

February 28, 2014.

**VIA OVERNIGHT DELIVERY**

Ms. Melanie Bachman  
Executive Director  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, Connecticut 06051



Re: Petition No. 973  
North Atlantic Towers, LLC and New Cingular Wireless PCS, LLC ("AT&T")  
Development and Management Plan Revision  
880 Andrew Mountain Road, Naugatuck, Connecticut

Dear Ms. Bachman:

On behalf New Cingular Wireless PCS LLC ("AT&T"), please accept for review and Council approval this *revised* Development and Management Plan ("D&M Plan") filing for AT&T's facility as approved in Petition No. 973. This submission includes a revision to the D&M approved on September 5, 2013 and includes an update to AT&T's equipment for the provision of LTE (Long Term Evolution) services.

Antennas & Other Equipment

Enclosed are fifteen (15) sets of 11"x 17" sized and two (2) sets of full sized revised construction drawings being filed in accordance with the Siting Council's ("Council") Decision and Order dated April 28, 2011.

The revised D&M Plan drawings incorporate revised specifications for AT&T's upgraded facility. The revisions include the addition of Remote Radiohead Units ("RRUs") for a total of twenty-seven (27). As shown in the enclosed drawings, the RRUs will be installed behind AT&T's twelve panel antennas on the antenna platform mount at a centerline height of approximately 116' AGL on the existing 120' tall tower. The model number of AT&T's twelve panel antennas is also updated, however, the panel antenna dimensions will not change.

Also enclosed is a structural analysis prepared by Michael F. Plahovinsak, P.E. dated February 3, 2014 which confirms that the tower facility can structurally accommodate AT&T's upgraded facility as well as Verizon's existing collocated facility.

The revisions to AT&T's facility will not change the results of the cumulative power density report submitted with the revised D&M approved on September 5, 2013. For your convenience, enclosed is a copy of the cumulative power density report dated August 29, 2013, which

# Structural Analysis 120-ft Monopole

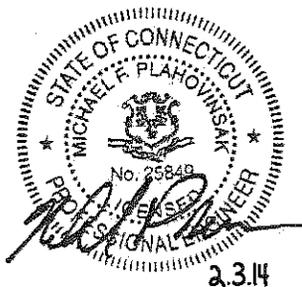
Prepared For:  
Florida Tower Partners, LLC  
1001 3<sup>rd</sup> Ave. West, Suite 420  
Bradenton, FL 34205

MFP Project #40913-011 r2

Site Location:  
CT1126 Naugatuck  
New Haven Co., Connecticut  
Lat/Long: 41°29'4", -73°5'23"

Analysis Type:  
ANSI/TIA-222-G

February 3, 2014



Michael F. Plahovinsak, P.E.  
18301 State Route 161 W, Plain City, OH 43064  
614-398-6250 - mike@mfpeng.com

**Project Summary:**

I have completed a structural analysis of the existing monopole for the following new configuration:

- 116' - AT&T:
  - (12) CCI HPA-65R-BUU-H8 Panel
  - (9) RRUS-11 + (9) RRUS-12 + (6) RRUS-A2 + (3) RRUS-32
  - (4) Raycap DC6-48-60-18-F Suppressor
  - (8) 5/8" + (2) 3/8" + (3) 1/2"

The pole has been analyzed in accordance with the requirements of the International Building Code per IBC section 3108.4, and the recommendations of the Telecommunications Industry Association "Structural Standard for Steel Antenna Supporting Structures" ANSI/TIA-222-G.

This analysis may be considered a "Rigorous Structural Analysis" as defined in ANSI/TIA-222-G 15.5.2.

As indicated in the conclusions of this analysis, I have determined that the existing pole and foundation have *sufficient capacity* to support the existing, reserved and proposed antenna loads as detailed herein. Based on the results of my analysis, structural modifications are not required at this time.

**Source of Data:**

Resource	Source	Job Number	Date
Pole and Foundation Drawings	Davinci Engineering	11235-1298	06/14/11
Geotechnical Report	Terracon	J2115128	05/10/11
Previous Analysis	Morrison Hershfield	6130036	05/07/13

**Structure Specifics:**

- Manufacturer: TransAmerican Power Products
- Manufacturer File #: TP-9711

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

**Analysis Criteria:**

International Building Code (All Versions) Section 3108.4  
Structural Standards for Steel Antenna Supporting Structures ANSI/TIA-222-G 2

- Basic Wind Speed 100 mph (3-Sec Gust)
- Basic Wind Speed w/ 3/4" Ice 50 mph (3-Sec Gust)
- Operational Wind Speed 60 mph (3-Sec Gust)

Structure Class	Exposure Category	Topographic Category
II (I = 1.0)	C	I

**Appurtenance Listing:**

Status	Elev.	Antenna / Mounting	Coax	Owner
<i>Proposed</i>	116'	<i>(12) HPA-65R-BUU-H8 Panel (9) RRUS-11 + (9) RRUS-12 + (6) RRUS-A2 (3) RRUS-32 + (4) DC6-48-60-18-8F Supressor Platform with Handrail</i>	<i>(8) 5/8" + (2) 3/8" + (3) 1/2"</i>	<i>AT&amp;T</i>
Existing	106'	(6) Antel BXA-70063/6CF + (6) BXA-171063/12CF (6) Lucent RRH 2x40 & (1) Distribution Box Low Profile Platform	(18) 1 5/8" + (2) 1 5/8" fiber	Verizon

All antenna lines assumed internally mounted, not exposed to the wind.

**Foundation Analysis:**

The existing monopole foundation design was analyzed in conjunction with site specific geotechnical report. The existing foundation has sufficient capacity to support the pole with the proposed antenna configuration.

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

**Conclusion:**

I have completed a structural analysis of the existing monopole and foundation in accordance with the project specifics outlined above. My analysis indicates that the existing monopole and foundation is stressed to a maximum of 82.6% (Pole Shaft) of its usable capacity when considering the existing plus proposed loading. Please refer to the attached calculations for an itemized listing of all member stress ratios. The existing pole is safe and adequate to support the proposed loads, and no structural reinforcing is required to support the above loading.

If you have any questions about the contents of this structural report or require any additional information, please feel free to contact my office.

Sincerely,

**Michael F. Plahovinsak, P.E.**



[mike@mfpeng.com](mailto:mike@mfpeng.com) - 614.398-6250

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

**Standard Conditions for Providing Structural Consulting  
Services on Existing Structures**

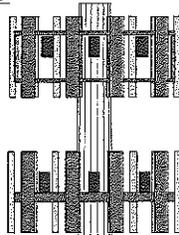
1. The following standard conditions are a general overview of key issues regarding the work product supplied.
2. If the existing conditions are not as represented in this structural report or attached sketches, I should be contacted to evaluate the significance of the deviation and revise the structural assessment accordingly.
3. The structural analysis has been performed assuming that the structure is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, etc. If there are any known deficiencies in the structure that potentially compromise structural integrity, I should be made aware of the deficiencies. If I am aware of a deficiency that exists in a structure at the time of my analysis, a general explanation of the structural concern due to the deficiency will be included in the structural report, but the deficiency will not be reflected in capacity calculations.
4. The structural analysis provided is an assessment of the primary load carrying capacity of the structure. I provide a limited scope of service in that I have not verified the capacity of every weld, plate, connection detail, etc. In most cases, structural fabrication details are unknown at the time of my analysis, and the detailed field measurement of this information is beyond the scope of my services. In instances where I have not performed connection capacity calculations, it is assumed that existing manufactured connections develop the full capacity of the primary members being connected.
5. The structural integrity of the existing foundation system can only be verified if exact foundation sizes and soils conditions are known. I will not accept any responsibility for the adequacy of the existing foundations unless this site-specific data is supplied.
6. Miscellaneous items such as antenna mounts, coax supports, etc. have not been designed, detailed, or specified as part of my work. It is assumed that material of adequate size and strength will be purchased from a reputable component manufacturer. The attached report and sketches are schematic in nature and should not be used to fabricate or purchase hardware and accessories to be attached to the structure. I recommend field measurement of the structure before fabricating or purchasing new hardware and accessories. I am not responsible for proper fit and clearance of hardware and accessory items in the field.
7. The structural analysis has been performed considering minimum code requirements or recommendations. If alternate wind, ice, or deflection criteria are to be considered, then I shall be made aware of the alternate criteria.

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

Section	1	2	3	17.1
Length (ft)	46.00	43.00	42.25	17.1
Number of Sides	18	18	18	18
Thickness (in)	0.2188	0.3125	0.3125	0.3125
Socket Length (ft)	5.50	6.75	46.1387	46.1387
Top Dia (in)	27.4700	37.4392	48.5000	48.5000
Bot Dia (in)	39.2900	48.5000	57.0000	57.0000
Grade		A572-65		
Weight (K)	3.6	6.2	7.3	17.1

120.0 ft



74.0 ft

36.5 ft

1.0 ft

**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	116	(4) Raycap DC6-48-60-18-8F Suppressor (ATT)	116
(3) Ericsson RRUS11 Dual PA RRU (ATT)	116	12' Platform w/ Handrail (ATT)	116
(3) Ericsson RRUS 12 (ATT)	116	(2) Antel BXA-70063/6CF w/ mount pipe (Verizon)	106
(2) Ericsson RRUS A2 (ATT)	116	(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	106
Ericsson RRUS-32 (ATT)	116	(2) Lucent 2x40 RRH (Verizon)	106
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	116	(2) Antel BXA-70063/6CF w/ mount pipe (Verizon)	108
(3) Ericsson RRUS11 Dual PA RRU (ATT)	116	(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	106
(3) Ericsson RRUS 12 (ATT)	116	(2) Lucent 2x40 RRH (Verizon)	106
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(3) Ericsson RRUS 12 (ATT)	116	(2) Lucent 2x40 RRH (Verizon)	106
(2) Ericsson RRUS A2 (ATT)	116	Distribution Box (Verizon)	106
Ericsson RRUS-32 (ATT)	116	12' Low Profile Platform (Verizon)	106

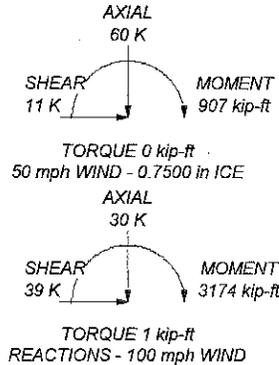
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 3 with Crest Height of 150.00 ft
8. TOWER RATING: 82.6%

ALL REACTIONS ARE FACTORED



<b>Michael F. Plahovinsak, P.E.</b>		Job: <b>120-ft Monopole - MFP #40913-011 r2</b>	
18301 State Route 161 W		Project: <b>CT1126, Naugatuck</b>	
Plain City, OH 43064		Client: Florida Tower Partners	Drawn by: Mike
Phone: 614-398-6250		Code: TIA-222-G	Date: 02/03/14
FAX: mike@mpeng.com		Scale: NTS	
		Path: J:\Projects\409-Misc\40913-011\40913-011 R2.rvt	Dwg No. E-1

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 1 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Tower Input Data

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 100 mph.

Structure Class II.

Exposure Category C.

Topographic Category 3.

Crest Height 150.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

### Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	120.00-74.00	46.00	5.50	18	27.4700	39.2900	0.2188	0.8750	A572-65 (65 ksi)
L2	74.00-36.50	43.00	6.75	18	37.4392	48.5000	0.3125	1.2500	A572-65 (65 ksi)
L3	36.50-1.00	42.25		18	46.1387	57.0000	0.3125	1.2500	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I <sub>t</sub> /Q <sub>t</sub> in <sup>3</sup>	w in	w/t
L1	27.8938	18.9209	1775.2181	9.6742	13.9548	127.2124	3552.7721	9.4622	4.4497	20.342
	39.8961	27.1277	5231.9592	13.8703	19.9593	262.1311	10470.8028	13.5664	6.5300	29.852
L2	39.4534	36.8251	6412.9050	13.1800	19.0191	337.1818	12834.2483	18.4160	6.0393	19.326
	49.2482	47.7960	14021.6002	17.1066	24.6380	569.1046	28061.6504	23.9025	7.9860	25.555
L3	48.6125	45.4539	12059.6983	16.2683	23.4385	514.5259	24135.2651	22.7313	7.5704	24.225
	57.8793	56.2269	22827.3926	20.1241	28.9560	788.3476	45684.8220	28.1188	9.4820	30.342

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight plf
5/8" (ATT)	C	No	Inside Pole	116.00 - 1.00	8	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	0.15 0.15 0.15
3/8" (ATT)	C	No	Inside Pole	116.00 - 1.00	2	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	0.08 0.08 0.08

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 2 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub>		Weight plf
						No Ice	ft <sup>2</sup> /ft	
1/2" (ATT)	C	No	Inside Pole	116.00 - 1.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
*** 1 5/8"	C	No	Inside Pole	106.00 - 1.00	18	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
Fiber Cable	C	No	Inside Pole	106.00 - 1.00	1	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement ft	C <sub>A</sub> A <sub>A</sub>		Weight K
			Horz ft	Vert ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>	
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	A	From Face	3.00	0.0000	116.00	No Ice	13.62	9.18	0.10
						1/2" Ice	14.35	10.58	0.19
						1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS11 Dual PA RRU (ATT)	A	From Face	3.00	0.0000	116.00	No Ice	2.55	0.92	0.05
						1/2" Ice	2.77	1.07	0.06
						1" Ice	2.99	1.23	0.08
(3) Ericsson RRUS 12 (ATT)	A	From Face	3.00	0.0000	116.00	No Ice	3.67	1.46	0.06
						1/2" Ice	3.92	1.64	0.08
						1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS A2 (ATT)	A	From Face	3.00	0.0000	116.00	No Ice	1.87	0.50	0.03
						1/2" Ice	2.05	0.62	0.04
						1" Ice	2.24	0.75	0.05
Ericsson RRUS-32 (ATT)	A	From Face	3.00	0.0000	116.00	No Ice	3.87	2.76	0.08
						1/2" Ice	4.15	3.02	0.10
						1" Ice	4.44	3.29	0.14
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	B	From Face	3.00	0.0000	116.00	No Ice	13.62	9.18	0.10
						1/2" Ice	14.35	10.58	0.19
						1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS11 Dual PA RRU (ATT)	B	From Face	3.00	0.0000	116.00	No Ice	2.55	0.92	0.05
						1/2" Ice	2.77	1.07	0.06
						1" Ice	2.99	1.23	0.08
(3) Ericsson RRUS 12 (ATT)	B	From Face	3.00	0.0000	116.00	No Ice	3.67	1.46	0.06
						1/2" Ice	3.92	1.64	0.08
						1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS A2 (ATT)	B	From Face	3.00	0.0000	116.00	No Ice	1.87	0.50	0.03
						1/2" Ice	2.05	0.62	0.04
						1" Ice	2.24	0.75	0.05
Ericsson RRUS-32 (ATT)	B	From Face	3.00	0.0000	116.00	No Ice	3.87	2.76	0.08
						1/2" Ice	4.15	3.02	0.10
						1" Ice	4.44	3.29	0.14
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	C	From Face	3.00	0.0000	116.00	No Ice	13.62	9.18	0.10
						1/2" Ice	14.35	10.58	0.19
						1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS11 Dual PA RRU (ATT)	C	From Face	3.00	0.0000	116.00	No Ice	2.55	0.92	0.05
						1/2" Ice	2.77	1.07	0.06
						1" Ice	2.99	1.23	0.08
(3) Ericsson RRUS 12 (ATT)	C	From Face	3.00	0.0000	116.00	No Ice	3.67	1.46	0.06
						1/2" Ice	3.92	1.64	0.08
						1" Ice	4.19	1.84	0.11

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 3 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>Front</sub>	C <sub>A</sub> A <sub>Side</sub>	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
(2) Ericsson RRUS A2 (ATT)	C	From Face	3.00	0.00	0.0000	116.00	No Ice 1.87	0.50	0.03
			0.00	0.00			1/2" Ice 2.05	0.62	0.04
			0.00	0.00			1" Ice 2.24	0.75	0.05
Ericsson RRUS-32 (ATT)	C	From Face	3.00	0.00	0.0000	116.00	No Ice 3.87	2.76	0.08
			0.00	0.00			1/2" Ice 4.15	3.02	0.10
			0.00	0.00			1" Ice 4.44	3.29	0.14
(4) Raycap DC6-48-60-18-8F Suppressor (ATT)	C	From Face	1.00	0.00	0.0000	116.00	No Ice 1.47	1.47	0.03
			0.00	0.00			1/2" Ice 1.67	1.67	0.05
			0.00	0.00			1" Ice 1.88	1.88	0.07
12' Platform w/ Handrail (ATT)	C	None			0.0000	116.00	No Ice 24.00	24.00	1.80
							1/2" Ice 26.00	26.00	2.60
							1" Ice 28.00	28.00	3.40
***									
(2) Antel BXA-70063/6CF w/ mount pipe (Verizon)	A	From Face	3.00	0.00	0.0000	106.00	No Ice 7.75	5.18	0.04
			0.00	0.00			1/2" Ice 8.29	6.11	0.09
			0.00	0.00			1" Ice 8.85	6.92	0.16
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	A	From Face	3.00	0.00	0.0000	106.00	No Ice 4.98	5.93	0.04
			0.00	0.00			1/2" Ice 5.43	6.87	0.08
			0.00	0.00			1" Ice 5.89	7.69	0.14
(2) Lucent 2x40 RRH (Verizon)	A	From Face	3.00	0.00	0.0000	106.00	No Ice 1.20	2.25	0.01
			0.00	0.00			1/2" Ice 1.35	2.45	0.03
			0.00	0.00			1" Ice 1.51	2.66	0.05
(2) Antel BXA-70063/6CF w/ mount pipe (Verizon)	B	From Face	3.00	0.00	0.0000	106.00	No Ice 7.75	5.18	0.04
			0.00	0.00			1/2" Ice 8.29	6.11	0.09
			0.00	0.00			1" Ice 8.85	6.92	0.16
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	B	From Face	3.00	0.00	0.0000	106.00	No Ice 4.98	5.93	0.04
			0.00	0.00			1/2" Ice 5.43	6.87	0.08
			0.00	0.00			1" Ice 5.89	7.69	0.14
(2) Lucent 2x40 RRH (Verizon)	B	From Face	3.00	0.00	0.0000	106.00	No Ice 1.20	2.25	0.01
			0.00	0.00			1/2" Ice 1.35	2.45	0.03
			0.00	0.00			1" Ice 1.51	2.66	0.05
(2) Antel BXA-70063/6CF w/ mount pipe (Verizon)	C	From Face	3.00	0.00	0.0000	106.00	No Ice 7.75	5.18	0.04
			0.00	0.00			1/2" Ice 8.29	6.11	0.09
			0.00	0.00			1" Ice 8.85	6.92	0.16
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	C	From Face	3.00	0.00	0.0000	106.00	No Ice 4.98	5.93	0.04
			0.00	0.00			1/2" Ice 5.43	6.87	0.08
			0.00	0.00			1" Ice 5.89	7.69	0.14
(2) Lucent 2x40 RRH (Verizon)	C	From Face	3.00	0.00	0.0000	106.00	No Ice 1.20	2.25	0.01
			0.00	0.00			1/2" Ice 1.35	2.45	0.03
			0.00	0.00			1" Ice 1.51	2.66	0.05
Distribution Box (Verizon)	C	None			0.0000	106.00	No Ice 1.16	1.16	0.02
							1/2" Ice 1.31	1.31	0.03
							1" Ice 1.46	1.46	0.04
12' Low Profile Platform (Verizon)	C	None			0.0000	106.00	No Ice 14.00	14.00	1.10
							1/2" Ice 16.00	16.00	1.70
							1" Ice 18.00	18.00	2.30

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 4 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg -No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 74	Pole	Max Tension	6	0.00	0.00	0.00
			Max. Compression	8	-31.04	0.00	-1.04
			Max. Mx	4	-10.64	-730.43	-0.30
			Max. My	6	-10.64	0.00	-730.75
			Max. Vy	4	24.07	-730.43	-0.30
			Max. Vx	6	24.07	0.00	-730.75
			Max. Torque	4			-0.89
L2	74 - 36.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-42.79	0.00	-1.04
			Max. Mx	4	-18.53	-1711.96	-0.32
			Max. My	6	-18.53	0.00	-1712.28
			Max. Vy	4	30.30	-1711.96	-0.32
			Max. Vx	6	30.30	0.00	-1712.28
			Max. Torque	4			-0.89
L3	36.5 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-59.63	0.00	-1.04
			Max. Mx	4	-30.38	-3173.19	-0.32
			Max. My	6	-30.38	0.00	-3173.51
			Max. Vy	4	39.09	-3173.19	-0.32
			Max. Vx	6	39.09	0.00	-3173.51
			Max. Torque	4			-0.89

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 74	10.799	14	0.7576	0.0012
L2	79.5 - 36.5	4.900	14	0.5648	0.0004
L3	43.25 - 1	1.487	14	0.3137	0.0002

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 5 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
116.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	14	10.174	0.7408	0.0011	62086
106.00	(2) Antel BXA-70063/6CF w/ mount pipe	14	8.629	0.6980	0.0009	22173

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 74	53.730	6	3.7689	0.0059
L2	79.5 - 36.5	24.390	6	2.8120	0.0020
L3	43.25 - 1	7.401	6	1.5618	0.0008

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
116.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	6	50.624	3.6858	0.0054	12583
106.00	(2) Antel BXA-70063/6CF w/ mount pipe	6	42.941	3.4735	0.0043	4493

### Pole Design Data

Section No.	Elevation ft	Size	L	L <sub>u</sub>	KL/r	A	P <sub>u</sub>	φP <sub>n</sub>	Ratio P <sub>u</sub> / φP <sub>n</sub>
			ft	ft		in <sup>2</sup>	K	K	
L1	120 - 74 (1)	TP39.29x27.47x0.2188	46.00	0.00	0.0	26.1464	-10.64	1591.39	0.007
L2	74 - 36.5 (2)	TP48.5x37.4392x0.3125	43.00	0.00	0.0	46.0738	-18.53	3006.04	0.006
L3	36.5 - 1 (3)	TP57x46.1387x0.3125	42.25	0.00	0.0	56.2269	-30.38	3325.35	0.009

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub>	φM <sub>ux</sub>	Ratio M <sub>ux</sub> / φM <sub>ux</sub>	M <sub>uy</sub>	φM <sub>uy</sub>	Ratio M <sub>uy</sub> / φM <sub>uy</sub>
			kip-ft	kip-ft		kip-ft	kip-ft	
L1	120 - 74 (1)	TP39.29x27.47x0.2188	730.75	1234.84	0.592	0.00	1234.84	0.000
L2	74 - 36.5 (2)	TP48.5x37.4392x0.3125	1712.28	2874.57	0.596	0.00	2874.57	0.000
L3	36.5 - 1 (3)	TP57x46.1387x0.3125	3173.52	3885.34	0.817	0.00	3885.34	0.000

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 120-ft Monopole - MFP #40913-011 r2	<b>Page</b> 6 of 6
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 17:15:14 02/03/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	$-\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 74 (1)	TP39.29x27.47x0.2188	24.07	795.70	0.030	0.00	2472.71	0.000
L2	74 - 36.5 (2)	TP48.5x37.4392x0.3125	30.30	1503.02	0.020	0.00	5756.17	0.000
L3	36.5 - 1 (3)	TP57x46.1387x0.3125	39.09	1662.67	0.024	0.00	7780.19	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 74 (1)	0.007	0.592	0.000	0.030	0.000	0.599	1.000	4.8.2 ✓
L2	74 - 36.5 (2)	0.006	0.596	0.000	0.020	0.000	0.602	1.000	4.8.2 ✓
L3	36.5 - 1 (3)	0.009	0.817	0.000	0.024	0.000	0.826	1.000	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	120 - 74	Pole	TP39.29x27.47x0.2188	1	-10.64	1591.39	59.9	Pass
L2	74 - 36.5	Pole	TP48.5x37.4392x0.3125	2	-18.53	3006.04	60.2	Pass
L3	36.5 - 1	Pole	TP57x46.1387x0.3125	3	-30.38	3325.35	82.6	Pass
<b>Summary</b>								
Pole (L3)							82.6	Pass
<b>RATING =</b>							<b>82.6</b>	<b>Pass</b>

<b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 email: mike@mfpeng.com	<b>Job</b> 120-ft monopole - MFP #40913-011 r2	<b>Page</b> BP-G
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 2/3/2014
	<b>Client</b> FLORIDA TOWER PARTNERS	<b>Designed by</b> Mike

## Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G-2

Factored Base Reactions:	Pole Shape:	Anchor Rods:	Base Plate:
Moment: 3174 ft-kips	18-Sided	(12) 2.25 in. A615 GR. 75	2 in. x 70 in. Round
Shear: 39 kips	<b>Pole Dia. (D<sub>f</sub>):</b>	Anchor Rods Evenly Spaced	f <sub>y</sub> = 60 ksi
Axial: 30 kips	57.00 in	On a 64 in Bolt Circle	

### Anchor Rod Calculation According to TIA-222-G section 4.9.9

$\phi =$	0.80 TIA 4.9.9
$I_{bolts} =$	6144.00 in <sup>2</sup> Moment of Inertia
$P_u =$	198 kips Tension Force
$V_u =$	3 kips Shear Force
$R_{nt} =$	325.00 kips Nominal Tensile Strength
$\eta =$	0.50 for detail type (d)

The following Interaction Equation Shall Be Satisfied:

$$\left( \frac{P_u + \frac{V_u}{\eta}}{\phi R_{nt}} \right) \leq 1.0$$

$$0.788 \leq 1$$

### Base Plate Calculation According to TIA-222-G

$\phi =$	0.90 TIA 4.7
$M_{PL} =$	477.1 in-kip Plate Moment
$L =$	14.9 in Section Length
$Z =$	14.9 Plastic Section Modulus
$M_p =$	895.4 in-kip Plastic Moment
$\phi M_n =$	805.8 in-kip Factored Resistance

Calculated Moment vs Factored Resistance

$$477.08 \text{ in-kip} \leq 806 \text{ in-kip}$$

Anchor Rods Are Adequate	78.8% <input checked="" type="checkbox"/>
Base Plate is Adequate	59.2% <input checked="" type="checkbox"/>

<b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 email: mike@mfpeng.com	<b>Job</b> 120-ft monopole - MFP #40913-011 r2	<b>Page</b> FND
	<b>Project</b> CT1126, Naugatuck	<b>Date</b> 2/3/2014
	<b>Client</b> FLORIDA TOWER PARTNERS	<b>Designed by</b> Mike

## Caisson Calculation

According to ANSI/TIA-222-G-2

- Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
- Cohesion strength for the upper 21 ft has been reduced by 50%
- In lieu of a soil resistance factor  $f_s = 0.75$  (TIA-9.4.1) an additional safety factor against soil failure of 1.33 has been applied.
- Foundation is designed with a minimum safety factor resisting overturning of 2.0
- Foundation has been designed with factored loads per TIA-222-G.
- Geotechnical report indicates groundwater was not encountered within the depth of the boring.

\*\*\* PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS	DEPTH AT TOP OF LAYER	DENSITY	CU	KP	PHI
	(ft)		(ft)	(pcf)	(psf)			(degrees)
	1	S	4.00	0.00	0.0	1.000	0.00	-0.00
	2	S	15.00	4.00	110.0	3.255	32.00	
	3	S	30.00	19.00	47.6	3.255	32.00	

\*\*\* DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 3174.0 VERTICAL (k) = 39.0 SHEAR (k) = 30.0  
 ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

\*\*\* CALCULATED PIER LENGTH (ft) = 24.000

\*\*\* CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER	BELOW TOP OF PIER	THICKNESS	DENSITY	CU	KP	FORCE	ARM
	(ft)	(ft)	(pcf)	(psf)	(k)	(ft)		
S	0.50	4.00	0.0	1.000	0.00	3.17		
S	4.50	13.78	110.0	3.255	713.53	13.68		
S	18.28	1.22	110.0	3.255	-132.36	18.90		
S	19.50	4.50	47.6	3.255	-540.48	21.80		

\*\*\* SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR		WITHOUT ADDITIONAL SAFETY FACTOR	
	SHEAR (k)	MOMENT (ft-k)	SHEAR (k)	MOMENT (ft-k)
0.00	40.7	4517.1	30.5	3387.8
2.40	40.7	4614.7	30.5	3461.1
4.80	40.4	4712.4	30.3	3534.3
7.20	13.3	4785.4	10.0	3589.1
9.60	-57.1	4741.5	-42.8	3556.1
12.00	-170.8	4476.7	-128.1	3357.5
14.40	-327.8	3887.1	-245.8	2915.3
16.80	-528.1	2868.7	-396.1	2151.6
19.20	-574.0	1408.0	-430.5	1056.0
21.60	-296.5	359.5	-222.3	269.6
24.00	-0.0	0.0	-0.0	0.0

\*\*\* TOTAL REINFORCEMENT PCT = 0.42 REINFORCEMENT AREA (in<sup>2</sup>) = 23.28

\*\*\* USABLE AXIAL CAP. (k) = 39.0 USABLE MOMENT CAP. (ft-k) = 3694.1

APPROX. FOUNDATION USAGE: 82.4%

Minimum Steel Per ACI-318

17.85 in<sup>2</sup>

7-ft Diameter caisson x 25.5-ft long (25-ft Embedded with 0.5-ft above grade) W/(20) #11 Vertical Rebar. Concrete strength = 4000 PSI @ 28 days. Estimated Concrete Volume = 36 cubic yards.



Michael Lawton  
 SAI Communications  
 260 Cedar Hill St.  
 Marlborough, MA 01752  
[Mike.Lawton@sai-comm.com](mailto:Mike.Lawton@sai-comm.com)

August 29, 2013

Connecticut Siting Council

Subject: AT&T Wireless, CT2409 – Naugatuck Andrew Mountain Road

Dear Connecticut Siting Council:

At the request of AT&T Wireless, SAI Communications has performed an assessment of the RF Power Density at the proposed site located at 880 Andrew Mountain Road, Naugatuck, CT. Calculations were done in compliance with FCC OET Bulletin 65. This report provides an FCC compliance assessment based on a "worst-case" analysis that all transmitters are simultaneously operating at full power and pointing directly at the ground.

FCC OET Bulletin 65 formula:

$$S = \frac{2.56 * 1.64 * ERP}{4 * \pi * R^2}$$

Transmission Mode	Antenna Centerline AGL (ft)	Frequency (MHz)	Number of Channels	Effective Radiated Power per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	% MPE (Uncontrolled/General Public)
Verizon Cellular	106	869	9	266.00	0.0766	0.5793	13.23%
Verizon PCS	106	1970	7	264.00	0.0591	1	5.92%
Verizon LTE	106	698	1	1050.00	0.0336	0.4653	7.22%
Verizon AWS	106	2145	1	1750.00	0.0560	1	5.60%
AT&T UMTS	116	850	2	500.00	0.0267	0.5667	4.72%
AT&T UMTS	116	1900	2	500.00	0.0267	1	2.67%
AT&T LTE	116	700	2	500.00	0.0267	0.4667	5.73%
AT&T LTE	116	2100	2	500.00	0.0267	1	2.67%
<b>Total</b>							<b>47.76%</b>

**Conclusion:** AT&T's proposed antenna installation is calculated to be within 47.76% of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).

Sincerely,

Michael Lawton  
 SAI Communications

**PROJECT DESCRIPTION:**

CONSTRUCTION OF PUBLIC UTILITY/PERSONAL WIRELESS SERVICE FACILITY CONSISTING OF A MONOPOLE TOWER, INITIALLY (1) EQUIPMENT SHELTER, AND A UTILITY BACKBOARD WITHIN A FENCED COMPOUND. NO WATER OR SEWER IS REQUIRED.

**CODE COMPLIANCE:**

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING:

- |  |                           |
|--|---------------------------|
| 1. CT BUILDING CODE                                  | 5. ANSI/TIA/EIA-222-F     |
| 2. UNIFORM BUILDING CODE                             | 6. UNIFORM PLUMBING CODE  |
| 3. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA) | 7. NATIONAL ELECTRIC CODE |
| 4. UNIFORM MECHANICAL CODE                           | 8. LOCAL BUILDING CODE    |
|  | 9. CITY/COUNTY ORDINANCES |



**NAUGATUCK**  
**SITE ID: CT2409**  
**880 ANDREW MOUNTAIN RD.**  
**NAUGATUCK, CT 06770**

**PROJECT INFORMATION**

SITE NAME: NAUGATUCK  
 SITE ID: CT2409  
 SITE ADDRESS: 880 ANDREW MOUNTAIN RD. NAUGATUCK, CT 06770  
 ZONING JURISDICTION: BOROUGH OF NAUGATUCK  
 ZONING CLASSIFICATION: TBD  
 PARCEL ID: D-6W29-B  
 PARENT PARCEL SIZE: 105.50 AC. ±4,595,580 SQ. FT.  
 CONSTRUCTION AREA: ±23,000 SQ. FEET  
 LATITUDE: 41° 29' 4.03" N  
 LONGITUDE: 73° 05' 23.44" W

**PROJECT DIRECTORY**

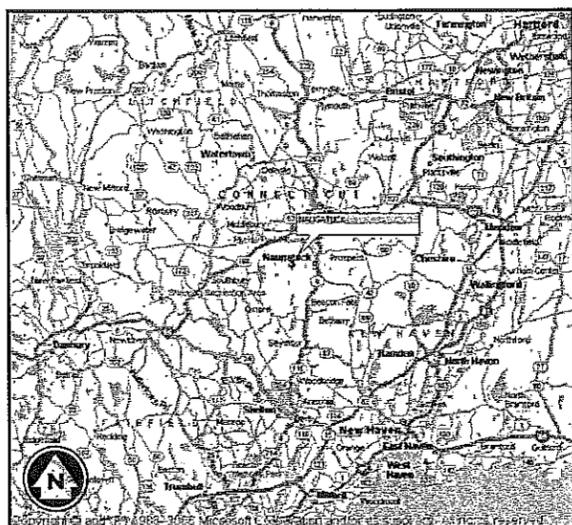
PROPERTY OWNER: FRANKLIN B. ANDREW JR. 880 ANDREW MOUNTAIN RD. NAUGATUCK, CT 06770  
 CONTACT: TEL: (203) 217-7714  
 APPLICANT: NORTH ATLANTIC TOWERS 1001 3RD AVE WEST, SUITE 420 BRADENTON, FL 34205  
 CONTACT: TODD BOWMAN (941) 757-5010  
 ENGINEER: INFINIGY ENGINEERING & SURVEYING, PLLC 11 HERBERT DRIVE LATHAM, NY 12110  
 CONTACT: A.J. DeSANTIS PHONE: (518) 690-0790  
 ATTORNEY: CUDDY & FEDER, LLP 445 HAMILTON AVE, 14TH FLOOR WHITE PLAINS, NY 10601  
 CONTACT: LUCIA CHIOCCHIO, ESQ PHONE: (914) 761-1300

POWER COMPANY: CL&P - ESO#:1678092

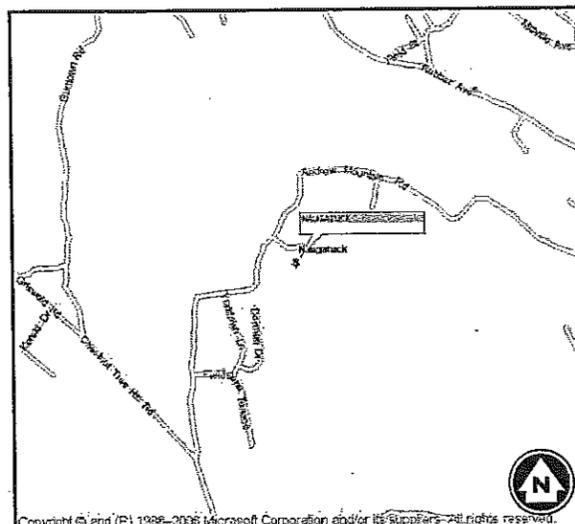
TELCO COMPANY: AT&T

**DRAWING INDEX**

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	2	2/14/14
C1	GENERAL NOTES	2	2/14/14
C2	OVERALL SITE PLAN	2	2/14/14
C3	ENLARGED SITE PLAN	2	2/14/14
C4	ELEVATION VIEW	2	2/14/14
C5	DETAILS	2	2/14/14
C6	AT&T ANTENNA DETAILS	2	2/14/14
C7	ICE BRIDGE DETAILS	2	2/14/14
C8	AT&T FOUNDATION DETAILS	2	2/14/14
C9	AT&T SHELTER DETAILS	2	2/14/14
C10	PLUMBING DIAGRAM	2	2/14/14
C11	PLUMBING DIAGRAM	2	2/14/14
E1	UTILITY ROUTING PLAN	2	2/14/14
E2	ELECTRICAL NOTES	2	2/14/14
E3	GROUNDING LAYOUT	2	2/14/14
E4	GROUNDING DETAILS	2	2/14/14



VICINITY MAP  
N.T.S.



LOCATION MAP  
N.T.S.

**INFINIGY** Design.  
Build.  
Deliver.

11 Herbert Drive  
 Latham, NY 12110  
 OFFICE #: (518) 690-0790  
 FAX #: (518) 690-0793

PROPOSED TOWER HEIGHT: ±120' AGL  
 LATITUDE: 41° 29' 4.03" N  
 LONGITUDE: 73° 05' 23.44" W  
 ELEVATION: ±855.0' AGL

**NEW HAVEN COUNTY, CONNECTICUT**

**DRIVING DIRECTIONS**

DEPART FROM SAI:  
 500 ENTERPRISE DR. ROCKY HILL, CT 06067  
 1. HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD.  
 2. TURN LEFT ONTO CAPITAL BLVD.  
 3. TURN LEFT ONTO WEST ST.  
 4. TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN.  
 5. TAKE EXIT 18 TO MERGE ONTO I-691 W TOWARD MERIDEN/WATERBURY.  
 6. TAKE EXIT 1 ON THE LEFT FOR I-84 W TOWARD WATERBURY/DANBURY.  
 7. MERGE ONTO I-84.  
 8. TAKE EXIT 19 ON THE LEFT FOR CONNECTICUT 8 S TOWARD NAUGATUCK/BRIDGEPORT.  
 9. MERGE ONTO CT-8 S.  
 10. TAKE EXIT 26 FOR CT-63 TOWARD S MAIN ST/BETHANY.  
 11. TURN RIGHT ONTO CT-63 N.  
 12. TURN LEFT ONTO SCOTT ST.  
 13. TURN LEFT ONTO ANDREW AVE.  
 14. TAKE THE 3RD RIGHT ONTO ANDREW MOUNTAIN RD. DESTINATION WILL BE ON THE LEFT

**DIG ALERT:**  
 CALL FOR UNDERGROUND UTILITIES PRIOR TO DIGGING:  
 1-800-922-4455

**EMERGENCY:**  
 CALL 911

**GENERAL NOTES**

- ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
- DO NOT CHANGE SIZE NOR SPACING OF STRUCTURAL ELEMENTS.
- DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
- BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
- DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
- INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE APPROVAL.
- EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS AND COORDINATE HIS WORK WITH THE WORK OF ALL OTHER CONTRACTORS TO ENSURE THAT WORK PROGRESSION IS NOT INTERRUPTED.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A NEAT AND ORDERLY SITE, YARD AND GROUNDS. REMOVE AND DISPOSE OFF SITE ALL RUBBISH, WASTE MATERIALS, LITTER, AND ALL FOREIGN SUBSTANCES. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS TO A SMOOTH EVEN-TEXTURED SURFACE.
- THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE-GROUND STRUCTURES AND/OR UTILITIES BELIEVED TO EXIST IN THE WORKING AREA, EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPELINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE SHOWN OR MAY NOT BE SHOWN; AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK. 48 HOURS BEFORE YOU DIG, DRILL OR BLAST, CALL 1-888-344-7233
- THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE.
- THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
- THE CONTRACTOR SHALL RESTORE ALL PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD OF CONDITION AS BEFORE DISTURBED AS DETERMINED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, AND INCURRING THE COST OF ALL REQUIRED PERMITS, INCLUDING, BUT NOT LIMITED TO, THE BUILDING PERMIT, INSPECTIONS, CERTIFICATES, ETC.
- THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A LICENSED LAND SURVEYOR.
- ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE OSHA REGULATIONS FOR CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK.
- ALL UTILITY WORK INVOLVING CONNECTIONS TO EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER OR OWNER'S REPRESENTATIVE AND THE UTILITY OWNER. NOTIFY THE OWNER OR OWNER'S REPRESENTATIVE AND THE UTILITY OWNER BEFORE EACH AND EVERY CONNECTION TO EXISTING SYSTEMS IS MADE.
- MAINTAIN FLOW FOR ALL EXISTING UTILITIES.
- ALL SITE FILL SHALL MEET SELECTED FILL STANDARDS AS DEFINED BY THE OWNER OR OWNER'S REPRESENTATIVE ON THE DRAWINGS.
- CONTRACTOR SHALL GRADE ALL AREAS ON THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE EQUIPMENT PAD AND THE TOWER.
- ALL IMPROVEMENTS TO CONFORM WITH LOCAL JURISDICTION CONSTRUCTION STANDARDS AND SPECIFICATIONS, LATEST EDITION.

**STRUCTURAL STEEL NOTES**

- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- ALL INTERIOR STRUCTURAL STEEL USED SHALL BE, WHEN DELIVERED, FINISHED WITH ONE COAT FABRICATOR'S NON-LEAD, RED OXIDE PRIMER. PRIMING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE PRIMED AREAS SHALL BE REPAIRED BY FIELD TOUCH-UP PRIOR TO COMPLETION OF THE WORK.
- ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATION ASTM A36 UNLESS OTHERWISE NOTED. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE GALVANIZED AREAS SHALL BE REPAIRED BY FIELD TOUCH-UP PRIOR TO COMPLETION OF THE WORK.
- DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
- CONNECTIONS:
  - ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
  - BOLTED CONNECTIONS SHALL USE BEARING TYPE GALVANIZED ASTM A325 BOLTS (3/4" DIA) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
  - NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA GALVANIZED ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
  - CONNECTION DESIGN BY FABRICATOR WILL BE SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.

**CONCRETE NOTES**

- DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING APPLICABLE CODES: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE";
- MIX DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE.
- CONCRETE SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINED (±1.5%) WITH A MAXIMUM 4" SLUMP, AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE NOTED.
- MAXIMUM AGGREGATE SIZE SHALL BE 1".
- THE FOLLOWING MATERIALS SHALL BE USED:
 

PORTLAND CEMENT:	ASTM C 150, TYPE I
REINFORCEMENT:	ASTM A 185
NORMAL WEIGHT AGGREGATE:	ASTM C 33
WATER:	DRINKABLE
ADMIXTURES:	NON-CHLORIDE CONTAINING
- REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 

CONCRETE CAST AGAINST EARTH.....	3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 AND LARGER .....	2 IN.
#5 AND SMALLER & WWF .....	1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:	
SLAB AND WALL .....	3/4 IN.
BEAMS AND COLUMNS .....	1 1/2 IN.

- A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURERS WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE.
- CURING COMPOUNDS SHALL CONFORM TO ASTM C-309.
- ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN ACI-301.
- DO NOT WELD OR TACKWELD REINFORCING STEEL.
- ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
- LOCATE ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION AS ACCEPTABLE TO ENGINEER. PLACE REINFORCEMENT CONTINUOUSLY THROUGH JOINT.
- REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
- PLACE CONCRETE IN A UNIFORM MANNER TO PREVENT THE FORMATION OF COLD JOINTS AND OTHER PLANES OF WEAKNESS. VIBRATE THE CONCRETE TO FULLY EMBED REINFORCING. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE THROUGH CHUTES OR FORMWORK.
- DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
- DO NOT ALLOW CONCRETE SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT.
- FOR COLD-WEATHER AND HOT-WEATHER CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS MINIMUM.

**CIVIL LEGEND**

EXISTING		PROPOSED
UNDERGROUND ELECTRIC	FENCE	-----x-----
UNDERGROUND TELEPHONE	UNDERGROUND ELECTRIC	-----
OVERHEAD WIRES	UNDERGROUND TELEPHONE	-----
250	OVERHEAD TELEPHONE	-----
202	OVERHEAD ELECTRIC	-----
120.5 OR 120.5	5' OR 10' CONTOUR LINE	-----
	1' OR 2' CONTOUR LINE	-----
	SPOT ELEVATION	120.5 OR x 120.5
	PRIMARY PROPERTY OR R.O.W.	-----
	LEASE LINE	-----
	EASEMENT	-----
	UTILITY POLE	⊙
	TELEPHONE PEDESTAL	⊠
	CURB	=====
	ASPHALT PAVEMENT	=====
	BUILDING	▭
	TREES, SHRUBS, BUSHES	⊙ ⊙ ⊙
	REPRESENTS DETAIL NUMBER	⬡
	REF. DRAWING NUMBER	⬡

**INFINIGY**  
 Design, Build, Deliver.

11 Hamlet Drive  
 Latham, NY 12110  
 Office # (518) 860-0790  
 Fax # (518) 860-0793

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1	REVISED PER COMMENTS	SGH	8/27/13
0	ISSUED FOR REVIEW	ASW	8/19/13
No.	Submittal / Revision	Appr'd	Date

Drawn: ASW Date: 8/19/13  
 Designed: ASW Date: 8/19/13  
 Checked: SE Date: 8/28/13

Project Number: 226-008

Project Title:  
**NAUGATUCK**  
**CT2409**  
 880 ANDREW MOUNTAIN RD.  
 NAUGATUCK, CT

Prepared For:

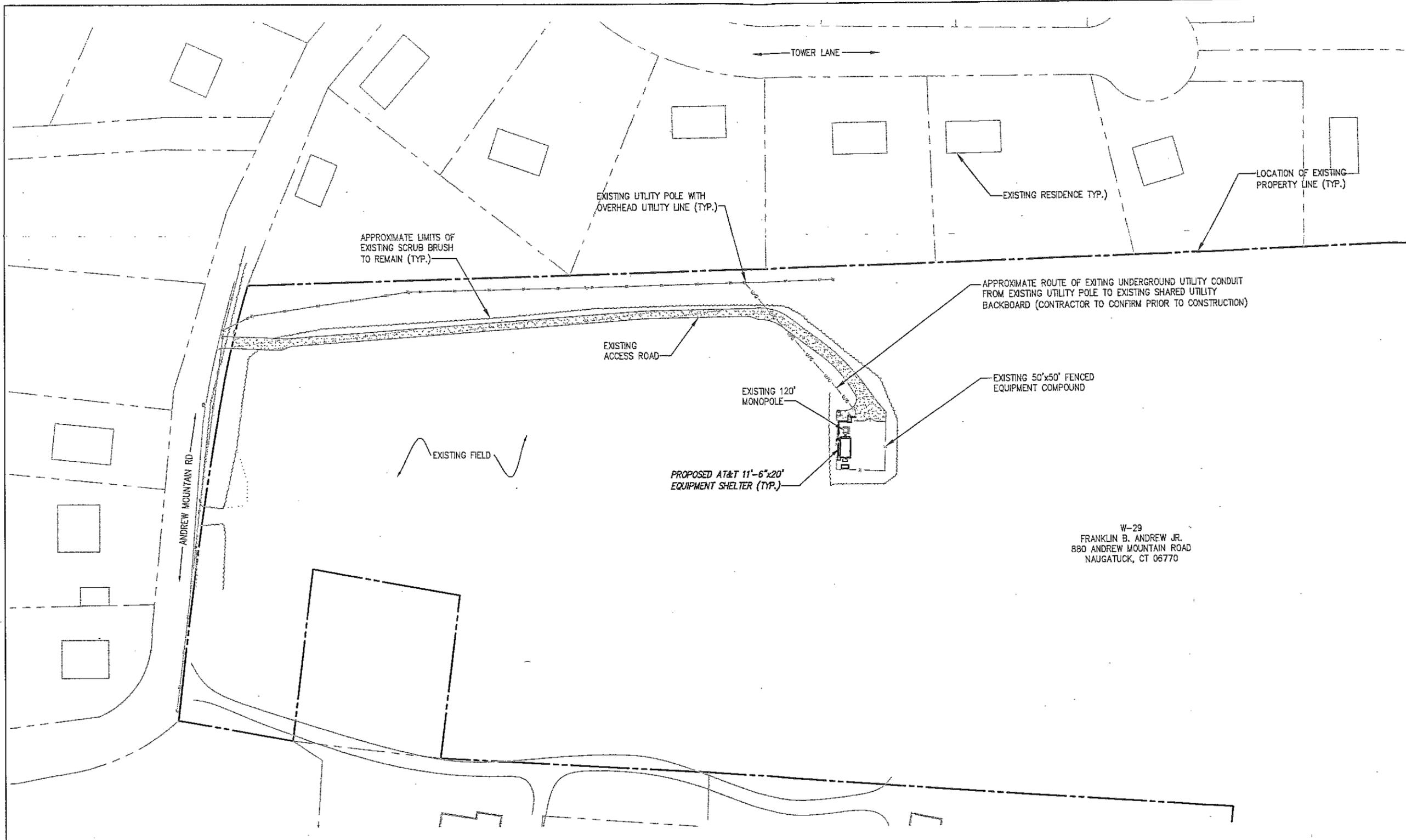


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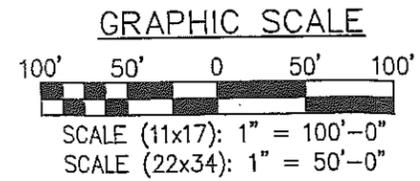
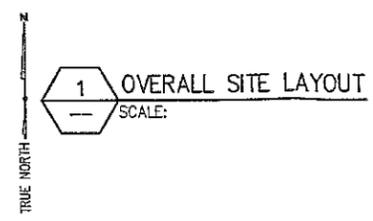
Drawing Title:  
**GENERAL NOTES**

Drawing Number:  
**C1**



W-29  
FRANKLIN B. ANDREW JR.  
880 ANDREW MOUNTAIN ROAD  
NAUGATUCK, CT 06770

- BASEMAPPING INFORMATION OBTAINED FROM:
  - SITE WALK COMPLETED BY INFINGY ENGINEERING PLLC ON 9-28-2009, 1-25-2011 & 8-9-2013
  - TOPOGRAPHIC SURVEY COMPLETED BY INFINGY SURVEYING, PLLC ON 8-10-2010.
- FOR RESULTS OF SOILS SAMPLING AND GEOTECHNICAL ANALYSIS, SEE REPORT COMPLETED BY TERRACON CONSULTANTS, INC. DATED MAY 10, 2011; PROJECT NUMBER J2115128.
- TOWER FOUNDATION AND STRUCTURAL ANALYSIS COMPLETED BY DAVINCI ENGINEERING, INC. FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY D.E.I. DATED 6/14/2011; PROJECT NUMBER: 11235-1298.
- PROPOSED ANTENNA MODEL NUMBERS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE. SEE FINAL RF DESIGN PRIOR TO CONSTRUCTION.



**INFINGY**  
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Drawn: ASW Date: 5/19/13  
Designed: AFJ Date: 5/19/13  
Checked: SBK Date: 6/19/13

Project Number: 228-008  
Project Title: NAUGATUCK CT2409  
880 ANDREW MOUNTAIN RD. NAUGATUCK, CT

at&t

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Drawing Title: **OVERALL SITE PLAN**

Drawing Number: **C2**

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 Checked: SE Date: 8/19/13

Project Number  
 226-008

Project Title  
**NAUGATUCK**  
 CT2409  
 880 ANDREW MOUNTAIN RD.  
 NAUGATUCK, CT

Prepared For

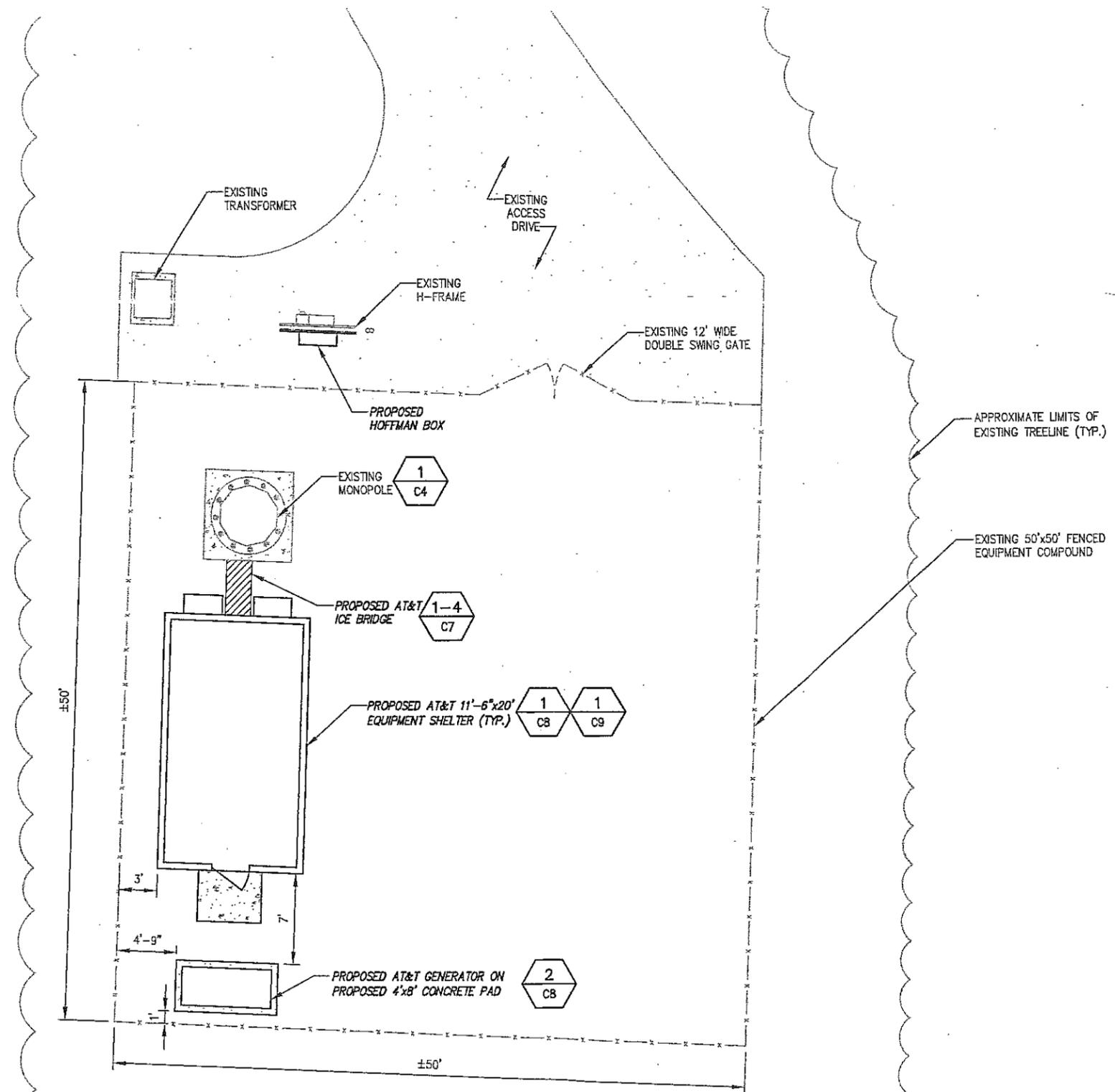


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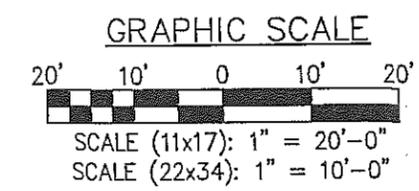
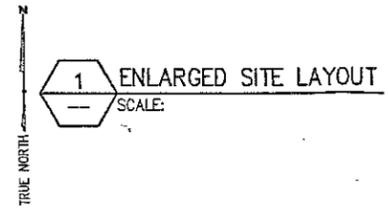
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 Date:  
 2/14/14  
**CD**

Drawing Title  
**ENLARGED SITE PLAN**

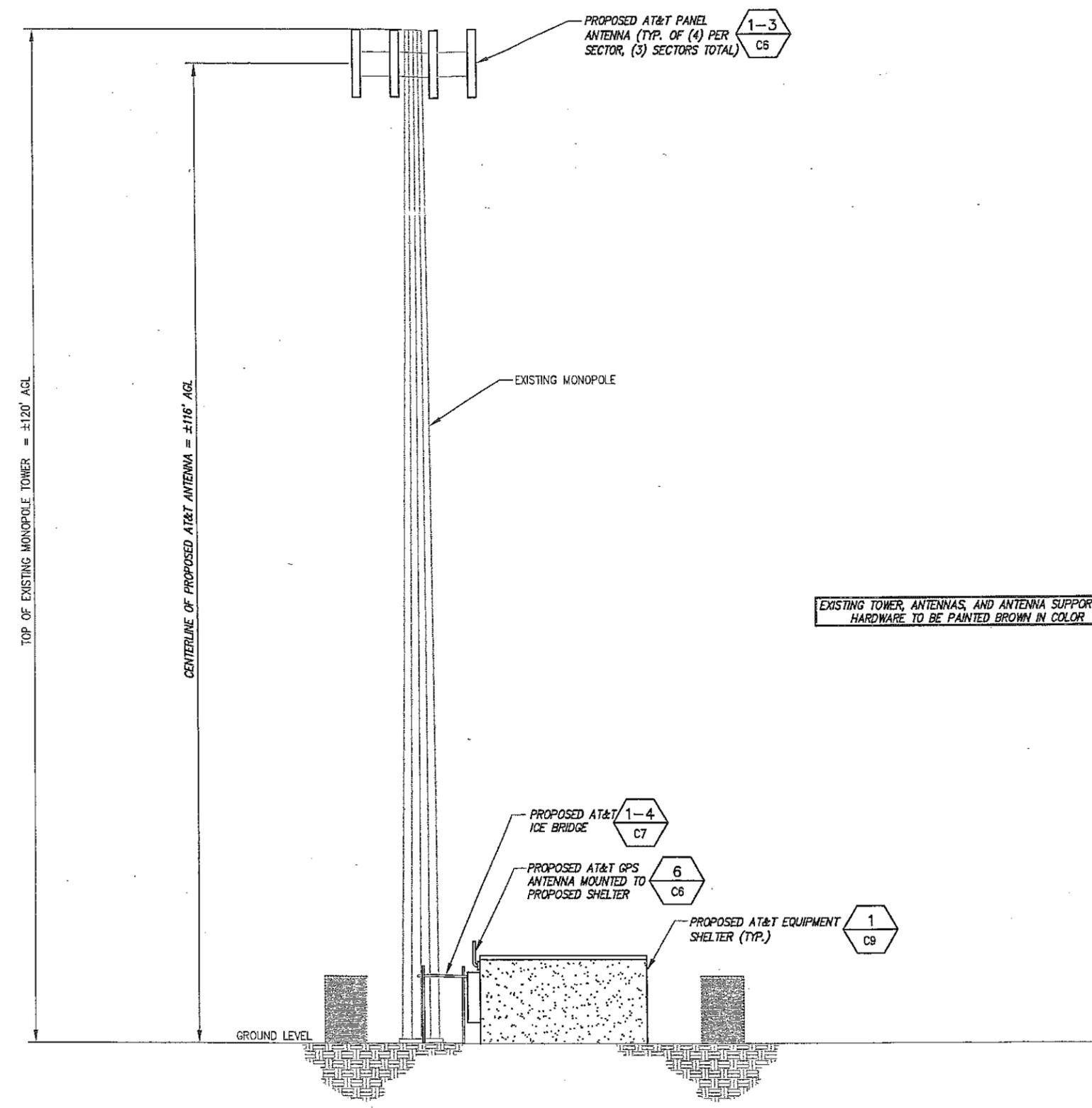
Drawing Number  
**C3**



- BASEMAPPING INFORMATION OBTAINED FROM:
  - SITE WALK COMPLETED BY INFINIGY ENGINEERING PLLC ON 9-28-2009, 1-25-2011 & 8-9-2013
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- PROPOSED ANTENNA MODEL NUMBERS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE. SEE FINAL RF DESIGN PRIOR TO CONSTRUCTION.



FOR ADDITIONAL STRUCTURAL INFORMATION SEE  
STRUCTURAL ANALYSIS COMPLETED BY MICHAEL  
F. PLAHOVINSAK P.E. DATED: 2/3/14, MFP JOB  
NUMBER: 40913-11 r2



EXISTING TOWER, ANTENNAS, AND ANTENNA SUPPORTING  
HARDWARE TO BE PAINTED BROWN IN COLOR

1. BASEMAPPING INFORMATION OBTAINED FROM:
  - A. SITE WALK COMPLETED BY INFINIGY ENGINEERING PLLC ON 9-28-2009 & 1-25-2011
  - B. TOPOGRAPHIC SURVEY COMPLETED BY INFINIGY SURVEYING, PLLC ON 8-10-2010.
2. FOR RESULTS OF SOILS SAMPLING AND GEOTECHNICAL ANALYSIS, SEE REPORT COMPLETED BY TERRACON CONSULTANTS, INC. DATED MAY 10, 2011; PROJECT NUMBER J2115128.
3. TOWER FOUNDATION AND STRUCTURAL ANALYSIS COMPLETED BY DAVINCI ENGINEERING, INC. FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY D.E.J. DATED 6/14/2011; PROJECT NUMBER: 11235-1298.
4. PROPOSED ANTENNA MODEL NUMBERS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE. SEE FINAL RF DESIGN PRIOR TO CONSTRUCTION.

1 TOWER ELEVATION VIEW  
NOT TO SCALE

Design:  
Build:  
Deliver:  
**INFINIGY**  
 11 Herbert Drive  
Latham, NY 12110  
Office # (518) 686-0790  
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Project Number: 226-008

Project Title:  
**NAUGATUCK  
CT2409**  
880 ANDREW MOUNTAIN RD.  
NAUGATUCK, CT

Prepared For:

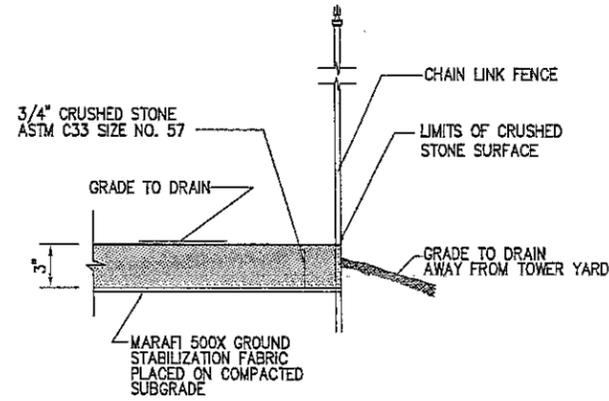


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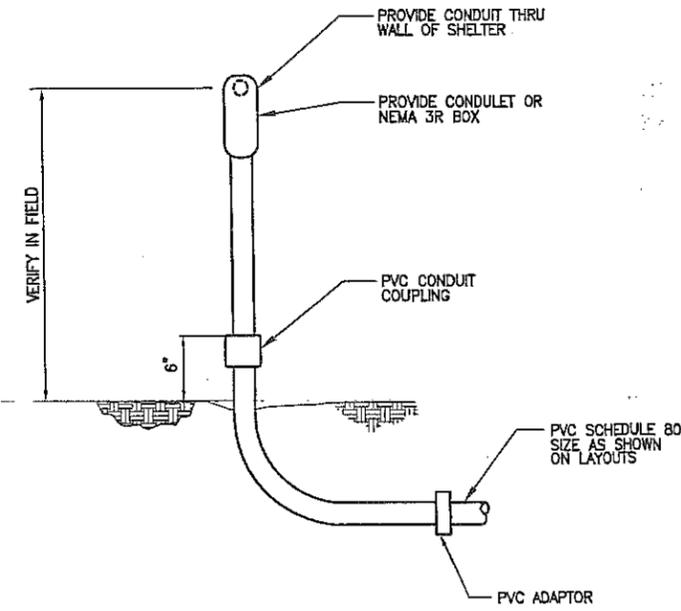
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**CD**

Drawing Title:  
**ELEVATION  
VIEW**

Drawing Number:  
**C4**

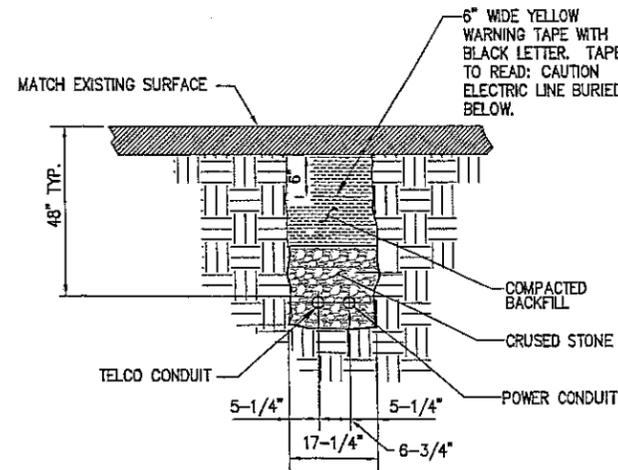


1 SECTION THROUGH COMPOUND  
NOT TO SCALE



NOTE:  
ALL CONDUIT ABOVE GRADE MUST BE RIGID STEEL.  
ALL PVC SCH. 80 CONDUIT MUST HAVE MIN. BURIAL DEPTH.

2 UNDERGROUND CONDUIT STUB-UP (TELCO/POWER)  
NOT TO SCALE



NOTE:  
1. NUMBER AND SIZE OF CONDUITS MAY VARY. REFER TO CONSTRUCTION DRAWINGS FOR CONDUIT SIZE AND LOCATION. CONFIRM DIMENSIONS SHOWN WITH UTILITY COMPANY.  
2. CONTRACTOR TO VERIFY IN FIELD THE LOCATION, SIZE, TYPE, AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO DIGGING THE SERVICE TRENCH. PROVIDE A MINIMUM OF 18" CLEARANCE BETWEEN PROPOSED UTILITIES AND EXISTING UTILITIES IN THE CASE OF UTILITY LINE CROSSINGS.

TYPICAL CONDUIT TRENCH DETAIL

3 CONDUIT TRENCH DETAIL  
NOT TO SCALE

INFINIGY8  
Design-Build-Deliver  
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Latham, NY 12110  
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Fax # (518) 860-0753

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Project Title:  
NAUGATUCK  
CT2409  
880 ANDREW MOUNTAIN RD.  
NAUGATUCK, CT

Prepared For:

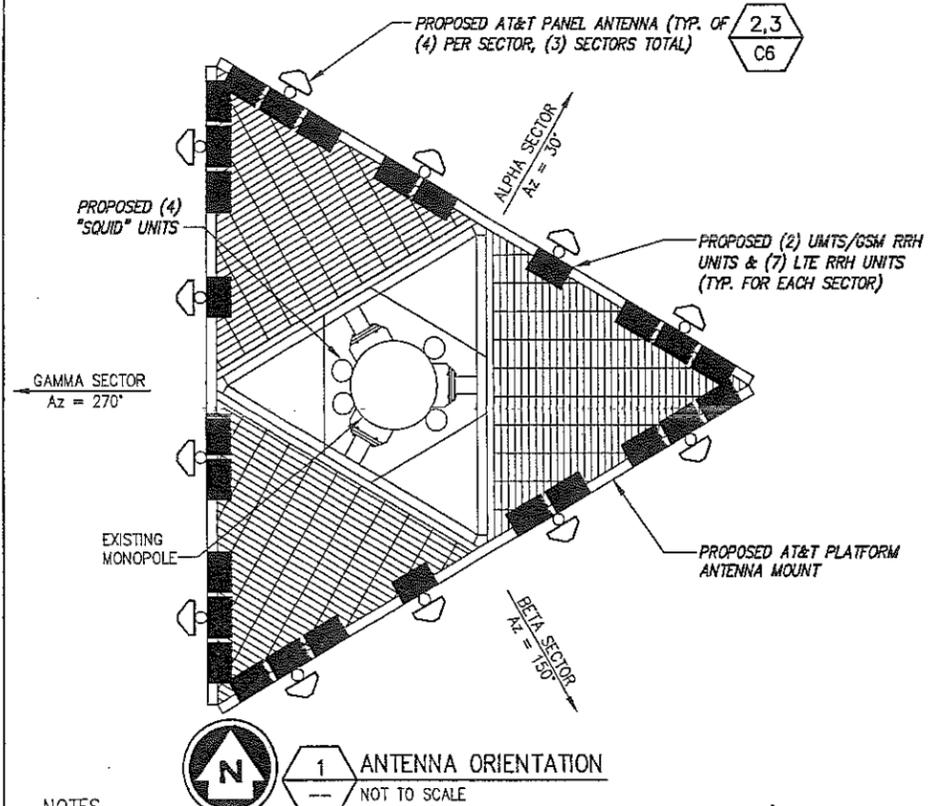


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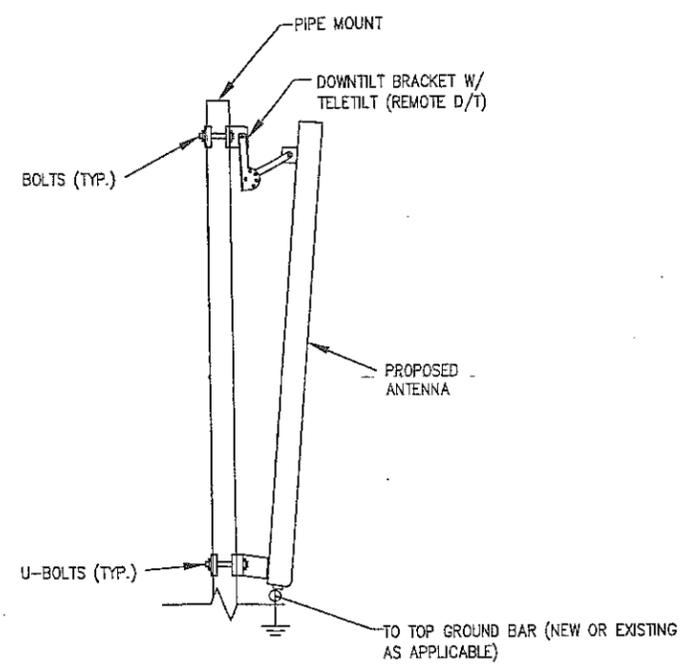
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Drawing Title: DETAILS

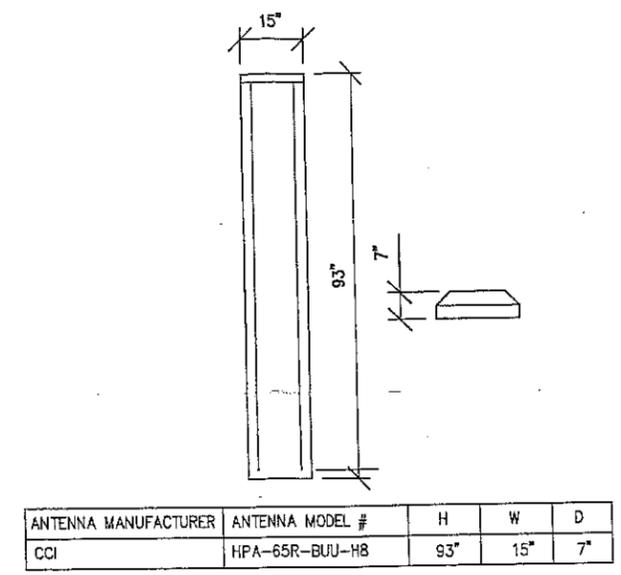
Drawing Number: C5



**1 ANTENNA ORIENTATION**  
--- NOT TO SCALE



**2 ANTENNA PIPE MOUNT**  
--- NOT TO SCALE



**3 ANTENNA DIMENSIONS**  
--- NOT TO SCALE

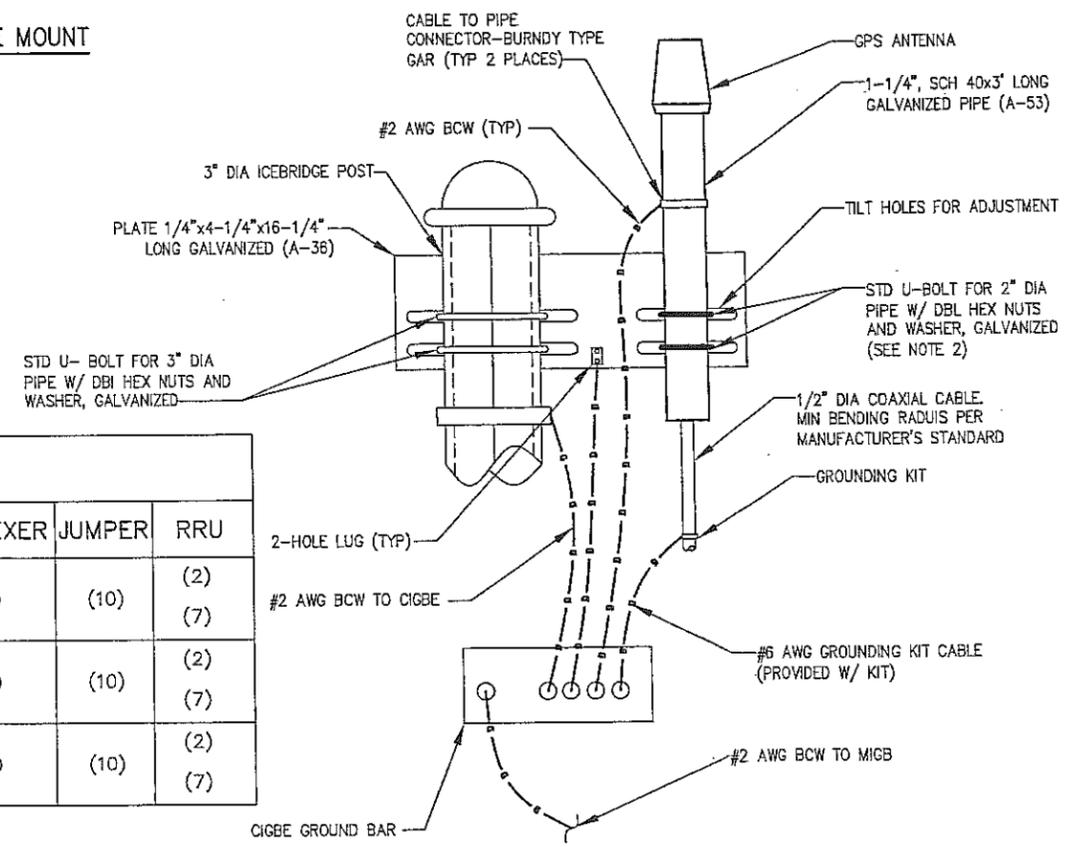
- NOTES**
1. ANTENNA CENTERLINE HEIGHT IS IN REFERENCE TO HEIGHT ABOVE GROUND ELEVATION AT CENTER OF TOWER.
  2. CONTRACTOR SHALL OBTAIN AND REVIEW RF DATA/CONFIGURATION FROM AT&T WIRELESS RF ENGINEER AND COORDINATE WITH AT&T WIRELESS CONSTRUCTION MANAGER THE FURNISHMENT AND INSTALLATION OF ANTENNAS AND APPROPRIATE DOWNTILT BRACKETS.
  3. ANTENNA MOUNTS, WAVEGUIDE LADDER, AND ALL OTHER TOWER SPECIFIC MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR, UNLESS SPECIFICALLY NOTED OTHERWISE.
  4. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT EXISTING EQUIPMENT AND STRUCTURES. ANY DAMAGE WILL BE REPAIRED AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL NOT LEAVE THE SITE UNSECURED AT ANY TIME.
  5. CONTRACTOR SHALL COMPILE A SCHEDULE OF ALL NECESSARY TOWER SPECIFIC MATERIALS (ANTENNA MOUNTS, WAVEGUIDE LADDER, MOUNTING HARDWARE, COAXIAL CABLES, ANTENNAS, ETC.) AND PROVIDE TO AT&T WIRELESS CONSTRUCTION MANAGER FOR USE IN TOWER STRUCTURAL ANALYSIS (IF APPLICABLE).

SECTOR	BAND	ANTENNA	ANTENNA HEIGHT	AZIMUTH	FEEDERS	COAX LENGTH	TMA	DIPLEXER	JUMPER	RRU	
ALPHA	UMTS/GSM LTE	850 MHz/ 1900 MHz	(4) HPA-65R-BUU-H8	116'	30°	SHARED WITH BETA SECTOR	±175'	(0)	0	(10)	(2)
BETA	UMTS/GSM LTE	850 MHz/ 1900 MHz	(4) HPA-65R-BUU-H8	116'	150°	(2) FIBER OPTIC (8) SETS OF DC POWER	±175'	(0)	0	(10)	(7)
GAMMA	UMTS/GSM LTE	850 MHz/ 1900 MHz	(4) HPA-65R-BUU-H8	116'	270°	SHARED WITH BETA SECTOR	±175'	(0)	0	(10)	(7)

LENGTH INCLUDES A BUFFER OF 15%.

CONTRACTOR TO VERIFY RF DATA WITH CONSTRUCTION MANAGER AND/OR RF ENGINEER PRIOR TO INSTALLATION.

**4 AT&T ANTENNA ORIENTATION**  
--- NOT TO SCALE



**5 GPS ANTENNA MOUNTING BRACKET DETAIL**  
--- NOT TO SCALE

- NOTES:**
1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" DIA, SCH 40, GALV STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQ'D LENGTH (MIN 18") USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
  2. THE MOUNTING PLATE SHALL BE FABRICATED AS SHOWN AND ATTACHED TO THE APPROPRIATE SUPPORT STRUCTURE USING U-BOLTS. THE SUPPORT PIPE SHALL THEN BE ATTACHED TO THE MOUNTING PLATE USING THE OVERSIZE U-BOLTS PROVIDED TO ALLOW ADJUSTMENT. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS W/IN 2' OF VERTICAL AND THE BASE OF THE ANTENNA IS W/IN 2' OF LEVEL.

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Project Number: 226-008  
Project Title: NAUGATUCK CT2409  
880 ANDREW MOUNTAIN RD.  
NAUGATUCK, CT



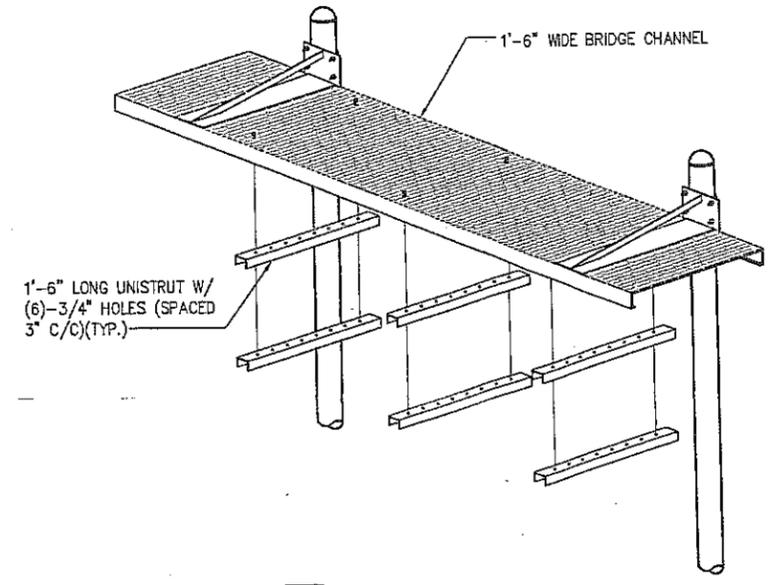
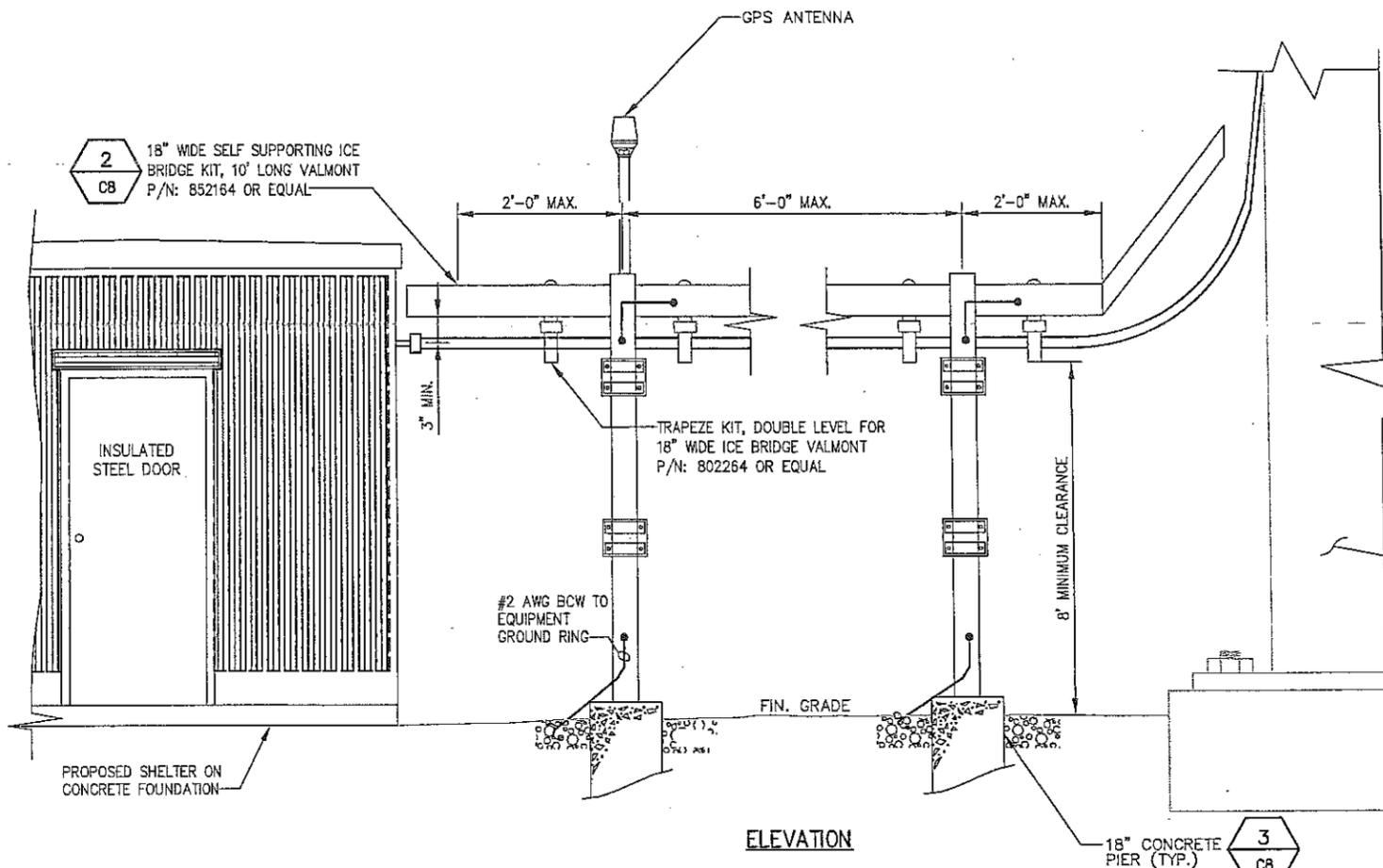
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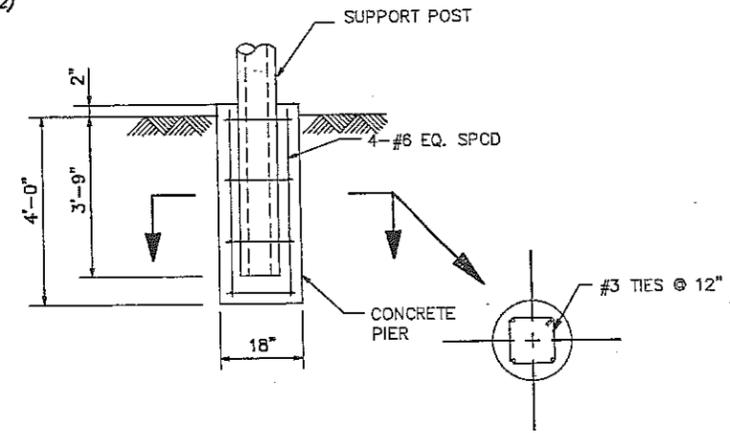
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Drawing Number: **C6**

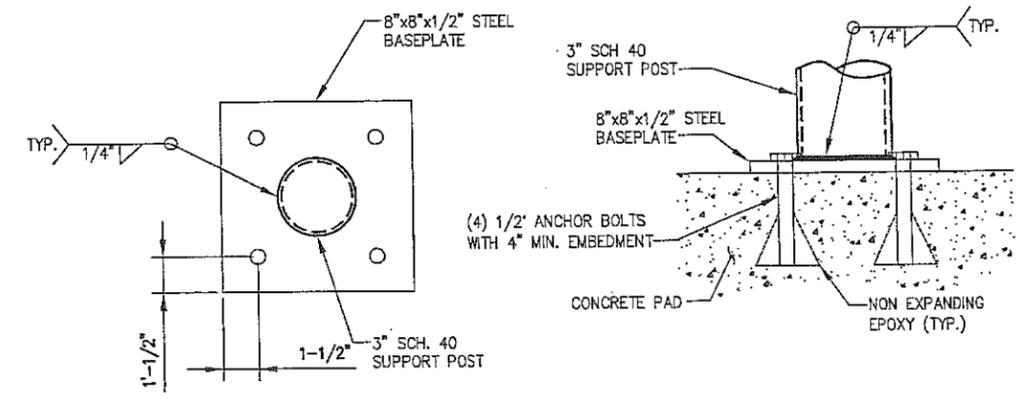


2 ISOMETRIC ICE BRIDGE  
NOT TO SCALE

PROPOSED NORTH ATLANTIC TOWERS  
120' MONOPOLE (DESIGN BY  
OTHERS, SEE NOTE 3, SHEET C2)

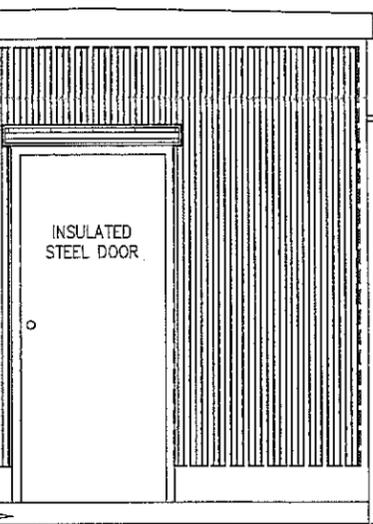


3 SUPPORT POST FOOTING  
NOT TO SCALE



4 SUPPORT POST MOUNTING DETAIL (ALTERNATE)  
NOT TO SCALE

2 18\"/>



PROPOSED SHELTER ON  
CONCRETE FOUNDATION

TRAPEZE KIT, DOUBLE LEVEL FOR  
18\"/>

#2 AWG BCW TO  
EQUIPMENT  
GROUND RING

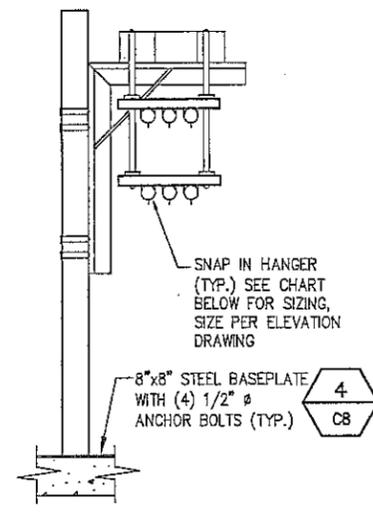
FIN. GRADE

18\"/>

ELEVATION

NOTES:

1. WHEN USING VALMONT COMPONENTS AS SHOWN IN STANDARD DETAILS, MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 19 FEET FOR 20 FEET BRIDGE CHANNEL, OR 9 FEET FOR 10 FEET BRIDGE CHANNEL.
2. WHEN USING VALMONT COMPONENTS FOR SPlicing BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
3. WHEN USING VALMONT COMPONENTS, SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF ICE BRIDGES, WITH A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE ICE BRIDGE.
4. CUT BRIDGE CHANNEL SECTIONS SHOULD HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THE EDGES TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.
5. ICE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM MANUFACTURERS OTHER THAN PIROD, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
6. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
7. ATTACH FLANGED END OF SUPPORT POST TO CONCRETE PAD USING 4 - 3/8\"/>



1 ICE BRIDGE DETAIL  
NOT TO SCALE

SNAP IN HANGER SIZING CHART

SIZE	COMMSCOPE P/N
7/8"	1873EZSNS
1-5/8"	1070EZSNS

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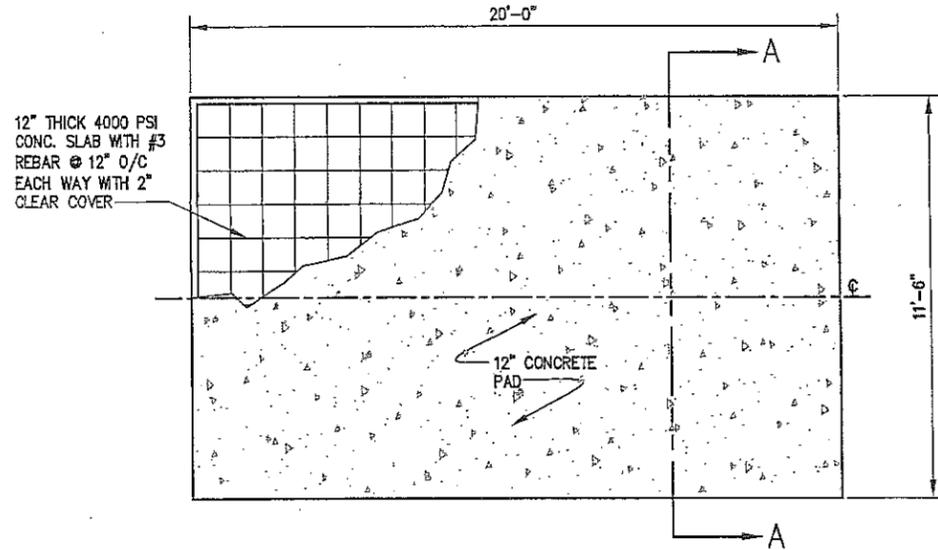
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Project Title: NAUGATUCK CT2409  
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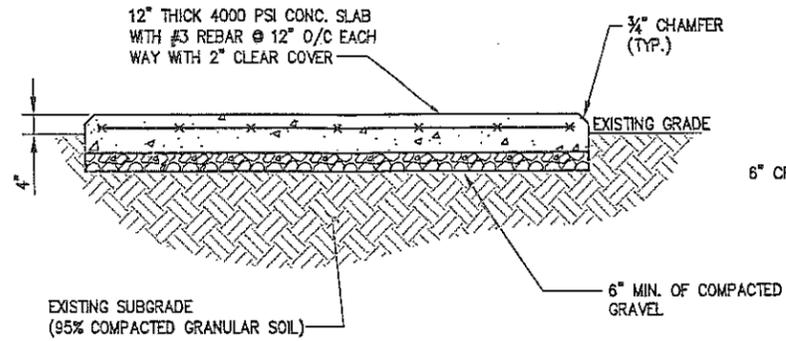
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Drawing Number: **G7**

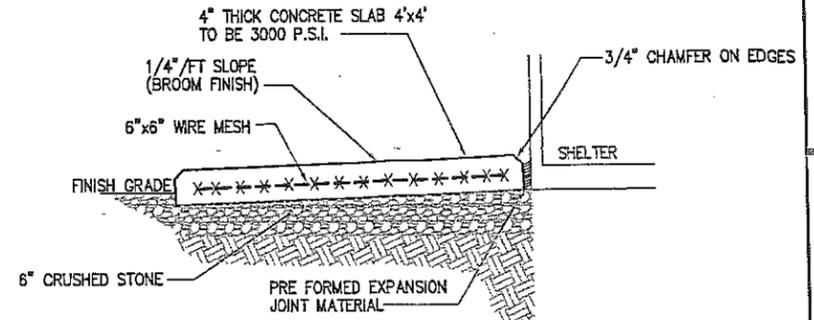


PLAN VIEW

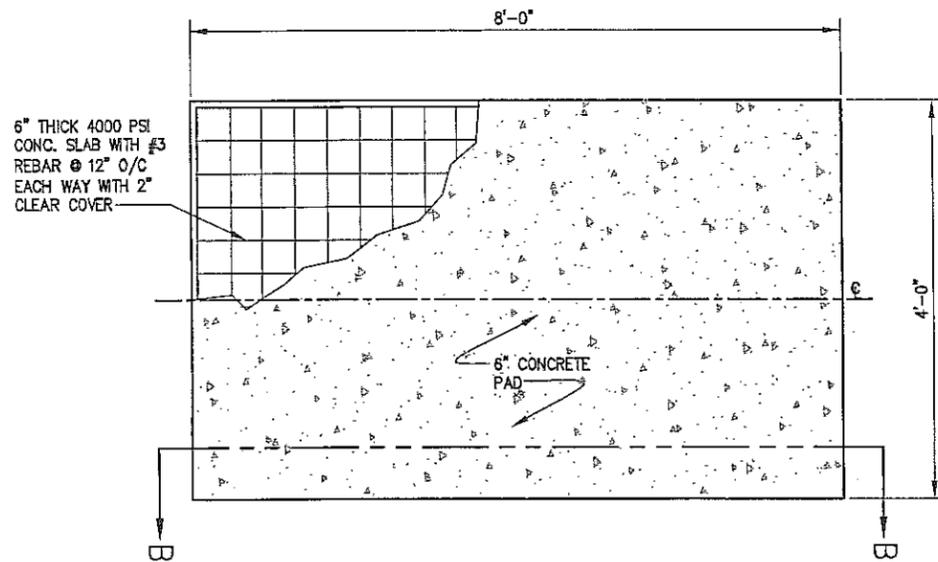
1 SHELTER FOUNDATION PLAN  
--- NOT TO SCALE



SECTION A-A

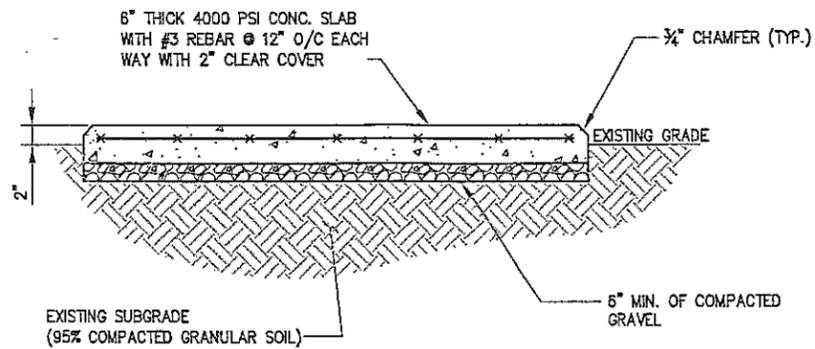


3 CONCRETE STOOP DETAIL  
--- NOT TO SCALE

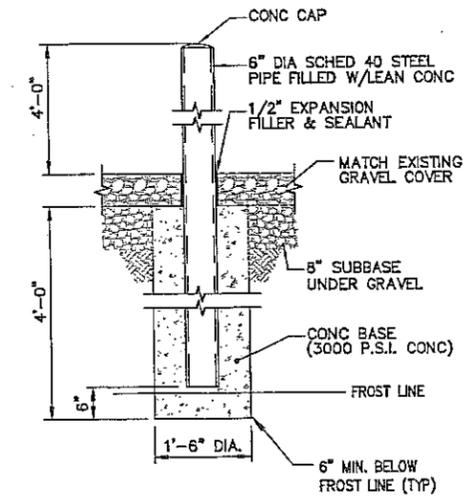


PLAN VIEW

2 GENERATOR FOUNDATION PLAN  
--- NOT TO SCALE



SECTION B-B



4 BOLLARD DETAIL  
--- NOT TO SCALE

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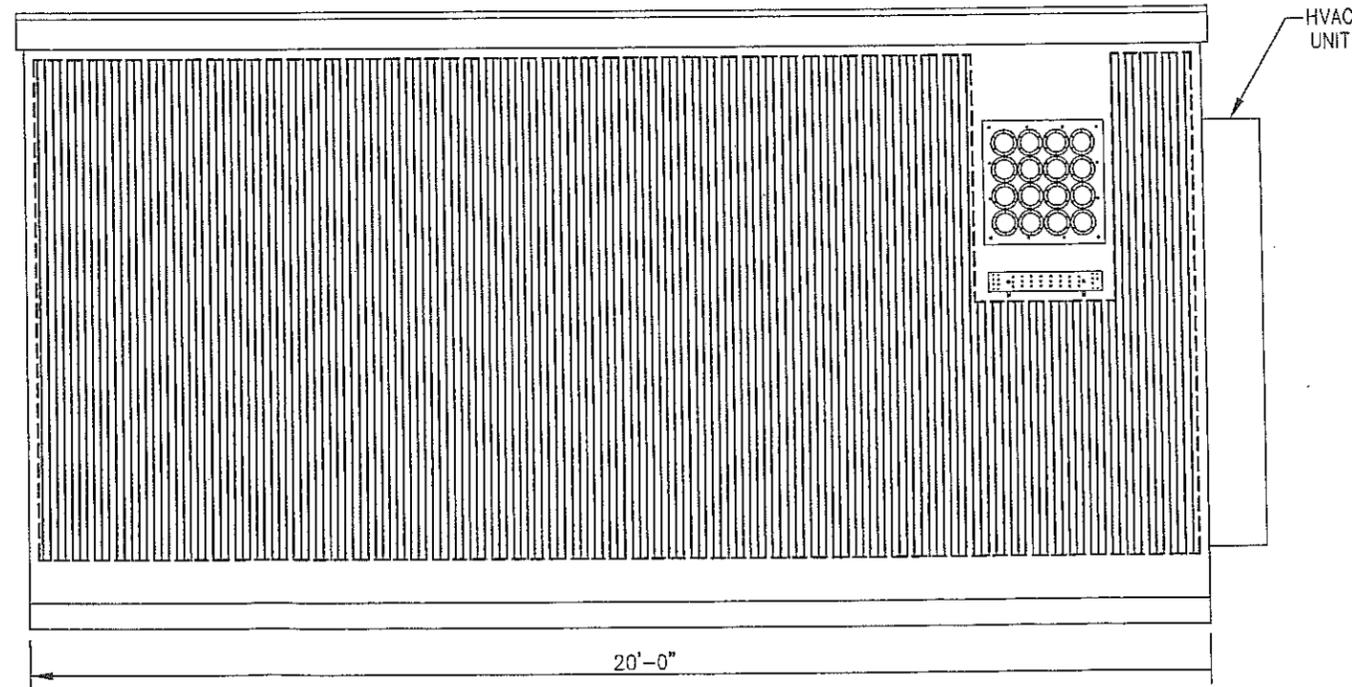
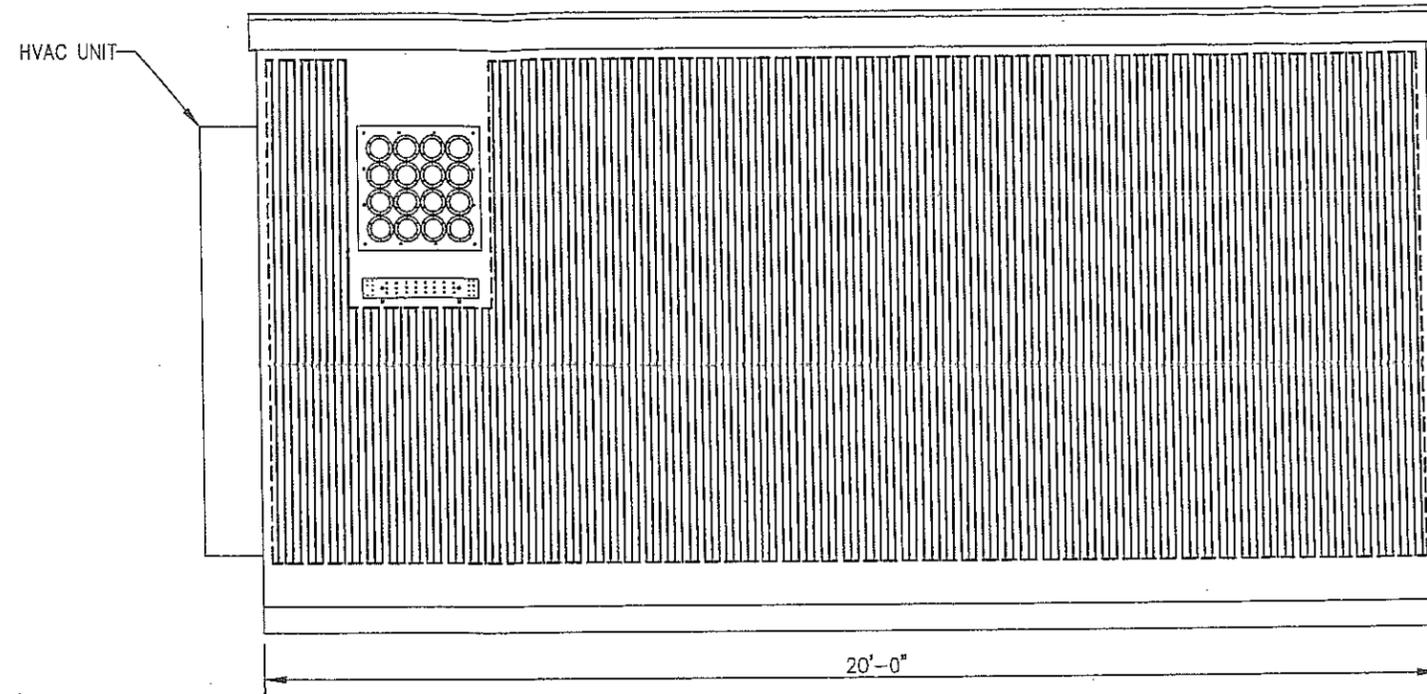
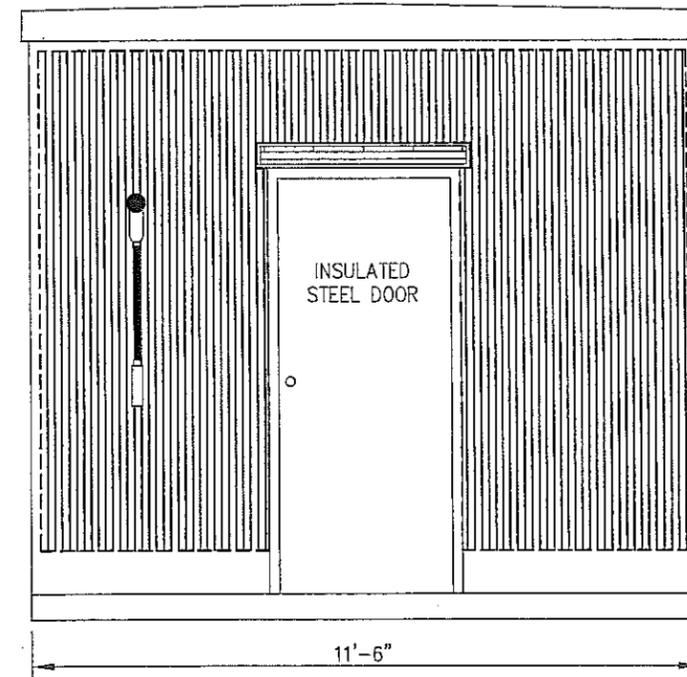
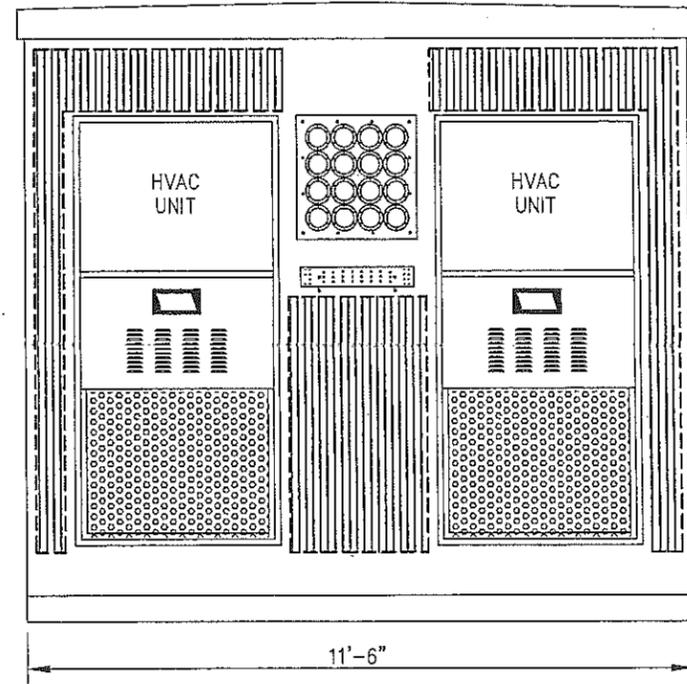
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Drawing Title: **AT&T FOUNDATION DETAILS**

Drawing Number: **C8**



NOTE: THE SHELTER SHOWN IS OF A TYPICAL LAYOUT ONLY. CONTRACTOR TO REFER TO FINAL MANUFACTURER'S SHELTER DESIGN DRAWINGS FOR EXACT DIMENSIONS, EQUIPMENT LOCATIONS AND CONDUIT PENETRATIONS, ETC., PRIOR TO CONSTRUCTION.

1 TYPICAL EQUIPMENT BUILDING  
 NOT TO SCALE

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Project Number 226-008

Project Title  
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**CT2409**  
 880 ANDREW MOUNTAIN RD.  
 NAUGATUCK, CT

Prepared For

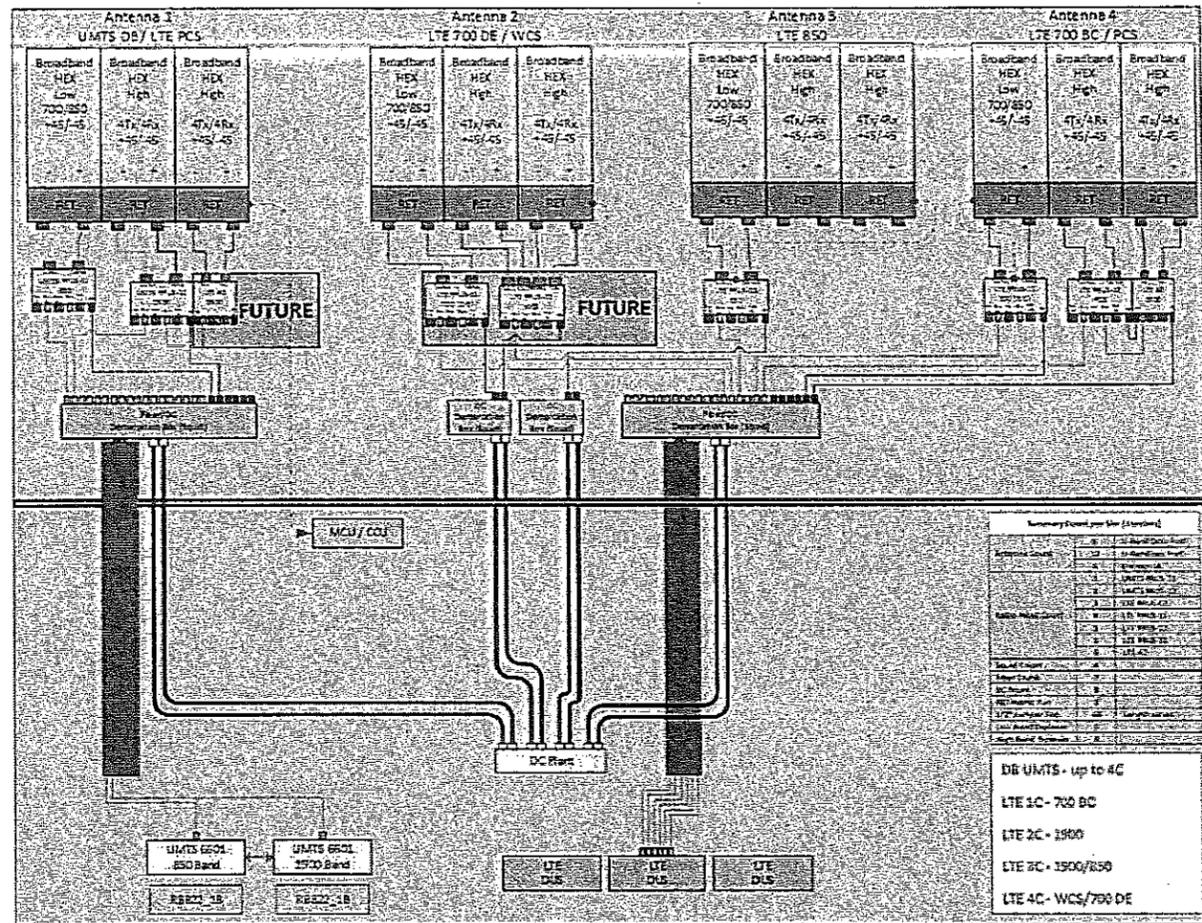


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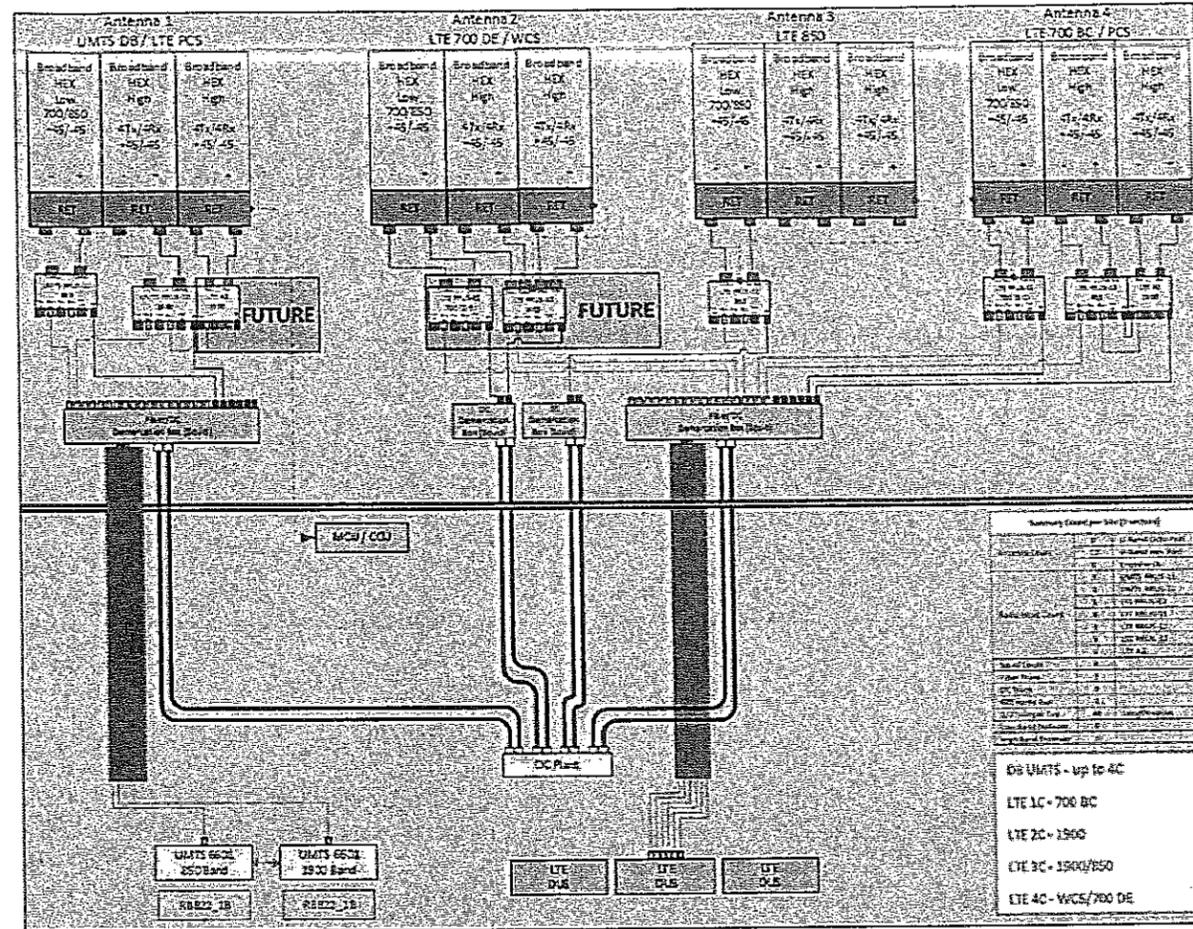
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**CD**

Drawing Title  
**AT&T**  
**SHELTER**  
**DETAILS**

Drawing Number  
**C9**



ALPHA SECTOR



BETA SECTOR

1 PLUMBING DIAGRAM  
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Project Number  
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Project Title  
**NAUGATUCK  
CT2409**  
880 ANDREW MOUNTAIN RD.  
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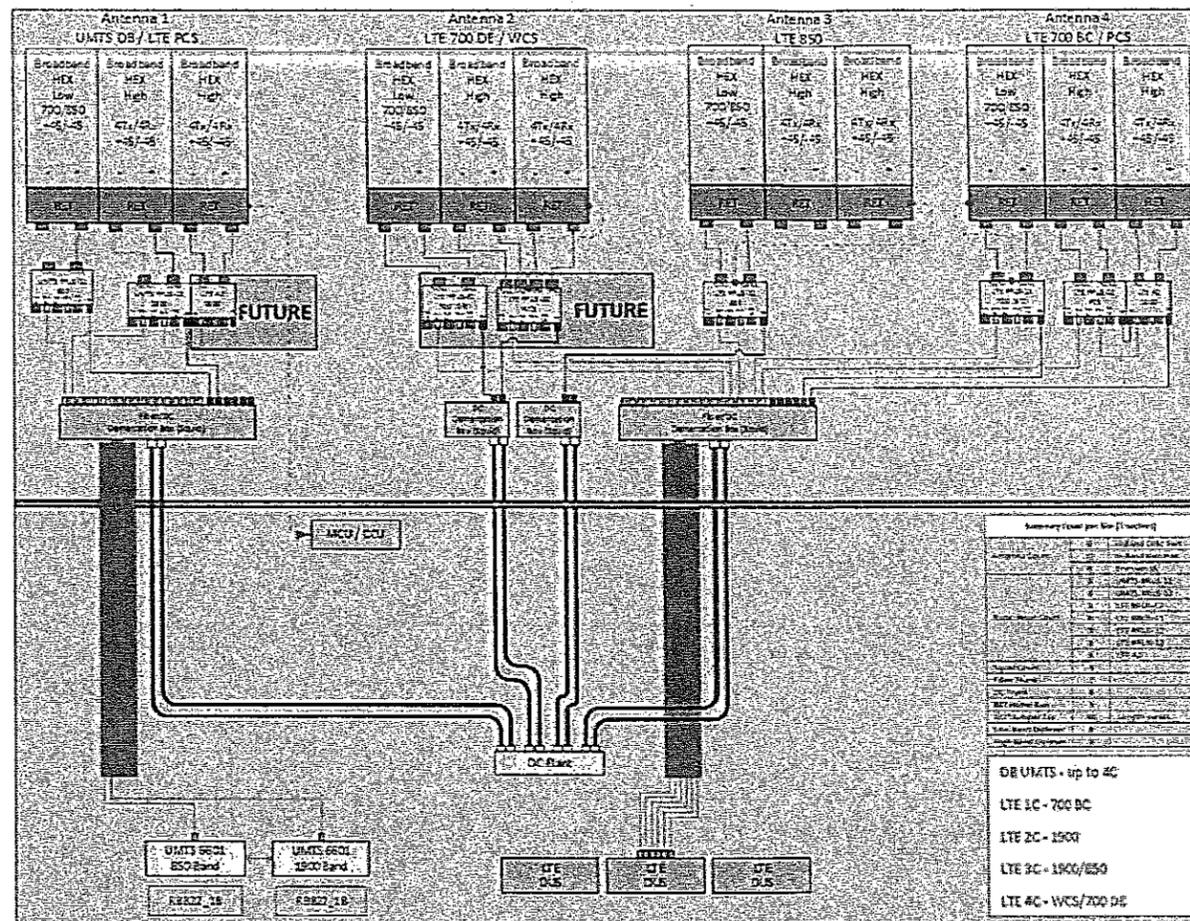


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Drawing Title  
**PLUMBING  
DIAGRAM**

Drawing Number  
**C10**



GAMMA SECTOR

1 PLUMBING DIAGRAM  
--- NOT TO SCALE

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Drawing Title: **PLUMBING DIAGRAM**

Drawing Number: **C11**

**INCOMING POWER AND TELEPHONE SERVICE NOTES:**

1. CONNECTION TO EXISTING UTILITIES AND INCOMING POWER AND TELEPHONE SERVICES IS FOR CONCEPT ONLY. THE CONTRACTOR SHALL COORDINATE THE ACTUAL LOCATION WITH THE ELECTRIC AND TELEPHONE UTILITIES AND CARRIER.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS WITH THE ELECTRIC AND TELEPHONE UTILITIES TO ENSURE TO A TIMELY INSTALLATION OF THE INCOMING POWER AND TELEPHONE SERVICES. THE CARRIER WILL OBTAIN AN ELECTRIC SERVICE ORDER (ESO) FOR THIS SITE PRIOR TO THE CONTRACTOR INITIATING ANY WORK ON-SITE.
3. THE INCOMING ELECTRIC SERVICE SHALL BE INSPECTED BY THE AUTHORITY HAVING JURISDICTION AND A CERTIFICATE OF SUCH INSPECTION SHALL BE FURNISHED TO THE CARRIER WITH A COPY FORWARDED TO THAT UTILITY.
4. ANY UTILITY CHARGES ASSOCIATED WITH THIS SITE SHALL BE PAID BY THE CARRIER AND NO CHARGES, THEREFORE SHALL ACCRUE TO THE CONTRACTOR.
5. COORDINATE METER SOCKET REQUIREMENTS AND UTILITY METER ENCLOSURE WITH CARRIER AND ELECTRIC UTILITY.
6. INCOMING ELECTRIC SERVICES SHALL BE IN CONFORMANCE WITH THE UTILITIES STANDARDS (LATEST EDITION).
7. INSTALL PULL ROPES IN ALL CONDUITS UNLESS NOTED OTHERWISE.
8. CONDUIT RUNS SHALL HAVE ONE 18"x18"x8" TRAFFIC RATED PULLBOX AFTER 270 DEGREES OF BEND.
9. CONDUIT RUNS SHALL HAVE A PULLBOX WITH A MAXIMUM SPACING OF 500 LINEAR FEET

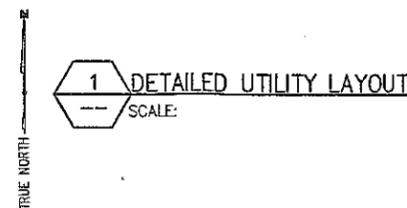
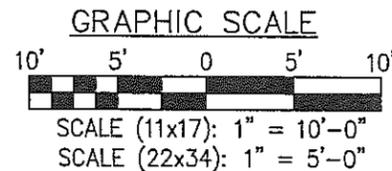
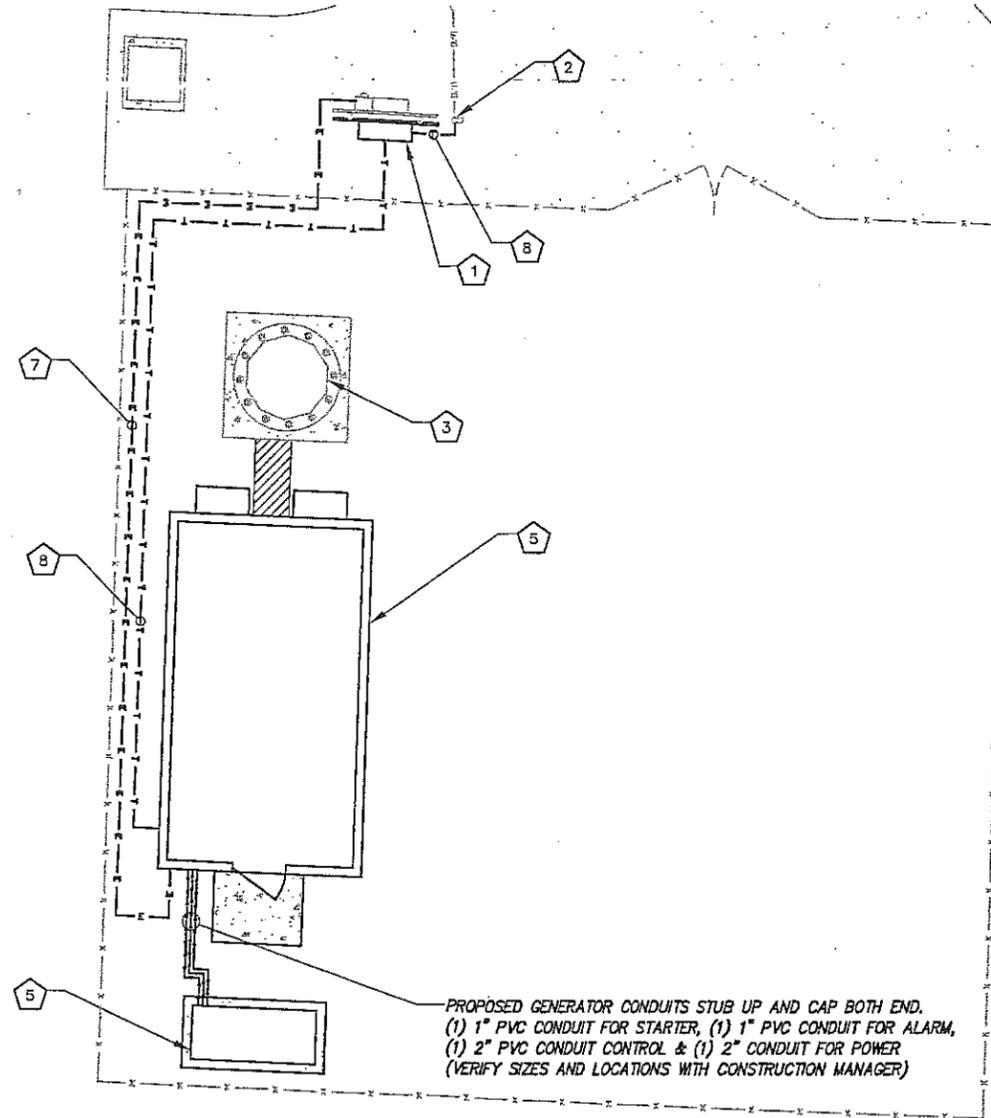
**CODED DRAWING NOTES:**

- 1 PROPOSED HOFFMAN BOX
- 2 EXISTING 4" CONDUIT FROM UTILITY POLE
- 3 EXISTING MONOPOLE
- 4 PROPOSED AT&T GENERATOR
- 5 PROPOSED 11'-6"x20' AT&T EQUIPMENT SHELTER
- 6 PROPOSED TRANSFORMER.
- 7 2" C. W/(3) #3/0 + #5 GND.
- 8 4" TELEPHONE CONDUIT W/(1) 25 PAIR, #24 AWG, SOLID, SHIELDED GEL FILLED TELEPHONE CABLE & 1200lb MULE TAPE.

**ABBREVIATIONS**

- AWG AMERICAN WIRE GAUGE
- BFG BELOW FINISH GRADE
- BTS BARE TINNED STRANDED
- C CONDUIT
- CAB CABINET
- DLO DIESEL LOCOMOTIVE CABLE
- DWG DRAWING
- EGR EXTERIOR GROUND RING
- EIGB EXTERIOR ISOLATED GROUND BAR
- G GROUND
- HALO INTERIOR GROUND RING
- MIGB MAIN ISOLATED GROUND BAR
- MGN MULTI-GROUNDED NEUTRAL
- MSC MOBILE SWITCHING CENTER
- MTSO MOBILE TELEPHONE SWITCHING OFFICE
- PVC POLYVINYL CHLORIDE
- RGS RIGID GALVANIZED STEEL
- SS STAINLESS STEEL
- SST SELF SUPPORTING TOWER
- TGR TOWER GROUND RING
- TYP. TYPICAL

**NOTE:**  
ELECTRIC COMPANY HAS VERIFIED THAT SERVICE SHALL BE 800A SINGLE PHASE AND WILL RE-USE EXISTING OVERHEAD UTILITY POLES LOCATED NORTH OF PROPOSED ACCESS



**GENERAL ELECTRICAL NOTES:**

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. CONDUITS EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. ALL UNDERGROUND CONDUIT SHALL TRANSITION FROM PVC TO RIGID ABOVE GRADE. PROVIDE 36" SEPARATION BETWEEN UNDERGROUND POWER AND TELEPHONE CONDUITS. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED. POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 1200 LB MULE TAPE IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

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Project Number  
226-008

Project Title  
**NAUGATUCK**  
CT2409  
880 ANDREW MOUNTAIN RD.  
NAUGATUCK, CT

Prepared For

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Drawing Scale:  
AS NOTED

Date:  
2/14/14

**CD**

Drawing Title  
**UTILITY ROUTING PLAN**

Drawing Number  
**E1**

**GENERAL NOTES:**

**1. INSPECTIONS**

- A. GENERAL: DURING AND UPON COMPLETION OF THE WORK, ARRANGE AND PAY ALL ASSOCIATED INSPECTIONS OF ALL ELECTRICAL WORK INSTALLED UNDER THIS CONTRACT IN ACCORDANCE WITH THE CONDITIONS OF THE CONTRACT. INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND ORDINANCES, UTILITY COMPANY REQUIREMENTS, AND THE LATEST EDITION OF NEC, NFC, NEMA, OSHA, SBC, AND UL.
- B. INSPECTIONS REQUIRED: AS PER THE LAWS AND REGULATIONS OF THE LOCAL AND/OR STATE AGENCIES HAVING JURISDICTION AT THE PROJECT SITE.
- C. INSPECTION AGENCY: APPROVED BY THE LOCAL AND/OR STATE AGENCIES HAVING JURISDICTION AT THE PROJECT SITE.
- D. CERTIFICATES: SUBMIT ALL REQUIRED INSPECTION CERTIFICATES.

**2. HANGERS AND SUPPORTS**

- A. MATERIALS: ALL HANGERS, SUPPORTS, FASTENERS AND HARDWARE SHALL BE ZINC COATED OR OF EQUIVALENT CORROSION RESISTANCE BY TREATMENT OR INHERENT PROPERTY, AND SHALL BE MANUFACTURED PRODUCTS DESIGNED FOR THE APPLICATION. PRODUCTS FOR OUTDOOR USE SHALL BE HOT DIP GALVANIZED.
- B. TYPES: HANGERS, STRAPS, RISER SUPPORTS, CLAMPS, U-CHANNEL, THREADED RODS, ETC. AS INDICATED OR REQUIRED.
- C. INSTALLATION: RIGIDLY SUPPORT AND SECURE ALL MATERIALS, RACEWAY AND EQUIPMENT TO BUILDING STRUCTURE USING HANGERS, SUPPORTS AND FASTENERS SUITABLE FOR THE USE, MATERIALS AND LOADS ENCOUNTERED. PROVIDE ALL NECESSARY HARDWARE. PROVIDE CONDUIT SUPPORTS AT MAXIMUM 5 FT. O.C.
- D. STRUCTURAL MEMBERS: DO NOT CUT, DRILL, OR WELD ANY STRUCTURAL MEMBER EXCEPT AS SPECIFICALLY APPROVED BY THE ENGINEER.
- E. MISCELLANEOUS SUPPORTS: PROVIDE ANY ADDITIONAL STRUCTURAL SUPPORT STEEL BRACKETS, ANGLES, FASTENERS AND HARDWARE AS REQUIRED TO ADEQUATELY SUPPORT ALL ELECTRICAL MATERIALS AND EQUIPMENT.
- F. ONE HOLE STRAPS SHALL NOT BE USED FOR CONDUITS LARGER THAN 3/4 INCH.

**3. ENCLOSURES**

- A. NEMA 3R

**4. HOLES, SLEEVES AND OPENINGS**

GENERAL: PROVIDE ALL HOLES, SLEEVES, AND OPENINGS REQUIRED FOR THE COMPLETION OF WORK AND RESTORE ALL SURFACES DAMAGED TO MATCH SURROUNDING SURFACES.

**5. CUTTING AND PATCHING**

- A. GENERAL: PROVIDE ALL CUTTING, DRILLING, FITTING AND PATCHING NECESSARY FOR ACCOMPLISHING THE WORK. THIS INCLUDES ANY AND ALL WORK NECESSARY TO: UNCOVER WORK TO PROVIDE FOR THE INSTALLATION OF ILL TIMED WORK, REMOVE AND REPLACE DEFECTIVE WORK AND WORK NOT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- B. REPAIRS: REPAIR ANY AND ALL DAMAGE TO WORK OF OTHER TRADES CAUSED BY CUTTING AND PATCHING OPERATIONS, USING SKILLED MECHANICS OF THE TRADES INVOLVED.

**6. RACEWAY SYSTEMS**

- A. FOR INITIAL ANCHOR TENANT: ALL CONDUIT AND ALL CONDUIT ELBOWS SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE.
- B. FOR FUTURE CARRIERS: ALL ABOVE GRADE CONDUIT AND ALL CONDUIT ELBOWS SHALL BE RIGID GALVANIZED STEEL UNLESS NOTED OTHERWISE. ALL BELOW GRADE CONDUIT (EXCEPT ELBOWS) SHALL BE SCHEDULE 40 PVC.
- C. TOWER LIGHT CIRCUIT FROM CONTROLLER TO LIGHTS SHALL BE SCHEDULE 40 PVC. RACEWAY BURIAL DEPTH SHALL BE AS PER NEC. USE CLEAN SAND BACKFILL FOR ALL BURIED RACEWAY SYSTEMS.

**7. CONDUCTORS**

USE 98% CONDUCTIVITY COPPER WITH TYPE XHHW-2 INSULATION, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG, STRANDED CONDUCTORS FOR WIRE LARGER THAN NO. 8. USE PRESSURE-TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER; SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.

**B. ELECTRIC SERVICE**

- A. GENERAL: COMPLY WITH AND COORDINATE ALL REQUIREMENTS OF THE UTILITY COMPANY.
- B. SHORT CIRCUIT RATINGS: PROVIDE EQUIPMENT WITH HIGHER FAULT CURRENT RATINGS AS NEEDED TO MATCH UTILITY COMPANY AVAILABLE FAULT CURRENT.

**9. TELEPHONE SERVICE**

- A. GENERAL: INSTALLATION SHALL BE IN ACCORDANCE WITH TELEPHONE UTILITY COMPANY'S RULES AND REGULATIONS. UTILIZE LONG SWEEP BENDS IN ALL TELEPHONE CONDUITS.

**10. GROUNDING SYSTEM**

- A. INSTALLATION: INSTALL AS INDICATED ON THE DRAWINGS AND AS REQUIRED. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED. USE CLEAN SAND AND CLAY BACKFILL FOR BURIED GROUND CONDUCTORS

**11. CHECKOUT, TESTING AND ADJUSTING**

- A. CORRECTION/REPLACEMENT: AFTER TESTING BY CONTRACTOR, OWNER OR ENGINEER, CORRECT ANY DEFICIENCIES AND REPLACE MATERIALS AND EQUIPMENT SHOWN TO BE DEFECTIVE OR UNABLE TO PERFORM AT DESIGN OR RATED CAPACITY.
- B. POWER CONDUCTORS: CONTRACTOR SHALL CONDUCT A CONTINUITY & INSULATION TEST ON CONDUCTORS BETWEEN SERVICE DISCONNECT SWITCH & POWER CABINET.
- C. WHEN SITE POWER IS DERIVED FROM 3 PHASE SOURCE LOAD READINGS WILL BE TAKEN AND RECORDED TO MAINTAIN A BALANCED LOAD AT THE PRIMARY SOURCE. RECORDS SHALL BE TURNED TO THE OWNER'S REPRESENTATIVE.

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**NAUGATUCK**  
**CT2409**  
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 NAUGATUCK, CT

Prepared For:



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Drawing Scale:	AS NOTED
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**CD**

Drawing Title:  
**ELECTRICAL**  
**NOTES**

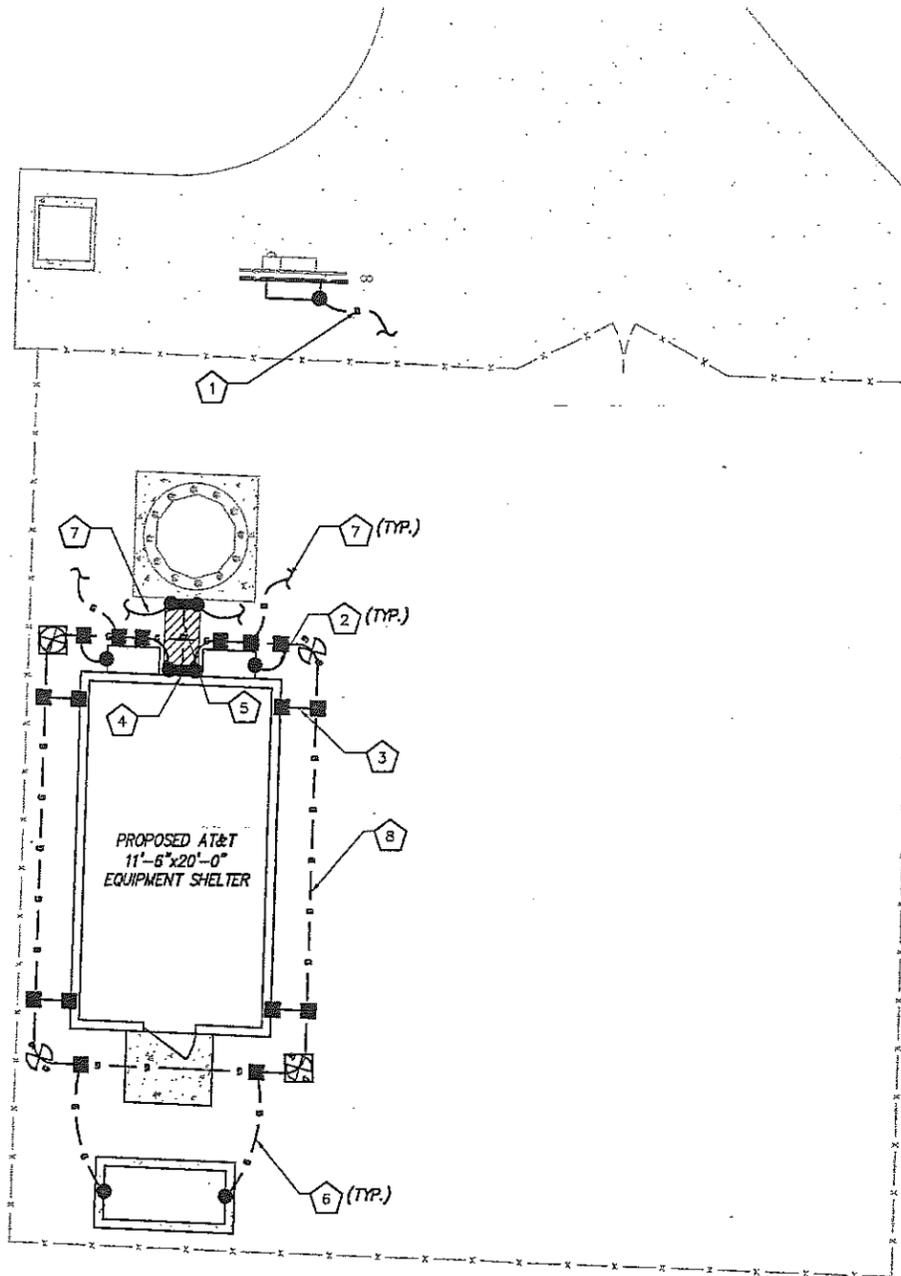
Drawing Number:  
**E2**

**GROUNDING SYMBOLS**

- ⊗ GROUND ROD (SEE NOTE THIS SHEET)
- ACCESS WELL
- ⊠ GROUND ROD WITH ACCESS
- COMPRESSION TYPE CONNECTION
- CADWELD TYPE CONNECTION
- G— #2/0 BTS COPPER CONDUCTOR BURIED GROUND CABLE 30" BELOW GRADE
- ⬡ # INDICATES CODED NOTE

**CODED DRAWING NOTES**

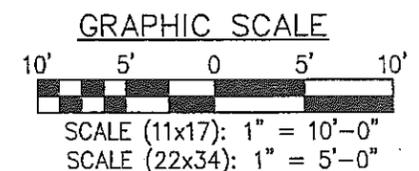
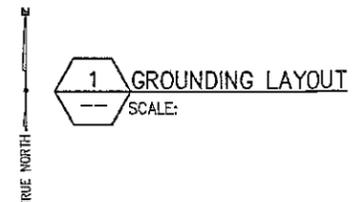
- 1 BOND NEW HOFFMAN BOX TO EXISTING COMPOUND GROUND RING WITH #2/0 SOLID TINNED BCW IN TWO PLACES.
- 2 BOND HVAC UNITS TO PROPOSED SHELTER GROUND RING.
- 3 BOND SHELTER FOUNDATION STEEL TO PROPOSED SHELTER GROUND RING.
- 4 GROUND COAX INTO INTERNAL GROUND BAR (EGB), & TOWER GROUND BAR (TGB).
- 5 BOND PROPOSED WAVEGUIDE BRIDGE TO PROPOSED(SHELTER) & EXISTING(TOWER) GROUND RINGS.
- 6 BOND PROPOSED AT&T GENERATOR TO PROPOSED SHELTER GROUND RING.
- 7 BOND PROPOSED SHELTER GROUND RING TO EXISTING TOWER GROUND RING WITH #2/0 SOLID TINNED BCW (TYP. OF (2) PLACES).
- 8 PROPOSED SHELTER GROUND RING WITH #2/0 SOLID TINNED BCW.



**GENERAL GROUNDING NOTES:**

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
  - #2/0 BARE TINNED SOLID COPPER CONDUCTOR: CADWELD TO RODS OR GROUND RING
  - LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. DO NOT INSTALL GROUND RING OUTSIDE OF LEASED AREA.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250-30.

ALL CARRIER EQUIPMENT GROUNDING TO BE COORDINATED WITH CONSTRUCTION MANAGER TO MEET THE CARRIERS SPECIFICATIONS.



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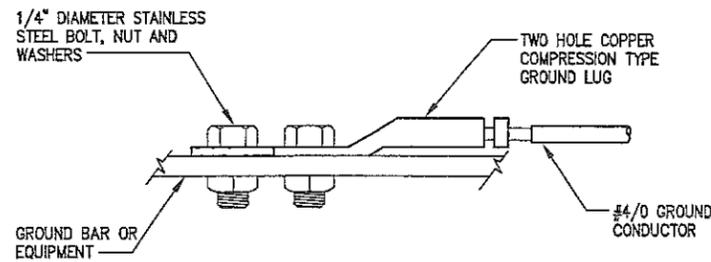
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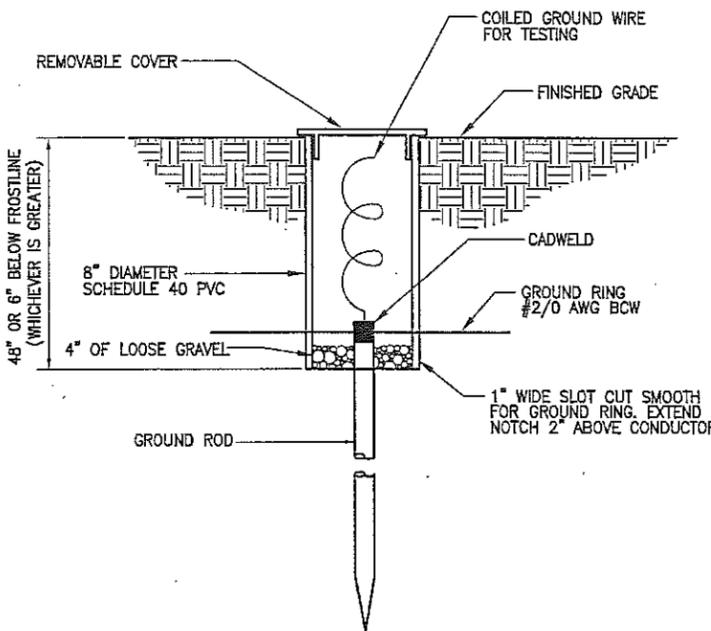
Drawing Title:  
**GROUNDING LAYOUT**

Drawing Number:  
**E3**

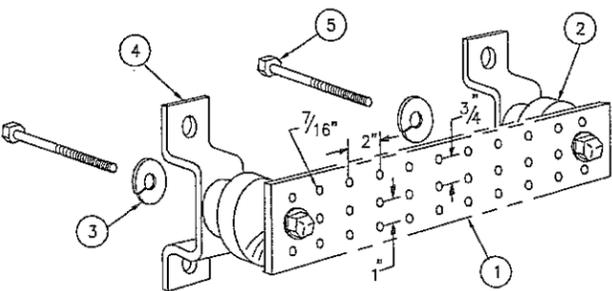


NOTE:  
ALL MECHANICAL EXTERNAL TERMINATION SURFACES SHALL BE TREATED WITH T&B KOPR-SHIELD CP8 ANTI-OXIDATION COMPOUND.

1 EQUIPMENT GROUND CONNECTION  
NOT TO SCALE



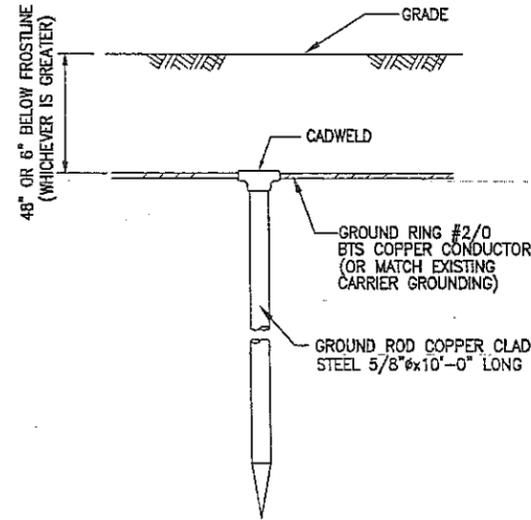
2 INSPECTION SLEEVE DETAIL  
NOT TO SCALE



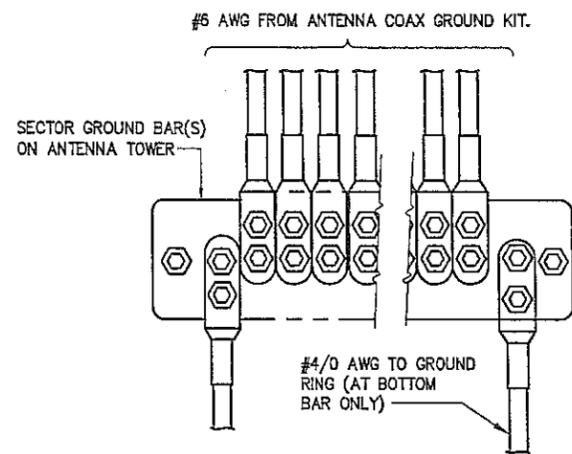
3 TINNED GROUND BAR DETAIL  
NOT TO SCALE

LEGEND

- 1 - TINNED COPPER GROUND BAR, 1/4" x 4" x 24"
- 2 - INSULATORS (NO INSULATORS ON TOWER)
- 3 - 5/8" LOCK WASHERS
- 4 - MOUNTING BRACKET (MOUNT HORIZONTAL ON VERTICAL CABLE LADDER)
- 5 - 5/8-11 X 1" H.H.C.S.BOLTS



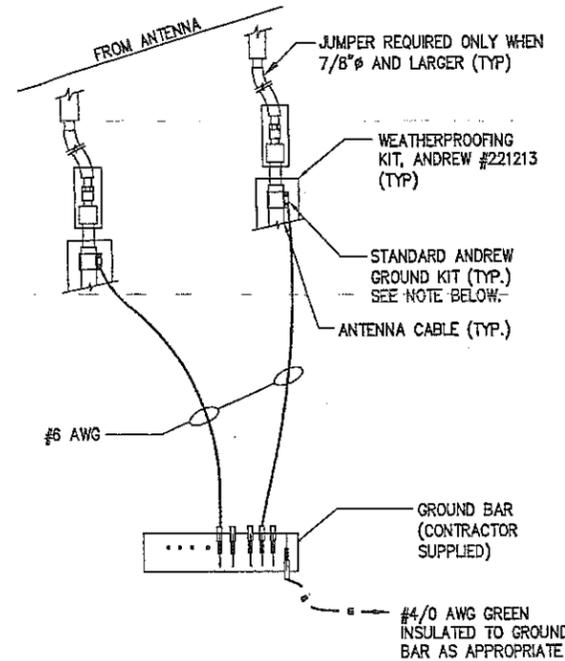
4 GROUND ROD DETAIL  
NOT TO SCALE



5 ANTENNA GROUND WIRE INSTALLATION  
NOT TO SCALE

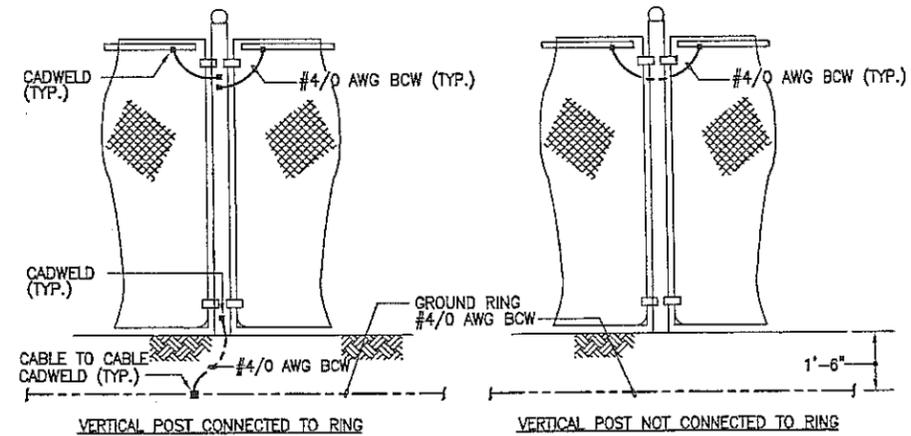
NOTES:

1. COPPER GROUND BAR 1/4" x 4" x 24" 2-HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.



NOTE:  
DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO GIBE.

6 CONNECTION OF GROUND WIRES TO GROUNDING BARS @ ANTENNAS  
NOT TO SCALE

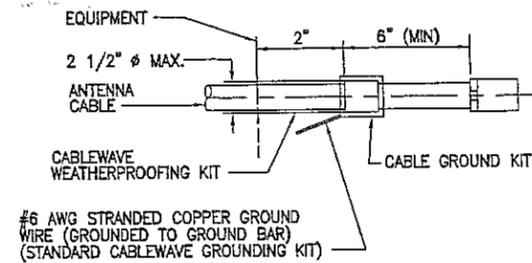
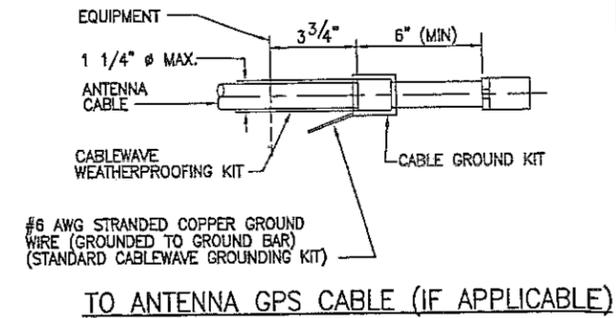


NOTES:

1. VERTICAL POSTS SHALL BE BONDED TO THE RING AT EACH CORNER AND AT EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 FOOT STRAIGHT RUN OF FENCE.
2. HORIZONTAL POLES SHALL BE BONDED TO EACH OTHER.
3. BOND EACH HORIZONTAL POLE/BRACE TO EACH OTHER AND TO EACH VERTICAL POST THAT IS BONDED TO THE EXTERIOR GROUND RING.

7 CABLE GROUND KIT CONNECTION  
NOT TO SCALE

8 FENCE GROUNDING  
NOT TO SCALE



NOTE:  
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

9 TO ANTENNA CABLE  
NOT TO SCALE

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NAUGATUCK, CT

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**GROUNDING DETAILS**

Drawing Number: E4