

June 4, 2012

VIA Hand Delivery

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: AT&T Mobility - Notice of Exempt Modification
111 Middle Turnpike, Storrs Mansfield, CT



Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility ("AT&T"). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Town Manager of Windsor.

AT&T plans to modify the existing facility at 111 Middle Turnpike, owned by Burnam W Jr & Megan Thompson (coordinates 41-48-14.011 N, 72-18-17.996 W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to AT&T's operations at the site.

The changes to the 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. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C. S.A. Section 16-50j-1 2(b)(2).

1. The height of the overall structure will be unaffected. The existing antennas will remain and AT&T will add three (3) new antennas, six (6) RRU's and one (1) surge arrestor. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables on the existing laminated wood tower.
2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment shelter. Thus, there will be no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed change will be negligible.
4. The changes to the facility 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 environment as calculated for a mixed frequency site. As indicated in the attached

CT5821

power density calculations, AT&T's operations at the site will result in a power density of 13.21%; the combined site operations will result in a total power density of 13.21%.

Please feel free to call me with any questions or concerns regarding this matter.
Thank you for your consideration.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Stephanie Wenderoth". The signature is fluid and cursive, with the first name "Stephanie" written in a larger, more prominent script than the last name "Wenderoth".

AT&T Mobility
Stephanie Wenderoth, Consultant
wenderoths@nexlinkgs.com
401.477.2938

Cc: Matthew W. Hart; Town Manager, 4 South Eagleville Road; Storrs, CT 06268



Nexlink Global Services
800 Marshall Phelps Rd
Windsor CT. 06095
(860) 640-4833



Jason Cheronis
520 South Main St, Suite 2531
Akron, OH 44311
(330) 572-2137
jcheronis@gpdgroup.com

GPD# 2012801.03
May 21, 2012

RIGOROUS STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION: Site USID: 36326
Site FA: 10071109
Site Name: MANSFIELD WEST
AT&T Project: MOD LTE W3 021012

ANALYSIS CRITERIA: Codes: ASCE 7-05, NDS 2005 & 2005 CT State Building Code
100-mph 3 second gust with 0" ice
40-mph 3 second gust with 1" ice

SITE DATA: 111 Middle Turnpike, Storrs Mansfield, CT 06268, Tolland County
Latitude 41° 48' 14.011" N, Longitude 72° 18' 17.996" W
Market: MA/RI/VT/NH/ME/CT
55' Laminated Wood Monopole

Mr. Mark Roberts,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

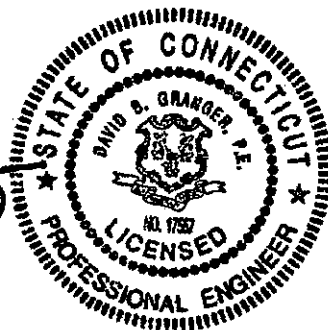
Analysis Results

Tower Stress Level with Proposed Equipment:	81.0%	Pass
Foundation Ratio with Proposed Equipment:	74.8%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and Nexlink. If you have any questions or need further assistance on this or any other projects please do not hesitate to call.

Respectfully submitted,

David B. Granger, P.E.
Connecticut #: 17557



SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T to Nexlink. This report was commissioned by Mr. Mark Roberts of Nexlink.

The proposed DC/Fiber cables shall be installed within the existing coax shroud with the existing coax. See Appendix B for the proposed coax layout.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	81.0%	Pass
Foundation	74.8%	Pass

ANALYSIS METHOD

Microsoft Excel was used calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix C. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a detailed site visit.

DOCUMENTS PROVIDED

Document	Remarks	Source
Equipment Modification Form	AT&T Equipment Modification Form, uploaded 4/12/12	Siterra
Geotechnical Report	GPD Group Job #: 2012801.03, dated 5/10/12	GPD
Previous Structural Analysis	URS Project #: 36912910, dated 10/8/03	Siterra
Previous Structural Analysis	GPD Group Job #: 2008013.20, dated 11/26/08	Siterra

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The appurtenance configuration is as supplied, determined from available photos, and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. The proposed DC/Fiber cables shall be installed within the existing coax shroud with the existing coax. See Appendix B for the proposed coax layout.
9. Per recent site photos and the previous structural analysis by GPD Group Job #: 2008013.20, dated 11/26/08, there are a total of (6) existing TMAs as opposed to (3) as listed within the Equipment Modification Form.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Group should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Rigorous Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the specified code recommended amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

General Info	
Site Name	MANSFIELD WEST
Site Number	36326
FA Number	10071109
Date of Analysis	5/21/2012
Company Performing Analysis	GPD

Tower Info	Description	Date
Tower Type (G, SST, MP)	Laminated Wood Pole	
Tower Height (top of steel AGL)	55'	
Tower Manufacturer	Laminated Wood Systems	
Tower Model	N/A	
Tower Design	Laminated Wood Syst. Drawing #: BECT-4004.06A1	10/2/2003
Foundation Design	Laminated Wood Syst. Drawing #: BECT-4004.06A1	10/2/2003
Geotech Report	GPD Group, Job #: 2012801.03	5/10/2012
Tower Mapping	N/A	
Previous Structural Analysis	GPD Group, Job #: 2008013.20	
Foundation Mapping	N/A	11/26/2008

Analysis Results (% Maximum Usage)	
<i>Existing/Reserved + Future + Proposed Condition</i>	
Tower (%)	81.0%
Base Plate (%)	n/a
Foundation (%)	74.8%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)	
Pole	Southern Yellow Pine 24F-V5
Base Plate	n/a

Existing / Reserved Loading															
Antenna															
Antenna Owner		Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T Mobility		51	51	3	Panel	Powerwave	7770.00	3D/110/240	3	Unknown	Pipe Mount	6	LDF5-50A	7/8"	In Shroud
AT&T Mobility		51	51	6	TMA	Powerwave	LGP17201		1			1	Shroud	4.5"	North Face

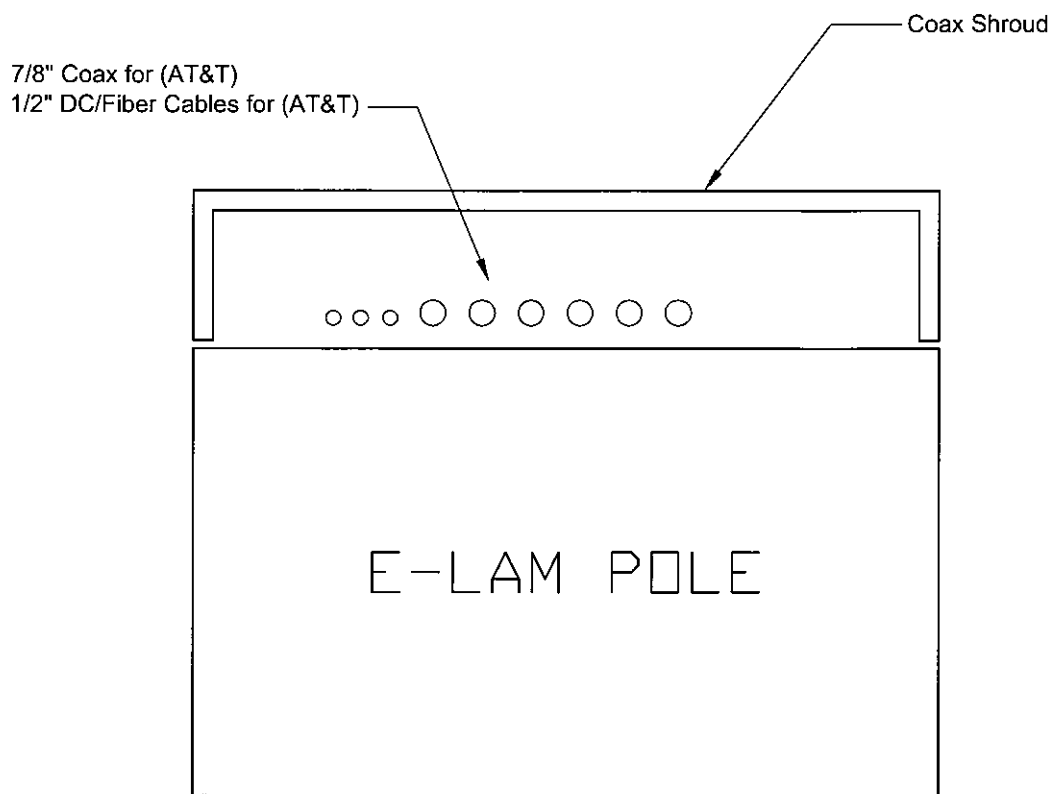
Antenna										Mount			Transmission Line		
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face	
AT&T Mobility	51	51	2	Panel	KMW	AM-X-CD-16-65-00T	30/240	3	Unknown	4" T-Arms	3	DC/Fiber	1/2"	In Stroud	
AT&T Mobility	51	51	1	Panel	Powerwave	P65-17-XLH-RR	110			On the same mounts					
AT&T Mobility	49	49	6	RRU	Ericsson	RBS 6601				Flush Mounted					
AT&T Mobility	49	49	1	DC Unit	Raycap	DC6-48-60-18-8F				Flush Mounted					

Note: The proposed loading is in addition to the existing/reserved loading at the same elevation.

[illegible]

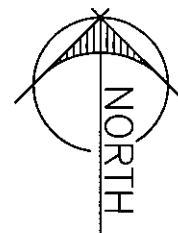
APPENDIX B

Coax Layout



FEEDLINE PLAN

NOT TO SCALE



36326 MANSFIELD WEST

APPENDIX C

Tower Calculations

36326 MANSFIELD WEST

GPD Job #: 2012801.03

WOOD POLE ANALYSIS

Wind Calculations

Wind Loading
Strength Design
Wind Speed
Pole Shape
Pole Density
Exposure Category
Pole Height
Zg
α
Kzmin

ASCE 7-05
2005 NDS
100 mph
Rectangular
0.036 kcf
C
55 ft
900 ft
9.5
0.85

TOWER (Longitudinal) (X-X Axis)

Z (ft)	Section Height (ft)	Section Width (in)	Cross Sectional Area (in ²)	AG * 1.05 (ft ²)	I	Kd	Kzt	Kz	qz (lb/ft ²)	G	Cf	Force (kips)	Moment (kip-ft)	Weight (kips)
52.50	5.00	18.25	225.02	7.98	1.00	0.90	1.00	1.11	25.46	0.85	2.00	0.346	18.14	0.281
45.00	10.00	18.25	243.09	15.97	1.00	0.90	1.00	1.07	24.65	0.85	2.00	0.669	30.11	0.608
35.00	10.00	18.25	267.18	15.97	1.00	0.90	1.00	1.01	23.38	0.85	2.00	0.635	22.21	0.668
25.00	10.00	18.25	291.09	15.97	1.00	0.90	1.00	0.95	21.78	0.85	2.00	0.591	14.78	0.728
15.00	10.00	18.25	315.18	15.97	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.532	7.97	0.788
5.00	10.00	18.25	339.27	15.97	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.532	2.66	0.848
Sub Total												3.30	95.88	3.92

TOWER (Transverse) (Y-Y Axis)

Z (ft)	Section Height (ft)	Section Width (in)	Cross Sectional Area (in ²)	AG * 1.05 (ft ²)	I	Kd	Kzt	Kz	qz (lb/ft ²)	G	Cf	Force (kips)	Moment (kip-ft)	Weight (kips)
52.50	5.00	12.33	225.02	5.39	1.00	0.90	1.00	1.11	25.46	0.85	2.00	0.233	12.26	0.281
45.00	10.00	13.32	243.09	11.66	1.00	0.90	1.00	1.07	24.65	0.85	2.00	0.488	21.98	0.608
35.00	10.00	14.84	267.18	12.81	1.00	0.90	1.00	1.01	23.38	0.85	2.00	0.509	17.82	0.668
25.00	10.00	15.95	291.09	13.96	1.00	0.90	1.00	0.95	21.78	0.85	2.00	0.517	12.92	0.728
15.00	10.00	17.27	315.18	15.11	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.503	7.55	0.788
5.00	10.00	18.59	339.27	16.27	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.542	2.71	0.848
Sub Total												2.79	75.22	3.92

APPURTENANCES (Longitudinal) (X-X Axis)

	Z (ft)	AC (ft ²)	I	Kd	Kzt	Kz	qz (lb/ft ²)	G	Cf	Force (kips)	Moment (kip-ft)	Weight (kips)
(3) 4' T-Arms	51.00	7.50	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.161	8.23	0.2520
(3) 7770.00 w/ Mount Pipe	51.00	14.30	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.308	15.68	0.1050
(6) LGP17201	51.00	6.30	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.135	6.91	0.1860
(2) AM-X-CD-16-65-00T w/ Mount Pipe	51.00	14.80	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.318	16.24	0.0970
(1) P65-17-XLH-RR w/ Mount Pipe	51.00	9.02	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.194	9.90	0.0700
(6) RBS 6601	49.00	2.75	1.00	0.90	1.00	1.09	25.09	0.85	1.00	0.000	0.00	0.1320
(1) DC6-48-60-18-8F	49.00	1.47	1.00	0.90	1.00	1.09	25.09	0.85	1.00	0.031	1.53	0.0328
Sub Total										1.15	58.49	0.87

APPURTENANCES (Transverse) (Y-Y Axis)

	Z (ft)	AC (ft ²)	I	Kd	Kzt	Kz	qz (lb/ft ²)	G	Cf	Force (kips)	Moment (kip-ft)	Weight (kips)
(3) 4' T-Arms	51.00	7.50	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.161	8.23	0.2520
(3) 7770.00 w/ Mount Pipe	51.00	15.66	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.337	17.18	0.1050
(6) LGP17201	51.00	8.49	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.183	9.31	0.1860
(2) AM-X-CD-16-65-00T w/ Mount Pipe	51.00	14.80	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.318	16.24	0.0970
(1) P65-17-XLH-RR w/ Mount Pipe	51.00	11.14	1.00	0.90	1.00	1.10	25.31	0.85	1.00	0.240	12.22	0.0700
(6) RBS 6601	49.00	2.99	1.00	0.90	1.00	1.09	25.09	0.85	1.00	0.064	3.12	0.1320
(1) DC6-48-60-18-8F	49.00	1.47	1.00	0.90	1.00	1.09	25.09	0.85	1.00	0.031	1.53	0.0328
Sub Total										1.33	67.83	0.87

COAX (Transverse) (Y-Y Axis)

	Z (ft)	AC (ft ²)	I	Kd	Kzt	Kz	qz (lb/ft ²)	G	Ci	Force (kips)	Moment (kip-ft)	Weight (kips)
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (50'-51')	50.50	0.09	1.00	0.95	1.00	1.10	26.66	0.85	1.20	0.002	0.12	0.0024
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (40'-50')	45.00	3.75	1.00	0.90	1.00	1.07	24.65	0.85	2.00	0.157	7.07	0.0934
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (30'-40')	35.00	3.75	1.00	0.90	1.00	1.01	23.38	0.85	2.00	0.149	5.22	0.0934
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (20'-30')	25.00	3.75	1.00	0.90	1.00	0.95	21.78	0.85	2.00	0.139	3.47	0.0934
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (10'-20')	15.00	3.75	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.125	1.87	0.0934
(6) 7/8" Coax, (3) 1/2" DC/Fiber & Shroud (5'-10')	7.50	1.88	1.00	0.90	1.00	0.85	19.58	0.85	2.00	0.062	0.47	0.0467
Sub Total										0.63	18.22	0.42

Longitudinal

Moment (kip-ft)	Axial (kips)	Shear (kips)	Elevation
154.37	5.26	4.45	0ft

Caisson Max Moment (Longitudinal)

Moment (kip-ft)	169.4
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Transverse

Moment (kip-ft)	Axial (kips)	Shear (kips)	Elevation
161.28	5.22	4.76	0ft

Caisson Max Moment (Transverse)

Moment (kip-ft)	177.7
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LONGITUDINAL (X-X) (2005 N.D.S.)
SECTION PROPERTIES AND STRESSES (SPREAD SHEET RESULTS)

SECTION PROPERTIES AND STRESSES (SPREAD SHEET RESULTS)														Y-Dir.	
ELEVATION	WIDTH	DEPTH	F _b	S	AREA	I	I _b	F _b '	I _b /F _b '	I _c	F _c	F _c	I _c /F _c	Interaction	
(ft)	(in)	(in)	(ksi)	(in ³)	(in ²)	(in ⁴)	(ksi)	(ksi)		(ksi)	(ksi)	(ksi)			
-4.20	18.25	19.25	2.40	1127.13	351.31	10848.60	1.80	3.35	53.8%	0.015	1.65	2.64	0.6%	57.0%	
0.00	18.25	19.25	2.40	1127.13	351.31	10848.60	1.64	3.35	49.0%	0.015	1.65	0.26	5.7%	52.3%	

TRANSVERSE (Y-Y) (2005 N.D.S.)
SECTION PROPERTIES AND STRESSES (SPREAD SHEET RESULTS)

SECTION PROPERTIES AND STRESSES (SPREAD SHEET RESULTS)														X-Dir.	
ELEVATION	WIDTH	DEPTH	F _b	S	AREA	I	I _y	F _y	I _y /F _y	f _c	F _c	F _c	I _c /F _c	Interaction	
(ft)	(in)	(in)	(ksi)	(in ³)	(in ²)	(in ⁴)	(ksi)	(ksi)		(ksi)	(ksi)	(ksi)			
-4.20	19.25	18.25	1.75	1068.58	351.31	9750.75	2.00	2.65	75.3%	0.015	1.65	2.64	0.6%	81.0%	
0.00	19.25	18.25	1.75	1068.58	351.31	9750.75	1.81	2.65	68.4%	0.015	1.65	0.21	7.1%	74.0%	

	C _D	C _M	C _i	C _y	C _{tu}	C _L	C _c	C _p	C _p
Longitudinal Correction Values	1.80	1.00	1.00	0.87	1.00	0.99	1.00	0.0968	1.00
Transverse Correction Values	1.60	1.00	1.00	1.00	0.95	0.99	1.00	0.0794	

For embedded section

Foundation Embedment Check

P	4.76k
h	33.88 ft
Foundation Diameter	3.5 ft
Soil Pressure @ 1/3 D	1375 psf
A	2.31
Required Minimum Depth	10.47 ft
Actual Embedment	14 ft
% of Required Embedment	74.8% OK

(Per Geotechnical Report)

(UBC Ch 18, Eqn. 6-1)

APPENDIX D

Foundation Analysis



Client: Nexlink

Site ID: 36326

Site Name: Mansfield West

Location: Storrs Mansfield, CT

Loading Type: Wind

Job No.: 2012801.03

Sheet No: 1 Of 1

Made By: JH

Chk'd By: DP

Date: 5/21/2012

Date: 5/21/2012

Code: ASCE 7-05

CAISSON ANALYSIS WORKSHEET

FOUNDATION DATA

Diameter = 3.5 ft
Length = 14 ft

Base Reactions

Moment = 161.28 ft-k
Axial = 5.22 kips
Shear = 4.76 kips

SOIL CAPACITY FROM CAISSON PROGRAM USING ADDITIONAL SAFETY FACTORS

ADDITIONAL SAFETY FACTOR FROM CAISSON = 6.62

$$\text{Capacity} = \frac{\text{Safety Factor of 2}}{\text{Additional Safety Factor}} = \frac{2.00}{6.62} = 30.2\% \quad \text{O.K.}$$

 *
 * PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
 *

*** ANALYSIS IDENTIFICATION : 36326 MANSFIELD WEST
 NOTES : 2012801.03

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 2.00 STEEL STRENGTH (ksi) = 60.00
 DIAMETER (ft) = 3.500 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.00

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP (degrees)	PHI (degrees)
	1	C	2.00	0.00	120.0	0.0		
	2	S	3.50	2.00	125.0		3.400	33.06
	3	S	8.50	5.50	135.0		4.600	40.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 161.3 VERTICAL (k) = 5.2 SHEAR (k) = 4.8
 ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 6.62

*** CALCULATED PIER LENGTH (ft) = 14.000

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

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	0.00	2.00	120.0	0.0		0.00	1.00
S	2.00	3.50	125.0		3.400	57.32	4.03
S	5.50	4.99	135.0		4.600	244.41	8.27
S	10.49	3.51	135.0		4.600	-269.29	12.33

*** 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	32.4	1068.6	4.9	161.4
1.40	32.4	1114.0	4.9	168.3
2.80	24.2	1156.3	3.6	174.7
4.20	2.8	1176.2	0.4	177.7
5.60	-28.2	1160.0	-4.3	175.2
7.00	-81.3	1084.8	-12.3	163.9
8.40	-147.2	926.3	-22.2	139.9
9.80	-225.9	666.7	-34.1	100.7
11.20	-221.3	321.7	-33.4	48.6
12.60	-117.0	83.4	-17.7	12.6
14.00	0.0	0.0	0.0	0.0


```

*** TOTAL REINFORCEMENT PCT = 0.30 REINFORCEMENT AREA (in^2) = 4.16
*** USABLE AXIAL CAP. (k) = 5.2 USABLE MOMENT CAP. (ft-k) = 306.3

*** US Standard Re-Bars (Select one of the following):
21 BARS #4 (AREA = 0.20 in^2 DIA = 0.500 in) AT SPACING (in) = 4.79
14 BARS #5 (AREA = 0.31 in^2 DIA = 0.625 in) AT SPACING (in) = 7.18
10 BARS #6 (AREA = 0.44 in^2 DIA = 0.750 in) AT SPACING (in) = 10.05
7 BARS #7 (AREA = 0.60 in^2 DIA = 0.875 in) AT SPACING (in) = 14.36
6 BARS #8 (AREA = 0.79 in^2 DIA = 1.000 in) AT SPACING (in) = 16.76
5 BARS #9 (AREA = 1.00 in^2 DIA = 1.128 in) AT SPACING (in) = 20.11
4 BARS #10 (AREA = 1.27 in^2 DIA = 1.270 in) AT SPACING (in) = 25.13
3 BARS #11 (AREA = 1.56 in^2 DIA = 1.410 in) AT SPACING (in) = 33.51
2 BARS #14 (AREA = 2.25 in^2 DIA = 1.693 in) AT SPACING (in) = 50.27

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 542.6

```

*
* PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
*

*** ANALYSIS IDENTIFICATION : 36326 MANSFIELD WEST
NOTES : 2012801.03

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 2.00 STEEL STRENGTH (ksi) = 60.00
DIAMETER (ft) = 3.500 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.00

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP (degrees)	PHI
	1	C	2.00	0.00	120.0	0.0		
	2	S	3.50	2.00	125.0		3.400	33.06
	3	S	8.50	5.50	135.0		4.600	40.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 154.4 VERTICAL (k) = 5.3 SHEAR (k) = 4.5
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 6.97

*** CALCULATED PIER LENGTH (ft) = 14.000

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

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	0.00	2.00	120.0	0.0		0.00	1.00
S	2.00	3.50	125.0		3.400	57.32	4.03
S	5.50	4.98	135.0		4.600	244.05	8.27
S	10.48	3.52	135.0		4.600	-269.65	12.33

*** 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	31.7	1076.1	4.6	154.4
1.40	31.7	1120.5	4.6	160.8
2.80	23.4	1161.8	3.4	166.7
4.20	2.1	1180.6	0.3	169.4
5.60	-28.9	1163.4	-4.1	166.9
7.00	-82.0	1087.3	-11.8	156.0
8.40	-147.9	927.8	-21.2	133.1
9.80	-226.6	667.2	-32.5	95.7
11.20	-221.3	321.7	-31.7	46.2
12.60	-117.0	83.4	-16.8	12.0
14.00	0.0	-0.0	0.0	-0.0

```

*** TOTAL REINFORCEMENT PCT = 0.30 REINFORCEMENT AREA (in^2) = 4.16
*** USABLE AXIAL CAP. (k) = 5.3 USABLE MOMENT CAP. (ft-k) = 306.3

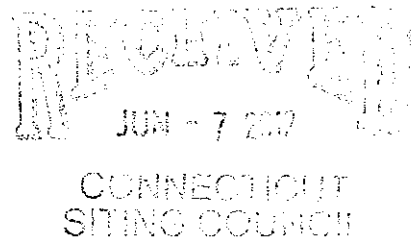
*** US Standard Re-Bars (Select one of the following):
21 BARS #4 (AREA = 0.20 in^2 DIA = 0.500 in) AT SPACING (in) = 4.79
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6 BARS #8 (AREA = 0.79 in^2 DIA = 1.000 in) AT SPACING (in) = 16.76
5 BARS #9 (AREA = 1.00 in^2 DIA = 1.128 in) AT SPACING (in) = 20.11
4 BARS #10 (AREA = 1.27 in^2 DIA = 1.270 in) AT SPACING (in) = 25.13
3 BARS #11 (AREA = 1.56 in^2 DIA = 1.410 in) AT SPACING (in) = 33.51
2 BARS #14 (AREA = 2.25 in^2 DIA = 1.693 in) AT SPACING (in) = 50.27

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 546.7

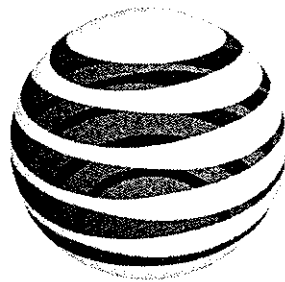
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C Squared Systems, LLC
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Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com



Calculated Radio Frequency Emissions



at&t

CT5821 – Mansfield West

111 Middle Turnpike, Mansfield, CT 06268

May 25, 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 laminated wood tower located at 111 Middle Turnpike in Mansfield, CT. The coordinates of the tower are 41-48-14.10 N, 72-18-18.00 W.

AT&T is proposing the following modifications:

- 1) Install three 700 MHz LTE antennas (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:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

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
AT&T UITS	51	880	1	500	0.0691	0.5867	11.78%
AT&T GSM	51	1900	2	427	0.1101	1.0000	11.01%
AT&T GSM	51	880	4	246	0.1637	0.5867	27.90%
AT&T UITS	51	880	2	565	0.0156	0.5867	2.66%
AT&T UITS	51	1900	2	875	0.0242	1.0000	2.42%
AT&T LTE	51	734	1	1615	0.0223	0.4893	4.56%
AT&T GSM	51	880	1	283	0.0039	0.5867	0.67%
AT&T GSM	51	1900	4	525	0.0290	1.0000	2.90%
						Total	13.21%

Table 1: Carrier Information^{1 2 3}

¹ The existing CSC filing for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. 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 reflect the total value listed 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 GPD Group Structural Analysis Report dated 5/21/2012.

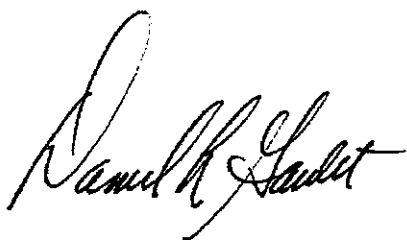
5. Conclusion

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 **13.21% 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

May 25, 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 Exposure⁴

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 Exposure⁵

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.

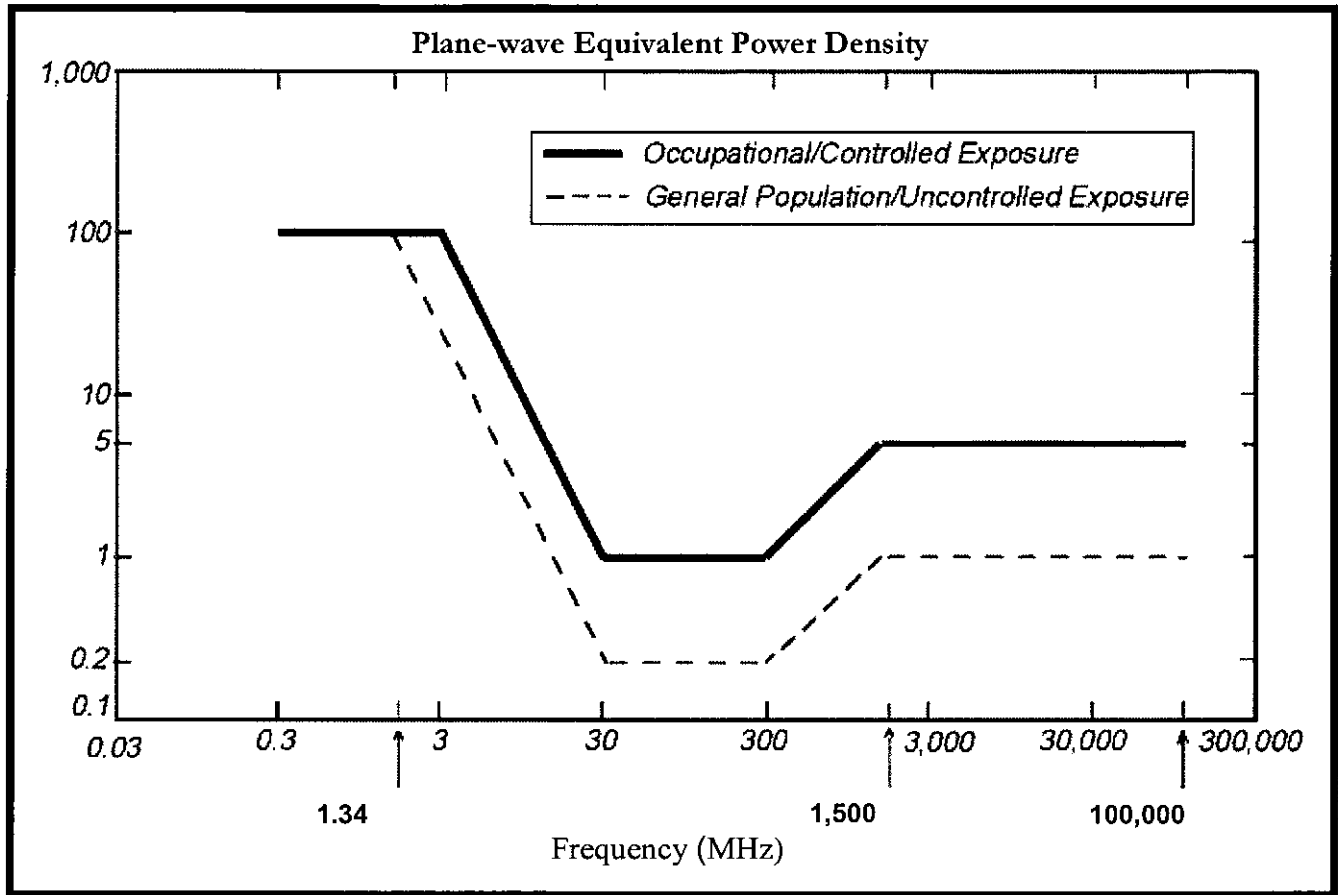
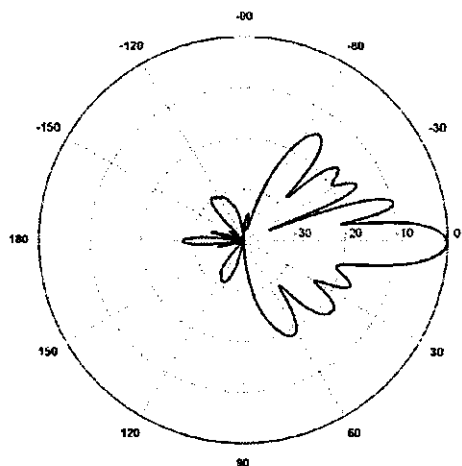


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

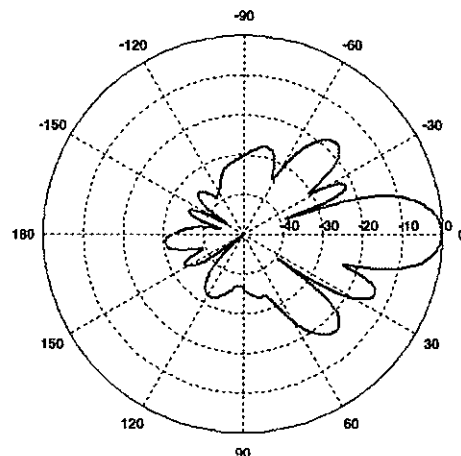
700 MHz

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 $\pm 45^\circ$
 Size L x W x D: 96.0" x 12.0" x 6.0"



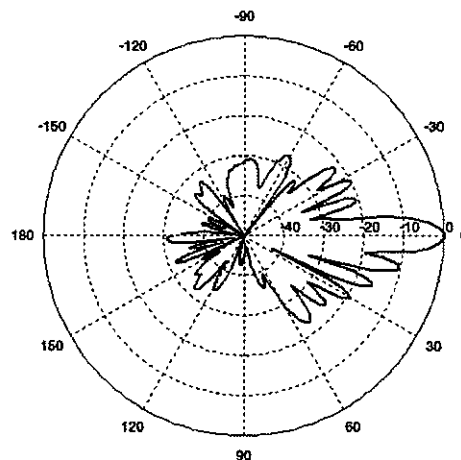
850 MHz

Manufacturer: Powerwave
 Model #: 7770.00
 Frequency Band: 824-896 MHz
 Gain: 11.5 dBd
 Vertical Beamwidth: 15°
 Horizontal Beamwidth: 82°
 Polarization: Dual Linear $\pm 45^\circ$
 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: 86°
 Polarization: Dual Linear $\pm 45^\circ$
 Size L x W x D: 55.0" x 11.0" x 5.0"

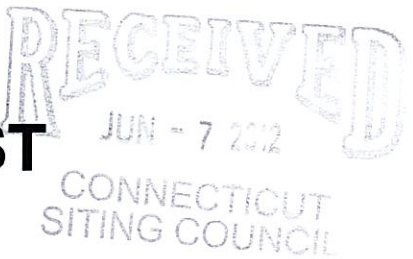


PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE ADDRESS: 111 MIDDLE TURNPIKE
MANSFIELD, CT 06268
LATITUDE: 41.8039 N 41° 48' 14.04" N
LONGITUDE: 72.3050 W 72° 18' 18.0" W
JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT5821
SITE NAME: MANSFIELD WEST



DRAWING INDEX

REV

T-1 TITLE SHEET
GN-1 GENERAL NOTES
A-1 COMPOUND & EQUIPMENT PLAN
A-2 ANTENNA LAYOUT AND ELEVATION
A-3 DETAILS
A-4 DETAILS
G-1 GROUNDING, ONE-LINE DIAGRAM & DETAILS

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2
2

VICINITY MAP

DIRECTIONS TO SITE:
START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.3 MI. TURN LEFT ONTO WEST ST. 0.2 MI. MERGE ONTO I-91 N VIA THE RAMP ON THE LEFT TOWARD HARTFORD. 7.8 MI. MERGE ONTO CT-15 N VIA EXIT 29 TOWARD I-84 E/E. HARTFORD/BOSTON. 2.1 MI. CT-15 N BECOMES I-84 E/US-6 E. 1.6 MI. MERGE ONTO I-384 E VIA EXIT 59 TOWARD PROVIDENCE. 8.5 MI. I-384 E BECOMES US-44 E. 8.2 MI. END AT 111 MIDDLE TPKE STORRS MANSFIELD, CT 06268-5110.



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- 2. 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.
- 3. 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.

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FAX: (978) 336-5586



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WINDSOR, CT 06095

SITE NUMBER: CT5821
SITE NAME: MANSFIELD
111 MIDDLE TURNPIKE
MANSFIELD, CT 06268
TOLLAND COUNTY



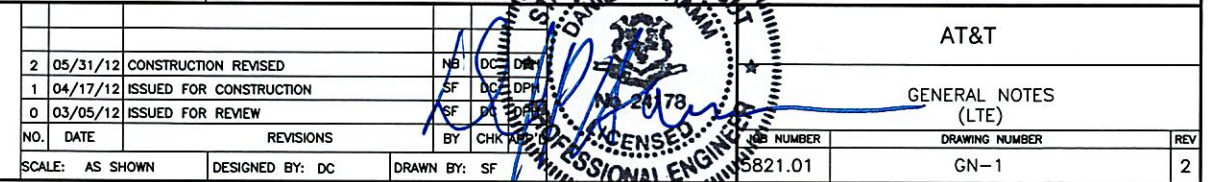
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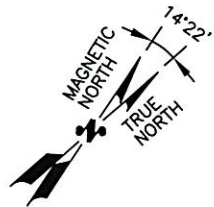
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0	03/05/12	ISSUED FOR REVIEW	SF	DC	LEH	DRAWING NUMBER
NO.	DATE	REVISIONS	BY	CHK	APP	REV
SCALE:	AS SHOWN	DESIGNED BY: DC	DRAWN BY: SF	DATE: 05/01/12	T-1	2

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) LIGHTNING 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-OFF-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 WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. 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

<div>GENERAL NOTES</div>																																															
<div>1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:<div>CONTRACTOR - NEXLINKSUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)OWNER - AT&T MOBILITY</div></div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.</div>																																															
<div>5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.</div>																																															
<div>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.</div>																																															
<div>7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.</div>																																															
<div>13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>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.</div>																																															
<div>20. APPLICABLE BUILDING CODES:<div>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.<div>BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS</div></div></div>																																															
<div>SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:<div>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.</div></div>																																															
<div>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.</div>																																															
<div>ABBREVIATIONS</div> <table><tr><td>AGL</td><td>ABOVE GRADE LEVEL</td><td>G.C.</td><td>GENERAL CONTRACTOR</td><td>RF</td><td>RADIO FREQUENCY</td></tr><tr><td>AWG</td><td>AMERICAN WIRE GAUGE</td><td>MGB</td><td>MASTER GROUND BUS</td><td></td><td></td></tr><tr><td>BCW</td><td>BARE COPPER WIRE</td><td>MIN</td><td>MINIMUM</td><td>TBD</td><td>TO BE DETERMINED</td></tr><tr><td>BTS</td><td>BASE TRANSCEIVER STATION</td><td>PROPOSED</td><td>NEW</td><td>TBR</td><td>TO BE REMOVED</td></tr><tr><td>EXISTING</td><td>EXISTING</td><td>N.T.S</td><td>NOT TO SCALE</td><td>TBRR</td><td>TO BE REMOVED AND REPLACED</td></tr><tr><td>EG</td><td>EQUIPMENT GROUND</td><td>REF</td><td>REFERENCE</td><td>TYP</td><td>TYPICAL</td></tr><tr><td>EGR</td><td>EQUIPMENT GROUND RING</td><td>REF</td><td>REFERENCE</td><td></td><td></td></tr></table>						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	TYP	TYPICAL	EGR	EQUIPMENT GROUND RING	REF	REFERENCE		
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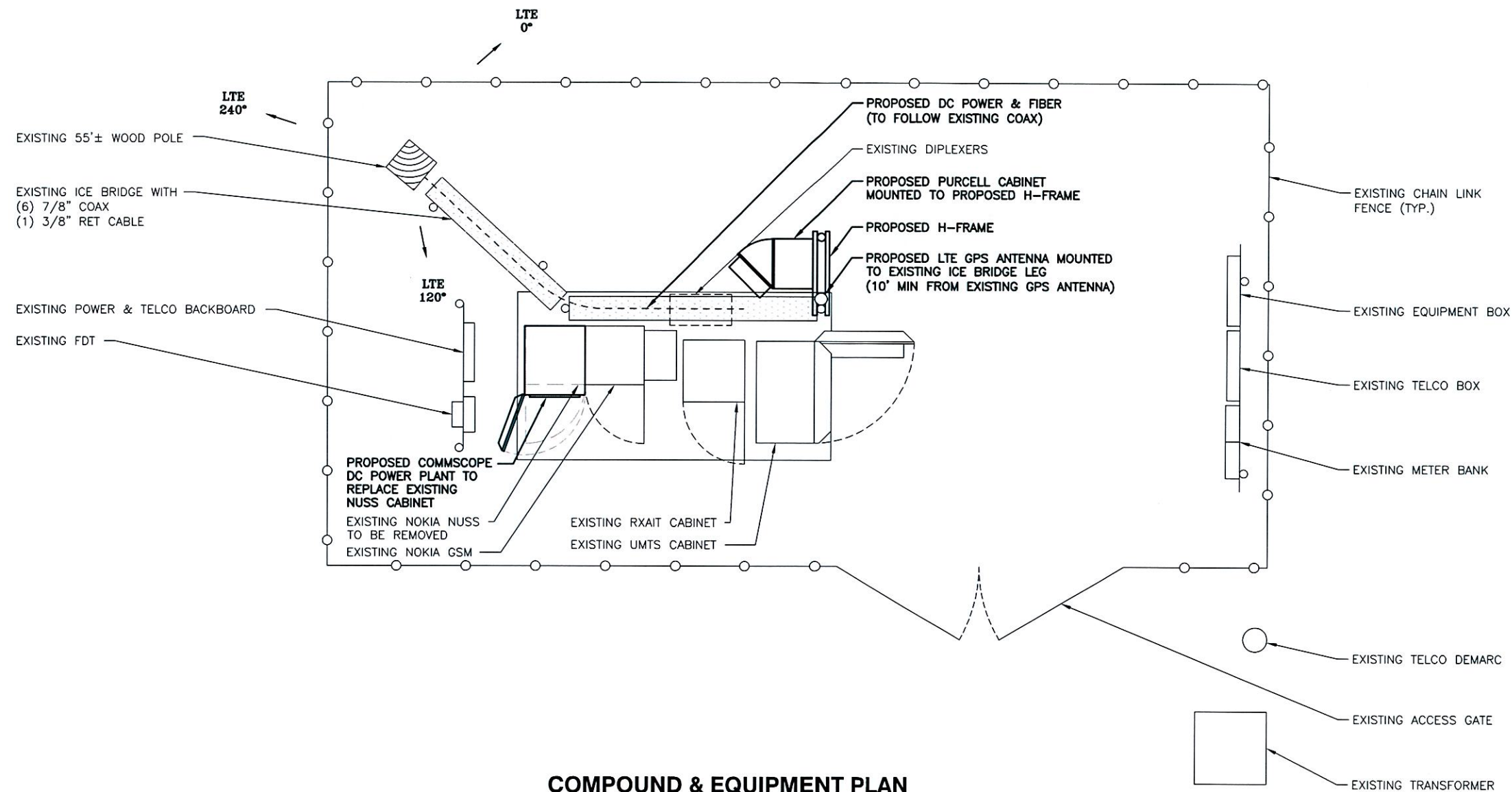




PROPOSED COMMSCOPE DC PLANT
TO BE INSTALLED AND LIVE PRIOR
TO NOKIA NUSS REMOVAL AND
PURCELL INSTALLATION.

NOTE:
AN ANALYSIS FOR THE CAPACITY
OF THE EXISTING STRUCTURES
TO SUPPORT THE PROPOSED
EQUIPMENT SHALL BE DETERMINED
PRIOR TO CONSTRUCTION.

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



COMPOUND & EQUIPMENT PLAN

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



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

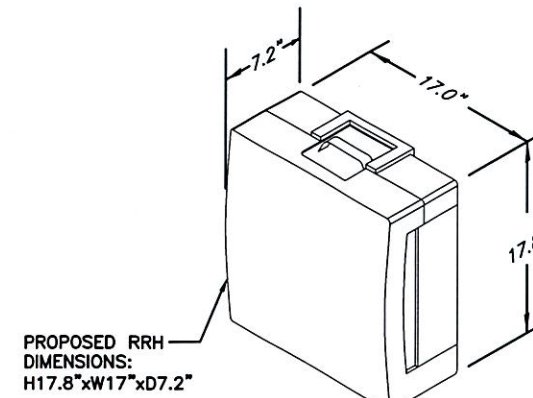
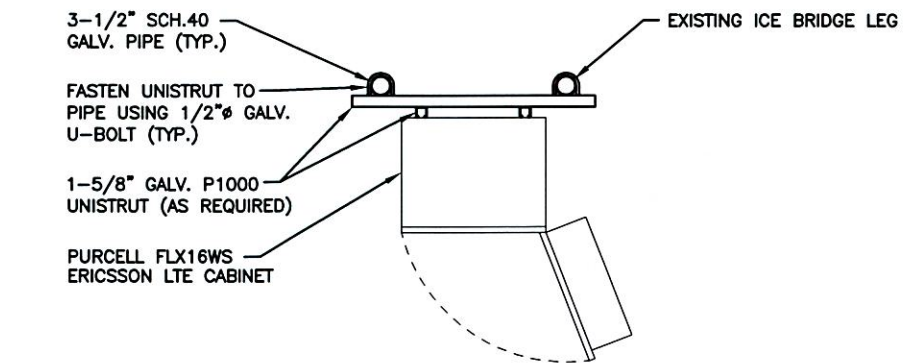
NEXLINK
GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

SITE NUMBER: CT5821
SITE NAME: MANSFIELD
111 MIDDLE TURNPIKE
MANSFIELD, CT 06268
TOLLAND COUNTY



500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

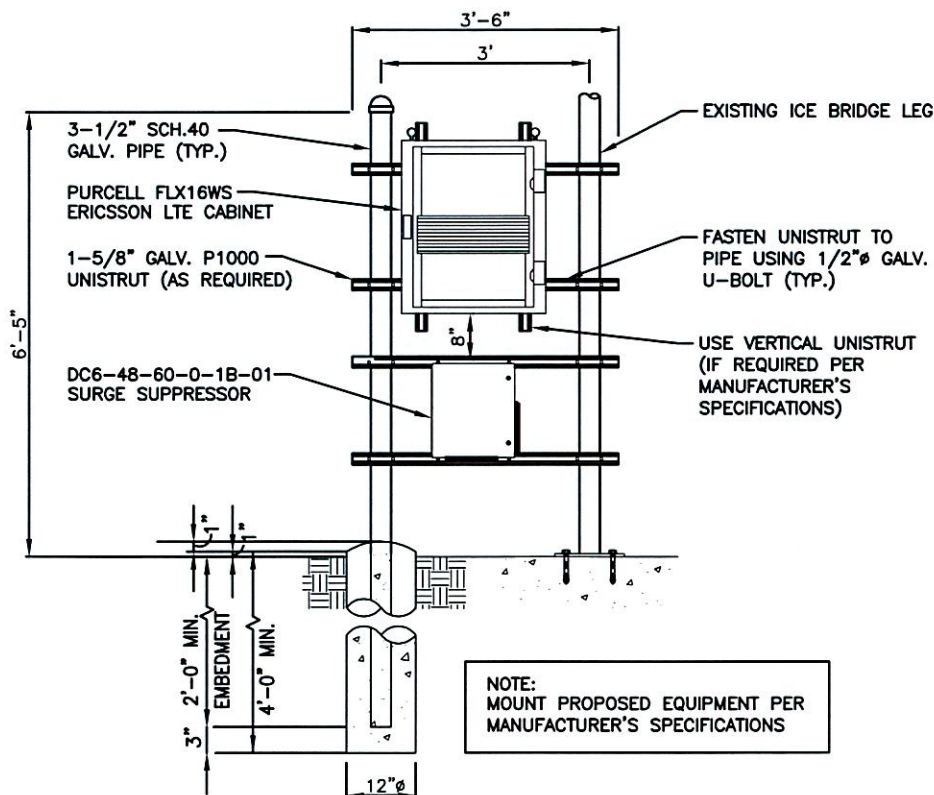
						AT&T		
2	05/31/12	CONSTRUCTION REVISED	AB	DC	DCP	COMPOUND & EQUIPMENT PLAN (LTE)		
1	04/17/12	ISSUED FOR CONSTRUCTION	SF	DC	DCP			
0	03/05/12	ISSUED FOR REVIEW	SF	DC	DCP			
NO.	DATE	REVISIONS	BY	CHKD	APP'D	JOB NUMBER	DRAWING NUMBER	REV
SCALE: AS SHOWN		DESIGNED BY: DC	DRAWN BY: SF			5821.01	A-1	2



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

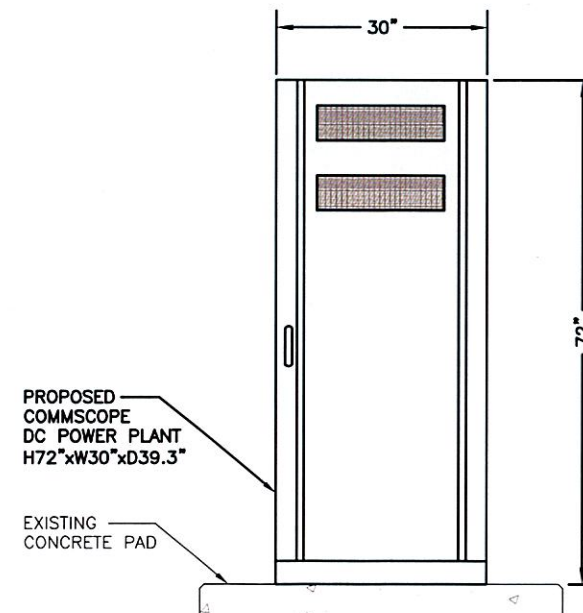
RRH DETAIL

SCALE: N.T.S.



PROPOSED EQUIPMENT MOUNTING DETAIL

SCALE: N.T.S.



PROPOSED DC POWER PLANT DETAIL

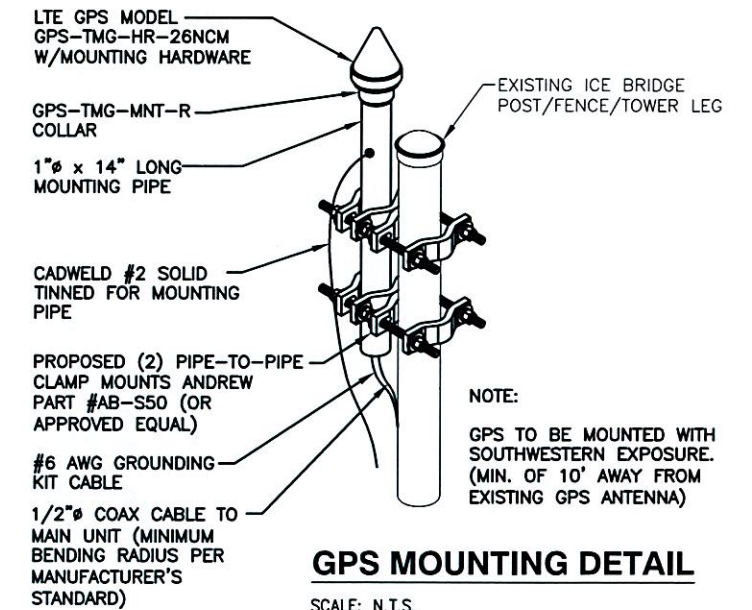
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NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

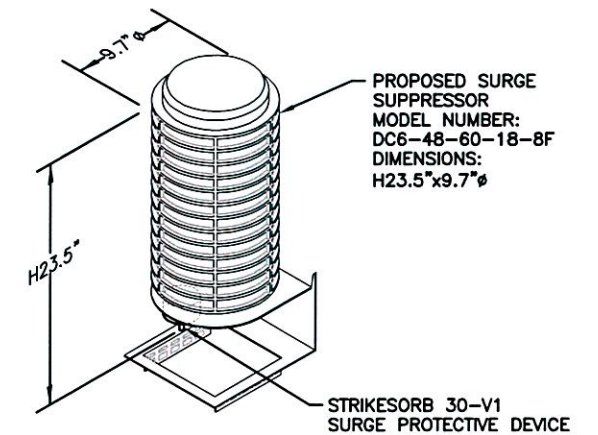
NOTE:

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



GPS MOUNTING DETAIL

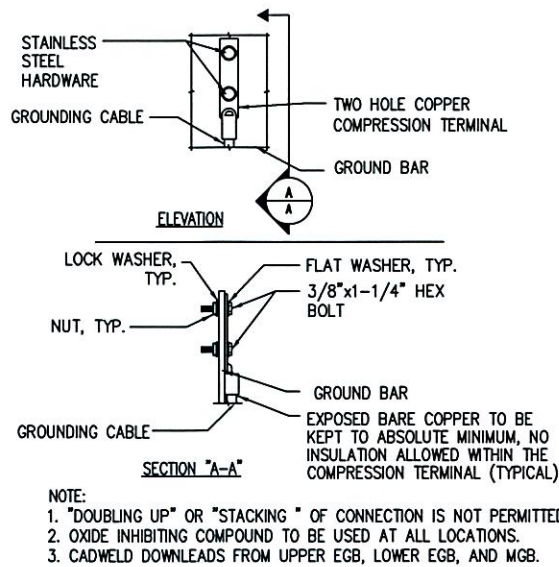
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NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

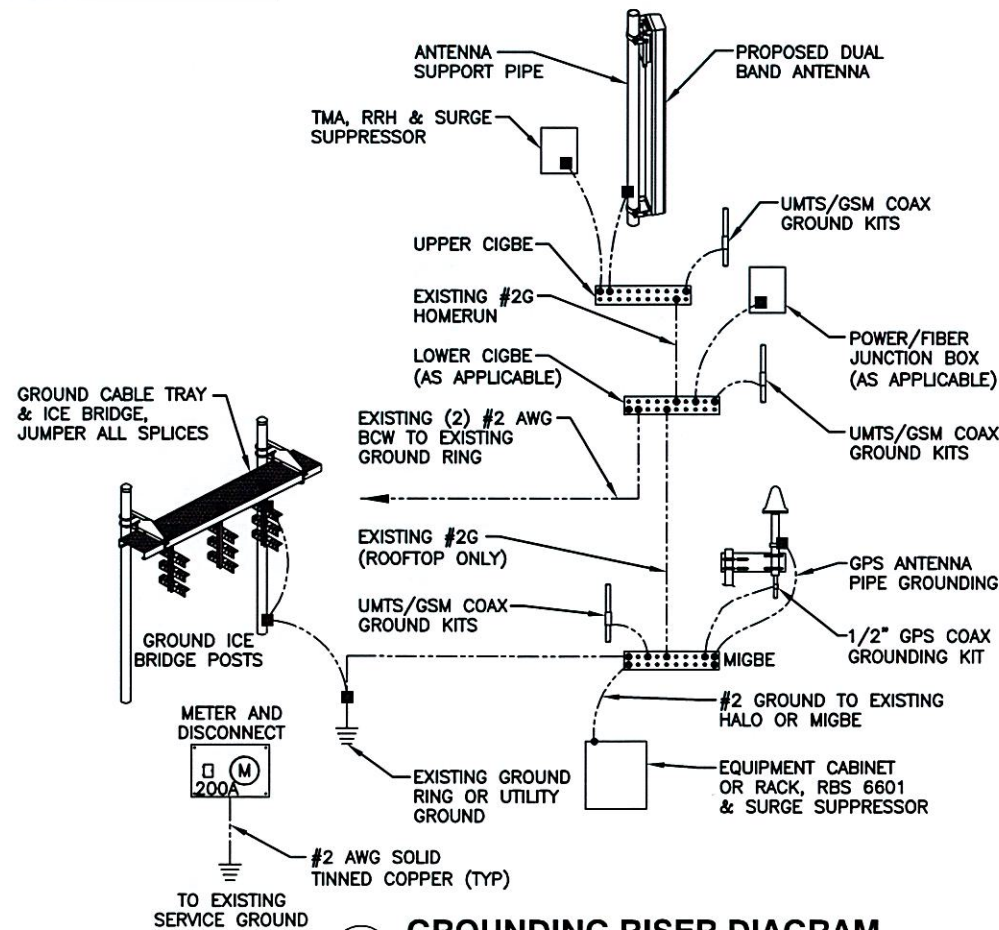
DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.



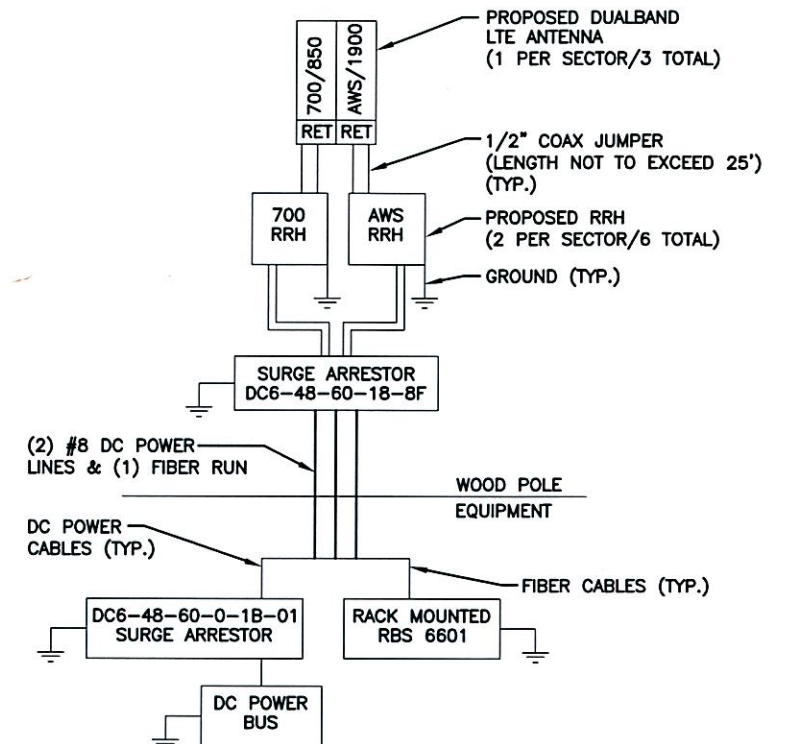
TYPICAL GROUND BAR CONNECTION DETAIL

1
—
N.T.S.



GROUNDING RISER DIAGRAM

2
—
N.T.S.



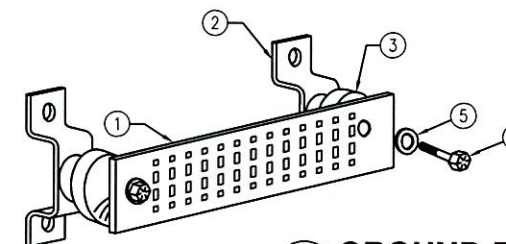
NOTES:

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

3
—
N.T.S.

PLUMBING DIAGRAM

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



GROUND BAR - DETAIL

4
—
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)