STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 26, 2013

Rick Woods
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752

RE: **EM-SPRINT-049-130710** - Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 188 Moody Road, Enfield, Connecticut.

Dear Mr. Woods:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;
- Prior to antenna installation, the tower modifications depicted in the drawings entitled *Modification Drawings for a 188' Monopole* prepared by FDH Engineering dated July 8, 2013, and stamped by Christopher Murphy shall be implemented; and
- Within 45 days following completion of the antenna installation, Sprint shall provide documentation certified by a professional engineer that its installation complied with the requirements of the structural analysis.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated July 9, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-

case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/cm

c: The Honorable Scott Kaupin, Mayor, Town of Enfield
Jose Giner, Director of Planning and Community Development, Town of Enfield

EM-SPRINT-049-130710

July 9, 2013

ORIGINAL

David Martin and
Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
188 Moody Road
Enfield, CT 06082
N 42° 0′ 7.23″
W 72° 31′ 18.25″

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint Spectrum, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 188 Moody Road, Enfield, CT.

The 188 Moody Road facility consists of a 188′ MONOPOLE Tower owned and operated by SBA 2012 TC Assets, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of Sprint's Network Vision modification project, Sprint desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site along with the required fee of $625.

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 characteristics of the facility 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 overall height of the structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of Sprint Spectrum, respectfully submits that he 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 (508) 614-0389 with any questions you may have concerning this matter.

Thank you,

Rick Woods
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

Sprint Spectrum
Equipment Modification

188 Moody Road, Enfield, CT
Site number CT33XC257

Tower Owner: SBA 2012 TC Assets, LLC

Equipment Configuration: MONOPOLE Tower

Current and/or approved:

- One (1) battery cabinet
- One (1) equipment cabinet
- One (1) DC distribution and fiber management enclosure
- One(1) mini modcell 4.0 cabinet
- One (1) PPC cabinet
- One (1) equipment shelter
- One (1) GPS antenna
- Six (6) CDMA antennas and coax

Planned Modifications:

- Install one (1) BBU Cabinet, one (1) MM-BTS Cabinet, and Fiber distribution box within existing lease area
- Replace existing CDMA antennas with three (3) Network Vision antennas & four (4) RRHs
- Remove existing CDMA coax cables & install three (3) Hybriflex cables
- Remove existing GPS antenna and replace with new GPS antenna
- Existing local exchange carrier landline backhaul facilities to be replaced with AAV fiber optic facilities incl. proposed overhead/underground conduits and NID

Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

Power Density:

The anticipated Maximum Composite contributions from the Sprint facility are 11.376% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 33.006% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	11.376%
AT&T	15.050%
Pocket	3.110%
Nextel	1.760%
Clearwire	0.590%
T-Mobile	1.120%
Total Site MPE %	33.006%

July 9, 2013

Mr. Matthew W. Coppler
Town Manager
Town of Enfield
820 Enfield Street
Enfield, CT 06082

RE: Telecommunications Facility @ 188 Moody Road, Enfield, CT

Dear Mr. Coppler,

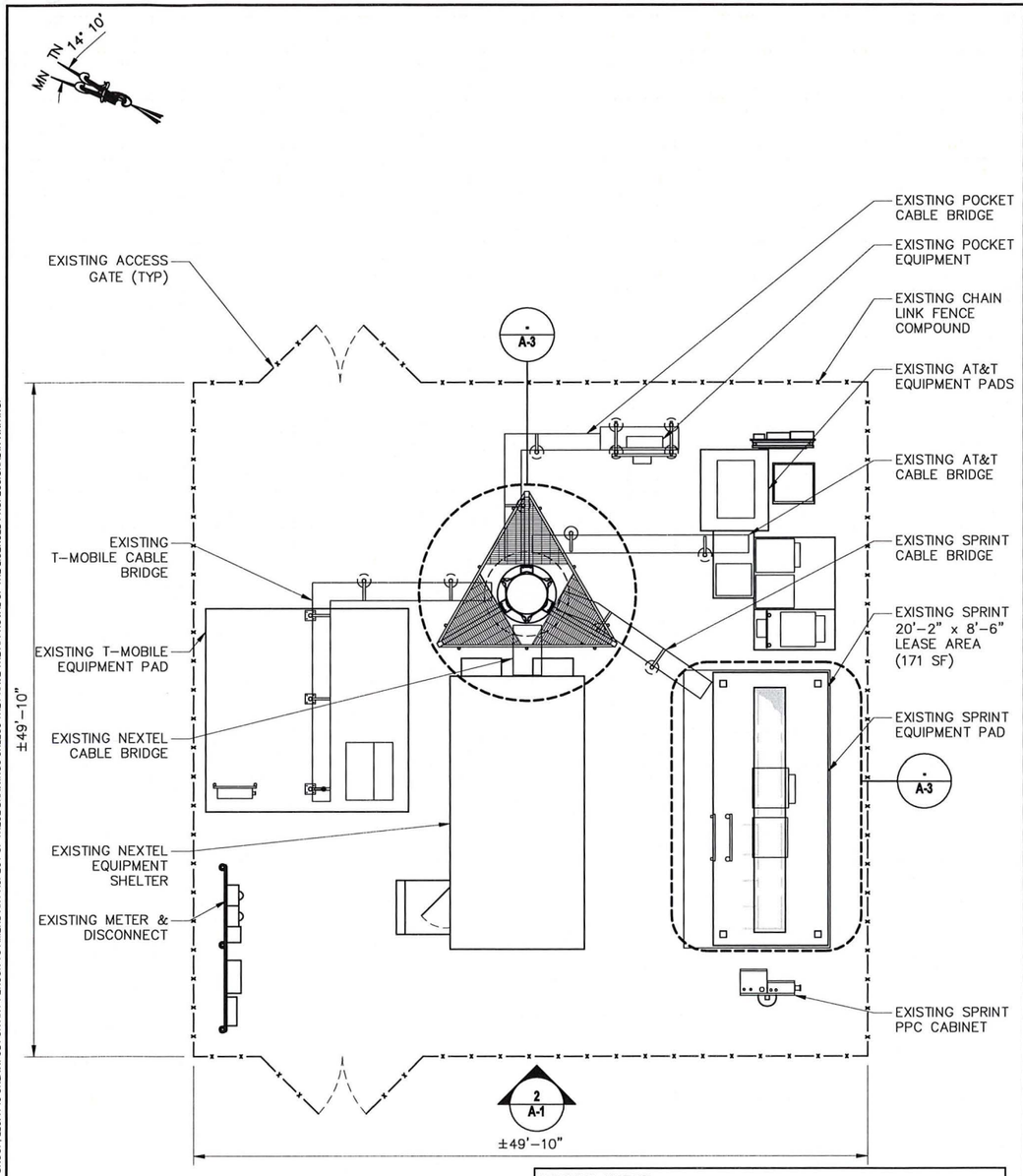
In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum will be changing its equipment configuration at certain cell sites.

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 Sprint'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 accompanying letter to the Siting Council fully describes Sprint's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (508) 614-0389.

Thank you,

Rick Woods
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

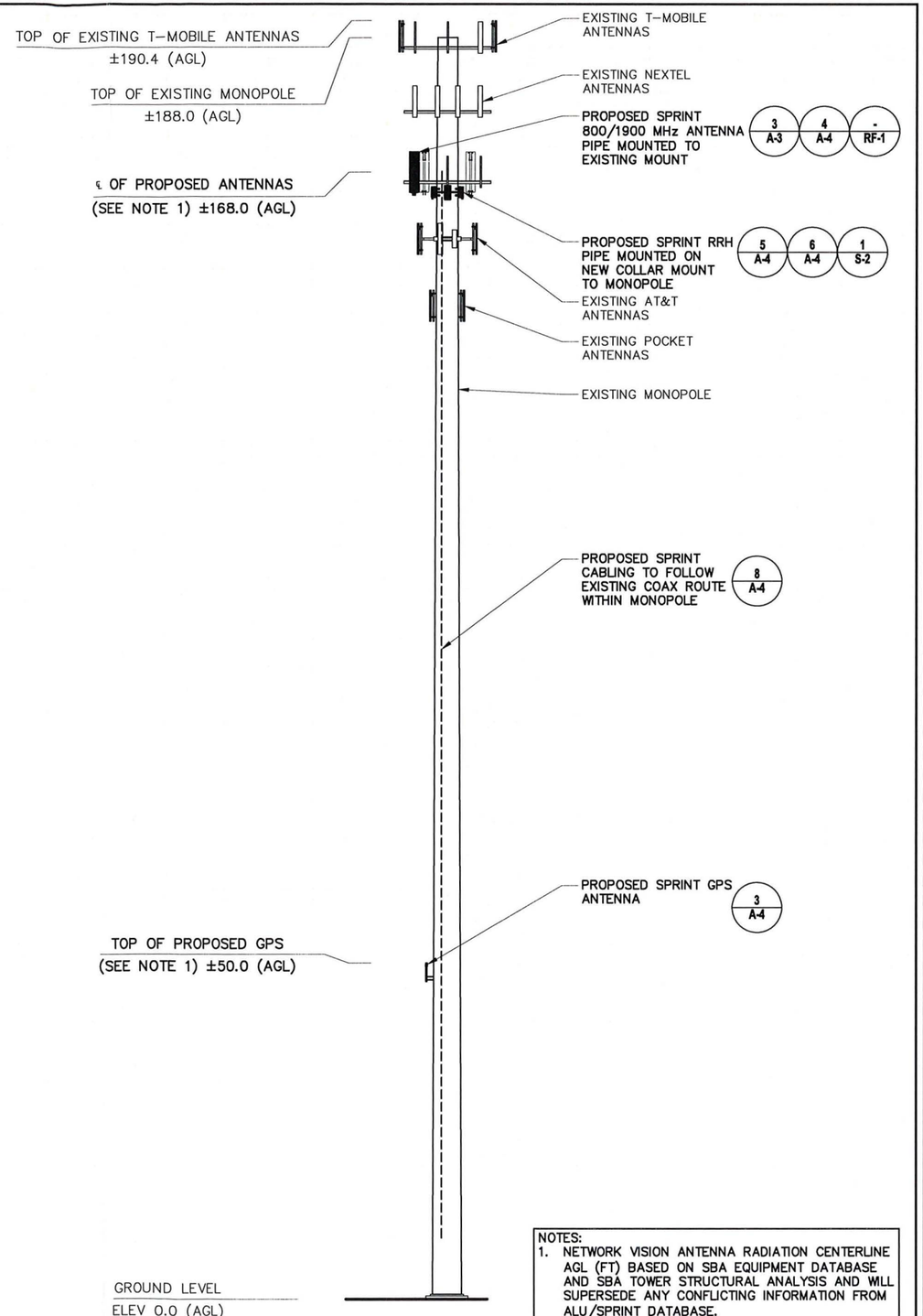


CABLING NOTES:
1. PROPOSED CABLING TO FOLLOW EXISTING ROUTE AND METHOD OF ATTACHMENT AT INTERIM.
2. EXISTING COAXIAL CABLES TO BE REMOVED AT FINAL.
3. CONTRACTOR TO REPAIR/REPLACE ANY MISSING/DAMAGED CABLE TRAY AND ADD HURRICANE STRAPS AS REQUIRED IF APPLICABLE.

GENERAL NOTES:
1. FINAL ANTENNA & EQUIPMENT CONFIGURATION SHOWN ON THIS PLAN. SEE EQUIPMENT & ANTENNA PLAN SHEETS FOR EXISTING AND INTERIM CONFIGURATION.
2. CONTRACTOR TO REPLACE ALL MISSING GROUND BARS AND GROUNDING CONNECTIONS AS REQUIRED IN ACCORDANCE WITH SPRINT GROUNDING AND ANTI-THEFT GUIDELINES.
3. CONTRACTOR TO RESTORE ANY RUST AREA TO ORIGINAL CONDITION AND PROTECTIVE COATING TO BE APPLIED.
4. STRUCTURAL ANALYSIS PROVIDED UNDER SEPARATE COVER.

1 EXISTING COMPOUND PLAN

11x17 SCALE:3/32"=1'-0" | 24x36 SCALE:3/16"=1=-0"



NOTES:
1. NETWORK VISION ANTENNA RADIATION CENTERLINE AGL (FT) BASED ON SBA EQUIPMENT DATABASE AND SBA TOWER STRUCTURAL ANALYSIS AND WILL SUPERSEDE ANY CONFLICTING INFORMATION FROM ALU/SPRINT DATABASE.
2. GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

2 WEST ELEVATION

11x17 SCALE:1"=20' | 24x36 SCALE:1"=10'

Sprint

SBA

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD. BY
A	03-25-13	INITIAL SUBMISSION NOT FOR CONSTRUCTION	MJC	NS

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

Stephen A. Bray
PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · STEPHEN A BRAY · No. 26657 · LICENSED PROFESSIONAL ENGINEER

CT LICENSE: 26657 3/26/13

PROJECT NUMBER: **332.6006**

SITE INFORMATION:
188 MOODY ROAD
ENFIELD, CT 06082
HARTFORD COUNTY
CT33XC257
CT46124

PROJECT TYPE: NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
MJC	NS	03-18-13

SHEET TITLE: COMPOUND PLAN & ELEVATION

SHEET NUMBER: A-1 REV.: A

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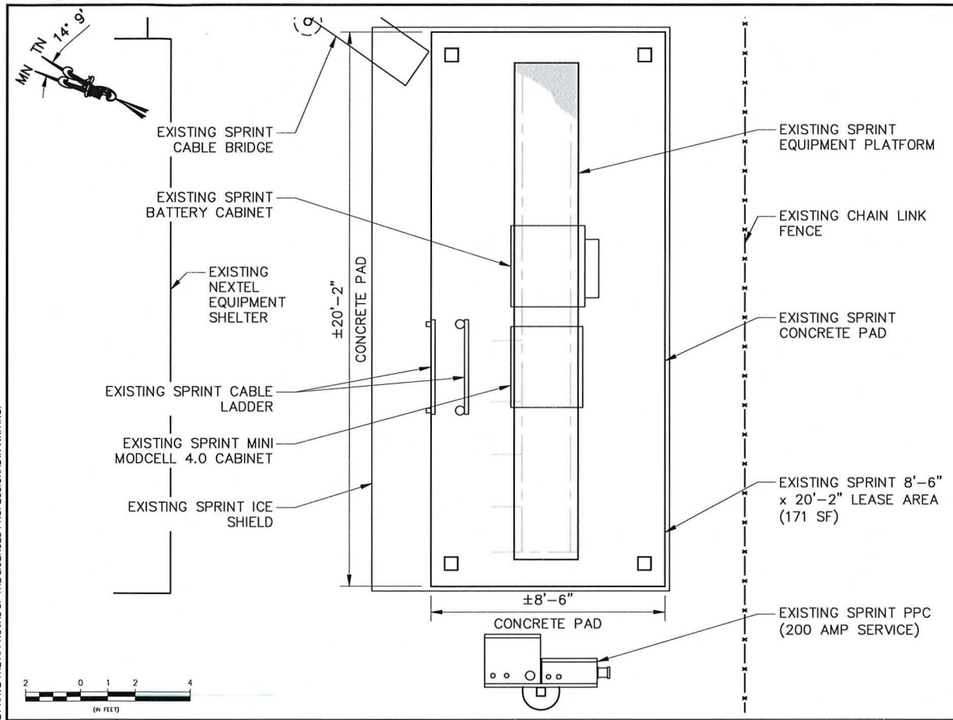
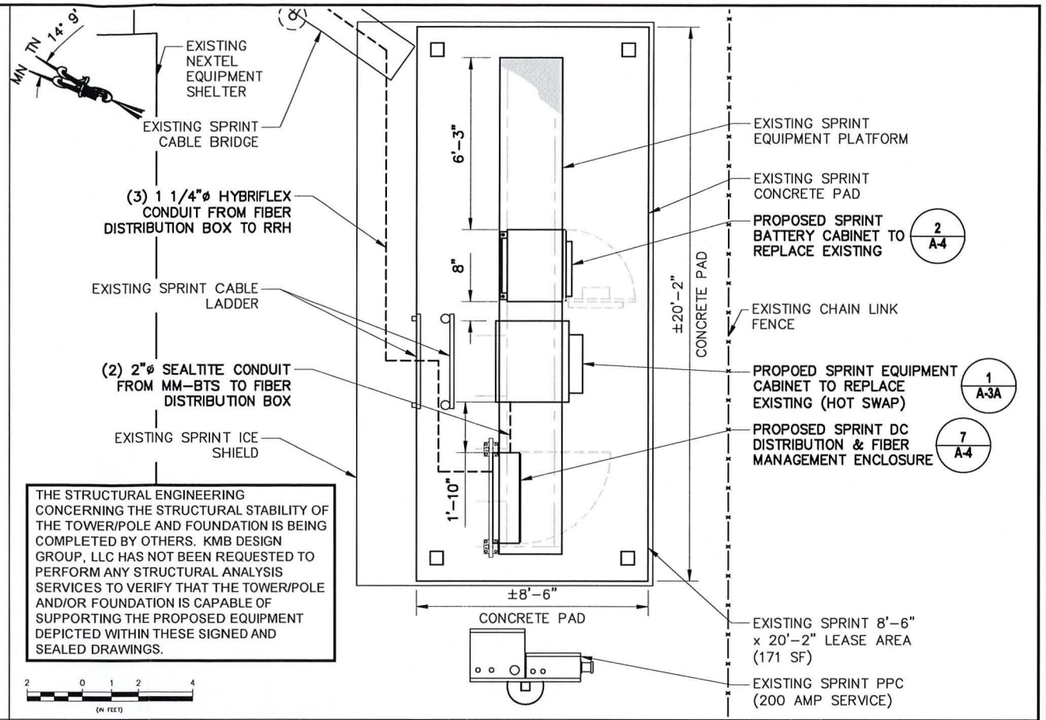


1 **EXISTING EQUIPMENT PLAN**

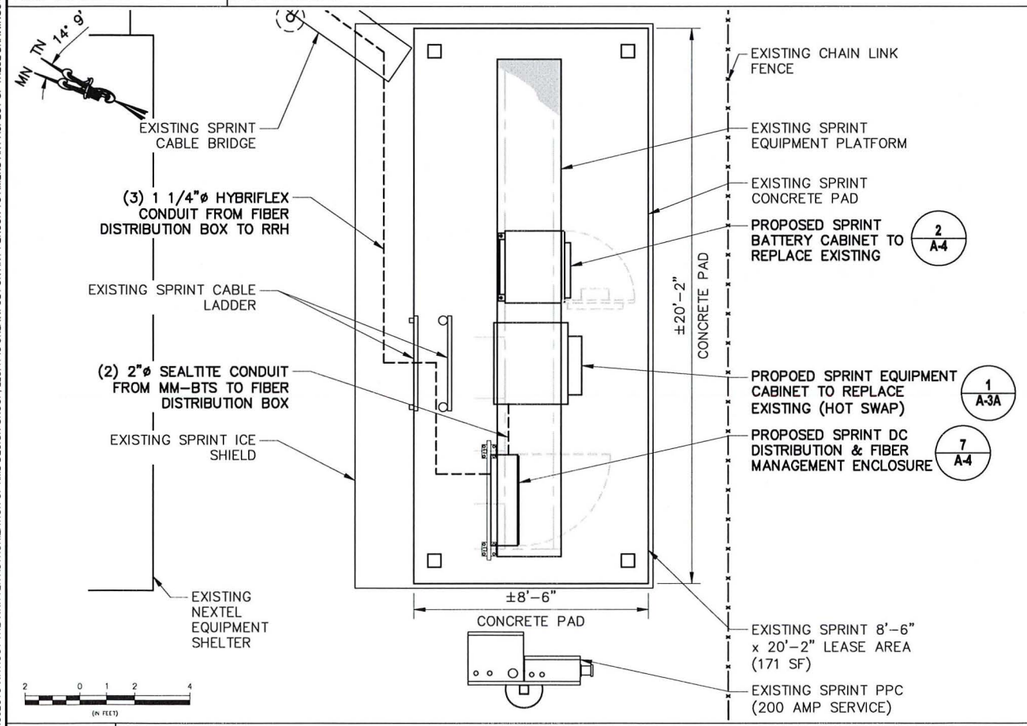
11x17 SCALE: 3/16"=1'=0" | 24x36 SCALE: 3/8"=1'-0"



THE STRUCTURAL ENGINEERING CONCERNING THE STRUCTURAL STABILITY OF THE TOWER/POLE AND FOUNDATION IS BEING COMPLETED BY OTHERS. KMB DESIGN GROUP, LLC HAS NOT BEEN REQUESTED TO PERFORM ANY STRUCTURAL ANALYSIS SERVICES TO VERIFY THAT THE TOWER/POLE AND/OR FOUNDATION IS CAPABLE OF SUPPORTING THE PROPOSED EQUIPMENT DEPICTED WITHIN THESE SIGNED AND SEALED DRAWINGS.

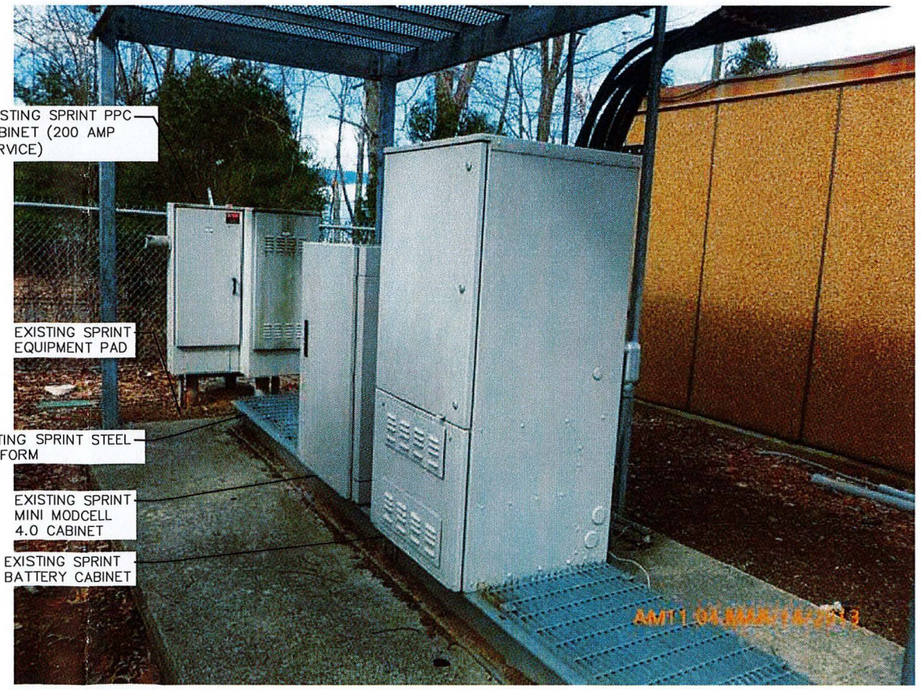
2 **INTERIM EQUIPMENT PLAN**

11x17 SCALE: 3/16"=1'-0" | 24x36 SCALE: 3/8"=1'-0"



3 **FINAL EQUIPMENT PLAN**

11x17 SCALE: 3/16"=1'-0" | 24x36 SCALE: 3/8"=1'-0"



4 **EXISTING EQUIPMENT PHOTO DETAIL**

SCALE: NTS

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD. BY
A	03-25-13	INITIAL SUBMISSION NOT FOR CONSTRUCTION	MJC	NS

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
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Stephen A. Bray
PROFESSIONAL ENGINEER
STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER
CT LICENSE: 26657 3/26/13

PROJECT NUMBER: **332.6006**

SITE INFORMATION:
188 MOODY ROAD
ENFIELD, CT 06082
HARTFORD COUNTY
CT33XC257
CT46124

PROJECT TYPE: NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
MJC	NS	03-18-13

SHEET TITLE: EQUIPMENT PLANS

SHEET NUMBER: A-2 REV.: A

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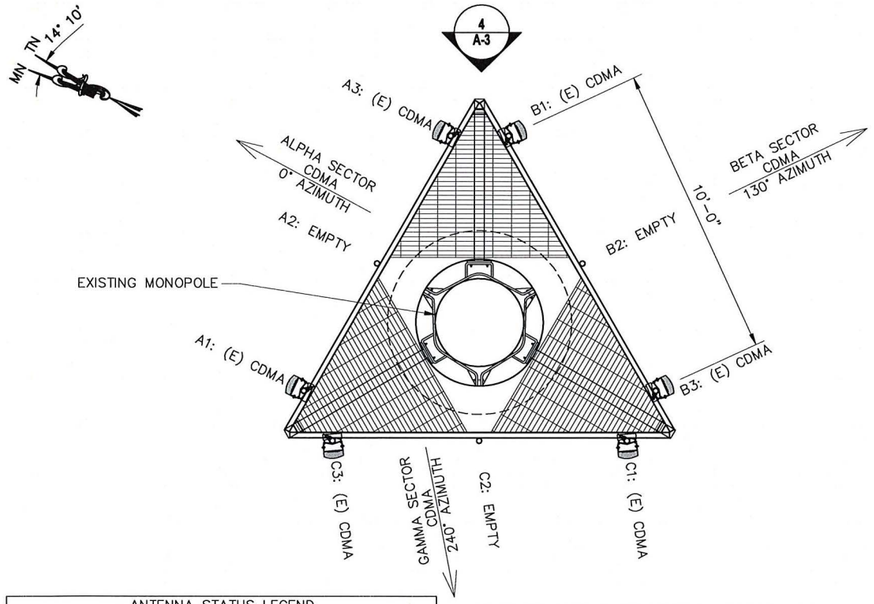
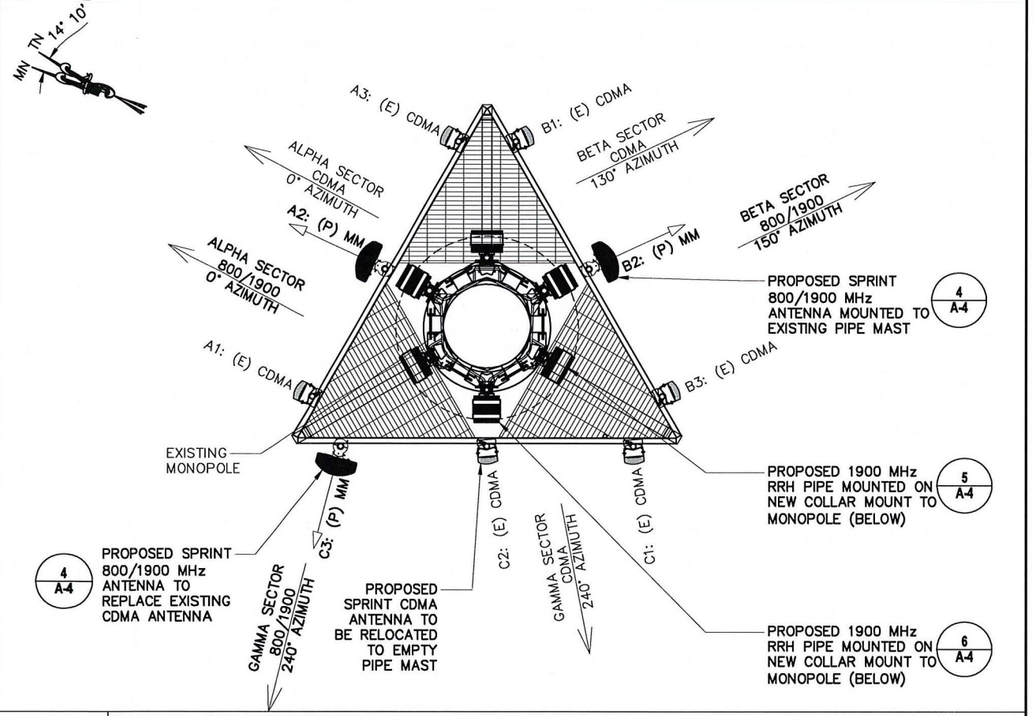


ANTENNA STATUS LEGEND			
(E)	EXISTING	IDEN	IDEN ANTENNA
(P)	PROPOSED	DP	DUAL POLE
CDMA	SPRINT ANTENNA	SP	SINGLE POLE
MM	MULTIMODAL ANTENNA		

NOTE:
EXISTING ANTENNA AND PLATFORM ORIENTATIONS HAS BEEN TAKEN FROM NETWORK VISION 3G RUN PLANNING PLAYBOOK. GC TO VERIFY EXISTING ORIENTATIONS PRIOR TO PROPOSED INSTALLATION.

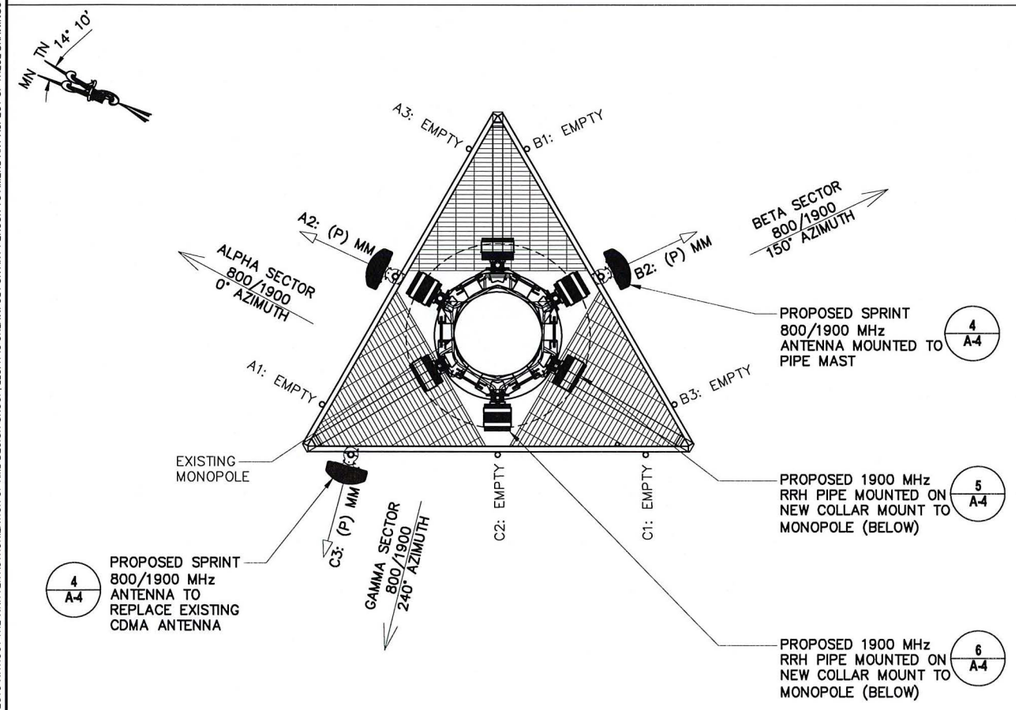
1 EXISTING ANTENNA PLAN

SCALE: NTS



2 INTERIM ANTENNA PLAN

SCALE: NTS



3 FINAL ANTENNA PLAN

SCALE: NTS

4 EXISTING ANTENNA PHOTO DETAIL

SCALE: NTS

Sprint

SBA

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD. BY
A	03-25-13	INITIAL SUBMISSION NOT FOR CONSTRUCTION	MJC	NS

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PROJECT NUMBER:
332.6006

SITE INFORMATION:
188 MOODY ROAD
ENFIELD, CT 06082
HARTFORD COUNTY
CT33XC257
CT46124

PROJECT TYPE:
NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
MJC	NS	03-18-13

SHEET TITLE:
ANTENNA
PLAN

SHEET NUMBER: A-3

REV.: A

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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: CT33XC257

Claryville / Nextel
188 Moody Road
Enfield, CT 06082

October 29, 2012

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

EBI Consulting
environmental | engineering | due diligence

October 29, 2012

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

Re: Emissions Values for Site: **CT33XC257 – Claryville / Nextel**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 188 Moody Road, Enfield, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades 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 μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the cellular band is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the PCS band 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 upgrades to the existing Sprint Wireless antenna facility located at 188 Moody Road, Enfield, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. 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 emissions were calculated using the following assumptions:

1) 3 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) 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.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

6) The antenna mounting height centerline of the proposed antennas is **168 feet** above ground level (AGL)
7) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT33XC257 - Claryville / Nextel
Site Addresss	188 Moody Road, Enfield, CT, 06082
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	168	162	1/2 "	0.5	0	2080.4211	28.49884	2.84988%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	168	162	1/2 "	0.5	0	389.96892	5.342025	0.94216%
														Sector total Power Density Value:			3.792%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	168	162	1/2 "	0.5	0	2080.4211	28.49884	2.84988%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	168	162	1/2 "	0.5	0	389.96892	5.342025	0.94216%
														Sector total Power Density Value:			3.792%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	168	162	1/2 "	0.5	0	2080.4211	28.49884	2.84988%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	168	162	1/2 "	0.5	0	389.96892	5.342025	0.94216%
														Sector total Power Density Value:			3.792%

Site Composite MPE %	
Carrier	MPE %
Sprint	11.376%
AT&T	15.050%
Pocket	3.110%
Nextel	1.760%
Clearwire	0.590%
T-Mobile	1.120%
Total Site MPE %	**33.006%**

EBI Consulting
environmental | engineering | due diligence

Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **11.376% (3.792%from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **33.006%** of the allowable FCC established general public 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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for SBA Network Services, Inc.

188' Monopole Tower

SBA Site Name: Enfield-Moody Rd.
SBA Site ID: CT46124-A-03
Sprint Site ID: CT33XC257
Sprint Site Name: Claryville Nextel

FDH Project Number 1335291400

Analysis Results

Tower Components	98.6%	Sufficient
Foundation	95.2%	Sufficient

Prepared By:

David Zambrano, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com

STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED PROFESSIONAL ENGINEER
7/8/13

July 8, 2013

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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

- Paul J. Ford & Company (Job No. 29200-155) original design drawings dated February 12, 2000
- Paul J. Ford & Company (Project No. A29208-0031) Monopole Extension Project dated March 14, 2008
- Vertical Solutions, Inc. (Project No. 120735 Rev. 0) Rigorous Structural Analysis dated May 1, 2012
- Tectonic Engineering Consultants, P.C (W.O No. 1170.C054) Geotechnical Evaluation dated September 30, 1998
- FDH Engineering, Inc. (Project No. 1335291400) Modification Drawings for a 188' Monopole dated July 8, 2013
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CBC* is 80 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Sprint in place at 168 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see Paul J. Ford & Company Job No. 29200-155), given the soil parameters (see Tectonic Engineering Consultants, P.C W.O No. 1170.C054), and provided modifications have been correctly installed (see FDH Engineering, Inc. Project No. 1335291400), 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 Engineering, 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 and *2005 CTBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax should be installed inside the pole's shaft.
2. RRU/RRH Stipulation: The proposed equipment may be installed in any arrangement as determined by the client.
3. The modifications outlined in the FDH Engineering, Inc. (Project No. 1335291400) Modification Drawings for a 188' Monopole must be correctly installed in order for this analysis to be valid.

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 Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
188	(9) RFS APX16PV-16PVL-E (12) TMAs	(18) 1-5/8"	T-Mobile	184	(1) Low Profile Platform
181	(2) Andrew VHLP1-23 Dishes	(3) 1/2" (6) 5/16" (9) 1-5/8"	Sprint/Clearwire	178.5	(1) Low Profile Platform
178.5	(3) Kathrein 840 10054 (9) Decibel DB844H90E-XY (3) 26"x14"x9" RRUs (1) GPS				
168.5	(6) Decibel DB980F90E-M	(6) 1-5/8"	Sprint	168.5	(1) Low Profile Platform
158	(2) Powerwave P65-17-XLH-RR (1) Andrew SBNH-1D6565C (6) Ericsson RRUS-11 RRUs (3) Powerwave 7770.00 (6) Powerwave LGP21401 TMAs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(6) 1-5/8" (2) 5/8" (1) 3/8"	AT&T	158	(3) T-Arms
148	(3) Kathrein 742 213	(6) 1-5/8"	Pocket Communications	148[2]	Flush Mounted
60.5	(1) GPS	(1) 1/2"	Sprint	60.5[3]	(1) Standoff

1. Coax installed inside the pole's shaft unless otherwise noted.
2. Pocket Communications has (6) 1-5/8" coax installed outside the pole shaft in a single row to 148 ft.
3. Sprint has (1) 1/2" coax installed outside the pole shaft to 60.5 ft.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
168	(2) RFS APXVSPP18-C-A20 (1) RFS APXV9ERR18-C-A20 (3) Alcatel Lucent 1900 MHz RRH RRUs (3) Alcatel Lucent 800 MHz RRH RRUs (4) RFS ACU-A20-N RETs (3) Alcatel Lucent 800 MHz Filters	(3) 1-1/4" Fiber	Sprint	168.5	(1) Low Profile Platform

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
Flange Plate	36 ksi (Assumed)
Flange Bolts	Fu = 120 ksi
Base Plate	50 ksi
Anchor Bolts	75 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.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. 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

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	188 - 178	Pole	TP24x22.34x0.1875	10.9	Pass
	178	Flange Bolts	(9) 0.75"Ø w/ BC = 19"	39.1	Pass
	178	Flange Plate	26"Ø PL x 1" thk	25.1	Pass
L2	178 - 132.5	Pole	TP31.554x24x0.2188	89.2	Pass
L3	132.5 – 107.25	Pole	TP38.588x30.4523x0.3125	95.9	Pass
	107.25 – 87.3	Modified Pole	TP38.588x30.4523x0.3125	94.7	Pass
L4	87.5 – 79.25	Pole	TP45.309x37.1743x0.375	96.7	Pass
	79.25 – 43.25	Modified Pole	TP45.309x37.1743x0.375	94.7	Pass
L5	43.25 – 35.5	Pole	TP51.74x43.6044x0.4375	98.6	Pass
	35.5 – 0	Modified Pole	TP51.74x43.6044x0.4375	94.8	Pass
		Anchor Bolts	(16) 2.25"Ø w/ BC = 59"	81.8	Pass
			(3) 2.25"Ø w/ BC = 68.3"	94.9	Pass
		Base Plate	57" SQ PL x 3.25" thk	73.1	Pass

*Capacities include a 1/3 allowable stress increase for wind per TIA/EIA-222-F Standards

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	49 k	34 k
Shear	30 k	30 k
Moment	3,979 k-ft	3,850 k-ft

*Foundation determined adequate per independent analysis.

Table 5 – Maximum Antenna Rotations at Service Wind Speeds

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
181	(2) Andrew VHLP1-23 Dishes	5.0964	0.0058

*Allowable tilt and twist values to be determined 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 Engineering, Inc. 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 Engineering, Inc.

APPENDIX

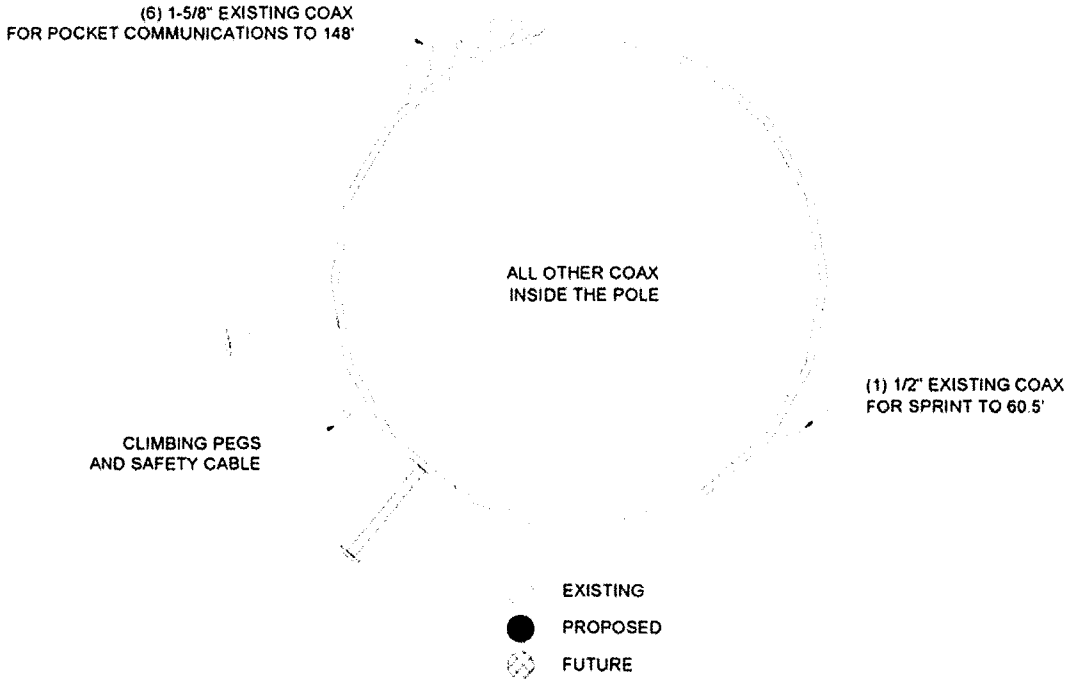
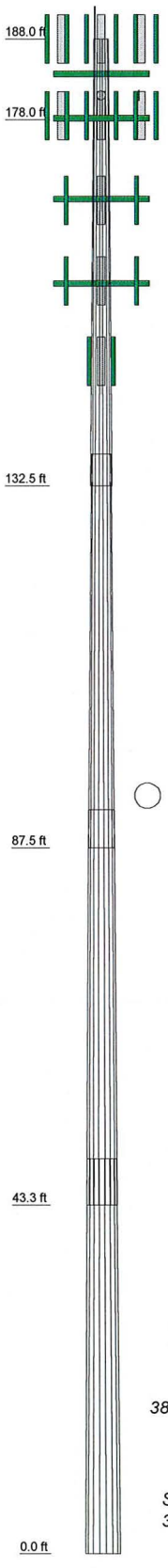
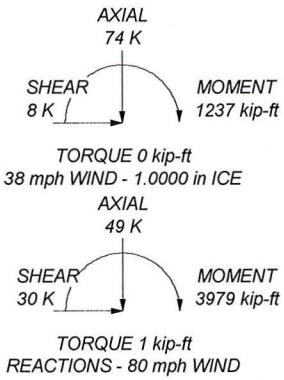


Figure 1 – Assumed Coax Layout

Section	5	4	3	2	1
Length (ft)	49.00	49.00	49.00	45.50	10.00
Number of Sides	18	18	18	18	18
Thickness (in)	0.4375	0.3750	0.3125	0.2188	0.1875
Socket Length (ft)		5.75	4.75	4.00	
Top Dia (in)	43.6044	37.1743	30.4523	24.0000	22.3400
Bot Dia (in)	51.7400	45.3090	38.5880	31.5540	24.0000
Grade	A607-65				
Weight (K)	28.1	10.9	8.1	5.7	3.0	0.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	188	800 MHz RRH	168.5
(3) RFS APX16PV-16PVL-E w/ Mount Pipe	184	(2) ACU-A20-N RET	168.5
		ACU-A20-N RET	168.5
(3) RFS APX16PV-16PVL-E w/ Mount Pipe	184	ACU-A20-N RET	168.5
(3) RFS APX16PV-16PVL-E w/ Mount Pipe	184	800 MHz Filter	168.5
		800 MHz Filter	168.5
(4) TMA	184	800 MHz Filter	168.5
(4) TMA	184	(1) Low Profile Platform	168.5
(4) TMA	184	APXVSPP18-C-A20 w/Mount Pipe	168.5
(1) Low Profile Platform	184	APXVSPP18-C-A20 w/Mount Pipe	168.5
840 10054 w/ Mount Pipe	178.5	SBNH-1D6565C w/ Mount Pipe	158
840 10054 w/ Mount Pipe	178.5	(2) RRUS-11	158
840 10054 w/ Mount Pipe	178.5	(2) RRUS-11	158
(3) DB844H90E-XY w/ Mount Pipe	178.5	(2) RRUS-11	158
(3) DB844H90E-XY w/ Mount Pipe	178.5	7770.00 w/Mount Pipe	158
(3) DB844H90E-XY w/ Mount Pipe	178.5	7770.00 w/Mount Pipe	158
26"x14"x9" RRU	178.5	7770.00 w/Mount Pipe	158
26"x14"x9" RRU	178.5	(2) LGP21401 TMA	158
26"x14"x9" RRU	178.5	(2) LGP21401 TMA	158
GPS	178.5	(2) LGP21401 TMA	158
(1) Low Profile Platform	178.5	DC6-48-60-18-8F Surge Arrestor	158
VHLP1-23	178.5	(3) T-Arms	158
VHLP1-23	178.5	P65-17-XLH-RR w/Mount Pipe	158
APXV9ERR18-C-A20 w/Mount Pipe	168.5	P65-17-XLH-RR w/Mount Pipe	158
1900 MHz RRH	168.5	742 213 w/ Mount Pipe	148
1900 MHz RRH	168.5	742 213 w/ Mount Pipe	148
1900 MHz RRH	168.5	742 213 w/ Mount Pipe	148
800 MHz RRH	168.5	GPS	60.5
800 MHz RRH	168.5	(1) Standoff	60.5

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Phone: 9197551012
FAX: 9197551031
Tower Analysis

Job: Enfield Moody Rd. - CT46124-A-03			
Project: 1335291400			
Client: SBA	Drawn by: David Zambrano		App'd:
Code: TIA/EIA-222-F	Date: 07/08/13		Scale: NTS
Path:			Dwg No. E-1

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 1319021400 DATED APRIL 05, 2013.

THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH ENGINEERING, INC.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

FOR INQUIRIES REGARDING THE CONTENT OF THESE MODIFICATION DRAWINGS, PLEASE CONTACT STEVEN STRICKLAND WITH THE FDH CONSTRUCTION DEPARTMENT (919) 755-1012

PROJECT DESCRIPTION:

MODIFICATION DRAWINGS FOR A 188' MONOPOLE

SBA

SITE NAME:

ENFIELD-MOODY RD.

SITE NUMBER:

CT46124-A-03

SITE ADDRESS:

188 MOODY RD
ENFIELD, CT 06082

COORDINATES:

LATITUDE: 42.0020°
LONGITUDE: -75.5217°

SHEET INDEX

SHT. NO.	DESCRIPTION
T–1	TITLE SHEET
N–1	POST CONSTRUCTION INSPECTION NOTES
N–2	GENERAL NOTES
S–1	MODIFICATION SCHEDULE
S–2	FLAT PLATE REINFORCEMENT DETAILS I
S–3	FLAT PLATE REINFORCEMENT DETAILS II
S–4	TRANSFER STIFFENER INSTALLATION DETAILS
S–5	ANCHOR ROD INSTALLATION DETAILS I
S–6	ANCHOR ROD INSTALLATION DETAILS II

PREPARED BY:

FDH
ENGINEERING INNOVATION

6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

PREPARED FOR:

SBA

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(800) 487–SITE

STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED
PROFESSIONAL ENGINEER

07/08/13
CHRISTPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	LL
CHECKED BY:	DZ
ENG APPV'D:	CMM
PROJECT NO:	1335291400

SUBMITTALS

DATE	DESCRIPTION	REV
06/05/13	PRELIMINARY/REVIEW	A
07/08/13	CONSTRUCTION	0

SITE NAME:
ENFIELD-MOODY RD.

SITE NUMBER:
CT46124-A-03

SITE ADDRESS:
188 MOODY RD
ENFIELD, CT 06082

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

PCI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	PCI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
N/A	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 (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. 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 GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	PCI 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 PCI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PCI REPORT

POST CONSTRUCTION INSPECTION NOTES:

GENERAL

1. THE POST CONSTRUCTION INSPECTION (PCI) 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 PCI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE PCI 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 PCI'S SHALL BE CONDUCTED BY A PCI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH ENGINEERING, INC.
4. TO ENSURE THAT THE REQUIREMENTS OF THE PCI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE PCI 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 POINT OF CONTACT (POC).
5. REFER TO CCR-01 : CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

PCI INSPECTOR

1. THE PCI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE PCI TO, AT A MINIMUM:
   - REVIEW THE REQUIREMENTS OF THE PCI 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 PCI REPORT TO FDH.

CORRECTION OF FAILING PCI'S

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PCI ("FAILED PCI"), THE GC SHALL WORK WITH FDH 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 PCI.
   - OR, WITH FDH'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 PCI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PCI 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.

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07/08/13
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DRAWN BY:	LL
CHECKED BY:	DZ
ENG APPV'D:	CMM
PROJECT NO:	1335291400

SUBMITTALS		
DATE	DESCRIPTION	REV
06/05/13	PRELIMINARY/REVIEW	A
07/08/13	CONSTRUCTION	0

SITE NAME:
ENFIELD-MOODY RD.

SITE NUMBER:
CT46124-A-03

SITE ADDRESS:
188 MOODY RD
ENFIELD, CT 06082

SHEET TITLE
POST CONSTRUCTION INSPECTION NOTES

SHEET NUMBER
N-1

GENERAL NOTES:

1. 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.
2. 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 ENGINEERING FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH ENGINEERING PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH ENGINEERING APPROVAL.
4. 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.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.

CONTRACTOR QUALIFICATION NOTES:

1. 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".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH ENGINEERING, INC. IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL INFO@FDH-INC.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.
4. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TIA-1019-A STANDARD.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH ENGINEERING, INC. NOR THE PRESENCE OF FDH ENGINEERING, INC. 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:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.

   *ALL FLAT PLATE STEEL SHALL BE ASTM A572-65 (Fy=65KSI) UNLESS OTHERWISE SPECIFIED.

   *ALL PIPE STEEL SHALL BE ASTM A500 GR. B (Fy=42KSI) UNLESS OTHERWISE SPECIFIED.

   *ALL THREADED ROD SHALL BE ASTM A615-75 (Fy=75 KSI) UNLESS OTHERWISE SPECIFIED.
2. 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).
3. 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.
4. 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 ACHEIVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. 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 ENGINEERING, INC. WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. 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.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. 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.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SUBSTITUTES AND/OR EQUALS:

1. 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.

PULLOUT TESTING OF POST INSTALLED ANCHOR RODS:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. 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.
3. 50% OF POST INSTALLED ANCHOR RODS SHALL BE TESTED OR A TOTAL OF 4, WHICHEVER IS GREATER.
4. THE ANCHOR ROD SHALL BE TESTED TO A TARGET TENSION OF 80% OF THE MATERIAL MINIMUM YIELD (Fy) STRENGTH ON THE NET AREA THROUGH THREADS. THE TARGET TENSION FOR THIS PULL TEST IS 195K.
5. MAINTAIN COMPLETE LOAD-DISPLACEMENT RECORDS THROUGHOUT THE TEST. LOAD THE ANCHOR IN INCREMENTS OF UP TO 15% OF THE TARGET TENSION.
6. STATIC LOAD TEST SHALL BE PERFORMED PER ASTM E488-96 (REAPPROVED 2003).
7. 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.
8. THIS INFORMATION SHALL BE DOCUMENTED AND INCLUDED IN THE POST MODIFICATION INSPECTION REPORT.
9. CONTACT FDH ENGINEERING, INC. IF ANY OF THE ANCHORS FAIL THE PULL TEST.
10. 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.
11. 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 IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.

NEW FLAT PLATE REINFORCEMENT NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF FLAT PLATE 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 AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL.
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 FLAT PLATES TO BE INSTALLED ON THE CENTER OF PROPOSED SIDE UNLESS OTHERWISE NOTED.
7. EXISTING COAX BANDS TO BE REPLACED AFTER FLAT PLATE INSTALLATION. NEW FLAT PLATE TO BE INSTALLED BENEATH EXISTING COAX BANDS.

CONSTRUCTION NOTES:

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

STIFFENER PLATE NOTES:

1. NEW STIFFENER PLATES TO BE PLACED EQUALLY BETWEEN EXISTING ANCHOR BOLTS.
2. INSIDE POLE SHAFT TO BE SPRAYED WITH (2) COATS COLD GALVANIZATION PAINT WHERE ALL WELDED CONNECTIONS ARE PERFORMED.
3. AFTER STIFFENER INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF COLD GALVANIZATION PAINT THEN FINISH WITH (1) COAT OF COLD GALVANIZATION SPRAY.

SURFACE PREPARATION:

1. 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.

STIFFENER TRANSFER PLATE WELDING:

1. 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.
2. 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.
3. CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
4. ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.
5. CONTRACTOR RESPONSIBLE FOR VIEWING EXISTING POLE FOR LOOSE AND FLAMMABLE MATERIAL PRIOR TO WELDING FLAT PLATE.
6. CONTRACTOR TO VERIFY LOCATION OF ENTRY PORTHOLES PRIOR TO BASE PLATE STIFFENER INSTALLATION.

EPOXY/HILTI NOTES:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. 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.
3. 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 IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.

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STATE OF CONNECTICUT
Christopher Michael Murphy
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LICENSED PROFESSIONAL ENGINEER

07/08/13
CHRISTPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	LL
CHECKED BY:	DZ
ENG APPV'D:	CMM
PROJECT NO:	1335291400

SUBMITTALS

DATE	DESCRIPTION	REV
06/05/13	PRELIMINARY/REVIEW	A
07/08/13	CONSTRUCTION	0

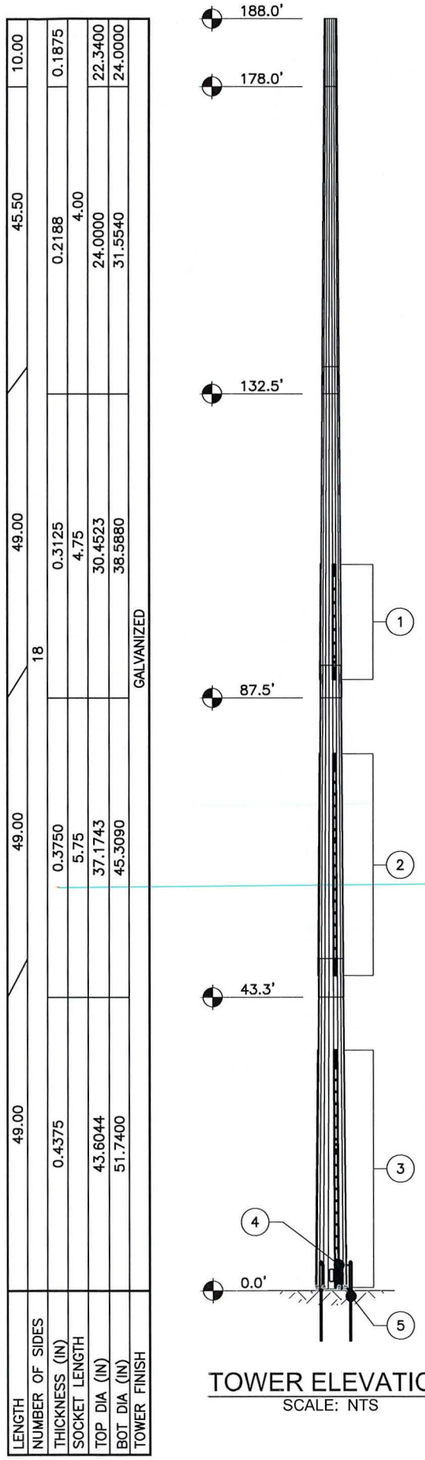
SITE NAME:
ENFIELD-MOODY RD.

SITE NUMBER:
CT46124-A-03

SITE ADDRESS:
188 MOODY RD
ENFIELD, CT 06082

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
N-2

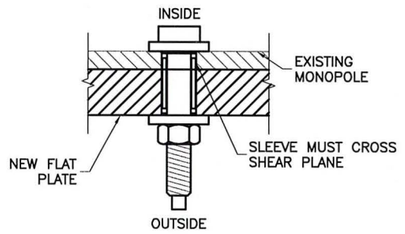


TOWER ELEVATION
SCALE: NTS

- 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 GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 THROUGH S-4 FOR DETAILS.	90.3±	107.3±
2	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 THROUGH S-4 FOR DETAILS.	46.5±	79.3±
3	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 THROUGH S-4 FOR DETAILS.	0.5±	35.5±
4	INSTALLATION OF NEW TRANSFER STIFFENERS. SEE S-5 FOR DETAILS.	0.0±	3.5±
5	INSTALLATION OF NEW ANCHOR RODS. SEE S-6 THROUGH S-7 FOR DETAILS.	-18.5±	4.0±



AJAX BOLT ASSEMBLY
PLAN VIEW

1/S-1 DETAIL
NTS

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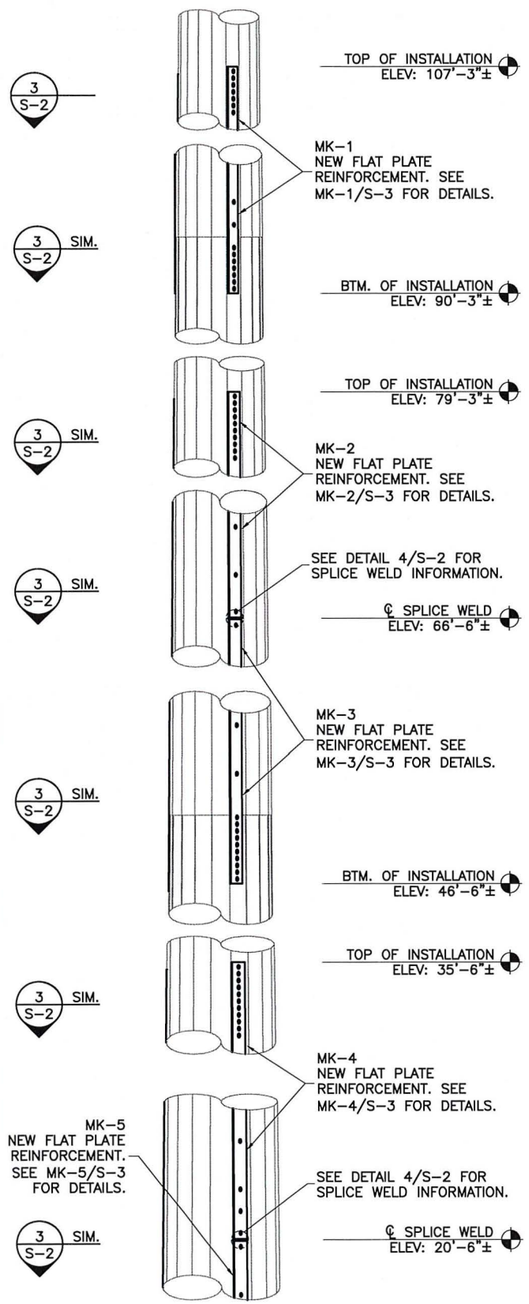
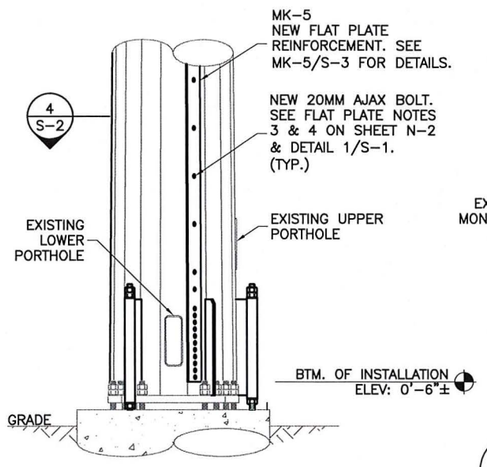
SHEET TITLE
MODIFICATION SCHEDULE

SHEET NUMBER
S-1



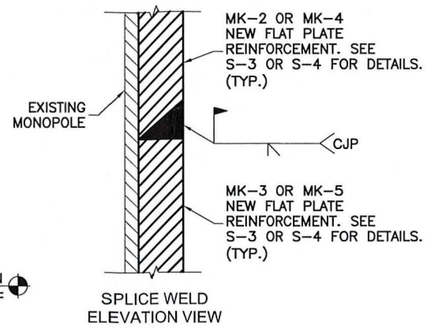
FLAT PLATE REINFORCEMENT LAYOUT
ELEVATION VIEW

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



FLAT PLATE REINFORCEMENT LAYOUT
ELEVATION VIEW

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

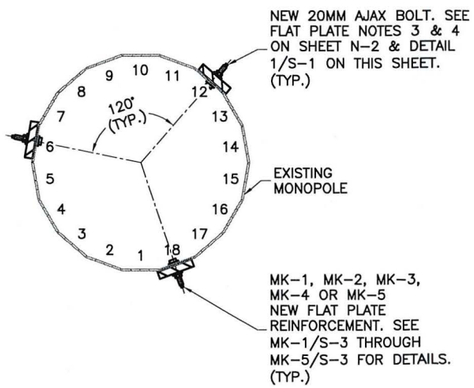


SPLICE WELD
ELEVATION VIEW

4 / S-2 — SECTION
NTS

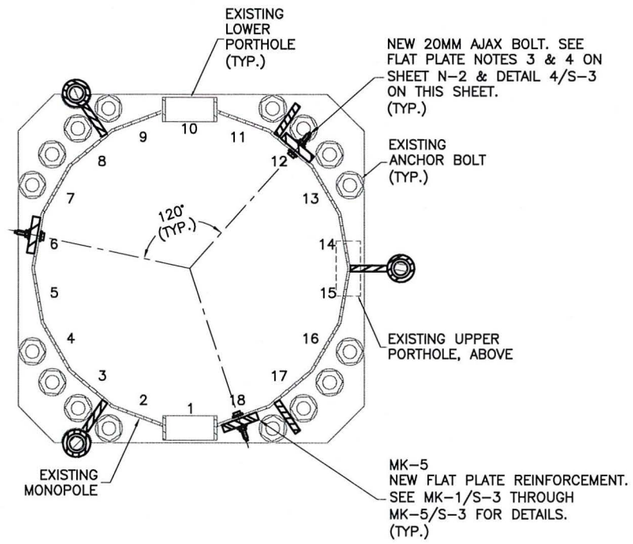
FLAT PLATE INSTALLATION SCHEDULE

PART #	QTY.	DESCRIPTION	ELEVATION	FLATS
MK-1	3	FLAT PLATE REINFORCEMENT	90'-3"± TO 107'-3"±	6, 12, & 18
MK-2	3	FLAT PLATE REINFORCEMENT	66'-6"± TO 79'-3"±	6, 12, & 18
MK-3	3	FLAT PLATE REINFORCEMENT	46'-6"± TO 66'-6"±	6, 12, & 18
MK-4	3	FLAT PLATE REINFORCEMENT	20'-6"± TO 35'-6"±	6, 12, & 18
MK-5	3	FLAT PLATE REINFORCEMENT	0'-6"± TO 20'-6"±	6, 12, & 18
–	297	20MM AJAX BOLTS	VARIES	–
ALL NEW FLAT PLATE STEEL TO HAVE Fy=65 KSI				



FLAT PLATE REINFORCEMENT LAYOUT
PLAN VIEW

3 / S-2 — SECTION
SCALE: 1/2" = 1'-0"



FLAT PLATE REINFORCEMENT LAYOUT
PLAN VIEW

4 / S-2 — SECTION
SCALE: 1/2" = 1'-0"

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CHECKED BY:	DZ
ENG APPV'D:	CMM
PROJECT NO:	1335291400

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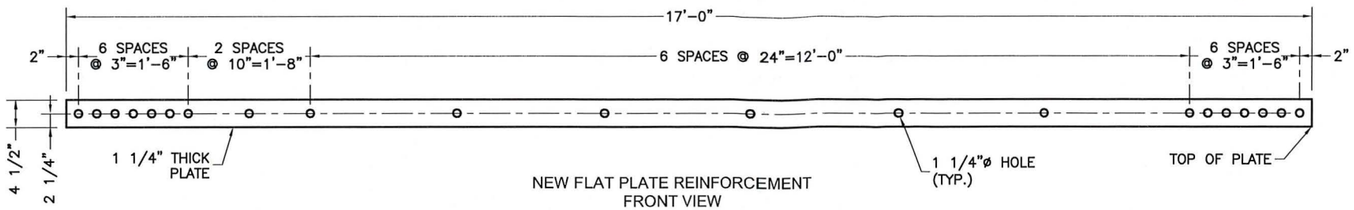
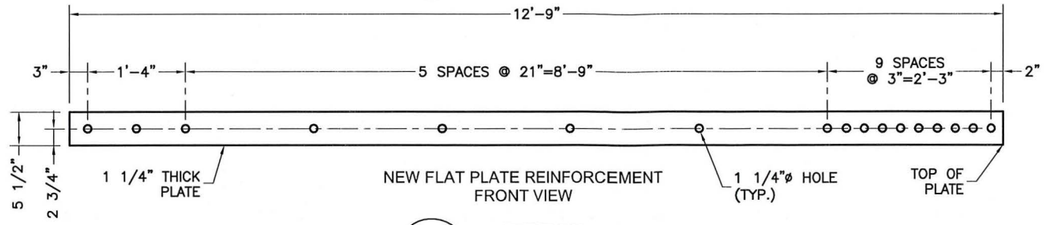
SHEET TITLE
FLAT PLATE
REINFORCEMENT
DETAILS I

SHEET NUMBER
S-2



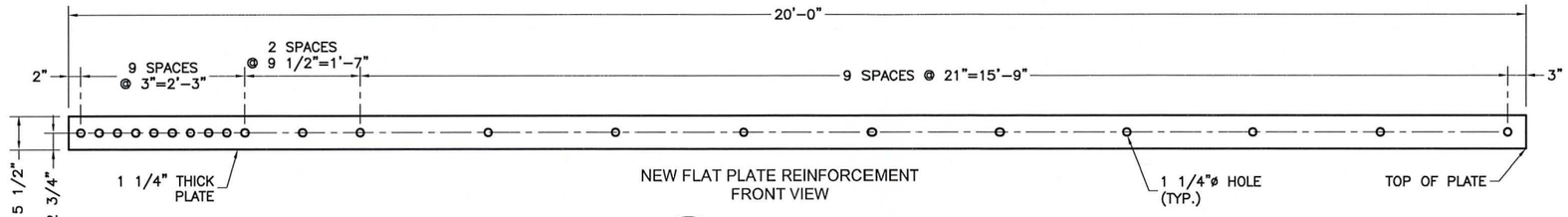
NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-1 / S-3 **DETAIL**
SCALE: NTS



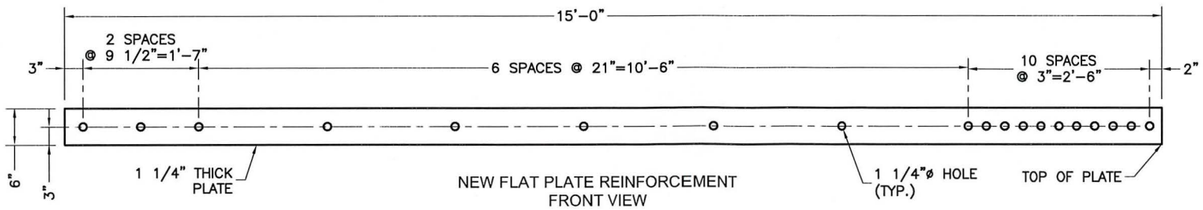
NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-2 / S-3 **DETAIL**
SCALE: NTS



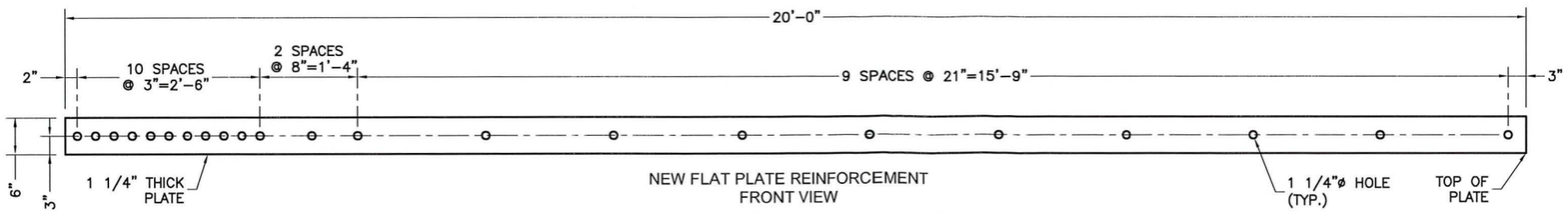
NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-3 / S-3 **DETAIL**
SCALE: NTS



NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-4 / S-4 **DETAIL**
SCALE: NTS



NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-5 / S-4 **DETAIL**
SCALE: NTS

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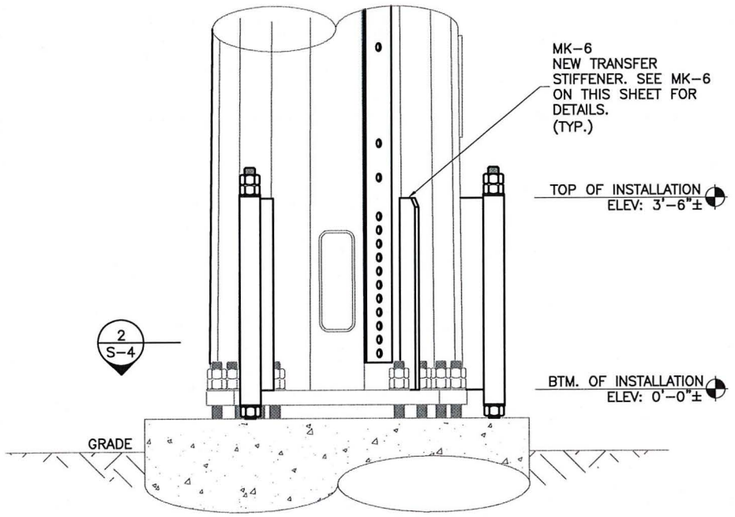
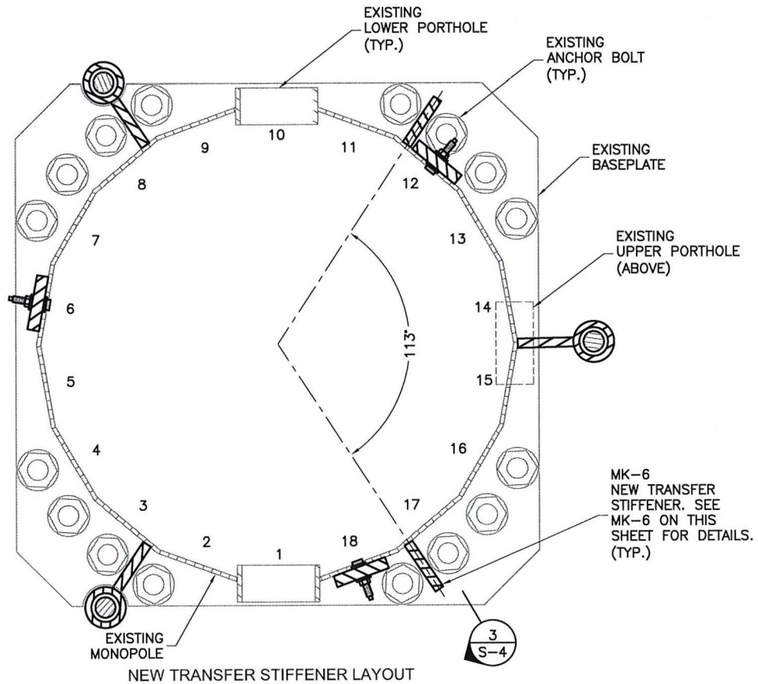
SHEET TITLE
FLAT PLATE REINFORCEMENT DETAILS II

SHEET NUMBER
S-3



NEW TRANSFER STIFFENER LAYOUT
ELEVATION VIEW

1 / S-4 **ELEVATION**
SCALE: 3/8" = 1'-0"

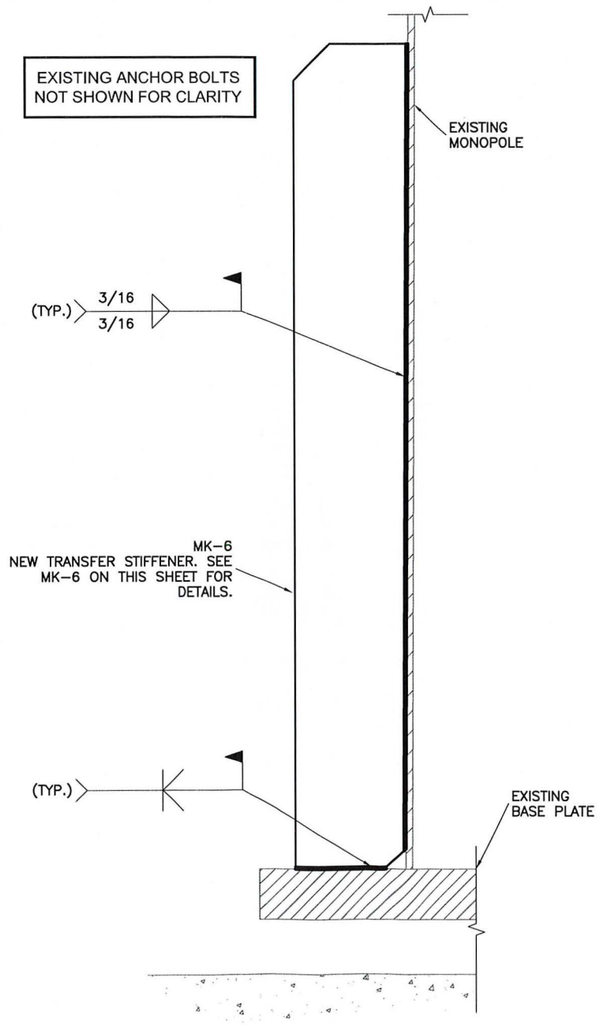


NEW TRANSFER STIFFENER LAYOUT
PLAN VIEW

2 / S-4 **SECTION**
SCALE: 3/4" = 1'-0"

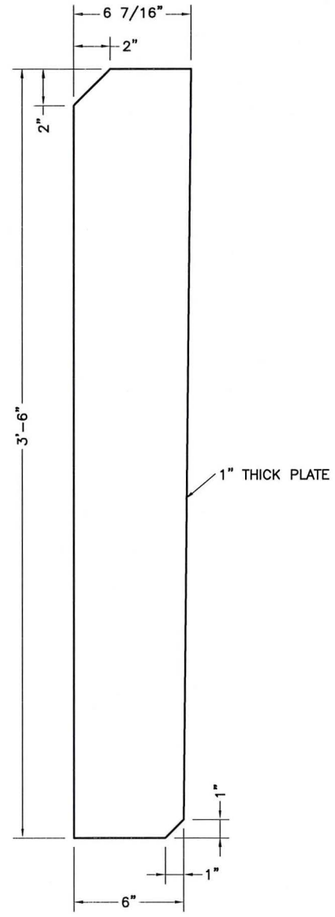
TRANSFER STIFFENER INSTALLATION SCHEDULE

PART. NO	QUANTITY	DESCRIPTION	ELEVATION
MK-6	2	TRANSFER STIFFENER	0'-0"± TO 3'-6"±
ALL NEW TRANSFER STIFFENER STEEL TO HAVE Fy=65 KSI			



NEW TRANSFER STIFFENER WELD DETAIL
FRONT VIEW

3 / S-4 **DETAIL**
NTS



NEW TRANSFER STIFFENER
FRONT VIEW

MK-6 / S-4 **DETAIL**
NTS

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07/08/13	CONSTRUCTION	0

SITE NAME:
ENFIELD-MOODY RD.

SITE NUMBER:
CT46124-A-03

SITE ADDRESS:
188 MOODY RD
ENFIELD, CT 06082

SHEET TITLE
TRANSFER STIFFENER
INSTALLATION
DETAILS

SHEET NUMBER
S-4

CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.

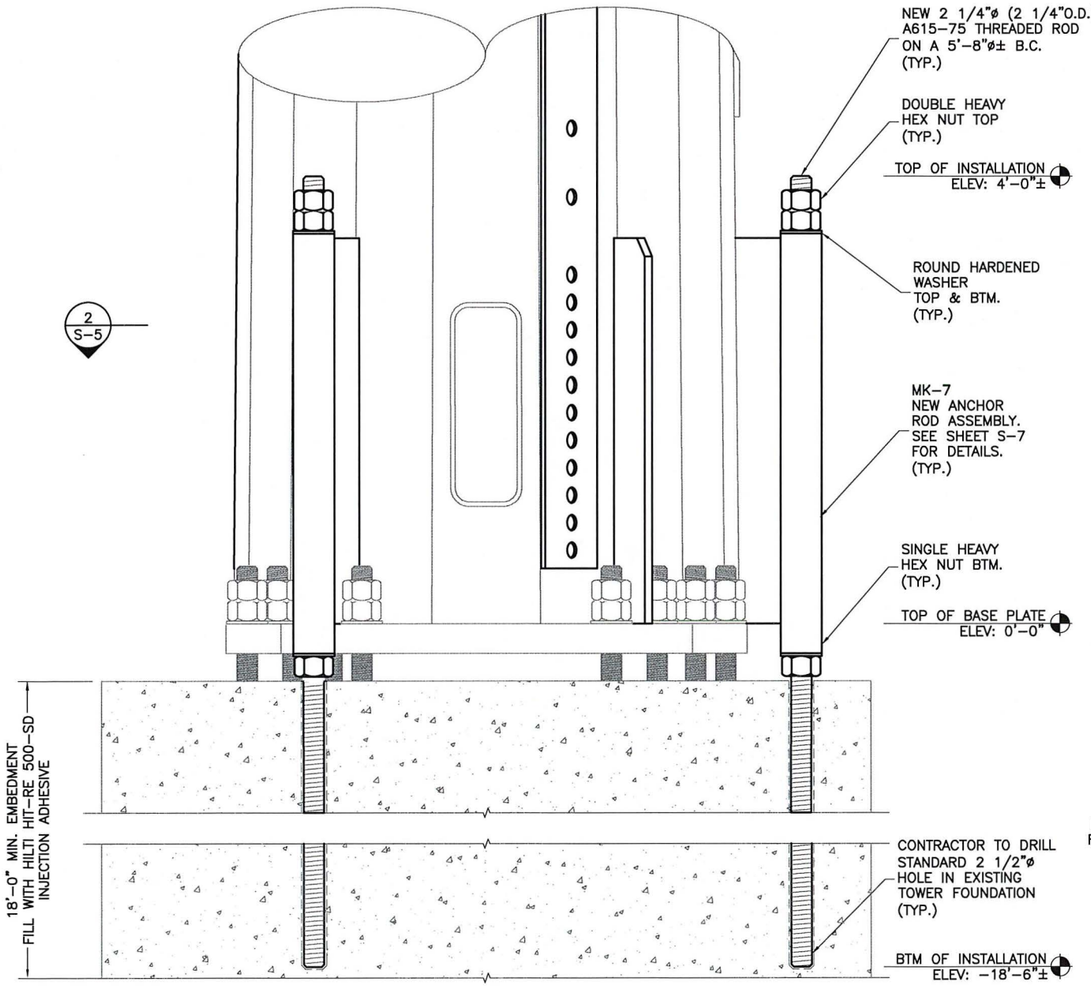
PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS

PULL TEST SHOULD BE PERFORMED PER PULL TEST NOTES ON SHEET N-2. THE TARGET TENSION OF THIS PULL TEST IS 195K.

ANCHOR ROD MATERIAL LIST

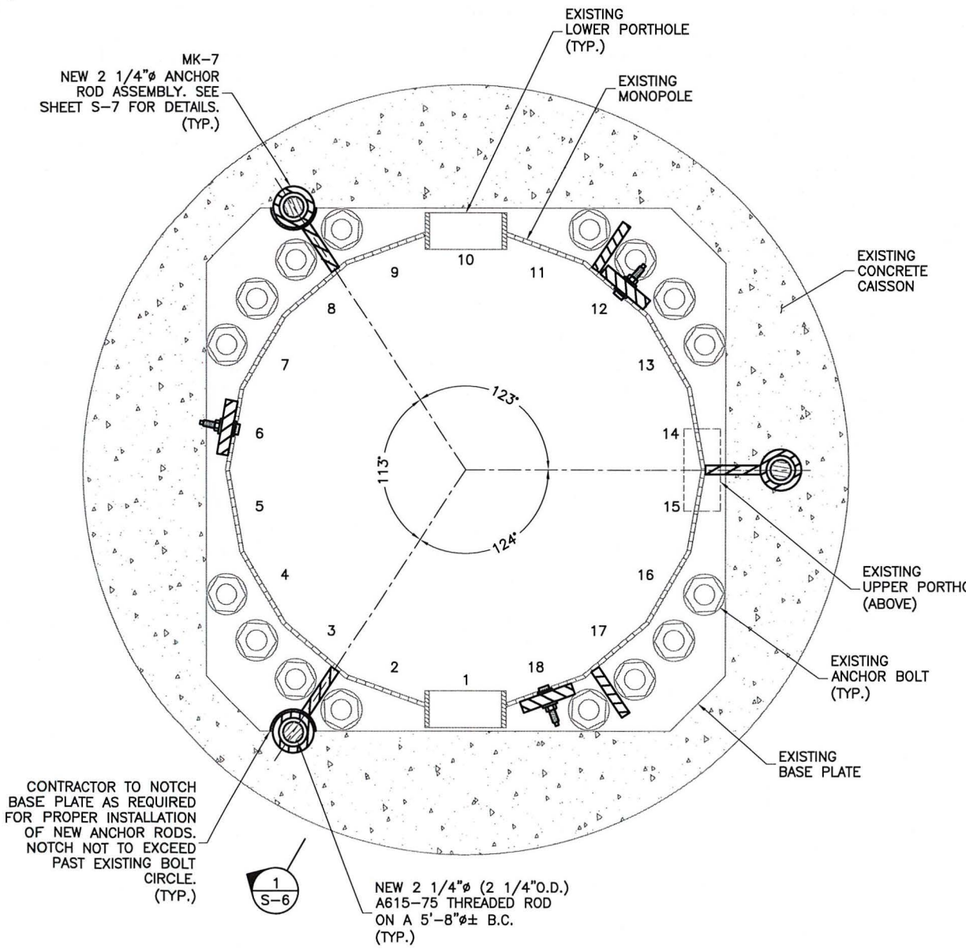
PART #	QTY.	DESCRIPTION	ELEVATION
MK-7	3	ANCHOR ROD ASSEMBLY	-0'-1 1/2"± TO 3'-6 1/2"±
–	3	2 1/4"ø (2 1/4"O.D.) ASTM A615-75 (Fy=75KSI) THREADED ROD X 22'-6"±	-18'-6"± TO 4'-0"±
–	6	ROUND HARDENED WASHER	–
–	9*	HEAVY HEX NUT	–

*CONTRACTOR MAY BE REQUIRED TO INSTALL ADDITIONAL NUTS BELOW ANCHOR ROD ASSEMBLY



ANCHOR ROD INSTALLATION ELEVATION VIEW

1 S-5 ELEVATION SCALE: 3/4" = 1'-0"



ANCHOR ROD INSTALLATION SECTION VIEW

2 S-5 SECTION SCALE: 3/4" = 1'-0"

PREPARED BY:
FDH ENGINEERING INNOVATION
6521 MERIDIEN DRIVE
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STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED PROFESSIONAL ENGINEER
07/08/13
CHRISTPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	LL
CHECKED BY:	DZ
ENG APPV'D:	CMM
PROJECT NO:	1335291400

SUBMITTALS

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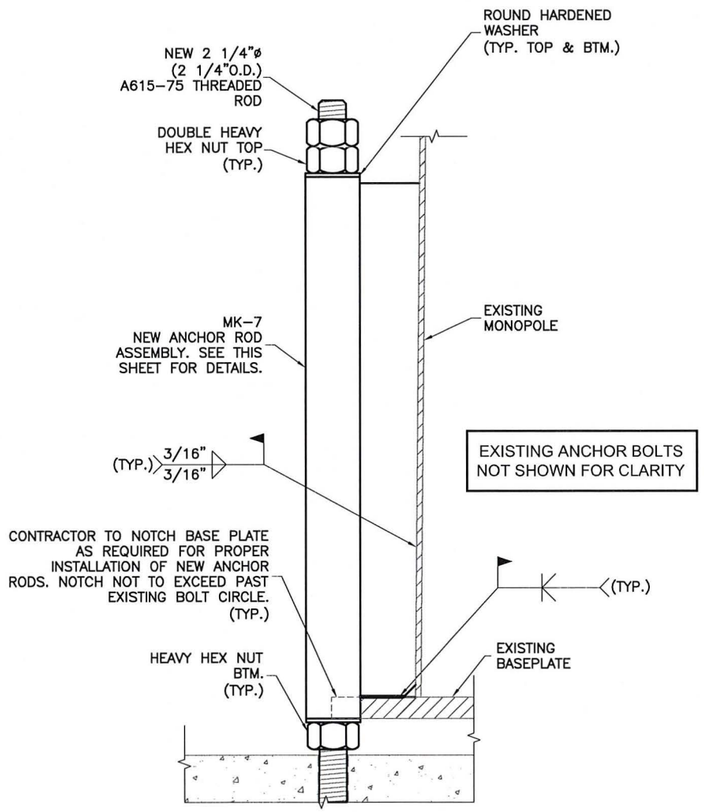
SHEET TITLE
ANCHOR ROD INSTALLATION DETAILS I

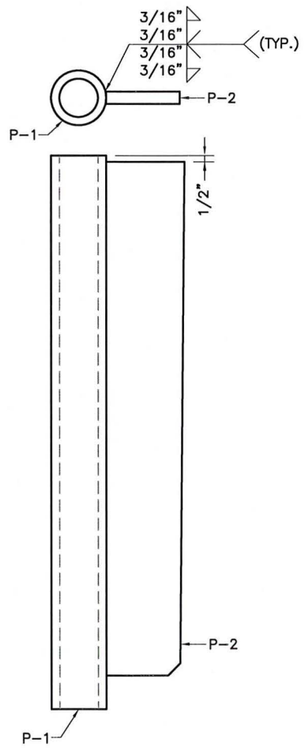
SHEET NUMBER
S-5

MATERIAL LIST (MK-7)		
PART. NO.	QTY.	DESCRIPTION
P–1	3	ANCHOR ROD SLEEVE
P–2	3	TRANSFER PLATE



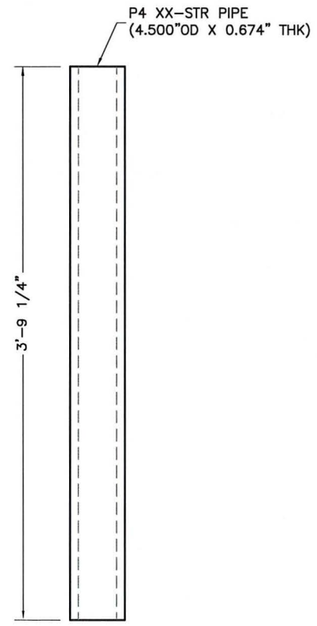
ANCHOR ROD ASSEMBLY WELD DETAIL
ELEVATION VIEW

1 / S-6 — ELEVATION
SCALE: 1" = 1'-0"



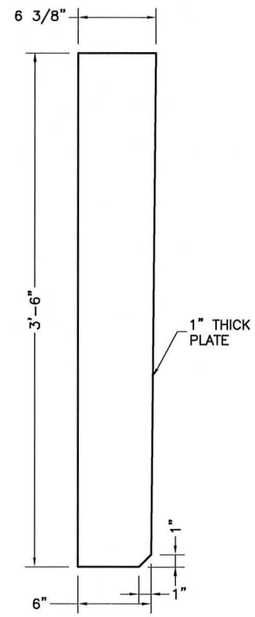
ANCHOR ROD ASSEMBLY
TOP & SIDE VIEW

MK-7 / S-6 — SECTION
SCALE: 1" = 1'-0"



ANCHOR ROD SLEEVE
SIDE VIEW

P-1 / S-6 — DETAIL
SCALE: 1" = 1'-0"



TRANSFER PLATE
SIDE VIEW

P-2 / S-6 — DETAIL
SCALE: 1" = 1'-0"

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SHEET TITLE
ANCHOR ROD INSTALLATION DETAILS II

SHEET NUMBER
S-6