

WELTI GEOTECHNICAL, P.C.

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

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

March 8, 2021

Mr. Anthony Patrick Urbano, Principal
Aggrecoast
P.O. Box 973
Orange, CT 06477

Re: Preliminary Geotechnical Study for Proposed Apartments, 908 Hartford Turnpike, Waterford, CT

Dear Mr. Urbano:

1.0 Herewith are the data from test borings and probes taken at the above referenced site. Five borings and 26 probes were drilled to maximum depth of 15 feet below the existing grades or to auger refusal where above 15 feet. The approximate boring and test pits locations are shown on the attached plan. The drilled boring and test pit locations were staked in the field to allow the surveyor to determine the locations and grade elevations at each boring/probe. *The test borings and probes 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 two slab on grade apartment buildings and a club house building. Each of the apartment buildings will have 3 stories and a footprint of about 9,000 sf. The club house is assumed to be a one story slab on grade building and will have a footprint of about 1,500 sf. The site development will include an access driveway off Hartford Tpke. (Route 85) and parking areas on the east and south side of the building. The concept plan provided for this study indicates the ground floors at Elev.152.5 for the north building, at Elev.154.5 for the south building and at Elev.149.5 at the Club House. The existing grades range from about Elev.144 to Elev.152 at the north building, Elev.144 to Elev.154 at the south building and Elev.141 to Elev.148 at the Club House. The existing grades in the proposed parking and access drive range from about Elev.142 to Elev.169 at the southeast corner. The proposed site grading was not shown on the concept plan. It appears that a soil/rock cut up to 15± feet would be required at the southeast corner of the parking lot. The plan shows a retaining wall along the property line in the area where the existing grades are above about Elev.158. Based on the probable cuts depths, distance from the wall to the property line and depths to hard rock, the retaining wall would be required.

3.0 The **Geologic Origin** of the natural soils at the subject site is from glacial moraine deposits atop

the bedrock. These deposits consist generally of compact sand with little to some silt, gravel, cobbles and boulders to the top of bedrock. The USGS bedrock mapping and nearby rock cuts on Route 85 indicate the bedrock is Gneiss.

3.1 The Soils Cross Section from the test borings and test pits is generally as follows:

Topsoil to 2" to 30"

Subsoil; fine to medium SAND, some Silt, trace Gravel to 2 to 4 feet, loose

Fine to coarse SAND, little to some Silt and Gravel, few Cobbles and Boulders to auger refusal on probable bedrock at 5 to 15+ feet, dense to very dense

Locally; Weathered/Decomposed Rock at 2.5 to 10 feet (1 to 7 feet layer) to the top of hard bedrock

3.2 The Water Table where evident in the borings/probes was at 3.5 to 10 feet below the existing grades at the completion of the borings/probes. The water table was not evident above the bedrock in the probe taken above along the east side of the site.

4.0 The Criteria for Foundation Type and Loading are as follows:

1. The maximum total settlement should not exceed $\frac{3}{4}$ " and the maximum differential settlement should not exceed $\frac{1}{2}$ the maximum settlement.
2. The foundation type and structure must address the seismic requirements of the building code.
3. The slab on grade must not settle differentially more than $\frac{1}{2}$ " in excess of the structure subsidence.

These criteria are those normally applied to structures of similar character. If the structural engineer, the architect, or the owner has other criteria, the writer should be notified for possible supplemental input.

4.1 Regarding item 2 above, the Seismic Site Soil Profile Classification is "C". The mapped MCE seismic response acceleration values for Waterford, CT are $S_1 = 0.058$ for one second period and $S_s = 0.161$ for short period. For transfer of ground shear into the soil, the ultimate friction factor between the concrete over crushed stone atop the soil can be **0.55**.

5.0 Regarding Foundation Types, the logical type will be spread footings. The footings can be on the natural inorganic soils, on weathered or hard bedrock, or on a controlled fill placed after the removal of any existing fills, topsoil and frost disturbed subsoils (assumed frost disturbed to at least 2 feet below the natural/original grades). Based on the boring/probe data and the concept plan floor

elevations it appears the foundations at normal frost depth would be above the bedrock. The natural soils may be susceptible to remolding under equipment when wet. To address this condition there should be a minimum 6" layer of 3/8" crushed stone beneath the footings on the natural soils or bedrock and as an initial layer beneath controlled fills where placed over a wet subgrade. Controlled fills should conform to the requirements of section 6.0 below, and should extend horizontally beyond the footings for a distance equal to at least the depth of fill beneath the footings.

5.1 The Allowable Bearing Pressure for footing on controlled fill or on the crushed stone layer atop the natural soils or bedrock can be 4,000 psf. The allowable bearing pressures can be increased by 1/3 for seismic and wind loading. Retaining wall footings can have toe pressures 50% above the average pressure cited above.

5.2 Regarding Lateral Soil Loading on retaining walls constructed as part of the buildings (if any), these should be designed with at-rest pressure, using the at rest coefficient cited in the table below. Retaining walls apart from the buildings can be designed with normal active pressure (assuming level backfill). The ultimate sliding factor for concrete on crushed stone or controlled fill can be 0.55. The backfill for retaining walls should conform to section 6.0 below and should extend horizontally behind the wall for a distance equal to at least the height of the wall. Retaining walls should have foundation drains.

5.2.1 Seismic lateral loading for retaining walls that are part of the building should be with a total lateral force (seismic plus static at-rest pressure) equal to $24H^2$ lb/ft located at $\frac{1}{2}H$ above the bottom. The above value is based on the Mononobe-Okabe solution for the case with level backfill, no wall friction and no hydrostatic pressure. This value excludes the inertia of the soil and wall mass. The requirements for the seismic analyses of earth retention structures as part of the building shall be determined from the Connecticut Building Code (IBC) or the ASCE-7.

5.3 The Frost Protection Depth in accordance with the Building Code is 3.5 feet below finish grades in areas that are exposed to weather.

5.4 The following is a **Summary of the Foundation Design Parameters:**

Parameter	Value
Allowable Bearing Pressure for Footings on controlled fill, on the crushed stone layer atop the weathered or hard rock or on the crushed stone layer atop the natural soils	4,000 psf
Backfill Unit Weight *	125 pcf
Internal Friction Angle , Backfill *	34°
At-Rest Coefficient	0.45

Active Pressure Coefficient (with level backfill *)	0.28
Sliding Coefficient soil/concrete	0.55
Seismic Site Soil Profile Classification	C
Mapped MCE Seismic Spectral Response Acceleration for one second period, S_1	0.058
Mapped MCE Seismic Spectral Response Acceleration for short period, S_s	0.161
Frost Protection Depth	3.5 feet

* For backfill conforming to the material in Section 6.0

6.0 Regarding Controlled Fill, Backfill of Retaining Walls, Foundation Walls and Column Footings, plus fill beneath Slabs at Grade (to within 4" of the slab bottom) the material should conform to the following, or be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 75	No.4

The fraction, passing the No.4 sieve should have less than 15% passing the No. 200 sieve.

The on-site excavated soils will generally not conform to the above gradation.

All backfill and fill must be compacted to at least 95% of modified optimum density in accordance with ASTM D-1557.

6.1 All topsoil, subsoil and existing fills should be removed from beneath the building floor slabs. The controlled fill should conform to section 6.0 above. There should be at minimum 16" of controlled fill beneath slab on grade floors, placed to within 4" of the slab bottom. The final 4" directly beneath the slab should be with 3/8" crushed stone. A **vapor retarder** is required under slabs at grade.

7.0 For Long Term Slopes the general recommendations are as follows:

Earth slopes in cuts and fills; 2H:1V (slopes in cuts may require stone cladding depending on groundwater conditions). Cut slopes in excess of 4 feet high should have an under drain and

crushed stone wedge at the toe.

Cuts in Weathered Rock; 1:1

Cuts in Hard, intact rock; 1H:3V and up to 1H : 6V. The steep cut faces should be pre-split.

7.0.1 Regarding the design of combined earth/rock cut slopes, the overburden should be cut to maximum 2H:1V slope. In designing the combined slope, the top of slope should be determined by extending a line at 2H:1V from the toe of rock cut. The proximity of rock will provide the bench for the earth slope. A foundation drain should be installed at the base of the rock cut.

7.1 Regarding **Earthwork** the excavations will generally be in soils defined as OSHA Type C and any excavations, which are not shored and exceed 5 feet in height must be cut back to slopes less than 34° from the horizontal.

7.2 The following are recommendations for **compactor weight versus lift thickness** for placing controlled fills with material conforming to section 6.0 above:

Static Weight	Dynamic Force	Lift Thickness
>10 Tons	20 Tons	12"
7.5 Tons	15 Tons	10"
5 Tons	10 Tons	8"
2 Tons	4 Tons	7"
1 Ton	2 Tons	6"
< 1 Ton	< 2 Tons	< 5"

7.3 The excavations for **utilities** will generally be in the dense moraine with cobbles and boulders or in possible ledge.

7.3.1 The **Bedding Material** for underground utilities with trenches in soil can be with sand bedding or 3/8" crushed stone (utility may define actual bedding). Bedding for utilities falling in rock cuts should be with 3/8" crushed stone.

7.3.2 Backfill of utility trenches in paved areas should be with material cited in section 6.0 above to exclude future settlement of pavement.

8.0 Regarding **New Pavements**, the pavement subgrades will generally fall in frost susceptible soils. There should be at least 12" of subbase beneath the pavement sections cited below to address the frost. Where the subgrades fall on wet soils, the initial layer of fill should be with a minimum 6"

layer of 3/8" crushed stone. Existing subsoils can remain in place beneath the subbase layer provided that they can be proof compacted without significant rutting or weaving. Subbase material and controlled fill should conform to section 6.0 above. The recommended pavement sections atop the subbase are as follows:

For passenger car parking: 3" of Bituminous Concrete (in two courses) on 6" of Processed Stone Base (material conforming to CTDOT Form 816, section M.05.01)

For truck access areas: 4" of Bituminous Concrete (in two courses) on 8" of Processed Stone Base (material conforming to CTDOT Form 816, section M.05.01)

8.1 Subsurface drainage and edge drains are recommended in pavement cut areas to lengthen pavement life and lessen potential cracking. The drains can be 4" diameter perforated ADC piping about 12" below the subbase in a geotextile wrapped trench backfilled with 3/8" crushed stone. Stone wedges are recommended in cuts exceeding 4 feet in depth.

8.2 For Portland Cement Concrete the concrete thickness for light truck traffic would be 6". This would be placed on 12" of gravel subbase conforming to section 7.0. For passenger car parking the concrete thickness would be 5" atop 12" of the gravel subbase. For concrete aprons contiguous to the building the gravel subbase should extend to 18" below grade. This is to avoid movement of the slab at flush doorways.

9.0 This report has been prepared for specific 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,

Max Welti

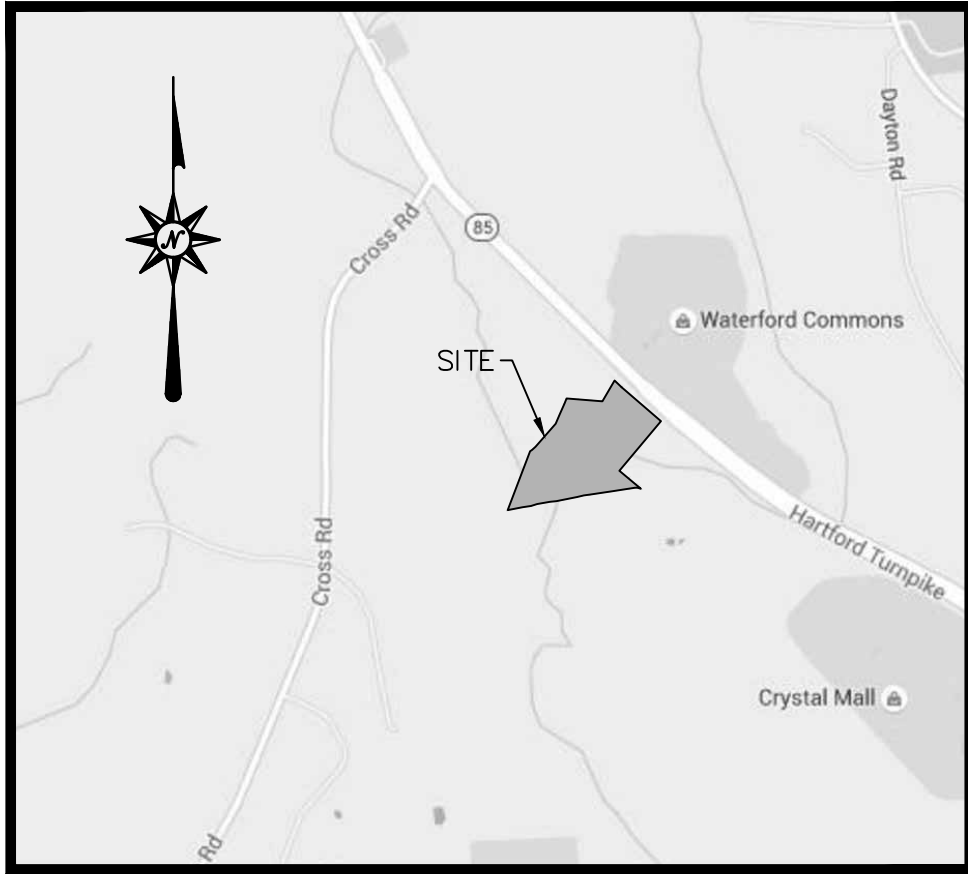
Max Welti, P.E.
President

Clarence Welti

Clarence Welti Ph.D., P. E.
Vice President

APPENDIX 1

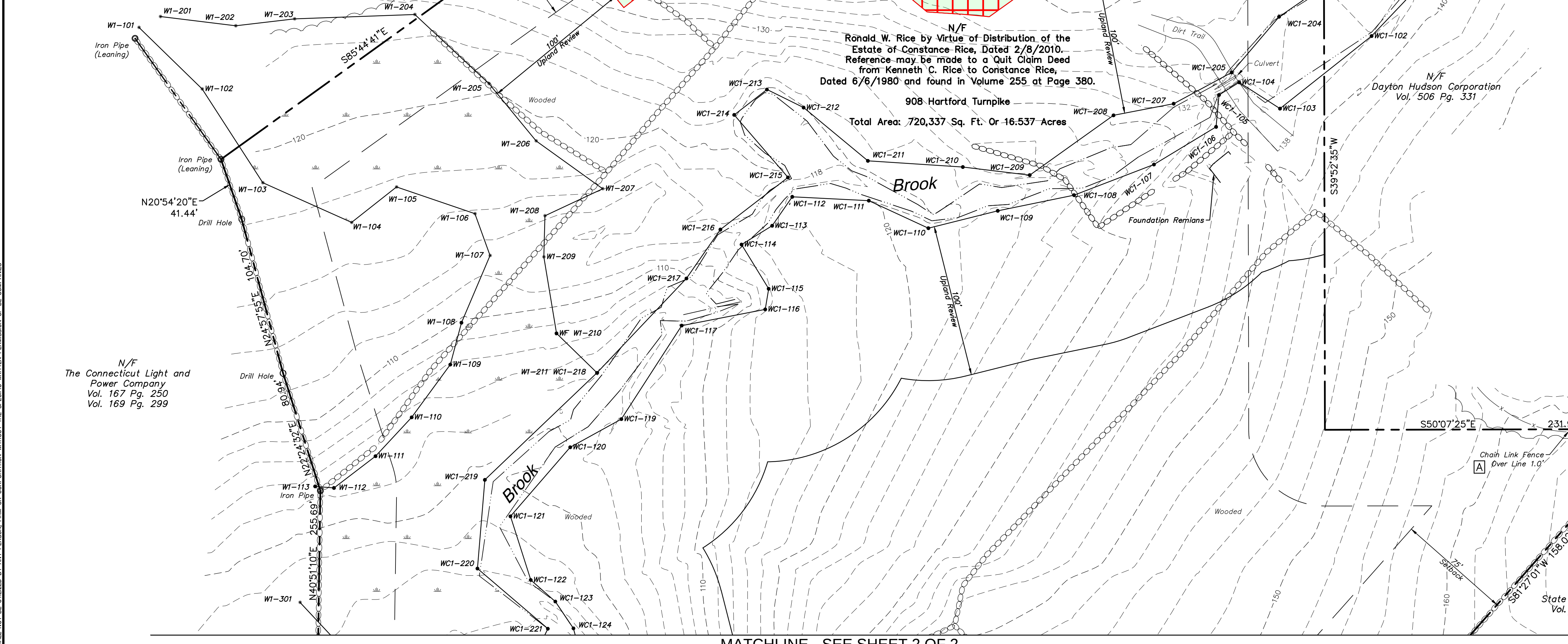
TEST BORING & PROBE LOCATION PLAN + TEST BORING & PROBE LOGS



LOCATION MAP

NOT TO SCALE

LEGEND	
	Property Line
	Easement Line
	Setback Line
	Edge of Water
	Limit of Wetlands
	Wetlands/Marsh
	Treeline
	Major Contour
	Minor Contour
	Stone Wall
	Retaining Wall
	Guide Rail
	Fence
	Overhead Wires
	Gas Line
	Sanitary Sewer
	Storm Sewer
	Fiber Optic Telecommunications Line
	Underground Traffic Signal Cable
	Water Line
	Handhole
	Electric Meter
	Utility Pole
	Utility Pole w/ Light
	Guy Wire
	Light Pole
	Gas Valve
	Catch Basin
	Manhole
	Span Pole
	Cantilever Pole
	Pedestal-mounted Traffic Signal
	Pedestrian Signal
	Fire Hydrant
	Water Valve
	Sign



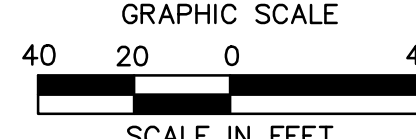
APPARENT ENCROACHMENTS

CHAIN LINK FENCE ±1.0'

APPROXIMATE TEST BORING & PROBE LOCATIONS

CLARENCE WELTI ASSOCIATES, INC.

3/4/21



GENERAL NOTES

- A) THIS MAP HAS BEEN PREPARED IN ACCORDANCE WITH 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.
- B) THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2 AND TOPOGRAPHIC ACCURACY CLASS T-3.
- C) BOUNDARY DETERMINATION IS BASED UPON A RESURVEY.
- D) THE TYPE OF SURVEY PERFORMED IS A PROPERTY/TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT THE EXISTING CONDITIONS WITH RESPECT TO MONUMENTATION FOUND, STRUCTURES, EASEMENTS, ENCROACHMENTS, VISIBLE UTILITIES, ROADS AND CONTOURS.
- E) NORTH ARROW AND BEARINGS REFER NAD 83, CONNECTICUT STATE PLANE COORDINATE SYSTEM AND ARE BASED ON GPS OBSERVATIONS BY BL COMPANIES DECEMBER 2015.
- F) ELEVATIONS REFER TO NAVD 88 AND ARE BASED ON GPS OBSERVATIONS BY BL COMPANIES DECEMBER 2015.
- G) PORTIONS OF PARCEL IS LOCATED IN FEMA ZONE "X", "X-SHADED", "AE" AND "AE-FLOODWAYS" AS DEPICTED ON F.I.R.M. COMMUNITY PANEL NO. 090107 0334 G PANEL 334 OF 554, EFFECTIVE DATE: JULY 18, 2011.
- H) THE UNDERGROUND UTILITIES DEPICTED HAVE BEEN PLOTTED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES DEPICTED ARE IN THE EXACT LOCATION INDICATED THOUGH THEY ARE PLOTTED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY EXPOSED THE UNDERGROUND UTILITIES. PER CONNECTICUT STATE LAW THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION. CALL BEFORE YOU DIG 1-800-922-4455.
- I) WETLANDS DELINEATED BY BL COMPANIES ON NOVEMBER 9, 2015.
- J) TOPOGRAPHY DERIVED BY PHOTOGRAMETRIC METHODS SUPPLIED BY WSP, 9 TROLLEY CROSSING ROAD, CHARLTON, MA.

MAP REFERENCES

- A. "LOCATION OF RIGHT OF WAY THE MILLSTONE POINT COMPANY, ACROSS THE PROPERTY OF MARTIN OLSON, INC., TOWN OF WATERFORD, COUNTY OF NEW LONDON, STATE OF CONNECTICUT", SCALE 1"=200', DATE: 2/1957, PREPARED BY FRED R. GERBER.
- B. "LOCATION OF RIGHT OF WAY THE MILLSTONE POINT COMPANY, ACROSS THE PROPERTY OF KENNETH C. RICE, TOWN OF WATERFORD, COUNTY OF NEW LONDON, STATE OF CONNECTICUT", SCALE 1"=200', DATE: 2/1957, PREPARED BY FRED R. GERBER.
- C. "THE CONNECTICUT LIGHT & POWER COMPANY, BERLIN, CONNECTICUT, MILLSTONE POINT LINE, PLAN SHOWING LAND TO BE ACQUIRED FROM THE FREEDMAN ELECTRIC CO., TOWN OF WATERFORD", SCALE 1"=200', DATE: 3/13/67, PREPARED BY FRED R. GERBER.
- D. "SUBDIVISION-PROPERTY OF CONSTANCE & KENNETH C. RICE", SCALE 1"=100', DATE: 3/1980, PREPARED BY M.D. ASSOCIATES, LEDYARD, CT.
- E. "SUBDIVISION-PROPERTY OF CONSTANCE-KENNETH C. RICE, APPLICANT JIM REDDEN", SCALE: 1"=20', DATE: 3/1980, REVISED: 4/18/80, PREPARED BY M.D. ASSOCIATES, LEDYARD, CT.
- F. "SUBDIVISION PLAN, PROPERTY OF CONSTANCE RICE, HARTFORD-NEW LONDON TURNPIKE (CONN. RTE 85), WATERFORD, CONNECTICUT", SCALE: 1"=80', DATE: 6/82, PREPARED BY DICESARE-BENTLEY, GROTON, CT.
- G. "RECORD PLAN, PROPERTY OF NAPER BOYER PARTNERSHIP, HARTFORD - NEW LONDON TURNPIKE (CONNECTICUT ROUTE 85), WATERFORD, CONNECTICUT", SCALE 1"=20', DATE: 7/10/87, PREPARED BY DICESARE-BENTLEY ENGINEERS, GROTON, CT.
- H. "TOWN OF WATERFORD MAP SHOWING LAND ACQUIRED FROM CONSTANCE RICE BY THE STATE OF CONNECTICUT, RECONSTRUCTION OF CONN. RTE. 85", SCALE: 1"=40', DATE: 10/1987, PREPARED BY CONNECTICUT DOT, OFFICE OF ENGINEERING.
- I. "ALTA/ACSM LAND TITLE SURVEY PROPERTY OF CRYSTAL HOLDINGS LIMITED LIABILITY COMPANY, 900 HARTFORD - NEW LONDON TURNPIKE, CONNECTICUT ROUTE 85, WATERFORD, CONNECTICUT", SCALE: 1"=60', DATE: 5/14/99, PREPARED BY DICESARE-BENTLEY ENGINEERS, GROTON, CT.
- J. "RIGHT OF WAY SURVEY, STATE OF CONNECTICUT, DEPARTMENT OF TRANSPORTATION, RIGHT OF WAY MAP, TOWN OF WATERFORD, HARTFORD TURNPIKE FROM THE CONNECTICUT TURNPIKE SOUTHERLY TO INTERSTATE ROUTE 85", SCALE: 1"=40', DATE: 4/30/2007, NUMBER 152-21, SHEET 6 & 7 OF 8.

UTILITY INFORMATION

GAS: EVERSOURCE ENERGY 107 SELDON STREET BERLIN, CT CONTACT: CHAP TESTA (860) 665-6214	CABLE TV: ATLANTIC BROADBAND 61 MYROCK AVENUE WATERFORD, CT CONTACT: CHAP HANLEY (860) 629-6782
ELECTRIC: EVERSOURCE ENERGY 107 SELDON STREET BERLIN, CT CONTACT: EDWARD SCHNEIDER (860) 665-3686	COMMUNICATION: LIGHTTOWER FIBER NETWORKS 900 CORPORATE BOULEVARD NEWBURGH, NY CONTACT: KEVIN DeLOUISE (845) 458-7752
SEWER AND WATER: VEDULA WATER 100 TRUMBULL STREET NEW LONDON, CT CONTACT: BRIAN NIXON (860) 437-6333	FRONTIER: 1441 NORTH COLONY ROAD MERRIDEN, CT CONTACT: ERIC CLARK (203) 238-7407

SURVEY CERTIFICATION

TO: RONALD W. RICE, A.R. BUILDING COMPANY, INC., STEWART TITLE GUARANTY COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2-5.6(b), 7(c), 7(d), 8-10, 11(b), 13 AND 14 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 12/08/2015.

DATED: _____ SIGNED: MICHAEL J. GARON, LAND SURVEYOR NO. 70,366



LAND OF
RONALD W. RICE
908 HARTFORD TURNPIKE
WATERFORD, CONNECTICUT

REVISED	Date	No.	Desc.
Surveyed		AV	
Drawn		AV	
Checked		MG	
Approved		MG	
Scale		1"=40'	
Project No.		15C5641	
Date		12/08/2015	
Field Book		497	
CAD File:		AL15C564101	
Title			

ALTA/ACSM
LAND TITLE
SURVEY

Sheet No. 1 OF 2

AL-1

ZONING INFORMATION

LOCATION: 908 HARTFORD TPKE., WATERFORD, NEW LONDON COUNTY, CT.				
ZONE: I-MF MULTI-FAMILY RESIDENTIAL				
USE: PERMITTED MULTI-FAMILY RESIDENTIAL APARTMENTS				
ITEM #	ITEM	REQUIREMENTS	PROPOSED	VARIANCE
1	MIN. LOT AREA	60,000 SF	724,838 SF (16.64 AC)	NO
2	MAX. BUILDING COVERAGE	25 PERCENT OF TOTAL LOT AREA	>25 PERCENT	NO
3	MAX. BUILDING HEIGHT	40 FEET (1)	TBD	TBD
4	MIN. ROAD FRONTAGE	250 FEET	510 FEET	NO
5	MIN. FRONT SETBACK	75 FEET	75 FEET	NO
6	MIN. SIDE SETBACK	50 FEET (2)	50 FEET	NO
7	MIN. REAR SETBACK	75 FEET (2)	75 FEET	NO
8	MINIMUM OPEN SPACE	20% OF LOT AREA (3)	>20%	NO
9	MINIMUM RECREATION AREA	250 SF FOR EACH EFFICIENCY OR 1 BDRM UNIT AND 500 SF FOR EACH UNIT WITH 2 OR MORE BDRMS. 45,000 SF REQD	45,000	NO
10	MIN. SPACE BETWEEN BUILDINGS	30 FEET	>30 FEET	NO
11	ALLOWABLE DENSITY	NO MORE THAN 8 D.U. PER ACRE OF TOTAL AREA (4) 133 UNITS ALLOWED	120 UNITS PROPOSED	NO
12	ALLOWABLE BUILDING SIZE	1 STORY BUILDINGS AND TOWNHOUSES WITH INDIVIDUAL UNIT ACCESS AT GRADE - 12 DU/BUILDING 2 STORY BUILDINGS - 16 DU/BUILDING 3 STORY BUILDINGS - 24 DU/BUILDING	3 STORY BUILDINGS - 24 DU/BUILDING	NO
13	UPLAND REVIEW AREA	100 FEET	100 FEET	NO

- (1) DEFINED AS THE VERTICAL DISTANCE FROM THE AVERAGE FINISHED GRADE WITHIN 10 FT OF THE WALLS OF THE BUILDING TO THE HIGHEST POINT OF FLAT OR MANSARD ROOFS INCLUDING THE TOP OF A PARAPET OR TO THE MEAN LEVEL BETWEEN THE EAVES AND RIDGE FOR GABLE, HIP, OR GAMBLE ROOFS.
- (2) COMMISSION MAY DOUBLE MINIMUM SIDE AND REAR SETBACK IF NEEDED TO ADEQUATELY BUFFER ADJACENT PROPERTIES.
- (3) COMMISSION MAY ALLOW LAND WITHIN MINIMUM SETBACKS TO BE INCLUDED IN OPEN SPACE CALCULATION
- (4) AT 16.64 ACRES THE MAXIMUM ALLOWABLE DWELLING UNITS WOULD BE 133 UNITS.

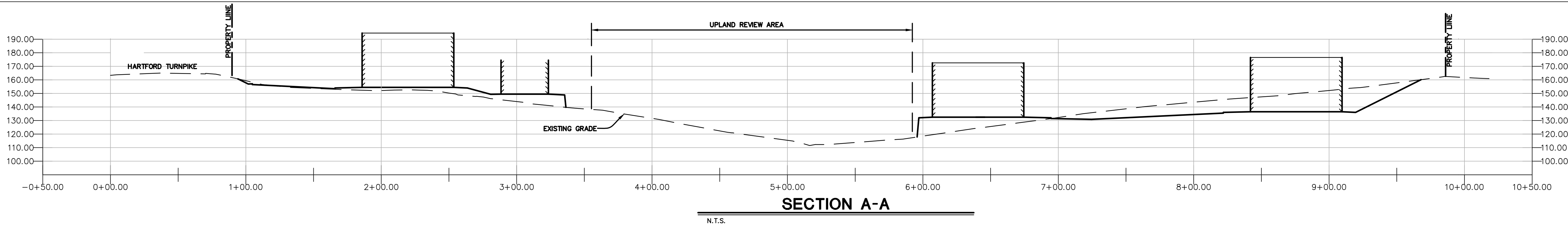
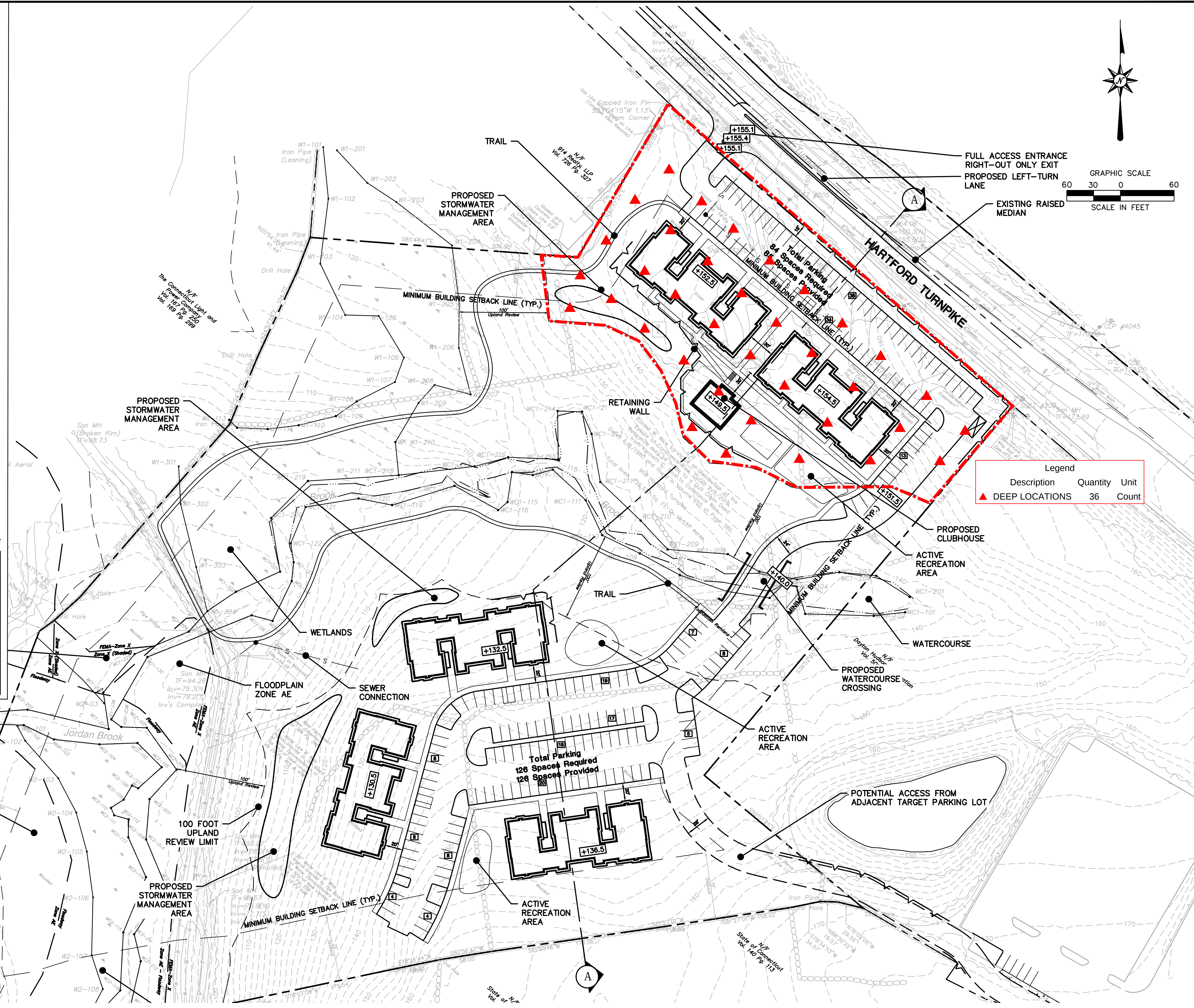
PARKING INFORMATION

ITEM #	ITEM	REQUIREMENTS	PROPOSED	VARIANCE
1	PARKING REQUIRED BY TOWN	1.5 SPACES FOR EACH EFFICIENCY OR 1 BEDROOM UNIT, 2 SPACES FOR EACH UNIT CONTAINING 2 OR MORE BEDROOMS (60) 1 BEDROOM UNITS = 90 SPACES (60) 2 BEDROOM UNITS = 120 SPACES TOTAL 210 SPACES REQUIRED	210 SPACES	NO
2	MINIMUM PARKING DIMENSIONS	MIN 180 SF & MIN 9'x18'	10'x18'	NO
3	MINIMUM AISLE WIDTH	24'	24'	NO
4	MINIMUM INTERIOR LANDSCAPING	10' FRONT YARD BUFFER, 5' SIDE/REAR YARD BUFFER, 10% OF PARKING LOT AREA	10' FRONT, 5' SIDE/REAR, >10%	NO
5	MINIMUM BUILDING SETBACK	20'	20'	NO

MINIMUM FLOOR AREAS (2)

1	EFFICIENCY UNIT	550 SF
2	1 BDRM UNIT	700 SF
3	2 BDRM UNIT	850 SF
4	3 OR MORE BDRM UNIT	850 SF (1)

- (1) PLUS 150 SF FOR EACH BEDROOM ABOVE 2 BEDROOMS
- (2) DWELLING UNIT MIXTURE - NO MORE THAN 50% OF TOTAL DWELLING UNITS SHALL CONTAIN 2 OR MORE BEDROOMS, OF WHICH UNITS CONTAINING 3 OR MORE BEDROOMS SHALL NOT COMPRISE MORE THAN 25% OF TOTAL DWELLING UNITS.



Proposed Apartment Buildings
 908 Hartford Turnpike, Waterford, CT
 Soil/Rock Probes
 3/4/21

Clarence Welti Associates, Inc.

Probe #	Refusal Depth (ft)	Groundwater	Notes:
P-1	13.0 *	none	
P-2	12.5	none	
P-3	15.0*	none	
P-4	11.0	none	
P-5	2.0, 4.0 & 5.0	none	made 3 attempts, encountered boulders
P-6	14.0	none	
P-7	10.0	none	weathered rock at 5.0'
P-8	6.5	none	weathered rock at 2.5'
P-9	8.0	none	
P-10	6.0	none	
P-11	10.5	none	weathered rock at 6.0'
P-12	13.0	10.0	weathered rock at 10.0'
P-13	11.0	7.0	weathered rock at 7.0'
P-14	15.0 *	6.5	
P-15	11.0	none	
P-16	15.0	none	
P-17	11.0	none	weathered rock at 9.0'
P-18	12.0	none	
P-19	8.0	none	weathered rock at 7.0'
P-20	15.5*	9.0	
P-21	15.0*	8.5	
P-22	15.5*	6.0	
P-23	12.0	4.5	weathered rock at 4.5'
P-24	13.0	8.0	
P-25	12.0	8.0	
P-26	12.5	none	
P-27	7.5	none	
P-28	12.0	none	
P-29	11.5	7.0	
P-30	12.5	3.5	
P-31	15.0 *	3.5	

* bottom of probe (no refusal)

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT		PROJECT NAME PROPOSED APPARMENT BUILDINGS LOCATION 908 HARTFORD TURNPIKE, WATERFORD, CT			
				AGGRECOST		SURFACE ELEV.		HOLE NO. B-18	
TYPE	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET				
SIZE I.D.	HSA		SS		LINE & STA.				
HAMMER WT.	3.75"		1.375"		N. COORDINATE	GROUND WATER OBSERVATIONS		START DATE 3/3/21	
HAMMER FALL			140lbs		E. COORDINATE	AT none FT. AFTER 0 HOURS		FINISH DATE 3/3/21	
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS				ELEV.
	NO.	BLOWS/6"	DEPTH						
0	1	1-1-2-1	0.0'-2.0'		TOPSOIL				0.25
					BR.FINE-MED.SAND, SOME SILT				
	2	1-4-12-11	2.0'-4.0'						
					GREY/BR.FINE-MED.SAND, LITTLE TO SOME SILT, LITTLE GRAVEL, FEW COBBLES				3.0
5	3	22-42-35-38	4.0'-6.0'						
10	4	34-60	10.0'-10.6'		WEATHERED ROCK				10.0
					BOTTOM OF BORING @ 12.0' (AUGER REFUSAL)				12.0
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: T. CZMYR INSPECTOR:			
						SHEET 1 OF 1		HOLE NO. B-18	

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT		PROJECT NAME PROPOSED APPARMENT BUILDINGS LOCATION 908 HARTFORD TURNPIKE, WATERFORD, CT						
		AUGER	CASING	SAMPLER	CORE BAR.	AGGRECOST	OFFSET	SURFACE ELEV.		HOLE NO. B-19		
TYPE		HSA		SS			LINE & STA.	GROUND WATER OBSERVATIONS		START DATE	3/3/21	
SIZE I.D.		3.75"		1.375"			N. COORDINATE	AT none FT. AFTER 0 HOURS				
HAMMER WT.				140lbs			E. COORDINATE	AT FT. AFTER HOURS		FINISH DATE	3/3/21	
HAMMER FALL				30"								
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS						ELEV.	
	NO.	BLOWS/6"	DEPTH									
0	1	2-2-5-2	0.0'-2.0'			TOPSOIL, TRACE ROOTS						
				BR.FINE-MED.SAND, SOME SILT, TRACE GRAVEL								
	2	3-3-6-14	2.0'-4.0'									
				GREY/BR.FINE-MED.SAND, LITTLE TO SOME SILT, LITTLE GRAVEL, FEW COBBLES								
5	3	11-20-23-22	4.0'-6.0'									
				WEATHERED ROCK								
10						BOTTOM OF BORING @ 8.0' (AUGER REFUSAL)						
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: T. CZMYR INSPECTOR:					
							SHEET 1 OF 1		HOLE NO. B-19			

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT		PROJECT NAME PROPOSED APPARMENT BUILDINGS LOCATION 908 HARTFORD TURNPIKE, WATERFORD, CT					
		AUGER	CASING	SAMPLER	CORE BAR.	AGGRECOST		SURFACE ELEV.		HOLE NO. B-20	
TYPE	HSA			SS		OFFSET		LINE & STA.		GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"			1.375"		N. COORDINATE		AT 9.0 FT. AFTER 0 HOURS		START DATE 3/3/21	
HAMMER WT.				140lbs		E. COORDINATE		AT FT. AFTER HOURS		FINISH DATE 3/3/21	
HAMMER FALL				30"							
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS						ELEV.
	NO.	BLOWS/6"	DEPTH								
0	1	2-1-1-2	0.0'-2.0'		TOPSOIL, TRACE BRICK FRAGMENTS						
	2	1-2-4-7	2.0'-4.0'		GREY/BR.FINE-MED.SAND, LITTLE TO SOME SILT & GRAVEL FEW COBBLES - POSSIBLE WEATHERED/DECOPOSED ROCK BELOW 10 FEET						2.5
5	3	9-27-28-60	4.0'-6.0'								
10	4	33-60	10.0'-11.0'								
15	5	12-60	15.0'-15.6'		BOTTOM OF BORING @ 15.7'						15.7
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: T. CZMYR INSPECTOR:					
						SHEET 1 OF 1		HOLE NO. B-20			

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT		PROJECT NAME PROPOSED APPARMENT BUILDINGS LOCATION 908 HARTFORD TURNPIKE, WATERFORD, CT			
AGGREGCOST						SURFACE ELEV.		HOLE NO. B-22	
TYPE	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	LINE & STA.		GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		SS			N. COORDINATE		AT 6.0 FT. AFTER 0 HOURS	START DATE 3/3/21
HAMMER WT.			140lbs			E. COORDINATE		AT FT. AFTER HOURS	FINISH DATE 3/3/21
HAMMER FALL			30"						

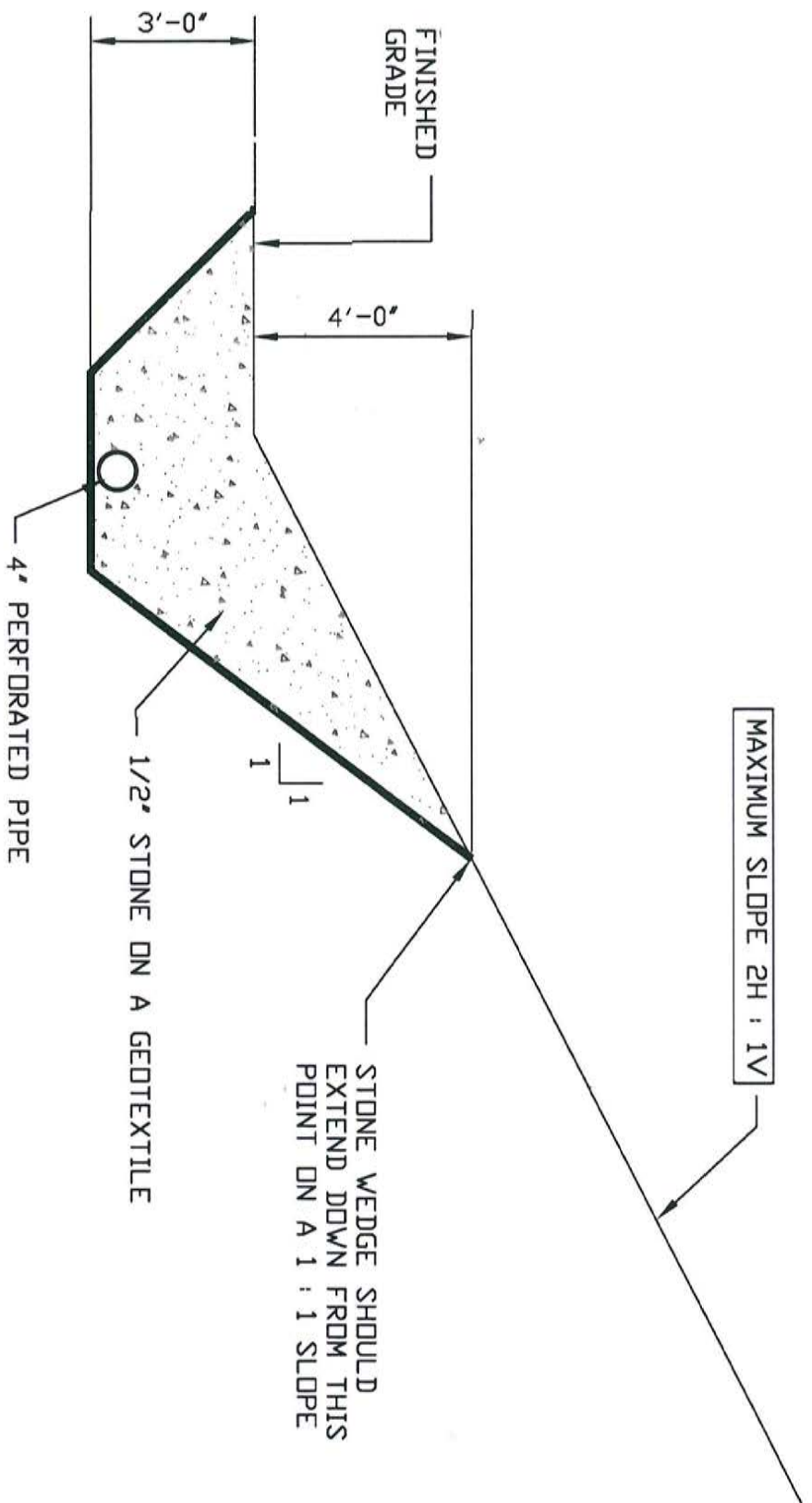
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.
	NO.	BLOWS/6"	DEPTH			
0	1	4-5-4-12	0.0'-2.0'		TOPSOIL, TRACE ROOTS	0.50
					BR.FINE-CRS.SAND, LITTLE TO SOME SILT, LITTLE GRAVEL & COBBLES	
	2	60	2.0'-2.5'			
5	3	20-25-31-38	5.0'-7.0'		GREY/BR.FINE-CRS.SAND, LITTLE TO SOME SILT & GRAVEL	5.0
					FEW COBBLES - POSSIBLE WEATHERED/DECOMPOSED	
					ROCK BELOW 10 FEET	
10	4	52-60	10.0'-11.0'			
15	5	60	15.0'-15.5'			
					BOTTOM OF BORING @ 15.7'	15.7
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: T. CZMYR INSPECTOR:	
				SHEET 1 OF 1	
				HOLE NO. B-22	

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT		PROJECT NAME PROPOSED APPARMENT BUILDINGS LOCATION 908 HARTFORD TURNPIKE, WATERFORD, CT					
		AUGER	CASING	SAMPLER	CORE BAR.	AGGRECOST	OFFSET	SURFACE ELEV.		HOLE NO. B-23	
TYPE		HSA		SS			LINE & STA.	GROUND WATER OBSERVATIONS		START DATE	3/3/21
SIZE I.D.		3.75"		1.375"			N. COORDINATE	AT 4.5 FT. AFTER 0 HOURS			
HAMMER WT.				140lbs			E. COORDINATE	AT FT. AFTER HOURS		FINISH DATE 3/3/21	
HAMMER FALL				30"							
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS						ELEV.
	NO.	BLOWS/6"	DEPTH								
0	1	1-2-45-8	0.0'-2.0'		TOPSOIL, TRACE ROOTS 0.50						
					BR.FINE-MED.SAND AND SILT, TRACE GRAVEL & COBBLES 1.5						
	2	3-5-4-3	2.0'-4.0'		BR.FINE-MED.SAND AND SILT						
5	3	8-60	4.0'-5.0'		WEATHERED/DECOMPOSED ROCK 4.5						
10											
	4	60	12.0'-12.0'		BOTTOM OF BORING @ 12.0' (AUGER REFUSAL) 12.0						
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: T. CZMYR INSPECTOR:				
							SHEET 1 OF 1		HOLE NO. B-23		

APPENDIX 2

SCHEMATIC OF STONE WEDGE AND UNDER DRAIN AT CUT SLOPES



SHEET NO. 1

1

SCALE:

NONE

DATE PREPARED:

JUNE, 2020

REVISION DATE:

NONE

UNDERDRAIN & STONE WEDGE AT EARTH CUT SLOPES

WELTI GEOTECHNICAL, P.C.
227 WILLIAMS STREET, P.O. BOX 397
GLASTONBURY, CONNECTICUT 06033