



**Centek Engineering, Inc.**  
3-2 North Branford Road  
Branford, Connecticut 06405  
Phone: (203) 488-0580  
Fax: (203) 488-8587

**Steven L. Levine**  
Real Estate Consultant

HAND DELIVERED

August 19, 2015

Attorney Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 50 Fairchild Road, Middletown, Connecticut.**

Dear Ms. Bachman:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of 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, copies of this letter are being sent to the chief elected official of the municipality in which the affected cell site is located, the property owner of record, and the tower owner or operator.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

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

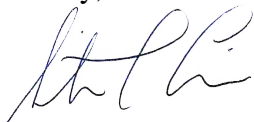
The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical and environmental characteristics of the site will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will not increase.
2. The proposed changes will not extend the site boundaries.
3. The proposed changes will not increase the noise level at the site boundary by six decibels or more, or to levels that exceed state and local criteria.
4. The changes will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes.
5. The proposed changes will not impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

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

Please feel free to call me at (860) 830-0380 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine  
Real Estate Consultant

cc: Town CEO – Mayor Daniel T. Drew, City of Middletown  
Land Owner of Record – Stephen G & Barbara L. Borrelli  
Tower Owner / Operator – SBA (by email)

Attachments

**NEW CINGULAR WIRELESS PCS, LLC**  
**Equipment Modification**

50 Fairchild Road, Middletown  
CSC Approvals: Dockets 316 and 316A  
Petition 988  
Exempt Mod 5/14 (Expired)  
AT&T Site CT2547

**Background Note:** In **EM-AT&T-083-140423** (acknowledged 5/13/14) New Cingular Wireless PCS, LLC (“AT&T”) gave notice of its intent to install a multi-LTE-frequency upgrade at the site. AT&T submitted the aforesaid Notice of Exempt Modification with tower modification plans that included strengthening the monopole with three guy lines. The acknowledgment expired 5/13/15 without the upgrade or tower modifications having been performed. Thus, the tower is not guyed.

Tower modifications required for a single-LTE-frequency upgrade are included herein. These modifications are adequate to support the proposed loading *without installation of guy lines*.

**Tower Owner/Manager:** SBA

**Land Owner of Record:** Stephen G. & Barbara L. Borrelli

**Lease Area:** The Fairchild Road facility was approved by the Council in Docket 316 and re-approved in Docket 316A after re-opening. Comparison between the attached Docket 316 site plan and the current design drawings demonstrates that the neither the fenced compound nor the overall lease area will be enlarged due to the proposed equipment modifications.

**Equipment Configuration:** Monopole

**Current and/or approved:** Low profile platform @ 130 ft.  
Nine PowerWave P65-16-XLH-RR antennas @ 130 ft c.l.  
Six PowerWave TMA’s @ 130 ft  
Six remote radio heads @130 ft  
Twelve runs 1 5/8 inch coax  
Equipment shelter

**Planned Modifications:**

Remove existing platform and all antennas, TMA's, and associated equipment from the 130 ft level.  
 Remove six 1 5/8 inch coax lines -- Six to remain.  
 Install recommended structural modifications.  
 Install one Commscope MTC3607R antenna platform with handrails @ the 130 ft level.  
 Reinstall three PowerWave P65-16-XLH-RR antennas @ 130 ft c.l.  
 Install six CCI OPA-65R-LCUU-XLH-RR antennas @ 130 ft c.l.  
 Install three CCI TMA's @ 130 ft.  
 Install nine remote radio heads @ 130 ft.  
 Install two Raycap DC6-48-60-18-8F surge arrestors @ 130 ft.  
 Install two fiber cable and four DC control cables.  
 Install new ice bridge at grade.

**Power Density:**

Calculations for AT&T's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the monopole base, of approximately 44.4 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for AT&T's planned operations would be approximately 43.3 % of the standard.

**Existing**

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *							35.24
AT&T LTE *	130	740	1	500	0.0106	0.4933	2.16
AT&T UMTS *	130	880 - 894	1	500	0.0106	0.5867	1.81
AT&T UMTS *	130	1900 Band	1	500	0.0106	1.0000	1.06
AT&T GSM *	130	880 - 894	3	296	0.0189	0.5867	3.22
AT&T GSM *	130	1900 Band	1	427	0.0091	1.0000	0.91
<b>Total</b>							<b>44.4%</b>

\* Per CSC records. (Petition 988)

**Proposed**

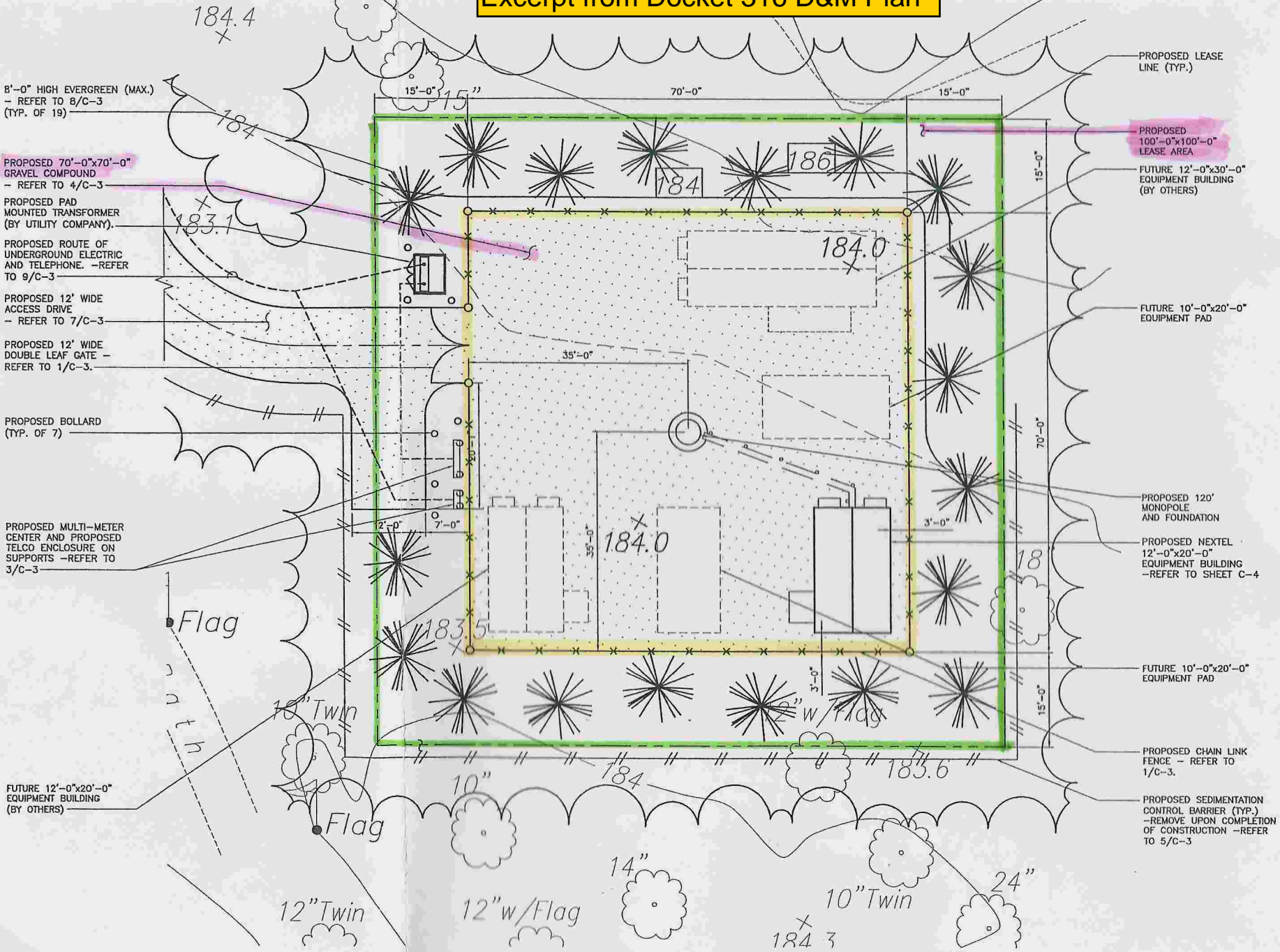
Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *							35.24
AT&T LTE *	130	700 Band	1	500	0.0106	0.4667	2.28
AT&T UMTS *	130	880 - 894	2	500	0.0213	0.5867	3.63
AT&T UMTS *	130	1900 Band	2	500	0.0213	1.0000	2.13
<b>Total</b>							<b>43.3%</b>

\* Per CSC records.

**Structural information:**

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed equipment modifications upon completion of recommended structural modifications described in attachments hereto. (FDH Velocitel, 8-7-15)

**Excerpt from Docket 316 D&M Plan**



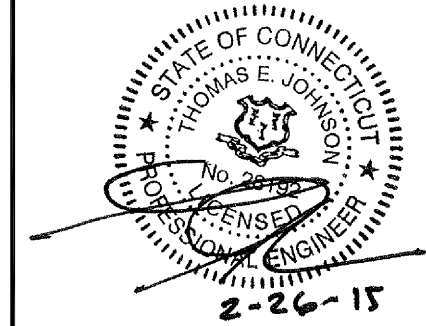
**1 COMPOUND PLAN**  
C-2 SCALE: 1" = 10'-0"







# at&t



# MIDDLETOWN CT (CT-2547)

50 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

SITE TYPE: MONOPOLE – LTE W6 ALTERATION

PROJECT SUMMARY	
SITE NAME:	MIDDLETOWN CT
SITE ADDRESS:	50 FAIRCHILD ROAD MIDDLETOWN, CT 06457
COUNTY:	MIDDLESEX
TAX ID:	MAP 42, LOT 118
ZONING JURISDICTION:	TOWN OF MIDDLETOWN
ZONING CLASSIFICATION:	(R-30) RESIDENTIAL
CONSTRUCTION TYPE:	ALTERATION
LATITUDE:	41° 32' 42.0" N ± (ASR RECORD)
LONGITUDE:	72° 37' 14.8" W ± (ASR RECORD)
PROPERTY OWNER:	N/F STEPHEN & BARBARA BORELLI 58 EDGEWOOD DRIVE MIDDLETOWN, CT 06457
FACILITY OWNER:	SITE ID: CT-13064 SBA TOWERS VI, LLC 5900 BROKEN SOUND PARKWAY NW BOCA RATON, FL 33487-2797
APPLICANT, LESSEE/LICENSEE, PROJECT OWNER:	NEW CINGULAR WIRELESS PCS, LLC d/b/a "AT&T" 550 COCHITUATE ROAD FRAMINGHAM, MA 01701
ARCHITECT/ENGINEER:	PROTERRA DESIGN GROUP, LLC 4 BAY ROAD BUILDING A; SUITE 200 HADLEY, MA 01035



SHEET INDEX		
SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & ELEVATION	1
A-2	EQUIPMENT ROOM PLAN	1
S-1	STRUCTURAL DETAILS	1
S-2	STRUCTURAL DETAILS	1
S-3	STRUCTURAL DETAILS	1
E-1	ELECTRICAL & GROUNDING DETAILS	1

SCALE NOTES	
1.	THIS SHEET SET WAS ORIGINALLY SETUP AS 11"x17".
2.	PRINTING TO ANSI D (22"x34") WILL RESULT IN A DOUBLE SCALE SHEET SET WITH 1" MARGINS. RESULTING SCALES WILL BE THOSE NOTED IN TEXT. EXAMPLE: 1"=20' WILL CHANGE TO 1"=10'.
3.	CONFIRM ALL SCALED DISTANCES WITH GRAPHICAL SCALES SHOWN HEREIN. GRAPHICAL SCALES WILL BE UNCHANGED BY ENLARGEMENT OR REDUCTION.

PROJECT DESCRIPTION	
1.	THIS PLAN SET DETAILS A MODIFICATION TO AN EXISTING AT&T COMMUNICATIONS FACILITY.
2.	THIS IS UNMANNED & RESTRICTED-ACCESS EQUIPMENT AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
3.	THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
4.	NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
5.	NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
6.	NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
7.	AT&T MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

PLAN NOTES	
1.	EXISTING CONDITIONS BASED ON A FIELD VISIT BY PROTERRA DESIGN GROUP, LLC ON AUGUST 23, 2013.
2.	CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION OR BE RESPONSIBLE FOR SAME. ENGINEER OF RECORD IS TO BE INFORMED OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITY.
3.	ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 888-344-7233

**ProTerra**  
DESIGN GROUP, LLC  
4 Bay Road  
Building A; Suite 200  
Hadley, MA 01035 (413)320-4918

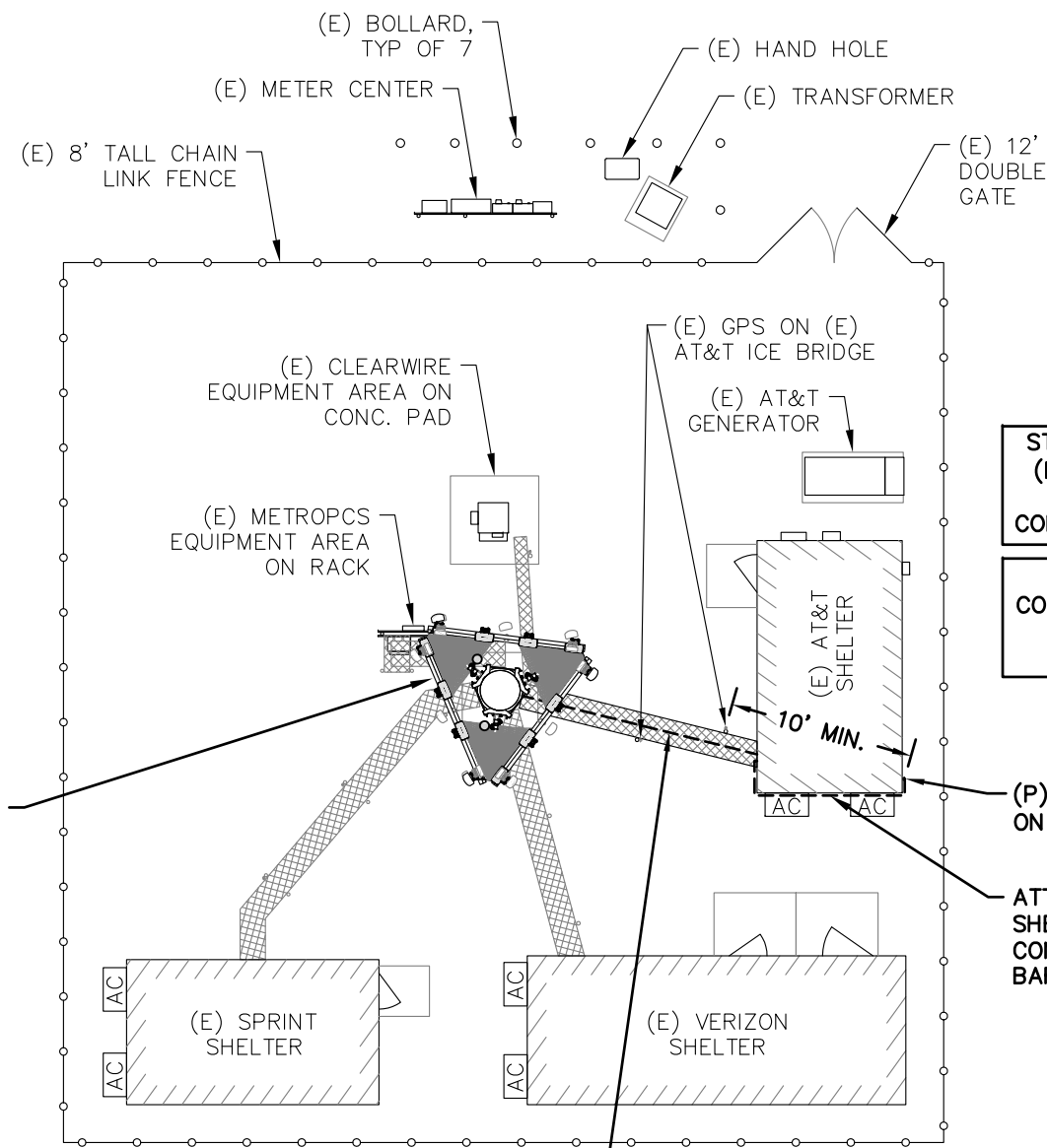
**SAI**  
27 Northwestern Drive  
Salem, NH 03079

**at&t**  
New Cingular Wireless PCS, LLC  
550 Cochituate Road  
Framingham, MA 01701

SITE NUMBER  
**CT-2547**  
50 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

REVISIONS	
0	LTE W6
1	FOR CONSTRUCTION

DESIGNED BY:	JMM/TEJ	JOB #:	11-023
DRAWN BY:	JEB/MJV	REV. #:	1
DATE:	02/26/15	<b>T-1</b>	
SCALE:	AS NOTED		



1-3  
S-1  
(E) 130'± TALL MONOPOLE WITH (E) & (P) AT&T RF EQUIPMENT

STRUCTURAL ANALYSIS OF (E) MONOPOLE SHALL BE PERFORMED PRIOR TO CONSTRUCTION (BY OTHERS)

ALL WORK TO BE COMPLETED IN ACCORDANCE WITH LATEST AT&T RF DESIGN SHEET

(P) LTE GPS ANTENNA ON (E) AT&T SHELTER

ATTACH GPS COAX TO SHELTER @ 2' O.C. W/ CONCRETE ANCHORS AND BARREL CUSHIONS.

1-3  
S-1  
(E) 130'± TALL MONOPOLE WITH (E) & (P) AT&T RF EQUIPMENT

(E) 120' TALL MONOPOLE WITH 10' EXTENSION

(P) (2) 18 PAIR FIBER TRUNK LINES & (4) DC POWER BUNDLES (FIBER & DC TO BE HOUSED IN (3) 3" FLEX CONDUIT) & (E) (6) 1-5/8"Ø COAX RUN THROUGH INTERIOR OF MONOPOLE. (E) (6) 1-5/8"Ø COAX TO BE REMOVED.

(P) ICE BRIDGE SUPPORTING (2) 18 PAIR FIBER TRUNK LINES & (4) DC POWER BUNDLES (FIBER & DC TO BE HOUSED IN (3) 3" FLEX CONDUIT) & (E) (6) 1-5/8"Ø COAX USING BARREL CUSHIONS & SNAP-IN HANGERS. (E) (6) 1-5/8"Ø COAX TO BE REMOVED.

3  
S-2  
(P) LTE GPS ANTENNA ON (E) AT&T SHELTER, 10' MIN. SEPARATION TO (E) GPS ANTENNAS

(E) 8' TALL CHAIN LINK FENCE

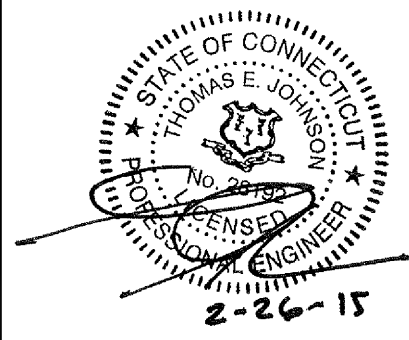
(E) VERIZON EQUIPMENT SHELTER  
(E) GPS ON (E) AT&T ICE BRIDGE  
(E) AT&T EQUIPMENT SHELTER  
(E) AT&T GENERATOR

(E) SPRINT EQUIPMENT SHELTER

(E) CLEARWIRE EQUIPMENT AREA ON CONC. PAD

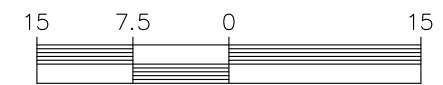
(E) METROPCS EQUIPMENT AREA ON RACK

130'± (E) & (P) AT&T PANEL ANTENNAS  
130'± TOP (E) MONOPOLE  
133'± (P) HIGHEST APURTEANCE



**COMPOUND PLAN**

SCALE: 1"=15' (11"x17")  
1"=7.5' (22"x34")



**NORTHWEST ELEVATION**

SCALE: 1"=20' (11"x17")  
1"=40' (22"x34")



**ProTerra**  
DESIGN GROUP, LLC  
4 Bay Road  
Building A; Suite 200  
Hadley, MA 01035  
(413)320-4918

**SAI**  
27 Northwestern Drive  
Salem, NH 03079

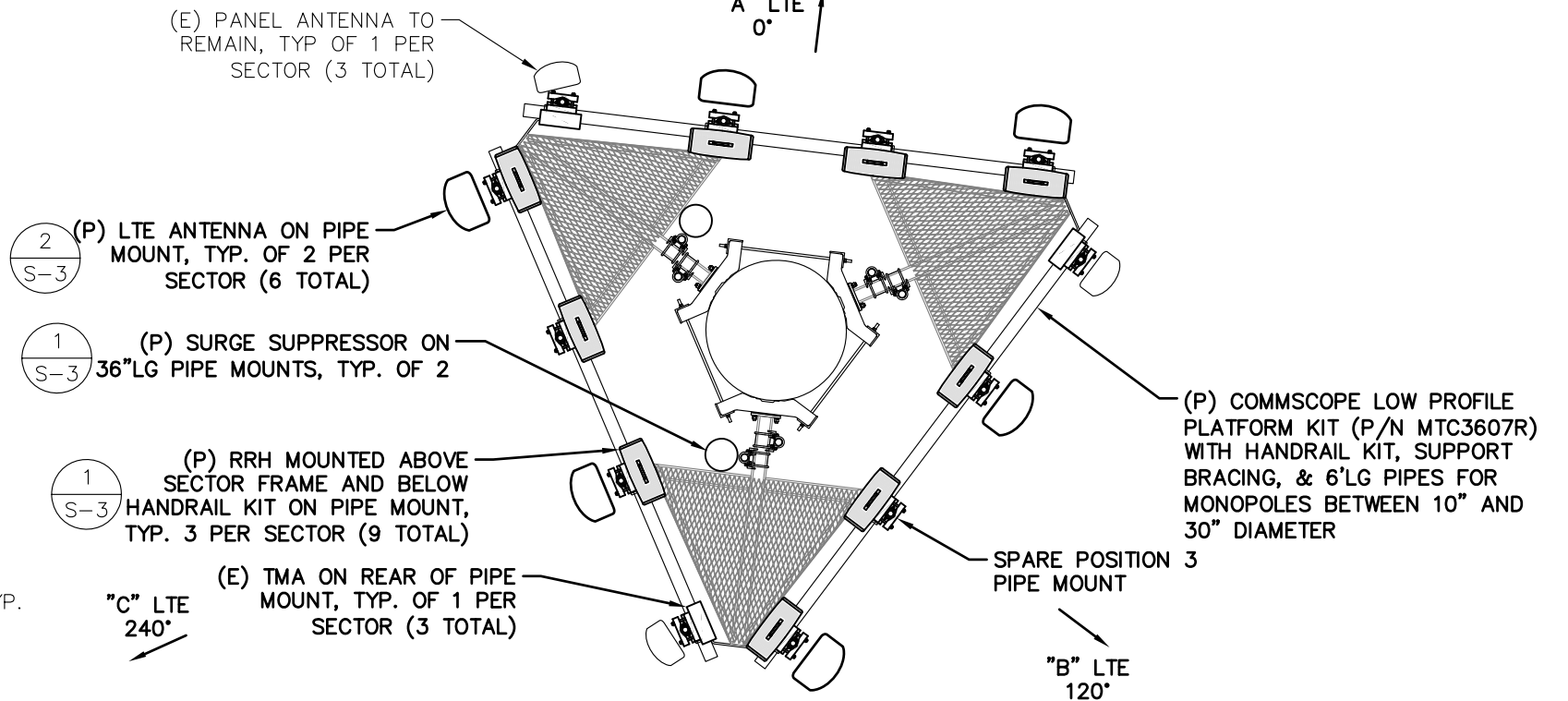
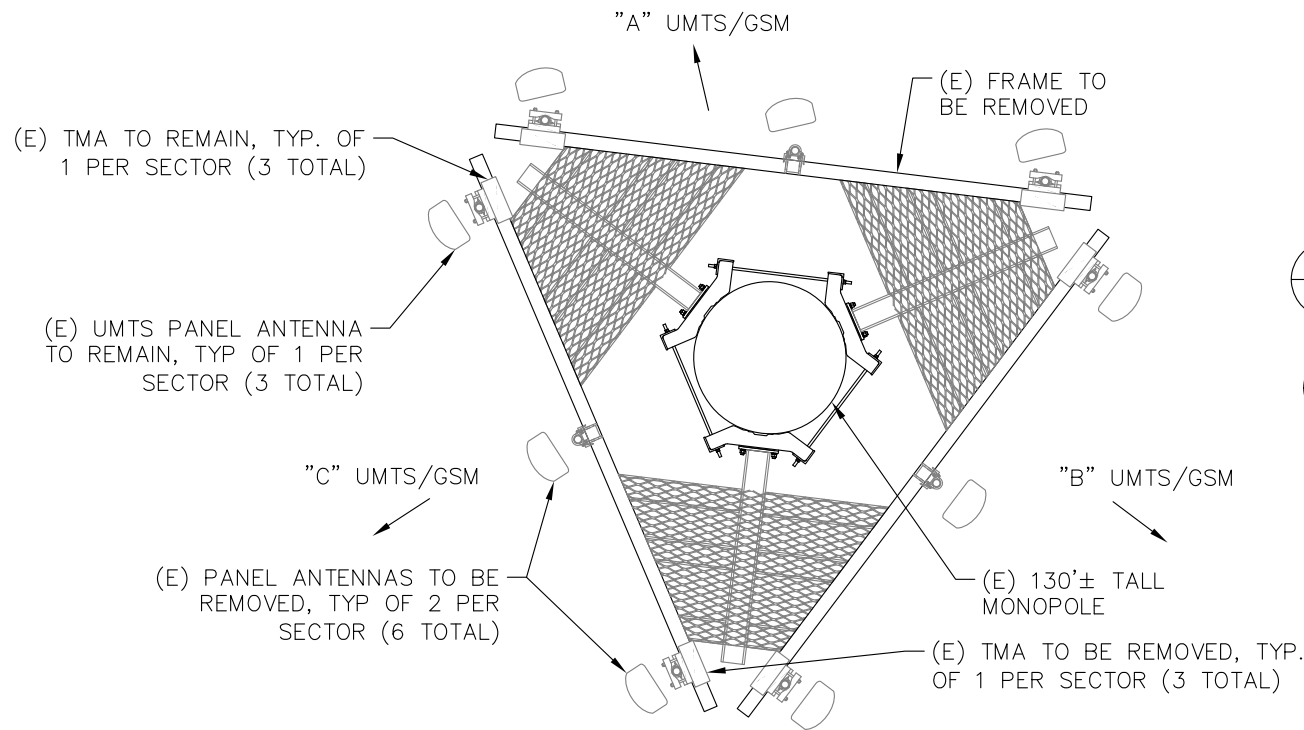
**at&t**  
New Cingular Wireless PCS, LLC  
550 Cochituate Road  
Framingham, MA 01701

SITE NUMBER  
**CT-2547**  
50 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

REVISIONS	
0	LTE W6
1	FOR CONSTRUCTION

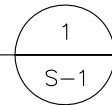
DESIGNED BY:	JMM/TEJ	JOB #:	11-023
DRAWN BY:	JEB/MJV	REV. #:	1
DATE:	02/26/15	<b>A-1</b>	
SCALE:	AS NOTED		





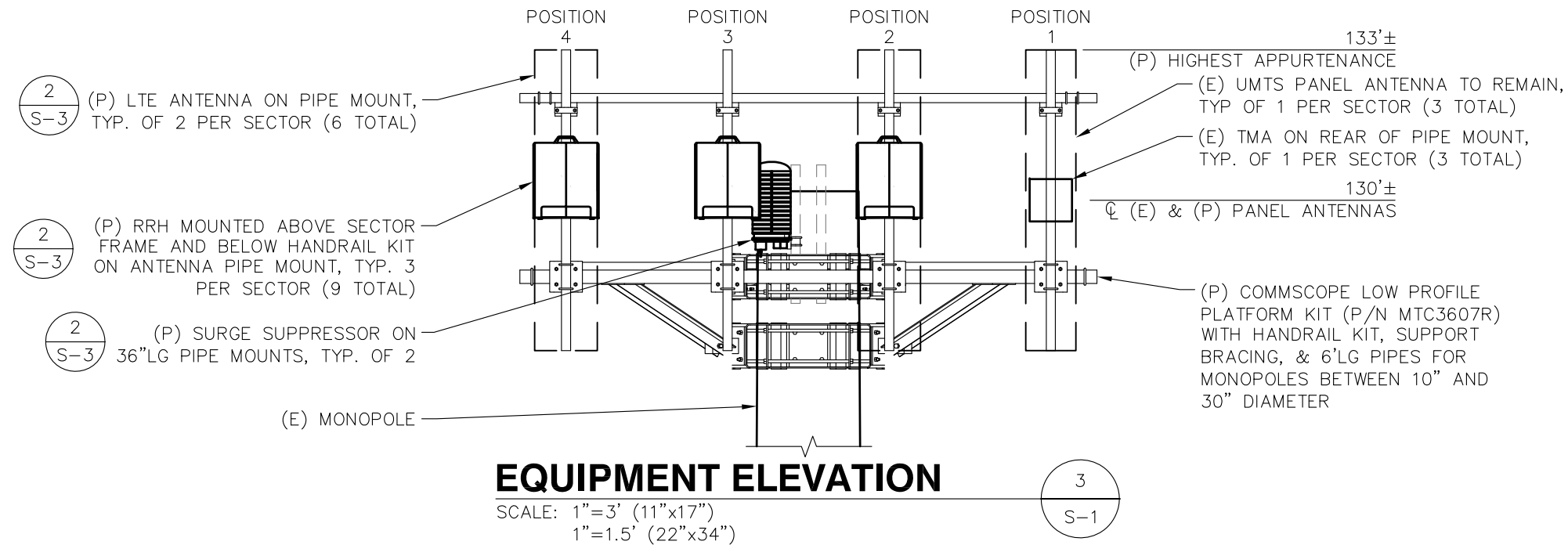
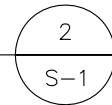
**EXISTING ANTENNA LEVEL**

SCALE: 1"=4' (11"x17")  
 1"=2' (22"x34")



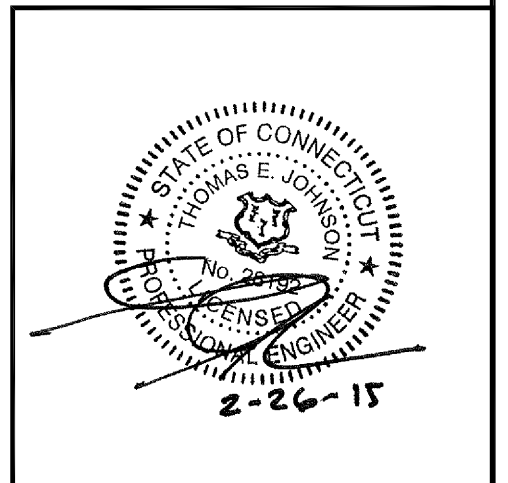
**PROPOSED ANTENNA LEVEL**

SCALE: 1"=4' (11"x17")  
 1"=2' (22"x34")



**EQUIPMENT ELEVATION**

SCALE: 1"=3' (11"x17")  
 1"=1.5' (22"x34")



REVISIONS	
0	LTE W6
1	FOR CONSTRUCTION

DESIGNED BY:	JMM/TEJ	JOB #:	11-023
DRAWN BY:	JEB/MJV	REV. #:	1
DATE:	02/26/15	<b>S-1</b>	
SCALE:	AS NOTED		



ENGINEERING INNOVATION

Velocitel, Inc., d.b.a. FDH Velocitel, 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for  
SBA Network Services, Inc.**

**130' Monopole Tower**

**SBA Site Name: Middletown 2  
SBA Site ID: CT13064-A-05  
AT&T Site Name: CT2547**

FDH Velocitel Project Number 15BVZK1400 (R1)

**Analysis Results**

Tower Components	95.5%	Sufficient
Foundation	96.1%	Sufficient

Prepared By:

Byron K Webb, EI  
Project Engineer

Reviewed By:

Dennis D. Abel, PE  
Director of Structural Engineering  
CT PE License No. 23247

**Velocitel, Inc., d.b.a FDH Velocitel**  
6521 Meridien Drive  
Raleigh, NC 27616  
(919) 755-1012  
info@fdh-inc.com

August 7, 2015



Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut State Building Code

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Velocitel, Inc. performed a structural analysis of the monopole located in Middletown, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut State Building Code (CSBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- Radian Communication Services (File No. 060-3494) original design drawings dated December 15, 2006
- FDH Engineering, Inc. (Project No. 11-01248E S1) Modification & 10' Extension Drawings for a 120' Monopole dated September 21, 2011
- FDH Engineering, Inc. (Project No. 11-01248E S1) Post Construction Inspection Report dated December 14, 2011
- FDH Engineering, Inc. (Job No. 12-08192E S2) Modification Drawings for a 130' Monopole dated November 14, 2012
- FDH Engineering, Inc. (Project No. 12-11103T C1) TIA Inspection Report dated February 18, 2013
- FDH Engineering, Inc. (Project No. 12-11103T C1) Modification Inspection Report dated March 13, 2013
- Gemini Geotechnical Associates, Inc. (Site No. 999-0049) Geotechnical Engineering Report dated November 30, 2006
- FDH Velocitel (Project No. 15BVXK1400) Modification Drawings for a 130' Monopole dated August 6, 2015
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards is 90 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from AT&T in place at 130 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CSBC* provide the **Recommendations** below are satisfied. Further, provided the foundation was constructed per the original design drawings (see Radian File No. 060-3494) and utilizing the existing soil parameters (see Gemini Geotechnical Site No. 999-0049), the foundation should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Velocitel, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

## Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feed lines should be installed inside the pole's shaft.
2. Nextel's equipment at 120' must be removed for this analysis to be valid.
3. The modifications listed in FDH Velocitel (Project No. 15BVXK1400) Modification Drawings for a 130' Monopole dated August 6, 2015 must be installed as specified

## APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Velocitel, Inc. should be contacted to perform a revised analysis.*

**Table 1 - Appurtenance Loading**

### Existing Loading:

Antenna Elevation (ft)	Description	Feed Lines <sup>1</sup>	Carrier	Mount Elevation (ft)	Mount Type
130	(9) Powerwave P65-16-XLH-RR (6) Powerwave TT19-08BP111-001 (6) Powerwave 7010 (6) Ericsson RRUS-11	(18) 1-5/8"	AT&T	129	(1) Low-Profile Platform
120 <sup>2</sup>	(6) RFS APXV86-906515	(12) 1-5/8"	Nextel	120	(6) Pipe Mounts
111	(3) Andrew CBC721-DF	(12) 1-5/8" (2) 1-5/8" Hybriflex	Verizon	110	(3) T-Arms
110	(6) Andrew SBNHH-1D65B (3) Alcatel-lucent RRH 2x60-1900 4R (3) Alcatel-lucent B13 RRH4x30-4R (3) Alcatel Lucent RRH B4 2x60-4R (2) RFS DB-T1-6Z-8AB-0Z				
109	(3) Andrew CBC721-DF				
100	(3) Ericsson Air 21 B2A/B4P (3) Ericsson Air 21 B4A/B2P				
94	(1) 1'4" x 6.5" x 6" Surge Protector	(6) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	100	(3) T-Arms (Site Pro P/N RMV12-3xx)
91	(3) Kathrein 840 10054 (3) Samsung RASSPI-2213-RRH	(3) 5/16" (2) 1/2" (3) 5/8" (3) 1/4"	Clearwire	94	Direct Mount
90.8	(1) Andrew VHLP2-18-DW1			89.5	(3) T-Arms
90.7	(1) VHLP800-11-DW1				

1. Feed lines installed inside the pole's shaft unless otherwise noted.

2. Nextel's equipment at 120' is to be removed and is not considered in this analysis.

### Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
130	(6) Cci Antennas OPA-65R-LCUU-H6 (3) Powerwave Technologies P65-16-XLH-RR (3) Ericsson RRUS E2 B29 (3) Ericsson RRUS-32 (3) Ericsson RRU 11 (3) Cci DTMABP7819VG12A (2) Raycap DC6-48-60-18-8F	(6) 1-5/8" (2) Fiber <sup>1</sup> (4) DC <sup>1</sup>	AT&T	129	(1) 12.5' Platform w/ Handrails (Commscope P/N MTC3607R)

1. Feed lines installed inside (3) 3" flex conduits on the outside of the monopole shaft.

## RESULTS

The following yield strength of steel for individual members was used for analysis:

**Table 2 - Material Strength**

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Upper Flange Plate	50 ksi
Flange Bolts	$F_u = 120$ ksi
Lower Flange Plate	36 ksi
Inner Anchor Bolts	$F_u = 125$ ksi
Outer Anchor Rods	$F_u = 100$ ksi
Base Plate	50 ksi

**Table 3** displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions. **Table 5** displays the maximum antennas rotations at service wind speeds (dishes only).

If the assumptions outlined in this report differ from actual field conditions, FDH Velocitel should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

**Table 3 - Summary of Working Percentage of Structural Components**

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass Fail
130 - 125	Pole	TP18x18x0.25	Pole	17.1%	Pass
125 - 120.5	Pole	TP21.74x21.74x0.25	Pole	24.0%	Pass
120.5 - 120	Pole	TP21.74x21.74x0.25	Pole	25.3%	Pass
120	Pole	Upper Flange Plate	PL 31.5"Ø x 1" Thick	64.1%	Pass
		Flange Bolts	(6) 1"Ø w/ B.C. = 28.25"	44.9%	Pass
		Lower Flange Plate	PL 31.5"Ø x 1" Thick	80.4%	Pass
120 - 115	Pole	TP22.991x21.74x0.1875	Pole	32.4%	Pass
115 - 110	Pole	TP24.242x22.991x0.1875	Pole	39.9%	Pass
110 - 105	Pole	TP25.492x24.242x0.1875	Pole	49.9%	Pass
105 - 100	Pole	TP26.743x25.492x0.1875	Pole	58.2%	Pass
100 - 95	Pole	TP27.994x26.743x0.1875	Pole	68.2%	Pass
95 - 91.34	Pole	TP29.89x27.994x0.1875	Pole	75.2%	Pass
91.34 - 86.34	Pole	TP29.345x28.535x0.25	Pole	66.3%	Pass
86.34 - 81.34	Pole	TP30.155x29.345x0.25	Pole	74.4%	Pass
81.34 - 78.25	Pole	TP30.655x30.155x0.25	Pole	79.1%	Pass
78.25 - 78	Pole + Reinf.	TP30.695x30.655x0.475	Pole	50.4%	Pass
78 - 73	Pole + Reinf.	TP31.505x30.695x0.4875	Pole	55.4%	Pass
73 - 68	Pole + Reinf.	TP32.315x31.505x0.4625	Pole	60.6%	Pass
68 - 63	Pole + Reinf.	TP33.125x32.315x0.4625	Pole	65.4%	Pass
63 - 58	Pole + Reinf.	TP33.935x33.125x0.4438	Pole	69.5%	Pass
58 - 53	Pole + Reinf.	TP34.745x33.935x0.4625	Pole	74.2%	Pass
53 - 48	Pole + Reinf.	TP36.31x34.745x0.4563	Pole	78.4%	Pass
48 - 43	Pole + Reinf.	TP35.83x35.054x0.5188	Pole	74.3%	Pass



Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass Fail
43 - 38	Pole + Reinf.	TP36.605x35.83x0.5125	Pole	77.8%	Pass
38 - 33	Pole + Reinf.	TP37.381x36.605x0.4875	Pole	80.2%	Pass
33 - 28	Pole + Reinf.	TP38.156x37.381x0.4875	Pole	84.2%	Pass
28 - 23	Pole + Reinf.	TP38.932x38.156x0.5	Pole	87.3%	Pass
23 - 18	Pole + Reinf.	TP39.707x38.932x0.5	Pole	90.1%	Pass
18 - 13	Pole + Reinf.	TP40.483x39.707x0.5	Pole	92.2%	Pass
13 - 8.08	Pole + Reinf.	TP41.247x40.483x0.4875	Pole	95.5%	Pass
8.08 - 7.83	Pole + Reinf.	TP41.285x41.247x0.725	Pole	69.0%	Pass
7.83 - 2.83	Pole + Reinf.	TP42.061x41.285x0.7375	Pole	70.2%	Pass
2.83 - 0	Pole + Reinf.	TP42.5x42.061x0.7375	Pole	71.4%	Pass
		Inner Anchor Bolts	(14) 1.5"Ø w/ B.C. = 47.25"	60.9%	Pass
		Outer Anchor Rods	(8) 2.25"Ø w/ B.C. = 56.75"	84.5%	Pass
		Base Plate	PL 51.75"Ø x 1.5" Thick	56.1%	Pass

**Table 4 - Maximum Base Reactions**

Base Reactions	Current Analysis* (TIA/EIA-222-F)	Original Design (ANSI/TIA-222-G)
Axial	29 k	39 k
Shear	26 k	23 k
Moment	2,338 k-ft	1,864 k-ft

\*Foundations determined to be adequate per independent analysis.

**Table 5 – Maximum Antenna Rotations at Service Wind Speeds (Dishes Only)**

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
90.8	(1) VHLP2-18-DW1	1.1500	0.0022
90.7	(1) VHLP800-11-DW1	1.1488	0.0022

\*Allowable tilt and twist values to be reviewed by the carrier.

## **GENERAL COMMENTS**

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Velocitel should be notified immediately to perform a revised analysis.

## **LIMITATIONS**

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Velocitel.

## **APPENDIX**

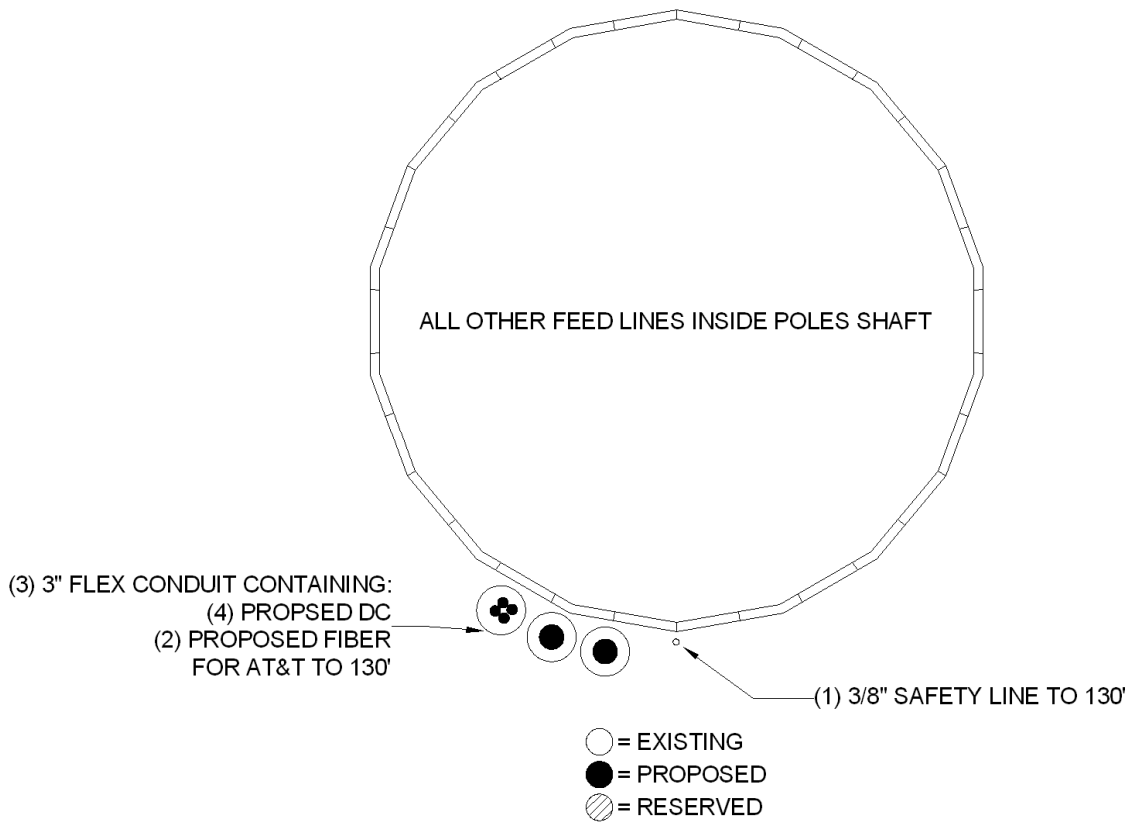


Figure 1: Proposed Feed Line Layout

**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	130	CBC721-DF	110
P65-16-XLH-RR W/ Mount Pipe	129	CBC721-DF	110
P65-16-XLH-RR W/ Mount Pipe	129	SBNH-1D6565B w/ Mount Pipe	110
P65-16-XLH-RR W/ Mount Pipe	129	SBNH-1D6565B w/ Mount Pipe	110
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129	SBNH-1D6565B w/ Mount Pipe	110
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129	RRH2X40-AWS	110
(2) OPA-65R-LCUU-H6 w/ Mount Pipe	129	RRH2X40-AWS	110
DTMABP7819VG12A TMA	129	RRH2X40-AWS	110
DTMABP7819VG12A TMA	129	DB-T1-6Z-8AB-0Z	110
DTMABP7819VG12A TMA	129	(3) T-Arms	110
RRU-11	129	BXA-63606380CF w/ Mount Pipe	110
RRU-11	129	AIR 21 B2A/B4P w/Mount Pipe	100
RRU-11	129	AIR 21 B2A/B4P w/Mount Pipe	100
RRUS-32	129	AIR 21 B2A/B4P w/Mount Pipe	100
RRUS-32	129	AIR 21 B4A/B2P w/Mount Pipe	100
RRUS-32	129	AIR 21 B4A/B2P w/Mount Pipe	100
RRUS-E2 B29	129	AIR 21 B4A/B2P w/Mount Pipe	100
RRUS-E2 B29	129	Site Prol RMV12-3xx	100
RRUS-E2 B29	129	1'4" x 6.5" x 6" Surge Protector	94
DC6-48-60-18-8F	129	840 10054 w/ Mount Pipe	89.5
DC6-48-60-18-8F	129	RASSPI-2213-RRH	89.5
(1) Low-Profile Platform	129	RASSPI-2213-RRH	89.5
BXA-63606380CF w/ Mount Pipe	110	RASSPI-2213-RRH	89.5
BXA-63606380CF w/ Mount Pipe	110	(3) T-Arms	89.5
CBC721-DF	110	840 10054 w/ Mount Pipe	89.5
CBC721-DF	110	840 10054 w/ Mount Pipe	89.5
CBC721-DF	110	VHLP2-18-DW1	89.5
CBC721-DF	110	VHLP800-11-DW1	89.5

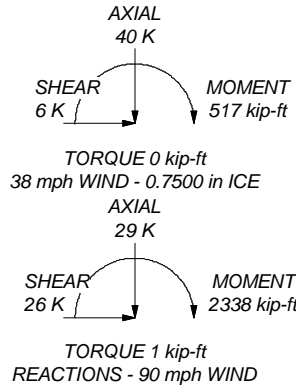
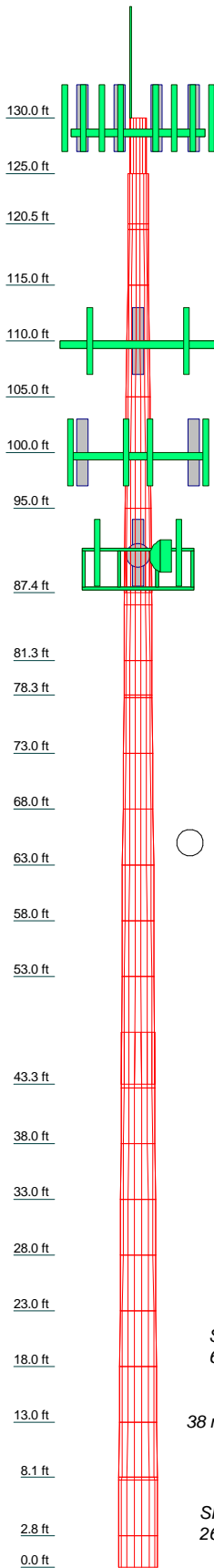
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A572-65	65 ksi	80 ksi

**TOWER DESIGN NOTES**

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 79.2%

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
2	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.3
3	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
4	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
5	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
6	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
7	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
8	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
9	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
10	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
11	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
12	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
13	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
14	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
15	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
16	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
17	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
18	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
19	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
20	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
21	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
22	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
23	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
24	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
25	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
26	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
27	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
28	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
29	5.00	0	0	0.1875	21.7400	22.9908	A500-50	0.2
30	2.83	18	0.7375	4.67	42.0610	42.5000	A572-65	20.1



**FDH Velocitel**  
 6521 Merdien Dr  
 Raleigh, NC 27616  
 Phone: (919) 755-1012  
 FAX: (919) 755-1031

Job: <b>Middletown - CT13064-A</b>			
Project: <b>15BVXK1400</b>			
Client: SBA Network Services, Inc.	Drawn by: Byron K Webb	App'd:	
Code: TIA/EIA-222-F	Date: 08/06/15	Scale: NTS	
Path:		Dwg No. E-1	





## MODIFICATION INSPECTION NOTES:

### GENERAL:

1. THE POST CONSTRUCTION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).
2. THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. ALL MI'S SHALL BE CONDUCTED BY A MI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH VELOCITEL.
4. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR FDH VELOCITEL POINT OF CONTACT (POC).
5. REFER TO CCR-01 : CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

### MI INSPECTOR:

1. THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:
  - REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
  - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
2. THE PCI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO FDH VELOCITEL.

### CORRECTION OF FAILING MI's:

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH FDH VELOCITEL TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
  - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
  - OR, WITH FDH VELOCITEL'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

### REQUIRED PHOTOS:

1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:
  - PRE-CONSTRUCTION GENERAL SITE CONDITION
  - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
    - RAW MATERIALS
    - PHOTOS OF ALL CRITICAL DETAILS
    - FOUNDATION MODIFICATIONS
    - WELD PREPARATION
    - BOLT INSTALLATION AND TORQUE
    - FINAL INSTALLED CONDITION
    - SURFACE COATING REPAIR
  - POST CONSTRUCTION PHOTOGRAPHS
    - FINAL INFIELD CONDITION
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

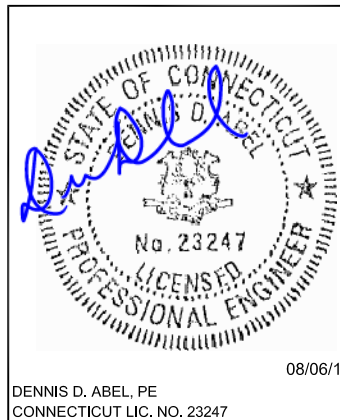
<b>MI CHECKLIST</b>	
INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
<b>PRE-CONSTRUCTION</b>	
X	MI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
X	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
<b>CONSTRUCTION</b>	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZATIONS
N/A	GUY WIRE TENSION REPORT
X	GC AS BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
<b>POST-CONSTRUCTION</b>	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT  
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

PREPARED BY:



PREPARED FOR:



DRAWN BY: AEV  
CHECKED BY: BKW  
ENG APP'VD: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/06/15	CONSTRUCTION	0

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. REPRODUCTION OR CAUSING TO BE REPRODUCED THE WHOLE OR ANY PART OF THESE DRAWINGS WITHOUT THE PERMISSION OF FDH VELOCITEL IS PROHIBITED.

FDH PROJECT NUMBER:  
**15BVXK1400**

SITE NAME:  
**MIDDLETOWN 2, CT**

SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE  
**MODIFICATION INSPECTION  
CHECKLIST**

SHEET NUMBER  
**N-1**

**GENERAL NOTES:**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO FDH VELOCITEL FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
- INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH VELOCITEL PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH VELOCITEL APPROVAL.
- IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
- CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.

**CONTRACTOR QUALIFICATION NOTES:**

- ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE TIA/EIA 222-F "STRUCTURAL STANDARD FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH VELOCITEL IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
- ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH VELOCITEL 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL INFO@FDHVELOCITEL.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH VELOCITEL WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH VELOCITEL
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TIA-1019-A STANDARD.

**JOB SITE SAFETY & NOTES:**

- NEITHER THE PROFESSIONAL ACTIVITIES OF FDH VELOCITEL NOR THE PRESENCE OF FDH VELOCITEL OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

**STEEL:**

- ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
- ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-80XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
- ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1. UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
- ALL STEEL, AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHIEVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
- ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH VELOCITEL WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
- STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

**MISC. NOTES:**

- ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
- CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

**FABRICATION NOTES:**

- ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
- NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

**SUBSTITUTES AND/OR EQUALS:**

- IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN. BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

**COLD GALVANIZATION/SURFACE PREPARATION NOTES:**

- CONTRACTOR TO USE ZINGA OR ZRC COLD GALVANIZATION COMPOUNDS OR APPROVED EQUIVALENT.
- PREPARE RUSTED/CORRODED SURFACE FOR TREATMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO APPLY (2) COATS OF COLD GALVANIZATION COMPOUND PER MANUFACTURER'S RECOMMENDATION. DRYING AND CURING TIMES MUST BE UTILIZED PER MANUFACTURER'S RECOMMENDATION.
- APPLY ALL COATINGS BY BRUSH IN CALM WIND CONDITIONS. THE USE OF AEROSOL IS NOT PERMITTED.
- IF THE TOWER IS PAINTED, BRUSH PAINT ALL TREATED AREAS TO MATCH TOWER AFTER COLD GALVANIZATION COMPOUND IS ALLOWED TO CURE.

**STIFFENER PLATE NOTES:**

- INSIDE POLE SHAFT TO BE SPRAYED WITH (2) COATS COLD GALVANIZATION PAINT WHERE ALL WELDED CONNECTIONS ARE PERFORMED.
- AFTER STIFFENER INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF COLD GALVANIZATION PAINT THEN FINISH WITH (1) COAT OF COLD GALVANIZATION SPRAY.

**SURFACE PREPARATION:**

- PREPARE SURFACE TO BE WELDED BY REMOVING PAINT OR GALVANIZATION TO BARE METAL USING POWER WIRE BRUSHING IN ACCORDANCE WITH SSPC-SP11, (STEEL STRUCTURES PAINTING COUNCIL). FOLLOWING POWER WIRE BRUSHING CONTRACTOR SHALL POLISH METAL SURFACE WITH HIGH SPEED GRINDER WITH 400+ GRIT SANDPAPER.
- AFTER NEW STEEL INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF ZRC OR ZINGA COLD GALVANIZATION COMPOUND PER MANUFACTURER'S SPECIFICATIONS.

**STIFFENER PLATE WELDING:**

- ALL WELDING TO THE EXISTING TOWER SHALL BE PERFORMED BY CERTIFIED WELDERS UTILIZING PROCEDURES QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND AWS C5.4.
- CONTRACTOR SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
- CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
- ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.
- CONTRACTOR RESPONSIBLE FOR VIEWING EXISTING POLE FOR LOOSE AND FLAMMABLE MATERIAL PRIOR TO WELDING PLATE.
- CONTRACTOR TO VERIFY LOCATION OF ENTRY PORTHOLE PRIOR TO STIFFENER PLATE INSTALLATION.

**NDE INSPECTION:**

- FULL PENETRATION WELDS IN THE VICINITY OF BASE OF THE TOWER ARE REQUIRED TO BE 100% NDE INSPECTED BY UT IN ACCORDANCE WITH AWS D1.1.
- PARTIAL PENETRATION AND FILLET WELDS IN THE VICINITY OF BASE OF THE TOWER ARE REQUIRED TO BE 50% NDE INSPECTED BY MP IN ACCORDANCE WITH AWS D1.1.
- INSPECTION OF EXISTING WELDS MUST BE PERFORMED PRIOR TO THE INSTALLATION OF ANY PROPOSED REINFORCEMENT.

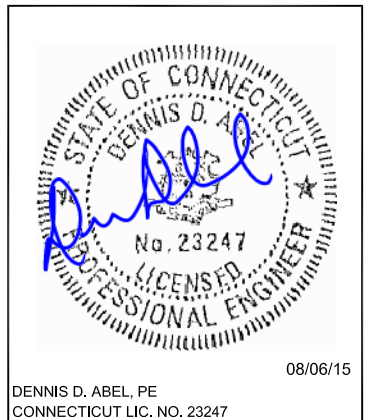
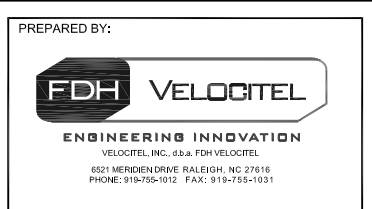
**PULLOUT TESTING OF POST INSTALLED ANCHOR RODS:**

- EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL ENSURE THAT CONSTRUCTION DOES NOT GO BEYOND POINT WHERE THE ANCHOR RODS CAN BE EFFECTIVELY TESTED. THE ANCHOR ROD SLEEVES AND TRANSFER PLATES SHOULD BE INSTALLED AFTER PULL-TESTING IS PERFORMED. CONSTRUCTION MAY PROCEED AFTER TESTING IS COMPLETED.
- 50% OF POST INSTALLED ANCHOR RODS SHALL BE TESTED OR A TOTAL OF 4, WHICHEVER IS GREATER.
- THE ANCHOR ROD SHALL BE TESTED TO A TARGET TENSION OF 190K.
- MAINTAIN COMPLETE LOAD-DISPLACEMENT RECORDS THROUGHOUT THE TEST. LOAD THE ANCHOR IN INCREMENTS OF UP TO 15% OF THE TARGET TENSION.
- STATIC LOAD TEST SHALL BE PERFORMED PER ASTM E488-96 (REAPPROVED 2003).
- IF A DISPLACEMENT GREATER THAN 0.010" REMAINS AFTER THE INITIAL TEST CYCLE, ADDITIONAL TEST SHALL BE PERFORMED UP TO A MAXIMUM OF 4 TEST CYCLES TO DETERMINE IF THE MOVEMENT CONTINUES TO ACCUMULATE. INCREMENTAL RESIDUAL MOVEMENT RECORDED FROM EACH TEST CYCLE MUST BE DECREASING IN VALUE AND STABILIZE TO A VALUE NO MORE THAN 0.010". OTHERWISE THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST. TOTAL RESIDUAL MOVEMENT SHALL NOT BE GREATER THAN 0.10" OR THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST.
- THIS INFORMATION SHALL BE DOCUMENTED AND INCLUDED IN THE POST MODIFICATION INSPECTION REPORT.
- CONTACT FDH VELOCITEL. IF ANY OF THE ANCHORS FAIL THE PULL TEST.
- ALL HARDWARE ASSEMBLY AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED; ANY CONTRADICTION BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS ARE TO BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER AND OWNER.

- ANY CONTRACTOR INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED, IN PERSON BY A MANUFACTURER'S REPRESENTATIVE, ON THE PROPER INSTALLATION TECHNIQUES. THIS TRAINING SHALL INCLUDE PROPER DRILLING, HOLE CLEANING, AND INSTALLATION METHODS FOR THE ADHESIVE ANCHORING SYSTEM AND CONSTRUCTION CONDITIONS ON THIS PROJECT. ALL TRAINING TO BE CONDUCTED PRIOR TO CREWS STEPPING ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT MANUFACTURER REPRESENTATIVE TO SET UP TRAINING. FDH VELOCITEL IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.

**EPOXY/HILTI NOTES:**

- EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- ALL HARDWARE ASSEMBLY AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED; ANY CONTRADICTION BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS ARE TO BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER AND OWNER.
- ANY CONTRACTOR INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED, IN PERSON BY A MANUFACTURER'S REPRESENTATIVE, ON THE PROPER INSTALLATION TECHNIQUES. THIS TRAINING SHALL INCLUDE PROPER DRILLING, HOLE CLEANING, AND INSTALLATION METHODS FOR THE ADHESIVE ANCHORING SYSTEM AND CONSTRUCTION CONDITIONS ON THIS PROJECT. ALL TRAINING TO BE CONDUCTED PRIOR TO CREWS STEPPING ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT MANUFACTURER REPRESENTATIVE TO SET UP TRAINING. FDH VELOCITEL IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.



DRAWN BY: AEV  
 CHECKED BY: BKW  
 ENG APP'VD: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/06/15	CONSTRUCTION	0

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FDH PROJECT NUMBER:  
**15BVXK1400**

SITE NAME:  
**MIDDLETOWN 2, CT**

SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
 MIDDLETOWN, CT 06457**

SHEET TITLE  
 GENERAL NOTES I

SHEET NUMBER  
**N-2**

**STEEL GRADE SCHEDULE**

SCOPE	SHAPE	GRADE	YIELD STRENGTH (F <sub>y</sub> )	ULTIMATE STRENGTH (F <sub>u</sub> )
ALL	PLATE	A572-65	65 KSI	80 KSI
ANCHOR ROD SLEEVE	PIPE	A53 GR. B	35 KSI	60 KSI
ANCHOR RODS	THREADED ROD	A615 GR. 75	75 KSI	100 KSI

**NEW MONOPOLE REINFORCEMENT NOTES:**

1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF REINFORCEMENT TO ENSURE THAT PROPER SPACING CAN BE MET.
2. CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
3. ALL BLIND BOLT CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. BLIND BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE BLIND BOLT ASSEMBLY DETAILS ON SHEETS N-4.
4. ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.
5. PRIOR TO FLAT PLATE INSTALLATION, SLIP JOINTS MUST BE TIGHTENED WITH A MINIMUM JACKING FORCE OF 6000 LBS.
6. NEW REINFORCEMENT TO BE INSTALLED ON THE CENTER OF PROPOSED SIDE UNLESS OTHERWISE NOTED.
7. EXISTING COAX BANDS TO BE REPLACED AFTER REINFORCEMENT INSTALLATION. NEW FLAT PLATE TO BE INSTALLED BENEATH EXISTING COAX BANDS.
8. SHIMS FOR MONOPOLE REINFORCEMENT MEMBERS SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES, MATCHING THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESS SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED. THE MAXIMUM GAP SHIMMED SHALL BE NO MORE THAN 1/4" WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER OF RECORD.
9. REINFORCEMENT PIECES SHALL NOT BE MADE BY SPLICING TOGETHER TWO SMALLER PIECES UNLESS SPECIFIED ON THIS DRAWING OR OTHERWISE APPROVED IN WRITING BY THE ENGINEER ON RECORD.
10. CONTRACTOR MUST UTILIZE THE SAME MANUFACTURER/TYPE OF BLIND BOLT FOR THE ENTIRETY OF THE MODIFICATION.

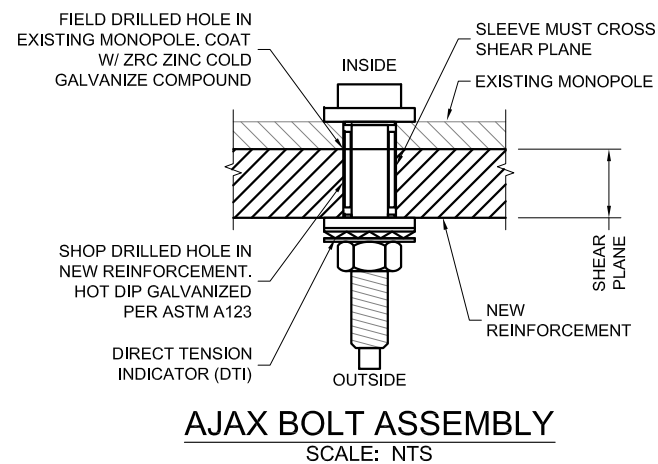
**PRETENSION BOLTS:**

1. ALL DIRECT TENSION INDICATOR (DTI) WASHERS SHALL BE THE "SQUIRTER® STYLE" AS MANUFACTURED BY:  
  
APPLIED BOLTING TECHNOLOGY PRODUCTS, INC.  
1413 ROCKINGHAM ROAD  
BELLOWS FALLS, VERMONT 05101, USA  
PHONE: 1-800-552-1999  
WEBSITE: WWW.APPLIEDBOLTING.COM
2. USE DIRECT TENSION INDICATOR (DTI) WASHERS COMPATIBLE WITH 3/4" NOMINAL A325 BOLTS FOR THE AJAX M20 BOLTS. DTI'S SHALL NOT BE HOT-DIP GALVANIZED. DTI'S SHALL BE MECHANICALLY GALVANIZED (MG) BY THE COLD MECHANICAL PROCESS ONLY AS PROVIDED BY THE DTI MANUFACTURER.
3. USE HARDENED WASHER FOR A 3/4" NOMINAL BOLT BETWEEN THE TOP OF DIRECT TENSION INDICATOR (DTI) WASHER AND THE NUT OF THE AJAX M20 BOLT. HARDENED WASHERS SHALL CONFORM TO ASTM F436 AND HAVE A MINIMUM HARDNESS OF RE 38 OR HIGHER. THE HARDENED WASHERS SHALL BE MECHANICALLY GALVANIZED BY COLD MECHANICAL PROCESS. ALTERNATIVELY, CORRECTLY MADE HOT DIP GALVANIZED HARDENED FLAT WASHERS HAVING A MINIMUM HARDNESS OF RC 38 CAN BE USED; CONTRACTOR SHALL PROVIDE DOCUMENTATION OF WASHER SPECIFICATION AND HARDNESS.
4. CONTRACTOR SHALL FOLLOW DTI MANUFACTURER'S INSTRUCTION FOR INSTALLATION, LUBRICATION, TIGHTENING AND INSPECTION.

**INSPECTION REQUIRED:** ALL AJAX BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", DEC. 32, 2009, BY A QUALIFIED BOLT INSPECTOR. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT THE SHOP-DRILL AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE AJAX BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION AND CONTRACTOR'S TENSIONING PROCEDURE. IN ADDITION, ALL AJAX BOLTS AND DTI'S SHALL BE VISUALLY INSPECTED ACCORDING TO THE DTI MANUFACTURER'S INSTRUCTIONS. THE BOLT INSPECTOR SHALL PROVIDE PHOTO DOCUMENT OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THE CONDITION OF THE DTI'S.

**CONSTRUCTION NOTES:**

1. CONTRACTOR TO FIELD VERIFY PROPOSED REINFORCEMENT LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE REINFORCEMENT, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH VELOCITEL PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.



PREPARED BY:



PREPARED FOR:



DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
CHECKED BY: BKW  
ENG APP'VD: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/06/15	CONSTRUCTION	0

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**15BVXK1400**

SITE NAME:  
**MIDDLETOWN 2, CT**

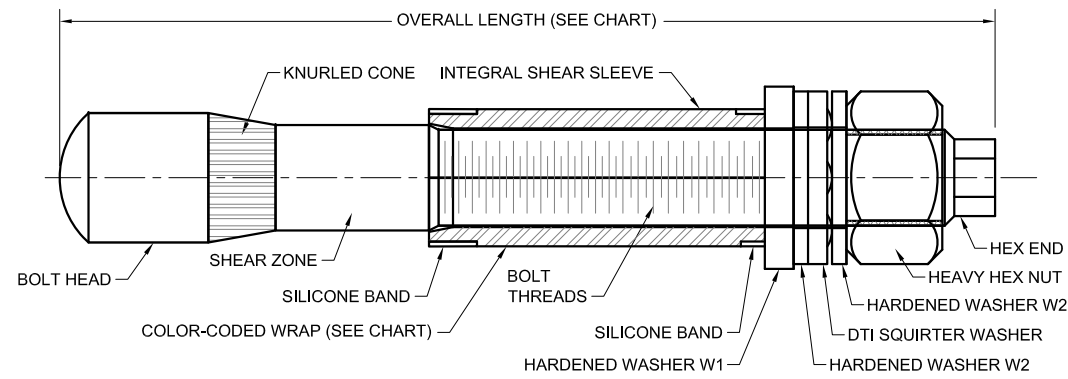
SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

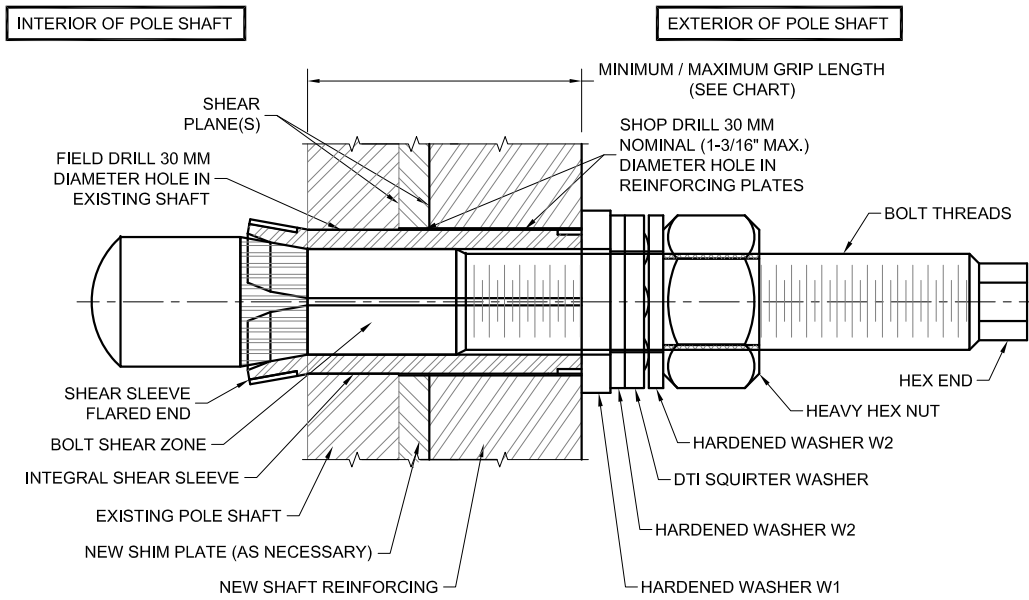
SHEET TITLE  
**GENERAL NOTES II**

SHEET NUMBER  
**N-3**





**PRE-INSTALLED FORGBolt™ ASSEMBLY DETAIL 1**



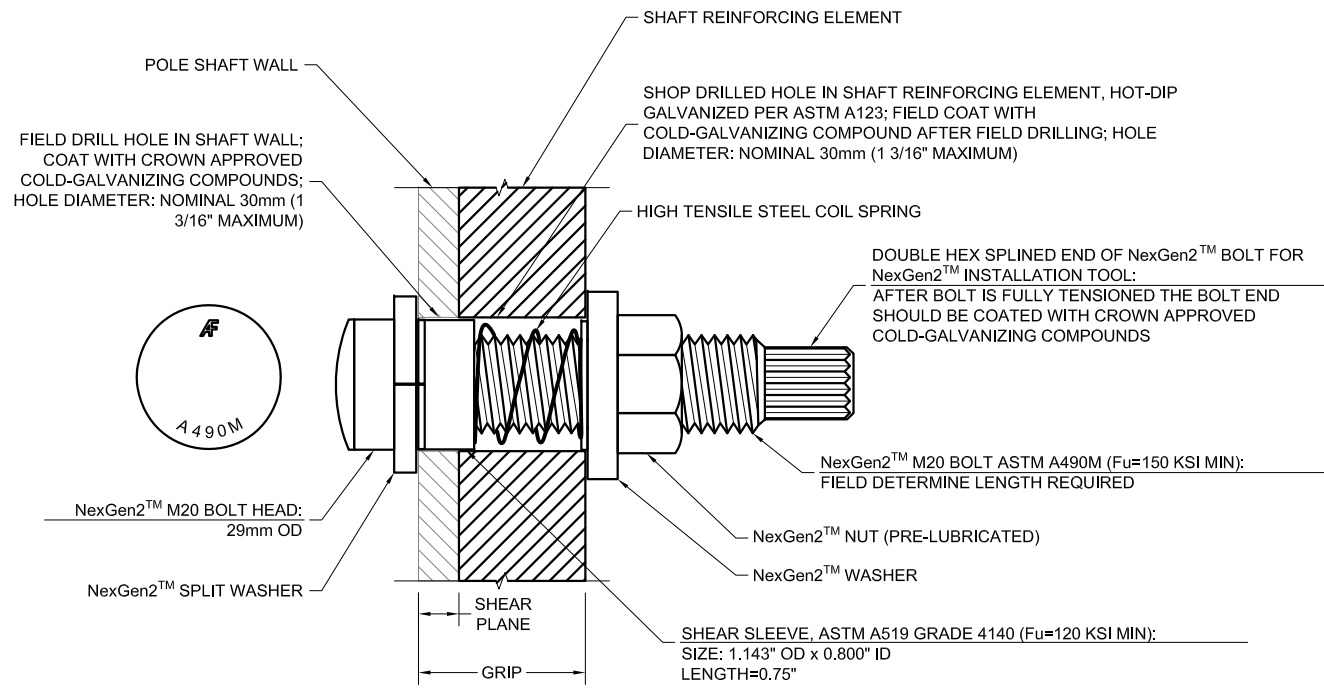
**INSTALLED FORGBolt™ ASSEMBLY DETAIL 2**

FORGBolt™ NOTE SHEET: A325/PC8.8 LANDSCAPE VERSION DATE 01/29/2015; Rev. 1.0 04/23/2015

**NOTES:**

1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

FORGBolt™		AISC Group A Material: ASTM A325 and PC8.8 (Tensile Stress, Fu = 102 ksi minimum)					
GROUP A	FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code	
FORGBolt™ A325 - PC8.8	1	135	5.31	1.3	3/8 to 1"	--	RED
	2	160	6.30	1.6	3/4 to 1-1/2"	--	GREEN
	3	195	7.68	1.9	1-1/4 to 2-1/4"	--	BLUE
	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW
	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	ORANGE
	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	BLACK
<b>DTI Note</b>	Each Group A (A325/PC8.8) FORGBolt™ assembly shall have a 'Squirtter' DTI that is compatible with a M20-PC8.8 bolt.						



**NexGen2™ BOLT ASSEMBLY**  
SCALE: NTS

**NEXGEN2 BLIND BOLT ASSEMBLY NOTES:**

1. ALL SHOP AND FIELD DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM HOLE DIAMETER PERMITTED IS 1-3/16"
2. NEXGEN2™ COMPLETE ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AS APPROPRIATE.
3. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

**FORGBolt™ Installation**

Follow all Manufacturer/Distributor Recommendations for Installation, Tightening, and Inspection.

1. FIELD DRILL HOLES TO 30 MM DIAMETER.
2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
3. INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE.
4. HAND TIGHTEN NUT TO FINGER TIGHT.
5. TIGHTEN NUT TO PRETENSIONED CONDITION AND UNTIL DTI SHOWS PROPER INDICATION.
6. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

DISTRIBUTOR CONTACT:  
PRECISION TOWER PRODUCTS  
PHONE: 888-926-4857  
EMAIL: info@precisiontowerproducts.com  
WEB: www.precisiontowerproducts.com  
**CONTAINS PROPRIETARY INFORMATION PATENT PENDING**  
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**BOLT HOLE NOTES:**

1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

PREPARED BY:  
**FDH VELOCITEL**  
ENGINEERING INNOVATION  
VELOCITEL, INC., d.b.a. FDH VELOCITEL  
6521 MERIDIAN DRIVE RALEIGH, NC 27616  
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:  
**SBA**  
5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE

08/06/15  
DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
CHECKED BY: BKW  
ENG APP'VD: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/06/15	CONSTRUCTION	0

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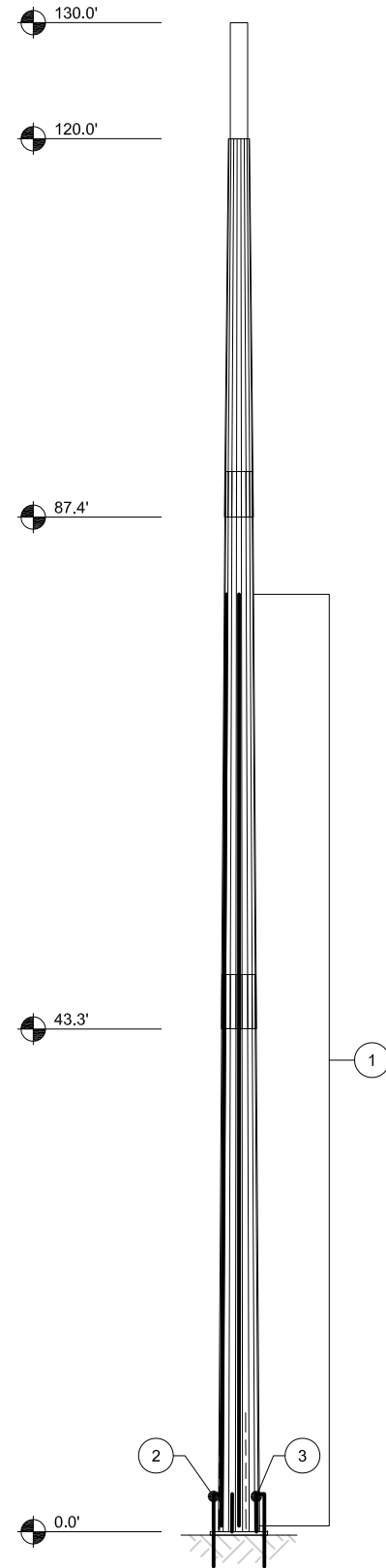
SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE  
FORGBOLT & NEXGEN2  
SPECIFICATIONS AND  
TIGHTENING PROCEDURE

SHEET NUMBER  
**N-4**

LENGTH (FT)	10.00	32.58	48.00	18	48.00	42.5000
# OF SIDES	ROUND					
THICKNESS (IN)	0.2500	0.1875	0.2500	0.3125	0.2500	0.3125
SOCKET LENGTH (FT)	N/A	3.92	4.67	N/A	4.67	N/A
TOP DIAMETER (IN)	18.0000	21.7400	28.5352	35.0541	28.5352	35.0541
BOT. DIAMETER (IN)	18.0000	29.8900	36.3100	42.5000	36.3100	42.5000



**TOWER ELEVATION**  
SCALE: NTS

TOWER MODIFICATION SCHEDULE				
NO.	TYPE OF MODIFICATION	BTM. ELEV.	TOP ELEV.	SHEET
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT.	0.5'±	80.8'±	S-2 TO S-4
2	INSTALLATION OF NEW ANCHOR RODS.	-6.3'±	4.3'±	S-6
3	INSTALLATION OF NEW TRANSFER STIFFENERS.	0.0'±	3.3'±	S-5

- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA & COAX GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING & COAX CONFIGURATION.

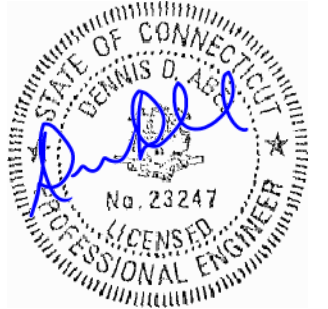
PREPARED BY:



PREPARED FOR:



5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE



08/06/15

DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
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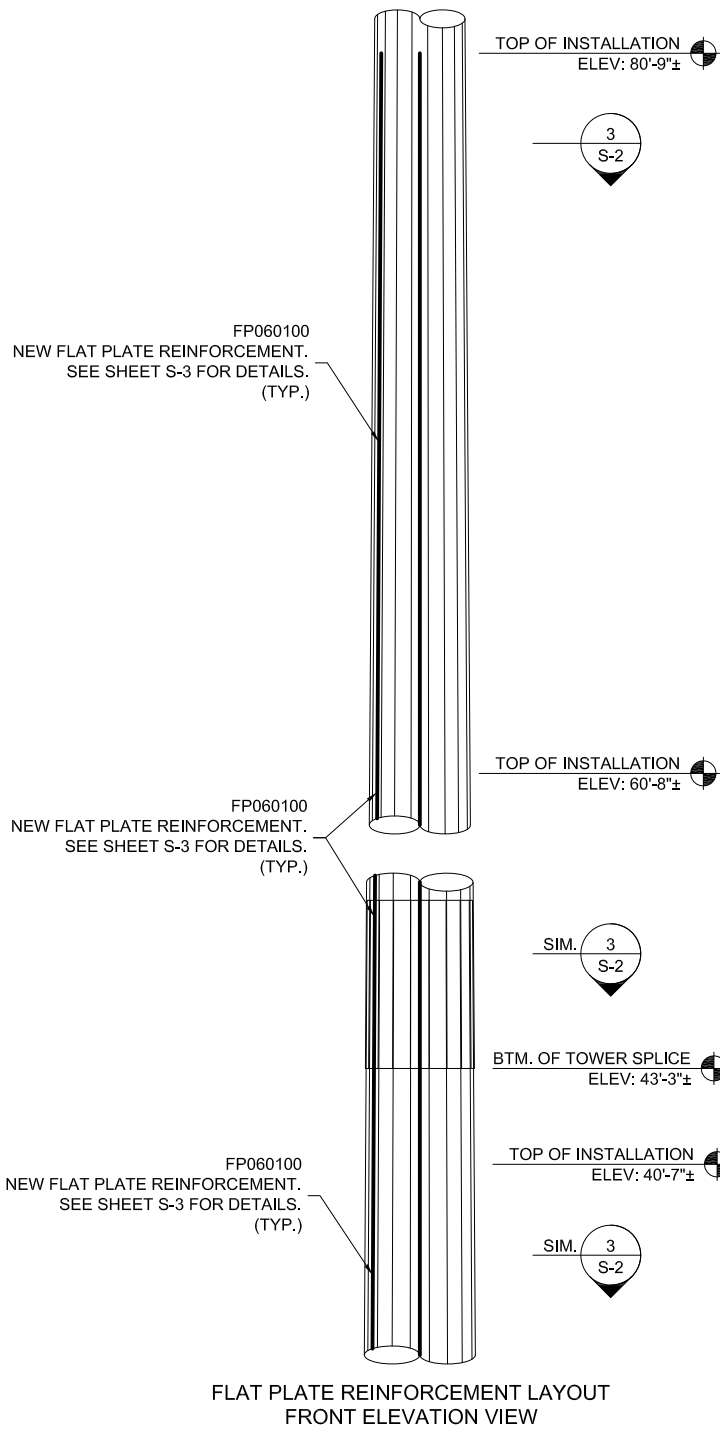
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE

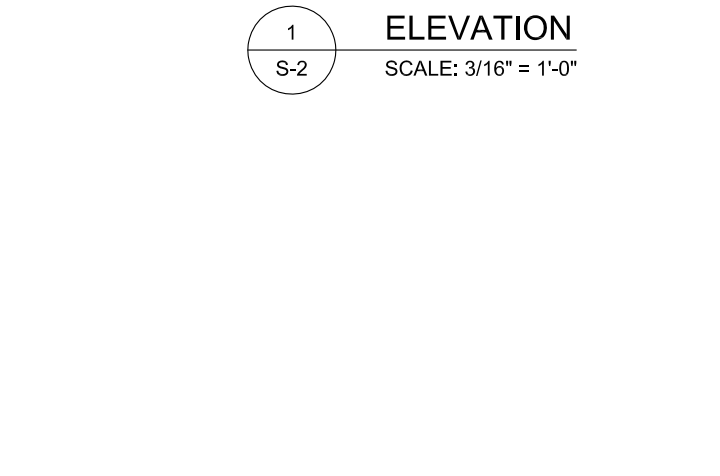
MODIFICATION SCHEDULE

SHEET NUMBER

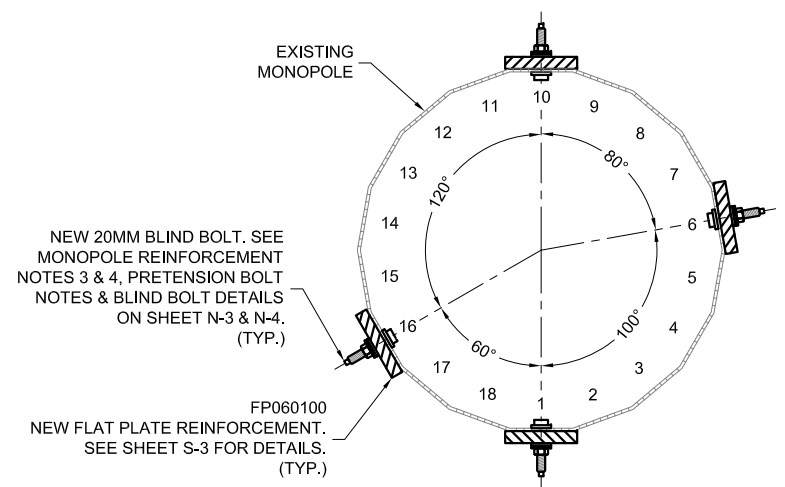
**S-1**



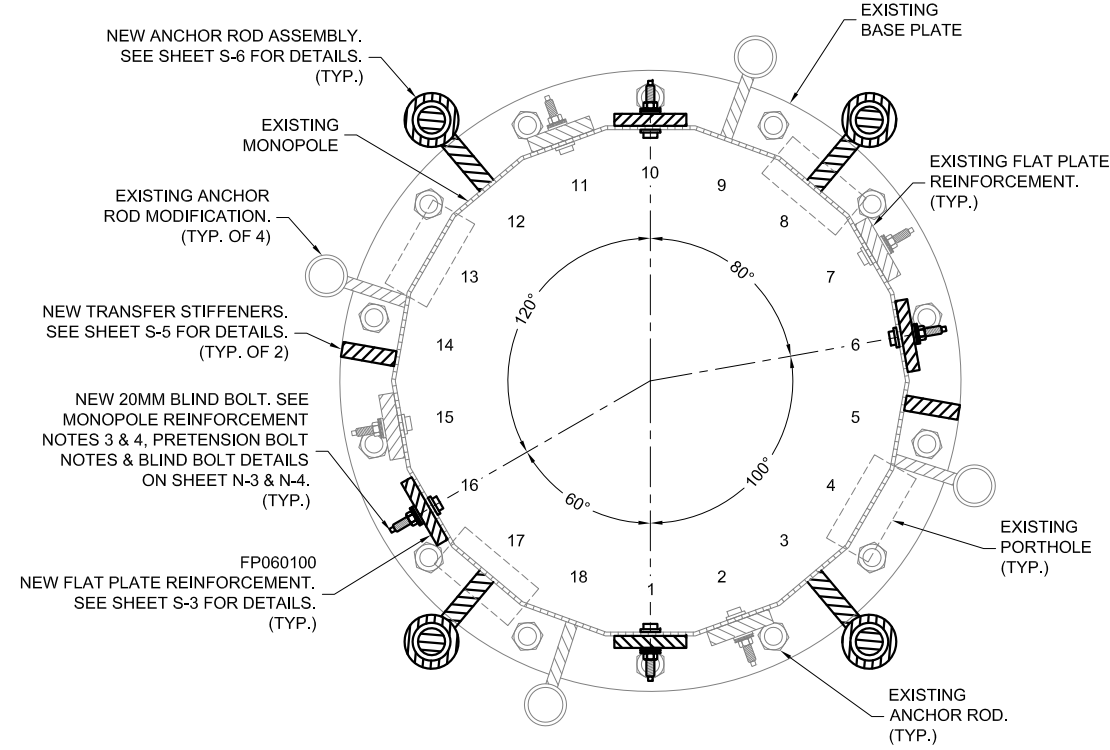
**1**  
ELEVATION  
SCALE: 3/16" = 1'-0"



**2**  
ELEVATION  
SCALE: 3/16" = 1'-0"



**3**  
SECTION  
SCALE: NTS



**4**  
SECTION  
SCALE: NTS

FLAT PLATE INSTALLATION SCHEDULE				
PART #	QTY.	DESCRIPTION	ELEVATION	FLATS
FP060100	4	FLAT PLATE REINFORCEMENT	60'-9"± TO 80'-9"±	1 - 6 - 10 - 16
SP-1	4	SPLICE PLATE	60'-8"±	1 - 6 - 10 - 16
FP060100	4	FLAT PLATE REINFORCEMENT	40'-8"± TO 60'-8"±	1 - 6 - 10 - 16
SP-1	4	SPLICE PLATE	40'-7"±	1 - 6 - 10 - 16
FP060100	4	FLAT PLATE REINFORCEMENT	20'-7"± TO 40'-7"±	1 - 6 - 10 - 16
SP-1	4	SPLICE PLATE	20'-6"±	1 - 6 - 10 - 16
FP060100	4	FLAT PLATE REINFORCEMENT	0'-6"± TO 20'-6"±	1 - 6 - 10 - 16
-	496	20MM BLIND BOLTS	VARIES	-

• CONTRACTOR TO REPLACE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.

PREPARED BY:

ENGINEERING INNOVATION  
VELOCITEL, INC., d.b.a. FDH VELOCITEL  
6521 MERIDIAN DRIVE RALEIGH, NC 27616  
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:

5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE

08/06/15  
DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
CHECKED BY: BKW  
ENG APP'D: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/06/15	CONSTRUCTION	0

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. REPRODUCTION OR CAUSING TO BE REPRODUCED THE WHOLE OR ANY PART OF THESE DRAWINGS WITHOUT THE PERMISSION OF FDH VELOCITEL IS PROHIBITED.

FDH PROJECT NUMBER:  
**15BVXK1400**

SITE NAME:  
**MIDDLETOWN 2, CT**

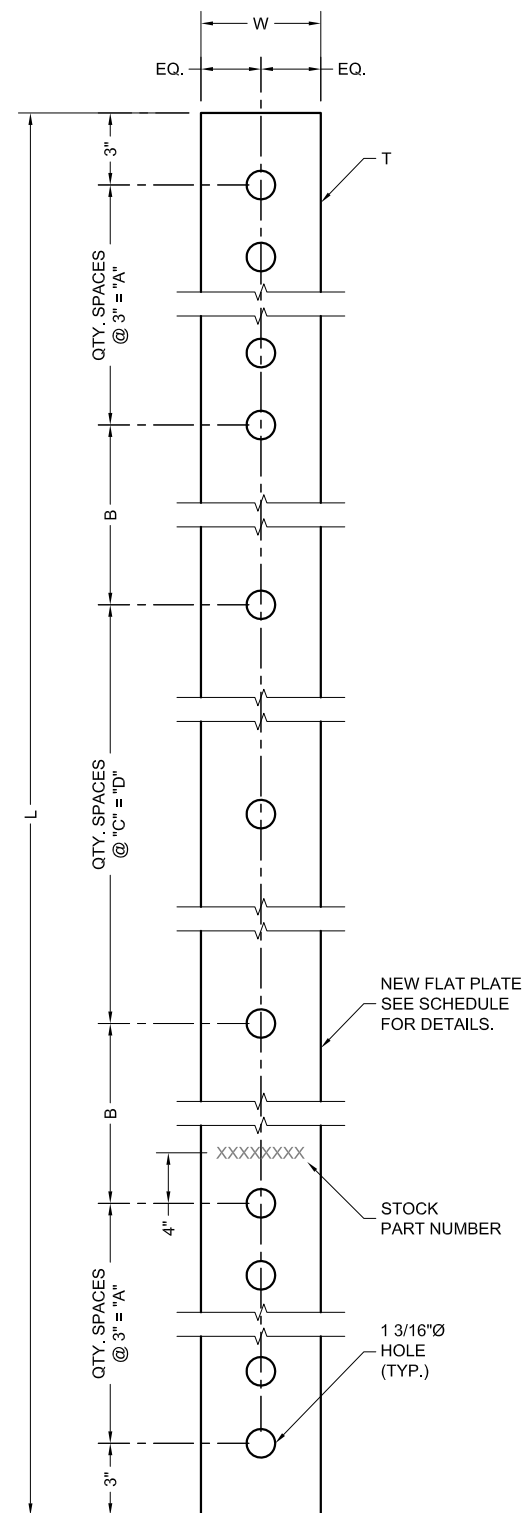
SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE  
**FLAT PLATE  
INSTALLATION DETAILS**

SHEET NUMBER  
**S-2**





FLAT PLATE  
FRONT VIEW

1  
S-3

**DETAIL**  
NTS

FLAT PLATE FABRICATION SCHEDULE								
PART NUMBER <sup>1</sup>	LENGTH "L"	WIDTH "W"	THICKNESS "T"	QTY. SPACES @ 3" = "A"	DISTANCE "B"	QTY. SPACES @ "C" = "D"	TOTAL BLIND BOLT QTY.	STEEL WEIGHT (LBS.)
FP060100	20'-0"	6"	1"	9 SPACES @ 3" = 2'-3"	0'-10"	10 SPACES @ 1'-4" = 13'-4"	31	408.0

1. STAMP PART NUMBER ON FACE OF PLATE FOUR INCHES ABOVE BOTTOM GROUP OF HOLES. LETTERS AND NUMBERS 1/2" TALL X 1/32" DEEP.

**NOTES:**

- ALL HOLES ARE TO BE DRILLED. DO NOT BURN OR PUNCH.
- TOLERANCES:  
THICKNESS PER ASTM A6 MILL TOLERANCES  
WIDTH +1/16", -0"  
LENGTH ±1/16"  
HOLE DIAMETER +1/32", -0"  
HOLE SPACING ±1/32"
- PLATE SHALL BE ASTM A572 GRADE 65 (MIN. Fy = 65 KSI, MIN. Fu = 80 KSI) AND HOT DIP GALVANIZED PER ASTM A123.

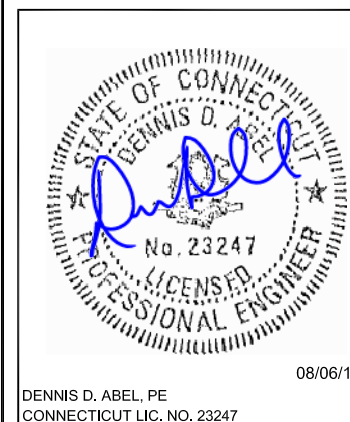
PREPARED BY:



PREPARED FOR:



5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE



08/06/15

DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
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ENG APP'VD: DDA

SUBMITTALS		
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FDH PROJECT NUMBER:

**15BVXK1400**

SITE NAME:

**MIDDLETOWN 2, CT**

SITE NUMBER:

**CT13064-A-05**

SITE ADDRESS:

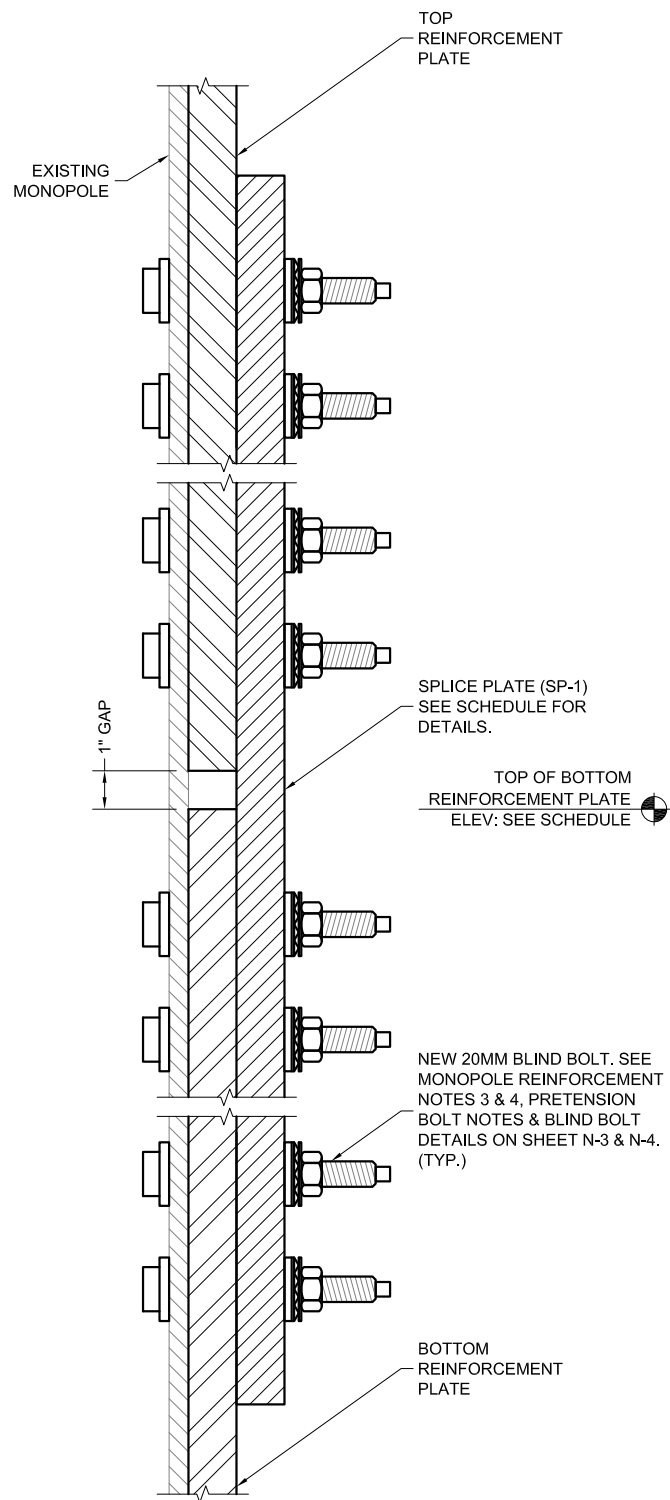
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE

FLAT PLATE  
FABRICATION DETAILS

SHEET NUMBER

**S-3**



SPLICE PLATE ASSEMBLY  
FRONT AND SIDE VIEW

1  
S-4

**DETAIL**  
NTS

SPLICE PLATE INSTALLATION SCHEDULE								
ELEVATION	PART NO.	QUANTITY	DIMENSION "A"	DIMENSION "B"	THICKNESS "C"	QTY. SPACES @ 3" = "D"	QTY. SPACES @ 3" = "E"	TOP/BTM. REINF. PLATE
60'-8"±	SP-1	4	5'-7"	6"	1"	9 SPACES @ 3" = 2'-3"	9 SPACES @ 3" = 2'-3"	FP060100 / FP060100
40'-7"±	SP-1	4	5'-7"	6"	1"	9 SPACES @ 3" = 2'-3"	9 SPACES @ 3" = 2'-3"	FP060100 / FP060100
20'-6"±	SP-1	4	5'-7"	6"	1"	9 SPACES @ 3" = 2'-3"	9 SPACES @ 3" = 2'-3"	FP060100 / FP060100

PREPARED BY:

**ENGINEERING INNOVATION**  
VELOCITEL, INC., d.b.a. FDH VELOCITEL  
6521 MERIDIAN DRIVE RALEIGH, NC 27616  
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:

**SBA**

5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE

08/06/15

DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

DRAWN BY: AEV  
CHECKED BY: BKW  
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SUBMITTALS		
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FDH PROJECT NUMBER:  
**15BVXK1400**

SITE NAME:  
**MIDDLETOWN 2, CT**

SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE  
SPLICE PLATE  
INSTALLATION DETAILS

SHEET NUMBER  
**S-4**

SUBMITTALS		
DATE	DESCRIPTION	REV
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SITE NAME:  
**MIDDLETOWN 2, CT**

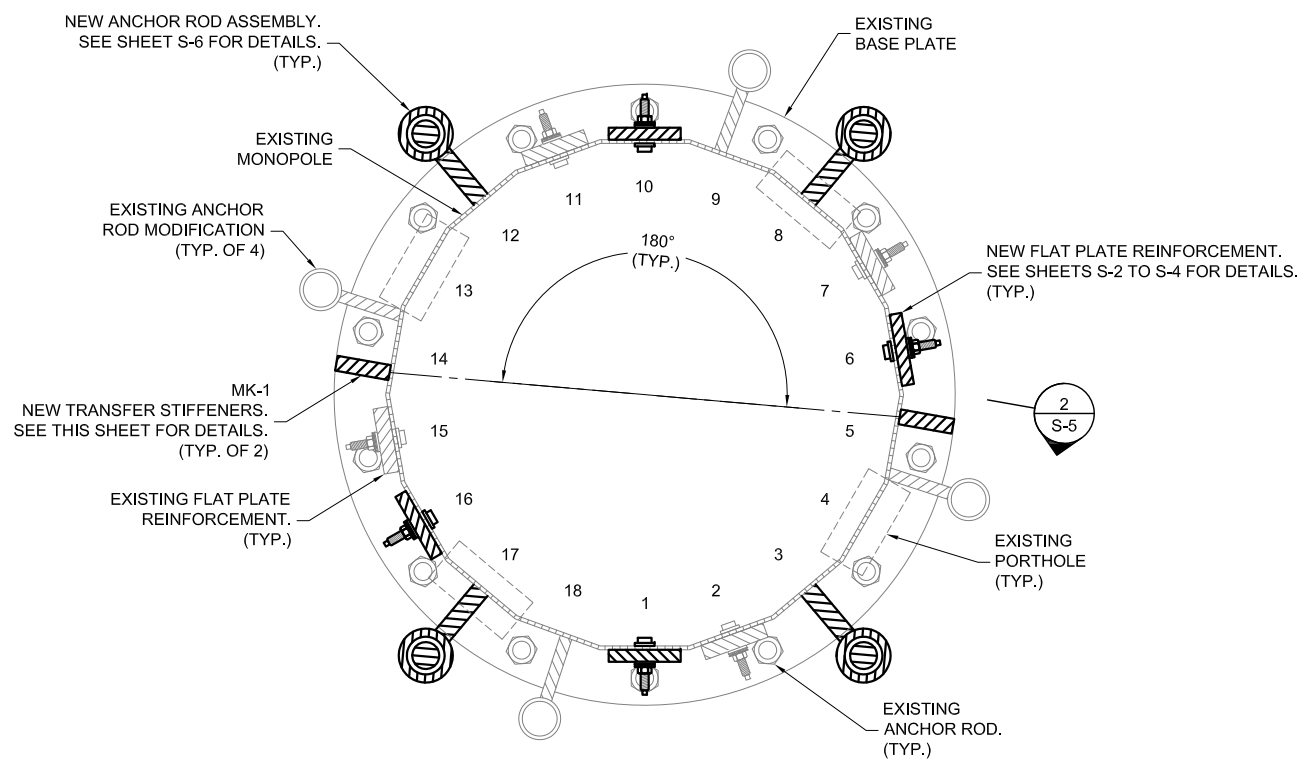
SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
 MIDDLETOWN, CT 06457**

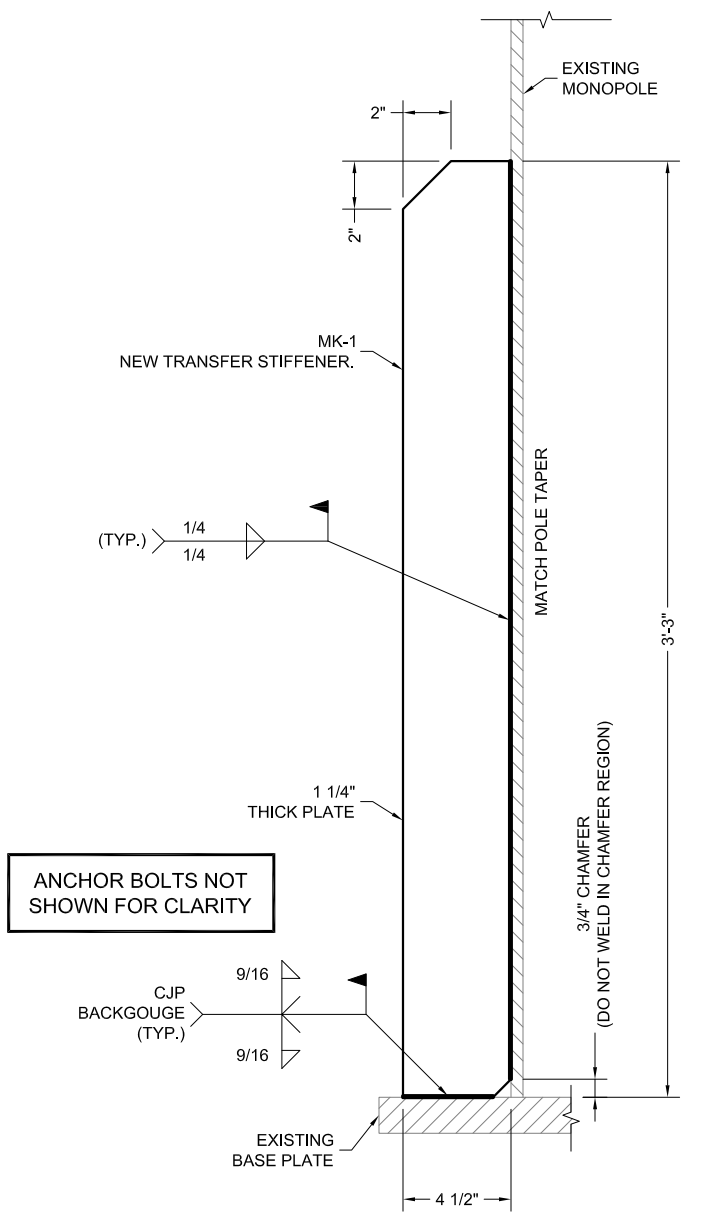
SHEET TITLE  
**TRANSFER STIFFENER  
 INSTALLATION DETAILS**

SHEET NUMBER  
**S-5**

TRANSFER STIFFENER INSTALLATION SCHEDULE			
PART. NO	QUANTITY	DESCRIPTION	ELEVATION
MK-1	2	TRANSFER STIFFENER	0'-0"± TO 3'-3"±
ALL NEW TRANSFER STIFFENER STEEL TO HAVE Fy=65 KSI			



TRANSFER STIFFENER LAYOUT  
SECTION VIEW  
 SECTION 1  
 S-5 NTS



ANCHOR BOLTS NOT SHOWN FOR CLARITY

TRANSFER STIFFENER  
FRONT VIEW  
 DETAIL 2  
 S-5 NTS

- CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO EOR PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.
- PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS
- CONTRACTOR TO INSTALL ANCHOR ROD TO A MIN. DEPTH OF 6'-0" BELOW TOP OF CAISSON AND FILL WITH HILTI HIT-RE 500 INJECTION ADHESIVE.
- PULL TEST SHOULD BE PERFORMED PER PULL TEST NOTES ON SHEET N-2. THE TARGET TENSION FOR THIS PULL TEST IS 190K.

MATERIAL LIST (MK-2)		
PART. NO.	QTY.	DESCRIPTION
P-1	1	ANCHOR ROD SLEEVE
P-2	1	TRANSFER PLATE

ANCHOR ROD MATERIAL LIST			
PART. NO	QTY.	DESCRIPTION	ELEVATION
MK-2	4	ANCHOR ROD ASSEMBLY	0'-0"± TO 3'-3 1/2"±
-	4	NEW 2 1/4"Ø (2.25" O.D.) THREADED ROD X 10'-7"±	-6'-3 1/2"± TO 4'-3 1/2"±
-	8	ROUND HARDENED WASHER	-
-	4	LOCK WASHER	-
-	12	HEAVY HEX NUT	-
-	AS REQUIRED	BOND BREAKER TAPE	-0'-9 1/2"± TO -0'-3 1/2"±

PREPARED BY:

ENGINEERING INNOVATION  
VELOCITEL, INC., d.b.a. FDH VELOCITEL  
6521 MERIDIAN DRIVE RALEIGH, NC 27616  
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:

5900 BROKEN SOUND PARKWAY, NW  
BOCA RATON, FL 33487  
(800) 487-SITE

DENNIS D. ABEL, PE  
CONNECTICUT LIC. NO. 23247

08/06/15

DRAWN BY: AEV  
CHECKED BY: BKW  
ENG APP'VD: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
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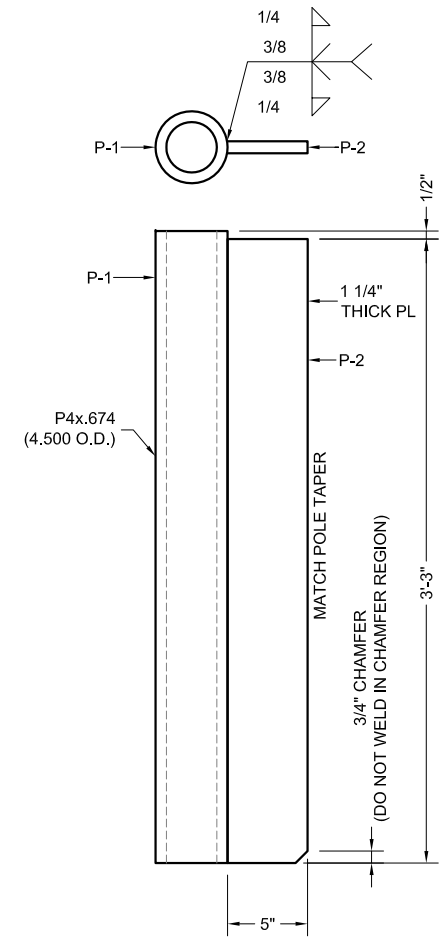
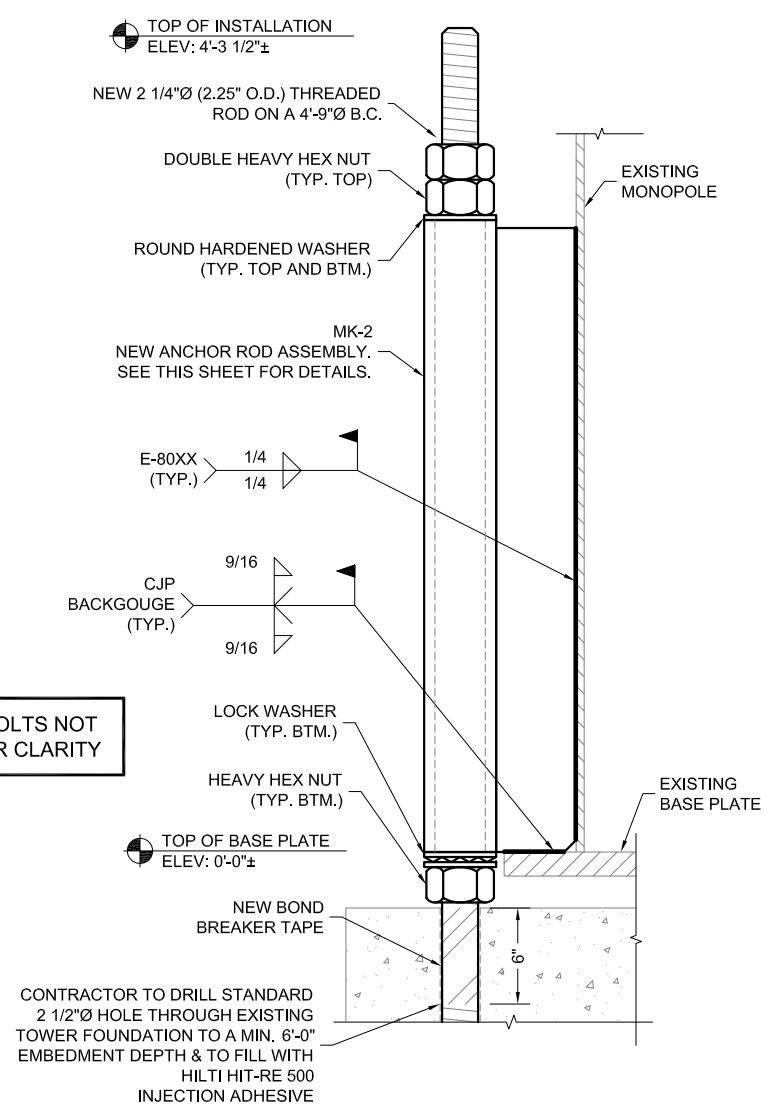
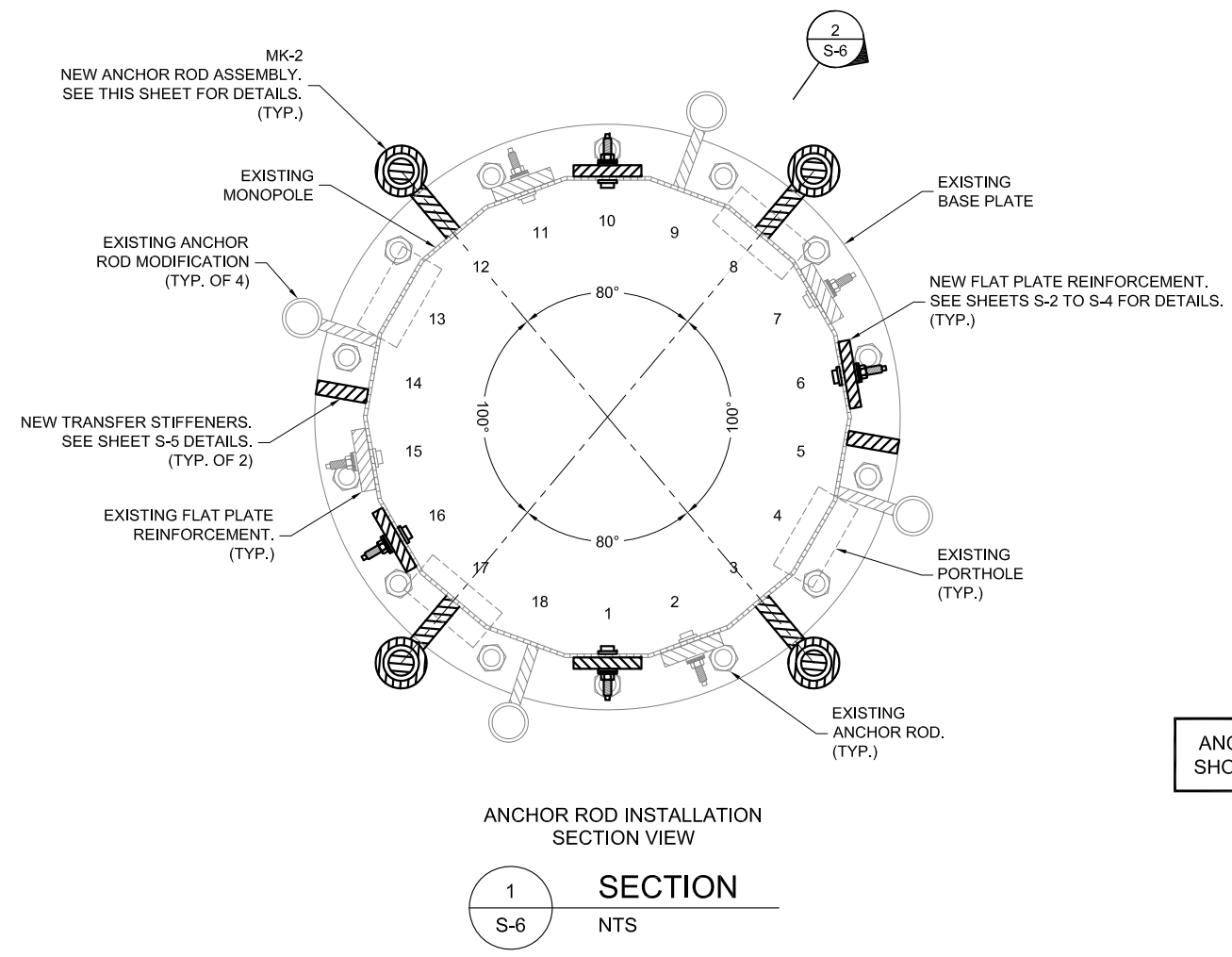
SITE NAME:  
**MIDDLETOWN 2, CT**

SITE NUMBER:  
**CT13064-A-05**

SITE ADDRESS:  
**67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457**

SHEET TITLE  
**ANCHOR ROD  
INSTALLATION DETAILS**

SHEET NUMBER  
**S-6**



ANCHOR BOLTS NOT SHOWN FOR CLARITY



**Centek Engineering, Inc.**  
3-2 North Branford Road  
Branford, Connecticut 06405  
Phone: (203) 488-0580  
Fax: (203) 488-8587

**Steven L. Levine**  
Real Estate Consultant

August 19, 2015

Mayor Daniel T. Drew  
City of Middletown  
Municipal Bldg., 245 DeKoven Drive  
Middletown, CT 06457

**Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 50 Fairchild Road, Middletown (Owner, SBA)**

Dear Mayor Drew:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The enclosed Notice fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned at 860-830-0380 or Ms. Melanie Bachman, Acting Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

A handwritten signature in black ink, appearing to read "S. L. Levine".

Steven L. Levine  
Real Estate Consultant

Enclosure



**Centek Engineering, Inc.**  
3-2 North Branford Road  
Branford, Connecticut 06405  
Phone: (203) 488-0580  
Fax: (203) 488-8587

**Steven L. Levine**  
Real Estate Consultant

August 19, 2015

Stephen G. & Barbara L. Borrelli  
67 Fairchild Road  
Middletown, CT 06457

**Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 50 Fairchild Road, Middletown (Owner, SBA)**

Dear Mr. & Mrs. Borrelli:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

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Enclosure