	3423.05	5.20	-0.708	0.000	0.150
78.75	-46.04	-6.40	0.00	-450.22	0.00	450.22	4060.03	2030.01	6544.34	3277.03	5.77	-0.751	0.000	0.149
80.00	-45.37	-6.38	0.00	-442.22	0.00	442.22	4030.37	2015.18	6448.55	3229.07	5.97	-0.766	0.000	0.148
83.75	-43.39	-6.27	0.00	-418.31	0.00	418.31	2677.54	1338.77	4285.17	2145.77	6.59	-0.810	0.000	0.211
85.00	-43.01	-6.26	0.00	-410.48	0.00	410.48	2664.37	1332.18	4232.36	2119.33	6.80	-0.825	0.000	0.210
90.00	-41.50	-6.16	0.00	-379.18	0.00	379.18	2610.69	1305.34	4022.76	2014.37	7.71	-0.903	0.000	0.204
95.00	-40.03	-6.05	0.00	-348.40	0.00	348.40	2555.44	1277.72	3815.94	1910.80	8.70	-0.981	0.000	0.198
100.00	-38.60	-5.94	0.00	-318.16	0.00	318.16	2498.62	1249.31	3612.11	1808.74	9.77	-1.060	0.000	0.191
105.00	-37.21	-5.83	0.00	-288.46	0.00	288.46	2440.24	1220.12	3411.50	1708.29	10.92	-1.138	0.000	0.184
110.00	-35.85	-5.72	0.00	-259.31	0.00	259.31	2380.29	1190.15	3214.34	1609.56	12.15	-1.217	0.000	0.176
115.00	-34.54	-5.60	0.00	-230.71	0.00	230.71	2318.78	1159.39	3020.85	1512.67	13.47	-1.295	0.000	0.167
119.00	-33.51	-5.50	0.00	-208.29	0.00	208.29	2268.44	1134.22	2868.85	1436.56	14.58	-1.357	0.000	0.160
120.00	-33.15	-5.49	0.00	-202.79	0.00	202.79	2255.69	1127.85	2831.25	1417.73	14.87	-1.373	0.000	0.158
123.00	-32.09	-5.40	0.00	-186.34	0.00	186.34	1577.63	788.82	1975.86	989.40	15.75	-1.419	0.000	0.209
125.00	-31.64	-5.38	0.00	-175.53	0.00	175.53	1561.09	780.55	1925.40	964.13	16.35	-1.450	0.000	0.202
130.00	-30.53	-5.27	0.00	-148.65	0.00	148.65	1518.76	759.38	1800.86	901.77	17.91	-1.535	0.000	0.185
135.00	-29.46	-5.16	0.00	-122.31	0.00	122.31	1475.03	737.52	1678.77	840.64	19.56	-1.615	0.000	0.166
140.00	-22.61	-4.06	0.00	-96.53	0.00	96.53	1429.92	714.96	1559.34	780.83	21.29	-1.687	0.000	0.139
145.00	-21.68	-3.94	0.00	-76.25	0.00	76.25	1383.42	691.71	1442.75	722.45	23.10	-1.753	0.000	0.121
150.00	-20.79	-3.82	0.00	-56.56	0.00	56.56	1321.23	660.61	1314.97	658.46	24.97	-1.810	0.000	0.102
155.00	-19.94	-3.69	0.00	-37.48	0.00	37.48	1258.65	629.32	1192.75	597.26	26.89	-1.857	0.000	0.079
157.00	-7.39	-1.84	0.00	-30.10	0.00	30.10	1233.62	616.81	1145.53	573.62	27.67	-1.872	0.000	0.058
160.00	-6.91	-1.76	0.00	-24.57	0.00	24.57	1196.07	598.03	1076.49	539.05	28.85	-1.892	0.000	0.051
161.00	-6.75	-1.74	0.00	-22.81	0.00	22.81	1183.55	591.78	1053.96	527.76	29.25	-1.898	0.000	0.049
161.00	-6.75	-1.74	0.00	-22.81	0.00	22.81	858.57	429.28	768.96	385.05	29.25	-1.898	0.000	0.067
165.00	-6.20	-1.64	0.00	-15.85	0.00	15.85	832.45	416.23	713.85	357.46	30.85	-1.920	0.000	0.052
170.00	-5.55	-1.53	0.00	-7.63	0.00	7.63	798.56	399.28	646.76	323.86	32.87	-1.944	0.000	0.031
175.00	0.00	-1.34	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64	34.92	-1.954	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	23
Gust Response Factor	1.10			**Sds**	0.18	**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1510.7	0.00	0.03	0.02	23.97	
10.00		1479.7	0.01	0.05	0.03	35.12	
15.00		1448.6	0.01	0.06	0.03	40.52	
20.00		1417.6	0.02	0.07	0.04	42.99	
25.00		1386.5	0.04	0.07	0.04	43.95	
30.00		1355.5	0.06	0.07	0.04	44.19	
35.00		1324.4	0.08	0.07	0.04	44.14	
38.75	Bot - Section 2	972.99	0.09	0.07	0.04	32.94	
40.00		606.38	0.10	0.07	0.04	20.63	
45.00	Top - Section 1	2389.1	0.12	0.07	0.03	82.94	
50.00		1099.5	0.15	0.07	0.03	38.81	
55.00		1072.4	0.19	0.06	0.02	38.16	
60.00		1045.2	0.22	0.06	0.02	36.89	
65.00		1018.0	0.26	0.05	0.02	34.64	
70.00		990.89	0.30	0.04	0.01	31.05	
75.00	Appurtenance(s)	973.73	0.35	0.03	0.01	26.05	
78.75	Bot - Section 3	704.96	0.38	0.02	0.01	15.42	
80.00		400.18	0.39	0.02	0.01	7.99	
83.75	Top - Section 2	1183.0	0.43	0.01	0.01	15.84	
85.00		163.74	0.45	0.00	0.01	1.79	
90.00		642.81	0.50	-0.02	0.01	0.18	
95.00		623.41	0.56	-0.04	0.01	-6.78	
100.00		604.00	0.62	-0.06	0.02	-12.74	
105.00		584.59	0.68	-0.08	0.03	-16.98	
110.00		565.19	0.75	-0.10	0.04	-19.15	
115.00		545.78	0.82	-0.11	0.06	-19.21	
119.00	Bot - Section 4	422.65	0.87	-0.12	0.08	-14.21	
120.00		188.22	0.89	-0.12	0.08	-6.19	
123.00	Top - Section 3	556.27	0.93	-0.12	0.10	-16.55	
125.00		163.40	0.96	-0.12	0.11	-4.40	
130.00		397.64	1.04	-0.10	0.15	-6.93	
135.00		382.12	1.12	-0.05	0.20	-1.69	
140.00	Appurtenance(s)	2611.9	1.21	0.01	0.26	31.59	
145.00		351.07	1.30	0.12	0.33	11.28	
150.00		335.54	1.39	0.26	0.42	18.70	
155.00		320.02	1.48	0.46	0.52	26.55	
157.00	Appurtenance(s)	4054.3	1.52	0.55	0.57	384.62	
160.00		180.83	1.58	0.72	0.64	20.59	
161.00	Top - Section 4	59.04	1.60	0.78	0.67	7.11	
165.00		172.96	1.68	1.05	0.78	25.68	
170.00		205.72	1.78	1.46	0.95	38.46	
175.00	Appurtenance(s)	1782.7	1.89	1.98	1.14	408.83	
	Totals:	**38,294.2**				**1,506.8**	**Total Wind:** **27,537.5**

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

Calculated Forces

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Iterations 23

Gust Response Factor	1.10			**Sds**	0.18			**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03			**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.41	-1.63	0.00	-196.36	0.00	196.36	6411.04	3205.52	14877.2	7449.66		0.00	0.00	0.034
5.00	-49.43	-1.62	0.00	-188.18	0.00	188.18	6318.35	3159.17	14361.2	7191.28		0.00	-0.01	0.034
10.00	-47.48	-1.59	0.00	-180.10	0.00	180.10	6224.09	3112.04	13850.5	6935.58		0.02	-0.02	0.034
15.00	-45.57	-1.55	0.00	-172.16	0.00	172.16	6128.26	3064.13	13345.4	6682.66		0.04	-0.02	0.033
20.00	-43.69	-1.52	0.00	-164.40	0.00	164.40	6030.87	3015.43	12846.2	6432.65		0.06	-0.03	0.033
25.00	-41.85	-1.48	0.00	-156.82	0.00	156.82	5931.91	2965.95	12352.9	6185.64		0.10	-0.04	0.032
30.00	-40.05	-1.44	0.00	-149.44	0.00	149.44	5831.38	2915.69	11865.8	5941.76		0.15	-0.05	0.032
35.00	-38.29	-1.40	0.00	-142.26	0.00	142.26	5715.88	2857.94	11358.6	5687.79		0.20	-0.06	0.032
38.75	-36.99	-1.36	0.00	-137.02	0.00	137.02	5614.19	2807.10	10956.1	5486.19		0.25	-0.06	0.032
40.00	-36.22	-1.35	0.00	-135.32	0.00	135.32	5580.30	2790.15	10823.5	5419.80		0.26	-0.06	0.031
45.00	-33.18	-1.26	0.00	-128.59	0.00	128.59	4741.11	2370.56	9166.15	4589.89		0.34	-0.07	0.035
50.00	-31.69	-1.23	0.00	-122.26	0.00	122.26	4656.71	2328.36	8781.22	4397.14		0.42	-0.08	0.035
55.00	-30.23	-1.19	0.00	-116.12	0.00	116.12	4570.75	2285.37	8401.44	4206.97		0.51	-0.09	0.034
60.00	-28.80	-1.16	0.00	-110.15	0.00	110.15	4483.21	2241.61	8027.05	4019.49		0.61	-0.10	0.034
65.00	-27.41	-1.13	0.00	-104.35	0.00	104.35	4386.28	2193.14	7644.63	3828.00		0.73	-0.11	0.034
70.00	-26.04	-1.10	0.00	-98.71	0.00	98.71	4267.64	2133.82	7234.64	3622.70		0.85	-0.12	0.033
75.00	-24.70	-1.07	0.00	-93.21	0.00	93.21	4149.01	2074.50	6835.94	3423.05		0.99	-0.13	0.033
78.75	-23.73	-1.06	0.00	-89.18	0.00	89.18	4060.03	2030.01	6544.34	3277.03		1.10	-0.14	0.033
80.00	-23.20	-1.05	0.00	-87.86	0.00	87.86	4030.37	2015.18	6448.55	3229.07		1.13	-0.15	0.033
83.75	-21.66	-1.03	0.00	-83.92	0.00	83.92	2677.54	1338.77	4285.17	2145.77		1.25	-0.16	0.047
85.00	-21.42	-1.04	0.00	-82.62	0.00	82.62	2664.37	1332.18	4232.36	2119.33		1.29	-0.16	0.047
90.00	-20.47	-1.04	0.00	-77.45	0.00	77.45	2610.69	1305.34	4022.76	2014.37		1.47	-0.17	0.046
95.00	-19.55	-1.04	0.00	-72.26	0.00	72.26	2555.44	1277.72	3815.94	1910.80		1.66	-0.19	0.045
100.00	-18.65	-1.04	0.00	-67.06	0.00	67.06	2498.62	1249.31	3612.11	1808.74		1.87	-0.21	0.045
105.00	-17.78	-1.04	0.00	-61.84	0.00	61.84	2440.24	1220.12	3411.50	1708.29		2.09	-0.22	0.043
110.00	-16.93	-1.05	0.00	-56.62	0.00	56.62	2380.29	1190.15	3214.34	1609.56		2.33	-0.24	0.042
115.00	-16.10	-1.05	0.00	-51.39	0.00	51.39	2318.78	1159.39	3020.85	1512.67		2.59	-0.26	0.041
119.00	-15.46	-1.05	0.00	-47.20	0.00	47.20	2268.44	1134.22	2868.85	1436.56		2.82	-0.27	0.040
120.00	-15.20	-1.05	0.00	-46.15	0.00	46.15	2255.69	1127.85	2831.25	1417.73		2.87	-0.27	0.039
123.00	-14.43	-1.05	0.00	-43.01	0.00	43.01	1577.63	788.82	1975.86	989.40		3.05	-0.29	0.053
125.00	-14.16	-1.05	0.00	-40.92	0.00	40.92	1561.09	780.55	1925.40	964.13		3.17	-0.29	0.052
130.00	-13.51	-1.05	0.00	-35.68	0.00	35.68	1518.76	759.38	1800.86	901.77		3.49	-0.31	0.048
135.00	-12.88	-1.05	0.00	-30.43	0.00	30.43	1475.03	737.52	1678.77	840.64		3.83	-0.33	0.045
140.00	-9.57	-1.00	0.00	-25.18	0.00	25.18	1429.92	714.96	1559.34	780.83		4.18	-0.35	0.039
145.00	-9.05	-0.99	0.00	-20.18	0.00	20.18	1383.42	691.71	1442.75	722.45		4.56	-0.37	0.034
150.00	-8.55	-0.97	0.00	-15.23	0.00	15.23	1321.23	660.61	1314.97	658.46		4.95	-0.38	0.030
155.00	-8.07	-0.94	0.00	-10.38	0.00	10.38	1258.65	629.32	1192.75	597.26		5.36	-0.40	0.024
157.00	-3.17	-0.52	0.00	-8.50	0.00	8.50	1233.62	616.81	1145.53	573.62		5.53	-0.40	0.017
160.00	-2.91	-0.50	0.00	-6.93	0.00	6.93	1196.07	598.03	1076.49	539.05		5.78	-0.41	0.015
161.00	-2.82	-0.49	0.00	-6.43	0.00	6.43	1183.55	591.78	1053.96	527.76		5.87	-0.41	0.015
161.00	-2.82	-0.49	0.00	-6.43	0.00	6.43	858.57	429.28	768.96	385.05		5.87	-0.41	0.020
165.00	-2.55	-0.47	0.00	-4.45	0.00	4.45	832.45	416.23	713.85	357.46		6.21	-0.41	0.016
170.00	-2.22	-0.43	0.00	-2.13	0.00	2.13	798.56	399.28	646.76	323.86		6.65	-0.42	0.009
175.00	0.00	-0.41	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64		7.09	-0.42	0.000

Seismic Segment Forces (Factored)

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E					**Iterations**	23
Gust Response Factor	1.10			**Sds**	0.18	**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1510.7	0.00	0.03	0.02	23.97	
10.00		1479.7	0.01	0.05	0.03	35.12	
15.00		1448.6	0.01	0.06	0.03	40.52	
20.00		1417.6	0.02	0.07	0.04	42.99	
25.00		1386.5	0.04	0.07	0.04	43.95	
30.00		1355.5	0.06	0.07	0.04	44.19	
35.00		1324.4	0.08	0.07	0.04	44.14	
38.75	Bot - Section 2	972.99	0.09	0.07	0.04	32.94	
40.00		606.38	0.10	0.07	0.04	20.63	
45.00	Top - Section 1	2389.1	0.12	0.07	0.03	82.94	
50.00		1099.5	0.15	0.07	0.03	38.81	
55.00		1072.4	0.19	0.06	0.02	38.16	
60.00		1045.2	0.22	0.06	0.02	36.89	
65.00		1018.0	0.26	0.05	0.02	34.64	
70.00		990.89	0.30	0.04	0.01	31.05	
75.00	Appurtenance(s)	973.73	0.35	0.03	0.01	26.05	
78.75	Bot - Section 3	704.96	0.38	0.02	0.01	15.42	
80.00		400.18	0.39	0.02	0.01	7.99	
83.75	Top - Section 2	1183.0	0.43	0.01	0.01	15.84	
85.00		163.74	0.45	0.00	0.01	1.79	
90.00		642.81	0.50	-0.02	0.01	0.18	
95.00		623.41	0.56	-0.04	0.01	-6.78	
100.00		604.00	0.62	-0.06	0.02	-12.74	
105.00		584.59	0.68	-0.08	0.03	-16.98	
110.00		565.19	0.75	-0.10	0.04	-19.15	
115.00		545.78	0.82	-0.11	0.06	-19.21	
119.00	Bot - Section 4	422.65	0.87	-0.12	0.08	-14.21	
120.00		188.22	0.89	-0.12	0.08	-6.19	
123.00	Top - Section 3	556.27	0.93	-0.12	0.10	-16.55	
125.00		163.40	0.96	-0.12	0.11	-4.40	
130.00		397.64	1.04	-0.10	0.15	-6.93	
135.00		382.12	1.12	-0.05	0.20	-1.69	
140.00	Appurtenance(s)	2611.9	1.21	0.01	0.26	31.59	
145.00		351.07	1.30	0.12	0.33	11.28	
150.00		335.54	1.39	0.26	0.42	18.70	
155.00		320.02	1.48	0.46	0.52	26.55	
157.00	Appurtenance(s)	4054.3	1.52	0.55	0.57	384.62	
160.00		180.83	1.58	0.72	0.64	20.59	
161.00	Top - Section 4	59.04	1.60	0.78	0.67	7.11	
165.00		172.96	1.68	1.05	0.78	25.68	
170.00		205.72	1.78	1.46	0.95	38.46	
175.00	Appurtenance(s)	1782.7	1.89	1.98	1.14	408.83	
	Totals:	**38,294.2**				**1,506.8**	**Total Wind:** **27,537.5**

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

Calculated Forces

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Iterations 23

Gust Response Factor	1.10			**Sds**	0.18			**Ss**	0.17
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03			**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-38.56	-1.63	0.00	-194.12	0.00	194.12	6411.04	3205.52	14877.2	7449.66		0.00	0.00	0.032
5.00	-37.07	-1.61	0.00	-185.95	0.00	185.95	6318.35	3159.17	14361.2	7191.28		0.00	-0.01	0.032
10.00	-35.61	-1.58	0.00	-177.88	0.00	177.88	6224.09	3112.04	13850.5	6935.58		0.02	-0.02	0.031
15.00	-34.17	-1.55	0.00	-169.96	0.00	169.96	6128.26	3064.13	13345.4	6682.66		0.04	-0.02	0.031
20.00	-32.77	-1.51	0.00	-162.22	0.00	162.22	6030.87	3015.43	12846.2	6432.65		0.06	-0.03	0.031
25.00	-31.39	-1.47	0.00	-154.68	0.00	154.68	5931.91	2965.95	12352.9	6185.64		0.10	-0.04	0.030
30.00	-30.04	-1.43	0.00	-147.34	0.00	147.34	5831.38	2915.69	11865.8	5941.76		0.15	-0.05	0.030
35.00	-28.72	-1.39	0.00	-140.21	0.00	140.21	5715.88	2857.94	11358.6	5687.79		0.20	-0.06	0.030
38.75	-27.75	-1.35	0.00	-135.01	0.00	135.01	5614.19	2807.10	10956.1	5486.19		0.24	-0.06	0.030
40.00	-27.17	-1.33	0.00	-133.32	0.00	133.32	5580.30	2790.15	10823.5	5419.80		0.26	-0.06	0.029
45.00	-24.89	-1.25	0.00	-126.64	0.00	126.64	4741.11	2370.56	9166.15	4589.89		0.33	-0.07	0.033
50.00	-23.77	-1.22	0.00	-120.38	0.00	120.38	4656.71	2328.36	8781.22	4397.14		0.41	-0.08	0.032
55.00	-22.67	-1.18	0.00	-114.29	0.00	114.29	4570.75	2285.37	8401.44	4206.97		0.50	-0.09	0.032
60.00	-21.60	-1.15	0.00	-108.39	0.00	108.39	4483.21	2241.61	8027.05	4019.49		0.61	-0.10	0.032
65.00	-20.55	-1.11	0.00	-102.66	0.00	102.66	4386.28	2193.14	7644.63	3828.00		0.72	-0.11	0.032
70.00	-19.53	-1.08	0.00	-97.10	0.00	97.10	4267.64	2133.82	7234.64	3622.70		0.84	-0.12	0.031
75.00	-18.53	-1.06	0.00	-91.68	0.00	91.68	4149.01	2074.50	6835.94	3423.05		0.97	-0.13	0.031
78.75	-17.80	-1.04	0.00	-87.71	0.00	87.71	4060.03	2030.01	6544.34	3277.03		1.08	-0.14	0.031
80.00	-17.40	-1.04	0.00	-86.40	0.00	86.40	4030.37	2015.18	6448.55	3229.07		1.12	-0.14	0.031
83.75	-16.24	-1.02	0.00	-82.52	0.00	82.52	2677.54	1338.77	4285.17	2145.77		1.23	-0.15	0.045
85.00	-16.06	-1.02	0.00	-81.25	0.00	81.25	2664.37	1332.18	4232.36	2119.33		1.28	-0.16	0.044
90.00	-15.35	-1.02	0.00	-76.15	0.00	76.15	2610.69	1305.34	4022.76	2014.37		1.45	-0.17	0.044
95.00	-14.66	-1.02	0.00	-71.05	0.00	71.05	2555.44	1277.72	3815.94	1910.80		1.63	-0.19	0.043
100.00	-13.99	-1.02	0.00	-65.93	0.00	65.93	2498.62	1249.31	3612.11	1808.74		1.84	-0.20	0.042
105.00	-13.33	-1.03	0.00	-60.81	0.00	60.81	2440.24	1220.12	3411.50	1708.29		2.06	-0.22	0.041
110.00	-12.70	-1.03	0.00	-55.68	0.00	55.68	2380.29	1190.15	3214.34	1609.56		2.30	-0.24	0.040
115.00	-12.08	-1.03	0.00	-50.54	0.00	50.54	2318.78	1159.39	3020.85	1512.67		2.56	-0.25	0.039
119.00	-11.59	-1.03	0.00	-46.43	0.00	46.43	2268.44	1134.22	2868.85	1436.56		2.77	-0.27	0.037
120.00	-11.40	-1.03	0.00	-45.41	0.00	45.41	2255.69	1127.85	2831.25	1417.73		2.83	-0.27	0.037
123.00	-10.82	-1.03	0.00	-42.32	0.00	42.32	1577.63	788.82	1975.86	989.40		3.00	-0.28	0.050
125.00	-10.62	-1.03	0.00	-40.27	0.00	40.27	1561.09	780.55	1925.40	964.13		3.12	-0.29	0.049
130.00	-10.13	-1.03	0.00	-35.13	0.00	35.13	1518.76	759.38	1800.86	901.77		3.44	-0.31	0.046
135.00	-9.66	-1.03	0.00	-29.98	0.00	29.98	1475.03	737.52	1678.77	840.64		3.77	-0.33	0.042
140.00	-7.18	-0.99	0.00	-24.83	0.00	24.83	1429.92	714.96	1559.34	780.83		4.12	-0.35	0.037
145.00	-6.79	-0.97	0.00	-19.90	0.00	19.90	1383.42	691.71	1442.75	722.45		4.49	-0.36	0.032
150.00	-6.41	-0.95	0.00	-15.03	0.00	15.03	1321.23	660.61	1314.97	658.46		4.88	-0.38	0.028
155.00	-6.05	-0.93	0.00	-10.26	0.00	10.26	1258.65	629.32	1192.75	597.26		5.28	-0.39	0.022
157.00	-2.38	-0.52	0.00	-8.41	0.00	8.41	1233.62	616.81	1145.53	573.62		5.45	-0.39	0.017
160.00	-2.18	-0.50	0.00	-6.86	0.00	6.86	1196.07	598.03	1076.49	539.05		5.70	-0.40	0.015
161.00	-2.11	-0.49	0.00	-6.36	0.00	6.36	1183.55	591.78	1053.96	527.76		5.78	-0.40	0.014
161.00	-2.11	-0.49	0.00	-6.36	0.00	6.36	858.57	429.28	768.96	385.05		5.78	-0.40	0.019
165.00	-1.91	-0.46	0.00	-4.41	0.00	4.41	832.45	416.23	713.85	357.46		6.12	-0.41	0.015
170.00	-1.66	-0.42	0.00	-2.10	0.00	2.10	798.56	399.28	646.76	323.86		6.55	-0.41	0.009
175.00	0.00	-0.41	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64		6.98	-0.42	0.000

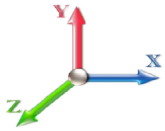
Wind Loading - Shaft

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	242.25	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	237.37	0.650	0.000	5.00	23.886	15.53	104.7	0.0	1510.8
10.00		1.00	0.70	6.129	6.74	232.48	0.650	0.000	5.00	23.399	15.21	102.5	0.0	1479.7
15.00		1.00	0.70	6.129	6.74	227.60	0.650	0.000	5.00	22.913	14.89	100.4	0.0	1448.7
20.00		1.00	0.70	6.129	6.74	222.71	0.650	0.000	5.00	22.426	14.58	98.3	0.0	1417.6
25.00		1.00	0.70	6.129	6.74	217.83	0.650	0.000	5.00	21.940	14.26	96.1	0.0	1386.6
30.00		1.00	0.70	6.134	6.75	213.03	0.650	0.000	5.00	21.453	13.94	94.1	0.0	1355.5
35.00		1.00	0.73	6.410	7.05	212.78	0.650	0.000	5.00	20.966	13.63	96.1	0.0	1324.5
38.75	Bot - Section 2	1.00	0.75	6.599	7.26	212.10	0.650	0.000	3.75	15.406	10.01	72.7	0.0	973.0
40.00		1.00	0.76	6.659	7.33	211.79	0.650	0.000	1.25	5.167	3.36	24.6	0.0	606.4
45.00	Top - Section 1	1.00	0.79	6.887	7.58	210.20	0.650	0.000	5.00	20.364	13.24	100.3	0.0	2389.1
50.00		1.00	0.81	7.098	7.81	212.13	0.650	0.000	5.00	19.877	12.92	100.9	0.0	1099.6
55.00		1.00	0.83	7.294	8.02	209.71	0.650	0.000	5.00	19.390	12.60	101.1	0.0	1072.4
60.00		1.00	0.85	7.477	8.22	206.94	0.650	0.000	5.00	18.904	12.29	101.1	0.0	1045.2
65.00		1.00	0.87	7.650	8.42	203.86	0.650	0.000	5.00	18.417	11.97	100.7	0.0	1018.1
70.00		1.00	0.89	7.814	8.60	200.52	0.650	0.000	5.00	17.931	11.65	100.2	0.0	990.9
75.00	Appurtenance(s)	1.00	0.91	7.969	8.77	196.93	0.650	0.000	5.00	17.444	11.34	99.4	0.0	963.7
78.75	Bot - Section 3	1.00	0.92	8.081	8.89	194.10	0.650	0.000	3.75	12.764	8.30	73.8	0.0	705.0
80.00		1.00	0.93	8.118	8.93	193.13	0.650	0.000	1.25	4.260	2.77	24.7	0.0	400.2
83.75	Top - Section 2	1.00	0.94	8.225	9.05	190.16	0.650	0.000	3.75	12.597	8.19	74.1	0.0	1183.1
85.00		1.00	0.94	8.260	9.09	192.22	0.650	0.000	1.25	4.138	2.69	24.4	0.0	163.7
90.00		1.00	0.96	8.396	9.24	188.08	0.650	0.000	5.00	16.249	10.56	97.5	0.0	642.8
95.00		1.00	0.97	8.526	9.38	183.78	0.650	0.000	5.00	15.762	10.25	96.1	0.0	623.4
100.00		1.00	0.99	8.652	9.52	179.33	0.650	0.000	5.00	15.276	9.93	94.5	0.0	604.0
105.00		1.00	1.00	8.774	9.65	174.74	0.650	0.000	5.00	14.789	9.61	92.8	0.0	584.6
110.00		1.00	1.02	8.891	9.78	170.02	0.650	0.000	5.00	14.303	9.30	90.9	0.0	565.2
115.00		1.00	1.03	9.005	9.91	165.18	0.650	0.000	5.00	13.816	8.98	89.0	0.0	545.8
119.00	Bot - Section 4	1.00	1.04	9.093	10.00	161.23	0.650	0.000	4.00	10.703	6.96	69.6	0.0	422.7
120.00		1.00	1.04	9.115	10.03	160.23	0.650	0.000	1.00	2.669	1.74	17.4	0.0	188.2
123.00	Top - Section 3	1.00	1.05	9.179	10.10	157.21	0.650	0.000	3.00	7.891	5.13	51.8	0.0	556.3
125.00		1.00	1.05	9.222	10.14	157.78	0.650	0.000	2.00	5.163	3.36	34.0	0.0	163.4
130.00		1.00	1.07	9.326	10.26	152.64	0.650	0.000	5.00	12.568	8.17	83.8	0.0	397.6
135.00		1.00	1.08	9.427	10.37	147.41	0.650	0.000	5.00	12.081	7.85	81.4	0.0	382.1
140.00	Appurtenance(s)	1.00	1.09	9.525	10.48	142.08	0.650	0.000	5.00	11.595	7.54	79.0	0.0	366.6
145.00		1.00	1.10	9.621	10.58	136.68	0.650	0.000	5.00	11.108	7.22	76.4	0.0	351.1
150.00		1.00	1.11	9.715	10.69	131.19	0.650	0.000	5.00	10.622	6.90	73.8	0.0	335.5
155.00		1.00	1.12	9.806	10.79	125.63	0.650	0.000	5.00	10.135	6.59	71.1	0.0	320.0
157.00	Appurtenance(s)	1.00	1.12	9.842	10.83	123.38	0.650	0.000	2.00	3.918	2.55	27.6	0.0	123.7
160.00		1.00	1.13	9.896	10.89	119.99	0.650	0.000	3.00	5.731	3.73	40.5	0.0	180.8
161.00	Top - Section 4	1.00	1.13	9.913	10.90	118.85	0.650	0.000	1.00	1.871	1.22	13.3	0.0	59.0
165.00		1.00	1.14	9.983	10.98	114.28	0.650	0.000	4.00	7.291	4.74	52.0	0.0	173.0
170.00		1.00	1.15	10.069	11.08	108.51	0.650	0.000	5.00	8.676	5.64	62.5	0.0	205.7
175.00	Appurtenance(s)	1.00	1.16	10.152	11.17	102.67	0.650	0.000	5.00	8.189	5.32	59.4	0.0	194.1
								Totals:	**175.00**			**3,144.5**		**30,519.4**

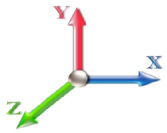
Discrete Appurtenance Forces

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Low Profile Platform-flat	1	10.152	11.168	1.00	1.00	25.00	1200.00	0.000	0.000	279.19	0.00	0.00
2	175.00	DB-T1-6Z-8AB-0Z	1	10.152	11.168	0.71	1.00	3.41	18.90	0.000	0.000	38.06	0.00	0.00
3	175.00	FD9R6004/2C-3L (3.1 lbs)	6	10.152	11.168	0.67	1.00	1.45	18.60	0.000	0.000	16.16	0.00	0.00
4	175.00	RRH2x40-AWS	3	10.152	11.168	0.82	1.00	6.20	132.00	0.000	0.000	69.23	0.00	0.00
5	175.00	BXA-70080/6CF	3	10.152	11.168	0.88	1.00	15.42	54.00	0.000	0.000	172.18	0.00	0.00
6	175.00	WBX065X19R050	3	10.152	11.168	0.72	1.00	11.28	62.70	0.000	0.000	125.92	0.00	0.00
7	175.00	BXA-171085/12CF	3	10.152	11.168	0.84	1.00	12.05	45.00	0.000	0.000	134.52	0.00	0.00
8	175.00	BXA-70063/6CF	3	10.152	11.168	0.70	1.00	15.90	51.00	0.000	0.000	177.53	0.00	0.00
9	175.00	6' Lightning rod	1	10.152	11.168	1.00	1.00	0.38	6.50	0.000	0.000	4.24	0.00	0.00
10	157.00	ALU - TD-RRH8x20-25 -	3	9.842	10.827	0.60	0.80	7.29	210.00	0.000	0.000	78.93	0.00	0.00
11	157.00	ALU - 800 MHz - RRU	6	9.842	10.827	0.60	0.80	8.96	318.00	0.000	0.000	97.05	0.00	0.00
12	157.00	ALU - 1900 MHz - RRU	3	9.842	10.827	0.60	0.80	4.99	180.00	0.000	0.000	53.98	0.00	0.00
13	157.00	NNVV-65B-R4	3	9.842	10.827	0.59	0.80	21.79	254.10	0.000	0.000	235.93	0.00	0.00
14	157.00	APXVTM14-C-I20	3	9.842	10.827	0.62	0.80	11.72	168.60	0.000	0.000	126.85	0.00	0.00
15	157.00	Platform w/ Handrail +	1	9.842	10.827	1.00	1.00	54.00	2800.00	0.000	0.000	584.63	0.00	0.00
16	140.00	Platform w/ Hand Rails	1	9.525	10.478	1.00	1.00	40.00	2000.00	0.000	0.000	419.11	0.00	0.00
17	140.00	782 11056	3	9.525	10.478	0.62	0.80	0.24	5.40	0.000	0.000	2.55	0.00	0.00
18	140.00	KRY 112 144/1	3	9.525	10.478	0.58	0.80	0.72	33.00	0.000	0.000	7.53	0.00	0.00
19	140.00	LNX-6515DS-VTM	3	9.525	10.478	0.64	0.80	22.02	150.90	0.000	0.000	230.75	0.00	0.00
20	140.00	APXV18-206516S-C-A20	3	9.525	10.478	0.58	0.80	6.32	56.10	0.000	0.000	66.27	0.00	0.00
21	75.00	GPS	1	7.969	8.766	1.00	1.00	1.00	10.00	0.000	0.000	8.77	0.00	0.00
							Totals:		**7,774.80**			**2,929.35**		

Total Applied Force Summary

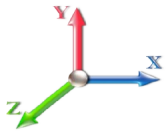
Structure:	CT01915-S-SBA		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		104.67	1655.09	0.00	0.00
10.00		102.53	1624.04	0.00	0.00
15.00		100.40	1592.99	0.00	0.00
20.00		98.27	1561.94	0.00	0.00
25.00		96.14	1530.89	0.00	0.00
30.00		94.09	1499.84	0.00	0.00
35.00		96.09	1468.79	0.00	0.00
38.75		72.69	1081.21	0.00	0.00
40.00		24.60	642.45	0.00	0.00
45.00		100.28	2533.43	0.00	0.00
50.00		100.87	1243.87	0.00	0.00
55.00		101.12	1216.70	0.00	0.00
60.00		101.06	1189.53	0.00	0.00
65.00		100.74	1162.36	0.00	0.00
70.00		100.18	1135.19	0.00	0.00
75.00	(1) attachments	108.17	1118.03	0.00	0.00
78.75		73.75	812.59	0.00	0.00
80.00		24.73	436.05	0.00	0.00
83.75		74.08	1290.70	0.00	0.00
85.00		24.44	199.61	0.00	0.00
90.00		97.54	786.31	0.00	0.00
95.00		96.09	766.91	0.00	0.00
100.00		94.50	747.50	0.00	0.00
105.00		92.78	728.09	0.00	0.00
110.00		90.92	708.69	0.00	0.00
115.00		88.95	689.28	0.00	0.00
119.00		69.58	537.45	0.00	0.00
120.00		17.40	216.92	0.00	0.00
123.00		51.79	642.37	0.00	0.00
125.00		34.05	220.80	0.00	0.00
130.00		83.80	541.14	0.00	0.00
135.00		81.43	525.62	0.00	0.00
140.00	(13) attachments	805.17	2755.49	0.00	0.00
145.00		76.42	432.17	0.00	0.00
150.00		73.78	416.64	0.00	0.00
155.00		71.06	401.12	0.00	0.00
157.00	(19) attachments	1204.93	4086.80	0.00	0.00
160.00		40.55	221.57	0.00	0.00
161.00		13.26	72.62	0.00	0.00
165.00		52.04	227.28	0.00	0.00
170.00		62.46	273.62	0.00	0.00
175.00	(24) attachments	1076.47	1850.67	0.00	0.00
	Totals:	**6,073.86**	**42,844.37**	**0.00**	**0.00**

Calculated Forces

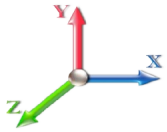
Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-42.84	-6.08	0.00	-754.03	0.00	754.03	6411.04	3205.52	14877.2	7449.66	0.00	0.000	0.000	0.108
5.00	-41.18	-6.00	0.00	-723.61	0.00	723.61	6318.35	3159.17	14361.2	7191.28	0.02	-0.029	0.000	0.107
10.00	-39.56	-5.92	0.00	-693.61	0.00	693.61	6224.09	3112.04	13850.5	6935.58	0.06	-0.059	0.000	0.106
15.00	-37.96	-5.83	0.00	-664.02	0.00	664.02	6128.26	3064.13	13345.4	6682.66	0.14	-0.089	0.000	0.106
20.00	-36.40	-5.75	0.00	-634.85	0.00	634.85	6030.87	3015.43	12846.2	6432.65	0.25	-0.120	0.000	0.105
25.00	-34.86	-5.67	0.00	-606.08	0.00	606.08	5931.91	2965.95	12352.9	6185.64	0.39	-0.151	0.000	0.104
30.00	-33.36	-5.59	0.00	-577.71	0.00	577.71	5831.38	2915.69	11865.8	5941.76	0.57	-0.183	0.000	0.103
35.00	-31.89	-5.51	0.00	-549.75	0.00	549.75	5715.88	2857.94	11358.6	5687.79	0.78	-0.216	0.000	0.102
38.75	-30.81	-5.44	0.00	-529.09	0.00	529.09	5614.19	2807.10	10956.1	5486.19	0.96	-0.241	0.000	0.102
40.00	-30.16	-5.42	0.00	-522.29	0.00	522.29	5580.30	2790.15	10823.5	5419.80	1.02	-0.250	0.000	0.102
45.00	-27.63	-5.33	0.00	-495.17	0.00	495.17	4741.11	2370.56	9166.15	4589.89	1.30	-0.284	0.000	0.114
50.00	-26.38	-5.24	0.00	-468.53	0.00	468.53	4656.71	2328.36	8781.22	4397.14	1.62	-0.318	0.000	0.112
55.00	-25.16	-5.15	0.00	-442.34	0.00	442.34	4570.75	2285.37	8401.44	4206.97	1.97	-0.356	0.000	0.111
60.00	-23.97	-5.05	0.00	-416.60	0.00	416.60	4483.21	2241.61	8027.05	4019.49	2.36	-0.395	0.000	0.109
65.00	-22.80	-4.96	0.00	-391.33	0.00	391.33	4386.28	2193.14	7644.63	3828.00	2.80	-0.434	0.000	0.107
70.00	-21.66	-4.87	0.00	-366.53	0.00	366.53	4267.64	2133.82	7234.64	3622.70	3.27	-0.474	0.000	0.106
75.00	-20.54	-4.76	0.00	-342.19	0.00	342.19	4149.01	2074.50	6835.94	3423.05	3.79	-0.515	0.000	0.105
78.75	-19.73	-4.69	0.00	-324.34	0.00	324.34	4060.03	2030.01	6544.34	3277.03	4.21	-0.546	0.000	0.104
80.00	-19.29	-4.67	0.00	-318.48	0.00	318.48	4030.37	2015.18	6448.55	3229.07	4.35	-0.557	0.000	0.103
83.75	-18.00	-4.59	0.00	-300.98	0.00	300.98	2677.54	1338.77	4285.17	2145.77	4.81	-0.588	0.000	0.147
85.00	-17.80	-4.57	0.00	-295.25	0.00	295.25	2664.37	1332.18	4232.36	2119.33	4.96	-0.599	0.000	0.146
90.00	-17.01	-4.48	0.00	-272.40	0.00	272.40	2610.69	1305.34	4022.76	2014.37	5.62	-0.655	0.000	0.142
95.00	-16.24	-4.39	0.00	-250.00	0.00	250.00	2555.44	1277.72	3815.94	1910.80	6.33	-0.711	0.000	0.137
100.00	-15.49	-4.30	0.00	-228.04	0.00	228.04	2498.62	1249.31	3612.11	1808.74	7.11	-0.768	0.000	0.132
105.00	-14.76	-4.21	0.00	-206.53	0.00	206.53	2440.24	1220.12	3411.50	1708.29	7.94	-0.824	0.000	0.127
110.00	-14.05	-4.13	0.00	-185.47	0.00	185.47	2380.29	1190.15	3214.34	1609.56	8.84	-0.880	0.000	0.121
115.00	-13.36	-4.04	0.00	-164.84	0.00	164.84	2318.78	1159.39	3020.85	1512.67	9.79	-0.936	0.000	0.115
119.00	-12.82	-3.97	0.00	-148.69	0.00	148.69	2268.44	1134.22	2868.85	1436.56	10.59	-0.980	0.000	0.109
120.00	-12.60	-3.95	0.00	-144.72	0.00	144.72	2255.69	1127.85	2831.25	1417.73	10.80	-0.992	0.000	0.108
123.00	-11.96	-3.89	0.00	-132.87	0.00	132.87	1577.63	788.82	1975.86	989.40	11.43	-1.025	0.000	0.142
125.00	-11.73	-3.86	0.00	-125.09	0.00	125.09	1561.09	780.55	1925.40	964.13	11.87	-1.047	0.000	0.137
130.00	-11.19	-3.78	0.00	-105.78	0.00	105.78	1518.76	759.38	1800.86	901.77	13.00	-1.107	0.000	0.125
135.00	-10.66	-3.70	0.00	-86.88	0.00	86.88	1475.03	737.52	1678.77	840.64	14.19	-1.164	0.000	0.111
140.00	-7.92	-2.84	0.00	-68.39	0.00	68.39	1429.92	714.96	1559.34	780.83	15.44	-1.216	0.000	0.093
145.00	-7.49	-2.76	0.00	-54.17	0.00	54.17	1383.42	691.71	1442.75	722.45	16.73	-1.262	0.000	0.080
150.00	-7.07	-2.68	0.00	-40.36	0.00	40.36	1321.23	660.61	1314.97	658.46	18.08	-1.303	0.000	0.067
155.00	-6.67	-2.61	0.00	-26.94	0.00	26.94	1258.65	629.32	1192.75	597.26	19.46	-1.336	0.000	0.050
157.00	-2.62	-1.31	0.00	-21.73	0.00	21.73	1233.62	616.81	1145.53	573.62	20.02	-1.347	0.000	0.040
160.00	-2.39	-1.26	0.00	-17.81	0.00	17.81	1196.07	598.03	1076.49	539.05	20.87	-1.362	0.000	0.035
161.00	-2.32	-1.25	0.00	-16.55	0.00	16.55	1183.55	591.78	1053.96	527.76	21.16	-1.366	0.000	0.033
161.00	-2.32	-1.25	0.00	-16.55	0.00	16.55	858.57	429.28	768.96	385.05	21.16	-1.366	0.000	0.046
165.00	-2.10	-1.19	0.00	-11.56	0.00	11.56	832.45	416.23	713.85	357.46	22.31	-1.382	0.000	0.035
170.00	-1.82	-1.12	0.00	-5.61	0.00	5.61	798.56	399.28	646.76	323.86	23.77	-1.399	0.000	0.020
175.00	0.00	-1.08	0.00	0.00	0.00	0.00	758.80	379.40	578.42	289.64	25.24	-1.406	0.000	0.000

Final Analysis Summary

Structure:	CT01915-S-SBA	**Code:**	EIA/TIA-222-G	5/23/2018	
Site Name:	South Brooklyn	**Exposure:**	B		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	27.6	0.00	51.38	0.00	0.00	3439.14
0.9D + 1.6W 101 mph Wind	27.6	0.00	38.53	0.00	0.00	3401.64
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.0	0.00	83.64	0.00	0.00	1026.11
1.2D + 1.0E	1.6	0.00	51.41	0.00	0.00	196.36
0.9D + 1.0E	1.6	0.00	38.56	0.00	0.00	194.12
1.0D + 1.0W 60 mph Wind	6.1	0.00	42.84	0.00	0.00	754.03

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-20.69	-20.95	0.00	-1375.6	0.00	-1375.6	2677.54	1338.7	4285.17	2145.77	83.75	0.649
0.9D + 1.6W 101 mph Wind	-15.29	-20.68	0.00	-1352.9	0.00	-1352.9	2677.54	1338.7	4285.17	2145.77	83.75	0.636
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-43.39	-6.27	0.00	-418.31	0.00	-418.31	2677.54	1338.7	4285.17	2145.77	83.75	0.211
1.2D + 1.0E	-14.43	-1.05	0.00	-43.01	0.00	-43.01	1577.63	788.82	1975.86	989.40	123.00	0.053
0.9D + 1.0E	-10.82	-1.03	0.00	-42.32	0.00	-42.32	1577.63	788.82	1975.86	989.40	123.00	0.050
1.0D + 1.0W 60 mph Wind	-18.00	-4.59	0.00	-300.98	0.00	-300.98	2677.54	1338.7	4285.17	2145.77	83.75	0.147

Base Plate Summary

Structure:	CT01915-S-SB		**Code:**	EIA/TIA-222-G	5/23/2018
Site Name:	South Brooklyn		**Exposure:**	B	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	64.00
Moment (kip-ft):	3710.00	**Width (in):**	68.00	**Number Bolts:**	32.00
Axial (kip):	38.30	**Style:**	Clipped	**Bolt Type:**	2.25" 18J
Shear (kip):	29.70	**Polygon Sides:**	8.00	**Bolt Diameter (in):**	2.25
Analysis		**Clip Length (in):**	18.50	**Yield (ksi):**	75.00
Moment (kip-ft):	3439.14	**Effective Len (in):**	6.47	**Ultimate (ksi):**	100.00
Axial (kip):	83.64	**Moment (kip-in):**	290.02	**Arrangement:**	Clustered
Shear (kip):	27.60	**Allow Stress (ksi):**	67.50	**Cluster Dist (in):**	6.00
		Applied Stress (ksi):	0.00	**Start Angle (deg):**	45.00
Moment Design %:	92.70	**Stress Ratio:**	0.64	Compression	
				Force (kip):	83.22
				Allowable (kip):	260.00
				Ratio:	0.33
				Tension	
				Force (kip):	77.99
				Allowable (kip):	260.00
				Ratio:	0.31

Monopole Mat Foundation Design

			Date: 5/23/2018
Customer Name:	Sprint Nextel	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	175
Site Number:	CT01915-S-SBA	**Engineer Name:**	D. Zhou
Engr. Number:	53618	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

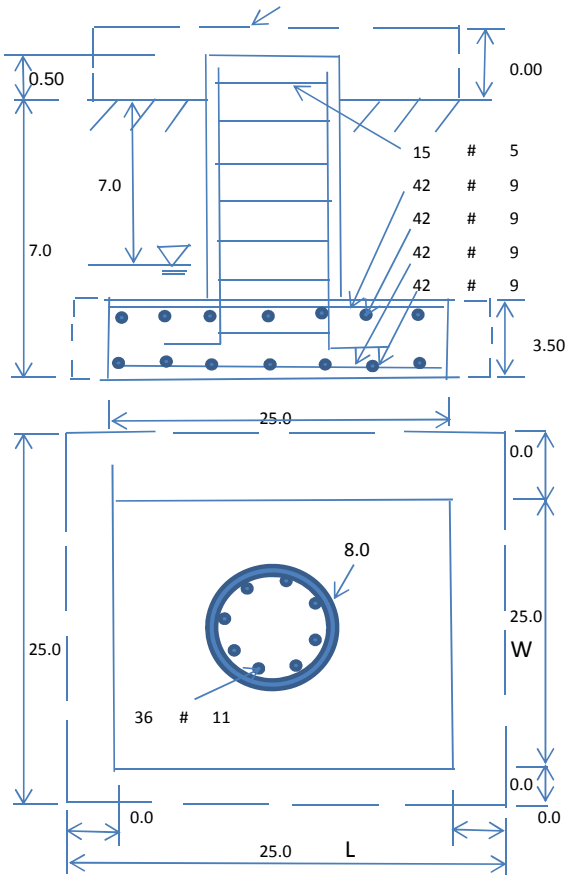
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	51.4	Shear Force (Kips):	27.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3439.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	7.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.50
Length of Pad (ft.):	25	Width of Pad (ft.):	25
Final Length of pad (ft)	25.0	Final width of pad (ft):	25.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	40	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	42	Qty. of Rebar in Pad (W):	42	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	42	Qty. of Rebar in Pad (W):	42	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	7.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	15000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

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

Total Dry Soil Volume (cu. Ft.):	2011.57	Total Dry Soil Weight (Kips):	251.45
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	251.45	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2388.56	Total Dry Concrete Weight (Kips):	358.28
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	358.28	Total Vertical Load on Base (Kips):	661.11

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3091	<	Allowable Factored Soil Bearing (psf): 11250	0.27	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7501.7	>	Design Factored Momont (kips-ft): 3646	0.49	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.06	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00		
				Load/ Capacity Ratio	
(1) Concrete Pier:					
Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	10388.7 >	Design Factored Moment (Mu, Kips-F	3549.5	0.34	OK!
Calculated Shear Capacity (Kips):	912.1 >	Design Factored Shear (Kips):	27.6	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	3032.6 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9523.4 >	Design Factored Axial Load (Pu Kips):	51.4	0.01	OK!
Moment & Axial Strength Combination:	0.34 OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.008	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	947.4 >	One-Way Factored Shear (L-D. Kips):	272.3	0.29	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	947.4 >	One-Way Factored Shear (W-D., Kips)	272.3	0.29	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1036.6 >	One-Way Factored Shear (C-C, Kips):	471.5	0.45	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0036 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0036		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6953.4 >	Moment at Bottom (L-Direct. K-Ft):	721.3	0.10	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6953.4 >	Moment at Bottom (W-Direct. K-Ft):	721.3	0.10	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	9704.8 >	Moment at Bottom (C-C Dir. K-Ft):	1020.0	0.11	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0036 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0036		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	6953.4 >	Moment at the top (L-Dir Kips-Ft):	238.9	0.03	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	6953.4 >	Moment at the top (W-Dir Kips-Ft):	238.9	0.03	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	9704.8 >	Moment at the top (C-C Direc. K-Ft):	399.0	0.04	OK!

Antenna Mount Structural Analysis

Source: SBA Date: 11.14.2017

SBA Site:	**CT01915-S South Brooklyn**
Sprint Site Number:	**CT33XC566**
Project:	**Sprint DO Macro Upgrade**
Prepared For:	**Sprint**
Mount Description:	**(1) Platform**
Site Location:	**100 Old Tatnic Hill Rd, Brooklyn, CT** **Windham County** **41.76716°, -71.971949°**
Design Codes:	**ANSI/TIA-222-G** **IBC 2012 w/ 2016 CT Building Code**
Analysis Load Case:	**Sprint Final Configuration**
Analysis Result:	**Adequate @ 80% - Once Augmented** **See Conclusion**

STATE OF CONNECTICUT
GREGORY DURGIN
No. 32155
LICENSED
PROFESSIONAL ENGINEER

Revision 0
March 19, 2018

CT33XC566-PASSING-MOUNT-STRUCTURAL-ANALYSIS-03-19-18

1.0 Introduction

An antenna mount structural analysis has been performed on Sprint's existing mount assembly located at the CT01915-S South Brooklyn communications site in Windham County, CT considering the final equipment loading configuration listed in Section 3.0.

2.0 Analysis Criteria

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria:

- IBC 2012 – International Building Code.
- ANSI/TIA-222-G – Structural Standard for Antenna Supporting Structures and Antennas.
- AISC – Steel Construction Manual.
- ANSI/AWS D1.1 – Structural Welding Code.

Wind w/o ice = 130 mph (3-sec gust Ultimate Wind Speed) Wind w/o ice = 101 mph (3-sec gust Equivalent per TIA-222-G Tower Code)	
Wind with ice = 50 mph (3-sec gust, 1" Ice) Exposure Category B	Topographic Category 1 Structure Class II

The following documents were provided:

- Mount and Tower Record Documents
  SBA
- Tower Structural Analysis
  TES, 1/9/18.
- RF Design
  Sprint DOMU Project

The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

3.0 Appurtenance Information

Table 3.1 – Sprint Final Configuration[1]

COR	(Quantity) Appurtenance Make/Model	Mount Description
157.0'±	(3) RFS APXVTM14-ALU-I20	*(1) Platform*
	(3) COMMSCOPE NNVV-65B-R4	
	(6) ALU 800MHz RRH	
	(3) ALU 1900MHz RRH	
	(3) ALU 2500MHz RRH	

1. *Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.*
2. *Panel antennas to be installed in Positions 1 and 3 (as close to the center of face near existing standoff as possible. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 1 and 3.*

4.0 Analysis Results

Table 4.1 – Existing Mount Capacity

Load Case	Governing Mount Component[1]	% Capacity[2]	Result
Final Sprint Configuration	Angle Rail	165%	**Inadequate[3]**

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Structural augments to the existing mount structure are required to obtain a mount structure capable of supporting the currently proposed final loading configuration in Table 3.1.*

Table 4.2 – Augmented Mount Capacity

Load Case	Governing Mount Component[1]	% Capacity[2]	Result
Final Sprint Configuration	Angle Rail	80%	**Adequate Once Augmented[3]**

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Refer to GeoStructural Mount Augmentation Drawings and Section 5.0 for information regarding required mount augments.*

Table 4.3 – Structural Component Material Strengths

Structural Component	Nominal Strength/Material[1]
Pipe	F_y = 35 ksi (A53, Gr. B)
Tube	F_y = 46 ksi (A500, Gr. B)
Structural Shapes (L, C, W, etc.), Plate / Bar	F_y = 36 ksi (A36)
Uni-Strut	F_y = 33 ksi (A570, Gr. 33)
Connection Bolts	A325
Stainless Steel Bolts	18-8 Stainless, Grade 316/304 F_y = 74 ksi (Yield) & F_u = 29 ksi (Tension)
U-Bolts / Threaded Rod	SAE J429 Grade 2 (Substitution: ASTM A449) F_y = 57 ksi (Yield) & F_u = 74 ksi (Tension)
Welds	E70XX Electrodes

1. *Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.*

5.0 Conclusion & Recommendations

Based on Sprint's final equipment loading configuration, the existing mount assembly does not have sufficient capacity to support the loading considered in this analysis pursuant to the listed standards. Structural augments (reinforcements) will be required and are briefly summarized below:

- Install Platform Reinforcement Kit; located 4' below the existing collar mount and attaching to the middle of the existing back-to-back angle platform member at the platform corners.
  - Sitepro1 PRK-1245L, (1) total.
- Remove and properly dispose of existing single angle handrail.
- Install Handrail Kit; located 3.0' above the existing platform rail and attaching to the mount pipes.
  - Sitepro1 HRK14-U, (1) total. Attach all mount pipes to new handrail with kit-provided cross-over plates. (6) new Pipe2.0STD x 9' tall mount pipes will be required to span between the existing rail and new top and bottom rails.
- Install V-Brace Kit; located 2.5' below the existing platform rail and attaching to the new bottom handrail kit.
  - Sitepro1 PRK-SFS-H-L, (1) total. Attach kit ring mount in kit to monopole shaft.
    - If the PRK-SFS-H-L kit is not available, provide (6) total L2-1/2x2-1/2x3/16 x ~8' long replacement angles, field-cut and drill to suit.
  - Pipe2.0STD x 14.0' Horizontal Rail, (3) total. Attach SFS-H-L kit angles to new horizontal bottom rail.
  - Pipe2.0STD x ~4' long corner braces, (3) total. Attach to new horizontal bottom rail w/ Sitepro1 PUCK brackets, (6) total.
  - Sitepro1 SCX1-K, (6) total. Attach all mount pipes to new horizontal bottom rail.
- Panel antennas to be installed in Positions 1 and 3 (as close to the center of face near existing standoff as possible. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 1 and 3.
- Lower the panel antenna installation centerline approximately 1.5'.

Once the recommended augments are successfully implemented, the augmented mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

Augmentation Requirements:

- **In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augments must be installed in accordance with GeoStructural's *Mount Augmentation Drawings*.**
- **Antennas and equipment shall be installed centered vertically on the mount front face rails. If this assumption is incorrect, the results of this analysis will be affected.**

This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:

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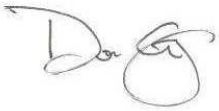
Reviewed and Approved by:



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6.0 Standard Conditions

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.

- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.

- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.

- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.

- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.

- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.

- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.

- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

7.0 Calculations & Software Output

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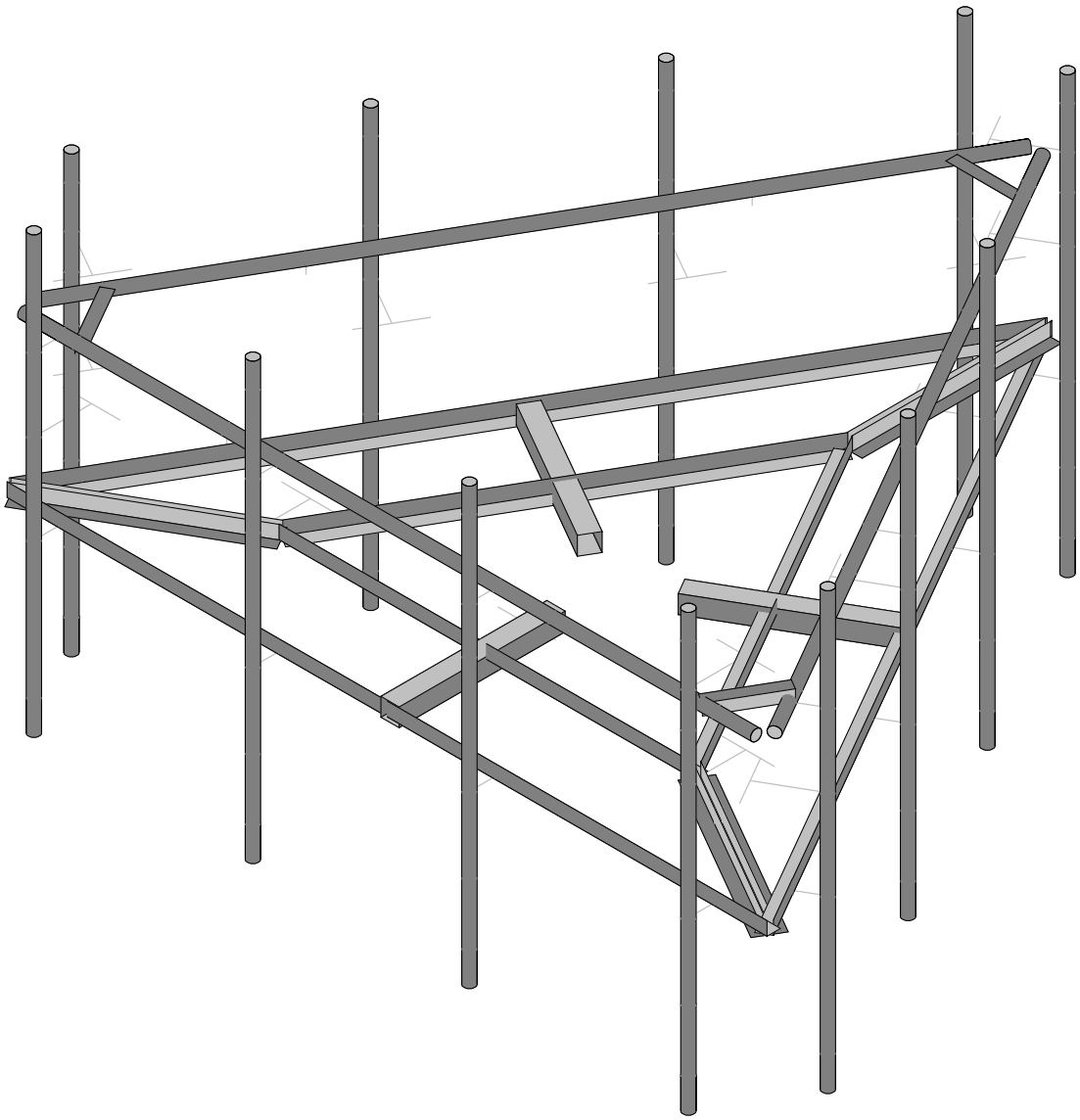

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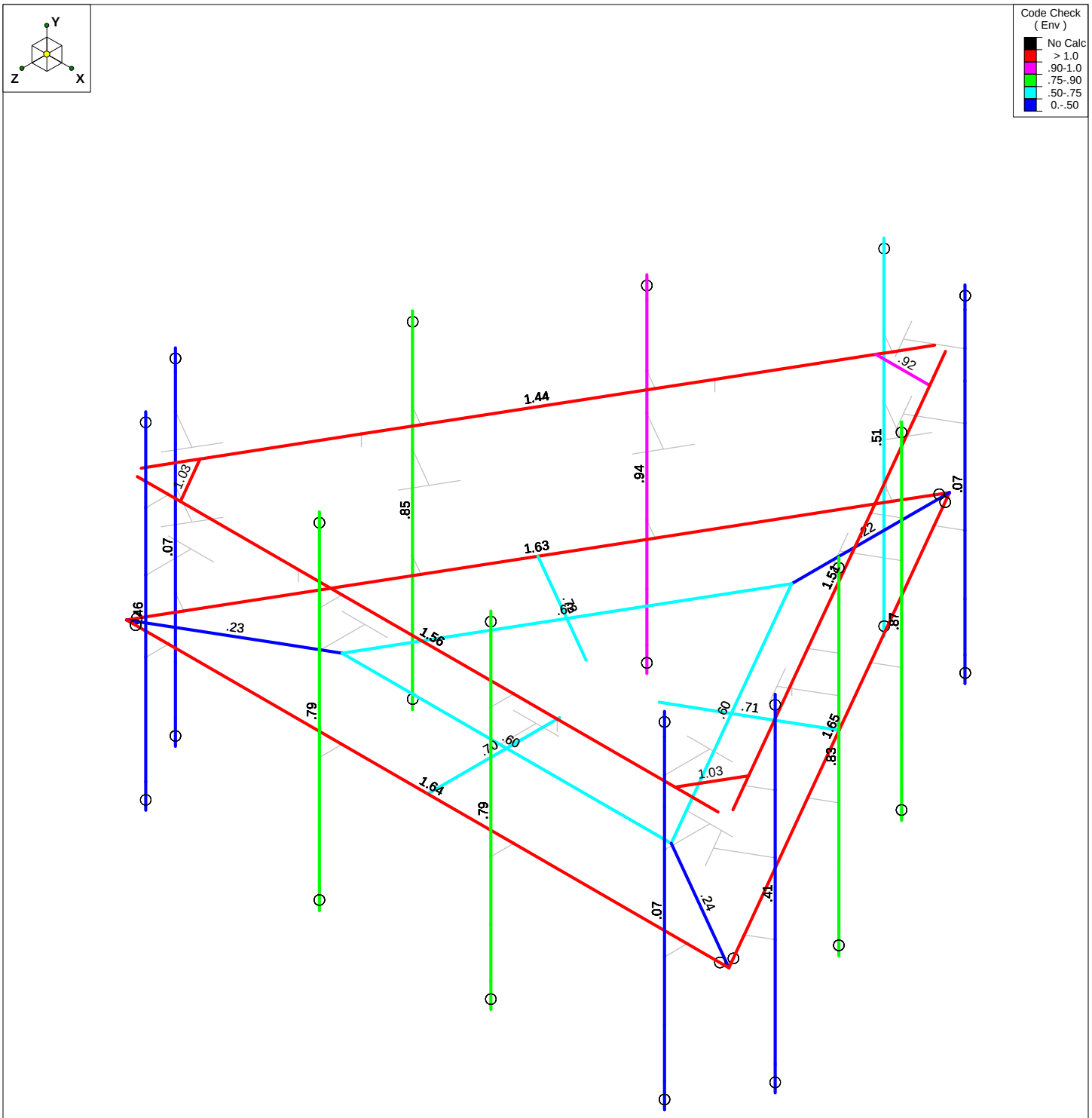
Jesse Drennen, PE		Mar 19, 2018 at 10:45 AM
		CT33XC566_Mount Analysis_R0 1...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 1
Jesse Drennen, PE		Mar 19, 2018 at 10:48 AM
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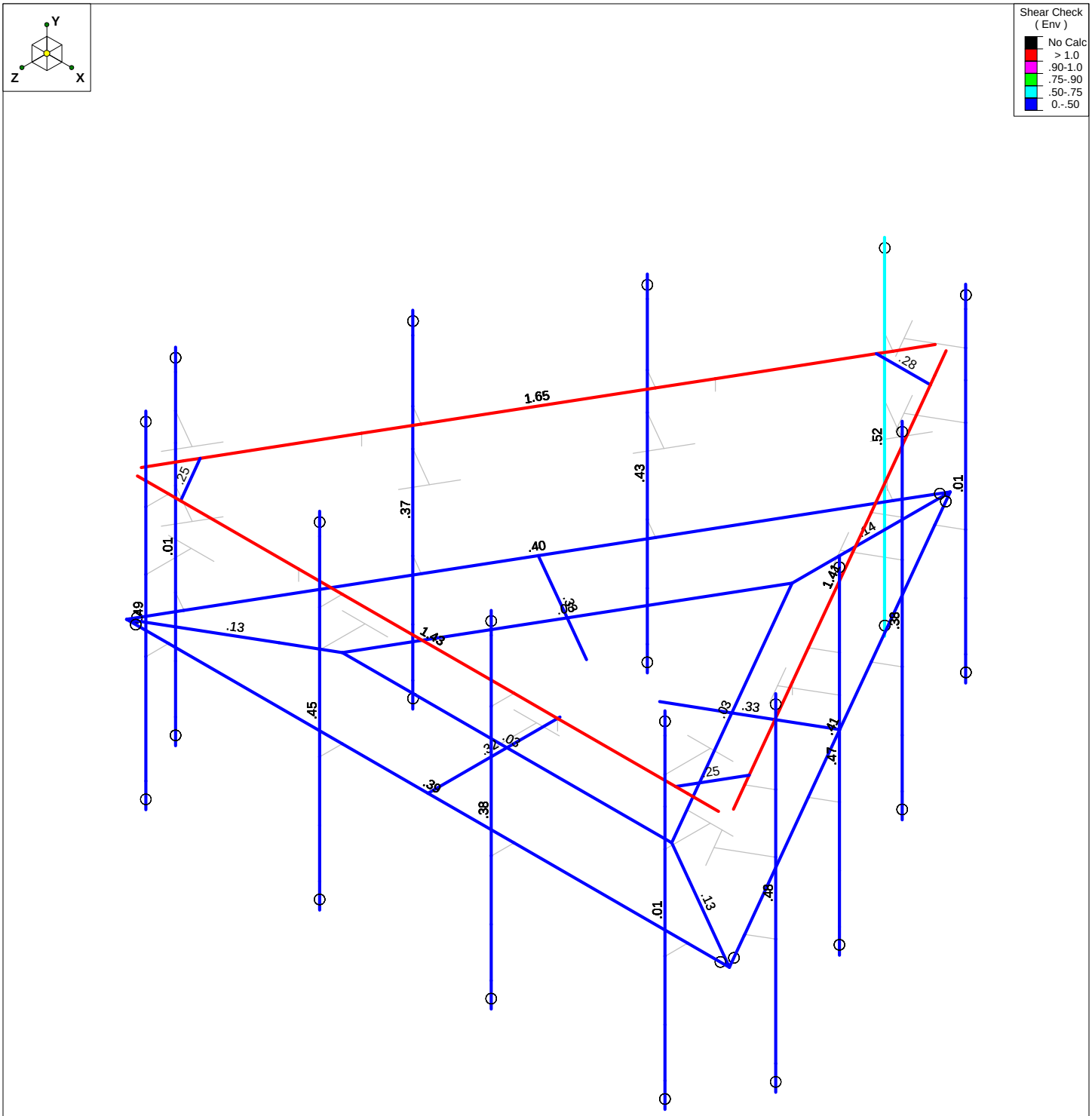

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 2
Jesse Drennen, PE		Mar 19, 2018 at 10:49 AM
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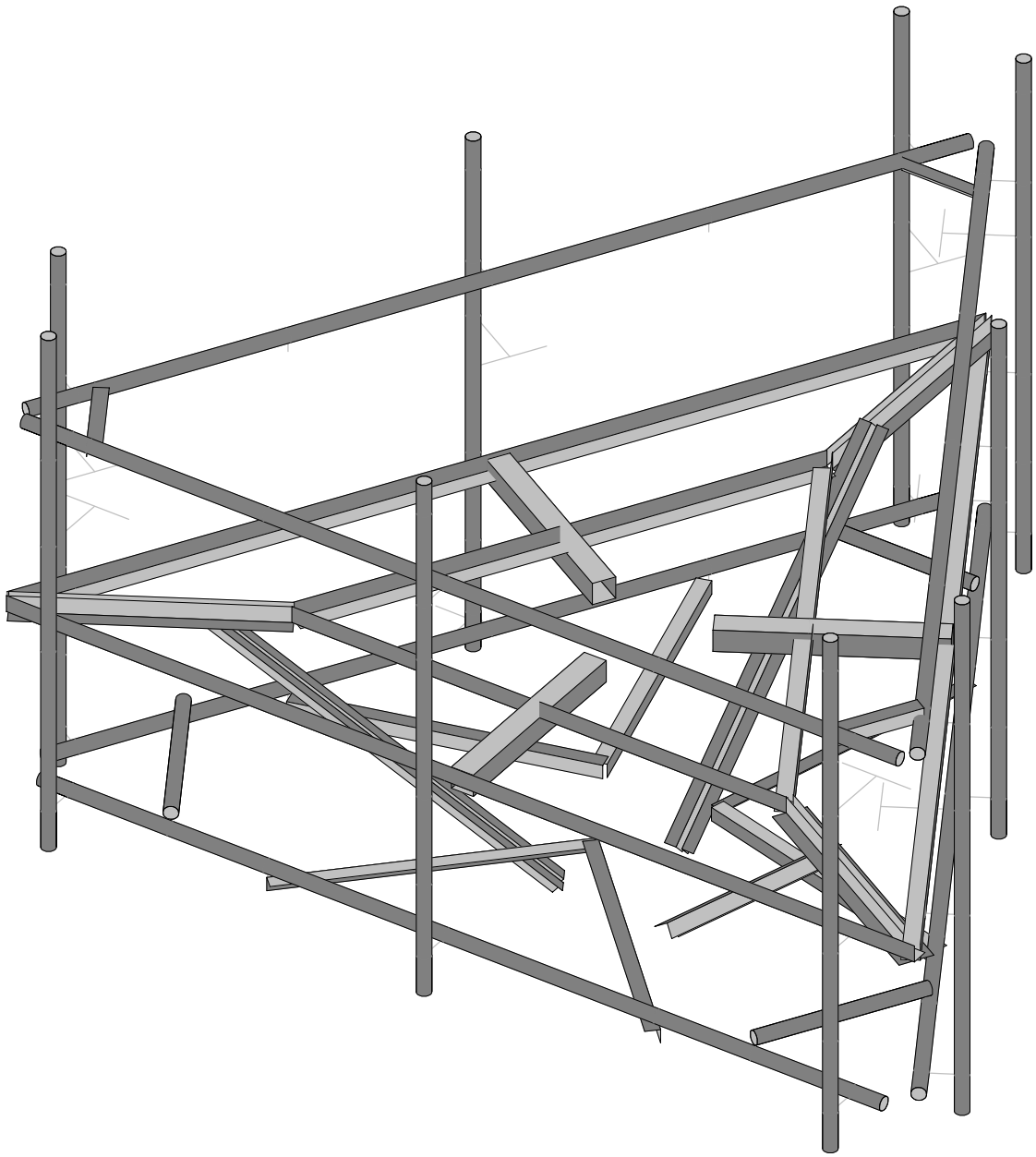

Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 2
Jesse Drennen, PE		Mar 19, 2018 at 11:13 AM
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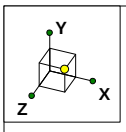

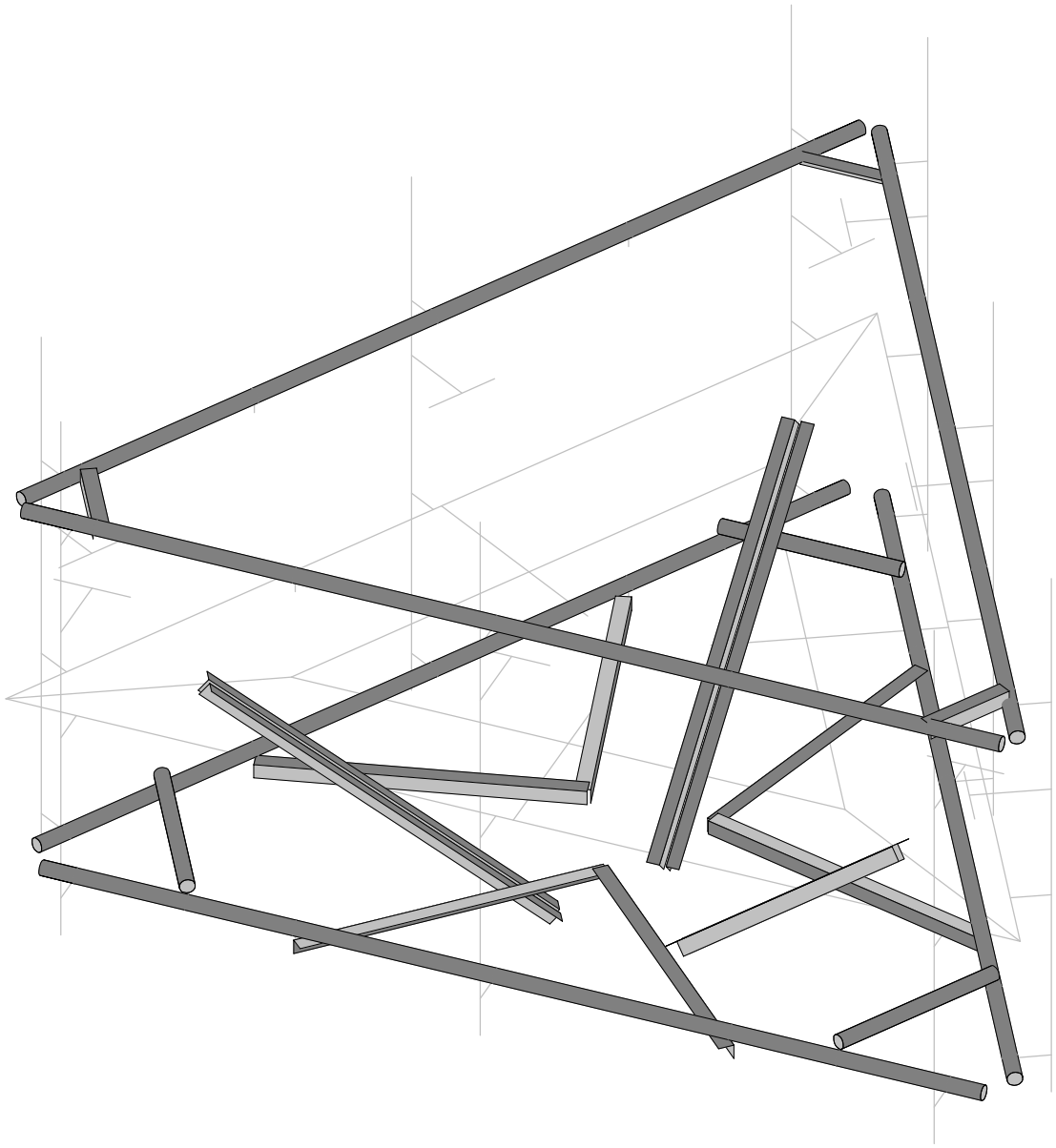

Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 8
Jesse Drennen, PE		Mar 19, 2018 at 11:14 AM
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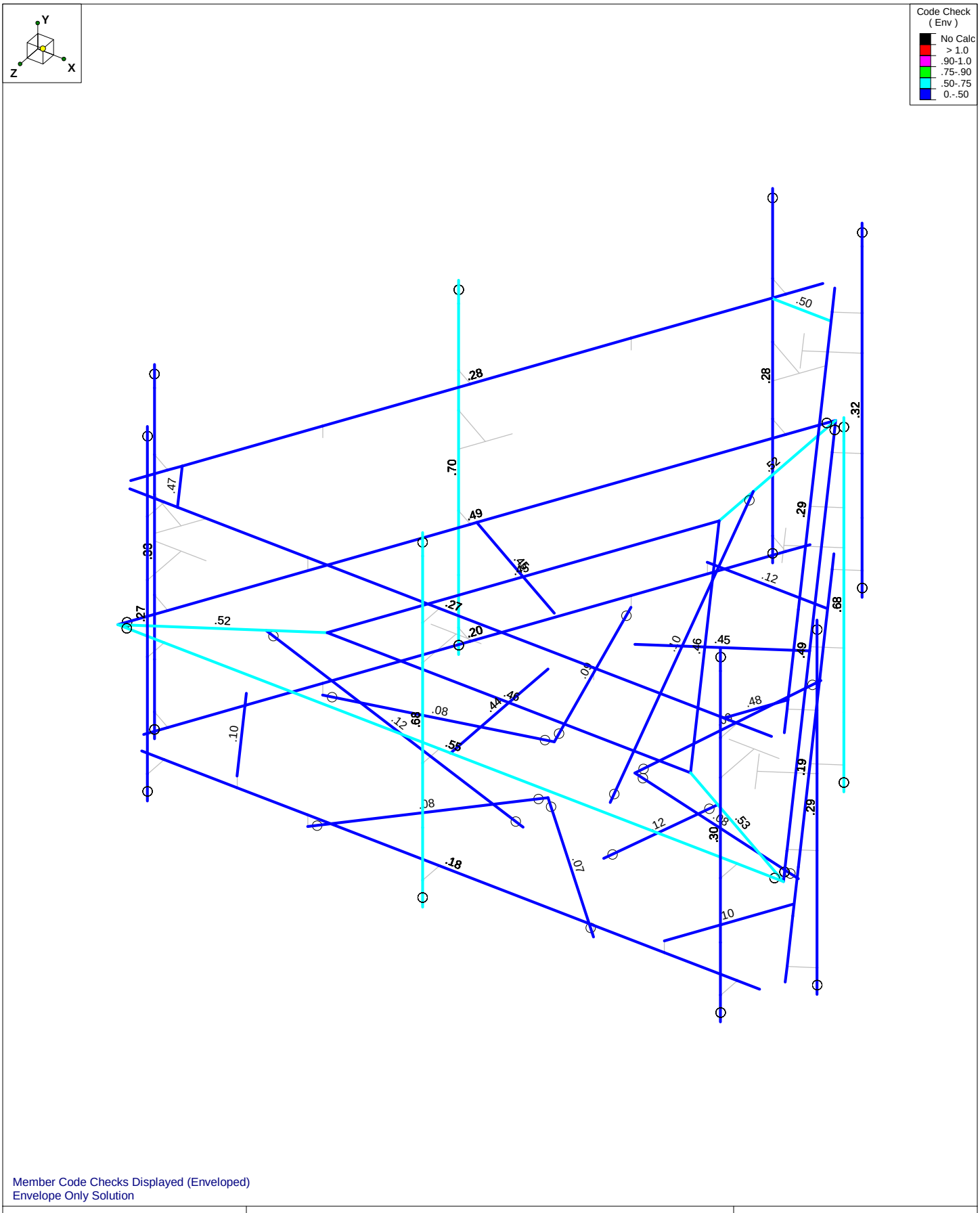
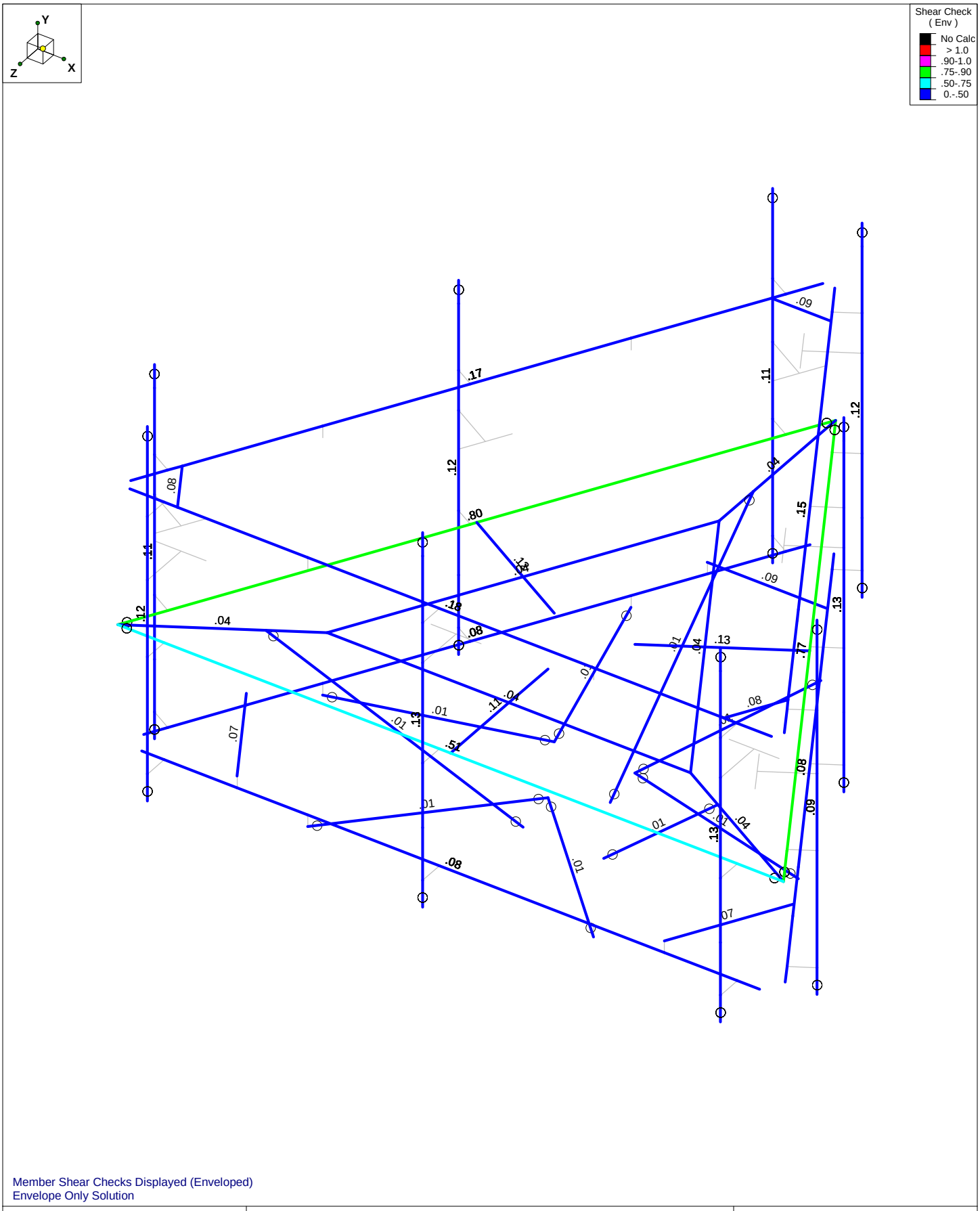


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 3
Jesse Drennen, PE		Mar 19, 2018 at 11:13 AM
		CT33XC566_Mount Analysis_R0 1...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

GeoStructural, LLC	CT33XC566	SK - 4
Jesse Drennen, PE		Mar 19, 2018 at 11:13 AM
		CT33XC566_Mount Analysis_R0 1...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	D	DL		-1		25				
2	Di	SL				25		54		
3	Lm [500]	LL				1				
4	Lv [250]	LL				2				
5	Woz	WL				25		48		
6	Wox	WL				25		48		
7	Wiz	WL				25		48		
8	Wix	WL				25		48		
9	Ez	EL				25				
10	Ex	EL				25				

Load Combination Design

	Description	ASIF	CD	ABIF	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Footings	Aluminum	Connecti...
1	1) 1.4D					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combination Design (Continued)

	Description	ASIF	CD	ABIF	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Footings	Aluminum	Connecti...
42	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
46	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50	6) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
56	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
71	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
72	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
73	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
74	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N25	max	0	1	0	1	0	1	0	1	0	1	0	1
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N30	max	0	1	0	1	0	1	0	1	0	1	0	1
4		min	0	1	0	1	0	1	0	1	0	1	0	1
5	N35	max	0	1	0	1	0	1	0	1	0	1	0	1
6		min	0	1	0	1	0	1	0	1	0	1	0	1
7	N42	max	2.425	16	1.312	34	3.168	3	2.572	36	3.296	21	4.372	35
8		min	-2.683	10	.216	65	-3.007	21	.345	18	-3.305	3	.622	66
9	N40	max	2.741	6	1.344	37	3.038	13	2.541	27	3.228	24	-.636	71
10		min	-2.478	24	.221	69	-2.898	19	.315	22	-3.236	6	-4.45	28
11	N44	max	2.878	5	1.321	35	1.538	14	-.75	63	1.92	5	.098	23
12		min	-2.856	23	.216	65	-1.839	8	-5.087	32	-1.898	23	-.125	5
13	N128	max	.057	17	2.232	26	-.056	20	0	1	0	66	0	60
14		min	-.057	23	-.002	20	-2.36	26	0	1	0	60	0	66
15	N130	max	0	24	2.232	30	1.179	29	0	4	0	22	0	22
16		min	-2.042	30	-.067	24	-.018	23	0	22	0	4	0	4
17	N132	max	2.062	34	2.253	34	1.191	34	0	24	0	24	0	24
18		min	.031	16	-.036	16	.004	17	0	6	0	6	0	6
19	N147	max	.076	72	.087	26	.332	32	0	26	0	1	0	23

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
20		min	-.136	42	.009	69	-.177	63	0	20	0	1	0	5
21	N152	max	.284	36	.087	30	.103	68	0	15	0	1	0	22
22		min	-.155	18	.009	73	-.191	36	0	9	0	1	0	28
23	N157	max	.145	71	.087	34	.107	70	0	25	0	1	0	36
24		min	-.312	28	.009	65	-.166	52	0	43	0	1	0	18
25	Totals:	max	6.755	17	10.632	31	6.384	14						
26		min	-6.755	11	1.756	74	-6.384	8						

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
1	M28	1	max	.023	14	.045	23	.047	14	1.145e-03	6	NC	1	NC	1
2			min	-.254	32	-.049	5	-.051	8	-9.729e-04	24	NC	1	NC	1
3		2	max	.023	14	.019	23	.052	14	1.097e-03	6	NC	1	NC	1
4			min	-.254	32	-.024	5	-.068	8	-9.251e-04	24	3760.661	23	1419.132	33
5		3	max	.023	14	.05	5	.17	8	1.091e-03	6	NC	1	NC	5
6			min	-.254	32	-.047	23	-.153	14	-9.555e-04	24	966.562	5	433.825	8
7		4	max	.023	14	.239	5	.671	20	3.168e-04	38	NC	1	NC	29
8			min	-.254	32	-.233	23	-.688	2	-2.622e-04	20	333.663	5	130.653	2
9		5	max	.022	14	.376	5	1.234	20	3.922e-04	13	NC	1	NC	11
10			min	-.255	32	-.372	23	-1.306	2	-3.334e-04	19	225.848	5	70.961	2
11	M68A	1	max	.465	2	.023	14	.17	23	8.042e-03	23	NC	1	NC	1
12			min	-.469	8	-.254	32	-.175	5	-8.112e-03	5	NC	1	NC	1
13		2	max	.465	2	-.038	63	.173	23	8.042e-03	23	NC	1	NC	1
14			min	-.469	8	-.25	31	-.178	5	-8.112e-03	5	NC	1	NC	1
15		3	max	.465	2	.01	20	.176	23	8.042e-03	23	NC	1	NC	1
16			min	-.469	8	-.272	26	-.182	5	-8.112e-03	5	NC	1	NC	1
17		4	max	.465	2	.078	20	.18	23	8.042e-03	23	NC	1	NC	1
18			min	-.469	8	-.296	26	-.185	5	-8.112e-03	5	NC	1	NC	1
19		5	max	.465	2	.146	20	.183	23	8.042e-03	23	NC	1	NC	1
20			min	-.469	8	-.32	26	-.189	5	-8.112e-03	5	NC	1	NC	1
21	M69A	1	max	.183	23	.147	21	.472	8	2.149e-02	20	NC	1	NC	1
22			min	-.189	5	-.323	27	-.466	2	-2.382e-02	2	NC	1	NC	1
23		2	max	.183	23	.145	20	.471	8	2.149e-02	20	NC	1	NC	1
24			min	-.189	5	-.321	26	-.466	2	-2.382e-02	2	NC	1	NC	1
25		3	max	.183	23	.146	20	.469	8	2.149e-02	20	NC	1	NC	1
26			min	-.189	5	-.32	26	-.465	2	-2.382e-02	2	NC	1	NC	1
27		4	max	.183	23	.147	20	.468	8	2.149e-02	20	NC	1	NC	1
28			min	-.189	5	-.319	26	-.464	2	-2.382e-02	2	NC	1	NC	1
29		5	max	.183	23	.147	20	.467	8	2.149e-02	20	NC	1	NC	1
30			min	-.189	5	-.319	26	-.463	2	-2.382e-02	2	NC	1	NC	1
31	M40	1	max	.69	20	.009	20	.242	5	4.667e-03	17	NC	1	NC	1
32			min	-.709	2	-.274	26	-.237	23	-4.72e-03	11	NC	1	NC	1
33		2	max	.69	20	-.024	20	.243	5	4.667e-03	17	NC	1	NC	1
34			min	-.709	2	-.261	26	-.237	23	-4.72e-03	11	NC	1	NC	1
35		3	max	.69	20	-.036	63	.243	5	4.667e-03	17	NC	1	NC	1
36			min	-.709	2	-.251	31	-.237	23	-4.72e-03	11	NC	1	NC	1
37		4	max	.69	20	-.014	14	.243	5	4.667e-03	17	NC	1	NC	1
38			min	-.709	2	-.253	32	-.238	23	-4.72e-03	11	NC	1	NC	1
39		5	max	.69	20	.023	14	.243	5	4.667e-03	17	NC	1	NC	1
40			min	-.709	2	-.254	32	-.238	23	-4.72e-03	11	NC	1	NC	1
41	M41A	1	max	.237	23	.262	2	.081	24	6.129e-03	20	NC	1	NC	1
42			min	-.243	5	-.259	20	-.439	30	-7.23e-03	2	4290.008	40	616.122	17
43		2	max	.237	23	.538	2	-.032	23	1.271e-02	20	NC	1	NC	4
44			min	-.243	5	-.534	20	-.346	29	-1.431e-02	2	594.087	3	1050.266	17
45		3	max	.237	23	.709	2	.009	20	2.075e-02	20	NC	1	NC	10

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
46			min	-.242	5	-.69	20	-.275	26	-2.294e-02	2	376.148	2	788.933	8
47		4	max	.237	23	.552	2	-.055	64	1.3e-02	20	NC	1	NC	1
48			min	-.242	5	-.548	20	-.375	35	-1.406e-02	2	614.849	2	1041.853	23
49		5	max	.237	23	.298	2	.07	16	7.52e-03	20	NC	1	NC	1
50			min	-.243	5	-.295	20	-.463	34	-8.065e-03	2	NC	1	585.205	11
51	M47	1	max	.287	3	.251	6	.075	16	6.542e-03	24	NC	1	NC	1
52			min	-.287	9	-.244	24	-.446	34	-7.798e-03	6	NC	1	653.356	21
53		2	max	.287	3	.503	6	-.053	65	1.211e-02	24	NC	1	NC	8
54			min	-.287	9	-.502	24	-.365	33	-1.375e-02	6	712.267	12	1222.886	21
55		3	max	.287	3	.669	6	.009	24	1.995e-02	24	NC	1	NC	2
56			min	-.287	9	-.657	24	-.285	30	-2.215e-02	6	456.198	6	790.97	12
57		4	max	.287	3	.585	6	-.046	21	1.332e-02	24	NC	1	NC	4
58			min	-.287	9	-.584	12	-.364	27	-1.441e-02	6	641.717	11	1082.303	15
59		5	max	.287	3	.378	6	.061	20	8.267e-03	24	NC	1	NC	1
60			min	-.287	9	-.373	24	-.457	26	-8.802e-03	6	4117.184	40	632.418	3
61	M48	1	max	.279	7	.368	10	.061	20	7.085e-03	16	NC	1	NC	1
62			min	-.279	13	-.367	16	-.439	26	-8.181e-03	10	4066.584	42	651.789	25
63		2	max	.279	7	.58	11	-.04	20	1.251e-02	16	NC	1	NC	6
64			min	-.279	13	-.576	16	-.354	26	-1.402e-02	10	598.524	11	1037.22	25
65		3	max	.279	7	.678	10	0	17	2.025e-02	16	NC	1	NC	2
66			min	-.279	13	-.659	16	-.261	35	-2.237e-02	10	431.245	11	819.816	4
67		4	max	.279	7	.52	10	-.048	73	1.312e-02	16	NC	1	NC	8
68			min	-.279	13	-.518	16	-.35	30	-1.409e-02	10	664.677	10	1302.908	19
69		5	max	.279	7	.247	10	.087	24	7.579e-03	16	NC	1	NC	1
70			min	-.279	13	-.248	4	-.458	30	-7.959e-03	10	NC	1	630.532	7
71	M49A	1	max	.311	21	.433	29	.294	24	8.007e-03	5	NC	1	NC	1
72			min	-.313	3	-.015	23	-.295	6	-7.682e-03	23	118.047	4	380.791	17
73		2	max	.311	21	.432	30	.283	24	6.853e-03	6	NC	1	NC	12
74			min	-.313	3	-.009	24	-.284	6	-6.705e-03	24	157.742	4	495.991	17
75		3	max	.311	21	.429	30	.273	24	6.45e-03	6	NC	1	NC	4
76			min	-.313	3	-.011	24	-.274	6	-6.433e-03	24	237.028	4	812.545	15
77		4	max	.31	21	.423	30	.264	24	6.057e-03	18	NC	1	NC	1
78			min	-.313	3	-.013	24	-.267	6	-6.172e-03	12	158.018	21	489.699	15
79		5	max	.31	21	.416	31	.259	24	6.439e-03	19	NC	1	NC	1
80			min	-.313	3	-.016	24	-.262	6	-6.642e-03	13	118.004	21	382.894	15
81	M50	1	max	.331	25	.445	33	.276	4	7.172e-03	9	NC	1	NC	1
82			min	-.333	7	-.003	15	-.271	22	-7.133e-03	15	115.558	19	1270.598	21
83		2	max	.331	25	.444	34	.275	4	6.356e-03	22	NC	1	NC	4
84			min	-.333	7	0	16	-.269	22	-6.489e-03	4	154.42	19	1758.183	21
85		3	max	.331	25	.441	34	.273	4	6.234e-03	22	NC	1	NC	2
86			min	-.333	7	0	16	-.268	22	-6.491e-03	4	231.547	19	957.652	24
87		4	max	.331	25	.435	34	.273	4	6.113e-03	22	NC	1	NC	1
88			min	-.333	7	-.001	16	-.269	22	-6.493e-03	4	180.248	6	556.787	24
89		5	max	.331	25	.428	35	.276	4	6.758e-03	23	NC	1	NC	1
90			min	-.333	7	-.009	17	-.273	22	-7.216e-03	5	132.652	6	423.632	24
91	M51A	1	max	.464	5	.436	37	.263	8	6.864e-03	13	NC	1	NC	1
92			min	-.462	11	-.002	19	-.261	14	-6.683e-03	19	123.647	24	853.175	13
93		2	max	.464	5	.436	26	.259	8	5.817e-03	13	NC	1	NC	3
94			min	-.462	11	.004	20	-.257	14	-5.775e-03	19	165.388	24	1035.744	13
95		3	max	.464	5	.433	26	.255	8	5.422e-03	14	NC	1	NC	3
96			min	-.462	11	.003	20	-.253	14	-5.541e-03	8	248.025	24	1472.283	12
97		4	max	.463	5	.428	27	.25	8	5.258e-03	15	NC	1	NC	1
98			min	-.462	11	0	20	-.249	2	-5.469e-03	9	182.73	10	853.468	12
99		5	max	.463	5	.423	27	.246	20	5.903e-03	15	NC	1	NC	1
100			min	-.462	11	-.013	21	-.246	2	-6.222e-03	9	134.641	10	714.341	12
101	M73	1	max	.334	28	.243	5	.569	2	6.456e-03	20	NC	1	NC	1
102			min	.025	22	-.237	23	-.563	20	-6.982e-03	2	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
103		2	max	.334	28	.242	5	.558	2	6.456e-03	20	NC	1	NC	1
104			min	.025	22	-.238	23	-.553	20	-6.982e-03	2	NC	1	NC	1
105		3	max	.334	28	.242	5	.546	2	6.456e-03	20	NC	1	NC	1
106			min	.025	22	-.239	23	-.542	20	-6.982e-03	2	NC	1	NC	1
107		4	max	.334	28	.242	5	.535	2	6.456e-03	20	NC	1	NC	1
108			min	.025	22	-.24	23	-.532	20	-6.982e-03	2	NC	1	NC	1
109		5	max	.334	28	.242	5	.523	2	6.456e-03	20	NC	1	NC	1
110			min	.025	22	-.241	23	-.522	8	-6.982e-03	2	NC	1	NC	1
111	M75	1	max	.362	36	.242	5	.579	2	6.099e-03	2	NC	1	NC	1
112			min	.047	18	-.237	23	-.574	20	-5.612e-03	20	NC	1	NC	1
113		2	max	.362	36	.244	5	.568	2	6.099e-03	2	NC	1	NC	1
114			min	.047	18	-.237	23	-.563	20	-5.612e-03	20	NC	1	NC	1
115		3	max	.362	36	.245	5	.557	2	6.099e-03	2	NC	1	NC	1
116			min	.047	18	-.237	23	-.553	20	-5.612e-03	20	NC	1	NC	1
117		4	max	.362	36	.246	5	.546	2	6.099e-03	2	NC	1	NC	1
118			min	.047	18	-.237	23	-.542	20	-5.612e-03	20	NC	1	NC	1
119		5	max	.362	36	.248	5	.534	2	6.099e-03	2	NC	1	NC	1
120			min	.047	18	-.238	23	-.532	20	-5.612e-03	20	NC	1	NC	1
121	M77	1	max	.354	32	.48	6	.346	14	6.66e-03	23	NC	1	NC	1
122			min	.05	14	-.478	24	-.35	8	-7.001e-03	5	NC	1	NC	1
123		2	max	.354	32	.47	6	.346	2	6.66e-03	23	NC	1	NC	1
124			min	.05	14	-.469	24	-.348	8	-7.001e-03	5	NC	1	NC	1
125		3	max	.354	32	.46	6	.346	2	6.66e-03	23	NC	1	NC	1
126			min	.05	14	-.459	12	-.346	8	-7.001e-03	5	NC	1	NC	1
127		4	max	.354	32	.449	6	.345	2	6.66e-03	23	NC	1	NC	1
128			min	.05	14	-.45	12	-.344	20	-7.001e-03	5	NC	1	NC	1
129		5	max	.354	32	.439	6	.345	2	6.66e-03	23	NC	1	NC	1
130			min	.05	14	-.44	12	-.343	20	-7.001e-03	5	NC	1	NC	1
131	M79	1	max	.352	28	.597	5	.322	25	4.141e-03	6	NC	1	NC	1
132			min	.035	22	-.592	23	-.325	7	-3.784e-03	24	NC	1	NC	1
133		2	max	.352	28	.588	5	.316	25	4.141e-03	6	NC	1	NC	1
134			min	.035	22	-.585	11	-.319	7	-3.784e-03	24	NC	1	NC	1
135		3	max	.352	28	.58	5	.311	25	4.141e-03	6	NC	1	NC	1
136			min	.035	22	-.578	11	-.314	7	-3.784e-03	24	NC	1	NC	1
137		4	max	.352	28	.571	5	.305	25	4.141e-03	6	NC	1	NC	1
138			min	.035	22	-.571	11	-.309	7	-3.784e-03	24	NC	1	NC	1
139		5	max	.352	28	.563	5	.299	25	4.141e-03	6	NC	1	NC	1
140			min	.035	22	-.564	11	-.303	7	-3.784e-03	24	NC	1	NC	1
141	M81	1	max	.342	37	.606	17	.296	15	3.926e-03	16	NC	1	NC	1
142			min	.034	19	-.613	11	-.3	9	-4.473e-03	10	NC	1	NC	1
143		2	max	.342	37	.6	17	.29	15	3.926e-03	16	NC	1	NC	1
144			min	.034	19	-.604	11	-.295	9	-4.473e-03	10	NC	1	NC	1
145		3	max	.342	37	.593	5	.285	15	3.926e-03	16	NC	1	NC	1
146			min	.034	19	-.596	11	-.29	9	-4.473e-03	10	NC	1	NC	1
147		4	max	.342	37	.586	5	.28	15	3.926e-03	16	NC	1	NC	1
148			min	.034	19	-.587	11	-.285	9	-4.473e-03	10	NC	1	NC	1
149		5	max	.342	37	.58	5	.274	15	3.926e-03	16	NC	1	NC	1
150			min	.034	19	-.579	11	-.28	9	-4.473e-03	10	NC	1	NC	1
151	M83	1	max	.336	31	.505	17	.314	14	6.941e-03	11	NC	1	NC	1
152			min	.046	73	-.51	11	-.32	8	-6.321e-03	17	NC	1	NC	1
153		2	max	.336	31	.495	17	.314	14	6.941e-03	11	NC	1	NC	1
154			min	.046	73	-.501	11	-.318	8	-6.321e-03	17	NC	1	NC	1
155		3	max	.336	31	.486	17	.313	2	6.941e-03	11	NC	1	NC	1
156			min	.046	73	-.491	11	-.316	8	-6.321e-03	17	NC	1	NC	1
157		4	max	.336	31	.477	17	.313	2	6.941e-03	11	NC	1	NC	1
158			min	.046	73	-.482	11	-.314	8	-6.321e-03	17	NC	1	NC	1
159		5	max	.336	31	.468	17	.313	2	6.941e-03	11	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
160			min	.046	73	-.472	11	-.312	20	-6.321e-03	17	NC	1	NC	1
161	M36	1	max	.004	7	-.03	63	.009	54	2.065e-03	5	NC	1	NC	1
162			min	-.003	25	-.21	32	-.009	72	-1.604e-03	23	NC	1	NC	1
163		2	max	.004	7	-.018	14	.009	66	2.065e-03	5	NC	1	NC	1
164			min	-.003	25	-.221	32	-.009	60	-1.604e-03	23	NC	1	NC	1
165		3	max	.004	7	-.004	14	.009	66	2.065e-03	5	NC	1	NC	1
166			min	-.003	25	-.232	32	-.009	60	-1.604e-03	23	NC	1	NC	1
167		4	max	.004	7	.009	14	.008	66	2.065e-03	5	NC	1	NC	1
168			min	-.003	25	-.243	32	-.009	60	-1.604e-03	23	NC	1	NC	1
169		5	max	.004	7	.023	14	.008	66	2.065e-03	5	NC	1	NC	1
170			min	-.003	25	-.253	32	-.009	60	-1.604e-03	23	NC	1	NC	1
171	M52	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
172			min	0	1	0	1	0	1	0	1	NC	1	NC	1
173		2	max	0	4	.011	24	.018	28	6.539e-05	15	NC	1	NC	19
174			min	0	22	-.011	6	.002	71	-8.551e-05	9	4545.833	5	2077.957	28
175		3	max	0	4	.025	24	.064	28	2.256e-04	14	NC	1	4115.327	71
176			min	0	22	-.025	6	.009	71	-2.71e-04	8	1796.812	5	571.003	28
177		4	max	0	4	.036	24	.131	28	6.068e-04	25	NC	1	2107.981	22
178			min	0	22	-.036	6	.017	22	-6.798e-04	7	1154.904	5	279.145	28
179		5	max	0	4	.047	24	.208	28	1.007e-03	25	NC	1	1392.256	22
180			min	0	22	-.047	6	.026	22	-1.107e-03	7	853.959	23	175.856	28
181	M53	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
182			min	0	1	0	1	0	1	0	1	NC	1	NC	1
183		2	max	0	12	.011	21	.017	36	4.327e-05	19	NC	1	NC	15
184			min	0	18	-.011	3	.003	67	-6.625e-05	13	4712.877	5	2098.957	36
185		3	max	0	12	.026	22	.064	36	2.033e-04	21	NC	1	4146.234	18
186			min	0	18	-.026	4	.009	18	-2.491e-04	3	1868.136	5	576.017	36
187		4	max	0	12	.037	22	.13	36	6.073e-04	21	NC	1	2115.407	18
188			min	0	18	-.037	4	.017	18	-6.799e-04	3	1193.346	5	281.3	36
189		5	max	0	12	.049	22	.207	36	1.011e-03	21	NC	1	1393.237	18
190			min	0	18	-.049	4	.026	18	-1.111e-03	3	861.12	5	177.048	36
191	M57	1	max	.02	2	-.002	14	.032	5	5.747e-04	5	NC	1	NC	1
192			min	-.019	20	-.039	32	-.032	23	-5.455e-04	23	NC	1	NC	1
193		2	max	.02	2	.02	14	.045	5	9.11e-04	11	NC	6	NC	1
194			min	-.019	20	-.021	8	-.045	23	-8.402e-04	17	1121.104	26	3424.749	23
195		3	max	.021	2	.098	26	.059	5	2.366e-03	11	NC	8	NC	1
196			min	-.02	20	-.029	20	-.059	23	-2.248e-03	17	324.755	26	1609.187	23
197		4	max	.021	2	.239	26	.075	5	3.821e-03	11	NC	7	NC	1
198			min	-.021	20	-.039	20	-.075	23	-3.655e-03	17	159.467	26	1033.421	23
199		5	max	.022	2	.4	26	.09	5	5.276e-03	11	NC	7	NC	1
200			min	-.021	20	-.05	20	-.09	23	-5.062e-03	17	100.545	26	757.779	23
201	M58	1	max	.02	10	-.003	22	.017	15	7.392e-04	17	NC	1	NC	1
202			min	-.02	16	-.041	28	-.017	9	-7.371e-04	23	NC	1	NC	1
203		2	max	.021	10	.021	22	.024	15	1.496e-03	6	NC	2	NC	1
204			min	-.02	16	-.022	4	-.024	9	-1.429e-03	24	1089.018	34	5399.175	10
205		3	max	.021	10	.1	34	.032	15	2.588e-03	7	NC	4	NC	1
206			min	-.021	16	-.032	16	-.032	9	-2.447e-03	25	317.436	34	2454.521	10
207		4	max	.022	10	.243	34	.042	16	3.732e-03	7	NC	3	NC	1
208			min	-.021	16	-.045	16	-.042	10	-3.52e-03	25	156.235	34	1530.169	10
209		5	max	.022	10	.407	34	.053	16	4.876e-03	7	NC	3	NC	1
210			min	-.022	16	-.059	16	-.053	10	-4.594e-03	25	98.609	34	1097.389	16
211	M59	1	max	.021	6	-.003	18	.014	19	7.347e-04	17	NC	1	NC	1
212			min	-.02	24	-.038	36	-.014	13	-7.31e-04	23	NC	1	NC	1
213		2	max	.021	6	.021	18	.02	19	1.549e-03	4	NC	2	NC	1
214			min	-.021	24	-.022	12	-.02	13	-1.474e-03	22	1134.261	30	5936.106	24
215		3	max	.022	6	.098	30	.028	18	2.576e-03	3	NC	11	NC	1
216			min	-.021	24	-.035	24	-.028	12	-2.432e-03	21	327.252	30	2699.244	12

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
217		4	max	.022	6	.238	30	.038	18	3.674e-03	3	NC	11	NC	1
218			min	-.022	24	-.051	24	-.038	12	-3.457e-03	21	160.451	30	1654.086	11
219		5	max	.023	6	.398	30	.048	18	4.772e-03	3	NC	11	NC	1
220			min	-.022	24	-.069	24	-.048	12	-4.483e-03	21	101.097	30	1161.618	11
221	M60	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
222			min	0	1	0	1	0	1	0	1	NC	1	NC	1
223		2	max	0	8	.006	5	.018	32	1.229e-04	5	NC	1	NC	14
224			min	0	14	-.006	23	.003	63	-9.689e-05	23	5389.315	5	2092.508	32
225		3	max	0	8	.01	5	.064	32	3.702e-04	5	NC	1	3961.473	63
226			min	0	14	-.01	23	.009	63	-3.171e-04	23	3308.443	5	574.412	32
227		4	max	0	8	.008	54	.131	32	8.074e-04	5	NC	1	1958.479	63
228			min	0	14	-.008	72	.019	63	-7.253e-04	23	5315.203	5	280.565	32
229		5	max	.001	8	.009	54	.208	32	1.245e-03	5	NC	1	1246.294	63
230			min	0	14	-.009	72	.029	63	-1.134e-03	23	NC	1	176.598	32
231	M61	1	max	.012	23	.021	25	.038	36	8.699e-04	45	NC	1	NC	1
232			min	-.013	5	-.021	7	.003	18	-2.025e-04	15	6194.713	41	4360.729	12
233		2	max	.011	23	.008	25	.015	40	3.006e-03	32	NC	1	NC	1
234			min	-.011	5	-.009	7	-.003	22	3.175e-04	15	3602.741	32	3396.067	37
235		3	max	.01	23	0	14	-.006	63	5.253e-03	32	NC	2	NC	7
236			min	-.01	5	0	8	-.042	32	7.547e-04	63	1541.347	32	1562.543	37
237		4	max	.011	11	.01	14	.006	37	3.036e-03	32	NC	1	NC	1
238			min	-.011	17	-.01	8	-.002	42	3.651e-04	64	3790.482	32	3532.555	27
239		5	max	.013	11	.023	15	.041	28	8.248e-04	31	NC	1	NC	1
240			min	-.012	17	-.023	9	.003	22	-1.501e-04	24	7117.876	22	3817.131	4
241	M62	1	max	.024	16	.01	19	.041	28	1.246e-03	11	NC	1	NC	1
242			min	-.024	10	-.01	13	.003	22	-8.696e-04	17	NC	1	NC	1
243		2	max	.022	16	.008	20	.006	30	3.085e-03	35	NC	1	NC	1
244			min	-.022	10	-.008	2	-.002	23	-7.35e-05	17	3728.756	35	3550.44	28
245		3	max	.021	4	0	18	-.006	67	5.239e-03	36	NC	5	NC	11
246			min	-.021	22	0	12	-.042	36	7.05e-04	18	1542.683	35	1558.228	30
247		4	max	.022	3	.016	17	.004	30	3.021e-03	26	NC	1	NC	1
248			min	-.022	21	-.017	11	0	70	3.456e-04	20	3643.546	37	3418.683	32
249		5	max	.023	3	.028	18	.039	32	8.807e-04	27	NC	1	NC	1
250			min	-.023	21	-.028	12	.002	14	-4.736e-04	22	4357.615	10	6055.885	24
251	M63	1	max	.022	18	.029	22	.039	32	8.096e-04	12	NC	1	NC	1
252			min	-.022	12	-.03	4	.002	14	-4.557e-04	18	4389.436	5	5343.026	10
253		2	max	.021	18	.016	23	.005	33	3.01e-03	26	NC	1	NC	1
254			min	-.021	12	-.017	5	-.002	39	3.262e-04	20	3768.248	28	3553.138	33
255		3	max	.02	6	0	22	-.006	71	5.281e-03	28	NC	9	NC	3
256			min	-.02	24	0	4	-.043	28	7.08e-04	22	1542.674	28	1571.925	34
257		4	max	.022	6	.006	20	.016	46	3.077e-03	29	NC	1	NC	1
258			min	-.022	24	-.007	2	-.001	16	-7.259e-05	23	3607.963	28	3467.535	35
259		5	max	.024	6	.007	21	.038	36	1.268e-03	5	NC	1	NC	1
260			min	-.023	24	-.007	3	.003	18	-9.166e-04	23	5610.349	47	6094.852	40
261	M64_1	1	max	.008	72	.053	24	.069	24	7.403e-03	32	NC	1	NC	1
262			min	-.008	54	-.053	6	-.398	30	-2.918e-03	14	1213.098	41	682.847	17
263		2	max	.008	72	.076	14	.015	25	8.051e-03	8	NC	7	NC	1
264			min	-.009	54	-.093	8	-.34	31	-6.671e-03	14	2346.052	40	1066.818	17
265		3	max	.009	72	0	14	-.029	63	8.426e-03	32	NC	2	NC	3
266			min	-.009	54	-.001	8	-.208	32	1.157e-03	63	1393.743	31	1314.505	32
267		4	max	.008	60	.083	14	.011	15	5.536e-03	32	NC	1	NC	1
268			min	-.008	66	-.108	8	-.363	33	-2.377e-03	14	2360.015	24	950.598	10
269		5	max	.008	60	.057	16	.059	16	8.594e-03	32	NC	1	NC	1
270			min	-.008	66	-.057	10	-.407	34	-2.912e-03	14	1476.978	23	674.234	23
271	M65	1	max	.045	16	.035	22	.059	16	7.65e-03	36	NC	1	NC	1
272			min	-.046	10	-.035	4	-.407	34	-3.229e-03	18	778.68	22	1286.111	8
273		2	max	.047	16	.056	19	.012	17	5.013e-03	12	NC	2	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
274			min	-.047	10	-.073	13	-.341	35	-2.923e-03	18	1232.403	21	2169.095	14
275		3	max	.049	4	0	18	-.026	18	8.406e-03	36	NC	6	NC	2
276			min	-.049	22	0	12	-.207	36	9.227e-04	18	1384.02	37	1276.672	36
277		4	max	.049	4	.115	17	.009	19	8.447e-03	12	NC	11	NC	1
278			min	-.049	22	-.138	11	-.36	37	-6.571e-03	18	999.819	16	1444.248	13
279		5	max	.05	4	.078	17	.05	20	8.408e-03	36	NC	1	NC	1
280			min	-.049	22	-.078	11	-.4	26	-3.245e-03	18	774.668	16	1321.266	14
281	M66	1	max	.047	18	.078	23	.05	20	7.691e-03	28	NC	1	NC	1
282			min	-.047	12	-.078	5	-.4	26	-3.422e-03	22	780.589	24	1195.866	14
283		2	max	.047	18	.113	23	.015	22	5.38e-03	4	NC	5	NC	1
284			min	-.047	12	-.13	5	-.34	28	-3.224e-03	22	1031.107	24	1502.058	15
285		3	max	.047	6	0	22	-.026	22	8.441e-03	28	NC	4	NC	2
286			min	-.047	24	0	4	-.208	28	9.163e-04	22	1434.453	28	1321.687	29
287		4	max	.045	6	.054	21	.018	23	8.036e-03	4	NC	1	NC	1
288			min	-.045	24	-.077	3	-.361	29	-6.357e-03	22	1308.339	19	1690.932	43
289		5	max	.044	6	.03	18	.069	24	8.456e-03	28	NC	1	NC	1
290			min	-.043	24	-.031	12	-.398	30	-3.28e-03	22	796.732	18	1125.32	44
291	M57C	1	max	.066	25	.041	23	.084	16	2.686e-03	15	NC	1	NC	1
292			min	-.416	31	-.046	5	-.085	10	-3.013e-03	9	NC	1	1565.322	23
293		2	max	.066	25	.044	10	.05	6	2.758e-03	15	NC	1	NC	1
294			min	-.416	31	-.04	16	-.045	24	-3.297e-03	9	3915.525	43	1416.96	9
295		3	max	.066	25	.047	6	.145	8	4.191e-03	15	NC	1	NC	5
296			min	-.416	31	-.043	24	-.13	14	-4.77e-03	9	1040.533	5	497.144	8
297		4	max	.066	25	.21	5	.307	8	7.174e-03	15	NC	1	NC	5
298			min	-.416	31	-.203	23	-.305	2	-7.494e-03	9	374.147	5	270.798	8
299		5	max	.066	25	.342	6	.456	20	7.286e-03	15	NC	1	NC	1
300			min	-.416	31	-.329	24	-.481	2	-7.597e-03	9	247.469	5	181.865	2
301	M58B	1	max	.192	14	.066	25	.101	23	7.19e-03	23	NC	1	NC	1
302			min	-.205	8	-.416	31	-.106	5	-7.235e-03	5	NC	1	NC	1
303		2	max	.192	14	.047	25	.111	23	7.19e-03	23	NC	1	NC	1
304			min	-.205	8	-.415	31	-.114	5	-7.235e-03	5	NC	1	NC	1
305		3	max	.192	14	.036	24	.121	23	7.19e-03	23	NC	1	NC	1
306			min	-.205	8	-.416	30	-.123	5	-7.235e-03	5	NC	1	NC	1
307		4	max	.192	14	.027	24	.131	11	7.19e-03	23	NC	1	NC	1
308			min	-.205	8	-.417	30	-.131	5	-7.235e-03	5	NC	1	NC	1
309		5	max	.192	14	.017	24	.142	10	7.19e-03	23	NC	1	NC	1
310			min	-.205	8	-.419	30	-.141	16	-7.235e-03	5	NC	1	NC	1
311	M59A	1	max	.141	16	-.025	24	.219	14	7.414e-03	2	NC	1	NC	1
312			min	-.142	10	-.408	30	-.236	8	-6.984e-03	20	NC	1	NC	1
313		2	max	.141	16	-.004	24	.205	14	7.414e-03	2	NC	1	NC	1
314			min	-.142	10	-.413	30	-.22	8	-6.984e-03	20	NC	1	NC	1
315		3	max	.141	16	.017	24	.192	14	7.414e-03	2	NC	1	NC	1
316			min	-.142	10	-.419	30	-.205	8	-6.984e-03	20	NC	1	NC	1
317		4	max	.141	16	.038	24	.178	14	7.414e-03	2	NC	1	NC	1
318			min	-.142	10	-.424	29	-.189	8	-6.984e-03	20	NC	1	NC	1
319		5	max	.141	16	.06	23	.164	14	7.414e-03	2	NC	1	NC	1
320			min	-.142	10	-.43	29	-.174	8	-6.984e-03	20	NC	1	NC	1
321	M60A	1	max	.312	8	.033	24	.243	5	5.742e-03	6	NC	1	NC	1
322			min	-.312	2	-.422	30	-.237	23	-5.456e-03	24	NC	1	NC	1
323		2	max	.312	8	.039	24	.236	5	5.742e-03	6	NC	1	NC	1
324			min	-.312	2	-.42	31	-.23	23	-5.456e-03	24	NC	1	NC	1
325		3	max	.312	8	.047	25	.229	5	5.742e-03	6	NC	1	NC	1
326			min	-.312	2	-.419	31	-.223	23	-5.456e-03	24	NC	1	NC	1
327		4	max	.312	8	.057	25	.222	5	5.742e-03	6	NC	1	NC	1
328			min	-.312	2	-.417	31	-.215	23	-5.456e-03	24	NC	1	NC	1
329		5	max	.312	8	.066	25	.215	5	5.742e-03	6	NC	1	NC	1
330			min	-.312	2	-.416	31	-.208	23	-5.456e-03	24	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
331	M62A	1	max	.082	7	.046	24	.009	54	3.055e-03	16	NC	1	NC	1
332			min	-.071	25	-.404	30	-.008	72	-3.07e-03	10	NC	1	NC	1
333		2	max	.082	7	.048	24	.009	54	3.055e-03	16	NC	1	NC	1
334			min	-.071	25	-.406	31	-.007	72	-3.07e-03	10	NC	1	NC	1
335		3	max	.082	7	.054	25	.013	9	3.055e-03	16	NC	1	NC	1
336			min	-.071	25	-.409	31	-.011	15	-3.07e-03	10	NC	1	NC	1
337		4	max	.082	7	.06	25	.019	9	3.055e-03	16	NC	1	NC	1
338			min	-.071	25	-.413	31	-.015	15	-3.07e-03	10	NC	1	NC	1
339		5	max	.082	7	.066	25	.024	9	3.055e-03	16	NC	1	NC	1
340			min	-.071	25	-.416	31	-.019	15	-3.07e-03	10	NC	1	NC	1
341	M75A	1	max	.065	17	.061	24	.08	24	2.822e-03	19	NC	1	NC	1
342			min	-.425	35	-.061	6	-.083	6	-3.12e-03	13	NC	1	NC	1
343		2	max	.065	17	.011	21	.061	11	2.745e-03	18	NC	1	NC	1
344			min	-.425	35	-.018	3	-.06	17	-3.324e-03	12	1427.624	13	3005.509	7
345		3	max	.065	17	.108	18	.108	21	3.707e-03	18	NC	9	NC	1
346			min	-.425	35	-.123	12	-.111	3	-4.4e-03	12	523.23	12	713.455	13
347		4	max	.065	17	.291	6	.278	8	6.037e-03	19	NC	46	NC	1
348			min	-.425	35	-.292	12	-.273	14	-6.493e-03	13	272.211	6	311.88	8
349		5	max	.065	17	.483	6	.415	8	6.127e-03	19	NC	1	NC	5
350			min	-.425	35	-.458	24	-.392	14	-6.574e-03	13	176.405	6	215.679	8
351	M76A	1	max	.179	19	.065	17	.16	16	7.648e-03	3	NC	1	NC	1
352			min	-.191	13	-.425	35	-.162	10	-7.523e-03	21	NC	1	NC	1
353		2	max	.179	19	.045	17	.162	15	7.648e-03	3	NC	1	NC	1
354			min	-.191	13	-.425	35	-.163	9	-7.523e-03	21	NC	1	NC	1
355		3	max	.179	19	.027	16	.167	3	7.648e-03	3	NC	1	NC	1
356			min	-.191	13	-.425	34	-.166	21	-7.523e-03	21	NC	1	NC	1
357		4	max	.179	19	.017	16	.172	3	7.648e-03	3	NC	1	NC	1
358			min	-.191	13	-.428	34	-.17	21	-7.523e-03	21	NC	1	NC	1
359		5	max	.179	19	.008	16	.178	3	7.648e-03	3	NC	1	NC	1
360			min	-.191	13	-.43	34	-.174	21	-7.523e-03	21	NC	1	NC	1
361	M77A	1	max	.174	21	-.038	16	.208	19	8.099e-03	6	NC	1	NC	1
362			min	-.178	3	-.421	34	-.223	13	-7.56e-03	24	NC	1	NC	1
363		2	max	.174	21	-.015	16	.193	19	8.099e-03	6	NC	1	NC	1
364			min	-.178	3	-.425	34	-.207	13	-7.56e-03	24	NC	1	NC	1
365		3	max	.174	21	.008	16	.179	19	8.099e-03	6	NC	1	NC	1
366			min	-.178	3	-.43	34	-.191	13	-7.56e-03	24	NC	1	NC	1
367		4	max	.174	21	.031	16	.165	19	8.099e-03	6	NC	1	NC	1
368			min	-.178	3	-.434	33	-.175	13	-7.56e-03	24	NC	1	NC	1
369		5	max	.174	21	.054	16	.151	19	8.099e-03	6	NC	1	NC	1
370			min	-.178	3	-.439	33	-.159	13	-7.56e-03	24	NC	1	NC	1
371	M78A	1	max	.298	25	.025	17	.287	9	6.086e-03	10	NC	1	NC	1
372			min	-.301	7	-.433	35	-.287	3	-6.009e-03	16	NC	1	NC	1
373		2	max	.298	25	.035	17	.283	9	6.086e-03	10	NC	1	NC	1
374			min	-.301	7	-.431	35	-.283	3	-6.009e-03	16	NC	1	NC	1
375		3	max	.298	25	.045	17	.28	9	6.086e-03	10	NC	1	NC	1
376			min	-.301	7	-.429	35	-.279	15	-6.009e-03	16	NC	1	NC	1
377		4	max	.298	25	.055	17	.277	9	6.086e-03	10	NC	1	NC	1
378			min	-.301	7	-.427	35	-.275	15	-6.009e-03	16	NC	1	NC	1
379		5	max	.298	25	.065	17	.276	10	6.086e-03	10	NC	1	NC	1
380			min	-.301	7	-.425	35	-.275	16	-6.009e-03	16	NC	1	NC	1
381	M80A	1	max	.057	2	.038	17	.046	10	3.076e-03	20	NC	1	NC	1
382			min	-.045	20	-.413	35	-.046	16	-3.084e-03	15	NC	1	NC	1
383		2	max	.057	2	.045	17	.049	10	3.076e-03	20	NC	1	NC	1
384			min	-.045	20	-.416	35	-.048	16	-3.084e-03	15	NC	1	NC	1
385		3	max	.057	2	.051	17	.052	10	3.076e-03	20	NC	1	NC	1
386			min	-.045	20	-.419	35	-.049	16	-3.084e-03	15	NC	1	NC	1
387		4	max	.057	2	.058	17	.054	10	3.076e-03	20	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
388			min	-.045	20	-.422	35	-.051	16	-3.084e-03	15	NC	1	NC	1
389		5	max	.057	2	.065	17	.058	11	3.076e-03	20	NC	1	NC	1
390			min	-.045	20	-.425	35	-.053	17	-3.084e-03	15	NC	1	NC	1
391	M93	1	max	.065	21	.026	60	.029	5	2.682e-03	23	NC	1	NC	1
392			min	-.421	27	-.026	66	-.026	23	-3.013e-03	5	NC	1	NC	1
393		2	max	.065	21	.057	5	.022	22	2.541e-03	23	NC	1	NC	1
394			min	-.421	27	-.055	23	-.029	4	-3.108e-03	5	1651.803	5	1715.528	4
395		3	max	.065	21	.217	5	.087	21	3.617e-03	23	NC	1	NC	5
396			min	-.422	27	-.205	23	-.098	3	-4.222e-03	5	440.183	5	824.087	3
397		4	max	.065	21	.418	5	.241	21	6.172e-03	23	NC	1	NC	1
398			min	-.422	27	-.417	11	-.243	3	-6.474e-03	5	228.923	5	367.7	3
399		5	max	.065	21	.572	17	.395	9	6.268e-03	23	NC	2	NC	1
400			min	-.422	27	-.597	11	-.387	15	-6.559e-03	5	160.468	11	234.014	9
401	M94	1	max	.27	22	.065	21	.147	19	7.336e-03	7	NC	1	NC	1
402			min	-.285	4	-.422	27	-.149	13	-7.179e-03	25	NC	1	NC	1
403		2	max	.27	22	.044	21	.156	18	7.336e-03	7	NC	1	NC	1
404			min	-.285	4	-.42	27	-.157	12	-7.179e-03	25	NC	1	NC	1
405		3	max	.27	22	.022	21	.17	6	7.336e-03	7	NC	1	NC	1
406			min	-.285	4	-.419	27	-.17	24	-7.179e-03	25	NC	1	NC	1
407		4	max	.27	22	.01	20	.184	6	7.336e-03	7	NC	1	NC	1
408			min	-.285	4	-.42	26	-.182	24	-7.179e-03	25	NC	1	NC	1
409		5	max	.27	22	0	20	.198	6	7.336e-03	7	NC	1	NC	1
410			min	-.285	4	-.421	26	-.195	24	-7.179e-03	25	NC	1	NC	1
411	M95	1	max	.195	24	-.038	20	.297	23	8.875e-03	10	NC	1	NC	1
412			min	-.198	6	-.414	26	-.315	5	-8.474e-03	16	NC	1	NC	1
413		2	max	.195	24	-.019	20	.283	23	8.875e-03	10	NC	1	NC	1
414			min	-.198	6	-.418	26	-.299	4	-8.474e-03	16	NC	1	NC	1
415		3	max	.195	24	0	20	.27	22	8.875e-03	10	NC	1	NC	1
416			min	-.198	6	-.421	26	-.285	4	-8.474e-03	16	NC	1	NC	1
417		4	max	.195	24	.021	19	.258	22	8.875e-03	10	NC	1	NC	1
418			min	-.198	6	-.426	37	-.272	4	-8.474e-03	16	NC	1	NC	1
419		5	max	.195	24	.044	19	.246	22	8.875e-03	10	NC	1	NC	1
420			min	-.198	6	-.43	37	-.258	4	-8.474e-03	16	NC	1	NC	1
421	M96	1	max	.414	4	.024	21	.279	13	5.052e-03	13	NC	1	NC	1
422			min	-.411	10	-.427	27	-.279	7	-4.919e-03	19	NC	1	NC	1
423		2	max	.414	4	.035	21	.273	13	5.052e-03	13	NC	1	NC	1
424			min	-.411	10	-.426	27	-.273	7	-4.919e-03	19	NC	1	NC	1
425		3	max	.414	4	.045	21	.267	13	5.052e-03	13	NC	1	NC	1
426			min	-.411	10	-.424	27	-.266	7	-4.919e-03	19	NC	1	NC	1
427		4	max	.414	4	.055	21	.261	13	5.052e-03	13	NC	1	NC	1
428			min	-.411	10	-.423	27	-.26	19	-4.919e-03	19	NC	1	NC	1
429		5	max	.414	4	.065	21	.255	13	5.052e-03	13	NC	1	NC	1
430			min	-.411	10	-.422	27	-.254	19	-4.919e-03	19	NC	1	NC	1
431	M98	1	max	.129	5	.036	21	.047	12	3.382e-03	24	NC	1	NC	1
432			min	-.117	23	-.408	27	-.047	18	-3.42e-03	6	NC	1	NC	1
433		2	max	.129	5	.043	21	.045	12	3.382e-03	24	NC	1	NC	1
434			min	-.117	23	-.411	27	-.043	18	-3.42e-03	6	NC	1	NC	1
435		3	max	.129	5	.051	21	.042	12	3.382e-03	24	NC	1	NC	1
436			min	-.117	23	-.414	27	-.04	18	-3.42e-03	6	NC	1	NC	1
437		4	max	.129	5	.058	21	.04	12	3.382e-03	24	NC	1	NC	1
438			min	-.117	23	-.418	27	-.036	18	-3.42e-03	6	NC	1	NC	1
439		5	max	.129	5	.065	21	.037	12	3.382e-03	24	NC	1	NC	1
440			min	-.117	23	-.421	27	-.032	18	-3.42e-03	6	NC	1	NC	1
441	M54	1	max	.061	15	.039	23	.068	24	2.573e-03	7	NC	1	NC	1
442			min	-.452	33	-.043	5	-.082	6	-1.966e-03	25	NC	1	2194.133	5
443		2	max	.061	15	.034	24	.057	10	3.261e-03	7	NC	1	NC	4
444			min	-.452	33	-.044	6	-.053	16	-2.402e-03	25	4480.23	9	1243.391	7

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
445		3	max	.061	15	.046	17	.169	8	4.963e-03	7	NC	1	NC	11
446			min	-.452	33	-.047	11	-.144	14	-4.136e-03	25	1083.342	5	454.08	8
447		4	max	.061	15	.217	5	.339	8	6.654e-03	7	NC	1	NC	1
448			min	-.453	33	-.213	23	-.339	2	-6.324e-03	25	368.86	5	251.603	8
449		5	max	.061	15	.369	5	.547	20	6.667e-03	7	NC	1	NC	1
450			min	-.453	33	-.369	11	-.56	2	-6.356e-03	25	232.824	5	163.234	8
451	M55	1	max	.261	14	.061	15	.152	23	7.157e-03	23	NC	1	NC	1
452			min	-.273	8	-.453	33	-.155	5	-7.3e-03	5	NC	1	NC	1
453		2	max	.261	14	.038	15	.162	23	7.157e-03	23	NC	1	NC	1
454			min	-.273	8	-.456	33	-.167	5	-7.3e-03	5	NC	1	NC	1
455		3	max	.261	14	.018	16	.173	23	7.157e-03	23	NC	1	NC	1
456			min	-.273	8	-.46	34	-.18	5	-7.3e-03	5	NC	1	NC	1
457		4	max	.261	14	.004	16	.184	23	7.157e-03	23	NC	1	NC	1
458			min	-.273	8	-.466	34	-.192	5	-7.3e-03	5	NC	1	NC	1
459		5	max	.261	14	-.009	16	.194	23	7.157e-03	23	NC	1	NC	1
460			min	-.273	8	-.472	34	-.204	5	-7.3e-03	5	NC	1	NC	1
461	M56	1	max	.194	23	-.053	16	.308	8	7.017e-03	20	NC	1	NC	1
462			min	-.204	5	-.464	34	-.292	14	-8.74e-03	2	NC	1	NC	1
463		2	max	.194	23	-.031	16	.291	8	7.017e-03	20	NC	1	NC	1
464			min	-.204	5	-.468	34	-.277	14	-8.74e-03	2	NC	1	NC	1
465		3	max	.194	23	-.009	16	.273	8	7.017e-03	20	NC	1	NC	1
466			min	-.204	5	-.472	34	-.261	14	-8.74e-03	2	NC	1	NC	1
467		4	max	.194	23	.012	16	.256	8	7.017e-03	20	NC	1	NC	1
468			min	-.204	5	-.475	34	-.246	14	-8.74e-03	2	NC	1	NC	1
469		5	max	.194	23	.034	16	.239	8	7.017e-03	20	NC	1	NC	1
470			min	-.204	5	-.479	35	-.231	14	-8.74e-03	2	NC	1	NC	1
471	M57A	1	max	.101	9	.036	15	.008	66	3.463e-03	6	NC	1	NC	1
472			min	-.082	15	-.432	33	-.008	60	-2.912e-03	24	NC	1	NC	1
473		2	max	.101	9	.042	15	.007	66	3.463e-03	6	NC	1	NC	1
474			min	-.082	15	-.437	33	-.009	60	-2.912e-03	24	NC	1	NC	1
475		3	max	.101	9	.049	15	.007	24	3.463e-03	6	NC	1	NC	1
476			min	-.082	15	-.442	33	-.011	6	-2.912e-03	24	NC	1	NC	1
477		4	max	.101	9	.055	15	.01	25	3.463e-03	6	NC	1	NC	1
478			min	-.082	15	-.447	33	-.016	7	-2.912e-03	24	NC	1	NC	1
479		5	max	.101	9	.061	15	.015	25	3.463e-03	6	NC	1	NC	1
480			min	-.082	15	-.452	33	-.022	7	-2.912e-03	24	NC	1	NC	1
481	M62B	1	max	.058	19	.032	60	.025	11	2.429e-03	11	NC	1	NC	1
482			min	-.444	37	-.02	66	-.02	17	-1.82e-03	17	8900.045	20	NC	1
483		2	max	.058	19	.067	5	.025	18	3.073e-03	12	NC	1	NC	3
484			min	-.444	37	-.065	23	-.037	12	-2.206e-03	18	1617.278	11	1600.89	12
485		3	max	.058	19	.202	17	.094	19	4.492e-03	11	NC	8	NC	4
486			min	-.444	37	-.221	11	-.108	13	-3.657e-03	17	446.325	11	774.525	13
487		4	max	.058	19	.423	5	.262	7	5.889e-03	11	NC	1	NC	1
488			min	-.444	37	-.42	23	-.263	13	-5.474e-03	17	232.066	11	343.909	13
489		5	max	.058	19	.644	5	.442	7	5.889e-03	11	NC	1	NC	1
490			min	-.445	37	-.624	23	-.443	13	-5.491e-03	17	153.854	5	209.069	13
491	M63A	1	max	.327	18	.058	19	.205	3	7.368e-03	3	NC	1	NC	1
492			min	-.338	12	-.444	37	-.205	21	-7.302e-03	21	NC	1	NC	1
493		2	max	.327	18	.034	19	.214	15	7.368e-03	3	NC	1	NC	1
494			min	-.338	12	-.448	37	-.215	9	-7.302e-03	21	NC	1	NC	1
495		3	max	.327	18	.012	20	.222	15	7.368e-03	3	NC	1	NC	1
496			min	-.338	12	-.452	26	-.225	9	-7.302e-03	21	NC	1	NC	1
497		4	max	.327	18	0	20	.232	16	7.368e-03	3	NC	1	NC	1
498			min	-.338	12	-.458	26	-.236	10	-7.302e-03	21	NC	1	NC	1
499		5	max	.327	18	-.011	21	.247	16	7.368e-03	3	NC	1	NC	1
500			min	-.338	12	-.464	27	-.253	10	-7.302e-03	21	NC	1	NC	1
501	M64	1	max	.247	16	-.054	20	.37	11	8.062e-03	24	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
502			min	-.253	10	-.454	26	-.357	17	-9.787e-03	6	NC	1	NC	1
503		2	max	.247	16	-.033	20	.353	12	8.062e-03	24	NC	1	NC	1
504			min	-.253	10	-.459	26	-.341	18	-9.787e-03	6	NC	1	NC	1
505		3	max	.247	16	-.011	21	.338	12	8.062e-03	24	NC	1	NC	1
506			min	-.253	10	-.464	27	-.327	18	-9.787e-03	6	NC	1	NC	1
507		4	max	.247	16	.012	21	.322	12	8.062e-03	24	NC	1	NC	1
508			min	-.253	10	-.469	27	-.313	18	-9.787e-03	6	NC	1	NC	1
509		5	max	.247	16	.035	21	.306	12	8.062e-03	24	NC	1	NC	1
510			min	-.253	10	-.474	27	-.299	18	-9.787e-03	6	NC	1	NC	1
511	M65A	1	max	.136	11	.031	19	.049	22	3.527e-03	10	NC	1	NC	1
512			min	-.119	17	-.424	37	-.05	4	-3.009e-03	16	NC	1	NC	1
513		2	max	.136	11	.038	19	.046	22	3.527e-03	10	NC	1	NC	1
514			min	-.119	17	-.429	37	-.048	4	-3.009e-03	16	NC	1	NC	1
515		3	max	.136	11	.045	19	.042	22	3.527e-03	10	NC	1	NC	1
516			min	-.119	17	-.434	37	-.045	4	-3.009e-03	16	NC	1	NC	1
517		4	max	.136	11	.051	19	.038	22	3.527e-03	10	NC	1	NC	1
518			min	-.119	17	-.439	37	-.043	4	-3.009e-03	16	NC	1	NC	1
519		5	max	.136	11	.058	19	.035	21	3.527e-03	10	NC	1	NC	1
520			min	-.119	17	-.444	37	-.042	3	-3.009e-03	16	NC	1	NC	1
521	M70	1	max	.075	23	.049	22	.082	4	2.87e-03	4	NC	1	NC	1
522			min	-.445	29	-.063	4	-.072	22	-2.206e-03	22	NC	1	NC	1
523		2	max	.075	23	.019	3	.065	5	3.674e-03	4	NC	7	NC	1
524			min	-.445	29	-.011	21	-.057	23	-2.8e-03	22	1194.044	4	3881.975	3
525		3	max	.076	23	.134	4	.092	19	5.079e-03	4	NC	13	NC	16
526			min	-.445	29	-.111	22	-.103	13	-4.259e-03	22	486.642	4	729.815	3
527		4	max	.076	23	.313	5	.254	7	6.706e-03	4	NC	1	NC	1
528			min	-.445	29	-.309	23	-.253	13	-6.362e-03	22	258.713	4	338.567	2
529		5	max	.076	23	.546	5	.402	8	6.761e-03	4	NC	1	NC	1
530			min	-.445	29	-.546	11	-.387	14	-6.436e-03	22	159.329	5	227.36	8
531	M71	1	max	.219	22	.076	23	.21	6	7.64e-03	6	NC	1	NC	1
532			min	-.233	4	-.445	29	-.211	12	-7.584e-03	24	NC	1	NC	1
533		2	max	.219	22	.053	23	.207	19	7.64e-03	6	NC	1	NC	1
534			min	-.233	4	-.448	29	-.209	13	-7.584e-03	24	NC	1	NC	1
535		3	max	.219	22	.031	24	.213	19	7.64e-03	6	NC	1	NC	1
536			min	-.233	4	-.45	29	-.216	13	-7.584e-03	24	NC	1	NC	1
537		4	max	.219	22	.018	24	.218	19	7.64e-03	6	NC	1	NC	1
538			min	-.233	4	-.455	30	-.223	13	-7.584e-03	24	NC	1	NC	1
539		5	max	.219	22	.004	24	.224	19	7.64e-03	6	NC	1	NC	1
540			min	-.233	4	-.46	30	-.23	13	-7.584e-03	24	NC	1	NC	1
541	M72	1	max	.224	19	-.043	24	.272	4	7.12e-03	16	NC	1	NC	1
542			min	-.23	13	-.45	30	-.254	22	-8.691e-03	10	NC	1	NC	1
543		2	max	.224	19	-.02	24	.253	4	7.12e-03	16	NC	1	NC	1
544			min	-.23	13	-.455	30	-.237	22	-8.691e-03	10	NC	1	NC	1
545		3	max	.224	19	.004	24	.233	4	7.12e-03	16	NC	1	NC	1
546			min	-.23	13	-.46	30	-.219	22	-8.691e-03	10	NC	1	NC	1
547		4	max	.224	19	.028	24	.214	4	7.12e-03	16	NC	1	NC	1
548			min	-.23	13	-.465	30	-.202	22	-8.691e-03	10	NC	1	NC	1
549		5	max	.224	19	.052	24	.195	4	7.12e-03	16	NC	1	NC	1
550			min	-.23	13	-.47	30	-.184	22	-8.691e-03	10	NC	1	NC	1
551	M73A	1	max	.056	3	.05	23	.044	24	3.148e-03	2	NC	1	NC	1
552			min	-.038	21	-.423	29	-.044	6	-2.592e-03	20	NC	1	NC	1
553		2	max	.056	3	.056	23	.046	24	3.148e-03	2	NC	1	NC	1
554			min	-.038	21	-.429	29	-.048	6	-2.592e-03	20	NC	1	NC	1
555		3	max	.056	3	.063	23	.048	24	3.148e-03	2	NC	1	NC	1
556			min	-.038	21	-.434	29	-.052	5	-2.592e-03	20	NC	1	NC	1
557		4	max	.056	3	.069	23	.053	23	3.148e-03	2	NC	1	NC	1
558			min	-.038	21	-.439	29	-.058	5	-2.592e-03	20	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
559		5	max	.056	3	.075	23	.057	23	3.148e-03	2	NC	1	NC	1
560			min	-.038	21	-.444	29	-.064	5	-2.592e-03	20	NC	1	NC	1
561	M104	1	max	.005	26	.03	20	.047	5	3.513e-04	66	NC	1	NC	1
562			min	0	20	-.034	2	-.047	23	-4.117e-04	60	7688.612	69	NC	1
563		2	max	.004	26	.033	20	.043	5	2.635e-04	66	NC	1	NC	1
564			min	0	20	-.044	2	-.043	23	-3.088e-04	60	2542.945	26	NC	1
565		3	max	.003	26	.03	20	.034	5	1.757e-04	66	NC	5	NC	1
566			min	0	20	-.047	26	-.034	23	-2.059e-04	60	1811.849	26	7276.344	17
567		4	max	.001	26	.018	20	.019	5	8.783e-05	66	NC	1	NC	1
568			min	0	20	-.032	26	-.019	23	-1.029e-04	60	2542.945	26	NC	1
569		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
570			min	0	1	0	1	0	1	0	1	NC	1	NC	1
571	M105	1	max	.005	30	.031	24	.021	19	1.573e-03	22	NC	1	NC	1
572			min	0	24	-.035	6	-.021	13	-1.638e-03	4	7640.56	73	3500.876	12
573		2	max	.004	30	.047	24	.021	20	1.18e-03	22	NC	1	NC	1
574			min	0	24	-.058	6	-.021	2	-1.228e-03	4	2293.665	6	5444.603	22
575		3	max	.003	30	.048	24	.021	21	7.864e-04	22	NC	2	NC	1
576			min	0	24	-.062	6	-.022	3	-8.188e-04	4	1634.236	6	3879.28	22
577		4	max	.001	30	.031	24	.015	21	3.932e-04	22	NC	1	NC	1
578			min	0	24	-.04	6	-.015	3	-4.094e-04	4	2293.665	6	5444.603	22
579		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
580			min	0	1	0	1	0	1	0	1	NC	1	NC	1
581	M106	1	max	.006	34	.031	16	.025	15	1.493e-03	24	NC	1	NC	1
582			min	0	16	-.035	10	-.025	9	-1.55e-03	6	7730.414	65	3187.224	10
583		2	max	.004	34	.047	16	.025	14	1.12e-03	24	NC	1	NC	1
584			min	0	16	-.058	10	-.025	8	-1.162e-03	6	2293.665	10	5444.603	12
585		3	max	.003	34	.048	16	.024	25	7.465e-04	24	NC	2	NC	1
586			min	0	16	-.062	10	-.024	7	-7.75e-04	6	1634.236	10	3879.28	12
587		4	max	.001	34	.031	16	.016	25	3.732e-04	24	NC	1	NC	1
588			min	0	16	-.04	10	-.016	7	-3.875e-04	6	2293.665	10	5444.603	12
589		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
590			min	0	1	0	1	0	1	0	1	NC	1	NC	1
591	M57A 1	1	max	.034	5	.085	10	.06	25	2.71e-03	9	NC	1	NC	1
592			min	-.03	23	-.083	16	-.42	31	-2.6e-03	15	4505.953	47	739.925	41
593		2	max	.033	5	.032	23	.033	25	1.058e-03	21	NC	1	NC	2
594			min	-.03	23	-.037	5	-.346	31	-1.556e-03	3	3136.973	8	1227.788	17
595		3	max	.033	5	.06	8	.025	14	2.255e-04	14	NC	1	NC	2
596			min	-.03	23	-.05	14	-.268	32	-1.882e-03	32	2179.941	5	995.108	30
597		4	max	.034	5	.034	17	.032	15	1.591e-03	19	NC	1	NC	1
598			min	-.03	23	-.034	11	-.381	33	-1.626e-03	13	1490.139	5	1039.962	23
599		5	max	.034	5	.077	6	.055	15	3.243e-03	7	NC	1	NC	1
600			min	-.03	23	-.064	24	-.449	33	-2.562e-03	25	1083.966	5	791.2	11
601	M58A 1	1	max	.383	31	.027	23	.036	23	1.125e-03	9	NC	1	NC	1
602			min	-.041	25	-.027	5	-.04	5	-9.608e-04	15	NC	1	NC	1
603		2	max	.383	31	.028	23	.037	23	1.125e-03	9	NC	1	NC	1
604			min	-.041	25	-.029	5	-.041	5	-9.608e-04	15	NC	1	NC	1
605		3	max	.383	31	.028	23	.038	23	1.125e-03	9	NC	1	NC	1
606			min	-.041	25	-.03	5	-.042	5	-9.608e-04	15	NC	1	NC	1
607		4	max	.383	31	.029	23	.039	23	1.125e-03	9	NC	1	NC	1
608			min	-.041	25	-.032	5	-.043	5	-9.608e-04	15	NC	1	NC	1
609		5	max	.383	31	.03	23	.04	23	1.125e-03	9	NC	1	NC	1
610			min	-.041	25	-.033	5	-.044	5	-9.608e-04	15	NC	1	NC	1
611	M59B 1	1	max	.417	33	.025	23	.042	4	6.162e-04	24	NC	1	NC	1
612			min	-.037	15	-.032	5	-.041	22	-8.677e-04	6	NC	1	NC	1
613		2	max	.417	33	.026	23	.042	4	6.162e-04	24	NC	1	NC	1
614			min	-.037	15	-.032	5	-.041	22	-8.677e-04	6	NC	1	NC	1
615		3	max	.417	33	.028	23	.042	4	6.162e-04	24	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
616			min	-.037	15	-.033	5	-.041	22	-8.677e-04	6	NC	1	NC	1
617		4	max	.417	33	.029	23	.042	5	6.162e-04	24	NC	1	NC	1
618			min	-.037	15	-.033	5	-.041	23	-8.677e-04	6	NC	1	NC	1
619		5	max	.417	33	.03	23	.043	5	6.162e-04	24	NC	1	NC	1
620			min	-.037	15	-.034	5	-.042	23	-8.677e-04	6	NC	1	NC	1
621	M63C	1	max	.402	35	.012	22	.049	5	1.321e-03	12	NC	1	NC	1
622			min	-.045	17	-.017	4	-.047	23	-1.271e-03	18	NC	1	NC	1
623		2	max	.402	35	.012	22	.049	5	1.321e-03	12	NC	1	NC	1
624			min	-.045	17	-.017	4	-.047	23	-1.271e-03	18	NC	1	NC	1
625		3	max	.402	35	.013	23	.05	5	1.321e-03	12	NC	1	NC	1
626			min	-.045	17	-.018	5	-.047	23	-1.271e-03	18	NC	1	NC	1
627		4	max	.402	35	.015	23	.05	5	1.321e-03	12	NC	1	NC	1
628			min	-.045	17	-.019	5	-.047	23	-1.271e-03	18	NC	1	NC	1
629		5	max	.402	35	.016	23	.051	5	1.321e-03	12	NC	1	NC	1
630			min	-.045	17	-.02	5	-.047	23	-1.271e-03	18	NC	1	NC	1
631	M64_2	1	max	.404	37	.063	5	.011	2	3.097e-04	67	NC	1	NC	1
632			min	-.033	19	-.061	23	-.006	20	-5.848e-04	61	NC	1	NC	1
633		2	max	.404	37	.061	5	.01	3	3.097e-04	67	NC	1	NC	1
634			min	-.033	19	-.06	23	-.006	21	-5.848e-04	61	NC	1	NC	1
635		3	max	.404	37	.059	5	.009	3	3.097e-04	67	NC	1	NC	1
636			min	-.033	19	-.058	23	-.006	21	-5.848e-04	61	NC	1	NC	1
637		4	max	.404	37	.057	5	.008	3	3.097e-04	67	NC	1	NC	1
638			min	-.033	19	-.056	23	-.006	21	-5.848e-04	61	NC	1	NC	1
639		5	max	.404	37	.055	5	.008	4	3.097e-04	67	NC	1	NC	1
640			min	-.033	19	-.054	23	-.007	22	-5.848e-04	61	NC	1	NC	1
641	M68_1	1	max	.393	27	.063	5	.008	13	6.632e-04	5	NC	1	NC	1
642			min	-.037	21	-.061	23	-.006	19	-5.299e-04	23	NC	1	NC	1
643		2	max	.393	27	.062	5	.008	13	6.632e-04	5	NC	1	NC	1
644			min	-.037	21	-.059	23	-.006	19	-5.299e-04	23	NC	1	NC	1
645		3	max	.393	27	.06	5	.008	12	6.632e-04	5	NC	1	NC	1
646			min	-.037	21	-.057	23	-.006	18	-5.299e-04	23	NC	1	NC	1
647		4	max	.393	27	.058	5	.008	12	6.632e-04	5	NC	1	NC	1
648			min	-.037	21	-.055	23	-.007	18	-5.299e-04	23	NC	1	NC	1
649		5	max	.393	27	.056	5	.008	12	6.632e-04	5	NC	1	NC	1
650			min	-.037	21	-.053	23	-.008	18	-5.299e-04	23	NC	1	NC	1
651	M69_1	1	max	.399	29	.011	12	.047	23	8.778e-04	22	NC	1	NC	1
652			min	-.048	23	-.009	18	-.052	5	-1.249e-03	4	NC	1	NC	1
653		2	max	.399	29	.011	12	.047	23	8.778e-04	22	NC	1	NC	1
654			min	-.048	23	-.01	18	-.052	5	-1.249e-03	4	NC	1	NC	1
655		3	max	.399	29	.011	11	.047	23	8.778e-04	22	NC	1	NC	1
656			min	-.048	23	-.011	17	-.051	5	-1.249e-03	4	NC	1	NC	1
657		4	max	.399	29	.013	23	.047	23	8.778e-04	22	NC	1	NC	1
658			min	-.048	23	-.013	5	-.051	5	-1.249e-03	4	NC	1	NC	1
659		5	max	.399	29	.014	23	.047	23	8.778e-04	22	NC	1	NC	1
660			min	-.048	23	-.015	5	-.05	5	-1.249e-03	4	NC	1	NC	1
661	M70_1	1	max	.049	5	.048	23	.02	5	2.805e-03	40	NC	1	NC	1
662			min	-.045	23	-.399	29	-.016	23	-1.365e-03	23	721.417	13	1245.9	4
663		2	max	.049	5	.042	24	.012	5	2.965e-03	41	NC	1	NC	1
664			min	-.045	23	-.4	30	-.01	23	-1.101e-03	23	953.646	13	1827.285	4
665		3	max	.049	5	.042	24	.006	5	3.13e-03	42	NC	1	NC	1
666			min	-.045	23	-.398	30	-.005	23	-9.002e-04	24	844.224	22	2723.782	16
667		4	max	.049	5	.041	24	.005	61	3.31e-03	42	NC	1	NC	1
668			min	-.045	23	-.392	30	-.004	67	-9.157e-04	24	547.389	22	4961.89	16
669		5	max	.049	5	.041	25	.008	9	3.51e-03	43	NC	1	NC	1
670			min	-.045	23	-.383	31	-.006	15	-1.193e-03	25	417.558	22	3551.095	14
671	M71_1	1	max	.05	5	.037	15	.014	7	2.147e-03	8	NC	1	NC	1
672			min	-.046	23	-.417	33	-.008	25	-1.068e-03	14	586.262	5	4165.838	30

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
673		2	max	.05	5	.034	16	.009	8	1.804e-03	33	NC	1	NC	1
674			min	-.046	23	-.417	34	-.005	14	-7.618e-04	15	771.205	5	6439.194	5
675		3	max	.05	5	.035	16	.008	9	1.593e-03	34	NC	1	NC	1
676			min	-.046	23	-.414	34	-.005	15	-6.175e-04	16	801.893	14	3533.713	5
677		4	max	.05	5	.036	16	.01	10	1.539e-03	11	NC	1	NC	1
678			min	-.046	23	-.409	34	-.007	16	-7.759e-04	17	520.079	14	2346.641	5
679		5	max	.05	5	.045	17	.015	11	1.864e-03	12	NC	1	NC	1
680			min	-.046	23	-.402	35	-.011	17	-1.158e-03	18	397.14	14	1580.347	5
681	M72 1	1	max	.063	5	.033	19	.011	2	2.345e-03	12	NC	1	NC	1
682			min	-.061	23	-.404	37	-.006	20	-1.213e-03	19	1602.445	70	4644.842	4
683		2	max	.063	5	.025	20	.009	2	1.994e-03	37	NC	1	NC	1
684			min	-.061	23	-.405	26	-.005	20	-8.911e-04	19	2116.23	70	7055.416	5
685		3	max	.063	5	.026	20	.008	13	1.838e-03	26	NC	1	NC	1
686			min	-.061	23	-.404	26	-.005	19	-8.182e-04	20	1310.531	7	9466.724	51
687		4	max	.063	5	.026	20	.008	13	1.986e-03	3	NC	1	NC	1
688			min	-.061	23	-.399	26	-.006	19	-1.104e-03	21	850.652	7	9426.543	17
689		5	max	.063	5	.037	21	.008	13	2.44e-03	4	NC	1	NC	1
690			min	-.061	23	-.393	27	-.006	19	-1.597e-03	22	651.993	7	NC	1
691	M73 1	1	max	.338	31	.03	23	.03	23	1.062e-03	25	NC	1	NC	1
692			min	-.032	25	-.033	5	-.036	5	-1.284e-03	7	NC	1	NC	1
693		2	max	.338	31	.031	23	.031	23	1.062e-03	25	NC	1	NC	1
694			min	-.032	25	-.035	5	-.037	5	-1.284e-03	7	NC	1	NC	1
695		3	max	.338	31	.031	23	.031	23	1.062e-03	25	NC	1	NC	1
696			min	-.032	25	-.037	5	-.037	5	-1.284e-03	7	NC	1	NC	1
697		4	max	.338	31	.032	23	.032	23	1.062e-03	25	NC	1	NC	1
698			min	-.032	25	-.039	5	-.038	5	-1.284e-03	7	NC	1	NC	1
699		5	max	.338	31	.033	23	.032	23	1.062e-03	25	NC	1	NC	1
700			min	-.032	25	-.04	5	-.039	5	-1.284e-03	7	NC	1	NC	1
701	M74 1	1	max	0	7	.056	5	.338	31	1.204e-03	23	NC	1	NC	1
702			min	0	25	-.046	23	-.032	25	-3.147e-03	29	434.182	8	322.273	6
703		2	max	0	7	.035	6	.268	31	9.031e-04	23	NC	1	NC	1
704			min	0	25	-.025	24	-.024	25	-2.36e-03	29	591.144	8	434.301	6
705		3	max	0	7	.025	30	.189	31	6.021e-04	23	NC	1	NC	1
706			min	0	25	-.013	25	-.016	25	-1.574e-03	29	907.924	8	659.26	6
707		4	max	0	7	.015	31	.099	31	3.01e-04	23	NC	1	NC	1
708			min	0	25	-.007	25	-.008	25	-7.868e-04	29	1851.702	8	1331.44	6
709		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
710			min	0	1	0	1	0	1	0	1	NC	1	NC	1
711	M75 1	1	max	.372	33	.03	23	.032	17	1.458e-03	9	NC	1	NC	1
712			min	-.031	15	-.034	5	-.032	23	-1.323e-03	15	NC	1	NC	1
713		2	max	.372	33	.031	23	.032	17	1.458e-03	9	NC	1	NC	1
714			min	-.031	15	-.034	5	-.032	23	-1.323e-03	15	NC	1	NC	1
715		3	max	.372	33	.033	23	.033	17	1.458e-03	9	NC	1	NC	1
716			min	-.031	15	-.034	5	-.033	23	-1.323e-03	15	NC	1	NC	1
717		4	max	.372	33	.034	23	.034	17	1.458e-03	9	NC	1	NC	1
718			min	-.031	15	-.034	5	-.034	11	-1.323e-03	15	NC	1	NC	1
719		5	max	.372	33	.036	11	.034	17	1.458e-03	9	NC	1	NC	1
720			min	-.031	15	-.035	17	-.035	11	-1.323e-03	15	NC	1	NC	1
721	M76 1	1	max	0	9	.372	33	.05	11	2.77e-03	36	NC	1	NC	1
722			min	0	15	-.031	15	-.049	17	-1.138e-03	18	388.378	8	310.733	10
723		2	max	0	9	.293	33	.03	10	2.077e-03	36	NC	1	NC	1
724			min	0	15	-.023	15	-.027	16	-8.535e-04	18	527.606	8	418.589	10
725		3	max	0	9	.206	33	.019	9	1.385e-03	36	NC	1	NC	1
726			min	0	15	-.016	15	-.015	15	-5.69e-04	18	808.26	8	635.134	10
727		4	max	0	9	.107	33	.011	9	6.925e-04	36	NC	1	NC	1
728			min	0	15	-.008	15	-.008	15	-2.845e-04	18	1640.73	9	1282.254	10
729		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
730			min	0	1	0	1	0	1	0	1	NC	1	NC	1
731	M77 1	1	max	.364	35	.008	22	.045	5	3.102e-04	19	NC	1	NC	1
732			min	-.04	17	-.01	4	-.042	23	-9.106e-04	37	NC	1	NC	1
733		2	max	.364	35	.009	23	.045	5	3.102e-04	19	NC	1	NC	1
734			min	-.04	17	-.011	5	-.041	23	-9.106e-04	37	NC	1	NC	1
735		3	max	.364	35	.009	23	.046	5	3.102e-04	19	NC	1	NC	1
736			min	-.04	17	-.011	5	-.041	23	-9.106e-04	37	NC	1	NC	1
737		4	max	.364	35	.01	23	.046	5	3.102e-04	19	NC	1	NC	1
738			min	-.04	17	-.012	5	-.04	23	-9.106e-04	37	NC	1	NC	1
739		5	max	.364	35	.011	23	.046	5	3.102e-04	19	NC	1	NC	1
740			min	-.04	17	-.012	5	-.039	23	-9.106e-04	37	NC	1	NC	1
741	M78 1	1	max	0	11	.048	5	.364	35	1.031e-03	14	NC	1	NC	1
742			min	0	17	-.041	23	-.04	17	-3.006e-03	32	323.703	12	463.512	10
743		2	max	0	11	.042	4	.287	35	7.733e-04	14	NC	1	NC	1
744			min	0	17	-.034	22	-.029	17	-2.255e-03	32	438.987	12	665.475	10
745		3	max	0	11	.037	3	.202	35	5.155e-04	14	NC	1	NC	1
746			min	0	17	-.029	21	-.018	17	-1.503e-03	32	671.169	12	1090.794	10
747		4	max	0	11	.023	3	.105	36	2.578e-04	14	NC	1	NC	1
748			min	0	17	-.019	21	-.01	18	-7.516e-04	32	1363.611	12	2251.626	2
749		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
750			min	0	1	0	1	0	1	0	1	NC	1	NC	1
751	M79 1	1	max	.357	37	.045	17	.013	4	1.731e-03	12	NC	1	NC	1
752			min	-.026	19	-.045	11	-.011	22	-1.522e-03	18	NC	1	NC	1
753		2	max	.357	37	.044	17	.012	5	1.731e-03	12	NC	1	NC	1
754			min	-.026	19	-.045	11	-.011	23	-1.522e-03	18	NC	1	NC	1
755		3	max	.357	37	.042	17	.012	5	1.731e-03	12	NC	1	NC	1
756			min	-.026	19	-.044	11	-.011	23	-1.522e-03	18	NC	1	NC	1
757		4	max	.357	37	.041	17	.012	17	1.731e-03	12	NC	1	NC	1
758			min	-.026	19	-.043	11	-.012	11	-1.522e-03	18	NC	1	NC	1
759		5	max	.357	37	.039	17	.011	17	1.731e-03	12	NC	1	NC	1
760			min	-.026	19	-.043	11	-.012	11	-1.522e-03	18	NC	1	NC	1
761	M80 1	1	max	0	12	.357	37	.045	11	2.903e-03	28	NC	1	NC	1
762			min	0	18	-.026	19	-.041	17	-1.117e-03	22	425.654	13	625.274	3
763		2	max	0	12	.283	37	.052	11	2.177e-03	28	NC	1	NC	1
764			min	0	18	-.022	19	-.047	17	-8.379e-04	22	576.312	13	963.496	3
765		3	max	0	12	.2	37	.049	11	1.451e-03	28	NC	1	NC	1
766			min	0	18	-.018	18	-.043	17	-5.586e-04	22	879.494	13	1617.922	11
767		4	max	0	12	.104	36	.03	11	7.257e-04	28	NC	1	NC	1
768			min	0	18	-.011	18	-.026	17	-2.793e-04	22	1784.091	13	2270.767	11
769		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
770			min	0	1	0	1	0	1	0	1	NC	1	NC	1
771	M81 1	1	max	.349	27	.051	5	.012	11	1.414e-03	22	NC	1	NC	1
772			min	-.026	21	-.047	23	-.011	17	-1.614e-03	4	NC	1	NC	1
773		2	max	.349	27	.051	5	.012	23	1.414e-03	22	NC	1	NC	1
774			min	-.026	21	-.045	23	-.012	5	-1.614e-03	4	NC	1	NC	1
775		3	max	.349	27	.05	5	.012	23	1.414e-03	22	NC	1	NC	1
776			min	-.026	21	-.044	23	-.012	5	-1.614e-03	4	NC	1	NC	1
777		4	max	.349	27	.049	5	.012	23	1.414e-03	22	NC	1	NC	1
778			min	-.026	21	-.043	23	-.013	5	-1.614e-03	4	NC	1	NC	1
779		5	max	.349	27	.049	5	.012	23	1.414e-03	22	NC	1	NC	1
780			min	-.026	21	-.041	23	-.014	5	-1.614e-03	4	NC	1	NC	1
781	M82 1	1	max	0	4	.051	5	.349	27	1.006e-03	18	NC	1	NC	1
782			min	0	22	-.043	23	-.026	21	-3.045e-03	36	467.758	3	599.952	13
783		2	max	0	4	.057	5	.276	27	7.546e-04	18	NC	1	NC	1
784			min	0	22	-.048	23	-.022	21	-2.284e-03	36	634.287	3	918.686	13
785		3	max	0	4	.052	5	.195	27	5.031e-04	18	NC	1	NC	1
786			min	0	22	-.044	23	-.017	22	-1.523e-03	36	969.664	3	1617.917	5

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
787		4	max	0	4	.032	5	.102	28	2.515e-04	18	NC	1	NC	1
788			min	0	22	-.027	23	-.011	22	-7.613e-04	36	1969.888	3	2270.761	5
789		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
790			min	0	1	0	1	0	1	0	1	NC	1	NC	1
791	M83 1	1	max	.346	29	.01	47	.045	23	5.372e-04	3	NC	1	NC	1
792			min	-.036	23	-.007	17	-.045	5	-5.294e-04	9	NC	1	NC	1
793		2	max	.346	29	.01	11	.045	11	5.372e-04	3	NC	1	NC	1
794			min	-.036	23	-.008	17	-.044	17	-5.294e-04	9	NC	1	NC	1
795		3	max	.346	29	.011	11	.045	11	5.372e-04	3	NC	1	NC	1
796			min	-.036	23	-.009	17	-.043	17	-5.294e-04	9	NC	1	NC	1
797		4	max	.346	29	.011	11	.045	11	5.372e-04	3	NC	1	NC	1
798			min	-.036	23	-.01	17	-.042	17	-5.294e-04	9	NC	1	NC	1
799		5	max	.346	29	.012	11	.045	11	5.372e-04	3	NC	1	NC	1
800			min	-.036	23	-.011	17	-.041	17	-5.294e-04	9	NC	1	NC	1
801	M84 1	1	max	0	29	.346	29	.046	11	2.95e-03	31	NC	1	NC	1
802			min	0	23	-.036	23	-.042	17	-9.353e-04	25	334.775	4	482.261	6
803		2	max	0	29	.274	29	.038	12	2.213e-03	31	NC	1	NC	1
804			min	0	23	-.026	23	-.033	18	-7.015e-04	25	454.268	4	694.551	6
805		3	max	0	29	.193	29	.033	13	1.475e-03	31	NC	1	NC	1
806			min	0	23	-.016	23	-.027	19	-4.677e-04	25	695	4	1143.086	6
807		4	max	0	29	.101	29	.021	13	7.375e-04	31	NC	1	NC	1
808			min	0	23	-.009	22	-.018	19	-2.338e-04	25	1412.823	4	2251.629	2
809		5	max	0	1	0	1	0	1	0	1	NC	1	NC	1
810			min	0	1	0	1	0	1	0	1	NC	1	NC	1
811	M55A	1	max	.05	14	.025	14	.03	23	1.291e-03	17	NC	1	NC	1
812			min	-.059	8	-.266	32	-.033	5	-1.359e-03	11	NC	1	NC	1
813		2	max	.05	14	.024	14	.031	23	1.291e-03	17	NC	1	NC	1
814			min	-.059	8	-.263	32	-.035	5	-1.359e-03	11	NC	1	NC	1
815		3	max	.05	14	.024	14	.033	23	1.291e-03	17	NC	1	NC	1
816			min	-.059	8	-.26	32	-.037	5	-1.359e-03	11	NC	1	NC	1
817		4	max	.05	14	.023	14	.034	23	1.291e-03	17	NC	1	NC	1
818			min	-.059	8	-.257	32	-.039	5	-1.359e-03	11	NC	1	NC	1
819		5	max	.05	14	.023	14	.036	23	1.291e-03	17	NC	1	NC	1
820			min	-.059	8	-.254	32	-.04	5	-1.359e-03	11	NC	1	NC	1
821	M61A 1	1	max	.07	4	.056	25	.03	23	1.723e-03	43	NC	1	NC	1
822			min	-.07	22	-.413	31	-.034	5	-6.917e-04	25	NC	1	NC	1
823		2	max	.07	4	.058	25	.033	23	1.723e-03	43	NC	1	NC	1
824			min	-.07	22	-.414	31	-.036	5	-6.917e-04	25	NC	1	NC	1
825		3	max	.07	4	.061	25	.035	23	1.723e-03	43	NC	1	NC	1
826			min	-.07	22	-.414	31	-.038	5	-6.917e-04	25	NC	1	NC	1
827		4	max	.07	4	.063	25	.038	22	1.723e-03	43	NC	1	NC	1
828			min	-.07	22	-.415	31	-.041	4	-6.917e-04	25	NC	1	NC	1
829		5	max	.07	4	.066	25	.043	22	1.723e-03	43	NC	1	NC	1
830			min	-.07	22	-.416	31	-.044	4	-6.917e-04	25	NC	1	NC	1
831	M61B	1	max	.034	5	.09	24	.055	17	2.884e-03	13	NC	1	NC	1
832			min	-.032	23	-.091	6	-.428	35	-2.85e-03	7	1950.594	7	1014.881	21
833		2	max	.034	5	.028	23	.041	17	1.444e-03	25	NC	1	NC	2
834			min	-.032	23	-.032	5	-.371	35	-1.943e-03	7	2928.876	13	1299.685	21
835		3	max	.034	5	.06	12	.03	18	1.299e-04	17	NC	1	NC	2
836			min	-.032	23	-.045	18	-.277	36	-2.061e-03	36	4085.855	19	1036.473	35
837		4	max	.033	5	.037	17	.027	19	1.489e-03	23	NC	1	NC	6
838			min	-.032	23	-.039	11	-.366	37	-1.654e-03	5	2643.751	12	1350.037	15
839		5	max	.033	5	.03	61	.051	19	3.353e-03	11	NC	1	NC	1
840			min	-.031	23	-.018	67	-.442	37	-2.706e-03	17	6292.516	3	964.45	3
841	M62B 1	1	max	.035	5	.027	53	.057	21	3.18e-03	5	NC	1	NC	1
842			min	-.033	23	-.025	71	-.424	27	-3.034e-03	23	9171.399	61	979.588	25
843		2	max	.035	5	.038	23	.028	21	1.578e-03	17	NC	1	NC	3

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
844			min	-.033	23	-.043	5	-.357	27	-1.981e-03	11	2166.964	5	1255.829	24
845		3	max	.035	5	.055	4	.019	22	2.017e-04	22	NC	1	NC	2
846			min	-.034	23	-.046	22	-.256	28	-1.842e-03	28	NC	1	916.255	27
847		4	max	.036	5	.028	17	.038	23	1.462e-03	15	NC	1	NC	10
848			min	-.034	23	-.03	11	-.356	29	-1.536e-03	9	3351.024	4	1316.809	20
849		5	max	.036	5	.089	4	.067	23	3.32e-03	4	NC	1	NC	1
850			min	-.034	23	-.073	22	-.441	29	-2.545e-03	22	NC	1	779.899	43
851	M79A_1	1	max	.076	6	.053	17	.032	23	8.487e-04	12	NC	1	NC	1
852			min	-.073	24	-.424	35	-.034	5	-4.401e-04	18	NC	1	NC	1
853		2	max	.076	6	.056	17	.036	23	8.487e-04	12	NC	1	NC	1
854			min	-.073	24	-.424	35	-.037	5	-4.401e-04	18	NC	1	NC	1
855		3	max	.076	6	.059	17	.039	23	8.487e-04	12	NC	1	NC	1
856			min	-.073	24	-.424	35	-.039	5	-4.401e-04	18	NC	1	NC	1
857		4	max	.076	6	.062	17	.042	23	8.487e-04	12	NC	1	NC	1
858			min	-.073	24	-.425	35	-.042	5	-4.401e-04	18	NC	1	NC	1
859		5	max	.076	6	.065	17	.045	11	8.487e-04	12	NC	1	NC	1
860			min	-.073	24	-.425	35	-.045	5	-4.401e-04	18	NC	1	NC	1
861	M97	1	max	.02	71	.053	21	.033	23	1.36e-03	4	NC	1	NC	1
862			min	-.02	53	-.419	27	-.035	5	-9.134e-04	22	NC	1	NC	1
863		2	max	.02	71	.056	21	.029	23	1.36e-03	4	NC	1	NC	1
864			min	-.02	53	-.419	27	-.03	5	-9.134e-04	22	NC	1	NC	1
865		3	max	.02	71	.059	21	.025	23	1.36e-03	4	NC	1	NC	1
866			min	-.02	53	-.42	27	-.025	5	-9.134e-04	22	NC	1	NC	1
867		4	max	.02	71	.062	21	.021	23	1.36e-03	4	NC	1	NC	1
868			min	-.02	53	-.421	27	-.021	5	-9.134e-04	22	NC	1	NC	1
869		5	max	.02	71	.065	21	.016	11	1.36e-03	4	NC	1	NC	1
870			min	-.02	53	-.421	27	-.016	17	-9.134e-04	22	NC	1	NC	1
871	M110	1	max	.055	23	.051	15	.03	23	7.34e-04	15	NC	1	NC	1
872			min	-.064	5	-.443	33	-.034	5	-1.227e-03	9	NC	1	NC	1
873		2	max	.055	23	.053	15	.031	23	7.34e-04	15	NC	1	NC	1
874			min	-.064	5	-.445	33	-.036	5	-1.227e-03	9	NC	1	NC	1
875		3	max	.055	23	.056	15	.033	23	7.34e-04	15	NC	1	NC	1
876			min	-.064	5	-.448	33	-.038	5	-1.227e-03	9	NC	1	NC	1
877		4	max	.055	23	.058	15	.034	23	7.34e-04	15	NC	1	NC	1
878			min	-.064	5	-.45	33	-.041	5	-1.227e-03	9	NC	1	NC	1
879		5	max	.055	23	.061	15	.037	24	7.34e-04	15	NC	1	NC	1
880			min	-.064	5	-.452	33	-.044	6	-1.227e-03	9	NC	1	NC	1
881	M111	1	max	.018	22	.047	19	.031	23	8.209e-04	18	NC	1	NC	1
882			min	-.026	4	-.435	37	-.033	5	-1.437e-03	12	NC	1	NC	1
883		2	max	.018	22	.05	19	.028	23	8.209e-04	18	NC	1	NC	1
884			min	-.026	4	-.438	37	-.031	5	-1.437e-03	12	NC	1	NC	1
885		3	max	.018	22	.053	19	.024	23	8.209e-04	18	NC	1	NC	1
886			min	-.026	4	-.44	37	-.028	5	-1.437e-03	12	NC	1	NC	1
887		4	max	.018	22	.055	19	.021	22	8.209e-04	18	NC	1	NC	1
888			min	-.026	4	-.442	37	-.026	4	-1.437e-03	12	NC	1	NC	1
889		5	max	.018	22	.058	19	.018	22	8.209e-04	18	NC	1	NC	1
890			min	-.026	4	-.444	37	-.024	4	-1.437e-03	12	NC	1	NC	1
891	M112	1	max	.061	22	.063	23	.034	23	7.2e-04	22	NC	1	NC	1
892			min	-.073	4	-.434	29	-.036	5	-1.379e-03	4	NC	1	NC	1
893		2	max	.061	22	.066	23	.036	23	7.2e-04	22	NC	1	NC	1
894			min	-.073	4	-.437	29	-.039	5	-1.379e-03	4	NC	1	NC	1
895		3	max	.061	22	.069	23	.039	23	7.2e-04	22	NC	1	NC	1
896			min	-.073	4	-.439	29	-.043	5	-1.379e-03	4	NC	1	NC	1
897		4	max	.061	22	.072	23	.041	23	7.2e-04	22	NC	1	NC	1
898			min	-.073	4	-.442	29	-.046	5	-1.379e-03	4	NC	1	NC	1
899		5	max	.061	22	.075	23	.044	23	7.2e-04	22	NC	1	NC	1
900			min	-.073	4	-.445	29	-.05	5	-1.379e-03	4	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
901	M108	1	max	.028	18	.029	13	.054	11	1.194e-03	17	NC	1	NC	1
902			min	-.262	36	-.021	19	-.05	17	-1.321e-03	11	NC	1	NC	1
903		2	max	.028	18	.043	13	.075	11	1.414e-03	17	NC	1	NC	1
904			min	-.262	36	-.027	19	-.064	17	-1.508e-03	11	1873.438	37	2248.515	37
905		3	max	.028	18	.155	17	.087	20	9.995e-04	17	NC	39	NC	1
906			min	-.262	36	-.172	11	-.098	2	-1.041e-03	11	496.319	11	781.163	13
907		4	max	.028	18	.616	5	.354	7	1.413e-03	4	NC	1	NC	1
908			min	-.263	36	-.605	23	-.347	25	-1.394e-03	10	152.755	5	247.297	7
909		5	max	.028	18	1.138	5	.638	7	1.543e-03	4	NC	26	NC	4
910			min	-.263	36	-1.079	23	-.603	25	-1.521e-03	10	83.453	5	142.801	7
911	M109	1	max	.437	18	.028	18	.227	3	8.109e-03	15	NC	1	NC	1
912			min	-.449	12	-.262	36	-.226	21	-8.199e-03	9	NC	1	NC	1
913		2	max	.437	18	-.036	67	.228	3	8.109e-03	15	NC	1	NC	1
914			min	-.449	12	-.258	36	-.227	21	-8.199e-03	9	NC	1	NC	1
915		3	max	.437	18	-.004	24	.228	3	8.109e-03	15	NC	1	NC	1
916			min	-.449	12	-.275	30	-.227	21	-8.199e-03	9	NC	1	NC	1
917		4	max	.437	18	.06	24	.229	3	8.109e-03	15	NC	1	NC	1
918			min	-.449	12	-.298	30	-.227	21	-8.199e-03	9	NC	1	NC	1
919		5	max	.437	18	.125	24	.229	3	8.109e-03	15	NC	1	NC	1
920			min	-.449	12	-.322	30	-.228	21	-8.199e-03	9	NC	1	NC	1
921	M110A	1	max	.229	3	.121	24	.447	12	2.048e-02	24	NC	1	NC	1
922			min	-.228	21	-.323	30	-.435	18	-2.27e-02	6	NC	1	NC	1
923		2	max	.229	3	.123	24	.448	12	2.048e-02	24	NC	1	NC	1
924			min	-.228	21	-.322	30	-.436	18	-2.27e-02	6	NC	1	NC	1
925		3	max	.229	3	.125	24	.449	12	2.048e-02	24	NC	1	NC	1
926			min	-.228	21	-.322	30	-.437	18	-2.27e-02	6	NC	1	NC	1
927		4	max	.229	3	.126	24	.45	12	2.048e-02	24	NC	1	NC	1
928			min	-.228	21	-.321	30	-.438	18	-2.27e-02	6	NC	1	NC	1
929		5	max	.229	3	.14	23	.451	12	2.048e-02	24	NC	1	NC	1
930			min	-.228	21	-.322	29	-.439	18	-2.27e-02	6	NC	1	NC	1
931	M111A	1	max	.658	24	.01	24	.287	9	4.789e-03	21	NC	1	NC	1
932			min	-.67	6	-.284	30	-.287	3	-4.776e-03	15	NC	1	NC	1
933		2	max	.658	24	-.026	24	.289	9	4.789e-03	21	NC	1	NC	1
934			min	-.67	6	-.271	30	-.289	3	-4.776e-03	15	NC	1	NC	1
935		3	max	.658	24	-.038	67	.291	9	4.789e-03	21	NC	1	NC	1
936			min	-.67	6	-.259	36	-.291	3	-4.776e-03	15	NC	1	NC	1
937		4	max	.658	24	-.011	18	.293	9	4.789e-03	21	NC	1	NC	1
938			min	-.67	6	-.261	36	-.294	3	-4.776e-03	15	NC	1	NC	1
939		5	max	.658	24	.028	18	.296	9	4.789e-03	21	NC	1	NC	1
940			min	-.67	6	-.263	36	-.296	3	-4.776e-03	15	NC	1	NC	1
941	M112A	1	max	.003	11	-.026	18	.049	22	1.299e-03	21	NC	1	NC	1
942			min	-.003	17	-.208	36	-.049	4	-1.577e-03	3	NC	1	NC	1
943		2	max	.003	11	-.013	18	.052	10	1.299e-03	21	NC	1	NC	1
944			min	-.003	17	-.221	36	-.052	16	-1.577e-03	3	NC	1	NC	1
945		3	max	.003	11	0	18	.054	10	1.299e-03	21	NC	1	NC	1
946			min	-.003	17	-.235	36	-.054	16	-1.577e-03	3	NC	1	NC	1
947		4	max	.003	11	.015	18	.057	10	1.299e-03	21	NC	1	NC	1
948			min	-.003	17	-.248	36	-.057	16	-1.577e-03	3	NC	1	NC	1
949		5	max	.003	11	.028	18	.06	10	1.299e-03	21	NC	1	NC	1
950			min	-.003	17	-.261	36	-.059	16	-1.577e-03	3	NC	1	NC	1
951	M118	1	max	.017	22	.023	22	.055	4	8.888e-04	17	NC	1	NC	1
952			min	-.245	28	-.025	4	-.052	22	-9.758e-04	11	NC	1	NC	1
953		2	max	.017	22	.027	22	.068	5	8.363e-04	17	NC	1	NC	1
954			min	-.245	28	-.041	4	-.062	23	-9.218e-04	11	1877.974	30	2477.718	12
955		3	max	.017	22	.17	5	.08	20	7.8e-04	17	NC	30	NC	1
956			min	-.245	28	-.156	23	-.086	2	-8.459e-04	11	503.986	5	824.724	3
957		4	max	.017	22	.621	17	.335	9	1.613e-03	6	NC	39	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
958			min	-.245	28	-.639	11	-.324	15	-1.651e-03	12	145.967	11	257.299	9
959		5	max	.017	22	1.116	17	.609	9	1.715e-03	6	NC	26	NC	6
960			min	-.246	28	-1.179	11	-.572	15	-1.752e-03	12	80.106	11	148.323	9
961	M119	1	max	.441	10	.017	22	.219	7	8.042e-03	19	NC	1	NC	1
962			min	-.444	4	-.245	28	-.218	25	-8.139e-03	13	NC	1	NC	1
963		2	max	.441	10	-.039	71	.218	7	8.042e-03	19	NC	1	NC	1
964			min	-.444	4	-.241	36	-.217	25	-8.139e-03	13	NC	1	NC	1
965		3	max	.441	10	.014	16	.217	7	8.042e-03	19	NC	1	NC	1
966			min	-.444	4	-.264	34	-.216	25	-8.139e-03	13	NC	1	NC	1
967		4	max	.441	10	.079	16	.217	7	8.042e-03	19	NC	1	NC	1
968			min	-.444	4	-.288	34	-.216	25	-8.139e-03	13	NC	1	NC	1
969		5	max	.441	10	.144	16	.216	7	8.042e-03	19	NC	1	NC	1
970			min	-.444	4	-.311	34	-.215	25	-8.139e-03	13	NC	1	NC	1
971	M120	1	max	.216	7	.166	17	.449	4	2.068e-02	16	NC	1	NC	1
972			min	-.215	25	-.317	35	-.446	10	-2.295e-02	10	NC	1	NC	1
973		2	max	.216	7	.151	17	.447	4	2.068e-02	16	NC	1	NC	1
974			min	-.215	25	-.313	35	-.444	10	-2.295e-02	10	NC	1	NC	1
975		3	max	.216	7	.144	16	.444	4	2.068e-02	16	NC	1	NC	1
976			min	-.215	25	-.311	34	-.441	10	-2.295e-02	10	NC	1	NC	1
977		4	max	.216	7	.141	16	.442	4	2.068e-02	16	NC	1	NC	1
978			min	-.215	25	-.31	34	-.439	10	-2.295e-02	10	NC	1	NC	1
979		5	max	.216	7	.138	16	.44	4	2.068e-02	16	NC	1	NC	1
980			min	-.215	25	-.308	34	-.437	10	-2.295e-02	10	NC	1	NC	1
981	M121	1	max	.657	16	-.003	16	.279	13	4.784e-03	25	NC	1	NC	1
982			min	-.677	10	-.26	34	-.279	7	-4.769e-03	19	NC	1	NC	1
983		2	max	.657	16	-.031	17	.281	13	4.784e-03	25	NC	1	NC	1
984			min	-.677	10	-.249	34	-.281	7	-4.769e-03	19	NC	1	NC	1
985		3	max	.657	16	-.034	71	.283	13	4.784e-03	25	NC	1	NC	1
986			min	-.677	10	-.242	28	-.283	7	-4.769e-03	19	NC	1	NC	1
987		4	max	.657	16	-.014	22	.285	13	4.784e-03	25	NC	1	NC	1
988			min	-.677	10	-.244	28	-.285	7	-4.769e-03	19	NC	1	NC	1
989		5	max	.657	16	.017	22	.287	13	4.784e-03	25	NC	1	NC	1
990			min	-.677	10	-.245	28	-.287	7	-4.769e-03	19	NC	1	NC	1
991	M122	1	max	.001	13	-.026	22	.047	24	1.35e-03	25	NC	1	NC	1
992			min	0	19	-.209	28	-.047	6	-1.626e-03	7	NC	1	NC	1
993		2	max	.001	13	-.016	22	.048	12	1.35e-03	25	NC	1	NC	1
994			min	0	19	-.218	28	-.048	6	-1.626e-03	7	NC	1	NC	1
995		3	max	.001	13	-.005	22	.049	12	1.35e-03	25	NC	1	NC	1
996			min	0	19	-.227	28	-.049	18	-1.626e-03	7	NC	1	NC	1
997		4	max	.001	13	.006	22	.05	12	1.35e-03	25	NC	1	NC	1
998			min	0	19	-.236	28	-.05	18	-1.626e-03	7	NC	1	NC	1
999		5	max	.001	13	.017	22	.052	12	1.35e-03	25	NC	1	NC	1
1000			min	0	19	-.244	28	-.051	18	-1.626e-03	7	NC	1	NC	1
1001	M128	1	max	.346	8	.02	16	.243	5	5.885e-03	16	NC	1	NC	1
1002			min	-.346	2	-.45	33	-.237	23	-6.011e-03	10	NC	1	NC	1
1003		2	max	.346	8	.028	15	.238	5	5.885e-03	16	NC	1	NC	1
1004			min	-.346	2	-.45	33	-.233	23	-6.011e-03	10	NC	1	NC	1
1005		3	max	.346	8	.039	15	.232	5	5.885e-03	16	NC	1	NC	1
1006			min	-.346	2	-.451	33	-.228	23	-6.011e-03	10	NC	1	NC	1
1007		4	max	.346	8	.05	15	.227	5	5.885e-03	16	NC	1	NC	1
1008			min	-.346	2	-.452	33	-.223	23	-6.011e-03	10	NC	1	NC	1
1009		5	max	.346	8	.061	15	.222	5	5.885e-03	16	NC	1	NC	1
1010			min	-.346	2	-.453	33	-.219	23	-6.011e-03	10	NC	1	NC	1
1011	M129	1	max	.419	24	.014	20	.287	9	5.441e-03	21	NC	1	NC	1
1012			min	-.421	6	-.441	37	-.287	3	-5.748e-03	3	NC	1	NC	1
1013		2	max	.419	24	.025	19	.283	21	5.441e-03	21	NC	1	NC	1
1014			min	-.421	6	-.442	37	-.283	3	-5.748e-03	3	NC	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
1015		3	max	.419	24	.036	19	.279	21	5.441e-03	21	NC	1	NC	1
1016			min	-.421	6	-.443	37	-.28	3	-5.748e-03	3	NC	1	NC	1
1017		4	max	.419	24	.047	19	.275	21	5.441e-03	21	NC	1	NC	1
1018			min	-.421	6	-.444	37	-.277	3	-5.748e-03	3	NC	1	NC	1
1019		5	max	.419	24	.058	19	.271	21	5.441e-03	21	NC	1	NC	1
1020			min	-.421	6	-.444	37	-.273	3	-5.748e-03	3	NC	1	NC	1
1021	M130	1	max	.307	4	.032	23	.279	13	6.503e-03	24	NC	1	NC	1
1022			min	-.302	22	-.44	29	-.279	7	-6.864e-03	6	NC	1	NC	1
1023		2	max	.307	4	.043	23	.277	25	6.503e-03	24	NC	1	NC	1
1024			min	-.302	22	-.441	29	-.278	7	-6.864e-03	6	NC	1	NC	1
1025		3	max	.307	4	.054	23	.277	24	6.503e-03	24	NC	1	NC	1
1026			min	-.302	22	-.442	29	-.277	6	-6.864e-03	6	NC	1	NC	1
1027		4	max	.307	4	.065	23	.28	24	6.503e-03	24	NC	1	NC	1
1028			min	-.302	22	-.444	29	-.281	6	-6.864e-03	6	NC	1	NC	1
1029		5	max	.307	4	.076	23	.284	24	6.503e-03	24	NC	1	NC	1
1030			min	-.302	22	-.445	29	-.285	6	-6.864e-03	6	NC	1	NC	1
1031	M110B	1	max	.044	18	.029	18	.032	23	1.241e-03	9	NC	1	NC	1
1032			min	-.058	12	-.277	36	-.034	5	-1.188e-03	15	NC	1	NC	1
1033		2	max	.044	18	.029	18	.034	23	1.241e-03	9	NC	1	NC	1
1034			min	-.058	12	-.273	36	-.036	5	-1.188e-03	15	NC	1	NC	1
1035		3	max	.044	18	.029	18	.037	23	1.241e-03	9	NC	1	NC	1
1036			min	-.058	12	-.269	36	-.038	5	-1.188e-03	15	NC	1	NC	1
1037		4	max	.044	18	.028	18	.039	23	1.241e-03	9	NC	1	NC	1
1038			min	-.058	12	-.266	36	-.04	5	-1.188e-03	15	NC	1	NC	1
1039		5	max	.044	18	.028	18	.041	23	1.241e-03	9	NC	1	NC	1
1040			min	-.058	12	-.262	36	-.042	5	-1.188e-03	15	NC	1	NC	1
1041	M111B	1	max	.048	22	.019	22	.034	23	1.195e-03	13	NC	1	NC	1
1042			min	-.056	4	-.255	28	-.035	5	-1.139e-03	19	NC	1	NC	1
1043		2	max	.048	22	.018	22	.035	23	1.195e-03	13	NC	1	NC	1
1044			min	-.056	4	-.253	28	-.037	5	-1.139e-03	19	NC	1	NC	1
1045		3	max	.048	22	.018	22	.036	23	1.195e-03	13	NC	1	NC	1
1046			min	-.056	4	-.25	28	-.038	5	-1.139e-03	19	NC	1	NC	1
1047		4	max	.048	22	.018	22	.038	23	1.195e-03	13	NC	1	NC	1
1048			min	-.056	4	-.247	28	-.039	5	-1.139e-03	19	NC	1	NC	1
1049		5	max	.048	22	.017	22	.039	23	1.195e-03	13	NC	1	NC	1
1050			min	-.056	4	-.245	28	-.04	5	-1.139e-03	19	NC	1	NC	1

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M66	L3x3x4	.491	6.983	7	.800	6.983	y	10	32.733	46.656	1.688	2.278	1	H2-1
2	M65	L3x3x4	.489	6.983	3	.773	6.983	y	6	32.733	46.656	1.688	2.278	1	H2-1
3	M64_1	L3x3x4	.549	6.982	29	.507	6.982	y	2	32.733	46.656	1.688	2.278	1	H2-1
4	M41A	PIPE_2.0	.267	1.122	11	.185	1.122		2	17.855	32.13	1.872	1.872	1	H1-1b
5	M48	PIPE_2.0	.278	12.3...	13	.167	12.3...		11	17.855	32.13	1.872	1.872	1	H1-1b
6	M47	PIPE_2.0	.289	1.122	3	.155	1.122		5	17.855	32.13	1.872	1.872	1	H1-1b
7	M108	PIPE_2.0	.677	3.083	5	.133	5.25		10	14.916	32.13	1.872	1.872	2...	H1-1b
8	M54	PIPE_2.0	.295	3.083	4	.128	3.083		12	14.916	32.13	1.872	1.872	2...	H1-1b
9	M28	PIPE_2.0	.677	3.083	2	.127	5.25		6	14.916	32.13	1.872	1.872	2...	H1-1b
10	M53	HSS4x4x3	.449	0	34	.126	0	y	3	102.875	106.812	12.662	12.662	3...	H1-1b
11	M52	HSS4x4x3	.455	0	30	.123	0	y	7	102.875	106.812	12.662	12.662	3...	H1-1b
12	M62B	PIPE_2.0	.320	3.083	3	.123	3.083		4	14.916	32.13	1.872	1.872	1...	H1-1b
13	M118	PIPE_2.0	.703	3.083	11	.118	5.25		7	14.916	32.13	1.872	1.872	2...	H1-1b
14	M57C	PIPE_2.0	.266	3.083	11	.117	3.083		4	14.916	32.13	1.872	1.872	1...	H1-1b
15	M70	PIPE_2.0	.333	3.083	6	.113	3.083		8	14.916	32.13	1.872	1.872	2...	H1-1b
16	M93	PIPE_2.0	.276	3.083	7	.110	3.083		12	14.916	32.13	1.872	1.872	1...	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
17	M60	HSS4x4x3	.436	0	29	.108	0	y	5	102.875	106.812	12.662	12.662	2...	H1-1b
18	M51A	L2.5x2.5x3	.504	0	5	.095	1.25	y	5	27.293	29.192	.873	1.972	2...	H2-1
19	M75A	PIPE_2.0	.294	3.083	4	.091	3.083		8	14.916	32.13	1.872	1.872	1...	H1-1b
20	M72_1	PIPE_2.0	.122	2.5	5	.087	2.5		11	29.81	32.13	1.872	1.872	2...	H1-1b
21	M49A	L2.5x2.5x3	.475	0	10	.084	1.25	y	9	27.293	29.192	.873	1.972	1...	H2-1
22	M50	L2.5x2.5x3	.478	0	2	.084	1.25	y	13	27.293	29.192	.873	1.972	1...	H2-1
23	M61B	PIPE_2.0	.191	6.618	36	.084	10.9...		12	17.855	32.13	1.872	1.872	1	H1-1b
24	M62B_1	PIPE_2.0	.197	6.618	28	.080	10.9...		4	17.855	32.13	1.872	1.872	1	H1-1b
25	M57A_1	PIPE_2.0	.179	6.347	32	.077	2.026		8	17.855	32.13	1.872	1.872	1	H1-1b
26	M71_1	PIPE_2.0	.096	2.5	13	.073	2.5		7	29.81	32.13	1.872	1.872	2...	H1-1b
27	M70_1	PIPE_2.0	.098	0	3	.072	2.5		3	29.81	32.13	1.872	1.872	2...	H1-1b
28	M61	L3x3x4	.458	7.627	34	.042	0	z	30	13.292	46.656	1.688	3.507	2...	H2-1
29	M62	L3x3x4	.455	0	34	.042	0	z	34	13.292	46.656	1.688	3.499	2...	H2-1
30	M63	L3x3x4	.448	0	26	.042	0	z	26	13.292	46.656	1.688	3.503	2...	H2-1
31	M58	LL3x3x4x0	.528	1.067	34	.039	1.105	y	32	79.399	93.312	6.48	4.911	1...	H1-1b
32	M57	LL3x3x4x0	.518	1.067	26	.038	1.105	y	36	79.399	93.312	6.48	4.911	1...	H1-1b
33	M59	LL3x3x4x0	.519	1.067	30	.038	1.105	y	28	79.399	93.312	6.48	4.911	1...	H1-1b
34	M74_1	L2.5x2.5x3	.077	2.141	32	.010	0	z	29	15.939	29.192	.873	1.724	1...	H2-1
35	M82_1	L2.5x2.5x3	.088	2.141	5	.010	4.282	z	36	15.939	29.192	.873	1.724	1...	H2-1
36	M78_1	L2.5x2.5x3	.081	2.141	2	.010	0	z	32	15.939	29.192	.873	1.724	1...	H2-1
37	M84_1	L2.5x2.5x3	.081	2.141	2	.010	0	y	31	15.939	29.192	.873	1.724	1...	H2-1
38	M80_1	L2.5x2.5x3	.088	2.141	11	.010	4.282	y	28	15.939	29.192	.873	1.724	1...	H2-1
39	M76_1	L2.5x2.5x3	.072	2.141	32	.010	0	y	36	15.939	29.192	.873	1.724	1...	H2-1
40	M105	LL2.5x2.5x...	.116	3.01	5	.008	6.021	z	4	36.392	58.32	3.954	2.55	1...	H1-1b
41	M106	LL2.5x2.5x...	.116	3.01	11	.008	0	z	6	36.392	58.32	3.954	2.55	1...	H1-1b
42	M104	LL2.5x2.5x...	.104	3.01	27	.006	0	y	26	36.392	58.32	3.954	2.55	1...	H1-1b

SPECIAL CONSTRUCTION NOTE:
SPRINT WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

Sprint

PROJECT: DO MACRO UPGRADE
EQUIPMENT DEPLOYMENT

SITE NUMBER: CT33XC566

SITE ADDRESS: 100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SITE TYPE: MONOPOLE

SITE INFORMATION

SITE INFORMATION:

LATITUDE: 41° 46' 01.4" N
(PER SBA RECORDS) 41.767060°

LONGITUDE: -71° 58' 20.7" W
(PER SBA RECORDS) -71.972420°

STRUCTURE HEIGHT: 176'±

STRUCTURE TYPE: MONOPOLE

APPLICANT:

SPRINT
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

TOWER OWNER:

SBA TOWERS LLC.
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

SBA SITE ID: CT01915-S

SBA SITE NAME: SOUTH BROOKLYN

SBA CONTACT: STEPHEN ROTH
(860) 539-4920
sroth@sbasite.com

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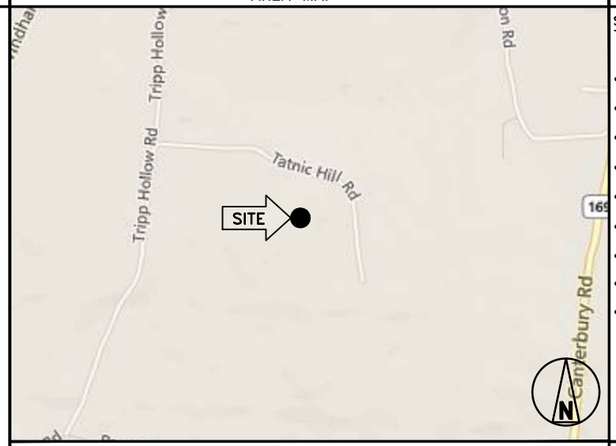
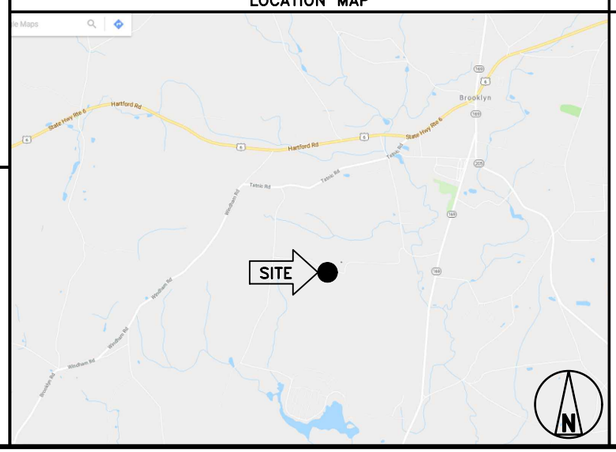
AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 2.5 GHz RRH'S ON PROPOSED PIPE MOUNT
- RELOCATE (3) 1900 MHz RRH'S ON PROPOSED PIPE MOUNT
- INSTALL (6) 800 MHz RRH'S ON EXISTING PIPE MOUNT
- INSTALL (4) HYBRID CABLES
- REMOVE EXISTING (5) 1-5/8" COAX
- INSTALL RAN EQUIPMENT INSIDE EXISTING MMBTS CABINET
- INSTALL STRUCTURAL AUGMENTS

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL 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.

1. INTERNATIONAL BUILDING CODE (2012 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	OUTLINE SPECIFICATIONS	0
SP-2	OUTLINE SPECIFICATIONS	0
SP-3	OUTLINE SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	DETAILS	0
E-1	ELECTRICAL & GROUNDING DETAILS	0
RF-1	RF DATA SHEET	0
RF-2	PLUMBING DIAGRAM	0

APPROVALS

TITLE	SIGNATURE	DATE
PROJECT MANAGER:		
CONSTRUCTION:		
RF ENGINEER:		
ZONING/SITE ACQ:		
OPERATIONS:		
TOWER OWNER:		

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

PLANS PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720

PLANS PREPARED BY:
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
JOB NUMBER 526-104

ENGINEERING LICENSE:
STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

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MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
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SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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JOB NUMBER 526-104

ENGINEERING LICENSE:

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
OUTLINE SPECIFICATIONS

SHEET NUMBER:
SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

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PROJECT MANAGER:

SBA

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ENGINEERING LICENSE:

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:

CT33XC566

SITE ADDRESS:

100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.

8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.

9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.

10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.

6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.

2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;

3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.

4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;

6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.

7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.

9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.

2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).

3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).

4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.

9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.

14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.

18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.

19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING--TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

PLANS PREPARED FOR:

Sprint

1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:

SBA

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720

PLANS PREPARED BY:

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1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:

CT33XC566

SITE ADDRESS:

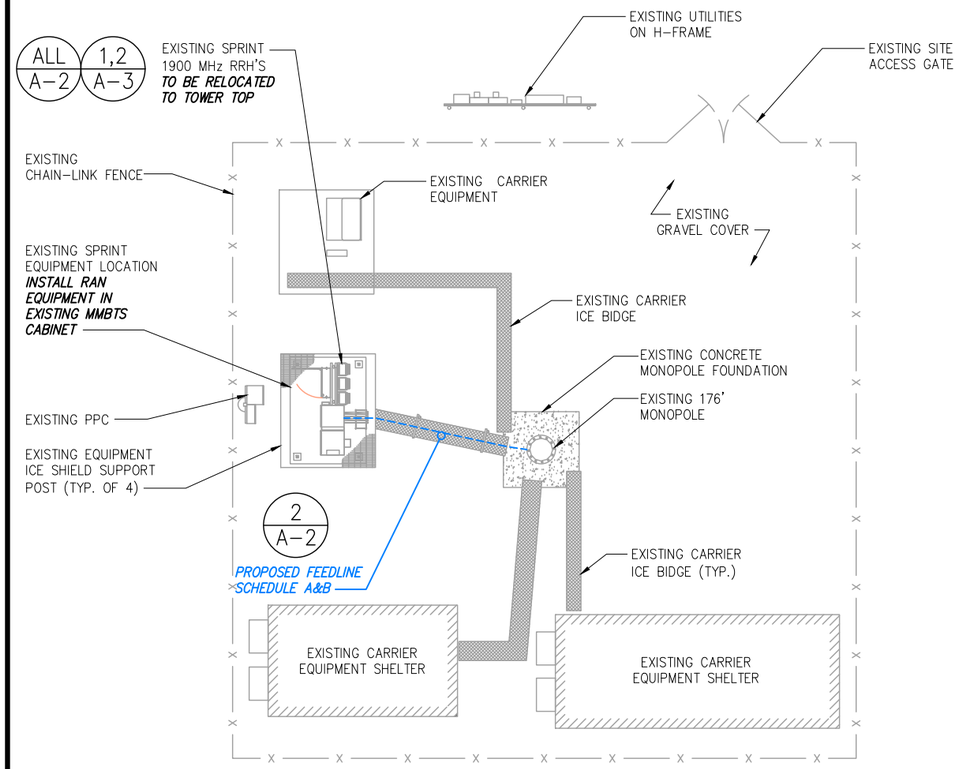
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

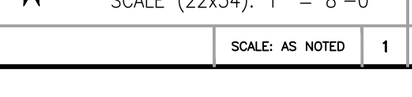
SHEET DESCRIPTION:

OUTLINE SPECIFICATIONS

SHEET NUMBER:

SP-3





GRAPHIC SCALE:

16' 8' 0 8' 16'

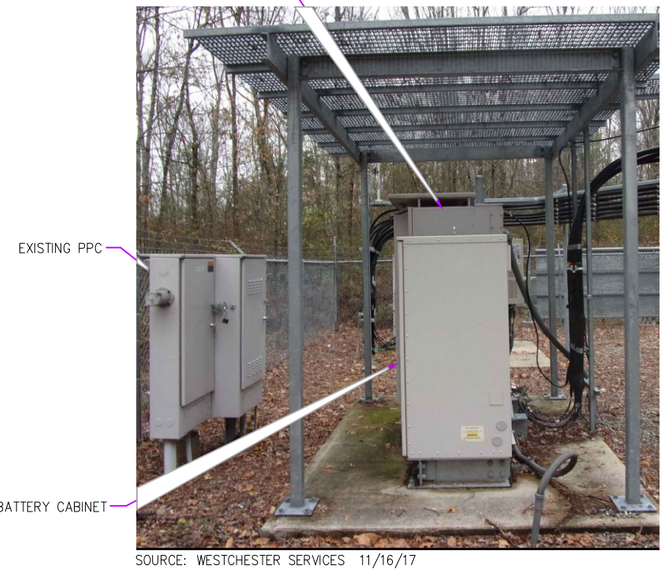
SCALE (11x17): 1" = 16'-0"

SCALE (22x34): 1" = 8'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1

2
A-2
PROPOSED FEEDLINE
SCHEDULE A&B

SOURCE: WESTCHESTER SERVICES 11/16/17



SOURCE: WESTCHESTER SERVICES 11/16/17

SPRINT EQUIPMENT PHOTO DETAIL | SCALE: AS NOTED | 2

PLANS PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:

CT33XC566

SITE ADDRESS:

100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

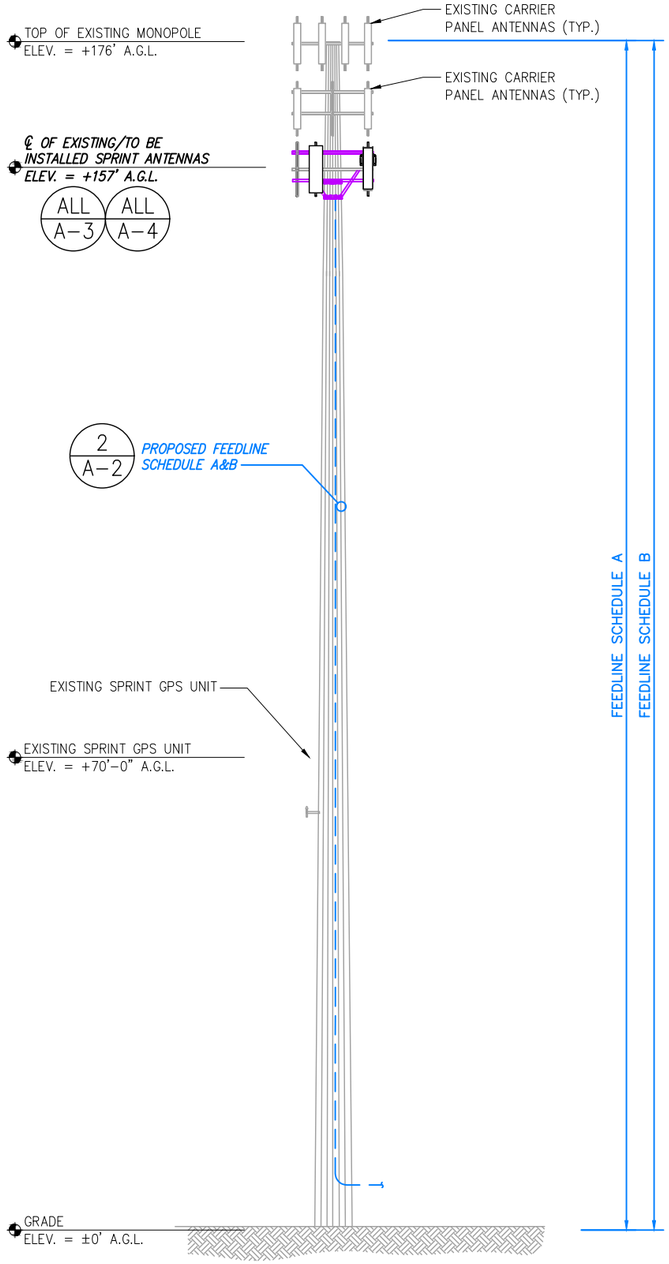
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

NOTE:
THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.



MONOPOLE ELEVATION — NO SCALE — 1

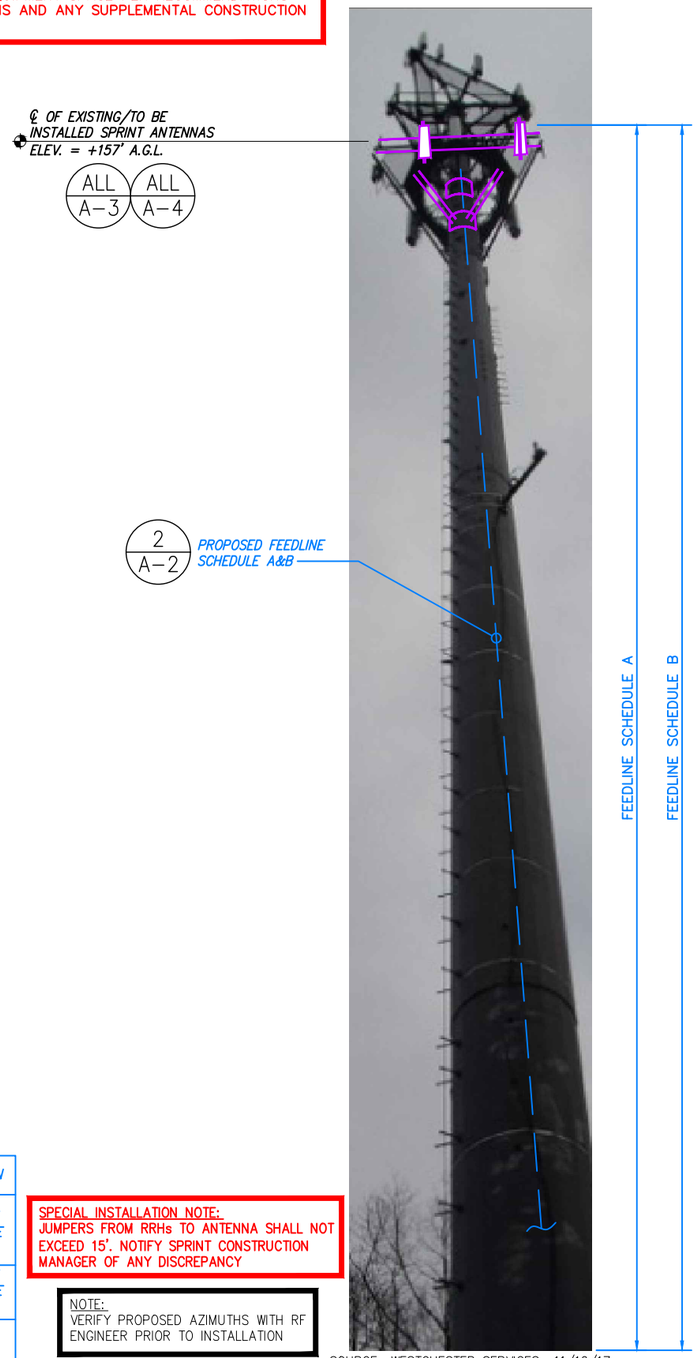
SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

NOTE:
FOR DETAILS OF MOUNT AUGMENT REFER TO MOUNT AUGMENT CD's DONE BY OTHERS

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO BE REMOVED: (5) 1 5/8" COAX	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (4) 1 1/4" HYBRID TO 157' RAD	UP INSIDE MONOPOLE TO RAD

NOTE:
EXISTING SPRINT EQUIPMENT FEEDLINE INVENTORY BASED ON COLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.



SPECIAL INSTALLATION NOTE:
JUMPERS FROM RRHs TO ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

SOURCE: WESTCHESTER SERVICES 11/16/17

TOWER ELEVATION PHOTOS DETAIL — NO SCALE — 2

PLANS PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720

PLANS PREPARED BY:
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1033 Watervliet Shaker Rd | Albany, NY 12205
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www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:
STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

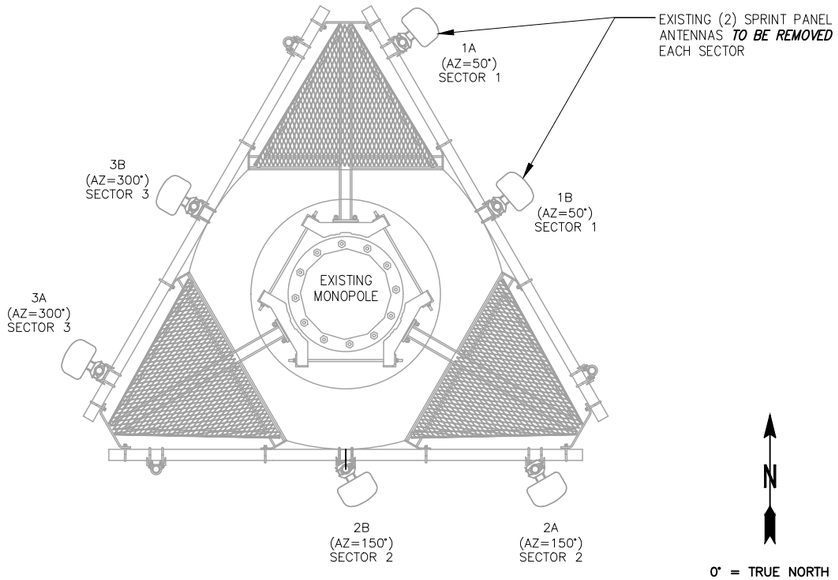
SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

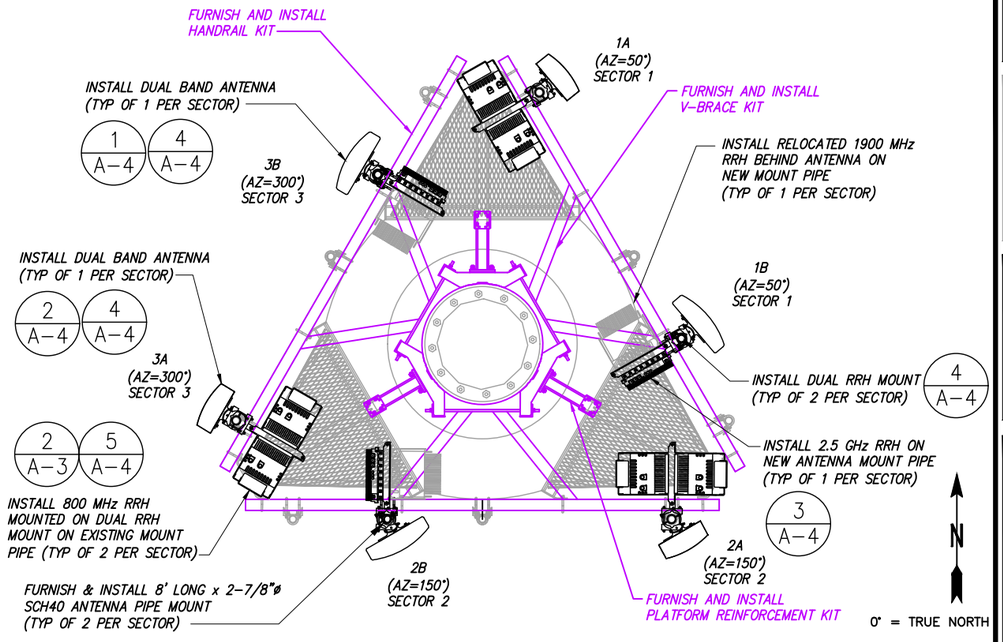


EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1

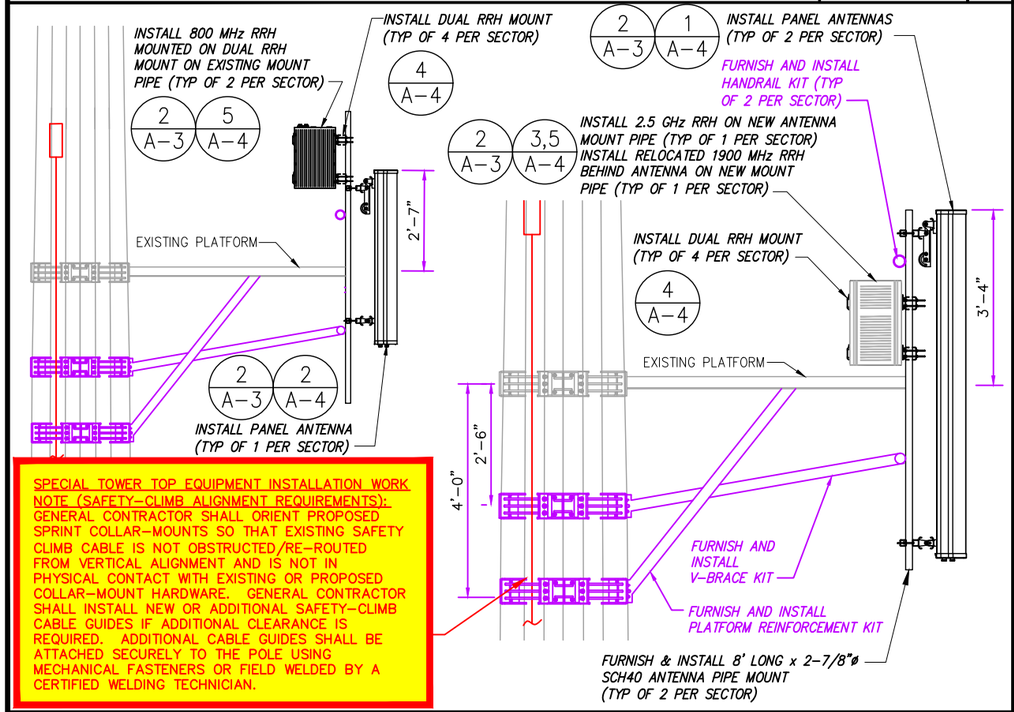
SPECIAL INSTALLATION NOTE:
JUMPERS FROM RRHs TO ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

NOTE:
FOR DETAILS OF MOUNT AUGMENT REFER TO MOUNT AUGMENT CD's DONE BY OTHERS

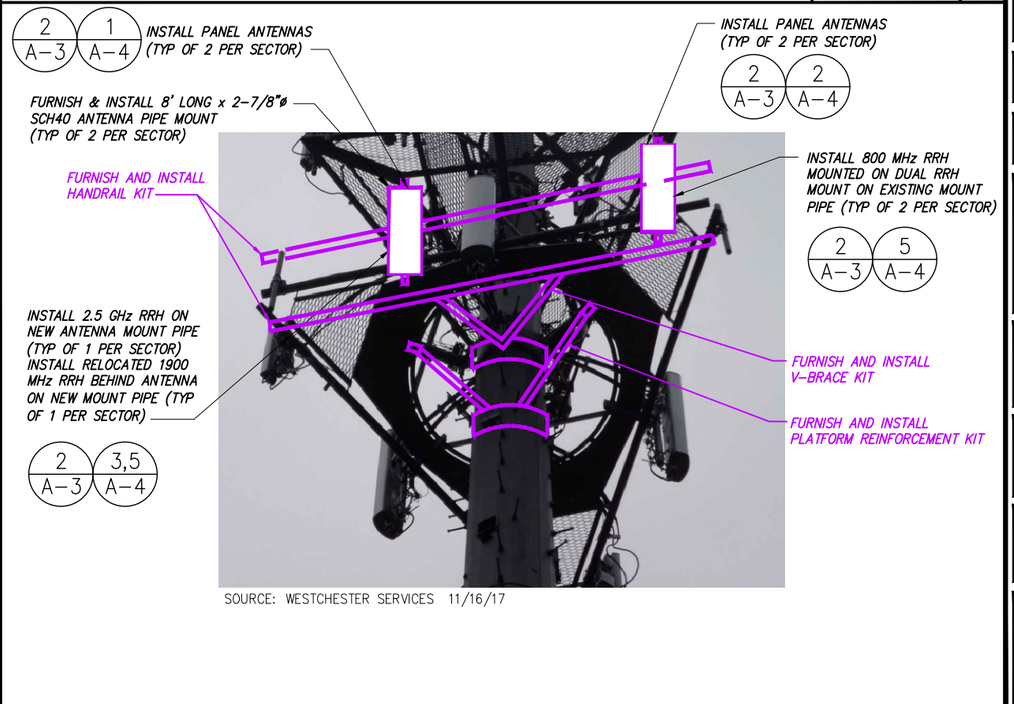


FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2



SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED SPRINT COLLAR-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED COLLAR-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

TYPICAL MOUNTING DETAIL | NO SCALE | 3



SOURCE: WESTCHESTER SERVICES 11/16/17

ANTENNA & RRH MOUNT PHOTO DETAIL | NO SCALE | 4

PLANS PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
TEL: (508) 251-0720

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Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-104

ENGINEERING LICENSE:
STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

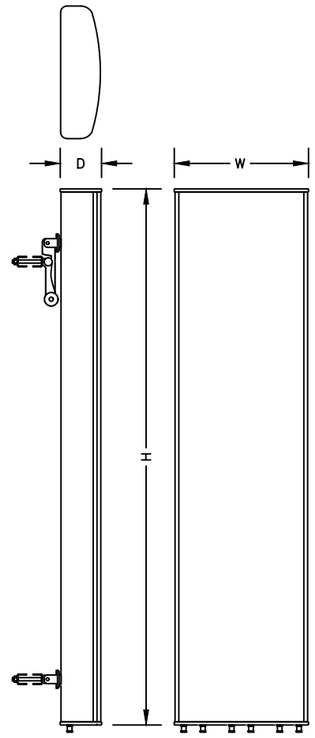
DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

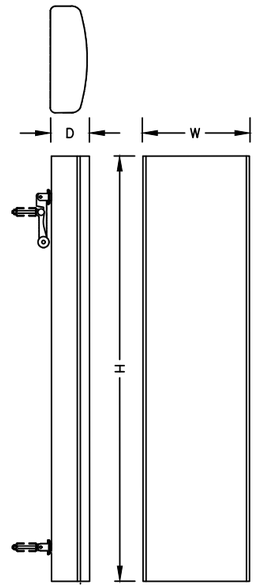
SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:
A-3



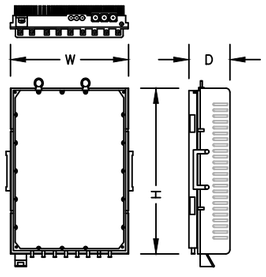
ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	NNVV-65B-R4
HEIGHT	72"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	84.7± LBS.

ANTENNA DETAIL | NO SCALE | 1



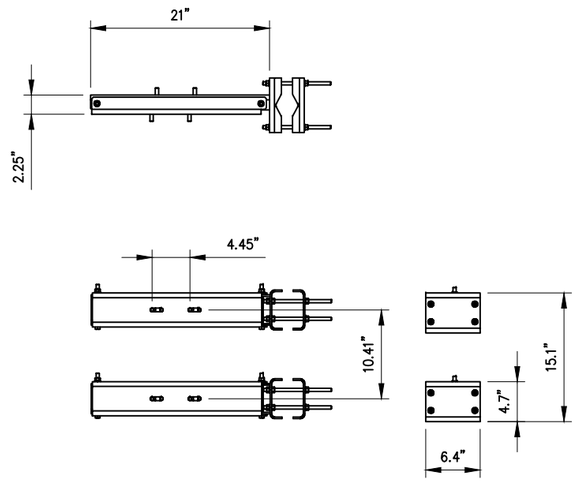
ANTENNA SPECIFICATIONS	
MANUF.	RFS
MODEL #	APXVTM14-ALU-I20
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	56.2± LBS.

ANTENNA DETAIL | NO SCALE | 2

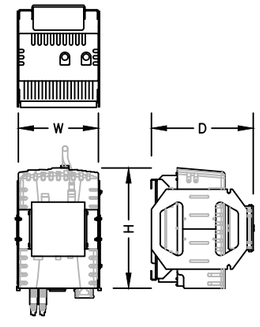


2.5 GHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	TD-RRH8X20-25
HEIGHT	26.1"
WIDTH	18.6"
DEPTH	6.7"
WEIGHT	70± LBS

2.5 RRH | NO SCALE | 3



DUAL RRH MOUNT DETAIL | NO SCALE | 4



800 MHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	800MHZ 2X50W
HEIGHT	19.7"
WIDTH	13"
DEPTH	10.8"
WEIGHT	53± LBS

800 MHz RRH | NO SCALE | 5

PLANS PREPARED FOR:
Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

PROJECT MANAGER:
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REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

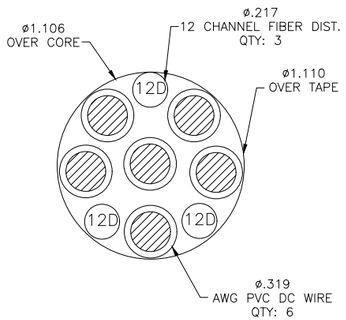
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

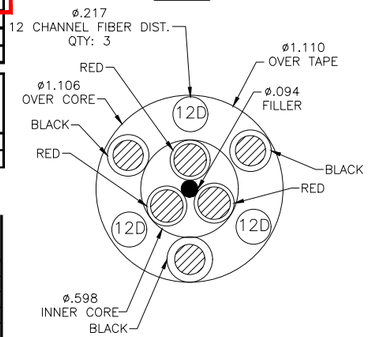
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.

* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

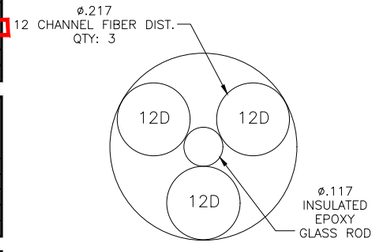
* SPRINT CM TO CONFIRM HYBRID RISER CABLE AND HYBRID JUMPER CABLE MODEL NUMBERS BEFORE PREPARING BOM.



4 AWG



8 & 6 AWG



FIBER ONLY

800/1900/2500 CROSS SECTION DATA

NO SCALE | 1

PLANS PREPARED FOR:
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TEL: (800) 357-7641

PROJECT MANAGER:
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SBA COMMUNICATIONS CORP.
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JOB NUMBER 526-104

ENGINEERING LICENSE:
STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

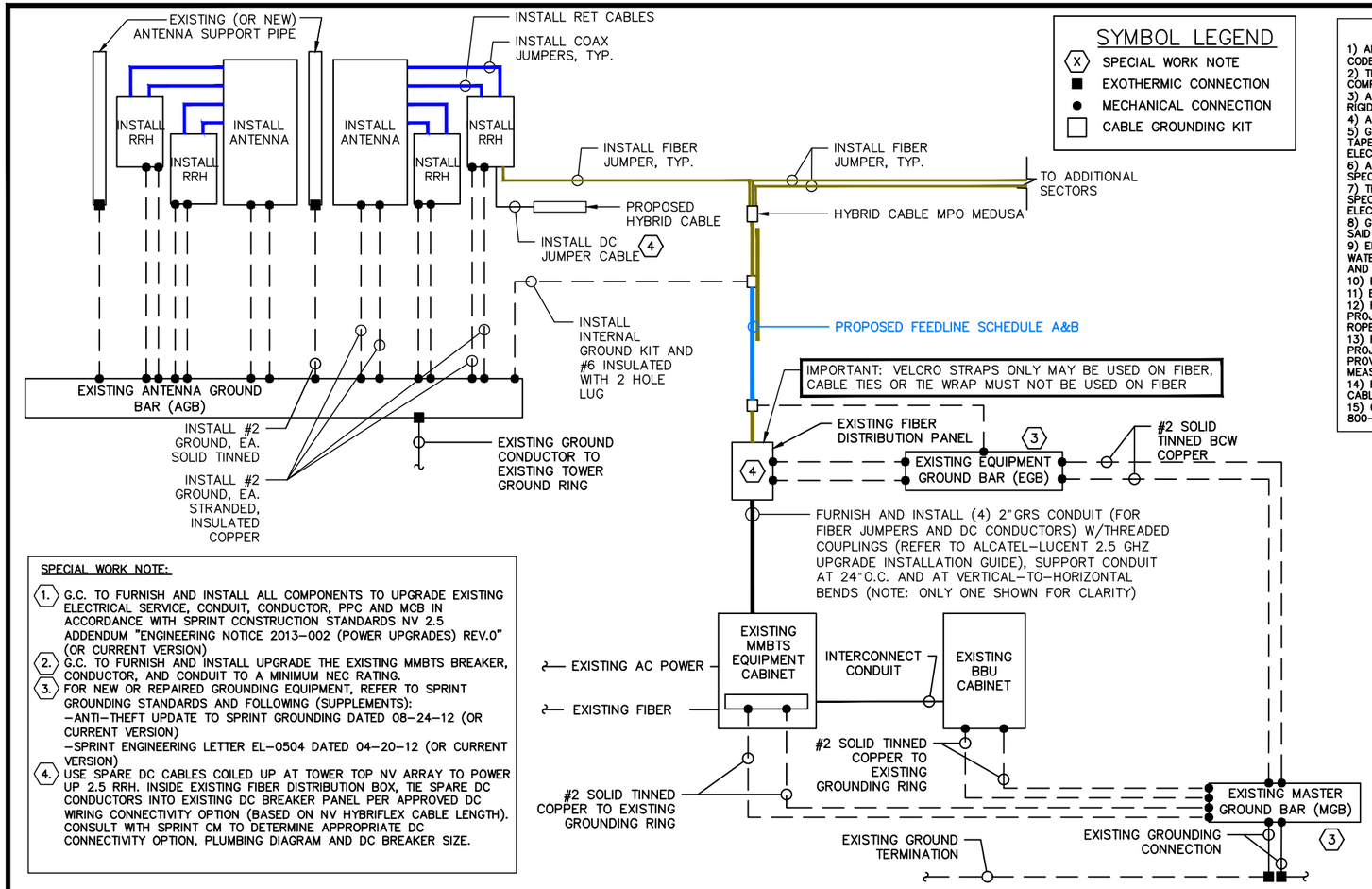
DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
DETAILS

SHEET NUMBER:
A-5



SYMBOL LEGEND

- (X) SPECIAL WORK NOTE
- ■ EXOTHERMIC CONNECTION
- ● MECHANICAL CONNECTION
- □ CABLE GROUNDING KIT

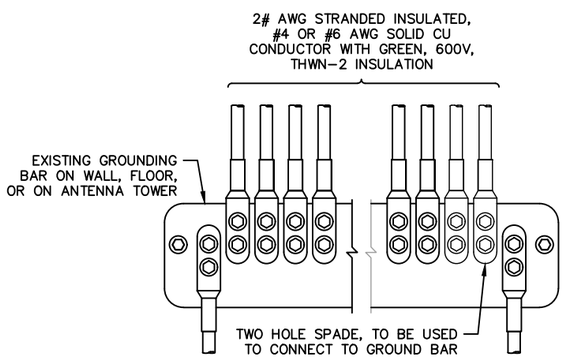
SPECIAL WORK NOTE:

1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013-002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING.
3. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
   -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
   -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)
4. USE SPARE DC CABLES COILED UP AT TOWER TOP NV ARRAY TO POWER UP 2.5 RRH. INSIDE EXISTING FIBER DISTRIBUTION BOX, TIE SPARE DC CONDUCTORS INTO EXISTING DC BREAKER PANEL PER APPROVED DC WIRING CONNECTIVITY OPTION (BASED ON NV HYBRIFLEX CABLE LENGTH). CONSULT WITH SPRINT CM TO DETERMINE APPROPRIATE DC CONNECTIVITY OPTION, PLUMBING DIAGRAM AND DC BREAKER SIZE.

TYPICAL POWER AND GROUNDING ONE LINE DIAGRAMS

1 / E-1

SCALE: N.T.S.

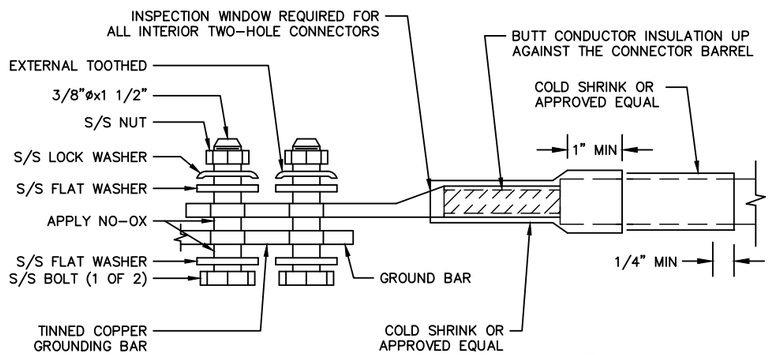


1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

2 / E-1

SCALE: N.T.S.



TWO HOLE LUG

3 / E-1

SCALE: N.T.S.

ELECTRICAL NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.
3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.
4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.
6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
14) FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.
15) COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
    -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

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CHRISTOPHER J. WARREN
No. 23544
4-10-18
LICENSED PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	04/10/18	RWF	0

SITE NUMBER:
CT33XC566

SITE ADDRESS:
100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

SprintVision

RF Design Sheet

Site Identification	
Cascade	CT33XC566
SMS Schedule ID	12323276
SMS Schedule Name	DO Macro Upgrade
PID	
RRU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	2017-08-15 00:00:00.0
RFDS Revision Date	2017-10-20 10:07:46.0
RFDS Revision	3

Filter Analysis Complete	YES
RFDS - Issue Date	08/15/2017
Design Status	Complete
Project Description	DO Macro Upgrade - Add 800MHz (3G + 4G) and 2500 MHz

Contact Information	
Engineer Email	Bill.M.Hastings@sprint.com
Sprint Badged RF Engineer	Bill Hastings
RF Engineer Email	Bill.M.Hastings@sprint.com
RF Engineer Phone	978-590-9700
RF Manager	Jonathan Hull
RF Manager Email	Jonathan.B.Hull@Sprint.com
RF Manager Phone	617-233-2020

Carrier Count	
2500 LTE	3
1900 LTE	1
1900 EVDO	
1900 Voice	1
800 LTE	1
800 Voice	1

Location Details	
Latitude	41.76706
Longitude	-71.97242
Market	Northern Connecticut
Region	Northeast
City	Brooklyn
State	CT
Zip Code	CT/06234
County	Windham

2500MHz	3
1900MHz	3
800MHz	3

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25	N/A	N/A	N/A
Weight (lbs)	76.2	76.2	76.2	N/A	N/A	N/A
Dimensions	26 x 18.6 x 6.7	26 x 18.6 x 6.7	26 x 18.6 x 6.7	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0

Trunk Cable 1						
Model Number	Hybriflex	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	1	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	N/A	N/A	N/A	N/A	N/A
Manufacturer	ALU	N/A	N/A	N/A	N/A	N/A

Band: 800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Radio Model						
Model Number	RRH-2x50-800	RRH-2x50-800	RRH-2x50-800	N/A	N/A	N/A
Weight (lbs)	69.1	69.1	69.1	N/A	N/A	N/A
Dimensions	16 x 13 x 10	16 x 13 x 10	16 x 13 x 10	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A
Number of RRUs needed	2	2	2	0	0	0

Band: 2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	APXVTM14-ALU-I20	APXVTM14-ALU-I20	APXVTM14-ALU-I20			
Weight (lbs)	56.2	56.2	56.2	N/A	N/A	N/A
Dimensions	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A
Ant1 Top Jumper Make/Model/Qty	2.5 Jumper 8	2.5 Jumper 8	2.5 Jumper 8	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	50	150	300	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	154.9540732	154.9540732	154.9540732	N/A	N/A	N/A
Antenna 1 Electrical DT	2	2	2	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

Band: 1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
Antenna1						
Model Number	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4			
Weight (lbs)	84.7	84.7	84.7	N/A	N/A	N/A
Dimensions	72 x 19.6 x 7.8	72 x 19.6 x 7.8	72 x 19.6 x 7.8	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper 4	800/1900 Jumper 4	800/1900 Jumper 4	N/A 0	N/A 0	N/A 0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A
Antenna 1 Azimuth	50	150	300	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	154.9540732	154.9540732	154.9540732	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A

PLANS PREPARED FOR:

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CT33XC566

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100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

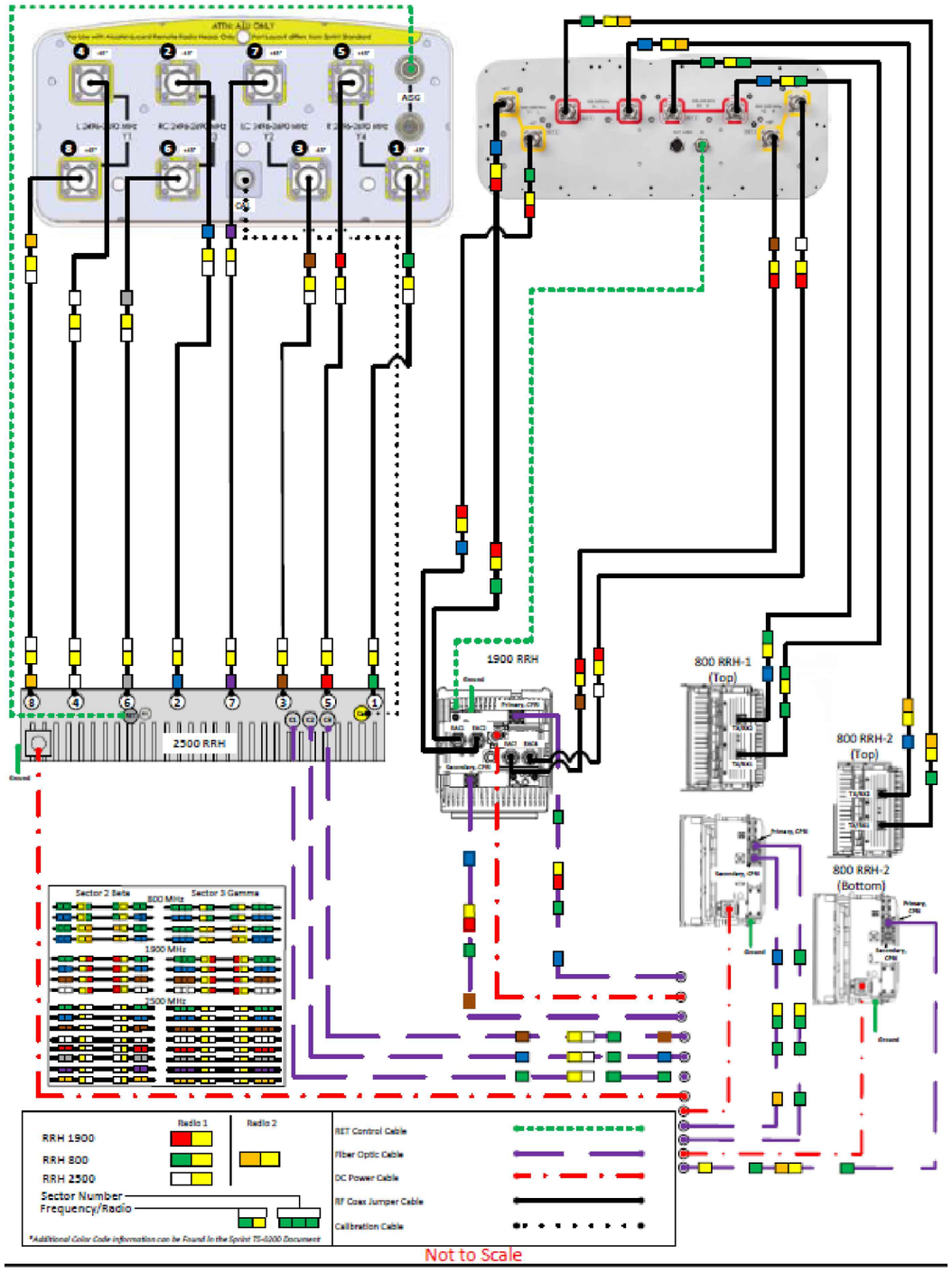
SHEET DESCRIPTION:

RF DATA SHEET

SHEET NUMBER:

RF-1

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



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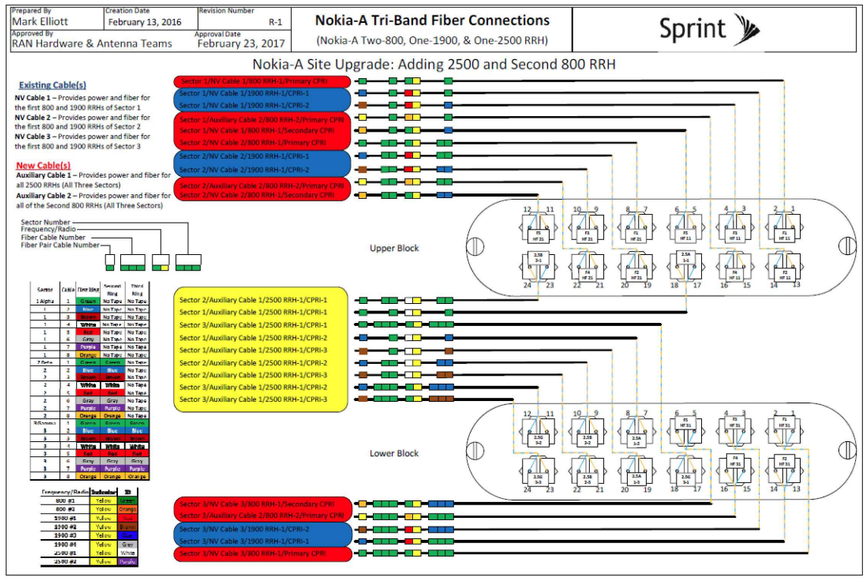

PLUMBING DIAGRAM | NO SCALE | 1

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CT33XC566

SITE ADDRESS:

100 OLD TATNIC HILL ROAD
BROOKLYN, CT 06234

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

RF-2

CT33XC566
DO MACRO EQUIPMENT DEPLOYMENT

MOUNT AUGMENTATION @ 157'

MONOPOLE TOWER

BROOKLYN, CT
WINDHAM COUNTY

SITE INFORMATION

STRUCTURE TYPE:	MONOPOLE
MOUNT TYPE:	PLATFORM
LATITUDE:	41.76716 (NAD 83)
LONGITUDE:	-71.971949 (NAD 83)
CITY, STATE:	BROOKLYN, CT
COUNTY:	WINDHAM
SBA SITE:	CT01915-S South Brooklyn

COORDINATES ARE FOR NAVIGATIONAL PURPOSES ONLY, NOT TO 1A ACCURACY.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE LABOR & MATERIALS FOR THE DISCREPANCIES.

CODE COMPLIANCE

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

BUILDING CODE AND DESIGN STANDARD: 2012 IBC / TIA-222-G / 2016 CT

RIGGING PLAN REQUIRED

THIS SET OF PLANS DOES "NOT" CONSTITUTE A RIGGING PLAN.

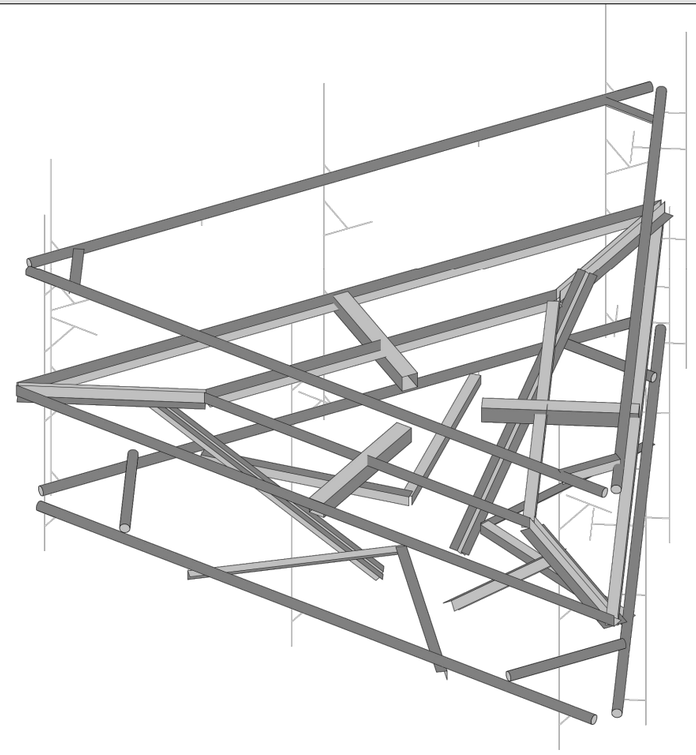
A PROPER RIGGING PLAN SHALL BE PERFORMED BY A LICENSED PROFESSIONAL ENGINEER PRIOR TO PROCEEDING ON ANY AUGMENTATIONS SHOWN HEREIN.

GENERAL DESIGN NOTES

1. THIS PLAN HAS BEEN DESIGNED UTILIZING THE CORRESPONDING MOUNT STRUCTURAL ANALYSIS.
2. THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
3. ALL STRUCTURE INFORMATION OBTAINED IN THE FORM OF FROM INFORMATION PROVIDED BY THE CLIENT. CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH THE REFERENCED DOCUMENTS. CONTRACTOR SHALL ISSUE A REQUEST FOR INFORMATION (RFI) IN THE EVENT ANY DISCREPANCIES ARE DISCOVERED BETWEEN THESE DOCUMENTS AND THE AS-BUILT CONDITIONS IN THE FIELD IN A SITE VISIT THAT SHALL BE PERFORMED PRIOR TO STARTING FABRICATION OR CONSTRUCTION.
4. ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
5. ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
6. PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION (ONLY IF SPECIFICALLY REQUESTED BY ENGINEER).
7. UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
8. ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

SHEET INDEX

MOUNT AUGMENTATION CONFIGURATION



AUGMENTATION SCOPE

AUGMENT ALL SECTORS OF CARRIER'S EXISTING MOUNT INSTALLATION AS REQUIRED (UNLESS NOTED OTHERWISE)

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REVISIONS:

0	04/16/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

STATE OF CONNECTICUT
GREGORY DURGIN
No. 32155
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC566

BROOKLYN, CT

LATITUDE: 41.76716
LONGITUDE: -71.971949

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

S1

CONTRACTOR NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED AUGMENTATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
2. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE AUGMENTATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
3. THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED AUGMENTATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE AUGMENTATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "AUGMENTATION INSPECTION NOTES" SHEET.
4. THE CONTRACTOR SHALL NOTIFY THE TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED AUGMENTATION INSPECTIONS & TESTING (WHEN APPLICABLE).
5. IT IS ASSUMED THAT ANY STRUCTURAL AUGMENTATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, ET CETERA.
6. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
7. CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS

1. THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
2. THE CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS REQUIRED DURING CONSTRUCTION TO ENSURE STABILITY. DESIGN AND SEQUENCING OF CONSTRUCTION SHORING AND BRACING IS OUTSIDE THE SCOPE OF THIS WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, GUYING, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.

BOLTS

1. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED GALVANIZED HIGH STRENGTH ASTM A325 OR A490 BOLTS WITH THREADS EXCLUDED FROM SHEAR PLANE.
2. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES, WITH BOLT HEADS FACING DOWN WHERE APPLICABLE.
3. ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG-TIGHT UNTIL THE SECTION IS FULLY COMPACTED AND ALL PLIES ARE JOINED, AND THEN TIGHTENED FURTHER BY AISC - "TURN OF THE NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
4. BOLT LENGTHS UP TO AND INCLUDING 4 DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG-TIGHT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1½ TURNS BEYOND SNUG-TIGHT.
5. ALL BOLTED CONNECTIONS SHALL USE LOCK WASHERS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC STEEL CONSTRUCTION MANUAL AND SECTION 4 OF THE TIA CODE.
2. PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM GRADES UNLESS OTHERWISE NOTED:
   - CHANNELS & ANGLES ..... ASTM A36, (Fy = 36 KSI)
   - PLATES ..... ASTM A36, (Fy = 36 KSI)
   - PIPES ..... ASTM A53 GR.B, (Fy = 35 KSI)
   - HSS ROUND ..... ASTM A500 GR.B, (Fy = 42 KSI)
   - HSS RECTANGULAR ..... ASTM A500 GR.B, (Fy = 46 KSI)
   - STRUCTURAL BOLTS ..... ASTM A325
   - U-BOLTS ..... ASTM A307 GR.A
   - NUTS FOR BOLTS ..... ASTM A563 (THREADING TO MATCH BOLT)
   - WASHERS FOR BOLTS ..... ASTM F436
   - SEE TABLE 5-1 OF THE TIA CODE FOR ADDITIONAL SHAPES AND STANDARDS THAT ARE NOT LISTED ABOVE.
3. NON PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS PER THE TIA CODE:
   - THE CARBON EQUIVALENT OF STEEL SHALL NOT EXCEED 0.65 PER SECTION 5.4.2 OF THE TIA CODE
   - ELONGATION OF STEEL SHALL NOT BE LESS THAN 18%
   - TEST REPORTS SHALL BE IN ACCORDANCE WITH ASTM A6 OR A568
   - TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A6
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH AND COLD GALVANIZED.
5. ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY. WELDING ELECTRODES SHALL BE E70XX.
6. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO AISC SPECS AND CODES, LATEST EDITION.
7. UPON REQUEST, THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ENGINEER OF RECORD TO REVIEW FOR COMPLIANCE WITH DESIGN INTENT PRIOR TO THE START OF FABRICATION AND/OR ERECTION.
8. TORCH-CUTTING OF ANY KIND SHALL NOT BE PERMITTED.
9. ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (3/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
10. ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN ½" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZINC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
11. MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)
√	FABRICATION INSPECTION
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

NOMINAL HOLE DIMENSIONS

BOLT Ø	STANDARD HOLE Ø
1/2"Ø	9/16"Ø
5/8"Ø	11/16"Ø
3/4"Ø	13/16"Ø
7/8"Ø	15/16"Ø
1"Ø	1 1/16"Ø

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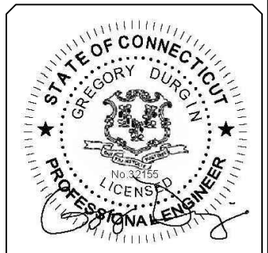


SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC566

BROOKLYN, CT

LATITUDE: 41.76716
LONGITUDE: -71.971949

SHEET TITLE:

NOTES AND SPECIFICATIONS

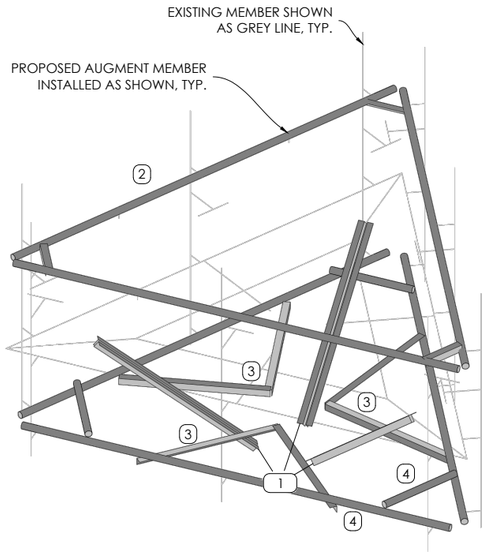
SHEET NUMBER:

S2

NEW MOUNT AUGMENTATIONS

1	PLATFORM REINFORCEMENT KIT SITEPRO1 PART# PRK-1245L. ATTACH PRK COLLAR TO MONOPOLE SHAFT ~4.0' BELOW EXISTING STANDOFF CENTERLINE AND DOUBLE ANGLE KICKER BRACKET TO BACK-TO-BACK ANGLES AT PLATFORM CORNERS AS SHOWN PER MANUF. SPECS. [(1) KIT TOTAL]
2	HANDRAIL KIT COMPONENTS SITEPRO1 PART# HRK12-U OR HRK14-U. ATTACH TO MOUNT PIPES ~3.0' ABOVE EXISTING STANDOFF CENTERLINE. VERIFY MOUNT FACE WIDTH IN FIELD PRIOR TO ORDERING. [(1) KIT TOTAL]
3	HANDRAIL KIT COMPONENTS - V-BRACE KIT SITEPRO1 PART# PRK-SFS-H-L. ATTACH COLLAR MOUNT TO MONOPOLE SHAFT ~2.5' BELOW EXISTING STANDOFF CENTERLINE. NOTE: IF THE PRK-SFS-H-L KIT IS NOT AVAILABLE, PROVIDE (6) TOTAL L2½x2½x3/16 x ~8' LONG REPLACEMENT ANGLES, FIELD-CUT AND DRILL TO SUIT. [(1) KIT TOTAL]
4	HANDRAIL KIT COMPONENTS - BOTTOM FACE RAIL ▪ PIPE2.0STD X 14.0' HORIZ. RAIL, [(3) TOTAL]. ATTACH SFS-H-L KIT ANGLES TO NEW HORIZ. RAIL. ▪ PIPE2.0STD X ~4' LONG CORNER BRACE, [(3) TOTAL]. ATTACH TO NEW HORIZ. RAIL W/ (6) SITEPRO1 PART# PUCK BRACKETS. ▪ PIPE2.0STD x 8.0' MOUNT PIPES, [(9) TOTAL] W/ SITEPRO1 SCX**x**-K, [(9) TOTAL] CROSS-OVER PLATES. ATTACH ALL MOUNT PIPES TO EXISTING AND NEW HORIZ. RAILS. ▪ 1/2"Ø OR 5/8"Ø U-BOLTS, (18) TOTAL. ATTACH ALL MOUNT PIPES TO EXISTING BOTTOM RAIL W/ (2) U-BOLTS.
5	· PANEL ANTENNAS TO BE INSTALLED IN POSITIONS 1 AND 3 (AS CLOSE TO THE CENTER OF FACE NEAR EXISTING STANDOFF AS POSSIBLE. RRH UNITS TO BE INSTALLED ON DUAL SWIVEL BRACKETS BEHIND PANEL ANTENNAS IN POSITIONS 1 AND 3. · LOWER THE PANEL ANTENNA INSTALLATION CENTERLINE APPROXIMATELY 1.5'.
AUGMENTATIONS SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY NEW EQUIPMENT.	

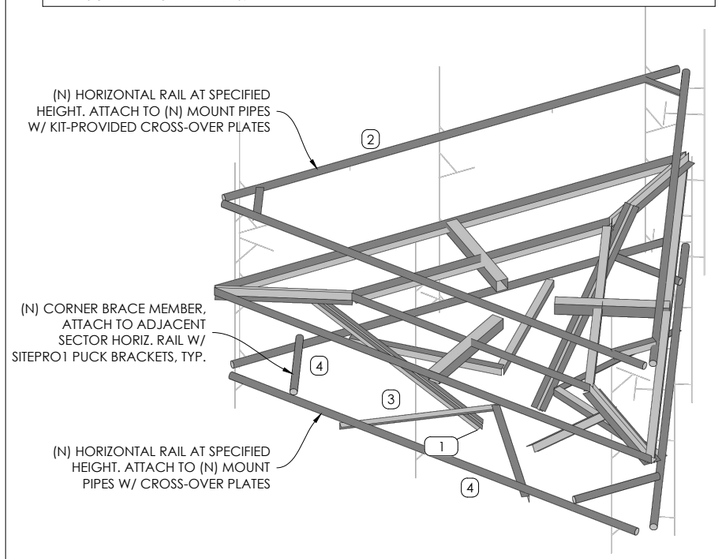
PLATFORM @ 157' AUGMENTATION



MOUNT AUGMENTATION ISOLATION
SCALE: N.T.S.

CONSTRUCTION NOTES

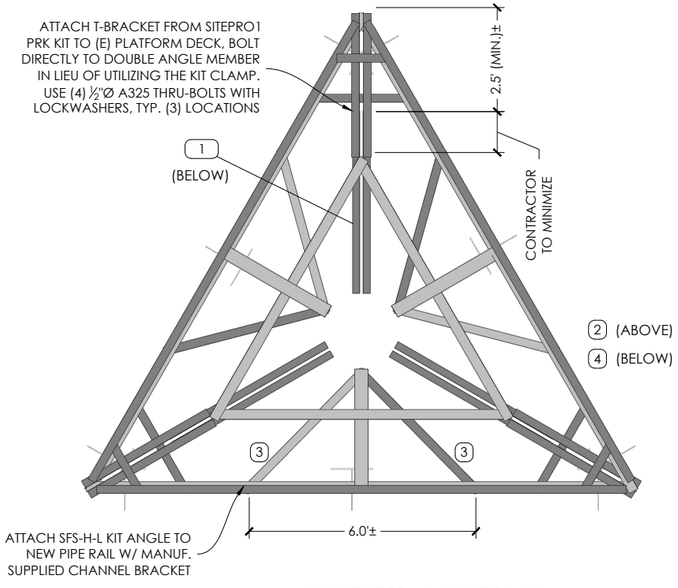
1. SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
2. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD-VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
3. CONTRACTOR TO COORDINATE THE TEMPORARY REMOVAL/RELOCATION/REPLACEMENT OF ELEMENTS (E.G. COAX, CLIPS, TMAs, ETC.) CONNECTED TO, OR IN THE DIRECT PATH, OF NEW AUGMENTATION MEMBERS.



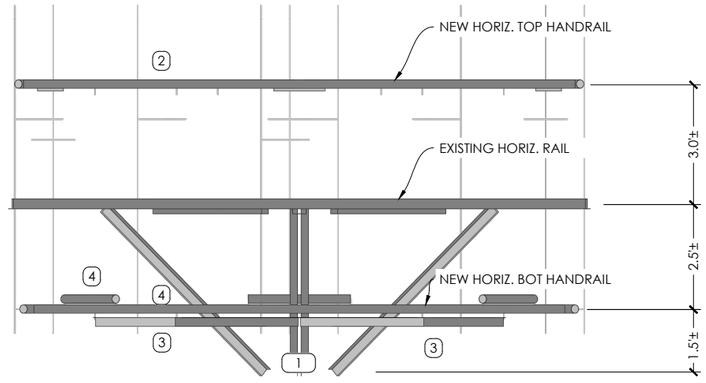
AUGMENTED MOUNT ISOMETRIC
SCALE: N.T.S.

INSTALLATION NOTES

1. AUGMENT MEMBER(S) MAY NEED TO BE FIELD-CUT TO LENGTH TO ACCOMMODATE THIS INSTALLATION. CONTRACTOR TO CUT AND DRILL TO SUIT AS REQUIRED AND APPLY (2) COATS OF COLD-GALV. COMPOUND TO CUT MEMBER ENDS.
2. CONTRACTOR TO CHECK ALL EXISTING MEMBER CONNECTION BOLTS, PARTICULARLY STANDOFF TO TOWER BOLTS, FOR PROPER INSTALLATION AND TIGHTNESS.
3. COORDINATE PLACEMENT OF NEW AUGMENT MEMBERS WITH EXISTING TOWER AND CLIMBING FACILITY ELEMENTS (E.G. STEP PEGS, COAX PORTS, ETC.)
4. REFER TO CONSTRUCTION DRAWINGS (BY OTHERS) AND MOUNT STRUCTURAL ANALYSIS FOR APPROVED INSTALLATION LOCATIONS AND QUANTITIES OF APPURTENANCES.



AUGMENTED MOUNT PLAN
SCALE: N.T.S.



AUGMENTED MOUNT FRONT ELEVATION
SCALE: N.T.S.

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AUGMENTATIONS, SECTIONS & DETAILS

SHEET NUMBER:

S3