1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application Recission
250 Derby Ave. – West Haven, CT 06516

September 11, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), received CT Siting Council approval for an exempt modification on March 19, 2018; EM-SPRINT- 156-180226. Sprint subsequently found the need to change proposed tower modification from that specified in the approved EM. Sprint, therefore, will not proceed with the EM approval received on that date and will instead resubmit for a new exempt modification with the revised equipment. Please advise if anything else is required to rescind the original approval, and clear the way for the subsequent resubmittal. Thank you.

If you have any questions, please feel free to contact me.
Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
250 Derby Ave. – West Haven, CT 06516

September 11, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 3 panel antennas at the 74'centerline level of the Tower and 8 tower mounted RRH. Sprint proposes to add 3 new panel antennas (1 per sector) and add 6 remote radio units (2 per sector) as well as 1 new hybrid cable, 30 hybrid jumper cables, new 2.5 radio equipment in existing radio cabinet and 4 new batteries in existing battery cabinet..

There are no records of the original zoning approval, but the original Building permit for this Sprint installation was issued by the Town of West Haven on 11/19/1999. The attached construction and structural documents enclosed reflect the current reality of all the installations on the Tower.

If you have any questions, please feel free to contact me.

Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

4 Davis Road West, Suite 5 – Old Lyme, CT 06371

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

Re: Notice of Exempt Modification Application
250 Derby Ave. West Haven, CT 06516, CT 06070

Lat: N 41.275461
Long: W72.960028

September 11, 2018

Dear Ms. Bachman:

Sprint currently maintains panel antennas at the 74' level of the above noted wireless tower. Sprint proposes to add 3 new panel antennas (1 per sector) and add 3 ground mounted remote radio units as well as 1 Hybrid cable, 30 hybrid jumper cables, add new 2.5 equipment to existing radio cabinet and add 4 batteries to existing batter cabinet. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

The initial Permit for the Sprint installation was issued by the town of West Haven on November 19, 1999.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Hon. Nancy R. Rossi, the Mayor for the Town of West Haven, as well as Ms. Cathy Conniff, the zoning enforcement officer for the town of West Haven and Mr. Bruce D. Alexander, VP for Yale University, the tower owner.
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the facility. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The West Haven facility is at 250 Derby Ave. and is owned by for Yale University, the Site coordinates are: N41.275461, W72.960028. The existing facility consists of a 76' Tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 panel antennas at a centerline of 74' feet on the tower.

Statutory Considerations

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Paul F. Sagristano

Paul F. Sagristano
Charles Cherundolo Consulting
917-841-0247
psagristano@lrivassoc.com

PFS/mtf

Additional Recipients:
Ms. Nancy R. Rossi - Mayor for the Town of West Haven via Fed Ex
Ms. Cathy Conniff, Zoning Enforcement Officer for the Town of West Haven via Fed Ex
Mr. Bruce D. Alexander, VP for Yale University, the tower owner via Fed Ex

September 11,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773175770056**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	P.PILLETERE	**Delivery location:**	355 MAIN ST WEST HAVEN, CT 06516
Service type:	FedEx Express Saver	**Delivery date:**	Sep 11, 2018 10:27
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	773175770056	**Ship date:**	Sep 10, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Hon. Nancy R. Rossi, Mayor
Town of West Haven
355 Main Street
WEST HAVEN, CT 06516 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT13XC264 - CSC EM Resub;

Thank you for choosing FedEx.

September 13,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 773175795760.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	R.RIVERA	**Delivery location:**	433 TEMPLE ST NEW HAVEN, CT 06511
Service type:	FedEx Express Saver	**Delivery date:**	Sep 13, 2018 11:11
Special Handling:	Deliver Weekday Direct Signature Required		

NO SIGNATURE IMAGE IS AVAILABLE VIA THIS TRACKING APPLICATION.
The proof of delivery details appear below; however, no signature image is available at this time.

Shipping Information:

Tracking number:	773175795760	**Ship date:**	Sep 10, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Bruce D. Alexander VP
Yale Office of NH & State Affairs
433 Temple Street
NEW HAVEN, CT 06511 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT13XC264 - CSC EM Resub

Thank you for choosing FedEx.

September 11,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773175731140**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	P.PILLETERE	**Delivery location:**	355 MAIN ST WEST HAVEN, CT 06516
Service type:	FedEx Express Saver	**Delivery date:**	Sep 11, 2018 10:27
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	773175731140	**Ship date:**	Sep 10, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Cathy Conniff, ZEO
Town of West Haven
355 Main Street
WEST HAVEN, CT 06516 US

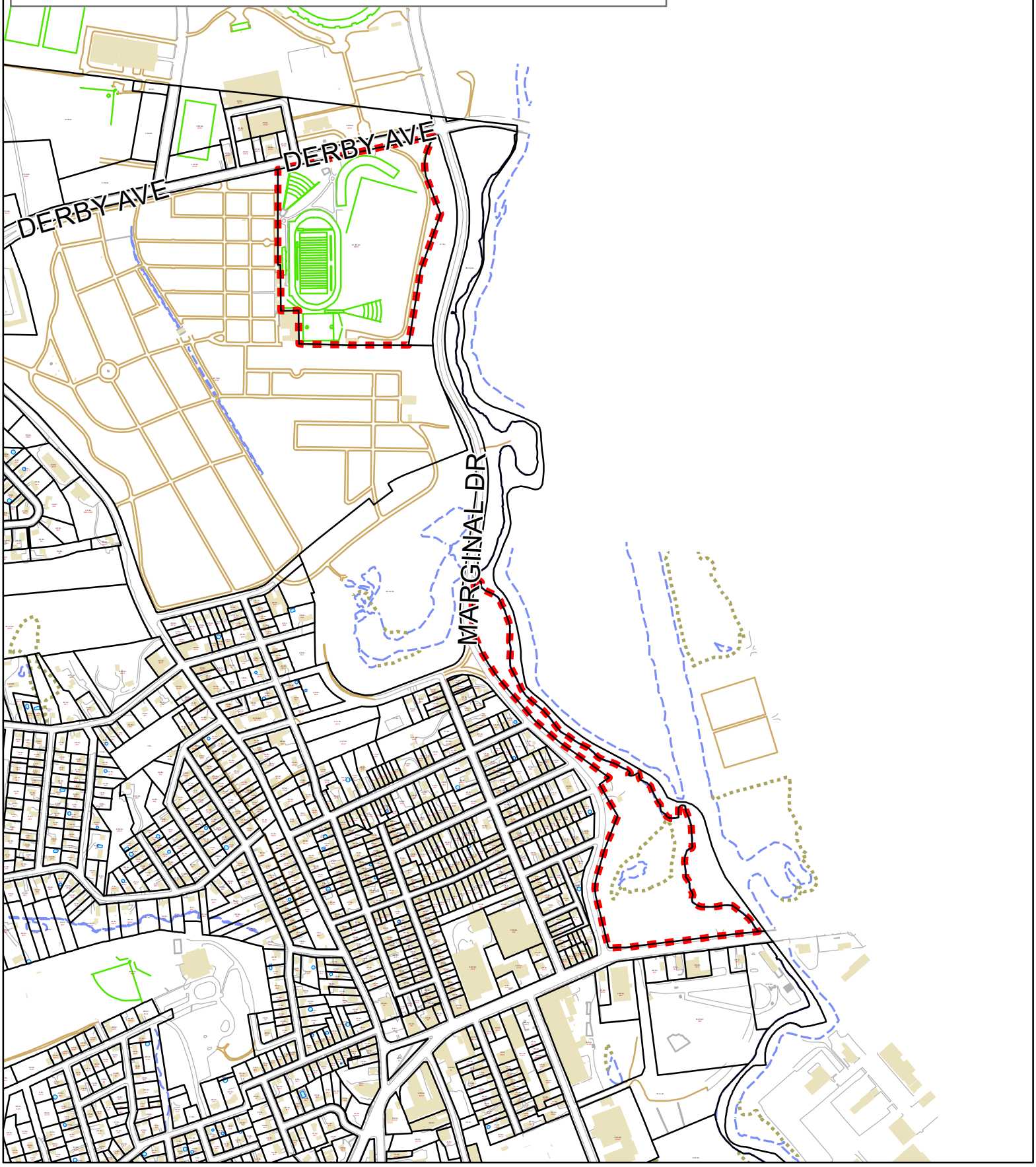
Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT13XC264 - CSC EM Resub;

Thank you for choosing FedEx.

City of West Haven, Connecticut - Assessment Parcel Map

Parcel: 073-0015-0-0000 Address: 250 DERBY AVE



N

Approximate Scale: 1 inch = 750 feet

0 225 450 900 1,350 1,800
Feet

Map Produced: January 2015

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

City of West Haven, CT
Property Listing Report

Parcel ID 073-0015-0-0000

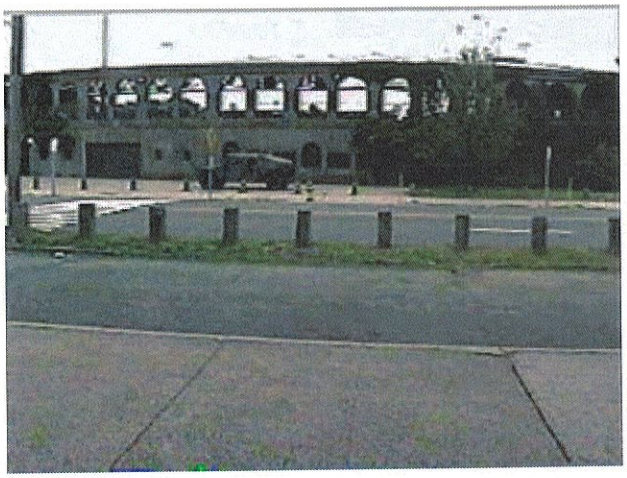
Account 00015574

Property Information

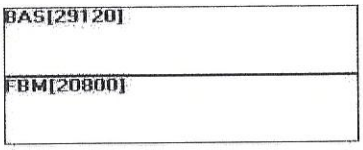
Owner	YALE UNIVERSITY
Co-Owner	FINANCIAL REPORTING & ANALYSIS
Address	250 DERBY AVE
Mailing Address	155 WHITNEY AVE NEW HAVEN, CT 06510
Land Use	3890 YALE TAXAB MDL-94
Land Class	C

Vision ID	17343
Census Tract	1541
Neighborhood	C700
Zoning Code	RB
Acreage	21.95
Utilities	Public Water,Public Sewer,Gas

Photo



Sketch



Primary Construction Details

Actual Year Built	1930
Effective Year Built	1963
Stories	1
Building Style	Auditorium
Building Use	Comm/Ind
Building Condition	Average
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Shed
Roof Cover	Asph/F Gls/Cmp

Exterior Walls	Brick/Masonry
Interior Walls	Drywall/Sheet
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	5803
Total Living Area	5541

Report Created On 2/15/2018

City of West Haven, CT
Property Listing Report

Parcel ID 073-0015-0-0000 Account 00015574

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

Item	Appraised	Assessed
Buildings	1975900	1383130
Outbuildings	549800	384860
Improvements	2535000	1774500
Extras	9300	6510
Land	4115600	2880920
Total	6650600	4655420

Outbuilding and Extra Items

Description	Units
W/FOUR LIGHTS	6 UNITS
W/LIGHTS ETC	600 S.F.
SITE	2 SITES
CELL SHED	200 S.F.
AIR COND	1500 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	29120	29120
Porch, Open, Finished	262	0
First Floor	5541	5541
Basement, Finished	20800	20800
Total Area	5803	

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
YALE UNIVERSITY			0
YALE UNIVERSITY			0

Report Created On 2/15/2018

12/19/99 .. 1/18/00 26
1/19/00 – 4/13/00 3

1300
4500

P.O.# 208216

BUILDING PERMIT

023101

THIS CARD MUST BE DISPLAYED ON THE PREMISES

250 Derby Ave.

For Sprint - Monopole Bldg.

Issued 11-19-99

BUILDING OFFICIAL

WEST HAVEN, CONNECTICUT

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: CT13XC264

New Haven Cap 3 / Yale University
250 Derby Avenue
West Haven, CT 06516

January 3, 2018

EBI Project Number: 6217006041

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	10.62 %

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

EBI Consulting
environmental | engineering | due diligence

January 3, 2018

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

Emissions Analysis for Site: **CT13XC264 – New Haven Cap 3 / Yale University**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **250 Derby Avenue, West Haven, 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 **250 Derby Avenue, West Haven, 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 20 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 **RFS APXVSPP18-C-A20 and the Commscope DT465B-2XR** 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 **74 feet** above ground level (AGL) for **Sector A**, **74 feet** above ground level (AGL) for **Sector B** and **74 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:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**74 feet**	Height (AGL):	**74 feet**	Height (AGL):	**74 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**6.64 %**	Antenna B1 MPE%	**6.64 %**	Antenna C1 MPE%	**6.64 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**74 feet**	Height (AGL):	**74 feet**	Height (AGL):	**74 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):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	**3.98 %**	Antenna B2 MPE%	**3.98 %**	Antenna C2 MPE%	**3.98 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**10.62 %**
No additional Carriers Located on this facility	NA
Site Total MPE %:	**10.62 %**

SPRINT Sector A Total:	10.62 %
SPRINT Sector B Total:	10.62 %
SPRINT Sector C Total:	10.62 %
Site Total:	10.62 %

SPRINT _ Frequency Band / Technology (All Sectors)	**# 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	437.55	74	3.40	850 MHz	567	0.60%
Sprint 850 MHz LTE	2	437.55	74	6.80	850 MHz	567	1.20%
Sprint 1900 MHz (PCS) CDMA	5	622.47	74	24.20	1900 MHz (PCS)	1000	2.42%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	74	24.20	1900 MHz (PCS)	1000	2.42%
Sprint 2500 MHz (BRS) LTE	8	639.78	74	39.79	2500 MHz (BRS)	1000	3.98%
						Total:	**10.62%**

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:	10.62 %
Sector B:	10.62 %
Sector C:	10.62 %
SPRINT Maximum Total (per sector):	10.62 %
Site Total:	10.62 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.62 %** 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.

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

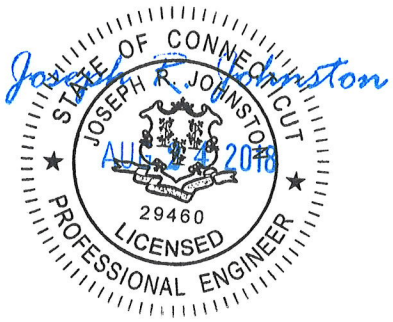
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Post Mod Mount Analysis Report

August 24, 2018

Cascade Name	CT13XC264
Site Name	New Haven Cap 3/ Yale University
Infinigy Job Number	526-102
Client	Cherundolo Consulting
Carrier	Sprint
Site Location	250 Derby Avenue West Haven, CT 06516 41° 18' 31.86" N NAD83 72° 57' 36.10" W NAD83
Mount Centerline EL.	74.0 ft
Mount Classification	Platform
Usage	**88.5%**
Overall	**Pass**
Note	**See mount modifications on appended documents.**

Upon reviewing the results of this analysis, it is our opinion that the post modification mount meets the specified TIA code requirements. The proposed mount is therefore deemed adequate to support the final loading configuration as listed in this report.



Brenden Archer
Structural Engineer I

Contents

Introduction

Infinigy Engineering has been requested to perform a post modification mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 16.0.5 analysis software.

Supporting Documentation

Tower Mapping	Infinigy Job #526-102, dated March 9, 2015
Construction Drawings	Infinigy Job #526-102, dated December 5, 2017
RFDS	Sprint RFDS ID #45787, dated April 6, 2017

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC / 2016 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the post modification mount meets the specified TIA code requirements. The proposed mount is therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Brenden Archer
Structural Engineer I | Infinigy
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790
barcher@infinigy.com | www.infinigy.com

DO Macro Final Configuration

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)(1)	Qty	Appurtenance	Carrier
74.0	74.0	0.0	0.0	3	RFS APXVSPP18-C-A20	Sprint
			0.0	3	Commscope DT465B-2XR	
			0.0	6	Alcatel Lucent 1900 MHz RRH	
			0.0	3	Alcatel Lucent 800 MHz 2x50W RRH	
			0.0	3	Alcatel Lucent TD-RRH8x20	
			0.0	3	Alcatel Lucent RRH 2x50-800	

(1)Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower.

Structure Usages

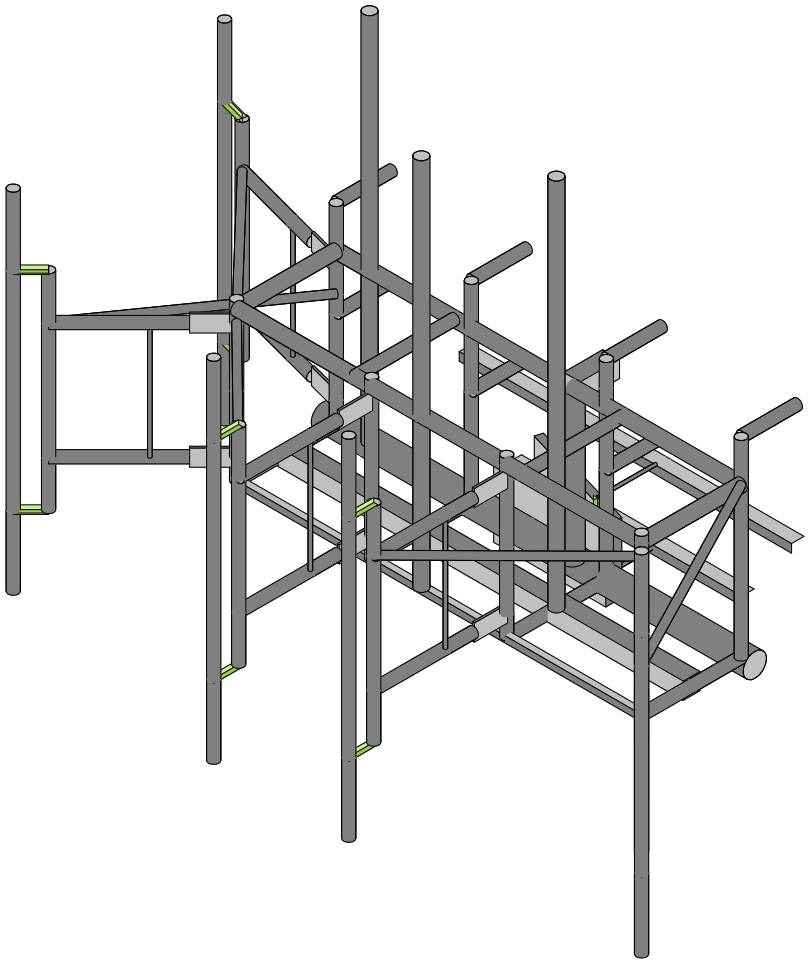
Horizontal	88.5%	Pass
Mount Pipe	29.8%	Pass
Results	**88.5%**	**Pass**

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.



Envelope Only Solution

Infinigy Engineering, PLLC	CT13XC264	Final Configuration
BDA		Aug 24, 2018 at 10:54 AM
526-102		Mod_CT13XC264.r3d

Site Name:	CT13XC264
Client:	Cherundolo
Carrier:	Sprint
Engineer:	BDA
Date:	8/24/2018

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the solutions are endless

INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

Adopted Building Code:	2012 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Platform
Number of Sectors:	3
Structure Shape 1:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	97	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	74.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	C	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
27.18	1.00	**32.62**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
7.22	1.00	**18.49**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
RFS APXVSPP18-C-A20	74.0	3	1.00	Flat	Flat	27.18	8.02	218.12	143.61	162.24	199.49
Alcatel Lucent 800 MHz 2x50W RRH	74.0	3	1.00	Flat	Flat	27.18	2.06	55.95	37.01	41.75	51.22
Alcatel Lucent 1900 MHz RRH	74.0	3	1.00	Flat	Flat	27.18	2.49	67.73	88.57	83.36	72.94
Commscope DT465-2XR	74.0	3	1.00	Flat	Flat	27.18	9.10	247.31	162.37	183.60	226.08
Alcatel Lucent TD-RRH8x20	74.0	3	1.00	Flat	Flat	27.18	3.70	100.69	35.17	51.55	84.31
Alcatel Lucent RRH2x50-800	74.0	3	1.00	Flat	Flat	27.18	1.71	46.53	35.79	38.47	43.84
Alcatel Lucent 1900 MHz RRH	74.0	3	1.00	Flat	Flat	27.18	2.49	67.73	88.57	83.36	72.94

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N6			Main Horizontal	Beam	Pipe	A53 GR B	Typical
2	M2	N18	N5			Custom Frame	Beam	Pipe	A53 GR B	Typical
3	M3	N5	N10			Custom Frame	Beam	Pipe	A53 GR B	Typical
4	M4	N10	N14			Custom Frame	Beam	Pipe	A53 GR B	Typical
5	M5	N17	N4			Custom Frame	Beam	Pipe	A53 GR B	Typical
6	M6	N4	N9			Custom Frame	Beam	Pipe	A53 GR B	Typical
7	M7	N9	N13			Custom Frame	Beam	Pipe	A53 GR B	Typical
8	M8	N16	N3			Custom Frame	Beam	Pipe	A53 GR B	Typical
9	M9	N3	N8			Custom Frame	Beam	Pipe	A53 GR B	Typical
10	M10	N8	N12			Custom Frame	Beam	Pipe	A53 GR B	Typical
11	M11	N15	N2			Custom Frame	Beam	Pipe	A53 GR B	Typical
12	M12	N2	N7			Custom Frame	Beam	Pipe	A53 GR B	Typical
13	M13	N7	N11			Custom Frame	Beam	Pipe	A53 GR B	Typical
14	M14	N15	N19			Custom Frame	Beam	Pipe	A53 GR B	Typical
15	M15	N16	N20			Custom Frame	Beam	Pipe	A53 GR B	Typical
16	M16	N17	N21			Custom Frame	Beam	Pipe	A53 GR B	Typical
17	M17	N18	N22			Custom Frame	Beam	Pipe	A53 GR B	Typical
18	M19	N36	N32			Custom Frame	Beam	Pipe	A53 GR B	Typical
19	M20	N37	N33			Custom Frame	Beam	Pipe	A53 GR B	Typical
20	M21	N38	N34			Custom Frame	Beam	Pipe	A53 GR B	Typical
21	M93	N10	N7		90	Catwalk	Beam	Single Angle	A36 Gr.36	Typical
22	M94	N148	N147			Plate 1	Beam	RECT	A36 Gr.36	Typical
23	M95	N152	N154			Plate 1	Beam	RECT	A36 Gr.36	Typical
24	M96	N149	N155			RIGID	None	None	RIGID	Typical
25	M97	N151	N157			RIGID	None	None	RIGID	Typical
26	M98	N146	N143			RIGID	None	None	RIGID	Typical
27	M99	N156A	N155A			RIGID	None	None	RIGID	Typical
28	M100	N162	N161			Threaded Rod 1	Beam	Pipe	A36 Gr.36	Typical
29	M101	N163	N160			Threaded Rod 1	Beam	Pipe	A36 Gr.36	Typical
30	M102	N163A	N162A		90	Lighting Support	Beam	Single Angle	A36 Gr.36	Typical
31	M103	N166	N165		90	Lighting Support	Beam	Single Angle	A36 Gr.36	Typical
32	M105	N163	N171			RIGID	None	None	RIGID	Typical
33	M106	N162	N170			RIGID	None	None	RIGID	Typical
34	M107	N169	N172			Threaded Rod 1	Beam	Pipe	A36 Gr.36	Typical
35	M108	N168	N173			Threaded Rod 1	Beam	Pipe	A36 Gr.36	Typical
36	M109	N173	N171			RIGID	None	None	RIGID	Typical
37	M110	N172	N170			RIGID	None	None	RIGID	Typical
38	M121	N222	N226			STD 2.5	Beam	Pipe	A53 GR B	Typical
39	M122	N226	N223			STD 2.5	Beam	Pipe	A53 GR B	Typical
40	M123	N223	N221			STD 2.5	Beam	Pipe	A53 GR B	Typical
41	M124	N221	N222			STD 2.5	Beam	Pipe	A53 GR B	Typical
42	M42	N77	N79			BPL	Beam	Pipe	A53 GR B	Typical
43	M43	N76	N78			BPL	Beam	Pipe	A53 GR B	Typical
44	M44	N79	N81			STD 2	Beam	Pipe	A53 GR B	Typical
45	M45	N78	N80			STD 2	Beam	Pipe	A53 GR B	Typical
46	M46	N83	N82			3/4 SR	Beam	Pipe	A36 Gr.36	Typical
47	M47	N85	N84			STD 2	Beam	Pipe	A53 GR B	Typical
48	M48	N84	N86			RIGID	None	None	RIGID	Typical
49	M49	N85	N87			RIGID	None	None	RIGID	Typical
50	MP2	N89	N88A			STD 2	Beam	Pipe	A53 GR B	Typical
51	M51	N91	N93			BPL	Beam	Pipe	A53 GR B	Typical
52	M52	N90	N92			BPL	Beam	Pipe	A53 GR B	Typical
53	M53	N93	N95			STD 2	Beam	Pipe	A53 GR B	Typical
54	M54	N92	N94			STD 2	Beam	Pipe	A53 GR B	Typical
55	M55	N97	N96			3/4 SR	Beam	Pipe	A36 Gr.36	Typical
56	M56	N99	N98			STD 2	Beam	Pipe	A53 GR B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
57	M57	N98	N100			RIGID	None	None	RIGID	Typical
58	M58	N99	N101			RIGID	None	None	RIGID	Typical
59	MP3	N103	N102			STD 2	Beam	Pipe	A53 GR B	Typical
60	M60	N105	N107			BPL	Beam	Pipe	A53 GR B	Typical
61	M61	N104	N106			BPL	Beam	Pipe	A53 GR B	Typical
62	M62	N107	N109			STD 2	Beam	Pipe	A53 GR B	Typical
63	M63	N106	N108			STD 2	Beam	Pipe	A53 GR B	Typical
64	M64	N111	N110			3/4 SR	Beam	Pipe	A36 Gr.36	Typical
65	M65	N113	N112			STD 2	Beam	Pipe	A53 GR B	Typical
66	M66	N112	N114			RIGID	None	None	RIGID	Typical
67	M67	N113	N115			RIGID	None	None	RIGID	Typical
68	MP4	N117	N116			STD 2	Beam	Pipe	A53 GR B	Typical
69	M69	N119	N121			BPL	Beam	Pipe	A53 GR B	Typical
70	M70	N118	N120			BPL	Beam	Pipe	A53 GR B	Typical
71	M71	N121	N123			STD 2	Beam	Pipe	A53 GR B	Typical
72	M72	N120	N122			STD 2	Beam	Pipe	A53 GR B	Typical
73	M73	N125	N124			3/4 SR	Beam	Pipe	A36 Gr.36	Typical
74	M74	N127	N126			STD 2	Beam	Pipe	A53 GR B	Typical
75	M75	N126	N128			RIGID	None	None	RIGID	Typical
76	M76	N127	N129			RIGID	None	None	RIGID	Typical
77	MP5	N131	N130			STD 2	Beam	Pipe	A53 GR B	Typical
78	M78	N133	N135			BPL	Beam	Pipe	A53 GR B	Typical
79	M79	N132	N134			BPL	Beam	Pipe	A53 GR B	Typical
80	M80	N135	N137			STD 2	Beam	Pipe	A53 GR B	Typical
81	M81	N134	N136			STD 2	Beam	Pipe	A53 GR B	Typical
82	M82	N139	N138			3/4 SR	Beam	Pipe	A36 Gr.36	Typical
83	M83	N141	N140			STD 2	Beam	Pipe	A53 GR B	Typical
84	M84	N140	N142			RIGID	None	None	RIGID	Typical
85	M85	N141	N143A			RIGID	None	None	RIGID	Typical
86	MP1	N145	N144			STD 2	Beam	Pipe	A53 GR B	Typical
87	M87	N80	N146A			Tie Back	Beam	Pipe	A53 GR B	Typical
88	M88	N136	N76			Tie Back	Beam	Pipe	A53 GR B	Typical
89	M89	N94	N76			Tie Back	Beam	Pipe	A53 GR B	Typical
90	M90	N108	N118			Tie Back	Beam	Pipe	A53 GR B	Typical
91	M91	N122	N222			Tie Back	Beam	Pipe	A53 GR B	Typical
92	MP8	N147A	N148A			STD 2.5	Beam	Pipe	A53 GR B	Typical
93	MP7	N149A	N151A			STD 2.5	Beam	Pipe	A53 GR B	Typical
94	MP6	N152A	N154A			STD 2.5	Beam	Pipe	A53 GR B	Typical
95	M95A	N157B	N157C			Reinforcement	Beam	Tube	A500 Gr.46	Typical
96	M96A	N158	N159			Reinforcement	Beam	Tube	A500 Gr.46	Typical
97	M99A	N212	N157B			4" Pipe	Beam	Pipe	A53 GR B	Typical
98	M100B	N162C	N163B			STD 2	Beam	Pipe	A53 GR B	Typical
99	M101B	N164	N165A			STD 2	Beam	Pipe	A53 GR B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		18	112.7	0
3	Total General		18	112.7	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	17x 1 3/4	2	55.2	465.6
7	A36 Gr.36	3/4" Solid	5	140	17.5
8	A36 Gr.36	5/8	4	48	4.2
9	A36 Gr.36	L3x2x3	2	136	35.4

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[LB]
10	A36 Gr.36	L1 1/2x1 1/2x3/16"	1	97.5	14.6
11	A500 Gr.46	HSS4x4x4	2	106.9	102.2
12	A53 GR B	PIPE_1.25	5	240	42.5
13	A53 GR B	PIPE_2.0	41	1484.5	429.4
14	A53 GR B	PIPE_2.5	7	513	234.2
15	A53 GR B	PIPE_4.0	1	36	30.2
16	A53 GR B	PIPE_5.0	1	104	118.3
17	A53 GR B	PL1/2"x4"	10	80	113.4
18	Total HR Steel		81	3041.1	1607.5

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL		-1			27			
2	Wind Load AZI 000	WLZ					27		1	
3	Wind Load AZI 090	WLX					27		1	
4	Ice Weight	OL1					27	99		
5	Wind + Ice Load AZI 000	OL2					27		1	
6	Wind + Ice Load AZI 090	OL3					27		1	
7	Service Live 1	LL							1	
8	Seismic Load AZI 000	ELZ								
9	Seismic Load AZI 090	ELX								
10	BLC 2 Transient Area Loads	None						63		
11	BLC 3 Transient Area Loads	None						89		
12	BLC 5 Transient Area Loads	None						63		
13	BLC 6 Transient Area Loads	None						89		
14	BLC 7 Transient Area Loads	None						7		

Load Combinations

	Description	S...P...	S..	B...	Fa...	BLC	Fac...	BLC	Fa...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...
1	1.4D	Y... Y		DL	1.4																				
2	1.2D + 1.6W AZI 000	Y... Y		DL	1.2	WLZ	1.6																		
3	1.2D + 1.6W AZI 030	Y... Y		DL	1.2	WLZ	1.3...	W...	.8																
4	1.2D + 1.6W AZI 060	Y... Y		DL	1.2	WLZ	.8	W...	1.3...																
5	1.2D + 1.6W AZI 090	Y... Y		DL	1.2			W...	1.6																
6	1.2D + 1.6W AZI 120	Y... Y		DL	1.2	WLZ	-.8	W...	1.3...																
7	1.2D + 1.6W AZI 150	Y... Y		DL	1.2	WLZ	-1.3...	W...	.8																
8	1.2D + 1.6W AZI 180	Y... Y		DL	1.2	WLZ	-1.6																		
9	1.2D + 1.6W AZI 210	Y... Y		DL	1.2	WLZ	-1.3...	W...	-.8																
10	1.2D + 1.6W AZI 240	Y... Y		DL	1.2	WLZ	-.8	W...	-1....																
11	1.2D + 1.6W AZI 270	Y... Y		DL	1.2			W...	-1.6																
12	1.2D + 1.6W AZI 300	Y... Y		DL	1.2	WLZ	.8	W...	-1....																
13	1.2D + 1.6W AZI 330	Y... Y		DL	1.2	WLZ	1.3...	W...	-.8																
14	0.9D + 1.6W AZI 000	Y... Y		DL	.9	WLZ	1.6																		
15	0.9D + 1.6W AZI 030	Y... Y		DL	.9	WLZ	1.3...	W...	.8																
16	0.9D + 1.6W AZI 060	Y... Y		DL	.9	WLZ	.8	W...	1.3...																
17	0.9D + 1.6W AZI 090	Y... Y		DL	.9			W...	1.6																
18	0.9D + 1.6W AZI 120	Y... Y		DL	.9	WLZ	-.8	W...	1.3...																
19	0.9D + 1.6W AZI 150	Y... Y		DL	.9	WLZ	-1.3...	W...	.8																
20	0.9D + 1.6W AZI 180	Y... Y		DL	.9	WLZ	-1.6																		
21	0.9D + 1.6W AZI 210	Y... Y		DL	.9	WLZ	-1.3...	W...	-.8																
22	0.9D + 1.6W AZI 240	Y... Y		DL	.9	WLZ	-.8	W...	-1....																
23	0.9D + 1.6W AZI 270	Y... Y		DL	.9			W...	-1.6																
24	0.9D + 1.6W AZI 300	Y... Y		DL	.9	WLZ	.8	W...	-1....																
25	0.9D + 1.6W AZI 330	Y... Y		DL	.9	WLZ	1.3...	W...	-.8																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	BLC	Fac...	BLC	Fa...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...	B...	F...
26	1.2D + 1.0Di	Y...	Y		DL	1.2	OL1	1																		
27	1.2D + 1.0Di + 1.0Wi AZI 000	Y...	Y		DL	1.2	OL1	1	OL2	1																
28	1.2D + 1.0Di + 1.0Wi AZI 030	Y...	Y		DL	1.2	OL1	1	OL2	.866	...	.5														
29	1.2D + 1.0Di + 1.0Wi AZI 060	Y...	Y		DL	1.2	OL1	1	OL2	.5	...	.8...														
30	1.2D + 1.0Di + 1.0Wi AZI 090	Y...	Y		DL	1.2	OL1	1			...	1														
31	1.2D + 1.0Di + 1.0Wi AZI 120	Y...	Y		DL	1.2	OL1	1	OL2	-.5	...	.8...														
32	1.2D + 1.0Di + 1.0Wi AZI 150	Y...	Y		DL	1.2	OL1	1	OL2	-.866	...	.5														
33	1.2D + 1.0Di + 1.0Wi AZI 180	Y...	Y		DL	1.2	OL1	1	OL2	-1																
34	1.2D + 1.0Di + 1.0Wi AZI 210	Y...	Y		DL	1.2	OL1	1	OL2	-.866	...	-.5														
35	1.2D + 1.0Di + 1.0Wi AZI 240	Y...	Y		DL	1.2	OL1	1	OL2	-.5	...	-....														
36	1.2D + 1.0Di + 1.0Wi AZI 270	Y...	Y		DL	1.2	OL1	1			...	-1														
37	1.2D + 1.0Di + 1.0Wi AZI 300	Y...	Y		DL	1.2	OL1	1	OL2	.5	...	-....														
38	1.2D + 1.0Di + 1.0Wi AZI 330	Y...	Y		DL	1.2	OL1	1	OL2	.866	...	-.5														
39	1.2D + 1.5L + 1.0WL (30 mph) AZI 000	Y...	Y		DL	1.2	LL	1.5	WLZ	.096																
40	1.2D + 1.5L + 1.0WL (30 mph) AZI 030	Y...	Y		DL	1.2	LL	1.5	WLZ	.083	...	.0...														
41	1.2D + 1.5L + 1.0WL (30 mph) AZI 060	Y...	Y		DL	1.2	LL	1.5	WLZ	.048	...	.0...														
42	1.2D + 1.5L + 1.0WL (30 mph) AZI 090	Y...	Y		DL	1.2	LL	1.5			...	.0...														
43	1.2D + 1.5L + 1.0WL (30 mph) AZI 120	Y...	Y		DL	1.2	LL	1.5	WLZ	-.048	...	.0...														
44	1.2D + 1.5L + 1.0WL (30 mph) AZI 150	Y...	Y		DL	1.2	LL	1.5	WLZ	-.083	...	.0...														
45	1.2D + 1.5L + 1.0WL (30 mph) AZI 180	Y...	Y		DL	1.2	LL	1.5	WLZ	-.096																
46	1.2D + 1.5L + 1.0WL (30 mph) AZI 210	Y...	Y		DL	1.2	LL	1.5	WLZ	-.083	...	-....														
47	1.2D + 1.5L + 1.0WL (30 mph) AZI 240	Y...	Y		DL	1.2	LL	1.5	WLZ	-.048	...	-....														
48	1.2D + 1.5L + 1.0WL (30 mph) AZI 270	Y...	Y		DL	1.2	LL	1.5			...	-....														
49	1.2D + 1.5L + 1.0WL (30 mph) AZI 300	Y...	Y		DL	1.2	LL	1.5	WLZ	.048	...	-....														
50	1.2D + 1.5L + 1.0WL (30 mph) AZI 330	Y...	Y		DL	1.2	LL	1.5	WLZ	.083	...	-....														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N157A	max	1305.683	17	2250.521	28	6377.393	27	-163.146	16	6583.883	17	284.487	15
2		min	-1832.465	11	-132.024	21	-1550.188	20	-2212.22	35	-9033.638	11	-5089.887	34
3	N157C	max	3904.035	5	6376.49	34	1385.566	14	-214.194	16	9139.009	4	740.461	16
4		min	-3372.687	23	819.797	15	-6295.283	33	-4188.327	35	-8977.977	22	-774.722	10
5	Totals:	max	5131.954	5	8137.336	34	5872.859	2						
6		min	-5131.953	23	2479.882	15	-5872.856	20						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Che...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*P...	phi*M...	phi*M...	...	Eqn
1	M124	PIPE_2.5	.885	55.859	9	.538	65		32	29547.045	50715	3596....	3596....	...	H1-1b
2	M6	PIPE_2.0	.860	0	34	.255	12		4	31967.65	32130	1871....	1871....	...	H1-1b
3	M101B	PIPE_2.0	.815	24	10	.161	24		10	30625.434	32130	1871....	1871....	...	H1-1b
4	M95A	HSS4x4x4	.711	9.438	10	.184	9.438	y	35	139157.317	139518	16180...	16180...	...	H1-1b
5	M9	PIPE_2.0	.666	0	33	.215	12		11	31967.65	32130	1871....	1871....	...	H1-1b
6	M100B	PIPE_2.0	.631	24	6	.134	24		31	30625.434	32130	1871....	1871....	...	H1-1b
7	M101	5/8	.481	0	33	.085	0		33	8022.87	9940....	103.5...	103.5...	...	H1-1b
8	M93	L1 1/2x1...	.474	65	4	.042	65	y	29	15645.19	17085...	292.8...	666.61	...	H2-1
9	M7	PIPE_2.0	.447	32.854	32	.217	35.625		32	31609.91	32130	1871....	1871....	...	H1-1b
10	M100	5/8	.433	0	35	.086	0		27	6501.621	9940....	103.5...	103.5...	...	H1-1b
11	M3	PIPE_2.0	.433	0	37	.186	12		4	31485.507	32130	1871....	1871....	...	H1-1b
12	M122	PIPE_2.5	.416	29.453	6	.332	29.453		32	29547.045	50715	3596....	3596....	...	H1-1b
13	M4	PIPE_2.0	.401	32.854	35	.351	35.625		12	28490.161	32130	1871....	1871....	...	H1-1b
14	M91	PIPE_1....	.387	0	24	.081	0		7	12322.564	19687...	800.6...	800.6...	...	H1-1a
15	M108	5/8	.344	9.969	34	.063	9.969		32	8022.87	9940....	103.5...	103.5...	...	H1-1b
16	M72	PIPE_2.0	.343	24	12	.178	6.75		12	30625.434	32130	1871....	1871....	...	H1-1b
17	M13	PIPE_2.0	.336	32.854	35	.279	0		10	28490.161	32130	1871....	1871....	...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Che...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*P...	phi*M...	phi*M...	...	Eqn
18	M11	PIPE_2.0	.334	46	4	.199	46		10	32074.664	32130	1871....	1871....	1	H1-1b
19	M10	PIPE_2.0	.328	0	36	.149	33.25		5	28490.161	32130	1871....	1871....	...	H1-1b
20	M1	PIPE_5.0	.327	48.75	29	.229	48.75		33	108152.534	126315	17928...	17928...	....	H1-1b
21	M12	PIPE_2.0	.326	0	28	.147	12		12	31967.65	32130	1871....	1871....	...	H1-1b
22	M74	PIPE_2.0	.319	11.458	28	.240	38.542		12	26092.12	32130	1871....	1871....	...	H1-1b
23	M107	5/8	.315	14.031	35	.058	14.031		27	6501.602	9940....	103.5...	103.5...	...	H1-1b
24	M71	PIPE_2.0	.304	24	36	.271	6.75		6	30625.434	32130	1871....	1871....	...	H1-1b
25	MP8	PIPE_2.5	.298	0	11	.025	0		11	32005.271	50715	3596....	3596....	...	H1-1b
26	M99A	PIPE_4.0	.287	0	33	.288	36		10	90593.962	93240	10631...	10631...	....	H1-1b
27	M69	PL1/2"x4"	.286	0	12	.738	0	y	6	134550.838	157500	1640....	32812...	....	H1-1b
28	MP6	PIPE_2.5	.278	0	30	.097	0		10	32005.271	50715	3596....	3596....	...	H1-1b
29	M95	17x 1 3/4	.267	25.846	4	.146	21.147	y	35	818105.702	963900	35142...	34138...	....	H1-1b
30	M121	PIPE_2.5	.266	24	34	.068	0		34	49081.775	50715	3596....	3596....	...	H1-1b
31	M94	17x 1 3/4	.262	24.75	4	.070	24.75	y	34	829322.636	963900	35142...	34138...	....	H1-1b
32	M8	PIPE_2.0	.257	10.063	29	.142	23		34	26939.84	32130	1871....	1871....	...	H1-1b
33	M65	PIPE_2.0	.255	38.542	33	.107	38.542		11	26092.12	32130	1871....	1871....	...	H1-1b
34	M62	PIPE_2.0	.251	24	33	.123	6.75		5	30625.434	32130	1871....	1871....	...	H1-1b
35	M63	PIPE_2.0	.248	24	37	.069	6.75		11	30625.434	32130	1871....	1871....	...	H1-1b
36	M47	PIPE_2.0	.246	38.542	34	.145	38.542		10	26092.12	32130	1871....	1871....	...	H1-1b
37	M45	PIPE_2.0	.238	24	10	.084	6.75		10	30625.434	32130	1871....	1871....	...	H1-1b
38	M44	PIPE_2.0	.237	24	34	.181	6.75		10	30625.434	32130	1871....	1871....	...	H1-1b
39	M2	PIPE_2.0	.237	10.063	11	.113	10.063		5	26939.84	32130	1871....	1871....	...	H1-1b
40	M5	PIPE_2.0	.218	10.063	34	.126	10.063		33	26939.84	32130	1871....	1871....	...	H1-1b
41	M42	PL1/2"x4"	.209	0	10	.433	0	y	10	134550.838	157500	1640....	32812...	....	H1-1b
42	M123	PIPE_2.5	.208	0	6	.065	24		8	49081.775	50715	3596....	3596....	...	H1-1b
43	M73	3/4" Solid	.183	0	29	.116	0		12	4610.455	14320...	184.32	184.32	...	H1-1b
44	M96A	HSS4x4x4	.176	65	11	.056	65	z	10	105838.23	139518	16180...	16180...	....	H1-1b
45	MP5	PIPE_2.0	.167	16.625	11	.098	66.5		12	17855.085	32130	1871....	1871....	...	H1-1b
46	M64	3/4" Solid	.163	0	28	.049	0		11	4610.455	14320...	184.32	184.32	...	H1-1b
47	M87	PIPE_1....	.160	0	16	.047	52.174		9	12264.857	19687...	800.6...	800.6...	....	H1-1b
48	M56	PIPE_2.0	.158	11.458	38	.075	39.063		11	26092.12	32130	1871....	1871....	...	H1-1b
49	M54	PIPE_2.0	.156	24	38	.043	6.75		6	30625.434	32130	1871....	1871....	...	H1-1b
50	M53	PIPE_2.0	.156	24	34	.088	6.75		11	30625.434	32130	1871....	1871....	...	H1-1b
51	M88	PIPE_1....	.153	0	7	.050	0		7	13911.365	19687...	800.6...	800.6...	...	H1-1b
52	M46	3/4" Solid	.152	0	36	.067	0		10	4610.455	14320...	184.32	184.32	...	H1-1b
53	M83	PIPE_2.0	.150	38.542	7	.104	39.063		13	26092.12	32130	1871....	1871....	...	H1-1b
54	M81	PIPE_2.0	.143	24	33	.072	0		6	30625.434	32130	1871....	1871....	...	H1-1b
55	M80	PIPE_2.0	.142	24	29	.112	6.75		13	30625.434	32130	1871....	1871....	...	H1-1b
56	M90	PIPE_1....	.140	0	11	.045	0		35	13712.775	19687...	800.6...	800.6...	...	H1-1b
57	M60	PL1/2"x4"	.133	0	5	.330	0	y	11	134550.838	157500	1640....	32812...	....	H1-1b
58	M89	PIPE_1....	.121	45.61	5	.039	0		33	13712.775	19687...	800.6...	800.6...	...	H1-1b
59	MP2	PIPE_2.0	.106	66.5	10	.048	66.5		10	17855.085	32130	1871....	1871....	...	H1-1b
60	M55	3/4" Solid	.106	28	34	.035	0		11	4610.455	14320...	184.32	184.32	...	H1-1b
61	M78	PL1/2"x4"	.101	0	3	.318	0	y	13	134550.838	157500	1640....	32812...	....	H1-1b
62	MP4	PIPE_2.0	.100	67.375	8	.034	17.5		11	17855.085	32130	1871....	1871....	...	H1-1b
63	MP7	PIPE_2.5	.099	35.625	34	.039	0		6	32005.271	50715	3596....	3596....	...	H1-1b
64	M102	L3x2x3	.097	46.667	38	.014	46.667	z	28	6125.023	29710...	640.3...	1683....	...	H2-1
65	M51	PL1/2"x4"	.097	0	11	.236	0	y	11	134550.838	157500	1640....	32812...	....	H1-1b
66	MP1	PIPE_2.0	.095	66.5	7	.033	66.5		2	17855.085	32130	1871....	1871....	...	H1-1b
67	M82	3/4" Solid	.094	28	29	.045	0		2	4610.455	14320...	184.32	184.32	...	H1-1b
68	MP3	PIPE_2.0	.089	67.375	8	.025	17.5		11	17855.085	32130	1871....	1871....	...	H1-1b
69	M70	PL1/2"x4"	.077	8	12	.423	0	y	13	134550.838	157500	1640....	32812...	....	H1-1b
70	M61	PL1/2"x4"	.074	0	32	.156	0	y	11	134550.838	157500	1640....	32812...	....	H1-1b
71	M43	PL1/2"x4"	.052	8	4	.192	0	y	3	134550.838	157500	1640....	32812...	....	H1-1b
72	M52	PL1/2"x4"	.045	8	10	.095	0	y	5	134550.838	157500	1640....	32812...	....	H1-1b
73	M103	L3x2x3	.042	34.417	27	.010	34.417	z	28	12226.501	29710...	640.3...	1828....	...	H2-1
74	M79	PL1/2"x4"	.041	0	7	.188	0	y	6	134550.838	157500	1640....	32812...	....	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Che...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*P...	phi*M...	phi*M...	...	Eqn
75	M21	PIPE_2.0	.004	13.5	30	.001	13.5		30	31646.12	32130	1871....	1871....	...	H1-1b
76	M19	PIPE_2.0	.004	13.5	30	.001	13.5		30	31646.12	32130	1871....	1871....	...	H1-1b
77	M20	PIPE_2.0	.004	13.5	30	.001	13.5		30	31646.12	32130	1871....	1871....	...	H1-1b
78	M16	PIPE_2.0	.004	0	36	.001	0		30	31646.12	32130	1871....	1871....	...	H1-1b
79	M15	PIPE_2.0	.004	0	30	.001	0		30	31646.12	32130	1871....	1871....	...	H1-1b
80	M14	PIPE_2.0	.004	0	30	.001	0		30	31646.12	32130	1871....	1871....	...	H1-1b
81	M17	PIPE_2.0	.004	0	36	.001	0		36	31646.12	32130	1871....	1871....	...	H1-1b

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA-222 STANDARD, AWWA-D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA-1019-A-2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325-X. Fu=120 KSI, U.N.O.
   - U-BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT-TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE - HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE - HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE - RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"-20 LOW CARBON STEEL COPPER-FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE		
SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8-16 UNC	8 FT-LBS	4 FT-LBS
1/2-13 UNC	18 FT-LBS	8 FT-LBS
5/8-11 UNC	35 FT-LBS	16 FT-LBS
3/4-10 UNC	50 FT-LBS	24 FT-LBS
1-8 UNC	110 FT-LBS	50 FT-LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER		
	RANGE	RECOMMENDED
EDGE DISTANCE - CL* BOLT TO END	2.0-4.0	3.0
EDGE DISTANCE - CL* BOLT TO SIDE	1.5-3.5	2.5
BOLT PITCH - CL* TO CL*	4.0-5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F-1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

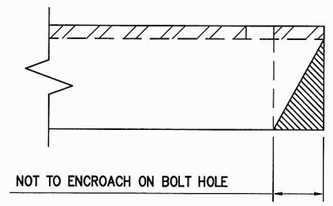
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



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Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
LICENSED
PROFESSIONAL ENGINEER

Joseph Johnston
AUG 29 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR REVIEW	08/24/17	JRJ	0

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

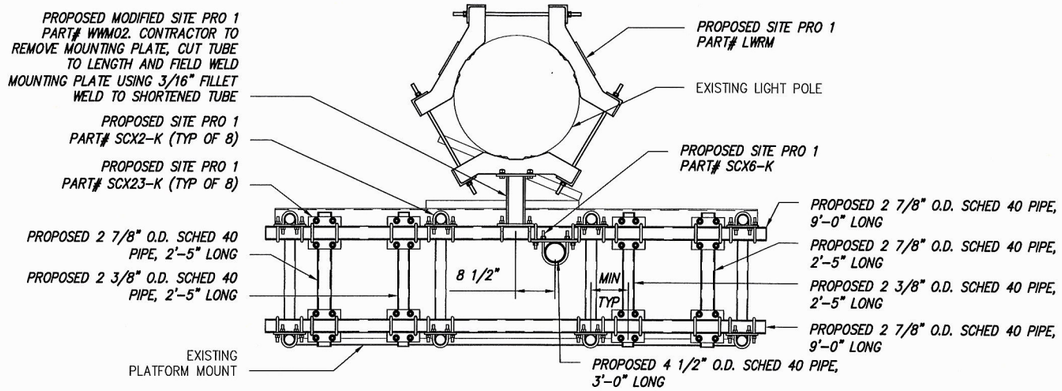
250 DERBY AVE
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

GENERAL NOTES

SHEET NUMBER:

S-1



3 -- SECTION B-B

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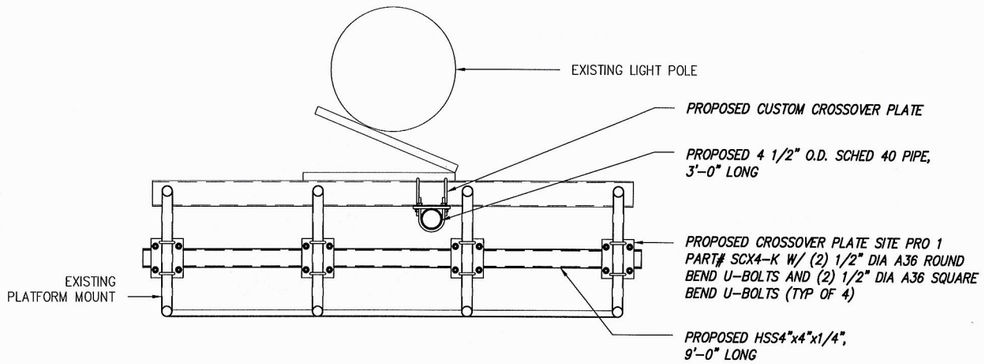

2 -- SECTION A-A

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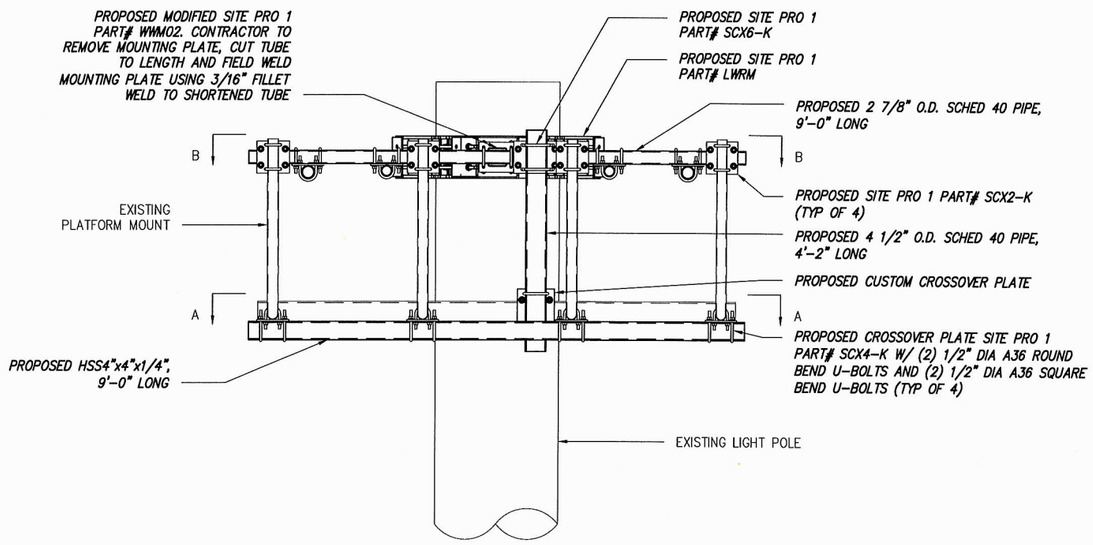
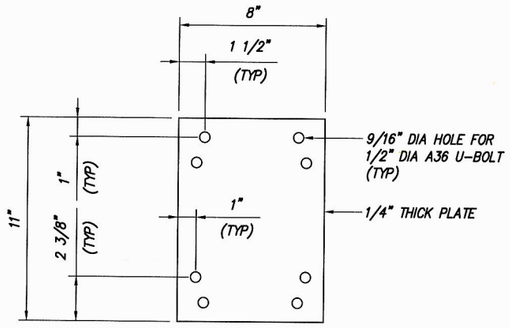


1 -- ELEVATION VIEW

SCALE: NOT TO SCALE



5 -- DETAIL

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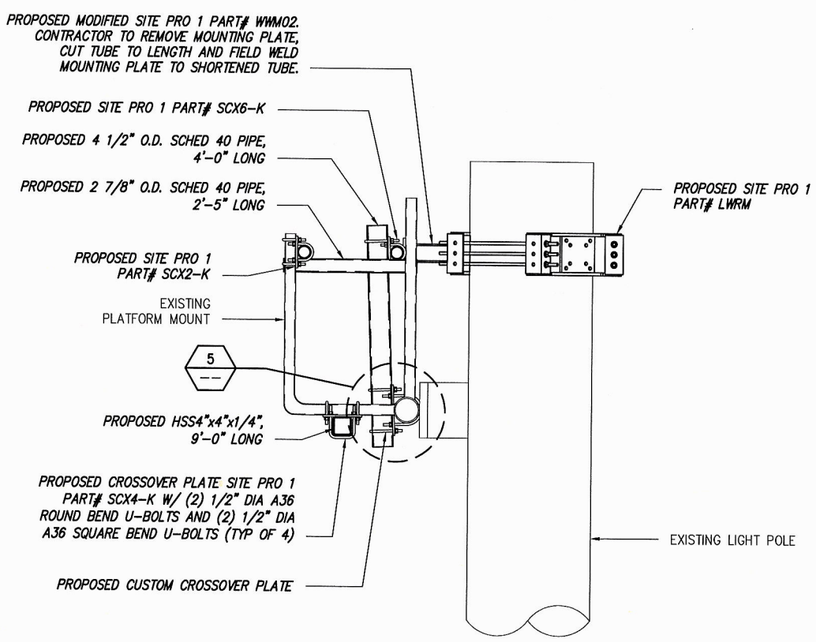

4 -- SIDE VIEW

SCALE: NOT TO SCALE

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
29460
LICENSED
PROFESSIONAL ENGINEER

Joseph Johnston
AUG 24 2018

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NEW HAVEN CAP 3 / YALE UNIVERSITY

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CT13XC264

SITE ADDRESS:

250 DERBY AVE
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

MOUNT DESIGN

SHEET NUMBER:

S-2

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

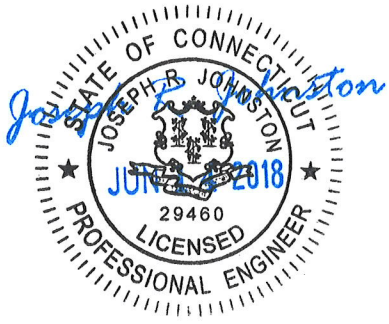
Post Modification Report

June 14, 2018

Site Name	CT13XC264
Infinigy Job Number	526-102
Client	Cherundolo Consulting
Proposed Carrier	Sprint
Site Location	250 Derby Ave. West Haven, CT 06156 41° 18' 31.86" N NAD83 72° 57' 36.10" W NAD83
Structure Type	76' Monopole
Structural Usage Ratio	**88.5%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the modified structure meets the specified TIA code requirements with the modifications listed below installed. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

- Considered the installation of 4"x1" Flat Plate from 0.0'-65.0'



Nathaniel R. Ober, E.I.T.
Northeast Structural Region Lead

Contents

Introduction

Infinigy Engineering has been requested to perform a post modification structural analysis on the existing 76' Monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. Proposed modifications have been designed by Infinigy Engineering as listed in this report. The tower was analyzed using tnxTower version 8.0.2.1 tower analysis software.

Supporting Documentation

Antenna Loading	Sprint RFDS ID:45787, dated April 22, 2017
Previous Analysis	Infinigy Engineering Job #333-000, dated May 22, 2015
Previous Analysis	PJF Project No. 48313-0005, dated October 3, 2013
Site Photos	Infinigy Site Walk, dated May 15, 2017

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, Vasd)/125 mph (3-Second Gust, Vult)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC/2016 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the modified structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.
Northeast Structural Region Lead | Infinigy
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(O) (518) 690-0790 | (M) (303) 704-0322
nober@infinigy.com | www.infinigy.com

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
74.0	3	RFS APXVSPP18-C-A20	Side Arm	Sprint
	3	800 MHz 2x50W RRH		
	6	1900 MHz RRH		
73.0	4	24” Stadium Lights	Platform	
70.0	3	24” Stadium Lights		
35.0	1	GPS	Side Arm	

To Be Removed Loading

No loading is to be removed.

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
74.0	3	Commscope DT465B-2XR	Side Arm	Sprint
	3	Alcatel Lucent TD-RRH8x20		
	3	Alcatel Lucent RRH2x50-800		

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
74.0	3	RFS APXVSPP18-C-A20	Side Arm	Sprint
	3	800 MHz 2x50W RRH		
	6	1900 MHz RRH		
	3	Commscope DT465B-2XR		
	3	Alcatel Lucent TD-RRH8x20		
	3	Alcatel Lucent RRH2x50-800		
73.0	4	24” Stadium Lights	Platform	
70.0	3	24” Stadium Lights		
35.0	1	GPS	Side Arm	

Install proposed coax inside monopole.

Structure Usages

Pole (L4)	87.0	Pass
Base Plate	88.6	Pass
RATING =	**87.0**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Moment (kip-ft)	--	678.8	--
Axial (kips)	--	10.9	--
Shear (kips)	--	10.7	--

Tower base reactions are acceptable per rigorous structural analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
74.0	9.617	0.0052	1.2165

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

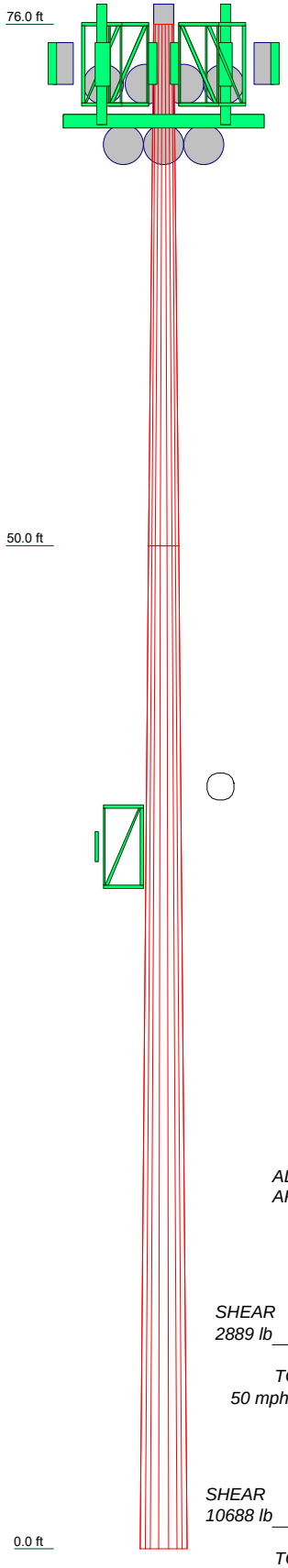
Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	26.00	16	0.1563	11.9400	17.0920	A572-50	633.4
2	50.00	16	0.2188	17.0920	27.0000		2592.0
							3225.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DT465B-2XR (Sprint)	74	800 MHz RRH (Sprint)	74
DT465B-2XR (Sprint)	74	800 MHz RRH (Sprint)	74
DT465B-2XR (Sprint)	74	(2) 1900MHz RRH (Sprint)	74
TD-RRH8X20 (Sprint)	74	(2) 1900MHz RRH (Sprint)	74
TD-RRH8X20 (Sprint)	74	(2) 1900MHz RRH (Sprint)	74
TD-RRH8X20 (Sprint)	74	(3) Pipe Side Arm (Sprint)	74
RRH2x50-800 (Sprint)	74	(3) Pipe Side Arm (Sprint)	74
RRH2x50-800 (Sprint)	74	(3) Pipe Side Arm (Sprint)	74
RRH2x50-800 (Sprint)	74	2' dia. Stadium Lights	73
Pipe Side Arm (Sprint)	74	2' dia. Stadium Lights	73
Pipe Side Arm (Sprint)	74	2' dia. Stadium Lights	73
Pipe Side Arm (Sprint)	74	2' dia. Stadium Lights	73
Pipe Side Arm (Sprint)	74	Angle Low Profile Platform (Sprint)	71.5
Pipe Side Arm (Sprint)	74	2' dia. Stadium Lights	70
APXVSPP18-C-A20 (Sprint)	74	2' dia. Stadium Lights	70
APXVSPP18-C-A20 (Sprint)	74	2' dia. Stadium Lights	70
APXVSPP18-C-A20 (Sprint)	74	GPS (Sprint)	35
800 MHz RRH (Sprint)	74	Pipe Side Arm (Sprint)	35

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED

AXIAL 20029 lb

SHEAR 2889 lb *MOMENT 193163 lb-ft*

TORQUE 307 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 10915 lb

SHEAR 10688 lb *MOMENT 678515 lb-ft*

TORQUE 915 lb-ft
REACTIONS - 97 mph WIND

Infingy Engineering PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Phone: 518-690-0790
FAX: 518-690-0793

Job: *526-102*			
Project: *CT13XC264*			
Client: Sprint	Drawn by: nober	App'd:	
Code: TIA-222-G	Date: 06/14/18	Scale: NTS	
Path: C:\Users\nober\Desktop\CT13XC264\TNX\CT13XC264(jsp).eri		Dwg No. E-1	

Date:	11/16/2017
Site Name:	CT13XC264
Client:	Cherundolo
Infinigy Job #:	526-102
Engineer:	NRO

Infinigy Engineering PLLC
Pole Reinforcment Calculations
AISC 13th Ed.

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

INFINIGY MONOPOLE REINFORCMENT 2.0

Overall Height	76	ft	Code	Rev-G
Top Face Width	11.94	in	Software	TNX
Bottom Face Width	27	in		
Taper	0.198157895	in/ft		
ø=	11.25			
Reinforcing 'K'	0.9			

Max Pole Usage:	65%	
Max Reinf. Usage:	87%	
Max Structure Usage:	**87%**	PASS

Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Tapered Pole Grade
76	26	0	16	11.94	17.095	0.1563	0.6252	50
50	50	0	16	17.092	27	0.2188	0.8752	50
0								
0								
0								

	Reinforcement Start Elevation (ft)	Reinforcement End Elevation (ft)	Qty	Reinforcement Type	Fy (ksi)	Fu (ksi)	Offset (in)	Connector Spacing (in)	Bolt Hole Diam. (in)
Bar1	0	65	4	4.5"x1" Flat Plate	50	65	0.5	24	
Bar2	0	65	4	4.5"x1" Flat Plate	50	65	0.5	24	
Plate1									
Plate2									
Plate3									

Bare Pole

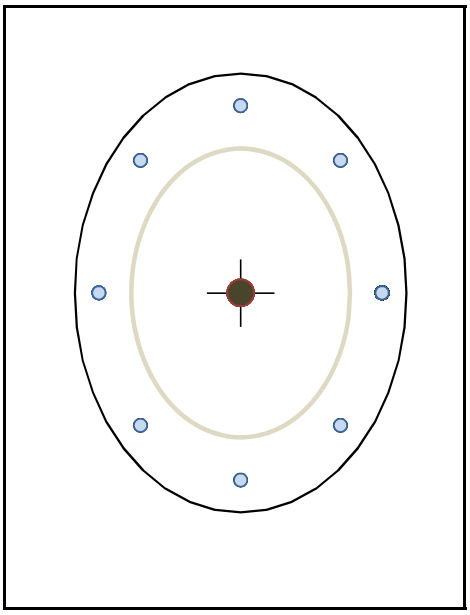
Elevation	Dia.	Thickness	Area	MOI	r	y	a	R_1*2	R*2	S	w	w/t	F'y
76.00	11.78	0.1563	5.875317	103.0645	4.194997	6.0869592	2.375014	11.94	12.17392	16.93201577	2.065023	13.21191939	63.50
74.73	12.03	0.1563	6.000536	109.7956	4.284403	6.2149898	2.424969	12.191141	12.42998	17.66626243	2.115000064	13.53167028	63.50
73.47	12.29	0.1563	6.125754	116.8137	4.37381	6.3430204	2.474924	12.4422821	12.68604	18.416095	2.164977128	13.85142117	63.50
72.20	12.54	0.1563	6.250972	124.1246	4.463216	6.471051	2.524879	12.6934231	12.9421	19.1815135	2.214954192	14.17117206	63.50
70.93	12.79	0.1563	6.37619	131.7343	4.552622	6.5990816	2.574834	12.9445641	13.19816	19.96251791	2.264931256	14.49092295	63.50
69.67	13.04	0.1563	6.501408	139.6488	4.642028	6.7271121	2.624789	13.1957051	13.45422	20.75910825	2.314908321	14.81067384	63.50
68.40	13.29	0.1563	6.626626	147.8742	4.731434	6.8551427	2.674744	13.4468462	13.71029	21.57128451	2.364885385	15.13042473	63.50
67.13	13.54	0.1563	6.751845	156.4164	4.820841	6.9831733	2.724699	13.6979872	13.96635	22.3990467	2.414862449	15.45017562	63.50
65.87	13.79	0.1563	6.877063	165.2814	4.910247	7.1112039	2.774654	13.9491282	14.22241	23.24239481	2.464839513	15.76992651	63.50
64.60	14.04	0.1563	7.002281	174.4752	4.999653	7.2392345	2.824609	14.2002692	14.47847	24.10132885	2.514816577	16.0896774	63.50
63.33	14.30	0.1563	7.127499	184.0037	5.089059	7.3672651	2.874564	14.4514103	14.73453	24.97584883	2.564793641	16.40942829	63.50
62.07	14.55	0.1563	7.252717	193.873	5.178465	7.4952956	2.924519	14.7025513	14.99059	25.86595473	2.614770705	16.72917918	63.50
60.80	14.80	0.1563	7.377935	204.089	5.267872	7.6233262	2.974474	14.9536923	15.24665	26.77164656	2.664747769	17.04893007	63.50
59.53	15.05	0.1563	7.503154	214.6577	5.357278	7.7513568	3.024429	15.2048333	15.50271	27.69292433	2.714724833	17.36868096	63.50
58.27	15.30	0.1563	7.628372	225.5852	5.446684	7.8793874	3.074384	15.4559744	15.75877	28.62978803	2.764701897	17.68843185	63.50
57.00	15.55	0.1563	7.75359	236.8773	5.53609	8.007418	3.12434	15.7071154	16.01484	29.58223766	2.814678962	18.00818274	63.50
55.73	15.80	0.1563	7.878808	248.5402	5.625496	8.1354486	3.174295	15.9582564	16.2709	30.55027323	2.864656026	18.32793363	63.50
54.47	16.05	0.1563	8.004026	260.5797	5.714903	8.2634792	3.22425	16.2093974	16.52696	31.53389473	2.91463309	18.64768452	63.50
53.20	16.30	0.1563	8.129244	273.0018	5.804309	8.3915097	3.274205	16.4605385	16.78302	32.53310217	2.964610154	18.96743541	63.50
51.93	16.56	0.1563	8.254463	285.8126	5.893715	8.5195403	3.32416	16.7116795	17.03908	33.54789554	3.014587218	19.2871863	63.50
50.67	16.81	0.1563	8.379681	299.0181	5.983121	8.6475709	3.374115	16.9628205	17.29514	34.57827486	3.064564282	19.60693719	63.50
49.40	16.99	0.2188	11.86001	432.6067	6.049186	8.7740387	3.42346	17.210896	17.54808	49.30530817	2.989556304	13.66342004	63.50
48.13	17.24	0.2188	12.0352	452.0623	6.138543	8.9019987	3.473388	17.4618987	17.804	50.78211388	3.039505835	13.89170857	63.50
46.87	17.49	0.2188	12.21039	472.0927	6.2279	9.0299588	3.523315	17.7129013	18.05992	52.28071384	3.089455365	14.1199971	63.50
45.60	17.75	0.2188	12.38559	492.7062	6.317257	9.1579188	3.573243	17.963904	18.31584	53.80110806	3.139404896	14.34828563	63.50
44.33	18.00	0.2188	12.56078	513.9111	6.406614	9.2858789	3.62317	18.2149067	18.57176	55.34329655	3.189354427	14.57657416	63.50
43.07	18.25	0.2188	12.73597	535.716	6.495971	9.4138389	3.673098	18.4659093	18.82768	56.9072793	3.239303957	14.80486269	63.50
41.80	18.50	0.2188	12.91116	558.129	6.585328	9.541799	3.723025	18.716912	19.0836	58.49305631	3.289253488	15.03315122	63.50
40.53	18.75	0.2188	13.08636	581.1586	6.674685	9.669759	3.772953	18.9679147	19.33952	60.1006276	3.339203019	15.26143976	63.50
39.27	19.00	0.2188	13.26155	604.8131	6.764042	9.7977191	3.82288	19.2189173	19.59544	61.72999315	3.389152549	15.48972829	63.50
38.00	19.25	0.2188	13.43674	629.101	6.853399	9.9256791	3.872808	19.46992	19.85136	63.38115297	3.43910208	15.71801682	63.50
36.73	19.50	0.2188	13.61194	654.0305	6.942756	10.053639	3.922735	19.7209227	20.10728	65.05410707	3.489051611	15.94630535	63.50
35.47	19.75	0.2188	13.78713	679.6101	7.032113	10.181599	3.972663	19.9719253	20.3632	66.74885543	3.539001141	16.17459388	63.50
34.20	20.00	0.2188	13.96232	705.8481	7.12147	10.309559	4.02259	20.222928	20.61912	68.46539807	3.588950672	16.40288241	63.50
32.93	20.26	0.2188	14.13751	732.7528	7.210827	10.437519	4.072518	20.4739307	20.87504	70.20373498	3.638900203	16.63117094	63.50
31.67	20.51	0.2188	14.31271	760.3327	7.300183	10.565479	4.122446	20.7249333	21.13096	71.96386617	3.688849733	16.85945948	63.50
30.40	20.76	0.2188	14.4879	788.5962	7.38954	10.693439	4.172373	20.975936	21.38688	73.74579164	3.738799264	17.08774801	63.50
29.13	21.01	0.2188	14.66309	817.5514	7.478897	10.821399	4.222301	21.2269387	21.6428	75.54951138	3.788748795	17.31603654	63.50
27.87	21.26	0.2188	14.83829	847.207	7.568254	10.94936	4.272228	21.4779413	21.89872	77.3750254	3.838698325	17.54432507	63.50
26.60	21.51	0.2188	15.01348	877.5711	7.657611	11.07732	4.322156	21.728944	22.15464	79.2223337	3.888647856	17.7726136	63.50
25.33	21.76	0.2188	15.18867	908.6522	7.746968	11.20528	4.372083	21.9799467	22.41056	81.09143628	3.938597387	18.00090213	63.50
24.07	22.01	0.2188	15.36386	940.4587	7.836325	11.33324	4.422011	22.2309493	22.66648	82.98233314	3.988546917	18.22919066	63.50
22.80	22.26	0.2188	15.53906	972.9988	7.925682	11.4612	4.471938	22.481952	22.9224	84.89502428	4.038496448	18.4574792	63.50

Results

Elevation	Un-Reinforced Bending Cap (k-ft)	Reinforced Bending Cap (k-ft)	Analysis Moment (k-ft)	Un-reinforced Usage	Reinforced Usage
76.00	80.64	80.64	0	0%	0%
74.73	84.14	84.14	1.66	2%	2%
73.47	87.71	87.71	3.312	4%	4%
72.20	91.35	91.35	6.93	8%	8%
70.93	95.07	95.07	29.3	31%	31%
69.67	98.87	98.87	39.7	40%	40%
68.40	102.73	102.73	50.1	49%	49%
67.13	106.68	106.68	60.7	57%	57%
65.87	110.69	110.69	72.13856862	65%	65%
64.60	114.78	527.81	81.15588969	71%	24%
63.33	118.95	538.75	90.17321077	76%	27%
62.07	123.19	549.77	114.4045762	93%	33%
60.80	127.50	560.86	124.8049922	98%	35%
59.53	131.89	572.02	135.2054082	103%	38%
58.27	136.35	583.26	145.6058242	107%	40%
57.00	140.89	594.58	156.0062402	111%	42%
55.73	145.50	605.97	166.4066563	114%	44%
54.47	150.18	617.43	176.8070723	118%	46%
53.20	154.94	628.97	187.2074883	121%	48%
51.93	159.77	640.59	197.6079043	124%	49%
50.67	164.68	652.27	208.0083203	126%	51%
49.40	234.82	729.11	219.367163	93%	49%
48.13	241.85	742.92	231.7757315	96%	51%
46.87	248.99	756.84	244.1842999	98%	53%
45.60	256.23	770.86	256.5928683	100%	54%
44.33	263.57	784.99	269.0014368	102%	56%
43.07	271.02	799.22	281.4100052	104%	58%
41.80	278.57	813.55	293.8185737	105%	59%
40.53	286.23	827.99	306.2271421	107%	61%
39.27	293.99	842.53	318.6357106	108%	62%
38.00	301.85	857.17	331.044279	110%	63%
36.73	309.82	871.93	343.4528474	111%	65%
35.47	317.89	886.78	355.8614159	112%	66%
34.20	326.07	901.74	368.2699843	113%	67%
32.93	334.35	916.80	380.6785528	114%	68%
31.67	342.73	931.97	393.0871212	115%	69%
30.40	351.21	947.24	405.4956897	115%	71%
29.13	359.80	962.61	417.9042581	116%	72%
27.87	368.50	978.09	430.3128265	117%	73%
26.60	377.30	993.67	442.721395	117%	74%
25.33	386.20	1009.36	455.1299634	118%	74%
24.07	395.20	1025.15	467.5385319	118%	75%
22.80	404.31	1041.04	479.9471003	119%	76%

21.53	22.51	0.2188	15.71425	1006.281	8.015039	11.58916	4.521866	22.7329547	23.17832	86.8295097	4.088445979	18.68576773	63.50	413.53	1057.04	492.3556688	119%	77%
20.27	22.77	0.2188	15.88944	1040.314	8.104396	11.71712	4.571793	22.9839573	23.43424	88.78578941	4.138395509	18.91405626	63.50	422.84	1073.15	504.7642372	119%	78%
19.00	23.02	0.2188	16.06464	1075.105	8.193753	11.84508	4.621721	23.23496	23.69016	90.7638634	4.18834504	19.14234479	63.50	432.26	1089.35	517.1728056	120%	79%
17.73	23.27	0.2188	16.23983	1110.664	8.28311	11.97304	4.671648	23.4859627	23.94608	92.76373167	4.238294571	19.37063332	63.50	441.79	1105.66	529.5813741	120%	79%
16.47	23.52	0.2188	16.41502	1146.998	8.372467	12.101	4.721576	23.7369653	24.202	94.78539423	4.288244101	19.59892185	63.50	451.42	1122.08	541.9899425	120%	80%
15.20	23.77	0.2188	16.59021	1184.116	8.461824	12.22896	4.771504	23.987968	24.45792	96.82885107	4.338193632	19.82721038	63.50	461.15	1138.60	554.398511	120%	81%
13.93	24.02	0.2188	16.76541	1222.027	8.551181	12.35692	4.821431	24.2389707	24.71384	98.8941022	4.388143163	20.05549892	63.50	470.98	1155.22	566.8070794	120%	81%
12.67	24.27	0.2188	16.9406	1260.738	8.640538	12.48488	4.871359	24.4899733	24.96976	100.9811476	4.438092693	20.28378745	63.42	480.29	1171.31	579.2156479	121%	82%
11.40	24.52	0.2188	17.11579	1300.258	8.729895	12.61284	4.921286	24.740976	25.22568	103.0899873	4.488042224	20.51207598	63.24	488.97	1186.78	591.6242163	121%	83%
10.13	24.77	0.2188	17.29099	1340.595	8.819252	12.7408	4.971214	24.9919787	25.4816	105.2206213	4.537991755	20.74036451	63.07	497.70	1202.30	604.0327847	121%	83%
8.87	25.02	0.2188	17.46618	1381.758	8.908609	12.86876	5.021141	25.2429813	25.73752	107.3730496	4.587941285	20.96865304	62.89	506.48	1217.87	616.4413532	122%	84%
7.60	25.28	0.2188	17.64137	1423.755	8.997966	12.99672	5.071069	25.493984	25.99344	109.5472721	4.637890816	21.19694157	62.72	515.31	1233.48	628.8499216	122%	84%
6.33	25.53	0.2188	17.81656	1466.595	9.087322	13.12468	5.120996	25.7449867	26.24936	111.743289	4.687840347	21.4252301	62.55	524.18	1249.14	641.2584901	122%	85%
5.07	25.78	0.2188	17.99176	1510.285	9.176679	13.25264	5.170924	25.9959893	26.50528	113.9611001	4.737789877	21.65351863	62.37	533.09	1264.84	653.6670585	123%	85%
3.80	26.03	0.2188	18.16695	1554.835	9.266036	13.3806	5.220851	26.246992	26.7612	116.2007056	4.787739408	21.88180717	62.20	542.05	1280.59	666.075627	123%	86%
2.53	26.28	0.2188	18.34214	1600.253	9.355393	13.508561	5.270779	26.4979947	27.01712	118.4621053	4.837688939	22.1100957	62.02	551.05	1296.37	678.4841954	123%	86%
1.27	26.53	0.2188	18.51733	1646.546	9.44475	13.636521	5.320706	26.7489973	27.27304	120.7452993	4.887638469	22.33838423	61.85	560.09	1312.21	690.8927638	123%	87%
0.001	26.78	0.2188	18.69239	1693.686	9.534037	13.76438	5.370595	26.9998018	27.52876	123.0484593	4.937548566	22.56649253	61.67	569.17	1328.07	703.2915361	124%	87%

Date:	6/14/2018
Customer:	Cherundolo
Engineer:	NRO
Job #:	526-102
Baseplate/Flange:	Base Plate
Plate Shape:	Circle
Use Addendum 3:	No

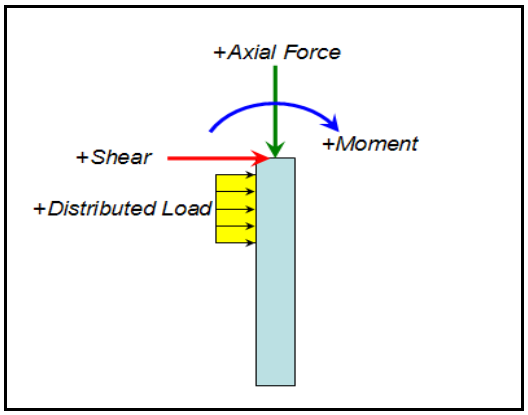


Loading Data		
TIA Code Revision:	Rev-G	
Axial:	11	kips
Moment:	678.9	k-ft
Plate Data		
Pole Base Diameter:	27	in
Pole Base Shape:	Round	
Pole thickness:	1	in
Pole Fy:	50	ksi
Base Weld Size:	0.2188	in
Plate Diameter:	41	in
Plate Thickness:	2	in
Plate Steel Grade:	A36	ksi
Internal/External:	External	ksi
Anchor Bolt Data		
Bolt Diameter:	2.125	in
Bolt Hole Diameter:	2.25	in
Bolt Quantity:	8	
Bolt Grade:	A36	psi
Bolt Circle:	35	in
Bolt Spacing:	6	in
Fully Developed:	Unknown	
Additional Bolt Data		
Bolt Diameter:		in
Bolt Quantity:		
Bolt Grade:		psi
Bolt Circle:		in
Angle:		deg
Stiffener Data		
Stiffener Quantity:	4	
Stiffener Height:	12	in
Stiffener Width:	6	in
Stiffener Thickness:	0.75	in
Stifferner Steel Grade:	A572 Gr. 50	
Vertical Weld Size:	0.5	in
Horizontal Weld Size:	0.5	in
Stiffener Notch width:	1	in

Plate Ratio:	23.97	%
Bolt Ratio:	88.59	%
Additional Bolt Ratio:	-	%
Vertical Weld Ratio:	13.41	%
Horizontal Weld Ratio:	27.21	%
Stiffener Ratio:	31.12	

Date:	6/14/2018
Site Name:	CT13XC264
Client:	Sprint
Infinigy Job #:	526-102
Analysis/Design:	Analysis
Tower Type:	Monopole

Infinigy Engineering PLLC
Drilled Shaft Calculations
ACI 318-11
Ensoft L-Pile 1212.6.37
Ensoft Shaft 2012.7.8



Loading Data			
TIA Code Revision:	ANSI/TIA-222-G		
Factored Moment:	678.8	kip-ft	From tnxTower
Factored Uplift:	0	kips	
Factored Axial:	10.9	kips	
Factored Shear:	10.7	kips	
Service Moment:	144.7	kip-ft	
Service Uplift:	0	kips	
Service Axial:	10.9	kips	
Service Shear:	2.3	kips	

Concrete Strength Check			
Bending Reduction Factor:	0.90		
Unfactored Ultimate Moment Capacity:	1730.83	k-ft	From L-Pile
Maximum Moment In Shaft:	704.85	k-ft	
Depth of Maximum Moment in Shaft:	3.40	ft	
Drilled Shaft Strength Usage:	**45.25**	%	

Servicability Soil Stability Check			
Allowable Service Pile Head Deflection:	0.75	in	
Maximum Service Pile Head Deflection:	0.33	in	From L-Pile
Deflection Ratio:	**44**	%	

LPile Plus for Windows, Version 2012-06.037

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This copy of LPile is licensed to:

Infinigy Engineering, PLLC
Albany, NY

Serial Number of Security Device: 140966619
Company Name Stored in Security Device: Infinigy

Files Used for Analysis

Path to file locations: C:\Users\Ocalc1\Desktop\RJL\CT13XC264\
Name of input data file: CT13XC264.lp6d
Name of output report file: CT13XC264.lp6o
Name of plot output file: CT13XC264.lp6p
Name of runtime messeage file: CT13XC264.lp6r

Date and Time of Analysis

Date: September 6, 2017 Time: 15:58:01

Problem Title

Project Name: CT13XC264

Job Number: 526-102

Client: Cherundolo Consulting

Engineer: RJL

Description:

Program Options

Engineering units are US Customary Units: pounds, inches, feet

Basic Program Options:

This analysis computes pile response to lateral loading and will compute nonlinear moment-curvature and nominal moment capacity for section types with nonlinear properties.

Computation Options:
- Analysis does not use p-y multipliers (individual pile or shaft only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix values
- Report pile response for full length of pile
- Analysis assumes no loading by soil movements acting on pile
- No p-y curves to be computed and reported for user-specified depths

Solution Control Parameters:

- Number of pile increments	=	100	
- Maximum number of iterations allowed	=	100	
- Deflection tolerance for convergence	=	1.0000E-05	in
- Maximum allowable deflection	=	100.0000	in

Pile Response Output Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1

Pile Structural Properties and Geometry

Total number of pile sections = 1

Total length of pile = 20.00 ft

Depth of ground surface below top of pile = 0.50 ft

Pile diameter values used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	60.0000000
2	20.000000	60.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Drilled Shaft (Bored Pile)
Section Length	=	20.00000000 ft
Section Diameter	=	60.00000000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	0.50000 ft
Distance from top of pile to bottom of layer	=	25.00000 ft
Effective unit weight at top of layer	=	125.00000 pcf
Effective unit weight at bottom of layer	=	125.00000 pcf
Friction angle at top of layer	=	34.00000 deg.
Friction angle at bottom of layer	=	34.00000 deg.
Subgrade k at top of layer	=	0.0000 pci
Subgrade k at bottom of layer	=	0.0000 pci

NOTE: Internal default values for subgrade k will be computed for the above soil layer.

(Depth of lowest soil layer extends 5.00 ft below pile tip)

Summary of Soil Properties

Layer Num.	Soil Type (p-y Curve Criteria)	Layer Depth ft	Effective Unit Wt. pcf	Angle of Friction deg.	kpy pci
1	Sand (Reese, et al.)	0.500	125.000	34.000	default
		25.000	125.000	34.000	default

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load No.	Load Compute Type	Condition 1	Condition 2	Axial Thrust Force, lbs Top y vs. Pile Length
1	1 No	V = 10666. lbs	M = 7972776. in-lbs	13135.
2	1 No	V = 2283.00000 lbs	M = 1701828. in-lbs	13135.

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	20.00000000 ft
Shaft Diameter	=	60.00000000 in
Concrete Cover Thickness	=	5.50000000 in
Number of Reinforcing Bars	=	9 bars
Yield Stress of Reinforcing Bars	=	60.00000000 ksi

Modulus of Elasticity of Reinforcing Bars	=	29000. ksi
Gross Area of Shaft	=	2827.43338823 sq. in.
Total Area of Reinforcing Steel	=	14.04000000 sq. in.
Area Ratio of Steel Reinforcement	=	0.50 percent
Edge-to-Edge Bar Spacing	=	14.86673862 in
Maximum Concrete Aggregate Size	=	0.75000000 in
Ratio of Bar Spacing to Aggregate Size	=	19.82
Offset of Rebar Cage Center from Center of Pile	=	0.0000000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	8016.553 kips
Tensile Load for Cracking of Concrete	=	-1065.724 kips
Nominal Axial Tensile Capacity	=	-842.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.41000	1.56000	23.79500	0.00000
2	1.41000	1.56000	18.22803	15.29513
3	1.41000	1.56000	4.13196	23.43350
4	1.41000	1.56000	-11.89750	20.60707
5	1.41000	1.56000	-22.35999	8.13837
6	1.41000	1.56000	-22.35999	-8.13837
7	1.41000	1.56000	-11.89750	-20.60707
8	1.41000	1.56000	4.13196	-23.43350
9	1.41000	1.56000	18.22803	-15.29513

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 14.86674 inches
between Bars 5 and 6

Spacing to aggregate size ratio = 19.82232

Concrete Properties:

Compressive Strength of Concrete	=	3.00000000 ksi
Modulus of Elasticity of Concrete	=	3122.01857778 ksi
Modulus of Rupture of Concrete	=	-0.41079191 ksi
Compression Strain at Peak Stress	=	0.00163356

Tensile Strain at Fracture of Concrete = -0.00011596
Maximum Coarse Aggregate Size = 0.75000000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	13.135

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 13.135 kips

Bending Curvature rad/in.	Bending Max Concrete Stress ksi	Bending Moment in-kip	Bending Max Steel Stress ksi	Run Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Msg
0.000000417	1013.1176101	2431482264.	32.9442424		0.0000137	-0.0000113	0.0497508	0.3944513	
0.000000833	2021.2662843	2425519541.	31.4767292		0.0000262	-0.0000238	0.0946670	0.7534376	
0.000001250	3024.3863317	2419509065.	30.9875824		0.0000387	-0.0000363	0.1392387	1.1124249	
0.000001667	4022.4776804	2413486608.	30.7430247		0.0000512	-0.0000488	0.1834660	1.4714129	
0.000002083	5015.5403166	2407459352.	30.5963021		0.0000637				

```
-0.0000613     0.2273488     1.8304016
   0.000002500  6003.5742390   2401429696.    30.4984971     0.0000762
-0.0000738     0.2708872     2.1893910
   0.000002917  6986.5794477   2395398668.    30.4286451     0.0000888
-0.0000862     0.3140811     2.5483812
   0.000003333  7964.5559428   2389366783.    30.3762638     0.0001013
-0.0000987     0.3569306     2.9073722
   0.000003750  8937.5037240   2383334326.    30.3355297     0.0001138
-0.0001112     0.3994356     3.2663639
   0.000004167  8937.5037240   2145000894.    13.6738192     0.0000570
-0.0001930     0.2011822    -5.5614969  C
   0.000004583  8937.5037240   1950000813.    13.5465198     0.0000621
-0.0002129     0.2188534    -6.1345667  C
   0.000005000  8937.5037240   1787500745.    13.4378040     0.0000672
-0.0002328     0.2364223    -6.7080184  C
   0.000005417  8937.5037240   1650000688.    13.3442130     0.0000723
-0.0002527     0.2539050    -7.2817215  C
   0.000005833  8937.5037240   1532143496.    13.2644640     0.0000774
-0.0002726     0.2713419    -7.8553448  C
   0.000006250  8937.5037240   1430000596.    13.1957897     0.0000825
-0.0002925     0.2887329    -8.4288881  C
   0.000006667  8937.5037240   1340625559.    13.1361148     0.0000876
-0.0003124     0.3060779    -9.0023511  C
   0.000007083  8937.5037240   1261765232.    13.0838523     0.0000927
-0.0003323     0.3233769    -9.5757337  C
   0.000007500  8937.5037240   1191667163.    13.0377677     0.0000978
-0.0003522     0.3406298   -10.1490355  C
   0.000007917  8937.5037240   1128947839.    12.9968867     0.0001029
-0.0003721     0.3578365   -10.7222564  C
   0.000008333  8937.5037240   1072500447.    12.9604295     0.0001080
-0.0003920     0.3749970   -11.2953962  C
   0.000008750  8937.5037240   1021428997.    12.9277652     0.0001131
-0.0004119     0.3921112   -11.8684546  C
   0.000009167  8937.5037240    975000406.    12.8982862     0.0001182
-0.0004318     0.4091762   -12.4414556  C
   0.000009583  8937.5037240    932609084.    12.8702551     0.0001233
-0.0004517     0.4261488   -13.0147666  C
     0.0000100  8937.5037240    893750372.    12.8448557     0.0001284
-0.0004716     0.4430756   -13.5879918  C
     0.0000104  8937.5037240    858000358.    12.8217732     0.0001336
-0.0004914     0.4599567   -14.1611310  C
     0.0000108  8937.5037240    825000344.    12.8007410     0.0001387
-0.0005113     0.4767918   -14.7341838  C
     0.0000113  8937.5037240    794444775.    12.7815321     0.0001438
-0.0005312     0.4935810   -15.3071501  C
     0.0000117  8937.5037240    766071748.    12.7639519     0.0001489
-0.0005511     0.5103242   -15.8800299  C
     0.0000121  8937.5037240    739655481.    12.7478327     0.0001540
```

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-0.0005710     0.5270213   -16.4528222  C
     0.0000125  8937.5037240    715000298.    12.7330292     0.0001592
-0.0005908     0.5436722   -17.0255271  C
     0.0000129  8937.5037240    691935772.    12.7194146     0.0001643
-0.0006107     0.5602768   -17.5981445  C
     0.0000133  8937.5037240    670312779.    12.7068783     0.0001694
-0.0006306     0.5768352   -18.1706739  C
     0.0000138  8937.5037240    650000271.    12.6953229     0.0001746
-0.0006504     0.5933472   -18.7431151  C
     0.0000142  8937.5037240    630882616.    12.6846625     0.0001797
-0.0006703     0.6098127   -19.3154679  C
     0.0000146  8937.5037240    612857398.    12.6748210     0.0001848
-0.0006902     0.6262318   -19.8877320  C
     0.0000150  8937.5037240    595833582.    12.6657309     0.0001900
-0.0007100     0.6426042   -20.4599072  C
     0.0000154  8937.5037240    579729971.    12.6573318     0.0001951
-0.0007299     0.6589299   -21.0319930  C
     0.0000158  8937.5037240    564473919.    12.6495697     0.0002003
-0.0007497     0.6752089   -21.6039893  C
     0.0000163  8937.5037240    550000229.    12.6423963     0.0002054
-0.0007696     0.6914411   -22.1758958  C
     0.0000171  8937.5037240    523170950.    12.6296454     0.0002158
-0.0008092     0.7237647   -23.3194385  C
     0.0000179  8937.5037240    498837417.    12.6187787     0.0002261
-0.0008489     0.7559001   -24.4626181  C
     0.0000188  8937.5037240    476666865.    12.6095491     0.0002364
-0.0008886     0.7878468   -25.6054328  C
     0.0000196  8937.5037240    456383169.    12.6017517     0.0002468
-0.0009282     0.8196042   -26.7478803  C
     0.0000204  8937.5037240    437755284.    12.5952151     0.0002572
-0.0009678     0.8511715   -27.8899582  C
     0.0000213  8937.5037240    420588411.    12.5897948     0.0002675
-0.0010075     0.8825482   -29.0316640  C
     0.0000221  8937.5037240    404717150.    12.5853681     0.0002779
-0.0010471     0.9137338   -30.1729955  C
     0.0000229  8937.5037240    390000163.    12.5818304     0.0002883
-0.0010867     0.9447274   -31.3139502  C
     0.0000238  8937.5037240    376315946.    12.5790916     0.0002988
-0.0011262     0.9755286   -32.4545256  C
     0.0000246  8937.5037240    363559474.    12.5770739     0.0003092
-0.0011658     1.0061366   -33.5947193  C
     0.0000254  8937.5037240    351639491.    12.5757099     0.0003196
-0.0012054     1.0365509   -34.7345288  C
     0.0000263  8937.5037240    340476332.    12.5749406     0.0003301
-0.0012449     1.0667707   -35.8739514  C
     0.0000271  8937.5037240    330000138.    12.5747144     0.0003406
-0.0012844     1.0967955   -37.0129847  C
     0.0000279  8937.5037240    320149387.    12.5749858     0.0003511
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-0.0013239     1.1266245   -38.1516260  C
     0.0000288  8937.5037240    310869695.    12.5757148     0.0003616
-0.0013634     1.1562571   -39.2898727  C
     0.0000296  8937.5037240    302112802.    12.5768659     0.0003721
-0.0014029     1.1856925   -40.4277221  C
     0.0000304  9143.2527279    300600090.    12.5784073     0.0003826
-0.0014424     1.2149302   -41.5651715  C
     0.0000313  9383.5104615    300272335.    12.5803108     0.0003931
-0.0014819     1.2439694   -42.7022182  C
     0.0000321  9623.5507185    299954828.    12.5825513     0.0004037
-0.0015213     1.2728094   -43.8388595  C
     0.0000329  9863.3722058    299646751.    12.5851061     0.0004143
-0.0015607     1.3014496   -44.9750924  C
     0.0000338        10103.    299347366.    12.5879547     0.0004248
-0.0016002     1.3298892   -46.1109143  C
     0.0000346        10342.    299056008.    12.5910789     0.0004354
-0.0016396     1.3581274   -47.2463221  C
     0.0000354        10582.    298772072.    12.5944619     0.0004461
-0.0016789     1.3861636   -48.3813130  C
     0.0000363        10820.    298495009.    12.5980888     0.0004567
-0.0017183     1.4139970   -49.5158841  C
     0.0000371        11059.    298224318.    12.6019459     0.0004673
-0.0017577     1.4416270   -50.6500324  C
     0.0000379        11298.    297959542.    12.6060207     0.0004780
-0.0017970     1.4690526   -51.7837548  C
     0.0000387        11536.    297700265.    12.6103020     0.0004886
-0.0018364     1.4962733   -52.9170482  C
     0.0000396        11774.    297446102.    12.6147793     0.0004993
-0.0018757     1.5232881   -54.0499097  C
     0.0000404        12012.    297196701.    12.6194433     0.0005100
-0.0019150     1.5500965   -55.1823360  C
     0.0000412        12249.    296951740.    12.6242853     0.0005208
-0.0019542     1.5766974   -56.3143239  C
     0.0000421        12487.    296710919.    12.6292973     0.0005315
-0.0019935     1.6030903   -57.4458703  C
     0.0000429        12724.    296473961.    12.6344721     0.0005422
-0.0020328     1.6292742   -58.5769718  C
     0.0000437        12961.    296240613.    12.6398030     0.0005530
-0.0020720     1.6552484   -59.7076252  C
     0.0000446        13197.    296010637.    12.6452839     0.0005638
-0.0021112     1.6810121   -60.0000000  CY
     0.0000454        13434.    295783813.    12.6509089     0.0005746
-0.0021504     1.7065644   -60.0000000  CY
     0.0000462        13670.    295559938.    12.6566731     0.0005854
-0.0021896     1.7319046   -60.0000000  CY
     0.0000471        13906.    295338821.    12.6625714     0.0005962
-0.0022288     1.7570316   -60.0000000  CY
     0.0000479        14141.    295120284.    12.6685995     0.0006070
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-0.0022680     1.7819449   -60.0000000  CY
     0.0000487        14377.    294904162.    12.6747532     0.0006179
-0.0023071     1.8066433   -60.0000000  CY
     0.0000496        14612.    294690300.    12.6810288     0.0006288
-0.0023462     1.8311262   -60.0000000  CY
     0.0000529        15388.    290794231.    12.6630728     0.0006701
-0.0025049     1.9217385   -60.0000000  CY
     0.0000562        15950.    283554297.    12.5942352     0.0007084
-0.0026666     2.0023899   -60.0000000  CY
     0.0000596        16401.    275263669.    12.5072290     0.0007452
-0.0028298     2.0767684   -60.0000000  CY
     0.0000629        16837.    267605570.    12.4281025     0.0007819
-0.0029931     2.1481009   -60.0000000  CY
     0.0000662        17118.    258390295.    12.3167187     0.0008160
-0.0031590     2.2115565   -60.0000000  CY
     0.0000696        17382.    249799743.    12.2072493     0.0008494
-0.0033256     2.2714538   -60.0000000  CY
     0.0000729        17644.    241974107.    12.1084461     0.0008829
-0.0034921     2.3290687   -60.0000000  CY
     0.0000762        17905.    234816298.    12.0200284     0.0009165
-0.0036585     2.3845321   -60.0000000  CY
     0.0000796        18134.    227860459.    11.9310640     0.0009495
-0.0038255     2.4365961   -60.0000000  CY
     0.0000829        18279.    220453604.    11.8250378     0.0009805
-0.0039945     2.4833036   -60.0000000  CY
     0.0000862        18415.    213504914.    11.7257218     0.0010113
-0.0041637     2.5278037   -60.0000000  CY
     0.0000896        18548.    207046074.    11.6294520     0.0010418
-0.0043332     2.5697590   -60.0000000  CY
     0.0000929        18680.    201035615.    11.5392450     0.0010722
-0.0045028     2.6096590   -60.0000000  CY
     0.0000963        18810.    195433107.    11.4564517     0.0011027
-0.0046723     2.6477588   -60.0000000  CY
     0.0000996        18940.    190197463.    11.3803462     0.0011333
-0.0048417     2.6840385   -60.0000000  CY
     0.0001029        19070.    185292898.    11.3102977     0.0011640
-0.0050110     2.7184775   -60.0000000  CY
     0.0001063        19197.    180682163.    11.2455238     0.0011948
-0.0051802     2.7510286   -60.0000000  CY
     0.0001096        19311.    176222465.    11.1809029     0.0012252
-0.0053498     2.7811690   -60.0000000  CY
     0.0001129        19391.    171724371.    11.1090498     0.0012544
-0.0055206     2.8082086   -60.0000000  CY
     0.0001163        19449.    167299911.    11.0290284     0.0012821
-0.0056929     2.8322272   -60.0000000  CY
     0.0001196        19505.    163105349.    10.9529686     0.0013098
-0.0058652     2.8545913   -60.0000000  CY
     0.0001229        19560.    159134038.    10.8818408     0.0013376
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-0.0060374     2.8754306   -60.0000000  CY
     0.0001263        19615.    155368223.    10.8152662     0.0013654
-0.0062096     2.8947282   -60.0000000  CY
     0.0001296        19670.    151791974.    10.7529050     0.0013934
-0.0063816     2.9124667   -60.0000000  CY
     0.0001329        19724.    148390955.    10.6944521     0.0014215
-0.0065535     2.9286286   -60.0000000  CY
     0.0001363        19777.    145152234.    10.6396328     0.0014496
-0.0067254     2.9431957   -60.0000000  CY
     0.0001396        19830.    142064111.    10.5881988     0.0014779
-0.0068971     2.9561495   -60.0000000  CY
     0.0001429        19882.    139115976.    10.5399257     0.0015063
-0.0070687     2.9674708   -60.0000000  CY
     0.0001462        19933.    136297017.    10.4939921     0.0015347
-0.0072403     2.9771113   -60.0000000  CY
     0.0001496        19983.    133591723.    10.4465254     0.0015626
-0.0074124     2.9849227   -60.0000000  CY
     0.0001529        20032.    131000779.    10.4018806     0.0015906
-0.0075844     2.9911325   -60.0000000  CY
     0.0001562        20081.    128516800.    10.3598913     0.0016187
-0.0077563     2.9957201   -60.0000000  CY
     0.0001596        20129.    126133015.    10.3204058     0.0016470
-0.0079280     2.9986643   -60.0000000  CY
     0.0001629        20176.    123843205.    10.2832854     0.0016753
-0.0080997     2.9999431   -60.0000000  CY
     0.0001662        20223.    121640751.    10.2485319     0.0017038
-0.0082712     2.9957658   -60.0000000  CY
     0.0001696        20267.    119510347.    10.2149459     0.0017323
-0.0084427     2.9967340   -60.0000000  CY
     0.0001729        20306.    117434716.    10.1812336     0.0017605
-0.0086145     2.9990754   -60.0000000  CY
     0.0001762        20345.    115430841.    10.1491093     0.0017888
-0.0087862     2.9999870   -60.0000000  CY
     0.0001796        20368.    113419970.    10.1119452     0.0018159
-0.0089591     2.9956893   -60.0000000  CY
     0.0001829        20392.    111480256.    10.0766914     0.0018432
-0.0091318     2.9952883   -60.0000000  CY
     0.0002029        20483.    100942822.     9.8776684     0.0020043
-0.0101707     2.9965571   -60.0000000  CY
     0.0002229        20555.     92210215.     9.7076958     0.0021640
-0.0112110     2.9942645    60.0000000  CY
     0.0002429        20619.     84882418.     9.5782524     0.0023267
-0.0122483     2.9922557    60.0000000  CY
     0.0002629        20677.     78644464.     9.4788027     0.0024921
-0.0132829     2.9999080    60.0000000  CY
     0.0002829        20728.     73266535.     9.4029803     0.0026603
-0.0143147     2.9933909    60.0000000  CY
     0.0003029        20775.     68584449.     9.3442508     0.0028305
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-0.0153445     2.9967605    60.0000000  CY
     0.0003229        20818.     64468145.     9.2999092     0.0030031
-0.0163719     2.9921451    60.0000000  CYT
     0.0003429        20856.     60820652.     9.2580132     0.0031747
-0.0174003     2.9999957    60.0000000  CYT
     0.0003629        20882.     57539101.     9.2178969     0.0033453
-0.0184297     2.9836644    60.0000000  CYT
     0.0003829        20899.     54579175.     9.1783861     0.0035146
-0.0194604     2.9941920    60.0000000  CYT
     0.0004029        20903.     51879921.     9.1331126     0.0036799
-0.0204951     2.9999178    60.0000000  CYT
     0.0004229        20903.     49426486.     9.0926745     0.0038454
-0.0215296     2.9885736    60.0000000  CYT


--------------------------------------------------------------------------------
   Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1
--------------------------------------------------------------------------------

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

 Load           Axial Thrust        Nominal Mom. Cap.      Max. Comp.
  No.               kips                 in-kip              Strain
 ----         ----------------     ------------------     ------------
   1               13.135             20817.077           0.00300000

Note note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318-08, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

 Axial     Resistance           Nominal           Ultimate (Factored)     Ultimate
(Factored)     Bending Stiffness
 Load        Factor         Moment Capacity          Axial Thrust           Moment
Capacity       at Ult. Mom. Cap.
  No.      for Moment           in-kip                  kips
in-kip                 kip-in^2
 -----     ----------     ------------------     ------------------
```

1	0.65	20817.077	8.538	13531.099	295691294.322
1	0.70	20817.077	9.194	14571.953	294726473.465
1	0.75	20817.077	9.851	15612.807	287896726.219

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 10666.000 lbs
Applied moment at pile head = 7972776.000 in-lbs
Axial thrust load on pile head = 13135.000 lbs

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Es*h	Soil Spr. Lat. Load	Distrib. p
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	lb/in	lb/inch	lb/inch
0.00	0.3263	7972776.	10666.	-0.002257	0.000	2.389E+12	0.000	0.000	0.000
0.200	0.3209	7998445.	10666.	-0.002249	0.000	2.389E+12	0.000	0.000	0.000
0.400	0.3155	8024115.	10666.	-0.002241	0.000	2.389E+12	0.000	0.000	0.000
0.600	0.3101	8049783.	10638.	-0.002233	0.000	2.389E+12	-23.6796	183.2628	0.000
0.800	0.3048	8075316.	10525.	-0.002225	0.000	2.389E+12	-69.8137	549.7883	0.000
1.000	0.2994	8100446.	10304.	-0.002216	0.000	2.388E+12	-114.3215	916.3138	0.000
1.200	0.2941	8124917.	9978.5901	-0.002208	0.000	2.388E+12	-157.2120	1282.8393	0.000
1.400	0.2888	8148482.	9551.7426	-0.002200	0.000	2.388E+12	-198.4943	1649.3648	0.000

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     1.600     0.2836   8170904.  9027.7368  -0.002192      0.000  2.388E+12
-238.1772  2015.8903      0.000
     1.800     0.2783   8191953.  8410.4000  -0.002184      0.000  2.388E+12
-276.2700  2382.4158      0.000
     2.000     0.2731   8211411.  7703.5379  -0.002175      0.000  2.388E+12
-312.7817  2748.9413      0.000
     2.200     0.2679   8229068.  6910.9342  -0.002167      0.000  2.388E+12
-347.7214  3115.4668      0.000
     2.400     0.2627   8244721.  6036.3507  -0.002159      0.000  2.387E+12
-381.0982  3481.9923      0.000
     2.600     0.2575   8258178.  5083.5272  -0.002151      0.000  2.387E+12
-412.9214  3848.5178      0.000
     2.800     0.2524   8269257.  4056.1816  -0.002142      0.000  2.387E+12
-443.2000  4215.0434      0.000
     3.000     0.2472   8277783.  2958.0098  -0.002134      0.000  2.387E+12
-471.9432  4581.5689      0.000
     3.200     0.2421   8283590.  1792.6856  -0.002126      0.000  2.387E+12
-499.1603  4948.0944      0.000
     3.400     0.2370   8286522.   563.8607  -0.002117      0.000  2.387E+12
-524.8604  5314.6199      0.000
     3.600     0.2319   8286430.  -724.8351  -0.002109      0.000  2.387E+12
-549.0528  5681.1454      0.000
     3.800     0.2269   8283176. -2069.7941  -0.002101      0.000  2.387E+12
-571.7464  6047.6709      0.000
     4.000     0.2219   8276627. -3467.4305  -0.002092      0.000  2.387E+12
-592.9506  6414.1964      0.000
     4.200     0.2169   8266664. -4914.1805  -0.002084      0.000  2.387E+12
-612.6744  6780.7219      0.000
     4.400     0.2119   8253171. -6406.5019  -0.002076      0.000  2.387E+12
-630.9268  7147.2474      0.000
     4.600     0.2069   8236043. -7940.8744  -0.002067      0.000  2.388E+12
-647.7170  7513.7729      0.000
     4.800     0.2019   8215185. -9513.7994  -0.002059      0.000  2.388E+12
-663.0539  7880.2984      0.000
     5.000     0.1970   8190507.    -11122.  -0.002051      0.000  2.388E+12
-676.9463  8246.8240      0.000
     5.200     0.1921   8161930.    -12761.  -0.002043      0.000  2.388E+12
-689.4033  8613.3495      0.000
     5.400     0.1872   8129381.    -14429.  -0.002034      0.000  2.388E+12
-700.4336  8979.8750      0.000
     5.600     0.1823   8092798.    -16122.  -0.002026      0.000  2.388E+12
-710.0458  9346.4005      0.000
     5.800     0.1775   8052124.    -17836.  -0.002018      0.000  2.389E+12
-718.2487  9712.9260      0.000
     6.000     0.1726   8007313.    -19568.  -0.002010      0.000  2.389E+12
-725.0506     10079.      0.000
     6.200     0.1678   7958326.    -21314.  -0.002002      0.000  2.389E+12
-730.4601     10446.      0.000
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     6.400     0.1630   7905131.    -23072.  -0.001994      0.000  2.390E+12
-734.4855     10813.      0.000
     6.600     0.1583   7847705.    -24838.  -0.001986      0.000  2.390E+12
-737.1348     11179.      0.000
     6.800     0.1535   7786033.    -26609.  -0.001978      0.000  2.390E+12
-738.4162     11546.      0.000
     7.000     0.1488   7720107.    -28381.  -0.001971      0.000  2.391E+12
-738.3376     11912.      0.000
     7.200     0.1440   7649928.    -30151.  -0.001963      0.000  2.391E+12
-736.9068     12279.      0.000
     7.400     0.1393   7575505.    -31917.  -0.001955      0.000  2.392E+12
-734.1313     12645.      0.000
     7.600     0.1347   7496852.    -33673.  -0.001948      0.000  2.392E+12
-730.0186     13012.      0.000
     7.800     0.1300   7413995.    -35419.  -0.001940      0.000  2.393E+12
-724.5761     13378.      0.000
     8.000     0.1253   7326963.    -37150.  -0.001933      0.000  2.393E+12
-717.8107     13745.      0.000
     8.200     0.1207   7235797.    -38863.  -0.001926      0.000  2.394E+12
-709.7295     14111.      0.000
     8.400     0.1161   7140543.    -40555.  -0.001918      0.000  2.394E+12
-700.3392     14478.      0.000
     8.600     0.1115   7041254.    -42223.  -0.001911      0.000  2.395E+12
-689.6462     14844.      0.000
     8.800     0.1069   6937993.    -43864.  -0.001904      0.000  2.396E+12
-677.6569     15211.      0.000
     9.000     0.1024   6830828.    -45474.  -0.001897      0.000  2.396E+12
-664.3775     15577.      0.000
     9.200     0.0978   6719836.    -47051.  -0.001891      0.000  2.397E+12
-649.8138     15944.      0.000
     9.400     0.0933   6605102.    -48592.  -0.001884      0.000  2.398E+12
-633.9716     16310.      0.000
     9.600     0.0888   6486715.    -50093.  -0.001877      0.000  2.398E+12
-616.8562     16677.      0.000
     9.800     0.0843   6364775.    -51551.  -0.001871      0.000  2.399E+12
-598.4729     17043.      0.000
    10.000     0.0798   6239387.    -52964.  -0.001865      0.000  2.400E+12
-578.8267     17410.      0.000
    10.200     0.0753   6110666.    -54328.  -0.001858      0.000  2.401E+12
-557.9223     17776.      0.000
    10.400     0.0709   5978730.    -55640.  -0.001852      0.000  2.402E+12
-535.7641     18143.      0.000
    10.600     0.0664   5843708.    -56898.  -0.001846      0.000  2.402E+12
-512.3565     18510.      0.000
    10.800     0.0620   5705735.    -58098.  -0.001841      0.000  2.403E+12
-487.7034     18876.      0.000
    11.000     0.0576   5564953.    -59238.  -0.001835      0.000  2.404E+12
-461.8086     19243.      0.000
```

11.200	0.0532	5421510.	-60313.	-0.001830	0.000	2.405E+12
-434.6755	19609.	0.000				
11.400	0.0488	5275564.	-61323.	-0.001824	0.000	2.406E+12
-406.3073	19976.	0.000				
11.600	0.0444	5127277.	-62262.	-0.001819	0.000	2.407E+12
-376.7069	20342.	0.000				
11.800	0.0401	4976820.	-63129.	-0.001814	0.000	2.408E+12
-345.8772	20709.	0.000				
12.000	0.0357	4824370.	-63921.	-0.001809	0.000	2.408E+12
-313.8204	21075.	0.000				
12.200	0.0314	4670113.	-64634.	-0.001804	0.000	2.409E+12
-280.5387	21442.	0.000				
12.400	0.0271	4514240.	-65266.	-0.001800	0.000	2.410E+12
-246.0340	21808.	0.000				
12.600	0.0228	4356949.	-65814.	-0.001795	0.000	2.411E+12
-210.3081	22175.	0.000				
12.800	0.0185	4198447.	-66274.	-0.001791	0.000	2.412E+12
-173.3621	22541.	0.000				
13.000	0.0142	4038946.	-66644.	-0.001787	0.000	2.413E+12
-135.1973	22908.	0.000				
13.200	0.009880	3878667.	-66922.	-0.001783	0.000	2.414E+12
-95.8145	23274.	0.000				
13.400	0.005605	3717835.	-67103.	-0.001779	0.000	2.415E+12
-55.2144	23641.	0.000				
13.600	0.001339	3556685.	-67185.	-0.001776	0.000	2.416E+12
-13.3972	24007.	0.000				
13.800	-0.002918	3395458.	-67166.	-0.001772	0.000	2.417E+12
29.6368	24374.	0.000				
14.000	-0.007168	3234402.	-67041.	-0.001769	0.000	2.418E+12
73.8879	24740.	0.000				
14.200	-0.0114	3073771.	-66810.	-0.001766	0.000	2.419E+12
119.3562	25107.	0.000				
14.400	-0.0156	2913827.	-66467.	-0.001763	0.000	2.420E+12
166.0425	25474.	0.000				
14.600	-0.0199	2754840.	-66011.	-0.001760	0.000	2.421E+12
213.9474	25840.	0.000				
14.800	-0.0241	2597085.	-65439.	-0.001757	0.000	2.421E+12
263.0720	26207.	0.000				
15.000	-0.0283	2440845.	-64747.	-0.001755	0.000	2.422E+12
313.4175	26573.	0.000				
15.200	-0.0325	2286411.	-63933.	-0.001753	0.000	2.423E+12
364.9851	26940.	0.000				
15.400	-0.0367	2134079.	-62993.	-0.001750	0.000	2.425E+12
417.7764	27306.	0.000				
15.600	-0.0409	1984153.	-61926.	-0.001748	0.000	2.426E+12
471.7932	27673.	0.000				
15.800	-0.0451	1836944.	-60727.	-0.001746	0.000	2.426E+12
527.0373	28039.	0.000				

16.000	-0.0493	1692771.	-59395.	-0.001745	0.000	2.427E+12	583.5108
28406.	0.000						
16.200	-0.0535	1551959.	-57925.	-0.001743	0.000	2.427E+12	641.2156
28772.	0.000						
16.400	-0.0577	1414841.	-56315.	-0.001742	0.000	2.428E+12	700.1541
29139.	0.000						
16.600	-0.0618	1281755.	-54563.	-0.001740	0.000	2.429E+12	760.3285
29505.	0.000						
16.800	-0.0660	1153049.	-52664.	-0.001739	0.000	2.430E+12	821.7414
29872.	0.000						
17.000	-0.0702	1029076.	-50617.	-0.001738	0.000	2.431E+12	884.3951
30238.	0.000						
17.200	-0.0744	910197.	-48418.	-0.001737	0.000	2.431E+12	948.2921
30605.	0.000						
17.400	-0.0785	796780.	-46064.	-0.001736	0.000	2.431E+12	1013.4350
30971.	0.000						
17.600	-0.0827	689201.	-43552.	-0.001736	0.000	2.431E+12	1079.8264
31338.	0.000						
17.800	-0.0869	587841.	-40879.	-0.001735	0.000	2.431E+12	1147.4686
31704.	0.000						
18.000	-0.0910	493091.	-38042.	-0.001734	0.000	2.431E+12	1216.3642
32071.	0.000						
18.200	-0.0952	405347.	-35039.	-0.001734	0.000	2.431E+12	1286.5155
32438.	0.000						
18.400	-0.0993	325013.	-31866.	-0.001734	0.000	2.431E+12	1357.9249
32804.	0.000						
18.600	-0.1035	252501.	-28519.	-0.001733	0.000	2.431E+12	1430.5946
33171.	0.000						
18.800	-0.1077	188229.	-24997.	-0.001733	0.000	2.431E+12	1504.5265
33537.	0.000						
19.000	-0.1118	132623.	-21296.	-0.001733	0.000	2.431E+12	1579.7226
33904.	0.000						
19.200	-0.1160	86116.	-17413.	-0.001733	0.000	2.431E+12	1656.1846
34270.	0.000						
19.400	-0.1201	49149.	-13345.	-0.001733	0.000	2.431E+12	1733.9139
34637.	0.000						
19.600	-0.1243	22170.	-9088.7823	-0.001733	0.000	2.431E+12	1812.9117
35003.	0.000						
19.800	-0.1285	5632.5615	-4641.4737	-0.001733	0.000	2.431E+12	1893.1788
35370.	0.000						
20.000	-0.1326	0.000	0.000	-0.001733	0.000	2.431E+12	1974.7159
17868.	0.000						

* This analysis makes computations of pile response using nonlinear moment-curvature relationships.
  The above values of total stress are computed for combined axial and bending stress in elastic
  sections and do not equal actual stresses in concrete and steel in the range of

nonlinear bending.

Output Summary for Load Case No. 1:

```
Pile-head deflection             =      0.3262695 inches
Computed slope at pile head      =     -0.0022568 radians
Maximum bending moment           =       8286522. inch-lbs
Maximum shear force              =        -67185. lbs
Depth of maximum bending moment  =     40.8000000 inches below pile head
Depth of maximum shear force     =    163.2000000 inches below pile head
Number of iterations             =              6
Number of zero deflection points =              1
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

Pile-head conditions are Shear and Moment (Loading Type 1)

```
Shear force at pile head                              =        2283.000 lbs
Applied moment at pile head                           =     1701828.000 in-lbs
Axial thrust load on pile head                        =       13135.000 lbs
```

Depth X	Deflect. y	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil Res. Es*h	Soil Spr. Lat. Load	Distrib. p
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	lb/in	lb/inch	lb/inch
0.00	0.0696	1701828.	2283.0000	-0.000481	0.000	2.427E+12	0.000	0.000	0.000
0.200	0.0685	1707322.	2282.9999	-0.000479	0.000	2.427E+12	0.000	0.000	0.000
0.400	0.0673	1712817.	2283.0000	-0.000477	0.000	2.427E+12	0.000	0.000	0.000
0.600	0.0662	1718311.	2276.9366	-0.000476	0.000	2.427E+12	-5.0528	183.2628	0.000
0.800	0.0650	1723776.	2252.9964	-0.000474	0.000	2.427E+12	-14.8974	549.7883	0.000
1.000	0.0639	1729155.	2205.8448	-0.000472	0.000	2.427E+12	-24.3956	916.3138	0.000
1.200	0.0628	1734394.	2136.3110	-0.000470	0.000	2.427E+12			

```
-33.5492  1282.8393      0.000
     1.400     0.0616   1739439.  2045.2197  -0.000469      0.000  2.426E+12
-42.3602  1649.3648      0.000
     1.600     0.0605   1744240.  1933.3908  -0.000467      0.000  2.426E+12
-50.8305  2015.8903      0.000
     1.800     0.0594   1748749.  1801.6400  -0.000465      0.000  2.426E+12
-58.9619  2382.4158      0.000
     2.000     0.0583   1752918.  1650.7782  -0.000464      0.000  2.426E+12
-66.7563  2748.9413      0.000
     2.200     0.0572   1756702.  1481.6117  -0.000462      0.000  2.426E+12
-74.2157  3115.4668      0.000
     2.400     0.0561   1760058.  1294.9424  -0.000460      0.000  2.426E+12
-81.3421  3481.9923      0.000
     2.600     0.0550   1762946.  1091.5672  -0.000458      0.000  2.426E+12
-88.1372  3848.5178      0.000
     2.800     0.0539   1765327.   872.2789  -0.000457      0.000  2.426E+12
-94.6031  4215.0434      0.000
     3.000     0.0528   1767162.   637.8653  -0.000455      0.000  2.426E+12
-100.7416  4581.5689      0.000
     3.200     0.0517   1768417.   389.1096  -0.000453      0.000  2.426E+12
-106.5548  4948.0944      0.000
     3.400     0.0506   1769058.   126.7905  -0.000451      0.000  2.426E+12
-112.0445  5314.6199      0.000
     3.600     0.0495   1769054.  -148.3180  -0.000450      0.000  2.426E+12
-117.2126  5681.1454      0.000
     3.800     0.0484   1768375.  -435.4465  -0.000448      0.000  2.426E+12
-122.0611  6047.6709      0.000
     4.000     0.0474   1766992.  -733.8301  -0.000446      0.000  2.426E+12
-126.5919  6414.1964      0.000
     4.200     0.0463   1764881. -1042.7088  -0.000444      0.000  2.426E+12
-130.8070  6780.7219      0.000
     4.400     0.0452   1762015. -1361.3269  -0.000443      0.000  2.426E+12
-134.7081  7147.2474      0.000
     4.600     0.0442   1758374. -1688.9333  -0.000441      0.000  2.426E+12
-138.2973  7513.7729      0.000
     4.800     0.0431   1753936. -2024.7817  -0.000439      0.000  2.426E+12
-141.5764  7880.2984      0.000
     5.000     0.0421   1748683. -2368.1300  -0.000437      0.000  2.426E+12
-144.5472  8246.8240      0.000
     5.200     0.0410   1742597. -2718.2407  -0.000436      0.000  2.426E+12
-147.2117  8613.3495      0.000
     5.400     0.0400   1735663. -3074.3808  -0.000434      0.000  2.427E+12
-149.5717  8979.8750      0.000
     5.600     0.0389   1727867. -3435.8217  -0.000432      0.000  2.427E+12
-151.6290  9346.4005      0.000
     5.800     0.0379   1719198. -3801.8391  -0.000431      0.000  2.427E+12
-153.3855  9712.9260      0.000
     6.000     0.0369   1709645. -4171.7132  -0.000429      0.000  2.427E+12
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-154.8429     10079.      0.000
     6.200     0.0358   1699201. -4544.7282  -0.000427      0.000  2.427E+12
-156.0030     10446.      0.000
     6.400     0.0348   1687858. -4920.1728  -0.000425      0.000  2.427E+12
-156.8675     10813.      0.000
     6.600     0.0338   1675611. -5297.3396  -0.000424      0.000  2.427E+12
-157.4382     11179.      0.000
     6.800     0.0328   1662457. -5675.5256  -0.000422      0.000  2.427E+12
-157.7168     11546.      0.000
     7.000     0.0318   1648395. -6054.0315  -0.000421      0.000  2.427E+12
-157.7049     11912.      0.000
     7.200     0.0308   1633424. -6432.1624  -0.000419      0.000  2.427E+12
-157.4041     12279.      0.000
     7.400     0.0298   1617547. -6809.2267  -0.000417      0.000  2.427E+12
-156.8162     12645.      0.000
     7.600     0.0288   1600766. -7184.5372  -0.000416      0.000  2.427E+12
-155.9426     13012.      0.000
     7.800     0.0278   1583087. -7557.4101  -0.000414      0.000  2.427E+12
-154.7848     13378.      0.000
     8.000     0.0268   1564517. -7927.1652  -0.000413      0.000  2.427E+12
-153.3445     13745.      0.000
     8.200     0.0258   1545063. -8293.1261  -0.000411      0.000  2.427E+12
-151.6229     14111.      0.000
     8.400     0.0248   1524736. -8654.6197  -0.000409      0.000  2.427E+12
-149.6217     14478.      0.000
     8.600     0.0238   1503547. -9010.9762  -0.000408      0.000  2.428E+12
-147.3421     14844.      0.000
     8.800     0.0228   1481509. -9361.5292  -0.000407      0.000  2.428E+12
-144.7854     15211.      0.000
     9.000     0.0219   1458637. -9705.6155  -0.000405      0.000  2.428E+12
-141.9531     15577.      0.000
     9.200     0.0209   1434947.    -10043.  -0.000404      0.000  2.428E+12
-138.8463     15944.      0.000
     9.400     0.0199   1410458.    -10372.  -0.000402      0.000  2.428E+12
-135.4661     16310.      0.000
     9.600     0.0190   1385188.    -10692.  -0.000401      0.000  2.428E+12
-131.8139     16677.      0.000
     9.800     0.0180   1359159.    -11004.  -0.000399      0.000  2.428E+12
-127.8907     17043.      0.000
    10.000     0.0171   1332394.    -11306.  -0.000398      0.000  2.429E+12
-123.6975     17410.      0.000
    10.200     0.0161   1304916.    -11598.  -0.000397      0.000  2.429E+12
-119.2353     17776.      0.000
    10.400     0.0151   1276751.    -11878.  -0.000396      0.000  2.429E+12
-114.5052     18143.      0.000
    10.600     0.0142   1247926.    -12147.  -0.000394      0.000  2.429E+12
-109.5079     18510.      0.000
    10.800     0.0133   1218470.    -12403.  -0.000393      0.000  2.429E+12
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-104.2444     18876.      0.000
    11.000     0.0123   1188415.    -12647.  -0.000392      0.000  2.430E+12
-98.7154     19243.      0.000
    11.200     0.0114   1157790.    -12877.  -0.000391      0.000  2.430E+12
-92.9217     19609.      0.000
    11.400     0.0104   1126630.    -13093.  -0.000390      0.000  2.430E+12
-86.8640     19976.      0.000
    11.600   0.009503   1094970.    -13294.  -0.000389      0.000  2.431E+12
-80.5429     20342.      0.000
    11.800   0.008571   1062846.    -13479.  -0.000387      0.000  2.431E+12
-73.9589     20709.      0.000
    12.000   0.007643   1030296.    -13648.  -0.000386      0.000  2.431E+12
-67.1127     21075.      0.000
    12.200   0.006716    997359.    -13801.  -0.000385      0.000  2.431E+12
-60.0045     21442.      0.000
    12.400   0.005792    964076.    -13936.  -0.000384      0.000  2.431E+12
-52.6350     21808.      0.000
    12.600   0.004871    930491.    -14053.  -0.000384      0.000  2.431E+12
-45.0043     22175.      0.000
    12.800   0.003951    896646.    -14152.  -0.000383      0.000  2.431E+12
-37.1128     22541.      0.000
    13.000   0.003034    862587.    -14231.  -0.000382      0.000  2.431E+12
-28.9608     22908.      0.000
    13.200   0.002119    828362.    -14290.  -0.000381      0.000  2.431E+12
-20.5484     23274.      0.000
    13.400   0.001206    794018.    -14329.  -0.000380      0.000  2.431E+12
-11.8758     23641.      0.000
    13.600   0.000294    759605.    -14347.  -0.000379      0.000  2.431E+12
-2.9431     24007.      0.000
    13.800  -0.000615    725176.    -14343.  -0.000379      0.000  2.431E+12
6.2497     24374.      0.000
    14.000  -0.001523    690782.    -14317.  -0.000378      0.000  2.431E+12
15.7027     24740.      0.000
    14.200  -0.002430    656480.    -14267.  -0.000377      0.000  2.431E+12
25.4158     25107.      0.000
    14.400  -0.003334    622323.    -14194.  -0.000377      0.000  2.431E+12
35.3893     25474.      0.000
    14.600  -0.004237    588370.    -14097.  -0.000376      0.000  2.431E+12
45.6232     25840.      0.000
    14.800  -0.005139    554680.    -13975.  -0.000375      0.000  2.431E+12
56.1177     26207.      0.000
    15.000  -0.006040    521314.    -13827.  -0.000375      0.000  2.431E+12
66.8732     26573.      0.000
    15.200  -0.006939    488332.    -13654.  -0.000374      0.000  2.431E+12
77.8898     26940.      0.000
    15.400  -0.007837    455799.    -13453.  -0.000374      0.000  2.431E+12
89.1680     27306.      0.000
    15.600  -0.008734    423780.    -13225.  -0.000374      0.000  2.431E+12
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100.7080     27673.      0.000
    15.800  -0.009630    392340.    -12970.  -0.000373      0.000  2.431E+12
112.5103     28039.      0.000
    16.000    -0.0105    361549.    -12685.  -0.000373      0.000  2.431E+12
124.5752     28406.      0.000
    16.200    -0.0114    331475.    -12371.  -0.000372      0.000  2.431E+12
136.9033     28772.      0.000
    16.400    -0.0123    302190.    -12028.  -0.000372      0.000  2.431E+12
149.4950     29139.      0.000
    16.600    -0.0132    273766.    -11653.  -0.000372      0.000  2.431E+12
162.3508     29505.      0.000
    16.800    -0.0141    246277.    -11248.  -0.000372      0.000  2.431E+12
175.4713     29872.      0.000
    17.000    -0.0150    219799.    -10811.  -0.000371      0.000  2.431E+12
188.8568     30238.      0.000
    17.200    -0.0159    194409.    -10341.  -0.000371      0.000  2.431E+12
202.5080     30605.      0.000
    17.400    -0.0168    170185. -9838.4875  -0.000371      0.000  2.431E+12
216.4254     30971.      0.000
    17.600    -0.0177    147207. -9302.0456  -0.000371      0.000  2.431E+12
230.6096     31338.      0.000
    17.800    -0.0186    125558. -8731.2409  -0.000371      0.000  2.431E+12
245.0610     31704.      0.000
    18.000    -0.0194    105321. -8125.4315  -0.000371      0.000  2.431E+12
259.7802     32071.      0.000
    18.200    -0.0203     86579. -7483.9740  -0.000370      0.000  2.431E+12
274.7677     32438.      0.000
    18.400    -0.0212     69421. -6806.2238  -0.000370      0.000  2.431E+12
290.0241     32804.      0.000
    18.600    -0.0221     53933. -6091.5353  -0.000370      0.000  2.431E+12
305.5497     33171.      0.000
    18.800    -0.0230     40205. -5339.2617  -0.000370      0.000  2.431E+12
321.3450     33537.      0.000
    19.000    -0.0239     28328. -4548.7553  -0.000370      0.000  2.431E+12
337.4104     33904.      0.000
    19.200    -0.0248     18394. -3719.3672  -0.000370      0.000  2.431E+12
353.7463     34270.      0.000
    19.400    -0.0257     10498. -2850.4480  -0.000370      0.000  2.431E+12
370.3530     34637.      0.000
    19.600    -0.0266  4735.4528 -1941.3477  -0.000370      0.000  2.431E+12
387.2307     35003.      0.000
    19.800    -0.0274  1203.1132  -991.4153  -0.000370      0.000  2.431E+12
404.3796     35370.      0.000
    20.000    -0.0283      0.000      0.000  -0.000370      0.000  2.431E+12
421.7999     17868.      0.000

* This analysis makes computations of pile response using nonlinear
moment-curvature relationships.
```

The above values of total stress are computed for combined axial and bending stress in elastic sections and do not equal actual stresses in concrete and steel in the range of nonlinear bending.

Output Summary for Load Case No. 2:

Pile-head deflection	=	0.0696135 inches
Computed slope at pile head	=	-0.0004806 radians
Maximum bending moment	=	1769058. inch-lbs
Maximum shear force	=	-14347. lbs
Depth of maximum bending moment	=	40.8000000 inches below pile head
Depth of maximum shear force	=	163.2000000 inches below pile head
Number of iterations	=	6
Number of zero deflection points	=	1

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case	Load Type	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Maximum Axial Loading lbs	Maximum Pile-head Deflection inches	Moment in Pile in-lbs	Shear in Pile lbs	Pile-head Rotation radians
1	1	V = 10666.	M = 7972776.	13135.	0.32626946	8286522.	-67185.	-0.00225677
2	1	V = 2283.0000	M = 1701828.	13135.	0.06961346	1769058.	-14347.	-0.00048063

The analysis ended normally.

MONOPOLE MODIFICATION DRAWINGS

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250 DERBY AVE.
WEST HAVEN, CT 06516

06/13/18

INFINIGY JOB # 526-102

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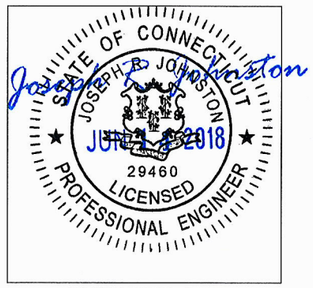


PROFESSIONAL SEAL

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

S1

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA-222 STANDARD, AWWA-D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA-1019-A-2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325-X. Fu=120 KSI, U.N.O.
   - U-BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT-TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE - HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE - HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE - RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"-20 LOW CARBON STEEL COPPER-FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE

SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8-16 UNC	8 FT-LBS	4 FT-LBS
1/2-13 UNC	18 FT-LBS	8 FT-LBS
5/8-11 UNC	35 FT-LBS	16 FT-LBS
3/4-10 UNC	50 FT-LBS	24 FT-LBS
1-8 UNC	110 FT-LBS	50 FT-LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER

	RANGE	RECOMMENDED
EDGE DISTANCE - CL* BOLT TO END	2.0-4.0	3.0
EDGE DISTANCE - CL* BOLT TO SIDE	1.5-3.5	2.5
BOLT PITCH - CL* TO CL*	4.0-5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F-1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

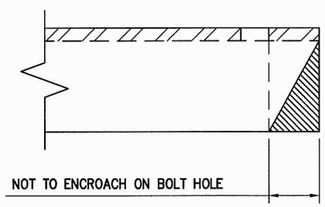
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



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Sprint

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
LICENSED
PROFESSIONAL ENGINEER

Joseph R. Johnston
JUN 29 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CHANGED TO FLAT PLATE	06/12/18	DMB	1
FOR REVIEW	12/04/17	DMB	0

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
WEST HAVEN, CT 06516

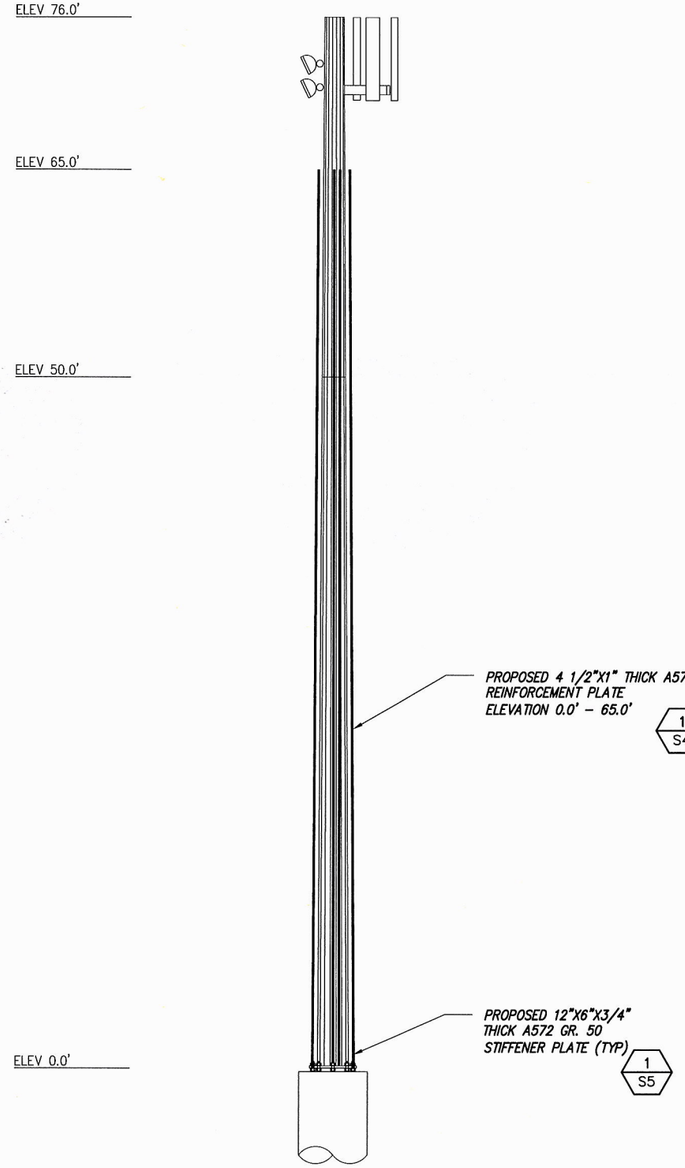
SHEET DESCRIPTION:

GENERAL NOTES

SHEET NUMBER:

S2

DESIGN BASED ON REQUIREMENTS FROM FAILING STRUCTURAL ANALYSIS BY INFINIGY JOB #526-102 DATED NOV. 16, 2017



1 -- ELEVATION VIEW
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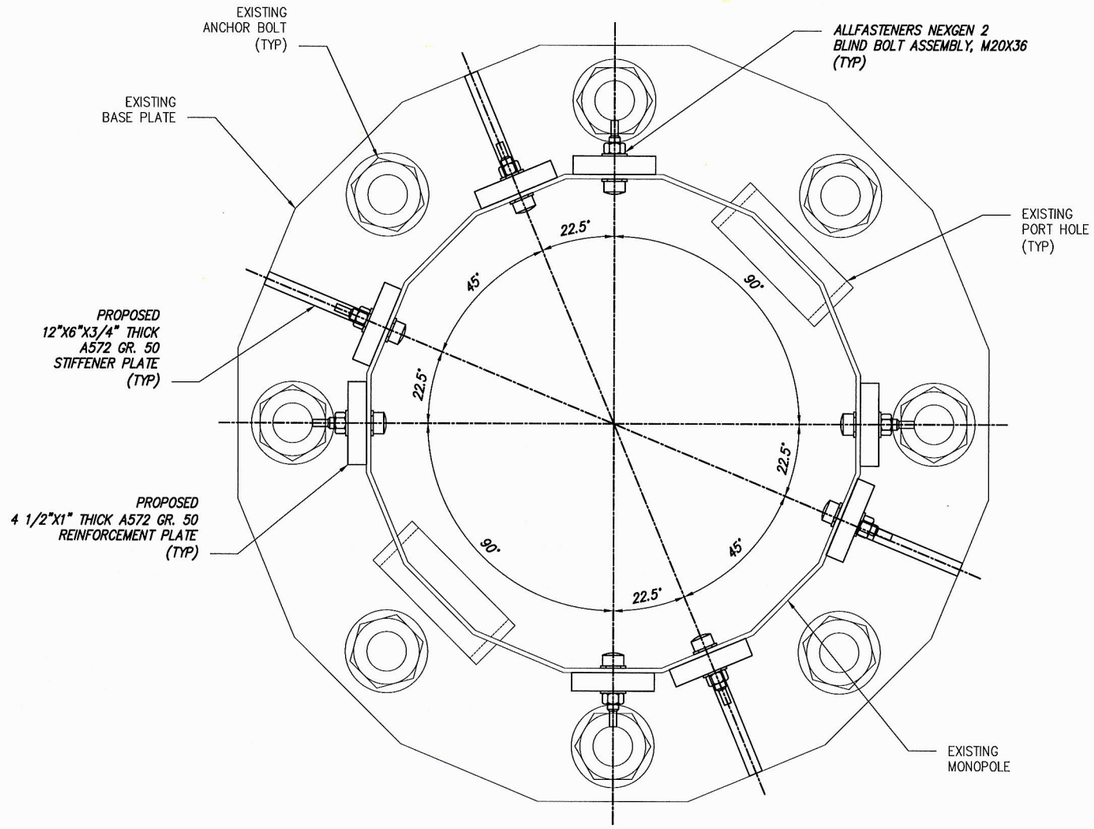

2 -- REINFORCEMENT LOCATION
SCALE: NOT TO SCALE

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JOSEPH R. JOHNSTON
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PROFESSIONAL ENGINEER
29460

Joseph R. Johnston
JUN 14 2018

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SITE CASCADE:

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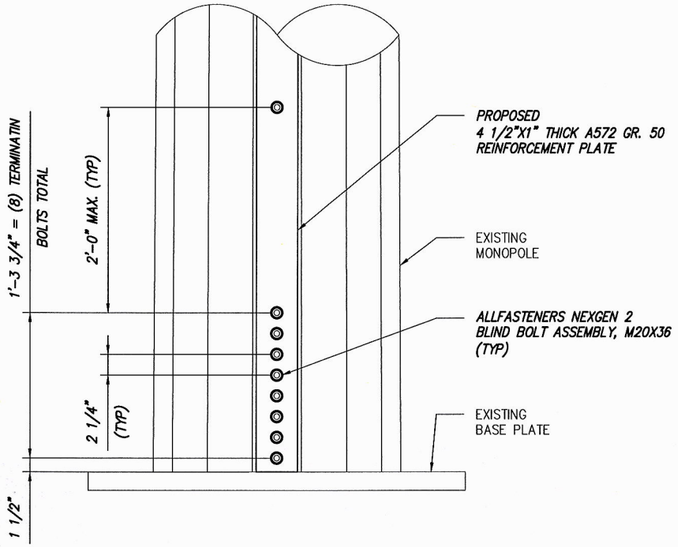
SHEET DESCRIPTION:

ELEVATION AND PLAN VIEW

SHEET NUMBER:

S3



1 REINFORCEMENT PLAT AT BASE OF TOWER
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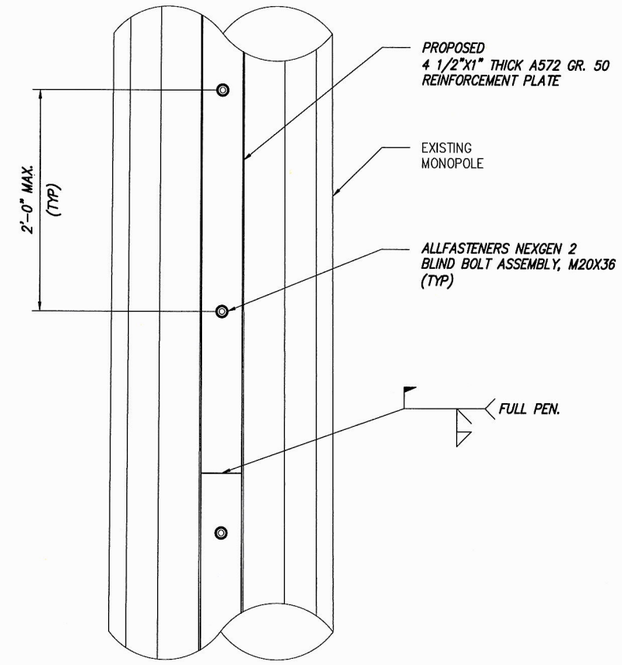

2 REINFORCEMENT PLAT AT SPLICE
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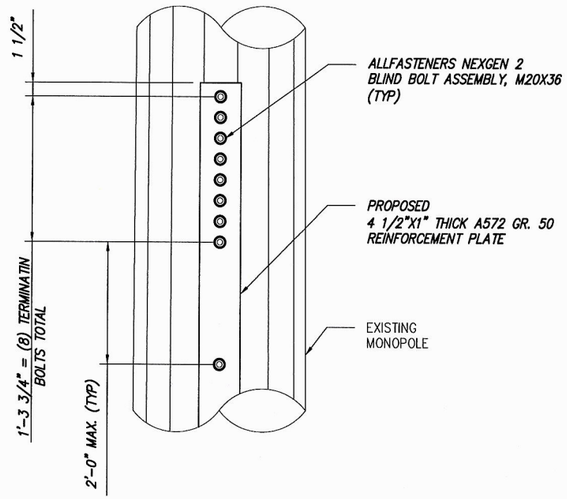

3 TOP OF REINFORCEMENT PLATE
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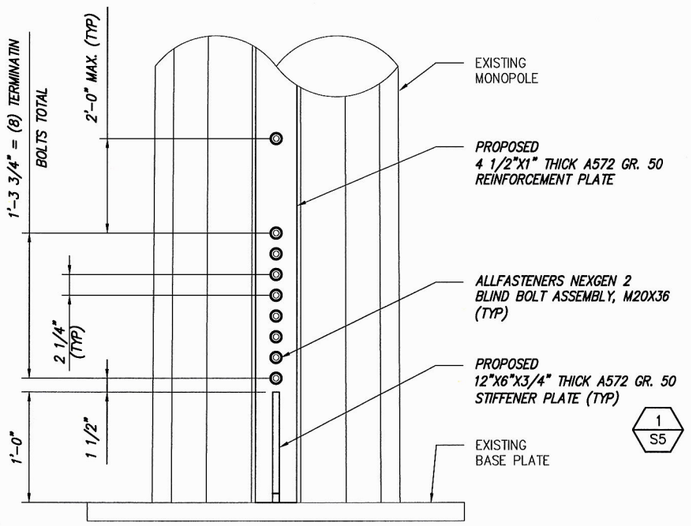

4 REINFORCEMENT PLAT AT BASE OF TOWER W/ STIFFENER
SCALE: NOT TO SCALE

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JUN 14 2018

Joseph Johnston

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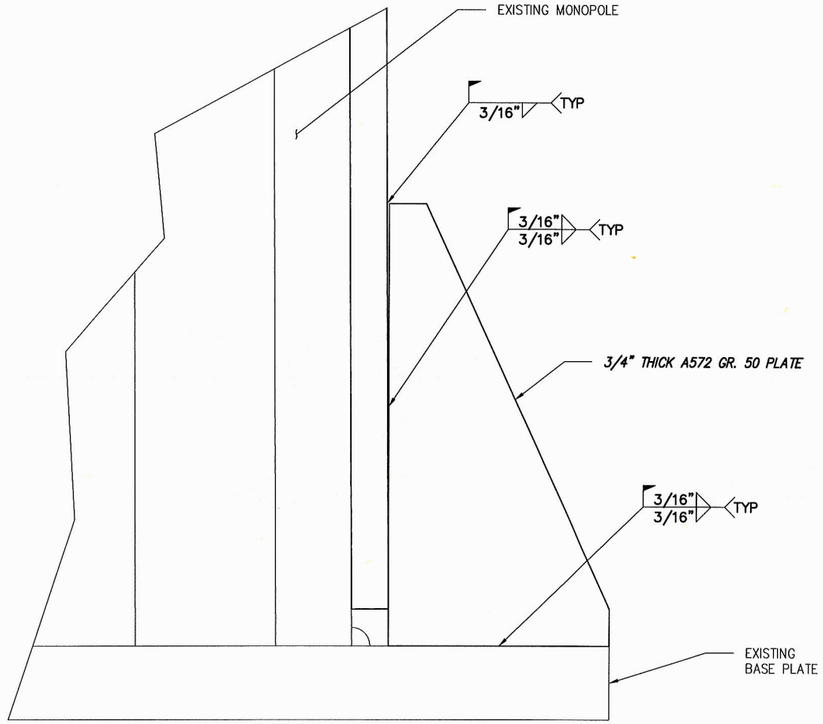
SHEET DESCRIPTION:

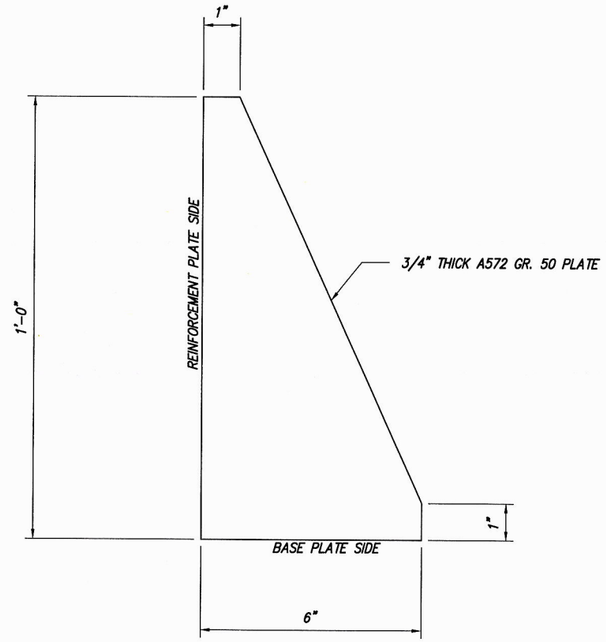
REINFORCEMENT PLATE DETAILS

SHEET NUMBER:

S4



1 STIFFENER PLATE INSTALLATION
SCALE: NOT TO SCALE



2 STIFFENER PLATE
SCALE: NOT TO SCALE

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SHEET DESCRIPTION:

STIFFENER INSTALLATION DETAILS

SHEET NUMBER:

S5

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	NEW HAVEN CAP 3 / YALE UNIVERSITY
SITE CASCADE:	CT13XC264
SITE ADDRESS:	250 DERBY AVENUE WEST HAVEN, CT 06516
SITE TYPE:	LIGHTPOLE
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

PROPERTY OWNER:
YALE UNIVERSITY
2 WHITNEY AVE, 6TH FLOOR
NEW HAVEN, CT 06510

LANDLORD:
YALE UNIVERSITY
2 WHITNEY AVE, 6TH FLOOR
NEW HAVEN, CT 06510

LATITUDE (NAD83):
41° 18' 31.86" N
41.275461°

LONGITUDE (NAD83):
72° 57' 36.10" W
-72.960028°

TAX MAP PARCEL:
73/15

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CITY OF WEST HAVEN

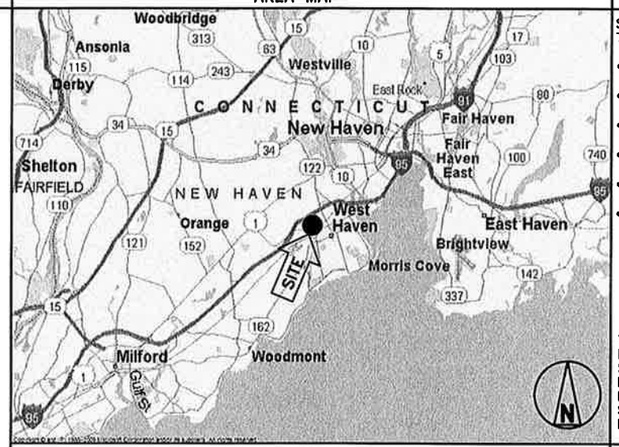
ZONING DISTRICT:
RB – REGIONAL BUSINESS

POWER COMPANY:
TBD

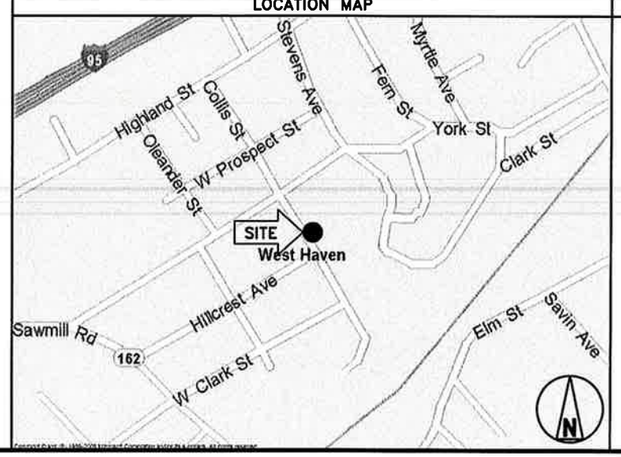
AAV PROVIDER:
FRONTIER COMMUNICATIONS
(800) 246-2020

SPRINT CM:
JESSE ROSENTHAL
(862) 226-9768

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS
- INSTALL (4) BATTERIES IN EXISTING BATTERY CABINET
- INSTALL (3) PANEL ANTENNAS
- INSTALL (6) RRU'S NEAR ANTENNAS
- INSTALL (30) JUMPER CABLES
- INSTALL (1) HYBRID CABLE

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-EIA-222-F OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 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

811 Know what's below. Call before you dig. www.call811.com

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	1
SP-1	SPRINT SPECIFICATIONS	1
SP-2	SPRINT SPECIFICATIONS	1
SP-3	SPRINT SPECIFICATIONS	1
A-1	SITE PLAN	1
A-2	BUILDING ELEVATION & CABLE PLAN	1
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	1
A-4	COLOR CODING & NOTES	1
A-5	EQUIPMENT & MOUNTING DETAILS	1
A-6	CIVIL DETAILS	1
A-7	PLUMBING DIAGRAM	1
E-1	ELECTRICAL & GROUNDING PLAN	1
E-2	ELECTRICAL & GROUNDING DETAILS	1
S1	MONOPOLE MODIFICATION DRAWINGS	1
S2	GENERAL NOTES	1
S3	ELEVATION AND PLAN VIEW	1
S4	REINFORCEMENT PLATE DETAILS	1
S5	STIFFENER INSTALLATION DETAILS	1
S-2	MOUNT DESIGN	0

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
AUG 21 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED FOR PERMIT	8/31/18	ASW	1
ISSUED FOR PERMIT	12/05/17	MPS	0
REVISED PER RFDS	10/11/17	MPS	B
ISSUED FOR REVIEW	05/19/17	ASW	A

SITE NAME:
NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:
CT13XC264

SITE ADDRESS:
250 DERBY AVE
NEW HAVEN, CT 06516

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:

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
AUG 3 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED FOR PERMIT	8/31/18	ASW	1
ISSUED FOR PERMIT	12/05/17	MPS	0
REVISED PER RFDS	10/11/17	MPS	B
ISSUED FOR REVIEW	05/19/17	ASW	A

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
NEW HAVEN, CT 06516

SHEET DESCRIPTION:

SPRINT 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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SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
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SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

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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.

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PLANS PREPARED BY:

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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
AUG 31 2018

DRAWING NOTICE:

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DESCRIPTION	DATE	BY	REV
REVISED FOR PERMIT	8/31/18	ASW	1
ISSUED FOR PERMIT	12/05/17	MPS	0
REVISED PER RFDS	10/11/17	MPS	B
ISSUED FOR REVIEW	05/19/17	ASW	A

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

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NEW HAVEN, CT 06516

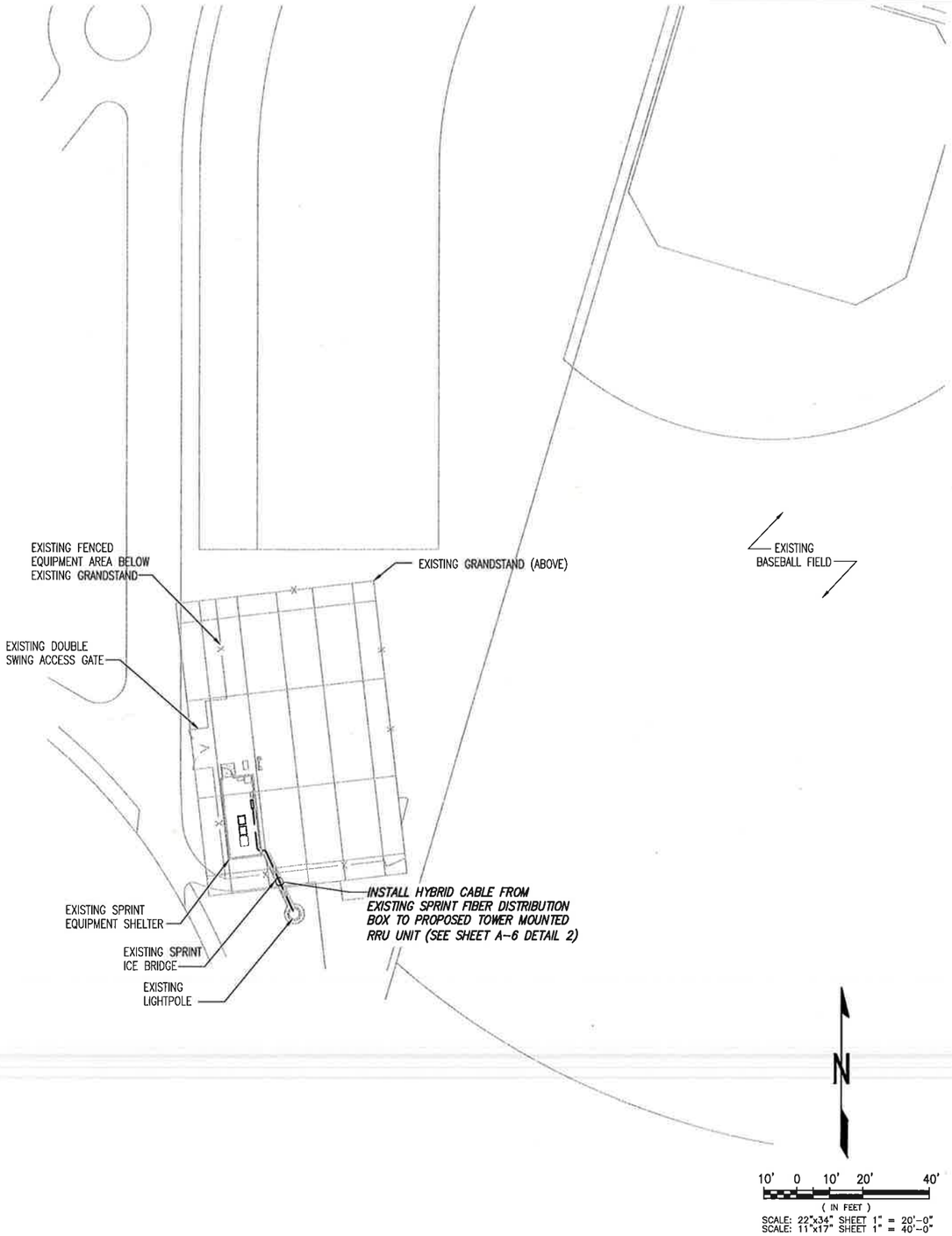
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

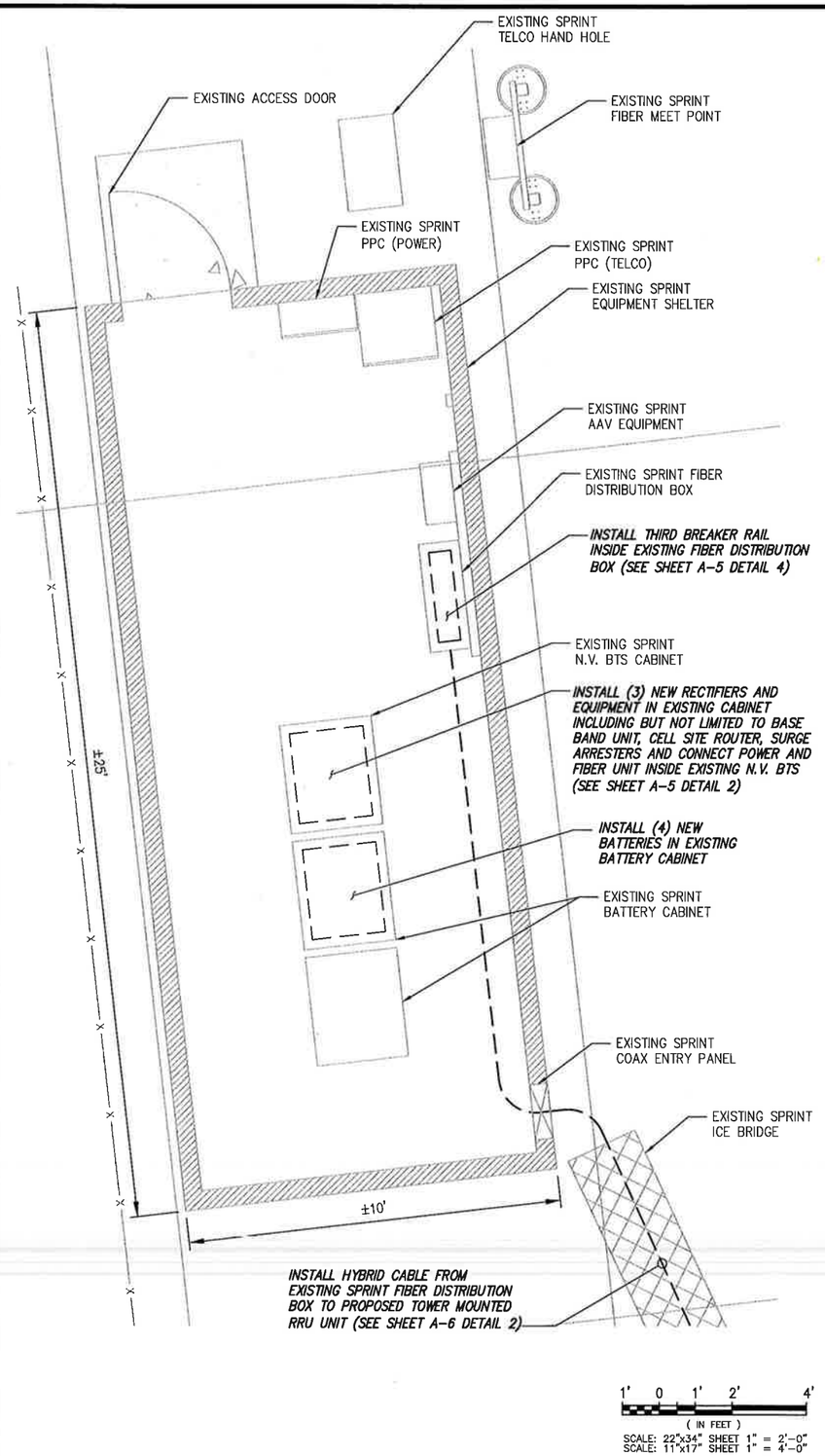
SHEET NUMBER:

SP-3

INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.



OVERALL SITE PLAN | SCALE: AS NOTED | 1



SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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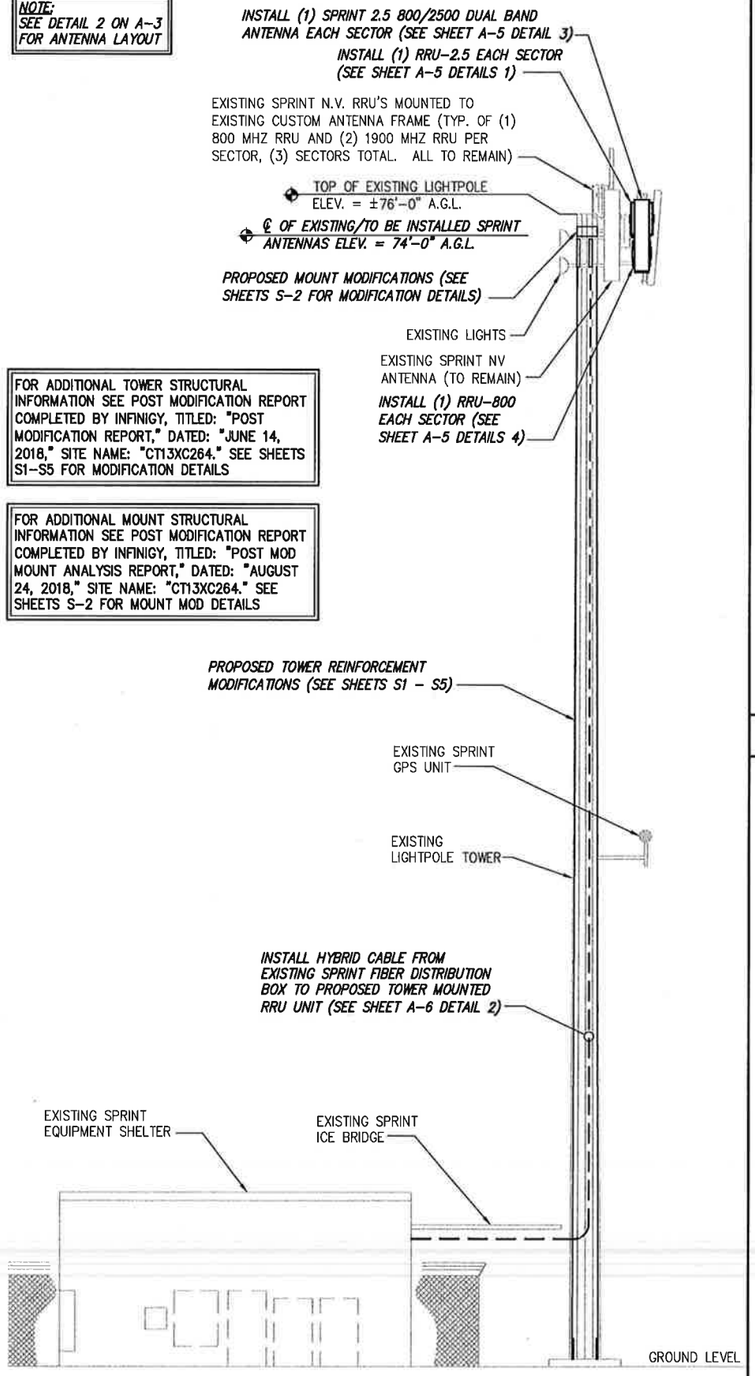
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

NOTE:
SEE DETAIL 2 ON A-3
FOR ANTENNA LAYOUT



FOR ADDITIONAL TOWER STRUCTURAL INFORMATION SEE POST MODIFICATION REPORT COMPLETED BY INFINIGY, TITLED: "POST MODIFICATION REPORT," DATED: "JUNE 14, 2018," SITE NAME: "CT13XC264." SEE SHEETS S1-S5 FOR MODIFICATION DETAILS

FOR ADDITIONAL MOUNT STRUCTURAL INFORMATION SEE POST MODIFICATION REPORT COMPLETED BY INFINIGY, TITLED: "POST MOD MOUNT ANALYSIS REPORT," DATED: "AUGUST 24, 2018," SITE NAME: "CT13XC264." SEE SHEETS S-2 FOR MOUNT MOD DETAILS

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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SITE PLAN

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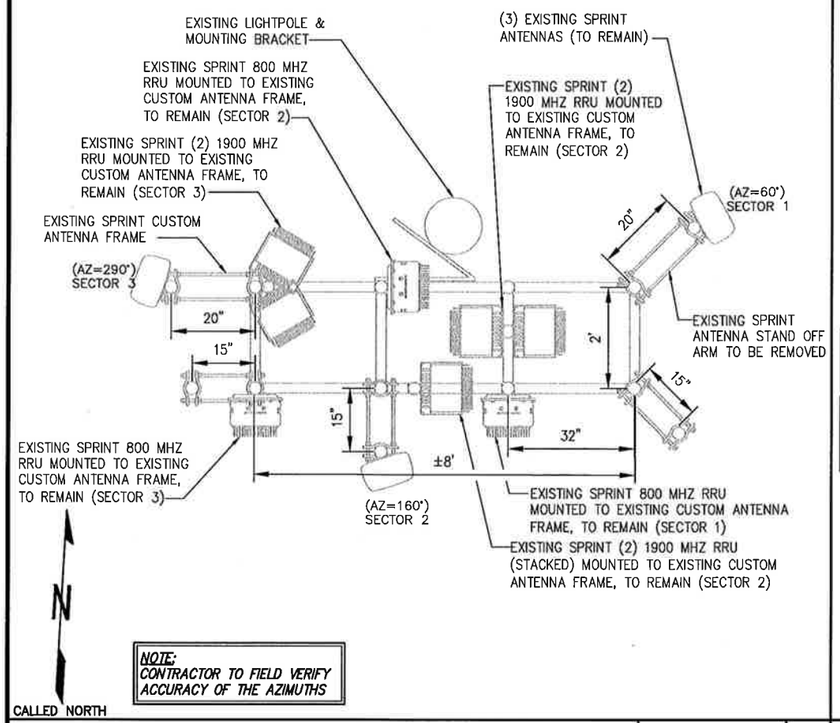
A-2

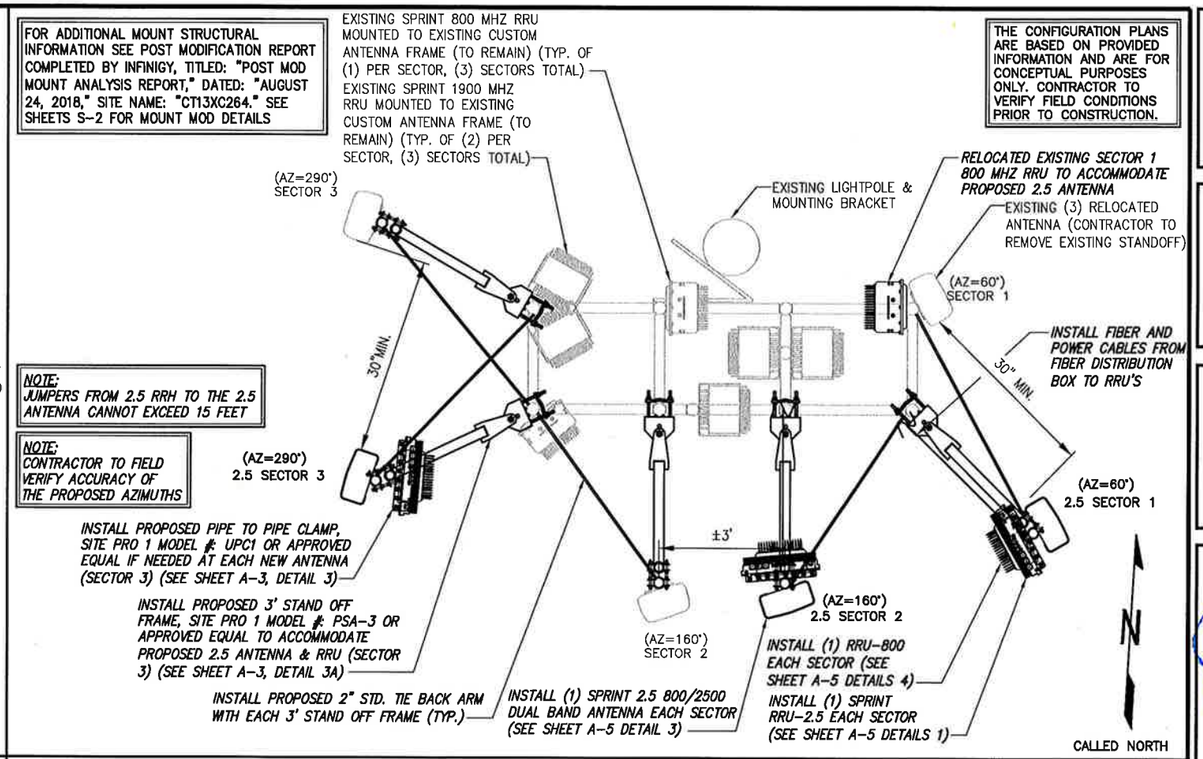


NOTE:
CONTRACTOR TO FIELD VERIFY ACCURACY OF THE AZIMUTHS

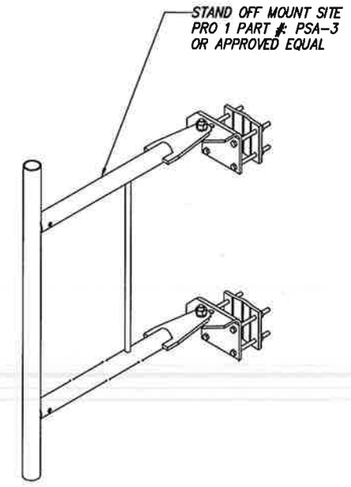
EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

FOR ADDITIONAL MOUNT STRUCTURAL INFORMATION SEE POST MODIFICATION REPORT COMPLETED BY INFINIGY, TITLED: "POST MOD MOUNT ANALYSIS REPORT," DATED: "AUGUST 24, 2018," SITE NAME: "CT13XC264." SEE SHEETS S-2 FOR MOUNT MOD DETAILS

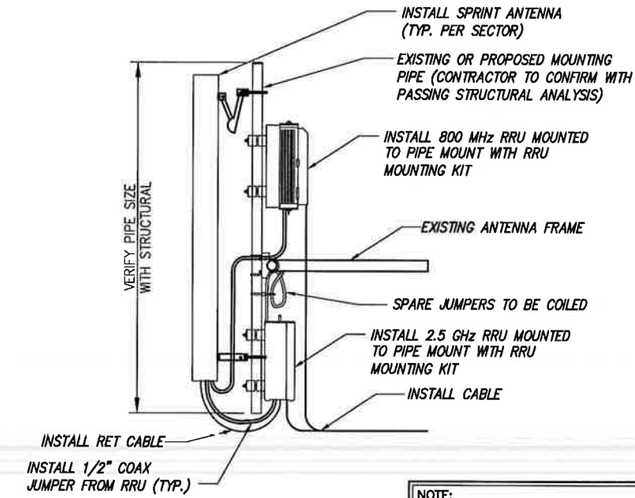
FRAME MODIFICATION AND TYPICAL PIPE TO PIPE CLAMP | NO SCALE | 3



FINAL ANTENNA LAYOUT | NO SCALE | 2



STAND OFF MOUNT | NO SCALE | 3A



NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRU MOUNTING DETAILS

NOTE:
CONTRACTOR TO POSITION RRU ON MOUNT BEHIND ANTENNA SUCH THAT THE RRU DOES NOT INTERFERE WITH THE EXISTING MOUNTING HARDWARE.

NOTE:
SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

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SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

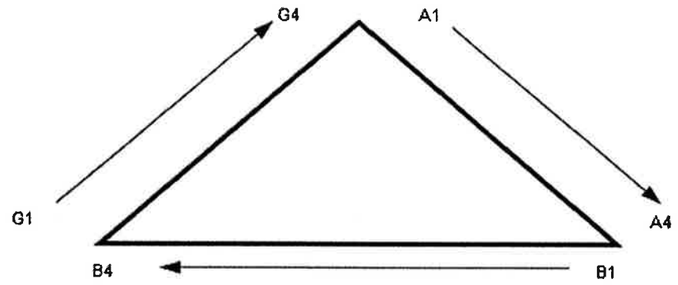
SHEET NUMBER:
A-3

NV CABLES				
BAND	INDICATOR		PORT	COLOR
800-1	YEL	GRN	NV-1	GRN
1900-1	YEL	RED	NV-2	BLU
1900-2	YEL	BRN	NV-3	BRN
1900-3	YEL	BLU	NV-4	WHT
1900-4	YEL	SLT	NV-5	RED
800-2	YEL	ORG	NV-6	SLT
SPARE	YEL	WHT	NV-7	PPL
2500	YEL	PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK–OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.

3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.

5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.

6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.

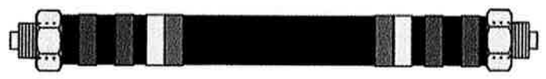
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Black	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Black	Black	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Black	Black	Black
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

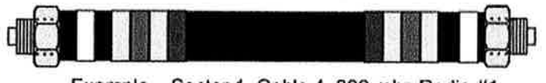
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL



Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1
and 1900mhz Radio #1

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SITE NAME:
NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:
CT13XC264

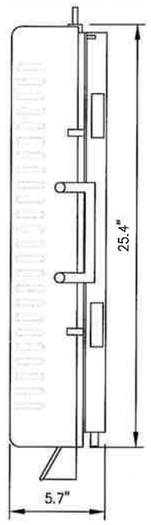
SITE ADDRESS:
250 DERBY AVE
NEW HAVEN, CT 06516

SHEET DESCRIPTION:
COLOR CODING AND NOTES

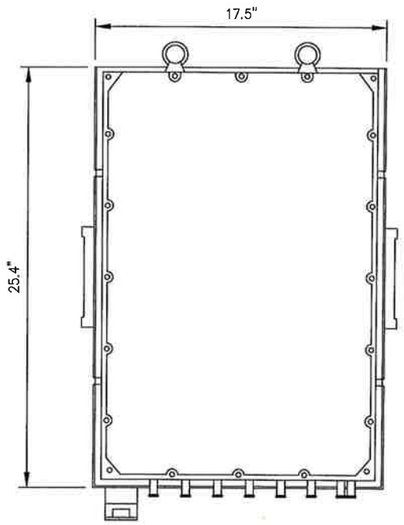
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

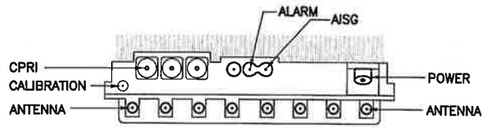
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

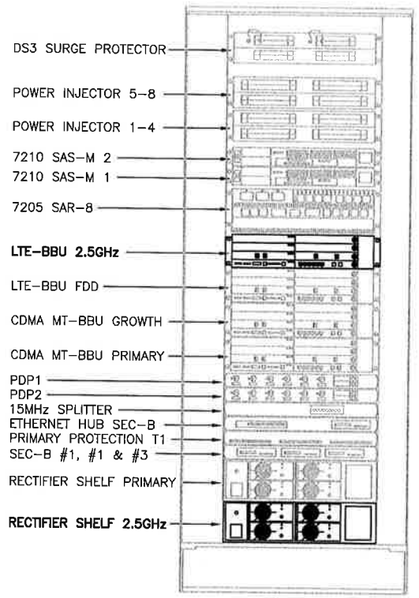


PLAN VIEW

NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.

2.5 RRU'S | NO SCALE | 1

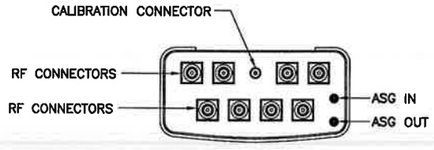


FRONT VIEW

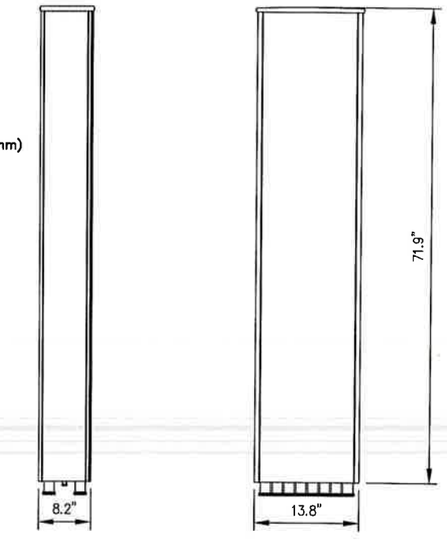
2.5 EQUIPMENT IN EXISTING CABINET | NO SCALE | 2

ANTENNA COMMSCOPE DT465B-2XR

RADOME MATERIAL:	FIBER GLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x13.8"x8.2" (1825x350x209mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16 DIN FEMALE (8) 4.1/9.5 DIN FEMAIL



PLAN VIEW



SIDE VIEW FRONT VIEW

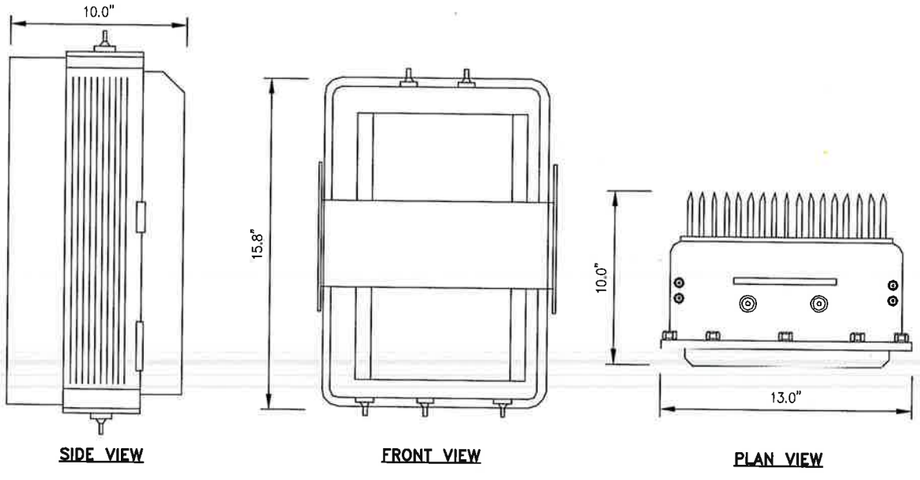
2.5 DUAL BAND 800/2500 ANTENNA | NO SCALE | 3

RRU: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.



SIDE VIEW FRONT VIEW PLAN VIEW

800 RRU'S | NO SCALE | 4

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SITE CASCADE:

CT13XC264

SITE ADDRESS:

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NEW HAVEN, CT 06516

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

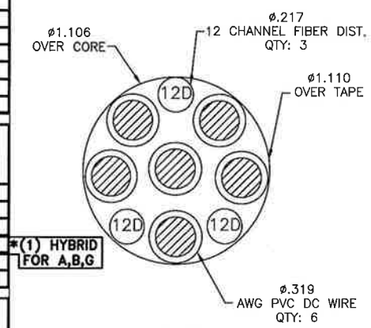
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

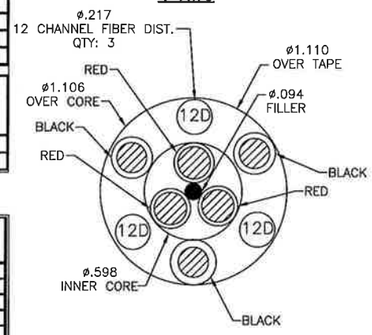
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

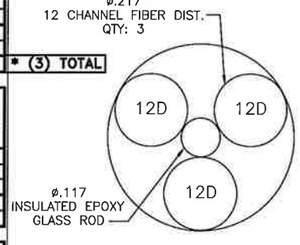
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

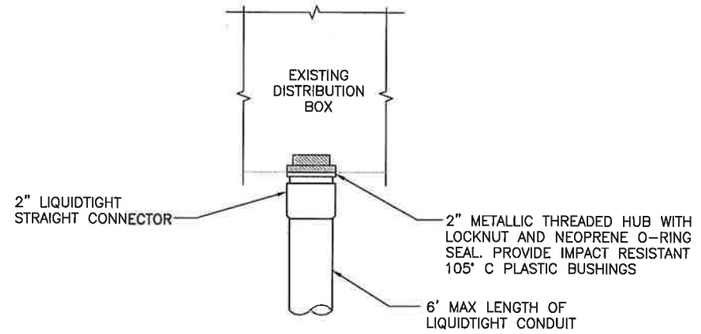


8 & 6 AWG



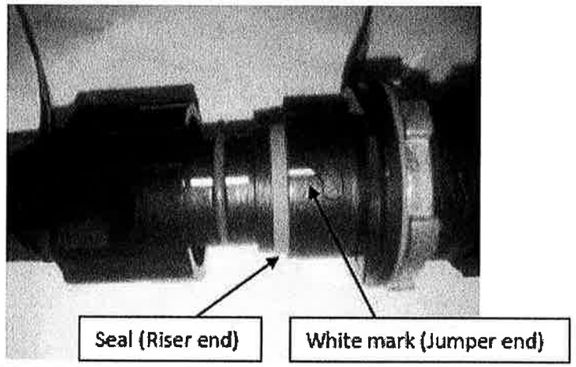
FIBER ONLY

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1

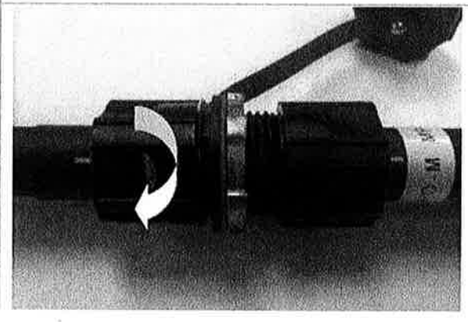


FIBER JUNCTION BOX PENETRATION | NO SCALE | 2

IMPORTANT!! Line up white markings on jumper and riser IP-MPO connectors and slide the riser connector to the jumper connector. Push the white mark on the jumper connector flush again the red seal on the riser connector.

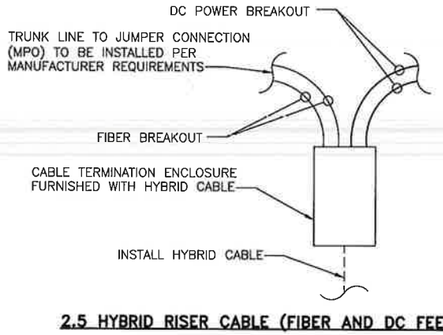


IMPORTANT!! Rotate the bayonet housing clock wise until you hear a click sound (means a good connection is in place).

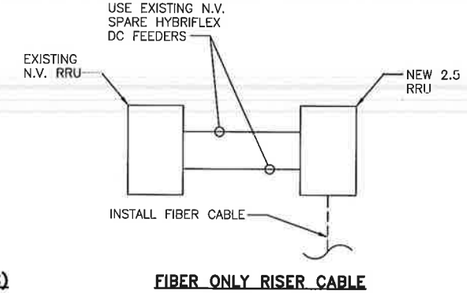


INFORMATION BASED ON PROVIDED INFORMATION FROM ALCATEL-LUCENT 2.5 GHz UPGRADE INSTALLATION GUIDE.

HYBRIFLEX RISER/JUMPER CONNECTION DETAIL | NO SCALE | 3



2.5 HYBRID RISER CABLE (FIBER AND DC FEEDERS)



FIBER ONLY RISER CABLE

TRUNK LINE DETAIL (TYP.) | NO SCALE | 4

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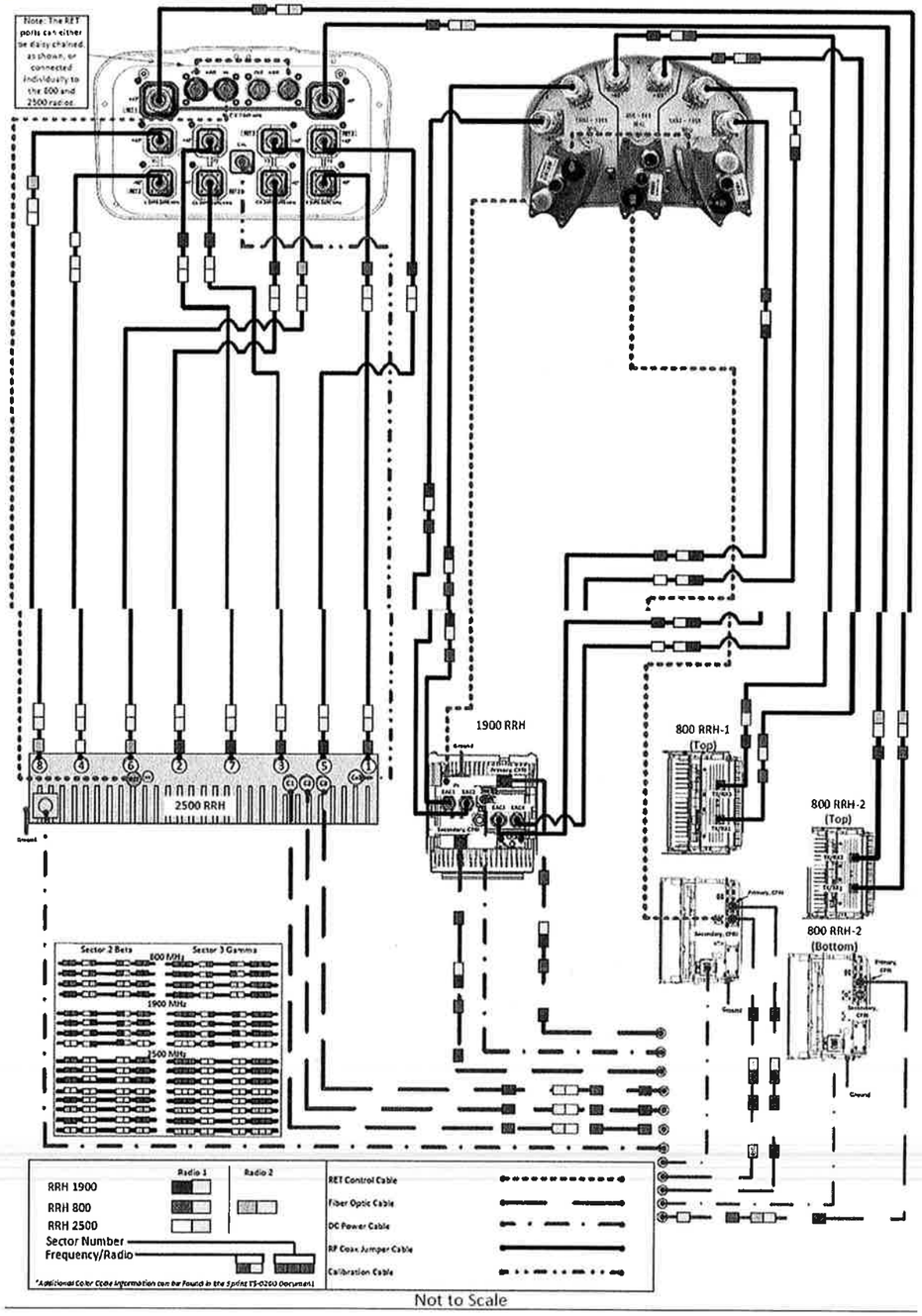
SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-6

ALU 211 DT465B-2XR & APXVSPP18-C-A20 wo Filters



Not to Scale

PLUMBING DIAGRAM | NO SCALE | 1

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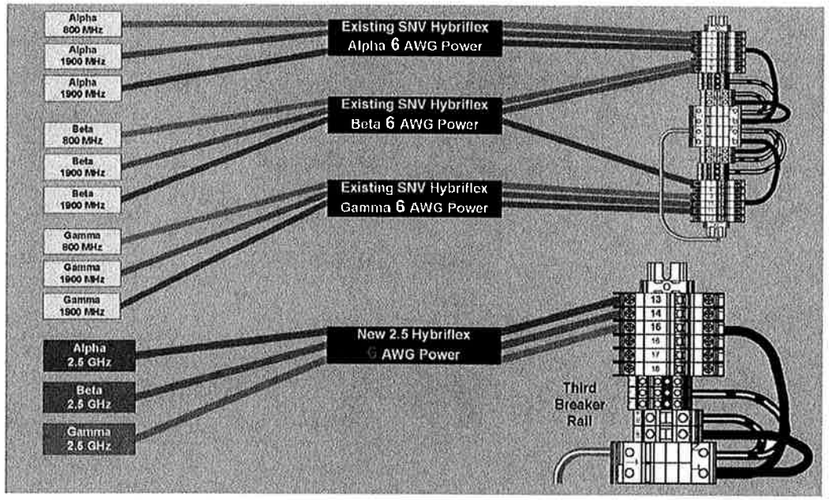
SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

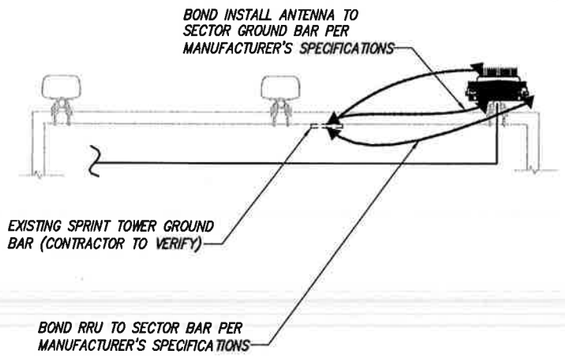
A-7



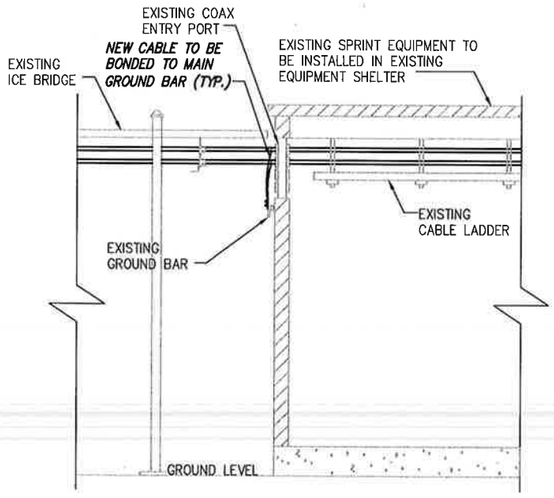
THIRD BREAKER RAIL DETAIL | NO SCALE | 1

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) | NO SCALE | 3

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SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
NEW HAVEN, CT 06516

SHEET DESCRIPTION:

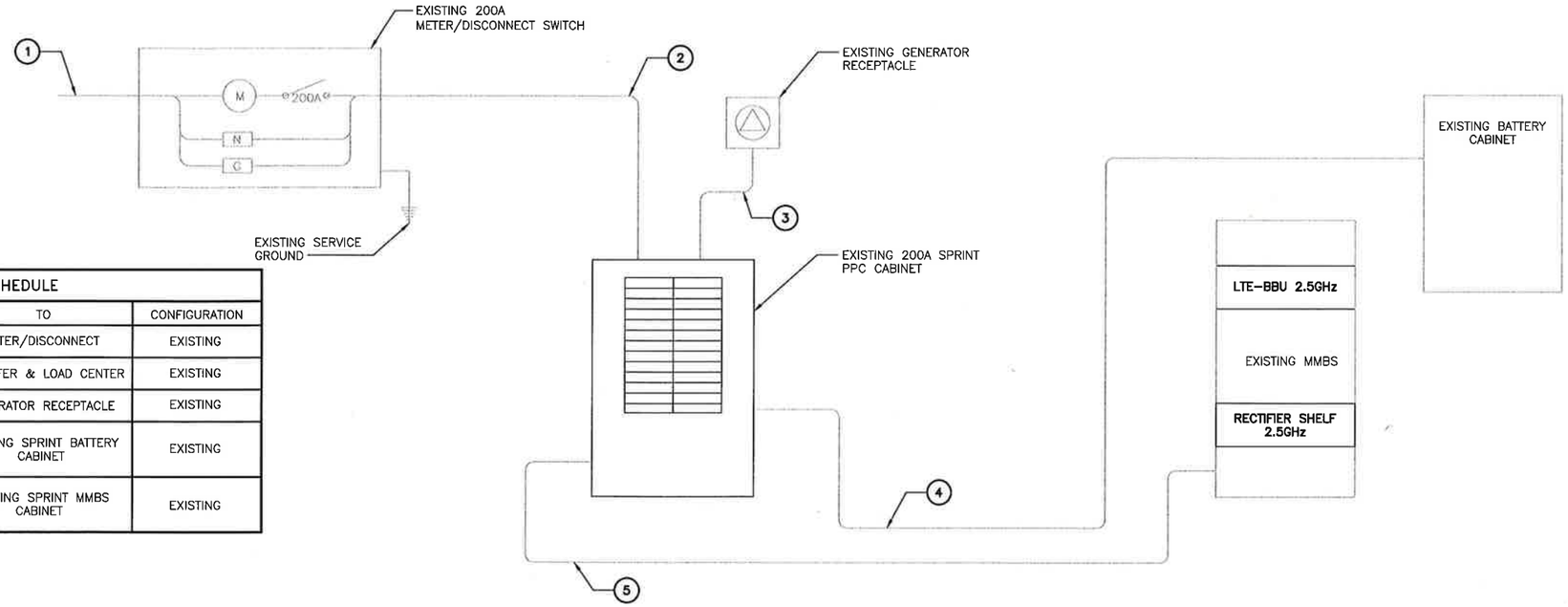
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

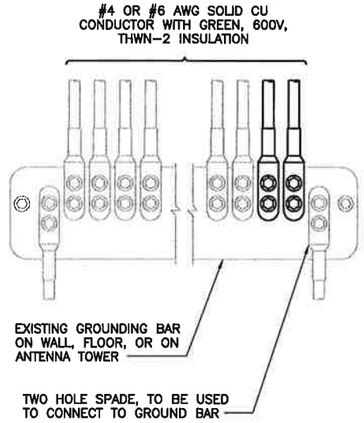
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BATTERY CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

ELECTRICAL ONE–LINE DIAGRAM

NO SCALE | 1

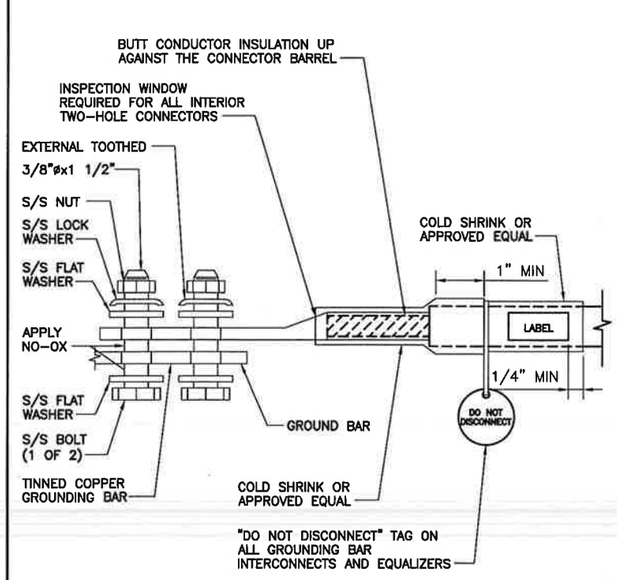


NOTES

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.

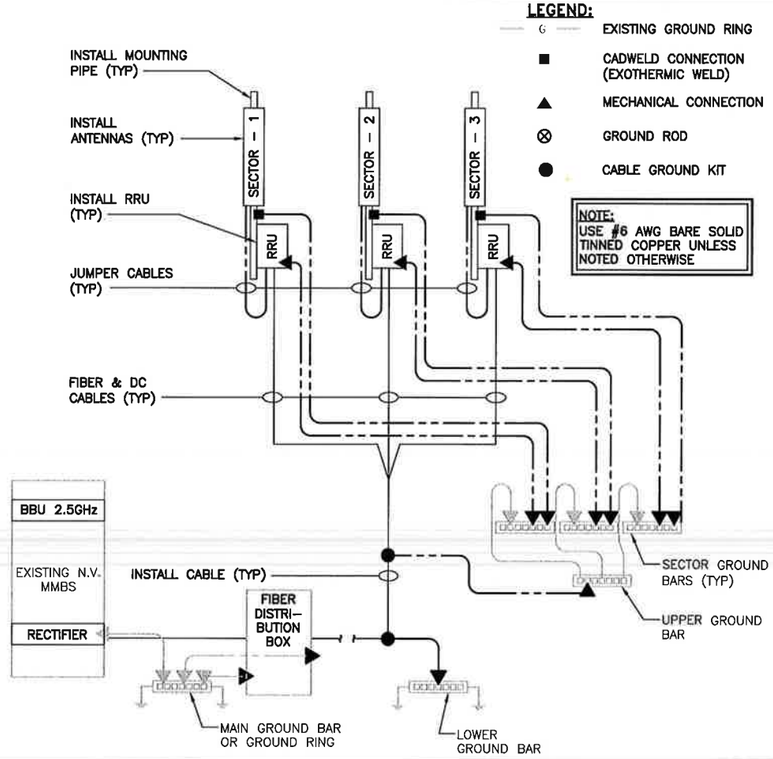
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE | 2



TWO HOLE LUG

NO SCALE | 3



GROUNDING RISER DIAGRAM

NO SCALE | 4

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526–102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24708
LICENSED PROFESSIONAL ENGINEER
AUG 31 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED FOR PERMIT	8/31/18	ASW	1
ISSUED FOR PERMIT	12/05/17	MPS	0
REVISED PER RFDS	10/11/17	MPS	B
ISSUED FOR REVIEW	05/19/17	ASW	A

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
NEW HAVEN, CT 06516

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

MONOPOLE MODIFICATION DRAWINGS

PREPARED BY:

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06/13/18

INFINIGY JOB # 526-102

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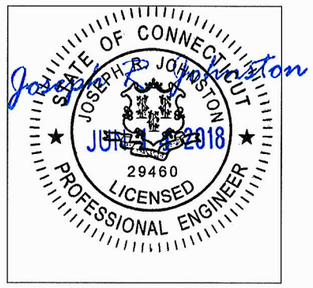


PROFESSIONAL SEAL

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

S1

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA-222 STANDARD, AWWA-D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA-1019-A-2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325-X. Fu=120 KSI, U.N.O.
   - U-BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT-TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE - HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE - HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE - RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"-20 LOW CARBON STEEL COPPER-FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE

SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8-16 UNC	8 FT-LBS	4 FT-LBS
1/2-13 UNC	18 FT-LBS	8 FT-LBS
5/8-11 UNC	35 FT-LBS	16 FT-LBS
3/4-10 UNC	50 FT-LBS	24 FT-LBS
1-8 UNC	110 FT-LBS	50 FT-LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER

	RANGE	RECOMMENDED
EDGE DISTANCE - CL* BOLT TO END	2.0-4.0	3.0
EDGE DISTANCE - CL* BOLT TO SIDE	1.5-3.5	2.5
BOLT PITCH - CL* TO CL*	4.0-5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F-1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

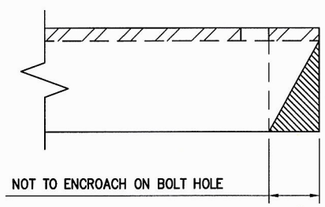
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



PLANS PREPARED FOR:

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6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
LICENSED
PROFESSIONAL ENGINEER

Joseph R. Johnston
JUN 29 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
CHANGED TO FLAT PLATE	06/12/18	DMB	1
FOR REVIEW	12/04/17	DMB	0

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
WEST HAVEN, CT 06516

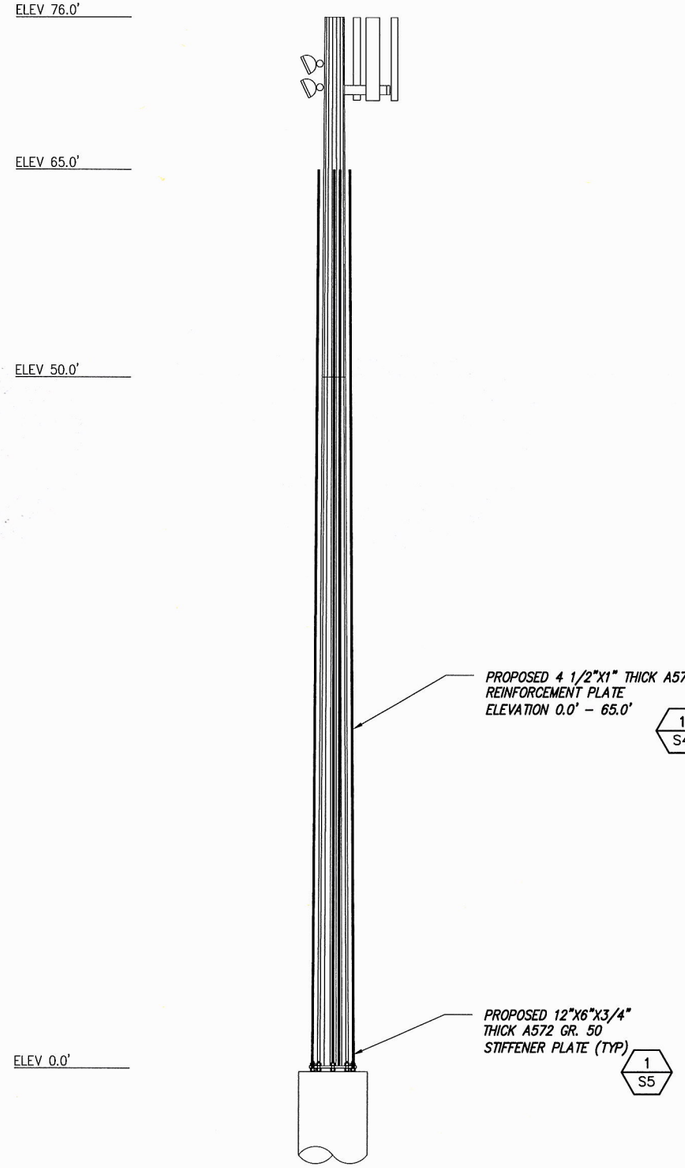
SHEET DESCRIPTION:

GENERAL NOTES

SHEET NUMBER:

S2

DESIGN BASED ON REQUIREMENTS FROM FAILING STRUCTURAL ANALYSIS BY INFINIGY JOB #526-102 DATED NOV. 16, 2017



1 -- ELEVATION VIEW
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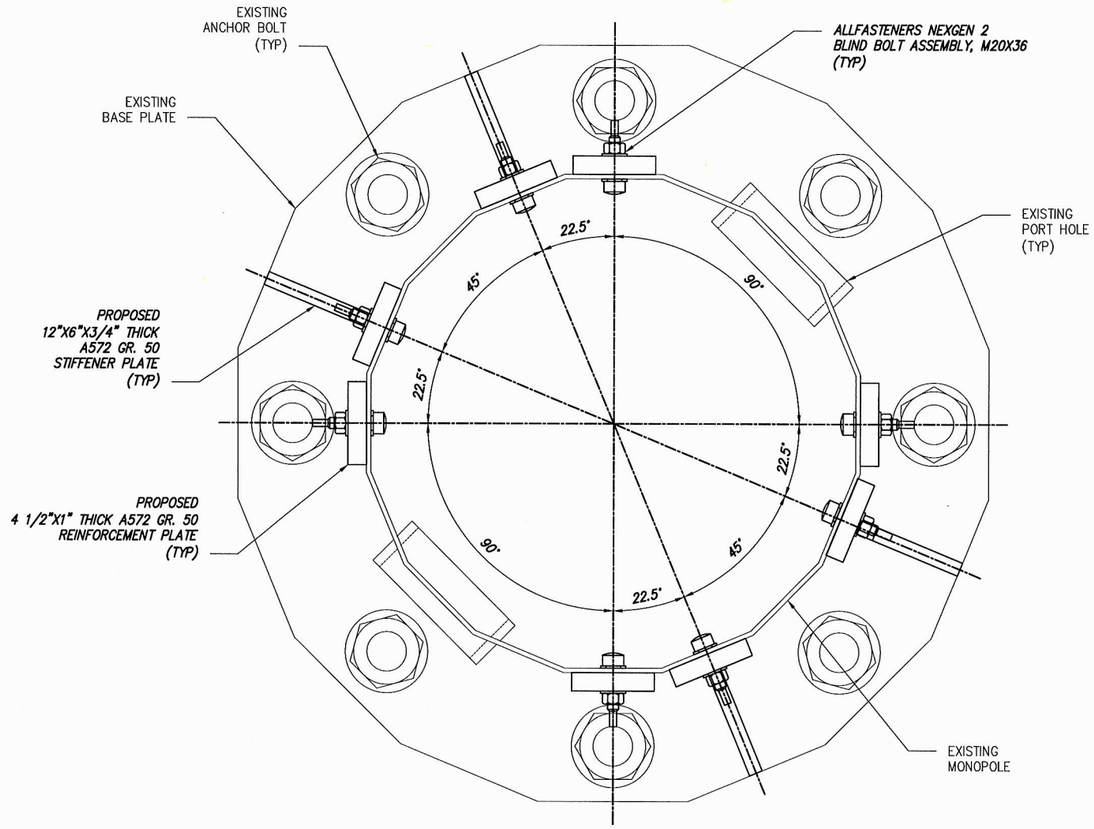

2 -- REINFORCEMENT LOCATION
SCALE: NOT TO SCALE

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Sprint

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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ENGINEERING LICENSE:

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JOSEPH R. JOHNSTON
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29460

Joseph R. Johnston
JUN 14 2018

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SITE ADDRESS:

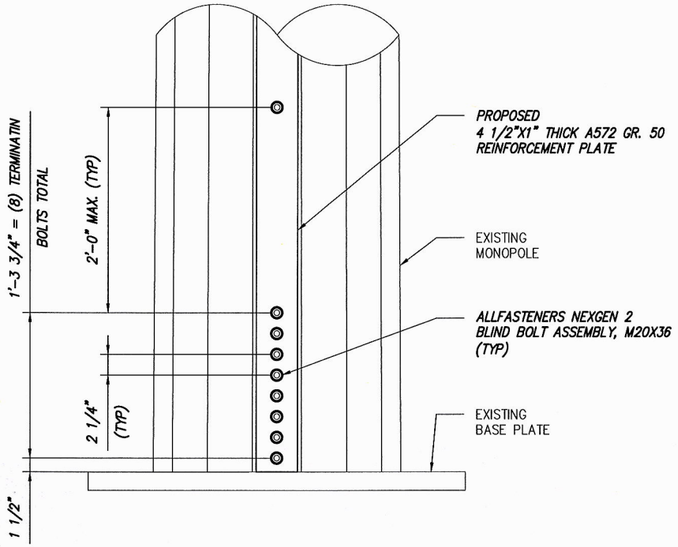
250 DERBY AVE
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

ELEVATION AND PLAN VIEW

SHEET NUMBER:

S3



1 REINFORCEMENT PLAT AT BASE OF TOWER
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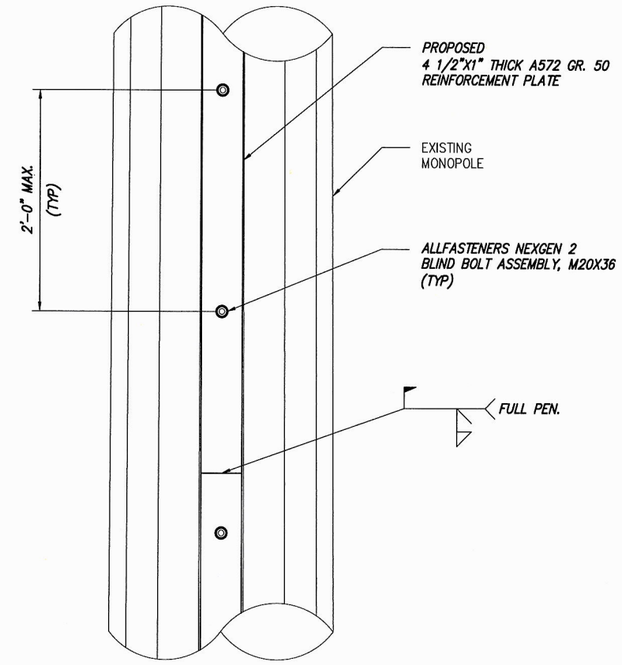
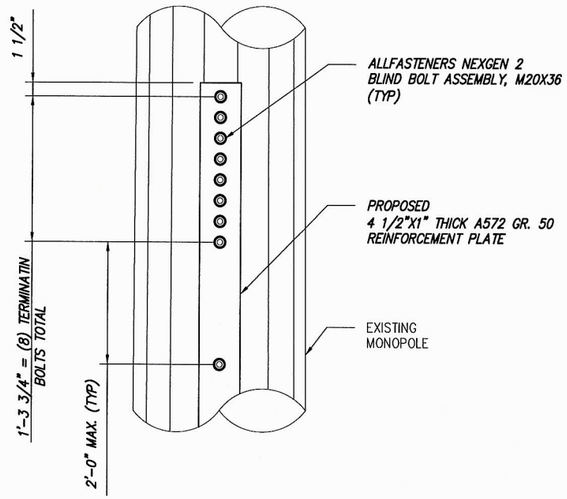
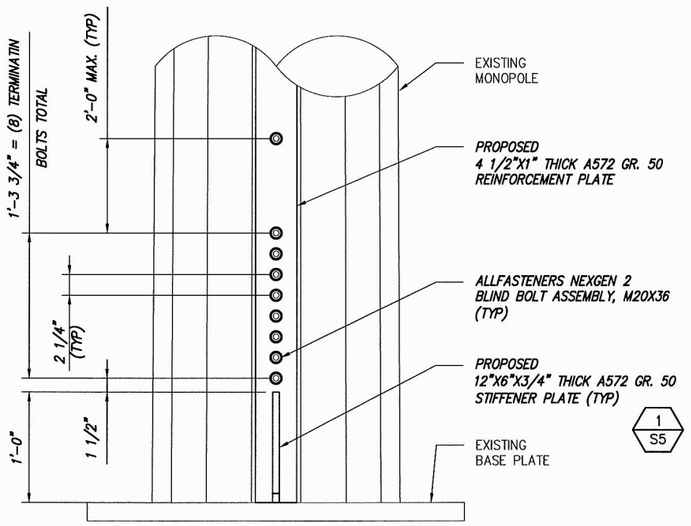


2 REINFORCEMENT PLAT AT SPLICE
SCALE: NOT TO SCALE



3 TOP OF REINFORCEMENT PLATE
SCALE: NOT TO SCALE



4 REINFORCEMENT PLAT AT BASE OF TOWER W/ STIFFENER
SCALE: NOT TO SCALE

PLANS PREPARED FOR:

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6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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Cherundolo Consulting

ENGINEERING LICENSE:

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29469
JUN 14 2018

Joseph Johnston

DRAWING NOTICE:

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SITE ADDRESS:

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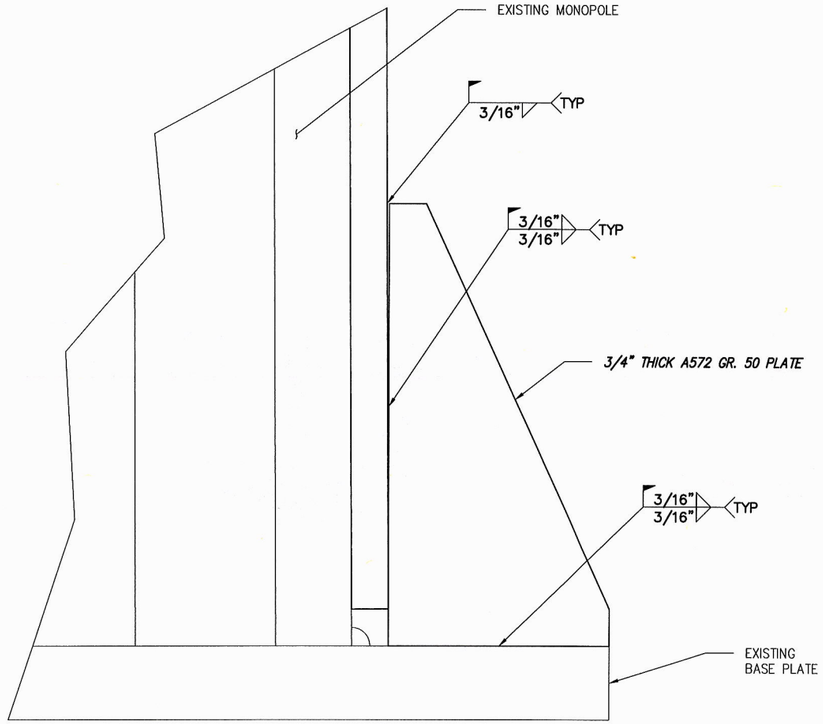
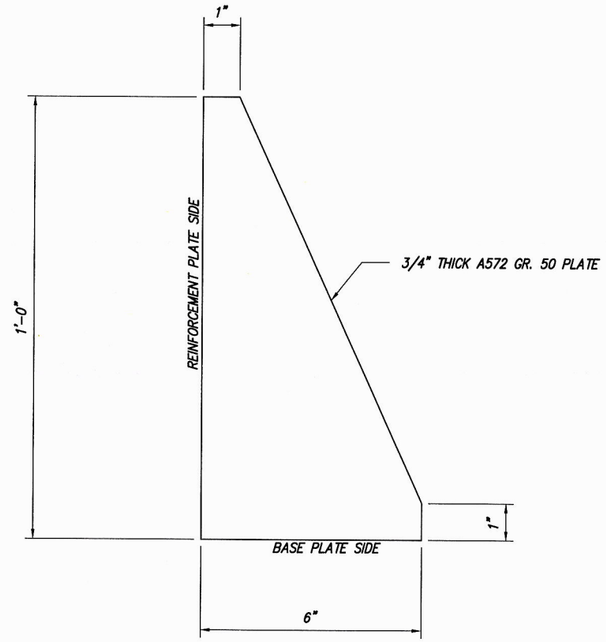
REINFORCEMENT PLATE DETAILS

SHEET NUMBER:

S4



1 STIFFENER PLATE INSTALLATION
SCALE: NOT TO SCALE



2 STIFFENER PLATE
SCALE: NOT TO SCALE

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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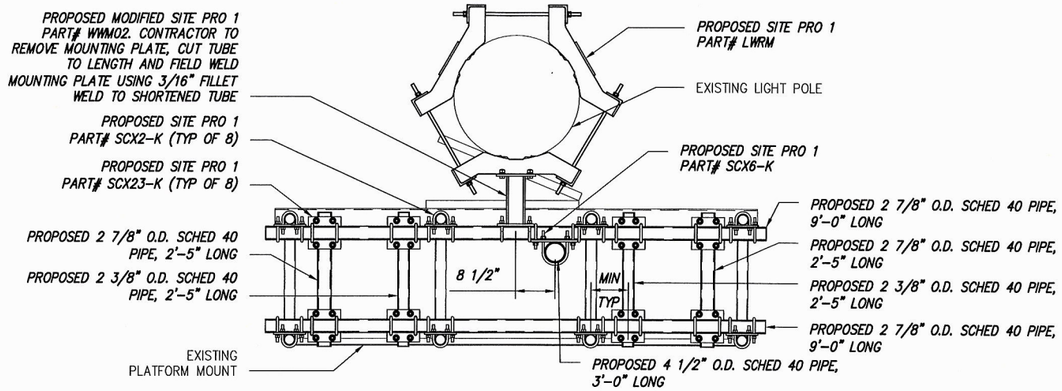
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

STIFFENER INSTALLATION DETAILS

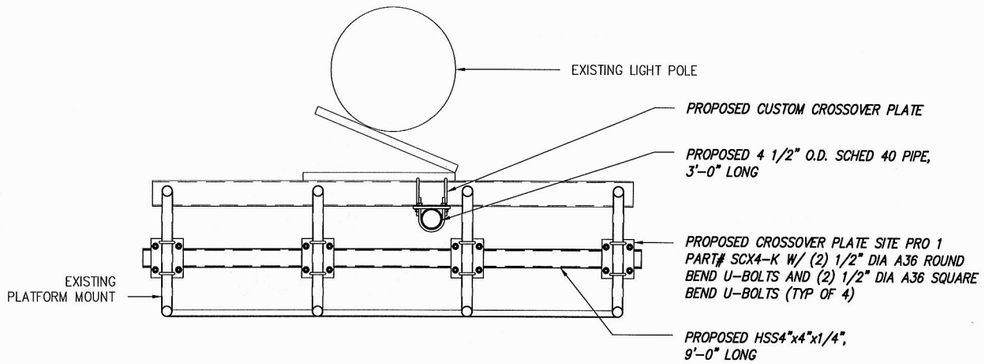
SHEET NUMBER:

S5



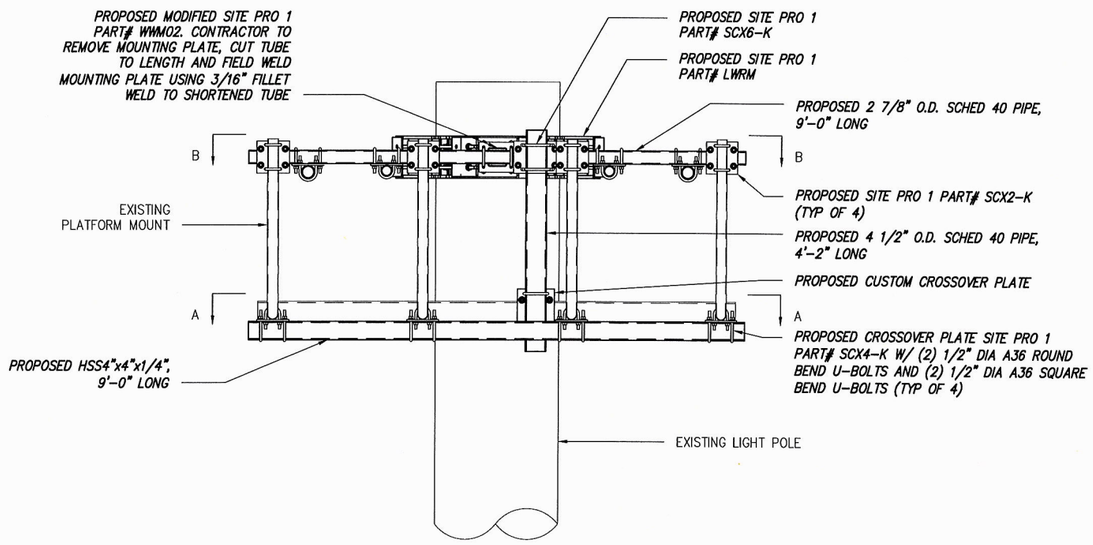
3 -- SECTION B-B

SCALE: NOT TO SCALE



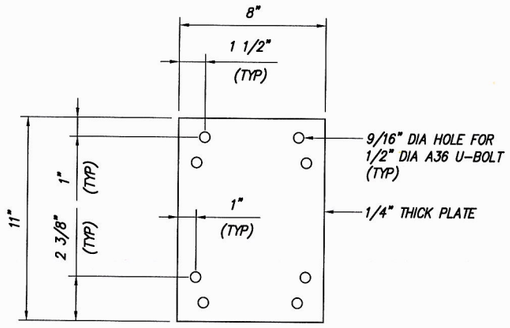
2 -- SECTION A-A

SCALE: NOT TO SCALE



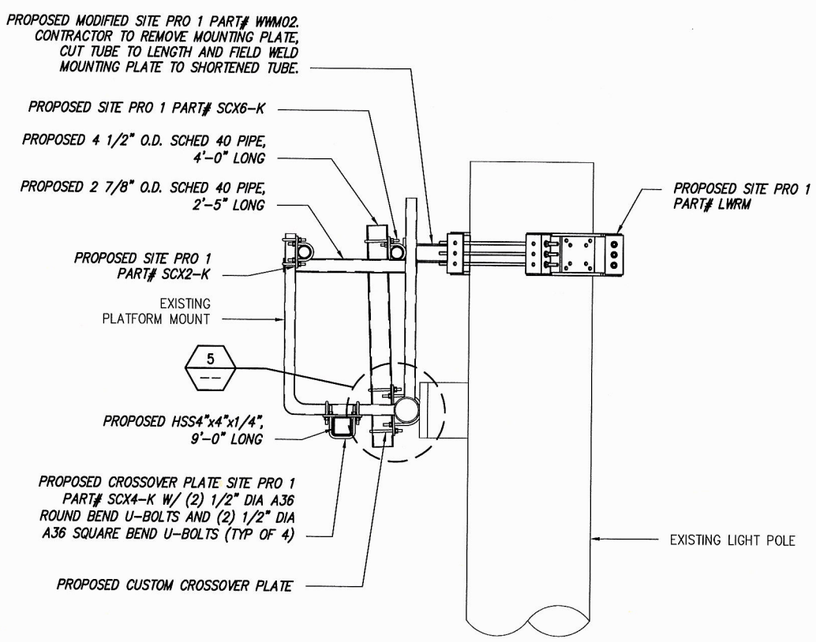
1 -- ELEVATION VIEW

SCALE: NOT TO SCALE



5 -- DETAIL

SCALE: NOT TO SCALE



4 -- SIDE VIEW

SCALE: NOT TO SCALE

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
29460
LICENSED
PROFESSIONAL ENGINEER

Joseph Johnston
AUG 24 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
FOR REVIEW	08/24/17	JRJ	0

SITE NAME:

NEW HAVEN CAP 3 / YALE UNIVERSITY

SITE CASCADE:

CT13XC264

SITE ADDRESS:

250 DERBY AVE
WEST HAVEN, CT 06516

SHEET DESCRIPTION:

MOUNT DESIGN

SHEET NUMBER:

S-2