

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport  
WRITER'S DIRECT DIAL: (203) 337-4157  
E-Mail Address: jkohler@cohenandwolf.com

November 10, 2015

**VIA HAND DELIVERY AND ELECTRONIC MAIL**

Attorney Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

***Re: Docket No. 458: Florida Tower Partners LLC d/b/a North Atlantic Towers Application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation, of a telecommunications facility at one of two locations at Bethel Tax Assessor's Map 65, Block 57, Lot 122, 62-64 Codfish Hill Road, Bethel, Connecticut.***

Dear Attorney Bachman:

Please find enclosed one (1) full size original and twenty (20) 11 x 17 sets of the Development and Management Plan ("D&M Plan") as well as one (1) original and twenty (20) copies of the foundation and tower specifications and the Eastern Box Turtle and Wood Turtle Protection Program document pertaining to the telecommunications facility approved by the Connecticut Siting Council ("Council") in the above-captioned docket. Florida Tower Partners LLC d/b/a North Atlantic Towers, submits this D&M Plan in accordance with the Council's Decision and Order dated September 17, 2015 ("Decision").

**Development and Management Plan**

Pursuant to Order Number 1, the telecommunications facility to be located at 62-64 Codfish Hill Road ("Facility") includes a monopole at Site 2 at a height of 150 feet above grade level ("AGL"). The monopole will accommodate the antennas of Cellco Partnership d/b/a Verizon Wireless and other co-locators. Verizon's antennas will be located at a centerline of 150 feet AGL.

1115 BROAD STREET  
P.O. BOX 1821  
BRIDGEPORT, CT 06601-1821  
TEL: (203) 368-0211  
FAX: (203) 394-9901

158 DEER HILL AVENUE  
DANBURY, CT 06810  
TEL: (203) 792-2771  
FAX: (203) 791-8149

320 POST ROAD WEST  
WESTPORT, CT 06880  
TEL: (203) 222-1034  
FAX: (203) 227-1373

657 ORANGE CENTER ROAD  
ORANGE, CT 06477  
TEL: (203) 298-4066  
FAX: (203) 298-4068

Letter to Attorney Melanie Bachman  
November 10, 2015  
Page 2

Pursuant to Order Number 2, North Atlantic Towers has prepared a D&M Plan in accordance with the Decision and applicable regulations.

The proposed D&M Plan includes:

- a) Detailed plans of the Facility including specifications of the tower, tower foundation, antennas, equipment compound, including fence with less than two inch mesh, radio equipment, access road, utility line, emergency backup generator that employs the governing standard in the State of Connecticut for tower design in accordance with the 2015 International Building Code Design Standard ANSI/TIA-222-G-2.
- b) Construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*, as amended. Please note that in order to widen the existing access route in the area of the garage, three (3) additional trees (dbh greater than 6 inches) need to be removed to accommodate a required ledge cut to widen that access area from its existing width of 9 feet to the proposed width of 12 feet. The plan and associated details for the proposed access widening can be found on sheet C-1 of the D&M Plans. As this is a minimal modification, North Atlantic Towers requests the Council incorporate it into the approval of the D&M Plan.
- c) An Eastern Box Turtle and Wood Turtle Protection Program that includes DEEP – recommended construction practices to reduce potential impact to turtle populations.

As requested in Order No. 2, North Atlantic Towers will avoid tree-clearing from April 15 through July 15.

Pursuant to Order Number 3, prior to commencement of operation, North Atlantic Towers will provide the Council with worst-case modeling of electromagnetic radio frequency power density for all proposed entities' antennas at the closest point of uncontrolled access to the Facility base.

Letter to Attorney Melanie Bachman  
November 10, 2015  
Page 3

**Conclusion**

In accordance with the provisions of § 16-50j-77 of the Regulations of Connecticut State Agencies and Order Number 10, North Atlantic Towers hereby notifies the Council of its intention to commence clearing and related site work immediately upon D&M Plan approval and to commence other construction activities immediately upon issuance of a building permit by the Town. The supervisor for all construction related matters on this project is Keith Coppins of Phoenix Partnership, LLC and he can be reached by phone at (203) 623-3287.

North Atlantic Towers respectfully requests that this matter be included on the Council's next agenda for review and approval. In the event that the Council requires additional information prior to completing its review of the D&M Plan, North Atlantic Towers respectfully requests that partial approval be granted in order to allow North Atlantic Towers to commence clearing and excavation work.

As indicated below, a copy of this D&M submittal has been provided to the service list and the Town of Bethel.

Please contact me if you have any questions.

Very truly yours,

  
Julie D. Kohler, Esq.

cc: Service List  
Town of Bethel. First Selectman Matthew Knickerbocker  
Brett Buggeln, North Atlantic Towers  
Keith Coppins, Phoenix Partnership

NORTH ATLANTIC  
TOWERS

WIRELESS COMMUNICATIONS FACILITY  
DEVELOPMENT AND MANAGEMENT PLAN

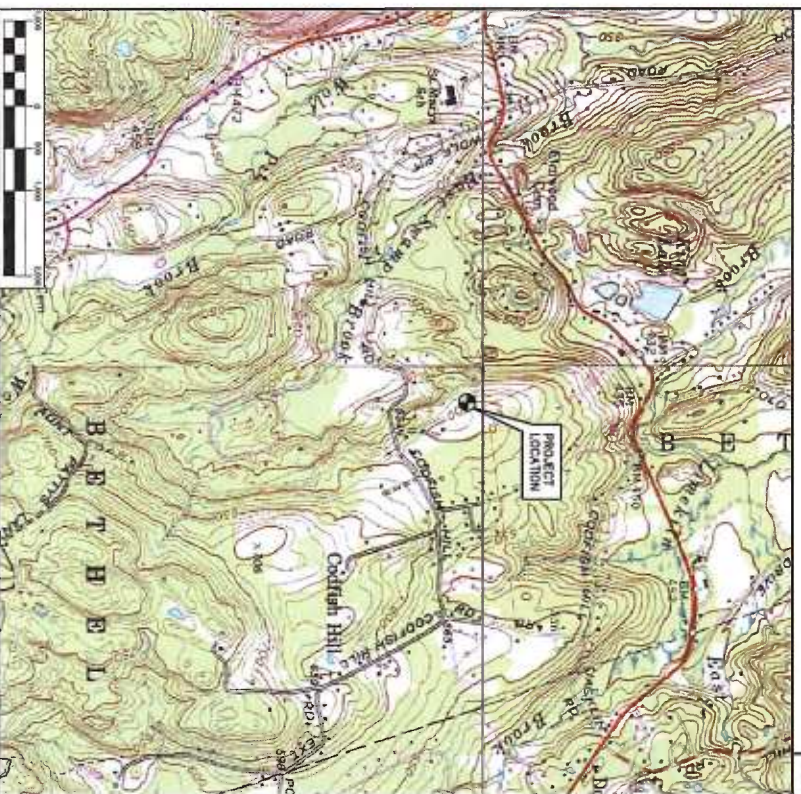
CT1155C - BETHEL  
62 + 64 CODFISH HILL ROAD  
BETHEL, CT

SITE INFORMATION

1. THE SCOPE OF WORK SHALL INCLUDE:  
THE CONSTRUCTION OF A 75X75' FENCED WIRELESS COMMUNICATIONS COMPOUND WITHIN A 100X100' LEASE AREA.
2. A 150'-0" STEEL MONOPOLE TOWER IS PROPOSED AND WILL BE DESIGNED TO ACCOMMODATE A MINIMUM OF (4) CARRIER ANTENNA ARRAY LOCATIONS.
3. A 800 ± GRAVEL DRIVEWAY FOR SITE ACCESS OFF OF CODFISH HILL ROAD IS PROPOSED.
4. POWER AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND FROM EXISTING RESPECTIVE DOWNSTREET TO PROPOSED WIRELESS COMMUNICATIONS LOCATIONS AND UTILITY ROUTING WILL BE VERIFIED/RETENURED BY LOCAL UTILITY COMPANIES.
5. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.
6. THERE WILL NOT BE ANY LIGHTING UNLESS REQUIRED BY THE FCC OR THE FAA.
7. THERE WILL NOT BE ANY SIGNS OR ADVERTISING ON THE ANTENNAS OR EQUIPMENT.

VICINITY MAP

SCALE: 1" = 1000'



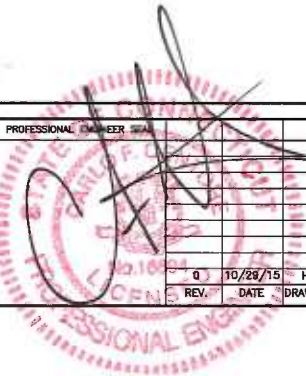
PROJECT SUMMARY

SITE NAME: CT1155C - BETHEL  
 SITE ADDRESS: 62 & 64 CODFISH HILL ROAD  
 PROPERTY OWNER: CLAUDIA STONE  
 62 CODFISH HILL ROAD  
 BETHEL, CONNECTICUT  
 LESSEE/TENANT: NORTH ATLANTIC TOWERS, LLC  
 801 3RD AVENUE WEST, SUITE 420  
 BRANTFORD, FL 32005  
 CONTACT PERSON: TODD BOWMAN  
 NORTH ATLANTIC TOWERS, L.L.C.  
 1001 3RD AVE WEST, SUITE 420  
 BRANTFORD, FL 32005  
 TOWER COORDINATES:  
 LATITUDE 41°-22'-27.444"  
 LONGITUDE 73°-22'-25.283"  
 GROUND ELEVATION: 587.0' ± A.M.S.L.  
 COORDINATES AND GROUND ELEVATION  
 REFERENCED FROM FAA 1-A SURVEY  
 CERTIFICATION AS PREPARED BY MARTINEZ COUGH  
 AND ASSOCIATES LTD. DATED JANUARY 20, 2014.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	PARTIAL SITE/SURVEY PLAN	0
C-1A	SITE UTILITY PLAN	0
C-2	COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIGURATION	0
C-3	SITE CONSTRUCTION, S&E CONTROL NOTES AND DETAILS	0
C-4	DRAINAGE CONTROL DETAILS	0
C-5	SITE DETAILS AND NOTES	0
C-6	GUIDE RAIL DETAILS AND ENVIRONMENTAL NOTES	0
C-7	EQUIPMENT PAD AND STAND ALONE ROOF DETAILS	0

REV.	DATE	HMR	DMD	DESCRIPTION
0	10/28/15			D&M PLANS - ISSUED FOR CLIENT REVIEW



NORTH ATLANTIC  
TOWERS

**CEN TEK** engineering  
Centered on Solutions®  
 (203) 488-0580  
 (203) 488-8587 Fax  
 63-2 North Brantford Road  
 Brantford, CT 06405  
 www.CenTekEng.com

NORTH ATLANTIC TOWERS  
WIRELESS COMMUNICATIONS FACILITY  
**SITE NUMBER: CT1155C**  
 SITE NAME: BETHEL  
 62 + 64 CODFISH HILL ROAD  
 BETHEL, CT

DATE: 09/29/15  
 SCALE: AS NOTED  
 JOB NO.: 13116.000

TITLE SHEET

T-1

Sheet No. 1 of 9

**SURVEY NOTES**

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 20-200a-1, THE 2008-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - MINIMUM STANDARDS FOR SURVEYORS AND MAPS IN THE STATE OF CONNECTICUT AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1998. THE TOPOGRAPHIC SURVEY PART OF THIS PLAN CONFORMS TO A VERTICAL ACCURACY OF CLASS 1-2 AND IS INTENDED TO BE USED TO DETERMINE A PROPOSED TELECOMMUNICATIONS SITE.

THE PROPERTY/BOUNDARY LINES DERIVED HEREON ARE COMPILED FROM OTHER MAPS, DEEDS AND LIMITED FIELD SURVEY. THESE LINES ARE NOT TO BE CONSTRUED AS A BOUNDARY OPINION AND ARE SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. PROPERTY MAY BE SUBJECT TO ENCUMBRANCES, EASEMENTS, RIGHTS OF WAY AS A TITLE SEARCH REPORT MAY DISCLOSE.

VERTICAL DATUM IS BASED ON NAD 83.  
COORDINATES REFER TO NAD 83.

PARCEL OWNER OF RECORD: CLAUDIA STONE

62 CODFISH HILL ROAD  
DEED REFERENCES VOL. 992 P. 127, VOL. 514, P. 619  
PARCEL AREA = 50± ACRES.

PARCEL IS IN R80 ZONING DISTRICT.

PARCEL ID: MAP 85 BLOCK 57 LOT 122 BETHEL ASSESSOR'S OFFICE  
PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAP FARMFIELD COUNTY, ALL JURISDICTIONS, 144, 163, 232 & 255 OF 625, COMMUNITY PANEL NUMBERS 0900100144F, 0900100163F, 0900100232F & 0900100255F, EFFECTIVE DATE JUNE 8, 2010, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

REFERENCE IS MADE TO THE FOLLOWING MAPS:

MAP PREPARED FOR ANTHONY CARALLUZZI AND JULIA CARALLUZZI, ELWOOD DISTRICT, BETHEL, CONNECTICUT, SCALE 1"=40', DATED AUG. 30, 1974, BY HAROLD B. COVILLE.

PROPERTY DIVISION MAP CODFISH HILL ROAD, BETHEL, CONNECTICUT, PREPARED FOR WALTER W. KASPER, SCALE 1"=40', DATED 6-18-93, BY KASPER - RMA ASSOCIATES.

MAP PREPARED FOR WALTER W. & ARLENE C. CARLSON, BETHEL, CONNECTICUT, SCALE 1"=40', DATED DEC. 24, 1984, BY HEINRICH ASSOCIATES.

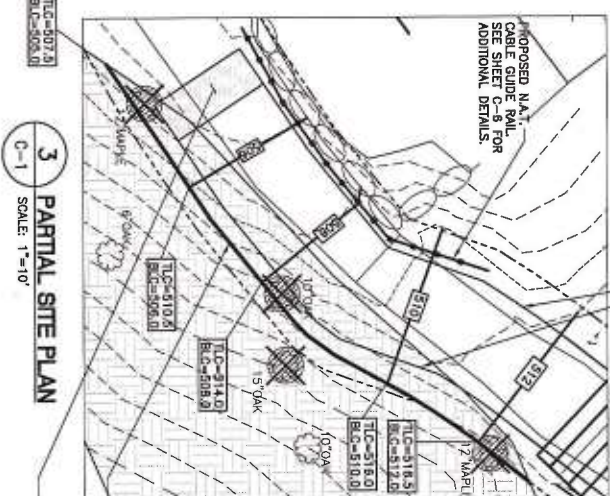
NOT ALL IMPROVEMENTS SHOWN.

TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL.

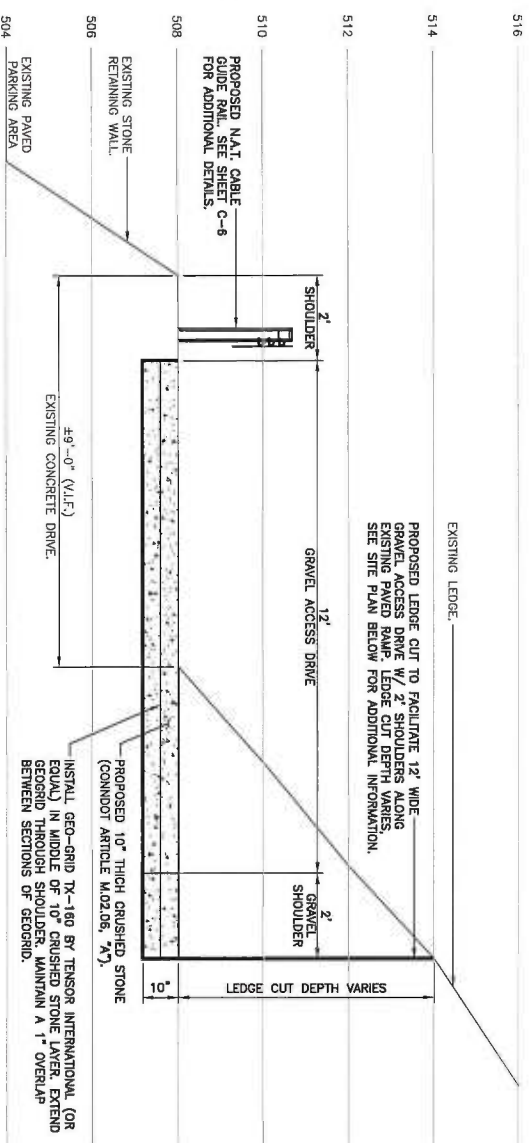
A. RAFAEL MARTINEZ LLS #18833 DATE

LIMITS OF PROPOSED 12' WIDE GRAVEL ACCESS DRIVE REFER TO BEING 24" CLEARANCE FROM APPROX TO CROSS SWALE THEN REFER TO ACCESS ROAD CONSTRUCTION AS SHOWN IN 1/C-1.

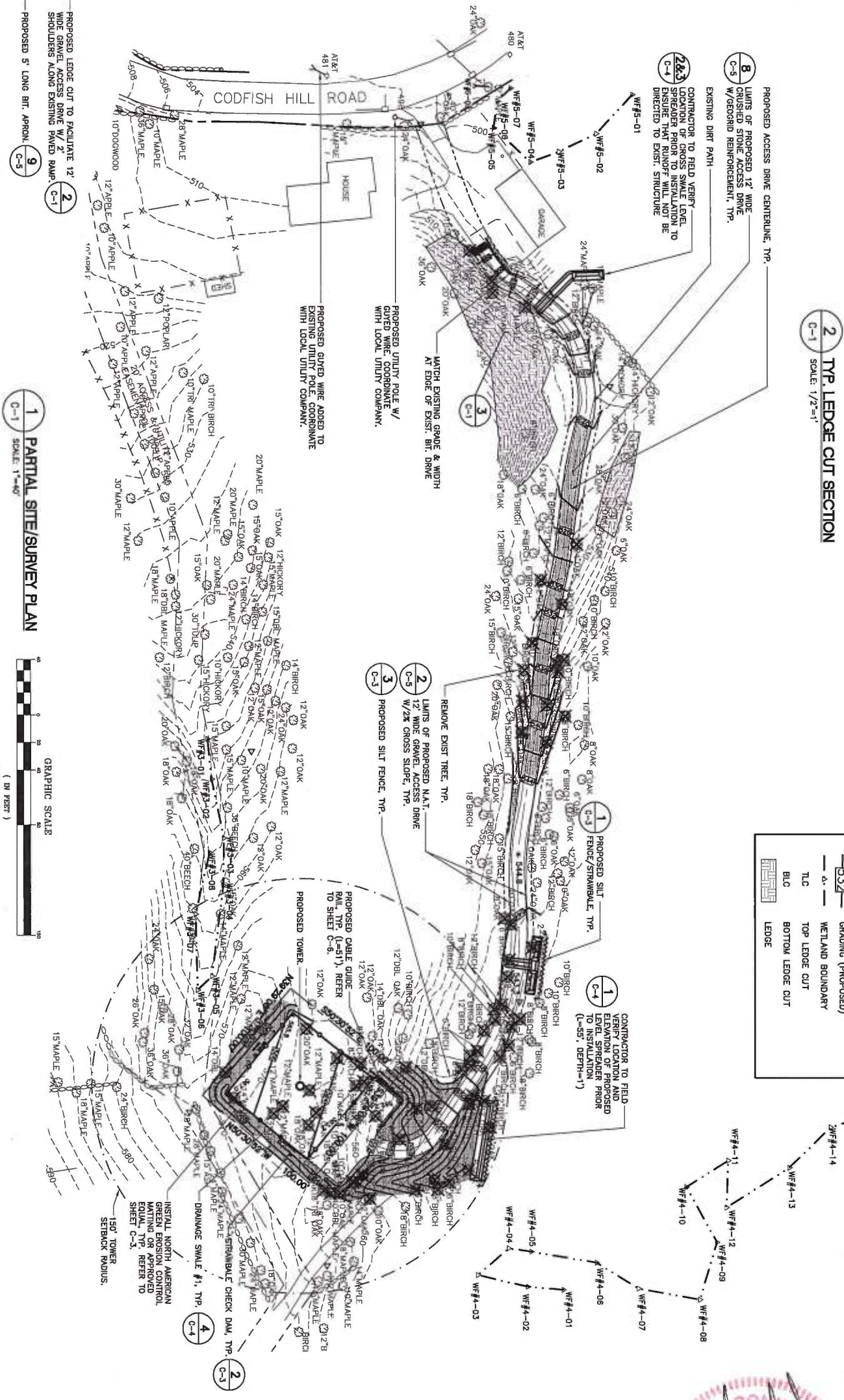
PROPOSED N.A.T. CABLE GUIDE RAIL, SEE SHEET C-3 FOR ADDITIONAL DETAILS.



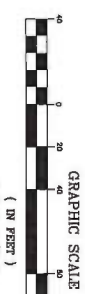
**3 PARTIAL SITE PLAN**  
SCALE: 1"=10'



**2 TYP LEDGE CUT SECTION**  
SCALE: 1/2"=1'



**1 PARTIAL SITE/SURVEY PLAN**  
SCALE: 1"=40'



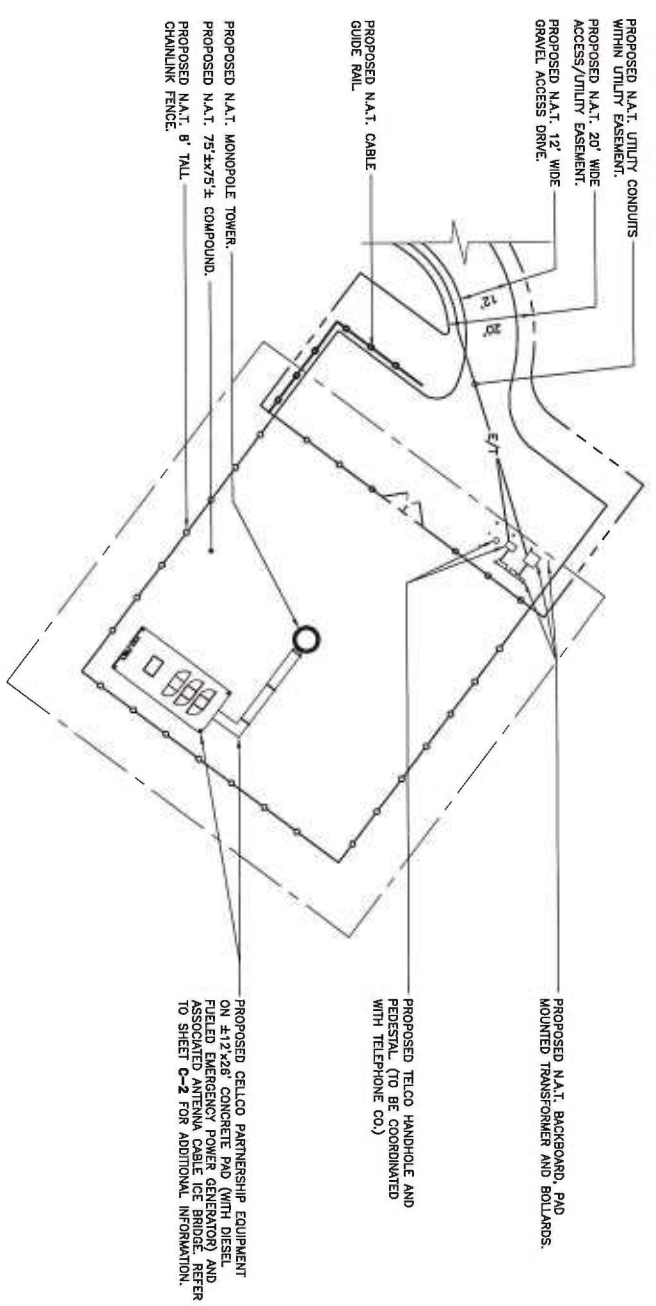
**SYMBOLS & LEGEND**

---	PROPERTY LINE
---	EASEMENT LINE (PROPOSED)
---	DRIVE (PROPOSED)
---	LEASE AREA
---	CONTOUR LINE
---	FENCE LINE (PROPOSED)
○	UTILITY POLE
○	SPOT ELEVATION
---	STRAWBALES / SILT FENCE
○	SIGN
○	IRON PIN
○	BUY ANCHOR
○	CATCH BASIN
○	DECIDUOUS TREE
○	DECIDUOUS TREE TO BE REMOVED
○	STONE WALL
---	DRIVE (EXISTING)
---	FENCE LINE (EXISTING)
---	SILTATION FENCE
---	GRADING (PROPOSED)
---	WETLAND BOUNDARY
---	TOP LEDGE CUT
---	BOTTOM LEDGE CUT
---	LEDGE

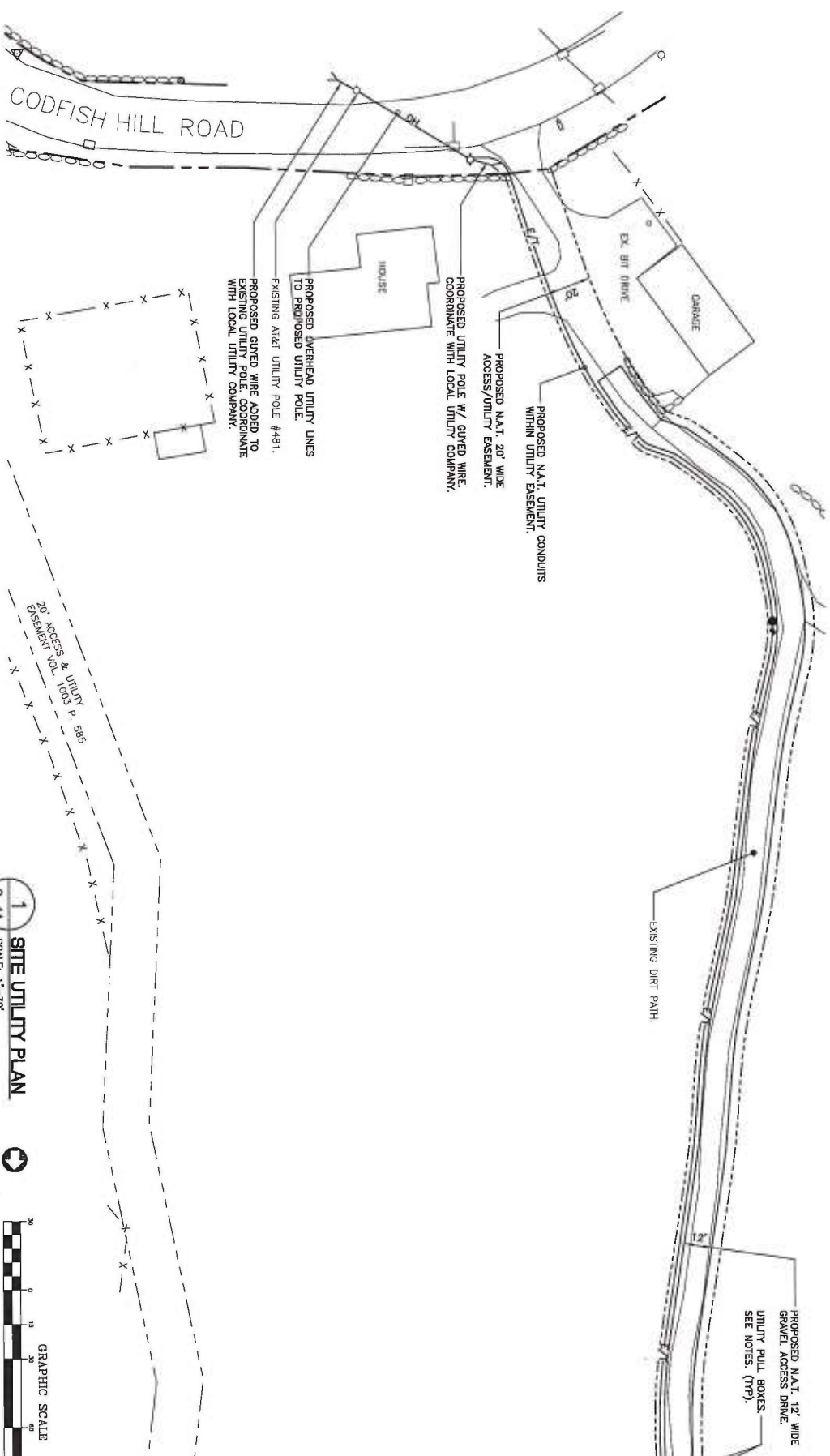
**ESTIMATED TREE REMOVAL SUMMARY**

TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED N.A.T. ACCESS OR UTILITY EASEMENT	= 54
TREES PROPOSED TO BE REMOVED WITHIN AND AROUND THE PROPOSED N.A.T. LEASE AREA	= 12
<b>TOTAL TREES PROPOSED TO BE REMOVED</b>	<b>= 66</b>

<p><b>C-1</b></p> <p>Sheet No. 2 of 3</p>	<p><b>PARTIAL SITE/SURVEY PLAN</b></p>	<p>DATE: 09/29/15</p> <p>SCALE: AS NOTED</p> <p>JOB NO.: 13116.000</p>	<p><b>NORTH ATLANTIC TOWERS</b></p> <p>WIRELESS COMMUNICATIONS FACILITY</p> <p><b>SITE NUMBER: CT1155C</b></p> <p>SITE NAME: BETHEL</p> <p>62 + 64 CODFISH HILL ROAD</p> <p>BETHEL, CT</p>	<p><b>CENITEK</b> engineering</p> <p>Centered on Solutions™</p> <p>(203) 488-0580 (203) 488-8587 Fax 53-2 North Branford Road Branford, CT 06405</p> <p>www.Centitek.com</p>	<p><b>NORTH ATLANTIC TOWERS</b></p> <p>PROFESSIONAL ENGINEER SEAL</p> <p>0 10/29/15 HMR DMD D&amp;M PLANS - ISSUED FOR CLIENT REVIEW</p> <p>REV. DATE DRAWN BY CHK'D BY DESCRIPTION</p>
		<p>INSTALL NORTH AMERICAN GREEN EXOSION CONTROL FOULING TYP. REFER TO SHEET C-3.</p> <p>150' TOWER SETBACK RADII.</p> <p>INSTALL REG-GRID TX-180 BY TENSOR INTERNATIONAL (OR EQUIV.) IN MIDDLE OF SHOULDERS TO PROVIDE MINIMUM A 1' OVERLAP BETWEEN SECTIONS OF GEORGD.</p> <p>INSTALL 10" THICK CRUSHED STONE (CONNOOT ARTICLE M20.06, N1).</p> <p>PROPOSED 12' WIDE GRAVEL ACCESS DRIVE</p> <p>2' GRASS SHOULDER</p> <p>2' GRASS SHOULDER</p> <p>SHOULDER</p> <p>EXISTING PAVED PARKING AREA</p> <p>EXISTING CONCRETE DRIVE</p> <p>49'-0" (V.L.F.)</p> <p>EXISTING STONE RETAINING WALL</p> <p>EXISTING GRAVEL DRIVE</p> <p>12' GRASS SHOULDER</p> <p>SHOULDER</p> <p>LEDGE CUT DEPTH VARIES</p> <p>PROPOSED LEDGE CUT TO FACILITATE 12' WIDE GRAVEL ACCESS DRIVE W/ 2' SHOULDERS ALONG EXISTING PAVED RAMP. LEDGE CUT DEPTH VARIES. SEE SITE PLAN BELOW FOR ADDITIONAL INFORMATION.</p> <p>EXISTING LEDGE</p>			



**2 PARTIAL SITE UTILITY PLAN**  
SCALE: 1" = 10'



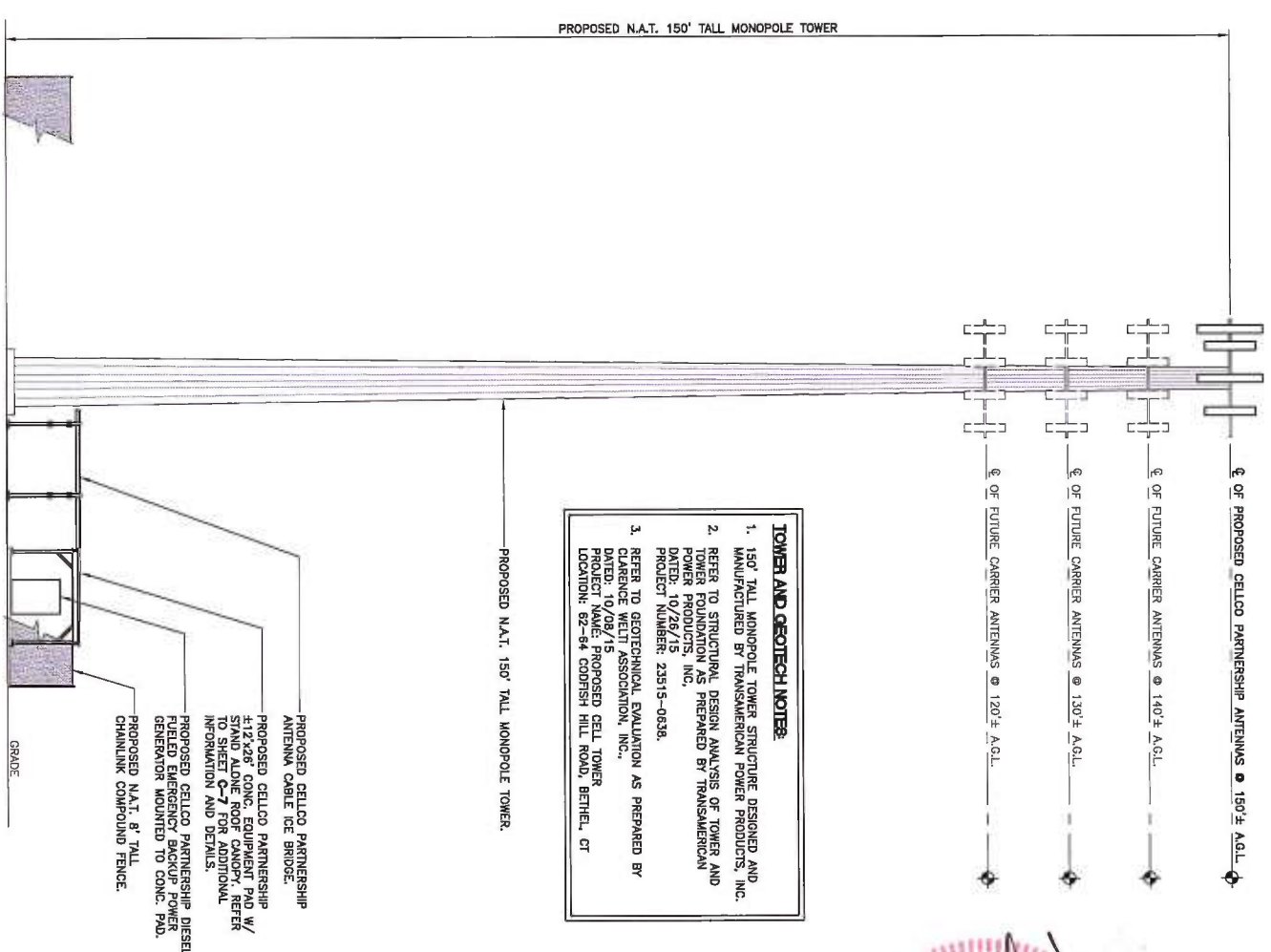
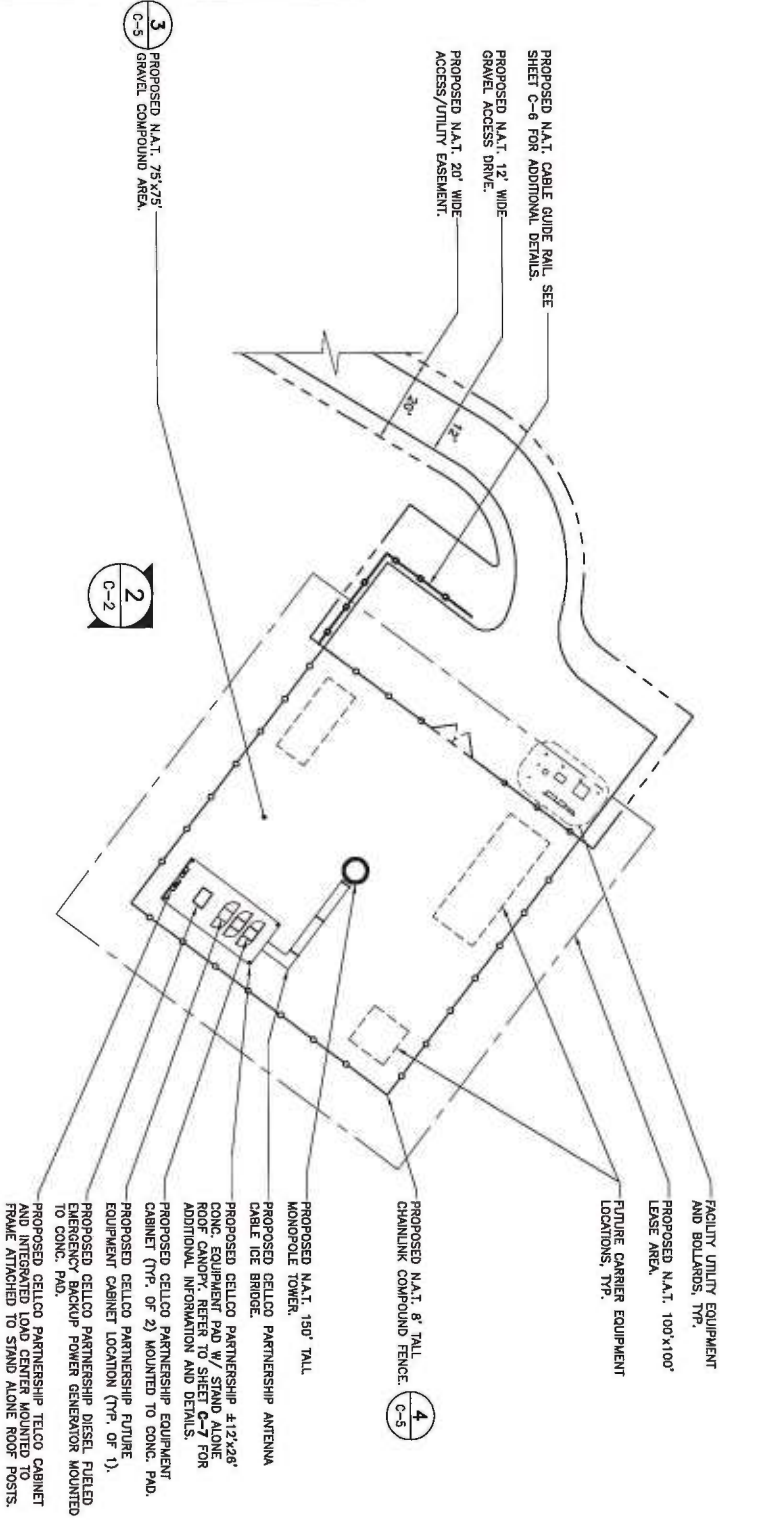
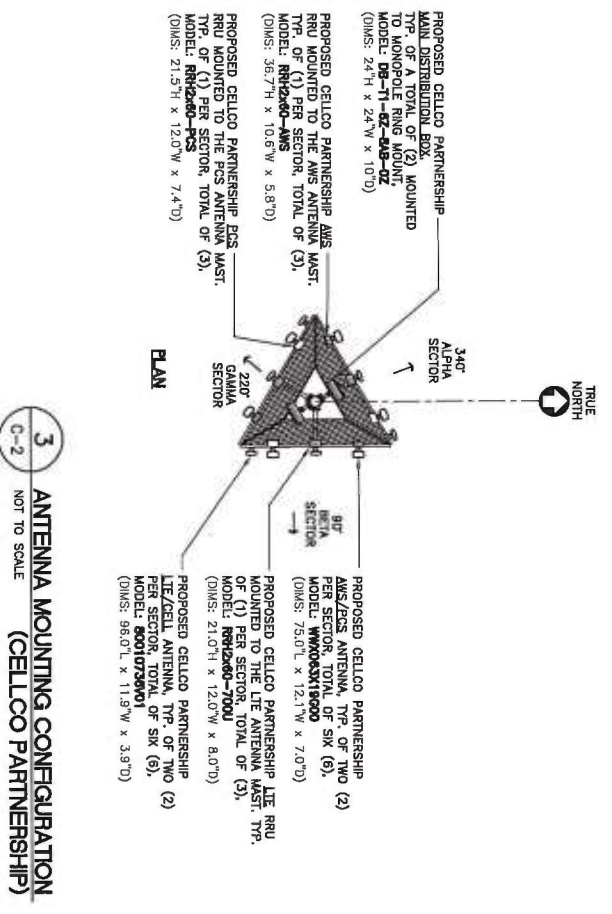
**1 SITE UTILITY PLAN**  
SCALE: 1" = 30'



ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
---	ACCESS/UTILITY EASEMENT LINE
---	EXISTING DRIVEWAY
---	PROPERTY LINE
---	UNDERGROUND COMMUNICATION CONDUIT
---	UNDERGROUND ELECTRICAL CONDUIT AS INDICATED
---	PERIMETER CHAIN LINK FENCE
○	UTILITY PULL BOX/SILO
■	STONE WALL
○	UTILITY POLE
○	FENCE LINE (EXISTING)

- GENERAL NOTES**
- COORDINATE WITH OWNER FOR ALL EASEMENT DOCUMENTS.
  - UTILITY ROUTING SHOWN ON THIS PLAN IS SCHEDULED. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO PERFORMING ANY UTILITY TRENCH WORK. ALL UTILITY CONDUITS AND PULL BOXES SHALL BE LOCATED WITHIN THE PROPOSED ACCESS/UTILITY EASEMENT.
  - UTILITY PULL BOXES/SILOS TO BE TRAFFIC RATED AND INSTALLED IN APPROXIMATE LOCATIONS SHOWN ON THIS PLAN, BUT NOT TO EXCEED 400 INTERMEDIATE TO CORNER. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES. CONTRACTOR SHALL COORDINATE ALL PERMITS AND PROCEDURES FOR CONDUIT INSTALLATION ALONG STREET.
  - PLAN IS FOR UTILITY ROUTING INFORMATION ONLY. SOME OTHER ELEMENTS NOT SHOWN FOR CLARITY. REFER TO CIVIL DRAWINGS FOR ALL OTHER EXISTING AND PROPOSED SITE INFORMATION.

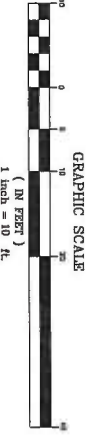
<p><b>C-1A</b> Sheet No. 3 of 9</p>	<p><b>SITE UTILITY PLAN</b></p>	<p><b>NORTH ATLANTIC TOWERS</b> WIRELESS COMMUNICATIONS FACILITY <b>SITE NUMBER: CT1155C</b> SITE NAME: BETHEL 62 + 64 CODFISH HILL ROAD BETHEL, CT</p>	<p><b>CENTEK engineering</b> Centeked on Solutions® 203) 488-0580 203) 488-8587 Fax 63-2 North Brantford Road Brantford, CT 06405 www.CentekEng.com</p>	<p><b>NORTH ATLANTIC TOWERS</b></p>	<p>PROFESSIONAL ENGINEER SEAL</p>					
					<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DRAWN BY</th> <th>CHK'D BY</th> <th>DESCRIPTION</th> </tr> <tr> <td>0</td> <td>10/29/15</td> <td>JMR</td> <td>DMD</td> <td>D&amp;M PLANS - ISSUED FOR CLIENT REVIEW</td> </tr> </table>	REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION						
0	10/29/15	JMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW						



**1 COMPOUND PLAN**  
SCALE: 1" = 20'



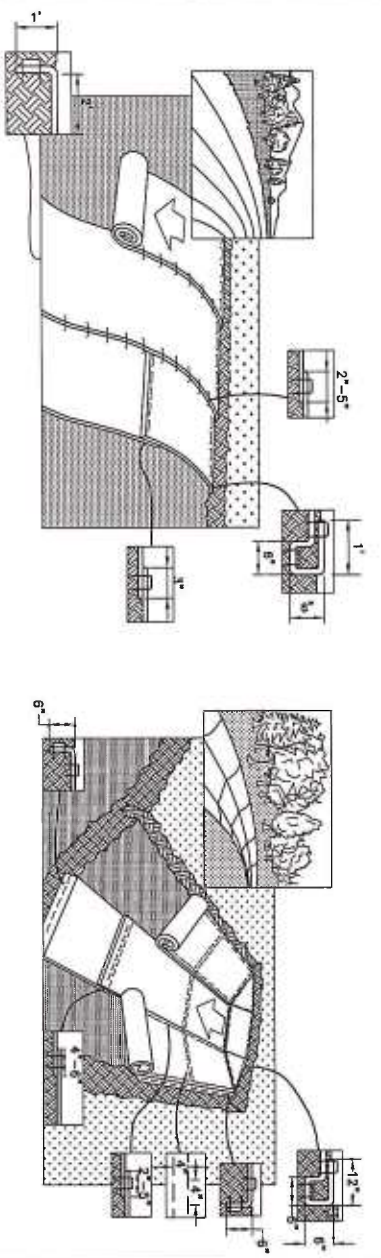
**2 SOUTHWESTERN ELEVATION**  
SCALE: 1" = 10'



NORTH ATLANTIC TOWERS WIRELESS COMMUNICATIONS FACILITY <b>SITE NUMBER: CT1155C</b> SITE NAME: BETHEL 62 + 64 CODFISH HILL ROAD BETHEL, CT	<p>2031 488-0580 832 488-8587 Fax 63-2 North Branford Road Branford, CT 06405</p> <p>www.CentexEng.com</p>	NORTH ATLANTIC TOWERS	PROFESSIONAL ENGINEER SEAL	DATE: 10/29/15	HMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW
			DRAWN BY:	DATE:	HMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW

DATE:	09/29/15
SCALE:	AS NOTED
JOB NO.:	13114000
COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.	
Sheet No. 4	of 9

**EROSION CONTROL BLANKET STABILIZATION**



**4 TYPICAL EROSION MAT INSTALLATION ON SLOPE**  
NOT TO SCALE

**5 TYPICAL EROSION MAT INSTALLATION IN CHANNEL**  
NOT TO SCALE

**STABILIZATION CRITERIA**

- CONTRACTOR SHALL IMPLEMENT EROSION CONTROL BLANKET SLOPE STABILIZATION & SWALE CONSTRUCTION WHEN STABLE EARTH CUTS ARE PREVALENT (IN LOCATIONS WITHOUT LEGS OR LARGE AMOUNTS OF SUBGRADE ROCK)

**STABILIZATION PRODUCT SPECIFICATION**

NORTH AMERICAN GREEN, PRODUCT NUMBER ST150BN, 12 MONTH BIODEGRADABLE.

**EROSION MAT ON SLOPES**

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

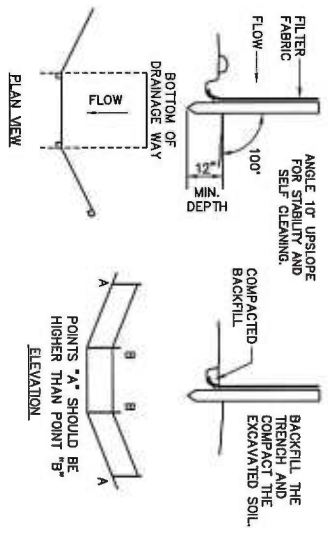
- NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
  - ROLL THE BLANKET DOWN OR HORIZONTALLY ACROSS THE SLOPE. BLANKET WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ROLLED EROSION CONTROL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  - THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY A 2'-5" OVERLAP DEPENDING ON BLANKET TYPE.
  - CONSECUTIVE ROLLED EROSION CONTROL BLANKET SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
  - IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKET.

**EROSION MAT IN CHANNEL**

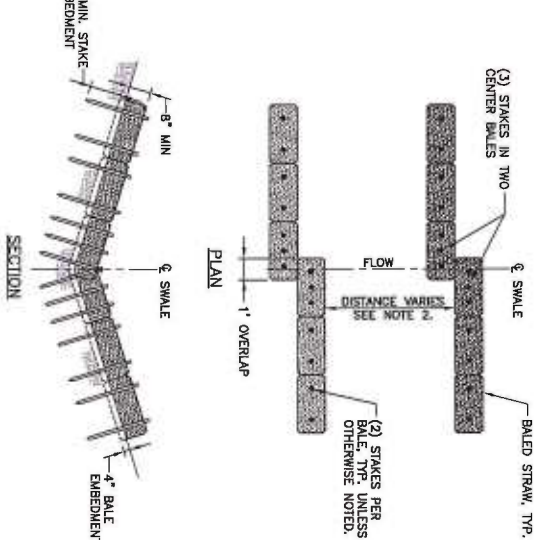
- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE CHANNEL, BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4'-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SLOPE MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2'-5" AND STAPLED TO ENSURE PROPER SEAM ALIGNMENT. PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ ON THE BLANKET BEING OVERLAPPED.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN. MINIMUM 4 SPIKES PER ONE SQ. FT. THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE THE COVERING AND SOIL HAS DAMAGED AREAS SHALL BE REPAIRED TO RE-ESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE RESEED, RESEED, AND REFINISHED AS DIRECTED.

**MAINTENANCE**

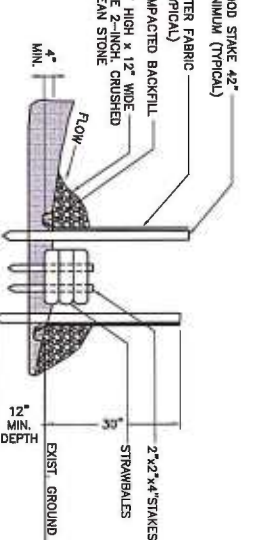
THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE THE COVERING AND SOIL HAS DAMAGED AREAS SHALL BE REPAIRED TO RE-ESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE RESEED, RESEED, AND REFINISHED AS DIRECTED.



**3 OF SILTATION FENCE**  
NOT TO SCALE



**2 TYP STRAWBALE CHECKDAM (NARROW SWALE)**  
NOT TO SCALE



**1 SILTATION FENCE/STRAWBALE SILTATION FENCE SANDWICH EROSION CONTROL**  
NOT TO SCALE

**GENERAL CONSTRUCTION / PRE-CONSTRUCTION NOTES**

1. PRIOR TO CONDUCTING ANY CONSTRUCTION ACTIVITIES, A MAJOR ON-SITE PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED WITH THE N.A.T. CONSTRUCTION MANAGER, CONTRACTOR'S CONSTRUCTION MANAGER, THE PROJECT EROSION AND SEDIMENTATION CONTROL/ENVIRONMENTAL MONITOR AND THE ENGINEER OF RECORD.
2. THIS IS A GENERAL CONSTRUCTION SEQUENCE OUTLINE SOME ITEMS OF WHICH MAY NOT APPLY TO PARTICULAR SITES.
3. GENERAL CONSTRUCTION SEQUENCE
4. 1. CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
5. 2. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
6. 3. REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEED TO PREVENT EROSION.
7. 4. CONSTRUCT CLOSED DRAINAGE SYSTEM, PRECEPT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
8. 5. CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALES AND SILTATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
9. 6. INSTALL UNDERGROUND UTILITIES.
10. 7. BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION. NO AREA SHALL BE LEFT UNSTABILIZED FOR A TIME PERIOD OF MORE THAN 30 DAYS.
11. 8. DAILY OR AS REQUIRED, CONSTRUCT INSPECT AND IF NECESSARY, RECONSTRUCT TEMPORARY BERRMS, DRAWS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
12. 9. BEGIN EXCAVATION FOR AND CONSTRUCTION OF TOWERS AND PLATFORMS.
13. 10. FINISH PAVING ALL ROADWAYS, DRIVES, AND PARKING AREAS.
14. 11. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. 12. NO FLOW SHALL BE DIVERTED TO ANY WETLANDS UNTIL A HEALTHY STAND OF GRASS HAS BEEN ESTABLISHED IN REDUCED AREAS.
16. 13. AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDING AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

**SOIL EROSION AND SEDIMENT CONTROL SEQUENCE**

1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SUCH AS CONSTRUCTION ENTRANCE / ANTI TRACKING PAD, SILTATION FENCE AND SILTATION FENCE / STRAW BALE SHALL BE IN PLACE PRIOR TO ANY GRADING ACTIVITY. UNTIL CONSTRUCTION IS COMPLETED AND/OR AREA IS STABILIZED.
2. THE ENTRANCE TO THE PROJECT SITE IS TO BE PROTECTED BY STONE ANTI TRACKING PAD OF ASTM C-33, SIZE NO. 2 OR 3, OR D.O.T. 2" CRUSHED GRAVEL. THE STONE ANTI TRACKING PAD IS TO BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
3. LAND DISTURBANCE WILL BE KEPT TO A MINIMUM AND RESTABILIZATIONS WILL BE SCHEDULED AS SOON AS PRACTICAL.
4. ALL SOIL EROSION AND SEDIMENT CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL INCLUDING THE LATEST DATE FROM THE COUNCIL ON SOIL AND WATER CONSERVATION.
5. ANY ADDITIONAL EROSION/SEDIMENTATION CONTROL DETAILED NECESSARY BY TOWN STAFF DURING CONSTRUCTION, SHALL BE INSTALLED BY THE DEVELOPER. IN ADDITION, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT/MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE TOWN STAFF.
6. IN ALL AREAS, REMOVAL OF TREES, BUSHES AND OTHER VEGETATION AS WELL AS DISTURBANCE OF THE SOIL IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE. DURING CONSTRUCTION, SOIL SHOULD BE PROTECTED BY MULCHING AND VEGETATION AS SOON AS POSSIBLE.
7. SILTATION FENCE SHALL BE PLACED AS INDICATED BEFORE A CUT SLOPE HAS BEEN CREATED. SEDIMENT DEPOSITS SHOULD BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDES OF SILTATION FENCE. THIS MATERIAL IS TO BE SPREAD OR BUILT ON. SILTATION FENCE IS TO BE REPLACED AS NECESSARY TO REMOVE PROPER FILTERING ACTION. AFTER THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.
8. SWALE DISCHARGE AREA WILL BE PROTECTED WITH RIP RAP SPLASH PAD/ ENERGY DISSIPATER.
9. ALL FILL AREAS SHALL BE COMPACTED SURFACE TO SURFACE FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SOFTENING, EROSION OR EXCESS SATURATION.
10. THE SOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SEEDING.
11. AFTER CONSTRUCTION IS COMPLETE AND GROUNDS IS STABLE, REMOVE SILTS IN THE RIP RAP ENERGY DISSIPATERS.

**CONSTRUCTION SPECIFICATIONS - SILT FENCE**

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL, COMPACTED OVER THE EMBEDDED FABRIC.
3. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID-SECTION AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED.
6. FENCE POSTS SHALL BE OF A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 18 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BUILD UP IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.

**MAINTENANCE - SILT FENCE**

1. 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.
2. 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.
3. SEDIMENT SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACHED APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED ON LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADDED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATION.

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
0	10/29/15	HMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW



**CENTEK engineering**  
Centek on Solutions™

231 466-0580  
231 466-0589 Fax  
63-2 North Branford Road  
Branford, CT 06405

www.CentekEng.com

**NORTH ATLANTIC TOWERS**

WIRELESS COMMUNICATIONS FACILITY

**SITE NUMBER: CT1155C**

**SITE NAME: BETHEL**

**62 + 64 CODFISH HILL ROAD**  
**BETHEL, CT**

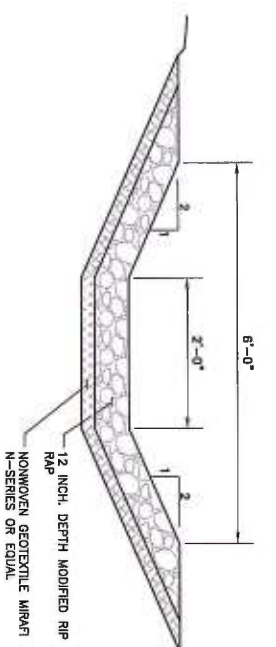
DATE: 09/29/15  
SCALE: AS NOTED  
JOB NO.: 13116.000

SITE  
CONSTRUCTION,  
S&E CONTROL,  
NOTES & DETAILS

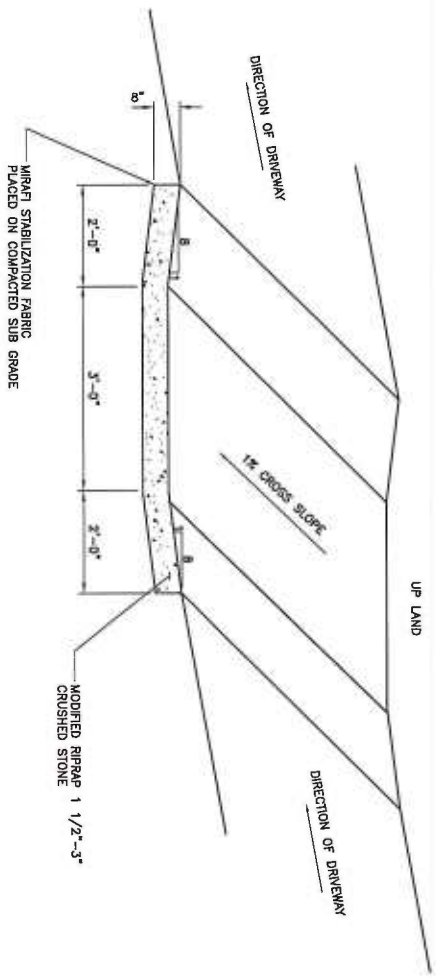
**C-3**

Sheet No. 5 of 9

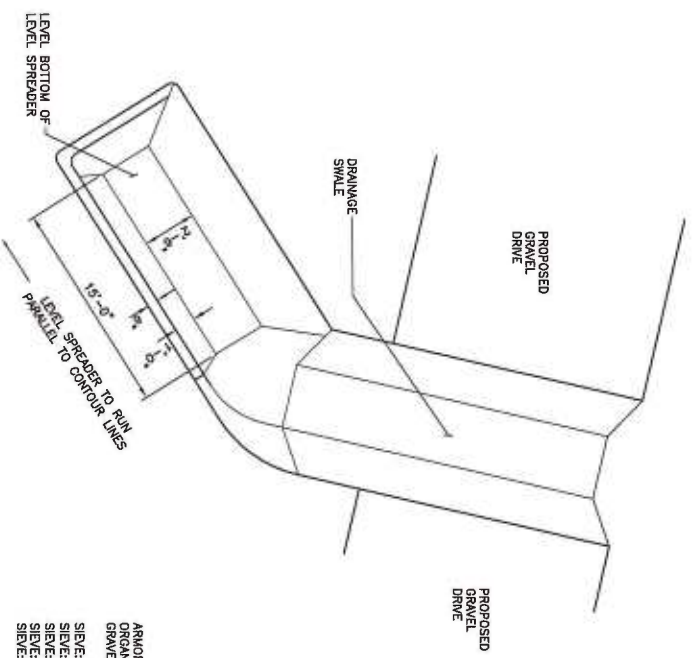




**4** DRAINAGE SWALE #1 TYPICAL SECTION  
C-4 NOT TO SCALE



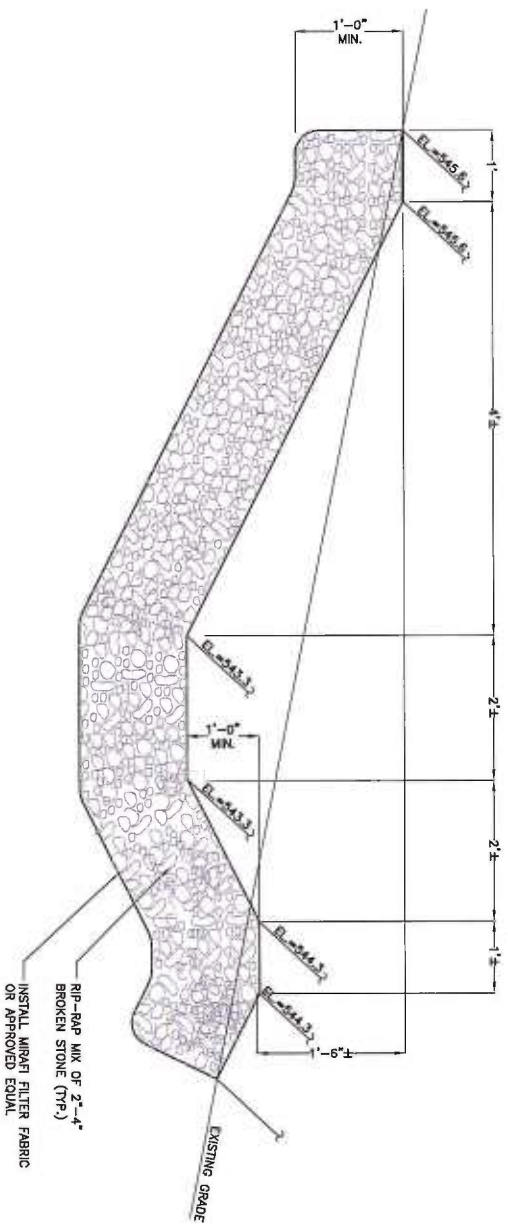
**3** CROSS DRAINAGE SWALE  
C-4 NOT TO SCALE



AGGREGED STONE SURFACE SHALL BE FREE OF ORGANICS AND CONSIST SOLELY OF CRUSHED GRAVEL WITH THE FOLLOWING GRADATION:

SIEVE: 3 1/2"	% PASSING: 100
SIEVE: 2"	% PASSING: 35-70
SIEVE: 1 1/2"	% PASSING: 0-15
SIEVE: 1/2"	% PASSING: 0-5
SIEVE: NO. 4	% PASSING: 0

**2** LEVEL SPREADER W/ CROSS DRAINAGE SWALE  
C-4 NOT TO SCALE



**1** LEVEL SPREADER TYPICAL SECTION  
C-4 NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/29/15	HMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW



**CEN TEK** engineering  
Centered on Solutions™

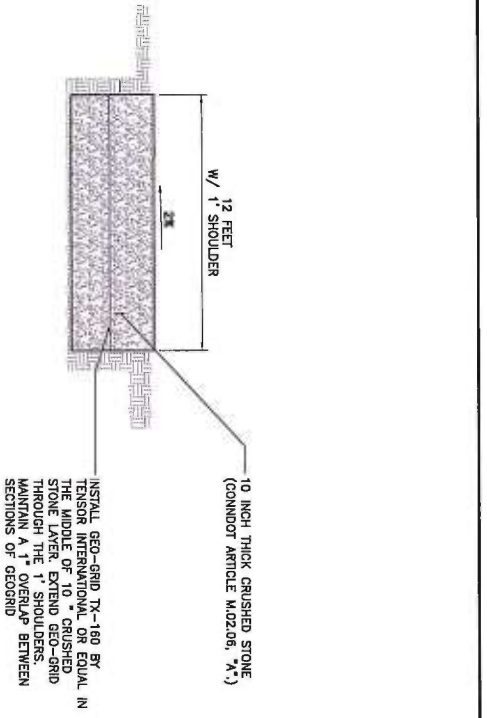
(203) 486-0580  
(203) 486-8567 Fax  
43-2 North Branford Road  
Branford, CT 06405  
www.CentekEng.com

NORTH ATLANTIC TOWERS

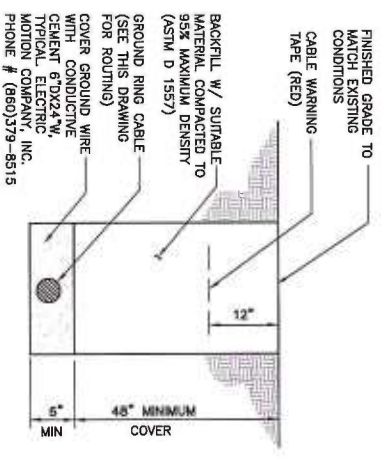
**NORTH ATLANTIC TOWERS**  
WIRELESS COMMUNICATIONS FACILITY  
**SITE NUMBER: CT1155C**  
SITE NAME: BETHEL  
62 + 64 CODFISH HILL ROAD  
BETHEL, CT

DATE: 09/29/15  
SCALE: AS NOTED  
JOB NO.: 13116.000

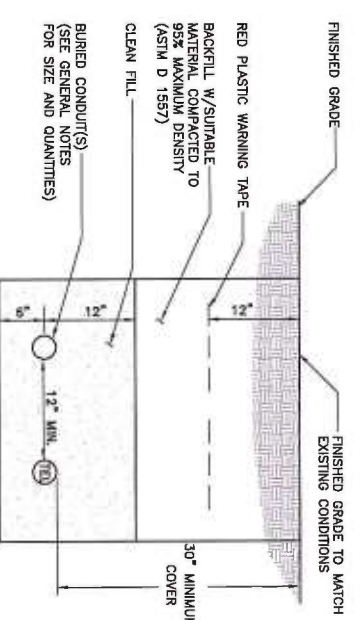
DRAINAGE CONTROL DETAILS



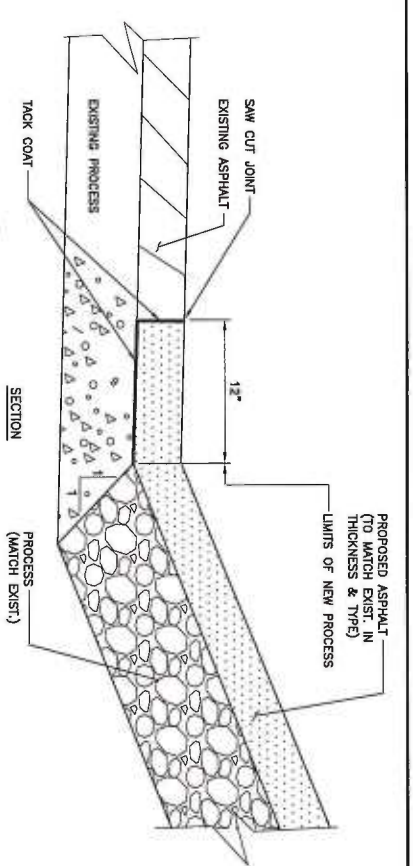
**8 GRAVEL ACCESS DRIVE W/ GEOGRID REINFORCEMENT**  
NOT TO SCALE



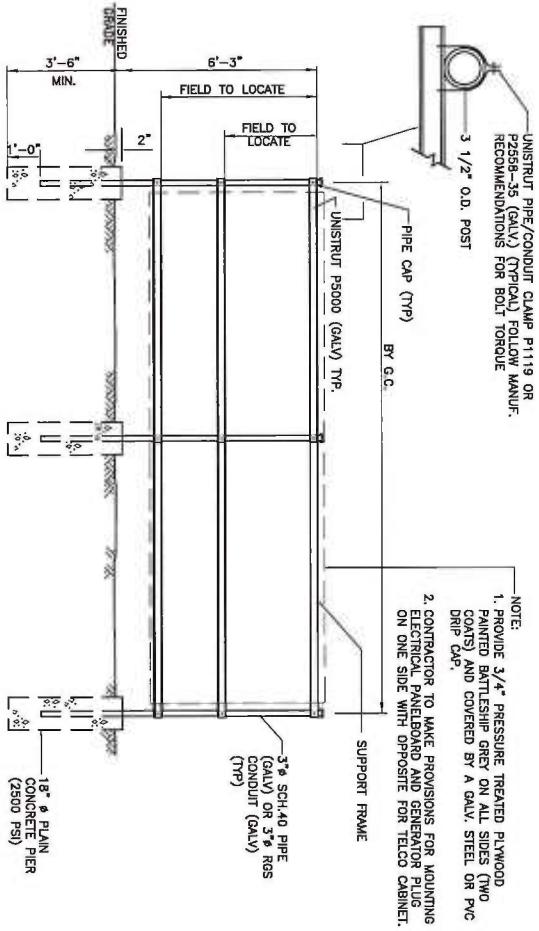
**7 TYPICAL BURIAL GROUND CABLE DETAIL**  
NOT TO SCALE



**6 TYPICAL ELECTRICAL/TEL. TRENCH DETAIL**  
NOT TO SCALE



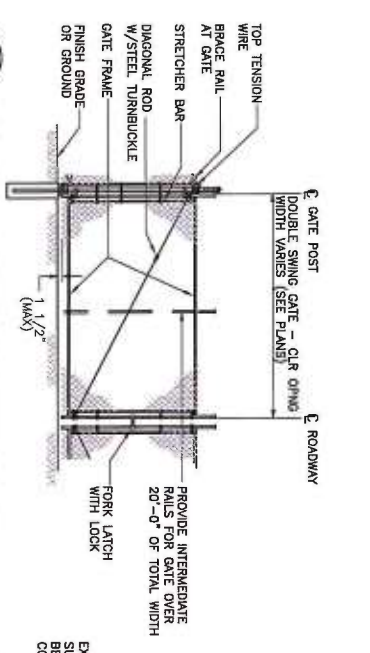
**9 B.T. APRON DETAIL**  
NOT TO SCALE



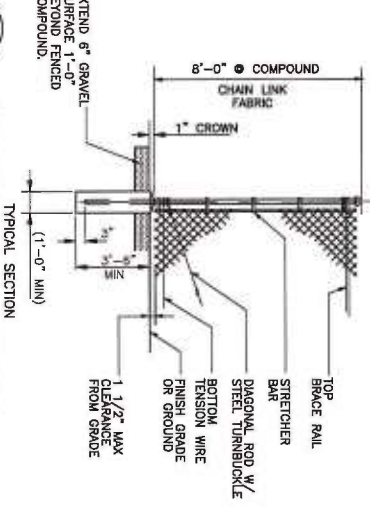
**5 UTILITY SUPPORT FRAME (TYP)**  
NOT TO SCALE

**WOVEN WIRE FENCE NOTES**

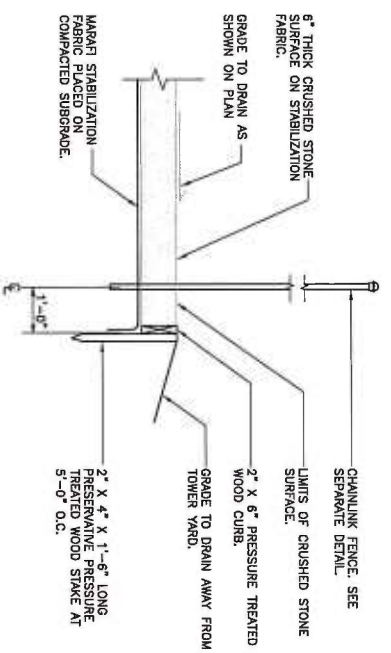
- GATE POST, CORNER, TERMINAL OR PULL POST 2 1/2" # SCHEDULE 40 FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F1083.
- LINE POST: 2" # SCHEDULE 40 PIPE PER ASTM-F1083.
- GATE FRAME: 1 1/2" # SCHEDULE 40 PIPE PER ASTM-F1083.
- TOP RAIL & BRACE RAIL: 1 1/2" # SCHEDULE 40 PIPE PER ASTM-F1083.
- FABRIC: 12 GA. CORE WIRE SIZE 1-1/4" MESH, CONFORMING TO ASTM-A392.
- THE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX 24" INTERVALS.
- TENSION WIRE: 7 GA. GALVANIZED STEEL.
- GATE LATCH: DROP DOWN LOCKABLE FORK LATCH AND LOCK, KEVED ALIKE FOR ALL SITES IN A GIVEN MTL.
- COMPOUND FENCE HEIGHT = 8' VERTICAL.



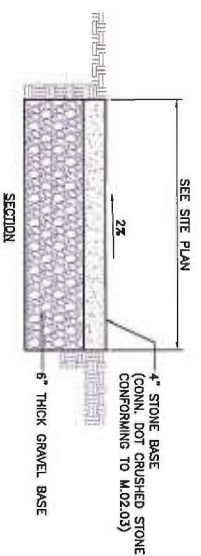
**4A WOVEN WIRE SWING GATE-DOUBLE**  
NOT TO SCALE



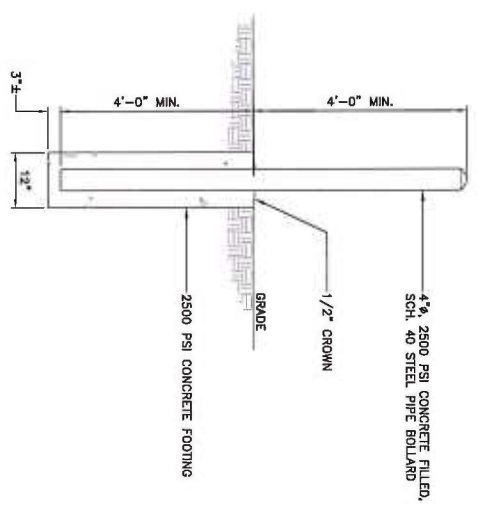
**4 WOVEN WIRE FENCE DETAIL**  
NOT TO SCALE



**3 COMPOUND SURFACING DETAIL**  
NOT TO SCALE

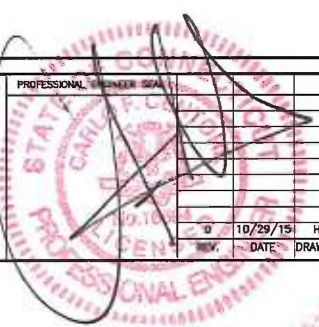


**2 GRAVEL SURFACE PARKING AREA AND ACCESS DRIVE**  
NOT TO SCALE



**1 BOLLARD DETAIL**  
NOT TO SCALE

DATE	SCALE	AS NOTED	DATE	SCALE	AS NOTED
09/29/15	AS NOTED		10/29/15	HMR	DMD
JOB NO. 13116.000			DATE	DRAWN BY	CHK'D BY
SITE DETAILS AND NOTES			DESCRIPTION		



**Centek engineering**  
Continued on Solutions™  
(203) 486-0580  
830-89-89 Fax  
63-2 North Branford Road  
Branford, CT 06405  
www.CentekEng.com

**NORTH ATLANTIC TOWERS**  
WIRELESS COMMUNICATIONS FACILITY  
**SITE NUMBER: CT1155C**  
SITE NAME: BETHEL  
62 + 64 CODFISH HILL ROAD  
BETHEL, CT

**C-5**  
Sheet No. 7 of 9

**ENVIRONMENTAL NOTES**

**EASTERN BOX TURTLE AND WOOD TURTLE PROTECTION PROGRAM**

EASTERN BOX TURTLE AND WOOD TURTLE, BOTH STATE SPECIAL CONCERN SPECIES, ARE PROTECTED UNDER THE CONNECTICUT ENDANGERED SPECIES ACT. ARE KNOWN TO OCCUR ON OR WITHIN THE VICINITY OF THE FOLLOWING PROTECTIVE MEASURES WHICH SATISFY REQUIREMENTS FROM THE CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION (CTDEEP) WILDLIFE DIVISION AND FOLLOW PROTOCOLS DEVELOPED FROM PREVIOUS RAISE SPECIES CONSULTATIONS AND STATE-APPROVED PROTECTION PLANS. THIS PROTECTION PLAN IS A NEW PLAN FROM THE RAISE SPECIES CONSULTATION REVIEW REQUEST FROM CTDEEP IS REQUIRED.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLY WITH THE REQUIREMENT FOR THE PROTECTION OF EASTERN BOX TURTLE AND WOOD TURTLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND WORKING WITH THE CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION (CTDEEP) WILDLIFE DIVISION AND THE RAISE SPECIES CONSULTATION REVIEW REQUEST FROM CTDEEP. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND WORKING WITH THE CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION (CTDEEP) WILDLIFE DIVISION AND THE RAISE SPECIES CONSULTATION REVIEW REQUEST FROM CTDEEP. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND WORKING WITH THE CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION (CTDEEP) WILDLIFE DIVISION AND THE RAISE SPECIES CONSULTATION REVIEW REQUEST FROM CTDEEP.

THE PROPOSED EASTERN BOX TURTLE AND WOOD TURTLE PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS. EDUCATION OF THE CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE. PROTECTIVE MEASURES, AND, REPORTING.

**1. ISOLATION MEASURES & EROSION AND SEDIMENTATION CONTROLS**

A. PLASTIC NETTING USED IN A VARIETY OF EROSION CONTROL PRODUCTS (I.E., EROSION CONTROL MATS, SILT FENCES, ETC.) SHALL BE USED TO PREVENT EROSION AND SEDIMENTATION. PRODUCTS SHALL BE USED TO PREVENT EROSION AND SEDIMENTATION. PRODUCTS SHALL BE USED TO PREVENT EROSION AND SEDIMENTATION. PRODUCTS SHALL BE USED TO PREVENT EROSION AND SEDIMENTATION.

B. INSTALLATION OF CONVENTIONAL SILT FENCING, WHICH WILL ALSO SERVE AS AN ISOLATION OF THE WORK ZONE FROM SURROUNDING AREAS AND REQUIRED FOR EROSION CONTROL COMPLIANCE, SHALL BE PERFORMED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION. APT WILL INSPECT THE WORK ZONE AREA PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

C. THE FENCING WILL CONSIST OF NON-REINFORCED CONVENTIONAL EROSION CONTROL WOVEN FABRIC, INSTALLED APPROXIMATELY SIX INCHES BELOW SURFACE GRADE AND STAKED AT SEVEN TO TEN FOOT INTERVALS. THE FENCING SHALL BE INSPECTED FOR TEARS OR BREACHES IN THE FABRIC FOLLOWING INSTALLATION AND AT EITHER ON A WEEKLY OR BIWEEKLY INSPECTION FREQUENCY BY APT. IF INSPECTIONS ARE PERFORMED ON A BIWEEKLY BASIS, SUCH INSPECTIONS WILL ALSO INCLUDE INSPECTIONS FOLLOWING STORM EVENTS OF 0.25 INCH OR GREATER. INSPECTIONS WILL BE CONDUCTED BY APT THROUGHOUT THE COURSE OF THE CONSTRUCTION PROJECT.

D. THE EXTENT OF THE BARRIER FENCING SHALL BE AS SHOWN ON THE SITE PLANS. THE CONTRACTOR SHALL HAVE ADDITIONAL BARRIER FENCING SHOULD FIELD CONDITIONS WARRANT EXTENDING THE FENCING AS DIRECTED BY APT.

E. NO EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS SHALL BE STORED OUTSIDE OF BARRIER FENCING.

F. ALL SILT FENCING SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED BETWEEN UPLANDS AND WETLANDS IS NOT RESTRICTED.

**2. CONTRACTOR EDUCATION**

A. PRIOR TO WORK ON SITE, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE RAISE SPECIES CONSULTATION WITH APT PROVIDING ORIENTATIONS AND EDUCATIONAL SESSIONS WILL CONSIST OF AN INTRODUCTORY MEETING WITH APT PROVIDING PHOTOS OF EASTERN BOX TURTLES AND WOOD TURTLES AND EMPHASIZING THE NON-AGGRESSIVE NATURE OF THESE TURTLES. THE ABSENCE OF NEED TO DESTROY ANIMALS THAT MIGHT BE ENCOUNTERED AND THE NEED TO FOLLOW PROTECTIVE MEASURES AS DESCRIBED IN SECTION BELOW. WORKERS WILL BE PROVIDED WITH INFORMATION REGARDING THE IDENTIFICATION OF OTHER TURTLE SPECIES THAT COULD BE ENCOUNTERED.

B. THE EDUCATION SESSION WILL ALSO FOCUS ON MEANS TO DISCRIMINATE BETWEEN THE SPECIES OF CONCERN AND OTHER NAMED SPECIES TO AVOID UNNECESSARY FALSE ALARMS. ENCOUNTERS WITH ANY SPECIES OF TURTLES WILL BE DOCUMENTED.

C. THE CONTRACTOR WILL BE PROVIDED WITH CELL PHONE AND EMAIL CONTACTS FOR APT PERSONNEL. TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH EASTERN BOX TURTLE, WOOD TURTLE OR OTHER TURTLE SPECIES. EDUCATIONAL POSTER MATERIALS WILL BE PROVIDED BY APT AND DISPLAYED ON THE JOB SITE TO MAINTAIN WORKER AWARENESS AS THE PROJECT PROGRESSES.

**3. PETROLEUM MATERIALS STORAGE AND SPILL PREVENTION**

A. CERTAIN PRECAUTIONS ARE NECESSARY TO STORE PETROLEUM (I.E., OIL, HYDRAULIC FLUID, ETC.) SPILL PROPERLY CLEAN UP ANY ADVERTENT FUEL OR PETROLEUM (I.E., OIL, HYDRAULIC FLUID, ETC.) SPILL DUE TO THE PROJECT'S LOCATION IN PROXIMITY TO SENSITIVE WETLANDS.

B. A SPILL CONTAINMENT KIT CONSISTING OF A SUFFICIENT SUPPLY OF ABSORBENT PADS AND ABSORBENT MATERIAL WILL BE MAINTAINED BY THE CONTRACTOR AT THE CONSTRUCTION SITE THROUGHOUT THE DURATION OF THE PROJECT. IN ADDITION, A WASTE DRUM WILL BE KEPT ON SITE TO ACCORDANCE WITH APPLICABLE LOCAL STATE AND FEDERAL LAWS.

C. THE FOLLOWING PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING RESTRICTIONS AND SPILL RESPONSE PROCEDURES WILL BE ADHERED TO BY THE CONTRACTOR.

I. PETROLEUM AND HAZARDOUS MATERIALS STORAGE AND REFUELING  
 A. REFUELING OF VEHICLES OR MACHINERY SHALL OCCUR A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES AND SHALL TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FLETS.  
 B. ANY FUEL OR HAZARDOUS MATERIALS THAT MUST BE KEPT ON SITE SHALL BE STORED ON AN IMPERVIOUS SURFACE UTILIZING SECONDARY CONTAINMENT A MINIMUM OF 100 FEET FROM WETLANDS OR WATERCOURSES.

II. INITIAL SPILL RESPONSE PROCEDURES  
 A. STOP OPERATIONS AND SHUT OFF EQUIPMENT.  
 B. REMOVE ANY SOURCES OF SPARK OR FLAME.  
 C. CONTAIN THE SOURCE OF THE SPILL.  
 D. DETERMINE THE APPROXIMATE VOLUME OF THE SPILL.

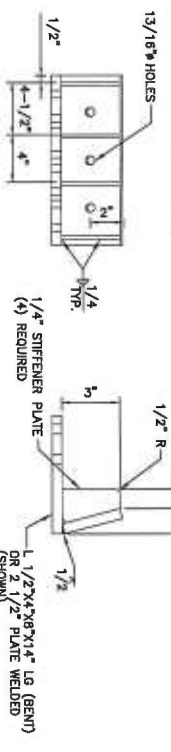
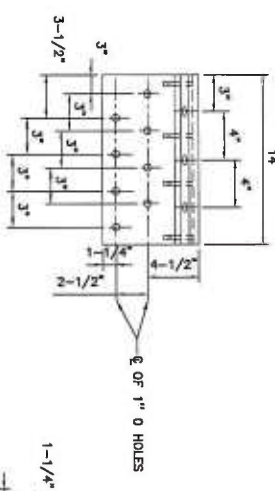
E. IDENTIFY THE LOCATION OF NATURAL FLOW PATHS TO PREVENT THE RELEASE OF THE SPILL TO SENSITIVE NEARBY WETLANDS OR WETLANDS.  
 F. ENSURE THAT FELLOW WORKERS ARE NOTIFIED OF THE SPILL.

III. SPILL CLEAN UP & CONTAINMENT  
 A. DRINK SPILL RESPONSE MATERIALS FROM THE ON-SITE SPILL RESPONSE KIT. PLACE ABSORBENT MATERIALS DIRECTLY ON THE RELEASE AREA.  
 B. LIMIT THE SPREAD OF THE SPILL BY PLACING ABSORBENT MATERIALS AROUND THE PERIMETER OF THE SPILL.  
 C. ISOLATE AND ELIMINATE THE SPILL SOURCE.

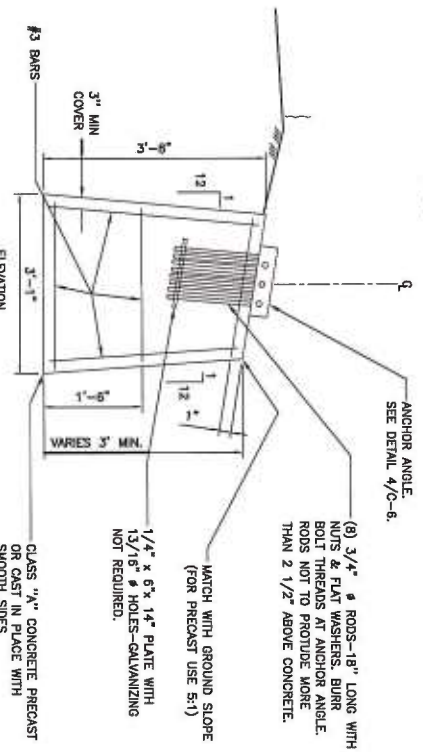
D. CONTACT THE APPROPRIATE LOCAL, STATE AND/OR FEDERAL AGENCIES, AS NECESSARY.  
 E. CONTACT A DISPOSAL COMPANY TO PROPERLY DISPOSE OF CONTAMINATED MATERIALS.

IV. REPORTING  
 A. COMPLETE AN INCIDENT REPORT.  
 B. SUBMIT A COMPLETED INCIDENT REPORT TO THE CONNECTICUT SINKING COUNCIL.

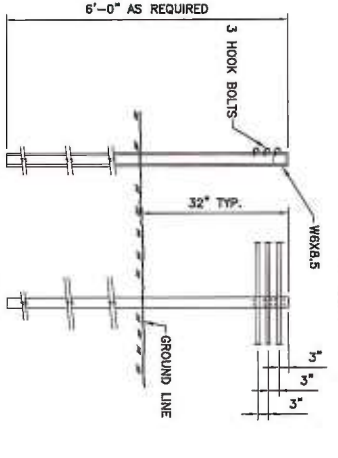
4. TURTLE PROTECTIVE MEASURES  
 A. PRIOR TO THE START OF CONSTRUCTION EACH DAY, THE CONTRACTOR SHALL SEARCH THE ENTIRE WORK AREA FOR TURTLES.  
 B. IF A TURTLE IS FOUND, IT SHALL BE IMMEDIATELY MOVED, UNHARMED, BY CAREFULLY GRASPED IN BOTH HANDS, ONE ON EACH SIDE OF THE SHELL, BETWEEN THE TURTLES FORELIMBS AND THE HIND LIMBS, AND PLACED JUST OUTSIDE OF THE ISOLATION BARRIER IN THE APPROPRIATE DIRECTION IT WAS FOUND.  
 C. SPECIAL CARE SHALL BE TAKEN BY THE CONTRACTOR DURING EARLY MORNING AND EVENING HOURS SO THAT POSSIBLE BASKING OR FORAGING TURTLES ARE NOT HARMED BY CONSTRUCTION ACTIVITIES.  
 5. HERBICIDE AND PESTICIDE RESTRICTIONS  
 A. THE USE OF HERBICIDES AND PESTICIDES AT THE PROPOSED WIRELESS TELECOMMUNICATIONS FACILITY AND ALONG THE PROPOSED ACCESS DRIVE ARE STRICTLY PROHIBITED.  
 6. REPORTING  
 A. BIWEEKLY INSPECTION REPORTS (GREAT MARGARITE AND APPLICABLE PHOTOS) WILL BE SUBMITTED TO THE CONNECTICUT SINKING COUNCIL FOR COMPLIANCE VERIFICATION.  
 B. FOLLOWING COMPLETION OF THE CONSTRUCTION PROJECT, APT WILL PROVIDE A SUMMARY REPORT TO CTDEEP DOCUMENTING THE MONITORING AND MAINTENANCE OF THE BARRIER FENCE AND EROSION CONTROL MEASURES.  
 C. ANY OBSERVATIONS OF EASTERN BOX TURTLE OR WOOD TURTLE WILL BE REPORTED TO CTDEEP BY APT, WITH PHOTO-DOCUMENTATION (IF POSSIBLE) AND WITH SPECIFIC INFORMATION ON THE LOCATION AND DISPOSITION OF THE ANIMAL.



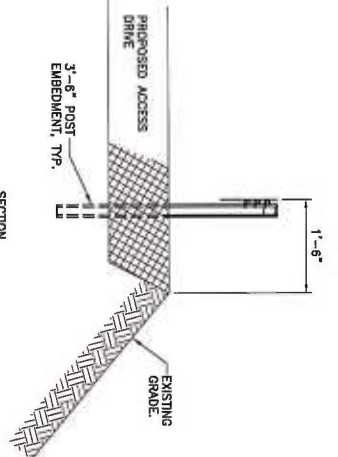
**4 ANCHOR ANGLE DETAIL**  
 NOT TO SCALE



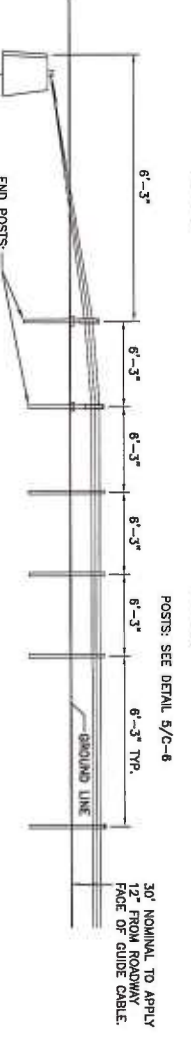
**3 CONCRETE ANCHOR END DETAIL**  
 NOT TO SCALE



**5 POST DETAIL**  
 NOT TO SCALE

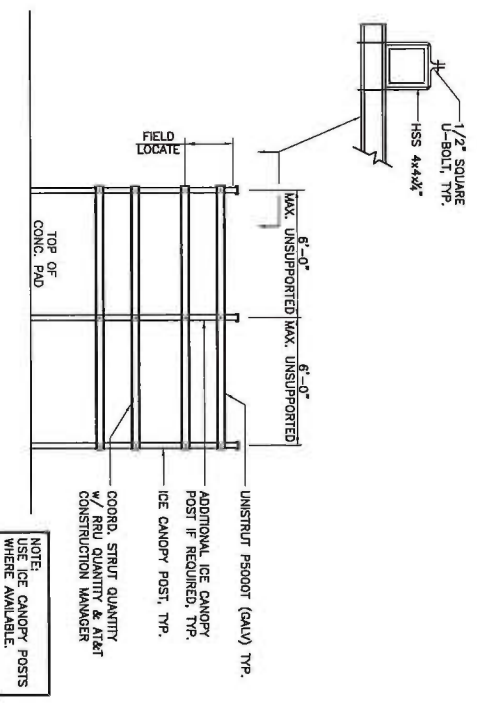


**2 GUIDE RAIL DETAIL**  
 NOT TO SCALE

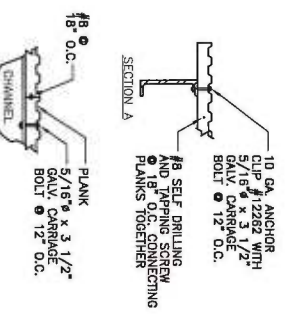


**1 TYPICAL APPROACH AND TERMINAL SECTIONS**  
 NOT TO SCALE

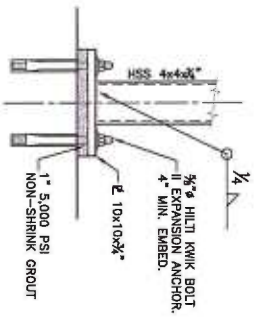
<p><b>C-6</b></p> <p>Sheet No. 8 of 9</p>	<p><b>GUIDE RAIL DETAILS AND ENVIRONMENTAL NOTES</b></p>	<p>DATE: 09/29/15</p> <p>SCALE: AS NOTED</p> <p>JOB NO.: 131161000</p>	<p><b>NORTH ATLANTIC TOWERS</b></p> <p>WIRELESS COMMUNICATIONS FACILITY</p> <p><b>SITE NUMBER: CT1155C</b></p> <p>SITE NAME: BETHEL</p> <p>62 + 64 CODDISH HILL ROAD</p> <p>BETHEL, CT</p>	<p><b>CENTEK engineering</b></p> <p>Centered on Solutions™</p> <p>(203) 488-0580</p> <p>(203) 488-8580 Fax</p> <p>63-2 North Bearford Road</p> <p>Branford, CT 06405</p> <p>www.CentekEng.com</p>	<p><b>NORTH ATLANTIC TOWERS</b></p>	<p>PROFESSIONAL ENGINEER SEAL</p> <p>10/29/15</p> <p>REV. DATE DRAWN BY CHKD BY DESCRIPTION</p>
		<p>D&amp;M PLANS - ISSUED FOR CLIENT REVIEW</p>				



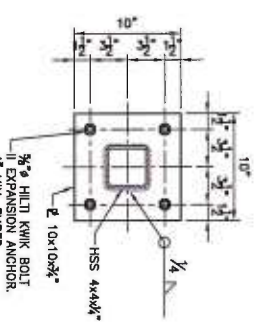
**10** TYPICAL EQUIPMENT MOUNTING FRAME DETAIL  
NOT TO SCALE



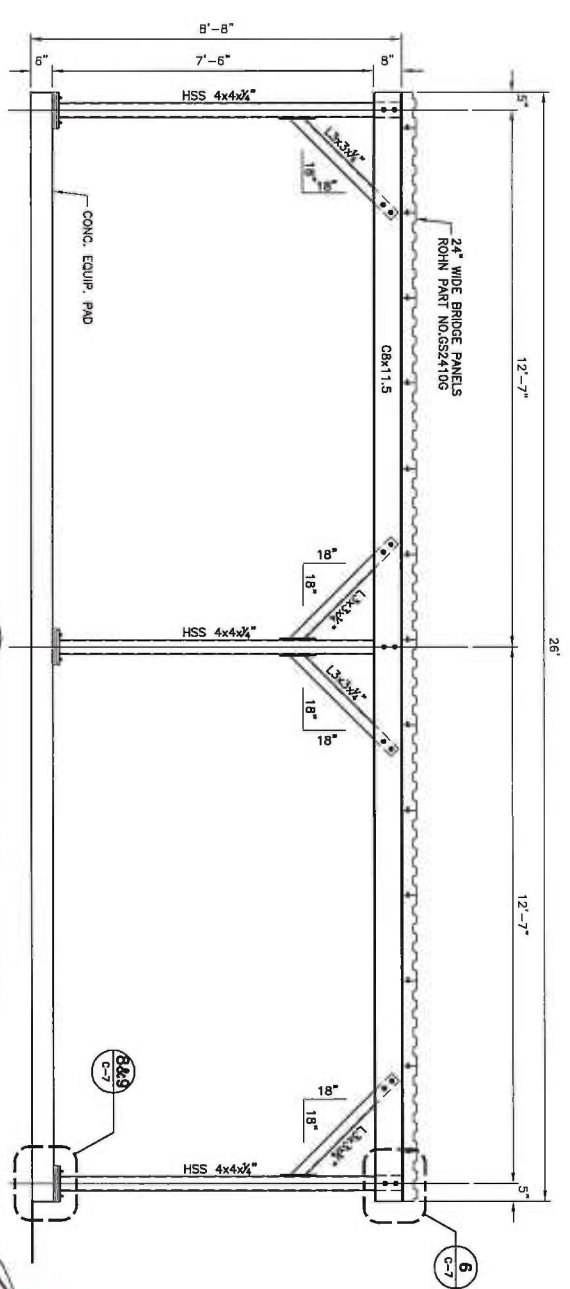
**7** BRIDGE PANEL CONNECTION  
SCALE: 1" = 1'-0"



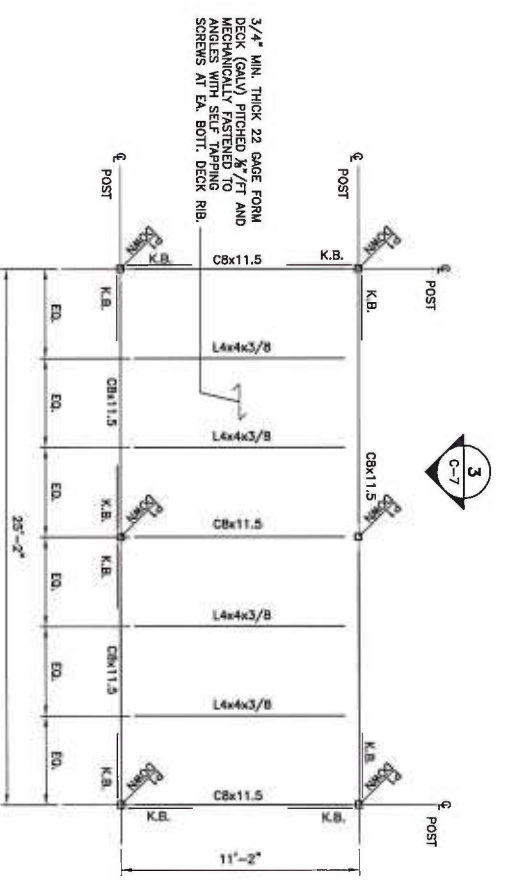
**8** CANOPY POST CONNECTION  
SCALE: 1-1/2" = 1'-0"



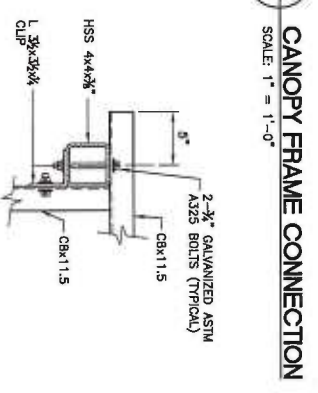
**9** CANOPY POST BASE PLATE  
SCALE: 1-1/2" = 1'-0"



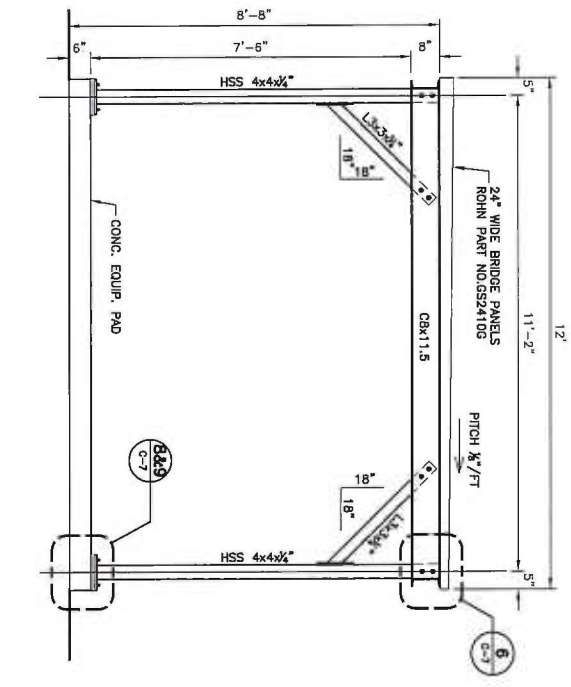
**3** NORTH CANOPY ELEVATION  
1/2" = 1'-0"



**2** PLAN - ROOF FRAMING  
1/4" = 1'-0"



**6** CANOPY FRAME CONNECTION  
SCALE: 1" = 1'-0"

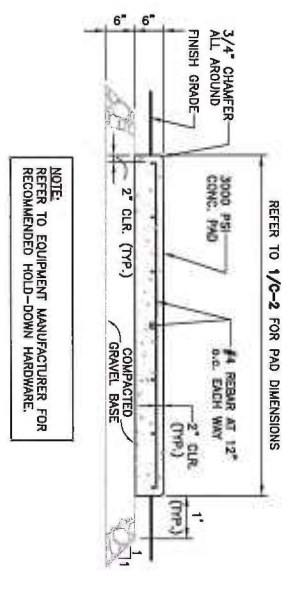


**5** CANOPY FRAME CONNECTION  
SCALE: 1-1/2" = 1'-0"

**4** CANOPY ELEVATION  
1/2" = 1'-0"

**PLAN NOTES AND LEGEND**

- VERIFY ALL DIMENSIONS, ELEVATIONS, EXISTING FRAMING MEMBER SIZES AND GENERAL CONDITIONS PRIOR TO COMMENCEMENT OF WORK. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND EXISTING CONDITIONS.
- INDICATES HSS4x4x3/8 ASTM A500 GR. B ( $F_y = 46 \text{ ksi}$ ) STEEL POST.
- INDICATES SPAN DIRECTION.
- K.B. INDICATES L3x3x1/4 ASTM A36 ( $F_y = 36 \text{ ksi}$ ) STEEL ANGLE.



**1** PLAN - EQUIPMENT PLATFORM  
NOT TO SCALE

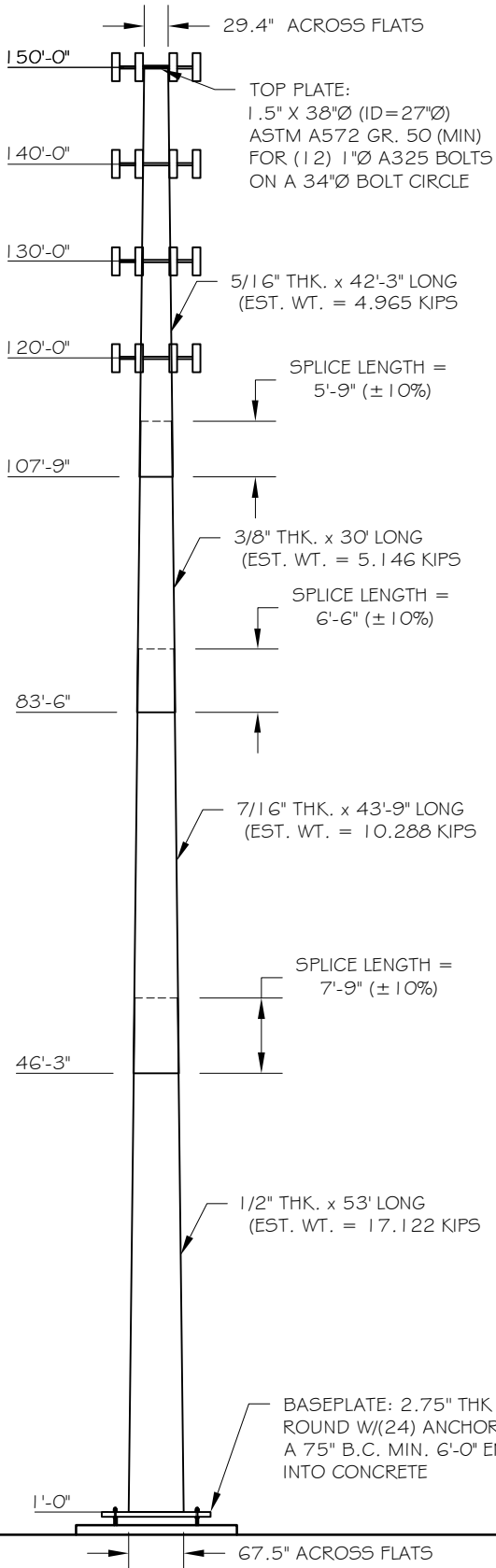
<p><b>C-7</b></p> <p>Sheet No. 9 of 9</p>	<p><b>EQUIPMENT PAD AND STAND ALONE ROOF DETAILS</b></p>	<p><b>DATE:</b> 09/29/15</p> <p><b>SCALE:</b> AS NOTED</p> <p><b>JOB NO.:</b> 13116.000</p>	<p><b>NORTH ATLANTIC TOWERS</b></p> <p>WIRELESS COMMUNICATIONS FACILITY</p> <p><b>SITE NUMBER: CT1155C</b></p> <p><b>SITE NAME: BETHEL</b></p> <p><b>62 + 64 CODFISH HILL ROAD</b></p> <p><b>BETHEL, CT</b></p>	<p><b>Centek engineering</b></p> <p>Continued on Solutions™</p> <p>(203) 488-0580</p> <p>(203) 488-8587 Fax</p> <p>63-2 North Branford Road</p> <p>Branford, CT 06405</p> <p>www.CentekEng.com</p>	<p><b>NORTH ATLANTIC TOWERS</b></p>	<p>PROFESSIONAL ENGINEER SEAL</p> <p>STATE OF CONNECTICUT</p> <p>10/29/15</p> <p>REV. DATE</p> <p>HMR</p> <p>DMD</p> <p>D&amp;M PLANS - ISSUED FOR CLIENT REVIEW</p> <p>DRAWN BY CHK'D BY DESCRIPTION</p>
	<p>10/29/15 HMR DMD D&amp;M PLANS - ISSUED FOR CLIENT REVIEW</p>					



# TransAmerican Power Products, Inc.

2427 Kelly Lane  
Houston, Texas 77066

PH: 281-444-8277 / FX: 281-444-7270



Page 1 of 2	Job Number: 40915-143
Eng: MFP	Customer Ref:
	Date: 11/9/2015
Structure: 150-FT MONOPOLE	
Site: CT 1155 BETHEL	
Location: FAIRFIELD CO., CT / 41°22'31", -73°22'56"	
Owner: NORTH ATLANTIC TOWERS	
Revision No.:	Revision Date:

DESIGN			
Building Code:	2006-2015 INTERNATIONAL BUILDING CODE		
Design Standard:	ANSI/TIA-222-G-2		
Wind Speed Load Cases:	3-SEC. GUSTED WIND SPEED		
Load Case #1:	100 MPH Design Wind Speed		
Load Case #2:	50 MPH Wind with 0.75" Ice Accumulation		
Load Case #3:	60 MPH Service Wind Speed		
Structure Class	Exposure Cat.	Topography Cat.	Crest Height
II	C	3	100'

EQUIPMENT LIST	
Elev.	Description
150	(6) 800-10736 + (6) WWO63X19XX PANEL + (13) RRH/RAYCAP
150	12-FT LOW PROFILE PLATFORM
140	(3) SBNHH-1DG565C + (9) KRC-118-054 + (19) RAYCAP/RRU
140	12-FT LOW PROFILE PLATFORM
130	(3) SBNHH-1DG565C + (9) KRC-118-054 + (19) RAYCAP/RRU
130	12-FT LOW PROFILE PLATFORM
120	VARIOUS EQUIPMENT
120	LOW PROFILE PLATFORM

ANTENNA FEED LINES ROUTED ON THE INSIDE OF THE POLE

STRUCTURE PROPERTIES					
Cross-Section: 18-SIDED			Taper: 0.27071 in/ft		
Shaft Steel: ASTM A572 GR 65			Baseplate Steel: ASTM A572 GR 50		
Anchor Rods: 2.25 in. A615 GR. 75 X 7'-0" LONG					
Sect.	Length (ft)	Thickness (in)	Splice (ft)	Top Dia. (in)	Bot Dia. (in)
1	42.25	0.3125	5.75	29.41	40.85
2	30.00	0.3750	6.50	38.67	46.79
3	43.75	0.4375	7.75	44.28	56.13
4	53.00	0.5000	0.00	53.15	67.50



MICHAEL F. PLAHOVINSAK, P.E. #25849  
18301 S.R. 161, Plain City, OH 43064  
614-398-6250 / mike@mfpeng.com

## BASE REACTIONS FOR FOUNDATION DESIGN

Moment: 9425 ft-kip  
Shear: 76 kip  
Axial: 82 kip



# TransAmerican Power Products, Inc.

2427 Kelly Lane  
Houston, Texas 77066

PH: 281-444-8277 / FX: 281-444-7270

Page 2 of 2	Job Number: 40915-143
Eng: MFP	Customer Ref:
	Date: 11/9/2015
Structure: 150-FT MONOPOLE	
Site: CT 1155 BETHEL	
Location: FAIRFIELD CO., CT / 41°22'31", -73°22'56"	
Owner: NORTH ATLANTIC TOWERS	
Revision No.:	Revision Date:

### FOUNDATION NOTES:

1. ALL FOUNDATION CONCRETE SHALL USE TYPE II CEMENT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.46 AND SHALL BE AIR ENTRAINED 6% (±1.5%). ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.

2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

3. THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS TO SUPPORT THE EXCAVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND SHALL CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.

4. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:  
ENGINEER: DR. CLARENCE WELTI  
REPORT NO.: N/A (DATED 10/8/15)

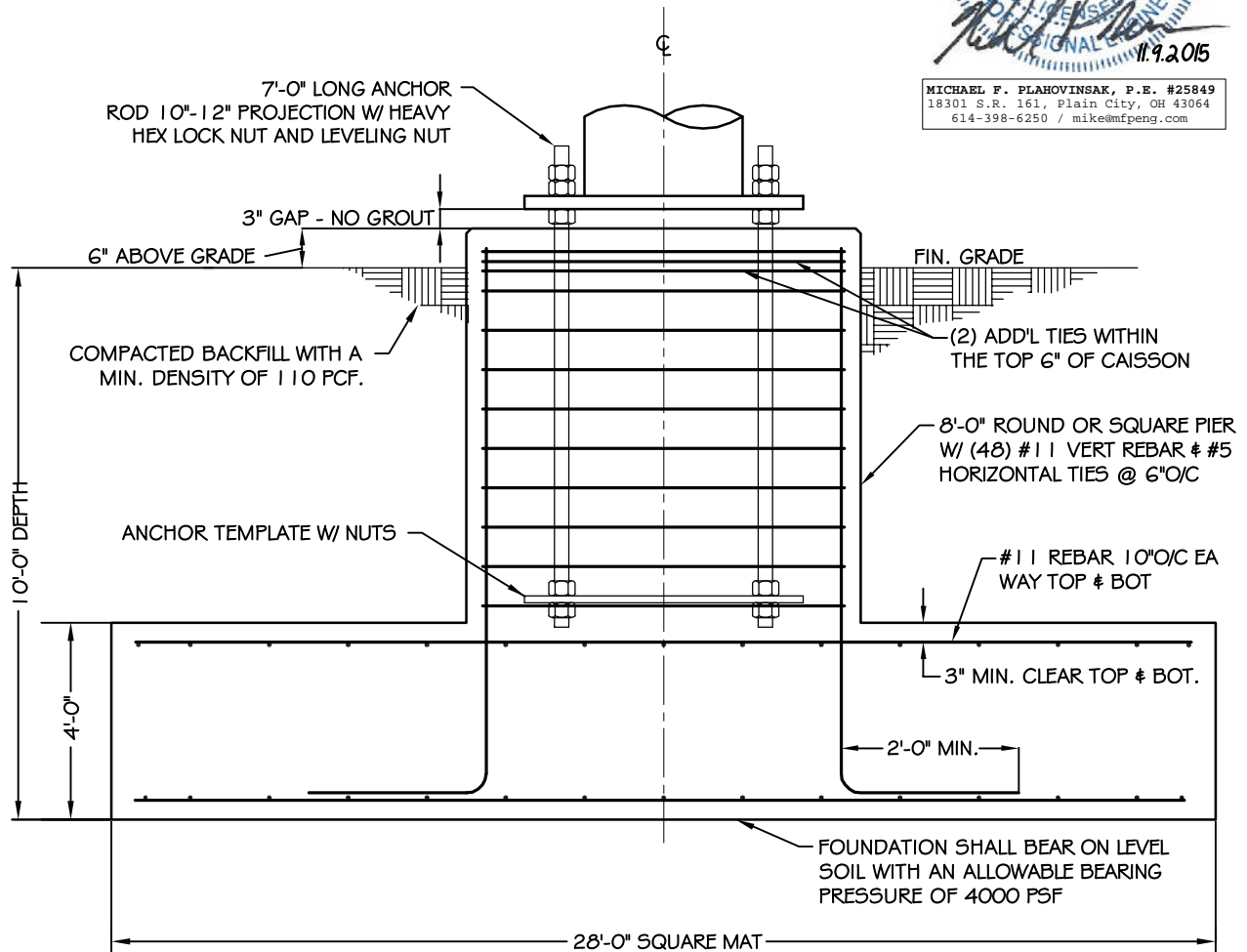
5. ESTIMATED CONCRETE VOLUME = 132 CUBIC YARDS.

6. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:

MOMENT: 9425 FT\*KIPS  
SHEAR: 76 KIPS  
AXIAL: 82 KIPS



MICHAEL F. PLAHOVINSAK, P.E. #25849  
18301 S.R. 161, Plain City, OH 43064  
614-398-6250 / mike@mfpeng.com



## SPREAD FOOTING

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 1 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

### Tower Input Data

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

The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Basic wind speed of 100 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 3.
- Crest Height 100.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

### Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-107.75	42.25	5.75	18	29.4100	40.8500	0.3125	1.2500	A572-65 (65 ksi)
L2	107.75-83.50	30.00	6.50	18	38.6681	46.7900	0.3750	1.5000	A572-65 (65 ksi)
L3	83.50-46.25	43.75	7.75	18	44.2803	56.1300	0.4375	1.7500	A572-65 (65 ksi)
L4	46.25-1.00	53.00		18	53.1559	67.5000	0.5000	2.0000	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	29.8637	28.8611	3087.1763	10.3296	14.9403	206.6344	6178.4147	14.4333	4.6262	14.804
	41.4802	40.2081	8347.6701	14.3908	20.7518	402.2625	16706.3244	20.1079	6.6396	21.247
L2	40.8453	45.5783	8443.7708	13.5940	19.6434	429.8532	16898.6521	22.7935	6.1456	16.388
	47.5118	55.2455	15036.6366	16.4773	23.7693	632.6069	30093.0588	27.6280	7.5750	20.2
L3	46.7510	60.8811	14784.8115	15.5642	22.4944	657.2673	29589.0772	30.4464	7.0233	16.053
	56.9959	77.3360	30304.8801	19.7708	28.5140	1062.8056	60649.6362	38.6753	9.1089	20.82
L4	56.1058	83.5649	29272.2107	18.6928	27.0032	1084.0276	58582.9385	41.7904	8.4754	16.951
	68.5413	106.3290	60302.9815	23.7850	34.2900	1758.6171	120685.311	53.1746	11.0000	22

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 2 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

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

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C <sub>AA</sub>		Weight
						ft <sup>2</sup> /ft	plf	
1 5/8"	C	No	Inside Pole	150.00 - 1.00	18	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
1 5/8"	C	No	Inside Pole	140.00 - 1.00	18	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
1 5/8"	C	No	Inside Pole	130.00 - 1.00	18	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub>		Weight K
			Horz ft	Lateral ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>	
(2) Kathrein 800-10736 w/ mount pipe	A	From Face	3.00	0.0000	150.00	No Ice	11.39	7.07	0.07
			0.00	0.0000		1/2" Ice	12.01	8.47	0.14
			0.00	0.0000		1" Ice	12.63	9.72	0.23
(2) Antel WWX063x19x00 w/ mount pipe	A	From Face	3.00	0.0000	150.00	No Ice	9.00	7.22	0.09
			0.00	0.0000		1/2" Ice	9.65	8.42	0.15
			0.00	0.0000		1" Ice	10.27	9.33	0.23
(2) Kathrein 800-10736 w/ mount pipe	B	From Face	3.00	0.0000	150.00	No Ice	11.39	7.07	0.07
			0.00	0.0000		1/2" Ice	12.01	8.47	0.14
			0.00	0.0000		1" Ice	12.63	9.72	0.23
(2) Antel WWX063x19x00 w/ mount pipe	B	From Face	3.00	0.0000	150.00	No Ice	9.00	7.22	0.09
			0.00	0.0000		1/2" Ice	9.65	8.42	0.15
			0.00	0.0000		1" Ice	10.27	9.33	0.23
(2) Kathrein 800-10736 w/ mount pipe	C	From Face	3.00	0.0000	150.00	No Ice	11.39	7.07	0.07
			0.00	0.0000		1/2" Ice	12.01	8.47	0.14
			0.00	0.0000		1" Ice	12.63	9.72	0.23
(2) Antel WWX063x19x00 w/ mount pipe	C	From Face	3.00	0.0000	150.00	No Ice	9.00	7.22	0.09
			0.00	0.0000		1/2" Ice	9.65	8.42	0.15
			0.00	0.0000		1" Ice	10.27	9.33	0.23
(12) Lucent RRH2x60-850 Band 5	A	From Face	2.00	0.0000	150.00	No Ice	3.77	2.02	0.06
			0.00	0.0000		1/2" Ice	4.08	2.30	0.08
			0.00	0.0000		1" Ice	4.40	2.59	0.10
Raycap DB-B1-6C-12Ab-0Z Box	B	From Face	2.00	0.0000	150.00	No Ice	3.93	2.56	0.03
			0.00	0.0000		1/2" Ice	4.20	2.79	0.06
			0.00	0.0000		1" Ice	4.48	3.04	0.09
12' Low Profile Platform (MT-196)	C	None		0.0000	150.00	No Ice	10.40	10.40	0.91
				0.0000		1/2" Ice	10.70	10.70	1.20
				0.0000		1" Ice	11.00	11.00	1.47
** Andrew SBNHH-1D6565C w/ mount pipe	A	From Face	3.00	0.0000	140.00	No Ice	11.47	9.48	0.09
			0.00	0.0000		1/2" Ice	12.08	10.90	0.17
			0.00	0.0000		1" Ice	12.71	12.17	0.27
(3) Ericsson KRC-118-054/1 w/ mount pipe	A	From Face	3.00	0.0000	140.00	No Ice	12.24	12.59	0.23
			0.00	0.0000		1/2" Ice	12.87	14.03	0.33
			0.00	0.0000		1" Ice	13.56	15.32	0.45
Andrew SBNHH-1D6565C w/ mount pipe	B	From Face	3.00	0.0000	140.00	No Ice	11.47	9.48	0.09
			0.00	0.0000		1/2" Ice	12.08	10.90	0.17
			0.00	0.0000		1" Ice	12.71	12.17	0.27



<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b>	150-ft Pole - MFP #40915-143	<b>Page</b>	3 of 7
	<b>Project</b>	CT1155 Bethel	<b>Date</b>	16:18:54 11/09/15
	<b>Client</b>	North Atlantic Towers	<b>Designed by</b>	Mike

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
(3) Ericsson KRC-118-054/1 w/ mount pipe	B	From Face	3.00	0.00	0.0000	140.00	No Ice	12.24	12.59	0.23
			0.00	0.00			1/2" Ice	12.87	14.03	0.33
			0.00	0.00			1" Ice	13.56	15.32	0.45
Andrew SBNHH-1D6565C w/ mount pipe	C	From Face	3.00	0.00	0.0000	140.00	No Ice	11.47	9.48	0.09
			0.00	0.00			1/2" Ice	12.08	10.90	0.17
			0.00	0.00			1" Ice	12.71	12.17	0.27
(3) Ericsson KRC-118-054/1 w/ mount pipe	C	From Face	3.00	0.00	0.0000	140.00	No Ice	12.24	12.59	0.23
			0.00	0.00			1/2" Ice	12.87	14.03	0.33
			0.00	0.00			1" Ice	13.56	15.32	0.45
(4) Raycap DC6-48-60-18-8F Supressor	A	From Face	2.00	0.00	0.0000	140.00	No Ice	1.47	1.47	0.03
			0.00	0.00			1/2" Ice	1.67	1.67	0.05
			0.00	0.00			1" Ice	1.88	1.88	0.07
(15) Ericsson RRU-11	B	From Face	2.00	0.00	0.0000	140.00	No Ice	2.94	1.52	0.05
			0.00	0.00			1/2" Ice	3.17	1.69	0.08
			0.00	0.00			1" Ice	3.41	1.88	0.10
12' Low Profile Platform (MT-196)	C	None			0.0000	140.00	No Ice	10.40	10.40	0.91
							1/2" Ice	10.70	10.70	1.20
							1" Ice	11.00	11.00	1.47
**										
Andrew SBNHH-1D6565C w/ mount pipe	A	From Face	3.00	0.00	0.0000	130.00	No Ice	11.47	9.48	0.09
			0.00	0.00			1/2" Ice	12.08	10.90	0.17
			0.00	0.00			1" Ice	12.71	12.17	0.27
(3) Ericsson KRC-118-054/1 w/ mount pipe	A	From Face	3.00	0.00	0.0000	130.00	No Ice	12.24	12.59	0.23
			0.00	0.00			1/2" Ice	12.87	14.03	0.33
			0.00	0.00			1" Ice	13.56	15.32	0.45
Andrew SBNHH-1D6565C w/ mount pipe	B	From Face	3.00	0.00	0.0000	130.00	No Ice	11.47	9.48	0.09
			0.00	0.00			1/2" Ice	12.08	10.90	0.17
			0.00	0.00			1" Ice	12.71	12.17	0.27
(3) Ericsson KRC-118-054/1 w/ mount pipe	B	From Face	3.00	0.00	0.0000	130.00	No Ice	12.24	12.59	0.23
			0.00	0.00			1/2" Ice	12.87	14.03	0.33
			0.00	0.00			1" Ice	13.56	15.32	0.45
Andrew SBNHH-1D6565C w/ mount pipe	C	From Face	3.00	0.00	0.0000	130.00	No Ice	11.47	9.48	0.09
			0.00	0.00			1/2" Ice	12.08	10.90	0.17
			0.00	0.00			1" Ice	12.71	12.17	0.27
(3) Ericsson KRC-118-054/1 w/ mount pipe	C	From Face	3.00	0.00	0.0000	130.00	No Ice	12.24	12.59	0.23
			0.00	0.00			1/2" Ice	12.87	14.03	0.33
			0.00	0.00			1" Ice	13.56	15.32	0.45
(4) Raycap DC6-48-60-18-8F Supressor	A	From Face	2.00	0.00	0.0000	130.00	No Ice	1.47	1.47	0.03
			0.00	0.00			1/2" Ice	1.67	1.67	0.05
			0.00	0.00			1" Ice	1.88	1.88	0.07
(15) Ericsson RRU-11	B	From Face	2.00	0.00	0.0000	130.00	No Ice	2.94	1.52	0.05
			0.00	0.00			1/2" Ice	3.17	1.69	0.08
			0.00	0.00			1" Ice	3.41	1.88	0.10
12' Low Profile Platform (MT-196)	C	None			0.0000	130.00	No Ice	10.40	10.40	0.91
							1/2" Ice	10.70	10.70	1.20
							1" Ice	11.00	11.00	1.47
**										
12' Low Profile Platform (MT-196)	C	None			0.0000	120.00	No Ice	10.40	10.40	0.91
							1/2" Ice	10.70	10.70	1.20
							1" Ice	11.00	11.00	1.47

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 4 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

## Load Combinations

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

## Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 107.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-45.88	-6.08	13.49
			Max. Mx	4	-18.93	-830.62	9.60
			Max. My	2	-19.11	-6.88	789.11
			Max. Vy	4	34.10	-830.62	9.60
			Max. Vx	2	-32.43	-6.88	789.11
			Max. Torque	4			7.30
L2	107.75 - 83.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-55.63	-6.21	13.78
			Max. Mx	4	-26.17	-1672.35	21.80
			Max. My	2	-26.31	-18.96	1591.60
			Max. Vy	4	37.55	-1672.35	21.80
			Max. Vx	2	-35.88	-18.96	1591.60
			Max. Torque	4			7.29
L3	83.5 - 46.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-73.94	-6.31	14.00
			Max. Mx	4	-40.23	-3132.09	40.39
			Max. My	2	-40.32	-37.45	2991.22
			Max. Vy	4	43.66	-3132.09	40.39
			Max. Vx	2	-42.00	-37.45	2991.22
			Max. Torque	4			7.28
L4	46.25 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-108.24	-6.27	13.91
			Max. Mx	4	-67.39	-5737.53	67.28
			Max. My	2	-67.39	-64.31	5509.32
			Max. Vy	4	55.11	-5737.53	67.28
			Max. Vx	2	-53.48	-64.31	5509.32
			Max. Torque	4			7.28

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 5 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 107.75	13.052	13	0.7537	0.0000
L2	113.5 - 83.5	7.552	13	0.6419	0.0005
L3	90 - 46.25	4.689	13	0.5036	0.0003
L4	54 - 1	1.653	13	0.2845	0.0001

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	(2) Kathrein 800-10736 w/ mount pipe	13	13.052	0.7537	0.0052	72311
140.00	Andrew SBNHH-1D6565C w/ mount pipe	13	11.477	0.7311	0.0044	36155
130.00	Andrew SBNHH-1D6565C w/ mount pipe	13	9.935	0.7046	0.0036	18077
120.00	12' Low Profile Platform (MT-196)	13	8.460	0.6702	0.0029	12051

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 107.75	64.895	4	3.7502	0.0007
L2	113.5 - 83.5	37.578	4	3.1921	0.0025
L3	90 - 46.25	23.341	4	2.5065	0.0014
L4	54 - 1	8.228	4	1.4163	0.0006

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	(2) Kathrein 800-10736 w/ mount pipe	4	64.895	3.7502	0.0262	14735
140.00	Andrew SBNHH-1D6565C w/ mount pipe	4	57.074	3.6369	0.0221	7367
130.00	Andrew SBNHH-1D6565C w/ mount pipe	4	49.417	3.5043	0.0181	3682
120.00	12' Low Profile Platform (MT-196)	4	42.088	3.3332	0.0145	2453

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 6 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 107.75 (1)	TP40.85x29.41x0.3125	42.25	0.00	0.0	38.6639	-18.93	2694.79	0.007
L2	107.75 - 83.5 (2)	TP46.79x38.6681x0.375	30.00	0.00	0.0	53.1509	-26.17	3760.52	0.007
L3	83.5 - 46.25 (3)	TP56.13x44.2803x0.4375	43.75	0.00	0.0	74.4211	-40.23	5218.03	0.008
L4	46.25 - 1 (4)	TP67.5x53.1559x0.5	53.00	0.00	0.0	106.329	-67.39	7227.43	0.009

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	150 - 107.75 (1)	TP40.85x29.41x0.3125	830.67	2159.72	0.385	0.00	2159.72	0.000
L2	107.75 - 83.5 (2)	TP46.79x38.6681x0.375	1672.49	3451.29	0.485	0.00	3451.29	0.000
L3	83.5 - 46.25 (3)	TP56.13x44.2803x0.4375	3132.36	5748.83	0.545	0.00	5748.83	0.000
L4	46.25 - 1 (4)	TP67.5x53.1559x0.5	5737.92	9961.42	0.576	0.00	9961.42	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> K	φV <sub>n</sub> K	Ratio $\frac{V_u}{\phi V_n}$	Actual T <sub>u</sub> kip-ft	φT <sub>n</sub> kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 107.75 (1)	TP40.85x29.41x0.3125	34.10	1347.39	0.025	7.29	4324.73	0.002
L2	107.75 - 83.5 (2)	TP46.79x38.6681x0.375	37.55	1880.26	0.020	7.29	6911.02	0.001
L3	83.5 - 46.25 (3)	TP56.13x44.2803x0.4375	43.66	2609.02	0.017	7.28	11511.75	0.001
L4	46.25 - 1 (4)	TP67.5x53.1559x0.5	55.11	3613.71	0.015	7.27	19947.25	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 107.75 (1)	0.007	0.385	0.000	0.025	0.002	0.392	1.000	4.8.2 ✓
L2	107.75 - 83.5 (2)	0.007	0.485	0.000	0.020	0.001	0.492	1.000	4.8.2 ✓
L3	83.5 - 46.25 (3)	0.008	0.545	0.000	0.017	0.001	0.553	1.000	4.8.2 ✓
L4	46.25 - 1 (4)	0.009	0.576	0.000	0.015	0.000	0.586	1.000	4.8.2 ✓

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 150-ft Pole - MFP #40915-143	<b>Page</b> 7 of 7
	<b>Project</b> CT1155 Bethel	<b>Date</b> 16:18:54 11/09/15
	<b>Client</b> North Atlantic Towers	<b>Designed by</b> Mike

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 107.75	Pole	TP40.85x29.41x0.3125	1	-18.93	2694.79	39.2	Pass
L2	107.75 - 83.5	Pole	TP46.79x38.6681x0.375	2	-26.17	3760.52	49.2	Pass
L3	83.5 - 46.25	Pole	TP56.13x44.2803x0.4375	3	-40.23	5218.03	55.3	Pass
L4	46.25 - 1	Pole	TP67.5x53.1559x0.5	4	-67.39	7227.43	58.6	Pass
Summary								
Pole (L4)							58.6	Pass
<b>RATING =</b>							<b>58.6</b>	<b>Pass</b>

<b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 email: mike@mfpeng.com	<b>Job</b> 150-ft monopole - MFP #40915-143	<b>Page</b> BP-G
	<b>Project</b> CT1155 Bethel	<b>Date</b> 11/9/2015
	<b>Client</b> TAPP TP-13840	<b>Designed by</b> Mike

## Anchor Rod and Base Plate Calculation

**ANSI/TIA-222-G-2**

<i>Factored Base Reactions:</i>	<i>Pole Shape:</i>	<i>Anchor Rods:</i>	<i>Base Plate:</i>
Moment: 5738 ft-kips	18-Sided	(24) 2.25 in. A615 GR. 75	2.75 in. x 81 in. Round
Shear: 55 kips	<i>Pole Dia. (D<sub>f</sub>):</i>	Anchor Rods Evenly Spaced	f <sub>y</sub> = 50 ksi
Axial: 67 kips	67.50 in	On a 75 in Bolt Circle	

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

- $\phi = 0.80$  TIA 4.9.9
- $I_{bolts} = 16875.00 \text{ in}^2$  Momet of Inertia
- $P_u = 153 \text{ kips}$  Tension Force
- $V_u = 2 \text{ kips}$  Shear Force
- $R_{nt} = 325.00 \text{ kips}$  Nominal Tensile Strength
- $\eta = 0.50$  for detail type (d)

The following Interaction Equation Shall Be Satisfied:

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

$$0.606 \leq 1$$

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

- $\phi = 0.90$  TIA 4.7
- $M_{pL} = 409.0 \text{ in-kip}$  Plate Moment
- $L = 8.8 \text{ in}$  Section Length
- $Z = 16.7$  Plastic Section Modulus
- $M_p = 835.3 \text{ in-kip}$  Plastic Moment
- $\phi M_n = 751.7 \text{ in-kip}$  Factored Resistance

Calculated Moment vs Factored Resistance

$$408.99 \text{ in-kip} \leq 752 \text{ in-kip}$$

<b>Anchor Rods Are Adequate</b>	<b>60.6%</b> <input checked="" type="checkbox"/>
<b>Base Plate is Adequate</b>	<b>54.4%</b> <input checked="" type="checkbox"/>

## Monopole Spread Footing Calculation

ANSI/TIA-222-G-2

---

Factored Base Reactions:	Footing Dimensions:		Concrete:
Moment: 9425 ft-kips	28 ft x 28 ft	8 ft Square Pier	$f_c = 4000$ psi
Shear: 76 kips	x 4 ft thick	w/6 in Reveal	Steel $f_y = 60$ ksi
Axial: 82 kips	Bearing 10 ft B.G.	131.6 Yd3 Concrete	$f = 0.75$
Soil Backfill 100 pcf	Ultimate Bearing:	8000 psf	Water Table n/a

---

### Foundation Weight

Weight of Pole	82.0 kips
Weight of Concrete	532.8 kips
Weight of Soil	432 kips
Bouyancy of Water	0.0 kips
Total	1046.8 kips

### Overturning Resistance:

Overturning Moment ( $M_u$ )	10223 ft-kips	9425 ft-kips + (76 kips x 10.5 ft)
Resisting Moment ( $R_s$ )	14655.2 ft-kips	1046.8 kips x 28 ft / 2
$\phi \times R_s > M_u$	$M_{\text{overturning}} / f M_{\text{resist}}$	<b>93.0%    OK</b>

### Soil Bearing Pressure:

Eccentricity (e)	9.77 ft	10223 ft-kips / 1046.8 kips
6(e)	58.6 ft >	28.0 ft    6e > 28
Maximum Soil Bearing	5691.0938 psf	Calculated across corners
Soil Overburden	-1000 psf	
Net Soil Bearing	4691.0938 psf	
Resisting Soil Bearing ( $R_s$ )	8000 psf	
Net Soil Bearing < $\phi \times R_s$	Net Bearing / $f R_s$	<b>78.2%    OK</b>

### Bending Moment in Pier:

Bending Moment	9919 ft-kips	9425 ft-kips + (76 kips x 6.5 ft)
Pier Steel Req'd (Loads)	73.40 in <sup>2</sup>	
Min. Pier Steel	46.08 in <sup>2</sup>	1/2% (Based on Square Pier)

### Bending Moment in Footing:

Max Bending Moment	6078.469 ft-kips	$\Sigma$ Moments about pier face
Footing Steel Req'd (Loads)	1.75 in <sup>2</sup> /ft	
Min. Footing Steel	1.04 in <sup>2</sup> /ft	0.18%

## ENVIRONMENTAL NOTES

### Eastern Box Turtle and Wood Turtle Protection Program

Eastern Box Turtle and Wood Turtle, both State Special Concern species afforded protection under the Connecticut Endangered Species Act, are known to occur on or within the vicinity of the site. The following protective measures, which satisfy requirements from the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division and follow protocols developed from previous rare species consultations and state-approved protection plans. This protection plan is valid for one year from the date of CTDEEP's letter, at which point if construction has not been initiated, a new Natural Diversity Data Base review request from CTDEEP is required.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site if work will occur during the Eastern Box Turtle's and Wood Turtle's active period (April 1 to November 15). All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that Eastern Box Turtle and Wood Turtle protection measures are implemented properly and will provide an education session on Eastern Box Turtle and Wood Turtle prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 984-9515 or via email at dgustafson@allpointstech.com.

The proposed Eastern Box Turtle and Wood Turtle species protection program consists of several components: isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

#### 1. Isolation Measures & Erosion and Sedimentation Controls

- a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the Verizon Wireless project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- b. Installation of conventional silt fencing, which will also serve as an isolation of the work zone from surrounding areas and required for erosion control compliance, shall be performed by the Contractor prior to any earthwork. APT will inspect the work zone area prior to and following barrier installation to ensure the area is free of eastern box turtles and wood turtles prior to start of construction activities.
- c. The fencing will consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or approved equivalent. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breaches in the fabric following installation and at either on a weekly or biweekly inspection frequency by APT. If inspections are performed on a biweekly basis, such inspections will also include inspections following storm events of 0.25 inch or greater. Inspections will be conducted by APT throughout the course of the construction project.



- d. The extent of the barrier fencing will be as shown on the site plans. The Contractor shall have additional barrier fencing should field conditions warrant extending the fencing as directed by APT.
- e. No equipment, vehicles or construction materials shall be stored outside of barrier fencing.
- f. All silt fencing shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted.

## **2. Contractor Education**

- a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT providing photos of eastern box turtles and wood turtles and emphasizing the non-aggressive nature of these turtles, the absence of need to destroy animals that might be encountered and the need to follow Protective Measures as described in Section 4 below. Workers will also be provided information regarding the identification of other turtle species that could be encountered.
- b. The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary "false alarms". Encounters with any species of turtles will be documented.
- c. The Contractor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with eastern box turtle, wood turtle or other turtle species. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

## **3. Petroleum Materials Storage and Spill Prevention**

- a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
  - i. Petroleum and Hazardous Materials Storage and Refueling
    - 1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
    - 2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact the appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to the Connecticut Siting Council.

**4. Turtle Protective Measures**

- a. Prior to the start of construction each day, the Contractor shall search the entire work area for turtles.
- b. If a turtle is found, it shall be immediately moved, unharmed, by carefully grasped in both hands, one on each side of the shell, between the turtle's forelimbs and the hind limbs, and placed just outside of the isolation barrier in the approximate direction it was walking.
- c. Special care shall be taken by the Contractor during early morning and evening hours so that possible basking or foraging turtles are not harmed by construction activities.

**5. Herbicide and Pesticide Restrictions**

- a. The use of herbicides and pesticides at the proposed wireless telecommunications facility and along the proposed access drive are strictly prohibited.

## 6. Reporting

- a. Biweekly inspection reports (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council for compliance verification.
  - b. Following completion of the construction project, APT will provide a summary report to CTDEEP documenting the monitoring and maintenance of the barrier fence and erosion control measures.
- 
- c. Any observations of eastern box turtle or wood turtle will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.