HOMELAND TOWERS

Homeland Towers, LLC

22 Shelter Rock Lane
Danbury CT 06810
Phone 203-297-6345
Fax 203-797-1137

July 10, 2014

VIA EMAIL & OVERNIGHT DELIVERY

Hon. Robert Stein, Chairman
and Members of the Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Docket No. 441 – Homeland Towers LLC (HT) and New Cingular Wireless PCS, LLC (AT&T) Application for Certificate of Environmental Compatibility and Public Need for a Tower Facility at 10 Blackville Road, Washington, CT

Dear Chairman Stein and Members of the Siting Council,

As co-applicant, Homeland Towers ("HT") requests that you please accept for review and Council approval this Development Management Plan ("D&M Plan") filing for the Facility as approved in Docket No. 441.

Tower, Compound & Other Equipment

Enclosed are fifteen (15) sets of 11"x17" sized construction drawings being filed in accordance with the Council's Decision and Order dated March 6, 2014 ("Decision and Order"). Two full-sized sets of the construction drawings are being filed under separate cover. The D&M Plan incorporates a 135' monopine tower (140' with camouflage branches in place) as provided for in the Siting Council's Order No. 1 in this Docket. AT&T will mount twelve (12) panel antennas at a centerline height of 126'as depicted on the drawings prepared by All Points Technology. Litchfield County Dispatch (LCD) would place two (2) omnidirectional antennas at top of tower at a mounting elevation of 135' and one (1) omnidirectional antenna at a mounting elevation of 76'. Equipment compound to include enough space reserved for future shared backup generation. Attached please also find a geotechnical study as well as a structural design report for the tower and foundation. Specifications for the antennas and generator are also provided.

The proposed D&M Plan also includes construction plans for the site clearing, drainage, and erosion and sedimentation control measures consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended.

Homeland Towers, LLC

Required Notifications

In accordance with the provisions of RCSA Section 16-50j-61(d), copies of this filing are being provided to the Service List and to the Town of Washington. In accordance with the provisions of RCSA Section 16-50j-77, Homeland Towers hereby notifies the Council of its intention to begin site work immediately after Council approval of the D&M Plan. Construction of the tower and other site improvements will commence upon issuance of a local building permit. The supervisor for all construction related matters on this project is Christian Carmody, located at InSite Towers, 1199 North Fairfax Street, Suite 700, Alexandria, VA 22314 and can be reached by telephone at 617-595-7254.

We respectfully request that this matter be included on the Council's next available agenda for review and approval. Thank you for your consideration of the enclosed.

Sincerely,

Raymond Vergati
rv@homelandtowers.us

Enclosures

cc: Honorable Mark E. Lyon, First Selectman, Town of Washington
Manny Vicente, Homeland Towers
Michele Briggs, AT&T
Scott Chasse, P.E., APT
Christopher B. Fisher, Esq.
Daniel Soule, LCD

Homeland Towers, LLC

Certificate of Service

I hereby certify that on this day, an original and fifteen copies of the foregoing was sent electronically and by overnight delivery to the Connecticut Siting Council with a copy to:

Mark E. Lyon, First Selectman
Town of Washington
2 Bryan Plaza
Washington Depot, CT 06794
mark.lyon@washingtonct.org

Daniel Soule
111 Water Street
Torrington, CT 06790
dsoule@lcd911.com

Dated: July 10, 2014

Raymond M. Vergati

ATTACHMENT 1

Geotechnical Engineering Report

Proposed Homeland Towers: CT-112
Washington, Connecticut
March 20, 2014
Terracon Project No. J2145120

Prepared for:
All-Points Technology Corporation, P.C.
Killingworth, Connecticut

Prepared by:
Terracon Consultants, Inc.
Rocky Hill, Connecticut

March 20, 2014

All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419

Attn: Mr. Scott M. Chasse, P.E., Principal
P: (860) 663 1697
F: (860) 663 0935
E: schasse@allpointstech.com

Re: Geotechnical Engineering Report
Proposed Homeland Towers: CT-115
10-12 Blackville Road
Washington, Connecticut
Terracon Project No. J2145120

Dear Mr. Chasse:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with the Authorization to Proceed dated March 6, 2014. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design of foundations for the proposed telecommunications tower and accompanying equipment cabinets/ancillary equipment pad.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Thiet K. Ta
Staff Engineer

Richard W.M. McLaren, P.E.
Senior Associate
Geotechnical Department Manager

/tkt/J2145120
Attachment

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GEOTECHNICAL ENGINEERING REPORT
PROPOSED HOMELAND TOWERS: CT-112
WASHINGTON, CONNECTICUT

Terracon Project No. J2145120
March 20, 2014

1.0 INTRODUCTION

A geotechnical engineering report has been completed for the proposed 135-foot high steel "Monopine" communications tower to be located north of the existing Public Works Building in Washington, Connecticut. A single test boring (B-1) was advanced to a depth of about 20 feet below existing ground surface close to the proposed tower center location. In addition, three test probes (P-1, P-2, and P-3) were advanced within the proposed 65-foot by 80-foot leased compound area to auger refusal on competent bedrock at depths of 7.6, 11, and 12.6 feet, respectively. Logs of the test boring and probes, along with a Site Location Map (Exhibit A-1) and an Exploration Location Diagram (Exhibit A-2), are included in Appendix A of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork
- foundation design and construction
- slab design and construction
- seismic considerations

2.0 PROJECT INFORMATION

The project consists of the construction of an approximately 135-foot high steel "Monopine" communications tower with associated equipment cabinets within a 65-foot by 67-foot fenced in compound. Access to the site will be from the paved drive to the north of the Public Works Building.

2.1 Project Description

Our knowledge of the project is based on review of the drawing titled "*Compound Site Plan and Tower Elevation*", dated August 23, 2013, by All-Points Technology Corporation of Killingworth, Connecticut. A summary description of the project is presented below:

Item	Description
Site layout	Exploration Location Diagram on Exhibit A-2, Appendix A
Tower	A 135-foot high steel "Monopine" communications tower
Estimated maximum loads	Tower dead load: 20 kips Equipment pad: 150 pounds per square foot (psf)
Grading	A few feet of cut and fill anticipated to develop the site

2.2 Site Location and Description

Item	Description
Location	10-12 Blackville Road, Washington, Connecticut
Existing improvements	Existing equipment storage building approximately 300 feet southeast of the proposed compound
Current ground cover	Bare ground/trees/forest vegetation
Existing topography	Sloping downwards towards the southwest

3.0 SUBSURFACE EXPLORATIONS AND CONDITIONS

3.1 Typical Profile

Based on the results of the explorations and observations at the time of drilling, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum (feet)	Material Encountered [1]	Consistency / Relative Density
Glacial Till	12.6	Silty sand (SM), with gravel, occasional cobbles, brown	Medium dense to very dense (surficially loose)
Weathered Bedrock	15	Weathered schist	N/A
Bedrock	>20	Schist, slightly weathered, strong, gray	N/A

1. Approximately 8 inches of forest mat encountered at the ground surface of the explorations.

The *Surficial Materials Map of Connecticut (1992)* identifies the native soils in the vicinity of the site as glacial till. The *Bedrock Geological Map of Connecticut (1985)* indicates that bedrock in the vicinity of the site is Ratlum Mountain Schist.

B-1 terminated with auger refusal upon competent bedrock at a depth of about 15 feet below the existing ground surface. Bedrock was then cored from about 15 to 20 feet using an NQ2-sized

core barrel. A Rock Quality Designation (RQD) value of 74 percent was obtained indicating fair bedrock quality. P-1, P-2, and P-3 terminated with auger refusal on competent bedrock at depths of approximately 7.6, 11, and 12.6 feet, respectively.

Conditions encountered at the exploration locations are indicated on the exploration logs in Appendix A of this report. Stratification boundaries on the exploration logs represent the approximate location of changes in soil/rock types; *in situ*, the transition between materials may be gradual. Further details of the explorations can be found on the exploration logs.

3.2 In-situ Resistivity

On March 6, 2014, *in-situ* soil resistivity testing was completed by a Terracon field engineer. Resistivity testing was performed in general accordance with ASTM G57 by the Wenner Four Probe Method using a Megger DET5/4R Digital Earth Tester. Two resistivity lines were completed with electrodes spaced at 5, 10, 20, 30, and 40 feet. The location and orientation of the resistivity lines are shown on Exhibit A-2. The resistivity test results are tabulated below:

	Resistivity (ohm-cm)	
Electrode Spacing (ft)	**Line 1**	**Line 2**
5	56,175	77,365
10	232,290	204,140
20	823,450	766,000
30	>1,000,000	>1,000,000
40	>1,000,000	>1,000,000

3.3 Groundwater

Groundwater was not encountered at the time of the explorations. However, fluctuations in groundwater level may occur because of seasonal variations in the amount of rainfall, runoff, and other factors. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The site is underlain by glacial till over bedrock. The proposed "Monopine" steel communications tower may be supported on a monolithic mat or a pier-and-pad foundation bearing on the glacial till or on compacted structural fill placed over the glacial till. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. As an alternative, the

proposed communications tower may be supported on a drilled shaft foundation extending through the glacial till and weathered bedrock into the competent bedrock. The proposed equipment platform and other ancillary structures may derive support from the glacial till. Design recommendations are presented in the following sections.

We recommend that the exposed subgrades be thoroughly evaluated after excavation to proposed grade. We recommend that the geotechnical engineer be retained to evaluate the bearing material for the foundation subgrade. We recommend that the geotechnical engineer review the construction of the drilled shaft, if selected.

4.2 Earthwork

Preparation of the site should include removal of topsoil or otherwise unsuitable materials. Organic soils are typically found deeper around trees, bushes, and their associated root structure. The contractor should take this into account in estimating stripping quantities. The soil subgrade should be proofrolled with a walk-behind vibratory roller or heavy plate compactor. Unstable subgrades should be removed and replaced with compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. If required, structural fill may then be placed within the compound area to attain the required grade.

Fill and backfill materials should meet the following material requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Structural Fill [2,3]	GW	All locations and elevations. Based on observations, the glacial till may be selectively re-used as structural fill, provided it is free of organic and closely meets the gradation requirements in Note 2, below.
Common Fill [4]	Varies	Common fill may be used for general site grading to within 12 inches of finished grade. Common fill should not be used below sensitive structures. The glacial till may be re-used as common fill, provided it is free of organics and can be adequately compacted.

1. Compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used. Fill should not be placed on a frozen subgrade.
2. Imported structural fill should meet the following gradation:

	Percent Passing by Weight
Sieve Size	**Structural Fill**
6″	100
3″	70 – 100
2″	(100)*

Fill Type [1]	USCS Classification	Acceptable Location for Placement	
		¾"	45 – 95
		No. 4	30 – 90
		No. 10	25 – 80
		No. 40	10 – 50
		No. 200	0 – 12

* Maximum 2-inch particle size within 12 inches of the underside of concrete elements

3. Recommendation for re-use of site soils as Structural Fill applies only to re-use on this site and only if Terracon is monitoring construction.
4. Imported common fill should have a maximum particle size of 6 inches and no more than 25 percent by weight passing the US No. 200 sieve.

4.2.1 Compaction Requirements

Item	Description
Fill Lift Thickness	8 inches or less in loose thickness
Compaction Requirements [1]	95 percent maximum modified Proctor dry density (ASTM D1557, Method C)
Moisture Content – Granular Material	Workable moisture levels

1. We recommend that fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested, as required, until the specified moisture and compaction requirements are achieved.

4.2.2 Grading and Drainage

The compound area will be graded to slope from Elevation (El) 600 to 590 feet from northeast to southwest. Permanent slopes will therefore be required to develop the site. We recommend slopes be constructed no steeper than 2 Horizontal : 1 Vertical (2H:1V). Soil placed to create fill slopes should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557, Method C.

We recommend that permanent slope surfaces be vegetated or covered with riprap stone underlain by a geotextile separation fabric (Mirafi 140N, or equivalent) to reduce erosion. Vegetated slopes should be protected with erosion mats until the vegetation is established.

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. Final site grading should be away from the tower to reduce the likelihood of water ponding near the structure.

4.2.3 Earthwork Construction Considerations

Although the exposed subgrade is anticipated to be relatively stable upon initial exposure, unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Should unstable subgrade conditions develop, stabilization measures will need to be employed.

Construction traffic over the completed soil subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared soil subgrades or in excavations. If the soil subgrade should become frozen, wet, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted.

As a minimum, temporary excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations may be required during grading operations. The contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations, as required, to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, State, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proofrolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of foundations.

4.3 Foundation Recommendations

4.3.1 Tower Foundations

We recommend that the proposed "Monopine" communications tower be supported on either a monolithic mat or a pier-and-pad foundation placed on the glacial till or on compacted structural fill placed over the glacial till. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. As an alternatively, the proposed communications tower may be supported on a drilled shaft foundation extending through the glacial till and weathered bedrock into the competent bedrock. The size and depth of the footing will likely be dictated by providing overturning and sliding resistance. Design recommendations and construction considerations for the recommended foundation systems are presented in the following tables and paragraphs.

4.3.1.1 Mat/Pad Foundation Design Recommendations

Description	Value
Net allowable bearing pressure [1]	8,000 psf
Minimum embedment below finished grade for frost protection	42 inches
Approximate total settlement [2]	1 inch
Estimated differential settlement [2]	½ inch
Total soil unit weight (γ)	125 pcf
Passive pressure coefficient, K_p [3]	3.0 (ultimate)
Coefficient of sliding friction [4]	0.5 (ultimate)

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the mat/pad base elevation.
2. Foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the mat/pad the thickness of compacted fill, and the quality of the earthwork operations.
3. Passive pressure calculated with this parameter should be reduced by at least a factor of safety of 3, to reflect the amount of movement required to mobilize the passive resistance.
4. A factor of safety of at least 1.5 should be applied to the sliding resistance.

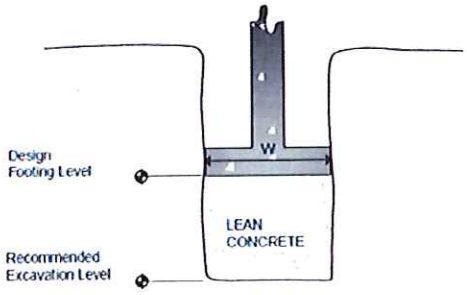
Uplift resistance for tower foundation may be computed as the sum of the weight of the foundation element and the weight of the soil overlying the foundation. For this computation, we recommend using a soil unit weight of 100 pounds per cubic foot (pcf) for engineered fill overlying the footing placed as described in this section of this report. A unit weight of 150 pcf may be used for reinforced foundation concrete. A factor of safety of 1.0 may be applied to calculations of dead load; a higher factor of safety may be appropriate for loadings resisted by dead load.

4.3.1.2 Mat/Pad Foundation Construction Considerations

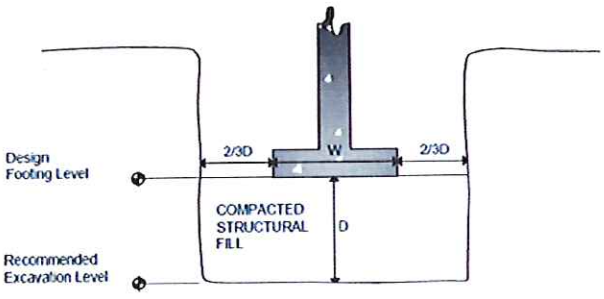
The base of foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing disturbance. Should the soils at bearing level become wet, disturbed or frozen, the affected soil should be removed prior to placing concrete. The geotechnical engineer should be retained to observe and test the foundation bearing materials.

If unsuitable bearing soils are encountered in footing excavations, the excavation could be extended deeper to suitable soils and the footing could bear directly on these soils at the lower level. As an alternative, the footings could also bear on properly compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill extending down to the suitable soils. Overexcavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 8

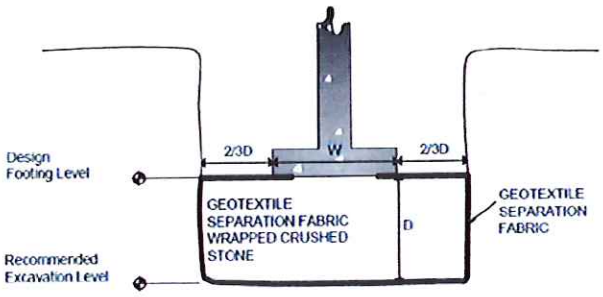
inches or less in loose thickness and compacted to at least 95 percent of the modified Proctor maximum dry density (ASTM D1557, Method C). The overexcavation and backfill procedure is described in the following figure:



Lean Concrete Backfill



Overexcavation / Backfill



Crushed Stone Backfill

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

The contractor should prevent groundwater, if encountered, and surface water runoff from collecting in the excavation. Subgrade soils that become unstable because of water and/or reworking by construction activity should be replaced with compacted structural, as necessary.

The predominant soil type at the recommended subgrade level will be the glacial till, portions of which have an elevated silt content. Soils with a higher silt content will be sensitive to excess moisture and lose strength quickly during wet periods. Contractors experienced in earthwork construction in this region should be aware of the silty soil behavior and the effect that moisture and inclement weather can have on its workability. If a contractor bids construction knowing that earthwork must begin during the winter or wet months, the contractor should include a contingency in his bid to use off-site suitable fill, and to remove and dispose of on-site soils that become unsuitable.

4.3.1.3 Drilled Shaft Design Recommendations

Description	Value
Net Allowable Bearing Capacity [1]	
Bedrock (>20 feet)	15 ksf
Ultimate Side Friction [2]	
Glacial Till (3.5 to 11 feet)	3 ksf
Weathered Bedrock (7.6 to 15 feet)	5 ksf
Ultimate Rock Bond	
Bedrock (>20 feet)	200 psi
Coefficient Lateral Subgrade Reaction [3]	
Glacial Till (0 to 11 feet)	80 (z/D) kcf
Weathered bedrock (7.5 to 15 feet)	90 (z/D) kcf
Bedrock (>20 feet)	100 (z/D) kcf
Angle of Internal Friction	
Glacial Till (0 to 11 feet)	34 degrees
Weathered Bedrock (7.6 to 15 feet)	40 degrees
Bedrock (>20 feet)	45 degrees
Estimated In-situ Soil Unit Weight	
Glacial Till (0 to 11 feet)	125 pcf
Weathered Bedrock (7.6 to 15 feet)	145 pcf
Bedrock (>20 feet)	150 pcf
Approximate Groundwater Depth	Not Encountered
Concrete minimum 28-day unconfined compressive strength [4]	4,000 psi
Minimum drilled shaft diameter	Diameter of "Monopine" base
Allowable deflection at top of shaft	0.5 inch

1. The allowable end bearing pressure assumes that loose soil/rock at the base of the shaft has been removed.
2. Contribution to shaft capacity from soil above a depth of 3.5 feet should be ignored. The uplift capacity of the shaft will be based on side friction and the dead weight of the shaft.
3. z is depth below the ground surface and D is diameter of shaft, both in feet.
4. Use air entrained concrete.

We anticipate that the design length of the shaft will be primarily dependent on the embedment/lateral capacity required to resist live loading, such as the combination of wind and ice loads. We recommend the base of the drilled shaft be at least 20 feet below ground surface. The drilled shaft will be designed to resist tension loads and therefore should have reinforcing steel installed throughout the entire length of the shaft. Technical specifications should be prepared that require material and installation detail submittals, proof of experience in drilled shaft installation, concrete placement methods, and hole stabilization methods.

4.3.1.4 Drilled Shaft Construction Recommendations

The drilled shaft should be aligned vertically. The drilling method or combination of methods selected by the contractor should be submitted for review by the geotechnical engineer, prior to mobilization of drilling equipment. A rock socket will be required to construct the shaft.

A section of temporary casing may be required to reduce the likelihood of caving of the upper portions of the shaft. Concrete should be placed by tremie methods. The contractor should take these aspects into account in his proposed drilling method(s).

4.3.2 Equipment Foundations

Equipment cabinets and ancillary structures may be supported on a slabs-on-grade underlain by at least a 12-inch thickness of compacted structural fill placed directly on the glacial till, the surface of which should be thoroughly compacted. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill placed over the glacial till. Design recommendations for the proposed structure are presented in the following table:

4.3.2.1 Slab-on-Grade Design Recommendations

Description	Value
Slab support (compacted structural fill or minus ¾-inch crushed stone, wrapped in geotextile separation fabric)	12-inch thick layer
Net allowable bearing pressure [1]	2,000 psf
Modulus of subgrade reaction	200 pounds per square inch per in (psi/in) for point loading
Minimum embedment below finished grade for frost protection [2,3]	42 inches
Approximate total settlement [4]	1 inch
Estimated differential settlement [4]	½ inch
Coefficient of sliding friction [5,6]	0.5 (ultimate)

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the slab base elevation.
2. Consideration should be given to using dense insulation boards (Dow Styrofoam Highload, or similar) under and adjacent to lightly loaded slabs-on-grade, to provide the equivalent of 42 inches of earth cover, thus reducing frost penetration.
3. Air entraining admixtures should be used for concrete exposed to freezing.
4. Settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the thickness of compacted fill, and the quality of the earthwork operations.
5. A factor of safety of at least 1.5 should be applied to the sliding resistance.
6. If rigid insulation is used beneath the slab for frost protection, the coefficient of sliding friction between the concrete and the insulation should be based on the manufacturer's recommendation.

4.3.2.2 Slab-on-Grade Construction Considerations

On most tower sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrade may be disturbed by foundation excavations, construction traffic, rainfall, etc. As a result, the slab subgrade may not be suitable for placement of structural fill and corrective action will be required.

We recommend the area underlying the slabs be rough graded and then thoroughly compacted with a heavy plate compactor or roller prior to final grading and placement of structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas previously filled or backfilled. Areas where unsuitable or unstable conditions are located should be repaired by removing and replacing the affected material with properly compacted structural fill or minus ¾-inch crushed stone, as necessary.

4.4 Seismic Considerations

Description	Value
Code Used [1]	Connecticut State Building Code (CBC)
Site Class [2]	B
Maximum considered earthquake ground motions (5 percent damping)	0.065g (1.0 second spectral response acceleration)
	0.256g (0.2 second spectral response acceleration)
Liquefaction potential in event of an earthquake	Not susceptible

1. The CBC incorporates the Seismic Design Category approach of the 2003 International Building Code (IBC).
2. The CBC uses a site soil profile determination extending a depth of 100 feet for seismic site classification. The current scope requested does not include a 100-foot soil profile determination; the boring performed for this report extended to a maximum depth of 20 feet. However, the encountered bedrock will extend to a depth of at least 100 feet.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications, so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction, and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the explorations performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between the explorations,

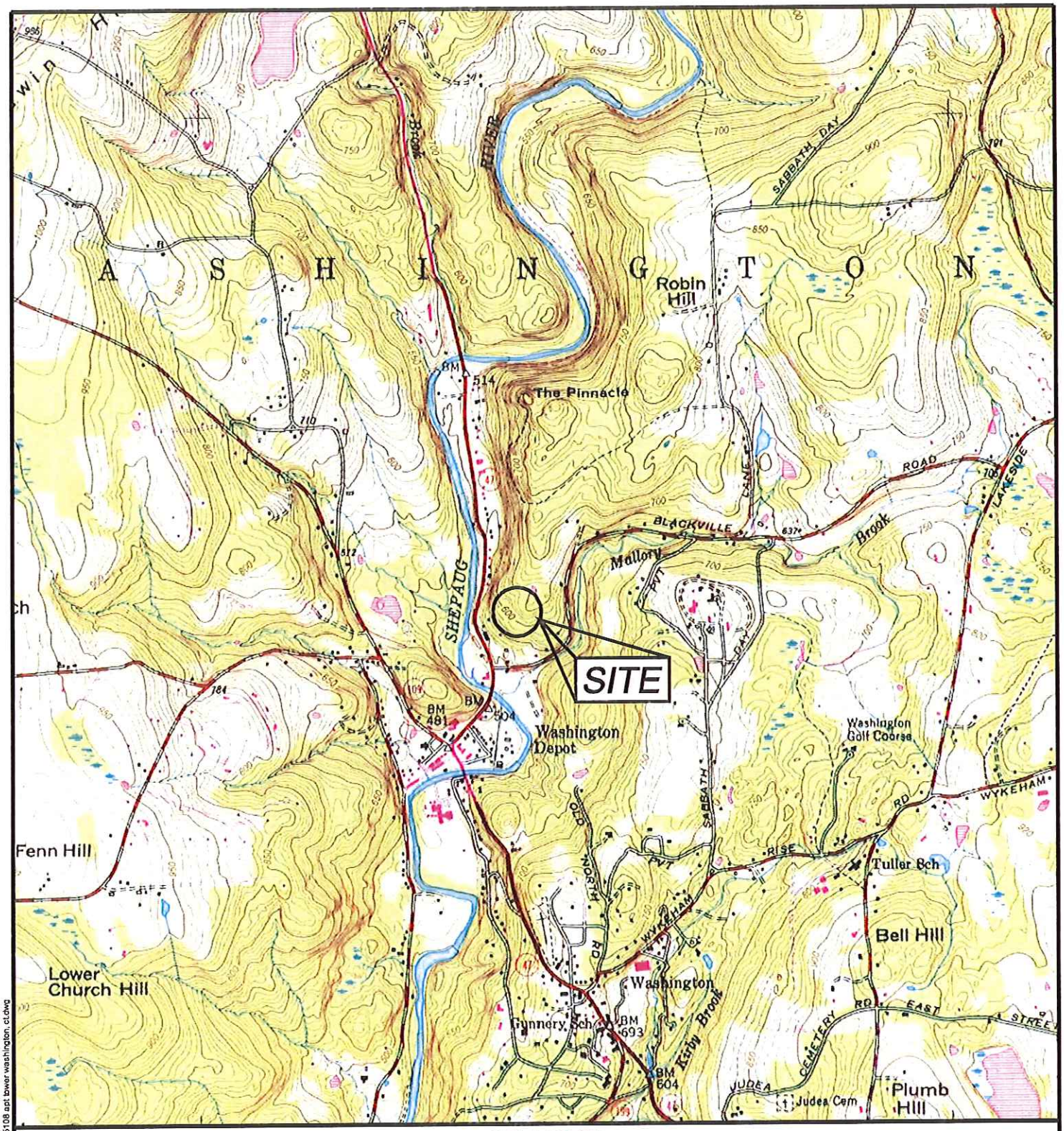
across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified, so that further evaluation and supplemental recommendations can be provided.

Resistivity testing may be influenced by the presence of boulders, chain-link fences, existing utilities, or other anomalies within the test area. Resistivity results will also fluctuate depending on the degree of compaction, moisture content, soil constituent solubility, and temperature. Field resistivity values may vary depending upon season, precipitation, and other conditions, which may be different from those at the time of testing.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



N

SCALE: 1:24 000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

Project Mngr:	TKT
Drawn By:	TKT
Checked By:	RWM
Approved By:	RWM

Project No.	J2145120
Quadrangle:	NEW PRESTON, CT - 1954
File No.	J2145120
Date:	March 2014

Terracon
Consulting Engineers and Scientists
201 Hammer Mill Road Rocky Hill, CT 06067
PH. (860)721 1900 FAX (860)721 1939

SITE LOCATION MAP

HOMELAND TOWERS: CT-112
10-12 BLACKVILLE ROAD
WASHINGTON, CONNECTICUT

EXHIBIT
A-1

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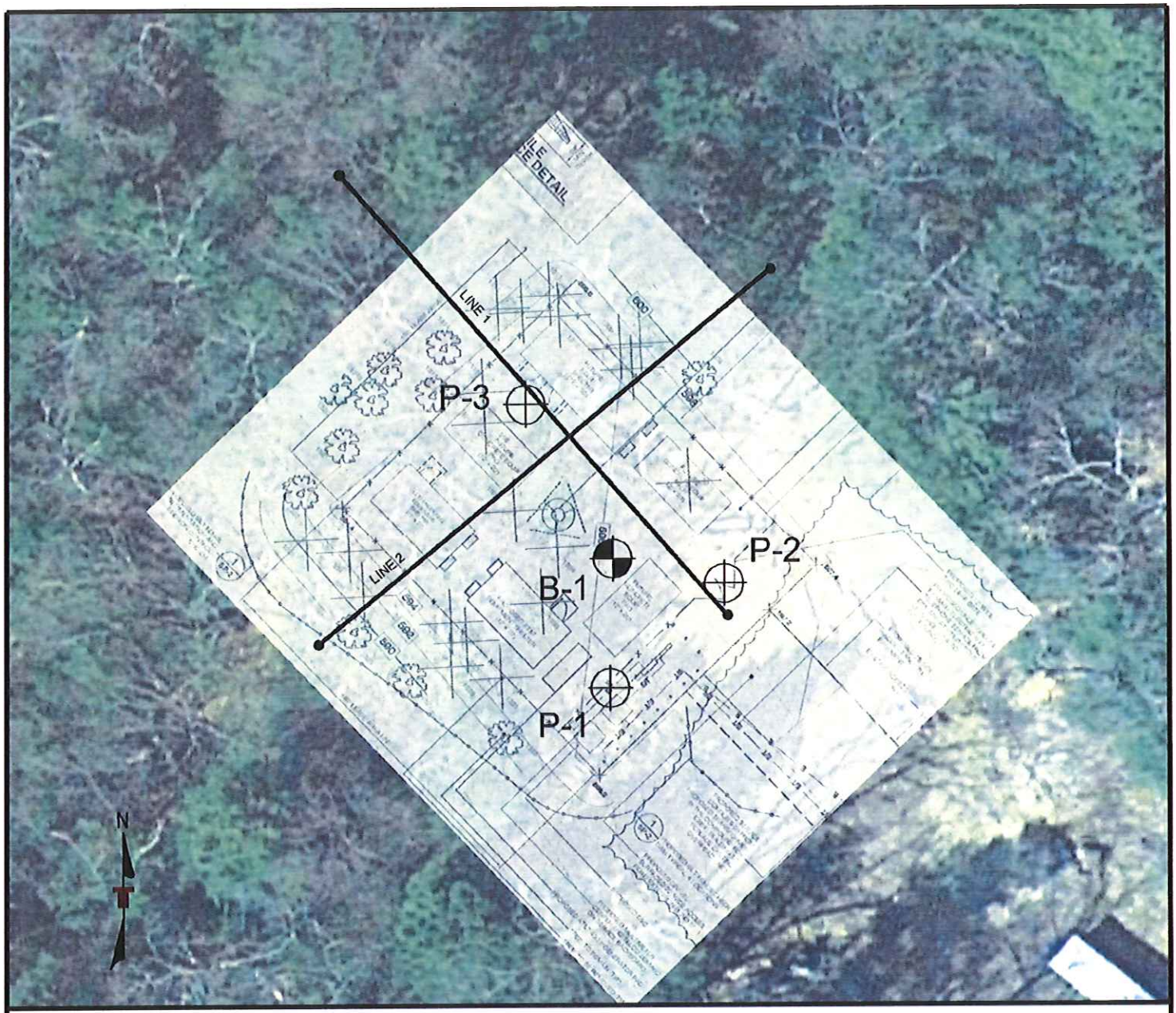

30 0 15 30

APPROXIMATE SCALE IN FEET

LEGEND

B-1 TEST BORING LOCATION

P-1 TEST PROBE LOCATION (TYP)

LINE 1 RESISTIVITY TEST LOCATION (TYP)

NOTES:

1. THIS DIAGRAM WAS PREPARED BASED ON A PLAN BY ALL-POINTS TECHNOLOGY CORPORATION OF KILLINGWORTH, CONNECTICUT, PROJECT No. CT-283-160, SHEET No. SP-2, TITLED "*COMPOUND SITE PLAN AND TOWER ELEVATION*", DATED: AUGUST 23, 2013.
2. THE TEST BORING B-1 AND TEST PROBES P-1, P-2, AND P-3 WERE ADVANCED ON MARCH 6, 2014 UNDER THE DIRECTION OF TERRACON WITH EQUIPMENT OWNED AND OPERATED BY NEW ENGLAND BORING CONTRACTORS, INC. OF GLASTONBURY, CONNECTICUT.
3.
4. RESISTIVITY TESTING WAS PERFORMED ON MARCH 6, 2014 BY A TERRACON FIELD ENGINEER
5. THE APPROXIMATE LOCATIONS OF THE TEST BORING, TEST PROBES, AND RESISITIVITY TESTS WERE TAPED FROM SITE FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
6. UE OF THIS DIAGRAM IS LIMITED TO THE ILLUSTRATION OF THE APPROXIMATE LOCATIONS OF THE TEST BORING, TEST PROBES, RESISTIVITY TESTS, AND OTHER PERTINENT SITE FEATURES. ANY OTHER USE OF THIS DIAGRAM WITHOUT PERMISSION FROM TERRACON IS PROHIBITED.

Project Mngr:	TKT
Drawn By:	TKT
Checked By:	RWM
Approved By:	RWM

Project No.	J2145120
Scale:	1" = 30'
File No.	J2145120
Date:	March 2014

Terracon
Consulting Engineers and Scientists
201 Hammer Mill Road Rocky Hill, CT 06067
PH. (860)721 1900 FAX.(860)721 1939

EXPLORATION LOCATION DIAGRAM

HOMELAND TOWERS: CT-112

10-12 BLACKVILLE ROAD

WASHINGTON, CONNECTICUT

EXHIBIT

A-2

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Field Exploration Description

The approximate exploration locations, which are shown on Exhibit A-2, were measured by taping from existing features in the field and by estimating right angles. The boring, which is shown on Exhibit A-2, was located as near as feasible to the proposed center of the tower. Elevations were referenced from the "Lot Coverage Map", Sheet No. LC.1, dated July 7, 2010, 2013, by Arthur H. Howland & Associates, P.C. of New Milford, Connecticut, are shown in Appendix A. The locations and elevations of the explorations should be considered accurate only to the degree implied by the method used to define them.

Terracon observed the advancement of one test boring (B-1) and three test probes (P-1, P-2, and P-3) within the proposed tower compound area on March 6, 2014 using a truck-mounted rotary drill rig, owned and operated by New England Boring Contractors, Inc. of Glastonbury, Connecticut. B-1 was advanced using 3¼-inch inside diameter hollow stem augers to a depth of about 15 feet below existing ground surface. Competent bedrock was then cored with an NQ2-sized core barrel from approximately 15 to 20 feet.

In the split-barrel sampling procedure utilized in B-1, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler typically the middle 12 inches of the total 24-inch penetration by means of a 140-pound safety hammer with a free fall of 30 inches is the Standard Penetration Test (SPT) resistance value "N". This "N" value is used to estimate the *in-situ* relative density of cohesionless soils and consistency of cohesive soils.

The soil samples were placed in labeled glass jars and taken, along with the core in a wooden core box, to our Rocky Hill (Hartford), Connecticut office for further review by a Terracon geotechnical engineer. Information provided on the boring log attached to this report includes soil/bedrock descriptions, relative density and/or consistency evaluations, boring depth, sampling intervals, and groundwater conditions. The boring was backfilled with auger cuttings prior to the drill crew leaving the site.

Test probes (P-1, P-2, and P-3) were advanced with 4-inch diameter solid stem augers (SSA) to further evaluate the subsurface conditions at the site. The P-1, P-2, and P-3 terminated with auger refusal on competent bedrock at depths of approximately 7.6, 11, and 12.6 feet, respectively, below the existing ground surface. The probes were backfilled with auger cuttings.

Field logs of the explorations was prepared during drilling, which included visual classifications of the materials encountered during drilling as well as interpretation of the subsurface conditions between samples, were prepared. The final exploration logs included with this report represents further interpretation by the geotechnical engineer of the field logs and incorporate, where appropriate, modifications based on laboratory classification of the samples.

BORING LOG NO. B-1

PROJECT: Homeland Towers: CT-112

CLIENT: All-Points Technology Corporation, P.C.
Killingworth, Connecticut

SITE: 10-12 Blackville Road
Washington, Connecticut

LOCATION See Exhibit A-2

Surface Elev.: 596 (Ft.)

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
0.7	595.5				
FOREST MAT					
SILTY SAND (SM), with gravel, occasional cobbles, brown, medium dense to very dense, surficially loose, **(GLACIAL TILL)**				8	2-2-4-7 N=6
				8	6-10-16-27 N=26
		5		10	38-65
				10	26-27-36-34 N=63
11.0	585	10		11	35-70
WEATHERED SCHIST					
15.0	581	15			
SCHIST, slightly weathered, strong, gray,					RQD = 74% Coring Rate (min/foot) 4-4-5-5-5
20.0	576	20			
Boring Terminated at 20 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
3 1/4-inch inside diameter hollow stem augers

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Boring Started: 3/6/2014 | Boring Completed: 3/6/2014
Drill Rig: Mobile B-53 | Driller: M. St. John
Project No.: J2145120 | Exhibit: A-4

PROBE LOG NO. P-1

PROJECT: Homeland Towers: CT-112

CLIENT: All-Points Technology Corporation, P.C.
Killingworth, Connecticut

SITE: 10-12 Blackville Road
Washington, Connecticut

LOCATION See Exhibit A-2

Surface Elev.: 594 (Ft.)

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
	0.7	593.5					
FOREST MAT							
SILTY SAND (SM), with gravel, occasional cobbles, brown, **(GLACIAL TILL)**			5				
	7.6	586.5					
Auger Refusal On Competent Bedrock at 7.6 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
4-inch diameter solid stem augers

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Probe Started: 3/6/2014	Probe Completed: 3/6/2014
Drill Rig: Mobile B-53	Driller: M. St. John
Project No.: J2145120	Exhibit: A-5

PROBE LOG NO. P-2

PROJECT: Homeland Towers: CT-112

CLIENT: All-Points Technology Corporation, P.C.
Killingworth, Connecticut

SITE: 10-12 Blackville Road
Washington, Connecticut

LOCATION See Exhibit A-2

Surface Elev.: 598 (Ft.)

DEPTH	ELEVATION (Ft.)	
0.7	597.5	**FOREST MAT**
		SILTY SAND (SM), with gravel, occasional cobbles, brown, **(GLACIAL TILL)**
11.0	587	
		Auger Refusal On Competent Bedrock at 11 Feet

GRAPHIC LOG | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | RECOVERY (In.) | FIELD TEST RESULTS

5

10

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
4-inch diameter solid stem augers

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Probe Started: 3/6/2014	Probe Completed: 3/6/2014
Drill Rig: Mobile B-53	Driller: M. St. John
Project No.: J2145120	Exhibit: A-6

PROBE LOG NO. P-3

PROJECT: Homeland Towers: CT-112

CLIENT: All-Points Technology Corporation, P.C.
Killingworth, Connecticut

SITE: 10-12 Blackville Road
Washington, Connecticut

GRAPHIC LOG	LOCATION See Exhibit A-2	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS
	Surface Elev.: 598 (Ft.)					
	DEPTH ELEVATION (Ft.)					
	FOREST MAT 0.7 597.5					
	SILTY SAND (SM), with gravel, occasional cobbles, brown, **(GLACIAL TILL)**	5				
		10				
	12.6 585.5					
	Auger Refusal On Competent Bedrock at 12.6 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
4-inch diameter solid stem augers

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Probe Started: 3/6/2014 | Probe Completed: 3/6/2014
Drill Rig: Mobile B-53 | Driller: M. St. John
Project No.: J2145120 | Exhibit: A-7

APPENDIX B
LABORATORY TESTING

Laboratory Testing

Descriptive classifications of the soils indicated on the Terracon boring log are in accordance with the enclosed General Notes and the Unified Soil Classification System (USCS). USCS symbols are also shown. A brief description of the USCS is attached to this report. Classification was by visual/manual procedures. A guide to the description of rock properties is also attached to this report.

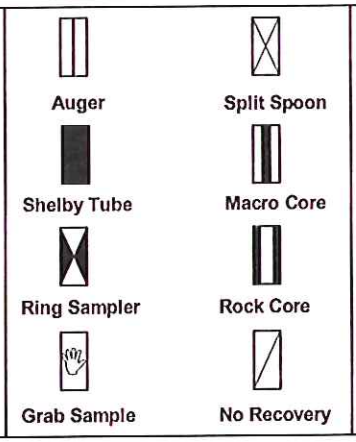
APPENDIX C

SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K,L,M,N] / Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K,L,M,P] / Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

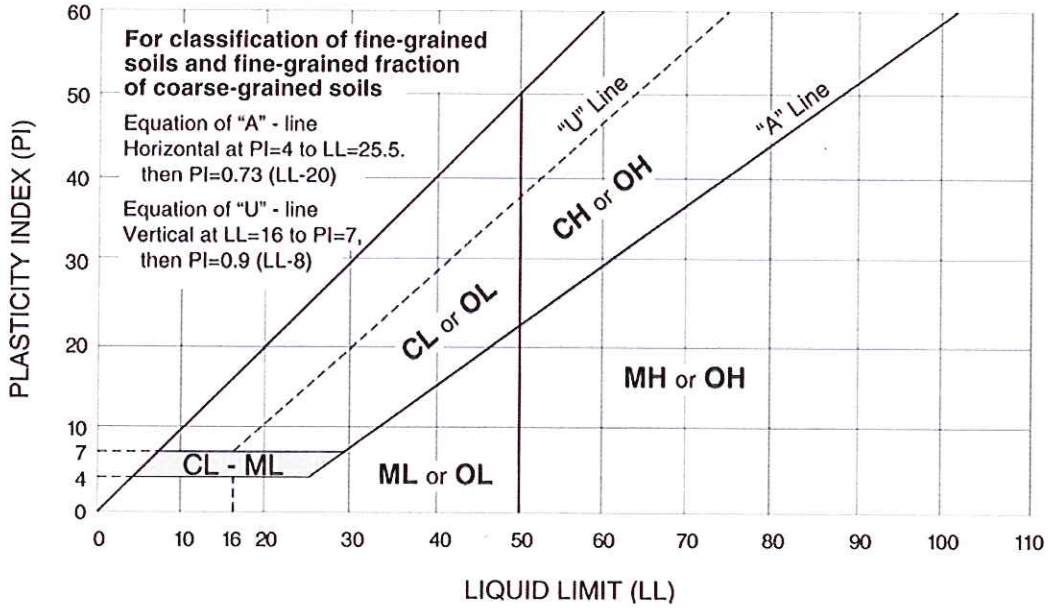
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Terracon

Exhibit C-2

DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, PSI (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft (50 – 300 mm)
Moderate	8 in – 2 ft (200 – 600 mm)	**Medium**	1 ft – 3 ft (300 – 900 mm)
Wide	2 ft – 6 ft (600 mm – 2.0 m)	**Thick**	3 ft – 10 ft (900 mm – 3 m)
Very Wide	6 ft – 20 ft (2.0 – 6 m)	**Massive**	> 10 ft (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0 degree angle.

ROCK QUALITY DESIGNATION (RQD*)	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

*The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

ATTACHMENT 2

Sabre Industries™
Towers and Poles

Structural Design Report

135' Extendible to 145' Monopine
Site: Washington, CT
Site Number: CT112

Prepared for: INSITE TOWERS LLC
by: Sabre Towers & Poles ™

Job Number: 104570

May 27, 2014

Monopole Profile 1

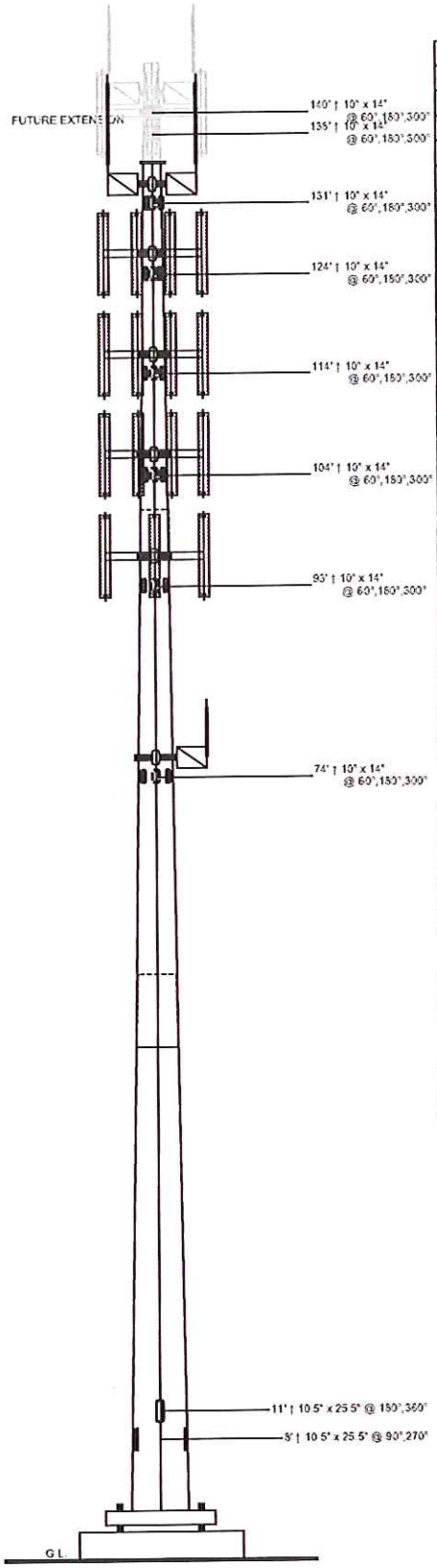
Foundation Design Summary (Option 1) 2

Foundation Design Summary (Option 2) 3

Pole Calculations 4-15

Foundation Calculations 16-25

Section	1	2	3	4
Length (ft)	10' - 0"	39' - 6"	53' - 6"	53' - 3"
Number Of Sides		18		
Thickness (in)		1/4"	7/16"	1/2"
Lap Splice (ft)			5' - 0"	7' - 3"
Top Diameter (in)	19"	22.39"	33.54"	48.31"
Bottom Diameter (in)	22.38"	35.74"	51.63"	66.31"
Taper (in/ft)			0.3381	
Grade			A572-65	
Weight (lbs)	897	3783	11516	19834



Designed Appurtenance Loading

Elev	Description	Tx-Line
146***	(2) 8' x 3in Omnis	(2) 7/8"
142***	(2) 3ft Sidearms	
140***	3T-Arm - 10' Face - 3' Standoff	
140***	(12) 9442 RRHXs	
140***	(9) 8' X 1' X 6INs	(12) 1 5/8"
139/136	(2) 8' x 3in Omnis	(2) 7/8"
135/132	(2) 3ft Sidearms	
126	3T-Arm - 10' Face - 3' Standoff	
126	(6) E15S09P56s	
126	(1) DC6-48-60-18-8F	
126	(6) E15S09P80s	
126	(12) 8' x 1' x 7in Panels	(12) 1 5/8"
126	(12) 9442 RRHXs	(4) 1/2"
116	3T-Arm - 10' Face - 3' Standoff	
116	(6) RRH AWS (24.4" x 9.05" x 10.6")s	(6) 1"
116	(1) DC2-48-60-0-9E	
116	(6) FD9R6004s	
116	(12) 8' x 1' x 7in Panels	(12) 1 5/8"
116	(4) GPS-TMG-HR-26Ns	(2) 1/2"
106	3T-Arm - 10' Face - 3' Standoff	
106	(12) AWC-TMA-DD-1700-FB AISGs	
106	(12) FD9R6004s	
106	(12) 8' X 1' X 6INs	(12) 1 5/8"
96	3T-Arm - 10' Face - 3' Standoff	
96	(12) 9442 RRHXs	
96	(9) 8' X 1' X 6INs	(12) 1 5/8"
78.5	(1) 5' x 3in Omni	(1) 7/8"
76	3ft Sidearm	

Load Case Reactions

Description	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
3s Gusted Wind	69.4	90.5	9517	10.9	8.14
3s Gusted Wind 0.9 Dead	52.3	90.5	9442	10.7	8.03
3s Gusted Wind&Ice	87.1	12.5	1274	1.5	1.09
Service Loads	57.1	20.2	2118	2.4	1.81

Base Plate Dimensions

Shape	Diameter	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Round	79.25"	3"	73.25"	26	2.25"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
84"	2.25"	2.625"	3530	A615-75	Galv-18"

Notes

1) Antenna Feed Lines Run Inside Pole
2) All dimensions are above ground level, unless otherwise specified.
3) Weights shown are estimates. Final weights may vary.
4) The Monopole was designed for a basic wind speed of 95 mph with 0" of radial ice, and 40 mph with 1" of radial ice, in accordance with ANSI/TIA-222-G-2 (2009), Structure Class II, Exposure Category C, Topographic Category 1.
5) Full Height Step Bolts
6) This structure has been designed to support pine tree branches starting at the 75' elevation to an overall height of 150'.

*** These Appurtenances cannot be installed until the Monopole has been extended.

Sabre Industries
Towers and Poles

Sabre Communications Corporation
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 255-3690
Fax: (712) 279-0514

Job:	**104570**
Customer:	INSITE TOWERS LLC
Site Name:	Washington, CT CT112
Description:	135' ext. 145' Monopine
Date:	5/27/2014 By: TTW

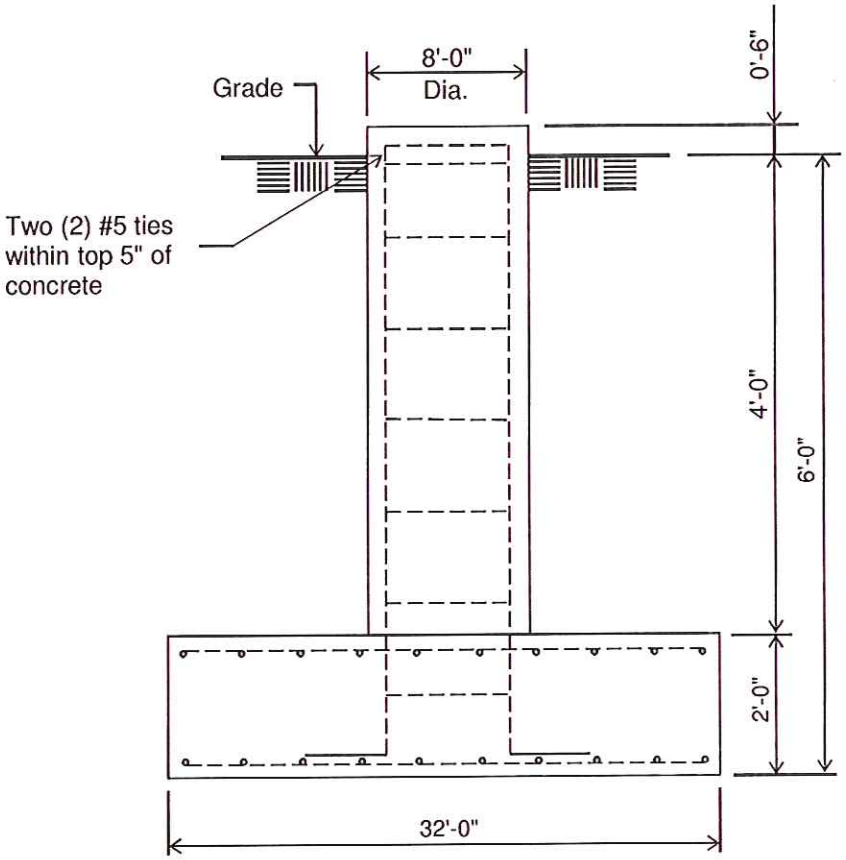
Sabre Industries™
Towers and Poles

No.: 104570

Date: 5/27/14
By: TTW

Customer: INSITE TOWERS LLC
Site: Washington, CT CT112

135' Extendible to 145' Monopole at
95 mph Wind with no ice and 40 mph Wind with 1 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



ELEVATION VIEW
(84.23 Cu. Yds. each)
(1 REQUIRED; NOT TO SCALE)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05

2). Rebar to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical report by Terracon, Project No. J2145120, dated March 20, 2014.

6). See the geotechnical report for compaction requirements, if specified.

7). The foundation is based on the following factored loads:
Moment (kip-ft) = 9516.67
Axial (kips) = 69.41
Shear (kips) = 90.48

Rebar Schedule per Pad and Pier	
Pier	(44) #10 vertical rebar w/hooks at bottom w/#5 ties, two within top 5" of top of pier then 12" C/C
Pad	(58) #10 horizontal rebar evenly spaced each way top and bottom (232 Total)

8). This is a design drawing only. Please see final construction drawings for all installation details.

7101 Southbridge Drive - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6690 - Fax 712.279.0814

Sabre Industries™
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Date: 5/27/14
By: TTW

Customer: INSITE TOWERS LLC
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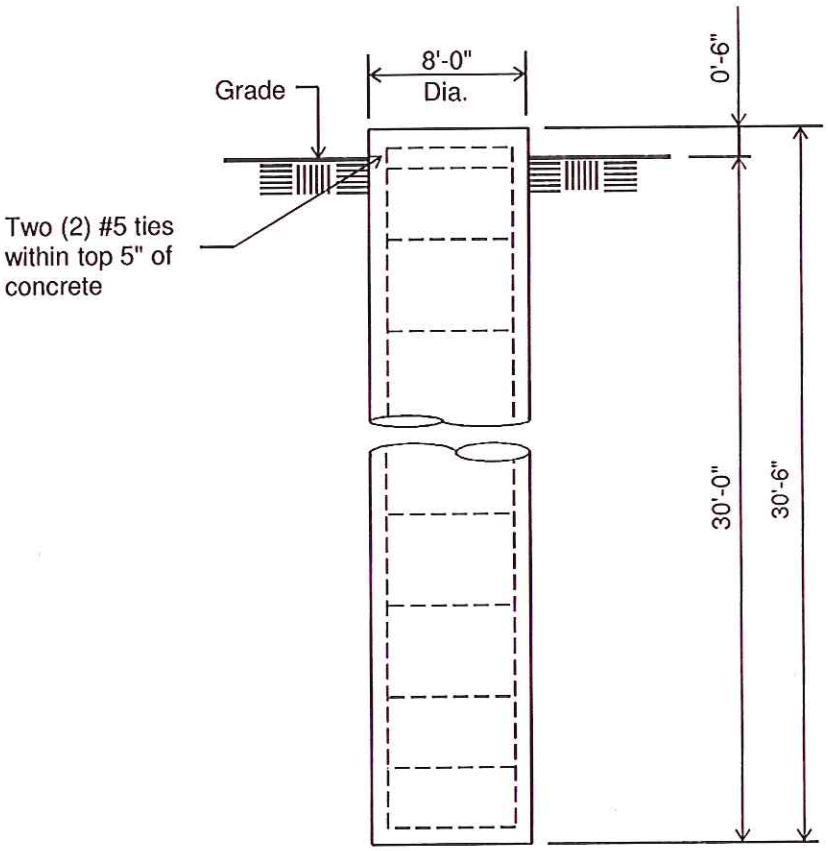
135' Extendible to 145' Monopole at
95 mph Wind with no ice and 40 mph Wind with 1 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



ELEVATION VIEW
(56.78 Cu. Yds. each)
(1 REQUIRED; NOT TO SCALE)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05.

2). Rebars to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical report by Terracon, Project No. J2145120, dated March 20, 2014.

6). See the geotechnical report for drilled pier installation requirements, if specified.

7). The foundation is based on the following factored loads:
Moment (kip-ft) = 9516.67
Axial (kips) = 69.41
Shear (kips) = 90.48

Rebar Schedule per Pier	
Pier	(44) #11 vertical rebar w/#5 ties, two within top 5" of pier then 7" C/C

8). This is a design drawing only. Please see final construction drawings for all installation details.

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TOP	DIAMETER	19.00 in.	[19.29 in. Point-Point]
BOTTOM	DIAMETER	66.31 in.	[67.33 in. Point-Point]
POLE	HEIGHT	144.00 ft.	18 SIDED FLAT ORIENTATION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E-MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS: NO.	X,ft	Qty	Description	Status
1	144.00	1	User Defined Loading	Future Appurt
2	141.00	2	3' Sidearm	Future Appurt
3	139.00	1	User Defined Loading	Future Appurt
4	132.00	2	3' Sidearm	Future Appurt
5	126.50	1	User Defined Loading	Future Appurt
6	125.00	1	User Defined Loading	Future Appurt
7	124.90	1	User Defined Loading	Future Appurt
8	115.00	1	User Defined Loading	Future Appurt
9	114.90	1	User Defined Loading	Future Appurt
10	111.50	1	User Defined Loading	Future Appurt
11	105.00	1	User Defined Loading	Future Appurt
12	96.50	1	User Defined Loading	Future Appurt
13	95.00	1	User Defined Loading	Future Appurt
14	81.50	1	User Defined Loading	Future Appurt
15	75.00	1	3' Sidearm	Future Appurt
16	75.75	1	User Defined Loading	Future Appurt

Some wind forces may have been derived from full-scale wind tunnel tests.

Pole Section	Bottom X,ft.	Thick in.	Connect Type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	10.00	.25000	FLANGE-X		.3381	10.00	551	A572-65	Special
2	49.50	.25000	SLIP-JNT	60.	.3381	39.50	3072	A572-65	GALV/PAINT
3	98.00	.43750	SLIP-JNT	87.	.3381	53.50	10655	A572-65	GALV/PAINT
4	144.00	.50000	C-WELD		.3381	53.25	16335	A572-65	GALV/PAINT

SECTION PROPERTIES

X,ft	UP,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	F_y(ksi)		
144.00	.00	19.00	.2500	14.88	1320	660	68.4	11.64	76.0	65.00	TOP	P01
141.00	3.00	20.01	.2500	15.68	1546	773	76.1	12.35	80.1	65.00		P02
139.00	5.00	20.69	.2500	16.22	1712	856	81.5	12.83	82.8	65.00		P03
134.00	10.00	22.38	.2500	17.56	2174	1087	95.7	14.02	89.5	65.00	Flng-T02	
132.00	12.00	23.06	.2500	18.10	2378	1189	101.6	14.50	92.2	65.00		P04
127.00	17.00	24.75	.2500	19.44	2948	1474	117.3	15.69	99.0	65.00		
126.50	17.50	24.92	.2500	19.57	3008	1504	118.9	15.81	99.7	65.00		P05
125.00	19.00	25.42	.2500	19.97	3198	1599	123.9	16.17	101.7	65.00		P06
124.90	19.10	25.46	.2500	20.00	3210	1605	124.2	16.19	101.8	65.00		P07
119.90	24.10	27.15	.2500	21.34	3900	1950	141.5	17.38	108.6	65.00		
115.00	29.00	28.80	.2500	22.66	4666	2333	159.5	18.55	115.2	65.00		P08
114.90	29.10	28.84	.2500	22.68	4684	2342	160.0	18.58	115.4	65.00		P09
111.50	32.50	29.99	.2500	23.60	5272	2636	173.1	19.39	120.0	65.00		P10
106.50	37.50	31.68	.2500	24.94	6222	3111	193.4	20.58	126.7	65.00		
105.00	39.00	32.19	.2500	25.34	6528	3264	199.7	20.94	128.7	65.00		P11
100.00	44.00	33.88	.2500	26.68	7620	3810	221.5	22.13	135.5	65.00		
99.50	44.50	34.05	.2500	26.82	7738	3869	223.8	22.25	136.2	65.00	Slip-B02	
96.50	47.50	34.56	.4375	47.38	13936	6968	397.1	12.17	79.0	65.00		P12
95.00	49.00	35.07	.4375	48.09	14568	7284	409.1	12.37	80.2	65.00		P13
94.50	49.50	35.24	.4375	48.32	14782	7391	413.1	12.44	80.5	65.00	Slip-T03	
89.50	54.50	36.93	.4375	50.67	17042	8521	454.5	13.12	84.4	65.00		
84.50	59.50	38.62	.4375	53.02	19522	9761	497.8	13.80	88.3	65.00		
81.50	62.50	39.63	.4375	54.42	21120	10560	524.8	14.21	90.6	65.00		P14
76.50	67.50	41.32	.4375	56.77	23972	11986	571.3	14.89	94.4	65.00		
75.00	69.00	41.83	.4375	57.47	24874	12437	585.6	15.10	95.6	65.00		P15
75.75	68.25	41.58	.4375	57.12	24422	12211	578.5	14.99	95.0	65.00		P16
70.75	73.25	43.27	.4375	59.47	27558	13779	627.3	15.67	98.9	65.00		
65.75	78.25	44.96	.4375	61.82	30950	15475	678.0	16.36	102.8	65.00		
60.75	83.25	46.65	.4375	64.17	34610	17305	730.7	17.04	106.6	65.00		
55.75	88.25	48.34	.4375	66.51	38550	19275	785.4	17.72	110.5	65.00		
53.25	90.75	49.18	.4375	67.69	40628	20314	813.5	18.06	112.4	65.00	Slip-B03	
48.25	95.75	50.00	.5000	78.55	48618	24309	957.6	15.87	100.0	65.00		
46.00	98.00	50.76	.5000	79.76	50892	25446	987.4	16.14	101.5	65.00	Slip-T04	
41.00	103.00	52.45	.5000	82.44	56204	28102	1055.3	16.73	104.9	65.00		
36.00	108.00	54.14	.5000	85.12	61870	30935	1125.4	17.33	108.3	65.00		

31.00	113.00	55.83	.5000	87.81	67906	33953	1197.8	17.93	111.7	65.00	
26.00	118.00	57.52	.5000	90.49	74320	37160	1272.4	18.52	115.0	65.00	
21.00	123.00	59.21	.5000	93.17	81128	40564	1349.3	19.12	118.4	65.00	
16.00	128.00	60.90	.5000	95.85	88340	44170	1428.5	19.71	121.8	65.00	
11.00	133.00	62.59	.5000	98.54	95968	47984	1509.9	20.31	125.2	65.00	
6.00	138.00	64.28	.5000	101.22	104020	52010	1593.6	20.91	128.6	65.00	
1.00	143.00	65.97	.5000	103.90	112512	56256	1679.5	21.50	131.9	65.00	
.00	144.00	66.31	.5000	104.44	114264	57132	1697.0	21.62	132.6	65.00	BASE

CASE - 1: 3s Gusted Wind — ANSI-TIA-222-G

WIND OLF		1.60	GUSTED WIND (3sec)	95.0 mph	152.9 kph
VERTICAL OLF		1.20	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE		.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR	(Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF	(Cf)	.65	PRESSURE @ 32.7 ft	38.6 psf	1848.5 Pa
IMPORTANCE FAC	(I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC	(Kd)	.95	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT		1			

APPURTENANCES — Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
1	1	User Defined Loading	144.0	5	.1				52.9	.01	.0	.0
	1	TOP BRANCHES	146.5	250	25.0	None	1	.00	53.1	1.33	-.3	-3.3
	1	TOP BRANCHES	141.5	250	25.0	None	1	.00	52.7	1.32	-.3	
	1	BRANCHES (9' MAX.)	136.5	500	50.0	None	1	.00	52.3	2.61	-.6	
_ 2	2	3' Sidearm	141.0	143	22.8				52.8	1.20	-.3	-2.1
	2	8' X 3IN OMNI	145.0	12		7/8"	2	.54	52.9		-.2	
3	1	User Defined Loading	139.0	732	83.3				52.5	4.37	-.9	-.2
	9	8' X 1' X 6IN	139.0	42	.0	1 5/8"	12	1.04	52.5	.00	-2.5	
	12	9442 RRHX	139.0	50	.0	None	1	.00	52.5	.00	-.7	
_ 4	2	3' Sidearm	132.0	143	22.8				52.1	1.19	-.3	-2.1
	2	8' X 3IN OMNI	138.0	12		7/8"	2	.54	52.4		-.2	
5	1	User Defined Loading	126.5	5	.1				51.5	.01	.0	.0
	1	BRANCHES (9' MAX.)	131.5	500	50.0	None	1	.00	51.9	2.59	-.6	-13.0
	1	BRANCHES (9' MAX.)	126.5	500	50.0	None	1	.00	51.5	2.57	-.6	
	1	BRANCHES (10' MAX.)	121.5	500	55.6	None	1	.00	51.0	2.83	-.6	
6	1	User Defined Loading	125.0	732	131.4				51.3	6.74	-.9	-.3
	12	8' X 1' X 7IN PANEL	125.0	51	.0	1 5/8"	12	1.04	51.3	.00	-2.6	
	12	9442 RRHX	125.0	50	.0	1/2"	4	.40	51.3	.00	-1.0	
	6	E15S09P80	125.0	9	.0	None	1	.00	51.3	.00	-.1	
7	1	User Defined Loading	124.9	0	.0				51.3	.00	.0	.0
	6	E15S09P56	125.0	9	.0	None	1	.00	51.3	.00	-.1	
	1	DC6-48-60-18-8F	125.0	20	.0	None	1	.00	51.3	.00	.0	
8	1	User Defined Loading	115.0	732	135.0				50.4	6.81	-.9	-.3
	12	8' X 1' X 7IN PANEL	115.0	51	.0	1 5/8"	12	1.04	50.4	.00	-2.5	
	4	GPS-TMG-HR-26N	115.0	0	.0	1/2"	2	.40	50.4	.00	-.1	
	6	FD9R6004	115.0	10	.0	None	1	.00	50.4	.00	-.1	
9	1	User Defined Loading	114.9	0	.0				50.4	.00	.0	.0
	6	RRH AWS (24.4" X 9.05" X	115.0	43	.0	1"	6	.54	50.4	.00	-.8	
	1	DC2-48-60-0-9E	115.0	15	.0	None	1	.00	50.4	.00	.0	
10	1	User Defined Loading	111.5	5	.1				50.1	.01	.0	.0
	1	BRANCHES (10' MAX.)	116.5	500	55.6	None	1	.00	50.6	2.81	-.6	-14.1
	1	BRANCHES (10' MAX.)	111.5	500	55.6	None	1	.00	50.1	2.78	-.6	
	1	BRANCHES (11' MAX.)	106.5	550	61.1	None	1	.00	49.6	3.03	-.7	
11	1	User Defined Loading	105.0	732	121.1				49.5	6.00	-.9	-.3
	12	8' X 1' X 6IN	105.0	42	.0	1 5/8"	12	1.04	49.5	.00	-2.2	
	12	FD9R6004	105.0	10	.0	None	1	.00	49.5	.00	-.1	
	12	AWC-TMA-DD-1700-FB AISG	105.0	6	.0	None	1	.00	49.5	.00	-.1	
12	1	User Defined Loading	96.5	5	.1				48.6	.00	.0	.0
	1	BRANCHES (11' MAX.)	101.5	550	61.1	None	1	.00	49.1	3.00	-.7	-15.0
	1	BRANCHES (12' MAX.)	96.5	600	66.7	None	1	.00	48.6	3.24	-.7	
	1	BRANCHES (12' MAX.)	91.5	600	66.7	None	1	.00	48.1	3.21	-.7	
13	1	User Defined Loading	95.0	732	83.3				48.5	4.04	-.9	-.2
	9	8' X 1' X 6IN	95.0	42	.0	1 5/8"	12	1.04	48.5	.00	-1.9	
	12	9442 RRHX	95.0	50	.0	None	1	.00	48.5	.00	-.7	
14	1	User Defined Loading	81.5	5	.1				47.0	.00	.0	.0
	1	BRANCHES (12' MAX.)	86.5	600	66.7	None	1	.00	47.5	3.17	-.7	-15.8
	1	BRANCHES (13' MAX.)	81.5	650	72.2	None	1	.00	47.0	3.39	-.8	
	1	BRANCHES (13' MAX.)	76.5	650	72.2	None	1	.00	46.3	3.35	-.8	
_15	1	3' Sidearm	75.0	143	9.7				46.4	.45	-.2	-.8
	1	5' X 3IN OMNI	77.5	5		7/8"	1	.54	46.5		-.1	
16	1	User Defined Loading	75.8	5	.1				46.2	.00	.0	.0
	1	BRANCHES (14' MAX.)	75.8	700	77.8	None	1	.00	46.2	3.60	-.8	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
144.00	1.00	34.36	.00	.0	5.39	-.5	19.6	.0	.0	82.55	.047
141.00	1.00	34.21	.00	.0	6.83	-1.1	1.0	.0	.0	82.55	.003
139.00	1.00	34.11	.00	.0	12.06	-4.8	-13.0	.0	.0	82.55	.030
134.00	1.00	33.85	.00	.0	12.31	-5.1	-73.3	.0	.0	82.55	.128

132.00	1.00	33.75	.00	.0	13.82	-5.7	-100.0	.0	.0	82.55	.164
127.00	1.00	33.47	.00	.0	14.02	-5.9	-169.1	.0	.0	82.55	.237
126.50	1.00	33.45	.00	.0	22.28	-6.7	-174.9	.0	.0	82.55	.243
125.00	1.00	33.36	.00	.0	29.64	-10.4	-208.7	.0	.0	82.37	.281
124.90	1.00	33.36	.00	.0	29.84	-10.7	-211.7	.0	.0	82.34	.285
119.90	1.00	33.07	.00	.0	30.22	-11.3	-360.8	.0	.0	80.93	.429
115.00	1.00	32.79	.00	.0	37.61	-14.2	-509.3	.0	.0	79.56	.546
114.90	1.00	32.78	.00	.0	37.84	-15.2	-513.0	.0	.0	79.53	.549
111.50	1.00	32.58	.00	.0	46.95	-16.6	-640.6	.0	.0	78.58	.641
106.50	1.00	32.27	.00	.0	47.19	-17.2	-875.0	.0	.0	77.17	.794
105.00	1.00	32.17	.00	.0	53.76	-20.3	-946.7	.0	.0	76.75	.839
100.00	1.00	31.85	.00	.0	53.94	-20.9	-1215.0	.0	.0	75.35	.986
99.50	1.00	31.81	.00	.0	54.09	-21.3	-1242.5	.0	.0	75.21	.999
96.50	1.00	31.61	.00	.0	63.91	-23.0	-1403.3	.0	.0	82.55	.579
95.00	1.00	31.51	.00	.0	68.37	-26.4	-1499.2	.0	.0	82.55	.601
94.50	1.00	31.47	.00	.0	68.64	-27.4	-1533.3	.0	.0	82.55	.609
89.50	1.00	31.12	.00	.0	69.09	-29.1	-1876.7	.0	.0	82.55	.676
84.50	1.00	30.75	.00	.0	69.43	-30.2	-2222.5	-.1	.0	82.55	.730
81.50	1.00	30.52	.00	.0	79.84	-32.9	-2430.0	-.1	.0	82.55	.758
76.50	1.00	30.12	.00	.0	80.11	-33.9	-2829.2	-.1	.0	82.55	.809
75.00	1.00	29.99	.00	.0	80.66	34.5	2950.0	.1	.0	82.55	.823
75.75	1.00	30.06	.00	.0	84.56	-36.0	-2889.2	-.1	.0	82.55	.817
70.75	1.00	29.63	.00	.0	84.97	-37.7	-3312.5	-.1	.0	82.55	.863
65.75	1.00	29.19	.00	.0	85.38	-39.5	-3736.7	-.1	.0	82.15	.905
60.75	1.00	28.71	.00	.0	85.78	-41.3	-4164.2	-.1	.0	81.34	.944
55.75	1.00	28.21	.00	.0	86.09	-42.9	-4592.5	-.1	.0	80.54	.978
53.25	1.00	27.94	.00	.0	86.41	-44.9	-4808.3	-.1	.0	80.14	.994
48.25	1.00	27.38	.00	.0	86.73	-46.8	-5240.0	-.1	.0	82.55	.893
46.00	1.00	27.11	.00	.0	87.04	-49.0	-5435.0	-.1	.0	82.40	.900
41.00	1.00	26.47	.00	.0	87.45	-51.5	-5870.0	-.1	.0	81.70	.917
36.00	1.00	25.78	.00	.0	87.83	-53.7	-6307.5	-.2	.0	81.00	.932
31.00	1.00	25.00	.00	.0	88.21	-55.9	-6746.7	-.2	.0	80.30	.945
26.00	1.00	24.12	.00	.0	88.59	-58.2	-7187.5	-.2	.0	79.60	.956
21.00	1.00	23.10	.00	.0	88.97	-60.5	-7630.8	-.2	.0	78.89	.966
16.00	1.00	21.88	.00	.0	89.37	-62.9	-8075.8	-.2	.0	78.19	.974
11.00	1.00	21.34	.00	.0	89.77	-65.3	-8525.0	-.2	.0	77.49	.982
6.00	1.00	21.34	.00	.0	90.18	-67.7	-8975.0	-.2	.0	76.79	.988
1.00	1.00	21.34	.00	.0	90.42	-69.2	-9425.0	-.2	.0	76.09	.994
.00	1.00	21.34	.00	.0	90.48	-69.4	9516.7	.2	.0	75.95	.995

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
144.00	.00	10.80	-.56	10.80< 7.50%>	-8.14	.00	.00	8.14

CASE - 2: 3s Gusted Wind 0.9 Dead — ANSI-TIA-222-G

WIND OLF	1.60		GUSTED WIND (3sec)	95.0 mph	152.9 kph
VERTICAL OLF	.90		EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.00	in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10		REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65		PRESSURE @ 32.7 ft	38.6 psf	1848.5 Pa
IMPORTANCE FAC (I)	1.00		BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.95		CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1				

APPURTENANCES — Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
1	1	User Defined Loading	144.0	5	.1				52.9	.01	.0	.0
	1	TOP BRANCHES	146.5	250	25.0	None	1	.00	53.1	1.33	-.2	-3.3
	1	TOP BRANCHES	141.5	250	25.0	None	1	.00	52.7	1.32	-.2	
	1	BRANCHES (9' MAX.)	136.5	500	50.0	None	1	.00	52.3	2.61	-.5	
_ 2	2	3' Sidearm	141.0	143	22.8				52.8	1.20	-.3	-2.1
	2	8' X 3IN OMNI	145.0	12		7/8"	2	.54	52.9		-.2	
3	1	User Defined Loading	139.0	732	83.3				52.5	4.37	-.7	-.2
	9	8' X 1' X 6IN	139.0	42	.0	1 5/8"	12	1.04	52.5	.00	-1.9	
	12	9442 RRHX	139.0	50	.0	None	1	.00	52.5	.00	-.5	
_ 4	2	3' Sidearm	132.0	143	22.8				52.1	1.19	-.3	-2.1
	2	8' X 3IN OMNI	138.0	12		7/8"	2	.54	52.4		-.1	
5	1	User Defined Loading	126.5	5	.1				51.5	.01	.0	.0
	1	BRANCHES (9' MAX.)	131.5	500	50.0	None	1	.00	51.9	2.59	-.5	-13.0
	1	BRANCHES (9' MAX.)	126.5	500	50.0	None	1	.00	51.5	2.57	-.5	
	1	BRANCHES (10' MAX.)	121.5	500	55.6	None	1	.00	51.0	2.83	-.5	
6	1	User Defined Loading	125.0	732	131.4				51.3	6.74	-.7	-.3
	12	8' X 1' X 7IN PANEL	125.0	51	.0	1 5/8"	12	1.04	51.3	.00	-2.0	
	12	9442 RRHX	125.0	50	.0	1/2"	4	.40	51.3	.00	-.7	
	6	E15S09P80	125.0	9	.0	None	1	.00	51.3	.00	.0	
7	1	User Defined Loading	124.9	0	.0				51.3	.00	.0	.0
	6	E15S09P56	125.0	9	.0	None	1	.00	51.3	.00	-.1	
	1	DC6-48-60-18-8F	125.0	20	.0	None	1	.00	51.3	.00	.0	
8	1	User Defined Loading	115.0	732	135.0				50.4	6.81	-.7	-.3
	12	8' X 1' X 7IN PANEL	115.0	51	.0	1 5/8"	12	1.04	50.4	.00	-1.8	
	4	GPS-TMG-HR-26N	115.0	0	.0	1/2"	2	.40	50.4	.00	-.1	
	6	FD9R6004	115.0	10	.0	None	1	.00	50.4	.00	-.1	
9	1	User Defined Loading	114.9	0	.0				50.4	.00	.0	.0
	6	RRH AWS (24.4" X 9.05" X	115.0	43	.0	1"	6	.54	50.4	.00	-.6	
	1	DC2-48-60-0-9E	115.0	15	.0	None	1	.00	50.4	.00	.0	
10	1	User Defined Loading	111.5	5	.1				50.1	.01	.0	.0
	1	BRANCHES (10' MAX.)	116.5	500	55.6	None	1	.00	50.6	2.81	-.5	-14.1
	1	BRANCHES (10' MAX.)	111.5	500	55.6	None	1	.00	50.1	2.78	-.5	
	1	BRANCHES (11' MAX.)	106.5	550	61.1	None	1	.00	49.6	3.03	-.5	
11	1	User Defined Loading	105.0	732	121.1				49.5	6.00	-.7	-.3
	12	8' X 1' X 6IN	105.0	42	.0	1 5/8"	12	1.04	49.5	.00	-1.6	
	12	FD9R6004	105.0	10	.0	None	1	.00	49.5	.00	-.1	
	12	AWC-TMA-DD-1700-FB AISG	105.0	6	.0	None	1	.00	49.5	.00	-.1	
12	1	User Defined Loading	96.5	5	.1				48.6	.00	.0	.0
	1	BRANCHES (11' MAX.)	101.5	550	61.1	None	1	.00	49.1	3.00	-.5	-15.0
	1	BRANCHES (12' MAX.)	96.5	600	66.7	None	1	.00	48.6	3.24	-.5	
	1	BRANCHES (12' MAX.)	91.5	600	66.7	None	1	.00	48.1	3.21	-.5	
13	1	User Defined Loading	95.0	732	83.3				48.5	4.04	-.7	-.2
	9	8' X 1' X 6IN	95.0	42	.0	1 5/8"	12	1.04	48.5	.00	-1.4	
	12	9442 RRHX	95.0	50	.0	None	1	.00	48.5	.00	-.5	
14	1	User Defined Loading	81.5	5	.1				47.0	.00	.0	.0
	1	BRANCHES (12' MAX.)	86.5	600	66.7	None	1	.00	47.5	3.17	-.5	-15.8
	1	BRANCHES (13' MAX.)	81.5	650	72.2	None	1	.00	47.0	3.39	-.6	
	1	BRANCHES (13' MAX.)	76.5	650	72.2	None	1	.00	46.3	3.35	-.6	
_15	1	3' Sidearm	75.0	143	9.7				46.4	.45	-.1	-.8
	1	5' X 3IN OMNI	77.5	5		7/8"	1	.54	46.5		.0	
16	1	User Defined Loading	75.8	5	.1				46.2	.00	.0	.0
	1	BRANCHES (14' MAX.)	75.8	700	77.8	None	1	.00	46.2	3.60	-.6	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
144.00	1.00	34.36	.00	.0	5.35	-.2	19.6	.0	.0	82.55	.047
141.00	1.00	34.21	.00	.0	6.75	-.6	1.2	.0	.0	82.55	.003
139.00	1.00	34.11	.00	.0	11.83	-3.2	-12.7	.0	.0	82.55	.028
134.00	1.00	33.85	.00	.0	12.07	-3.4	-71.9	.0	.0	82.55	.124

132.00	1.00	33.75	.00	.0	13.56	-3.9	-98.1	.0	.0	82.55	.159
127.00	1.00	33.47	.00	.0	13.75	-4.1	-165.8	.0	.0	82.55	.232
126.50	1.00	33.45	.00	.0	21.95	-4.4	-171.6	.0	.0	82.55	.237
125.00	1.00	33.36	.00	.0	29.14	-6.9	-204.8	.0	.0	82.37	.274
124.90	1.00	33.36	.00	.0	29.35	-7.2	-207.8	.0	.0	82.34	.277
119.90	1.00	33.07	.00	.0	29.73	-7.6	-354.4	.0	.0	80.93	.419
115.00	1.00	32.79	.00	.0	37.01	-9.6	-500.4	.0	.0	79.56	.534
114.90	1.00	32.78	.00	.0	37.22	-10.4	-504.2	.0	.0	79.53	.537
111.50	1.00	32.58	.00	.0	46.28	-11.3	-629.6	.0	.0	78.58	.627
106.50	1.00	32.27	.00	.0	46.53	-11.7	-860.8	.0	.0	77.17	.779
105.00	1.00	32.17	.00	.0	53.02	-14.0	-930.8	.0	.0	76.75	.821
100.00	1.00	31.85	.00	.0	53.23	-14.4	-1195.8	.0	.0	75.35	.967
99.50	1.00	31.81	.00	.0	53.39	-14.8	-1222.5	.0	.0	75.21	.980
96.50	1.00	31.61	.00	.0	63.15	-15.9	-1381.7	.0	.0	82.55	.568
95.00	1.00	31.51	.00	.0	67.52	-18.3	-1476.7	.0	.0	82.55	.590
94.50	1.00	31.47	.00	.0	67.79	-19.1	-1510.8	.0	.0	82.55	.597
89.50	1.00	31.12	.00	.0	68.26	-20.5	-1850.0	.0	.0	82.55	.664
84.50	1.00	30.75	.00	.0	68.62	-21.4	-2190.8	-.1	.0	82.55	.717
81.50	1.00	30.52	.00	.0	79.01	-23.3	-2395.8	-.1	.0	82.55	.745
76.50	1.00	30.12	.00	.0	79.30	-24.1	-2790.8	-.1	.0	82.55	.796
75.00	1.00	29.99	.00	.0	79.85	24.6	2910.8	.1	.0	82.55	.810
75.75	1.00	30.06	.00	.0	83.76	-25.7	-2850.8	-.1	.0	82.55	.804
70.75	1.00	29.63	.00	.0	84.21	-27.1	-3269.2	-.1	.0	82.55	.849
65.75	1.00	29.19	.00	.0	84.66	-28.5	-3690.8	-.1	.0	82.15	.891
60.75	1.00	28.71	.00	.0	85.11	-30.0	-4114.2	-.1	.0	81.34	.931
55.75	1.00	28.21	.00	.0	85.45	-31.3	-4539.2	-.1	.0	80.54	.965
53.25	1.00	27.94	.00	.0	85.81	-32.9	-4753.3	-.1	.0	80.14	.980
48.25	1.00	27.38	.00	.0	86.16	-34.4	-5182.5	-.1	.0	82.55	.881
46.00	1.00	27.11	.00	.0	86.50	-36.1	-5375.8	-.1	.0	82.40	.888
41.00	1.00	26.47	.00	.0	86.96	-38.1	-5808.3	-.1	.0	81.70	.905
36.00	1.00	25.78	.00	.0	87.40	-39.8	-6243.3	-.2	.0	81.00	.920
31.00	1.00	25.00	.00	.0	87.83	-41.6	-6680.0	-.2	.0	80.30	.933
26.00	1.00	24.12	.00	.0	88.27	-43.4	-7119.2	-.2	.0	79.60	.945
21.00	1.00	23.10	.00	.0	88.72	-45.2	-7560.8	-.2	.0	78.89	.955
16.00	1.00	21.88	.00	.0	89.18	-47.1	-8004.2	-.2	.0	78.19	.963
11.00	1.00	21.34	.00	.0	89.65	-49.0	-8450.0	-.2	.0	77.49	.971
6.00	1.00	21.34	.00	.0	90.13	-51.0	-8900.0	-.2	.0	76.79	.978
1.00	1.00	21.34	.00	.0	90.42	-52.1	-9350.0	-.2	.0	76.09	.984
.00	1.00	21.34	.00	.0	90.48	-52.3	9441.7	.2	.0	75.95	.985

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
144.00	.00	10.68	-.55	10.68< 7.41%>	-8.03	.00	.00	8.03

CASE - 3: 3s Gusted Wind&Ice — ANSI-TIA-222-G

WIND OLF	1.00	GUSTED WIND (3sec)	40.0 mph	64.4 kph	
VERTICAL OLF	1.20	EXP-CAT/STRUC_CLASS	C-II		
DESIGN ICE	1.00 in	EXP-POWER COEFF.	.2105		
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft		
FORCE COEFF (Cf)	1.20	PRESSURE @ 32.7 ft	4.3 psf	204.8 Pa	
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0		
DIRECTION FAC (Kd)	.95	CREST HEIGHT	.0 ft		
TOPOGRAPHIC CAT	1				

APPURTENANCES — Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
1	1	User Defined Loading	144.0	5	.1				5.9	.00	.0	.0
	1	TOP BRANCHES	146.5	250	26.5	None	1	.00	5.9	.16	-.3	-.4
	1	TOP BRANCHES	141.5	250	26.5	None	1	.00	5.8	.15	-.3	
	1	BRANCHES (9' MAX.)	136.5	500	52.9	None	1	.00	5.8	.31	-.6	
_ 2	2	3' Sidearm	141.0	157	35.8				5.8	.21	-.9	-.4
	2	8' X 3IN OMNI	145.0	34		7/8"	2	.54	5.9		-.9	
3	1	User Defined Loading	139.0	805	91.6				5.8	.53	-1.0	.0
	9	8' X 1' X 6IN	139.0	103	.0	1 5/8"	12	1.04	5.8	.00	-2.5	
	12	9442 RRHX	139.0	67	.0	None	1	.00	5.8	.00	-.7	
_ 4	2	3' Sidearm	132.0	157	35.8				5.8	.21	-.9	-.4
	2	8' X 3IN OMNI	138.0	34		7/8"	2	.54	5.8		-.9	
5	1	User Defined Loading	126.5	5	.1				5.7	.00	.0	.0
	1	BRANCHES (9' MAX.)	131.5	500	52.9	None	1	.00	5.7	.30	-.6	-1.5
	1	BRANCHES (9' MAX.)	126.5	500	52.9	None	1	.00	5.7	.30	-.6	
	1	BRANCHES (10' MAX.)	121.5	500	58.8	None	1	.00	5.7	.33	-.6	
6	1	User Defined Loading	125.0	805	144.5				5.7	.82	-1.0	.0
	12	8' X 1' X 7IN PANEL	125.0	116	.0	1 5/8"	12	1.04	5.7	.00	-2.6	
	12	9442 RRHX	125.0	67	.0	1/2"	4	.40	5.7	.00	-1.0	
	6	E15S09P80	125.0	13	.0	None	1	.00	5.7	.00	-.1	
7	1	User Defined Loading	124.9	0	.0				5.7	.00	.0	.0
	6	E15S09P56	125.0	14	.0	None	1	.00	5.7	.00	-.1	
	1	DC6-48-60-18-8F	125.0	39	.0	None	1	.00	5.7	.00	.0	
8	1	User Defined Loading	115.0	805	148.5				5.6	.83	-1.0	.0
	12	8' X 1' X 7IN PANEL	115.0	116	.0	1 5/8"	12	1.04	5.6	.00	-2.5	
	4	GPS-TMG-HR-26N	115.0	0	.0	1/2"	2	.40	5.6	.00	-.1	
	6	FD9R6004	115.0	12	.0	None	1	.00	5.6	.00	-.1	
9	1	User Defined Loading	114.9	0	.0				5.6	.00	.0	.0
	6	RRH AWS (24.4" X 9.05" X	115.0	63	.0	1"	6	.54	5.6	.00	-.8	
	1	DC2-48-60-0-9E	115.0	24	.0	None	1	.00	5.6	.00	.0	
10	1	User Defined Loading	111.5	5	.1				5.6	.00	.0	.0
	1	BRANCHES (10' MAX.)	116.5	500	58.8	None	1	.00	5.6	.33	-.6	-1.6
	1	BRANCHES (10' MAX.)	111.5	500	58.8	None	1	.00	5.6	.33	-.6	
	1	BRANCHES (11' MAX.)	106.5	550	64.6	None	1	.00	5.5	.36	-.7	
11	1	User Defined Loading	105.0	805	133.3				5.5	.73	-1.0	.0
	12	8' X 1' X 6IN	105.0	103	.0	1 5/8"	12	1.04	5.5	.00	-2.2	
	12	FD9R6004	105.0	12	.0	None	1	.00	5.5	.00	-.1	
	12	AWC-TMA-DD-1700-FB AISG	105.0	9	.0	None	1	.00	5.5	.00	-.1	
12	1	User Defined Loading	96.5	5	.1				5.4	.00	.0	.0
	1	BRANCHES (11' MAX.)	101.5	550	64.6	None	1	.00	5.4	.35	-.7	-1.8
	1	BRANCHES (12' MAX.)	96.5	600	70.5	None	1	.00	5.4	.38	-.7	
	1	BRANCHES (12' MAX.)	91.5	600	70.5	None	1	.00	5.3	.38	-.7	
13	1	User Defined Loading	95.0	805	91.6				5.4	.49	-1.0	.0
	9	8' X 1' X 6IN	95.0	103	.0	1 5/8"	12	1.04	5.4	.00	-1.9	
	12	9442 RRHX	95.0	67	.0	None	1	.00	5.4	.00	-.7	
14	1	User Defined Loading	81.5	5	.1				5.2	.00	.0	.0
	1	BRANCHES (12' MAX.)	86.5	600	70.5	None	1	.00	5.3	.37	-.7	-1.9
	1	BRANCHES (13' MAX.)	81.5	650	76.4	None	1	.00	5.2	.40	-.8	
	1	BRANCHES (13' MAX.)	76.5	650	76.4	None	1	.00	5.1	.39	-.8	
_15	1	3' Sidearm	75.0	157	14.5				5.1	.07	-.7	-.1
	1	5' X 3IN OMNI	77.5	19		7/8"	1	.54	5.1		-.2	
16	1	User Defined Loading	75.8	5	.1				5.1	.00	.0	.0
	1	BRANCHES (14' MAX.)	75.8	700	82.2	None	1	.00	5.1	.42	-.8	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
144.00	1.00	7.03	2.32	.0	.65	-1.4	2.3	.0	.0	82.55	.007
141.00	1.00	7.00	2.31	.0	.92	-2.9	-.1	.0	.0	82.55	.003
139.00	1.00	6.98	2.31	.0	1.62	-7.6	-2.0	.0	.0	82.55	.010
134.00	1.00	6.92	2.30	.0	1.68	-8.1	-10.1	.0	.0	82.55	.023

132.00	1.00	6.90	2.30	.0	1.97	-9.8	-13.8	.0	.0	82.55	.029
127.00	1.00	6.85	2.29	.0	2.02	-10.3	-23.6	.0	.0	82.55	.040
126.50	1.00	6.84	2.29	.0	3.01	-12.2	-24.5	.0	.0	82.55	.042
125.00	1.00	6.82	2.29	.0	3.93	-16.9	-29.1	.0	.0	82.37	.049
124.90	1.00	6.82	2.29	.0	3.98	-17.4	-29.4	.0	.0	82.34	.050
119.90	1.00	6.77	2.28	.0	4.08	-18.3	-49.4	.0	.0	80.93	.069
115.00	1.00	6.71	2.27	.0	5.02	-22.3	-69.4	.0	.0	79.56	.087
114.90	1.00	6.71	2.27	.0	5.06	-23.4	-69.9	.0	.0	79.53	.088
111.50	1.00	6.66	2.26	.0	6.18	-26.0	-87.0	.0	.0	78.58	.101
106.50	1.00	6.60	2.25	.0	6.24	-26.7	-117.9	.0	.0	77.17	.121
105.00	1.00	6.58	2.25	.0	7.08	-30.7	-127.3	.0	.0	76.75	.128
100.00	1.00	6.51	2.24	.0	7.13	-31.2	-162.7	.0	.0	75.35	.147
99.50	1.00	6.51	2.24	.0	7.16	-31.8	-166.3	.0	.0	75.21	.149
96.50	1.00	6.47	2.23	.0	8.35	-34.6	-187.6	.0	.0	82.55	.086
95.00	1.00	6.45	2.23	.0	8.91	-38.4	-200.2	.0	.0	82.55	.090
94.50	1.00	6.44	2.22	.0	8.97	-39.6	-204.6	.0	.0	82.55	.091
89.50	1.00	6.37	2.21	.0	9.07	-41.4	-249.4	.0	.0	82.55	.100
84.50	1.00	6.29	2.20	.0	9.15	-42.7	-294.8	.0	.0	82.55	.107
81.50	1.00	6.24	2.19	.0	10.42	-46.3	-322.2	.0	.0	82.55	.111
76.50	1.00	6.16	2.18	.0	10.49	-47.4	-374.3	.0	.0	82.55	.117
75.00	1.00	6.14	2.17	.0	10.59	48.3	390.2	.0	.0	82.55	.119
75.75	1.00	6.15	2.18	.0	11.08	-50.1	-382.2	.0	.0	82.55	.119
70.75	1.00	6.06	2.16	.0	11.18	-51.9	-437.6	.0	.0	82.55	.124
65.75	1.00	5.97	2.15	.0	11.28	-53.8	-493.5	.0	.0	82.15	.130
60.75	1.00	5.87	2.13	.0	11.38	-55.8	-549.8	.0	.0	81.34	.135
55.75	1.00	5.77	2.11	.0	11.45	-57.5	-606.8	.0	.0	80.54	.140
53.25	1.00	5.72	2.10	.0	11.53	-59.6	-635.3	.0	.0	80.14	.142
48.25	1.00	5.60	2.08	.0	11.60	-61.7	-693.0	.0	.0	82.55	.127
46.00	1.00	5.55	2.07	.0	11.68	-64.0	-719.1	.0	.0	82.40	.129
41.00	1.00	5.42	2.05	.0	11.78	-66.8	-777.5	.0	.0	81.70	.131
36.00	1.00	5.27	2.02	.0	11.87	-69.2	-836.7	.0	.0	81.00	.134
31.00	1.00	5.11	1.99	.0	11.96	-71.7	-895.8	.0	.0	80.30	.136
26.00	1.00	4.93	1.96	.0	12.06	-74.3	-955.8	.0	.0	79.60	.137
21.00	1.00	4.73	1.92	.0	12.16	-77.0	-1015.8	.0	.0	78.89	.139
16.00	1.00	4.48	1.87	.0	12.25	-79.6	-1076.7	.0	.0	78.19	.140
11.00	1.00	4.37	1.81	.0	12.35	-82.4	-1137.5	.0	.0	77.49	.142
6.00	1.00	4.37	1.71	.0	12.45	-85.2	-1200.0	.0	.0	76.79	.143
1.00	1.00	4.37	1.51	.0	12.51	-86.9	-1261.7	.0	.0	76.09	.144
.00	1.00	4.37	1.41	.0	12.52	-87.1	1274.2	.0	.0	75.95	.144

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees			
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result
144.00	.00	1.44	-.01	1.44< 1.00%>	-1.09	.00	.00	1.09

CASE - 4: Service Loads — ANSI-TIA-222-G

WIND OLF	1.00	GUSTED WIND (3sec)	60.0 mph	96.6 kph
VERTICAL OLF	1.00	EXP-CAT/STRUC_CLASS	C-II	
DESIGN ICE	.00 in	EXP-POWER COEFF.	.2105	
GUST FACTOR (Gh)	1.10	REFERENCE HEIGHT	900.0 ft	
FORCE COEFF (Cf)	.65	PRESSURE @ 32.7 ft	8.6 psf	412.3 Pa
IMPORTANCE FAC (I)	1.00	BASE ABOVE Grd	1.0	
DIRECTION FAC (Kd)	.85	CREST HEIGHT	.0 ft	
TOPOGRAPHIC CAT	1			

APPURTENANCES — Sabre Areas

#	Qty	Description	Center Line Elev-Ft	WEIGHT each Lbs	AREA each Ft^2	Tx-CABLE Type	Qty	#/Ft	WIND Psf	FORCES Tra-Y Kips	Ax-Z Kips	MOM. Lg-X Ft-K
1	1	User Defined Loading	144.0	5	.1				11.8	.00	.0	.0
	1	TOP BRANCHES	146.5	250	25.0	None	1	.00	11.8	.30	-.3	-.7
	1	TOP BRANCHES	141.5	250	25.0	None	1	.00	11.8	.29	-.3	
	1	BRANCHES (9' MAX.)	136.5	500	50.0	None	1	.00	11.7	.58	-.5	
_ 2	2	3' Sidearm	141.0	143	22.8				11.8	.27	-.3	-.5
	2	8' X 3IN OMNI	145.0	12		7/8"	2	.54	11.8		-.2	
3	1	User Defined Loading	139.0	732	83.3				11.7	.97	-.7	.0
	9	8' X 1' X 6IN	139.0	42	.0	1 5/8"	12	1.04	11.7	.00	-2.1	
	12	9442 RRHX	139.0	50	.0	None	1	.00	11.7	.00	-.6	
_ 4	2	3' Sidearm	132.0	143	22.8				11.6	.26	-.3	-.5
	2	8' X 3IN OMNI	138.0	12		7/8"	2	.54	11.7		-.2	
5	1	User Defined Loading	126.5	5	.1				11.5	.00	.0	.0
	1	BRANCHES (9' MAX.)	131.5	500	50.0	None	1	.00	11.6	.58	-.5	-2.9
	1	BRANCHES (9' MAX.)	126.5	500	50.0	None	1	.00	11.5	.57	-.5	
	1	BRANCHES (10' MAX.)	121.5	500	55.6	None	1	.00	11.4	.63	-.5	
6	1	User Defined Loading	125.0	732	131.4				11.5	1.50	-.7	-.1
	12	8' X 1' X 7IN PANEL	125.0	51	.0	1 5/8"	12	1.04	11.4	.00	-2.2	
	12	9442 RRHX	125.0	50	.0	1/2"	4	.40	11.4	.00	-.8	
	6	E15S09P80	125.0	9	.0	None	1	.00	11.4	.00	-.1	
7	1	User Defined Loading	124.9	0	.0				11.4	.00	.0	.0
	6	E15S09P56	125.0	9	.0	None	1	.00	11.4	.00	-.1	
	1	DC6-48-60-18-8F	125.0	20	.0	None	1	.00	11.4	.00	.0	
8	1	User Defined Loading	115.0	732	135.0				11.3	1.52	-.7	-.1
	12	8' X 1' X 7IN PANEL	115.0	51	.0	1 5/8"	12	1.04	11.3	.00	-2.0	
	4	GPS-TMG-HR-26N	115.0	0	.0	1/2"	2	.40	11.3	.00	-.1	
	6	FD9R6004	115.0	10	.0	None	1	.00	11.3	.00	-.1	
9	1	User Defined Loading	114.9	0	.0				11.3	.00	.0	.0
	6	RRH AWS (24.4" X 9.05" X	115.0	43	.0	1"	6	.54	11.3	.00	-.6	
	1	DC2-48-60-0-9E	115.0	15	.0	None	1	.00	11.3	.00	.0	
10	1	User Defined Loading	111.5	5	.1				11.2	.00	.0	.0
	1	BRANCHES (10' MAX.)	116.5	500	55.6	None	1	.00	11.3	.63	-.5	-3.1
	1	BRANCHES (10' MAX.)	111.5	500	55.6	None	1	.00	11.2	.62	-.5	
	1	BRANCHES (11' MAX.)	106.5	550	61.1	None	1	.00	11.1	.68	-.6	
11	1	User Defined Loading	105.0	732	121.1				11.0	1.34	-.7	-.1
	12	8' X 1' X 6IN	105.0	42	.0	1 5/8"	12	1.04	11.0	.00	-1.8	
	12	FD9R6004	105.0	10	.0	None	1	.00	11.0	.00	-.1	
	12	AWC-TMA-DD-1700-FB AISG	105.0	6	.0	None	1	.00	11.0	.00	-.1	
12	1	User Defined Loading	96.5	5	.1				10.8	.00	.0	.0
	1	BRANCHES (11' MAX.)	101.5	550	61.1	None	1	.00	11.0	.67	-.6	-3.3
	1	BRANCHES (12' MAX.)	96.5	600	66.7	None	1	.00	10.8	.72	-.6	
	1	BRANCHES (12' MAX.)	91.5	600	66.7	None	1	.00	10.7	.72	-.6	
13	1	User Defined Loading	95.0	732	83.3				10.8	.90	-.7	.0
	9	8' X 1' X 6IN	95.0	42	.0	1 5/8"	12	1.04	10.8	.00	-1.6	
	12	9442 RRHX	95.0	50	.0	None	1	.00	10.8	.00	-.6	
14	1	User Defined Loading	81.5	5	.1				10.5	.00	.0	.0
	1	BRANCHES (12' MAX.)	86.5	600	66.7	None	1	.00	10.6	.71	-.6	-3.5
	1	BRANCHES (13' MAX.)	81.5	650	72.2	None	1	.00	10.5	.76	-.7	
	1	BRANCHES (13' MAX.)	76.5	650	72.2	None	1	.00	10.3	.75	-.7	
_15	1	3' Sidearm	75.0	143	9.7				10.3	.10	-.1	-.2
	1	5' X 3IN OMNI	77.5	5		7/8"	1	.54	10.4		.0	
16	1	User Defined Loading	75.8	5	.1				10.3	.00	.0	.0
	1	BRANCHES (14' MAX.)	75.8	700	77.8	None	1	.00	10.3	.80	-.7	

RESULTS

X, ft	Kzt	WIND psf	ICE in	FORCES,kips ShearX	ShearY	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	F'y ksi	Inter 4.8.2
144.00	1.00	7.67	.00	.0	1.21	-1.0	4.4	.0	.0	82.55	.011
141.00	1.00	7.63	.00	.0	1.53	-1.6	.2	.0	.0	82.55	.002
139.00	1.00	7.61	.00	.0	2.68	-5.3	-2.9	.0	.0	82.55	.010
134.00	1.00	7.55	.00	.0	2.74	-5.5	-16.3	.0	.0	82.55	.032

132.00	1.00	7.53	.00	.0	3.07	-6.1	-22.3	.0	.0	82.55	.040
127.00	1.00	7.47	.00	.0	3.12	-6.3	-37.6	.0	.0	82.55	.056
126.50	1.00	7.46	.00	.0	4.97	-7.8	-38.9	.0	.0	82.55	.058
125.00	1.00	7.44	.00	.0	6.60	-11.6	-46.5	.0	.0	82.37	.069
124.90	1.00	7.44	.00	.0	6.64	-11.9	-47.1	.0	.0	82.34	.070
119.90	1.00	7.38	.00	.0	6.72	-12.2	-80.3	.0	.0	80.93	.101
115.00	1.00	7.31	.00	.0	8.37	-15.3	-113.3	.0	.0	79.56	.129
114.90	1.00	7.31	.00	.0	8.41	-16.1	-114.2	.0	.0	79.53	.130
111.50	1.00	7.27	.00	.0	10.45	-17.9	-142.5	.0	.0	78.58	.151
106.50	1.00	7.20	.00	.0	10.50	-18.2	-194.8	.0	.0	77.17	.185
105.00	1.00	7.18	.00	.0	11.96	-21.2	-210.6	.0	.0	76.75	.195
100.00	1.00	7.10	.00	.0	12.00	-21.5	-270.4	.0	.0	75.35	.228
99.50	1.00	7.10	.00	.0	12.03	-21.8	-276.4	.0	.0	75.21	.231
96.50	1.00	7.05	.00	.0	14.22	-23.9	-312.3	.0	.0	82.55	.134
95.00	1.00	7.03	.00	.0	15.21	-26.9	-333.7	.0	.0	82.55	.139
94.50	1.00	7.02	.00	.0	15.26	-27.6	-341.3	.0	.0	82.55	.141
89.50	1.00	6.94	.00	.0	15.36	-28.7	-417.6	.0	.0	82.55	.156
84.50	1.00	6.86	.00	.0	15.43	-29.5	-494.3	.0	.0	82.55	.168
81.50	1.00	6.81	.00	.0	17.76	-32.1	-540.5	.0	.0	82.55	.174
76.50	1.00	6.72	.00	.0	17.82	-32.7	-629.3	.0	.0	82.55	.186
75.00	1.00	6.69	.00	.0	17.94	33.1	656.2	.0	.0	82.55	.189
75.75	1.00	6.70	.00	.0	18.81	-34.4	-642.7	.0	.0	82.55	.188
70.75	1.00	6.61	.00	.0	18.90	-35.4	-736.8	.0	.0	82.55	.198
65.75	1.00	6.51	.00	.0	18.99	-36.5	-831.3	.0	.0	82.15	.207
60.75	1.00	6.40	.00	.0	19.08	-37.6	-925.8	.0	.0	81.34	.216
55.75	1.00	6.29	.00	.0	19.15	-38.6	-1021.7	.0	.0	80.54	.223
53.25	1.00	6.23	.00	.0	19.23	-40.0	-1069.2	.0	.0	80.14	.227
48.25	1.00	6.11	.00	.0	19.30	-41.4	-1165.8	.0	.0	82.55	.204
46.00	1.00	6.05	.00	.0	19.37	-42.9	-1209.2	.0	.0	82.40	.205
41.00	1.00	5.91	.00	.0	19.47	-44.6	-1305.8	.0	.0	81.70	.209
36.00	1.00	5.75	.00	.0	19.56	-46.1	-1403.3	.0	.0	81.00	.213
31.00	1.00	5.58	.00	.0	19.65	-47.6	-1500.8	.0	.0	80.30	.216
26.00	1.00	5.38	.00	.0	19.74	-49.2	-1599.2	.0	.0	79.60	.218
21.00	1.00	5.15	.00	.0	19.84	-50.8	-1698.3	.0	.0	78.89	.220
16.00	1.00	4.88	.00	.0	19.93	-52.4	-1797.5	.0	.0	78.19	.222
11.00	1.00	4.76	.00	.0	20.03	-54.1	-1896.7	.0	.0	77.49	.224
6.00	1.00	4.76	.00	.0	20.14	-55.9	-1996.7	.0	.0	76.79	.226
1.00	1.00	4.76	.00	.0	20.20	-56.9	-2097.5	.0	.0	76.09	.227
.00	1.00	4.76	.00	.0	20.21	-57.1	2117.5	.1	.0	75.95	.227

DISPLACEMENTS

ELEV	DEFLECTION feet				ROTATION, degrees				MicroW
X, ft	X	Y	Z	XY-Result	X	Y	Z	XY-Result	AlloW
144.00	.00	2.41	-.03	2.41< 1.67%>	-1.81	.00	.00	1.81	

FLANGE DESIGN at: 134.0 ft from BASE of POLE [10.0 ft from TOP]
SHAPE: 18 SIDED POLYGON
POLE ORIENTATION: FLAT-FLAT
LOAD ORIENTATION: ANY LOAD DIRECTION

DESIGN CASE = 1 3s Gusted Wind

DIAMETER #1=	22.38 in.	AXIAL FORCE=	-5.1 kips
PLATE #1=	.2500 in.	SHEAR X =	.0 kips
DIAMETER #2=	22.38 in.	SHEAR Y =	12.3 kips
PLATE #2=	.2500 in.	X-AXIS MOM =	-73.3 ft-kips
		Y-AXIS MOM =	.0 ft-kips
		Z-AXIS MOM =	.0 ft-kips

FLANGE BOLTS: EXTERNAL BC MODEL

AXIAL	Stress	=	27.56 ksi
SHEAR	Stress	=	1.96 ksi
BOLT	AREA (Tension)	=	.61 in^2
MOMENT	of INERTIA	=	390 in^4
	CSR	=	.440
ALLOW	TENSION Stress	=	69.00 ksi [.75 x Fy]
	SHEAR Stress	=	48.30 ksi [.75 x Fy x 0.70]

A-325 ::: BOLT DESIGN USED

8 Bolts	1.00	in.	BOLT DIAMETER	
	92.00	ksi	Fy YIELD STRENGTH	
	120.00	ksi	Fu ULTIMATE STRENGTH	
	25.375	in.	BOLT CIRCLE	SHIP
	9.71	in.	CHORD LENGTH	WEIGHT
	45.00°		ARC ANGLE	8 lbs

PLATE DESIGN

			Upper-PL	Lower-PL	
THICKNESS	Reqd	=	.59	.59	in.
BENDING	Stress	=	27.73	27.73	ksi
TENSION	Stress	=	.42	.42	ksi
COMBINED	Ratio	=	.63	.63	
ALLOWABLE	Stress (Fa)	=	45.00	45.00	ksi [Fy x .90]

:: FLANGE PLATE DESIGN USED

.750	in.	THICK
29.625	in.	OUTSIDE ROUND
50.00	ksi	YIELD STRENGTH
17.000	in.	CENTER HOLE
192	lbs.	SHIP WEIGHT (both)

LOAD CASE SUMMARY

	RESULTANTS				BOLT STRESS		Flange-UP Stress		Flange-DW Stress	
	Axial	Shear	Moment	Torq-Z	Actual	Allow	Actual	Allow	Actual	Allow
Case	kips	kips	ft-kips	ft-kips	CSR	ksi	ksi	ksi	ksi	ksi
1	-5.05	12.31	73.3	.0	.440	69.00	28.16	45.00	28.16	45.00
2	-3.43	12.07	71.9	.0	.436	69.00	27.61	45.00	27.61	45.00
3	-8.11	1.68	10.1	.0	.038	69.00	4.23	45.00	4.23	45.00
4	-5.46	2.74	16.3	.0	.085	69.00	6.60	45.00	6.60	45.00

SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
BOLTS: EVENLY SPACED BOLTS 8.83 in. ON CENTER
LOCATE:

POLE DATA

DIAMETER	= 66.31 in.	BASE	AXIAL FORCE=	-69.4 kips	Vert
PLATE	= .5000 in.	ACTIONS	SHEAR X =	90.5 kips	Long
TAPER	= .3381 in/ft		SHEAR Y =	.0 kips	Tran
POLE Fy	= 65.00 ksi		X-AXIS MOM =	6728.3 ft-kips	Tran
			Y-Axis MOM =	6728.3 ft-kips	Long
			Z-Axis MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 3s Gusted Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	= 242.52 kips		
	AXIAL - TENSION	= 237.18 kips		
	SHEAR	= 3.48 kips		
AXIAL	STRESS	= 74.62 ksi		
SHEAR	STRESS	= 1.13 ksi		
YIELD	STRENGTH Fy	= 75.00 ksi		
ULT.	STRENGTH Fu	= 100.00 ksi	Interaction	
ALLOW	STRESS Fa [.80 x 1.00]	= 80.00 ksi	.961	TIA-G
	SHEAR Fv [.80 x .40]	= 32.00 ksi		
	TENSION AREA REQUIRED	= 3.03 in^2		
	TENSION AREA FURNISHED	= 3.25 in^2		
	ROOT AREA FURNISHED	= 3.07 in^2		

A615 ::: ANCHOR BOLT DESIGN USED

26 Bolts on a	73.250 in.	Bolt Circle	SHIP
2.250 in.	Diameter 67.13 in.	Embedded	(lbs)
12.00 in.	Exposed 84.00 in.	Total Length	3456

CONCRETE - Fc= 4000 psi

ANCHOR BOLTS are STRAIGHT w\ UPLIFT NUT

BASE PLATE

[Bend Model: 1/4 Circ]

YIELD STRENGTH	=	50.0 ksi
BEND LINE WIDTH	=	48.6 in.
PLATE MOMENT	=	4356.5 in-k
THICKNESS REQD	=	2.824 in.
BENDING STRESS	=	39.9 ksi
ALLOWABLE STRESS	=	45.0 ksi
[Fy x .90 x 1.00]		

BASE PLATE USED

3.00	in.	THICK	SHIP
79.25	in.	ROUND	(lbs)
53.75	in.	CENTER HOLE	2137

LOAD CASE SUMMARY

	___FORCES-(kips)___			___MOMENTS-(ft-k)__			ABolt-Str	Plate-Str		
							Allow	_Actual	Allow	_Design
LC	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ	CSR	ksi	ksi	ksi	Code
1	69.4	90.5	.0	9516	0	0	.961	75.00	39.87	45.00	TIA-G
2	52.3	90.5	.0	9441	0	0	.951	75.00	39.44	45.00	TIA-G
3	87.1	12.5	.0	1274	0	0	.140	75.00	5.88	45.00	TIA-G
4	57.1	20.2	.0	2117	0	0	.220	75.00	9.16	45.00	TIA-G

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES
145' Monopole INSITE TOWERS LLC Washington, CT (104570) 5-27-14 TTW

Overall Loads:			
Factored Moment (ft-kips)	9516.67		
Factored Axial (kips)	69.41		
Factored Shear (kips)	90.48		
Bearing Design Strength (ksf)	12	Max. Net Bearing Press. (ksf)	8.95
Water Table Below Grade (ft)	999		
Width of Mat (ft)	32	Allowable Bearing Pressure (ksf)	8.00
Thickness of Mat (ft)	2	Safety Factor	2.00
Depth to Bottom of Slab (ft)	6	Ultimate Bearing Pressure (ksf)	16.00
Quantity of Bolts in Bolt Circle	26	Bearing Φs	0.75
Bolt Circle Diameter (in)	73.25		
Top of Concrete to Top of Bottom Threads (in)	60		
Diameter of Pier (ft)	8	Minimum Pier Diameter (ft)	7.60
Ht. of Pier Above Ground (ft)	0.5	Equivalent Square b (ft)	7.09
Ht. of Pier Below Ground (ft)	4		
Quantity of Bars in Mat	58		
Bar Diameter in Mat (in)	1.27		
Area of Bars in Mat (in^2)	73.47		
Spacing of Bars in Mat (in)	6.61	Recommended Spacing (in)	6 to 12
Quantity of Bars Pier	44		
Bar Diameter in Pier (in)	1.27		
Tie Bar Diameter in Pier (in)	0.625		
Spacing of Ties (in)	12		
Area of Bars in Pier (in^2)	55.74	Minimum Pier A_s (in^2)	36.19
Spacing of Bars in Pier (in)	6.25	Recommended Spacing (in)	6 to 12
f'c (ksi)	4		
fy (ksi)	60		
Unit Wt. of Soil (kcf)	0.1		
Unit Wt. of Concrete (kcf)	0.15		
Volume of Concrete (yd^3)	84.23		
Two-Way Shear Action:			
Average d (in)	19.73		
ϕV_c (kips)	1542.5	V_u (kips)	147.4
$\phi V_c = \phi(2 + 4/\beta_c)f'_c{}^{1/2}b_o d$	2313.8		
$\phi V_c = \phi(\alpha_s d/b_o + 2)f'_c{}^{1/2}b_o d$	1608.3		
$\phi V_c = \phi 4f'_c{}^{1/2}b_o d$	1542.5		
Shear perimeter, b_o (in)	363.58		
β_c	1		
One-Way Shear:			
ϕV_c (kips)	814.6	V_u (kips)	551.5
Stability:			
Overturning Design Strength (ft-k)	11353.9	Total Applied M (ft-k)	10104.8

Pier Design:

ϕV_n (kips)	796.5	V_u (kips)	90.5
$\phi V_c=\phi 2(1+N_u/(2000A_g))f'_c{}^{1/2}b_wd$	796.5		
V_s (kips)	0.0	*** V_s max = 4 $f'_c{}^{1/2}b_wd$ (kips)	1865.2
Maximum Spacing (in)	7.67	(Only if Shear Ties are Required)	
Actual Hook Development (in)	18.46	Req'd Hook Development l_{dh} (in)	16.87
		*** Ref. To Spacing Requirements ACI 11.5.4.3	

Flexure in Slab:

ϕM_n (ft-kips)	5965.1	M_u (ft-kips)	5920.0
a (in)	3.38		
Steel Ratio	0.00970		
β_1	0.85		
Maximum Steel Ratio (ρ_t)	0.0181		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	146.46	Required Development in Pad (in)	35.79

Condition	1 is OK, 0 Fails
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Interaction Diagram Visual Check	1
Two-Way Shear Action	1
One-Way Shear Action	1
Overturning	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Hook Development	1

LPile Plus for Windows, Version 2013-07.005

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This copy of LPile is used by:

Serial Number of Security Device: 160778402
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Files Used for Analysis

Path to file locations: C:\Progra~2\Ensoft\Lpile2013\
Name of input data file: 104570.lp7d
Name of output report file: 104570.lp7o
Name of plot output file: 104570.lp7p
Name of runtime messeage file: 104570.lp7r

Date and Time of Analysis

Date: May 27, 2014 Time: 11:40:12

Problem Title

145' Monopole INSITE TOWERS LLC Washington, CT (104570) 5-27-14 TTW

Job Number:

Client:

Engineer:

Description:

Program Options and Settings

Engineering Units of Input Data and Computations:
- Engineering units are US Customary Units (pounds, feet, inches)

Analysis Control Options:
- Maximum number of iterations allowed = 300
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 100.0000 in
- Number of pile increments = 100

Loading Type and Number of Cycles of Loading:
- Static loading specified

Computational Options:
- Use unfactored loads in computations (conventional analysis)
- Compute pile response under loading and nonlinear bending properties of pile (only if nonlinear pile properties are input)
- Use of p-y modification factors for p-y curves not selected
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:
- No p-y curves to be computed and reported for user-specified depths
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 3

Pile Structural Properties and Geometry

Total number of pile sections = 1

Total length of pile = 30.50 ft

Depth of ground surface below top of pile = 0.50 ft

Pile diameter values used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	96.0000000
2	30.500000	96.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type = Drilled Shaft (Bored Pile)
Section Length = 30.50000 ft
Section Diameter = 96.00000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 4 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer = 0.50000 ft
Distance from top of pile to bottom of layer = 4.00000 ft
Effective unit weight at top of layer = 124.93440 pcf
Effective unit weight at bottom of layer = 124.93440 pcf
Undrained cohesion at top of layer = 14.40000 psf
Undrained cohesion at bottom of layer = 14.40000 psf
Epsilon-50 at top of layer = 0.10000
Epsilon-50 at bottom of layer = 0.10000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 4.00000 ft
Distance from top of pile to bottom of layer = 11.50000 ft
Effective unit weight at top of layer = 124.93440 pcf
Effective unit weight at bottom of layer = 124.93440 pcf
Friction angle at top of layer = 34.00000 deg.
Friction angle at bottom of layer = 34.00000 deg.
Subgrade k at top of layer = 41.96000 pci
Subgrade k at bottom of layer = 41.96000 pci

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 11.50000 ft
Distance from top of pile to bottom of layer = 20.50000 ft
Effective unit weight at top of layer = 144.97920 pcf
Effective unit weight at bottom of layer = 144.97920 pcf
Friction angle at top of layer = 40.00000 deg.
Friction angle at bottom of layer = 40.00000 deg.
Subgrade k at top of layer = 100.90000 pci
Subgrade k at bottom of layer = 100.90000 pci

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 20.50000 ft
Distance from top of pile to bottom of layer = 30.50000 ft
Effective unit weight at top of layer = 149.99040 pcf
Effective unit weight at bottom of layer = 149.99040 pcf
Friction angle at top of layer = 45.00000 deg.
Friction angle at bottom of layer = 45.00000 deg.
Subgrade k at top of layer = 180.70000 pci
Subgrade k at bottom of layer = 180.70000 pci

(Depth of lowest soil layer extends 0.00 ft below pile tip)

**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside
the limits of 0.011574 pci (20 pcf) or 0.0810019 pci (140 pcf)
This data may be erroneous. Please check your data.

Summary of Soil Properties

Layer Num.	Soil Type (p-y Curve Criteria)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	Strain Factor Epsilon 50	kpy pci
1	Soft Clay	0.500	124.934	14.400	--	0.10000	--
		4.000	124.934	14.400	--	0.10000	--
2	Sand (Reese, et al.)	4.000	124.934	--	34.000	--	41.960
		11.500	124.934	--	34.000	--	41.960
3	Sand (Reese, et al.)	11.500	144.979	--	40.000	--	100.900
		20.500	144.979	--	40.000	--	100.900
4	Sand (Reese, et al.)	20.500	149.990	--	45.000	--	180.700
		30.500	149.990	--	45.000	--	180.700

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	1	V = 120640. lbs	M = 152266720. in-lbs	92547.	No

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	30.50000 ft
Shaft Diameter	=	96.00000 in
Concrete Cover Thickness	=	3.62533 in
Number of Reinforcing Bars	=	44 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	7238.22947 sq. in.
Total Area of Reinforcing Steel	=	68.64000 sq. in.
Area Ratio of Steel Reinforcement	=	0.95 percent
Edge-to-Edge Bar Spacing	=	4.82072 in
Maximum Concrete Aggregate Size	=	0.75000 in
Ratio of Bar Spacing to Aggregate Size	=	6.43
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 28495.005 kips
Tensile Load for Cracking of Concrete = -3211.552 kips
Nominal Axial Tensile Capacity = -4118.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.41000	1.56000	43.66967	0.00000
2	1.41000	1.56000	43.22518	6.21484
3	1.41000	1.56000	41.90074	12.30317
4	1.41000	1.56000	39.72333	18.14104
5	1.41000	1.56000	36.73727	23.60961
6	1.41000	1.56000	33.00334	28.59755
7	1.41000	1.56000	28.59755	33.00334
8	1.41000	1.56000	23.60961	36.73727
9	1.41000	1.56000	18.14104	39.72333
10	1.41000	1.56000	12.30317	41.90074
11	1.41000	1.56000	6.21484	43.22518
12	1.41000	1.56000	0.00000	43.66967
13	1.41000	1.56000	-6.21484	43.22518
14	1.41000	1.56000	-12.30317	41.90074
15	1.41000	1.56000	-18.14104	39.72333
16	1.41000	1.56000	-23.60961	36.73727
17	1.41000	1.56000	-28.59755	33.00334
18	1.41000	1.56000	-33.00334	28.59755
19	1.41000	1.56000	-36.73727	23.60961
20	1.41000	1.56000	-39.72333	18.14104
21	1.41000	1.56000	-41.90074	12.30317
22	1.41000	1.56000	-43.22518	6.21484
23	1.41000	1.56000	-43.66967	0.00000
24	1.41000	1.56000	-43.22518	-6.21484
25	1.41000	1.56000	-41.90074	-12.30317
26	1.41000	1.56000	-39.72333	-18.14104
27	1.41000	1.56000	-36.73727	-23.60961
28	1.41000	1.56000	-33.00334	-28.59755
29	1.41000	1.56000	-28.59755	-33.00334
30	1.41000	1.56000	-23.60961	-36.73727
31	1.41000	1.56000	-18.14104	-39.72333
32	1.41000	1.56000	-12.30317	-41.90074
33	1.41000	1.56000	-6.21484	-43.22518
34	1.41000	1.56000	0.00000	-43.66967
35	1.41000	1.56000	6.21484	-43.22518
36	1.41000	1.56000	12.30317	-41.90074
37	1.41000	1.56000	18.14104	-39.72333
38	1.41000	1.56000	23.60961	-36.73727
39	1.41000	1.56000	28.59755	-33.00334
40	1.41000	1.56000	33.00334	-28.59755
41	1.41000	1.56000	36.73727	-23.60961
42	1.41000	1.56000	39.72333	-18.14104
43	1.41000	1.56000	41.90074	-12.30317
44	1.41000	1.56000	43.22518	-6.21484

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 4.82072 inches between Bars 15 and 16

Spacing to aggregate size ratio = 6.42762

Concrete Properties:

Compressive Strength of Concrete = 4000.00000 psi
Modulus of Elasticity of Concrete = 3604997. psi
Modulus of Rupture of Concrete = -474.34164 psi
Compression Strain at Peak Stress = 0.00189
Tensile Strain at Fracture of Concrete = -0.0001154
Maximum Coarse Aggregate Size = 0.75000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	92.547

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.

Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 92.547 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000313	6016.8714691	19253988701.	57.1704312	0.0000179	-0.0000121	0.0747828	0.5137570	
0.000000625	12006.	19209187647.	52.5996405	0.0000329	-0.0000271	0.1369623	0.9446685	
0.000000938	17965.	19162994714.	51.0761641	0.0000479	-0.0000421	0.1986459	1.3755832	
0.000001250	23896.	19116448735.	50.3144836	0.0000629	-0.0000571	0.2598333	1.8065000	
0.000001563	29797.	19069761041.	49.8575166	0.0000779	-0.0000721	0.3205246	2.2374187	
0.000001875	35668.	19023002382.	49.5529052	0.0000929	-0.0000871	0.3807196	2.6683392	
0.000002188	41510.	18976203166.	49.3353543	0.0001079	-0.0001021	0.4404185	3.0992615	
0.000002500	41510.	16604177770.	27.2709855	0.0000682	-0.0001718	0.2790197	-4.9480535	C
0.000002813	41510.	14759269129.	26.8159586	0.0000754	-0.0001946	0.3079753	-5.6036734	C
0.000003125	41510.	13283342216.	26.4532866	0.0000827	-0.0002173	0.3368348	-6.2591709	C
0.000003438	41510.	12075765651.	26.1477759	0.0000899	-0.0002401	0.3654591	-6.9155436	C
0.000003750	41510.	11069451847.	25.8925008	0.0000971	-0.0002629	0.3939609	-7.5719905	C
0.000004063	41510.	10217955551.	25.6775632	0.0001043	-0.0002857	0.4223677	-8.2283121	C
0.000004375	41510.	9488101583.	25.4943224	0.0001115	-0.0003085	0.4506796	-8.8845078	C
0.000004688	41510.	8855561477.	25.3320224	0.0001187	-0.0003313	0.4788139	-9.5411782	C
0.000005000	41510.	8302088885.	25.1888785	0.0001259	-0.0003541	0.5068138	-10.1980126	C
0.000005313	41510.	7813730715.	25.0634197	0.0001331	-0.0003769	0.5347197	-10.8547169	C
0.000005625	41510.	7379634565.	24.9527009	0.0001404	-0.0003996	0.5625313	-11.5112907	C
0.000005938	41510.	6991232745.	24.8543973	0.0001476	-0.0004224	0.5902486	-12.1677335	C
0.000006250	41510.	6641671108.	24.7666488	0.0001548	-0.0004452	0.6178713	-12.8240449	C
0.000006563	41510.	6325401055.	24.6879500	0.0001620	-0.0004680	0.6453994	-13.4802245	C
0.000006875	41510.	6037882826.	24.6170687	0.0001692	-0.0004908	0.6728326	-14.1362719	C
0.000007188	41510.	5775366181.	24.5529875	0.0001765	-0.0005135	0.7001707	-14.7921866	C
0.000007500	41510.	5534725923.	24.4948583	0.0001837	-0.0005363	0.7274137	-15.4479683	C
0.000007813	41510.	5313336886.	24.4403272	0.0001909	-0.0005591	0.7545124	-16.1039884	C
0.000008125	41510.	5108977775.	24.3899871	0.0001982	-0.0005818	0.7814983	-16.7600093	C
0.000008438	41510.	4919756376.	24.3439438	0.0002054	-0.0006046	0.8083897	-17.4158912	C
0.000008750	41510.	4744050791.	24.3017387	0.0002126	-0.0006274	0.8351864	-18.0716338	C
0.000009063	41510.	4580462833.	24.2629767	0.0002199	-0.0006501	0.8618883	-18.7272364	C
0.000009375	41510.	4427780739.	24.2273152	0.0002271	-0.0006729	0.8884952	-19.3826987	C
0.000009688	41510.	4284949102.	24.1944558	0.0002344	-0.0006956	0.9150069	-20.0380200	C
0.0000100	41510.	4151044443.	24.1641377	0.0002416	-0.0007184	0.9414232	-20.6932000	C
0.0000103	41542.	4028358096.	24.1361314	0.0002489	-0.0007411	0.9677440	-21.3482382	C
0.0000106	42721.	4020788597.	24.1102345	0.0002562	-0.0007638	0.9939691	-22.0031340	C
0.0000109	43899.	4013598334.	24.0862679	0.0002634	-0.0007866	1.0200984	-22.6578869	C
0.0000113	45076.	4006755544.	24.0640721	0.0002707	-0.0008093	1.0461316	-23.3124964	C
0.0000116	46253.	4000231902.	24.0435053	0.0002780	-0.0008320	1.0720686	-23.9669621	C
0.0000119	47429.	3994001892.	24.0244401	0.0002853	-0.0008547	1.0979091	-24.6212837	C
0.0000122	48604.	3988043122.	24.0067626	0.0002926	-0.0008774	1.1236532	-25.2754601	C
0.0000128	50954.	3976858947.	23.9751699	0.0003072	-0.0009228	1.1748509	-26.5833759	C
0.0000134	53300.	3966537711.	23.9480195	0.0003218	-0.0009682	1.2256601	-27.8907061	C
0.0000141	55645.	3956963430.	23.9247293	0.0003364	-0.0010136	1.2760796	-29.1974463	C
0.0000147	57987.	3948039728.	23.9048166	0.0003511	-0.0010589	1.3261077	-30.5035921	C
0.0000153	60326.	3939685783.	23.8878777	0.0003658	-0.0011042	1.3757430	-31.8091397	C
0.0000159	62664.	3931833963.	23.8735721	0.0003805	-0.0011495	1.4249842	-33.1140836	C
0.0000166	64998.	3924426289.	23.8616112	0.0003952	-0.0011948	1.4738296	-34.4184201	C
0.0000172	67331.	3917413392.	23.8517481	0.0004100	-0.0012400	1.5222777	-35.7221444	C
0.0000178	69660.	3910752825.	23.8437709	0.0004247	-0.0012853	1.5703270	-37.0252522	C
0.0000184	71988.	3904407883.	23.8374965	0.0004395	-0.0013305	1.6179760	-38.3277386	C
0.0000191	74312.	3898346664.	23.8327660	0.0004543	-0.0013757	1.6652230	-39.6295991	C
0.0000197	76634.	3892541308.	23.8294406	0.0004691	-0.0014209	1.7120665	-40.9308287	C
0.0000203	78954.	3886967372.	23.8273990	0.0004840	-0.0014660	1.7585050	-42.2314228	C
0.0000209	81271.	3881603322.	23.8265341	0.0004989	-0.0015111	1.8045367	-43.5313763	C
0.0000216	83586.	3876430110.	23.8267517	0.0005138	-0.0015562	1.8501600	-44.8306843	C
0.0000222	85897.	3871430824.	23.8279681	0.0005287	-0.0016013	1.8953733	-46.1293417	C
0.0000228	88207.	3866590396.	23.8301090	0.0005436	-0.0016464	1.9401749	-47.4273435	C
0.0000234	90513.	3861895355.	23.8331080	0.0005586	-0.0016914	1.9845632	-48.7246844	C
0.0000241	92817.	3857333620.	23.8369058	0.0005736	-0.0017364	2.0285363	-50.0213591	C
0.0000247	95118.	3852894324.	23.8414493	0.0005886	-0.0017814	2.0720926	-51.3173624	C
0.0000253	97417.	3848567661.	23.8466906	0.0006036	-0.0018264	2.1152303	-52.6126887	C
0.0000259	99713.	3844344763.	23.8525865	0.0006187	-0.0018713	2.1579477	-53.9073327	C
0.0000266	102006.	3840217587.	23.8590981	0.0006338	-0.0019162	2.2002429	-55.2012886	C
0.0000272	104296.	3836178819.	23.8661901	0.0006489	-0.0019611	2.2421141	-56.4945509	C
0.0000278	106584.	3832221792.	23.8738306	0.0006640	-0.0020060	2.2835595	-57.7871137	C
0.0000284	108868.	3828340417.	23.8819904	0.0006791	-0.0020509	2.3245772	-59.0789713	C
0.0000291	111150.	3824529118.	23.8906430	0.0006943	-0.0020957	2.3651654	-60.0000000	CY
0.0000297	113429.	3820782781.	23.8997644	0.0007095	-0.0021405	2.4053222	-60.0000000	CY
0.0000303	115701.	3816955840.	23.9090369	0.0007247	-0.0021853	2.4450218	-60.0000000	CY
0.0000309	117807.	3807898569.	23.9074530	0.0007396	-0.0022304	2.4833744	-60.0000000	CY
0.0000316	119598.	3789245541.	23.8852645	0.0007539	-0.0022761	2.5195654	-60.0000000	CY
0.0000322	121222.	3766113175.	23.8532244	0.0007678	-0.0023222	2.5544403	-60.0000000	CY
0.0000328	122688.	3739076388.	23.8122130	0.0007813	-0.0023687	2.5880570	-60.0000000	CY
0.0000334	124065.	3710351164.	23.7671673	0.0007947	-0.0024153	2.6208146	-60.0000000	CY
0.0000341	125368.	3680542020.	23.7192668	0.0008079	-0.0024621	2.6528098	-60.0000000	CY
0.0000347	126537.	3647911274.	23.6642796	0.0008209	-0.0025091	2.6836859	-60.0000000	CY
0.0000353	127679.	3615702482.	23.6099804	0.0008337	-0.0025563	2.7140972	-60.0000000	CY
0.0000359	128814.	3584391075.	23.5575287	0.0008466	-0.0026034	2.7441496	-60.0000000	CY
0.0000366	129781.	3549565026.	23.4943218	0.0008590	-0.0026510	2.7727690	-60.0000000	CY
0.0000372	130708.	3514835305.	23.4288669	0.0008713	-0.0026987	2.8006810	-60.0000000	CY
0.0000397	134134.	3379741781.	23.1710676	0.0009196	-0.0028904	2.9076589	-60.0000000	CY
0.0000422	137053.	3248655273.	22.9142772	0.0009667	-0.0030833	3.0070081	-60.0000000	CY
0.0000447	139421.	3119907833.	22.6514129	0.0010122	-0.0032778	3.0984924	-60.0000000	CY
0.0000472	141642.	3001694711.	22.4021752	0.0010571	-0.0034729	3.1842712	-60.0000000	CY
0.0000497	143413.	2886289522.	22.1424974	0.0011002	-0.0036698	3.2625521	-60.0000000	CY
0.0000522	145113.	2780615086.	21.9064397	0.0011432	-0.0038668	3.3367715	-60.0000000	CY
0.0000547	146630.	2681236537.	21.6808101	0.0011857	-0.0040643	3.4060589	-60.0000000	CY

0.0000572	147873.	2585749323.	21.4479775	0.0012266	-0.0042634	3.4691479	-60.0000000	CY
0.0000597	149100.	2498006823.	21.2321574	0.0012673	-0.0044627	3.5284789	-60.0000000	CY
0.0000622	150303.	2416926561.	21.0347235	0.0013081	-0.0046619	3.5843829	-60.0000000	CY
0.0000647	151223.	2337741090.	20.8307849	0.0013475	-0.0048625	3.6349589	-60.0000000	CY
0.0000672	152099.	2263803037.	20.6410193	0.0013868	-0.0050632	3.6821742	-60.0000000	CY
0.0000697	152949.	2194789664.	20.4537153	0.0014254	-0.0052646	3.7252577	-60.0000000	CY
0.0000722	153794.	2130473584.	20.2813384	0.0014641	-0.0054659	3.7653495	-60.0000000	CY
0.0000747	154558.	2069396378.	20.1152724	0.0015024	-0.0056676	3.8019125	-60.0000000	CY
0.0000772	155180.	2010433575.	19.9485970	0.0015398	-0.0058702	3.8346249	-60.0000000	CY
0.0000797	155765.	1954697286.	19.7910166	0.0015771	-0.0060729	3.8643024	-60.0000000	CY
0.0000822	156340.	1902236285.	19.6418067	0.0016143	-0.0062757	3.8909773	-60.0000000	CY
0.0000847	156897.	1852655214.	19.4944487	0.0016509	-0.0064791	3.9143707	-60.0000000	CY
0.0000872	157449.	1805863992.	19.3571462	0.0016877	-0.0066823	3.9350181	-60.0000000	CY
0.0000897	157985.	1761500439.	19.2278263	0.0017245	-0.0068855	3.9528351	-60.0000000	CY
0.0000922	158467.	1718969255.	19.1017659	0.0017609	-0.0070891	3.9676715	-60.0000000	CY
0.0000947	158851.	1677634814.	18.9735358	0.0017966	-0.0072934	3.9794612	-60.0000000	CY
0.0000972	159217.	1638248142.	18.8518291	0.0018322	-0.0074978	3.9885865	-60.0000000	CY
0.0000997	159579.	1600791579.	18.7375486	0.0018679	-0.0077021	3.9950700	-60.0000000	CY
0.0001022	159923.	1564996357.	18.6215350	0.0019029	-0.0079071	3.9988174	-60.0000000	CY
0.0001047	160261.	1530849941.	18.5107799	0.0019378	-0.0081122	3.9995842	-60.0000000	CY
0.0001072	160593.	1498247231.	18.4068080	0.0019730	-0.0083170	3.9948563	-60.0000000	CY
0.0001097	160922.	1467099200.	18.3087728	0.0020082	-0.0085218	3.9985448	-60.0000000	CY
0.0001122	161248.	1437308014.	18.2162958	0.0020436	-0.0087264	3.9999804	-60.0000000	CY
0.0001147	161568.	1408764823.	18.1295277	0.0020792	-0.0089308	3.9923870	-60.0000000	CY
0.0001172	161838.	1381019153.	18.0416893	0.0021143	-0.0091357	3.9968109	-60.0000000	CY
0.0001197	162080.	1354196434.	17.9552803	0.0021490	-0.0093410	3.9993253	60.0000000	CY
0.0001222	162301.	1328291993.	17.8710070	0.0021836	-0.0095464	3.9987168	60.0000000	CY
0.0001247	162500.	1303261471.	17.7895204	0.0022181	-0.0097519	3.9914731	60.0000000	CY
0.0001272	162690.	1279136170.	17.7064264	0.0022520	-0.0099580	3.9957362	60.0000000	CY
0.0001297	162873.	1255890242.	17.6239907	0.0022856	-0.0101644	3.9985097	60.0000000	CY
0.0001322	163055.	1233510620.	17.5454078	0.0023193	-0.0103707	3.9998606	60.0000000	CY
0.0001347	163233.	1211938033.	17.4708857	0.0023531	-0.0105769	3.9955201	60.0000000	CY
0.0001372	163409.	1191133136.	17.4000220	0.0023871	-0.0107829	3.9905145	60.0000000	CY
0.0001522	164429.	1080438917.	17.0367029	0.0025928	-0.0120172	3.9894118	60.0000000	CY
0.0001672	165194.	988074608.	16.7233028	0.0027959	-0.0132541	3.9915642	60.0000000	CY
0.0001822	165612.	909017169.	16.4487636	0.0029968	-0.0144932	3.9992187	60.0000000	CY
0.0001972	165950.	841586529.	16.2461747	0.0032035	-0.0157265	3.9881936	60.0000000	CYT
0.0002122	166237.	783444373.	16.0925644	0.0034146	-0.0169554	3.9998056	60.0000000	CYT
0.0002272	166436.	732593680.	15.9891407	0.0036325	-0.0181775	3.9869869	60.0000000	CYT
0.0002422	166609.	687932182.	15.9046554	0.0038519	-0.0193981	3.9998734	60.0000000	CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	92.547	165616.875	0.00300000

Note note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318-08, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resistance Factor for Moment	Nominal Moment Capacity in-kip	Ultimate (Factored) Axial Thrust kips	Ultimate (Factored) Moment Capacity in-kip	Bending Stiffness at Ult. Mom. Cap. kip-inA2
1	0.65	165616.875	60.155	107650.965	3830408658.678
1	0.70	165616.875	64.783	115931.811	3815964943.913
1	0.75	165616.875	69.410	124212.656	3706971687.066

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 120640.0 lbs
Applied moment at pile head = 152266720.0 in-lbs
Axial thrust load on pile head = 92546.7 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-inA2	Soil Res. p lb/in	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	3.8192	1.523E+08	120640.	-0.0257	0.000	2.250E+12	0.000	0.000	0.000

0.915	3.5406	1.536E+08	120572.	-0.0250	0.000	2.144E+12	-16.8066	17.3733	0.000
1.830	3.2706	1.550E+08	120336.	-0.0242	0.000	2.030E+12	-22.2309	24.8776	0.000
2.745	3.0099	1.563E+08	120095.	-0.0233	0.000	1.905E+12	-21.6237	26.2945	0.000
3.660	2.7590	1.576E+08	119861.	-0.0224	0.000	1.789E+12	-21.0054	27.8652	0.000
4.575	2.5187	1.590E+08	114987.	-0.0214	0.000	1.664E+12	-1018.1698	1479.5074	0.000
5.490	2.2900	1.602E+08	100034.	-0.0203	0.000	1.538E+12	-1706.5265	2727.4269	0.000
6.405	2.0739	1.612E+08	77513.	-0.0191	0.000	1.443E+12	-2394.6534	4226.1476	0.000
7.320	1.8711	1.619E+08	47498.	-0.0178	0.000	1.374E+12	-3070.2491	6005.4806	0.000
8.235	1.6826	1.622E+08	10148.	-0.0165	0.000	1.335E+12	-3729.6652	8112.7310	0.000
9.150	1.5087	1.621E+08	-34303.	-0.0152	0.000	1.348E+12	-4362.0042	10582.	0.000
10.065	1.3492	1.615E+08	-84551.	-0.0139	0.000	1.415E+12	-4680.2376	12696.	0.000
10.980	1.2035	1.603E+08	-136278.	-0.0127	0.000	1.527E+12	-4729.1983	14382.	0.000
11.895	1.0704	1.585E+08	-202180.	-0.0116	0.000	1.715E+12	-7478.9719	25573.	0.000
12.810	0.9485	1.558E+08	-289094.	-0.0106	0.000	1.949E+12	-8344.3440	32200.	0.000
13.725	0.8362	1.521E+08	-385142.	-0.009839	0.000	2.260E+12	-9135.4089	39987.	0.000
14.640	0.7320	1.474E+08	-485016.	-0.009163	0.000	2.623E+12	-8937.0643	44687.	0.000
15.555	0.6346	1.415E+08	-580588.	-0.008598	0.000	3.007E+12	-8450.9401	48742.	0.000
16.470	0.5429	1.347E+08	-670083.	-0.008120	0.000	3.355E+12	-7831.2135	52797.	0.000
17.385	0.4560	1.269E+08	-752068.	-0.007710	0.000	3.639E+12	-7083.7028	56852.	0.000
18.300	0.3734	1.182E+08	-825169.	-0.007349	0.000	3.804E+12	-6213.9207	60907.	0.000
19.215	0.2945	1.088E+08	-888076.	-0.007023	0.000	3.828E+12	-5227.7682	64961.	0.000
20.130	0.2191	98741026.	-939545.	-0.006726	0.000	3.846E+12	-4131.4305	69016.	0.000
21.045	0.1467	88181719.	-986975.	-0.006459	0.000	3.867E+12	-4370.1131	108997.	0.000
21.960	0.0771	77121149.	-1024580.	-0.006225	0.000	3.891E+12	-2450.3683	116259.	0.000
22.875	0.009928	65766685.	-1040030.	-0.006024	0.000	3.922E+12	-335.0489	123521.	0.000
23.790	-0.0553	54373376.	-1031187.	-0.005857	0.000	3.962E+12	1974.7451	130783.	0.000
24.705	-0.1188	43219741.	-995907.	-0.005723	0.000	4.018E+12	4480.8010	138044.	0.000
25.620	-0.1813	32608065.	-931977.	-0.005685	0.000	1.905E+13	7199.3456	145306.	0.000
26.535	-0.2437	22866465.	-836884.	-0.005669	0.000	1.912E+13	10157.	152568.	0.000
27.450	-0.3059	14351588.	-707989.	-0.005659	0.000	1.919E+13	13357.	159830.	0.000
28.365	-0.3680	7449138.	-542637.	-0.005653	0.000	1.924E+13	16798.	167091.	0.000
29.280	-0.4300	2574068.	-338156.	-0.005650	0.000	1.925E+13	20484.	174353.	0.000
30.195	-0.4920	170758.	-91858.	-0.005649	0.000	1.925E+13	24415.	181615.	0.000

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection	=	3.8192187 inches
Computed slope at pile head	=	-0.0257496 radians
Maximum bending moment	=	162262362. inch-lbs
Maximum shear force	=	-1040030. lbs
Depth of maximum bending moment	=	8.5400000 feet below pile head
Depth of maximum shear force	=	22.8750000 feet below pile head
Number of iterations	=	107
Number of zero deflection points	=	1

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in Pile in-lbs	Maximum Shear in Pile lbs	Pile-head Rotation radians
1	1	V = 120640.	M = 1.523E+08	92547.	3.81921870	162262362.	-1040030.	-0.02574963

The analysis ended normally.

1805.7.2.1 (2006 IBC) & 1807.3.2.1 (2009 IBC & 2012 IBC)

d = A/2*(1+(1+(4.36*h/A))^0.5)

Monopole

Moment (ft-k)	9516.67
Shear (k)	90.5
Caisson Diameter, b (ft)	8
Caisson Height Above Ground (ft)	0.5
Caisson Height Below Ground (ft)	25
Lateral soil pressure per foot (lb/ft^3)	718
Applied lateral force, P (lbs)	90480
Dist. from ground to application of P, h (ft)	105.68
A = 2.34*P/(S1*b)	4.43
Min. Depth of Embedment Required, d (ft)	24.90

ATTACHMENT 3

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

The CCI Hexport Multi-Band Antenna Array is an industry first 6-port antenna with full WCS Band Coverage. With four high band ports and two low band ports, our hexport antenna is ready for 4X4 high band MIMO.

Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio.

Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost.

Full band capability for 700 MHz , Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2170 MHz and WCS 2300 MHz coverage in a single enclosure.

Hexport Multi-Band Antenna Array

Benefits

- **Includes WCS Band**
- **Reduces tower loading**
- **Frees up space for tower mounted E-nodes**
- **Single radome with six ports**
- **All Band design simplifies radio assignments**
- **Sharp elevation beam eases network planning**

Features

- High Band Ports include WCS Band
- Four High Band ports with two Low Band ports in one antenna
- Sharp elevation beam
- Excellent elevation side-lobe performance
- Excellent MIMO performance due to array spacing
- Excellent PIM Performance
- A multi-network solution in one radome

Applications

- 4x4 MIMO on High Band and 2x2 MIMO on Low Band
- Adding additional capacity without adding additional antennas
- Adding WCS Band without increasing antenna count

ISO 9001:2008
Quality Management Systems
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HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

HPA-65R Multi-Band Antenna

Electrical Specifications

Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz		2305-2360 MHz
Gain	15.3 dBi	16.2 dBi	17.1 dBi	16.3 dBi	17.4 dBi	17.7 dBi
Azimuth Beamwidth (-3dB)	65°	61°	62°	68°	64°	60°
Elevation Beamwidth (-3dB)	10.1°	8.4°	5.6°	6.2°	5.0°	4.5°
Electrical Downtilt	2° to 10°	2° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -19 dB	< -18 dB	< -18 dB	< -17 dB
Front-to-Back Ratio @180°	> 29 dB	> 28 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 28 dB	> 27 dB	> 28 dB	> 27 dB	> 28 dB	> 28 dB
Cross-Polar Discrimination (at Peak)	> 24 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination (at ± 60°)	> 16 dB	> 14 dB	> 18 dB	> 18 dB	> 18 dB	> 18 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

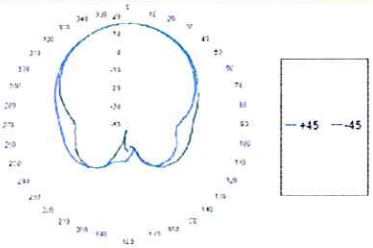
Mechanical Specifications

Dimensions (LxWxD)	92.4 x 14.8 x 7.4 inches (2348 x 376 x 189 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	332 lbs (1479 N) @ 100 mph (161 kph)
Side Wind Load	193 lbs (860 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.0 ft^2 (1.2 m^2)
Weight (without Mounting)	68 lbs (31 kg)
RET System Weight	5.0 lbs (2.25 kg)
Connector	6; 7-16 DIN female long neck
Mounting Pole	2-5 inches (5-12 cm)

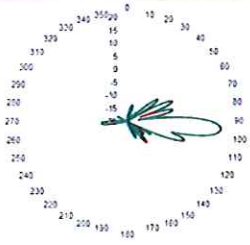
Bottom View

Rear View

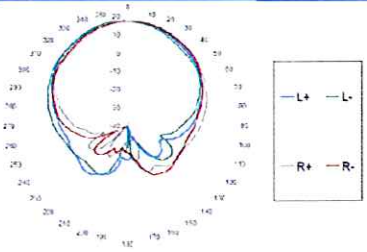
Antenna Patterns*



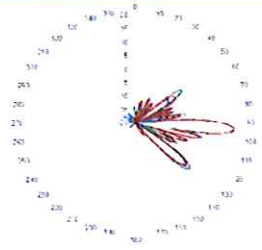
894 MHz Azimuth



Elevation 5°



1920 MHz Azimuth



Elevation 4°

*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

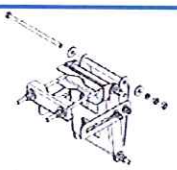
HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

Ordering Information:

HPA-65R-BUU-H8	8 Foot Hexport Antenna with 65° Azimuth Beamwidth with Factory Installed Actuators (3)
HPA-65R-BUU-H8-K	Complete Kit with Antenna, Factory Installed Actuators (3) and M03 Mounting Bracket
BSA-RET200	RET Actuator
BSA-M03	Mounting Bracket (Top & Bottom) with 0° through 10° Mechanical tilt Adjustment

M03 Top Mounting Bracket



M03 Bottom Mounting Bracket

RET [Remote Electrical Tilt] System

General Specification

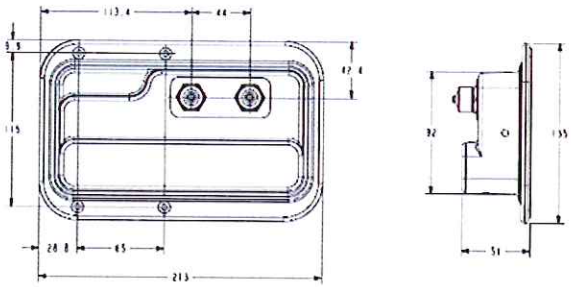
Part Number	BSA-RET200
Protocols	AISG 2.0
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C to +70°C

Electrical Specification

Interface Signal	Data | dc
Input Voltage Range	10-30 Vdc, Specifications at +24 VDC
Current consumption during tilting	120mA at Vin = 24V
Current consumption idle	55mA at Vin=24V
Hardware Interface	AISG - RS 485 A/B
Input Connector	1x8-pin Daisy Chain In Male
Output Connector	1x8-pin Daisy Chain Out Female

Mechanical Specification and Dimensions

Housing Material	ASA / ABS / Aluminum
Dimensions (H x W x D)	8 x 5 x 2 inches (213 x 135 x 51 mm)
Weight	1.5 lbs (0.68 kg)



Standards Compliance

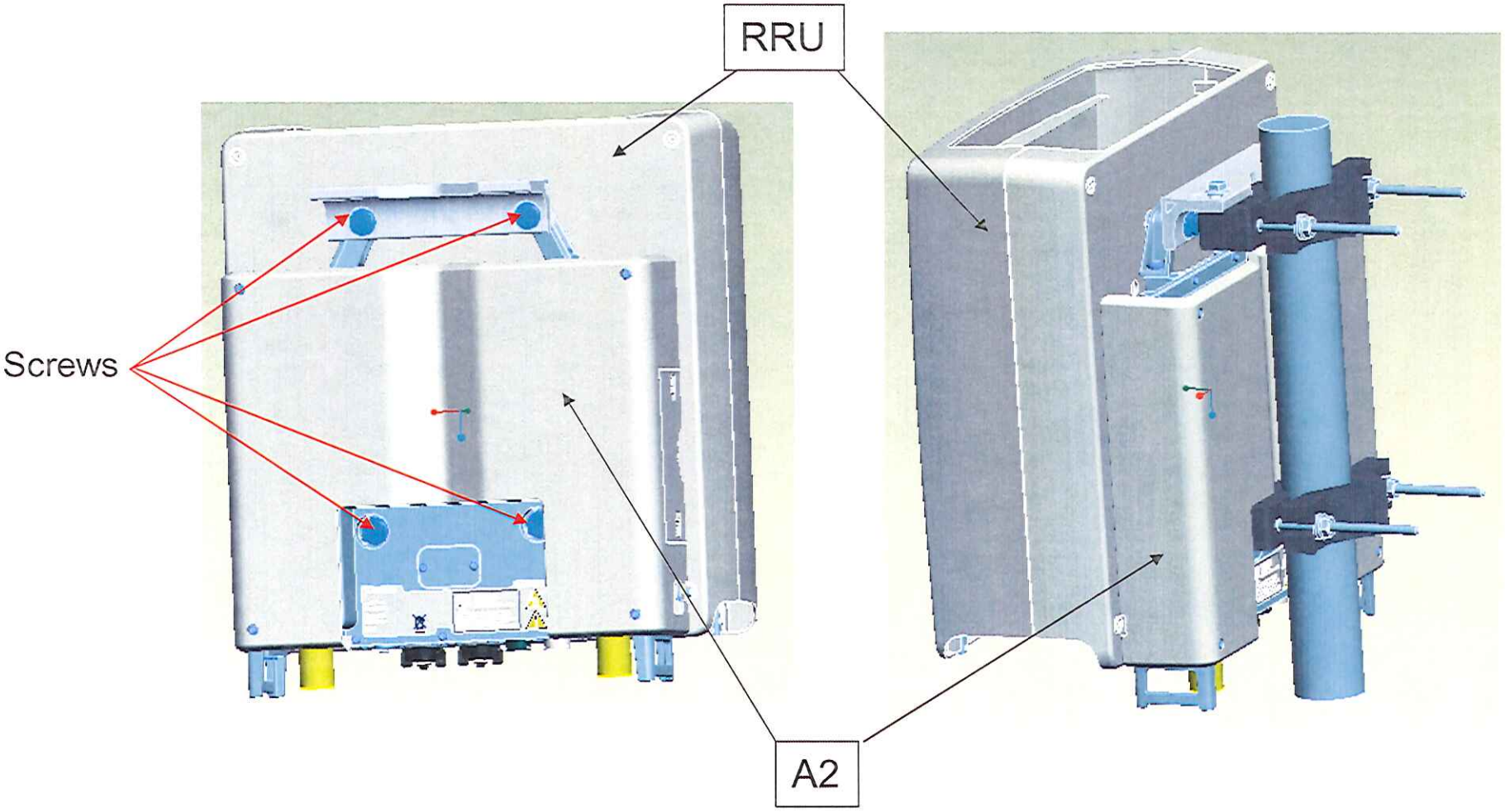
Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC 60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-2-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN60529 IP24

Regulatory Certification

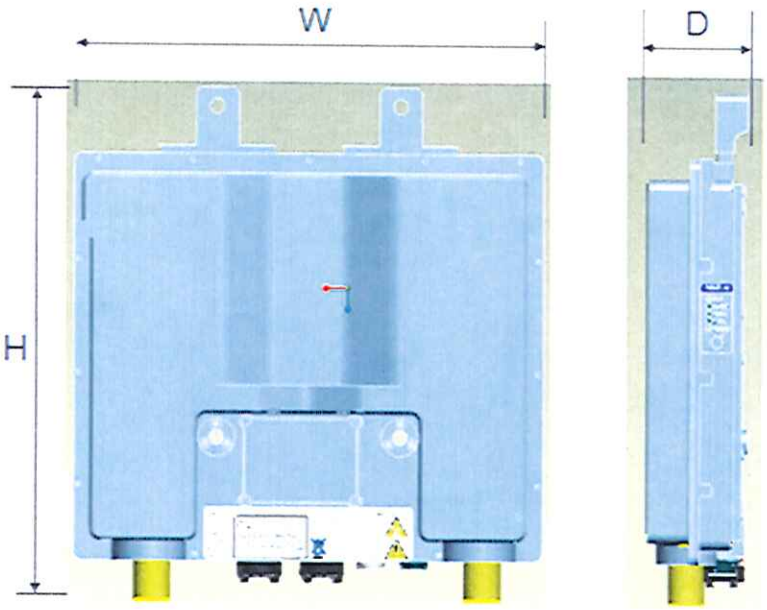
AISG, FCC Part 15 Class B, CE, CSA US

Installation concept

Back to back with RRU



RRUS A2 A2 Building practice

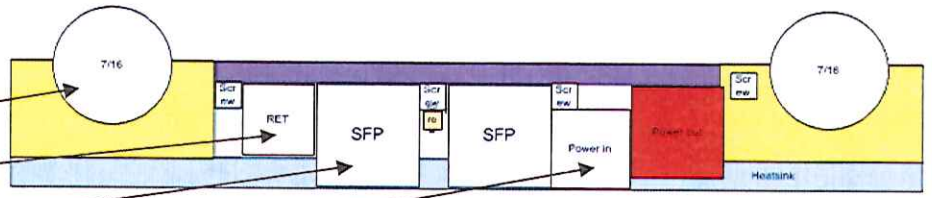


PRELIMINARY DATA

	No solar shield	With solar shield
Height (H)	12.8" (325.5mm)	12.8" (325.5mm)
Width (W)	14.7" (374mm)	15.0" (380mm)
Depth (D)	3.2" (81mm)	3.5" (88mm)
Weight		15 lbs

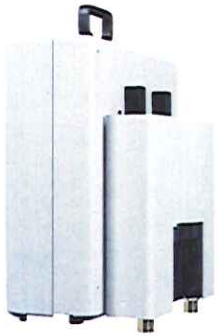
External Connections

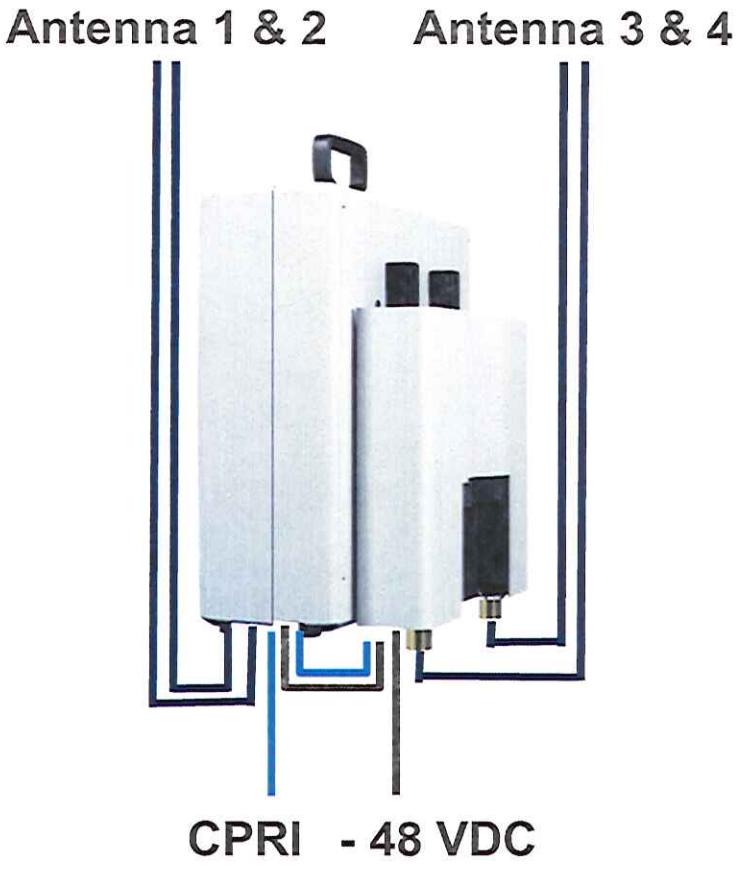
- 2 x 7-16 Ant Connections
- RET Interface
- 2 CPRI Interfaces
- Power In / Out, to RRU



RRUS A2 Module

- **RRUS A2 Module**
  - 2 Rx expansion module for RRUS
- Works with RRUS 01, 11 and 12
  - Eases deployment for 4Rx diversity





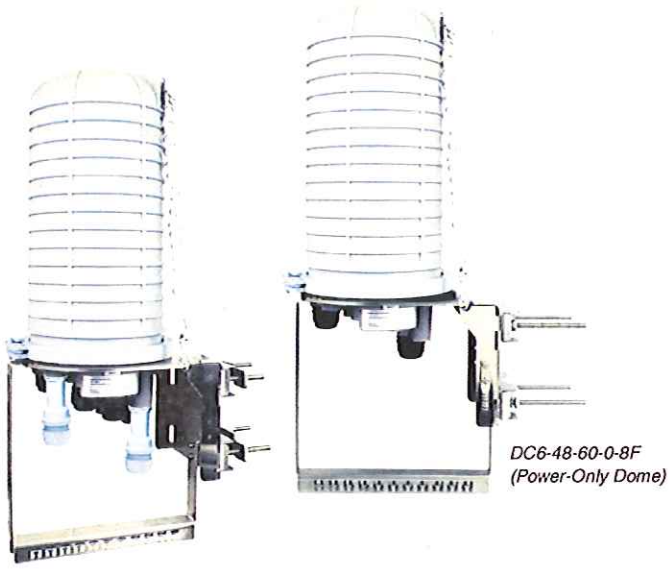
DATA SHEET

Tower Fiber Optic & DC Overvoltage Protection Power Connection Solutions

DC6-48-60-18-8F & DC6-48-60-0-8F

The DC6-48-60-18-8F and DC6-48-60-0-8F are dual chambered, DC surge suppression systems for use in multi-circuit, distributed node B/e-node B applications. The system will protect up to six remote radio heads (RRH) from voltage surges and lightning. The DC6-48-60-18-8F supports up to 18 pair of fiber. The DC6-48-60-0-8F is designed for use when a site is upgrading to more than 6 total RRH's.

powered by **Strikesorb®**



DC6-48-60-18-8F (Power & Fiber Dome)

DC6-48-60-0-8F (Power-Only Dome)

Features

- Protects up to six remote radio heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for RRH protection.
- Light-emitting diode (LED) indicators on individual circuits provide visual indication of suppressor status.
- Form C relays allow for remote monitoring of the suppressor status.
- Strikesorb® suppression modules are fully recognized to UL 1449-3rd Edition Safety Standard, meeting all intermediate and high-current fault requirements to facilitate use in other equipment manufacturers (OEM) applications.
- Raycap recommends that DC protection system be installed within 5 meters or 15 feet of the radio.
- DC6-48-60-18-8F includes fiber connections for up to eighteen pair of fiber.
- Patent pending

Benefits

- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.

G02-00-272 130306

Raycap

www.raycapsurgeprotection.com

SPECIFICATIONS

Tower Fiber Optic & DC Overvoltage Protection Power Connection Solutions

DC6-48-60-18-8F & DC6-48-60-0-8F

powered by
Strikesorb®

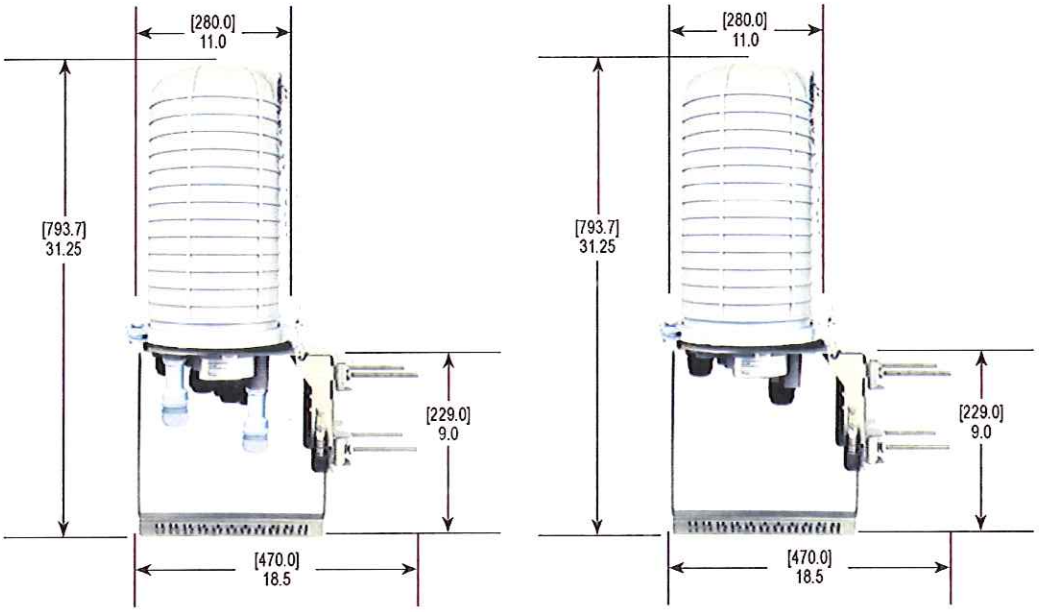
Mechanical

Model Number		DC6-48-60-18-8F	DC6-48-60-0-8F
CEQ / ANT Number		ANT. 13884	ANT. 10529
Suppression Connection Method		Compression Lug	Compression Lug
	Copper	#14 to #2 AWG [2.5 to 35 mm²]	#14 to #2 AWG [2.5 to 35 mm²]
Fiber Connection Method		LC-LC Single Mode	N/A
Environmental Ingress Protection (IP) Rating		IP68	IP68
Operating Temperature		-40° C to +80° C	-40° C to +80° C
Storage Temperature		-70° C to +80° C	-70° C to +80° C
Cold Temperature Cycling IEC 61300-2-22		-30° C to +60° C 200 hrs @ 5 PSI	-30° C to +60° C 200 hrs @ 5 PSI
Resistance to Aggressive Materials CEI IEC 61073-2		Including Acids and Bases	Including Acids and Bases
UV Protection ISO 4892-2 Method A		Xenon-Arc 2160 hrs	Xenon-Arc 2160 hrs
Weight*	System	18.9 lbs [8.57 kg]	18.9 lbs [8.57 kg]
	Mount	13.9 lbs [6.30 kg]	13.9 lbs [6.30 kg]
	Total	32.8 lbs [14.88 kg]	32.8 lbs [14.88 kg]
Combined Wind Loading	Sustained	150 mph Sustained: 105.7 lbs [470 N]	150 mph Sustained: 105.7 lbs [470 N]
	Gust	195 mph Gust: 213.6 lbs [950 N]	195 mph Gust: 213.6 lbs [950 N]

Optional Products	Part Number	CEQ / ANT
Module Assembly (Field Upgradeable)	DC6-48-60-18-8F-U	ANT.10082
Pre-wired Module Kit for a single remote radios		
*Module Weight: 5.64 oz [160 g] *(Calculated into the above Part Number weights.)*		
Accessory Kit	DC6-8F-ACC-KIT	CEQ.11443
Modification Kit	DC6-8F-MOD-KIT	CEQ.11444
Optional Configuration		
Power/Fiber connection system	FC18-PC6-8F	CEQ.11167

Product Diagram

[mm]
inches



AWG=American Wire Gauge

Raycap

www.raycapsurgeprotection.com

TELEWAVE, INC.

148 - 174 MHz

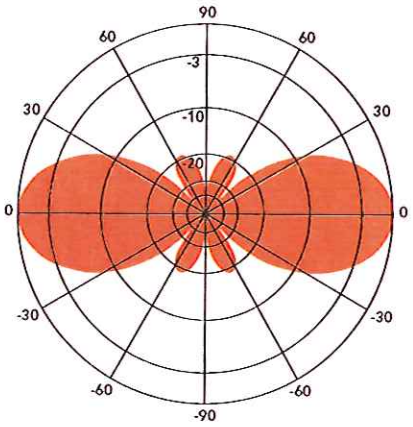
ANT150F2

FIBERGLASS COLLINEAR ANTENNA 2.5 dBd

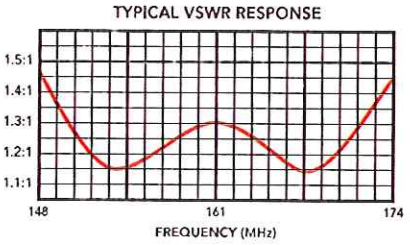
The Telewave ANT150F2 is an extremely rugged collinear antenna, with moderate gain and wide vertical beamwidth. This compact antenna produces 2.5 dBd gain, and is designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, with a path to DC ground for lightning impulse protection.

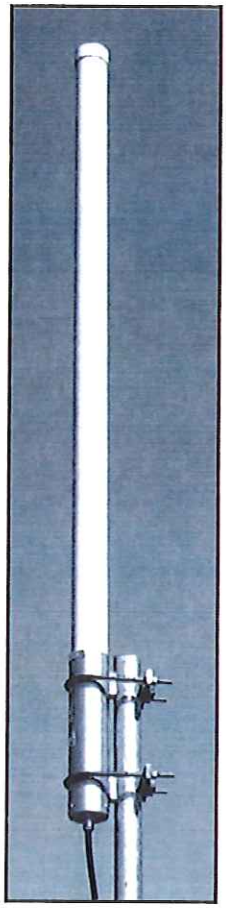
All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a rugged, high-tech radome to ensure survivability in the worst environments. The "Cool Blue" radome provides maximum protection from corrosive gases, ultraviolet radiation, icing, salt spray, acid rain, and wind blown abrasives.

The ANT150F2 includes the ANTC485 dual clamp set for mounting to a 1.5" to 3" O.D. support pipe, and a 24" removable RG-213 N-Male jumper.



ANT150F2 156 MHz
Vertical Plane
Gain = 2.55 dBd





SPECIFICATIONS			
Frequency (continuous)	148-174 MHz	**Dimensions (L x base diam.) in.**	60 x 2.75
Gain	2.5 dBd	**Tower weight (antenna + clamps)**	12 lb.
Power rating (typ.)	500 watts	**Shipping weight**	16 lb.
Impedance	50 ohms	**Wind rating / with 0.5" ice**	200 / 150 MPH
VSWR	1.5:1 or less	**Maximum exposed area**	1.3 ft.²
Pattern	Omnidirectional	**Lateral thrust at 100 MPH**	50 lb.
Vertical beamwidth	38°	**Bending moment at top clamp**	67 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**	

Telewave, Inc. • San Jose, CA • 1-800-331-3396 ~ 408-929-4400 • www.telewave.com

TWDS-7017 Rev. 1/11

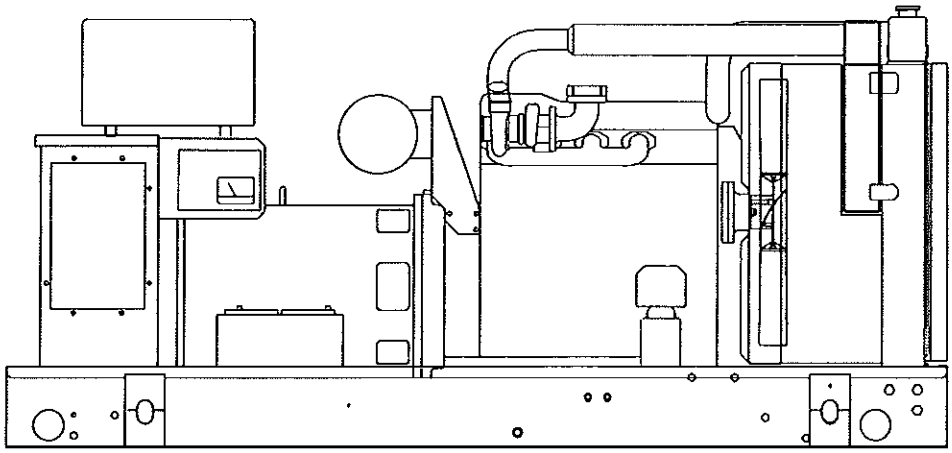
ATTACHMENT 4

SD050

Liquid Cooled Diesel Engine Generator Sets

Standby Power Rating
50KW 60 Hz / 50KVA 50 Hz

Prime Power Rating
44KW 60 Hz / 44KVA 50 Hz



Power Matched
GENERAC 2.4DTA ENGINE
Turbocharged/Aftercooled
Tier III Compliant

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.

- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL COMPLIANCE AVAILABLE

- **SOLID-STATE, FREQUENCY COMPENSATED DIGITAL VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine.

- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own a GENERAC POWER SYSTEM.

- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.

- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.

- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

GENERAC®
POWER SYSTEMS, INC.

APPLICATION & ENGINEERING DATA

SD050

GENERATOR SPECIFICATIONS

TYPE	Four-pole, revolving field
ROTOR INSULATION	Class H
STATOR INSULATION	Class H
TOTAL HARMONIC DISTORTION	<3%
TELEPHONE INTERFERENCE FACTOR (TIF)	<50
ALTERNATOR	Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED)	1
COUPLING	Direct, Flexible Disc
LOAD CAPACITY (STANDBY)	100%
LOAD CAPACITY (PRIME)	110%

NOTE: Emergency loading in compliance with NFPA 99, NFPA 110. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.

VOLTAGE REGULATOR

TYPE	Full Digital
SENSING	3 Phase
REGULATION	± 1/4%
FEATURES	Built into H-100 Control Panel, V/F Adjustable Adjustable Voltage and Gain

GENERATOR FEATURES

- Revolving field heavy duty generator
- Quiet drive coupling
- Operating temperature rise 120°C above a 40°C ambient
- Insulation is Class H rated at 150°C rise
- All prototype models have passed three phase short circuit testing

CONTROL PANEL FEATURES

- TWO FOUR LINE LCD DISPLAYS READ:
  - Voltage (all phases)
  - Power factor
  - kVAR
  - Engine speed
  - Run hours
  - Fault history
  - Coolant temperature
  - Low oil pressure shutdown
  - Overvoltage
  - Low coolant level
  - Exercise speed
  - Current (all phases)
  - kW
  - Transfer switch status
  - Low fuel pressure
  - Service reminders
  - Oil pressure
  - Time and date
  - High coolant temp shutdown
  - Overspeed
  - Low coolant level
  - ATS selection
  - Not in auto position (flashing light)
- INTERNAL FUNCTIONS:
  - I^2T function for alternator protection from line to neutral and line to line short circuits
  - Emergency stop
  - Programmable auto crank function
  - 2 wire start for any transfer switch
  - Communicates with the Generac HTS transfer switch
  - Built-in 7 day exerciser
  - Adjustable engine speed at exerciser
  - RS232 port for GenLink® control
  - RS485 port remote communication
  - Canbus addressable
  - Governor controller and voltage regulator are built into the master control board
  - Temperature range -40°C to 70°C

ENGINE SPECIFICATIONS

MAKE	GENERAC/DEERE
MODEL	4024HF285B
ENGINE FAMILY	8JDXL03.0113
CYLINDERS	4
DISPLACEMENT	2.4 Liter (149 cu.in.)
BORE	86 mm (3.4 in.)
STROKE	105 mm (4.1 in.)
COMPRESSION RATIO	18:1
INTAKE AIR	Turbocharged/Aftercooled
NUMBER OF MAIN BEARINGS	5
CONNECTING RODS	4-Drop Forged Steel
CYLINDER HEAD	Cast Iron
PISTONS	4-Aluminum Alloy
CRANKSHAFT	Die Forged, Induction Hardened Steel

VALVE TRAIN

LIFTER TYPE	Solid
INTAKE VALVE MATERIAL	Heat Resistant Steel
EXHAUST VALVE MATERIAL	Heat Resistant Steel
HARDENED VALVE SEATS	Replaceable

ENGINE GOVERNOR

☐ ELECTRONIC	Standard
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	Isochronous
STEADY STATE REGULATION	±0.25%

LUBRICATION SYSTEM

TYPE OF OIL PUMP	Gear
OIL FILTER	Full flow, Cartridge
CRANKCASE CAPACITY	7.5 qts.

COOLING SYSTEM

TYPE OF SYSTEM	Pressurized, Closed Recovery
WATER PUMP	Pre-Lubed, Self-Sealing
TYPE OF FAN	Pusher
NUMBER OF FAN BLADES	6
DIAMETER OF FAN	560 mm (22 in.)
COOLANT HEATER	120V, 1000 W

FUEL SYSTEM

FUEL	#2D Fuel (Min Cetane #40) (Fuel should conform to ASTM Spec.)
FUEL FILTER	5 Micron
FUEL INJECTION PUMP	Bosch
FUEL PUMP	Mechanical
INJECTORS	Unit Type Multi-Hole, Nozzle
ENGINE TYPE	Pre-combustion
FUEL LINE (Supply)	6.35 mm (0.25 in.)
FUEL RETURN LINE	6.35 mm (0.25 in.)

ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR	20 Amps at 12 V
STARTER MOTOR	12 V
RECOMMENDED BATTERY	12 Volt, 90 A.H., 27F
GROUND POLARITY	Negative

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271).

GENERAC®
POWER SYSTEMS, INC.

SD050

OPERATING DATA

	STANDBY	PRIME
	SD050	SD050
GENERATOR OUTPUT VOLTAGE/KW-60Hz		
120/240V, 1-phase, 1.0 pf	50 / 208 Rated AMP	44 / 183 Rated AMP
120/208V, 3-phase, 0.8 pf	50 / 173	44 / 153
120/240V, 3-phase, 0.8 pf	50 / 150	44 / 133
277/480V, 3-phase, 0.8 pf	50 / 75	44 / 66
600V, 3-phase, 0.8 pf	50 / 60	44 / 53
NOTE: Consult your Generac dealer for additional voltages.		
GENERATOR OUTPUT VOLTAGE/KVA-50Hz		
110/220V, 1-phase, 1.0 pf	40 / 182 Rated AMP	35 / 159 Rated AMP
115/200V, 3-phase, 0.8 pf	50 / 144	44 / 127
100/200V, 3-phase, 0.8 pf	50 / 144	44 / 127
231/400V, 3-phase, 0.8 pf	50 / 72	44 / 63
NOTE: Consult your Generac dealer for additional voltage		
MOTOR STARTING KVA		
Maximum at 35% instantaneous voltage dip with standard alternator; 50/60 Hz	208/240/416V: 82/100; 480V: 93/113	208/240/416V: 82/100; 480V: 93/113
FUEL		
Fuel consumption—60 Hz — Load	25% / 50% / 75% / 100%	25% / 50% / 75% / 100%
gal./hr.	1.12 / 2.19 / 3.21 / 4.16	0.99 / 1.93 / 2.82 / 3.66
liters/hr.	4.25 / 8.3 / 12.13 / 15.76	3.74 / 7.3 / 10.68 / 13.87
Fuel consumption—50 Hz — gal./hr.	0.9 / 1.75 / 2.56 / 3.33	0.79 / 1.54 / 2.26 / 2.93
liters/hr.	3.4 / 6.64 / 9.71 / 12.61	2.99 / 5.84 / 8.54 / 11.1
Fuel pump lift	40"	40"
COOLING		
Coolant capacity — System - US gal. (lit.)	4.5 (17.0)	4.5 (17.0)
Engine - US gal. (lit.)	2.75 (10.4)	2.75 (10.4)
Coolant flow/min. — 60 Hz - US gal. (lit.)	28 (106)	28 (106)
50 Hz - US gal. (lit.)	23 (87)	23 (87)
Heat rejection to coolant 60 Hz full load BTU/hr.	135,900	109,000
Heat rejection to coolant 50 Hz full load BTU/hr.	115,500	92,600
Inlet air — 60 Hz - cfm (m^3/min.)	7500 (212.4)	7500 (212.4)
50 Hz - cfm (m^3/min.)	6225 (176.3)	6225 (176.3)
Max. air temperature to radiator °C (°F)	60 (140)	60 (140)
Max. ambient temperature °C (°F)	50 (122)	50 (122)
COMBUSTION AIR REQUIREMENTS		
Flow at rated power — 60 Hz - cfm (m^3/min.)	166 (4.7)	140 (4.0)
50 Hz - cfm (m^3/min.)	140 (4.0)	120 (3.4)
EXHAUST		
Exhaust flow at rated output 60 Hz - cfm (m^3/min.)	448 (12.7)	380 (10.8)
50 Hz - cfm (m^3/min.)	380 (10.8)	320 (9.1)
Max recommended back pressure Inches Hg	2.2	2.2
Exhaust temperature 60 Hz (full load) °F (°C)	1044 (562)	925 (496)
Exhaust outlet size	2.5" O.D. Turbo	2.5" O.D. Muffler
ENGINE		
Rated RPM — 60 Hz / 50 Hz	1800 / 1500	1800
HP at rated KW — 60 Hz / 50 Hz	79 / 64	64 / 52
Piston speed — 60 Hz - ft./min. (m/min.)	1536 (1230)	1536 (1230)
50 Hz - ft./min. (m/min.)	1279 (1025)	1279 (1025)
BMEP — 60 Hz / 50 Hz - psi	189 / 181	151 / 147
DERATION FACTORS		
Temperature		
6.7% for every 10°C above - °C	25	25
4.0% for every 10°F above - °F	77	77
Altitude		
0.8% for every 100 m above - m	1067	1067
2.6% for every 1000 ft. above - ft.	3500	3500

STANDARD ENGINE & SAFETY FEATURES

SD050

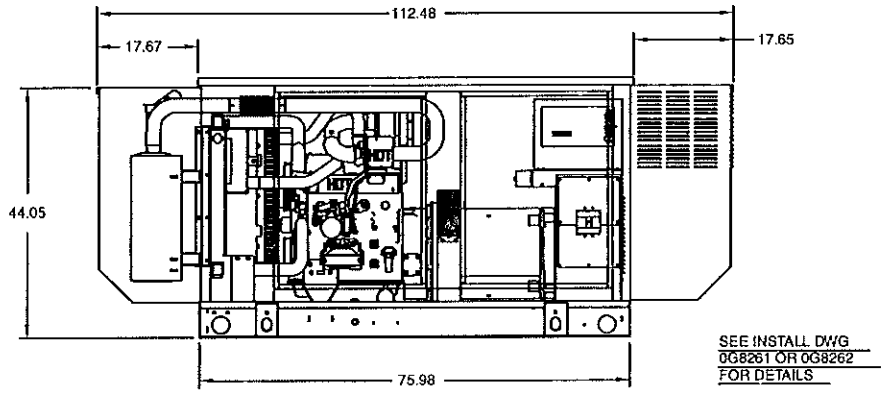
- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain Extension
- Factory-Installed Cool Flow Radiator
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Coolant Heater
- Secondary Fuel Filter
- Fuel Lockoff Solenoid
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- Vibration Isolation of Unit to Mounting Base
- 12 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Radiator Duct Adaptor
- Ischronous Governor

OPTIONS

- **OPTIONAL COOLING SYSTEM ACCESSORIES**
  - ○ 208/240V Coolant Heater
- **OPTIONAL FUEL ACCESSORIES**
  - ○ Flexible Fuel Lines
  - ○ UL Listed Fuel Tanks
  - ○ Base Tank Low Fuel Alarm
  - ○ Primary Fuel Filters
- **OPTIONAL EXHAUST ACCESSORIES**
  - ○ Critical Exhaust Silencer
- **OPTIONAL ELECTRICAL ACCESSORIES**
  - ○ 2A Battery Charger
  - ○ 10A Dual Rate Battery Charger
  - ○ Battery, 12 Volt, 135 A.H.
- **OPTIONAL ALTERNATOR ACCESSORIES**
  - ○ Alternator Upsizing
  - ○ Alternator Strip Heater
  - ○ Alternator Tropicalization
  - ○ Voltage Changeover Switch
  - ○ Main Line Circuit Breaker
- **CONTROL CONSOLE OPTIONS**
  - ○ Digital Controller H100 (Bulletin 0172110SBY)
- **ADDITIONAL OPTIONAL EQUIPMENT**
  - ○ Automatic Transfer Switch
  - ○ Remote Relay Panels
  - ○ Unit Vibration Isolators
  - ○ Oil Make-Up System
  - ○ Oil Heater
  - ○ 5 Year Warranties
  - ○ Export Boxing
  - ○ GenLink® Communications Software
- **OPTIONAL ENCLOSURE**
  - ○ Weather Protective
  - ○ Sound Attenuated
  - ○ Aluminum and Stainless Steel
  - ○ Enclosed Muffler

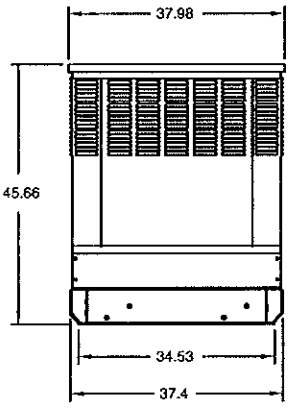
Distributed by:

Design and specifications subject to change without notice. Dimensions shown are approximate. Contact your Generac dealer for certified drawings. DO NOT USE THESE DIMENSIONS FOR INSTALLATION PURPOSES.



APPLICABLE TO 2.4L G4 35 KW, 40 kW, 50 kW

LEFT SIDE VIEW, SOUND ATTENUATED ENCLOSURE.



REAR VIEW

mm [in]

WEIGHT: 2900 lbs.

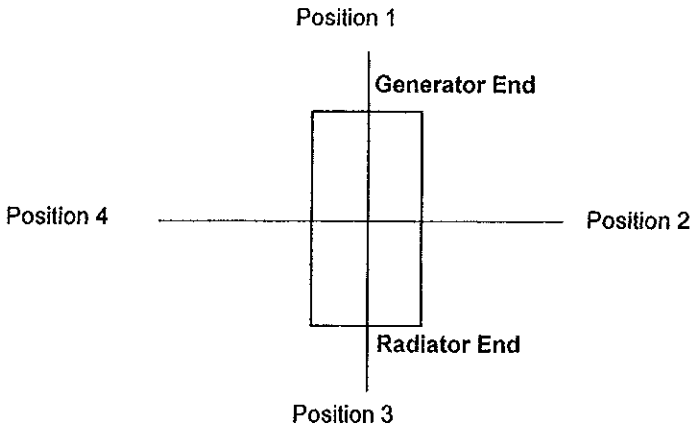
GENERAC® POWER SYSTEMS, INC. • P.O. BOX 8 • WAUKESHA, WI 53187

262/544-4811 • FAX 262/544-4851

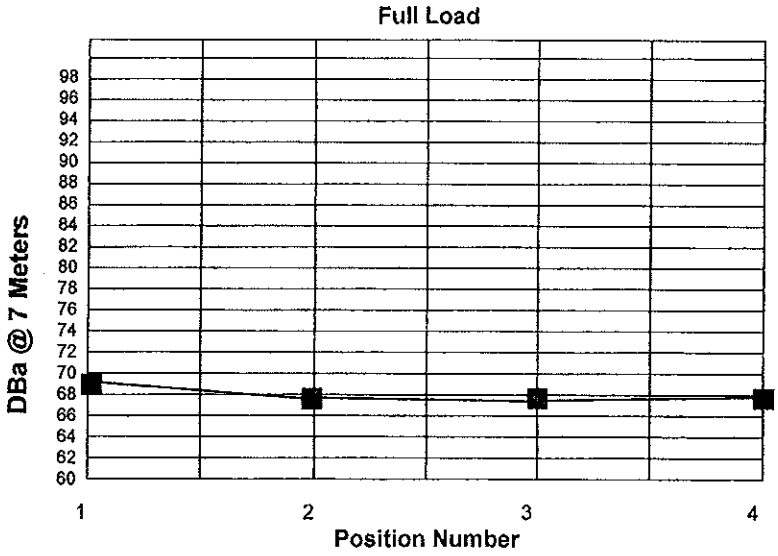
Bulletin 0176480SBY / Printed in USA 03.08

GENERAC®
POWER SYSTEMS, INC.

Measured Sound Performance
2.4 Liter Diesel Engine. SD50 with Level IIA Enclosure
Full Load Data



Measured Sound Levels – 60 Hertz



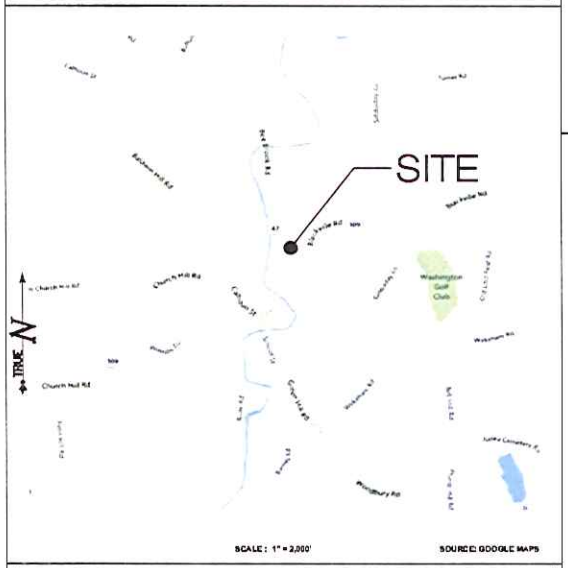
Data Table	
Pos #	DBa
1	68.9
2	66.4
3	66.7
4	66.6

Notes:

1. All positions 23 ft. (7 meters) from center of generator
2. Generator operating at **Rated Load**
3. Test conducted on a 100 foot diameter Blacktop Surface
4. Ambient Temperature 22° F 38% Rel Hum.
5. Ref Test No. B4168-T123

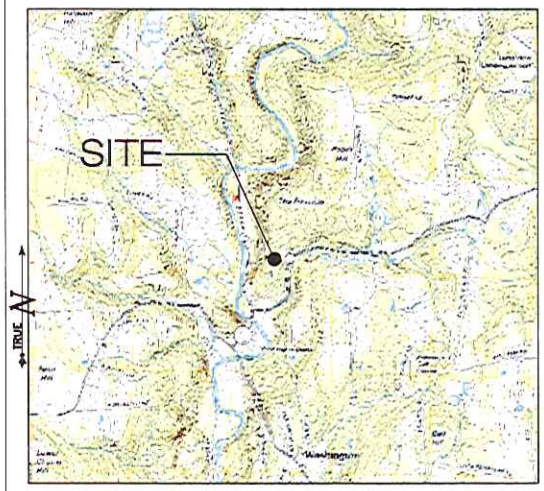
ATTACHMENT 5

LOCATION MAP



SCALE: 1" = 2,000' SOURCE: GOOGLE MAPS

USGS TOPOGRAPHIC MAP



SCALE: 1" = 2,000'± SOURCE: USGS 7.5 QUADRANGLE FOR NEW PRESTON

NEW CINGULAR WIRELESS PCS, LLC (AT&T)
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

HOMELAND TOWERS

22 SHELTER ROCK LANE
BUILDING C
DANBURY, CT 06810
(203) 297-6345

DEVELOPMENT & MANAGEMENT PLAN DRAWING INDEX

T-1 TITLE SHEET & INDEX

1 OF 1 TOPOGRAPHIC SURVEY

R-1 ABUTTERS MAP

SP-1 PARTIAL SITE PLAN

SP-2 SEDIMENTATION AND EROSION CONTROL PLAN

A-1 COMPOUND PLAN & TOWER ELEVATION

C-1 AT&T EQUIP. SHELTER PLAN & DETAILS

C-2 AT&T ANTENNA PLAN & DETAILS

C-3 LCD EQUIPMENT PLAN & DETAILS

S-1 COMPOUND DETAILS

N-1 NOTES & SPECIFICATIONS

*SITE INFORMATION:

SITE NAME:	WASHINGTON	ZONE:	R2, R1
SITE ID NUMBER:	CT 112	LATITUDE	41° 38' 47.52" N
		LONGITUDE	73° 18' 57.79" W
SITE ADDRESS:	10-12 BLACKVILLE ROAD WASHINGTON, CT 06794	ELEVATION	596± AMSL
		FEMA/FIRM DESIGNATION:	PANEL #0900570015C ZONE X
MAP:	08-07	ACREAGE:	17.3± Ac (VOL. 130, PAGE 425 AND VOL. 182, PAGE 0054)
LOTS:	23		

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
FAX: (860)-663-0935

CONTACT PERSONNEL

APPLICANT:
HOMELAND TOWERS
22 SHELTER ROCK LANE
BUILDING C
DANBURY, CONNECTICUT 06810

CO-APPLICANT:
AT&T MOBILITY
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

LANDLORD
TOWN OF WASHINGTON
BRYAN MEMORIAL TOWN HALL
2 BRYAN HALL PLAZA
WASHINGTON DEPOT, CONNECTICUT 06794

HOMELAND PROJECT MANAGER:
RAYMOND VERDATI
(203) 297-6345

HOMELAND PROJECT ATTORNEY:
CUDDY & FEDER, LLP
445 HAMILTON AVENUE
14TH FLOOR
WHITE PLAINS, NY 10601

POWER PROVIDER:
CL&P (860) 355-6534
CRS# 2185630
TECH HARRY BRENNAN

TEL CO PROVIDER:
AT&T: (800) 727-8368

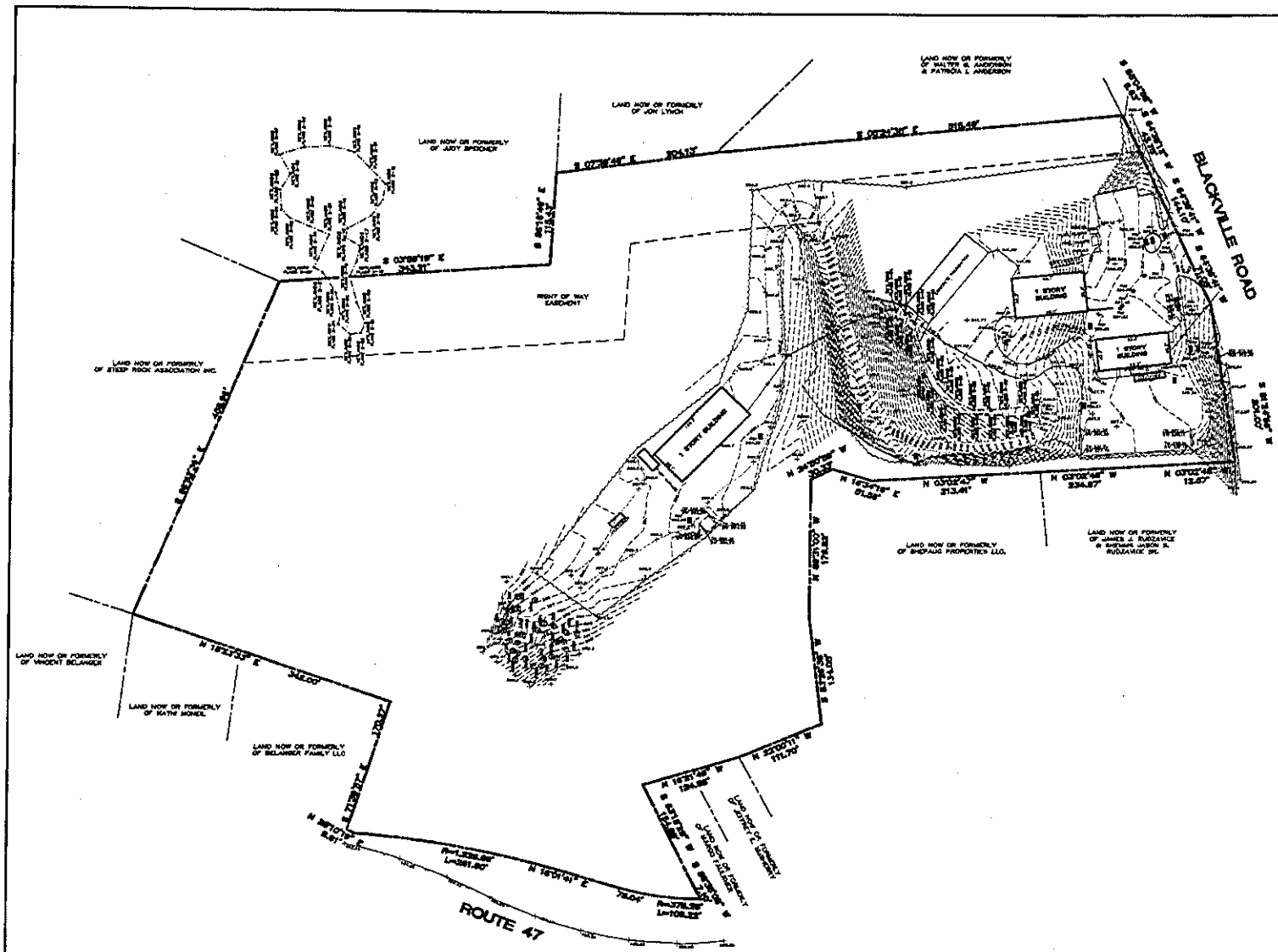
CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODE:
2009 CONNECTICUT BUILDING CODE (2003 IBC BASIS)
NATIONAL ELECTRIC CODE
EIA/TIA 222F

SITE INFORMATION

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

DEVELOPMENT & MANAGEMENT DOCUMENTS: WASHINGTON 10-12 BLACKVILLE ROAD WASHINGTON, CT 06794	TITLE SHEET AND INDEX
DESIGN TYPE: RAW LAND DEVELOPMENT SITE	APT FILING NUMBER: CT-283-160
	APT DRAWING NUMBER: T-1
	DRAWN BY: JWG / SCALE: AS NOTED
	CHECKED BY: SMC / DATE: 05/15/14
REVISIONS:	SHEET NUMBER: T-1
REV.0: 05/15/14: FOR REVIEW: SMC	
REV.1: 07/01/14: CLIENT REVISIONS: SMC	
REV.2:	
REV.3:	
REV.4:	
REV.5:	



NOTES:

THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300B-1 THROUGH 20-300B-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

1. MAPPING INFORMATION

   SURVEY TYPE: BOUNDARY SURVEY
   CATEGORY: 1
   HORIZONTAL CLASS: A-2
   TOPOGRAPHIC CLASS: T-2

2. REFERENCE MAP:

   SURVEY PREPARED BY T. MICHAEL ALEX DATED JUNE 2011

   SURVEY PREPARED BY ARTHUR H. HOWLAND & ASSOCIATES DATED JULY 7, 2010.

   MAP OF SECTION SIX HIDDEN VALLEY PREPARED BY G.A. HANSON JULY 1965, REVISED 5-20-65 BY T. MICHAEL ALEX AND FILED 7-15-65 AS NUMBER 1887.

3. PARCEL OWNER OF RECORD: THE TOWN OF WASHINGTON
4. WETLAND DELINEATION BY ALL POINTS TECHNOLOGY CORP., MAY 22, 2013
5. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY.
6. RIGHT OF WAY EASEMENT AS SHOWN PER MAP SECTION SIX HIDDEN VALLEY.

Date	Rev.	Remarks
Surveyed by: TM	Drafted by: TM	Checked by:

BBV Barrett Bonacci & Van Weele, PC
Civil Engineers
Surveyors
Planners
175 North Main Street
Bristol, CT 06010
t 203.483.4322
f 203.483.4323
www.bbvpc.com

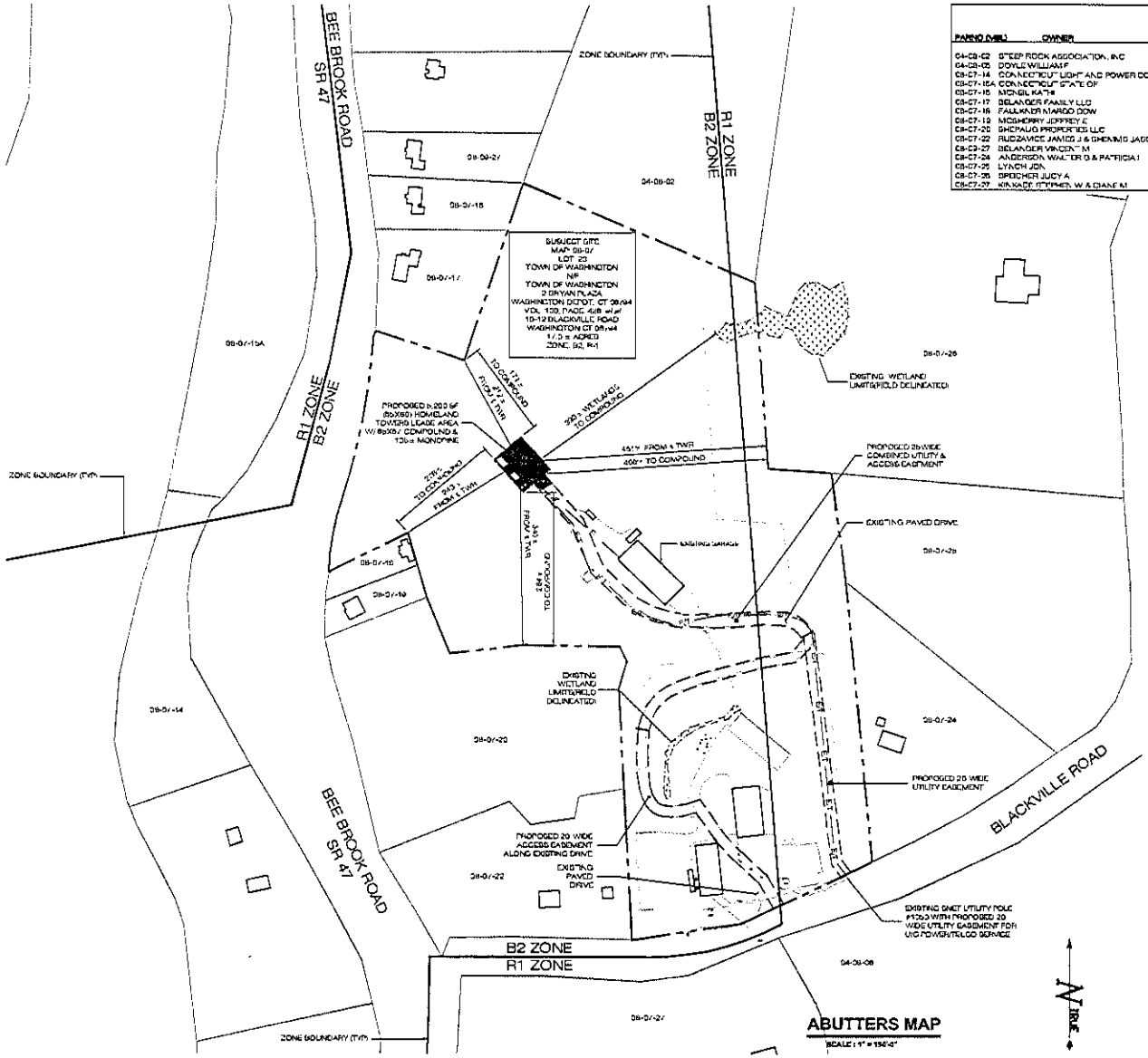
Assessors Map Designation: MAP 8 BLOCK 7 LOT 23

PROPERTY SITUATE 10 BLACKVILLE ROAD

WASHINGTON CONNECTICUT

TOPOGRAPHIC SURVEY

Date	Scale	Project No.	Sheet No.
MAY 29, 2013	40'	C130003	1 of 1



ABUTTERS MAP

SCALE: 1" = 150'-0"

PARCEL 08-07-23 ABUTTERS LIST

PARID (MBL)	OWNER	LOCATION	MAILING ADDRESS
04-08-02	STEEP ROCK ASSOCIATION, INC	147 GADDABOUT LANE, WASHINGTON, DEPOT, CT 06794	PO BOX 279, WASHINGTON, CT 06794
04-08-05	DOYLE WILLIAM F	70 OLD NORTH ROAD, WASHINGTON, DEPOT, CT 06794	1 WEST 72ND STREET #35, NEW YORK, NY 10023
08-07-14	CONNECTICUT LIGHT AND POWER CO.	89 BEE BROOK ROAD, WASHINGTON, CT 06794	BOX 270 HARTFORD, CT 06141
08-07-15A	COMMONWEALTH STATE OF	55 BEE BROOK ROAD, WASHINGTON, CT 06794	55 BEE BROOK ROAD, WASHINGTON, CT 06794
08-07-15	MONGIL KATIE	50 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202	50 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202
08-07-17	BELANGER FAMILY LLC	55 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202	55 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202
08-07-16	FAULKNER MARGO DOW	44 BEE BROOK ROAD,WASHINGTON DEPOT, CT 06794-1202	44 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202
08-07-19	MCSHERRY JEFFREY C	42 BEE BROOK ROAD,WASHINGTON DEPOT, CT 06794-1202	42 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202
08-07-20	SHEPAUG PROPERTIES LLC	38 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794	80 CALHOUN STREET, WASHINGTON DEPOT, CT 06794
08-07-22	RUDZAVICE JAMES J & SHERMIS JASON, D BR	4 BLACKVILLE ROAD, WASHINGTON, DEPOT, CT 06794	PO BOX 475, WASHINGTON DEPOT CT 06794
08-07-27	BELANGER VINCENT M	62 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202	62 BEE BROOK ROAD, WASHINGTON DEPOT, CT 06794-1202
08-07-24	ANDERSON WALTER G & PATRICIA I	10 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794	PO BOX 442, WASHINGTON DEPOT, CT 06794
08-07-25	LYNCH JON	26 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794	26 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794
08-07-26	SPEICHER JUDY A	40 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794	PO BOX 17, WASHINGTON DEPOT CT 06794
08-07-07	KINKADE STEPHEN W & DIANE M	7 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794	7 BLACKVILLE ROAD, WASHINGTON DEPOT, CT 06794

SITE AREAS & VOLUMES OF EARTHWORK

SITEWORK SHALL ENTAIL APPROXIMATELY 500 CUBIC YARDS (CY) OF CUT/FILL FOR TRENCH EXCAVATION FROM THE TELCO AND ELECTRIC DEMARC AT THE STREET/UNE TO THE COMPOUND. THE COMPOUND AND APRON SHALL REQUIRE 250± CY CUT AND 250±CY FILL FOR A BALANCED SITE.

COMPOUND AREA GRADES:
- EXISTING - <10% - 2H
- PROPOSED - 3.0H COMPOUND
  1V:2.5H FILL SLOPE

TOTAL AREA OF DISTURBANCE
- COMPOUND = 10,800± SF = 0.2620± A
- TRENCHING = 6,800± SF = 0.1564± A

STORMWATER VELOCITY:
- PRIOR TO GROUND COVER = 3.0 FT/SEC
- FOLLOWING GROUND COVER = 2.9 FT/SEC

GROUND COVER TO BE ESTABLISHED AS FOLLOWS (U.O.N.):
- WHITE CLOVER W/ 0.25#/- SF
- TALL FESCUE W/ 0.45#/- SF
- RYEGRASS W/ 0.10#/- SF

NOTE: 20 TREES WILL BE REMOVED IN CONSTRUCTING THE FACILITY

BASE MAPPING FOR SHEETS A-1, SP-1 AND SP-2 FROM:

1. PLAN ENTITLED "TOPOGRAPHIC SURVEY - PROPERTY SITUATE 10 BLACKVILLE ROAD WASHINGTON" PREPARED BY BARRETT, GONACE, AND VAN WEELE OF HALIFAX, NY DATED MAY 29, 2013.
2. TOWN OF WASHINGTON ASSESSORS MAPS #08 AND #04.
3. TOWN OF WASHINGTON "BUSINESS DISTRICTS" MAP DATED JULY 19, 2011.
4. TOWN OF WASHINGTON "ZONING DISTRICT MAP" DATED JULY 19, 2011
5. DIGITAL GLOBAL 2012 DIGITAL ORTHOPHOTOS.

HOMELAND TOWERS SITE NUMBER: CT-112

APT FILING NUMBER: CT-283-160

HOMELAND TOWERS
20 SAGAMORE PARK ROAD
WILLIAMSVILLE
CANAAN, CT 06018

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALL-POINTSTECH.COM
PHONE: (860) 663-1697
FAX: (860) 663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

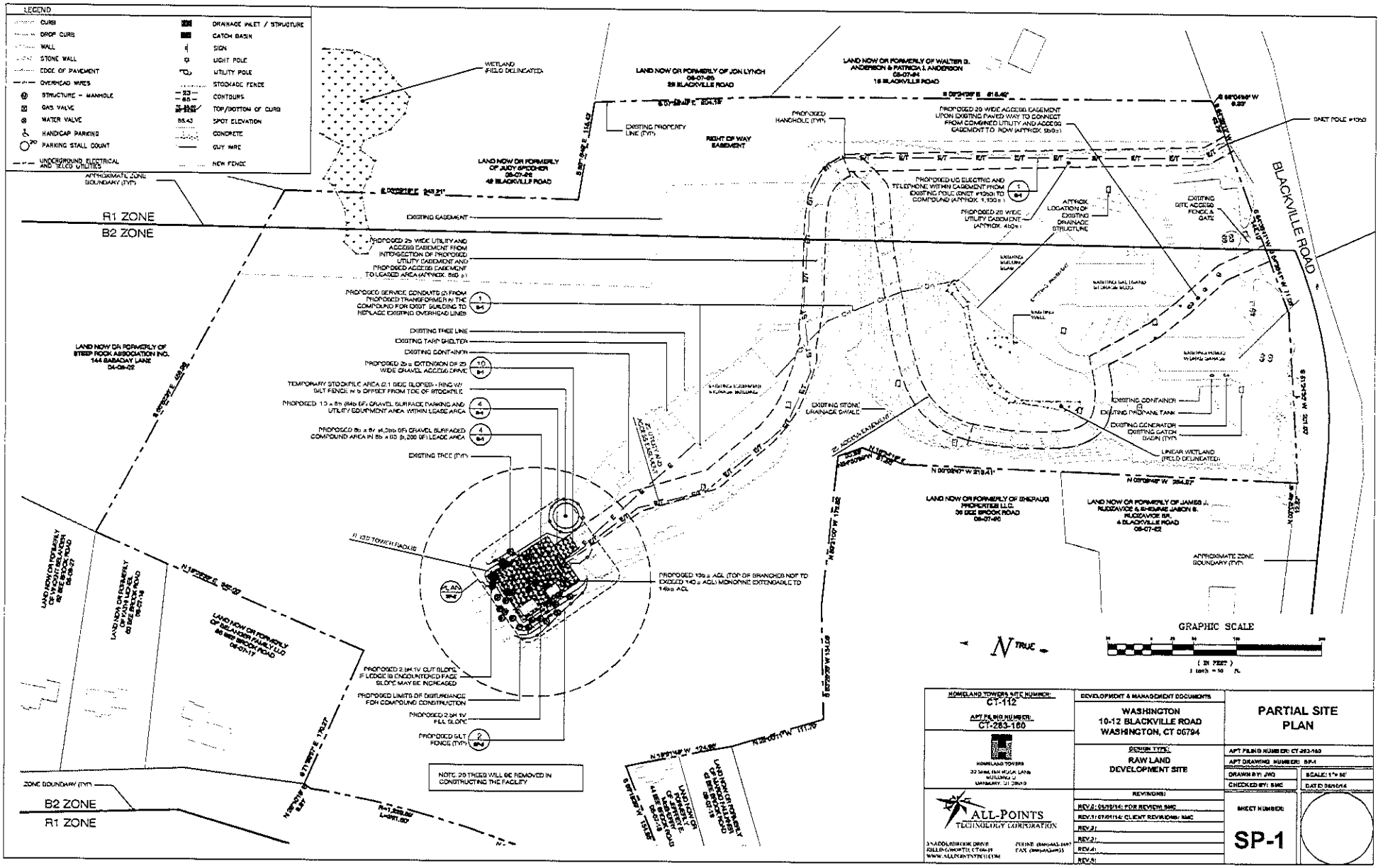
DESIGN TYPE:
RAW LAND DEVELOPMENT SITE

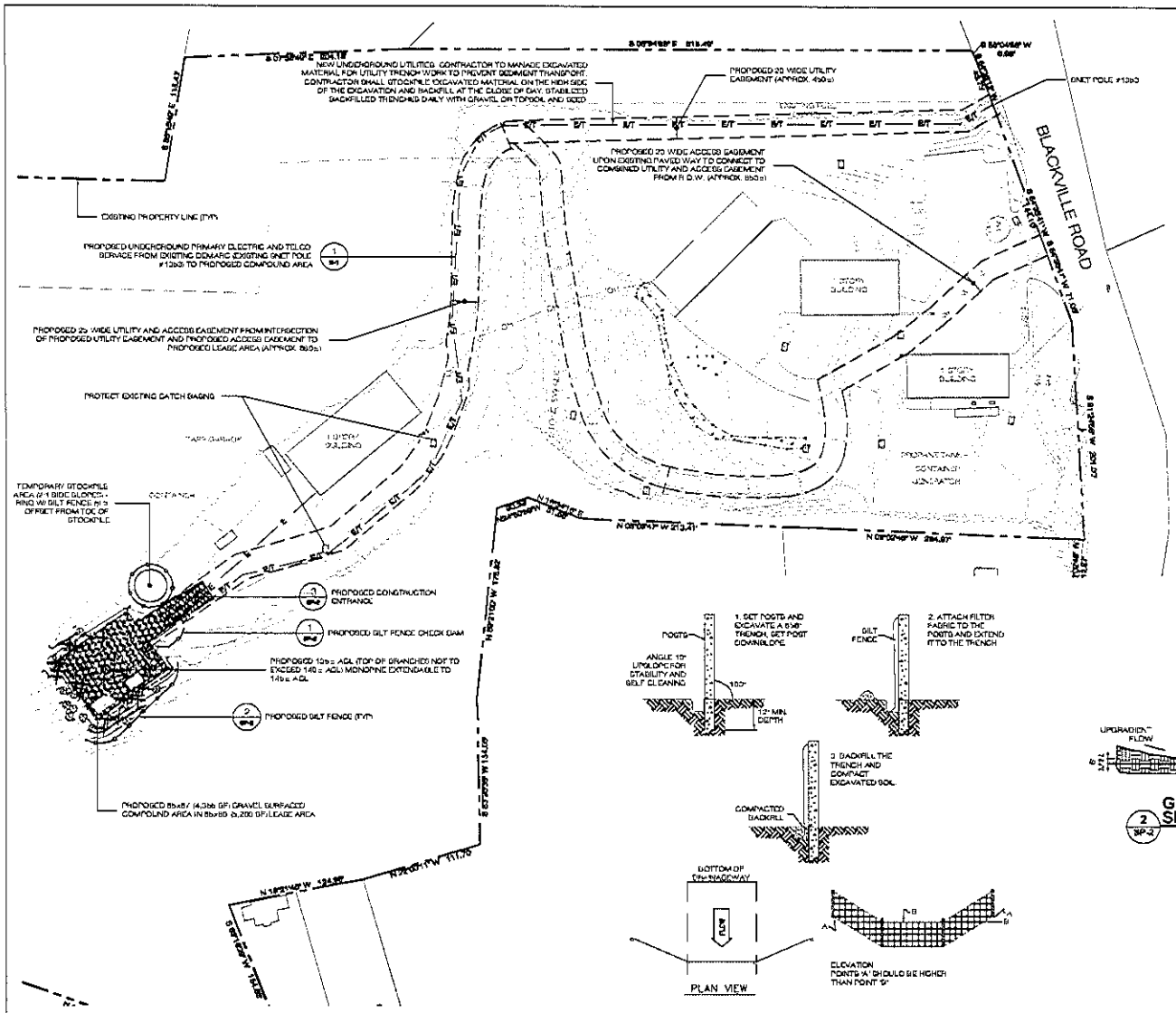
REVISIONS:
- REV.2: 05/12/14: FOR REVIEW: MAC
- REV.1: 07/01/14: CLIENT REVISIONS: MAC
- REV.2:
- REV.3:
- REV.4:
- REV.5:

ABUTTERS MAP

APT FILING NUMBER: CT-283-160
APT DRAWING NUMBER: R-1
DRAWN BY: JWD | SCALE: AS NOTED
CHECKED BY: MAC | DATED: 05/12/14

SHEET NUMBER:
R-1


LEGEND
CURB
DROP CURB
WALL
STONE WALL
EDGE OF PAVEMENT
OVERHEAD WIRES
STRUCTURE – MANHOLE
GAS VALVE
WATER VALVE
HANDICAP PARKING
PARKING STALL COUNT
UNDERGROUND ELECTRICAL AND TELCO UTILITIES
DRAINAGE INLET / STRUCTURE
CATCH BASIN
SIGN
LIGHT POLE
UTILITY POLE
STOCKADE FENCE
CONTOURS
TOP/BOTTOM OF CURB
SPOT ELEVATION
CONCRETE
GUY WIRE
NEW FENCE
WETLAND (FIELD DELINEATED)
LAND NOW OR FORMERLY OF JON LYNCH 08-07-25 28 BLACKVILLE ROAD
LAND NOW OR FORMERLY OF WALTER G. ANDERSON & PATRICIA L ANDERSON 08-07-24 16 BLACKVILLE ROAD
LAND NOW OR FORMERLY OF JUDY SPOONER 08-07-26 48 BLACKVILLE ROAD
LAND NOW OR FORMERLY OF STEEP ROCK ASSOCIATION INC. 144 BABCOCK LANE 04-08-02
LAND NOW OR FORMERLY OF SHEPAUG PROPERTIES LLC. 26 BIG BROOK ROAD 08-07-60
LAND NOW OR FORMERLY OF JAMES J. RUDZAVICE & SHERRIE-JASON S. RUDZAVICE SR. 4 BLACKVILLE ROAD 08-07-62
BLACKVILLE ROAD
APPROXIMATE ZONE BOUNDARY (TYP)
R1 ZONE
B2 ZONE
EXISTING EASEMENT
EXISTING PROPERTY LINE (TYP)
RIGHT OF WAY EASEMENT
PROPOSED HANDHOLE (TYP)
PROPOSED 20 WIDE ACCESS EASEMENT UPON EXISTING PAVED WAY TO CONNECT FROM COMBINED UTILITY AND ACCESS EASEMENT TO ROW (APPROX. 350±)
PROPOSED UG ELECTRIC AND TELEPHONE WITHIN EASEMENT FROM EXISTING POLE ONCT #1250 TO COMPOUND (APPROX. 1,150±)
PROPOSED 20 WIDE UTILITY EASEMENT (APPROX. 450±)
APPROX. LOCATION OF EXISTING DRAINAGE STRUCTURE
EXISTING SITE ACCESS FENCE & GATE
PROPOSED 25' WIDE UTILITY AND ACCESS EASEMENT FROM INTERSECTION OF PROPOSED UTILITY EASEMENT AND PROPOSED ACCESS EASEMENT TO LEASED AREA (APPROX. 850 ±)
PROPOSED SERVICE CONDUITS (2) FROM PROPOSED TRANSFORMER IN THE COMPOUND FOR CROWN BUILDING TO REPLACE EXISTING OVERHEAD LINES
EXISTING TREE LINE
EXISTING TARP SHELTER
EXISTING CONTAINER
PROPOSED 25 ± EXTENSION OF 20 WIDE GRAVEL ACCESS DRIVE
TEMPORARY STOCKPILE AREA (2:1 SIDE SLOPES) - RING W/ SILT FENCE IN 5' OFFSET FROM TOE OF STOCKPILE
PROPOSED 13 ± 8b (8Kb SF) GRAVEL SURFACE PARKING AND UTILITY EQUIPMENT AREA WITHIN LEASE AREA
PROPOSED 8b ± 8b' (4,0Kb SF) GRAVEL SURFACED COMPOUND AREA IN 8b ± 8b (8,200 SF) LEASE AREA
EXISTING TREE (TYP)
EXISTING STONE DRAINAGE SWALE
EXISTING CONTAINER
EXISTING PROPANE TANK
EXISTING GENERATOR
EXISTING CATCH BASIN (TYP)
LINEAR WETLAND (FIELD DELINEATED)
PROPOSED 130 ± AGL (TOP OF BRANCHES NOT TO EXCEED 140 ± AGL) MONOPINE EXTENDABLE TO 140± AGL
PROPOSED 2.5H:1V CUT SLOPE IF LEDGE IS ENCOUNTERED FACE SLOPE MAY BE INCREASED
PROPOSED LIMITS OF DISTURBANCE FOR COMPOUND CONSTRUCTION
PROPOSED 2.5H:1V FILL SLOPE
PROPOSED SILT FENCE (TYP)
NOTE: 20 TREES WILL BE REMOVED IN CONSTRUCTING THE FACILITY
ZONE BOUNDARY (TYP)
GRAPHIC SCALE
TRUE N
HOMELAND TOWERS SITE NUMBER: CT-112
APT FILING NUMBER: CT-283-160
HOMELAND TOWERS
DEVELOPMENT & MANAGEMENT DOCUMENTS
WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794
DESIGN TYPE:
RAW LAND
DEVELOPMENT SITE
PARTIAL SITE PLAN
APT FILING NUMBER: CT-283-160
APT DRAWING NUMBER: SP-1
DRAWN BY: JWQ
SCALE: 1" = 50'
CHECKED BY: SMC
DATE: 06/06/14
REVISIONS:
REV.6: 09/09/14: FOR REVIEW: SMC
REV.5: 07/01/14: CLIENT REVISIONS: SMC
REV.3:
REV.2:
REV.1:
REV.0:
ALL-POINTS TECHNOLOGY CORPORATION
SHEET NUMBER:
SP-1



CONSTRUCTION SEQUENCING

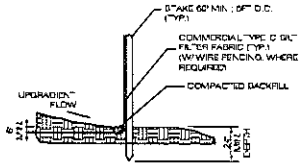
CONTRACTOR TO FOLLOW THE FOLLOWING CONSTRUCTION PHASING AS CLOSELY AS POSSIBLE

1. MOBILIZATION. BRING MATERIAL AND EQUIPMENT TO SITE. ALL CONSTRUCTION TRAFFIC AND ACTIVITIES MUST REMAIN INSIDE ACCESS PATH DELINEATED, WITHIN STAGING AND STOCKPILE AREA, OR WITHIN AREA WHERE PROPOSED WORK IS BEING COMPLETED. THE CONTRACTOR IS TO PROTECT WETLANDS FROM DISTURBANCE AT ALL TIMES AND NO CONSTRUCTION ACTIVITIES OR DUMPING SHALL OCCUR IN THE WETLANDS.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROL BARRIERS.
3. INSTALL CONSTRUCTION ENTRANCE & REMOVE TREES.
4. CLEAR AND ROUGH GRADE ACCESS ROAD TO THE NEW EQUIPMENT COMPOUND.
5. CONSTRUCT NEW UTILITY TRENCH & SET CONDUITS & BACKFILL.
6. ROUGH GRADE COMPOUND AREA.
7. EXCAVATE FOR TOWER FOUNDATION, EQUIPMENT SHELTER FOUNDATIONS.
8. FINALIZE ACCESS ROAD GRADED AND INSTALL WEARING COURSE.
9. PREPARE SUBGRADE AND INSTALL FORMS, STEEL REINFORCING, AND CONCRETE FOR TOWER FOUNDATION & EQUIPMENT SHELTER FOUNDATION.
10. INSTALL BURIED GROUND RINGS, GROUND RODS, GROUND LEADS, UTILITY CONDUITS, AND UTILITY EQUIPMENT.
11. BACKFILL FOUNDATION & EQUIPMENT SHELTER FOUNDATION.
12. ERECT MONOPINE.
13. INSTALL TELECOMMUNICATIONS EQUIPMENT ON TOWER AND IN COMPOUND.
14. INSTALL COMPOUND GRAVEL SURFACES.
15. INSTALL FENCING.
16. CONNECT GROUNDING LEADS AND LIGHTENING PROTECTION.
17. FINAL GRADE AROUND COMPOUND.
18. LOAM AND SEED DISTURBED AREAS OUTSIDE COMPOUND, AS REQUIRED.
19. REMOVE SILT FENCING AFTER SEEDED AREAS HAVE ESTABLISHED VEGETATION.
20. FINAL CLEANUP AND EQUIPMENT TESTING.

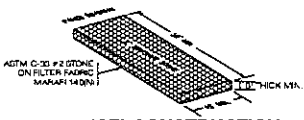
THE ESTIMATED TIME FOR COMPLETION OF THE WORK IS APPROXIMATELY FOUR (4) WEEKS. THE EXACT PROCESS MAY VARY, DEPENDING ON THE CONTRACTORS AND SUBCONTRACTORS AVAILABILITY TO COMPLETE WORK AND WEATHER DELAYS.

SILT FENCE CHECK DAM SEDIMENTATION CONTROL BARRIER
1 / SP-2 SCALE: NTS

NOTE: 20 TREES WILL BE REMOVED IN CONSTRUCTING THE FACILITY



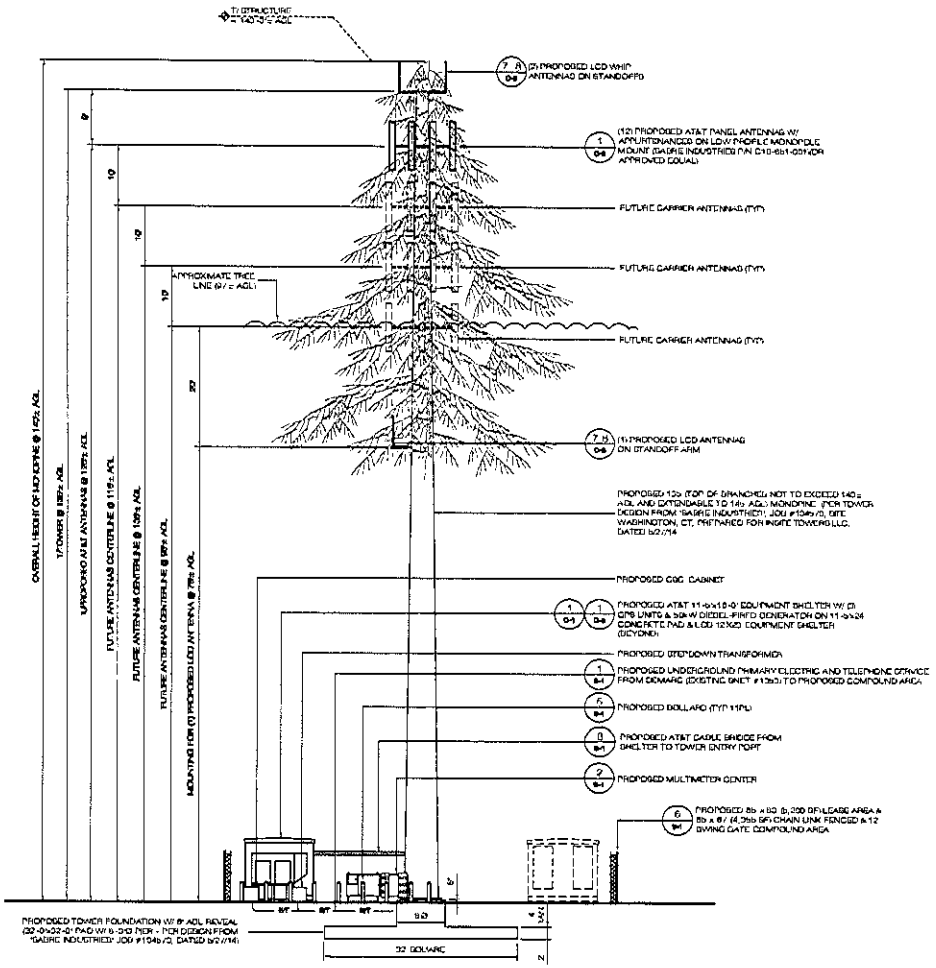
GEOTEXTILE SILT FENCE DETAIL
2 / SP-2 SCALE: NTS



(CE) CONSTRUCTION ENTRANCE DETAIL
3 / SP-2 SCALE: NTS

HOMELAND TOWERS SITE NUMBER: CT-112	DEVELOPMENT & MANAGEMENT DOCUMENTS: WASHINGTON 10-12 BLACKVILLE ROAD WASHINGTON, CT 06794
APT FILING NUMBER: CT-283-160	DESIGN TYPE: RAW LAND DEVELOPMENT SITE
HOMELAND TOWERS 33 SOUTH MAIN STREET, 3rd FLOOR WEST HARTFORD, CT 06107	APT FILING NUMBER: CT-283-160
	APT DRAWING NUMBER: SP-2
	DRAWN BY: JWO / SCALE: AS NOTED
	CHECKED BY: SMC / DATE: 05/19/14
ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE, KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM PHONE: (860) 663-1697 FAX: (860) 663-0935	REVISIONS: REV.0: 05/19/14: FOR REVIEW: SMC; REV.1: 07/01/14: CLIENT REVISIONS: SMC; REV.2: ; REV.3: ; REV.4: ; REV.5:
	SHEET NUMBER: SP-2

SEDIMENTATION AND EROSION CONTROL PLAN

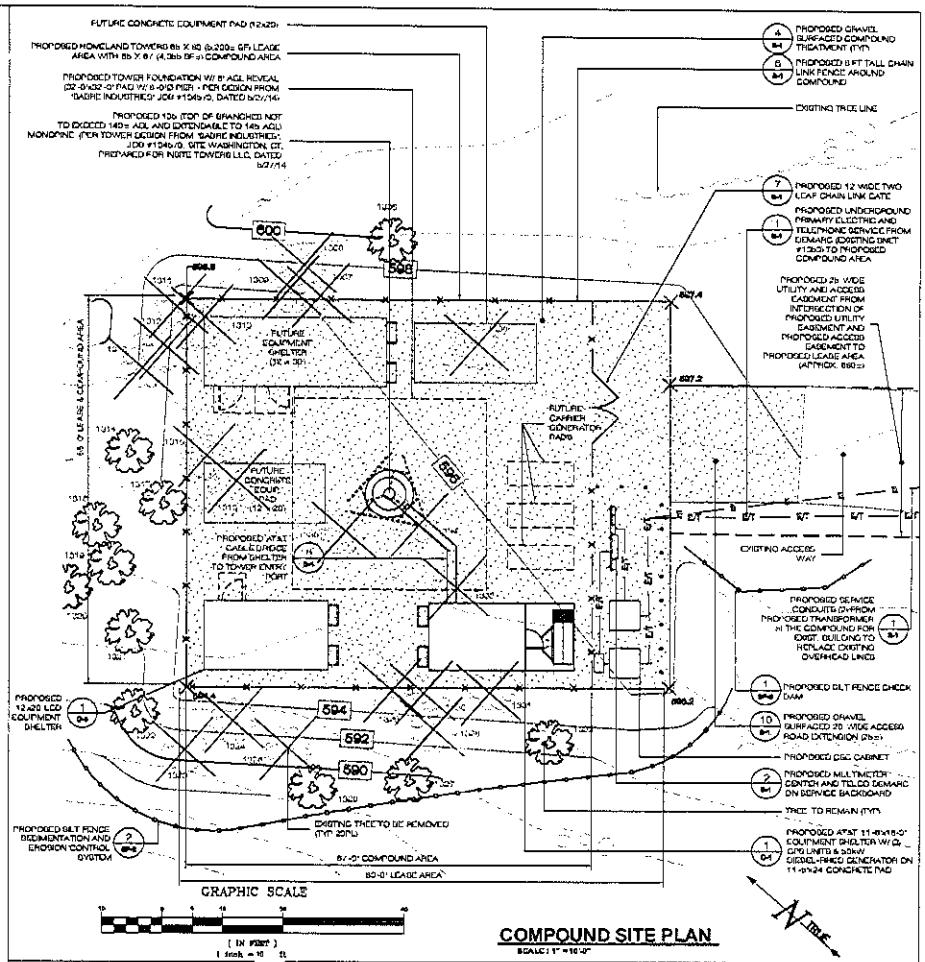


SOUTHERN ELEVATION

SCALE: 1" = 10'-0"

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.



COMPOUND SITE PLAN

SCALE: 1" = 10'-0"

TREE REGISTER

#1306 18" OAK	#1320 12" OAK
#1308 10" OAK	#1321 8" PINE
#1307 10" OAK	#1322 9" OAK
#1309 12" OAK	#1323 12"/18" TWIN OAK
#1304 8" OAK	#1324 8" PINE
#1310 8" PINE	#1325 9" PINE
#1311 8" PINE	#1326 20" OAK
#1312 8" PINE	#1327 18" OAK
#1313 10" OAK	#1328 8" PINE
#1314 22" OAK	#1329 28" OAK
#1315 8" PINE	#1330 28" OAK
#1316 18" OAK	#1331 20" PINE
#1317 9" OAK	#1332 24" PINE
#1318 8" OAK	#1333 12" OAK
#1319 8" OAK	#1334 12" OAK
#1316M 8" PINE	#1335 12" OAK

TREES #1306, 1307, 1309A, 1309B, 1310, 1311, 1312, 1313, 1315, 1316, 1325, 1324, 1325, 1328, 1329, 1330, 1331, 1333, 1334 AND #1335 ARE TO BE REMOVED AND STUMPS REMOVED. A TOTAL OF 20 TREES ARE TO BE REMOVED.

ENGINEERING ANALYSIS AND CERTIFICATION

IN ACCORDANCE WITH THE 2005 CONNECTICUT STATE BUILDING CODE AND THE ELECTRONIC INDUSTRIES ASSOCIATION STANDARD EIA/TIA-222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORT STRUCTURES" FOR LITCHFIELD COUNTY, THE TOWER WOULD BE DESIGNED TO WITHSTAND PRESSURES EQUIVALENT TO A MAXIMUM 80 MPH FASTEST MILE WIND SPEED. THE FOUNDATION DESIGN WOULD BE BASED ON SOIL CONDITIONS AT THE SITE.

HOMELAND TOWERS SITE NUMBER:
CT-112

APT FILING NUMBER:
CT-263-160

HOMELAND TOWERS
22 WATERTOWN ROAD, SUITE 1
THOMASTON, CT 06787

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE, SUITE 1A
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860) 663-1697
FAX: (860) 663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

DESIGN TYPE:
RAW LAND DEVELOPMENT SITE

REVISIONS:

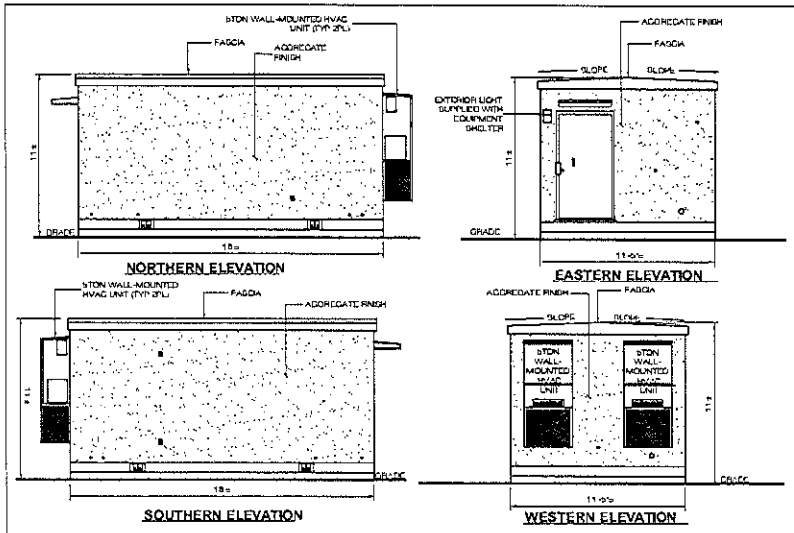
REV.3: 09/19/2014 FOR REVIEW: SMC	
REV.1: 07/01/14: CLIENT REVISIONS: SMC	
REV.2:	
REV.2:	
REV.2:	
REV.1:	

COMPOUND PLAN & TOWER ELEVATION

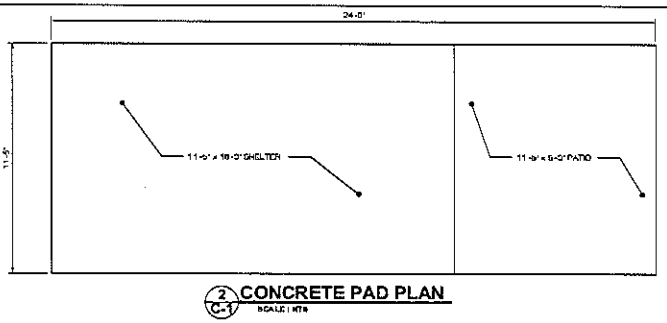
APT FILING NUMBER: CT-263-160	
APT DRAWING NUMBER: A-1	
DRAWN BY: JW3	SCALE: 1" = 10'
CHECKED BY: SMC	DATE: 09/19/14

SHEET NUMBER:

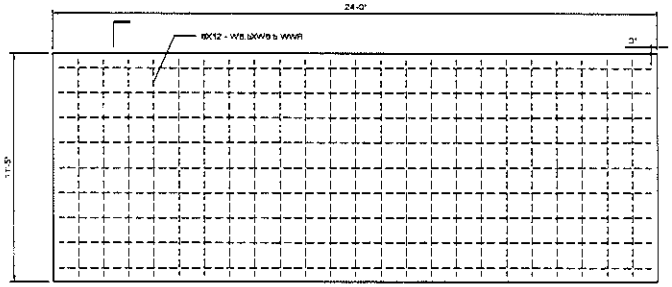
A-1



1 C-1 **11'-5" X 16' EQUIPMENT SHELTER**
SCALE: NTS



2 C-1 **CONCRETE PAD PLAN**
SCALE: NTS



3 C-1 **FOUNDATION PLAN**
SCALE: NTS

CONCRETE PAD NOTES

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS, EXISTING LOOSE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 MPH, 8 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.

2. UNDERCUT SOFT OR WEAVING AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.

3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=3000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%).

4. BAR REINFORCING TO BE ASTM A615, GRADE 60.

5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS A82.

6. COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO SLAB/SLAB.

7. ALL REINFORCING TO HAVE 2" MINIMUM CONCRETE COVER.

8. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 BUILDING CODE, AND IBC 2009.

9. SLAB TO BE LEVEL ±¼".

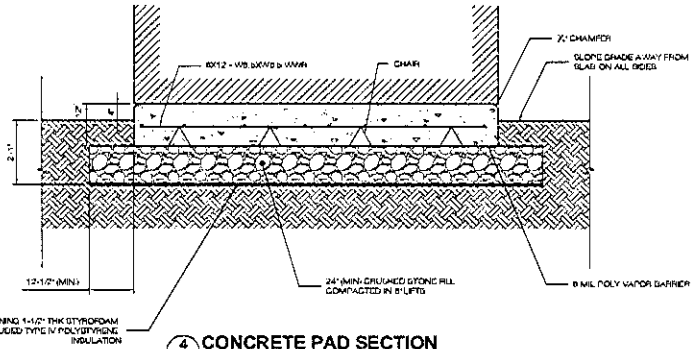
10. SLAB FOUNDATION DESIGNED ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.

11. SLAB FOUNDATION DESIGN ASSUMING MAXIMUM SOIL PLASTICITY OF 2.

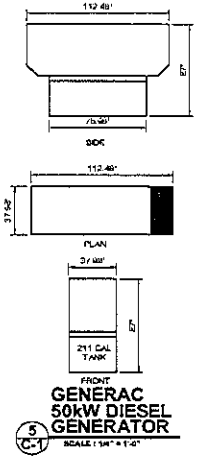
12. CONTRACTOR TO VERIFY FINAL SHELTER DIMENSIONS PRIOR TO CONSTRUCTION OF FOUNDATION.

13. GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR PROPER WATER RUN OFF.

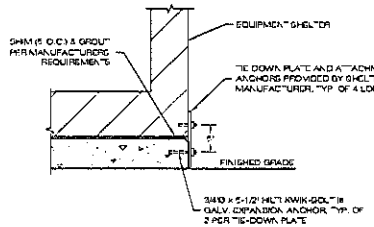
14. ANCHOR SHELTER TO FOUNDATION PER SHELTER MANUFACTURER'S RECOMMENDATIONS.



4 C-1 **CONCRETE PAD SECTION**
SCALE: NTS



5 C-1 **GENERAC 50kW DIESEL GENERATOR**
SCALE: 1/4" = 1'-0"



6 C-1 **TIE - DOWN DETAIL**
SCALE: NTS

DESIGN LOAD CRITERIA

EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS	
GOVERNING CODE	CONNECTICUT STATE BUILDING CODE
DESIGN LIVE LOADS	40 PSF (ASCE 7-05)
IMPORTANCE CATEGORY	IV
SNOW LOAD	
GROUND SNOW LOAD (P_g)	30 PSF
IMPORTANCE FACTOR	1.2
EXPOSURE FACTOR (C_e)	0.9
THERMAL FACTOR (C_t)	1.0
WIND LOAD	
BASIC WIND LOAD	85 MPH @ 3SEC. GUST
EXPOSURE GROUP	B
IMPORTANCE FACTOR	1.15
SHELTER LOAD	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	20.00 D.L.L.
SEISMIC DESIGN PARAMETERS	
SEISMIC USE GROUP	III
MCE SPECTRAL ACCELERATION SHORT (S_s)	0.258
MCE SPECTRAL ACCELERATION SHORT (S_s)	0.084
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.5

HOMELAND TOWERS SITE NUMBER: CT-112
APT FA NO NUMBER: CT-283-160

HOMELAND TOWERS
37 MILL PLAIN ROAD, SUITE 3A
DANBURY, CT 06811

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

DESIGN TYPE:
RAW LAND DEVELOPMENT SITE

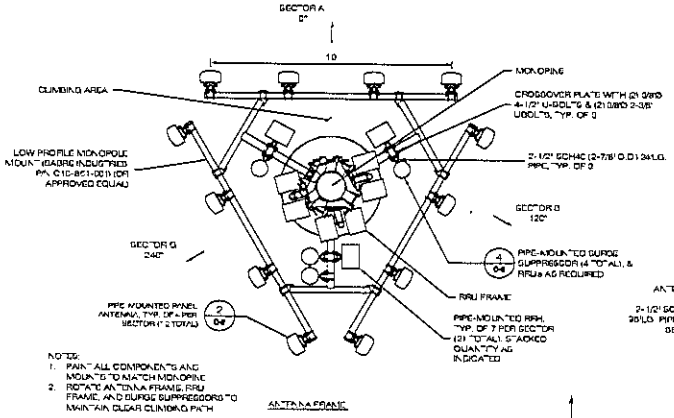
AT&T EQUIP. SHELTER PLAN & DETAILS

APT FA NO NUMBER: CT-283-160
APT DRAWING NUMBER: C-1
DRAWN BY: RCS | SCALE: AS SHOWN
CHECKED BY: SMC | DATE: 8/15/14

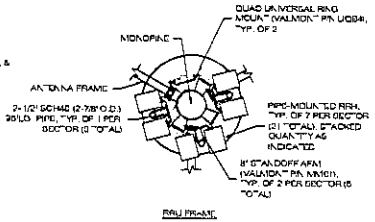
REVISIONS:
REV.0: 08/15/14: FOR REVIEW: SMC
REV.1: 07/05/14: CLIENT REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

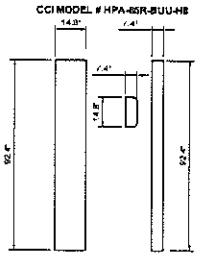
SHEET NUMBER:
C-1

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860) 663-1697
FAX: (860) 663-0935

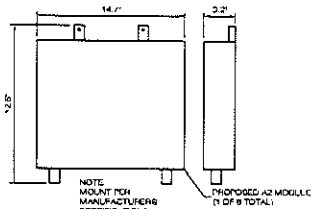


1 ANTENNA PLAN
C-2 SCALE: NTS

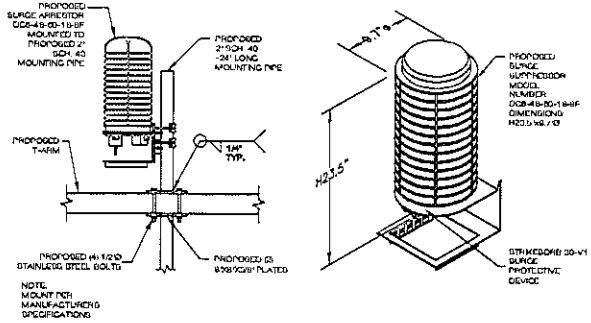




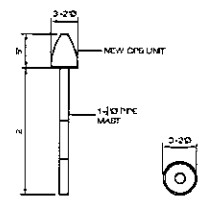
2 TYPICAL PANEL ANTENNA
C-2 SCALE: NTS



3 TYPICAL A2 MODULE
C-2 SCALE: NTS

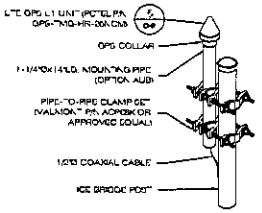


4 TYPICAL SURGE SUPPRESSOR
C-2 SCALE: NTS

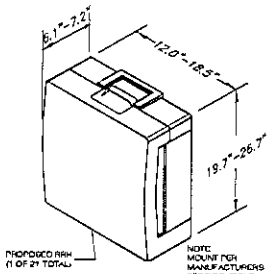


FOR MOUNT - SEE D/C-2

5 TYPICAL GPS DETAILS
C-2 SCALE: NTS



6 TYPICAL GPS MOUNTING DETAIL
C-2 SCALE: NTS



7 TYPICAL RRU
C-2 SCALE: NTS

HOMELAND TOWERS SITE NUMBER: CT-112
APT FILING NUMBER: CT-253-160

HOMELAND TOWERS
33 NEW HAVEN AVENUE, BUILDING V, DERBY, CT 06418

ALL-POINTS TECHNOLOGY CORPORATION
3 NADELEN OAK DRIVE, KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

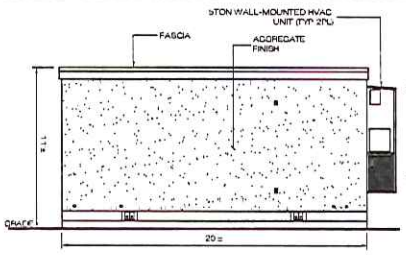
DESIGN TYPE:
RAW LAND DEVELOPMENT SITE

REVISIONS:
REV.0 | 09/10/14 | FOR REVIEW: BMC
REV.1 | 07/01/14 | CLIENT REVISIONS: BMC
REV.2
REV.3
REV.4
REV.5

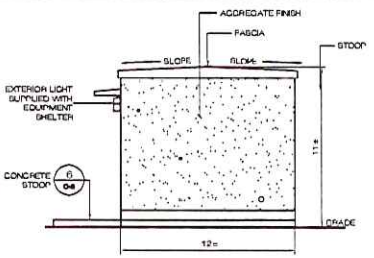
AT&T ANTENNA PLAN & DETAILS

APT FILING NUMBER: CT-253-160
APT DRAWING NUMBER: C-2
DRAWN BY: RCH | SCALE: AS SHOWN
CHECKED BY: BMC | DATE: 09/10/14

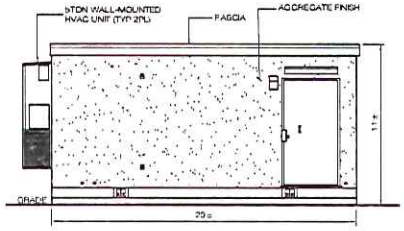
SHEET NUMBER:
C-2



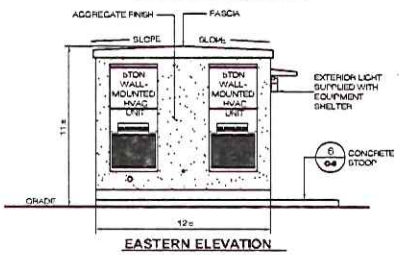
SOUTHERN ELEVATION



WESTERN ELEVATION



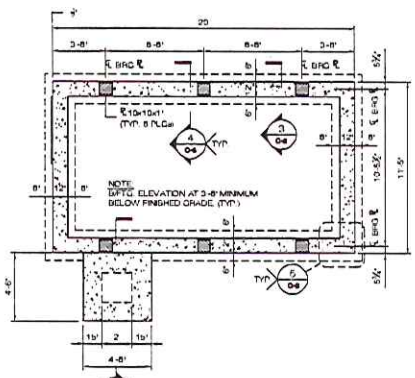
NORTHERN ELEVATION



EASTERN ELEVATION

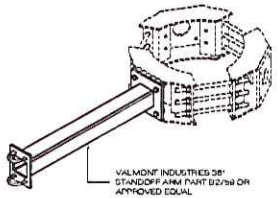
1 C-3 TYPICAL 12' X 20' EQUIPMENT SHELTER

SCALE : 1/4" = 1'-0"



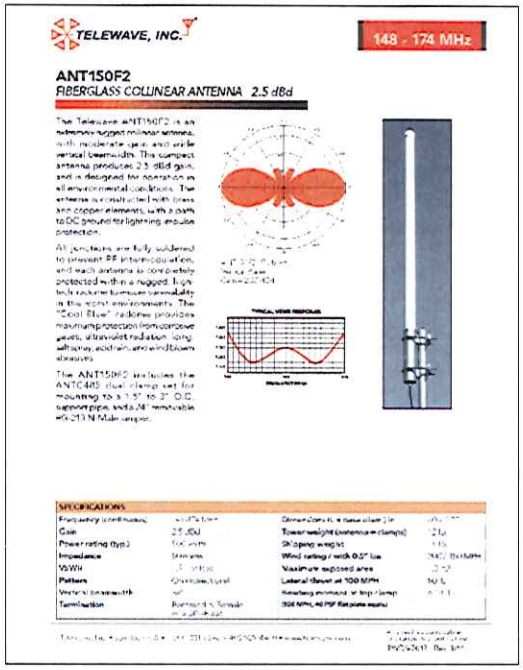
2 C-3 TYPICAL FOUNDATION PLAN

SCALE : 1/4" = 1'-0"



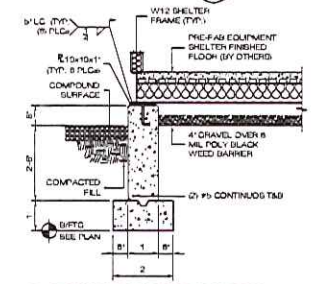
7 C-3 3' SIDEARM ANTENNA MOUNT

SCALE : NTS



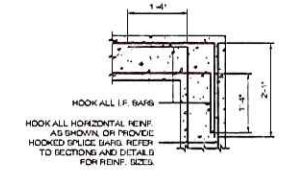
8 C-3 TELEWAVE ANT150F2 ANTENNA

SCALE : NTS



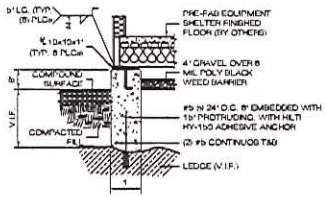
3 C-3 FOUNDATION SECTION

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



5 C-3 DETAIL CORNER RIEFORCEMENT

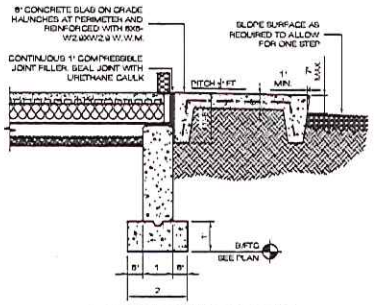
SCALE : 3/4" = 1'-0"



FOUNDATION OVER LEDGE OR TOWER FOUNDATION

4 C-3

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



6 C-3 SECTION @ STOOP

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

DESIGN LOAD CRITERIA

EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH OWNER.

DESIGN BASIS	CONNECTICUT STATE
GOVERNING CODE	BUILDING CODE
DESIGN LIVE LOADS	40 PSF (ASCE 7-02)
IMPORTANCE CATEGORY	IV
SNOW LOAD	
GROUND SNOW LOAD (Pg)	35 PSF
IMPORTANCE FACTOR	1.2
EXPOSURE FACTOR (Ce)	0.9
THERMAL FACTOR (Ct)	1.0
WIND LOAD	
BASIC WIND LOAD	90 MPH @ SEC. GUST)
EXPOSURE GROUP	B
IMPORTANCE FACTOR	1.15
SHELTER LOAD	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	24,500 LBS
SEISMIC DESIGN PARAMETERS	
SEISMIC USE GROUP	III
MCE SPECTRAL ACCELERATION SHORT (Ss)	0.25g
MCE SPECTRAL ACCELERATION SHORT (S1)	0.09g
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.5

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)663-1697
FAX: (860)663-0935

HOMELAND TOWERS SITE NUMBER: CT-112

APT FILING NUMBER: CT-283-160

HOMELAND TOWERS
22 MILL IRON HOUSE LANE
MURLAND U
DANBURY, CT 06810

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

DESIGN TYPE:
RAW LAND DEVELOPMENT SITE

REVISIONS:

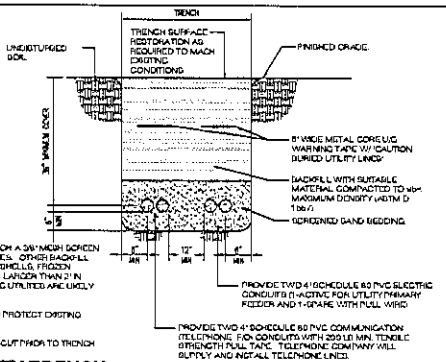
REV.0:	06/10/14: FOR REVIEW: BMC
REV.1:	07/01/14: CLIENT REVISIONS: BMC
REV.2:	
REV.3:	
REV.4:	
REV.5:	

LCD EQUIPMENT PLAN & DETAILS

APT FILING NUMBER: CT-283-160
APT DRAWING NUMBER: C-3
DRAWN BY: RCB
SCALE: AS SHOWN
CHECKED BY: BMC
DATE: 06/10/14

SHEET NUMBER:

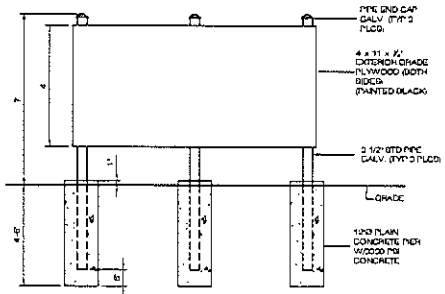
C-3



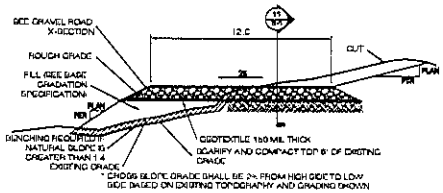
NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/4" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED
2. CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. EXISTING PAVEMENT SHALL BE SAW-CUT PRIOR TO TRENCH EXCAVATION

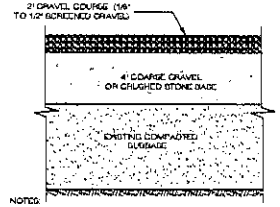
1 S-1 PRIMARY UTILITY TRENCH
SCALE: NTS



2 S-1 UTILITY BACKBOARD DETAIL
SCALE: NTS



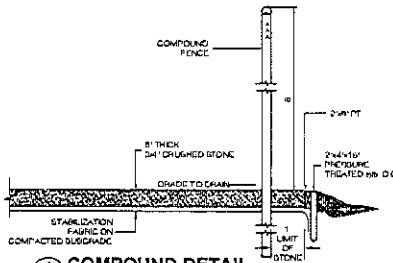
10 S-1 TYPICAL GRAVEL ROAD SECTION
SCALE: NTS



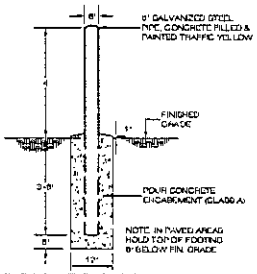
NOTES:

1. SUBGRADE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBGRADE TO BE COMPACTED TO 95% MAX DRY DENSITY
2. SUBGRADE IS TO CLEAN GRANULAR MATERIAL (SEE NOTES, SHEET N-1), FREE FROM DEBRIS AND UNSUITABLE MATERIALS
3. RECYCLED CONCRETE MAY BE SUBSTITUTED FOR GRAVEL OR CRUSHED STONE BASE IN NON-WETLANDS AREAS

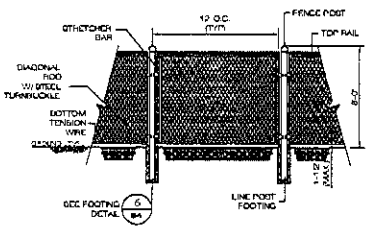
11 S-1 GRAVEL ROAD X-SECTION
SCALE: NTS



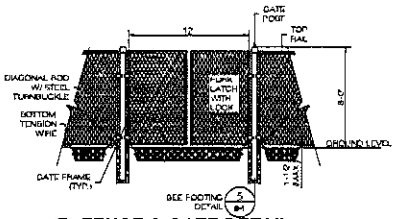
4 S-1 COMPOUND DETAIL
SCALE: NTS



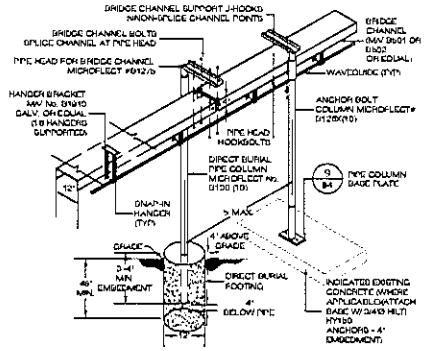
5 S-1 BOLLARD DETAIL
SCALE: NTS



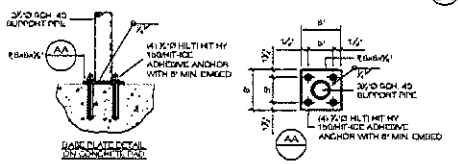
6 S-1 CHAIN-LINK FENCING DETAIL
SCALE: NTS



7 S-1 FENCE & GATE DETAIL
SCALE: N.T.S.



8 S-1 CABLE BRIDGE & COAX HANGER DETAIL
SCALE: NTS



9 S-1 HAUNCHED SLAB PLAN
SCALE: N.T.S.

HOMELAND TOWERS SITE NUMBER: CT-112
APT FA NO NUMBER: CT-283-160

HOMELAND TOWERS
32 MILLER HOUSE LANE
WALLINGFORD
CONNECTICUT 06492

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

DESIGN TYPE:
RAW LAND
DEVELOPMENT SITE

REVISIONS:
REV.0; 06/10/14; FOR REVIEW; MAC
REV.1; 07/01/14; CLIENT REVISIONS; MAC
REV.2:
REV.3:
REV.4:
REV.5:

COMPOUND DETAILS

APT FA NO NUMBER: CT-283-160
APT DRAWING NUMBER: S-1
DRAWN BY: RCB
SCALE: AS SHOWN
CHECKED BY: MAC
DATE: 06/10/14

SHEET NUMBER:
S-1

GENERAL NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF WASHINGTON, AND OTHER GOVERNMENTAL AGENCIES, AS APPLICABLE.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL FOLLOW CONDITIONS OF ALL APPLICABLE PERMITS AND WORK IN ACCORD WITH OSHA REGULATIONS.

3. UTILITY INFORMATION SHOWN ON THE PLAN IS BASED ON VISIBLE FIELD EVIDENCE AND AVAILABLE RECORDS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR IS ADVISED THAT THESE DRAWINGS MAY NOT ACCURATELY DEPICT AS-BUILT LOCATIONS AND OTHER UNKNOWN STRUCTURES. THE CONTRACTOR SHALL THEREFORE DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND ELEMENTS AND EXCAVATE WITH CARE AFTER CALLING MARKOUT SERVICE AT 1-800-922-4455 (72 HOURS BEFORE DIGGING, DRILLING OR BLASTING. CARE SHALL BE TAKEN NOT TO DISTURB EXISTING UTILITIES AND SERVICE CONNECTIONS OR PORTIONS THEREOF TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING STRUCTURES OR UTILITIES DAMAGED BY HIS OPERATIONS.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF NEW SERVICE CONNECTIONS AND SHALL COORDINATE WORK WITH THE APPROPRIATE UTILITY COMPANY.

5. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER.

6. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKERS ON THIS WILL INCLUDE, BUT NOT BE LIMITED TO
A) FALL PROTECTION
B) CONFINED SPACE ENTRY,
C) ELECTRICAL SAFETY, AND
D) TRENCHING & EXCAVATION

7. ELECTRIC SERVICE SHALL BE COORDINATED WITH CONNECTICUT LIGHT & POWER (CL & P)

8. ALL ELEVATIONS SHOWN ARE IN N.G.V. DATUM 1929

9. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

10. CONTRACTOR SHALL PROTECT EXISTING PAVED AND GRAVEL SURFACES, CURBS, LANDSCAPE AND STRUCTURES AND RESTORE SITE TO PRECONSTRUCTION CONDITION WITH AS GOOD, OR BETTER, MATERIALS. NEW MATERIALS SHALL MATCH EXISTING THICKNESS AND TYPE.

11. THE CONTRACTOR SHALL ENSURE ALL TRENCH EXCAVATION GREATER THAN 5 FEET IN DEPTH OR LESS WHERE SOIL CONDITIONS ARE DEEMED UNSTABLE ALL SHEETING AND/OR SHORING METHODS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

12. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING GROUNDWATER LEVELS IN THE VICINITY OF EXCAVATIONS TO PROTECT ADJACENT PROPERTIES AND NEW WORK. GROUNDWATER SHALL BE DRAINED IN ACCORDANCE WITH LOCAL SEDIMENTATION & EROSION CONTROL GUIDELINES.

13. THE CONTRACTOR IS REQUIRED TO REVIEW THE STATEMENT OF SPECIAL INSPECTION PRIOR TO THE START OF WORK. THE CONTRACTOR TO PROVIDE E-MAIL REQUEST TO THE PROJECT ENGINEER FOR INSPECTION 72 HOURS IN ADVANCE OF INSPECTION

14. EXCAVATION
CONTRACTOR SHALL GRADE ONLY AREAS SHOWN TO BE MODIFIED HEREIN AND ONLY TO THE EXTENT REQUIRED TO SHED OVERLAND WATER FLOW AWAY FROM SITE. ALL SLOPED SHALL NOT BE STEEPER THAN 2:1 (HORIZ:VERT).

BEDROCK SUBGRADE SHOULD NOT BE STEEPER THAN 4H:1V. HIGH SPOTS IN BEDROCK SUBGRADE MAY NEED TO BE REMOVED AND LOW SPOTS MAY BE FILLED WITH LEAN CONCRETE OR MINUS ¾" CRUSHED STONE TO PROVIDE A LEVEL SURFACE. BEDROCK SUBGRADES DO NOT REQUIRE PROOFROLLING.

SEDIMENTATION AND EROSION CONTROLS SHOWN AND SPECIFIED SHALL BE ESTABLISHED BEFORE STRIPPING EXISTING VEGETATION.

ORGANIC MATERIAL AND DEBRIS SHALL BE STRIPPED AND STOCKPILED BEFORE ADDING FILL MATERIAL

NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

ALL FILL SHALL BE PLACED IN EIGHT INCH LIFTS AND COMPACTED IN PLACE. STRUCTURAL FILL SHALL BE COMPACTED TO 95% MAXIMUM MODIFIED PROCTOR DRY DENSITY TESTED IN ACCORDANCE WITH ASTM D1557, METHOD C.

EXCAVATIONS FOR FOOTINGS SHALL BE CUT LEVEL TO THE REQUIRED DEPTH AND TO UNDISTURBED SOIL. REPORT UNSUITABLE SOIL CONDITIONS TO THE ENGINEER

STRUCTURAL FILL SHALL BE TESTED FOR MOISTURE CONTENT AND COMPACTION DURING PLACEMENT. SHOULD THE RESULTS OF THE IN-PLACE DENSITY TESTS INDICATE THE SPECIFIED MOISTURE OR COMPACTION LIMITS HAVE NOT BEEN MET, THE AREA REPRESENTED BY THE TEST SHOULD BE REWORKED AND RETESTED, AS REQUIRED, UNTIL THE SPECIFIED MOISTURE AND COMPACTION REQUIREMENTS ARE ACHIEVED.

EQUIPMENT CABINETS MAY BE SUPPORTED ON SLABS-ON-GRADE UNDERLAIN BY AT LEAST A 12-INCH THICKNESS OF COMPACTED STRUCTURAL FILL OR MINUS ¾-INCH CRUSHED STONE PLACED ON THE EXISTING FILL. THE SUBFACE OF WHICH SHOULD BE THOROUGHLY COMPACTED AND CLEAR OF ORGANIC MATTER.

THE AREA UNDERLYING THE SLABS SHOULD BE ROUGH GRADED AND THEN THOROUGHLY PROOFROLLED WITH A VIBRATORY ROLLER OR HEAVY PLATE COMPACTOR PRIOR TO FINAL GRADING AND PLACEMENT OF STRUCTURAL FILL ON MINUS ¾-INCH CRUSHED STONE.

A SOIL UNIT WEIGHT OF 100 LBS PER CUBIC FOOT (PCF) SHOULD BE USED FOR ENGINEERED FILL OVERLYING THE FOOTINGS.

TRENCH EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH DAY.

SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE.

TOWER FOUNDATION EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORD WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS

CONTRACTOR TO VERIFY THAT FOOTING ELEVATIONS AND HIGH ELEVATION PROVIDED HEREIN ARE CONSISTENT WITH THE TOWER DESIGN REQUIREMENTS.

14. MATERIALS
NATIVE GRAVEL MATERIAL MAY BE USED FOR TRENCH BACKFILL WHERE SELECT MATERIAL IS NOT SPECIFIED. GRAVEL MATERIAL FOR CONDUIT TRENCH BACKFILL SHALL NOT CONTAIN ROCK GREATER THAN 2-INCHES IN DIAMETER.

SAND OR CRUSHED GRAVEL SHALL CONSIST OF TOUGH, DURABLE PARTICLES OF CRUSHED OR UNCRUSHED GRAVEL FREE OF SOFT, THIN, ELONGATED OR LAMINATED PIECES AND MEET THE GRADATION.

FILL SHOULD MEET THE FOLLOWING MATERIAL PROPERTY REQUIREMENTS

FILL TYPE (1)	USCS CLASSIFICATION	ACCEPTABLE LOCATION FOR PLACEMENT
STRUCTURAL FILL	SW, SP	ALL LOCATIONS AND ELEVATIONS. THE GLACIAL TILL MAY BE SELECTIVELY RE-USED AS STRUCTURAL FILL, PROVIDED IT IS FREE OF ORGANICS AND CLOSELY MEETS THE GRADATION REQUIREMENTS IN NOTE 2, BELOW.
COMMON FILL	VARIED (2)	COMMON FILL MAY BE USED FOR GENERAL SITE GRADING TO WITHIN 12 INCHES OF FINISHED GRADE. COMMON FILL SHOULD NOT BE USED UNDER SETTLEMENT SENSITIVE STRUCTURES. THE GLACIAL TILL MAY BE RE-USED AS COMMON FILL, PROVIDED IT IS FREE OF ORGANICS AND CAN BE ADEQUATELY COMPACTED

1. COMPACTED FILL SHOULD CONSIST OF APPROVED MATERIALS THAT ARE FREE OF ORGANIC MATTER AND DEBRIS. FROZEN MATERIAL SHOULD NOT BE USED. FILL SHOULD NOT BE PLACED ON A FROZEN SUBGRADE.

2. IMPORTED STRUCTURAL FILL SHOULD MEET THE FOLLOWING GRADATION.
PERCENT PASSING BY WEIGHT

SIEVE SIZE	STRUCTURAL FILL
6"	100
3"	75-100
2"	(100)*
#4	45-95
NO. 4	30-90
NO. 10	25-80
NO. 40	15-60
NO. 200	0-12

* MAXIMUM 2-INCH PARTICLE SIZE WITHIN 12 INCHES OF THE UNDERSIDE OF CONCRETE ELEMENTS

3. COMMON FILL SHOULD HAVE A MAXIMUM PARTICLE SIZE OF 6 INCHES AND NO MORE THAN 25 PERCENT BY WEIGHT PASSING THE US NO. 200 SIEVE.

SEDIMENTATION/EROSION

1. THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

2. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
THE FOLLOWING GENERAL CONDITIONS SHALL BE OBSERVED:

A. LIMITS OF CLEARING AND GRUBBING SHALL BE CLEARLY MARKED BEFORE COMMENCING WITH SUCH WORK.

B. EXISTING VEGETATION TO REMAIN SHALL BE PROTECTED AND REMAIN UNDISTURBED.

C. CLEARING AND GRADING SHALL BE SCHEDULED SO AS TO MINIMIZE THE SIZE OF EXPOSED AREAS AND THE LENGTH OF TIME THAT AREAS ARE EXPOSED.

D. TOPSOIL SHALL BE SPREAD TO FINISH GRADES AND SEEDED AS SOON AS FINISHED GRADES ARE ESTABLISHED. STRAW MULCH, JUTE NETTING OR MATS SHALL BE USED WHERE THE NEW SEED IS PLACED.

E. THE LENGTH AND STEEPNESS OF CLEARED SLOPES SHALL BE MINIMIZED TO REDUCE RUNOFF VELOCITIES.

F. RUNOFF SHALL BE DIVERTED AWAY FROM CLEARED SLOPES.

G. ALL SEDIMENT SHALL BE TRAPPED ON THE SITE.

3. SEDIMENTATION AND EROSION CONTROL (SEC) MEASURES SHOWN SHALL BE INSTALLED PRIOR TO LAND CLEARING, EXCAVATION OR GRADING OPERATIONS. REQUIREMENTS SPECIFIED SHALL BE MET PRIOR TO COMMENCING EARTHWORK OPERATIONS.

4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SEC MEASURES THROUGHOUT DURATION OF PROJECT UNTIL DISTURBED LAND IS THOROUGHLY VEGETATED.

5. FAILURE OF THE SEC SYSTEMS SHALL BE CORRECTED IMMEDIATELY AND SUPPLEMENTED WITH ADDITIONAL MEASURES AS NEEDED

6. VEGETATIVE SEEDING: UON, AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF 3". TOPSOIL SHALL BE LOOSENED BY RAKING OR DISKING BEFORE SEEDING. APPLY 90 LBS. OF DOLOMITIC LIMESTONE AND 25 LBS. OF 10-10-10 PER 1,000 SF. HARROW LIME AND FERTILIZER INTO LOOSE SOIL. APPLY COMMON BERMUDA, RYE GRASS AT 40 LBS/ACRE. USE CYCLONE SEED DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SEED & FERTILIZER SLURRY) FOR STEEP SLOPES. IRRIGATE UNTIL VEGETATION IS COMPLETELY ESTABLISHED

7. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.

8. INSPECT AND MAINTAIN EROSION CONTROL MEASURES AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.

9. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.

10. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE SYSTEMS LOCATED ON SITE.

11. APPROPRIATE MEANS SHALL BE USED TO CONTROL DUST DURING CONSTRUCTION

12. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED TO PREVENT SOIL AND/OR DEBRIS FROM BEING TRACKED ONTO LOCAL ROADS. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED

13. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE STATE OF CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL, AS AMENDED.

14. TEMPORARY SILT FENCE EROSION CONTROL BARRIER SHALL BE MAINTAINED THROUGHOUT SITE CONSTRUCTION. STOCKPILE ON SITE 100 FT. OF SILT FENCE FOR EMERGENCY USE. TEMPORARY EROSION BARRIERS SHALL REMAIN IN PLACE UNTIL PERMANENT VEGETATIVE GROUND COVER IS ESTABLISHED

15. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF THE EQUIPMENT LEASE AREA SHALL BE PERMANENTLY STABILIZED WITH A VEGETATIVE GROUND COVER.

16. STILLING BASIN SHALL BE UTILIZED FOR ANY DE-WATERING DISCHARGE WHICH MAY OCCUR DURING CONSTRUCTION OPERATIONS.

17. PROPOSED CONSTRUCTION IMPACTS AND PERMANENT IMPROVEMENTS SHALL NOT SIGNIFICANTLY IMPACT STORM WATER RUNOFF PATTERNS, VOLUME OR PEAK FLOW RATES. THE FLAT GRADE OF THE EQUIPMENT COMPOUND AND STONE SURFACE WILL PROMOTE STORM WATER INFILTRATION.

18. CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO ANY GRADING ACTIVITIES IN LOCATIONS SHOWN ON THESE DRAWINGS.

19. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.

20. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.

21. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

22. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATION.

23. NO GREATER THAN 20,000 SQUARE FEET OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME AND SHALL NOT EXCEED 10 DAYS. LAND SHOULD NOT BE LEFT EXPOSED DURING THE WINTER MONTHS

24. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION. HAY OR STRAW MULCH SHALL BE APPLIED TO ALL FRESHLY SEEDED AREAS AT A RATE OF 2 TONS PER ACRE. BALES SHALL BE UNEFOLIZED, AIR-DRIED, AND FREE FROM WEED, SEEDS, AND ANY COARSE MATERIAL.

STRUCTURAL NOTES & SPECIFICATIONS

STEEL

1. CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

2. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.

3. STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A992 (FY=50 KSI), UNLESS OTHERWISE NOTED

4. STEEL PIPE SHALL CONFORM TO ASTM A500, GRADE B. STEEL PIPE DIAMETERS NOTED ON THE DRAWINGS ARE NOMINAL.

5. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE ¾" DIAMETER MINIMUM AND SHALL HAVE MINIMUM OF TWO BOLTS, UNLESS NOTED OTHERWISE ON THE DRAWINGS. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.

6. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ½" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

7. ALL STEEL MATERIAL EXPOSED TO WEATHER SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS.

8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

9. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "CRY GALV", "ZINC IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCEDURES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES." ALL WELDING SHALL BE DONE USING E7XXX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1, WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC MANUAL OF STEEL CONSTRUCTION" 13TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE 9.

11. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS TO PERMITTING OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

12. APPLY A QUALITY CONCRETE SEALER SUCH AS THEROSEAL TO EXPOSED CONCRETE IN ACCORDANCE WITH MANUFACTURERS APPLICATIONS DIRECTIONS.

SITE NOTES

1. ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIAL ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

2. DAMAGE BY THE CONTRACTOR TO UTILITIES OR PROPERTY OF OTHERS, INCLUDING EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CLIENT. FOR GRASSED AREAS, SEED AND MULCH SHALL BE ACCEPTABLE.

3. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. IF THE MATERIAL, AFTER REWORKING, REMAINS UNSUITABLE THEN THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACED WITH APPROVED MATERIAL AT HIS EXPENSE. ALL SUBGRADES SHALL BE PROOF ROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED AND REPLACED

4. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTABLE BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.

5. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

6. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES (NOT SUPPLIED BY OWNER).

7. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS (NOT SUPPLIED BY OWNER).

8. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND THE LATEST APPLICABLE CODES AND STANDARDS.

9. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE (URISDICTIONAL (STATE, COUNTY, OR CITY-ENGINEER 24 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.

10. CONTRACTOR RESPONSIBLE FOR CLOSING AND FILING ALL PERMITS ASSOCIATED WITH THE SITE.

11. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS

12. ALL EXIST NG AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO MATCH PRECONSTRUCTION CONDITIONS.

13. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING

HOMELAND TOWERS SITE NUMBER:
CT-112

APT FILING NUMBER:
CT-283-160

HOMELAND TOWERS
200 BARR HARBOR DRIVE
SUITE 400
WEST CONSHOHOCKEN, PA 19428

ALL-POINTS TECHNOLOGY CORPORATION
3 ADDISBROOKE DRIVE
ROLLINGSWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860) 463-1891
FAX: (860) 463-0911

DEVELOPMENT & MANAGEMENT DOCUMENTS

WASHINGTON
10-12 BLACKVILLE ROAD
WASHINGTON, CT 06794

VERSION TYPE:
RAW LAND
DEVELOPMENT SITE

REVISIONS:
REV.6 (06/05/14) FOR REVIEW: BMC
REV.5 (07/01/14) CLIENT REVISIONS: BMC
REV.3:
REV.3:
REV.4:
REV.3:

NOTES & SPECIFICATIONS

APT FILING NUMBER: CT-283-160
APT DRAWING NUMBER: N-1
DRAWN BY: RCB
SCALE: AS SHOWN
CHECKED BY: BMC
DATE: 06/05/14

SHEET NUMBER:
N-1