

WELTI GEOTECHNICAL, P.C.

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

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

January 13, 2020

Mr. Keith Coppins
Phoenix Partnership
110 Washington Avenue
North Haven, CT 06473

**Re: Geotechnical Study for Proposed Cell Tower Site (Hamden II)
796 Woodin Street, Hamden, CT**

Dear Mr. Coppins:

1.0 Herewith are the data from the test boring taken at the above referenced site. One boring was taken at the staked tower location. The boring was drilled to a depth 30 feet below the existing grade. The tower center was staked in the field by others and is shown on the attached plan. *The boring was drilled by Clarence Welty 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 monopole tower with a height of about 124 feet. The existing grades in the proposed compound area range from about Elev. 116 to Elev. 108. The proposed finished grades in the compound will be at about Elev. 115 to Elev. 116.

3.0 The **Soil/Rock Cross Section** from the boring is generally as follows:

Topsoil to 4"

Subsoils; fine to medium SAND and SILT, trace Roots to 2.5 feet, loose

Moraine; fine to medium SAND, some Silt, little Gravel to 30+ feet, very dense to cemented

3.1 The **Ground Water Table** was not evident in the borehole at the completion of the boring. The soils below about 8 feet appeared to be saturated.

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 for the tower** can be with a mat type foundation. The mat would provide the required weight for resistance to over turning. The bottom of the mat should be at least 3.5 feet below finished grades for frost protection. There should be a minimum 6" layer of 3/8" crushed stone beneath the foundation. The allowable loading on the crushed stone atop the dense moraine deposits can be 3 Tons/sf. The foundation sub grades should be observed by someone from our office to confirm the sub grade conditions and preparation area acceptable.

5.1 Summary of design parameters:

Parameter	Value
Allowable Bearing Pressure	3 Tons/sf
Soil Unit Weight (natural soils above water table)	125 pcf
Soil Unit Weight (natural soils below water table)	63 pcf
Soil Unit Weight (backfill)	125 pcf
Angle of Internal Friction	34°
At rest coefficient	0.45
Active coefficient	0.28
Frost Protection Depth	3.5 feet

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.

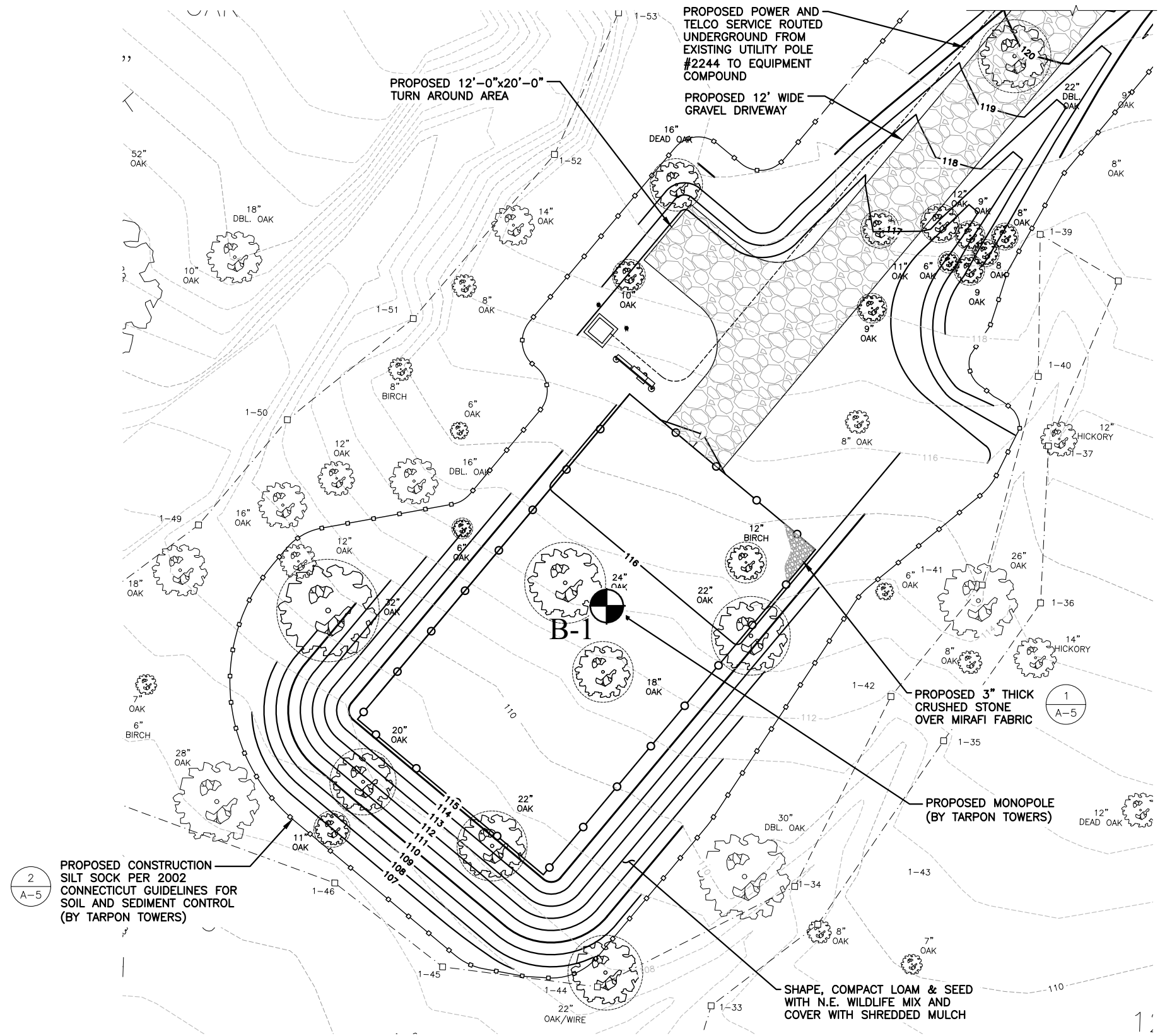
Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions please call me.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Max Welti". The ink is dark and the signature is fluid and connected.

Max Welti, P. E.
President, Welti Geotechnical, P.C.



LEGEND

- PROPERTY LINE - SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW OVERHEAD WIRE
- EXISTING RAIL FENCE
- WETLAND FLAG LINE
- 1-22 WETLAND FLAG NUMBER
- CONIFEROUS TREE
- DECIDUOUS TREE
- TREE TO BE REMOVED
- STONE WALL
- TOWER CONTROL POINT
- WELL
- UTILITY POLE
- 542 PROPOSED CONTOUR LINE
- EXISTING BUILDING
- SILT SOCK
- PROPOSED FENCE

TARPON TOWERS

TARPON TOWERS II, LLC
1001 3rd AVENUE WEST, SUITE 420
BRADENTON, FL 34205

PREPARED FOR: CELCO PARTNERSHIP D.B.A.

verizon

HG HUDSON
Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845

TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CHECKED BY: DJR

APPROVED BY: DPH

SUBMITTALS

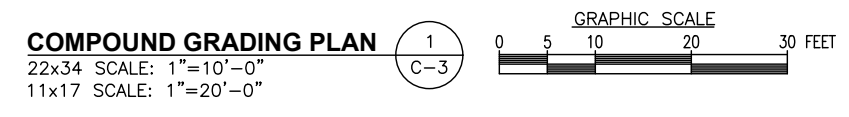
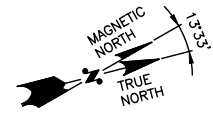
REV.	DATE	DESCRIPTION	BY
3	09/06/19	REDUCED COMPOUND SIZE	SLY
2	06/14/19	RELOCATED TOWER	SLY
1	05/28/19	REVISED PER COMMENTS	SLY
0	05/14/19	ISSUED FOR REVIEW	KAM

SITE NAME:
HAMDEN II

SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514

SHEET TITLE
COMPOUND GRADING PLAN

SHEET NUMBER
C-3



TEST BORING LOCATION
CLARENCE WELTI ASSOCIATES, INC.
1/6/20

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT PHOENIX PARTNERSHIP, LLC			PROJECT NAME PROPOSED TOWER SITE (HAMDEN II) LOCATION 796 WOODIN STREET, HAMDEN, CT		
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.		HOLE NO. B-1	
TYPE	HSA		SS	NQ	LINE & STA.	GROUND WATER OBSERVATIONS		START DATE 1/6/20	
SIZE I.D.	3.75"		1.375"	2.0"	N. COORDINATE	AT	FT. AFTER	HOURS	
HAMMER WT.			140 lbs		E. COORDINATE	AT	FT. AFTER	HOURS	
HAMMER FALL			30"					FINISH DATE 1/6/20	
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.			
	NO.	BLOWS/6"	DEPTH						
0	1	1-2-2-5	0.0'-2.0'		TOPSOIL BR.FINE-MED.SAND AND SILT, TRACE ROOTS			0.33	
	2	7-16-20-28	2.0'-4.0'		RED/BR.FINE-MED.SAND, SOME SILT, LITTLE GRAVEL & COBBLES			2.5	
5	3	19-20-36-60	4.0'-5.9'		CORED VERY DENSE/CEMENTED MORaine FROM 9.5' TO 29.5'				
					RUN #1 9.5' - 14.5' RECOVERED 27"				
					RUN #2 14.5' - 19.5' RECOVERED 29"				
					RUN #3 19.5' - 24.5' RECOVERED 28"				
10	4	60	10.0'-10.2'		RUN #4 24.5' - 29.5' RECOVERED 18"				
15									
	5	60	16.0'-16.2'						
20									
25	6	60	24.5'-25.0'						
30	7	60	29.5'-29.8'						
					BOTTOM OF BORING @ 30.0' (AUGER REFUSAL)			30.0	
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: T. CZMYR INSPECTOR:			
						SHEET 1 OF 1		HOLE NO. B-1	