CUDDY& FEDER LLP

445 Hamilton Avenue, 14th Floor
White Plains, New York 10601
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www.cuddyfeder.com

August 8, 2014

VIA OVERNIGHT DELIVERY
Hon. Robert Stein, Chairman
and Members of the Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 440
New Cingular Wireless PCS, LLC (AT&T)
Application for Certificate of Environmental Compatibility
and Public Need for a Telecommunications Tower Facility at
522 Colebrook Road, Colebrook, Connecticut

Dear Chairman Stein and Members of the Siting Council:

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), please accept for review and Council approval this Development Management Plan ("D&M Plan") filing for the captioned Facility as approved in Docket No. 440.

Tower, Compound & Other Equipment
Enclosed are an original and fifteen (15) sets of 11"x 17" sized and two full sized sets of construction drawings filed in accordance with the Siting Council's ("Council") Decision and Order dated February 6, 2014 ("Decision and Order"). As per Order Number 1, the D&M Plan incorporates a stealth monopine tower with the top of the monopine "trunk" at 120' above ground level ("AGL") as well as the details of the associated compound and AT&T's equipment. The D&M Plan includes site clearing, drainage, and erosion and sedimentation control measures consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended. In keeping with Siting Council Order 3, the D&M Plan details Access 3 for the facility as well as a gate at the access drive.

Also enclosed, geotechnical information as well as the tower and foundation drawings. Please note that the tower design calculations are being bulk filed. In accordance with Order Number 2, a letter by Roger T. Alworth, S.E., P.E. of Vector Structural Engineers is provided which confirms that the tower is designed with a tower setback radius that remains within the subject property boundaries.

Specifications for AT&T's antennas and generator are provided as well. As per Siting Council Order 4c, a Wetland Evaluation Report is attached which includes a function and values assessment of the wetlands on the subject property as well as the wetland and vernal pool habitat protection plan.

Required Notifications

In accordance with RCSA Section 16-50j-61(d) copies of this filing are being provided to the Town of Colebrook. In accordance with the provisions of RCSA Section 16-50j-77, AT&T 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 Bryon Morawski of SAI. Mr. Morawski is located at 500 Enterprise Drive, Suite 3A, Rocky Hill, CT 06067 and can be reached by telephone at (860) 513-7223.

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.

Very truly yours,

Lucia Chiocchio

Lucia Chiocchio

Enclosures

cc: Melanie A. Bachman, Staff Attorney/Acting Executive Director
Michael Perrone, Siting Analyst
Thomas D. McKeon, First Selectman, Town of Colebrook
Michele Briggs, AT&T
Tim Burks, SAI
David Vivian, SAI

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 copy to:

Thomas D. McKeon
First Selectman
Town of Colebrook
562 Colebrook Rd
Colebrook, CT 06021
860-379-3359
tmckeon@colebrooktownhall.org

Dated: August 8, 2014

Lucia Chiocchio

Lucia Chiocchio

DR. CLARENCE WELTI, P.E., P.C.

GEOTECHNICAL ENGINEERING

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

April 18, 2014

Mr. David Vivian
New Cingular Wireless PCS, LLC
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Re: Geotechnical Study for Proposed AT&T Tower Site No. SR1765
522 Colebrook Road, Colebrook, CT

Dear Mr. Vivian:

1.0 Herewith are the data from the test boring and probes taken at the above referenced site. One boring was drilled at the center of the proposed tower. Weathered rock was encountered at 1.8 feet and hard bedrock at 2 feet below the existing grade. The boring was augered to 2 feet and bedrock was the cored from 2 to 7 feet. Four probes were drilled to auger refusal at 0.6 to 2.3 feet below the existing grades. The boring and probe locations are shown on the attached plan. *The boring and probe were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The **Subject Project** will include the construction of a monopine type tower with a height of about 120 feet.

3.0 The **Soil/Rock Cross Section** from the boring and probes was generally as follows:

Topsoil to about 3""

Subsoils; fine SAND and SILT to 1.8 feet, loose

Weathered Rock to auger refusal on hard rock at .6 to 2.3 feet

Bedrock; Schist and Gneiss - The rock core taken from 2.0 to 70.0 feet had an RQD value of 58%. The bedrock has a dip of about 75°.

3.1 The **Ground Water Table** was not encountered above the bedrock. The soils were wet.

4.0 In general the criteria for tower support is that the foundation capacity would exceed the loads, which might collapse the tower. **Movements from strains in the soils should be limited to differential settlement (or lateral movements of less than ½").**

5.0 The foundation system for the proposed tower could be as follows:

1. A large mat, placed sufficiently deep to prevent overturning by gravity resistance of the pad. This may either require rock removal or construction above grade.

2. A mat with anchorage into the bedrock to provide the required resistance to overturning.

5.1.1 In alternate (1) the mat would provide the required weight for resistance to over turning. The mat could be placed on a prepared blasted rock surface, or on hard bedrock. The bottom of the mat should be at least 3.5 feet below finished grades for frost protection. The allowable loading directly on the hard bedrock would be 6 Tons/sf. If bedrock removal is required, the pad area could be over blasted by 1 to 2 feet and the area could be leveled with a minimum 8" layer of 3/8" crushed stone, after removal of any large and loose pieces of rock. The allowable loading on the crushed stone over a blasted rock surface or on weathered/fractured rock can be 3 Tons/sf.

5.1.2 Regarding alternate (2) the same criteria for loading will apply. The resistance to uplift and overturning would be provided by rock anchors tied into the foundation. The allowable bond between the cement grout and the bedrock would be 50 psi, starting from 4 feet into the bedrock. The minimum anchor depth shall be 15 feet. For global stability the volume of rock should be that in truncated cone, 5 feet in diameter at the base and extending to the surface at 30° from axis of tie down. The weight of the rock is 160 pcf. Where rock anchors are used the foundation should be directly on the clean bedrock surface.

5.2 Summary of design parameters:

Parameter	Value
Allowable Loading on Clean Sound Bedrock Surface	6 Tons/sf
Allowable Loading on Crushed Stone over Blasted Rock Surface	3 Tons/sf
Tie Downs	
Bond Rock to Cement Grout	50 psi
Pull Out Angle (from Vertical)	30°

5.3 It should be noted that the rock surface may be irregular. Concrete fill (a sub-footing) may be required, when the rock is exposed.

6.0 This report has been prepared for specific a application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

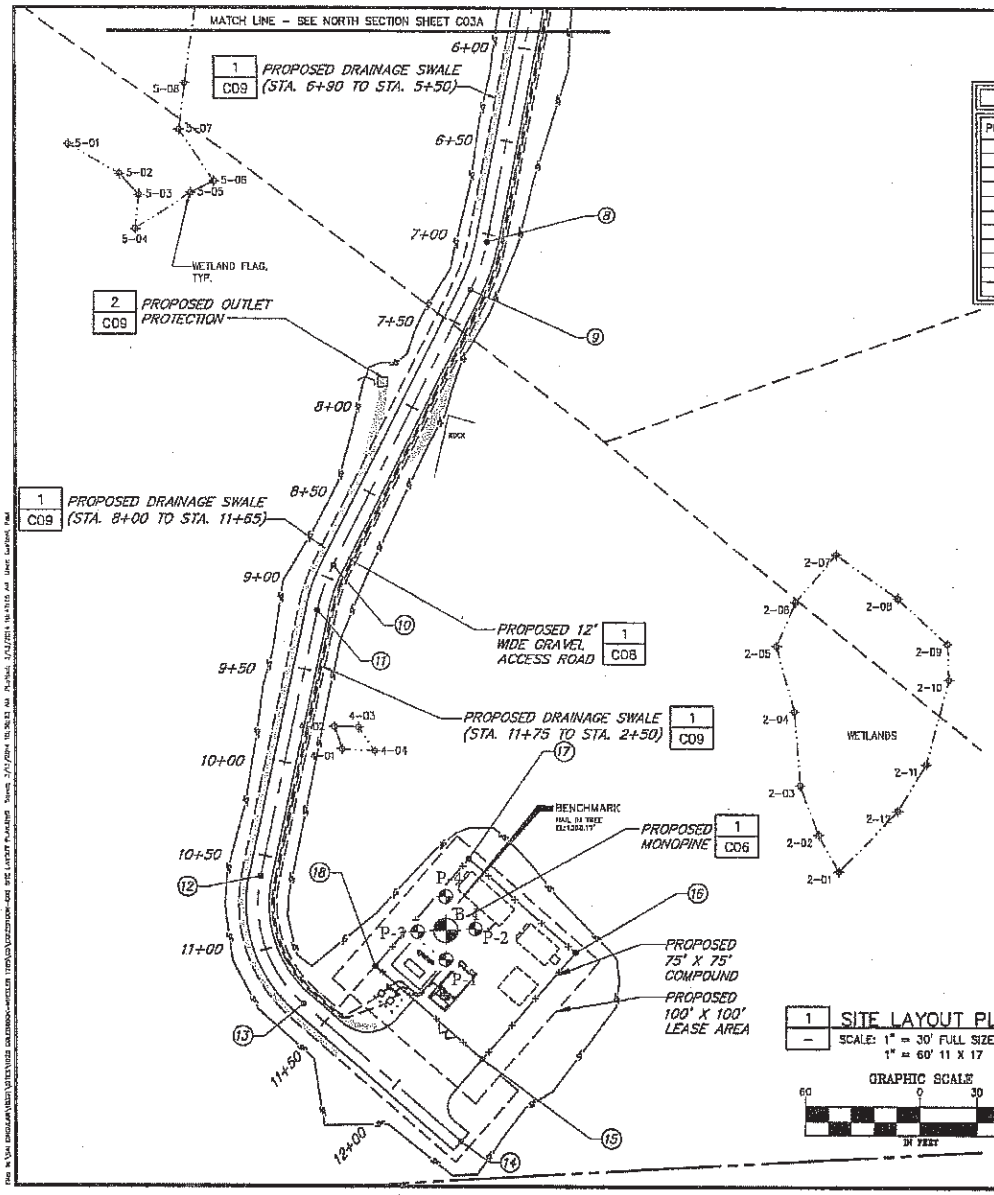
Dr. Clarence Welti, P.E., P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions please call me.

Very truly yours,

Max Welti

Max Welti, P. E.



1 – SITE LAYOUT PLAN
SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE
60 0 30 60
IN FEET

TEST BORING LOCATION

PROBE LOCATIONS

CLARENCE WELTI ASSOCIATES, INC
4/18/14

APPROX. TRUE N
APPROX. MAG. N
13½°

COORDINATE LAYOUT TABLE

POINT #	DESCRIPTION	EASTING(X)	NORTHING(Y)	STATION	OFFSET
8	POINT OF CURVE #4	907052.28	919882.58	7+03.97	0
9	POINT OF TANGENCY #4	907043.56	919857.17	7+30.91	0
10	POINT OF CURVE #5	906971.07	919712.56	8+92.69	0
11	POINT OF TANGENCY #5	906962.86	919688.69	9+18.05	0
12	POINT OF CURVE #6	906932.73	919548.97	10+60.94	0
13	POINT OF TANGENCY #6	906955.07	919481.63	11+35.35	0
14	ROAD END POINT	907037.67	919409.15	12+15.40	0
15	FENCE CORNER #1	907049.17	919452.42	12+25.40	40
16	FENCE CORNER #2	907098.87	919508.86	12+25.40	115
17	FENCE CORNER #3	907042.13	919556.25	11+50.40	115
18	FENCE CORNER #4	906992.73	919501.82	11+50.40	40

BEARING AND DISTANCE TABLE

LINE	DESCRIPTION	BEARING	DISTANCE
7–8	POINT OF TANGENCY #3 TO POINT OF CURVE #4	S11–11–47.2W	235.26
8–9	CHORD FROM POINT OF CURVE #4 TO POINT OF TANGENCY #4	S18–54–50.2W	26.85
9–10	POINT OF TANGENCY #4 TO POINT OF CURVE #5	S26–37–53.2W	161.78
10–11	CHORD FROM POINT OF CURVE #5 TO POINT OF TANGENCY #5	S19–21–55.0W	25.30
11–12	POINT OF TANGENCY #5 TO POINT OF CURVE #6	S12–05–56.9W	142.89
12–13	CHORD FROM POINT OF CURVE #6 TO POINT OF TANGENCY #6	S18–21–11.0E	70.93
13–14	POINT OF TANGENCY #6 TO ROAD END POINT	S48–48–18.8E	110.05
14–15	ROAD END POINT TO FENCE CORNER #1	N14–37–47.0E	44.72
15–16	FENCE CORNER #1 TO FENCE CORNER #2	N41–11–41.2E	75.00
16–17	FENCE CORNER #2 TO FENCE CORNER #3	N48–48–18.8W	75.00
17–18	FENCE CORNER #3 TO FENCE CORNER #4	S41–11–41.2W	75.00
18–15	FENCE CORNER #4 TO FENCE CORNER #1	S48–48–18.8E	75.00

KEY
SF SILT FENCE
SFH SILT FENCE/HAYBALE

at&t Your world. Delivered.
NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

SAI
22 KEEWAYDIN DRIVE
SALEM, NH 03079

CHA
CHA PROJECT NO:
16301 – 1025 ↔ 43000

NO.	SUBMITTAL		
0	03/11/14	ISSUED FOR 60% APPROVAL	
	BY: RM	CHK. BY:	APPR. BY:

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
SITE LAYOUT
PLAN SOUTH SECTION

SHEET NUMBER
C03B

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT SAI	PROJECT NAME AT&T SITE SR1765 LOCATION 522 COLEBROOK ROAD, COLEBRROK, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-1

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/14
FINISH DATE 4/18/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-0-6-60	0.00'-1.83'		TOPSOIL 0.20 DARK BR.FINE SAND AND SILT WEATHERED ROCK 1.8 2.0 CORED BEDROCK - SCHIST AND GNEISS RUN #1 2.0'- 7.0' RECOVERED 60" RQD=58% BOTTOM OF BORING @ 7.0' 7.0	
5						
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J.BREWER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. B-1

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT SAI	PROJECT NAME AT&T SITE SR1765 LOCATION 522 COLEBROOK ROAD, COLEBRROK, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	SOLID			
SIZE I.D.	4.0"			
HAMMER WT.				
HAMMER FALL				

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. PROBES

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/14
FINISH DATE 4/18/14

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0					PROBE # DEPTH TO AUGER REFUSAL	
					P-1 7"	
					P-2 14"	
					P-3 28"	
5					P-4 12"	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J.BREWER
INSPECTOR:

SHEET 1 OF 1 HOLE NO. **PROBES**

Project Number: U0142-316-141

June 9, 2014

STEALTH® Concealment Solutions
3034-A Ashley Phosphate Rd.
North Charleston, SC 29418

ATTN: Caroline Watson

REFERENCE: **Colebrook CT – 125 ft Tall Monopine (STEALTH #: AM14-00789K-00R0)**
Fall Zone Letter

Dear Ms. Watson:

It is understood that a 125 ft monopine has been proposed for this site. This monopole will consist of a 125 ft tall 18-sided tapered steel base pole with (99) branches ranging in size from 4' to 8' from 75'-0" A.G.L to 125'-0" A.G.L.

The above-mentioned pole has be designed in accordance with the International Building Code, 2003 and the ANSI TIA-222-G "Structural Standard for Antenna Supporting Structures and Antennas". Additionally, all steel members and connections have been designed to meet the requirements of the AISC Steel Construction Manual.

Several factors are used to determine the wind pressures on the pole; e.g., a gust response factor is used to account for sudden changes in wind speed, and a height coefficient is used to account for increasing wind speed with height. The pole has been designed with the following design criteria, per the 2003 IBC and TIA-222-G:

1. Wind speed (V): 95 mph (3-second gust)
2. Ice: 1.00" Radial ice thickness @ 40 mph (3 second gust)
3. Basic wind speed of 60 mph (3-second gust) for the service condition (deflection limitations only)
4. Risk Category / Structure Class II, Exposure Category C, Topographic Category 1

In designing steel members and connections, failure is defined as the point at which the induced stresses due to the design loads exceed the yield strength of the material. At this point permanent deflections will be initiated. However, rupture of the steel members and connections in a properly constructed steel pole is unlikely since steel is a ductile material, and is not anticipated until further loads in excess of the design loads, such as sustained or impact loads from hurricane-type winds, are applied. Rupture is defined as complete breakage of the steel member or connection.

It has been requested that the proposed monopole be designed for a fall zone radius of 30 ft. We have satisied this requirement by ensuring that in the unlikely event of failure, the point of maximum stress will occur in the upper 30 ft (or less) of the structure. The monopole has been designed such that at least one member or connection within 30 ft of the top of the structure will be designed to greater than or equal to 90% of capacity. Stress ratios of all other structural elements below this point, including the monopole, anchor rods, foundation, etc., have been designed to be at least 20% less than the highest stress ratio within the top 30 ft of the structure. If the structure ruptures, it will likely do so within 30 ft of the top of the monopole. Therefore, this structure has been designed to have a 30 ft fall zone radius.

We hope this meets your needs. If you have any further questions regarding this matter, please call this office at your convenience.

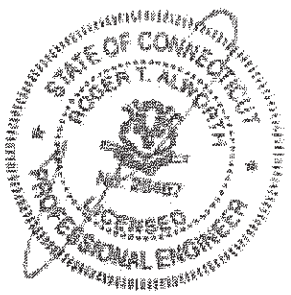
Very truly yours,
VECTOR STRUCTURAL ENGINEERS

Roger T. Alworth, S.E.
Principal Engineer

STATE OF CONNECTICUT
ROGER T. ALWORTH
No. 26467
LICENSED
PROFESSIONAL ENGINEER
06/10/2014

RTA/ajm

STRUCTURAL CALCULATIONS
for
COLEBROOK CT (SITE # 282783)
at
522 COLEBROOK RD
COLEBROOK, CT 06098
for
AMERICAN TOWER
&
STEALTH® CONCEALMENT SOLUTIONS (AM14-00789K-00R0)



06/10/2014

VALID WET SIGNATURE IN RED

BY: **ROGER T. ALWORTH, P.E.**
PRINCIPAL

PROJECT #: **U0142-316-141**

DATE: **June 9, 2014**

NOTE: **The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineers, PC.**

VECTOR ENGINEERS

JOB NO.: U0142-316-141 **DESIGNED:** AJM
DATE: 06/09/14 **CHECKED:** JSP

PROJECT: COLEBROOK CT

Design Criteria:

Code: Structural design is based on the International Building Code, 2003 Edition

Wind: Basic wind speed = 95 mph (3-second gust) per the TIA-222-G standard
Wind importance factor, I = 1
Occupancy category / Structure Class: II
Wind exposure: C
Topographic category: 1
Crest height: 0 ft

Ice: 1" radial ice @ 40 mph basic wind speed (3-second gust) per the TIA-222-G standard

General Notes:

1 The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
2 The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
3 These calculations are limited to the structural members shown in these calculations only. The connection of the members shown in these calculations to the existing structure shall be by others.
4 The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
5 All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Structural Steel:

1 All structural steel code checks based on the AISC-LRFD, 3rd Edition per the TIA-222-G standard
2 All 18-sided, tapered shaft steel to be per ASTM A572 GR. 65, U.N.O.
3 The design length of slip splices is equal to 1.67 times the inside width of the base of the upper section. Slip splice length tolerance is equal to ± 10% of the design slip splice length.
4 All other structural steel shapes & plates shall be per ASTM A36, U.N.O.
5 All anchor bolts shall be per ASTM A615 GR. 75, U.N.O.
6 All bolts for steel-to-steel connections shall be per ASTM A325N, U.N.O.
7 All bolted connections shall be tightened per the "turn-of-nut" method as defined by AISC.
8 All welding shall be performed by certified welders in accordance with the latest edition of the American Welding Society (AWS) D1.1
9 All steel surfaces shall be galvanized in accordance with ASTM A123 and ASTM A153 standards, thoroughly coated with a rust inhibitive red oxide primer, or otherwise protected as noted on the structural drawings.

VECTOR ENGINEERS

JOB NO.: U0142-316-141 **DESIGNED:** AJM
DATE: 06/09/14 **CHECKED:** JSP

PROJECT: COLEBROOK CT

Foundation / Concrete:

1 All concrete mixing, placement, forming, and reinforcing installation shall be performed in accordance with the requirements of "Building Code Requirements for Reinforced Concrete", ACI 318-02. Foundation installation shall be in accordance with the requirements of "Standard Specifications for the Construction of Drilled Piers", ACI 336, latest edition

2 All concrete shall have a minimum compressive strength of 4000 psi at 28 days.

3 Cement for all concrete shall be Type II with a minimum of 6% entrained air. Maximum aggregate size shall be ¾".

4 Reinforcing steel shall be per ASTM A615 Gr. 60, U.N.O.

5 Foundation design is based upon the project soils report prepared by:

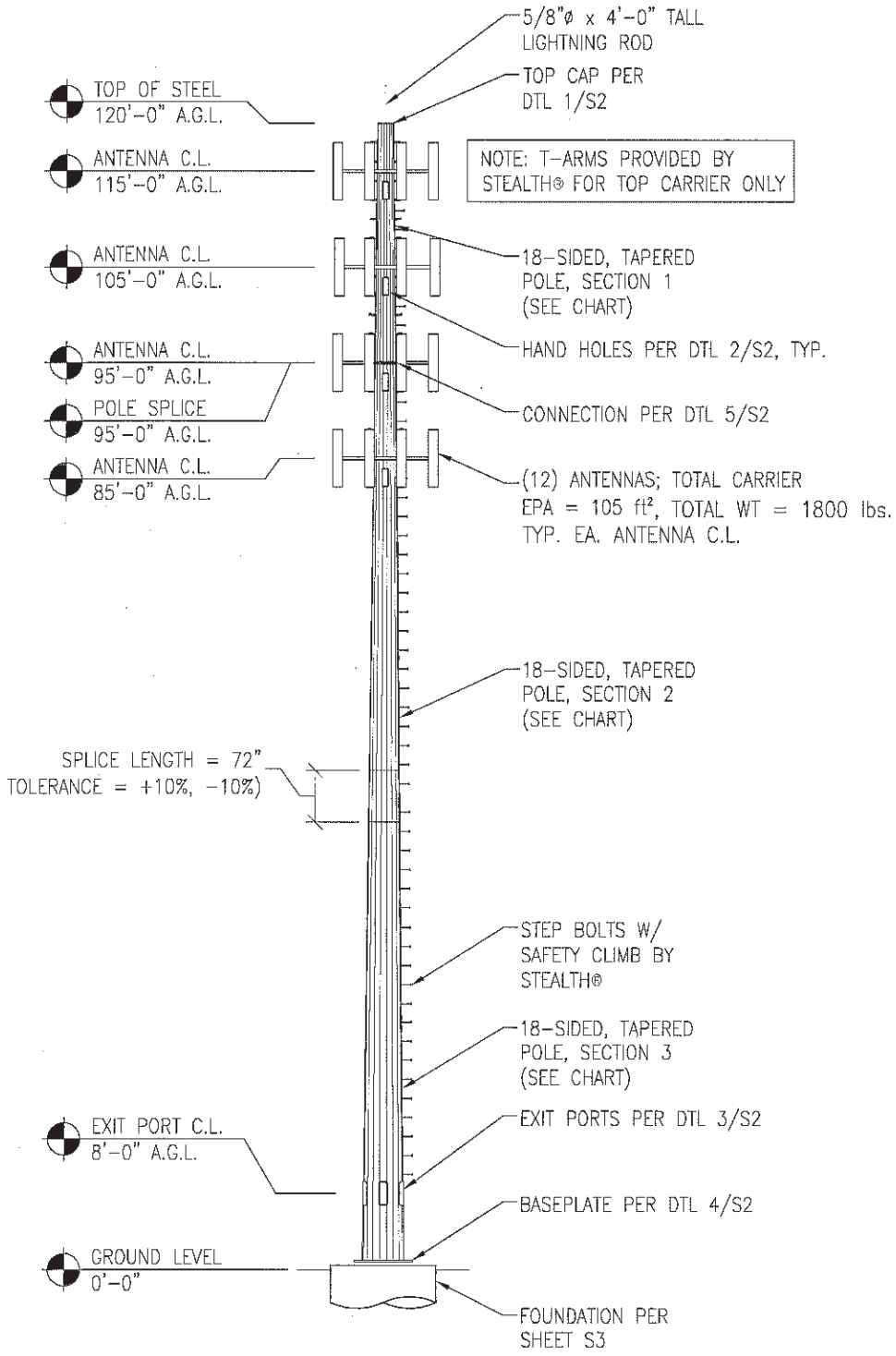
Geotech: Dr. Clarence Welti, P.E., P.C.
Report No: AT&T Site SR1765
Date: 18-Apr-14

6 Approximate concrete volume for mat foundation = 80.1 cubic yards

VECTOR ENGINEERS

JOB NO.: U0142-316-141 **DESIGNED:** AJM
DATE: 06/02/14 **CHECKED:** JSP

PROJECT: COLEBROOK CT



VECTOR ENGINEERS

JOB NO.: U0142-316-141 **DESIGNED:** AJM
DATE: 06/02/14 **CHECKED:** JSP

PROJECT: Colebrook CT

Monopine Branch Layout

Eff. Area Factor:	0.77	
Top Crown Radius:	5	ft
C_A Factor:	0.6	
Bott. Branch Elev. (ft):	75	ft
Top of Steel Elev. (ft):	120	ft

Branch Layout Along Pole:

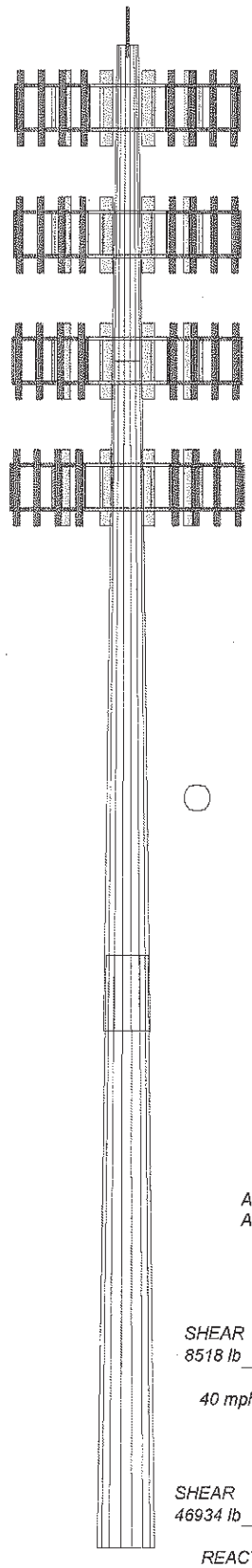
Branch Length (ft)	Qty	Elevation		Branch Wt. (lbs)	Total Wt. (lbs)	Wind Area		
		Start (ft)	Stop (ft)			Gross (ft^2)	Eff. (ft^2)	C_AA_E (ft^2)
4	7	116.8	120.0	11.0	77	30.9	23.8	14.3
6	18	108.6	116.8	16.0	288	113.0	87.0	52.2
6	18	100.5	108.6	16.0	288	113.8	87.6	52.6
6	18	92.3	100.5	16.0	288	114.7	88.3	53.0
8	20	83.2	92.3	22.0	440	164.8	126.9	76.1
8	18	75.0	83.2	22.0	396	149.1	114.8	68.9
	99			Total (lbs):	1777			

Top Crown:

Branch Length (ft)	Qty	Weight	Total Wt.
4	3	33	
6	1	16	49
Gross Area (ft2):	39.3		
Eff. Area (ft2):	30.2		
C_AA_E (ft^2):	18.1		

Section	1	2	3
Length (ft)	25.00	53.00	47.00
Number of Sides	18	18	18
Thickness (in)	0.1875	0.3750	0.4375
Socket Length (ft)		6.00	
Top Dia (in)	20.0000	27.5000	40.8500
Bot Dia (in)	27.5000	43.4000	54.9500
Grade	A572-65		
Weight (lb)	1192.9	7529.2	10540.7

19262.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top crown with (3) 4 ft, and (1) 6 ft branches	122.5	(18) 6 ft branches	104.5
Generic 5' Lightning Rod	121	(18) 6 ft branches	96.4
(7) 4 ft branches	118.4	American Tower (105 sq-ft - 1800 lbs)	95
American Tower (105 sq-ft - 1800 lbs)	115	(20) 6 ft branches	87.7
(18) 6 ft branches	112.7	American Tower (105 sq-ft - 1800 lbs)	85
American Tower (105 sq-ft - 1800 lbs)	105	(18) 6 ft branches	79.1

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 95 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 72.4%

ALL REACTIONS ARE FACTORED

AXIAL 65589 lb

SHEAR 8518 lb *MOMENT 766983 lb-ft*

40 mph WIND - 1.0000 in ICE

AXIAL 40126 lb

SHEAR 46934 lb *MOMENT 4237700 lb-ft*

REACTIONS - 95 mph WIND

Vector Engineers
9138 S. State Street, Suite 101
Sandy, UT 84070
Phone: (801) 990-1775
FAX: (801) 990-1776

Job: *Colebrook CT*			
Project: *U0142-316-141*			
Client: STEALTH® Concealment Solutions	Drawn by: amarker	App'd:	
Code: TIA-222-G	Date: 06/06/14	Scale: NTS	
Path:		Dwg No. E-1	

ALL-POINTS TECHNOLOGY CORPORATION

WETLAND EVALUATION REPORT

July 23, 2014

Site Acquisitions, Inc.
500 Enterprise Drive
Rocky Hill, CT 06067

APT Project No.: CT193990

Re: Response to D&O Condition #4. c)
CT Siting Council Docket 440
Proposed AT&T Facility
522 Colebrook Road
Colebrook, Connecticut

All-Points Technology Corporation, P.C. ("APT") understands that a wireless telecommunications facility ("Facility") is proposed by New Cingular Wireless PCS, LLC ("AT&T") at 522 Colebrook Road in Colebrook, Connecticut ("Site" or "Subject Property"). The Connecticut Siting Council's ("Council") Decision and Order ("D&O") Condition #4. c) requested a "U.S. Army Corps of Engineers methodology functions and values assessment for the wetlands on the subject property." The following evaluation of functions and values supported by wetlands on the Site is provided.

Site and Wetland Descriptions:

The Subject Property consists of an approximately 73.1-acre, mostly wooded parcel partially developed with a residence on its western side adjacent to Colebrook Road. The area proposed for the Facility is located adjacent to the southern property boundary in mature upland hardwood forest in the central portion of the Subject Property. Access to the Facility is proposed to originate off Smith Hill Road near the northeast property corner and traverse around wetland areas to avoid impact for a total distance of approximately 1,200 linear feet. The Site is dominated by mature upland hardwood forests with complexes of forested hillside seep and isolated depressional wetland systems intermingled with bedrock controlled upland glacial till habitat.

APT conducted inspections of the Subject Property on May 14th, 16th, 30th and October 30th in 2013.

Five wetland areas were delineated within the Study Area consisting of hillside seep and depressional wetland systems, two of them associated with zero order intermittent streams, as discussed below.

Wetlands were marked with pink and blue plastic flagging tape numbered with the following sequence: WF 1-01 to 1-08, WF 2-01 to 2-13 (loop), WF 3-01 to 3-100, 4-01 to 4-05 (loop), and WF 5-01 to 5-24.

Wetland Evaluation

There are many methods of evaluating wetlands, all incorporating different parameters to assess these resources. This study uses The *Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach issued by the US Army Corps of Engineers New England District ("COE NED"), September 1999.* This evaluation provides a qualitative approach in which wetland functions can be considered primary, secondary, or unlikely to be provided at a significant level. Functions and values can be principal if they are an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society, from a local, regional, and/or national perspective. The COE NED recommends that wetland values and functions be determined through "best professional judgment" based on a qualitative description of the physical attributes of wetlands and the functions and values exhibited.

The portion of Wetland 1 located on the Subject Property is relatively small (1,000± sq. ft.) with the bulk of the wetland located off Site to the south. This forested wetland includes both hillside seep and depressional forms. Wetland 1 is located approximately 470 feet west of the proposed Facility compound and 430± feet from the proposed 12-foot wide gravel access drive. Considering the majority of this wetland system is located off Site and the distance separating it from the proposed Facility, an evaluation of functions and values is not provided in this report as no impact to this wetland is anticipated by the proposed development.

Wetland 2 is a small (9,300± sq. ft.) isolated depressional wetland system formed in bedrock controlled thin glacial till soils. Northern portions of Wetland 2 have had numerous trees blown down, resulting in a re-initiation of the understory vegetation. Wetland 2 is located 145± feet east of the proposed Facility compound and 220± feet east from the proposed gravel access drive. This wetland may seasonally pond water that could result in support of vernal pool habitat. However, no use of this wetland by obligate or facultative vernal pool species for breeding was observed during the various wetland investigation dates; no ponding was observed on May 14th or 16th but ponding was observed on May 30th. It appears that the shallow depth to bedrock, potentially increasing the permeability of the thin glacial till soils through contact with the underlying fractured bedrock, results in a very short-cycle hydroperiod that would not support amphibian breeding during most years. As a result, this wetland is considered to provide marginal vernal pool habitat but could be used by migrating amphibians (staging habitat) as they make their way to Wetland 3, which provides more significant amphibian breeding habitat.

Wetland 3 is classified as "headwater wetlands" due to its location in the highest reach of the watershed and association with a zero order intermittent watercourse that flows north along and into the closed drainage system of Smith Hill Road. This wetland is located approximately 600 feet east/northeast of the proposed Facility compound. This wetland appears to have a hydroperiod associated with late winter and spring runoff and groundwater exfiltration controlled by glacial till underlain by dense fragipan. Wetland 3 begins near the southeast property corner, paralleling the east property boundary along Smith Hill Road, as a relatively broad wetland system with both hillside seep and depressional forms. The southern portion of Wetland 3 contains a shallow depressional landform is characterized by Eastern hemlock "hummock-hollow" topography (typical to northwestern Connecticut) that potentially supports cryptic vernal pool habitat. The nearest proposed development activities to the portion of Wetland 3 that supports cryptic vernal pool habitat is 670± feet from the proposed access drive; the eastern Facility compound corner is 760± feet away. The south end of Wetland 3 near the Subject Property boundary flows northwest to southeast but then turns from southeast to northwest as a drainage divide exists within this wetland system. As the gradient increases further to the northwest, Wetland 3 transitions to a well-defined intermittent stream with a narrow, well-defined bank. Occasionally, the intermittent stream flows diverge resulting in gutter flow along the west side of Smith Hill Road. Two catch basins along the west side of Smith Hill Road collect this runoff (along with road runoff) into a closed drainage system that is discharged to areas east of Smith Hill Road. At the northern extent of Wetland 3 (wetland flags 3-45 to 3-54), a hillside seep forms as a result of an old roadbed that cuts into the Site's hillside. This man-made hillside seep feature forms mid-slope as it intercepts the seasonal high groundwater table and flows north draining into Smith Hill Road. The proposed gravel access drive is located 17± feet west of this disturbed wetland feature (from wetland flag 3-50); grading activities will extend within 5± feet of this wetland location.

Wetland 4 is a man-made, very small (170± sq. ft.), isolated depressional wetland feature located mid-slope, formed in dense glacial. Wetland 4 is located approximately 70 feet northwest of the proposed Facility compound (65± feet from grading activities). Evidence in the form of relic charcoal fragments found in multiple soil test pits indicates that this feature is the result of a former charcoal pit. The cut into the slope to create the charcoal pit likely resulted in the interception of the seasonally high groundwater table exhibited in the observed wetland soil profiles. However, this feature does not support a predominance of wetland vegetation and therefore likely does not have sustained wetland hydrology. Considering the form of this feature, its small size and general lack of wetland features, no significant wetland functions or values are supported by this wetland. Therefore, a detailed evaluation of wetland functions and values is not provided in this report for Wetland 4.

Wetland 5, similar to Wetland 3, is classified as "headwater wetlands" due to its location in the highest reach of the watershed and association with a zero order intermittent watercourse. This wetland, which occupies the northern portion of the Subject Property, appears to have a hydroperiod associated with spring runoff and groundwater exfiltration controlled by glacial till with dense fragipan. In contrast to Wetland 3, no depressional areas exist within this wetland on Site (no seasonal inundation was evident and no vernal pool habitat was observed); wetland soils are seasonally saturated to the soil surface. The delineated edge of Wetland 5 is generally characterized by strong seasonal groundwater seeps that flow to the north. As seeps congregate within the interior of the wetland system, small seasonal braided intermittent watercourse channels form, which also converge in the northern extent of the wetland system as they flow to the north off the Subject Property. This wetland is located approximately 370 feet north of the proposed Facility compound at its closest proximity. The nearest proposed development activities to Wetland 5 are associated with the gravel access drive, located 25± feet west of wetland flag 5-20; grading activities will extend within 20± feet of this wetland location.

Due to the similar form and characteristics that are shared between Wetlands 3 and 5, their functions and values have been evaluated together. Notable features that are specific to one but not both of these wetland systems are highlighted.

Wetlands 2 Evaluation

A summary of the functions and values of Wetland 2 is provided below. A Wetland Function-Value Evaluation Summary Table and accompanying Field/Office Wetland Function-Value Evaluation Form for this wetland are enclosed.

Biological Functions: Fish habitat is not supported due to the ephemeral hydrology and lack of sustained hydrology within the confines of the seasonal intermittent watercourses associated with these two wetland systems.

This wetland system provides wildlife habitat function at a secondary level due to the very short-cycle hydroperiod supported by this wetland that limits its ability to support amphibian breeding habitat during most years and the lack of structural diversity in the tree, shrub and herbaceous layers. The proximity to other wetland systems on the Subject Property does enhance the wildlife habitat function of this depressional wetland system. This wetland system may provide staging for certain herpetofauna as they migrate to and disperse from other surrounding wetland habitats, with the intervening forested terrestrial habitat likely providing wildlife corridors biologically linking these various wetland areas.

Production export is not provided at a significant level from this wetland since it is relatively small and does not support a large diversity of vegetation, wildlife food sources or commercially used products.

Hydrologic Functions: This wetland does not provide floodflow alteration in a significant capacity due to its small size and small watershed that feeds surface water to this wetland system.

A secondary function of Wetland 2 is groundwater recharge, which is cyclical as this depressional wetland appears to only fill for short periods during the late winter/early spring and is dry for significant periods of the year.

Water Quality Functions: This wetland does not support sediment, toxicant, and pathogen retention functions at a significant level due to its small size, small watershed and undeveloped nature of the watershed which does not provide a source for these contaminants. Similarly, this wetland does not have the capacity to provide nutrient removal/nutrient retention/transformation.

Sediment/shoreline stabilization functions are not supported by this wetland since it is not associated with permanent open water or a stream system.

Societal Values: The wetland system does not provide recreational value as the wetland area is restricted from public access. Educational value is not supported in a significant capacity due to the lack of diversity of wetland habitats and restricted public access.

The Uniqueness/Heritage value considers the special value of a wetland in context with the overall landscape, cultural features, and rarity of wetland/habitat type in the local area. These wetland/habitat types are relatively common in the local area, including the cryptic style vernal pool habitat. According to an August 29, 2013 letter from the Connecticut Department of Energy and Environmental Protection ("CTDEEP") Natural Diversity Data Base ("NDDB"), "there are no extant populations of Federal or State-listed Endangered, Threatened or Special Concern Species that may be affected by the project as described in the application." Therefore, this wetland does not provide uniqueness/heritage value.

Wetlands 3 and 5 Evaluation

A summary of the functions and values of Wetland 3 and 5 is provided below. A Wetland Function-Value Evaluation Summary Table and accompanying Field/Office Wetland Function-Value Evaluation Form for these wetlands are enclosed.

Biological Functions: Fish habitat is not supported due to the ephemeral hydrology and lack of sustained hydrology within the confines of the seasonal intermittent watercourses associated with these two wetland systems.

These wetland systems provide wildlife habitat function at a principal level due to the diversity of habitat provided by these headwater wetland seeps and in particular the potential vernal pool habitat supported by Wetland 3. The presence of structural diversity in the tree, shrub and herbaceous layers relates to the ability to support this function at a principal level in both wetland systems. The proximity of both wetland systems, along with other wetland systems on the Subject Property, further enhances the wildlife habitat function with intervening undeveloped forested terrestrial habitat likely providing wildlife corridors biologically linking these various wetland areas. Beyond the cryptic vernal pool habitat supported by the southern portion of Wetland 3, seasonal seepage areas in both wetlands may provide staging habitat for certain herpetofauna as they migrate to and disperse from breeding habitats.

Production export is provided at a principal level from these wetlands since they support a relatively large diversity of vegetation and wildlife food sources. No significant commercially used products are supported by these wetland systems. Particularly for Wetland 3, the potential vernal pool breeding area would produce a wide variety of micro and macro wildlife that would be consumed by various wildlife.

Hydrologic Functions: These wetlands provide some floodflow alteration, at a secondary level, due to the relatively narrow forms of these wetlands, the moderate gradient and unrestricted outlet.

A principal function of Wetlands 3 and 5 is groundwater discharge/recharge, which is likely cyclical depending upon time of year, level of precipitation and landscape position of the wetland system.

Water Quality Functions: These wetlands provide sediment, toxicant, and pathogen retention functions at a principal level. The wetlands have the capacity to settle and retain sediments, toxicants and pathogens due to the hillside seep and depressional forms of these wetlands. However, opportunities are limited due to the relatively undeveloped

nature of the watersheds that support these wetland systems. Wetlands 3 and 5 provide nutrient removal/nutrient retention/transformation at a principal level for similar reasons.

Sediment/shoreline stabilization functions are supported by these wetlands in a secondary capacity; it is more of a function of the wetlands farther downstream where the zero order intermittent channel converges with other flows to become a first order intermittent watercourse.

Societal Values: The wetland system does not provide recreational value as the wetland area is restricted from public access. Educational value is supported as a secondary value due to the diversity of wetland habitats and potential for amphibian breeding; this value is not considered principal due to restricted public access.

The Uniqueness/Heritage value considers the special value of a wetland in context with the overall landscape, cultural features, and rarity of wetland/habitat type in the local area. These wetland/habitat types are relatively common in the local area, including the cryptic style vernal pool habitat. According to an August 29, 2013 letter from the Connecticut Department of Energy and Environmental Protection ("CTDEEP") Natural Diversity Data Base ("NDDB"), "there are no extant populations of Federal or State-listed Endangered, Threatened or Special Concern Species that may be affected by the project as described in the application." Therefore, this wetland does not provide uniqueness/heritage value.

Wetlands 3 and 5 do not support Visual Quality/Aesthetics value since they are relatively common wetland types, are heavily forested and do not support any unique visual qualities.

A Wetland Function-Value Evaluation Summary Table and Office/Field Forms are attached.

Wetland Impact Analysis

Based on a review of the Site Plans prepared by CHA (latest revision dates 03/11/14), no direct impact to wetlands is associated with the proposed AT&T development. The beginning portion of the proposed access drive will be in close proximity to Wetlands 3 and 5; due to the locations of these two wetland areas to either side of the proposed access drive greater separation distances to wetlands is not possible. It is important to point out that a previous alternative layout for the access drive would have resulted in some direct wetland impacts to Wetland 3, which will now be avoided.

Short-term impacts associated with the proposed development in proximity to wetland resources would be minimized by the proper installation and maintenance of erosion and sedimentation controls in accordance with *2002 Connecticut Guidelines For Soil Erosion and Sediment Control*. Long-term temporary impacts are minimized by the unoccupied nature of the Facility and limited traffic generated by routine maintenance visits (approximately once per month for AT&T). Impervious surfaces associated with the proposed Facility have been minimized with the use of a gravel surface within the Facility compound and the access drive that promotes infiltration. Site clearing and grading activities will not significantly alter the hydrology of nearby wetland areas, including vernal pool habitats, as existing surface water drainage patterns will not be altered by the proposed development. In addition, the proposed development will not create decoy pools that could adversely affect breeding amphibians. CHA has designed various stormwater management features generally in accordance with the *2004 Connecticut Stormwater Quality Manual* to properly handle and treat stormwater generated by the proposed development.

The potential exists for possible short-term impact to herpetofauna associated with nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint during construction. Best Management Practices ("BMPs"; Calhoun and Klemens, 2002) are recommended to protect wetland resources from temporary impacts and avoid unintentional impact or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. This plan includes elements that will protect herpetofauna should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]). In addition, due to the

close proximity of proposed work areas to wetland resources and relatively steep slopes, APT recommends that a wetland protection plan be implemented to avoid temporary wetland impacts during construction. The proposed wetland and vernal pool protection plan are provided as an attachment. Provided these recommendations are implemented, it is APT's opinion that the proposed AT&T development will not result in a likely adverse impact to wetland resources.

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

Sincerely,

All-Points Technology Corporation, P.C.

Dean Gustafson
Senior Wetland Scientist

Enclosures

Wetland Function-Value Evaluation Summary Table

&

Field/Office Wetland Function-Value Evaluation Forms

Wetland Function-Value Evaluation Summary Table

Total area of wetland	9,300± sq. ft	Human Made?	No	Is wetland part of a wildlife corridor?	Yes	or a "habitat Island"?	No	Wetland ID	Wetland 2 (WF 2-01 to 2-13)
Adjacent land use	Undeveloped forest, residential			Distance to nearest roadway or other development				Latitude/ Longitude	41.984500° N, -73.091126° W
Dominant wetland systems present	Palustrine Forest			Contiguous undeveloped buffer zone present	Yes			Prepared by	D. Gustafson Date 7/22/14
Is the wetland a separate hydraulic system?	Yes	If not, where does the wetland lie in the drainage basin?		Isolated wetland				Wetland Impact Type:	None Area None SF
How many Tributaries contribute to the wetland?	none; isolated wetland system	Wildlife & vegetation diversity/abundance	No					Corps manual wetland delineation Completed?	Yes

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Values(s)	Comments
Groundwater Recharge/Discharge	✓	☐	1,2,6,8,12,15	S	isolated wetland contributes to groundwater recharge
Floodflow Alteration	☐	✓	2,5		wetland's flood storage capacity is not significant
Fish and Shellfish Habitat	☐	✓	1		fisheries habitat is not provided by the isolated seasonally inundated wetland
Sediment/Toxicant Retention	✓	☐	6,8,9		small isolated wetland does not support this function in a significant capacity
Nutrient Removal	✓	☐	10,11,13,14		small isolated wetland does not support this function in a significant capacity
Production Export	✓	☐	2,4,5		function is limited due to general lack of vegetation species and structure diversity and small size of wetland
Sediment/Shoreline Stabilization	☐	✓			small isolated wetland does not border on stream or permanent open water to provide stabilization function
Wildlife Habitat	✓	☐	1-5,7,8,16-18	S	wildlife habitat value of wetland is limited by small size of wetland and very short-cycle hydroperiod
Recreation	☐	✓	5,6		public access is restricted to the wetland
Educational/Scientific Value	☐	✓	5, 13		limited value due to lack of public access
Uniqueness/Heritage	☐	✓	5, 7, 10, 18, 19		none
Visual Quality/Aesthetics	☐	✓	8, 11		public access restricted
Endangered Species Habitat	☐	✓			no rare species identified by state or federal agencies
Other	☐	✓			

* Refer to Field / Office Wetland Function-Value Evaluation Form for number considerations.

ALL-POINTS TECHNOLOGY CORPORATION

3 Saddlebrook Drive
Killingworth, Connecticut 06419
860 663-1697

Field / Office Wetland Function-Value Evaluation Form

Date(s):	July 22, 2014		Project Location:	522 Colebrook Road, Colebrook, CT	
Inspector(s):	Dean Gustafson, PSS		Wetland ID:	Wetland 2 (WF 2-01 to 2-13)	
Corps Delineation:	Yes ✓	No ☐	CT Delineation	Yes ✓	No ☐
Wetland Area:	9,300± sq. ft.		Proposed Impact:	Type:None	Area:None
Created Wetland:	Yes ☐	No ✓	Adjacent Land Use:	Undeveloped Forest and Residential	
Dominate System:	PFO		Nearest Roadway:	Colebrook Road	
Wildlife Corridor:	Yes ✓	No ☐	Habitat Island:	Yes ☐	No ✓
Tributaries:	none; isolated wetland		Buffer Condition:	Undeveloped - Forested	
Site Photo(s):			Species List(s):	Refer to Wetlands Delineation Report	

Wetland 2 is a small (9,300± sq. ft.) isolated depressional wetland system formed in bedrock controlled thin glacial till soils. Northern portions of Wetland 2 have had numerous trees blown down, resulting in a re-initiation of the understory vegetation. Wetland 2 is located 145± feet east of the proposed Facility compound and 220± feet east from the proposed gravel access drive. This wetland may seasonally pond water that could result in support of vernal pool habitat. It appears that the shallow depth to bedrock, potentially increasing the permeability of the thin glacial till soils through contact with the underlying fractured bedrock, results in a very short-cycle hydroperiod that would not support amphibian breeding during most years. As a result, this wetland is considered to provide marginal vernal pool habitat but could be used by migrating amphibians (staging habitat) as they make their way to Wetland 3, which provides more significant amphibian breeding habitat.

GROUNDWATER RECHARGE/DISCHARGE FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Public or private wells occur downstream of the wetland.	✓	☐	☐
2. Potential exists for public or private wells downstream of the wetland.	✓	☐	☐
3. Wetland is underlain by stratified drift.	☐	✓	☐
4. Gravel or sandy soils present in or adjacent to the wetland.	☐	✓	☐
5. Fragipan does not occur in the wetland.	☐	✓	☐
6. Fragipan, impervious soils, or bedrock does occur in the wetland.	✓	☐	✓
7. Wetland is associated with a perennial or intermittent watercourse.	☐	✓	☐
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.	✓	☐	✓
9. Wetland is associated w/ a watercourse but lacks a defined outlet/contains a constricted outlet.	☐	✓	☐
10. Wetland contains only an outlet, no inlet.	☐	✓	☐
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.	☐	✓	☐
12. Quality of water associated with the wetland is high.	✓	☐	☐
13. Signs of groundwater discharge are present (e.g., springs).	☐	✓	☐
14. Water temperature suggests it is a discharge site.	☐	✓	☐
15. Wetland shows signs of variable water levels	✓	☐	☐
16. Piezometer data demonstrates discharge.	☐	✓	☐
Comments: isolated wetland contributes to groundwater recharge			

FLOODFLOW ALTERATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Area of this wetland is large relative to its watershed.	☐	✓	☐
2. Wetland occurs in the upper portions of its watershed.	✓	☐	☐
3. Effective flood storage is small or non-existent upslope of or above the wetland.	☐	✓	☐
4. Wetland watershed contains a high percent of impervious surfaces.	☐	✓	☐
5. Wetland contains hydric soils which are able to absorb and detain water.	✓	☐	☐
6. Wetland exists in a relatively flat area that has flood storage potential.	☐	✓	☐
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.	☐	✓	☐
8. During flooding wetland retains higher volumes of water than under normal/average rainfall conditions.	☐	✓	☐
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.	☐	✓	☐
10. During a storm, this wetland may receive and detain excessive flood water from a nearby watercourse.	☐	✓	☐
11. Valuable properties, structures, or resources are located in/near floodplain downstream of the wetland.	☐	✓	☐
12. The watershed has a history of economic loss due to flooding.	☐	✓	☐
13. This wetland is associated with one or more watercourses.	☐	✓	☐
14. This wetland watercourse is sinuous or diffuse.	☐	✓	☐
15. This wetland outlet is constricted.	☐	✓	☐
16. Channel flow velocity is affected by this wetland.	☐	✓	☐
17. Land uses downstream are protected by this wetland.	☐	✓	☐
18. This wetland contains a high density of vegetation.	☐	✓	☐
Comments: wetland's flood storage capacity is not significant			

FISH AND SHELLFISH HABITAT (FRESHWATER) FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Forest land dominant in the watershed above this wetland.	✓	☐	☐
2. Abundance of cover objects present.	☐	✓	☐
STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
3. Size of this wetland is able to support large fish/shellfish populations.	☐	☐	☐
4. Wetland is part of a larger, contiguous watercourse.	☐	☐	☐
5. Sufficient open water size/depth so as not to freeze solid and retain some open water during winter.	☐	☐	☐
6. Stream width (bank to bank) is more than 50 feet.	☐	☐	☐
7. Quality of watercourse associated with wetland is able to support healthy fish/shellfish populations	☐	☐	☐
8. Streamside vegetation provides shade for the watercourse.	☐	☐	☐
9. Spawning areas are present (submerged vegetation or gravel beds).	☐	☐	☐
10. Food is available to fish/shellfish populations within this wetland.	☐	☐	☐
11. Anadromous fish barrier(s) absent from stream reach associated with this wetland.	☐	☐	☐
12. Evidence of fish is present.	☐	☐	☐
13. Wetland is stocked with fish.	☐	☐	☐
14. The watercourse is persistent.	☐	☐	☐
15. Man-made streams are absent.	☐	☐	☐
16. Water velocities are not too excessive for fish usage.	☐	☐	☐
17. Defined stream channel is present.	☐	☐	☐
Comments: fisheries habitat is not provided by the isolated seasonally inundated wetland			

FISH AND SHELLFISH HABITAT (MARINE) FUNCTION – N/A

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.	☐	☐	☐
2. Suitable spawning habitat is present at the site or in the area.	☐	☐	☐
3. Commercially or recreationally important species are present or suitable habitat exists.	☐	☐	☐
4. The wetland/waterway supports prey for higher trophic level marine organisms.	☐	☐	☐
5. The waterway provides migratory habitat for anadromous fish.	☐	☐	☐
6. Essential fish habitat (1996 amendments to the Magnuson-Stevens) Fishery & Conservation Act present	☐	☐	☐
Comments: marine fisheries habitat is not supported by this wetland			

SEDIMENT/TOXICANT/PATHOGEN RETENTION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Potential sources of excess sediment are in the watershed above the wetland.	☐	✓	☐
2. Potential or known sources of toxicants are in the watershed above the wetland.	☐	✓	☐
3. Opportunity for sediment trapping by slow moving water/deepwater habitat is present in wetland.	☐	✓	☐
4. Fine grained mineral or organic soils are present.	☐	✓	☐
5. Long duration water retention time is present in this wetland.	☐	✓	☐
6. Public or private water sources occur downstream.	✓	☐	☐
7. The wetland edge is broad and intermittently aerobic.	☐	✓	☐
8. The wetland is known to have existed for more than 50 years.	✓	☐	☐
9. Drainage ditches have not been constructed in the wetland.	✓	☐	☐
STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
10. Wetland is associated with an intermittent or perennial stream or a lake.	☐	☐	☐
11. Channelized flows have visible velocity decreases in the wetland.	☐	☐	☐
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.	☐	☐	☐
13. No indicators of erosive forces are present. No high water velocities are present.	☐	☐	☐
14. Diffuse water flows are present in the wetland.	☐	☐	☐
15. Wetland has a high degree of water and vegetation interspersion.	☐	☐	☐
16. Dense vegetation provides sediment trapping/signs of sediment accumulation are present.	☐	☐	☐
Comments: small isolated wetland does not support this function in a significant capacity			

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is large relative to the size of its watershed.	☐	✓	☐
2. Deep water or open water habitat exists.	☐	✓	☐
3. Overall potential for sediment trapping exists in the wetland.	☐	✓	☐
4. Potential sources of excess nutrients are present in the watershed above the wetland.	☐	✓	☐
5. Wetland saturated for most of the season. Ponded water is present in the wetland.	☐	✓	☐
6. Deep organic/sediment deposits are present.	☐	✓	☐
7. Slowly drained fine grained mineral or organic soils are present.	☐	✓	☐
8. Dense vegetation is present.	☐	✓	☐
9. Emergent vegetation and/or dense woody stems are dominant.	☐	✓	☐
10. Opportunity for nutrient attenuation exists.	✓	☐	☐
11. Vegetation diversity/abundance sufficient to utilize nutrients.	✓	☐	☐

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
12. Waterflow through this wetland is diffuse.	☐	✓	☐
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.	✓	☐	☐
14. Water moves slowly through this wetland.	✓	☐	☐
Comments: small isolated wetland does not support this function in a significant capacity			

PRODUCTION EXPORT (Nutrient) FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wildlife food sources grow within this wetland.	☐	✓	☐
2. Detritus development is present within this wetland	✓	☐	☐
3. Economically or commercially used products found in this wetland.	☐	✓	☐
4. Evidence of wildlife use found within this wetland.	✓	☐	☐
5. Higher trophic level consumers are utilizing this wetland.	✓	☐	☐
6. Fish or shellfish develop or occur in this wetland.	☐	✓	☐
7. High vegetation density is present.	☐	✓	☐
8. Wetland exhibits high degree of plant community structure/species diversity.	☐	✓	☐
9. High aquatic vegetative diversity/abundance is present.	☐	✓	☐
10. Nutrients exported in wetland watercourses (permanent outlet present).	☐	✓	☐
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.	☐	☐	☐
12. Wetland contains flowering plants that are used by nectar-gathering insects.	☐	✓	☐
13. Indications of export are present.	☐	✓	☐
14. High production levels occurring with no visible signs of export (assumes export is attenuated).	☐	✓	☐
Comments: function is limited due to general lack of vegetation species and structure diversity and small size of wetland			

SEDIMENT/SHORELINE STABILIZATION FUNCTION – N/A

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Indications of erosion or siltation are present.	☐	☐	☐
2. Topographical gradient is present in wetland.	☐	☐	☐
3. Potential sediment sources are present up-slope.	☐	☐	☐
4. Potential sediment sources are present upstream.	☐	☐	☐
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.	☐	☐	☐
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.	☐	☐	☐
7. Wide wetland (>10') borders watercourse, lake, or pond.	☐	☐	☐
8. High flow velocities in the wetland.	☐	☐	☐
9. The watershed is of sufficient size to produce channelized flow.	☐	☐	☐
10. Open water fetch is present.	☐	☐	☐
11. Boating activity is present.	☐	☐	☐
12. Dense vegetation is bordering watercourse, lake, or pond.	☐	☐	☐
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.	☐	☐	☐
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).	☐	☐	☐
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.	☐	☐	☐
Comments: small isolated wetland does not border on stream or permanent open water to provide stabilization function			

WILDLIFE HABITAT FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is not degraded by human activity.	✓	☐	☐
2. Water quality of watercourse/pond/lake associated w/ wetland meets/exceeds Class A or B standards.	✓	☐	☐
3. Wetland is not fragmented by development.	✓	☐	☐
4. Upland surrounding this wetland is undeveloped.	✓	☐	☐
5. > 40% of wetland edge bordered by upland wildlife habitat at least 500 ft in width.	✓	☐	☐
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.	☐	✓	☐
7. Wildlife overland access to other wetlands is present.	✓	☐	☐
8. Wildlife food sources are within this wetland or are nearby.	✓	☐	☐
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.	☐	✓	☐
10. Two or more islands or inclusions of upland within the wetland are present.	☐	✓	☐
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.	☐	✓	☐
12. > 3 acres shallow permanent open water (< 6.6 feet deep), including in/adjacent streams present.	☐	✓	☐
13. Density of the wetland vegetation is high.	☐	✓	☐
14. Wetland exhibits a high degree of plant species diversity.	☐	✓	☐
15. Wetland exhibits high degree plant community structure diversity (tree/shrub/vine/grasses/mosses)	☐	✓	☐
16. Plant/animal indicator species are present. (List species for project)	✓	☐	☐
17. Animal signs observed (tracks, scats, nesting areas, etc.)	✓	☐	☐
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.	✓	☐	☐
19. Wetland contains or has potential to contain a high population of insects.	☐	✓	☐
20. Wetland contains or has potential to contain large amphibian populations.	☐	✓	☐
21 Wetland has a high avian utilization or its potential.	☐	✓	☐
22. Indications of less disturbance-tolerant species are present.	☐	✓	☐
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).	☐	✓	☐
Comments: wildlife habitat value of wetland is limited by small size of wetland and very short-cycle hydroperiod			

RECREATION (Consumptive and Non-Consumptive) VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is part of a recreation area, park, forest, or refuge.	☐	✓	☐
2. Fishing is available within or from the wetland.	☐	✓	☐
3. Hunting is permitted in the wetland.	☐	✓	☐
4. Hiking occurs or has potential to occur within the wetland.	☐	✓	☐
5. Wetland is a valuable wildlife habitat.	✓	☐	☐
6. The watercourse, pond, or lake associated with the wetland is unpolluted.	✓	☐	☐
7. High visual/aesthetic quality of this potential recreation site.	☐	✓	☐
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.	☐	✓	☐
9. Watercourse associated w/ wetland is wide & deep enough to accommodate canoeing and/or non-powered boating.	☐	✓	☐
10. Off-road public parking available at the potential recreation site.	☐	✓	☐
11. Accessibility and travel ease is present at this site.	☐	✓	☐
12. The wetland is within a short drive or safe walk from highly populated public and private areas	☐	✓	☐
Comments: public access is restricted to the wetland			

EDUCATIONAL/SCIENTIFIC VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened, rare, or endangered species.	☐	✓	☐
2. Little or no disturbance is occurring in this wetland.	☐	✓	☐
3. Potential educational site contains a diversity of wetland classes & are accessible/potentially accessible.	☐	✓	☐
4. Potential educational site is undisturbed and natural.	☐	✓	☐
5. Wetland is considered to be a valuable wildlife habitat.	✓	☐	☐
6. Wetland is located within a nature preserve or wildlife management area.	☐	✓	☐
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).	☐	✓	☐
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.	☐	✓	☐
9. Potential educational site is within safe walking distance or a short drive to schools.	☐	✓	☐
10. Potential educational site is within safe walking distance to other plant communities.	☐	✓	☐
11. Direct access to perennial stream at potential educational site is available.	☐	✓	☐
12. Direct access to pond or lake at potential educational site is available.	☐	✓	☐
13. No known safety hazards exist within the potential educational site.	✓	☐	☐
14. Public access to the potential educational site is controlled.	☐	✓	☐
15. Handicap accessibility is available.	☐	✓	☐
16. Site is currently used for educational or scientific purposes.	☐	✓	☐
Comments: limited value due to lack of public access			

UNIQUENESS/HERITAGE VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Upland surrounding wetland is primarily urban.	☐	✓	☐
2. Upland surrounding wetland is developing rapidly.	☐	✓	☐
3. > 3 acres of shallow permanent open water (< 6.6 feet deep), including streams, occur in wetlands.	☐	✓	☐
4. Three or more wetland classes are present.	☐	✓	☐
5. Deep and/or shallow marsh or wooded swamp dominate.	✓	☐	☐
6. High degree of interspersion of vegetation and/or open water occur in this wetland.	☐	✓	☐
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.	✓	☐	☐
8. Potential educational site is within a short drive or a safe walk from schools.	☐	✓	☐
9. Off-road parking at potential educational site is suitable for school buses.	☐	✓	☐
10. No known safety hazards exist within this potential educational site.	✓	☐	☐
11. Direct access to perennial stream or lake exists at potential educational site.	☐	✓	☐
12. Two or more wetland classes are visible from primary viewing locations.	☐	✓	☐
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) visible from primary viewing locations.	☐	✓	☐
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.	☐	✓	☐
15. Large area of wetland dominated by flowering plants/plants that seasonally turn vibrant colors.	☐	✓	☐
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.	☐	✓	☐
17. Overall view of the wetland is available from the surrounding upland.	☐	✓	☐
18. Quality of the water associated with the wetland is high.	✓	☐	☐
19. Opportunities for wildlife observations are available.	✓	☐	☐
20. Historical buildings are found within the wetland.	☐	✓	☐
21. Presence of pond or pond site and remains of a dam occur within the wetland.	☐	✓	☐

22. Wetland is within 50 yards of the nearest perennial watercourse.	☐	✓	☐
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.	☐	✓	☐
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.	☐	✓	☐
25. Wetland is known to be a study site for scientific research.	☐	✓	☐
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.	☐	✓	☐
27. Wetland has local significance because it serves several functional values.	☐	✓	☐
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.	☐	✓	☐
29. Wetland is known to contain an important archaeological site.	☐	✓	☐
30. Wetland is hydrologically connected to a state or federally designated scenic river.	☐	✓	☐
31. Wetland is located in an area experiencing a high wetland loss rate.	☐	✓	☐
Comments: none			

VISUAL QUALITY/AESTHETICS VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Multiple wetland classes are visible from primary viewing locations.	☐	✓	☐
2. Emergent marsh and/or open water are visible from primary viewing locations.	☐	✓	☐
3. A diversity of vegetative species is visible from primary viewing locations	☐	✓	☐
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.	☐	✓	☐
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.	☐	✓	☐
6. Visible surrounding land use form contrasts with wetland.	☐	✓	☐
7. Wetland views absent of trash, debris, and signs of disturbance.	☐	✓	☐
8. Wetland is considered to be a valuable wildlife habitat.	✓	☐	☐
9. Wetland is easily accessed.	☐	✓	☐
10. Low noise level at primary viewing locations.	☐	✓	☐
11. Unpleasant odors absent at primary viewing locations.	✓	☐	☐
12. Relatively unobstructed sight line exists through wetland.	☐	✓	☐
Comments: public access restricted			

ENDANGERED SPECIES HABITAT VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened or endangered species.	☐	✓	☐
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.	☐	✓	☐
Comments: no rare species identified by state or federal agencies			

Wetland Function-Value Evaluation Summary Table

Total area of wetland	Wetland 3 = 3± ac. Wetland 5 = 4.5± ac.	Human Made?	No	Is wetland part of a wildlife corridor?	Yes	or a "habitat Island"?	No	Wetland ID	Wetland 3 (WF 3-01 to 3-100) & Wetland 5 (WF 5-01 to 5-24)
Adjacent land use	Undeveloped forest, residential			Distance to nearest roadway or other development		3 – 0 feet 5 – 100 feet		Latitude/ Longitude	3 – 41.985448° N, -73.089774° W 5 – 41.986487° N, -73.092802°
Dominant wetland systems present	Palustrine Forest			Contiguous undeveloped buffer zone present		No		Prepared by	D. Gustafson / Date 7/22/14
Is the wetland a separate hydraulic system?	Yes	If not, where does the wetland lie in the drainage basin?		headwater wetland				Wetland Impact Type:	None / Area None
How many Tributaries contribute to the wetland?	none; headwater wetland system	Wildlife & vegetation diversity/abundance	Yes					Corps manual wetland delineation Completed?	Yes

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Values(s)	Comments
Groundwater Recharge/Discharge	✓	☐	1,2,6-9,11-13,15	P	headwater wetlands contribute to base flow of zero order intermittent watercourses and groundwater recharge
Floodflow Alteration	✓	☐	1-3,5-7,9,11,13,14,17,18	S	Wetland 5's flood storage capacity is more limited than Wetland 3 due to moderate gradient
Fish and Shellfish Habitat	☐	✓	1,8,15,17		fisheries habitat is not provided by the seasonal intermittent watercourse due to limited hydroperiod
Sediment/Toxicant Retention	✓	☐	3-12,14,16	P	typical principal function associated with headwater wetland system
Nutrient Removal	✓	☐	1,2,5,7-12,14	P	typical principal function associated with headwater wetland system
Production Export	✓	☐	1,2,4,5,13	P	function is supported density and structure diversity of vegetation
Sediment/Shoreline Stabilization	✓	☐	1,2,5-7,9,12-15	S	bordering forested wetland system to the seasonal intermittent watercourse provides bank stabilization
Wildlife Habitat	✓	☐	1-5,7-9,11,13-18,20	P	wildlife habitat value supported by Wetlands 3 & 5 at a principal level, with portion of Wetland 3 supporting potential amphibian breeding habitat
Recreation	✓	☐	5,6,11,12		public access is restricted to the Wetland 5; Wetland 3 is partially accessible from Smith Hill Road
Educational/Scientific Value	✓	☐	2,4,5,9,13		limited value due to lack of public access
Uniqueness/Heritage	✓	☐	5-8,10,18,19,28		vernal pool habitat in Wetland 3 provides some uniqueness value
Visual Quality/Aesthetics	✓	☐	5,7-11		public access restricted
Endangered Species Habitat	☐	✓			no rare species identified by state or federal agencies
Other	☐	✓			

* Refer to Field / Office Wetland Function-Value Evaluation Form for number considerations.

Field / Office Wetland Function-Value Evaluation Form

Date(s):	July 22, 2014		Project Location:	522 Colebrook Road, Colebrook, CT	
Inspector(s):	Dean Gustafson, PSS		Wetland ID:	Wetland 3 (WF 3-01 to 3-100) & Wetland 5 (WF 5-01 to 5-24)	
Corps Delineation:	Yes ✓	No ☐	CT Delineation	Yes ✓	No ☐
Wetland Area:	Wetland 3 = 3± ac. Wetland 5 = 4.5± ac.		Proposed Impact:	Type:None	Area:None
Created Wetland:	Yes ☐	No ✓	Adjacent Land Use:	Undeveloped Forest and Residential	
Dominate System:	PFO		Nearest Roadway:	Colebrook Road	
Wildlife Corridor:	Yes ✓	No ☐	Habitat Island:	Yes ☐	No ✓
Tributaries:	none; zero order intermittent watercourses		Buffer Condition:	Undeveloped - Forested	
Site Photo(s):			Species List(s):	Refer to Wetlands Delineation Report	

Wetland 3 is classified as "headwater wetlands" due to its location in the highest reach of the watershed and association with a zero order intermittent watercourse that flows north along and into the closed drainage system of Smith Hill Road. This wetland is located approximately 600 feet northeast of the proposed Facility compound. This wetland appears to have a hydroperiod associated with late winter and spring runoff and groundwater exfiltration controlled by glacial till underlain by dense fragipan. The southern portion of Wetland 3 that contains a shallow depressional landform is characterized by Eastern hemlock "hummock-hollow" topography (typical to northwestern Connecticut) that potentially supports cryptic vernal pool habitat. The proposed gravel access drive is located 17± feet west of wetland flag 3-50; grading activities will extend within 5± feet of this wetland location.

Wetland 5, similar to Wetland 3, is classified as "headwater wetlands" due to its location in the highest reach of the watershed and association with a zero order intermittent watercourse. This wetland, which occupies the northern portion of the Subject Property, appears to have a hydroperiod associated with spring runoff and groundwater exfiltration controlled by glacial till with dense fragipan. In contrast to Wetland 3, no depressional areas exist within this wetland on Site (no seasonal inundation was evident and no vernal pool habitat was observed); wetland soils are seasonally saturated to the soil surface. This wetland is located approximately 370 feet north of the proposed Facility compound at its closest proximity. The nearest proposed development activities to Wetland 5 are associated with the gravel access drive, located 25± feet west of wetland flag 5-20; grading activities will extend within 20± feet of this wetland location.

GROUNDWATER RECHARGE/DISCHARGE FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Public or private wells occur downstream of the wetland.	✓	☐	☐
2. Potential exists for public or private wells downstream of the wetland.	✓	☐	☐
3. Wetland is underlain by stratified drift.	☐	✓	☐
4. Gravel or sandy soils present in or adjacent to the wetland.	☐	✓	☐
5. Fragipan does not occur in the wetland.	☐	✓	☐
6. Fragipan, impervious soils, or bedrock does occur in the wetland.	✓	☐	✓
7. Wetland is associated with a perennial or intermittent watercourse.	✓	☐	✓
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.	✓	☐	✓
9. Wetland is associated w/ a watercourse but lacks a defined outlet/contains a constricted outlet.	✓	☐	☐
10. Wetland contains only an outlet, no inlet.	☐	✓	☐
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.	✓	☐	☐
12. Quality of water associated with the wetland is high.	✓	☐	☐
13. Signs of groundwater discharge are present (e.g., springs).	✓	☐	✓
14. Water temperature suggests it is a discharge site.	☐	✓	☐

15. Wetland shows signs of variable water levels	✓	☐	☐
16. Piezometer data demonstrates discharge.	☐	✓	☐
Comments: headwater wetlands contribute to base flow of zero order intermittent watercourses and groundwater recharge			

FLOODFLOW ALTERATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Area of this wetland is large relative to its watershed.	✓	☐	✓
2. Wetland occurs in the upper portions of its watershed.	✓	☐	✓
3. Effective flood storage is small or non-existent upslope of or above the wetland.	✓	☐	☐
4. Wetland watershed contains a high percent of impervious surfaces.	☐	✓	☐
5. Wetland contains hydric soils which are able to absorb and detain water.	✓	☐	☐
6. Wetland exists in a relatively flat area that has flood storage potential. (only for Wetland 3)	✓	☐	☐
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.	✓	☐	☐
8. During flooding wetland retains higher volumes of water than under normal/average rainfall conditions.	☐	✓	☐
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.	✓	☐	☐
10. During a storm, this wetland may receive and detain excessive flood water from a nearby watercourse.	☐	✓	☐
11. Valuable properties, structures, or resources are located in/near floodplain downstream of the wetland.	✓	☐	☐
12. The watershed has a history of economic loss due to flooding.	☐	✓	☐
13. This wetland is associated with one or more watercourses.	✓	☐	☐
14. This wetland watercourse is sinuous or diffuse.	✓	☐	☐
15. This wetland outlet is constricted.	☐	✓	☐
16. Channel flow velocity is affected by this wetland.	☐	✓	☐
17. Land uses downstream are protected by this wetland.	✓	☐	☐
18. This wetland contains a high density of vegetation.	✓	☐	☐
Comments: Wetland 5's flood storage capacity is more limited than Wetland 3 due to moderate gradient			

FISH AND SHELLFISH HABITAT (FRESHWATER) FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Forest land dominant in the watershed above this wetland.	✓	☐	☐
2. Abundance of cover objects present.	☐	✓	☐
STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
3. Size of this wetland is able to support large fish/shellfish populations.	☐	✓	☐
4. Wetland is part of a larger, contiguous watercourse.	☐	✓	☐
5. Sufficient open water size/depth so as not to freeze solid and retain some open water during winter.	☐	✓	☐
6. Stream width (bank to bank) is more than 50 feet.	☐	✓	☐
7. Quality of watercourse associated with wetland is able to support healthy fish/shellfish populations	☐	✓	☐
8. Streamside vegetation provides shade for the watercourse.	✓	☐	☐
9. Spawning areas are present (submerged vegetation or gravel beds).	☐	✓	☐
10. Food is available to fish/shellfish populations within this wetland.	☐	✓	☐
11. Anadromous fish barrier(s) absent from stream reach associated with this wetland.	☐	✓	☐
12. Evidence of fish is present.	☐	✓	☐
13. Wetland is stocked with fish.	☐	✓	☐

14. The watercourse is persistent.	☐	✓	☐
15. Man-made streams are absent.	✓	☐	☐
16. Water velocities are not too excessive for fish usage.	☐	✓	☐
17. Defined stream channel is present.	✓	☐	☐
Comments: fisheries habitat is not provided by the seasonal intermittent watercourse due to limited hydroperiod			

FISH AND SHELLFISH HABITAT (MARINE) FUNCTION – N/A

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.	☐	☐	☐
2. Suitable spawning habitat is present at the site or in the area.	☐	☐	☐
3. Commercially or recreationally important species are present or suitable habitat exists.	☐	☐	☐
4. The wetland/waterway supports prey for higher trophic level marine organisms.	☐	☐	☐
5. The waterway provides migratory habitat for anadromous fish.	☐	☐	☐
6. Essential fish habitat (1996 amendments to the Magnuson-Stevens) Fishery & Conservation Act present	☐	☐	☐
Comments:			

SEDIMENT/TOXICANT/PATHOGEN RETENTION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Potential sources of excess sediment are in the watershed above the wetland.	☐	✓	☐
2. Potential or known sources of toxicants are in the watershed above the wetland.	☐	✓	☐
3. Opportunity for sediment trapping by slow moving water/deepwater habitat is present in wetland.	✓	☐	✓
4. Fine grained mineral or organic soils are present.	✓	☐	✓
5. Long duration water retention time is present in this wetland.	✓	☐	✓
6. Public or private water sources occur downstream.	✓	☐	☐
7. The wetland edge is broad and intermittently aerobic.	✓	☐	☐
8. The wetland is known to have existed for more than 50 years.	✓	☐	☐
9. Drainage ditches have not been constructed in the wetland.	✓	☐	☐
STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
10. Wetland is associated with an intermittent or perennial stream or a lake.	✓	☐	☐
11. Channelized flows have visible velocity decreases in the wetland.	✓	☐	☐
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.	✓	☐	✓
13. No indicators of erosive forces are present. No high water velocities are present.	☐	✓	☐
14. Diffuse water flows are present in the wetland.	✓	☐	✓
15. Wetland has a high degree of water and vegetation interspersion.	☐	✓	☐
16. Dense vegetation provides sediment trapping/signs of sediment accumulation are present.	✓	☐	☐
Comments: typical principal function associated with headwater wetland system			

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is large relative to the size of its watershed.	✓	☐	✓
2. Deep water or open water habitat exists.	☐	✓	☐
3. Overall potential for sediment trapping exists in the wetland.	✓	☐	✓
4. Potential sources of excess nutrients are present in the watershed above the wetland.	☐	✓	☐
5. Wetland saturated for most of the season. Ponded water is present in the wetland.	✓	☐	☐
6. Deep organic/sediment deposits are present.	☐	✓	☐

7. Slowly drained fine grained mineral or organic soils are present.	✓	☐	✓
8. Dense vegetation is present.	✓	☐	☐
9. Emergent vegetation and/or dense woody stems are dominant.	✓	☐	✓
10. Opportunity for nutrient attenuation exists.	✓	☐	✓
11. Vegetation diversity/abundance sufficient to utilize nutrients.	✓	☐	☐
STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE			
12. Waterflow through this wetland is diffuse.	✓	☐	✓
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.	☐	✓	☐
14. Water moves slowly through this wetland.	✓	☐	☐
Comments: typical principal function associated with headwater wetland system			

PRODUCTION EXPORT (Nutrient) FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wildlife food sources grow within this wetland.	✓	☐	☐
2. Detritus development is present within this wetland	✓	☐	✓
3. Economically or commercially used products found in this wetland.	☐	✓	☐
4. Evidence of wildlife use found within this wetland.	✓	☐	☐
5. Higher trophic level consumers are utilizing this wetland.	✓	☐	☐
6. Fish or shellfish develop or occur in this wetland.	☐	✓	☐
7. High vegetation density is present.	✓	☐	✓
8. Wetland exhibits high degree of plant community structure/species diversity.	✓	☐	✓
9. High aquatic vegetative diversity/abundance is present.	☐	✓	☐
10. Nutrients exported in wetland watercourses (permanent outlet present).	☐	✓	☐
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.	☐	✓	☐
12. Wetland contains flowering plants that are used by nectar-gathering insects.	☐	✓	☐
13. Indications of export are present.	✓	☐	☐
14. High production levels occurring with no visible signs of export (assumes export is attenuated).	☐	✓	☐
Comments: function is supported density and structure diversity of vegetation			

SEDIMENT/SHORELINE STABILIZATION FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Indications of erosion or siltation are present.	✓	☐	☐
2. Topographical gradient is present in wetland.	✓	☐	☐
3. Potential sediment sources are present up-slope.	☐	✓	☐
4. Potential sediment sources are present upstream.	☐	✓	☐
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.	✓	☐	☐
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.	✓	☐	✓
7. Wide wetland (>10') borders watercourse, lake, or pond.	✓	☐	✓
8. High flow velocities in the wetland.	☐	✓	☐
9. The watershed is of sufficient size to produce channelized flow.	✓	☐	☐
10. Open water fetch is present.	☐	✓	☐
11. Boating activity is present.	☐	✓	☐
12. Dense vegetation is bordering watercourse, lake, or pond.	✓	☐	☐
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.	✓	☐	✓
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive	✓	☐	✓

incidents and stabilize the shoreline on a large scale (feet).			
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.	✓	☐	☐
Comments: bordering forested wetland system to the seasonal intermittent watercourse provides bank stabilization			

WILDLIFE HABITAT FUNCTION

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is not degraded by human activity.	✓	☐	✓
2. Water quality of watercourse/pond/lake associated w/ wetland meets/exceeds Class A or B standards.	✓	☐	☐
3. Wetland is not fragmented by development.	✓	☐	☐
4. Upland surrounding this wetland is undeveloped.	✓	☐	☐
5. > 40% of wetland edge bordered by upland wildlife habitat at least 500 ft in width.	✓	☐	☐
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.	☐	✓	☐
7. Wildlife overland access to other wetlands is present.	✓	☐	☐
8. Wildlife food sources are within this wetland or are nearby.	✓	☐	☐
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.	✓	☐	☐
10. Two or more islands or inclusions of upland within the wetland are present.	☐	✓	☐
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.	✓	☐	☐
12. > 3 acres shallow permanent open water (< 6.6 feet deep), including in/adjacent streams present.	☐	✓	☐
13. Density of the wetland vegetation is high.	✓	☐	✓
14. Wetland exhibits a high degree of plant species diversity.	✓	☐	✓
15. Wetland exhibits high degree plant community structure diversity (tree/shrub/vine/grasses/mosses)	✓	☐	✓
16. Plant/animal indicator species are present. (List species for project)	✓	☐	☐
17. Animal signs observed (tracks, scats, nesting areas, etc.)	✓	☐	☐
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.	✓	☐	✓
19. Wetland contains or has potential to contain a high population of insects.	☐	✓	☐
20. Wetland contains or has potential to contain large amphibian populations. (Wetland 3)	✓	☐	☐
21 Wetland has a high avian utilization or its potential. UNK	☐	☐	☐
22. Indications of less disturbance-tolerant species are present. UNK	☐	☐	☐
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).	☐	✓	☐
Comments: wildlife habitat value supported by Wetlands 3 & 5 at a principal level, with portion of Wetland 3 supporting potential amphibian breeding habitat			

RECREATION (Consumptive and Non-Consumptive) VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland is part of a recreation area, park, forest, or refuge.	☐	✓	☐
2. Fishing is available within or from the wetland.	☐	✓	☐
3. Hunting is permitted in the wetland.	☐	✓	☐
4. Hiking occurs or has potential to occur within the wetland.	☐	✓	☐
5. Wetland is a valuable wildlife habitat.	✓	☐	☐
6. The watercourse, pond, or lake associated with the wetland is unpolluted.	✓	☐	☐
7. High visual/aesthetic quality of this potential recreation site.	☐	✓	☐
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.	☐	✓	☐
9. Watercourse associated w/ wetland is wide & deep enough to accommodate canoeing and/or non-powered boating.	☐	✓	☐
10. Off-road public parking available at the potential recreation site.	☐	✓	☐

11. Accessibility and travel ease is present at this site.	✓	☐	☐
12. The wetland is within a short drive or safe walk from highly populated public and private areas	✓	☐	☐
Comments: public access is restricted to the Wetland 5; Wetland 3 is partially accessible from Smith Hill Road			

EDUCATIONAL/SCIENTIFIC VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened, rare, or endangered species.	☐	✓	☐
2. Little or no disturbance is occurring in this wetland.	✓	☐	☐
3. Potential educational site contains a diversity of wetland classes & are accessible/potentially accessible.	☐	✓	☐
4. Potential educational site is undisturbed and natural.	✓	☐	☐
5. Wetland is considered to be a valuable wildlife habitat.	✓	☐	☐
6. Wetland is located within a nature preserve or wildlife management area.	☐	✓	☐
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).	☐	✓	☐
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.	☐	✓	☐
9. Potential educational site is within safe walking distance or a short drive to schools.	✓	☐	☐
10. Potential educational site is within safe walking distance to other plant communities.	☐	✓	☐
11. Direct access to perennial stream at potential educational site is available.	☐	✓	☐
12. Direct access to pond or lake at potential educational site is available.	☐	✓	☐
13. No known safety hazards exist within the potential educational site.	✓	☐	☐
14. Public access to the potential educational site is controlled.	☐	✓	☐
15. Handicap accessibility is available.	☐	✓	☐
16. Site is currently used for educational or scientific purposes.	☐	✓	☐
Comments: limited value due to lack of public access			

UNIQUENESS/HERITAGE VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Upland surrounding wetland is primarily urban.	☐	✓	☐
2. Upland surrounding wetland is developing rapidly.	☐	✓	☐
3. > 3 acres of shallow permanent open water (< 6.6 feet deep), including streams, occur in wetlands.	☐	✓	☐
4. Three or more wetland classes are present.	☐	✓	☐
5. Deep and/or shallow marsh or wooded swamp dominate.	✓	☐	✓
6. High degree of interspersion of vegetation and/or open water occur in this wetland.	✓	☐	✓
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.	✓	☐	☐
8. Potential educational site is within a short drive or a safe walk from schools.	✓	☐	☐
9. Off-road parking at potential educational site is suitable for school buses.	☐	✓	☐
10. No known safety hazards exist within this potential educational site.	✓	☐	☐
11. Direct access to perennial stream or lake exists at potential educational site.	☐	✓	☐
12. Two or more wetland classes are visible from primary viewing locations.	☐	✓	☐
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) visible from primary viewing locations.	☐	✓	☐
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.	☐	✓	☐
15. Large area of wetland dominated by flowering plants/plants that seasonally turn vibrant colors	☐	✓	☐
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.	☐	✓	☐
17. Overall view of the wetland is available from the surrounding upland.	☐	✓	☐

18. Quality of the water associated with the wetland is high.	✓	☐	☐
19. Opportunities for wildlife observations are available. (Wetland 3 access from Smith Hill Road)	✓	☐	☐
20. Historical buildings are found within the wetland.	☐	✓	☐
21. Presence of pond or pond site and remains of a dam occur within the wetland.	☐	✓	☐
22. Wetland is within 50 yards of the nearest perennial watercourse.	☐	✓	☐
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.	☐	✓	☐
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.	☐	✓	☐
25. Wetland is known to be a study site for scientific research.	☐	✓	☐
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.	☐	✓	☐
27. Wetland has local significance because it serves several functional values.	☐	✓	☐
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique. (vernal pool habitat in Wetland 3)	✓	☐	☐
29. Wetland is known to contain an important archaeological site.	☐	✓	☐
30. Wetland is hydrologically connected to a state or federally designated scenic river.	☐	✓	☐
31. Wetland is located in an area experiencing a high wetland loss rate.	☐	✓	☐
Comments: vernal pool habitat in Wetland 3 provides some uniqueness value			

VISUAL QUALITY/AESTHETICS VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Multiple wetland classes are visible from primary viewing locations.	☐	✓	☐
2. Emergent marsh and/or open water are visible from primary viewing locations.	☐	✓	☐
3. A diversity of vegetative species is visible from primary viewing locations	☐	✓	☐
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.	☐	✓	☐
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.	✓	☐	☐
6. Visible surrounding land use form contrasts with wetland.	☐	✓	☐
7. Wetland views absent of trash, debris, and signs of disturbance.	✓	☐	☐
8. Wetland is considered to be a valuable wildlife habitat.	✓	☐	☐
9. Wetland is easily accessed. (Wetland 3)	✓	☐	☐
10. Low noise level at primary viewing locations.	✓	☐	☐
11. Unpleasant odors absent at primary viewing locations.	✓	☐	☐
12. Relatively unobstructed sight line exists through wetland.	☐	✓	☐
Comments: public access restricted			

ENDANGERED SPECIES HABITAT VALUE

CONSIDERATIONS/QUALIFIERS	Y	N	Principal
1. Wetland contains or is known to contain threatened or endangered species.	☐	✓	☐
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.	☐	✓	☐
Comments: no rare species identified by state or federal agencies			

Wetland and Vernal Pool Protection Plan

ENVIRONMENTAL NOTES

Wetland and Vernal Pool Protection Plan

As a result of the proposed development's location in the vicinity of wetlands and vernal pool habitat, the following Best Management Practices ("BMPs") are recommended to avoid unintentional impact to wetland habitats or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. This plan includes elements that will protect herpetofauna should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]). Complete details of the recommended BMPs are provided below and will be incorporated into the Connecticut Siting Council's Development and Management ("D&M") Plan.

A qualified professional from APT would serve as the Environmental Monitor for this project to ensure that vernal pool protection measures are implemented properly. The proposed wetland and vernal pool protection program consists of several components including: isolation of the project perimeter; periodic inspection and maintenance of isolation structures; herpetofauna sweeps; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. **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 project. Temporary erosion control products that will be exposed at the ground surface represent a potential for wildlife entanglement will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

    b. Installation of erosion and sedimentation controls, required for erosion control compliance and creation of a barrier to possible migrating/dispersing herpetofauna, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of herpetofauna and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone from migrating/dispersing herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with herpetofauna.

    c. Silt fencing installed along the proposed access drive shall be installed with gaps of 1 to 2 feet placed every 50 feet and a second row of erosion control shall be placed 1 to 2 feet behind the first row and staggered ("syncopated silt fencing"[1]) so that wildlife, particularly herpetofauna can navigate through the barrier but not compromise the integrity of the erosion and sedimentation control measure. No syncopation openings should be included for the area of the proposed Facility

[1] The use of a syncopated style of silt fence installation to create a herpetofauna "friendly" crossing was originally designed by Dr. Michael Klemens, a renowned expert in herpetology and assessment of development impacts to vernal pool habitats, in 2010 for a project in northwestern Connecticut that received approval from the Connecticut Siting Council (Petition No. 983).

compound.

d. If a staging area for equipment, vehicles or construction materials is required for this project, such areas shall be restricted to either immediately south and/or west of the proposed Facility compound and include appropriate erosion control protection measures.

e. All silt fencing shall be removed within 30 days of completion of work and permanent stabilization of site soils so that herpetofauna movements between uplands and wetlands are not restricted.

2. Contractor Education:

a. Prior to work on site and initial deployment/mobilization of equipment and materials, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of information such as, but not limited to: representative photographs of typical herpetofauna that may be encountered, Connecticut and Federal listing status of species that could be encountered, typical species behavior, and proper procedures if species are encountered. The meeting will further emphasize the non-aggressive nature of these species, the absence of need to destroy such animals and the need to follow Protective Measures as described in Section 4 below. The Contractor will designate one of its workers as the "Project Monitor", who will receive more intense training on the identification and protection of herpetofauna.

b. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the periodic "sweeps" for herpetofauna within the work zone each morning, during any and all transportation of vehicles along the access drive, and for any ground disturbance work. This individual will receive more intense training from APT on the identification and protection of herpetofauna in order to perform sweeps. Any herpetofauna discovered will be reported to APT, photographed if possible, and relocated outside the work zone in the general direction the animal was oriented.

c. The Contractor's Project Monitor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with herpetofauna. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

d. APT will also post Caution Signs throughout the project site for the duration of the construction project providing notice of the environmentally sensitive nature of the work area, the potential for encountering various amphibians and reptiles and precautions to be taken to avoid injury to or mortality of these animals.

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 take place on an impervious pad with secondary containment designed to contain fuels.
      2. Any refueling drums/tanks 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. Protective Measures

a. A thorough cover search of the construction area will be performed by APT's Environmental Monitor for herpetofauna prior to and following installation of the silt fencing barriers to remove any species from the work zone prior to the initiation of construction activities. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented. Periodic inspections will be performed by APT's Environmental Monitor throughout the duration of the construction.

b. The Contractor's Project Monitor will inspect the work area each morning and

escort initial vehicle access into the site each morning along the access drive to visually inspect for any herpetofauna. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented.

c. Any herpetofauna requiring relocation out of the work zone will be captured with the use of a net for careful handling and placement out of the work zone in the general direction it was observed heading.

d. Any stormwater management features, ruts or artificial depressions that could hold water created intentionally or unintentionally by site clearing/construction activities will be properly filled in and permanently stabilized with vegetation to avoid the creation of vernal pool "decoy pools" that could intercept amphibians moving toward the vernal pools. Stormwater management features such as level spreaders will be carefully reviewed in the field to ensure that standing water does not endure for more than a 24 hour period to avoid creation of decoy pools and may be subject to field design changes. Any such proposed design changes will be reviewed by the design engineer to ensure stormwater management functions are maintained.

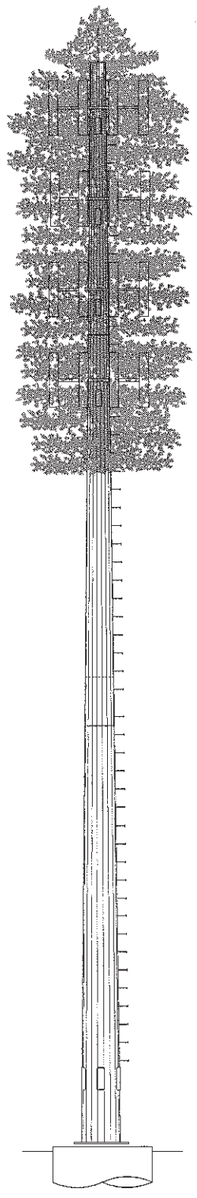
e. Erosion control measures will be removed no later than 30 days following final site stabilization so as not to impede migration of herpetofauna or other wildlife.

5. Herbicide and Pesticide Restrictions

a. Use of herbicides and pesticides at the proposed wireless telecommunications Facility shall be restricted.

6. Reporting

a. A summary inspection report (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council documenting inspections performed by APT for compliance verification following completion of the project. Any observations of herpetofauna will be included in the report. Any observations of rare species will be reported to the Connecticut Department of Energy & Environmental Protection Natural Diversity Data Base.



VECTOR ENGINEERS
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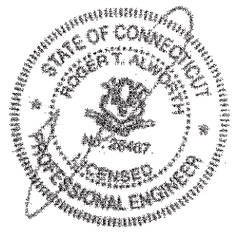
DRAWING INDEX



06/10/2014

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REVISION
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6/6/14

DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE INTERNATIONAL BUILDING CODE, 2003 EDITION & THE TIA-222-G STANDARD

DESIGN LOADS:
WIND:
BASIC WIND SPEED: 95 MPH (3-SEC GUST) PER TIA-222-G STANDARD
IMPORTANCE FACTOR: 1.00
STRUCTURE CLASS: II
EXPOSURE: C
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT

ICE: 1.00" RADIAL ICE THICKNESS @ 40 MPH (3-SEC GUST)

ESTIMATED WEIGHT (INCLUDING ANTENNAS AND COAX):
33.1 k (1.0 DEAD)

REACTIONS:

SHEAR, V = 47.0 k (1.6 WIND)
AXIAL, P = 65.6 k (1.2 DEAD + 1.0 ICE)
MOMENT, M = 4238 k-ft (1.6 WIND)

THE REACTIONS V & M LISTED ABOVE SHALL BE CONSIDERED TO ACT IN ANY HORIZONTAL DIRECTION.

GENERAL

1. THE TYPICAL NOTES SHALL APPLY FOR ALL CASES UNLESS OTHERWISE SPECIFICALLY DETAILED WITHIN THE DRAWINGS. SOME NOTES MAY NOT BE APPLICABLE IN PART OR IN WHOLE FOR EVERY PROJECT.
2. ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
3. DIMENSIONS CONTAINED WITHIN MUST BE FIELD VERIFIED AND CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
4. THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE ANTENNA SCREENING SYSTEMS OUTLINED WITHIN. THE EXISTING STRUCTURE OR BUILDING SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW STEALTH ® ENCLOSURE SHOWN ON THE DRAWINGS.
5. ANTENNA CONCEALMENT PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. STEALTH ® IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
6. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
7. PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
8. THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
9. THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE EXISTING BUILDING OR STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION:

1. STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE IBC TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
2. NO FIELD WELDING SHALL BE PERMITTED.
3. THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE IBC.
   - PERIODIC SPECIAL INSPECTION OF HIGH-STRENGTH BOLTING
   - CONTINUOUS SPECIAL INSPECTION OF ANCHOR BOLTS PRIOR TO AND DURING CONCRETE PLACEMENT
   - PERIODIC SPECIAL INSPECTION OF PLACEMENT OF REINFORCING STEEL
   - CONTINUOUS SPECIAL INSPECTION OF CONCRETE PLACEMENT
4. NO STRUCTURAL OBSERVATION IS REQUIRED.

MATERIAL NOTES:

1. 18-SIDED MONOPOLE SHAFT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
2. BASE PLATE STEEL SHALL CONFORM w/ ASTM A572, GR. 55, U.N.O.
3. REINFORCED ACCESS PORT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
4. ALL OTHER STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36, U.N.O.
5. ALL BOLTS FOR THE STEEL-TO-STEEL CONNECTIONS SHALL CONFORM w/ ASTM A325N, U.N.O.
6. ALL ANCHOR BOLTS SHALL CONFORM w/ ASTM A615 GR. 75, U.N.O.
7. ALL WELDING SHALL BE PEFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE LATEST VERSION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1. ALL WELDING SHALL BE PREFORMED IN A SHOP APPROVED BY THE BUILDING OFFICIAL. STEEL WELDS SHALL BE BY E70XX LOW HYDROGEN ELECTRODES.
8. ALL STEEL SURFACES SHALL BE GALVANIZED IN ACCORDANCE w/ ASTM & A153 ASTM A123 STANDARDS.
9. ALL BOLTED CONNECTIONS SHALL BE TIGHTENED PER THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC

STEALTHSKIN PANELS

1. FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
2. PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL. MAINTAIN 1 ½" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. CORNER PANELS REQUIRE (3) FASTENERS TOP AND BOTTOM PER SIDE.
3. WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY ½ TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH® STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
4. PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
5. ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
6. ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
7. RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
8. SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
9. EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. STEALTH® WILL PROVIDE PANEL EDGE CAPS TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. PANEL EDGE CAPS TO BE SECURED WITH TEK SCREW INSTALLED @ 18" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL.

DISCLAIMERS:

1. ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.

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STATE OF CONNECTICUT
ROGER T. ALWORTH
No. 28487
LICENSED
PROFESSIONAL ENGINEER

06/10/2014

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16" .XXX ± 0.01"
ANGULAR X ± 0.5°

NOTES & SPECIFICATIONS

AMERICAN TOWER
SITE: 282783; COLEBROOK CT
522 COLEBROOK RD
COLEBROOK, CT 06098

JOB #: AM14-00789K-00R0
DRAWN: MGP-VSE
DESIGNED: AJM-VSE
REVISED:

N1
6/6/14
REVISION 0

REVISION TABLE			
REVISION	DESIGNER	DATE	SCOPE OF REVISION
0	AJM-VSE	6-6-14	FINAL ENGINEERING

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NOTES & SPECIFICATIONS

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REVISED:

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6/6/14

REVISION 0

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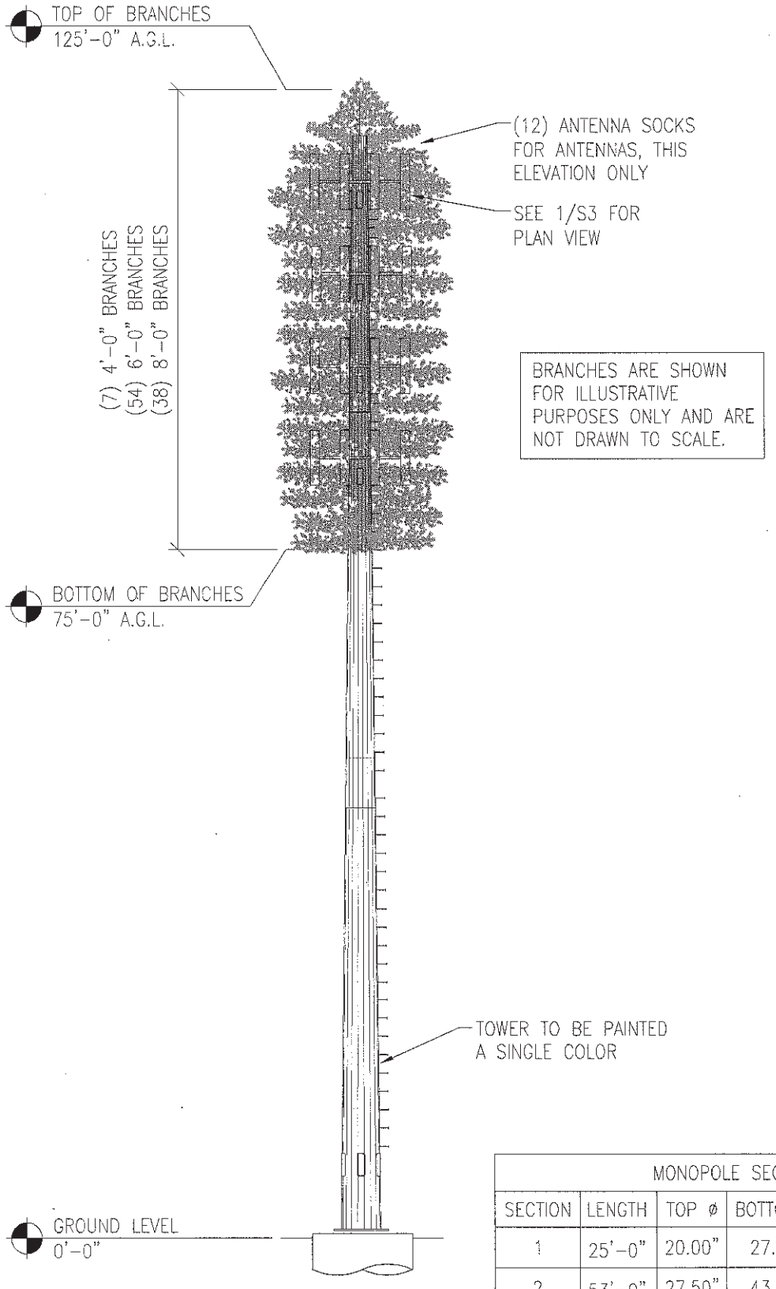

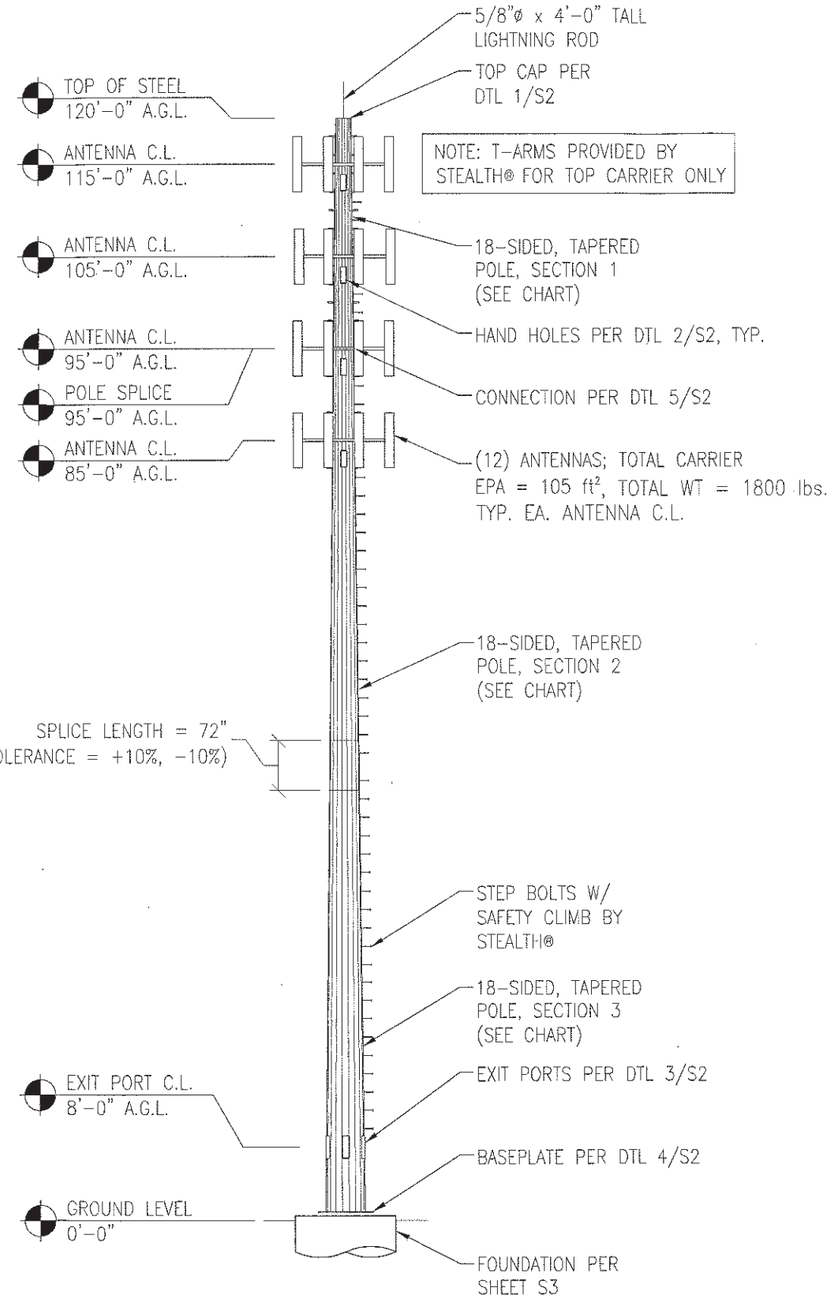

MONOPOLE SECTION CHART					
SECTION	LENGTH	TOP ø	BOTTOM ø	THICKNESS	WEIGHT
1	25'-0"	20.00"	27.50"	3/16"	1.2 K
2	53'-0"	27.50"	43.40"	3/8"	7.5 K
3	47'-0"	40.85"	54.95"	7/16"	15.1 K *

* INCLUDES BASEPLATE & PORT WEIGHT
TAPER = 0.3 in/ft

ELEVATION VIEW
N.T.S.
1

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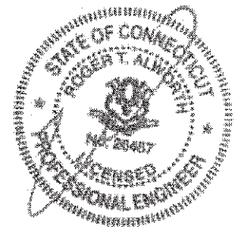

06/10/2014

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TOLERANCES
DECIMALS X ± 1/16" .XXX ± 0.01"
ANGULAR X ± 0.5°

ELEVATIONS

AMERICAN TOWER
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COLEBROOK, CT 06098

JOB #: AM14-00789K-00R0
DRAWN: MGP-VSE
DESIGNED: AJM-VSE
REVISED:

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REVISION 0

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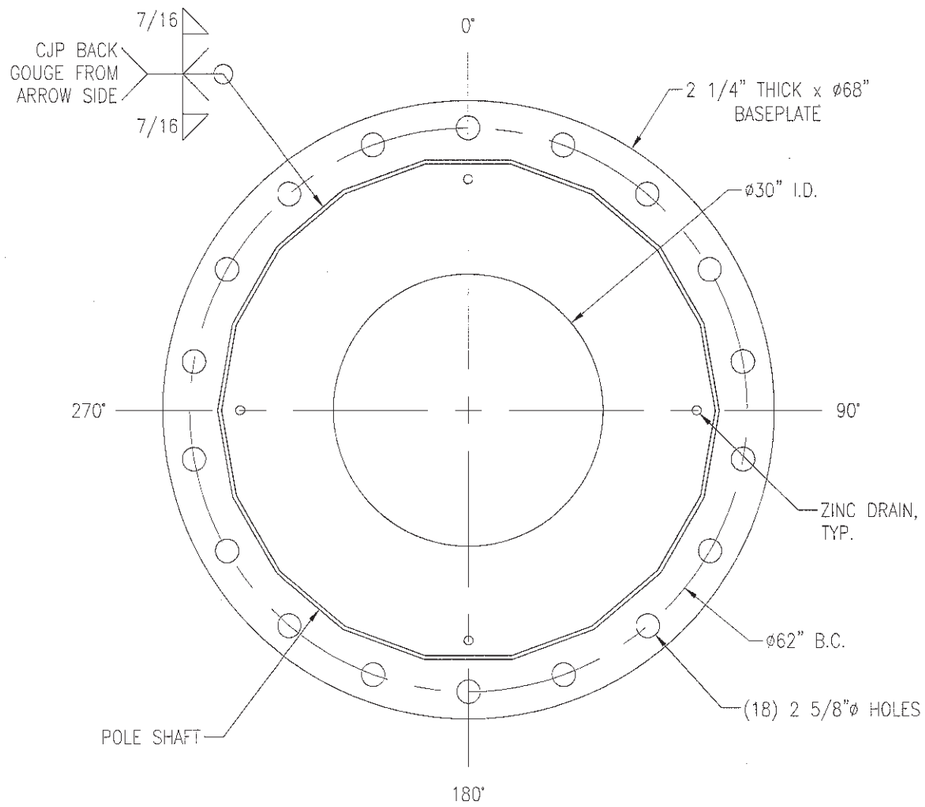
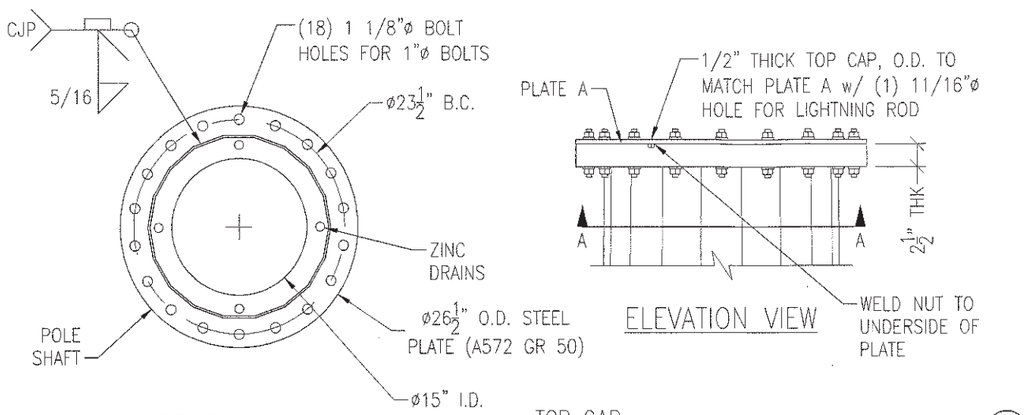


BASE PLATE

N.T.S. (4)

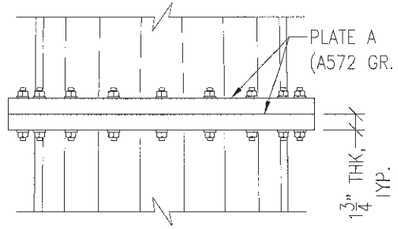


SECTION A-A

ELEVATION VIEW

TOP CAP

N.T.S. (1)



ELEVATION VIEW

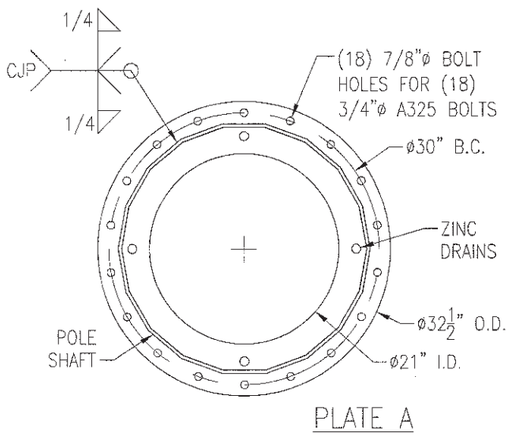
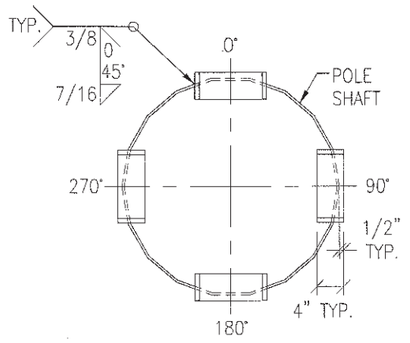


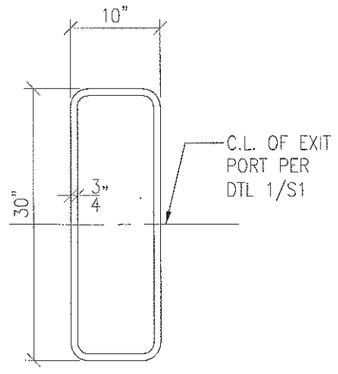
PLATE A

POLE SPLICE CONNECTION

N.T.S. (5)



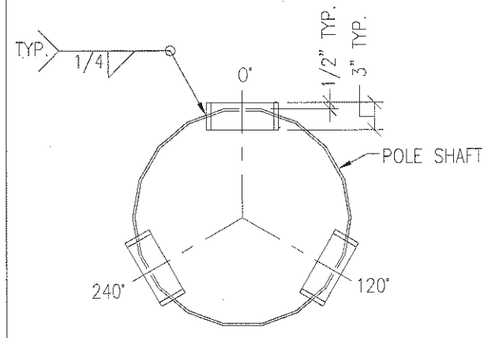
SECTION VIEW



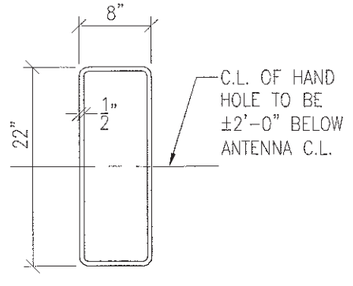
ELEVATION VIEW

EXIT PORTS

N.T.S. (3)



SECTION VIEW



ELEVATION VIEW

HAND HOLES

N.T.S. (2)

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06/10/2014

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ANGULAR X ± 0.5°

ASSEMBLY - ELEVATIONS

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522 COLEBROOK RD
COLEBROOK, CT 06098

JOB #: AM14-00789K-00R0
DRAWN: MGP-VSE
DESIGNED: AJM-VSE
REVISED:

S2
6/6/14

REVISION 0

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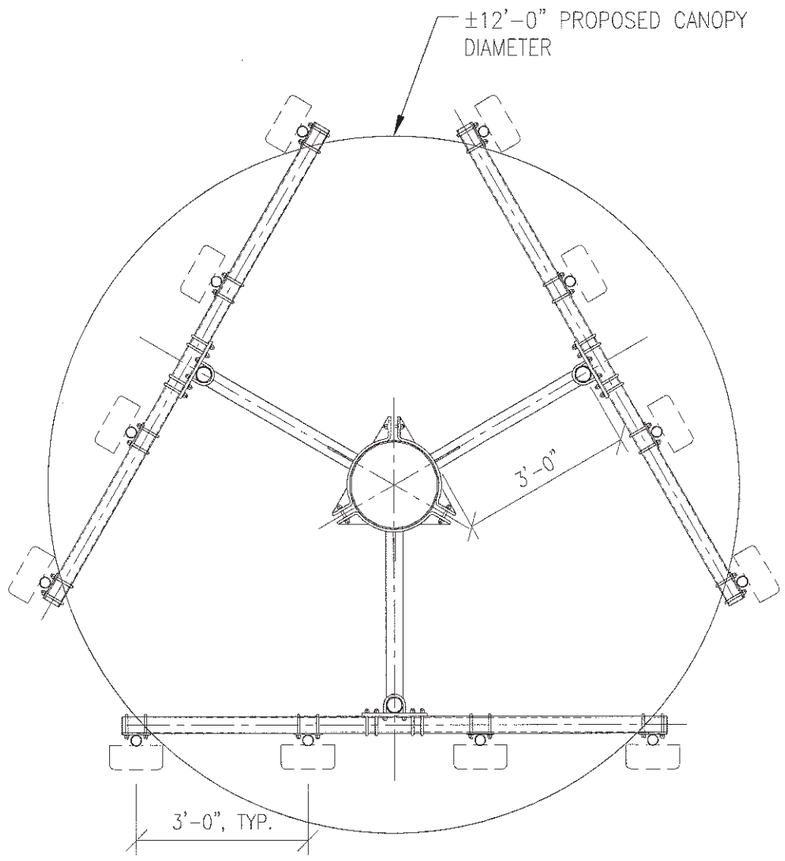

PLAN VIEW

N.T.S.

1

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DETAILS

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DRAWN: MGP-VSE
DESIGNED: AJM-VSE
REVISED:

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FOUNDATION NOTES:

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING GEOTECHNICAL REPORT:

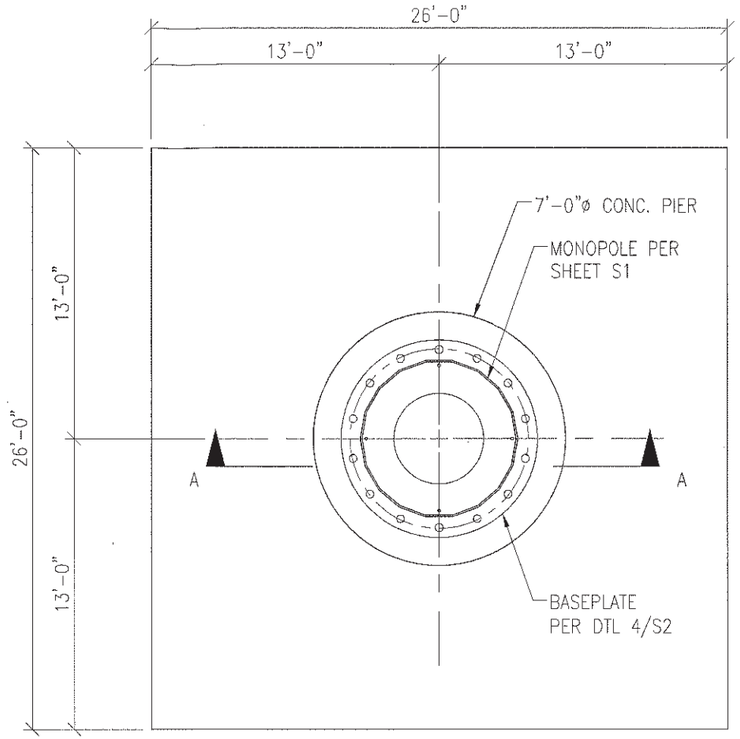
   DR. CLARENCE WELTI, P.E., P.C.
   REPORT: AT&T SITE SR1765
   DATE: April 18, 2014

2. ALL CONCRETE SHALL USE TYPE II PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED (6 ±1.5%). CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.50. CONCRETE SHALL HAVE A SLUMP OF 5" (±1"). ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-02.

3. REINFORCING STEEL SHALL CONFORM WITH THE REQUIREMENTS OF ASTM A-615, GRADE 60. ALL REINFORCING DETAILS SHALL CONFORM TO "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315, LATEST EDITION, UNLESS DETAILED OTHERWISE ON THIS DRAWING.

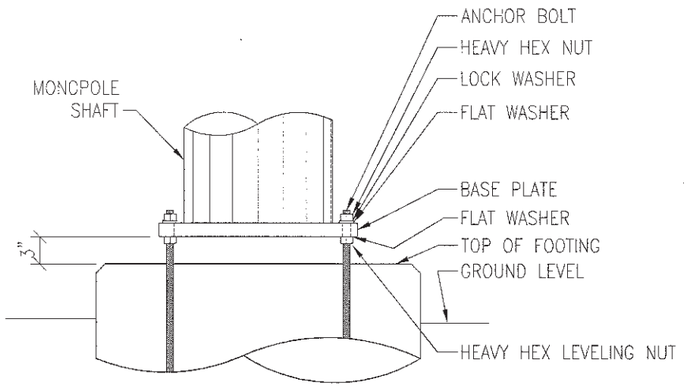
4. INSTALLATION OF DRILLED PIERS MUST BE OBSERVED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER FIRM. GEOTECHNICAL ENGINEER TO PROVIDE A NOTICE OF INSPECTION FOR THE BUILDING INSPECTOR FOR REVIEW AND RECORD PURPOSES.

5. TOTAL ESTIMATED CONCRETE VOLUME = 79.4 CUBIC YARDS.

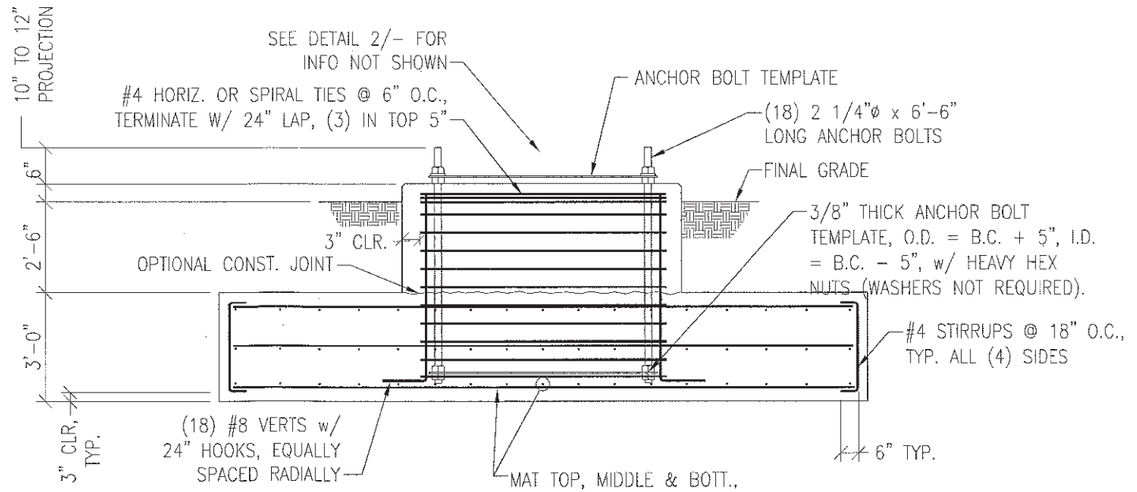


NOTE: DIFFICULT EXCAVATION ANTICIPATED. SPECIAL EQUIPMENT MAY BE REQUIRED

PLAN VIEW



N.T.S. (2)



SECTION A-A

FOUNDATION

N.T.S. (1)

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FOUNDATION

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DESIGNED: AJM-VSE
REVISED:

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6/6/14
REVISION 0

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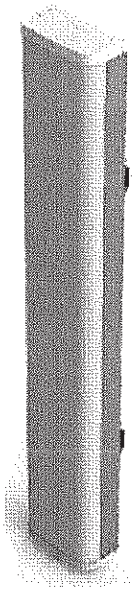
HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8



Hexport Multi-Band Antenna Array

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.

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

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

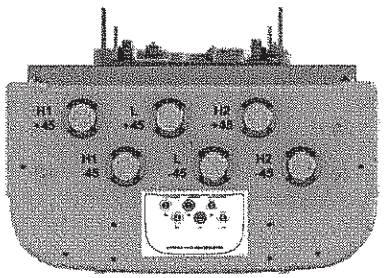
HPA-65R Multi-Band Antenna

Electrical Specifications

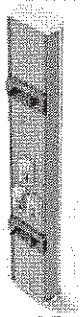
Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz	2305-2360 MHz	
Gain	15.3 dBi	16.2 dBi	17.1 dBi	16.3 dBi	17.4 dBi	17.7 dBi
Azimuth Beamwidth (-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)

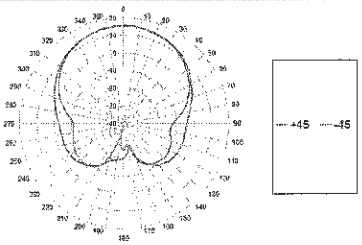


Bottom View

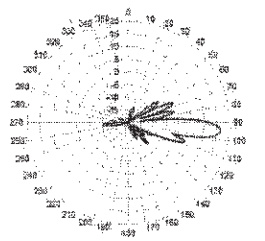


Rear View

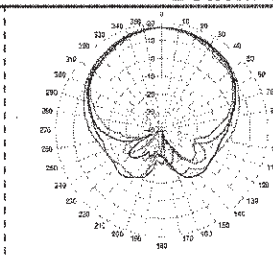
Antenna Patterns*



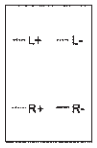
894 MHz Azimuth

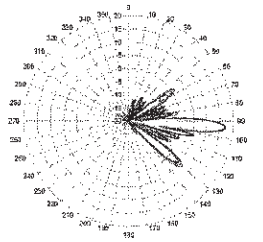


Elevation 5°



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.

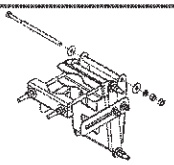
HexPort Multi-Band Antenna

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

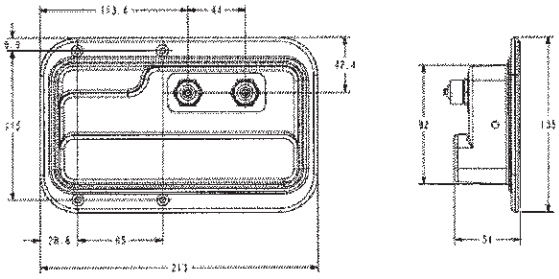
Part Number	BSA-RET200
Protocols	AISG 2.0
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C to +70°C

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)



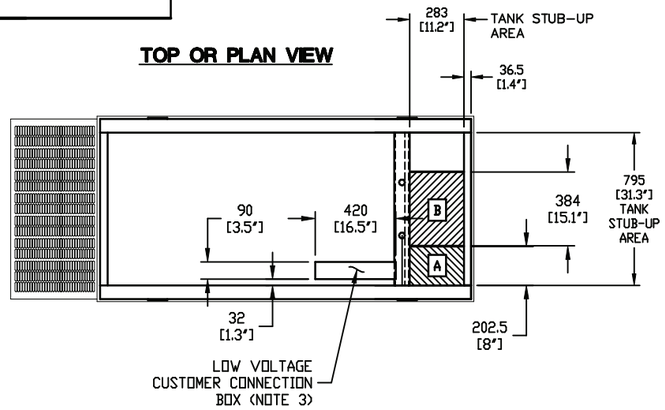
Standards Compliance

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

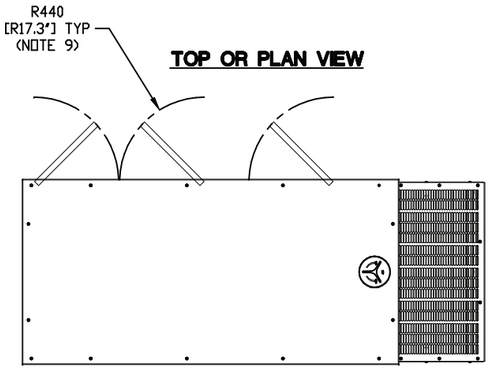
Regulatory Certification

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

0J2534

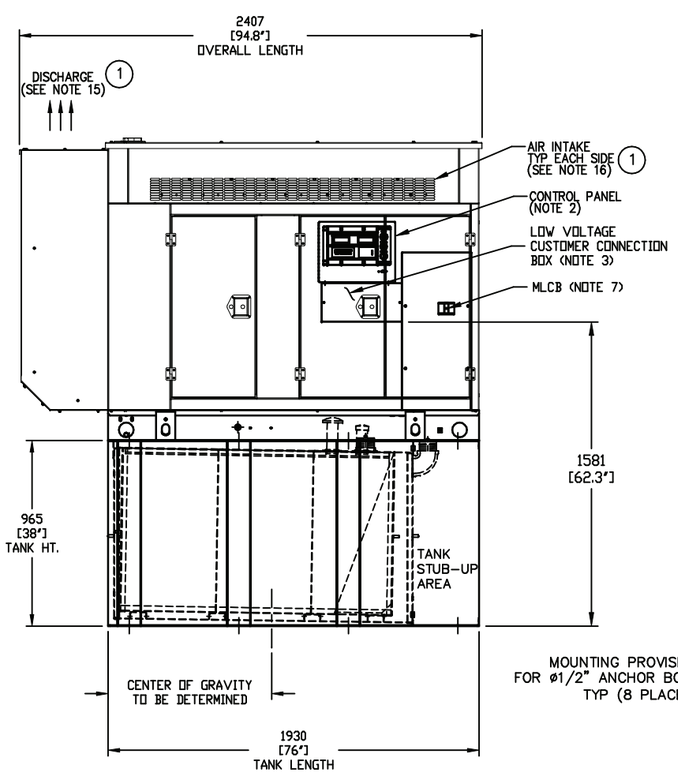


TOP OR PLAN VIEW

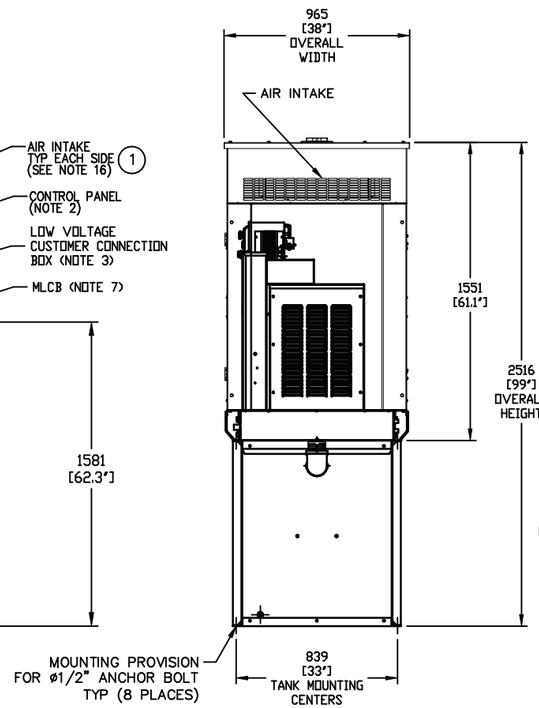


TOP OR PLAN VIEW

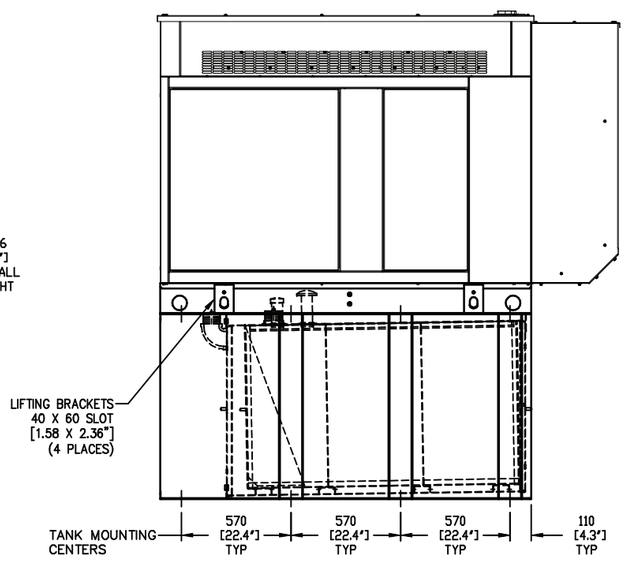
RECOMMENDED ELECTRICAL STUB-UPS (SEE TOP VIEW)	
DESCRIPTION	INSIDE BASE
AC LOAD LEAD CONDUIT GLAND AREA	A
1) LOW VOLTAGE CUSTOMER CONNECTION BOX FOR 120VAC GFCI OUTLET, (STANDARD BLOCK HEATER, BATTERY CHARGER AND OTHER 120 VAC OPTIONS). 2) TRANSFER SWITCH/ COMMUNICATION CONDUITS. COMMUNICATIONS AND 2-WIRE START MUST NOT BE RUN IN CONDUIT WITH AC WIRING.	B SEE NOTE 3



LEFT SIDE VIEW



REAR VIEW



RIGHT SIDE VIEW

NOTES:

1. THE LEFT SIDE OF THE GENERATOR IS SERVICE ACCESSIBLE.
2. 10 AMP BATTERY CHARGER ENCLOSED WITHIN CONTROL PANEL.
3. CONNECTION POINTS FOR CONTROL WIRES. BOTTOM OF LOW VOLTAGE CUSTOMER CONNECTION BOX HAS KNOCKOUTS FOR 1/2" AND 3/4" CONDUIT FITTINGS.
4. GENERATOR MUST BE GROUNDED.
5. 12 VOLT NEGATIVE GROUND SYSTEM.
6. OPTIONAL REMOTE EMERGENCY STOP SHIPPED LOOSE WITH GENERATOR.
7. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEAD CONNECTION AND AUXILIARY 120/240V CONNECTION.
8. LEVEL 2A SOUND ATTENUATED ENCLOSURE STANDARD WITH GENERATOR.
9. DOORS MUST BE ABLE TO OPEN 90 DEG. TO BE REMOVED. DOORS ARE LOCATED ON THE LEFT SIDE OF THE GENERATOR ONLY.
10. STUB-UPS: BASE TANK REQUIRES ALL STUB-UPS TO BE IN THE REAR TANK STUB-UP AREA.
11. 'A' IS THE STUB UP AREA FOR THE MLCB AND NEUTRAL CONNECTION.
12. SEE DRAWING 0C3850 FOR DUCT REMOVAL. REMOVAL OF FRONT DUCT WILL PROVIDE ACCESS TO MUFFLER.
13. 120VAC ENGINE BLOCK HEATER.
14. 210 GALLON USEABLE CAPACITY BASETANK STANDARD WITH GENERATOR.
15. (1) MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
16. (1) MUST ALLOW FREE FLOW OF INTAKE AIR. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
17. (1) IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS.

WEIGHT DATA (INCLUDES WOODEN SHIPPING SKID)

ENCLOSED GENERATOR WITH EMPTY FUEL TANK – TO BE DETERMINED

UNITS: mm [INCHES]

PRELIMINARY

INSTALLATION DRAWING

INSTALLATION D4.5L G17 50KW

ENCLOSED LEVEL 2A

GENERAC POWER SYSTEMS
Waukesha
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME	0J2534.DWG	SIZE B
SCALE	NTS	FIRST USE AT&T
DWG NO.	0J2534	REV 1

GENERAC® | INDUSTRIAL POWER

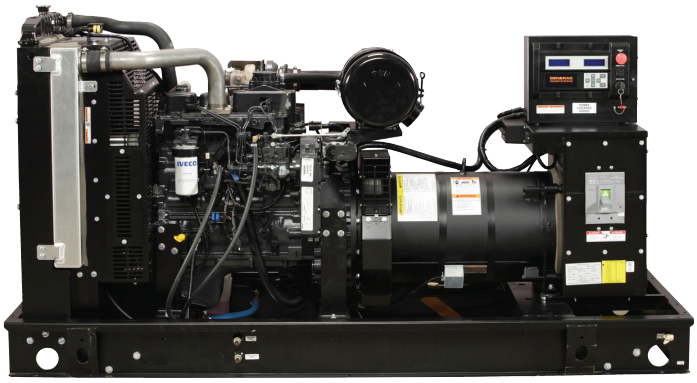
SD050

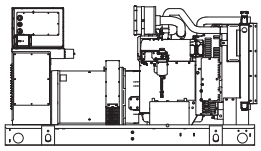
CUSTOM MODEL

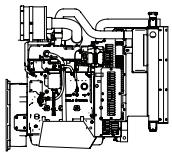
Industrial Diesel Generator Set

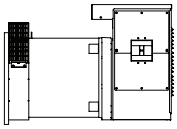
EPA Emissions Certification: Tier III

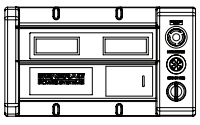
Standby Power Rating
50KW 60 Hz











features benefits

Generator Set

• PROTOTYPE & TORSIONALLY TESTED	▶ PROVIDES A PROVEN UNIT
• UL2200 TESTED	▶ ENSURES A QUALITY PRODUCT
• RHINOCOAT PAINT SYSTEM	▶ IMPROVES RESISTANCE TO ELEMENTS
• SOUND LEVEL 2 ENCLOSURE	▶ 71dbA @ 7 METERS (23FT)

Engine

• EPA TIER CERTIFIED	▶ ENVIRONMENTALLY FRIENDLY
• INDUSTRIAL TESTED, GENERAC APPROVED	▶ ENSURES INDUSTRIAL STANDARDS
• POWER-MATCHED OUTPUT	▶ ENGINEERED FOR PERFORMANCE
• INDUSTRIAL GRADE	▶ IMPROVES LONGEVITY AND RELIABILITY

Alternator

• TWO-THIRDS PITCH	▶ ELIMINATES HARMFUL 3RD HARMONIC
• LAYER WOUND ROTOR & STATOR	▶ IMPROVES COOLING
• CLASS H MATERIALS	▶ HEAT TOLERANT DESIGN
• DIGITAL 3-PHASE VOLTAGE CONTROL	▶ FAST AND ACCURATE RESPONSE

Controls

• ENCAPSULATED BOARD W/ SEALED HARNESS	▶ EASY, AFFORDABLE REPLACEMENT
• 4-20mA VOLTAGE-TO-CURRENT SENSORS	▶ NOISE RESISTANT 24/7 MONITORING
• SURFACE-MOUNT TECHNOLOGY	▶ PROVIDES VIBRATION RESISTANCE
• ADVANCED DIAGNOSTICS & COMMUNICATIONS	▶ HARDENED RELIABILITY

primary codes and standards

NEMA · c UL us LISTED · NFPA · ASTM INTERNATIONAL · ISO · ICC

SD050 application and engineering data

ENGINE SPECIFICATIONS

General

Make	Iveco / FPT
EPA Emissions Compliance	Tier III
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Type	Diesel
Displacement - L (cu. in.)	4.5 (274)
Bore - mm (in.)	105 (4.1)
Stroke - mm (in.)	132 (5.2)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron / Wet Sleeve

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	+/- 0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (gal)(qts)	13.6 (3.6) (14.4)

Cooling System

Cooling System Type	Closed
Water Pump	Belt Driven Centrifugal
Fan Type	Pusher
Fan Blade Number	2538 (10)
Fan Diameter (in.)	26
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Inject Pump Make	Standyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Engine Type	Direct Injection
Fuel Supply Line - mm (in.)	1/4 inch Npt
Fuel Return Line - mm (in.)	1/4 inch Npt

Engine Electrical System

System Voltage	12VDC
Battery Charging Alternator	90 Amp
Battery Size (at 0 oC)	Optima Redtop
Battery Group	34
Battery Voltage	12VC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	< 3.5%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	PMG
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Load Capacity - Prime	100%
Prototype Short Circuit Test	Y

Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	+/- 0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99
NFPA 110
ISO 8528-5
ISO 1708A.5
ISO 3046
BS5514
SAE J1349
DIN6271
IEEE C62.41 TESTING
NEMA ICS 1

Rating Definitions:
Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)
Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

SD050 operating data (60Hz)

POWER RATINGS (kW)

	STANDBY		
Single-Phase 120/240VAC @1.0pf	50	Amps:	208
Three-Phase 120/208VAC @0.8pf	-	Amps:	-
Three-Phase 120/240VAC @0.8pf	-	Amps:	-
Three-Phase 277/480VAC @0.8pf	-	Amps:	-
Three-Phase 346/600VAC @0.8pf	-	Amps:	-

NOTE: Generator output limited to 200A.

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

		480VAC						208/240VAC					
Alternator*	kW	*10%*	*15%*	*20%*	*25%*	*30%*	*35%*	*10%*	*15%*	*20%*	*25%*	*30%*	*35%*
Standard	50	-	-	-	-	-	-	26	39	52	65	77	90
Upsize 1		-	-	-	-	-	-	-	-	-	-	-	-
Upsize 2		-	-	-	-	-	-	-	-	-	-	-	-

*All Generac industrial alternators utilize Class H insulation materials. Standard alternator provides less than or equal to Class B temperature rise. Upsize 1 provides less than or equal to Class B temperature rise. Upsize 2 provides less than or equal

FUEL

Fuel Consumption Rates

Fuel Pump Lift - in (m)
36(.9)

STANDBY		
Percent Load	gph	lph
25%	1.52	5.75
50%	2.33	8.82
75%	3.08	11.65
100%	4.15	15.71

COOLING

Coolant System Capacity - Gal (L)
4.5 (17.44)

Maximum Radiator Backpressure
1.5" H_2O Column

		STANDBY
Coolant Flow per Minute	gpm (lpm)	32.7(123.8)
Heat rejection to Coolant	BTU/min	123,000
Inlet Air	cfm (m3/min)	6,360 (180.0)
Max. Operating Radiator Air Temp	F^o (C^o)	122(50)
Max. Operating Ambient Temperature	F^o (C^o)	122(50)

COMBUSTION AIR REQUIREMENTS

		STANDBY	
Intake Flow at Rated Power	cfm (m3/min)	247	(7.00)

EXHAUST

Exhaust Outlet Size (Open Set)
3.0"

Maximum Backpressure (Post-Silencer)
1.5" Hg

		STANDBY
Exhaust Flow (Rated Output)	cfm (m3/hr)	534(906.7)
Maximum Backpressure	inHg (Kpa)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	930(498.8)

ENGINE

		STANDBY
Rated Engine Speed	rpm	1800
Horsepower at Rated kW	hp	93
Temperature Deration		Consult Factory
Altitude Deration		Consult Factory

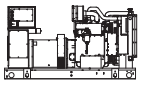
* CA units include aftertreatment

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SD050

standard features and options

GENERATOR SET



● Genset Vibration Isolation	Std
● Factory Testing	Std
● Extended warranty	Std
● Padlockable Doors	Std
● Steel Enclosure (Enclosed Models)	Std
○ Remote Emergency Shutdown	Opt

ENGINE SYSTEM

General

● Oil Drain Extension	Std
● Air Cleaner	Std
● Industrial Exhaust Silencer (Open Sets, ship loose)	Std
● Critical Exhaust Silencer (Enclosed Sets)	Std
● Stainless steel flexible exhaust connection	Std

Fuel System

● Primary Fuel Filter with Water Separator	Std
● Flexible Fuel Lines	Std
● UL142 Fuel Tank, 48 Hr Runtime	Std
● 2 Gal Overflow Containment with Alarm	Std

Cooling System

● 120VAC Coolant Heater (3-wire connection cord)	Std
● 50%/50% Coolant	Std
● Level 1 Guarding (Open Sets)	Std
● Closed Coolant Recovery System	Std
● UV/Ozone resistant hoses	Std
● Factory-Installed Radiator	Std
● Radiator Drain Extension	Std
● Fan guard	Std
● Radiator duct adapter (Open Sets)	Std
●	

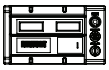
Engine Electrical System

● Battery charging alternator	Std
● Battery cables	Std
● Battery tray	Std
● 75W 120VAC Battery heater	Std
● Solenoid activated starter motor	Std
● 10A UL float/equalize battery charger	Std
● Weather Resistant electrical connections	Std
● Duplex GFCI Convenience Outlet	Std

ALTERNATOR SYSTEM

● UL2200 GENprotect™	Std
● 100% Rated 200A Main Line Circuit Breaker	Std

CONTROL SYSTEM



Control Panel

● Digital H Control Panel - Dual 4x20 Display	Std
● Programmable Crank Limiter	Std
● 7-Day Programmable Exerciser (requires H-Transfer Switch)	Std
● Special Applications Programmable PLC	Std
● RS-232	Std
● RS-485	Std
● All-Phase Sensing DVR	Std
● Full System Status	Std
● Utility Monitoring (Req. H-Transfer Switch)	Std
● 2-Wire Start Compatible	Std
● Power Output (kW)	Std
● Power Factor	Std
● Reactive Power	Std
● All phase AC Voltage	Std
● All phase Currents	Std
● Oil Pressure	Std
● Coolant Temperature	Std
● Coolant Level	Std
● Low Fuel Pressure Indication	Std
● Engine Speed	Std
● Battery Voltage	Std
● Frequency	Std
● Date/Time Fault History (Event Log)	Std
● UL2200 GENprotect™	Std
○ Low-Speed Exercise	Opt
● Isochronous Governor Control	Std
● -40deg C - 70deg C Operation	Std
● Weather Resistant Electrical Connections	Std
● Audible Alarms and Shutdowns	Std
● Not in Auto (Flashing Light)	Std
● On/Off/Manual Switch	Std
● E-Stop (Red Mushroom-Type)	Std
○ Remote E-Stop (Break Glass-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Surface Mount)	-
○ Remote E-Stop (Red Mushroom-Type, Flush Mount)	-
● NFPA 110 Level I and II (Programmable)	Std
● Remote Communication - RS232	Std

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

● Low Fuel	Std
● Oil Pressure (Pre-programmed Low Pressure Shutdown)	Std
● Coolant Temperature (Pre-programmed High Temp Shutdo	Std
● Coolant Level (Pre-programmed Low Level Shutdown)	Std
● Engine Speed (Pre-programmed Overspeed Shutdown)	Std
● Voltage (Pre-programmed Overvoltage Shutdown)	Std
● Battery Voltage	Std

Other Options

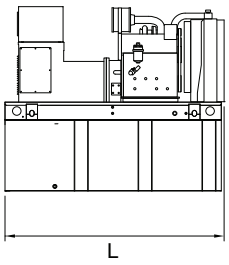
● Single Side Service

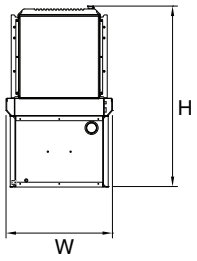
● _____

○ _____

SD050

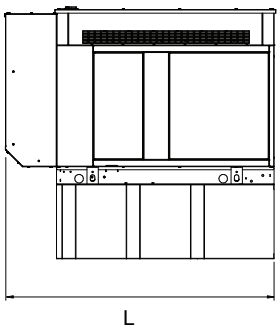
dimensions, weights and sound levels

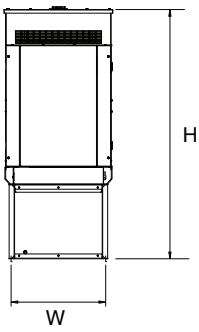




OPEN SET

	TANK SIZE							
	RUNTIME HOURS	CAPACITY (GAL)	TANK VOLUME	L	W	H	WT	dBA*
○	-	-	-	-	-	-	-	84
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
●	48	210	210	76	38	87	3400	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	





LEVEL 2 SOUND ENCLOSURE

	TANK SIZE							
	RUNTIME HOURS	CAPACITY (GAL)	TANK VOLUME	L	W	H	WT	dBA*
○	-	-	-	-	-	-	-	71
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	
●	48	210	210	94.8	38	99	3935	
○	-	-	-	-	-	-	-	
○	-	-	-	-	-	-	-	

*Required gallons based on 100% of standby rating. Weights consider steel enclosure and are without fuel in tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

NEW CINGULAR WIRELESS PCS, LLC
WIRELESS COMMUNICATIONS FACILITY #1765
COLEBROOK ROAD - COLEBROOK

COLEBROOK ROAD
COLEBROOK, CONNECTICUT

PROJECT SUMMARY

SITE NUMBER:	SR1765
SITE NAME:	COLEBROOK–WHEELER
SITE ADDRESS:	COLEBROOK ROAD COLEBROOK, CT 06021
PROPERTY OWNER:	WHEELER, LLP 302 SOMERSET ROAD BALTIMORE, MD 21210
TOWER OWNER:	NEW CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067
APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067
CONTACT:	BRYON MORAWSKI (860) 513–7223
1A COORDINATES:	41° 59' 03.0"N 73° 05' 31.0"W
HORIZONTAL DATUM:	NAD 83
GROUND ELEVATION:	1365.4' AMSL
SITE PARCEL NO.:	M15–B25
CURRENT ZONING:	R–2
ENGINEER:	CLOUGH HARBOUR & ASSOCIATES LLP 2139 SILAS DEANE HIGHWAY SUITE 212 ROCKY HILL, CT 06067
CONTACT:	PAUL LUSITANI (860) 257–4557

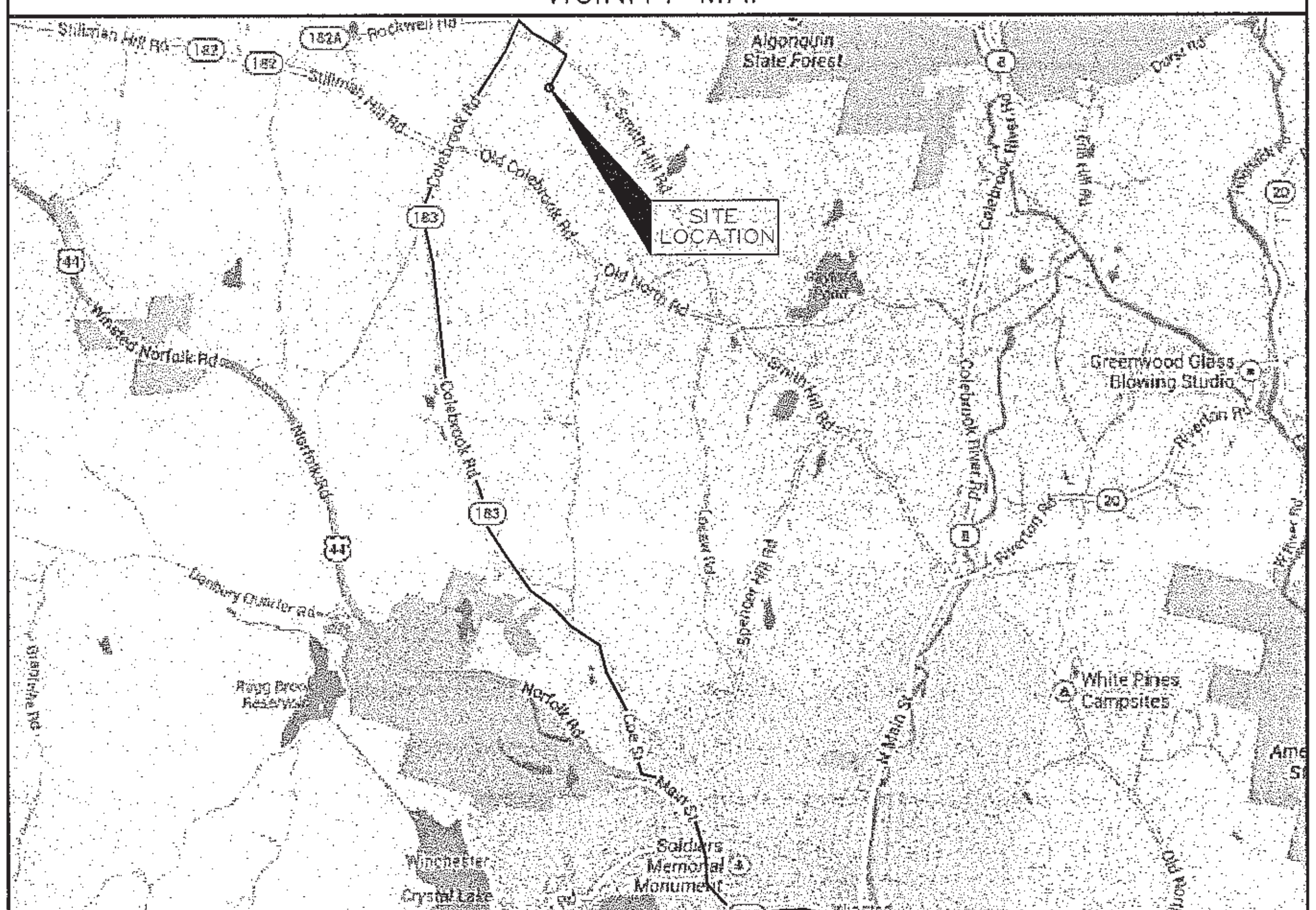
DRIVING DIRECTIONS

FROM HARTFORD:
1.FROM I–84W, TAKE EXIT 50 TO US–44W/MORGAN ST. TOWARD I–91 S/MAIN ST.
2.TAKE SLIGHT RIGHT ONTO MAIN ST.
3.CONTINUE ONTO US–44 W/ALBANY AVE.
4.CONTINUE STRAIGHT ONTO US–44 W/DYER CEMETERY RD.. 5.TURN RIGHT ONTO CT–183 N/COE ST./COLEBROOK RD.
6.TURN RIGHT ONTO SMITH HILL RD. ACCESS DRIVE WILL BE ON RIGHT, ACROSS THE STREET FROM COLEBROOK CONSOLIDATED SCHOOL.

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A 120' MONOPINE TOWER WITH PANEL ANTENNAS AT AN ELEVATION OF 116' ON THE TOWER. TELECOMMUNICATIONS EQUIPMENT WILL BE PLACED WITHIN 75'x75' FENCED COMPOUND AREA AT TOWER BASE.

VICINITY MAP



NO SCALE

NORTH

JULY 25, 2014

SHEET INDEX

SHEET NO:	SHEET TITLE	REVISION HISTORY NO:	DATE
T01	TITLE SHEET	0	07 / 25 / 14
C01	SITE PLAN	0	07 / 25 / 14
C02A	GRADING PLAN NORTH SECTION	0	07 / 25 / 14
C02B	GRADING PLAN SOUTH SECTION	0	07 / 25 / 14
C03A	SITE LAYOUT PLAN NORTH SECTION	0	07 / 25 / 14
C03B	SITE LAYOUT PLAN SOUTH SECTION	0	07 / 25 / 14
C04A	ACCESS DRIVE PROFILE	0	07 / 25 / 14
C04B	ACCESS DRIVE PROFILE	0	07 / 25 / 14
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C06	ELEVATION & DETAILS	0	07 / 25 / 14
C07	SITE DETAILS	0	07 / 25 / 14
C08	SITE DETAILS	0	07 / 25 / 14
C09	SITE DETAILS	0	07 / 25 / 14
C10	SITE DETAILS	0	07 / 25 / 14
C11	SITE DETAILS	0	07 / 25 / 14
C12	SITE DETAILS	0	07 / 25 / 14
C13	STRUCTURAL DETAILS	0	07 / 25 / 14
C14	STRUCTURAL DETAILS	0	07 / 25 / 14
C15	STRUCTURAL NOTES	0	07 / 25 / 14
C16	ENVIRONMENTAL NOTES	0	07 / 25 / 14

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

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CHA PROJECT NO:
18301 – 1025 – 43000

NO.	SUBMITTAL		
0	07/25/14	ISSUED FOR D&M APPROVAL	
	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBIESKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
SR1765
SITE NAME:
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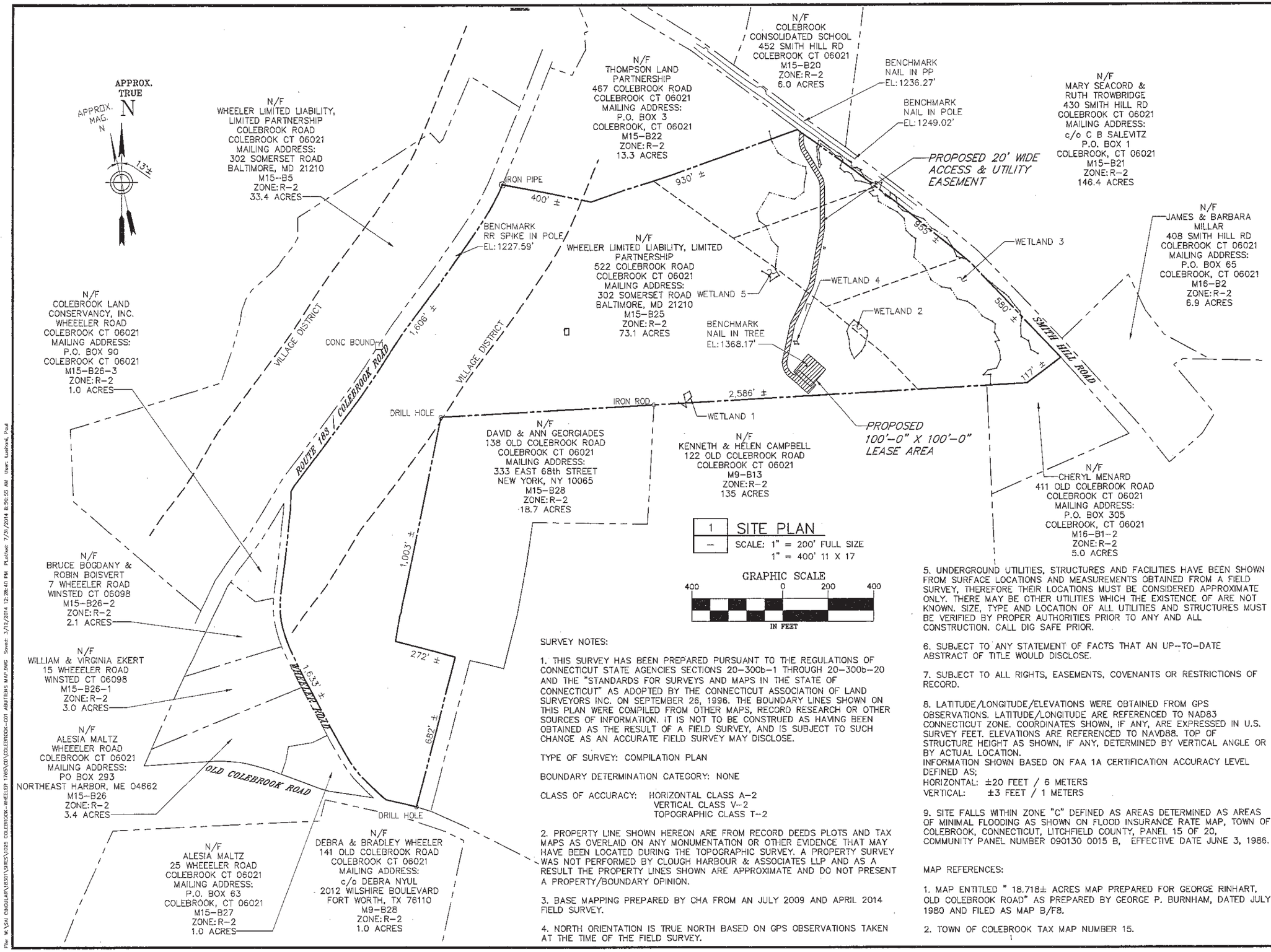
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T01



1 — SITE PLAN

SCALE: 1" = 200' FULL SIZE
1" = 400' 11 X 17

GRAPHIC SCALE

400 0 200 400
IN FEET

SURVEY NOTES:

1. THIS SURVEY HAS 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. THE BOUNDARY LINES SHOWN ON THIS PLAN WERE COMPILED FROM OTHER MAPS, RECORD RESEARCH OR OTHER SOURCES OF INFORMATION. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.

TYPE OF SURVEY: COMPILATION PLAN

BOUNDARY DETERMINATION CATEGORY: NONE

CLASS OF ACCURACY: HORIZONTAL CLASS A-2
VERTICAL CLASS V-2
TOPOGRAPHIC CLASS T-2

2. PROPERTY LINE SHOWN HEREON ARE FROM RECORD DEEDS PLOTS AND TAX MAPS AS OVERLAID ON ANY MONUMENTATION OR OTHER EVIDENCE THAT MAY HAVE BEEN LOCATED DURING THE TOPOGRAPHIC SURVEY. A PROPERTY SURVEY WAS NOT PERFORMED BY CLOUGH HARBOUR & ASSOCIATES LLP AND AS A RESULT THE PROPERTY LINES SHOWN ARE APPROXIMATE AND DO NOT PRESENT A PROPERTY/BOUNDARY OPINION.

3. BASE MAPPING PREPARED BY CHA FROM AN JULY 2009 AND APRIL 2014 FIELD SURVEY.

4. NORTH ORIENTATION IS TRUE NORTH BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY.

5. UNDERGROUND UTILITIES, STRUCTURES AND FACILITIES HAVE BEEN SHOWN FROM SURFACE LOCATIONS AND MEASUREMENTS OBTAINED FROM A FIELD SURVEY, THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER UTILITIES WHICH THE EXISTENCE OF ARE NOT KNOWN. SIZE, TYPE AND LOCATION OF ALL UTILITIES AND STRUCTURES MUST BE VERIFIED BY PROPER AUTHORITIES PRIOR TO ANY AND ALL CONSTRUCTION. CALL DIG SAFE PRIOR.

6. SUBJECT TO ANY STATEMENT OF FACTS THAT AN UP--TO--DATE ABSTRACT OF TITLE WOULD DISCLOSE.

7. SUBJECT TO ALL RIGHTS, EASEMENTS, COVENANTS OR RESTRICTIONS OF RECORD.

8. LATITUDE/LONGITUDE/ELEVATIONS WERE OBTAINED FROM GPS OBSERVATIONS. LATITUDE/LONGITUDE ARE REFERENCED TO NAD83 CONNECTICUT ZONE. COORDINATES SHOWN, IF ANY, ARE EXPRESSED IN U.S. SURVEY FEET. ELEVATIONS ARE REFERENCED TO NAVD88. TOP OF STRUCTURE HEIGHT AS SHOWN, IF ANY, DETERMINED BY VERTICAL ANGLE OR BY ACTUAL LOCATION.
INFORMATION SHOWN BASED ON FAA 1A CERTIFICATION ACCURACY LEVEL DEFINED AS;
HORIZONTAL: ±20 FEET / 6 METERS
VERTICAL: ±3 FEET / 1 METERS

9. SITE FALLS WITHIN ZONE "C" DEFINED AS AREAS DETERMINED AS AREAS OF MINIMAL FLOODING AS SHOWN ON FLOOD INSURANCE RATE MAP, TOWN OF COLEBROOK, CONNECTICUT, LITCHFIELD COUNTY, PANEL 15 OF 20, COMMUNITY PANEL NUMBER 090130 0015 B, EFFECTIVE DATE JUNE 3, 1986.

MAP REFERENCES:

1. MAP ENTITLED " 18.718± ACRES MAP PREPARED FOR GEORGE RINHART, OLD COLEBROOK ROAD" AS PREPARED BY GEORGE P. BURNHAM, DATED JULY 1980 AND FILED AS MAP B/F8.

2. TOWN OF COLEBROOK TAX MAP NUMBER 15.

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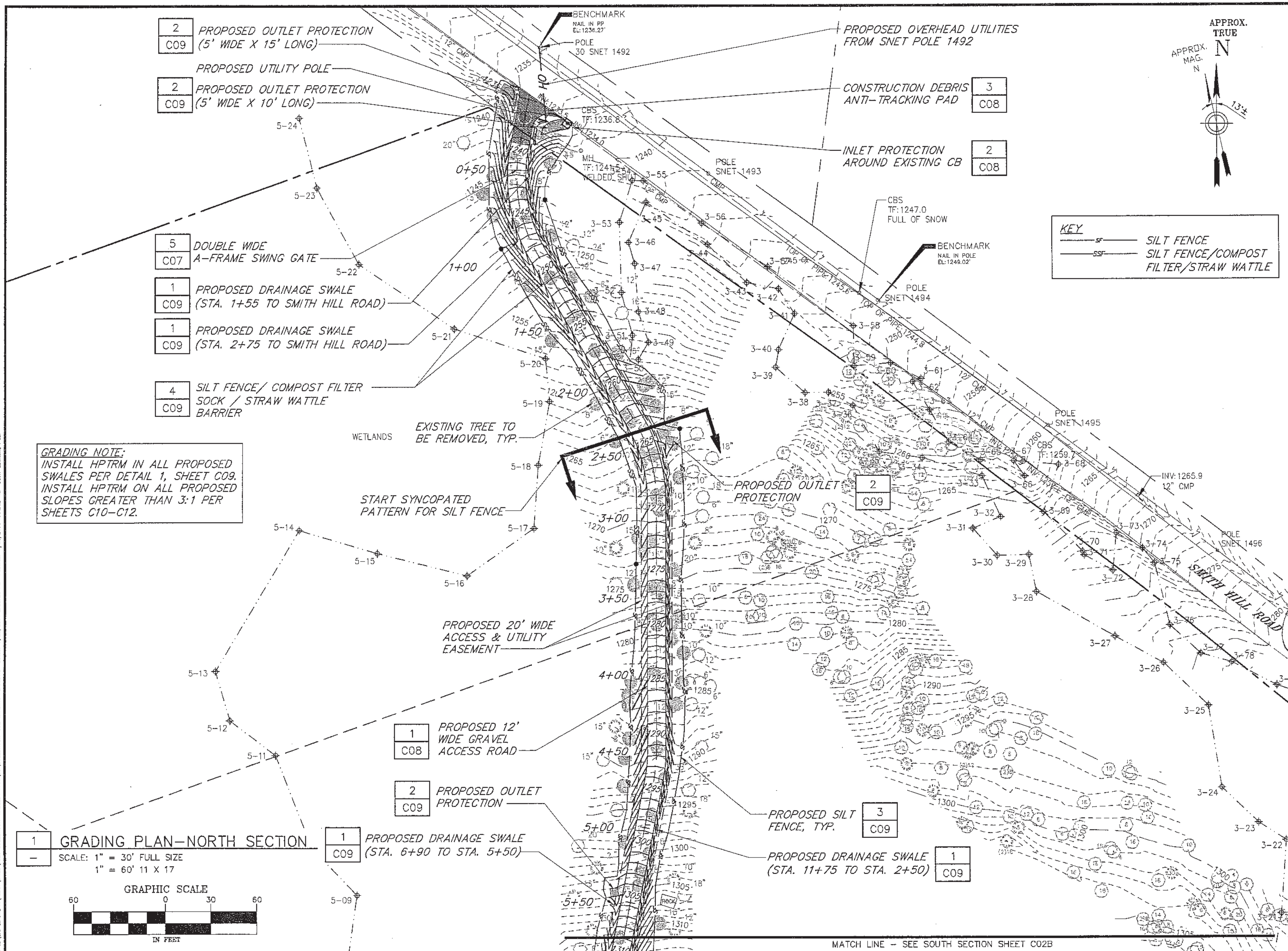
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
SITE PLAN

SHEET NUMBER
C01


2 C09 PROPOSED OUTLET PROTECTION (5' WIDE X 15' LONG)
PROPOSED UTILITY POLE
2 C09 PROPOSED OUTLET PROTECTION (5' WIDE X 10' LONG)
5 C07 DOUBLE WIDE A-FRAME SWING GATE
1 C09 PROPOSED DRAINAGE SWALE (STA. 1+55 TO SMITH HILL ROAD)
1 C09 PROPOSED DRAINAGE SWALE (STA. 2+75 TO SMITH HILL ROAD)
4 C09 SILT FENCE/ COMPOST FILTER SOCK / STRAW WATTLE BARRIER
GRADING NOTE:
INSTALL HPTRM IN ALL PROPOSED SWALES PER DETAIL 1, SHEET C09. INSTALL HPTRM ON ALL PROPOSED SLOPES GREATER THAN 3:1 PER SHEETS C10-C12.
WETLANDS
EXISTING TREE TO BE REMOVED, TYP.
START SYNCOPATED PATTERN FOR SILT FENCE
PROPOSED 20' WIDE ACCESS & UTILITY EASEMENT
1 C08 PROPOSED 12' WIDE GRAVEL ACCESS ROAD
2 C09 PROPOSED OUTLET PROTECTION
1 C09 PROPOSED DRAINAGE SWALE (STA. 6+90 TO STA. 5+50)
BENCHMARK NAIL IN PP EL:1236.27'
POLE 30 SNET 1492
PROPOSED OVERHEAD UTILITIES FROM SNET POLE 1492
CONSTRUCTION DEBRIS ANTI-TRACKING PAD 3 C08
INLET PROTECTION AROUND EXISTING CB 2 C08
CBS TF:1236.8
MH TF:1241.5 WELDED SHUT
POLE SNET 1493
CBS TF:1247.0 FULL OF SNOW
BENCHMARK NAIL IN POLE EL:1249.02'
POLE SNET 1494
POLE SNET 1495
CBS TF:1259.7
INV:1265.9 12" CMP
POLE SNET 1496
SMITH HILL ROAD
PROPOSED OUTLET PROTECTION 2 C09
PROPOSED SILT FENCE, TYP. 3 C09
PROPOSED DRAINAGE SWALE (STA. 11+75 TO STA. 2+50) 1 C09
MATCH LINE - SEE SOUTH SECTION SHEET C02B
APPROX. TRUE N
APPROX. MAG. N
13°±
KEY
SILT FENCE
SILT FENCE/COMPOST FILTER/STRAW WATTLE
1 GRADING PLAN-NORTH SECTION
SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17
GRAPHIC SCALE
60 0 30 60
IN FEET

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COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
GRADING PLAN
NORTH SECTION

SHEET NUMBER
C02A

GRADING NOTE:
INSTALL HPTRM IN ALL PROPOSED SWALES PER DETAIL 1, SHEET C09. INSTALL HPTRM ON ALL PROPOSED SLOPES GREATER THAN 3:1 PER SHEETS C10–C12.

MATCH LINE – SEE NORTH SECTION SHEET C02A

APPROX. TRUE N

APPROX. MAG. N

13±

KEY
SF —— SILT FENCE
SSF —— SILT FENCE/COMPOST FILTER/STRAW WATTLE

5-01 5-02 5-03 5-04 5-05 5-06 5-07 5-08
WETLAND FLAG, FLAG, TYP.

2 / C09 PROPOSED OUTLET PROTECTION

PROPOSED 20' WIDE ACCESS & UTILITY EASEMENT

1 / C09 PROPOSED DRAINAGE SWALE (STA. 6+90 TO STA. 5+50)

PROPOSED 12' WIDE GRAVEL ACCESS ROAD 1 / C08

PROPOSED DRAINAGE SWALE (STA. 11+75 TO STA. 2+50) 1 / C09

1 / C06 PROPOSED MONOPINE (GROUND ELEVATION AT TOWER BASE = 1365.4')

120' TOWER RADIUS

PROPOSED UNDERGROUND UTILITIES FROM NEW RISER POLE

BENCHMARK NAIL IN TREE EL. 1368.17

WETLANDS

2-01 2-02 2-04 2-05 2-06 2-07 2-08 2-09 2-10 2-11 2-12

END SYNCOPATED PATTERN FOR SILT FENCE

3 / C09 PROPOSED SILT FENCE, TYP.

PROPOSED 75' X 75' COMPOUND

PROPOSED 100' X 100 LEASE AREA

1 / – GRADING PLAN–SOUTH SECTION
SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE
60 0 30 60
IN FEET

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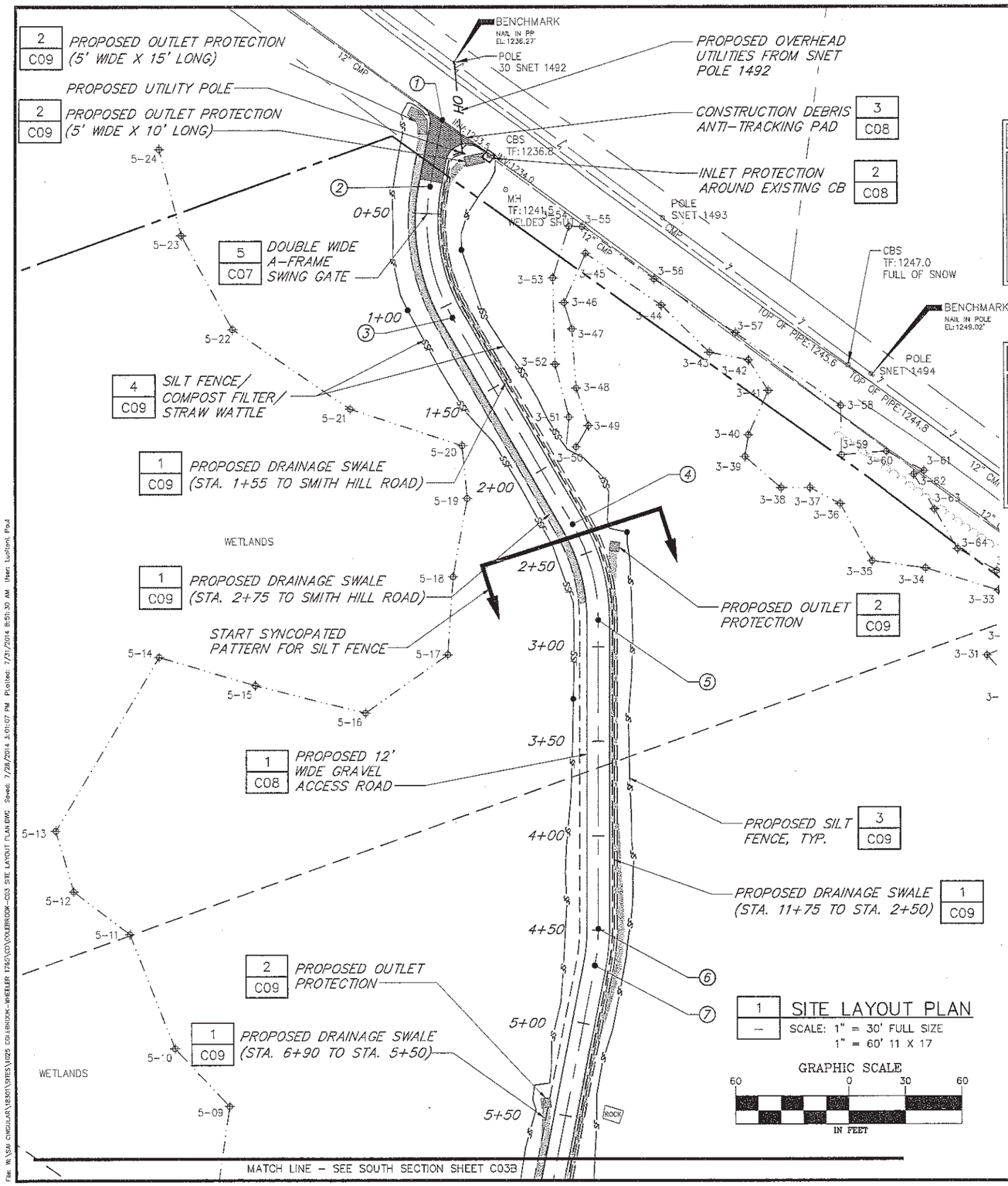
SHEET TITLE
GRADING PLAN
SOUTH SECTION

SHEET NUMBER
C02B



1 — SITE LAYOUT PLAN

SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE
60 0 30 60
IN FEET

COORDINATE LAYOUT TABLE				
POINT #	DESCRIPTION	EASTING(X)	NORTHING(Y)	STATION
1	ROAD START POINT	907017.36	920559.18	0+00
2	POINT OF CURVE #1	907010.78	920524.12	0+35.67
3	POINT OF TANGENCY #1	907022.72	920455.24	1+07.09
4	POINT OF CURVE #2	907086.22	920346.51	2+33.00
5	POINT OF TANGENCY #2	907099.88	920296.08	2+85.87
6	POINT OF CURVE #3	907099.88	920132.79	4+49.15
7	POINT OF TANGENCY #3	907097.97	920113.37	4+68.69

BEARING AND DISTANCE TABLE			
LINE	DESCRIPTION	BEARING	DISTANCE
1–2	ROAD START POINT TO POINT OF CURVE #1	S10–37–44.6W	35.67
2–3	CHORD FROM POINT OF CURVE #1 TO POINT OF TANGENCY #1	S09–49–49.4E	69.91
3–4	POINT OF TANGENCY #1 TO POINT OF CURVE #2	S30–17–23.4E	125.91
4–5	CHORD FROM POINT OF CURVE #2 TO POINT OF TANGENCY #2	S15–08–41.7E	52.25
5–6	POINT OF TANGENCY #2 TO POINT OF CURVE #3	S00–00–00.0E	163.29
6–7	CHORD FROM POINT OF CURVE #3 TO POINT OF TANGENCY #3	S05–35–53.6W	19.51
7–8	POINT OF TANGENCY #3 TO POINT OF CURVE #4	S11–11–47.2W	235.28

KEY
SF — SILT FENCE
SSF — SILT FENCE/COMPOST FILTER/STRAW WATTLE

APPROX. TRUE N
APPROX. MAG. N
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	BY: JDM	CHK: PAL	APP'D: JPS

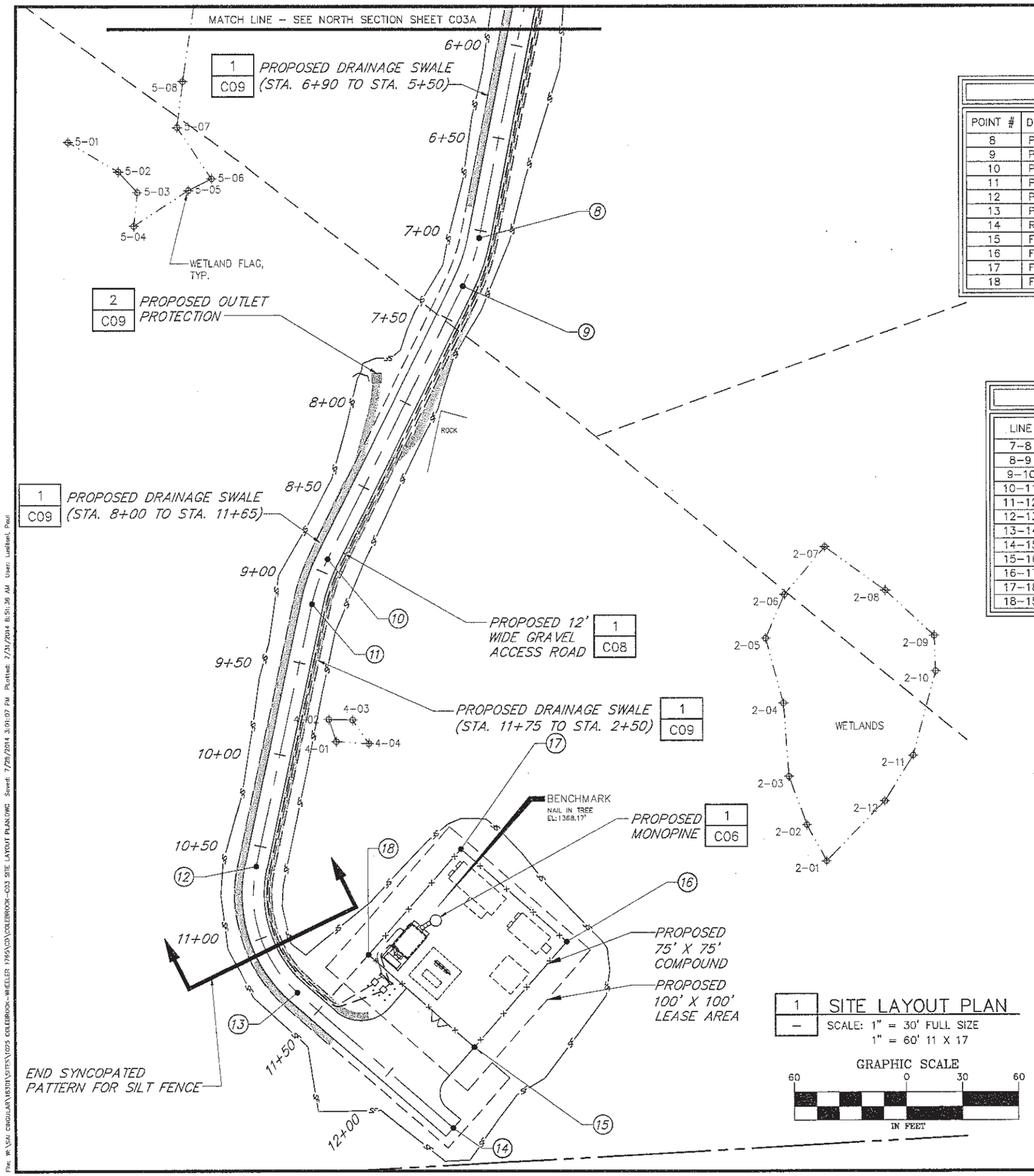
JOHN P. SOBEK — STATE OF CONNECTICUT — No. 17827 — LICENSED PROFESSIONAL ENGINEER

SITE ID: SR1765
SITE NAME: COLEBROOK
SITE ADDRESS: COLEBROOK ROAD COLEBROOK, CT 06021 LITCHFIELD COUNTY

SHEET TITLE: SITE LAYOUT PLAN NORTH SECTION

SHEET NUMBER: C03A

File: W:\SAI CINGULAR\1830\1\SITES\1025 COLEBROOK-WHEELER 1760\CD\COLEBROOK-C03 SITE LAYOUT PLAN.DWG Saved: 7/28/2014 3:01:07 PM Plotted: 7/31/2014 8:51:30 AM User: Lusloni, Paul



COORDINATE LAYOUT TABLE					
POINT #	DESCRIPTION	EASTING(X)	NORTHING(Y)	STATION	OFFSET
8	POINT OF CURVE #4	907052.29	919882.58	7+03.97	0
9	POINT OF TANGENCY #4	907043.58	919857.17	7+30.91	0
10	POINT OF CURVE #5	906971.07	919712.56	8+92.69	0
11	POINT OF TANGENCY #5	906962.68	919688.69	9+18.05	0
12	POINT OF CURVE #6	906932.73	919548.97	10+60.94	0
13	POINT OF TANGENCY #6	906955.07	919481.63	11+35.35	0
14	ROAD END POINT	907037.87	919409.15	12+45.40	0
15	FENCE CORNER #1	907049.17	919452.42	12+25.40	40
16	FENCE CORNER #2	907098.57	919508.86	12+25.40	115
17	FENCE CORNER #3	907042.13	919558.25	11+50.40	115
18	FENCE CORNER #4	906992.73	919501.82	11+50.40	40

APPROX. TRUE N
APPROX. MAG. N
13±

BEARING AND DISTANCE TABLE			
LINE	DESCRIPTION	BEARING	DISTANCE
7–8	POINT OF TANGENCY #3 TO POINT OF CURVE #4	S11–11–47.2W	235.28
8–9	CHORD FROM POINT OF CURVE #4 TO POINT OF TANGENCY #4	S18–54–50.2W	26.86
9–10	POINT OF TANGENCY #4 TO POINT OF CURVE #5	S26–37–53.2W	161.78
10–11	CHORD FROM POINT OF CURVE #5 TO POINT OF TANGENCY #5	S19–21–55.0W	25.30
11–12	POINT OF TANGENCY #5 TO POINT OF CURVE #6	S12–05–56.9W	142.89
12–13	CHORD FROM POINT OF CURVE #6 TO POINT OF TANGENCY #6	S18–21–11.0E	70.95
13–14	POINT OF TANGENCY #6 TO ROAD END POINT	S48–48–18.8E	110.05
14–15	ROAD END POINT TO FENCE CORNER #1	N14–37–47.0E	44.72
15–16	FENCE CORNER #1 TO FENCE CORNER #2	N41–11–41.2E	75.00
16–17	FENCE CORNER #2 TO FENCE CORNER #3	N48–48–18.8W	75.00
17–18	FENCE CORNER #3 TO FENCE CORNER #4	S41–11–41.2W	75.00
18–15	FENCE CORNER #4 TO FENCE CORNER #1	S48–48–18.8E	75.00

KEY
SF SILT FENCE
SSF SILT FENCE/COMPOST FILTER/STRAW WATTLE

1 – SITE LAYOUT PLAN
SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE
60 0 30 60
IN FEET

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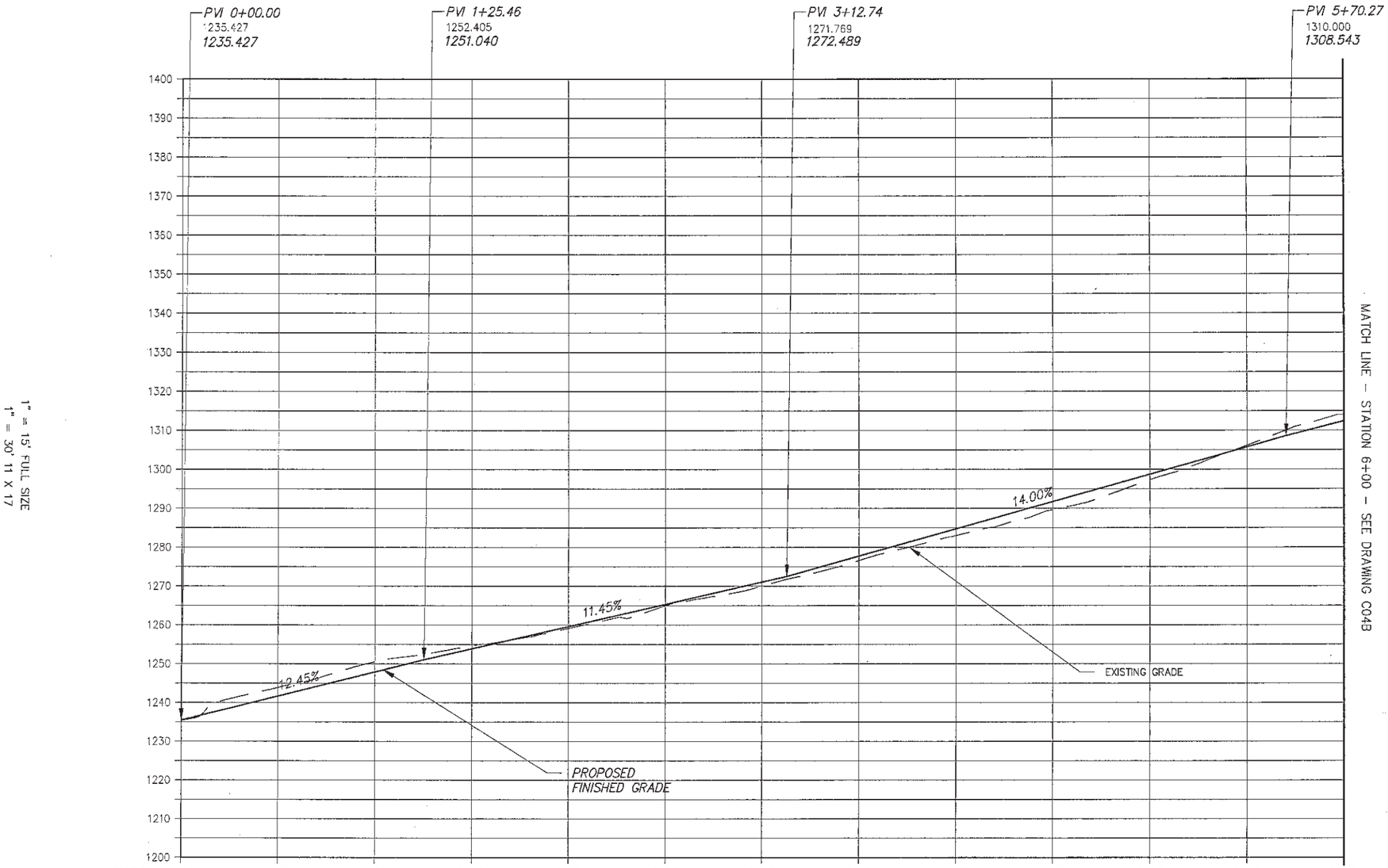
SHEET TITLE
SITE LAYOUT PLAN SOUTH SECTION

SHEET NUMBER
C03B

File: W:\SAI CINGULAR\18301\SITE\1025 COLEBROOK-WHEELER 1765\CD\COLEBROOK-C03 SITE LAYOUT PLAN.DWG Saved: 7/28/2014 3:01:07 PM Plotted: 7/31/2014 8:51:36 AM User: Lunderl, Paul



1" = 30' FULL SIZE
1" = 60' 11 X 17
GRAPHIC SCALE

60 0 30 60
IN FEET

1" = 15' FULL SIZE
1" = 30' 11 X 17
GRAPHIC SCALE

30 0 15 30
IN FEET

1 – ACCESS DRIVE PROFILE STA 0+00 TO STA 6+00

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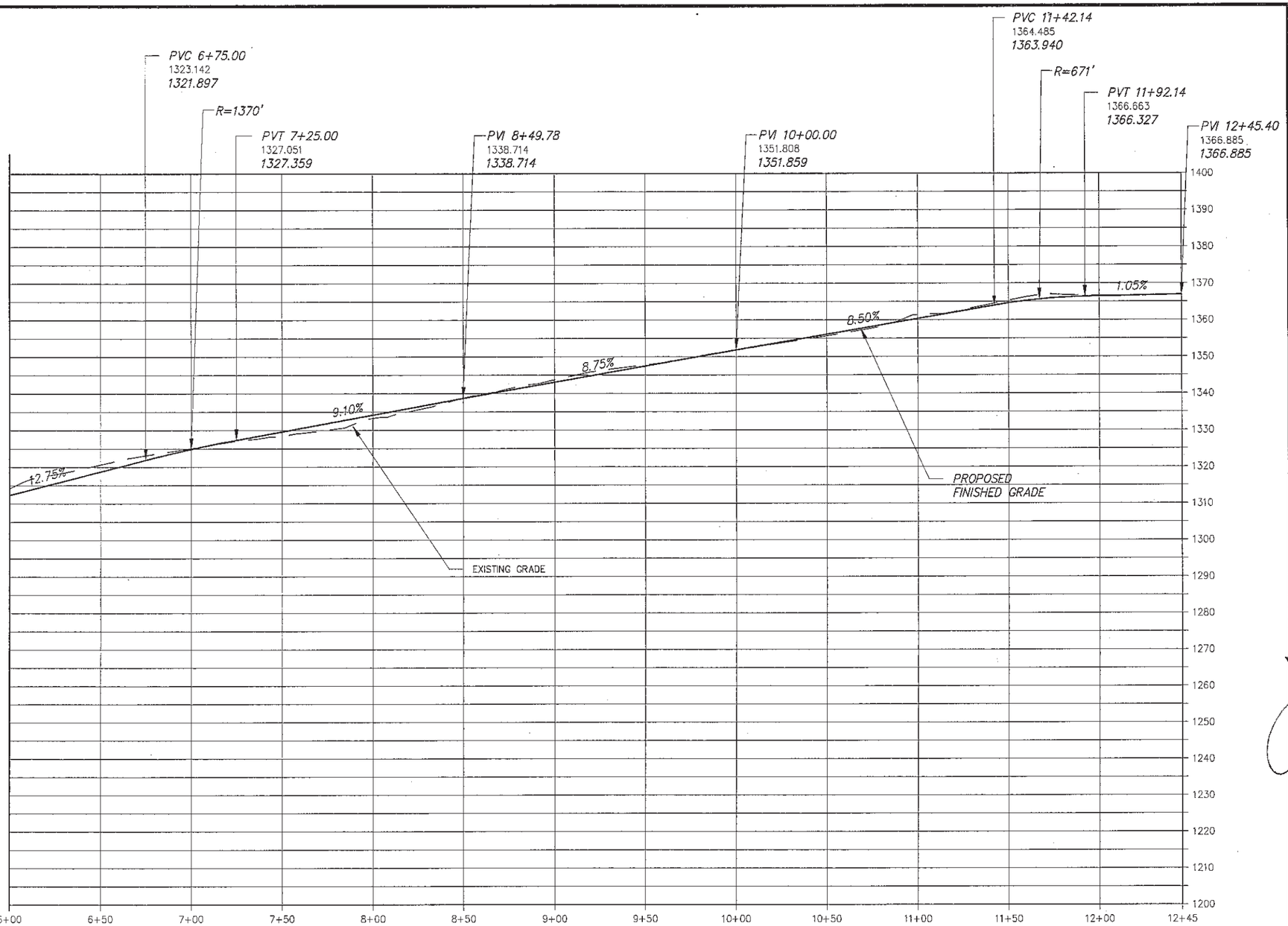
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
ACCESS DRIVE PROFILE

SHEET NUMBER
C04A



MATCH LINE -- STATION 6+00 -- SEE DRAWING C04A

STATION	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+45
EXISTING ELEVATION	1314.13	1320.65	1325.07	1328.41	1333.25	1338.74	1343.73	1347.76	1351.81	1355.64	1361.40	1365.27	1366.57	1366.88
PROPOSED ELEVATION	*1312.33*	*1318.71*	*1324.86*	*1329.63*	*1334.18*	*1338.73*	*1343.11*	*1347.48*	*1351.86*	*1356.11*	*1360.36*	*1364.56*	*1366.41*	*1366.88*

1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE

60 0 30 60

IN FEET

1" = 15' FULL SIZE
1" = 30' 11 X 17

GRAPHIC SCALE

30 0 15 30

IN FEET

2 | – ACCESS DRIVE PROFILE STA 6+00 TO STA 12+45

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CHA PROJECT NO:
18301 – 1025 – 43000

NO.	SUBMITTAL		
0	07/25/14	ISSUED FOR D&M APPROVAL	
	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBECK
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
ACCESS DRIVE PROFILE

SHEET NUMBER
C04B

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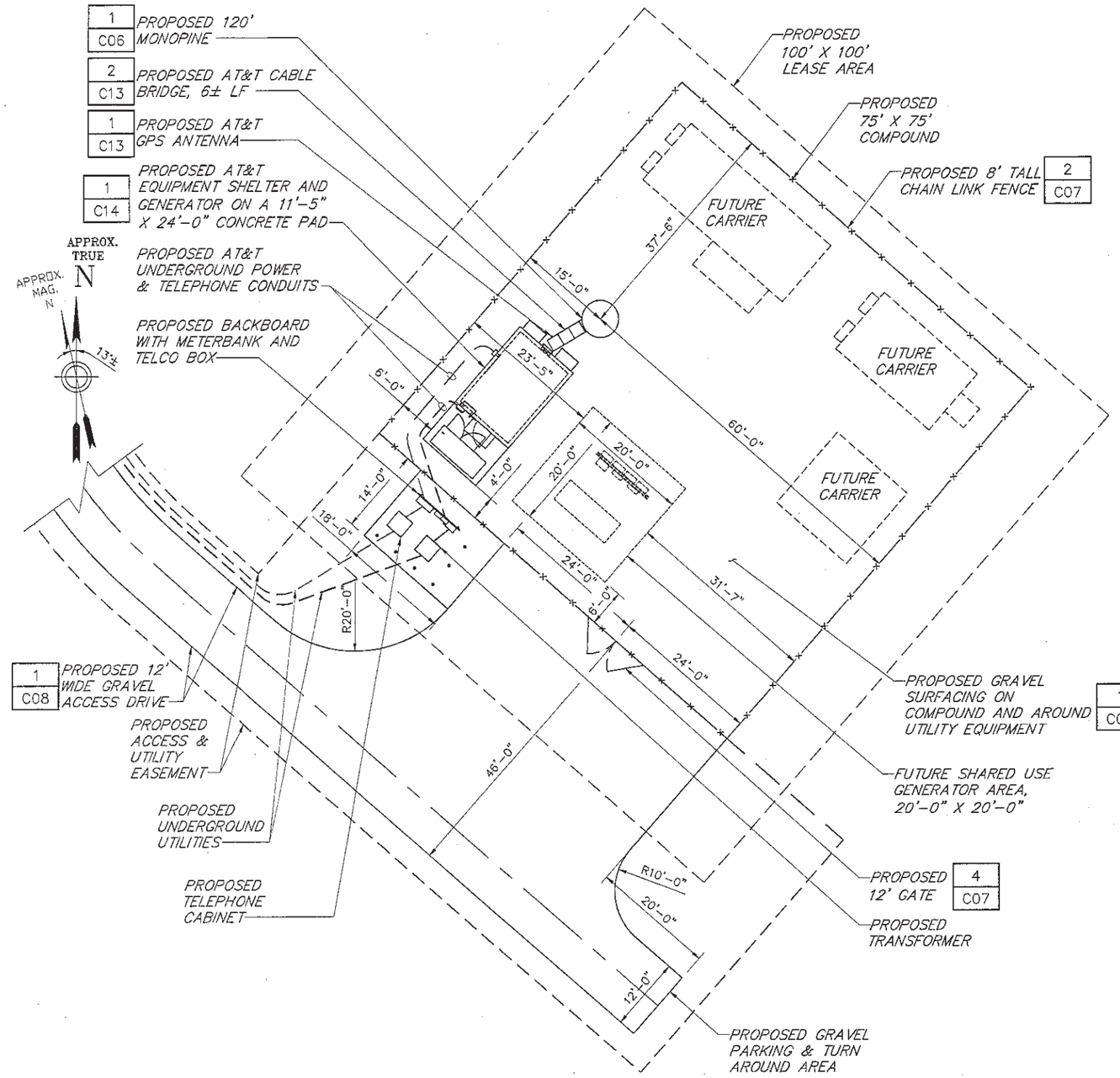

1 C05 COMPOUND PLAN

SCALE: 1" = 10' FULL SIZE
1" = 20' 11 X 17

GRAPHIC SCALE

20 0 10 20

IN FEET

- BOTH THE TOWER STRUCTURE AND FOUNDATION WILL BE/HAVE BEEN DESIGNED BY OTHERS.
- PRIOR TO CONSTRUCTION, THE FINAL TOWER FOUNDATION DESIGN SHOULD BE COMPARED TO THE SITE PLAN TO AVOID POTENTIAL CONFLICTS.

SITE WORK GENERAL NOTES:

1. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING AND AS STIPULATED HEREIN.
2. RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
3. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AREA.
4. 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.
5. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
6. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, 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 ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
7. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING.
8. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE COMPOUND, DRIVEWAY OR PYRAMTT SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH.
9. CONTRACTOR IS TO SUPPLY COMBINATION LOCKS PER OWNER SPECIFICATIONS.

EROSION CONTROL NOTES:

1. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH STATE OF CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH THE TOWN/COUNTY CODE ENFORCEMENT OFFICE.
2. TEMPORARY SILT FENCE EROSION CONTROL BARRIER SHALL BE MAINTAINED THROUGHOUT SITE CONSTRUCTION. STOCK PILE ON SITE 100 FT. OF SILT FENCE FOR EMERGENCY USE. TEMPORARY EROSION BARRIERS SHALL REMAIN IN PLACE UNTIL PERMANENT VEGETATIVE GROUND COVER IS ESTABLISHED.
3. EROSION CONTROL BARRIERS ALONG THE PROPOSED ACCESS DRIVE SHALL BE INSTALLED IN A SYNCOPATED FASHION AS IDENTIFIED ON SHEET C09 DETAIL 6. TO ALLOW FOR HERPETOFAUNA CROSSING.
4. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF THE EQUIPMENT LEASE AREA AND ACCESS ROADWAY SHALL BE PERMANENTLY ESTABLISHED WITH A VEGETATIVE GROUND COVER.
5. STILLING BASIN SHALL BE UTILIZED FOR ANY DE-WATERING DISCHARGE WHICH MAY OCCUR DURING CONSTRUCTION OPERATIONS.
6. CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO ANY GRADING ACTIVITIES IN LOCATIONS SHOWN IN PLANS.
7. 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.
8. 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.
9. 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.
10. 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.
11. NOT GREATER THAN 80,000 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 90 DAYS. LAND SHOULD NOT BE LEFT EXPOSED DURING THE WINTER MONTHS.
12. ANY DISTURBED AREAS OUTSIDE LIMITS OF CONSTRUCTION SHALL BE TOPSOILED, SEEDED WITH RYE GRASS, AND MACHINE HAY MULCHED TO PREVENT EROSION. HAY OR STRAW MULCH SHALL BE APPLIED TO ALL FRESHLY SEEDED AREAS AT A RATE OF 2 TONS PER ACRES. BALES SHALL BE UNSPOILED, AIR-DRIED, AND FREE FROM WEED, SEEDS, AND ANY COARSE MATERIAL.

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	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBETY
No. 17827
LICENSED PROFESSIONAL ENGINEER

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
COMPOUND PLAN & SITE NOTES

SHEET NUMBER
C05

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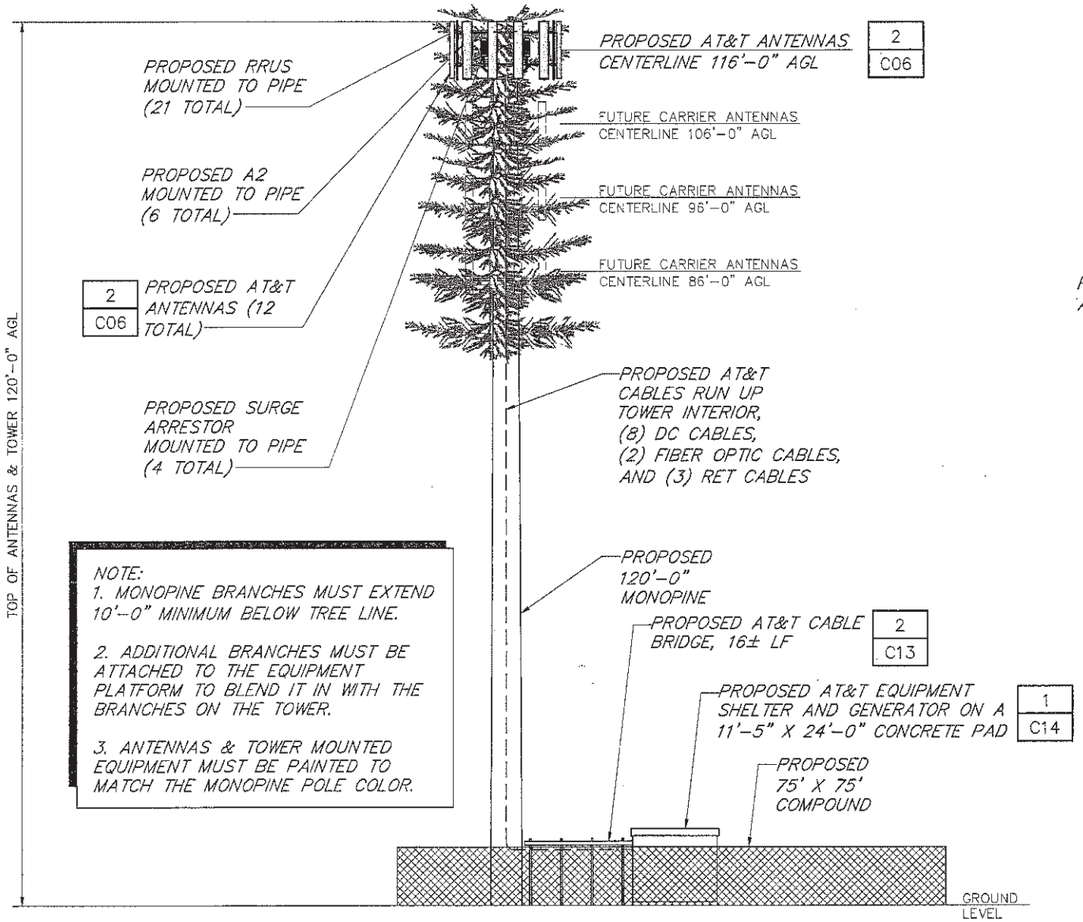


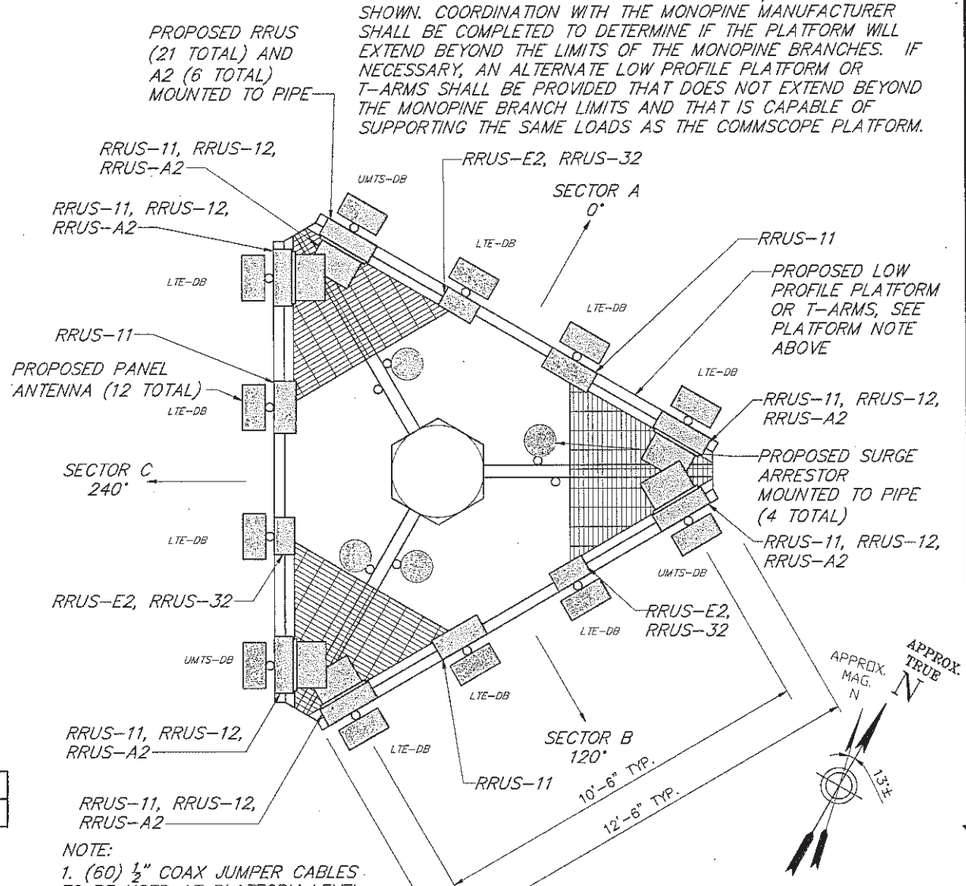
1 C06 TOWER ELEVATION

SCALE: 1" = 10' FULL SIZE
1" = 20' 11 X 17

GRAPHIC SCALE
20 0 10 20
IN FEET

- BOTH THE TOWER STRUCTURE AND FOUNDATION WILL BE/HAVE BEEN DESIGNED BY OTHERS.
- PRIOR TO CONSTRUCTION, THE FINAL TOWER FOUNDATION DESIGN SHOULD BE COMPARED TO THE SITE PLAN TO AVOID POTENTIAL CONFLICTS.

PLATFORM NOTE:
A LOW PROFILE PLATFORM BY COMMSCOPE P/N MTC3607 IS SHOWN. COORDINATION WITH THE MONOPINE MANUFACTURER SHALL BE COMPLETED TO DETERMINE IF THE PLATFORM WILL EXTEND BEYOND THE LIMITS OF THE MONOPINE BRANCHES. IF NECESSARY, AN ALTERNATE LOW PROFILE PLATFORM OR T-ARMS SHALL BE PROVIDED THAT DOES NOT EXTEND BEYOND THE MONOPINE BRANCH LIMITS AND THAT IS CAPABLE OF SUPPORTING THE SAME LOADS AS THE COMMSCOPE PLATFORM.



NOTE:
1. (60) ½" COAX JUMPER CABLES TO BE USED AT PLATFORM LEVEL.
2. MOUNT ALL EQUIPMENT TO PIPES PER MANUFACTURER'S RECOMMENDATIONS.

CONTRACTOR MUST CONFIRM EQUIPMENT CONFIGURATION WITH LATEST RFDS AND TOWER DESIGN

RF TABLE

SECTOR	SECTOR NAME	ANTENNA MAKE & MODEL	ANTENNA COUNT	AZIMUTH	RAD CENTER	# OF CABLES
1	ALPHA	CCI HPA-65R-BUU-H8 (POSITIONS 1, 2, 3, 4)	4	0	116	(8) DC POWER, (2) FIBER, (3) RET
2	BETA	CCI HPA-65R-BUU-H8 (POSITIONS 1, 2, 3, 4)	4	120	116	(8) DC POWER, (2) FIBER, (3) RET
3	GAMMA	CCI HPA-65R-BUU-H8 (POSITIONS 1, 2, 3, 4)	4	240	116	(8) DC POWER, (2) FIBER, (3) RET

ANTENNA PLATFORM LOADING

(12) CCI HPA-65R-BUU-H8 ANTENNAS:	(12 X 68 LBS) = 816 LBS
(9) RRUS-11 RADIO HEADS:	(9 X 50.7 LBS) = 456.3 LBS
(6) RRUS-12 RADIO HEADS:	(6 X 58 LBS) = 348 LBS
(3) RRUS-E2 RADIO HEADS:	(3 X 71.5 LBS) = 214.5 LBS
(3) RRUS-32 RADIO HEADS:	(3 X 77 LBS) = 231 LBS
(6) A2 MODULES:	(6 X 22 LBS) = 132 LBS
(4) DC6-48-60-18-8F SURGE ARRESTORS:	(4 X 20 LBS) = 80 LBS

TOTAL WEIGHT NOT INCLUDING MOUNTING PIPES OR HARDWARE = 2,277.8 LBS

2 C06 ANTENNA ARRAY

SCALE: NOT TO SCALE

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	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBEK
No. 17827
LICENSED PROFESSIONAL ENGINEER

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
ELEVATION & DETAILS

SHEET NUMBER
C06

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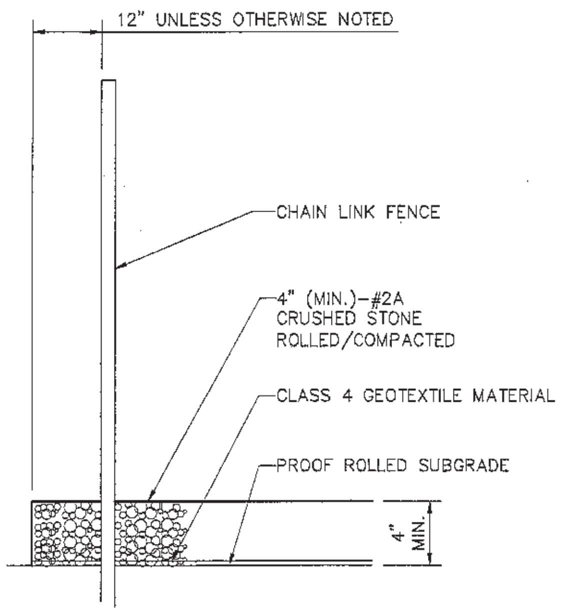
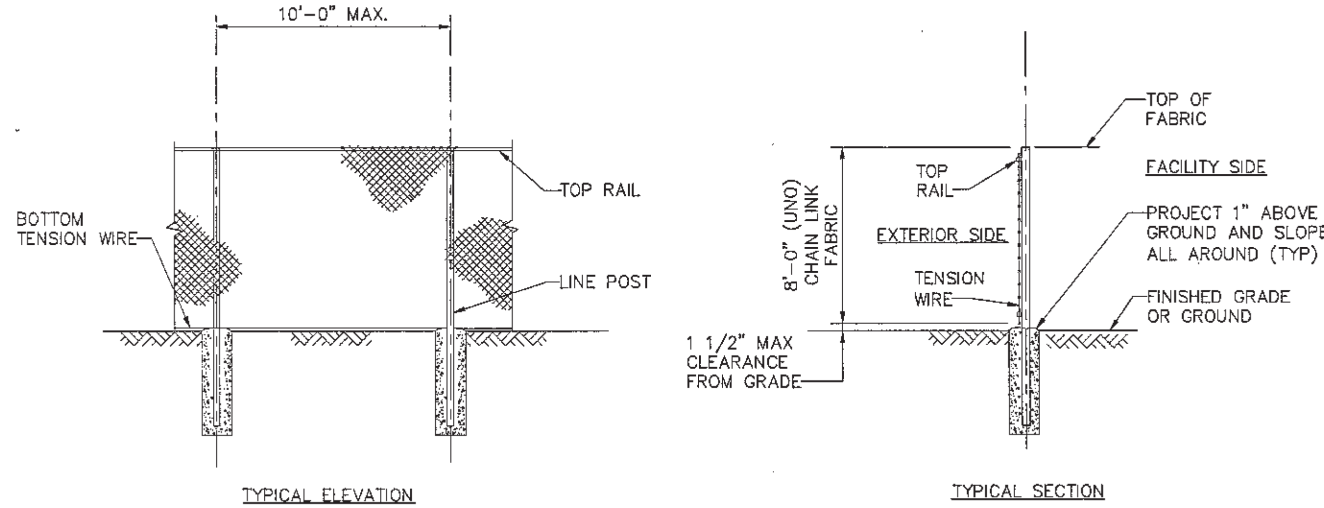
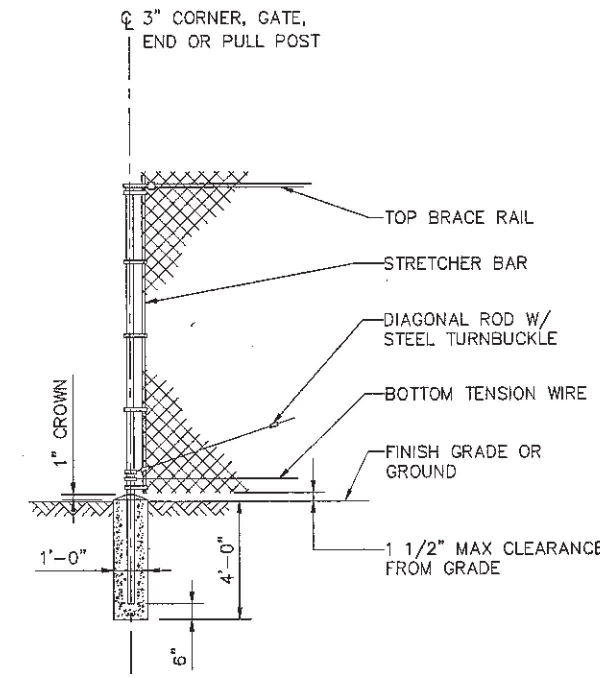


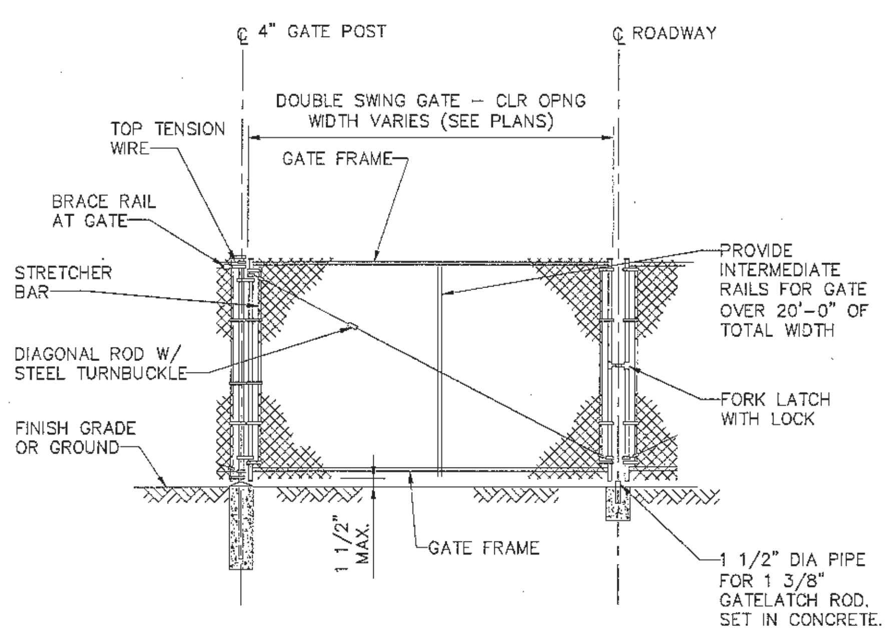
1	SITE AREA SURFACING
C07	NO SCALE



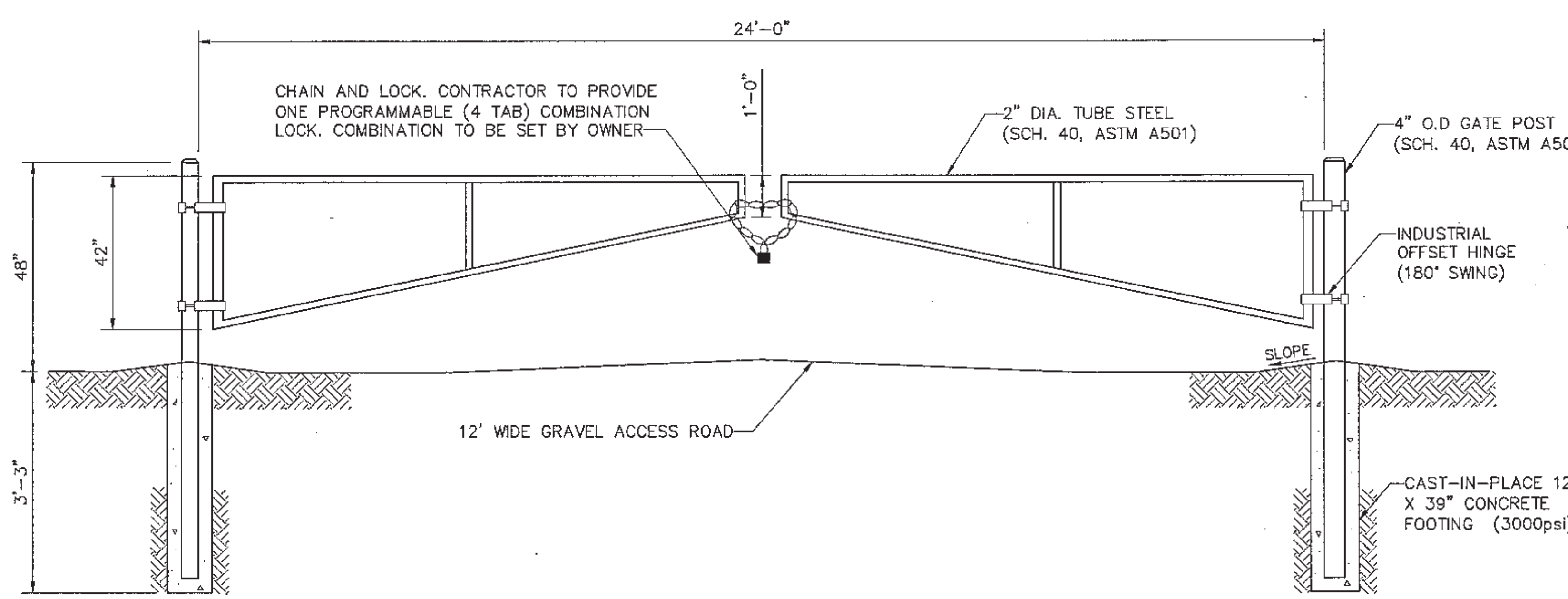
2	WOVEN WIRE FENCE
C07	NO SCALE



3	CORNER, GATE, END OR PULL POST
C07	NO SCALE



4	WOVEN WIRE SWING GATE, DOUBLE DETAIL
C07	NO SCALE



5	DOUBLE WIDE A-FRAME SWING GATE
C07	NO SCALE

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	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT · JOHN P. SOBIECH · No. 17827 · LICENSED · PROFESSIONAL ENGINEER

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SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
SITE DETAILS

SHEET NUMBER
C07

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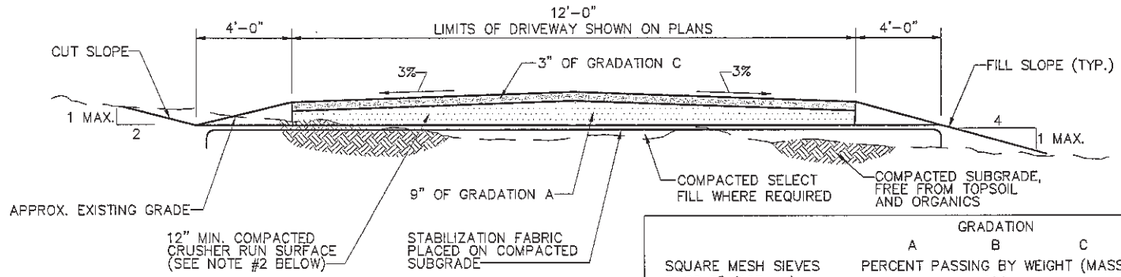
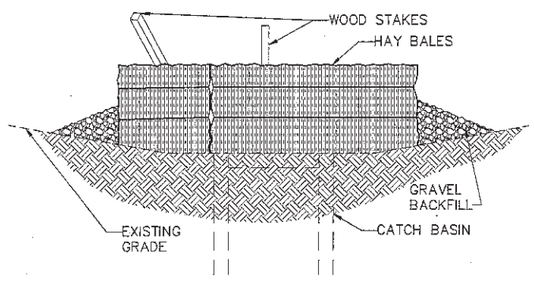


NOTES: 1. THE MATERIALS FOR THE ROLLED BANK GRAVEL SURFACE AND TRAFFIC-BOUND GRAVEL SURFACE SHALL CONSIST OF SOUND, TOUGH, DURABLE PARTICLES OF BANK OR CRUSHED GRAVEL. ALL MATERIALS SHALL BE FREE FROM THIN OR ELONGATED PIECES, LUMPS OF CLAY, LOAM, VEGETABLE MATTER, OR SAND. BINDER MAY BE ADDED AND INCORPORATED BY APPROVED METHODS AS SPECIFIED ELSE WHERE. THE BOTTOM 9" SHALL MEET GRADING "A" AND THE TOP 3" SHALL CONFORM TO GRADING "C".

	GRADATION		
	A	B	C
SQUARE MESH SIEVES	PERCENT PASSING BY WEIGHT (MASS)		
PASS 5" (125mm)		100	
PASS 3.5" (90mm)	100	90-100	
PASS 1.5" (37.5mm)	55-100	55-95	100
PASS 0.75" (19mm)			45-80
PASS 0.25" (6.3mm)	25-60	25-60	25-60
PASS #10 (2.0mm)	15-45	15-45	15-45
PASS #40 (425um)	5-25	5-25	5-25
PASS #100 (150um)	0-10	0-10	0-10
PASS #200 (75um)	0-5	0-5	0-5

1 / C08 CROWNED DRIVEWAY SECTION
NO SCALE



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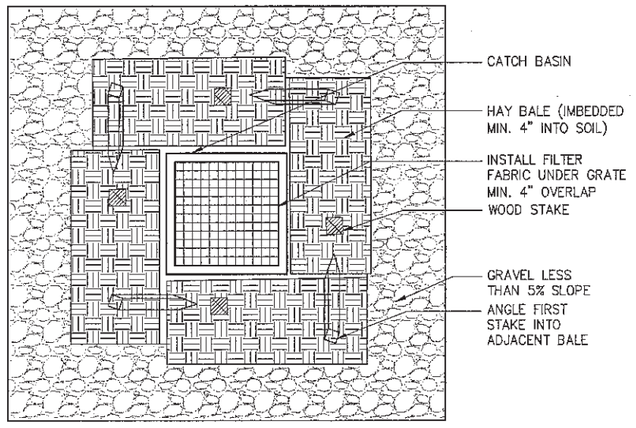
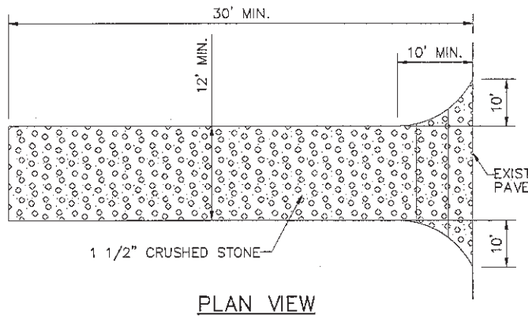
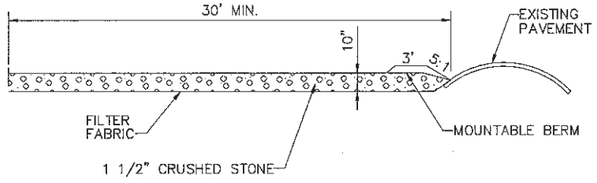


PLAN

2 / C08 CATCH BASIN INLET PROTECTION
NO SCALE



PLAN VIEW

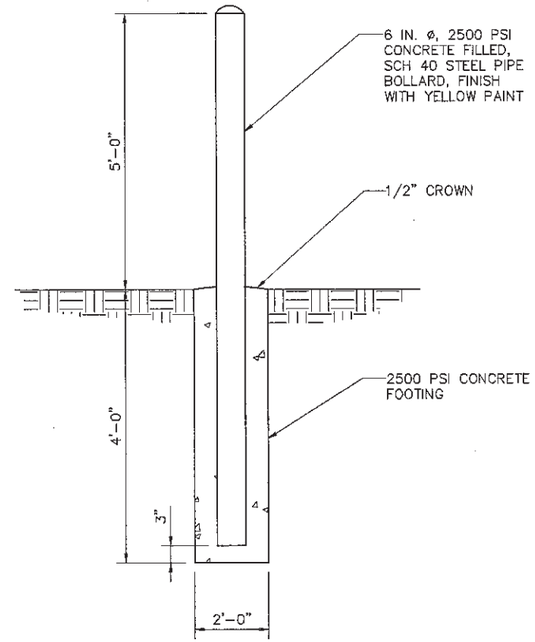


CROSS-SECTION

NOTES:

1. ENTRANCE WIDTH SHALL BE A TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.

3 / C08 CONSTRUCTION DEBRIS ANTI-TRACKING PAD
NO SCALE



4 / C08 BOLLARD DETAIL
NO SCALE

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STATE OF CONNECTICUT
JOHN P. SOBER
No. 17827
LICENSED PROFESSIONAL ENGINEER

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SITE NAME:
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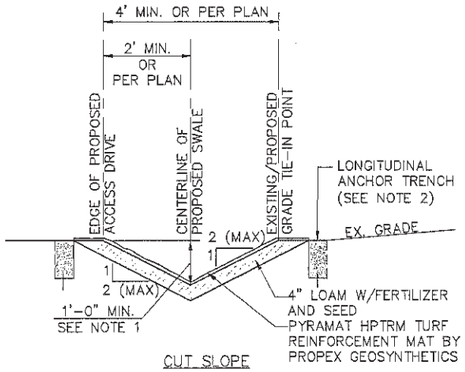
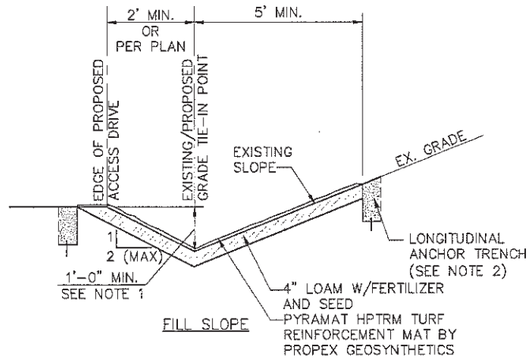
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
SITE DETAILS

SHEET NUMBER
C08



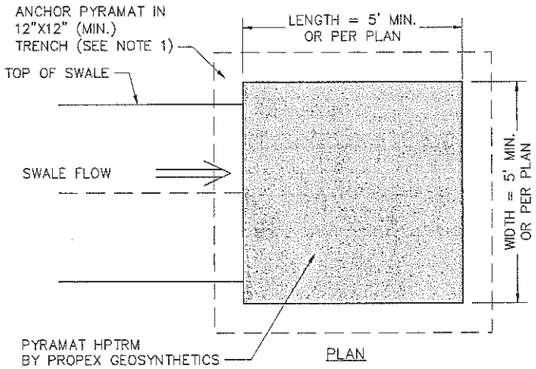
CUT SLOPE



FILL SLOPE

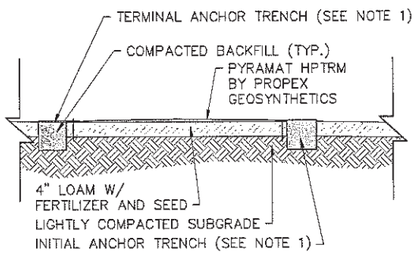
NOTES:
1. DIMENSION VARIES, REFER TO GRADING PLANS.
2. INSTALL PER MANUFACTURERS RECOMMENDATIONS, SEE SHEETS C10–C12.

1 C09 **VEGETATED DRAINAGE SWALE**
NO SCALE



PLAN

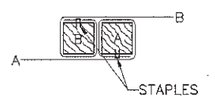
NOTE:
1. INSTALL PER MANUFACTURERS RECOMMENDATIONS, SEE SHEETS C10–C12.



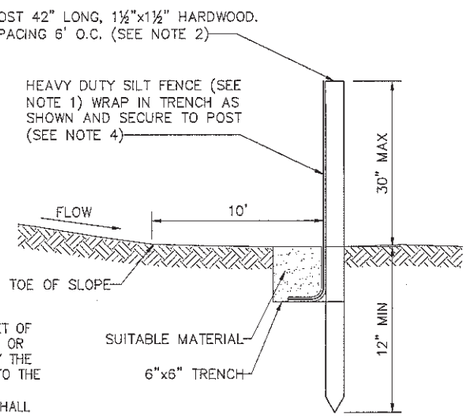
SECTION

2 C09 **OUTLET PROTECTION**
NO SCALE

INSTALLATION NOTE:
REFER TO DETAILS 5 & 6, SHEET C09 FOR ADDITIONAL INSTALLATION REQUIREMENTS



WOOD STAKE JOINT DETAIL



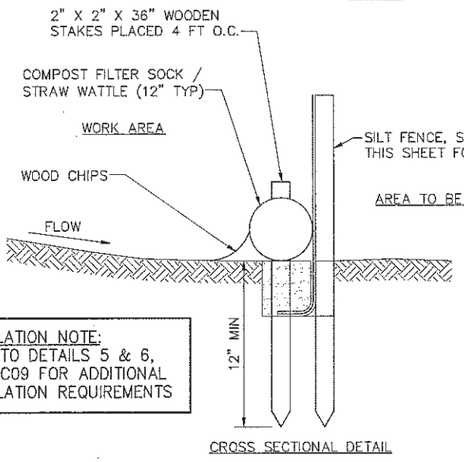
CROSS SECTIONAL DETAIL

NOTES:
1. GEOTEXTILE FABRIC SHALL BE A PERVIOUS SHEET OF POLYPROPYLENE, NYLON, POLYESTER, ETHYLENE, OR SIMILAR FILAMENTS AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS SHOWN IN TABLE 1.
2. AT THE ENDS OF THE FENCING THE FIRST 20' SHALL BE TURNED UP THE SLOPE 2'.
3. POSTS SHALL BE INCLINED TOWARD THE DIRECTION OF FLOW AND BE PLACED 6' ON CENTER.
4. IN ABSENCE OF MANUFACTURER'S INSTRUCTIONS, SPACE WIRE STAPLES ON WOODEN STAKES AT A MAXIMUM 4 INCHES APART AND ALTERNATE THEIR POSITION FROM PARALLEL TO THE AXIS OF STAKE TO PERPENDICULAR.
5. WHEN JOINTS IN THE GEOTEXTILE FABRIC ARE NECESSARY, SPLICE TOGETHER ONLY AT A SUPPORT POST AND SECURELY SEAL.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BULGES IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.
7. WHEN FENCE IS NO LONGER NEEDED, THE ACCUMULATED SILT, ALL THE POSTS AND FABRIC SHALL BE REMOVED AND TRENCH BACK FILLED WITH TOPSOIL AND SEEDED.
8. FENCING SHALL BE PLACED AT LOCATIONS SHOWN ON THE DRAWINGS.

TABLE 1 – GEOTEXTILE SILT FENCE MINIMUM REQUIREMENTS

PHYSICAL PROPERTY	TEST METHOD	MINIMUM REQUIREMENT
FILTERING EFFICIENCY	ASTM 5141	75% (MIN)
GRAB TENSILE STRENGTH (LBS.)	ASTM D4632	100 LBS.
ELONGATION @ FAILURE	ASTM D4632	15%
MULLEN BURST STRENGTH	ASTM D3786	250 PSI
PUNCTURE STRENGTH	ASTM 4833	50 LBS
APPARENT OPENING SIZE	ASTM D4751	NO GREATER THAN 0.90 MM AND NO LESS THAN 0.60 MM
FLOW RATE	ASTM D4491	0.2 GLA/FT^2/MIN
PERMATIVITY	ASTM D4491	0.05 SEC.^–1(MIN)
ULTRAVIOLET RADIATION STABILITY %	ASTM D4355	70% AFTER 500 HOURS OF EXPOSURE (MIN)

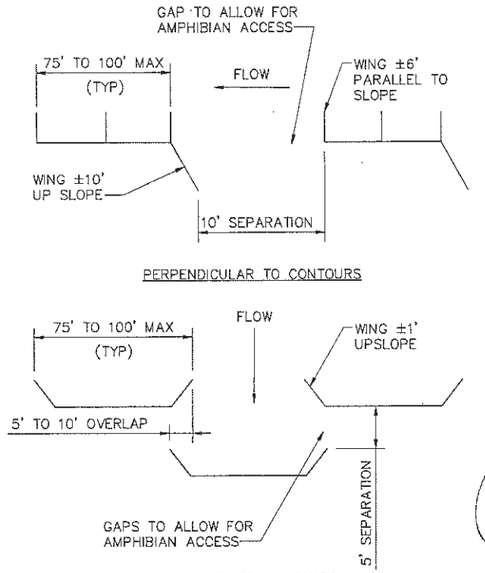
3 C09 **SILT FENCE DETAIL**
NO SCALE



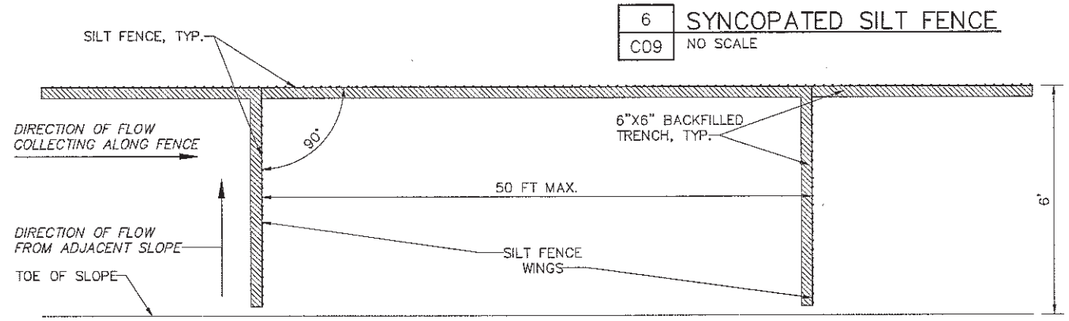
CROSS SECTIONAL DETAIL

INSTALLATION NOTE:
REFER TO DETAILS 5 & 6, SHEET C09 FOR ADDITIONAL INSTALLATION REQUIREMENTS

4 C09 **SILT FENCE / COMPOST FILTER SOCK / STRAW WATTLE BARRIER**
NO SCALE



6 C09 **SYNCOPATED SILT FENCE**
NO SCALE



PLAN VIEW DETAIL

INSTALL SILT FENCE WINGS WHEREVER SILT FENCE RUNS PERPENDICULAR TO CONTOURS

5 C09 **SILT FENCE PLAN VIEW DETAIL**
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CHA PROJECT NO:
18301 – 1025 – 43000

NO.	SUBMITTAL	
0	07/23/14	ISSUED FOR D&M APPROVAL
	BY: JDM	CHK: PAL / APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBECK
No. 17827
LICENSED PROFESSIONAL ENGINEER

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
SITE DETAILS

SHEET NUMBER
C09

SITE PREPARATION

- Grade and compact area of TRM/HPTRM installation as directed and approved by Engineer. Subgrade shall be uniform and smooth. Remove all rocks, clods, vegetation or other objects so the installed mat will have direct contact with soil surface.
- Prepare seedbed by loosening the top 2-3 in (50-75 mm) minimum of soil.
- Incorporate amendments such as lime and fertilizer and/or wet the soil, if needed.
- Do not mulch areas where mat is to be placed.

SEEDING

- Apply seed to soil surface before installing mat. Disturbed areas shall be reseeded.
- When soil filling, first install the mat, apply seed and then soil-fill per guidelines (see page 8).
- Consult project plans and/or specifications for seed types and application rates.

SOIL FILLING

- Soil filling is suggested for optimum performance.
- After seeding, spread and lightly rake ½-¾ in (12-19 mm) minimum of fine site soil or topsoil into the mat and completely fill the voids using backside of rake or other flat tool.
- If equipment must operate on the mat, make sure it is of the rubber-tired type. No tracked equipment or sharp turns are allowed on the mat.
- Avoid any traffic over the mat if loose or wet soil conditions exist.
- Smooth soil-fill in order to just expose the top netting of matrix. Do not place excessive soil above the mat.
- Broadcast additional seed and install a Landlok® ECB above the soil-filled mat (if desired).
- Hydraulically-applied mulch or seed may be used as an alternate to soil-fill on select applications. Consult manufacturer's technical representative for more information.
- Consult manufacturer's technical representative or local distributor for installation assistance, particularly if unique conditions apply (sandy soils and infertile environments).

INSTALLATION ON STABLE SOIL SLOPES

- Excavate a 12 x 6 in (300 x 15 mm) minimum longitudinal anchor trench 2-3 ft (600-900 mm) over crest of slope (see Figure 2).
- Install top end of mat into trench and secure to bottom using suggested ground anchoring devices (see Tables 1 and 2 on page 7) spaced every 12 in (300 mm) minimum. Backfill and compact soil into trench (see Figure 2).
- Unroll mat down slope. Landlok® 1051 shall have the geotextile on bottom.
- Overlaps shall be 6 in (150 mm) minimum and anchored every 18 in (450 mm) minimum along the overlap. Secure using suggested ground anchoring devices shown in Table 1 for appropriate frequency and pattern. Overlaps are shingled away from prevailing winds (see Figure 1).
- Unroll mat in a manner to maintain direct contact with soil. Secure mat to ground surface using ground anchoring devices (see Table 1). Anchors shall be placed in accordance with the Anchor Pattern Guide on page 7.
- Excavate a 12 x 6 in (300 x 150 mm) key anchor trench at toe of slope (see Figure 3).
- Place bottom end of mat into key anchor trench at toe of slope and secure to bottom of trench using suggested ground anchoring devices (see Tables 1 and 2) spaced every 12 in (300 mm) minimum. Backfill and compact soil into trench (see Figure 3).
- If the potential for standing and/or flowing water exists at the toe of slope, the key anchor trench at the toe detail (see Figure 3) is not sufficient. Consult the project engineer for the appropriate detail.
- Irrigate as necessary to establish/maintain vegetation. Do not over-irrigate.

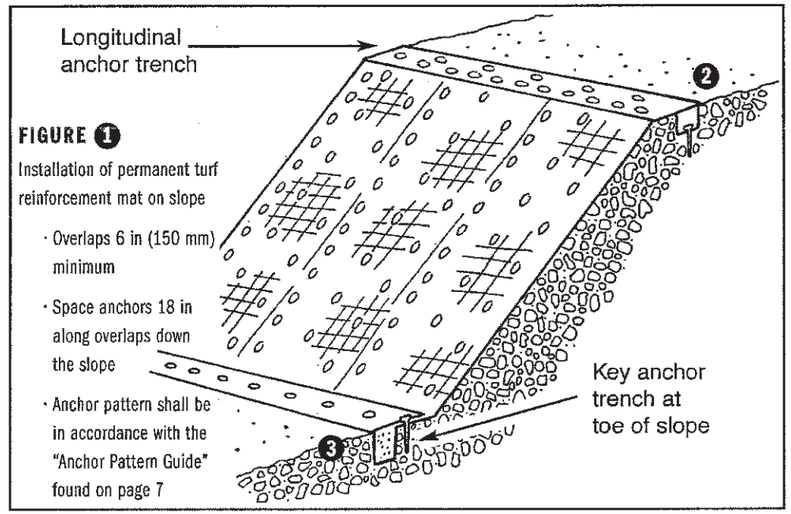
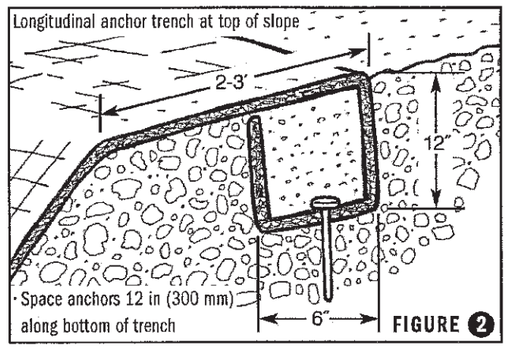


FIGURE 1
Installation of permanent turf reinforcement mat on slope

- Overlaps 6 in (150 mm) minimum
- Space anchors 18 in along overlaps down the slope
- Anchor pattern shall be in accordance with the "Anchor Pattern Guide" found on page 7



- Space anchors 12 in (300 mm) along bottom of trench

FIGURE 2

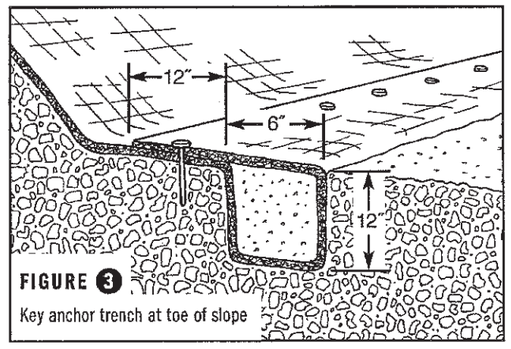


FIGURE 3
Key anchor trench at toe of slope

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SITE DETAILS

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C10

INSTALLATION IN STORM WATER CHANNELS

- Figure 4 shows general installation layout and details for TRMs and HPTRMs in storm water channels.
- Excavate an initial anchor trench 12 in (300 mm) minimum deep and 12 in (300 mm) minimum wide across the channel at downstream end of project (see Figure 5). Deeper initial anchor trench is needed in channels that have the potential for scour.
- Excavate longitudinal anchor trenches 12 in (300 mm) minimum deep and 6 in (150 mm) minimum wide along both sides of the installation to bury edges of mat (see Figure 6). The trench shall be located 2-3 ft (600-900 mm) over crest of slope.
- Place roll end into the initial anchor trench and secure with anchoring devices at 12 in (300 mm) minimum intervals (see Figure 5). Position adjacent rolls and secure in anchor trench in same manner. Backfill and compact soil into trench.
- Unroll mat in the upstream direction over the compacted trench.
- Continue installation as described above, overlapping adjacent rolls as follows:
  - Roll edge: 6 in (150 mm) minimum with upslope mat on top. Secure with one row of ground anchoring devices on 12 in (300 mm) minimum intervals (see Figure 7).
  - Roll end: 12 in (300 mm) minimum with upstream mat on top. Secure with two rows of ground anchoring devices staggered 12 in (300 mm) minimum apart on 12 in (300 mm) minimum intervals (see Figure 8).
- Fold and secure mat rolls snugly into intermittent check slots. Lay mat in the bottom and fold back against itself. Anchor through both layers of blanket or mat at 1 ft (300 mm) intervals then backfill and compact soil (Figure 9). Continue rolling upstream over the compacted slot to the next check slot or terminal anchor trench. Check slots are placed at 25 to 30 ft (7.6 to 9.1 m) intervals perpendicular to flow.
- An alternate method to the intermittent check slot is the simulated check slot. This method includes placing two staggered rows of anchors on 4 in (100 mm) centers at 30 ft (9.1 m) intervals (see Figure 10).
- Excavate terminal anchor trench 12 in wide x 12 in deep (300 x 300 mm) minimum across the channel at the upstream end of the project (see Figure 11). Deeper terminal anchor trench is needed in channels that have the potential for scour.
- Anchor, backfill and compact upstream end of mat in 12 x 12 in (300 x 300 mm) minimum terminal anchor trench (see Figure 11). Unroll mat in downstream direction over compacted trench with a minimum 2 ft (600 mm) lap. Secure with anchors in accordance with Figure 8.
- Secure mat using suggested ground anchoring devices (see Tables 1 and 2 on page 7) for appropriate frequency and pattern (see Anchor Pattern Guide on page 7).
- Seed and fill with soil for enhanced performance. See Soil Filling Section on page 8.
- When using Landlok® 1051, seed after installing mat and then fill with soil.
- Irrigate as necessary to establish/maintain vegetation. Do not over irrigate.

NOTE: If you encounter roll with factory overlap, install factory seam such that it shingles in the direction of the flow of water. Place anchoring devices in accordance with Figure 8 "Overlap at roll end" on page 5.

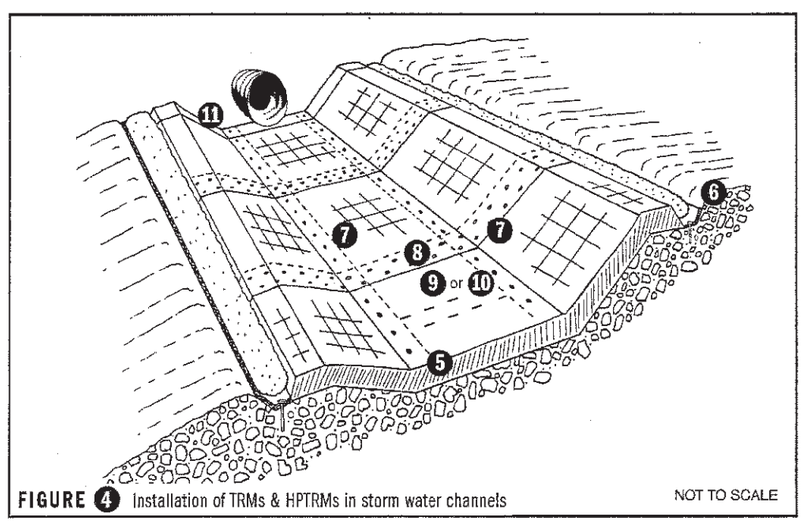

FIGURE 4 Installation of TRMs & HPTRMs in storm water channels NOT TO SCALE

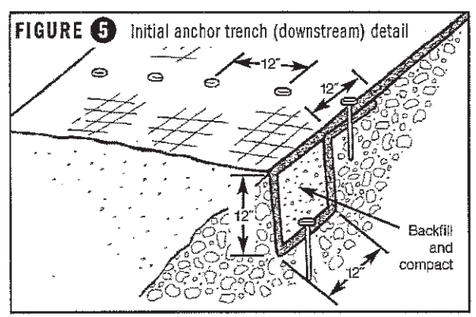

FIGURE 5 Initial anchor trench (downstream) detail

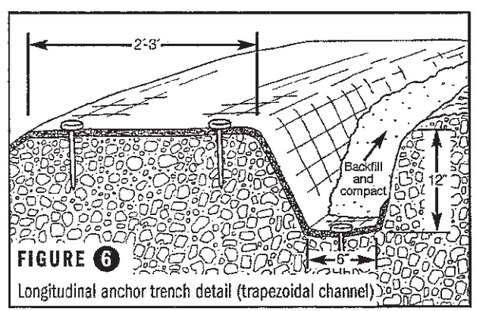

FIGURE 6 Longitudinal anchor trench detail (trapezoidal channel)

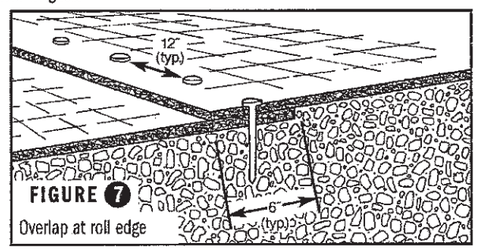

FIGURE 7 Overlap at roll edge

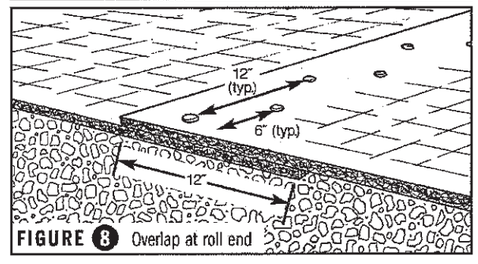

FIGURE 8 Overlap at roll end

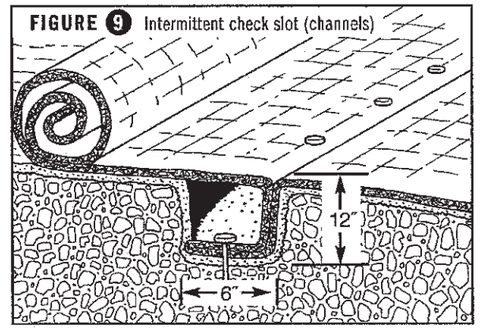

FIGURE 9 Intermittent check slot (channels)

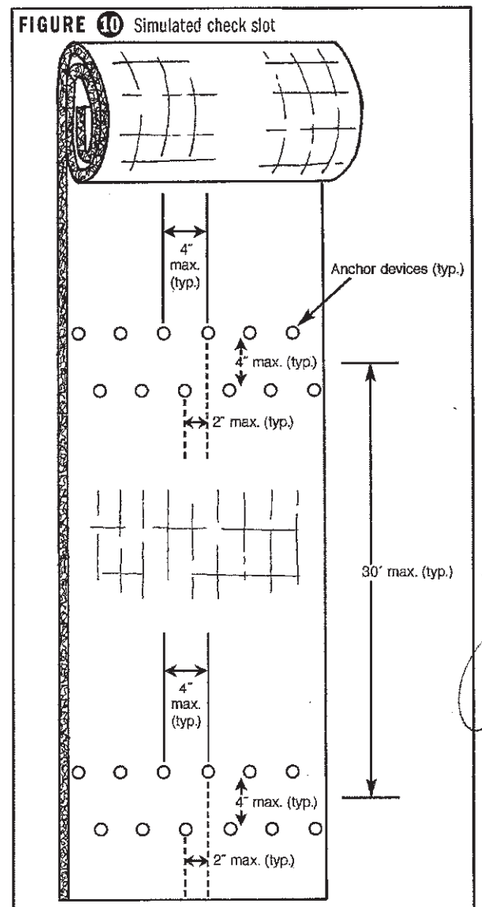

FIGURE 10 Simulated check slot

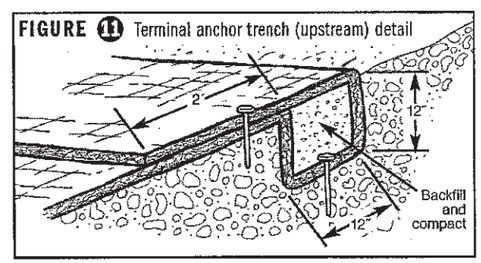

FIGURE 11 Terminal anchor trench (upstream) detail

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	BY: JDM	CHK: PAL APP'D: JPS

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
C11

MAINTENANCE

All slopes, channels, banks and other transition structures shall be maintained to assure the expected design life of the reinforced vegetated system. Here are a few tips that should prove helpful:

- Monitoring
  - Should be conducted semi-annually and after major storm events. This should include: observing the condition of the vegetation; testing the irrigation system; checking condition of all permanent erosion control systems; observing sediment and debris deposits that need removal.
- Vegetation
  - Repair and maintenance of various types of vegetation shall be consistent with their original design intent, including:
    - Grass/Turf Areas: applications shall be maintained for adequate cover and height.
    - Mowing: grasses shall be mowed according to normal maintenance schedules as determined by local jurisdictions or maintenance agreements; operations shall not start until vegetation achieves a minimum height of 6 in (150 mm); mower blades shall be greater than 6 in (150 mm) above the mat.
    - Unvegetated Areas: shall be re-seeded and soil-filled (if applicable).
- Sediment and Debris Deposits
  - Accumulation of sediment and debris can reduce the hydraulic capacity of channels, clog inlet and outlet structures and can damage existing vegetation. Sediment and debris removal is a vital part of system maintenance.
    - Removal: shall be done carefully to avoid damage. When excavation is within 12 in (300 mm) minimum of matting, removal shall be done by hand or with a visual "spotter." If equipment must operate on the mat, make sure it is of the rubber-tired type. No tracked equipment or sharp turns are allowed on the mat.
      - Alternatively, "stake chasers" or some other form of permanent visual markers can be utilized to provide a visual marker for maintenance activities.
- Damaged Sections
  - Missing or damaged sections of the matting should be replaced per the installation guidelines.
    - Repairing Rips or Holes: these should be patched with identical matting material. First, carefully cut out the damaged section with a knife. Then replace and compact soil to the elevation of the surrounding subgrade and plant seed. Cut a piece of replacement material a minimum of 12 in (300 mm) larger than the rip or tear. Use ties to attach the replacement material to the existing material. At overlaps, the upstream and upslope material should be on top. Secure the replacement material with ground anchoring devices spaced every 6 in (150 mm) around the circumference of the repair and at the frequency and spacing shown in the Anchor Pattern Guide on page 7. Seed and soil fill replacement area.

SPECIAL TRANSITION GUIDELINES

- Pipe Inlets/Outlets (HPTRMs Only)
  - Review the construction drawings and project specifications to evaluate the required area to be treated.
  - Excavate an anchor trench 12 x 12 in (300 x 300 mm) minimum above the pipe to bury end of HPTRM roll. The trench shall be located a minimum 2-3 ft (600-900 mm) above the pipe inlet/outlet.
  - Backfill and compact soil into trench.
  - Cut HPTRM to meet project requirements, slope length and pipe diameter.
  - Unroll HPTRM down the slope and secure around pipe circumference with ground anchoring devices spaced 6 in (150 mm) minimum. Also, the HPTRM can be secured around the pipe in a 12 x 12 in (300 x 300 mm) minimum trench filled with concrete slurry.

GROUND ANCHORING DEVICES

- Ground anchoring devices are used to secure the mat to the soil using the suggested anchor device (see Tables 1 and 2 on page 7) at a minimum frequency and pattern shown on the Anchor Pattern Guide on page 7.
- U-shaped wire staples or metal geotextile pins can be used to anchor mat to the ground surface. Wire staples should be a minimum thickness of 8 gauge (4.3 mm). Metal pins should be at least 0.20 in (5 mm) diameter steel with a 1 ½ in (38 mm) steel washer at the head of the pin. Wire staples and metal pins should be driven flush to the soil surface. All anchors should be between 6-24 in (150-600 mm) long and have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils. Heavier metal stakes may be required in rocky soils.

TABLE 1: SUGGESTED GROUND ANCHORING DEVICE SELECTION*

		DEGRADABLE STAKES	WIRE STAPLES	METAL PIN/WASHERS OR NAIL/WASHERS	PERCUSSION DRIVEN ANCHORS
PRODUCT	LANDLOK® ECBs	●	●		
	LANDLOK® TRMs		●	●	
	PYRAMAT®		●	●	●
APPLICATION	SLOPES	●	●	●	●
	BANKS			●	●
	CHANNELS		●	●	●

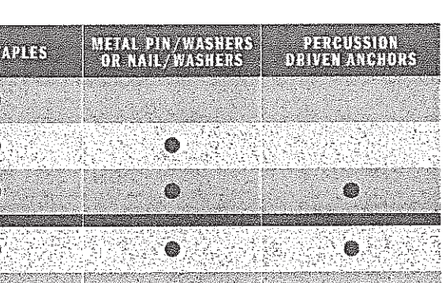
TABLE 2: SUGGESTED LENGTHS OF GROUND ANCHORING DEVICES*

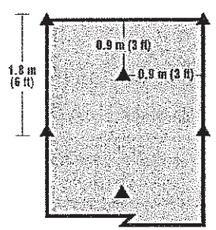
		6-INCH	12-INCH	18-INCH	24-INCH
SOIL TYPES	ROCKY	●			
	CLAYEY	●	●		
	SILTY		●	●	
	SANDY			●	●

*The performance of ground anchoring devices is highly dependent on numerous site/project specific variables. It is the sole responsibility of the project engineer and/or contractor to select the appropriate anchor type and length. Anchoring shall be selected to hold the mat in intimate contact with the soil subgrade and resist pullout in accordance with the project's design intent.

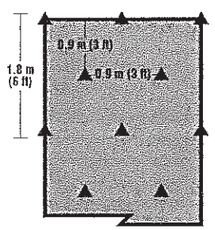
ANCHOR PATTERN GUIDE

- The shaded areas in the diagram provide anchor suggestions based on slope gradient and/or anticipated flow conditions. When the correct number of anchors has been determined, refer to the four illustrations below to establish anchor pattern. Increased anchoring may be required depending upon site conditions.

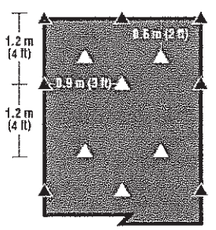




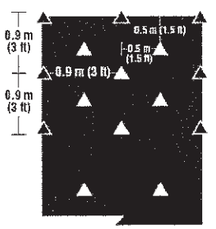
1.2 ANCHORS/m² (1 ANCHOR/yd²)



1.8 ANCHORS/m² (1½ ANCHORS/yd²)



2.5 ANCHORS/m² (2 ANCHORS/yd²)



3 ANCHORS/m² (2½ ANCHORS/yd²)

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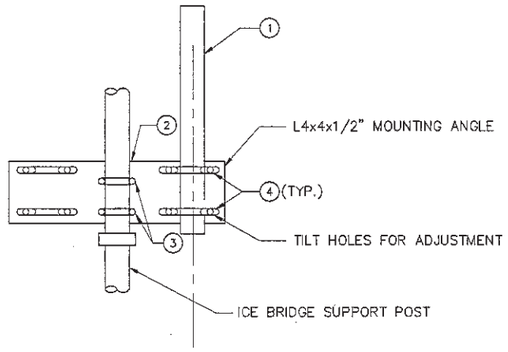
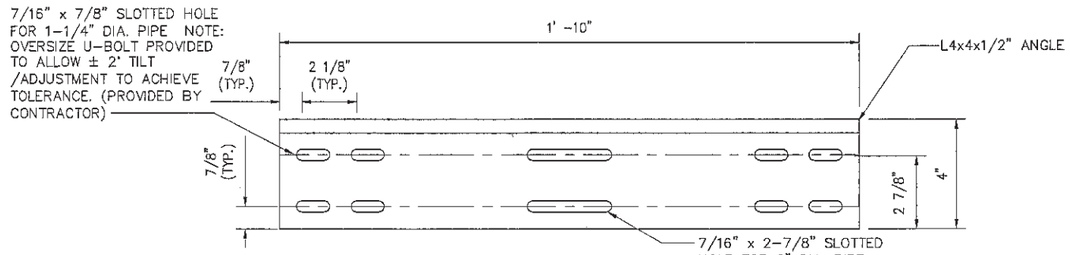


GPS ANTENNA MOUNTING BRACKET



MOUNTING BRACKET PLATE

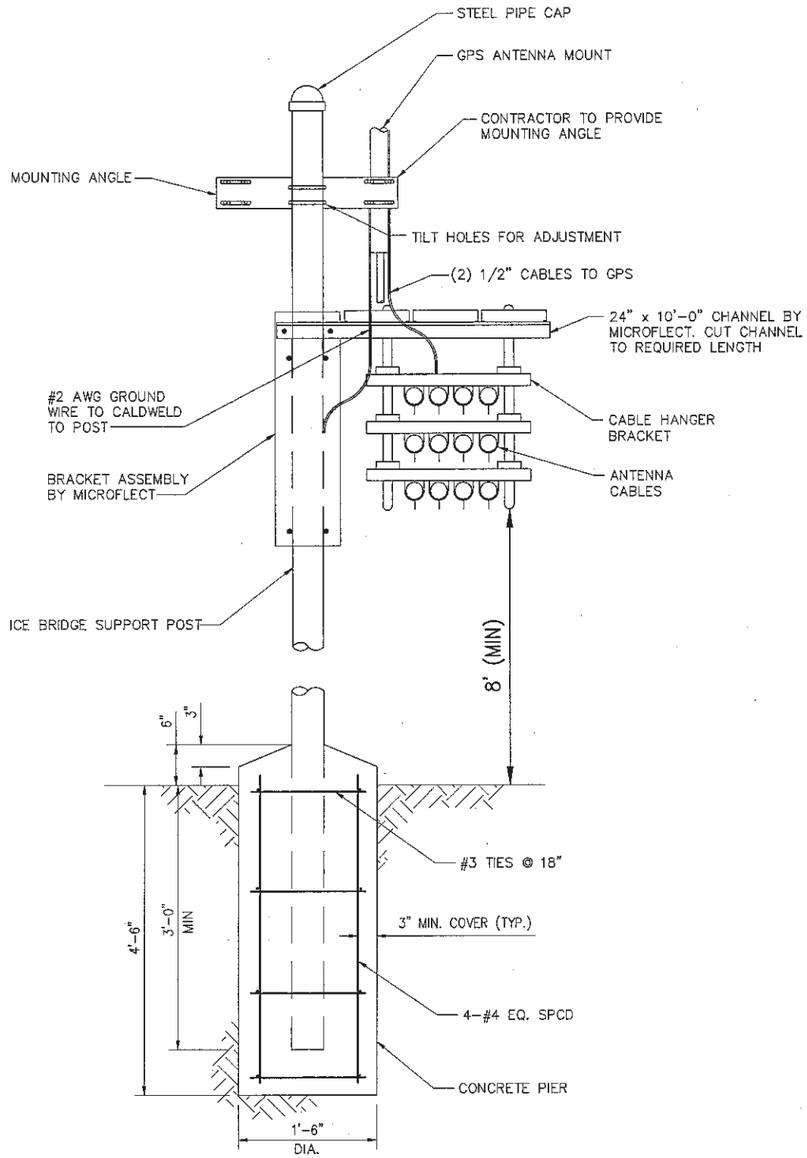
ITEM #	DESCRIPTION	QUANTITY (EACH)
1	1-1/2" SCH. 40 X 18" LG. MIN SS OR GALV. PIPE	1
2	ANGLE 4" X 4" X 1/2" GALV.(A-36)	1
3	STD. U-BOLT FOR 2" PIPE W/ DOUBLE HEX NUTS AND WASHER, GALV.	2
4	STD. U-BOLT FOR 2" PIPE W/ DOUBLE HEX NUTS AND WASHER, GALV. (SEE NOTE 2)	2

BILL OF MATERIALS

NOTES:

1. THE MOUNTING PLATE SHALL BE FABRICATED AS SHOWN AND ATTACHED TO THE APPROPRIATE SUPPORT STRUCTURE USING U-BOLTS. THE SUPPORT PIPE SHALL THEN BE ATTACHED TO THE MOUNTING PLATE USING THE OVERSIZE U-BOLTS PROVIDED TO ALLOW ADJUSTMENT. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.

1	GPS ANTENNA
C13	NO SCALE



2	ICE BRIDGE SUPPORT POST W/GPS DETAIL
C13	NO SCALE

NOTES:

1. LOCATION OF ANTENNA MOUNTING PIPE MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.

2. THE GPS ANTENNA LOCATION MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.

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CHA PROJECT NO:
18301 - 1025 - 43000

NO.	SUBMITTAL	
0	07/23/14	ISSUED FOR D&M APPROVAL
	BY: JDM	CHK: PAL APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBECK
No. 17827
LICENSED PROFESSIONAL ENGINEER

SITE ID:
SR1765
SITE NAME:
COLEBROOK
SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
C13

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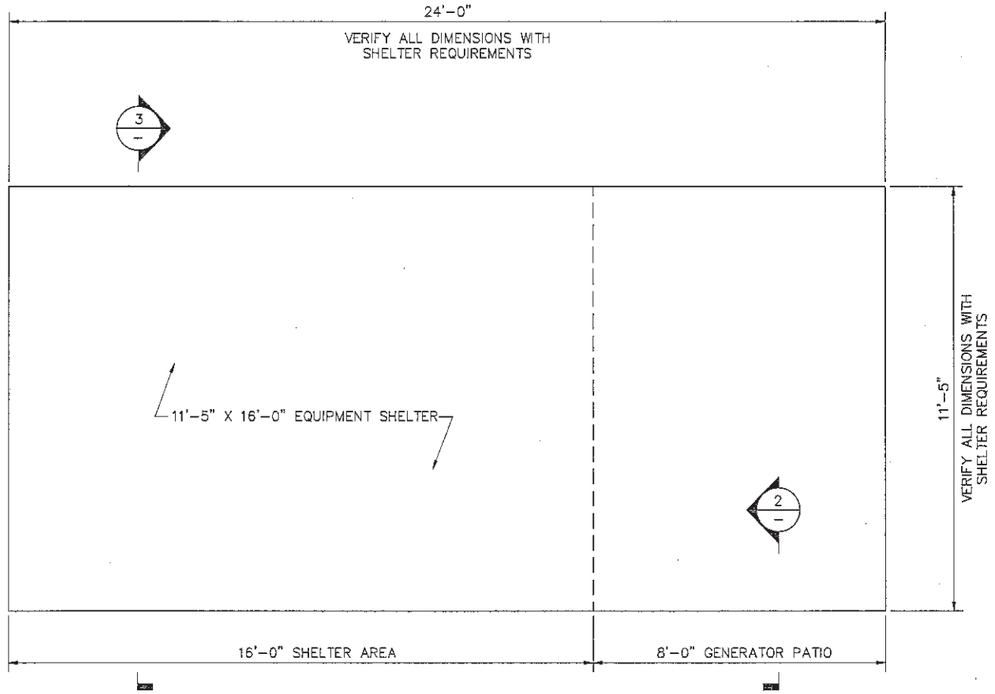

1 C14 FOUNDATION PLAN
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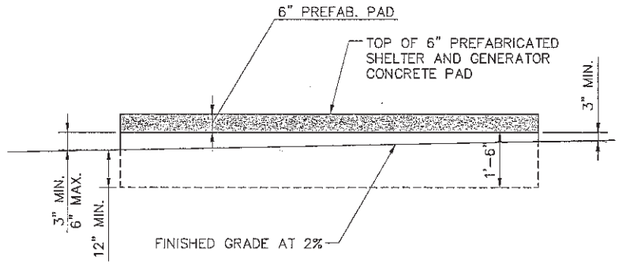
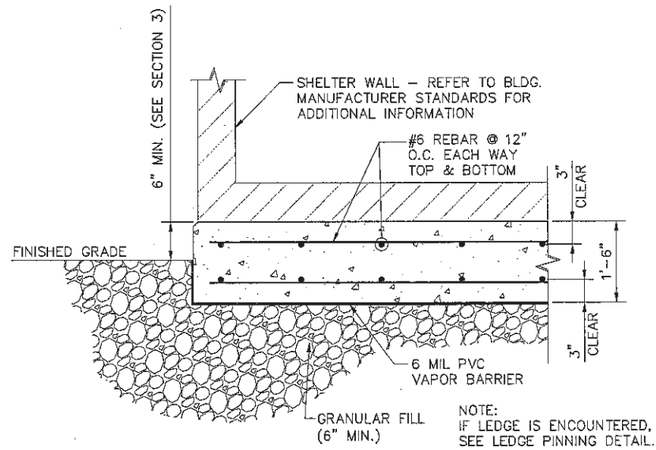
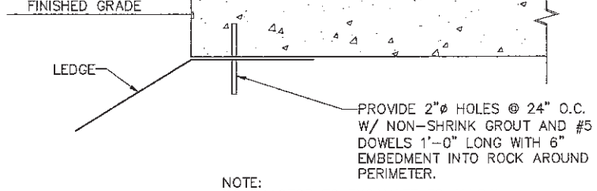


3 C14 FOUNDATION SECTION



PAD FOUNDATION SECTION



NOTE:
CONTRACTOR TO EXCAVATE TO ALLOW THE FOOTING TO REST ON LEVEL ROCK.

PAD LEDGE PINNING DETAIL

2 C14 PAD FOUNDATION

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STATE OF CONNECTICUT
JOHN P. SOBERA
No. 17827
LICENSED PROFESSIONAL ENGINEER

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SR1765
SITE NAME:
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SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
C14

GENERAL NOTES

1. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
2. DO NOT CHANGE SIZE NOR SPACING OF STRUCTURAL ELEMENTS.
3. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
4. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
5. BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
6. DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
7. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE APPROVAL.
8. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
9. CONTRACTOR TO FOLLOW ALL STATE, LOCAL AND NATIONAL CODES AS APPLICABLE.

DESIGN DATA

LIVE LOADS: PER INTERNATIONAL BUILDING CODE
WIND LOADS: PER INTERNATIONAL BUILDING CODE & TIA/EIA-222-F
ICE LOADS: 1/2" RADIAL ON ALL COMPONENTS & CABLE
SNOW LOAD: PER INTERNATIONAL BUILDING CODE
SEISMIC LOADS: PER INTERNATIONAL BUILDING CODE

ANTENNA SUPPORT BRACKET NOTES

1. DESIGN RESPONSIBILITY OF ANTENNA MOUNTING BRACKETS AND POLES AND ALL COMPONENTS THERE OF AND ATTACHMENT THERE TO SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER. MFR. SHALL PROVIDE TO THE ENGINEER FOR APPROVAL, DRAWINGS DETAILING ALL COMPONENTS OF THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND ALL OTHER PERTINENT DATA. ALL SUBMISSIONS SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE THE WORK IS BEING PERFORMED.
2. BRACKETS SHALL BE DESIGNED TO SUPPORT CURRENT AND FUTURE PANEL ANTENNAS AND COAXIAL CABLES AS SHOWN.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
2. ALL INTERIOR STRUCTURAL STEEL USED SHALL BE, WHEN DELIVERED, FINISHED WITH ONE COAT FABRICATOR'S NON-LEAD, RED OXIDE PRIMER. PRIMING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE PRIMED AREAS SHALL BE REPAIRED BY FIELD TOUCHUP PRIOR TO COMPLETION OF THE WORK.
3. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH SPECIFICATION ASTM A123 UNLESS OTHERWISE NOTED. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE GALVANIZED AREAS SHALL BE REPAIRED BY FIELD TOUCHUP PRIOR TO COMPLETION OF THE WORK USING ZRC COLD GALVANIZING COMPOUND OR APPROVED EQUAL.
4. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
5. CONNECTIONS:
   A. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION ", 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
   B. BOLTED CONNECTIONS SHALL USE BEARING TYPE GALVANIZED ASTM A325 BOLTS (3/4" DIA) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
   C. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. GALVANIZED ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
   D. CONNECTION DESIGN BY FABRICATOR WILL BE SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.
   E. ALL BOLTED CONNECTIONS SHALL HAVE A FLAT WASHER & NUT TIGHTENED TO AISC "SNUGTIGHT" CRITERIA, UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL NOTES (CONT.)

6. STRUCTURAL STEEL GRATING SHALL BE 1 1/2" X 3/16" GALVANIZED STEEL BAR GRATING (IKG BORDEN TYPE-WB OR EQUAL) ATTACHED @ 1'-6" o.c. WITH GRATING CLAMPS, UNLESS OTHERWISE NOTED.
7. NEW STRUCTURAL STEEL LOCATED WITHIN A BUILDING OR ENCLOSURE SHALL BE FIRERATED PER LOCAL CODE.
8. REINFORCING BARS: ASTM A625, GRADE 60 DEFORMED BARS.
9. WELDED WIRE MESH: TO ASTM A185. PROVIDE IN FLAT SHEETS ONLY. VERTICAL PLACEMENT TOLERANCE TO BE 3/8 INCH.
10. THE CONTRACTOR SHALL FABRICATE ALL REINFORCEMENT AND FURNISH ALL ACCESSORIES, BOLSTERS, CHAIRS, SPACER BARS AND SUPPORTS NECESSARY TO SECURE THE REINFORCEMENT UNLESS INDICATED OTHERWISE.
11. IN SLABS WHERE REINFORCING IS SHOWN IN ONE DIRECTION ONLY, PROVIDE INDICATED TEMPERATURE REINFORCEMENT AT 90 DEGREES TO PRINCIPAL REINFORCEMENT.
12. LAP SPLICES:

    a) CONCRETE: PROVIDE CLASS B TENSION LAP SPLICES U.N.O.

    b) WELDED WIRE MESH: MINIMUM LAP 8 INCHES, MEASURED BETWEEN OUTERMOST CROSS-WIRES OF EACH SHEET.

CONCRETE NOTES

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING APPLICABLE CODES: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
2. MIX DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE. PREPARE AND SUBMIT MIX DESIGNS FOR EACH TYPE AND STRENGTH OF CONCRETE IN ACCORDANCE WITH ACI 211, "PROPORTIONING CONCRETE MIXTURES, AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
3. CONCRETE (EXCEPT TREMIE MIX) SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINED (±1.5%) WITH A MAXIMUM 4" SLUMP, AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE NOTED.
4. MAXIMUM AGGREGATE SIZE SHALL BE 3/4".
5. THE FOLLOWING MATERIALS SHALL BE USED:

PORTLAND CEMENT:	ASTM C 150, TYPE I
REINFORCEMENT:	ASTM A 615, GRADE 60
NORMAL WEIGHT AGGREGATE:	ASTM C 33
WATER:	POTABLE
ADMIXTURES:	NON-CHLORIDE CONTAINING

6. REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315.
7. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
8. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.

   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1 1/2 IN.

   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS .....1 1/2 IN.
9. A CHAMFER 1" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
10. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURES WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE.
11. CURING COMPOUNDS SHALL CONFORM TO ASTM C-309.
12. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN ACI-301.
13. DO NOT WELD OR TACKWELD REINFORCING STEEL.
14. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.

CONCRETE NOTES (CONT.)

15. LOCATE ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION AS ACCEPTABLE TO ENGINEER. PLACE REINFORCEMENT CONTINUOUSLY THROUGH JOINT.
16. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
17. PLACE CONCRETE IN A UNIFORM MANNER TO PREVENT THE FORMATION OF COLD JOINTS AND OTHER PLANES OF WEAKNESS. VIBRATE THE CONCRETE TO FULLY EMBED REINFORCING. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE THROUGH CHUTES OR FORMWORK.
18. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
19. DO NOT ALLOW CONCRETE SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT.
20. FOR COLD-WEATHER AND HOT-WEATHER CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS MINIMUM.
21. READY-MIX CONCRETE SUPPLIERS TO BE NRMCA-CERTIFIED.
22. NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
23. HOT WEATHER CONCRETE: COMPLY WITH ACI 305R.
24. NO PLASTIZISOR TO BE USED IN TREMIE MIX.

EXCAVATIONS/FOUNDATION

1. FOUNDATION EXCAVATION SHALL BE HAND-TRIMMED TO REMOVE LOOSE MATERIALS.
2. DO NOT PLACE FOOTINGS IN WATER OR ON FROZEN GROUND.
3. SOIL BEARING SURFACES, PREVIOUSLY ACCEPTED BY GEOTECHNICAL ENGINEER, WHICH ARE ALLOWED TO BECOME SATURATED, FROZEN OR DISTURBED SHALL BE REWORKED TO SATISFACTION OF GEOTECHNICAL ENGINEER.
4. DO NOT ALLOW GROUND BENEATH FOOTINGS TO FREEZE.
5. ALL STRUCTURAL BACKFILL AND SUBBASE UNDER SLABS SHALL BE SELECT STRUCTURAL FILL MEETING THE GRADATION AND SOUNDNESS REQUIREMENTS IN ACCORDANCE WITH THE FOLLOWING GRADATION:
   A. GRADATION. THE MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

SEIVE SIZE	PERCENT PASSING BY WEIGHT
4 INCH	100
NO. 40	0 TO 70
NO. 200	0 TO 15

   B. MATERIALS SHALL BE SUBSTANTIALLY FREE OF SHALE OR OTHER SOFT, POOR DURABILITY PARTICLES. IF TESTING IS ELECTED BY OWNER, MATERIAL WITH A MAGNESIUM SULFATE SOUNDNESS LOSS EXCEEDING 30% WILL BE REJECTED.
6. COMPACT TO 95% STANDARD PROCTOR DENSITY PER ASTM D-698.
7. SUBGRADE BELOW SLAB-ON-GRADE SHALL BE REVIEWED AND ACCEPTED BY GEOTECHNICAL ENGINEER BEFORE CONCRETE SLAB PLACEMENT.
8. ALL LOOSE AND/OR ORGANIC MATERIAL SHALL BE REMOVED PRIOR TO PREPARATION OF THE AREA FOR PLACEMENT OF STRUCTURAL BACKFILL. OVERALL PLAN AREA OF WORK SHALL EXTEND 3'-0" MINIMUM BEYOND THE FINAL DIMENSIONS.
9. SCARIFY THE EXISTING SOILS TO A DEPTH OF 6" AND RE-COMPACT USING A PLATE TAMPER. ANY SOFT AREAS SHALL BE OVEREXCAVATED 12" AND BACKFILLED WITH MATERIALS AND COMPACTION REQUIREMENTS SHOWN ON THE DRAWINGS.
10. PLACEMENT AND COMPACTION OF STRUCTURAL BACKFILL AND SUBBASE SHALL BE DONE IN 8" LIFTS. EXCAVATE FOR THE FOOTING EDGE AS SHOWN ON THE DRAWINGS.
11. CONTRACTOR TO GRADE SITE LEVEL WITH EXISTING, TWO FEET BEYOND PROPOSED EQUIPMENT PAD FOOTPRINT, THEN TAPER TO EXISTING GRADE IF REQUIRED AT A MAXIMUM OF 3:1 SLOPE.

DESIGN NOTES

MATERIALS:	
STRUCTURAL STEEL	A572 GRADE 50
ANGLES AND PLATES	A36
RECTANGULAR STRUCTURAL TUBING	A500 GRADE B (46 KSI)
STANDARD PIPE	A501 OR A53 GRADE B
HIGH STRENGTH BOLTS	A325 N OR SC CLASS A
ANCHOR BOLTS	A307
WELDING ELECTRODES	E70XX
CONCRETE (28 DAYS):	
FOOTINGS	4000 PSI
SLAB-ON-GRADE	4000 PSI
ALL OTHER CONCRETE	3000 PSI
REINFORCING STEEL	A615 GRADE 60
WELDED WIRE FABRIC	A185
HEADED STUDS	A108

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ENVIRONMENTAL NOTES

WETLAND AND VERNAL POOL PROTECTION PLAN

AS A RESULT OF THE PROPOSED DEVELOPMENT'S LOCATION IN THE VICINITY OF WETLANDS AND VERNAL POOL HABITAT, THE FOLLOWING BEST MANAGEMENT PRACTICES ("BMPS") ARE RECOMMENDED TO AVOID UNINTENTIONAL IMPACT TO WETLAND HABITATS OR MORTALITY TO VERNAL POOL HERPETOFAUNA (I.E., SPOTTED SALAMANDER, WOOD FROG, TURTLES, ETC.) DURING CONSTRUCTION ACTIVITIES. THIS PLAN INCLUDES ELEMENTS THAT WILL PROTECT HERPETOFAUNA SHOULD CONSTRUCTION ACTIVITIES OCCUR DURING PEAK AMPHIBIAN MOVEMENT PERIODS (EARLY SPRING BREEDING [MARCH 1ST TO MAY 15TH] AND LATE SUMMER DISPERSAL [JULY 15TH TO SEPTEMBER 15TH]). COMPLETE DETAILS OF THE RECOMMENDED BMPS ARE PROVIDED BELOW AND WILL BE INCORPORATED INTO THE CONNECTICUT SITING COUNCIL'S DEVELOPMENT AND MANAGEMENT ("D&M") PLAN.

A QUALIFIED PROFESSIONAL FROM APT WOULD SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT VERNAL POOL PROTECTION MEASURES ARE IMPLEMENTED PROPERLY. THE PROPOSED WETLAND AND VERNAL POOL PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS INCLUDING: ISOLATION OF THE PROJECT PERIMETER; PERIODIC INSPECTION AND MAINTENANCE OF ISOLATION STRUCTURES; HERPETOFAUNA SWEEPS; EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; PROTECTIVE MEASURES; AND, REPORTING.

1. 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 PROJECT. TEMPORARY EROSION CONTROL PRODUCTS THAT WILL BE EXPOSED AT THE GROUND SURFACE REPRESENT A POTENTIAL FOR WILDLIFE ENTANGLEMENT WILL USE EITHER EROSION CONTROL BLANKETS AND FIBER ROLLS COMPOSED OF PROCESSED FIBERS MECHANICALLY BOUND TOGETHER TO FORM A CONTINUOUS MATRIX (NETLESS) OR NETTING COMPOSED OF PLANAR WOVEN NATURAL BIODEGRADABLE FIBER TO AVOID/MINIMIZE WILDLIFE ENTANGLEMENT.

b. INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS, REQUIRED FOR EROSION CONTROL COMPLIANCE AND CREATION OF A BARRIER TO POSSIBLE MIGRATING/DISPERSING HERPETOFAUNA, SHALL BE PERFORMED BY THE CONTRACTOR FOLLOWING CLEARING ACTIVITIES AND PRIOR TO ANY EARTHWORK. THE ENVIRONMENTAL MONITOR WILL INSPECT THE WORK ZONE AREA PRIOR TO AND FOLLOWING EROSION CONTROL BARRIER INSTALLATION TO ENSURE THE AREA IS FREE OF HERPETOFAUNA AND SATISFACTORILY INSTALLED. THE INTENT OF THE BARRIER IS TO SEGREGATE THE MAJORITY OF THE WORK ZONE FROM MIGRATING/DISPERSING HERPETOFAUNA. OFTENTIMES COMPLETE ISOLATION OF A WORK ZONE IS NOT FEASIBLE DUE TO ACCESSIBILITY NEEDS AND LOCATIONS OF STAGING/MATERIAL STORAGE AREAS, ETC. IN THOSE CIRCUMSTANCES, THE BARRIERS WILL BE POSITIONED TO DEFLECT MIGRATING/DISPERSAL ROUTES AWAY FROM THE WORK ZONE TO MINIMIZE POTENTIAL ENCOUNTERS WITH HERPETOFAUNA.

c. SILT FENCING INSTALLED ALONG THE PROPOSED ACCESS DRIVE SHALL BE INSTALLED WITH GAPS OF 1 TO 2 FEET PLACED EVERY 50 FEET AND A SECOND ROW OF EROSION CONTROL SHALL BE PLACED 1 TO 2 FEET BEHIND THE FIRST ROW AND STAGGERED ("SYNCOPATED SILT FENCING") SO THAT WILDLIFE, PARTICULARLY HERPETOFAUNA CAN NAVIGATE THROUGH THE BARRIER BUT NOT COMPROMISE THE INTEGRITY OF THE EROSION AND SEDIMENTATION CONTROL MEASURE. NO SYNCOPATION OPENINGS SHOULD BE INCLUDED FOR THE AREA OF THE PROPOSED FACILITY COMPOUND.

d. IF A STAGING AREA FOR EQUIPMENT, VEHICLES OR CONSTRUCTION MATERIALS IS REQUIRED FOR THIS PROJECT, SUCH AREAS SHALL BE RESTRICTED TO EITHER IMMEDIATELY SOUTH AND/OR WEST OF THE PROPOSED FACILITY COMPOUND AND INCLUDE APPROPRIATE EROSION CONTROL PROTECTION MEASURES.

e. ALL SILT FENCING SHALL BE REMOVED WITHIN 30 DAYS OF COMPLETION OF WORK AND PERMANENT STABILIZATION OF SITE SOILS SO THAT HERPETOFAUNA MOVEMENTS BETWEEN UPLANDS AND WETLANDS ARE NOT RESTRICTED.

2. CONTRACTOR EDUCATION:

a. PRIOR TO WORK ON SITE AND INITIAL DEPLOYMENT/MOBILIZATION OF EQUIPMENT AND MATERIALS, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH APT. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF INFORMATION SUCH AS, BUT NOT LIMITED TO: REPRESENTATIVE PHOTOGRAPHS OF TYPICAL HERPETOFAUNA THAT MAY BE ENCOUNTERED, CONNECTICUT AND FEDERAL LISTING STATUS OF SPECIES THAT COULD BE ENCOUNTERED, TYPICAL SPECIES BEHAVIOR, AND PROPER PROCEDURES IF SPECIES ARE ENCOUNTERED. THE MEETING WILL FURTHER EMPHASIZE THE NON-AGGRESSIVE NATURE OF THESE SPECIES, THE ABSENCE OF NEED TO DESTROY SUCH ANIMALS AND THE NEED TO FOLLOW PROTECTIVE MEASURES AS DESCRIBED IN SECTION 4 BELOW. THE CONTRACTOR WILL DESIGNATE ONE OF ITS WORKERS AS THE "PROJECT MONITOR", WHO WILL RECEIVE MORE INTENSE TRAINING ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA.

b. THE CONTRACTOR WILL DESIGNATE A MEMBER OF ITS CREW AS THE PROJECT MONITOR TO BE RESPONSIBLE FOR THE PERIODIC "SWEEPS" FOR HERPETOFAUNA WITHIN THE WORK ZONE EACH MORNING, DURING ANY AND ALL TRANSPORTATION OF VEHICLES ALONG THE ACCESS DRIVE, AND FOR ANY GROUND DISTURBANCE WORK. THIS INDIVIDUAL WILL RECEIVE MORE INTENSE TRAINING FROM APT ON THE IDENTIFICATION AND PROTECTION OF HERPETOFAUNA IN ORDER TO PERFORM SWEEPS. ANY HERPETOFAUNA DISCOVERED WILL BE REPORTED TO APT, PHOTOGRAPHED IF POSSIBLE, AND RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

c. THE CONTRACTOR'S PROJECT MONITOR WILL BE PROVIDED WITH CELL PHONE AND EMAIL CONTACTS FOR APT PERSONNEL TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH HERPETOFAUNA. EDUCATIONAL POSTER MATERIALS WILL BE PROVIDED BY APT AND DISPLAYED ON THE JOB SITE TO MAINTAIN WORKER AWARENESS AS THE PROJECT PROGRESSES.

d. APT WILL ALSO POST CAUTION SIGNS THROUGHOUT THE PROJECT SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT PROVIDING NOTICE OF THE ENVIRONMENTALLY SENSITIVE NATURE OF THE WORK AREA, THE POTENTIAL FOR ENCOUNTERING VARIOUS AMPHIBIANS AND REPTILES AND PRECAUTIONS TO BE TAKEN TO AVOID INJURY TO OR MORTALITY OF THESE ANIMALS.

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 TAKE PLACE ON AN IMPERVIOUS PAD WITH SECONDARY CONTAINMENT DESIGNED TO CONTAIN FUELS.
2. ANY REFUELING DRUMS/TANKS 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. PROTECTIVE MEASURES

a. A THOROUGH COVER SEARCH OF THE CONSTRUCTION AREA WILL BE PERFORMED BY APT'S ENVIRONMENTAL MONITOR FOR HERPETOFAUNA PRIOR TO AND FOLLOWING INSTALLATION OF THE SILT FENCING BARRIERS TO REMOVE ANY SPECIES FROM THE WORK ZONE PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED. PERIODIC INSPECTIONS WILL BE PERFORMED BY APT'S ENVIRONMENTAL MONITOR THROUGHOUT THE DURATION OF THE CONSTRUCTION.

b. THE CONTRACTOR'S PROJECT MONITOR WILL INSPECT THE WORK AREA EACH MORNING AND ESCORT INITIAL VEHICLE ACCESS INTO THE SITE EACH MORNING ALONG THE ACCESS DRIVE TO VISUALLY INSPECT FOR ANY HERPETOFAUNA. ANY HERPETOFAUNA DISCOVERED WOULD BE RELOCATED OUTSIDE THE WORK ZONE IN THE GENERAL DIRECTION THE ANIMAL WAS ORIENTED.

c. ANY HERPETOFAUNA REQUIRING RELOCATION OUT OF THE WORK ZONE WILL BE CAPTURED WITH THE USE OF A NET FOR CAREFUL HANDLING AND PLACEMENT OUT OF THE WORK ZONE IN THE GENERAL DIRECTION IT WAS OBSERVED HEADING.

d. ANY STORMWATER MANAGEMENT FEATURES, RUTS OR ARTIFICIAL DEPRESSIONS THAT COULD HOLD WATER CREATED INTENTIONALLY OR UNINTENTIONALLY BY SITE CLEARING/CONSTRUCTION ACTIVITIES WILL BE PROPERLY FILLED IN AND PERMANENTLY STABILIZED WITH VEGETATION TO AVOID THE CREATION OF VERNAL POOL "DECOY POOLS" THAT COULD INTERCEPT AMPHIBIANS MOVING TOWARD THE VERNAL POOLS. STORMWATER MANAGEMENT FEATURES SUCH AS LEVEL SPREADERS WILL BE CAREFULLY REVIEWED IN THE FIELD TO ENSURE THAT STANDING WATER DOES NOT ENDURE FOR MORE THAN A 24 HOUR PERIOD TO AVOID CREATION OF DECOY POOLS AND MAY BE SUBJECT TO FIELD DESIGN CHANGES. ANY SUCH PROPOSED DESIGN CHANGES WILL BE REVIEWED BY THE DESIGN ENGINEER TO ENSURE STORMWATER MANAGEMENT FUNCTIONS ARE MAINTAINED.

e. EROSION CONTROL MEASURES WILL BE REMOVED NO LATER THAN 30 DAYS FOLLOWING FINAL SITE STABILIZATION SO AS NOT TO IMPEDE MIGRATION OF HERPETOFAUNA OR OTHER WILDLIFE.

5. HERBICIDE AND PESTICIDE RESTRICTIONS

a. USE OF HERBICIDES AND PESTICIDES AT THE PROPOSED WIRELESS TELECOMMUNICATIONS FACILITY SHALL BE RESTRICTED.

6. REPORTING

a. A SUMMARY INSPECTION REPORT (BRIEF NARRATIVE AND APPLICABLE PHOTOS) WILL BE SUBMITTED TO THE CONNECTICUT SITING COUNCIL DOCUMENTING INSPECTIONS PERFORMED BY APT FOR COMPLIANCE VERIFICATION FOLLOWING COMPLETION OF THE PROJECT. ANY OBSERVATIONS OF HERPETOFAUNA WILL BE INCLUDED IN THE REPORT. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO THE CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION NATURAL DIVERSITY DATA BASE.

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0	07/25/14	ISSUED FOR D&M APPROVAL	
	BY: JDM	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOB
No. 17827
LICENSED
PROFESSIONAL ENGINEER

SITE ID:
SR1765

SITE NAME:
COLEBROOK

SITE ADDRESS:
COLEBROOK ROAD
COLEBROOK, CT
06021
LITCHFIELD COUNTY

SHEET TITLE
ENVIRONMENTAL NOTES

SHEET NUMBER
C16

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