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

November 9, 2012

Peter LaMontagne
New Cingular Wireless PCS, LLC
95 Ryan Drive, Suite #1
Raynham, MA 02767

RE: **EM-CING-155-121022** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 345 North Main Street, West Hartford, Connecticut.

Dear Mr. LaMontagne:

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:

- Prior to antenna installation, the building reinforcements identified in the Structural Analysis Report prepared by Hudson Design Group dated September 18, 2012, and stamped by Daniel Hamm shall be implemented; and
- Not more than 45 days following completion of the antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended modifications have been completed and the tower and building do not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with 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;
- Not less than 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;

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 October 19, 2012. 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,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Scott Slifka, Mayor, Town of West Hartford
Ronald VanWinkle, Town Manager, Town of West Hartford
Milagros Limsom, Town Planner, Town of West Hartford

EM-CING-155-121022

at&t
Your world. Delivered.

EM-CING-155-121022

Peter LaMontagne
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (508)341-7854
plamontagne@clinellc.com

RECEIVED
OCT 22 2012
CONNECTICUT
SITING COUNCIL

October 19, 2012

Honorable Robert Stein, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

ORIGINAL

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 345 North Main Street, West Hartford, CT 06107

Dear Chairman Stein and Members of the Council:

New Cingular Wireless PCS, LLC ("AT&T") intends to modify the existing telecommunications antennas and associated equipment at an existing multicarrier telecommunications facility at 345 North Main Street in West Hartford. AT&T operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Hartford County, which includes the area to be served by AT&T's proposed installation.

In order to accommodate technological changes, implement 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. LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Please accept this letter as notification to the Council, 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 is being sent to Ron Van Winkle, Town Manager of West Hartford.

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

Existing Facility

The West Hartford facility is located at 345 North Main Street on the north side of Route 44 and West side of Route 218 (North Main Street). Site coordinates (NAD83) are N41° 47' 6.29" and W72° 44' 54.56".

The facility is owned by Sprint Sites USA, 1 International Boulevard, Suite 800, Mahwah, New Jersey, 07495.

The existing facility consists of a 105' guyed tower mounted on top of an existing 55' building with AT&T's existing shelter located on the rooftop. AT&T currently operates wireless communications equipment at the facility and has six antennas mounted on the tower at a centerline of 90'.

Statutory Considerations

The changes to the Sterling tower facility do not constitute a modification 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) because they will not result in any substantial adverse environmental effect.

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

2. The proposed changes will not affect the property boundaries. All new construction will take place inside the existing fenced compound.

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

4. LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

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

Respectfully yours,

Peter LaMontagne
Real Estate Consultant

Enclosures:
Ron Van Winkle, West Hartford Town Manager

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067

Peter LaMontagne
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (508)341-7854
plamontagne@clinellc.com

October , 2012

Ron Van Winkle, Town Manager
Town of West Hartford
50 South Main Street, Room 308
West Hartford, CT 06107

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 345 North Main Street, West Hartford, CT 06107

Dear Ron Van Winkle, Town Manager,

New Cingular Wireless PCS, LLC ("AT&T") intends to add telecommunications antennas and associated equipment at an existing telecommunications facility, owned and operated by Sprint Sites USA, 1 International Boulevard, Suite 800, Mahwah, New Jersey, 07495.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of West Hartford 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 attached letter 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 Peter LaMontagne at (508) 341-7854 or Linda Roberts, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

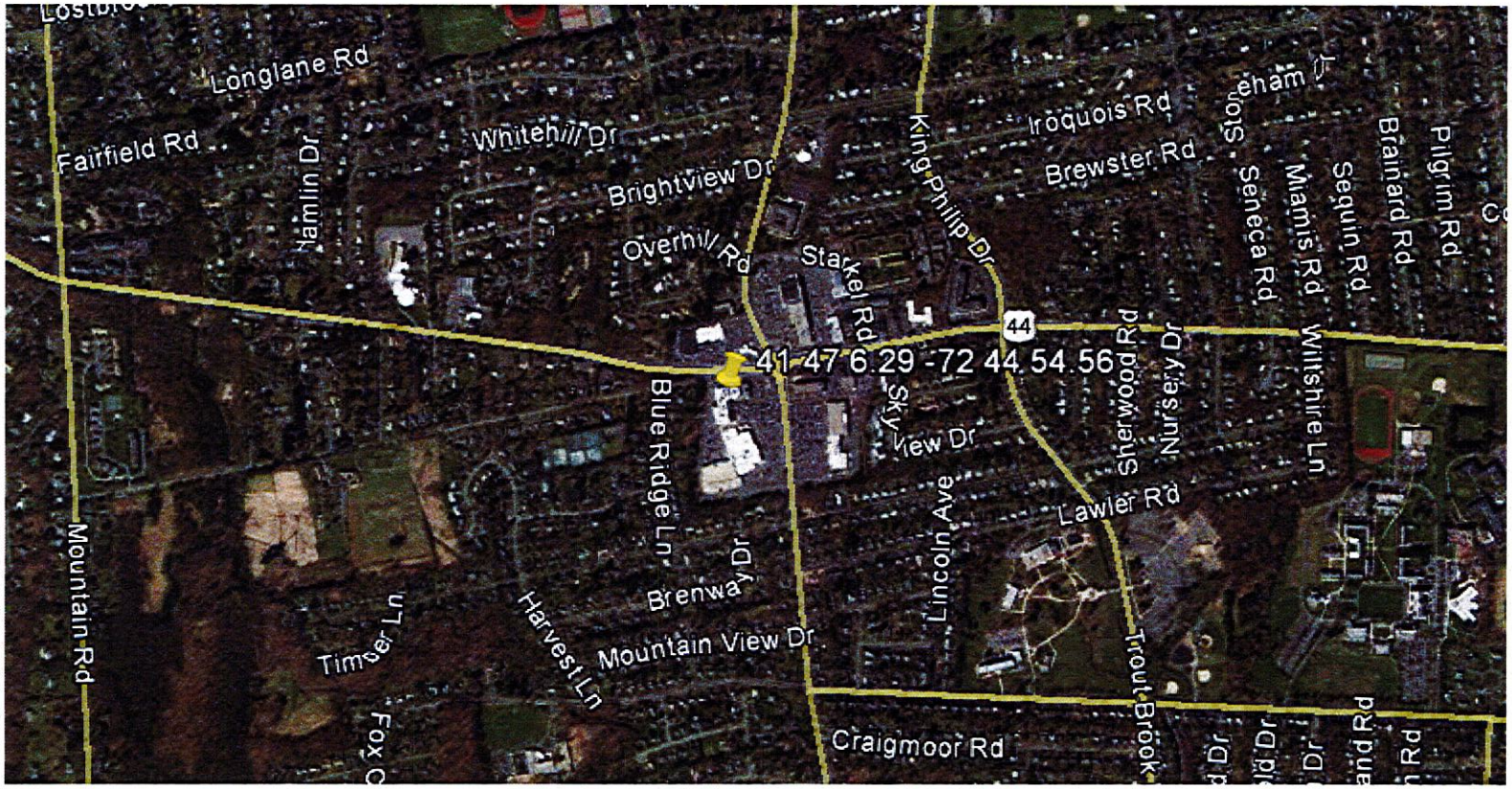
Sincerely,

Peter LaMontagne
Real Estate Consultant

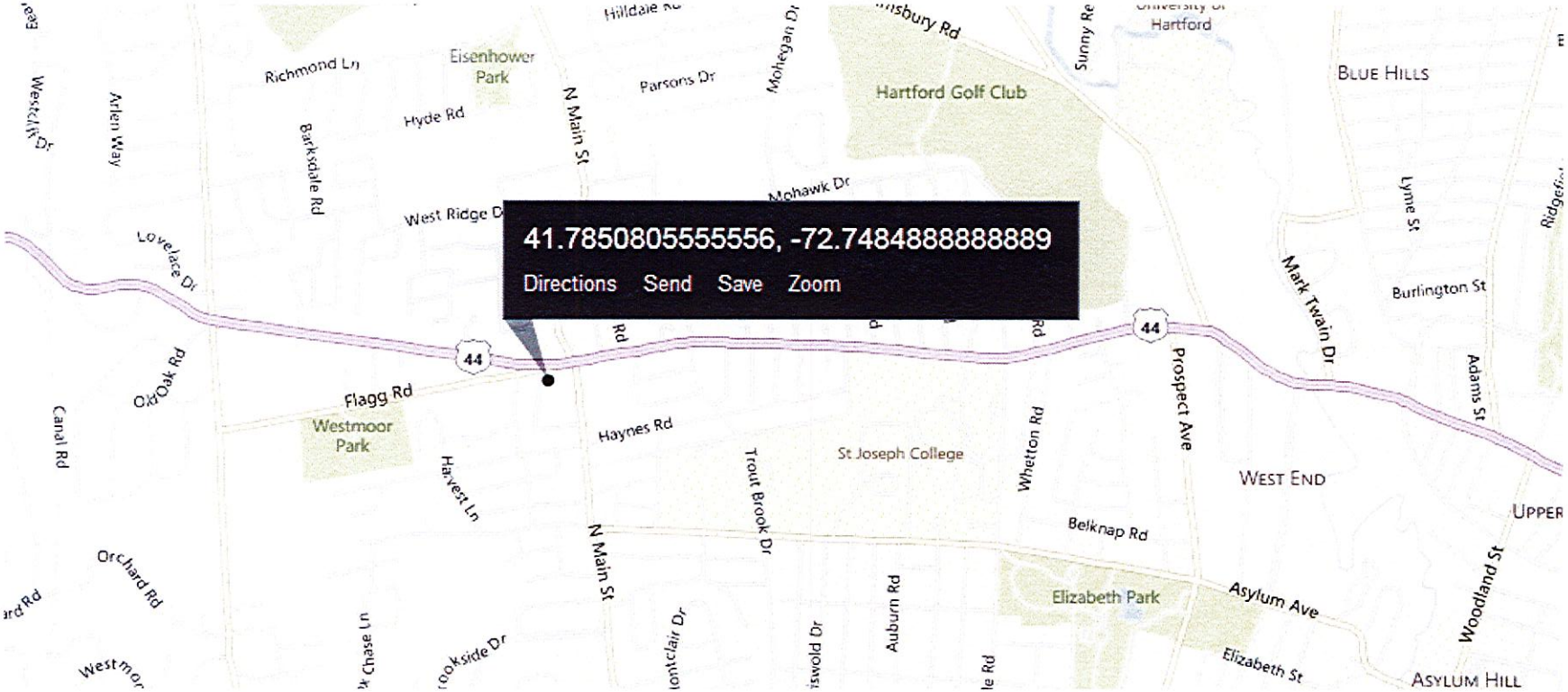
Enclosure
Honorable Robert Stein, Chairmen of the Connecticut Siting Council

CT1195 – Bishops Corner – 345 North Main Street, West Hartford

Aerial Location Map



Street Location Map



C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

CT1195

(West Hartford - Bishop's Corner)

345 North Main St, West Hartford, CT 06107

October 18, 2012

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the rooftop guyed tower located at 345 North Main St in West Hartford, CT. The coordinates of the tower are 41-47-6.29 N, 72-44-54.56 W.

AT&T is proposing the following modifications:

1) Install three multi-band (700/850/1900/2100 MHz) antennas for their LTE network (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Clearwire	100	2496	2	153	0.0110	1.0000	1.10%
Clearwire	96	23000	1	211	0.0082	1.0000	0.82%
Other Rooftop Carriers	As reported to CSC by Clearwire						16.46%
AT&T UMTS	68	880	2	565	0.0088	0.5867	1.50%
AT&T UMTS	68	1900	2	875	0.0136	1.0000	1.36%
AT&T LTE	68	734	1	1615	0.0126	0.4893	2.57%
AT&T GSM	68	880	1	283	0.0022	0.5867	0.38%
AT&T GSM	68	1900	4	525	0.0163	1.0000	1.63%
						Total	**25.82%**

Table 1: Carrier Information[1][2][3]

[1] The existing CSC filing should be updated with the AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the Semaan Engineering Solutions, LLC Structural Analysis dated May 17, 2012. Ground levels around this building are uneven and cause the roof heights to vary. The lowest roof height based on the grade line of the building was used to produce the worst-case scenario.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **25.82% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Daniel L. Goulet
C Squared Systems, LLC

October 18, 2012
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

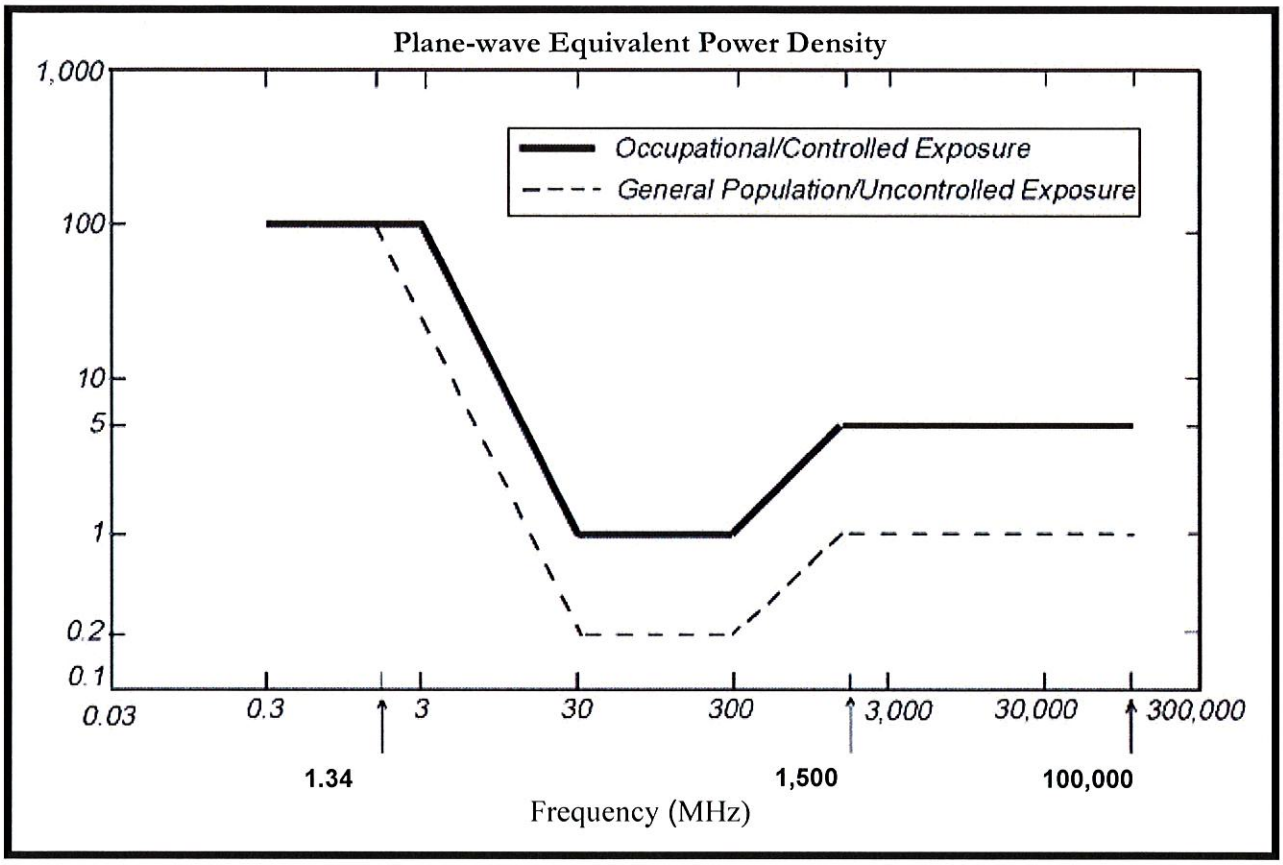
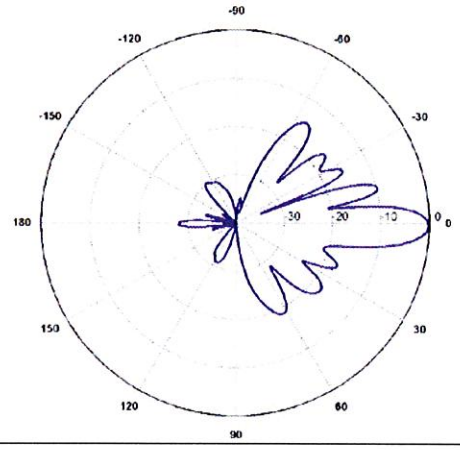


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

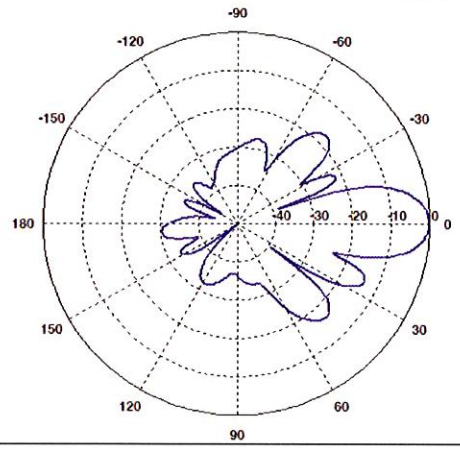
700 MHz

Manufacturer:	Powerwave
Model #:	P65-17-XLH-RR
Frequency Band:	698-806 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	8.4°
Horizontal Beamwidth:	70°
Polarization:	Dual Linear ± 45°
Size L x W x D:	96.0" x 12.0" x 6.0"



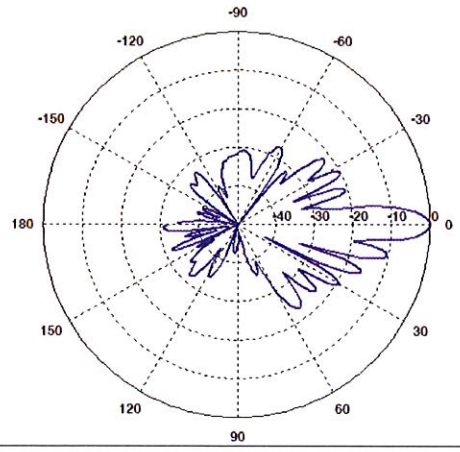
850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.4 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	85°
Polarization:	Dual Linear ±45°
Size L x W x D:	55.0" x 11.0" x 5.0"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	90°
Polarization:	Dual Linear ±45°
Size L x W x D:	55.0" x 11.0" x 5.0"



SEMAAN
ENGINEERING SOLUTIONS, LLC

Structural Analysis Report

Prepared for:

Sprint Sites USA
1825 Lockeway Drive
Suite 201
Alpharetta, GA 30004

ATTN: Ms. Deborah MacMaster

Structure	:	**50 ft Rohn 80 Guyed Tower**
Proposed Carrier	:	**AT&T**
Site ID	:	**CT03XC074**
Site Location	:	**West Hartford, CT**
County	:	**Hartford**
Date	:	**June 19, 2012**
Usage	:	**22.0% Legs, 44.0% Diagonals, 13.0% Horizontals, 93.0% Guys**

Semaan Engineering Solutions, LLC
1079 N. 205th Street, Elkhorn, NE 68022
Phone: 402-289-1888

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 50 ft Rohn Guyed Tower located at West Hartford, CT, Hartford County (site #CT03XC074). The tower was originally designed and manufactured by Rohn (Drawing #0970975 dated July 28, 1997). This tower is mounted on top of a building with a roof line at 33 ft above the grade line.

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition. The analysis was performed in conformance with TIA/EIA-222 Rev F and local building codes for a basic wind speed of 80 mph no ice and 69 mph with 1/2" radial ice (fastest mile). This is in conformance with the IBC 2006: Section 1609.1.1, Exception (4) and Section 3108.4.

Basic Wind Speed:	80.0 mph
Radial Ice:	69.0 mph w/ 0.50" ice
Code:	TIA/EIA-222 Rev F

Antenna Loads

The following antenna loads were used in the tower analysis. The elevations shown are the elevations above the 33 ft roof elevation.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
50.0	6	DB980H90	(3) PCS frames	(6) 1 5/8	Sprint
35.5	6	Powerwave 7770	(3) PCS frames	(12) 1 5/8	AT&T
	6	TT19-08BP111-001			
13.0	1	GPS antenna	Leg Mount	(1) 1/2	Sprint

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
35.5	6	RRUS11	Existing PCS frames	(1) RET cable and (1) 3" flex conduit with (1) fiber cable and (2) dc cables inside	AT&T
	1	AM-X-CD-16-65-00T-RET			
	2	P65-17-XLH-RR			
	1	DC6-48-60-18-8F			

The proposed transmission lines may be placed anywhere on the tower. No line shielding was considered.

Results

The existing Guyed Tower is structurally capable of supporting the existing and proposed antennas.

The maximum structure usage is: 23.0% Legs, 45.0% Diagonals, 14.0% Horizontals, 100.0% Guys.

Anchor Radius (Ft)	Design Force (kip)	Analysis Force (kip)	% Of Design
29.0 ft	10.7 up	11.26 up	105.4
Mast foundation	23.0 down	30.91 down	134.4

The analysis reactions exceed the original design reactions. The building support structure and connections must be checked for the additional loading.

Conclusion

Based on the analysis results, the existing structure meets the requirements per the TIA/EIA-222 Rev F standards for a basic wind speed of 80 mph no ice and 69 mph with 1/2" radial ice. **The analysis reactions exceed the original design reactions. The building support structure and connections must be checked for the additional loading.**

If you have any questions or require additional information, please call 402-289-1888.

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore, assume that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022

Loads: 80 mph no ice
69 mph w / 1/2" radial ice

Job Information

Tower : CT03XC074 Location : West Hartford, CT
Code: TIA/EIA-222 Rev F Shape : Triangle Base Width : 3.42 ft
Client : Sprint Sites USA - GA 2

Sections Properties

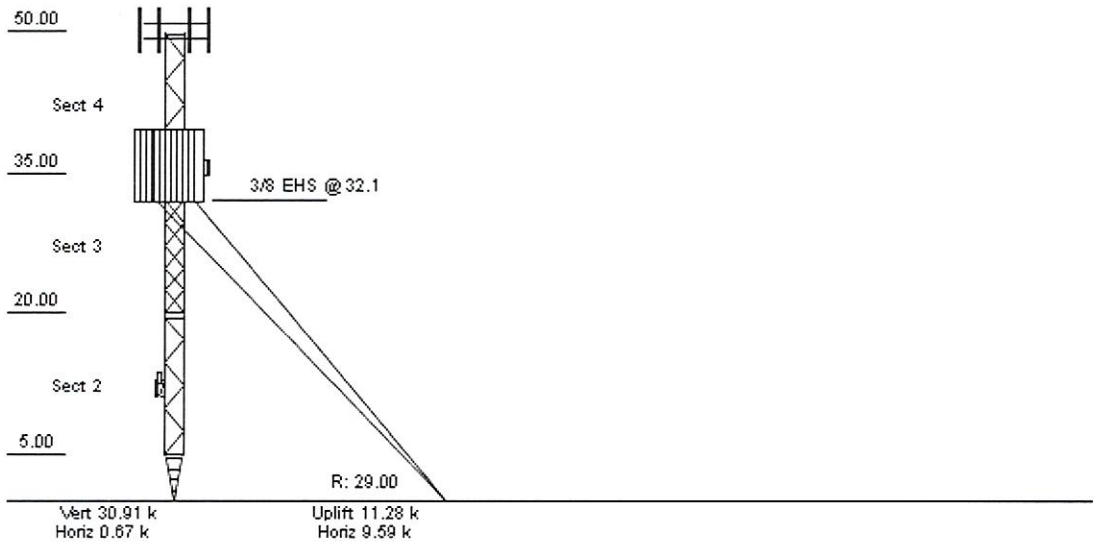
Section	Leg Members		Diagonal Members	Horizontal Members
1	PXX 50 ksi	2-1/2" DIA PIPE		SAE 36 ksi 4X4X0.25
2 - 3	PX 50 ksi	2-1/2" DIA PIPE	PSP 42 ksi ROHN 1 1/2X16GA	PSP 42 ksi ROHN 1 1/2X16GA
4	PX 50 ksi	2-1/2" DIA PIPE	PSP 42 ksi ROHN 1 1/2X11GA	PSP 42 ksi ROHN 1 1/2X11GA

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
50.00	Mounting Frame	3	PCS frames
50.00	Panel	6	DB980H90
35.50	Panel	6	RRUS11
35.50	Panel	1	AM-X-CD-16-65-00T-RET
35.50	Panel	2	P65-17-XLH-RR
35.50	Panel	1	DC6-48-60-18-8F
35.50	Mounting Frame	3	PCS frames
35.50	Panel	6	TT19-08BP111-001
35.50	Panel	6	Powerwave 7770.00
32.00	Other	1	Torque Arm
13.00	Panel	1	GPS antenna

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	50.000	6	1 5/8" Coax
0.000	35.500	1	RET cable
0.000	35.500	1	Fiber Optic Cable
0.000	35.500	2	DC Cables
0.000	35.500	1	3" conduit
0.000	35.500	12	1 5/8" Coax
0.000	13.000	1	1/2" Coax

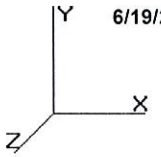


SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861

Site Number: CT03XC074
Location: West Hartford, CT

Code: TIA/EIA-222 Rev F

6/19/2012 4:50:28 PM



Gh : 1.22

Section Forces

LoadCase Normal No Ice — 80.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	20.75	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	15.98	0.00	616.0	0.0	425.39	483.83	909.22	1	
3	27.50	19.48	0.00	14.33	0.00	0.28	2.35	1.00	1.00	0.61	8.74	48.85	0.00	842.3	0.0	486.76	1,388.0	1,874.80	1	
2	12.50	17.96	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	49.28	0.00	768.5	0.0	368.09	1,290.8	1,658.96	1	
1	2.50	16.73	2.61	2.58	0.00	0.61	1.80	1.00	1.00	0.76	4.56	16.55	0.00	485.7	0.0	167.06	403.92	347.70	1	**
														2,712.5	0.0			4,790.68		

** = 2QzGhAg Controls

LoadCase 60 deg No Ice — 80.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	20.75	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	15.98	0.00	616.0	0.0	425.39	483.83	909.22	1	
3	27.50	19.48	0.00	14.33	0.00	0.28	2.35	0.80	1.00	0.61	8.74	48.85	0.00	842.3	0.0	486.76	1,388.0	1,874.80	1	
2	12.50	17.96	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	49.28	0.00	768.5	0.0	368.09	1,290.8	1,658.96	1	
1	2.50	16.73	2.61	2.58	0.00	0.61	1.80	0.80	1.00	0.76	4.04	16.55	0.00	485.7	0.0	147.93	403.92	347.70	1	**
														2,712.5	0.0			4,790.68		

** = 2QzGhAg Controls

LoadCase 90 deg No Ice — 80.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	20.75	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	15.98	0.00	616.0	0.0	425.39	483.83	909.22	1	
3	27.50	19.48	0.00	14.33	0.00	0.28	2.35	0.85	1.00	0.61	8.74	48.85	0.00	842.3	0.0	486.76	1,388.0	1,874.80	1	
2	12.50	17.96	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	49.28	0.00	768.5	0.0	368.09	1,290.8	1,658.96	1	
1	2.50	16.73	2.61	2.58	0.00	0.61	1.80	0.85	1.00	0.76	4.17	16.55	0.00	485.7	0.0	152.71	403.92	347.70	1	**
														2,712.5	0.0			4,790.68		

** = 2QzGhAg Controls

SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861

Site Number: CT03XC074
Location: West Hartford, CT

Code: TIA/EIA-222 Rev F

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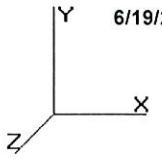

Gh : 1.22

Section Forces

LoadCase Normal Ice — 69.28 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	15.57	0.00	16.35	5.17	0.32	2.25	1.00	1.00	0.62	10.17	15.98	8.21	973.2	357.3	432.30	549.19	981.49	1	
3	27.50	14.61	0.00	21.59	7.26	0.42	2.02	1.00	1.00	0.66	14.26	48.85	28.75	1,608.0	765.7	512.51	1,653.6	1,821.97	1	**
2	12.50	13.47	0.00	16.35	5.17	0.32	2.25	1.00	1.00	0.62	10.17	49.28	29.42	1,447.6	679.1	374.06	1,545.9	1,679.52	1	**
1	2.50	12.55	2.61	4.12	1.55	0.79	1.81	1.00	1.00	0.89	6.27	16.55	10.00	754.7	269.0	172.83	485.91	260.76	1	**
														4,783.5	2,071.0			4,743.75		

** = 2QzGhAg Controls

LoadCase 60 deg Ice — 69.28 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	15.57	0.00	16.35	5.17	0.32	2.25	0.80	1.00	0.62	10.17	15.98	8.21	973.2	357.3	432.30	549.19	981.49	1	
3	27.50	14.61	0.00	21.59	7.26	0.42	2.02	0.80	1.00	0.66	14.26	48.85	28.75	1,608.0	765.7	512.51	1,653.6	1,821.97	1	**
2	12.50	13.47	0.00	16.35	5.17	0.32	2.25	0.80	1.00	0.62	10.17	49.28	29.42	1,447.6	679.1	374.06	1,545.9	1,679.52	1	**
1	2.50	12.55	2.61	4.12	1.55	0.79	1.81	0.80	1.00	0.89	5.75	16.55	10.00	754.7	269.0	158.43	485.91	260.76	1	**
														4,783.5	2,071.0			4,743.75		

** = 2QzGhAg Controls

LoadCase 90 deg Ice — 69.28 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face	
4	42.50	15.57	0.00	16.35	5.17	0.32	2.25	0.85	1.00	0.62	10.17	15.98	8.21	973.2	357.3	432.30	549.19	981.49	1	
3	27.50	14.61	0.00	21.59	7.26	0.42	2.02	0.85	1.00	0.66	14.26	48.85	28.75	1,608.0	765.7	512.51	1,653.6	1,821.97	1	**
2	12.50	13.47	0.00	16.35	5.17	0.32	2.25	0.85	1.00	0.62	10.17	49.28	29.42	1,447.6	679.1	374.06	1,545.9	1,679.52	1	**
1	2.50	12.55	2.61	4.12	1.55	0.79	1.81	0.85	1.00	0.89	5.88	16.55	10.00	754.7	269.0	162.03	485.91	260.76	1	**
														4,783.5	2,071.0			4,743.75		

** = 2QzGhAg Controls

SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022
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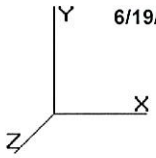

Tower Loading

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Distance From Face (ft)	X Angle (deg)	Vert Ecc (ft)
50.00	PCS frames	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
50.00	DB980H90	6	9.00	3.280	0.73	28.00	3.850	0.73	0.000	0.00	0.000
35.50	RRUS11	6	51.00	3.256	0.73	72.85	3.623	0.73	0.000	0.00	0.000
35.50	AM-X-CD-16-65-00T-RET	1	48.50	8.260	0.75	95.00	9.080	0.75	0.000	0.00	0.000
35.50	P65-17-XLH-RR	2	59.00	11.470	0.88	121.06	12.394	0.88	0.000	0.00	0.000
35.50	DC6-48-60-18-8F	1	32.80	1.467	1.00	50.52	1.667	1.00	0.000	0.00	0.000
35.50	PCS frames	3	500.00	15.000	0.67	650.00	20.600	0.67	0.000	0.00	0.000
35.50	TT19-08BP111-001	6	16.00	0.635	0.90	21.74	0.805	0.90	0.000	0.00	0.000
35.50	Powerwave 7770.00	6	35.00	5.882	0.73	67.63	6.533	0.73	0.000	0.00	0.000
32.00	Torque Arm	1	500.00	15.000	1.00	1000.00	20.000	1.00	0.000	0.00	0.000
13.00	GPS antenna	1	35.00	2.120	1.00	48.31	2.430	1.00	0.000	0.00	0.000
	Totals	36	4400.30			6477.27			Number of Appurtenances : 11		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	50.00	1 5/8" Coax	6	1.98	1.04	100.00	Lin App	Separate
0.00	35.50	1 5/8" Coax	12	1.98	1.04	100.00	Lin App	Separate
0.00	35.50	3" conduit	1	3.00	1.00	100.00	Lin App	Separate
0.00	35.50	DC Cables	2	0.00	0.52	100.00	Lin App	Separate
0.00	35.50	Fiber Optic Cable	1	0.00	0.95	100.00	Lin App	Separate
0.00	35.50	RET cable	1	0.44	0.08	100.00	Lin App	Separate
0.00	13.00	1/2" Coax	1	0.65	0.16	100.00	Lin App	Separate

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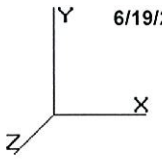

Force/Stress Summary

Section: 1 G80TB - BASE Bot Elev (ft): 0.00 Height (ft): 5.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PXX - 2-1/2" DIA PIP	-11.59	Normal Ice	1.23	100	100	100	17.5	38.1	153.42	0	0	0.00	0.00	7	Member X
HORIZ SAE - 4X4X0.25	-0.04	Normal No Ice	0.784	100	100	100	11.8	27.8	54.02	0	0	0.00	0.00	0	Member Z
DIAG	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 4X4X0.25	1.31	Normal No Ice	36	55.87	0	0	0.00	0.00	2	Member
DIAG	0.00		0	0.00	0	0	0.00	0.00	0	

Section: 2 G84HCS-15 FT Bot Elev (ft): 5.00 Height (ft): 15.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	-10.71	Normal Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	16	Member X
HORIZ PSP - ROHN 1 1/2X16G	-0.27	90 deg No Ice	3.420	100	100	100	80.5	22.7	6.64	0	0	0.00	0.00	4	Member X
DIAG PSP - ROHN 1 1/2X16G	-0.69	Normal No Ice	4.192	100	100	100	0.0	0.0	4.84	0	0	0.00	0.00	14	User Input

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ PSP - ROHN 1 1/2X16G	1.22	Normal Ice	42	9.84	0	0	0.00	0.00	12	Member
DIAG PSP - ROHN 1 1/2X16G	0.70	90 deg No Ice	42	4.84	0	0	0.00	0.00	14	User Input

Section: 3 G84HCS-15 FT Bot Elev (ft): 20.00 Height (ft): 15.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	-15.59	Normal Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	23	Member X
HORIZ PSP - ROHN 1 1/2X16G	-0.05	Normal No Ice	3.420	100	100	100	80.5	22.7	6.64	0	0	0.00	0.00	0	Member X
DIAG PSP - ROHN 1 1/2X16G	-2.21	Normal No Ice	4.192	100	100	100	0.0	0.0	4.84	0	0	0.00	0.00	45	User Input

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	9.14	60 deg No Ice	50	89.99	0	0	0.00	0.00	10	Member
HORIZ PSP - ROHN 1 1/2X16G	1.45	Normal No Ice	42	9.84	0	0	0.00	0.00	14	Member
DIAG PSP - ROHN 1 1/2X16G	2.11	90 deg No Ice	42	4.84	0	0	0.00	0.00	43	User Input

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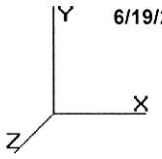

Force/Stress Summary

Section: 4 G84HCS-15 FT Bot Elev (ft): 35.00 Height (ft): 15.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	-9.34	Normal Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	14	Member X
HORIZ PSP - ROHN 1 1/2X11G	-1.37	90 deg Ice	3.420	100	100	100	83.9	22.0	11.43	0	0	0.00	0.00	12	Member X
DIAG PSP - ROHN 1 1/2X11G	-1.97	Normal No Ice	4.192	100	100	100	102.9	17.9	9.32	0	0	0.00	0.00	21	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	7.50	60 deg No Ice	50	89.99	0	0	0.00	0.00	8	Member
HORIZ PSP - ROHN 1 1/2X11G	0.64	60 deg No Ice	42	17.47	0	0	0.00	0.00	3	Member
DIAG PSP - ROHN 1 1/2X11G	2.04	90 deg No Ice	42	17.47	0	0	0.00	0.00	11	Member

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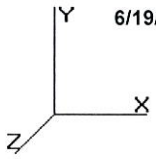

Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)
90 deg Ice	A1b	-8.38	-11.20	-4.65
	A1a	0.09	-0.19	-0.10
	A1	-0.19	-5.73	4.87
	1	-0.36	28.54	-0.12
60 deg Ice	A1b	-7.48	-10.10	-4.32
	A1a	0.39	-0.62	-0.32
	A1	-0.08	-0.62	0.50
	1	-0.49	22.73	-0.28
Normal Ice	A1b	-7.05	-9.68	-4.33
	A1a	7.05	-9.68	-4.33
	A1	0.00	-0.12	0.06
	1	0.00	30.91	-0.25
90 deg No Ice	A1b	-8.38	-11.28	-4.67
	A1a	0.03	-0.07	-0.04
	A1	-0.14	-5.70	4.82
	1	-0.46	24.20	-0.12
60 deg No Ice	A1b	-7.29	-9.90	-4.21
	A1a	0.15	-0.24	-0.12
	A1	-0.03	-0.24	0.19
	1	-0.58	17.52	-0.34
Normal No Ice	A1b	-7.10	-9.77	-4.31
	A1a	7.09	-9.77	-4.31
	A1	0.00	-0.04	0.02
	1	0.00	26.74	-0.36

(-) = Uplift (+) = Down

Max Reactions (kip)

	Base	Anch1
Vertical	30.91	-11.28
Horizontal	0.67	9.59

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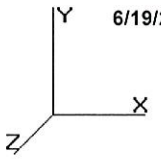

Cable Forces Summary

Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kip)	Applied Tension (kip)	Use %
Normal No Ice	32.12	3/8 EHS	A1	T1	7.70	0.03	0
		3/8 EHS	A1b	T1b	7.70	6.76	87
		3/8 EHS	A1a	T1a	7.70	6.09	79
		3/8 EHS	A1a	T1	7.70	6.79	88
		3/8 EHS	A1b	T1a	7.70	6.12	79
		3/8 EHS	A1	T1b	7.70	0.03	0
60 deg No Ice		3/8 EHS	A1	T1	7.70	0.19	2
		3/8 EHS	A1b	T1b	7.70	6.53	84
		3/8 EHS	A1a	T1a	7.70	0.14	1
		3/8 EHS	A1a	T1	7.70	0.19	2
		3/8 EHS	A1b	T1a	7.70	6.53	84
		3/8 EHS	A1	T1b	7.70	0.14	1
90 deg No Ice		3/8 EHS	A1	T1	7.70	4.07	52
		3/8 EHS	A1b	T1b	7.70	7.16	92
		3/8 EHS	A1a	T1a	7.70	0.04	0
		3/8 EHS	A1a	T1	7.70	0.06	0
		3/8 EHS	A1b	T1a	7.70	7.72	100
		3/8 EHS	A1	T1b	7.70	3.44	44
Normal Ice		3/8 EHS	A1	T1	7.70	0.09	1
		3/8 EHS	A1b	T1b	7.70	6.73	87
		3/8 EHS	A1a	T1a	7.70	6.07	78
		3/8 EHS	A1a	T1	7.70	6.76	87
		3/8 EHS	A1b	T1a	7.70	6.09	79
		3/8 EHS	A1	T1b	7.70	0.09	1
60 deg Ice		3/8 EHS	A1	T1	7.70	0.49	6
		3/8 EHS	A1b	T1b	7.70	6.69	86
		3/8 EHS	A1a	T1a	7.70	0.36	4
		3/8 EHS	A1a	T1	7.70	0.49	6
		3/8 EHS	A1b	T1a	7.70	6.69	86
		3/8 EHS	A1	T1b	7.70	0.36	4
90 deg Ice		3/8 EHS	A1	T1	7.70	4.11	53
		3/8 EHS	A1b	T1b	7.70	7.16	92
		3/8 EHS	A1a	T1a	7.70	0.12	1
		3/8 EHS	A1a	T1	7.70	0.16	2
		3/8 EHS	A1b	T1a	7.70	7.69	99
		3/8 EHS	A1	T1b	7.70	3.49	45

SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861

Site Number: CT03XC074
Location: West Hartford, CT

Code: TIA/EIA-222 Rev F

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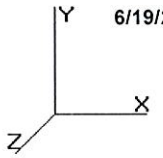


Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
69.28 mph Wind at 60 deg From Face with Ice	12.27	0.0729	-0.0068	0.3351
	32.12	0.1852	0.0012	0.3890
	35.00	0.2049	0.0004	0.4797
	50.00	0.3082	0.0005	0.4414
69.28 mph Wind at 90 deg From Face with Ice	12.27	0.1284	-0.0593	0.5872
	32.12	0.3286	-0.0444	0.8283
	35.00	0.3614	-0.0471	0.7486
	50.00	0.5315	-0.0466	0.6953
69.28 mph Wind Normal To Face with Ice	12.27	0.1480	-0.0173	0.6818
	32.12	0.3810	-0.0024	0.9662
	35.00	0.4188	-0.0058	0.8481
	50.00	0.6150	-0.0052	0.7971
80.00 mph Wind at 60 deg From Face with No Ice	12.27	0.0724	-0.0029	0.3316
	32.12	0.1832	0.0012	0.3676
	35.00	0.2029	0.0004	0.4769
	50.00	0.3051	0.0005	0.4378
80.00 mph Wind at 90 deg From Face with No Ice	12.27	0.1322	-0.0625	0.6046
	32.12	0.3387	-0.0502	0.8423
	35.00	0.3724	-0.0530	0.7680
	50.00	0.5470	-0.0525	0.7130
80.00 mph Wind Normal To Face with No Ice	12.27	0.1528	-0.0159	0.7045
	32.12	0.3939	-0.0039	0.9881
	35.00	0.4330	-0.0075	0.8736
	50.00	0.6351	-0.0069	0.8200
		0.0000	0.0000	0.0000

STRUCTURAL ANALYSIS REPORT

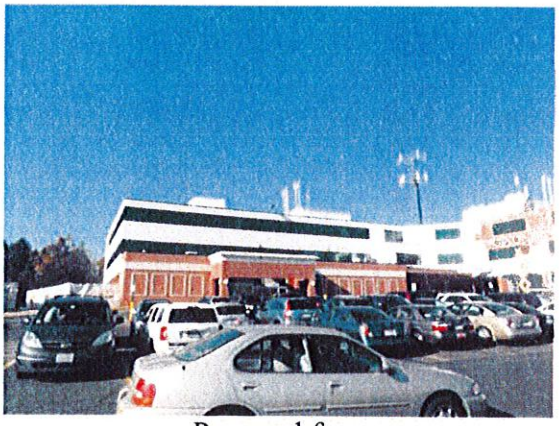
For

CT 1195 (LTE)

WEST HARTFORD-BISHOPS CORNER

345 North Main Street
West Hartford, Connecticut 06107

50' Guyed Tower Secured to the Existing Roof Structure



Prepared for:

Prepared for:

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

Dated: September 18, 2012

Prepared by:

Hudson Design Group LLC

1600 Osgood Street Building 20 North, Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com

Hudson Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the building structure supporting a 50' Guyed Tower which supports the proposed AT&T antennas, RRH's and Surge Arrestor located in the areas depicted in the latest HDG's construction drawings.

This report represents a 2 part structural analysis:

1.) Platform Analysis determining the loading onto the four column stub-ups down to the building columns.
2.) Building Roof Structural Analysis determining the existing building columns have sufficient analysis to support the loading from the Guy Anchors and Roof Top Steel Platform.

This office conducted an on-site visual survey of the above areas on November 8, 2011. Attendees included Rob Harris (HDG-Associate). HDG was able to obtain a copy of the original construction drawings and design calculations for both the guyed tower and roof top platform prepared by SEA Consultants Inc. Engineers and Architects dated May of 1997.

The original construction drawings by SEA reference structural modifications below the roof at the guy anchor support locations, HDG was not able to confirm these modifications at the time of our visit. HDG recommends that all the original design mods shown in the reference drawings be field verified. This analysis is based on the assumption that the modifications were installed properly and are free from damage at this time.

HDG was not able to obtain original structural building plans to confirm column locations and grid spacing. All assumptions are based on the original SEA drawings referenced above.

CONCLUSION SUMMARY:

A tower structural analysis was performed on the guyed tower by SEMAAN Engineering Solutions LLC dated June 9, 2012 for AT&T illustrating the proposed AT&T LTE loading on the tower. The analysis resulted in the tower passing but the reactions at the guy anchor supports had exceeded the original design loading.

Based on our evaluation, HDG has confirmed that the existing ROOF TOP STEEL PLATFORM **IS NOT CAPABLE** of supporting the tower base and existing sprint equipment.

HDG recommends reinforcing the existing W14x48 (Beam "H") to increase the moment capacity. Reinforcing details will be designed and furnished in separate Mod Plan.

SEE BULDING ANALYSIS RESULTS ON SHEET 4 OF THIS REPORT

Hudson Design Group LLC

DESIGN CRITERIA:

1. **International Building Code 2003 with 2005 Connecticut Supplement with 2009 Amendments; ASCE 7-05 Minimum Design Loads for Buildings and Other Structures.**

   Wind Loading:

   Approximate roof height above grade: 55'-7"+/-
   Basic Wind Speed: 95 MPH (includes 3-second gust)
   Exposure: C

   Roof:

   Ground Snow, Pg: 30 psf
   Importance Factor, I: 1.0 (Category II)
   Exposure Factor, Ce: 0.9 (Exposure B- Fully Exposed)
   Thermal Factor, Ct: 1.0
   Calculated Flat Roof Snow Load: 30 psf (Pf=0.7*Ce*Ct*I*Pg)

   Seismic Analysis:
   (ASCE 7-05 Chapter 12- Requirements for Building Structures)
   12.8 EQUIVALENT LATERAL FORCE PROCEDURE
   Base Shear V = CsW = 0.17 (from Original SEA Design)-(ASCE 7-05; 12.8-1)
   Cs = Seismic Response Coefficient; W = Dead Load of Tower & Framing
   Wind Base Max Reaction =9.59 kips (Wind Governs)

   Section 3403 (Additions, Alterations or Repairs):

   3403.1 Existing Buildings or Structures. Additions or alteration to any building or structure shall conform to the requirements of the code for new construction. Additions or alteration shall not be made to an existing building or structure which will cause the existing building or structure to be in violation of any provisions of this code. An existing building plus additions shall comply with the height and area provisions of Chapter 5. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure.

   3403.2 Structural. Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, nor shall the strength of any structural element be decreased to less than the required by this code for new structures. Where repairs are made to structural elements of an existing building, and uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements for new structures.

2. EIA/TIA -222- F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: Hartford
   Wind Load: 80 mph

Hudson Design Group LLC

BUILDING ANALYSIS RESULTS SUMMARY (Vertical):

Max. Column Loading (K)	Allowable Column Loading	% Passing	Pass/Fail
Column 77 = 44.35	102 kips	43 %	**PASS**
Column 45 = 46.64	102 kip	46 %	**PASS**

GUY ANCHOR LOADING ON THE COLUMNS:

Vertical Max Load	Resisting Dead Load	Results
22.56 Kips (includes 2.0 F.O.S.) for Anchorage	**44.5 Kips**	44.5 kips > Vertical Max; therefore O.K.

SEISMIC LOADING-COMPARE INCREASE IS LESS THAN OR EQUAL TO 5% OF ORIGINAL DESIGN:

ORIGINAL SEISMIC LOAD (5%) BASE SHEAR	New SEISMIC LOAD (5% BASE SHEAR)	Results
4.06 KIPS	**4.76 KIPS**	**ACCEPTABLE - PASSING**

RECOMMENDATIONS:

SEISMICALLY THE LOADING CURRENTLY STANDS AT AN ACCEPTALBLE 5%. HOWEVER IF ANYMORE ADDITIONAL WEIGHT IS ADDED TO THIS STRUCTURE (BOTH TOWER AND STEEL PLATFORM) THE RESULTS WILL CONCLUDE A LARGER THAN 5% INCREASE AND THEREFORE A FULL BUILDING SEISMIC ANALYSIS WILL BE REQUIRED AND FURTHER DESIGN AND MODIFICATION WILL BE REQUIRED. FULL BUILDING SURVERY OR ORIGINAL STRUCTURAL DRAWINGS WILL BE REQUIRED IN ORDER TO PREPARE A BUILDING ANALYSIS.

Hudson Design Group LLC

EXISTING STEEL PLATFORM SUPPORT STRUCTURE:

The existing 50' guyed tower proposed to support the AT&T LTE antennas is secured and supported to an existing 30'-0" x 20'-0" steel roof top framing located over four existing building columns.

EXISTING ROOF STRUCTURAL SUPPORT SYSTEM:

The roof construction consists of a single-ply EPDM roofing membrane adhered to rigid insulation over metal roof decking supported by a system of open web steel bar joists, steel beams and steel columns. The existing roof construction noted above is based on the existing original sprint drawings prepared by SEA Consultants Inc. dated May of 1997.

Notes:

1. Reference the latest HDG construction drawings for all the equipment locations.
2. All allowable loads for the building structure were reference from the SEA original calculations and design package date May 1997.
3. HDG is under the assumption that all required modifications and strengthening applications have been completed per SEA original design calculations and drawings.
4. Mount all equipment per manufacturer's specifications.
5. HDG is under the assumption that the equipment frame was located over the reference building columns shown within this calculation package. HDG was not able to verify the roof structure and its components at the time of our visit.
6. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

Hudson Design Group LLC

EXISTING GUYED TOWER:

Photo 1: Sample photo of guyed tower on the roof.

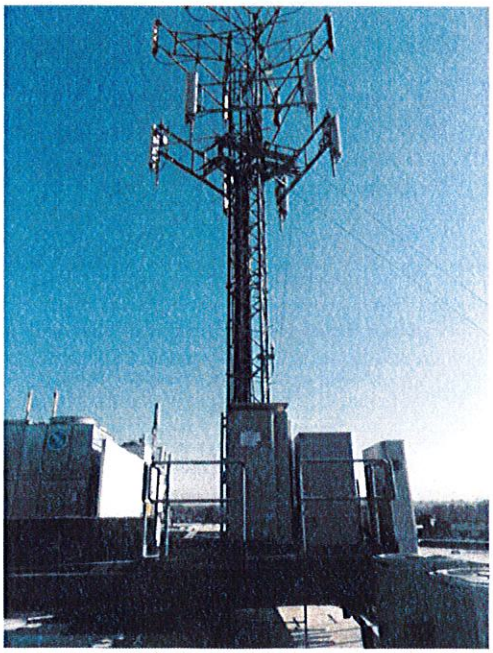


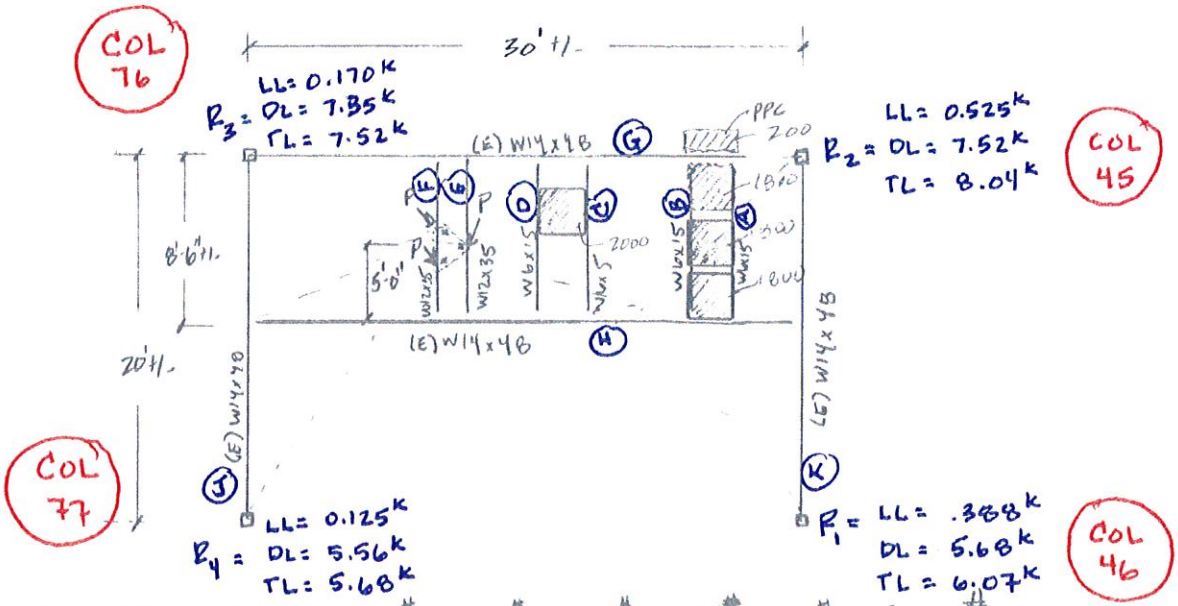
Photo 2: Sample photo illustrating the existing SPRINT platform.

Hudson Design Group LLC

STEEL SUPPORT CALCULATIONS

DATE: 9·18·12
Project Name: BISHOPS CORNER
Project No.: CT1195
Design By: MSC Chk'd By: _____ Page____ of ____

Hudson Design Group LLC



TOTAL EQUIPMENT WEIGHT= 2000# + 1000# + 1800 # + 1800# + 200# = 7600#

BASE VERTICAL REACTION @ GUYED TOWER = 30.9K

PER LEG = $\frac{30.9^K}{3}$ = 10.3K ↓

Radio Top Support Platform

157132

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam A
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 381.8%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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DEFLECTIONS Center

Live Load	0.01	IN L/MAX
Dead Load	0.05	in
Total Load	0.06	IN L/1767

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	302 lb	302 lb
Dead Load	1570 lb	1623 lb
Total Load	1872 lb	1925 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

STEEL PROPERTIES
W6x15 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	5.99	in
Web Thickness:	tw =	0.23	in
Flange Width:	bf =	5.99	in
Flange Thickness:	tf =	0.26	in
Distance to Web Toe of Fillet:	k =	0.51	in
Moment of Inertia About X-X Axis:	Ix =	29.1	in4
Section Modulus About X-X Axis:	Sx =	9.72	in3
Plastic Section Modulus About X-X Axis:	Zx =	10.8	in3

Design Properties per AISC 13th Edition Steel Manual:

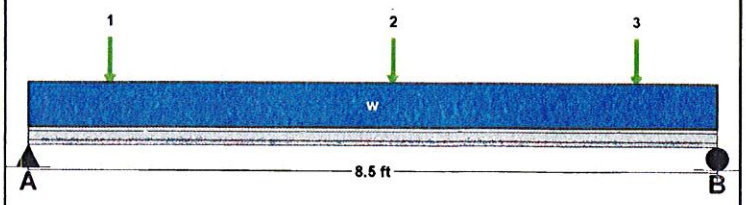
Flange Buckling Ratio:	FBR =	11.52	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	21.61	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.04	ft
Nominal Flexural Strength w/ safety factor:	Mn =	19102	ft-lb
Controlling Equation:	F3-1		
Web height to thickness ratio:	h/tw =	21.61	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	19839	lb

Controlling Moment: 3964 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1925 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	3.95 in4	29.1 in4
Moment:	3964 ft-lb	19102 ft-lb
Shear:	-1925 lb	19839 lb

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	71	plf
Uniform Dead Load	43	plf
Beam Self Weight	15	plf
Total Uniform Load	129	plf

POINT LOADS - CENTER SPAN

Load Number	One	Two	Three
Live Load	0 lb	0 lb	0 lb
Dead Load	900 lb	900 lb	900 lb
Location	1 ft	4.5 ft	7.5 ft

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam A
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 381.8%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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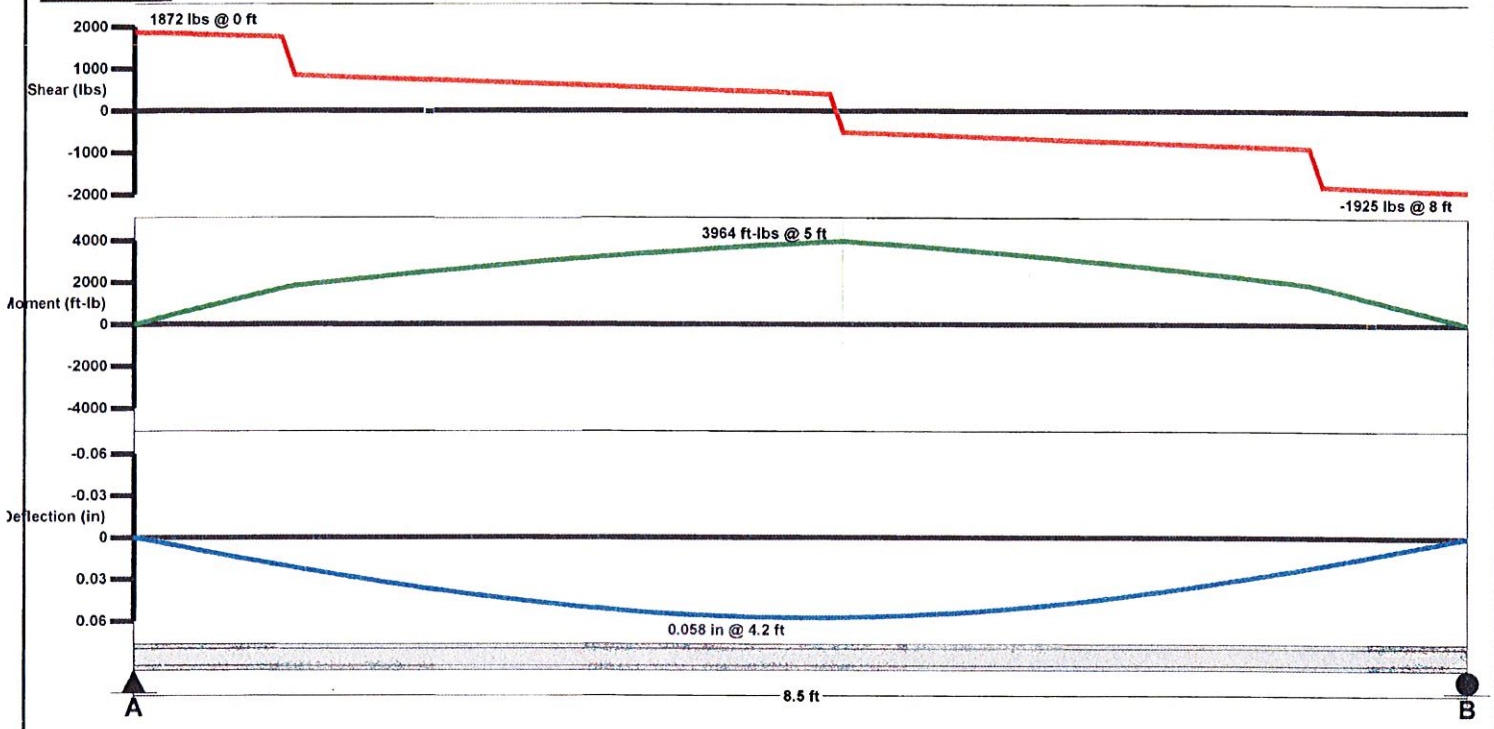
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam B
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 381.8%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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DEFLECTIONS Center

Live Load	0.01	IN L/MAX
Dead Load	0.05	in
Total Load	0.06	IN L/1767

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

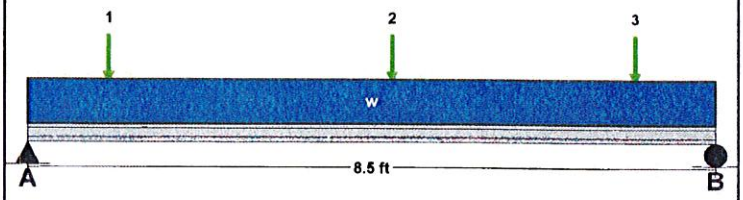
REACTIONS

	A	B
Live Load	302 lb	302 lb
Dead Load	1570 lb	1623 lb
Total Load	1872 lb	1925 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	71	plf
Uniform Dead Load	43	plf
Beam Self Weight	15	plf
Total Uniform Load	129	plf

POINT LOADS - CENTER SPAN

Load Number	One	Two	Three
Live Load	0 lb	0 lb	0 lb
Dead Load	900 lb	900 lb	900 lb
Location	1 ft	4.5 ft	7.5 ft

STEEL PROPERTIES
W6x15 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	5.99	in
Web Thickness:	tw =	0.23	in
Flange Width:	bf =	5.99	in
Flange Thickness:	tf =	0.26	in
Distance to Web Toe of Fillet:	k =	0.51	in
Moment of Inertia About X-X Axis:	Ix =	29.1	in4
Section Modulus About X-X Axis:	Sx =	9.72	in3
Plastic Section Modulus About X-X Axis:	Zx =	10.8	in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	11.52	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	21.61	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.04	ft
Nominal Flexural Strength w/ safety factor:	Mn =	19102	ft-lb
Controlling Equation:	F3-1		
Web height to thickness ratio:	h/tw =	21.61	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	19839	lb

Controlling Moment: 3964 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1925 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	3.95 in4	29.1 in4
Moment:	3964 ft-lb	19102 ft-lb
Shear:	-1925 lb	19839 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam B
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 381.8%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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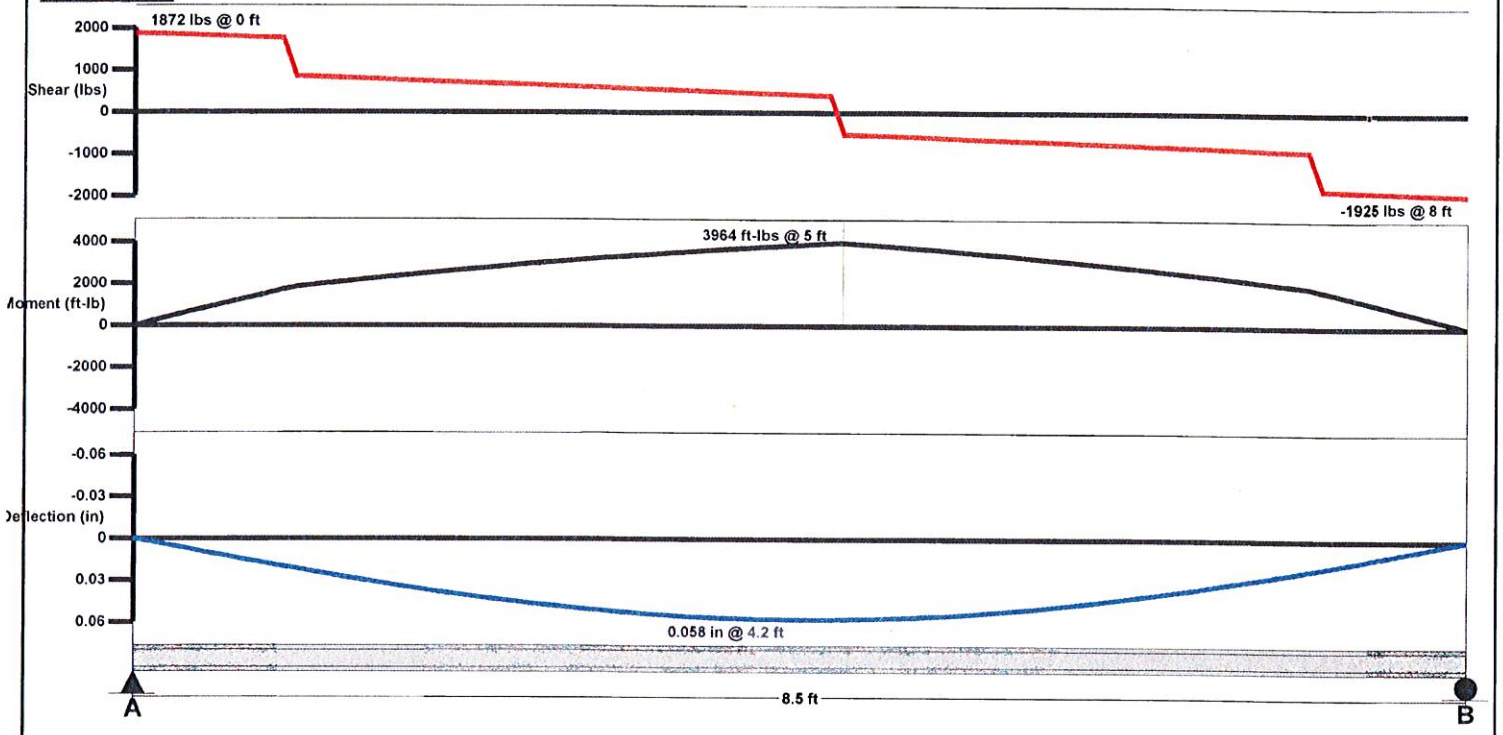
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam C
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 523.4%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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DEFLECTIONS Center

Live Load	0.01	IN L/MAX
Dead Load	0.03	in
Total Load	0.04	IN L/2463

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	302 lb	302 lb
Dead Load	670 lb	723 lb
Total Load	972 lb	1025 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

STEEL PROPERTIES
W6x15 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	5.99	in
Web Thickness:	tw =	0.23	in
Flange Width:	bf =	5.99	in
Flange Thickness:	tf =	0.26	in
Distance to Web Toe of Fillet:	k =	0.51	in
Moment of Inertia About X-X Axis:	Ix =	29.1	in4
Section Modulus About X-X Axis:	Sx =	9.72	in3
Plastic Section Modulus About X-X Axis:	Zx =	10.8	in3

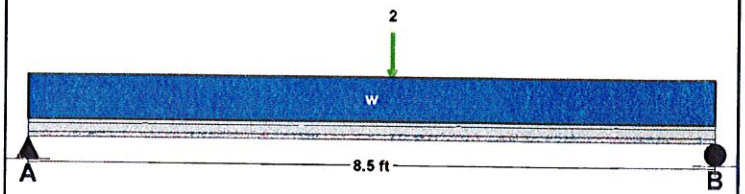
Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	11.52	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	21.61	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.04	ft
Nominal Flexural Strength w/ safety factor:	Mn =	19102	ft-lb
Controlling Equation:	F3-1		
Web height to thickness ratio:	h/tw =	21.61	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	19839	lb

Controlling Moment: 3064 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1025 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	2.84 in4	29.1 in4
Moment:	3064 ft-lb	19102 ft-lb
Shear:	-1025 lb	19839 lb

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	71	plf
Uniform Dead Load	43	plf
Beam Self Weight	15	plf
Total Uniform Load	129	plf

POINT LOADS - CENTER SPAN

Load Number	Two
Live Load	0 lb
Dead Load	900 lb
Location	4.5 ft

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam C
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 523.4%
Controlling Factor: Moment

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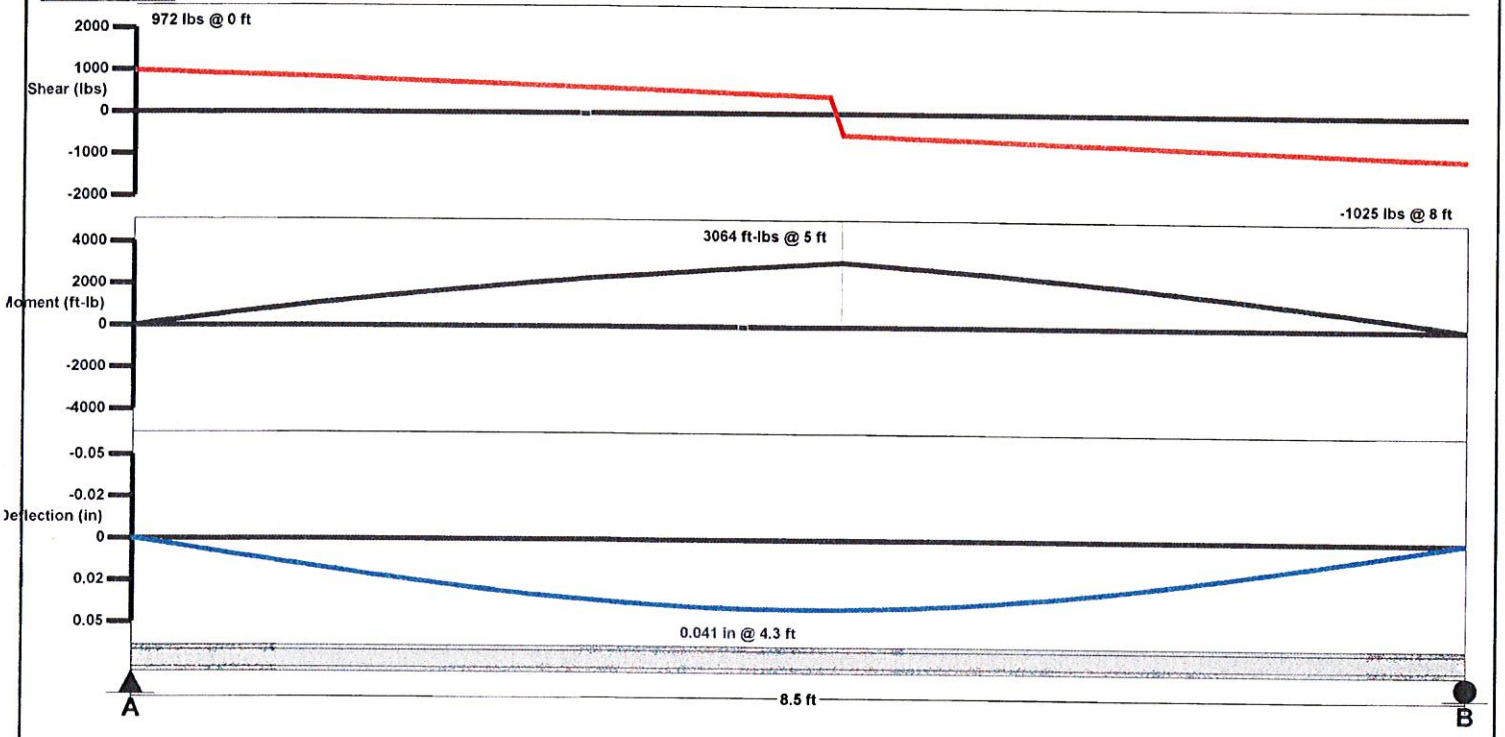

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam D
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 523.4%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.01	IN L/MAX
Dead Load	0.03	in
Total Load	0.04	IN L/2463

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	302 lb	302 lb
Dead Load	670 lb	723 lb
Total Load	972 lb	1025 lb
Bearing Length	0.51 in	0.51 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

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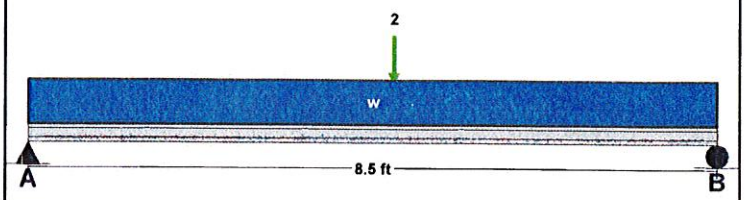

UNIFORM LOADS Center

Uniform Live Load	71	plf
Uniform Dead Load	43	plf
Beam Self Weight	15	plf
Total Uniform Load	129	plf

POINT LOADS - CENTER SPAN

Load Number	Two
Live Load	0 lb
Dead Load	900 lb
Location	4.5 ft

STEEL PROPERTIES
W6x15 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	5.99	in
Web Thickness:	tw =	0.23	in
Flange Width:	bf =	5.99	in
Flange Thickness:	tf =	0.26	in
Distance to Web Toe of Fillet:	k =	0.51	in
Moment of Inertia About X-X Axis:	Ix =	29.1	in4
Section Modulus About X-X Axis:	Sx =	9.72	in3
Plastic Section Modulus About X-X Axis:	Zx =	10.8	in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	11.52	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	21.61	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.04	ft
Nominal Flexural Strength w/ safety factor:	Mn =	19102	ft-lb
Controlling Equation:	F3-1		
Web height to thickness ratio:	h/tw =	21.61	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	19839	lb

Controlling Moment: 3064 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1025 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	2.84 in4	29.1 in4
Moment:	3064 ft-lb	19102 ft-lb
Shear:	-1025 lb	19839 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam D
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W6x15 x 8.5 FT
Section Adequate By: 523.4%
Controlling Factor: Moment

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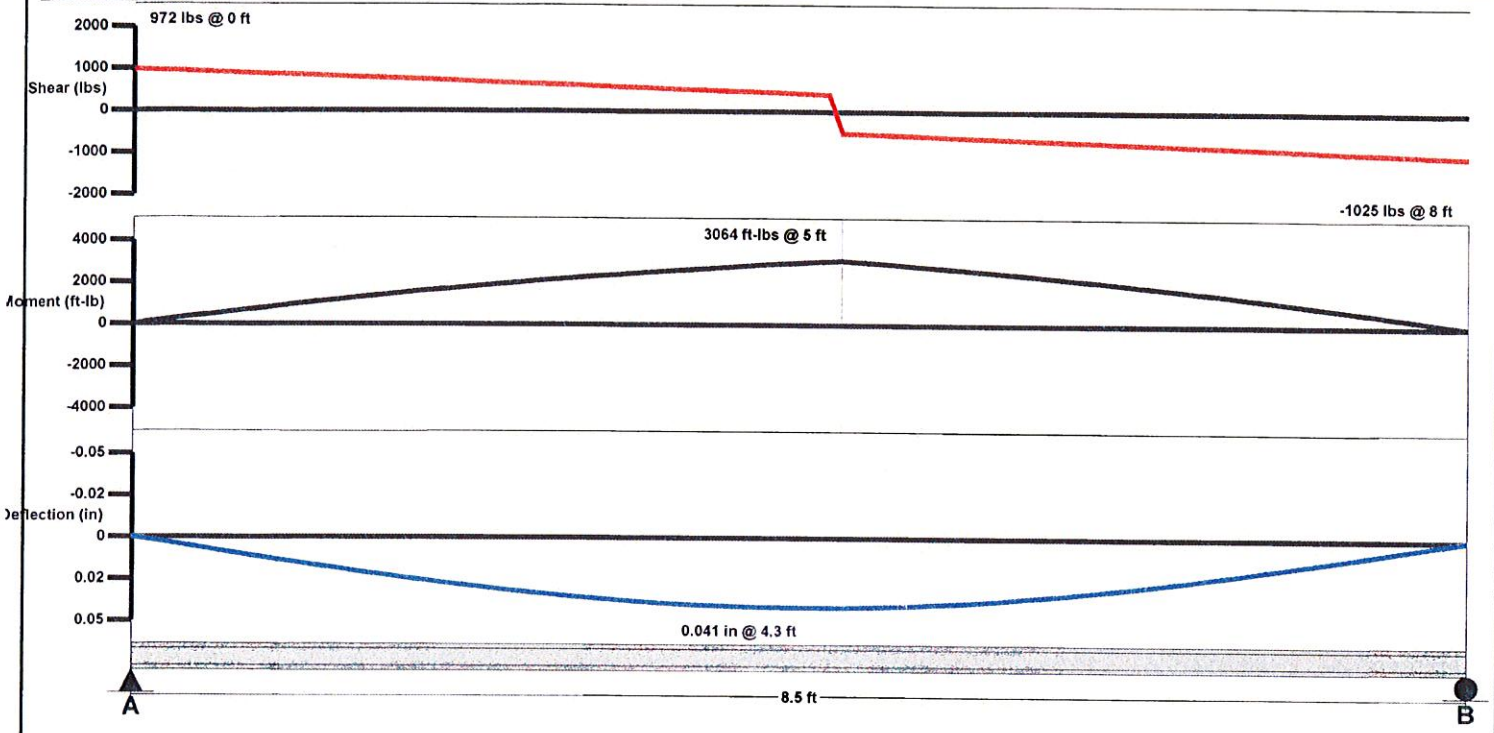
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam E
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W12x35 x 8.5 FT
Section Adequate By: 316.2%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.00	IN L/Infinity
Dead Load	0.03	in
Total Load	0.03	IN L/3653

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

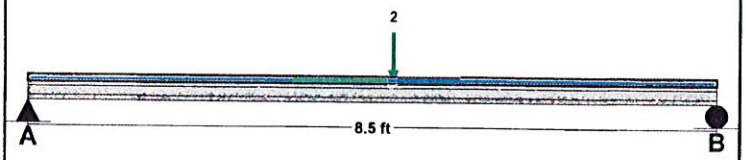
REACTIONS

	A	B
Live Load	0 lb	0 lb
Dead Load	4996 lb	5602 lb
Total Load	4996 lb	5602 lb
Bearing Length	0.82 in	0.82 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	35	plf
Total Uniform Load	35	plf

POINT LOADS - CENTER SPAN

Load Number	Two
Live Load	0 lb
Dead Load	10300 lb
Location	4.5 ft

STEEL PROPERTIES
W12x35 - A36

Properties:

Yield Stress:	Fy =	36 ksi
Modulus of Elasticity:	E =	29000 ksi
Depth:	d =	12.5 in
Web Thickness:	tw =	0.3 in
Flange Width:	bf =	6.56 in
Flange Thickness:	tf =	0.52 in
Distance to Web Toe of Fillet:	k =	0.82 in
Moment of Inertia About X-X Axis:	Ix =	285 in4
Section Modulus About X-X Axis:	Sx =	45.6 in3
Plastic Section Modulus About X-X Axis:	Zx =	51.2 in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	6.31
Allowable Flange Buckling Ratio:	AFBR =	10.79
Web Buckling Ratio:	WBR =	36.2
Allowable Web Buckling Ratio:	AWBR =	106.72
Controlling Unbraced Length:	Lb =	0 ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.41 ft
Nominal Flexural Strength w/ safety factor:	Mn =	91976 ft-lb
Controlling Equation:	F2-1	
Web height to thickness ratio:	h/tw =	36.2
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58
Cv Factor:	Cv =	1
Controlling Equation:	G2-2	
Nominal Shear Strength w/ safety factor:	Vn =	54000 lb

Controlling Moment: 22099 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -5602 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:	Req'd	Provided
Moment of Inertia (deflection):	18.72 in4	285 in4
Moment:	22099 ft-lb	91976 ft-lb
Shear:	-5602 lb	54000 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam E
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W12x35 x 8.5 FT
Section Adequate By: 316.2%
Controlling Factor: Moment

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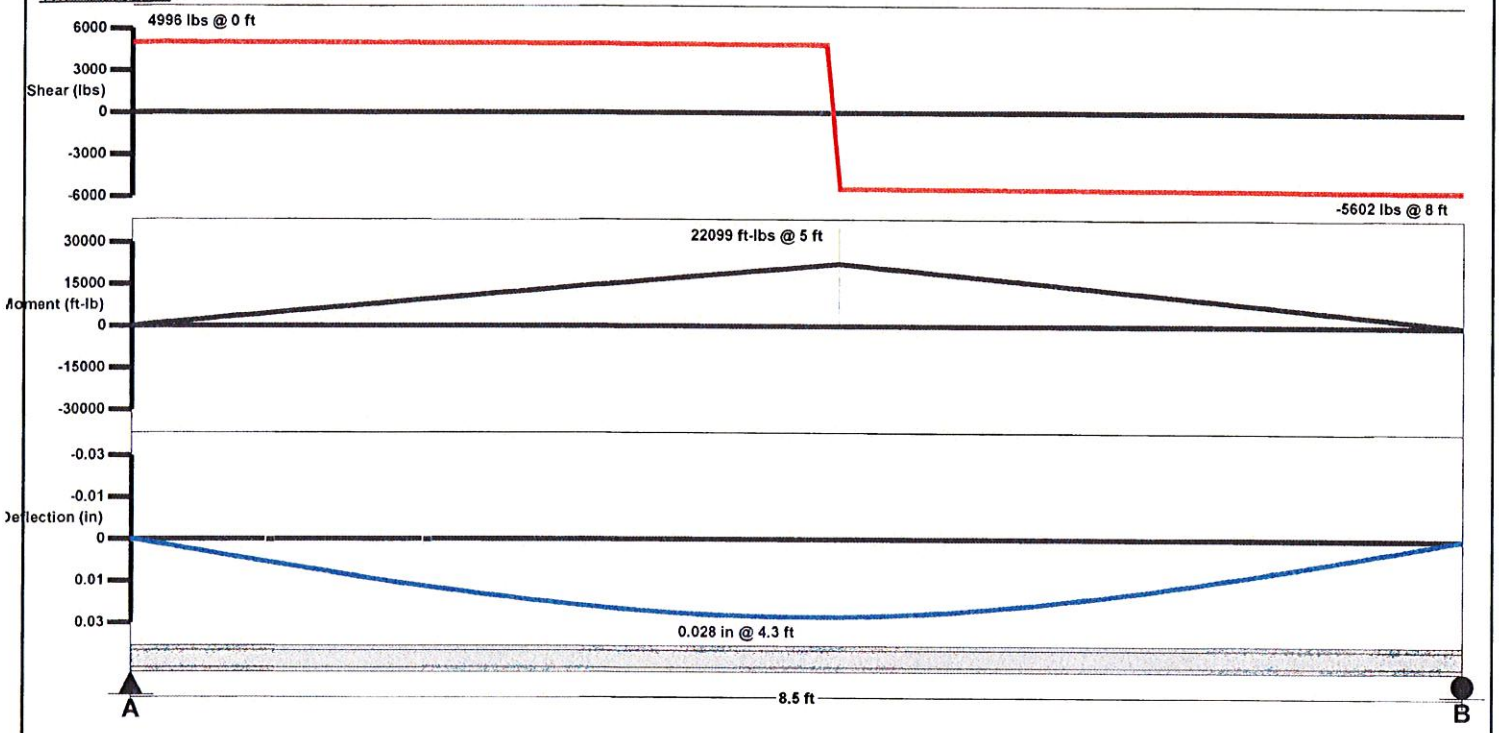
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam F
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W12x35 x 8.5 FT
Section Adequate By: 145.0%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.00	IN L/Infinity
Dead Load	0.05	in
Total Load	0.05	IN L/1980

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	0 lb	0 lb
Dead Load	8425 lb	12472 lb
Total Load	8425 lb	12472 lb
Bearing Length	0.82 in	0.82 in

BEAM DATA Center

Span Length	8.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	8.5	ft

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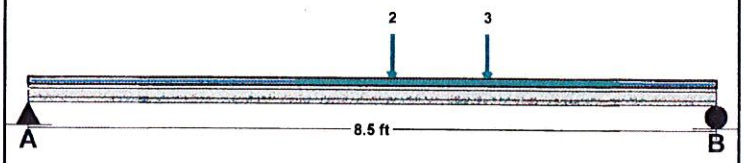

UNIFORM LOADS Center

Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	35	plf
Total Uniform Load	35	plf

POINT LOADS - CENTER SPAN

Load Number	Two	Three
Live Load	0 lb	0 lb
Dead Load	10300 lb	10300 lb
Location	4.5 ft	5.67 ft

STEEL PROPERTIES
W12x35 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	12.5	in
Web Thickness:	tw =	0.3	in
Flange Width:	bf =	6.56	in
Flange Thickness:	tf =	0.52	in
Distance to Web Toe of Fillet:	k =	0.82	in
Moment of Inertia About X-X Axis:	Ix =	285	in4
Section Modulus About X-X Axis:	Sx =	45.6	in3
Plastic Section Modulus About X-X Axis:	Zx =	51.2	in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	6.31	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	36.2	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	6.41	ft
Nominal Flexural Strength w/ safety factor:	Mn =	91976	ft-lb
Controlling Equation:	F2-1		
Web height to thickness ratio:	h/tw =	36.2	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	54000	lb

Controlling Moment: 37549 ft-lb
4.5 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Controlling Shear: -12472 lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	34.54 in4	285 in4
Moment:	37549 ft-lb	91976 ft-lb
Shear:	-12472 lb	54000 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam F
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W12x35 x 8.5 FT
Section Adequate By: 145.0%
Controlling Factor: Moment

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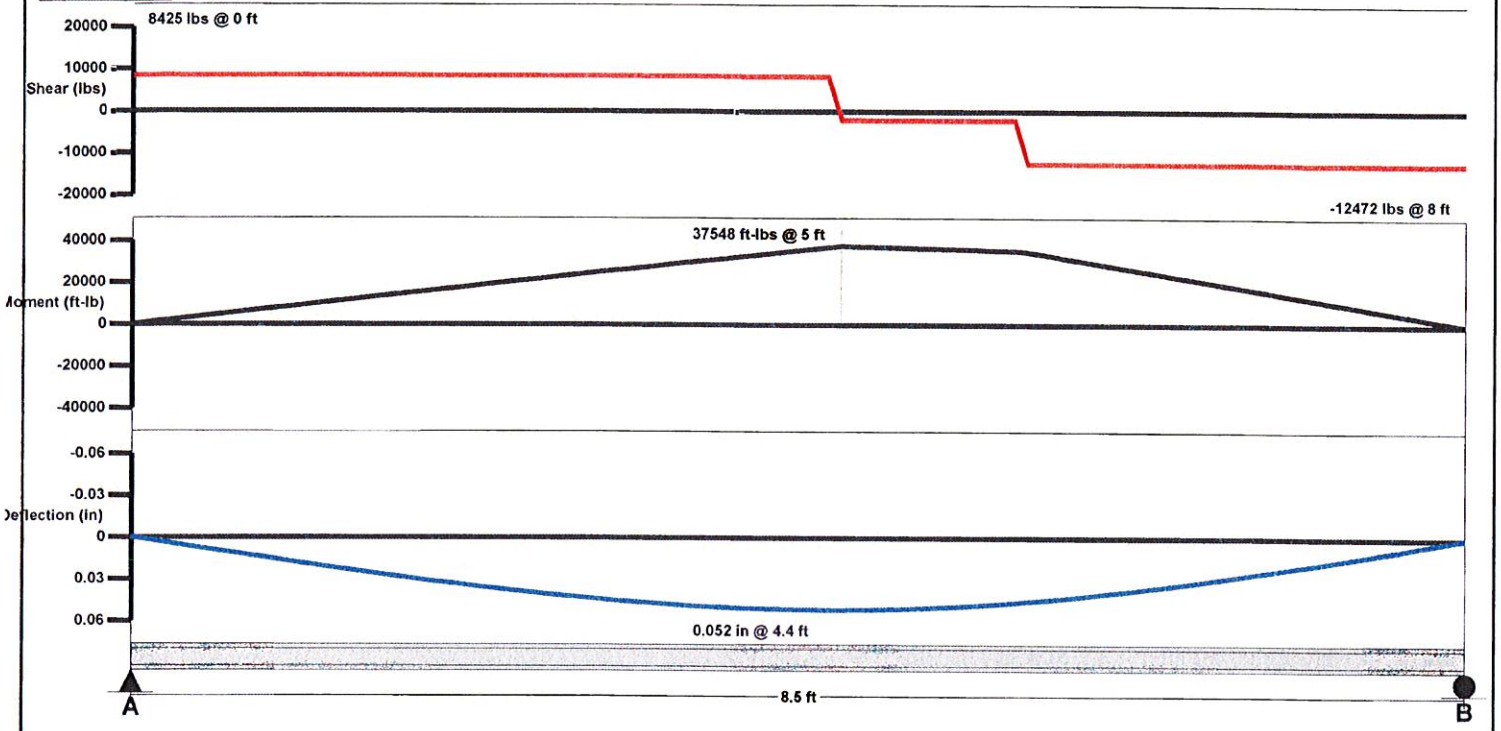
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam G
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 30.0 FT
Section Adequate By: 21.4%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.05	IN L/6601
Dead Load	1.14	in
Total Load	1.20	IN L/301

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	295 lb	913 lb
Dead Load	9239 lb	10236 lb
Total Load	9534 lb	11149 lb
Bearing Length	1.19 in	1.19 in

BEAM DATA Center

Span Length	30 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	30 ft

STEEL PROPERTIES
W14x48 - A36

Properties:

Yield Stress:	Fy =	36 ksi
Modulus of Elasticity:	E =	29000 ksi
Depth:	d =	13.8 in
Web Thickness:	tw =	0.34 in
Flange Width:	bf =	8.03 in
Flange Thickness:	tf =	0.6 in
Distance to Web Toe of Fillet:	k =	1.19 in
Moment of Inertia About X-X Axis:	Ix =	484 in4
Section Modulus About X-X Axis:	Sx =	70.2 in3
Plastic Section Modulus About X-X Axis:	Zx =	78.4 in3

Design Properties per AISC 13th Edition Steel Manual:

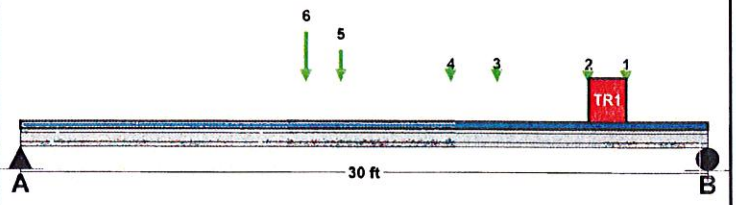
Flange Buckling Ratio:	FBR =	6.75
Allowable Flange Buckling Ratio:	AFBR =	10.79
Web Buckling Ratio:	WBR =	33.59
Allowable Web Buckling Ratio:	AWBR =	106.72
Controlling Unbraced Length:	Lb =	0 ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	7.95 ft
Nominal Flexural Strength w/ safety factor:	Mn =	140838 ft-lb
Controlling Equation:	F2-1	
Web height to thickness ratio:	h/tw =	33.59
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58
Cv Factor:	Cv =	1
Controlling Equation:	G2-2	
Nominal Shear Strength w/ safety factor:	Vn =	67565 lb

Controlling Moment: 116046 ft-lb
13.8 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -11149 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	386.24 in4	484 in4
Moment:	116046 ft-lb	140838 ft-lb
Shear:	-11149 lb	67565 lb

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	48 plf
Total Uniform Load	48 plf

POINT LOADS - CENTER SPAN

Load Number	One	Two	Three	Four	Five	Six
Live Load	302 lb	302 lb	302 lb	302 lb	0 lb	0 lb
Dead Load	1570 lb	1570 lb	670 lb	670 lb	4996 lb	8425 lb
Location	26.42 ft	24.75 ft	20.75 ft	18.75 ft	14 ft	12.5 ft

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One
Left Live Load	0 plf
Left Dead Load	80 plf
Right Live Load	0 plf
Right Dead Load	80 plf
Load Start	24.75 ft
Load End	26.42 ft
Load Length	1.67 ft

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam G
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 30.0 FT
Section Adequate By: 21.4%
Controlling Factor: Moment

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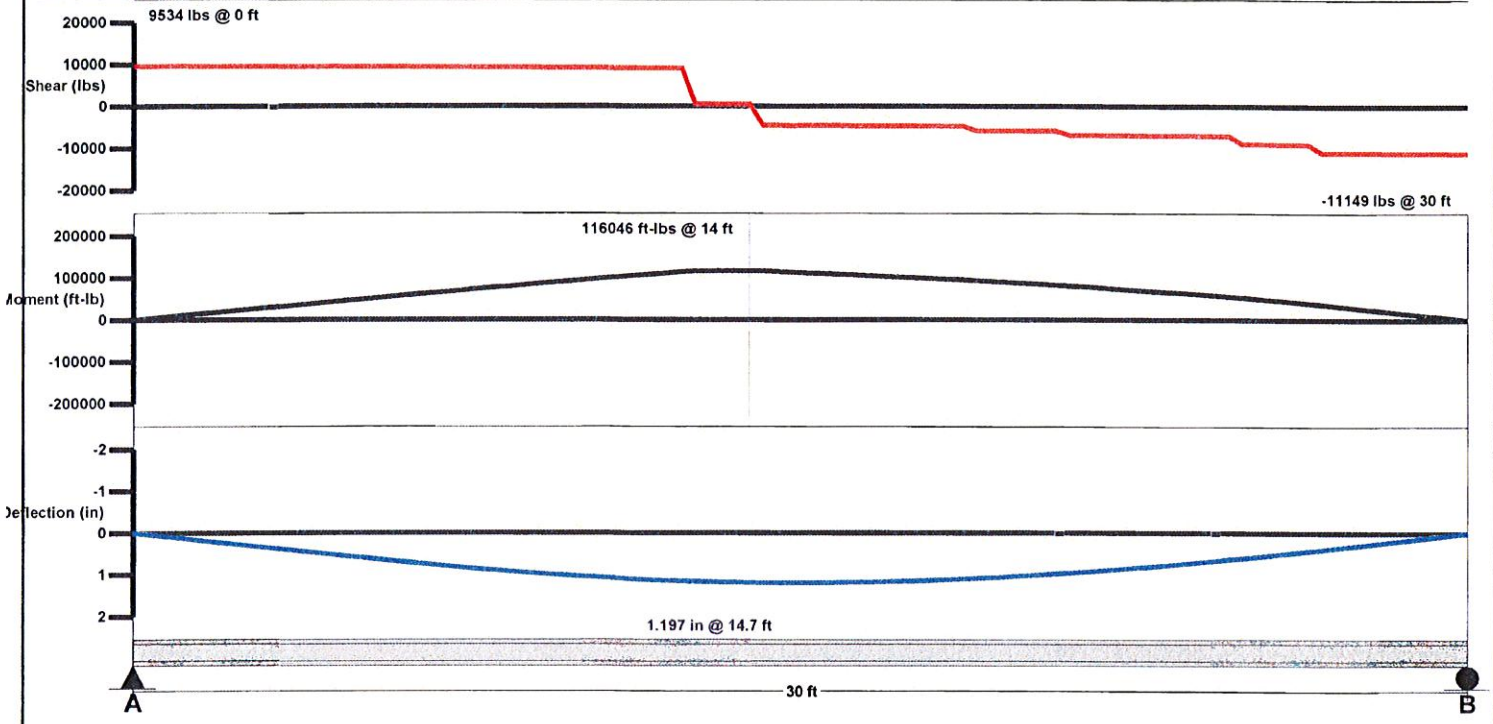
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam H
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 30.0 FT
Section Inadequate By: 6.0%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.05	IN L/6601
Dead Load	1.46	in
Total Load	1.51	IN L/238

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS

	A	B
Live Load	295 lb	913 lb
Dead Load	11955 lb	12251 lb
Total Load	12250 lb	13164 lb
Bearing Length	1.19 in	1.19 in

BEAM DATA Center

Span Length	30 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	30 ft

STEEL PROPERTIES
W14x48 - A36

Properties:

Yield Stress:	Fy =	36 ksi
Modulus of Elasticity:	E =	29000 ksi
Depth:	d =	13.8 in
Web Thickness:	tw =	0.34 in
Flange Width:	bf =	8.03 in
Flange Thickness:	tf =	0.6 in
Distance to Web Toe of Fillet:	k =	1.19 in
Moment of Inertia About X-X Axis:	Ix =	484 in4
Section Modulus About X-X Axis:	Sx =	70.2 in3
Plastic Section Modulus About X-X Axis:	Zx =	78.4 in3

Design Properties per AISC 13th Edition Steel Manual:

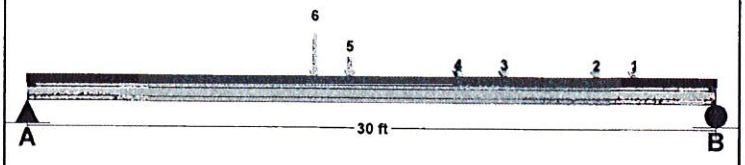
Flange Buckling Ratio:	FBR =	6.75
Allowable Flange Buckling Ratio:	AFBR =	10.79
Web Buckling Ratio:	WBR =	33.59
Allowable Web Buckling Ratio:	AWBR =	106.72
Controlling Unbraced Length:	Lb =	0 ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	7.95 ft
Nominal Flexural Strength w/ safety factor:	Mn =	140838 ft-lb
Controlling Equation:	F2-1	
Web height to thickness ratio:	h/tw =	33.59
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58
Cv Factor:	Cv =	1
Controlling Equation:	G2-2	
Nominal Shear Strength w/ safety factor:	Vn =	67565 lb

Controlling Moment: 149293 ft-lb
12.6 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -13164 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	488.51 in4	484 in4
Moment:	149293 ft-lb	140838 ft-lb
Shear:	-13164 lb	67565 lb

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	48	plf
Total Uniform Load	48	plf

POINT LOADS - CENTER SPAN

Load Number	One	Two	Three	Four	Five	Six
Live Load	302 lb	302 lb	302 lb	302 lb	0 lb	0 lb
Dead Load	1623 lb	1623 lb	723 lb	723 lb	5602 lb	12472 lb
Location	26.42 ft	24.75 ft	20.75 ft	18.75 ft	14 ft	12.5 ft

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam H
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 30.0 FT
Section Inadequate By: 6.0%
Controlling Factor: Moment

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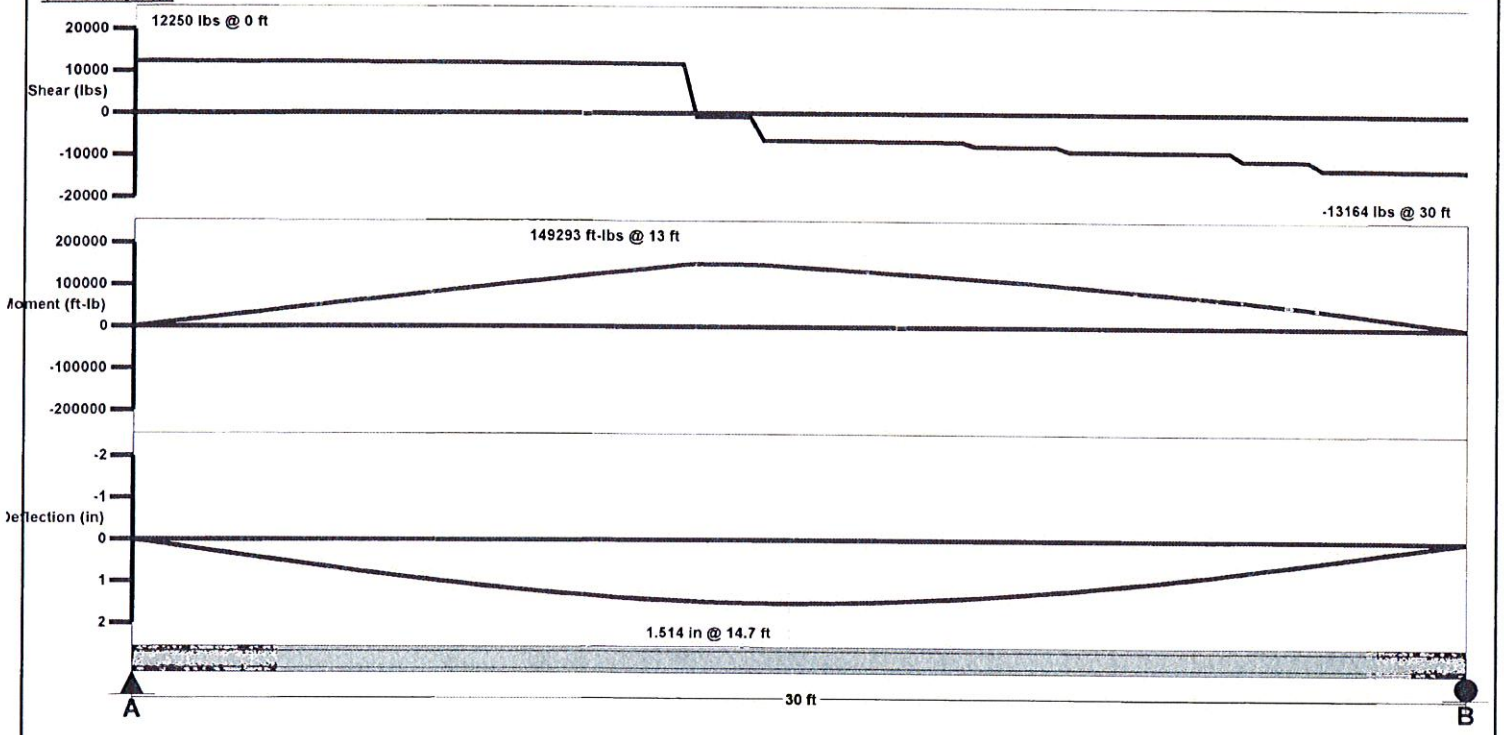
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam J
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 20.0 FT
Section Adequate By: 128.2%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (o) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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DEFLECTIONS Center

Live Load	0.01	IN L/MAX
Dead Load	0.25	in
Total Load	0.26	IN L/937

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

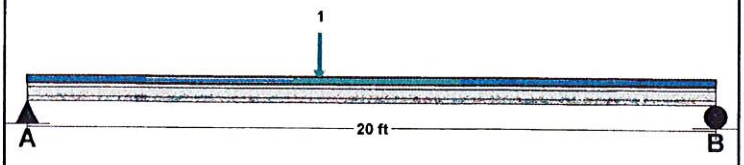
REACTIONS

	A	B
Live Load	170 lb	125 lb
Dead Load	7354 lb	5561 lb
Total Load	7524 lb	5686 lb
Bearing Length	1.19 in	1.19 in

BEAM DATA Center

Span Length	20	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	20	ft

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	48	plf
Total Uniform Load	48	plf

POINT LOADS - CENTER SPAN

Load Number	One
Live Load	295 lb
Dead Load	11955 lb
Location	8.5 ft

STEEL PROPERTIES
W14x48 - A36

Properties:

Yield Stress:	Fy =	36	ksi
Modulus of Elasticity:	E =	29000	ksi
Depth:	d =	13.8	in
Web Thickness:	tw =	0.34	in
Flange Width:	bf =	8.03	in
Flange Thickness:	tf =	0.6	in
Distance to Web Toe of Fillet:	k =	1.19	in
Moment of Inertia About X-X Axis:	Ix =	484	in4
Section Modulus About X-X Axis:	Sx =	70.2	in3
Plastic Section Modulus About X-X Axis:	Zx =	78.4	in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	6.75	
Allowable Flange Buckling Ratio:	AFBR =	10.79	
Web Buckling Ratio:	WBR =	33.59	
Allowable Web Buckling Ratio:	AWBR =	106.72	
Controlling Unbraced Length:	Lb =	0	ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	7.95	ft
Nominal Flexural Strength w/ safety factor:	Mn =	140838	ft-lb
Controlling Equation:	F2-1		
Web height to thickness ratio:	h/tw =	33.59	
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58	
Cv Factor:	Cv =	1	
Controlling Equation:	G2-2		
Nominal Shear Strength w/ safety factor:	Vn =	67565	lb

Controlling Moment: 61704 ft-lb
8.6 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 7524 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	124 in4	484 in4
Moment:	61704 ft-lb	140838 ft-lb
Shear:	7524 lb	67565 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam J
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 20.0 FT
Section Adequate By: 128.2%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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of

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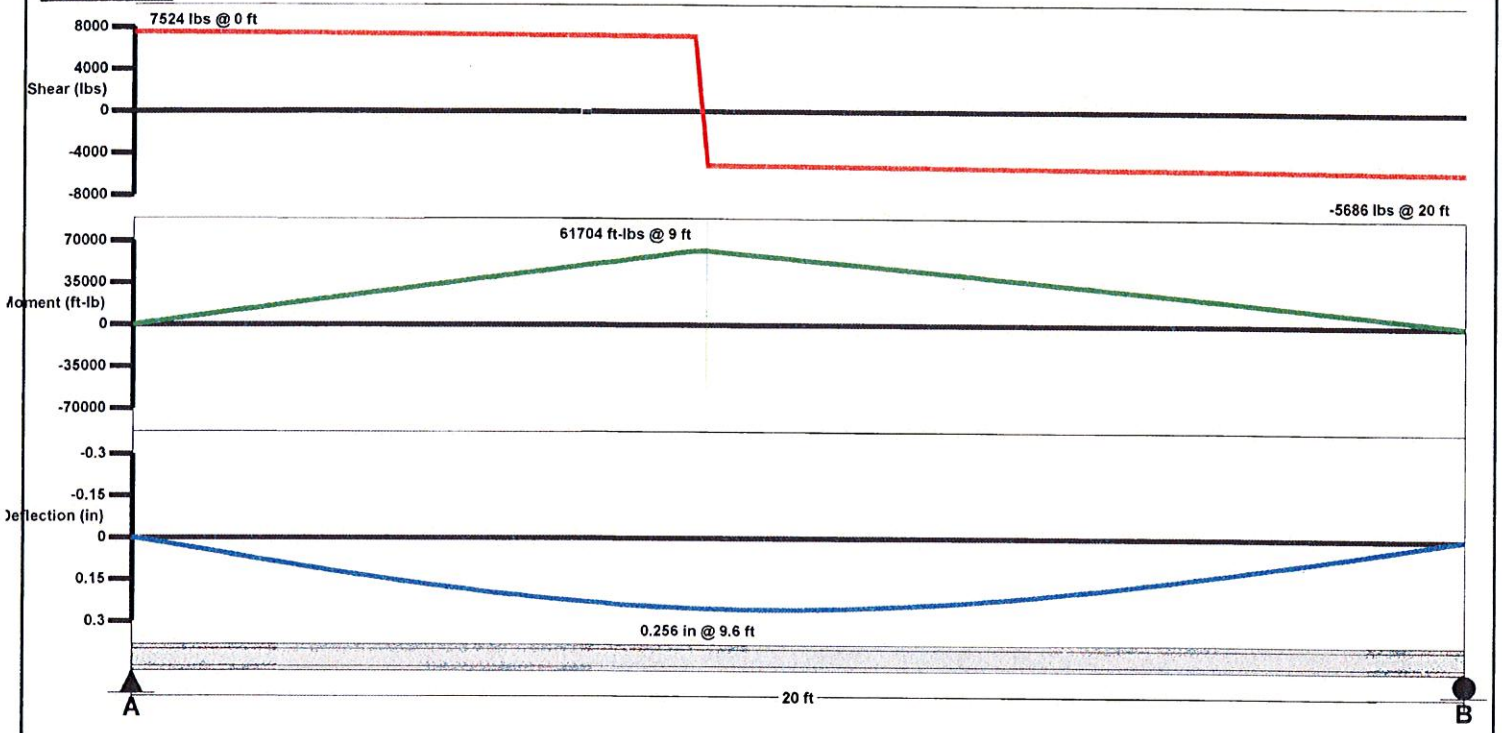
VMD DIAGRAM



Project: CT1195 Bishops Corner (Platform Check)

Location: Beam K
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 20.0 FT
Section Adequate By: 113.0%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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DEFLECTIONS Center

Live Load	0.02	IN L/MAX
Dead Load	0.26	in
Total Load	0.27	IN L/875

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

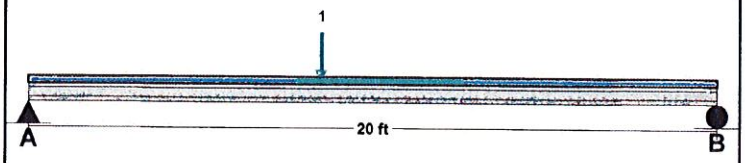
REACTIONS

	A	B
Live Load	525 lb	388 lb
Dead Load	7524 lb	5687 lb
Total Load	8049 lb	6075 lb
Bearing Length	1.19 in	1.19 in

BEAM DATA Center

Span Length	20 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	20 ft

LOADING DIAGRAM



UNIFORM LOADS Center

Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	48 plf
Total Uniform Load	48 plf

POINT LOADS - CENTER SPAN

Load Number	One
Live Load	913 lb
Dead Load	12251 lb
Location	8.5 ft

STEEL PROPERTIES
W14x48 - A36

Properties:

Yield Stress:	Fy =	36 ksi
Modulus of Elasticity:	E =	29000 ksi
Depth:	d =	13.8 in
Web Thickness:	tw =	0.34 in
Flange Width:	bf =	8.03 in
Flange Thickness:	tf =	0.6 in
Distance to Web Toe of Fillet:	k =	1.19 in
Moment of Inertia About X-X Axis:	Ix =	484 in4
Section Modulus About X-X Axis:	Sx =	70.2 in3
Plastic Section Modulus About X-X Axis:	Zx =	78.4 in3

Design Properties per AISC 13th Edition Steel Manual:

Flange Buckling Ratio:	FBR =	6.75
Allowable Flange Buckling Ratio:	AFBR =	10.79
Web Buckling Ratio:	WBR =	33.59
Allowable Web Buckling Ratio:	AWBR =	106.72
Controlling Unbraced Length:	Lb =	0 ft
Limiting Unbraced Length - for lateral-torsional buckling:	Lp =	7.95 ft
Nominal Flexural Strength w/ safety factor:	Mn =	140838 ft-lb
Controlling Equation:	F2-1	
Web height to thickness ratio:	h/tw =	33.59
Limiting height to thickness ratio for eqn. G2-2:	h/tw-limit =	63.58
Cv Factor:	Cv =	1
Controlling Equation:	G2-2	
Nominal Shear Strength w/ safety factor:	Vn =	67565 lb

Controlling Moment: 66133 ft-lb
8.6 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 8049 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s

Comparisons with required sections:

	Req'd	Provided
Moment of Inertia (deflection):	132.8 in4	484 in4
Moment:	66133 ft-lb	140838 ft-lb
Shear:	8049 lb	67565 lb

Project: CT1195 Bishops Corner (Platform Check)

Location: Beam K
Multi-Loaded Multi-Span Beam
[2009 International Building Code(AISC 13th Ed ASD)]
A36 W14x48 x 20.0 FT
Section Adequate By: 113.0%
Controlling Factor: Moment

Michael Cabral - Structural Dept. Head
Hudson Design Group LLC (p) 978.557.5553
1600 Osgood Street Bldg 20N Suite 2-101
North Andover, MA 01845

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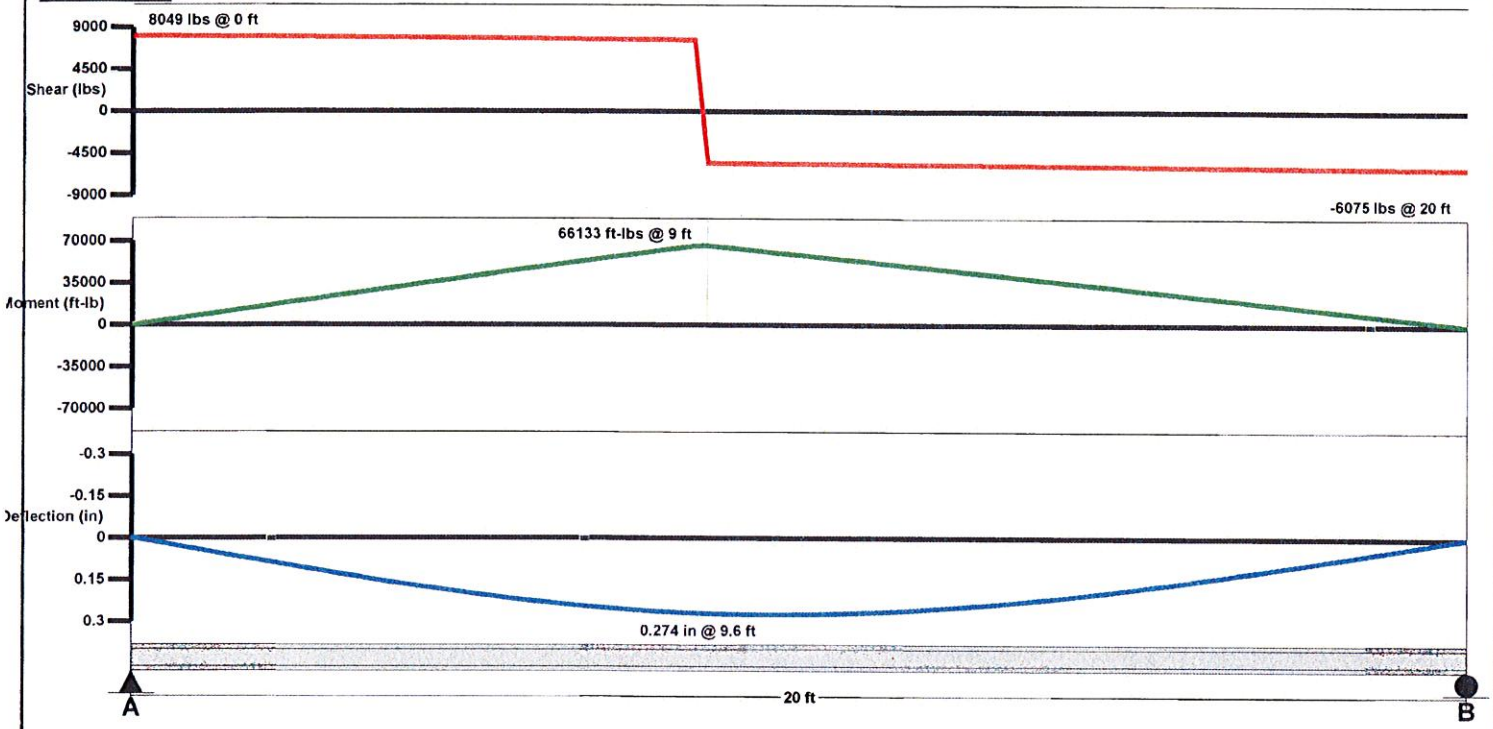
VMD DIAGRAM



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BUILDING COLUMN CALCULATIONS

DATE: 9.19.12
Project Name: BISHOPS CORNER
Project No.: CT1195
Design By: MSL Chk'd By: _____ Page ____ of ____

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CHECK BUILDING COLUMNS SUPPORTING PLATFORM:

R_1 (COL 46) LL = .388^K, DL = 5.68^K, TL = 6.07^K
HSS 5 1/2 x 5 1/2 x 1/4

R_2 (COL 45) LL = 0.525^K, DL = 7.52^K, TL = 8.04^K
HSS 5 1/2 x 5 1/2 x 1/4

R_3 (COL 76) LL = 0.170^K, DL = 7.35^K, TL = 7.52^K
HSS 6 x 6 x 1/4

R_4 (COL 77) LL = 0.125^K, DL = 5.56^K, TL = 5.68^K
HSS 5 1/2 x 5 1/2 x 1/4

- CHECK COLUMN 77 - INCORPORATES 25^K CHILLER WITHIN TRIBUTARY LOADING -

ROOF DEAD LOAD = 20 PSF (SEE BREAK DOWN IN REPORT)

LIVE LOAD (SNOW) = 30 PSF

TL = 50 PSF

2ND, 3RD AND 4TH FLOOR

DEAD LOAD = 62 PSF (SEE BREAK DOWN IN REPORT)

LIVE LOAD = 70 PSF

TL = 132 PSF

ROOF TOP EQUIPMENT LOADINGS:

(E) 300 TON CHILLER - MAX WT = 25^K

VERTICAL REACTION FROM PLATFORM = 8.04^K ↓

GUY REACTIONS → V_{MAX} = 11.28^K ↑ ; H_{MAX} = 9.59^K

157132

DATE: 9.19.12
Project Name: BISHOPS CORNER
Project No.: CT1195
Design By: MSC Chk'd By: Page ____ of ____

Hudson Design Group LLC

ORIGINAL DESIGN LOAD FOR COLUMN 77 = 41.55^K

NEW LOADING ON COLUMN 77 = 38.67^K + 5.68^K = 44.35^K

% INCREASE = $\frac{44.35}{41.55}$ = 1.06 = 6% INCREASE > 5% CHECK COLUMNS.

COLUMN 77 (HSS 5 1/2 x 5 1/2 x 1/4) AISC 13TH EDITION

W = 17.28 #/FT
I = 21.7 IN^4
S = 7.9 IN^3
r = 2.13 IN
A = 4.77 IN^2

F_y = 46 KSI (AISC 13TH - TABLE 4-4)

L_B = 11 FT (PER PREVIOUS CALC'S BY SEA)

$\frac{Kl}{r} = \frac{(1.0)(11.\times 12)}{2.13} = 61.97$ (O.K.)

- CHECK AVAILABLE STRENGTH FOR AXIAL -

$Kl^{(ft)}$ = 11F $P_{AXIAL\ ALLOWABLE}$ = 102^K (ASD) > P = 44.35^K @ 43% CAPACITY (O.K.)

COLUMN NO. 77 @ ROOF (O.K.).

- CHECK 3RD AND 4TH FLOOR -

REF CALC'S INDICATE @H31 (PER SEA)

F_y = 33 K/IN

K = 1.0

L_B = 13 FT

I = 109.7 IN^4, I_y = 37 IN^4

S = 27.4 IN^3 S_y = 9.24 IN^3

r_x = 3.47 IN r_y = 2.01 IN

A = 9.13 IN^2 d = 8"

b_f = 8"

t_w = 0.29"

t_f = .433 IN

157132

DATE: 9.19.12
Project Name: BISHOPS CORNER
Project No.: CT 1195
Design By: MSC Chk'd By: _____ Page ____ of ____

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- FLOOR LOADING AND TRIBUTARY ON COLUMN -

TRIB. AREA = $20' \times 30' = 600\ FT^2$

$P_{FLOOR} = 0.132(600) = 79.2^K$

$P_{ROOF} = 44.35^K$

$P_{TOTAL\ W/PROPOSED} = 123.55^K > P_{ORIGINAL} = 41.55^K + 79.2^K = 120.75^K$ % INCREASE @ (77)

$= 2\%$ (O.K.)

$F_{a\ ALLOW} = 14.64\ KSI$ (PER SEA)

$f_a = \frac{123.55^K}{9.13\ IN^2} = 13.53\ KSI < F_a \therefore$ (O.K.)

- COLUMN No. 77. (O.K.) -

- CHECK COL. 45 - (WORST CASE EQUIP. REACTION) -

NEW LOADING = $38.6^K + 8.04^K = 46.64^K$

% INCREASE = $\frac{46.64^K}{41.55^K} = 1.12$ $12\% > 5\%$ CHECK COLUMNS.

(HSS $5\frac{1}{2}" \times 5\frac{1}{2} \times \frac{1}{4}$)

$P_{ALLOW} = 102^K > 46.64^K$ (O.K.) @ ROOF

3RD + 4TH FLOOR

$P_{TOTAL\ PROPOSED} = 125.84^K$ $\%$ INCREASE $= 4\% < 5\%$ (O.K.)

$f_a = \frac{125.84^K}{9.13\ IN^2} = 13.78\ KSI < 14.64\ KSI$ (O.K.)

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GUY WIRE FORCES ON COLUMNS

DATE: 9.19.12
Project Name: BISHOPS CORNER
Project No.: CT1195
Design By: MSC Chk'd By: _____ Page ____ of ____

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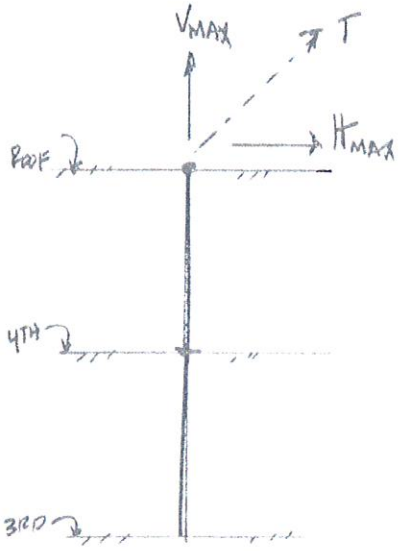
- CHECK GUY FORCES @ COL No 44, 47 AND 97 -
(REFERENCE NOTES IN SEA STRUCTURAL DESIGN AND REINFORCEMENTS)



$V_{MAX} = 11.28^{K}$

$H_{MAX} = 9.59^{K}$

ROOF DEAD LOAD = 11.5 PSF (MIN)

TRIBUTARY AREA = 600 SF

REACTION DOWN ↓ = 6.9^{K} ↓ (PER SEA)

COLUMN WT = 0.2^{K} ↓

TOTAL = 7.1^{K} ↓

4TH FLOOR DEAD LOAD = 62 PSF

TRIB AREA = 600 SF

REACTION ↓ = 37.2^{K} ↓

COLUMN WT = 0.2^{K} ↓

TOTAL = 37.4^{K}

$V_{MAX} = 11.28^{K} \times 2 = 22.56^{K}$ (FROM GUY)

↑ SAFETY FACTOR FOR ANCHORAGE

$V_{TOTAL\ DL} = 7.1^{K} \downarrow + 37.4^{K} \downarrow = 44.5^{K} > 22.56^{K}$ ∴ (O.K.)

- COLUMNS ARE O.K. TO RESIST GUY VERTICAL FORCES -

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SEISMIC CHECK

DATE: 9.19.12
Project Name: BISHOP'S CORNER
Project No.: CT1195
Design By: MSC Chk'd By: _____ Page ____ of ____

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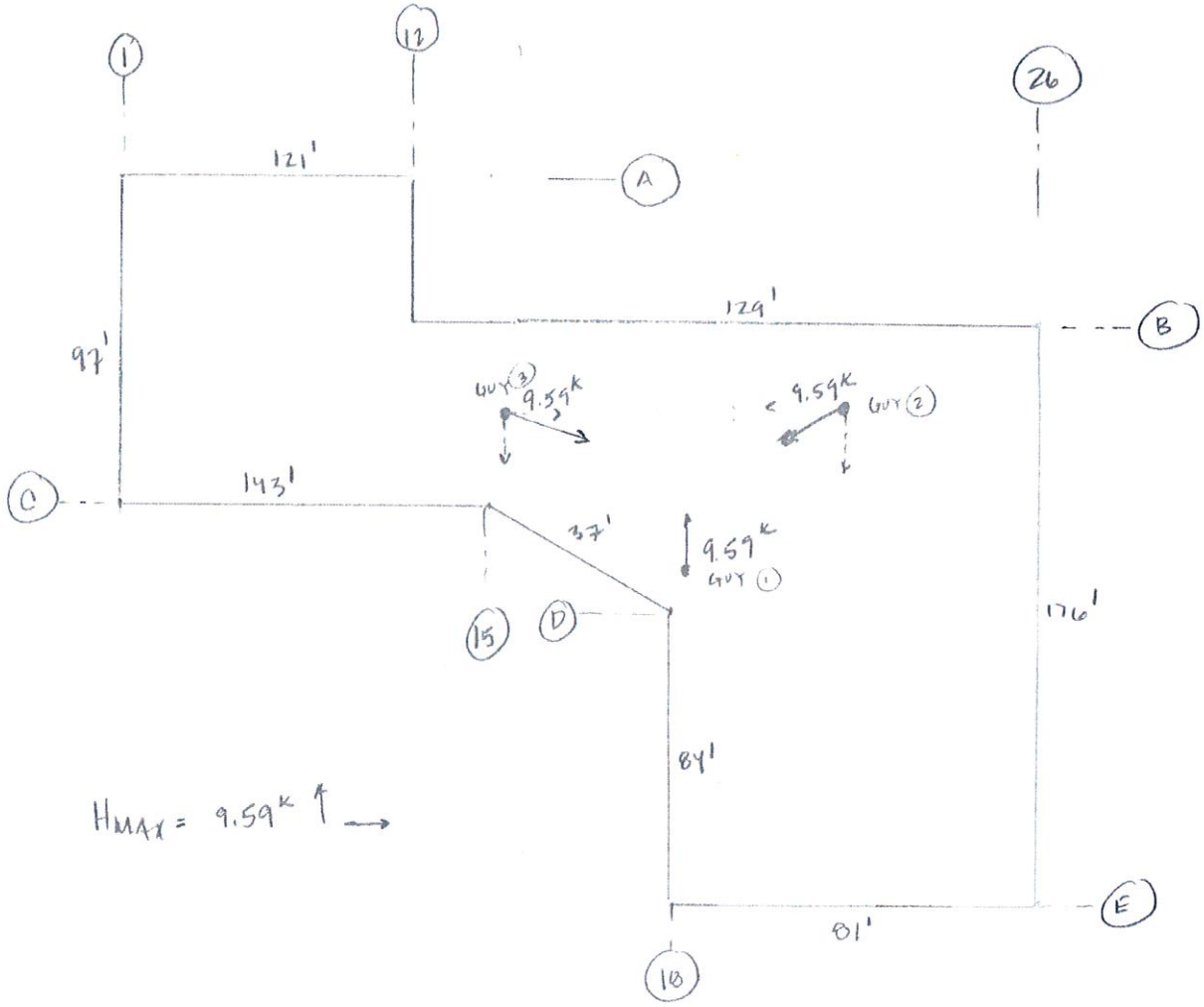
CHECK GUY LATERAL (HORIZONTAL) REACTIONS

- DIMENSIONS BASED ON SEA DESIGN CALCULATIONS -



PLAN VIEW OF BUILDING

157132

DATE: 9.19.12
Project Name: BISHOPS CORNER
Project No.: CT1195
Design By: MSC Chk'd By: _____ Page ____ of ____

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-- CONFIRM TOWER LOADING LESS THAN/= 5% SEISMIC INCREASE --

WEIGHT OF ADDITION (TOWER) = 3.98K

WT. OF STEEL FRAME AND EQUIPMENT = 24K +/- (CONSERVATIVE ON CAB. WEIGHT)

TOTAL = 28K

$V_{SEISMIC\ (PROPOSED)}$ = BASE SHEAR = 0.17 (28K) = 4.76K

EXISTING SEISMIC LOAD ON ROOF: 81.2K x .05 = 4.06K
(CONSIDERING ROOF DIAPHRAGM)

$V_{SEISMIC\ (PROPOSED)}$ = 4.76K > $V_{SEISMIC\ ORIGINAL}$ = 4.06K (ACCEPTABLE)

SEISMICALLY LOAD CURRENTLY STANDS AT AN ACCEPTABLE 5%. HOWEVER IF ANY MORE ADDITIONAL WEIGHT GETS ADDED TO THE TOWER OR THE SUPPORTING PLATFORM, A FULL SEISMIC ANALYSIS OF THE ENTIRE BUILDING STRUCTURE WILL BE REQUIRED, AND FURTHER DESIGN AND MODIFICATION WILL BE REQUIRED.

157132

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REFERENCE DRAWINGS

SEA Consultants Inc.
Engineers/Architects

185 Massachusetts Avenue
Cambridge, MA 02139-4018
(617) 497-7800
FAX (617) 497-7709
Email cambridge@seacon.com

750 Old Main Street
Suite 100
Rocky Hill, CT 06067-1567
(860) 563-7775
FAX (860) 563-6744

1983 Empire Boulevard
Building 2
Webster, NY 14580-1956
(716) 787-2620
FAX (716) 787-1951

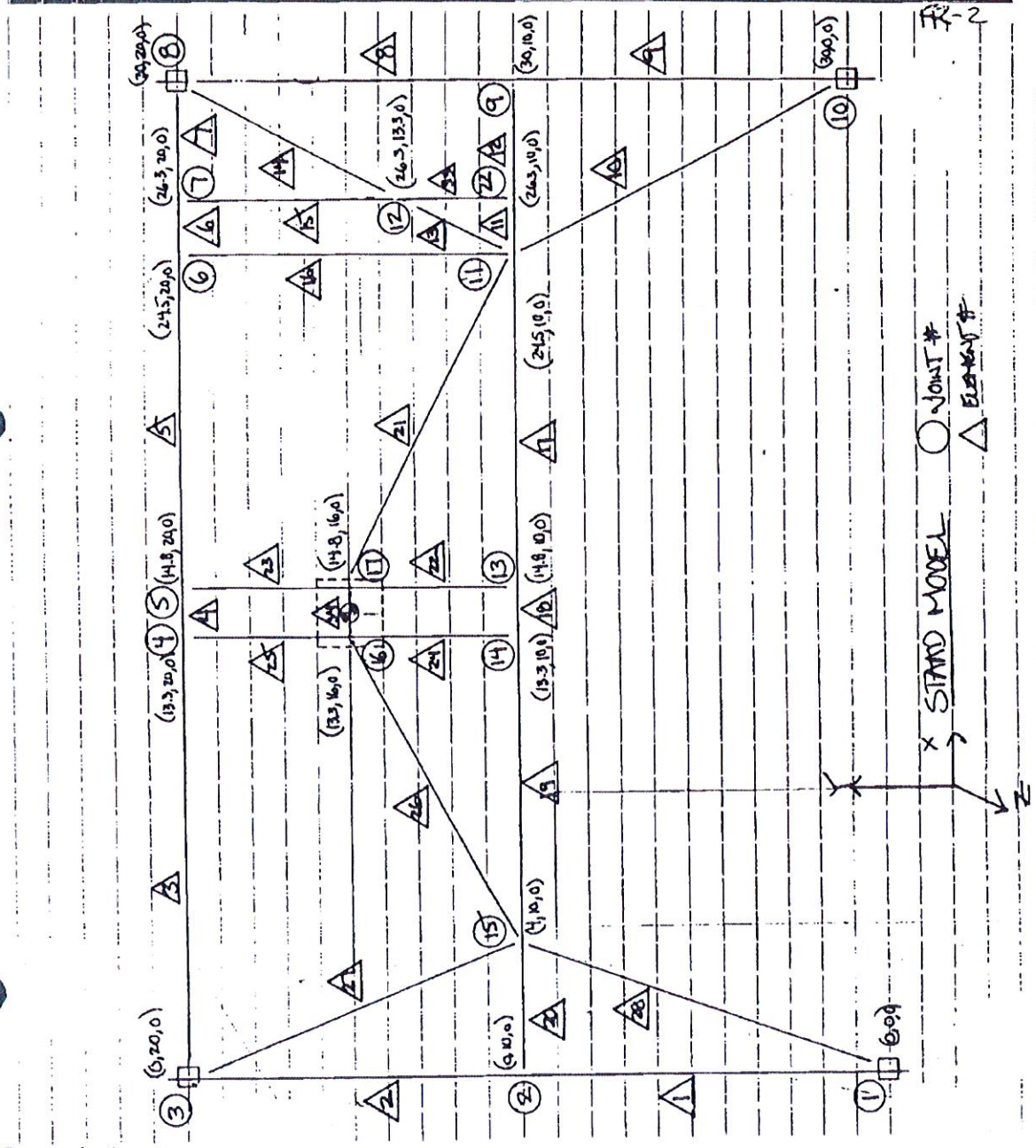
7 Hills Avenue
Concord, NH 03301-4804
(603) 225-0007
FAX (603) 225-0093

Client SPRINT/BELLSOUTH
Project SITE 074 - BISONS CORNER
Detail STAND MODEL

Job No. 9718.01
Comptd. By JAM
Ck'd By

Page 32
Date 5/6/97
Date

FR-2



SEA Consultants Inc.
Engineers/Architects

485 Massachusetts Avenue
Cambridge, MA 02139-4018
(617) 497-7800
FAX (617) 497-7709
Email cambridge@seacon.com

750 Old Main Street
Suite 100
Rocky Hill, CT 06067-1567
(860) 563-7775
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1983 Empire Boulevard
Building 2
Webster, NY 14580-1956
(716) 787-2620
FAX (716) 787-1951

7 Hills Avenue
Concord, NH 03301-4804
(603) 225-0007
FAX (603) 225-0099

Client SIMUNT / BASETHEL
Project SITE 074 - BISHOPS CORNER
Detail FRAMING

Job No. 97181.01
Comptd. By JRM
Ck'd By

Page 33
Date 5/13/97
Date

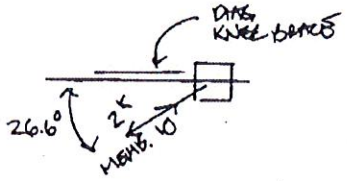
FR-3

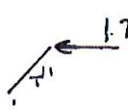
KNEE BRACES

THE SPACE FRAME MODEL IN STAAD III FILE "SITE074.STD" WAS NOT MODELLED WITH DIAGONAL KNEE BRACES TO SIMPLIFY THE MODEL SHOWN ON "FR-2". THEREFORE, THE KNEE BRACES WILL BE DESIGNED BY HAND.

CONSIDER "STAAD" MEMBER END REACTIONS FROM 10, 14, 27 & 28 (FOR THE BRACES):

MEMB. NO	MAX AXIAL LOAD (K)
10	1.82
14	1.42
27	1.02
28	1.44





BRACE LOAD (TOC) = $2 \cos 26.6^\circ = 1.788^K$ HORIZ
= 2.53^K

USE L3X3X3/16 @ 1'-0" PITCH BY INSPECTION!
(SEE FR-5 FOR DETAILS)

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Engineers/Architects

485 Massachusetts Avenue
Cambridge, MA 02139-4018
(617) 497-7800
FAX (617) 497-7709
Email cambridge@seacon.com

750 Old Main Street
Suite 100
Rocky Hill, CT 06067-1567
(860) 563-7775
FAX (860) 563-6744

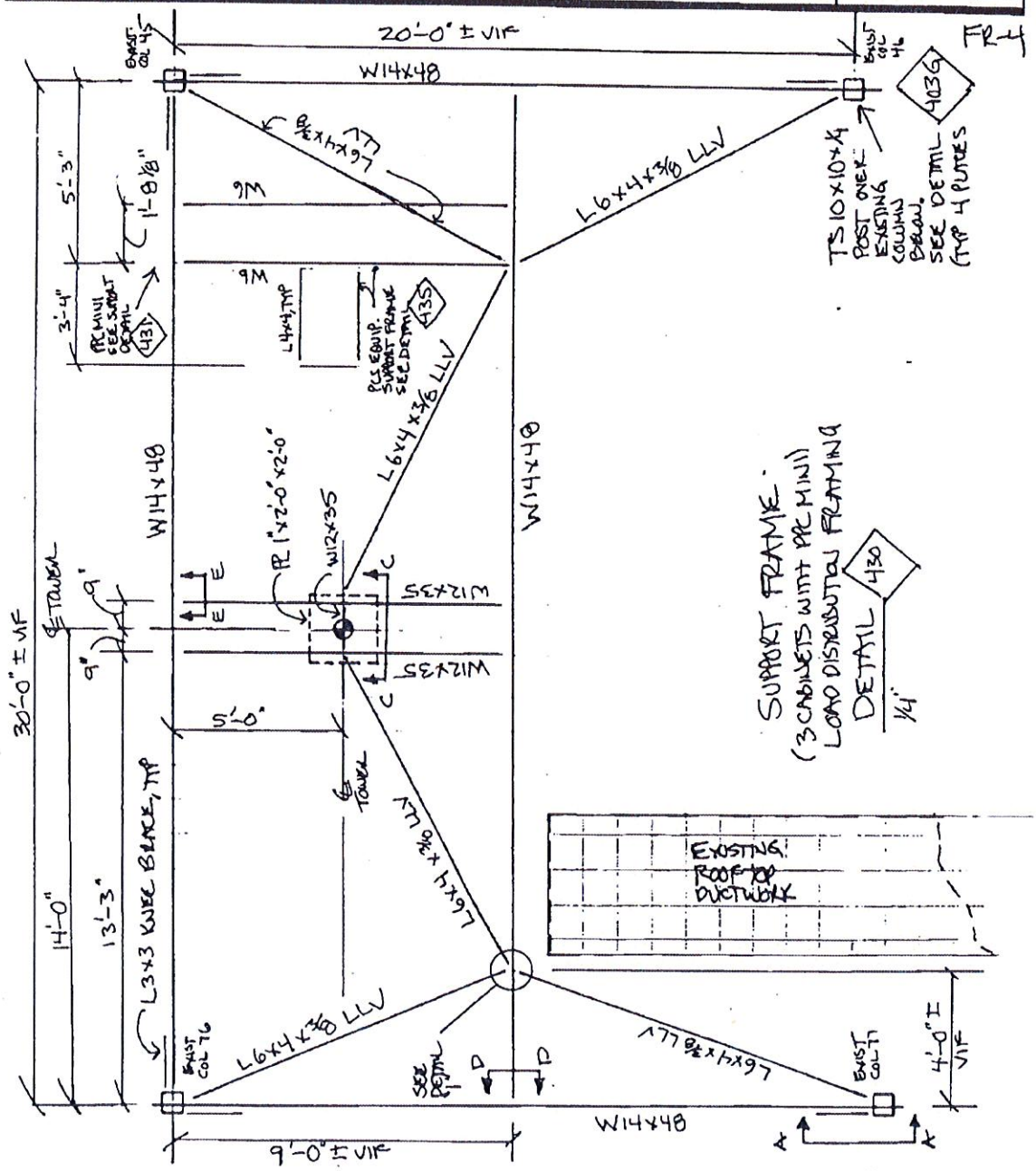
1983 Empire Boulevard
Building 2
Webster, NY 14580-1956
(716) 787-2620
FAX (716) 787-1951

7 Hills Avenue
Concord, NH 03301-4804
(603) 225-0007
FAX (603) 225-0099

Client SPRINT/BECHTEL
Project SITE 074 - BISHOPS CORNER
Detail ROOF FRAMING PLAN

Job No.
Compld. By JPM
Ck'd By

Page 34
Date 5/17/97
Date



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Engineers/Architects

485 Massachusetts Avenue
Cambridge, MA 02139-4018
(617) 497-7800
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750 Old Main Street
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1983 Empire Boulevard
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Webster, NY 14580-1956
(716) 787-2620
FAX (716) 787-1951

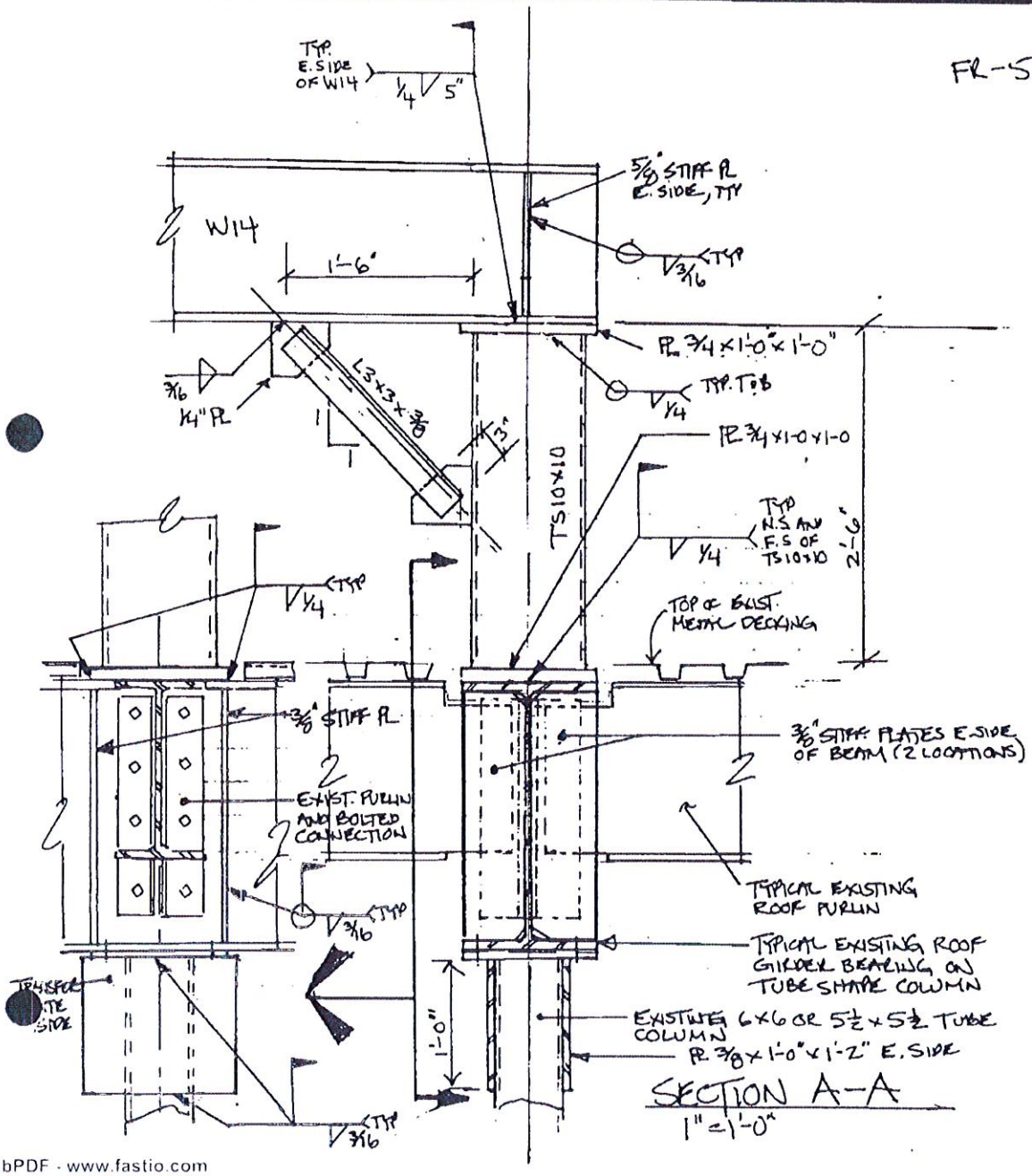
7 Hills Avenue
Concord, NH 03301-4804
(603) 225-0007
FAX (603) 225-0099

Client SPRINT / BRENNAN
Project SITE 074 - BISTEY'S CORNER
Detail ROOF POST DETAIL

Job No.
Comptd. By JFM
Ck'd By

Page 3/5
Date 5/7/97
Date

FR-5



SECTION A-A
1" = 1'-0"

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Engineers/Architects

485 Massachusetts Avenue
Cambridge, MA 02139-4018
(617) 497-7800
FAX (617) 497-7709
Email cambridge@seacon.com

750 Old Main Street
Suite 100
Rocky Hill, CT 06067-1567
(860) 563-7775
FAX (860) 563-6744

1963 Empire Boulevard
Building 2
Webster, NY 14580-1956
(716) 787-2620
FAX (716) 787-1951

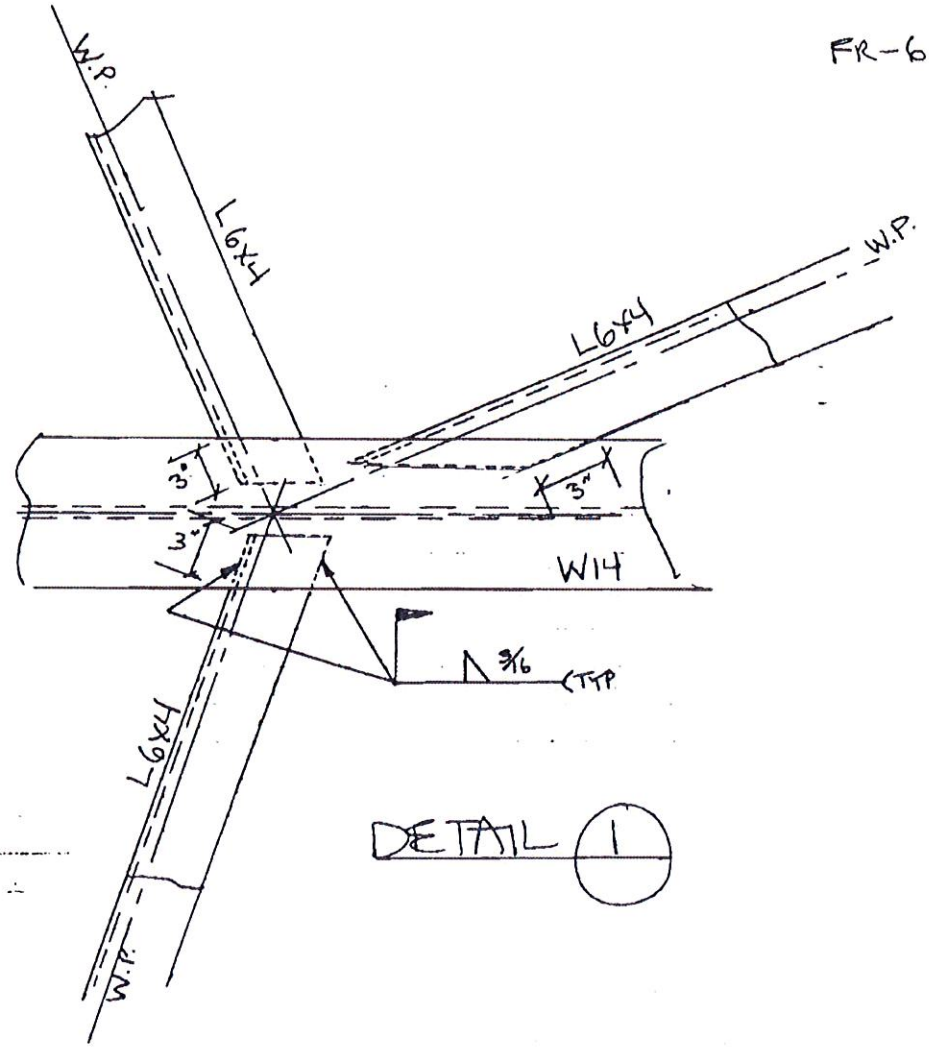
7 Hills Avenue
Concord, NH 03301-4804
(603) 225-0007
FAX (603) 225-0099

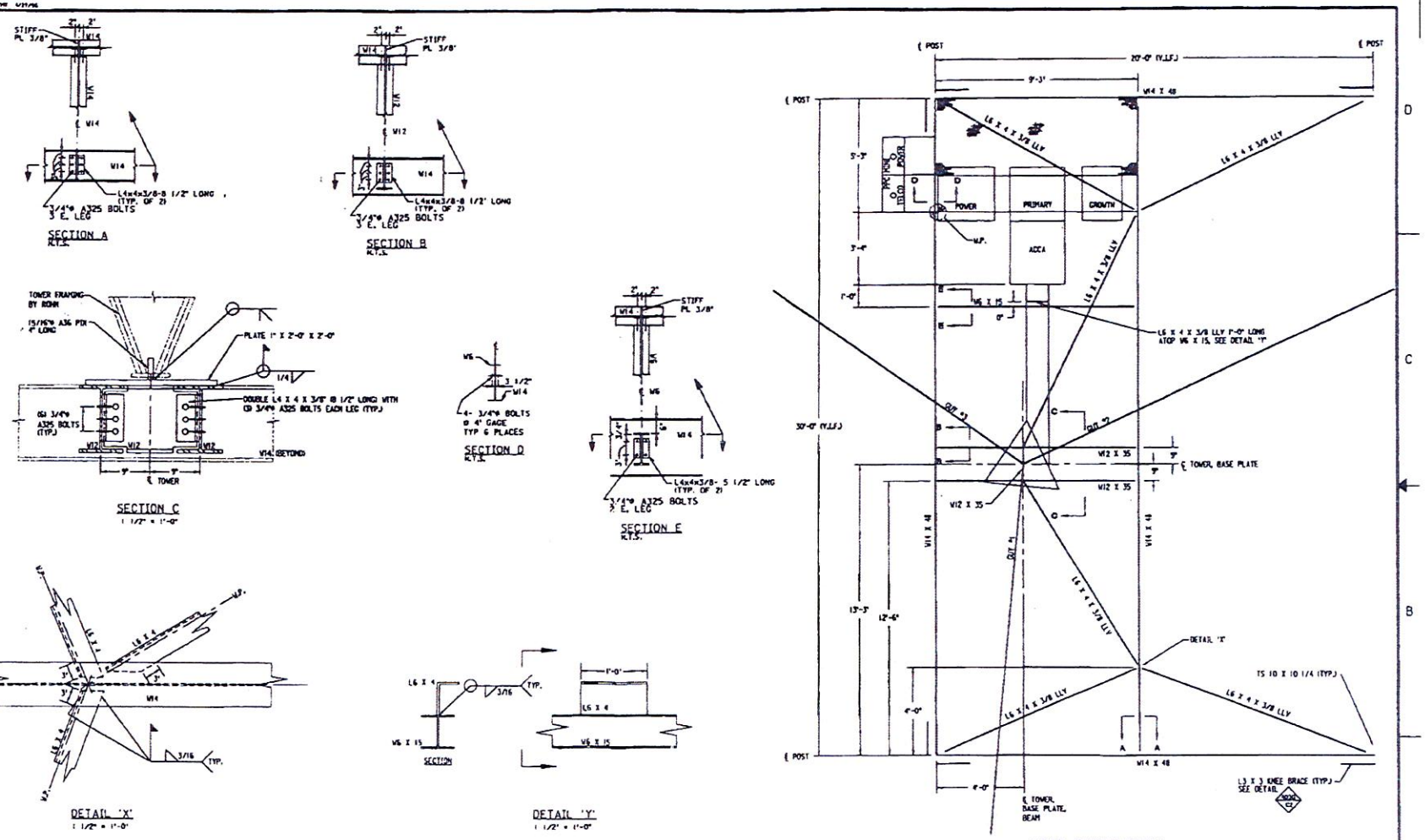
Client SPRINT / BECHTEL
Project SITE 074 - BISTRO'S CANYON
Detail EDGE BRACING DETAIL

Job No.
Comptd. By JRM
Ck'd By

Page 36
Date 5/7/97
Date

FR-6





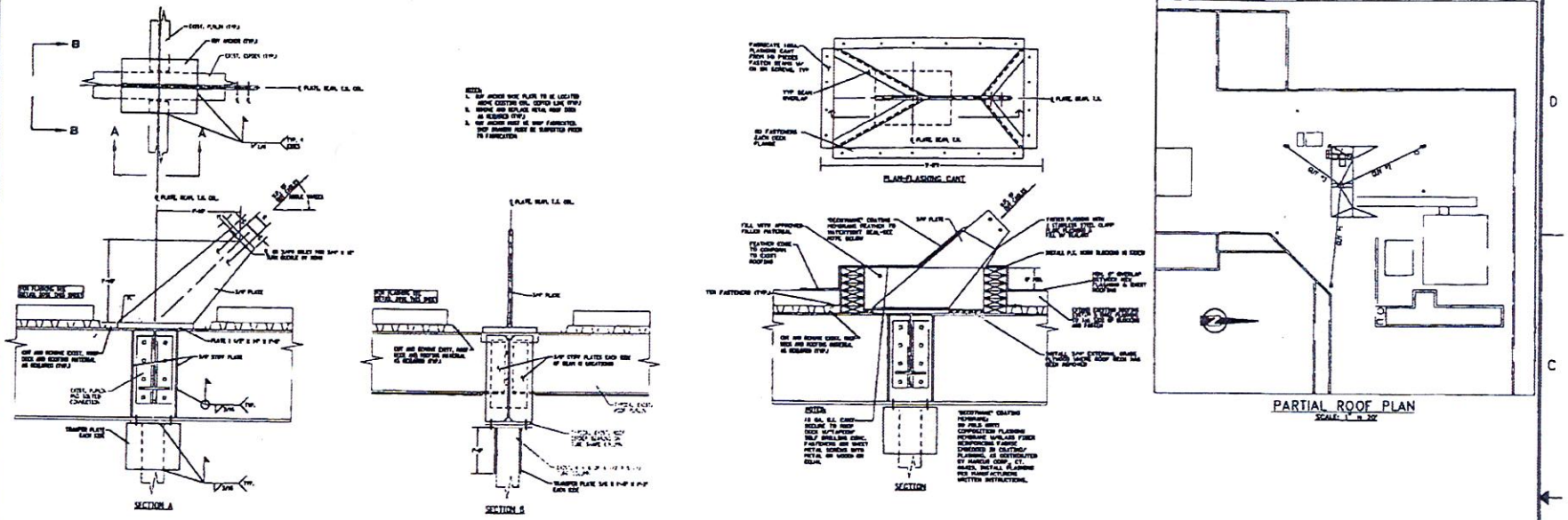
SEA Consultants Inc.
Engineers/Architects
CAMBRIDGE, MASSACHUSETTS ROCKY HILL, CONNECTICUT
CONCORD, NEW HAMPSHIRE ROCHESTER, NEW YORK

BISHOP'S CORNER
2523 ALBANY AVENUE
WEST HARTFORD, CT 06117

Sprint PCS
HARTFORD MTA
SITE NO. CT03XC074A

LUCENT TECHNOLOGIES/BECHTEL ALLIANCE
SSLP PROJECT
BISHOP'S CORNER
DETAILS

JOB NO.	DRAWING NUMBER	REV
23224	YH407404	0

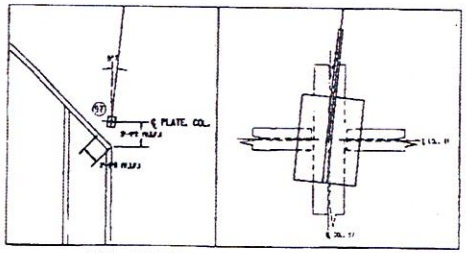


TYPICAL GUY ANCHOR DETAIL

DETAIL 1" = 1'-0" 903E C1

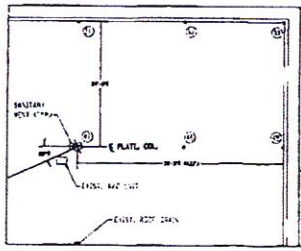
TYPICAL GUY ANCHOR FLASHING

DETAIL 1" = 1'-0" 209E C5

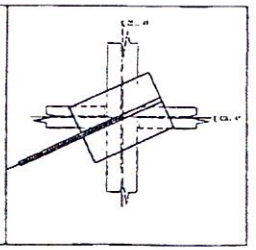


GUY ANCHOR #1 SCALE: 1/8" = 1'

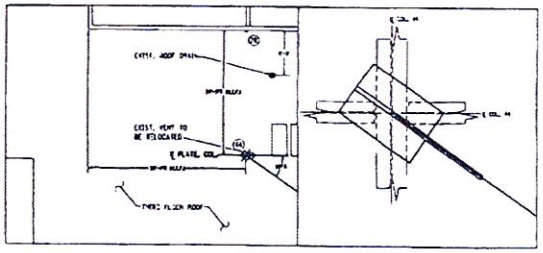
GUY ANCHOR #1 SCALE: 1" = 1'



GUY ANCHOR #2 SCALE: 1/8" = 1'



GUY ANCHOR #2 SCALE: 1" = 1'



GUY ANCHOR #3 SCALE: 1/8" = 1'

GUY ANCHOR #3 SCALE: 1" = 1'

SEA Consultants Inc.
Engineers/Architects
CAMBRIDGE, MASSACHUSETTS RUCKY HILL, CONNECTICUT
CONCORD, NEW HAMPSHIRE ROCHESTER, NEW YORK

BISHOP'S CORNER
2523 ALBANY AVENUE
WEST HARTFORD, CT 06117

Sprint PCS
HARTFORD MTA
SITE NO. CT03XC074A

	5/9/97	ISSUED FOR CONSTRUCTION	STC	DMP

LUCENT TECHNOLOGIES/BECHTEL ALLIANCE
SSLP PROJECT

BISHOP'S CORNER
GUY ANCHOR DETAILS

JOB NO.	DRAWING NUMBER	REV
23224	YNA074C5	0

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE ADDRESS:	287 MAIN STREET EAST HARTFORD, CT 06118
LATITUDE:	41.74238 N 41° 44' 32.5674" N
LONGITUDE:	72.63367 W 72° 38' 1.2114" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
MAP/LOT:	20/21A
ZONING:	B-1
LAND USE:	COMMERCIAL LAND
PROPERTY OWNER:	SOUTH GRAMMAR OFFICE COMPLEX LLC 34 CONNECTICUT BLVD. EAST HARTFORD, CT 06108

at&t

SITE NUMBER: CT1146
SITE NAME: EAST HARTFORD

DRAWING INDEX

VICINITY MAP

DIRECTION TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD 0.3 MI. TURN LEFT ONTO CAPITAL BLVD 0.3 MI. TURN LEFT ONTO WEST ST 0.2 MI. TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD 4.5 MI. TAKE EXIT 25 TO MERGE ONTO CT-3 N TOWARD GLASTONBURY 2.3 MI. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR CT-2 W/E HARTFORD AND MERGE ONTO CT-2 W 1.8 MI. TAKE EXIT 5A TO MERGE ONTO MAIN ST 0.3 MI. TURN LEFT ONTO W BREWER ST. 281 MAIN STREET WILL BE ON THE LEFT.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

   THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

   CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL

BEFORE YOU DIG

CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

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1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT1146
SITE NAME: EAST HARTFORD
287 MAIN STREET
EAST HARTFORD, CT 06118
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/11/12	ISSUED FOR CONSTRUCTION	SF	DC	DPH
0	03/20/12	ISSUED FOR REVIEW	SF	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: SF

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE)

JOB NUMBER	DRAWING NUMBER	REV
1146.01	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER

ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – NEXLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE		
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED	TYP	TYPICAL

Hudson Design Groupuc
1600 OSGOOD STREET
BUILDING 20-NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT1146
SITE NAME: EAST HARTFORD
287 MAIN STREET
EAST HARTFORD, CT 06118
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/11/12	ISSUED FOR CONSTRUCTION	SF	DC	DPH
0	03/20/12	ISSUED FOR REVIEW	SF	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: SF

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1136.01	GN-1	1

NOTE:

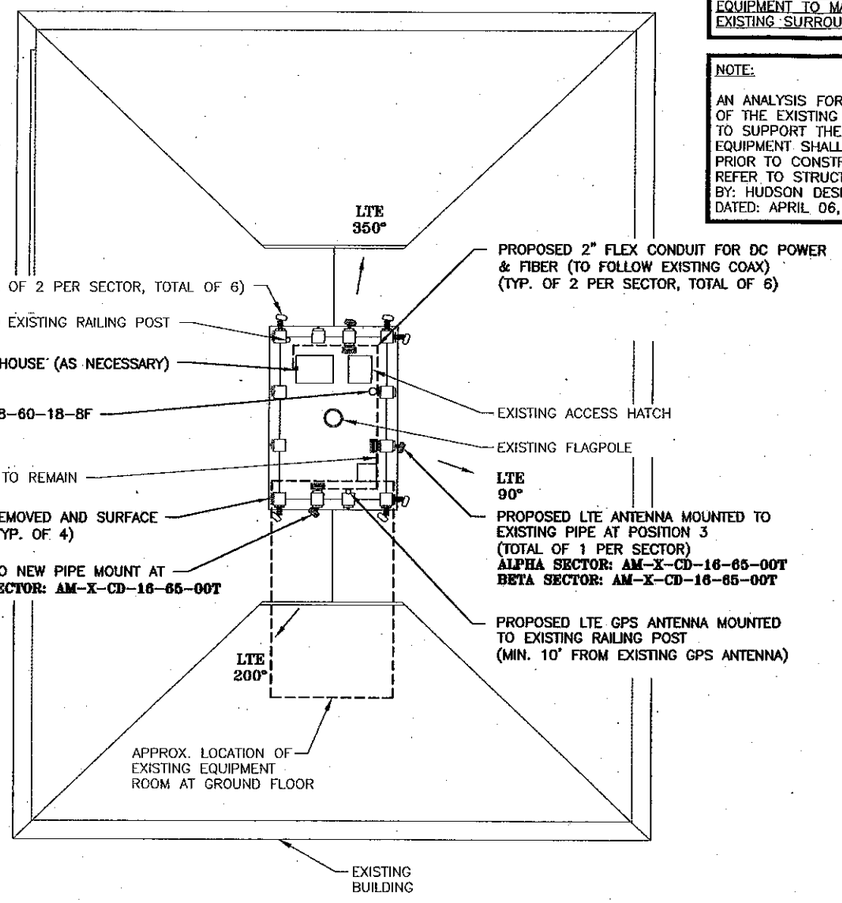
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.

NOTE:

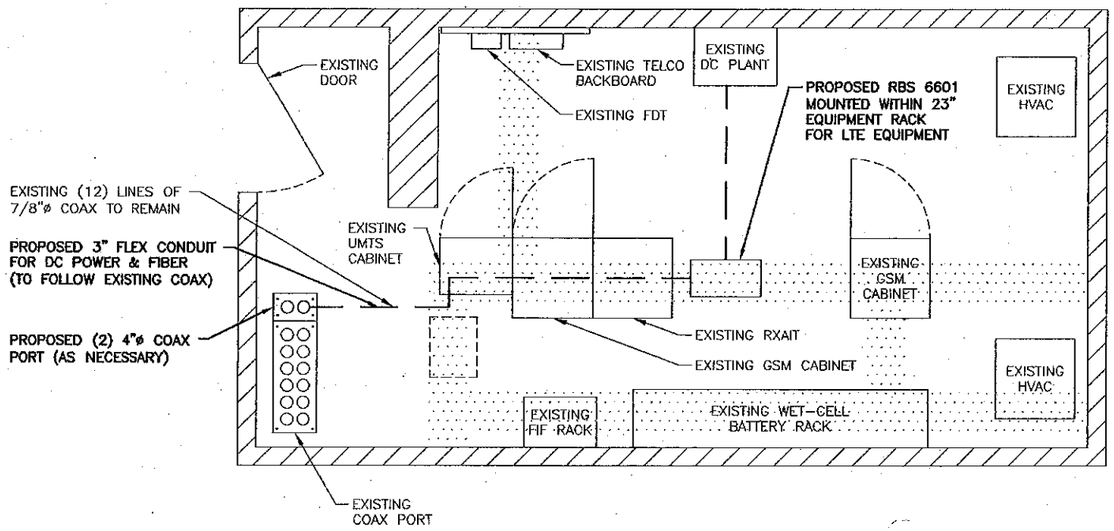
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION. REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP LLC, DATED: APRIL 06, 2012.



ROOF PLAN

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"



EQUIPMENT PLAN

SCALE: 1/2"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: SF

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

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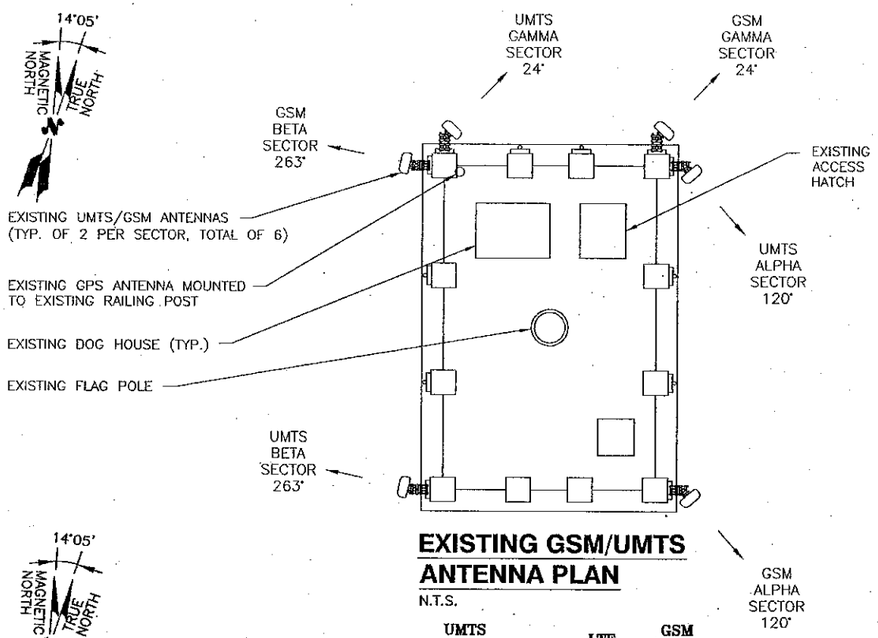
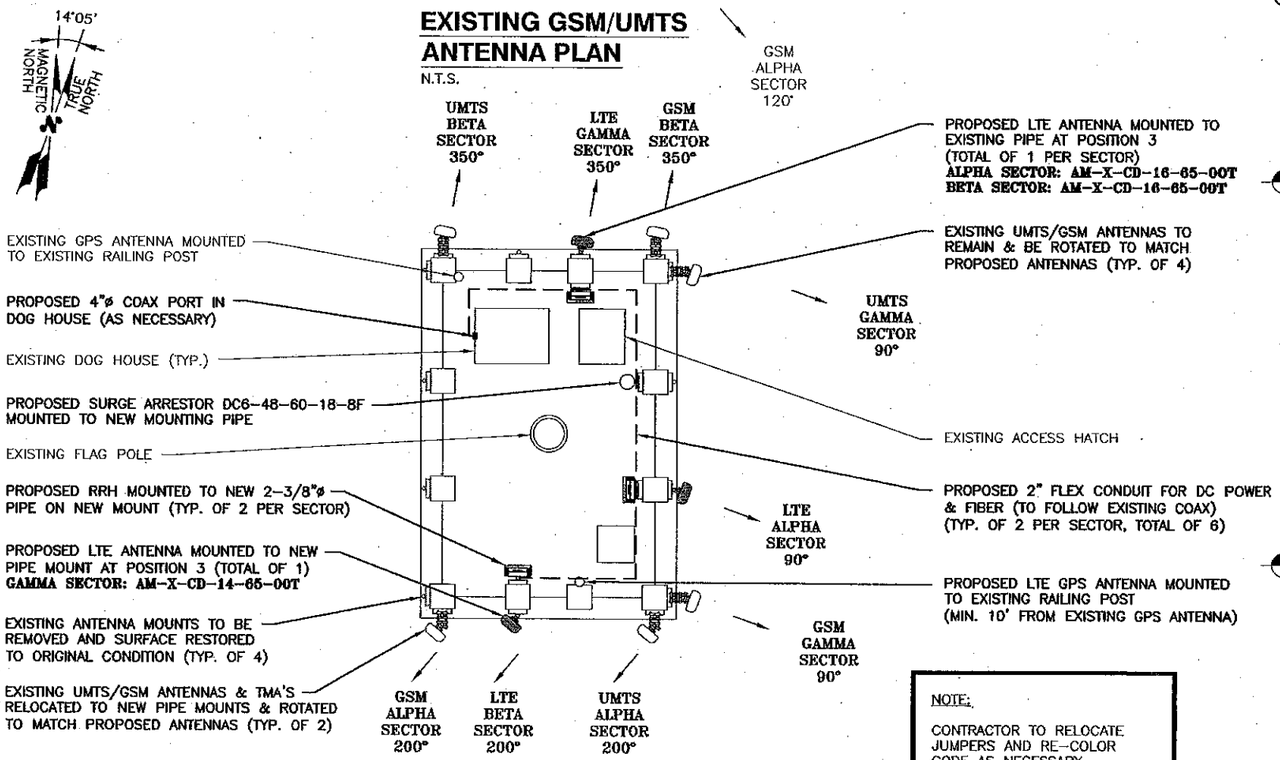
ROOF & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1146.01	A-1	1



EXISTING GSM/UMTS ANTENNA PLAN

N.T.S.



PROPOSED LTE ANTENNA PLAN

N.T.S.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.

NOTE:

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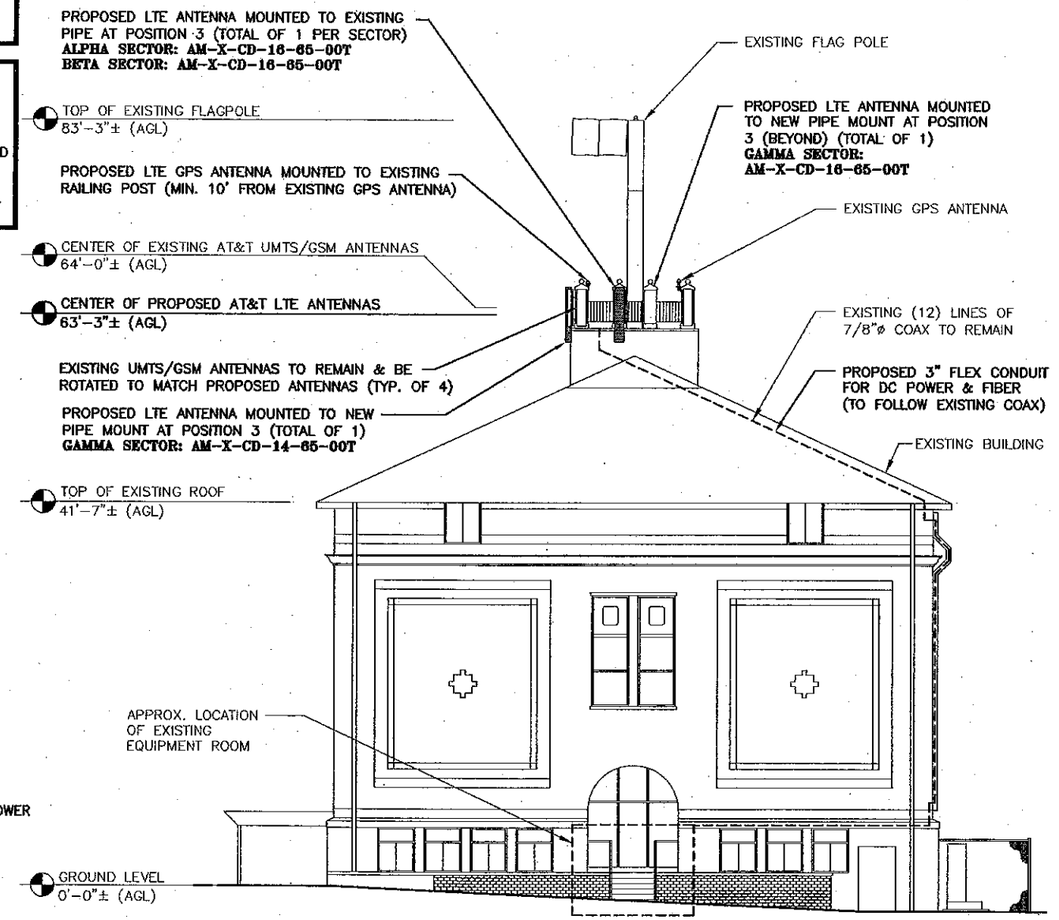
NOTE:

CONTRACTOR TO RELOCATE JUMPERS AND RE-COLOR CODE AS NECESSARY.



NORTH ELEVATION

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

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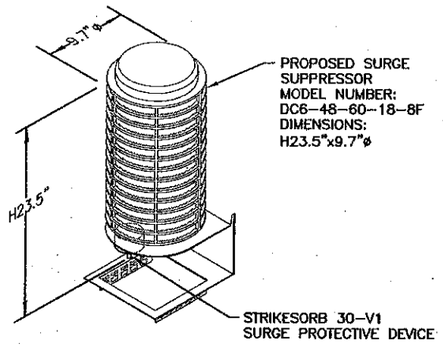
STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24176
LICENSED PROFESSIONAL ENGINEER

AT&T

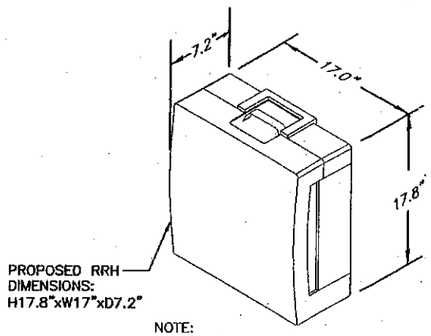
ELEVATION & ANTENNA PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1146.01	A-2	1



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL
SCALE: N.T.S.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRH DETAIL
SCALE: N.T.S.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

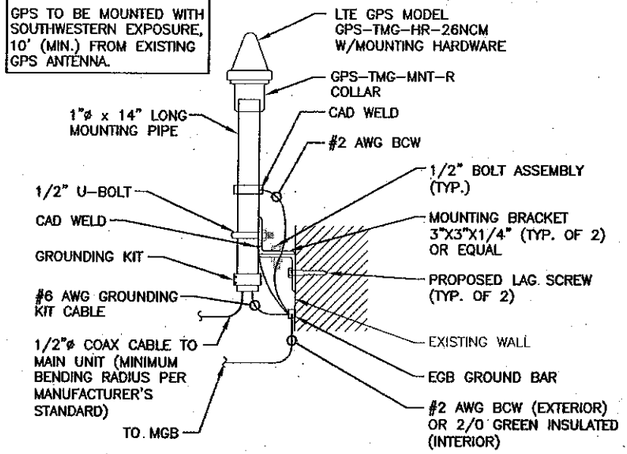
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS.

NOTE:

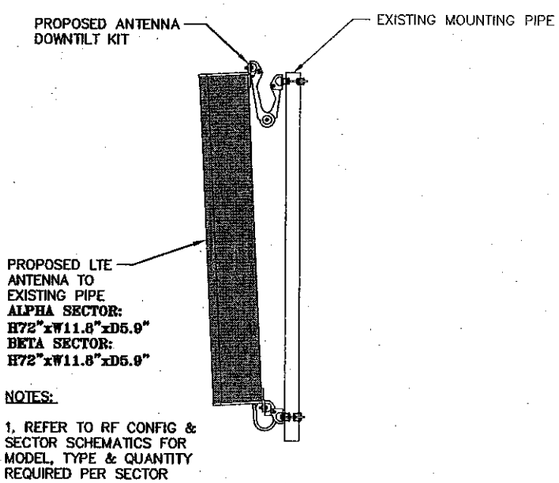
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION. REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP LLC, DATED: APRIL 06, 2012.

NOTE:

GPS TO BE MOUNTED WITH SOUTHWESTERN EXPOSURE, 10' (MIN.) FROM EXISTING GPS ANTENNA.



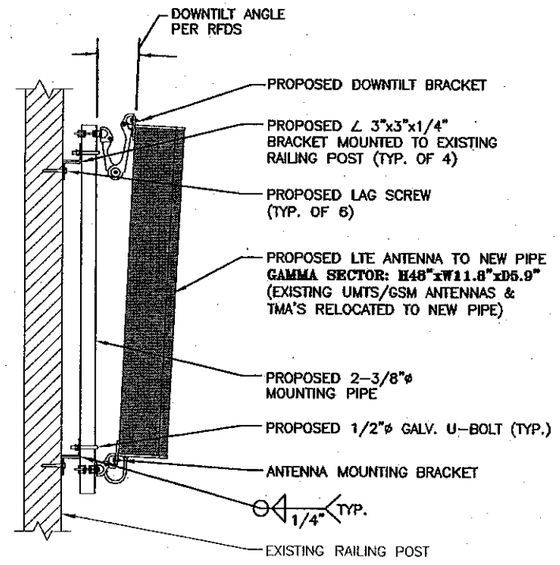
GPS MOUNTING DETAIL
SCALE: N.T.S.



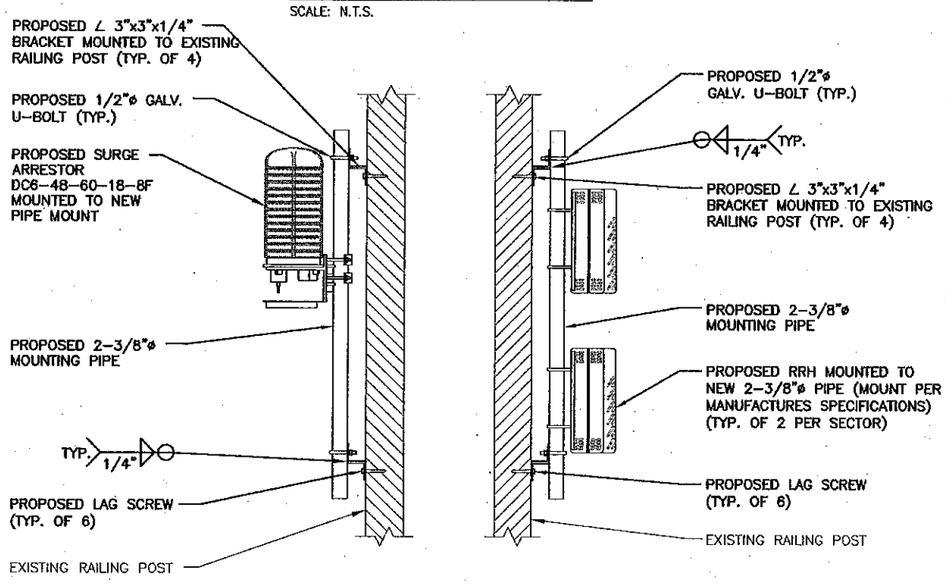
NOTES:

1. REFER TO RF CONFIG & SECTOR SCHEMATICS FOR MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA & BETA SECTOR)
SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (GAMMA SECTOR)
SCALE: N.T.S.



PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL
SCALE: N.T.S.

Hudson Design Groupllc
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT1146
SITE NAME: EAST HARTFORD
287 MAIN STREET
EAST HARTFORD, CT 06118
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/11/12	ISSUED FOR CONSTRUCTION	SF	DC	DPH
0	03/20/12	ISSUED FOR REVIEW	SF	DC	DPH

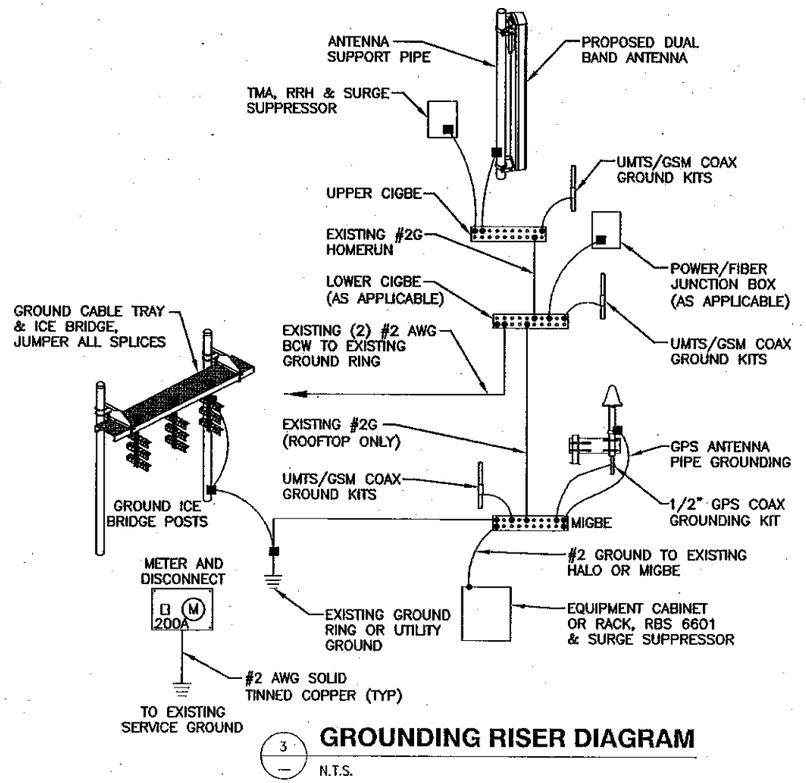
SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: SF

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24176 · LICENSED PROFESSIONAL ENGINEER

AT&T

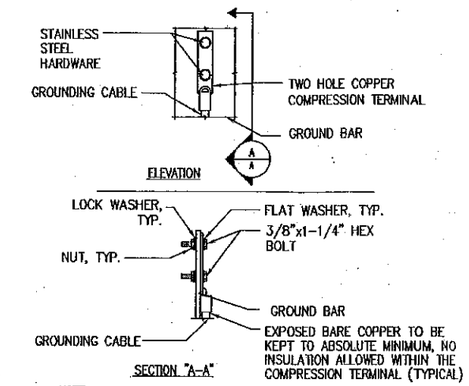
DETAILS (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1146.01	A-3	1



3 GROUNDING RISER DIAGRAM

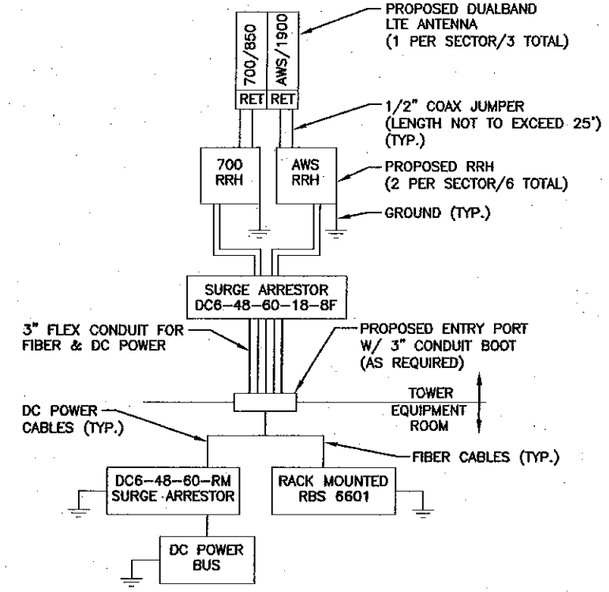
N.T.S.



NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

1 TYPICAL GROUND BAR CONNECTION DETAIL

N.T.S.



NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

2 PLUMBING DIAGRAM

N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

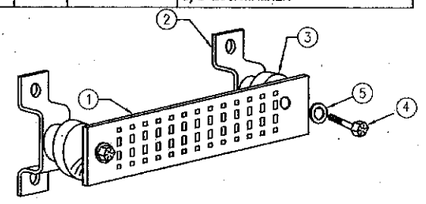
SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
–48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
2	2	———	WALL MTG. BRKT.
3	2	———	INSULATORS
4	4	———	5/8"-11x1" H.H.C.S.
5	4	———	5/8 LOCKWASHER



4 GROUND BAR - DETAIL

N.T.S.

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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: SF

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24175 · LICENSED PROFESSIONAL ENGINEER

AT&T

PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1186.01	G-1	1