

# STRUCTURAL ANALYSIS REPORT

For

**ME 5023 (LTE)**  
**BRADLEY'S CORNER**  
1050 Westbrook Street  
Portland, ME 04102

**Equipment Area at Ground Level and Antennas Supported on  
Roof Top Ballast Mounts**



Prepared for:



500 Enterprise Drive, Suite 3A  
Rock Hill, CT 06067

Dated:

March 7, 2012

Prepared by:

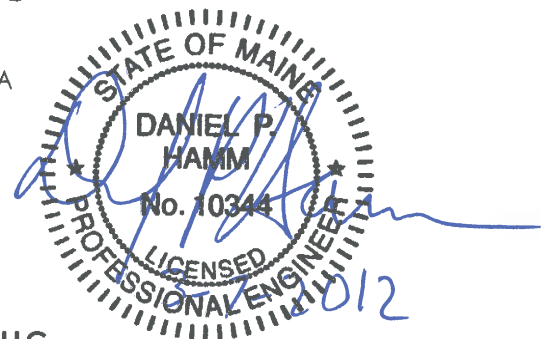
**HUDSON DESIGN GROUP, LLC.**

1600 Osgood Street Building 20 North, Suite 2-101

North Andover, MA 01845

Phone: (978) 557-5553

[www.hudsondesigngroupllc.com](http://www.hudsondesigngroupllc.com)





## SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the structure supporting the proposed AT&T equipment located in the areas depicted in the latest HDG's construction drawings.

This report represents this office's findings, conclusions and recommendations' pertaining to the support of AT&T's proposed LTE Equipment.

This office conducted an on-site visual survey of the above areas on March 7, 2012. Attendees included Sergio Anastacio (HDG-Assistant Project Manager).

## CONCLUSION SUMMARY:

As-built plans prepared by Sebago Technics dated 11/03/1999 were available obtained for our use. A limited visual survey of the structure was completed in or near the areas of the Proposed Work. Based on our evaluation, we have determined that, in general, structural designs to support the proposed AT&T Equipment within or near the Proposed Location can be completed and components installed with **NO STRUCTURAL UPGRADES REQUIRED** to the existing structure. Reference the attached HDG's drawings for all equipment locations.

A summary of the proposed support types and attachment locations are as follows:

**(2) LTE Antenna (SBNH-1D6565C) (96.4"x11.9"x7.1" - Wt. 61lbs.) (Alpha and Beta Sectors)**...Mounted on new steel pipes supported by the existing roof top ballast mounts.

**(1) LTE Antennas (KMW AM-X-CD-16-65-00T) (54"x12.6"x7.87" - Wt. 33lbs.) (Gamma Sector)**....Mounted on a new steel pipe supported by the existing roof top ballast mount.

**(1) RBS 6601 Indoor 23" Rack (Wt 100 lbs.)**...Mounted inside the existing equipment room at ground level.

**(3) Surge Arrestor DC2-48-60-0-9E (1 per sector)**...Mounted on unistrut components secured to the existing ballast frames.

**(6) RRH (2 per sector) (Wt. = 50 lbs/each)**.....Mounted on unistrut components secured to the existing steel ballast frames.



Referenced documents are attached.

**DESIGN CRITERIA:**

1. International Building Code 2009, ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.

Wind Analysis:

Reference Wind Speed:	110 MPH	(FIG 26.5-1C; ASCE 7-10)
Category:	C	(26.7.3; ASCE 7 -10)
Gust Effect Factor (G):	0.85	(26.9.1; ASCE 7-10)
Force Coefficient (Cf):	Varies	(FIG 29.5-1 thru 29.5-3; ASCE 7-10)
$F = qz * G * Cf * Af:$		(Equation 29.5-1; ASCE 7-10)

Snow Loading:

Ground Snow Load (Pg):	60 psf	(FIG 7-1; ASCE 7-10)
Flat Roof Snow Load (Pf):	37.8 psf	

$Pf = 0.7 * Ce * Ct * I * Pg$  (Equation 7.3-1; ASCE 7-10)

$Ce=0.9; Ct=1.0; I=1.0$

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

County:	Cumberland
Wind Load:	100 mph

3. Approximate height above grade to antennas: 74'-0"



#### **EXISTING ROOF CONSTRUCTION:**

No building plans were able to be obtained at the time of HDG's site visit; therefore, the roof construction is unknown.

#### **Antenna SUPPORT RECOMMENDATIONS:**

The new LTE antennas are proposed to be supported by new steel pipes, secured to the existing ballasted roof top frames.

#### **RRH's / Surge Arrestor SUPPORT RECOMMENDATIONS:**

The new Surge Arrestors and RRH's are proposed to be mounted on new unistrut components secured to the existing ballast frames.

#### **EQUIPMENT SUPPORT RECOMMENDATIONS:**

HDG recommends that the proposed equipment rack be mounted inside the existing AT&T equipment room at ground level.

#### Notes:

1. Reference the latest HDG construction drawings for all the equipment locations.
2. All detail requirements will be designed and furnished in the construction drawings.
3. Mount all equipment per manufacturer's specifications.
4. HDG is under the assumption that the ballast mounts were located over structurally adequate roof support (i.e. beam or column). HDG was not able to verify the roof structure and its components at the time of our visit.
5. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
6. HDG recommends adding tie-downs to the existing roof top sled mounts.

**EXISTING EQUIPMENT:**



**Photo 1:** Sample photo illustrating the existing outdoor equipment.



**Photo 2:** Sample photo illustrating the existing indoor equipment platform



**EXISTING ANTENNAS:**



**Photo 3:** Sample photo illustrating the existing antennas.



**Proposed Drawings**

**PROJECT INFORMATION**

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
 SITE ADDRESS: 1050 WESTBROOK STREET  
 PORTLAND, ME 04102  
 LATITUDE: 43° 30' 03.38" N  
 LONGITUDE: 70° 18' 37.61" W  
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
 CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



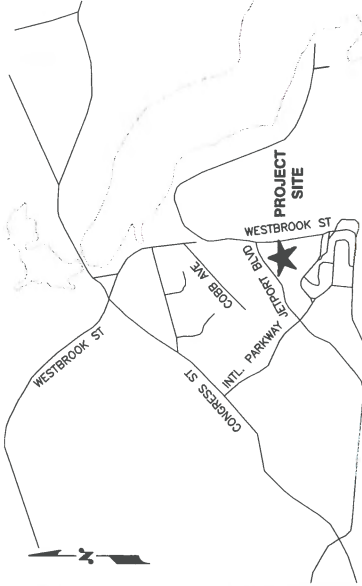
**SITE NUMBER: ME5023**  
**SITE NAME: BRADLEY'S CORNER**

**DRAWING INDEX**

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**VICINITY MAP**

DIRECTIONS:  
 START WEST ON COCHITUATE RD TOWARD BURR ST. 0.3 MI. MAKE A U-TURN AT WHITTIER ST. 0.3 MI. TAKE RIGHT FOR L. RAMP. 0.1 MI. TAKE LEFT RAMP TO WESTBROOK ST. TAKE RIGHT ON WESTBROOK ST. PARTIAL TOLL ROAD PASSING THROUGH NEW HAMPSHIRE ENTERING MAINE. 114.3 MI. TAKE EXIT #45/JETPORT (ME-22)/CONGRESS ST. (ME-9) 0.4 MI. TURN RIGHT ON JETPORT RD TOWARD PVM (ME-9) GO 0.1 MI. BEAR RIGHT ON JETPORT BLVD 1.1 MI. TURN RIGHT ON WESTBROOK ST. 0.1 MI. ARRIVE AT 1050 WESTBROOK ST, PORTLAND, ON THE RIGHT.



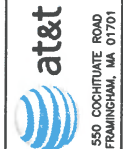
**GENERAL NOTES**

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN PERMISSION OF AT&T IS PROHIBITED. AT&T DOES NOT WARRANT THE ACCURACY OF THIS DOCUMENT FOR ANY PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY TO BE USED FOR THE PURPOSES OF MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SERVICES. ALL SERVICES SHALL BE GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



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UNDERGROUND SERVICE ALERT



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**SITE NAME: BRADLEY'S CORNER**  
 1050 WESTBROOK STREET  
 PORTLAND, ME 04102  
 CUMBERLAND COUNTY



NO.	DATE	REVISIONS	DESIGNED BY: DC	DRAWN BY: HC
2	03/09/12	ISSUED FOR CONSTRUCTION		
1	02/23/12	ISSUED FOR PERMITTING		
0	02/09/12	ISSUED FOR REVIEW		

SCALE: AS SHOWN

AT&T  
 TITLE SHEET  
 (LIE)  
 DRAWING NUMBER  
 T-1

502301



**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 AIA) THE SITE-SPECIFIC (UL LPL OR AFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELECOM 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 GESS) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BITS EQUIPMENT.
5. EACH BITS 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 BITS 2 AWG STRANDED COPPER FOR OUTDOOR BITS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTI-OXIDANT 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 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID THINNED COPPER GROUND WIRE, PER NEC 250.50.

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR - MEXLINK  
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION) OWNER - AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR TO VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO VERIFY THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS. THE 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 SHALL BE IN ACCORDANCE WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE (DETAILED ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR; ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR).
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND TELECOM TRAYS, INCLUDING CHASES AS SHOWN ON THE POWER, GROUNDING AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, MANHOLE COVERS, AND OTHER EXISTING PARTS. SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES, AND OTHER UNWANTED ITEMS FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL BE DONE IN ACCORDANCE WITH ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND REPAIR WORK IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UNITS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES".
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. ANY DISCREPANCY SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING OPERATION. ALL WORK SHALL BE COMPLETED AND BE COMPLETED COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF PROTECTIVE EQUIPMENT SHOULD BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:  
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL BUILDING CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AUA) FOR THE PROJECT. THE LATEST ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.  
BUILDING CODE: IBC 2009  
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS  
LIGHTING CODE: REFER TO ELECTRICAL DRAWINGS  
SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:  
AMERICAN CONCRETE INSTITUTE (ACI) 318: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.  
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)  
MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;  
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL  
ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES, REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.  
FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS, THE MOST STRINGENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS**

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



402 CROSSLAND STREET  
#1000 WINDSOR, CT 06095  
TEL: 860.355.5533  
FAX: 860.355.5538



United Global Services Company  
800 WINDSOR, PHELPS ROAD UNIT# 2A  
WINDSOR, CT 06095

**SITE NUMBER: ME5023**  
**SITE NAME: BRADLEY'S CORNER**  
1050 WESTBROOK STREET  
WESTBROOK, ME 04102  
CUMBERLAND COUNTY



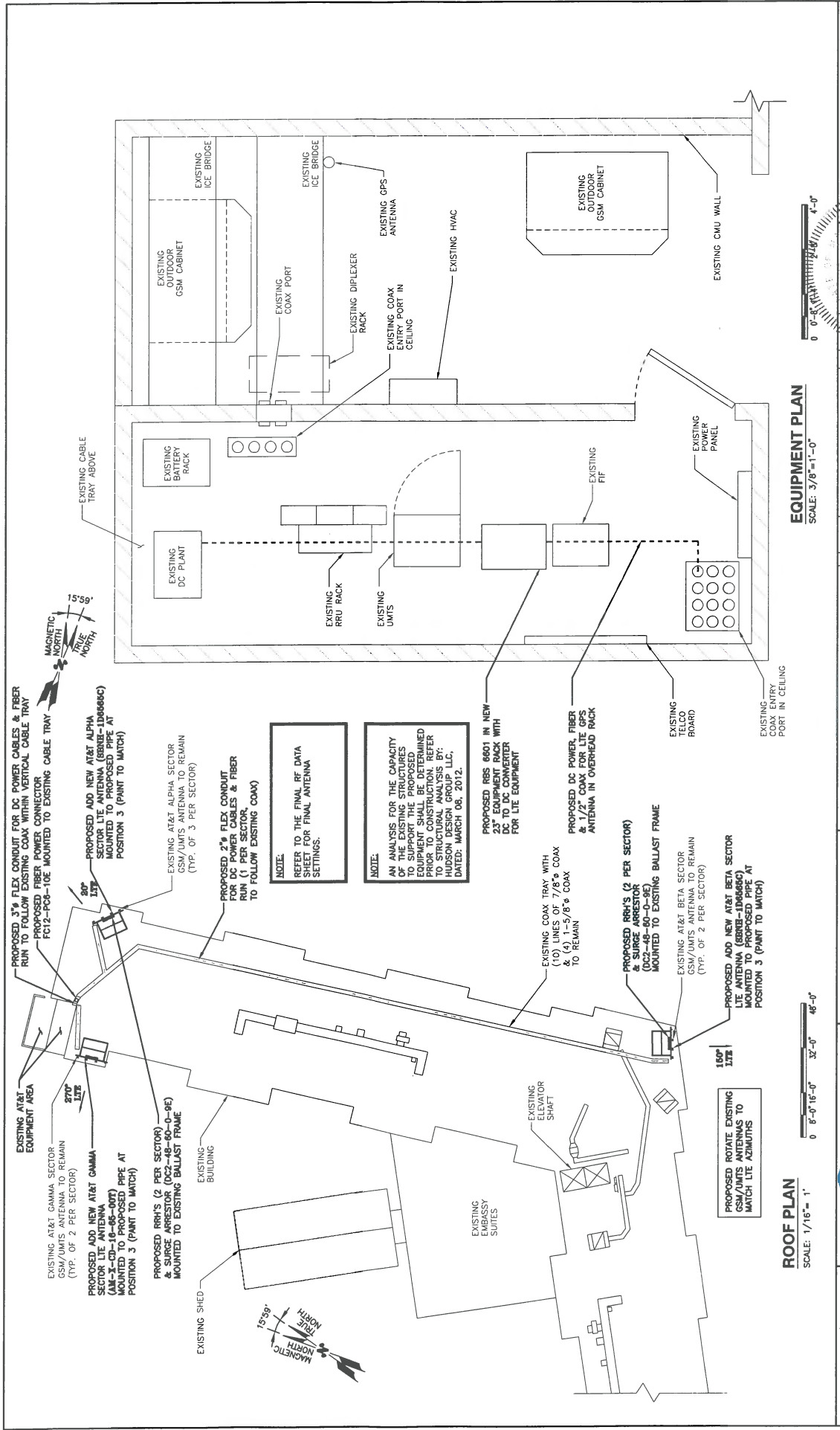
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2 05/09/12 ISSUED FOR CONSTRUCTION  
1 02/25/12 ISSUED FOR PERMITTING  
0 02/09/12 ISSUED FOR REVIEW

NO. DATE REVISIONS  
DESIGNED BY: DC  
DRAWN BY: MC

SCALE: AS SHOWN

AT&T  
GENERAL NOTES  
(LTE)  
DRAWING NUMBER  
GN-1



**ROOF PLAN**  
SCALE: 1/16" = 1'-0"

**EQUIPMENT PLAN**  
SCALE: 3/8" = 1'-0"

EXISTING AT&T EQUIPMENT AREA  
EXISTING AT&T GAMMA SECTOR GSM/UMTS ANTENNA TO REMAIN (TYP. OF 2 PER SECTOR)  
PROPOSED ADD NEW AT&T GAMMA ANTENNA (GSRB-106668C) MOUNTED TO PROPOSED PIPE AT POSITION 3 (PAINT TO MATCH)  
EXISTING SHED  
EXISTING BUILDING  
EXISTING EMBASSY SUITES  
EXISTING SHED  
EXISTING BUILDING  
EXISTING EMBASSY SUITES  
EXISTING SHED  
EXISTING BUILDING  
EXISTING EMBASSY SUITES

PROPOSED 3" FLEX CONDUIT FOR DC POWER CABLES & FIBER RUN TO FOLLOW EXISTING COAX WITHIN VERTICAL CABLE TRAY FC12-PC6-10E MOUNTED TO EXISTING CABLE TRAY ABOVE  
PROPOSED ADD NEW AT&T ALPHA SECTOR LTE ANTENNA (GSRB-106668C) MOUNTED TO PROPOSED PIPE AT POSITION 3 (PAINT TO MATCH)  
EXISTING AT&T ALPHA SECTOR GSM/UMTS ANTENNA TO REMAIN (TYP. OF 3 PER SECTOR)  
PROPOSED 2" FLEX CONDUIT FOR DC POWER CABLES & FIBER RUN TO FOLLOW EXISTING COAX

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

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION. REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP LLC, DATED: MARCH 08, 2012.

PROPOSED RBS 6601 IN NEW 23" EQUIPMENT RACK WITH OVERHEAD RACK FOR LTE EQUIPMENT  
PROPOSED DC POWER, FIBER & 1/2" COAX FOR LTE GPS ANTENNA IN OVERHEAD RACK  
EXISTING TELCO BOARD  
EXISTING COAX ENTRY PORT IN CEILING  
EXISTING BATTERY RACK  
EXISTING DC PLANT  
EXISTING RRU RACK  
EXISTING UMTS  
EXISTING DIPLEXER RACK  
EXISTING COAX PORT  
EXISTING COAX ANTENNA  
EXISTING GPS ANTENNA  
EXISTING ICE BRIDGE  
EXISTING OUTDOOR GSM CABINET  
EXISTING OUTDOOR GSM CABINET  
EXISTING CMU WALL

**Hudson Design Group, Inc.**  
105 WESTBROOK STREET  
PO BOX 106  
WINDSOR, CT 06095  
TEL: 860-253-1111  
FAX: 860-253-1111

**MEXLINK**  
GLOBAL SERVICES  
A Uniflex Global Services company  
800 MARSHALL PHELPS ROAD UNIT# 2A  
WINDSOR, CT 06095

**at&t**  
SITE NUMBER: ME5023  
SITE NAME: BRADLEY'S CORNER  
1050 WESTBROOK STREET  
PO BOX 106  
WINDSOR, CT 06095

**at&t**  
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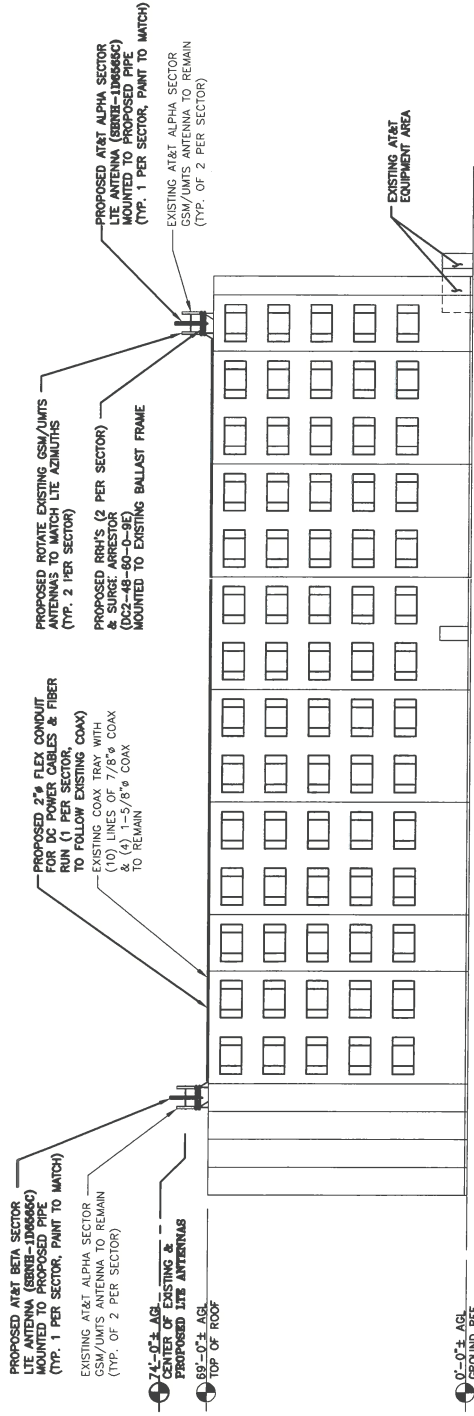
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SCALE: AS SHOWN  
DRAWN BY: DC  
DESIGNED BY: DC

AT&T  
ROOF PLAN & EQUIPMENT PLAN (LTE)  
DRAWN NUMBER: A-1  
PROJECT NUMBER: 502301  
REV: 2

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

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AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES SUPPORTING THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION. REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MARCH 08, 2012.



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

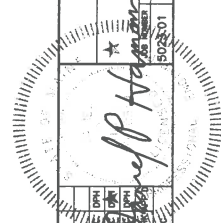


**Hudson**  
Design Group, Inc.  
ANZG02017REI  
81,280 SWAMP LURE CT  
MILFORD, MA 01754  
TEL: 778-555-2533  
FAX: 778-255-8686

**WEXLINK**  
GLOBAL SERVICES  
a UnitTek GLOBAL SERVICES company  
800 MARSHALL PHELPS ROAD UNIT# 2A  
WINDSOR, CT 06095

**SITE NUMBER: ME5023**  
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106A WESTBROOK STREET  
PORTLELAND, MA 01702  
PORTLELAND COUNTY

**at&t**  
550 COCHITUATE ROAD  
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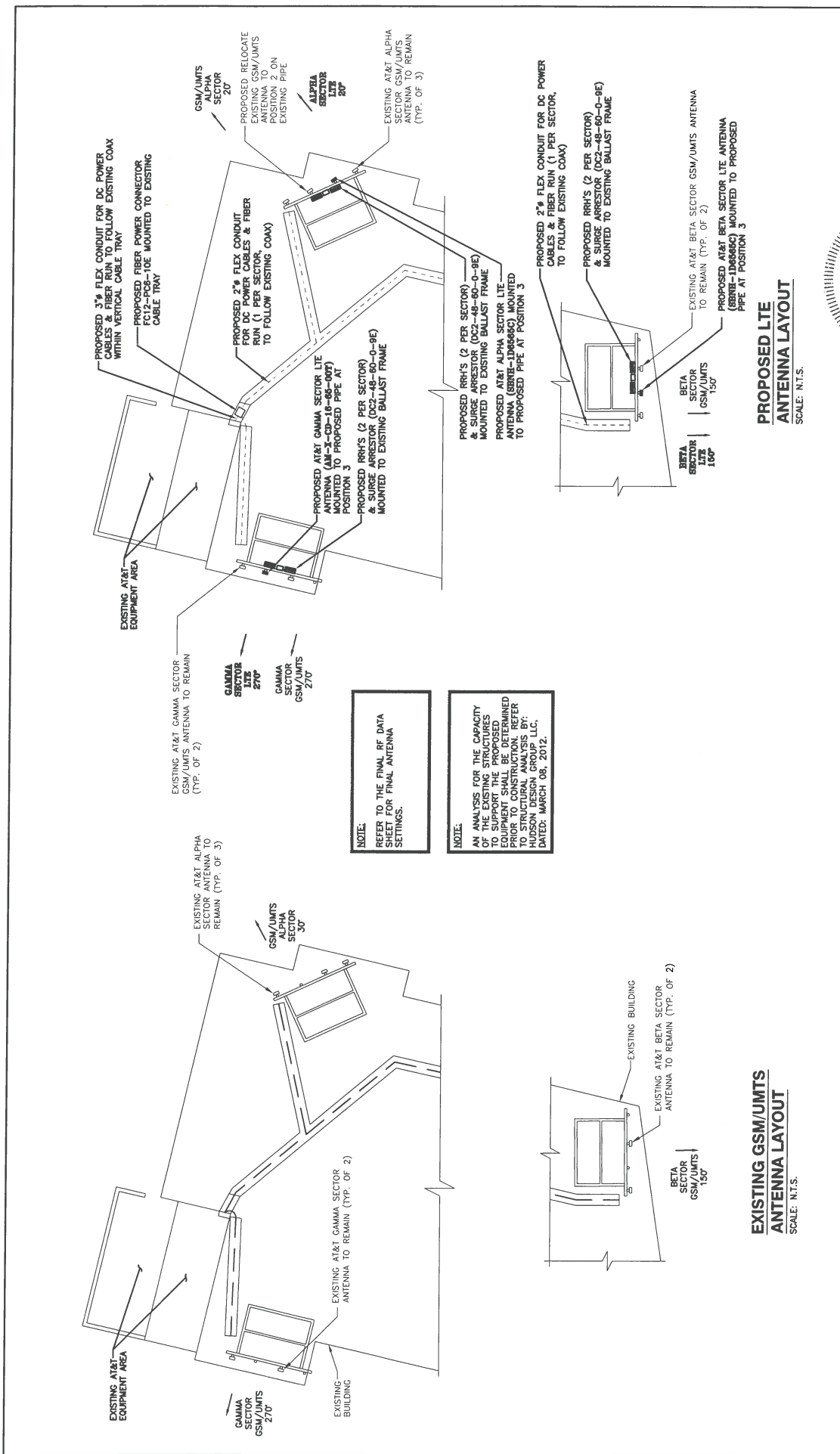
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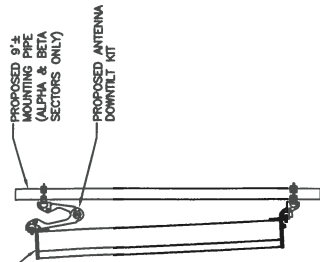


**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

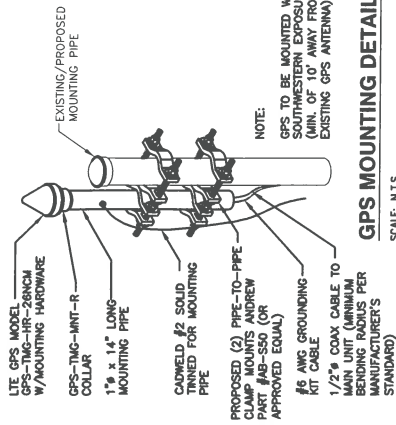
**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE ANTENNA EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION. REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP LLC, DATED: MARCH 08, 2012.

<b>Hudson Design Group</b>		<b>at&amp;t</b>	
407 GREGORY STREET MIDDLETOWN, MA 01702 TEL: (978) 557-5533 FAX: (978) 557-5535	550 COCHRANE ROAD FRAMINGHAM, MA 01701		5023-01
<b>WEXLINK</b> a Uniflex GLOBAL SERVICES company 800 WASHINGTON ROAD UNIT# 2A WINDSOR, CT 06095		<b>SITE NUMBER: ME5023</b> <b>SITE NAME: BRADLEY'S CORNER</b> 1050 WESTBROOK STREET PORTLAND, ME 04102 CUMBERLAND COUNTY	
<b>REVISIONS</b> NO. DATE REVISIONS 2 03/09/12 ISSUED FOR CONSTRUCTION 1 02/23/12 ISSUED FOR PERMITTING 0 02/09/12 ISSUED FOR REVIEW		<b>REVISIONS</b> NO. DATE REVISIONS 1 02/09/12 ISSUED FOR REVIEW 0 02/09/12 ISSUED FOR REVIEW	
DESIGNED BY: DC DRAWN BY: HC		SCALE: AS SHOWN DRAWING NUMBER: A-3	
PROJECT: 5023-01		CLIENT: AT&T	
SHEET: ANTENNA LAYOUT (LTE)		SHEET: ANTENNA LAYOUT (LTE)	

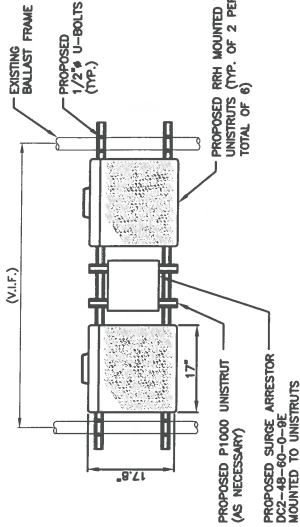
PROPOSED LTE ANTENNA ALPHA SECTOR: H86.4"xW11.9"xD7.1" BETA SECTOR: H86.4"xW11.9"xD7.1" (TYP. OF 1 PER SECTOR)



**PROPOSED LTE ANTENNA DETAIL**  
SCALE: N.T.S.



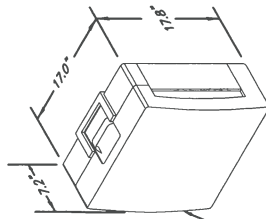
**GPS MOUNTING DETAIL**  
SCALE: N.T.S.



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

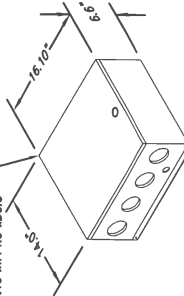
NOTE:  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER TO STRUCTURAL ANALYSIS BY HUDSON DESIGN GROUP LLC. DATED: MARCH 08, 2012.

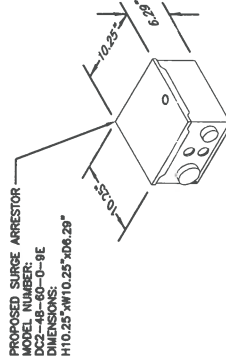


**RRH DETAIL**  
SCALE: N.T.S.

PROPOSED FIBER & POWER CONNECTOR  
MODEL NUMBER: FC12-PC-10E  
DIMENSIONS: H16.10"xW14.0"xD6.6"



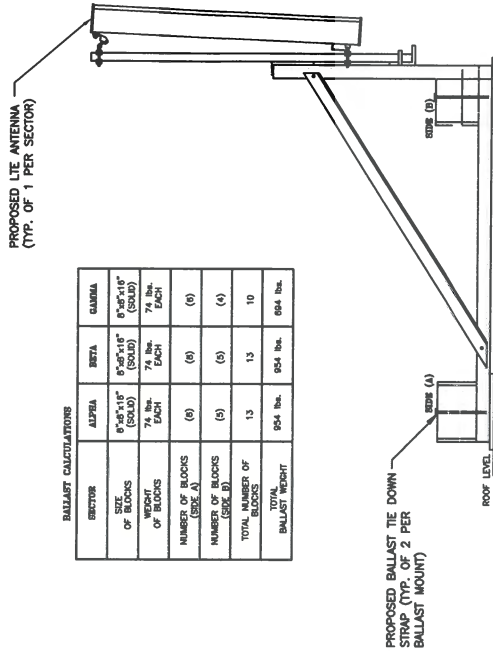
**FIBER & POWER CONNECTOR DETAIL**  
SCALE: N.T.S.



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

BALLAST CALCULATIONS

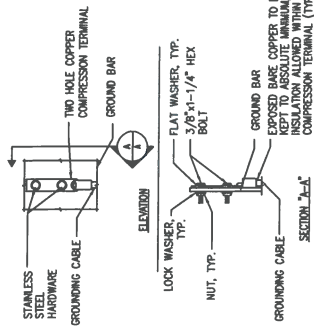
SECTOR	ALPHA	BETA	GAMMA
SIZE OF BLOCKS	8"x4"x1" (SOLID)	8"x4"x1" (SOLID)	8"x4"x1" (SOLID)
WEIGHT OF BLOCKS	74 lbs. EACH	74 lbs. EACH	74 lbs. EACH
NUMBER OF BLOCKS (SEE A)	(6)	(6)	(6)
NUMBER OF BLOCKS (SEE B)	(5)	(5)	(4)
TOTAL NUMBER OF BLOCKS	13	13	10
TOTAL BALLAST WEIGHT	954 lbs.	954 lbs.	740 lbs.



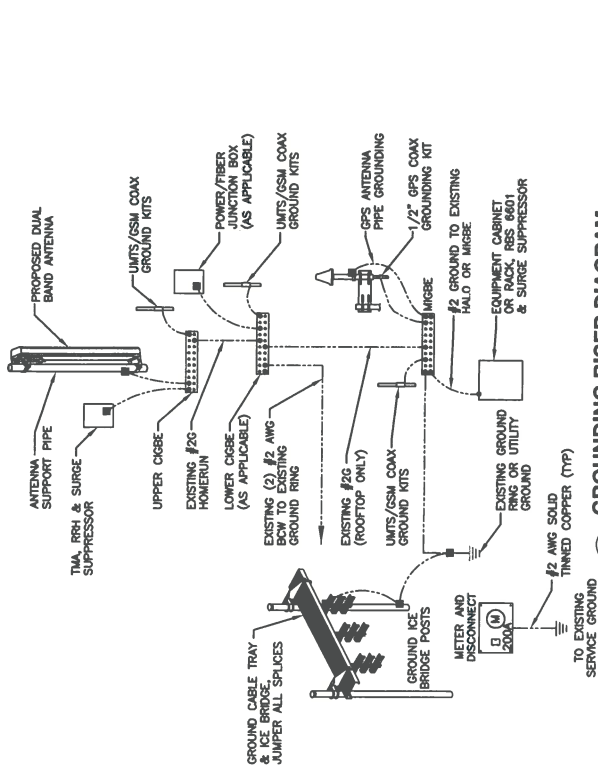
**PROPOSED LTE ANTENNA DETAIL (ALPHA SECTOR)**  
SCALE: N.T.S.

<p>Hudson Design Group 1000 GARDEN STREET N. ANDOVER, MA 01850 TEL: 978.232.5555 FAX: 978.232.5558</p>		<p>NEXLINK A COMMERCIAL SERVICES COMPANY 800 WASHINGTON STREET WINDSOR, CT 06095 UNIT # 2A</p>		<p>at&amp;t 550 COCHRANE ROAD FRAMINGHAM, MA 01701</p>																					
<p>PROPOSED LTE ANTENNA ALPHA SECTOR: H86.4"xW11.9"xD7.1" BETA SECTOR: H86.4"xW11.9"xD7.1" (TYP. OF 1 PER SECTOR)</p>		<p>SITE NUMBER: ME5023 SITE NAME: BRADLEY'S CORNER 1050 WESTBROOK STREET PORTLAND, ME 04102 CUMBERLAND COUNTY</p>		<p>AT&amp;T DETAILS (LTE) DRAWING NUMBER: A-4</p>																					
<p>PROPOSED RRH MOUNTED TO UNISTRUTS (TYP. OF 2 PER SECTOR, TOTAL OF 6)</p>		<p>REVISIONS</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISIONS</th> <th>BY</th> <th>CHKD BY</th> </tr> <tr> <td>2</td> <td>03/09/12</td> <td>ISSUED FOR CONSTRUCTION</td> <td>MC</td> <td>DPH</td> </tr> <tr> <td>1</td> <td>02/29/12</td> <td>ISSUED FOR PERMITTING</td> <td>SB</td> <td>DPH</td> </tr> <tr> <td>0</td> <td>02/09/12</td> <td>ISSUED FOR REVIEW</td> <td>MC</td> <td>DPH</td> </tr> </table>		NO.	DATE	REVISIONS	BY	CHKD BY	2	03/09/12	ISSUED FOR CONSTRUCTION	MC	DPH	1	02/29/12	ISSUED FOR PERMITTING	SB	DPH	0	02/09/12	ISSUED FOR REVIEW	MC	DPH	<p>SCALE: AS SHOWN DESIGNED BY: DC DRAWN BY: MC</p>	
NO.	DATE	REVISIONS	BY	CHKD BY																					
2	03/09/12	ISSUED FOR CONSTRUCTION	MC	DPH																					
1	02/29/12	ISSUED FOR PERMITTING	SB	DPH																					
0	02/09/12	ISSUED FOR REVIEW	MC	DPH																					
<p>PROPOSED SURGE ARRESTOR DC2-48-60-0-8E MOUNTED TO UNISTRUTS</p>		<p>DATE: 03/09/12 DRAWN BY: MC</p>		<p>2</p>																					

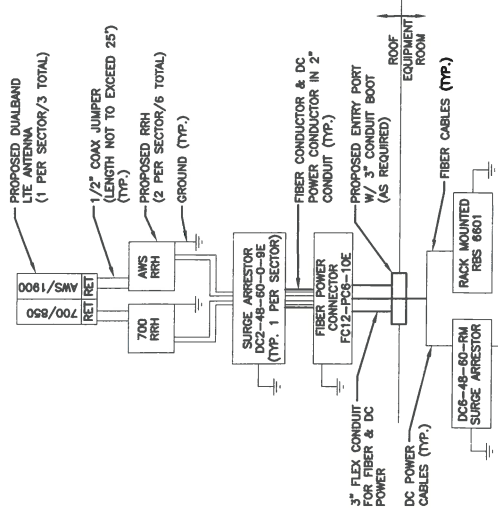




**TYPICAL GROUND BAR CONNECTION DETAIL**  
N.T.S.



**GROUNDING RISER DIAGRAM**  
N.T.S.



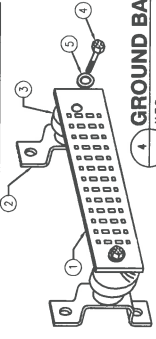
**PLUMBING DIAGRAM**  
N.T.S.

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

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END, IDENTIFYING THE CIRCUIT AND DESTINATION.

- SECTION "B" - SURGE PRODUCERS
- CABLE ENTRY POINTS (MATCH PLATES) (#2)
  - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
  - TELECO GROUND BAR
  - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
  - +24V POWER SUPPLY RETURN BAR (#2)
  - 48V POWER SUPPLY RETURN BAR (#2)
  - RECIPIER FRAMES.
- SECTION "A" - SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
  - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
  - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
  - BUILDING STEEL (IF AVAILABLE) (#2)

WIRELESS SOLUTIONS INC.	
NO.	DESCRIPTION
1	SOLID CHD. BAR (20"x4"x1/4")
2	WALL MGT. BRKT.
3	INSULATORS
4	5/8"-11x1" H.H.C.S.
5	5/8" LOCKWASHER



**GROUND BAR - DETAIL**  
N.T.S.

1420 GOSWORTHY STREET  
MILFORD, MA 01834  
TEL: 978-351-5539  
FAX: 978-351-5538

a Unit Tek GLOBAL SERVICES company  
800 WASHINGTON STREET  
WINDSOR, CT 06095

**at&t**

SITE NUMBER: ME5023  
SITE NAME: BRADLEY'S CORNER  
1050 WESTBROOK STREET  
PORTLAND, ME 04102  
CUMBERLAND COUNTY

AT&T

★ PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)

DRAWING NUMBER: 5023-01  
DRAWN BY: MC  
CHECKED BY: DC  
SCALE: AS SHOWN





## Calculations

Date: 03-01-12

Project Name: BRADLEY'S CORNER

Project Number: ME5023

Designed By: AA      Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

z = 74 (ft) → ANTENNAS  
 z<sub>g</sub> = 900 (ft)  
 α = 9.5

**K<sub>z</sub> = 1.188**

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	Z <sub>g</sub>	α	K <sub>zmin</sub>	K <sub>e</sub>
B	1200 ft	7	0.70	0.90
C	900 ft	9.5	0.85	1
D	700 ft	11.5	1.03	1.10

**2.6.6.4 Topographic Factor:**

Table 2-5

Topo. Category	K <sub>t</sub>	f
2	0.43	1.25
3	0.53	2
4	0.72	1.5

$$K_{zt} = [1 + (K_e K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

**K<sub>zt</sub> = #DIV/0!**

K<sub>h</sub> = #DIV/0!

K<sub>e</sub> = 0 (from Table 2-4)

K<sub>t</sub> = 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 74

H = 0 (Ht. of the crest above surrounding terrain)

K<sub>zt</sub> = 1.00

*(If Category 1 then K<sub>zt</sub> = 1.0)*

Category = **1**

Date: 03-01-12  
Project Name: BRADLEY'S CORNER  
Project Number: ME5023  
Designed By: AA      Checked By: MSC



**2.6.7 Gust Effect Factors**

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0]      h= ht. of structure

h= 74      Gh= 0.474

2.6.7.2 Guyed Masts      Gh= 0.85

2.6.7.3 Pole Structures      Gh= 1.1

2.6.7.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh= 1.35      Gh= 1.35

Date: 03-01-12  
 Project Name: BRADLEY'S CORNER  
 Project Number: ME5023  
 Designed By: AA      Checked By: MSC



**2.6.8 Design Ice Thickness:**

$$t_{iz} = 2.0 * t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$$t_{iz} = 2.17$$

$$t_i = 1$$

$$I = 1$$

$$K_{iz} = 1.08$$

$$K_{zt} = 1$$

$$K_{iz} = [z/33]^{0.10} \leq 1.4$$

$$K_{iz} = 1.08$$

Calculating the weight of ice, the cross-sectional area of ice shall be determined by:

$$A_{iz} = \pi * t_{iz} * (D_c + t_{iz})$$

$$D_c = 96.4 \text{ (in) Largest Dim of Member}$$

$$A_{iz} = 671.41$$

**2.6.9 Design Wind Load:**

$$F = q_z * G * h * (EPA's)$$

$$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2$$

$$q_z = 28.89$$

$$K_z = 1.188$$

$$K_{zt} = 1$$

$$K_d = 0.95$$

$$V_{max} = 100$$

**Table 2-2**

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances.	0.95

Date: 03-01-12  
 Project Name: BRADLEY'S CORNER  
 Project Number: ME5023  
 Designed By: AA      Checked By: MSC



**Determine Cf:**

If lattice Structure See Manual

If Tubular Pole Structure, Use Corrected Value from Table 2.7 Below

C mph.ft	Round	18 Sided	16 Sided	12 Sided	8 Sided
< 32 (Subcritical)	1.2	1.2	1.2	1.2	1.2
32 to 64 (Transitional)	$38.4/C^{1.0}$	$25.8/C^{0.885}$	$12.6/C^{0.678}$	$2.99/C^{0.263}$	1.2
> 64 (Supercritical)	0.6	0.65	0.75	1	1.2

$$C = (I * K_{zt} * K_z)^{0.5} * V * D$$

Dp = Outside Diameter or Out to Out: 0.2 feet

C= 21.80      Cf= 1.2

Appurtenances	Height	Width	Depth	Flat Area	Force Per Appurtenance
Item No.1	96.4	11.9	7.1	7.97	372.83 (lbs) → (P) ALPHA + GAMMA SECTOR
Item No.2	54	12.6	7.87	4.73	221.13 (lbs) → (P) GAMMA SECTOR
Item No.3	55	11	5	4.20	196.63 (lbs) → (E) ALL SECTORS
Item No.4	0	0	0	0.00	0.00 (lbs)
Item No.5	0	0	0	0.00	0.00 (lbs)

$$\text{TOTAL FORCE } (\Sigma F_A) = 790.59 \text{ (lbs)}$$

Date: 03-01-12

Project Name: BRADLEY'S CORNER

Project Number: ME5023

Designed By: AA Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

z = 74 (ft) → RRH'S

z<sub>g</sub> = 900 (ft)

α = 9.5

K<sub>z</sub> = 1.188

$$K_{zmin} \leq K_z \leq 2.01$$

**Table 2-4**

Exposure	Z <sub>g</sub>	α	K <sub>zmin</sub>	K <sub>e</sub>
B	1200 ft	7	0.70	0.90
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D	700 ft	11.5	1.03	1.10

**2.6.6.4 Topographic Factor:**

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$$K_{zt} = [1 + (K_e K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

K<sub>zt</sub> = #DIV/0!

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K<sub>e</sub> = 0 (from Table 2-4)

K<sub>t</sub> = 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 74

H = 0 (Ht. of the crest above surrounding terrain)

K<sub>zt</sub> = 1.00

*(If Category 1 then K<sub>zt</sub> = 1.0)*

Category = 1



Date: 03-01-12  
Project Name: BRADLEY'S CORNER  
Project Number: ME5023  
Designed By: AA      Checked By: MSC



**2.6.7 Gust Effect Factors**

**2.6.7.1 Self Supporting Lattice Structures**

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0]      h= ht. of structure

h= 74

Gh= 0.474

**2.6.7.2 Guyed Masts**

Gh= 0.85

**2.6.7.3 Pole Structures**

Gh= 1.1

**2.6.7.4 Structures Supported on Other Structures**

*(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)*

Gh= 1.35

Gh= 1.35

Date: 03-01-12  
 Project Name: BRADLEY'S CORNER  
 Project Number: ME5023  
 Designed By: AA      Checked By: MSC



**2.6.8 Design Ice Thickness:**

$$t_{iz} = 2.0 * t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$$t_{iz} = 2.17$$

$$t_i = 1$$

$$I = 1$$

$$K_{iz} = 1.08$$

$$K_{zt} = 1$$

$$K_{iz} = [z/33]^{0.10} \leq 1.4$$

$$K_{iz} = 1.08$$

Calculating the weight of ice, the cross-sectional area of ice shall be determined by:

$$A_{iz} = \pi * t_{iz} * (D_c + t_{iz})$$

$$D_c = 96.4 \text{ (in) Largest Dim of Member}$$

$$A_{iz} = 671.41$$

**2.6.9 Design Wind Load:**

$$F = q_z * G * h * (EPA's)$$

$$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2$$

$$q_z = 28.89$$

$$K_z = 1.188$$

$$K_{zt} = 1$$

$$K_d = 0.95$$

$$V_{max} = 100$$

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances.	0.95

Date: 03-01-12  
 Project Name: BRADLEY'S CORNER  
 Project Number: ME5023  
 Designed By: AA      Checked By: MSC



**Determine Cf:**

If lattice Structure See Manual

If Tubular Pole Structure, Use Corrected Value from Table 2.7 Below

C mph.ft	Round	18 Sided	16 Sided	12 Sided	8 Sided
< 32 (Subcritical)	1.2	1.2	1.2	1.2	1.2
32 to 64 (Transitional)	$38.4/C^{1.0}$	$25.8/C^{0.885}$	$12.6/C^{0.678}$	$2.99/C^{0.263}$	1.2
> 64 (Supercritical)	0.6	0.65	0.75	1	1.2

$$C = (I * K_{zt} * K_z)^{0.5} * V * D$$

Dp = Outside Diameter or Out to Out: 0.2 feet

C = 21.80

Cf = 1.2

Appurtenances	Height	Width	Depth	Flat Area	Force Per Appurtenance
Item No.1	17.8	17	7.2	2.10	98.35 (lbs) → (P) RRH
Item No.2	17.8	17	7.2	2.10	98.35 (lbs) → (P) RRH
Item No.3	10.25	10.25	6.26	0.73	34.15 (lbs) → (P) SURGE ARRESTOR
Item No.4	0	0	0	0.00	0.00 (lbs)
Item No.5	0	0	0	0.00	0.00 (lbs)

$$\text{TOTAL FORCE } (\Sigma F_A) = 230.84 \text{ (lbs)}$$

Site Name: MUJOY HILL  
 Site No. ME5023  
 Done by: AA  
 Date: 3/1/2012

Checked by: MSC



Calculate Total Ballast Required for Ballast Mount - ALPHA & BETA SECTORS

WIND FORCES

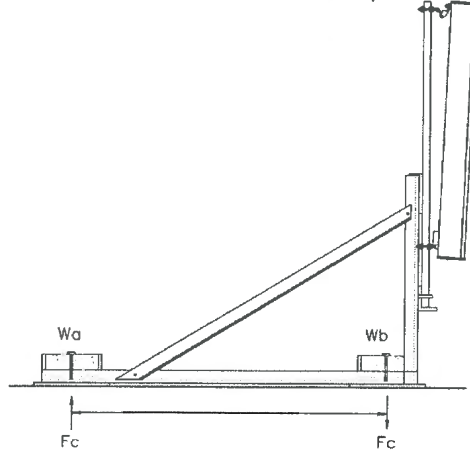
F antenna = 767 lbs.

F rrrh = 197 lbs.

F surge = 35 lbs.

Antenna Height = 5 ft

RRH & Surge Height = 2 ft



Length = 7 ft

Overturning at Ballast

Moment = 5158.8 lbs.-ft S.F.

1.2

Hold Down Force = 736.97 lbs. Per Side

Wa Ballast

Equipment

Frame = 150 lbs.

Total Ballast Required Wa = 586.97 lbs.

Blocks Required Wa = 8 Assumed 78lbs Block (8"x8"x16" Solid)

Wb Ballast

Equipment

Frame 150 lbs.

Antennas 100 lbs.

RRH's 100 lbs.

Surge Arrestor 20 lbs.

**Total** = 370 lbs.

Total Ballast Required Wb = 366.97 lbs.

Blocks Required Wb = 5 Assumed 78lbs Block (8"x8"x16" Solid)

Site Name: MUJOY HILL  
 Site No. ME5023  
 Done by: AA  
 Date: 3/1/2012

Checked by: MSC



Calculate Total Ballast Required for Ballast Mount - GAMMA SEPT12

WIND FORCES

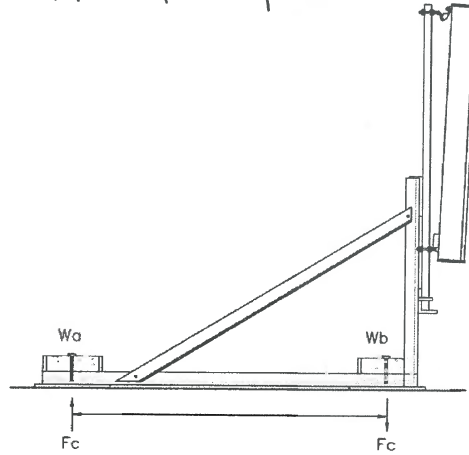
F antenna = 615 lbs.

F rrh = 197 lbs.

F surge = 35 lbs.

Antenna Height = 5 ft

RRH & Surge Height = 2 ft



Length = 7 ft

Overturning at Ballast

Moment = 4246.8 lbs.-ft  
 S.F. = 1.2

Hold Down Force = 606.69 lbs. Per Side

Wa Ballast

Equipment  
 Frame = 150 lbs.

Total Ballast Required Wa = 456.69 lbs.

Blocks Required Wa = 6 Assumed 78lbs Block (8"x8"x16" Solid)

Wb Ballast

Equipment  
 Frame 150 lbs.  
 Antennas 100 lbs.  
 RRH's 100 lbs.  
 Surge Arrestor 20 lbs.  
 Total = 370 lbs.

Total Ballast Required Wb = 236.69 lbs.

Blocks Required Wb = 4 Assumed 78lbs Block (8"x8"x16" Solid)